FCC PART 15C TEST REPORT FOR CERTIFICATION

On Behalf of

Suzhou BesCon Electronics Co.,Ltd

USB Dongle

Model No. : RCN1022

FCC ID : 2AB9RRCN1022

Prepared for

Suzhou BesCon Electronics Co.,Ltd

Building 2405,Qingjianghu Science & Technology park，No. 58 Weixin Road,Suzhou Industrial Park,Jiangsu Province,China 215122

Prepared by

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

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Report Number : ACWE-F1509001

Date of Test : Sep.05~11, 2015

Date of Report : Sep.14, 2015

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Description Page

TEST REPORT CERTIFICATION

Applicant	:	Suzhou BesCon Electronics Co.,Ltd
Manufacturer	:	Suzhou BesCon Electronics Co.,Ltd
EUT Description	:	USB Dongle
FCC ID	:	2AB9RRCN1022
(A) Model No.	:	RCN1022
(B) Power Supply	:	DC 5V
(C) Test Voltage	:	AC 120V, 60Hz

Applicable Standards:

FCC RULES AND REGULATIONS PART 15 SUBPART C, Oct. 2014
ANSI C63.10:2009

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 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: Sep.05~11, 2015 Date of Report: Sep.14, 2015

Prepared by : Emma Hu
(Emma Hu/Assistant Administrator)

Reviewer : Danny Sun
(Danny Sun/ 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 ANSI C63.10:2009	PASS	Minimum passing margin is 15.48 dB at 4.72MHz
RADIATED EMISSION	FCC 47 CFR Part 15 Subpart C/ Section 15.209& Section 15.249 ANSI C63.10:2009	PASS	Minimum passing margin is 12.32 dB at 395.69MHz
20 dB BANDWIDTH	FCC 47 CFR Part 15 Subpart C/ Section 15.215 ANSI C63.10:2009	PASS	---
BAND EDGES	FCC 47 CFR Part 15 Subpart C/ Section 15.249 ANSI C63.10:2009	PASS	Minimum passing margin is 10.70 kHz at 2400MHz

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Description	:	USB Dongle
Model No.	:	RCN1022
FCC ID	:	2AB9RRCN1022
Applicant	:	Suzhou BesCon Electronics Co.,Ltd Building 2405,Qingjianghu Science & Technologypark，No. 58 Weixin Road,Suzhou Industrial Park,Jiangsu Province,China 215122
Manufacturer	:	Suzhou BesCon Electronics Co.,Ltd Building 2405,Qingjianghu Science & Technologypark，No. 58 Weixin Road,Suzhou Industrial Park,Jiangsu Province,China 215122
Antenna Gain	:	-6dBi
Fundamental Range	:	2402 MHz -2480MHz
Highest Working Frequency	:	2.4GHz
Power Rating	:	DC 5V
Modulation type	:	GFSK
Date of Receipt of Sample	:	Jul.30, 2015
Date of Test	:	Sep.05~11, 2015

2.2. Tested Supporting System Details

2.2.1. Notebook PC

Manufacturer	:	DELL
Model Number	:	vostro5560
Serise Number	:	4T1XNY1
Power Cord	:	Unshielded, Detachable, 1.5m

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 Conducted Shielding Enclosure**

No.1 3m Semi-anechoic Chamber
Date of Validity: May. 23, 2015
FCC Registration No.**:** 897661
IC Registration No.:5183D-2

NVLAP Lab Code : 200786-0
Valid until on Sep. 30, 2015
(NVLAP is a signatory member of ILAC MRA)
Remark: This report shall not be imply endorsement, certification or approval by NVLAP, NIST, or any agency of the U.S. Federal Government.

2.4. Measurement Uncertainty

Test Item	Range Frequency	Uncertainty
Conducted Disturbance Measurement	0.15MHz ~ 30MHz	± 3.30dB
Radiated Disturbance Measurement (At 3m Chamber)	Below 1GHz	± 4.50dB
Radiated Disturbance Measurement (At 3m Chamber)	Above 1GHz	± 5.15dB

Remark: Uncertainty = $ku_c(y)$

Test Item	Uncertainty
6 dB Bandwidth	± 0.16 MHz
Band Edges	± 0.38dB
Emission Limitations	± 0.38dB

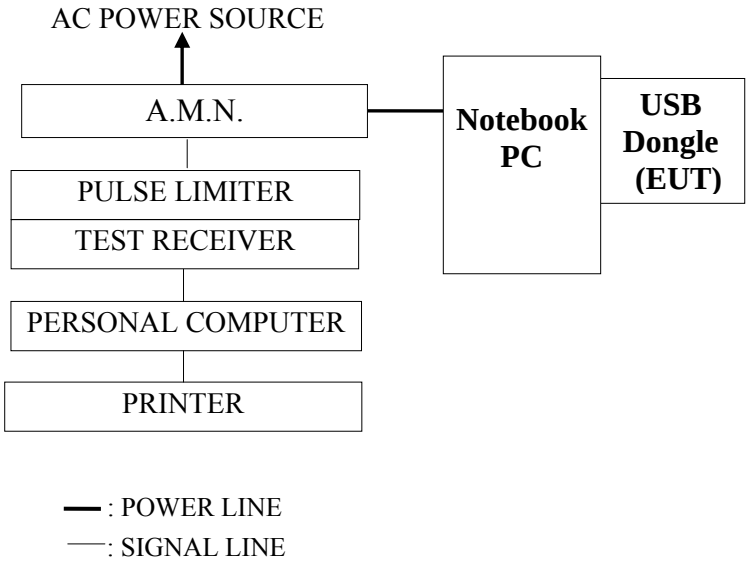
Remark: Uncertainty = $ku_c(y)$

3. CONDUCTED EMISSION MEASUREMET

3.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Test Receiver	R & S	ESCI	100352	2015-01-05	2016-01-04
2.	A.M.N	R&S	ESH2-Z5	100153	2015-05-15	2016-05-14
3.	Pulse Limiter	R&S	ESH3-Z2	100605	2015-07-03	2016-07-02
4.	RF Cable	Harbour Industries	RG400	002	2015-01-05	2016-01-04

3.2. Block Diagram of Test Setup



3.3. Power line Conducted Emission Limit

(FCC Part 15, Section 15.207, Class B)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dBμV	56 ~ 46 dBμV
500kHz ~ 5MHz	56 dBμV	46 dBμV
5MHz ~ 30MHz	60 dBμV	50 dBμV

Remark1: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.

2: The lower limit applies at the band edges.

3.4. Test Procedure

The measuring process is according to FCC Part15 Subpart C and laboratory internal procedure TKC-301-004.

In the conducted emission measurement, the EUT and all peripheral devices were set up on a non-metallic table which was 0.8 meters height above the ground plane, and 0.4 meters far away from the vertical plane. The EUT (installed in PC system) was powered by AC mains through Artificial Mains Network (A.M.N), other peripheral devices were powered by AC mains through the second Line Impedance Stabilization Network (L.I.S.N). For the measurement, the A.M.N measuring port was terminated by a 50Ω measuring equipment and the second L.I.S.N measuring port was terminated by a 50Ω resistive load. All measurements were done on the phase and neutral line of the EUT's power cord. All cables or wires placement were verified to find out the maximum emission.

The bandwidth of measuring receiver was set at 9 kHz.

The required frequency band (0.15 MHz ~ 30 MHz) was pre-scanned with peak detector, the final measurement was measured with quasi-peak detector and average detector. (If the average limit is met when using a quasi-peak detector, the average detector is necessary).

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

Emission level (dBμV) = Reading (dBμV) + A.M.N factor (dB) + Cable loss (dB).

(Cable loss include pulse limiter loss)

3.5. Conducted Emission Measurement Results

For FCC Part15 Subpart C

PASSED.

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

EUT was performed during this section testing and all the test results are attached in next pages.

Test Date：Sep.10, 2015 Temperature：21.9℃ Humidity：53%

Mode	Test Condition	Reference Test Data No.	
		Neutral	Line
1	**TX**	**# 2**	**※# 1**

NOTE 1- '※'means the worst test mode**.**

NOTE 2- The worst emission is detected at 4.72MHz with emission level of 40.52 dB (μV) and with QP detector (Limit is 56.00 dB (μV)), when the Line of the EUT is connected to AMN.

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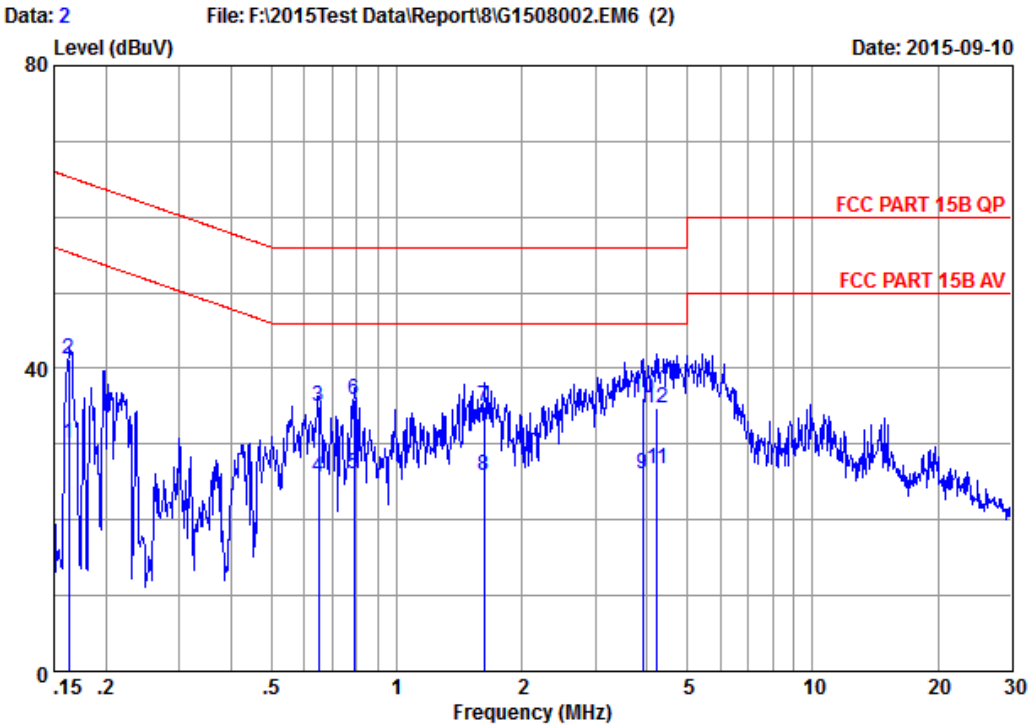

Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 2
AMN/LISN	: ESH2-Z5-1505	Phase	: NEUTRAL
Limit	: FCC PART 15B QP		
Env. / Ins.	: 21.9*C&53%/ESCI	Engineer	: KM.Tong
EUT	: USB Dongle		
M/N	: RCN1022		
Power Rating	: 120Vac/60Hz		
Test mode	: TX		
Memo	:		

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.16	0.15	9.87	20.10	30.12	55.31	25.19	Average
2	0.16	0.15	9.87	31.30	41.32	65.31	23.99	QP
3	0.65	0.17	9.89	24.89	34.95	56.00	21.05	QP
4	0.65	0.17	9.89	15.59	25.65	46.00	20.35	Average
5	0.79	0.17	9.89	16.11	26.17	46.00	19.83	Average
6	0.79	0.17	9.89	25.81	35.87	56.00	20.13	QP
7	1.62	0.20	9.92	24.80	34.92	56.00	21.08	QP
8	1.62	0.20	9.92	15.80	25.92	46.00	20.08	Average
9	3.90	0.27	9.95	15.90	26.12	46.00	19.88	Average
10	3.90	0.27	9.95	25.90	36.12	56.00	19.88	QP
11	4.22	0.28	9.95	16.50	26.73	46.00	19.27	Average
12	4.22	0.28	9.95	24.60	34.83	56.00	21.17	QP

Remarks:
1.Emission Level= AMN factor + Cable loss + Reading .

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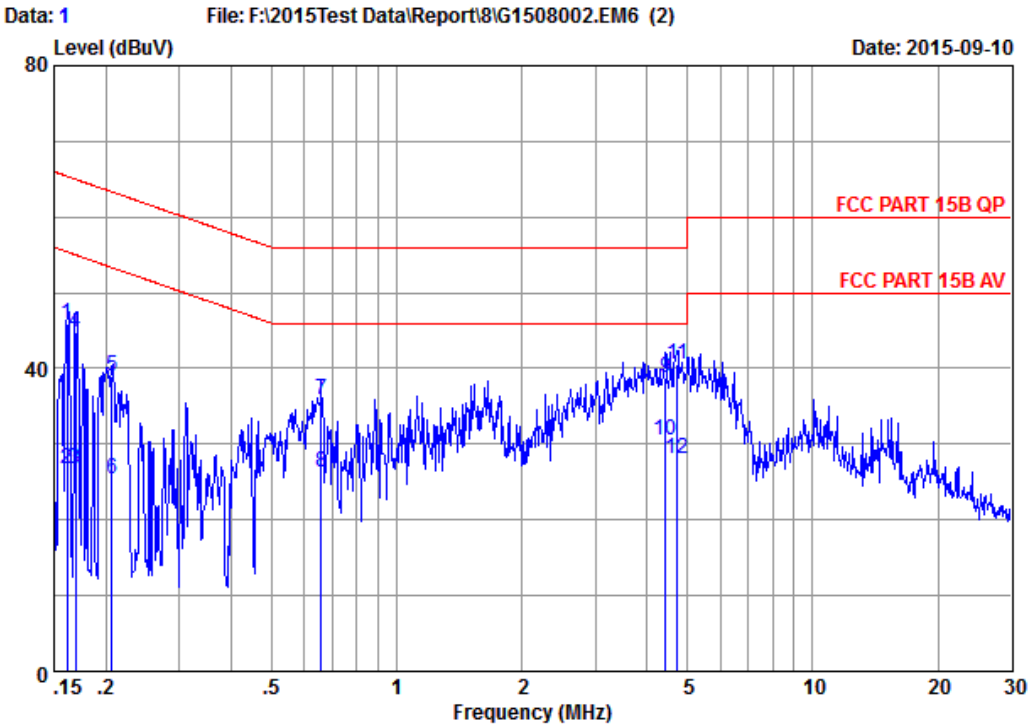


Site no.	: No.1 Conducted shielding Enclosure	Data no.	: 1
AMN/LISN	: ESH2-Z5-1505	Phase	: LINE
Limit	: FCC PART 15B QP		
Env. / Ins.	: 21.9*C&53%/ESCI	Engineer	: KM.Tong
EUT	: USB Dongle		
M/N	: RCN1022		
Power Rating	: 120Vac/60Hz		
Test mode	: TX		
Memo	:		

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.16	0.16	9.87	35.90	45.93	65.41	19.48	QP
2	0.16	0.16	9.87	16.70	26.73	55.41	28.68	Average
3	0.17	0.16	9.87	16.60	26.63	55.01	28.38	Average
4	0.17	0.16	9.87	34.80	44.83	65.01	20.18	QP
5	0.21	0.15	9.87	28.91	38.93	63.32	24.39	QP
6	0.21	0.15	9.87	15.31	25.33	53.32	27.99	Average
7	0.66	0.18	9.89	25.90	35.97	56.00	20.03	QP
8	0.66	0.18	9.89	16.30	26.37	46.00	19.63	Average
9	4.43	0.26	9.96	28.49	38.71	56.00	17.29	QP
10	4.43	0.26	9.96	20.29	30.51	46.00	15.49	Average
11	4.72	0.26	9.96	30.30	40.52	56.00	15.48	QP
12	4.72	0.26	9.96	17.90	28.12	46.00	17.88	Average

Remarks:
1.Emission Level= AMN factor + Cable loss + Reading .

4. RADIATED EMISSION MEASUREMENT

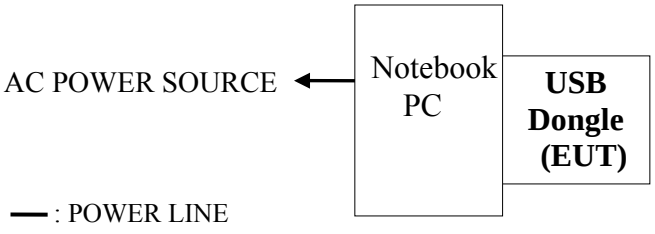
4.1. Test Equipment

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

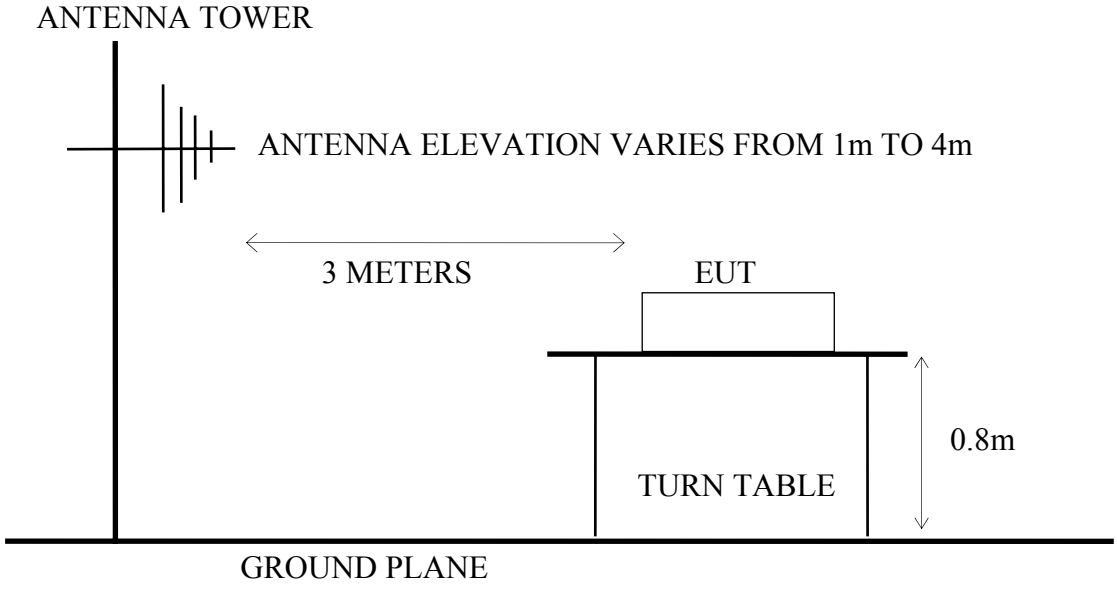
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	Preamplifier	Agilent	8449B	3008A02233	2015-01-05	2016-01-04
2.	Preamplifier	Agilent	8447D	2944A10921	2015-07-03	2016-07-02
3.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2015-06-23	2016-06-22
4.	Test Receiver	R&S	ESCI	100361	2015-01-05	2016-01-04
5.	Bi-log Antenna	Schaffner	CBL6112D	22251	2015-05-20	2016-05-19
6.	Horn Antenna	EMCO	3115	00062960	2015-06-30	2016-05-29
7.	Test Receiver	R&S	ESCI	100361	2015-01-05	2016-01-04
8.	RF Cable #1	Yuhang CSYH	cable-3m	001(0.5m)	2015-01-05	2016-01-04
9.	RF Cable #2	Yuhang CSYH	cable-3m	002(0.5m)	2015-01-05	2016-01-04
10.	RF Cable #3	Yuhang CSYH	cable-3m	003(3.0m)	2015-01-05	2016-01-04

4.2. Block Diagram of Test Setup

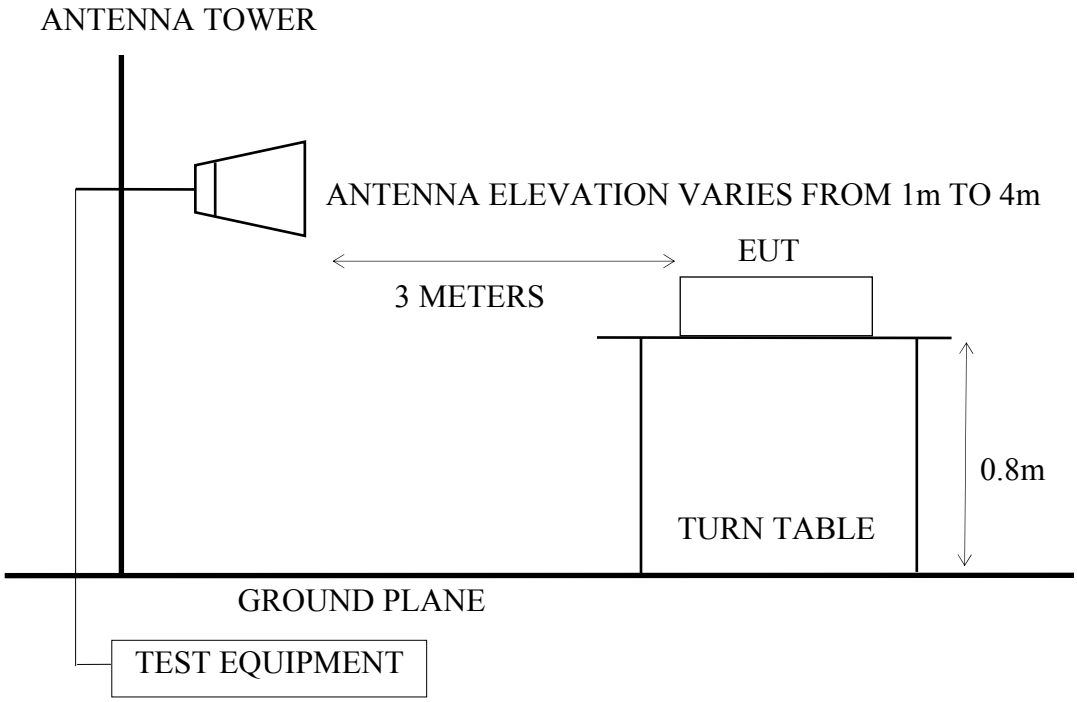
4.2.1. Block Diagram of Test Setup between EUT and simulators



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



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



4.3. Radiated Emission Limits

Radiated Emission Limits (FCC Part15 C, section 15.209 & 15.249)

Frequency MHz	Distance Meters	Field Strengths Limits	
		μV/m	dBμV/m
30~88	3	100	40
88~216	3	150	43.5
261~960	3	200	46.0
960~1000	3	500	54.0
Above 1000	3	74.0 dBμV/m (Peak) 54.0 dBμV/m (Average)	
Field Strength of fundamental emissions for 2.4GHz-2.4835GHz	3	114.0 dBμV/m (Peak) 94.0 dBμV/m (Average)	

Remark： (1) Emission level (dBμV) = 20 log Emission level (μV/m)
(2)The smaller limit shall apply at the cross point between two frequency bands.
(3)Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.
(4)The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

4.4. Test Procedure

The measuring process is according to FCC Part15 Subpart C and laboratory internal procedure TKC-301-001.

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 of the interface cables must be manipulated according to ANSI C63.10-2009 on radiated emission test.

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
A duty cycle factor was used to calculate average level based measured peak level.

The frequency range from 30MHz to 10th harmonic(25GHz) are checked, and no any emissions were found from 18GHz to 25GHz.

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

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

4.5. Measurement Results

PASSED

4.5.1. 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 15.209)

For Frequency range：below 1GHz

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz	# 1	# 2
2.		2440MHz	# 3	# 4
3.		2480MHz	# 5	# 6

For Frequency range：above 1GHz

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz	# 7	# 8
2.		2440MHz	# 9	# 10
3.		2480MHz	# 11	# 12

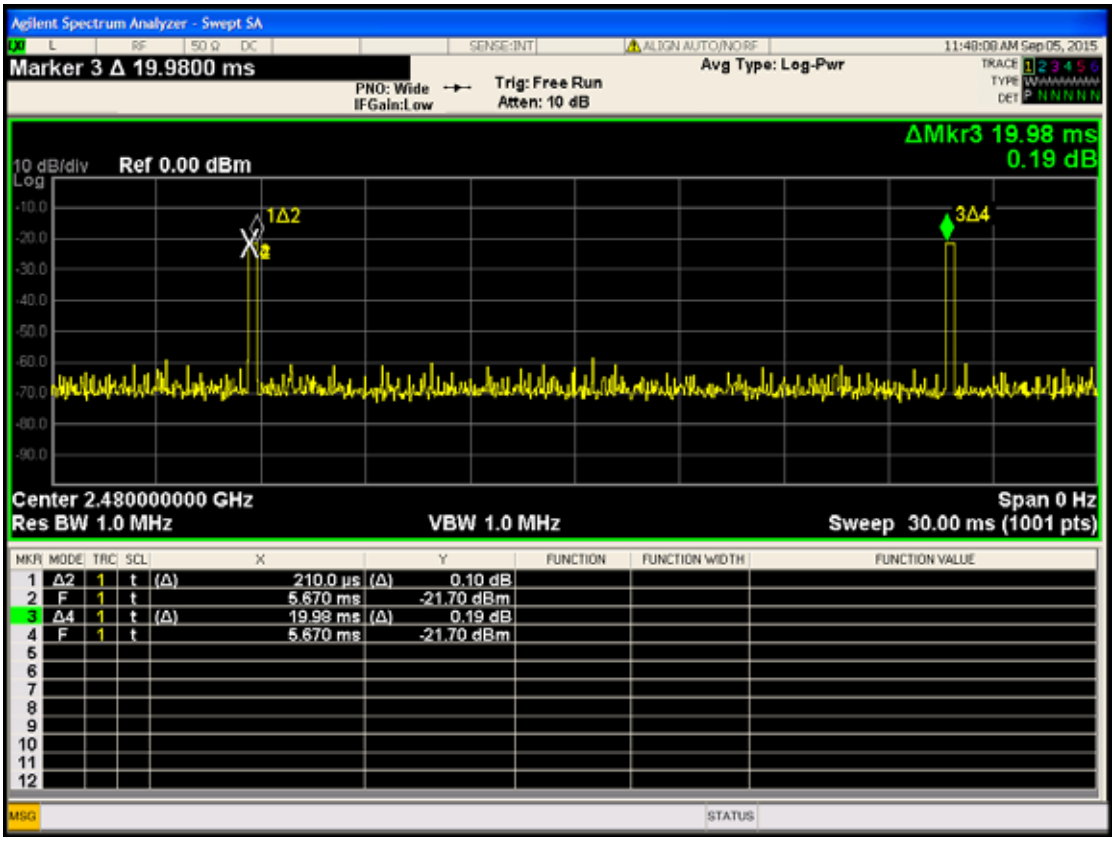
4.5.2. For Band Edge Emission

The EUT was tested in restricted bands and all the test results are listed in section 4.8. The restricted bands defined in part 15.209)

No.	Test Mode and Frequency		Reference Test Data No.	
			Horizontal	Vertical
1.	Transmitting	2402MHz	# 13	# 14
2.		2480MHz	# 15	# 16

Duty cycle=0.21/19.98=1.1%

Duty cycle factor=20log (duty cycle)= -39.57



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

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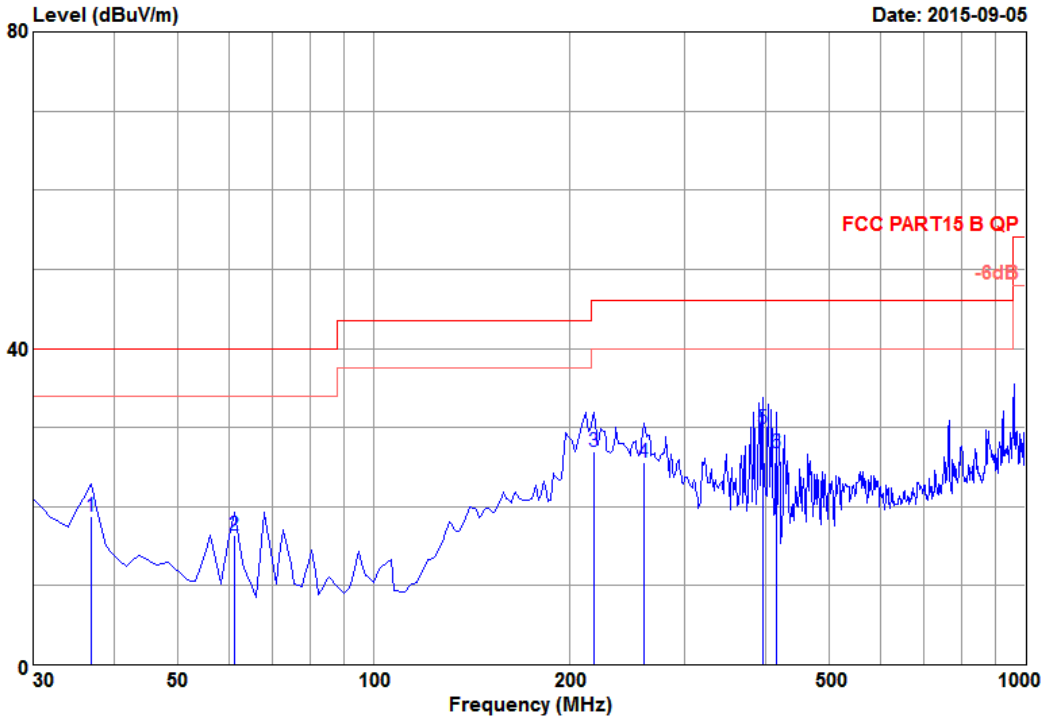

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Dis. / Ant. : 3m 6112D(22251)-150520
Limit : FCC PART15 B QP
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating : DC 5V
Test Mode : TX 2402MHz
Memo :

Data NO. :1
Ant. pol. : HORIZONTAL

Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	36.79	15.83	0.25	30.06	18.81	40.00	21.19	QP
2	61.04	6.55	0.35	36.68	16.30	40.00	23.70	QP
3	218.18	10.61	1.25	41.83	26.93	46.00	19.07	QP
4	259.89	13.79	1.33	37.08	25.52	46.00	20.48	QP
5	395.69	16.33	1.69	39.11	29.86	46.00	16.14	QP
6	415.09	17.30	1.76	35.15	26.83	46.00	19.17	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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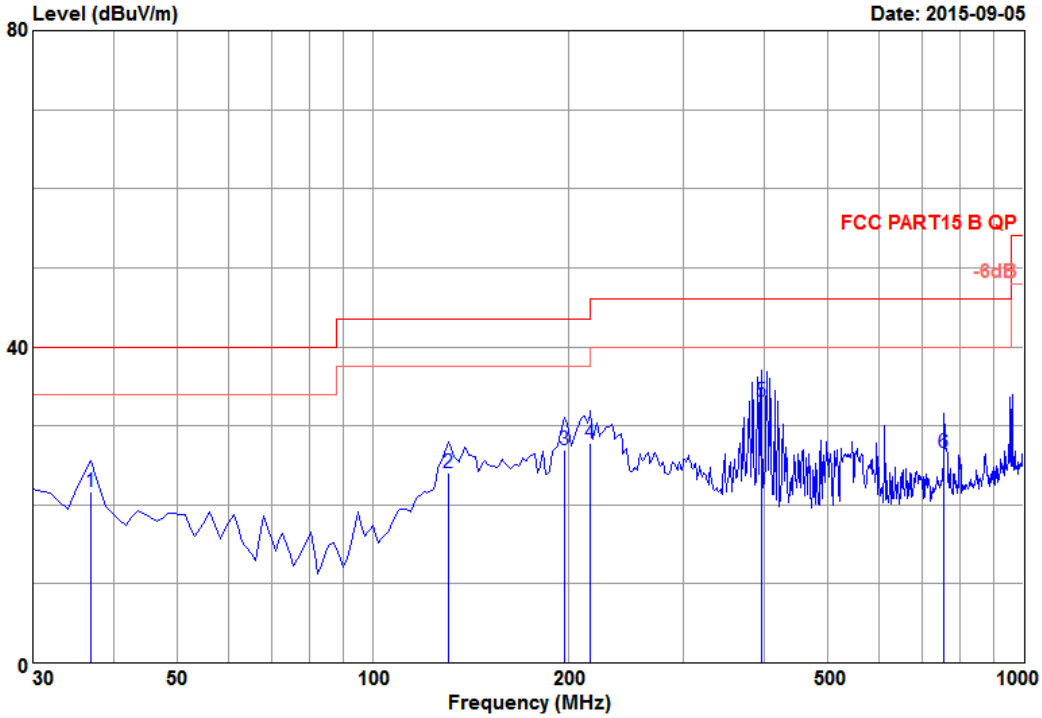

Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22251)-150520
Limit : FCC PART15 B QP
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating : DC 5V
Test Mode : TX 2402MHz
Memo :

Data NO. :2
Ant. pol. : VERTICAL

Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	36.79	15.83	0.25	32.91	21.66	40.00	18.34	QP
2	130.88	12.76	0.84	37.51	24.03	43.50	19.47	QP
3	196.84	10.28	1.19	42.34	27.00	43.50	16.50	QP
4	216.24	10.51	1.24	42.85	27.83	46.00	18.17	QP
5	395.69	16.33	1.69	42.29	33.04	46.00	12.96	QP
6	755.56	20.31	2.48	31.47	26.57	46.00	19.43	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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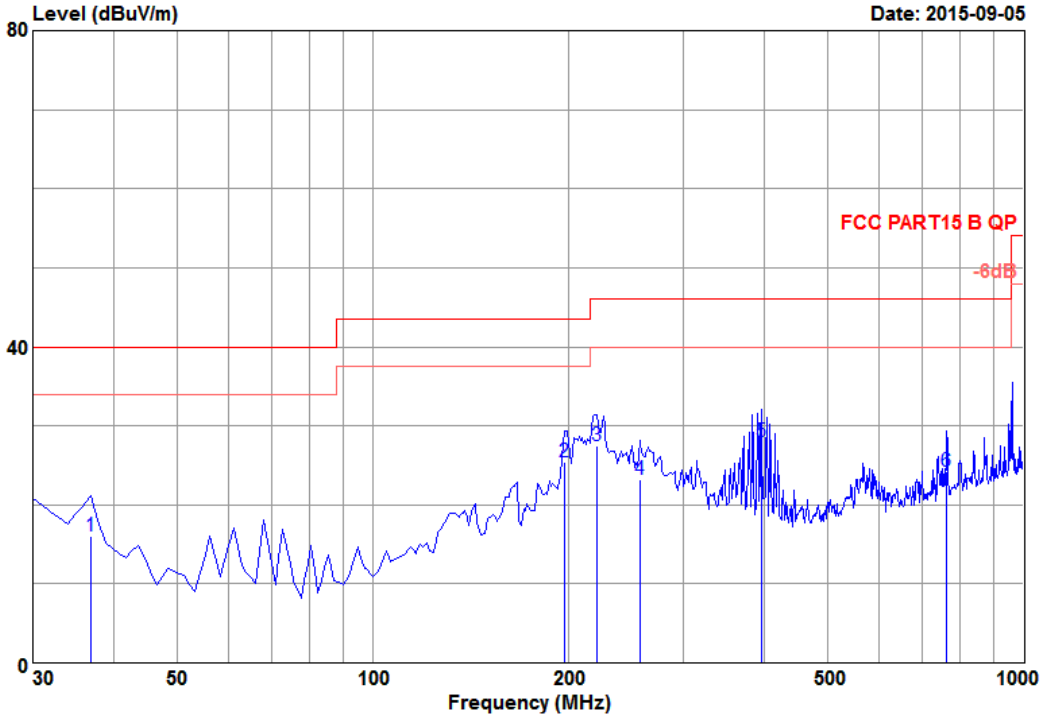

Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22251)-150520
Limit : FCC PART15 B QP
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating : DC 5V
Test Mode : TX 2440MHz
Memo :

Data NO. :3
Ant. pol. : HORIZONTAL
Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	36.79	15.83	0.25	27.35	16.10	40.00	23.90	QP
2	196.84	10.28	1.19	40.71	25.37	43.50	18.13	QP
3	221.09	10.70	1.25	42.20	27.39	46.00	18.61	QP
4	256.98	13.60	1.32	34.99	23.22	46.00	22.78	QP
5	395.69	16.33	1.69	37.29	28.04	46.00	17.96	QP
6	761.38	20.40	2.50	29.06	24.28	46.00	21.72	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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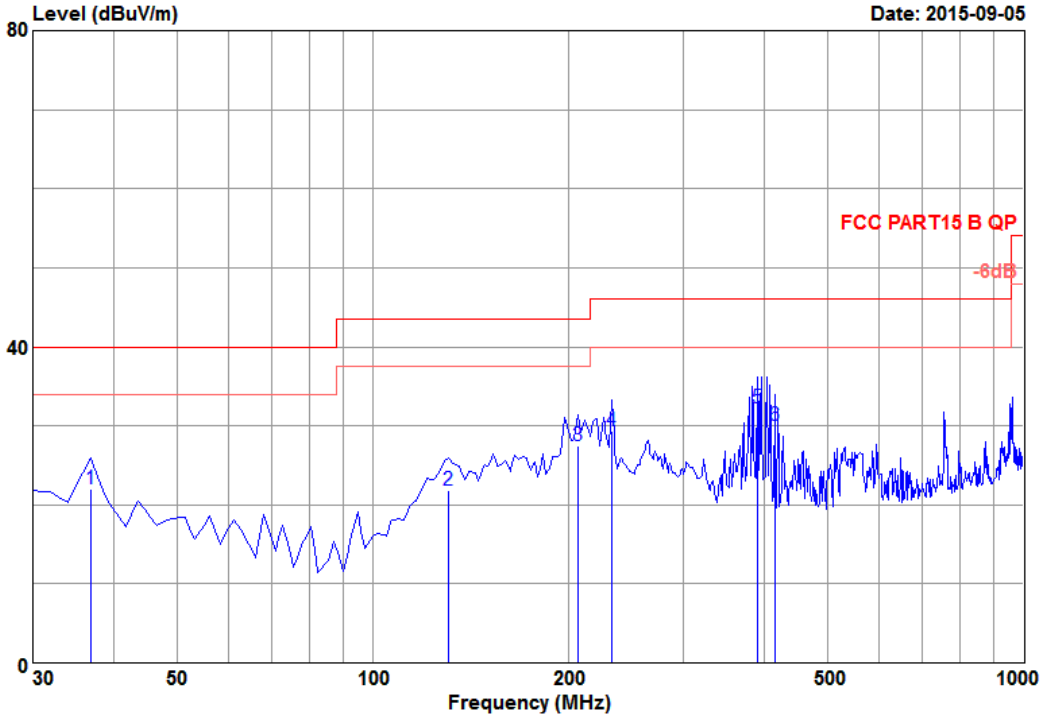
Data: 4 File: G:\Test Data\2015\Reports\08\G1508002.EM6 (16)



Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22251)-150520
Limit : FCC PART15 B QP
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating : DC 5V
Test Mode : TX 2440MHz
Memo :

Data NO. :4
Ant. pol. : VERTICAL

Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	36.79	15.83	0.25	33.21	21.96	40.00	18.04	QP
2	130.88	12.76	0.84	35.37	21.89	43.50	21.61	QP
3	206.54	10.80	1.22	42.24	27.47	43.50	16.03	QP
4	232.73	11.57	1.28	43.17	29.29	46.00	16.71	QP
5	390.84	16.22	1.67	41.59	32.24	46.00	13.76	QP
6	415.09	17.30	1.76	38.32	30.00	46.00	16.00	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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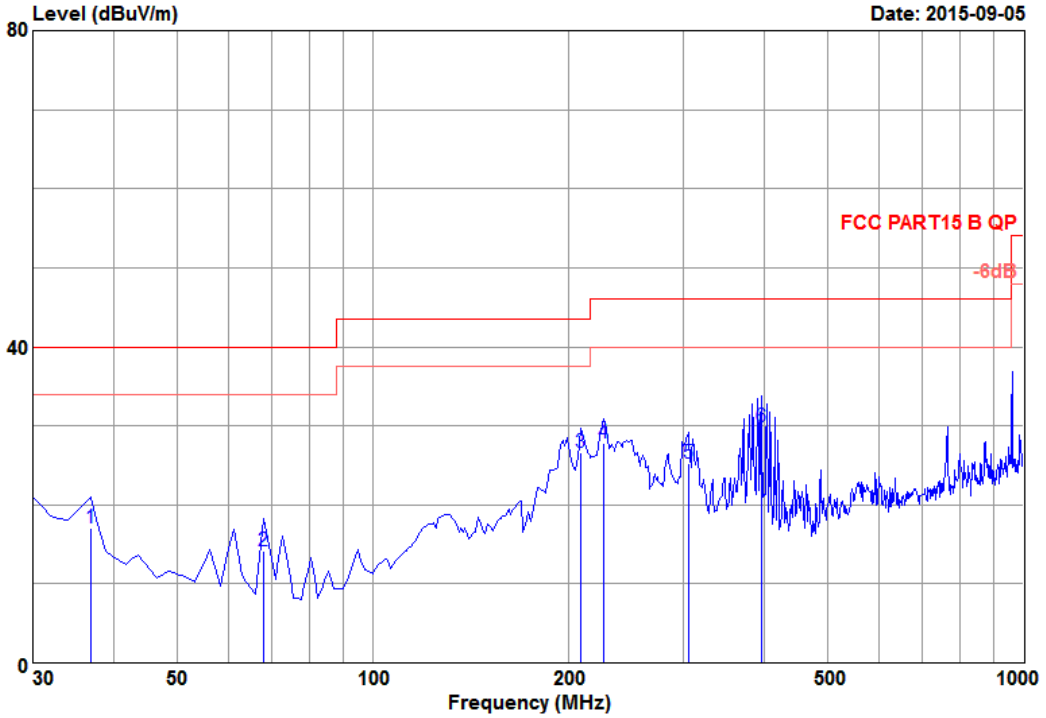
Data: 5 File: G:\Test Data\2015\Reports\08\G1508002.EM6 (16)



Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22251)-150520
Limit : FCC PART15 B QP
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating : DC 5V
Test Mode : TX 2480MHz
Memo :

Data NO. :5
Ant. pol. : HORIZONTAL

Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	36.79	15.83	0.25	28.24	16.99	40.00	23.01	QP
2	67.83	6.70	0.37	34.42	14.23	40.00	25.77	QP
3	208.48	10.78	1.23	41.47	26.70	43.50	16.80	QP
4	225.94	11.00	1.26	42.33	27.84	46.00	18.16	QP
5	305.48	14.12	1.41	36.28	25.17	46.00	20.83	QP
6	395.69	16.33	1.69	39.06	29.81	46.00	16.19	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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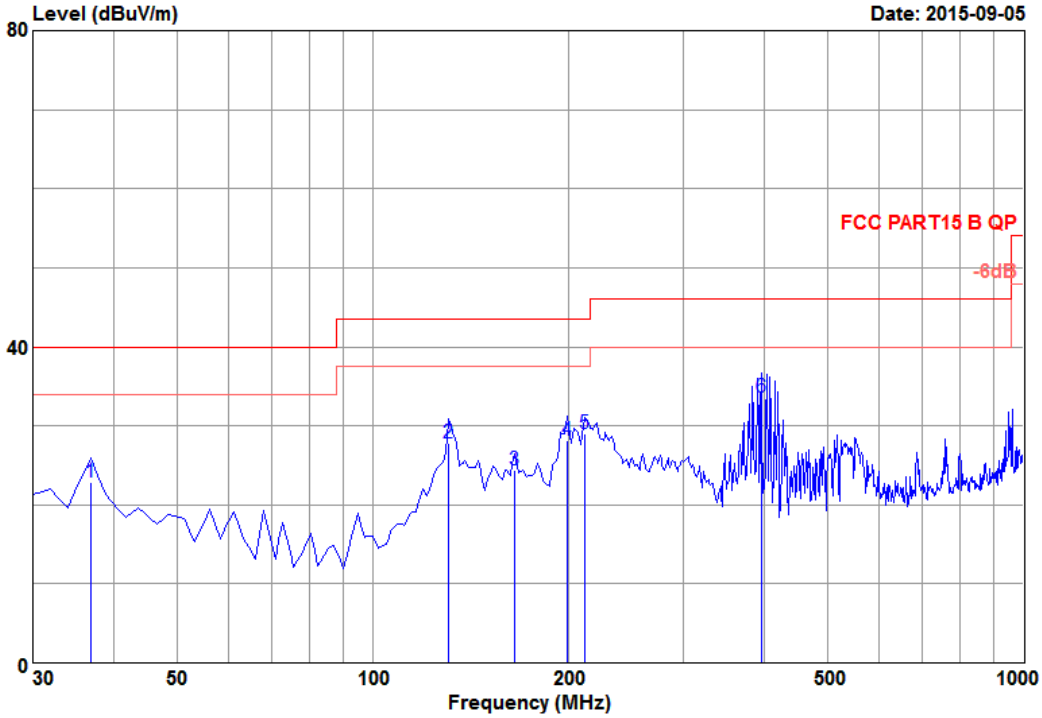
Data: 6 File: G:\Test Data\2015\Reports\08\G1508002.EM6 (16)



Site NO. : 3m chamber
Dis. / Ant. : 3m 6112D(22251)-150520
Limit : FCC PART15 B QP
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating : DC 5V
Test Mode : TX 2480MHz
Memo :

Data NO. :6
Ant. pol. : VERTICAL

Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	36.79	15.83	0.25	34.18	22.93	40.00	17.07	QP
2	130.88	12.76	0.84	41.34	27.86	43.50	15.64	QP
3	164.83	10.50	1.04	39.85	24.45	43.50	19.05	QP
4	198.78	10.44	1.20	43.37	28.21	43.50	15.29	QP
5	211.39	10.56	1.23	43.99	29.00	43.50	14.50	QP
6	395.69	16.33	1.69	42.93	33.68	46.00	12.32	QP

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

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

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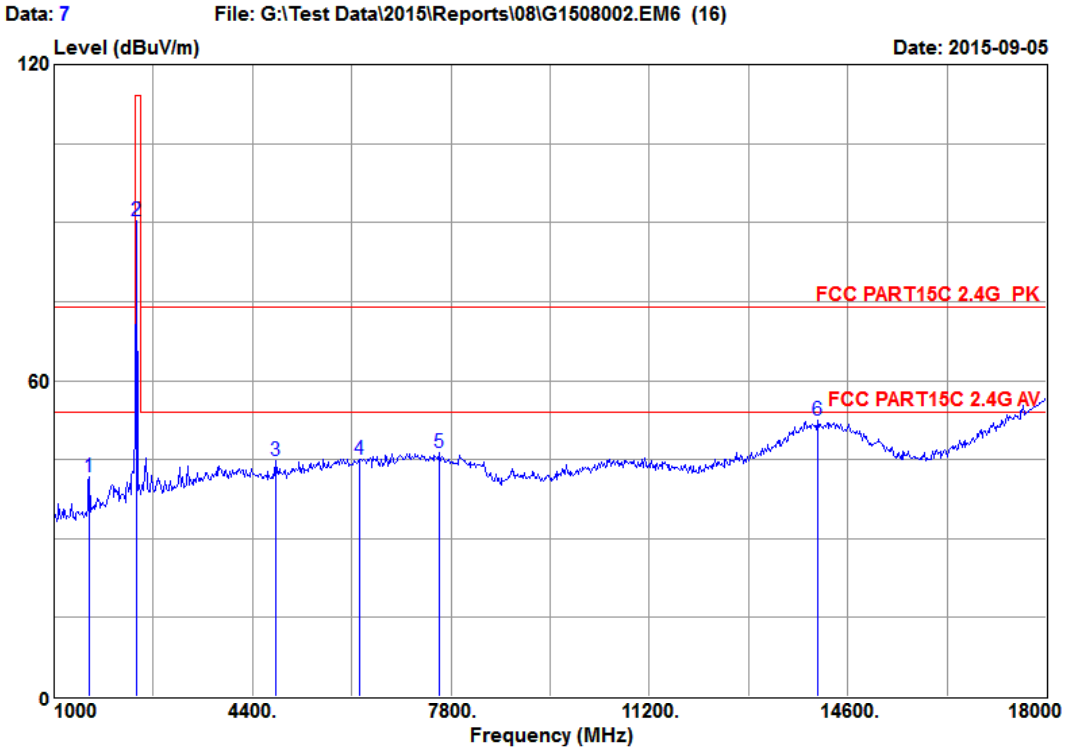

Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-150630
Limit : FCC PART15C 2.4G PK
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating: DC 5V
Test Mode : TX 2402MHz
Memo :

Data NO. : 7
Ant. pol. : HORIZONTAL
Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1608.00	25.58	3.49	47.96	35.19	41.84	74.00	32.16	Peak
2	2403.87	28.49	4.38	92.50	34.94	90.43	114.00	23.57	Peak
3	4800.00	32.86	6.36	40.00	34.37	44.85	74.00	29.15	Peak
4	6225.00	34.33	7.76	36.94	33.91	45.12	74.00	28.88	Peak
5	7593.00	36.84	8.46	35.33	34.29	46.34	74.00	27.66	Peak
6	14091.00	42.27	12.09	29.64	31.57	52.43	74.00	21.57	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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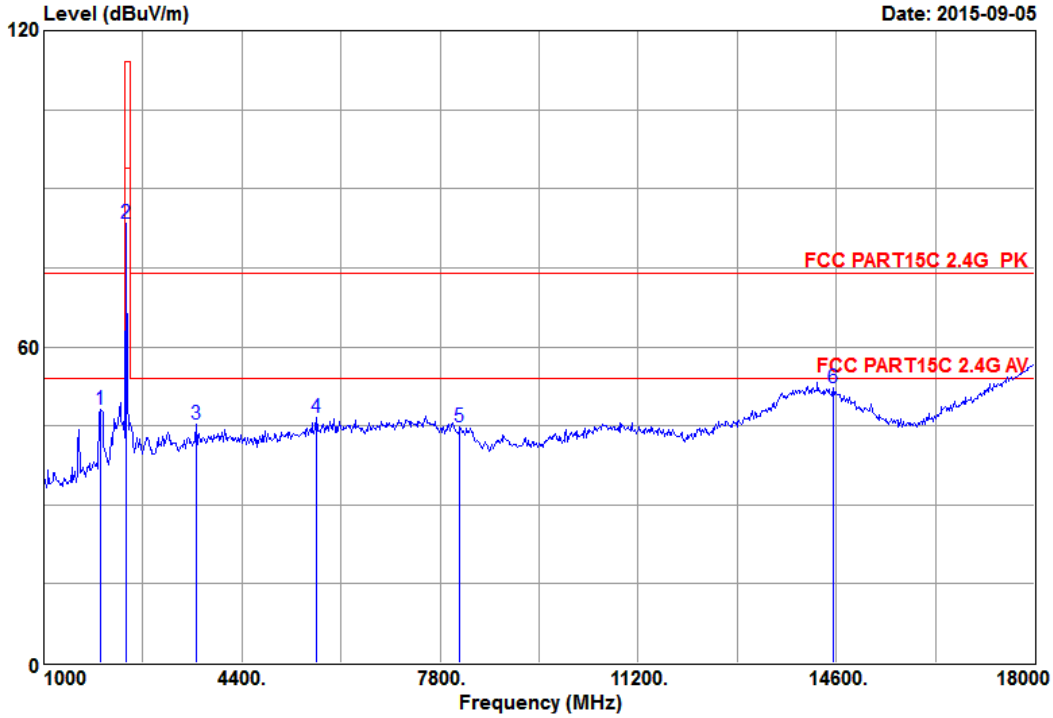
Data: 8 File: G:\Test Data\2015\Reports\08\G1508002.EM6 (16)



Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-150630
Limit : FCC PART15C 2.4G PK
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating: DC 5V
Test Mode : TX 2402MHz
Memo :

Data NO. : 8
Ant. pol. : VERTICAL
Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1969.00	27.33	3.98	51.74	34.84	48.21	74.00	25.79	Peak
2	2403.25	28.49	4.38	85.45	34.94	83.38	114.00	30.62	Peak
3	3622.00	31.64	5.62	42.59	34.67	45.18	74.00	28.82	Peak
4	5674.00	34.07	7.29	39.24	34.12	46.48	74.00	27.52	Peak
5	8144.00	37.17	8.85	33.48	34.78	44.72	74.00	29.28	Peak
6	14547.00	42.44	12.18	29.97	32.44	52.15	74.00	21.85	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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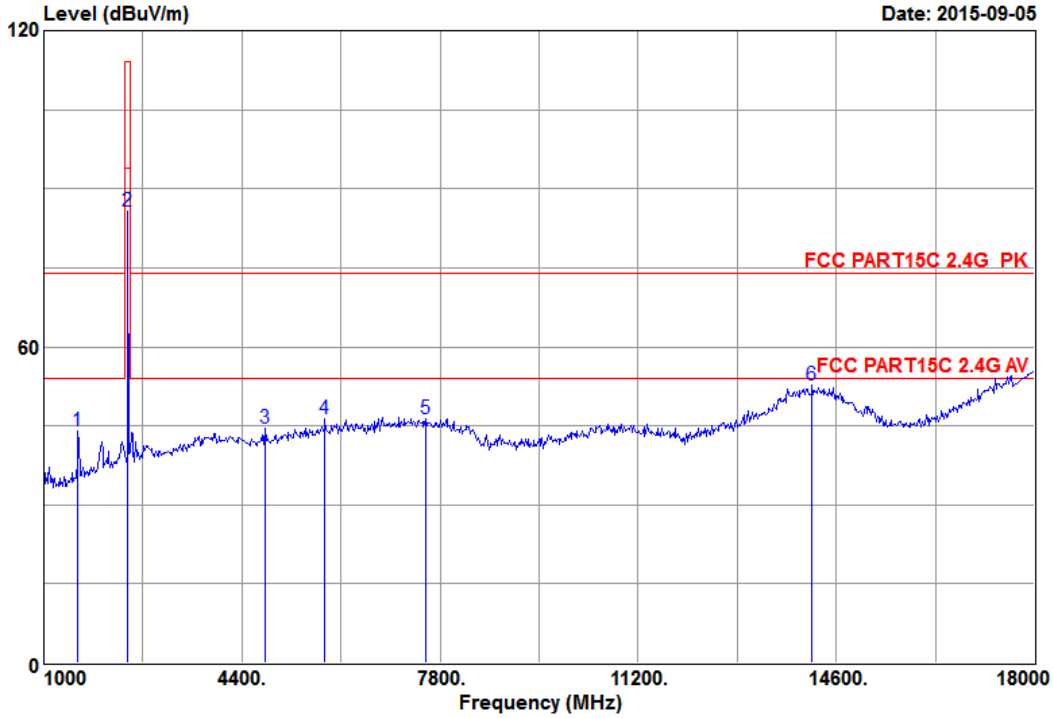
Data: 9 File: G:\Test Data\2015\Reports\08\G1508002.EM6 (16)



Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-150630
Limit : FCC PART15C 2.4G PK
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating: DC 5V
Test Mode : TX 2440MHz
Memo :

Data NO. : 9
Ant. pol. : HORIZONTAL
Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1589.00	25.50	3.46	50.23	35.22	43.97	74.00	30.03	Peak
2	2442.01	28.58	4.42	87.59	34.95	85.64	114.00	28.36	Peak
3	4800.00	32.86	6.36	39.72	34.37	44.57	74.00	29.43	Peak
4	5826.00	34.13	7.48	38.64	34.06	46.19	74.00	27.81	Peak
5	7555.00	36.83	8.42	35.43	34.23	46.45	74.00	27.55	Peak
6	14186.00	42.35	12.11	29.91	31.77	52.60	74.00	21.40	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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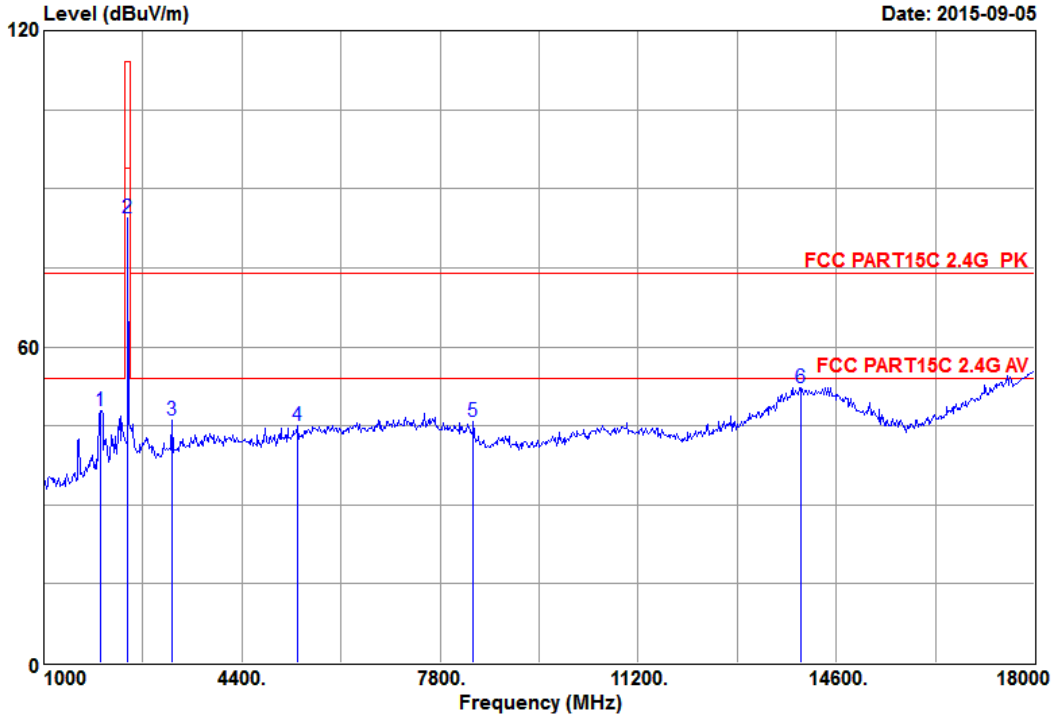
Data: 10 File: G:\Test Data\2015\Reports\08\G1508002.EM6 (16)



Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-150630
Limit : FCC PART15C 2.4G PK
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating: DC 5V
Test Mode : TX 2440MHz
Memo :

Data NO. : 10
Ant. pol. : VERTICAL
Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1969.00	27.33	3.98	51.48	34.84	47.95	74.00	26.05	Peak
2	2441.02	28.58	4.42	86.44	34.95	84.49	114.00	29.51	Peak
3	3204.00	30.60	5.13	45.39	34.97	46.15	74.00	27.85	Peak
4	5351.00	33.76	6.90	38.54	34.23	44.97	74.00	29.03	Peak
5	8372.00	37.46	8.89	34.26	34.83	45.78	74.00	28.22	Peak
6	13996.00	42.16	12.07	29.48	31.43	52.28	74.00	21.72	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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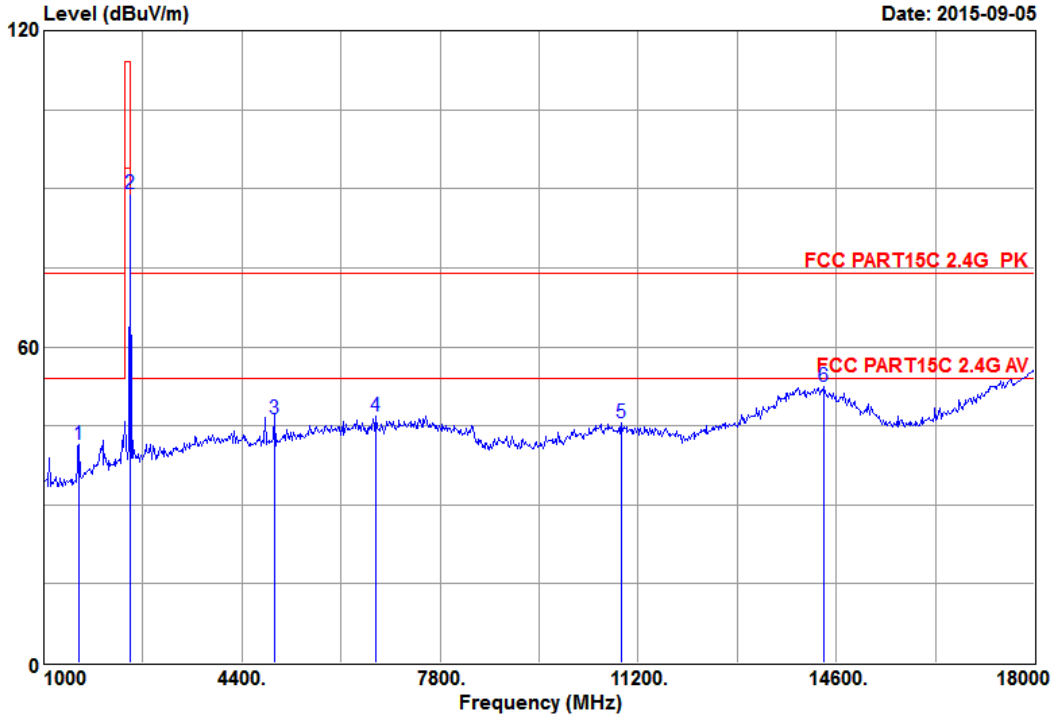
Data: 11 File: G:\Test Data\2015\Reports\08\G1508002.EM6 (16)



Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-150630
Limit : FCC PART15C 2.4G PK
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating: DC 5V
Test Mode : TX 2480MHz
Memo :

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

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1608.00	25.58	3.49	47.45	35.19	41.33	74.00	32.67	Peak
2	2481.15	28.66	4.44	90.93	34.96	89.07	114.00	24.93	Peak
3	4971.00	33.17	6.43	41.03	34.36	46.27	74.00	27.73	Peak
4	6700.00	34.92	7.87	37.86	33.71	46.94	74.00	27.06	Peak
5	10918.00	39.19	10.63	29.39	33.71	45.50	74.00	28.50	Peak
6	14395.00	42.52	12.15	29.85	32.15	52.37	74.00	21.63	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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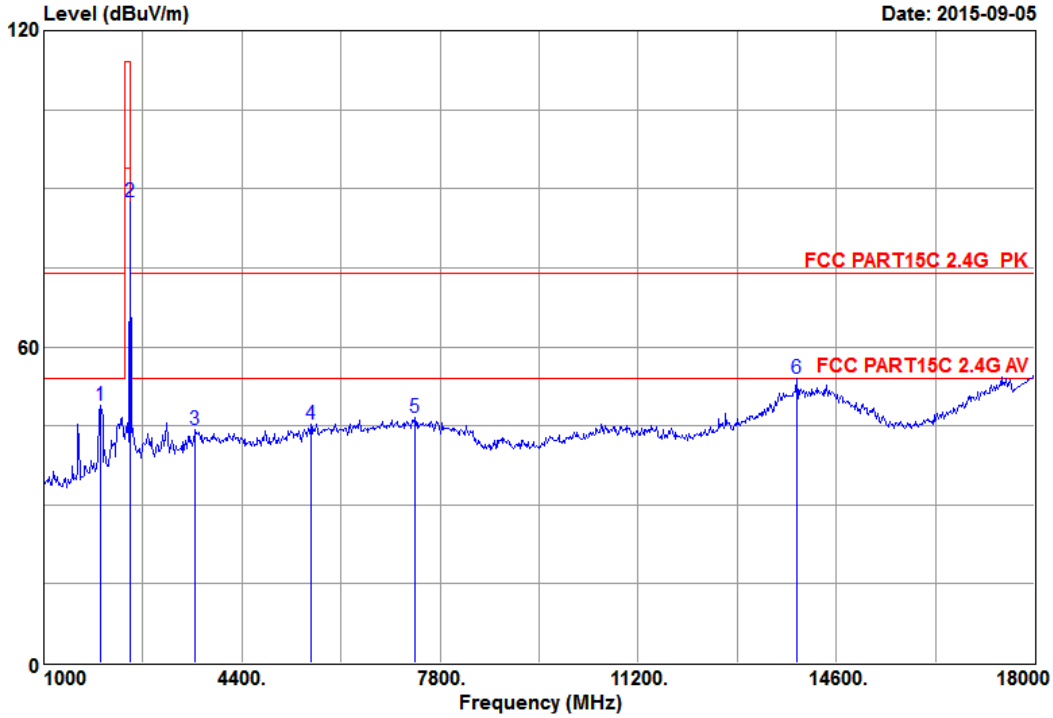
Data: 12 File: G:\Test Data\2015\Reports\08\G1508002.EM6 (16)



Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-150630
Limit : FCC PART15C 2.4G PK
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating: DC 5V
Test Mode : TX 2480MHz
Memo :

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

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	1969.00	27.33	3.98	52.31	34.84	48.78	74.00	25.22	Peak
2	2481.00	28.66	4.44	89.28	34.96	87.42	114.00	26.58	Peak
3	3603.00	31.59	5.60	41.79	34.68	44.30	74.00	29.70	Peak
4	5579.00	34.03	7.19	38.12	34.15	45.19	74.00	28.81	Peak
5	7365.00	36.47	8.26	35.95	34.03	46.65	74.00	27.35	Peak
6	13920.00	42.02	12.03	31.38	31.50	53.93	74.00	20.07	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.

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

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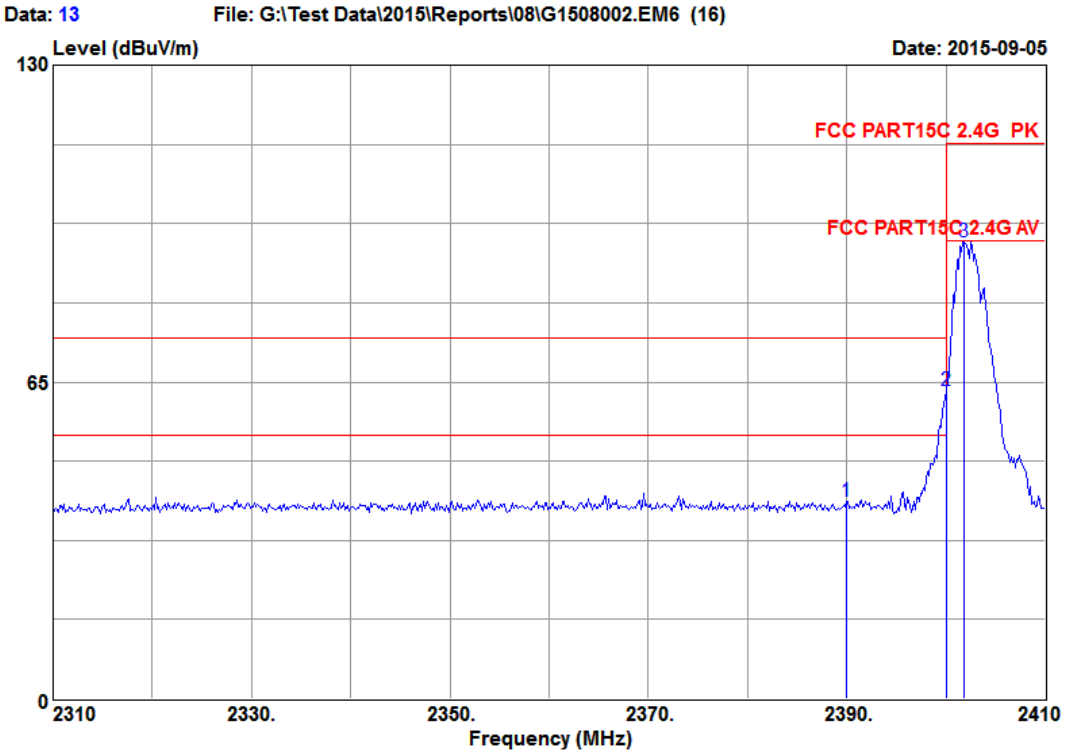

Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-150630
Limit : FCC PART15C 2.4G PK
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating: DC 5V
Test Mode : TX 2402MHz
Memo :

Data NO. : 13
Ant. pol. : HORIZONTAL

Engineer : Mickey

	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	28.45	4.38	42.70	34.94	40.59	74.00	33.41	Peak
2	2400.00	28.45	4.38	65.41	34.94	63.30	74.00	10.70	Peak
3	2401.84	28.45	4.38	95.92	34.94	93.81	114.00	20.19	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.

Frequency (MHz)	Peak Level (dBuV/m)	Duty cycle Factor (dB)	AV Level (dBuV/m)	Limit(dBuV/m)	Result
2400.00	63.30	-39.57	23.73	54	Pass

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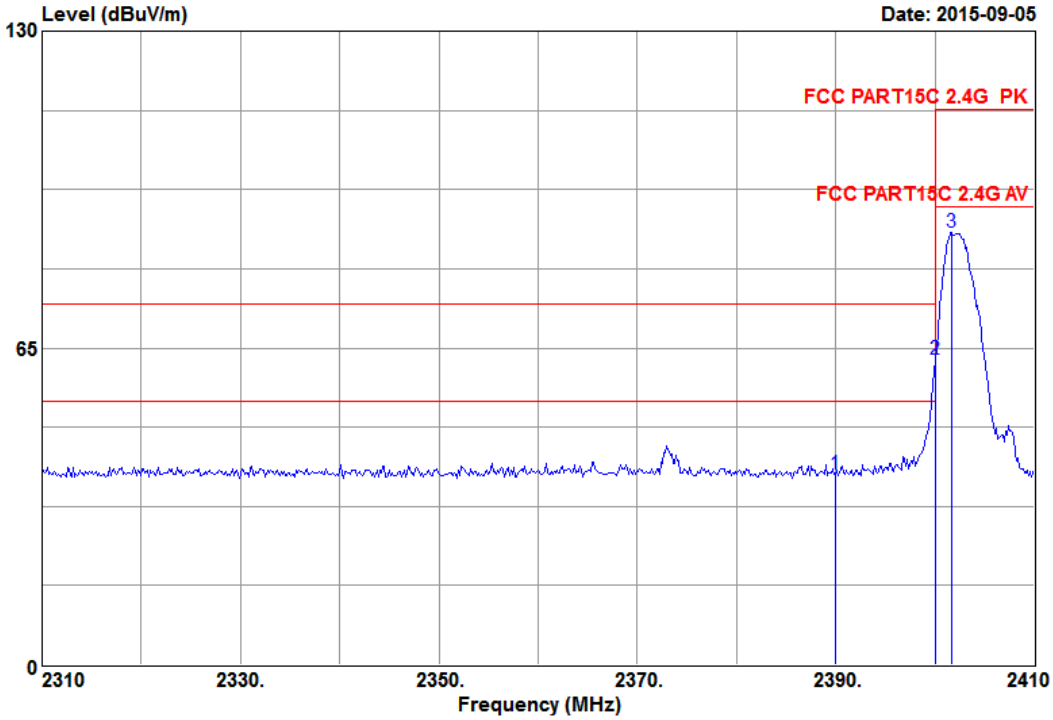
Data: 14 File: G:\Test Data\2015\Reports\08\G1508002.EM6 (16)



Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-150630
Limit : FCC PART15C 2.4G PK
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating: DC 5V
Test Mode : TX 2402MHz
Memo :

Data NO. : 14
Ant. pol. : VERTICAL
Engineer : Mickey

	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	28.45	4.38	41.13	34.94	39.02	74.00	34.98	Peak
2	2400.00	28.45	4.38	64.89	34.94	62.78	74.00	11.22	Peak
3	2401.70	28.45	4.38	90.85	34.94	88.74	114.00	25.26	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.

Frequency (MHz)	Peak Level (dBuV/m)	Duty cycle Factor (dB)	AV Level (dBuV/m)	Limit (dBuV/m)	Result
2400.00	62.78	-39.57	23.21	54	Pass

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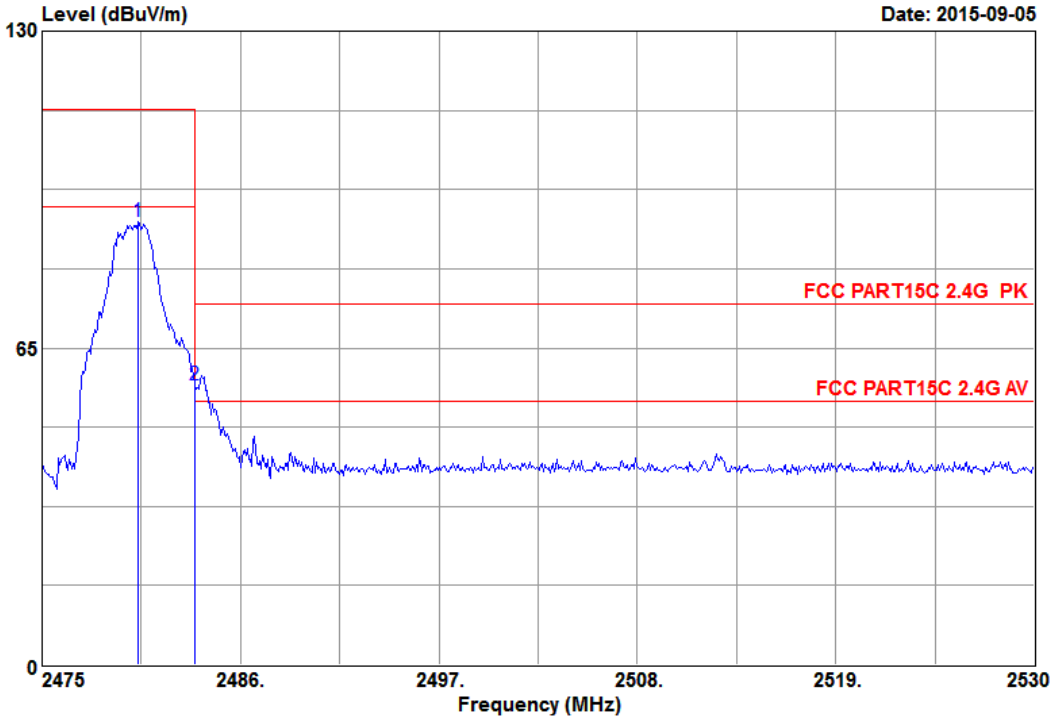
Data: 15 File: G:\Test Data\2015\Reports\08\G1508002.EM6 (16)



Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-150630
Limit : FCC PART15C 2.4G PK
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating: DC 5V
Test Mode : TX 2480MHz
Memo :

Data NO. : 15
Ant. pol. : HORIZONTAL
Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.33	28.66	4.44	92.79	34.96	90.93	114.00	23.07	Peak
2	2483.50	28.66	4.44	59.35	34.96	57.49	74.00	16.51	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.

Frequency (MHz)	Peak Level (dBuV/m)	Duty cycle Factor (dB)	AV Level (dBuV/m)	Limit (dBuV/m)	Result
2483.5	57.49	-39.57	17.92	54	Pass

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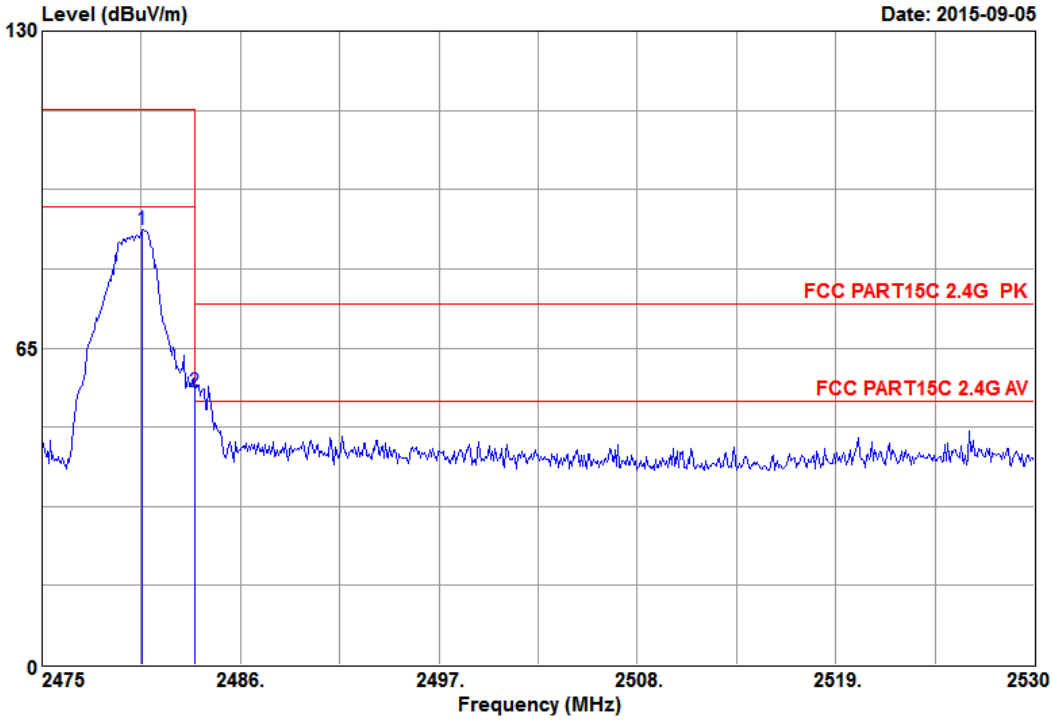
Data: 16 File: G:\Test Data\2015\Reports\08\G1508002.EM6 (16)



Site NO. : 3m Semi-Anechoic Chamber
Dis. / Ant. : 3m 3115-62960-150630
Limit : FCC PART15C 2.4G PK
Env. / Ins. : 20.4*C&48%/N9030A
EUT : USB Dongle
M/N : RCN1022
Power Rating: DC 5V
Test Mode : TX 2480MHz
Memo :

Data NO. : 16
Ant. pol. : VERTICAL
Engineer : Mickey

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Preamp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.55	28.66	4.44	91.22	34.96	89.36	114.00	24.64	Peak
2	2483.50	28.66	4.44	57.85	34.96	55.99	74.00	18.01	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.

Frequency (MHz)	Peak Level (dBuV/m)	Duty cycle Factor (dB)	AV Level (dBuV/m)	Limit (dBuV/m)	Result
2483.5	55.99	-39.57	16.42	54	Pass

5. 20 dB BANDWIDTH MEASUREMENT

5.1. Test Equipment

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1.	PXA Signal Analyzer	Agilent	N9030A	MY53120367	2015-06-23	2016-06-22

5.2. Specification Limits

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in section 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

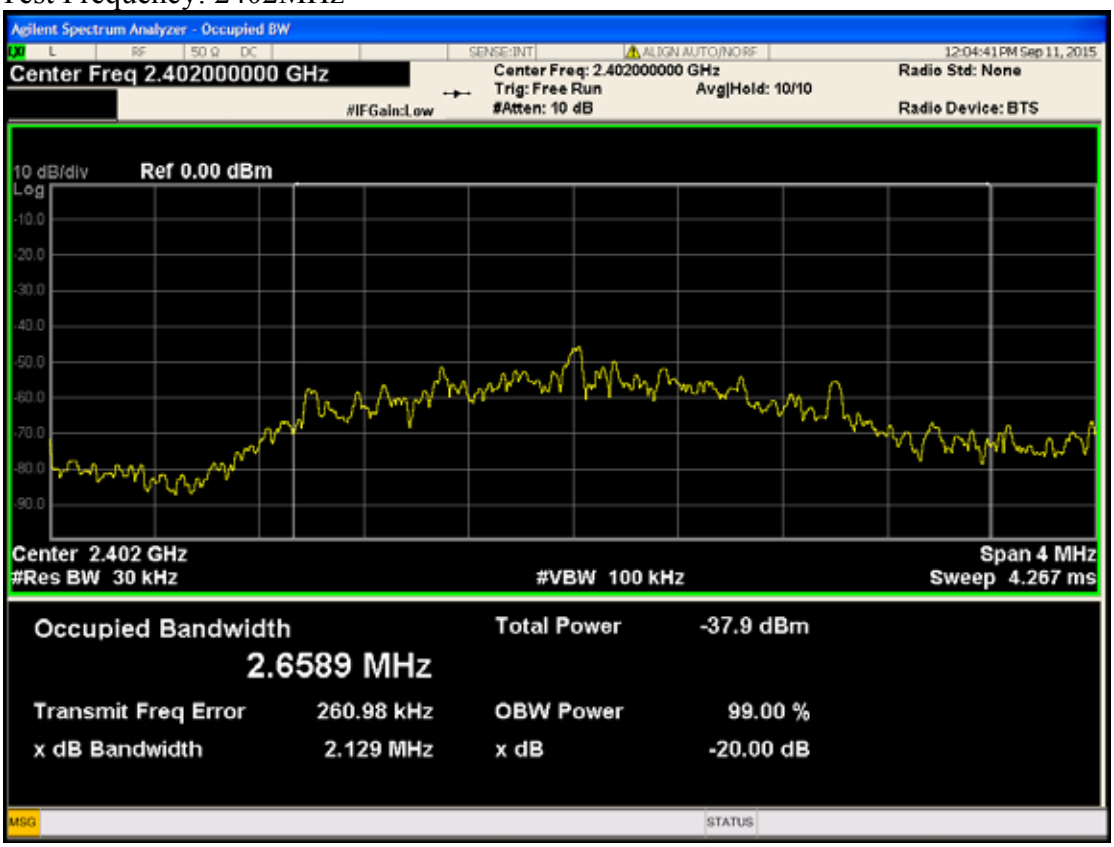
5.3. Test Results

PASSED.

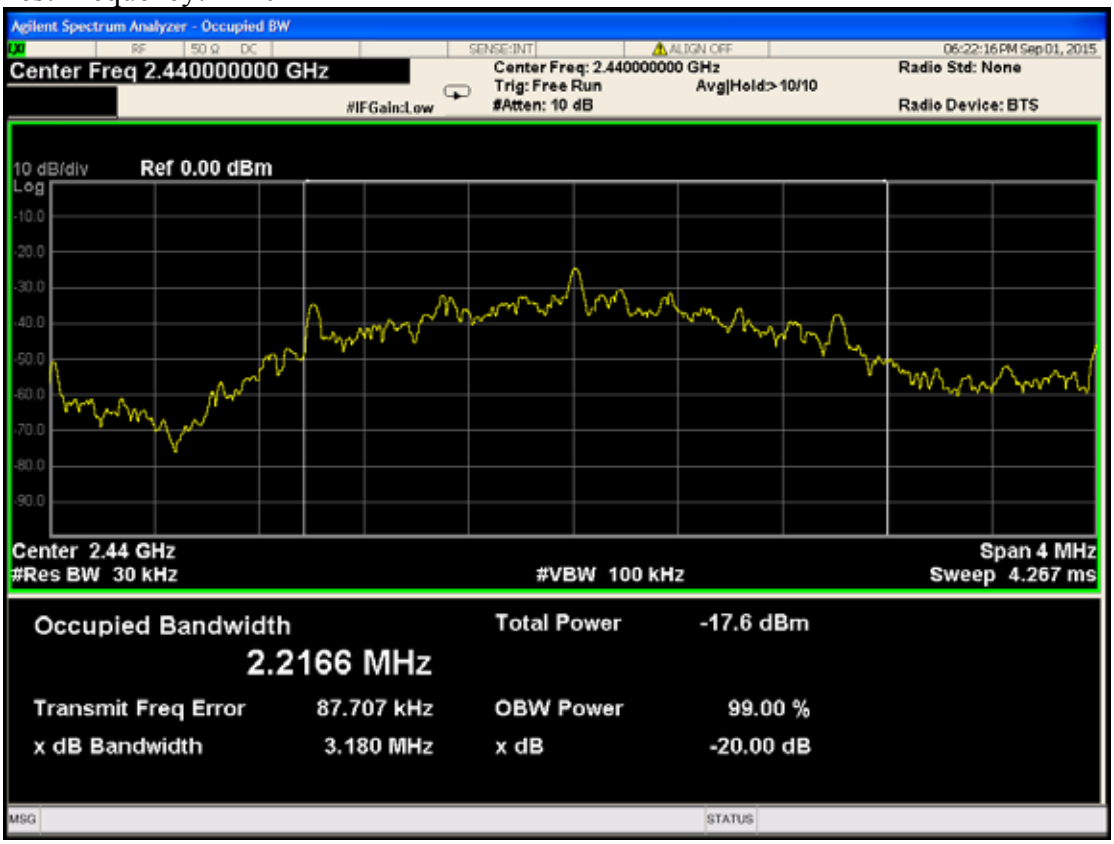
All the test results are attached in next pages.

Center Frequency(MHz)	-20 dB Bandwidth(MHz)
2402	**2.129**
2440	**3.180**
2480	**2.055**

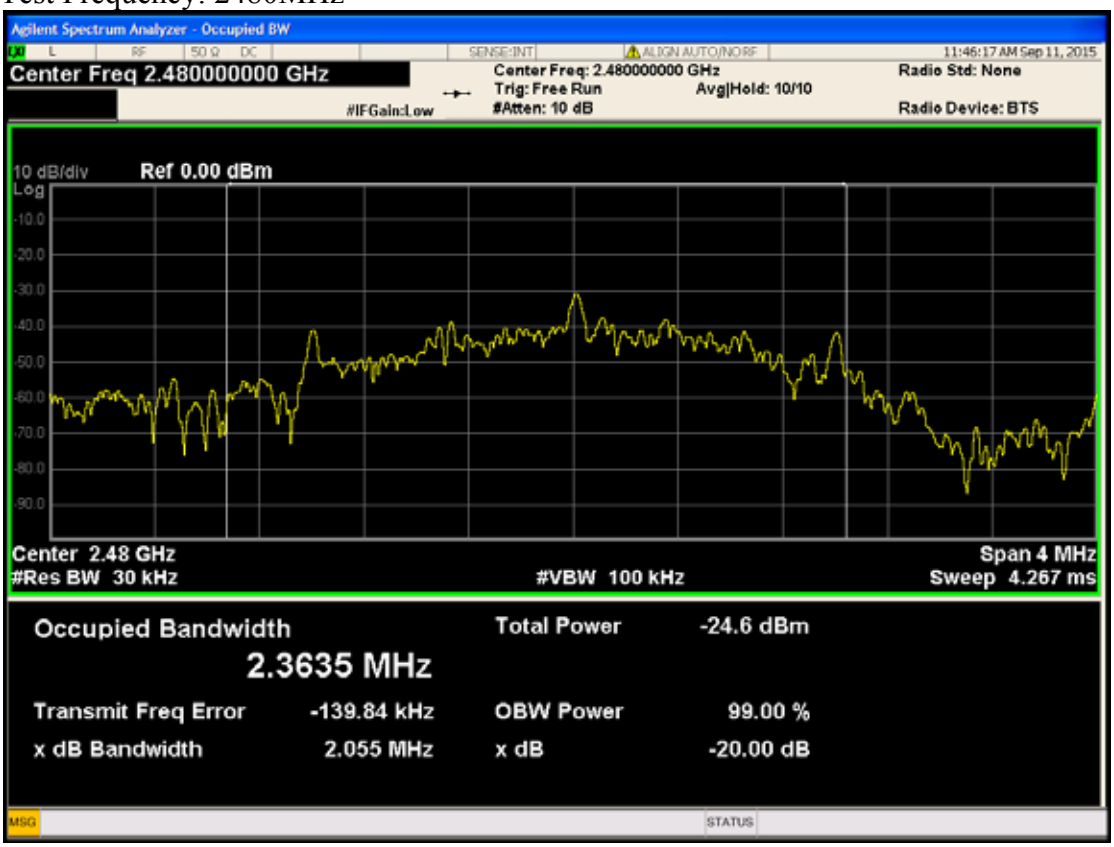
Test Frequency: 2402MHz



Test Frequency: 2440MHz



Test Frequency: 2480MHz

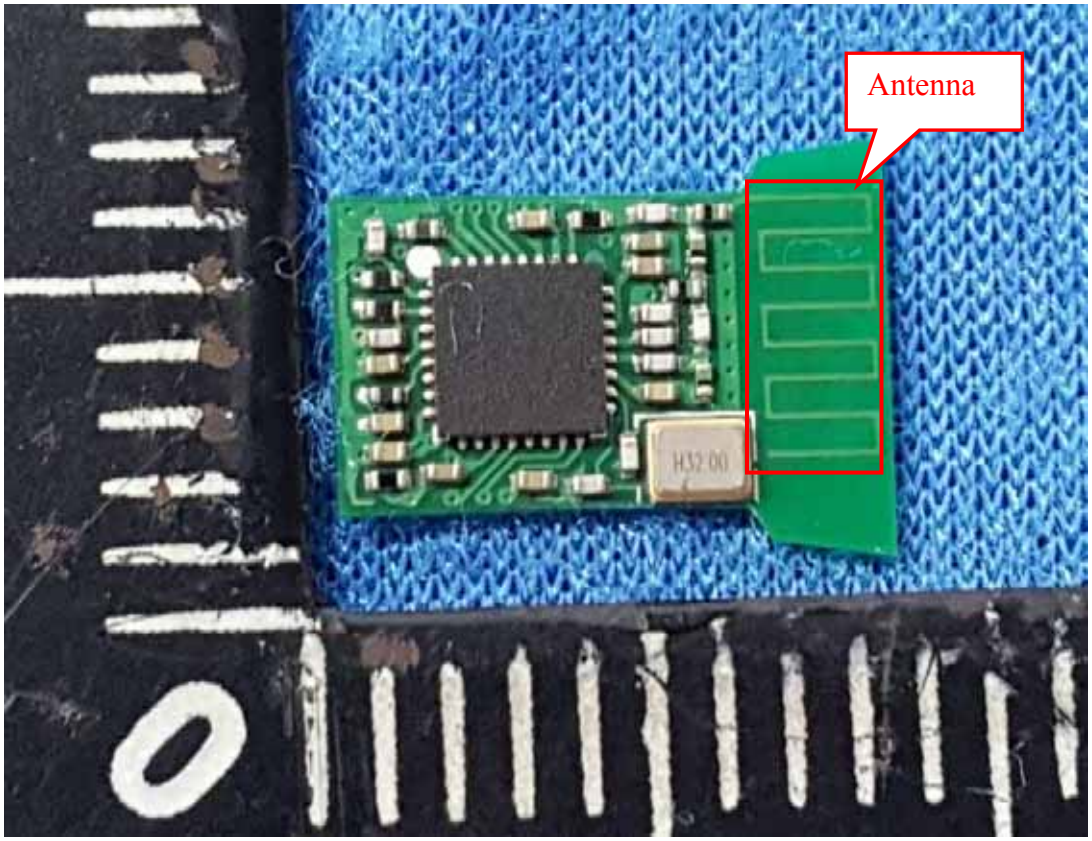


6. ANTENNA REQUIREMENT

Result: PASS
Test standard: FCC Part 15.203

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:
The antenna is PCB antenna, the best case gain of the antenna is -6dBi



7. DEVIATION TO TEST SPECIFICATIONS

【NONE】