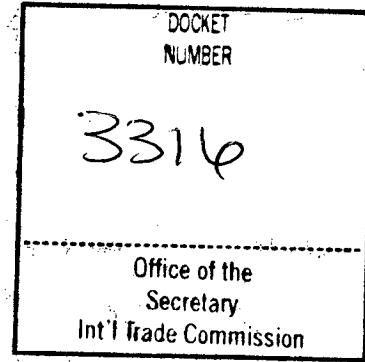


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May 7, 2018

**Via Hand Delivery**

The Honorable Lisa R. Barton  
Secretary to the Commission  
U.S. International Trade Commission  
500 E Street, S.W.,  
Room 112-A,  
Washington, D.C. 20436

Re: *Certain Infotainment Systems, Components Thereof, and Automobiles Containing the Same*, Inv. No. 337-TA-\_\_\_\_\_

Dear Secretary Barton,

Enclosed for filing on behalf of Complainant Broadcom Corporation (“Broadcom” or “Complainant”), please find the following documents in support of Complainant’s requests that the Commission commence an Investigation pursuant to Section 337 of the Tariff Act of 1930, as amended. Pursuant to the Commission Rules of Practice and Procedure, a request for confidential treatment of Confidential Exhibits 1C, 4C-5C, 53C-58C, and 78C-86C is also included with this submission.

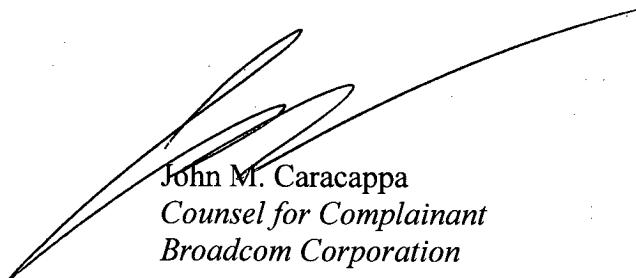
Complainant submits the following documents to accompany the Complaint filing:

1. An original and eight (8) copies of Complainant’s verified non-confidential Complaint, and (1) copy of the accompanying non-confidential exhibits in electronic form, with (1) copy of the Confidential Exhibits 1C, 4C-5C, 53C-58C, and 78C-86C, in electronic form segregated from the non-confidential exhibits (Commission Rules 201.6(c), 210.4(f)(3)(i) and 210.8(a));
2. Fifteen (15) additional copies of the verified non-confidential complaint, the Public Interest Statement, and fifteen (15) CDs of the non-confidential exhibits for service upon the proposed Respondents (Commission Rule 210.8(a)(1)(iii) and 210.11(a));

3. Fifteen (15) additional copies of Confidential Exhibits 1C, 4C-5C, 53C-58C, and 78C-86C on CDs for service upon the proposed Respondents (Commission Rule 210.9(a)(1)(iii));
4. Certified copies of U.S. Patent Nos. 6,937,187; 8,902,104; 7,512,752; 7,530,027; 8,284,844; and 7,437,583 (individually and respectively, “the ’187 patent,” “the ’104 patent,” “the ’752 patent,” “the ’027 patent,” “the ’844 patent,” and “the ’583 patent”; collectively, the “Asserted Patents”) (included in the Complaint as Exhibits 18, 24, 25, 28, 30, and 32 respectively) (Rule 210.12(a)(9)(i));
5. Certified copies of the assignment histories for the ’187, ’104, ’752, ’027, ’844, and ’583 patents; respectively referenced in the Complaint as Exhibits 19.1-19.8, 20.1-20.10, 21.1-21.7, 22, 23, 26, 31, 33, 96, 97, and 98<sup>1</sup> (Commission Rule 210.12(a)(9)(ii));
6. One certified copy of the prosecution history of each of the Asserted Patents and four (4) additional copies of the prosecution histories in electronic form (on a CD) (Commission Rule 210.12(c)(1)); and (4) additional copies of each reference document identified in the prosecution history of the Asserted Patents in electronic form (Commission Rule 210.12(c)(2));
7. One (1) additional copy of the non-confidential Complaint for service upon the Embassy of Japan (Commission Rule 210.8(a)(1)(iv));
8. A statement concerning the public interest pursuant to Commission Rule 210.8(b); and
9. A letter and certificate pursuant to Commission Rules 201.6(b) and 210.5(d) requesting confidential treatment of information appearing in Confidential Exhibits 1C, 4C-5C, 53C-58C, and 78C-86C to Complainant’s Verified Complaint.

Please contact me if you have any questions, or if you require additional documents or information.

Respectfully submitted,



John M. Caracappa  
Counsel for Complainant  
Broadcom Corporation

---

<sup>1</sup> Certified copies of Complaint Exhibits 96, 97, and 98 have been requested and will be provided once received.

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500 E Street, S.W.  
Room 112-A  
Washington, D.C. 20436

Re: *Certain Infotainment Systems, Components Thereof, and Automobiles Containing the Same*, Inv. No. 337-TA-\_\_\_\_\_

Dear Secretary Barton:

Steptoe & Johnson LLP represents Broadcom Corporation ("Broadcom" or "Complainant") in connection with a complaint pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337.

Pursuant to Commission Rules 201.6 and 210.5, 19 C.F.R. §§ 201.6 and 210.5, Complainant respectfully requests confidential treatment of the business information contained in Confidential Exhibits 1C, 4C-5C, 53C-58C, and 78C-86C. Complainant seeks confidential treatment of the information contained in these documents because the information discloses proprietary information that is not otherwise publicly available, and the disclosure of such information would cause substantial harm to Complainant.

The information in Confidential Exhibits 1C, 4C-5C, 53C-58C, and 78C-86C qualifies as confidential information pursuant to 19 C.F.R. § 201.6 in that it contains information, the disclosure of which would result in substantial harm to the competitive position of Complainant and certain third parties and also would impair the Commission's ability in the future to obtain such types of information in performance of its statutory function. Specifically, the confidential exhibits contain confidential proprietary relating to Complainant's practice of the asserted

The Honorable Lisa R. Barton  
May 7, 2018  
Page 2

**Steptoe**  
STEPTOE & JOHNSON LLP

patents and Complainant's investments relating to the exploitation of the asserted patents. I certify that substantially identical information is not reasonably available to the public.

Respectfully submitted,

John M. Caracappa

*Counsel for Complainant  
Broadcom Corporation*

**UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, DC**

**In the Matter of**

**CERTAIN INFOTAINMENT SYSTEMS,  
COMPONENTS THEREOF, AND  
AUTOMOBILES CONTAINING THE SAME**

**Inv. No. 337-TA-\_\_\_\_\_**

**STATEMENT OF PUBLIC INTEREST UNDER § 210.8(b)**

Pursuant to Commission Rule 210.8(b), Complainant Broadcom Corporation (“Complainant” or “Broadcom”) respectfully submits this separate statement regarding the potential effects to the public interest caused by the concurrently filed Complaint, titled “In the Matter of Certain Infotainment Systems, Components Thereof, and Automobiles Containing the Same” (the “Complaint”). As discussed below, exclusion of the infringing products identified in the Complaint would not have an adverse effect on public health and welfare, competitive conditions in the United States economy, the production of like or directly competitive articles in the United States, or United States consumers.

**I. HOW THE ARTICLES POTENTIALLY SUBJECT TO THE ORDERS ARE USED IN THE UNITED STATES**

The infringing articles are certain infotainment systems, components thereof, and automobiles containing the same (collectively, the “Accused Products”), including, without limitation, head units, rear seat entertainment units, units for displaying information or entertainment, cameras, controllers, processing components and circuits used in such infotainment systems (such as SoCs and GNSS processing devices, including GNSS receivers and GNSS modules) located in or remotely from a head unit, and automobiles that contain such infotainment systems and components that infringe one or more claims of U.S. Patent Nos.: 6,937,187 (“the ’187 patent”); 8,902,104 (“the ’104 patent”); 7,512,752 (“the ’752 patent”); 7,530,027 (“the ’027 patent”); 8,284,844 (“the ’844 patent”); and 7,437,583 (“the ’583 patent”) (collectively, the “Asserted Patents”).

The infringing infotainment systems, including, without limitation, certain infotainment application processors and GPS receivers, allow the users of such devices to perform a multitude of tasks in an automobile, including navigation, communications, and play video, among other things. The infringing infotainment systems and components thereof are incorporated into

automobiles. Proposed Respondents design, manufacture, import, sell for importation, sell after importation, and distribute the infringing Accused Products.

**II. PUBLIC HEALTH, SAFETY, AND WELFARE CONCERNS RELATING TO THE REQUESTED REMEDIAL ORDERS**

The issuance of an exclusion order and cease-and-desist orders against the Proposed Respondents would have no material adverse impact upon the public health, safety, or welfare in the United States. Traditionally, the Commission's public health, safety, or welfare concern has been limited to medical devices or pharmaceutical drugs. *See, e.g., Certain Toothbrushes and the Packaging Thereof*, Inv. No. 337-TA-391, Commission Opinion on Remedy, the Public Interest, and Bonding, 1997 WL 696291, at \*2 (Oct. 15, 1997) (explaining that the articles at issue "are not the type of product that have in the past raised public interest concerns (such as, for example, drugs or medical devices)"). Such products are not at issue here.

The Accused Products are used in or as consumer infotainment systems. They are not believed to implicate significant public health, safety, or welfare concerns in the United States. Rather, should the Commission issue an exclusion order and cease-and-desist orders, it would have the beneficial effect of protecting Complainant's intellectual property rights and eliminating Proposed Respondents' unfair competition. *See, e.g., id.* (explaining that "the public interest favors the protection of U.S. intellectual property rights"); *see also Certain Hardware Logic Emulation Systems and Components Thereof*, Inv. No. 337-TA-383, Commission Opinion on Remedy, the Public Interest, and Bonding, 1996 WL 1056217, at \*5 (Oct. 15, 1996).

**III. LIKE OR DIRECTLY COMPETITIVE ARTICLES THAT COMPLAINANT, ITS LICENSEES, OR THIRD PARTIES MAKE THAT COULD REPLACE THE SUBJECT ARTICLES IF THEY WERE TO BE EXCLUDED**

Upon information and belief, there are numerous companies that supply infotainment systems, components thereof, and automobiles containing the same that are similar to those

implicated in this action. Similarly, there are ample third-party suppliers who manufacture and sell infotainment systems, components thereof, and automobiles containing the same that are outside the scope of this investigation. For example, companies including Harman, Bosch, Continental, Alpine, and Delphi design and manufacture infotainment systems that could replace the infotainment systems at issue in this investigation. Similarly, numerous companies manufacture GPS processors that could be used to replace the GPS processing chips at issue in this investigation. In addition, various companies, including Qualcomm, STMicro, and NXP, manufacture infotainment processors that could be used to replace the infotainment processing chips at issue in this investigation. Manufacturers of infotainment systems and automobiles containing infotainment systems and substantially similar systems and products, therefore have access to competitive, substitute devices to incorporate into their end products. Accordingly, exclusion of the infringing articles would not materially harm public interests.

**IV. ABILITY OF COMPLAINANT, ITS LICENSEES, OR THIRD PARTIES TO REPLACE THE VOLUME OF ARTICLES SUBJECT TO THE REQUESTED REMEDIAL ORDERS IN A COMMERCIALLY REASONABLE TIME IN THE UNITED STATES**

Upon information and belief, there are third party component suppliers and automotive infotainment system manufacturers with the capacity to replace the volume of articles subject to the requested remedial orders within a commercially reasonable time in the United States.

**V. HOW THE REQUESTED REMEDIAL ORDERS WOULD IMPACT CONSUMERS**

The issuance of an exclusion order or cease-and-desist orders in this investigation will not adversely impact consumers. Other manufacturers of infotainment systems, components thereof, and automobiles containing the same can adequately service the United States market.

## VI. CONCLUSION

The proposed investigation, titled “In the Matter of Certain Infotainment Systems, Components Thereof, and Automobiles Containing the Same,” will not adversely affect the public interest.

Dated: May 7, 2018

Respectfully submitted,

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*Counsel for Complainant  
Broadcom Corporation*

UNITED STATES INTERNATIONAL TRADE COMMISSION  
Washington, DC

**In the Matter of**

CERTAIN INFOTAINMENT SYSTEMS,  
COMPONENTS THEREOF, AND  
AUTOMOBILES CONTAINING THE  
SAME

Inv. No. 337-TA-\_\_\_\_\_

**VERIFIED COMPLAINT OF BROADCOM CORPORATION  
UNDER SECTION 337 OF THE TARIFF ACT OF 1930, AS AMENDED**

**COMPLAINANT**

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## TABLE OF CONTENTS

I.	INTRODUCTION .....	1
II.	THE PARTIES .....	4
A.	Complainant.....	4
B.	Proposed Respondents .....	6
1.	The Toyota Respondents .....	6
(a)	Toyota Motor Corporation.....	6
(b)	Toyota Motor North America, Inc.....	6
(c)	Toyota Motor Sales, U.S.A., Inc. ....	7
(d)	Toyota Motor Engineering & Manufacturing North America, Inc. ....	7
(e)	Toyota Motor Manufacturing, Indiana, Inc. ....	8
(f)	Toyota Motor Manufacturing, Kentucky, Inc.....	8
(g)	Toyota Motor Manufacturing, Mississippi, Inc. ....	8
(h)	Toyota Motor Manufacturing, Texas, Inc.....	9
2.	The Panasonic Respondents .....	9
(a)	Panasonic Corporation.....	9
(b)	Panasonic Corporation of North America .....	10
3.	The Denso Ten Respondents .....	10
(a)	Denso Ten Limited .....	10
(b)	Denso Ten America Limited .....	11
4.	The Renesas Respondents.....	11
(a)	Renesas Electronics Corporation.....	11
(b)	Renesas Electronics America, Inc. ....	12
5.	Respondent Japan Radio Co., Ltd.....	12
III.	THE TECHNOLOGY AND PRODUCTS AT ISSUE .....	13

A.	The Technology .....	13
B.	The Accused Products .....	13
IV.	THE PATENTS AT ISSUE.....	14
A.	The '187 Patent.....	15
1.	Identification of the Patent and Ownership by Complainant.....	15
(a)	Non-Technical Description of the '187 Patent .....	15
(b)	Foreign Counterparts to the '187 Patent.....	16
B.	The '104 Patent.....	17
1.	Identification of the Patent and Ownership by Complainant.....	17
(a)	Non-Technical Description of the '104 Patent .....	17
(b)	Foreign Counterparts to the '104 Patent.....	19
C.	The '752 Patent.....	19
1.	Identification of the Patent and Ownership by Complainant.....	19
2.	Non-Technical Description of the '752 Patent .....	19
3.	Foreign Counterparts to the '752 Patent.....	20
D.	The '027 Patent.....	20
1.	Identification of the Patent and Ownership by Complainant.....	20
2.	Non-Technical Description of the '027 Patent .....	21
3.	Foreign Counterparts to the '027 Patent.....	21
E.	The '844 Patent.....	21
(a)	Identification of the Patent and Ownership by Complainant.....	21
(b)	Non-Technical Description of the '844 Patent .....	22
(c)	Foreign Counterparts to the '844 Patent.....	22
F.	The '583 Patent.....	22

(a)	Identification of the Patent and Ownership by Complainant.....	22
(b)	Non-Technical Description of the '583 Patent .....	23
(c)	Foreign Counterparts to the '583 Patent .....	23
G.	Licensees under the Asserted Patents.....	23
V.	SPECIFIC INSTANCES OF IMPORTATION AND SALE.....	24
VI.	UNLAWFUL AND UNFAIR ACTS COMMITTED BY PROPOSED RESPONDENTS—PATENT INFRINGEMENT.....	28
A.	Infringement of U.S. Patent No. 6,937,187 .....	29
B.	Infringement of U.S Patent 8,902,104 .....	33
C.	Infringement of U.S. Patent No. 7,512,752 .....	37
D.	Infringement of U.S. Patent No. 7,530,027 .....	40
E.	Infringement of U.S. Patent No. 8,284,844 .....	43
F.	Infringement of U.S. Patent No. 7,437,583 .....	46
VII.	THE DOMESTIC INDUSTRY .....	48
A.	Technical Prong .....	49
B.	Economic Prong.....	50
VIII.	HARMONIZED TARIFF SCHEDULE INFORMATION.....	52
IX.	RELATED LITIGATION .....	52
X.	RELIEF REQUESTED .....	53

**DOCUMENT EXHIBIT LIST**

Exhibit No.	Description	Designation
1C	Licensing list	Confidential
2	Broadcom Corporation Form 10K (2017)	Public
3	Broadcom Corporation Form 10K (2016)	Public
4C	Declaration of Steven Terronez in Support of the Complaint	Confidential
5C	Declaration of Gautier Chapeaux in Support of the Complaint	Confidential
6	2017 Toyota Motor Corporation Form 20-F	Public
7	2017 Toyota Operations by State	Public
8	2017 Panasonic Corporation Annual Report	Public
9	Company Overview of Panasonic Corporation	Public
10	Denso Integrated Report 2017	Public
11	About Denso Ten	Public
12	Denso Ten press release, "Change of our capital structure and company name" (Nov. 1, 2017)	Public
13	About Denso Ten	Public
14	Renesas Corporate Outline	Public
15	Renesas Corporate Overview	Public
16	Renesas Global Operations	Public
17	Photo, JRC TS0072 GPS	Public
18	Certified copy of U.S. Patent 6,937,187	Public
19.1-19.8	Certified assignments of U.S. Patents 6,937,187; 8,902,104; 7,512,752; 7,530,027; 7,437,583	Public
20.1-20.10	Certified assignments of U.S. Patents 6,937,187; 8,902,104; 7,512,752; 7,530,027; 7,437,583	Public
21.1-21.7	Certified assignments of U.S. Patents 6,937,187; 8,902,104; 7,512,752; 7,530,027; 7,437,583	Public
22	Certified assignment of U.S. Patent 6,937,187	Public
23	Certified assignment of U.S. Patents 6,937,187; 8,902,104	Public
24	Certified copy of U.S. Patent 8,902,104	Public
25	Certified copy of U.S. Patent 7,512,752	Public
26	Certified assignment of U.S. Patent 7,512,752	Public
27	Identification of foreign patents for U.S. Patent 7,512,752	Public
28	Certified copy of U.S. Patent 7,530,027	Public
29	Identification of foreign patents for U.S. Patent 7,530,027	Public
30	Certified copy of U.S. Patent 8,284,844	Public
31	Certified assignment of U.S. Patent 8,284,844	Public
32	Certified copy of U.S. Patent 7,437,583	Public
33	Certified assignment of U.S. Patent 7,437,583	Public
34	Photos of 2017 Toyota Prius for sale	Public
35	Photo of Prius navigation system kit	Public
36	Photo of TI Infotainment processor	Public

Exhibit No.	Description	Designation
37	Photo of JRC GPS receiver	Public
38	VIN decoding webpage	Public
39	Order details and shipping information for Toyota display units	Public
40	Photo of Denso Ten infotainment system	Public
41	Photo of JRC GPS receiver TS0066	Public
42	Photo of Renesas processor	Public
43	Order details and shipping information for Toyota parts	Public
44	Infringement claim chart for U.S. Patent 6,937,187	Public
45	Infringement claim chart for U.S. Patent 8,902,104	Public
46	Infringement claim chart for U.S. Patent 7,512,752	Public
47	Infringement claim chart for U.S. Patent 7,530,027	Public
48	Infringement claim chart for U.S. Patent 7,530,027	Public
49	Infringement claim chart for U.S. Patent 8,284,844	Public
50	Infringement claim chart for U.S. Patent 8,284,844	Public
51	Infringement claim chart for U.S. Patent 8,284,844	Public
52	Infringement claim chart for U.S. Patent 7,437,583	Public
53C	Domestic industry claim chart for U.S. Patent 8,902,104	Confidential
54C	Domestic industry claim chart for U.S. Patent 6,937,187	Confidential
55C	Domestic industry claim chart for U.S. Patent 7,530,027	Confidential
56C	Domestic industry claim chart for U.S. Patent 7,437,583	Confidential
57C	Domestic industry claim chart for U.S. Patent 7,512,752	Confidential
58C	Domestic industry claim chart for U.S. Patent 8,284,844	Confidential
59	Infringement claim chart for U.S. Patent 7,512,752	Public
60	GPS receiver CCA-700 module specification	Public
61	R-Car H2 _ Renesas Electronics America	Public
62	Declaration of Steven Goldberg in Support of the Complaint	Public
63	<i>Yasunori Aiga, Development of GPS Receiver</i>	Public
64	Japan Radio Co. Company Profile	Public
65	Texas Instruments, Technical Reference Manual for DRA75x, DRA74x	Public
66	Broadcom Corporation Form 10K (2014)	Public
67	Declaration of Dr. Joseph P. Havlicek in Support of the Complaint	Public
68	Renesas R-Car H3 / M3 Device Manual	Public
69	R-Car H3 - Renesas Electronics America - Overview	Public
70	Panasonic UniPhier Product Sheet	Public
71	Processor SDK Linux Automotive Data Sheet (Ti DRA75x)	Public
72	Renesas products	Public
73	R-Mobile A1 _ Renesas Electronics America	Public
74	Renesas R-Mobile A1 – Portable Electronics Application Processor	Public
75	Declaration of Scott Acton in Support of the Complaint	Public

Exhibit No.	Description	Designation
76	Broadcom BCM4774 – Second-Generation GNSS Location Hub with Galileo Support	Public
77	White Paper – Secure User Plane Location (Oct. 2007)	Public
78C	Broadcom Hardware Data Module 74371-1HDM105-R	Confidential
79C	Broadcom HEVD Top level Firmware Architecture Specification	Confidential
80C	Nexus Usage	Confidential
81C	Tim Hellman, “Decoder Motion Bandwidth Optimization”	Confidential
82C	Broadcom AVD Mocomp Cache – Design Specification – Revision 0.6	Confidential
83C	Broadcom – BCM7445-D0 Memory to Memory Compositor – M2MC Architecture Specification	Confidential
84C	Broadcom – BCG Graphics Report	Confidential
85C	Broadcom – Nexus Graphics2D	Confidential
86C	Broadcom – HVD Low Power Design Specification – Version 1.1	Confidential
87	Renesas products	Public
88	R-Mobile A1 Renesas Electronics America	Public
89	Declaration of Bruce McNair in Support of the Complaint	Public
90	Infringement claim chart for U.S. Patent 7,437,583	Public
91	Identification of foreign patents for U.S. Patent 6,937,187	Public
92	Identification of foreign patents for U.S. Patent 8,902,104	Public
93	Identification of foreign patents for U.S. Patent 8,284,844	Public
94	Photo of Navigation Computer Assembly for Toyota Camry Part No. 86840-06011	Public
95	Toyota Website – Entune	Public
96	Assignment for U.S. Patent No. 7,592,950	Public
97	Assignment for U.S. Patent No. 6,630,945	Public
98	Assignment of patents from Avago Technologies General IP (Singapore) PTE. LTD. to Broadcom Corporation	Public
99	GPS receiver CCA-700 module index	Public

## APPENDICES

Appendix	Description	Designation
A	Certified Copy of Prosecution History for U.S. Patent No. 6,937,187	Public
B	Cited References for U.S. Patent No. 6,937,187	Public
C	Certified Copy of Prosecution History for U.S. Patent No. 8,902,104	Public
D	Cited References for U.S. Patent No. 8,902,104	Public
E	Certified Copy of Prosecution History for U.S. Patent No. 7,512,752	Public
F	Cited References for U.S. Patent No. 7,512,752	Public
G	Certified Copy of Prosecution History for U.S. Patent No. 7,530,027	Public
H	Cited References for U.S. Patent No. 7,530,027	Public
I	Certified Copy of Prosecution History for U.S. Patent No. 8,284,844	Public
J	Cited References for U.S. Patent No. 8,284,844	Public
K	Certified Copy of Prosecution History for U.S. Patent No. 7,437,583	Public
L	Cited References for U.S. Patent No. 7,437,583	Public

## I. INTRODUCTION

1. Broadcom Corporation (“Broadcom” or “Complainant”) respectfully requests that the United States International Trade Commission commence an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, to remedy the unlawful and unauthorized importation into the United States, the sale for importation, or the sale within the United States after importation, of certain infotainment systems, components thereof, and automobiles containing the same (collectively, the “Accused Products”), including, without limitation, head units, rear seat entertainment units, units for displaying information or entertainment, cameras, controllers, processing components and circuits used in such infotainment systems (such as SoCs and GNSS processing devices, including GNSS receivers and GNSS modules) located in or remotely from a head unit, and automobiles that contain such infotainment systems and components that infringe one or more claims of U.S. Patent Nos.: 6,937,187 (“the ’187 patent”); 8,902,104 (“the ’104 patent”); 7,512,752 (“the ’752 patent”); 7,530,027 (“the ’027 patent”); 8,284,844 (“the ’844 patent”); and 7,437,583 (“the ’583 patent”) (collectively, the “Asserted Patents”).

2. Broadcom has a long history of developing innovative, cutting-edge technologies in the semiconductor industry. For example, Broadcom’s wireless communications business unit has been at the forefront of innovation in the design and development of GPS processing devices and related services. Similarly, Broadcom’s set-top box division has generated and continues to develop advancements in the fields of graphics and video processing. The Proposed Respondents have unfairly incorporated Broadcom’s technology into their products, including imported infotainment systems and automobiles containing such systems.

3. The Asserted Patents can be broken down into the following general categories:

Asserted Patents	Category
6,937,187 and 8,902,104	“GNSS Patents”
8,284,844 and 7,530,027	“Video/Graphics Processing Patents”
7,512,752 and 7,437,583	“Power/Memory Management Patents”

4. The Asserted Patents claim valuable technology in the field of GNSS processing, video and graphics processing, and power and memory management. Complainant owns, by assignment, each of the Asserted Patents, which are valid and enforceable United States patents. These patents have been licensed to leading technology companies in the United States and throughout the world, as listed in Confidential Exhibit 1C.

5. Complainant has invested considerable resources into the development of a domestic industry that exploits the Asserted Patents within the United States. This domestic industry includes semiconductor products (such as wafers, chips (including System-on-Chip (“SoC”), and chipsets) that practice one or more of the Asserted Patents and are used in various consumer products, including cellular telephones and audiovisual products such as set-top boxes.

6. The Proposed Respondents are: Toyota Motor Corporation; Toyota Motor North America, Inc.; Toyota Motor Sales, U.S.A., Inc.; Toyota Motor Engineering & Manufacturing North America, Inc.; Toyota Motor Manufacturing, Indiana, Inc.; Toyota Motor Manufacturing, Kentucky, Inc.; Toyota Motor Manufacturing, Mississippi, Inc.; and Toyota Motor Manufacturing, Texas, Inc. (collectively referred to as the “Toyota Respondents.”); Panasonic Corporation and Panasonic Corporation of North America (collectively referred to as the “Panasonic Respondents”); Denso Ten Limited and Denso Ten America Limited (collectively referred to as the “Denso Ten Respondents”); Renesas Electronics Corporation and Renesas Electronics America, Inc. (collectively referred to as the “Renesas Respondents”); and Japan Radio Co., Ltd. (“JRC”).

7. The Proposed Respondents directly and/or indirectly infringe one or more claims of the Asserted Patents identified below and as further detailed below. The asserted claims are:

<b>U.S. Patent No.</b>	<b>Asserted Claims<sup>1</sup></b>
6,937,187	1-8, 9, 10
8,902,104	<b>1, 2, 5-11, 12, 13, 15, 16</b>
7,512,752	1-10
7,530,027	<b>11-20</b>
8,284,844	1-14
7,437,583	<b>17-24, 25, 26</b>

8. Proposed Respondents' activities with respect to the importation into the United States, the sale for importation into the United States, and/or the sale within the United States after importation of the Accused Products, as defined above and as described more fully below, are unlawful under 19 U.S.C. § 1337(a)(1)(B)(i), in that they constitute the infringement of one or more valid and enforceable claims of the Asserted Patents. Additionally, a domestic industry as required by 19 U.S.C. §§ 1337(a)(2) and (3) exists in the United States relating to the technology protected by the Asserted Patents.

9. Complainant seeks relief from the Commission in the form of a limited exclusion order specifically directed to each Proposed Respondent, pursuant to 19 U.S.C. § 1337(d), excluding from entry into the United States any articles, including infotainment systems, components thereof, and automobiles containing the same that infringe one or more of the '187, '104, '752, '027, '844, and '583 patents.

10. Complainant further seeks as relief cease-and-desist orders, pursuant to 19 U.S.C. § 1337(d), that prohibit each Proposed Respondent from, *inter alia*, importing, selling, offering for sale (including via the Internet or electronic mail), advertising (including via the Internet or electronic mail), or distributing articles, including infotainment systems, components thereof,

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<sup>1</sup> Independent claims are indicated in bold type.

and automobiles containing the same that infringe one or more of the '187, '104, '752, '027, '844, and '583 patents.

11. Complainant further seeks that the Commission impose a bond upon Proposed Respondents who continue to import infringing articles, including infotainment systems, components thereof, and automobiles containing the same, during the 60-day Presidential review period pursuant to 19 U.S.C. § 1337(j).

12. Complainant further seeks any other relief the Commission is authorized to grant and deems appropriate.

## **II. THE PARTIES**

### **A. Complainant**

13. Broadcom Corporation is a California corporation with its principal place of business at 1320 Ridder Park Drive, San Jose, California 95131. It was acquired by Avago Technologies Limited in 2016 and currently operates as a wholly-owned indirect subsidiary of an ultimate corporate parent now known as Broadcom Inc. (formerly known as Broadcom Limited), both of which are referred to herein as "Broadcom Inc."

14. Founded by Henry Samueli and Henry Nicholas in 1991 in Los Angeles, California, Broadcom has grown to be a global leader in the semiconductor industry. Broadcom provides one of the industry's broadest portfolios of highly-integrated SoCs that seamlessly deliver voice, video, data, GNSS, and multimedia connectivity in the home, office, mobile, and automotive environments. From its early headquarters in Irvine, California, Broadcom has expanded its footprint across the United States and around the world, employing thousands of individuals globally and in the United States.

15. Broadcom's continued success depends in substantial part upon its constant attention to research and development. From 2015 to 2017, Broadcom Inc. and its predecessor Avago Technologies Limited spent \$7.0 billion on research and development for its products. \$3.3 billion of this \$7.0 billion was spent in 2017 alone. Exhibit 2 (Broadcom Limited 2017 Form 10-K) at 8.

16. Broadcom relies on the patent system as an important part of its intellectual property program to protect the valuable technology and inventions resulting from this research and development. As of October 19, 2017, Broadcom Inc. had approximately 24,250 U.S. and international patents and approximately 2,061 U.S. and international pending patent applications. Broadcom Inc.'s research and development efforts are presently resulting in approximately 150 new patent applications per year. Exhibit 2 (Broadcom Limited 2017 Form 10-K) at 10.

17. Broadcom's Wireless Communications Combos business unit ("WCC") is part of Broadcom Inc.'s Wireless Communications segment. Broadcom's WCC business unit is responsible for the design, development, and distribution of a family of Global Positioning System (GPS), assisted-GPS (A-GPS), and Global Navigation Satellite System (GNSS) processing devices, software, and data services, including discrete and integrated GNSS location controllers. *See* Confidential Exhibit 4C (Terronez Decl.) at ¶ 5. As described more fully below, Broadcom GNSS processing devices practice the Asserted GNSS Patents.

18. Broadcom's Set-Top Box Solutions is one of five major applications for Broadcom Inc.'s wired infrastructure segment. Broadcom's Set-Top Box Division ("STB Division") is responsible for the design, development, and distribution of complete SoC platforms for cable, satellite, Internet Protocol, over-the-top, and terrestrial set-top boxes. *See* Confidential Exhibit 5 (Chapeaux Decl.) at ¶ 5. As described more fully below, Broadcom SoCs

and Broadcom set-top boxes containing such SoCs practice the Asserted Video/Graphics Processing and Power/Memory Management Patents.

## **B. Proposed Respondents**

### **1. The Toyota Respondents**

19. Collectively, the Toyota Respondents design, manufacture, import, sell for importation, sell after importation, and distribute the infringing infotainment systems and automobiles containing infotainment systems that infringe the Asserted Patents.

#### **(a) Toyota Motor Corporation**

20. On information and belief, Toyota Motor Corporation is a corporation organized under the laws of Japan headquartered at 1 Toyota-cho, Toyota City, Aichi Prefecture 471-8571, Japan. Toyota Motor Corporation designs, develops, manufactures, imports, and sells after importation automobiles and automobile components. On information and belief, Toyota Motor Corporation is the worldwide parent corporation for other Toyota entities and is responsible, directly and/or indirectly, for at least the Toyota Respondents' infringing activities and products. *See, e.g.*, Exhibit 6 (2017 Toyota Annual Report) at 53-54.

21. On information and belief, Toyota Motor Corporation designs, manufactures, sells for importation, imports, and/or sells after importation infotainment systems, components thereof, and automobiles containing the same that infringe the Asserted Patents. *See, e.g.*, Exhibit 6 at 26-32 (describing Toyota's work in enhancing vehicle functionality, including advancing information service functions that integrate vehicles with telecommunication systems and research and development of platform technologies to make connected services a reality).

#### **(b) Toyota Motor North America, Inc.**

22. On information and belief, Toyota Motor North America, Inc. is a corporation organized under the laws of California headquartered at 6565 Headquarters Dr., Plano, Texas

75024. Toyota Motor North America, Inc. brings together Toyota's marketing, sales, engineering, and manufacturing arms in North America on one shared, state-of-the-art campus. *See Exhibit 7 (2017 Toyota Operations by State webpage) at 6.* On information and belief, Toyota Motor Corporation designs, manufactures, sells for importation, imports, and/or sells after importation infotainment systems, components thereof, and automobiles containing the same that infringe the Asserted Patents.

**(c) Toyota Motor Sales, U.S.A., Inc.**

23. On information and belief, Toyota Motor Sales, U.S.A., Inc. is a corporation organized under the laws of California headquartered at 6565 Headquarters Dr., Plano, Texas 75024. Toyota Motor Sales, U.S.A., Inc. is the U.S. sales, marketing, distribution, and customer service arm for Toyota and Lexus in the 49 continental states. *See Exhibit 7 (2017 Toyota Operations by State webpage) at 7.* On information and belief, Toyota Motor Sales, U.S.A., Inc. designs, manufactures, sells for importation, imports, and/or sells after importation infotainment systems, components thereof, and automobiles containing the same that infringe the Asserted Patents.

**(d) Toyota Motor Engineering & Manufacturing North America, Inc.**

24. On information and belief, Toyota Motor Engineering & Manufacturing North America, Inc. is a corporation organized under the laws of Kentucky headquartered at 6565 Headquarters Dr., Plano, Texas 75024. Toyota Motor Engineering & Manufacturing North America, Inc. is responsible for Toyota's engineering design and development and manufacturing activities in the United States, Mexico, and Canada. *See Exhibit 7 (2017 Toyota Operations by State webpage) at 4.* On information and belief, Toyota Motor Engineering & Manufacturing North America, Inc. designs, manufactures, sells for importation, imports, and/or

sells after importation infotainment systems, components thereof, and automobiles containing the same that infringe the Asserted Patents.

**(e) Toyota Motor Manufacturing, Indiana, Inc.**

25. On information and belief, Toyota Motor Manufacturing, Indiana, Inc. is a corporation organized under the laws of Indiana headquartered at 4000 Tulip Tree Drive, Princeton, Indiana 47670. On information and belief, Toyota Motor Manufacturing, Indiana, Inc. designs, manufactures, sells for importation, imports, and/or sells after importation infotainment systems, components thereof, and automobiles containing the same that infringe the Asserted Patents, including manufacturing the Toyota Sienna, Sequoia, and Highlander, that also infringe the Asserted Patents. *See, e.g.*, Exhibit 7 (2017 Toyota Operations by State webpage) at 5.

**(f) Toyota Motor Manufacturing, Kentucky, Inc.**

26. On information and belief, Toyota Motor Manufacturing, Kentucky, Inc. is a corporation organized under the laws of Kentucky headquartered at 25 Atlantic Avenue, Erlanger, Kentucky 41018. On information and belief, Toyota Motor Manufacturing, Kentucky, Inc. designs, manufactures, sells for importation, imports, and/or sells after importation infotainment systems, components thereof, and automobiles containing the same that infringe the Asserted Patents, including manufacturing the Toyota Avalon and Camry and the Lexus ES 350, that also infringe the Asserted Patents. *See, e.g.*, Exhibit 7 (2017 Toyota Operations by State webpage) at 5.

**(g) Toyota Motor Manufacturing, Mississippi, Inc.**

27. On information and belief, Toyota Motor Manufacturing, Mississippi, Inc. is a corporation organized under the laws of Mississippi headquartered at 398 E. Main Street, Tupelo, Mississippi 38804. On information and belief, Toyota Motor Manufacturing,

Mississippi, Inc. designs, manufactures, sells for importation, imports, and/or sells after importation infotainment systems, components thereof, and automobiles containing the same that infringe the Asserted Patents, including manufacturing the Toyota Corolla, that also infringe the Asserted Patents. *See, e.g.*, Exhibit 7 (2017 Toyota Operations by State webpage) at 6.

**(h) Toyota Motor Manufacturing, Texas, Inc.**

28. On information and belief, Toyota Motor Manufacturing, Texas, Inc. is a corporation organized under the laws of Texas headquartered at 1 Lone Star Pass, San Antonio, Texas 78264. On information and belief, Toyota Motor Manufacturing, Texas, Inc. designs, manufactures, sells for importation, imports, and/or sells after importation infotainment systems, components thereof, and automobiles containing the same that infringe the Asserted Patents, including manufacturing the Toyota Tacoma and Tundra, that also infringe the Asserted Patents. *See, e.g.*, Exhibit 7 (2017 Toyota Operations by State webpage) at 5.

**2. The Panasonic Respondents**

**(a) Panasonic Corporation**

29. On information and belief, Panasonic Corporation is a corporation organized under the laws of Japan headquartered at 1006, Oaza Kadoma, Kadoma-shi, Osaka 571-8501, Japan. Panasonic Corporation designs and manufactures various electronics and other products for automotive, business-to-business, consumer electronics, and housing applications. *See* Exhibit 8 (2017 Panasonic Corporation Annual Report) at 1. On information and belief, Panasonic Corporation is the worldwide parent corporation for other Panasonic entities and is responsible, directly and/or indirectly, for at least the Panasonic Respondents' infringing activities and products.

30. On information and belief, Panasonic Corporation designs, manufactures, sells for importation, imports, and/or sells after importation both infotainment systems and components thereof that infringe the Asserted Patents. *See, e.g.*, Exhibit 8 at 47.

**(b) Panasonic Corporation of North America**

31. On information and belief, Panasonic Corporation of North America is a corporation organized under the laws of New Jersey headquartered at Two Riverfront Plaza, 828 McCarter Highway, Newark, New Jersey 07102. Panasonic Corporation of North America is a subsidiary of Panasonic Corporation and develops, manufactures, markets, sells, and services digital and other electronics products for consumer, business, and industrial use in North America. *See, e.g.*, Exhibit 9 (Panasonic America background).

32. On information and belief, Panasonic Corporation of North America designs, manufactures, sells for importation, imports, and/or sells after importation infotainment systems and components thereof that infringe the Asserted Patents. *See, e.g.*, Exhibit 9 (Panasonic America background).

**3. The Denso Ten Respondents<sup>2</sup>**

**(a) Denso Ten Limited**

33. On information and belief, Denso Ten Limited is a corporation organized under the laws of Japan headquartered at 2-28, Goshō-dori 1-chome, Hyogo-ku, Kobe City, Japan 652-8510. Denso Ten Limited is in the business of designing, developing, manufacturing, selling in the United States, selling into the United States after importation, selling for importation into the United States, and importing into the United States various Accused Products including, without limitation, infotainment systems and components thereof. *See* Exhibit 10 (Denso Integrated

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<sup>2</sup> In November 2017, following some changes to its corporate ownership, Denso Ten changed its name from Fujitsu Ten to Denso Ten. Exhibit 12.

Report 2017) at 55. On information and belief, Denso Ten Limited is the worldwide parent corporation for other Denso Ten entities and is responsible, directly and/or indirectly, for at least the Denso Ten Respondents' infringing activities and products.

34. On information and belief, Denso Ten Limited designs, manufactures, sells for importation, imports, and/or sells after importation infotainment systems and components thereof that infringe the Asserted Patents. *See, e.g.*, Exhibit 10 (Denso Integrated Report 2017) at 55; Exhibit 11 (“About Denso Ten” webpage) at 1; Exhibit 12 (Denso Ten press release).

**(b) Denso Ten America Limited**

35. On information and belief, Denso Ten America Limited is a corporation organized under the laws of California headquartered at 20100 Western Avenue, Torrance, California 90501. Denso Ten America Limited is in the business of marketing, product planning, procurement, sale, quality control, servicing, development, and design of automobile-related equipment and parts. *See* Exhibit 13 (“About Denso Ten” webpage).

36. On information and belief, Denso Ten America Limited designs, manufactures, sells for importation, imports, and/or sells after importation infotainment systems and components thereof that infringe the Asserted Patents. *See, e.g.*, Exhibit 13 (“About Denso Ten” webpage).

**4. The Renesas Respondents**

**(a) Renesas Electronics Corporation**

37. On information and belief, Renesas Electronics Corporation is a corporation organized under the laws of Japan headquartered at Toyosu Foresia, 3-2-24 Toyosu, Koto-ku, Tokyo 135-0061, Japan. Renesas Electronics Corporation is in the business of research, development, design, manufacture, sale, and servicing of semiconductor products. *See* Exhibit 14 (Renesas Corporate Outline webpage). On information and belief, Renesas Electronics

Corporation is the worldwide parent corporation for other Renesas entities and is responsible, directly and/or indirectly, for at least the Renesas Respondents' infringing activities and products.

38. On information and belief, Renesas Electronics Corporation designs, manufactures, sells for importation, imports, and/or sells after importation infotainment system components that infringe the Asserted Patents. *See, e.g.*, Exhibit 15 (Renesas Corporate Overview webpage).

**(b) Renesas Electronics America, Inc.**

39. On information and belief, Renesas Electronics America, Inc. is a corporation organized under the laws of California with its principal place of business at 1001 Murphy Ranch Road Milpitas, California 95035.

40. On information and belief, Renesas Electronics America, Inc. designs, manufactures, sells for importation, imports, and/or sells after importation infotainment systems components that infringe the Asserted Patents. *See, e.g.*, Exhibit 16 at 2 (Renesas Global Operations webpage).

**5. Respondent Japan Radio Co., Ltd.**

41. On information and belief, Japan Radio Co., Ltd. (JRC) is a corporation organized under the laws of Japan with its principal place of business at Nakano Central Park East, 10-1, Nakano 4-chome, Nakano-ku, Tokyo 164-8570, Japan.

42. On information and belief, JRC designs, manufactures, sells for importation, imports, and/or sells after importation infotainment system components that infringe the Asserted Patents. *See, e.g.*, Exhibit 17 (photo of JRC TS0072 GPS receiver (marked "Japan") found in Navigation System Kit in Toyota Prius).

### **III. THE TECHNOLOGY AND PRODUCTS AT ISSUE<sup>3</sup>**

#### **A. The Technology**

43. Complainant Broadcom's Asserted Patents generally relate to the field of GNSS processing, video and graphics processing, and power and memory management. They concern technologies used in infotainment systems, components thereof, and automobiles containing the same imported into the United States, sold for importation into the United States, or sold within the United States after importation by or on behalf of the Proposed Respondents.

#### **B. The Accused Products<sup>4</sup>**

44. The Accused Products are generally infotainment systems, components thereof, and automobiles containing the same, that are imported, marketed, and/or sold by Proposed Respondents in the United States. Pursuant to Commission Rule 210.12(a)(12) (19 C.F.R. § 210.12(a)(12)) states in plain English that the categories of products accused include, without limitation, head units, rear seat entertainment units, units for displaying information or entertainment, cameras, controllers, processing components and circuits used in such infotainment systems (such as SoCs and GNSS processing devices, including GNSS receivers and GNSS modules) located in or remotely from a head unit, and automobiles that contain such infotainment systems and components that infringe one or more claims of the Asserted Patents.

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<sup>3</sup> The non-technical description of the patented technology provided herein is provided solely to comply with the Commission Rules and is not intended to limit, define, or otherwise effect the construction and/or application of any of the Asserted Patents.

<sup>4</sup> Complainant believes that the general familiarity of the Accused Products, along with the charts and photographs provided with this Complaint, make the provision of physical exhibits unnecessary. Should the Commission request physical samples, however, Complainant will provide physical exhibits to the extent practicable.

45. The chart below sets forth some examples of Representative Accused Products that are imported, sold for importation, or sold within the United States after importation by the Proposed Respondents:

Proposed Respondent Group	Representative Accused Products
Toyota	Prius automobiles; 86804-47330 (Prius III Nav System Kit); 86840-06011 (Camry Navigation System with WiFi Hotspot); 86804-0E280 (Highlander Receiver); 86804-08040 (Sienna Navigation Unit); 86804-02070 (Corolla Nav System Kit); 86804-06180 (Camry Receiver); 86804-06100 (Camry Navigation System Receiver)
Panasonic	Panasonic head units, such as Ser. Nos. 130105, 104020, 104069, 50021, and 112905, which are incorporated in Accused Toyota Navigation units, including 86804-0E280 (Highlander Receiver), 86804-08040 (Sienna Navigation Unit), 86804-07120 (Avalon Navigation Head Unit), 86804-47330 (Prius III Navigation System Kit), and 86840-06011 (Camry Navigation System with WiFi Hotspot), respectively; Panasonic MN2WS0210A3UB SoC
Denso Ten	Denso Ten head units, such as Ser. Nos. MMA00002, MM910406, and MM100046, which are incorporated in Accused Toyota Navigation units including 86804-06180 (Camry Receiver), 86804-02070 (Corolla Nav System Kit), and 86804-06100 (Camry Navigation System Receiver), respectively
Renesas	R-Car H2 SoC; R-Mobile A1 SoC
JRC	JRC TS0072; JRC TS0066; JRC 7DLTS0103; CCA-700

#### IV. THE PATENTS AT ISSUE

46. Broadcom hereby asserts six patents.

## A. The '187 Patent

### 1. Identification of the Patent and Ownership by Complainant

47. Broadcom owns by assignment the entire right, title, and interest in the '187 patent entitled "Method and Apparatus for Forming a Dynamic Model to Locate Position of a Satellite Receiver," which issued on August 30, 2005. The '187 patent issued to inventors Frank van Diggelen and Charles Abraham from United States Patent Application No. 10/461,890, filed on June 13, 2003. It expires on November 17, 2020.

48. Pursuant to Commission Rule 210.12(a)(9)(i), a certified copy of the '187 patent is attached as Exhibit 18. Pursuant to Commission Rule 210.12(a)(9)(ii), certified copies of the assignments of the '187 patent are attached as Exhibits 19 – 23.<sup>5</sup> Pursuant to Commission Rule 210.12(c), a certified copy and three additional copies of the prosecution history of the '187 patent, as well as four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history, are provided in Appendices A and B, respectively.

49. The '187 patent went through an *inter partes* reexamination, which concluded on May 1, 2012. All claims were confirmed patentable without any amendments. A certified copy of the reexamination certificate is attached as Exhibit 18.

#### (a) Non-Technical Description of the '187 Patent

50. The '187 patent has 10 claims: 2 independent claims and 8 dependent claims.

51. The '187 patent presented a new method and apparatus for locating position of a satellite signal receiver. The invention of the '187 patent estimates certain states in order to calculate a position of the satellite signal receiver faster than conventional methods. In one

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<sup>5</sup> A certified copy of the assignment from Avago Technologies General IP (Singapore) PTE. LTD. to Broadcom Corporation (Exhibit 98) has been requested and will be submitted upon receipt.

example, pseudoranges are obtained that estimate the range of a satellite signal receiver to a plurality of satellites. An absolute time and a position are computed using the pseudoranges at a first time. The absolute time is then used to compute another position at a subsequent time. In another example, a plurality of states associated with a satellite signal receiver are estimated, where the plurality of states include a time tag error state. A dynamic model is then formed relating the plurality of states, the dynamic model operative to compute position of the satellite signal receiver. One embodiment of the system is shown in FIG. 1, reproduced below.

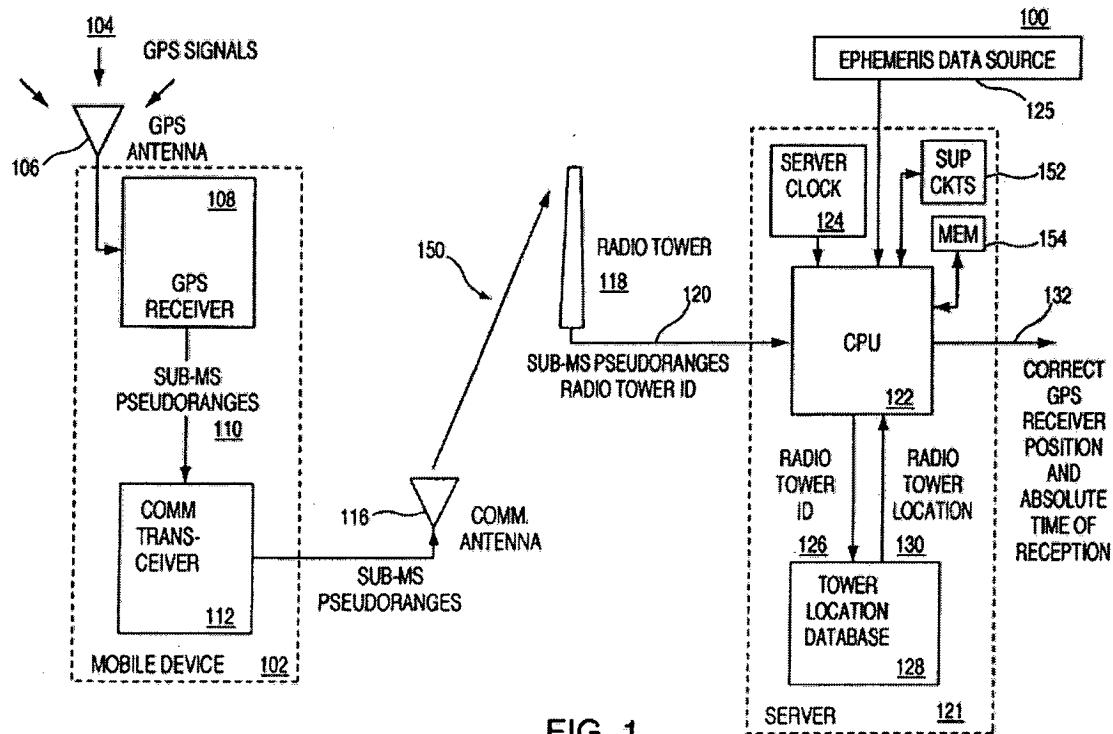


FIG. 1

**(b) Foreign Counterparts to the '187 Patent**

52. Pursuant to Commission Rule 210.12(a)(9)(v), Exhibit 91 identifies the foreign patents or patent applications related to the '187 patent that have been filed, granted, denied, abandoned, or withdrawn.

## **B. The '104 Patent**

### **1. Identification of the Patent and Ownership by Complainant**

53. Broadcom owns by assignment the entire right, title, and interest in the '104 patent entitled "Method and Apparatus for Combining Measurements and Determining Clock Offsets Between Different Satellite Positioning Systems," which issued on December 2, 2014. The '104 patent issued to inventor Frank van Diggelen from United States Patent Application No. 13/540,281, filed on July 2, 2102. It expires on March 18, 2025.

54. Pursuant to Commission Rule 210.12(a)(9)(i), a certified copy of the '104 patent is attached as Exhibit 24. Pursuant to Commission Rule 210.12(a)(9)(ii), certified copies of the assignments of the '104 patent are attached as Exhibits 19 – 21, 23.<sup>6,7</sup> Pursuant to Commission Rule 210.12(c), a certified copy and three additional copies of the prosecution history of the '104 patent, as well as four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history, are provided in Appendices C and D, respectively.

#### **(a) Non-Technical Description of the '104 Patent**

55. The '104 patent has 20 claims: 3 independent claims and 17 dependent claims.

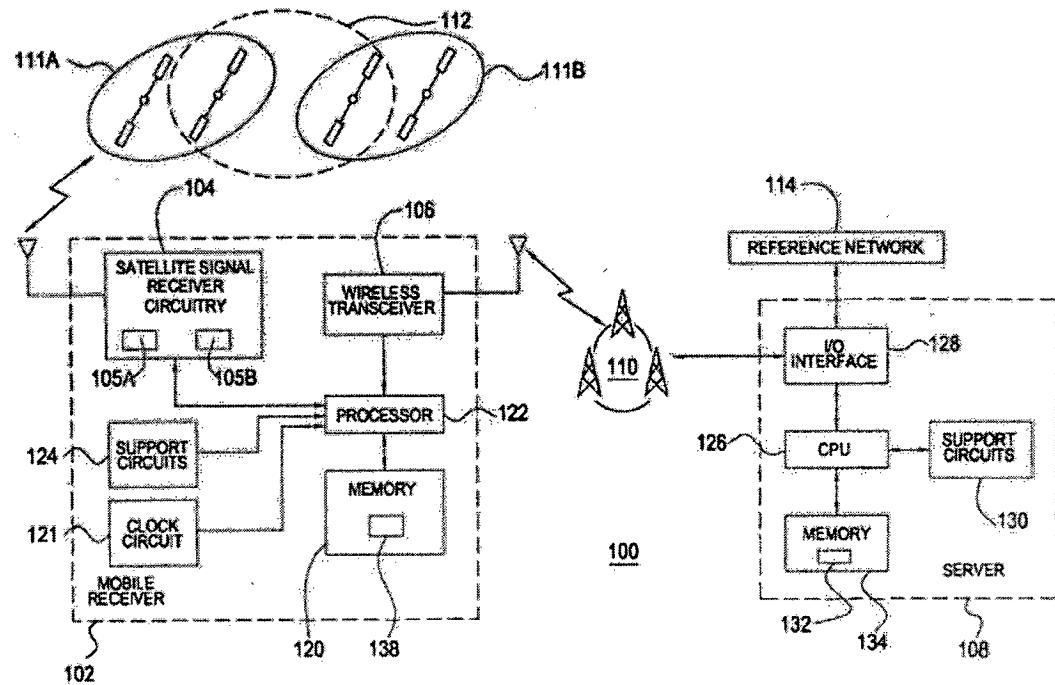
56. The '104 patent presented a new method and apparatus for combining measurements and determining clock offsets between different satellite positioning systems. The invention of the '104 patent allows a satellite receiver to combine signals from satellites of different constellations (GPS, Galileo, GLONASS, etc.) to improve position accuracy. In one example, a mobile receiver obtains satellite measurement data with respect to a plurality of

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<sup>6</sup> A certified copy of the assignment from Avago Technologies General IP (Singapore) PTE. LTD. to Broadcom Corporation (Exhibit 98) has been requested and will be submitted upon receipt.

<sup>7</sup> A certified copy of the assignment from the named inventors to Global Locate, Inc. (Exhibit 96) has been requested and will be submitted upon receipt.

satellites from at least two satellite navigation systems, which increases the number of satellites in communication with the mobile receiver. The positioning accuracy of the mobile receiver may increase by increasing the number of satellites in communication with the mobile receiver. In one embodiment, the mobile receiver obtains data from a first satellite of a first satellite navigation system and a second satellite of a second satellite navigation system. After determining a difference between a time reference of the first satellite navigation system and a second time reference of the second satellite navigation system, position information for the mobile receiver is computed by combining the satellite measurement data and the satellite trajectory data of the satellites from the different satellite navigation systems. One embodiment of the system is shown in FIG. 1, reproduced below.



**(b) Foreign Counterparts to the '104 Patent**

57. Pursuant to Commission Rule 210.12(a)(9)(v), Exhibit 92 identifies the foreign patents or patent applications related to the '104 patent that have been filed, granted, denied, abandoned, or withdrawn.

**C. The '752 Patent**

**1. Identification of the Patent and Ownership by Complainant**

58. Broadcom owns by assignment the entire right, title, and interest in the '752 patent entitled "Systems, Methods, and Apparatus for Pixel Fetch Request Interface," which issued on March 31, 2009. The '752 patent issued to inventor Alexander G. MacInnis from United States Patent Application No. 11/440,836, filed on May 25, 2006. It expires on January 23, 2027.

59. Pursuant to Commission Rule 210.12(a)(9)(i), a certified copy of the '752 patent is attached as Exhibit 25. Pursuant to Commission Rule 210.12(a)(9)(ii), certified copies of the assignments of the '752 patent are attached as Exhibits 19 – 21, 26.<sup>8</sup> Pursuant to Commission Rule 210.12(c), a certified copy and three additional copies of the prosecution history of the '752 patent, as well as four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history, are provided in Appendices E and F, respectively.

**2. Non-Technical Description of the '752 Patent**

60. The '752 patent has 21 claims: 3 independent claims and 17 dependent claims.

61. The '752 patent generally relates to a memory access unit. The '752 patent improved upon prior systems by implementing a memory access unit to create efficient requests to the memory controller. In conventional systems, the system would request information from

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<sup>8</sup> A certified copy of the assignment from Avago Technologies General IP (Singapore) PTE. LTD. to Broadcom Corporation (Exhibit 98) has been requested and will be submitted upon receipt.

memory by sending requests directly to the memory controller. However, this process required the use of substantial memory and processing resources. The '752 patent improved on this process by introducing a memory access unit that interfaces between the module requesting memory data and the memory controller. The memory access unit uses logic and a queue to create efficient requests to the memory controller.

### **3. Foreign Counterparts to the '752 Patent**

62. Pursuant to Commission Rule 210.12(a)(9)(v), Exhibit 27 identifies the foreign patents or patent applications related to the '752 patent that have been filed, granted, denied, abandoned, or withdrawn.

## **D. The '027 Patent**

### **1. Identification of the Patent and Ownership by Complainant**

63. Broadcom owns by assignment the entire right, title, and interest in the '027 patent entitled "Graphics Display System with Graphics Window Control Mechanism," which issued on May 5, 2009. The '027 patent issued to inventors Alexander G. MacInnis, Chengfu Jeffrey Tang, Xiaodong Xie, James T. Patterson, and Greg A. Kranawetter from United States Patent Application No. 10/622,194, filed on July 18, 2003. It expires on July 28, 2022.

64. Pursuant to Commission Rule 210.12(a)(9)(i), a certified copy of the '027 patent is attached as Exhibit 28. Pursuant to Commission Rule 210.12(a)(9)(ii), certified copies of the assignments of the '027 patent are attached as Exhibits 19 – 21.<sup>9,10</sup> Pursuant to Commission Rule 210.12(c), a certified copy and three additional copies of the prosecution history of the '027

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<sup>9</sup> A certified copy of the assignment from Avago Technologies General IP (Singapore) PTE. LTD. to Broadcom Corporation (Exhibit 98) will be submitted upon receipt.

<sup>10</sup> A certified copy of the assignment from the named inventors to Broadcom (Exhibit 97) has been requested and will be submitted upon receipt.

patent, as well as four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history, are provided in Appendices G and H, respectively.

## **2. Non-Technical Description of the '027 Patent**

65. The '027 patent has 20 claims: 2 independent claims and 18 dependent claims.

66. The '027 patent presents a new system for processing graphics images for display that uses graphics windows, window descriptors for said graphics windows, and a display engine to reduce the memory required to process graphics images. When creating graphics displays, a region of the graphic often needs to be rendered with other displayed objects, or graphics, on top of it or beneath it. In conventional graphics processing systems, this is done by rendering the objects using the number of distinct pixels needed to fill the region. This conventional process, however, required a large memory size and memory bandwidth. The '027 patent improved on the conventional process by introducing graphics windows, which include window descriptors containing parameters describing and controlling each window. In the '027 patent, a display engine uses the window descriptors to blend all of the graphics windows into a complete image. This results in the creation of a pixel map in real time, which reduces memory requirements.

## **3. Foreign Counterparts to the '027 Patent**

67. Pursuant to Commission Rule 210.12(a)(9)(v), Exhibit 29 identifies the foreign patents or patent applications related to the '027 patent that have been filed, granted, denied, abandoned, or withdrawn.

### **E. The '844 Patent**

#### **(a) Identification of the Patent and Ownership by Complainant**

68. Broadcom owns by assignment the entire right, title, and interest in the '844 patent entitled "Video Decoding System Supporting Multiple Standards," which issued on October 9, 2012. The '844 patent issued to inventors Alexander MacInnis, Jose Alvarez, Sheng

Zhong, Xiadong Xie, and Vivian Hsiun from United States Patent Application No. 10/114,798, filed on April 1, 2002. It expires on January 29, 2031. Pursuant to Commission Rule 210.12(a)(9)(i), a certified copy of the '844 patent is attached as Exhibit 30.

69. Pursuant to Commission Rule 210.12(a)(9)(ii), certified copies of the assignments of the '844 patent are attached as Exhibit 31. Pursuant to Commission Rule 210.12(c), a certified copy and three additional copies of the prosecution history of the '844 patent, as well as four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history, are provided in Appendices I and J, respectively.

**(b) Non-Technical Description of the '844 Patent**

70. The '844 patent has 14 claims: 1 independent claim and 13 dependent claims.

71. The '844 patent presented a new, cost-effective system for decoding digital video, encoded in any of a variety of bitstream formats, using hardware accelerators. The '844 patent's hardware accelerators assist a processor in performing certain decoding tasks that might otherwise be bottlenecks for real-time decoding if handled by the processor alone. Additionally, the hardware accelerators are configurable to support multiple existing as well as future encoding/decoding formats.

**(c) Foreign Counterparts to the '844 Patent**

72. Pursuant to Commission Rule 210.12(a)(9)(v), Exhibit 93 identifies the foreign patents or patent applications related to the '844 patent that have been filed, granted, denied, abandoned, or withdrawn.

**F. The '583 Patent**

**(a) Identification of the Patent and Ownership by Complainant**

73. Broadcom owns by assignment the entire right, title, and interest in the '583 patent entitled "Method and System for Flexible Clock Gating Control," which issued on

October 14, 2008. The '583 patent issued to inventor Paul Lu from United States Patent Application No. 10/932,251, filed on September 1, 2004. It expires on October 15, 2025.

74. Pursuant to Commission Rule 210.12(a)(9)(i), a certified copy of the '583 patent is attached as Exhibit 32. Pursuant to Commission Rule 210.12(a)(9)(ii), certified copies of the assignments of the '583 patent are attached as Exhibits 19, 21, and 33. Pursuant to Commission Rule 210.12(c), a certified copy and three additional copies of the prosecution history of the '583 patent, as well as four copies of each patent and applicable pages of each technical reference mentioned in the prosecution history, are provided in Appendices K and L, respectively.

**(b) Non-Technical Description of the '583 Patent**

75. The '583 patent has 26 claims: 4 independent claims and 22 dependent claims.

76. The '583 patent generally relates to a system for controlling clocks. In conventional systems, when the integrated circuit is fabricated a clock gating system would be hardwired to control the flow of the clock signals. In such systems, however, the clock gating system cannot be modified after fabrication. The '583 patent improved on conventional systems by introducing a processor and hardware based clock gating system, which allows for modifications to the clock-gating system after fabrication through the processor and associated clock gate registers.

**(c) Foreign Counterparts to the '583 Patent**

77. Pursuant to Commission Rule 210.12(a)(9)(v), there are no foreign patents or patent applications related to the '583 patent that have been filed, granted, denied, abandoned, or withdrawn.

**G. Licensees under the Asserted Patents**

78. Pursuant to Commission Rule 210.12(a)(9)(iii), a list identifying each licensee specifically licensed under each of the Asserted Patents is attached as Confidential Exhibit 1C.

The scope and duration of each license, and the rights associated with the license, are dependent on the specific terms of each agreement.

## **V. SPECIFIC INSTANCES OF IMPORTATION AND SALE**

79. On information and belief, Proposed Respondents manufacture the Accused Products and pertinent components thereof overseas. On further information and belief, Proposed Respondents, directly or through agents, manufacture, import into the United States, sell or offer for sale for importation into the United States, and/or sell within the United States after importation the Accused Products. The specific instances of importation of the Accused Products set forth below are representative examples of the unlawful importation and/or sale after importation of infringing articles.

80. **Toyota.** Toyota imports, sells for importation, or sells after importation into the United States infotainment systems, components thereof, and automobiles containing the same that infringe the Asserted Patents. For example, the 2017 Toyota Prius and components therein (e.g., the navigation system kit), are available for purchase in the United States. *See* Exhibit 34 (photos of 2017 Toyota Prius available for purchase in Suitland, Maryland); Exhibit 35 (photo of Prius Navigation System Kit 225202 (86804-47330)); Exhibit 36 (photo of Texas Instruments DRA750 Infotainment Applications Processor FCBGA-760 found in Navigation System Kit in Toyota Prius); Exhibit 37 (photo of JRC TS0072 GPS receiver found in Navigation System Kit in Toyota Prius). These Representative Accused Products were manufactured abroad. For example, the Toyota Prius is assembled in Japan. *See* Exhibit 34 at 36 (photograph of Vehicle Identification Number (“JTDKARFP7H3055862”) for 2017 Toyota Prius available for purchase in Suitland, Maryland); Exhibit 38 (“VIN Decoding” webpage from CARFAX.com, showing that the first character in the VIN identifies the vehicle’s country of origin or final point of

assembly, where “J” indicates Japan). The infotainment system included in the 2017 Toyota Prius is also made in Japan. *See Exhibit 35* (Panasonic Infotainment System Model No. 86804-47330, labeled “Made in Japan”). The navigation computer assembly was made in Mexico. *See Exhibit 94* (Navigation Computer Assembly for Toyota Camry Part No. 86840-06011, labeled “Made in Mexico”).

81. Complainant believes that the Toyota Prius and Prius Navigation System Kit 225202 (86804-4733) and Camry Navigation Computer Assembly (86840-06011) are exemplary of numerous other Accused Products imported, sold for importation, or sold within the United States after importation into the United States by the Toyota Respondents because such other devices feature the same or substantially similar infringing functionality. Accordingly, on information and belief, numerous other devices that are covered by the Asserted Patents have been imported, sold for importation, or sold within the United States after importation, into the United States, by the Toyota Respondents.

82. **Panasonic.** Panasonic imports, sells for importation, or sells after importation into the United States at least one infotainment system and components thereof that infringes the Asserted Patents. Exhibit 35 (Panasonic Infotainment System Model No. 86804-47330); Exhibit 36 (photo of Texas Instruments DRA750 Infotainment Applications Processor FCBGA-760 found in Navigation System Kit in Toyota Prius); Exhibit 37 (photo of JRC TS0072 GPS receiver found in Navigation System Kit in Toyota Prius). Said Representative Accused Product was manufactured abroad. Exhibit 35 (labeled “Made in Japan”). Said Representative Accused Product has been imported into the United States. *See Exhibit 39.*

83. Complainant believes that the Panasonic Infotainment System Model No. 86804-47330 is exemplary of numerous other Accused Products imported, sold for importation, or sold

within the United States after importation into the United States by Panasonic because such other devices feature the same or substantially similar infringing functionality. Accordingly, on information and belief, numerous other devices that are covered by the Asserted Patents have been imported, sold for importation, or sold within the United States after importation, into the United States, by Panasonic.

84. **Denso Ten.** Denso Ten imports, sells for importation, or sells after importation into the United States at least one infotainment system and components thereof that infringes the Asserted Patents. Exhibit 40 (Denso Ten<sup>11</sup> Infotainment System Model No. 86804-06100); Exhibit 41 (photo of JRC TS0066 GPS receiver found in Infotainment System Model No. 86804-06100); 42 (photo of Renesas R8A77405PGB R-Mobile A1 Applications Processor found in Infotainment System Model No. 86804-06100). Said Representative Accused Product was manufactured abroad. *Id.* (labeled “Assembled in Mexico”). *See, e.g.*, Exhibit 40. Said Representative Accused Product has been imported into the United States. *See* Exhibit 43.

85. Complainant believes that the Denso Ten Infotainment System Model No. 86804-06100 is exemplary of numerous other Accused Products imported, sold for importation, or sold within the United States after importation into the United States by Denso Ten because such other devices feature the same or substantially similar infringing functionality. Accordingly, on information and belief, numerous other devices that are covered by the Asserted Patents have been imported, sold for importation, or sold within the United States after importation, into the United States, by Denso Ten.

86. **Renesas.** Renesas imports, sells for importation, or sells after importation into the United States at least one component of infotainment systems that infringes the Asserted

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<sup>11</sup> In November 2017, following some changes to its corporate ownership, Denso Ten changed its name from Fujitsu Ten to Denso Ten. Exhibit 12.

Patents. Exhibit 42 (photo of Renesas R8A77405PGB R-Mobile A1 Applications Processor found in Denso Ten Infotainment System Model No. 86804-06100). Said Representative Accused Product was manufactured abroad. *Id.* (labeled “Japan”). *Id.* Said Representative Accused Product has been imported into the United States, for example in the Denso Ten Infotainment System Model No. 86804-06100).

87. Complainant believes that the Renesas R8A77405PGB R-Mobile A1 Applications Processor is exemplary of numerous other Accused Products imported, sold for importation, or sold within the United States after importation into the United States by Renesas because such other devices feature the same or substantially similar infringing functionality. Accordingly, on information and belief, numerous other devices that are covered by the Asserted Patents have been imported, sold for importation, or sold within the United States after importation, into the United States, by Renesas.

88. **JRC.** JRC imports, sells for importation, or sells after importation into the United States at least one component of infotainment systems that infringes the Asserted Patents. 41 (photo of JRC TS0066 GPS receiver found in Denso Ten Infotainment System Model No. 86804-06100). Said Representative Accused Product was manufactured abroad. *Id.* (labeled “Japan”). Said Representative Accused Product has been imported into the United States, for example in the Denso Ten Infotainment System Model No. 86804-06100).

89. Complainant believes that the Renesas R8A77405PGB R-Mobile A1 Applications Processor is exemplary of numerous other Accused Products imported, sold for importation, or sold within the United States after importation into the United States by Renesas because such other devices feature the same or substantially similar infringing functionality. Accordingly, on information and belief, numerous other devices that are covered by the Asserted Patents have

been imported, sold for importation, or sold within the United States after importation, into the United States, by Renesas.

## **VI. UNLAWFUL AND UNFAIR ACTS COMMITTED BY PROPOSED RESPONDENTS—PATENT INFRINGEMENT**

90. Proposed Respondents unlawfully sell for importation, import, and/or sell after importation into the United States the Accused Products infotainment systems, components thereof, and automobiles containing the same that directly or indirectly infringe at least the patent claims listed below:

<b>U.S. Patent No.</b>	<b>Asserted Claims</b>	<b>Accused Parties</b>
6,937,187	1-10	Toyota, Panasonic, Denso Ten, JRC
8,902,104	1-2, 5-13, 15, 16	Toyota, Panasonic, Denso Ten, JRC
7,512,752	1-10	Toyota, Panasonic, Denso Ten, Renesas
7,530,027	11-20	Toyota, Panasonic, Denso Ten, Renesas
8,284,844	1-14	Toyota, Panasonic, Denso Ten, Renesas
7,437,583	17-26	Toyota, Panasonic, Denso Ten, Renesas

91. On information and belief, Proposed Respondents manufacture abroad, sell for importation into the United States, import into the United States, and/or sell within the United States after importation, Accused Products that infringe one or more claims of the Asserted Patents.

92. On information and belief, the Toyota Respondents directly infringe, induce infringement of, and contributorily infringe one or more of the Asserted Patents by making, using, selling, offering for sale, and importing articles, including infotainment systems, components thereof, and automobiles containing the same, which are covered by the claims of the Asserted Patents.

93. On information and belief, the Panasonic Respondents directly infringe, induce infringement of, and contributorily infringe one or more of the Asserted Patents by making,

using, selling, offering for sale, and importing articles, including infotainment systems and components thereof, which are covered by the claims of the Asserted Patents.

94. On information and belief, the Denso Ten Respondents directly infringe, induce infringement of, and contributorily infringe one or more of the Asserted Patents by making, using, selling, offering for sale, and importing articles, including infotainment systems and components thereof, which are covered by the claims of the Asserted Patents.

95. On information and belief, the Renesas Respondents directly infringe, induce infringement of, and contributorily infringe one or more of the Asserted Patents by making, using, selling, offering for sale, and importing articles, including semiconductor devices, including semiconductor devices used as components in infotainment systems, which are covered by the claims of the Asserted Patents.

96. The Proposed Respondents are aware of the Asserted Patents at least because they were provided with a copy of this Complaint via registered mail as of the date of its filing.

**A. Infringement of U.S. Patent No. 6,937,187**

97. On information and belief, the accused products that are sold for importation, imported, and/or sold within the United States after importation by the Toyota, Panasonic, Denso Ten, and JRC Respondents infringe claims 1-10 of the '187 patent, either literally or under the doctrine of equivalents.

98. On information and belief, each of the Toyota, Panasonic, Denso Ten, and JRC Respondents directly infringes one or more claims of the '187 patent through their manufacture, sale for importation, importation, use, and sale after importation of one or more of the accused products, in the United States. For example, upon information and belief, at least the Toyota Respondents turn on and operate automobiles that contain the accused head units and

components thereof, thereby causing the claimed methods of the '187 to be performed. Some of these automobiles are imported into the United States, and some are assembled in the United States and contain the accused head units and components thereof.

99. On information and belief, each of the Toyota, Panasonic, Denso Ten, and JRC Respondents knowingly and intentionally induces users of one or more of the accused products to directly infringe one or more claims of the '187 patent by encouraging, instructing, and aiding one or more persons in the United States, including by not limited to end users who test and operate accused products at the direction of the proposed Respondents, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the accused products, during or after such article's importation into the United States, in a manner that infringes the '187 patent. For example, upon information and belief, at least the Toyota, Panasonic, Denso Ten, and JRC Respondents induce people in the United States to buy and operate automobiles containing hardware and software, including the accused head units and components thereof, which cause the claimed methods of the '187 to be performed when the car is operated. Such inducements include advertising, demonstrating, providing product information, user manuals, and other materials and activities that encourage individuals to operate the accused automobiles, head units, and components thereof in a manner that infringes the asserted claims of the '187 patent. The Toyota, Panasonic, Denso Ten, and JRC Respondents, and/or others under Respondents' direction and control, actively induce by providing hardware and software that estimates a plurality of states associated with a satellite signal receiver, including a time tag error state, and forms a dynamic model relating the plurality of states, wherein the dynamic model is operative to compute the position of the satellite signal receiver in the accused products. The Toyota, Panasonic, Denso Ten, and JRC Respondents have had knowledge of the '187 patent at

least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and JRC Respondents perform and continue to perform these acts with knowledge of the '187 patent and with the intent, or willful blindness, that the induced acts directly infringe the '187 patent.

100. On information and belief, each of the Toyota, Panasonic, Denso Ten, and JRC Respondents also contributes to the infringement of one or more claims of the '187 patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use. For example, operating automobiles containing the patented component including the hardware and software of the accused head units and components thereof causes the claimed methods of the '187 patent to be performed.

101. For example, upon information and belief, at least the Panasonic, Denso Ten, and JRC Respondents contribute to the infringement of one or more claims of the '187 patent by offering to sell or selling and/or importing the accused head units and/or components thereof that include a Global Navigation Satellite System (GNSS) receiver, which when installed in an automobile according to their natural and intended purpose, constitute a material part of the claimed inventions, are especially made and especially adapted for use in infringement, and are not staple items suitable for a substantial non-infringing use. The Toyota, Panasonic, Denso Ten, and JRC Respondents have had knowledge and notice of the '187 patent at least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and JRC Respondents perform and continue to perform these acts with knowledge of the '187 patent and with the intent, or willful blindness, that they contribute to the direct infringement of the '187 patent.

102. On information and belief, and by way of example only, the following Representative Accused Products infringe at least claims 1-10 of the '187 patent:

- a. Toyota Respondents
  - i. Automobiles, such as the Prius
  - ii. Infotainment systems and components thereof, such as Camry Navigation System with WiFi Hotspot (86840-06011), Highlander Receiver (86804-0E280), Sienna Navigation Unit (86804-08040), Avalon Navigation Head Unit (86804-07120), and Prius III Navigation System Kit (86804-47330), Camry Navigation System (86840-06011), Corolla Navigation System Kit (86804-02070), Camry Receiver (86804-06180), and Camry Navigation System Receiver (86804-06100)
- b. Panasonic Respondents
  - i. Panasonic head units, such as Ser Nos. 130105, 104020, 104069, 500021, and 112905, which are incorporated in Accused Toyota Navigation units, such as the Highlander Receiver (86804-0E280), Sienna Navigation unit (86804-08040), Avalon Navigation Head unit (86804-07120), Prius III Nav System Kit (86804-06100), and Camry Navigation System with WiFi Hotspot (86840-06011), respectively.
- c. Denso Ten Respondents
  - i. Denso Ten head units, such as Ser. Nos. MMA00002, MM910406, and MM100046, which are incorporated in Accused Toyota

Navigation units, including Camry Receiver (86804-06180), Corolla Nav System Kit (86804-02070), and Camry Navigation System Receiver (86804-06100), respectively.

d. Respondent Japan Radio Co.

- i. GNSS processing devices: TS0066, TS0072, 7DLTS0103
- ii. GNSS modules: CCA-700

103. A claim chart that applies each of the asserted independent claims of the '187 patent to a representative accused product of each proposed Respondent is attached to this Complaint as Exhibit 44.

**B. Infringement of U.S Patent 8,902,104**

104. On information and belief, the accused products that are sold for importation, imported, and/or sold within the United States after importation by the Toyota, Panasonic, Denso Ten, and JRC Respondents infringe claims 1, 2, 5-13, 15, and 16 of the '104 patent, either literally or under the doctrine of equivalents.

105. On information and belief, each of the Toyota, Panasonic, Denso Ten, and JRC Respondents directly infringes one or more claims of the '104 patent through their manufacture, sale for importation, importation, use, and sale after importation of one or more of the accused products, in the United States. For example, upon information and belief, at least the Toyota Respondents turn on and operate automobiles that contain the accused head units and components thereof, thereby causing the claimed methods of the '104 to be performed. Some of these automobiles are imported into the United States, and some are assembled in the United States and contain the accused head units and components thereof.

106. On information and belief, each of the Toyota, Panasonic, Denso Ten, and JRC Respondents knowingly and intentionally induces users of one or more of the accused products

to directly infringe one or more claims of the '104 patent by encouraging, instructing, and aiding one or more persons in the United States, including by not limited to end users who test and operate accused products at the direction of the proposed Respondents, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the accused products, during or after such article's importation into the United States, in a manner that infringes the '104 patent. For example, upon information and belief, at least the Toyota, Panasonic, Denso Ten, and JRC Respondents induce people in the United States to buy and operate automobiles containing hardware and software, including the accused head units and components thereof, that cause the claimed methods of the '104 to be performed when the car is operated. Such inducements include advertising, demonstrating, providing product information, user manuals, and other materials and activities that encourage individuals to operate the accused automobiles, head units, and components thereof in a manner that infringes the asserted claims of the '104 patent. The Toyota, Panasonic, Denso Ten, and JRC Respondents, and/or others under Respondents direction and control, actively induce by providing hardware and software that measures a first pseudorange from a mobile receiver to a first satellite of a first satellite navigation system, measures a second pseudorange from the mobile receiver to a second satellite of a second satellite navigation system, determines a difference between a first time reference of the first satellite navigation system and a second time reference of the second satellite navigation system, and combines the first and second pseudoranges using the difference. The Toyota, Panasonic, Denso Ten, and JRC Respondents have had knowledge of the '104 patent at least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and JRC Respondents perform and continue to perform these acts with knowledge of the '104 patent and with the intent, or willful blindness, that the induced acts directly infringe the '104 patent.

107. On information and belief, each of the Toyota, Panasonic, Denso Ten, and JRC Respondents also contributes to the infringement of one or more claims of the '104 patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use. For example, operating automobiles containing the patented component including the hardware and software of the accused head units and components thereof causes the claimed methods of the '104 patent to be performed.

108. For example, upon information and belief, at least the Panasonic, Denso Ten, and JRC Respondents contribute to the infringement of one or more claims of the '104 patent by offering to sell or selling and/or importing the accused head units and/or components thereof that include a Global Navigation Satellite System (GNSS) receiver, which when installed in an automobile according to their natural and intended purpose, constitute a material part of the claimed inventions, are especially made and especially adapted for use in infringement, and are not staple items suitable for a substantial non-infringing use. The Toyota, Panasonic, Denso Ten, and JRC Respondents have had knowledge and notice of the '104 patent at least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and JRC Respondents perform and continue to perform these acts with knowledge of the '104 patent and with the intent, or willful blindness, that they contribute to the direct infringement of the '104 patent.

109. On information and belief, and by way of example only, the following Representative Accused Products infringe at least claims 1, 2, 5-13, 15, and 16 of the '104 patent:

- a. Toyota Respondents
  - i. Automobiles, such as the Prius
  - ii. Infotainment systems and components thereof, such as Camry Navigation System with WiFi Hotspot (86840-06011), Highlander Receiver (86804-0E280), Sienna Navigation Unit (86804-08040), Avalon Navigation Head Unit (86804-07120), and Prius III Navigation System Kit (86804-47330), Camry Navigation System (86840-06011), Corolla Navigation System Kit (86804-02070), Camry Receiver (86804-06180), and Camry Navigation System Receiver (86804-06100)
- b. Panasonic Respondents
  - i. Panasonic head units, such as Ser Nos. 130105, 104020, 104069, 500021, and 112905, which are incorporated in Accused Toyota Navigation units, such as the Highlander Receiver (86804-0E280), Sienna Navigation unit (86804-08040), Avalon Navigation Head unit (86804-07120), Prius III Nav System Kit (86804-06100), and Camry Navigation System with WiFi Hotspot (86840-06011), respectively.
- c. Denso Ten Respondents
  - i. Denso Ten head units, such as Ser. Nos. MMA00002, MM910406, and MM100046, which are incorporated in Accused Toyota Navigation units, including Camry Receiver (86804-06180),

Corolla Nav System Kit (86804-02070), and Camry Navigation System Receiver (86804-06100), respectively.

d. Respondent Japan Radio Co.

- i. GNSS processing devices: TS0066, TS0072, 7DLTS0103
- ii. GNSS modules: CCA-700

110. A claim chart that applies each of the asserted independent claims of the '104 patent to a representative accused product of each proposed Respondent is attached to this Complaint as Exhibit 45.

**C. Infringement of U.S. Patent No. 7,512,752**

111. On information and belief, the accused products that are sold for importation, imported, and/or sold within the United States after importation by the Toyota, Panasonic, Denso Ten, and Renesas Respondents infringe claims 1-10 of the '752 patent, either literally or under the doctrine of equivalents.

112. On information and belief, each of the Toyota, Panasonic, Denso Ten, and Renesas Respondents directly infringes one or more claims of the '752 patent through their manufacture, sale for importation, importation, use, and sale after importation of one or more of the accused products, in the United States.

113. On information and belief, each of the Toyota, Panasonic, Denso Ten, and Renesas Respondents knowingly and intentionally induces users of one or more of the accused products to directly infringe one or more claims of the '752 patent by encouraging, instructing, and aiding one or more persons in the United States, including by not limited to end users who test and operate accused products at the direction of the Toyota, Panasonic, Denso Ten, and Renesas Respondents, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the accused products, during or after such article's importation into the

United States, in a manner that infringes the '752 patent. The Toyota, Panasonic, Denso Ten, and Renesas Respondents have had knowledge of the '752 patent at least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and Renesas Respondents perform and continue to perform these acts with knowledge of the '752 patent and with the intent, or willful blindness, that the induced acts directly infringe the '752 patent.

114. On information and belief, each of the Toyota, Panasonic, Denso Ten, and Renesas Respondents also contributes to the infringement of one or more claims of the '752 patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use. The Toyota, Panasonic, Denso Ten, and Renesas Respondents have had knowledge and notice of the '752 patent at least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and Renesas Respondents perform and continue to perform these acts with knowledge of the '752 patent and with the intent, or willful blindness, that they contribute to the direct infringement of the '752 patent.

115. On information and belief, and by way of example only, the following Representative Accused Products infringe at least claims 1-10 of the '752 patent:

- a. Toyota Respondents
  - i. Automobiles, such as the Prius
  - ii. Infotainment systems and components thereof, such as Camry Navigation System with WiFi Hotspot (86840-06011), Highlander Receiver (86804-0E280), Sienna Navigation Unit (86804-08040),

Avalon Navigation Head Unit (86804-07120), and Prius III Navigation System Kit (86804-47330), Camry Navigation System (86840-06011), Corolla Navigation System Kit (86804-02070), Camry Receiver (86804-06180), and Camry Navigation System Receiver (86804-06100)

b. Panasonic Respondents

i. Panasonic head units, such as Ser. Nos. 130105, 104020, 104069, 500021, and 112905, which are incorporated in Accused Toyota Navigation units, including Highlander Receiver (86804-0E280), Sienna Navigation Unit (86804-08040), Avalon Navigation Head Unit (86804-07120), Prius III Navigation System Kit (86804-47330), and Camry Navigation System with WiFi Hotspot (86840-06011), respectively.

c. Denso Ten Respondents

i. Denso Ten head units, such as Ser. Nos. MMA00002, MM910406, and MM100046, which are incorporated in Accused Toyota Navigation units, including Camry Receiver (86804-06180), Corolla Navigation System Kit (86804-02070), and Camry Navigation System Receiver (86804-06100).

d. Renesas Respondents

i. SoCs such as R-Car H2 SoC and R-Mobile A1 SoC

116. A claim chart that applies each of the asserted independent claims of the '752 patent to a representative accused product of each proposed Respondent is attached to this Complaint as Exhibits 46 and 59.

**D. Infringement of U.S. Patent No. 7,530,027**

117. On information and belief, the accused products that are sold for importation, imported, and/or sold within the United States after importation by the Toyota, Panasonic, Denso Ten, and Renesas Respondents infringe claims 11-20 of the '027 patent, either literally or under the doctrine of equivalents.

118. On information and belief, each of the Toyota, Panasonic, Denso Ten, and Renesas Respondents directly infringes one or more claims of the '027 patent through their manufacture, sale for importation, importation, use, and sale after importation of one or more of the accused products, in the United States.

119. On information and belief, each of the Toyota, Panasonic, Denso Ten, and Renesas Respondents knowingly and intentionally induces users of one or more of the accused products to directly infringe one or more claims of the '027 patent by encouraging, instructing, and aiding one or more persons in the United States, including by not limited to end users who test and operate accused products at the direction of the Toyota, Panasonic, Denso Ten, and Renesas Respondents, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the accused products, during or after such article's importation into the United States, in a manner that infringes the '027 patent. The Toyota, Panasonic, Denso Ten, and Renesas Respondents have had knowledge of the '027 patent at least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and Renesas Respondents perform and

continue to perform these acts with knowledge of the '027 patent and with the intent, or willful blindness, that the induced acts directly infringe the '027 patent.

120. On information and belief, each of the Toyota, Panasonic, Denso Ten, and Renesas Respondents also contributes to the infringement of one or more claims of the '027 patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use. The Toyota, Panasonic, Denso Ten, and Renesas have had knowledge and notice of the '027 patent at least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and Renesas Respondents perform and continue to perform these acts with knowledge of the '027 patent and with the intent, or willful blindness, that they contribute to the direct infringement of the '027 patent.

121. On information and belief, and by way of example only, the following Representative Accused Products infringe at least claims 11-20 of the '027 patent:

- a. Toyota Respondents
  - i. Automobiles, such as the Prius
  - ii. Infotainment systems and components thereof, such as Camry Navigation System with WiFi Hotspot (86840-06011), Highlander Receiver (86804-0E280), Sienna Navigation Unit (86804-08040), Avalon Navigation Head Unit (86804-07120), and Prius III Navigation System Kit (86804-47330), Camry Navigation System (86840-06011), Corolla Navigation System Kit (86804-02070),

Camry Receiver (86804-06180), and Camry Navigation System Receiver (86804-06100)

b. Panasonic Respondents

i. Panasonic head units, such as Ser. Nos. 130105, 104020, 104069, 500021, and 112905, which are incorporated in Accused Toyota Navigation units, including Highlander Receiver (86804-0E280), Sienna Navigation Unit (86804-08040), Avalon Navigation Head Unit (86804-07120), Prius III Navigation System Kit (86804-47330), and Camry Navigation System with WiFi Hotspot (86840-06011), respectively.

c. Denso Ten Respondents

i. Denso Ten head units, such as Ser. Nos. MMA00002, MM910406, and MM100046, which are incorporated in Accused Toyota Navigation units, including Camry Receiver (86804-06180), Corolla Navigation System Kit (86804-02070), and Camry Navigation System Receiver (86804-06100).

d. Renesas Respondents

i. SoCs such as R-Car H2 SoC and R-Mobile A1 SoC

122. A claim chart that applies each of the asserted independent claims of the '027 patent to a representative accused product of each proposed Respondent is attached to this Complaint as Exhibits 47 and 48.

**E. Infringement of U.S. Patent No. 8,284,844**

123. On information and belief, the accused products that are sold for importation, imported, and/or sold within the United States after importation by the Toyota, Panasonic, Denso Ten, and Renesas Respondents infringe claims 1-14 of the '844 patent, either literally or under the doctrine of equivalents.

124. On information and belief, each of the Toyota, Panasonic, Denso Ten, and Renesas Respondents directly infringes one or more claims of the '844 patent through their manufacture, sale for importation, importation, use, and sale after importation of one or more of the accused products, in the United States.

125. On information and belief, each of the Toyota, Panasonic, Denso Ten, and Renesas Respondents knowingly and intentionally induces users of one or more of the accused products to directly infringe one or more claims of the '844 patent by encouraging, instructing, and aiding one or more persons in the United States, including by not limited to end users who test and operate accused products at the direction of the Toyota, Panasonic, Denso Ten, and Renesas Respondents, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the accused products, during or after such article's importation into the United States, in a manner that infringes the '844 patent. The Toyota, Panasonic, Denso Ten, and Renesas Respondents have had knowledge of the '844 patent at least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and Renesas Respondents perform and continue to perform these acts with knowledge of the '844 patent and with the intent, or willful blindness, that the induced acts directly infringe the '844 patent.

126. On information and belief, each of the Toyota, Panasonic, Denso Ten, and Renesas Respondents also contributes to the infringement of one or more claims of the '844

patent by offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use. The Toyota, Panasonic, Denso Ten, and Renesas Respondents have had knowledge and notice of the '844 patent at least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and Renesas Respondents perform and continue to perform these acts with knowledge of the '844 patent and with the intent, or willful blindness, that they contribute to the direct infringement of the '844 patent.

127. On information and belief, and by way of example only, the following Representative Accused Products infringe at least claims 1-14 of the '844 patent:

- a. Toyota Respondents
  - i. Automobiles, such as the Prius
  - ii. Infotainment systems and components thereof, such as Camry Navigation System with WiFi Hotspot (86840-06011), Highlander Receiver (86804-0E280), Sienna Navigation Unit (86804-08040), Avalon Navigation Head Unit (86804-07120), and Prius III Navigation System Kit (86804-47330), Camry Navigation System (86840-06011), Corolla Navigation System Kit (86804-02070), Camry Receiver (86804-06180), and Camry Navigation System Receiver (86804-06100)
  - iii. Sienna Disc Player assembly (86270-45030)

b. Panasonic Respondents

- i. Panasonic head units, such as Ser. Nos. 130105, 104020, 104069, 500021, and 112905, which are incorporated in Accused Toyota Navigation units, including Highlander Receiver (86804-0E280), Sienna Navigation Unit (86804-08040), Avalon Navigation Head Unit (86804-07120), Prius III Navigation System Kit (86804-47330), and Camry Navigation System with WiFi Hotspot (86840-06011), respectively.
- ii. Panasonic Disc Players, such as assembly (86270-45030)
- iii. SoCs, such as MN2WS0210 SoC

c. Denso Ten Respondents

- i. Denso Ten head units, such as Ser. Nos. MMA00002, MM910406, and MM100046, which are incorporated in Accused Toyota Navigation units, including Camry Receiver (86804-06180), Corolla Navigation System Kit (86804-02070), and Camry Navigation System Receiver (86804-06100).

d. Renesas Respondents

- i. SoCs such as R-Car H2 SoC and R-Mobile A1 SoC

128. A claim chart that applies each of the asserted independent claims of the '844 patent to a representative accused product of each proposed Respondent is attached to this Complaint as Exhibits 49, 50, and 51.

#### **F. Infringement of U.S. Patent No. 7,437,583**

129. On information and belief, the accused products that are sold for importation, imported, and/or sold within the United States after importation by the Toyota, Panasonic, Denso Ten, and Renesas Respondents infringe claims 17-26 of the '583 patent, either literally or under the doctrine of equivalents.

130. On information and belief, the Toyota, Panasonic, Denso Ten, and Renesas Respondents directly infringe one or more claims of the '583 patent through their manufacture, sale for importation, importation, use, and sale after importation of one or more of the accused products, in the United States.

131. On information and belief, the Toyota, Panasonic, Denso Ten, and Renesas Respondents knowingly and intentionally induce users of one or more of the accused products to directly infringe one or more claims of the '583 patent by encouraging, instructing, and aiding one or more persons in the United States, including by not limited to end users who test and operate accused products at the direction of the Toyota, Panasonic, Denso Ten, and Renesas Respondents, to make, use (including testing those devices and methods), sell, or offer to sell one or more of the accused products, during or after such article's importation into the United States, in a manner that infringes the '583 patent. The Toyota, Panasonic, Denso Ten, and Renesas Respondents have had knowledge of the '583 patent at least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and Renesas Respondents perform and continue to perform these acts with knowledge of the '583 patent and with the intent, or willful blindness, that the induced acts directly infringe the '583 patent.

132. On information and belief, the Toyota, Panasonic, Denso Ten, and Renesas Respondents also contribute to the infringement of one or more claims of the '583 patent by

offering to sell or selling and/or importing a patented component or material and/or apparatus used to practice a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in an infringement and not a staple article or commodity of commerce suitable for substantial non-infringing use. The Toyota, Panasonic, Denso Ten, and Renesas Respondents have had knowledge and notice of the '583 patent at least as early as the filing of this Complaint, and the Toyota, Panasonic, Denso Ten, and Renesas Respondents perform and continue to perform these acts with knowledge of the '583 patent and with the intent, or willful blindness, that they contribute to the direct infringement of the '583 patent.

133. On information and belief, and by way of example only, the following Representative Accused Products infringe at least claims 17-26 of the '583 patent:

- a. Toyota Respondents
  - i. Automobiles, such as the Prius
  - ii. Infotainment systems and components thereof, such as Camry Navigation System with WiFi Hotspot (86840-06011), Highlander Receiver (86804-0E280), Sienna Navigation Unit (86804-08040), Avalon Navigation Head Unit (86804-07120), and Prius III Navigation System Kit (86804-47330), Camry Navigation System (86840-06011), Corolla Navigation System Kit (86804-02070), Camry Receiver (86804-06180), and Camry Navigation System Receiver (86804-06100)

b. Panasonic Respondents

i. Panasonic head units, such as Ser. Nos. 130105, 104020, 104069, 500021, and 112905, which are incorporated in Accused Toyota Navigation units, including Highlander Receiver (86804-0E280), Sienna Navigation Unit (86804-08040), Avalon Navigation Head Unit (86804-07120), Prius III Navigation System Kit (86804-47330), and Camry Navigation System with WiFi Hotspot (86840-06011), respectively.

c. Denso Ten Respondents

i. Denso Ten head units, such as Ser. Nos. MMA00002, MM910406, and MM100046, which are incorporated in Accused Toyota Navigation units, including Camry Receiver (86804-06180), Corolla Navigation System Kit (86804-02070), and Camry Navigation System Receiver (86804-06100).

d. Renesas Respondents

i. SoCs such as R-Car H2 SoC and R-Mobile A1 SoC

134. A claim chart that applies each of the asserted independent claims of the '583 patent to a representative accused product of each proposed Respondent is attached to this Complaint as Exhibits 52 and 90.

## **VII. THE DOMESTIC INDUSTRY**

135. As required by Section 337(a)(2) and defined by Section 337(a)(3), an industry in the United States exists in connection with articles protected by the Asserted Patents.

#### **A. Technical Prong**

136. The Asserted GNSS Patents are important to Broadcom's success in the market for GNSS receiver SoC products, and the claimed technology is widely incorporated into Broadcom's chips. All of Broadcom's GNSS SoC products incorporate the inventions of the Asserted GNSS Patents. Claim charts showing how representative Broadcom GPS receiver SoCs practice the Asserted GNSS Patents are attached as Confidential Exhibits 53C and 54C.

137. Given that all of the GPS receiver SoC devices produced by Broadcom's Wireless Communications Combos business unit ("WCC") are protected by the Asserted GNSS Patents (*see* Confidential Exhibits 53C and 54C, Broadcom's GPS SoC products constitute Broadcom's "GPS Domestic Industry Products."

138. The Asserted Video/Graphics Processing and Power/Memory Management Patents are important to Broadcom's success in the market for Set-Top Box SoC products, and the claimed technology is widely incorporated into Broadcom's chips. A significant majority of Broadcom's Set-Top Box SoC products incorporate the inventions of the Asserted Video/Graphics Processing and Power/Memory Management Patents. Claim charts showing how representative Broadcom Set-Top Box SoCs practice the Asserted Video/Graphics Processing and Power/Memory Management Patents are attached as Confidential Exhibits 55C – 58C.

139. Given that a significant majority of the set-top box SoC devices and set-top box products containing those SoCs produced by Broadcom's Set-Top Box Division (the "STB Division") are protected by the Asserted Video/Graphics Processing and Power/Memory Management Patents (*see* Confidential Exhibits 55C – 58C), Broadcom's Set-Top Box SoC products – including the products in the Cable Set-Top Box, Satellite Set-Top Box, and IP Set-Top Box product lines – constitute Broadcom's "Set-Top Box Domestic Industry Products."

## B. Economic Prong

140. Broadcom has made significant and substantial investments in its Domestic Industry Products. For example, Broadcom Inc.’s total research and development expense was approximately \$3.3 billion for Fiscal Year 2017 and \$2.7 billion for Fiscal Year 2016.<sup>12</sup> Broadcom Inc.’s research and development expense as a percentage of net revenue was 19% for Fiscal Year 2017.<sup>13</sup> As of October 31, 2017, Broadcom Inc. had approximately 9,500 research and development employees, including hundreds of employees with Ph.D.s, primarily working out of its principal design facilities located in Irvine, California and Santa Clara County, California. *See Exhibit 5C (Confidential Declaration of Mr. Gautier Chapeaux “Chapeaux Declaration”) ¶ 16.* The facilities in Irvine, California occupy over 650,000 square feet of space. *Id.*

141. In particular, Broadcom conducts significant domestic industry activities in the United States in developing and bringing to market its Domestic Industry Products. As explained in further detail in the accompanying confidential declaration of Mr. Chapeaux, Broadcom has made significant investments in its plant and equipment, employs a significant amount of labor and capital, and conducts engineering, research, design, and development as to Broadcom’s STB products embodying the claims of the Asserted STB Patents. *See Exhibit 5C (Chapeaux Decl.).* As explained in further detail in the accompanying confidential declaration of Mr. Steven Terronez, Broadcom has made significant investments in its plant and equipment, employs a significant amount of labor and capital, and conducts engineering, research, design, and development as to Broadcom’s GPS products embodying the claims of the Asserted GNSS Patents. *See Exhibit 4C (Terronez Decl.).*

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<sup>12</sup> *See Exhibit 2, Broadcom Limited 2017 Form 10-K, at 36.*

<sup>13</sup> *See Id., Broadcom Limited 2017 Form 10-K, at 48.*

142. Specifically, Broadcom has conducted and continues to conduct extensive activities in the United States relating to its Domestic Industry Products, including significant activities within Broadcom's STB Division directed to research and development and other technically-focused activities. Relevant U.S. investments and expenditures of the STB Division as to Broadcom Domestic Industry products totaled over \$90 million in Fiscal Year 2017 alone. *See Exhibit 5C (Chapeaux Decl.) ¶ 22.* Additionally, Broadcom has conducted and continues to conduct extensive activities in the United States relating to its Domestic Industry Products, including significant activities within Broadcom's GPS Product Line directed to research and development and other technically-focused activities. Relevant U.S. investments and expenditures of the GPS Product Line as to Broadcom Domestic Industry products totaled over \$15 million in Fiscal Year 2017 alone. *See Exhibit 4C (Terronez Decl.) at ¶ 16.*

143. More specifically, and as further detailed in the Chapeaux declaration, Broadcom's STB Division devotes significant resources to the research and development of the Domestic Industry Products. For example, the STB Division employs hundreds of employees dedicated to engineering, research and development in the United States. These hundreds of employees account for many millions of dollars annually in employee costs. *See Exhibit 5C (Chapeaux Decl.) at ¶¶ 18-19.* Additionally, as detailed in the Terronez declaration, Broadcom's GPS Product Line devotes significant resources to the research and development of the Domestic Industry Products. For example, the GPS Product Line employs numerous employees dedicated to engineering, research and development in the United States. These employees account for many millions of dollars annually in employee costs. *See Exhibit 4C (Terronez Decl.) at ¶ 13.*

144. As a final example, Broadcom's STB Division and GPS Product Line each made significant investment in equipment in the United States that it uses to design and develop its

products. This equipment includes emulators, testing equipment, verification equipment, design workstations, servers, lab consumables, and the costs associated with this equipment include purchase costs, depreciation, and maintenance costs. These equipment-related costs, incurred by the STB Division and the GPS Product Line, respectively, each account for millions of dollars annually. *See Exhibit 5C (Chapeaux Decl.) at ¶ 20; Exhibit 4C (Terronez Decl.) at ¶ 16.*

## **VIII. HARMONIZED TARIFF SCHEDULE INFORMATION**

145. The articles subject to this complaint are classified under at least the following headings and subheadings of the Harmonized Tariff Schedule (“HTS”) of the United States: 9804.00.35, 8526.91, 8527.21.15, 8703.00.00, 8542.31.00 or 8542.39.00. These HTS numbers are illustrative only and are not intended to restrict the scope of this investigation.

## **IX. RELATED LITIGATION**

146. The ’187 patent was previously asserted in *Certain GPS Devices*, No. 337-TA-602. On March 21, 2011, Notice was given that the limited exclusion order and cease and desist orders entered in that case were rescinded due to settlement.

147. The ’844 patent was previously asserted in *Certain Semiconductor Devices and Consumer Audiovisual Products Containing the Same*, No. 337-TA-1047. This case is currently awaiting an Initial Determination. The ’844 patent was also asserted in the corresponding Central District of California cases against Funai (Case No. 8:17-CV-00403-JVS-JCG); LG (Case No. 8:17-CV-00404-JVS-JCG); MediaTek (Case No. 8:17-CV-00405-JVS-JCG); MStar (Case No. 8:17-CV-00406-JVS-JCG); Sigma (Case No. 8:17-CV-00407-JVS-JCG); and VIZIO (Case No. 8:17-CV-00408-JVS-JCG). The cases against Sigma and VIZIO have been stayed pending resolution of 337-TA-1047 and the cases against Funai, LG, MediaTek, and MStar have been terminated due to settlement. The ’844 patent was involved in the following *inter partes*

review proceedings: IPR2017-01111, IPR2017-01624; IPR2018-00013, and IPR2018-00477.

IPR2017-01111 was terminated due to settlement. IPR2017-01624 was denied institution.

IPR2018-00013 was instituted on April 6, 2018. IPR2018-00477 was terminated due to settlement. The '844 patent was previously asserted in *Broadcom Corp. v. Amazon.com, Inc.* (Case No. 8:16-CV-01774-JVS) (C.D. Cal.). This case was dismissed due to settlement.

148. The Asserted Patents are also the subject of a Civil Action in the United States District Court for the Eastern District of Texas, filed on or about May 7, 2018, by Complainant, naming certain of the Proposed Respondents as Defendants. Specifically, Broadcom will be filing a complaint for patent infringement in that District against each of Toyota Motor Corporation, Toyota Motor Sales, U.S.A., Inc., Toyota Motor Engineering & Manufacturing North America, Inc.; Toyota Motor Manufacturing, Texas, Inc., the Panasonic Respondents, the Denso Ten Respondents, Renesas Electronics Corporation, and JRC.

149. Other than the foregoing, and on information and belief, the Asserted Patents have not been the subject of any other court or agency litigation, domestic or foreign.

## **X. RELIEF REQUESTED**

WHEREFORE, by reason of the foregoing, Complainant respectfully requests that the United States International Trade Commission:

(a) institute an immediate investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, into the violations by Proposed Respondents of Section 337 arising from the importation into the United States, and/or sale for importation, and/or sale within the United States after importation, of Proposed Respondents' products that infringe one or more claims of the Asserted Patents;

(b) schedule and conduct a hearing, pursuant to 19 U.S.C. § 1337(c), for purposes of receiving evidence and hearing argument concerning whether there has been a violation of Section 337 of the Tariff Act of 1930, as amended; and, following the hearing, determine that there has been a violation of Section 337 of the Tariff Act of 1930, as amended;

(c) issue a limited exclusion order, pursuant to 19 U.S.C. § 1337(d)(1), excluding from entry for consumption into the United States, entry for consumption from a foreign trade-zone, or withdrawal from a warehouse for consumption, infotainment systems, components thereof, and automobiles containing the same that infringe one or more claims of the Asserted Patents and which are manufactured by or on behalf of, or imported by or on behalf of Proposed Respondents, or any of their affiliated companies, parents, subsidiaries, or other related business entities, or their successors or assigns, for the remaining terms of the Asserted Patents, except under license of Complainant or as provided by law;

(d) issue permanent cease-and-desist orders, pursuant to 19 U.S.C. § 1337(f), preventing Proposed Respondents and any of their principals, stockholders, officers, directors, employees, agents, licensees, distributors, controlled (whether by stock ownership or otherwise) or majority-owned business entities, successors, and assigns, from either directly engaging in or for, with, or otherwise on behalf of Proposed Respondents, (A) importing or selling for importation into the United States certain infotainment systems, components thereof, and automobiles containing the same that infringe one or more claims of the Asserted Patents; (B) marketing, distributing, offering for sale, selling, or otherwise transferring, in the United States imported infotainment systems, components thereof, and automobiles containing the same that infringe one or more claims of the Asserted Patents; (C) advertising imported infotainment systems, components thereof, and automobiles containing the same in the United States that

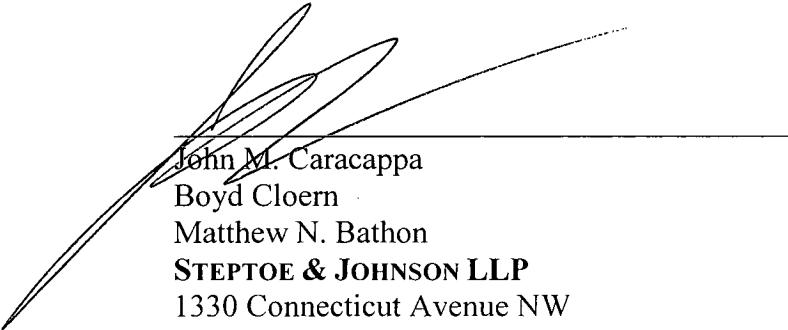
infringe one or more claims of the Asserted Patents; (D) soliciting U.S. agents or distributors for infotainment systems, components thereof, and automobiles containing the same that infringe one or more claims of the Asserted Patents; or (E) aiding or abetting other entities in the importation, sale for importation, sale after importation, transfer, or distribution of infotainment systems, components thereof, and automobiles containing the same that infringe one or more claims of the Asserted Patents;

(e) impose a bond during the 60-day Presidential review period pursuant to 19 U.S.C. § 1337(e)(1) and (f)(1) to prevent further injury to the domestic industry of Complainant relating to the Asserted Patents; and

(f) grant all such other and further relief as the Commission has authority to grant and deems appropriate under the law, based upon the facts complained of herein and as determined by the Investigation.

Dated: May 7, 2018

Respectfully submitted,



John M. Caracappa  
Boyd Cloern  
Matthew N. Bathon  
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1330 Connecticut Avenue NW  
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Telephone: (202) 429-3000

*Counsel for Complainant  
Broadcom Corporation*

## VERIFICATION

I, Steven Terronez, affirm that I am the Director of Finance at Broadcom Inc. responsible for the Wireless Communications Combos (“WCC”) Division and Mixed Signal ASIC Products (“MSAP”) Division of Broadcom Corporation. I have read the Verified Complaint of Broadcom Corporation under Section 337 of the Tariff Act of 1930, as Amended. I am informed and believe that the facts stated in the foregoing complaint are true as of this date and on that basis verify the foregoing complaint on behalf of Broadcom Corporation.

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct.

May 3, 2018

Dated

Steven Terronez  
Steven Terronez