



SPORTON International Inc.

No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, TaoYuan Hsien, Taiwan, R.O.C.
Ph: 886-3-327-3456 / FAX: 886-3-327-0973 / www.sporton.com.tw

Certificate No.: CB10112112

FCC RADIO SIMPLE TEST REPORT

Applicant's company	Wistron NeWeb Corporation
Applicant Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan
Manufacturer's company	Wistron NeWeb Corporation
Manufacturer Address	20 Park Avenue II, Hsinchu Science Park, Hsinchu 308, Taiwan

Product Name	Satellite Radio
Model Name	Onyx EZ
Test Rule Part(s)	47 CFR FCC Part 15 Subpart C § 15.239
Test Freq. Range	88 ~ 108MHz
Received Date	Oct. 01, 2012
Final Test Date	Oct. 31, 2012
Submission Type	Original Equipment

Statement

The device is only possible within the range 88.1-107.9MHz.

The test result in this report refers exclusively to the presented test model / sample.

Without written approval of SPORTON International Inc., the test report shall not be reproduced except in full.

The measurements and test results shown in this test report were made in accordance with the procedures and found in compliance with the limit given in ANSI C63.10-2009 and 47 CFR FCC Part 15 Subpart C.

The test equipment used to perform the test is calibrated and traceable to NML/ROC.



Jordan Hsiao

SPORTON INTERNATIONAL INC.



Testing Laboratory
1190

Table of Contents

1. SUMMARY OF THE TEST RESULT	1
2. GENERAL INFORMATION	2
2.1. Product Details.....	2
2.2. Table for Carrier Frequencies	2
2.3. Table for Test Modes	2
2.4. Table for Testing Locations.....	2
3. TEST RESULT	3
3.1. Field Strength of Fundamental Emissions Measurement	3
3.2. 20dB Spectrum Bandwidth Measurement	14
3.3. Radiated Emissions Measurement	21
4. LIST OF MEASURING EQUIPMENTS	60
5. TEST LOCATION.....	61
6. TAF CERTIFICATE OF ACCREDITATION	62
APPENDIX A. TEST PHOTOS	A1 ~ A3

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR2D1829	Rev. 01	Initial issue of report	Dec. 18, 2012

1. SUMMARY OF THE TEST RESULT

Applied Standard: 47 CFR FCC Part 15 Subpart C				
Part	Rule Section	Description of Test	Result	Under Limit
3.1	15.239(b)	Field Strength of Fundamental Emissions	Complies	0.31 dB
3.2	15.239(a)	20dB Spectrum Bandwidth	Complies	-
3.3	15.239(c)	Radiated Emissions	Complies	6.03 dB

Test Items	Uncertainty	Remark
Field Strength of Fundamental Emissions	$\pm 1.9\text{dB}$	Confidence levels of 95%
20dB Spectrum Bandwidth	$\pm 8.5 \times 10^{-8}$	Confidence levels of 95%
Radiated / Emissions (30MHz~1000MHz)	$\pm 1.9\text{dB}$	Confidence levels of 95%
Radiated Emissions (1GHz~18GHz)	$\pm 1.9\text{dB}$	Confidence levels of 95%

2. GENERAL INFORMATION

2.1. Product Details

Items	Description
Frequency Range	88 ~ 108MHz
Channel Number	100

2.2. Table for Carrier Frequencies

Frequency Band	Channel No.	Frequency	Channel No.	Frequency
88 ~ 108MHz	1	88.1 MHz	52	98.3 MHz
	2	88.3 MHz	:	:
	:	:	99	107.7 MHz
	50	97.9 MHz	100	107.9 MHz
	51	98.1 MHz	-	-

2.3. Table for Test Modes

Audio input adjusted to maximize emission for test. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Channel
Field Strength of Fundamental Emissions 20dB Spectrum Bandwidth	CTX	1/51/100
Radiated Emissions 30MHz~1GHz	CTX	Auto
Radiated Emissions 1GHz~18GHz	CTX	1/51/100

The following test modes were performed for all tests:

Mode 1. EUT1- ENRNR2CC

Mode 2. EUT2- QKRNR2CW

Mode 3. EUT3- 5G5PR2RR

All test results were recorded in the report.

2.4. Table for Testing Locations

Test Site No.	Site Category	Location	FCC Reg. No.	IC File No.	VCCI Reg. No
03CH01-CB	SAC	Hsin Chu	262045	IC 4086D	-
TH01-CB	OVEN Room	Hsin Chu	-	-	-

Open Area Test Site (OATS); Semi Anechoic Chamber (SAC).

Please refer section 6 for Test Site Address.

3. TEST RESULT

3.1. Field Strength of Fundamental Emissions Measurement

3.1.1. Limit

The field strength of fundamental emissions shall comply with the following table.

Frequency Band (MHz)	Fundamental Emissions Limit (dBuV/m) at 3m
88~108	48
88~108	68

3.1.2. Measuring Instruments and Setting

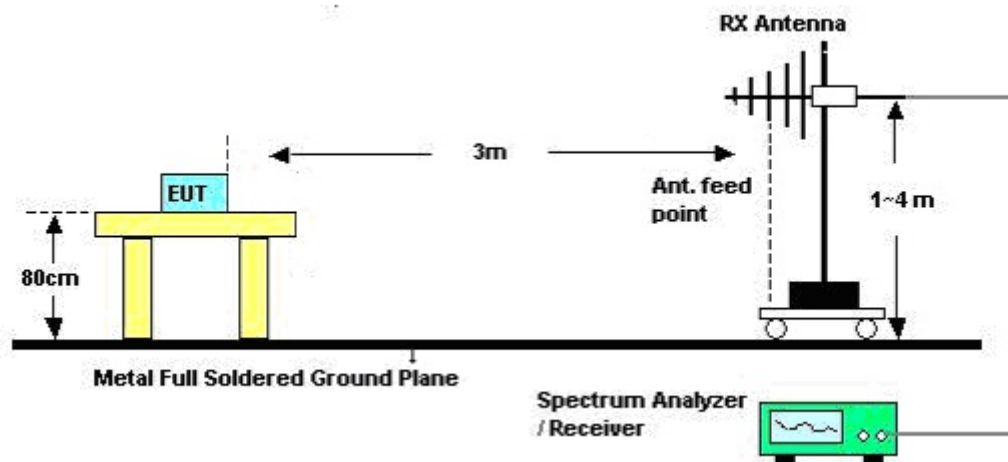
Please refer to section 5 of equipments list in this report. The following table is the setting of the receiver.

Receiver Parameter	Setting
Attenuation	Auto
Center Frequency	Fundamental Frequency
RB	120 KHz
Detector	Peak / Average

3.1.3. Test Procedures

1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. For Fundamental emissions, use the receiver to measure peak and average reading.
6. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

3.1.4. Test Setup Layout



3.1.5. Test Deviation

There is no deviation with the original standard.

3.1.6. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

3.1.7. Test Result of Field Strength of Fundamental Emissions

Temperature	24.3°C	Humidity	56%
Test Engineer	Serway Li	Configurations	Channel 1
Test Date	Oct. 31, 2012	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 q	88.00	36.03	40.00	-3.97	53.57	1.40	27.88	8.94	QP	50	208	HORIZONTAL
2 p	88.02	43.24	68.00	-24.76	60.78	1.40	27.88	8.94	Peak	50	208	HORIZONTAL
3 a	88.07	41.32	48.00	-6.68	58.86	1.40	27.88	8.94	Average	50	208	HORIZONTAL

Item 2, 3 are fundamental frequency at 88.1 MHz.

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 q	88.00	33.05	40.00	-6.95	50.59	1.40	27.88	8.94	QP	263	124	VERTICAL
2 p	88.02	42.16	68.00	-25.84	59.70	1.40	27.88	8.94	Peak	263	124	VERTICAL
3 a	88.03	40.87	48.00	-7.13	58.41	1.40	27.88	8.94	Average	263	124	VERTICAL

Item 2, 3 are fundamental frequency at 88.1 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Temperature	24.3°C	Humidity	56%
Test Engineer	Serway Li	Configurations	Channel 51
Test Date	Oct. 31, 2012	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1 p	98.01	44.08	68.00	-23.92	59.45	1.48	27.83	10.98	Peak	65	203	HORIZONTAL
2 a	98.07	43.18	48.00	-4.82	58.55	1.48	27.83	10.98	Average	65	203	HORIZONTAL

Item 1, 2 are fundamental frequency at 98.1 MHz.

Vertical

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1 p	98.02	41.56	68.00	-26.44	56.93	1.48	27.83	10.98	Peak	235	100	VERTICAL
2 a	98.06	40.81	48.00	-7.19	56.18	1.48	27.83	10.98	Average	235	100	VERTICAL

Item 1, 2 are fundamental frequency at 98.1 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Temperature	24.3°C	Humidity	56%
Test Engineer	Serway Li	Configurations	Channel 100
Test Date	Oct. 31, 2012	Test Mode	Mode 1

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	107.83	48.61	68.00	-19.39	62.45	1.55	27.75	12.36	Peak	261	251	HORIZONTAL
2 a	107.85	47.69	48.00	-0.31	61.53	1.55	27.75	12.36	Average	261	251	HORIZONTAL
3 q	108.00	37.66	43.50	-5.84	51.50	1.55	27.75	12.36	QP	261	251	HORIZONTAL

Item 2, 3 are fundamental frequency at 107.9 MHz.

Vertical

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	107.82	41.97	68.00	-26.03	55.81	1.55	27.75	12.36	Peak	226	106	VERTICAL
2 a	107.86	41.25	48.00	-6.75	55.09	1.55	27.75	12.36	Average	226	106	VERTICAL
3 q	108.00	35.29	43.50	-8.21	49.13	1.55	27.75	12.36	QP	226	226	VERTICAL

Item 2, 3 are fundamental frequency at 107.9 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Temperature	24.3°C	Humidity	56%
Test Engineer	Serway Li	Configurations	Channel 1
Test Date	Oct. 31, 2012	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1 q	88.00	35.09	40.00	-4.91	52.63	1.40	27.88	8.94	QP	59	197	HORIZONTAL
2 p	88.04	42.22	68.00	-25.78	59.76	1.40	27.88	8.94	Peak	59	197	HORIZONTAL
3 a	88.07	40.96	48.00	-7.04	58.50	1.40	27.88	8.94	Average	59	197	HORIZONTAL

Item 2, 3 are fundamental frequency at 88.1 MHz.

Vertical

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1 q	88.00	33.54	40.00	-6.46	51.08	1.40	27.88	8.94	QP	262	100	VERTICAL
2 p	88.01	41.61	68.00	-26.39	59.15	1.40	27.88	8.94	Peak	262	100	VERTICAL
3 a	88.05	40.73	48.00	-7.27	58.27	1.40	27.88	8.94	Average	262	100	VERTICAL

Item 2, 3 are fundamental frequency at 88.1 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Temperature	24.3°C	Humidity	56%
Test Engineer	Serway Li	Configurations	Channel 51
Test Date	Oct. 31, 2012	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	deg	cm	
1 p	98.01	43.40	68.00	-24.60	58.77	1.48	27.83	10.98	Peak	59	218	HORIZONTAL
2 a	98.06	42.55	48.00	-5.45	57.92	1.48	27.83	10.98	Average	59	218	HORIZONTAL

Item 1, 2 are fundamental frequency at 98.1 MHz.

Vertical

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	deg	cm	
1 p	98.01	40.74	68.00	-27.26	56.11	1.48	27.83	10.98	Peak	250	100	VERTICAL
2 a	98.08	39.85	48.00	-8.15	55.22	1.48	27.83	10.98	Average	250	100	VERTICAL

Item 1, 2 are fundamental frequency at 98.1 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Temperature	24.3°C	Humidity	56%
Test Engineer	Serway Li	Configurations	Channel 100
Test Date	Oct. 31, 2012	Test Mode	Mode 2

Horizontal

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	107.82	45.86	68.00	-22.14	59.70	1.55	27.75	12.36	Peak	64	258	HORIZONTAL
2 a	107.84	44.82	48.00	-3.18	58.66	1.55	27.75	12.36	Average	64	258	HORIZONTAL
3 q	108.00	35.62	43.50	-7.88	49.46	1.55	27.75	12.36	QP	64	258	HORIZONTAL

Item 2, 3 are fundamental frequency at 107.9 MHz.

Vertical

	Freq	Level	Limit Line	Over Limit	Read Level	Cable Loss	Preamp Factor	Antenna Factor	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	107.83	40.19	68.00	-27.81	54.03	1.55	27.75	12.36	Peak	216	100	VERTICAL
2 a	107.86	39.06	48.00	-8.94	52.90	1.55	27.75	12.36	Average	216	100	VERTICAL
3 q	108.00	32.67	43.50	-10.83	46.51	1.55	27.75	12.36	QP	216	100	VERTICAL

Item 2, 3 are fundamental frequency at 107.9 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Temperature	24.3°C	Humidity	56%
Test Engineer	Serway Li	Configurations	Channel 1
Test Date	Oct. 31, 2012	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 q	88.00	34.30	40.00	-5.70	51.84	1.40	27.88	8.94	QP	57	57	HORIZONTAL
2 p	88.04	42.25	68.00	-25.75	59.79	1.40	27.88	8.94	Peak	57	184	HORIZONTAL
3 a	88.06	41.39	48.00	-6.61	58.93	1.40	27.88	8.94	Average	57	184	HORIZONTAL

Item 2, 3 are fundamental frequency at 88.1 MHz.

Vertical

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 q	88.00	31.89	40.00	-8.11	49.43	1.40	27.88	8.94	QP	244	111	VERTICAL
2 p	88.02	40.96	68.00	-27.04	58.50	1.40	27.88	8.94	Peak	244	111	VERTICAL
3 a	88.07	40.08	48.00	-7.92	57.62	1.40	27.88	8.94	Average	244	111	VERTICAL

Item 2, 3 are fundamental frequency at 88.1 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Temperature	24.3°C	Humidity	56%
Test Engineer	Serway Li	Configurations	Channel 51
Test Date	Oct. 31, 2012	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	98.02	44.66	68.00	-23.34	60.03	1.48	27.83	10.98	Peak	46	220	HORIZONTAL
2 a	98.07	43.78	48.00	-4.22	59.15	1.48	27.83	10.98	Average	46	220	HORIZONTAL

Item 1, 2 are fundamental frequency at 98.1 MHz.

Vertical

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	98.03	41.63	68.00	-26.37	57.00	1.48	27.83	10.98	Peak	232	100	VERTICAL
2 a	98.06	40.76	48.00	-7.24	56.13	1.48	27.83	10.98	Average	232	100	VERTICAL

Item 1, 2 are fundamental frequency at 98.1 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

Temperature	24.3°C	Humidity	56%
Test Engineer	Serway Li	Configurations	Channel 100
Test Date	Oct. 31, 2012	Test Mode	Mode 3

Horizontal

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor		deg	cm	
1 p	107.82	47.25	68.00	-20.75	61.09	1.55	27.75	12.36	Peak	64	263	HORIZONTAL
2 a	107.87	46.44	48.00	-1.56	60.28	1.55	27.75	12.36	Average	64	263	HORIZONTAL
3 q	108.00	35.95	43.50	-7.55	49.79	1.55	27.75	12.36	QP	64	263	HORIZONTAL

Item 2, 3 are fundamental frequency at 107.9 MHz.

Vertical

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor		deg	cm	
1 p	107.83	41.75	68.00	-26.25	55.59	1.55	27.75	12.36	Peak	222	100	VERTICAL
2 a	107.87	40.86	48.00	-7.14	54.70	1.55	27.75	12.36	Average	222	100	VERTICAL
3 q	108.00	32.85	43.50	-10.65	46.69	1.55	27.75	12.36	QP	222	100	VERTICAL

Item 2, 3 are fundamental frequency at 107.9 MHz.

Note:

Emission level (dBuV/m) = 20 log Emission level (uV/m)

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level

3.2. 20dB Spectrum Bandwidth Measurement

3.2.1. Limit

Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency.

3.2.2. Measuring Instruments and Setting

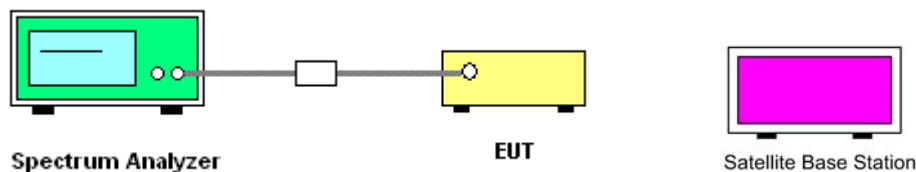
Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> 20dB Bandwidth
RB	10 kHz
VB	30 kHz
Detector	Average
Trace	Max Hold
Sweep Time	Auto

3.2.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
2. Check for a Bandwidth test with audio input CTX1 (100Hz~5kHz) at maximum.
3. The resolution bandwidth of 10 kHz and the video bandwidth of 30 kHz were used.
4. Measured the spectrum width with power higher than 20dB below carrier.

3.2.4. Test Setup Layout



3.2.5. Test Deviation

There is no deviation with the original standard.

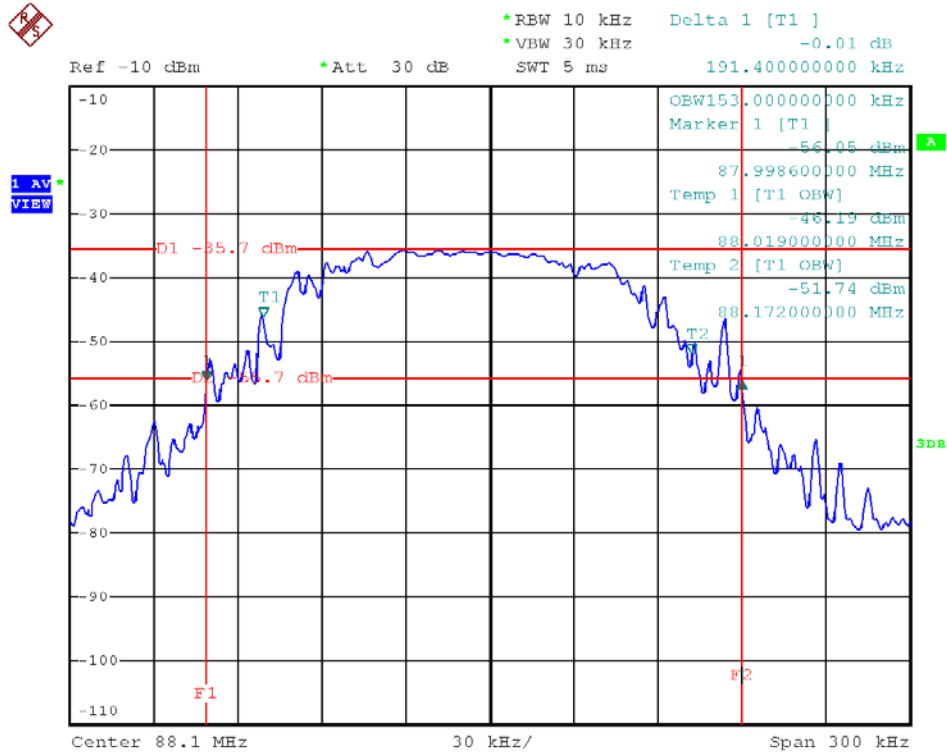
3.2.6. EUT Operation during Test

Input source through the Satellite Base Station continuously transmitter maximum audio input to EUT.

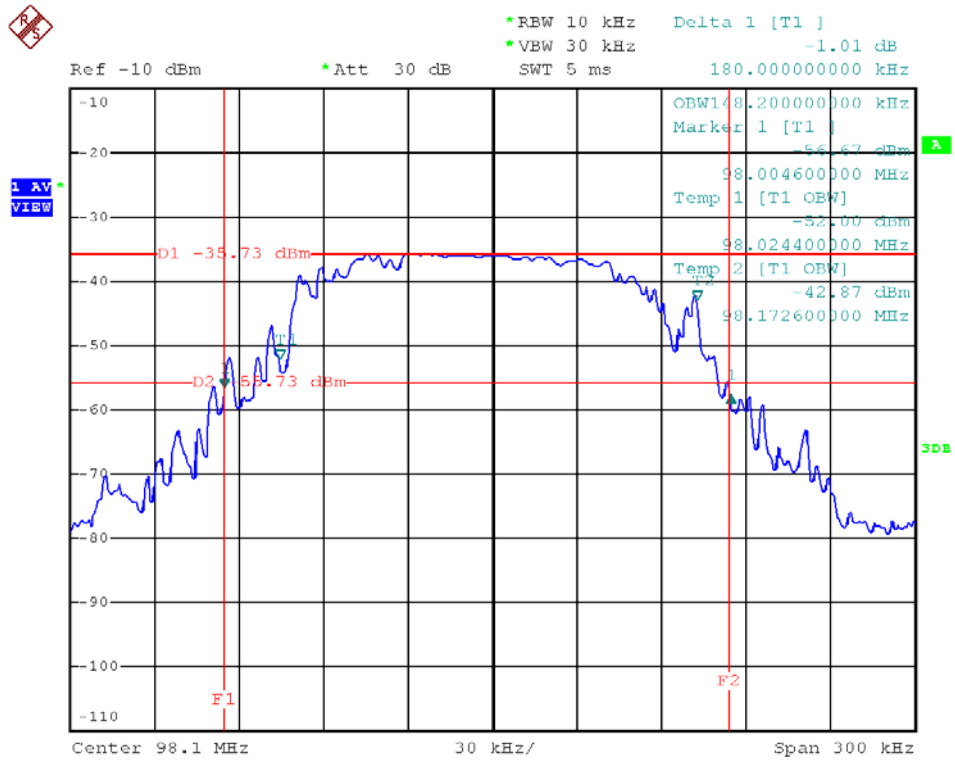
3.2.7. Test Result of 20dB Spectrum Bandwidth

Test Mode	Mode 1	Configurations	Channel 1/51/100
-----------	--------	----------------	------------------

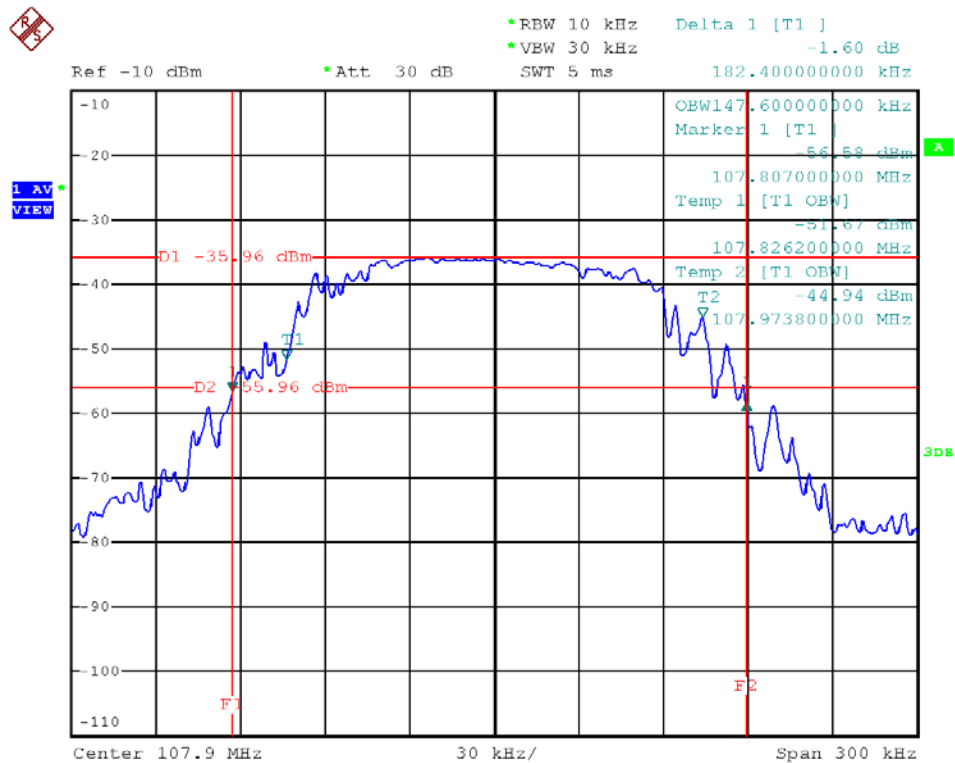
20 dB/99% Bandwidth Plot on 88.1 MHz



20 dB/99% Bandwidth Plot on 98.1 MHz

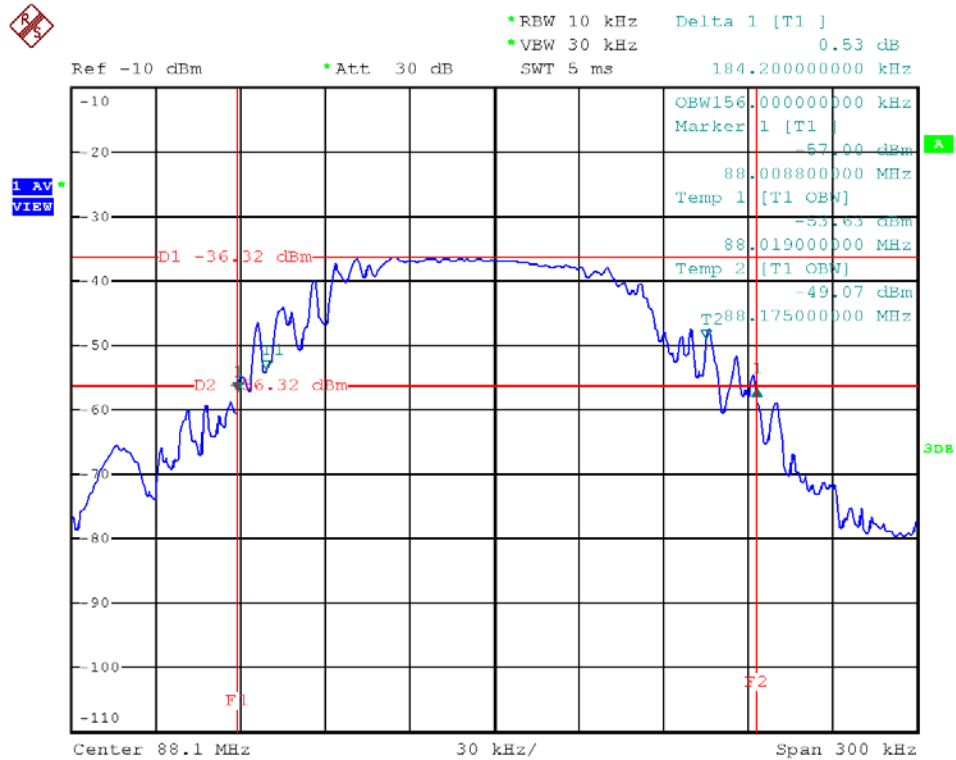


20 dB/99% Bandwidth Plot on 107.9 MHz

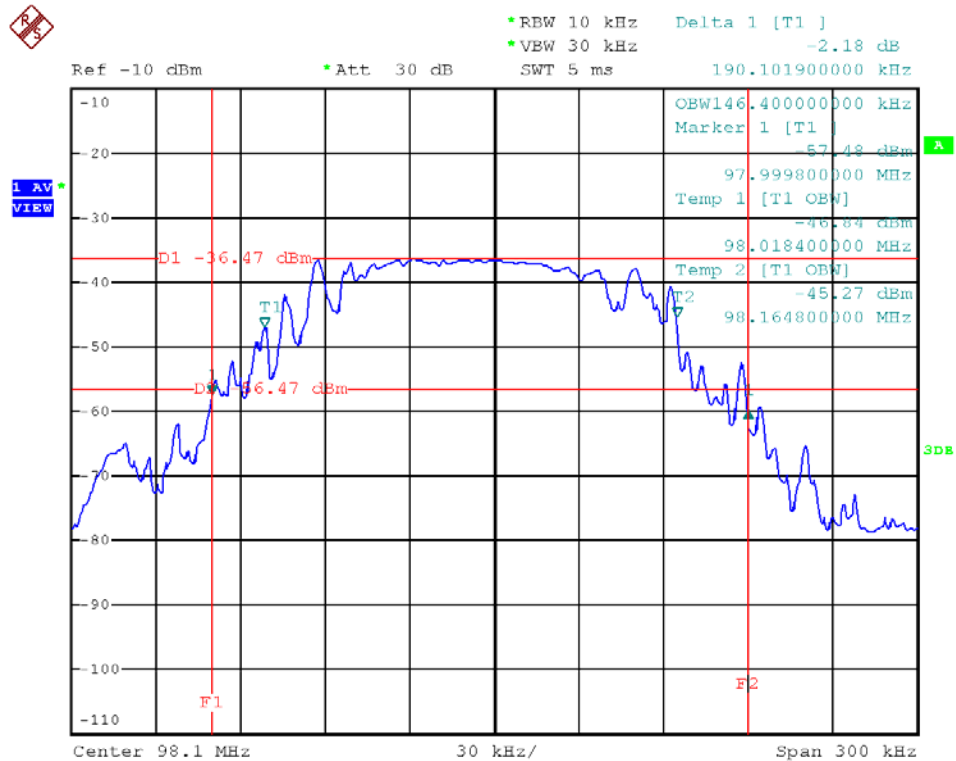


Test Mode	Mode 2	Configurations	Channel 1/51/100
-----------	--------	----------------	------------------

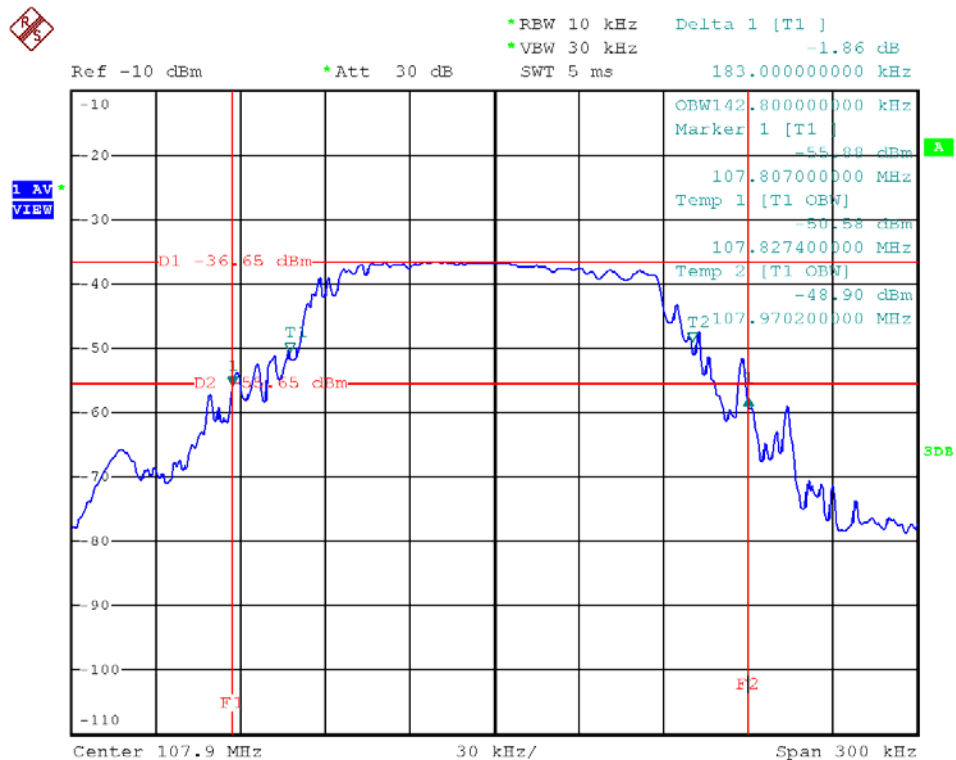
20 dB/99% Bandwidth Plot on 88.1 MHz



20 dB/99% Bandwidth Plot on 98.1 MHz

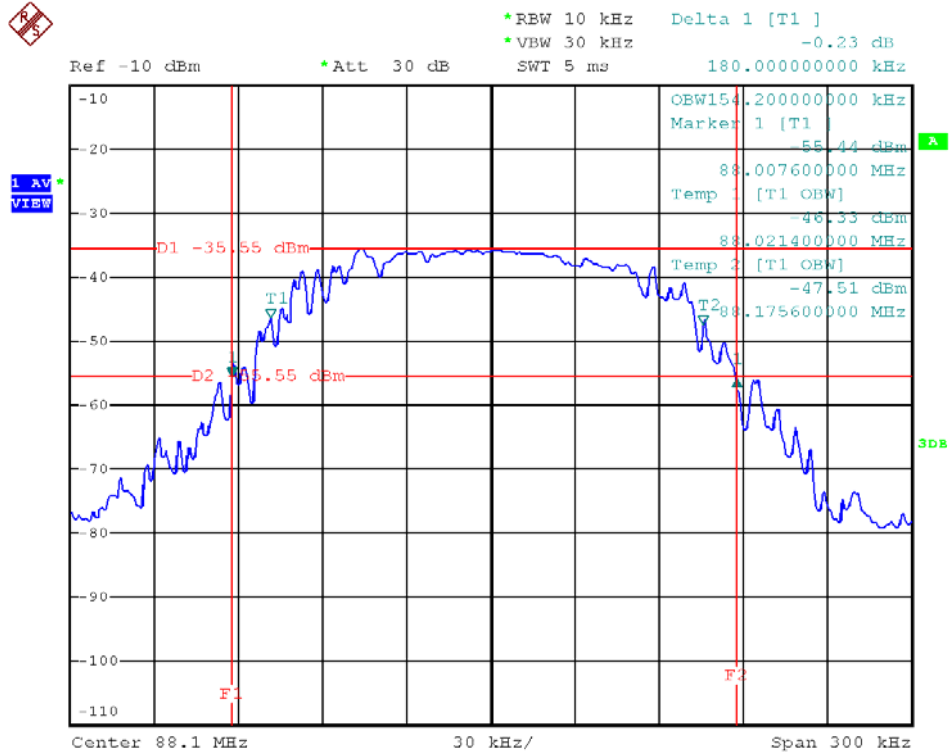


20 dB/99% Bandwidth Plot on 107.9 MHz

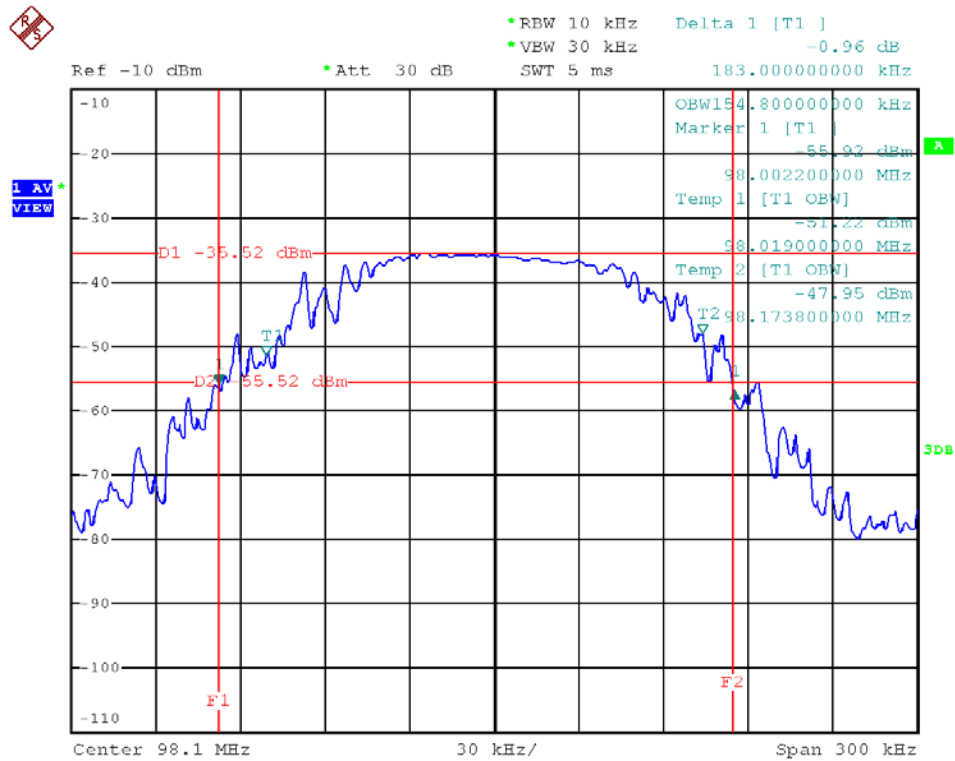


Test Mode	Mode 3	Configurations	Channel 1/51/100
-----------	--------	----------------	------------------

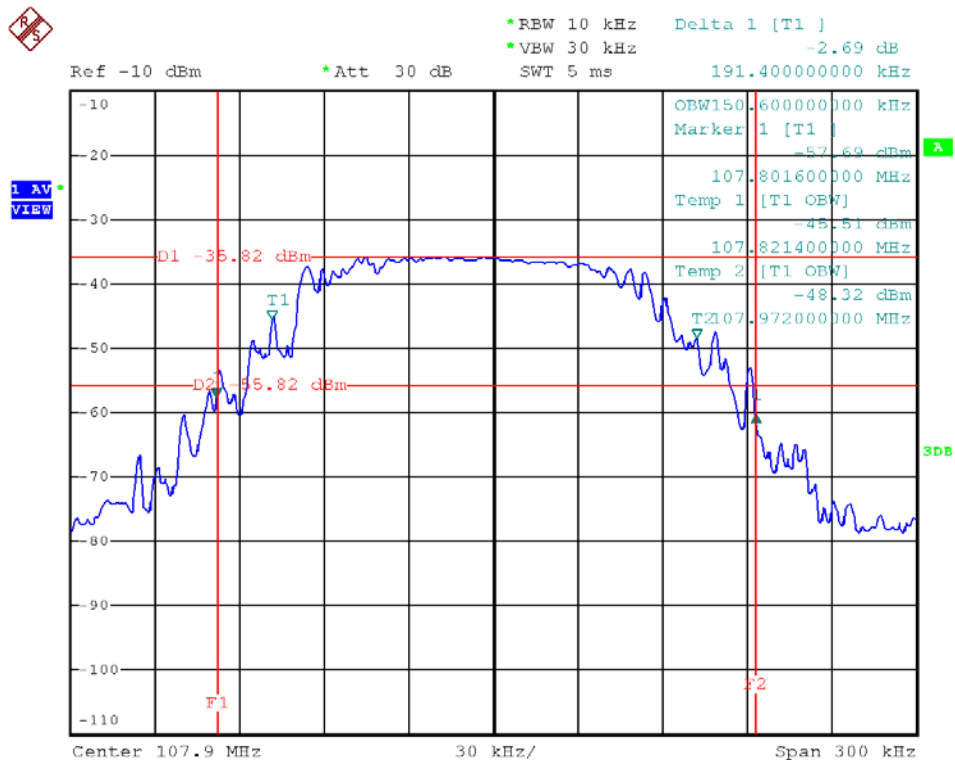
20 dB/99% Bandwidth Plot on 88.1 MHz



20 dB/99% Bandwidth Plot on 98.1 MHz



20 dB/99% Bandwidth Plot on 107.9 MHz



3.3. Radiated Emissions Measurement

3.3.1. Limit

The field strength of any emissions which appear outside of this band shall not exceed the general radiated emissions limits in Section 15.209(a)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

3.3.2. Measuring Instruments and Setting

Please refer to section 5 of equipments list in this report. The following table is the setting of the spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	30 MHz
Stop Frequency	10th carrier harmonic
RB / VB	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average

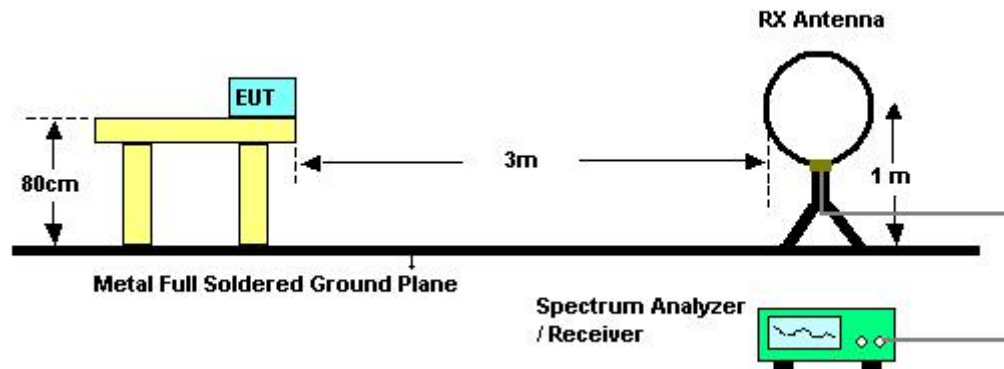
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.3.3. Test Procedures

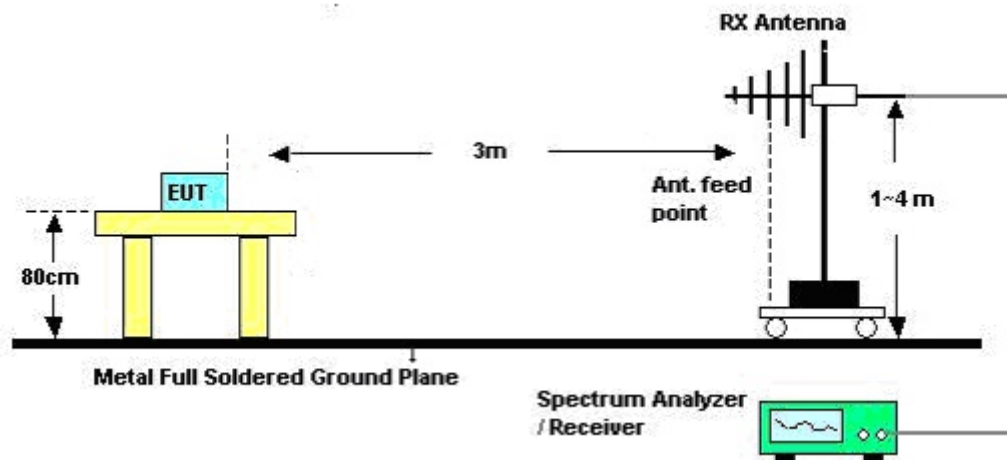
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. Then audio input adjusted to maximize emission for test. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

3.3.4. Test Setup Layout

For radiated emissions below 1GHz



For radiated emissions above 1GHz



3.3.5. Test Deviation

There is no deviation with the original standard.

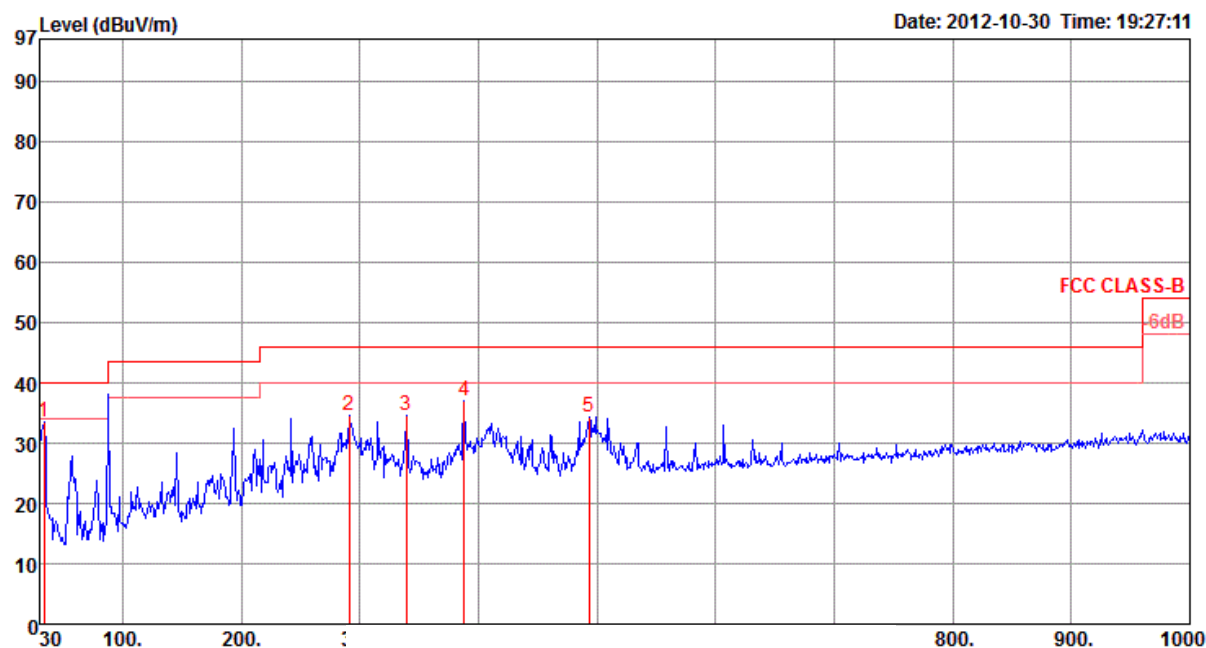
3.3.6. EUT Operation during Test

Input source through the Satellite Base Station continuously transmitter maximum audio input to EUT.

3.3.7. Results for Radiated Emissions (30MHz~1GHz)

Temperature	20°C	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	Channel 1
Test Mode	Mode 1		

Horizontal

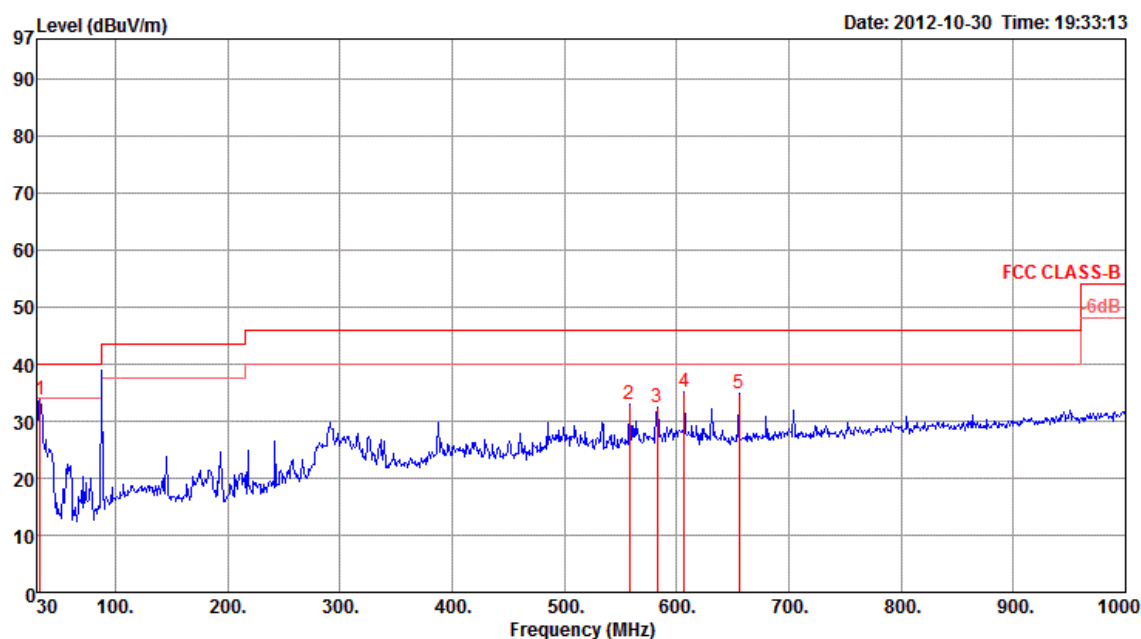


Trace: (Discrete)

Site : 03CH01-CB
Condition: FCC CLASS-B 3m CE
Engineer : KENNETH
Eut : ENRNR2CC
Mode : FM88.1MHz
Power : DC 12v
Memo-1 :
Memo-2 :
Memo-3 :
Memo-4 :
Memo-5 :

	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor		deg	cm	
1 p	33.88	33.45	40.00	-6.55	43.04	0.90	27.99	17.50	Peak	0	400	HORIZONTAL
2	290.93	34.48	46.00	-11.52	45.01	2.52	26.85	13.80	Peak	0	400	HORIZONTAL
3	339.43	34.69	46.00	-11.31	43.98	2.74	27.01	14.98	Peak	0	400	HORIZONTAL
4	387.93	36.92	46.00	-9.08	45.12	2.94	27.36	16.22	Peak	0	400	HORIZONTAL
5	493.66	34.19	46.00	-11.81	41.06	3.36	27.92	17.69	Peak	0	400	HORIZONTAL

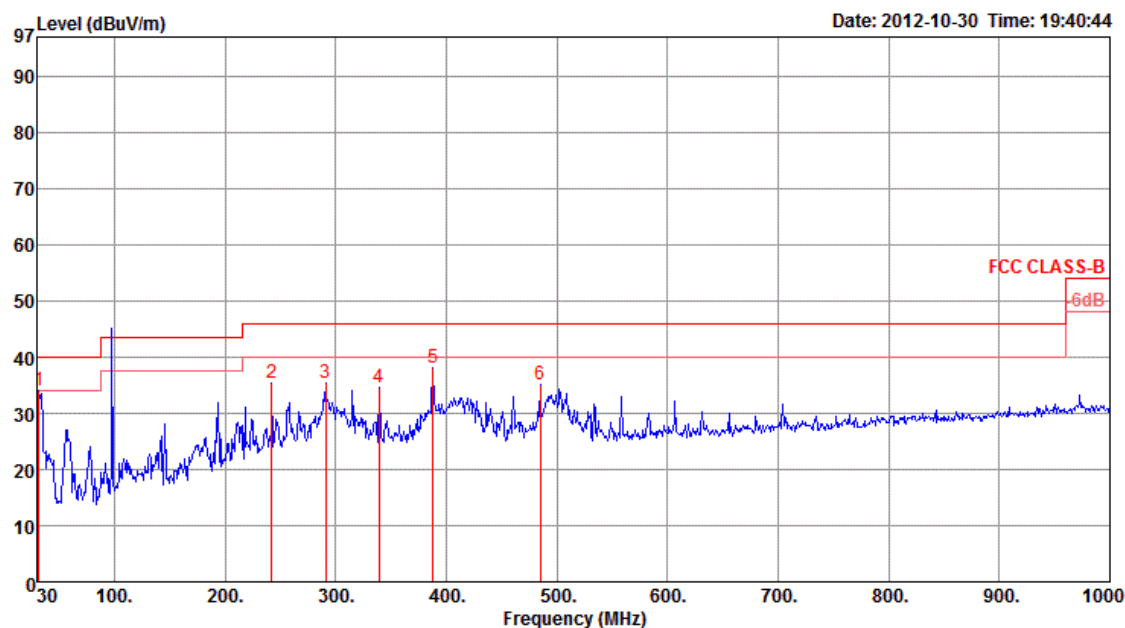
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	
	MHz	dBuV/m	dBuV/m	Limit	Level	Loss	Factor	Factor	Remark	deg	cm	Pol/Phase
1 p	32.91	33.68	40.00	-6.32	42.69	0.88	27.99	18.10	Peak	0	100	VERTICAL
2	557.68	32.95	46.00	-13.05	38.34	3.57	27.84	18.88	Peak	0	100	VERTICAL
3	582.90	32.48	46.00	-13.52	37.39	3.66	27.70	19.13	Peak	0	100	VERTICAL
4	607.15	35.07	46.00	-10.93	39.57	3.75	27.59	19.34	Peak	0	100	VERTICAL
5	655.65	34.93	46.00	-11.07	38.85	3.93	27.50	19.65	Peak	0	100	VERTICAL

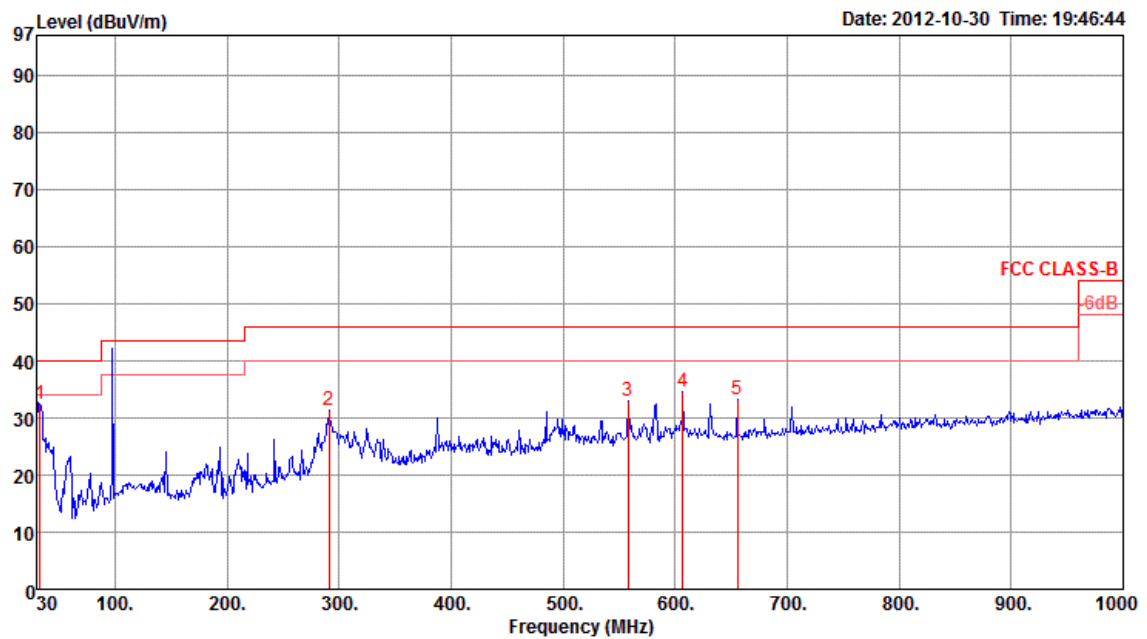
Temperature	20°C	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	Channel 51
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1 p	31.94	33.97	40.00	-6.03	42.38	0.87	27.98	18.70	Peak	0	400	HORIZONTAL
2	242.43	35.34	46.00	-10.66	47.67	2.32	26.97	12.32	Peak	0	400	HORIZONTAL
3	290.93	35.41	46.00	-10.59	45.94	2.52	26.85	13.80	Peak	0	400	HORIZONTAL
4	339.43	34.64	46.00	-11.36	43.93	2.74	27.01	14.98	Peak	0	400	HORIZONTAL
5	387.93	38.14	46.00	-7.86	46.34	2.94	27.36	16.22	Peak	0	400	HORIZONTAL
6	484.93	35.09	46.00	-10.91	42.11	3.34	27.91	17.55	Peak	0	400	HORIZONTAL

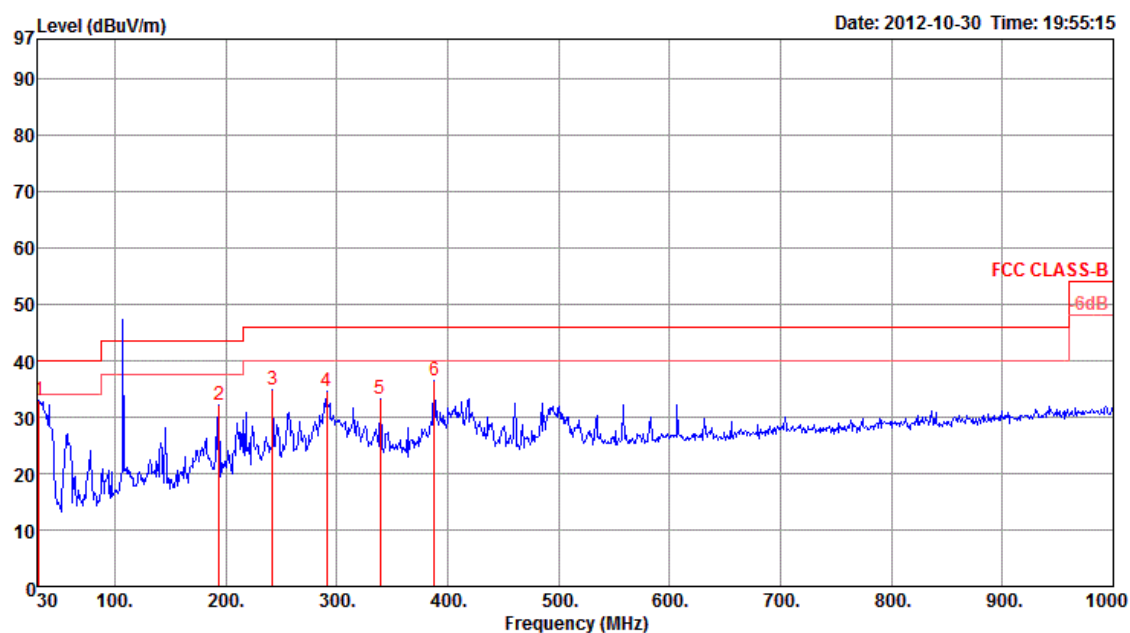
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	32.91	32.53	40.00	-7.47	41.54	0.88	27.99	18.10	Peak	0	100	VERTICAL
2	290.93	31.31	46.00	-14.69	41.84	2.52	26.85	13.80	Peak	0	100	VERTICAL
3	557.68	32.87	46.00	-13.13	38.26	3.57	27.84	18.88	Peak	0	100	VERTICAL
4	607.15	34.68	46.00	-11.32	39.18	3.75	27.59	19.34	Peak	0	100	VERTICAL
5	655.65	33.34	46.00	-12.66	37.26	3.93	27.50	19.65	Peak	0	100	VERTICAL

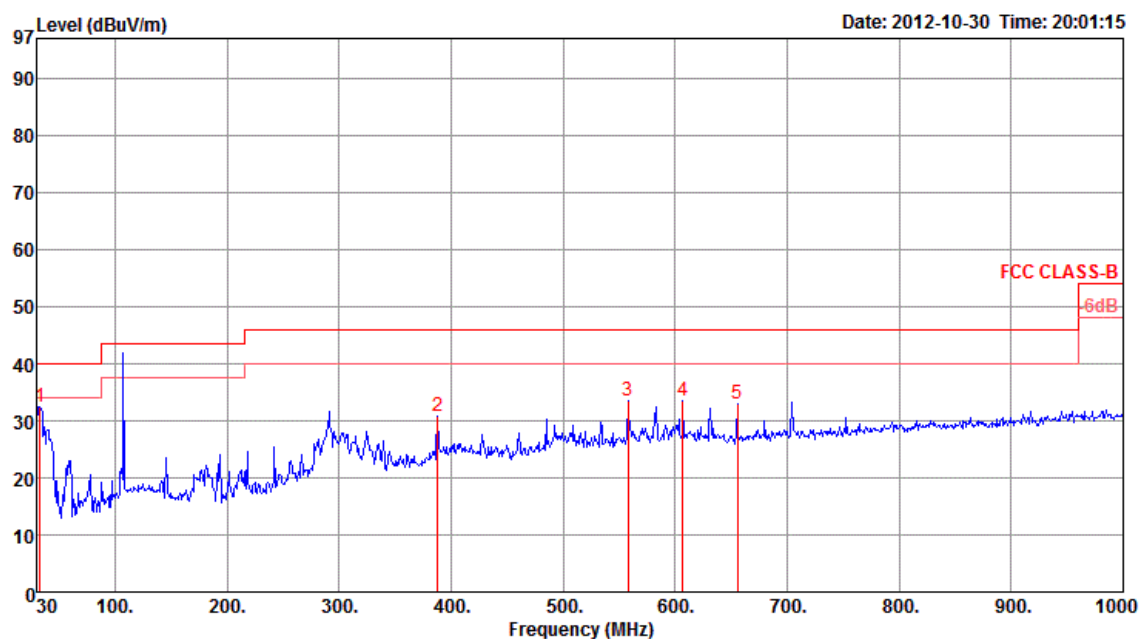
Temperature	20°C	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	Channel 100
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	31.94	32.92	40.00	-7.08	41.33	0.87	27.98	18.70	Peak	0	400	HORIZONTAL
2	193.93	32.28	43.50	-11.22	47.46	2.07	27.29	10.04	Peak	0	400	HORIZONTAL
3	242.43	34.98	46.00	-11.02	47.31	2.32	26.97	12.32	Peak	0	400	HORIZONTAL
4	290.93	34.57	46.00	-11.43	45.10	2.52	26.85	13.80	Peak	0	400	HORIZONTAL
5	339.43	33.27	46.00	-12.73	42.56	2.74	27.01	14.98	Peak	0	400	HORIZONTAL
6	387.93	36.54	46.00	-9.46	44.74	2.94	27.36	16.22	Peak	0	400	HORIZONTAL

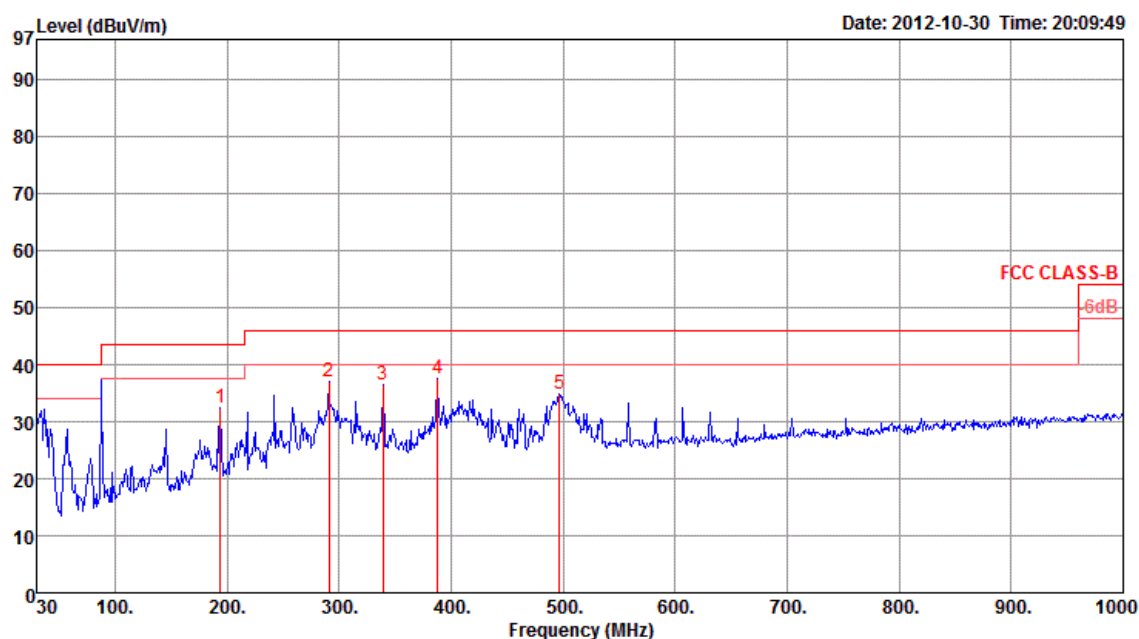
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor		deg	cm	
1 p	32.91	32.53	40.00	-7.47	41.54	0.88	27.99	18.10	Peak	0	100	VERTICAL
2	387.93	30.91	46.00	-15.09	39.11	2.94	27.36	16.22	Peak	0	100	VERTICAL
3	557.68	33.49	46.00	-12.51	38.88	3.57	27.84	18.88	Peak	0	100	VERTICAL
4	607.15	33.63	46.00	-12.37	38.13	3.75	27.59	19.34	Peak	0	100	VERTICAL
5	655.65	33.10	46.00	-12.90	37.02	3.93	27.50	19.65	Peak	0	100	VERTICAL

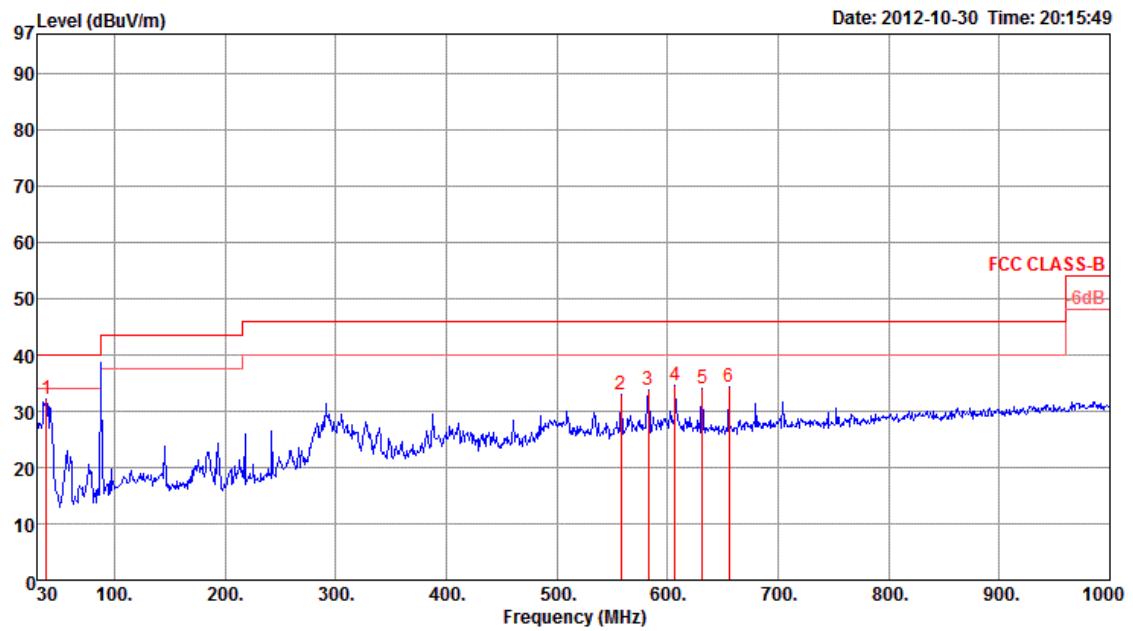
Temperature	20°C	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	Channel 1
Test Mode	Mode 2		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	deg	cm	
1	193.93	32.47	43.50	-11.03	47.65	2.07	27.29	10.04	Peak	0	400	HORIZONTAL
2	290.93	36.93	46.00	-9.07	47.46	2.52	26.85	13.80	Peak	0	400	HORIZONTAL
3	339.43	36.49	46.00	-9.51	45.78	2.74	27.01	14.98	Peak	0	400	HORIZONTAL
4 p	387.93	37.63	46.00	-8.37	45.83	2.94	27.36	16.22	Peak	0	400	HORIZONTAL
5	496.57	34.86	46.00	-11.14	41.67	3.37	27.92	17.74	Peak	0	400	HORIZONTAL

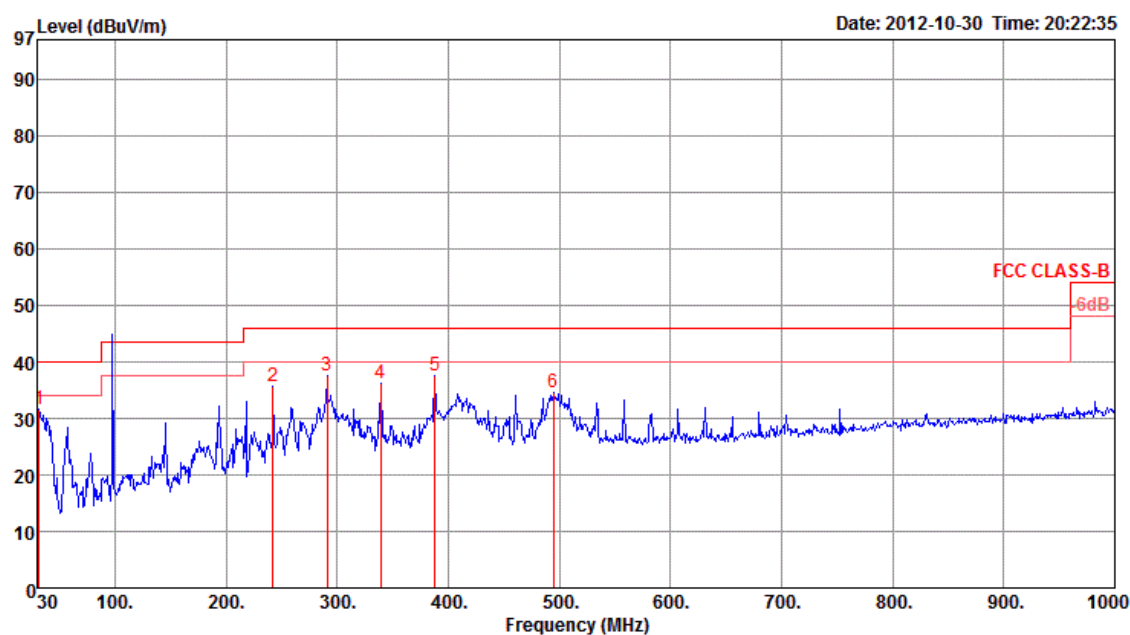
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1	38.73	32.26	40.00	-7.74	44.93	0.98	27.99	14.34	Peak	0	100	VERTICAL
2	557.68	33.01	46.00	-12.99	38.40	3.57	27.84	18.88	Peak	0	100	VERTICAL
3	582.90	33.85	46.00	-12.15	38.76	3.66	27.70	19.13	Peak	0	100	VERTICAL
4	607.15	34.64	46.00	-11.36	39.14	3.75	27.59	19.34	Peak	0	100	VERTICAL
5	631.40	34.04	46.00	-11.96	38.28	3.84	27.57	19.49	Peak	0	100	VERTICAL
6	655.65	34.23	46.00	-11.77	38.15	3.93	27.50	19.65	Peak	0	100	VERTICAL

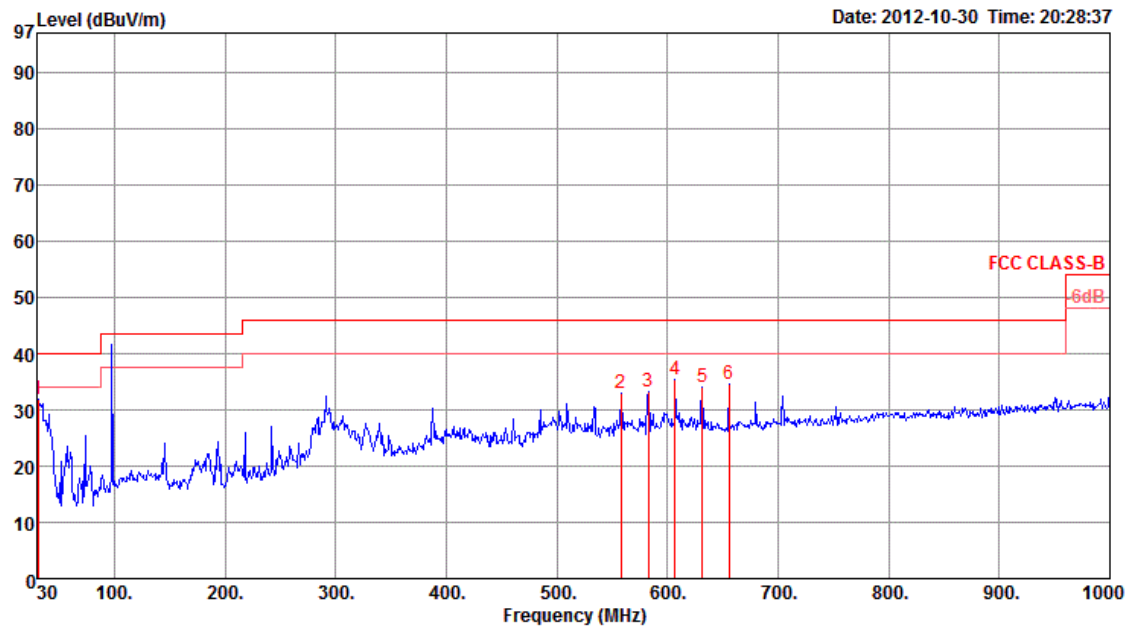
Temperature	20°C	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	Channel 51
Test Mode	Mode 2		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1	31.94	31.55	40.00	-8.45	39.96	0.87	27.98	18.70	Peak	0	400	HORIZONTAL
2	242.43	35.66	46.00	-10.34	47.99	2.32	26.97	12.32	Peak	0	400	HORIZONTAL
3	290.93	37.47	46.00	-8.53	48.00	2.52	26.85	13.80	Peak	0	400	HORIZONTAL
4	339.43	36.23	46.00	-9.77	45.52	2.74	27.01	14.98	Peak	0	400	HORIZONTAL
5	387.93	37.63	46.00	-8.37	45.83	2.94	27.36	16.22	Peak	0	400	HORIZONTAL
6	494.63	34.63	46.00	-11.37	41.47	3.37	27.92	17.71	Peak	0	400	HORIZONTAL

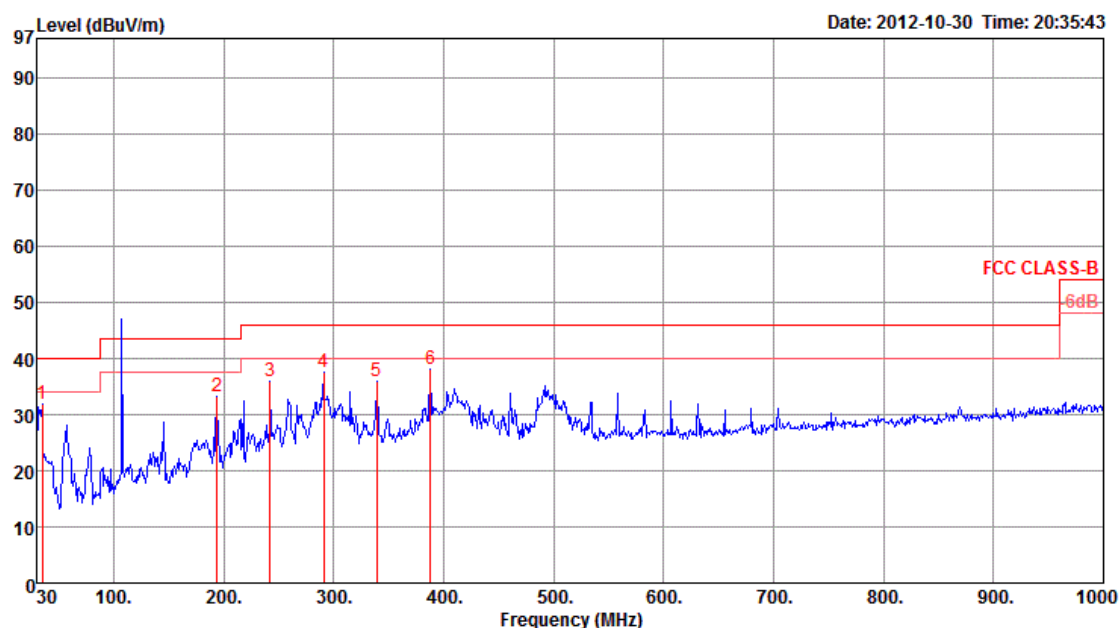
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1	30.97	31.88	40.00	-8.12	39.71	0.85	27.98	19.30	Peak	0	100	VERTICAL
2	557.68	32.87	46.00	-13.13	38.26	3.57	27.84	18.88	Peak	0	100	VERTICAL
3	582.90	33.11	46.00	-12.89	38.02	3.66	27.70	19.13	Peak	0	100	VERTICAL
4	607.15	35.44	46.00	-10.56	39.94	3.75	27.59	19.34	Peak	0	100	VERTICAL
5	631.40	34.12	46.00	-11.88	38.36	3.84	27.57	19.49	Peak	0	100	VERTICAL
6	655.65	34.57	46.00	-11.43	38.49	3.93	27.50	19.65	Peak	0	100	VERTICAL

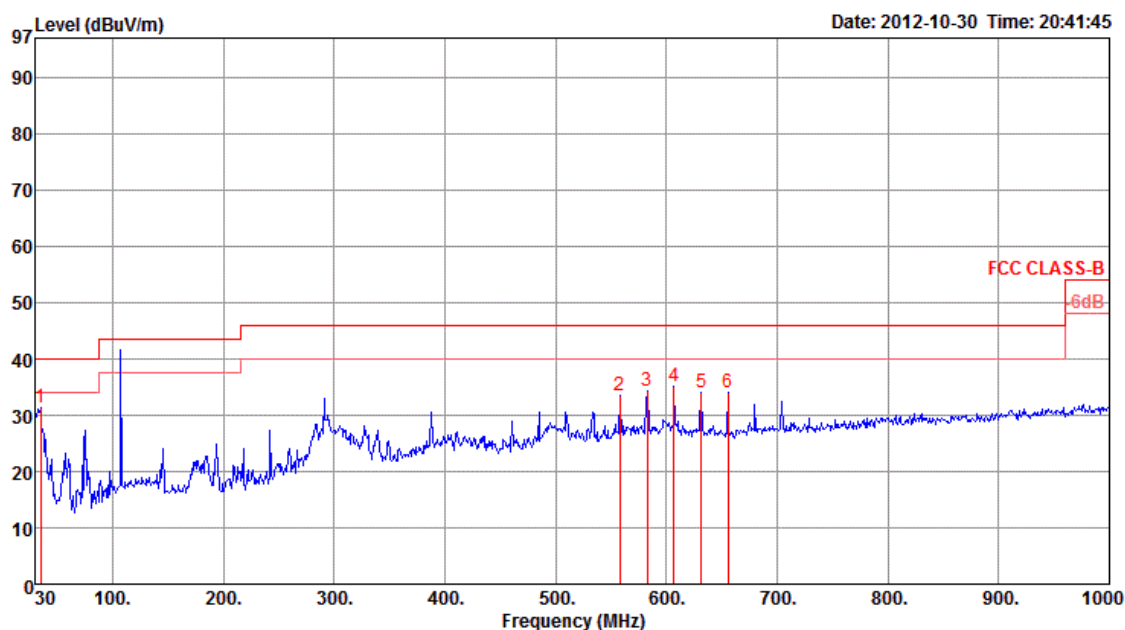
Temperature	20°C	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	Channel 100
Test Mode	Mode 2		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1	34.85	31.78	40.00	-8.22	41.96	0.92	28.00	16.90	Peak	0	400	HORIZONTAL
2	193.93	33.31	43.50	-10.19	48.49	2.07	27.29	10.04	Peak	0	400	HORIZONTAL
3	242.43	35.81	46.00	-10.19	48.14	2.32	26.97	12.32	Peak	0	400	HORIZONTAL
4	290.93	37.51	46.00	-8.49	48.04	2.52	26.85	13.80	Peak	0	400	HORIZONTAL
5	339.43	35.84	46.00	-10.16	45.13	2.74	27.01	14.98	Peak	0	400	HORIZONTAL
6 p	387.93	37.99	46.00	-8.01	46.19	2.94	27.36	16.22	Peak	0	400	HORIZONTAL

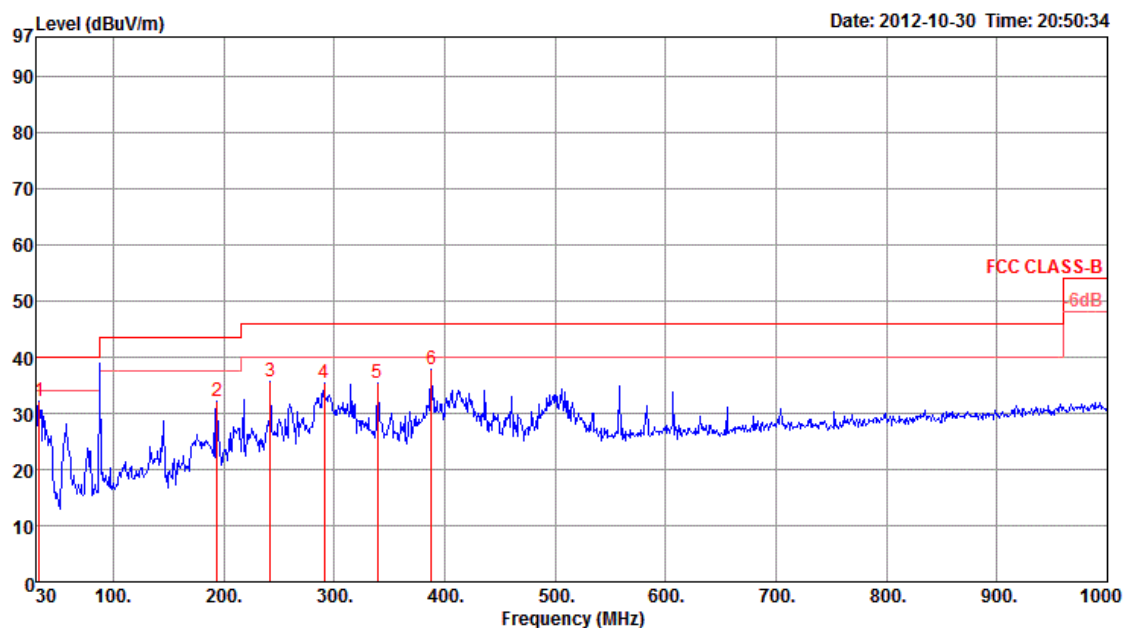
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1 p	34.85	31.37	40.00	-8.63	41.55	0.92	28.00	16.90	Peak	0	100	VERTICAL
2	557.68	33.51	46.00	-12.49	38.90	3.57	27.84	18.88	Peak	0	100	VERTICAL
3	582.90	34.19	46.00	-11.81	39.10	3.66	27.70	19.13	Peak	0	100	VERTICAL
4	607.15	35.13	46.00	-10.87	39.63	3.75	27.59	19.34	Peak	0	100	VERTICAL
5	631.40	34.13	46.00	-11.87	38.37	3.84	27.57	19.49	Peak	0	100	VERTICAL
6	655.65	34.08	46.00	-11.92	38.00	3.93	27.50	19.65	Peak	0	100	VERTICAL

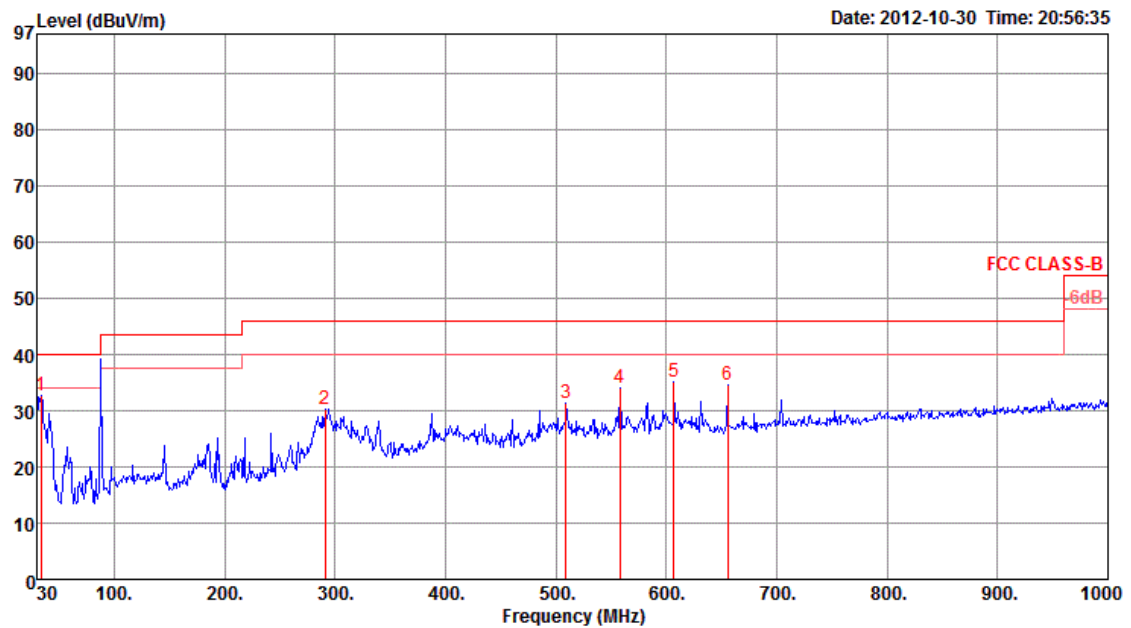
Temperature	20°C	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	Channel 1
Test Mode	Mode 3		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1 p	32.91	32.11	40.00	-7.89	41.12	0.88	27.99	18.10	Peak	0	400	HORIZONTAL
2	193.93	32.27	43.50	-11.23	47.45	2.07	27.29	10.04	Peak	0	400	HORIZONTAL
3	242.43	35.77	46.00	-10.23	48.10	2.32	26.97	12.32	Peak	0	400	HORIZONTAL
4	290.93	35.43	46.00	-10.57	45.96	2.52	26.85	13.80	Peak	0	400	HORIZONTAL
5	339.43	35.32	46.00	-10.68	44.61	2.74	27.01	14.98	Peak	0	400	HORIZONTAL
6	387.93	37.73	46.00	-8.27	45.93	2.94	27.36	16.22	Peak	0	400	HORIZONTAL

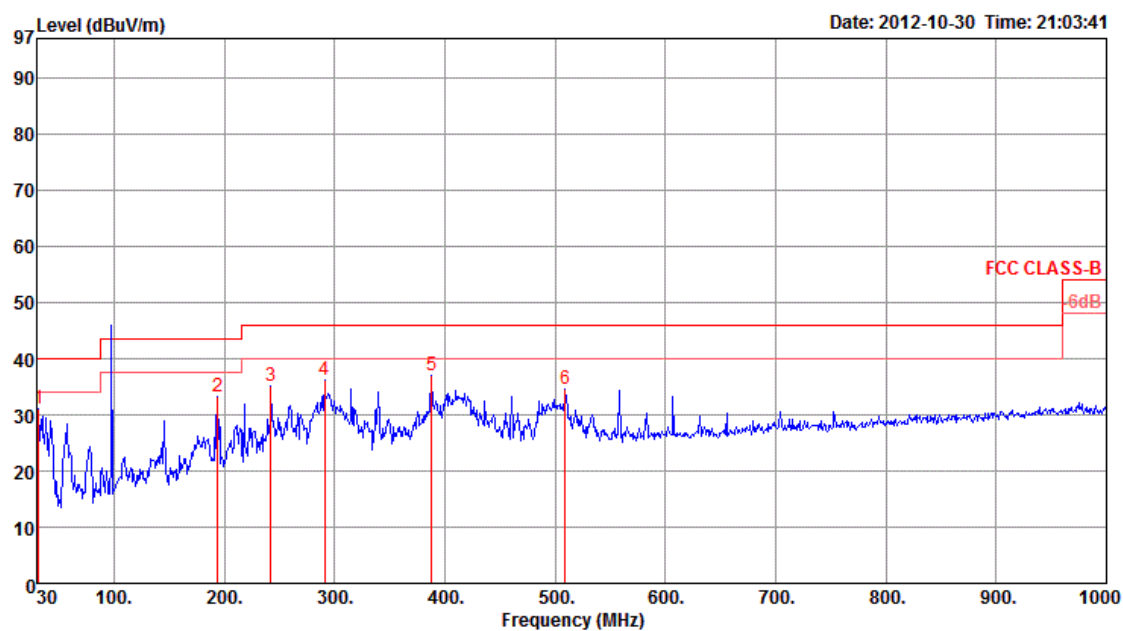
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1 p	33.88	32.82	40.00	-7.18	42.41	0.90	27.99	17.50	Peak	0	100	VERTICAL
2	290.93	30.30	46.00	-15.70	40.83	2.52	26.85	13.80	Peak	0	100	VERTICAL
3	509.18	31.47	46.00	-14.53	38.00	3.41	27.92	17.98	Peak	0	100	VERTICAL
4	557.68	34.11	46.00	-11.89	39.50	3.57	27.84	18.88	Peak	0	100	VERTICAL
5	607.15	35.24	46.00	-10.76	39.74	3.75	27.59	19.34	Peak	0	100	VERTICAL
6	655.65	34.47	46.00	-11.53	38.39	3.93	27.50	19.65	Peak	0	100	VERTICAL

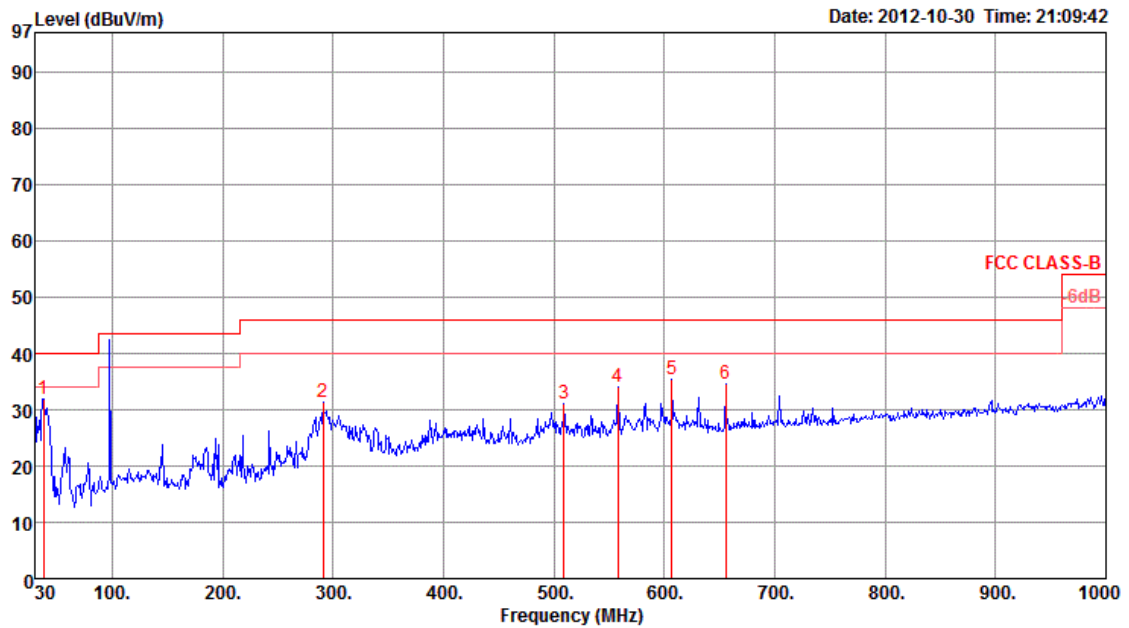
Temperature	20°C	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	Channel 51
Test Mode	Mode 3		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1	31.94	31.09	40.00	-8.91	39.50	0.87	27.98	18.70	Peak	0	400	HORIZONTAL
2	193.93	33.26	43.50	-10.24	48.44	2.07	27.29	10.04	Peak	0	400	HORIZONTAL
3	242.43	35.03	46.00	-10.97	47.36	2.32	26.97	12.32	Peak	0	400	HORIZONTAL
4	290.93	36.16	46.00	-9.84	46.69	2.52	26.85	13.80	Peak	0	400	HORIZONTAL
5 p	387.93	37.11	46.00	-8.89	45.31	2.94	27.36	16.22	Peak	0	400	HORIZONTAL
6	509.18	34.64	46.00	-11.36	41.17	3.41	27.92	17.98	Peak	0	400	HORIZONTAL

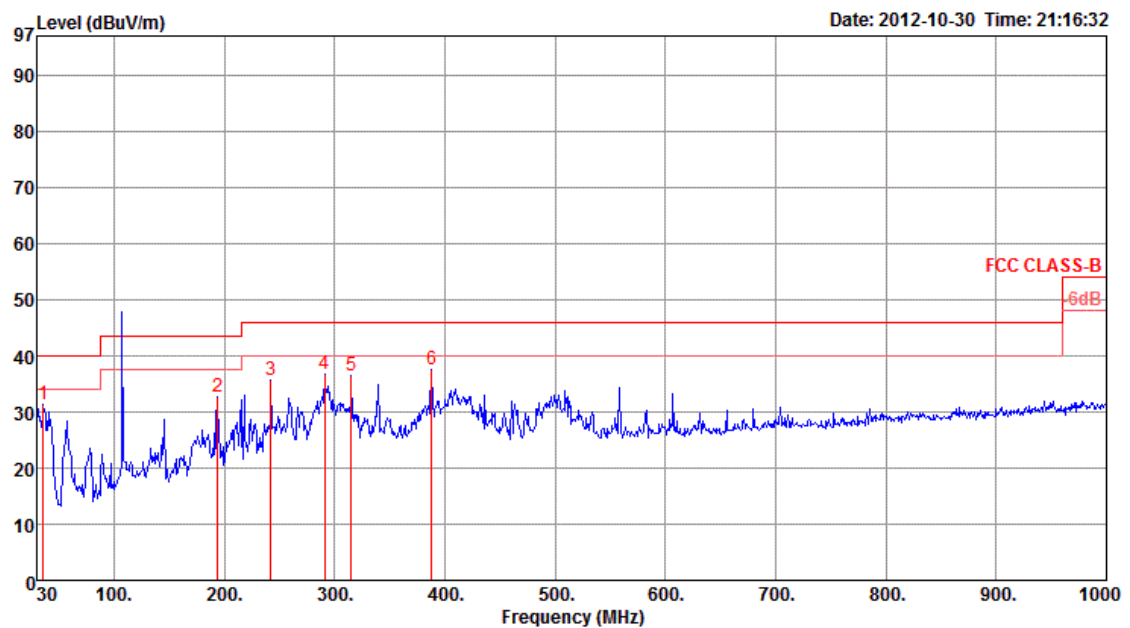
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1 p	37.76	31.95	40.00	-8.05	44.00	0.96	27.99	14.98	Peak	0	100	VERTICAL
2	290.93	31.43	46.00	-14.57	41.96	2.52	26.85	13.80	Peak	0	100	VERTICAL
3	509.18	31.06	46.00	-14.94	37.59	3.41	27.92	17.98	Peak	0	100	VERTICAL
4	557.68	34.04	46.00	-11.96	39.43	3.57	27.84	18.88	Peak	0	100	VERTICAL
5	607.15	35.43	46.00	-10.57	39.93	3.75	27.59	19.34	Peak	0	100	VERTICAL
6	655.65	34.46	46.00	-11.54	38.38	3.93	27.50	19.65	Peak	0	100	VERTICAL

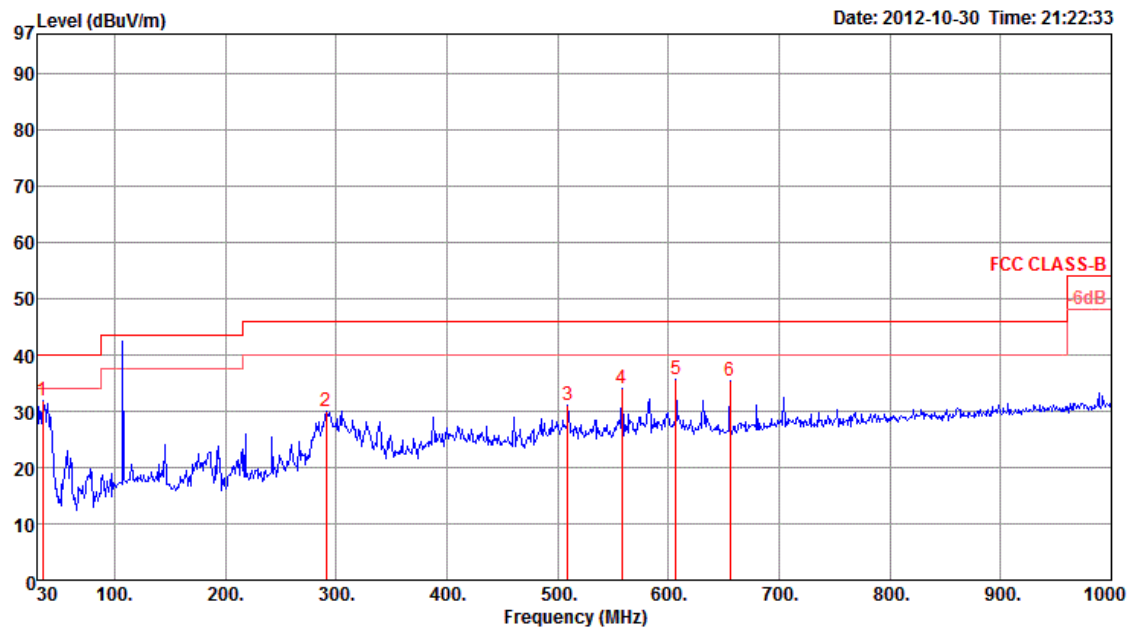
Temperature	20°C	Humidity	63%
Test Engineer	Kenneth Huang	Configurations	Channel 100
Test Mode	Mode 3		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1	35.82	31.33	40.00	-8.67	42.14	0.93	28.00	16.26	Peak	0	400	HORIZONTAL
2	193.93	32.75	43.50	-10.75	47.93	2.07	27.29	10.04	Peak	0	400	HORIZONTAL
3	242.43	35.55	46.00	-10.45	47.88	2.32	26.97	12.32	Peak	0	400	HORIZONTAL
4	290.93	36.69	46.00	-9.31	47.22	2.52	26.85	13.80	Peak	0	400	HORIZONTAL
5	315.18	36.42	46.00	-9.58	46.45	2.60	26.89	14.26	Peak	0	400	HORIZONTAL
6 p	387.93	37.67	46.00	-8.33	45.87	2.94	27.36	16.22	Peak	0	400	HORIZONTAL

Vertical

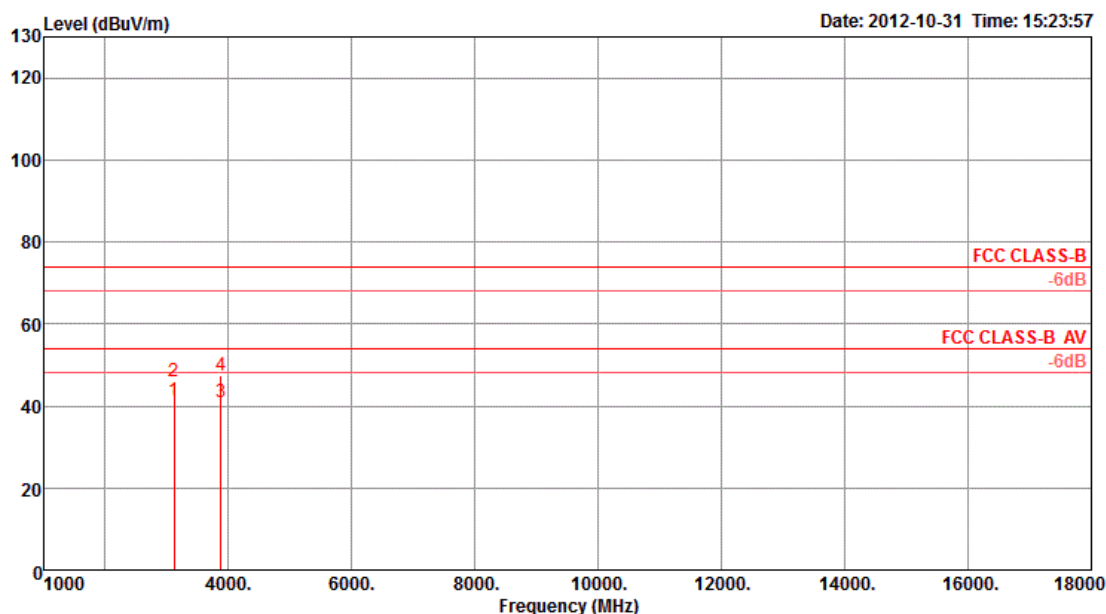


	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m	Remark	deg	cm	
1	34.85	31.97	40.00	-8.03	42.15	0.92	28.00	16.90	Peak	0	100	VERTICAL
2	290.93	29.97	46.00	-16.03	40.50	2.52	26.85	13.80	Peak	0	100	VERTICAL
3	509.18	31.05	46.00	-14.95	37.58	3.41	27.92	17.98	Peak	0	100	VERTICAL
4	557.68	33.94	46.00	-12.06	39.33	3.57	27.84	18.88	Peak	0	100	VERTICAL
5	607.15	35.78	46.00	-10.22	40.28	3.75	27.59	19.34	Peak	0	100	VERTICAL
6	655.65	35.51	46.00	-10.49	39.43	3.93	27.50	19.65	Peak	0	100	VERTICAL

3.3.8. Results for Radiated Emissions (1GHz~18GHz)

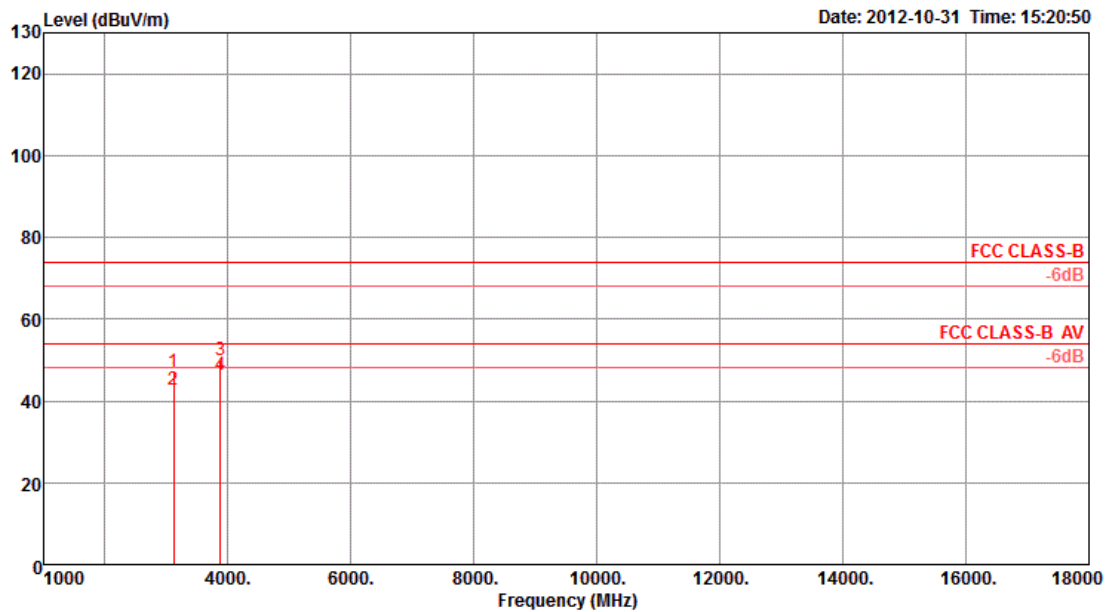
Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	Channel 1
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 a	3118.34	41.11	54.00	-12.89	43.22	3.34	34.84	29.39	Average	220	210	HORIZONTAL
2	3118.34	46.01	74.00	-27.99	48.12	3.34	34.84	29.39	Peak	220	210	HORIZONTAL
3	3870.56	40.94	54.00	-13.06	40.47	3.75	34.64	31.36	Average	117	159	HORIZONTAL
4 p	3870.66	47.28	74.00	-26.72	46.81	3.75	34.64	31.36	Peak	117	159	HORIZONTAL

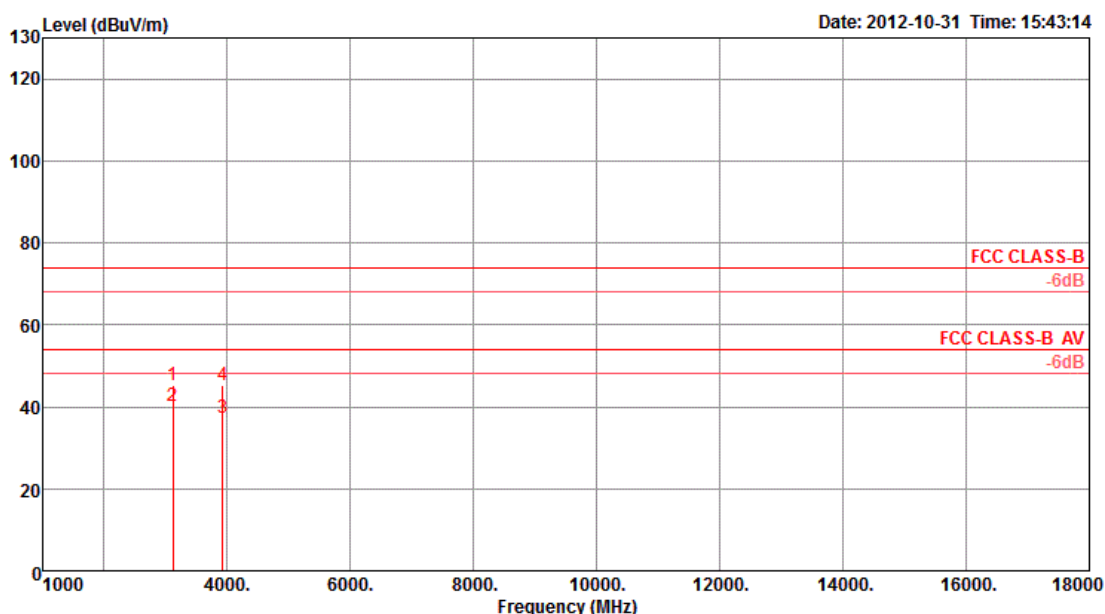
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	3118.35	47.18	74.00	-26.82	49.29	3.34	34.84	29.39	Peak	197	100	VERTICAL
2	3118.41	42.58	54.00	-11.42	44.69	3.34	34.84	29.39	Average	197	100	VERTICAL
3 p	3870.49	49.94	74.00	-24.06	49.47	3.75	34.64	31.36	Peak	157	181	VERTICAL
4 a	3870.56	46.39	54.00	-7.61	45.92	3.75	34.64	31.36	Average	157	181	VERTICAL

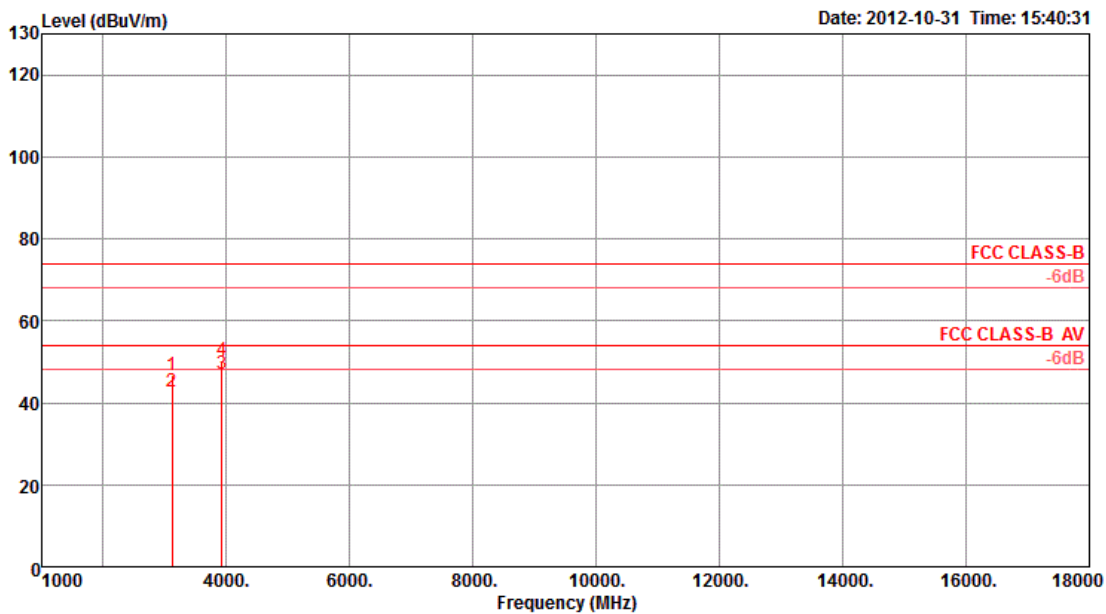
Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	Channel 51
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1 p	3118.27	45.41	74.00	-28.59	47.52	3.34	34.84	29.39	Peak	206	203	HORIZONTAL
2 a	3118.34	40.03	54.00	-13.97	42.14	3.34	34.84	29.39	Average	206	203	HORIZONTAL
3	3918.75	37.17	54.00	-16.83	36.51	3.78	34.63	31.51	Average	335	100	HORIZONTAL
4	3918.78	45.41	74.00	-28.59	44.75	3.78	34.63	31.51	Peak	335	100	HORIZONTAL

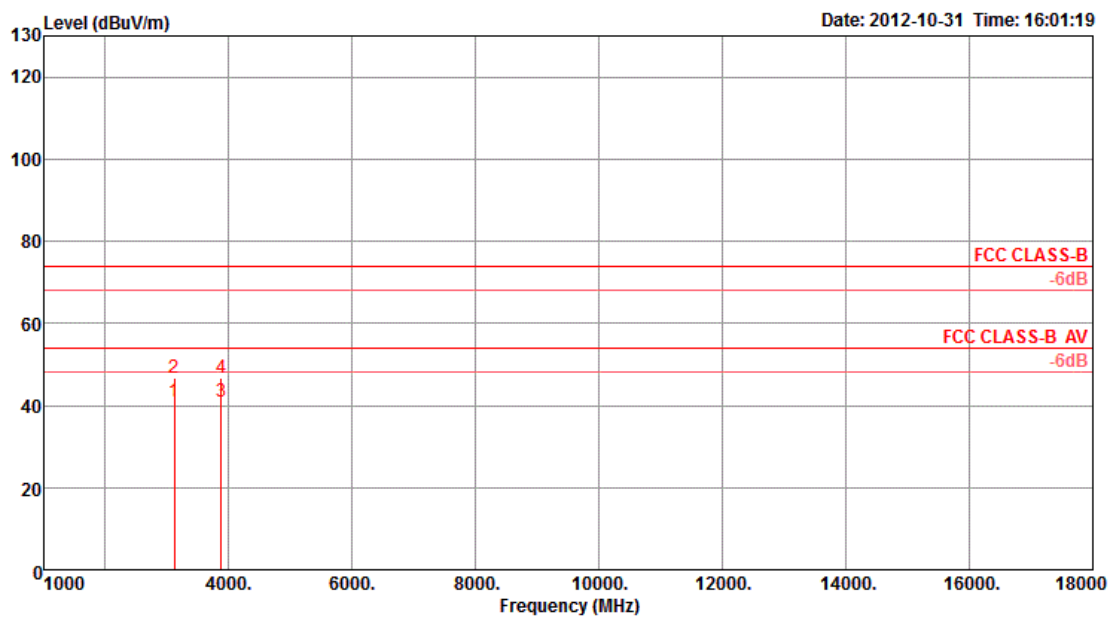
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	3118.32	46.76	74.00	-27.24	48.87	3.34	34.84	29.39	Peak	161	101	VERTICAL
2	3118.33	42.57	54.00	-11.43	44.68	3.34	34.84	29.39	Average	161	101	VERTICAL
3 a	3918.64	46.98	54.00	-7.02	46.32	3.78	34.63	31.51	Average	163	152	VERTICAL
4 p	3918.68	50.36	74.00	-23.64	49.70	3.78	34.63	31.51	Peak	163	152	VERTICAL

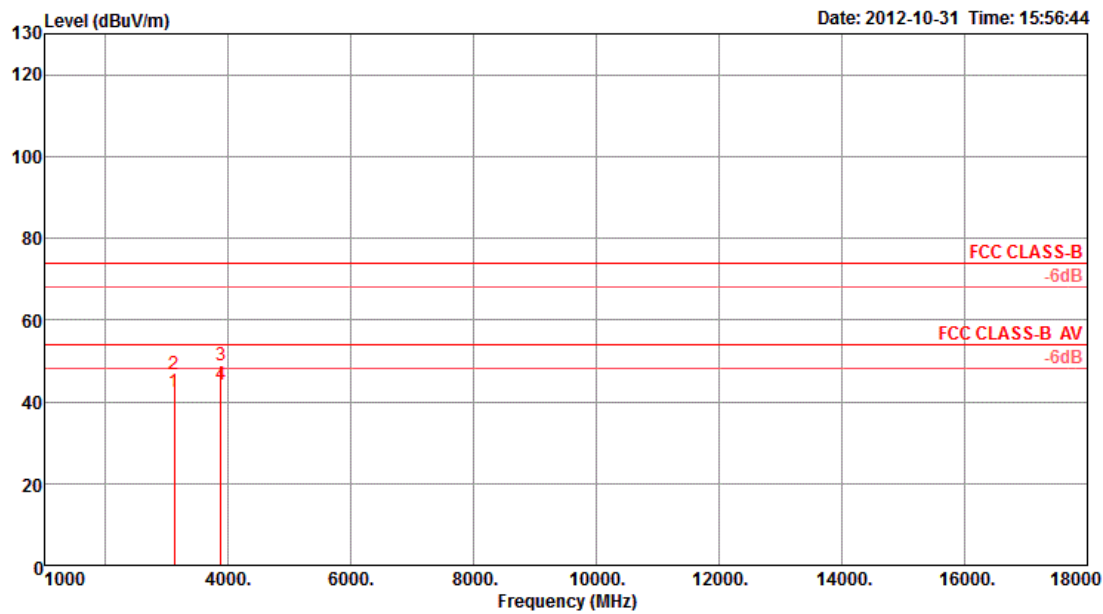
Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	Channel 100
Test Mode	Mode 1		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	
	MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	deg	cm	Pol/Phase
1	3118.30	40.81	54.00	-13.19	42.92	3.34	34.84	29.39	Average	220	212	HORIZONTAL
2	3118.33	46.58	74.00	-27.42	48.69	3.34	34.84	29.39	Peak	220	212	HORIZONTAL
3 a	3879.68	40.94	54.00	-13.06	40.47	3.75	34.64	31.36	Average	118	156	HORIZONTAL
4 p	3879.83	46.79	74.00	-27.21	46.32	3.75	34.64	31.36	Peak	118	156	HORIZONTAL

Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	3118.35	42.40	54.00	-11.60	44.51	3.34	34.84	29.39	Average	163	101	VERTICAL
2	3118.37	46.88	74.00	-27.12	48.99	3.34	34.84	29.39	Peak	163	101	VERTICAL
3 p	3879.61	48.83	74.00	-25.17	48.36	3.75	34.64	31.36	Peak	127	191	VERTICAL
4 a	3879.69	44.28	54.00	-9.72	43.81	3.75	34.64	31.36	Average	127	191	VERTICAL

Note:

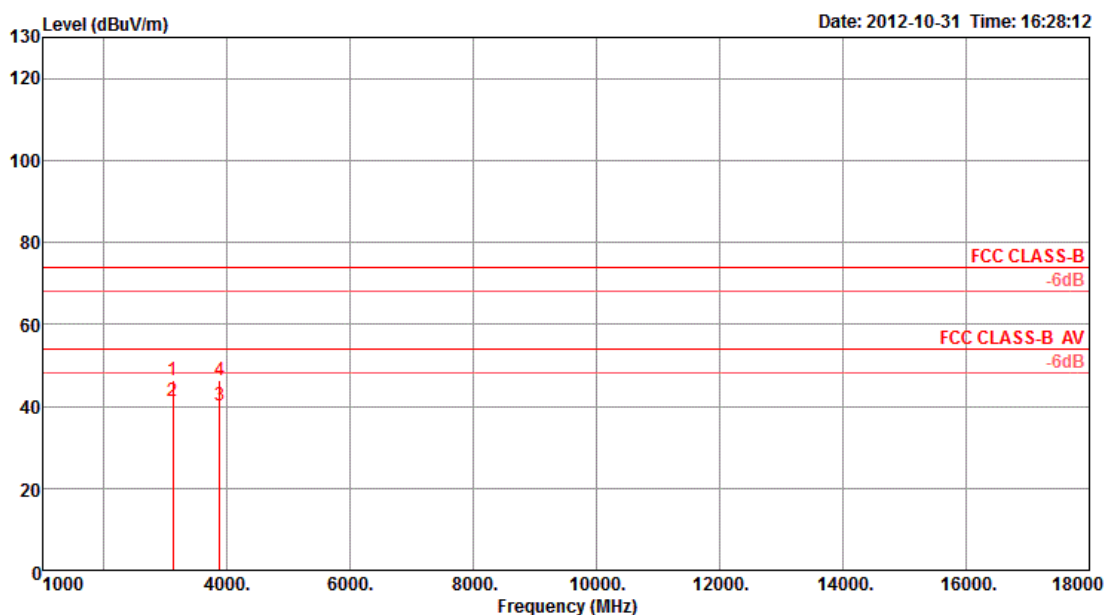
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

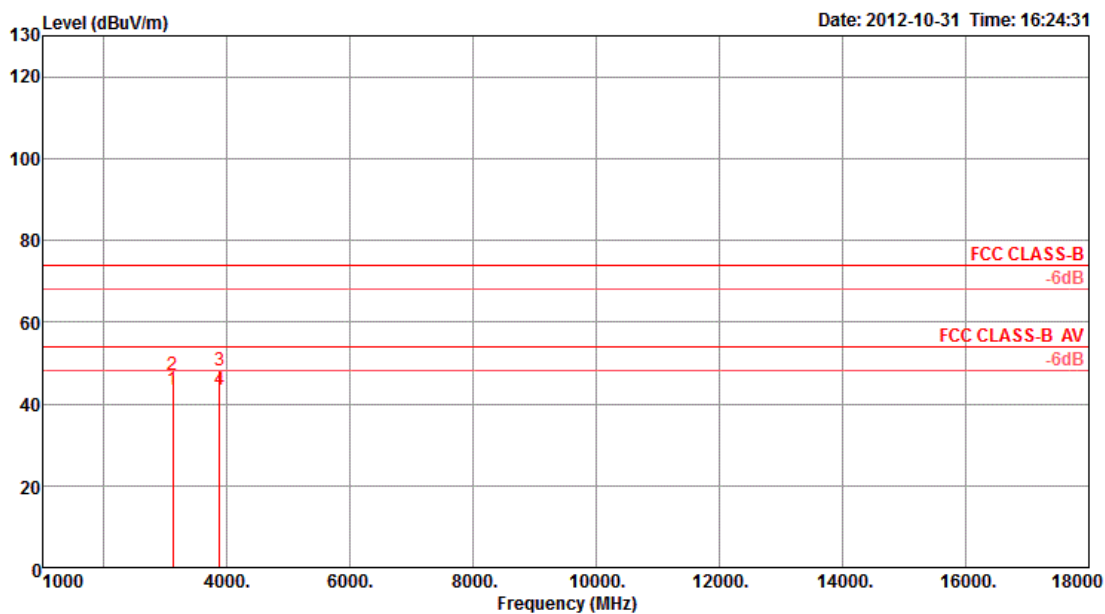
Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	Channel 1
Test Mode	Mode 2		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	3118.18	46.47	74.00	-27.53	48.58	3.34	34.84	29.39	Peak	220	215	HORIZONTAL
2 a	3118.29	41.14	54.00	-12.86	43.25	3.34	34.84	29.39	Average	220	215	HORIZONTAL
3	3870.56	40.28	54.00	-13.72	39.81	3.75	34.64	31.36	Average	126	180	HORIZONTAL
4 p	3870.65	46.53	74.00	-27.47	46.06	3.75	34.64	31.36	Peak	126	180	HORIZONTAL

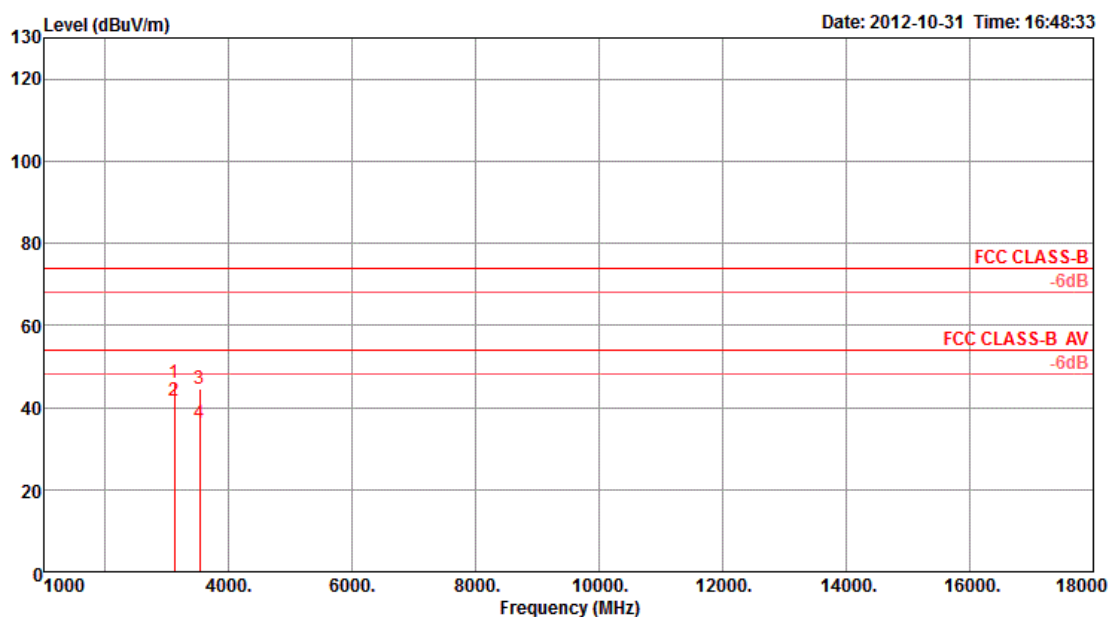
Vertical



		Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	deg	cm	
1	a	3118.35	43.47	54.00	-10.53	45.58	3.34	34.84	29.39	Average	197	100	VERTICAL
2		3118.39	47.14	74.00	-26.86	49.25	3.34	34.84	29.39	Peak	197	100	VERTICAL
3	p	3870.57	48.18	74.00	-25.82	47.71	3.75	34.64	31.36	Peak	125	170	VERTICAL
4		3870.58	43.45	54.00	-10.55	42.98	3.75	34.64	31.36	Average	125	170	VERTICAL

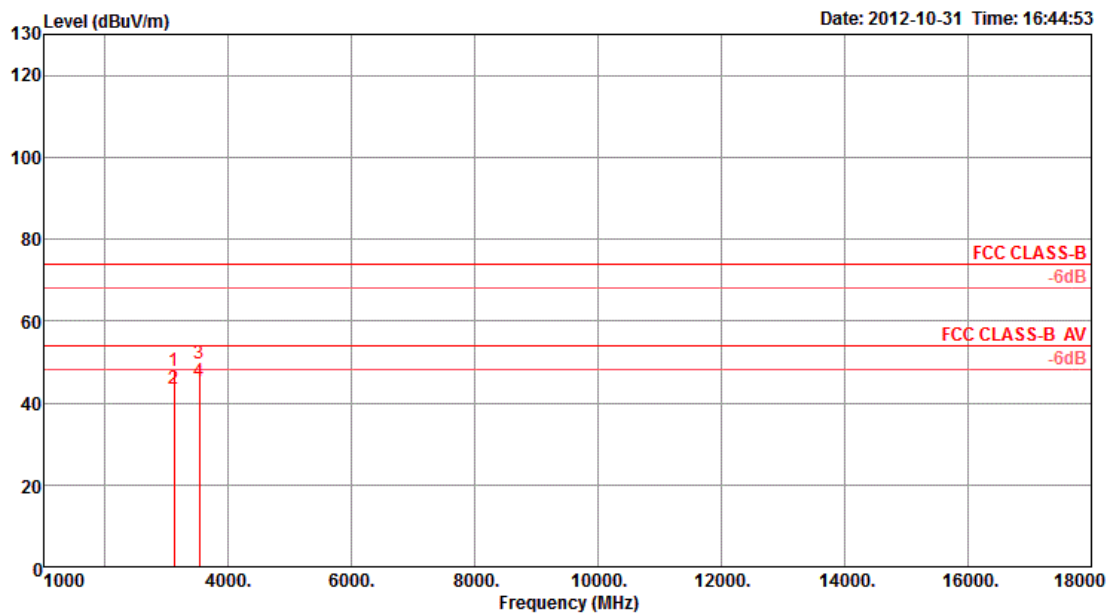
Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	Channel 51
Test Mode	Mode 2		

Horizontal



		Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	Pol/Phase
		MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	deg	cm	
1	p	3118.30	46.04	74.00	-27.96	48.15	3.34	34.84	29.39	Peak	219	210	HORIZONTAL
2	a	3118.35	41.58	54.00	-12.42	43.69	3.34	34.84	29.39	Average	219	210	HORIZONTAL
3		3526.51	44.70	74.00	-29.30	45.40	3.60	34.70	30.40	Peak	237	152	HORIZONTAL
4		3526.71	36.37	54.00	-17.63	37.07	3.60	34.70	30.40	Average	237	152	HORIZONTAL

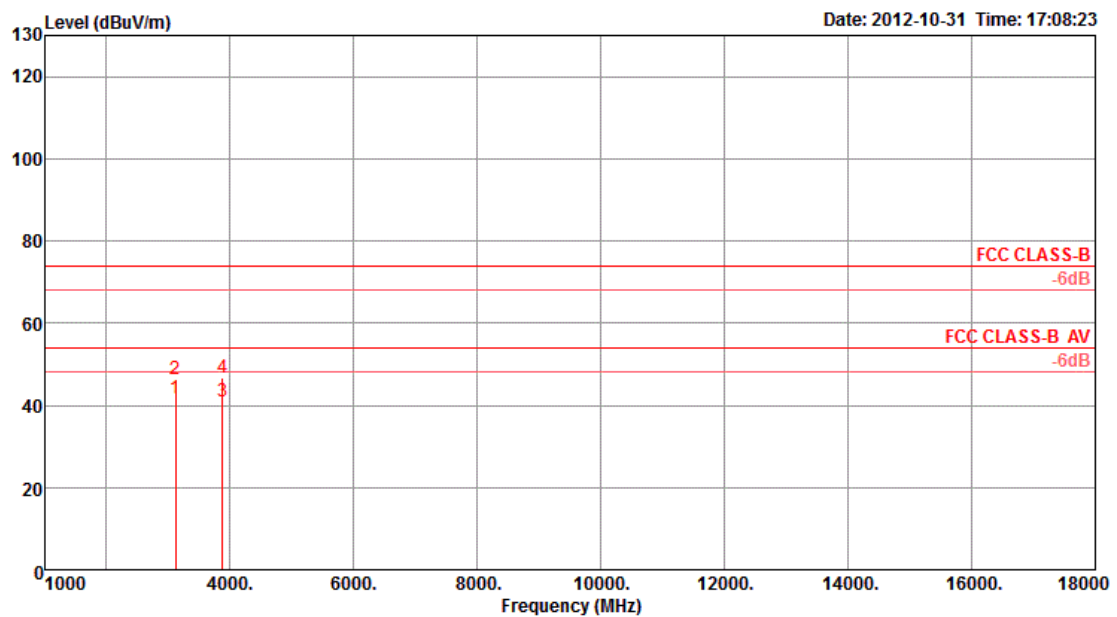
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	3118.14	47.69	74.00	-26.31	49.80	3.34	34.84	29.39	Peak	162	103	VERTICAL
2	3118.33	43.60	54.00	-10.40	45.71	3.34	34.84	29.39	Average	162	103	VERTICAL
3 p	3526.72	49.45	74.00	-24.55	50.15	3.60	34.70	30.40	Peak	163	151	VERTICAL
4 a	3526.77	45.33	54.00	-8.67	46.03	3.60	34.70	30.40	Average	163	151	VERTICAL

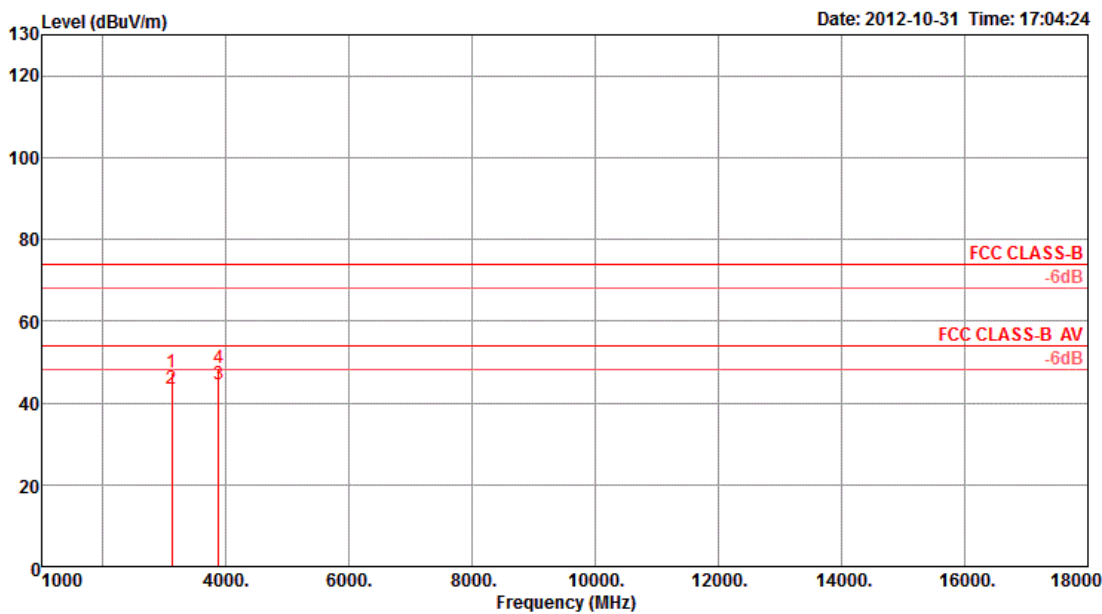
Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	Channel 100
Test Mode	Mode 2		

Horizontal



		Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	
		MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	deg	cm	Pol/Phase
1	a	3118.36	41.67	54.00	-12.33	43.78	3.34	34.84	29.39	Average	219	212	HORIZONTAL
2		3118.40	46.51	74.00	-27.49	48.62	3.34	34.84	29.39	Peak	219	212	HORIZONTAL
3		3879.72	40.90	54.00	-13.10	40.43	3.75	34.64	31.36	Average	118	157	HORIZONTAL
4	p	3879.77	46.70	74.00	-27.30	46.23	3.75	34.64	31.36	Peak	118	157	HORIZONTAL

Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	3118.25	47.35	74.00	-26.65	49.46	3.34	34.84	29.39	Peak	196	100	VERTICAL
2	3118.31	43.42	54.00	-10.58	45.53	3.34	34.84	29.39	Average	196	100	VERTICAL
3 a	3879.75	44.56	54.00	-9.44	44.09	3.75	34.64	31.36	Average	123	191	VERTICAL
4 p	3879.78	48.55	74.00	-25.45	48.08	3.75	34.64	31.36	Peak	123	191	VERTICAL

Note:

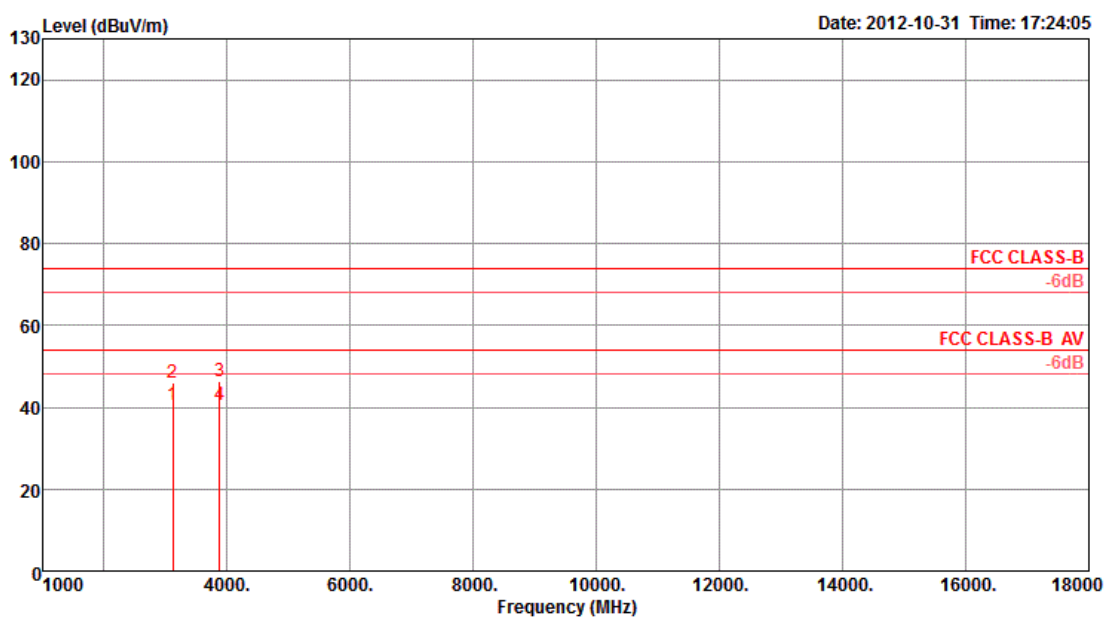
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

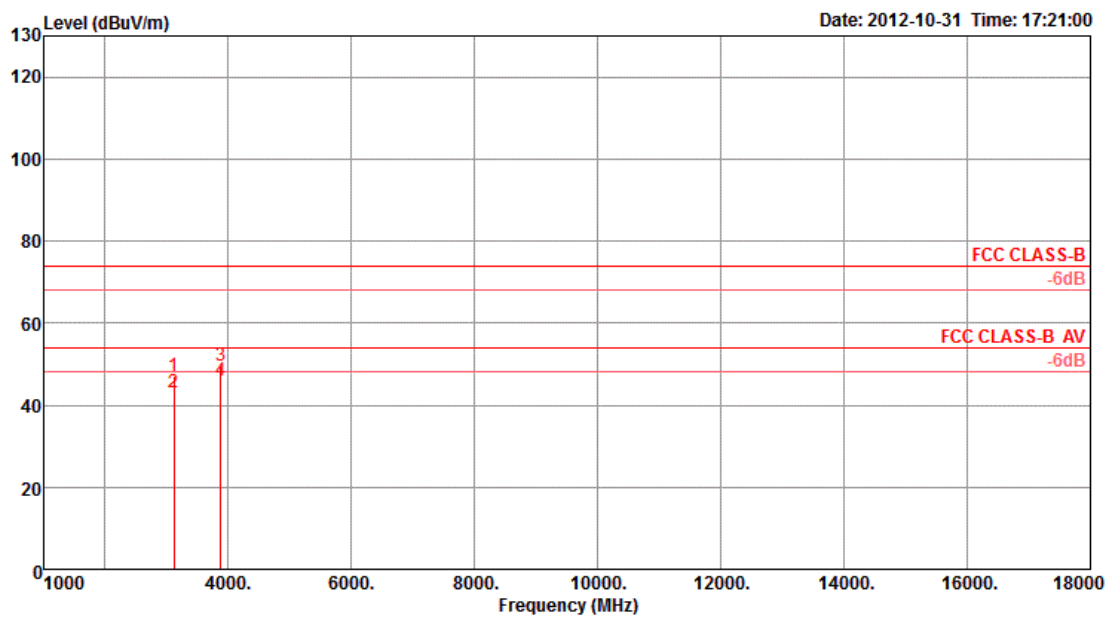
Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	Channel 1
Test Mode	Mode 3		

Horizontal



		Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna		T/Pos	A/Pos	
		MHz	dBuV/m	dBuV/m	dB	dBuV	Loss	Factor	Factor	Remark	deg	cm	Pol/Phase
1	a	3118.35	40.73	54.00	-13.27	42.84	3.34	34.84	29.39	Average	220	214	HORIZONTAL
2		3118.39	45.90	74.00	-28.10	48.01	3.34	34.84	29.39	Peak	220	214	HORIZONTAL
3	p	3870.57	46.34	74.00	-27.66	45.87	3.75	34.64	31.36	Peak	118	161	HORIZONTAL
4		3870.61	40.51	54.00	-13.49	40.04	3.75	34.64	31.36	Average	118	161	HORIZONTAL

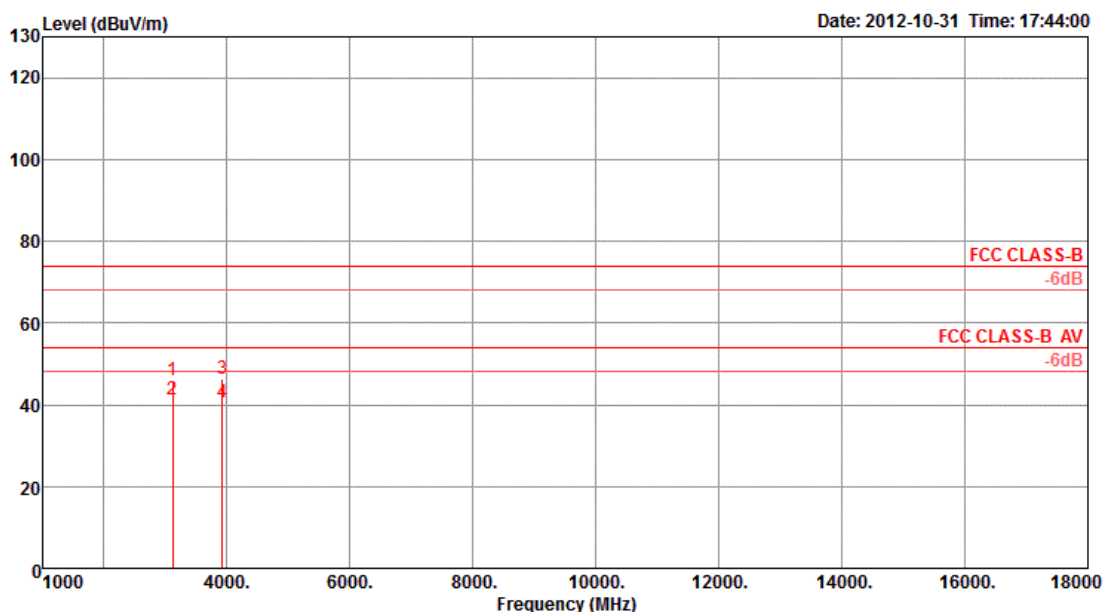
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	3118.24	47.04	74.00	-26.96	49.15	3.34	34.84	29.39	Peak	198	101	VERTICAL
2	3118.30	43.16	54.00	-10.84	45.27	3.34	34.84	29.39	Average	198	101	VERTICAL
3 p	3870.42	49.45	74.00	-24.55	48.98	3.75	34.64	31.36	Peak	160	132	VERTICAL
4 a	3870.57	45.90	54.00	-8.10	45.43	3.75	34.64	31.36	Average	160	132	VERTICAL

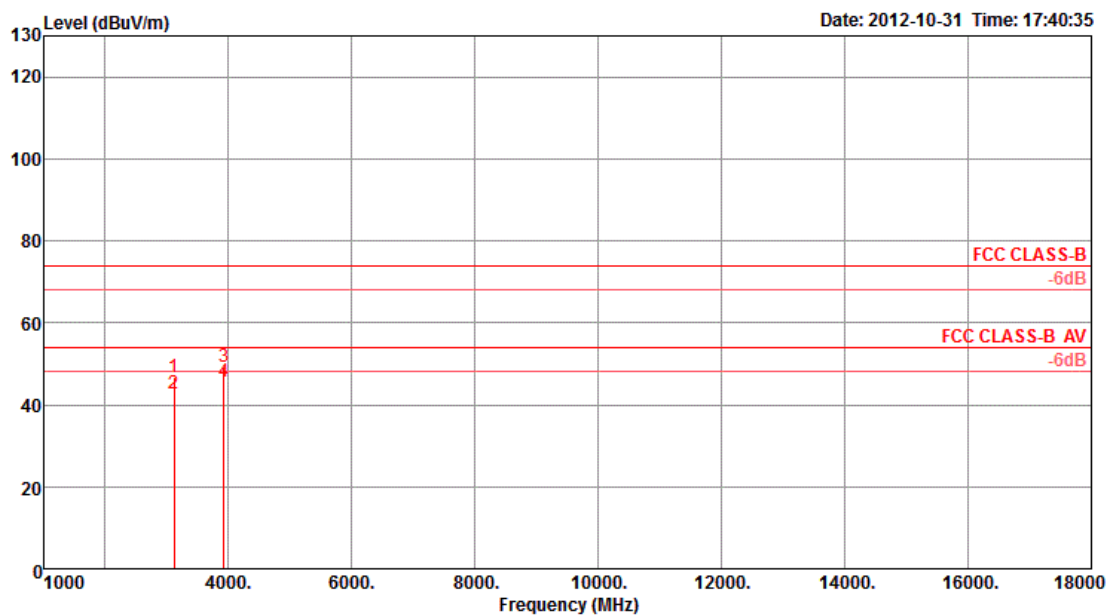
Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	Channel 51
Test Mode	Mode 3		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	3118.35	45.98	74.00	-28.02	48.09	3.34	34.84	29.39	Peak	219	210	HORIZONTAL
2 a	3118.38	41.22	54.00	-12.78	43.33	3.34	34.84	29.39	Average	219	210	HORIZONTAL
3 p	3918.52	46.47	74.00	-27.53	45.81	3.78	34.63	31.51	Peak	140	195	HORIZONTAL
4	3918.72	40.70	54.00	-13.30	40.04	3.78	34.63	31.51	Average	140	195	HORIZONTAL

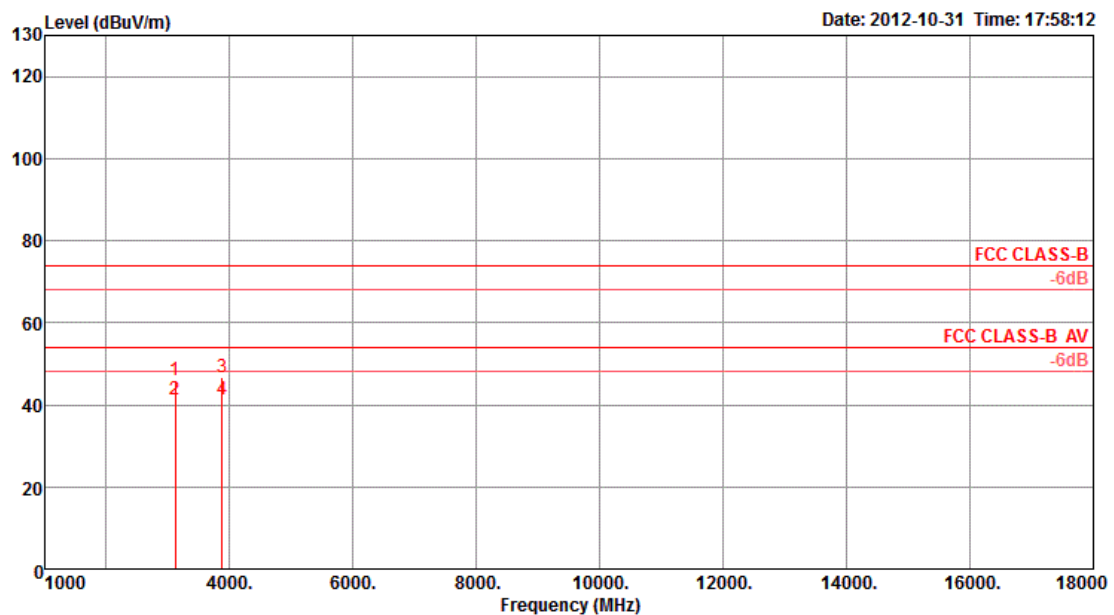
Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	3118.19	46.85	74.00	-27.15	48.96	3.34	34.84	29.39	Peak	198	100	VERTICAL
2	3118.35	42.68	54.00	-11.32	44.79	3.34	34.84	29.39	Average	198	100	VERTICAL
3 p	3918.67	49.31	74.00	-24.69	48.65	3.78	34.63	31.51	Peak	163	203	VERTICAL
4 a	3918.71	45.68	54.00	-8.32	45.02	3.78	34.63	31.51	Average	163	203	VERTICAL

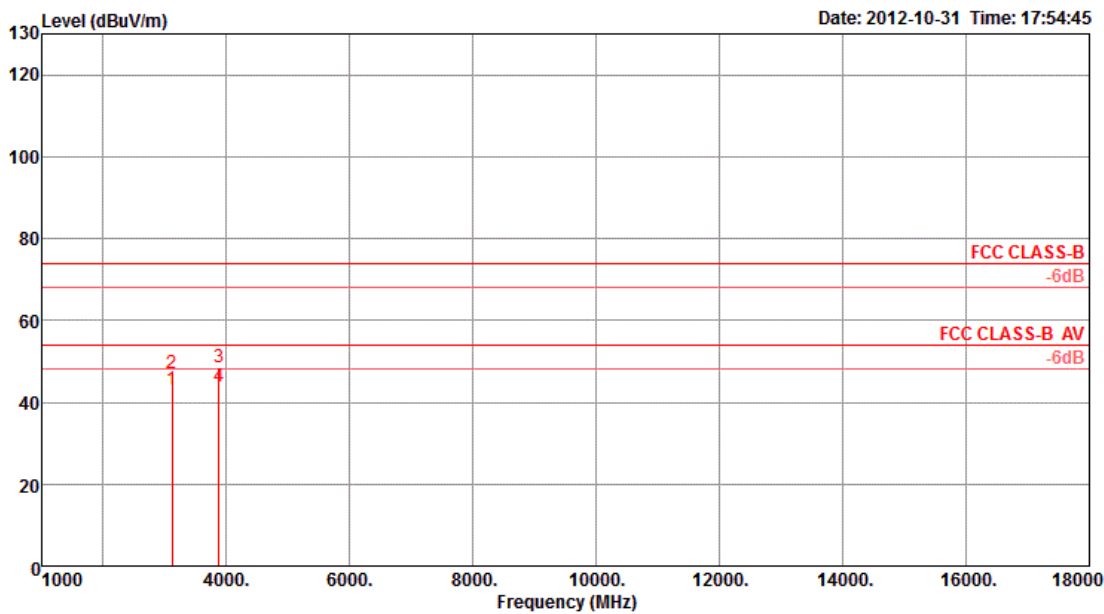
Temperature	20°C	Humidity	63%
Test Engineer	Serway Li	Configurations	Channel 100
Test Mode	Mode 3		

Horizontal



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	3118.15	45.86	74.00	-28.14	47.97	3.34	34.84	29.39	Peak	219	209	HORIZONTAL
2	3118.29	41.13	54.00	-12.87	43.24	3.34	34.84	29.39	Average	219	209	HORIZONTAL
3 p	3879.41	46.58	74.00	-27.42	46.11	3.75	34.64	31.36	Peak	117	157	HORIZONTAL
4 a	3879.60	41.23	54.00	-12.77	40.76	3.75	34.64	31.36	Average	117	157	HORIZONTAL

Vertical



	Freq	Level	Limit	Over	Read	Cable	Preamp	Antenna	Remark	T/Pos	A/Pos	Pol/Phase
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB	dB/m		deg	cm	
1	3118.36	43.06	54.00	-10.94	45.17	3.34	34.84	29.39	Average	161	102	VERTICAL
2	3118.39	47.23	74.00	-26.77	49.34	3.34	34.84	29.39	Peak	161	102	VERTICAL
3 p	3879.53	48.36	74.00	-25.64	47.89	3.75	34.64	31.36	Peak	127	191	VERTICAL
4 a	3879.63	43.95	54.00	-10.05	43.48	3.75	34.64	31.36	Average	127	191	VERTICAL

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

4. LIST OF MEASURING EQUIPMENTS


Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
BILOG ANTENNA	Schaffner	CBL6112D	22021	20MHz ~ 2GHz	Jan. 11, 2012	Radiation (03CH01-CB)
Horn Antenna	EMCO	3115	00075790	750MHz~18GHz	Nov. 27, 2011	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8447D	2944A10991	0.1MHz ~ 1.3GHz	Nov. 27, 2011	Radiation (03CH01-CB)
Pre-Amplifier	Agilent	8449B	3008A02310	1GHz ~ 26.5GHz	Nov. 23, 2011	Radiation (03CH01-CB)
EMI Test Receiver	R&S	ESCS 30	100355	9KHz ~ 2.75GHz	Mar. 20, 2012	Radiation (03CH01-CB)
Turn Table	INN CO	CO 2000	N/A	0 ~ 360 degree	N.C.R	Radiation (03CH01-CB)
Antenna Mast	INN CO	CO2000	N/A	1 m - 4 m	N.C.R	Radiation (03CH01-CB)
RF Cable-low	Woken	Low Cable-1	N/A	30 MHz - 1 GHz	Nov. 18, 2011	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-1	N/A	1 GHz – 26.5 GHz	Nov. 18, 2011	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-2	N/A	1 GHz – 26.5 GHz	Nov. 18, 2011	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-3	N/A	1 GHz - 40 GHz	Nov. 18, 2011	Radiation (03CH01-CB)
RF Cable-high	Woken	High Cable-4	N/A	1 GHz - 40 GHz	Nov. 18, 2011	Radiation (03CH01-CB)
Signal analyzer	R&S	FSV40	100979	9KHz~40GHz	Oct. 08, 2012	Conducted (TH01-CB)
RF Power Divider	Woken	2 Way	0120A02056002D	2GHz ~ 18GHz	Nov. 18, 2011	Conducted (TH01-CB)
RF Power Divider	Woken	3 Way	MDC2366	2GHz ~ 18GHz	Nov. 18, 2011	Conducted (TH01-CB)
RF Power Divider	Woken	4 Way	0120A04056002D	2GHz ~ 18GHz	Nov. 18, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-7	-	1 GHz – 26.5 GHz	Nov. 19, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-8	-	1 GHz – 26.5 GHz	Nov. 19, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-9	-	1 GHz – 26.5 GHz	Nov. 19, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-10	-	1 GHz – 26.5 GHz	Nov. 19, 2011	Conducted (TH01-CB)
RF Cable-high	Woken	High Cable-11	-	1 GHz – 26.5 GHz	Nov. 19, 2011	Conducted (TH01-CB)

Note: Calibration Interval of instruments listed above is one year.

5. TEST LOCATION

SHIJR	ADD : 6Fl., No. 106, Sec. 1, Shintai 5th Rd., Shijr City, Taipei, Taiwan 221, R.O.C. TEL : 886-2-2696-2468 FAX : 886-2-2696-2255
HWA YA	ADD : No. 52, Hwa Ya 1st Rd., Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-318-0055
LINKOU	ADD : No. 30-2, Dingfu Tsuen, Linkou Shiang, Taipei, Taiwan 244, R.O.C TEL : 886-2-2601-1640 FAX : 886-2-2601-1695
DUNGHU	ADD : No. 3, Lane 238, Kangle St., Neihu Chiu, Taipei, Taiwan 114, R.O.C. TEL : 886-2-2631-4739 FAX : 886-2-2631-9740
JUNGHE	ADD : 7Fl., No. 758, Jungjeng Rd., Junghe City, Taipei, Taiwan 235, R.O.C. TEL : 886-2-8227-2020 FAX : 886-2-8227-2626
NEIHU	ADD : 4Fl., No. 339, Hsin Hu 2 nd Rd., Taipei 114, Taiwan, R.O.C. TEL : 886-2-2794-8886 FAX : 886-2-2794-9777
JHUBEI	ADD : No.8, Lane 724, Bo-ai St., Jhubei City, HsinChu County 302, Taiwan, R.O.C. TEL : 886-3-656-9065 FAX : 886-3-656-9085

6. TAF CERTIFICATE OF ACCREDITATION



Certificate No. : L1190-110702

財團法人全國認證基金會
Taiwan Accreditation Foundation

Certificate of Accreditation

This is to certify that

Sporton International Inc.
EMC & Wireless Communications Laboratory
No.52, Hwa Ya 1st Road, Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien,
Taiwan, R.O.C.

is accredited in respect of laboratory

Accreditation Criteria	: ISO/IEC 17025:2005
Accreditation Number	: 1190
Originally Accredited	: December 15, 2003
Effective Period	: January 10, 2010 to January 09, 2013
Accredited Scope	: Testing Field, see described in the Appendix
Specific Accreditation Program	: Accreditation Program for Designated Testing Laboratory for Commodities Inspection Accreditation Program for Telecommunication Equipment Testing Laboratory Accreditation Program for BSMI Mutual Recognition Arrangement with Foreign Authorities



Jay-San Chen
President, Taiwan Accreditation Foundation
Date : July 02, 2011

P1, total 22 pages

The Appendix forms an integral part of this Certificate, which shall be invalid when use without the Appendix

Appendix A. Test Photos

1. Photographs of Radiated Emissions Test Configuration

Test Configuration: 30MHz~1GHz

FRONT VIEW

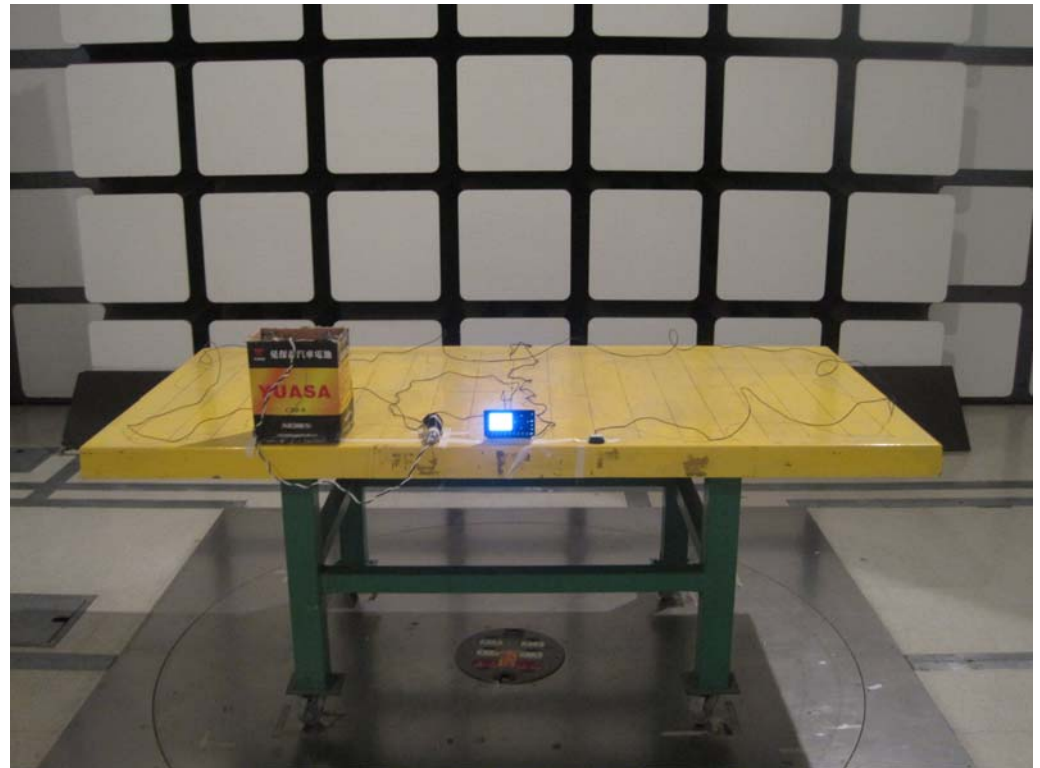


REAR VIEW



Test Configuration: Above 1GHz

FRONT VIEW



REAR VIEW

