

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

**PERSONALIZED MEDIA
COMMUNICATIONS, LLC,**

Plaintiff,

v.

**FUNAI ELECTRIC CO., LTD., FUNAI
CORPORATION, INC., and P&F USA
INC.,**

Defendants.

**Civil Action No. 2:16-cv-00105-JRG-
RSP**

JURY TRIAL DEMANDED

FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Personalized Media Communications, LLC (“PMC”), by way of this Complaint against Defendants Funai Electric Co., Ltd. (“Funai Electric”), Funai Corporation, Inc. (“Funai Corp.”), and P&F USA Inc. (“P&F”) (collectively, “Defendants” or “Funai”) hereby alleges as follows:

NATURE OF THE ACTION

1. This is an action under the patent laws of the United States, 35 U.S.C. § 100 *et seq.* for infringement by Funai of claims of U.S. Patent Nos. 7,747,217, 7,752,649, 7,752,650, 7,856,649, 8,675,775, and 8,711,885 (collectively referred to as the “Patents-in-Suit”).

PARTIES

2. Plaintiff PMC is a limited liability company organized and existing under the laws of the State of Texas, having its principal place of business at 14090 Southwest Freeway, Suite 450, Sugar Land, Texas 77478.

3. On information and belief, Defendant Funai Electric is a corporation organized and existing under the laws of Japan, with its principal place of business located at 7-7-1 Nakagaito, Daito, Osaka 574-0013, Japan, and may be served pursuant to the provisions of the Hague Convention. Funai is a leading manufacturer and seller of televisions in the United States.

4. On information and belief, Defendant Funai Corp. is incorporated and exists under the laws of the State of New Jersey, with its principal place of business located at 201 Route 17 North, Suite 903, Rutherford NJ 07070.

5. On information and belief, Defendant P&F is incorporated and exists under the laws of the State of Delaware, with its principal place of business located at 3015 Winward Parkway, Suite 100, Alpharetta, GA 30005.

JURISDICTION AND VENUE

6. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a).

7. This Court has personal jurisdiction over Funai Electric, Funai Corp., and P&F because, *inter alia*, upon information and belief, (i) Defendants Funai Electric, Funai Corp., and P&F have done and continue to do business in the state of Texas, and (ii) Defendants Funai Electric, Funai Corp., and P&F have committed and continue to commit acts of patent infringement in the State of Texas, including by making, using, offering to sell, and/or selling accused products in Texas, and/or importing accused products into Texas, including by Internet sales and sales via retail and wholesale stores, and/or inducing others to commit acts of patent infringement in Texas. In the alternative, this Court has personal jurisdiction over Funai Electric pursuant to Fed. R. Civ. P. 4(k).

8. Venue is proper in this judicial district under 28 U.S.C. §§ 1391(b), 1391(c), and 1400(b) because, *inter alia*, on information and belief, (i) Defendants Funai Electric, Funai Corp., and P&F have done and continue to do business in this district; (ii) Defendants Funai Electric, Funai Corp., and P&F have committed and continue to commit acts of patent infringement in this district, including making, using, offering to sell, and/or selling accused products in this district, and/or importing accused products into this district, including by Internet sales and sales via retail and wholesale stores; (iii) Funai Electric is a foreign entity; (iv) this judicial district is familiar with the technology of the Patents-in-Suit, having presided over several lawsuits involving patents from the same patent family; and (v) this judicial district currently presides over another lawsuit involving one of the Patents-in-Suit and two other lawsuits involving the same six Patents-in-Suit.

SINGLE ACTION

9. According to materials published by Funai Electric, and upon information and belief, P&F, a Funai Electric subsidiary, handles sales, marketing, and distribution of Funai's accused Philips-branded televisions in the United States. According to P&F, it is the exclusive licensee for Philips consumer televisions in North America.

10. Also according to materials published by Funai Electric, and upon information and belief, Funai Corp. is the "North American sales and marketing company for consumer electronic products manufactured by" Funai Electric. Upon information and belief, Funai handles sales, marketing, and distribution for Funai's Magnavox-branded televisions in the United States.

11. Funai Electric designs and specifies televisions for sale and use in the United States. Funai Electric imports, offers for sale, and sells the accused televisions in the United States, including in the State of Texas generally and this judicial district in particular. Funai

Electric has created a well-established distribution chain for its televisions, and that distribution chain (which includes Funai Corp. and P&F) delivers those products into the United States, including the State of Texas generally and this judicial district in particular. Furthermore, Funai Electric, Funai Corp., and P&F know, expect, and intend that by selling televisions designed for use in the U.S. market, some of those products will be sold in the State of Texas, including in this judicial district.

12. Defendants Funai Electric, Funai Corp., and P&F operate as a unitary business venture and are jointly and severally liable for patent infringement relating to the televisions made, imported, offered for sale, sold, or used in the United States by any one of them. PMC's right to relief against each of these three Defendants arises out of the same transaction, occurrence, or series of transactions or occurrences relating to the making, using, importing, offering for sale, and sale of the same accused television products in the United States. Additionally, questions of fact common to all three Defendants will arise in this action, including whether these television products infringe the asserted patents. Therefore, joinder of these three Defendants is proper under 35 U.S.C. § 299.

13. Based on the allegations above, PMC's right to relief is asserted against all of the Defendants jointly, severally, or in the alternative with respect to or arising out of the same transaction, occurrence, or series of transactions or occurrences relating to the making, using, importing, offering for sale, or selling of the accused televisions, manufactured by Funai or at Funai's directions and pursuant to Funai's instructions. Questions of fact common to all Defendants will arise in this action, such as whether the accused televisions manufactured, assembled, imported, offered for sale, and sold by Defendants (whether by Funai Electric directly or through its United States sales and distribution subsidiaries Funai Corp. and P&F),

infringe the asserted patents. Therefore, joinder of all of the Defendants is proper under 35 U.S.C. § 299.

THE PATENTS-IN-SUIT

14. On June 29, 2010, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 7,747,217 (the “’217 Patent”), entitled “Signal Processing Apparatus and Methods,” based upon an application filed by inventors John Christopher Harvey and James William Cuddihy. A true and correct copy of the ’217 Patent is attached hereto as Exhibit A.

15. On December 21, 2010, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 7,856,649 (the “’649 Patent”), entitled “Signal Processing Apparatus and Methods,” based upon an application filed by inventors John Christopher Harvey and James William Cuddihy. A true and correct copy of the ’649 Patent is attached hereto as Exhibit B.

16. On July 6, 2010, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 7,752,650 (the ’650 Patent”), entitled “Signal Processing Apparatus and Methods,” based upon an application filed by inventors John Christopher Harvey and James William Cuddihy. A true and correct copy of the ’650 Patent is attached hereto as Exhibit C.

17. On July 6, 2010, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 7,752,649 (the “’2’649 Patent”), entitled “Signal Processing Apparatus and Methods,” based upon an application filed by inventors John Christopher Harvey and James William Cuddihy. A true and correct copy of the 2’649 Patent is attached hereto as Exhibit D.

18. On March 18, 2014, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 8,675,775 (the “’775 Patent”), entitled “Signal Processing

Apparatus and Methods,” based upon an application filed by inventors John Christopher Harvey and James William Cuddihy. A true and correct copy of the ’775 Patent is attached hereto as Exhibit E.

19. On April 29, 2014, the United States Patent and Trademark Office duly and lawfully issued U.S. Patent No. 8,711,885 (the “’885 Patent”), entitled “Signal Processing Apparatus and Methods,” based upon an application filed by inventors John Christopher Harvey and James William Cuddihy. A true and correct copy of the ’885 Patent is attached hereto as Exhibit F.

20. The Patents-in-Suit generally relate to methods and systems for digital signal processing.

21. PMC owns all right, title, and interest in and to the Patents-in-Suit and possesses all rights of recovery.

FACTUAL ALLEGATIONS

THE COMPANY

22. PMC is a family-owned and run company founded by one of PMC’s inventors, John C. Harvey. Mr. Harvey, who is PMC’s current Chairman, along with his co-inventor and technical collaborator, James Cuddihy, made numerous inventions in the early 1980s (collectively referred to hereinafter as “the Harvey Inventions”) which have been the basis for the issuance to date of 96 patents.

23. PMC is operated out of Sugar Land, Texas, and its intellectual property commercialization and licensing activities have created jobs, including the employment of a number of engineers and technical specialists, as well as management and counsel.

24. PMC's patents based on the Harvey Inventions comprise a ground-breaking portfolio of intellectual property that covers, among other things, the use of control and information signals in electronic media content to process the content and generate output that is personalized and relevant to a user and the application of novel content protection techniques to protect against piracy. PMC's patents also disclose and claim apparatus and processes that allow for content to be transmitted by a content provider in a highly flexible manner where the signals for the control of the delivery and distribution of that content can be varied in their timing, location, and/or composition.

25. PMC attempted to commercialize the technology of the Harvey Inventions through internal development and partner collaboration. For example, between 1989 and 1992 the company developed and publicly disclosed a prototype that demonstrated, using television as a model, many of the personalization concepts and access control concepts of PMC's patented technology.

26. The company also sought to partner with established companies to realize the vision of the patents by jointly developing, marketing, and manufacturing commercial embodiments of the PMC technology. In the early 1990s, PMC and its predecessor, Personalized Mass Media Corporation, made multiple attempts to market the Harvey Inventions by contacting and meeting a number of large technology companies, often disclosing the functionality of the Harvey Inventions. PMC entered into agreements with industry leaders, including General Electric, to explore the possibilities of the technology, and also contracted with Sarnoff Labs to develop software implementing features of the Harvey Inventions and demonstrating the potential of the technology.

27. Most of these established firms eventually declined to pursue the Harvey Inventions. A few firms, however, including StarSight Telecast, Inc. and Gemstar-TV Guide International Corp. (now subsidiaries of Rovi Corp.), eventually became some of the first licensees to PMC's patent portfolio.

28. Since those early years, the Harvey Inventions have received significant industry recognition, including being licensed by some of the most respected companies in the world. Numerous media and telecommunications companies use PMC's technology, including providers of electronic media content that is personalized and relevant to a particular user, providers of devices to deliver that content to users, and providers of the networks that deliver the content. Current licensees of PMC's patented technology include Sony, Motorola Mobility, Sharp, Panasonic, DirecTV, DISH Network, EchoStar, The Weather Channel, Gemstar-TV Guide (now a subsidiary of Rovi), Cisco, and Arris, among others.

29. Over the years, PMC has consistently pursued a license-first approach to commercializing its intellectual property. PMC considers litigation to be a last resort, employed only after it is apparent that a commercially reasonable license is unobtainable through negotiations. Indeed, the present action was commenced only after a lengthy series of licensing discussions in which Funai and PMC were at an impasse and Funai itself decided to initiate a declaratory judgment action. .

30. PMC has only litigated its own patents. PMC has never litigated or otherwise sought to enforce a patent purchased from a third party. The patented inventions that PMC seeks to enforce in this case, and in every other case PMC has initiated, are the product of the development efforts of PMC's inventors, John Harvey and James Cuddihy.

31. Indeed, PMC has been involved in only a limited number of litigations in its twenty year licensing program. Simply put, suing numerous companies for small amounts is not and has never been PMC's business model.

DEFENDANTS AND THE ACCUSED PRODUCTS

32. As referred to in this Complaint, and consistent with 35 U.S.C. § 100(c), the "United States" means "the United States of America, its territories and possessions."

33. Upon information and belief, including based on products identified on Funai websites and described in Funai's manuals, Defendants Funai Electric, Funai Corp., and P&F make, use, offer to sell, and/or sell in the United States, and/or import into the United States, products made in accordance with the Patents-in-Suit, including, but not limited to, high definition televisions ("HDTVs").

34. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F actively and knowingly direct, cause, induce and encourage others, including, but not limited to, its designers, manufacturers, suppliers, distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, and repair providers, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, products made in accordance with the Patents-in-Suit, including, but not limited to, the Funai HDTVs, by, among other things, providing instructions, manuals, and technical assistance relating to the installation, set up, use, operation, and maintenance of said Funai HDTVs.

35. An exemplary, but not exhaustive, list of the Funai HDTVs made in accordance with the Patents-in-Suit is attached as Exhibit G hereto.

NOTICE OF INFRINGEMENT

36. On August 10, 2012, PMC sent a package of materials to Funai Corp.'s office located in Torrance, California. This package of materials included claim charts indicating infringement of several of the Patents-in-Suit, including the '217, 2'649, '650, and 6'649 Patents, by Funai products.

37. For the next two and a half years, PMC and Funai Corp. engaged in protracted efforts to discuss infringement and possible licensing of PMC's patents, including the '217, 2'649, '650, and 6'649 Patents. Indeed, PMC representatives met with Funai representatives in Japan no fewer than nine times to facilitate these discussions.

38. On June 29, 2015, Funai Electric filed a lawsuit against PMC in the United States District Court for the District of Delaware, seeking a declaratory judgment that its products do not infringe the '217, 2'649, and '650 patents, and that the claims of these patents are invalid and unenforceable. Complaint, *Funai Electric Co., Ltd. v. Personalized Media Communications, LLC*, Civil Action No. 15-558-RGA (D. Del. June 29, 2015), ECF No. 1.

39. On September 25, 2015, PMC filed a motion to dismiss Funai Electric's action pursuant to Federal Rule of Civil Procedure 12(b)(2), arguing lack of personal jurisdiction. Motion to Dismiss, *Funai Electric Co., Ltd. v. Personalized Media Communications, LLC*, Civil Action No. 15-558-RGA (D. Del. Sept. 25, 2015), ECF No. 10. The District Court for the District of Delaware granted PMC's motion on January 29, 2016, and dismissed Funai Electric's declaratory judgment complaint in its entirety. Order Granting Motion to Dismiss, *Funai Electric Co., Ltd. v. Personalized Media Communications, LLC*, Civil Action No. 15-558-RGA (D. Del. Jan. 29, 2016), ECF No. 21.

40. In view of the above, Funai and, upon information and belief, its subsidiaries Funai Corp. and P&F, received actual notice of at least the '217, 2'649, '650, and 6'649 Patents, and of Funai's infringement thereof by the accused HDTV products, prior to this lawsuit.

41. Defendants have notice of the '775 and '885 Patents at least as of the time of the filing of the First Amended Complaint.

COUNT I: INFRINGEMENT OF THE '217 PATENT

42. PMC incorporates the preceding paragraphs as if fully set forth herein.

43. The '217 Patent generally relates to the field of multimedia signal processing. The asserted claims of the '217 Patent recite novel apparatus and methods for processing signals carrying different types of media received from an external source, identifying the content of various media received in a plurality of signals, and outputting or displaying a coordinated presentation of information or content based on at least two types of media.

44. Defendants Funai Electric, Funai Corp., and P&F infringe the '217 Patent by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, digital televisions that meet the elements of the asserted claims. For example, Funai digital televisions incorporate digital tuner components and System-on-Chip components that receive and process various types of media transmitted via ATSC, PSIP, and/or MPEG-2 compliant streams, identify the content of different media received in the multiple signals via predetermined identifiers (PIDs) included in the packetized stream, and produce a coordinated presentation of the two media, such as audio and video, or virtual channel number/name and video.

45. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F have infringed at least claims 1, 2, 3, 4, 5, 7, 9, 11, 30, 31, 32, and 38 of the '217 Patent, pursuant to 35 U.S.C. § 271(a) by making, using, offering to sell, and/or selling in the United States,

and/or importing into the United States Funai HDTVs, including, but not limited to, the Funai HDTVs identified in Exhibit G hereto. Upon information and belief, Defendants' infringement pursuant to 35 U.S.C. § 271(a) is ongoing.

46. Upon information and belief, since having notice of the '217 Patent, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of at least claims 1, 2, 3, 4, 5, 7, 9, 11, 30, 31, 32, and 38 of the '217 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, their designers, manufacturers, suppliers, distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, and repair providers, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, Funai HDTVs made in accordance with the '217 Patent, including, but not limited to, the Funai HDTVs identified in Exhibit G hereto, by, among other things, providing instructions, manuals, and technical assistance relating to the installation, set up, use, operation, and maintenance of said Funai HDTVs. Upon information and belief, Defendants' inducement of infringement pursuant to 35 U.S.C. § 271(b) is ongoing.

47. In one example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims by providing distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, with digital televisions, knowing and/or intending that, when connected to a digital television antenna in the United States, Funai digital televisions infringe the above-identified claims of the '217 Patent, including, for example, by providing a coordinated presentation of two media, such as audio and video, or virtual channel number/name (as received pursuant to the ATSC Digital Television and/or ATSC Program Specific

Information Protocol standards) and video. In another example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims of the '217 Patent by knowingly and/or willfully providing user manuals, service manuals, and Quick Start Guides, that explain, instruct, direct, cause, and encourage distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, to connect Funai digital televisions to digital television antennas and to turn on the Funai digital televisions, thereby activating infringing functionalities.

48. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F committed the foregoing infringing activities without license from PMC and with notice of the '217 Patent.

49. Defendants Funai Electric, Funai Corp., and P&F knew the '217 Patent existed while committing the foregoing infringing acts, thereby willfully, wantonly, and deliberately infringing the '217 Patent. Accordingly, PMC's damages should be trebled pursuant to 35 U.S.C. § 284 because of Defendants' willful infringement of the '217 Patent.

50. The acts of infringement by Defendants Funai Electric, Funai Corp., and P&F have been with the knowledge of the '217 Patent and are willful, wanton, and deliberate, thus rendering this action "exceptional" within the meaning of 35 U.S.C. § 285 and entitling PMC to its reasonable attorney's fees and litigation expenses.

51. The acts of infringement by Defendants will continue unless enjoined by this Court.

52. PMC has been and will continue to be irreparably harmed and damaged by Defendants' infringement of the '217 Patent and has no adequate remedy at law.

COUNT II: INFRINGEMENT OF THE 2'649 PATENT

53. PMC incorporates the preceding paragraphs as if fully set forth herein.

54. The 2'649 Patent generally relates to the field of controlling digital television signal processing. The asserted claims of the 2'649 Patent recite novel methods of processing information transmissions that include digital television or video signals and a message stream at a plurality of processors with the assistance of a control processor to display digital television or video, or to control the timing of communication of television programming.

55. Defendants Funai Electric, Funai Corp., and P&F infringe the 2'649 Patent by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, digital televisions that meet the elements of the asserted claims. For example, Funai digital televisions incorporate System-on-Chip components that include multiple processors, and control the processing of ATSC and/or MPEG-2 compliant audio and video streams to display or output video and/or audio, as required in the individual claims.

56. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F have infringed at least claims 1, 2, 3, 7, 8, 11, 12, 13, 22, 23, 24, 26, 27, 28, 29, 39, 40, 41, 42, 45, 48, 49, 50, 51, 62, 63, 64, 67, 78, 79, 80, 81, 82, 83, 84, 88, 89, 90, 91, 92, 93, 94, 97, and 98 of the '649 Patent, pursuant to 35 U.S.C. § 271(a) by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States Funai HDTVs, including, but not limited to, the Funai HDTVs identified in Exhibit G hereto. Upon information and belief, Funai's infringement pursuant to 35 U.S.C. § 271(a) is ongoing.

57. Upon information and belief, since having notice of the 2'649 Patent, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of at least claims 1, 2, 3, 7, 8, 11, 12, 13, 22, 23, 24, 26, 27, 28, 29, 39, 40, 41, 42, 45, 48, 49, 50, 51, 62, 63, 64, 67, 78, 79, 80, 81, 82, 83, 84, 88, 89, 90, 91, 92, 93, 94, 97, and 98 of the 2'649 Patent pursuant to 35 U.S.C. §

271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, their designers, manufacturers, suppliers, distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, and repair providers, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, Funai HDTVs made in accordance with the '649 Patent, including, but not limited to, the Funai HDTVs identified in Exhibit G hereto, by, among other things, providing instructions, manuals, and technical assistance relating to the installation, set up, use, operation, and maintenance of said Funai HDTVs. Upon information and belief, Defendants' inducement of infringement pursuant to 35 U.S.C. § 271(b) is ongoing.

58. In one example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims by providing distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, with digital televisions having multiple processors, knowing and/or intending that, when connected to a digital television antenna and/or RF digital television cable in the United States, Funai digital televisions infringe the above-identified claims of the '2,649 Patent, including, for example, by controlling the processing of ATSC and/or MPEG-2 compliant audio and video streams to display or output video and/or audio, as required in the individual claims. In another example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims of the '2,649 Patent by providing user manuals, service manuals, and Quick Start Guides, that explain, instruct, direct, cause, and encourage distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, to

connect Funai digital televisions to digital television antennas and/or RF digital television cables, and to turn on the Funai digital televisions, thereby activating infringing functionalities.

59. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F committed the foregoing infringing activities without license from PMC and with notice of the 2'649 Patent.

60. Defendants Funai Electric, Funai Corp., and P&F knew the 2'649 Patent existed while committing the foregoing infringing acts, thereby willfully, wantonly, and deliberately infringing the 2'649 Patent. Accordingly, PMC's damages should be trebled pursuant to 35 U.S.C. § 284 because of Defendants' willful infringement of the 2'649 Patent.

61. The acts of infringement by Defendants have been with the knowledge of the 2'649 Patent and are willful, wanton, and deliberate, thus rendering this action "exceptional" within the meaning of 35 U.S.C. § 285 and entitling PMC to its reasonable attorney's fees and litigation expenses.

62. The acts of infringement by Defendants will continue unless enjoined by this Court.

63. PMC has been and will continue to be irreparably harmed and damaged by Defendants' infringement of the '649 Patent and has no adequate remedy at law.

COUNT III: INFRINGEMENT OF THE '650 PATENT

64. PMC incorporates the preceding paragraphs as if fully set forth herein.

65. The '650 Patent generally relates to the field of controlling digital television signal processing. The asserted claims of the '650 Patent recite novel methods of controlling a digital switch to select a plurality of digital television or digital video signals from an information transmission and processing the selected signals at a plurality of processors to display digital television or video.

66. Defendants Funai Electric, Funai Corp., and P&F infringe the '650 Patent by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, digital televisions that meet the elements of the asserted claims. For example, Funai digital televisions incorporate System-on-Chip components that include multiple processors and a digital switch, to control the processing of ATSC and/or MPEG-2 compliant audio and video streams to communicate digital video and/or digital television to a television monitor.

67. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F have infringed at least claims 1, 2, 3, 4, 9, 18, 32, and 33 of the '650 Patent, pursuant to 35 U.S.C. § 271(a) by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States Funai HDTVs, including, but not limited to, the Funai HDTVs identified in Exhibit G hereto. Upon information and belief, Funai's infringement pursuant to 35 U.S.C. § 271(a) is ongoing.

68. Upon information and belief, since having notice of the '650 Patent, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of at least claims 1, 2, 3, 4, 9, 18, 32, and 33 of the '650 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, their designers, manufacturers, suppliers, distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, and repair providers, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, Funai HDTVs made in accordance with the '650 Patent, including, but not limited to, the Funai HDTVs identified in Exhibit G hereto, by, among other things, providing instructions, manuals, and technical assistance relating to the installation, set up, use, operation, and maintenance of said Funai

HDTVs. Upon information and belief, Defendants' inducement of infringement pursuant to 35 U.S.C. § 271(b) is ongoing.

69. In one example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims by providing distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, with digital televisions having multiple processors and a digital switch, knowing and/or intending that, when connected to a digital television antenna and/or RF digital television cable in the United States, Funai digital televisions infringe the above-identified claims of the '650 Patent, including, for example, by controlling the processing of ATSC and/or MPEG-2 compliant audio and video streams to display or output video and/or audio, as required in the individual claims. In another example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims of the '650 Patent by knowingly and/or willfully providing user manuals, service manuals, and Quick Start Guides, that explain, instruct, direct, cause, and encourage distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, to connect Funai digital televisions to digital television antennas and/or RF digital television cables, and to turn on the Funai digital televisions, thereby activating infringing functionalities.

70. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F committed the foregoing infringing activities without license from PMC and with notice of the '650 Patent.

71. Defendants Funai Electric, Funai Corp., and P&F knew the '650 Patent existed while committing the foregoing infringing acts, thereby willfully, wantonly, and deliberately

infringing the '650 Patent. Accordingly, PMC's damages should be trebled pursuant to 35 U.S.C. § 284 because of Defendants' willful infringement of the '650 Patent.

72. The acts of infringement by Defendants Funai Electric, Funai Corp., and P&F have been with the knowledge of the '650 Patent and are willful, wanton, and deliberate, thus rendering this action "exceptional" within the meaning of 35 U.S.C. § 285 and entitling PMC to its reasonable attorney's fees and litigation expenses.

73. The acts of infringement by Defendants will continue unless enjoined by this Court.

74. PMC has been and will continue to be irreparably harmed and damaged by Defendants' infringement of the '650 Patent and has no adequate remedy at law.

COUNT IV: INFRINGEMENT OF THE 6'649 PATENT

75. PMC incorporates the preceding paragraphs as if fully set forth herein.

76. The 6'649 Patent generally relates to the field of controlling digital television signal processing. The asserted claims of the 6'649 Patent recite novel methods of demodulating or demultiplexing, and then outputting, a portion of a television program received in a plurality of discrete signals in accordance with at least two variable formats, such as varying locations and varying timing lengths.

77. Defendants Funai Electric, Funai Corp., and P&F infringe the 6'649 Patent by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, digital televisions that meet the elements of the asserted claims. For example, Funai digital televisions incorporate digital tuner components and System-on-Chip components that receive and demodulate and/or demultiplex ATSC and/or MPEG-2 compliant digital television streams to output at least a portion of a television program.

78. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F have infringed at least claims 9 and 10 of the 6'649 Patent, pursuant to 35 U.S.C. § 271(a) by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States Funai HDTVs, including, but not limited to, the Funai HDTVs identified in Exhibit G hereto. Upon information and belief, Defendants' infringement pursuant to 35 U.S.C. § 271(a) is ongoing.

79. Upon information and belief, since having notice of the 6'649 Patent, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of at least claims 9 and 10 of the 6'649 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, their designers, manufacturers, suppliers, distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, and repair providers, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, Funai HDTVs made in accordance with the 6'649 Patent, including, but not limited to, the Funai HDTVs identified in Exhibit G hereto, by, among other things, providing instructions, manuals, and technical assistance relating to the installation, set up, use, operation, and maintenance of said Funai HDTVs. Upon information and belief, Defendants' inducement of infringement pursuant to 35 U.S.C. § 271(b) is ongoing.

80. In one example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims by providing distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, with digital televisions having digital tuner components and System-on-Chip components, knowing and/or intending that, when connected to a digital television antenna and/or RF digital television cable in the United States, Funai digital

televisions infringe the above-identified claims of the '6,649 Patent, including, for example, by receiving and demodulating and/or demultiplexing ATSC and/or MPEG-2 compliant digital television streams to output at least a portion of a television program. In another example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims of the '6,649 Patent by knowingly and/or willfully providing user manuals, service manuals, and Quick Start Guides, that explain, instruct, direct, cause, and encourage distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, to connect Funai digital televisions to digital television antennas and/or RF digital television cables, and to turn on the Funai digital televisions, thereby activating infringing functionalities.

81. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F committed the foregoing infringing activities without license from PMC and with notice of the 6'649 Patent.

82. Defendants Funai Electric, Funai Corp., and P&F knew the 6'649 Patent existed while committing the foregoing infringing acts, thereby willfully, wantonly, and deliberately infringing the 6'649 Patent. Accordingly, PMC's damages should be trebled pursuant to 35 U.S.C. § 284 because of Defendants' willful infringement of the 6'649 Patent.

83. The acts of infringement by Defendants Funai Electric, Funai Corp., and P&F have been with the knowledge of the 6'649 Patent and are willful, wanton, and deliberate, thus rendering this action "exceptional" within the meaning of 35 U.S.C. § 285 and entitling PMC to its reasonable attorney's fees and litigation expenses.

84. The acts of infringement by Defendants will continue unless enjoined by this Court.

85. PMC has been and will continue to be irreparably harmed and damaged by Defendants' infringement of the 6'649 Patent and has no adequate remedy at law.

COUNT V: INFRINGEMENT OF THE '775 PATENT

86. Plaintiff incorporates the preceding paragraphs as if fully set forth herein.

87. The '775 Patent generally relates to digital video signal processing. The asserted claims of the '775 Patent recite novel methods of receiving and/or decoding information transmissions containing expanded and contracted code portions, detecting data in the decoded code portions, generating video images based on video data detected in the code portions, and communicating at least some of a video image to a video monitor.

88. Defendants Funai Electric, Funai Corp., and P&F infringe the '775 Patent by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, digital televisions that meet the elements of the asserted claims. For example, certain Funai digital televisions incorporate wireless and/or wired receivers, and System-on-Chip components that include decoders and processors, including related software and/or firmware modules, that receive and/or decode variable sized digital video portions and/or containers. In one example, accused Funai digital televisions incorporate Netflix, Vudu, and YouTube apps, which in combination with the Funai hardware, decode variable size digital video containers to generate and output digital video at a video monitor. In another example, accused Funai digital televisions decode variable sized portions of the ATSC and/or MPEG-2 digital cable television video stream.

89. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F have infringed at least claims 2, 3, 4, 5, 6, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, and 23 of the '775 Patent pursuant to 35 U.S.C. § 271(a) by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States Funai HDTVs, including, but not

limited to, the Funai HDTVs identified in Exhibit G hereto. Upon information and belief, Funai's infringement pursuant to 35 U.S.C. § 271(a) is ongoing.

90. Upon information and belief, since at least the date of this complaint, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of at least claims 2, 3, 4, 5, 6, 11, 12, 13, 14, 15, 16, 17, 18, 19, 21, and 23 of the '775 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, their designers, manufacturers, suppliers, distributors, resellers, software developers, customers, end users, and repair providers, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, Funai HDTVs made in accordance with the '775 Patent, including, but not limited to, the Funai HDTVs identified in Exhibit G hereto, by, among other things, providing instructions, manuals, and technical assistance relating to the installation, set up, use, operation, and maintenance of said Funai HDTVs. Upon information and belief, Defendants' inducement of infringement pursuant to 35 U.S.C. § 271(b) is ongoing.

91. In one example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims by providing distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, with digital televisions with System-on-Chip components and preinstalled digital video streaming apps, such as Netflix, Vudu, and YouTube, knowing and/or intending that, when connected to the Internet, Funai digital televisions infringe the above-identified claims of the '775 Patent, including, for example, receiving and/or decoding variable size digital video containers to generate and output digital video at a video monitor. In another example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims of the '775 Patent by knowingly and/or willfully providing user

manuals, service manuals, and Quick Start Guides, that explain, instruct, direct, cause, and encourage distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, to turn on Funai digital televisions, and to connect Funai digital televisions with pre-installed apps, such as Netflix, Vudu, and YouTube, to the Internet and related servers, thereby activating infringing functionalities.

92. In another example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims by providing distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, with digital televisions having System-on-Chip components, including portion receivers and/or decoders, detectors, and processors, knowing and/or intending that, when connected to a digital television antenna and/or RF digital television cable in the United States, Funai digital televisions infringe the above-identified claims of the '775 Patent, including, for example, by variable sized portions of the ATSC and/or cable television video stream. In another example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims of the '775 Patent by knowingly and/or willfully providing user manuals, service manuals, and Quick Start Guides, that explain, instruct, direct, cause, and encourage distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, to connect Funai digital televisions to digital television antennas and/or RF digital television cables, and to turn on the Funai digital televisions, thereby activating infringing functionalities.

93. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F committed the foregoing infringing activities without license from PMC and with notice of the '775 Patent.

94. The acts of infringement by Defendants' will continue unless enjoined by this Court.

95. PMC has been and will continue to be irreparably harmed and damaged by Defendants' acts of infringement of the '775 Patent and has no adequate remedy at law

COUNT VI: INFRINGEMENT OF THE '885 PATENT

96. Plaintiff incorporates the preceding paragraphs as if fully set forth herein.

97. The '885 Patent generally relates to the field of digital signal processing. The asserted claims of the '885 Patent recite novel methods of regulating the communication of embedded signals, detected in received and demodulated broadcast or cablecast transmissions, to a processor at a receiver station; novel methods of controlling the selection of a specific input source by a processor at a receiver station based on embedded data detected in demodulated transmission signals; and novel methods of processing, with the assistance of a control processor, portions of a stream of digital data detected in received television or video signals with a plurality of processors at a receiver station, to output video or audio.

98. Defendants Funai Electric, Funai Corp., and P&F infringes the '885 Patent by making, using, selling, and/or offering for sale in the United States, and/or importing into the United States, digital televisions that meet the elements of the asserted claims. For example, Funai digital televisions incorporate digital tuner components and System-on-Chip ("SoC") components that include a valve for regulating communication of embedded signals; processors on board the SoC components that select inputs from a plurality of sources, and a plurality of

processors that transfer and process various portions of a digital data stream to output audio and/or video.

99. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F have infringed at least claims 1, 9, 10, 11, 12, 13, 14, 15, 17, 21, 23, 26, 27, 100, 102, 103, 105, and 106 of the '885 Patent pursuant to 35 U.S.C. § 271(a) by making, using, offering to sell, and/or selling in the United States, and/or importing into the United States Funai HDTVs, including, but not limited to, the Funai HDTVs identified in Exhibit G hereto. Upon information and belief, Defendants' infringement pursuant to 35 U.S.C. § 271(a) is ongoing.

100. Upon information and belief, since at least the date of this complaint, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of at least claims 1, 9, 10, 11, 12, 13, 14, 15, 17, 21, 23, 26, 27, 100, 102, 103, 105, and 106 of the '885 Patent pursuant to 35 U.S.C. § 271(b), by actively and knowingly inducing, directing, causing, and encouraging others, including, but not limited to, their designers, manufacturers, suppliers, distributors, resellers, software developers, customers, end users, and repair providers, to make, use, sell, and/or offer to sell in the United States, and/or import into the United States, Funai HDTVs made in accordance with the '885 Patent, including, but not limited to, the Funai HDTVs identified in Exhibit G hereto, by, among other things, providing instructions, manuals, and technical assistance relating to the installation, set up, use, operation, and maintenance of said Funai HDTVs. Upon information and belief, Defendants' inducement of infringement pursuant to 35 U.S.C. § 271(b) is ongoing.

101. In one example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims by providing distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers,

designers, manufacturers, and suppliers, with digital televisions having digital tuner components and System-on-Chip (“SoC”) components that include a valve for regulating communication of embedded signals; processors on board the SoC components that select inputs from a plurality of sources; and a plurality of processors that transfer and process various portions of a digital data stream to output audio and/or video, knowing and/or intending that, when connected to a digital television antenna and/or RF digital television cable in the United States, Funai digital televisions infringe the above-identified claims of the ’885 Patent, including, for example, by regulating the communication of embedded signals, detected in received and demodulated broadcast or cablecast transmissions, to a processor at a receiver station; controlling the selection of a specific input source by a processor at a receiver station based on embedded data detected in demodulated transmission signals; and/or processing, with the assistance of a control processor, portions of a stream of digital data detected in received television or video signals with a plurality of processors at a receiver station, to output video or audio. In another example, Defendants Funai Electric, Funai Corp., and P&F have induced infringement of the above-identified claims of the ’885 Patent by knowingly and/or willfully providing user manuals, service manuals, and Quick Start Guides, that explain, instruct, direct, cause, and encourage distributors, resellers, audio and video integrators and consultants, software developers, customers, end users, repair providers, designers, manufacturers, and suppliers, to connect Funai digital televisions to digital television antennas and/or RF digital television cables, and to turn on the Funai digital televisions, thereby activating infringing functionalities.

102. Upon information and belief, Defendants Funai Electric, Funai Corp., and P&F has committed the foregoing infringing activities without license from PMC and with notice of the ’885 Patent.

103. The acts of infringement by Defendants will continue unless enjoined by this Court.

104. PMC has been and will continue to be irreparably harmed and damaged by Defendants' acts of infringement of the '885 Patent and has no adequate remedy at law

PRAYER FOR RELIEF

WHEREFORE, PMC prays for judgment in its favor against Defendants Funai Electric, Funai Corp., and P&F, and specifically, for the following relief:

A. Entry of judgment in favor of PMC and against Defendants Funai Electric, Funai Corp., and P&F on all counts;

B. Entry of judgment that Defendants Funai Electric, Funai Corp., and P&F have infringed the Patents-in-Suit;

C. Entry of judgment that Defendants' infringement of the '217, 2'649, '650, and 6'649 Patents has been willful;

D. An order permanently enjoining Defendants Funai Electric, Funai Corp., and P&F, together with their officers, directors, agents, servants, employees, and attorneys, and upon those persons in active concert or participation with them, from infringing the Patents-in-Suit;

E. An award of compensatory damages adequate to compensate PMC for Defendants' infringement of the Patents-in-Suit, in no event less than a reasonable royalty, trebled as a result of willful infringement as provided by 35 U.S.C. § 284;

F. PMC's reasonable fees for expert witnesses and attorneys, as provided by 35 U.S.C. § 285 or as otherwise permitted by law;

G. PMC's costs;

H. Pre-judgment and post-judgment interest on PMC's award, in an amount according to proof; and

H. All such other and further costs and relief as the Court deems just and proper.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38 of the Federal Rules of Civil Procedure, PMC hereby demands a trial by jury in this action of all claims so triable.

Dated: April 11, 2016

Respectfully submitted,

/s/ S. Calvin Capshaw

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CERTIFICATE OF SERVICE

I hereby certify that the all counsel of record who are deemed to have consented to electronic service are being served this 11th day of April, 2016, with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3). Any other counsel of record will be served by electronic mail, facsimile transmission and/or first class mail on this same date.

/s/ S. Calvin Capshaw

S. Calvin Capshaw