

[Airbus Helicopters, S.A.S. v. Bell Helicopter Textron Canada Ltée, \[2017\] F.C.J. No. 234](#)

Federal Court Judgments

Federal Court

Ottawa, Ontario

L. Martineau J.

Heard: May 30, 31, June 1-3, 6-10, 2016.

Confidential Judgment and Reasons: February 10, 2017.

Amended Confidential Judgment and Reasons: March 2, 2017.

Correction: May 18, 2017.

Docket: T-737-08

[2017] F.C.J. No. 234 | [\[2017\] A.C.F. no 234](#) | [2017 FC 170](#) | [144 C.P.R. \(4th\) 281](#) | [276 A.C.W.S. \(3d\) 915](#) | [2017 CarswellNat 583](#)

Between Airbus Helicopters, S.A.S., Plaintiff/Defendant by Counterclaim, and Bell Helicopter Textron Canada Limitée, Defendant/Plaintiff by Counterclaim

(461 paras.)

Case Summary

Intellectual property law (Patents) — Patents — Infringement — Remedies — Damages — Compensatory — Punitive or exemplary — Royalties — Determination of the quantum of damages to be awarded to the plaintiff Airbus Helicopters — Airbus and the defendant Bell Helicopter Textron were involved in the civilian and para-public helicopter market — Bell infringed one claim of Airbus' 787 patent, which related to a helicopter equipped with a skid-type landing gear designated as the Moustache landing gear — Bell's infringement helped to restore its position as an important manufacturer in the market of civilian helicopters — Bell's conduct was highly reprehensible — Airbus was awarded \$500,000 in compensatory damages and \$1,000,000 in punitive damages.

Determination of the quantum of damages to be awarded to the plaintiff Airbus Helicopters as a result of the defendant Bell Helicopter Textron Canada's patent infringement. Airbus was a major player in the civilian and para-public helicopter market. The defendant Bell was also involved in that market. The 787 patent, owned by Airbus, related to a helicopter equipped with a skid-type landing gear. The disclosed invention was designated in English as the Moustache landing gear. The patent was comprised of 16 claims, the first of which was the sole independent claim. Bell began development of the Bell 429 helicopter in 2004. It was equipped with Legacy Landing Gear. While it was known to Bell that the Legacy gear closely resembled the Moustache gear, Bell decided to continue with the Legacy gear. Airbus claimed infringement of the patent by two distinct models of landing gear associated with the Bell 429 helicopter: the Legacy gear and Production gear. Airbus' action in infringement was allowed in part. The Court declared that claim 15 of the 787 patent was valid and enforceable, but the remaining claims were invalid. The Court further found that Bell had infringed claim 15 of the patent by using the Legacy gear. However, the Court found that not all of the essential elements were present in the Production gear. The Court found that Airbus was entitled to punitive damages as a result of the infringement and Bell's deliberate and outrageous conduct. Airbus was seeking a lump sum payment awarded in the guise of a reasonable royalty. Airbus took the position that the quantum of compensatory damages should be at least

\$2,000,000. Bell submitted that running royalties would be more appropriate than a lump sum. Bell further submitted that a punitive damages award in the amount of \$100,000 or \$250,000 would be in line with the jurisprudence and the approach set out by the Supreme Court in *Whiten c Pilot Insurance Co.*

HELD: Airbus was awarded \$1,500,000 in damages, comprised of \$500,000 in compensatory damages and \$1,000,000 in punitive damages, plus pre-judgment and post-judgment interest.

The launch of the Bell 429 helped to restore Bell's position as an important manufacturer in the market of civilian helicopters. A license would hypothetically have yielded important functional and competitive advantages to Bell in 2005, such as reducing weight and avoiding ground resonance. There would have been no or very limited advantages accruing to Airbus from a hypothetical license. Having the stronger economic power, Airbus would have only accepted a lump sum royalty in the event of hypothetical negotiations. Bell's infringing use of the Legacy gear allowed it to rapidly develop the Bell 429 at an efficient cost. In the context of hypothetical negotiations taking place on the eve of the first infringement, the parties would have agreed upon a license for the payment of a lump sum of \$500,000 in compensatory damages. Bell's conduct was highly reprehensible and went against the core and the purpose of patent law. The additional sum of \$1,000,000 in punitive damages was rationally proportionate to Bell's blameworthiness, to Airbus' vulnerability, to the harm directed at Airbus, to the need for deterrence, and to the advantage wrongfully gained by Bell.

Statutes, Regulations and Rules Cited:

35 USC s. 287(a),

Bank Act, SC 1991, c 46, Schedule I,

Canada Evidence Act, RSC 1985, c C-5, s. 7

Civil code of QuÉbec, C.C.Q.-1991, s. 2846, s. 2849

Federal Courts Act, RSC 1985, c F-7, s. 36(4)

Federal Courts Rules, SOR/98-106, Rule 52.4(1), Rule 107, Rule 276, Rule 400(1), Rule 400(3), Rules 419-422

Interest Act, RSC 1985, c F-15, s. 4

Patent Act, 35 USC s. 284,

Patent Act, RSC 1985, c P-4, s. 55(1)

Securities exchange Act of 1934, FORM 10-K, s. 13, s. 15(d)

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[Editor's note: Amended reasons were released by the Court on May 18, 2017. The changes were not indicated. This document contains the amended text.]

[Editor's note: Information replaced with [XXX]'s represents information that was removed by the Court.]

PUBLIC JUDGMENT AND REASONS

(Confidential Judgment and Reasons originally issued on
February 10, 2017 and Amended Confidential Judgment
and Reasons issued on March 2, 2017)

L. MARTINEAU J.

1 This Court is asked to determine the quantum of damages to be awarded to the plaintiff, Airbus Helicopters, S.A.S. [Airbus], as a result of the defendant, Bell Helicopter Textron Canada Limitée [Bell], having infringed the Canadian Patent No. 2,207,787 ['787 Patent] which relates to a helicopter equipped with a skid-type landing gear: , [2012 FC 113](#), [\[2012\] F.C.J. No 107](#) [2012 FC Judgment]; aff'd [2013 FCA 219](#), [\[2013\] F.C.J. No 1043](#) [2013 FCA Judgment].

2 For the reasons that follow, the defendant is ordered to pay to the plaintiff the sum of \$1,500,000 comprised of \$500,000 in compensatory damages and \$1,000,000 in punitive damages, plus pre-judgment and post-judgment interest, all with costs [Final Judgment].

I. THE '787 PATENT

3 The '787 Patent, entitled "Train d'atterrissage à patins pour hélicoptère" (skid-type landing gear for helicopter) was issued on December 31, 2002 to Eurocopter after an application filed on June 5, 1997, claiming priority based on French Patent application No. 96 07158, filed in France on June 10, 1996 [French Patent]. Although not referred to as such in the '787 Patent, the disclosed invention has been known colloquially, in French, as the "train à moustache" and it is designated in English as the "Moustache" landing gear [Moustache gear].

4 The '787 Patent is comprised of 16 claims. Claim 1 is the sole independent claim; claims 2 to 16 are dependent claims. For ease of reference, claims 1 to 16 are reproduced below [TRANSLATION]:

1. Helicopter landing gear, comprising two skids each having a longitudinal ground support surface and connected to a front cross piece and a rear cross piece which are themselves attached to the structure of the helicopter by connecting devices, the rear cross piece being attached by the ends of its descending branches to the rear part of said longitudinal support surfaces, characterized in that each of said skids has at the front an inclined transition zone with double curvature orienting itself transversely in relation to said longitudinal ground support surfaces, above the plane of the latter, the two transition zones together constituting, in this way, an integrated front cross piece, offset in relation to the front delimitation of the plane of contact of the longitudinal support surfaces of the skids on the ground.
2. Landing gear according to claim 1, characterized in that the assembly of skids and cross pieces is made of aluminium tubes.

3. Landing gear according to claim 2, wherein the aluminium of said tubes is characterized by a limit equal to approximately 75% of the fracture strength, and by a relative elongation at fracture at least equal to 12%.
4. Landing gear according to claim 2 or 3, characterized in that the wall thickness of the tubes making up said front and rear cross pieces is degressive between the central part of the cross piece and its junction with the corresponding skid.
5. Landing gear according to any of claims 1 to 4, characterized in that the ends of the descending branches of the rear cross piece are attached to said longitudinal support surfaces of the skids by means of aluminium couplings.
6. Landing gear according to any claims 1 to 5, characterized in that the said front cross piece consists of two half-branches interconnected towards the middle of said front cross piece by a removable junction means and establishing continuity of said front cross piece in bending.
7. Landing gear according to any of claims 1 to 5, characterized in that said front cross piece consists of a single branch whose ends are each connected by a removable junction means to the front part of the corresponding skid, said junction means being arranged between the two curves of the transition zone in question.
8. Landing gear according to claim 6 or 7, characterized in that said junction means consist of a screwed coupling system made of aluminium, or of an attachment collar.
9. Landing gear according to any claims 1 to 8, characterized in that said connecting devices between said front and rear cross pieces and the structure of the helicopter are of the type with controlled friction in rotation, comprising for this purpose two half-collars or similar devices surrounding the tube of the cross piece, with the interposition of a bearing made of elastic metal of the elastomer type.
10. Landing gear according to any of claims 1 to 9, characterized in that it includes at least three devices for connection to the structure of the helicopter, one of them being attached centrally to one of said cross pieces and the other two being attached, while being mutually spaced on either side of the longitudinal axis of the gear, to the other cross piece.
11. Landing gear according to any of claims 1 to 9, characterized in that it includes four devices for connection to the structure of the helicopter, two of them being attached to one and two to the other of the cross pieces, and being mutually spaced on either side of the longitudinal axis of the gear.
12. Landing gear according to claim 11, characterized in that the front or rear cross piece had, between two sections of cross piece, a gap in its central part, and wherein said devices for connection to the structure of the helicopter are attached as articulations with elastic return to the ends of said sections.
13. Landing gear according to any of claims 1 to 12, characterized in that said rear cross piece consists, for its front part, of a bent tube having an aerodynamic profile forming a leading edge, this tube being extended towards the rear by an added fairing forming a trailing edge.
14. Landing gear according to any claims 1 to 13, characterized in that steps are attached to said inclined transition zones at the front of the skids, below the access doors to the cabin, three steps starting from said transition zones and extending only towards the rear.
15. Landing gear according to any claims 1 to 14, characterized in that said integrated front cross piece is offset forwards in relation to the front delimitation of the plane of contact of the longitudinal support surfaces of the skids on the ground.
16. Landing gear according to any of claims 1 to 14, characterized in that said integrated front cross piece is offset backwards in relation to the front delimitation of the plane of contact of the longitudinal support surfaces of the skids on the ground.

5 The '787 Patent will expire on June 5, 2017. Airbus is the present owner of the '787 Patent, as well as of the French Patent, and the counterpart US Patent No. 5,860,621 [US Patent], all of which contain substantially identical disclosures and similar claim language.

II. CONFIDENTIALITY ORDER

6 A substantial part of the voluminous documentary evidence in the present matter is Confidential and/or Counsel's Eyes Only information. Upon the consent of the parties, on March 10, 2016, the Court issued an Amended Confidentiality Order which replaces the orders of this Court dated December 29, 2008 and November 9, 2009.

7 Pursuant to paragraph 4 of the Amended Confidentiality Order, the following information in the quantification of damages phase of the proceeding and at the continuation of the trial constitutes "Confidential Information":

- * Confidential information relating to particular specifications and particular manufacturing details for the manufacture of helicopters (including helicopter landing gear) of the parties;
- * Confidential information relating to regulatory approval of helicopters (including helicopter landing gear);
- * Confidential information relating to research and development with respect to the subject matter of the '787 Patent, including but not limited to notebooks, laboratory journals, process flow charts, testing data, analytical results, graphs, print-outs, experimental protocols, memoranda, minutes and notes; and
- * Confidential information relating to marketing, operational manufacturing, sales or financial information relating to Airbus Helicopters or Bell Helicopter, their parents and their affiliated companies.

8 Upon considering that the present Judgment may contain information that is "Confidential Information" and/or "Counsel's Eyes Only Information" under the terms of the Amended Confidentiality Order, prior to the issuance of the Final Judgment, the Court has sought the parties' input with respect to the proposed modalities of a Direction regarding the confidentiality character of the Final Judgment. Upon considering the parties' representations, the Court has directed that the Final Judgment be treated as Confidential Information, which may only be disclosed to the persons, firms, and individuals mentioned in paragraph 16 of the Amended Confidentiality Order. Moreover, a public version of the Final Judgment shall be issued in the delay mentioned in the Direction once the Court has received the parties' proposed redactions or amendments, as the case may be.

[8a] The Confidential Reasons for Judgment were released on February 10, 2017 [Reasons]. Upon release, the Court issued a Direction to the parties, inviting them to make submissions on proposed redactions or amendments that should be made before the Reasons are released publicly.

[8b] On February 24, 2017, the plaintiff informed the Court that it did not wish to redact any part of the Reasons.

[8c] On February 24, 2017, the defendant proposed a number of redactions (Schedule A to Bell Helicopter Textron Canada Limitée's Response to the Direction of the Honourable Mr. Justice Martineau dated February 10, 2017).

[8d] This Court is satisfied that the defendant's proposed redactions with respect to sensitive commercial information mentioned in paragraphs 69, 137, 161, 163, 195, 200, 206, 236, 265, 305, 306, 309, 316, 326, 332, 336, 337, 360 and 362 are reasonable and has accepted that all of them should be incorporated into the Public Reasons and Judgment. Indeed, the Court is satisfied that the risk for the defendant of the release of this sensitive commercial information outweighs any public interest in having access to that information. Moreover, even with the redactions, a reader is able to understand the nature of the evidence

and the reasoning applied to reach the relevant finding. The defendant has also brought to the attention of the Court two clerical errors in paragraphs 178 and 423 that have been corrected.

III. BACKGROUND

9 The background to the litigation is already public and to the judicial knowledge of the Court -- since this is a continuation of the trial that was conducted in 2011 and 2012 before the undersigned as the trial judge. The pertinent facts are extensively set out in the 464 paragraphs of the 2012 FC Judgment and need not be repeated here, except to simply highlight some salient aspects which are mentioned in the 2012 FC Judgment and/or in the Agreed Statement of Facts and Admissions of the parties dated January 14, 2011 [Agreed Statement of Facts].

10 Bell began development of the Bell 429 helicopter in the third calendar quarter of 2004. It was then equipped with the Original/Legacy Landing Gear [Legacy gear] (Agreed Statement of Facts at para 21). While it was known to Bell that the Legacy gear closely resembled the Moustache gear, when concerns were raised at the time, Mr. Malcolm Foster, who was responsible of the program, advised Bell's engineers to "carry on" (2012 FC Judgment at para 274). He was not called as a witness to either confirm or deny this statement. Bell simply decided to continue with the Legacy gear.

11 The Legacy gear and its components are faithfully represented for the purpose of this litigation in exhibits JB-216/Confidential and JB-271/Confidential (Agreement Statement of Facts at para 22). An isometric view of the Legacy gear, which is made of aluminium, is reproduced below:

12 The Legacy gear was publicly displayed for the first time at the Seoul Air Show in Korea in October 2005 (Agreed Statement of Facts at para 33, item 16).

13 Twenty-one Legacy gears were manufactured by Aeronautical Accessories Inc., a related Bell company, for and on the instructions of Bell (Agreed Statement of Facts at para 23). Moreover, the evidence on record confirms that Bell used the infringing gears during the certification process of the Bell 429 which began, in earnest, in early 2006. Drop tests were conducted in 2006 and 2007 with the infringing gears. Indeed, the Bell 429, equipped with the Legacy gear, achieved its first flight on February 27, 2007 at Bell's facility in Mirabel (2012 FC Judgment at para 22).

14 In the summer of 2008, the defendant's engineer worked on the design of a modified landing gear, which became to be known as the Production gear. In early 2009, the Production gear was fully developed and the defendant asked that the competent aeronautical authorities to certify the Bell 429 with the Production gear.

15 The Production gear and its components are faithfully represented for the purpose of this litigation in exhibit JB-243/Confidential and in drawings found in JB-405/Confidential to JB-477/Confidential and JB-485/Confidential (Agreed Statement of Facts at para 28). An isometric view of the Production gear, which is also made of aluminium alloy, is reproduced below:

16 At the HELI EXPO, the Production gear was publicly shown in Anaheim, California in February 2009 (Agreed Statement of Facts at para 33, item 1). Certification of the Bell 429 with the Production gear was obtained from Transport Canada on June 20, 2009, from the FAA on June 30, 2009, and from EASA on September 23, 2009 (2012 FC Judgment at para 184).

17 On January 16, 2014, the defendant destroyed twenty out of the twenty-one Legacy gears in its possession and which had been quarantined sometime after the institution of these proceedings.

IV. PATENT LITIGATION

18 In Canada, the plaintiff has claimed infringement of the '787 Patent by two distinct models of landing gear associated with the Bell 429 helicopter: the Legacy gear and the Production gear. Similar allegations of

infringement have been made by the plaintiff in France and in the United States with respect to the French and US Patents.

A. Canada

19 The plaintiff did not send a cease and desist letter to the defendant prior to instituting the present action in May 2008 (Agreed Statement of Facts at para 32).

20 In its original statement of claim, the plaintiff sought a declaration that the '787 Patent was valid and infringed by the defendant's use of the Legacy gear. While not challenging that the essential elements of claims 1, 2, 3, 4, 5, 7, 9, 10 and 15 were present in the Legacy gear, the defendant denied infringement on the basis that it was practicing prior art (Gillette defence) and that it had used the Legacy gear for the purposes of obtaining regulatory approval (experimentation exception). In addition, the defendant sought in its counterclaim to have claims 1 to 16 of the '787 Patent be declared invalid.

21 In June 2009, the plaintiff amended its statement of claim to include the Production gear, alleging that both gears were functionally equivalent and incorporated the essential elements described in claims 1, 2, 3, 4, 5, 7, 9, 10 and 15. With respect to the Production gear, while denying any functional equivalence, the defendant submitted that the changes to the original gear (saddle joint and a small protruding ski in the front of the gear) sufficed to dispose of the allegations of infringement.

22 On October 2, 2009, the Court ordered that the quantification of damages suffered by the plaintiff (including punitive damages) and/or of profits made by the defendant be bifurcated. Following a six week trial conducted before the undersigned judge in January and February 2011, confidential reasons on infringement and validity were communicated to the parties on July 12, 2011. An interim stay of proceeding was concurrently ordered to allow the parties to have discussions of settlement, but to no avail. A supplementary hearing was held in January 2012, with respect to remedies.

23 On January 30, 2012, the Court rendered its final and public judgment with respect to the issues of validity, infringement and proper remedies.

24 The action in infringement and counterclaim in invalidity were allowed in part:

- (a) The Court declared that claim 15 of the '787 Patent was valid and enforceable. However, the Court declared that claims 1 to 14 and 16 of the '787 Patent were invalid and unenforceable (2012 FC Judgment at paras 392-393);
- (b) The Court found that the defendant had infringed claim 15 of the '787 Patent by using the Legacy gear (2012 FC Judgment at para 394). The Court dismissed the Gillette defence and also found that Bell could not invoke the experimentation exception either (2012 FC Judgment at paras 268 and 383);
- (c) The Court found that the evidence conclusively established that, since 2005, Bell had plans to manufacture and incorporate the Legacy gear in its Bell 429 model, as soon as it could obtain certification, and that Bell had actively promoted the sales of the Bell 429 equipped with the Legacy gear (2012 FC Judgment at para 434);
- (d) The Court dismissed the plaintiff's claim that Bell had infringed the '787 Patent by using and promoting the Production gear incorporated since 2009 the Bell 429 helicopters sold worldwide (2012 FC Judgment at para 388);
- (e) The Court found that not all of the essential elements of claim 1 were present in the Production gear, as it did not feature the "double curvature" nor the "integrated front cross piece" (2012 FC Judgment at paras 258, 259 and 388);

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- (f) The Court enjoined the defendant from manufacturing, using, or selling the Legacy gear or any similar landing gear until the '787 Patent expires, and ordered the destruction of the twenty-one quarantined Legacy gears (except one unit for the purposes of conservation of the evidence) (2012 FC Judgment at paras 403 and 405);
- (g) Considering evidentiary difficulties and the fact that none of the infringing Legacy gears were ever incorporated in a helicopter sold by the defendant, the Court did not allow the plaintiff to elect between an award of damages or an account of profits (2012 FC Judgment at paras 412 to 416);
- (h) As a result of its infringement of claim 15 of the '787 Patent, the Court declared that the plaintiff was entitled to all damages, including punitive damages, the quantum of which was to be determined at a later hearing, after exhaustion of all appeals (2012 FC Judgment at paras 416 and 456).

25 The parties appealed the January 30, 2012 judgment. Bell appealed principally on the grounds that claim 15 of the '787 Patent was invalid, that its Legacy gear did not infringe the '787 Patent, and that, in any event, the finding that punitive damages could be awarded was inappropriate. Eurocopter cross-appealed principally on the grounds that all the claims of the '787 Patent were valid, and that the Production gear infringed those claims.

26 Subsequent to the 2012 FC Judgment, this Court issued a distinct judgment on the issue of costs upon which the defendant was ordered to pay 50% of the plaintiff's costs, calculated at the upper end of column IV of Tariff B, with respect to reasonable fees and expenses for one senior counsel, two junior counsels, expert witnesses, one in-house counsel, one technical representative, and other taxable pre-trial, trial and post-trial costs and disbursements related to the litigation leading to the Patent Infringement Judgment (*Eurocopter v Bell Helicopter Textron Canada Limitée*, [2012 FC 842](#), [\[2012\] F.C.J. No 1055](#) [Costs Judgment]). Although the plaintiff had been overall the most successful party in the Patent Infringement Judgment, and was therefore entitled to costs, the defendant was partially successful in defending its Production gear. Bell appealed the Costs Judgments and submitted that each party should bear its own costs, alleging that the success was divided.

27 Both the appeal by Bell and the cross-appeal by Eurocopter with respect to the 2012 FC Judgment were dismissed on September 24, 2013 by the Federal Court of Appeal (2013 FCA Judgment). Notably, the Federal Court of Appeal held that there was no reason to overturn the Court's findings and ensuing decision with respect to Eurocopter's right to damages, including punitive damages (2013 FCA Judgment at paras 192-193).

28 In a concurrent judgment issued the same day, the Federal Court of Appeal confirmed the Costs Judgment, dismissing Bell's appeal (*Bell Helicopter Textron Canada Limitée v Eurocopter, société par actions simplifiée*, [2013 FCA 220](#), [\[2013\] F.C.J. No 1044](#) [FCA Costs Judgment]).

29 In Canada, there were no further appeals on the issues of validity, infringement, and proper remedies, as a result of the infringement of the '787 Patent (as well as costs).

B. United States

30 In May 2010, while the Canadian proceeding was still ongoing, Bell Helicopters Textron Inc. [BHTI] commenced an action against Eurocopter seeking a declaratory judgment that the US Patent was invalid and not infringed. In October 2010, Eurocopter made a counterclaim alleging infringement. The parties agreed that the Legacy gear infringed claim 1 of the US Patent, but fiercely disputed whether the Production gear infringed the US Patent and also whether infringement warranted damages or injunctive relief (exhibit D-117).

31 On August 15, 2014, the United States District Court for the District of Columbia [US Court] ruled that the Production gear "does not literally infringe and does not infringe [US Patent] under the doctrine of equivalents as a matter of law", noting in this respect that the Production gear "does not contain equivalent structure to "a front" of claim 1 [of the US Patent]". With respect to the Legacy gear, the Court denied pre-suit damages to Eurocopter

under 35 USC s. 287(a) because it had failed to mark the patent number on the landing gears of its EC120 and EC130 helicopters and did not provide any actual notice of the alleged infringement until October 29, 2010.

32 However, the US Court denied BHTI's motion for summary judgment to deny an award of damages with respect to the Legacy gear: "Although nothing in the record indicates that Bell has attempted to sell the Bell 429 helicopter with the Original Gear since 2009, there is a factual dispute concerning Eurocopter's entitlement to damages with respect to the Original Gear [...] Bell's submission of the testing results based on the Original Gear to the Canadian aviation authorities had a direct impact on the marketability of the Bell 429, and although it occurred prior to the commencement of this lawsuit, Eurocopter has presented evidence suggesting its continued impact on the sale of the Bell 429 in the United States." Moreover, the US court denied BHTI's motion to deny Eurocopter's request for injunctive relief against the Legacy gear, noting in this respect that "Eurocopter has demonstrated the existence of genuine issue of material fact concerning Bell's infringing conduct in relation to the Original Gear and its continuing impact on the sale of the Bell 429".

33 Indeed, on January 22, 2015, the US Court found that a permanent injunction was warranted, as it was notably satisfied that "[d]uring the hearing, Airbus established that Bell's infringement caused Airbus to suffer irreparable harm in the form lost sales, lost customers, and reputational harm". Incidentally, the fact that BHTI had stopped infringing the US Patent did not constitute, in that case, sufficient reason for denying an injunction against future infringement.

34 This Court has been informed by the parties that there has been no appeal or further litigation in the United States with respect to the validity and infringement of the US Patent.

C. France

35 At the date of the Final Judgment, there is still on-going litigation in France with respect to the validity and infringement of the French Patent, as well as proper remedies and quantification of damages. Bell and BHTI [collectively Bell] are being sued in infringement of the French Patent following the seizure, on June 16, 2009, at the defendants' stand at the International Paris Air Show Le Bourget, of a Bell 429 helicopter equipped with the Production gear. Bell has made a counterclaim seeking to set aside the seizure and to invalidate claims 1, 2, 4, 5, 7, 8, 9, 10, 13, 14 and 15 of the French Patent (exhibit P-119).

36 On October 11, 2012, the Tribunal de grande instance de Paris dismissed both Eurocopter's action in infringement and Bell's counterclaim in invalidity of the French Patent, while affirming the legality of the seizure. Both Eurocopter and Bell appealed.

37 On March 20, 2015, the Cour d'appel de Paris rendered its judgment with respect to Airbus' appeal and Bell's cross-appeal:

- (a) The Cour d'appel de Paris confirmed the validity of the seizure of the Bell 429 helicopter seized on June 16, 2009, as well as the operations performed by the Bailiffs and the experts at the International Paris Air Show Le Bourget;
- (b) The Cour d'appel de Paris declared that claims 1 and 15 of the French Patent are valid and enforceable and that Bell has infringed claims 1, 2, 4, 5, 7, 8, 9, 10, 13 and 15 of the French Patent by the use of both the Legacy and the Production gears;
- (c) The Cour d'appel de Paris granted injunctive relief and also ordered the confiscation and destruction of all counterfeited gears;
- (d) The Cour d'appel de Paris also ordered that Bell pay to Airbus a provision of EUR 3 million to be imputed on the final award once the expert it has appointed has prepared an inventory of the Bell 429 helicopters equipped with the Production gear manufactured or offered for sale in France and has determined the profits made by Bell; and

- (e) The Cour d'appel de Paris specifically excluded from the scope of its judgment the damages claimed by Airbus with respect to twenty-one Legacy gears which are the object of the present claim in damages.

38 Bell's counsel has informed this Court that the defendants have or will ask the Cour de cassation to set aside the judgment rendered on March 20, 2015 by the Cour d'appel de Paris in favour of Airbus.

V. TRIAL ON DAMAGES

A. Procession of the file

39 On October 22, 2014, the plaintiff asked this Court to determine the quantum of compensatory and punitive damages as a result of having been found to have infringed the '787 Patent.

40 On November 21, 2014, the plaintiff served and filed with its statement of issues a request to have the matter heard expeditiously by the Court.

41 On December 10, 2014, the Court allowed the plaintiff (1) to change the former name of the plaintiff -- "Eurocopter (société par actions simplifiée)" -- by that of its new legal designation -- "Airbus Helicopters"; (2) to clarify in its statement of claim that the amount of \$25 million sought by the plaintiff as punitive damages was not dependent on the number of infringing gears used by the defendant; and (3) that the plaintiff was entitled to claim compensatory and punitive damages, as well as pre- and post-judgment interest. The defendant was also exempted from serving and filing a re-amended defence.

42 On December 17, 2014, the plaintiff filed and served its re-amended statement of claim.

43 On January 9, 2015, the defendant served and filed its responding statement of issues and notably submitted to the Court that there was no urgency to proceed to a continuation of the trial in Canada until the final outcome of the plaintiff's claim in damages in France.

44 On January 26, 2015, a case management conference was held with the trial judge to discuss a timetable of further steps leading to the continuation of the trial in this case. Counsel agreed on a timetable for the filing of the parties affidavits of documents; requests and responses to request to admit facts and/or documents; first round of discoveries; responses to undertakings, motions to adjudicate objections and refusals; further discoveries following the first round of oral examinations; and serving of experts reports.

45 On February 25, 2015, based on the parties' assurance that the whole process to have the matter ready for trial would be completed by January 29, 2016, pursuant to Rule 107 of the *Federal Courts Rules*, SOR/98-106 [Rules], it was ordered that the trial on the quantification of damages begin before this Court on May 30, 2016 for a duration of ten days.

46 On August 18, 2015, the scheduling order of January 28, 2015 was amended to extend the delays for the completion of discoveries and other steps in the proceeding. The plaintiff was now to serve its expert reports, if any, on or before February 12, 2016, and the defendant, on or before April 8, 2016. In effect, it turned out that these delays were not respected. The plaintiff served its expert report on March 4, 2016, while the defendant served its experts reports on April 29, 2016.

47 A trial management conference was held on May 9, 2016. At that time, the trial judge was informed by counsel that there was a disagreement with respect to the number of experts that the defendant was allowed to call at the trial without seeking leave of the Court.

B. Interlocutory order with respect to the number of experts

48 According to this Court's jurisprudence, no distinction should be drawn between the number of expert witnesses who may be called at trial and the number of expert reports that may be served in advance of trial (*Apotex v Sanofi-Aventis*, [2010 FC 1282](#), [\[2010\] F.C.J. No 1592](#) at para 31).

49 In the first phase of the proceeding, three qualified experts were actually called at trial on behalf of the plaintiff (January and February 2011): Mr. Andrew Logan, an expert in helicopter design and certification; Dr. Edward Roberts Wood, an expert in aeromechanics, dynamics and ground resonance with experience in the design and development of helicopters, and in testing helicopters for ground resonance; and Dr. François Malburet, an expert in acoustic, vibratory mechanic and mecatronic related to helicopters, with experience in ground resonance. A few weeks before the trial, the Court made an interlocutory order declaring that the proposed expert report of Mr. Murray Wilson, a retired patent examiner with a Bachelor's degree in mechanical engineering, was inadmissible and that the plaintiff was barred from presenting him as an expert witness at trial (*Eurocopter v Bell Helicopter Textron Canada Limitée*, 2012 FC 1328).

50 On the other hand, three qualified experts were actually called at trial on behalf of the defendant: Dr. Dewey Hodges, an expert in helicopter dynamics, including aeromechanical stability, structural dynamics, aeroelasticity and structural mechanics, including finite element methods; Dr. Farhan Gandhi, an expert in dynamics, aeroelasticity and aeromechanical stability of rotorcraft (helicopters); and Mr. Thomas J. Toner, an expert in helicopter design, development and certification, with experience in rotor systems, aircraft structure and landing gear. However, during the first phase of the trial, the defendant had in fact served four expert reports on the plaintiff, even though the fourth expert, Dr. Earl Dowell, was not called at trial.

51 On March 4, 2016, the plaintiff served the expert report of Mr. Bradley A. Heys, an expert in the fields of business, securities and intellectual property valuation, financial investigation, finance, and economics.

52 On April 29, 2016, the defendant served four expert reports: Mr. Steven Schwartz, an expert in economic matters, namely intellectual property valuation disputes; Mr. Stéphane Dupuis, an economist and an expert in economic issues related to the determination of transfer prices and the valuation of intellectual property; Mr. Michael O'Reilly, an expert in the characteristics of the helicopter industry and the repair, overhaul, valuing, buying, selling and leasing of new and used commercial helicopters; and Mr. Ronald T. Wojnar, a former Deputy Director at the Federal Aviation Administration and an expert in the aircraft certification process in the United States and Canada.

53 On May 6, 2016, invoking Rule 52.4(1) which provides that a party intending to call more than five expert witnesses in a proceeding shall seek leave of the Court in accordance with section 7 of the *Canada Evidence Act*, RSC 1985, c C-5, the plaintiff objected to the number of experts.

54 As directed by the Court on May 9, 2016, the defendant made a motion in writing to have the matter decided prior to the continuation of the trial.

55 On May 27, 2016, the Court allowed the defendant to rely upon any two of the four expert reports served on April 29, 2016 -- that is one expert above the five expert limit stipulated in section 7 of the *Canada Evidence Act*. What the Court stated in *Airbus Helicopters v Bell Helicopter Textron Canada Limitée*, [2016 FC 590](#) [2016 Interlocutory Order] at paragraphs 47 and 62-63 is particularly relevant:

[47] Moreover, it seems quite clear that the present bifurcated proceeding constitutes a single "trial" or "proceeding" for the purposes of Rule 52.4 and section 7 of the CEA. As submitted by Airbus, the construction of Rules 106 and 107 supports this interpretation. Rule 106 deals specifically with the *severance* of proceedings, in contradistinction with Rule 107, which permits bifurcation. If Rule 107 were also interpreted as leading to severance, it would be redundant. As Airbus points out, the French version of the Rules makes this difference more apparent, as Rule 107 refers to the separate determination of issues within "une instance", whereas Rule 106 refers to issues or causes of action continuing "en tant

qu'instances distinctes". The bifurcation in the present case was ordered under Rule 107(1), and therefore did not create a separate "proceeding" or "trial" for the purposes of section 7 of the CEA or Rule 52.4.

[...]

[62] I have considered Bell's and Airbus' respective submissions (including Bell's reply) in light of Rule 52.4(2), which states that in deciding whether to grant leave to a party to call more than five expert witnesses, the Court shall consider all relevant matters, including the following factors: (a) the nature of the litigation, its public significance and any need to clarify the law; (b) the number, complexity or technical nature of the issues in dispute; and (c) the likely expense involved in calling the expert witnesses in relation to the amount in dispute in the proceeding. I have found the additional factors identified by Airbus also relevant and I have kept in mind that the Court's exercise of its discretion, particularly on the eve of the upcoming trial, must "secure the just, most expeditious and least expensive determination of every proceeding on its merits" (Rule 3). This naturally includes the upcoming trial, which is to be exclusively focused on the quantum of compensatory and punitive damages.

[63] To be fair and equitable to the parties, the result achieved by the leave order must be proportionate, strike a proper balance and serve the best interests of justice in assuring the prompt conduct of the trial at an efficient cost, considering the number, complexity or technical nature of the issues in dispute. Accordingly, I have decided to allow Bell to rely upon the two expert reports and testimonies of Mr. O'Reilly and Mr. Schwartz (one expert above the five expert limit) and to refuse leave to have Mr. Dupuis and Mr. Wojnar testify in this proceeding as two additional experts on the issue of damages (unless Bell decides to substitute either of them for Mr. O'Reilly or Mr. Schwartz).

56 The trial in the present proceeding resumed in Montréal, Quebec on May 30, 2016 and ended on June 10, 2016.

57 On May 30, 2016, at the opening of the hearing, defendant's counsel announced that Dr. Schwartz and Mr. Dupuis would be called as expert witnesses (while Mr. O'Reilly would now testify as an ordinary witness). The reports of Mr. Wojnar and Mr. O'Reilly were returned by the Court to the defendant. On June 6, 2016, while the trial on damages was being conducted, the defendant served and filed a notice of appeal of the 2016 Interlocutory Order.

58 In the morning of June 9, 2016, Bell's counsel informed the Court that they had made the decision not to call Mr. Dupuis who had been present throughout most of the hearing. His report has been returned to the defendant by the Court.

59 No request for the adjournment of the trial on damages, or suspension of the Court's deliberations, pending Bell's appeal of the 2016 Interlocutory Order and/or the final resolution of the litigation in France, was made at any time by the defendant or the plaintiff.

60 On August 2, 2016, the Federal Court of Appeal (Justice Nair) ordered that Bell's appeal be stayed until ten days after the expiry of the deadline to appeal the present final judgment on the quantum of damages.

C. The evidence on record

61 On June 9, 2016, counsel for Airbus and Bell declared their evidence closed. On June 10, 2016, the parties made their final arguments on the quantification of damages, which were supplemented, in the following months, by additional written submissions on the particular issues identified by the Court in its Directions.

1. Admissions of fact

62 The number of admissions in this case is minimal, as the parties mainly relied on the Agreed Statement of Facts, provided in the first phase of trial in 2011 and 2012. It turns out that a number of contested issues which

could have resulted in admissions (without prejudice to the parties' right to debate at trial) following the discoveries at trial on damages remain unsettled. Such lack of cooperation makes it difficult to validate any calculations, made either by Airbus' expert or by Bell's expert. Also, this has obliged the Court to address these calculations in its reasons, thus contributing to their overall length.

2. Documentary evidence

63 Rule 276 provides that all exhibits adduced into evidence shall be marked and numbered. The exhibits contained in the joint book of documents produced in evidence during the first phase of the trial in 2011 and 2012, including the Agreed Statement of Facts, were all marked and numbered (JB-1 to JB-542 and C-1 respectively).

64 Despite the admissions made by the parties during the first phase of the trial with respect to the authenticity and/or the contents of the documents included in the 18 volume joint book of exhibits [JB] (2012 FC Judgment at para 16), there appears to have been some misunderstanding, at the appeal level, with respect to the scope of this documentary evidence (*Bell Helicopter Textron Canada Limitée v Eurocopter*, [2012 FCA 152](#), [\[2012\] F.C.J. No 662](#)). Be that as it may, Rule 275 provides that the Court may give directions at trial concerning the methods of proving a fact or of adducing evidence.

65 It has always been clear for the parties and the trial judge, that a document included in the joint book of exhibits [JB] and whose authenticity had been admitted, was part of the documentary evidence adduced at trial, and would be accordingly considered by the Court (subject to the weight to be attributed to same if there was no admission with respect to its content), unless the document in question had been removed from the joint book of exhibits at the close of the presentation of the parties' evidence at trial.

66 On June 1, 2016, upon the consent of the parties' counsels, the Court directed that:

- (a) All the exhibits contained in the joint book of documents [JB] in the first phase of the trial;
- (b) All the exhibits whose authenticity was admitted by the parties;
- (c) All exhibits produced during the hearing (first or second phase); and
- (d) All the exhibits included in the extracts of examinations on discovery which are part of the "read-ins" (first or second phase) -- with the exception of newspaper articles and the I-Beam Patents who do not constitute proof of their content and are subject to the usual rules of evidence with respect to their probative value --, are part of the evidence before the Court for the purpose of the present trial on the quantification of damages.

67 Although not specifically mentioned or discussed in these reasons, the Court has considered the totality of the documentary evidence adduced at trial. In the interest of clarity, exhibits JB-1 to JB-542 (excluding any documents removed from the joint book of exhibits -- first phase), exhibits P-1 to P-93 and exhibits D-1 to D-76 (first phase), and exhibits P-94 to P-133 and exhibits D-77 to D-124 (second phase), are part of the evidence considered by the Court in the second phase of the proceeding, inasmuch as this documentary evidence is relevant for the purpose of determining the quantum of damages. The authenticity and the content of the majority of these exhibits were admitted by the parties, but not for all. As the case may be, the weight to be given to the contents of the above-mentioned evidence will be discussed, when relevant, by the Court.

68 As previously described, the parties presented a large amount of documentary evidence in support of their claim (including read-ins of testimonial evidence). The evidence was either public, or "Confidential" and/or "Counsel's Eyes Only". Among the public evidence, the parties have submitted documentation dealing with the economic context as well as the nature of the market for civilian aircraft at the time of the first infringement (notably exhibits P-99, P-100, P-101, P-102, D-77, D-78 and D-79). The plaintiff has put some emphasis on exhibit P-103: a press review regarding the release of the Bell 429, in which Bell was portrayed as the first company to assemble the skid-type landing gear on an aircraft. The parties also submitted a large amount of exhibits relating to the development

of alleged non-infringing alternatives [NIAs] (notably exhibits D-105, D-106, D-110, D-113 and D-114). On that note, one of the most striking pieces of evidence is undoubtedly Minderhoud's article (JB-224-D). The defendant's expert, Dr. Schwartz also referred to documentary reports on the development of NIAs and regarding Letters of Intent [LOIs] with respect to the purchase of Bell 429 helicopters (notably exhibits D-121, D-122, D-123 and D-124). The parties also produced exhibits relating to the development of the Moustache gear and the EC120 and EC130 (notably exhibits JB-016-D, JB-018-D, D-81 and D-82). Finally, the parties submitted decisions rendered in France and in United States regarding the alleged infringement of the French and US Patents (exhibits P-119 and D-117).

69 With regard to Confidential/Counsel's Eyes Only evidence, the parties have, for the most part, produced readings of statements at trial or examinations for discovery of witnesses which occurred both in the first and second phase of the trial (exhibits P-95, P-96, P-109 to P-113, D-85, D-86, D-115, D-116, P-122, and P-133). The plaintiff also emphasizes exhibit P-123 when it objected to Ms. Cynthia Garneau's statement and the admission of the defendant's new IP policy. Indeed, exhibit P-123 was the transcript of Bell's undertaking to produce any new policy enforced by it after 2005. Another major part of the confidential evidence is the opinions and analysis made by the experts (P-115, 116, D-119 and D-120). Furthermore, the defendant produced evidence regarding the LOIs and the cancellation of production of a number of Bell 429 helicopters (exhibits D-94, D-95, D-96, D-97, D-99, D-100, D-101, D-102 and D-103). Finally, the plaintiff produced a few examples of licensing agreements that show their business line regarding technology or "core-technology" (exhibits P-104, P-105, P-106, P-107 and P-108). Nevertheless, the Court notices that two documents had a significant impact on the pleadings: the document written by Mr. Robert Gardner for the Weight Summit (exhibit JB-479-D) and the document regarding the three years program invested by Bell to shave [XXX] lbs off their aircraft (exhibit P-117).

3. Fact witnesses

70 The plaintiff called four fact witnesses: Mr. Pierre Prud'homme Lacroix (May 30, 2016); Mr. Alex Youngs (May 30 and May 31, 2016); Mr. Laurent Bron (May 31, 2016); and Mr. Frederic Lemos (May 31, 2016).

71 The defendant called seven witnesses: Ms. Cynthia Garneau (June 2, 2016); Mr. Charles Williams Evans (June 3, 2016); Mr. Michael Patrick O'Reilly (June 3, 2016); Ms. Frankie Jones (June 3, 2016); Mr. Donald L. Hatcher (June 3, 2016); Mr. Ramesh Thiagararan (June 6, 2016); and Mr. Robert Edward Gardner (June 6 and June 7, 2016).

72 Throughout the trial, the parties have made a number of objections to questions posed to and answers provided by witnesses, most of which have been decided on the bench. All objections that have been taken under reserve have been considered abandoned, unless counsels have made specific representations in their final pleadings. Objections, which were reasserted by counsel, will be addressed below inasmuch as there is still a need to do so.

73 It is well-established that ordinary witnesses should confine themselves to those facts that are within their personal knowledge, and should not offer opinion (*Saputo Groupe Boulangerie Inc v National Importers Inc*, [2005 FC 1460](#), [\[2005\] F.C.J. No 1898](#) at paras 52-53). The same principle applies to the two experts on damages, Mr. Heys and Dr. Schwartz, with respect to matters which are not economic, or within the scope of their particular expertise, such as the technical features and the market demand for the type of competitive technology covered by the '787 Patent. Although the overall context surrounding the existence of a NIA and the reasonable royalty is hypothetical, it remains that only a qualified expert can testify to the technical feasibility of any suggested NIA at the eve of the first infringement.

74 Unless otherwise indicated in the present reasons, the Court has found the parties' witnesses to be generally credible and it has become more a matter to assess the relative weight given to evidence pointing in different directions.

(a) Airbus

75 Mr. Prud'homme Lacroix had already testified in the first phase of the trial, given that he is one of the named

inventors of the Moustache gear described and claimed in the '787 Patent. He has also been an engineer at Airbus Helicopters since 1982 and actually began as an engineer at the design research office, working there until about 1987. Following that, he was transferred to the computing service, where he remained for twenty years, and was elevated the service where he acted for another seven years, from 2000 to 2007. Since 2007, he has been working as an expert in the area of structural calculations. Mr. Prud'homme Lacroix's testimony has been helpful inasmuch as it has to do with the efforts and amount of time required to develop the Moustache gear (see paras 312-314 and 319).

76 Mr. Youngs was testifying for the first time in this case. Mr. Youngs worked for Eurocopter as Director of Marketing in Grand Prairie, Texas, beginning in 2006, and as Director of Market Research in Fort Erie, Ontario, beginning in 2009. In 2012, he became Head of Market Research at Eurocopter's headquarters in Marignane, France, before moving to his current position with Vector in 2013. Mr. Youngs' testimony has been helpful inasmuch as it has to do with understanding the nature of the civilian helicopter market, the competition between the manufacturers, as well as the customers' demands (see paras 125, 126, 128, 149, 152, 153, 157, 158 and 162).

77 Mr. Bron has been legal counsel with Airbus Helicopters since 2005. His current title at Airbus is Legal Counsel, Intellectual Property Law and Trade-marks with Airbus Helicopters. He testified at trial regarding Airbus' business line of conduct, especially for licensing technology. Mr. Bron's testimony has been of assistance insofar as it has to do with the issue of granting a license to a competitor in the case of core or patented technology (see paras 145 and 149).

78 Mr. Lemos is the Head of Private and Business Aviation, Sales and Marketing, Europe at Airbus. He has worked at Airbus for 13 years. At trial, he testified about the civilian market and the upcoming of the Bell 429. Mr. Lemos' testimony has been valuable as it has to do with understanding the nature of the civilian helicopter market and the competition between the manufacturers (see paras 124 and 126).

79 In addition, the plaintiff introduced in its read-ins evidence, statements made in the course of discoveries by Mr. Evans and Mr. Gardner during both phases of the trial, as well as their answers to undertakings and documentation provided on behalf of Bell (exhibits P-109, P-110 to P-113, P-122, and P-123/Counsel's Eyes Only), and statements notably made by Mr. Youngs, Mr. Prud'homme Lacroix, and Mr. Certain during their discoveries or at trial, not to mention numerous statements of other witnesses heard during the first phase of the trial (exhibits P-95, P-96, and P-133/Counsel's Eyes Only).

(b) Bell

80 Ms. Garneau has been President of Bell since 2016. She began working for Bell in 2004. She has a BA in Special Education, and a Bachelor of Laws from the University of Sherbrooke. She has been a member of the Barreau du Québec since 1994. Prior to joining Bell in 2004, she worked at Bombardier Aerospace in Montreal as a contract manager. At trial, Ms. Garneau testified with respect to the impact on Bell of the 2012 FC Judgment and the steps taken to avoid recurrence of patent infringement. Ms. Garneau's testimony has been helpful inasmuch as it has to do with determining whether the punitive damages award is notably proportionate to the blameworthiness of the defendant's conduct and to the need for the deterrence (see paras 402- 405, 409 and 428).

81 The plaintiff's counsel objected to Ms. Garneau's testimony on the new IP Manual that was implemented by Bell after 2005. Rule 248 precludes this evidence from being introduced as the plaintiff sought to obtain all the new policy enforced by the defendant after 2005 during the discovery and its requests went unheeded. This disposition aims to avoid a party being prejudiced by late disclosure of documents or information and to prohibit "trial by ambush" (*Apotex Inc v Sanofi Aventis*, [2010 FC 481](#), [\[2010\] F.C.J. No 560](#) at para 6). Under the undertaking 35 taken during the examination of Mr. Gardner on June 11, 2009, Bell had to provide a copy of its current IP policy, and to indicate since when the policy has been put in place, and if the current IP policy was different than the one put in place originally in 2000 and 2003 at the time of the Modular Affordable Program Line [MAPL] program. At trial, the plaintiff specified that its objection was only related to Ms. Garneau's statement about the new measure

undertaken by Bell to enforce patent law within the company. The objection is well-founded, yet not determinative. According to Ms. Garneau's testimony, the 2005 Textron manual, which was in fact the policy in place at the time of the infringement, was not followed by Bell's employees.

82 Mr. Evans has been Director of Marketing of BHTI since October 2010. Before joining BHTI, Mr. Evans worked from 1998 to 2010 for Bombardier's Commercial Aircraft Division, selling the CRJ and Dash 8 lines of aircraft. Mr. Evans' testimony mainly focused on the civilian helicopter market and segments, the Bell 429, the customer's consideration in the purchase of a helicopter and the Bell technology license agreements. Mr. Evans' testimony has been of assistance insofar as it has to do with understanding the nature of the civilian helicopter market, the competition between the manufacturers, customer's demand and Bell's practices with respect to accepting LOIs (see paras 127, 155, 159, 163-165 and 334).

83 Mr. O'Reilly is Chairman of the Board of Eagle Copters, Eagle Copters Maintenance, and DART Aerospace. He is also the founding member of Eagle Copters South America and Eagle Copters Australasia Pty. Ltd. His testimony mainly focused on his personal experience as regards to the primary considerations of clients, as well as the usual time and cost to design and manufactures a landing gear (see paras 168 and 322). However, his testimony has to be assessed in light of Airbus' general objection that Mr. O'Reilly is not a qualified expert, and thus he cannot provide an opinion on market demand and, particularly on the debatable issue of whether Bell's helicopters, including the Bell 429, meet particular needs of customers.

84 Mr. Hatcher is Director of Finance for Bell commercial aircraft. He first joined Bell in 2003 as an analyst in subcontract evaluation. He left Bell in 2009 to take a job at L-3 Communications, before returning to Bell in 2011 as Manager of Commercial Finance. Mr. Hatcher held this position until 2014, when he was promoted to his current role. Mr. Hatcher spoke about the deposits received in relation to the LOIs for the Bell 429 and cash management (see paras 333 and 427).

85 As for Ms. Jones, she is Commercial Business Operations Manager for BHTI. Before joining BHTI in 2009, Ms. Jones worked at Textron Aviation -- a sister company to BHTI. Upon joining BHTI, Ms. Jones was manager of a group of contract managers who were responsible for all the purchase agreements worldwide for Bell Helicopter, including in relation to the Bell 429. In 2014, Ms. Jones transferred to the role of Commercial Business Manager. Ms. Jones testified about the LOIs for the Bell 429, as well as the cancellation, refunds/credits (see para 332).

86 Mr. Thiagarajan is Staff Engineer of BHTI. He worked on the landing gear for the Bell 407 helicopter, from 1994 until almost 1996, and later began work designing for the Bell 427. Thereafter, he was involved in the testing of the Bell 427 for certification until 1999. In 2008, Mr. Thiagarajan was promoted to Principal Engineer, a position he held until 2013. In 2013, he became Supervisor for Structural Analysis. He is currently Staff Engineer for BHTI, where he serves as a liaison between the United States H1 upgrade programme offices from the government side to the helicopter side. Mr. Thiagarajan mainly discussed the development of the I-Beam gear which the defendant submits constituted a valid NIA on the eve of first infringement (fall of 2005) (see paras 201-203 and 317-318).

87 The testimony of Mr. Thiagarajan is the object of a general objection by Airbus for lack of adherence to Rule 223 and because Mr. Thiagarajan is not a qualified expert. Indeed, the existence of the I-Beam Gear as a NIA was only communicated to Airbus for the first time on March 31, 2016, in document numbered B-0436 (exhibit P-117/Counsel's Eyes Only) -- a PowerPoint presentation dated December 20, 2012 entitled "M429 I-Beam Landing Gear -- Remaining Cost/Schedule for Project Completion (12/20/2012)" [the 2012 Presentation]. While the objection is well-founded, the Court nevertheless considered the totality of Mr. Thiagarajan's testimony, which is credible inasmuch as it relates to the chronology, the several configurations and features of the I-Beam. However, it is inadmissible and at best merely speculative with regards to the availability of the I-Beam gear as a NIA, either from a technical point of view (he is not a qualified expert) or from an economic perspective (he was not responsible for taking business decisions).

88 Mr. Gardner already testified in the first phase of the trial. Mr. Gardner is an engineer who first joined Bell in 1993 as a structural analyst. He left Bell in 2001 to work for another company in Montreal, before rejoining Bell in

2003. Mr. Gardner worked on the MAPL project in Fort Worth, Texas, before entering the Bell 429 project as a structural lead analyst. In 2009, Mr. Gardner became chief of structures in Mirabel at Bell. In 2012, he became manager of engineering services at Bell, and in late 2013 he was appointed chief engineer on the model 429. In August 2015, Mr. Gardner was appointed manager of analysis for airframe structure, airframe loads, rotors, and fatigue. Mr. Gardner mainly testified on the development of the Bell 429 including costs of alternatives to the Legacy gear and the certification process of the Bell 429 (see paras 137, 189, 190-195, 316, 362 and 363).

89 At trial, the plaintiff's counsel objected to a number of Mr. Gardner statements used by Dr. Schwartz in his report and reasserted or repeated at the trial by Mr. Gardner regarding the technical availability of valid NIA(s), and objected as well to gratuitous time estimates for the development of the Production gear. In particular, the plaintiff has objected to Mr. Gardner's opinion on the availability of the conventional gear as a NIA on the eve of first infringement of the '787 Patent (fall of 2005). Mr. Gardner has not been recognized as an expert (2012 FC Judgment at para 181). Consequently, he was not qualified to say whether the conventional technically constitutes a valid NIA. However, to the extent that Mr. Gardner simply testified that, as a matter of fact, the Conventional gear was considered by Bell's management in the development of the Bell 429, his testimony is admissible and has, in fact, been duly considered by the Court. Therefore, the Court has decided to admit most of Mr. Gardner's testimony, while giving no weight to any of his opinions and gratuitous statements that are not credible or supported by corroborative documentary evidence.

90 Although Mr. Certain did not testify at the second phase of the trial, the defendant referred, to statements made during the discoveries in 2009 and 2010 (exhibit D-115/Confidential). Mr. Certain has worked as a flight test engineer with Eurocopter and its predecessors since the 1970s, and mainly testified about his first flight with aircrafts equipped with the Moustache landing gear around 1996. Mr. Certain also discussed about the other prototypes developed by Airbus in the same period and their struggle with ground resonance problems. In its read-ins, the defendant highlighted the passages in which Mr. Certain testified about the "*maquette*" of the Moustache landing gear, which was allegedly prepared, for the first time, the evening prior its official presentation in 1995.

91 In addition, the defendant introduced in its read-ins evidence, statements made in the course of discoveries by Mr. Gardner, Mr. Evans, and Mr. Youngs, as well, as answers to undertakings and documentation provided on behalf of Bell and Airbus respectively (exhibits D-85, D-86/Confidential and D-116/Confidential and Counsel's Eyes Only).

4. Expert evidence

92 The plaintiff called Mr. Bradley A. Heys as its expert on damages (June 1 and June 2, 2016) [Airbus' expert]. In addition to his March 4, 2016 report (exhibit P-115/Counsel's Eyes Only), Mr. Heys filed, at the hearing, an addendum dated May 26, 2016 (exhibit P-116/Counsel's Eyes Only).

93 The defendant called Mr. Steven Schwartz as its expert on damages (June 7, June 8 and June 9, 2016) [Bell's expert]. Dr. Schwartz filed at the hearing his expert report dated April 29, 2016 (exhibit D-119/Counsel's Eyes Only) and his supplemental report dated May 27, 2016 (exhibit D-120/Counsel's Eyes Only).

(a) Qualifications

94 Mr. Heys is currently a Vice-President of NERA Economic Consulting and a member of the firm's intellectual property, securities, and finance practices. He is also a chartered financial analyst and a certified fraud examiner. He earned a Bachelor of commerce from the University of Guelph, an MA in economics from Queens University, and completed the course work for a PhD in economics at the University of Toronto. He also has a law degree from the University of Toronto. The parties have stipulated that Mr. Heys is a financial, economics, and damages expert with experience in the valuation of intellectual property and in the quantification of economic damages (notably lost profits damages and reasonable royalty damages) in disputes involving allegations of infringement of intellectual property rights (exhibit P-114).

95 Dr. Schwartz is currently an economist and Vice-President employed by Charles River Associates International [CRAI] based in Dallas, Texas. He completed an undergraduate degree in economics at Wesleyan University, and a Masters and PhD in economics at the University of Maryland. The parties have stipulated that he is an expert in economic matters related to intellectual property, antitrust and commercial damages disputes, including the determination of reasonable royalties resulting from hypothetical royalty negotiations in patent cases, including applicable bargaining theory, as well as the assessment of economic benefits resulting from patent infringement, with experience in aircraft/aerospace matters, including patent work related thereto (exhibit D-118).

96 The Court is satisfied that the two experts on damages possess specialized knowledge in economics beyond that of the ordinary person. However, the defendant has seriously questioned the weight to be given to Mr. Heys' opinions on the matter since he has never been involved in a case of hypothetical negotiation for a reasonable royalty for a patent infringement. On the contrary, Mr. Heys' expertise primarily relates to copyright and trademark (Bell's final argument at para 84). The Court understands that Mr. Heys' experience in the assessment of damages resulting from patent infringement is somehow not as strong as his colleague, Dr. Schwartz, who is in fact an expert on the matter (exhibit D-118). Nevertheless, the Court considered all of Mr. Heys' testimony and reports, given his general economic expertise in the quantification of damages in intellectual property disputes.

(b) Scope of the experts' respective opinions

97 Mr. Heys stated that his mandate was to provide his opinion as to the compensatory damages suffered by Airbus, in the first instance, and in the second instance, the economic benefit realized by Bell as the result of its infringement. In his March 2016 expert report (exhibit P-115/Counsel's Eyes Only), Mr. Heys explored a few components of the hypothetical negotiation such as the type of royalty that would have been granted, the existence of any NIA on the eve of the first infringement and finally the incremental profit that Bell would have made from the implementation of the Legacy gears compared to the cost of developing its own sledge gear. He stated that he was not asked to offer any opinion as to the appropriate quantum of punitive damages, because he understood that to be a matter for the Court to determine. Thus, his analysis of the economic benefit realized by Bell from its infringement of the patent is only provided to assist the Court with its own assessment of punitive damages. Mr. Heys also produced an addendum to his report, as he was asked to address information relating to (1) the development of the I-Beam gear; and (2) the deposits that Bell received from its prospective customers in connection with LOIs for the purchase of Bell 429 helicopters (exhibit P-116/Counsel's Eyes Only).

98 Dr. Schwartz was asked by Bell's counsel to undertake an "affirmative analysis" of the reasonable royalty likely to result from a hypothetical license negotiation between Bell and Airbus for a license granting Bell to exploit the '787 Patent. Dr. Schwartz considers that his assessment of Airbus' profits at risk and Bell's need for a license are overstated and not consistent with marketplace competition and the economics of the marketplace. Dr. Schwartz disagrees with Mr. Heys' conclusions about the royalty rate and the royalty structure. In connection with Airbus' claim for punitive damages, Dr. Schwartz also carried out an assessment of Bell's economic benefits flowing from the infringement of the '787 Patent: examining saved capital costs associated with the collection and use of customer deposits for the Bell 429, saved certification costs, incremental profits and costs savings, and improved customer relationships and reputational value.

(c) Agreed and disputed assumptions of fact

99 In writing their reports and making their calculations, the parties' experts assumed that the hypothetical negotiation for the right conferred by the plaintiff (licensor) to the defendant (licensee) to use the patented technology covered by the '787 Patent would have taken place in the fall of 2005, and that the hypothetical license would be a worldwide license (exhibit P-115 at para 80/Counsel's Eyes Only; exhibit D-119 at para 34/Counsel's Eyes Only). To support their respective calculations on the quantum of damages, each expert rely on a number of facts, some of which are admitted by the parties or already proven (such as the findings made by the Court in the 2012 FC Judgment), while others are severely disputed (such as the existence of a valid non-infringing alternative, development costs, incremental benefits, etc.).

100 A major difficulty encountered by the Court in this proceeding arises from the quality or reliability of the information upon which the experts base their respective analysis and conclusions. For example, Airbus' expert, Mr. Heys, underlines that he has not been provided with relevant information concerning: (1) costs incurred by Bell in the development of the infringing Legacy gear and Production gear; (2) Bell's forecast of sales of the Bell 429; (3) information or data regarding Bell's gross profit margins on the Bell 429 helicopter or its light helicopters more generally; and (4) information regarding actual or expected revenue and profits relating to aftermarket products, or maintenance, repair and overhaul services for Bell 429 helicopters or Bell's light helicopters more generally. On the other hand, Dr. Schwartz (as if he was the trier of facts) examined what he described as the "threshold issue of causation". For there to be a benefit in the categories of possible economic benefits to Bell listed above, there must be a causal link between the infringement and the benefit. These difficulties must be addressed in light of the respective evidentiary burden of the parties.

101 Inasmuch that the reports and testimonies at trial of the two experts are limited to economic issues or in their particular fields of experience, the Court has taken account of same in the calculation of the reasonable royalty owed to Airbus provided that the assumptions made by the experts could be supported by the evidence.

(d) Concerns with respect to the experts impartiality and their methodologies

102 It is not the role of the experts to make findings of fact which are the exclusive realm of the Court, nor to make legal arguments in support or against a party. As Justice Hughes stated in *Pfizer Canada Inc v Canada (Minister of Health)*, [2008 FC 11](#), [\[2008\] F.C.J. No 3](#) at para 47, regarding the construction of the disclosure of the patent, the Court may be informed by experts as to the meaning of words, terms and the science and background that are pertinent, but they must be careful not to let the experts supplant the role of the Court. Although it is established that expert witnesses have "an overriding duty to assist the Court impartially on matters relevant to his or her area of expertise", pursuant to Rule 52.2, Mr. Heys and Dr. Schwartz were at times (but not always), in the Court's view, no more than advocates for Airbus and Bell respectively, considering some of the extreme or unrealistic positions taken by the two experts.

103 The choice of methodologies chosen by each expert is also subject to criticism. They both have, more or less, taken a result driven approach in their respective reports and made argumentative statements in their respective reports. The Court is also at odds with the ambivalent or contradictory positions of experts who have suggested the best of two conflicting worlds in the apparent interest of the respective clients. Before the trial, Airbus' counsel objected to Dr. Schwartz's findings regarding the presence or the absence of evidence (exhibit D-87/Counsel's Eyes Only). In response, Bell's counsel objected to the same legal findings made by Mr. Heys in his report (exhibit D-88/Counsel's Eyes Only). While not going so far as to strike out those paragraphs, the Court will not give any probative value to any legal opinion made by the experts in their report or at trial.

104 With respect to the calculation of a reasonable royalty, the Court notably finds that Airbus' analysis of profits at risk based on expected sales of Bell 429 helicopters is biased and unrealistic, and seeks to achieve the best of both worlds. Mr. Heys notes that "Bell has realized significant economic benefits from its infringement of the '787 Patent, notwithstanding that it has not sold any B429 helicopters with an infringing landing gear", and which "[c]umulatively [...] could total in the tens of millions of dollars" in the form of saved capital costs associated with the collection and use of customer deposits for the Bell 429 received by Bell as a result of its promotion of the aircraft prior to the creation of the Production gear in early 2009; of saved certification costs and incremental profits and/or accelerated gross profits from not having to redo the optimisation and certification testing; cost savings arising from Bell not having to independently develop in the first place a non-infringing gear for the Bell 429; and improved customer relationships and reputational (or brand) value as a result of Bell's promotion of the Moustache landing gear as if it was Bell's own invention (exhibit P-115 at paras 140 to 155/Counsel's Eyes Only). In this respect, Mr. Heys argues that "[t]he economic benefits actually realized by Bell may be relevant to the Court's determination of punitive damages to the extent such benefits are not otherwise reflected in any calculation of compensatory damages" (exhibit P-115 at para 139/Counsel's Eyes Only). However, in the calculation of the compensatory damages which would take the form of a reasonable royalty lump sum payment that would be in the range of approximately \$1.7

million to \$11.8 million, Mr. Heys proposes a framework where none of the economic benefits mentioned above are accounted for -- except for the expected incremental costs of development without a license which represent \$250,000.

105 On the other hand, Bell's expert opinion is highly argumentative. Consider Dr. Schwartz's report, which contains a number of "affirmative conclusions" that are completely outside the realm of his expertise. The Court finds objectionable for Bell's expert to make "findings" in his report with respect to such highly disputed factual issues as transfer of technology, differences in practice of the invention, non-inclusive license, territorial limitations, terms of license, competitive technology, competition between licensor and licensee, demand for the product, risk, novelty of the invention, compensation for research and development, displacement of business and capacity to meet market demand (exhibit D-119 at para 47/Counsel's Eyes Only), and to further provide his conclusion on whether each of the factors is likely to have a "neutral", a "positive" or a "negative" effect on the royalty. This greatly impacts on the impartiality of the overall analysis of Bell's expert (exhibit D-119 at paras 83-84/Counsel's Eyes Only).

106 Moreover, how can Dr. Schwartz realistically propose to the Court a compensation model based on a running royalty payable during the lifetime of the patent based on projected sales of Bell 429 helicopters and computed on twenty-one helicopters incorporating the Legacy gear? In effect, there were no sales of Bell 429 helicopters with the Legacy gear, while the twenty-one infringing Legacy gears were used to obtain the certification of the Bell 429 and/or to obtain LOIs. Moreover, the saved development incremental costs were already realized and could have been easily calculated by Dr. Schwartz, using reliable information. There is simply no justification to propose a running royalty. The nominal amount of \$5,187 calculated by Dr. Schwartz is unrealistic and would never have been offered or considered by the parties in an hypothetical negotiation on the eve of first infringement of the '787 Patent even with the benefit of hindsight.

107 To sum up, it turns out that the relative weight to be given by the Court to the expert evidence on any proposed methodology for the calculation of damages is largely dependent on the particular conclusions that can be made by the Court on a number of disputed facts. While both parties agree that the appropriate framework for quantifying compensatory damages is that of the hypothetical negotiation of a royalty, this does not exclude the possibility that the Court resorts to another formula if this makes more sense in view of the particular facts of the case and the practical reality of the situation under assessment. Over the years, different specialists have observed a phenomenon known as "anchoring" developing among expert. This phenomenon can be described as when people make estimates, for instance, on fair market value, to anchor the decision-maker into their final estimates (Guthrie, Chris; Rachlinski, Jeffrey J.; and Wistrich, Andrew J., "Judging by Heuristic: Cognitive Illusions in Judicial Decision Making" (2002), Cornell Law Faculty Publications, Paper 862). Research on the so-called anchoring effect has demonstrated that a randomly chosen standard in a comparative judgement task may dramatically influence a subsequent absolute judgement on the same target. A good example would be in the civil context of damage awards. In personal injury verdicts, the requested compensation systematically influences the compensation awarded by the jury (Englich, Birte; Mussweiler, Thomas; Strack, Fritz, "Playing Dice With Criminal Sentences: The Influence of Irrelevant Anchors on Expert's Judicial Decision Making", (2006) 22:2 PSPB 188-200). As such, the Court is not challenging the calculations or bases upon which both parties' expert have relied in their reports. In the event, however, that both experts express such opposite propositions, the Court cannot rely on such irrelevant anchors and will instead stick with the objective, factual evidence of the case.

D. Final determination on the quantum of damages

108 The Court has considered the totality of the admissible evidence adduced at trial. In its final analysis, this Court determines that the plaintiff is entitled to a total damages award of \$1,500,000 plus pre-judgment and post-judgment interest at the rates already fixed in the 2012 FC Judgment, comprised of \$500,000 in compensatory damages and of \$1,000,000 in punitive damages. The particular findings of the Court with respect to causation and calculation of damages are set out in the two following sections.

VI. COMPENSATORY DAMAGES AWARD

A. Legal principles at play

109 Any act which interferes with the full enjoyment of the statutory monopoly granted to the patentee constitutes infringement. The defendant is only required to make good any loss which would not have been suffered by the plaintiff "but for" the defendant's actions (*Athey v Leonati*, [1996 CanLII 183](#) (SCC), [\[1996\] 3 SCR 458](#) at para 14). Causation is necessary (*Merck & Co Inc v Apotex Inc*, [2013 FC 751](#), [\[2013\] F.C.J. No 840](#) [*Lovastatin FC*], aff'd [2015 FCA 171](#), [\[2015\] F.C.J. No 900](#) at para 45 [*Lovastatin FCA*], leave to appeal refused [\[2015\] SCCA No 414](#)).

110 In deciding today that that amount of compensatory damages to be awarded to the plaintiff -- as a result of the defendant having been found to have infringed the '787 Patent -- should be \$500,000, it goes without saying that this exercise was very fact driven, as this Court had to find the right balance in light of the unique and very special circumstances of this case. Indeed, the purpose of Patent Law as a whole is to advance research and development, and to encourage broader economic activity (*Free World Trust v Électro Santé Inc*, [2000 SCC 66](#), [\[2000\] 2 SCR 1024](#) at para 42). Thus, under-compensation of an inventor discourages research and development, and the disclosure of useful inventions. Likewise, over-compensation of an inventor chills potential competition to the extent that a potential infringer is uncertain about the scope and validity of a patent (*Lovastatin FCA* at para 42).

111 As stated in the 2012 FC Judgment at paragraphs 407:

[407] The purpose of an award of damages is to restore the plaintiff to the position in which it would have been had the infringement never occurred. Every infringement is a separate wrong, and thus, each unit made infringes (in this case, each Legacy gear), but "[a] sense of proportion must, however be retained" ([David Vaver, *Intellectual Property Law*, 2nd ed (Toronto: Irwin Law Inc, 2011) (Vaver)], at page 632). The fact that Bell allegedly did not know its acts constituted infringement is irrelevant to its liability; damages for infringement track those for tort generally (Vaver, above, at pages 631-632). As stated by the Supreme Court of Canada in [*Monsanto Canada Inc v Schmeiser*, [\[2004\] 1 SCR 902](#) [*Schmeiser*]] at para 37, "[a]s a practical matter, inventors are normally deprived of the fruits of their invention and the full enjoyment of their monopoly when another person, without licence or permission, uses the invention to further a business interest", which was clearly the case in this instance.

[Emphasis added]

112 In principle, under section 55(1) of the *Patent Act*, RSC 1985, c P-4, the patentee is entitled to two alternative types of remedy: damages and an accounting of profits. In the case at bar, the Court has already determined that the plaintiff could not seek an accounting of profits (2012 FC Judgment at paras 410-416). When actual damages (e.g. lost profits) cannot be proved, the patent owner is entitled to a reasonable royalty (*Jay-Lor International Inc v Penta Farms Systems Ltd*, [2007 FC 358](#), [\[2007\] F.C.J. No 688](#) at para 123 [*Jay-Lor*]; *Lovastatin FC* at para 41).

113 The extent of infringement is not really in issue today, inasmuch as it is not challenged that twenty-one infringing Legacy gears were manufactured by a subsidiary company and used by the defendant for a variety of purposes (2012 FC Judgment at paras 176-177). The plaintiff has not attempted to quantify any lost sales of helicopters as a result of the infringement, although in Dr. Schwartz's alternative proposition of compensatory damages, the twenty-one infringing gears used by Bell are accounted for as lost sales. In the latter case, the market value of each landing gear would be \$25,000 and the manufacturer's profit margin would be 40%. This will be later discussed in these reasons (see paras 273-278). What is debated before the Court is whether the amount of compensatory damages claimed by Airbus -- not less than \$2,000,000 according to Airbus or not more than \$5,187 according to Bell -- reflects the amount of royalty the parties would agree to in a hypothetical negotiation.

114 The hypothetical negotiation in question is one that would have taken place on the eve of first infringement. For the purpose of the litigation, the Counsel and their experts have used as a reference date, October 18, 2005,

where the Legacy gear was publicly displayed for the first time at the Seoul Air Show in Korea, and although the Legacy gear may have been actually developed sometime before during winter 2015 (Agreed Statement of Facts, exhibit B-0105 at para 33, item 16 and referred by Airbus' expert in exhibit P-115 at para 19, footnote 6/Counsel's Eyes Only). Events that transpired after the date of first infringement are also relevant, insofar as the "parties are assumed to know all the facts" including all "information that has come available through [the] litigation and over time" (*Jay-Lor* at paras 126 and 151).

115 The actual amount of royalty the parties would have arrived at in such a hypothetical negotiation can be calculated in several different ways. There is no single methodology or methodologies. All depends on the particular circumstances of the case. In constructing this hypothetical world of events, the trier of fact can draw inferences from any admissible evidence (*Pfizer Canada Inc v Teva Canada Limited*, [2016 FCA 161](#), [\[2016\] F.C.J. No 579](#) at para 46 [*Teva Canada Limited FCA*]). In this respect, the Court is allowed to draw inferences from the evidence as to what would likely have happened "but for the breach" (*Cadbury Schweppes Inc v FBI Foods*, [\[1999\] 1 SCR 142](#) at page 186). The parties must be able to demonstrate to the Court that any inference made by their expert is grounded on reliable evidence.

116 The plaintiff submits that a lump sum payment should be awarded by the Court in guise of a reasonable royalty. This is what the plaintiff -- having the stronger negotiating power -- would have required in a hypothetical negotiation (because of the risks associated with a running royalty). With respect to Airbus' minimum willingness to accept" [MWA], the Court should determine what impact the granting of a license might have on Airbus' expected profits, as compared to not granting the license. Considering that Bell's "maximum willingness to pay" [MWP] would be between \$2 million and \$15.2 million, the plaintiff argues that the quantum of compensatory damages should be at least \$2 million (Final argument of the plaintiff/Counsel's Eyes Only, June 10, 2016 at paras 200-204 [Airbus' final argument]).

117 The defendant has somewhat refined its original position that "any hypothetical damages suffered by the infringement would be *de minimis* and are too remote to be claimed" (2012 FC Judgment at para 408). The defendant now agrees that the parties' expectations about the anticipated use of the patented invention at the date of the hypothetical negotiation can best be determined by looking at the "extent to which the infringer has made use of the invention; and any evidence probative of the value of that use" (*Lucent Technologies Inc v Gateway Inc*, 580 F 3d 1301 (Fed Cir 2009) at 1578 [*Lucent Technologies*]). However, the defendant submits that, on the eve of the first infringement, several NIAs existed. Dr. Schwartz has estimated that Bell's out-of-pocket costs for the switch to a non-infringing gear would be approximately CDN\$101,000, or roughly \$247 per helicopter upon which a running royalty can be calculated. The defendant submits that the MWP should be \$5,187 (21 x \$247) given that it has only used twenty-one Legacy gears (Final argument of the defendant/Counsel's Eyes Only, June 10, 2016 at paras 269-271 [Bell's final argument]).

B. Reconstructing the hypothetical negotiation taking place on the eve of first infringement: contextual factors

118 As a first factual question debated by the parties in this trial is whether, in this hypothetical negotiation, it is Eurocopter or Bell who would be in a stronger bargaining position. In this respect, the concepts of the "minimum willingness to accept" [MWA] and the "maximum willingness to pay" [MWP] contemplate factors which are adapted or suited to the particular facts and the competitive position of the parties engaging in a hypothetical negotiation to enter in a license agreement on the eve of first infringement, in light of any valid non-infringing alternative [NIA].

119 When construing the hypothetical negotiation taken place on the eve of first infringement, the Court has in the past considered the factors mentioned in *AlliedSignal Inc v Du Pont Canada Inc*, [\[1998\] F.C.J. No 190](#), [78 CPR \(3d\) 129](#) (FCTD) [*AlliedSignal*] including: (1) transfer of technology; (2) differences in the practice of the invention; (3) non-exclusive license; (4) territorial limitations; (5) term of the license; (6) competitive technology; (7) competition between the licensor and licensee; (8) demand for the product; (9) risk; (10) novelty of the invention; (11) compensation for research and development costs; (12) displacement of business; and (13) capacity to meet market demand (*AlliedSignal* at para 209).

120 The *AlliedSignal* factors are not very different from the fifteen factors listed in *Georgia-Pacific Corp v United States Plywood Corp*, 318 F Supp 116 (SDNY 1970) at page 1120; mod'd and aff'd 496 F 2d 295 (2d Cir 1971) [*Georgia-Pacific*]. The *AlliedSignal* factors are considered by the Court further below, albeit not necessarily in the same order. It has also appeared more appropriate to regroup some factors that have certain commonalities, while addressing the major themes of the evidence adduced at trial. The issue of a NIA or NIAs will be treated separately.

1. Nature of the market and competitive position between the parties

121 The parties have produced numerous documents providing details on the nature of the market, market shares and the competitive position of the parties and their respective products throughout the years (see notably exhibits P-99 to P-102 and exhibits D-77 to D-79). The Court has also considered other relevant evidence, including the defendant's discovery read-ins (exhibit D-116/Confidential and Counsel's Eyes Only).

122 The plaintiff, formerly Eurocopter, is the helicopter manufacturing division of Airbus Group and is a major player in the civilian and parapublic helicopter market. It is the largest in the industry in terms of revenue and turbine helicopter deliveries. Its head office is located at Marseille Provence Airport in Marignane, France, near Marseille. The main facilities are in Marignane and Germany, with additional production plants in Brazil, Australia, Spain, and the United States. The company was renamed Airbus Helicopters, in January 2014.

123 The defendant is incorporated under Canadian law, with its principal place of business in Mirabel, Quebec. Its parent company, BHTI, operates in Fort Worth, Texas; it is only owned by Textron Inc. headquartered in Providence, Rhode Island. The Bell segment encompasses the full spectrum of helicopter research and manufacturing in the civilian and parapublic helicopter market. It is one of the leading suppliers of military and commercial helicopters, tiltrotor aircraft, and related spare parts and related services in the world.

124 It is not challenged that both Airbus and Bell are direct competitors in the market for light twin-engine aircraft, and that this market can be further segmented according to the needs of the buyer -- for example the emergency medical services [EMS] -- as opposed to corporate or law enforcement needs. During the relevant period, the market for light twin helicopter was booming, especially with the US EMS Bubble (exhibit P-100). The Court accepts that, in 2003, Eurocopter (alias Airbus) was generally the leader in the civilian market with a market share of over 50% (in terms of helicopters sold and delivered). As explained by Mr. Lemos, the private and business aviation segment made up about 19% of the civilian market; the oil and gas portion of the civilian market was 8% in units; the commercial air transport portion was 47%; and the EMS portion was 13%, along with another 13% in public services.

125 The dominant character of Airbus in the civilian market is further corroborated by Mr. Youngs testimony. At the trial, he stated that, in 2000, the dominant manufacturer for the market of light twin helicopters was Eurocopter which had a market share of approximately 55% with its three products: the EC135, the AS355, and the BO 105. The second largest manufacturer in the light twin market at that time was AgustaWestland, with the Leonardo model AW109, which had a market share of approximately 7%. Mr. Youngs, also testified that by the mid-2000s, Airbus had a market share of approximately 67-68%, which then dropped to approximately 50% in 2012-2013, and now sits at about 45%. Conversely, Bell's market share dropped to approximately 15% in the mid-2000s, increased in 2005-2006 to 20%, and sits today at around 25-27%.

126 The Bell 429 did not compete directly with the EC120 or the EC130. The Bell 429 helicopter is a Part 27 aircraft and a light twin civil helicopter product which competes directly with the Airbus H 135, as well as with the Leonardo model AW109. By contrast, Part 29 helicopters are more of a transport class aircraft and have a higher level of safety rules and requirements. The Airbus H145 falls into this category. Nevertheless, in 2006, the Bell 429 was considered to be a major competitor, as it sat between the Airbus EC135 and EC145 models, as stated by Mr. Youngs (Transcript Volume 1 at page 178) and Mr. Lemos (Transcript Volume 2 at page 136).

127 While the defendant does not question the dominant position Eurocopter enjoyed in the 2000s in the civilian sector, it does not view itself as a company that needed in the 2000s to come up with an innovative model of light helicopter to maintain or capture new market shares in this sector. According to Mr. Evans, Bell is as an innovative company which had created in the past advanced military machines over the decades. Moreover, in the last five years, Bell has put a much stronger focus on innovation with some very good new products and upgrades to current products that are in the market today.

128 The evidence submitted by the plaintiff with respect to market shares and the relative competitive positions of Eurocopter and Bell prior to and after the arrival of the Bell 429 is convincing. When Mr. Youngs first started working at Airbus in 2006, the Bell 429 was considered to be a major competitor, as it sat between the Airbus EC135 and EC145 models. The Court finds that the Bell 429 was perceived by Airbus as a significant competitor for all types of missions, notably the EMS mission segment where light twin models constitute an attractive option. In this respect, the launch of the Bell 429 helped to restore Bell's position as an important manufacturer in the market of civilian helicopters.

2. Novelty of the invention and differences in the practice of the invention

129 As noted in the 2012 FC Judgment, the plaintiff owns some 850 patents that have generated almost 2500 titles worldwide (2012 FC Judgment at para 3). The '787 Patent is primarily addressed to manufacturers of helicopters. The disclosed invention is presented as a major innovation in the field of skid-type landing gears for light helicopters. The defendant was no longer challenging (though it did so in the first phase of this trial) the fact that the patented Moustache gear is a novel technology presenting different novel functional advantages for the manufacturer of light helicopters (such as reducing weight and avoiding ground resonance problems).

130 That being said, the defendant and its expert, Dr. Schwartz, assert that, from an economic point of view, the novelty character of the invention, and its purported utility from a manufacturer's point of view, do would not give any bargaining advantage to the plaintiff on the eve of the first infringement because there is no evidence that this would have helped Bell to sell more Bell 429 helicopters. Customer demands (which will be examined later in these reasons) are irrelevant when considering the novelty of the invention, the differences in the practice of the invention, and any transfer of technology concluded on the eve of first infringement of the '787 Patent. Both Bell and its expert are wrong in fact and make a number of inferences which are not grounded on the evidence.

131 In prior art, conventional landing gears had an orthogonal design having long, straight, usually circular tubes oriented longitudinally, ending with a short "ski type" protrusion at the front end. In such an orthogonal design, the front and rear cross pieces of the conventional landing gear are parallel and they are either perpendicular or substantially perpendicular to the ground skids. Typically, both cross pieces will be attached to the skids by way of a saddle (tee) attachment. The novel feature of the invention disclosed in the '787 Patent is that each of the two skids has, at the front, an inclined transition zone with double curvature orienting itself transversely in relation to said longitudinal ground support surface, above the plane of the latter. In this way, the two transition zones, together, constitute an integrated front cross piece, offset either forwards or backwards in relation to the front delimitation of the plane of contact of said longitudinal support surfaces of the skids on the ground (2012 FC Judgment at paras 209 to 212).

132 However, what makes the Moustache gear a competitive technology -- beyond its "sleek design" (exhibit JB-372/Counsel's Eyes Only and Confidential at page 6109) -- is that the '787 Patent contains an explicit promise to reduce drawbacks of prior art "significantly" is made in the specification of the '787 Patent, and more particularly: (a) elevated acceleration factors upon landing (load factors); (b) difficult frequency adaptation in relation to the phenomenon known as "ground resonance"; and (c) high landing gear weight (2012 FC Judgment at para 215). The Moustache gear is incorporated in the EC120 and EC130, two light helicopters (respectively 3781 lbs and 5351 lbs max. weight) manufactured by Eurocopter. The '787 Patent discloses explicit teachings which may readily be

understood by skilled person, together with minor differences or variations in the practice of the invention (2012 FC Judgment paras 326 to 332).

133 As noted in the 2012 FC Judgment, the Moustache gear attached to the EC120 and EC130 is an embodiment of the claimed invention in the '787 Patent. It has a sleigh type of shape and is similar to the landing gear shown in Figure 1 of the '787 Patent (2012 FC Judgment at para 155). From a commercial point of view, engineering advantages and cost reductions flowing from the elimination of the short ski type protrusion and saddle at the front were the main reasons why Eurocopter decided to incorporate a Moustache gear in the EC120 and EC130. The first sale of an EC120 helicopter with the Moustache gear was at the end of 1997 or early 1998 (2012 FC Judgment at para 165). This supports the Court's finding that the patented invention found a commercial market and that its innovative character conferred a competitive advantage to Eurocopter who, as the owner of the '787 Patent, was the exclusive user of the Moustache gear for the duration of the life of the '787 Patent.

134 In the early 2000s, Bell had two separate helicopter programs: the Bell 427i, and the Modular Affordable Program Line [MAPL] program. The 427i was the most recent helicopter in the line-up. Its predecessors were the Bell 407 and the Bell 206L4, among others. Mr. Guy Lambert, head of the 427i program, testified in the first phase that, in contrast, the MAPL program was brand new (2012 FC Judgment at para 169). It first began in September 2002 under the direction of Mr. Malcolm Foster. The idea was to create a completely new product line that would share the same components, thus reducing cost. Earlier helicopter models developed by Bell had a two-bladed rotor. In the late 1970s, Bell introduced a four-bladed rotor to its commercial fleet, with the model 412. In 2005, Bell publicly announced that it would soon introduce its newest aircraft and flagship, the Bell 429, which was the first real clean sheet design; it is a four-bladed rotor helicopter (2012 FC Judgment at para 167).

135 Elements of the Bell 427i program and the MAPL program were combined in September 2004 to form the Bell 429 helicopter. The Bell 429 helicopter is a light helicopter having a maximum gross weight of 7000 lbs and a redesigned cabin area with a flat floor, rear doors, and large side doors. The Bell 429 was announced as incorporating a number a new MAPL technologies (ranging in number from 9 to 11), and that one of these new technologies was the landing gear. In 2005, Bell's engineers had come up with the Legacy gear. Besides having a novel design compared to other landing gears previously used by Bell -- it had a sleigh type of shape -- the Legacy gear had been favoured over other models because of its lower weight and energy absorption qualities (ground resonance).

136 Mr. Peter Minderhoud was the landing gear expert at Bell and did the technical calculations and sizing of both the Legacy and Production gears (2012 FC Judgment at paras 169-171). In an article presented at the American Helicopter Society 64th Annual Forum in Montréal, April 29-May 1, 2008, entitled "Development of Bell Helicopter's Model 429 Sleigh Type Skid Landing Gear", written by Mr. Peter Minderhoud [the Minderhoud article] (exhibit JB-224-D), Bell praised the improved dynamic behaviour, energy absorption qualities, and lower weight of the chosen "sleigh type skid landing gear" over "the conventional type" which "has been designed for the first time by Bell Helicopter Textron for use on its new Model 429 civil helicopter" (2012 FC Judgment at para 272).

137 In 2009, Mr. Gardner testified that the Bell 429 was the first new airframe structurally designed by Bell as a "clean sheet" since the model 222 in 1970. Moreover, during his examination in chief, Mr. Gardner explained that the Legacy gear was preferred to the other available alternatives because of its wire-strike protection, its aesthetic, and finally its weight (2012 FC Judgment at para 167). This affirmation is in line with the findings that the defendant invested [XXX] over a three year program to save between [XXX] lbs on the aircraft (exhibit P-117/Counsel's Eyes only at page 15).

138 Considering all of the above, the Court is satisfied that the plaintiff has proven on a balance of probabilities that a license would hypothetically have yielded important functional and competitive advantages to Bell in 2005, such as reducing weight and avoiding ground resonance, while there were no or very limited advantages accruing to Airbus from a hypothetical license.

139 One of the important features in the determination of the hypothetical negotiation is the need for transfer

technology, as listed among the *AlliedSignal* factors. In *Jay-Lor* at para 160, the Court finds that the consideration of the transfer of technology would usually tend to increase the royalty rate. Although some could argue that the obviousness of the Patent should be enough, some economic literature suggests that, in order for effective technology transfer, which could lead to commercialization, the simple reading of the patent is not sufficient. Such transfer generally must include not only the information publicly available in the patent, but also the transfer of know-how, complementary assets and other peripheral disclosure (Mark A. Lemley and Robin Feldman, "Patent Licensing, Technology Transfer, & Innovation" (2016) 484 *Stanford Law and Economics Olin* at page 5).

140 Indeed, as Bell had never designed a helicopter with an articulated rotor and a sleigh type landing gear, they had earlier studied the performance of an EC120. They leased and operated an EC120 helicopter from approximately March to June 2003, during which time Bell performed tests on the EC120 helicopter, including a handshake test (Agreed Statement of Facts at paras 17-18). Moreover, Bell employees received training on an EC120 helicopter in March 2003. In this case, the Court made reference, in its 2012 public reasons to a Bell internal document from March 2003 (exhibit JB-478/Confidential) suggesting that the tests conducted on the EC120 in Texas were to acquire better knowledge in order "to reduce the risk in the MAPL program regarding the ground resonance issues". Indeed, "[t]he data obtained during the ground shake test could be used to design better landing gears for future Bell products" (2012 FC Judgment at para 172). In this situation, the need for the transfer of technology regarding the '787 Patent supports a higher royalty.

141 Novelty and utility of a patented invention are also important factors to consider in the hypothetical negotiation taking place on the eve of the first infringement. The Court finds, in this case, that a license to manufacture and use the Legacy gear would notably have helped Bell overcome technical difficulties with regards to ground resonance (exhibit P-95 at tabs 10, 65, and 131/Counsel's Eyes Only and JB-224-D), as well as allowing a better wire-strike protection (exhibit P-95 at tabs 119 and 124/Counsel's Eyes Only). The findings already made by the Court in the first phase of the trial clearly support the position reasserted today by the plaintiff, which have not been seriously contested by the defendant (2012 FC Judgment at para 172).

142 Finally and most importantly, compared to the previous technology known in prior art (Conventional gear), a license to use the patented invention would have allowed the defendant to significantly reduce the weight of the landing gear of the Bell 429 -- a key consideration for any helicopter manufacturer (exhibit P-95 at tabs 127 and 49/Counsel's Eyes Only). This is a very important competitive advantage, since weight allows manufacturers to compete between themselves and may sometimes make the difference in view of regulatory restrictions. At trial, the parties called different witnesses to address the issue of weight, namely its importance for the manufacturer but also its importance for the consumer. Whether the Legacy gear was actually the basis of the consumer demand for the new Bell 429 (Bell's final argument at para 112) is beside the point. Customers will only buy a landing gear as a separate product from the rest of the helicopter, where there is an operational need to replace an existing landing gear (e.g. switching a skid type of landing gear to a wheel landing gear). From a hypothetical negotiation standpoint, consumer demand can be an incidental consideration, not a determinative one. It remains that, in reality, the Bell 429 equipped with the Legacy gear was presented in April 2008 by the manufacturer in the Minderhoud Article (JB-224-D) as a nearly finished product and a major technological breakthrough compared to the conventional type of landing gear. This was a very important marketing argument in terms of prospective sales and generating an interest in the highly competitive market of helicopter design.

3. Licensing of core technology to a competitor

143 The defendant has not seriously attacked the plaintiff's evidence on the competitive positioning of parties in the civilian helicopter market. However, the defendant underlines that no Airbus helicopter that directly competes with the Bell 429 is actually equipped with a Moustache gear. Would such a fine distinction allow Bell to forcibly use (without paying any license fee to Eurocopter) the plaintiff's patented technology in its Bell 429, which directly compete with EC135 model?

144 Naturally, the answer is no. In a good faith negotiation taking place in the fall of 2005, Bell could not have

seriously advanced this argument to pay no royalty fee to the plaintiff. Moreover, according to the uncontradicted evidence on the record that, by October 2005, the plaintiff was one of the *worldwide* leading manufacturers of civilian helicopters, particularly for the EMS sector. Conversely, the defendant's market share for civilian helicopters was declining. Its previous light twin-engine model -- the Bell 427 -- was a "limited commercial success" (Transcript Volume 2 examination of Mr. Youngs at page 163) and there was a lot of pressure for its next model to be both innovative and successful (exhibits P-102 and P-103). During his examination for discovery on June 11, 2009, Mr. Gardner agreed that the Bell 429 was critical to Bell's effort to stay competitive in the civilian helicopter marketplace and stem the "erosion of sales" and market share to competitor with newer products (exhibit P-109 at tab 11/Counsel's Eyes Only).

145 Mr. Laurent Bron stated that he has been systematically involved in the implementation of the licensing agreement on titles to intellectual property. He notably explained that "core technologies" are technologies that are closely tied to the product, that provide the company with a significant competitive advantage, and that help create successful products for the company to market. A core technology is not necessarily a patented technology; it may simply be know-how. He pointed to the Moustache gear as being one of Airbus core technologies. On the balance of probabilities, the Court is satisfied that the plaintiff never licensed "core technologies" and never licensed technologies to competitor companies (see notably the testimonies of Mr. Youngs and Mr. Bron). Moreover, in Mr. Youngs read-ins (exhibit D-116/Confidential and Counsel's Eyes Only), he confirmed that Airbus has never licensed core technologies to competitors.

146 Having considered the novelty of the invention -- which is a core technology -- and the related factors mentioned above, the Court finds on a balance of probabilities that relevant technological factors and financial risks associated with the development of a NIA clearly favors the plaintiff, and that, accordingly, the plaintiff would have had a much stronger position than the defendant had there been hypothetical negotiations in the fall of 2005.

147 Strong evidence of the market rate for a license exists if the plaintiff has an established history of negotiating licenses for products comparable to the one that has been infringed. Referring to the historical application for patent licenses, the joint authors cite Justice Fletcher Moulton in *Meters v Metropolitan Gas Meters Ltd*, (1911) 28 RPC 157 at 164 [*Meters*] (Norman V. Siebrasse, Alexander J. Stack, Andrew C. Harington, Scott Davidson, William Dovey, and Stephen R. Cole, "Damages Calculations in Intellectual Property Cases in Canada" (2009), 24 CIPR at 19-20 [Damages Calculations in Intellectual Property]):

There is one case in which I think the manner of assessing damages in the case of sales of infringing articles has become almost a rule of law, and that is where the patentee grants permission to make the infringing article at a fixed price--in other words, where he grants licenses at a certain figure. Every one of the infringing articles might then have been rendered a non-infringing article by applying for and getting that permission. The court then takes the number of infringing articles, and multiplies that by the sum that would have been paid in order to make the manufacture of that article lawful, and that is the measure of the damage that has been done by the infringement.

However, it must be emphasized that there is no rule that whenever the rights holder has granted a licence in the past, it is limited to an award of reasonable royalties. The question is whether the historical patterns of licensing establish that the plaintiff would have granted a licence to the defendant on the established terms if it had been approached at the time of the infringement. A pattern of granting licences is good evidence that the rights holder would have granted a licence if the defendant had approached it; an occasional grant of a licence in special circumstances is not.

148 In *AlliedSignal*, the Court referred to this "almost a rule of law" developed in *Meters* and looked back to the patentee's history where the later does not normally license use of its invention. However, the Court, in *AlliedSignal* found that the patentee would have not normally entered into a legitimate licensing agreement with the infringer, since he consistently manufactured and sold its own film, and there is no evidence of a license ever being issued for their patented technology (*AlliedSignal* at paras 20-22).

149 In the case at bar, the plaintiff has produced many example of license agreement for patented technology (see notably exhibits P-104 to P-108/Counsel's Eyes Only). Yet again, Mr. Bron and Mr. Youngs testimonies are quite clear that it is Airbus' policy never to grant licences for its core technologies to its competitors. There is no comparable upon which the Court may base itself in determining the amount of reasonable royalty. It is clear that in an *ex ante* approach, what would have been contemplated would have been a license for the use of the Legacy gear for the duration of the '787 Patent. Profits would have been a fundamental element of discussion between the parties. That being said, in an *ex post* approach, at the minimum, every one of the twenty-one of the infringing Legacy gear might have been rendered a non-infringing article by applying for and getting that permission from Airbus. In this respect, the Court concludes that the Airbus would have required a fair amount before licensing one of his core technologies to Bell for the permission to fabricate and to use each of the infringing landing gear.

4. Market demand and the need for Bell to come up with an innovative product

150 It is recognized that patents serve the social interest if they provide not just invention, but innovation the world would not otherwise have (Patent Licensing, Technology Transfer, & Innovation at page 1). Therefore, the value of a patent lies in the ability of the patentee to exclude competitors and competition (*Apotex Inc v ADIR*, [2017 FCA 23](#) at para 28 [*ADIR*]). This value differs from the licence granted by a non-practicing entity, also known as "patent troll", who asserts patent rights that it did not develop or that it did not use (*Mediatube Cop v Bell Canada*, [2017 FC 6](#), [\[2017\] F.C.J. No 6](#) at para 238 [*Mediatube Cop*]). While negotiating with such "patent troll" would rather point toward a lower royalty, the circumstances of the present show that both Airbus and Bell, as world leading manufacturers in the aeronautical industry, would jealously protect their "core technology" by filing patent applications respecting inventive and innovative new technology, which will give them an important edge over competition. If the value of the Moustache landing gear for the plaintiff is undeniable, the value of the infringing Legacy gear has been questioned by the defendant.

151 As stated in *Beloit Canada Ltée/Ltd v Valmet Oy* (1994), [78 FTR 86](#), [55 CPR \(3d\) 433](#) (FCTD) at page 457 [*Beloit*], reversed in part on other grounds ([1995](#)), [184 NR 149](#), [61 CPR \(3d\) 271](#) (CA):

[...] The question for the court is whether the market demand for the defendant's product arose because of the infringed patent or whether it arose by virtue of the product's additional features. In other words, the inquiry is directed to "the value of the patented part to the machine as a whole", to use the words of Lord Shaw in *Watson Laidlaw*.

This determination is a factual one to be made on the basis of all the evidence. The answer depends entirely on the particular circumstances of each case. The onus is on the defendant to adduce sufficient evidence to satisfy the court that consumer demand for its product arose by virtue of features other than the plaintiffs' infringed patent [...]

[Emphasis added]

152 The Bell 429 was officially launched in February 2005 at the HELI EXPO. Mr. Youngs testified that this was seen as quite an event, as it was the first new platform that Bell had introduced in a long time, and because Bell had a reputation of "relying on evolution rather than revolution". While Bell had a very good customer satisfaction record, its technology tended to be limited. It was also perceived that the market was beginning to punish Bell for not producing more new technology (exhibit P-102).

153 The Bell 429 was announced with a very impressive internal size, as well as a flat floor and an open cabin concept. It was also announced as having a useful load of 2700 lbs. Bell had another light twin helicopter prior to the Bell 429 -- the Bell 427 -- which enjoyed limited commercial success. The Bell 429 was being marketed for the EMS and corporate markets, although as of today, the stated figure is 2535 lbs. According to Mr. Youngs, this decrease in useful load really limited the potential success of the aircraft in certain markets, including the EMS market. The Court finds this inference to be supported by the evidence on the record.

154 There are multiple exhibits in the Court's record showing a blue and white prototype of the Bell 429 equipped with the infringing Legacy gear and prominently showing an EMS logo (notably exhibits JB-31, JB-33, JB-64 and JB-65), and for example in this photograph (exhibit JB-70):

155 Generally speaking, in managing the Customer Advisory Council process, Mr. Evans explained to the Court that Bell looks at the drivers of what a customer evaluates in a product. Bell refers to these Key Value Parameters [KVPs]. Amongst these, Bell identifies 5 or 6, which it refers to as order one parameters, or KVP1s. These are the main drivers in the buyer's decision-making process and include: (1) the price of the aircraft; (2) the operating cost of the aircraft; (3) the speed of the aircraft; (4) the payload that the aircraft can carry; (5) the range of the aircraft (how far it can fly); and (6) the hover performance of the aircraft. There are KVP2s, which are important but to a lesser degree than KVP1s.

156 According to the evidence, generally speaking from the point of view of customer demand, the landing gear is not a particular feature that will attract or influence the sales of a helicopter. Nevertheless, the landing gear is an essential component of the helicopter and the manufacturer must assure itself that it is properly designed, otherwise the performance of the helicopter may suffer. Be that as it may, apart from the technical advantages directly related to the patented Moustache gear, it appears that Bell particularly appreciated the look and design of same which contributed to give the Bell 429 a more modern look (2012 FC Judgment at para 271) (exhibit P-95 at tab 55/Counsel's Eyes Only). Moreover, from a marketing point of view, it also appears that the sled type of gear (contrary to the conventional gear) eliminated, to a certain extent, the need for the customer to buy a wire protection kit (exhibit P-95 at tabs 119 and 124/Counsel's Eyes Only).

157 The plaintiff also submits that the patented invention makes for more attractive floor and cabin designs. Indeed, the EMS and oil and gas markets, in particular, place a high value on flat floors and open cabin spaces. Airbus alleges that the placement of the attachment points for the landing gear on the Bell 429 allowed the fuel tanks to be located under the cabin floor, enabling a flat floor and open cabin. Indeed, during his examination in chief, Mr. Youngs confirmed that the flat floor feature was highly appreciated for the EMS operators, since they have to pick up a certain number of patients and maintain them stable in the aircraft. The documentary evidence on record corroborates these assertions (see notably exhibits JB-31, JB-33, JB-34, JB-35 and JB-37).

158 On the other hand, the defendant denies that the patented invention has given liberty to create a better design of flat floor and open cabin in the Bell 429 model. The defendant remarks that the Bell 429 is not Bell's first helicopter featuring a flat floor, which was also confirmed by Mr. Youngs in cross-examination. The defendant notes that it has been designing and producing helicopters featuring flat floors and open cabins throughout the second half of the 20th century, with models such as the 47G, the 412, 430, 230, and the 505. The defendant also remarks that the MAPL programme, and later the 429 helicopter programme, always called for a flat floor and open cabin. Moreover, while helicopters featuring flat floors are preferred for the EMS sector, they are not the sole performance characteristic considered by EMS customers.

159 The Court has also considered the testimony of Mr. Evans who stated that the Bell 429 was not the first Bell helicopter to feature a flat floor, and added that a flat floor would not be considered as primary KVPs for customer. Mr. Evans stated that the Bell 429 has an open cabin and that there are other Bell models that also have an open cabin, including the Bell 412 and the Bell 47G. Furthermore, Mr. Evans testified that, in 2015, Air Methods (one of the world's largest EMS services providers) placed an order for over 200 Bell 407 helicopters which do not feature a flat floor. Be that as it may, after reviewing each position and all the submissions on the matter, the Court cannot give much weight to the defendant's position.

160 In the first phase of the trial, this Court was provided with much evidence, including Mr. Gardner's testimony, which explained how the flat floor or the open cabin maintained the complete design and functionality of the Bell 429 (exhibit P-95 at tab 46-47/Counsel's Eyes Only, exhibits P-109, and P-110-113/Counsel's Eyes Only). The fact that other past models developed by Bell had a flat floor and open cabin is not really relevant inasmuch as the placement of the attachment points for the infringing Legacy gear on the Bell 429 allowed the fuel tanks to be

located under the cabin floor. The Court finds that the patented invention provides a design of landing gear which incidentally makes it easier for helicopter manufacturer to create a better design of flat floor and open cabin (even though it is not a claimed advantage in the '787 Patent).

161 Despite the defendant's claims regarding the lack of importance of the weight of the Legacy gear, the Court already found in 2012, that the overall weight of the Bell 429 aircraft was indeed very important consideration through its design process, as it appears from the discussion held during the Weight Summit (exhibit JB-479-D/Counsel's Eyes Only) (2012 FC Judgment at para 175). As such, Bell was prepared to invest the sum of [XXX] on a three years program to save [XXX] lbs on their aircraft. The difference in the market forecast between the [XXX] and the [XXX] lbs would, according to the 2012 Presentation, result in sales of approximately [XXX] additional helicopters per year (exhibit P-117 at page 15/Counsel's Eyes Only).

162 On the other hand, Mr. Youngs testified that, in his experience, the mission capability of a helicopter is important to customers who want to buy a new aircraft -- including an aircraft's range, useful load, safety, speed, avionics, operating characteristics, and service ceiling. According to Mr. Youngs, the type of landing gear is also a consideration, depending on the intended use of the helicopter. With respect to weight, in cross-examination, Mr. Youngs stated that when it comes to increased safety, customers are willing to accept weight increases of 20 to 25 lbs. However, in re-examination, he stated that weight is critical for a helicopter; if the useful load is decreased, either the range or the payload will also be decreased. In the read-ins proposed by the defendant (exhibit D-116/Confidential and Counsel's Eyes Only), Mr. Youngs underlined that the landing gears or the overall weight of the aircraft will not be the only reason in the consumer mind.

163 Mr. Evans, also stated that, in terms of whether there is a weight threshold that materially impacts the decision of a buyer to purchase a helicopter, anything below a 50 lb weight increase in terms of payload capability was not really meaningful from the customers' perspective. Based on his Customer Advisory Council experience, Mr. Evans' also stated that he had never received any input whatsoever as to how the skid gear should be designed, nor had he received any feedback regarding the weight of the skid gear. Overall, he stated that he had never received feedback on the landing gear of the Bell 429. However, in cross-examination, Mr. Evans stated that Bell had received feedback that customers would like to have more payloads with respect to the Bell 429. However, Mr. Evans stated that Air Methods, one of the most important EMS provider, had ordered [XXX] Bell 429 aircraft, but later cancelled them (see exhibit D-95/Counsel's Eyes Only). According to Mr. Evans' testimony, one of the factor for their cancellation was that the aircraft was heavier than predicted considering their useful load issue (exhibit P-124/Counsel's Eyes Only).

164 The Court finds that weight is a very important consideration from a regulatory point of view, and as such, that the regulatory category of an aircraft will, in turn, affect consumer demand for the product. With respect to the weight exemption that Bell sought from Transport Canada for the Bell 429, Mr. Evans stated in his testimony that the Bell 429 was developed as a Part 27 aircraft [FAR 27], which is limited to a 7000 lb gross weight. However, Bell had found the Bell 429 to be capable of carrying much more in terms of maximum gross weight than 7000 lbs. As a result, Bell asked for, and received a 500 lb exemption from Transport Canada and from 19 other countries around the world.

165 When questioned regarding the weight exemption during cross-examination, Mr. Evans stated that the Bell 429 had not received an exemption for the US or for Europe [EASA]. When asked why Bell did not certify the Bell 429 under Part 29, instead of seeking exemptions, Mr. Evans stated that rather than complying with the more stringent and possibly more expensive certification process required for FAR 29, Bell sought an exemption to FAR 27, stating "I think it just came down to a business decision" (Transcript Volume 5 at page 72). The Court finds that Mr. Evans' statements only reinforce the plaintiff's position that, in an hypothetical negotiation, weight was a critical factor for Bell to consider from a manufacturer's stand point, and this, whether or not the weight economy derived from the use of the Legacy gear did not materially impact the decision of a buyer to buy a Bell 429.

166 Dr. Schwartz testified that ultimately, the question about the value of the royalty and what the royalty should be is a market-based question. In this respect, Dr. Schwartz observed that landing gear design does not drive the

helicopter design process; the landing gear was not the driver of its competitive pitch to the marketplace. Moreover, on the eve of first infringement, Bell was not constrained from using any other kind of landing gear to replace the Legacy gear while still being able to achieve the design features that it wanted, including, for example, the flat floor. While the Court finds many of Dr. Schwartz's assumptions wrong in fact and not grounded on the evidence, the main flaw of his evaluation is to give too much importance to "market considerations".

167 The same reproach can be made to Mr. Heys' analysis which is essentially a market based approach focused on expected sales of Bell 429 and profits at risk without the patented technology. The fundamental problem is that there is no objective method to quantify the number of sales of the Bell 429 which would be at risk. Moreover, even if the Court assumes that the load factor is an important consideration in the decision of customers to prefer a helicopter model over another helicopter, without any track record of comparative sales between competing models, if turns out that much of the evidence adduced by the parties on market considerations remain pretty much useless!

168 The Court has also considered the evidence of Mr. O'Reilly, while giving no weight to opinions provided during his testimony and any part of same which constitutes hearsay and is not the personal knowledge of the witness. Mr. O'Reilly testified about his personal experience with buyers. He explained that an interested buyer will normally have narrowed down his or her selection to a couple of helicopter models. The next consideration will be with respect to the performance and capabilities of the helicopter -- for example, the helicopter's useful load and payload -- along with range and speed. He testified that a customer will also consider a helicopter's aftermarket support, as well as its residual value. Mr. O'Reilly recognized, during cross-examination, that with every helicopter that is manufactured, weight is always an issue as it pertains to useful load. On the other hand, Mr. O'Reilly stated that a customer might be willing to purchase a heavier landing gear if it were better suited to the intended use of the helicopter. In this respect, whenever a helicopter is produced, it "goes through the grind at the end and they put helicopters on a diet [...] [b]ecause when we bring it to market we got to squeeze everything out of it we can to maximize useful load" (Transcript Volume 5 at page 151).

169 As stated during the first phase of the trial by Mr. Toner, an expert in helicopter design, development and certification, weight is "a critical feature on an aircraft [...] what a customer will do, because they care so much about every pound that's on their aircraft, is they will make a conscious decision for something like this whether they will need it [referring to the wire cutter kit that could weigh 10 lbs] [...] and the reason you have optional features on an aircraft is not every customer wants the same thing and they care so much about the weight [...] we fight in an aircraft design program for ounces and a customer would feel exactly the same way" (exhibit P-95 tab 124). Indeed, with respect to the weight economy of 16 lbs (excluding the wire cutter kit) between the Legacy gear and the Production gear, Mr. Toner states that in his experience "16 pounds is an enormous weight increase and particularly on a 7,000 pound aircraft [...] and I guarantee you that in a professional design of an aircraft, all that weight has already been taken out of the aircraft [...] that is not an option to say, "Oh, we'll take some functionality away from the aircraft to add this 16 pounds."" (exhibit P-95 tab 127).

170 Where a willing licensor and a willing licensee are negotiating for a royalty, the hypothetical negotiations would not occur in a vacuum of pure logic and in exercising its responsibility as fact finder, the Court has attempted to exercise a discriminating judgment reflecting its ultimate judgment of all pertinent factors in the context of credible evidence (*Georgia-Pacific* at page 1121). Overall, having considered the totality of the evidence on record, the Court concludes that the input of the patented gear in the marketed helicopter aircraft (bought by the customers) is an important one, not to say the least. The Court is satisfied, on a balance of probabilities, that the plaintiff would have had a much stronger bargaining position than the defendant had there been hypothetical negotiations in the fall of 2005.

C. Determining the existence of any valid non-infringing alternative

171 This Court is asked to determine whether the Conventional gear, the I-Beam cross-tube gear, the Wheeled landing gear and/or the Production gear qualify as available NIAs on the eve of first infringement of the '787 Patent. The defendant submits that, despite the weight penalty, at least two NIAs were available in the fall of 2005 and were, in fact, considered in the design of the Bell 429: the Conventional gear, I-Beam cross-tube gear. Based on an

image taken from document B-0435, it appears that Bell had also considered a Wheeled landing gear for the Bell 429 before October 2005. Moreover, the defendant submits that the Production gear, although it was not developed at the time, would or could also have been used as a NIA.

1. Scope of the NIA analysis

172 The "competitive technology" factor mentioned in *AlliedSignal* invites the Court to examine the existence of any NIA on the eve of first infringement, as it may have an important effect on the actual bargaining power of the parties in this hypothetical negotiation. This is logical because "when a patentee and potential licensee are negotiating, the maximum which would agree to pay is the amount by which the licensee expects to benefit from the use of the patent" (Norman Siebrasse, "A Remedial Benefit-Based Approach to the Innocent-User Problem in the Patenting of Higher Life Forms" (2004), 20 CIPR at 65-66 [Siebrasse 2004]).

173 The principle of NIA is also relevant in the analysis of the causation. If the reasonable royalty is calculated while ignoring a valid NIA, the patentee will sometimes be better off than it would have been in the absence of infringement, since the defendant's lawful competition, in the "but for" world, would or could have deprived the patentee of some sales. Awarding full damages will, therefore, over-compensate the patentee (*Lovastatin FCA* at paras 48-49). However, the patentee has the initial burden of establishing lost profits or damages 'but-for' the patent infringement and the infringer subsequently can prove there were no damages because they "could and would" have resorted to a NIA that is as good as the patented invention (*Lovastatin FCA* at para 50).

174 A point of contention between the parties concerns the acceptability of Bell's claimed NIAs since they all carry a weight penalty, and in the case of the Production gear, it did not even exist on the eve of the first infringement. The defendant retorts that the NIA need not be an exact replica of the patented product, and that the Court may look to whether it is acceptable to consumers. In the case of the Production gear, its existence was obvious as it was simply a modified, non-infringing version, of the patented Legacy gear.

175 The existence of valid NIAs came to light when "competitive technology" was recognized as one of the thirteen factors in the *AlliedSignal* case, and then again in more recent case law on quantification of damages in patent cases (*Jay-Lor* at paras 159 and 165). Indeed, the Canadian courts often rely on the American jurisprudence which can be instructive (*Eli Lilly v Apotex*, [2014 FC 1254](#), [\[2014\] F.C.J. No 1341](#) at para 23). In *Grain Processing Corporation v American Maize-Products Company*, (1999) 51 USPQ2d (BNA) at 1567 [*Grain Processing*], whereby the United States Court of Appeal, Federal Circuit [US Court] held that "with proper economic proof of availability [...] an acceptable substitute not on the market during the infringement may nonetheless become part of the lost profits calculus and therefore limit or preclude those damages." An alternative will be acceptable to consumers if there is no specific demand for the patented product (*Grain Processing* at 1565-1566) -- that is, if the patented invention does not fill a "waiting [consumer] need" or create a "substantial customer preference" (*Jay-Lor* at paras 118-175; *Panduit Corp v Stahl Bros Fibre*, (1978) 197 USPQ 726 at 734 [*Panduit Corp*]).

176 Revisiting the principles developed in the American and the Canadian jurisprudence, the Federal Court of Appeal found that, when considering the effect of legitimate competition from a defendant marketing a NIA, the Courts should consider four questions of fact [the *Lovastatin* test] in finding NIAs (*Lovastatin FCA* at paras 73-74):

- i) Is the alleged non-infringing alternative a true substitute and thus a real alternative?
- ii) Is the alleged non-infringing alternative a true alternative in the sense of being economically viable?
- iii) At the time of infringement, does the infringer have a sufficient supply of the non-infringing alternative to replace the non-infringing sales? Another way of framing this inquiry is could the infringer have sold the non-infringing alternative?
- iv) Would the infringer actually have sold the non-infringing alternative?

[Emphasis added]

177 At the end, the Federal Court of Appeal confirmed the decision rendered by Justice Snider as Apotex failed to meet its burden to show that, notwithstanding its manufacturing capacity, it could and would have sold non-infringing lovastatin in place of infringing lovastatin. Moreover, the Federal Court of Appeal referred to the Federal Court of Australia, in *Advanced Building Systems Pty Ltd et al v Ramset Fasteners (Aust) Pty Ltd*, [2001] FCA 1098, (2001) 52 IPR 305, which held "that an NIA must be instantaneously available on the market at the time of the infringement" (*Lovastatin* at paras 78-79).

178 In its final arguments, the defendant submits that the *Lovastatin* test factors were only established for the purpose of determining the amount of lost profits owed to the patentee (Bell's final argument at paras 164-165). Thus, the *Lovastatin* test should be disregarded in the analysis for a reasonable royalty. Indeed, the Federal Court of Appeal held that the defendant did in fact have a NIA, even though it was not available in the real world after the date of the hypothetical negotiation (*Lovastatin FC* at paras 191, 196 and 199; *Lovastatin FCA* at paras 96-98). In favor of the theory developed by the US Court in *Grain Processing*, the defendant submits that NIA need not be "sufficiently similar" or a "true substitute", unlike in the case for lost profits (*BIC Leisure Products Inc v Windsurfing International Inc*, (1993) 1 F 3d 1214 at 1218). Accordingly, the defendant submits that if the NIA performs the same function as the patented invention, and would have replaced all infringing sales of Bell 429 helicopters that would have been equipped with the Legacy gear, there should be no compensation. At best, Airbus is entitled to receive a royalty corresponding to the incremental benefits derived -- costs wise -- by the infringing use of the Legacy gears in the certification process of the Bell 429.

179 Conversely, the plaintiff contends that at the date of the hypothetical negotiations in the fall of October 2005, the Bell 429 had not been certified, while the defendant did not have technically or commercially viable and equivalent NIAs, since they all carried a substantial weight penalty. Moreover, since the Production gear was only developed in 2008 as a result of the patent infringement, it was simply not available prior to the eve of the first infringement and, in any event, it is not equivalent. Furthermore, the plaintiff maintains that it has not been demonstrated by the defendant, on a balance of probabilities, that a Conventional landing gear or the I-Beam landing gear would have been functional. This raises a factual issue which will be examined at length later in these reasons.

180 This Court does not subscribe to Bell's limited view on the scope of the comments made by the FCA in *Lovastatin*. As confirmed by the Federal Court of Appeal in *Teva Canada Limited FCA* at paragraph 47 and more recently in *ADIR* at paragraph 34, the *Lovastatin* test can be applied under both types of claims, either from a damages perspective or accounting of profit, since the Court's task stays the same: assess a hypothetical world where the defendant's impugned conduct did not take place.

181 As reaffirmed by the Federal Court of Appeal in *ADIR*:

[42] As this Court later explained in *Pfizer Canada Inc. v. Teva Canada Limited*, [2016 FCA 161](#), [483 N.R. 275](#), (*Effexor*) at paragraph 50, both the "could have" and "would have" requirements are important. To prove "could have", the defendant must demonstrate that it was possible for it to secure non-infringing product. To prove "would have", the defendant must demonstrate "that events would transpire in such a way as to put them in that position" (*Effexor*, paragraph 50). The importance of the "would have" requirement is that by requiring a defendant to show that it would have used a non-infringing alternative, the defendant shows that the value of the patented invention is not such that reliance on alternatives is unlikely or fanciful. Put another way, notwithstanding the availability of a non-infringing alternative, the defendant must show that there are no impediments to its use.

[Emphasis added]

182 Accordingly, this Court must determine whether on the eve of first infringement, the alleged NIAs were true alternatives in the sense of being economically viable, and whether Bell would have any economic benefit to enter

in a license agreement to use the Legacy gear. In the case at bar, the Court finds that the Bell's reliance, on the eve of first infringement of the '787 Patent, on any of the three (or four) alleged NIAs is "unlikely or fanciful", as Bell has failed to prove on a balance of probabilities that there were no impediments for the use in October 2005.

2. Conventional gear

183 The Conventional gears have been around since the 1940s and is defined by an orthogonal design. They can generally be described as a skid-type landing gears having long, straight, usually circular tubes oriented longitudinally, ending with a short ski type protrusion at the front end (exhibit D-84). In such an orthogonal design, the front and rear cross pieces of the conventional landing gear are parallel and they are either perpendicular or substantially perpendicular to the ground skids (2012 FC Judgment at paras 209-210):

184 Conventional skid gears have been designed, developed, and used by Bell since the 1950; this technology is well-known to Bell, and it has been successfully implemented on many of the Bell helicopter models discussed in this case. For example, the Bell 206A "Jet Ranger" -- which is the civilian model developed from an unsuccessful 1964 bid for US Army light observation helicopter contract -- was a typical light utility helicopter with skid landing gear, high-mounted tailboom and horizontal stabiliser. The landing gear itself was made of aluminum alloy tubular skids bolted to extruded cross-tubes, with a tubular steel skid on ventral fin to protect tail rotor and tail-down landing (exhibit JB-198).

185 The photograph below shows a Bell helicopter model 206/OH-58 with skid landing gear (exhibit JB-197):

186 In the June 2003 Trade Study prepared by Mr. Gardner -- the Design of the MAPL Landing gear was not yet completed -- it is noted that the landing proposal for the MAPL helicopters included a fix skid gear for all three models and a wheel gear for the M382. Initial artist impressions for the MAPL helicopters included a swept forward cross-tube similar to the EC120. As noted by Mr. Gardner, "[t]his sleek design has the benefit of doubling as a wire-strike deflector for the lower fuselage (assuming no external kits are mounted in front of the cross-tube)" (exhibit JB-372/Counsel's Eyes Only and Confidential at page 6109).

187 Figure 9.1 of the June 2003 Trade Study is an artist representation of Model 351 with skid gear:

188 The MAPL programme, and later the Bell 429 helicopter programme, always called for a flat floor and open cabin, and a Conventional gear for the Bell 429 was specifically considered by Bell engineers. Bell asserts that the Conventional gear was anticipated to weigh 5 lbs less than the baseline sled configuration. Bell also asserts that the Conventional gear shown in the March 2005 document permitted a flat floor and open cabin. Perhaps, technically speaking, Bell "could have" developed a working Conventional gear, but the evidence on record does not conclusively establish that it "would have" done so on the eve of first infringement of the '787 Patent (*Lovastatin FCA*).

189 The defendant relies essentially on the testimony of Mr. Gardner to confirm that nothing prevented Bell in the fall of 2005 from designing a Conventional gear for use on the Bell 429, while using the existing attachment points, retaining the flat floor and open cabin layout. Bell asserts that no contrary evidence was presented on the matter. Mr. Gardner also showed how Bell would go about designing a conventional gear for the Bell 429 at the existing attachment points, and Airbus presented no expert or fact witness to challenge Mr. Gardner's testimony in that regard. Mr. Gardner testified that the weight of a conventional gear would be 17.4 lbs heavier than the Legacy gear -- evidence which Bell does not contest.

190 At trial, Mr. Gardner testified that two helicopter programmes at Bell flowed into the 429 programme. One of these was MAPL, which was a programme for three aircraft types. Concurrently, there was another development programme ongoing -- the Bell 427i -- which was the development of the Bell 427 that had been built and certified by Bell Helicopter Canada. Mr. Gardner testified that the type of landing gear planned for the Bell 427i was the conventional landing gear. Mr. Gardner stated that the idea with the MAPL programme was to have commonality in

some of the design features and manufacturing, tooling and parts that go inside the aircraft and make up the systems integration, including common features for avionics, rotors and systems inside.

191 With respect to exhibit JB-372-D/Counsel's Eyes Only and Confidential -- the MAPL Airframe Systems Group document -- Mr. Gardner stated that he authored the document in June 2003 when he was a structural analyst for Bell Helicopter Canada. In this document, he was trying to accumulate as much knowledge as he could on the landing gear within Bell Helicopter, putting all the information in one reference document. He stated that the document takes the reader through what to consider in the designing of the landing gear for MAPL. With respect to the 30 degree cone that dictates the length of the skid tube of the landing gear, Mr. Gardner stated that 30 degrees was the design guideline but that the skid tube could be somewhat longer or shorter.

192 Regarding Bell's internal document entitled "429 Skid Gear Configuration Review, 14 March 2005" (exhibit JB-479-D/Counsel's Eyes Only), Mr. Gardner stated that he wrote this document in March 2005 as part of a Weight Summit. At trial, Mr. Gardner explained that, during the Weight Summit, few alternatives were considered such as the Conventional gear, the Wheeled gear or other non-circular skid tubes having rectangular or I-Beam cross sections, all the while maintaining the desired feature of the aircraft such as the flat floor and the open cabin layout. It was determined, not long after the Weight Summit, that the lower wire strike cutter would nonetheless be needed on the optimized sled gear, meaning that the benefit of not having a lower wire cutter was eliminated. In cross-examination, however, Mr. Gardner agreed that according to the "Minderhoud article" prepared in 2008, a switch to a sleigh type skid landing gear was made to eliminate wire strikes due to landing gear (Transcript Volume 7 at page 61).

193 When questioned about what he could have done in terms of landing gear if he had been asked in October 2005 not to use the Legacy gear, Mr. Gardner stated that there was no reason why he could not have designed a Conventional gear at the same attachment points at that time. He also stated that the gear he could have designed in October 2005 would have been heavier than the Legacy gear (Transcript Volume 7 at page 16). During cross-examination, Mr. Gardner agreed that there are no documents to show that in either February 2005 or October 2005 Bell could have made a Conventional gear or some other gear with the same weight and same performance as the Legacy gear (Transcript Volume 7 at page 56).

194 Although the defendant opted for the Legacy gear, Mr. Gardner affirmed that, by the fall of 2005, the Conventional gear could have made the fit for the design of the Bell 429. The plaintiff objected to this statement on the basis that Mr. Gardner, as an ordinary witness, could not give his opinion on the matter. The Court allows the objection given that the witness is giving an opinion on a hypothetical situation. Nevertheless, in cross-examination, Mr. Gardner admitted that no documents from that period of time, whether it was February or October 2005, supported that another alternative gear could easily be morphed to the Bell 429.

195 Mr. Gardner also provided an estimate of the time required for the development of the Production gear. Indeed, he estimated that it would have taken [XXX] person-hours to switch from the Legacy gear to a Conventional gear, at an engineering rate of [XXX]/hour. The plaintiff's counsel objected to this statement as no evidence or document could support this estimate. As such, during cross-examination, Mr. Gardner agreed that there were no documents to show that, in either February 2005 or October 2005, Bell could have made a conventional gear or some other landing gear with the same weight and same performance as the Legacy gear. Considering this admission, the Court will sustain the objection made by the plaintiff since the lay witness seems to be making unsupported assumptions.

196 For its part, the plaintiff states that the Conventional gear was not a consideration in 2003-2005 due to concerns over weight and ground resonance (Airbus Final Argument at para 165/Counsel's Eyes Only). The plaintiff argues that the Conventional gear is an *ex post facto* solution on paper only. Indeed, to this day, there has been no demonstration that a Conventional gear would function in terms of ground resonance on the Bell 429 (exhibit P-95 at tab 55/Counsel's Eyes only). In 2003, the defendant judged this option to be inadequate and risky. Moreover, the defendant had never designed a landing gear with the dimensions necessary to equip the Bell 429 with a conventional gear. Furthermore, no one knows whether a Conventional gear would function on the Bell 429, as it

was neither tested nor certified. The plaintiff also argues that a negative inference should be drawn based on the fact that Bell did not call a dynamicist to testify to the fact that a conventional gear installed on the Bell 429 would function in terms of ground resonance. In fact, the dynamicists in 2003 had dismissed this option. Moreover, a negative inference must also be drawn from the fact that Bell has still not equipped the Bell 429 with a Conventional gear in France, despite the fact that the Production gear was determined to be infringing in France in March 2015.

197 Be that as it may, Mr. Gardner's general statements somewhat contradict his testimony in the first phase of the trial. Indeed, during his examination for discovery, Mr. Gardner was questioned on the implication for the defendant to switch back to the Conventional landing gear instead of the sled type of landing gear (exhibit P-109 at tab 23/Counsel's Eyes only). Mr. Gardner confirmed that in the context of the MAPL program, Bell did not use the Conventional gear, in particular because of placement of the front cross-piece which had to be mounted much further forward on the aircraft. To assemble the Conventional gear on the Bell 429 would then have required longer skid tube, which would have been heavier (exhibit P-109 at tab 23/Counsel's Eyes only). This situation would also have affected the location of the gas tanks and the flat floor feature of the Bell 429. Consequently, if the defendant would have chosen the Conventional gear instead of the Legacy gear it would have needed much work on the design for the front cross-tube.

198 The defendant has failed to prove on a balance of probabilities that, on the eve of first infringement, the Conventional gear constituted a "true alternative" in the sense of being "economically viable", and that Bell could and would have actually sold a Bell 429 helicopter equipped with the Conventional gear, to this day, no Bell 429 helicopter is equipped with the Conventional gear (*Lovastatin FCA* at paras 73-74). That being said, even if the Court assumes that the Conventional gear should be treated as a valid NIA from a bargaining stand point, Bell would still be disadvantaged in the hypothetical negotiation scenario. The reasons for considering so have already alluded to earlier by the Court.

3. The Wheeled landing Gear

199 Based on an image taken from document B-0435, it appears that Bell had considered a Wheeled landing gear for the Bell 429 before October 2005. Most Wheeled landing gears are a variation of Conventional landing gears (Transcript of Mr. Gardner Volume 6 at page 120). It is also possible to have a Production gear with wheels (exhibit D-112/Counsel's Eyes Only). That being said, Wheeled landing gears are the exception and are not generally bought by the majority of customers (exhibit P-95 at tabs 116-117/Counsel's Eyes Only).

200 The Court finds that the Wheeled landing gear was not a commercially viable NIA. Rather, it is an option that fewer than [XXX] of Bell clients have opted for to date. Since the wheeled landing gear has been available, only 8 (or 10 according to Mr. Evan's testimony) out of 240 Bell 429 helicopters sold have been equipped with the wheeled gear. The wheeled landing gear represents a supplementary option, rather than an alternative, and it is only useful for certain types of mission (exhibits JB-86 and JB-225). Nevertheless, in the fall of 2005, it was no more than an alternative on paper, and was not technically available. The wheeled landing gear was only certified in Canada in January 2014 and in the United States in July 2014. It is still not certified in by EASA. Moreover, the wheeled landing gear adds approximately 200 lbs to the deadweight of the helicopter, which constitutes a major hurdle to most customers. Indeed, Bell's counsel did not address the wheeled landing gear in their final submissions as a valid NIA to the infringing gear.

4. I-Beam cross section gear

201 The I-Beam gear is an orthogonally shape gear as the cross pieces are vertical relative to the skid (Transcript of Mr. Thiagarajan Volume 6 at page 69) (exhibit D-106).

202 Mr. Thiagarajan testified that a non-circular gear with an I-Beam cross section was considered as early as the mid-1990s to be a core forward-looking technology that Bell intended to include in its future helicopter models. He stated that from November 1995 to March 1996, his team analyzed many different landing gear cross sections to be

used for the Bell 427. The I-Beam was eventually chosen as exhibiting the most beneficial characteristics. The I-Beam was also tested in the laboratory for stiffness and ground resonance, and a drop test was conducted. The gear was flight tested on a modified Bell 407, made to mimic the points of attachment on the upcoming Bell 427 in March 1997, but was not selected for the Bell 427 (exhibits D-108, JB-372-D/Counsel's Eyes Only and Confidential).

203 Nevertheless, Mr. Thiagarajan testified that while the I-Beam was compatible, there was simply not enough space to put the rocker beam in (Transcript Volume 6 at page 46). Mr. Thiagarajan stated that after 1997, the idea was to use the I-Beam as a core technology for Bell. He stated that I-Beam was pitched to the leadership team for the Bell 429 (then referred to as MAPL). At that time, the leads of the MAPL programme decided not to go with the I-Beam and went with the Legacy gear instead (Transcript Volume 6 at page 62). In cross-examination, Mr. Thiagarajan affirmed that the core technology was something that was "[n]ot circular" (Transcript Volume 6 at page 107). He also stated that the I-Beam design had never been built for the Bell 427, nor had it ever been tested or certified (Transcript Volume 6 at page 90). At the end, the I-Beam was not adopted because adopting it entailed a risk in in terms of both schedule and costs.

204 The defendant concedes that the I-Beam was not ultimately chosen for the Bell 427, but explains that this was because the dynamics team insisted on the inclusion of a rocker beam on the aft cross-tube, and it was not possible at the time for the rocker beam to accommodate the I-Beam aft cross piece. Be that as it may, according to Mr. Thiagarajan, if a slight pivot had been available at the time, as it was by 2005, his team could have implemented it on the Bell 429 with the existing I-Beam, which poses the question whether such a technical opinion can be accepted by the Court since Mr. Thiagarajan is not a qualified expert. The defendant relies on a document from January 2005 concerning the Bell 429 airframe structure (exhibit D-112 at page 58/Counsel's Eyes Only; Transcript Volume 6 at pages 44-45), which also specifically calls for the consideration of non-circular skids to mitigate the risk of ground handling problems associated with the Legacy gear. The I-Beam was sized to the Bell 429 with the existing attachment points and was estimated to weigh 1.9 lbs less than the Production gear (and thus 14.1 lbs more than the Legacy gear) with improved fatigue life, or 8-10 lbs less than the Production gear if the fatigue life remained the same.

205 On the other hand, the plaintiff notes that while it appears that the I-Beam had been considered by Bell since at least 1997, it has never been certified, and has therefore never been installed on a helicopter that was commercially sold. Moreover, Bell determined, in 2003, that the I-Beam added a risk to the programme. In summary, the plaintiff states that the I-Beam was rejected in 1997 for the Bell 407 and was also rejected in 2000 for the Bell 427. In 2003, it was pitched by Mr. Thiagarajan for the MAPL project, but was rejected by Mr. Foster. The I-Beam was considered riskier because it had never been submitted to the regulatory authorities. The plaintiff further notes that it appears from the 2012 Presentation (exhibit P-117/Counsel's Eyes Only) that Bell reconsidered the I-Beam beginning in January 2010 for the Bell 429 but the project was once again abandoned before completion and there has therefore been no demonstration that the I-Beam would function on the Bell 429, notably with respect to ground resonance. Furthermore, a negative inference should be drawn from the fact that Bell did not call a dynamicist who could testify in this respect. A negative inference should also be drawn from the fact that Bell has still not equipped the Bell 429 with an I-Beam in France, despite the fact that the Production gear was determined to be infringing in France in March 2015.

206 While there would be every reason to ignore the testimony of Mr. Thiagarajan for non-compliance with Rule 223 and because he is not a qualified expert, it turns out that Mr. Thiagarajan's testimony is not convincing and speculative. After reviewing the parties' submissions and considering the totality of the evidence, this Court finds that the I-Beam gear was not a valid NIA at the eve of the first infringement. The defendant has failed to prove on a balance of probabilities that on the eve of first infringement, the I-Beam constituted a "true alternative" in the sense of being "economically viable", and that Bell could and would have actually, sold a Bell 429 helicopter equipped with the I-Beam gear, as even today it is not used in the Bell 429 (exhibit P-113 at tab 56 and tab 71, Undertakings # 8/Counsel's Eyes Only) (*Lovastatin FCA* at paras 73-74). Indeed, during the first phase of the trial, Mr. Gardner testified that, at that time, the I-Beam gear had not been flown, tested or certified (exhibit P-113 at tab 50/Counsel's Eyes Only). [XXX] (exhibit P-113 at tab 45/Counsel's Eyes Only). This reinforces Airbus' bargaining position on the

eve of first infringement with respect to the amount of money it could expect to ask and receive from Bell in licensing the use of the Legacy gear.

5. Production gear

207 The features of the Production gear (exhibit JB-475) have been the object of a considerable amount of evidence, as well as through judicial analysis in the first phase of the trial (2012 FC Judgment at paras 179-181, 259 to 263).

208 The Production gear did not yet exist and could not have been considered as a NIA on the eve of first infringement in the fall of 2005 (*Lovastatin FCA*). Indeed, it is only in 2012 that this Court found that the Production gear did not infringe the '787 Patent, and in France, this is still debated today in respect of the French Patent, while the issue has been resolved in the United States with respect to the US Patent. The defendant alleges nevertheless that the Production gear should be considered as a NIA even though it was only developed after the institution of the action between 2008 and 2009. The defendant, notably, relies on the testimony of Mr. Gardner who stated that Bell could have designed the Production gear as an alternative to the Legacy gear in October 2005 with the existing attachment points to the airframe structure as it did in 2008. The defendant asserts that there is also no debate that the Production gear permits the flat floor and open cabin on the Bell 429, that it is attached at the same points as the Legacy gear, and that a Bell 429 equipped with the Production gear is commercially viable. Indeed, sales of the Bell 429 with the Production gear were better than forecasted.

209 Bell's engineers (notably Mr. Gardner and Mr. Minderhoud) spent a few weeks during the summer of 2008 performing calculations on a modified landing gear which came to be known as the Production gear (2012 FC Judgment at paras 176-178). The result was that the lower curve of the front cross-tube present in the Legacy gear was replaced by a saddle in front of which there is a ski protrusion; the angle of inclination is slightly modified as well. Considering those modifications, Mr. Gardner testified during the first phase of the trial that the Production gear is "functionally equivalent" to the Legacy gear. However, Bell distanced itself from this statement, on the basis that Mr. Gardner was not called as an expert witness (2012 FC Judgment at para 181). It is also important to remember that "functional equivalency" was a fundamental argument made by the plaintiff to sustain that the Production gear -- which is a modified version of the Legacy gear -- infringed the '787 Patent. While this Court found otherwise (2012 FC Judgment at para 256), the Cour d'appel de Paris has decided that Bell infringed the French Patent by the use of both the Legacy and Production gears, the latter being "functionally equivalent" (exhibit P-119 at page 21).

210 The addition of a ski tip and a saddle joint meant that the modified gear would be heavier than the original gear. Indeed, this resulted in (at least) a 16 lb penalty (2012 FC Judgment at para 177) (exhibit P-95 at tab 127/Counsel's Eyes Only). However, in view of the advancement of the Bell 429 project, further costs and delays had to be avoided. The dynamic behaviour (ground resonance) and response to stress and load factors are important elements in terms of performance and security of a helicopter landing gear. Bell notably had to prove to the certification authorities that the Production gear was not susceptible to ground resonance (2012 FC Judgment at para 182). However, conducting physical testing on helicopters is extremely expensive and time-consuming, and so, as much testing as possible is done using software. Ultimately, Transport Canada was satisfied that compliance could be achieved by a computer analysis (LS-DYNA), since there was correlation between the drop tests performed and the virtual tests calculated (exhibits JB-402/Confidential and JB-403/Confidential, referred to by the Court in the 2012 public reasons at para 183). Bell was also exempt from having to test the strength of the ski tip of the Production gear, despite the fact that the Legacy gear did not have a ski tip. In a Bell report dated February 6, 2009 submitted to Transport Canada, it is explained that the Legacy and the Production gears "are dynamically similar as far as the most critical fuselage mode (Roll Mode) is concerned" (exhibit JB-390/Confidential, referred to by the Court in the 2012 public reasons at para 184).

211 According to the *Grain Processing* decision upon which the defendant relies, the economic theory around NIA would allow for imperfect substitutes. The defendant had access to all of the necessary materials, equipment, know-

how, experience to make the Production gear. Therefore, it was technically and economically feasible for the defendant to develop the Production gear at the eve of the first infringement. Consequently, the defendant alleges that, despite the fact that the defendant did not begin to develop the Production gear until after it was sued for infringement, the defendant could have had the NIA available at the time of infringement.

212 The plaintiff retorts that the Production gear was never considered by Bell before the present action was commenced in May 2008. Thus, in the eve of the first infringement in the fall of 2005, the Production gear had not been considered and did not exist, nor was there any information available regarding its performance, particularly in terms of ground resonance. As a result, it presented significant technical risks. The plaintiff also points out that this Court determined that the development of the Production gear would not have been possible without the development of the Legacy gear (2012 FC Judgment para 441). Moreover, at the date of the hypothetical negotiation, it was not clear that the Production gear was a NIA. As a result, this "alternative" entailed a high risk associated with litigation.

213 Having considered the totality of the evidence on record and the parties' respective submissions, the Court finds that the defendant has failed to prove on a balance of probabilities, that the Production gear constituted a valid NIA on the eve of first infringement (*Lovastatin FCA*). The Court further finds that the defendant has never fulfilled the "clean sheet" requirement. Although the defendant submits that they would have had all the necessary knowledge and tools to develop the Production gear, the defendant has not produced corroborative documentation providing particulars about the entire development process of the Production gear, other than Mr. Gardner's time estimate for the four sequential stages to the helicopter design process. Finally, it remains that the creation of the Production gear was only made possible through the illicit use of the Legacy gear. There were no development license conferred by Airbus to use the Legacy gear for the purpose of developing a NIA, either prior to October 2005 or after.

214 Indeed, while *ex post facto* evidence suggests that the Production gear may be an "economically viable" alternative to the Legacy gear (second criteria of *Lovastatin FCA*), it is still debatable today whether it constitutes a "true substitute" (first criteria of *Lovastatin FCA*), while clearly, on the eve of first infringement in the fall of 2005, the Production gear could not be sold and would not actually have been sold (third and fourth criteria of *Lovastatin FCA*). However, from a pragmatic point of view, the Production gear should be accepted *ex post facto* as an acceptable substitute and viable alternative, considering that on the eve of the first infringement, parties would be considering a worldwide license agreement, and that it turns out, that there were risks that the Production gear be declared to infringe the '787 Patent, the US Patent and the French Patent, and even more so, where it appears that in 2005, both the Legacy and Production gears have been held to infringe the French Patent.

D. Determining the territorial application of the license agreement and the nature of the royalty

215 The parties agree that the hypothetical negotiation taking place on the eve of first infringement in the fall of 2005 would have ended up in the granting, on appropriate terms, by Airbus of a non-exclusive worldwide license of the patented technology. The LOIs and sales of Bell 429 helicopters are worldwide. It was always the intention of Bell to incorporate and use the Legacy gear in the Bell 429, and, as a result, the plaintiff was forced to seek injunctive relief in Canada, France and the United States. On the eve of first infringement of the '787 Patent, Bell had every interest to obtain a worldwide, non-exclusive license, for the use of the patented technology to prevent litigation. On the other hand, it was not in the interest of the plaintiff to license such "core technology" to one of its competitors. That being said, the parties dispute whether there should have been a one-time royalty or a running royalty paid by Bell to Airbus.

216 Mr. Heys opines that a one-time royalty paid on the eve of first infringement makes economic and business sense in this case. A lump sum would not only reduce the administrative costs of monitoring and enforcing the license, but it would ensure that Eurocopter was fully compensated for Bell's infringing use of the patented invention in the development of the Bell 429 helicopter. Conversely, a running royalty would have required Bell to share with Eurocopter confidential information about its unit sales and revenues, which may not have been desirable given that the two companies are direct competitors.

217 Mr. Heys testified that, in theory, the timeframe of the one-time payment for the use of the Legacy gear would be for the lifetime of the Bell 429, considering that, in his understanding, landing gears are not switched on helicopters. As a result, on the eve of first infringement, Bell would be considering its expected incremental profits from that helicopter for its lifespan, as compared to if it developed that helicopter with another non-infringing alternative. As a matter of fact, however, Mr. Heys stated that in the examples he used in his report, the forecast runs only to 2015, in order to be conservative, and considering that there are no actual forecasts beyond that period. Mr. Heys also stated that he did not consider the duration of the Canadian patent, which expires in 2017, considering that it did not matter in light of the fact that Bell would not have switched landing gears at the end of the lifetime of the patent.

218 Based on the Court's finding in the first phase of the trial (2012 FC Judgment at paras 177-178), Mr. Heys noted that Bell was able to develop the Production gear in a short amount of time without any significant additional research and development investment. In this case, technology was taken and used for the purposes of developing and promoting the Bell 429. Eurocopter would not have been interested in giving its technology away for some contingent payment that would start several years in the future. On the eve of first infringement, sales of the Bell 429 would not start occurring until 2008. A running royalty would have effectively given Bell a free option to use the technology in the development of its helicopter, and then switch to a non-infringing gear and pay no royalties whatsoever to Eurocopter.

219 The defendant submits that the plaintiff's proposition for a lump sum defies both economic logic and the Court's finding that Bell only manufactured or used the Legacy gears but never sold them. Notably, a lump sum payment generally benefits the patent holder by enabling the company to raise a substantial amount of cash quickly, while it puts significant risk on the licensee as "the licensee is obligated to pay the entire, agreed-upon amount for the licensed technology, regardless of whether the technology is commercially successful or even used" (*Lucent Technologies* at 1573). Indeed, in order for a lump sum payment to be appropriate in any given case, there must be substantial evidence that establishes the parties' expectations about how often the patented invention would be used by consumers (*Lucent Technologies* at 1573 and 1578). Consequently, the defendant submits that the running royalties would be more appropriate to this case. The defendant also notes that the overwhelming majority of cases have calculated reasonable royalties in the form of a running royalty (*Jay-Lor* at paras 144-149; *AlliedSignal* at para 212).

220 Dr. Schwartz opined that it would not have made sense for either party to agree to a lump sum. From Bell's perspective, in 2005, the aircraft had not yet been built, flown, or certified. Given this uncertainty, it would not have made sense to Bell to agree to a lump sum. From Airbus' point of view, it would not have made sense to agree to a lump sum either. If Airbus were going to allow an infringer into the market, it would want to be in a position to be compensated for what that infringer actually did in the market, and to be able to make sure that if they actually performed better than expected, Airbus would be compensated. As a result, the parties would have opted for a running royalty.

221 The defendant's proposition that the Court should assume today that the parties would have agreed on the payment of a running royalty is not realistic and defensible. In cross-examination, Dr. Schwartz stated that while the running royalty would be the most likely outcome, he couldn't exclude the possibility of the lump sum were the parties to agree that it was a license (Transcript Volume 8 at pages 183-184). Considering that no Bell 429 helicopter has ever been delivered with the Legacy gear and that the twenty-one infringing Legacy gears have nevertheless been used between 2005 and 2009, why would the parties have any incentive with such knowledge to agree on a running royalty?

222 Consequently, the Court finds that the plaintiff, having the stronger economic power, would have only accepted a lump sum royalty in the event of hypothetical negotiations, because of the risks associated with a running royalty, and even more so, considering that the license are for the infringing use of the patented technology for some three or four years while no Bell 429 helicopter was ever sold during this period of development and pre-production purposes.

223 A running royalty would only make sense if the reasonable royalty should be calculated on the amount of profits realized by the sales of Bell 429 helicopters incorporating the Legacy gear. A running royalty would only make sense if the Production gear is also infringing the '787 Patent, the US Patent and/or the French Patent, inasmuch as the parties are negotiating for a worldwide license. Considering the totality of the evidence on record, only a worldwide license to use or to produce the twenty-one infringing Legacy gears makes practical sense in this case.

E. Reconciling irreconcilable differences by resorting to the "book of wisdom"

224 In a patent-licensing negotiation, the agreed-upon royalty represents how much better off the licensor is for licensing the patent (versus not licensing, because the minimum willingness to accept reflects the opportunity cost of licensing). Likewise, the licensee becomes better off by the value of its surplus -- the difference between the maximum willingness to pay and the royalty paid (J. Gregory Sidak, "Bargaining Power and Patent Damages", 19 Stan Tech L Rev 1 (2015) at 11-12 [Sidak]).

225 As described by Sidak, the concept of surplus in any agreement is fundamental to an economic analysis of negotiations. It is a fundamental principle of bargaining theory that, in a negotiation, the buyer and seller divide the surplus between themselves based upon the relative bargaining power of each party. The buyer and seller will bargain within the range to determine the final royalty. The final agreed upon price will fall somewhere within the bargaining range.

226 However, the MWA/MWP formula to determine the bargaining range is somewhat vague because it leaves ample room for diverging interpretations of the same set of facts. Furthermore, the surplus formula proposed by Sidak works better or is more coherent in a context where the MWA and the MWP meet. As seen from the parties' submissions this is clearly not the case here.

227 While both experts refer to the maximum that an infringer would be willing to pay and the least that a patent owner would be willing to accept they come to very different conclusions. Moreover, the conclusions the experts reached with respect to the range of bargaining power between the parties are derived from a conflict between the recourse to a pure *ex ante* and/or *post* approach analysis which is not limited to the issue of the anticipated profits of Bell on the eve of first infringement of the '787 Patent, but concern such disputed issues of fact as the availability of a NIA (Heys: Conventional gear) or NIAs (Schwartz: Conventional gear, Production gear and I-Beam gear). Another important point of contention -- where a comparative profit analysis is chosen -- is the calculation of the incremental difference between the licensed invention and the best next NIA. It also involves the difficult question of assessing the value of the invention, and whether it should be determined on the basis of consumer demand and/or the manufacturer's preferences.

228 In terms of credibility, the Court finds that Bell's expert underestimates the patented technology while Airbus' expert tends to over-estimate it. Overall, having considered the totality of the evidence on record, the Court concludes that the input of the patented gear in the marketed helicopter aircraft (bought by the customers) is an important one, not to say the least. However, in a hypothetical negotiation, Bell would have certainly pushed for a royalty rate that would have probably accounted for an apportionment factor, but since there were no completed sales of Bell 429 helicopters incorporating the infringing Legacy gear, the issue has become largely academic (except for the sharing of the surplus created by the return on capital flowing from the deposits received by Bell on the LOIs during the infringement period).

1. Airbus' compensatory model

229 Airbus' expert compensatory analysis is largely modeled on the risk faced by Eurocopter on the eve of first infringement of the '787 Patent to lose market share or its expected profits on sales of its helicopters competing with the Bell 429 helicopter. Licensing the patented invention would have allowed Bell to increase its market share or its

expected profits on sales of its helicopters competing with Airbus EC135 and EC145 helicopters, as well as potentially with the AS355. It is a purely *ex ante* analysis driven by the fact that the plaintiff could not know, in the fall of 2005, that Bell would never sell any Bell 429 helicopters equipped with the infringing Legacy gear, although it was clearly its intention to do so and that, in fact, it has received a number of LOIs on that very premise. Given the expected beneficial features of the Bell 429 made possible by the Legacy gear, Airbus would reasonably have expected to face more competition from the Bell 429 if it were to grant the hypothetical license than if it did not. The greater level of competition would imply lower expected profits to Airbus and/or lower gross profit margins.

(a) No valid NIA (except possibly the Conventional gear)

230 As aforesaid, Mr. Heys posits that the only available NIA, if any, on the eve of first infringement, would be the Conventional gear (which is an imperfect substitute because of the weight factor). Moreover, if Bell were to have chosen to adopt a conventional landing gear for the Bell 429, additional research and development would still have been required to produce the optimal configuration (in light of other design considerations, including ground resonance properties and weight). This would have entailed both additional expected costs and time to Bell. The increased risk -- reflecting the fact that there would have been uncertainty regarding both the expected cost and time to identify a solution -- would in turn be an important consideration. Any such costs that Bell would have expected to incur over and above the costs Bell if it had licensed the Legacy gear would therefore increase the maximum amount that Bell would have been willing to pay for the license. These inferences are supported by the evidence on record. The Court accepts this part of Mr. Heys' reasoning and conclusions.

231 Mr. Heys also eliminated the Production gear because it did not exist in the fall of 2005. As for the I-Beam gear, Mr. Heys stated that he first learned of the existence of this gear when he read the expert report of Dr. Schwartz, filed in April 2016, which referred to the document titled "2012 Presentation" (exhibit P-117/Counsel's Eyes Only). He stated that the I-Beam gear appeared to be something that Bell was developing in 2010-2011, and therefore was not underway as of the eve of first infringement. Moreover, he stated that the development of the I-Beam suggested that the Conventional gear did not work very well or was not expected to work well with the Bell 429. In addition, the 2012 Presentation illustrated the time, cost and uncertainty involved in developing a landing gear. It also demonstrated that, for Bell, at the time this document was published, significant costs and time remained for the completion of the development of the I-Beam Landing gear. In cross-examination, Mr. Heys reiterated that the I-Beam was not an alternative that was being considered on the eve of first infringement and that exhibit P-117/Counsel's Eyes Only suggested that significant additional work or cost was involved in making the gear work or designing the gear to work with the Bell 429 (Transcript Volume 4 at page 74). The Court also accepts these inferences made by Mr. Heys and which are grounded on the evidence.

(b) The innovative character of the patented invention adds value to the sold product

232 It is not challenged by the plaintiff that customers will usually purchase a helicopter, not spare parts of same (unless the landing gear is broken or needs to be replaced by another type of landing gear). Be that as it may, the innovative character of the patented invention adds value to the sold product (here the Bell 429 helicopter).

233 In his March 2016 report (exhibit P-115 at para 27/Counsel's Eyes Only), Mr. Heys states that there are a number of functional benefits provided by the Moustache gear compared to more conventional landing gear designs, including the following (exhibit JB-224 -- the Minderhoud article):

Improved ground resonance characteristics as a result of the inclined front;

The attachment point of the front cross piece can provide substantial benefits depending on the design of the aircraft. For instance, it allowed the Bell 429 to have a flat interior cabin floor and an open interior cabin;

Improved wire-strike protection due to the sleigh shape of the gear; and

Increased maximum take-off weight and useful load capability due to the relatively low weight of the landing gear.

234 Mr. Heys' analysis is predicated on the basis that the evidence supports these statements, which is the case as found by the Court. Namely, the Legacy gear had attachment points that permitted the flat floor and large open cabin of the Bell 429, was relatively low in weight, had good ground resonance behaviour, and had the feature of wire strike protection with the shape of the front of the landing gear. There is nothing wrong in computing these functional advantages. The issue is how should the surplus flowing from any such advantages be shared by the parties in a hypothetical negotiation taking place on the eve of first infringement of the '787 Patent.

235 Taking these factors into account, Airbus' expert opines that Bell would reasonably have considered that the hypothetical license from Airbus would lead to greater sales and greater expected profits from its sales of the Bell 429. In turn, Airbus' profits would be at risk (particularly in the EMS mission segment). In the abstract, Mr. Heys is right. However, the problem with this general approach, as it will be explained below, is that the "but for" test implies that the Court should act to restore the licensor to where it would have been in October 2005 absent the infringement, not where the licensor would have been if it had licensed the infringer (Damages Calculations in Intellectual Property at page 19).

236 In the addendum to his expert report (exhibit P-116/Counsel's Eyes Only), Mr. Heys stated that "Bell also forecast that a weight savings of [XXX] lbs (i.e., [XXX] lbs total savings as compared to [XXX] lbs) would result in sales of approximately [XXX] additional helicopters per year" (addendum at para 4/Counsel's Eyes Only). Moreover, he stated that "[t]he I-Beam development program was part of an effort to reduce the weight of the Bell 429 by [XXX] lbs at a total expected cost of [XXX]" (addendum at para 4/Counsel's Eyes Only). In cross-examination, Mr. Heys admitted that he had misunderstood the information and that, in fact, what was referred to was a savings of 100 to 150 lbs total (Transcript Volume 4 at page 126).

237 When questioned by counsel for Bell about the 16 lb weight difference between the Legacy gear and the Production gear (Transcript Volume 4 at pages 2 and following), Mr. Heys recalled seeing one customer that had cancelled their order because, among other things, the helicopter was heavier than expected. This observation is supported by the evidence on record. On cross-examination, counsel for Bell also questioned Mr. Heys on his statement that the Moustache gear enabled the Bell 429 to have a flat floor and open cabin, which would not have been possible with a conventional landing gear (Transcript Volume 3 at page 243). Mr. Heys stated that this information came from the trial testimony of Mr. Gardner, but then conceded that Mr. Gardner did not say, strictly speaking, that it was impossible to attach a conventional landing gear. Rather, Mr. Gardner talked "about the issues with the fact that to do so would have consequences in terms of longer and heavier conventional landing gear" (Transcript Volume 3 at page 245). Mr. Heys also conceded that Bell had achieved a flat floor and open cabin in the Bell 429 helicopter with the Production gear (Transcript Volume 4 at page 12). That being said, Mr. Heys also testified that if the Court found that the use of the Legacy gear did not provide much in the way of benefit compared to the next best alternative, then the license would not be worth very much (Transcript Volume 4 at page 90).

238 Mr. Heys indicates that he was not aware of any information regarding the specific costs associated with the development of a helicopter landing gear. For example, Airbus' expert understands that no specific information has been produced in this case regarding the (expected or actual) costs of research and development of either the Moustache gear or Legacy gear that could indicate an estimate of any such expected saved costs. However, Airbus' expert understands that the costs of developing helicopter landing gears are significant. The Court has observed that "the development of a helicopter landing gear is a highly complex design and engineering exercise that necessitates concerted team efforts" (2012 FC Judgment at para 84) and that structural testing for a gear assembly might have been expected to involve as much as 2500 person-hours (exhibit JB-372/Counsel's Eyes Only and Confidential at page 6105). Consistent with this observation is the fact that it took Eurocopter (the leading supplier in the civilian helicopter market) four years to develop a landing gear design for the EC120 (ultimately resulting in the Moustache gear and the '787 Patent).

239 Mr. Heys also testified that, with respect to the expected incremental costs of developing the Bell 429 with a conventional landing gear, taking into account both the expected incremental profits and the saved incremental costs associated with using the Legacy gear as opposed to using the conventional gear, he had calculated a figure

of \$250,000. This figure is based on the suggestion in the judgment of the first phase of the trial that 2500 person-hours of work had been involved in the development and optimization of the landing gear development, calculated at an engineering rate of \$100 per hour (2012 FC Judgment at para 182). In cross-examination, Mr. Heys stated that if the 2000 to 2500 person-hours of work were for the entire development process, including certification, then the figure of \$250,000 would be overstating the incremental costs of developing an alternative (Transcript Volume 4 at page 111).

240 Mr. Heys also stated that Bell might have been prepared to pay an additional amount to avoid the uncertainty involved in developing the helicopter with a different gear. He therefore applied a 25% risk premium to the sum of the incremental expected profits from sales of the Bell 429 and the incremental development costs. In cross-examination, when questioned as to why the risk of adopting a conventional gear that Bell has been using since the '40s was higher than the risk of adopting the Legacy gear that Bell had never used, and which was not yet built, tested, or certified, Mr. Heys responded that his understanding was that the Legacy gear had good ground resonance properties. He stated further that, on the eve of first infringement, Bell had a good idea that the Legacy gear would work well with the Bell 429, and that there was also risk "with respect to the consequences for the features of the helicopter that might be possible or not possible with the conventional gear" (Transcript Volume 4 at page 129). Those assumptions are based on the evidence on record and are reasonable in the Court's view.

(c) Calculations

241 Although not treated in this order, in his March 2016 report, if Airbus' MWA is considered, Mr. Heys estimated the discounted value of Eurocopter's total expected profits for the period from 2008 to 2015 from sales of the EC135, EC145, and AS355 helicopters, which he stated would be approximately \$160.9 million (discounted on the eve of first infringement). This calculation was made on the basis of an expected average selling price of approximately US\$4.1 million per helicopter, average gross profit margins of 7%, and a discount rate of 12%.

242 Mr. Heys then calculated the value of the expected negative impact on Airbus' total profits from having to compete with a Bell 429 equipped with the Legacy gear by multiplying these total profits by the Court's determination of the proportion of these expected profits that would reasonably have been at risk if Bell had used the Legacy gear rather than the conventional gear. Mr. Heys stated that one way of doing this would be based on the average number of helicopter sales per year that Airbus would have reasonably expected to lose if it granted the hypothetical license to Bell. Given the relative market shares of Airbus and Bell, Airbus might reasonably have expected to make approximately 62.5% of any helicopter sales that Bell did not make. Mr. Heys therefore provided calculations for several possible determinations that the Court could make regarding the expected impact of the hypothetical license on the average number of sales of Airbus helicopters per year (set out at Table 5, Heys Expert Report page 55). A loss of an average of six helicopter sales per year would represent approximately 5.3 percent of Airbus' total profits, or \$8.5 million over the eight year forecast period from 2008 to 2015.

243 The problem with this approach is that during the infringing period, there was no perfected sale and delivery to clients of Bell 429 helicopters equipped with the infringing Legacy gear, while all the sales outside the infringing period concern Bell 429 helicopters equipped with the Production gear.

244 In turn, Mr. Heys' analysis of Bell's MWP is predicated by the total value of the expected profits from the sale of the helicopter as a whole. One must then apply the incremental impact of the Legacy gear as compared to the NIA. Furthermore, Mr. Heys estimated Bell's expected total profits from all expected sales of Bell 429 helicopters with the Legacy gear (discounted on the eve of first infringement) to be approximately \$51.3 million (P-115, appendix F/Counsel Eyes Only).

245 This figure is based on the following assumptions:

Projected unit sales of the 429 as reflected in a forecast prepared by Airbus in May 2006, for the period from the eve of first infringement through 2015;

An expected average selling price of \$3.95 million USD per helicopter, based on the prices indicated in the LOIs Bell had received by the end of 2005;

Average gross profit margins (sales revenue less cost of goods sold expressed as a percentage of revenue) of 7%; and

A discount rate of 12%.

246 Mr. Heys noted that the price of \$3.95 million remained constant throughout the forecast, as there was no inflation built into his analysis. He also stated that the average gross profit margin of 7% came from conversations that he had with Mr. Youngs, who suggested that might be a reasonable expected gross margin on sales of new helicopters.

247 Mr. Heys further stated that the maximum figure of nine lost helicopter sales per year comes from a published article in the trade press which gives the breakdown of the LOIs Bell had received for the Bell 429 by mission segment. Thus, if Bell could not have been expected to make any sales to customers in the EMS mission segment if it had adopted a conventional gear for the Bell 429, this would reduce the forecast sales by an average of approximately nine helicopters per year, representing a decline in profits of approximately 23.2% of the total expected profits, or \$11.9 million. Mr. Heys also provided calculations in the event that Bell was to lose a smaller number of helicopter sales per year, stating that the relationship is a linear one.

248 From a "MWP/MWA" perspective, on the eve of the first infringement, Eurocopter's MWA would be between \$1.7 million and \$11.8 million because it would not have been in its interest to allow a direct competitor to benefit from its own "core technology". On the other hand, Bell's MWP would be between \$2 million and \$15.2 million because of all the advantages it would have gained from the "Moustache gear" and considering the lack of sufficient NIA.

249 Considering all of the above, Mr. Heys concluded that, if the Court were to determine that there is no range of reasonable royalty given its determination of the key parameters, the compensatory damages would be equal to the minimum that Airbus would be willing to accept (e.g. \$1.7 million to \$11.8 million -- exhibit P-115/Counsel's Eyes Only at para 137). In the alternative that the reasonable royalty is likened to a license for research and development purposes, such a license would likely result in a lump sum payment (Airbus' final argument at paras 197-198/Counsel's Eyes Only).

(d) Determining the range of bargaining positions in a hypothetical negotiation

250 Essentially, Mr. Heys over evaluates the monetary value of the Patent by resorting to a pure *ex ante* approach which neglects the number of infringing gears actually produced and used by Bell during the three-four year period of infringement (2005-2009). Mr. Heys' main focus is expected profits, while Dr. Schwartz's sole interest is expected incremental economies realized by Bell. Not surprisingly, Dr. Schwartz's approach under evaluates the monetary value of the Patent in a *bona fide* negotiation taking place on the eve of first infringement. The Court notes that Mr. Heys' methodology creates huge differences in the range of royalties, especially in considering Airbus' MWA, which is highly distorted in comparison with Bell's MWP. On the other hand, Dr. Schwartz's methodology sets the bargaining range of the parties in the extreme lower bound of Bell's MWP which makes it impossible to generate any agreement because of the under valuation of the Patent.

251 Taking into account both Bell's MWP and Airbus' MWA, Airbus' expert, Mr. Heys, provides examples of the outcome of the hypothetical negotiation, given alternative values of various parameters that still need to be validated by the Court. Numbers are set out at Table 6 of Mr. Heys' expert report (exhibit P-115/Counsel's Eyes Only at page 57), which is based on expected average annual unit sales of Bell 429 helicopters at risk without a license from 1 to 9 units. This results in a range of royalty rates from \$2.0 million to \$15.2 million, which is set out at the mid-point of range. Mr. Heys then compared the expected average annual unit sales of Airbus EC135, EC145 and AS355 helicopters at risk with a license from 1 to 6 units, which would result to a mid-point of range of royalty rates from \$1.7 million to \$11.8 million.

252 According to Mr. Heys' framework, for each "expected average annual unit sales at risk without a licence" (Mr. Heys provided calculations for 1 through 9), Bell's maximum willingness to pay would be equal to the expected incremental profits at risk without a license, plus the expected incremental costs of development without a license, plus a 25% risk premium. Mr. Heys concluded that Bell would have been willing to pay a range of royalty rates from \$1.7 million to \$11.8 million (exhibit P-115/Counsel's Eyes Only at para 137).

253 In Mr. Heys' model, Bell's MWP is mostly derived from Bell's expected incremental profits at risk without a license and is based on Bell's expected average of annual unit sales of Bell 429 helicopters at risk without a license (exhibit P-115 at para 118 and table 4 and footnote 153/Counsel's Eyes Only). The Court finds that such as expected profits approach would have the effect of over compensating Airbus for the actual infringing use of the Legacy gears and is unrealistic. While the Court accepts that the incremental development costs, the economic benefit flowing from the return on capital earned by Bell on deposits received in connection with the LOIs and a risk premium should be included in the compensatory model, on the other hand, the profits at risk analysis advocated by Mr. Heys is dismissed by the Court as being both unrealistic and unworkable in the particular circumstances of this case.

2. Bell's compensatory model

254 For Bell, the outcome of the hypothetical negotiation taking place on the eve of first infringement of the '787 Patent would only yield a modest royalty. Based on an *ex post* infringement approach, the amount of the royalty should correspond to Bell's avoided incremental costs of developing a non-infringing alternative. Considering that there were only twenty-one infringing gears used by Bell, a nominal amount of royalty is all that Eurocopter could expect to receive despite the high value it places to the patented invention and its numerous advantages which do not have a direct impact on market demand.

(a) Three valid NIAs

255 In his April 2016 analysis (exhibit D-119/Counsel's Eyes Only), Dr. Schwartz states that the Production gear, the conventional skid-type landing gear and the I-beam landing gear all represent technically and commercially acceptable non-infringing alternatives to the Legacy gear. He claims that in the fall 2005, Bell had nearly completed the detailed design of the Legacy gear; however, certification testing had not yet begun. While switching to the NIA would have required re-sizing of the landing gear and engineering re-design, the switch would not have resulted in any incremental costs associated with the optimization and certification phases of the Bell 429 design. Indeed, according to Dr. Schwartz, a switch to the Conventional gear at that time would likely have saved money by allowing Bell to avoid having to perform an actual drop test. These observations are not supported by the evidence on record and do not take into account the "could and would" test (*Lovastatin FCA*).

256 Dr. Schwartz stated that, from an economic perspective, an acceptable NIA would be one that was both technically acceptable, as well as commercially viable. In cross-examination, he stated that, to an economist, an acceptable NIA is one that permits the user to derive the benefits from the use of the product in an acceptable way, although there might be features of the Legacy gear that cannot be translated into non-infringing gear. The market test then becomes important in order to determine whether these differences matter.

257 Dr. Schwartz also states that between the Legacy gear and the three alternative non-infringing gears, the weight differences would have been small, and would not have been sufficiently large to matter in the marketplace. On cross-examination, Dr. Schwartz stated that, apart from the lower weight of the Legacy gear, he did not identify any other advantages of the gear in his report. Dr. Schwartz stated that, in his understanding, notwithstanding the fact that there are improvements in ground resonance with the Legacy gear, alternative means of dealing with ground resonance were available to Bell before and at the time of the hypothetical negotiation. Dr. Schwartz stated that he had seen no evidence that weight affects a consumer's decision making when the weight change is less than 50 lbs. He stated that this 50 lbs figure came from Mr. Evans's testimony.

258 In its final representations, the plaintiff objected to the affirmative conclusion made by Dr. Schwartz. The determination of a valid and available NIA is a mixed question of fact and law, and thus falls in the jurisdiction of the Court. Moreover, the plaintiff objected to the different comments made by Dr. Schwartz in his report regarding the alleged lack of proof to support Airbus' position (Airbus' final argumentation at para 87/Counsel's Eyes Only). Those objections are well founded inasmuch that Dr. Schwartz is not a qualified expert with respect to technical issues, questions of market demand, and customers' preferences, nor can he substitute himself to the Court which decides issues of fact or mixed questions of fact and law.

259 Since the Court has found that there were no valid NIA on the eve of first infringement meeting the "could and would test" (*Lovastatin FCA*), this taints the analysis made by Dr. Schwartz and enlarges the bargaining range of Eurocopter. This poses the question whether the compensatory model should be strictly based on a sharing of the incremental economic costs with respect to the development of the Production gear as advocated by Bell and its expert.

(b) The market demand for the product is driven by the customer who purchases a helicopter, not a landing gear

260 Bell's compensatory model is based on the fact that on the eve of first infringement, Eurocopter already knew that the Bell 429 was being developed and was anticipated to be a major competitor in the civilian helicopter market. Eurocopter was already anticipating lost sales or market share from the commercialization of the new Bell 429, regardless of the landing gears. Be that as it may, to the extent that Bell submits that it was not because of the infringing Legacy gear, and to the extent that Eurocopter had any profits at risk from the Bell 429's entry in the market, there was no causal link to the infringement of the '787 Patent.

261 The Court has found that the market based approach allowed Eurocopter to seek a maximum from any surplus generated by the functional benefits of the Moustache gear. In particular, among a number of relevant contextual factors considered, the nature of the civilian and parapublic helicopter market, the competition between the would-be-licensor and licensee, as well as their competitive technology in the market of light twin helicopters, clearly favors the plaintiff. This entitles the plaintiff to seek the maximum amount of which the defendant would have paid [MWP]. The fact that the defendant had the capacity in the fall of 2005 to develop a NIA does not affect this finding, considering that there were a number of impediments respecting the alleged NIAs, and Bell had an interest to not delay the certification and the production of the Bell 429 after the announcement of its launch in February 2005.

(c) Calculations

262 Dr. Schwartz states that the choice of the landing gear on the Bell 429 did not, and would, not have an impact on the commercial prospects for the Airbus EC135 and EC145 models that compete with the Bell 429. This is wrong in fact, or at best, speculative. In his report at page 6, Bell's expert notes that "[t]he infringement was commercially immaterial, and Airbus had no profits at risk from the infringement" (exhibit D-119/Counsel's Eyes Only). He then concludes that, in the context of hypothetical negotiation, the plaintiff would have accepted a small royalty for the license and that Bell would likely agree to pay its expected out-of-pocket costs.

263 In calculating Bell's expected out-of-pocket costs to switch to a non-infringing gear (\$101,000), Dr. Schwartz used a projection of 409 helicopters sold during the license period, notably from 2005 until the patent expiry date in 2017 (exhibit D-119/Counsel's Eyes Only at para 48, and based the forecast for the Bell 429 prepared by Airbus (AH140)). He noted Airbus' projection of 327 unit sales from 2008 until 2015, and then extrapolated that forecast to 2017, when the patent expires, ending with a figure of 409 helicopters. Upon his subsequent review of Heys' report, Dr. Schwartz noted that his colleague had reviewed the same document and concluded that Airbus' forecast was for 316 helicopter sales through 2015, which would project to 406 helicopters through 2017 (Schwartz Expert Report at page 6, footnote 12/Counsel's Eyes Only).

264 Dr. Schwartz also testified that the \$101,000 represented the incremental cost of getting the non-infringing gear to the point where the Legacy gear was at the time of infringement. In cross-examination, when questioned as to why the \$101,000 avoided cost to Bell would be divided by the number of sales, Dr. Schwartz stated that he thought that the appropriate way to express the royalty was on a per-unit basis, which is the translation of the \$101,000 figure into a per-unit number based on the expectation of Bell 409 sales. Given the competitive relationship between the parties and the alternative technologies available to Bell at the eve of the infringement, Dr. Schwartz calculated that Bell's MWP would be the full amount of its avoided cost as a license fee, which would be no larger than \$247 per helicopter, for a total of \$5,187.

265 Furthermore, Dr. Schwartz's calculations are based on an engineering time requirement of [XXX] person-hours [XXX]/hour (Gardner conversation at para 41 of Schwartz Expert report) to change the landing gear to a NIA in the fall of 2005 (Gardner conversation at para 27 of Schwartz Expert Report/Counsel's Eyes Only). In cross-examination, Dr. Schwartz confirmed that the figure of [XXX] hours came only from his conversation with Mr. Gardner. The Court finds Mr. Gardner's evidence mostly unreliable and speculative. In his report (footnote 64 at page 22), Dr. Schwartz stated further that if a worst-case approach was adopted, and Bell would actually require 2000 hours to design around the patent, its avoided costs would be \$154,980 and compensatory damages would therefore be no more than $\$154,980/409 = \379 per helicopter.

(d) Determining the range of bargaining positions in a hypothetical negotiation

266 In terms of the basic economics of a reasonable royalty, Dr. Schwartz stated that parties are presumed to be negotiating in good faith, based on reasonable assumptions about expected future performance, expected incremental revenues, costs and profits, reasonable expectations about the value of the technology, and how the infringing competition would affect the market, among other factors. Dr. Schwartz stated that, in the context of the hypothetical negotiation, if the value of the invention to the infringer, in terms of its ability to generate infringing sales and profits is low, then the infringer would not pay very much to get the license. The more easily the infringer (Bell) could have walked away from the hypothetical negotiation, the greater its leverage.

267 As mentioned before, Dr. Schwartz stated that Airbus already expected to have its profits at risk from the Bell 429's entry into the market, and thus there was no causal link to the infringement, especially since the evidence shows that the Bell 429 was already seen as major competitor. Nonetheless, according to Dr. Schwartz, Airbus also knew that the landing gear would not be the basis for a customer decision to buy the Bell 429 or its own helicopters.

268 Furthermore, Dr. Schwartz stated that compensation for research and development in the context of the hypothetical negotiation would be largely irrelevant. The ability of Airbus to earn a return on its investment in research and development comes from its sales of products that embody that technology. In this case, the two helicopters that embody the technology in question are not the helicopters with which the Bell 429 is competing. As a result, in the context of the hypothetical negotiation, the sale of a Bell 429 with a Legacy gear would not come at the expense of any of Airbus' products that actually embody the '787 technology. It would therefore not hinder Airbus' ability to earn a return on its investment.

269 Acting as a judge deciding the case, based on his "analysis of the position of the parties in connection with this hypothetical negotiation and careful consideration of the *AlliedSignal* factors", Dr. Schwartz ventures a conclusion that "a nominal payment is all that Airbus could expect to receive" (exhibit D-119 at para 48/Counsel's Eyes Only). Dr. Schwartz notably concludes that the amount of compensatory damages should be close to zero since "[t]here is no causal evidence of any economic benefit to Bell from the infringement, except for the avoided costs [of \$101,000 or \$155,000] from the use of the Legacy gear" (exhibit D-119 at para 84/Counsel's Eyes Only). Accordingly, "[b]ased on [his] affirmative analysis", Dr. Schwartz concludes that the royalty that would result from hypothetical negotiation between Airbus and Bell is a running royalty that would be no more than \$247 per helicopter, based on a projection of 409 helicopters sold during the license period (2005 to 2017).

270 As Bell ultimately used twenty-one Legacy gears, Dr. Schwartz concludes that the amount of compensatory

damages owed to Airbus as a result of the infringement is \$5,187 [$\247×21] (exhibit D-119 at para 52 and footnote 66/Counsel's Eyes Only). In the alternative, Dr. Schwartz concludes affirmatively: "even [in assuming] for purposes of this compensatory damages analysis that Bell would pay Airbus the full amount of its avoided costs as a license fee, compensatory damages would be no larger than $\$101,000/409 = \$247/\text{helicopter}$ " (exhibit D-119 at para 48/Counsel's Eyes Only).

271 As a variation of this first alternative, Dr. Schwartz states that "[i]f [he] adopted a worst-case approach and assumed that Bell would require 2000 hours to design around the patent, its avoided costs would be \$154,980, and compensatory damages would be no more than $\$154,980/409 = \$379/\text{helicopter}$ " (exhibit D-119 footnote 64/Counsel's Eyes Only). Dr. Schwartz also proposed a second alternative based on the trade-mark principle of "knockoff Gucci bags", which is explained below.

272 The Court finds Dr. Schwartz's approach flawed, and at best, incomplete, considering that Bell has deliberately chosen the patented technology (the Moustache gear) over the public domain alternative (the Conventional gear) and Bell's own core technology (the I-Beam gear). In attributing a near zero value to the patented technology, Dr. Schwartz's model does not take into account the totality of the evidence on record. The value attributed to the invention is arbitrarily reduced and cannot be limited to the saving of incremental costs related to the development of a non-infringing alternative. Even if we assume that the patented landing gear constitutes the smallest salable unit as a spare part, still, its functional advantages confer an added value to the aircraft. This added value contributes to generate customer demand for the whole salable product (the aircraft) (see Thomas F. Cotter, "Four Principles for Calculating Reasonable Royalties in Patent Infringement Litigation", 27 Santa Clara Computer & High Tech LJ 725 (2016) at pages 743-744; Zelin Yang, "Damaging Royalties: An Overview of Reasonable Royalty Damages" 29 Berkeley Tech LJ 647 (2014) at pages 674-676).

(e) The "knockoff Gucci(R) bags" compensation model

273 At trial, Dr. Schwartz independently proposed another alternative compensation model based on the example of the "knockoff Gucci(R) bags, which will consider the market price of each of the twenty-one Legacy gears produced by the defendant (Bell's final argument at paras 272-278):

DR. SCHWARTZ: [...] what we have here is a unique situation where the infringement stopped before there was any marketplace activity in 2008. That Bell had acquired 21 landing gears. It had 21 landing gear in its possession and -- but it never got to the point where it was actually selling in the marketplace.

And the model presupposes that the infringing product is actually going to get out into the market.

[...]

An idea that seemed to resonate with me is one that might be a useful thought experiment is the one I started to describe yesterday, where I imagine a manufacturer making some number of knockoff Gucci bags. It has every intention of selling them into the marketplace. It's doing it with that expectation, but it's caught. It's stopped. So it never actually gets those into the marketplace.

[...]

And so Gucci says well what we lost when you bought those 20 knock-offs is we lost 20 sales, because you could have bought those bags from us. And again I know it's -- I'm creating an artifice so -- and again to keep the numbers simple they would have sold the bags at a \$100 so the infringer could have paid \$2,000. So if the infringer said well what I could have done instead of buying the knockoffs, I could have paid you \$2,000.

From that \$2,000, again we'll keep the numbers simple; Gucci has a 50 percent margin. So on those sales that weren't -- that could have been made but weren't, it would have earned \$1,000 in profit and now we have two end points.

The \$1,000 is what Gucci lost. It's not going to accept any less than that, so for Gucci that's its minimum willingness to accept MWA, minimum willingness to accept.

The \$2,000 represents the maximum willingness to pay on the part of the infringer and they would negotiate something between \$1,000 and \$2,000 and that would actually reflect what happened. So then the question is how can we analogize that to this case.

(Transcript Volume 8 at pages 27-28 and 30-31)

274 As we can see, Dr. Schwartz proposed an imaginative method of quantifying the amount of compensatory damages, in this case, by assimilating the twenty-one Legacy gears as counterfeit goods -- which they are -- who would have been effectively sold by Bell at the market price to its customers and would have generated a forty percent profit. From the point of view of Eurocopter, there were twenty-one "lost sales".

275 Under this alternative approach, Dr. Schwartz proposed two ending points that could reasonably establish the "bargaining range" between the parties. First, Dr. Schwartz evaluates that Airbus' MWA would be approximately \$210,000 considering that this Court has already established the unity price of the Legacy gear at \$25,000 (2012 FC Judgement at para 415), and that Airbus would make a 35-40% margin ($\$25,000 \times 40\% \times 21$ infringing gears). On the flipside, the MWP for the defendant would have been \$525,000 ($\$25,000 \times 21$).

276 The defendant also reviewed the alternative proposition made by his own expert at trial, but specified that it does not necessarily align itself with the specific interests of the parties. Furthermore, the defendant underlines that this alternative calculation of compensatory damages was provided to this Court independently (exhibit D-121). With that being said, the Court has the capacity to analyse this new perspective especially if it sued better with the specific circumstances of the case, or, as it is the case, help the Court to find a reasonable solution for this hypothetical negotiation.

277 In the context of trade-marks, the "knockoff Gucci(R) bags" rule applies by default when it is impossible to measure the extent of the counterfeiting or impractical to prove the actual damages suffered by the plaintiff. In those circumstances, this Court will award compensatory damages in a form of nominal damages against retail establishments selling counterfeit goods (*Louis Vuitton Malletier SA v Yang*, [2007 FC 1179](#), [\[2007\] F.C.J. No 1528](#) at para 43; *Louis Vuitton Malletier SA v Singga Enterprises (Canada) Inc*, [2011 FC 776](#), [\[2011\] F.C.J. No 908](#) at paras 129-130; *Chanel S de RL v Lam Chan Kee Company Ltd*, [2016 FC 987](#), [\[2016\] F.C.J. No 940](#) at para 38 [*Chanel FC 2016*]). Here, the Court knows precisely the extent of the infringement. Indeed, twenty-one infringing Legacy gears were produced but never sold to any customer.

278 It can be argued that the proposed nominal amount of \$500,000 does not compensate Airbus for any loss of sales of Airbus helicopters equipped with the Moustache gear or/and for loss of goodwill of the "Airbus" trade-mark and goodwill attached to the original and non-counterfeited product, the patented Moustache gear. Accordingly, the "knockoff Gucci(R) bags" analogy is somewhat defective. Still, without obtaining a license from Eurocopter, Bell had no right whatsoever to produce, to use, to advertise, to offer for sale, or to effectively sell any quantity of infringing Legacy gears, whether it was one, two, twenty-one, or any unspecified number of same. In this context, it is not unreasonable to attribute a total market value of \$525,000 to the infringing Legacy gears ($21 \times \$25,000$), as if Airbus was deprived of selling to Bell twenty-one original Moustache gears as spare parts. Although it is an imperfect and *ex post facto* comparison as Bell was not a manufacturer but the end customer, the figure of \$525,000 provides nevertheless some objective basis upon which, in reconstructing a hypothetical negotiation taken place on the eve of first infringement, both parties may have retrospectively come to a license agreement.

F. Assessing the right bargaining range between the parties

279 The ultimate outcome of the *AlliedSignal* factors in the hypothetical negotiation will affect the relative bargain power of each party in the determination of a reasonable royalty. It is clear that the parties' proposals for reasonable royalty are both diametrically opposed and unrealistic. In the real world, the parties would have walked away from those proposals and no license would likely have been granted on the original terms proposed by Mr. Heys and Dr. Schwartz in their respective reports. However, in our hypothetical world, this Court must find a reasonable royalty to

remedy the infringement that occurred in the real world. The paradox can be explained by the difficulty to integrally apply well-known methodologies to the present circumstances.

280 Looking back at the surplus theory, Sidak states "[i]f the licensor's minimum willingness to accept exceeds the licensee's maximum willingness to pay, there is no surplus over which to bargain. Therefore, the outcome of a hypothetical negotiation would be that no voluntary exchange occurs." In this scenario, Sidak indicates that the Court should require the infringer to pay an amount that should not be less than the patent holder's minimum willingness to accept in the hypothetical negotiation. "Even though the amount would exceed the infringer's hypothetical maximum willingness to pay, that amount would be necessary to fully compensate the patent holder for its injury from patent infringement." (Bargaining Power and Patent Damages at page 28).

281 Understanding the market is normally an important factor on how the parties would approach the hypothetical negotiation. The Bell 429 has been marketed and advertised with the infringing Legacy gear. Clearly, Airbus can make a valid claim that, as a result, Bell obtained a competitive advantage. Otherwise, Bell would not have felt necessary to pursue the certification process of the Bell 429 with the Legacy gear in the first place and later claim that this was the first time it was using such innovative technology. To be sure, where the infringer deliberately chooses the patented technology over the public domain alternative, the Court is allowed to infer that the infringer viewed the patented technology as superior, and thus that some non-zero royalty is appropriate (Norman Siebrasse and Thomas F. Cotter "A New Framework for Determining Reasonable Royalties in Patent Litigation" at page 744).

282 The circular reasoning of the parties and their experts has brought them to some kind of a dead end. Not surprisingly, in the defendant's final pleadings, counsel noted that "[i]n this case, the Court has rightfully recognized that it will be a difficult task to calculate a reasonable royalty in respect of Bell's infringing use of twenty-one Legacy gears which were never sold" (Bell's final argument at para 272).

1. Assessing the situation with a fresh approach

283 While causation is a necessary ingredient in an account of profits analysis, it is less obvious in case where the Court is asked to reconstruct a hypothetical negotiation for the conclusion of a license agreement taking place on the eve of first infringement of a valid patent. Where the patentee has been allowed to seek an accounting of profits, the patentee is only entitled to that portion of the infringer's profits which is causally attributable to the use of the invention (*Lubrizol Corp v Imperial Oil Ltd*, [1996] 3 FC 40, [1996] F.C.J. No 454 (FCA), rev'g [1994] F.C.J. No 1441 (FCTD) [*Lubrizol*]; *Celanese International Corp v BP Chemicals Ltd*, [1999] RPC 203, (1999) 22(1) IPD 22002 (Pat Ct) at para 37 [*Celanese*]; *Monsanto Canada Inc v Schmeiser*, 2004 SCC 34[2004] 1 SCR 902 at para 101). In such a case, the calculation is made *ex post* with the full benefits of hindsight. (Siebrasse 2004).

284 Both parties have recognized that this case is unique. Indeed, the Court has refused, in 2012, to allow the plaintiff to choose an accounting of the defendant's profits, since Eurocopter cannot recover profits flowing from the sales of Bell 429 helicopters equipped with a non-infringing gear. In the article "Damages Calculation in Intellectual Property", the joint authors described this situation as "reasonable royalty by default", since the defendant's use has not hurt the plaintiff, or at least, there is no valid evidence or legal rule to support it (Damages Calculation in Intellectual Property at pages 35-36). Nevertheless, the plaintiff would be entitled to a reasonable royalty for the pragmatic reason that otherwise the patent has been invaded, and the law would be standing by and allowing the infringer to act without penalty. In those circumstances, it can be argued that the real damages flowing from this situation are that "the plaintiff lost the opportunity to sell to the defendant the right to use his property".

285 On the other hand, where the patentee is claiming damages in the form of a reasonable royalty, the situation is somewhat different from a theoretical standpoint. Most frequently, in a "damages award", to determine the maximum amount which the infringer would have paid and the patentee would have accepted, courts refer to a "pure *ex ante*" approach, based on whatever information would have been available to the parties. The conventional rationale for the *ex ante* approach is that it preserves the patent incentive system by ensuring that the patentee is no worse off (but also no better off) that it would have been, but for the infringement.

286 As noted by the learned academic and author, Norman Siebrasse, "[t]he hypothetical negotiations which form the basis for the reasonable royalty take place before the patent is used, and so the price the willing licensee would pay would depend on the *anticipated* profit from the use of the patent" [emphasis added] , and "[t]he fact that the benefit was not actually realized does not mean that the licensee would not have agreed to pay a royalty at the time of the initial use" (Siebrasse 2004 at page 70). Accordingly, the reasonable royalty should be calculated on the basis of that anticipated profit. This is basically the approach chosen by Mr. Heys who speculates on the number of sales of Bell 429 helicopters that would have been at risk -- and the effect on expected Bell profits -- if a license agreement was not entered into in the fall of 2005 for the use of the infringing Legacy gears.

287 Interestingly, Mr. Siebrasse also makes a fine distinction between the "innocent infringer" who has been condemned to pay damages in the form of a reasonable royalty, and the "typical licensee" who has voluntarily decided to enter in a license agreement with the patentee: "[...] the innocent infringer who does not benefit from the patent is in a very different position from a typical licensee. A standard royalty is bargained for by a user who expects to benefit from the patent. This is why he is willing to pay for the right to use it. But a user who does not expect to benefit from the patent would not be willing to pay anything at all for the right to use it. It follows directly that the reasonable royalty in the circumstances would be zero" (Siebrasse 2004 at page 61).

288 But in the present case, the defendant is not an "innocent user" or an "innocent bystander" who has derived incidental benefit from an infringing use of the invention. Indeed, the defendant was fully aware of the risks surrounding the use and appropriation for its own benefit of the patented technology which was innovative and attractive for a number of reasons as it resulted in weight savings while diminishing ground resonance (2012 FC Judgment at paras 274 and 431).

289 It was not seriously challenged in the first phase of the trial that Bell bolstered the sales of the upcoming Bell 429 helicopter by making public a number of technological advances flowing from the pursuit of the MAPL program, which notably included an improved type of landing gear. As noted by the Court in the 2012 FC Judgment at paragraph 442:

[442] Reference at the trial was also made to Bell's promotional videos showing the features of the Bell 429 (JB-86 and JB-225). These videos very briefly mention that the sleigh type landing gear is one of the key technologies from the MAPL Program. However, according to Bell, the sections of these videos that discuss the sleigh type landing do not suggest that Bell is the first helicopter manufacturer to adopt a sleigh type landing gear. Be that as it may, the Court finds that after the institution of the action in May 2008, Bell and its distributors have continued to promote the Bell 429 equipped with the Legacy gear (see notably exhibits JB-226 to JB-229) which constitutes reprehensible conduct which further aggravates the damages caused by the infringement of the '787 Patent.

290 Conversely, the *ex ante* approach can sometimes result in awards that reflect the parties' erroneous "*ex ante*" expectations. In this context, Siebrasse proposes to explore a new Canadian perspective in the hypothetic negotiation which is not far from the recourse in the United States to the "book of wisdom":

[...] some commentators have proposed a "pure *ex post*" approach which aspires to recreate the bargain the parties might have reached as of some later date, such as the date of judgment. This approach uses more accurate information about the technology's actual value, but (contrary to sound innovation policy) it also would enable the patentee to capture some of the patent's holdup value.

291 With respect to this *ex post* approach, the US Supreme Court, per Justice Cardozo, stated in *Sinclair Refining Co v Jenkins Petroleum Process Co*(1933), 289 US 689 (1st Circuit 1933) at 698:

[A] different situation is presented if years have gone by before the evidence is offered. Experience is then available to correct uncertain prophecy. Here is a book of wisdom that courts may not neglect. We find no rule of law that sets a clasp upon its pages, and forbids us to look within.

292 More recently, in Canadian jurisprudence, Justice Snider stated in *Jay-Lor* at paragraph 151, that "[f]or purposes of the hypothetical negotiations, both parties are assumed to know all of the facts", including "the actual financial information that has come available through [the] litigation and over time." [Emphasis added] Similarly, in *Apotex Inc v Takeda Canada Inc*, [2013 FC 1237](#), [\[2013\] F.C.J. No 1355](#) at paragraph 21 (see also *Teva Canada Limited v Pfizer Canada Inc*, [2014 FC 248](#), [\[2014\] F.C.J. No 341](#) at para 80 [*Teva Canada Limited FC*]), Justice Phelan stated that:

The better approach is to mirror as much as possible real world circumstances -- to use history as the basis of the calculation of the hypothetical world. In this case the parties start from the premise that real world events post Apotex's NOC give the basis upon which to then work out what likely would have happened if Apotex had not been held back approximately one year.

293 On cross-examination, Dr. Schwartz stated that, although the parties are informed of post-negotiation events, the "book of wisdom" does not give more weight to any period or event (Transcript Volume 8 at page 183 and following). At this point, while this Court understands that it may make inferences based on post events, it cannot reconstruct the hypothetical negotiation taking place on the eve of first infringement in ignorance of the totality of the evidence (*pre* and *post*) on record. It may also be appropriate to have a reality check with actual profits made by the infringer where such evidence exists on the record. Such *ex post facto* evidence may be used to corroborate the calculations made by the experts with respect to anticipated profits on the eve of first infringement. But this recourse to the evidence is limited.

294 Using "the actual financial information that has come available through [the] litigation and over time" [emphasis added] (*Jay-Lor* at para 151) is one thing, but reconstructing the bargaining position of the parties, based on a predictive model tainted by questionable inferences made *ex post facto*, is another. A presumption is an inference drawn by the law or the Court from a known fact, while presumptions which are not established by law are left to the discretion of the Court which shall take only serious, precise, and concordant presumptions into consideration: articles 2846 and 2849 of the *Civil Code of Quebec*, CQLR c CCQ-1991. Inferences must be grounded on evidence, but the evidence itself must be reliable. There is a fundamental element of uncertainty and chance in the real world. The fact that the farmer was able to catch the fox who had killed his chicken the week before does not mean that he will be able to do so in the future or that he would have done so a year earlier. The trier of fact would like to know more about the farmer's various methods, his test and fail experiences, etc. before drawing any sort of conclusion.

295 The fact that Bell was able to develop the Production gear at some posterior date does not allow the Court to infer that Bell would have done so on the eve of first infringement of the '787 Patent. It would simply be too easy to allow infringers of a valid patent, to retroactively rewrite history to escape their liability to pay damages by bringing out scenarios that were never considered or unrealistic on the eve of first infringement. This is not a policy statement, but an observation based on the rule of law and due process. The rules of evidence are there to protect the right of each party to fairly present their case before the Court. In the case at bar, Bell is claiming to have had NIA(s) that were not yet known (the Production gear) or had been earlier discarded (the I-Beam gear). This raises a question of credibility. This is where the evidence of Bell is unreliable and speculative. In other words, if a look into what transpired in the "real world" is acceptable to a certain point, it must not translate itself in some "hindsight bias", which can be defined as the inclination, after an event has occurred, to see the event as having been predictable, despite there having little or no objective basis for predicting it (N. J. Roese and K.D. Vohs' "Hindsight bias" (2012) 7:2 Perspectives on Psychological Science at pages 411-426).

2. Book of Wisdom

296 Although this principle is not directly addressed in Mr. Heys' report, Dr. Schwartz addressed the book of wisdom in his testimony. During his examination in chief, Dr. Schwartz engaged in the following exchange with the

Court (Transcript Volume 7 at page 215):

JUSTICE MARTINEAU: Because you're at the eve of the infringement. Both parties are there to negotiate in good faith what would be a transfer of what you could speak as being practising the patent without any infringing risk.

MR. SCHWARTZ: That's right, although what makes it both interesting and complicated is that, in the course of that analysis, there is a principle that we call the book of wisdom which says, in effect, we're going to inform that hypothetical negotiation by what actually happened. Not that we're going to have it driven by, but if it turns out, for example, that the parties' expectations are so out of line from what actually happened in the marketplace, either under-performing or over-performing, whatever it might be, that we're going to factor that actual performance back in so that when we get a compensatory result, it actually is consistent with what really happened. And that's one of the challenges here because the hypothetical negotiation is exactly as you described. It's a negotiation that would transfer a licence from Airbus to Bell that would assume that Bell could use it for whatever was agreed to.

[Emphasis added]

297 On cross-examination, counsel for Airbus questioned Dr. Schwartz with respect to the book of wisdom (Transcript Volume 8 at page 183 and following):

MR. NITOSLAWSKI: And what the book of wisdom principle is, as I understand it, is you look to current events, what happens in 2014, '15, '16, to inform what happened at the hypothetical negotiation back in 2005. Is that my correct understanding of the book of wisdom?

DR. SCHWARTZ: Not quite. It's not just current events. The way I would characterize it is you look at what actually happened not necessarily giving more weight to any one time period or another, although that depends on the facts of the particular situation, but you're informing the negotiation by recognizing what actually took place.

MR. NITOSLAWSKI: What actually happened. And here what actually happened is that there were only 21 infringing landing gear.

DR. SCHWARTZ: Yes.

MR. NITOSLAWSKI: That were never sold.

DR. SCHWARTZ: Yes.

MR. NITOSLAWSKI: So in fact what we're looking at in the hypothetical negotiation with the assistance of the book of wisdom is a development licence. Never any sales.

DR. SCHWARTZ: The problem with that is that you're essentially changing the construct of the negotiation. I understand the point that you're making, but you're changing the construct of the negotiation.

MR. NITOSLAWSKI: Sir, aren't you changing the construct of the negotiation by saying that the parties would negotiate a licence based on units sold but no, they weren't sold, so we'll pay it anyway because they weren't sold, but they were made. Isn't that changing the construct of the negotiation?

DR. SCHWARTZ: I don't think so.

MR. NITOSLAWSKI: Okay. So coming back to my suggestion that what the parties, with the benefit of the book of wisdom, negotiated as a development licence, does that not justify a lump sum rather than a running royalty based on sales, which never occurred?

DR. SCHWARTZ: You've asked me that question before, I'll answer it again. I will stick with the same answer. I think that the running royalty is the more appropriate answer. But if you ask me is there a possibility that they might agree to pay 101,000, I can't exclude that possibility. I still believe that the more likely outcome is the running royalty, but I can't exclude the possibility of the lump sum were the parties to agree that it was a development licence. I can't exclude that possibility.

[...]

[Emphasis added]

298 As can be seen, Dr. Schwartz's analysis is somewhat result driven. While at times, Dr. Schwartz resorts to an *ex post* approach in reconstructing the hypothetical negotiation taking place on the eve of first infringement in the fall of 2005, on the other hand, he continues to use the saved incremental costs of developing a NIA (assumed to include the nonexistent Production gear at the time of the hypothetical negotiation) based on projected sales of Bell 429 helicopters incorporating the twenty-one infringing Legacy gears which were never sold to any customers but were, according to the uncontradicted evidence, exclusively used by Bell for its own purposes, including obtaining the certification of the Bell 429 and promoting sales of the Bell 429 (resulting in a number of LOIs). This biased methodology produces the running royalty model advocated by Dr. Schwartz.

299 On the other hand, the plaintiff would have clearly looked for a higher rate of license, considering the high demand for the Bell 429. Under the book of wisdom, the plaintiff has submitted, as an alternative, that Airbus would likely have accepted to enter into a "license for development" for a minimum amount of \$2 million (Airbus' final argument at paras 196- 204/Counsel's Eyes Only; Transcript Volume 10 at pages 78-79). Although the defendant has greatly benefited from the research and development accomplished by Airbus with the "Moustache" gear, the words "license for development" are somewhat confusing.

300 First, from an *ex ante* perspective it is very doubtful that Bell would have agreed on such "development license" in light of the jurisprudential exception to infringement: "the idea is that producing a patented product is not infringement if it is done for the purposes of experimentation and testing: *Micro Chemicals Ltd v Smith Kline & French Inter-American Corp*, [1972] SCR 506 and *Merck & Co v Apotex Inc*, [2006] FCJ 671, 2006 FC 524") (2012 FC Judgment at para 54). On the flip side, the experimental exception was dismissed as a valid defence to the infringement action in the first phase of the trial because "Bell did not construct, used or sold the Legacy gear solely for uses reasonably related to the development and submission of information required by law" (2012 FC Judgment at para 268).

301 Second, we are not in a context where Eurocopter was ever obliged by law to agree on the terms of a compulsory license granted to Bell to develop a non-infringing alternative resulting from an unauthorized use of the patented landing gear. Be that as it may, the incremental cost of developing a "clean sheet" non-infringing alternative should have a significant impact on the determination of a reasonable royalty. Accordingly, the specific circumstances of the case point more toward a "license to use", rather than "license for development".

302 While this Court cannot find any valid NIA that would have been available at the time of the hypothetical negotiation and/or would have properly fit with the entire design of the Bell 429 (except possibly the Conventional gear with a weight penalty of at least 16 lbs), this does not mean that it should ignore "real world" events that arose after the fall of 2005, and in particular, that only twenty-one Legacy gears were manufactured and used by Bell, that no Bell 429 equipped with the infringing Legacy gear has been delivered to customers, and that a number of LOIs for the Bell 429 were secured prior to the development of the Production gear.

303 Apparently, the teachings of the "book of wisdom" seem to have somewhat softened the unrealistic position advocated in Mr. Heys' report. At the end of the trial, there were suggestions that since the Legacy gear was never

incorporated in Bell 429 helicopters sold to clients, the plaintiff would have more willingness to grant a license to make and use the Legacy gear in order to facilitate the testing and the certification process of the Production gear.

304 In current practice, a reasonable royalty is assessed by determining the incremental profit due to the patented invention as compared with the next best non-infringing alternative, and then splitting that incremental profit between the parties. See Norman Siebrasse and Thomas F. Cotter "A New Framework for Determining Reasonable Royalties in Patent Litigation" (2014) Florida Law Review 34 at page 21). However, a profit based on methodology proves to be useless in the present case since there have been no delivery of Bell 429 helicopters equipped with the infringing Legacy gears. Be that as it may, this does not mean that there should be no value attributed to the invention since it was nevertheless used at the benefit of Bell during the three year infringement period, while no compensation for the infringing use has ever been proposed by Bell or accepted by Airbus in the contrary case.

305 Although the parties have attempted to determine the value of the Legacy gear in the mind of the customer for Bell 429, no real value was proposed for the patented Legacy gear and all its features for Bell, especially its beneficial weight, which was preferred for the final design of the Bell 429 helicopter in 2005. However, if we look in the future, it appears that weight savings continued to be a live issue. As appears from the 2012 Presentation (exhibit P-117 at page 15/Counsel's Eyes Only), Bell was willing to invest approximately [XXX] on a three year period to save [XXX] lbs off their aircraft. There is a 16 lb economy between the Legacy and the Production gears (this excludes the 10 lbs or so economy resulting from the elimination of the wire cutter).

306 As a starting point for discussions, it would not be unreasonable for Airbus to assume, in the context of the hypothetical negotiation, that the value of the infringing gear would roughly represent [XXX] of the projected investment [XXX] for Bell, who was prepared to invest such amount, while still looking to recover profit in totality with the sales of the new Bell 429 helicopter. As seen in *AlliedSignal*, the Court has, in the past, turned to indirect evidence of what might have been considered reasonable, to lead to a 25-33.3% royalty rate, based on higher or lower factors. At such, the Court finds that, on the eve of the first infringement, it would not be unreasonable for the plaintiff to ask for a greater range of royalty considering the great value Bell has for lighter aircrafts. A split of 75%-25% between Bell and Airbus would represent \$800,000 and may give a general idea of the range of reasonable propositions respectively made in a hypothetical negotiation.

307 Resorting to the book of wisdom and considering the totality of the evidence, the Court finds that a figure of approximately \$500,000 in compensatory damages falls within the range of acceptable outcomes of a hypothetical negotiation taking place in the fall of 2005 for the payment of a royalty payment corresponding to the infringing use of twenty-one Legacy gears.

3. Compensation for saved costs and time

308 The parties agree that in order to determine the appropriate reasonable royalty, the Court must notably consider the incremental benefits of the patented invention over that of any valid non-infringing alternative. For the plaintiff, this incremental benefits should be the fee that the parties would have agreed for the use of the Legacy gear in order to develop the Production gear and obtain the certification of the Bell 429, where for the defendant the license fee should strictly be the difference between the cost of the Legacy gear and the cost for any NIA technically and economically feasible at the time of the infringement.

309 From the beginning, the plaintiff underlines that this case is the first of its kind. Since the defendant did not sell any of the Legacy gear and since the plaintiff could not establish any loss of sales, the damages would have to be more abstract and fictional than any real loss of profits. The plaintiff adduced voluminous evidence showing the long and forensic process needed to develop the Moustache gear in the first place. Consequently, the plaintiff submits that the defendant was unjustly enriched by taking advantage of the Moustache gear to develop the Production gear. Therefore, in the application of the *ex post* hypothetical negotiation, the plaintiff submits that both parties would have agreed to grant a license for research and development to Bell. Indeed, Bell would have benefited from

getting a license to use a landing gear which is efficient and provides all sorts of advantages. In its final submission, the plaintiff has described this situation as a "stepping stone" or a "springboard" for the development of the Bell 429 (Airbus's final argument at para 145/Counsel's Eyes Only). As such, the plaintiff submits that it has cost approximately [XXX] to develop the I-Beam gear by the end of 2012 (exhibits P-117 (B-0436) and P-113 at tab 71/Counsel's Eyes Only).

310 The plaintiff has proven on a balance of probabilities that the infringing use of the Legacy gear allowed Bell to rapidly develop the Bell 429, at an efficient cost, considering the regulatory restrictions for the certification of an aircraft of this proposed weight. The Court finds that a license for the use of the Legacy gear would have allowed the defendant on the eve of the first infringement to circumvent important research and development investments, as well as related costs. The figures calculated by Dr. Schwartz in his report are grossly underestimated and unrealistic. In adopting a conservative approach, the Court finds that the plaintiff would have been in an advantageous position to negotiate a higher compensation.

311 While this Court has dismissed the *Gillette* defence and found that the defendant did not construct, use or sell the Legacy gear solely for uses reasonably related to experimentation and testing, (2012 FC Judgment at para 268), it is debatable, considering that the Production gear is a modified version of the Legacy gear, whether a license for development in the course of hypothetical negotiation would be a reasonable alternative to an approach based on profits at risk, knowing that there have been no sales of Bell 429 helicopters equipped with a Legacy gear. Although the Court has already dismissed the perspective of "license for development" and has opted for a "license to use and make" the twenty-one infringing landing gears (see paras 299- 301), it remains that Airbus could have negotiated a higher compensation for all the costs saved for the development of the Bell 429 or for the Production landing gear.

312 The fact that the defendant has already saved considerable time in adopting a "slavish copy" of the Moustache gear (2012 FC Judgment at para 426) and later saved time developing the Production gear, and obtaining certification of the Bell 429 poses the question of how much time and costs would be involved if Bell had chosen to develop, without the teachings of the '787 Patent, a "clean sheet" non-infringing landing gear presenting similar advantages as the Moustache landing gear. Mr. Bernard Certain and Mr. Pierre Prud'homme Lacroix provided the bulk of the plaintiff's evidence with respect to and the development of the Moustache gear during the first phase of the trial, including the calculations and tests performed on various landing gears for the EC120 and EC130. Between October 1992 and mid-1997, Mr. Prud'homme Lacroix, one of the named inventors of the '787 Patent, worked part-time on the EC120's landing gear and estimated having worked on it for 800 hours a year. He also estimated that two or three other drafters also worked part-time with him on developing the landing gear in the order of 500 hours per year. There was also the study of vibrations, which he estimated at about 400 hours a year. He further estimated 300 hours a year for project teams, as well as 500 to 600 hours needed to explain all of this in terms of manufacturing, procurement, etc. He therefore estimated that about 2500 or 2600 hours a year were spent by the team. From the end of 1992 until certification in 1997 (four and a half years), that adds up to a total of between 11,000 and 12,000 hours. Furthermore, Mr. Prud'homme Lacroix also estimated that an additional 6500 hours was required for testing, even before certification tests. In addition, certification testing requires another 1500 hours for all of the drop tests, as well as another 3000 hours for ground resonance testing.

313 On cross-examination, Mr. Prud'homme Lacroix acknowledged that the Moustache gear had been developed over [TRANSLATION] "a four-year learning period". He stated that [TRANSLATION] "all of it -- it's a progression, it's a specific learning curve, it is -- picture Thomas Edison again, his thousandth light bulb would never have been invented if he had not made the previous 999". For the EC130, they adapted a known solution -- the Moustache gear which was used on the EC120. He realized that they had saved a substantial amount of money. Developing the EC120's landing gear was much faster because they had come up with a solution. Therefore, it took less than two years of work, and that includes drop tests and ground resonance testing. He also testified that finding a landing gear for a new helicopter was nonetheless an arduous process, given that all helicopters are not alike and various solutions are not necessarily adaptable right away. A significant amount of work is required. During cross-examination, Mr. Prud'homme Lacroix also noted that among the work he did on the Moustache gear at the end of

1995, he had also worked on modifying the software that would become CALMOUS. He stated that the modification of the CALMOUS program allowed him to work more rapidly on the landing gear calculations.

314 The defendant submits that the specific amount of time spent on the development of the Moustache gear, between 1992 and 1996, remains underdetermined and, in any event, that it is not really relevant in a hypothetical negotiation of a license fee for Bell's infringing use of the Legacy gear. As such, the defendant produced some read-ins from Mr. Certain's answers in discovery during the first phase of the trial (exhibits P-115, Heys' report at para 24, exhibits D-115 at tabs 1 and 2/Confidential). Mr. Certain is a lead flight test engineer at Eurocopter and had become the head of the EC120 program by 1995. Mr. Certain's stated in 2009 (exhibit D-115 at tab 2/Confidential) that, although the development of the Moustache gear started in 1992, the Moustache gear was only seriously considered at the end of 1995, since the testing of other types of gears, such as the Gazelle, the Écureuil, and the Alouette gears, were not very conclusive. Mr. Certain confirmed that those other landing gears were often destroyed during the test flight due to the ground resonance problems (exhibit D-116 at tab 2/Confidential and Counsel's Eyes Only). Further, it was only in July 1996 that he flew for the first time with an aircraft equipped with a Moustache gear (exhibit D-115 at tab 1/Confidential). Even though the evidences show that the Moustache gear was developed within a four years period, the testimonies of Mr. Prud'homme Lacroix and Mr. Certain show that different type of gears were indeed developed and tested in the same time, which make it impossible for this Court to attribute a specific length of time for the development of the Moustache gear itself. That being said, the Court considers that this is not determinative. We must look whether Bell would have agreed to pay "sunk costs", inasmuch as Bell would also have to bear its own sunk cost in the development of a viable NIA. In this scenario, if getting a license to use the Legacy gear will save money and further development costs. This would be advantageous to Bell.

315 But the defendant brings this reasoning a step further and does not limit itself to the costs of development of the Conventional gear and the I-Beam. The defendant submits that, under the book of wisdom, the Court must infer retrospectively that Bell would have known about the Production gear and how this landing gear would have answered to all the requirement of the Bell 429 while not infringing the '787 Patent. As such, the defendant submits that, during a hypothetical negotiation, Bell would have considered the incremental costs, namely the design-around costs. The defendant submits that the reasonable royalty could have been calculated at the time of the hypothetical negotiation by taking the difference between the defendant's cost to use the infringing Legacy gear and their cost to use the non-infringing Production gear (Bell's final argument at para 228/Counsel's Eyes Only). Afterward, the design-around costs would have been limited to the incremental costs to get the Production gear to the design stage, i.e. where the Legacy gear was at the date of the first infringement (exhibit D-119/Counsel's Eyes Only). This reasoning, inasmuch as it relates to the Production gear, is seriously flawed for the reasons already mentioned earlier by the Court. But there are a number of other factual reasons to reject Bell's expert's inferences which are not grounded on the evidence on record.

316 At trial, Mr. Gardner explained that there are roughly four sequential stages in the design process of a helicopter. By October 2005, the Legacy gear was at the third one, the detailed design stage, as the certification had not yet started and optimization was ongoing. According to Mr. Gardner, Bell would have anticipated spending approximately [XXX] hours, at the rate of [XXX] in Mirabel, to do the engineering work to get each of the Conventional gear, Production gear or I-Beam gear through the detailed design phase. This Court does not give much weight to this evidence since all three landing gears were not found to be valid NIAs of the Legacy gear, not to mention that Mr. Gardner's estimate was strongly objected to by the plaintiff due to lack of evidence supporting the alleged duration.

317 On the issue of time that may be required by a manufacturer to develop a working landing gear, the Court also considered the defendant's evidence, including Mr. Thiagarajan's testimony which clearly demonstrates that the development of a working landing gear is a long and complex process, that it is a risky enterprise and, as there are no guarantees that it will be a successful landing gear that can be developed, tested, and ultimately retained by management. This is what happened with the I-Beam. Mr. Thiagarajan stated that the first step in the design process was to study the different cross sections that could be used for the landing gear. He stated that the team looked at approximately 35 different cross sections. Mr. Thiagarajan testified that following this process, the team

decided that they would proceed with the I-Beam cross section, so they designed, analyzed and engineered it from March 1996 to September 1996, and then built and tested it from September 1996 to December 1996. The tests carried out included a static test to demonstrate the stiffness of the whole cross-tube, as well as a drop test.

318 In particular, Mr. Thiagarajan testified that he worked on the landing gear for the Bell 407 helicopter from 1994 until almost 1996. Following his work on the landing gear of the Bell 407, Mr. Thiagarajan testified that he began work designing for the Bell 427. He stated that his work on the Bell 427 spanned from the end of 1995 to the end of 1999. Mr. Thiagarajan stated that he began working on the design of the Bell 427 landing gear around November 1995. He testified that his role was to start with the design concept, looking to fine tune the cross section instead of using rocker beams. He stated that this was the concept of the trade study that was started in November 1995. He stated that he worked as part of a team of three; he was the structural analyst, and he worked with a dynamics analyst and a design engineer. Mr. Thiagarajan was asked by Bell's counsel what the steps in this design process were, to which counsel for Airbus objected on the basis that no pertinent documents had been produced to this effect (Transcript Volume 6 at page 20). Counsel for Bell countered the objection by mentioning that Mr. Prud'homme Lacroix had also testified "about the amount of time it took him to develop the gear for the EC120, how much it cost to develop the gear of the EC120, and we had no documents to that effect despite requesting those documents on discovery" (Transcript Volume 6 at page 21).

319 Both parties strongly oppose any economic propositions made by Mr. Prud'homme Lacroix and Mr. Thiagarajan regarding the estimate period to develop the Moustache or the I-Beam gears, respectively, as no evidence were supporting such estimate. Bell's counsel also submitted that the context of hypothetical negotiation is based on projections, and as such, the parties have almost no choice but to rely on such projections with comparable leading gear. Therefore, Bell's experience in the past in designing landing gears could be relevant. However, the admissibility of statement is decided by reference to the law of evidence, rather than to the strength of the submissions of counsel.

320 The Court can accept the statements made by both witnesses on the method and technical problems encountered during the development of the landing gear, but cannot accept any submissions regarding the time period necessary for the development of any landing gear without reliable factual evidence to support it. Nevertheless, although no evidence clearly indicates the period of time necessary for the creation of the Moustache gear or the I-Beam gear, the Court held in 2012 that the development of a helicopter is a highly complex design and engineering exercise that necessitates concerted team efforts (2012 FC Judgment at para 84).

321 Objection on the same nature was also raised regarding Mr. Gardner's testimony, who stated, during his examination in chief, that at the time he was writing his report (exhibit JB-372-D/Counsel's Eyes Only and Confidential), his estimate for the effort it would take to size, design, and certify a gear with non-circular sections was 2000 man hours. He stated that he had estimated an additional 500 hours for a drop test, if one were required. Again, the Court has given relative weight to those statements given that no clear evidence was supporting such estimate.

322 The Court has also considered the testimony of Mr. O'Reilly, which is inconclusive and is given little weight considering that DART Aerospace is not an aircraft manufacturer and has never designed and tested a landing gear for a clean slate helicopter. Mr. O'Reilly also stated that DART Aerospace had designed a landing gear for the Bell 429 helicopter, but had not manufactured it (Transcript Volume 5 at page 122). Mr. O'Reilly also stated that in 2005, DART Aerospace was manufacturing landing gear for the model 407. He stated that it costs approximately \$250,000 to develop a complete set of this gear, including design, engineering hours, drop testing, flight testing, and certification. On cross-examination, Mr. O'Reilly stated that when making a landing gear, DART would be held to the same stringent requirements that the OEM would be, and would have to meet the same certification requirements. If a minor change is made to a landing gear, it would typically be the in-house Design Approval Representative [DAR] delegated by Transport Canada who would ensure that the landing gear respects the requirements of the transport authorities.

323 Overall, it is impossible for this Court to pinpoint the exact amount of time saved by the defendant in research

and development from the infringing use of the Legacy gear. The defendant suggests that the saved incremental costs of developing are minimal considering the fact that in a few months its engineers came out with the design of the Production gear, but the true question is whether in a hypothetical negotiation taking place on the eve of first infringement, such a favourable outcome was reasonably foreseeable by the parties. In the hypothetical model of negotiation, even when posterior facts are considered, the Court must assess the totality of the evidence -- pre- and post-infringements, because of the chance factor statistics over an extended period of time constitute a better productive behavioral indicator than an isolated incident.

324 Moreover, according to the documentary evidence, Bell conducted extensive certification tests and other work using helicopters equipped with the Legacy gear. As a result, it did not have to re-do the certification or optimization testing that it had performed over the course of the prior three years. Mr. Heys' observations are largely based on findings made by this Court in the first phase of trial (2012 FC Judgment at para 182) and its estimate of \$250,000 saved on the expected incremental costs of development without a license based on an estimated 2500 hours of development and optimisation (exhibit JB-372-D/Counsel's Eyes Only and Confidential -- 2000 person-hours for complete gear assembly and 500 person-hours for further drop test) at the rate of \$100 per hour is a conservative assessment considering that Bell has not produced any detailed documentary evidence regarding its costs of development and certification.

325 Absent disclosure of the invention in the '787 Patent, the Court finds that it would have taken no less than three to four years of designing and testing before Bell could have come up with its own version of a clean sheet working landing gear which could compare favourably with the patented Moustache gear. In a hypothetical negotiation taking place on the eve of first infringement in the fall of 2005, Eurocopter could reasonably refuse any offer of Bell below the sum of \$250,000, while it was well positioned to ask any sum between \$250,000 and \$525,000, considering the value of the twenty-one landing gear and the use made of them by Bell to certify the Bell 429 and promote its sales during a period of three years.

4. Economic benefit flowing from the return on capital earned by Bell on deposits received in connection with the LOIs

326 All the Bell 429 helicopters sold to customers are equipped with the Production gear. Be that as it may, the plaintiff submits that Bell has nevertheless benefited from the infringement by totaling a profit of [XXX] in connection with the LOIs received following the promotion of the Bell 429 equipped with the Legacy gear (exhibit P-115, Heys' report at para 141; exhibit P-116, Heys' addendum at para 10/Counsel's Eyes Only). This particular issue has been canvassed by Mr. Heys in his report and addendum report in connection with the calculation of punitive damages as an element of the economic benefits derived from the wilful infringement of the '787 Patent.

327 The defendant strongly contests the analysis made by Mr. Heys as he did not divorce the profits or benefits which Bell received "from its misconduct" from those profits or benefits which are not the fruit of misconduct directed at Airbus. As such, Mr. Heys wrongfully considered all the LOIs, including the ones for the Bell 427i, equipped with the Conventional gear and the ones received before the date of the first infringement in the case of the Bell 429. In short, the defendant argues that Airbus's expert fails to link the benefits to the infringement. Therefore, his analysis is speculative and inconsistent with proper economic analysis.

328 While the Court finds it unrealistic in the present case to calculate the amount of a reasonable royalty based on the expected profits flowing from the sales of the Bell 429 during the period of validity of the '787 Patent -- since no Bell 429 helicopter has been sold with the infringing Legacy gear -- it goes differently for the economic benefit flowing from the return on capital earned by Bell on deposits received in connection with the LOIs. In retrospect, there is no reason why the plaintiff should not ask, in the hypothetical negotiation or a reasonable royalty, for a portion of the economic benefits received in connection with the LOIs for the Bell 429. There were no reasons, on the eve of first infringement of the '787 Patent -- why Eurocopter should wait another four years before it could actually receive a first royalty payment on the sales of the Bell 429 helicopters, while during the same period of

time, Bell is actually benefiting from the invention, promoting a competitive helicopter, and collecting deposits from interested customers.

329 In the real world, Bell benefited from the infringement, inasmuch as during the infringing period it advertised and promoted a Bell 429 helicopter equipped with the infringing Legacy gear. While the Court is unable to conclude that the infringement translated itself into the totality of the LOIs, it would be both unrealistic and unfair in a hypothetical negotiation not to take into account the relative importance of the unauthorized use of the patented technology for promotional purposes. In this context, a nominal factor of 5% of the economic benefit flowing from the return on capital earned by Bell on deposits received in connection with the LOIs appears to be a reasonable starting point. However, this arbitrary allocation does not reflect the real value of the infringing landing gear, as the evidence on the record clearly shows how much the new Bell 429 equipped with the Legacy gear were used to gain visibility from different market sectors and from various customers.

(a) Evidence relating to the LOIs

330 As mentioned before, the Court considered, in 2012, the entire promotion organized by Bell to show up the new features of Bell 429 aircraft, especially highlighting the Legacy gear. The evidence showed that Bell described the sleigh type landing gear as one of the key technologies from the MAPL Program (exhibits JB-86, JB-225 and JB-229). Furthermore, the defendant praised the different improvements from the "sleigh type skid landing gear" over "the conventional type", in the "Minderhoud article" as well as appropriating the discovery of this new landing gear (2012 FC Judgment at paras 272 and 442).

331 Despite a number of delays, Bell's efforts to secure sales of its new Bell 429 helicopter turned out to be successful. However, as early as 2005, Bell solicited orders for the Bell 429 and received a number of letters of intent [LOI's] from customers along with deposits of more or less US\$25,000 for each aircraft ordered (although the deposits may have been less in certain cases) (2012 FC Judgment at para 267) (exhibits D-99 and D-100/Counsel Eye's Only).

332 Based on the information in Bell's systems, Ms. Jones testified with respect to the LOIs for the Bell 429 received by Bell prior to the certification of the aircraft (2004-2009). Ms. Jones stated that [XXX] LOIs fell into the category of LOIs that were cancelled and deposits refunded prior to certification of the Bell 429 (exhibit D-99/Counsel's Eyes Only). Ms. Jones also stated that [XXX] LOIs fell into the category of customers that received refunds after Bell announced certification of the Bell 429 (exhibit D-100/Counsel's Eyes Only). This category also included LOIs for the Bell 427i, which were then amended to the Bell 429, and subsequently cancelled. In terms of LOIs for which aircraft were actually delivered, Ms. Jones stated that [XXX] LOIs fell into this category (exhibit D-101/Counsel's Eyes Only). Thus, the total number of LOIs for the Bell 429 helicopter, prior to certification, was [XXX]. In cross-examination, Ms. Jones stated that the term "orders" appears to have been used in media releases to describe what were, in actual fact, LOIs. In this respect, the terms were used synonymously.

333 Mr. Hatcher also testified with respect to the LOIs and deposits made in relation to the Bell 429. He stated that, in general, when Bell receives a deposit, the cash is deposited into a general cash account, along with all the other cash that is collected or dispersed from the corporation. The deposits are recorded as a liability under the terms of the LOIs, until they become non-refundable. Mr. Hatcher testified that from a cash collection standpoint, there is only one account for all cash. As a result, there is no way to distinguish the cash received from a particular deposit from any other cash.

334 Mr. Evans testified that there is a distinction between aircraft that are in production and those which are not yet in production. With respect to an aircraft that is not yet in production and not yet certified, Bell would take LOIs. A LOI is different from a firm order in that it is not a firm contract; it is differentiated on the basis of the refundability of the deposit. Mr. Evans stated that once an aircraft becomes certified, Bell will talk to that particular customer who has an LOI, and will ask them if they want to change their refundable deposit into a non-refundable deposit. In the case of an aircraft that is already in production, Mr. Evans stated that typically Bell would make a proposal to kick

off the negotiation, beginning with the price of the aircraft and the package that a customer wants, ending (hopefully) in the signing of a purchase agreement. With the purchase agreement, Bell would typically take a deposit for the aircraft. For this to be called a firm order the deposit would have to be non-refundable. There may also be a follow up deposit or deposits, generally based on the time before delivery, with the balance of the aircraft due upon delivery. In response to a question from the Court regarding the legal status of the LOIs for the Bell 427i, which were converted into purchase agreements, Mr. Evans stated that the Bell 427i was, fundamentally, the predecessor of what became the Bell 429; it was a design.

(b) Calculations made by the experts

335 Mr. Heys claims that the defendant has benefited from its infringement of the '787 Patent by soliciting deposits from customers, using the Bell 429 equipped with the Legacy gear. By calculating all the deposits received with the LOIs, Mr. Heys evaluates Bell's economic benefit of this acceleration of profits to be approximately \$8.5 million, assuming a cost of capital or approximately 14%. This figure would be even greater if some of the deliveries of Bell 429 helicopters made during the period from 2009 to 2011 would not have been made at all if Bell had not infringed the patent (exhibit P-115 Heys' report at paras 140-147/Counsel's Eyes Only).

336 Mr. Heys noted in his original report that, in total, Bell had collected more than [XXX] in deposits (exhibit P-115 Heys' report at para 141/Counsel's Eyes Only). He estimated the saved capital costs as a result of these deposits to be at least US\$4.3 million, determined using an estimate of the industry cost of capital (exhibit P-115 at paras 142 and 146/Counsel's Eyes Only) applied to the amount of deposits received by Bell prior to the replacement of the Legacy gear with the Production gear in early 2009. At trial, Mr. Heys criticized Dr. Schwartz's suggestion of using the cost of capital of Textron, since "the right way to value the benefit of having those deposits is in industry-weighted average cost of capital" is not to give "some consideration about what Textron would or wouldn't have done if it didn't have those deposits" (Transcript Volume 3 at page 169).

337 In the addendum to his Expert Report, Mr. Heys revised this figure of [XXX] on the basis of new information received from Bell relating to the dates of deposits for the LOIs. He thus calculated a revised estimate of Bell's saved cost of capital to be [XXX] (exhibit P-116 Heys' addendum at para 10/Counsel's Eyes Only).

338 Mr. Heys stated in cross-examination that the interest was only calculated on the 427i LOIs from the time they were converted to 429 LOIs (Transcript Volume 4 at page 149). However, he clarified in re-examination that it was appropriate to take account of these deposits from their date of conversion because they were retained by Bell while promoting and continuing to develop the 429 with the infringing gear (Transcript Volume 4 at page 187). Mr. Heys stated further that if some of the deposits should be excluded because they were made prior to the date of first infringement, then the number would be significantly lower (Transcript Volume 4 at page 156). He also reiterated that he attributed the entire amount of the deposits as a result of the infringement (Transcript Volume 4 at pages 157-158). He clarified this reasoning by explaining that since a landing gear is necessary for a helicopter to work, there should be no apportionment exercise required for this purpose (Transcript Volume 4 at pages 187-188).

339 Although, the Court already found that Bell's use of the infringing gear in the development of the Bell 429, from 2005 to 2009, saved significant additional development/certification costs and time, it is incorrect to allow the entire amount received as a deposit on that sole basis. This is so, especially since no valid evidence supported the contention that the landing gear was the sole motivation for the consumers of the Bell 429. By doing so, Mr. Heys failed to distinct the alleged profits which flow from the infringement. Furthermore, this proposition goes against the basis of the apportionment theory for which "the patented component part can assume the value of the entire infringing product where the component is the substantial basis for the entire product's value" (Josh Friedman, "Apportionment: Shining the Light of Day on Patented Damages", (2012) 63:1 Case Western Reserve LR 147 at page 155 referring to *Lucent Technologies*).

340 Dr. Schwartz criticizes Mr. Heys' assessment of the benefit to Bell from deposits received, because it is not supported by the facts concerning Bell's actual treatment of the deposits. Mr. Heys included inappropriate

transactions and uses an interest rate that lacks any economic foundation, given the way the deposits were actually treated. Accordingly, all deposits made prior the eve of the infringement and those for which there is no deposit date should be excluded (exhibit D-119, Schwartz's report at para 69/Counsel's Eyes Only).

341 Besides, Dr. Schwartz claims that there is no evidence of a causal link with the infringement of the '787 Patent. If a particular characteristic of a product is not material to the purchase decision, basic principles of economics would predict that characteristic would not drive the decision to enter into an LOI or commit a deposit. Furthermore, there is no way to trace what Bell did with the deposited funds, and therefore there is no quantifiable economic benefit from the infringement.

342 By assuming that there is no factual basis between the advertisement of the Legacy Gears and the received LOIs, Dr. Schwartz overstepped by giving a legal opinion (exhibit D-119 Schwartz's report at paras 58-59/Counsel's Eyes Only). Nevertheless, the Court finds that, while the evidence does not clearly show that Bell's benefits directly resulted from its promotion of the Bell 429 with the Legacy gear, there is certainly a causal link between the LOIs and the use of the infringing gear. Whether or not the Legacy gear was the main reason for customers to purchase the Bell 429, the evidence on record demonstrates that the infringing gear was necessary to hold up with the entire design of the Bell 429. As seen previously in the previous section 4, based on the overall saleability of the Bell 429, the patented invention adds an important value to the helicopter aircraft, not only on the weight reduction but also for the general design and elimination of ground resonance problems (*Beloit* at page 457). Although there was no evidence as to how the Legacy Gear actually impacted the LOIs, it would be inequitable to assess the damages at zero simply because it is difficult to determine the relative importance of the technical advantages of the patented invention, including its weight, in light of the customer demand of the overall product, a light twin helicopter (*Arctic Cat* at para 428).

343 While there is a theoretical benefit to Bell from holding deposits on the Bell 429, Dr. Schwartz opined that the deposit received for LOIs constituted an economic benefit. In any event, he concluded that the economic benefit of the deposits received in connection with the LOIs is no greater than US\$1.067 million (approximately CDN\$1.352 million) (exhibit D-119, Schwartz's report at para 71/Counsel's Eyes Only). Dr. Schwartz challenges the basis for this calculation and if we were to apply the correct cost of capital to Mr. Heys' analysis, the economic benefit would be no larger than \$1,195,987 (exhibit D-119 Schwartz's report at para 109/Counsel's Eyes Only). Moreover deposits taken prior to infringement cannot be benefits derived from the infringement. At the correct cost of capital and based on the appropriate deposits, the economic benefit is no larger than \$763,558 according to Dr. Schwartz (exhibit D-119 Schwartz's report at para 110/Counsel's Eyes Only).

344 Since it is very unclear what the real advantage gained from the infringing landing gear is, Dr. Schwartz applied an arbitrary 5% allocation that the Legacy gear was responsible for the LOI deposits (exhibit D-119 Schwartz's report at para 73/Counsel's Eyes Only). In its final argumentation, the defendant described the arbitrary 5% allocation by comparing the unit price of the Legacy gear (\$25,000) to the overall price of the helicopter (about \$5 millions) (Bell's final argument at para 429/Counsel's Eyes Only). With this 5% rate, Dr. Schwartz calculated that the economic benefit gained from the infringing Legacy gear would result to approximately \$67,578 but did not include it in his calculation of a reasonable royalty.

345 When asked by the Court why this 5% figure would not also be used in the calculation of the reasonable royalty, Dr. Schwartz stated that he did not apply the 5% in the analysis of the royalty because in his analysis he considered directly what he believed to be the effect of the infringing Legacy gear on the willingness to pay of the defendant. Dr. Schwartz declared that, from an economist's point of view, the economic benefit gained from the infringing gear should not be included in the compensatory damages because there is no loss to Airbus associated with these deposits (Transcript Volume 8 at page 70). However, the entire exercise around the hypothetical negotiation and the reasonable royalty is based on the fact that Airbus' loss cannot be materially proven, while the Court will notably be looking the matter for the perspective of Bell's anticipated profit or net advantage to conclude a license agreement (*Jay-Lor* at para 123).

346 The Court finds Bell's expert approach rather simplistic and truncated considering that the very purpose of

advertising and promoting the design, the performances and innovative characters of the new Bell 429 (which included a sled type of landing gear) was to stimulate LOIs and sales, notably in the EMS mission segment. Otherwise, Bell would not have bothered to produce promotional videos where the sled landing gear is presented as one of the key technologies from the MAPL Program (2012 FC Judgment at para 442 referring to exhibits JB-86 and JB-225). The promotional video of the Bell 429 also indicates that the defendant has based the new design of the aircraft according to the in-put of its customers, especially regarding the flat floor and the open cabin (JB-86 and JB-225). The presenter even goes so far as to say that the Bell has used the in-puts of their customers and that the new Bell 429 has incorporated everything they asked for.

347 Earlier on, the marketing people at Bell and Textron assured themselves that the prospective customers of the Bell 429 were regularly informed of all major developments, either through different press releases or updates on the websites. For example, in a communiqué issued on October 26, 2007 (www.rotorhub.com), officials of Bell proudly "announced the completion of another major milestone in the development of the Bell 429, Bell's new advanced technology helicopter" (exhibit JB-42). In this case, "the 429 team has set or "frozen" the exterior profile design, verified through months of development flight testing". Commenting on the event, the communiqué mentions that Robert Fitzpatrick, Senior Vice-President for Marketing and Sales said, "This is one of the most significant events in the development of aircraft. This means our design meets the aesthetic and in-flight handling specifications we set long ago. These are specifications we promised we would deliver to our customers. This moves us much closer to our certification and beginning delivery goal of the end of 2008" (exhibit JB-42).

348 The promotional efforts did not cease with the institution of the present action. Extracts dated April 3, 2008, May 14, 2008, October 30, 2008 and March 6, 2009 of the Bell helicopter (www.bellhelicopter.com) and Patriot Aviation (www.patriot.uk.com) websites are particularly telling: under the title "The 429, Design that listens", the Bell 429 is presented as "[q]uite possibly the most advanced light twin IFR helicopter ever created", while being "[i]ntelligently designed and highly adaptable to address an array of individual needs", among the "429 Highlights", the "Energy attenuating sled type landing gear" is mentioned in the first third of the list (exhibits JB-47 and JB-70 also showing a photograph of a double colored (blue and white) Bell 429 helicopter with a EMS logo and equipped with the infringing Legacy gear).

349 As indicated by Mr. Gardner in the June 2003 Trade Study: "the skid gear is only useful for landing and can be considered to be excess weight in flight with undesirable aerodynamic characteristics. Therefore, it is important that the gear is designed as light and low profile as possible whilst addressing the engineering requirements, cost and customer support issues" (exhibit JB-372/Counsel's Eyes Only and Confidential at page 6106). Although the evidence in the record does not establish that the landing gear would be the main reason why client filed LOIs for the Bell 429, the light weight of the gear -- which directly affects the payload -- is a very important factor, especially in the case of the EMS mission segment. On the other hand, the Court cannot conclude that the totality of the LOIs and the deposits received in relation to the Bell 429 after the fall of 2005 should all be accounted as Mr. Heys' claims. Accordingly, there is no reason why Airbus, in a hypothetical negotiation, would not seek to obtain from Bell a reasonable amount of the rate of return on capital on the LOIs and funds received during the infringing period.

350 During the three-four year period (October 2005 to March 2009) where Bell has been found to have infringed the '787 Patent, Bell was able to collect LOIs and receive deposits for the Bell 429 without having developed a valid NIA, while it was actively promoting the Bell 429 with the infringing Legacy gear (2012 FC Judgment at para 434). Indeed, the infringing Legacy gear was publicly displayed at various international fairs between October 2005 and July 2008 (Agreed Statement of Facts at para 33, items 6-16), while Bell and third party representatives for the Bell 429 helicopter (Agreed Statement of Facts at paras 38-42) continued even after the institution of the proceeding and at least until March 6, 2009 to publicly advertise on their websites the Bell 429 helicopter with photographs of two prototypes (blue and red) equipped with the infringing Legacy gear (see notably exhibits JB-54 to JB-72).

351 As aforesaid, the Bell 429 equipped with the Legacy gear achieved its first flight on February 27, 2007 at Bell's facility in Mirabel (2012 FC Judgment at para 22). In September 2007, Bell announced that the second Bell 429 prototype, painted red, had achieved its first flight in late August 2007 at the same facility (exhibit JB-236). A

photograph of both aircrafts as shown in the newsletter is reproduced below:

352 The evidence on record conclusively establishes that the defendant was using multiple commercial strategies to advertise the new Bell 429 with the infringing gear. Moreover, the Bell 429 helicopter bearing serial number 57001 was equipped with the Legacy gear when it was shown at the HELI EXPO show in Houston, Texas in February 2008. The defendant had the aircraft in question equipped with the Legacy gear flown from Mirabel to Houston. In May 2008, the defendant shipped a Bell 429 helicopter bearing serial number 57004 -- equipped with a Legacy gear -- from Mirabel to the Air Med show in Prague, Czech Republic. The same aircraft was shipped from Mirabel to the Farnborough Air show, UK, in July 2008 and to the Japan Aerospace 2008 show in Yokohama, Japan in October 2008 (Agreed Statement of Facts at paras 34-37, and 33, items 5-8).

353 It is only in February 2009 that the Production gear was publicly displayed at the HELI EXPO in Anaheim, California, as it was apparently installed on Bell 429 helicopters bearing serial numbers 57002 and 57004, while a covered Legacy gear in a mock-up Bell 429 helicopter aircraft was still used in February 2009 at the Aero India fair in Bangalore (Agreed Statement of Facts at para 33, items 1-2, and exhibit JB-84).

354 In this context, based on the book of wisdom, real world figures and the economic benefit of \$763,558 calculated by Dr. Schwartz, the Court is satisfied that an amount of more or less \$100,000 should also be considered by the Court looking at the MWA of the plaintiff.

5. Risk premium

355 The risk factor is an important element to consider in assessing the bargaining range of the two parties in a hypothetical negotiation taking place on the eve of first infringement. There is abundant literature respecting various formulas to assess risk in decision-making process from an economist's perspective, including in the assessment of patent valuation and pricing (on this subject see Daniel Kahneman and Amos Tversky, "Prospect Theory: An Analysis of Decision under Risk" in *Econometrica*, March 1979, 47, 2; Business Premium Collection 263; F. Russell Denton and Paul J. Heald, "Random Walks, Non-Cooperative Games, and the Complex Mathematics of Patent Pricing", 55 Rutgers L Rev 1175 2002-2003).

356 The idea is to come up with a methodology or formula that will create a fair equilibrium between the respective and possibly different level of risk each party has to assume in the hypothetical negotiation taking place on the eve of the first infringement. The two experts in this case -- who are economists themselves -- have not proposed to the Court any particular formula, whether the issue of risk is examined in the perspective of the expected utility theory, the prospect theory, or whether the reasonable royalty is calculated using a mathematical or economical model like the Black-Scholes equation or the Denton model.

357 Absent any particular formula, the Court is nevertheless invited by the parties to make findings of fact and reach its own conclusions, on the basis of the evidence on record, on the riskless prospect that will yields with probability to the expected result -- the conclusion of a license agreement (the positive prospect) -- in light of the fact that the parties may in turn each suffer losses (the negative prospect) if there are unable to agree on the amount of a reasonable royalty in the hypothetical negotiation taking place on the eve of first infringement. Risk is something that can be addressed in a contract and there are no reasons why it should not lead to the payment of a premium in some cases. The insight of the Court must essentially rest on the evidence on record and common sense.

358 The Court realizes that assessing risk is some kind of an artificial process here, since the infringement activity has already taken place. If it would not be the case, one may ask itself if Bell would have invested money in the development of the infringing Legacy gear (and possibly the Production gear considering the ongoing litigation in France and odds of losing or winning the case) with more than 50% probability of losing its capital. On the other hand, Airbus had no interest whatsoever to grant a license to Bell and the only winning situation is to receive a fair compensation for the unauthorized and infringing use by Bell of the patented invention. Be that as it may, the fixed

agreed return of a hypothetical license must be balanced with the risky venture -- on both sides -- to loose profits or suffer losses, as the case may be, during all the time the infringing activity is taking place, and even after the infringement (because the infringement may have altered the market place or the competitiveness of patent holder). In the case at bar, having considered the evidence on the record and balanced all relevant factors, the Court finds that the plaintiff is justified in seeking a risk premium, particularly in light of the very special circumstances of this case.

359 If we look on Bell's side, the risk that the patented invention would not sell was inexistent inasmuch that it constitutes an integral part of the Bell 429 helicopter model. Be that as it may, the defendant invites the Court to assess, on the eve of first infringement, and in a hypothetical negotiation, the incremental risk from using a NIA versus the risk of using the Legacy gear. From that stand point, the defendant submits that, in October 2005, the Bell 429 was not yet built or, at least, fully designed and tested. No flight had occurred, no testing or certification had been fulfilled. However, the evidence on record clearly indicates that the defendant was confident to solve any technical issue and that the Bell 429 could be certified with the Legacy gear. Therefore, the risk of using the Legacy gear was very low. On the other hand, there was no desire to return to the Conventional gear or take a chance to develop a workable I-Beam gear. The reasons are pretty simple. Inasmuch as risk is considered from the point of view of market demand and the customer needs, it would have been prejudicial in terms of the manufacturer's reputation not to move ahead with the project since Bell wanted to show and demonstrate its superior technical capacities in face of the competition. Bell also wanted to penetrate new markets, especially the attractive EMS segment, meaning that it could not take unnecessary risk or compromise on the quality of the finished product. This naturally included the sled type of landing gear.

360 In the June 2003 Trade Study prepared by Mr. Gardner, reference is made to the development of the Bell 427 Model which included a design for an I-Beam cross-tube (exhibit JB-372/Counsel's Eyes Only and Confidential). The acceptability and risk of choosing this option are addressed in the following manner at pages 6105 and 6106:

[XXX]

[Emphasis added]

361 The plaintiff also produced a number of read-ins of Mr. Gardner's testimonies during the first phase of the trial, which explained why the Conventional gear and the I-Beam did not make the cut for the final product which was the sled type of skid (Legacy gear). During the examination for discovery in the summer of 2009, Mr. Gardner stated that the Legacy gear was offering a better wire strike protection compared to the Conventional gear which would have been heavier with the current configuration of the cross-tube on the aircraft (exhibit P-109 at tabs 3, 7 and 8/Counsel's Eyes Only). There was also no consideration to go back to the original landing gear of the Bell 427, the conventional gear, which would have involved heavier skid gear (exhibit P-109 at tab 20/Counsel's Eyes Only). Mr. Gardner also confirmed that the Bell 429 was critical to the defendant's effort to stay competitive in the civilian helicopter marketplace (exhibit P-109 at tab 10/Counsel's Eyes Only).

362 On May 3, 2016, Mr. Gardner was again questioned for discovery for the second phase of the trial. Upon this examination for discovery, he explained that the attachment point of the cross-tube forward near the gas tank was accommodated by the large open cabin and the flat floor (exhibit P-113/Counsel's Eyes only). Further, Mr. Gardner states that [XXX] (exhibit P-113 at tabs 43, 45/Counsel's Eyes only). Moreover, Mr. Gardner admitted that, although the I-Beam landing gear was implemented on the Bell 407 for flight test, it was never implemented, flown, or certified on either the Bell 429 or the Bell 412 (exhibit P-113 at tab 56/Counsel's Eyes Only).

363 This left the Legacy gear. That said, it was known at Bell that the sleigh gear closely resembled the Moustache landing gear of the EC120. Mr. Gardner even testified that the Legacy gear has all of the characteristics of the Moustache landing gear, except for the lower curve. In fact, evidence obtained during discovery reveals that when concerns were raised at the time, Mr. Foster apparently advised Bell's engineers to "carry on". He was not called as a witness to either confirm or deny this statement. As it turns out, in practice Bell continued with the Legacy gear (2012 FC Judgment at para 274). Even if the Court would be allowed to consider the Production gear as a NIA

which was not developed at the eve of first infringement (fall 2005), it remains that in an hypothetical negotiation, the plaintiff would still have a stronger position, considering that twelve years later (2017), the issue of whether the Production gear is a NIA is still up for debate in France.

364 In the light of the foregoing, Eurocopter was clearly in a better position to seek a risk premium. In negotiating the hypothetical license, Eurocopter would also reasonably have considered additional risks associated with granting a worldwide license to its direct competitor and might have reasonably required an additional amount (a risk premium) inasmuch as this risk is not accounted for already in the royalty formula contemplated by the parties on the eve of first infringement. On the other hand, a worldwide, non-exclusive license, for the use of the Legacy gear would have promptly eliminated Bell's risk of having to develop a NIA and would have reduced to zero important costs of litigation concerning the infringing use of the Legacy gear.

365 Time was of the essence for Bell who wished to certify a marketable and sellable competing helicopter in the shortest of delays. Therefore, it would also be unimaginable on the eve of first infringement of the '787 Patent in the fall of 2005, not to consider the risk of further patent litigation in the United States and elsewhere. Once again, the theory of the book of wisdom is useful to consider what would have been the intention of the parties regarding the hypothetical negotiation of a license agreement. Indeed, the regulatory uncertainty and the risk encountered by the development and the commercialization of the Production gear provide a better assessment of the true value of the invention (A New Framework for Determining Reasonable Royalties in Patent Litigation).

366 Mr. Heys states that, in the context of a hypothetical negotiation, Airbus would have considered additional risk by granting a license to its direct competitor. On the flip side, Bell would have been prepared to pay more in order to avoid the risks and uncertainties associated with the development of the Bell 429 with an unknown NIA rather than using the already tested and proven patented Moustache gear (exhibit P-115 Heys' report at paras 116-117/Counsel's Eyes Only). As such, it would be reasonable for Airbus to require an additional 25% "risk premium" figure on the incremental expected profit from sales of the Bell 429 and the incremental development cost (exhibit P-115, Heys' report at paras 94(c), Table 4 at page 49, footnote 154/Counsel's Eyes Only). When questioned by the defendant's counsel, Mr. Heys admitted that, without any market benchmarks to point to for a risk premium, his figure was subjective and based on intuition (Transcript Volume 3 at page 126).

367 The defendant retorts that Bell would also have considered the risk of adopting an unknown landing gear given that, on the eve of first infringement, the Legacy gear was far from being ready for commercialization (Transcript Volume 6 at pages 201-202). Therefore, there would be a theoretical risk to Bell in using any landing gear which have not yet been certified or tested (exhibit D-119 Schwartz's report at para 47/Counsel's Eyes Only). According to the defendant, there should be no risk premium because Bell was able to develop the Production gear, while the twenty-one Legacy infringing gears were not sold, but only used to test and to certify the Bell 429. This argument is fallacious. In 2012, the Court rejected the *Gillette* defence and declared that the experimentation exception did not apply. There was indeed an important risk. The Production gear was not developed in 2005. Furthermore, in a hypothetical negotiation, using the "book of wisdom", the parties would also been informed that the Production gear could only be commercialized in Canada and United States, given the judgment rendered on March 20, 2015 by the Cour d'appel de Paris in favour of the plaintiff. Accordingly, the defendant invites the Court to reach a surprising conclusion based on a biased hindsight: Bell would not be interested to pay a higher royalty or license to Airbus since Bell would then have to assume a big part of the risk of commercialization.

368 Dr. Schwartz has foreseen the problem with attributing only a nominal amount -- which does not consider a risk premium -- in a good faith negotiation for the payment of a reasonable royalty. With respect to what incentive Airbus would have to grant a license to a competitor, Dr. Schwartz replied that Airbus knew that the Bell 429 was entering the market anyway, and that there would be no market consequence to its use of the technology. As a result, granting a license for the use of that technology would represent a windfall to Airbus. However, Dr. Schwartz distinguished between the market value of the patent, which he considered to be relatively small, and what he referred to as the "value in use" (Transcript Volume 8 at page 16, line 23), which may be quite high for Airbus. At the end, Dr. Schwartz recognized that the present situation is unique and makes it distinguishable from other cases, in that the royalty model based on a hypothetical negotiation presupposes that the infringing product will make it

into the marketplace, whereas in the present case, the twenty-one infringing Legacy gears in Bell's possession were never sold.

369 The Court must determine a reasonable license fee or royalty for the infringing use of the Legacy gears. The general approach taken by Bell is no more than a sophism and would render the whole exercise to reconstruct a hypothetical negotiation taking place on the eve of first infringement totally useless. The parties have spent in this trial considerable time and resources to convince the Court that in applying the *AlliedSignal* factors, each of the two parties is in a better negotiating position than the other. The fundamental problem with the defendant's approach is that it essentially changes the construct of the negotiation which must be conducted in good faith by two informed parties.

370 In this respect, the Court finds it reasonable to include an additional amount of \$125,000 as "risk premium" when looking at the MWA of the plaintiff.

G. Determining the royalty payment fee for the production, use and advertising of the Legacy gear during the infringement period (October 2005 to March 2009)

371 Having determined that the parties would have ultimately agreed upon the payment of a lump sum for the granting of a license to Bell to use and to produce the twenty-one Legacy gears, the Court now has to determine what would be a reasonable compensation to Airbus. By resorting to MWP and to accept MWA, Bell's MWP, which would be the highest royalty that would leave the defendants in a better position by taking the license, while Airbus's MWA would be the lowest royalty that would leave the plaintiffs in a better position by granting the license (*Lovastatin FC* at paras 166-167). As noted by the defendant, the "broad axe principle" ensures that the hypothetical negotiation is not out of touch with reality. As stated by Justice Roy in *Arctic Cat Inc v Bombardier Recreational Products Inc*, [2016 FC 1047](#), [\[2016\] F.C.J. No 1062](#) at para 416 [*Arctic Cat*], the "broad axe" principle should not be used to over compensate or deprive the patentee. If a broad axe is appropriate, it is very doubtful that it can be so if the "broad axe" is replaced instead by a "sledge hammer".

372 In the case at hand, for the same invention, Airbus's expert arrives at a license of \$2,000,000 while the Bell's expert arrives at total of \$5,187. Splitting the difference is hardly satisfactory. As stated by this Court in *Arctic Cat* at para 416:

One difficulty with choosing a mid-point between experts' numbers is that it does not provide an incentive for experts to assess damages in a reasonable way. The incentive is to push for extremes. The incentive should rather be to offer assistance to the Court.

373 From the factual reality, at the risk of repeating what has been stated from the very beginning, it remains that, although the Legacy gear were infringing the '787 Patent, none of the twenty-one Legacy gears were sold, thus no infringing gear affecting the sales of the plaintiff. Moreover, the plaintiff has not been able to demonstrate any kind of correlation between a loss of profit and the sale of the Bell 429 with the Production gear. According to the jurisprudence, it would appear that assessing damages at zero is an option that should be favored only in the extreme cases in view of a violation of a valid patent (*Arctic Cat* at para 415). Although no evidence shows a loss of sales on the part of Airbus, it remains that Bell has been unjustly enriched, without offering any compensation, from the use of the infringing Legacy gear. In other words, Bell would not have been able to design and to commercialize the Bell 429 but for the infringement of the '787 Patent.

374 Referring again to the *Meters* at page 164, Fletcher Moulton L.J. stated that, "in the assessment of damages, every instrument that is manufactured or sold, which infringes the rights of the patentee, is a wrong to him, and I do not think that there is any case, nor do I think that there is any rule of law which says that the patentee is not entitled to recover in respect of each one of those wrongs".

375 If the MWA of Eurocopter is greater than the MWP of Bell, in the real world, there is no royalty that would off from the negotiation of the hypothetical license and no such license would ever have been concluded. But in the

hypothetical world, the Court must come with an amount of compensation. In this case, if there is no range of reasonable royalties lying between Eurocopter's MWA and Bell's MWP, then compensatory damages to the plaintiff must correspond to Eurocopter's MWA, as long as it is reasonable.

376 The evidence clearly shows that, even though the Legacy gears were not sold, they were used in various ways to create the Production gear but also to develop the Bell 429. According to Mr. Gardner testimony during the first phase of the trial, the twenty-one Legacy gears were used either as prototype, or for float kit development, or used as part of the test program for flight test, fatigue test or drop test (exhibit D-10). While Bell asks general figures of \$5 million and \$6 million as to the sale price for the Bell 429, the monetary value of an individual gear would amount roughly to \$20,000-\$25,000 (2012 FC Judgment at para 415). Although it was considered in the alternative approach of the "knockoff Gucci(R) bags", Dr. Schwartz calculates the MWP/MWA on the unit price of the Legacy gear. According to his estimation, the MWP for the defendant would be \$525,000 (\$25,000 x 21) (Bell's final argument at paras 272-278).

377 Given the actual use that has been made of the different Legacy gears (exhibit D-10), the Court finds that, in the context of a hypothetical negotiation, the parties would have agreed upon a "license to use" with the payment of a lump sum. Regarding Bell's MWP, the Court basically comes to the same conclusion as Dr. Schwartz in his alternative approach, but has used a more principled approach (see the previous section D) which is based on a thorough assessment of the totality of evidence in light of the *AlliedSignal* factors. Therefore, Bell's MWP would have been the actual unit price of all the Legacy gears that were manufactured for the development of the Bell 429, which amount to \$525,000.

378 On the other hand, while Dr. Schwartz estimates that the MWA for the plaintiff would be approximately \$210,000 (\$25,000 x 40% x 21), the Court found that, according to *AlliedSignal* factors, Eurocopter was in a much stronger position. Thus, the amount of compensation should come very close to Bell's MWP, which is estimated at \$525,000. Moreover, further considering that Airbus would have reasonably requested a minimum of \$250,000 for the saved costs in development of the Bell 429 (see para 325), that Airbus would also sought to recover a portion of economic benefits realized from the promotion of the Legacy gear (see paras 354), and that the parties would have agreed upon a reasonable risk premium for Airbus to allow its competitor to commercialize its patent (see para 370), the Court concludes that Airbus' MWA would roughly be \$475,000.

379 By applying the "broad axe principle" between Bell's MWP and Airbus's MWA, this Court finds that, in the context of a hypothetical negotiation taking place on the eve of the first infringement, the parties would have agreed upon a license to use and to produce for the payment of a lump sum of \$500,000 in compensatory damages.

VII. PUNITIVE DAMAGES AWARD

380 In 2012, the Court found that the plaintiff is entitled to punitive damages as a result of the infringement by Bell of the '787 Patent and the deliberate and outrageous conduct of the defendant. This judgment was confirmed in 2013 by the Federal Court of Appeal (2012 FC Judgment paras 420 and 422; 2013 FCA Judgment paras 163, 164, 182 and 184). For the reasons that follow, the Court determines that the defendant should pay \$1,000,000 in punitive damages.

A. Findings of fact made in 2012

381 In the 2012 FC Judgment, this Court made a number of findings of fact which are directly relevant to today's assessment of the quantum of damages. It is noteworthy to refer to paragraphs 426, 437 to 441:

[426] Sometimes identified in the documentation as the "original gear", the Legacy gear was developed by Bell between 2004 and 2007, that is, during the period of validity of the '787 Patent which will expire on June 5, 2017. As Bell had never designed a helicopter with an articulated rotor and a sleigh type landing gear, they studied the performance of an EC120 which is equipped with a Moustache landing gear. Bell leased and operated an EC120 helicopter from approximately March to June 2003, during which time Bell

performed tests on the EC120 helicopter, including a handshake test. Moreover, Bell employees received training in Dorval, Quebec, on an EC120 helicopter in March 2003. It turned out that the Legacy gear used by Bell and publicised in multiple documents was no more than a slavish copy of the patented Moustache landing gear.

[437] In its article of April-May 2008 (JB-224), Mr. Minderhoud writes at page 9:

Looks are deceptive: the sleigh type landing gear is a visually simple design, but its development is very complex and challenging due to the large number of conflicting requirements. Tremendous improvements in predictive analysis tools and data processing have contributed to the development of the fixed skid landing gear from the Bell Model 47 (first flight in 1943) to the new sleigh type landing gear for the Model 429 (first flight 2007); see Fig. 11.

[438] Figure 11 of the Minderhoud article shows a picture of the Bell Model 47 (equipped with a conventional gear) on the ground and of the Bell 429 (equipped with the Legacy gear) in the air. The Legacy gear shown on the picture is presented as a nearly finished product and a major technological breakthrough compared to the conventional type of landing gear (although there may be still some further testing). Both in the summary and the article, reference is made to the fact that this sleigh type of gear "has been designed for the first time" by Bell. This carries a very strong message to the public and the potential buyers.

[439] Bell's counsel suggests that the Court should be indulgent. Readers of the Minderhoud article would have known that the EC120 was already equipped with a similar type of sleigh landing gear. If the statement above carries some ambiguity, any doubt should favour Bell. Having read same in the context of the totality of the Minderhoud article, the Court finds that there is an innuendo that Bell is the "first", and it is debatable whether the careful chosen words suggest that Bell is the first to have designed a sleigh type of landing gear. Otherwise, there would be no purpose of celebrating in the article the fact that the Bell 429 model is the first helicopter designed by Bell using an already known technology in the field. It turns out that the main purpose of the article is to attract the attention on Bell's technology and to stimulate sales of the Bell 429, and there is no reference whatsoever in the article or a footnote that the sleigh type of landing gear has been in use for some time in the industry.

[440] It is not requested here to entertain a general tort for alleged misrepresentations. The issue is whether punitive or exemplary damages should be awarded to Eurocopter following the Court's finding that the infringing conduct was planned and deliberate, and that same persisted over a lengthy period of time (2004-2008) although only twenty-one landing gears were made for or used by Bell. In this context, the representations publicly made by Bell with respect to the development of the infringing Legacy gear are relevant to determine whether or not the conduct of Bell is truly outrageous. Indeed, the Court finds that the representations contained in the Minderhoud article are rationally connected to the infringement of the '787 Patent by Bell and add to its outrage at the egregious conduct of Bell.

[441] Not only did Bell profit from its misconduct -- the development of the Production gear would not have been possible without the development of the Legacy gear -- but the evidence shows that Bell concealed the fact to the public and the potential purchasers of the Bell 429 that it had imported from a competitor the sleigh type landing gear and copied the Moustache Landing gear from Eurocopter EC120, while suggesting that the Legacy gear was somewhat a "premiere" at Bell and publicly claiming in the Minderhoud article the unique advantages in terms of improved dynamic behaviour (ground resonance) and the lower weight of the Legacy gear, all advantages already publicly disclosed in the '787 Patent.

382 In the 2013 FCA Judgment, the Federal Court of Appeal found no palpable and overriding error in the credibility findings and the assessment of the evidence by this Court, and notably stated:

[192] Where a person infringes a patent which it knows to be valid, appropriates the invention as its own, and markets it as its own knowing this to be untrue, punitive damages may be awarded when an accounting for profits or compensatory damages would be inadequate to achieve the objectives of retribution, deterrence and denunciation of such conduct. Indeed, such conduct departs to a marked degree

from ordinary standards of decent behaviour. It must be denounced in a manner that deters similar misconduct in the future and marks the community's collective condemnation.

[193] Taking into account all of the circumstances, and considering that Bell Helicopter has failed to convince me that the Judge committed an overriding and palpable error in assessing the evidence before him, I would not disturb the Judge's findings concerning punitive damages.

383 Other relevant findings in the 2012 Judgment, as well as findings upon the additional evidence adduced during the second phase of the trial, are mentioned below.

B. Considerations at play

384 The Supreme Court of Canada has identified six relevant considerations (*Whiten c Pilot Insurance Co*, [2002 CSC 18](#), [2002] 1 RCS 595 at paras 111-126 [*Whiten*]) relevant to quantification of punitive damages which should first and foremost seek proportionality:

- (1) Proportionality to the defendant's blameworthiness, which can be further broken down into sub-factors (*Whiten* at para 113);
- (2) Proportionality to the plaintiff's vulnerability (*Whiten* at para 114);
- (3) Proportionality to the harm directed at the plaintiff; this includes potential harm, which may only have been avoided by happenstance (*Whiten* at para 117);
- (4) Proportionality to the need for deterrence; this is particularly important in cases where the defendant's conduct is egregious and known to top management (*Whiten* at para 120), and it should reflect the defendant's financial means -- the means both of Bell Helicopter Textron Canada and its parent company Bell Helicopter Textron -- when finances are directly linked to the defendant's conduct (*Whiten* at para 119);
- (5) Proportionality even after taking into account other penalties, both civil and criminal, which have been or are likely to be inflicted on the defendant; and
- (6) Proportionality to the advantage wrongfully gained by the defendant from its misconduct; this would prevent the defendant from profiting from its infringement (*Whiten* at paras 124-125).

385 As the trier of fact who has been involved in both phases of this long trial, this Court has chosen to exercise its discretion with restraint, ensuring "fairness to both sides" (*Whiten* at para 95). In awarding the sum of \$1,000,000 in punitive damages, the Court has considered the particular circumstances of this case in light of well-known considerations. The Court has assured itself that each of the three guiding objectives -- retribution, deterrence, and denunciation -- identified by the Supreme Court, are satisfied. The Court is satisfied that the present punitive damages award is proportional and necessary for the fulfillment of these three purposes (*Whiten* at para 111; *Cinar Corp v Robinson*, [2009 QCCS 3793](#), [[2009\] JQ No 8395](#) rev'd [2011 QCCA 136](#), [[2011\] JQ No 9469](#) rev'd [2013 SCC 73](#), [[2013\] SCJ No 73](#) at para 126 [*Cinar*]; *Pate Estate v Galway-Cavendish and Harvey (Township)*, [2013 ONCA 669](#), [[2013\] OJ No 5017](#) at para 238 [*Pate Estate*]), and, in particular, that an amount of \$1,000,000 is "no greater than necessary to rationally accomplish their purpose" (*Whiten* at paras 94 and 101; *Cinar* at para 138). In reaching to this conclusion, the Court has considered the parties' respective submissions, which are, again, diametrically opposed.

C. Differing positions taken by the parties

386 In a nutshell, the plaintiff submits that five of the six factors in *Whiten* favour a higher award of punitive damages. The sixth factor, being the plaintiff's vulnerability, is neutral since the parties are rather equal. More particularly, the plaintiff submits that the landmark *Lubrizol* decision is a persuasive precedent of the Court in that it also involved two large corporations which were direct competitors. In *Lubrizol*, the Federal Court (Trial Division) awarded \$15 million in punitive damages. However, this award was reversed on appeal because the trial judge had

failed to first consider the quantum of compensatory damages, a point which is not an issue today (2012 FC Judgment at para 455 conf'd in 2013 FCA Judgment at paras 173-179). The parties subsequently settled and it is not known what quantum the Court would have awarded. However, the Federal Court of Appeal indirectly approved the sum of \$15 million in principle when it acknowledged that the trial judge considered the relevant principles and that the amount could have been higher or lower as long as it had the appropriate deterrent effect. The plaintiff further submits that this amount, taking inflation into account, would now be equivalent to \$22.2 million. Considering all those elements, the plaintiff respectfully asks this Court to award \$25 million as punitive damages.

387 The defendant argues that the present case should be distinguished from *Lubrizol* for several reasons. Firstly, the Federal Court's decision in *Lubrizol* was overturned at the Federal Court of Appeal, which made it clear that such a large sum would have to be grounded in the evidence from all stages of the trial. In addition, the case settled, so no final decision resulted from the remittance of the matter to the trial judge. Secondly, the \$15 million award was largely based on the fact that the defendant breached an interlocutory injunction ordered by the Court. Thirdly, the Supreme Court in *Whiten* expressed concerns over the *Lubrizol* judgment. Moreover, further mitigating factors flow from the fact that the denunciation purpose of the improper behaviour of the defendant was already achieved by the media coverage of the 2012 FC Judgment, in which the defendant's president has publicly expressed remorse to the Court at the trial on damages and explained that there were new measures in place to prevent such a deplorable situation to happen again in the future.

388 The Court agrees with the reading made by the defendant of *Lubrizol*. A cautionary remark must be made with respect to the \$15 million award in punitive damages. Although the Federal Court of Appeal did not *per se* invalidate the quantum of punitive damages, it did not confirm the quantum of punitive damages either. The Federal Court of Appeal underlines the principle that exemplary damages may be awarded only "where the combined award of general and aggravated damages would be insufficient to achieve the goal of punishment and deterrence" (*Hill v Church of Scientology of Toronto*, [1995 CanLII 59](#) (SCC), [\[1995\] 2 SCR 1130](#), [126 DLR \(4th\) 129](#) at para 196). The Federal Court of Appeal then decided that they could not assess the proper amount of exemplary damages until it decides whether the general damages were insufficient for punishment and deterrent purposes. The Federal Court of Appeal was never given the opportunity to reassess the matter as the parties settled the case. This case cannot therefore have a form of precedent regarding the amount allocated for punitive or exemplary damages in the first instance. However, the Court accepts the general principle established in *Lubrizol* regarding the great discretion of the trial judges in deciding the appropriate amount for punitive damages.

389 On the other hand, the defendant accepts its responsibility to pay punitive damages, but states that any amount determined by the Court should be aligned with the most recent Canadian case law on the subject. Despite the existence of awards over \$1,000,000, the defendant submits that a punitive damages award in the amount of \$100,000 or \$250,000 would be in line with the jurisprudence and the approach set out by the Supreme Court in *Whiten*.

390 The defendant submits that a review of some 100 such awards in punitive damages granted by Canadian courts between 2011 and 2016 reveals that the vast majority of the awards are in the \$5,000 to \$150,000 range, while a survey of over 25 punitive damages awards granted by Quebec courts establishes that the vast majority of the awards are in the range of \$10,000 to \$250,000 (the exceptions being *Cinar* and *Markarian c Marchés mondiaux CIBC Inc*, [2006 QCCS 3314](#), [\[2006\] QJ No 5467](#) [*Markarian*]). The defendant notes that there were four awards at or above \$1 million, including \$1.5 million awarded by the Quebec Superior Court in *Markarian* at paragraph 685; \$1 million awarded by the Supreme Court in *Whiten*; and \$1 million awarded by the Quebec Court of Appeal in *Agence du revenu du Québec c Groupe Enico Inc*, [2016 QCCA 76](#), [\[2016\] JQ No 366](#) at paragraph 185 [*Agence du Revenu*]. The defendant underlines that a defining characteristic of all the cases with awards of \$1 million or more is the vulnerability of the plaintiff who has suffered as a result of the actions and violations carried out by a powerful defendant. By contrast, in the present case, the defendant argues that this element of vulnerability is absent, as the plaintiff is a larger and more powerful party than the defendant.

391 The defendant notes that punitive damages awards in intellectual property cases are particularly instructive in the present case, and that a survey of over 30 final punitive damages awards by Canadian courts in the intellectual

property context from 1994-2016 reveals that most of the awards are in the \$10,000 to \$50,000 range. Examples of higher punitive damages awards have been characterized as significant (*Microsoft Corp v 1276916*, [2009 FC 849](#), [\[2009\] F.C.J. No 1023](#) at para 46; *Annie Pui Kwan Lam v Chanel S de RL, Chanel Limited and Chanel Inc*, [2016 FCA 111](#), [\[2016\] F.C.J. No 368](#) at para 23 [*Chanel FCA 2016*]). With respect to *Cinar*, the defendant states that this decision constitutes the "highwater mark" of punitive damages in a Canadian intellectual property matter, with an award of \$500,000. The circumstances in *Cinar* are distinguishable from the present case, however, because of the vulnerability of the plaintiff in that case, and the personal nature of the harm.

392 In reply, the plaintiff challenges the defendant's submissions as follows:

- (1) The quantum of punitive damages in other intellectual property cases is not binding on the Court. Punitive damages are a question of fact; this is why they can be determined by a jury (*Whiten* at para 136). For instance, the punitive damages awarded in *Whiten* were 20 times higher than in any previous insurance law case;
- (2) Punitive damages should not be reduced for public policy reasons, to favour challenges to improper monopolies caused by invalid patents, as was recognized by the Federal Court of Appeal in its 2013 FCA Judgment at paragraphs 180 and 184;
- (3) Media coverage does not constitute a mitigating civil or criminal sanction as envisaged by the Supreme Court in *Whiten* at paragraph 123;
- (4) There is no merit to the defendant's submissions that there should be no interest awarded on punitive damages.

393 This Court agrees with the plaintiff that the attempt to limit punitive damages to certain categories of claims was rejected by the Supreme Court, while punitive damages have also been specifically found to be available in patent cases, such as the present case, where the evidence shows that there has been high-handed, malicious or highly reprehensible conduct that departs to a marked degree from ordinary standards of decent behaviour (2013 FCA Judgment at paras 181, 183 and 184). However, as observed by the Supreme Court in *Whiten*, "[i]f an award of punitive damages, when added to the compensatory damages, produces a total sum that is so "inordinately large" that it exceeds what is "rationally" required to punish the defendant, it will be reduced or set aside on appeal" (*Whiten* at para 109). In this respect, "[a]n award that is higher than required to fulfil its purpose is, by definition, irrational. The more difficult task is to determine what is "inordinate"" (*Whiten* at para 110). In this regard, "proportionality" has been identified as "the key to the permissible quantum of punitive damages". "Retribution, denunciation and deterrence are the recognized justification for punitive damages, and the means must be rationally proportionate to the end sought to be achieved" (*Whiten* at para 111).

394 Referring to *Whiten*, the Federal Court of Appeal held, in the *Chanel* case, that the scope of review of punitive damages awards is broader than for other damages and a reviewing Court is justified in reducing punitive damages when the award is higher than rationally required (*Chanel FCA 2016* at para 24). While characterizing the Federal Court's reasons underlying the \$250,000 punitive damages award in *Chanel* as "quite sparse" and that it was "difficult to discern the precise basis for the award", the Federal Court of Appeal nevertheless held that "this would not necessarily render an award of this magnitude vulnerable to being set aside on appeal, depending on the findings made and reasons given to support the award" and "it is entirely possible that an award of punitive damages in the amount of \$250,000 might be a supportable remedy in a case like the present, even though the award is proportionally higher than the awards made in earlier cases" (*Chanel FCA 2016* at paras 23 and 25).

395 As noted by the Federal Court of Appeal in *Chanel* (*Chanel FCA 2016* at para 24), factors relevant to the rationality assessment include the degree to which the amount awarded is proportionate to the level of the defendant's blameworthiness, the extent of the plaintiff's vulnerability, the nature and extent of the harm suffered by the plaintiff, and the need for general and specific deterrence. In addition, the quantum awarded should be considered in context, which includes the scope and magnitude of other remedies awarded or likely to be awarded against the defendant, so as to ensure that the amount awarded is no higher than necessary to achieve the Court's

objective in imposing punitive damages. Speaking of proportionality, one of the most fundamental aspect of punitive damages is to ensure that the defendant does not treat compensatory damages merely as a license to get its way irrespective of the legal or other rights of the plaintiff (*Whiten* at para 124). Where a compensatory award is lower and would not achieve the purposes of retribution, denunciation and deterrence, greater punitive damages may be necessary (*Profekta International Inc v Lee (Fortune Book & Gift Store)*, [1997] F.C.J. No 527 at para 4 [*Profekta*]). As stated by the Supreme Court of Canada, it is perfectly acceptable to use punitive damages to relieve a wrongdoer of its profits where compensatory damages would amount to nothing more than an expense paid to earn greater profits while flouting the law (*Cinar* at para 136).

D. Examination of the *Whiten* factors

396 Having found that the amount of \$500,000 in compensatory damages as calculated above section VI -- (Compensatory damages award) would be insufficient in this case to achieve the goal of punishment and deterrence, and having successively considered each and all as a whole the various factors in *Whiten*, the Court is satisfied that the additional sum of \$1,000,000 in punitive damages is rationally proportionate to the defendant's blameworthiness, to the plaintiff's vulnerability, to the harm directed at the plaintiff, to the need for deterrence, to the existence of other penalties, and to the advantage wrongfully gained by the defendant, as further explained below.

397 At this point, prior to examining the factors mentioned in *Whiten*, the Court stresses that the present case is clearly distinguishable in many respects from *Lubrizol*, but also from a great number of cases cited by the defendant as well. While this Court finds that any amount of punitive damages in the range of what was ordered in *Lubrizol* would be irrational and inordinately large, the suggested award in the range of \$150,000 and \$250,000 would not be sufficient to achieve the purposes of a punitive damages award (retribution, deterrence and denunciation). Considering the case law, if any non-binding indication should be provided by this Court, an amount of punitive damages in litigation involving two multinational companies could be in the range of \$500,000 to \$2 million depending of the circumstances. The Court has retained the sum of \$1,000,000, which is the middle range. This flows from the fact that, while there are aggravating factors, there are also mitigating factors in this particular case.

1. Proportionate to the blameworthiness of the defendant's conduct

398 In *Whiten* at paragraphs 112-113, the Supreme Court of Canada has set out the following sub-factors relating to the inquiry into a defendant's blameworthiness:

- (1) Whether misconduct was planned and deliberate;
- (2) The intent and motive of the defendant;
- (3) Whether the defendant persisted in the outrageous conduct over a lengthy period of time;
- (4) Whether the defendant concealed or attempted to cover up its misconduct;
- (5) The defendant's awareness that what he or she was doing was wrong;
- (6) Whether the defendant profited from its misconduct; and
- (7) Whether the interest violated by the misconduct was known to be deeply personal to the plaintiff or a thing that was irreplaceable.

399 The Court has already found in 2012 that Bell's misconduct was planned and deliberate (2012 FC Judgment at para 433); that its intent and motive was to produce a lighter gear having the advantages (ground resonance) mentioned in the '787 Patent; that the infringement continued for a number of years; that the Bell's directions knew that Bell was doing wrong and persisted in its misconduct, while claiming that the Legacy gear was its own technology and promoting sales of the Bell 429.

400 It is noteworthy to refer to paragraphs 431 to 434 of the 2012 FC Judgment:

[431] There was no mistake of fact. It was known at Bell and Textron that the sleigh gear closely resembled the Moustache landing gear of the EC120. Mr. Gardner even testified that the Legacy gear has all of the characteristics of the Moustache landing gear (except for the lower curve). However, Mr. Lambert did not worry about that, as it was Mr. Foster's job to make the necessary inquiries. In fact, evidence obtained during discovery reveals that when concerns were raised about the similarity between the Legacy gear and the EC120 landing gear, Mr. Foster advised Bell's engineers to "carry on". In pursuing the project, Bell acted in a foolhardy manner (indeed their actions are contrary to their own policy manuals) and its conduct represented a marked departure from ordinary standards of decent behaviour.

[432] When it designed its sleigh type of gear, Bell knew or should have known of the '787 Patent. It is implausible that between 2003 and May 2008, Bell was ignorant of Eurocopter's intellectual property rights. Again, Mr. Foster was responsible to ensure that the chosen design did not infringe the '787 Patent; he was not called as a witness. Mr. Minderhoud who was closely involved in the calculations of the Legacy gear and publicly praised its performance should have known as well; he also did not testify at trial. Bell had an intellectual property service that was specifically responsible for verifying possible infringements; no employee of that department testified at trial, while Bell resisted on grounds of privilege requests for opinions, or has otherwise been evasive on the subject. Accordingly, the Court is allowed to draw a negative inference from these various omissions.

[433] On a balance of probability, the Court finds that there is clear evidence of bad faith and egregious conduct on the part of Bell. This is not a case where the infringement is small, trivial or isolated, or where the defendant is unsophisticated or ignorant. This is a case of wilful blindness or intentional and planned misappropriation of the claimed invention. Eurocopter has proven that the infringement of the '787 Patent by the making and use of the Legacy gear was not innocent or accidental.

[434] The evidence conclusively establishes that Bell had plans to manufacture and incorporate the Legacy gear in its Bell 429 model, as soon as it could obtain certification. Bell actively promoted the sales of the Bell 429 equipped with the Legacy gear. Bell has shown no remorse and offered no excuse for its behaviour. Denying that there was infringement, Bell took a vindictive position throughout the proceeding, pleading that it could avail itself of the regulatory or experimental exception and that it was simply practising prior art.

401 Bell also profited from its misconduct. As this Court has already found, in 2012, Airbus' experts assumes that the economic benefits realized by Bell include saved costs of capital relating to the solicitation and collection of customer deposits using the 429 helicopters equipped with an infringing landing gear; saved costs and incremental profits from not having to redo the optimization and certification testing; saved costs and incremental profits from the adoption of the infringing landing gear rather than using its own independently developed landing gear; and improved customer relationships and brand value as a result of Bell's bringing to market the Bell 429 helicopter model ([2012 FC 113](#) at para 441). The parties debated at length the issues of causation and quantification of any benefits for the purpose of the determining the degree of the defendant's conduct. However, it is not necessary that this Court come up with a dollar and cent figure of how much the defendant profited from its misconduct. An award of \$1,000,000 in punitive damages is certainly not out of proportion with the defendant's blameworthiness, as well as the direct and indirect benefits derived from its misconduct. In this respect, this sum also takes into account mitigating factors militating in favour of the defendant.

402 During her examination in chief, Ms. Garneau testified that she was familiar with the judgment of the Court declaring that Bell had intentionally infringed Airbus's patent and ordering Bell to pay compensatory and punitive damages. As proof of their repentance to the present dispute, Ms. Garneau then made the following public statement:

[TRANSLATION:] I would like to [...] offer my apologies to Airbus, to the employees of Airbus, to individuals from Airbus who were involved in this whole matter, and I would also like to offer my apologies to the Court.

Bell Helicopter obviously accepts, acknowledges and understands the judgment, and is truly sorry. Once again, I would like to apologize personally and on behalf of the employees of Bell Helicopter to anyone who was impacted by the harm that was caused, and that resulted from this entire unfortunate situation.

403 However, as noted by Airbus' counsel, the apologies came very late and do not translate a true sense of repentance, while it is the first time that Bell apologized for the event of the present proceeding. Furthermore, Ms. Garneau aptly described the present matter as an "unfortunate situation", which suggests that Bell still believes it did nothing wrong, while, after exhaustion of all appeal rights, it is now ready to accept the finality of the 2012 FC Judgment. This goes in the same line that Ms. Garneau testified during her cross-examination, where she indicated that she agreed with John Garrison, President and CEO Bell Helicopter, when he stated: "Bell Helicopter would never knowingly violate the intellectual property of others." However, she had also indicated that she was aware that, in the 2012 FC Judgment, the Court had determined that Bell knowingly and wilfully infringed the patent. Ms. Garneau testified that perhaps the distinction lay in remarks by Mr. Garrison referring to the landing gear produced for the Bell 429 and not the Legacy gear referred to in the judgment. Indeed, Ms. Garneau recognized in cross-examination that she had only recently been informed of the 2012 Court's judgment, and that the judgment had not been widely circulated internally at Bell.

404 The defendant further pleads that the present situation is likely not to occur again. In her *in camera* testimony, Ms. Garneau stated that Bell has since implemented policies and procedures with respect to intellectual property. She noted that in the Ethics and Compliance Program for employees, there was a section covering the protection of information, tangible and intangible company and third party assets, and that this guide also contained specific provisions relating to the management of Bell Helicopter and third party intellectual property. In the guide, reference is also made to the "Bell Helicopter Textron Intellectual Property Management Manual" [Textron manual] that sets out the broad parameters that each business unit at Textron must follow with regard to intellectual property management (Transcript Volume 4 at pages 205- 206). In addition, the program features a significant ongoing training component, including webinar online trainings available to employees 24/7, as well as in-person training focused specifically on intellectual property management provided by counsel from Bell's headquarters who travel to Mirabel to train groups who require such training in their day-to-day work. She further noted that since this case, the Litigation Department of Fort Worth hired additional resources that specialize in intellectual property to assist the initial intellectual property counsel they had hired in 2005. There are now people working side-by-side with the innovation groups, research and development groups, who make sure that new patents are thoroughly reviewed so as to avoid any potential conflicts and to ensure that new products developed, do not infringe any existing patents. There is also a process called "NP and SI -- New Product and Service Introduction". It is a very rigorous process that requires the successful completion of various stages before a product can proceed to the manufacturing-certification stage. End of *in camera* testimony.

405 Despite the findings made by this Court in 2012, the defendant advocates for lower punitive damages relying on its good behavior. Pursuant to Ms. Garneau testimony, aside from the current Airbus case, Bell has not been prosecuted over allegations of patent infringement in Canada. In the United States, Ms. Garneau indicated that there had been a proceeding against BHTI regarding a matter of intellectual property -- Clear with Computers LLC against a number of respondents, including BHTI (exhibit D-93/Counsel's Eyes Only). That case was dismissed by Court Order. The defendant also submits that in comparison to other case law on patent infringement, Bell did not persist in the objectionable conduct over a lengthy period of time. When sued by Airbus in May 2008, the defendant started to work on the Production gear. In February 2009, at the HELI EXPO in Anaheim, California, the defendant was only publicising the Bell 429 with the Production gear. Furthermore, it is an undisputed fact that Bell has respected the Court Orders by taking steps to quarantine not only the gears but also all the marketing material. It also uncontested that Bell destroyed 20 of the 21 quarantined gears following this Court's order (Plaintiff's Instruction Record, Stipulation of May 9, 2016). By way of contrasting example, in the *Cinar* case, the copyright infringement spanned over 10 years, while in the *Evocation* case, the infringement went on for approximately 8 years. In reply, the plaintiff reminds the Court that the infringement occurred in a four year period which is twice the period of infringement in the *Whiten* case where \$1,000,000 were awarded as punitive damages.

406 In summary, the defendant alleges that the impugned action of Bell occurred in a commercial context where

Bell did not violate any deeply personal or irreplaceable rights. As such, the defendant's conduct falls far short of the gravity and duration of the misconduct in other intellectual property cases that have attracted high punitive damages (Bell's final argument at paras 440-442).

407 While a number of mitigating factors are accounted at present, the Court is not satisfied that the defendant's switch to the Production gear around February 2009 demonstrates a clear commitment at that time to respect the plaintiff's intellectual property rights. Bell continued to claim that it was not infringing the '787 Patent, raising the *Gillette* defence and the experimentation exception (2012 FC Judgment at paras 50 and 55). Moreover, the US decision which looked into the real intentions behind the defendant's conduct, is particularly relevant (exhibit D-117):

Although Bell's representative testified that Bell does not intend to use the Original Gear in the future, see FF. 133, the Court is not convinced that it can rely on this representation. Bell's witness on this point was not wholly credible. See FF. 21, 88, 134. Moreover, even if Bell voluntarily adopts a policy of using a different gear, Bell has in the past ignored its own policies with respect to intellectual property rights. See FF. 27.

Nor is the Court persuaded that Bell's switch to the Modified Gear demonstrates a commitment to respect Airbus's intellectual property rights. Bell's actions with respect to that landing gear were made in response to the Canadian litigation; see FF. 129-131, which may have limited deterrent power in the United States. And indeed, Bell's initiation of the present suit suggests that Bell is interested in using the Original Gear in the future.

[Emphasis added]

408 This Court has also considered the fact that current policies exist at Bell to prevent such things happening in the future. However, similar policies existed at the time of the infringement of the '787 Patent and did not prevent upper management, in the person of Mr. Malcolm Foster ordering to "carry on" despite the concerns expressed by lower personnel. A significant amount of punitive damages will serve as a strong corporate deterrent to prevent such type of misconduct happening again, and even more so in a context where lower personnel may fear for their positions and there has been no corporate action taken against any member of management personally responsible of a reprehensible conduct (*Whiten* at para 120; *Groupe Enico inc c Agence du revenu du Québec*, [2013 QCCS 5189](#), [\[2013\] JQ No 14228](#) at para 1098 conf'd in *Agence du Revenu* at paras 168-169).

409 Bell, and its parent company Textron Inc., are also sophisticated corporate entities employing thousands of engineers and highly skilled personnel. Both have legal and intellectual property departments (2012 FC Judgment at para 427). Advanced software permits to search and find applications and patents relevant to helicopters worldwide. Indeed, at the time of infringement, there was a policy manual and guidelines with respect to intellectual property matters, including measures to avoid infringing on valid intellectual property rights held by others (see exhibits JB-397 and JB-398). With respect to the Textron manual from 2005, Ms. Garneau testified that it was never a policy that was maintained as it was written at the time and was not followed or used by either the legal department or employees at Bell Helicopter. She added that they essentially relied on Textron's policy -- the Textron guide -- when dealing with intellectual property issues referred to in the employee ethics code. On cross-examination she confirmed that it was, in fact another policy that was followed by Bell employees, and that policy was not before the Court. This statement raises serious concerns on the appropriate application of the defendant's IP policy. Indeed, the evidence on record showed that Bell's staff raised concerns early on the similarities between the Legacy gear and the Moustache gear, yet nothing was done to alleviate these concerns. For a large and sophisticated corporation such as Bell Helicopter, it was simply unacceptable that no one would verify intellectual property rights prior to embarking, as it did, on a research program directly involving the study of the landing gear of a leased EC120 helicopter. Such reckless behavior would otherwise amount to willful blindness (2012 FC Judgment at para 429).

410 Recently, the United States Supreme Court unanimously overruled the Federal Circuit's "Seagate" rigid test to award of enhanced patent damage, which can be described as punitive damages in Canadian Patent Law (*Halo*

Electronics, Inc, Petitioner v Pulse Electronics, Inc, and al; Stryker Corporation, and al Petitioners v Zimmers, Inc, et al, (2016) 136 S Ct 1923). In these two consolidated cases, two sophisticated corporations, sued for the infringement of their patent by their competitor. The US Supreme Court held that the threshold criteria defined in the *Seagate* test were not consistent with the enhanced-damages provision of the *Patent Act*, 35 USC s. 284. While the *Seagate* test was found to be "unduly rigid", the US Supreme Court did not overrule the principle that the "failure of an infringer to obtain the advice of counsel [...] may not be used to prove that the accused infringer willfully infringed". However, the US Supreme Court found that someone who plunders a patent can nevertheless escape any comeuppance on the strength of his attorney's ingenuity.

"The *Seagate* test aggravates the problem by making dispositive the ability of the infringer to muster a reasonable (even though successful) defense at the infringement trial. The existence of such a defense insulates the infringer from enhanced damages, even if he did not act on the basis of the defense or was even aware of it. Under that standard, someone who plunders a patent--infringing it without any reason to suppose his conduct is arguably defensible-- can nevertheless escape any comeuppance under s. 284 solely on the strength of his attorney's ingenuity. But culpability is generally measured against the knowledge of the actor at the time of the challenge conduct."

[Emphasis added]

411 In additional submissions, the defendant argued that this American decision was not pertinent to the case at bar considering that the specific issue in *Halo* was "when" enhanced damages may be awarded. In the present case, the Court has already decided that punitive damages should be awarded. Furthermore, the defendant points out that US Court under section 284 of the US Patent Act may increase the damages up to three times the amount found and assessed for compensatory damages.

412 The fact that the present punitive award of \$1,000,000 is twice the amount of the \$500,000 compensatory damages award is not driven by any automatic formula or multiplying factor but derived for an assessment of the *Whiten* factors in light of the particular facts of this case. While the defendant was found to have also breached the US Patent (and the French Patent as well), the Court agrees with the defendant that a literal application of section 284 of US Patent Law would not be appropriate as increasing three times the amount of compensatory damages would go against the proportionality rule described in *Whiten*. However, this case is nonetheless useful regarding the implication for a powerful and informed corporation to respect IP Policy from the start. Indeed, the US Supreme Court did allow more discretionary power to US courts to impose enhanced-damages awards against deliberate and intentional infringers, especially for those who disregard IP Laws in the hope that their attorney will develop plausible defenses for their conduct in case of future litigation.

413 Following this principle, the Court attaches much importance to the blameworthiness of the defendant's conduct. The findings in the first phase of trial established that the defendant's misconduct was planned and deliberate. Indeed, Bell intentionally leased and operated an EC120 helicopter, not under "benchmarking" motive with competitive products, but rather to import and copy the unique and new patented technology developed by the plaintiff (2012 FC Judgment at paras 429-430). The evidence also shows that the defendant promoted the infringing Legacy gear as its own invention (2012 FC Judgment at paras 272-273 and 439-441). The Minderhoud's article (JB-224) sets out that a "sleigh type skid landing gear has been designed for the first time by Bell Helicopter for use on its Model 429 civil helicopter". In short, all these elements point toward an award of significant punitive damages in order to precisely denounce this unacceptable behavior. This is why the amount of the award should not be in the lower range of the punitive damages spectrum as suggested by the defendant.

414 The *ex post* infringement evidence provided in the second phase must be assessed with caution by the Court. While Airbus considers that Bell does not feel a total sense of repentance, the Court has nevertheless considered whether there are chances that this type of objectionable behaviour will happen again in the future. That being said, the Court has also treated as an important mitigating factor, the fact that after the institution of the plaintiff's action in infringement, in May 2008, the defendant quarantined the twenty-one infringing landing gears and started to work on developing a non-infringing modified gear which became known as the Production gear. However, the Court

notes that although the evidence of the quarantine was not debated in this second phase of the trial, the evidence of Bell's commercialization of the Bell 429 shows that Bell continued to use the Bell 429 with the equipped Legacy gear even after May 2008.

2. Proportionate to the degree of vulnerability of the plaintiff

415 The defendant states that the degree of vulnerability of the plaintiff is another aggravating factor in cases outside the IP context. In such cases, where a party in a strong bargaining position markedly departs from ordinary standards of decent behaviour in their dealings with regular individuals, a high award of punitive damages is justified (*Pate Estate* at para 145). On the other hand, the defendant points out that in *Whiten*, the Supreme Court suggested that the lack of vulnerability between the parties "militates against the award of punitive damages" because corporations "enter the marketplace knowing [they are] fuelled by the aggressive pursuit of self-interest" (*Whiten* at para 115). Indeed, in that case, Binnie J. urged courts not to grant substantial punitive damage awards in the commercial context (*Whiten* at 162; see also: *Performance Industries Ltd v Sylvan Lake Golf & Tennis Club Ltd*, [2002 SCC 19](#), [\[2002\] SCJ No 20](#) at para 88 [*Sylvan Lake*]; and *Café Mirage Inc v 1429539 Ontario Inc*, [2011 FC 1290](#), [\[2011\] F.C.J. No 1573](#) at para 166). Accordingly, the defendant submits that the commercial nature of the dispute and the fact that both parties are sophisticated corporate entities, there is no power imbalance or fiduciary between them (Bell's final argument at paras 443-444/Counsel's Eyes Only). In reply, the plaintiff argues that this factor is essentially neutral.

416 The financial situation of a corporate plaintiff in a trade-mark infringement action has already been held not to constitute an impediment to refuse to award a substantial amount of punitive damages, even if the defendant is a corporate entity engaged in the importation and sale of merchandise, some of which may be counterfeit merchandise. As stated in *Chanel FC 2016* at paragraph 77: "[a]s described in the *Whiten* decision, the courts must assess what sum would be proportionate to the need for deterrence. Consequently, the financial or other vulnerability of the plaintiff, and the consequent abuse of power by a defendant, is highly relevant where there is a power imbalance, as it was clearly the case in *Robinson*." In *Chanel FC 2016*, this Court found that worldwide brand of the plaintiff, was commercializing high quality fashion products which attracts a specific clientele. Although the financial capacity of the corporate plaintiffs in the *Chanel* case was not a concern, the Court nevertheless noted that "the vulnerability of the plaintiffs lies on their incapacity to control the daily sale of counterfeit merchandise which diminishes the value of the goodwill associated with the Chanel trade-marks." The same reasoning cannot be applied in the present case as the two parties are important players in the design and sale of helicopters. Thus, there is no power imbalance as could be found in *Chanel FC 2016*. Mr. Young, during his examination, stated that regardless of the type of landing gear on the Bell 429, both parties were already facing competition. Therefore, the factor of the vulnerability is more or less neutral in the present case.

417 However, the Court does not endorse the defendant's plain suggestion that the grant of significant punitive damages in the case law is generally guided by the vulnerability of the plaintiff. Statistics are always misleading: justice must be the same whether you are rich or poor, although in the latter case, courts must find a way to ensure that those who are less wealthy have access to the justice system and that valid claims are indeed pursued in court because of the power of the purse of the other. We can imagine that, in a commercial context, this could be a risk faced by a small corporation who owns a vulnerable patent but could not afford the costs of lengthy and international litigation against a powerful multi-national corporation. The driving factor is whether there is imbalance resulting in one party knowingly using his dominant power against the vulnerable party.

418 As such, the Court does not deny that, in the past, the great vulnerability of the plaintiff weighed heavily in the balance of the *Whiten* factors. The *Cinar* case clearly exemplifies this. However, the Supreme Court in *Whiten* did not give more weight to one factor or another. The important rule that emerges from this decision is that the Court must balance all the relevant facts in order to determine what sum would be proportionate to the need for deterrence. Consequently, it is not because the Court believes that the *Whiten's* second factor is neutral that the value of punitive damages must necessarily be diminished. Indeed, where the first *Whiten* factor is considered -- the blameworthiness of the defendant's conduct -- the Court has found that the fact that the defendant was a

sophisticated company with an IP department and the means to prevent infringement played against Bell who willfully infringed the '787 Patent. Conversely, it is not because both corporations are multinationals making billions of dollars that this justifies an increase of the punitive award by a multi-playing factor which is proportionate to the defendant's capacity to pay a large award in damages, like the one suggested by the plaintiff who seeks a condemnation between \$15 million and \$25 million in punitive damages.

3. Proportionate to the harm or potential harm directed specifically at the plaintiff

419 In exercising its discretion, the Court is guided by the sound legal principles developed over the years which calls for an assessment of the harm or potential harm directed specifically at the plaintiff. The Court must also rely on the specific facts of the case. Although the defendant's review of the case law is very broad, there is no mention of the judgment rendered by the Quebec Superior Court of Justice in *Montréal (Ville de) c Biondi*, [2016 QCCS 83](#), [\[2016\] QJ No 104](#), which was affirmed by the Quebec Court of Appeal, [2016 QCCA 716](#), [\[2016\] JQ No 3810](#) application for leave refus'd [\[2016\] SCCA No 293](#), confirming an award of \$2 million in punitive damages against a trade-union. Unsatisfied with the new collective agreement, members of the Union undertook, pressure tactics against the municipality which resulted, among other things, in delay in the icebreaking operations on pavements and sidewalks in downtown Montreal. In the context of class action, citizens sued the municipality and the union for all the prejudices resulting from the pressure tactics, including all damages resulting from their fall on the sidewalk. Pursuant section 1621 of the *Civil Code of Quebec*, the Quebec Superior Court condemned the union to pay punitive damages totalling \$2 million on the ground that it "acted with full knowledge of the immediate and natural or at least highly probable consequences that its conduct might engender". Conversely, if no harm was specifically directed at the plaintiff, this factor militates towards a lower punitive damages award (*McIntyre v Grigg*, [\[2006\] OJ No 4420](#) at para 85).

420 On the other hand, there is no mathematical formula or particular ratio of punitive damages to compensatory damages to respect, and as noted by the Supreme Court in *Whiten* at paragraph 127, the fact that compensatory damages are quantified in dollars and cents may be "temptingly useful, but wholly inadequate". This may be the case, for example, where outrageous misconduct has fortuitously (and fortunately) resulted in a small financial loss, such as what has happened here (since there were no actual sales of Bell 429 helicopters equipped with the infringing Legacy gears): "Potential, as well as actual, harm is a reasonable measure of misconduct", and so are the other factors mentioned by the Supreme Court in *Whiten*, such as motive, planning, vulnerability, abuse of dominance, other fines or penalties, and so on.

421 The third factor is based on real or potential harm (*Whiten* at para 117). The fact that only twenty-one Legacy gears were used by or made for Bell does not take into account the reality of the length of time, the gravity and intention behind the infringement. The potential for harm against the plaintiff was great in this case.

422 In the case at bar, this Court has already found in 2012 that Bell's overall conduct is highly reprehensible and constitutes a callous disregard for the rights of Airbus who was forced to institute the present action. Indeed, Airbus was also forced to institute legal proceedings in several countries to enforce its intellectual property rights. Although none of the plaintiff's helicopters that directly compete with the Bell 429 are equipped with a Moustache gear, it remains that the overall business of the plaintiff has been harmed by the infringement of Bell, as Bell had already marketed and advertised during a number of years the Bell 429 with the infringing Legacy gear.

423 Nonetheless, Mr. Heys considered that Airbus has also experienced the potential dilution of its reputation as an inventor and the leading developer of civilian helicopters. The defendant notes that the Federal Court has decided that reputational damage was not a real source of potential harm as a result of a patent infringement (*Merck v Apotex* [\[1993\] F.C.J. No 1095](#)). In any case, there is simply no evidence of reputational damages whatsoever that would permit this Court to use this factor, in a rational manner, to increase the punitive damages award.

424 Moreover, while the amount of \$500,000 in compensatory damages as calculated above (section VI --

Compensatory damages award) may look significant, in reality, where one considers the players involved, the nature of aeronautical industry and the overall market of light twin helicopters, this is really a modest sum. On the other hand, the Court resisted any temptation to substantially raise the amount of punitive damages, considering that the potential harm the plaintiff by the defendant's planned and deliberate actions was mitigated by the decision taken by the defendant to quarantine the twenty-one infringing Legacy gear and the fact that no Bell 429 was sold with the infringing Legacy gear. All these elements were specifically taken in consideration by the Court in determining that an award of \$1,000,000 in punitive damages would be proportionate to the harm or potential harm directed specifically at the plaintiff.

4. Proportionate to the need for deterrence

425 According to the case law, the need for deterrence can be assessed by examining: (1) whether the defendant has ample financial means; (2) whether the offending conduct was an isolated incident; (3) whether the industry as a whole must be deterred from such conduct. (*Whiten* at paras 118-120; *Chanel FC 2016* at para 77)

426 In deciding to award \$1,000,000 in punitive damages, this Court has also considered the fact that the Supreme Court has held that the relative size and profitability of the defendant "should have a limited importance". Indeed, the Supreme Court found that the financial position of the defendant might be relevant regarding the necessary award to effectively deter the conduct. A defendant's financial power would then become relevant in certain circumstances like (1) if the defendant chooses to argue financial hardship, or (2) it is directly relevant to the defendant's misconduct, or (3) where it may rationally be concluded that a lesser award against a moneyed defendant would fail to achieve deterrence (*Whiten* at para 119). However, Binnie J. noted that members of a jury may be improperly influenced by the wealth of the defendant compared with the relatively small plaintiff's claim. This could lead to an improper use of their discretionary power in order to give "a large whack to wake up a wealthy and powerful defendant to its responsibilities" (*Whiten* at para 118).

427 In any event, the amount of condemnation must be sufficiently important so as to attract the attention of the defendant and the community. In this respect, the fact that the defendant is a subsidiary of BHTI who, in turn, is wholly owned by Textron Inc. must be considered. In this respect, Textron Inc. must submit an annual report pursuant to section 13 or 15(d) of the *Securities Exchange Act of 1934* [FORM 10-K], which covers activities of both Bell and BHTI. In cross-examination, Mr. Hatcher stated that if nothing about a specific litigation appears in the report it has not been considered material. Although there is a section about legal proceedings, there is no mention in the report of the present proceeding or the amounts in damages claimed by Airbus (notably the \$25 million in punitive damages) nor the proceedings undertaken in United States and France, other than a note that there are "multiple on-going legal proceeding arising out the conduct of its business, including in patent and trade-mark infringement" (exhibit P-120 at page 15/Counsel's Eyes Only).

428 On the other hand, when conduct by a defendant is an isolated incident, it will normally be seen as requiring less deterrence, and therefore a small punitive damages award (*Whiten* at para 120). In this respect, although the infringement of the '787 Patent subsisted for a long period of time, it remains that Bell, BHTI, and Textron Inc. enjoy a good reputation and have not been condemned, in the past, for any major violation of one's intellectual property rights. Indeed, Ms. Garneau testified that the within action was the only Court action for violation of intellectual property rights against Bell, beside one court action where Bell was affiliate with numerous other defendant, and was ultimately dismissed (exhibit D-93/Counsel's Eyes Only).

429 The Court has also considered the fact that, in the IP context, the Federal Court has tended to award significant punitive damages against defendants who continue to infringe IP rights once notified of the infringement (*Entral Group International Inc v MCUE Enterprises Corp*, [2010 FC 606](#), [\[2010\] F.C.J. No 723](#) at paras 28 and 35), or in cases where the defendants continue to infringe during the course of the trial (*Louis Vuitton Malletier SA v Singga Enterprises (Canada) Inc*, [2011 FC 776](#), [\[2011\] F.C.J. No 908](#) at para 179). Repetitive or rampant conduct, such as in *Chanel FC 2016* would warrant a greater penalty to achieve deterrence. This is why this Court feels that

it would be unwarranted and unnecessary, in this case, to award an amount of damages greater than \$1,000,000, in view of all the mitigating factors mentioned in these reasons.

430 As previously stated, the purpose of Patent Law as a whole is to advance research and development, and to encourage broader economic activity. The development of a helicopter is a highly complex and costly endeavour. Only a few players in the industry possess sufficient technology and employ the highly qualified personnel necessary to design, develop, test and manufacture a landing gear that will have all the required characteristics and advantages. Thus, the Court simply cannot accept the fact that the defendant intentionally used the work done by Airbus to then appropriate the success of this new invention. Bell's outrageous conduct caused irremediable damages that simply cannot be corrected by an award of damages or an account of profits, and which are aggravated by the fact that Bell has mislead and continued to mislead the public into believing that the Bell 429 is the first helicopter to use a sleigh type skid landing gear. The fact that the Bell 429 did not immediately go into production, notably because of delays in the certification process, is coincidental and should not serve as an excuse not to award a significant amount of punitive damages. On the other hand, although the infringement was perpetrated at a grand scale and authorized at a very high level, the defendant's behaviour after the institution of the proceeding -- despite being motivated by mitigating the risk factor (and not repentance) -- must nevertheless also be taken into account by the Court in determining whether the amount of punitive damages is proportionate to the need of deterrence. The compensatory damages are simply not enough to achieve the goal of punishment and deterrence. In this context, the Court finds that an amount of \$1,000,000 is sufficient to achieve that purpose.

5. Proportionate to the other penalties

431 The plaintiff submits that this criterion, set out in *Whiten*, is assessed on the basis of the other civil or criminal sanctions imposed on the defendant in relation to the same patent infringement. Since Bell is not facing any other civil nor criminal sanction, this Court should award a higher rate of punitive damages (*Whiten* at para 123).

432 The defendant underlines that if a defendant has already suffered other retribution, denunciation or deterrence for the misconduct in question, the need for additional punishment is reduced. Punitive damages should be proportionate to compensatory damages (*Boucher v Wal-Mart Canada Corp*, [2014 ONCA 419](#), [\[2014\] OJ No 2452](#) at para 64), as well as to other forms of "stigmatization" (*Sylvan Lake* at para 88; *Whiten* at para 94).

433 This Court does not adopt this last proposition. An award for punitive damages may indeed exceed compensatory damages. In the *Chanel* case, the Federal Court had notably ordered the subject defendants to pay to the plaintiffs \$64,000 in compensatory damages and \$250,000 in punitive and exemplary damages (*Chanel S de RL v Kee*, [2015 FC 1091](#), [\[2015\] F.C.J. No 1137](#)). While this award was somewhat higher than other awards in trade-mark infringement cases, as subsequently noted in *Chanel FC 2016*, the Federal Court had earlier granted \$696,000 in punitive damages against defendants who had been selling counterfeit Gucci merchandise in flea markets (representing \$29,000 -- minimal compensatory damages for wholesaler -- for each of the 24 occasion of infringements), in addition to \$1,392,000 as compensatory damages (*Guccio Gucci SPA and Gucci America Inc v Bobby Bhatia et al* (Unreported) Federal Court File No T-1556-14).

434 Nevertheless, the defendant may not seek a reduction in punitive damages on the sole grounds that public denunciation was enough to deter his misconduct. In *Whiten*, the Supreme Court found that the key factor is "if, but only if" all other penalties have been taken into account and found to be inadequate to accomplish the objectives of retribution, deterrence, and denunciation (*Whiten* at para 123). From this statement, the Court finds that the social impact of legal proceeding should not be considered as part of the said penalties but rather as a normal consequence of the deterrence effect of legal proceeding for patent infringement.

435 Overall, the Court does not agree either with the plaintiff's submission. Even though the defendant is not facing criminal charges, it remains that Bell has been sued in different countries for the same infringement. Considering all of the above, the Court believes that this factor is more neutral.

6. Proportionate to any advantage wrongfully gained by a defendant from the misconduct

436 This factor addresses whether the defendant gained any advantage as a result of its wrongdoing (*Whiten* at para 124; see also: *Richard v Time Inc*, [2012 SCC 8](#), [\[2012\] SCJ No 8](#) at para 206; *Cinar* at para 136). The Supreme Court has cautioned against using this factor irrationally (*Whiten* at para 125), while in the IP context, infringers who collect substantial profits as a result of their infringements attract higher penalty (*Claiborne Industries Ltd v National Bank of Canada*, (1989) 69 OR (2d) 65; *Hertzog v Highwire Information Inc*, [\[1997\] F.C.J. No 968](#) at paras 25-26; *Profekta* at para 373; *Parks v 2703203 Manitoba Inc*, [2007 NSCA 36](#), [\[2007\] NSJ No 128](#) at paras 137-138). The defendant's misconduct must also be causally linked to the misconduct in question (*Cinar* at para 135; *Sylvan Lake* at paras 89-90).

437 The plaintiff submits that in *Whiten*, the Supreme Court recognized that the actual, as well as potential harm, which resulted from the infringement, can be considered. As such, the defendant should not be excused or its wrongful act should not be diminished merely because the institution of the present action has had the effect of limiting the amount of compensatory damages the plaintiff can claim since the defendant adopted for the Production gear in 2008.

438 Airbus' expert, Mr. Heys, reiterated during his examination in chief that his reasonable royalty analysis and his analysis of the economic benefits realized by Bell from its infringement of the patent were not mutually exclusive, and that there may well be some overlap. He stated that the main difference was contextual. With an economic benefits analysis we are looking backwards at what actually happened to account for the benefits that Bell realized, whereas the compensatory damages analysis is prospective or forward looking. Mr. Heys also stated that his analysis with respect to economic benefits received by Bell was not a "but for" analysis, as there were no infringing sales for which profits needed to be disgorged (Transcript Volume 4 at page 186). Mr. Heys identified four categories in which Bell had benefited from its infringement which do not need to be discussed again at this stage.

439 That being said, there were a number of advantages wrongfully gained by the defendant that have been already mentioned by the Court, and this despite the defendant's claim that there is no causal link with the infringement. Be that as it may, Bell submits that punitive damages are not, by nature, compensatory, and that it would be wrong to include the four categories of economic benefits identified by Mr. Heys in the calculation of the punitive damages. To make this matter clear, the Court has assured itself that there is no "double recovery". In this respect, the amount of \$1,000,000 in punitive damages does not duplicate the amount of \$500,000 in compensatory damages, and in the Court's view is proportionate to any advantage wrongfully gained by the defendant from the misconduct.

E. Conclusion on the punitive damages

440 The Court has looked at the proportionality of its punitive damages award in several dimensions. Having considered the evidence on record, in light of the representations made by the parties, and all the relevant factors, the Court is satisfied that a total award of \$1,000,000 in punitive damages is proportionate to the blameworthiness of the defendant's conduct; proportionate to the degree of vulnerability of the plaintiff; proportionate to the harm or potential harm directed specifically at the plaintiff; proportionate to the need for deterrence; proportionate, even after taking into account the other penalties, both civil and criminal, which have been or are likely to be inflicted on the defendant for the same misconduct; proportionate to the advantage wrongfully gained by the defendant from the misconduct. When considered in this complete context, the Court finds two major factors that militate for higher punitive damages, namely the blameworthiness of the defendant and the need for deterrence.

441 As such, at the risk of repeating itself, the Court is satisfied that a total award of \$1,000,000 in punitive damages, in addition to the compensatory damages award of \$500,000, respects the boundaries of rationality and is not excessive in the Court's opinion considering the case law and the particular facts of the case. Bell's conduct is highly reprehensible and goes against the core and the purpose of patent law. In order to have a real deterrence effect, companies such as Bell must understand that this behavior is not tolerated; they cannot get away with long

and costly litigation. The amount of \$1,000,000 is the minimum amount of punitive damages that can be awarded by the Court to achieve those purposes.

VIII. PRE- AND POST JUDGMENT INTEREST

442 In the 2012 FC Judgment, the Court allowed pre-and post-judgment interest and noted the following:

[460] Parties agree that in the event that this Court orders an award of damages, pre-judgment interest should be allowed in respect of any monetary award of damages. It should not be compounded. The rate of such interest should be calculated separately for each year since the infringing activity began at the average annual bank rate established by the Bank of Canada as the minimum rate at which it makes short term advances to the banks listed in Schedule 1 of the *Bank Act*, SC 1991, c 46.

[461] Moreover, the parties agree that post-judgment interest, should not be compounded, and should follow the establishment of the quantum of damages at the rate of five percent established by section 4 of the *Interest Act*, RSC 1985, c I-15.

443 In particular, pursuant to subsection 36(4) of the *Federal Courts Act*, RSC 1985, c F-7, the plaintiff is further entitled to pre-judgment interest on its monetary awards other than the punitive damages and the costs award, and to post-judgment interest on its monetary awards other than the costs award (*Mitchell Repair Information Company v Wayne Long*, [2014 FC 562](#), [\[2014\] F.C.J. No 619](#) at para 20). Accordingly, the defendant must pay to the plaintiff pre-judgment interest on the sum of \$500,000 in compensatory damages, not compounded, and calculated separately for each year since the infringing activity began, which is set on October 18, 2005, at the average annual bank rate established by the Bank of Canada as the minimum rate at which it makes short term advances to the banks listed in Schedule I of the *Bank Act*, SC 1991, c 46.

444 Furthermore, the defendant must pay to the plaintiff post-judgment interest, not compounded, on the total sum of \$1,500,000 in damages calculated at the rate of five percent established by section 4 of the *Interest Act*, [RSC 1985, c F-15](#).

IX. COSTS AWARD

445 Despite the earlier suggestion by the defendant's counsel to debate the issue of costs once the Court would have determined the quantum of compensatory and punitive damages to be awarded to the plaintiff -- plaintiff's counsel objecting to delaying any further the proceeding (Transcript Volume 9 at pages 104 to 106), counsels eventually addressed costs in both their written and oral submissions made on June 10, 2016.

446 Considering the complexity of the present file and the late disclosure of numerous documents at the hearing, the plaintiff is claiming the highest unit of Column IV of Tariff B for a maximum of three counsels (two senior counsels and one junior) for the preparation of the hearing, the trial and the discoveries, as well as all the reasonable disbursements incurred. Additionally, the plaintiff requests from this Court a special condemnation for \$25,000 payable forthwith, for the unnecessary costs incurred for the preparation relating to the expert report and testimony of Mr. Dupuis who was not called as an expert witness.

447 The defendant recognizes that the plaintiff is entitled to their reasonable costs in relation to the quantification exercise assessed in Column IV, for one senior counsel and two juniors, following the Costs Judgment rendered in 2012, while suggesting that, if the Court determines that the compensatory and punitive claims were exaggerated, this could be reflected in a lower Column level, as it will have necessitated more time and effort. However, the defendant strongly opposes the plaintiff's claim for special condemnation of \$25,000 payable forthwith. Given the delays incurred on the cross-examination of Dr. Schwartz and the constraints imposed by the plaintiff's lead counsel who was not available the following week (because he was travelling outside Canada), defendant's counsel made the decision not to call Mr. Dupuis who had been present throughout the trial.

448 Rule 400(1) provides that the Court has "full discretionary power over the amount and allocation of costs and the determination of by whom they are to be paid" and Rule 400(3) lists certain non-exhaustive factors that the Court may take into consideration in its assessment:

- (3) In exercising its discretion under subsection (1), the Court may consider
- (a) the result of the proceeding;
 - (b) the amounts claimed and the amounts recovered;
 - (c) the importance and complexity of the issues;
 - (d) the apportionment of liability;
 - (e) any written offer to settle;
 - (f) any offer to contribute made under rule 421;
 - (g) the amount of work;
 - (h) whether the public interest in having the proceeding litigated justifies a particular award of costs;
 - (i) any conduct of a party that tended to shorten or unnecessarily lengthen the duration of the proceeding;
 - (j) the failure by a party to admit anything that should have been admitted or to serve a request to admit;
 - (k) whether any step in the proceeding was
 - (i) improper, vexatious or unnecessary, or
 - (ii) taken through negligence, mistake or excessive caution;
 - (l) whether more than one set of costs should be allowed, where two or more parties were represented by different solicitors or were represented by the same solicitor but separated their defence unnecessarily;
 - (m) whether two or more parties, represented by the same solicitor, initiated separate proceedings unnecessarily;
 - (n) whether a party who was successful in an action exaggerated a claim, including a counterclaim or third party claim, to avoid the operation of rules 292 to 299;
 - (n.1) whether the expense required to have an expert witness give evidence was justified given
 - (i) the nature of the litigation, its public significance and any need to clarify the law,
 - (ii) the number, complexity or technical nature of the issues in dispute, or
 - (iii) the amount in dispute in the proceeding; and
 - (o) any other matter that it considers relevant.

* * *

- (3) Dans l'exercice de son pouvoir discrétionnaire en application du paragraphe (1), la Cour peut tenir compte de l'un ou l'autre des facteurs suivants :
- a) le résultat de l'instance;
 - b) les sommes réclamées et les sommes recouvrées;
 - c) l'importance et la complexité des questions en litige;
 - d) le partage de la responsabilité;
 - e) toute offre écrite de règlement;

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- f) toute offre de contribution faite en vertu de la règle 421;
- g) la charge de travail;
- h) le fait que l'intérêt public dans la résolution judiciaire de l'instance justifie une adjudication particulière des dépens;
- i) la conduite d'une partie qui a eu pour effet d'abrèger ou de prolonger inutilement la durée de l'instance;
- j) le défaut de la part d'une partie de signifier une demande visée à la règle 255 ou de reconnaître ce qui aurait dû être admis;
- k) la question de savoir si une mesure prise au cours de l'instance, selon le cas :
 - (i) était inappropriée, vexatoire ou inutile,
 - (ii) a été entreprise de manière négligente, par erreur ou avec trop de circonspection;
- l) la question de savoir si plus d'un mémoire de dépens devrait être accordé lorsque deux ou plusieurs parties sont représentées par différents avocats ou lorsque, étant représentées par le même avocat, elles ont scindé inutilement leur défense;
- m) la question de savoir si deux ou plusieurs parties représentées par le même avocat ont engagé inutilement des instances distinctes;
- n) la question de savoir si la partie qui a eu gain de cause dans une action a exagéré le montant de sa réclamation, notamment celle indiquée dans la demande reconventionnelle ou la mise en cause, pour éviter l'application des règles 292 à 299;
- n.1) la question de savoir si les dépenses engagées pour la déposition d'un témoin expert étaient justifiées compte tenu de l'un ou l'autre des facteurs suivants :
 - (i) la nature du litige, son importance pour le public et la nécessité de clarifier le droit,
 - (ii) le nombre, la complexité ou la nature technique des questions en litige,
 - (iii) la somme en litige;
- o) toute autre question qu'elle juge pertinente.

449 As reasserted by the Federal Court of Appeal in the FCA Costs Judgment, a trial judge enjoys considerable discretion in fashioning a costs award, and the judge's decision on costs will generally be insulated from appellate review (FCA Costs Judgment at para 7, citing *Little Sisters Book and Art Emporium v Canada (Commissioner of Customs and Revenue)*, [2007 SCC 2](#), [\[2007\] 1 SCR 38](#) at paras 47 and 49; *Odhavji Estate v Woodhouse*, [2003 SCC 69](#), [\[2003\] 3 SCR 263](#) at para 77).

450 The importance and complexity of the case, and the amount of work required, (Rules 400(3)(c) and (g)) are often determinative of the scale of costs. As mentioned earlier by this Court in 2012 in its Costs Judgment at paragraph 20:

[20] The importance and complexity of the case and the amount of work required (Rule 400(3)(c) and (g) of the Rules) **often** prove determinative of the scale of costs (see *Apotex Inc v Sanofi-Aventis*, [2012 FC 318](#) at paras 5-8, [\[2012\] FCJ 435](#) [*Apotex*]). In fact, unless the Court orders otherwise, Rule 407 requires that costs be assessed at the mid-point of column III of the table to Tariff B along with certain additional fees and disbursements. Tariff B "represents a compromise between compensating the successful party and burdening **the unsuccessful party**" and " reflects the philosophy that party and party costs should bear a reasonable relationship to the actual costs of litigation, while preserving the discretion of the court and the assessment officer as that discretion is permitted under the Rules": *Wellcome Foundation Ltd, above, at paras 5-7. The jurisprudence also establishes that "where an award of increased costs is warranted, the Court should first determine whether an award of costs that is reasonable is possible within the scope of Tariff B. Only where that would dictate an unreasonable or unsatisfactory result, should the*

Court consider awarding an amount in excess of the Tariff": *Dimplex North America Ltd v CFM Corp*, [2006 FC 1403](#) at para 12.

451 As mentioned in section IV -- Patent litigation, the quantification of damages (including punitive damages) was bifurcated. In Canada, there were no further appeals on the issues of validity, infringement and proper remedies as a result of the infringement of the '787 Patent. The defendant has been found to have infringed the '787 Patent and the right of the plaintiff to claim compensatory and punitive damages has been finally determined by the Court (2012 FC Judgment at para 456). The only unresolved issue left to be decided by the Court is determining a reasonable amount of compensatory and punitive damages. While in principle, this should not be a complex matter to decide, it turns out that the old matter became unusually complex and time consuming.

452 Undoubtedly, the awarding of costs is very dependent on the specific factual circumstances of the proceeding as well as the parties' conduct. Recently, Justice Locke decided to elevate by 50% the amount of those costs, in order to reflect the weakness of the plaintiffs' case for infringement (*Mediatube Cop* at para 268). In this case, the plaintiffs' claims somehow "morphed", as some "Corrected information" was disclosed by the defendant along the process of the trial. With this new information, the plaintiffs had to adapt their infringement claims and ultimately withdrew their claim for punitive damages. However, the plaintiffs argued that, before the disclosure of this crucial information, they had a good and arguable case for patent infringement and punitive damages. The Court found, among other things, that the case for non-infringement was so compelling, even before the disclosure of the "Corrected information", that it was doubtful that the plaintiffs had a reasonable belief that they had a good arguable case (*Mediatube Corp* at para 234). Justice Locke awarded elevated costs since the plaintiffs commenced legal proceeding for patent infringement against the defendant while facing information that were pointing otherwise.

453 In the present case, nothing was done by the parties to shorten the duration of the proceeding which required a full ten day hearing, as originally agreed by counsel. Admissions, which could have greatly facilitated the task of the experts and the Court at trial -- e.g. admissions on the calculations on the estimated saved incremental development costs (amount of hours, hourly rates, number of employees required etc.) and/or the estimated saved costs of capital on deposits (the number of LOIs for the Bell 429 helicopter and/or the Bell 427i helicopter prior to the certification of the Bell 429, the number of cancellations and the amount of refunds) have been minimal to say to least, if not totally lacking. This could have saved two days of hearings and shortened the testimonies of Mr. Prud'homme Lacroix (Airbus witness), and Ms. Jones, Mr. Hatcher and Mr. Gardner (Bell witnesses).

454 While the Court has considered the amounts claimed and the amounts recovered by Airbus in compensatory and punitive damages, including the fact that they are quite high and low respectively, it appears that this factor did not have a direct effect on the duration of the trial or the amount of work on the teams of counsel on both sides. The driving factor was the very nature of the conflicting evidence, which was relevant to the determination of the compensatory damages (*AlliedSignal* factors) and the punitive damages (*Whiten* factors). Moreover, the parties spent considerable time and efforts debating issues of only relative importance to the final result. To a great extent, the testimonies of Mr. O'Reilly and Mr. Thiagarajan (Bell witnesses) were not necessary or genuinely useful, as the objections made by Airbus -- which had been taken under reserve -- turned out to be well-founded.

455 The Court finds that Airbus is entitled to seek the entirety of its reasonable costs and disbursements. Given the nature of the case, the significant volume of work and evidence, the number of questions that have been debated by the parties at trial, the duration of the pre-trial preparations and the proceedings, the implication of three counsel at all material times is neither excessive nor unnecessary (Costs Judgment at para 55). Airbus seeks reasonable trial fees for two senior counsel and one junior, while Bell suggest that same should be for one senior counsel and two juniors as earlier decided in the first phase of the trial (Costs Judgment at para 55). At all times during the second phase of the trial, both teams of the opposing parties used two senior counsel who alternatively acted as first or lead counsel.

456 The Court will not inflate the amount of costs -- which will be assessed at the highest unit of Column IV of Tariff B -- by granting additional costs of \$25,000 to the plaintiff because the defendant decided at the last moment not to call Mr. Dupuis as an additional expert witness. This was a sound decision. Mr. Dupuis and Dr. Schwartz both share

an interest in economics, while their particular qualifications may differ. While the Court has not heard the testimony of Mr. Dupuis, one may wonder if on the ninth day of the trial, the latter would have contributed something truly new and useful, considering that Dr. Schwartz had every occasion to extensively expose his views at length on the quantification of damages.

457 The Court is satisfied that there has been no abuse of process on the part of the defendant. As such, both parties agreed for this matter to be heard over ten days. While the defendant had been allowed, by the 2016 Interlocutory Order, to rely upon any two of the four expert reports served on April 29, 2016 -- that is one expert above the five expert limit stipulated in section 7 of the *Canada Evidence Act*, defendant's counsel made the voluntary decision not to call Mr. Dupuis as a witness and declared the defendant's evidence closed without any form of reserve or objection. Accordingly, there is no prejudice caused to the plaintiff. While the plaintiff's counsel has spent time to prepare questions for Mr. Dupuis, the assessment of costs under Column IV is sufficient, without prejudice to the plaintiff's right to reassert, before the Federal Court of Appeal, its claim for additional costs concerning Mr. Dupuis, if the defendant appeals the present final judgment and has not abandoned, in the meantime, its appeal of the 2016 Interlocutory Order.

458 The present award of costs is not meant to be punitive. While the Court cannot impute any blame on counsel acting on behalf of Airbus and Bell -- they always acted in a professional and responsible manner in their endeavours and dealings with the Court and its personnel. No doubt, in Bell's point of view, the compensatory and punitive damages sought by Airbus were exaggerated, out of proportion, and highly inflated. On the other hand, the amounts suggested to the Court by Bell were insulting, unacceptable, and ridiculously low in Airbus' view. That being said, the Court cannot say that the claims, in and of themselves, were vexatious or frivolous. It remains that this was certainly a proper case for settlement, and where mediation may have made a difference in bringing the parties to a better sense of reality and proportion, while engaging them in a constructive dialogue to settle the matter at a reasonable cost, which would have saved the parties, and the tax payers, considerable sums of money.

459 Rules 419 to 422 provides for offers to settle and are designed to encourage parties to settle their dispute early in the litigation process, while in exercising its discretion under Rule 400, the amounts claimed and amounts recovered, as well as any written offer to settle, are all elements that the Court and assessment officers may take into account in awarding costs to a party. For one reason or another, although there may have been vague reference to offers to settle the matter (Transcript Volume 10 at page 226), no number has been mentioned to the Court. There have been no representations made with respect to the potential application of Rule 420, which was an issue open to be argued at the end of the trial on damages (*Philip Morris Products SA v Marlboro Canada Limited*, [2015 FCA 9](#), [\[2015\] F.C.J. No 30](#) at paras 7-8).

460 Although, the plaintiff sought for the costs calculated upon three counsels, including two seniors and one junior, the latter did not provide any precedent or case law upon which the Court could have used to support such awarding of costs. In *Merck & Co Inc v Apotex Inc*, [2006 FC 631](#), [\[2006\] F.C.J. No 798](#) [*Merck & Co Inc v Apotex Inc*], Justice Hughes permitted the costs of attendance at trial for two senior counsel plus one second counsel. However, this case regarding the validity of the patent only was extensively complex, as this action, which lasted 10 years, had been an enormous amount of discovery, a vast number of motions and appeals. While the present case was certainly long and complex, the Court decides to go along the same costs award rendered in the first phase of the trial. As noted by Justice Hughes in *Merck & Co Inc v Apotex Inc* at paragraph 30, patent trials are costly enough without a court indulging the parties in such luxuries by the medium of an award of costs.

461 Accordingly and pursuant to Rule 400(3), the defendant must pay the plaintiff costs calculated at the upper end of Column IV of Tariff B for a maximum of three counsels (one senior and two juniors) for the hearing, the trial and the discoveries, as well as all reasonable disbursements, including the one associated with its expert witness, Mr. Heys, as far as they are directly related to the trial on damages.

JUDGMENT

THIS COURT'S JUDGMENT is that the defendant is ordered to pay the plaintiff:

1. The sum of \$1,500,000, comprised of \$500,000 in compensatory damages and \$1,000,000 in punitive damages;
2. Pre-judgment interest on the sum of \$500,000 in compensatory damages, not compounded and calculated separately for each year since the infringing activity began, which is set on October 18, 2005, at the average annual bank rate established by the Bank of Canada as the minimum rate at which it makes short term advances to the banks listed in Schedule I of the *Bank Act*, SC 1991, c 46;
3. Post-judgment interest, not compounded, on the total sum of \$1,500,000 in damages, calculated at the rate of five percent established by section 4 of the *Interest Act*, [RSC 1985, c F-15](#); and
4. Plaintiff costs calculated at the upper end of Column IV of Tariff B for a maximum of three counsels (one senior and two juniors) for the hearing, the trial, and the discoveries, as well as all reasonable disbursements, including those associated with its expert witness, Mr. Heys, as far as they are directly related to the trial on damages.

L. MARTINEAU J.