



Hong Kong

FCC - TEST REPORT

Report Number : **60/790.13.024.01**
(Revision 2.0) Date of Issue: 04th December 2013

Model : **Y-400Xh**

Product Type : **Wireless Gaming Headset Controller**

Applicant : **Guillemot Corporation S.A.**

Address : **Place du Granier, B.P 97143, Chantepie, 35171, France**

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including
Appendices : 50

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Hong Kong

2. Details about the Test Laboratory

Details about the Test Laboratory

Test site 1:

Company name: TÜV SÜD HONG KONG LTD.
3/F, West Wing, Lakeside 2,
10 Science Park West Avenue,
Science Park, Shatin
HK.

Telephone: 852 2776 1323

Fax: 852 2776 1372

Test site 2:

Company name: Global United Technology Service Co., Ltd.
2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road, Baoan
District, Shenzhen, China

3. Description of the Equipment Under Test

Description of the Equipment Under Test

Product: Wireless Gaming Headset and controller

Model no.: Y-400XH

Serial number: NIL

Options and accessories: USB cable

Rated Voltage: 3.7VDC – 1 x 3.7V rechargeable battery

Rated Current: NIL

Rated Power: NIL

Frequency: NIL

Modulation type: shaped-8FSK

Antenna gain: Antenna 1 3.98 dBi
Antenna 2 3.35 dBi

RF Transmission
Frequency: 2406MHz-2474MHz

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
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4. Summary of Test Standards

Test Standards	
FCC Part 15 Subpart C, Intentional Radiators, 10-1-12 Edition	PART 15 – RADIO FREQUENCY DEVICES Subpart C – Intentional Radiators

5. Summary of Test Results

Technical Requirements					
FCC Part 15 Subpart C					
Test Condition	Pages	Test site	Test Result		
			Pass	Fail	N/A
15.207 Conducted Emission AC Power Port	N/A	N/A	☒	☐	☐
15.247 (b) (1) Conducted peak output power	12	Site 2	☒	☐	☐
15.247(d) Band edge compliance of RF emissions	14	Site 2	☒	☐	☐
15.247(d) Spurious RF conducted emissions	23	Site 2	☒	☐	☐
15.247(d) & 15.209 Spurious radiated emissions for transmitter	30	Site 2	☒	☐	☐
15.247(a)(2) 6dB bandwidth	37	Site 2	☒	☐	☐
15.247(e) Power spectral density	44	Site 2	☒	☐	☐

6. General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: NAM4460089H complies with Section, 15.209, 15.247 of the FCC Part 15.

All the configurations of the product were tested and only the worst test results listed in the report.

SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

□ - **Not** Performed

The Equipment Under Test

■ - **Fulfills** the general approval requirements.

□ - **Does not** fulfill the general approval requirements.

Sample Received Date: 21st May 2013

Testing Start Date: 21st May 2013

Testing 1 End Date: 30th May 2013

Testing 2 End Date: 3th Dec 2013

- TÜV SÜD HONG KONG LTD. -

Reviewed by:



Edmond FUNG



Prepared by:



Chan Kwong Ngai

7. Technical Requirement

7.1 Conducted Emission Test 150kHz – 30MHz

Date of test : 03th Dec 2013
 Test Site : 1
 Operating mode : Charging while wireless connected
 Tested on : Charging mode of Y400CPX line – Neutral
 Job record : 12208B01.PK
 Tested by : Chan Kwong
 Remarks : 120VAC 60Hz from a USB power adapter

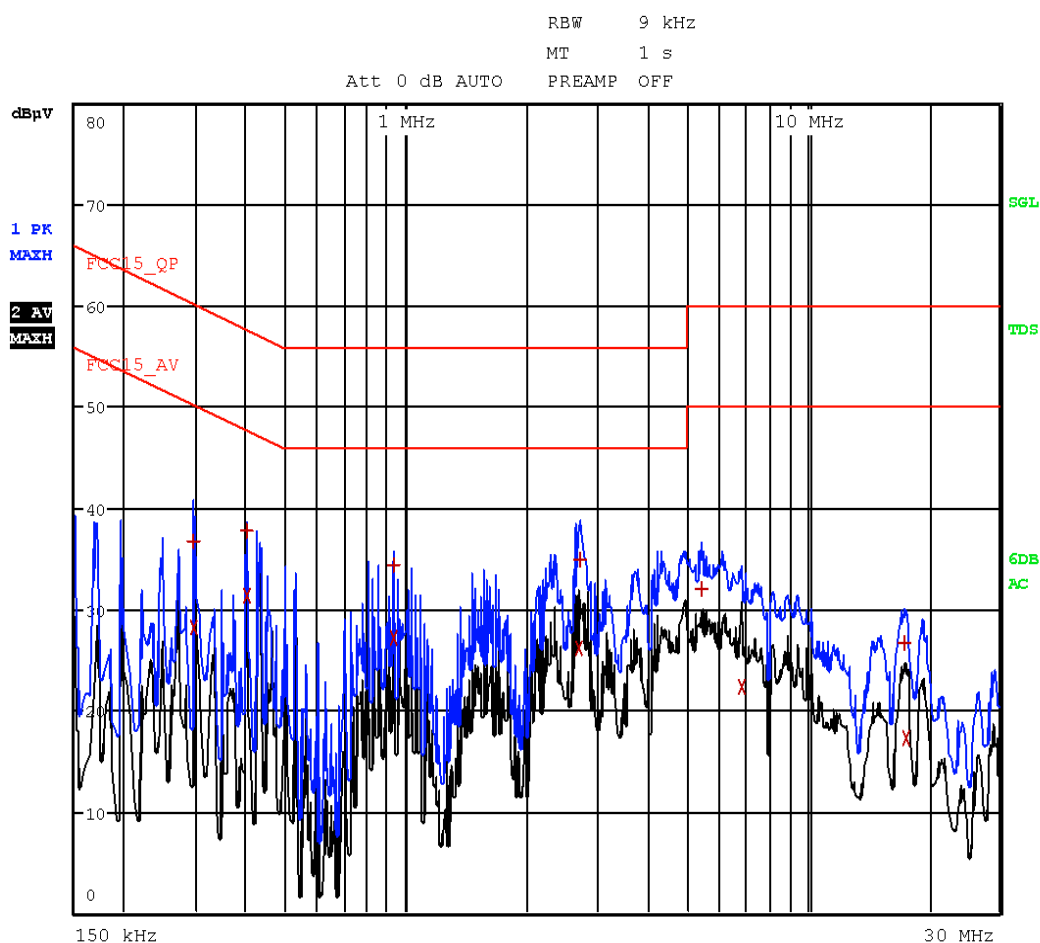
Test Result

☒ Passed
☐ Not Passed

Stepped Scan (1 Range)

Scan Start: 150 kHz
 Scan Stop: 30 MHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: CON_EMI

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	1 ms	Auto	0 dB	INPUT2



Job record

12208B01.PK

Final Measurement

Meas Time: 1 s
Margin: 30 dB
Subranges: 12

Trace	Frequency	Level (dB μ V)	Detector	Delta Limit/dB
1	294.000000000 kHz	36.66	Quasi Peak	-23.75
2	294.000000000 kHz	28.20	Average	-22.21
1	398.000000000 kHz	37.76	Quasi Peak	-20.14
2	398.000000000 kHz	31.28	Average	-16.62
1	930.000000000 kHz	34.29	Quasi Peak	-21.71
2	930.000000000 kHz	27.10	Average	-18.90
2	2.694000000 MHz	26.20	Average	-19.80
1	2.714000000 MHz	34.83	Quasi Peak	-21.17
1	5.430000000 MHz	32.02	Quasi Peak	-27.98
2	6.846000000 MHz	22.28	Average	-27.72
1	17.438000000 MHz	26.63	Quasi Peak	-33.37
2	17.514000000 MHz	17.28	Average	-32.72

Conducted Emission Test 150kHz – 30MHz

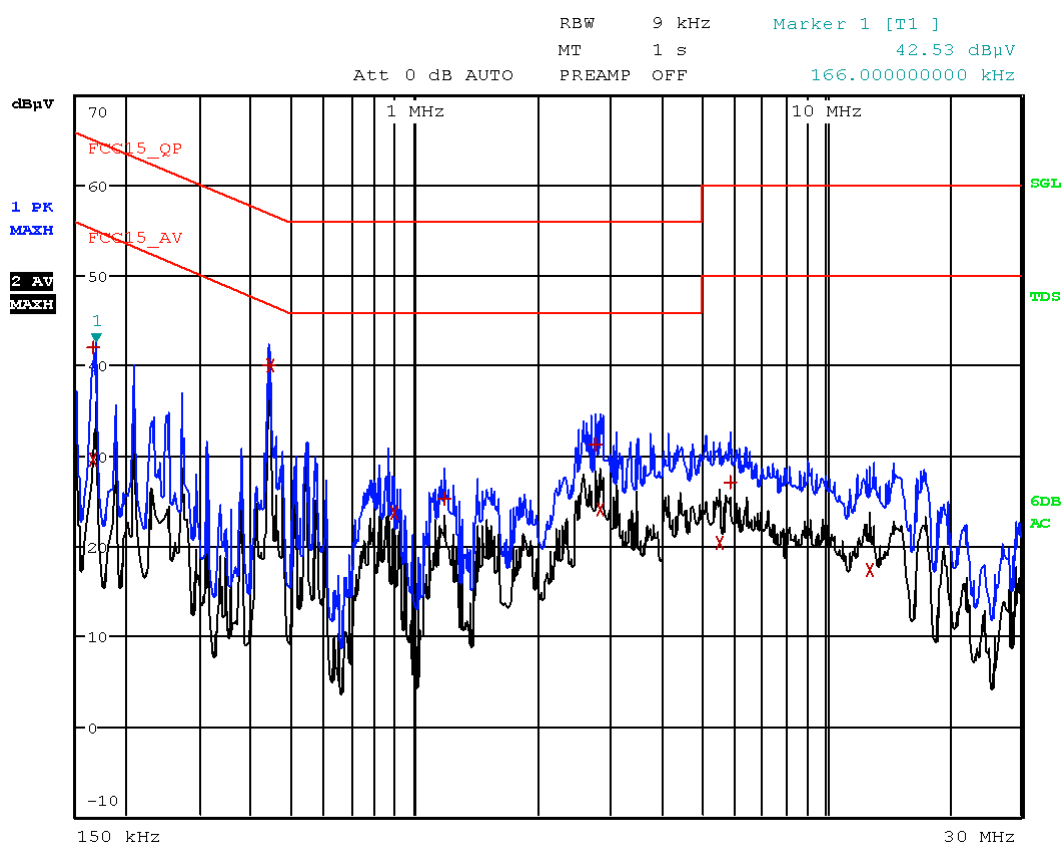
Date of test : 03th Dec 2013
 Test Site : 1
 Operating mode : Charging while wireless connected
 Tested on : Charging mode of Y400CPX line – Live
 Job record : 12208B02.PK
 Tested by : Chan Kwong
 Remarks : 120VAC 60Hz from a USB power adapter

Test Result	
☒	Passed
☐	Not Passed

Stepped Scan (1 Range)

Scan Start: 150 kHz
 Scan Stop: 30 MHz
 Detector: Trace 1: MAX PEAK Trace 2: Average
 Transducer: CON_EMI

Start Frequency	Stop Frequency	Step Size	Res BW	Meas Time	RF Atten	Preamp	Input
150.000000 kHz	30.000000 MHz	4.00 kHz	9.00 kHz	1 ms	Auto	0 dB	INPUT2



Job record

12208B02.PK

Final Measurement

Meas Time: 1 s
Margin: 30 dB
Subranges: 11

Trace	Frequency	Level (dB μ V)	Detector	Delta Limit/dB
1	166.000000000 kHz	41.93	Quasi Peak	-23.22
2	166.000000000 kHz	29.55	Average	-25.61
1	438.000000000 kHz	40.04	Quasi Peak	-17.06
2	442.000000000 kHz	40.08	Average	-6.94
2	886.000000000 kHz	23.73	Average	-22.27
1	1.174000000 MHz	25.21	Quasi Peak	-30.79
1	2.758000000 MHz	31.22	Quasi Peak	-24.78
2	2.830000000 MHz	23.96	Average	-22.04
2	5.522000000 MHz	20.29	Average	-29.71
1	5.858000000 MHz	27.02	Quasi Peak	-32.98
2	12.802000000 MHz	17.35	Average	-32.65

7.2 Conducted peak output power

Test Method

The transmitter output connected to the Spectrum analyzer and set to the peak power detection.

Limits for conducted peak output power measurements

Frequency Range MHz	Limit W	Limit dBm
2400-2483.5	≤ 1.0	≤ 30.0

Conducted peak output power

Date of test : 28th May 2013
Test Site : 2
Remarks : NIL

Test Result
☒ Passed
☐ Not Passed

Antenna 1

Type	Channel		
	2406 MHz	2442 MHz	2474 MHz
shaped-8FSK	1.21 dBm	0.58 dBm	0.57 dBm

Antenna 2

Type	Channel		
	2406 MHz	2442 MHz	2474 MHz
shaped-8FSK	1.00 dBm	0.51 dBm	0.58 dBm

7.3 Band edge Measurement

Test Method

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.4 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW and VBW to 1MHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength.

The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW and VBW to 100kHz, to measure the conducted peak band edge.

Limits

According to §15.247(d), in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum 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, provided the transmitter demonstrates compliance with the peak conducted power limits. 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 in 15.209(a) (see Section 15.205(c)).

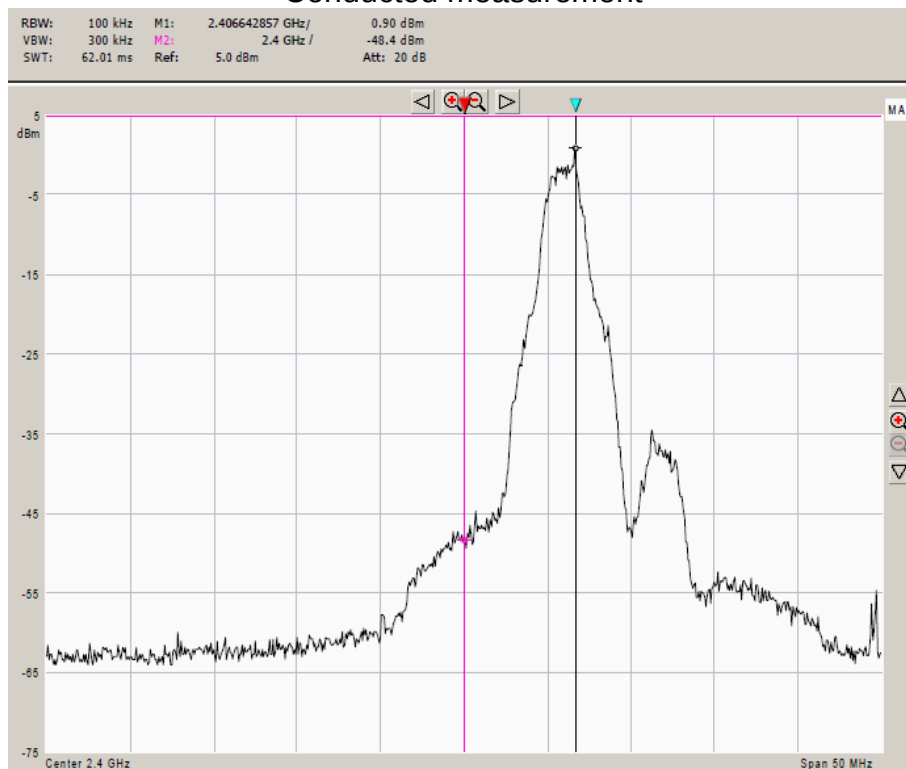
Frequency MHz	Limit Average dBuV/m	Limit Peak dBuV/m
Below 2390 Above 2483.5	54	74

Band edge Measurement

Date of test : 28th May 2013
 Test Site : 2
 Remarks : Antenna 1

Test Result
☒ Passed
☐ Not Passed

Conducted measurement



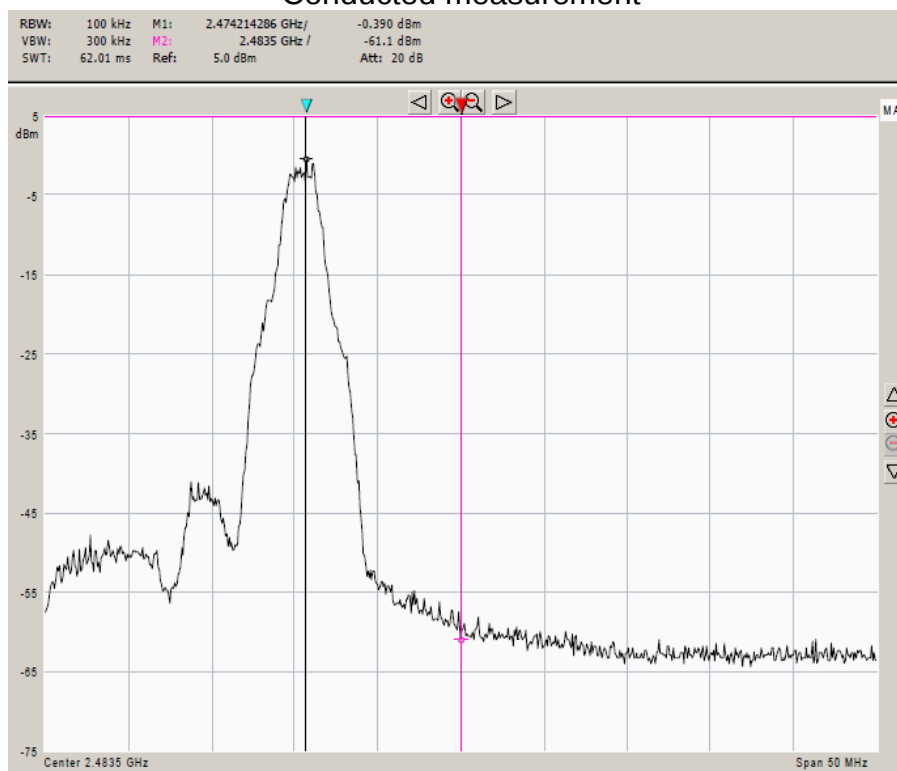
Frequency (MHz)	Reading (dBm)	Limit (-20dBc)	Margin (dB)
2400.000	-48.4	-20.90	-27.50
2406.642	0.90	-	-

Band edge Measurement

Date of test : 28th May 2013
Test Site : 2
Remarks : Antenna 1

Test Result
☒ Passed
☐ Not Passed

Conducted measurement



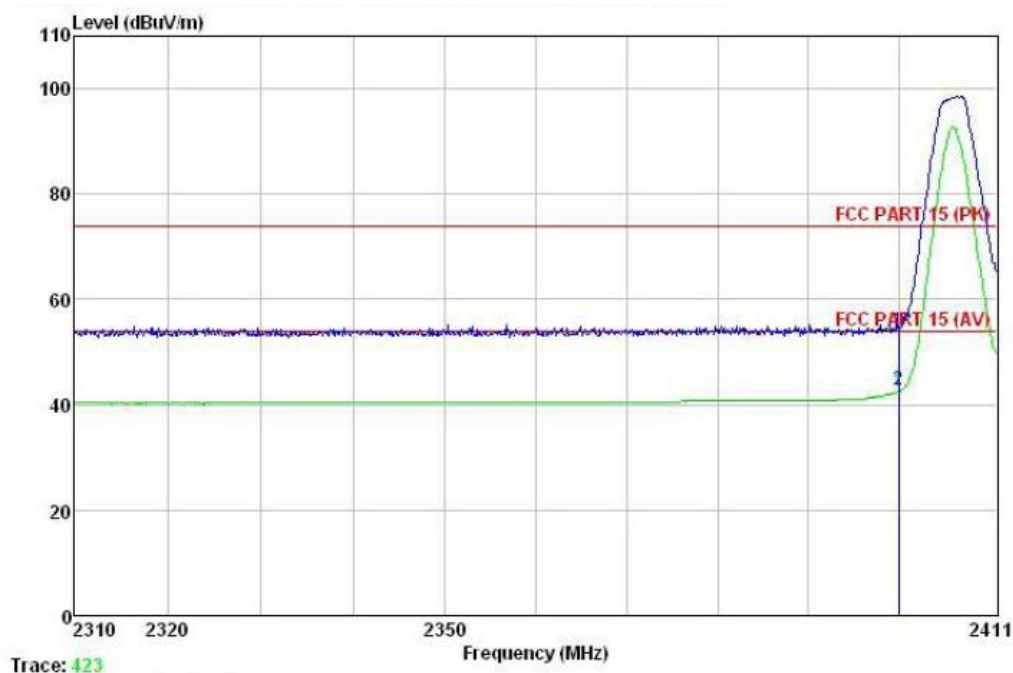
Frequency (MHz)	Reading (dBm)	Limit (-20dBc)	Margin (dB)
2474.214	-0.39	-	-
2483.500	-61.6	-20.39	-41.21

Band edge Measurement

Date of test : 28th May 2013
 Test Site : 2
 Remarks : Antenna 1

Test Result
☒ Passed
☐ Not Passed

Radiated measurement



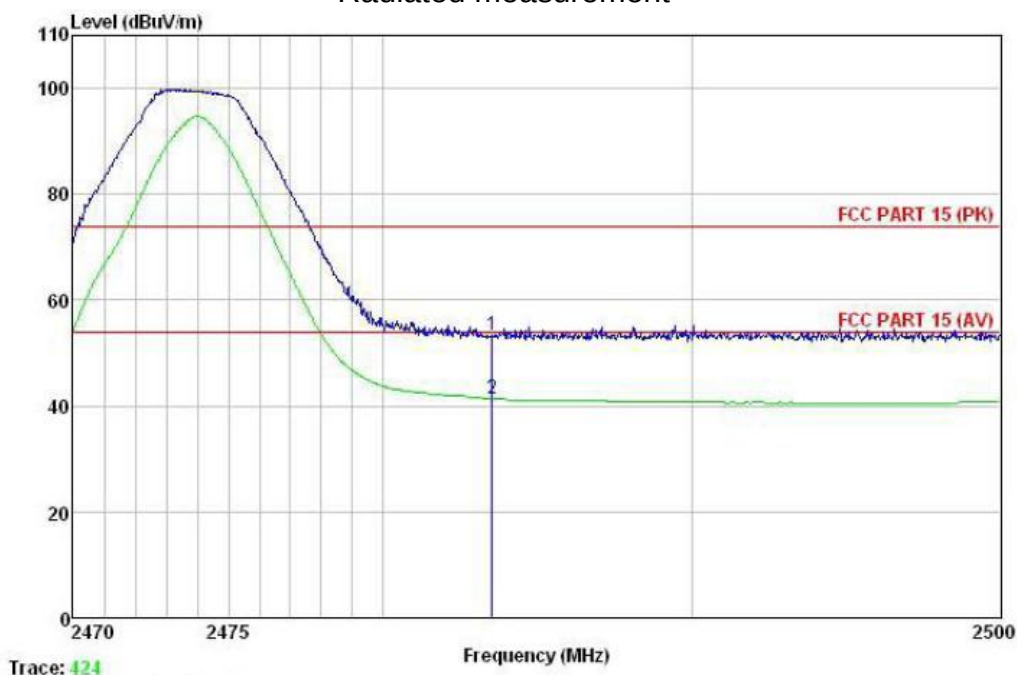
Frequency (MHz)	Reading (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
2400.000	53.89	74.0	-20.11	PK
2400.000	42.89	54.0	-11.11	AV

Band edge Measurement

Date of test : 28th May 2013
 Test Site : 2
 Remarks : Antenna 1

Test Result
☒ Passed
☐ Not Passed

Radiated measurement



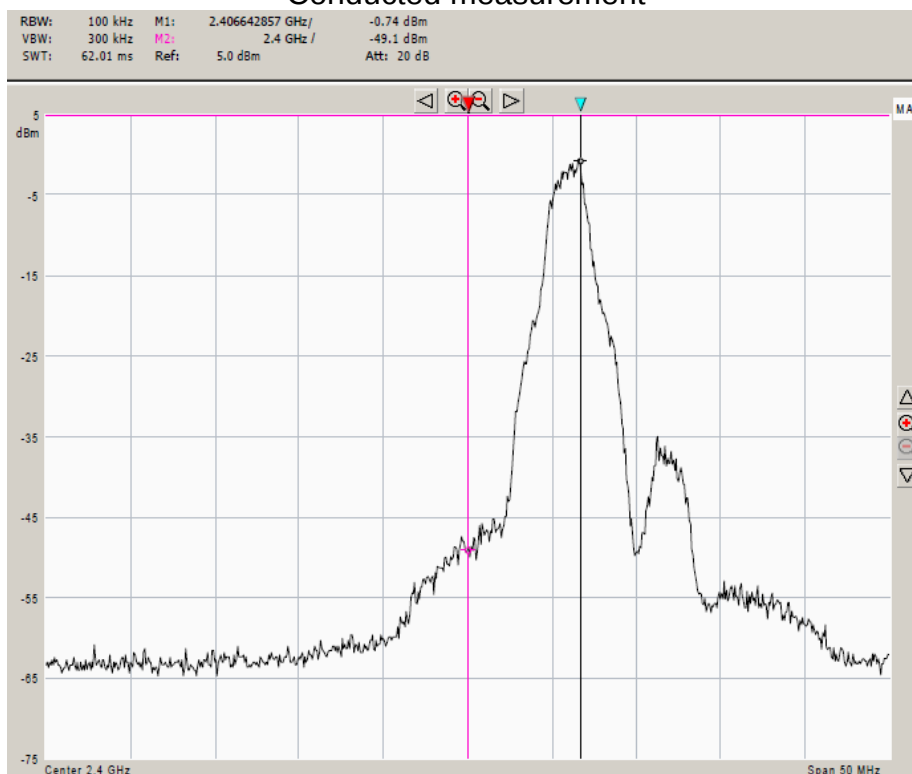
Frequency (MHz)	Reading (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
2483.500	53.41	74.0	-20.59	PK
2483.500	41.37	54.0	-12.63	AV

Band edge Measurement

Date of test : 28th May 2013
 Test Site : 2
 Remarks : Antenna 2

Test Result
☒ Passed
☐ Not Passed

Conducted measurement



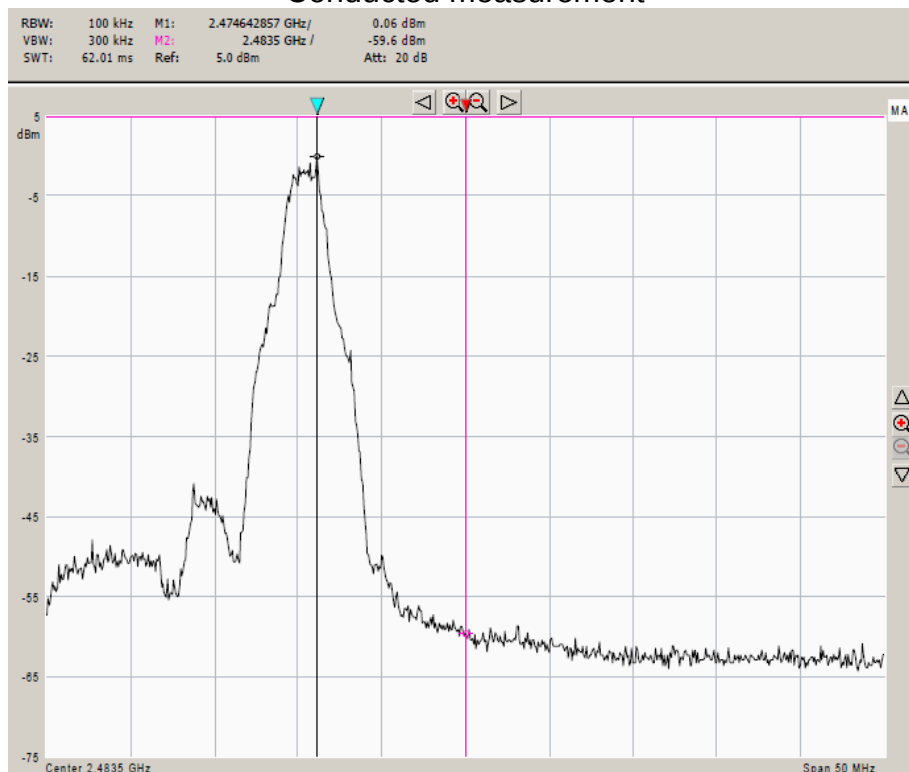
Frequency (MHz)	Reading (dBm)	Limit (-20dBc)	Margin (dB)
2400.000	-49.1	-20.74	-28.36
2406.624	-0.74	-	-

Band edge Measurement

Date of test : 28th May 2013
 Test Site : 2
 Remarks : Antenna 2

Test Result
☒ Passed
☐ Not Passed

Conducted measurement



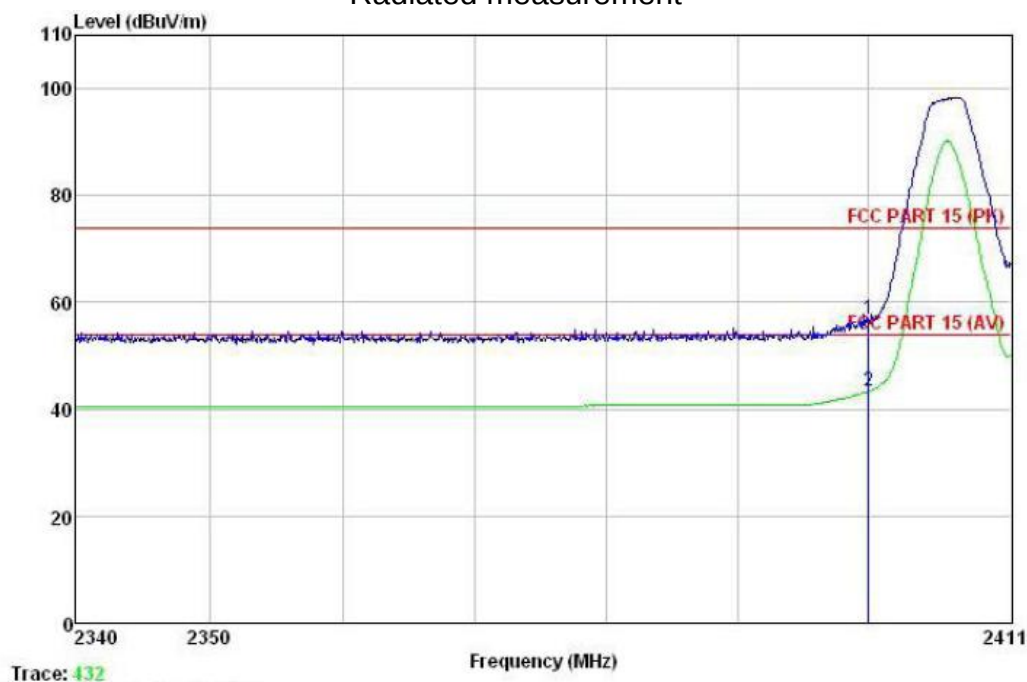
Frequency (MHz)	Reading (dBm)	Limit (-20dBc)	Margin (dB)
2474.642	0.06	-	-
2483.500	-59.6	-20.06	-39.54

Band edge Measurement

Date of test : 28th May 2013
 Test Site : 2
 Remarks : Antenna 2

Test Result
☒ Passed
☐ Not Passed

Radiated measurement



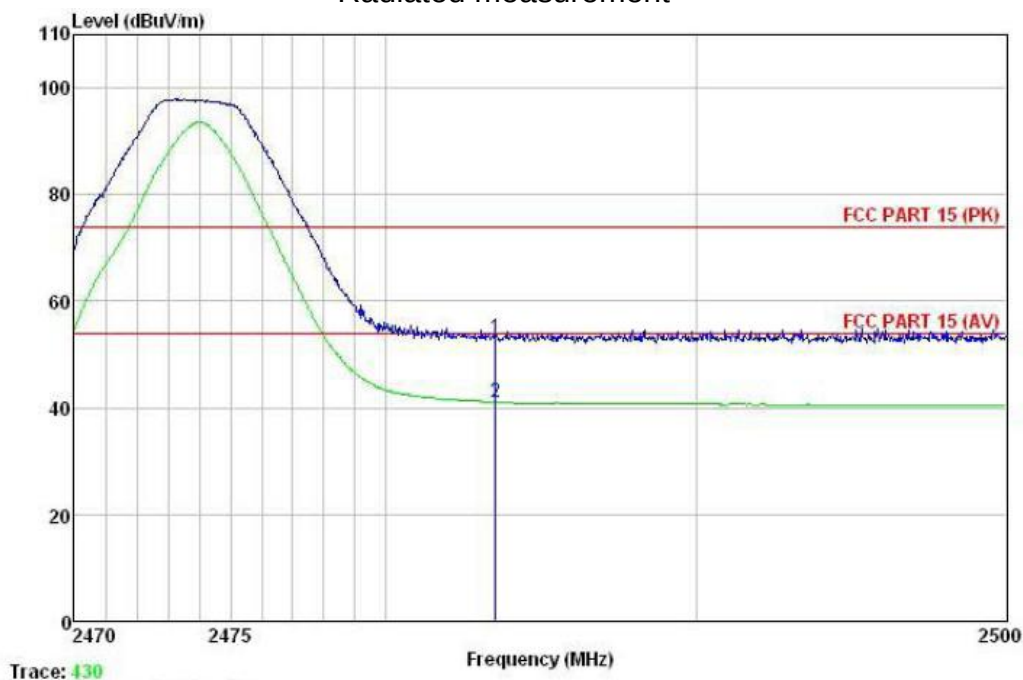
Frequency (MHz)	Reading (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
2400.000	56.78	74.0	-17.22	PK
2400.000	43.29	54.0	-10.71	AV

Band edge Measurement

Date of test : 28th May 2013
 Test Site : 2
 Remarks : Antenna 2

Test Result
☒ Passed
☐ Not Passed

Radiated measurement



Frequency (MHz)	Reading (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Detector
2483.500	53.10	74.0	-20.90	PK
2483.500	41.08	54.0	-12.92	AV

7.4 Spurious RF conducted emissions

Test Method

The transmitter output is connected to the Spectrum analyzer. The Spectrum analyzer is set to the peak power detection.

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 resolution bandwidth(RBW) and the video bandwidth (VBW) of the spectrum analyzer were respectively set to 100kHz and 100kHz.

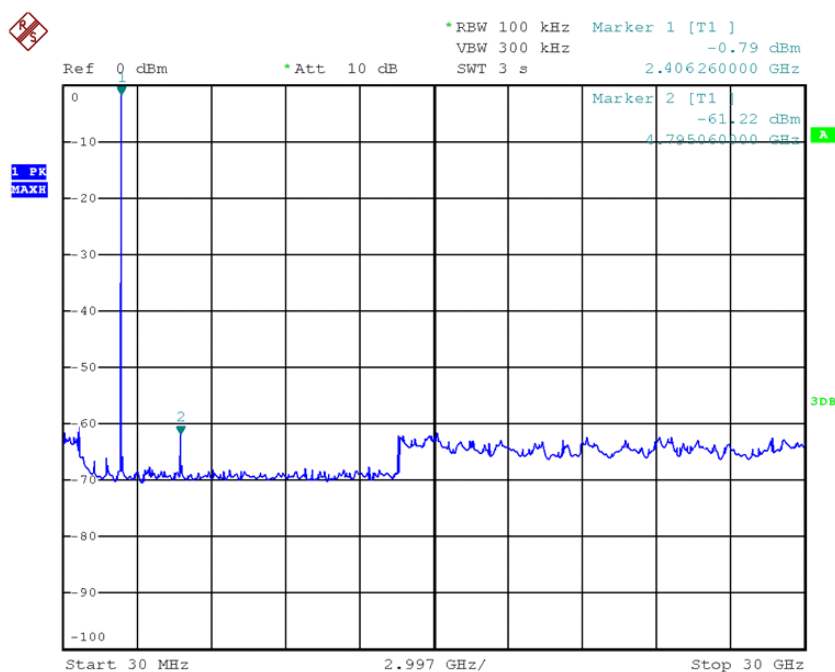
Limit

Frequency Range MHz	Limit (dBc)
1000-25000	-20

Spurious RF conducted emissions

Date of test : 28th May 2013
 Test Site : 2
 Channel : 2406 MHz
 Remark : Antenna 1

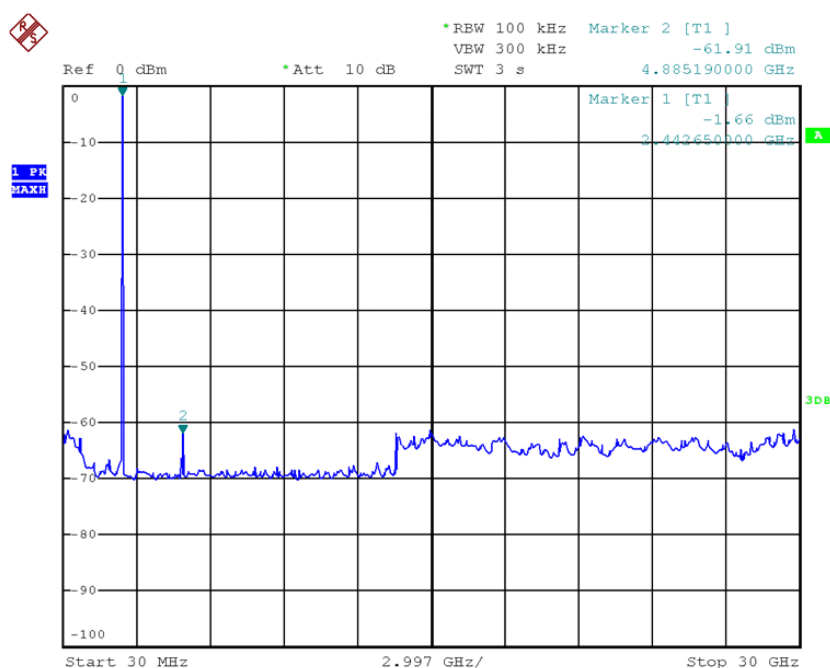
Test Result
☒ Passed
☐ Not Passed



Spurious RF conducted emissions

Date of test : 28th May 2013
 Test Site : 2
 Channel : 2442MHz
 Remark : Antenna 1

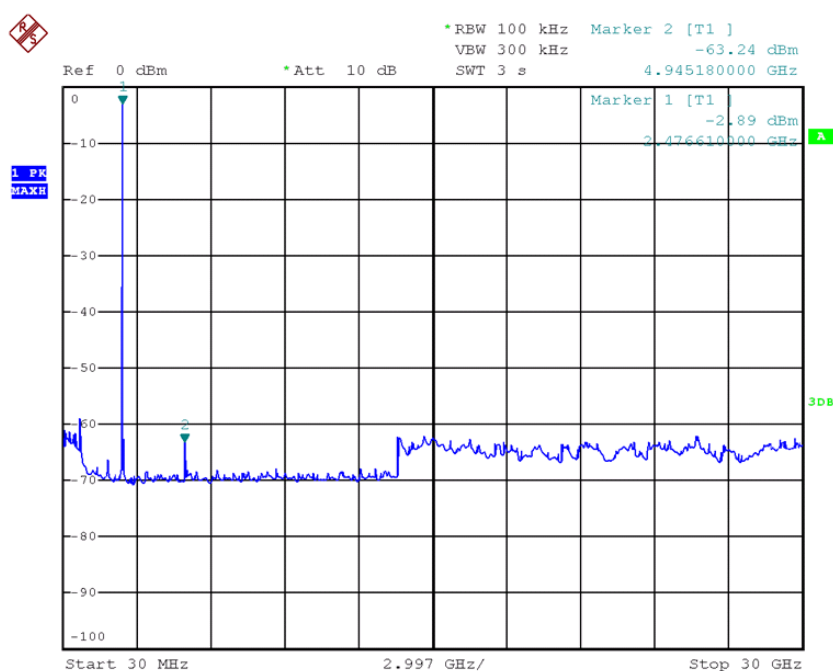
Test Result
☒ Passed
☐ Not Passed



Spurious RF conducted emissions

Date of test : 28th May 2013
 Test Site : 2
 Channel : 2474MHz
 Remark : Antenna 1

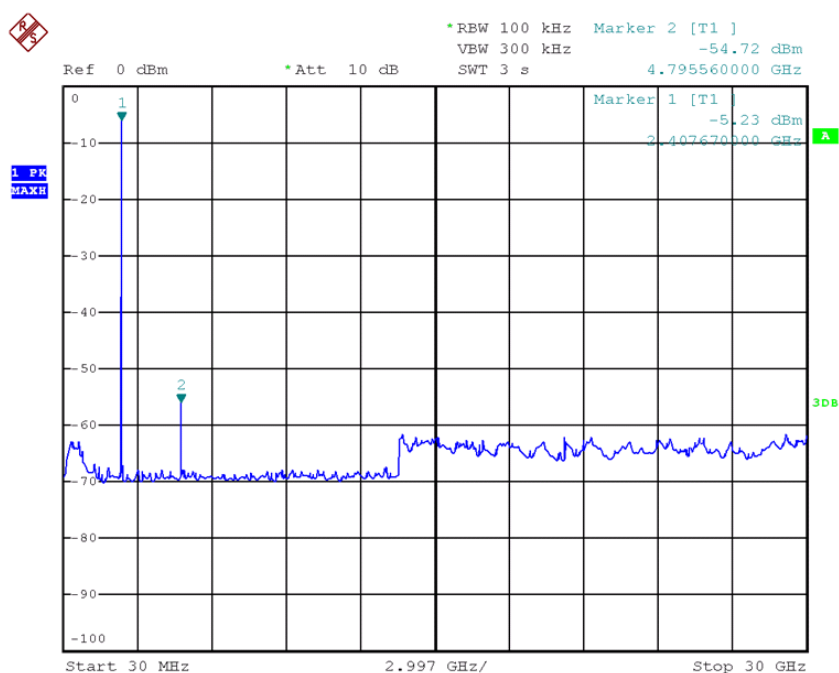
Test Result
☒ Passed
☐ Not Passed



Spurious RF conducted emissions

Date of test : 28th May 2013
 Test Site : 2
 Channel : 2406 MHz
 Remark : Antenna 2

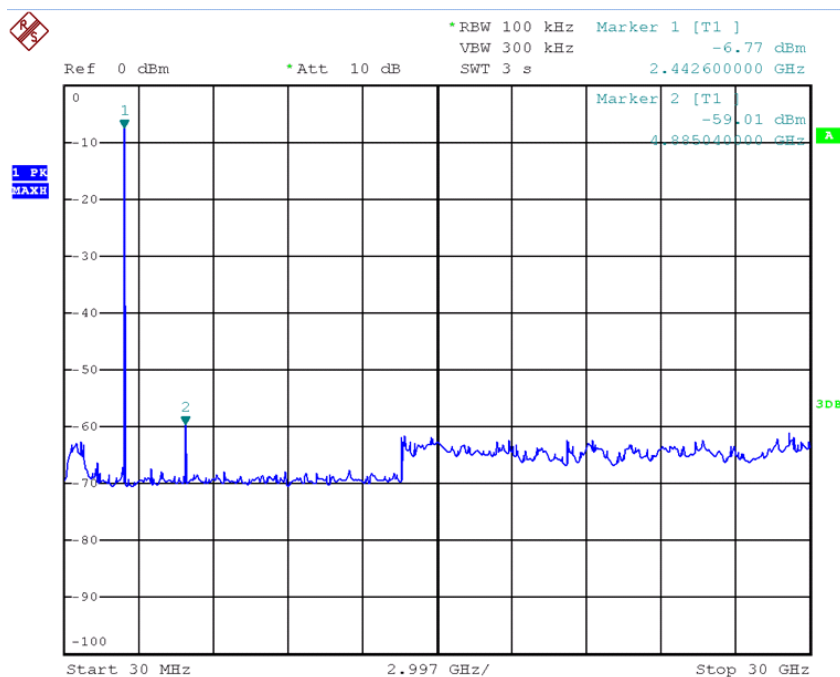
Test Result
☒ Passed
☐ Not Passed



Spurious RF conducted emissions

Date of test : 28th May 2013
 Test Site : 2
 Channel : 2442MHz
 Remark : Antenna 2

Test Result
☒ Passed
☐ Not Passed

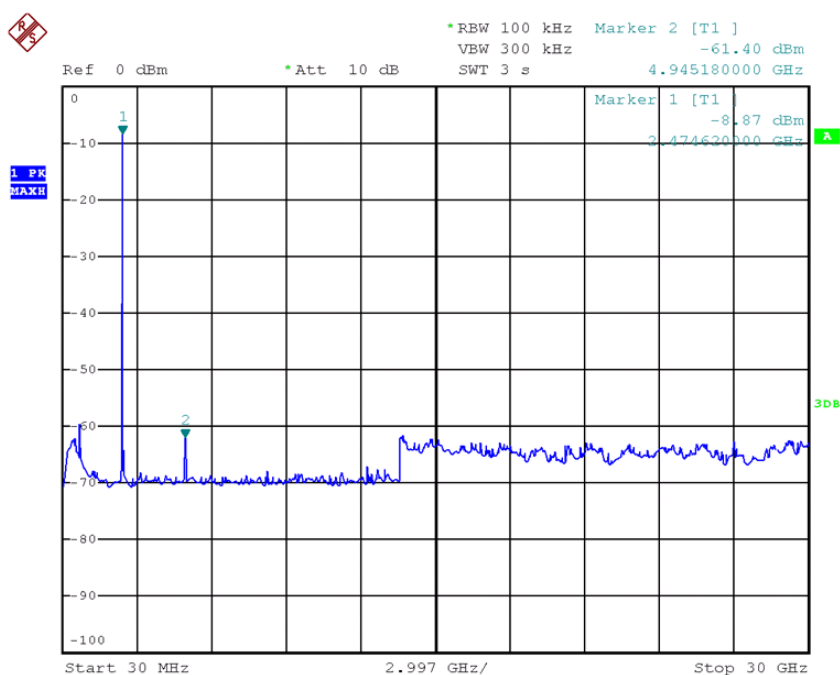


Spurious RF conducted emissions

Date of test : 28th May 2013
 Test Site : 2
 Channel : 2474MHz

Test Result
☒ Passed
☐ Not Passed

Remark : Antenna 2



7.5 Spurious radiated emissions

Test Method

- 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 Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

Limit

Frequency MHz	Field Strength uV/m	Field Strength dBμV/m	Detector
30-88	100	40	QP
88-216	150	43.5	QP
216-960	200	46	QP
960-1000	500	54	QP
Above 1000	500	54	AV
Above 1000	5000	74	PK

Spurious radiated emissions

Date of test : 28th May 2013
 Test Site : 2
 Operating mode : Transmitter mode

Test Result
☒ Passed
☐ Not Passed

Frequency : 2406MHz

Remark : Antenna 1

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
48.332	V	33.23	-13.52	19.71	40.0	-20.29	QP
64.887	V	41.73	-17.6	24.13	40.0	-15.87	QP
121.976	V	37.66	-17.29	20.37	43.5	-23.13	QP
*170.195	V	37.98	-17.15	20.83	43.5	-22.67	QP
178.758	V	34.94	-14.47	20.47	43.5	-23.03	QP
480.528	V	40.41	-10.99	29.42	46.0	-16.58	QP
2406.665	V	58.37	33.22	91.59	/	/	PK
2406.665	V	52.04	33.22	85.26	/	/	Ave.
*4812.000	V	49.20	0.46	49.66	74.0	-24.34	PK
*4812.000	V	41.99	0.46	42.45	54.0	-11.55	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
64.887	H	26.16	-3.82	22.34	40.0	-17.66	QP
*129.923	H	36.81	-4.49	32.32	43.5	-11.18	QP
176.758	H	27.77	-2.05	25.72	43.5	-17.78	QP
*243.377	H	24.18	-4.55	19.63	46.0	-26.37	QP
2406.665	H	59.73	33.22	92.95	/	/	PK
2406.665	H	52.58	33.22	85.80	/	/	Ave.

“*” means the emission(s) appear within the restricted bands shall follow the requirement of section 15.205.

Spurious radiated emissions

Date of test : 28th May 2013
 Test Site : 2
 Operating mode : Transmitter mode

Test Result
☒ Passed
☐ Not Passed

Frequency : 2442MHz

Remark : Antenna 1

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
48.332	V	32.45	-13.52	18.93	40.0	-21.07	QP
64.887	V	41.52	-17.6	23.92	40.0	-16.08	QP
121.976	V	37.42	-17.29	20.13	43.5	-23.37	QP
*170.195	V	37.96	-17.15	20.81	43.5	-22.69	QP
178.758	V	34.73	-14.47	20.26	43.5	-23.24	QP
480.528	V	38.59	-10.99	27.60	46.0	-18.40	QP
2442.000	V	60.55	33.15	93.70	/	/	PK
2442.000	V	55.87	33.15	89.02	/	/	Ave.
*4884.000	V	47.35	0.16	47.51	74.0	-26.49	PK
*4884.000	V	40.69	0.16	40.85	54.0	-13.15	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
64.887	H	41.53	-17.6	23.93	40.0	-16.07	QP
81.212	H	42.86	-19.45	23.41	40.0	-16.59	QP
121.976	H	35.05	-17.29	17.76	43.5	-25.74	QP
*276.124	H	35.26	-14.08	21.18	46.0	-24.82	QP
2442.000	H	63.12	33.15	96.27	/	/	PK
2442.000	H	55.85	33.15	89.00	/	/	Ave.

“*” means the emission(s) appear within the restricted bands shall follow the requirement of section 15.205.

Spurious radiated emissions

Date of test : 28th May 2013
 Test Site : 2
 Operating mode : Transmitter mode

Test Result
☒ Passed
☐ Not Passed

Frequency : 2474MHz

Remark : Antenna 1

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
48.332	V	32.37	-13.52	18.85	40.0	-21.15	QP
64.887	V	41.54	-17.6	23.94	40.0	-16.06	QP
121.976	V	37.75	-17.29	20.46	43.5	-23.04	QP
*170.195	V	37.79	-17.15	20.64	43.5	-22.86	QP
178.758	V	35.26	-14.47	20.79	43.5	-22.71	QP
480.528	V	38.92	-10.99	27.93	46.0	-18.07	QP
2474.027	V	54.02	33.22	87.24	/	/	PK
2474.027	V	48.68	33.22	81.90	/	/	Ave.
*4948.000	V	47.67	0.65	48.32	74.0	-25.68	PK
*4948.000	V	41.03	0.65	41.68	54.0	-12.32	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
64.887	H	41.08	-17.6	23.48	40.0	-16.52	QP
81.212	H	42.31	-19.45	22.86	40.0	-17.14	QP
121.976	H	35.89	-17.29	18.60	43.5	-24.90	QP
178.758	H	32.06	-14.47	17.59	43.5	-25.91	QP
*276.124	H	34.50	-14.08	20.42	46.0	-25.58	QP
463.970	H	33.56	-11.49	22.07	46.0	-23.93	QP
2474.029	H	58.59	33.22	91.81	/	/	PK
2474.029	H	51.89	33.22	85.11	/	/	Ave.
*4948.000	H	44.97	0.65	45.62	74.0	-28.38	PK
*4948.000	H	37.90	0.65	38.55	54.0	-15.45	Ave.

“*” means the emission(s) appear within the restricted bands shall follow the requirement of section 15.205.

Spurious radiated emissions

Date of test : 28th May 2013
 Test Site : 2
 Operating mode : Transmitter mode

Test Result
☒ Passed
☐ Not Passed

Frequency : 2406MHz

Remark : Antenna 2

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
64.887	H	41.29	-17.6	23.69	40.0	-16.31	QP
81.212	H	36.92	-19.45	17.47	40.0	-22.53	QP
178.133	H	32.41	-14.7	17.71	43.5	-25.79	QP
*276.124	H	36.13	-14.08	22.05	43.5	-21.45	QP
480.528	H	31.77	-10.99	20.78	46.0	-25.22	QP
2405.992	H	58.49	33.22	91.71	/	/	PK
2405.992	H	51.63	33.22	84.85	/	/	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
32.864	V	34.62	-13.36	21.26	40.0	-18.74	QP
48.332	V	32.84	-13.52	19.32	40.0	-20.68	QP
64.887	V	41.77	-17.60	24.17	40.0	-15.83	QP
*129.923	V	38.77	-18.33	20.44	43.5	-23.06	QP
*162.041	V	31.59	-18.4	13.19	43.5	-30.31	QP
*170.195	V	37.05	-17.15	19.90	43.5	-23.60	QP
178.758	V	35.47	-14.47	21.00	43.5	-22.50	QP
2405.992	V	55.87	33.22	89.09	/	/	PK
2405.992	V	48.99	33.22	82.21	/	/	Ave.
*4812.000	V	46.82	0.46	47.28	74.0	-26.72	PK
*4812.000	V	41.60	0.46	42.06	54.0	-11.94	Ave.

“*” means the emission(s) appear within the restricted bands shall follow the requirement of section 15.205.

Spurious radiated emissions

Date of test : 28th May 2013
 Test Site : 2
 Operating mode : Transmitter mode

Test Result
☒ Passed
☐ Not Passed

Frequency : 2442MHz

Remark : Antenna 2

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
64.887	H	40.44	-17.6	22.84	40.0	-17.16	QP
81.121	H	36.00	-19.45	16.55	40.0	-23.45	QP
*129.923	H	33.24	-18.33	14.91	43.5	-28.59	QP
178.758	H	32.60	-14.47	18.13	43.5	-25.37	QP
194.453	H	28.73	-16.43	12.30	43.5	-31.20	QP
*276.124	H	34.87	-14.08	20.79	46.0	-25.21	QP
2442.000	H	59.79	33.15	92.94	/	/	PK
2442.000	H	51.33	33.15	84.48	/	/	Ave.
*4884.000	H	46.74	0.73	47.47	74.0	-26.53	PK
*4884.000	H	39.65	0.73	40.38	54.0	-13.62	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
48.332	V	32.53	-13.52	19.01	40.0	-20.99	QP
64.887	V	41.71	-17.6	24.11	40.0	-15.89	QP
*129.923	V	38.47	-18.33	20.14	43.5	-23.36	QP
*170.195	V	36.79	-17.15	19.64	43.5	-23.86	QP
178.758	V	35.52	-14.47	21.05	43.5	-22.45	QP
2442.000	V	56.75	33.14	89.89	/	/	PK
2442.000	V	49.69	33.14	82.83	/	/	Ave.

“*” means the emission(s) appear within the restricted bands shall follow the requirement of section 15.205.

Spurious radiated emissions

Date of test : 28th May 2013
 Test Site : 2
 Operating mode : Transmitter mode

Test Result
☒ Passed
☐ Not Passed

Frequency : 2474MHz

Remark : Antenna 2

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
64.887	H	40.31	-17.6	22.71	40.0	-17.29	QP
81.121	H	35.89	-19.45	16.44	40.0	-23.56	QP
178.758	H	32.29	-14.47	17.82	43.5	-25.68	QP
*276.124	H	35.13	-14.08	21.05	46.0	-24.95	QP
480.528	H	32.40	-10.99	21.41	46.0	-24.59	QP
2474.000	H	61.68	33.19	94.87	/	/	PK
2474.000	H	55.86	33.19	89.05	/	/	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
64.887	V	41.89	-17.60	24.29	40.0	-15.71	QP
121.976	V	36.78	-17.29	19.49	43.5	-24.01	QP
*170.195	V	37.37	-17.15	20.22	43.5	-23.28	QP
178.758	V	34.94	-14.47	20.47	43.5	-23.03	QP
*276.124	V	30.36	-14.08	16.28	46.0	-29.72	QP
472.176	V	31.04	-11.25	19.79	46.0	-26.21	QP
2474.000	V	57.12	33.19	90.31	/	/	PK
2474.000	V	51.99	33.19	85.18	/	/	Ave.

“*” means the emission(s) appear within the restricted bands shall follow the requirement of section 15.205.

7.6 6dB bandwidth

Date of test : 28th May 2013
Test Site 2

Test Method

- 1 Place the EUT on the table and set it in the 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 Mark the peak frequency and 6dB (upper and lower) frequency.

Limit

Limit [kHz]

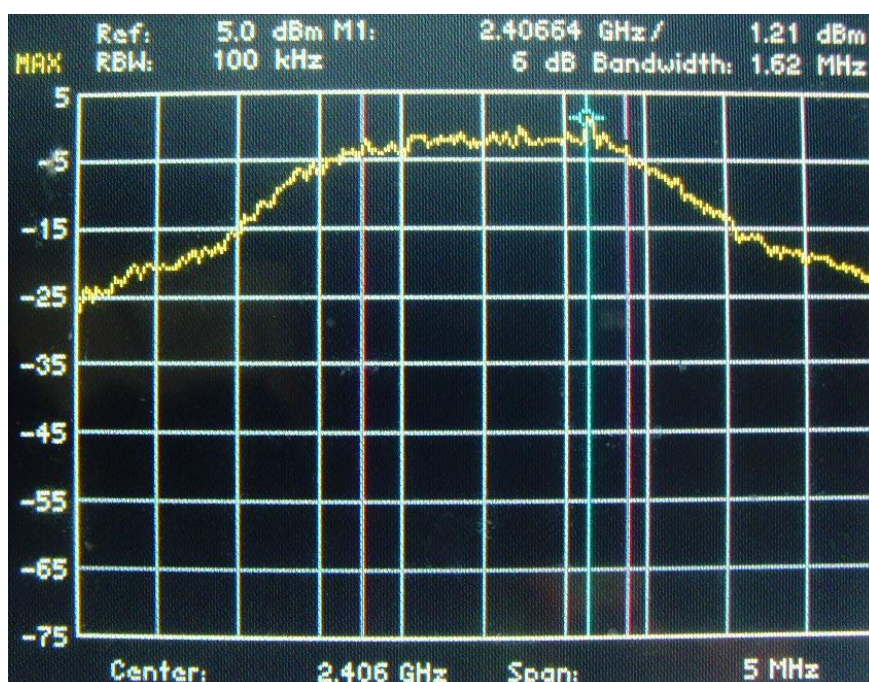
≥500

6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.62	Pass

Remark : Antenna 1

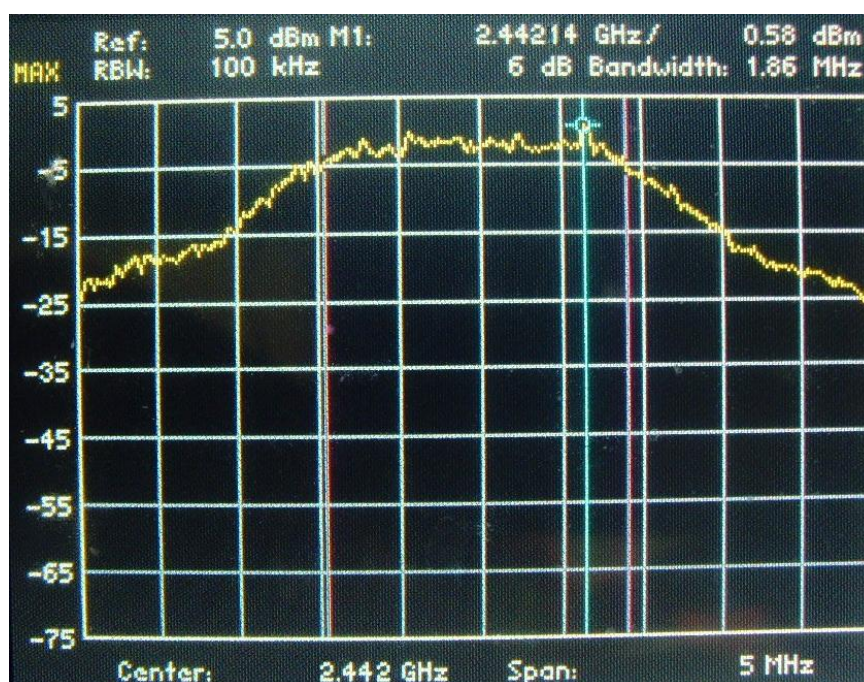


6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.86	Pass

Remark : Antenna 1

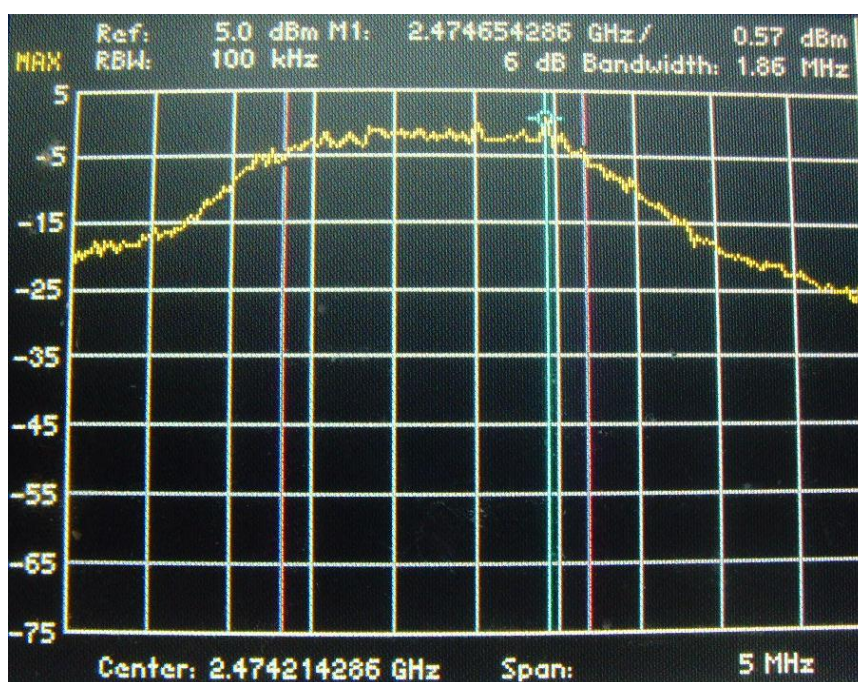


6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.86	Pass

Remark : Antenna 1

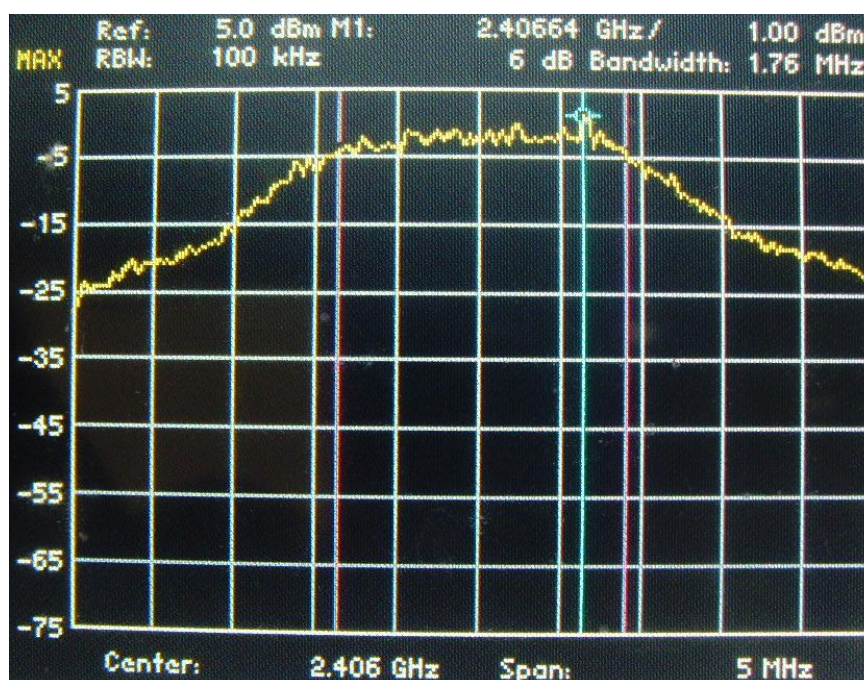


6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.76	Pass

Remark : Antenna 2

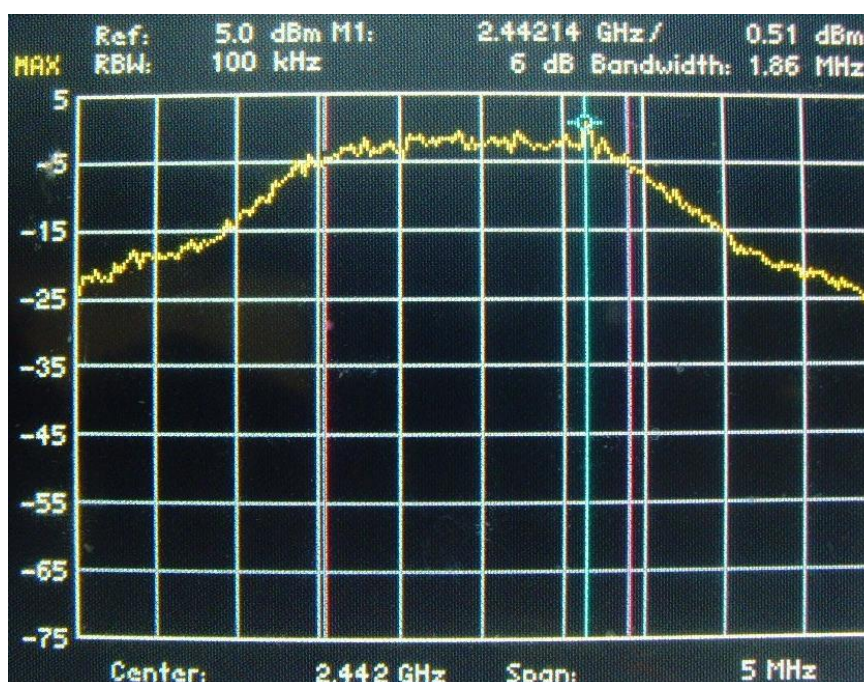


6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.86	Pass

Remark : Antenna 2

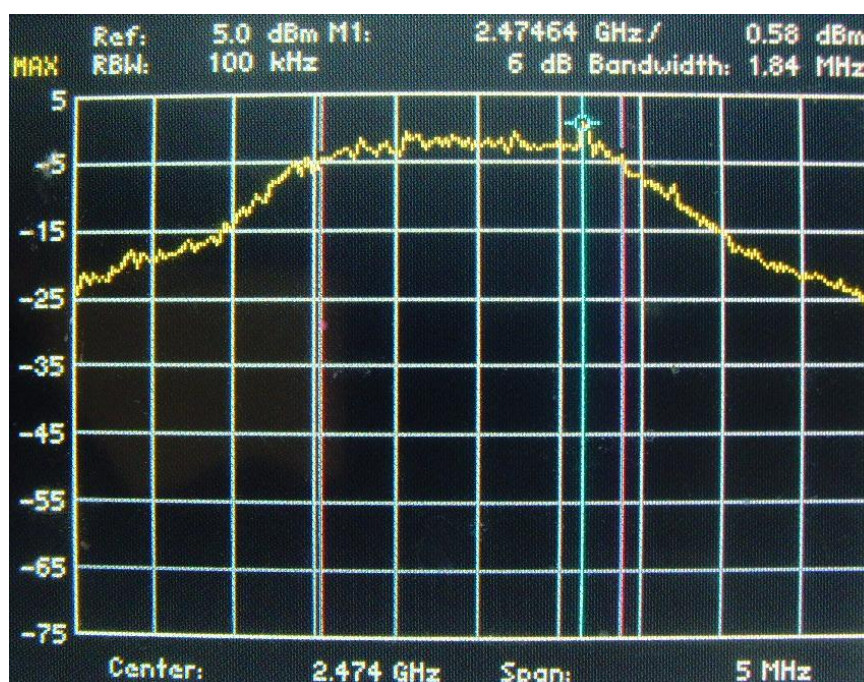


6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.84	Pass

Remark : Antenna 2



7.7 Power spectral density

Date of test : 28th May 2013
Test Site 2

Test Method

- 1 Place the EUT on the table and set it in transmitting mode. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
- 2 Set the spectrum analyzer as RBW = 3 kHz, VBW = 10 kHz, Span = 300 kHz, Sweep = 500s
- 3 Record the max reading.

Limit

Limit
dBm / 3kHz

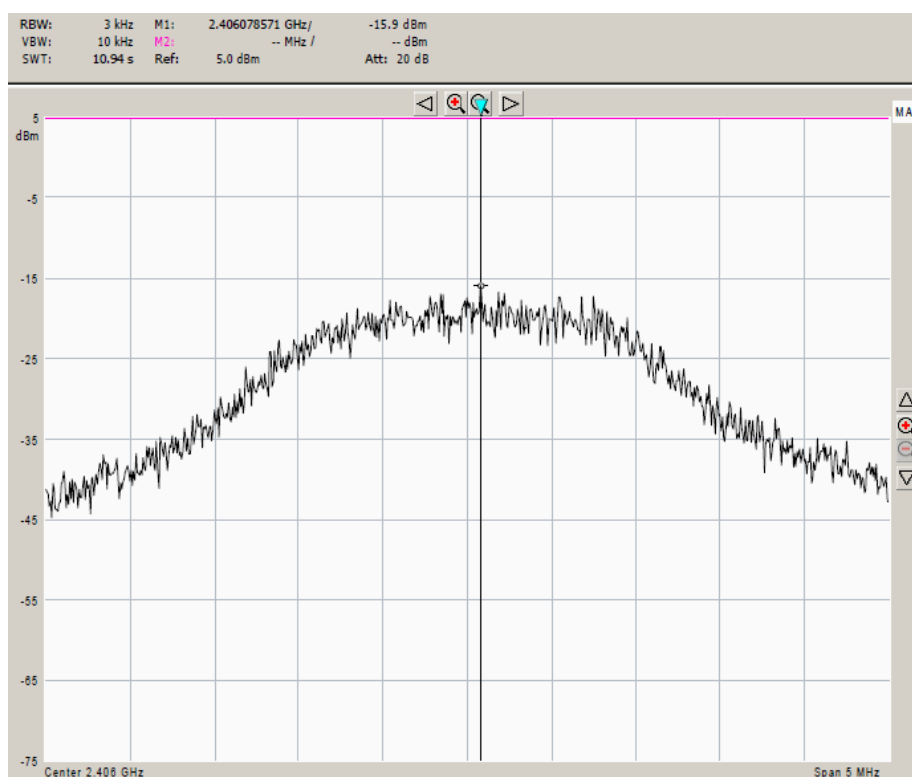
8

Power spectral density

Test result

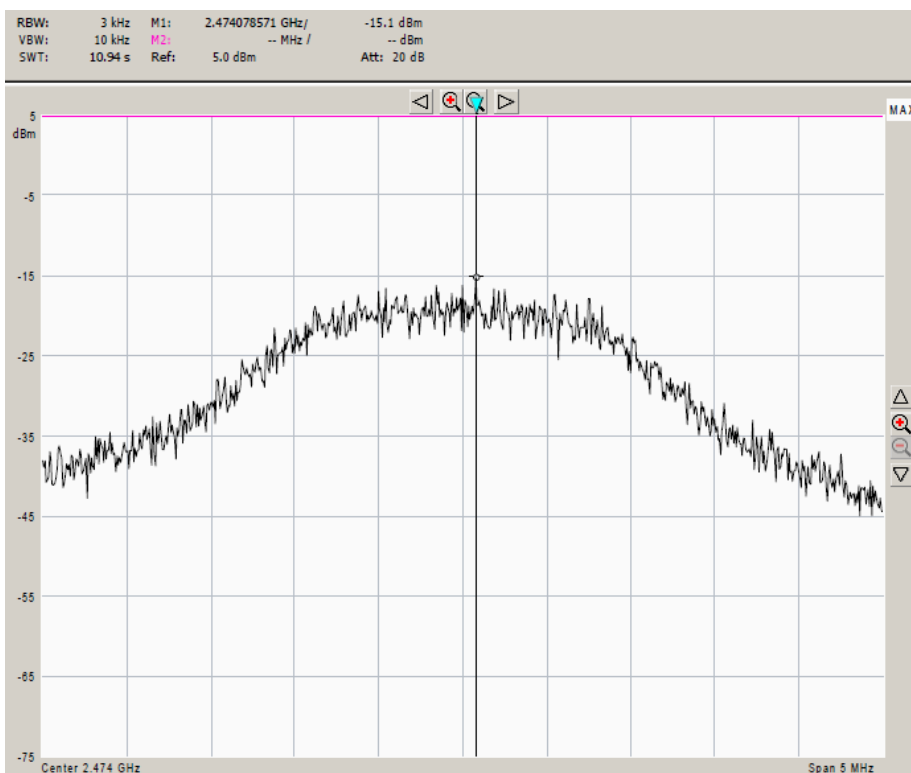
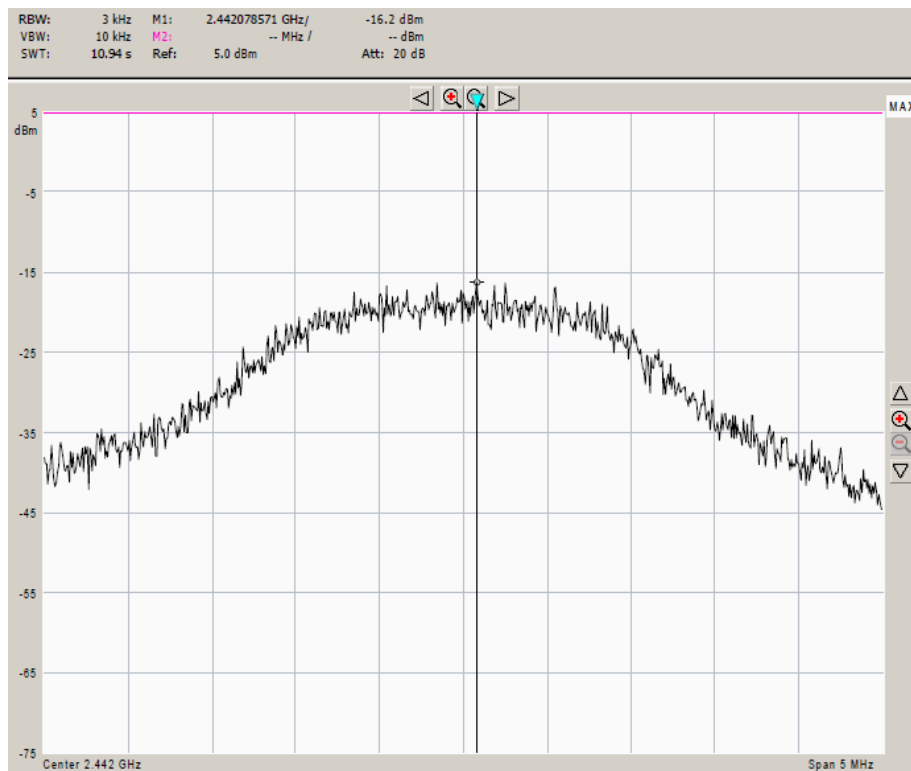
Antenna 1

Frequency (MHz)	Power spectral density (dBm)	Result
2406	-15.9	Pass
2442	-16.2	Pass
2474	-15.1	Pass



Power spectral density

Antenna 1

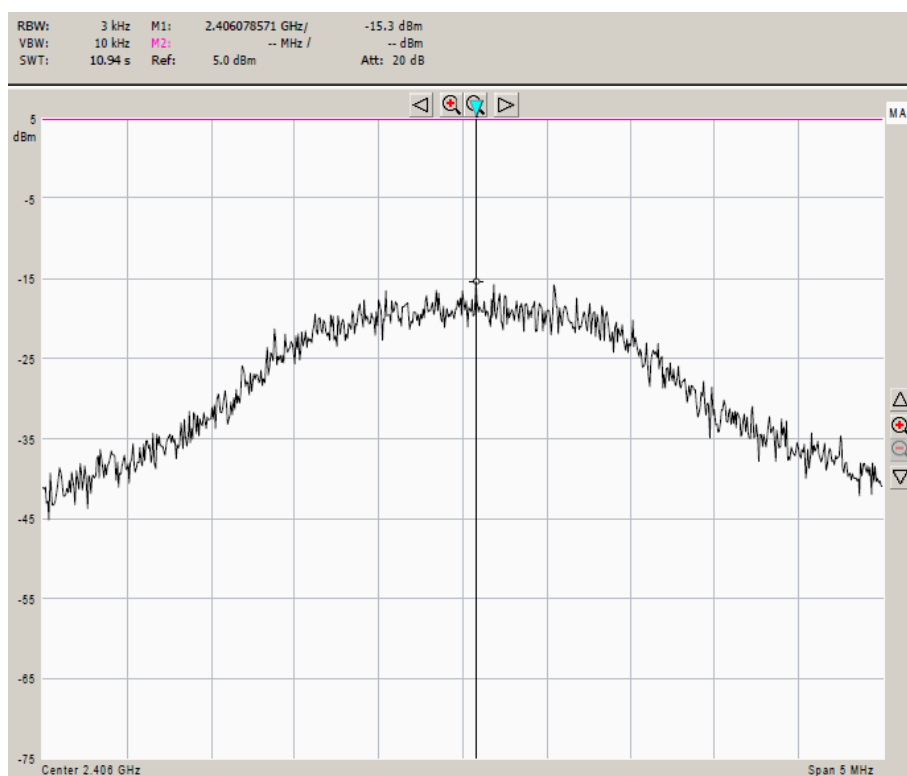


Power spectral density

Test result

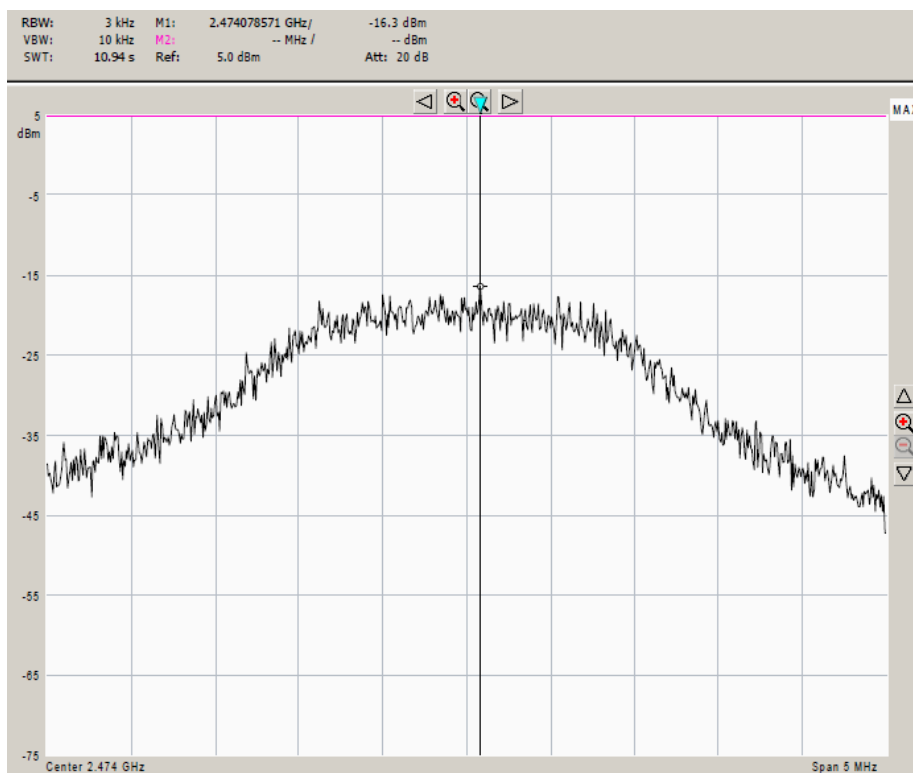
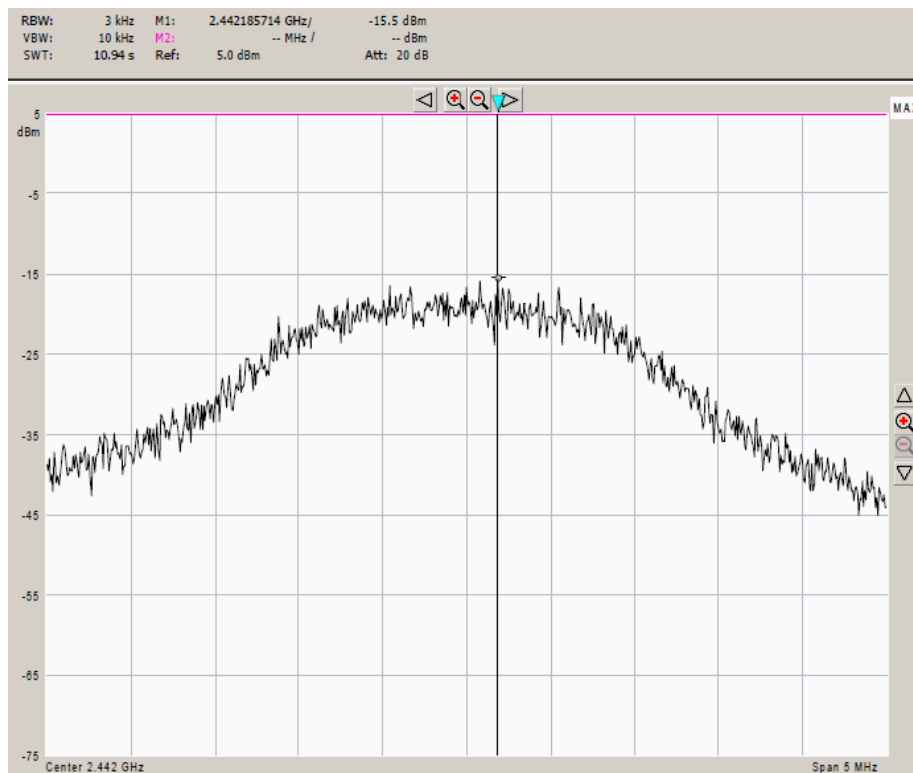
Antenna 2

Frequency (MHz)	Power spectral density (dBm)	Result
2406	-15.3	Pass
2442	-15.5	Pass
2474	-16.3	Pass



Power spectral density

Antenna 2



8. System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty

Items		Extended Uncertainty
RE	Field strength (dB μ V/m)	U=5.12dB (30MHz-1GHz) U=4.63dB (1GHz-6GHz)
CE	Disturbance Voltage (dB μ V)	U=3.1dB

9. Test Equipment List

Test Equipment for non spurious emissions except 15.207

Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Due date (mm-dd-yy)
BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	May 24 2014
Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	May 24 2014
EMI Test Software	AUDIX	E3	N/A	N/A
Coaxial Cable	CCIS	N/A	CCIS0016	May 31 2013
Coaxial Cable	CCIS	N/A	CCIS0017	May 31 2013
Coaxial cable	CCIS	N/A	CCIS0018	May 31 2013
Coaxial Cable	CCIS	N/A	CCIS0019	May 31 2013
Coaxial Cable	CCIS	N/A	CCIS0087	May 31 2013
Amplifier(10kHz-1.3GHz)	HP	8447D	CCIS0003	May 31 2013
Amplifier(1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	Jun 08 2014
Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	May 31 2013
Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 29 2014
Positioning Controller	UC	UC3000	CCIS0015	N/A
Spectrum analyzer 9k-30GHz	Rohde & Schwarz	FSP	CCIS0023	May. 28 2014
Loop antenna	Laplace instrument	RF300	EMC0701	Aug. 11 2014
EMI Test Receiver	Rohde & Schwarz	ESPI	CCIS0022	May 24 2014
Spectrum Analyzer	Agilent	E4440A	US	Jan.10 2014

Test Equipment for 15.207

Equipment name :	Manufacturer	Model No	Equipment ID :	Due Cal
EMI receiver	R&S	ESCI 100427	60-7-63-06-006	11/19/2014
LISN	R&S	ENV216	60-7-60-08-002	11/19/2014
Coaxial Cable			60-7-65-08-015	11/19/2014
LISN	Schwarzbeck	8125	60-7-60-04-003	11/19/2014
EMI Test Receiver	R&S	ESCS30	60-7-63-03-003	11/19/2014