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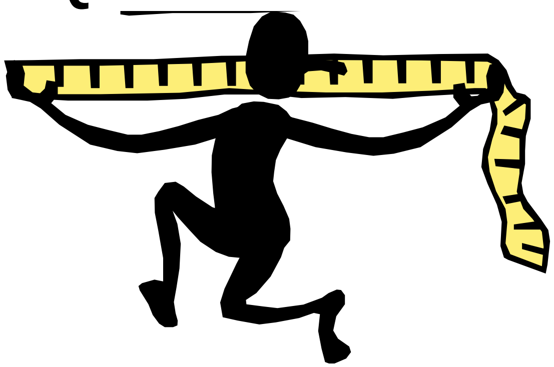
PROTECTING & MANAGING INTELLECTUAL PROPERTY ASSETS

September 23 & 24, 1997

QUANTIFICATION OF INFRINGEMENT DAMAGES



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Wise, Blackman
Business and Securities Valuators

Montreal, Quebec

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SEPTEMBER 23 & 24, 1997

King Edward Hotel, Toronto

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1. GENERAL

Intellectual properties have a distinct special status different from intangible assets in general in that the former enjoys special legal recognition and protection. Unlike other intangible assets such as customer relations, employee relations, organization, reputation and so forth, which are created over a period of time in the normal course of a business' operations, intellectual properties are specifically and consciously developed.

As patents, copyrights, trade marks, trade names and similar intellectual property grant the owner a legal monopoly, potential value is created because the owner has the right to exclude competition and can often charge monopolistic prices. Such ability to earn an above-normal rate of return (super profits or premium profits) can add significant value to a business or enterprise owning these assets.

Having valuable intellectual property, the owner will protect such asset through the court system if another party uses or exploits the property without permission.

From a damage-quantification perspective, there is an important difference between valuing intellectual property for transaction or financing purposes and valuing such property for damage-quantification purposes. In the former situation, the business valuator probably lacks information as to the particular cost-structure of the other party with which his or her client is transacting. In such situation, the valuator would attempt to estimate the other party's costs in order to arrive at the highest and best use for purposes of negotiating the royalty. However, in a litigation context, the business valuation expert will likely ask counsel to obtain relevant information concerning the adverse party's cost structure through the discovery process. As noted below, this will assist in determining the plaintiff's lost profits.

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In other words, the principal difference lies in the availability or non-availability of information regarding the other party. Moreover, in a litigation context, the business valuation expert will consider past results, comparing what did occur with what should have occurred "but-for" the alleged acts of the infringer, as well as calculating the estimated ongoing future damages of the plaintiff.

Damage awards in the United States have been significant. Examples of such awards include:

	Millions (U.S.)
Litton v. *Honeywell*	$1,500.5
Polaroid v. *Eastman Kodak*	873.2*
Smith v. *Hughes*	204.8
3M v. *Johnson & Johnson*	107.3
Pfizer v. *International Rectifier*	55.8
Shiley v. *Bently*	44.2
U-Haul v. *Jartran*	40.0

* Approximately one-half of the award represented interest.

Of course, not all cases have been tried; there were many settlements. One large settlement involved the agreement by Minolta to pay Honeywell approximately U.S. $125 million for infringement of the auto-focus camera patent. Other settlements included the agreement by Intel Corporation to pay U.S. $35 million to Hughes Aircraft Company for infringement of three semi-conductor patents which related to ion implantation processes enabling semi-conductor manufacturers to produce smaller computer chips.

As there are various types of litigation relating to intangible assets, particularly intellectual property, the types of legal causes of action, or the types of intangible property involved, may have a bearing on the particular form of litigation.

Remedies available in connection with patent, copyright, trade mark and industrial design infringement are determined by statute; those with respect to unregistered trade marks, trade names and trade secrets are determined under common law. Intellectual property rights (other than trade secrets) are enforceable in the Federal Court of Canada[1].

(1) Litigation involving trade secrets is tried in the superior courts of the relevant province.

2. TYPES OF LITIGATION

2.1 Patent Litigation

In Canada, patent protection lasts either 20 years from the date of application for the patent, or 17 years from the date of issuance of the patent where the application was filed prior to October 1, 1989.

Because a patent confers the owner the right to exclude others from making, using or selling the invention, it is essentially a "negative right". An author in the U.S. states:

> "While the right of ownership in most personal property is a *positive* right, the right of ownership in a patent is a *negative* right. It is the negative right to exclude others from making, using, or selling the patented invention ... indeed, in making, using, or selling his own invention, the inventor may find that he infringes the patent rights of others."[2]

A claim in respect of a Canadian patent is literally infringed[3] by the making, using or selling in Canada of an article or process which includes each and every feature of at least one claim of a Canadian patent. As patents are territorial, the protection extends only to the country in which the patent is granted and, hence, infringement of a Canadian patent must occur in Canada.[4]

As most actions for infringement of intellectual property rights are in the Federal Court of Canada, the parties (particularly in patent infringement cases) agree to a "Rule 480" Order, i.e., for a reference following trial as to damages or an accounting of profits. Under such order, the financial information of the parties may remain confidential until liability is established. Under Rule 482, expert evidence may be adduced at the hearing provided that an affidavit setting out the proposed expert testimony has been served on all other parties to the act and filed at least 30 days prior to the trial, and the expert is available to be cross-examined.

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(2) David A. Burge, *Patent and Trademark Tactics and Practice*, John Wiley & Sons, Inc. (New York: 1984), page 27.

(3) Some Canadian courts have adopted a somewhat different approach to non-literal infringement, known as the "purposive construction" approach. See, for example, *O'Hara Manufacturing Ltd.* v. *Eli Lilly et al* (1989), 26 CPR (3d) 1 (FCA), based on the House of Lords decision in *Catnic Components Ltd.* v. *Hill & Smith Ltd.* [1981] FSR 60.

(4) See, for example, *Domco Industries Ltd.* v. *Mannington Mills Inc. and Congloeum Corp.* (1990), 29 CPR (3d) 481 (FCA).

If a party attempts to make, use or sell a patented item, the patent owner may sue the infringer for injunctive relief and damages. A successful plaintiff may not only be granted an injunction against the infringer but an award for damages or an accounting of the infringer's profits, as the patent owner may elect.. Costs of the litigation will also be awarded.

In the U.S., the minimum amount of damages a plaintiff may be awarded is not less than a "reasonable royalty" (see below). In a recent case, the United States Court of Appeals for the Federal Circuit awarded a royalty of approximately 26%.[5]

As will be noted, the business valuator quantifies the patent-owner's damages under both a lost-profits approach and a reasonable-royalty approach, or a combination of both approaches. Damages generally constitute the difference between the plaintiff's pecuniary position after the infringement, and what his or her position would have been had the infringement not occurred. If the patent owner is both the manufacturer and seller of the infringed product, damages will be the loss of profits which the patent owner would have otherwise made on the sales that would have been made but for the infringement plus a reasonable royalty on the total of other sales. As noted below, the method of computing lost profits is extremely important, in that — depending on whether the (a) "incremental income method" or (b) "absorption cost method" is used, the result can be significant (see Appendix II).

The plaintiff can recover as damages (a) either (i) loss of profits the plaintiff failed to enjoy due to the infringement or (ii) reasonable royalties, or (b) an accounting of defendant's profits, as the plaintiff may elect[6]. Sometimes, a combination of both approaches is adopted.[7] In addition, if monetary damages are awarded, the plaintiff may also be entitled to pre-judgment interest in addition to "costs" of the litigation.

In order to prove lost profits, the owner must satisfy the court that:

(a) There was a demand for the patented product;

(b) There were no acceptable non-infringing alternatives to the product; and

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(5) *Mahurkar* v. *CR Bard Inc.* (1996).

(6) See, for example, *Allied Signal Inc.* v. *DuPont Canada*, (1995) 61 CPR (3d) 61 (FCA).

(7) In a U.S. case, *State Industries, Inc.* v. *Mor-Flo Industries, Inc.*, 883 F.2d 1573, 1579 (Fed.Cir. 1989), cert. denied, 493 US 1022 (1990), the Court held that the plaintiff may seek recovery of a proportion of the infringer's sales which is consistent with the plaintiff's relevant market share because, but for defendant's infringing sales, the plaintiff would have enjoyed its normal market share.

(c) The patent owner had the manufacturing and marketing capability to meet the demand for the product.

(In the U.S., there is the so-called "Panduit Requirement" or "Panduit Causation Test" which adds a few more factors X see below.)

Accordingly, from a lost-profits perspective, the focus of the patent infringement damages is on the plaintiff's profits and not on those of the infringer.[8]

Loss of profits can be based on lost sales, price erosion or accelerated market entry. Reasonable royalties are established by considering (a) an established royalty, (b) a hypothetically-negotiated royalty and (c) an analytical approach. These methods are outlined below.

2.2 Copyright Litigation

The copyright laws grant the owner the exclusive right to copy an original work for sale or display to the public. The term of protection for copyright in Canada for most works is the life of the author plus 50 years. As we have been currently observing, there is substantial litigation in the computer software industry, where copyrighting has been a popular method of legally protecting computer software technology.

Section 3 of the *Copyright Act*[9] defines the bundle of rights[10] to which the holder of copyright is entitled. The types of acts constituting infringement are enumerated in this provision, with statutory exceptions provided in Section 27.[11]

Remedies available under the *Copyright Act* for infringement including injunctions, damages, and an accounting of profits as well as other equitable relief.

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(8) In some cases, the profits of the infringer have been considered as a check of the indicated profits the plaintiff would have made.

(9) RSC 1985, c. C-42, s. 64 and 64.1, as amended, S.C. 1988, c. 10.

(10) This theory holds that the ownership of real property may be compared to a bundle of sticks wherein each stick represents a distinct and separate right or privilege of ownership ... they are the right to use real property, to sell it, to lease it, to give it away, and the right to refuse to exercise any of these rights: *The Appraisal of Real Estate*, 9th Edition, American Institute of Real Estate Appraisers (Chicago: 1987), page 15.

(11) Exceptions include the making of a back-up copy of a computer program and a single translation of a computer program in order to make the program compatible with a particular computer.

The calculation of damages involves determining what the owner of the copyright would have earned had the copyright not been infringed. Moreover, if the profits earned by the infringer exceed those lost by the copyright owner, the latter may also be able to include such excess as damages. In effect, the owner of the copyright may recover the lost profits or the unjust profits earned by the infringer (accounting of profits), whichever is greater.

In copyright-infringement litigation as well as trade-mark actions, the owner is entitled to recover the defendant's profits plus additional actual damages suffered as a result of the infringement.

2.3 Trade-Mark Litigation

Section 19 of the *Trade-marks Act* provides that the registered owner of a trade mark has the exclusive right to use that trade mark throughout Canada in connection with the goods or services for which it is registered. Section 20 allows the registered owner to prevent other parties from using the same mark as registered (or a mark which is confusing with the registered mark).[12]

Under Section 50 of the *Trade-marks Act*, the owner of a trade mark will enjoy the benefit of the display of its mark by a licensed user only if it has "under the licence, direct or indirect control of the character or quality of the wares or services".[13]

Two types of actions are available to enforce trade-mark rights: (a) an action for infringement of a registered trade mark and (b) an action for passing off trade names, etc. in the case of an unregistered trade mark.

A trade-mark owner may recover (a) damages suffered either as a result of the violation of the trade-mark rights or (b) the defendant's profits.

In the case of a registered trade mark, there is an additional statutory cause of action relating to the infringement, *viz.*, with respect to the depreciation of goodwill, under Section 22. In this respect, the registered owned is permitted to prevent others from using a trade mark in any manner which would depreciate the goodwill attached to the registered mark.[14]

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(12) Subsection 6(5) of the *Trade-marks Act* enumerates the factors which are considered in determining whether two marks are confusing. See also *Monsport Inc.* v. *Les Vêtements de sport Bonnie (1978) Ltée* (1988), 22 CPR (3d) 356 (FCTD).

(13) For example, see *Unitel Communications Inc.* v. *Bell Canada* (1995), 61 CPR (3d) 12 (FCTD) and *MCI Communications Corp.* v. *MCI Multinet Communications Inc.* (1995), 61 CPR (3d) 245 (TMOB).

(14) See, for example, *Clairol International Corp. et al* v. *Thomas Supply & Equipment Co.* (1968), 55 CPR 176 (Ex.Ct.)

In certain cases, rights to unregistered marks or trade names may be enforced. In such cases, the plaintiff must prove that he or she has established goodwill or reputation in the area in which the infringing party is carrying on business. The goodwill can be limited to a particular local territory or can extend across the country or throughout the world.

A *trade name* is the name of a business, association, organization or other entity which is used to identify it; it may or may not be the same as the trade mark used to identify its products. A trade name does not have material value because consumers recognize items by their *trade mark* and may not even be aware of the name of the manufacturer. For a trade mark to have value, it must be recognizable, profitable and be identified in a positive manner.

In the United States, there are five different measures of damages for trade-mark infringement or unfair competition:

(a) An award to plaintiff measured by its actual losses, such as increased costs, damage to business reputation and the like.

(b) An award to plaintiff based on plaintiff's loss of net profits.

(c) An award to plaintiff measured by defendant's net profits (an accounting of profits), either as a means of measuring plaintiff's actual loss or based on a theory of unjust enrichment.

(d) An award to plaintiff of punitive damages sanctioned by applicable state law.

(e) An award to plaintiff and, in certain circumstances to defendant, of reasonable attorney's fees.[15]

In *Playboy Enterprises, Inc.* v. *PK Sorren Export Co.*[16], the Court recognized that a plaintiff may be awarded its own lost profits as well as the defendant's profits.

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(15) The U.S. Federal *Lanham Act*, 15 USC э1051 *et seq*, creates protection against two types of unfair competition: infringement of a registered trade mark (э1114) and the related tort of false description of a product (э1125(a)). The statute provides for monetary relief in cases asserting trade-mark infringement, false advertising and other forms of unfair competition. If a violation is proven, э35(a) provides that the plaintiff may be entitled, subject to the principles of equity, to recover defendant's profits, damages sustained by plaintiff and the costs of the action. An injured party can recover profits and damages; an election of remedies is not required.

(16) 1546 F.Supp. 987 (S.D. Fla. 1982).

In order to obtain damages, the plaintiff must show that it suffered actual injury. Compensable items include lost profits, increased costs or damage to goodwill. Costs of reparative advertising to offset the harmful effects of defendant's unfair competition are a common item of damages.

2.4 Trade Secrets Litigation

Trade secrets have been defined in a number of ways. For example, a definition which the U.S. courts have provided is "... any information not generally known in the trade. It may be an unpatented invention, a formula, pattern, machine, process, customer list ... or even news".[17] Trade secrets and know-how which have value possess one or more of the following characteristics:

- Protection or creation of a strong market position.
- Economic advantage, such as reduced costs and time.
- Barrier to competitive entry.

2.5 Industrial Design Litigation

Unlike a patent, an industrial design registration covers aesthetic features rather than functional features. Section 15 of the *Industrial Design Act* (Canada) provides for damages against a party who applies the registered design or an imitation thereof for purposes of sale.[18]

In connection with passing off, remedies under common law include an Anton Pillar order[19], injunctions, damages or accounting of profits[20] as well as destruction or delivery of the infringing goods. Section 53 of the *Trade-marks Act* provides similar relief. Section 15 of the *Industrial*

(17) *I.E. duPont de Nemours & Co.* v. *United States*, 288 F.2d 904 (Ct.Cl.) 1969.

(18) There is sometimes confusion between copyright and industrial designs. This problem has been litigated in *Doral Boats Ltd.* v. *Bayliner Marine Corp.*, 1986, 10 CPR (3d) 289 (FCA). The Federal Court had to consider the action involving the alleged copying of a boat hull design. The *Copyright Act* has been amended since that case.

(19) An order preserving the copyright owner or trade-mark owner's rights by requiring an alleged infringer to deliver up to the owner the rights of all of the offending products, as well as relevant documents (to prevent the destruction of evidence before the court hearing). An order, obtained *ex parte*, allows the plaintiff to show up at the infringer's premises, sometimes accompanied by the police, and seize the infringing products.

(20) The plaintiff may elect either.

Design Act provides that an owner of a registered design may recover damages from a party which applies the registered design (or an imitation design) for purposes of sale.

An action for infringement must be filed by the owner or by an exclusive licensee, subject to any agreement with the owner. Under Section 15.1 of the *Industrial Design Act*, the court may award damages for lost profits as well as punitive damages.

2.6 Semi-Conductor Chip Protection

Under the *Integrated Circuit Topography Act*, the owner of a registered topography of an "integrated circuit product" may file an action for infringement, as may a licensee, subject to any agreement between the owner and the licensee. The court may award damages, an accounting of profits, exemplary damages and/or the delivering up of infringing products pursuant to Section 9 of the *Integrated Circuit Topography Act*.

2.7 Intentional Business Torts and Fraud

When customer or client lists, trade secrets, formulae, etc., are involved, there may be no contract. If a party steals the client or customer list, or trade secret, the legal claim would typically be fraud or intentional interference with prospective economic advantage. Such causes of action permit the plaintiff to pursue an additional remedy beyond recovery of the lost profits resulting from the misappropriation. The plaintiff might alternatively seek the unjust enrichment of the defendant and recover the profits the latter has enjoyed as a result of the illegal taking of the intangible property[21].

3. APPROACHES TO DAMAGE QUANTIFICATION

Because intellectual property has become such a strategic and critical asset of many businesses, providing significant competitive advantage, proper quantification of infringement damages requires detailed quantitative analysis supported by sound finance, investment and valuation theory, including qualitative analysis.

(21) If the misappropriating person is an employee, there may be a breach of the employment agreement.

3.1 Lost Profits Method

Lost profits are generally calculated as the loss of "contribution margin" (loss of incremental profits) on the lost sales. Lost contribution margin is calculated as follows:

Lost sales	$XXXXX
DEDUCT: Cost of the lost sales	XXXXX
Gross profit margin attaching to lost sales	XXXXX
DEDUCT: "Variable costs" relating to lost sales	XXXXX
Lost contribution margin (equals lost profits)	$ XXXX

"Gross profit" is calculated after deducting the direct costs of production, such as raw materials, direct labour, manufacturing overhead including utility costs, depreciation of manufacturing facilities and any other costs and expenses relating to the manufacturing process whereby raw materials are made into a final product. (In the U.S., this method is referred to as the "Incremental Income Method".[22])

The key area in determining the loss of profits (i.e., loss of contribution margin or loss of incremental income) relates to distinguishing among "fixed costs"[23], "variable costs"[24] and "semi-variable costs"[25], because it is the *variable costs* associated with the lost sales of the infringed product which must be deducted. In most lost-profits determinations, there are typically differences of opinion between the opposing experts as to what costs are truly "variable" and therefore "deductible" in arriving at lost contribution margin. Some costs have both fixed and variable components (such as light, heat and power, where higher production volume requires more utility costs in the manufacturing operation; or production labour may increase with increased production as a result of overtime; etc.). Whether an expense is fixed or variable may differ from industry to industry and it is usually in examination-for-discovery that the expense characteristics can be better understood. The bottom line is that the higher the variable costs, the lower the contribution margin or lost profit. If there were no variable overhead costs, the total gross profit

(22) See, for example, *Paper Converting Machine Co.* v. *Magna-Graphics Corp.*, 745 F. 2d 11, 22 (Fed. Cir. 1984).

(23) Those expenses that are fixed in amount regardless of gross revenue. Some may be fixed to the extent that they will not vary up to a certain gross revenue limit; if the revenues are increased above that limit, these expenses will increase but may remain fixed at the higher amount up to the new gross revenue limit.

(24) Those expenses that vary in direct proportion to gross revenues, apart from fixed expenses.

(25) Expenses which are part way between fixed and variable and may be conceived as comprising fixed and variable components. These often occur because the relationship between cost and volume is not regular but takes the form of a "step" function.

on the infringed sales (i.e., sales revenues less cost of sales) would constitute lost profits. Interest on debt does not come into the calculation of lost profits; nor do extraordinary, unusual and non-recurring items.[26]

The lost profits can be the result of lost unit sales, higher production costs and/or lower selling prices.

Where there is a loss of unit sales, there may also be a loss of accessory products ("convoyed sales")[27]. A concept known as the "Entire Market Value Rule" has developed, where a plaintiff may be entitled to recovery of damages based on the value of the entire apparatus, including convoyed or accessory or collateral goods and services which would have accompanied the patented product's sales (e.g., cameras and film, razors and razor blades, television sets and service contracts, etc.). From a quantification point of view, there must be reasonable anticipation that sales of the accessories would have been made.

When higher costs of production result from infringement, they often arise from loss of purchase discounts on large quantities and/or operating inefficiencies. For example, if the infringement results in a manufacturing operation working at less than full capacity, or ordering less raw material supplies than would otherwise earn the business a quantity discount, the product costs will be higher. Also, there might be more down-time and other inefficiencies in the manufacturing operations.

Lost profits resulting from lower selling prices may be due to loss of market share, in that the business may be forced to sell at lower prices to maintain its market position. Types of price erosion claims include (a) sales made at eroded prices and (b) sales not made at new, higher prices which would have prevailed had the infringement not occurred. Consideration must be given to the impact of the eroded prices on the volume demanded.

In the United States, damages for lost profits on patent infringement are often subject to a test developed by Chief Judge Markey of the U.S. Court of Appeals for the Federal Circuit, referred to as the "Panduit Requirement" ("Panduit Causation Test")[28]. This requires the owner of a patent to prove that:

(26) For example, unusual professional fees, bad debts and similar non-recurring items should be excluded from the calculation of lost profits.

(27) See, for example, *Rite-Hite* v. *Kelley Co., Inc.*, 56 F.3d 1538 (Fed.Cir. 1995), cert. denied, 116 S.Ct. 184 (1995).

(28) *Panduit Corp.* v. *Stahlin Bros. Fibre Works, Inc.*, 575 F.2d 1152, 1156 (6th Cir. 1978).

- there was demand for the infringed product;
- there were no acceptable non-infringing substitute products available to satisfy the demand;
- the owner of the patent possessed the manufacturing and marketing capability to exploit the demand; and
- lost profits are capable of being quantified.

Under *Panduit*, all of the foregoing must be satisfied in order for a lost-profits calculation to be appropriate, failing which the reasonable-royalty calculation may be the only recourse available. In *Panduit*, the court also recognized that a reasonable royalty for purposes of damage calculations can possibly exceed what two parties might agree on in a hypothetical arm's length negotiation, and that such reasonable royalty should be established by determining the value of the intellectual property and the extent to which such value had been enjoyed by defendant. Most of the litigation occurs in connection with acceptable non-infringing alternatives.[29]

Meeting the *Panduit* Test, however, is not necessary for recovery and may no longer be sufficient.[30] There has been modification of the Panduit Causation Test in situations when there are more than two suppliers in the marketplace.[31] In another case involving causation, *BIC Leisure* v. *Windsurfing*, the test was whether, but for the infringement, the plaintiff would be able to show that it would have made the infringer's sales. The court concluded that what is particularly important is an understanding of the market, i.e., if the plaintiff's products and defendant's products

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(29) In *State Industries, Inc.* v. *More-Flo Industries, Inc.*, 883 F.2d 1573, 1579, (Fed.Cir. 1989), cert. denied, 493 US 1022 (1990), the Court held that in determining its claim for lost profits, the patentee may seek to recover from the defendant a portion of the latter's infringing sales in the same ratio as the plaintiff's sales relative to the total market, notwithstanding that alternative substitute products might exist; hence, the plaintiff would attribute that part of lost sales in the portion to its market share after adjusting for the infringing units of the product.

(30) See, for example, *Rite-Hite* v. *Kelley Co., Inc.* (*supra*) and *King Instruments Corp.* v. *Perego and Tapematic, Inc.*, 65 F.3d 941, 952 (Fed.Cir. 1995), cert. denied, 1165 Ct 1675 (1996).

(31) In one U.S. case, the court held that the plaintiff may be entitled to a pro-rata share of infringing sales, with the pro-rata share to its historical market share.

were not really in the same market, why should plaintiff be entitled to the defendant's sales in the "but-for" world?[32]

There is yet another component of lost profits. This is sometimes referred to as the "Accelerated Market Entry", which recognizes that if, by infringing, the defendant was able to get a head start in the marketplace and build up goodwill through such an advantage, the patent holder may be thereby prejudiced. The defendant will have developed customer relationships. In patent litigation, the patent holder must prove that it would still have made certain of the infringer's sales both before and after the expiration of the patent.

In summary, the damages for lost profits are based on an analysis of what the patent owner would have earned but for the infringement. If the owner can demonstrate that he or she would have made the infringing sales, there should be a recovery of the profits that would have been realized on such sales. If the patent owner cannot prove lost profits, he or she can receive, as a minimum, a reasonable royalty with respect to sales of the infringing product made by the defendant.

3.2 Reasonable Royalties Method

If lost profits are not appropriate or cannot properly be determined in patent, trade mark and copyright actions, damages can be established through a reasonable royalty.[33] A reasonable royalty can comprise a lump sum or be on a ongoing basis as a function of sales, gross profits, net profits, some other basis or a combination thereof.

This approach is based on the estimated future royalty stream, generally expressed as a percentage of revenue, which could be generated by licensing the right to use the trade mark or brand name. Alternatively, this may be construed in terms of the royalties one would be required to pay if he or she did not own the trade mark or brand, but merely manufactured under licence from the plaintiff.

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(32) Satisfaction of the modified *Panduit* Test (*viz.*, the *State Industries* test) does not entitle a patent holder to lost profits unless it is able to demonstrate that its products and those of the infringer actually competed with each other in the very same market. Moreover, according to the *BIC Leisure* v. *Windsurfing* causation test, the patent holder must prove what would have transpired in the "but-for" world. *Quaere*: Did the court mean, "but for the infringement, the patent holder would have made *some of* the infringer's sales"?

(33) In the U.S. decision in *Fromson* v. *Western Lithoplate & Supply Co.*, 853 F.2d 1568, (Fed.Cir. 1988), the Court held that the calculation of a reasonable royalty is not a simple academic exercise in arriving at some arbitrary figure; there must be an assessment of the financial damages to the plaintiff. (See, however, the guidance provided in the *Georgia-Pacific* case, *infra*.)

More specifically, royalty and licensing terms entered into in exchange for the ability of another party (licensee) to exploit the intellectual property are established to provide the owner of the asset with a fair rate of return on investment. The rate of return must also be acceptable to the potential licensee and should consider the rates of return available on alternative forms of investment which compare, in terms of risk, (a) the value of the intellectual property, (b) required complementary assets used to commercialize such property and (c) the relative investment risk, such as potential obsolescence, competing technology, industry changes, government regulations and other factors.

Royalties must relate directly to profits. As noted above, a reasonable royalty may be established applying one of the following three methods:

- An established royalty.
- A notionally (hypothetically) negotiated royalty (i.e., a "would-have-been" negotiated royalty).
- Adopting an analytical approach (which determines the reasonable royalty as the excess of the anticipated profits from infringing sales over a normalized level of industry profit margin).

In the United States, a method (essentially a "rule-of-thumb") which is sometimes used in determining a royalty is "The 25 Percent Rule". This "method" calculates a royalty as 25% of the pre-tax gross profit of the business owning the intellectual property.

It is the *gross* profit, defined earlier, to which the 25% rate is applied. Overhead expenses (selling, administrative, general and financial) are excluded from this "rule" and therefore the real, "bottom-line" profitability resulting from the contribution of the intellectual property is ignored. Therefore, to the extent that substantial advertising and marketing efforts are required to support the commercial exploitation of the property, as well as the complementary assets, the 25 Percent Rule will not stand. As noted earlier, the owners of a business must earn a reasonable rate of return on the different categories of business assets comprising the total business enterprise.

There are host of other crude rules-of-thumb such as "The Five Percent of Sales Method", which establishes a royalty payment equal to 5% of *sales*. However, this, too, ignores both the above-the-line costs (cost of sales) and below-the-line costs (operating overhead) which components factor into the enterprise's profitability.

With respect to the notionally-negotiated royalty, for example, there is a rule in the U.S. known as the "willing licensor-willing licensee rule":

> "In fixing damages on a royalty basis against an infringer, the sum allowed should be reasonable and that which would be accepted by a prudent licensee who wishes to obtain a license but was not so compelled and prudent patentee, who wished to grant a license but was not so compelled. In other words, the sum allowed should be that amount which a personal desiring to use a patented machine and sell its product at a reasonable profit would be willing to pay."[34]

There are a host of factors to consider for purposes of determining what is a reasonable royalty in a specific case. A leading case in the U.S. provides guidance: *Georgia-Pacific Corp.* v. *United States Plywood Corp.*[35]. This decision sets out 15 factors to be considered in attempting to estimate a reasonable royalty, i.e., a notional royalty rate that would have been negotiated in the open market between a willing patentee and a willing infringer at the commencement of the infringement:

1. Royalties received by the patentee for the licensing of the infringed patent, proving (or tending to prove) an established royalty.
2. Rates paid by the licensee for the use of comparable patents.
3. The nature and scope of the licence, as exclusive or non-exclusive, or as restricted or non-restricted territorially or with respect to whom the manufactured product may be sold.
4. The licensor's established policy and marketing program to maintain its patent monopoly by not licensing others to use the invention or by granting licences under special conditions designed to preserve the monopoly.
5. The commercial relationship between the licensor and licensee, such as whether they are competitors or whether they are inventor and promoter.
6. The effect of selling the patented specialty in promoting sales of other products of the licensee, the existing value of the invention to the licensor as a generator of sales its non-patented items and the extent of such tag-along/accessory/convoyed sales.
7. The duration of the patent and the term of the licence.

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(34) *Horvath* v. *McCord Radiator & Manufacturing Co.*, 100 F.2d 326, 335; 40 USPQ. 394, 402-03 (6th Cir. 1938).

(35) 318 F. Supp. 116 (SDNY 1970), *modified and aff'd.*, 496 F.2d 295 (2d Cir. 1971).

8. The established profitability of the patented product, its commercial success and its current popularity.[36]

9. The utility and advantages of the patented property over the old modes or devices, if any, which had been used for working out similar results.

10. The nature of the patented invention, the character of the commercial embodiment of it as owned and produced by the licensor and the benefits to those who use the invention.[37]

11. The extent to which the infringer has used the invention and any evidence probative of the value of such use.[38]

12. The portion of the profit or selling price customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions.[39]

13. The portion of the realizable profit that should be credited to the invention as distinguished from other factors (non-patented elements, the manufacturing process, business risks or significant features or improvements added by the infringer).

14. The opinion testimony of qualified experts.

15. The amount which a prudent licensor (such as the patentee) and a prudent licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and willingly trying to reach an agreement; i.e., the amount which a prudent licensee X who desired, as a business proposition, to obtain a licence to manufacture and sell a particular article embodying the patented invention X would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee.

The essential elements in the foregoing list of factors relate to both *profits* and *precedents*.[40]

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(36) What matters is the profitability of the patentee and not the infringer.

(37) U.S. courts may invoke the Entire Market Value Rule (*supra*).

(38) *Id.*

(39) In *Honeywell* v. *Minolta* (*supra*), the court considered what the parties "reasonably anticipated would be their profits or losses" (i.e., an "analytical approach").

(40) It should be noted that although the court likened the process to a "willing buyer-willing seller" (or notional) negotiation, it realized that such approach is really a fiction of law, noting that the "rule is more a statement of approach than a tool of analysis".

In effect, and subject to a few modifications, the calculated royalty rate is a notional rate which might reasonably have been negotiated in a businesslike atmosphere between the patent owner and another party immediately prior to the infringement.

The Court of Appeals (First Circuit) in *Panduit* and *Fromson* v. *Western Litho & Supply Co.* has modified the foregoing analysis by stating:

- A reasonable royalty determined after infringement is not analogous to a negotiation between willing parties.
- It is simply a damage calculation which must produce a result sufficient to compensate the patent holder for the infringement determined after a patent has been found valid and infringed.
- The infringer would lose nothing and have everything to gain if it could count on paying only the normal, routine royalty which a non-infringer might have paid.
- “Reasonable royalty” is a convenient shorthand for “damages”.
- Reliance is often placed on data and events subsequent to the commencement of the infringement and an adjudicated infringer must often pay more than the industry-licensing norm.

The following artificial suppositions are now imposed on the hypothetical-negotiation construct:

- The patent is irrefutably known to be valid at the time infringement commences.
- Infringement is irrefutably known.
- The patent owner is willing to issue a licence.
- The licensee is willing to accept a licence.
- All relevant business facts, including those subsequent to the point of negotiation, are deemed to be known to both parties.[41]

(41) In *Honeywell*, consideration of subsequent events and facts was explicitly permitted.

While the 2nd Circuit affirmed the lower court findings in *Georgia-Pacific*, it held that the District Court committed “basic error” by failing to allow the licensee “a reasonable profit after paying the suppositious royalty”.[42]

Honeywell v. *Minolta* added three new factors to the *Georgia-Pacific* rules:

1. The relative bargaining positions of the parties.
2. The extent to which the infringement prevented the patentee from using or selling its invention.
3. The market to be commercially exploited.

Consideration of subsequent events and facts was explicitly permitted.

In *King Instruments Corp.* v. *Perego and Tapematic, Inc.*[43] the Court dealt with the issues of causation and how lost profit claims must be calculated. It allowed damages to be claimed on sales of competing products notwithstanding that the patented technology had not even been used. In effect, the Court held that damages maybe be claimed “ … for any injury as long as it resulted from the infringement … ” and also that “ … compensatory damages are generally those which are the natural result of the harmful act in question … ”.

Apart from the foregoing infringement-litigation “rules”, guidance might be provided by the Regulations under the U.S. *Internal Revenue Code* which list twelve factors which must be considered in establishing an arm’s length royalty (Reg. 1.482.2(d)(2)(iii)) for income tax purposes.

In a U.S. case approved by the United States Court of Appeals for the Federal Circuit[44], a 26% royalty was awarded to the plaintiff.

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(42) The 2nd Circuit’s reasoning has been used by the courts in subsequent cases in developing the “analytical approach” (discussed in the following section).

(43) 65 F.3d 941, 952 (Fed.Cir. 1995), cert. denied, 1165 Ct 1675 (1996).

(44) *Mahurkar* v. *CR Bard Inc.*, March 29, 1996 (CAFC), CBNAPTCJ Vol. 51, page 657.

3.2.1 The Analytical Approach

Adopting the analytical approach, a reasonable royalty is determined by calculating the excess of the anticipated profits on infringing sales over a "normal profit" level for the industry, which excess would yield the royalty rate on infringing sales. Emphasis is placed on the anticipated profit from exploiting the property at the time of infringement. Because there are two important variables in this calculation, a high degree of judgment and analytical support is required to satisfy the court.

In some cases, a plaintiff may have regard to the operations of a comparable or guideline firm by which to measure the damages, were it not for defendant's infringing behaviour. This typically involves finding a business which has substantially similar investment characteristics to those of the plaintiff.[45]

The analytical approach applied to establish a reasonable royalty in the calculation of infringement damages requires the application of finance, investment analysis and business valuation theory. As a business enterprise is generally financed by a combination of debt and equity, the investor must receive a reasonable rate of return on his or her investment in the company (the "threshold rate of return") on the weighted average cost of capital ("WACC"). The WACC considers the cost of debt weighted by the percentage amount of debt in the company's capital structure as well as the cost of equity and its percentage of total capital. The cost of equity is used to discount earnings or cash flow accruing to the equity investment.[46] However, in the calculation of damages for lost profits and reasonable royalties, financial expenses are excluded.

A business enterprise typically has the following asset categories, or components:

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(45) In a U.S. decision, *TWM Mfg. Co. Inc.* v. *Dura Corp.*, 789 F.2d 895 (Fed. Cir. 1986), the royalty was based on an analysis of the infringer's internal business plan prepared immediately prior to the infringement.

(46) Free cash flow (also referred to as "discretionary cash flow") is cash flow from operations minus sustaining capital reinvestment minus changes in non-cash working capital. It represents the cash available to be paid as dividends to shareholders after the retention of capital expenditures necessary to sustain operations at existing levels and is used to discount the cash flow before interest charges, as it considers both the cost and magnitude of debt and equity. If there are anticipated changes to the company's capital structure in the future, a blended WACC will consider how the cost of each component (debt and equity) will vary over time. Accordingly, a blended WACC takes such changes into consideration and calculates one discount rate which, when applied to the cash flows from each time period, yields a present value equal to the present value determined by discounting each discretionary cash flow by its own specific discount rate and then aggregating the present values so calculated.

- *Working Capital*: Current assets less current liabilities.[47]
- *Other Tangible Assets*: Machinery and equipment, plant, land and buildings, office furniture and equipment, vehicles, leasehold improvements, etc.
- *Intangible Assets*: Goodwill and intellectual property.

The required rate of return on each of the foregoing categories of assets is different. In business valuation theory, there is an approach called the "Dual Capitalization Method" or "Excess Earnings Method", where a normal commercial return is calculated on the fair market value of the average net tangible operating capital employed and compared with the total earning power of the enterprise. The excess of the total earning power over the normal commercial return on the *tangibles* represents "super profits" or "excess earnings" attributable to the *intangibles*, most notably goodwill and intellectual property.

In "formula" terms, the "economic value added" by intangible assets is, for a specific time period, calculated as follows:

$$EVA_t = earnings_t - r\,(capital_{t-1})$$

Where:

- EVA = Economic value added.
- r = Cost of capital employed
- $capital_{t-1}$ = Net capital employed at the commencement of period *t*.
- $earnings_t$ = Actual earnings on the capital during period *t*.

Considering the firm's basic categories of assets, WACC (which itself is apportioned between the debt and equity in the firm's capital structure) can be allocated among the asset categories within the business, having regard to the respective degree of risk which each category represents, applying the following formula:

(47) Cash, accounts receivable, inventories, marketable securities and pre-paid expenses minus current liabilities (trade accounts payable, income taxes and withholding taxes payable, accrued liabilities, current portion of long-term debt, etc.).

$$\text{WACC} = \frac{V_w}{V}(R_w) + \frac{V_t}{V}(R_t) + \frac{V_g}{V}(R_g) + \frac{V_i}{V}(R_i)$$

Where:

- WACC is the weighted average cost of capital for the overall business enterprise.
- V_w, V_t, V_g and V_i are the fair market values of the working capital, other tangibles, goodwill and intellectual property, respectively.
- R_w, R_t, R_g and R_i are the relative rates of turn associated with the business enterprise asset components.
- V is the fair market value of the business enterprise, being the aggregate of V_w, V_t, V_g and V_i.

The analytical approach does not always consider appropriately the relationship between relative profit margins and the investment which is required in the firm's other, complementary assets. The standard "industry profit margin" calculation must also take into account the complementary assets required to commercially exploit the property. In fact, the more unique the intellectual property, the higher investment usually required in tangible capital assets (such as manufacturing facilities) as compared with the industry average, or *vice versa*.

An important distinction in infringement cases is that a *reasonable royalty* permits the licensee to retain a certain amount of profits whereas in the *lost profits* route, all profits enure to the owner (because in arm's length negotiations, the royalty agreed upon would, of course, provide the licensee with a profit).

An analysis must also be performed comparing a "commodity product" with an "enhanced product", the latter generating super profits and the former providing a benchmark which can help provide the standard, or normal, industry product for purposes of measuring the contribution of the enhanced product.[48] In effect, the royalty rate is derived by calculating the excess of the profit margin on the enhanced product over the profit margin on the commodity product, where the commodity product is in the same industry and requires a similar level of investment in complementary assets.

3.3 Accounting of Defendant's Profits

A plaintiff in a copyright action (as well as in a trade-mark action) may be awarded the profits earned on the defendant's infringement. This award may be driven by the infringer's intent and conduct (whether innocent, deliberate, wilful or fraudulent). An accounting of profits also en-

(48) These benchmark profits should ideally consider similar investments in complementary assets required in the commercial exploitation of the intellectual property.

ables plaintiff to satisfy the damage requirement that plaintiff prove the amount of damages with reasonable certainty, in cases where the plaintiff's own lost profits or other damages may be too remote or speculative to estimate. On the other hand, when profits cannot be reasonably established, a reasonable royalty can be used to quantify the damages.

The three justifications for an accounting of the alleged infringer's profits are:

(a) An accounting represents compensation to plaintiff for sales diverted to the infringer as a result of the latter's alleged improper conduct. The defendant's profits are deemed to constitute a fair measure of plaintiff's loss on sales wrongfully diverted to defendant.

(b) It may be justified on the basis of unjust enrichment or restitution. This theory is premised on the view that the infringer has taken plaintiff's property as represented by plaintiff's trade mark and has misused plaintiff's property in making a profit.

(c) An accounting may be ordered to deter a wilful infringer in the future.[49]

In some situations, an accounting of defendant's profits may not totally compensate the plaintiff for damages. There is no intention to make the plaintiff whole; there is simply the disgorgement of unjust enrichment X thus providing both punishment and deterrence.

If the damages attributable to the infringement exceed the gain enjoyed the defendant, the plaintiff might seek additional compensation over and above defendant's actual profits. In such a situation, it may be useful to present a "before-and-after" analysis[50], showing the decline in plaintiff's sales. As the plaintiff may recover lost profits from infringed sales, the sales that defendant made to purchasers who would otherwise have purchased plaintiff's products, but received defendant's products, must be quantified. Expert evidence may have to be led with respect to such diversion of sales, perhaps along with consumer- or market-surveys[51].

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(49) For example, see the decision in the United States, *Maier Brewing Co.* v. *Fleischmann Distilling Corp.*, 390 F.2d 117 (9th Cir. 1968), cert. denied, 391 US 966 (1968).

(50) Comparison might be made between the profits in the "base period" (i.e., before the infringing acts of defendant) and profits earned afterwards.

(51) While survey evidence are used with increasing frequency in trade-mark litigation in connection with reputation, or distinctiveness, and confusion, many surveys have failed in court (for substantive reasons). See, for example, *Mothercare U.K. Ltd.* v. *Penguin Books Ltd.*, [1988] FSR 113 (CA) and *Sun Life Assurance Co.* v. *Sunlife Juice Ltd.* (1988), 22 CPR (3d) 244 (Ont. H.C.J.).

In defending against an accounting of profits, defendant might allocate its profits among those resulting from the alleged use of plaintiff's trade mark and those realized as a result of advertising and having a better product.

The plaintiff need only prove defendant's sales; however, the defendant must prove (a) the portion of profits attributable to the infringement and (b) the various elements of cost or deduction claimed which offset the gross profits derived from the sales. Accordingly, the alleged infringer must demonstrate that the profits are the result of its own contributions, which critically impacted the customers' purchase decisions. Whether the infringer actually generated profits from the product sales tends to be irrelevant.

3.4 Accounting Methods

One of two accounting methods may be considered in determining the expenses, or expense components, to be deducted from the gross profits generated by the infringer's sales:

1. The "absorption" or "full cost" method; and
2. The "differential cost" or "incremental cost" method.[52]

The cost pattern relating to the operations of any business is typically divided among the following four categories:

- *Variable Expenses* — Those expenses that vary in direct proportion to gross revenues, apart from fixed expenses.
- *Semi-Variable Expenses* — Expenses which are part way between fixed and variable and may be conceived as comprising fixed and variable components (e.g., telephone charges have a fixed monthly component plus a variable component related to long-distance usage). These types of expenses often occur because the relationship between cost and volume is not regular but takes the form of a "step" function.

(52) See, for example, *Teledyne* v. *Lido* (1982) 68 CPR (2d) 204 (FCTD), upholding (1982) 68 CPR (2d) 56 (FCTD).

- *Fixed Expenses* — Those expenses that are fixed in amount regardless of gross revenue. Some may be fixed to the extent that they will not vary up to a certain gross revenue limit; if the revenues are increased above that limit, these expenses will increase, but may remain fixed at the higher amount up to the new gross revenue limit.

- *Semi-Fixed Expenses* – Expenses which are fixed over a wide range, but which can change at various levels (e.g., rent for extra space because of a new level of business activity for the firm).

As most variable costs can be directly traced to the product itself, cost allocation is concerned with fixed costs and only certain variable components of manufacturing overhead. Fixed costs are usually incurred for the benefit of the entire business entity as a co-ordinated unit. Therefore, most fixed costs are joint or common costs which require allocation to processes, departments, divisions, products or some other identifiable unit or profit centre of the enterprise.

3.4.1 Absorption Costing v. Direct Costing

Absorption costing — or conventional costing — treats *all* manufacturing costs as product costs; the fixed and variable cost elements are co-mingled within the individual accounts. Under absorption costing, therefore, fixed production costs are applied to the product and become part of Cost of Goods Sold (see Appendix II). In absorption costing, costs are seldom classified as fixed or variable.

Direct costing (also called variable costing, marginal costing or incremental costing) has a different impact on net profits because fixed manufacturing is considered a period cost rather than a product cost. More specifically, direct costing includes actual prime costs plus pre-determined *variable* manufacturing overhead; *fixed* manufacturing overhead is excluded.

In calculating lost profits, variable expenses are deducted in applying the direct cost method. Accordingly, under direct costing, increases or decreases in units sold will result in proportionate increases or decreases in incremental income because only variable costs are assigned to the cost of units produced. Under direct costing, the emphasis is placed on the number of units sold, and the income or loss will, accordingly, move in the same direction as the sales volume. In a marginal-income analysis, the question is therefore: "What does it cost to produce one more unit?", or, "How much is saved by producing one less unit?" Net income or net loss does not increase or decrease, however, in direct proportion to sales volume because unit fixed costs do not remain constant.[53]

In summary, the difference between the results obtained applying a *direct costing* method versus an *absorption costing* method arises from the amount of fixed manufacturing costs allocated to the work-in-process and finished goods inventories of a business.

Because loss-of-profits determinations in civil litigation require the calculation of *net profits*, the plaintiff's Cost of Goods Sold is only a starting point, in that variable (general and administrative, i.e., non-manufacturing) overhead expenses must be deducted also (from Gross Profit).

Appendix II provides a comparison of lost profits applying the Absorption Costing Method and the Direct Costing Method.

In direct, or incremental, costing, lost profits are generally calculated as the loss of "contribution margin" (i.e., loss of incremental profits) on the lost sales. As the table shows, the contribution margin is the excess of total gross revenues over total variable costs, such excess contributing towards the company's fixed costs.

In direct, or incremental, costing, lost profits are generally calculated as the loss of "contribution margin" (loss of incremental profits) on the lost sales. As Appendix II shows, the contribution margin is the excess of total gross revenues over total variable costs, such excess contributing towards the company's fixed costs. The example demonstrates that the key area in determining loss of profits (i.e., loss of contribution margin) relates to the distinction between "fixed costs" and "variable costs", so that the variable costs associated with the lost sales may be properly deducted. In most lost-profits determinations, there are typically differences of opinion between opposing experts as to what costs are truly "variable" and therefore "deductible" in arriving at lost contribution margin. As noted above, some costs have both fixed and variable components (such as light, heat and power, where higher production volume requires more utility costs in the manufacturing process; or production labour may increase with increased production as a result of overtime; etc.). Fixed, or overhead, expenses are deductible provided (and to the extent) that there would have been an increase in such expenses in order to generate the "but for" revenues. For example, delivery expenses (delivery wages, vehicles, etc.), clerical salaries, electricity (if extra shifts are working), etc. — even though classified as fixed expenses for accounting purposes — are, to an extent, variable. Whether an expense is fixed or variable may differ from industry to industry and it is usually in examination-for-discovery that the expense characteristics can be better understood. In any event, the bottom line is that the higher the variable costs, the lower the contribution margin or lost profit. (It should be noted that interest on debt generally

(53) Under absorption costing, emphasis is placed on both production and sales, and the net income and net loss do not, therefore, show the expected relationship to sales.

does not come into the calculation of lost profits; nor do extraordinary, unusual and non-recurring items.)[54]

Often the Canadian courts accept the differential cost method as the appropriate methodology.[55]

As with the quantification of damages for lost profits of the plaintiff outlined above, an accounting of defendant's profits requires the same analytical procedure, segregating variable expenses from fixed expenses and properly quantifying the profits made by defendant on the infringing sales.

4. CONCLUSION

The foregoing comments can only highlight the many issues and variables which come into play in valuing intellectual property or quantifying infringement damages. The process is, admittedly, highly judgmental on the part of the valuator. As Viscount Simon stated in *Gold Coast Selection Trust Ltd*. v. *Humphrey*: "Valuation is an art, not an exact science. Mathematical certainty is not demanded, nor indeed is it possible."[56]

(54) For example, unusual professional fees, bad debts and similar non-recurring items should be excluded from the calculation of lost profits.

(55) See, for example, *Diversified Products* v. *Tye-Sil* (1990), 32 CPR (3d) FCTD. In *Reading & Bates* v. *Baker Energy*, (1994), 58 CPR (3d) 359 (FCA), the Court of Appeal effectively approved the "differential cost method" as opposed to the "absorption cost method".

(56) [1948] 2 All ER 379 at 384 (HL).

APPENDIX I

U.S. INTERNAL REVENUE CODE
REGULATION 1.482.2(d)(2)(iii)

Factors which must be considered in establishing an Arm's Length Royalty:

1. Prevailing rates in same industry or for similar property.
2. Offers or bids of competing transfers.
3. Terms of transfer, including limitations on geographic area covered and exclusive or non-exclusive character of any rights granted.
4. Uniqueness of the property and period for which it will likely remain unique.
5. Degree and duration of protection afforded the property under laws of the relevant countries.
6. Value of services rendered by transferor to transferee in connection with transfer.
7. Prospective profits to be realized, or costs to be saved, by transferee through its use or subsequent transfer of the property.
8. Capital investment and start-up expenses required of transferee.
9. Availability of substitutes for property transferred.
10. Arm's length rates and prices paid by unrelated parties where the property is resold or sub-licensed to such parties.
11. Costs incurred by transfer or in developing the property.
12. Any other fact or circumstance which unrelated parties would have likely considered in determining amount of an arm's length consideration for the property.

APPENDIX II

COMPARISON OF ABSORPTION AND DIRECT COSTING
PLAINTIFF COMPANY
CALCULATION OF LOST PROFITS DURING THE DAMAGE PERIOD

Absorption Costing

Lost sales – 1,000 units @ $20			$20,000
Cost of sales	Unit Cost		
• Variable manufacturing costs – 1,100 units	$12	$13,200	
• Fixed manufacturing costs	4	4,400	
Cost of goods available for sale	$16	$17,600	
Less ending inventory (100 units)	16	1,600	16,000
Gross margin			$ 4,000
Less total selling and administrative expenses, including $800 of variable expenses			1,800
Net income (LOST PROFIT)			**$ 2,200**

Direct Costing

Lost sales		$20,000
Variable manufacturing costs of goods produced	$13,200	
Less ending inventory (100 units @ $12)	1,200	
Variable manufacturing cost of goods sold	$12,000	
Variable selling and administrative expenses	800	
Total variable costs charged against sales		12,800
Contribution margin (LOST PROFIT)		**$ 7,200**
Less fixed costs:		
• Fixed manufacturing costs	$ 4,400	
• Fixed selling and administrative expenses	1,000	5,400
Net income		$ 1,800