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* **IN THE HIGH COURT OF DELHI AT NEW DELHI**

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Date of decision: 16th May, 2024

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CS(COMM) 977/2016, CC(COMM) 38/2017 and I.A. 7815/2023

COMMUNICATION COMPONENTS ANTENNA INC.

. Plaintiff

Through: Mr. J. Sai Deepak, Advocate with
Mr. Sidhant Goel, Mr. Mohit Goel, Mr.
Deepankar Mishra and Mr. Aditya Goel,
Advocates.

versus

MOBI ANTENNA TECHNOLOGIES (SHENZHEN) CO LTD &

ORS.....Defendants

Through: None

CORAM:

HON'BLE MS. JUSTICE JYOTI SINGH

JUDGEMENT

JYOTI SINGH, J.

1. Plaintiff has filed the present suit seeking a decree of permanent injunction restraining Defendant No.1/Mobi Antenna Technologies (Shenzhen) Co. Ltd., its promoters, directors, agents and/or anyone acting for or on its behalf from manufacturing, making, using, distributing, selling, offering for sale and/or importing into India any product which infringes Indian Patent No.240893 (hereinafter referred to as "IN'893") granted for invention titled 'Asymmetrical Beams for Spectrum Efficiency'. Decree of Damages is sought against Defendant No.1 along with relief of delivery up and rendition of accounts.

2. Suit Patent was originally filed as PCT application on 19.03.2007 and the domestic phase application in India was filed on 05.08.2008, claiming priority from a Canadian application filed on 17.03.2006. IN'893 was granted on 09.06.2010 and term of the patent ends on 18.03.2027.

3. Present suit was filed in September 2010 by TenXc Wireless Inc. (erstwhile Plaintiff No.1), a company incorporated under the laws of State of Ontario, Canada. TenXc Wireless India Private Limited (erstwhile Plaintiff No.2) is a wholly owned subsidiary of erstwhile Plaintiff No.1, which was the owner of all rights in the patented invention in the suit patent. Between December, 2011 and January, 2012, erstwhile Plaintiffs sold their assets including IN'893, to the present Plaintiff. Plaintiff was brought on record vide order dated 28.11.2013. Plaintiff is a Canadian company, manufacturing and selling cellular base station products and rendering services relating to the telecommunication industry. Plaintiff manufactures and sells various products such as Antennas, Distributed Antenna Systems, Tower Mounted Amplifiers etc. and in the field of Antennas, it supplies Speciality Antennas/Multi-Beam Antennas/Small Cell Antennas/Multi-Port Antennas/Bi-Sector Array Antennas.

4. Defendant No.1, Mobi Antenna Technologies (Shenzhen) Co. Ltd. is an entity headquartered in China and imports and offers for sale Bi-Sector Array Antennas in Delhi. Present suit was filed when erstwhile Plaintiff No.1 learnt of the infringing acts of Defendant No.1 from their sale brochures. Plaintiff has asserted infringement of IN'893 against three products of Defendant No.1, viz.: (i) MB1800-PSA4-18DE10; (ii) MB1800-PSA4-18DT4; and (iii) MB3F-PSA4-19DE, based on beam patterns and other information disclosed in the Product Brochures for these

products. Product Brochures of Defendant No.1 were used for inviting potential customers to purchase the antennas. Beam patterns disclosed in the Brochures of Defendant No.1 are identical to the beam patterns of IN'893 and based *inter alia* on the identity in beam patterns, Plaintiff asserts that Defendant No.1's products, as disclosed in the Product Brochures, would read on and infringe both the 'method claim' in Claim 1 of IN'893 as well as the 'product claim' in Claim 10 of IN'893. Plaintiff also asserts that Defendant No.1's products read on, and infringe, two 'dependent claims', i.e., Claim 12 and Claim 13 of IN'893.

5. Before proceeding further, it is pertinent to mention some significant developments after the suit was filed. By order dated 04.10.2010, Defendants No.2 and 3, two cellular operators were impleaded in the suit. Limited *ex parte* interim injunction was granted directing Defendants No.2 and 3 to maintain *status quo* with regard to installation of Bi-Sector Array Antennas proposed to be supplied by Defendant No.1. Defendant No.1 filed application under Order 39 Rule 4 CPC for vacation of the order, which was dismissed vide order dated 12.11.2010 on the ground that the interim order operated against Defendants No.2 and 3 only. Defendant No.1 filed another application under Order 39 Rule 4 CPC, which came up before the Court on 06.12.2010 and the order records that in connected suit CS(OS) No.1993/2010 filed by the Plaintiff against some other party, stay earlier granted had been vacated. Defendant No.1 preferred FAO(OS) 680-81/2010 against orders dated 04.10.2010 and 12.11.2010. The appeal was disposed of on 01.12.2010 in view of disposal of FAO(OS) 660/2010 arising from the connected suit, recording that Defendant No.1 will approach the suit Court to seek vacation of the interim order. Applications

of erstwhile Plaintiff No.1 in both suits were heard together and dismissed vide detailed judgment dated 04.11.2011 and I.A. 16457/2010 filed by Defendant No.1 under Order 39 Rule 4 CPC was allowed observing that Defendant No.1 has raised a credible challenge to the validity of the suit patent.

6. It is important to mention the while vacating the order, Court directed that: (a) trial of the suit be expedited; (b) Defendants shall maintain accounts in respect of the sales arising out of the impugned products; (c) accounts shall be filed in Court on a monthly basis so that Plaintiff may be adequately compensated in the event of failure of the Defendants in the trial; and (d) Defendants shall file an affidavit within two weeks undertaking that in case the suit was decreed after trial, Defendants shall pay the profits and damages on their sale of impugned products to the Plaintiff.

7. By order dated 28.11.2013, erstwhile Plaintiffs No.1 and 2 were substituted by the present Plaintiff and plaint was amended in July, 2014. Defendant No.1 filed amended written statement pleading *inter alia* that (i) IN'893 lacks novelty and is liable to be revoked under Section 64(e) of the Patents Act, 1970 (hereinafter referred to as the "Patents Act"); (ii) IN'893 lacks inventive steps and is liable to be revoked under Section 64(f) of the Patents Act; (iii) invention claimed in IN'893 is precluded from being patented under Section 3(d) of the Patents Act and is liable to be revoked under Section 64(d) and (k) of the Patents Act.

8. Defendant No.2 in its written statement dated 14.10.2014 contested the suit on several grounds including patentability under Section 3(d) of the Patents Act and thus pleaded that IN'893 was liable to be revoked under

Section 64(d) and (k). Counter claim was filed by Defendant No.1 seeking declaration that the suit patent was invalid and revocation thereof, reiterating the grounds taken in the written statement. It is pertinent to note that counsel for the Plaintiff in the wake of enhancement sought in the valuation of the suit, made a statement on 24.09.2015 that Plaintiff was not claiming relief of damages against Defendants No.2 and 3 and accordingly I.A. 17204/2015 was withdrawn by Defendants No.2 and 3.

9. Based on the pleadings, vide order dated 04.02.2016, both in the suit and the counterclaim, following issues were settled:-

“(i) Whether the Impugned Patent No.IN240893 is invalid in view of any of the grounds raised in C.C. No.38 of 2012? OPCC

(ii) Whether the Defendants have infringed any of the claims of Impugned Patent No.IN240893? OPP

(iii) If the answer to Issue No.(ii) is in the affirmative, what is the relief that the Plaintiff is entitled to, and for what period? OPP

(iv) Relief.”

10. On 27.07.2016, suit was ordered to be re-numbered as a commercial suit and was so re-numbered. Plaintiff led evidence through two witnesses, i.e. PW1 Mr. Mark Cosgrove and PW2 Mr. Dennis Nathan. PW1 brought forth in his evidence that he was the Chief Technology Officer of erstwhile Plaintiff No.1 in India from March 2007 to January 2012. PW1 entered the witness box as a ‘fact witness of personal knowledge’, and a ‘technical expert’ considering his 30 years of experience in telecommunication and cellular engineering. PW1 has a degree of B.Eng (Hons) in Electrical and Electronic Engineering (Telecommunications) from the University of Essex. PW1 has an extensive track record of building, optimizing and managing cellular networks and has worked extensively on US FCC working groups on E911, Washington State technology committees, ITU

working groups, and ETSI Technical committees. He has experience in Government and industry standard departments. PW1 deposed on aspects relating to the novelty and technological advance/inventive steps of IN'893; infringement of IN'893 by the Defendants; and market potential of IN'893 as well as on the assessment of damages caused to the Plaintiff due to the infringing activities. PW2 deposed that he was/is the President of the Plaintiff since 1996. He tendered evidence with respect to infringement of IN'893 by the Defendants as well as the facts relating to market potential and size of IN'893 in India and its corresponding patents in USA and Canada, post-January, 2012 and assessment of the damages caused to the Plaintiff due to the infringing activities of Defendant No.1.

11. In the Written Statement of Defendant No.1, a significant portion of the defence to the suit was invalidity of IN'893 based on grounds of: (i) lack of novelty; (ii) lack of inventive step; (iii) non-patentable subject matter under Section 3(d) of the Patents Act; and (iv) non-patentable subject matter under Section 3(f) of the Patents Act. On the defence against infringement, Defendant No.1's stand was that Plaintiff had failed to demonstrate that Defendant No.1's products read on the claim limitations of IN'893. Defendant No.1 averred that Plaintiff had failed to demonstrate as to: (a) what was the original coverage area of the replaced sector antenna; (b) whether Defendant No.1's products "replaced" any sector antenna; and (c) whether the critical coverage area of Defendant No.1's products was substantially equivalent to the critical coverage area of the replaced sector antenna. There was no contest in the written statement on: (i) the asymmetry in the beam pattern of Defendant No.1's products; or (ii) nature of the beam patterns shown in the Product Brochures. Defendant

No.1 led evidence through Mr. Ramesh Garg D1W1, who was serving as Dean, Faculty & Admin and Visiting Professor at IIT, Ropar. D1W1 gave evidence in support of non-infringement of IN'893, in his capacity as an independent expert witness on the technical aspects, although D1W1 stated in response to Question No.480 that he was not given the mandate to depose on the correctness of the facts of the case. No other witness was examined on behalf of Defendant No.1 and no rebuttal evidence was led on the damages claimed by the Plaintiff.

12. It is pertinent to note here that vide judgment dated 10.08.2021, Court decided Issue No.(i), i.e. invalidity of the suit patent in view of the grounds taken by Defendant No.1 in CC No.38/2012 and deferred Issues No. (ii) and (iii). All grounds urged by Defendants were rejected and patent was upheld, however, the Court on its own proceeded to analyse whether the subject patent was liable to be revoked under Sections 64(1)(h) and (k) of the Patents Act in the context of Section 10 of the said Act. On this, findings were rendered against the Plaintiff and it was concluded that IN'893 was invalid and liable to be revoked 64(1)(h) and (k) of the Act. This decision was carried up in appeal and the Division Bench vide order dated 01.12.2021, set aside the judgment dated 10.08.2021 and remanded the matter back to the learned Single Judge to frame a specific issue. Accordingly, an additional issue was framed as follows:-

“(i) Whether the Plaintiff’s Patent Number IN240893 is liable to be revoked on the grounds under Sections 64(1)(h) or 64(1)(k) of the Patents Act, 1970 in the context of Section 10 of the Patents Act 1970? OPCC”

13. By judgment dated 04.02.2022, Court decided the issue in favour of the Plaintiff and against the Defendants and also proceeded *ex parte* against them as none was appearing on their behalf. Relying on extracts in ‘Law of

Patents’ by Terrell and ‘*Report on the Revisions of Patent Law*’ by Justice Iyengar, Court held that since the additional issue was premised on a question of fact, it was necessary for the Defendants to have pleaded and led evidence in support thereof, in the absence of which Court cannot conclusively hold that IN’893 is insufficiently disclosed. Thus the issue of validity was settled and closed in favour of the Plaintiff at this stage and case was directed to be listed for consideration on the remaining issues of infringement of suit patent and grant of certificate of validity of specification under Section 113 of the Patents Act. Order sheets reveal that post this date, no steps were taken by the Defendants for setting aside the *ex parte* order and they abandoned the proceedings.

Submissions made on behalf of the Plaintiff

14. The invention of IN’893, as mapped against the relevant definitions under the Patents Act, is as follows:

“a) A fixed beam split-sector antenna (this is the new product under Section 2(1)(j)),

b) That emits those split-sector beams, at least one of which is asymmetrical, which maintain substantially equivalent critical coverage area as of the earlier sector antenna that was being used in the industry (this is the inventive step under Section 2(1)(ja)),

c) This new split-sector antenna of IN240893 can be used to increase subscriber capacity in a sectorized cellular communications network, which was otherwise a problem with prior art/earlier antennas (this is the industrial application under Section 2(1)(ac)).”

15. Novelty in the suit patent resides in the fact that by changing the beam pattern, greater efficacy in the usage of the spectrum is achieved. The purpose of the invention is to achieve greater efficacy without compromising on the quality which means that while allowing greater number of subscribers to connect, using the same spectrum, quality of the calls is maintained.

16. Initially, in the cellular concept of wireless technology, an omni-antenna, which was located in the centre of a circular coverage area/cell, was used. An omni-antenna was one, which emitted signals uniformly in a single plane in all directions, i.e., in a 360-degree coverage area. However, use of omni-directional antennas in the cellular model had its limitation. Most importantly, intensity of the network signal from the antenna was not satisfactory/sufficient in the outer fringes of the coverage area, which resulted in dropping of calls. Further, capacity of these antenna systems to serve cellular subscribers was limited due to unrestricted spill-over of signal in all directions, which impacted the signal strength received by and available to each user. To overcome the above limitation, instead of using a single omni-directional antenna, the same cell was divided into a number of sectors through use of a number of directional antennas. This is called sectorization. Through this method, not only the available signal strength per user became more, but also there was more focused intensity of signal in the cell as compared to the omni-directional antenna. In other words, such directional/sector antennas divided the original cell into a number of 'sectors', thereby restricting the coverage of each directional antenna to a fixed limited area. In the prior art, a 360-degree cell was typically split into three sectors using three 65-degree half power beamwidth.

17. The most efficient arrangement of three sector sites was found to be a tessellated grid of sites using 65-degree antennas. As demand in networks started growing, adding more sectors, either by adding additional antennas or using multi-beam/split-sector antennas, (both emitting symmetrical beams), was seen as a simple way of increasing capacity without the need of building new sites. However, addition of more sectors meant that the

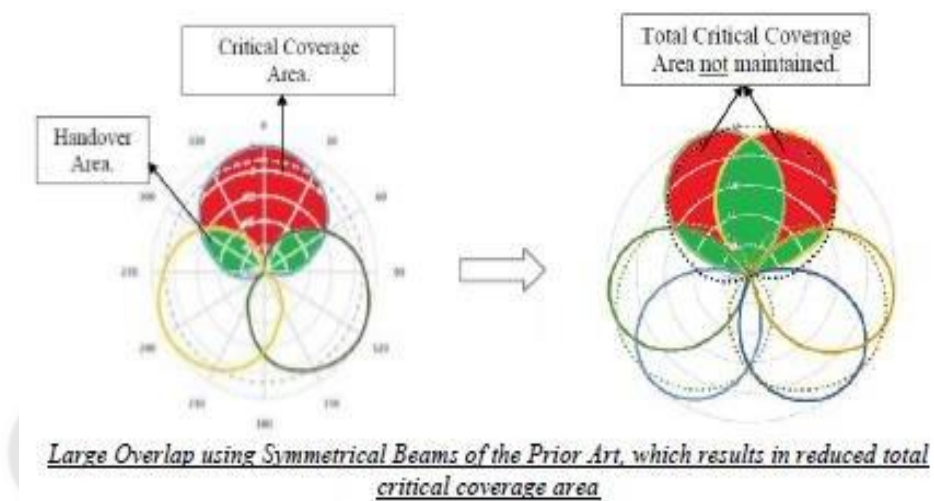
symmetrical nature of the beams itself proved to be a limitation. As new sectors were added, a greater than the desirable area of overlap between the sectors was created, even with narrower beam antennas such as 30-degree to 45-degree antennas. This ‘area of overlap’ was an ‘area of interference’ and ‘indeterminate dominant signal’, which led to dropping of calls and reduction in the number of calls/users supported. If the orientation of the beams of the above antennas were adjusted to reduce the area of overlap between sectors, this configuration would overshoot the original coverage area of the sector antenna and cause interference with adjoining sectors as well as adjoining sites, effectively destroying the benefits of tessellated networks. Therefore, the prior art had failed to provide an acceptable solution that could simultaneously offer: (a) reduced overlap area; and (b) maintenance of the original critical coverage area. Apart from the technical disadvantages associated with increasing the number of sectors using such antennas, creation of an entirely new sector meant installing new conventional antennas on telecom towers. This exercise was investment intensive without resulting in increased spectral efficiency/subscriber capacity.

18. An application for registration of IN’893 titled “Asymmetrical Beams for Spectral Efficiency” was filed in India on 05.08.2008, claiming priority from Canadian Application dated 17.03.2006, numbered as CA2540218. Given the large number of drawbacks associated with the previously known fixed-beam antennas used for increasing the sectorization of a cellular network, the innovation involving: (a) advantageous use of asymmetry in the beam shape emitted by a split-sector antenna to overcome the shortcomings of prior art; (b) such that the

replacing split-sector antenna would substantially cover the same critical coverage area as was being covered by the replaced antenna(s) by reducing the handover area despite increase in the number of handover areas; (c) increasing the subscriber capacity by (a) and (b) above; and (d) deploying such new split-sector antennas in the existing network of telecom towers itself without changing the neighbouring sites, had the potential of revolutionizing the telecom sector.

19. The distinguishing feature of IN'893 is that its beams have an asymmetric beam pattern/shape, which radically alters the conventional model of symmetric sectorization. IN'893 advantageously uses such optimized asymmetrical beam shape/pattern to enhance spectral efficiency and increase subscriber capacity. The optimized asymmetrical shape significantly reduces the overlap region between the beams and is able to maintain the critical coverage area level of the replaced antenna despite the increase of at least one more handover area. The asymmetrical shape reduces the amount of interference by directing energy into the critical coverage area. By maintaining the critical coverage area of the sector, network changes in terms of surrounding sector orientations and settings are avoided because of the maintenance of the original tessellation at network level. Introduction of asymmetrical beams allows close approximation of: (i) the critical coverage area of the replaced/old sector antenna with (ii) the critical coverage area of the replacing/new sub-sector antenna, along with minimum overlap. Increase in subscriber capacity, with split-sector beams, at least one of which is asymmetrical that can maintain substantially equivalent critical coverage area, is the feature of IN'893.

20. In prior art teachings, individual handover areas were not reduced when going to a split-sector antenna with symmetrical beams. This is diagrammatically represented below, where the total critical coverage area (*areas shown in red*) is not maintained because of increase in the overall handover areas (*areas shown in green that has increased*), which reduces the overall critical coverage area (*areas shown in red which has reduced*):



21. The complete specification of IN'893 fully and particularly discloses one of the embodiments of a fixed beam split-sector antenna that emits those split-sector beams, at least one of which is asymmetrical, which maintains substantially equivalent critical coverage area as of the earlier sector antenna. This exemplary embodiment is thus, one mechanical contrivance of carrying the principle of IN'893 into effect, which can be industrially applied. Claim 10 of IN'893 claims the product, i.e., the sub-sector antenna, while Claim 1 of IN'893 discloses the method of increasing subscriber capacity using the sub-sector antenna. This affords patentable subject matter under Indian law, which permits the Plaintiff to take out a patent generally for the mode of carrying a principle into effect, and does not necessitate the Plaintiff to describe each and every

conceivable embodiment or confine itself to any one form of embodiment of the apparatus only. Reliance in this regard was placed on the judgment in the case of *Lallubhai Chakubhai Jarivala v. Shamaldas Sankalchand Shah, 1934 (36) Bom LR 881*.

22. This exemplary embodiment of the new fixed beam split-sector antenna, as disclosed in the specification of IN'893, can be manufactured on the basis of the relative widths and lengths of the conductive traces of the beam forming the network. These relative widths and lengths of the conductive traces are the physical structural constructional changes that are required to make the antenna, which is the subject matter of IN'893, such that the power and phase weightings at each element of this split-sector antenna would be as disclosed in IN'893, and would provide the asymmetrical beam(s) as its output. Without making these physical structural constructional changes to the antenna, the power and phase weightings disclosed in IN'893 would not be achieved, and therefore, the asymmetrical beam pattern that is typical of IN'893 would not be achieved. Plaintiff's witness specifically deposed in response to Questions No.94 and 95 that IN'893 does not use any existing antennas and instead creates a new class of antennas.

23. IN'893 does not claim any invention in any process for creating asymmetrical beams using any specific power and phase weightings. Once the asymmetrical pattern produced from these power and phase weightings was disclosed in IN'893, it was possible for any person skilled in the art to reverse engineer the beam pattern. In other words, once the principle of IN'893 was disclosed, a person skilled in the art would know multiple ways of carrying this principle into effect. In response to Question No.451,

Defendant No.1's witness specifically agreed that the split-sector antenna/sub-sector antenna, as claimed in IN'893, is not limited to, or by any particular sub-sector antenna design.

24. Section 48 of Patents Act confers exclusive rights on the patentee to exclude third parties from making, using, offering for sale, selling or importing the patented invention/product and/or patented process. Violation of any of the exclusive rights contained in Section 48 of the Patents Act constitutes infringement of patent. Defendant No.1 is clearly guilty of infringing IN'893 and Plaintiff is thus entitled to a decree of permanent injunction as well as compensatory and punitive damages.

25. In *F. Hoffmann-La Roche Ltd. & Anr. v. Cipla Ltd., 2015 SCC OnLine Del 13619*, this Court laid down the steps to analyze infringement. First step is to determine the meaning and scope of the patent claims asserted to be infringed and second is to compare the properly construed claim with the device accused of infringing. Infringement analysis of IN'893 is based on the beam patterns of Defendant No.1's antennas shown in Defendant No.1's Product Brochures, which were exhibited as Exh.PW1/5 to Exh.PW1/7 during evidence and were proved in accordance with the provisions of Sections 65A and 65B of the Indian Evidence Act, 1872. The sector antenna replaced or capable of replacement by Defendant No.1's product is a typical 65-degree antenna and replacement can be both actual/physical on an existing site (brownfield sites) as well as an actual/physical replacement on a new site (greenfield sites), where a 3-sector tessellated site has been built out in a network planning tool. D1W1 agreed during cross-examination that Defendant No.1's product shown in Product Brochures replace or are capable of replacing three

existing 65-degree antennas in a 3-sector configuration as well as in greenfield cellular network where three 65-degree antennas in a 3-sector configuration could have been used and that a person skilled in the art would know this. This admission alone is enough to conclude that Defendant No.1's products read on to this feature of Claim 1 and Claim 10 of IN'893.

26. Since the beam patterns in Product Brochures are asymmetrical, the coverage area of each of these beam patterns is also asymmetrical and the asymmetry in the beam patterns is identical. D1W1 agreed during cross-examination that beam patterns in the Product Brochures are asymmetrical and deposed that "*bare perusal of the polar plots of beam patterns shown in Exhibit PW1/5 to Exhibit PW1/7 shows that these beam patterns are asymmetric*" and further deposed that coverage area can be calculated from the beam pattern, thereby agreeing that coverage area of the beam patterns shown in the Product Brochures were asymmetric. Significantly, D1W1 also deposed that he did not dispute that the beam patterns of the rival products were identical.

27. The test of beam pattern comparison was applied by this Court in another case relating to infringement of IN'893 in ***Communication Components Antenna Inc. v. ACE Technologies Corp. and Others, 2019 SCC OnLine Del 9123*** and the Court vide order dated 12.07.2019 gave a *prima facie* finding of infringement in favour of the Plaintiff and directed the Defendants to deposit some amounts in the Court. Defendants in the said case had contended that the term 'replacement' in Claim 10 meant that there has to be physical replacement of the antenna and this argument was rejected by the Court holding that patent claims cannot be read in such a

literal manner. This means and implies that step of replacement contemplated in the claims of IN'893 can be both actual/physical replacement either on the existing or the new site.

28. Plaintiff has proved that Defendant No.1's products are split-sector antenna/sub-sector antenna that produce fixed asymmetrical beams, i.e. they are the same as fixed beam Bi-sector Array Antennas of the Plaintiff covered by IN'893. D1W1 agreed in the cross-examination that this feature is present in Defendant No.1' product. In any case, Defendant No.1 never took a position that the antennas shown in the Product Brochures are not multibeam antennas that produce fixed asymmetrical beams. Defendant No.1's products also maintain substantial equivalent total critical coverage area as compared to critical coverage area of replaced sector antenna. In fact, D1W1 admitted to this position in answer to Questions No.347 and 380, during cross-examination.

29. Plaintiff's witnesses clearly and conclusively proved that: (i) the beam patterns shown in the Product Brochures are asymmetrical; (ii) the beam patterns shown in the Product Brochures are identical to the beam patterns produced from the power and phase weightings mentioned in IN'893; (iii) the beam shape of Defendant No.1's infringing products gives it the feature of "substantial equivalence" of critical coverage area as compared to the critical coverage area of the earlier antennas; and (iv) Defendant No.1's products, as shown in the Product Brochures replace, or are capable of replacing, three existing 65-degree antennas in a 3-sector configuration as well as in greenfield cellular networks where three 65-degree antennas in a 3-sector configuration could have been used.

30. PW1 deposed in his evidence by way of affidavit that he was informed by the representatives of Defendant No.2 that Defendant No.1's antennas were a direct substitute for Plaintiff's antennas. He also deposed that he was informed by the representatives of Defendant No.2 that Defendant No.1's antennas had been shown to incorporate the same technology as disclosed in IN'893 and PW1 withstood cross-examination on this aspect. PW1 also deposed that "*it would have been commercially unviable for cellular operators to install Defendant No.1's Bi-Sector Antennas if such Bi-Sector Antennas were not covering substantially the same total critical coverage area as covered by the earlier antennas of such cellular operators*", given that a smaller critical coverage area would create gaps in the network, and a larger critical coverage area would interfere with other mobile towers in the tessellated network.

31. The term 'Bi-sector Array Antennas' is the product family name of the Plaintiff's antennas covered by IN'893 and is used synonymously to describe the dual beam asymmetrical antennas. By naming its products as Bi-sector Array Antennas, Defendant No.1 has made every attempt to convey to the consumers that Defendant No.1's antennas were dual beam asymmetrical antennas. In his cross-examination, D1W1 did not disagree with the suggestion that the name was deliberately used to take advantage of Plaintiff's reputation with respect to the product covered by IN'893.

32. Being an infringer, Defendant No.1 is liable to pay damages to the Plaintiff for loss of profits as quantified and proved through the testimonies of PW1 and PW2 and other documentary evidence to which there is no traversal or rebuttal by Defendant No.1. Section 108(1) of the Patents Act recognises the remedy of claiming damages by way of rendition of

accounts and compensatory damages for lost profits. In case of *Indian Performing Right Society Ltd. v. Debashis Patnaik and Others, 2007 SCC OnLine Del 2037* (“IPRS”), this Court applied the general principles of damages, i.e., Defendant’s gain needs not be proportionate to Plaintiff’s loss in cases of infringement of intellectual property rights. Court held that a Defendant can cause damage to the Plaintiff either: (a) by taking away Plaintiff’s customers; or (b) by otherwise influencing the Plaintiff’s customers; or (c) by causing the Plaintiff to sell at a lower price. Court further held that measure of damage of the Plaintiff is the assessment of the profit which the Plaintiff would have made, if not for the illegal activities of the Defendant. Damage can be proved from the decline in business of the Plaintiff and assertion of such loss by the Plaintiff in its evidence. Reliance was placed on the following paragraph of the judgment, in particular:

“55. In an action for infringement of trademark, the profits made by the defendant also cannot always be the true criterion of the damages awardable to the plaintiff as the defendant’s gain may not always be proportionate to the plaintiff’s loss. However, it is trite that the plaintiff’s loss or the defendant’s gain will not be assumed in the absence of proof. The plaintiff is required to prove some distinct damage from the infringement of his trademark by defendant. The effect of the infringing acts of the defendant may be evidenced by the diminishing quantum of goods sold by the plaintiff for the reason that the defendant took away the plaintiff’s customers. The defendant may also impact the plaintiff’s business by causing him to sell its products at a lower price. In either event, there would be a reduction in either the total volume of the plaintiff’s business or lowering in the percentage increase of business as compared to the previous years. Thus the measure of damage suffered by the plaintiff is to be found by an assessment of the profits the plaintiff would have made if the offending article had not been introduced by the defendant in the market or if the defendant had not undertaken the illegal activities complained of by the plaintiff. These facts have to be proved by the evidence on record either relating to the business of the defendants or which could be assessed from a decline in the business of the plaintiff on account of the Activities of the defendant which could be gathered from the

figures of sales over the period of time during which the defendant has continued with the Activities complained of and an assertion of such loss by the plaintiff in its evidence.”

33. In a suit for infringement of patent, Court can typically compensate a Plaintiff by three methods: (a) Rendition of Accounts; or (b) Compensatory Damages for lost profits; or (c) Reasonable Royalty. This is also the spirit of the order dated 04.11.2011, wherein the Court while vacating the *status quo* order directed the Defendants to maintain accounts in respect of sales arising out of impugned products on a monthly basis. On the principle that patentee's loss needs not be infringer's gain, the Courts in the United States of America routinely grant damages for projected losses even though this 'projected market' may not have been captured by the infringer. In this regard, celebrated case of ***Coupe v. Rover, 15 S. Ct. 199*** was cited, wherein the Supreme Court of the United States of America held as follows:

“... At law, the plaintiff is entitled to recover, as damages, compensation for the pecuniary loss he has suffered from the infringement without regard to the question whether the defendant has gained or lost by his unlawful acts: the measure of recovery in such cases being not what the defendant has gained, but what plaintiff has lost.”

34. This position of law is also accepted in the United Kingdom and the observations in the landmark case of ***Cassell & Co. Ltd. v. Broome and another, (1972) A.C. 1027***, are relevant and are as follows:

“... to restrict the damages recoverable to the Actual gain made by the defendant if it exceeded the loss caused to the plaintiff would leave a defendant contemplating an unlawful act with the certainty that he had nothing to lose to balance against the chance that the plaintiff might never sue him or, if he did, might fail in the hazards of litigation. It is only if there is a prospect that the damages may exceed the defendant's gain that the social purpose of this category is achieved - to teach a wrong-doer that tort does not pay.”

35. The absence of evidence on damages by Defendant No.1 and failure to cross-examine Plaintiff's witnesses becomes significant and is enough to award damages, as claimed, in view of the law under the Evidence Act and the observations in the case of *Muddasani Venkata Narsaiah (Dead) through Legal Representatives v. Muddasani Sarojana*, (2016) 12 SCC 288, wherein the Supreme Court held as under:

“16. In Maroti Bansi Teli v. Radhabai [1943 SCC OnLine MP 128 : AIR 1945 Nag 60] , it has been laid down that the matters sworn to by one party in the pleadings not challenged either in pleadings or cross-examination by other party must be accepted as fully established. The High Court of Calcutta in A.E.G. Carapiet v. A.Y. Derderian [1960 SCC OnLine Cal 44 : AIR 1961 Cal 359] has laid down that the party is obliged to put his case in cross-examination of witnesses of opposite party. The rule of putting one's version in cross-examination is one of essential justice and not merely technical one. A Division Bench of the Nagpur High Court in Kuwarlal Amritlal v. Rekhilal Koduram [1949 SCC OnLine MP 35 : AIR 1950 Nag 83] has laid down that when attestation is not specifically challenged and witness is not cross-examined regarding details of attestation, it is sufficient for him to say that the document was attested. If the other side wants to challenge that statement, it is their duty, quite apart from raising it in the pleadings, to cross-examine the witness along those lines. A Division Bench of the Patna High Court in Karnidan Sarda v. Sailaja Kanta Mitra [1940 SCC OnLine Pat 288 : AIR 1940 Pat 683] has laid down that it cannot be too strongly emphasised that the system of administration of justice allows of cross-examination of opposite party's witnesses for the purpose of testing their evidence, and it must be assumed that when the witnesses were not tested in that way, their evidence is to be ordinarily accepted.....”

36. The non-traverse of the testimony of Plaintiff's witnesses in any significant way is also explained in the treatise by Donald S. Chisum et. al., Principles of Patent Law, Cases and Materials, (2nd Ed.), wherein it was observed as follows:

“After the patent owner has established a reasonable view... it is up to the infringer to show that the patent owner's proofs are unreasonable. See Paper Converting Mach., 745 F.2d at 21; John O. Butler Co. v. Block Drug Co., 620 F.Supp. 771, 778-79 (N.D.Ill.1985) (defendant did not establish that the testimony of the plaintiff's damages expert was improper in any significant way)”

37. Plaintiff led evidence to substantiate the claim of damages through two witnesses PW1 and PW2. In paragraph 23 of his affidavit, PW2 deposed that at the time of takeover of the assets of the erstwhile Plaintiffs, he had personally reviewed the R&D costs/trial costs/sales figures etc. achieved by erstwhile Plaintiffs in India as well as their books of accounts and the original Purchase Orders. PW2 confirmed this position in response to Questions No.93, 208 and 209 during his cross-examination. PW2 had personal information and knowledge regarding the sales of Bi-Sector Array Antennas made by the Plaintiff in North America and India and the pricing of the Plaintiff for Bi-Sector Array Antennas in these markets. PW1 deposed that he had submitted a Total Addressable Market Analysis (“TAM Analysis”) for the Board of the erstwhile Plaintiffs and their prospective investors in April 2011. TAM Analysis was based on consideration of the following aspects:

- a) each individual operator in India;
- b) number of sites each individual operator had;
- c) subscriber growth and count;
- d) spectrum allocation; and
- e) types of Bi-Sector Array Antennas that could be used to address capacity needs.

38. PW1 deposed that he had carried out the TAM Analysis in March, 2011 for the Indian market and estimated that by the end of 2015, Plaintiff had the potential to sell at least 94,710 units of Bi-sector Antennas in the Indian market. The entire methodology of calculating this number of antennas was prepared in the form of tables taking base year as 2011 and the tables formed part of the affidavit leading evidence. It was deposed that

94,710 units was an achievable and reasonable figure of unit sales from 2011 to 2014, estimated on the basis of sales prior to grant of patent in India and prior to completion of trials with cellular operators. For this, reliance was placed on the launch of a new Pan India Network of Cellular Services covering 65,000 tower sites by Reliance Jio Infocom Ltd. PW2 corroborated the testimony to the extent of market size in India. For quantification of 'profit per antenna', PW1 arrived at an average price at which Plaintiff was selling Bi-sector Array Antennas in India between 2007 to 2011 and made a simple division of total value of purchase orders received by the Plaintiffs i.e. USD 6.6 million by total number of antennas i.e. 5,503 and came to a figure of 1200. These purchase orders related to Aircel, Tata Tele Services, Idea Cellular Ltd. and Vodafone Essar. To this, PW1 added an additional profit of USD 150 per antenna. He deposed that erstwhile Plaintiffs sold at an average sale price of USD 1,350 in Canada and USA in 2011 and the average cost price was USD 800. A figure of 21,293 was taken as the market size lost at the end of 2011 and for the years 2012 to 2014, the market size lost was taken as 73,417. Taking the market size lost from 2011 to 2014 and multiplying it with the profit per unit at USD 550, PW1 arrived at a figure of USD 96,874,870 as the total profit lost. This was sought on account of compensatory damages and additionally, punitive damages were also prayed, relying on the judgment in the case of *IPRS (supra)*.

39. At the time of arguments on the application for interim injunction, Defendant No.1 had questioned the validity of the suit patent and had *inter alia* cited four prior arts. Basis this defence, interim injunction was vacated against the Plaintiff. Falsity of the stand, however, came to light during

cross-examination of D1W1 where in response to Question No.307, he categorically stated that he does not support any of these four prior arts cited in paragraph 3.4.3 of judgment dated 04.11.2011. Defendant No.1 must be put to terms for making false statements before the Court.

40. Plaintiff is entitled to costs of the suit in terms of the judgment dated 04.11.2011. Plaintiff has filed the affidavit of costs on 25.08.2022. In *Uflex Limited v. Government of Tamil Nadu and Others, (2022) 1 SCC 165*, the Supreme Court has held that actual costs should be paid to the successful party in a commercial litigation.

Submissions on behalf of Defendant No.1

41. Relevant it is to pen down that Defendant No.1 abandoned the proceedings after the issue of validity was decided and Court did not have the benefit of counter arguments. Yet I may capture in brief the defence, which largely bordered on validity and has in any case become illusory now. The defence was the Defendant No.1 was dragged into this litigation with an intent to prevent competition in the market. Plaintiff has failed to demonstrate how Claims 1, 10, 12 and 13 are being practiced by Defendant No.1. If at all a case of infringement of Claims 1, 10, 12 and 13 is made out, it is made out against Defendants No.2 and 3. However, the Plaintiff has not prayed for damages against Defendants No.2 and 3. The method used by the Plaintiff to demonstrate infringement is erroneous and thus cannot be relied upon. To arrive at a finding of infringement, Mr. Cosgrove PW1 followed an incorrect method of comparing and overlaying the patterns of Defendant No.1's antenna over beam patterns, allegedly produced by using phase and settings as disclosed in IN'893 and then extracting the patterns depicted in PW1/5, PW1/6 and PW1/7 using Adobe

Professional PDF Editor, followed by rotating the image by 90-degree anti-clockwise and thereafter placing the beam pattern disclosed in the brochures over the beam derived from the phases and weightings of IN'893, to conclude that they perfectly align with one another.

42. The specification of IN'893 acknowledges certain state of arts, which include: (i) sub-sectorization of a sector i.e. higher order sectorization; (ii) limiting sub-sectorization to typically no more than 60-degree antenna at a time; (iii) objective of covering the coverage area of the antenna being replaced, by a new antenna in order to increase subscriber capacity; (iv) ability to fashion beam shapes; (v) problems arising due to interference in overlap areas; (vi) load balancing through addition of capacity only where needed; (vii) available hardware and software to fashion beams including asymmetric beams. Prior art submitted by Defendant No.1 teaches all these, in addition to: (i) asymmetry as an advantage; (ii) tailoring the beams for specific sector coverage; and (iii) using multiple beams of narrow coverage area, some of them being asymmetric so as to cover the same area of a wider beam.

43. Claims of IN'893 lack (i) novelty; (ii) inventive step; (iii) are not eligible for protection in view of Section 3(d) of the Patents Act; and (iv) are not eligible for protection in view of Section 3(f) of the Patents Act. Accordingly, IN'893 is liable to be revoked under Section 64(e) and 64(f) of the Patents Act. Further the claims of IN'893 violate Section 3(d) and (f) of the Patents Act. Beven-US 6,167,036 teaches: (i) increasing network efficiency by way of higher order sectorization and by replacing an existing sector antenna (120°) by a split sector antenna; (ii) solution to increase the number of mobile subscribers within a sectorized cellular communication

network by increasing number of sectors in a cell; (iii) a sector antenna with a coverage area that covers a 120° sector; (iv) coverage area of the sector antenna further overlaps with coverage areas of neighbouring sector antennas; (v) replacement of the sector antenna site with a split-sector antenna site; (vi) split-sector antenna site of Beven comprises three main beams i.e. an asymmetric left beam [44], a centre beam [46] and an asymmetric right beam [48]; (vii) that the coverage area of the three main beams needs to be appropriate in various directions to match the desired footprint as closely as possible. The desired footprint corresponds to coverage area of the replaced sector antenna site.

44. Wireless Article – “Wireless solution boosts network capacity”, relates to erstwhile Plaintiffs’ Bi-Sector Array Antenna, the one disclosed under IN’893. The article contains: (i) a quote from the President and CEO of the erstwhile Plaintiffs; (ii) reference to introduction of sub-sectors to increase subscriber capacity; (iii) disclosure of use of asymmetric patterns to increase network capacity; (iv) that the Bi-Sector Array Antenna can be used to replace existing sector antennas; (v) that the Bi-Sector Array Antenna serves as a direct antenna substitution at cell sites, which makes it apparent that it would match the coverage areas of the replaced or substituted sector antenna. Newman (US 5,581,260) provides a solution in which: (i) a sector is covered by multiple or sub-sector beams using multi-beam antennas; (ii) the multiple beams overlap with each other thus disclosing sub-sector handover zones within a sector; (iii) the sub-sector beams collectively disclose the 120-degree sector; (iv) the Wireless Article and Newman were used as valid prior art references along with others, during prosecution of the corresponding US Patent 8,311,582 at (USPTO).

45. Smith (US 6,094,165) provides a solution to: (i) increase the traffic carrying capacity of sectorized cellular communication system; (ii) whereby sector area which is covered by one or multiple beams from an antenna connected to the base station; (iii) whereby a sector is being covered by four beams occupying substantially a 120-degree sector; (iv) whereby four beams correspond to sub-sector beams; (v) by way of figures, the principle of asymmetry in the beams. The presence of four beams, with asymmetry, clearly indicates that asymmetric beams are in a multiple of 2 and have a mirrored pair. Smith further discloses an optimum overlap between the four beams within the sector and Prof. Garg has observed presence of four asymmetric beams. Smith discloses that the four beams occupy substantially the whole of the 120-degree sector. Gabriel (US20050030249) teaches that: (i) network capacity can be increased by replacing the existing antenna and by deliberately inducing asymmetry; (ii) asymmetry may serve positive ends; (iii) an antenna system that allows production of antenna polar diagrams on a site such that if required the antenna polar diagram can be varied; (iv) a site can be upgraded by replacing an antenna on the base station. It brings asymmetric beams into the realm of beam-type options, as not disputed by Mr. Cosgrove. It also teaches deliberate and induced asymmetry in antenna beams, which is not disputed by Mr. Cosgrove.

46. The invention is not eligible for protection under the Patents Act in view of Section 3(d) of the Act. Mr. Cosgrove concedes that the method of the invention may be practiced with antennas available as of the priority date, which is the mere use of a machine or apparatus. Further, Mr. Cosgrove has admitted that the invention is for the use of asymmetry and

does not invent asymmetry. As such, in Claim 1, which is the method claim in IN'893, the only method step is the step of 'replacement'. It has been demonstrated hereinabove that 'replacement' of an antenna with another antenna to increase subscriber capacity is a known step. In respect of Claim 10, the sub-sector antenna disclosed is not a new or inventive antenna and is an existing one, which has been subjected to manipulation of well-known factors including through computer control, whereby the shape of the beams thrown by them is controlled. Furthermore, antennas of prior art provide for shaping beams to desired shape, which would include the shape of asymmetry. Mr. Cosgrove has admitted that the building blocks for IN'893 were already available to persons of skill in the art prior to the priority date of IN'893.

47. The invention is not eligible for protection under the Patents Act in view of Section 3(f) of the Act. Use of one or more asymmetric beam antennas provide for precisely the subject matter precluded from patentability under Section 3(f). The pith and substance of the invention covered under IN'893 is that one or more asymmetric beams of an antenna, wherein each antenna is doing exactly what it would ordinarily do, throws an asymmetric beam. The pattern of the beam of one antenna is independent to the beam thrown by the other antenna. Each function independently of one another and in entirely a known way (which is transmitting beams). Mr. Cosgrove has conceded that the antennas of IN'893 are two antennas housed in one body. The law on this is clear that the existing elements in the claims are all existing and functioning independent of one another. In any case, the network and apparatus claims

relate to one or more asymmetric beam antenna. Any other elements of the claims of IN'893 are merely peripheral and already well-known.

48. In order to build its case for infringement, Plaintiff has relied upon sales/Product Brochures of Defendant No.1's antennas bearing Model Nos.MB1800-PSA4-18DE10, MB1800-PSA4-18DT4 and MB3F-PSA4-19DE, exhibited as Exh.PW1/5, Exh.PW1/6 and Exh.PW1/7 respectively and two photographs taken by one Mr. Ankit Agarwal, who was not examined as a witness. The most important leg of plaintiff's case is an expert testimony of Mr. Mark Cosgrove wherein he compared beam patterns as depicted in Exh.PW1/5, Exh.PW1/6 and Exh.PW1/7 with those of IN'893 and arrived at the conclusion that antenna MB1800-PSA4-18DE10, MB1800-PSA4-18DT4 and MB3F-PSA4-19DE are infringing. The infringement analysis is wholly misconceived. In addition to the failure to demonstrate mapping of all elements of asserted claims to Defendant No.1's antennas, Plaintiff has failed to demonstrate the step of "replacement". Plaintiff's argument that the step of "replacement" is notional in the sense that replacement occurs in cellular communication network tools and is not an actual replacement of an existing antenna has neither been claimed nor indicated in the specification of IN'893, which does not teach a single embodiment as an example of notional replacement. Introduction of the concept of notional replacement appears to be an afterthought. The entire case of the Plaintiff is based on comparison of sales brochures. In fact, Plaintiff has not even called for or sought to procure Defendant No.1's antennas. Mr. Cosgrove is unaware as to the phase and settings of Defendant No.1's antenna. He has assumed that the beam pattern could only have been produced by using the phase and settings given in IN'893,

which in any case are not part of the claims of IN'893. It is a settled law that in order to establish a case for infringement, Plaintiff will have to establish that all embodiments of asserted claims are being practiced by alleged infringing products. Independent Claims 1 and 10 call for replacement of an existing antenna with a Bi-sector beam antenna. It is claimed that this 'replacement' of an existing sector antenna by a Bi-sector antenna is the lone limitation for increasing subscriber capacity in the sector in question. Plaintiff has not demonstrated this aspect. Plaintiff has failed to show substantial equivalence between "critical coverage area" of the sector antenna being replaced and total critical coverage area of plurality of sub-sector coverage areas of the split sector antennas. Therefore, Plaintiff has failed to demonstrate an essential feature of the claims.

Analysis and Findings

49. Present suit was filed by the erstwhile Plaintiffs in 2010, seeking permanent injunction against Defendant No.1 from selling, offering for sale and/or manufacturing products which infringed the suit patent. By order dated 04.10.2010, Court impleaded Defendants No.2 and 3, the two Cellular Operators and directed status quo with regard to installation of Bi-sector Array Antennas to be supplied by Defendant No.1. Basis the challenge laid by the Defendants to the validity of the suit patent, Court vacated the order but directed the Defendants to maintain accounts with respect to the sales arising out of the impugned products and to file them on a monthly basis in the Court so that Plaintiff may be adequately compensated if Defendants failed in the trial. Direction was also issued to

the Defendants to file an undertaking to pay the profits and damages on their sale if the suit is decreed in favour of the Plaintiff.

Issue No.(i)

“(i) Whether the Impugned Patent No.IN240893 is invalid in view of any of the grounds raised in C.C. No.38 of 2012? OPCC”

50. Issue No.(i) was considered by the Court in light of the written statement and counter claim filed by Defendant No.1 pleading that IN’893 lacked novelty, inventive steps and was liable to be revoked under Section 64(e) and (f) of the Patents Act respectively. It was also pleaded that the invention was not patentable under Section 3(d) and IN’893 was liable to be revoked under Section 64(d) and (k). By a detailed judgment delivered on 10.08.2021, the Court held that Defendant No.1 was unable to make out a case for revocation under Section 64(d), (e) and (f). Court, however, came to a finding that Defendant No.1 had made out a case for revocation of the suit patent on the grounds provided under Section 64(h) and (k) of Patents Act. This order was never assailed by Defendant No.1 to the extent the Court rendered findings in favour of the Plaintiff. Therefore, it is clear that challenge to the validity of suit patent under Section 64(d), (e) and (f) was given up. Relevant paragraphs from judgment dated 10.08.2021 are as follows:-

“34. I am therefore of the view that the defendant no.1/counter claimant has made out a case of revocation of the patent on the grounds provided under Section 64(h) and (k) of the Act. The claim of the complete specifications was not patentable under the Act, being non-complaint with Section 10 of the Act.

35. That brings me to the ground of revocation under Section 64(d) of the Act i.e. of the complete specification not constituting an invention within the meaning of the Act. It is argued that neither a new product nor a new process has been invented, within the meaning of Section 2(j) of the Act. It is further argued that the invention even if any is a mere discovery of a new use of known process, machine or apparatus (within the meaning

of Section 3(d) of the Act) i.e. of use of antenna/split-sector antenna, already known and in use, and of asymmetrical beams, also already known and in use, to achieve larger subscriber capacity.

36. I am unable to agree. The patent claimed is in the method for increasing capacity. The invention is thus not of any product but of a process to increase subscriber capacity of beams emanating from an antenna. As aforesaid, increase in subscriber capacity, by adopting the method disclosed in the patent, is not controverted. Once it is so, it follows that the method has economic significance within the meaning of Section 2(ja), to constitute an inventive step. Though under Section 3(d) a mere use of a known process or a known apparatus is not an invention, but only if the same does not result in a new product and/or in the enhancement of known efficacy. Though the plaintiff uses known antenna/split-sector antenna but the combination, at least one of the beams emanating from which is asymmetrical, but since the resultant beam has increased subscriber capacity, it constitutes an enhancement of known efficacy of beams and Section 3(d) would not be attracted.

37. I am also unable to agree that the invention is a mere discovery of a scientific principle or formulation of an abstract theory. The invention, as aforesaid enhances the known efficacy and is thus not an abstract theory.

38. Thus the ground of revocation under Section 64(d) is not made out.

39. That brings me to the grounds of revocation under Section 64(e) and (f) of the Act i.e. invention claimed in the complete specifications being not new having regard to what was publically known or publically used or being obvious having regard to what was publically known and/or published before the priority date. The defendant no.1/counter claimant in this regard has referred to a large number of prior arts. The defence of the plaintiff thereto is twofold. Firstly, that all such prior arts have been rejected by the United States Patent and Trademark Office (USPTO) while granting US patent. Secondly, that the reference to prior arts is in the hindsight of the inventive step subject matter of patent.

40. The defendant no.1/counter claimant in its written arguments, with respect to the prior art Bevan, drawn attention to the deposition of its witness. The said witness has deposed of the same teaching use of multi beam antennas and disclosing coverage area of sector antenna overlapping coverage areas of neighbouring sector antennas. Attention has also been invited to the deposition of the witness of the plaintiff in defence to the Counter Claim, of the said prior art being concerned with need and solution for increasing subscriber capacity and of replacing the existing cell sites to increase network capacity. It is further the argument of the defendant no.1/counter claimant that the said prior art is also found to support asymmetry. The defence of the plaintiff thereto is, that the witness of the defendant has not deposed of asymmetry and asymmetry

cannot be deduced from the language thereof. I have similarly perused the written arguments and the depositions and the cross-examinations of the witnesses referred to therein and I am afraid, therefrom I am unable to find any conclusive proof of obviousness, applying the test of the person skilled in the art. Thus, the grounds of revocation under Section 64(e) and (f) are not made out.

41. I therefore answer issue no.(i) as under:

“(i) Whether the impugned Patent No.IN240893 is invalid in view of any of the grounds raised in counterclaim No.38/2012? OPCC”

by answering in the affirmative, in favour of the defendant no.1/counter claimant and by holding the Patent No. IN 240893 to be invalid and liable to revocation under Section 64(h) & (k) of the Patents Act, 1970.”

51. Plaintiff assailed the judgment before the Division Bench in RFA(OS)(COMM) 6/2021 to the extent it invalidated Plaintiff's patent IN'893 under Section 64(1)(h) and (k), while adjudicating and decreeing the counter claim. The main plank of the argument was that there were no pleadings with respect to the grounds under Section 64(1)(h) and (k) in the context of Section 10 of the Patents Act. The Division Bench vide order dated 01.12.2021 set aside the judgment and decree and remanded the matter back to the learned Single Judge to decide afresh with regard to Section 64(1)(h) and (k) in the context of Section 10 after framing an additional issue, in accordance with law. Defendants were held bound by their statement that they will neither amend the pleadings nor lead any additional evidence.

52. On remand, the learned Single Judge framed an additional issue as follows:-

“(i) Whether the Plaintiff's Patent Number IN240893 is liable to be revoked on the grounds under Sections 64(1)(h) or 64(1)(k) of the Patents Act, 1970 in the context of Section 10 of the Patents Act 1970? OPCC”

53. After hearing the rival contentions, Court answered the issue in favour of the Plaintiff and against the Defendants vide judgment dated

04.02.2022 and directed the suit to be listed on the issue of infringement of the suit patent as well as grant of certificate of validity of specifications under Section 113 of Patents Act. Relevant paragraphs from the judgment are as follows:-

“10. A claim in a patent is required to be construed in light of accompanying complete specifications. The role of such complete specifications, is to “teach” (i) what the invention was; (ii) how the invention was to be made; and (iii) how the invention was to be used. The sufficient disclosure of the invention in the patent specification is the consideration for which a patent is granted. The criteria determinative of the sufficiency of disclosure, has been demonstrated during the processing of the patent application, resulting in the grant of the patent. The same has to be construed impartially, when any of the grounds enumerated under Section 64 of the Act are invoked. The Court would be generally slow to construe patent specifications against the patentee, unless it is shown that, that claims do not meet the requirement of law.

11. The suit patent was not challenged by the Defendant in the pre-grant or post-grant stage. Now, faced with the infringement suit, the Defendant has set-up a plea of invalidity – which must be established by clear and conclusive evidence. Thus, the onus is on the Defendant to establish that the suit patent is liable for revocation on the ground of invalidity. In the instant case, as already noted above, there is no counter-claim for revocation on the aforementioned grounds. Nonetheless, the Defendant seeks revocation by relying upon the patent specifications itself – in other words, Defendant would contend that (i) the specifications of the patent does not sufficiently and fairly describe the invention and method by which it is to be performed; or (ii) the description of the method or the instructions for the working of the invention, as contained in the complete specification, are not by themselves sufficient to enable a person in India possessing average skill in, and average knowledge of, the art to which the invention relates, to work the invention; or (iii) it does not disclose the best method of performing it, which was known to the applicant of the patent and for which he was entitled to claim protection; which renders it liable to revocation.

12. The afore-noted grounds deal with the construction of specifications of patent. In the instant case, the claim construction which had been undertaken during the examination of the patent application, is again being questioned. Although, the mere grant of a patent is not necessarily a prima facie indicator of its validity, it does not mean the patent has to be read as ‘inherently suspicious’. To dislodge a patent before a court of law, the scrutiny of claim construction for revocation of patent would have to be tested on a different footing. The assertion made

by the Defendant has to be proved in accordance with the law. The applicant – seeking revocation of a patent – has the onus to explain in its pleadings as to how the claim construction renders it liable for revocation. One of the ingredients for revocation viz. insufficiency of patent specifications, as found in Section 64(1)(h), is to be interpreted from the standpoint of “a person possessing average skill in, and average knowledge of, the art to which the invention relates.” This would necessarily mean that a party seeking revocation of a patent – must allege and show insufficiency of disclosure and specifically point out such deficiency and/or inadequacies in the patent specifications. Pertinently, while assessing the sufficiency of disclosure, the patentee should be afforded an opportunity to demonstrate that the ground of revocation is not sustainable on facts by leading evidence, and thus arises the requirement of specific pleadings. With no evidence led on the grounds of insufficiency of disclosure, determination of the grounds of revocation would not be feasible for the Court, as pure a question of law. Such grounds for revocation cannot be determined plainly by reading the patent specifications. Rather, as noted above, it would inherently require determination whether such “complete specification are not by themselves sufficient to enable a person in India possessing average skill in, and average knowledge of, the art to which the invention relates, to work the invention.” For claim construction, parties may also rely upon the opinion of an “expert” or “person skilled in the art”, to assist the Court for determination of patentability. The alleged insufficiency of disclosure has to therefore be tested, or seen through, the eyes of a person having the traits described in Section 64(1)(h) of the Act. This means that the opinion of an expert/ a person skilled in the art, may become relevant to conclude whether a patent is insufficient or not.

13. Thus, it cannot be said that insufficiency of a patent is purely a question of law that could be decided by the patent specifications, rather, at best, by reading the patent claim specifications; a doubt may be raised qua the validity of the patent. The same would still require determination and enquiry into further facts, on which no final opinion can be formed only on the basis of a prima facie view. With the categorical stand of the Defendant, the ground(s) of insufficiency of disclosure have to be decided on the basis of existing pleadings and evidence led by the Defendant/ Counter-claimant, the inevitable conclusion has to be against the Defendant. On this aspect, it would be appropriate to refer to the extracts in the ‘Law of Patents’ by Terrell, wherein the author while relying upon judgments from Courts in the United Kingdom, has expressly the following view:

“Whether or not the teaching of a specification is sufficient to enable the invention to be performed across the full width of the claim is a question of fact, the answer to which is highly sensitive to the nature

of the invention and also depends upon the attributes of the skilled person and the effort which he can reasonably be required to apply”.

Further, it is also apposite to rely upon the extracts from the ‘Report on the Revisions of Patent Law’ by Justice Shri. N. Rajagopala Iyengar, the relevant extract of which is as follows:

“575. I have revised the language of each one of the grounds, besides including new ones needed to implement my other recommendations requiring applicants to furnish information regarding the fate of corresponding applications filed in other countries (Section 7A), a point of added importance in view of the expanded scope of anticipating publications recommended by me. In general the language of the several grounds has been adopted from that used in the U.K. Patents Act, mainly for the reason that their interpretation had been the subject of judicial decision. I however desire to draw attention to a slight change which I have introduced in ground (h) relating to insufficiency of description of a complete specification, viz., the additional of the following :-

“that the description of the method or the instructions for the working of the invention as contained in the complete specification are not by themselves sufficient to enable a person in India possessing average skill in, and average knowledge of, the art to which the invention relates, to work the invention.”

576. These words no doubt merely summarise the effect of the decisions in the U.K. as regards the sufficiency of the instruction which a complete specification ought to contain, but I believe that their inclusion in the grounds would serve to emphasise the purpose in law of a specification. Besides, there is a tendency for patent specifications and instructions for working, which have been drawn up for being filed in connection with applications for patents in the more advanced industrial countries being filed in the same form in India. This proves a handicap by reason of the instructions which might suffice to work the invention in a country where the art has been highly developed, not conveying information which is requisite for enabling the average Indian technician to effect the working. Though the decisions on sufficiency of description relate the required quantum of instruction to the state of the art in the country to whose technicians the specification is addressed, I consider that the iteration of this requirement would induce foreign applications for patents to pay heed to this feature and also focus the attention of the courts to have regard to the state of the art in this country in judging of the sufficiency of description.”

[Emphasis Supplied]

14. In view of the foregoing, the Court is of the view that since the additional issue was premised on a question of fact, it was necessary for

the Defendant to make a specific pleading to that effect and lead evidence in support thereof. In the absence of such pleadings and no evidence having been led in this case, this Court cannot conclusively hold that IN240893 is insufficiently disclosed. Therefore, the issue has to be answered in favour of the Plaintiff, and against the Defendant.

15. *This brings us the issue of infringement of patent. List for further consideration on 16th March, 2022.*

16. *On the said date, the Court would also consider Mr. J. Sai Deepak's submission regarding the issues of a certificate of validity of specifications under Section 113 of the Act."*

54. From the aforesaid orders, it is evident that issue No.(i) with respect to validity of the suit patent stood decided but the reference was necessary in this judgment for the sake of completeness and also for the reason that the counter claim raised on behalf of Defendant No.1, premised entirely on the alleged invalidity of IN'893, is pending. I now proceed to decide the remaining issues.

Issue No.(ii)

"(ii) Whether the Defendants have infringed any of the claims of Impugned Patent No.IN240893? OPP"

55. Before examining the issue pertaining to infringement of the Suit Patent it is essential to enter into the exercise of claim construction. In "*Chapter 9: Construction of the Specification and Claims*", in Terrell on the Law of Patent, 18th Edition, it is emphasized that one of the most important steps in a case involving patents is to determine the actual scope of the claim of a complete specification. In *F. Hoffmann-La Roche Ltd. (supra)*, Division Bench of this Court laid down the following principles for construction of the claim:

"67. For the above conspectus, pithily put, principles of claim construction could be summarized as under:-

(i) Claims define the territory or scope of protection (Section 10(4) (c) of the Patents Act, 1970.

- (ii) There is no limit to the number of claims except that after ten claims there is an additional fee per claim (1st Schedule of the Act).*
- (iii) Claims can be independent or dependent.*
- (iv) The broad structure of set of claims is an inverted pyramid with the broadest at the top and the narrowest at the bottom (Manual of Patents Office - Practice and procedure).*
- (v) Patent laws of various countries lay down rules for drafting of claims and these rules are used by Courts while interpreting claims.*
- (vi) One rule is that claims are a single sentence defining an invention or an inventive concept.*
- (vii) Different claims define different embodiments of same inventive concept.*
- (viii) The first claim is a parent or mother claim while remaining claims are referred to as subsidiary claims.*
- (ix) If subsidiary claims contain an independent inventive concept different from the main claim then the Patent office will insist on the filing of a divisional application.*
- (x) Subject matter of claims can be product, substances, apparatus or articles; alternatively methods or process for producing said products etc. They may be formulations, mixtures of various substance including recipes. Dosage regimes or in some countries methods of use or treatment may also be claimed.*
- (xi) Where claims are 'dependent' it incorporates by reference 'everything in the parent claim, and adds some further statement, limitations or restrictions'. (Landis on Mechanics of Patent Claim Drafting).*
- (xii) Where claims are 'independent' although relating to the same inventive concept this implies that the 'independent claim stands alone, includes all its necessary limitations, and is not dependent upon and does not include limitations from any other claim to make it complete An independent Claim can be the broadest scope claim. It has fewer limitations than any dependent claim which is dependent upon it'. (Landis on Mechanics of Patent Claim Drafting)*
- (xiii) For someone wishing to invalidate a patent the said person must invalidate each claim separately and independently as it is quite likely that some claims may be valid even while some are invalid.*
- (xiv) At the beginning of an infringement action the Courts in the United States conduct what is known as a 'Markman hearing' to define the scope of the claims or to throw light on certain ambiguous terms used in the claims. Although this is not technically done in India but functionally most Judges will resort to a similar exercise in trying to understand the scope and meaning of the claims including its terms.*

68. In the case of (52 F.3d 967 also 517 US 370) *Herbert Markman v. Westview* the Courts held that an infringement analysis entails two steps:-

(a) First step is to determine the meaning and scope of the patent claims asserted to be infringed.

(b) Second step is to compare the properly construed claim with the device accused of infringing.

(xv) The parts of the claim include its preamble, transition phrase and the body. The 'transition phrase' includes terms like:-

(a) Comprising;

(b) Consisting;

(c) Consisting essentially of;

(d) Having;

(e) Wherein;

(f) Characterised by;

Of these terms some are open ended, such as 'comprising' which means that if the claim contains three elements 'A', 'B' and 'C' it would still be an infringement for someone to add a fourth element 'D'.

Further some terms are close ended such as 'consisting of', i.e. in a claim of three elements, 'A', 'B' and 'C' a defendant would infringe if he has all three elements. In case the defendant adds a fourth element 'D' he would escape infringement.

(xvi) Each claim has a priority date so that in a group of claims in a specification you could have multiple priority dates. This only means that if a patent application with certain priority date and claims was followed by another application with different claims and different priority dates, then if they were consolidated or cognate with another application, each claim would retain the original priority date [Section 11(1)]."

56. For the purpose of claim construction, it is settled law that claims are to be read along with the description. In ***Bishwanath Prasad Radhey Shyam v. Hindustan Metal Industries, (1979) 2 SCC 511***, the Supreme Court laid down the following rules for construction of claims in the context of specifications:

"43. As pointed out in *Arnold v. Bradbury [(1871) 6 Ch A 706]* the proper way to construe a specification is not to read the claims first and then see what the full description of the invention is, but first to read the description of the invention, in order that the mind may be prepared for

what it is, that the invention is to be claimed, for the patentee cannot claim more than he desires to patent. In Parkinson v. Simon [(1894) 11 RPC 483] Lord Esher, M.R. enumerated that as far as possible the claims must be so construed as to give an effective meaning to each of them, but the specification and the claims must be looked at and construed together.”

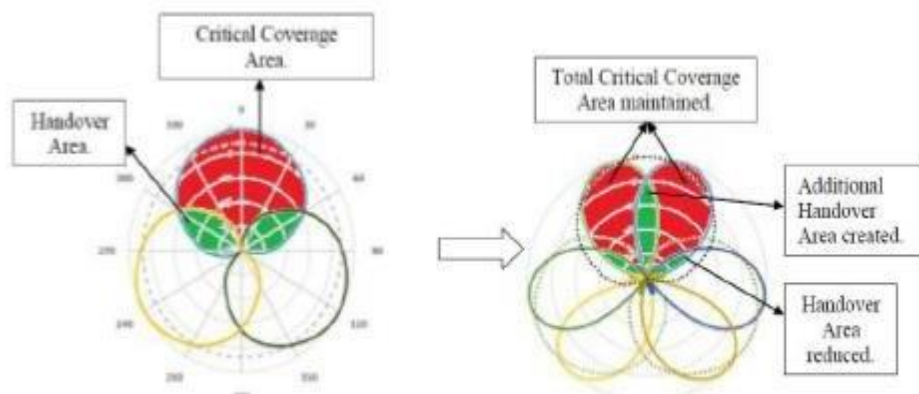
57. Coming back to the suit patent IN’893 the invention, as mapped against the relevant definitions under the Patents Act, is as follows:

“a) A fixed beam split-sector antenna (this is the new product under Section 2(1)(j)),

b) That emits those split-sector beams, at least one of which is asymmetrical, which maintain substantially equivalent critical coverage area as of the earlier sector antenna that was being used in the industry (this is the inventive step under Section 2(1)(ja)),

c) This new split-sector antenna of IN240893 can be used to increase subscriber capacity in a sectorized cellular communications network, which was otherwise a problem with prior art/earlier antennas (this is the industrial application under Section 2(1)(ac)).”

58. The inventive step of IN’893 as diagrammatically represented by the counsel for the Plaintiff for a better understanding reflects that total critical coverage area is maintained as a result of reduction of individual handover areas at the sector edges and sub-sector edge, maintaining substantially the same overall handover area. For ready reference, the diagram is as follows:-



Addition of one 'New Handover Area' between the newly created sub-sectors when moving from an Earlier Sector Antenna (on left) to a Split-Sector Antenna of IN240893 (on right)

59. This, according to the Plaintiff, is achieved because of reduction of the area of individual handover areas and maintenance of substantially same overall handover area, despite there being an increase in the number of handover areas, since a new handover area is created between the newly created sub-sectors. The beam patterns of the split-sector antenna used above, which are representative of the inventive concept of IN'893, are simulated on the basis of power and phase weightings disclosed in IN'893. The claims of suit patent relied upon by the Plaintiff for the purpose of infringement are Claims 1 and 10 and read as under:-

Claim 1:

“A method for increasing subscriber capacity in a sectorized cellular communications network having a plurality of subscribers and a base station supporting at least one sector, the at least one sector having an associated sector antenna at the base station having a critical coverage area extending therefrom and overlapping neighbouring sectors thereof in a sector handover zone, the method comprising the steps of:

replacing the at least one sector antenna with a split-sector antenna having a plurality of sub-sector coverage areas extending therefrom, at least one of which is asymmetrical, each corresponding to a sub-sector and overlapping a neighbouring sub-sector coverage area in a subsector handover zone,

whereby a total critical coverage area of the plurality of sub-sector coverage areas is substantially equivalent to the critical coverage area of the at least one sector antenna.”

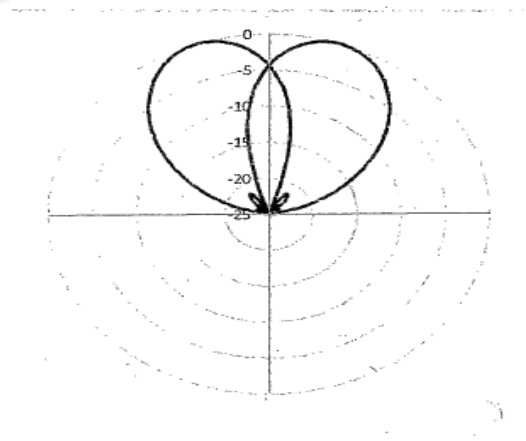
Claim 10:

“A sub-sector antenna for use in a sectorized cellular communications network having a plurality of subscribers and a base station supporting at least one sector, the at least one sector having an associated sector antenna having a critical coverage area extending from the base station and overlapping neighbouring sectors in a sector handover zone,

the sub-sector antenna being constructed and arranged for replacing the at least one sector antenna and having a plurality of sub-sector coverage areas extending therefrom, at least one of which is asymmetrical, each corresponding to a sub-sector and overlapping a neighbouring subsector coverage area in a sub-sector handover zone,

whereby a total critical coverage area of the at least one asymmetrical sub-sector coverage area is substantially equivalent to the critical coverage area of the at least one sector antenna being replaced.”

60. As can be seen, the invention is a “fixed beam split-sector antenna” that emits those split sector beams, at least one of which is asymmetrical, which maintains substantially equivalent “critical coverage area” as of the earlier sector antenna that was being used in the industry and the invention in the antenna is used to increase subscriber capacity in a sectorized cellular communications network. The embodiment is one which can be industrially applied. Claim 10 claims the product, i.e. sub-sector antenna, while Claim 1 of IN’893 discloses the method of increasing subscriber capacity using such a sub-sector antenna. The beam patterns of the split-sector antenna are simulated on the basis of power and phase weightings. A non-limiting polar plot of the asymmetrical beam pattern, which is characteristic of Plaintiff’s invention, is as follows:



61. The above beam pattern can be simulated and reproduced by any person skilled in the art by using the power and phase weightings. In answer to Question No.268, D1W1 agreed with the correctness of the right beam and in response to Question No.278 agreed that the left beam could

be simulated by any person having basic knowledge of tools. Relevant it is to note that Plaintiff does not claim any invention in any process for creating asymmetrical beams using any specific power and phase weightings.

62. As per the complete specification, the invention relates to network planning and in particular, to improve sector capacity in an established network without creating coverage poles. Embodiments of the present invention are:-

- (a) A method for increasing subscriber capacity in a sectorized cellular communications network having a plurality of subscribers and a base station supporting at least one sector, the at least one sector having an associated sector antenna at the base station having a critical coverage area extending therefrom and overlapping neighbouring sectors thereof in a sector handover zone, the method comprising the step of:

Replacing the at least one sector antenna with a split-sector antenna having a plurality of sub-sector coverage areas extending therefrom, at least one of which is asymmetrical, each corresponding to a sub-sector and overlapping a neighbouring sub-sector coverage area in a sub-sector handover zone,

whereby a total critical coverage area of the plurality of sub-sector coverage areas is substantially equivalent to the critical coverage area of the at least one sector antenna.

- (b) A method according to claim I, wherein the number of subscribers that may be serviced in the at least one sector being replaced may be increased.

- (c) A method according to Claim 1, further comprising the step of allocating different control resources to neighbouring sub-sector coverage areas.
- (d) A method according to Claim 1, further comprising the step of allocating a common control resource to sub-sector coverage areas, each neighbouring a third sub-sector coverage area having a different allocated control resource.
- (e) A method according to Claim 1, further comprising the step of implementing automatic frequency planning to derive an optimal frequency plan for all coverage areas.
- (f) A method according to Claim 1, further comprising the step of allocating to the at least one sector antenna a task of broadcasting control information.
- (g) A method according to claim 6, further comprising the steps of transferring the task of broadcasting control information to the split-sector antenna and of removing the at least one sector antenna.
- (h) A method according to Claim 1, further comprising the step of allocating to the split-sector antenna a task of handling traffic from at least one of the subscribers.
- (i) A method according to Claim 1, wherein each of the plurality of sub-section coverage areas comprises two asymmetrical sub-sector coverage areas.
- (j) A sub-sector antenna for use in a sectorized cellular communications network having a plurality of subscribers and a base station supporting at least one sector, the at least one sector having an

associated sector antenna having a critical coverage area extending from the base station and overlapping neighbouring sectors in a sector handover zone, the sub-sector antenna being constructed and arranged for replacing the at least one sector antenna and having a plurality of sub-sector coverage areas extending therefrom, at least one of which is asymmetrical, each corresponding to a sub-sector and overlapping a neighbouring sub-sector coverage area in a sub-sector handover zone, whereby a total critical coverage area of the at least one asymmetrical sub-sector coverage area is substantially equivalent to the critical coverage area of the at least one sector antenna being replaced.

- (k) A sub-sector antenna according to Claim 10, wherein the critical coverage area of the sector antenna being replaced is symmetrical.
- (l) A sub-sector antenna according to Claim 10, wherein the number of asymmetrical sub-sector coverage areas is a multiple of 2.
- (m) A sub-sector antenna according to Claim 12, wherein at least some of the asymmetrical sub-sector coverage areas comprise pairs and a first member of a first pair is substantially a mirror image of a second member of the first pair.
- (n) A sub-sector antenna according to Claim 10, wherein a sub-sector handover zone is substantially equal to a sector handover zone.
- (o) A sub-sector antenna according to Claim 10, wherein the sector antenna being replaced has a half power beam width of approximately 65° .

- (p) A sub-sector antenna according to Claim 15, wherein the sub-sector antenna generates two asymmetrical coverage areas each having a half power beam width of approximately 33°.
- (q) A sub-sector antenna according to Claim 10, wherein the sector antenna being replaced has a half power beam width of approximately 90°.
- (r) A sub-sector antenna according to Claim 17, wherein the sub-sector antenna generates two asymmetrical coverage areas each having a half power beam width of approximately 45°.
- (s) A sub-sector antenna according to Claim 10, wherein the sector antenna being replaced has a half power beam width of approximately 105°.
- (t) A sub-sector antenna according to Claim 19, wherein the sub-sector antenna generates two asymmetrical coverage areas each having a half power beam width of approximately 53°.
- (u) A sub-sector antenna according to Claim 10, wherein the sector antenna being replaced has a half power beam width of approximately 120°.
- (v) A sub-sector antenna according to claim 21, wherein the sub-sector antenna generates two asymmetrical coverage areas each having a half power beam width of approximately 60°.
- (w) A sub-sector antenna according to Claim 10, wherein the sector antenna generates minimal side lobes associated with each asymmetrical sub-sector coverage area.

- (x) A sub-sector antenna according to Claim 10, further comprising a passive network for implementing the at least one asymmetrical sub-sector coverage area.
- (y) A sub-sector antenna according to Claim 10, further comprising an active network for implementing the at least one asymmetrical sub-sector coverage area.

63. Background of the invention sets out the first limitation that the frequency spectrum is a scarce resource, which should be efficiently used. For a finite amount of spectrum, there is an upper bound on the number of subscribers that can be simultaneously served. To increase the number of subscribers, multiple access techniques, such as FDMA, TDMA, CDMA etc. have been introduced in the past. The second limitation set out is the finite transmission power that results from overcoming implementation and propagation losses between a transmitter and a receiver, which shows that communication range is a finite range. To overcome the limitations, cellular concept was introduced for wireless systems. To cover a large area, available resources are used for a small coverage area called a cell and the expected number of subscribers will increase in proportion to the increase in the number of the cells. Initially, in the cellular concept an omni-antenna, which was located in the centre of a circular coverage area/cell was used and this antenna was the one which emitted signals uniformly in a single plane in all directions i.e. in a 360-degree coverage area, which can be compared with an area covered by the 'ripple effect' created by perpendicularly dropping a pebble in water. However, this had its limitations as the intensity of the network signal was not satisfactory/sufficient in the outer fringes of the coverage area and this

resulted in call drops. Further, capacity of the antenna system to serve cellular subscribers was limited due to unrestricted spill-over of signals in all directions, which impacted the signal strength received by and available to each user.

64. To overcome the above limitations, concept of sectorization was introduced wherein instead of using a single omni-directional antenna, the same cell was divided into a number of sectors through use of a number of directional antennas. Through this method, not only the available signal strength was more per user but there was more focussed intensity of the signal in the cell. In other words, the directional/sector antenna divided the original cell into a number of sectors, restricting the coverage of each antenna to a fixed limited area. As the demand in networks started growing, adding more sectors, either by adding additional antennas or using multibeam/split-sector antennas was seen as a simple way of increasing capacity without new sites, however, the symmetrical nature of the beam proved to be a limitation. As new sectors were added, a greater than desirable area of overlap between the sectors was created and this was an 'area of interference' and 'indeterminate dominant signal'. Therefore, the prior art failed to provide an acceptable solution that could simultaneously offer: (a) reduced overlap area; and (b) maintenance of the original critical coverage area. Additionally, creation of an entire new sector entailed installing new conventional antennas on telecom towers which was investment-intensive without resulting in increased spectral efficiency/subscriber capacity.

65. The purpose and accomplishments of patented invention as set out in the 'summary of the invention' are as follows:-

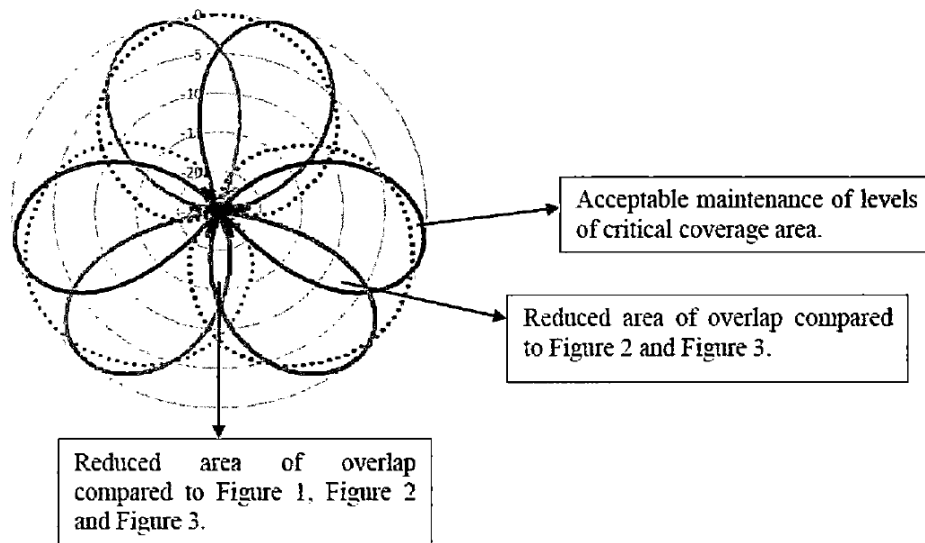
“Accordingly, it is desirable to provide an antenna with beam patterns that are tailored for specific sector coverage.

It is further desirable to provide an antenna that can permit load balancing through the addition of capacity only where needed.

The present invention accomplishes these aims by replacing a single sector coverage area with at least one coverage area, at least one of which is asymmetrical. The use of asymmetrical coverage areas permits the total coverage area to closely approximate the symmetrical sector coverage area being replaced, without creating excessively large sub-sector handover zones or introducing severe degradation in the network performance.”

66. PW1 deposed that the distinguishing feature of IN’893 was that its beams have an asymmetric beam pattern/shape, which radically alter the conventional model of symmetric sectorization. IN’893 advantageously uses such optimized asymmetrical beam shape/pattern to enhance spectral efficiency and increase subscriber capacity. The optimized asymmetrical shape significantly reduces the overlap region between the beams and is able to maintain the critical coverage area level of the replaced antenna despite the increase of at least one more handover area. The asymmetrical shape reduces the amount of interference by directing energy into the critical coverage area. By maintaining the critical coverage area of the sector, network changes in terms of surrounding sector orientations and settings are avoided because of the maintenance of the original tessellation at network level.

67. PW1 also deposed with respect to the non-limiting polar plot of the asymmetric beam pattern, which is the characteristic of the patented invention and was represented as follows:-



68. This figure was extracted in paragraph 41 of his affidavit and PW1 deposed as follows:-

“42. I state that the right beam represented above is produced using the critical power and phase weightings mentioned in the Impugned Patent, and has been modeled using a tool based on a commercial package (Matlab) simulation, using typical values for the 1800 MHz frequency band. The described pattern can also be produced and optimized in a variety of ways.

43. For completeness, I may add that in order to produce the left beam represented above (which is a mirror image of the right beam), the beam designer has to simply apply a second set of inputs to the same elements but with reverse phase and column settings using diplexers/combiners or any similar techniques such as Butler matrix type combining network, etc., as known to any person skilled in the art. In the embodiment of the Impugned Patent, where only one of the beams is asymmetrical, while the other is symmetrical, any person skilled in the art would know how to produce such symmetrical beam, with the combining networks/techniques as stated above.”

69. D1W1 in response to Question No. 365 accepted this as a correct simulation based on power and phase weightings disclosed in IN’893. This figure demonstrates that introduction of asymmetrical beams allows close approximation of: (i) the critical coverage area of the replaced/old sector antenna with; (ii) the critical coverage area of the replacing/new subsector

antenna, along with minimum overlap. The beam pattern can be simulated and reproduced by any person skilled in the art by using the power and phase weightings provided in the specification of IN'893. In response to Question No.268, D1W1 agreed with the correctness of the right beam as shown in the aforesaid figure and in response to Question No.278, he also agreed that the left beam could be simulated by any person having basic knowledge of tools such as Matlab based on the disclosure in IN'893 itself. Relevant evidence is as follows:

“Q.268 Were you satisfied with the correctness of the simulation of the right beam, as reproduced in paragraph 41 of the affidavit of PW1 as compared to what you say to have simulated in response to question No. 267?”

A. Yes.

... ..

Q.278 I put it to you that the left beam reproduced in the affidavit of PW1 is a simulation that could have been carried out by any person having knowledge of array antennas and the basic knowledge of tools such as Matlab by simply reversing the settings outlined in IN240893. Do you agree?”

A. Yes.”

70. I may now come to the claim construction of the terms in Claim 1 and Claim 10 for the purpose of infringement analysis as follows:

Sector Antenna

- (a) Given that 65-degree antennas were typically used in prior art in traffic areas, such as urban and suburban areas where capacity was required to be increased and interference was needed to be controlled, the term “*sector antenna*”, which is stated to be replaced in IN'893 (*and whose critical coverage area is substantially maintained*), would be a typical 65-degree antenna covering approximately a 120-degree sector. This claim construction is

supported by White Paper, titled “MIMO and Smart Antennas for 3G and 4G Wireless Systems”, which was released by a consortium of leading manufacturers of wireless equipment and service providers. DIW1 agreed with this claim construction during his cross-examination as follows:

“Cross examination of DIW1

Q.319 Is it correct that the urban and suburban sites carry the most traffic and are most at risk of congestion i.e. they are capacity sites?

A. Yes.

Q.321 Referring to the portion of the White Paper (Exhibit PW1/2), which has just been marked ‘B to B’, would you agree that predominantly the vast majority of antennas used in urban and suburban areas are 65-degree (azimuth) antennas?

A. Yes.

Q.323 Do you have any reason to believe that India does not follow the position described in question No. 321 above?

A. No.

Q.324 I put it to you that a person skilled in the art having technical and commercial knowledge of cellular base station antennas and their deployment would know that the optimal use of a 65-degree (azimuth) antenna would be in traffic areas where interference, needs to be controlled, such as urban and suburban areas, and this has been the default deployment model of the cellular industry for several years. Do you agree?

A. Perhaps.

Q.325 Do you have any reason to disagree with the suggestion put to you in question No. 324?

A. No.”

- (b) PW1 in his affidavit categorically stated that 65-degree antennas were used for building and maintaining capacity in prior art as the *de facto standard* and maintained this position in his cross-examination as follows:-

“Cross examination of PW1

Q.205 Am I correct in understanding that the ‘Bi Sector Array Antenna’ manufactured and marketed by TenXc Wireless can only be used as a replacement for a pre-existing sector antenna, and cannot be used in a new cell site i.e. without replacing a pre-existing sector antenna?

A. Technically from a design perspective they are one and the same. To design the Bi-Sector Array into a new network the assumption within the planning tool is that a three sector footprint is being defined. The composite coverage of the Bi-Sector Array type antennas is that of a 65 degree antenna and hence the same planning rules using 65 degree antennas stand with respect to site to site distances. In lay-man terms, the interim step of removing an existing 65 degree antenna and replacing with a Bi-Sector Array is carried out within the planning process but is skipped in the implementation world.

Q.262 Given your response to question No. 261, and the fact that by your own admission, you have no information regarding antennas that have been / are being replaced by Defendant Nos. 2 & 3 using Defendant No.1’s product, please explain the basis for your conclusion that implementation of the allegedly infringing product by Defendant Nos. 2 or 3 would necessarily have to satisfy the Claim 1 limitation of equivalence with coverage are a provided by an antenna being replaced?

A. It is not my conclusion that implementation of the allegedly infringing product by Defendant Nos. 2 or 3 would necessarily have to satisfy the Claim 1 limitation of equivalence with coverage area provided by an antenna being replaced. Question No. 261 and the answer were asked in purely general hypothetical form. I spent the best part of 4-5 years working in the Indian market, the antennas used by Defendant Nos. 2 & 3 are no different to those found in other markets around the world. During this time, I had access to extensive data during the field trials. At times I have had in my possession the whole of the cell site plans for individual circles for each of the above operators. Based on this information, these antennas are almost without exception of a type that could be upgraded by antennas such as Defendant No.1 ‘s which I have shown to be same as those described as shown in IN240893.

Q.475 Please see paragraph 26 of your affidavit. On what basis do you state that the industry had concluded that three sector sites mentioned in this paragraph was the most cost effective way of building and maintaining capacity?

A. Paragraph 26 of my affidavit is based on the fact that without exception, I know of no network in the world that has not been built in this manner and that is based on my extensive knowledge of networks

worldwide. The concept of 65 degree tessellated clover-leaf pattern is well documented and is available in every basic textbook on this subject.

Q.476 What do you mean by “industry had concluded” as mentioned in paragraph 26 of your affidavit? Was there any collective decision or resolution?

A. Historically in approximately 1988 there was a landmark paper written by AT&T that compared the merits of the different methods known as “clover-leaf and” centre illuminated”, the latter being used extensively in the Scandinavian systems (Ericsson, Nokia). The conclusion of the study was that tessellated 65 degree networks outperformed centre illuminated and hence since this time it has become standard to use tessellated 65degree networks. There was no conscious decision by the industry to do so, only that this had technical advantages and soon became the de facto standard.”

(c) Even in the counter claim, PW1 maintained the position that use of 65-degree antennas was the *de facto standard* in prior art for capacity sites and the undisputed position that emerges is that the ‘sector antenna’ that would be ‘replaced’ by antennas covered by IN’893 would typically be 65-degree antennas and relevant cross-examination is as follows:-

“Cross examination of CC-RW1 (PW1 who appeared as CC-RW1 in the counter claim)

Q.32 Referring to internal page 5 of the Specification, last paragraph, where N has been taken as 3, the Specification suggests that as of the priority date half power beam width of 65 degrees were typically used. Can you please elaborate upon the reasons for deploying such 65 degree half power beam width beams?

A. In the late 1980s, there were two competing deployment methods for N=3 sites. The North Americans favoured a 105 to 120 degree 3 dB beam width sectors which provided maximum coverage for a site. This came to be known as the “AT&T system”, or “centre illuminated”. Ericsson proposed an alternative arrangement where sites would tessellate/interlock, such that narrower beam antennas i.e. 60 to 65 degree 3 dB beam width would be used. The Ericsson system proved to have better capacity and better coverage for dense urban and suburban deployment. This became known as “clover-leaf or” corner illuminated”. The Ericsson method became the defacto standard for ‘N=3’ deployments for urban and suburban areas.

Q.203 Can you please identify the best mode (in your opinion) to practise the Invention?

A. The first aspect of the Invention is a method which I think is self-explanatory in that the examples shown relate to upgrading standardized 65-degree tri-sectored sites. In terms of the sub-sector antenna, the Specification provides phase and weightings that result in an antenna beam, that is able to implement the method described.

Therefore, given this de facto standard of the prior art, the ‘sector antenna’ that would be ‘replaced’ by antennas covered by IN240893 would typically be 65-degree antennas. In response to Question No.203. CC-RW1 described this as the ‘best mode’ to practise IN240893.

- (d) Be it noted that Defendant No.1 did not lead evidence of any witness of fact to deny the standard practise of the industry as on the priority date of IN’893 as regards the antennas being used or on the point that the ‘sector antenna’ that would be ‘replaced’ by Antennas covered by IN’893 would not typically be 65-degree antennas. Therefore, the claim construction given for the term “Sector Antenna” is supported by: (i) the text of IN’893; (ii) the consensual state of the art reflected in the White Paper; (iii) evidence led by Plaintiff; (iv) evidence led by Defendant No.1; (v) other prior arts that were attempting to provide solutions to similar problems; and (vi) the industry that was using antennas covered by IN’893.

Replacement

- (a) PW1 deposed that step of “replacement” contemplated in the claims of IN’893 can be both actual/physical replacement on an existing site (brownfield sites) as well as an actual/physical replacement on a new site (greenfield sites) where a 3-sector tessellated site has been built-out in a network planning tool. No contrary evidence was led by Defendant No.1. Deposition of PW1 in this regard is as under:

“Cross examination of PW1

Q.205 Am I correct in understanding that the ‘Bi Sector Array Antenna’ manufactured and marketed by TenXc Wireless can only be used as a replacement for a pre-existing sector antenna, and cannot be used in a new cell site i.e. without replacing a pre-existing sector antenna?

A. Technically from a design perspective they are one and the same. To design the Bi-Sector Array into a new network the assumption within the planning tool is that a three sector footprint is being defined. The composite coverage of the Bi-Sector Array type antennas is that of a 65 degree antenna and hence the same planning rules using 65 degree antennas stand with respect to site to site distances. In lay-man terms, the interim step of removing an existing 65 degree antenna and replacing with a Bi-Sector Array is carried out within the planning process but is skipped in the implementation world.

Q,206 Are you therefore saying that the Bi-Sector Array Antenna can be used to set up a physical cell-site where no earlier antennas are present and which therefore would need to be replaced?

A. The Bi-Sector Array Antennas can be used directly in a greenfield design. However, to use such antennas the site to site footprint is the same as the three sector design. In essence, the replacement occurs purely in a planning tool.

Q.207 Is there any reason why Defendant No.1’s antennas cannot be used in a greenfield site?

A. The same answer as above. They can be used in a green field site with the same planning explanation as above i.e. the replacement is carried out at the planning stage as the site to site foot prints are governed by the replaced three sector distance. In a greenfield situation we are simply missing out a step.

Q.467 When you use the expression “replacing” in sub para 2 of Claim No.1, are you referring to physical replacement of the antenna in a working cell site?

A. The replacement can be seen as physical or it can be entirely within the process of planning the site i.e. where the replacement takes place purely within the planning tool domain.”

(b) D1W1 has not given any contrary evidence in his examination-in-chief or during cross-examination and did not challenge the claim construction. Defendants only sought to argue that the replacement

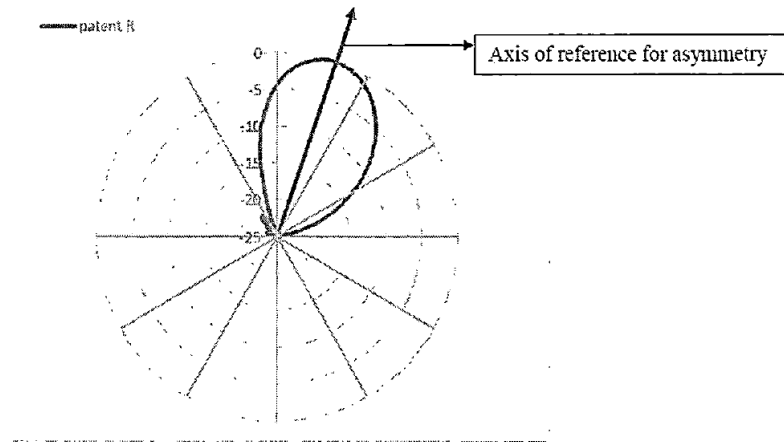
in the Plaintiff's invention is also physical in nature and there can be no notional replacement. This position has been dealt with by Coordinate Bench of this Court in *Communication Components Antenna Inc. (supra)*, albeit the order dated 12.07.2019 was an interim order and it was held as follows:-

“61. Relying on the above, the Defendants seek to argue that the replacement sought to be made by the Plaintiff's invention is physical in nature, per its own admission before the European Patent Office, and thus, Plaintiff is estopped by statute to contend 'notional replacement' in India. Clearly, the manner in which this is being construed by the Defendants is incorrect.

62. A patent claim cannot be read in such a literal manner. The purpose of this sub-sector antenna, is set out in the claim - replacement would be physical, but it does not mean that only existing Antennas have to be replaced. The use of a new sector antenna with an asymmetrical sub-sector coverage area would also be covered as it would still be an antenna where one of the sub-sector coverage areas has been replaced, from a symmetrical one to an asymmetrical one. The replacement relates to physical replacement within an antenna, and not the manner in which the Defendants seek to interpret it. Replacement is used in the context of the purpose for which the sector antenna having a sub-sector coverage area which is symmetrical is being replaced with a sector antenna which has sub-sector coverage area which is asymmetrical. Thus, any telecommunication network wherein a sector antenna which has an asymmetrical sub-sector coverage area is used would be clearly attracted. The difference, thus, sought to be urged between brownfield and greenfield use is based on a misinterpretation of the claims.”

Asymmetrical Beam Patterns

- (a) In order to ascertain whether an antenna has an asymmetrical coverage area, one has to examine the beam patterns. Asymmetry of the beam contemplated by IN'893 is along a line of reference passing through the peak gain point of the main beam in the horizontal plane as under:-



(b) In this context, the deposition of PW1 during cross-examination was as follows:-

“Q.85 What is the context of symmetry, or for that matter asymmetry in IN240893, the question following from the first sentence in your answer to question No. 84, could you kindly draw my attention to the passages that contextualize symmetry or asymmetry?”

A. The context of symmetry within IN240893 is about an axis about the direction of peak gain. A person skilled in the art would derive this interpretation from the review of Figures 1 and 2 as a minimum. The supporting text as a descriptive to Figures 1 & 2 clearly point to Figure 1 being symmetrical and Figure 2 being asymmetrical. Anybody skilled in the art would see the lines of symmetry immediately within the beams with no need for any further explanation.”

(c) D1W1 during his cross-examination in the counter claim stated as follows:-

“Q.15 Do you agree that the asymmetry shown in the figures of IN240893 is along/about the peak gain direction of the main beam in the azimuth plane, which is also the same way that asymmetry would be apparent from the beam pattern produced from the power and phase weightings mentioned in IN240893?”

A. Yes.”

(d) D1W1 agreed that the beam patterns produced from the power and phase weightings provided in IN’893, which were put to him in

Exs.D1W1/P13 and P17, were two asymmetrical sub-sector beams.

Relevant questions are as under:-

“Q.336 I put it to you that if the beam pattern that you state to have simulated in response to question No. 267 (as also reproduced in paragraph 41 of the affidavit of PW1), were reproduced over a full 6-sub-sector configuration for being deployed on a full site to provide 360-degree coverage, the patterns would look like the patterns shown in the document handed over to you right now. Do you agree?

A. Yes.

Q.365 I put it to you that if (a) the beam patterns shown in Exhibit DI-WI/PI4 are overlaid on (b) the beam patterns shown in Exhibit DI-WI/P13. the overlays would look like the pattern shown in the document handed over to your right now (the 65-degree patterns shown in dotted lines and the patterns from Exhibit DI-WI/P13 shown in bold lines).

Do you agree?

A. Yes.”

- (e) PW1 deposed that coverage area is mathematically related directly to the beam pattern and D1W1 corroborated and agreed that coverage area can be calculated from the beam patterns. Therefore, technical witnesses of both parties were *ad idem* on this position and relevant depositions of PW1 and D1W1 are as follows:-

Cross-examination of PW1:

“Q.266 Does every antenna within a cellular network has identical or substantially equivalent sector coverage areas?

A. *Every antenna of the same make and model number has essentially the same beam pattern. The coverage area attained from these identical beam patterns will be unique to each and every site. Each coverage area however, is mathematically related directly to the beam.*

Q.267 Please answer the question. I am not asking you whether antennas of the same make and model number have the same beam pattern. The question is whether every antenna within a cellular network has identical or substantially equivalent sector coverage areas?

A. *The sector coverage area attained from each antenna will be unique to each and every sector. Therefore, no two sectors will have*

the same identical coverage even from similar antennas, towers, etc. Each coverage area however, is mathematically related directly to the beam.

Q.268 Can you please briefly describe the features or parameters of a telecommunication antenna that would be determinative of (i) the shape of the beam generated by the antenna and (ii) the coverage area of the beam?

A. So the shape of the beam is a function of the element design and the horizontal beamforming network. The beam that is expressed or described in terms of radio energy emission in the horizontal plane surrounding the antenna. The resulting coverage of the beam is now a function of this radio energy emission in each direction plus a complicated interaction of this radio energy with real world features such as terrain and buildings. For simplicity, when comparing antennas, the simplest coverage is presumed to be proportionate to the beam in every direction. In a real world situation, the coverage in each direction is unique but predictable.”

Cross examination of DIW1:

“Q.294 Is it correct that the horizontal coverage area of any sector can be calculated from the horizontal beam pattern of an antenna?

A. Yes.”

- (f) Therefore, the consistent position that emerges is that coverage area can be calculated from the beam patterns. The beam patterns produced from the power and phase weightings provided in IN’893 are 2 asymmetrical sub-sector beams. IN’893 does not claim any and every asymmetrical beam shape or pattern but an optimized asymmetrical beam pattern, capable of achieving the objects of IN’893. D1W1 agreed with the claim construction that ‘split-sector antenna’/‘sub-sector antenna’ refers to any multi-beam antenna, which produces by any means whatsoever, fixed asymmetrical beams. Both sides agreed that claims of IN’893 have no limitation as regards the design of the fixed beam sub-sector antenna. Deposition of PW1 in this regard is as follows:-

“Q.89 In paragraph 76 of your affidavit, when commenting on scope of the Impugned Patent, you state “the means employed to induce asymmetry, or the degree of asymmetry induced by such means, is not a limitation of the Impugned Patent, as long as the beam shape / pattern is deliberately made asymmetrical, and optimized ...”. Is it therefore correct to understand your position to mean that the claims asserted by the Plaintiff cover all embodiments of asymmetric beams regardless of the degree of asymmetry, provided such beams meet the remaining qualifications expressly recited in the asserted claims?”

A. Yes I would agree broadly that this is a correct interpretation of paragraph 76 of the affidavit. (Volunteered responsive to request from counsel for Defendant No.1 to clarify the term “broadly” used above)

The Impugned Patent describes a particular usage of the feature of asymmetry without reference to the degree of asymmetry. The Impugned Patent describes the method in which asymmetry can be used to enhance the capacity of a network and describes an antenna design and function needed to achieve the same method. So, my interpretation is that any antenna employing asymmetry in the way described within the Impugned Patent and such antennas being used in the same method as within the Impugned Patent would obviously fall under the Impugned Patent.

Q.90 To clarify then, is it your position that the degree of asymmetry does not limit the scope of the claimed invention because the claims do not recite any specific degree (or range of degrees) of asymmetry.

A. Correct. The degree of asymmetry within the bounds of the Impugned Patent is not limited. This is very different from claiming that all asymmetry falls under the Impugned Patent. It is the use of asymmetry in a particular way to produce an optimized antenna. The Impugned Patent describes the resultant beam pattern in detail. So without naming the degree of asymmetry there is some limitation, or there are some boundaries, as shown in the pattern described.

Q.91 So if I understand you correctly, in interpreting the scope of the invention claimed in the Impugned Patent, your position is that if the claims recite a feature (in this case, asymmetry) that covers multiple embodiments (in this case, all degrees of asymmetry), but does not specifically limit itself to one or more of these embodiments (in this case, one or more ranges or specific degrees of asymmetry), the claim would have to be interpreted as covering all such embodiments (in the present case, all degrees of asymmetry)?

A. With respect, I think that this is an interpretation of patent law which I am not an expert on. Can you be a little bit more specific?

Q.92 To clarify, I am asking you whether when interpreting the scope of the claimed invention, your approach to interpretation is that limitations (such as degree of asymmetry) cannot be used to narrow the scope if such limitations are not recited in the claims.

A. My approach in interpretation is that the Impugned Patent does not invent asymmetry. It uses asymmetry as a feature of optimization to create a specific function to solve a specific set of problems. Hence, my interpretation is it covers the use of asymmetry as a function in the same way as described in the patent using it to solve the same problems as described in the patent. There is a significant danger I see in taking asymmetry out of context.

Q.93 Referring to your answer to question No. 92, are you saying that antennas capable of generating asymmetric beams may have been previously known, but it is the use of such asymmetry / asymmetric beams / asymmetric antennas to solve a specific set of problems that is the inventive contribution for IN240893?

A. Partially correct. In referring to asymmetric beams, the first caution is these can cover very wide range of functions. The technical function of applying asymmetry as described in the patent IN240893 is very narrow in its focus and relate purely to the application or optimization of asymmetry in the horizontal plane of the main beam of the antennas. Within this narrowed scope of the application of asymmetry, the state of the art at the time of IN240893 authorship would have directed anyone skilled in the art away from its application. Asymmetry within the horizontal plane of the main beam had been clearly identified as a distorting effect and was seen as a disadvantage. This is really confirmed by the fact that not a single antenna that was not symmetrical in nature was in use within the cellular domain at this time.

Q.94 So, to confirm, is it your position that (i) antennas exhibiting asymmetry in the horizontal plane were known but were considered disadvantageous and (ii) therefore the surprising inventive contribution of IN240893 was the use of such antennas to solve the narrow problem of network optimization?

A. The answer to S. No. (ii), IN240893 does not use any existing antennas known in the prior art. It creates anew antenna class by exploiting asymmetrical shaping to enhance the performance of the new antenna to solve the set of problems.

The answer to S. No. (i), once IN240893 has established the use of asymmetry as a positive function and building block, with hindsight antennas that had some degree of asymmetry do become apparent.

This degree of asymmetry and/or the application of asymmetry as used/described in IN240893 was never a feature of these antennas, it is only with hindsight that any asymmetry in these antennas is detectable.

Q.133 Please identify in Claim 1 of 04240893 (Exhibit PW1/8) any limitation specifying a minimum degree of asymmetry?

A. The degree of asymmetry is not the limitation of the patent and hence is not included in the Claim 1.

Q.134 Please identify in any of Claims 10, 12 or 13 of IN240893 (Exhibit PW1/8) any limitation specifying a minimum degree of asymmetry?

A. The degree of asymmetry is not a single aspect of the claims within the patent and hence to try and take the single sentence out of context is incorrect. The patent is not trying to claim each and every degree of asymmetry.”

Critical Coverage Area

- (a) “Critical coverage area” means the coverage area of a beam excluding/minus the overlap area/handover areas. D1W1 agreed with this claim construction during his cross-examination in the counter claim as follows:

“Cross examination of CC-PW1

Q.60 I put it to you that the term “critical coverage area” is the coverage area of a beam excluding (or not including) the areas of overlap of beams between sectors.

A. I have no objection to this definition provided the carrier in question is dominant.

Q.146 ‘Soft handoffs’ between beams of two adjacent sectors refers to the handover area between two beams of two adjacent sectors within one cell, correct?

A. Yes.

Q.147 If the soft handoff is increased, the critical coverage area would decrease, correct?

A. Yes.

Q.276 Referring you to your response to Q. No. 60, is it correct that in the case of two overlapping beams (either sector beams or sub-sector beams), each of the carrier/beam is dominant in the non-overlapping area of two beams? Yes or no?

A. Yes.”

(b) PW1 deposed as under on this claim construction:-

“Cross examination of CC-RW-1

Q.73 What is the difference between coverage area and critical coverage area in IN240893?

A. The simplest way to understand is that the coverage area of a sector equals the critical coverage area plus the handover area.

Q.74 Has this been explained in the Specification?

A. It is certainly obvious to a person skilled in the art as critical coverage area is referenced as being additional to the handover area in the Specification.

Q.76 To what do the words “... extending therefrom and overlapping neighbouring sectors thereof in a sector handover zone ...” refer to in the passage mentioned in question No. 75?

A. The term “extending therefrom” is attached to the term “critical coverage area” and therefore the logical conclusion is that this is the first coverage area emanating from the centre of the base station i.e. “extending therefrom” thereof relates to the overlapping neighbouring sectors of the handover zone. My reading is that these are the two separate areas. It is commonly known within the industry that coverage area can be dominant and non-dominant and hence, the concepts fit the common knowledge if not using the same terminology.

Q.77 Therefore in view of your answers to question Nos.75 and 76 the critical coverage area as mentioned in the last paragraph of internal page 7 of the Specification, does not extend and overlap neighbouring sectors. Is this correct? Please answer in Yes or No, first.

A. Yes. The critical coverage area certainly extends from the base station outwards, but it does not include the non-dominant overlap area i.e. the handover zones of the overlap neighbouring sectors.

Q.145 Following from question No.144, in the Whereby Clause of Claim No.1, would “total critical coverage area of the plurality of sub-sector coverage areas” include, as part of the aggregate, the at least one asymmetrical coverage area referred to in the clause-paragraph starting with “replacing” (hereinafter, the “Replacing Clause”) in Claim No.1 of IN240893?

A. No. The critical coverage area has been interpreted and defined as being a part of the coverage area but excluding the handover area. The portion of the claim in the Replacing Clause does not mention the critical coverage area directly but refers to the coverage area

directly, which would include the critical coverage area and the handover area.

Q.208 I put it to you that the term “critical coverage area” has been coined by the Plaintiff/Respondent No.1 and is not a term common in the art. Do you agree?

A. The term “critical coverage area” was certainly named by the Inventors to draw attention to the dominant coverage area separate from the handover/overlap coverage area within a beam’s footprint. In the White Paper (Exhibit PW1/2) the author describes the beam shaving optimal overlap. Such a term can only be interpreted as a balance between dominant area and nondominant area i.e. the optimal balance between the critical coverage area and handover area. So, although I agree that the term “critical coverage area” was introduced in IN240893, the concept is well-known i.e. that of dominant coverage area.”

- (c) On the interplay between “critical coverage area” and “handover area”, D1W1 in response to Question No.27 stated that “*increase in the handover portion of the beam reduces the critical coverage area*” and therefore understood that they were inversely proportional. Witness also agreed that if the soft handoff is increased, the critical coverage area would decrease. With this interplay in mind, D1W1 deposed as under:-

“Q.182 So the total handover area of Sevan’s sub-sector beams including the handovers with the neighbouring sectors on either side, would be more than the total handover area of the beams that Sevan replaces?

A. Yes.

Q.183 Is it correct, therefore, that the critical coverage area of Sevan’s sub-sector beams would be less than the critical coverage area of the beams that Sevan replaces?

A. Yes.”

- (d) Plaintiff’s witness also deposed that maintenance of critical coverage area necessarily and inherently results in reduction in handover area as follows:-

“Q.168 Is it therefore correct to understand that in Claim 1, the term “substantially equivalent” has been used to signify that the coverage area of the replacement asymmetric sub-sector antenna matches the coverage area /beam footprint of the antenna being replaced, as closely as possible?”

A. I would clarify that the interpretation of critical coverage area is the dominant coverage area of the beams either replaced or the subsector replacing it. In the concept of IN240893 the replacement of the dominant areas is not exact on a perfect geographic representation in so much that an additional hand over zone is created between subsectors. However, this is compensated for by reduction in the hand over zones in the outer edges of the replaced subsectors such that the critical coverage areas before and afterwards remain essentially the same in area terms. This is as close as possible to what can be achieved.”

- (e) D1W1 stated that optimization by way of reduction of handover zones is the concept and subject matter of IN’893 in response to Questions No.163 and 155 during cross-examination. Significantly, in the counter claim, Defendant No.1 admitted that solution to the technical problem of ‘*minimizing the overlap of adjacent cells*’ is claimed in IN’893. Feature of substantial equivalence of total critical coverage area of a new sub-sector antenna with critical coverage area of replaced sector antenna necessarily leads to reduction in size of the handover areas, which is a clear feature of IN’893 because at least one additional handover area is created when a sector antenna is replaced by a split-sector antenna. This position has been noticed by this Court in *Communication Components Antenna Inc. (supra)*.

Substantially Equivalent

- (a) “Substantially equivalent” means ‘as close as possible’ or ‘almost equal’. PW1 has put forth this claim construction during his cross-examination and no other claim construction was suggested by

Defendant No.1 nor was it challenged. Relevant deposition is as follows:-

“Cross examination of PW1

Q.166 Independently worded Claims 1 & 10 of IN240893 each recite the limitation that the total critical coverage area of the plurality of sub-sector coverage areas is “substantially equivalent” to the critical coverage area of the at least one sector antenna. Please explain the manner in which you have interpreted the term “substantially equivalent”.

A. My interpretation is that the individual sub-sector critical coverage areas created, when combined or when summed, are as close as possible to the original critical coverage area. I interpret the term “substantially equivalent” to being almost equal.

Q.167 Can you please provide the maximum range of deviation that would in your understanding be considered “substantially equivalent”?

A. I would not put an absolute figure on the deviation as I said in answer to question No.166. I interpret “substantially equivalent” as being as close as possible to the original critical coverage area.”

Total Critical Coverage Area ... is substantially equivalent ... one sector antenna

(a) The feature of substantial equivalence of the total critical coverage area of the new sub-sector antenna with the critical coverage area of the replaced sector antenna, inherently and necessarily leads to reduction in size of the handover areas of the new sub-sector antenna. This is an implied feature of the claims of IN’893 because at least one additional handover area is created when a sector antenna is replaced by a split-sector antenna. This claim construction is supported by the text of the complete specification of IN’893 as follows:-

“As can be seen from a comparison of Figure 2, which shows 3 mirror-imaged pairs (210, 211), (220, 221), (230, 231) of asymmetrical sub-sector beams to replace a traditional 3 sector configuration with a 6 sub-sector configuration, the use of asymmetrical beams ensures handover region reduction by means of

the low overlaps 212, 222 and 232 of adjacent pairs of sub-sector beams (210,211), (220, 221) and (230, 231) respectively, and low overlaps between sub-sector beams of a first pair and sub-sector beams of a second pair, shown at 213, 223 and 233. This consequently reduces handover overhead for most wireless standards and results in a net capacity and throughput”.

“In both Figures 5 and 6, it may be seen that the introduction of asymmetrical beams allows close approximation of the coverage area of the conventional sector antenna being replaced, with small side lobes and minimal overlap. Because the beam patterns of the new antenna corresponding to a sector to sub-sector upgrade have largely the same overall beam pattern as the antenna being replaced, as shown in Figure 3, upgrades could be made relatively transparently with regard to network planning, resulting in more efficient use of resources”

71. D1W1 agreed during cross-examination that the subject matter of IN’893 relates to handover area optimization and any prior art that relates to handover area optimization is relevant to IN’893. Therefore, it is an uncontested position that optimization by reduction of handover zones is the basic concept of IN’893. D1W1 agreed that reduction of critical coverage area is an inherent consequence of increase in handover area. This position was proved by the Plaintiff through evidence of PW1 as under:-

“Cross examination of PW1

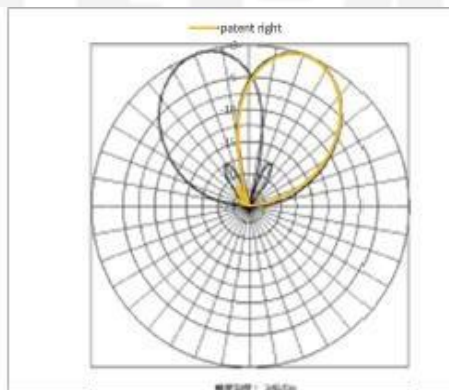
Q.168 Is it therefore correct to understand that in Claim 1, the term “substantially equivalent” has been used to signify that the coverage area of the replacement asymmetric sub-sector antenna matches the coverage area /beam footprint of the antenna being replaced, as closely as possible?

A. I would clarify that the interpretation of critical coverage area is the dominant coverage area of the beams either replaced or the subsector replacing it. In the concept of IN240893 the replacement of the dominant areas is not exact on a perfect geographic representation in so much that an additional hand over zone is created between subsectors. However, this is compensated for by reduction in the hand over zones in the outer edges of the replaced subsectors such that the critical coverage areas before and

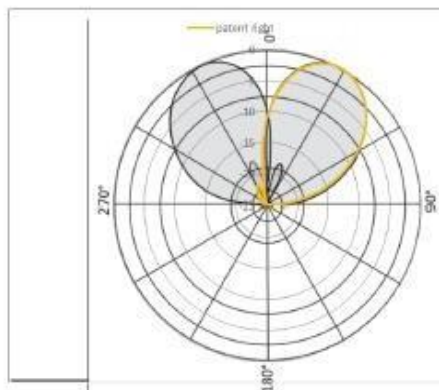
afterwards remain essentially the same in area terms. This is as close as possible to what can be achieved.”

Infringement Analysis

72. Infringement analysis of IN’893 by Defendant No.1 is based on the beam patterns of Defendant No.1’s antennas shown in the Product Brochures, which were exhibited as Ex.PW1/5 to Ex.PW1/7 and proved in accordance with Sections 65A and 65B of the Indian Evidence Act. PW1 deposed in the Evidence Affidavit that beam patterns in the Product Brochures are identical to the beam patterns produced from the power and phase weightings in IN’893. PW1 reproduced an overlay of: (a) the beam patterns produced from the power and phase weightings mentioned in IN’893; and (b) beam patterns produced in Ex.PW1/5 to Ex.PW1/7 to show the identity as under:-



Patent 'Right' (in yellow) overlaid on MB 1800-PSA4-18DE10 'Right'/MB 1800-PSA4-18DT4 'Right'



Patent 'Right' (in yellow) overlaid on MB3F-PSA4-19DE 'Right'

73. PW1 further deposed that beam shape of the infringing products gives it the feature of ‘substantially equivalence of critical coverage area’ and that they are capable of replacing the three existing 65-degree antennas in a 3-sector configuration as well as in greenfield cellular networks where three 65-degree antennas in a 3-sector configuration could have been used. Significantly, D1W1 in response to Question No.509 agreed that the polar plots of beam patterns in Ex.PW1/5 to Ex.PW1/7 show that beams patterns are asymmetric. In response to Question No.515, it was admitted that he does not challenge the fact that the beam patterns produced from power and phase weightings mentioned in IN’893 and those in the Product Brochure are ‘identical’ in shape. It was also admitted in response to Question No.380 that critical coverage area of 2 asymmetrical sub-sector beams under IN’893 are substantially equivalent to the critical coverage area of the replaced beam of a typical 65-degree antenna. In answer to Question No.396, D1W1 agreed that the Products Brochures ‘replace’ or ‘are capable of replacing’, three existing 65-degree antennas in a 3-sector configuration as well as in greenfield cellular network where the three 65-degree antennas in a 3-sector configuration could have been used. In this context, the following evidence led by the parties is relevant:-

“Cross examination of DIWI

Q.507 I put it to you that the Written Statement of Defendant No.1 does not dispute the fact that DefendantNo.1’s beams shown in ExhibitPW1/5 to Exhibit PW1/6are asymmetric. Do you agree?

A. It is a matter of record.

... ..

Q.508 I put it to you that in view of the above fact, Defendant No.1 cannot dispute that the beams shown in Exhibit PW1/7 are also asymmetric, given that they are identical to the beams shown in Exhibit PW1/5 to ExhibitPW1/6. Do you agree?

A. Yes. It is correct.

Q.509 I put it to you that a bare perusal of the polar plots of beam patterns shown in Exhibit PW1/5 to ExhibitPW1/7 shows that these beam patterns are asymmetric. Do you agree?

A. Yes.

Q.515 I put it to you that your affidavit does not challenge the fact that the beam patterns produced from the power and phase weightings mentioned in Indian Patent No.240893 and the beams patterns produced in Exhibit PW1/5to Exhibit PW1/7 are identical when rotated to the same beam pointing direction. Do you agree?

A. Yes. I agree.

Q.380 Is it correct that the critical coverage area of 2 asymmetrical sub-sector beams shown in bold lines in Exhibit D1-W1/P17 is substantially equivalent to the critical coverage area of the replaced beam shown in dotted lines? Yes or no?

A. Yes.

Q.396 Please see Exhibit D1-W1/P17. I put it to you that in view of Exhibit D1-W1/P17, any person skilled in the art having technical and commercial knowledge of cellular base station antennas and their deployment, would know the method of use and deployment of antennas shown in Exhibit PW1/5 to Exhibit PW1/7 as replacement antennas in existing cellular networks having three existing 65-Degree antennas in a 3-Sector configuration as well as in greenfield cellular networks where three 65-Degree antennas in a 3-sector configuration could have been used. Do you agree?

Per Court Commissioner

The witness was given sufficient time to answer the question.

A. Yes. I agree.

... ..

Q.449 I put it to you that Exhibit PW1/5 and Exhibit PW1/6 mention the number "65°" in their title because the antennas described therein are meant to cover the coverage area that could otherwise be covered by a 65-Degree antenna. Do you agree?

A. Yes.

... ..

Q.453 I put it to you that the antenna described in Exhibit PW1/7 is meant to cover the coverage area that could otherwise be covered by a 65-Degree antenna. Do you agree?

A. Yes.

Q.207 Is there any reason why Defendant No.1's antennas cannot be used in a greenfield site?

A. The same answer as above. They can be used in a greenfield site with the same planning explanation as above i.e. the replacement is carried out at the planning stage as the site to site foot prints are governed by the replaced three sector distance. In a greenfield situation we are simply missing out a step.

... ..

Q-262 Given your response to question No. 261, and the fact that by your own admission, you have no information regarding antennas that have been / are being replaced by Defendant Nos. 2 & 3 using Defendant No.1's product, please explain the basis for your conclusion that implementation of the allegedly infringing product by Defendant Nos. 2 or 3 would necessarily have to satisfy the Claim 1 limitation of equivalence with coverage area provided by an antenna being replaced?

A. It is not my conclusion that implementation of the allegedly infringing product by Defendant Nos. 2 or 3 would necessarily have to satisfy the Claim 1 limitation of equivalence with coverage area provided by an antenna being replaced. Question No. 261 and the answer were asked in purely general hypothetical form. I spent the best part of 4-5 years working in the Indian market, the antennas used by Defendant Nos. 2 & 3 are no different to those found in other markets around the world. During this time, I had access to extensive data during the field trials. At times I have had in my possession the whole of the cell site plans for individual circles for each of the above operators. Based on this information, these antennas are almost without exception of a type that could be upgraded by antennas such as Defendant No.1's which I have shown to be same as those described as shown in IN240893."

74. During his cross examination, PW1 also relied upon the identity between: (a) the beam patterns produced from the power and phase weightings mentioned in IN'893; and (b) beams patterns produced in the Product Brochures to establish that Defendant No.1's products have the feature of "substantial equivalence" of critical coverage area as follows:-

"Cross examination of PW1

Q.259 Based on your analysis of Defendant No.1's allegedly infringing antennas, please identify any technical feature within these antennas that would necessarily require the critical coverage areas of the sub-sectors to be substantially equivalent to a coverage area of a sector being replaced?

A. The Defendant No.1's antenna is unequivocally the same shape as the beam created from settings in IN240893. This beam is designed to match

the critical coverage area of a replaced antenna as found in a typical cellular network. Therefore, it is the pattern shape which provides Defendant No.1 with this technical feature.

... ..

Q.264 Are you therefore saying that an antenna configured to generate multiple sub-sector beams, of which at least one is an asymmetric beam would, if used to replace a sector antenna, necessarily infringe Claim 1 – regardless of the necessity for any further determination regarding properties of the sector antenna being replaced?

A. Yes I would agree, if the criteria relating to critical coverage area is being met. My point is that this criteria is best assessed by a comparison of the beam shapes and is not something that changes on a site-by-site basis.”

75. PW1 took a clear position that because the beam shape of the patterns shown in the Product Brochures and the beam shape of the patterns produced from the power and phase weightings mentioned in IN’893 is identical, Defendant No.1’s products have the feature of substantial equivalence of critical coverage area of Claim 1 and Claim 10 of IN’893. Coupled with the Agreement of D1W1 about the identity of beam shapes in response to Question No.515, the witnesses of both Parties were *ad idem* that Defendant No.1’s antennas shown in the Product Brochures read onto the claim features of IN’893.

76. Thus, each and every claimed feature of IN’893 is admittedly practised in Defendant No.1’s products shown in the Product Brochures and products of Defendant No.1 read on and infringe Claim 1 and Claim 10 of IN’893. The evidence of both sides was tendered by experts in their field and noticeably D1W1 was Dean, Faculty & Admin and Visiting Professor at IIT, Ropar and his admissions cannot be questioned as an expert witness. In ***MERCK Sharp & Dohme Corporation & Anr. v. Glenmark Pharmaceuticals Ltd., 2015 SCC OnLine Del 12580***, in the context of a

case relating to patent infringement and counterclaim of invalidity, this Court held that “...court has not to super impose its view over and above the technical experts...”.

77. Based on the evidence led by the parties, the following stands proved in respect of infringement of IN’893 by Defendant No.1:

- a) beam patterns in the Product Brochures are asymmetrical;
- b) beam patterns in the Product Brochures are identical to the beam patterns produced from the power and phase weightings in IN’893;
- c) beam shape of Defendant’s Infringing Products gives feature of “substantial equivalence” of critical coverage area as compared to the critical coverage area of the earlier antennas; and
- d) impugned products replace or are capable of replacing, three existing 65-degree antennas in a 3-sector configuration as well as in greenfield cellular networks where three 65-degree antennas in a 3-sector configuration could have been used.

78. From a careful and close perusal of the claims, complete specification, beam patterns, evidence of the parties, this Court concludes that Defendant No.1’s products infringe Claim 1 and Claim 10 of IN’893 and issue No.(ii) is decided in favour of the Plaintiff and against Defendant No.1.

Issues No.(iii) and (iv)

“(iii) If the answer to Issue No.(ii) is in the affirmative, what is the relief that the Plaintiff is entitled to, and for what period? OPP

(iv) Relief.”

79. It was argued on behalf of the Plaintiff that in a suit for infringement of patent and damages, Court can compensate the Plaintiff in 3 ways:

(a) rendition of accounts; or (b) compensatory damages for lost profits; or (c) reasonable royalty. Plaintiff has not pressed the claims for rendition of accounts. Sales by Defendant No.1 during 2011 and 2014 could be a measure of damage caused to the Plaintiff and on this basis royalty can be calculated. Court had at the time of vacating the interim injunction order in favour of the Plaintiff, directed Defendant No.1 to file the sales figures pertaining to sales of the impugned products. Court has called for the sealed envelopes containing the purported sale figures for the years 2011 to 2014, in respect of which damages have been claimed. The affidavits strangely show 'Nil' sales for the said period.

80. Learned counsel for the Plaintiff pressed for compensatory damages on the basis of the evidence led through two witnesses PW1 Mr. Mark Cosgrove and PW2 Mr. Dennis Nathan. PW1 deposed that he was responsible for expansion of sales in the growing Indian wireless telecom market and was selling erstwhile Plaintiff No.1's antennas. He was personally involved in all discussions with all cellular operators, with which business was transacted in India and was also involved in all field trials conducted at the behest of cellular operators in India and thus had personal information and knowledge on all aspects of cellular antenna market for IN'893, including pricing of Bi-sector Array Antennas. PW2 was/is the President of Plaintiff and was involved in all business dealings in respect of IN'893 in North America and India. No rebuttal evidence was led on damages by Defendant No.1.

81. PW1 deposed that he had submitted a Total Addressable Market Analysis ("TAM Analysis") to the Board of the Erstwhile Plaintiffs and

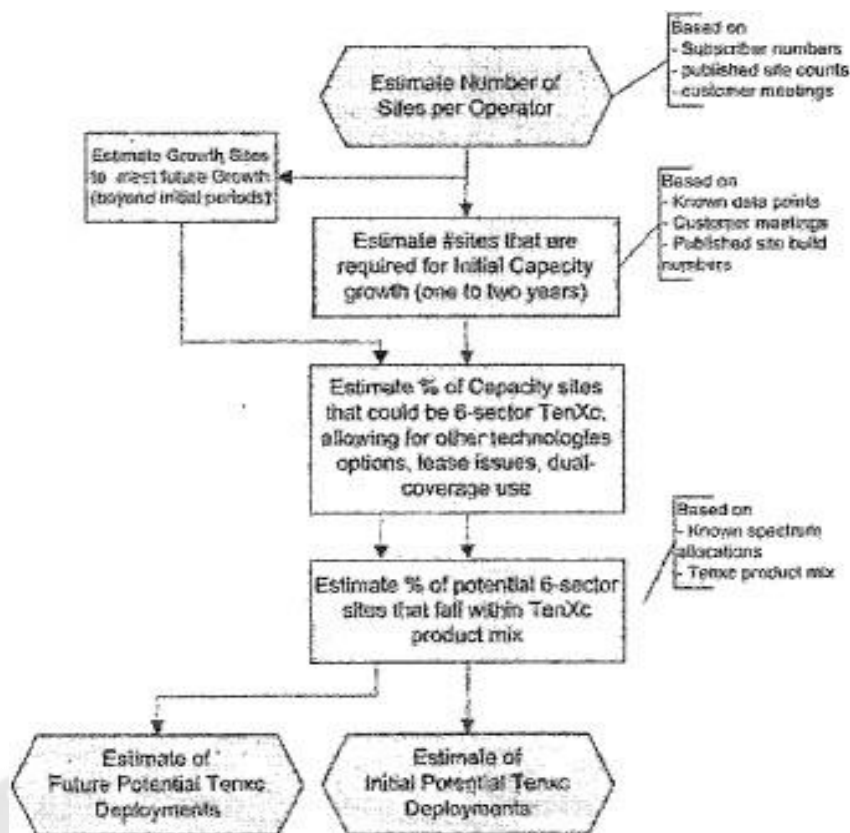
their prospective investors in April, 2011, which looked at the following aspects:

- a) each individual operator in India;
- b) number of sites each individual operator had;
- c) subscriber growth and count;
- d) spectrum allocation; and
- e) types of antennas covered by IN'893 that could be used to address capacity needs.

82. He further deposed that in preparing the TAM Analysis, he relied on the following:

- a) knowledge of which sites could possibly be addressed by antennas covered by IN'893 based on individual deployments;
- b) conducting meetings and discussions with the sales and marketing people of the Plaintiff;
- c) conducting meetings/discussions with cellular operators; and
- d) conducting meetings and discussions with other persons having in-depth domain knowledge in the field of cellular communication.

83. PW1 testified that there were 307,700 number of base transceiver stations/tower sites in the Indian market across the multiple cellular operators in operation in March, 2011 based on data provided by the concerned Ministry. Methodology adopted by PW1 in arriving at the market size of antennas covered by IN'893 can be understood from the following table given as a schematic representation on behalf of the Plaintiff:-



84. PW1 deposed that the numbers of sites, on which antennas covered by IN'893 could be installed, were 31,570 and since three antennas are installed on each site, size of the market share lost by the Plaintiff for antennas covered by IN'893 would be 94,710, i.e. 31,570 multiplied by 3. PW1 calculated the lost market size of antennas covered by IN'893 and arrived at a figure of 21,293 for the year 2011 and 73,417 for the period 2012 to 2014. PW1 further deposed that in 2011, Plaintiff was selling the same Bi-Sector Array Antennas in Canada and USA at an average price of USD 1,350 and the average cost incurred was approximately USD 800. Purchase Orders placed on Aircel, Tata Tele Services, Idea Cellular Limited and Vodafone Essar were placed on record and exhibited as Ex.PW2/13 to Ex.PW2/15 (colly.) showing actual retail prices varying from USD 1,050 to USD 2,000.

85. Quantification of damages was made keeping in mind the following factors:-

- a) market size lost by the Plaintiff in India;
- b) retail price of antennas covered by IN'893 in India from 2007 to 2011.
- c) retail price of antennas covered by IN'893 in Canada and USA in 2011;
- d) retail price of the most basic model of antennas covered by IN'893 in Canada and USA post-2012; and
- e) cost price to manufacture antennas covered by IN'893 in India and North America.

86. Based on these factors, total lost profit was calculated as follows:

a) Lost Profits for the year 2011

USD 1,350 minus USD 800 = USD 550 (profit per unit to be considered for year 2011 as proved by PW1)

USD 550 multiplied by 21,293 = USD 11,711,150 (profit from market size lost in year 2011 based on per unit profit calculated by PW1)

b) Lost Profits for the years post-2011

USD 1,960 minus USD 800 = USD 1,160 (profit per unit to be considered for years 2012 to 2014 as proved by PW2)

USD 1,160 multiplied 73,417 = USD 85,163,720 (profit from market size lost for years 2012 to 2014 based on per unit profit calculated by PW2)

c) Total Lost Profits for the years 2011 to 2014

USD 85,163,720 + USD 11,711,150 = USD 96,874,870 (total profit from the market size lost)

87. Therefore, the total lost profit claimed by the Plaintiff is USD 96,874,870 or an equivalent amount in Indian Rupees. Punitive damages have been claimed to the extent of twice the compensatory damages.

Exemplary costs are claimed for wilful misrepresentation by Defendant No.1 at an interim injunction stage. It was urged that while arguing the interim injunction, Defendant No.1 had relied upon 4 prior art to question the validity of the patent and as recorded in paragraph 3.4.3 of order dated 04.11.2011, this had weighed with the Court against the Plaintiff to vacate the *status quo* order. However, in response to Question No.307, D1W1 categorically stated that he does not support any of the 4 prior arts and subsequently Defendants deliberately abandoned the proceedings, knowing they had set up false and incorrect defences.

88. Law with respect to damages is fairly well settled. To avoid prolixity, I may refer to a few passages from the judgment in ***Strix Ltd. v. Maharaja Appliances Limited, 2023 SCC OnLine Del 7128:-***

“69. It is clear that the Defendant has monetarily gained by selling the infringing kettles for more than two years. Further, as per the order dated 21st May 2014 passed by the Joint Registrar it is clear that the Defendant intended to delay the proceedings as much as possible by repeated adjournments. The Defendant has also chosen to stay away from the proceedings. In Inter Ikea Systems BV v. Imtiaz Ahamed, 2016 SCC OnLine Del 6717, it is clearly laid down by this Court that a party who chooses not to participate in the court proceedings cannot enjoy an advantage and a premium for such conduct. In the opinion of this Court, the Defendant has deliberately chosen to stay away from the proceedings merely to ensure that it is not required to produce its accounts. The Plaintiff is entitled to be monetarily compensated for the infringement committed by the Defendant. Passing of a decree of rendition of accounts at this stage also clearly appears to be non-feasible as the Defendant would again avoid the court proceedings. Accordingly, this Court is of the opinion that on an assessment of the evidence on record, monetary compensation deserves to be awarded.

Calculation of monetary compensation

70. It is the settled position in law that damages are of three kinds i.e., notional damages, compensatory damages, and punitive damages. In the judgment of Hindustan Unilever Limited v. Reckitt Benckiser India Limited, 2014 SCC OnLine Del 490, on the aspect of award of punitive damages in civil cases, the ld. division bench of this Court has held as under:

“With due respect, this Court is unable to subscribe to that reasoning, which flies on the face of the circumstances spelt out in Rookes and later affirmed in Cassel. Both those judgments have received approval by the Supreme Court and are the law of the land. The reasoning of the House of Lords in those decisions is categorical about the circumstances under which punitive damages can be awarded. An added difficulty in holding that every violation of statute can result in punitive damages and proceeding to apply it in cases involving economic or commercial causes, such as intellectual property and not in other such matters, would be that even though statutes might provide penalties, prison sentences and fines (like under the Trademarks Act, the Copyrights Act, Designs Act, etc) and such provisions invariably cap the amount of fine, sentence or statutory compensation, civil courts can nevertheless proceed unhindered, on the assumption that such causes involve criminal propensity, and award “punitive” damages despite the plaintiffs inability to prove any general damage. Further, the reasoning that “one function of punitive damages is to relieve the pressure on an overloaded system of criminal justice by providing a civil alternative to criminal prosecution of minor crimes” is plainly wrong, because where the law provides that a crime is committed, it indicates the punishment. No statute authorizes the punishment of anyone for a libel-or infringement of trademark with a huge monetary fine-which goes not to the public exchequer, but to private coffers. Moreover, penalties and offences wherever prescribed require the prosecution to prove them without reasonable doubt. Therefore, to say that civil alternative to an overloaded criminal justice system is in public interest would be in fact to sanction violation of the law. This can also lead to undesirable results such as casual and unprincipled and eventually disproportionate awards. Consequently, this court declares that the reasoning and formulation of law enabling courts to determine punitive damages, based on the ruling in Lokesh Srivastava and Microsoft Corporation v. Yogesh Papat, 2005 SCC OnLine Del 216 : (2005) 30 PTC 245 (Del) is without authority. Those decisions are accordingly overruled. To award punitive damages, the courts should follow the categorization indicated in Rookes (supra) and further grant such damages only after being satisfied that the damages awarded for the wrongdoing is inadequate in the circumstances, having regard to the three categories in Rookes and also following the five principles in Cassel. The danger of not following this step by step reasoning would be ad hoc judge centric award of damages without discussion of the extent of harm or injury suffered by the plaintiff, on a mere whim that the defendant’s action is so wrong that it has a “criminal” propensity or the case merely falls in one of the three categories mentioned in Rookes (to quote Cassel again-such event

“does not of itself entitle the jury to award damages purely exemplary in character”).”

71. Thus, the *Id. Division Bench* categorically holds that punitive damages cannot be awarded in such cases.

72. The award of damages in patent cases has also been considered in *Koninklijke Philips Electronics N.V. v. Rajesh Bansal, CS (COMM.) 24/2016* and *CS (COMM.) 436/2017* where the Court has concluded as under:

“13.12. Thus as held Hindustan Unilever Ltd. (supra) for awarding punitive damages the Court should follow the categorization indicated in Rookes (supra) and further grant such damages only after being satisfied that the damages awarded for the wrong doing is as per circumstances having regard to the three categories in Rookes (supra) and also following the five principles in Cassell (supra)”

73. The Delhi High Court IP Division Rules and the Patent Rules of the Delhi High Court recognize that the following factors could be considered for the purpose of awarding of damages. Rule 20 of the Delhi Court Intellectual Property Division Rules, 2022 reads as under:

“20. Damages/Account of profits

A party seeking damages/account of profits, shall give a reasonable estimate of the amounts claimed and the foundational facts/account statements in respect thereof along with any evidence, documentary and/or oral led by the parties to support such a claim. In addition, the Court shall consider the following factors while determining the quantum of damages:

(i) Lost profits suffered by the injured party;

(ii) Profits earned by the infringing party;

(iii) Quantum of income which the injured party may have earned through royalties/license fees, had the use of the subject IPR been duly authorized;

(iv) The duration of the infringement;

(v) Degree of intention/neglect underlying the infringement;

(vi) Conduct of the infringing party to mitigate the damages being incurred by the injured party;

In the computation of damages, the Court may take the assistance of an expert as provided for under Rule 31 of these Rules.”

74. A perusal of the aforementioned decisions as also IPD Rules shows that various aspects such as sales made by the Defendant, market share of the Defendant, royalty which the Defendant would have to pay if the

infringing product had to be a licensed product, have to be considered before awarding damages.

75. Further, as per the landmark decision of the UK Court of Appeal in Gerber Garment Technology Inc. v. Lectra Systems Ltd., [1997] R.P.C. 443, if the patentee cannot prove the loss, it is permissible to assess the same on a reasonable royalty basis. Where the patentee is a manufacturer of the patented product, reasonable profit that the patentee would have had earned if the infringing products were in fact sold by the patentee would be reasonable measure. It is further clarified that, once infringement is established, the Court can infer that reasonable invasion of the patentee's monopoly would cause damage to the patentee and accordingly, a fair and reasonable measure can be adopted by the Court for computing the damages.

76. Reverting to the facts of this case, the Plaintiff's witness has not given any evidence of damages and the Defendant's sales or profits are not disclosed on record. The Defendant has chosen to stay away from the proceedings and cannot be given an advantage. In a case where the evidence is not led, the damages have to be notional and are to be considered on a reasonable/fair basis. In such a case, the Court can only make a broad assessment of profits, on the basis of the evidence on record.

77. One of the prayers in the plaint is for rendition of accounts, however the Defendant has chosen not to furnish its account of sales of kettles containing the infringing product. Thus, the same is to be calculated by the Court based on the evidence on record and publicly available information."

89. Applying these principles, punitive damages cannot be awarded in favour of the Plaintiff. Coming to compensatory damages, Plaintiff has succeeded in establishing infringement of IN'893 by Defendant No.1 and is entitled to monetary compensation. Court, as above, held that where the patentee is a manufacturer of the patented product, reasonable profit that patentee would have earned if the infringing product was actually sold by the patentee, would be a reasonable measure. Defendant has not given the record of its sales or profits and chose to stay away from the proceedings. Plaintiff has placed on record Purchase Orders reflecting the retail prices and has taken the average of the antennas sold in USA as USD 1,350. The average cost price is shown as USD 800 and therefore, the profit is USD

550 per unit. Total lost market share is calculated at 94,710 between 2011 and 2014. In my view, the figure of 94,710 cannot be accepted in the absence of any evidence on the actual lost market share and it cannot be concluded with certainty that the entire market share would have come to the kitty of the Plaintiff. Therefore, the reasonable estimate of the lost market share, considering that Plaintiff is a patent holder and looking at the number of base transceiver stations/ tower sites that may have been available in the Indian market, would be half of 94,710 units. Taking the average retail price at USD 1,350 and multiplying 47,355 units with USD 550, this Court awards damages to the tune of USD 2,60,45,250, equivalent of which is Rs.2,17,47,78,375/- at the current US Dollar rate, for the period 2011 to 2014.

90. Plaintiff has already filed its affidavit of costs on 25.08.2022. In consonance with the judgment in *Uflex Limited (supra)*, wherein the Supreme Court has held that actual costs should be paid to the successful party in a commercial litigation, Plaintiff is held entitled to actual costs in terms of Commercial Courts Act, 2015 and Delhi High Court (Original Side) Rules, 2018. List the matter before the Taxing Officer on 09.07.2024 for computation of costs.

Relief

91. Decree of permanent injunction is hereby passed in favour of the Plaintiff restraining Defendant No.1 and anyone acting for or on its behalf from manufacturing/making, using, distributing, selling, offering for sale and importing into India any product which infringes the suit patent IN'893 of the Plaintiff, till its expiry. Plaintiff is held entitled to damages quantified at USD 2,60,45,250 or Rupee equivalent at the current exchange

rate, for the period 2011 to 2014, with interest @ 5% per annum from the date of the judgment till actual realization of the amount. Plaintiff is also held entitled to cost of proceedings, as assessed by the Taxing Officer. Plaintiff shall pay additional Court fees on the damages awarded, within four weeks from today.

92. Defendant No.1 had abandoned the proceedings midway and were proceeded *ex parte*. Considering that the suit was uncontested, Court is not granting certificate of validity under Section 113 of the Patents Act. The other reason that weighs with the Court to so hold is that another suit with respect to the same patent being CS(COMM) 653/2019 titled '*Communication Components Antena Inc. v. Rosenberger Hochfrequenztechnik GmbH & Co. KG & Ors.*' is pending before the Co-ordinate Bench of this Court.

93. Suit is decreed accordingly and disposed of. Counter-claim filed by Defendant No.1 is dismissed. Pending application is disposed of.

94. Decree-sheet be drawn up by the Registry.

I.A. 11163/2022 (under Order 1 Rule 8A CPC, by Applicant/Intervenor)

95. Application is dismissed for non-prosecution.

JYOTI SINGH, J

MAY 16, 2024/B.S. Rohella