

**FCC PART 15 SUBPART B and C  
TEST REPORT**
*for*  
**CAR DOCK FOR iPhone**  
**MODEL: IPH1CR0**

Prepared for

 DENSION AUDIO SYSTEMS  
 SZTREGOVA u. 1.  
 BUDAPEST, HUNGARY, H-116

 Prepared by: 

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 COMPATIBLE ELECTRONICS INC.  
 114 OLINDA DRIVE  
 BREA, CALIFORNIA 92823  
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DATE: APRIL 6, 2011

REPORT BODY	APPENDICES					TOTAL
	A	B	C	D	E	
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1	Conducted Emissions Test Setup
2	Plot Map And Layout of Radiated Test Site – 3 Meters

## GENERAL REPORT SUMMARY

Compatible Electronics Inc. generates this electromagnetic emission test report, which is an independent testing and consulting firm. The test report is based on testing performed by Compatible Electronics personnel according to the measurement procedures described in the test specifications given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced without the written permission of Compatible Electronics, unless done so in full.

This report must not be used to claim product endorsement by NVLAP, NIST or any other agency of the U.S. Government.

Device Tested: Car Dock for iPhone  
 Model: IPH1CR0  
 S/N: N/A

Product Description: See Expository Statement

Modifications: The EUT was not modified in order to meet the specifications.

Customer: Dension Audio Systems  
 Sztregova u. 1.  
 Budapest, Hungary, H-116

Test Date: March 1, 2011

Test Specification: EMI requirements  
 CFR Title 47, Part 15, Subpart B

Test Procedure: ANSI C63.4

Test Deviations: The test procedure was not deviated from during the testing.

## SUMMARY OF TEST RESULTS

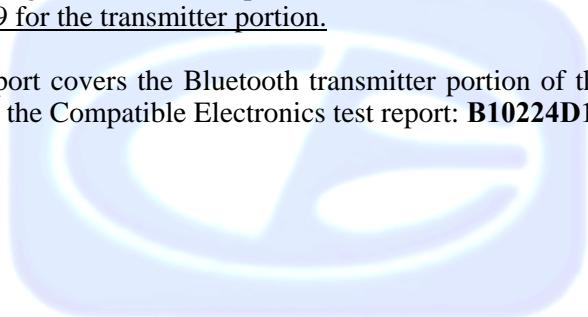
TEST	DESCRIPTION	RESULTS
1	Conducted RF Emissions 150 kHz to 30 MHz	This test was not performed because the EUT operates on DC power only and will not be connected to the AC public mains.
2	Radiated RF Emissions 10 kHz – 25000 MHz (Transmitter, Receive, and Digital Portion)	Complies with the <b>Class B</b> limits of CFR Title 47, Part 15, Subpart B; and Subpart C, sections 15.205, 15.209, and 15.249.  Highest reading in relation to spec limit: 52.43 dBuV @ 4882 MHz (*U = 5.24 dB)

\*U = Expanded Uncertainty with a coverage factor of k=2

## 1. PURPOSE

This document is a qualification test report based on the Electromagnetic Interference (EMI) tests performed on the Car Dock for iPhone, Model: IPH1CR0. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4. The tests were performed in order to determine whether the electromagnetic emissions from the equipment under test, referred to as EUT hereafter, are within the Class B specification limits defined by CFR Title 47, Part 15, Subpart B for the digital and receiver portion; and the limits defined in Subpart C, sections 15.205, 15.209, and 15.249 for the transmitter portion.

Note: This test report covers the Bluetooth transmitter portion of the EUT. For the FM transmitter portion, please see the Compatible Electronics test report: **B10224D1**.



## 2. ADMINISTRATIVE DATA

### 2.1 Location of Testing

The EMI tests described herein were performed at the test facility of Compatible Electronics, 114 Olinda Drive, Brea, California.

### 2.2 Traceability Statement

The calibration certificates of all test equipment used during the test are on file at the location of the test. The calibration is traceable to the National Institute of Standards and Technology (NIST).

### 2.3 Cognizant Personnel

Dension Audio Systems

Tibor Fabi  
Laszlo Kovacs

Engineer  
Head of Automotive OEM Division

Compatible Electronics Inc.

Kyle Fujimoto  
James Ross

Test Engineer  
Test Engineer

### 2.4 Date Test Sample was Received

The test sample was received prior to the date of testing.

### 2.5 Disposition of the Test Sample

The test sample has not yet been returned as of the date of this report.

### 2.6 Abbreviations and Acronyms

The following abbreviations and acronyms may be used in this document.

FCC	Federal Communications Commission
RF	Radio Frequency
EMI	Electromagnetic Interference
EUT	Equipment Under Test
P/N	Part Number
S/N	Serial Number
ITE	Information Technology Equipment
LISN	Line Impedance Stabilization Network
NVLAP	National Voluntary Laboratory Accreditation Program
CFR	Code of Federal Regulations
N/A	Not Applicable
Ltd.	Limited
Inc.	Incorporated
IR	Infrared

### 3. APPLICABLE DOCUMENTS

The following documents are referenced or used in the preparation of this EMI Test Report.

SPEC	TITLE
CFR Title 47, Part 15	FCC Rules – Radio frequency devices (including digital devices)
ANSI C63.4: 2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

## 4. DESCRIPTION OF TEST CONFIGURATION

### 4.1 Description of Test Configuration – EMI

The Car Dock for iPhone, Model: IPH1CR0 (EUT) was connected to a speaker and a USB Cigarette Lighter Adatper via its audio out and USB ports, respectively. The USB Cigarette Lighter Adapater was also connected to a 12 volt battery. An iPhone was also directly connected to the EUT.

The EUT was also playing “Amazing Grace” by Elvis on a continuous basis via the iPhone with the output going to the speaker.

A laptop was used to allow the EUT to transmit at the low, middle, and high channels for testing purposes. The laptop was not part of the actual testing and removed after the correct channel was selected for testing.

The antenna is a PCB trace.

It was determined that the emissions were at their highest level when the EUT was operating in the above configuration. The final emissions data was taken in this mode of operation and any cables were maximized. All initial investigations were performed with the measurement receiver in manual mode scanning the frequency range continuously. Photographs of the test setup are in Appendix D of this report.

#### 4.1.1 **Cable Construction and Termination**

**Cable 1**

This is a 2-meter unshielded cable connecting the speaker to the EUT. The cable was (2) RCA connectors at the speaker end and a 1/8 inch stereo jack at the EUT end. The cable was bundled to a length of 1 meter.

**Cable 2**

This is a 1-meter unshielded cable connecting the EUT to the USB Cigarette Lighter Adapter. The cable has an 18 pin connector at the EUT end and a USB type 'A' adapter at the USB Cigarette Lighter Adapter end.

**Cable 3**

This is a 30-centimeter unshielded cable connecting the USB Cigarette Lighter Adapter to the battery. The cable has alligator clips at each end.

**Cable 4**

This is a 30-centimeter unshielded cable connecting the USB Cigarette Lighter Adapter to the battery. The cable has alligator clips at each end.

## 5. LISTS OF EUT, ACCESSORIES AND TEST EQUIPMENT

### 5.1 EUT and Accessory List

EQUIPMENT	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	FCC ID
CAR DOCK FOR IPHONE (EUT)	DENSION AUDIO SYSTEMS	IPH1CR0	N/A	X6LIPH1CR0
SPEAKER	N/A	N/A	N/A	N/A
BATTERY	N/A	N/A	N/A	N/A
IPHONE	APPLE	A1241	N/A	BCGA1241
USB CIGARETTE LIGHTER ADAPTER	N/A	N/A	N/A	N/A
LAPTOP	HEWLETT PACKARD	G60-441US	2CE927RF3Q	N/A

## 5.2 EMI Test Equipment

EQUIPMENT TYPE	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
<b>GENERAL TEST EQUIPMENT USED FOR ALL RF EMISSIONS TESTS</b>					
Computer	Hewlett Packard	4530	US91912319	N/A	N/A
EMI Receiver	Rohde & Schwarz	ESIB40	100194	November 19, 2010	November 19, 2012
Spectrum Analyzer – Main Section	Hewlett Packard	8566B	2637A03618	June 1, 2010	June 1, 2011
Spectrum Analyzer – Display Section	Hewlett Packard	85662A	2648A13404	June 1, 2010	June 1, 2011
Quasi-Peak Adapter	Hewlett Packard	85650A	2430A00424	September 16, 2010	September 16, 2011
Monitor	Hewlett Packard	D5258A	TW74500641	N/A	N/A
<b>RF RADIATED EMISSIONS TEST EQUIPMENT</b>					
Biconical Antenna	Com-Power	AB-900	15250	June 18, 2010	June 18, 2011
Log Antenna	Com-Power	AL-100	16252	June 9, 2010	June 9, 2011
Preamplifier	Com-Power	PA-102	1017	January 11, 2011	January 11, 2012
Horn Antenna	Com-Power	AH-118	071175	March 18, 2010	March 18, 2012
Loop Antenna	Com-Power	AL-130	17089	January 21, 2011	January 21, 2012
Microwave Preamplifier	Com-Power	PA-840	711013	March 11, 2010	March 11, 2011
Horn Antenna	Com-Power	AH826	71957	NCR	N/A
Microwave Preamplifier	Com-Power	PA-118	181656	December 22, 2010	December 22, 2011
Antenna Mast	Com Power	AM-100	N/A	N/A	N/A

## 6. TEST SITE DESCRIPTION

### 6.1 Test Facility Description

Please refer to section 2.1 and 7.1.2 of this report for EMI test location.

### 6.2 EUT Mounting, Bonding and Grounding

The EUT was mounted on a 1.0 by 1.5 meter non-conductive table 0.8 meters above the ground plane.

The EUT was not grounded.

### 6.3 Facility Environmental Characteristics

When applicable refer to the data sheets in Appendix E for the relative humidity, air temperature, and barometric pressure.

## 7. TEST PROCEDURES

The following sections describe the test methods and the specifications for the tests. Test results are also included in this section.

### 7.1 RF Emissions

#### 7.1.1 Conducted Emissions Test

The measurement receiver was used as a measuring meter. The data was collected with the measurement receiver in the peak detect mode with the "Max Hold" feature activated. The quasi-peak was used only where indicated in the data sheets. A transient limiter was used for the protection of the measurement receiver's input stage, and the offset was adjusted accordingly to read the actual data measured. The LISN output was measured using the measurement receiver. The output of the second LISN was terminated by a 50-ohm termination. The effective measurement bandwidth used for this test was 9 kHz.

Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The EUT was powered through the LISN, which was bonded to the ground plane. The LISN power was filtered and the filter was bonded to the ground plane. The EUT was set up with the minimum distances from any conductive surfaces as specified in ANSI C63.4. The excess power cord was wrapped in a figure eight pattern to form a bundle not exceeding 0.4 meters in length.

The conducted emissions from the EUT were maximized for operating mode as well as cable placement. The final data was collected under program control by the Compatible Electronics conducted emissions software in several overlapping sweeps by running the spectrum analyzer at a minimum scan rate of 10 seconds per octave. The final qualification data is located in Appendix E.

#### Test Results:

This test was not performed because the EUT operates on battery power only.

**7.1.2**
**Radiated Emissions (Spurious and Harmonics) Test**

The spectrum analyzer and EMI Receiver were used as a measuring meter along with the quasi-peak adapter. Amplifiers were used to increase the sensitivity of the instrument. The Com-Power Preamplifier Model: PA-102 was used for frequencies from 30 MHz to 1 GHz, the Com-Power Microwave Preamplifier Model: PA-118 was used for frequencies from 1 GHz to 18 GHz, and the Com-Power Microwave Preamplifier Model: PA-840 were used for frequencies above 18 GHz. The spectrum analyzer and EMI Receiver were used in the peak detect mode with the "Max Hold" feature activated. In this mode, the spectrum analyzer records the highest measured reading over all the sweeps.

The quasi-peak adapter was used only for those readings which are marked accordingly on the data sheets.

The readings were averaged by a "duty cycle correction factor," derived from  $20 \log (\text{dwell time} / \text{one pulse train with blanking interval})$ . The measurement bandwidths and transducers used for the radiated emissions test were:

The measurement bandwidths and transducers used for the radiated emissions test were:

FREQUENCY RANGE	EFFECTIVE MEASUREMENT BANDWIDTH	TRANSDUCER
10 kHz to 150 kHz	200 Hz	Active Loop Antenna
150 kHz to 30 MHz	9 kHz	Active Loop Antenna
30 MHz to 300 MHz	120 kHz	Biconical Antenna
300 MHz to 1 GHz	120 kHz	Log Periodic Antenna
1 GHz to 25 GHz	1 MHz	Horn Antennas

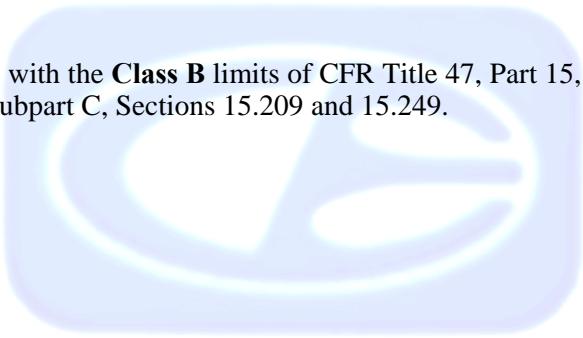
The open field test site of Compatible Electronics, Inc. was used for radiated emission testing. This test site is set up according to ANSI C63.4. Please see section 6.2 of this report for mounting, bonding and grounding of the EUT. The turntable supporting the EUT is remote controlled using a motor. The turntable permits EUT rotation of 360 degrees in order to maximize emissions. Also, the antenna mast allows height variation of the antenna from 1 meter to 4 meters. Data was collected in the worst case (highest emission) configuration of the EUT by the Radiated Emission Manual Test software. At each reading, the EUT was rotated 360 degrees and the antenna height was varied from 1 to 4 meters (for E field radiated field strength). The gunsight method was used when measuring with the horn antenna in order to ensure accurate results. The loop antenna was also rotated in the horizontal and vertical axis in order to ensure accurate results.

### Radiated Emissions (Spurious and Harmonics) Test (continued)

The presence of ambient signals was verified by turning the EUT off. In case an ambient signal was detected, the measurement bandwidth was reduced temporarily and verification was made that an additional adjacent peak did not exist. This ensures that the ambient signal does not hide any emissions from the EUT. The EUT was tested at a 3-meter test distance to obtain the final test data.

#### Test Results:

The EUT complies with the **Class B** limits of CFR Title 47, Part 15, Subpart B; and the limits of CFR Title 47, Part 15, Subpart C, Sections 15.209 and 15.249.



### 7.1.3 RF Emissions Test Results

Table 1.0 RADIATED EMISSION RESULTS  
 Car Dock for iPhone, Model: IPH1CR0

Frequency MHz	Corrected Reading* dBuV	Specification Limit dBuV	Delta (Cor. Reading – Spec. Limit) dB
4882 (Vertical) (A)	52.43	54.00	-1.57
4804 (Vertical) (A)	52.20	54.00	-1.80
4804 (Horizontal) (A)	46.78	54.00	-7.22
4960 (Horizontal) (A)	46.02	54.00	-7.98
4882 (Horizontal) (A)	45.87	54.00	-8.13
4960 (Vertical) (A)	45.56	54.00	-8.44

Notes:

- \* The complete emissions data is given in Appendix E of this report.
- A Average Reading

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## 8. CONCLUSIONS

The Car Dock for iPhone, Model: IPH1CR0 (EUT), as tested, meets all of the **Class B** specification limits defined in CFR Title 47, Part 15, Subpart B for the digital and receiver portion; and the limits defined in Subpart C, sections 15.205, 15.209, and 15.249 for the transmitter portion.



## APPENDIX A

### ***LABORATORY ACCREDITATIONS AND RECOGNITIONS***

---

**Brea Division**  
**114 Olinda Drive**  
**Brea, CA 92823**  
**(714) 579-0500**

**Agoura Division**  
**2337 Troutdale Drive**  
**Agoura, CA 91301**  
**(818) 597-0600**

**Silverado Division**  
**19121 El Toro Road**  
**Silverado, CA 92676**  
**(949) 589-0700**

**Lake Forest Division**  
**20621 Pascal Way**  
**Lake Forest, CA 92630**  
**(949) 587-0400**

## LABORATORY ACCREDITATIONS AND RECOGNITIONS


 NVLAP LAB CODES 200063-0,  
 200528-0, 200527-0

For US, Canada, Australia/New Zealand, Japan, Taiwan, Korea, and the European Union, Compatible Electronics is currently accredited by NVLAP to ISO/IEC 17025. Please follow the link to the NIST/NVLAP site for each of our facilities' NVLAP certificate and scope of accreditation

[NVLAP listing links](#)

[Agoura Division](#) / [Brea Division](#) / [Silverado/Lake Forest Division](#)

.Quote from ISO-ILAC-IAF Communiqué on 17025:

"A laboratory's fulfilment of the requirements of ISO/IEC 17025:2005 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025:2005 (Section 4) are written in language relevant to laboratory operations and meet the principles of ISO 9001:2008 Quality Management Systems — Requirements."



ANSI listing [CETCB](#)



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for EMC under the US/EU Mutual Recognition Agreement (MRA).

[US/EU MRA list](#) [NIST MRA site](#)



Compatible Electronics has been nominated as a Conformity Assessment Body (CAB) for Taiwan/BSMI under the US/APEC (Asia-Pacific Economic Cooperation) Mutual Recognition Agreement (MRA).

[APEC MRA list](#) [NIST MRA site](#)

We are also listed for IT products by the following country/agency:



VCCI Support member: Please visit [http://www.vcci.jp/vcci\\_e/](http://www.vcci.jp/vcci_e/)



FCC Listing, from FCC OET site  
[FCC test lab search](https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm) <https://fjallfoss.fcc.gov/oetcf/eas/reports/TestFirmSearch.cfm>



Compatible Electronics IC listing can be found at:  
<http://www.ic.gc.ca/eic/site/ic1.nsf/eng/home>

## APPENDIX B

### ***MODIFICATIONS TO THE EUT***

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**Brea Division**  
**114 Olinda Drive**  
**Brea, CA 92823**  
**(714) 579-0500**

**Agoura Division**  
**2337 Troutdale Drive**  
**Agoura, CA 91301**  
**(818) 597-0600**

**Silverado Division**  
**19121 El Toro Road**  
**Silverado, CA 92676**  
**(949) 589-0700**

**Lake Forest Division**  
**20621 Pascal Way**  
**Lake Forest, CA 92630**  
**(949) 587-0400**

## MODIFICATIONS TO THE EUT

The modifications listed below were made to the EUT to pass FCC 15.249 and/or FCC **Class B** specifications.

All the rework described below was implemented during the test in a method that could be reproduced in all the units by the manufacturer.

No modification were made to the EUT during the testing.



## APPENDIX C

### ***ADDITIONAL MODELS COVERED UNDER THIS REPORT***

---

**Brea Division**  
**114 Olinda Drive**  
**Brea, CA 92823**  
**(714) 579-0500**

**Agoura Division**  
**2337 Troutdale Drive**  
**Agoura, CA 91301**  
**(818) 597-0600**

**Silverado Division**  
**19121 El Toro Road**  
**Silverado, CA 92676**  
**(949) 589-0700**

**Lake Forest Division**  
**20621 Pascal Way**  
**Lake Forest, CA 92630**  
**(949) 587-0400**

## **ADDITIONAL MODELS COVERED UNDER THIS REPORT**

**USED FOR THE PRIMARY TEST**

Car Dock for iPhone  
Model: IPH1CR0  
S/N: N/A

**ALSO APPROVED UNDER THIS REPORT:**

There were no additional models covered under this report.



## APPENDIX D

### ***DIAGRAMS, CHARTS, AND PHOTOS***

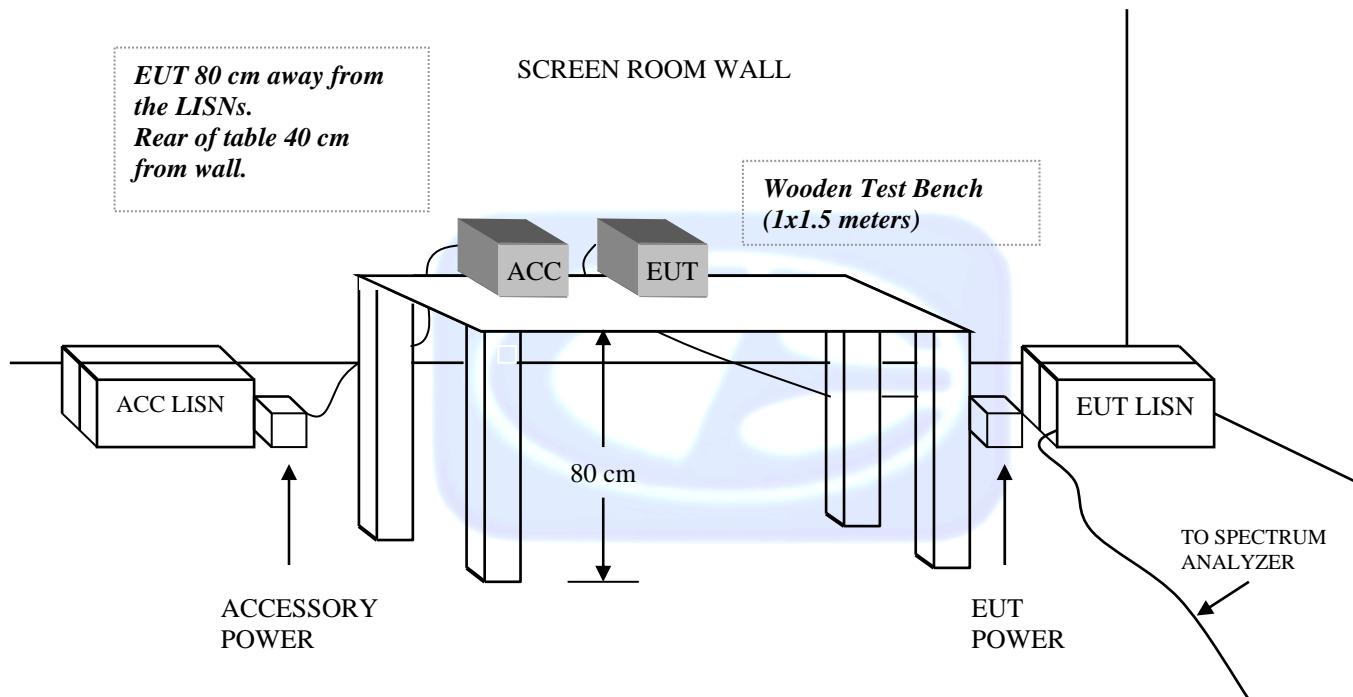
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**Brea Division**  
114 Olinda Drive  
Brea, CA 92823  
(714) 579-0500

**Agoura Division**  
2337 Troutdale Drive  
Agoura, CA 91301  
(818) 597-0600

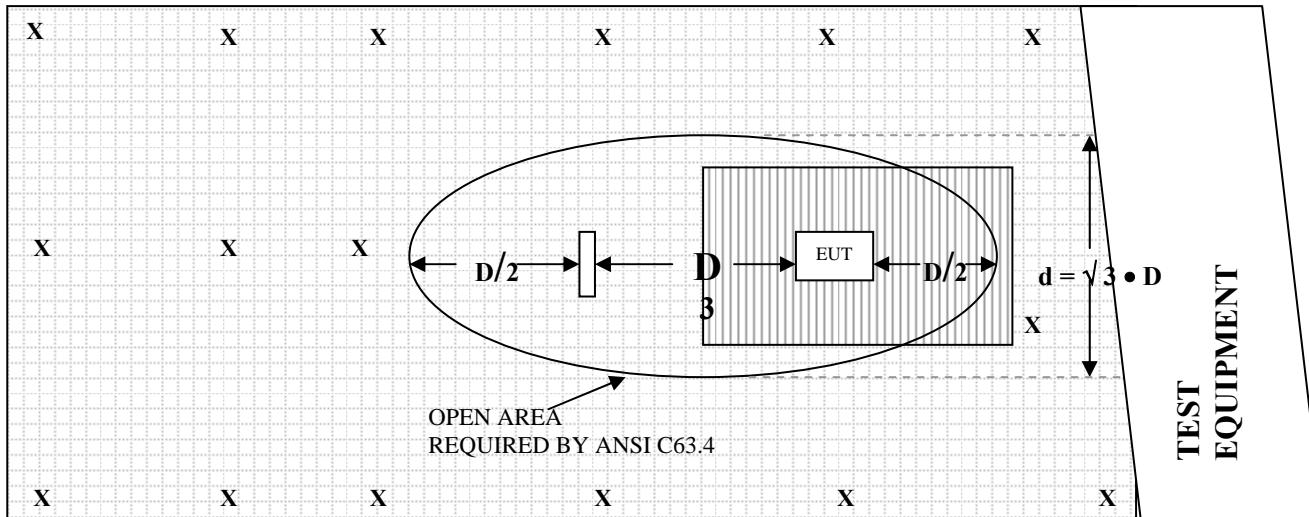
**Silverado Division**  
19121 El Toro Road  
Silverado, CA 92676  
(949) 589-0700

**Lake Forest Division**  
20621 Pascal Way  
Lake Forest, CA 92630  
(949) 587-0400

**FIGURE 1: CONDUCTED EMISSIONS TEST SETUP**


**FIGURE 2: PLOT MAP AND LAYOUT OF RADIATED SITE – 3 METERS**

**OPEN LAND > 15 METERS**



**OPEN LAND > 15 METERS**

 = GROUND RODS	 = GROUND SCREEN
 = TEST DISTANCE (meters)	 = WOOD COVER

**COM-POWER AB-900**
**BICONICAL ANTENNA**
**S/N: 15250**
**CALIBRATION DATE: JUNE 18, 2010**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
30	12.8	100	11.5
35	11.3	120	13.6
40	10.8	140	12.5
45	10.1	160	13.2
50	11.0	180	15.5
60	11.1	200	16.9
70	7.3	250	16.4
80	7.5	275	18.7
90	8.3	300	19.5

**COM-POWER AL-100****LOG PERIODIC ANTENNA****S/N: 16252****CALIBRATION DATE: JUNE 9, 2010**

<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>	<b>FREQUENCY (MHz)</b>	<b>FACTOR (dB)</b>
300	12.7	700	19.5
400	16.1	800	20.9
500	16.9	900	20.8
600	20.1	1000	21.5

**COM-POWER PA-102**
**PREAMPLIFIER**
**S/N: 1017**
**CALIBRATION DATE: JANUARY 11, 2011**

FREQUENCY (MHz)	FACTOR (dB)	FREQUENCY (MHz)	FACTOR (dB)
20	38.2	300	38.1
30	38.1	350	38.0
40	38.2	400	37.9
50	38.2	450	37.7
60	38.2	500	37.6
70	38.2	550	37.9
80	38.2	600	37.9
90	38.2	650	37.7
100	38.1	700	37.9
125	38.2	750	37.5
150	38.2	800	37.6
175	38.2	850	37.6
200	38.2	900	37.0
225	38.2	950	37.2
250	38.2	1000	36.8
275	38.2		

# COM POWER AH-118

## HORN ANTENNA

S/N: 071175

CALIBRATION DATE: MARCH 18, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	22.2	10.0	39.8
1.5	24.2	10.5	40.2
2.0	27.2	11.0	39.7
2.5	27.8	11.5	39.9
3.0	30.5	12.0	41.7
3.5	30.9	12.5	42.7
4.0	31.9	13.0	42.3
4.5	33.2	13.5	40.3
5.0	33.6	14.0	42.6
5.5	36.2	14.5	43.4
6.0	35.8	15.0	41.9
6.5	36.1	15.5	40.8
7.0	37.9	16.0	41.0
7.5	37.4	16.5	41.5
8.0	38.0	17.0	44.5
8.5	38.8	17.5	47.6
9.0	38.0	18.0	50.8
9.5	39.2		

# COM-POWER PA-118

## PREAMPLIFIER

S/N: 181656

CALIBRATION DATE: DECEMBER 22, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
1.0	24.90	10.0	26.07
1.5	26.50	10.5	24.97
2.0	26.79	11.0	24.79
2.5	26.90	11.5	24.33
3.0	27.03	12.0	24.24
3.5	26.94	12.5	24.92
4.0	27.18	13.0	24.52
4.5	26.79	13.5	24.33
5.0	26.25	14.0	24.56
5.5	26.16	14.5	24.99
6.0	25.52	15.0	26.06
6.5	25.29	15.5	26.87
7.0	24.45	16.0	25.95
7.5	24.18	16.5	24.69
8.0	24.02	17.0	24.20
8.5	24.54	17.5	25.12
9.0	24.91	18.0	26.03
9.5	25.42		

**COM-POWER AH826**
**HORN ANTENNA**
**S/N: 71957**

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	33.5	22.5	35.5
18.5	33.5	23.0	35.9
19.0	34.0	23.5	35.7
19.5	34.0	24.0	35.6
20.0	34.3	24.5	36.0
20.5	34.9	25.0	36.2
21.0	34.7	25.5	36.1
21.5	35.0	26.0	36.2
22.0	35.0	26.5	35.7

**COM-POWER AL-130**
**LOOP ANTENNA**
**S/N: 17089**
**CALIBRATION DATE: JANUARY 21, 2011**

FREQUENCY (MHz)	MAGNETIC (dB/m)	ELECTRIC (dB/m)
0.009	-41.9	9.6
0.01	-41.79	9.71
0.02	-41.43	10.07
0.05	-41.53	9.97
0.07	-41.47	10.03
0.1	-41.44	10.06
0.2	-41.61	9.89
0.3	-41.62	9.88
0.5	-41.66	9.84
0.7	-41.48	10.02
1	-41.13	10.37
2	-40.89	10.61
3	-41.00	10.50
4	-41.14	10.36
5	-41.02	10.48
10	-40.69	10.82
15	-40.41	11.09
20	-41.07	10.43
25	-42.10	9.40
30	-41.15	10.35

## COM-POWER PA-840

### MICROWAVE PREAMPLIFIER

S/N: 711013

CALIBRATION DATE: MARCH 11, 2010

FREQUENCY (GHz)	FACTOR (dB)	FREQUENCY (GHz)	FACTOR (dB)
18.0	24.36	29.5	23.52
18.5	24.54	30.0	21.73
19.0	24.06	30.5	22.34
19.5	23.71	31.0	20.06
20.0	23.42	31.5	20.02
20.5	22.87	32.0	18.11
21.0	22.60	32.5	19.35
21.5	21.08	33.0	17.50
22.0	22.13	33.5	17.49
22.5	22.42	34.0	17.48
23.0	22.85	34.5	18.57
23.5	22.85	35.0	18.64
24.0	23.82	35.5	18.82
24.5	22.33	36.0	19.14
25.0	24.09	36.5	18.58
25.5	23.20	37.0	15.07
26.0	23.18	37.5	17.29
26.5	23.50	38.0	20.82
27.0	24.25	38.5	19.96
27.5	23.58	39.0	20.66
28.0	23.81	39.5	21.41
28.5	23.76	40.0	18.89
29.0	24.83		

**FRONT VIEW**

DENSITY AUDIO SYSTEMS  
CAR DOCK FOR iPHONE  
MODEL: IPH1CR0  
FCC SUBPART B AND C – RADIATED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**

---

Brea Division  
114 Olinda Drive  
Brea, CA 92823  
(714) 579-0500

Agoura Division  
2337 Troutdale Drive  
Agoura, CA 91301  
(818) 597-0600

Silverado Division  
19121 El Toro Road  
Silverado, CA 92676  
(949) 589-0700

Lake Forest Division  
20621 Pascal Way  
Lake Forest, CA 92630  
(949) 587-0400

**REAR VIEW**

DENSITY AUDIO SYSTEMS  
CAR DOCK FOR iPHONE  
MODEL: IPH1CR0  
FCC SUBPART B AND C – RADIATED EMISSIONS

**PHOTOGRAPH SHOWING THE EUT CONFIGURATION  
FOR MAXIMUM EMISSIONS**

---

Brea Division  
114 Olinda Drive  
Brea, CA 92823  
(714) 579-0500

Agoura Division  
2337 Troutdale Drive  
Agoura, CA 91301  
(818) 597-0600

Silverado Division  
19121 El Toro Road  
Silverado, CA 92676  
(949) 589-0700

Lake Forest Division  
20621 Pascal Way  
Lake Forest, CA 92630  
(949) 587-0400

## APPENDIX E

### ***DATA SHEETS***

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**Brea Division**  
**114 Olinda Drive**  
**Brea, CA 92823**  
**(714) 579-0500**

**Agoura Division**  
**2337 Troutdale Drive**  
**Agoura, CA 91301**  
**(818) 597-0600**

**Silverado Division**  
**19121 El Toro Road**  
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**(949) 589-0700**

**Lake Forest Division**  
**20621 Pascal Way**  
**Lake Forest, CA 92630**  
**(949) 587-0400**

## ***RADIATED EMISSIONS***

### ***DATA SHEETS***

---

**Brea Division**  
**114 Olinda Drive**  
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**Agoura Division**  
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**Agoura, CA 91301**  
**(818) 597-0600**

**Silverado Division**  
**19121 El Toro Road**  
**Silverado, CA 92676**  
**(949) 589-0700**

**Lake Forest Division**  
**20621 Pascal Way**  
**Lake Forest, CA 92630**  
**(949) 587-0400**

**FCC 15.249**

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011  
Lab: B  
Tested By: Kyle Fujimoto

**Low Channel**  
**Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402	78.85	V	94	-15.15	Peak	3	225	
2402	58.85	V	94	-35.15	Avg	3	225	
4804	60.98	V	74	-13.02	Peak	2.25	180	
4804	40.98	V	54	-13.02	Avg	2.25	180	
7206								No Emission Detected
7206								No Emission Detected
9608								No Emission Detected
9608								No Emission Detected
12010								No Emission Detected
12010								No Emission Detected
14412								No Emission Detected
14412								No Emission Detected
16814								No Emission Detected
16814								No Emission Detected
19216								No Emission Detected
19216								No Emission Detected
21618								No Emission Detected
21618								No Emission Detected
24020								No Emission Detected
24020								No Emission Detected

**FCC 15.249**

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011  
Lab: B  
Tested By: Kyle Fujimoto

**Low Channel**  
**Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402	78.74	H	94	-15.26	Peak	1.26	225	
2402	58.74	H	94	-35.26	Avg	1.26	225	
4804	59.22	H	74	-14.78	Peak	1	135	
4804	39.22	H	54	-14.78	Avg	1	135	
7206								No Emission Detected
7206								
9608								No Emission Detected
9608								
12010								No Emission Detected
12010								
14412								No Emission Detected
14412								
16814								No Emission Detected
16814								
19216								No Emission Detected
19216								
21618								No Emission Detected
21618								
24020								No Emission Detected
24020								

**FCC 15.249**

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011

Lab: B

Tested By: Kyle Fujimoto

**Low Channel**  
**Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402	87.08	V	94	-6.92	Peak	1.25	225	
2402	67.08	V	94	-26.92	Avg	1.25	225	
4804	72.2	V	74	-1.8	Peak	1.5	225	
4804	52.2	V	54	-1.8	Avg	1.5	225	
7206								No Emission
7206								Detected
9608								No Emission
9608								Detected
12010								No Emission
12010								Detected
14412								No Emission
14412								Detected
16814								No Emission
16814								Detected
19216								No Emission
19216								Detected
21618								No Emission
21618								Detected
24020								No Emission
24020								Detected

**FCC 15.249**

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011  
Lab: B  
Tested By: Kyle Fujimoto

**Low Channel**  
**Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402	81.27	H	94	-12.73	Peak	1.25	155	
2402	61.27	H	94	-32.73	Avg	1.25	155	
4804	66.78	H	74	-7.22	Peak	1.25	180	
4804	46.78	H	54	-7.22	Avg	1.25	180	
7206								No Emission
7206								Detected
9608								No Emission
9608								Detected
12010								No Emission
12010								Detected
14412								No Emission
14412								Detected
16814								No Emission
16814								Detected
19216								No Emission
19216								Detected
21618								No Emission
21618								Detected
24020								No Emission
24020								Detected

**FCC 15.249**

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011  
Lab: B  
Tested By: Kyle Fujimoto

**Middle Channel**  
**Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	85.83	V	94	-8.17	Peak	2.25	225	
2441	65.83	V	94	-28.17	Avg	2.25	225	
4882	65.03	V	74	-8.97	Peak	1.25	135	
4882	45.03	V	54	-8.97	Avg	1.25	135	
7323								No Emission Detected
7323								
9764								No Emission Detected
9764								
12205								No Emission Detected
12205								
14646								No Emission Detected
14646								
17087								No Emission Detected
17087								
19528								No Emission Detected
19528								
21969								No Emission Detected
21969								
24410								No Emission Detected
24410								

**FCC 15.249**

 Dension Audio Systems  
 Car Dock for iPhone  
 Model: IPH1CR0

Date: 3/1/2011

Lab: B

Tested By: Kyle Fujimoto

**Middle Channel**  
**Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	88.15	H	94	-5.85	Peak	1.25	135	
2441	68.15	H	94	-25.85	Avg	1.25	135	
4882	62.65	H	74	-11.35	Peak	1.35	145	
4882	42.65	H	54	-11.35	Avg	1.35	145	
7323								No Emission Detected
7323								
9764								No Emission Detected
9764								
12205								No Emission Detected
12205								
14646								No Emission Detected
14646								
17087								No Emission Detected
17087								
19528								No Emission Detected
19528								
21969								No Emission Detected
21969								
24410								No Emission Detected
24410								

**FCC 15.249**

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011  
Lab: B  
Tested By: Kyle Fujimoto

**Middle Channel**  
**Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	86.52	V	94	-7.48	Peak	1	180	
2441	66.52	V	94	-27.48	Avg	1	180	
4882	72.43	V	74	-1.57	Peak	2.25	225	
4882	52.43	V	54	-1.57	Avg	2.25	225	
7323								No Emission Detected
7323								
9764								No Emission Detected
9764								
12205								No Emission Detected
12205								
14646								No Emission Detected
14646								
17087								No Emission Detected
17087								
19528								No Emission Detected
19528								
21969								No Emission Detected
21969								
24410								No Emission Detected
24410								

**FCC 15.249**

 Dension Audio Systems  
 Car Dock for iPhone  
 Model: IPH1CR0

 Date: 3/1/2011  
 Lab: B  
 Tested By: Kyle Fujimoto

**Middle Channel**  
**Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2441	84.73	H	94	-9.27	Peak	1.25	135	
2441	64.73	H	94	-29.27	Avg	1.25	135	
4882	65.87	H	74	-8.13	Peak	1.25	155	
4882	45.87	H	54	-8.13	Avg	1.25	155	
7323								No Emission
7323								Detected
9764								No Emission
9764								Detected
12205								No Emission
12205								Detected
14646								No Emission
14646								Detected
17087								No Emission
17087								Detected
19528								No Emission
19528								Detected
21969								No Emission
21969								Detected
24410								No Emission
24410								Detected

**FCC 15.249**

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011  
Lab: B  
Tested By: Kyle Fujimoto

**High Channel  
Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	82.16	V	94	-11.84	Peak	1.25	135	
2480	62.16	V	94	-31.84	Avg	1.25	135	
4960	65.56	V	74	-8.44	Peak	3	45	
4960	45.56	V	54	-8.44	Avg	3	45	
7440								No Emission Detected
7440								
9920								No Emission Detected
9920								
12400								No Emission Detected
12400								
14880								No Emission Detected
14880								
17360								No Emission Detected
17360								
19840								No Emission Detected
19840								
22320								No Emission Detected
22320								
24800								No Emission Detected
24800								

**FCC 15.249**

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011

Lab: B

Tested By: Kyle Fujimoto

**High Channel  
Transmit Mode - X-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	83.81	H	94	-10.19	Peak	1.55	135	
2480	63.81	H	94	-30.19	Avg	1.55	135	
4960	62.11	H	74	-11.89	Peak	1.25	155	
4960	42.11	H	54	-11.89	Avg	1.25	155	
7440								No Emission Detected
7440								
9920								No Emission Detected
9920								
12400								No Emission Detected
12400								
14880								No Emission Detected
14880								
17360								No Emission Detected
17360								
19840								No Emission Detected
19840								
22320								No Emission Detected
22320								
24800								No Emission Detected
24800								

**FCC 15.249**

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011  
Lab: B  
Tested By: Kyle Fujimoto

**High Channel  
Transmit Mode - Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	86.12	V	94	-7.88	Peak	1.25	45	
2480	66.12	V	94	-27.88	Avg	1.25	45	
4960	42.01	V	74	-31.99	Peak	1.25	225	
4960	22.01	V	54	-31.99	Avg	1.25	225	
7440								No Emission Detected
7440								
9920								No Emission Detected
9920								
12400								No Emission Detected
12400								
14880								No Emission Detected
14880								
17360								No Emission Detected
17360								
19840								No Emission Detected
19840								
22320								No Emission Detected
22320								
24800								No Emission Detected
24800								

**FCC 15.249**

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011  
Lab: B  
Tested By: Kyle Fujimoto

**High Channel  
Transmit Mode -Y-Axis**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2480	82.32	H	94	-11.68	Peak	1.25	135	
2480	62.32	H	94	-31.68	Avg	1.25	135	
4960	66.02	H	74	-7.98	Peak	1.35	155	
4960	46.02	H	54	-7.98	Avg	1.35	155	
7440								No Emission Detected
7440								
9920								No Emission Detected
9920								
12400								No Emission Detected
12400								
14880								No Emission Detected
14880								
17360								No Emission Detected
17360								
19840								No Emission Detected
19840								
22320								No Emission Detected
22320								
24800								No Emission Detected
24800								

FCC Class B and RSS-210

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011

## Lab: B

Tested By: Kyle Fujimoto

## Middle Channel Receive Mode

FCC 15.249

Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 3/1/2011  
Lab: B  
Tested By: Kyle Fujimoto

## Non Harmonic Emissions from the Tx and Digital Portion -- 10 kHz to 25000 MHz

***BAND EDGES***

***DATA SHEETS***

---

**Brea Division**  
**114 Olinda Drive**  
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**20621 Pascal Way**  
**Lake Forest, CA 92630**  
**(949) 587-0400**

**FCC 15.249**

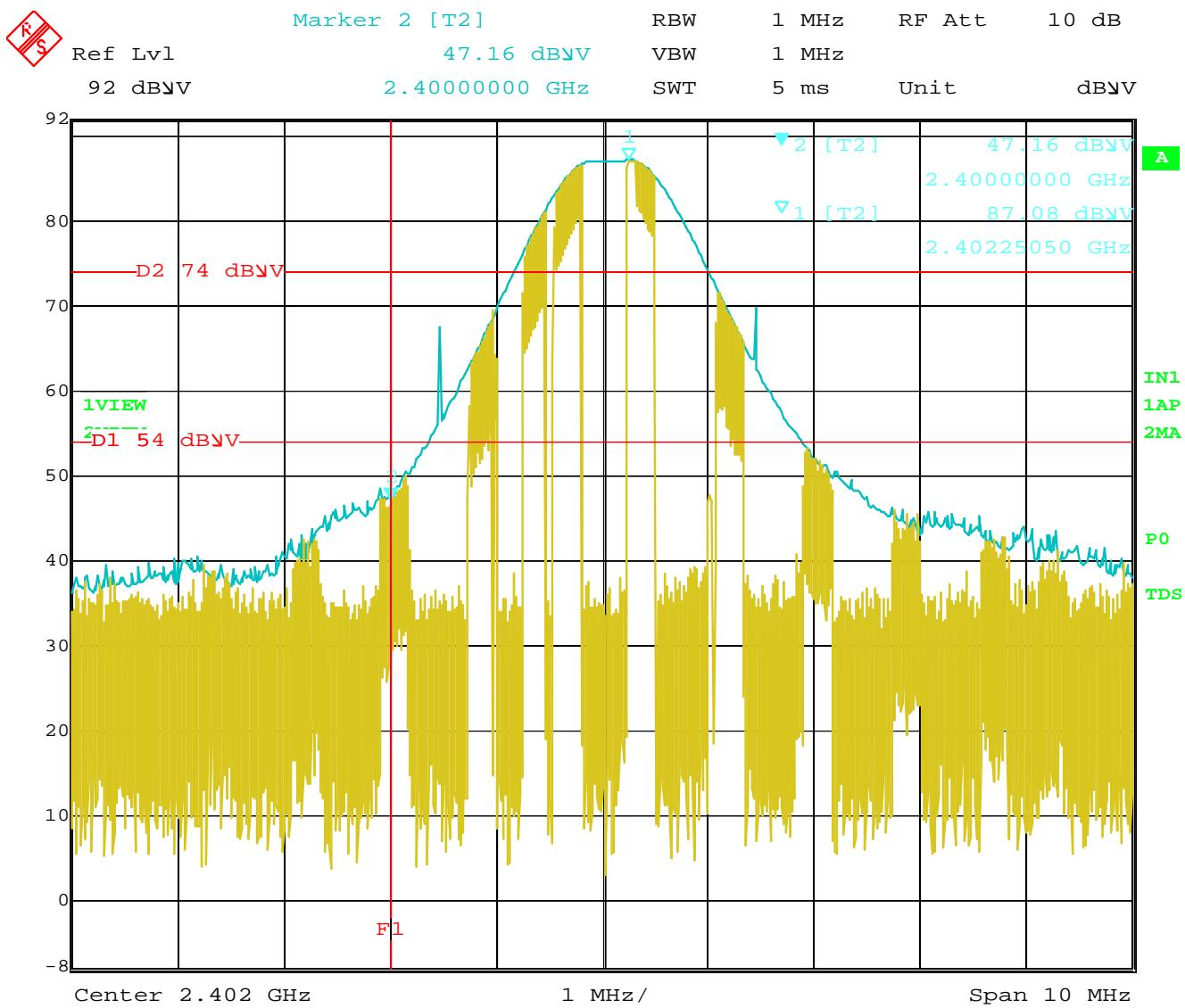
Dension Audio Systems  
Car Dock for iPhone  
Model: IPH1CR0

Date: 03/01/2011  
Lab: B  
Tested By: Kyle Fujimoto

**Band Edges - Worst Case**

Freq. (MHz)	Level (dBuV)	Pol (v/h)	Limit	Margin	Peak / QP / Avg	Ant. Height (m)	Table Angle (deg)	Comments
2402	87.08	V	94	-6.92	Peak	1.25	225	Fundamental of Low Channel @ 3 meters - Y-Axis - Worst Case
2400	47.16	V	54	-6.84	Peak	1.25	225	<b>Band Edge - Y-Axis</b> Low Channel - Worst Case
2480	86.12	V	94	-7.88	Peak	1.25	45	Fundamental of High Channel @ 3 meters - Y-Axis - Worst Case
2483.5	42.01	V	54	-11.99	Peak	1.25	45	<b>Band Edge - Y-Axis</b> High Channel - Worst Case

## Band Edge – Low Channel – Vertical Polarization – Y-Axis (Worst Case)



Date: 1.MAR.2011 09:06:45

## Band Edge – High Channel – Vertical Polarization – Y-Axis (Worst Case)

