

APPLICATION FOR CERTIFICATION

On Behalf of

SuZhou BesCon Electronics Co., Ltd.

RF4CE Dongle

Model No. : RCN1008

Serial No. : 695900081

FCC ID : 2AB9RRCN1008

Prepared for

SuZhou BesCon Electronics Co., Ltd.

Building 2405, Qingjianhu Science & Technology Park, No.58 Weixin Road, Suzhou Industrial Park

Prepared by

Audix Technology (Wujiang) Co., Ltd. EMC Dept.

No. 1289 Jiangxing East Road, the Part of Wujiang Economic Development Zone
Jiangsu China 215200

Tel : +86-512-63403993

Fax :+86-512-63403339

Report Number : ACWE-F1405005

Date of Test : Apr.17~23, 2014

Date of Report : May 13, 2014

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TEST REPORT CERTIFICATION

Applicant : SuZhou BesCon Electronics Co., Ltd.
 Manufacturer : Optelec Limited
 EUT Description : RF4CE Dongle
 (A) Model No. : RCN1008
 (B) Serial No. : 695900081
 (C) Brand : Optelec
 (D) Power Supply : DC 3.3V
 (E) Test Voltage : DC 3.3V

Applicable Standards:

FCC RULES AND REGULATIONS PART 15 SUBPART C, Oct. 2012
ANSI C63.4-2003
KDB 558074 D01 DTS Meas Guidance v03r01

The device described above was tested by Audix Technology (Wujiang) Co., Ltd. EMC Dept. to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C section 15.207, 15.205, 15.209&15.247 limits.

The measurement results are contained in this test report and Audix Technology (Wujiang) Co., Ltd. EMC Dept. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the FCC limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Wujiang) Co., Ltd. EMC Dept.

Date of Test: Apr.17~23, 2014

Date of Report: May 13, 2014

Prepared by

:

Tina Zhang

(Tina Zhang/Assistant Administrator)

Reviewer

:

Jingo Lin

(Jingo Lin/Section Manager)

Approved & Authorized Signer

:

Ken Lu

(Ken Lu/ Assistant General Manager)

1. SUMMARY OF MEASUREMENTS AND RESULTS

The EUT has been tested according to the applicable standards and test results are referred as below.

Description of Test Item	Standard	Results	Remark
CONDUCTED EMISSION	FCC 47 CFR Part 15 Subpart C/ Section 15.207 And ANSI C63.4-2003 And KDB 558074 D01 DTS Meas Guidance v03r01	N/A ^(Note)	---
RADIATED EMISSION	FCC 47 CFR Part 15 Subpart C/ Section 15.209& Section 15.205 And ANSI C63.4-2003 And KDB 558074 D01 DTS Meas Guidance v03r01	PASS	Minimum passing margin is 5.19 dB at 12847.82MHz
6 dB BANDWIDTH	FCC 47 CFR Part 15 Subpart C/ Section 15.247(a)(2) And ANSI C63.4-2003 And KDB 558074 D01 DTS Meas Guidance v03r01	PASS	Minimum passing margin is 1114 kHz at CH 15
MAXIMUM PEAK OUTPUT POWER	FCC 47 CFR Part 15 Subpart C/ Section 15.247(b)(3) And ANSI C63.4-2003 And KDB 558074 D01 DTS Meas Guidance v03r01	PASS	Minimum passing margin is 28.203dB at CH 15
BAND EDGES	FCC 47 CFR Part 15 Subpart C/ Section 15.247(d) And ANSI C63.4-2003 And KDB 558074 D01 DTS Meas Guidance v03r01	PASS	---
POWER SPECTRAL DENSITY	FCC 47 CFR Part 15 Subpart C/ Section 15.247(e) And ANSI C63.4-2003 And KDB 558074 D01 DTS Meas Guidance v03r01	PASS	Minimum passing margin is 28.231dB at CH 15
EMISSION LIMITATIONS	FCC 47 CFR Part 15 Subpart C/ Section 15.247(d) And ANSI C63.4-2003 And KDB 558074 D01 DTS Meas Guidance v03r01	PASS	---

Note: The EUT is a module, and it is a bare-board, which is powered by the test fixture. It will be fixed inside other product and powered by this product. According to the above, these test items are not applicable to test.

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Description	:	RF4CE Dongle
Model No.	:	RCN1008
Serial No.	:	695900081
FCC ID	:	2AB9RRCN1008
Brand	:	Optelec
Applicant	:	SuZhou BesCon Electronics Co., Ltd. Building 2405, Qingjianhu Science & Technology Park, No.58 Weixin Road, Suzhou Industrial Park
Manufacturer	:	Optelec Limited Breslau 4 2993 LT Barendrecht The Netherlands
Radio Technology	:	IEEE 802.15.4 (ZigBee®)
Antenna Gain	:	2.26dBi
Fundamental Range	:	2400 MHz -2480MHz
Tested Frequency	:	2425MHz (CH15) 2450MHz (CH20) 2475MHz (CH25)
Working Frequency	:	2.4 GHz
Modulation type	:	O-QPSK
Date of Receipt of Sample	:	Apr.17, 2014
Date of Test	:	Apr.17~23, 2014

Remark:

The product was tested without using MIMO technology, so we chose one of the biggest antenna power(Ant.1) for all the testing project, please refer to the following specific data.

Ant.0

Channel	Frequency	Power(dBm)	Limit(dBm)
15	2425	1.183	30
20	2450	0.928	30
25	2475	0.679	30

Ant.1

Channel	Frequency	Power(dBm)	Limit(dBm)
15	2425	1.797	30
20	2450	1.555	30
25	2475	1.294	30

2.2. Tested Supporting System Details

2.2.1. PC

Manufacturer : DELL
 Model Number : PP26L
 Serial Number : JX193A01
 Power Cord : Unshielded, Detachable, 1.5 m
 AC Adapter : M/N: LA65NS1-00
 Brand: DELL
 Input: AC 100-240V, 50-60Hz, 1.5A
 Output: DC 19.5V, 3.34A
 DC Cord: Unshielded, Undetachable, 2.0m, 1 ferrite core.

2.3. Description of Test Facility

Name of Firm : **Audix Technology (Wujiang) Co., Ltd. EMC Dept.**
 Site Location : No. 1289 Jiangxing East Road, the Eastern Part of Wujiang Economic Development Zone Jiangsu China 215200
 Test Facilities : **No.1 3m Semi-anechoic Chamber**
 Date of Validity: May. 23, 2015
 FCC Registration No.: 897661
 IC Registration No.: 5183D-2
RF Fully Chamber
 NVLAP Lab Code : 200786-0
 (NVLAP is a NATA accredited body under Mutual Recognition Agreement)
 Valid until on Sep.30, 2014

2.4. Measurement Uncertainty

Test Item	Range Frequency	Uncertainty
Radiated Disturbance Measurement (At 3m Chamber)	Below 1GHz	$\pm 3.42\text{dB}$
Radiated Disturbance Measurement (At 3m Chamber)	Above 1GHz	$\pm 4.49\text{dB}$

Remark: Uncertainty = $k_{uc}(y)$

Test Item	Uncertainty
6 dB Bandwidth	$\pm 3.1 \times 10^{-6}$ MHz
Maximum Peak Output Power	± 0.30 dB
Band Edges	± 0.302 dB
Power Spectral Density	± 0.212 dB
Emission Limitations	± 0.24 dB

Remark: Uncertainty = $ku_c(y)$

3. RADIATED EMISSION MEASUREMENT

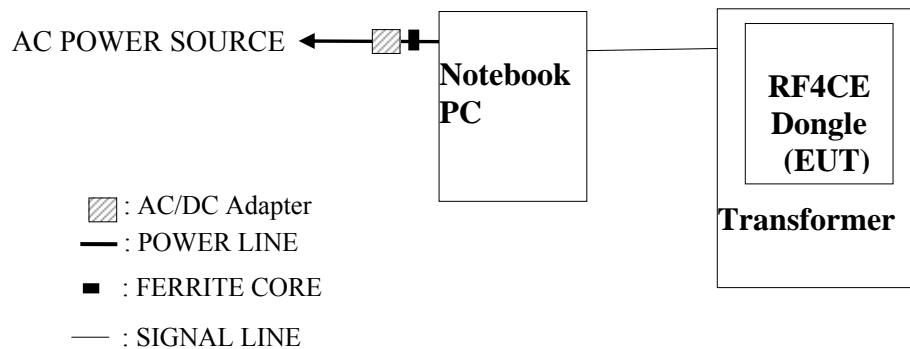
3.1. Test Equipment

The following test equipment was used during the radiated emission measurement:
At 3m Semi-Anechoic Chamber

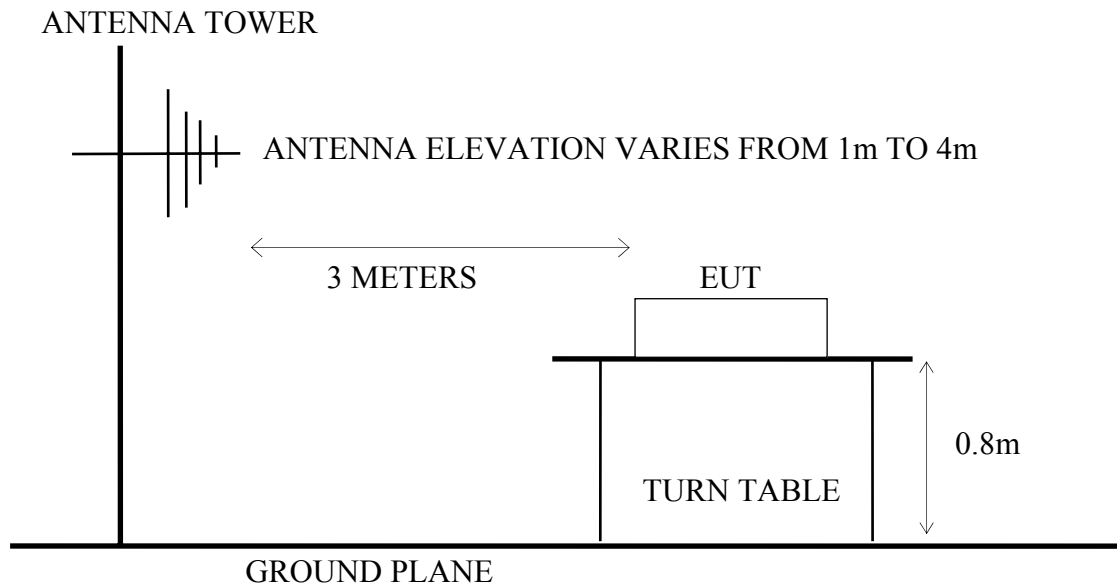
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Preamplifier	Agilent	8449B	2944A10921	2013-08-14	2014-08-13
2.	Preamplifier	Agilent	8447D	2944A10921	2013-08-14	2014-08-13
3.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2013-06-24	2014-06-23
4.	Test Receiver	R&S	ESCI	100361	2014-01-05	2015-01-04
5.	Bi-log Antenna	Schaffner	CBL6112D	22253	2013-05-04	2014-05-03
6.	Horn Antenna	EMCO	3115	00062960	2013-05-07	2014-05-06
7.	Horn Antenna	EMCO	3116	00062641	2013-06-08	2015-06-07
8.	Test Receiver	R&S	ESCI	100361	2014-01-05	2015-01-04
9.	RF Cable #1	Yuhang CSYH	cable-3m	001(0.5m)	2013-08-13	2014-08-12
10.	RF Cable #2	Yuhang CSYH	cable-3m	002(0.5m)	2013-08-13	2014-08-12
11.	RF Cable #3	Yuhang CSYH	cable-3m	003(3.0m)	2013-08-13	2014-08-12

3.2. Block Diagram of Test Setup

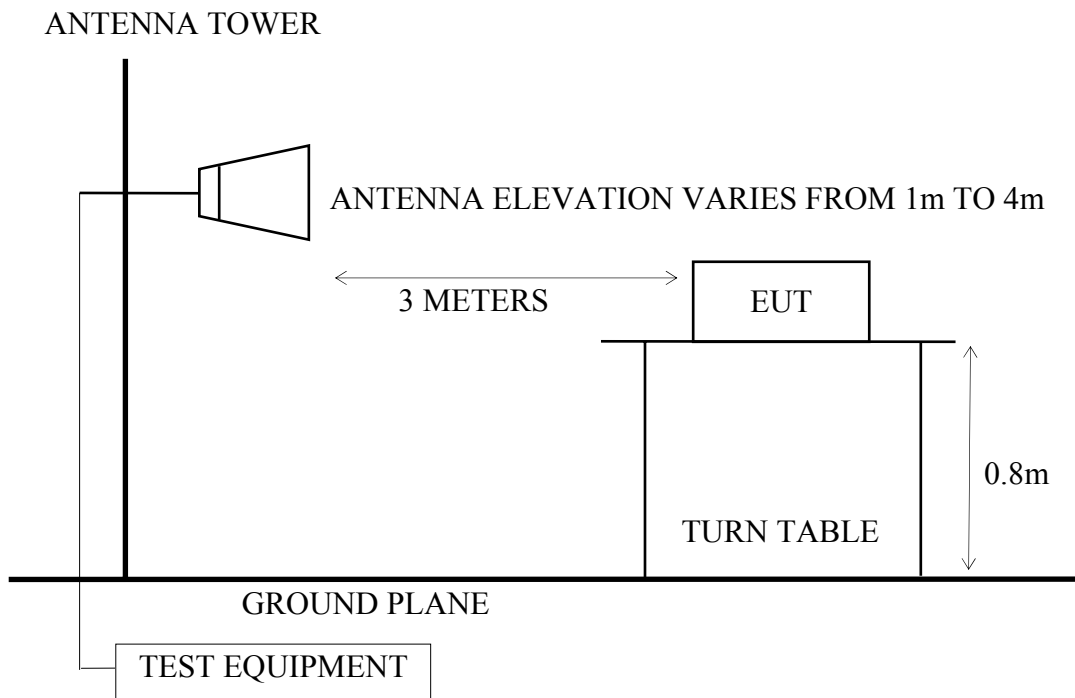
3.2.1. Block Diagram of Test Setup between EUT and simulators



3.2.2. No. 1 3m Semi-Anechoic Chamber Setup Diagram (Test distance:3m) for 30-1000MHz



3.2.3. No. 1 3m Semi-Anechoic Chamber Setup Diagram (Test distance: 3m) for above 1GHz



3.3. Radiated Emission Limits

Radiated Emission Limits (FCC Part15 C, section 15.209, CISPR22)

Frequency MHz	Distance Meters	Field Strengths Limits
		dB μ V/m
30 ~ 230	10	30.0
230 ~ 1000	10	37.0
Above 1000	3	74.0 dB μ V/m (Peak) 54.0 dB μ V/m (Average)

Remark : (1) Emission level (dB μ V/m) = 20 log Emission level (μ V/m)
(2)The tighter limit applies at the edge between two frequency bands.

3.4. Test Procedure

The measuring process is according to ANSI C63.4-2003 and laboratory internal procedure TKC-301-001. (For FCC Part15 Subpart C)

In the radiated disturbance measurement, the EUT and all simulators were set up on a non-metallic turn table which was 0.8 meters above the ground plane. Measurement distance between EUT and receiving antennas was set at 10 meters at 30MHz~1000MHz and 3 meters at above 1GHz. The specified distance is the distance between the antennas and the closest periphery of EUT. During the radiated measurement, the EUT was rotated 360° and receiving antennas were moved from 1 ~ 4 meters for finding maximum emission. Two receiving antennas were used for both horizontal and vertical polarization detection for 30MHz~1GHz, One receiving antennas was used for both horizontal and vertical polarization detection for above 1GHz (the absorbing material was added when testing of above 1GHz was done). All cables or wires placement were verified to find out the maximum emission.

The bandwidth of measuring receiver (or spectrum analyzer) was set to:

RBW (120 kHz), VBW (300 kHz) for QP detector below 1GHz
RBW (1 MHz), VBW (1MHz) for Peak detector above 1GHz
RBW (1 MHz), VBW (10 Hz) for AV detector above 1GHz

The required frequency band (30 MHz ~ 12000 MHz) was pre-scanned with peak detector; all final measurements were measured with quasi-peak detector below 1GHz, measured with average detector and peak detector above 1GHz.

The emission level is calculated automatically by the test system which uses the following equation :

- For 30-1000MHz measurement:
Emission Level (dB μ V/m) = Meter-Reading (dB μ V)+Antenna Factor (dB/m)+Cable Loss (dB)
- For Above 1GHz measurement:
Emission Level (dB μ V/m) = Meter-Reading (dB μ V)+Antenna Factor (dB/m)+Cable Loss(dB)
-Pre-amplifier factor (dB)

3.5. Assessment In All Three Orthogonal Planes

After assessment in all three orthogonal planes, when choosing Channel 15 test in the radiation, found that XY plan is the worst mode in Horizontal and Vertical, so in the test of radiation, all with XY plan model test, refer to the following specific data.

Test Mode:XY Plan

Polarization	Frequency (MHz)	Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2425.48	100.07	28.15	6.49	35.06	99.65	74.00	-25.65	Peak
Vertical	2424.48	98.28	28.15	6.49	35.06	97.86	74.00	-23.86	Peak

Test Mode:XZ Plan

Polarization	Frequency (MHz)	Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2424.48	95.59	28.15	6.49	35.06	95.17	74.00	-21.17	Peak
Vertical	2425.45	96.38	28.15	6.49	35.06	95.96	74.00	-21.96	Peak

Test Mode:YZ Plan

Polarization	Frequency (MHz)	Reading dB (μV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Emission Level dB (μV/m)	Limits dB (μV/m)	Margin (dB)	Remark
Horizontal	2424.45	94.70	28.15	6.49	35.06	94.28	74.00	-20.28	Peak
Vertical	2424.38	96.50	28.15	6.49	35.06	96.08	74.00	-22.08	Peak

3.6. Measurement Results

PASSED

(All the emissions not reported below are too low against the prescribed limits.)

3.6.1. For Restricted Bands:

The EUT was tested in restricted bands and all the test results are listed in section 4.6 & 4.7.
(The restricted bands defined in part 15.205(a))

For Frequency range : below 1GHz

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2425MHz (Channel 15)	# 9	# 10
2.		2450MHz (Channel 20)	# 11	# 12
3.		2475MHz (Channel 25)	# 13	# 14
4.	Receiving		# 15	# 16

For Frequency range : above 1GHz

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2425MHz (Channel 15)	# 17	# 18
2.		2450MHz (Channel 20)	# 19	# 20
3.		2475MHz (Channel 25)	# 21	# 22
4.	Receiving		# 23	# 24

3.6.2. For Band Edge Emission

The EUT was tested in restricted bands and all the test results are listed in section 4.8. The restricted bands defined in part 15.205(a))

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2425MHz (Channel 15)	# 1, # 3	# 2, # 4
2.		2475MHz (Channel 25)	# 5, # 7	# 6, # 8

3.7. Restricted Bands Measurement Results (For Below 1GHz)



Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel: (0512) 63403993 Fax: (0512) 63403993

Site NO. : 3m chamber Data NO. : 9
Dis. / Ant. : 3m 6112D(22253)-1305-3M Ant. pol. : HORIZONTAL
Limit : FCC PART 15 CLASS B
Env. / Ins. : 26.8*CS&49%/ESCI Engineer : boqiang_li
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating : DC 3.3V
Test Mode : TX CH15 2425MHz
Memo : S/N:695900081

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	59.10	6.80	0.44	44.73	24.64	40.00	15.36	QP
2	141.55	11.80	0.81	46.42	32.17	43.50	11.33	QP
3	167.74	10.40	0.88	50.39	34.94	43.50	8.56	QP
4	226.91	11.05	1.16	50.90	36.61	46.00	9.39	QP
5	311.30	14.33	1.22	48.39	37.48	46.00	8.52	QP
6	454.86	17.30	1.61	45.40	36.97	46.00	9.03	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel: (0512) 63403993 Fax: (0512) 63403993

Site NO. : 3m chamber Data NO. : 10
Dis. / Ant. : 3m 6112D(22253)-1305-3M Ant. pol. : VERTICAL
Limit : FCC PART 15 CLASS B
Env. / Ins. : 26.8*CS&49%/ESCI Engineer : boqiang_li
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating : DC 3.3V
Test Mode : TX CH15 2425MHz
Memo : S/N:695900081

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	34.85	17.50	0.27	40.04	30.33	40.00	9.67	QP
2	66.86	6.80	0.44	51.84	31.80	40.00	8.20	QP
3	141.55	11.80	0.81	46.66	32.41	43.50	11.09	QP
4	238.55	12.10	1.07	49.81	36.51	46.00	9.49	QP
5	299.66	14.00	1.31	45.89	34.81	46.00	11.19	QP
6	450.98	17.30	1.55	43.12	34.64	46.00	11.36	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Economic Development Zone,JiangSu,China
Tel:(0512) 63403993 Fax:(0512) 63403993

Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22253)-1305-3M
Limit : FCC PART 15 CLASS B
Env. / Ins. : 26.8°C&49%/ESCI
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating : DC 3.3V
Test Mode : TX CH20 2450MHz
Memo : S/N:695900081

Data NO. :11
Ant. pol. : HORIZONTAL
Engineer : boqiang_li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	66.86	6.80	0.44	44.70	24.66	40.00	15.34	QP
2	141.55	11.80	0.81	47.13	32.88	43.50	10.62	QP
3	167.74	10.40	0.88	49.54	34.09	43.50	9.41	QP
4	214.30	10.40	1.00	50.63	35.50	43.50	8.00	QP
5	311.30	14.33	1.22	46.58	35.67	46.00	10.33	QP
6	450.98	17.30	1.55	44.15	35.67	46.00	10.33	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel:(0512) 63403993 Fax:(0512) 63403993

Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22253)-1305-3M
Limit : FCC PART 15 CLASS B
Env. / Ins. : 26.8°C&49%/ESCI
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating : DC 3.3V
Test Mode : TX CH20 2450MHz
Memo : S/N:695900081

Data NO. :12
Ant. pol. : VERTICAL
Engineer : boqiang_li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	35.82	16.20	0.30	40.90	29.92	40.00	10.08	QP
2	59.10	6.80	0.44	50.50	30.41	40.00	9.59	QP
3	70.74	6.90	0.49	50.14	30.27	40.00	9.73	QP
4	141.55	11.80	0.81	44.46	30.21	43.50	13.29	QP
5	238.55	12.10	1.07	47.71	34.41	46.00	11.59	QP
6	331.67	14.77	1.34	43.34	32.88	46.00	13.12	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
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Tel: (0512) 63403993 Fax: (0512) 63403993

Site NO. : 3m chamber Data NO. :13
Dis. / Ant. : 3m 6112D(22253)-1305-3M Ant. pol. : HORIZONTAL
Limit : FCC PART 15 CLASS B
Env. / Ins. : 26.8°C&49%/ESCI Engineer : boqiang_li
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating : DC 3.3V
Test Mode : TX CH25 2475MHz
Memo : S/N:695900081

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	59.10	6.80	0.44	46.22	26.13	40.00	13.87	QP
2	70.74	6.90	0.49	44.71	24.84	40.00	15.16	QP
3	156.10	10.90	0.98	48.11	33.20	43.50	10.30	QP
4	167.74	10.40	0.88	49.62	34.17	43.50	9.33	QP
5	311.30	14.33	1.22	47.36	36.45	46.00	9.55	QP
6	419.94	17.40	1.51	44.51	36.29	46.00	9.71	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel: (0512) 63403993 Fax: (0512) 63403993

Site NO. : 3m chamber Data NO. :14
Dis. / Ant. : 3m 6112D(22253)-1305-3M Ant. pol. : VERTICAL
Limit : FCC PART 15 CLASS B
Env. / Ins. : 26.8°C&49%/ESCI Engineer : boqiang_li
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating : DC 3.3V
Test Mode : TX CH25 2475MHz
Memo : S/N:695900081

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	32.91	18.70	0.24	39.16	30.60	40.00	9.40	QP
2	47.46	9.80	0.44	46.09	28.92	40.00	11.08	QP
3	70.74	6.90	0.49	51.80	31.93	40.00	8.07	QP
4	141.55	11.80	0.81	45.58	31.33	43.50	12.17	QP
5	238.55	12.10	1.07	49.73	36.43	46.00	9.57	QP
6	311.30	14.33	1.22	45.47	34.56	46.00	11.44	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel: (0512) 63403993 Fax: (0512) 63403993

Site NO. : 3m chamber Data NO. :15
Dis. / Ant. : 3m 6112D(22253)-1305-3M Ant. pol. : HORIZONTAL
Limit : FCC PART 15 CLASS B
Env. / Ins. : 26.8°C&49%/ESCI Engineer : boqiang_li
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating : DC 3.3V
Test Mode : RX
Memo : S/N:695900081

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	66.86	6.80	0.44	44.13	24.09	40.00	15.91 QP
2	141.55	11.80	0.81	48.80	34.55	43.50	8.95 QP
3	153.19	11.00	0.88	49.20	34.28	43.50	9.22 QP
4	226.91	11.05	1.16	49.42	35.13	46.00	10.87 QP
5	311.30	14.33	1.22	47.49	36.58	46.00	9.42 QP
6	450.01	17.30	1.55	46.60	38.13	46.00	7.87 QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel: (0512) 63403993 Fax: (0512) 63403993

Site NO. : 3m chamber Data NO. :16
Dis. / Ant. : 3m 6112D(22253)-1305-3M Ant. pol. : VERTICAL
Limit : FCC PART 15 CLASS B
Env. / Ins. : 26.8°C&49%/ESCI Engineer : boqiang_li
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating : DC 3.3V
Test Mode : RX
Memo : S/N:695900081

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	32.91	18.70	0.24	39.49	30.93	40.00	9.07 QP
2	59.10	6.80	0.44	50.99	30.90	40.00	9.10 QP
3	141.55	11.80	0.81	47.81	33.56	43.50	9.94 QP
4	179.38	9.80	0.95	48.59	32.67	43.50	10.83 QP
5	238.55	12.10	1.07	48.91	35.61	46.00	10.39 QP
6	311.30	14.33	1.22	47.05	36.14	46.00	9.86 QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

3.8. Restricted Bands Measurement Results (For Above 1GHz)



Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel: (0512) 63403993 Fax: (0512) 63403993

Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-130507
Limit : FCC PART 15 C PK
Env. / Ins. : 26.8*CS&49%/ESCI
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating: DC 3.3V
Test Mode : TX CH15 2425MHz
Memo : S/N:695900081

Data NO. : 17
Ant. pol. : HORIZONTAL
Engineer : boqiang_li

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4850.00	33.02	9.21	36.57	34.51	44.29	74.00	29.71	Peak
2	7275.00	36.12	11.37	35.42	34.63	48.28	74.00	25.72	Peak
3	9700.00	37.98	13.90	35.28	34.40	52.76	74.00	21.24	Peak
4	11234.00	38.53	14.41	34.66	34.23	53.37	74.00	20.63	Peak
5	12122.37	39.23	14.93	27.08	33.91	47.33	54.00	6.67	Average
6	12125.00	39.23	14.93	33.61	33.91	53.86	74.00	20.14	Peak
7	12840.89	39.70	15.45	26.18	32.69	48.64	54.00	5.36	Average
8	12844.00	39.70	15.45	33.42	32.69	55.88	74.00	18.12	Peak

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.



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Economic Development Zone,JiangSu,China
Tel: (0512) 63403993 Fax: (0512) 63403993

Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-130507
Limit : FCC PART 15 C PK
Env. / Ins. : 26.8*CS&49%/ESCI
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating: DC 3.3V
Test Mode : TX CH15 2425MHz
Memo : S/N:695900081

Data NO. : 18
Ant. pol. : VERTICAL
Engineer : boqiang_li

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4850.00	33.02	9.21	36.51	34.51	44.23	74.00	29.77	Peak
2	7275.00	36.12	11.37	35.65	34.63	48.51	74.00	25.49	Peak
3	9700.00	37.98	13.90	34.94	34.40	52.42	74.00	21.58	Peak
4	11177.89	38.48	14.37	27.47	34.24	46.08	54.00	7.92	Average
5	11178.00	38.48	14.37	35.56	34.24	54.17	74.00	19.83	Peak
6	12121.30	39.23	14.93	27.23	33.91	47.48	54.00	6.52	Average
7	12125.00	39.23	14.93	33.76	33.91	54.01	74.00	19.99	Peak
8	12812.56	39.63	15.37	26.46	32.73	48.73	54.00	5.27	Average
9	12816.00	39.63	15.37	33.86	32.73	56.13	74.00	17.87	Peak

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel: (0512) 63403993 Fax: (0512) 63403993

Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-130507
Limit : FCC PART 15 C PK
Env. / Ins. : 26.8°C&49%/ESCI
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating: DC 3.3V
Test Mode : TX CH20 2450MHz
Memo : S/N:695900081

Data NO. : 19
Ant. pol. : HORIZONTAL
Engineer : boqiang_li

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4900.00	33.11	9.19	36.51	34.49	44.32	74.00	29.68	Peak
2	7350.00	36.34	11.33	34.56	34.63	47.60	74.00	26.40	Peak
3	9800.00	38.02	13.90	35.81	34.37	53.36	74.00	20.64	Peak
4	11721.62	39.02	14.48	26.41	34.17	45.74	54.00	8.26	Average
5	11724.00	39.02	14.51	35.06	34.16	54.43	74.00	19.57	Peak
6	12250.00	39.14	14.80	33.14	33.69	53.39	74.00	20.61	Peak
7	12844.00	39.70	15.45	34.05	32.69	56.51	74.00	17.49	Peak
8	12847.82	39.70	15.53	26.22	32.64	48.81	54.00	5.19	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel: (0512) 63403993 Fax: (0512) 63403993

Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-130507
Limit : FCC PART 15 C PK
Env. / Ins. : 26.8°C&49%/ESCI
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating: DC 3.3V
Test Mode : TX CH20 2450MHz
Memo : S/N:695900081

Data NO. : 20
Ant. pol. : VERTICAL
Engineer : boqiang_li

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4900.00	33.11	9.19	35.62	34.49	43.43	74.00	30.57	Peak
2	7350.00	36.34	11.33	36.12	34.63	49.16	74.00	24.84	Peak
3	9800.00	38.02	13.90	35.18	34.37	52.73	74.00	21.27	Peak
4	11108.00	38.42	14.44	34.91	34.25	53.52	74.00	20.48	Peak
5	12250.00	39.14	14.80	33.44	33.69	53.69	74.00	20.31	Peak
6	12951.23	39.90	15.46	24.69	32.47	47.58	54.00	6.42	Average
7	12956.00	39.90	15.46	33.31	32.47	56.20	74.00	17.80	Peak

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel:(0512)63403993 Fax:(0512)63403993

Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-130507
Limit : FCC PART 15 C PK
Env. / Ins. : 26.8°C&49%/ESCI
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating: DC 3.3V
Test Mode : TX CH25 2475MHz
Memo : S/N:695900081

Data NO. : 21
Ant. pol. : HORIZONTAL
Engineer : boqiang_li

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4950.00	33.21	9.21	37.40	34.48	45.34	74.00	28.66	Peak
2	7425.00	36.52	11.38	34.25	34.63	47.52	74.00	26.48	Peak
3	9900.00	38.07	13.75	35.41	34.35	52.88	74.00	21.12	Peak
4	11794.00	39.09	14.63	34.93	34.16	54.49	74.00	19.51	Peak
5	11798.66	39.09	14.63	27.69	34.16	47.25	54.00	6.75	Average
6	12375.00	39.07	14.94	33.77	33.47	54.31	74.00	19.69	Peak
7	12379.46	39.07	14.94	26.34	33.47	46.88	54.00	7.12	Average
8	12760.00	39.53	15.34	35.50	32.82	57.55	74.00	16.45	Peak
9	12765.76	39.53	15.34	26.34	32.82	48.39	54.00	5.61	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel:(0512)63403993 Fax:(0512)63403993

Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-130507
Limit : FCC PART 15 C PK
Env. / Ins. : 26.8°C&49%/ESCI
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating: DC 3.3V
Test Mode : TX CH25 2475MHz
Memo : S/N:695900081

Data NO. : 22
Ant. pol. : VERTICAL
Engineer : boqiang_li

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	4950.00	33.21	9.21	39.52	34.48	47.46	74.00	26.54	Peak
2	7425.00	36.52	11.38	34.66	34.63	47.93	74.00	26.07	Peak
3	9900.00	38.07	13.75	34.86	34.35	52.33	74.00	21.67	Peak
4	11802.56	39.09	14.65	26.55	34.15	46.14	54.00	7.86	Average
5	11808.00	39.11	14.65	35.11	34.15	54.72	74.00	19.28	Peak
6	12375.00	39.07	14.94	34.00	33.47	54.54	74.00	19.46	Peak
7	12376.43	39.07	14.94	27.68	33.47	48.22	54.00	5.78	Average
8	12774.00	39.57	15.36	33.77	32.77	55.93	74.00	18.07	Peak
9	12777.19	39.57	15.36	26.00	32.77	48.16	54.00	5.84	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel:(0512) 63403993 Fax:(0512) 63403993

Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-130507
Limit : FCC PART 15 C PK
Env. / Ins. : 26.8°C&49%/ESCI
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating: DC 3.3V
Test Mode : RX
Memo : S/N:695900081

Data NO. : 23
Ant. pol. : HORIZONTAL
Engineer : boqiang_li

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	5046.00	33.38	9.28	40.31	34.47	48.50	74.00	25.50	Peak
2	9078.00	37.90	12.68	36.02	34.56	52.04	74.00	21.96	Peak
3	10492.00	38.10	13.57	38.84	34.29	56.22	74.00	17.78	Peak
4	10495.63	38.10	13.57	28.72	34.29	46.10	54.00	7.90	Average
5	11010.00	38.32	14.22	36.10	34.26	54.38	74.00	19.62	Peak
6	11014.30	38.32	14.22	30.24	34.26	48.52	54.00	5.48	Average
7	12312.00	39.11	14.85	34.37	33.56	54.77	74.00	19.23	Peak
8	12315.69	39.10	14.85	27.81	33.56	48.20	54.00	5.80	Average
9	12844.00	39.70	15.45	35.05	32.69	57.51	74.00	16.49	Peak
10	12847.86	39.70	15.53	26.22	32.64	48.81	54.00	5.19	Average

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel:(0512) 63403993 Fax:(0512) 63403993

Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-130507
Limit : FCC PART 15 C PK
Env. / Ins. : 26.8°C&49%/ESCI
EUT : RF4CE Dongle
M/N : RCN1008
Power Rating: DC 3.3V
Test Mode : RX
Memo : S/N:695900081

Data NO. : 24
Ant. pol. : VERTICAL
Engineer : boqiang_li

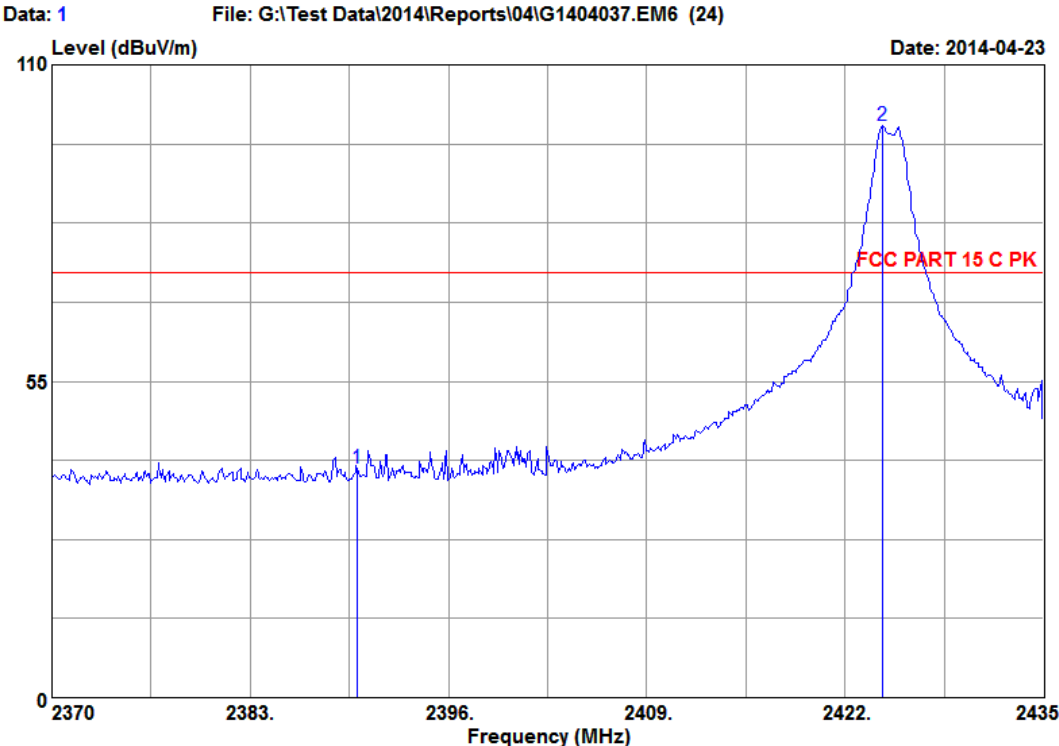
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	6474.00	34.39	10.63	37.13	34.54	47.61	74.00	26.39	Peak
2	9750.00	38.00	13.84	36.63	34.39	54.08	74.00	19.92	Peak
3	9757.23	38.00	13.84	28.98	34.39	46.43	54.00	7.57	Average
4	10772.00	38.21	13.83	38.69	34.27	56.46	74.00	17.54	Peak
5	10777.05	38.21	13.83	29.95	34.27	47.72	54.00	6.28	Average
6	11665.43	38.96	14.45	28.67	34.17	47.91	54.00	6.09	Average
7	11668.00	38.97	14.45	37.58	34.17	56.83	74.00	17.17	Peak
8	12435.13	39.03	14.72	27.62	33.39	47.98	54.00	6.02	Average
9	12438.00	39.03	14.73	35.60	33.34	56.02	74.00	17.98	Peak
10	12712.60	39.43	15.26	26.51	32.91	48.29	54.00	5.71	Average
11	12718.00	39.43	15.34	33.79	32.86	55.70	74.00	18.30	Peak

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.

3.9. Spurious Emission Measurement Results in Band Edge Emission (FCC Part 15, 15.205)



Audix Technology(Wujiang)Co.,Ltd.
No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
Economic Development Zone,JiangSu,China
Tel: (0512) 63403993 Fax: (0512) 63403993



Site NO.	: 3m Semi-Anechoic Chamber	Data NO.	: 1
Dis. / Ant.	: 3m 3115-62960-130507	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15 C PK	Engineer	: boqiang_li
Env. / Ins.	: 26.8*CS&49%/ESCI		
EUT	: RF4CE Dongle		
M/N	: RCN1008		
Power Rating	: DC:3.3V		
Test Mode	: TX CH15 2425MHz		
Memo	: S/N:695900081		

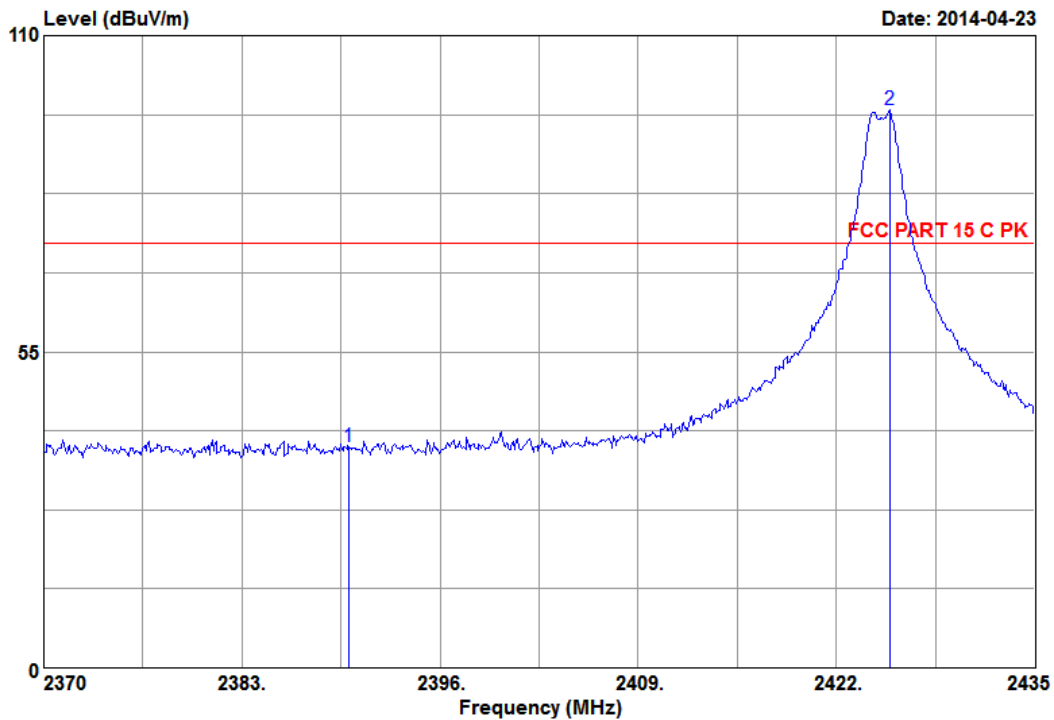
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.07	6.40	40.40	35.07	39.80	74.00	34.20	Peak
2	2424.47	28.15	6.49	99.84	35.06	99.42	74.00	-25.42	Peak

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,Jiangsu,China
 Tel: (0512) 63403993 Fax: (0512) 63403993

Data: 2 File: G:\Test Data\2014\Reports\04\G1404037.EM6 (24)



Site NO. : 3m Semi-Anechoic Chamber
 Dis. / Ant. : 3m 3115-62960-130507
 Limit : FCC PART 15 C PK
 Env. / Ins. : 26.8*CS&49%/ESCI
 EUT : RF4CE Dongle
 M/N : RCN1008
 Power Rating: DC:3.3V
 Test Mode : TX CH15 2425MHz
 Memo : S/N:695900081

Data NO. : 2
 Ant. pol. : VERTICAL
 Engineer : boqiang_li

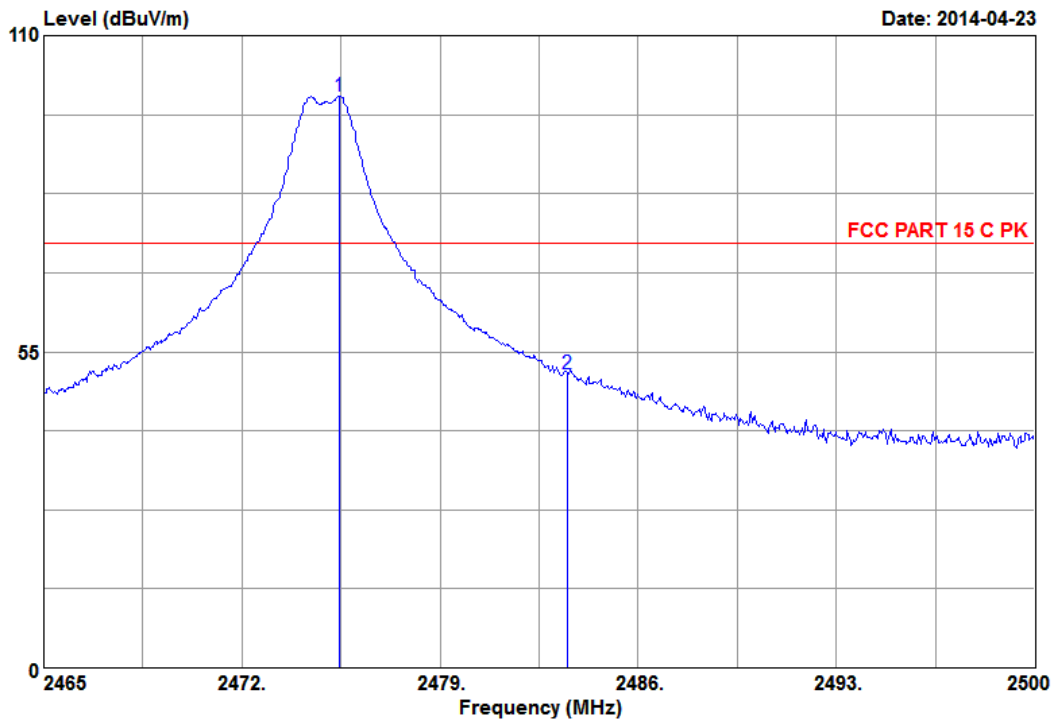
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.07	6.40	39.00	35.07	38.40	74.00	35.60	Peak
2	2425.51	28.15	6.49	97.43	35.06	97.01	74.00	-23.01	Peak

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
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 Economic Development Zone,Jiangsu,China
 Tel: (0512) 63403993 Fax: (0512) 63403993

Data: 5 File: G:\Test Data\2014\Reports\04\G1404037.EM6 (24)



Site NO. : 3m Semi-Anechoic Chamber	Data NO. : 5
Dis. / Ant. : 3m 3115-62960-130507	Ant. pol. : HORIZONTAL
Limit : FCC PART 15 C PK	
Env. / Ins. : 26.8*CS&49%/ESCI	Engineer : boqiang_li
EUT : RF4CE Dongle	
M/N : RCN1008	
Power Rating: DC:3.3V	
Test Mode : TX CH25 2475MHz	
Memo : S/N:695900081	

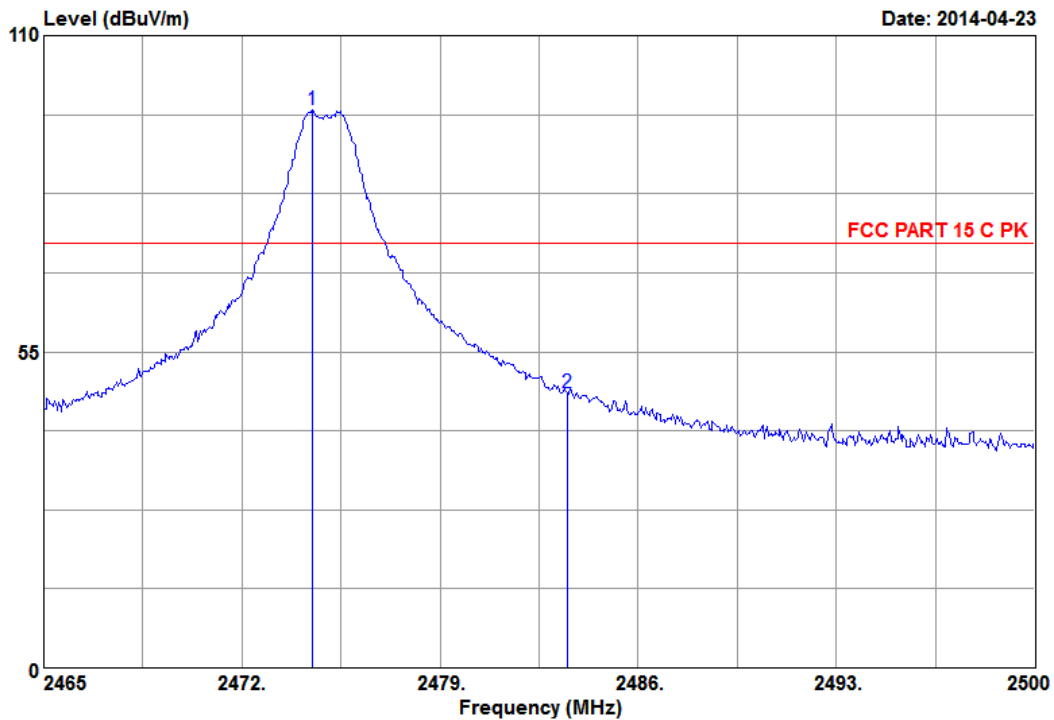
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamplifier Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2475.43	28.26	6.44	99.90	35.06	99.54	74.00	-25.54	Peak
2	2483.50	28.26	6.44	51.58	35.06	51.22	74.00	22.78	Peak

Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamplifier.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



Audix Technology(Wujiang)Co.,Ltd.
 No.1289,Jiang Xing East Road,The Eastern Part of Wu Jiang
 Economic Development Zone,Jiangsu,China
 Tel: (0512) 63403993 Fax: (0512) 63403993

Data: 6 File: G:\Test Data\2014\Reports\04\G1404037.EM6 (24)



Site NO. : 3m Semi-Anechoic Chamber	Data NO. : 6
Dis. / Ant. : 3m 3115-62960-130507	Ant. pol. : VERTICAL
Limit : FCC PART 15 C PK	
Env. / Ins. : 26.8*CS&49%/ESCI	Engineer : boqiang_li
EUT : RF4CE Dongle	
M/N : RCN1008	
Power Rating: DC:3.3V	
Test Mode : TX CH25 2475MHz	
Memo : S/N:695900081	

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2474.49	28.26	6.44	97.35	35.06	96.99	74.00	-22.99	Peak
2	2483.50	28.26	6.44	48.16	35.06	47.80	74.00	26.20	Peak

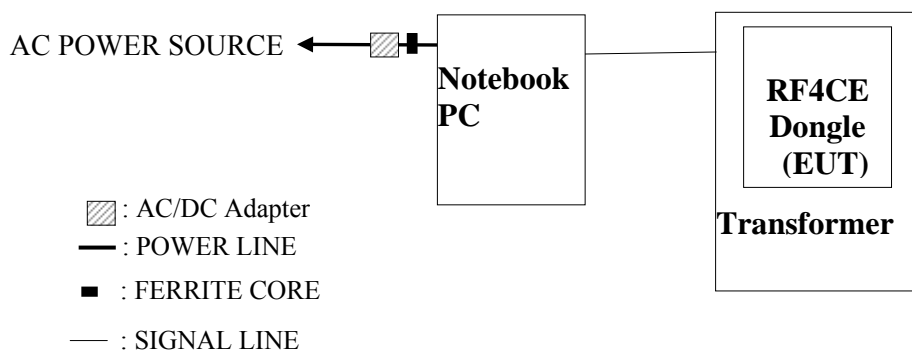
Remarks: 1. Emission Level= Ant.Factor + Cable Loss + Reading - Preamp.Factor.
 2. The emission levels that are 20dB below the official limit are not reported.

4. 6 dB BANDWIDTH MEASUREMENT

4.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2013-06-24	2014-06-23

4.2. Block Diagram of Test Setup



4.3. Specification Limits (§15.247(a)(2))

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500kHz.

4.4. Test Procedure

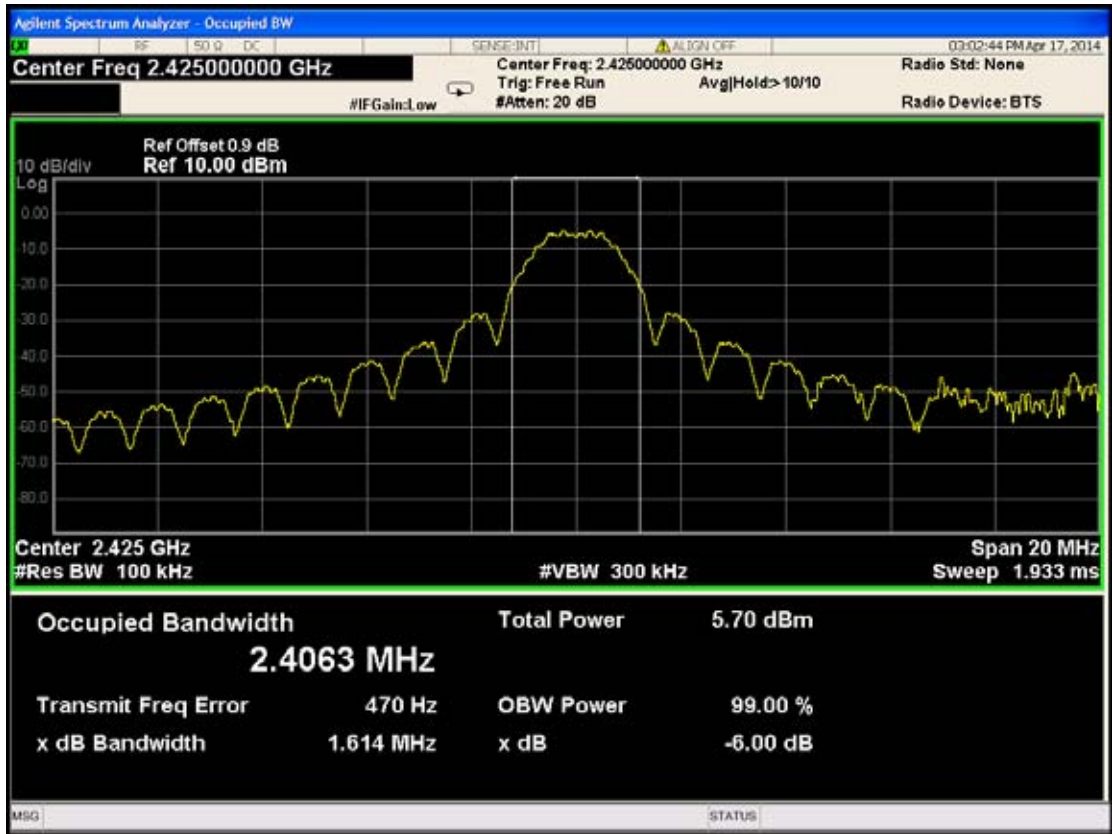
The transmitter output was connected to the test receiver / spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB. The measurement guideline was according to KDB558074 v03r01:2013.

4.5. Test Results

PASSED. All the test results are attached in next pages.

Channel	Center Frequency(MHz)	6 dB Bandwidth(MHz)
15	2425	1.614
20	2450	1.629
25	2475	1.626

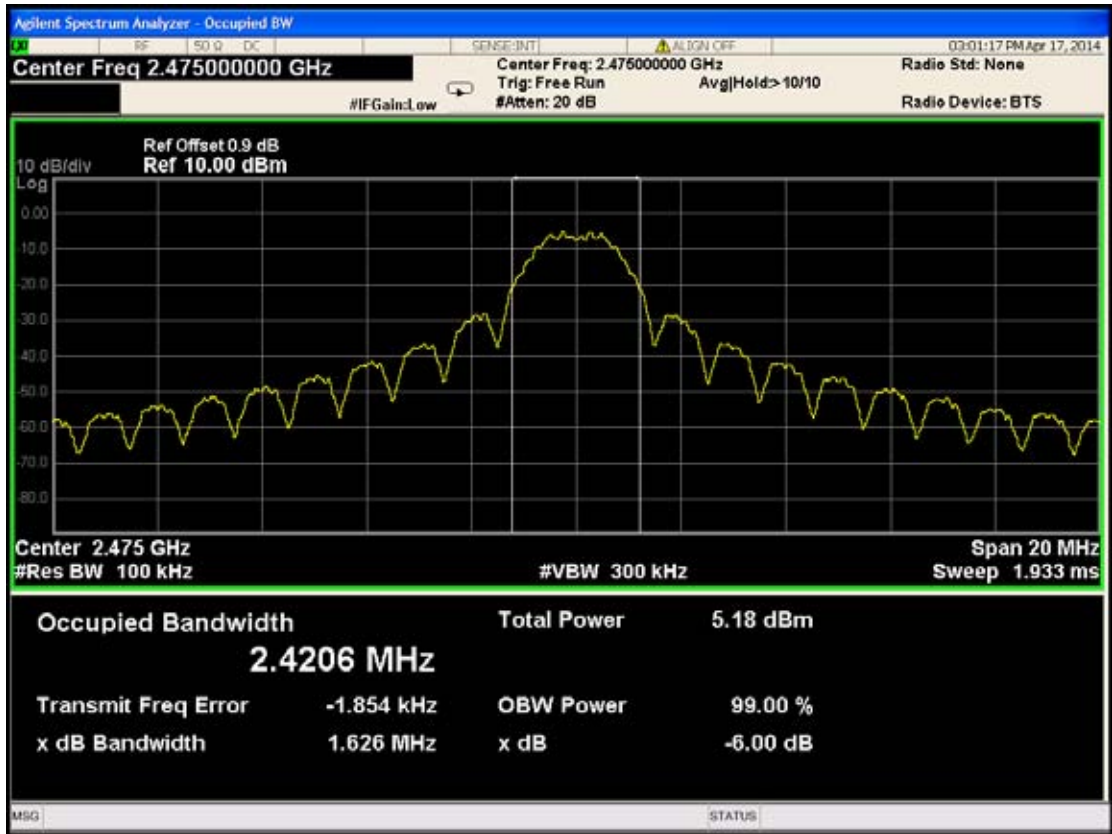
CH 15



CH 20



CH 25

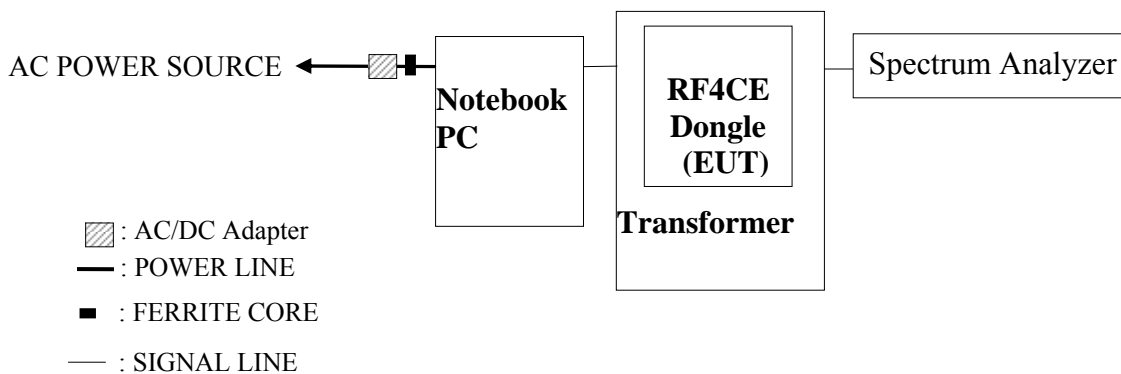


5. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

5.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2013-06-24	2014-06-23

5.2. Block Diagram of Test Setup



5.3. Specification Limits (§15.247(b)(3))

For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

5.4. Test Procedure

The transmitter output was connected to the spectrum analyzer and record the reading. The measurement guideline was according to KDB558074 D01 v03r01.

5.5. Test Results

PASSED. All the test results are attached in next pages.

Channel	Frequency	Power(dBm)	Limit(dBm)
15	2425	1.797	30
20	2450	1.555	30
25	2475	1.294	30

6. BAND EDGES MEASUREMENT

6.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2013-06-24	2014-06-23

6.2. Block Diagram of Test Setup

The same as section 5.2.

6.3. Specification Limits (§15.247(d))

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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. 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)).

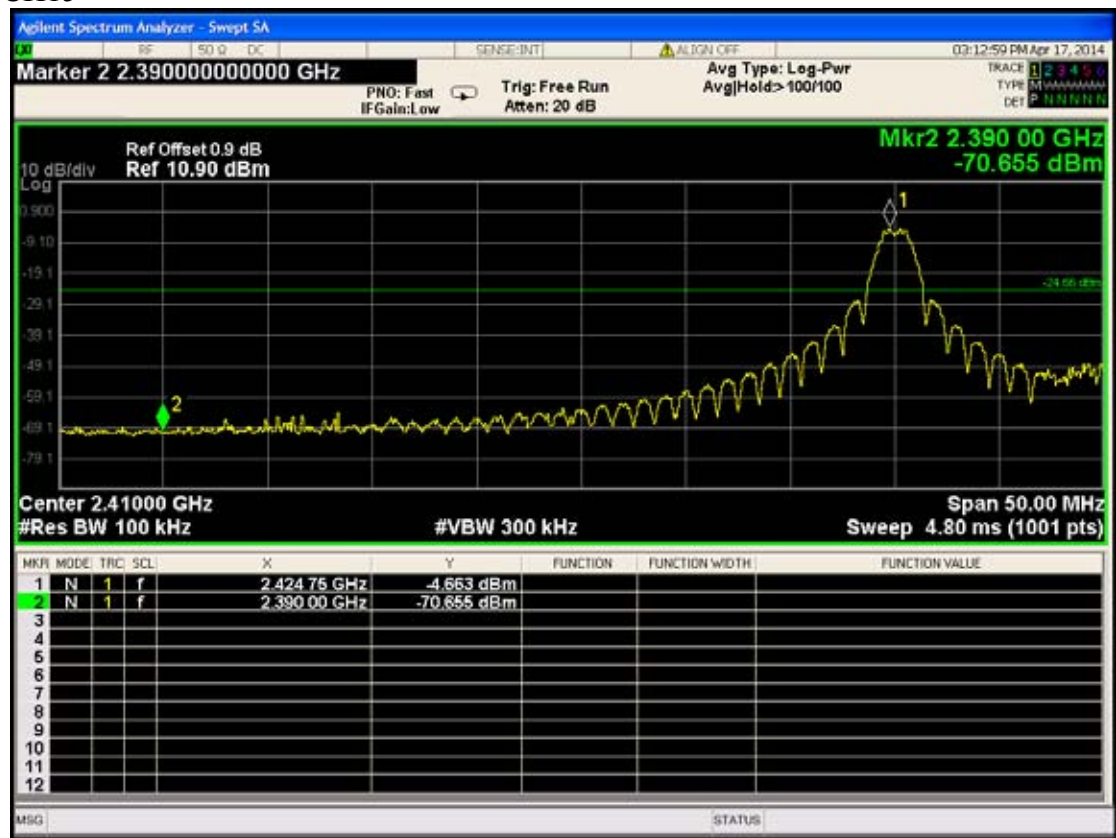
6.4. Test Procedure

The transmitter output was connected to the test receiver / spectrum analyzer. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz with suitable frequency span including 100kHz bandwidth from band edge.

6.5. Test Results

PASSED. The testing data was attached in the next pages.

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CH25



7. POWER SPECTRAL DENSITY MEASUREMENT

7.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2013-06-24	2014-06-23

7.2. Block Diagram of Test Setup

The same as section 5.2.

7.3. Specification Limits (§15.247(e))

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

7.4. Test Procedure

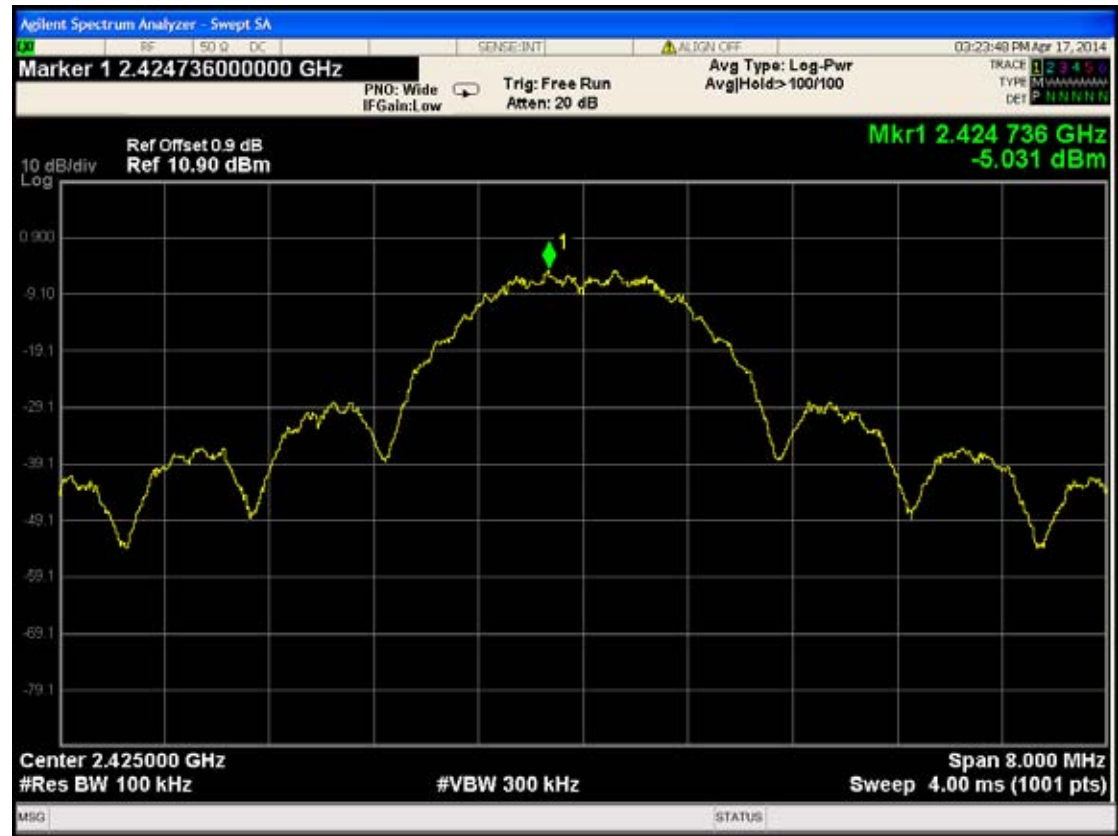
The transmitter output was connected to the test receiver / spectrum analyzer. The test receiver / spectrum analyzer was set as RBW \geq 3kHz, VBW \geq 3 x RBW, span = 1.5 times the DTS channel bandwidth. The measurement guideline was according to KDB558074 v03r01:2013.

7.5. Test Results

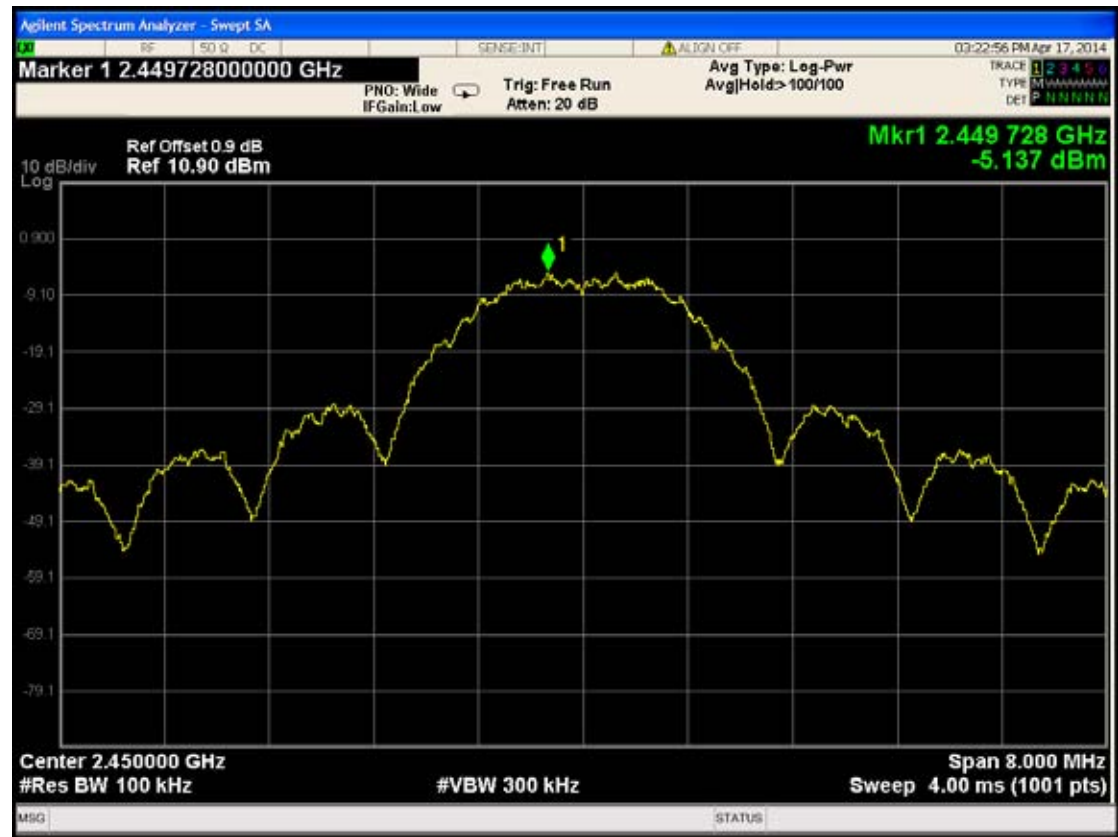
PASSED. All the test results are attached in next page.

Channel	Frequency(GHz)	Value(dBm)
15	2.424736	-5.031
20	2.449728	-5.137
25	2.475224	-6.093

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CH 25



8. EMISSION LIMITATIONS MEASUREMENT

8.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2013-06-24	2014-06-23

8.2. Block Diagram of Test Setup

The same as section 5.2.

8.3. Specification Limits (§15.247(d))

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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. 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)).

8.4. Test Procedure

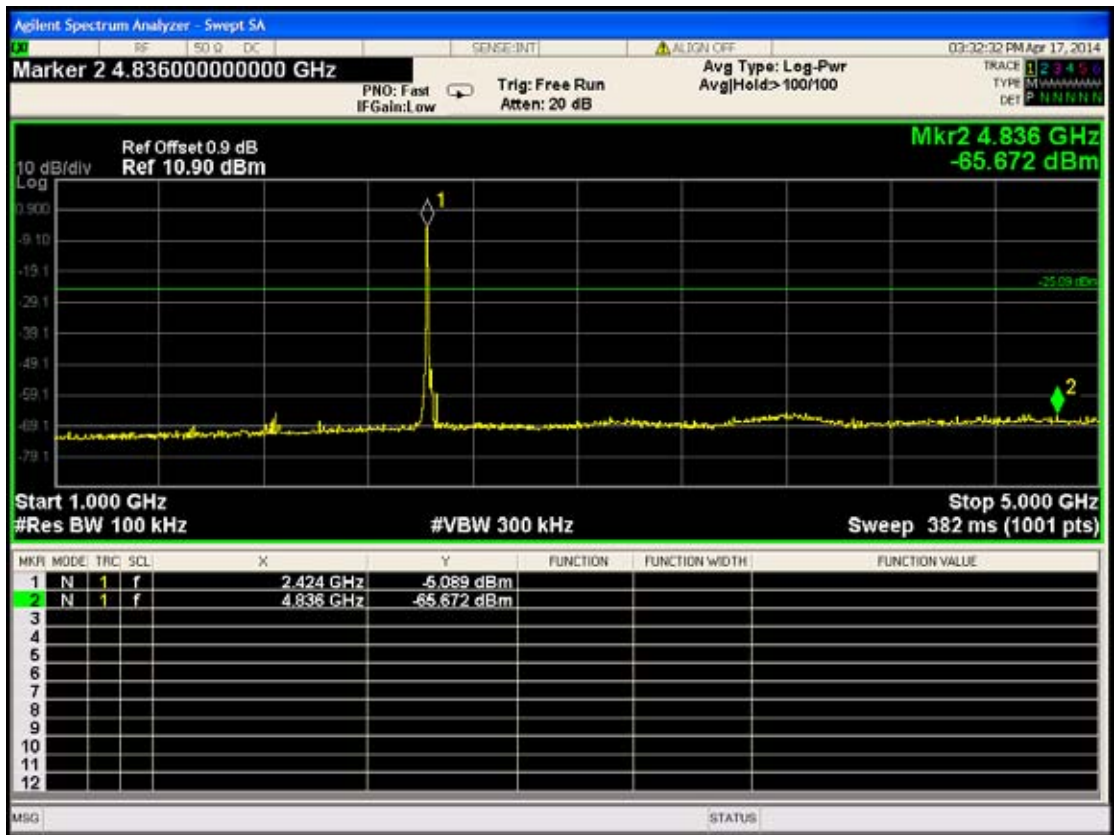
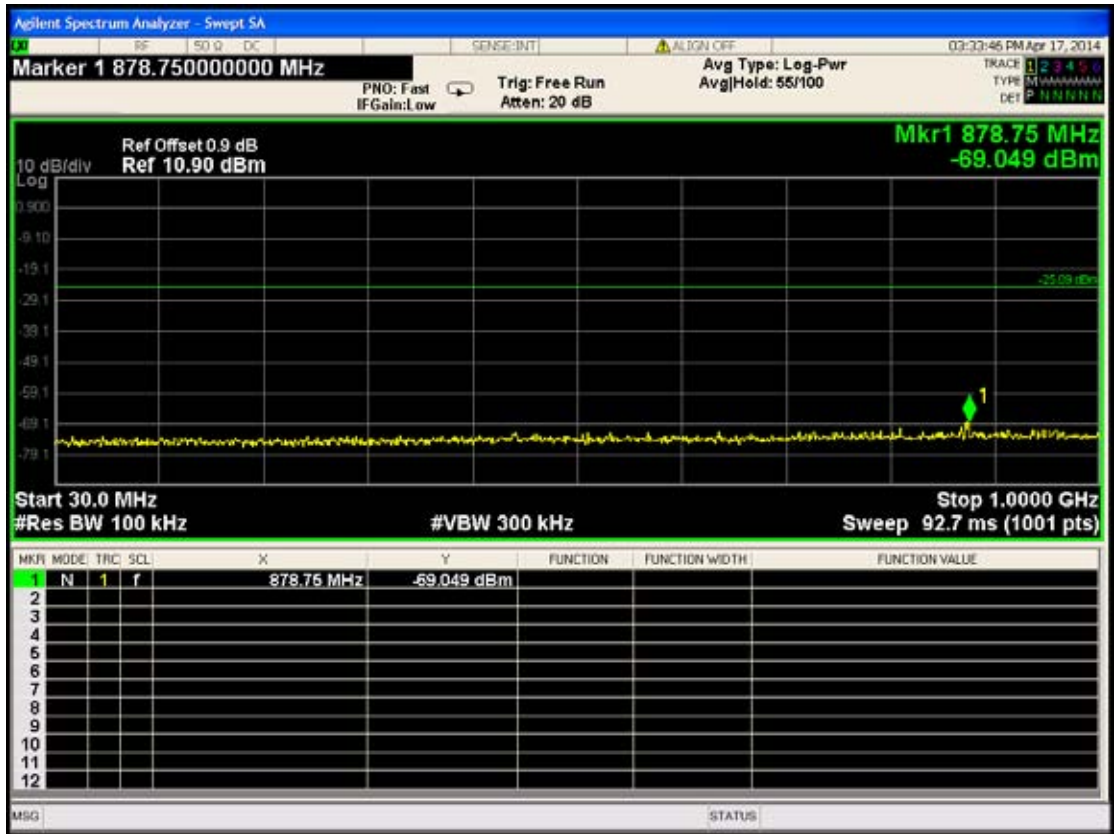
The transmitter output was connected to the spectrum analyzer. Set RBW = 100kHz, VBW \geq 300 kHz, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. The measurement guideline was according to KDB558074 v03r01:2013.

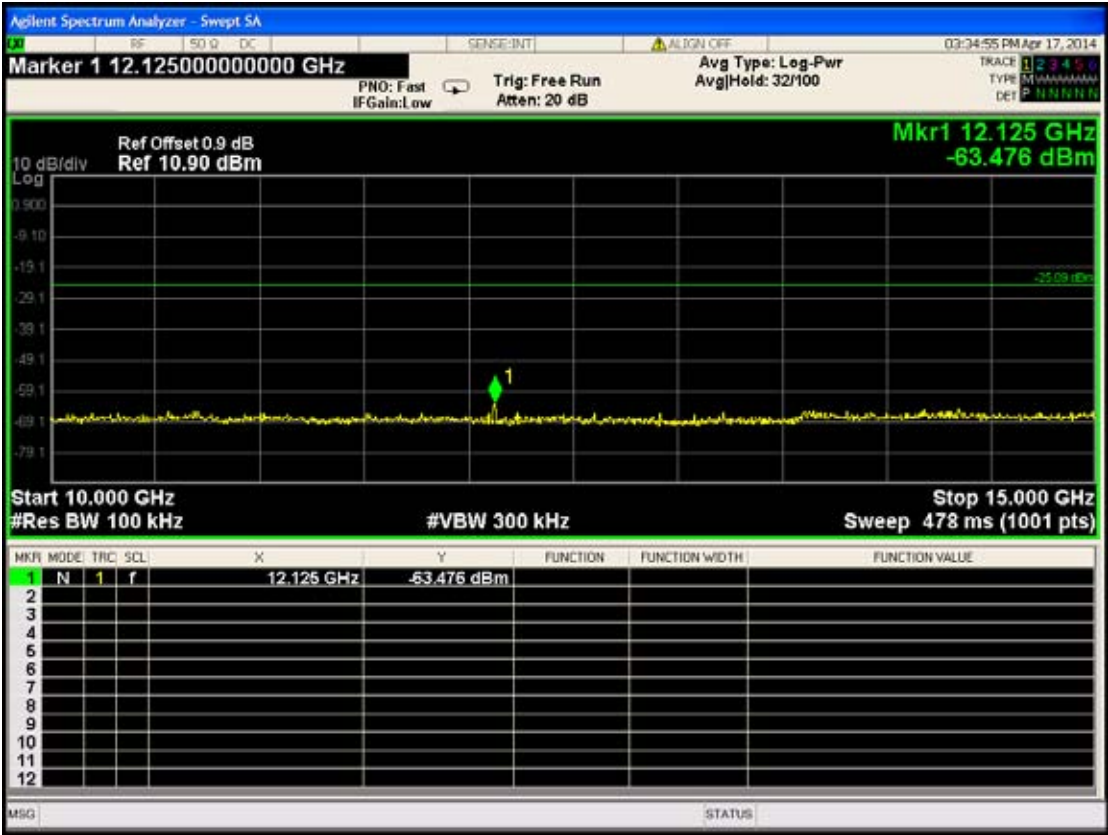
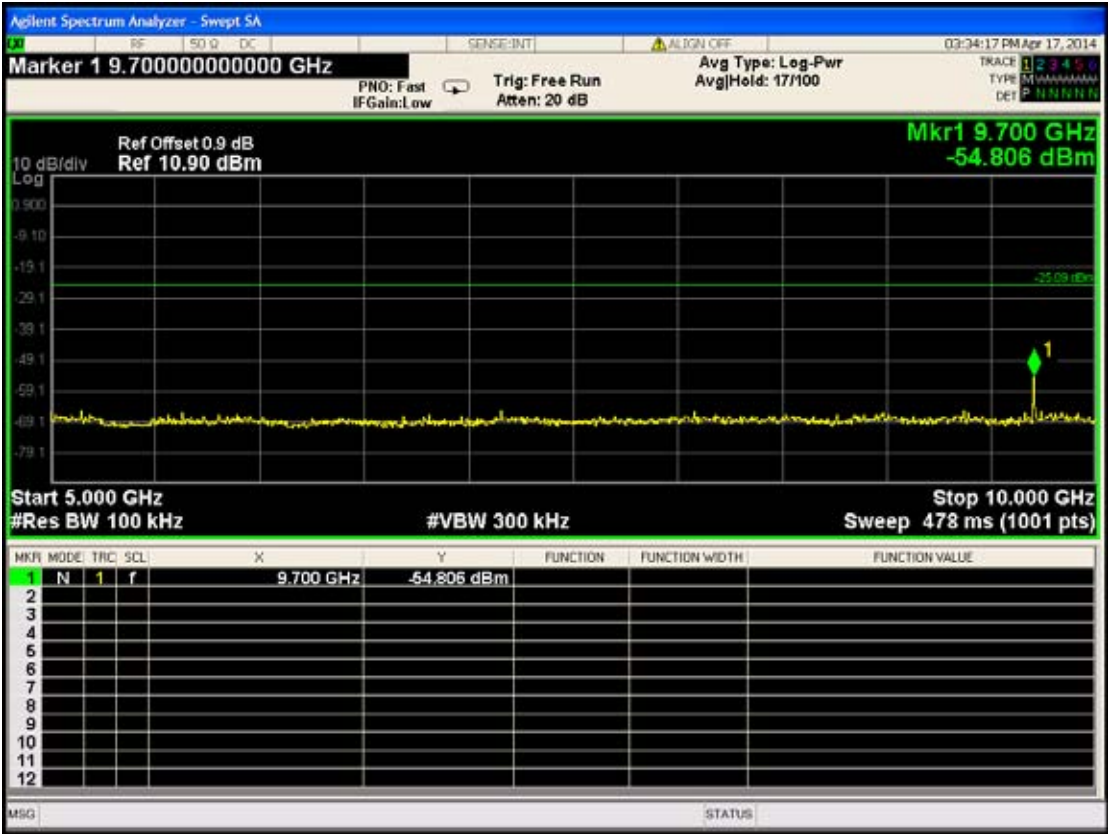
8.5. Test Results

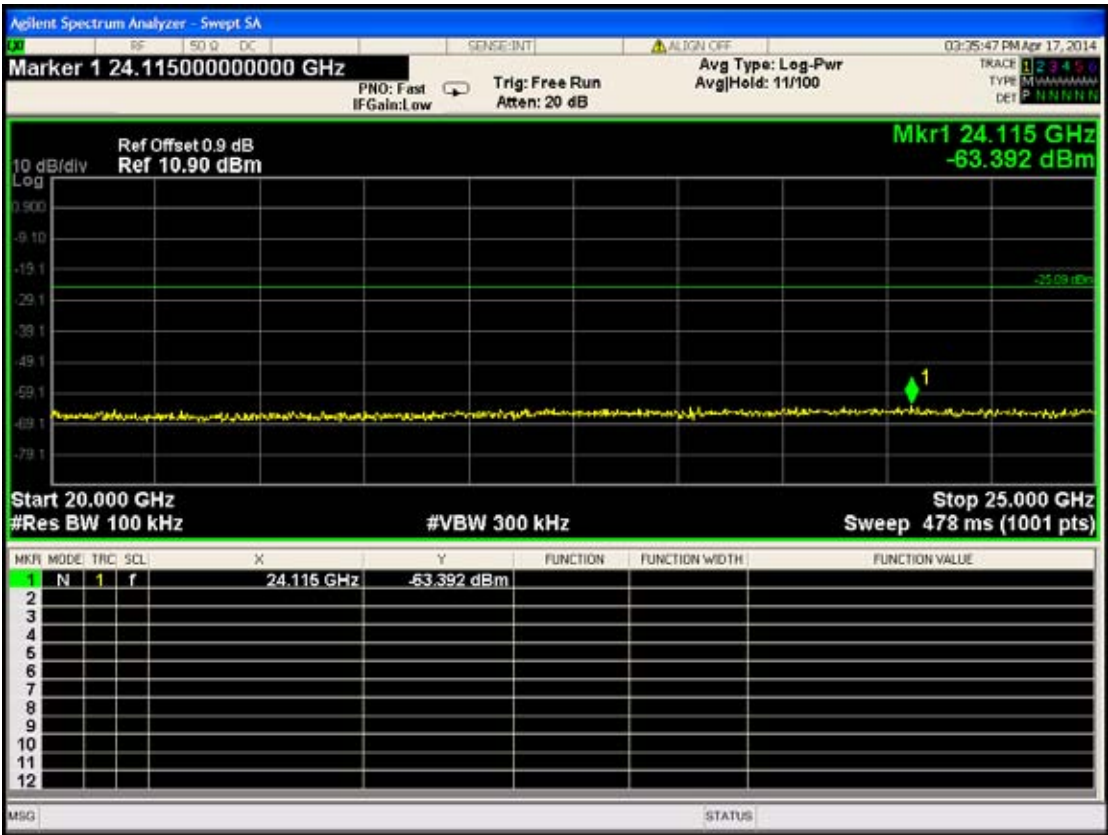
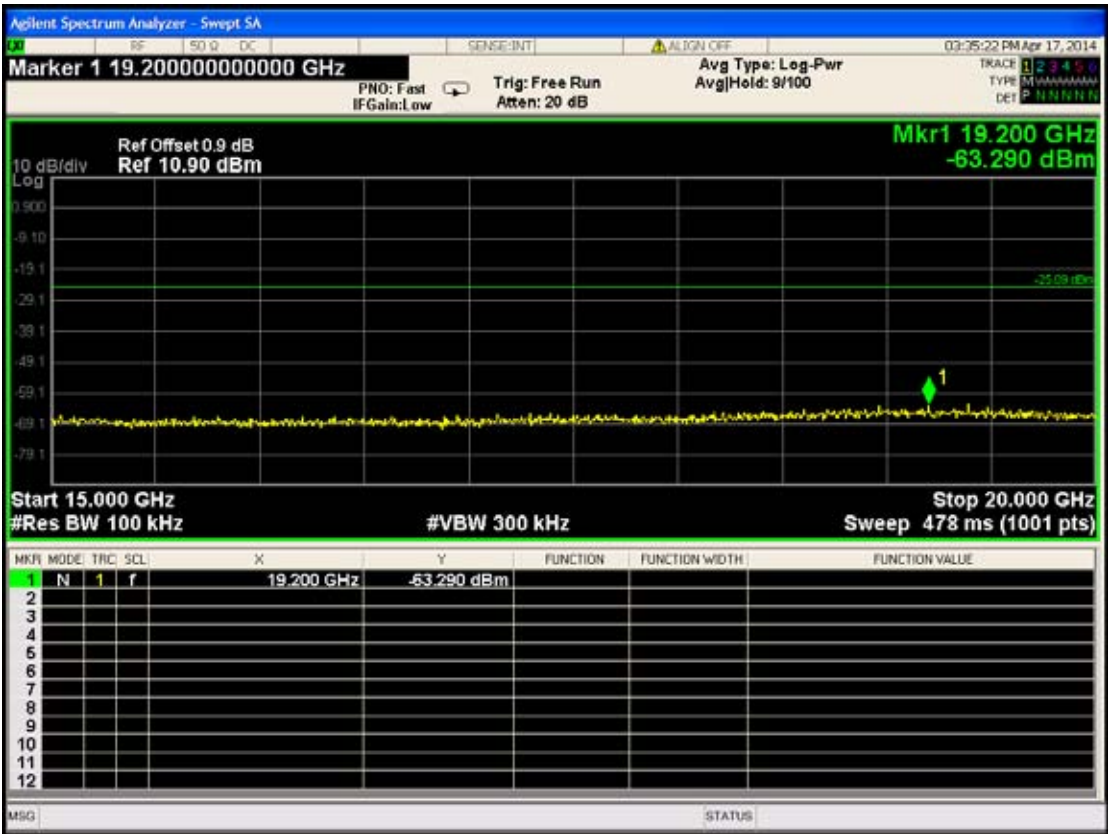
PASSED. All the test results are attached in next pages.

Channel	Frequency(MHz)	Amplitude(dBm)
15	878.75	-69.049
	2424	-5.089
	4836	-65.672
	9700	-54.806
	12125	-63.476
	19200	-63.290
	24115	-63.392
20	872.93	-72.326
	2452	-6.091
	4932	-67.993
	9800	-58.537
	13975	-63.795
	19490	-63.991
	23755	-62.856
25	870.99	-67.805
	2476	-5.339
	4888	-67.643
	9900	-65.098
	12380	-65.185
	18755	-63.146
	22855	-63.598

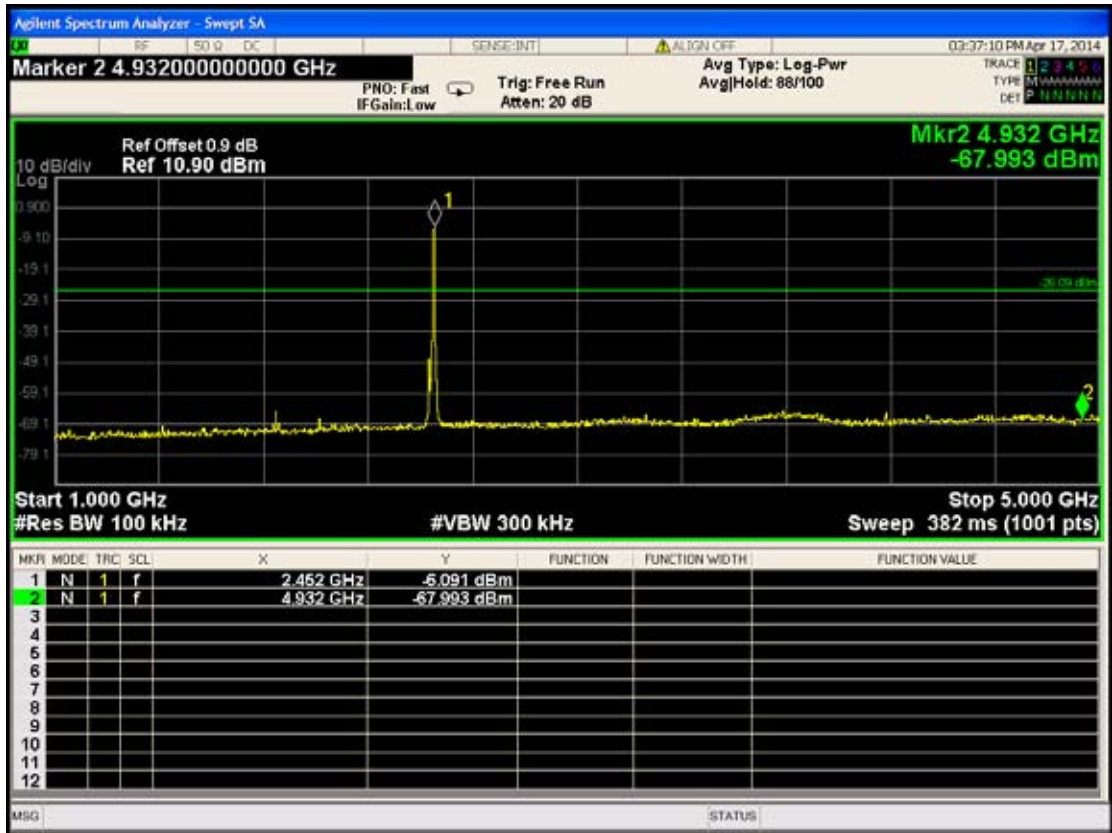
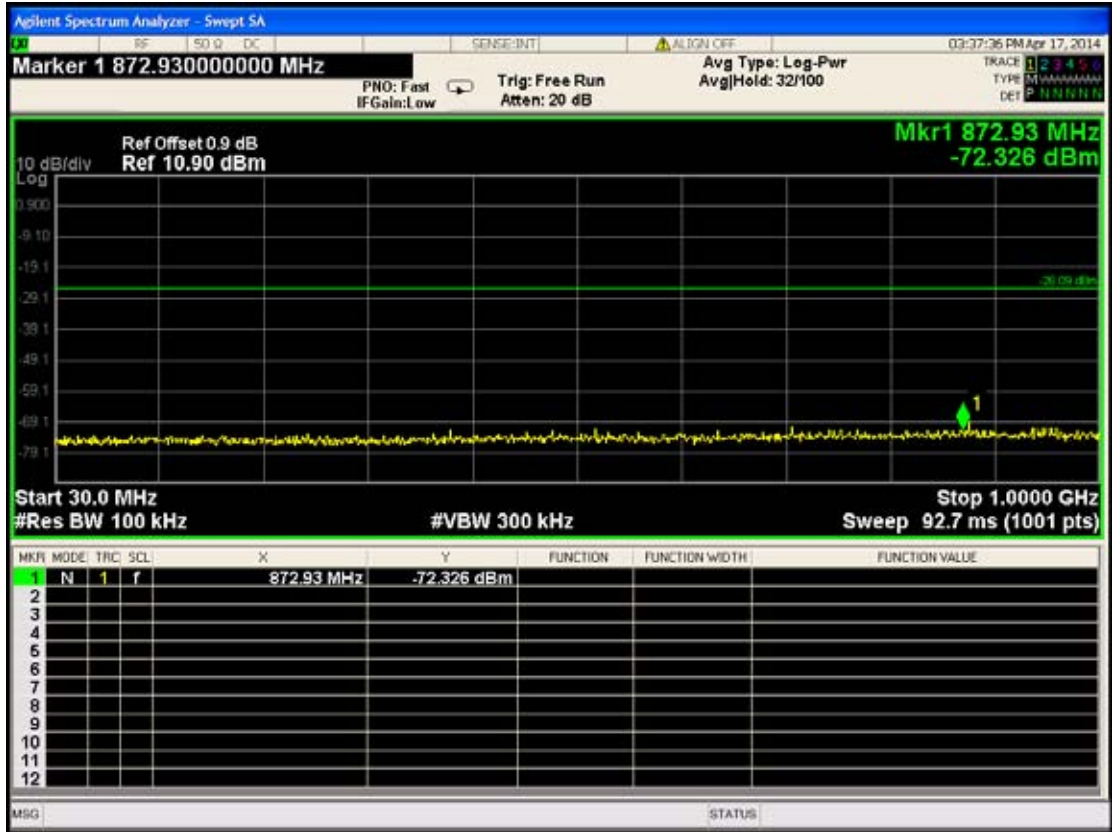
CH 15

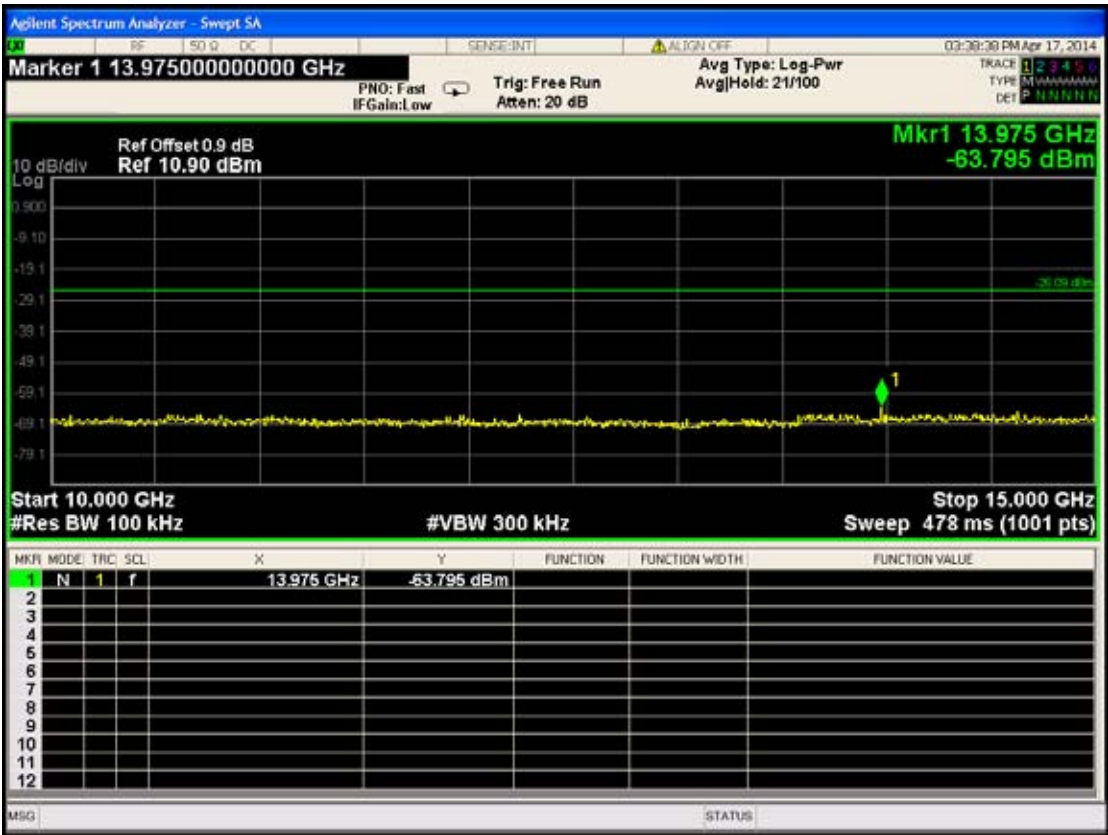
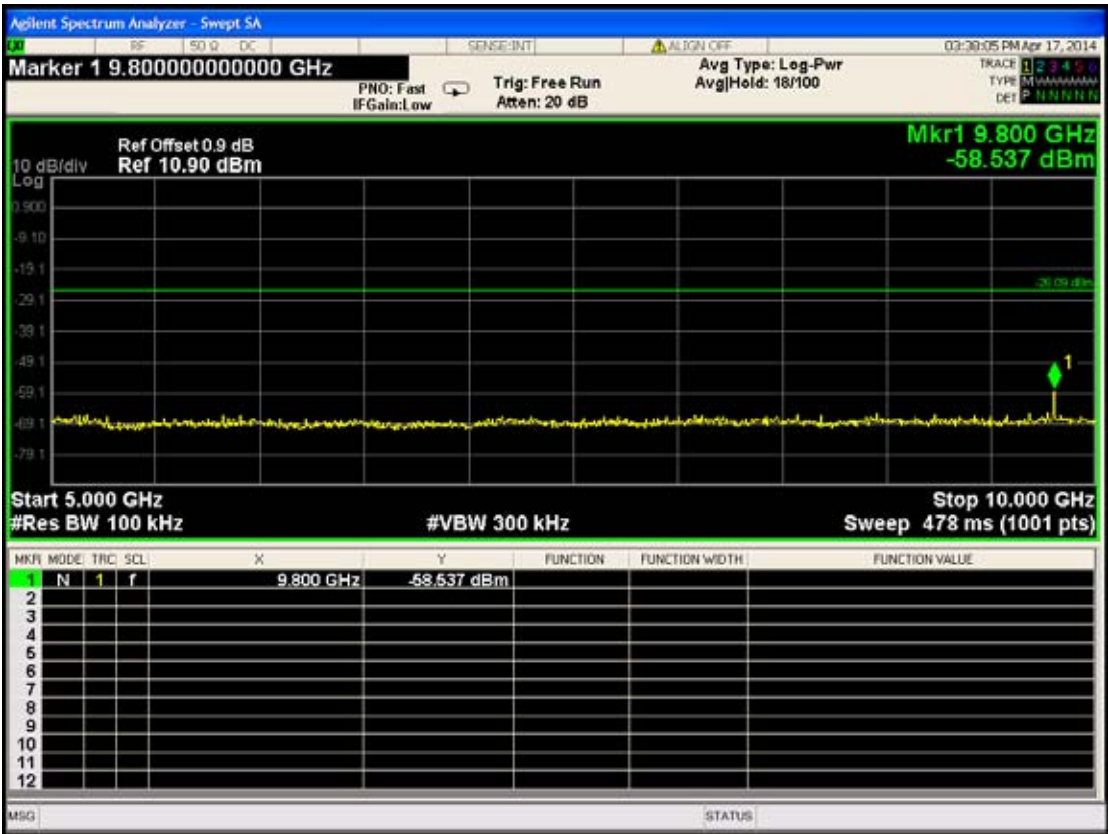


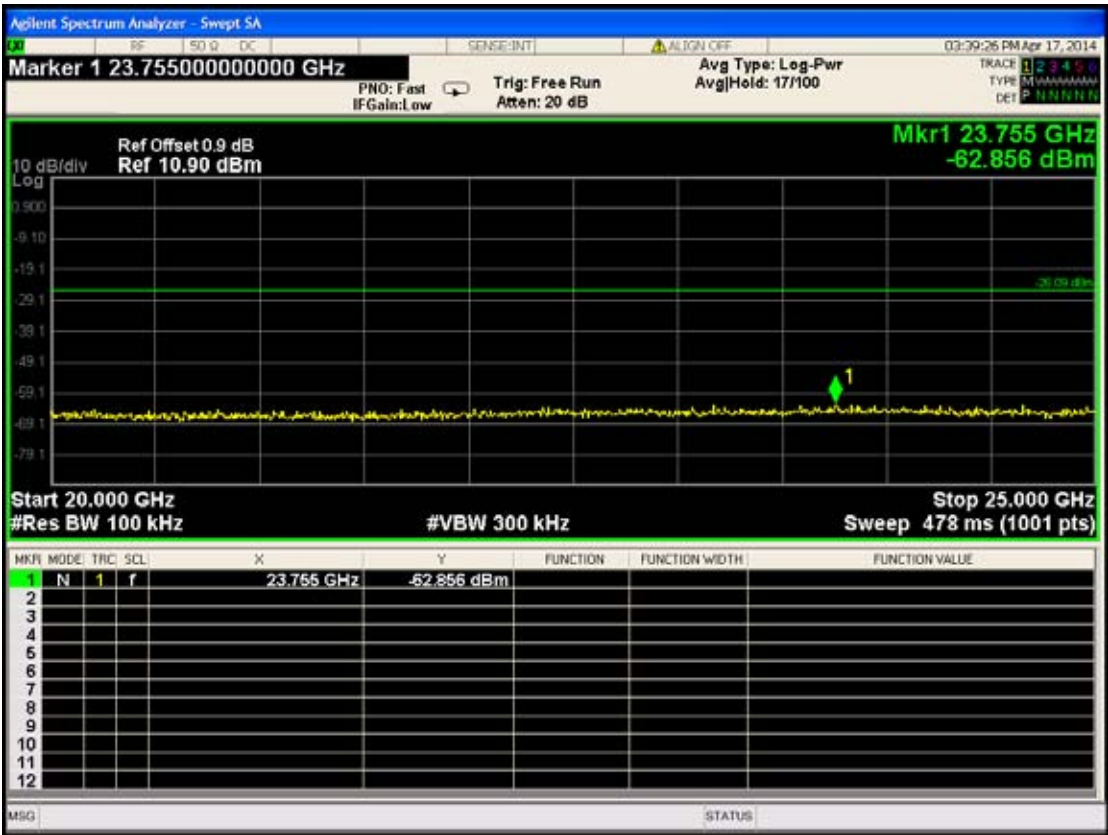
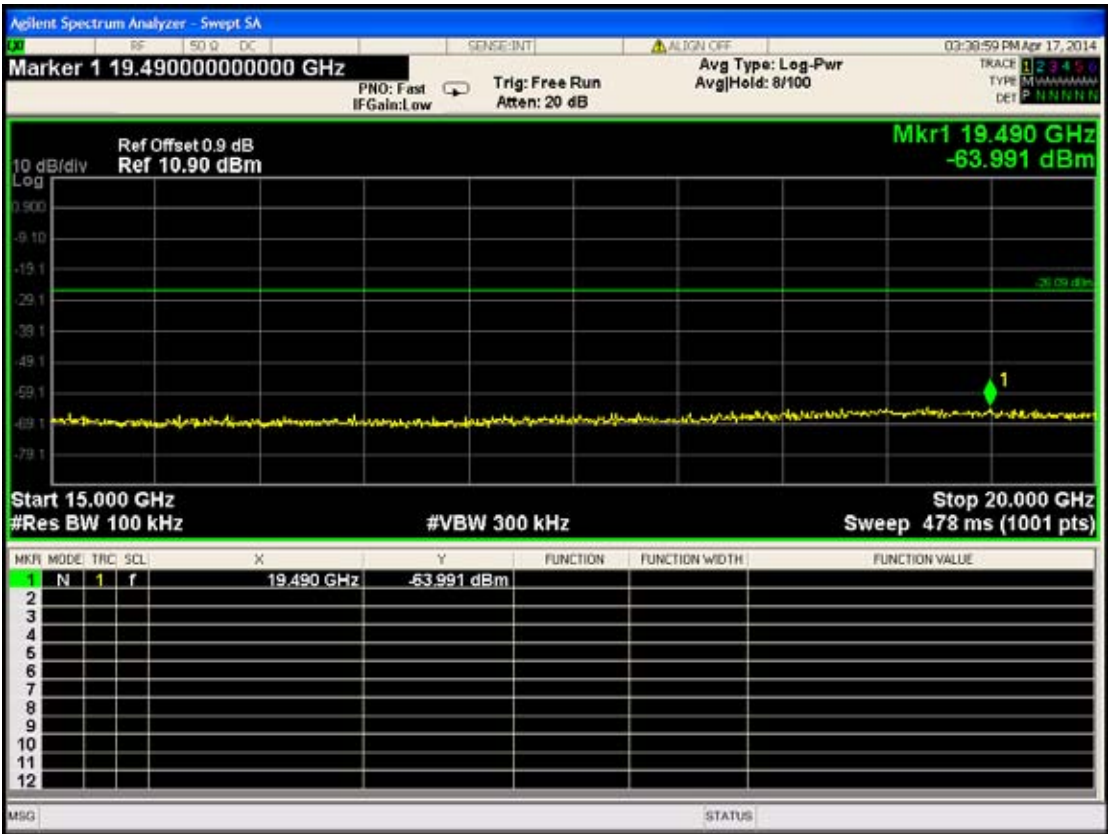




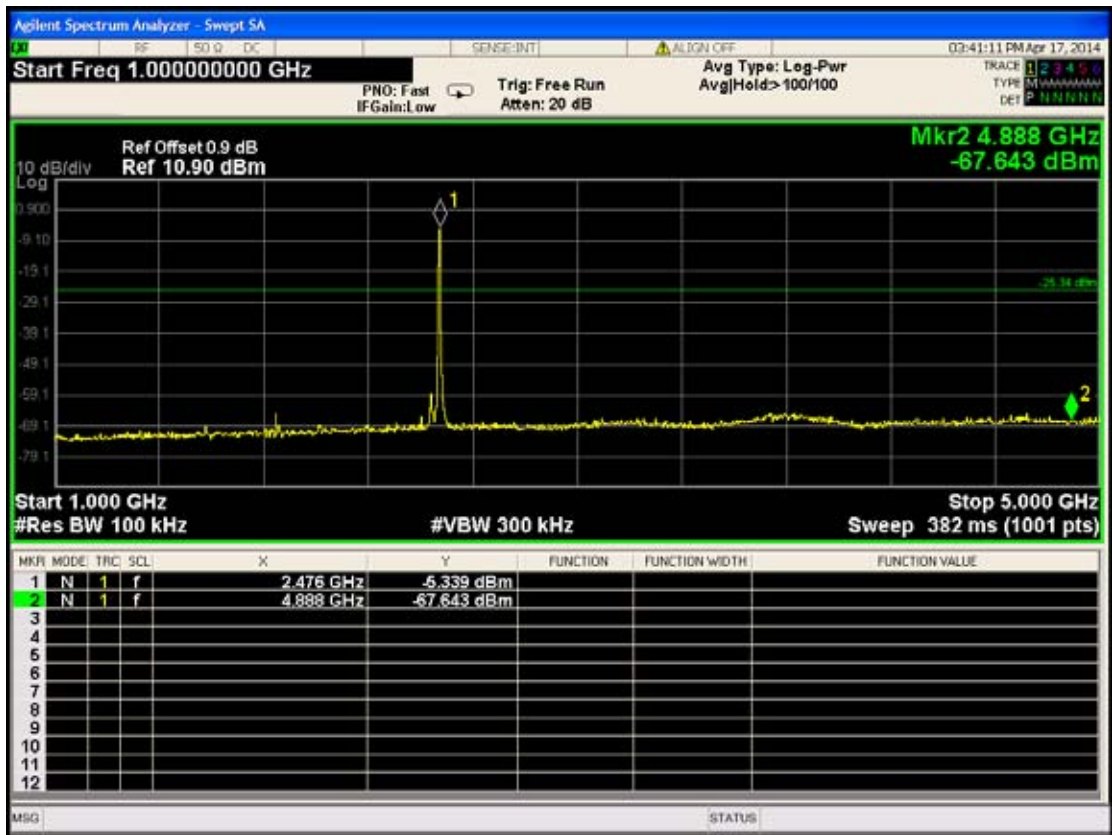
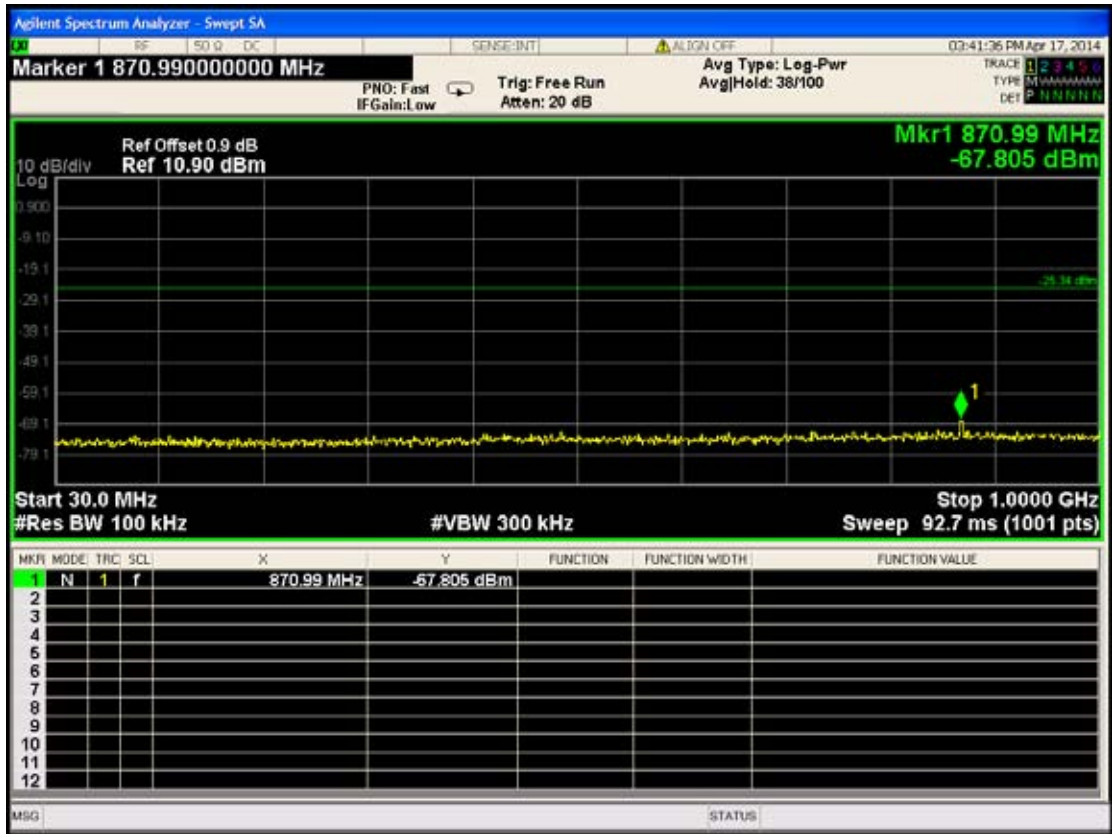
CH 20

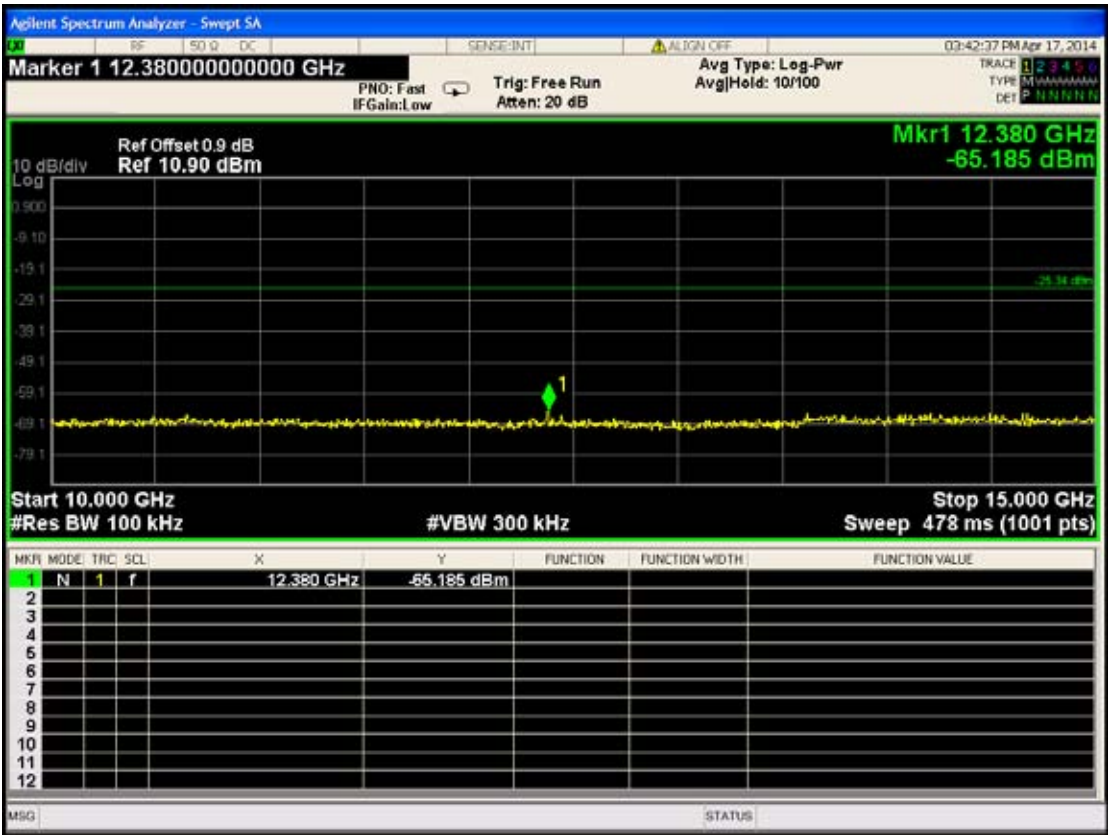
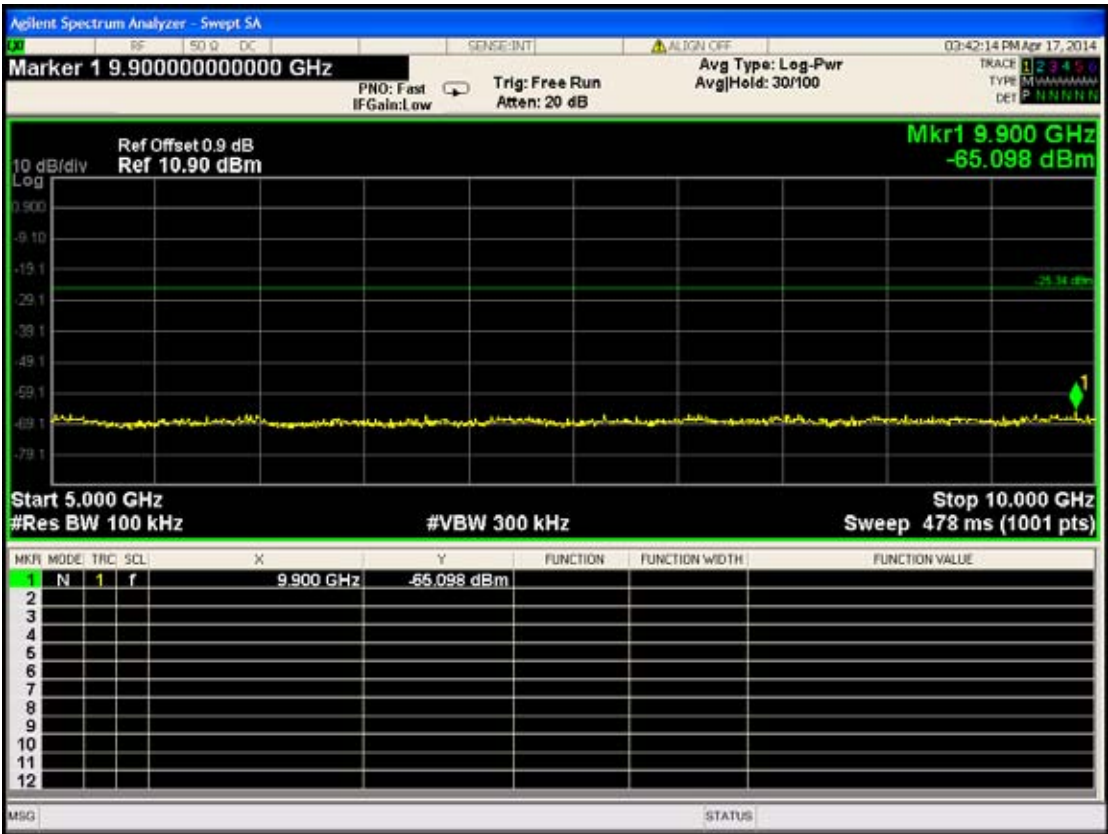


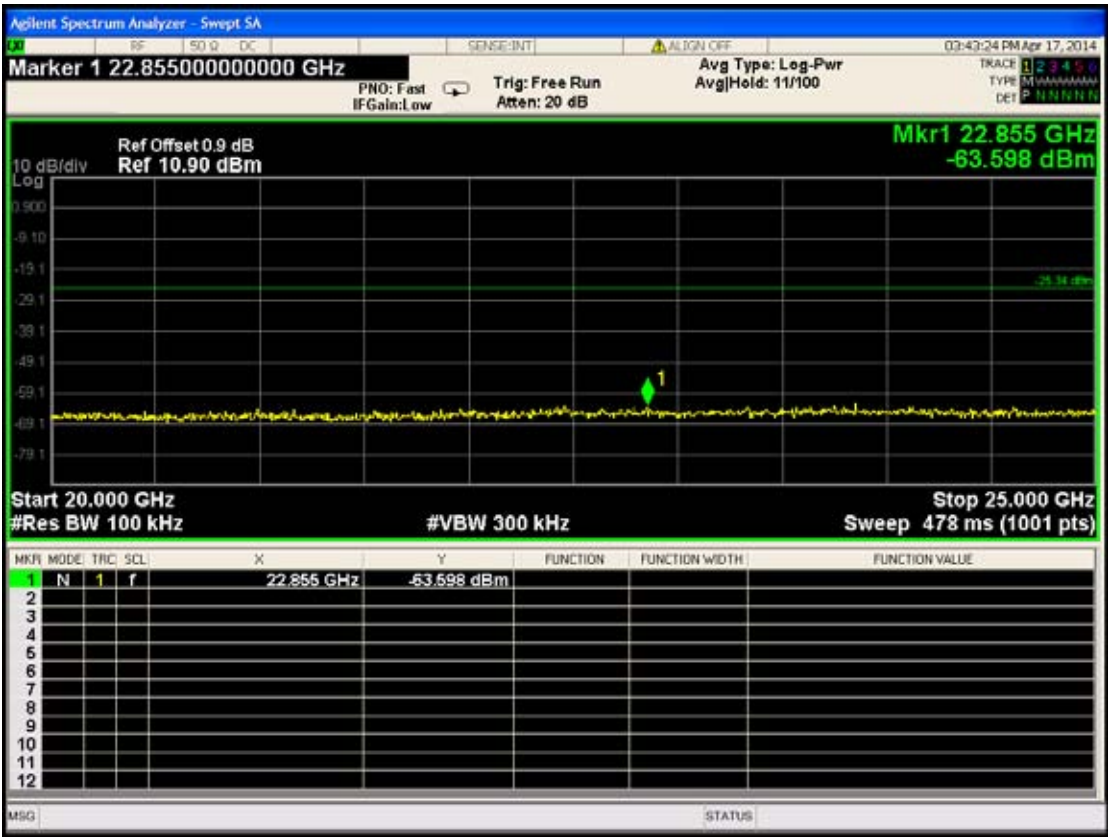
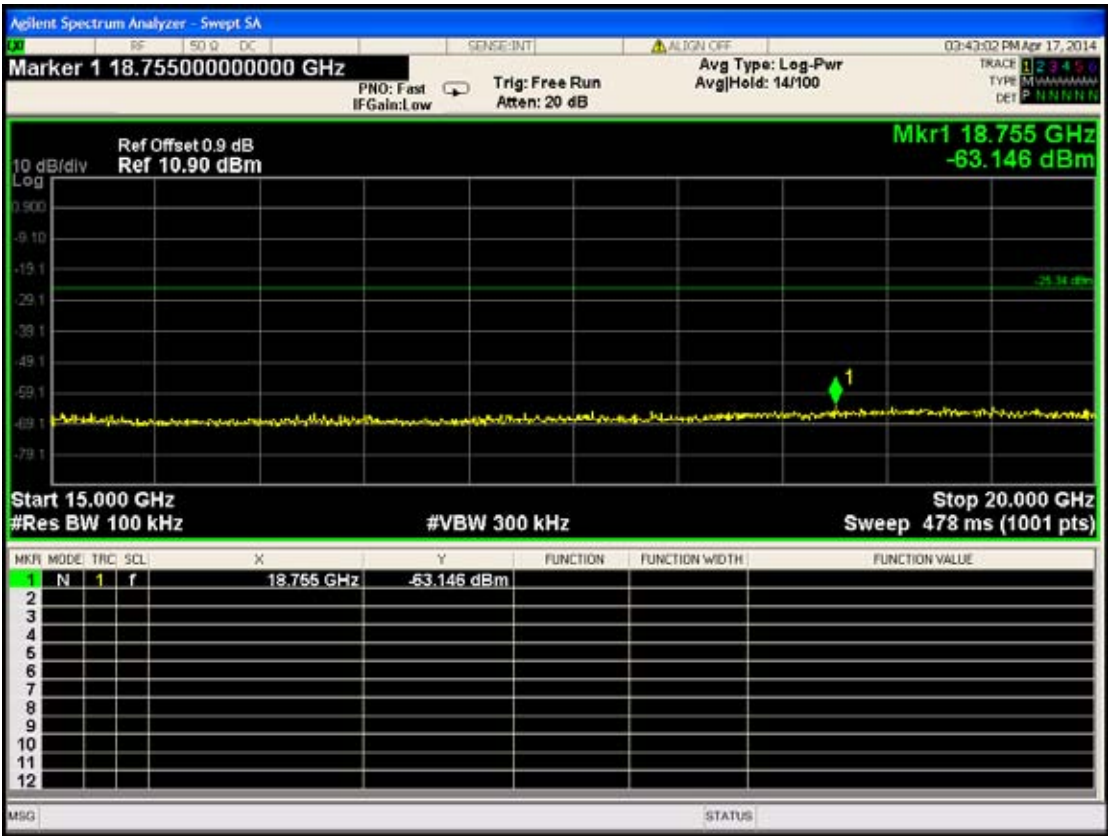




CH 25







9. DEVIATION TO TEST SPECIFICATIONS

【NONE】