

FCC TEST REPORT  
for  
SKYPINE ELECTRONICS (SHEN ZHEN) CO., LTD.

Entertainment Navigation System  
Model No.: PE-ECUS7, CRU-8206-RS

Prepared for : SKYPINE ELECTRONICS (SHEN ZHEN) CO., LTD.  
Address : A1 BUILDING, NO.6 XINXING INDUSTRIAL PARK XINHE  
VILLAGE, FUYONG TOWN, BAOAN, SHENZHEN, CHINA


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Report Number : 201203854F  
Date of Test : Apr. 20~26, 2012  
Date of Report : Apr. 27, 2012

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## TEST REPORT

Applicant : SKYPINE ELECTRONICS (SHEN ZHEN) CO., LTD.  
Manufacturer : SKYPINE ELECTRONICS (SHEN ZHEN) CO., LTD.  
EUT : Entertainment Navigation System  
Model No. : PE-ECUS7, CRU-8206-RS  
Serial No. : N/A  
Rating : 12V   
Trade Mark : Rosen, Skypine

## Measurement Procedure Used:

FCC Part15 Subpart C, Paragraph 15.207, 15.249 &amp; 15.209

The device described above is tested by Anbotek Compliance Laboratory Limited to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. The measurement results are contained in this test report and Anbotek Compliance Laboratory Limited is assumed full of responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT (Equipment Under Test) is technically compliant with the FCC Part 15 Subpart C requirements.

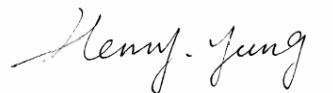
This report applies to above tested sample only and shall not be reproduced in part without written approval of Anbotek Compliance Laboratory Limited

Date of Test : Apr. 20~26, 2012

Prepared by :

(Tested Engineer / Andy Chen)

Reviewer :

(Project Manager / Jerry Du)

Approved &amp; Authorized Signer :

(Manager / Henry Yang)

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

EUT : Entertainment Navigation System

Model Number : PE-ECUS7, CRU-8206-RS

Test Power Supply : 12V 

Frequency : 2402~2480MHz

Antenna : Printed Antenna:1.87dBi  
Specification

Applicant : SKYPINE ELECTRONICS (SHEN ZHEN) CO., LTD.  
Address : A1 BUILDING, NO.6 XINXING INDUSTRIAL PARK XINHE  
VILLAGE, FUYONG TOWN, BAOAN, SHENZHEN,China

Manufacturer : SKYPINE ELECTRONICS (SHEN ZHEN) CO., LTD.  
Address : A1 BUILDING, NO.6 XINXING INDUSTRIAL PARK XINHE  
VILLAGE, FUYONG TOWN, BAOAN, SHENZHEN,China

Date of receiver : Apr. 20, 2012  
Date of Test : Apr. 20~26, 2012

## 1.2.Auxiliary Equipment Used during Test

PC	: Manufacturer: DELL M/N: OPTIPLEX 380 S/N: 1J63X2X CE , FCC: DOC
MONITOR	: Manufacturer: DELL M/N: E170Sc S/N: CN-00V539-64180-055-0UPS CE , FCC: DOC
MOUSE	: Manufacturer: DELL M/N: M-UARDEL7 S/N: N/A CE , FCC: DOC Cable: 1m, unshielded
Printer	: Manufacturer:Brother M/N: MFC-3360C S/N: N/A CE, FCC:DOC
Power Line	: Non-Shielded, 1.5m
VGA Cable	: Non-Shielded, 1.5m
USB Cable	: Non-Shielded, 0.5m

### 1.3. Description of Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

**CNAS - LAB Code: L3503**

Anbotek Compliance Laboratory Limited., Laboratory has been assessed and in compliance with CNAS/CL01: 2006 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2005 General Requirements) for the Competence of Testing Laboratories.

**FCC-Registration No.: 752021**

Anbotek Compliance Laboratory Limited, EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 752021, August 20, 2010.

**IC-Registration No.: 8058A-1**

Anbotek Compliance Laboratory Limited., EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada. The acceptance letter from the IC is maintained in our files. Registration 8058A-1, August 30, 2010.

**Test Location**

All Emissions tests were performed at  
Anbotek Compliance Laboratory Limited. at 1/F, 1 /Building, SEC Industrial Park,  
No. 4 Qianhai Road, Nanshan District, Shenzhen, 518054, China

### 1.4. Measurement Uncertainty

Radiation Uncertainty : Ur = 4.3dB

Conduction Uncertainty : Uc = 3.4dB

## 2. MEASURING DEVICE AND TEST EQUIPMENT

The following test equipments were used during test:

Equipment	Manufacturer	Model #	Serial #	Data of Cal.	Due Data
EMI Test Receiver	Rohde & Schwarz	ESCI	100119	Apr. 25, 2012	Apr. 25, 2013
EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	Apr. 25, 2012	Apr. 25, 2013
EMI Test Software	SHURPLE	ESK1	N/A	N/A	N/A
Spectrum Analyzer	Agilent	E7405A	MY45114970	Apr. 25, 2012	Apr. 25, 2013
Signal Generator	Rohde & Schwarz	SMR27	100124	Apr. 25, 2012	Apr. 25, 2013
Signal Generator	Rohde & Schwarz	SML03	102319	Apr. 25, 2012	Aug.01, 2012
AC Power Source	Sepcial power system	YF650	N/A	N/A	N/A
Absorbing Clamp	Rohde & Schwarz	MDS21	100218	Apr. 25, 2012	Apr. 25, 2013
Power Meter	Rohde & Schwarz	NRVD	101287	Apr. 25, 2012	Apr. 25, 2013
Coaxial Cable	N/A	N/A	N/A	Apr. 25, 2012	Apr. 25, 2013
Coaxial Cable	N/A	N/A	N/A	Apr. 25, 2012	Apr. 25, 2013
Coaxial Cable	N/A	N/A	N/A	Apr. 25, 2012	Apr. 25, 2013
Universal radio Communication tester	Rohde & Schwarz	CMU200	101724	Apr. 25, 2012	Apr. 25, 2013
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	N/A	N/A	N/A
BiConilog Antenna	ETS-LINDGREN	3142C	00042670	Apr. 25, 2012	Apr. 25, 2013
BiConilog Antenna	ETS-LINDGREN	3142C	00042673	Apr. 25, 2012	Apr. 25, 2013
Loop Antenna	ETS-LINGREN	6502	00071730	Apr. 25, 2012	Apr. 25, 2013
Double-ridged Waveguide horn	ETS-LINDGREN	3117	00035926	Apr. 25, 2012	Apr. 25, 2013
Double-ridged Waveguide horn	ETS-LINDGREN	3117	00041545	Apr. 25, 2012	Apr. 25, 2013
Pre-amplifier	CD	PAM0203	804203	Apr. 25, 2012	Apr. 25, 2013
RF Switch	CD	RSU-M3	706543	Apr. 25, 2012	Apr. 25, 2013
Thermo-/Hygrometer	N/A	TH01	N/A	Apr. 25, 2012	Apr. 25, 2013
Shielding Room	Zhong Yu Electronic	N/A	N/A	N/A	N/A
3m Anechoic Chamber	Zhong Yu Electronic	N/A	N/A	Apr. 25, 2012	Apr. 25, 2013

### 3. Test Procedure

**GENERAL:** This report shall NOT be reproduced except in full without the written approval of Anbotek Compliance Laboratory Limited. The EUT was transmitting a test signal during the testing.

**RADIATION INTERFERENCE:** The test procedure used was ANSI STANDARD C63.4-2009 using a spectrum analyzer with a pre-selector. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The resolution bandwidth was 100KHz and the video bandwidth was 300KHz up to 1.0GHz and 1.0MHz with a video BW of 3.0MHz above 1.0GHz. The ambient temperature of the EUT was 74.3oF with a humidity of 69%.

**FORMULA OF CONVERSION FACTORS:** The Field Strength at 3m was established by adding the meter reading of the spectrum analyzer (which is set to read in units of dBuV) to the antenna correction factor supplied by the antenna manufacturer. The antenna correction factors are stated in terms of dB. The gain of the Preselector was accounted for in the Spectrum Analyzer Meter Reading.

**Example:**

Freq (MHz) METER READING + ACF = FS  
20 dBuV + 10.36 dB = 30.36 dBuV/m @ 3m

**ANSI STANDARD C63.4-2009 10.1.7 MEASUREMENT PROCEDURES:** The EUT was placed on a table 80 cm high and with dimensions of 1m by 1.5m. The EUT was placed in the center of the table (1.5m side). The table used for radiated measurements is capable of continuous rotation. When an emission was found, the table was rotated to produce the maximum signal strength. At this point, the antenna was raised and lowered from 1m to 4m. The antenna was placed in both the horizontal and vertical planes.



## 4. Radiation Interference

### 4.1. Requirements (15.249, 15.209):

FIELD STRENGTH of Fundamental:	FIELD STRENGTH of Harmonics	S15.209	
902-928 MHZ		30 - 88 MHz	40 dBuV/m @3M
2.4-2.4835 GHz		88 - 216 MHz	43.5
94 dBuV/m @3m	54 dBuV/m @3m	216 - 960 MHz	46
		ABOVE 960 MHz	54dBuV/m

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

### 4.2 Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on a antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

All readings from 30MHz to 1GHz are quasi-peak values with a resolution bandwidth of 120kHz. All reading are above 1GHz, peak & average values with a resolution bandwidth of 1MHz. The EUT is tested in 9\*6\*6 Chamber.

The test results are listed in Section 5.3.

### 4.3 Test Results

PASS.

Please refer the following pages.

FCC ID: V8VCRU8206RS

**Data:**

Horizontal CH Low(2402MHz)								
Frequency	Cable	Ant	Preamp	Read	Level	Limit	Over	Remark
MHz	Loss	Factor	Factor	Level	dBμV/m	dBμV/m	Limit	
	dB	dB/m	dB	dBμV			dB	
239.98	1.58	13.50	38.90	57.45	33.65	46.00	-12.35	QP
2402.00	2.17	31.21	35.30	86.65	84.73	114.0	-29.27	Peak
2402.00	2.17	31.21	35.30	84.71	82.79	94.0	-11.21	AV
4804.10	2.56	34.01	34.71	41.05	42.91	74.0	-31.09	Peak
4804.10	2.56	34.01	34.71	38.25	40.11	54.0	-13.89	AV
7207.97	2.98	36.16	35.15	38.33	42.32	74.0	-31.68	Peak
7207.97	2.98	36.16	35.15	35.55	39.54	54.0	-14.46	AV
9608.00	---	---	---	---	---	---	---	---
12010.00	---	---	---	---	---	---	---	---
14412.00	---	---	---	---	---	---	---	---
16814.00	---	---	---	---	---	---	---	---
19216.00	---	---	---	---	---	---	---	---
21618.00	---	---	---	---	---	---	---	---
24020.00	---	---	---	---	---	---	---	---

CH Middle(2441MHz)								
Frequency	Cable	Ant	Preamp	Read	Level	Limit	Over	Remark
MHz	Loss	Factor	Factor	Level	dBμV/m	dBμV/m	Limit	
	dB	dB/m	dB	dBμV			dB	
312.18	1.60	13.52	38.82	56.40	32.70	46.00	-13.30	QP
2441.00	2.19	31.22	34.60	85.35	84.16	114.0	-29.84	Peak
2441.00	2.19	31.22	34.60	83.55	82.36	94.0	-11.64	AV
4882.08	2.57	35.00	34.58	39.62	42.61	74.0	-31.39	Peak
4882.08	2.57	35.00	34.58	37.47	40.46	54.0	-13.54	AV
7323.05	3.00	36.17	35.14	38.80	42.83	74.0	-31.17	Peak
7323.05	3.00	36.17	35.14	36.08	40.11	54.0	-13.89	AV
9764.00	---	---	---	---	---	---	---	---
12205.00	---	---	---	---	---	---	---	---
14646.00	---	---	---	---	---	---	---	---
17087.00	---	---	---	---	---	---	---	---
19528.00	---	---	---	---	---	---	---	---
21969.00	---	---	---	---	---	---	---	---
24410.00	---	---	---	---	---	---	---	---

FCC ID: V8VCRU8206RS

CH High(2480MHz)								
Frequency	Cable	Ant	Preamp	Read	Level	Limit	Over	Remark
MHz	Loss	Factor	Factor	Level	dBμV/m	dBμV/m	Limit	
	dB	dB/m	dB	dBμV			dB	
312.18	1.60	13.52	38.82	54.21	30.51	46.00	-15.49	QP
2480.00	2.20	31.65	36.00	92.78	90.63	114.0	-23.37	Peak
2480.00	2.20	31.65	36.00	89.51	87.36	94.0	-6.64	AV
4960.05	2.58	35.06	34.79	41.76	44.61	74.0	-29.39	Peak
4960.05	2.58	35.06	34.79	39.28	42.13	54.0	-11.87	AV
7439.97	3.02	36.19	34.90	39.53	43.84	74.0	-30.16	Peak
7439.97	3.02	36.20	35.20	37.40	41.42	54.0	-12.58	AV
9920.00	---	---	---	---	---	---	---	---
12400.00	---	---	---	---	---	---	---	---
14880.00	---	---	---	---	---	---	---	---
17360.00	---	---	---	---	---	---	---	---
19840.00	---	---	---	---	---	---	---	---
22320.00	---	---	---	---	---	---	---	---
24800.00	---	---	---	---	---	---	---	---

Vertical CH Low(2402MHz)								
Frequency	Cable	Ant	Preamp	Read	Level	Limit	Over	Remark
MHz	Loss	Factor	Factor	Level	dBμV/m	dBμV/m	Limit	
	dB	dB/m	dB	dBμV			dB	
30.42	1.43	12.13	38.45	53.50	28.61	40.00	-11.39	QP
2402.00	2.17	31.21	35.30	84.23	82.31	114.0	-31.69	Peak
2402.00	2.17	31.21	35.30	81.85	79.93	94.0	-14.07	AV
4804.10	2.56	34.01	34.71	41.05	42.91	74.0	-31.09	Peak
4804.10	2.56	34.01	34.71	38.60	40.46	54.0	-13.54	AV
7207.93	2.98	36.16	35.15	37.46	41.45	74.0	-32.55	Peak
7207.93	2.98	36.16	35.15	34.50	38.49	54.0	-15.51	AV
9608.00	---	---	---	---	---	---	---	---
12010.00	---	---	---	---	---	---	---	---
14412.00	---	---	---	---	---	---	---	---
16814.00	---	---	---	---	---	---	---	---
19216.00	---	---	---	---	---	---	---	---
21618.00	---	---	---	---	---	---	---	---
24020.00	---	---	---	---	---	---	---	---

FCC ID: V8VCRU8206RS

CH Middle(2441MHz)								
Frequency	Cable	Ant	Preamp	Read	Level	Limit	Over	Remark
MHz	Loss	Factor	Factor	Level	dBμV/m	dBμV/m	Limit	
	dB	dB/m	dB	dBμV			dB	
143.82	1.50	13.40	38.89	53.90	29.91	43.50	-13.59	QP
2441.01	2.19	31.22	34.60	82.35	81.16	114.0	-32.84	Peak
2441.01	2.19	31.22	34.60	81.01	79.82	94.0	-14.18	AV
4882.11	2.57	35.00	34.58	40.15	43.14	74.0	-30.86	Peak
4882.11	2.57	35.00	34.58	37.86	40.85	54.0	-13.15	AV
7323.05	3.00	36.17	35.14	38.70	42.73	74.0	-31.27	Peak
7323.05	3.00	36.17	35.14	36.00	40.03	54.0	-13.81	AV
9764.00	---	---	---	---	---	---	---	---
12205.00	---	---	---	---	---	---	---	---
14646.00	---	---	---	---	---	---	---	---
17087.00	---	---	---	---	---	---	---	---
19528.00	---	---	---	---	---	---	---	---
21969.00	---	---	---	---	---	---	---	---
24410.00	---	---	---	---	---	---	---	---

CH High(2480MHz)								
Frequency	Cable	Ant	Preamp	Read	Level	Limit	Over	Remark
MHz	Loss	Factor	Factor	Level	dBμV/m	dBμV/m	Limit	
	dB	dB/m	dB	dBμV			dB	
408.80	1.62	13.54	38.45	51.16	27.87	46.00	-18.13	QP
2480.00	2.20	31.65	36.00	83.52	81.37	114.0	-32.63	Peak
2480.00	2.20	31.65	36.00	82.02	79.87	94.0	-14.13	AV
4960.10	2.58	35.06	34.79	40.08	42.93	74.0	-31.07	Peak
4960.10	2.58	35.06	34.79	38.10	40.95	54.0	-13.05	AV
7439.97	3.02	36.19	34.90	38.58	42.89	74.0	-31.11	Peak
7439.97	3.02	36.20	35.20	36.34	40.36	54.0	-13.64	AV
9920.00	---	---	---	---	---	---	---	---
12400.00	---	---	---	---	---	---	---	---
14880.00	---	---	---	---	---	---	---	---
17360.00	---	---	---	---	---	---	---	---
19840.00	---	---	---	---	---	---	---	---
22320.00	---	---	---	---	---	---	---	---
24800.00	---	---	---	---	---	---	---	---

**NOTE: “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.**

## 5. Occupied Bandwidth

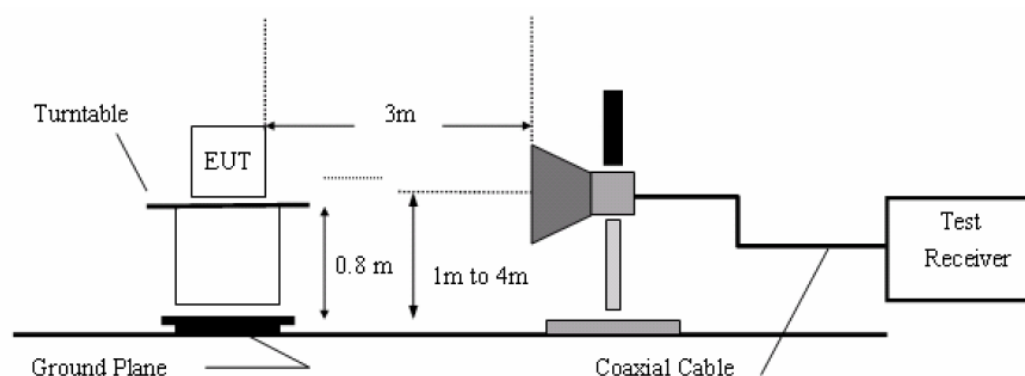
### 5.1. Requirements (15.249):

The field strength of any emissions appearing outside the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 50 dB below the level of the carrier or to the general limits of 15.249.

### 5.2. Test Procedure

The EUT is placed on a turn table which is 0.8 meter high above the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna which is mounted on an antenna tower. The antenna can be moved up and down from 1 to 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on test.

### 5.3. Test Configuration:



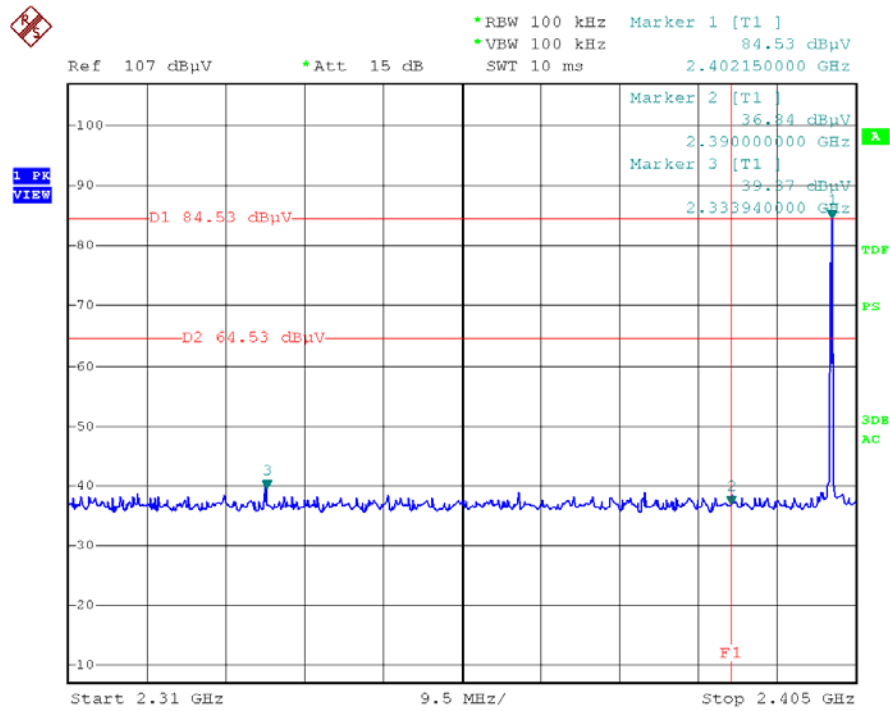
### 5.4. Test Results

Pass.

Please refer the following plot.

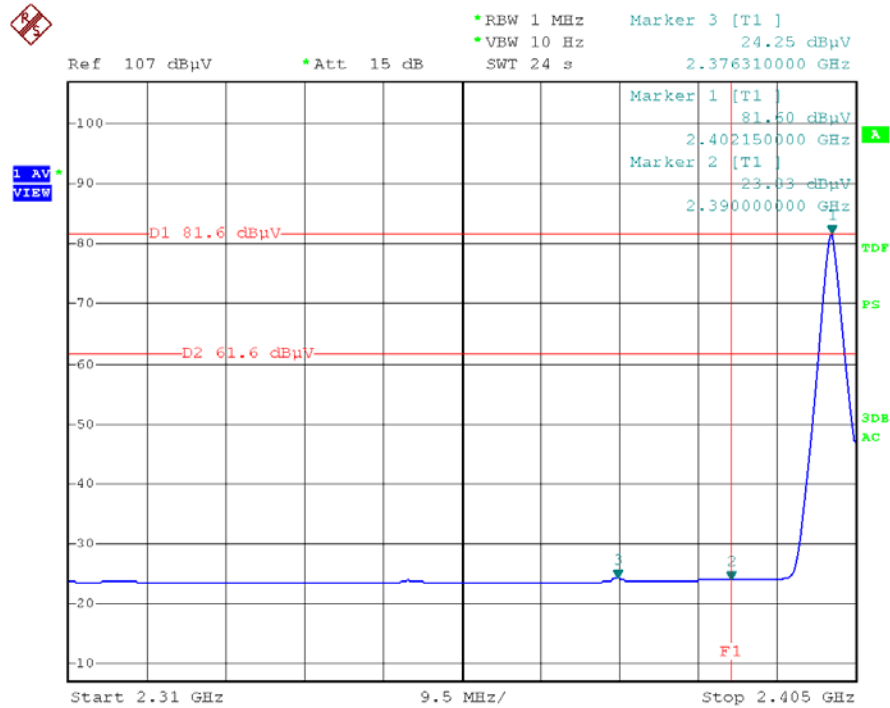
(Note: Marker 3 means the highest value in 2.39GHz~2.4GHz or 2.4835~2.5GHz)

FCC ID: V8VCRU8206RS



Bandedges-L

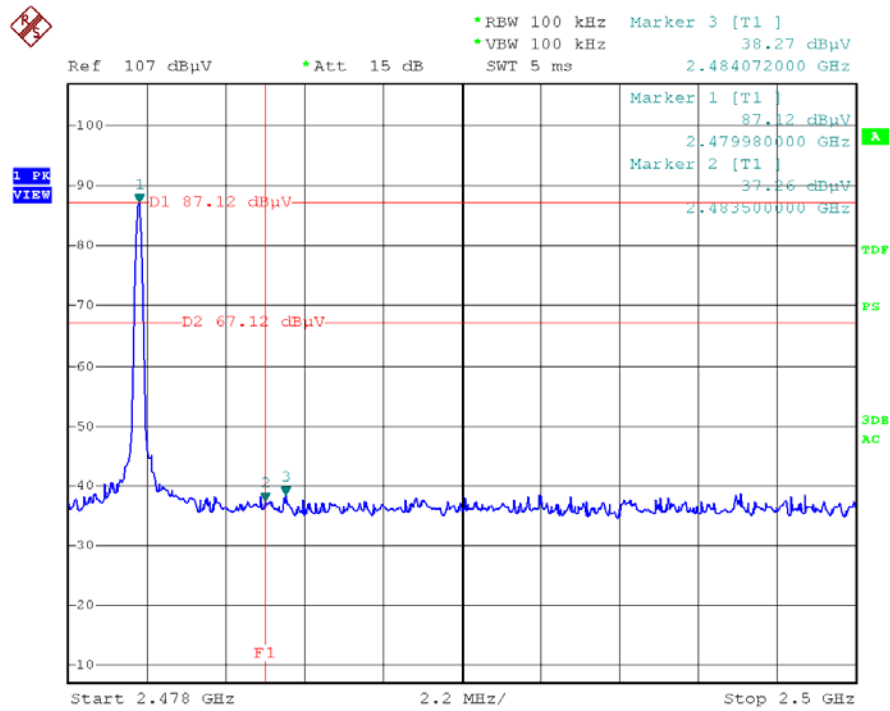
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Bandedges-L-AV

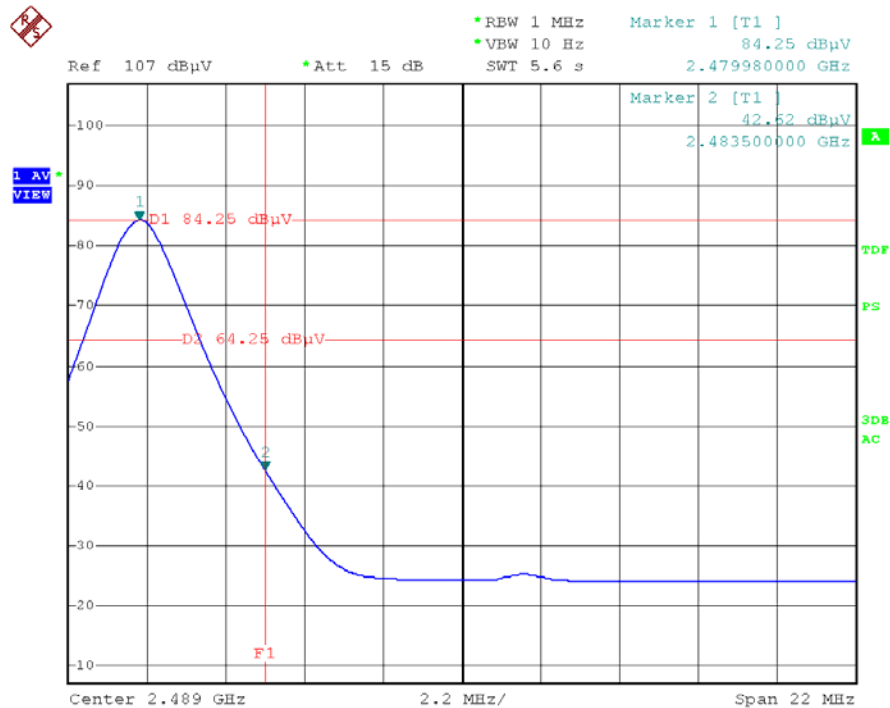
Date: 23.APR.2012 18:22:28

FCC ID: V8VCRU8206RS



Bandedges-H

Date: 23.APR.2012 18:17:27



Bandedges-H-AV

Date: 23.APR.2012 18:25:46