



Hong Kong

FCC - TEST REPORT

Report Number : **60/790.13.023.05
(Revision 2.0)** Date of Issue: October 24, 2013

Model : **Y-400Pt**

Product Type : **Wireless Gaming Headset (Decoder)**

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

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

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

Total pages including
Appendices : **52**

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Report Number: **60/790.13.023.05 (revision 2.0)**

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Rev. no.: 2.1

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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 (Decoder)

Model no.: Y-400Pt

Serial number: NIL

Options and accessories: Audio cable

Rated Voltage: 5.0VDC – USB 5V

Rated Current: NIL

Rated Power: NIL

Frequency: NIL

Modulation type: shaped-8FSK (CC8530)
O-QPSK (CC2533)

Antenna gain: 2.66dBi (top antenna)
6.73dBi (bottom antenna)

RF Transmission Frequency: 2406MHz-2474MHz (CC8530)
2425MHz-2475MHz (CC2533)

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
FCC Part 15 Subpart B, Unintentional Radiators, 10-1-12 Edition	PART 15 – RADIO FREQUENCY DEVICES Subpart B – Unintentional Radiators

5. Summary of Test Results

Technical Requirements					
FCC Part 15					
Test Condition	Pages	Test site	Test Result		
			Pass	Fail	N/A
Conducted Emission AC Power Port	8	Site 2	☒	☐	☐
Conducted peak output power	12	Site 2	☒	☐	☐
Band edge compliance of RF emissions	14	Site 2	☒	☐	☐
Spurious RF conducted emissions	23	Site 2	☒	☐	☐
Spurious radiated emissions	30	Site 2	☒	☐	☐
6dB bandwidth	39	Site 2	☒	☐	☐
Power spectral density	46	Site 2	☒	☐	☐

6. General Remarks

Remarks

This submittal(s) (test report) is intended for FCC ID: NAM4160586T complies with Section, 15.107, 15.109, 15.209, 15.247 of the FCC Part 15.

The EUT included two RF modules CC8530and CC2533.

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.

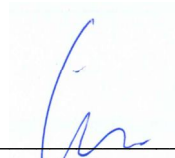
Sample Received Date: 21st May 2013

Testing Start Date: 21st May 2013

Testing End Date: 30th May 2013

- TÜV SÜD HONG KONG LTD. -

Prepared by:



CHAN Kwong Ngai



Reviewed by:



Edmond FUNG

7. Technical Requirement

7.1 Conducted Emission Test 150kHz – 30MHz

Date of test : 23rd May 2013

Operating mode : PC connect mode

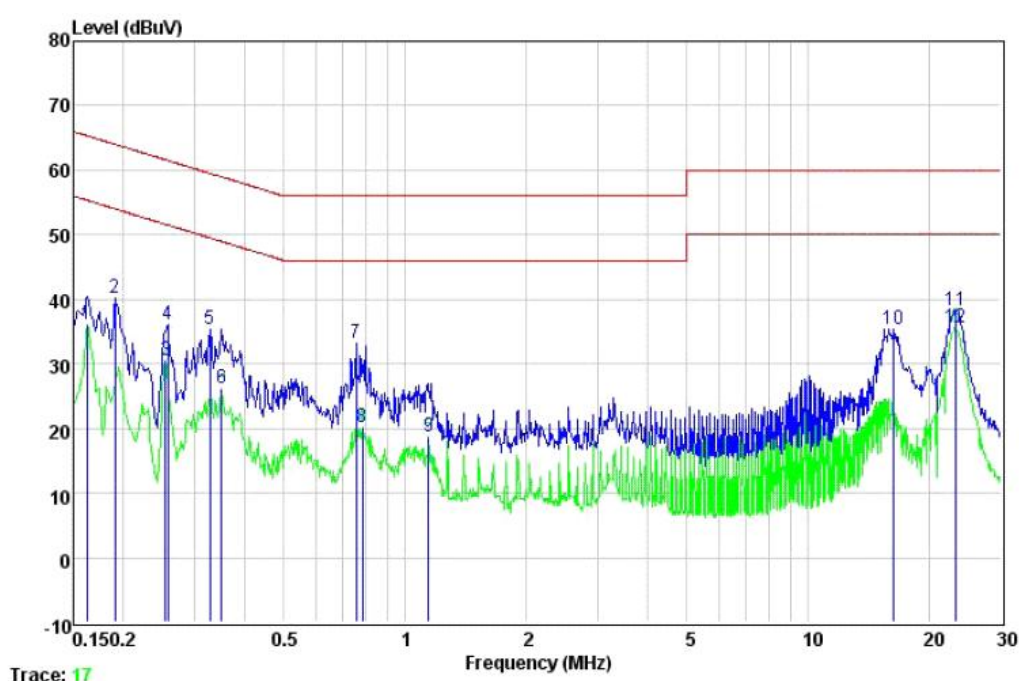
Tested on : PC AC Mains, Live

Remarks : NIL

Test Result

☒ Passed

☐ Not Passed



	Freq	Read	LISN	Cable	Level	Limit	Over	
	MHz	Level	Factor	Loss	Level	Line	Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.162	25.06	10.24	0.78	36.08	55.34	-19.26	Average
2	0.190	29.14	10.22	0.76	40.12	64.02	-23.90	QP
3	0.253	19.46	10.24	0.75	30.45	51.64	-21.19	Average
4	0.258	25.00	10.24	0.75	35.99	61.51	-25.52	QP
5	0.327	24.41	10.27	0.74	35.42	59.53	-24.11	QP
6	0.350	15.21	10.27	0.73	26.21	48.96	-22.75	Average
7	0.755	22.21	10.19	0.78	33.18	56.00	-22.82	QP
8	0.783	9.25	10.19	0.79	20.23	46.00	-25.77	Average
9	1.141	7.71	10.22	0.78	18.71	46.00	-27.29	Average
10	16.312	24.27	10.26	0.91	35.44	60.00	-24.56	QP
11	23.140	27.01	10.47	0.89	38.37	60.00	-21.63	QP
12	23.263	24.20	10.48	0.89	35.57	50.00	-14.43	Average

Conducted Emission Test 150kHz – 30MHz

Date of test : 23rd May 2013

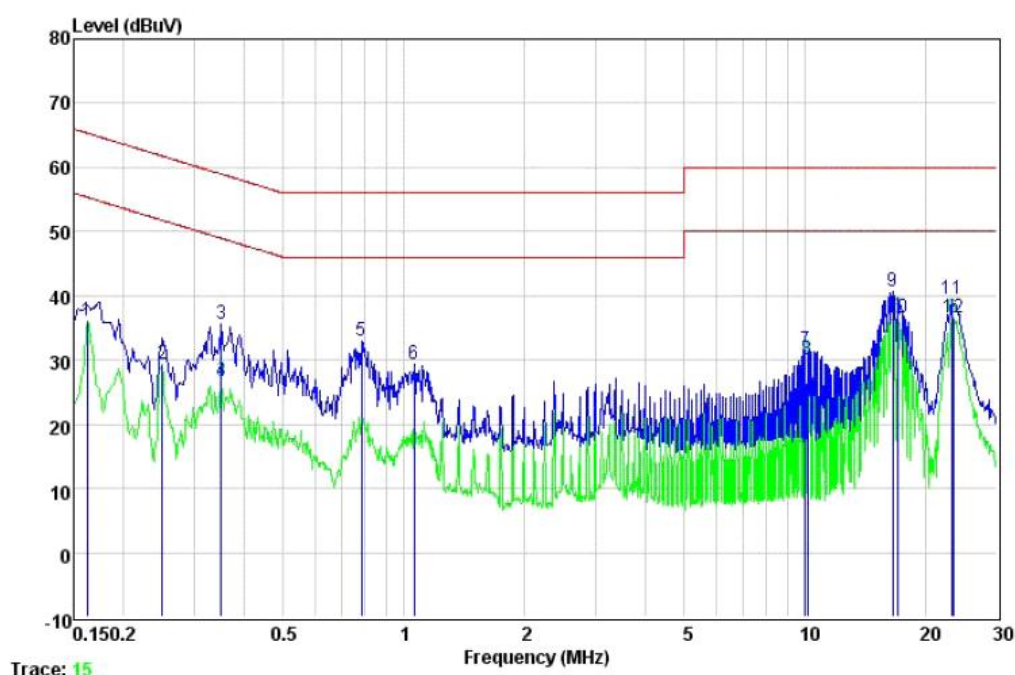
Operating mode : PC connect mode

Tested on : PC AC Mains, Neutral

Remarks : NIL

Test Result

☒ Passed

☐ Not Passed


	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.162	25.10	10.26	0.78	36.14	55.34	-19.20	Average
2	0.249	18.35	10.24	0.75	29.34	51.78	-22.44	Average
3	0.350	24.55	10.25	0.73	35.53	58.96	-23.43	QP
4	0.350	15.80	10.25	0.73	26.78	48.96	-22.18	Average
5	0.783	22.07	10.17	0.79	33.03	56.00	-22.97	QP
6	1.060	18.29	10.21	0.83	29.33	56.00	-26.67	QP
7	9.966	20.33	10.22	0.94	31.49	60.00	-28.51	QP
8	10.125	18.99	10.22	0.94	30.15	50.00	-19.85	Average
9	16.486	29.53	10.26	0.91	40.70	60.00	-19.30	QP
10	16.928	25.44	10.27	0.91	36.62	50.00	-13.38	Average
11	23.263	28.09	10.48	0.89	39.46	60.00	-20.54	QP
12	23.387	25.11	10.48	0.89	36.48	50.00	-13.52	Average

Conducted Emission Test 150kHz – 30MHz

Date of test : 23rd May 2013

Operating mode : PS3 connect mode

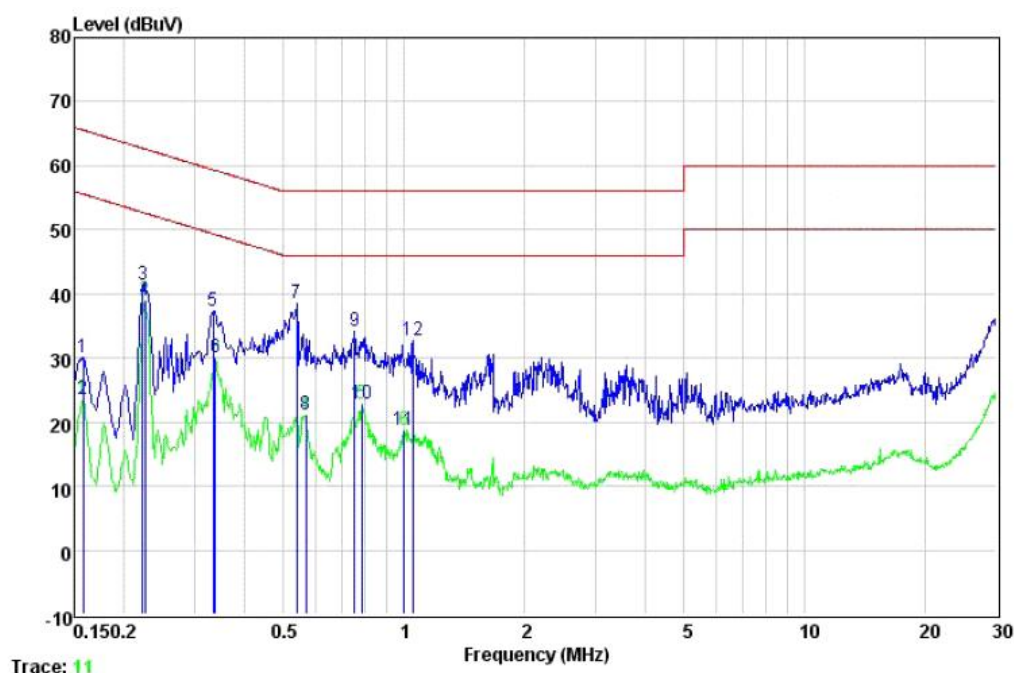
Tested on : PS3 AC Mains, Live

Remarks : NIL

Test Result

☒ Passed

☐ Not Passed



	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.158	19.06	10.24	0.79	30.09	65.56	-35.47	QP
2	0.158	12.51	10.24	0.79	23.54	55.56	-32.02	Average
3	0.222	30.40	10.22	0.76	41.38	62.74	-21.36	QP
4	0.226	27.91	10.23	0.76	38.90	52.61	-13.71	Average
5	0.334	26.22	10.27	0.73	37.22	59.35	-22.13	QP
6	0.337	18.96	10.27	0.73	29.96	49.27	-19.31	Average
7	0.538	27.47	10.25	0.76	38.48	56.00	-17.52	QP
8	0.567	10.22	10.24	0.76	21.22	46.00	-24.78	Average
9	0.751	23.21	10.19	0.78	34.18	56.00	-21.82	QP
10	0.783	11.95	10.19	0.79	22.93	46.00	-23.07	Average
11	1.000	7.74	10.21	0.87	18.82	46.00	-27.18	Average
12	1.049	21.58	10.21	0.84	32.63	56.00	-23.37	QP

Conducted Emission Test 150kHz – 30MHz

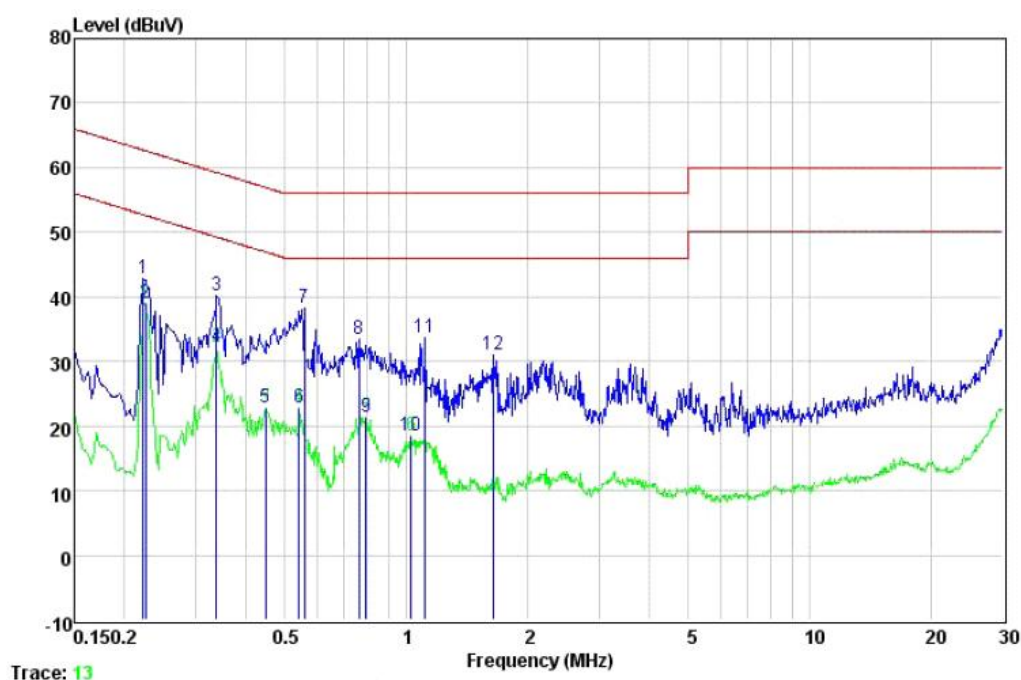
Date of test : 23rd May 2013

Operating mode : PS3 connect mode

Tested on : PS3 AC Mains, Neutral

Remarks : NIL

Test Result	
☒	Passed
☐	Not Passed



	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.222	31.82	10.23	0.76	42.81	62.74	-19.93	QP
2	0.226	27.96	10.23	0.76	38.95	52.61	-13.66	Average
3	0.337	29.11	10.25	0.73	40.09	59.27	-19.18	QP
4	0.337	21.23	10.25	0.73	32.21	49.27	-17.06	Average
5	0.447	11.70	10.27	0.74	22.71	46.93	-24.22	Average
6	0.541	11.78	10.25	0.76	22.79	46.00	-23.21	Average
7	0.558	27.21	10.24	0.76	38.21	56.00	-17.79	QP
8	0.763	22.43	10.17	0.79	33.39	56.00	-22.61	QP
9	0.792	10.49	10.17	0.80	21.46	46.00	-24.54	Average
10	1.027	7.39	10.20	0.85	18.44	46.00	-27.56	Average
11	1.111	22.77	10.21	0.80	33.78	56.00	-22.22	QP
12	1.645	20.54	10.25	0.16	30.95	56.00	-25.05	QP

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 : 22nd May 2013

Remarks : NIL

Test Result

☒ Passed

☐ Not Passed

CC8530

Type	Channel		
	2406 MHz	2442 MHz	2474 MHz
shaped-8FSK	0.07 dBm	-0.65 dBm	-0.72 dBm

CC2533

Type	Channel		
	2425 MHz	2450 MHz	2475 MHz
O-QPSK	-0.22 dBm	0.08 dBm	0.12 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 : 22nd May 2013

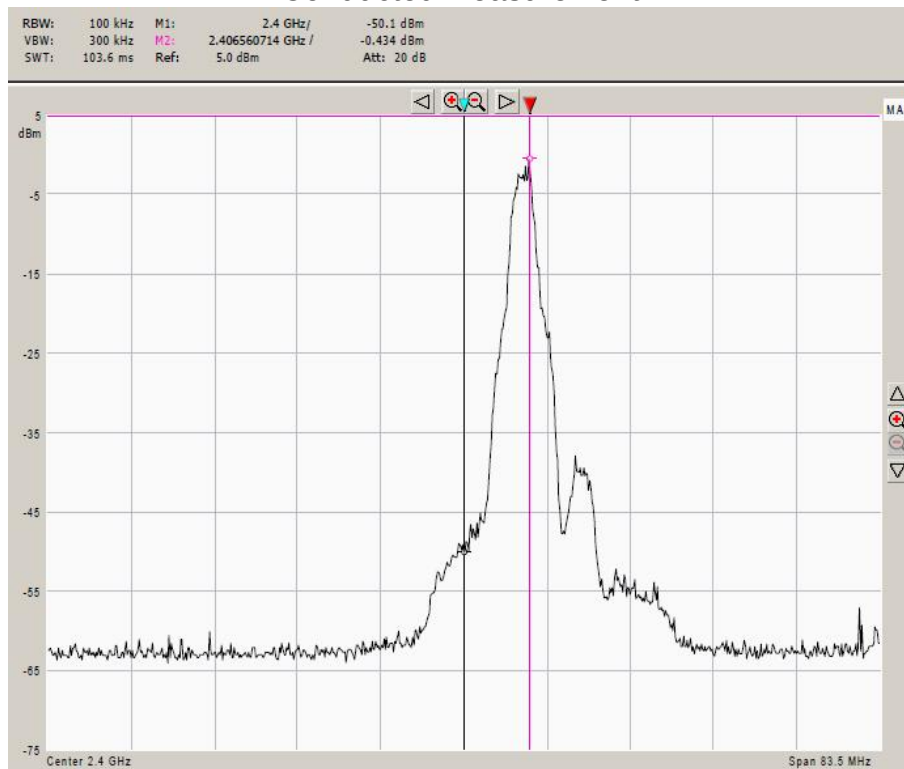
Remarks : CC8530

Test Result

☒ Passed

☐ Not Passed

Conducted measurement



Frequency (MHz)	Reading (dBm)	Limit (-20dBc)	Margin (dB)
2400.000	-50.1	-20.43	-29.67
2406.560	-0.43	-	-

Band edge Measurement

Date of test : 22nd May 2013

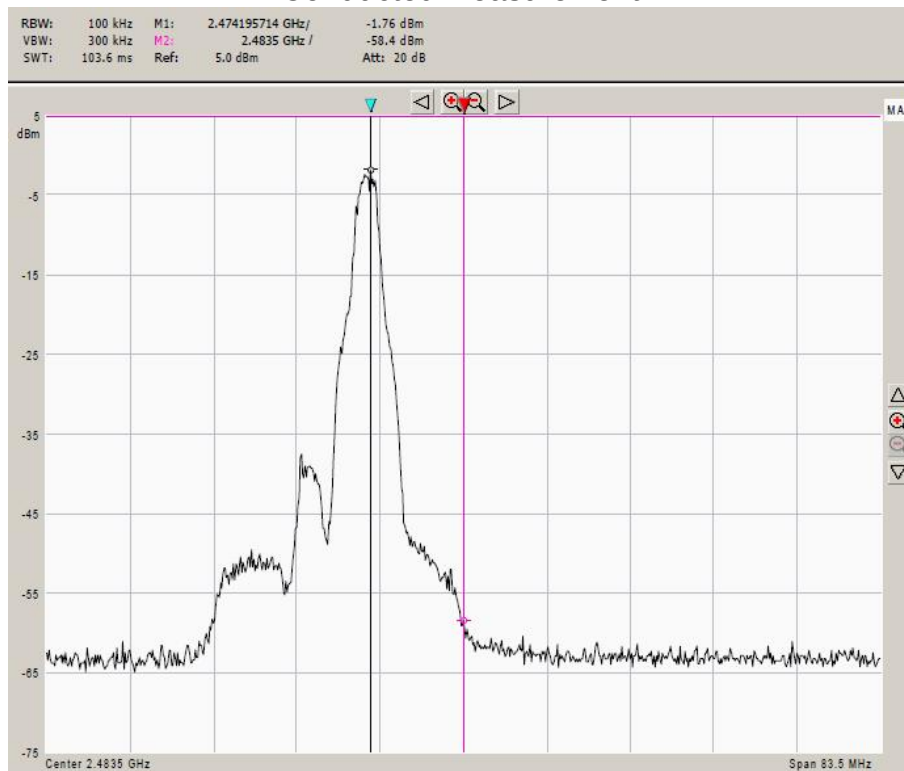
Remarks : CC8530

Test Result

☒ Passed

☐ Not Passed

Conducted measurement



Frequency (MHz)	Reading (dBm)	Limit (-20dBc)	Margin (dB)
2474.195	-1.76	-	-
2483.500	-58.4	-21.76	-36.64

Band edge Measurement

Date of test : 22nd May 2013

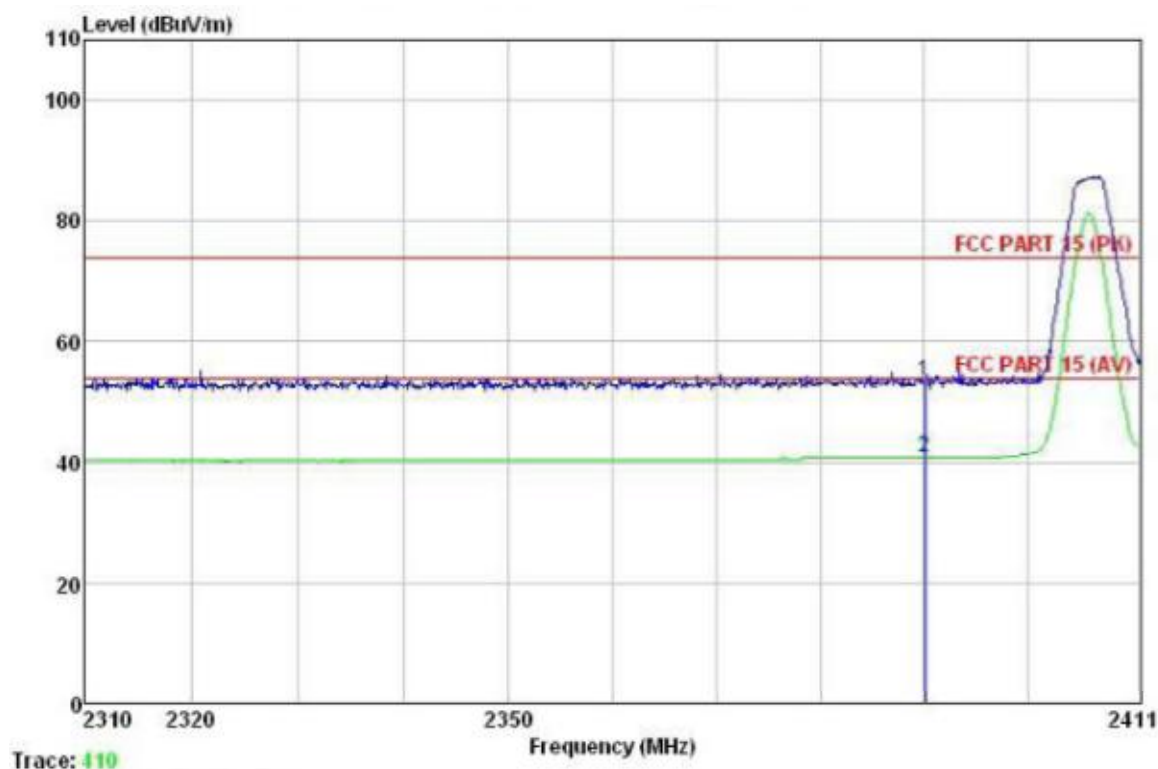
Remarks : CC8530

Test Result

☒ Passed

☐ Not Passed

Radiated measurement



Frequency (MHz)	Reading (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
2400.000	53.46	74.0	-20.54	PK
2400.000	40.67	54.0	-13.33	AV

Band edge Measurement

Date of test : 22nd May 2013

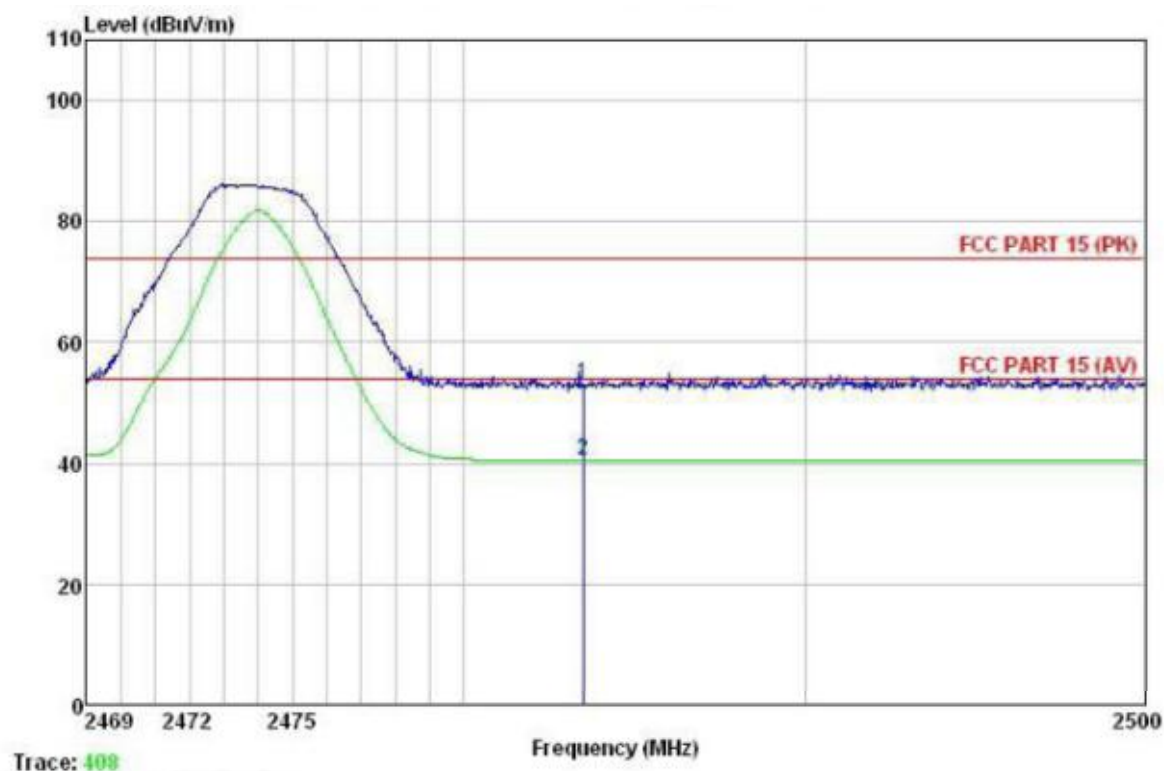
Remarks : CC8530

Test Result

☒ Passed

☐ Not Passed

Radiated measurement



Frequency (MHz)	Reading (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
2483.500	52.98	74.0	-21.02	PK
2483.500	40.55	54.0	-13.45	AV

Band edge Measurement

Date of test : 22nd May 2013

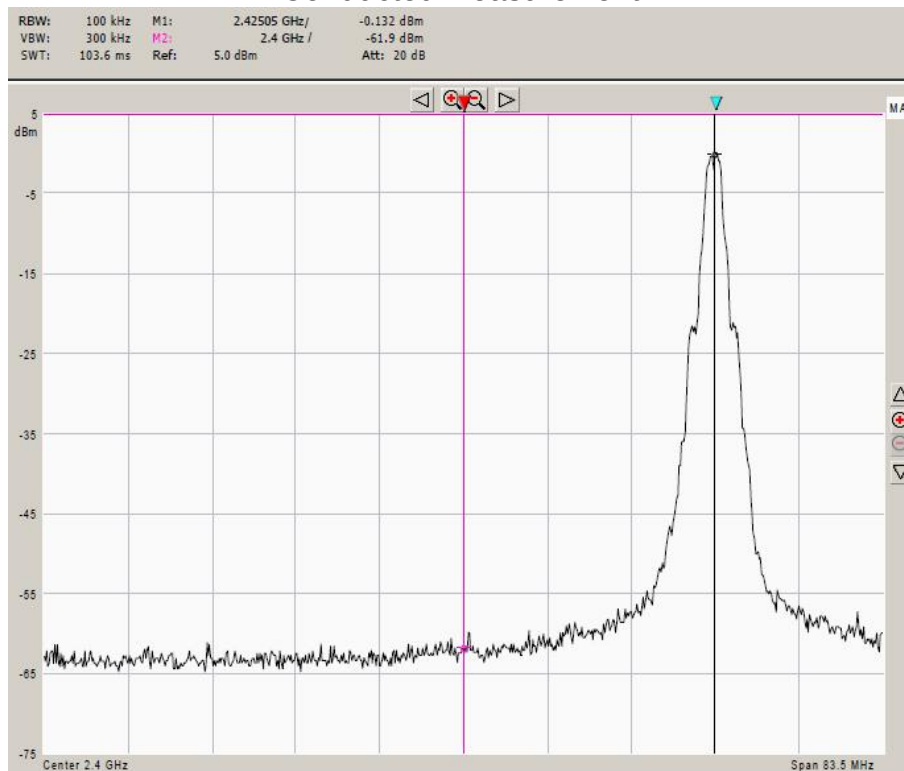
Remarks : CC2533

Test Result

☒ Passed

☐ Not Passed

Conducted measurement



Frequency (MHz)	Reading (dBm)	Limit (-20dBc)	Margin (dB)
2400.000	-61.9	-20.13	-41.77
2425.050	-0.13	-	-

Band edge Measurement

Date of test : 22nd May 2013

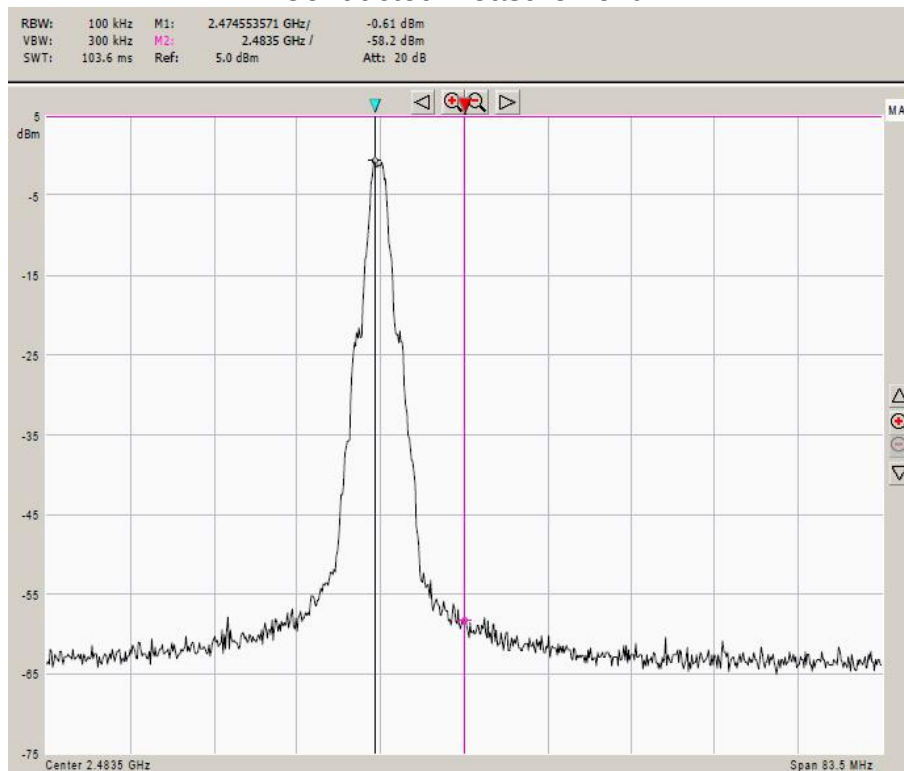
Remarks : CC2533

Test Result

☒ Passed

☐ Not Passed

Conducted measurement



Frequency (MHz)	Reading (dBm)	Limit (-20dBc)	Margin (dB)
2474.553	-0.61	-	-
2483.500	-58.2	-20.61	-37.59

Band edge Measurement

Date of test : 22nd May 2013

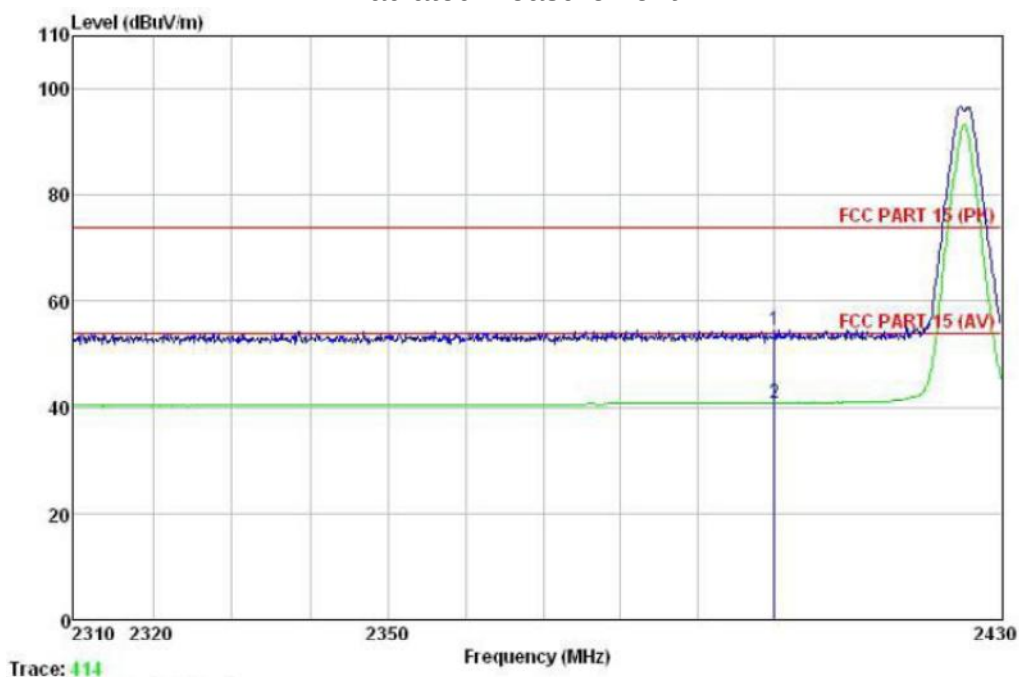
Remarks : CC2533

Test Result

☒ Passed

☐ Not Passed

Radiated measurement



Frequency (MHz)	Reading (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
2400.000	54.45	74.0	-19.55	PK
2400.000	40.83	54.0	-13.17	AV

Band edge Measurement

Date of test : 22nd May 2013

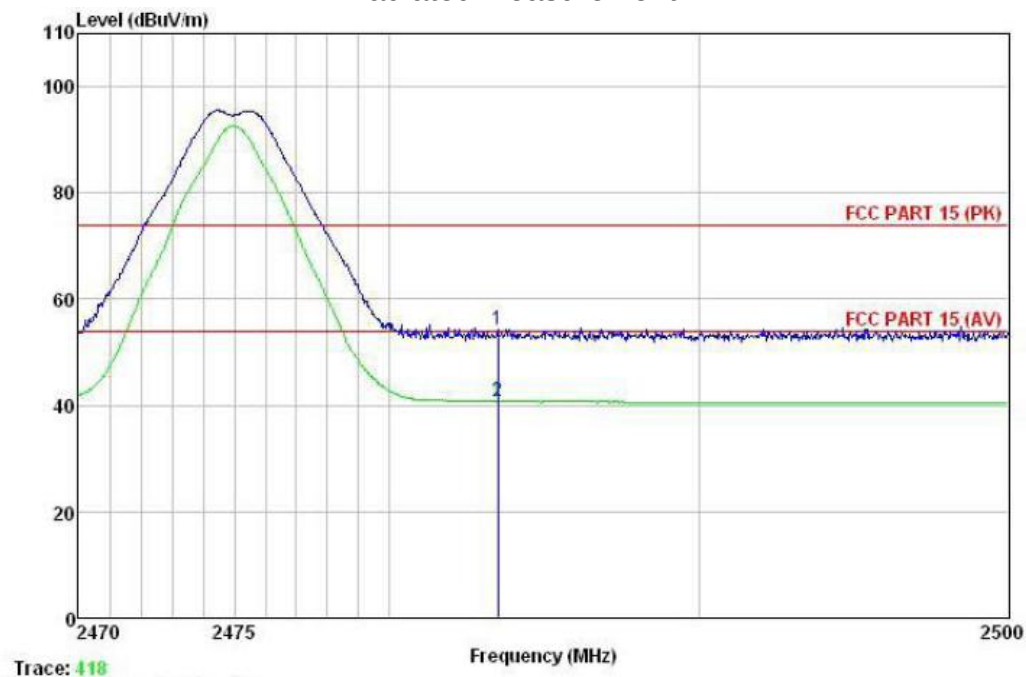
Remarks : CC2533

Test Result

☒ Passed

☐ Not Passed

Radiated measurement



Frequency (MHz)	Reading (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
2483.500	54.29	74.0	-19.71	PK
2483.500	40.72	54.0	-13.28	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 : 22nd May 2013

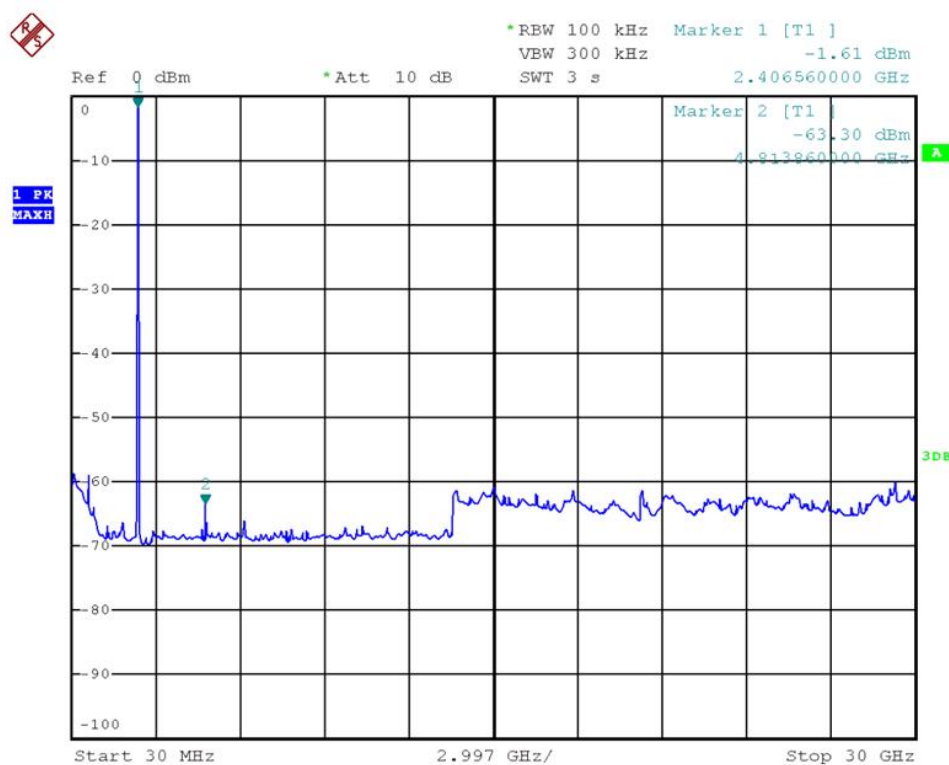
Channel : 2406 MHz

Remark : CC8530

Test Result

☒ Passed

☐ Not Passed



Spurious RF conducted emissions

Date of test : 22nd May 2013

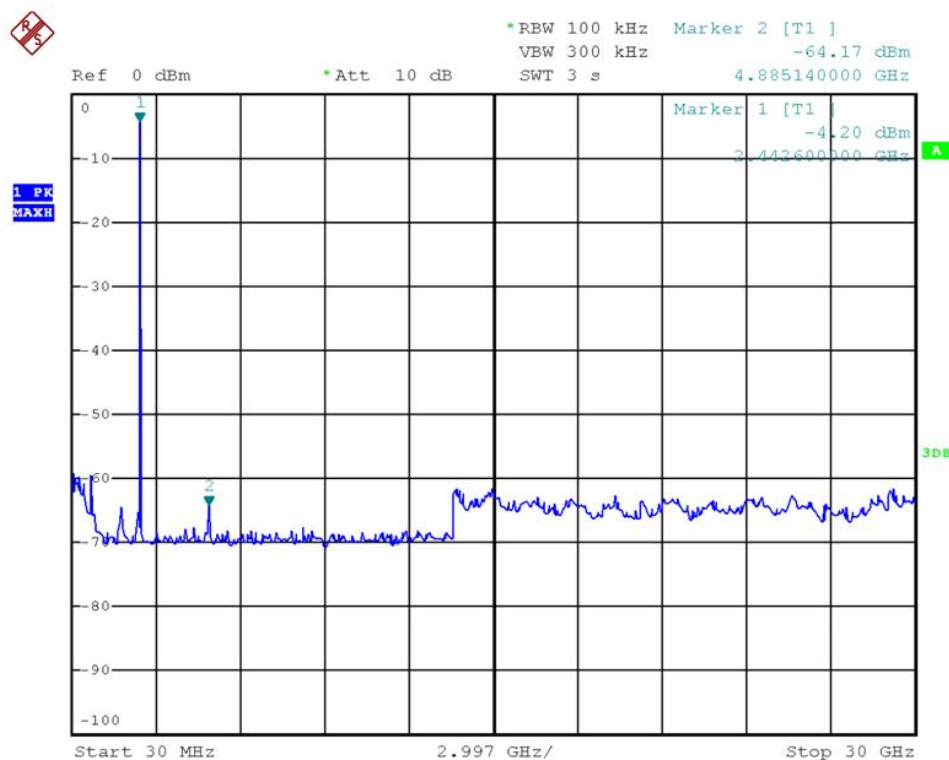
Channel : 2442MHz

Remark : CC8530

Test Result

☒ Passed

☐ Not Passed



Spurious RF conducted emissions

Date of test : 22nd May 2013

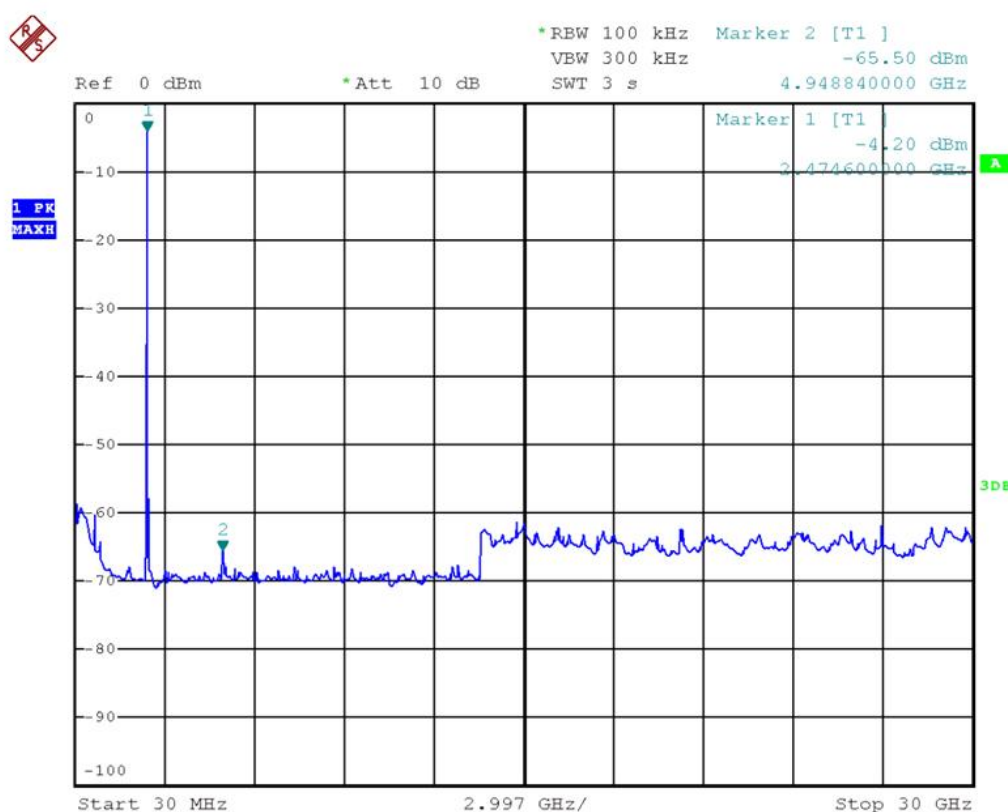
Channel : 2474MHz

Remark : CC8530

Test Result

☒ Passed

☐ Not Passed



Spurious RF conducted emissions

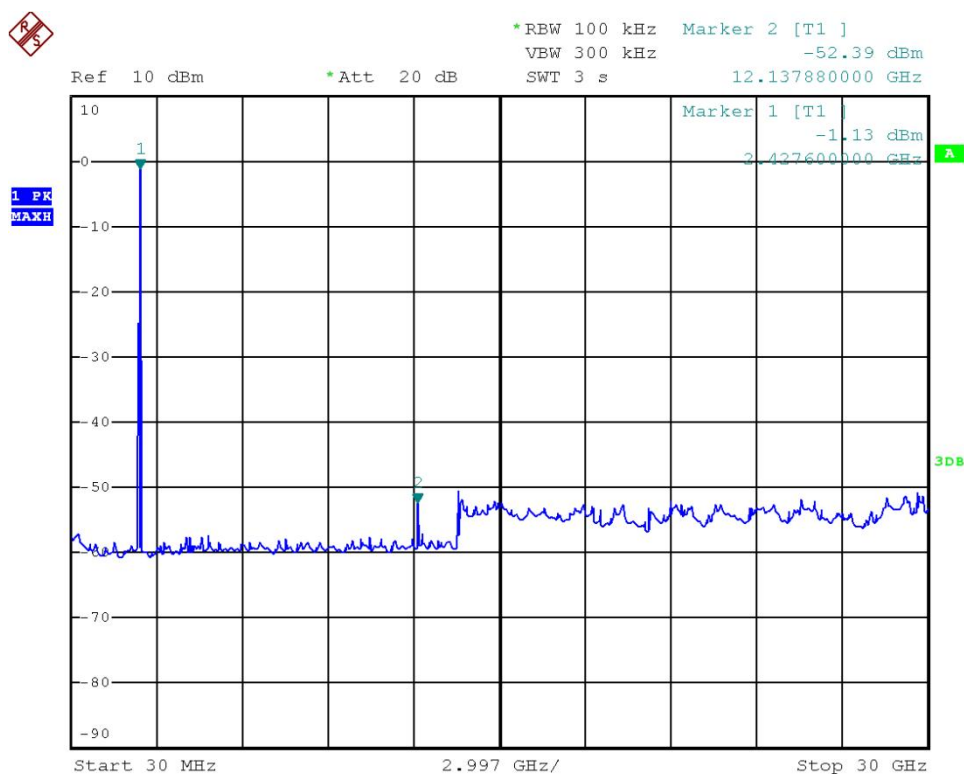
Date of test : 22nd May 2013

Channel : 2425 MHz

Remark : CC2533

Test Result

☒ Passed

☐ Not Passed


Spurious RF conducted emissions

Date of test : 22nd May 2013

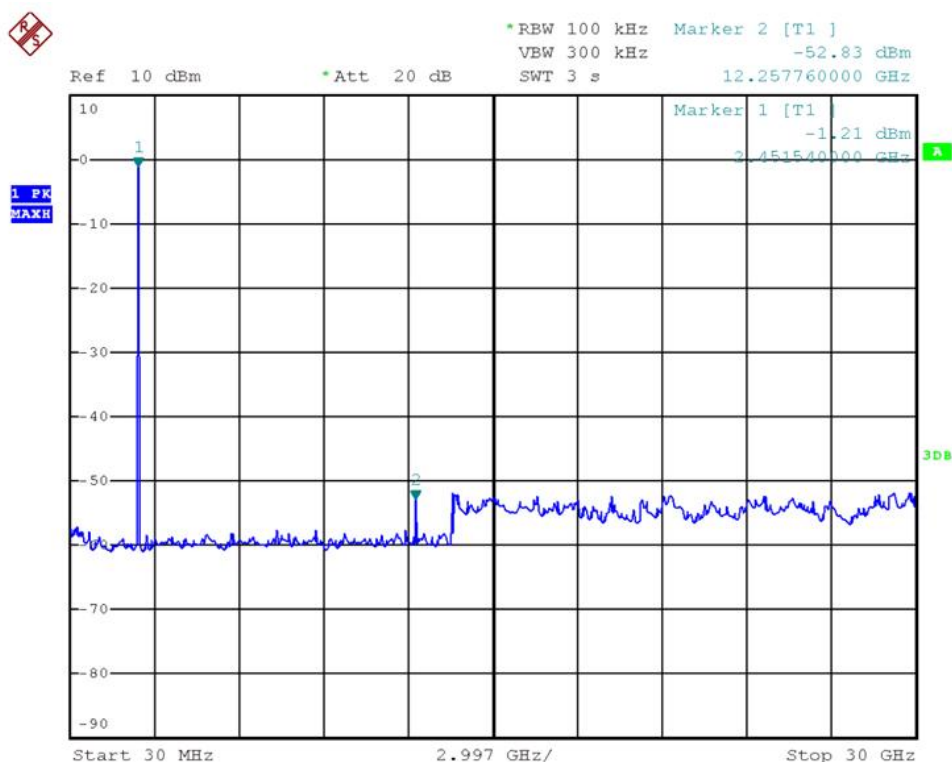
Channel : 2450MHz

Remark : CC2533

Test Result

☒ Passed

☐ Not Passed



Spurious RF conducted emissions

Date of test : 22nd May 2013

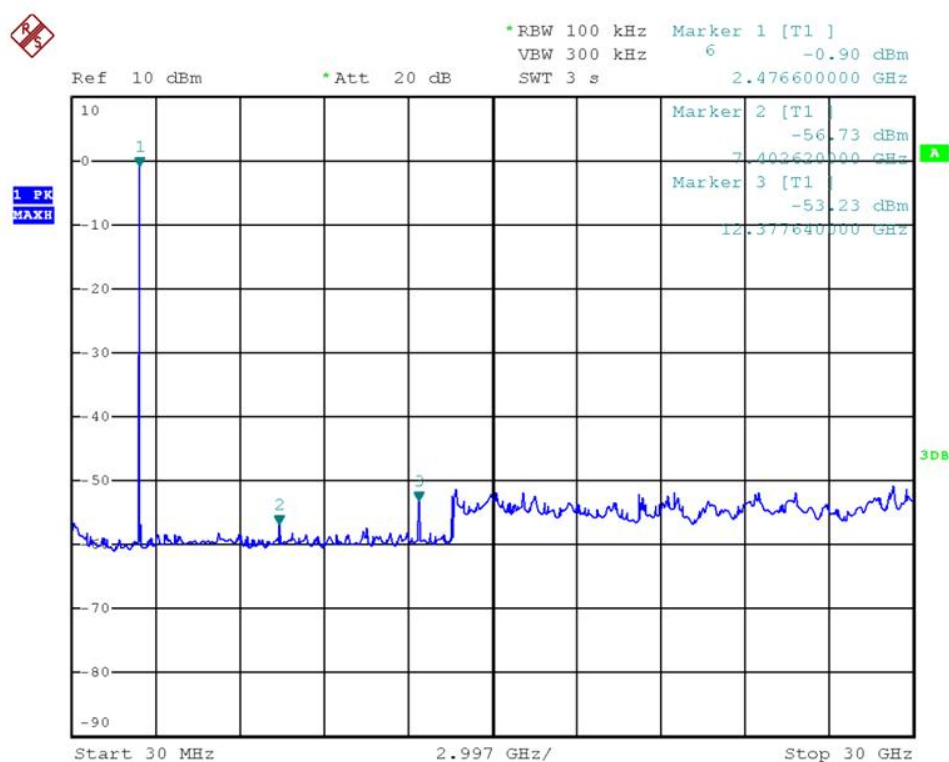
Channel : 2475MHz

Remark : CC2533

Test Result

☒ Passed

☐ Not Passed



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 : 22nd May 2013

Operating mode : Transmitter mode

Frequency : 2406MHz

Remark : CC8530

Test Result

☒ Passed

☐ Not Passed

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
39.715	V	44.87	-12.52	32.35	40.0	-7.65	QP
154.279	V	47.21	-18.53	28.68	43.5	-14.82	QP
499.425	V	50.10	-10.33	39.77	46.0	-6.23	QP
2406.000	V	66.74	33.22	99.96	/	/	PK
2406.000	V	60.58	33.22	93.80	/	/	Ave.
*4817.578	V	44.24	0.24	44.48	74.0	-29.52	PK
*4817.578	V	38.46	0.24	38.70	54.0	-15.30	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
39.715	H	32.67	-12.52	20.15	40.0	-19.85	QP
*164.330	H	52.02	-18.06	33.96	43.5	-9.54	QP
*276.124	H	47.67	-14.08	33.59	46.0	-12.41	QP
499.425	H	41.05	-10.33	30.72	46.0	-15.28	QP
2406.000	H	55.59	33.22	88.81	/	/	PK
2406.000	H	48.96	33.22	82.18	/	/	Ave.
*4817.578	H	40.02	0.24	40.26	74.0	-33.74	PK
*4817.578	H	35.84	0.24	36.08	54.0	-17.92	Ave.

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

Spurious radiated emissions

Date of test : 22nd May 2013

Operating mode : Transmitter mode

Frequency : 2442MHz

Remark : CC8530

Test Result

☒ Passed

☐ Not Passed

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
39.994	V	44.49	-12.46	32.03	40.0	-7.97	QP
159.225	V	47.10	-18.65	28.45	43.5	-15.05	QP
222.170	V	44.51	-15.62	28.89	46.0	-17.11	QP
499.425	V	51.91	-10.33	41.58	46.0	-4.42	QP
2442.000	V	65.39	33.15	98.54	/	/	PK
2442.000	V	58.19	33.15	91.34	/	/	Ave.
*4874.678	V	43.57	0.40	43.97	74.0	-30.03	PK
*4874.678	V	36.63	0.40	37.03	54.0	-16.97	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
80.081	H	37.58	-19.94	17.64	40.0	-22.36	QP
162.611	H	52.66	-18.29	34.37	43.5	-9.13	QP
*276.124	H	47.55	-14.08	33.47	46.0	-12.53	QP
499.425	H	41.56	-10.33	31.23	46.0	-14.77	QP
2442.000	H	52.99	33.15	86.14	/	/	PK
2442.000	H	55.32	33.15	88.47	/	/	Ave.
*4874.678	H	41.85	0.40	42.25	74.0	-31.75	PK
*4874.678	H	34.69	0.40	35.09	54.0	-18.91	Ave.

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

Spurious radiated emissions

Date of test : 22nd May 2013

Operating mode : Transmitter mode

Frequency : 2474MHz

Remark : CC8530

Test Result

☒ Passed

☐ Not Passed

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
38.481	V	44.73	-12.74	31.99	40.0	-8.01	QP
59.025	V	39.36	-14.98	24.38	40.0	-15.62	QP
160.909	V	47.18	-18.58	28.60	43.5	-14.90	QP
*276.124	V	41.72	-14.08	27.64	46.0	-18.36	QP
528.246	V	36.79	-9.61	27.18	46.0	-18.82	QP
2474.000	V	65.77	33.22	98.99	/	/	PK
2474.000	V	57.56	33.22	90.78	/	/	Ave.
*4948.889	V	47.64	0.65	48.29	74.0	-25.71	PK
*4948.889	V	40.35	0.65	41.00	54.0	-13.00	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
*164.330	H	54.04	-18.06	35.98	43.5	-7.52	QP
*276.124	H	46.57	-14.08	32.49	46.0	-13.51	QP
528.246	H	37.68	-9.61	28.07	46.0	-17.93	QP
2474.000	H	54.86	33.22	88.08	/	/	PK
2474.000	H	48.97	33.22	82.19	/	/	Ave.
*4948.889	H	43.10	0.65	43.75	74.0	-30.25	PK
*4948.889	H	37.05	0.65	37.70	54.0	-16.30	Ave.

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

Spurious radiated emissions

Date of test : 22nd May 2013

Operating mode : Transmitter mode

Frequency : 2425MHz

Remark : CC2533

Test Result
☒ Passed
☐ Not Passed

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
*38.212	V	44.08	-12.76	31.32	40.0	-8.68	QP
47.826	V	40.49	-13.43	27.06	40.0	-12.94	QP
*164.330	V	46.36	-18.06	28.30	43.5	-15.20	QP
499.425	V	48.88	-10.33	38.55	46.0	-7.45	QP
2425.000	V	62.08	33.18	95.26	/	/	PK
2425.000	V	55.64	33.18	88.82	/	/	Ave.
*4850.000	V	35.99	0.31	36.30	74.0	-37.70	PK
*4850.000	V	28.95	0.31	29.26	54.0	-24.74	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
*164.330	H	51.55	-18.06	33.49	43.5	-10.01	QP
*276.124	H	47.11	-14.08	33.03	46.0	-12.97	QP
528.246	H	37.94	-9.61	28.33	46.0	-17.67	QP
2425.000	H	67.31	33.18	100.49	/	/	PK
2425.000	H	60.32	33.18	93.50	/	/	Ave.
*4849.904	H	37.41	0.31	37.72	74.0	-36.28	PK
*4849.904	H	30.58	0.31	30.89	54.0	-23.11	Ave.

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

Spurious radiated emissions

Date of test : 22nd May 2013

Operating mode : Transmitter mode

Frequency : 2450MHz

Remark : CC2533

Test Result

☒ Passed

☐ Not Passed

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
39.715	V	44.89	-12.52	32.37	40.0	-7.63	QP
157.559	V	48.19	-18.63	29.56	43.5	-13.94	QP
499.425	V	48.49	-10.33	38.16	46.0	-7.84	QP
2450.000	V	62.05	33.16	95.21	/	/	PK
2450.000	V	56.39	33.16	89.55	/	/	Ave.
*4900.000	V	37.81	-0.08	37.73	74.0	-36.27	PK
*4900.000	V	30.56	-0.08	30.48	54.0	-23.52	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
*162.611	H	52.58	-18.29	34.29	43.5	-9.21	QP
*276.124	H	47.27	-14.08	33.19	46.0	-12.81	QP
499.425	H	40.60	-10.33	30.27	46.0	-15.73	QP
2450.000	H	65.87	33.16	99.03	/	/	PK
2450.000	H	58.64	33.16	91.80	/	/	Ave.
*4899.580	H	38.84	0.47	39.31	74.0	-34.69	PK
*4899.580	H	31.49	0.47	31.96	54.0	-22.04	Ave.

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

Spurious radiated emissions

Date of test : 22nd May 2013

Operating mode : Transmitter mode

Frequency : 2475MHz

Remark : CC2533

Test Result

☒ Passed

☐ Not Passed

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
39.715	V	45.33	-12.52	32.81	40.0	-7.19	QP
159.225	V	47.48	-18.65	28.83	43.5	-14.67	QP
499.425	V	50.95	-10.33	40.62	46.0	-5.38	QP
2475.000	V	62.30	33.22	95.52	/	/	PK
2475.000	V	55.24	33.22	88.46	/	/	Ave.
*4949.764	V	38.15	0.65	38.80	74.0	-35.20	PK
*4949.764	V	30.79	0.65	31.44	54.0	-22.56	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
159.225	H	54.27	-18.65	35.62	43.5	-7.88	QP
*276.124	H	47.27	-14.08	33.19	46.0	-12.81	QP
499.425	H	39.66	-10.33	29.33	46.0	-16.67	QP
2475.000	H	67.35	33.22	100.57	/	/	PK
2475.000	H	60.57	33.22	93.79	/	/	Ave.
*4949.764	H	38.39	0.65	39.04	74.0	-34.96	PK
*4949.764	H	31.68	0.65	32.33	54.0	-21.67	Ave.

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

Spurious radiated emissions

Date of test : 22nd May 2013

Operating mode : PS3 connect mode

Remark : NIL

Test Result

☒ Passed

☐ Not Passed

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
48.332	V	36.25	-13.52	22.73	40.0	-17.27	QP
119.018	V	41.23	-16.87	24.36	43.5	-19.14	QP
1332.000	V	55.62	-11.62	44.00	74.0	-30.00	PK
1332.000	V	45.96	-11.62	34.34	54.0	-19.66	Ave.
1446.436	V	56.25	-11.75	44.50	74.0	-29.50	PK
1446.436	V	47.65	-11.75	35.90	54.0	-18.10	Ave.
2388.809	V	46.11	1.90	48.01	74.0	-25.99	PK
2388.809	V	38.43	1.90	40.33	54.0	-13.67	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
48.332	H	34.03	-13.52	20.51	40.0	-19.49	QP
79.800	H	36.73	-19.94	16.79	40.0	-23.21	QP
1796.617	H	48.31	-11.04	37.27	74.0	-36.73	PK
1796.617	H	39.54	-11.04	28.50	54.0	-25.50	Ave.
2388.809	H	46.07	1.90	47.97	74.0	-26.03	PK
2388.809	H	38.96	1.90	40.86	54.0	-13.14	Ave.
5024.748	H	47.78	1.02	48.80	74.0	-25.20	PK
5024.748	H	41.66	1.02	42.68	54.0	-11.32	Ave.

Spurious radiated emissions

Date of test : 22nd May 2013

Operating mode : PC connect mode

Remark : NIL

Test Result	
☒	Passed
☐	Not Passed

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
48.332	V	40.74	-13.52	27.22	40.0	-12.78	QP
118.186	V	44.25	-16.80	27.45	43.5	-16.05	QP
1278.223	V	56.88	-11.83	45.05	74.0	-28.95	PK
1278.223	V	49.61	-11.83	37.78	54.0	-16.22	Ave.
1446.436	V	56.84	-11.75	45.09	74.0	-28.91	PK
1446.436	V	48.46	-11.75	36.71	54.0	-17.29	Ave.
2397.385	V	46.56	1.9	48.46	74.0	-25.54	PK
2397.385	V	39.89	1.9	41.79	54.0	-12.21	Ave.

Frequency (MHz)	Polarity (H/V)	Read Level (dBμV)	Corr. (dB)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector
48.332	H	35.08	-13.52	21.56	40.0	-18.44	QP
295.147	H	35.04	-13.56	21.48	46.0	-24.52	QP
1292.039	H	51.31	-11.8	39.51	74.0	-34.49	PK
1292.039	H	45.36	-11.8	33.56	54.0	-20.44	Ave.
1398.023	H	50.96	-11.84	39.12	74.0	-34.88	PK
1398.023	H	43.99	-11.84	32.15	54.0	-21.85	Ave.
1599.100	H	54.61	-11.91	42.70	74.0	-31.30	PK
1599.100	H	47.85	-11.91	35.94	54.0	-18.06	Ave.
1799.839	H	53.43	-11.04	42.39	74.0	-31.61	PK
1799.839	H	44.96	-11.04	33.92	54.0	-20.08	Ave.
1993.371	H	50.00	-9.97	40.03	74.0	-33.97	PK
1993.371	H	42.84	-9.97	32.87	54.0	-21.13	Ave.
2388.809	H	47.18	1.9	49.08	74.0	-24.92	PK
2388.809	H	40.86	1.9	42.76	54.0	-11.24	Ave.

7.6 6dB bandwidth

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]

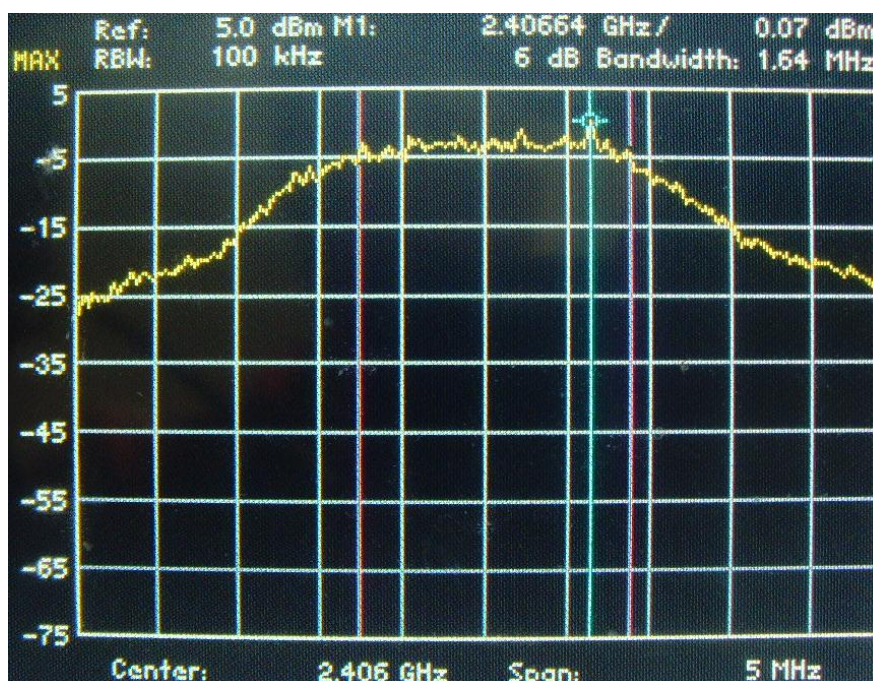
≥ 500

6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.64	Pass

Remark : CC8530

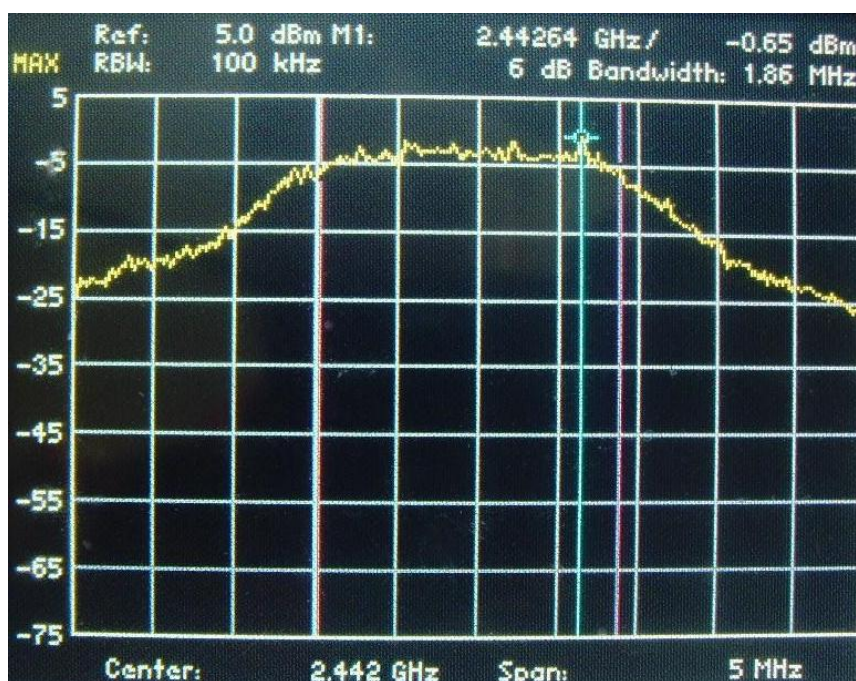


6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.86	Pass

Remark : CC8530

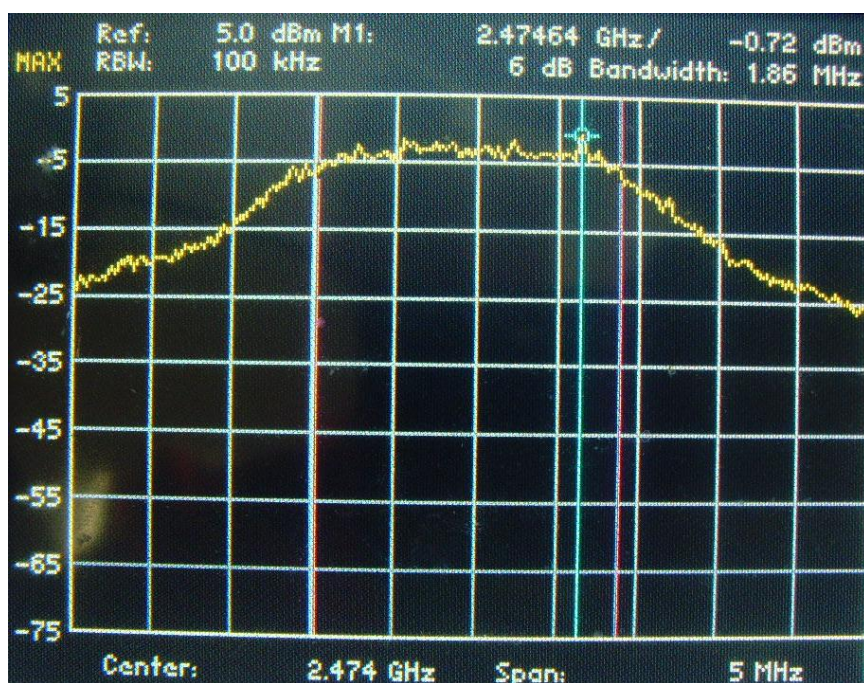


6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.86	Pass

Remark : CC8530

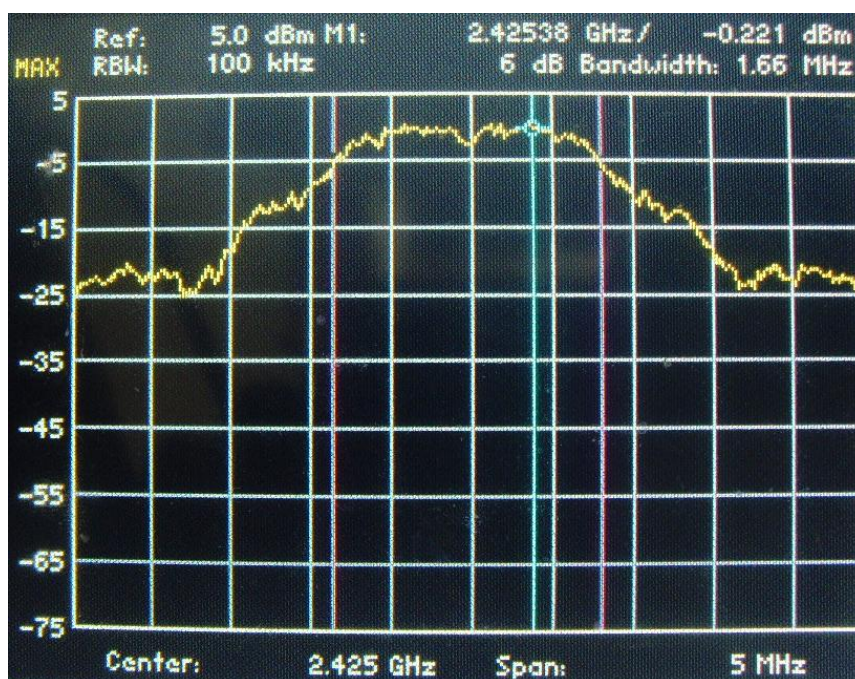


6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.66	Pass

Remark : CC2533

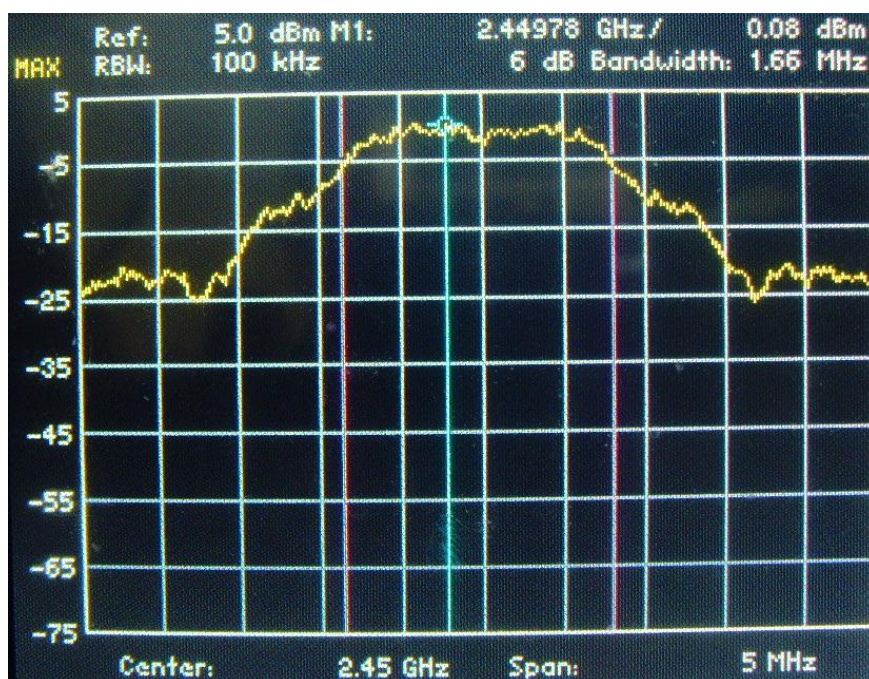


6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.66	Pass

Remark : CC2533

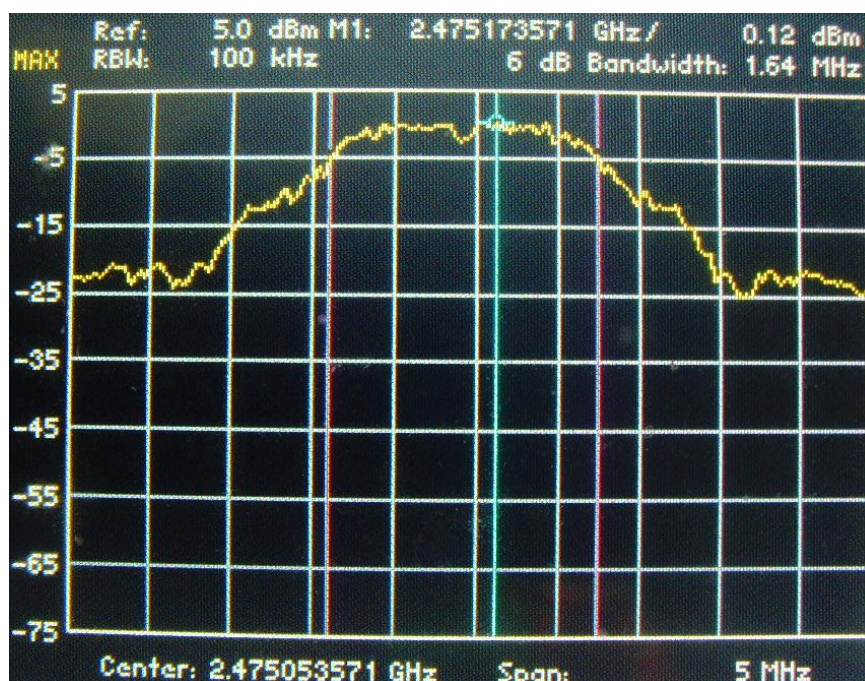


6dB bandwidth

6dB bandwidth test result

Bandwidth MHz	Result
1.64	Pass

Remark : CC2533



7.7 Power spectral density

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

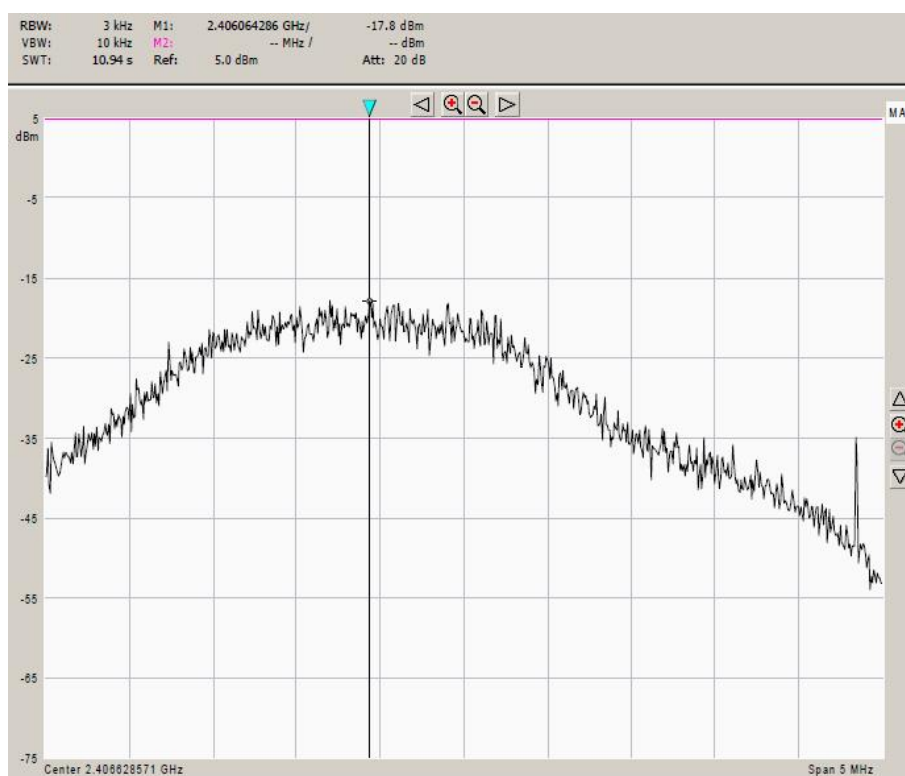
8

Power spectral density

Test result

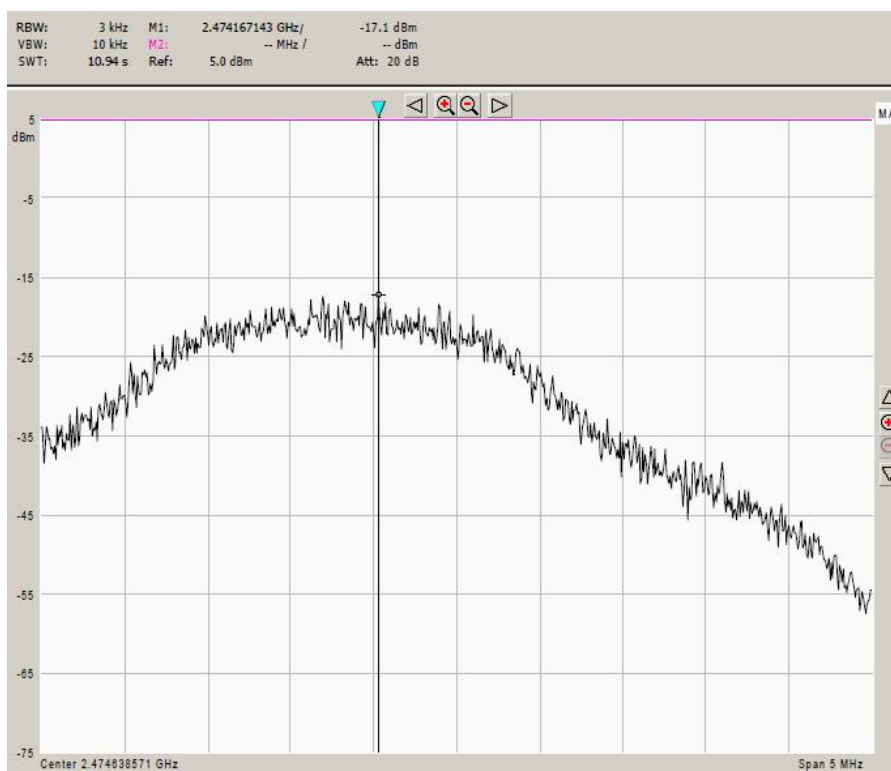
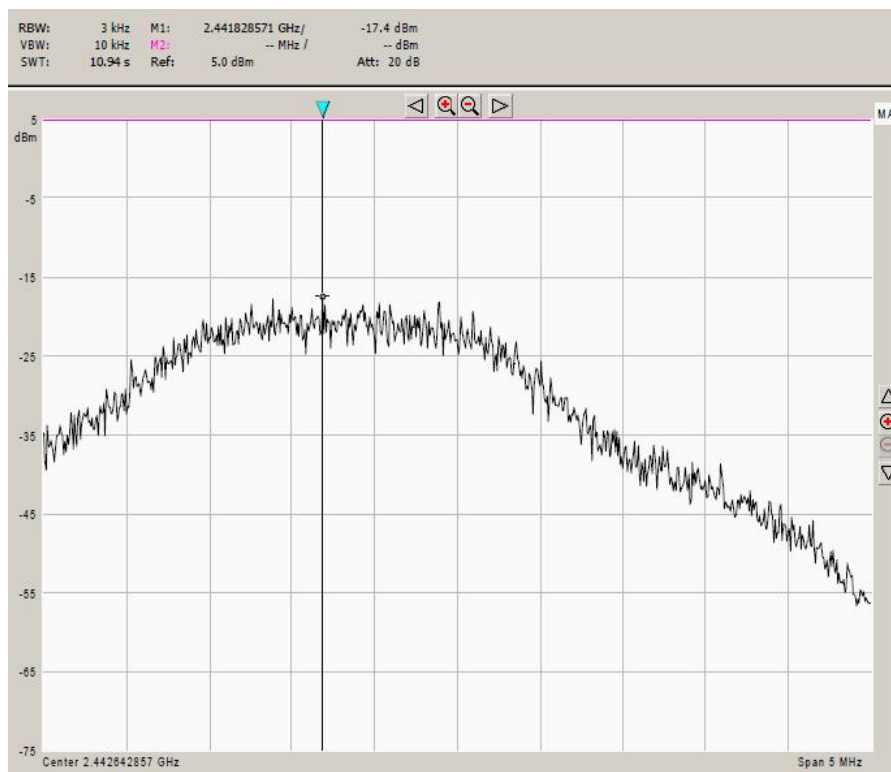
CC8530

Frequency (MHz)	Power spectral density (dBm)	Result
2406	-17.8	Pass
2442	-17.4	Pass
2474	-17.1	Pass



Power spectral density

CC8530

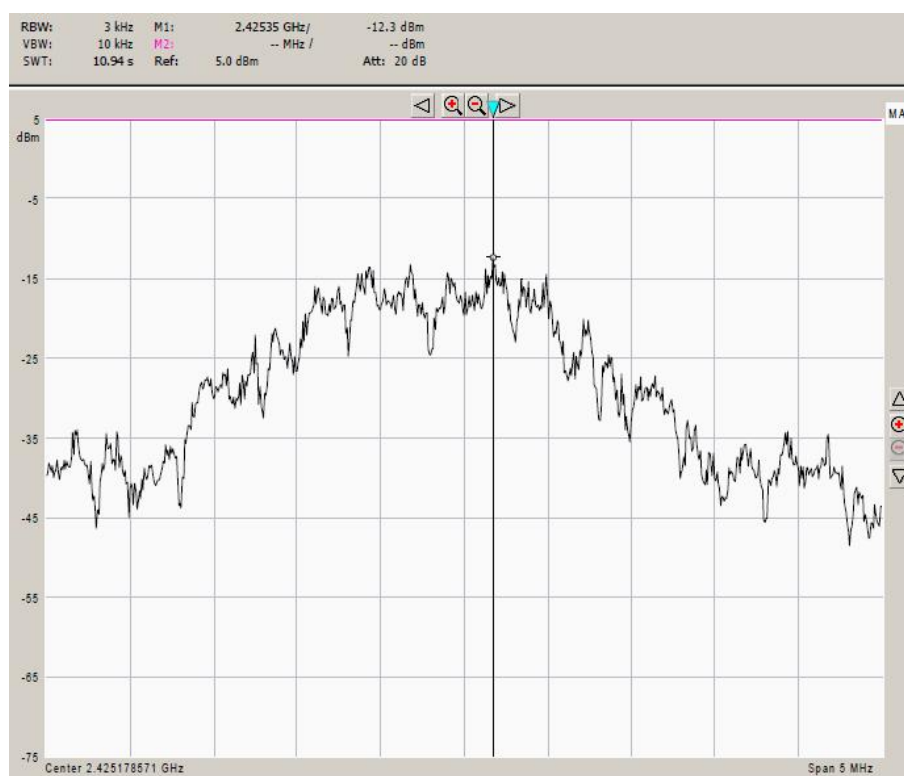


Power spectral density

Test result

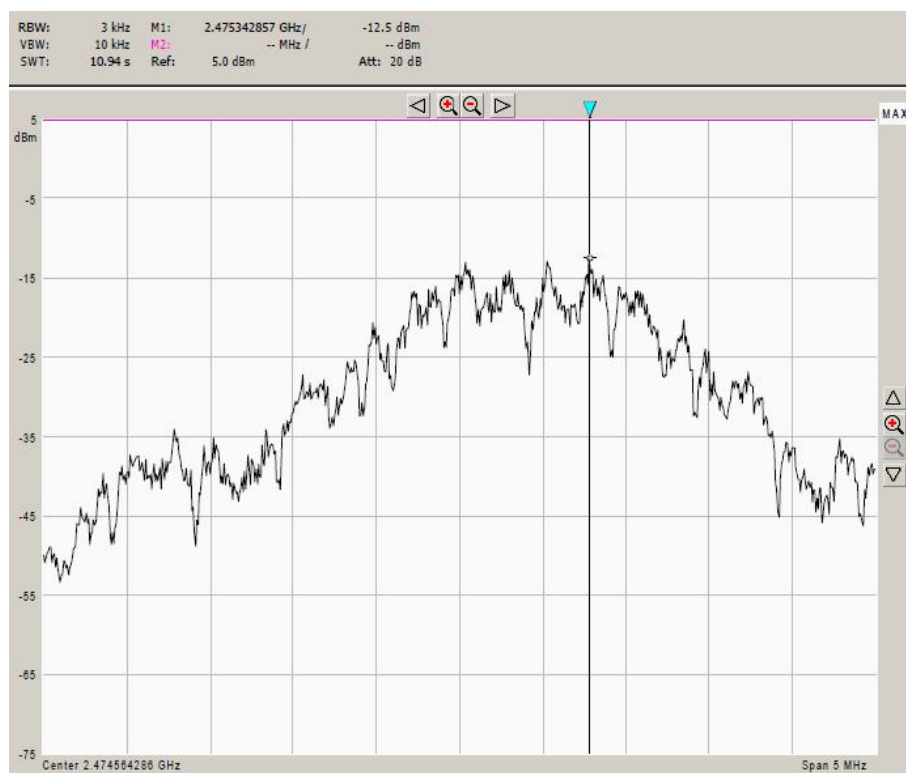
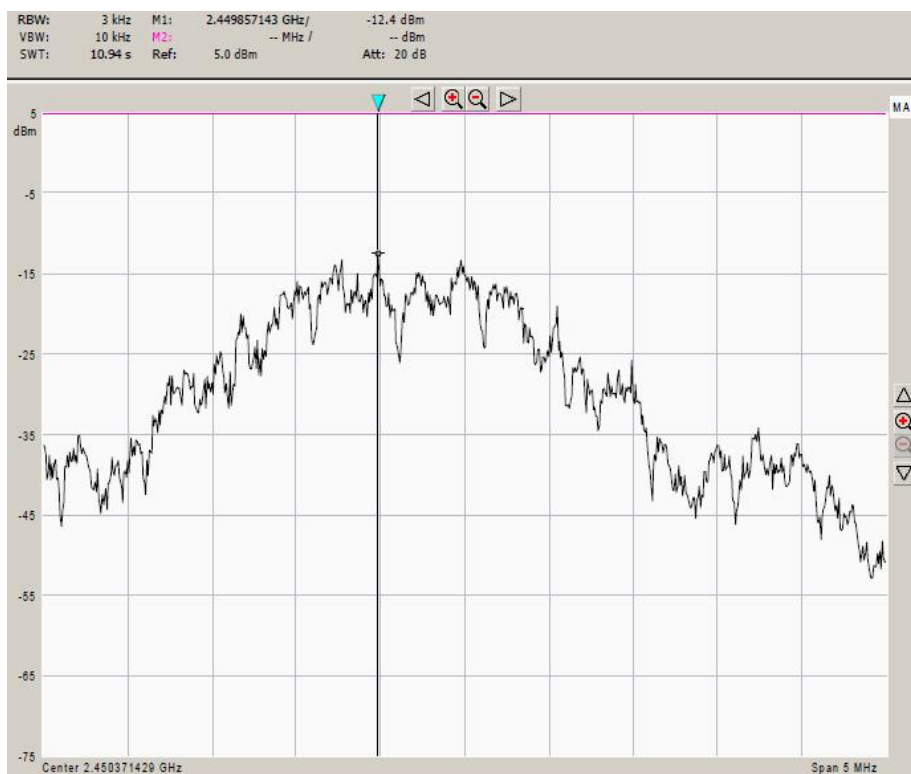
CC2533

Frequency (MHz)	Power spectral density (dBm)	Result
2425	-12.3	Pass
2450	-12.4	Pass
2475	-12.5	Pass



Power spectral density

CC2533



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	Manufacturer	Model No.	Inventory No.	Cal. Due date (mm-dd-yy)
EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	Mar. 31 2014
LISN	CHASE	MN2050D	CCIS0074	Mar. 31 2014
EMI Test Software	AUDIX	E3	N/A	N/A
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	CCIS0086	Mar. 31 2014
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