FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Digital Receiver

Model: EOS-C200-RX

Brand Name: Eos wireless

Prepared for

IntelliTouch
6370 Nancy Ridge Dr, Stc. 105, San Diego, California,
CA 92121,United States

Prepared by

COMPLIANCE CERTIFICATION SERVICES (SHENZHEN) INC.
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1. TEST RESULT CERTIFICATION

Applicant:	IntelliTouch 6370 Nancy Ridge Dr, Stc. 105, San Diego, California, CA 92121, United States
Equipment Under Test:	Digital Receiver
Brand Name:	Eos wireless
Model:	EOS-C200-RX
Date of Test:	July 14- September 02, 2009

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR Part 15 Subpart C	No non-compliance noted

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rules Part 15.207, 15.209 and 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

Approved by: ***Reviewed by:***

Clinton Kao
Manager
Compliance Certification Service Inc.

Vincent Yao
Assistant manager
Compliance Certification Service Inc.

2. EUT DESCRIPTION

Product	Digital Receiver
Brand Name	Eos wireless
Model Number	EOS-C200-RX
Model Discrepancy	N/A
Power Supply	DC5V Powered by the adapter Adapter Model name/ Manufacturer GOLDEN PROFIT ELECTRONICS LTD.(GPE)/ GPE053-050035-Z(USB Port) AC input: AC100~240V, 50/60Hz,0.15mA DC output: DC5V, 350mA DC output cable: Un-shielded, 1.75m
Frequency Range	2403 ~ 2479 MHz
Transmit Power	16.07dBm
Modulation Technique	FHSS(GFSK)
Number of Channels	20 Channels
Antenna Specification	PCB Antenna with 2.0 dBi gain(Max)
Temperature Range	0°C ~ +35°C

Note: *This submittal(s) (test report) is intended for FCC ID: XMQEOS-C200-RX filing to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.*

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4: 2003. Radiated testing was performed at an antenna to EUT distance 3 meters.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

3.3 GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4: 2003.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4: 2003.

3.4 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	([2])
13.36 - 13.41	322 - 335.4		

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

3.5 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.
Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.
The following test mode(s) were scanned during the preliminary test below 1G:

Test Item	Test mode	Worse mode
Conducted Emission	Mode 1: Normal Link with AUX	■
Radiated Emission	Mode 1: Normal Link with AUX	■

Above 1G, Channel Low (2403MHz)、Mid (2442MHz) and High (2479MHz) were chosen for full testing.

4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

5. FACILITIES AND ACCREDITATIONS

5.1FACILITIES

All measurement facilities used to collect the measurement data are located at
☒ **No10-1, Mingkeda Logistics Park, No.18 Huanguan South RD. Guan lan Town, Baoan District, Shenzhen China**

The sites are constructed in conformance with the requirements of ANSI C63.4:2003, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.2ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

USA	**A2LA**
Taiwan	**TAF**

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

USA	**FCC**
Japan	**VCCI**
Canada	**INDUSTRY CANADA**
Taiwan	**BSMI**
Norway	**Nemko**

Copies of granted accreditation certificates are available for downloading from our web site, http://www.ccsrf.com

5.3MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency	Uncertainty
Conducted emissions	9kHz~30MHz	+/- 3.18dB
Radiated emissions	30MHz ~ 200MHz	+/- 3.79dB
	200MHz ~1000MHz	+/- 3.62dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

The measured result is above (below) the specification limit by a margin less than the measurement uncertainty; it is therefore not possible to state compliance based on the 95% level of confidence. However, the result indicates that compliance (non-compliance) is more probable than non-compliance) with the specification limit.

6. SETUP OF EQUIPMENT UNDER TEST

6.1SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

6.2SUPPORT EQUIPMENT

No.	Equipment	Model No.	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1	Notebook	Studio 1435	53154486836549	DoC	DELL	N/A	Shielded, 1.75m
2	Digital USB Transmitter	EOS-C200-TX	N/A	XMQEOS-C200-TX	Eos wireless	Unshielded 1.78m	Unshielded 1.75m(Adapter) Unshielded 1.78m(USB)
3	Digital Amplified Receiver	EOS-C201-RX	N/A	XMQEOS-C201-RX	Eos wireless	Unshielded 0.50m	Unshielded 3.00m
2	Speaker	N/A	N/A	N/A	N/A	Unshielded 0.5m	N/A
3	Amplified Speaker	N/A	N/A	N/A	N/A	Unshielded 0.5m	N/A

Notes:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

7. FCC PART 15.247 REQUIREMENTS

7.1 20DB BANDWIDTH

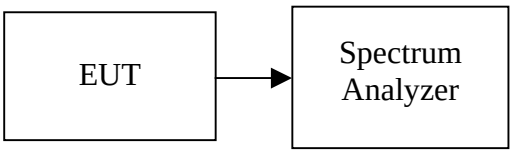
None; for reporting purpose only.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	02/24/2010

Remark: *Each piece of equipment is scheduled for calibration once a year.*

TEST CONFIGURATION



TEST PROCEDURE

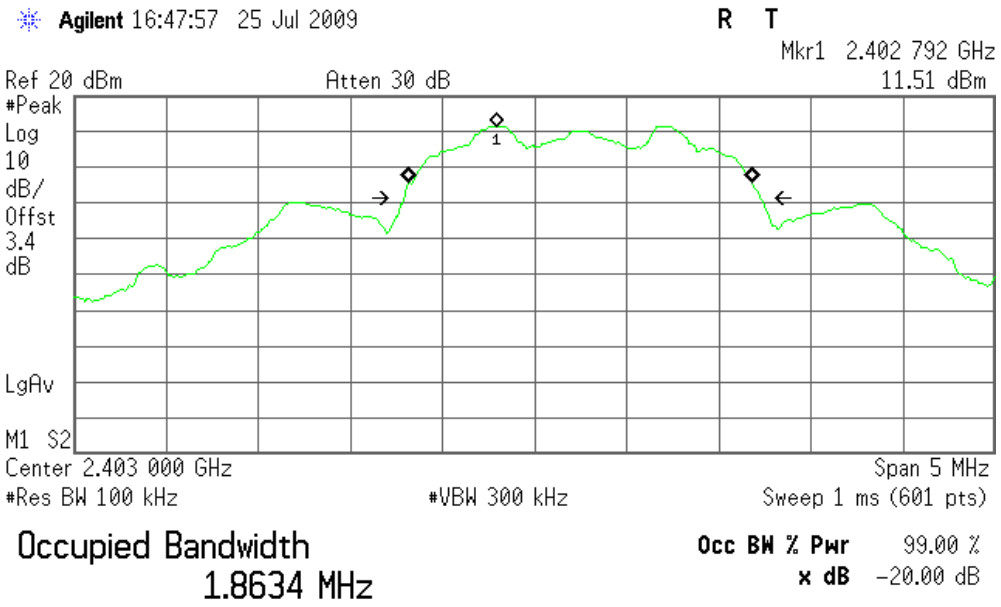
1. Place the EUT on the table and set it in the transmitting mode.
2. Remove the antenna from the EUT, then connect a low loss RF cable from antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW=100kHz, VBW=300kHz, Span=5MHz, Sweep = auto.
4. Mark the peak frequency and 20dB (upper and lower) frequency.
5. Repeat until all the test channels are investigated.

TEST RESULTS

No non-compliance noted

Test plot

20dB Bandwidth (CH Low)

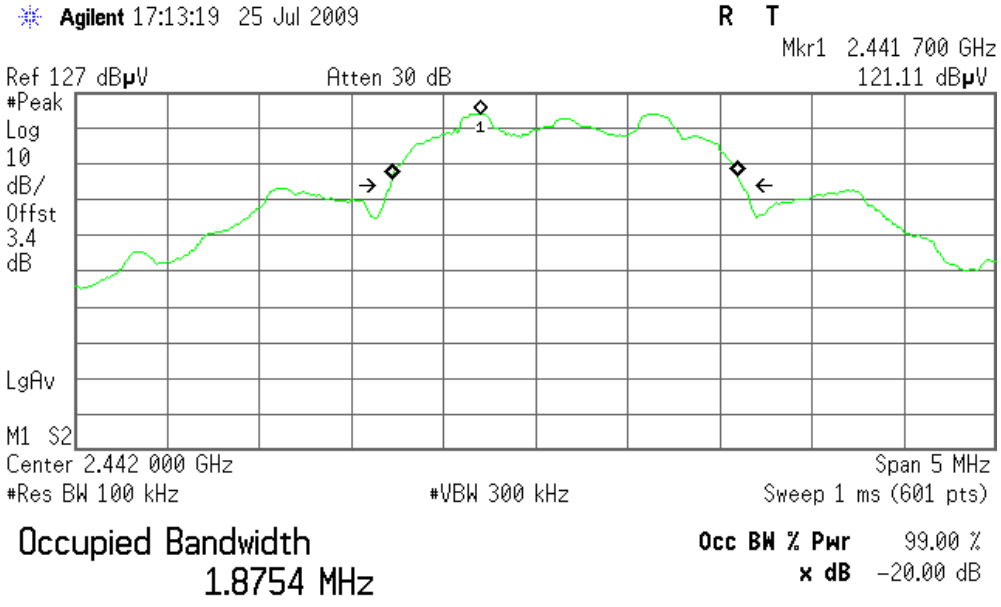


Occupied Bandwidth
1.8634 MHz

Occ BW % Pwr 99.00 %
x dB -20.00 dB

Transmit Freq Error 249.836 kHz
x dB Bandwidth 1.930 MHz

20dB Bandwidth (CH Mid)

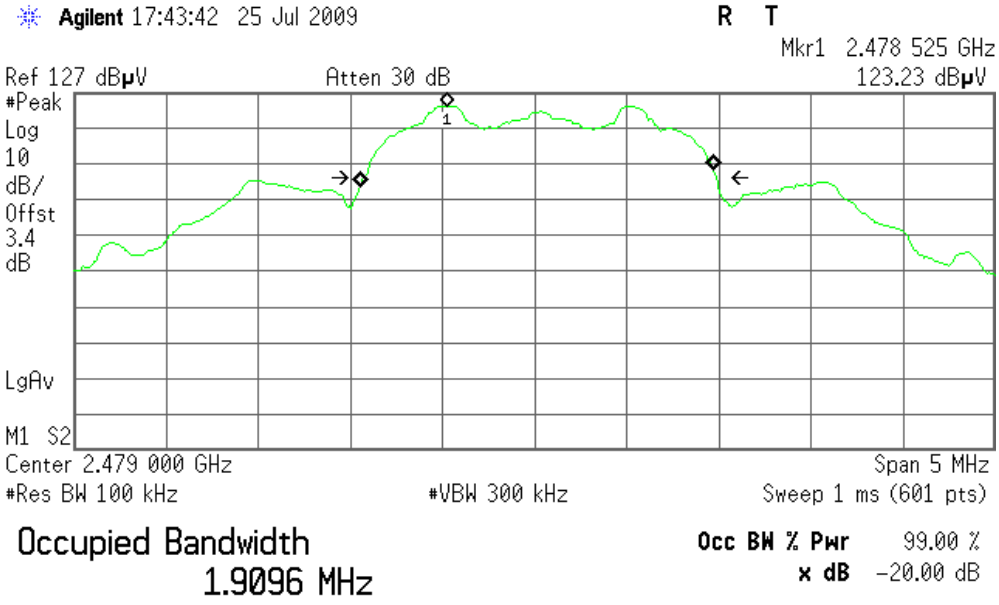


Occupied Bandwidth
1.8754 MHz

Occ BW % Pwr 99.00 %
x dB -20.00 dB

Transmit Freq Error 159.184 kHz
x dB Bandwidth 1.902 MHz

20dB Bandwidth (CH High)



Occupied Bandwidth
1.9096 MHz

Occ BW % Pwr 99.00 %
x dB -20.00 dB

Transmit Freq Error	10.721 kHz
x dB Bandwidth	1.911 MHz

7.2 PEAK POWER

LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

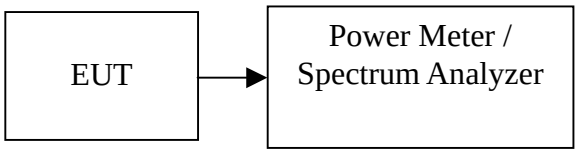
1. For systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 watt.
2. Except as shown in paragraphs (b)(3) (i), (ii) and (iii) of this section, if transmitting antennas of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1) or (b)(2) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6dBi.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
RF Power Meter & Sensor	Anritsu	ML2487A	6K00001491	02/23/2010
Spectrum Analyzer	Agilent	E4446A	US44300399	02/24/2010

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration



TEST PROCEDURE

The transmitter output is connected to the RF Power Meter. The RF Power Meter is set to the peak power detection.

TEST RESULTS

No non-compliance noted

Test Data

Channel	Frequency (MHz)	Reading Power (dBm)	Factor (dB)	Output Power (dBm)	Output Power (W)	Limit (mW)	Result
Low	2403	12.67	3.40	16.07	0.04046	125	PASS
Mid	2442	12.09	3.40	15.49	0.03540		PASS
High	2479	12.18	3.40	15.58	0.03614		PASS

7.3 PEAK POWER SPECTRAL DENSITY

LIMIT

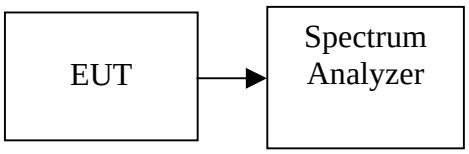
1. For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.
2. The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	02/24/2010

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
4. Record the max. reading.
5. Repeat the above procedure until the measurements for all frequencies are completed.

TEST RESULTS

Not applicable. Since EUT is the FHSS Modulation Technique device.

7.4 BAND EDGES MEASUREMENT

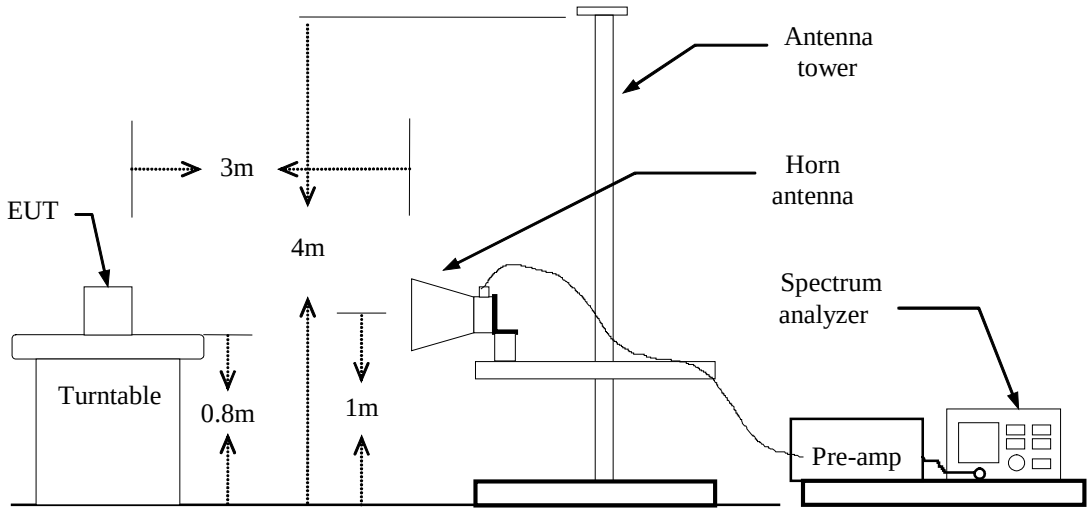
LIMIT

According to §15.247(c), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in15.209(a).

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
ESCI EMI TEST RECEIVE.ESCI	ROHDE&SCHWARZ	1166.5950 03	100783	03/20/2010
Spectrum Analyzer	Agilent	E4446A	US44300399	03/01/2010
Low Noise Amplifier	MITEQ	AM-1604-3000	1123808	02/06/2010
Turn Table	EMCO	2081-1.21	N/A	N.C.R
Controller	CT	N/A	N/A	N.C.R
High Noise Amplifier	Agilent	8449B	3008A01838	05/29/2010
Site NSA	C&C	N/A	N/A	N.C.R
BILOG ANTENNA	SCHAFFNER	CBL6143	5082	06/09/2010
Horn Antenna	SCHAFFNER	BBHA9120D	1201	03/19/2010
Signal Generator	Anritsu	MG3694A	#050125	03/01/2010

Test Configuration



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above the ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
   (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO
5. Repeat the procedures until all the PEAK and AVERAGE versus POLARIZATION are measured.

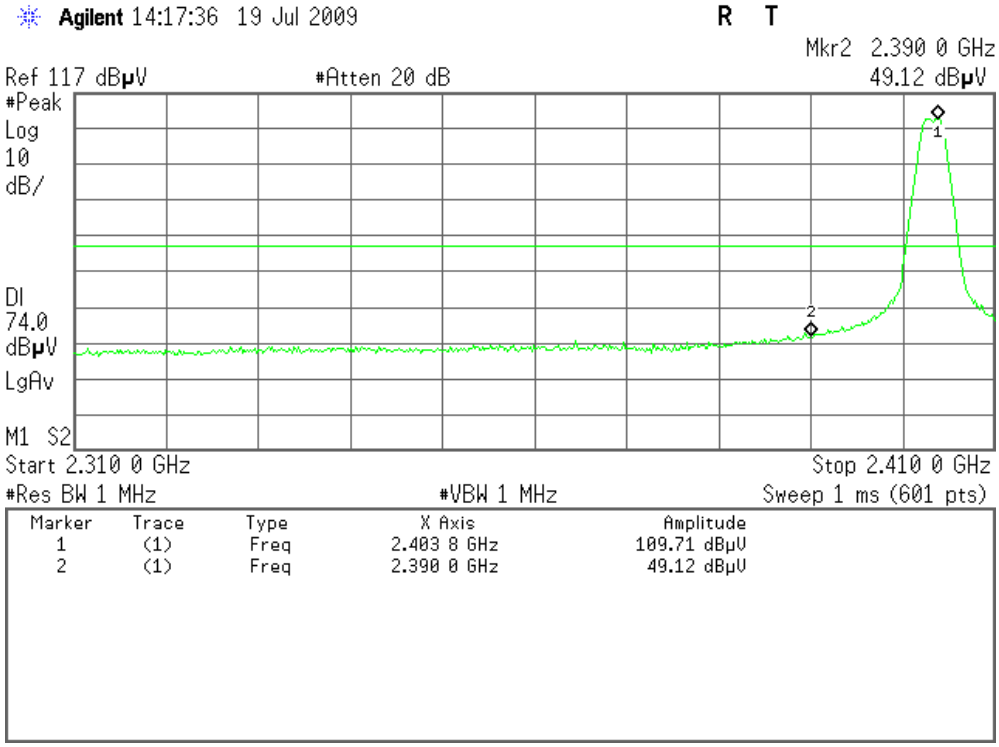
TEST RESULTS

Refer to attach spectrum analyzer data chart.

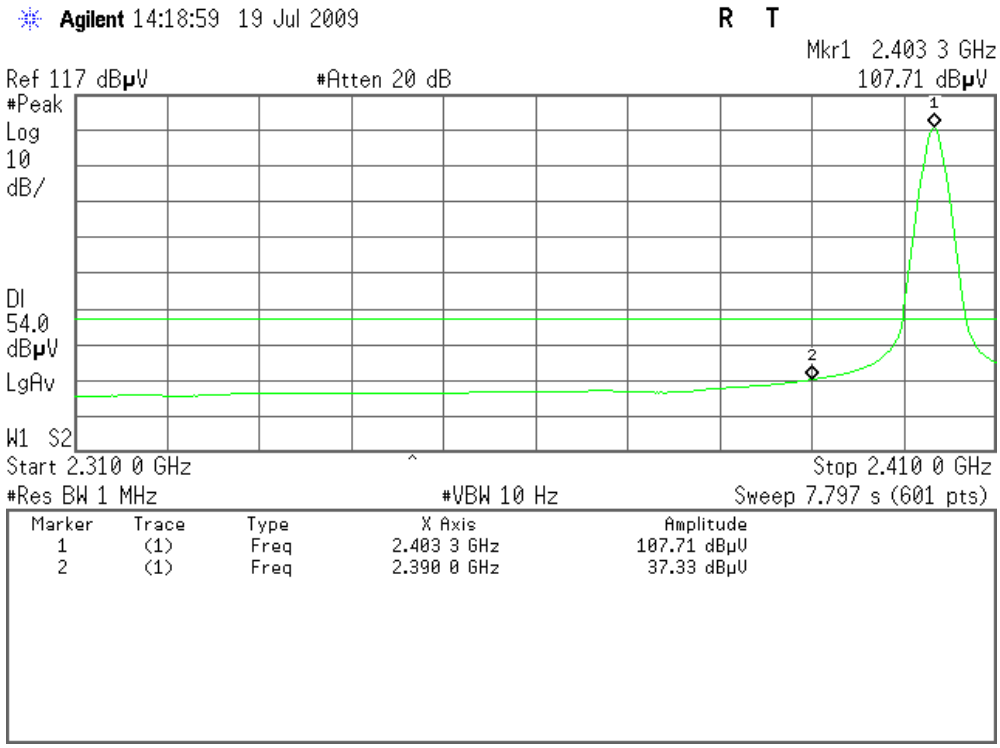
Test Data

Band Edges (CH-Low)

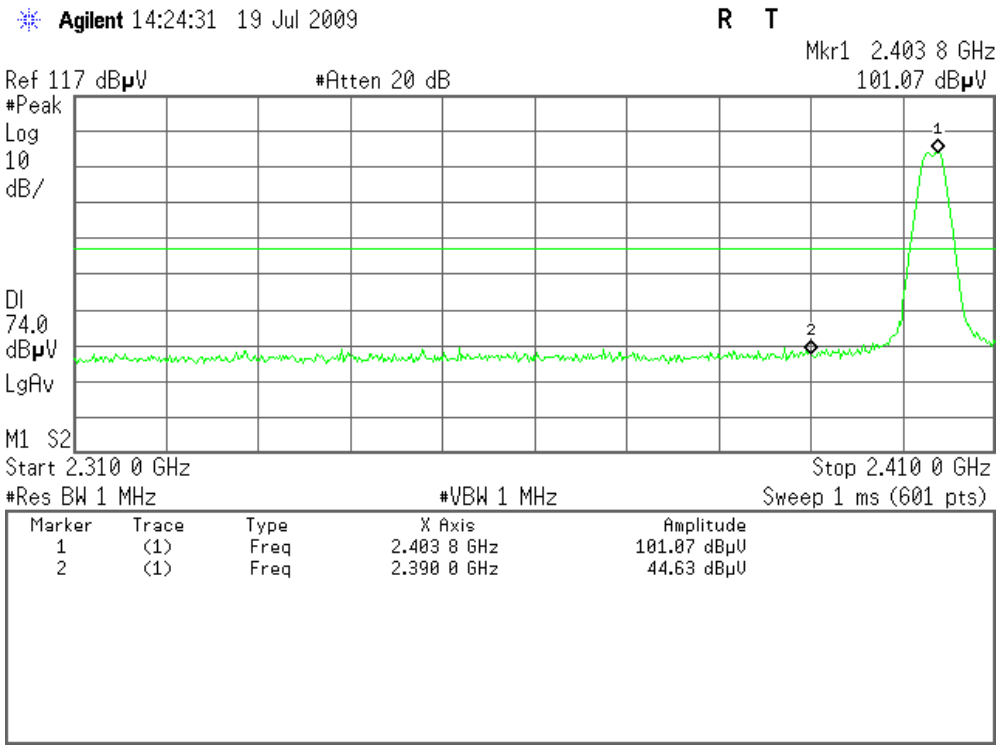
Detector mode: Peak **Polarity: Vertical**



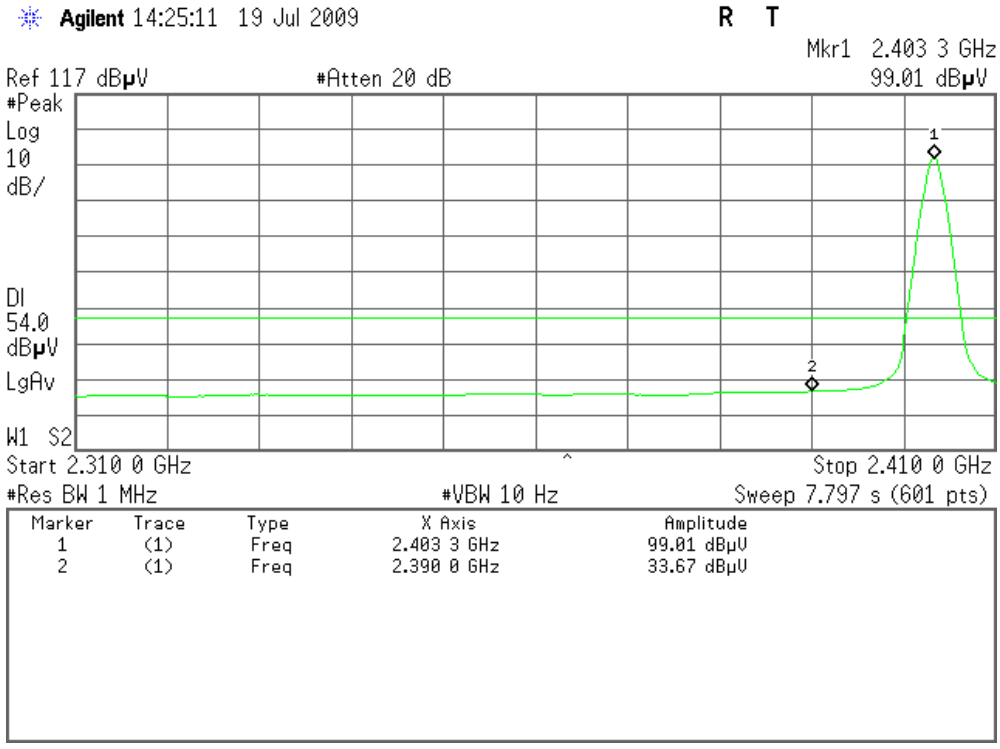
Detector mode: Average **Polarity: Vertical**



Detector mode: Peak **Polarity: Horizontal**

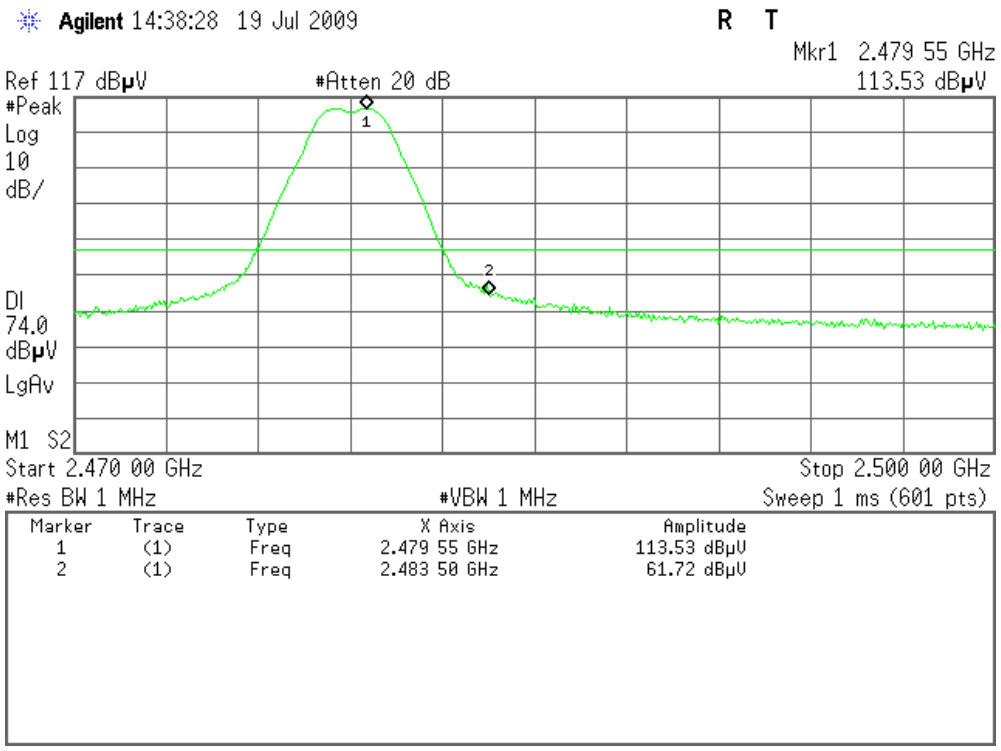


Detector mode: Average **Polarity: Horizontal**

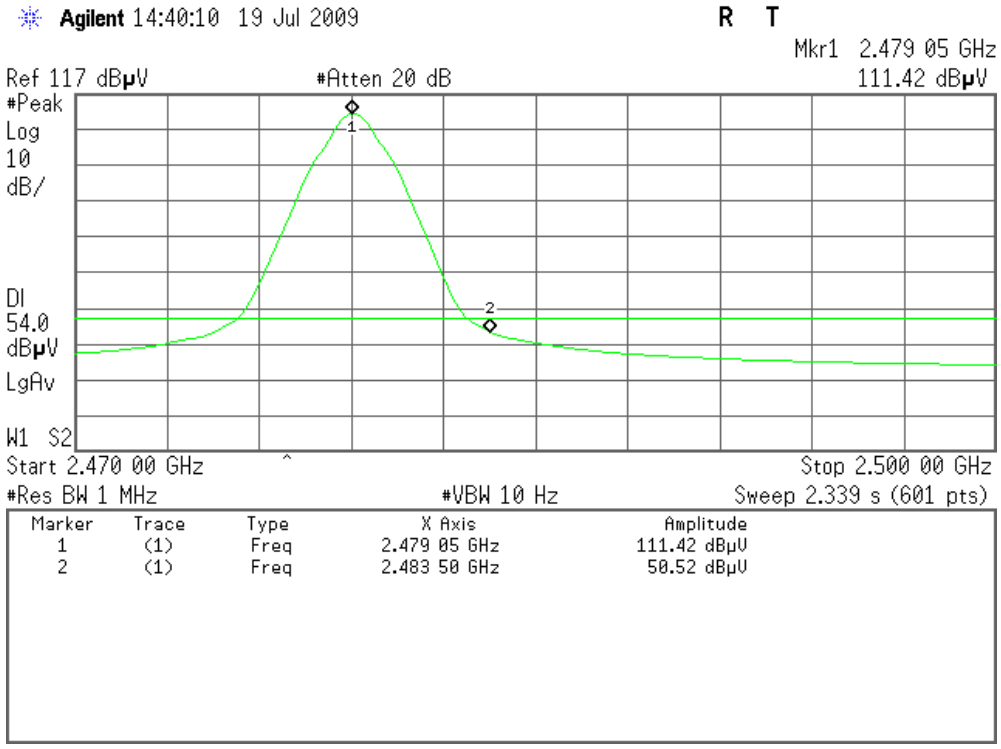


Band Edges (CH-High)

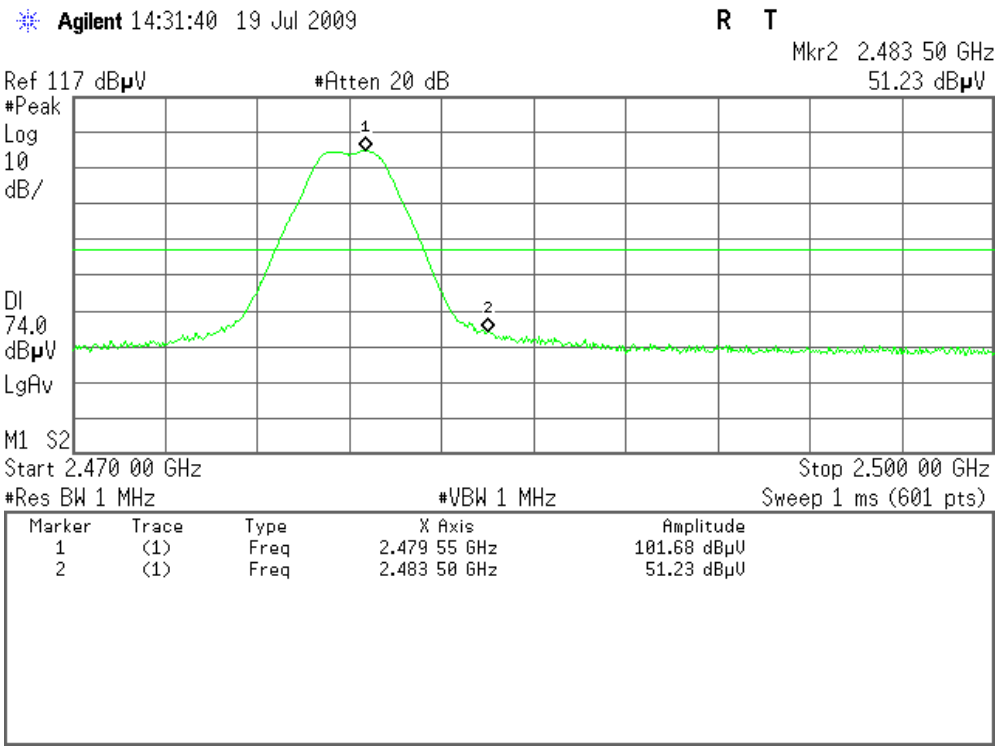
Detector mode: Peak Polarity: Vertical



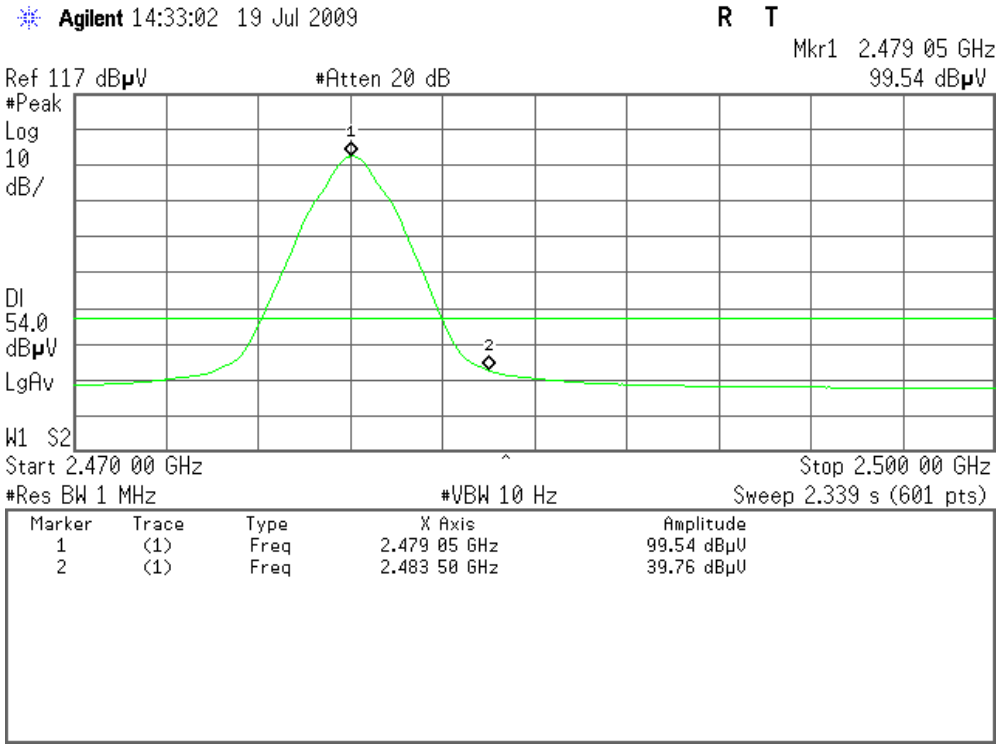
Detector mode: Average Polarity: Vertical



Detector mode: Peak **Polarity: Horizontal**



Detector mode: Average **Polarity: Horizontal**



7.5 FREQUENCY SEPARATION

LIMIT

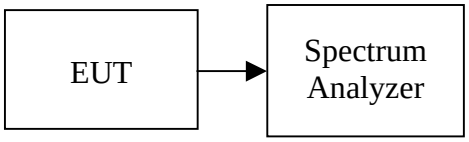
According to §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	02/24/2010
Spectrum Analyzer	R&S	FSP30	1093.4495.30	07/22/2010

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = middle of hopping channel.
4. Set the spectrum analyzer as RBW=100kHz, VBW=100kHz, Adjust Span to 20 MHz, Sweep = auto.
5. Max hold. Mark 3 Peaks of hopping channel and record the 3 peaks frequency.

TEST RESULTS

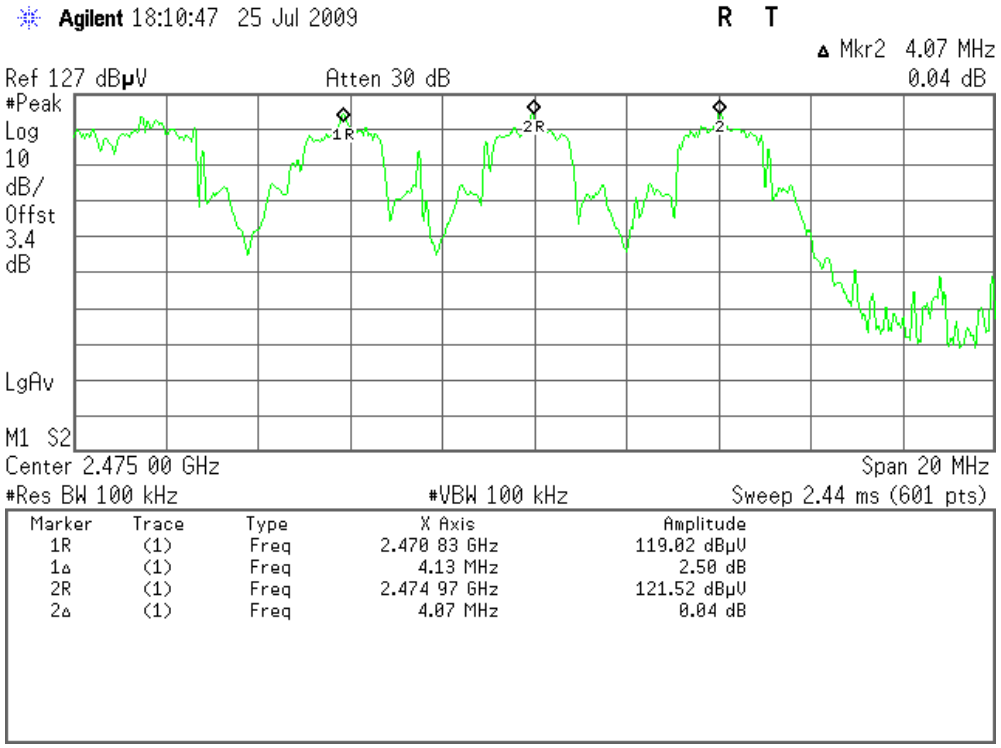
No non-compliance noted

Test Data

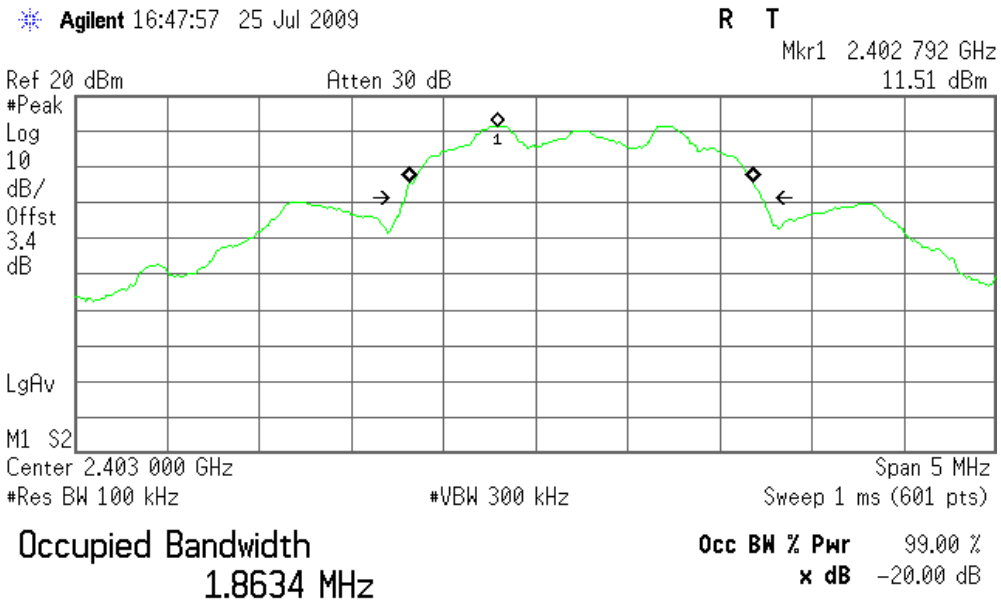
Channel Separation (MHz)	Two-thirds of the 20 dB Bandwidth (kHz)	Channel Separation Limit	Result
4.07	1287	> Two-thirds of the 20 dB Bandwidth	Pass

Test Plot

Measurement of Channel Separation



20 dB bandwidth(CH Low)



7.6 NUMBER OF HOPPING FREQUENCY

LIMIT

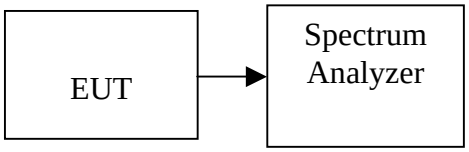
According to §15.247(a)(1)(ii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands shall use at least 15 hopping frequencies.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	02/24/2010

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration



TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set spectrum analyzer Start=2400MHz, Stop = 2483.5MHz, Sweep = 10.08ms.
4. Set the spectrum analyzer as RBW, VBW=100kHz,
5. Max hold, view and count how many channel in the band.

TEST RESULTS

No non-compliance noted

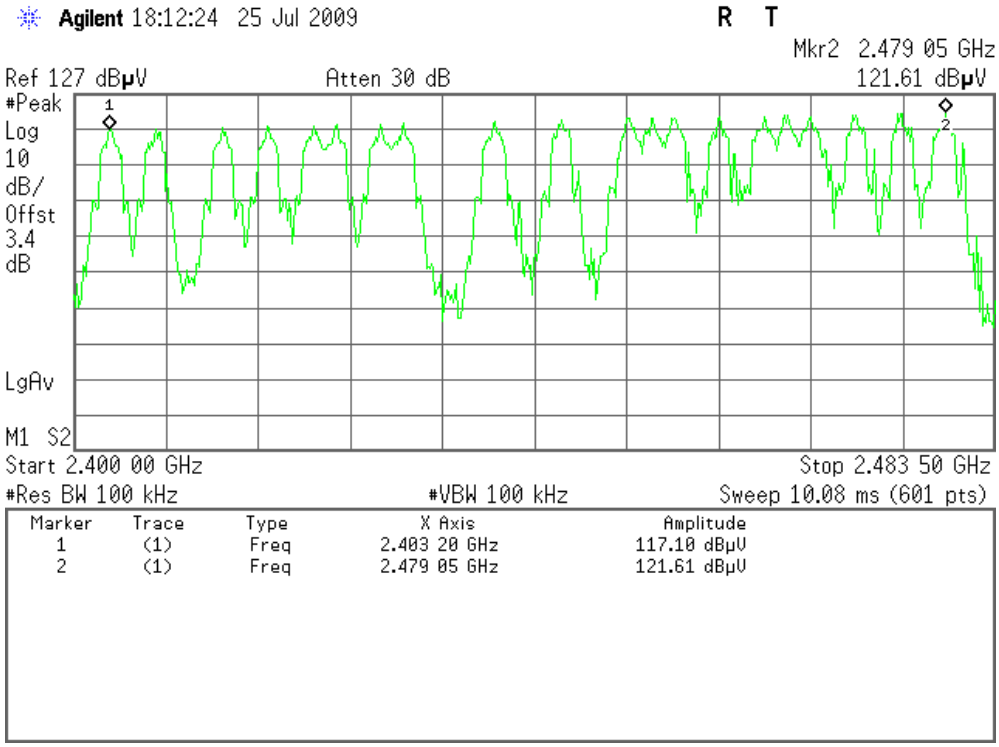
Test Data

Result (No. of CH)	Limit (No. of CH)	Result
20	>15	PASS

Test Plot

Channel Number

2.4 GHz –2.4835 GHz



7.7 TIME OF OCCUPANCY (DWELL TIME)

LIMIT

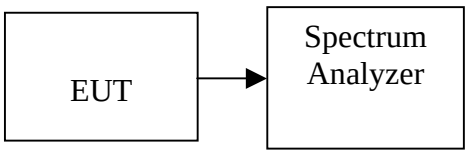
According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands. The average time of occupancy on any channels shall not greater than 0.4 s within a period 0.4 s multiplied by the number of hopping channels employed.

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	02/24/2010

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration



TEST PROCEDURE

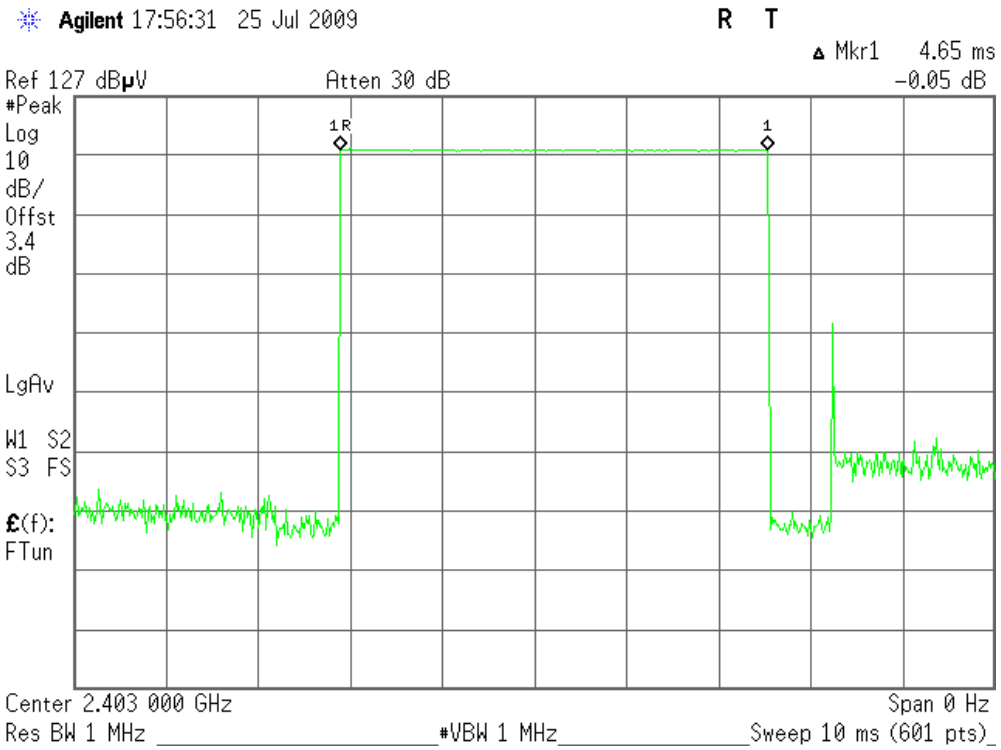
1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz, Sweep = auto.
5. Repeat above procedures until all frequency measured were complete.

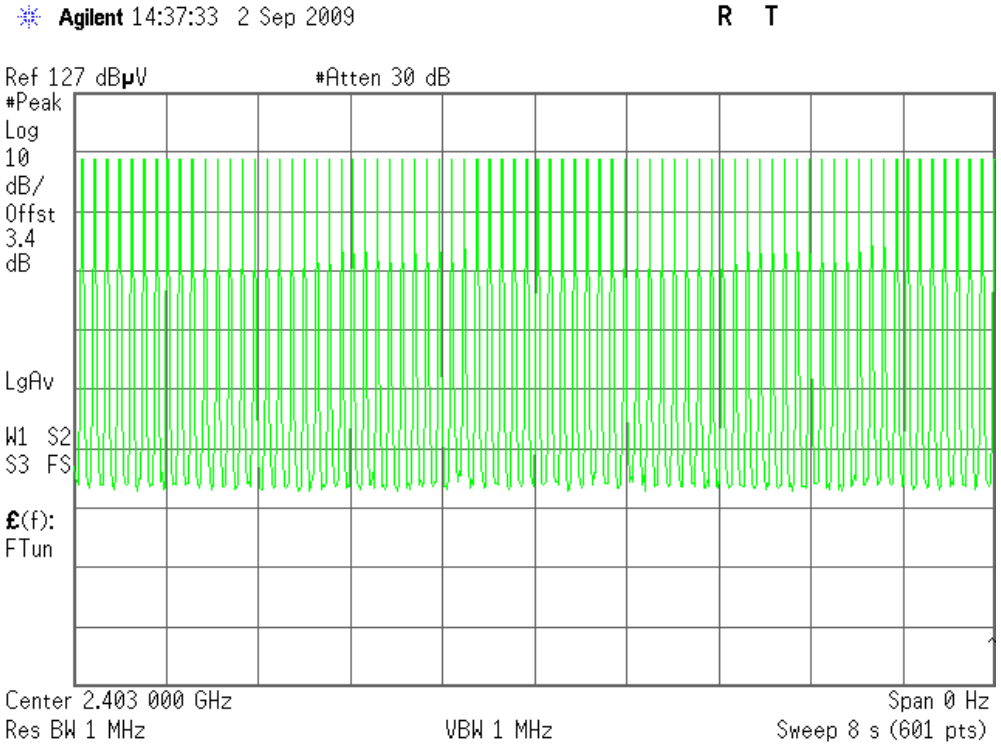
Centered on a single selected hopping channel. The width of a single is measured in a fast scan. The number of pulse is measured in a 4 second scan, to enable resolution of each occurrence.

TEST RESULTS

No non-compliance noted

Test Data





The average time of occupancy in the specified 8 second period (20 channel *0.4s) is equal to 8*(# of pulse in sec.)*pulse width.

Pulse width=4.65ms

#pulse in 8s=75

Time of occupancy=8* (75/8)* 4.65=348.75ms≤400ms

7.8 SPURIOUS EMISSIONS

7.7 Conducted Measurement

LIMIT

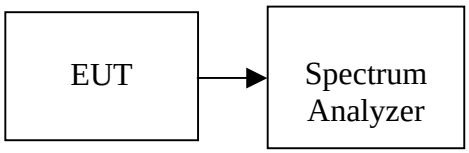
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

MEASUREMENT EQUIPMENT USED

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	US44300399	02/24/2010

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration



TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 KHz. The video bandwidth is set to 100 KHz.

Measurements are made over the 30MHz to 26GHzrange with the transmitter set to the lowest, middle, and highest channels.

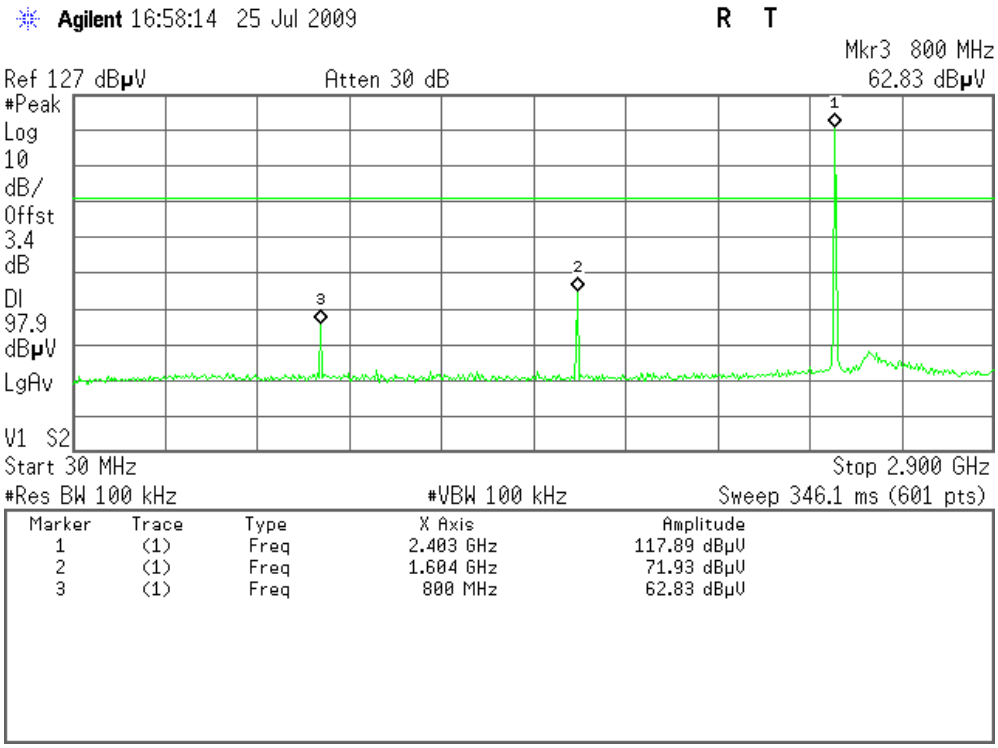
TEST RESULTS

No non-compliance noted

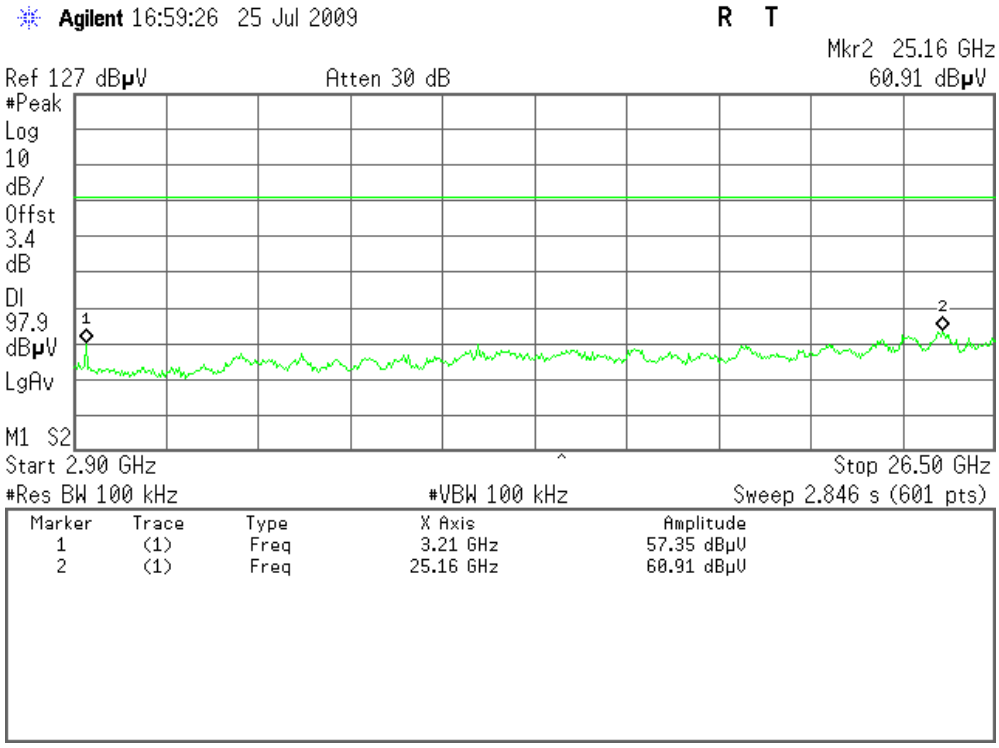
Test Plot

CH Low

30MHz – 2.9GHz

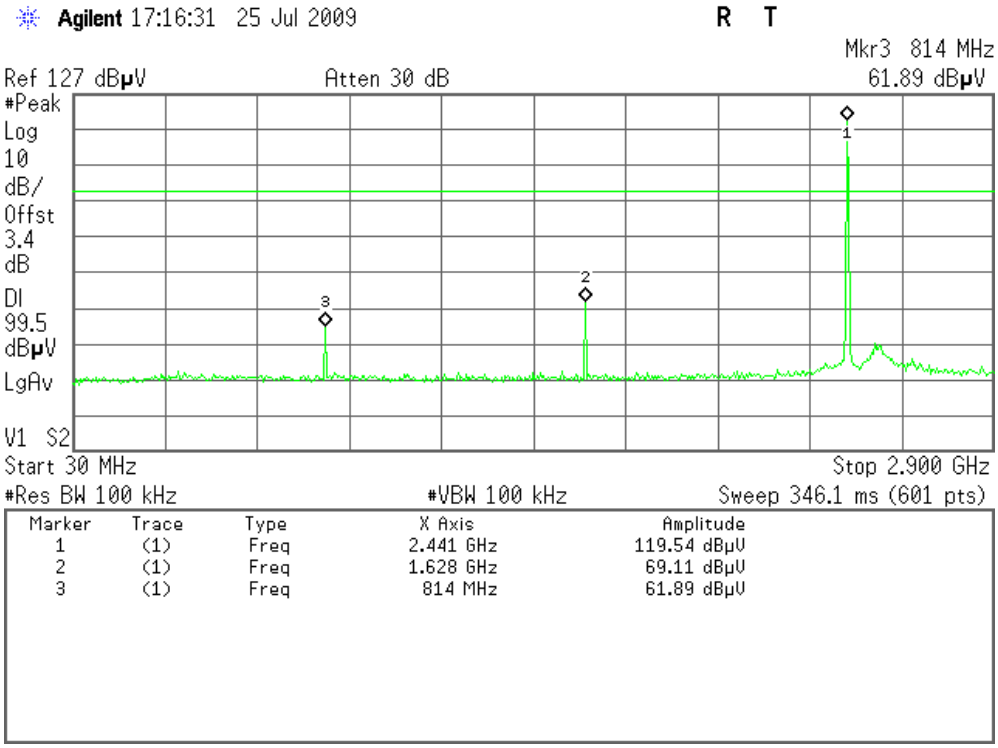


2.9GHz – 26.5GHz

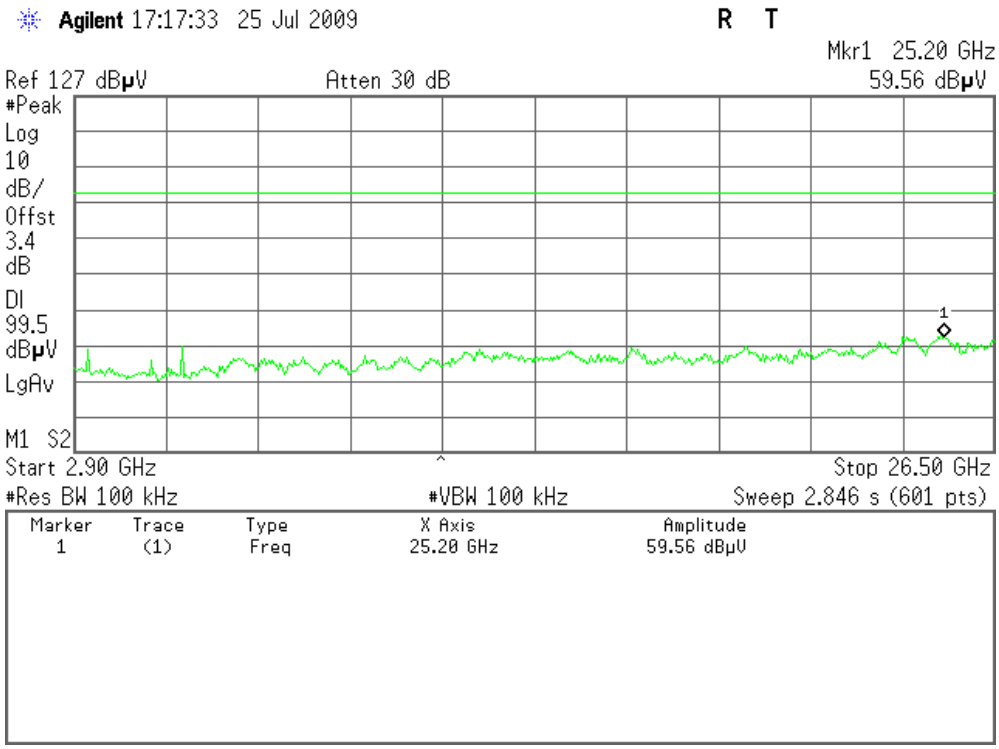


CH Mid

30MHz – 2.9GHz

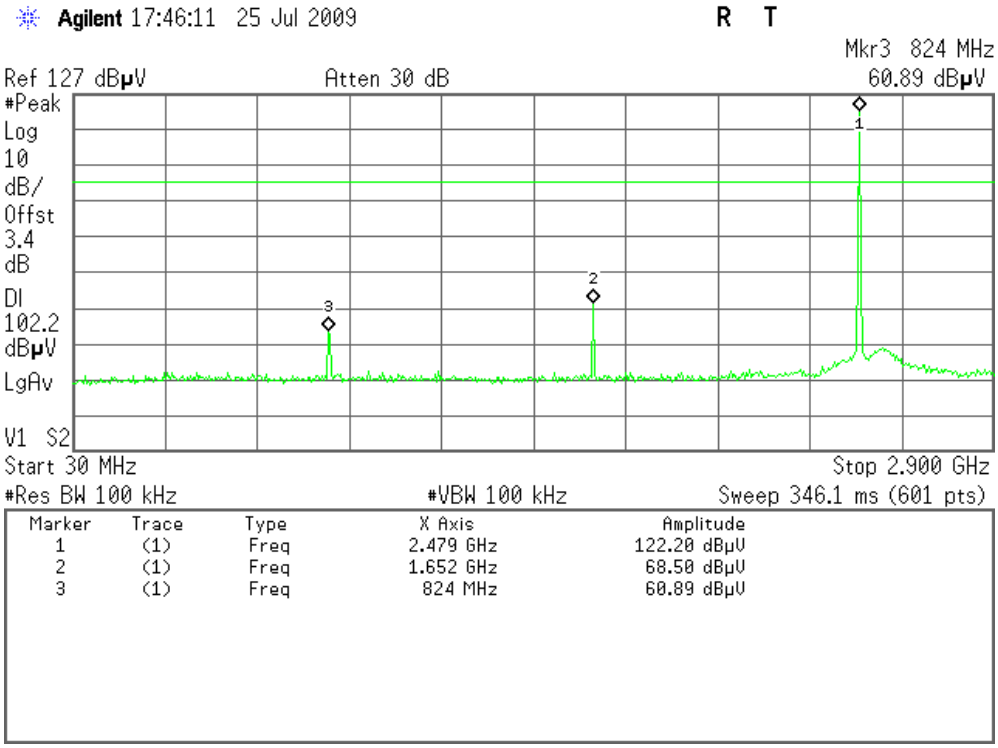


2.9GHz – 26.5GHz

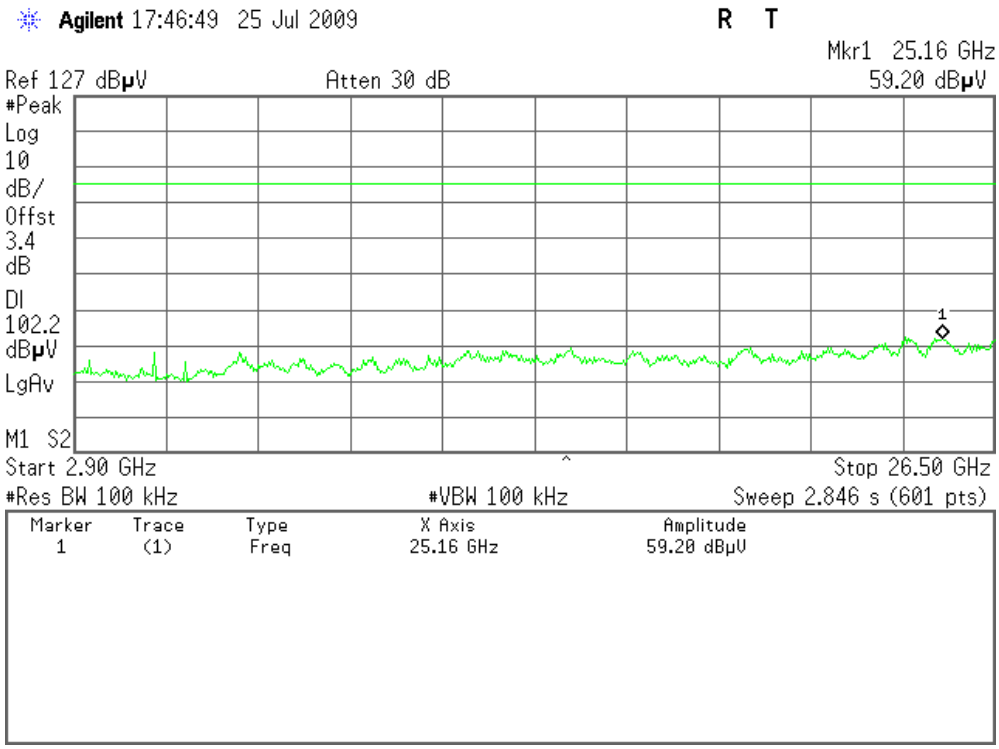


CH High

30MHz – 2.9GHz



2.9GHz – 26.5GHz



7.7.2 Radiated Emissions

LIMIT

1. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

Note: *Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.*

2. In the above emission table, the tighter limit applies at the band edges.

Frequency (Hz)	Field Strength (μV/m at 3-meter)	Field Strength (dBμV/m at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

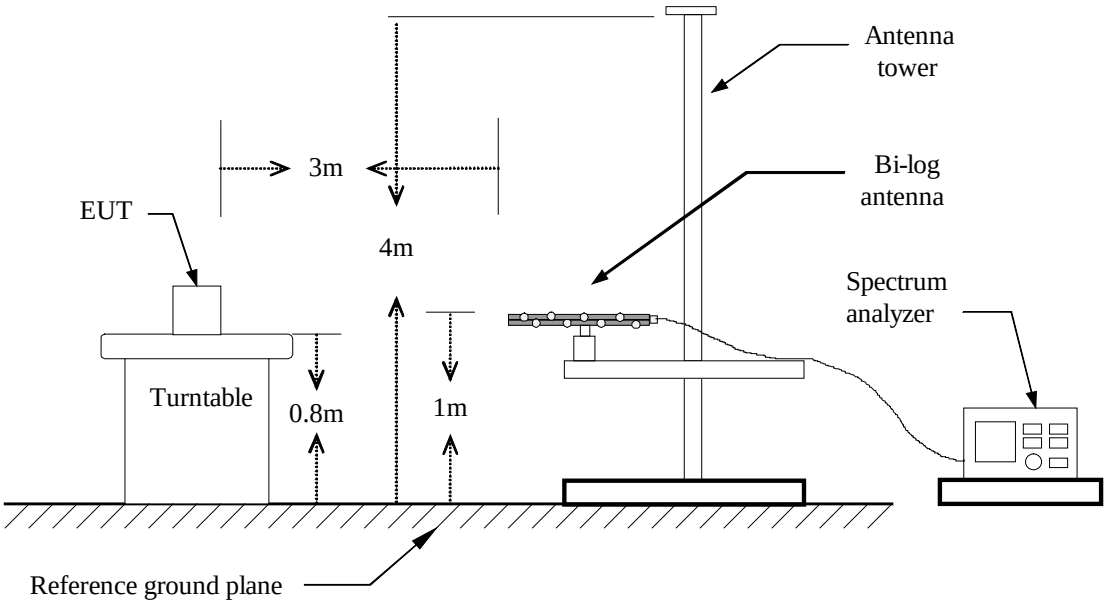
MEASUREMENT EQUIPMENT USED

966 RF CHAMBER (2)					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**Calibration Due**
ESCI EMI TEST RECEIVE.ESCI	ROHDE&SCHWARZ	1166.5950 03	100783	03/20/2009	03/20/2010
Spectrum Analyzer	Agilent	E4446A	US44300399	03/01/2009	03/01/2010
Low Noise Amplifier	MITEQ	AM-1604-3000	1123808	02/06/2009	02/06/2010
Turn Table	EMCO	2081-1.21	N/A	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
High Noise Amplifier	Agilent	8449B	3008A01838	05/29/2009	05/29/2010
Site NSA	C&C	N/A	N/A	N.C.R	N.C.R
BILOG ANTENNA	SCHAFFNER	CBL6143	5082	06/08/2009	06/09/2010
Horn Antenna	SCHAFFNER	BBHA9120D	1201	03/19/2009	03/19/2010
Signal Generator	Anritsu	MG3694A	#050125	03/01/2009	03/01/2010

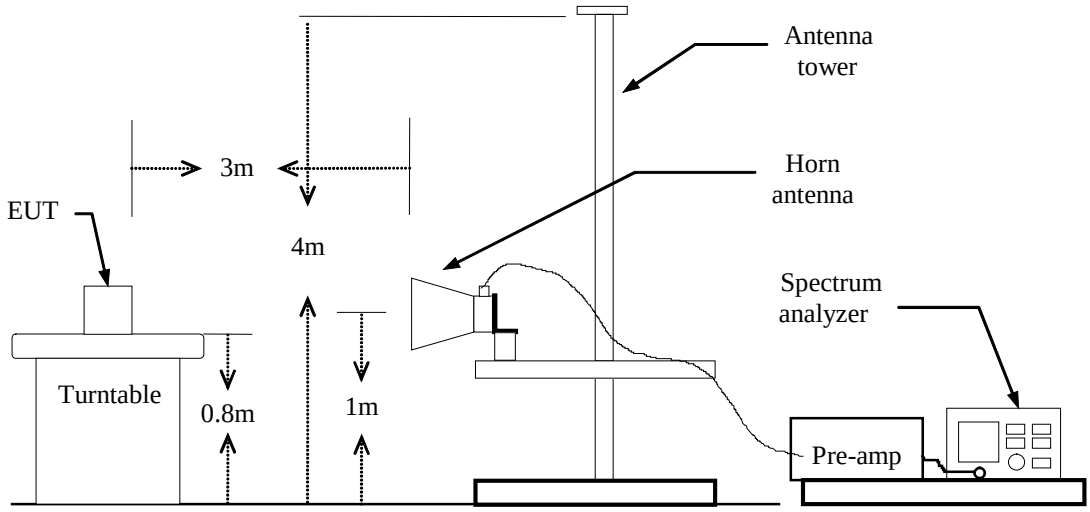
Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration

Below 1 GHz



Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

TEST RESULTS

Below 1 GHz

Operation Mode: Normal Link with AUX **Test Date:** July 29, 2009

Temperature: 25°C **Tested by:** Firetree

Humidity: 60 % RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Ant.Pol. H/V	Detector Mode (PK/Q.P)	Reading (dBuV)	Factor (dB)	Actual FS (dBuV/m)	Limits 3m (dBuV/m)	Safe Margin (dBuV/m)
30.450	V	Peak	41.30	-12.58	28.72	40.00	-11.28
33.600	V	Peak	40.36	-14.64	25.72	40.00	-14.28
73.650	V	Peak	42.41	-20.14	22.27	40.00	-17.73
105.600	V	Peak	46.32	-20.13	26.19	43.50	-17.31
264.900	V	Peak	39.88	-15.95	23.93	46.00	-22.07
365.333	V	Peak	46.10	-12.79	33.31	46.00	-12.69
30.450	H	Peak	42.26	-12.58	29.68	40.00	-10.32
71.850	H	Peak	41.61	-20.07	21.54	40.00	-18.46
133.050	H	Peak	38.11	-19.38	18.73	43.50	-24.77
200.550	H	Peak	38.23	-17.33	20.90	43.50	-22.60
365.333	H	Peak	44.22	-12.79	31.43	46.00	-14.57
434.166	H	Peak	43.00	-10.64	32.36	46.00	-13.64

*****Remark:** No emission found between lowest internal used/generated frequency to 30 MHz.*

Notes:

1. Measuring frequencies from 9kHz to the 1GHz.

2. Radiated emissions measured in frequency range from 30MHz to 1GHz were made with an instrument using Peak/Quasi-peak detector mode.

3. Data of measurement within this frequency range shown " --- " 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.

4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.

Above 1 GHz

Operation Mode: TX(CH Low) **Test Date:** July 29, 2009

Temperature: 25°C **Tested by:** Firetree

Humidity: 60 % RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1443.33	V	56.77	---	-9.73	47.04	---	74.00	54.00	-6.96	Peak
1603.33	V	73.89	51.70	-8.60	65.29	43.10	74.00	54.00	-10.90	AVG
2030.00	V	56.13	---	-5.34	50.79	---	74.00	54.00	-3.21	Peak
4808.33	V	44.62	---	2.65	47.27	---	74.00	54.00	-6.73	Peak
N/A										
1603.33	H	67.21	41.18	-8.60	58.61	32.58	74.00	54.00	-21.42	AVG
1913.33	H	56.32	---	-6.15	50.17	---	74.00	54.00	-3.83	Peak
3200.00	H	53.52	---	-2.44	51.08	---	74.00	54.00	-2.92	Peak
4808.33	H	45.46	---	2.65	48.11	---	74.00	54.00	-5.89	Peak
N/A										

Notes:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
3. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.*
4. *Spectrum setting:*
   a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = 200 ms.
   b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 10Hz, Sweep time = 200 ms.

Operation Mode: TX(CH Mid) **Test Date:** July 29, 2009

Temperature: 25°C **Tested by:** Firetree

Humidity: 60 % RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1630.00	V	71.15	48.66	-8.39	62.76	40.27	74.00	54.00	-13.73	AVG.
1700.00	V	56.72	---	-7.84	48.88	---	74.00	54.00	-5.12	Peak
1950.00	V	56.74	---	-5.86	50.88	---	74.00	54.00	-3.12	Peak
4883.33	V	46.47	---	2.78	49.25	---	74.00	54.00	-4.75	Peak
N/A										
1626.66	H	66.88	44.47	-8.42	58.46	36.05	74.00	54.00	-17.95	AVG.
1933.33	H	57.24	---	-5.99	51.25	---	74.00	54.00	-2.75	Peak
2036.66	H	56.98	---	-5.31	51.67	---	74.00	54.00	-2.33	Peak
4883.33	H	46.33	---	2.78	49.11	---	74.00	54.00	-4.89	Peak
N/A										

Notes:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
3. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.*
4. *Spectrum setting:*
   a. *Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = 200 ms.*
   b. *AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 10Hz, Sweep time = 200 ms.*

Operation Mode: TX(CH High) **Test Date:** July 29, 2009

Temperature: 25°C **Tested by:** Firetree

Humidity: 60 % RH **Polarity:** Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Remark
					Peak (dBuV/m)	AV (dBuV/m)				
1653.33	V	62.78	48.45	-8.21	54.57	40.24	74.00	54.00	-13.76	AVG.
2043.33	V	56.89	---	-5.29	51.60	---	74.00	54.00	-2.40	Peak
2180.00	V	57.22	---	-4.75	51.47	---	74.00	54.00	-2.53	Peak
4958.33	V	44.62	---	2.91	47.53	---	74.00	54.00	-6.47	Peak
N/A										
1353.33	H	56.32	---	-10.23	46.09	---	74.00	54.00	-7.91	Peak
1653.33	H	66.42	40.26	-8.21	58.21	32.05	74.00	54.00	-21.95	AVG.
1916.66	H	56.27	---	-6.12	50.15	---	74.00	54.00	-3.85	Peak
4958.33	H	44.18	---	2.91	47.09	---	74.00	54.00	-6.91	Peak
N/A										

Notes:

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
3. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.*
4. *Spectrum setting:*
   a. Peak Setting 1GHz - 26GHz, RBW = 1MHz, VBW = 1MHz, Sweep time = 200 ms.
   b. AV Setting 1GH z- 26GHz, RBW = 1MHz, VBW = 10Hz, Sweep time = 200 ms.

7.9 POWERLINE CONDUCTED EMISSIONS

LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

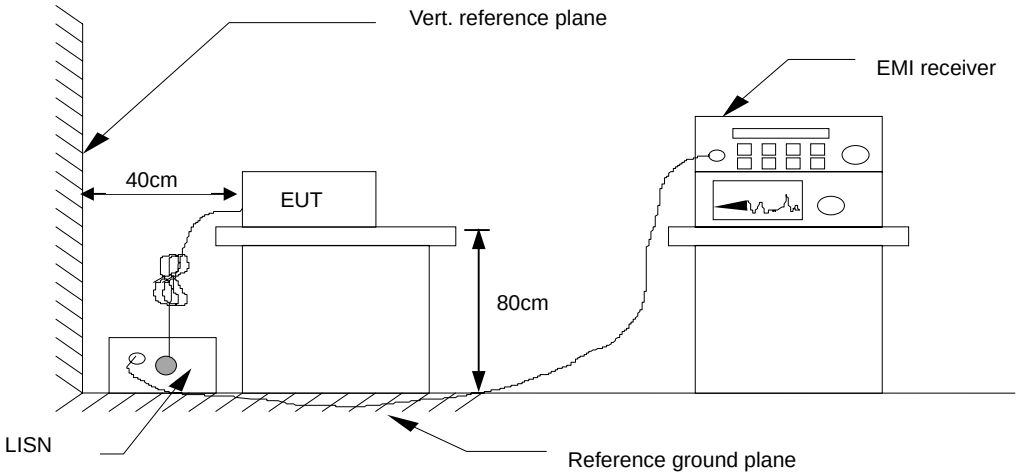
Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

MEASUREMENT EQUIPMENT USED

Conducted Emission Test Site					
EQUIPMENT TYPE	**MFR**	**MODEL NUMBER**	**SERIAL NUMBER**	**LAST CAL.**	**CAL. DUE**
ESCI EMI TEST RECEIVE.ESCI	ROHDE&SCHWARZ	1166.5950 03	100145	03/20/2009	03/20/2010
LISN	FCC	FCC-LISN-50-50-2-M	01068	03/01/2009	03/01/2010
LISN	EMCO	3825/2	8901-1459	03/01/2009	03/01/2010
CDN	FCC	FCC-TILISN-T4	20182	03/01/2009	03/01/2010
CDN	FCC	FCC-TLISN-T8-02	20183	03/01/2009	03/01/2010
CDN	FCC	FCC-TLISN-T4-02	20382	03/01/2009	03/01/2010
CDN	FCC	FCC-TLISN-T4-02	20383	03/01/2009	03/01/2010
CDN	FCC	FCC-801-T8-RJ45	04030	03/01/2009	03/01/2010
Current Probe	STODDART AIRCRAFT	91550-1	345-73	03/01/2009	03/01/2010

Remark: *Each piece of equipment is scheduled for calibration once a year.*

Test Configuration



See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

Test Data

Model No.	EOS-C200-RX	**Test Mode**	Normal Link with AUX
Environmental Conditions	25°C,60% RH, 990 hPa	**RBW,VBW**	9 KHz
Tested by	Firetree		

(The chart below shows the highest readings taken from the final data.)

FREQ MHz	PEAK RAW dBuV	Q.P. RAW dBuV	AVG RAW dBuV	Q.P. Limit dBuV	AVG Limit dBuV	Q.P. Margin dB	AVG Margin dB	NOTE
0.253	48.59	42.10	30.34	63.03	53.03	-20.93	-22.69	L1
0.342	49.63	45.09	29.93	60.49	50.49	-15.40	-20.56	L1
0.431	46.12	42.09	28.92	57.95	47.95	-15.86	-19.03	L1
0.643	45.54	40.45	24.92	56.00	46.00	-15.55	-21.08	L1
1.202	45.80	41.47	27.47	56.00	46.00	-14.53	-18.53	L1
2.048	44.76	40.06	25.71	56.00	46.00	-15.94	-20.29	L1
0.279	53.86	47.16	31.24	62.29	52.29	-15.13	-21.05	L2
0.342	50.54	46.16	28.30	60.49	50.49	-14.33	-22.19	L2
0.491	47.92	42.27	25.83	56.25	46.25	-13.98	-20.42	L2
1.206	46.92	40.98	24.95	56.00	46.00	-15.02	-21.05	L2
1.951	45.61	39.42	23.77	56.00	46.00	-16.58	-22.23	L2
2.905	43.93	35.26	20.13	56.00	46.00	-20.74	-25.87	L2

Remark:

1. *The measuring frequencies range between 0.15 MHz and 30 MHz.*
2. *The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.*
3. *"---" denotes the emission level was or more than 2dB below the Average limit, and no re-check was made.*
4. *The IF bandwidth of SPA between 0.15MHz and 30MHz was 10KHz. The IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9kHz.*
5. *L1 = Line One (Live Line) / L2 = Line Two (Neutral Line)*

Note:

Freq. = Emission frequency in MHz
RAW dBuV = Uncorrected Analyzer/Received Reading +INSERTION LOSS of LISN+CABLE LOSS+pulse limiter loss
Q.P. Limit dBuV = Limit stated in standard
AVG Limit dBuV = Limit stated in standard
Q.P. Margin dB = Q.P. RAW (dBuV) –Q.P. Limit (dBuV)
AVG Margin dB = AVG RAW (dBuV) –AVG Limit (dBuV)
Note = Current carrying line of reading
Q.P.: =Quasi-Peak