Certificate # 2951.01

TEST REPORT

Applicant:	Belkin International, Inc.
Address:	555 S. Aviation Blvd., Suite 180, El Segundo, CA 90245, USA

Manufacturer or Supplier	Belkin International, Inc.
Address	555 S. Aviation Blvd., Suite 180, El Segundo, CA 90245, USA
Product:	Dongle
Brand Name:	belkin
Model:	BBZ013
Additional Model & Model Difference	N/A
Date of tests:	Dec. 27, 2024 ~ Jan. 18, 2025

the tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart C, Section 15.249**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Prepared by Eric Fang Project Engineer / EMC Department	Approved by Glyn He Assistant Manager / EMC Department
	 Date: Feb. 19, 2025

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF2412WDG0256-1	Original release	Feb. 19, 2025

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.249)			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
§15.203	Antenna Requirement	PASS	No antenna connector is used
§15.207 (a)	Conducted Emission	PASS	Compliant
§15.205	Restricted Band of Operation	PASS	Compliant
§15.209 §15.249(a)	Radiated Emission	PASS	Compliant
§15.215(c)	20dB Bandwidth Test	PASS	Compliant

2 MEASUREMENT UNCERTAINTY

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

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9KHz ~ 30MHz	3.36dB
Radiated emissions	9KHz ~ 30MHz	2.80dB
	30MHz ~ 1GMHz	4.65dB
	1GHz ~ 18GHz	5.01dB
	18GHz ~ 40GHz	4.10dB
20dB Bandwidth	1GHz ~ 18GHz	1.132×10^{-4} %

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

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Dongle
MODEL NO.	BBZ013
ADDITIONAL MODEL	N/A
FCC ID	K7SBBZ013
NOMINAL VOLTAGE	DC 5V From USB Host Unit
MODULATION TECHNOLOGY	GFSK
OPERATING FREQUENCY	2402-2480MHz
ANTENNA TYPE	PCB Antenna, with -5.92dBi gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTES:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. For the test results, the EUT had been tested with all conditions, but only the worst case was shown in test report.

3. Please refer to the EUT photo document (Reference No.: 2412WDG0256-1) for detailed product photo.

3.2 DESCRIPTION OF TEST MODES

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and packet type. The worst case was found when the EUT was positioned on X axis for radiated emission. The EUT was tested under the following mode.

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE<1G	RE≥1G	PLC	BW	
A	√	√	√	√	DC 5V from notebook

Where **RE<1G:** Radiated Emission below 1GHz **RE≥1G:** Radiated Emission above 1GHz
PLC: Power Line Conducted Emission **BW:** 20db bandwidth

Following channel(s) was (were) selected for the test as listed below.

TESTED CHANNEL	TESTED FREQUENCY
Low	2402 MHz
Middle	2440 MHz
High	2480 MHz

Channel List

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
1	**2402**	11	2422	21	2442	31	2462
2	2404	12	2424	22	2444	32	2464
3	2406	13	2426	23	2446	33	2466
4	2408	14	2428	24	2448	34	2468
5	2410	15	2430	25	2450	35	2470
6	2412	16	2432	26	2452	36	2472
7	2414	17	2434	27	2454	37	2474
8	2416	18	2436	28	2456	38	2476
9	2418	19	2438	29	2458	39	2478
10	2420	**20**	**2440**	30	2460	**40**	**2480**

Note: The more detailed channel, please refer to the product specifications

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE	25deg. C, 55%RH	DC 5V from notebook	Stalker
BW	25deg. C, 56%RH	DC 5V from notebook	Vincent
PLC	25deg. C, 55%RH	DC 5V from notebook	Summer

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C, Section 15.249

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

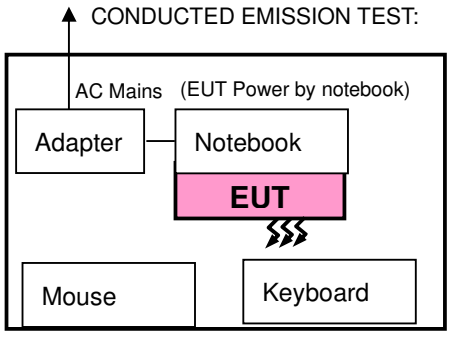
3.4 DESCRIPTION OF SUPPORT UNITS

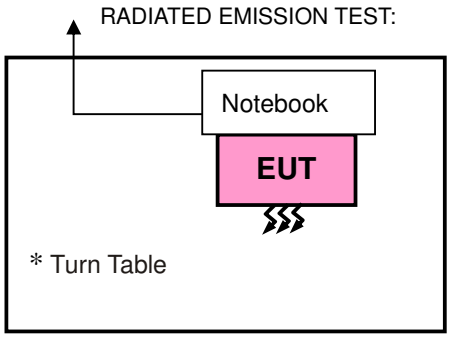
The EUT has been tested as an independent unit together without any other necessary accessories or support units The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Notebook	ALIENWARE	Alienware 13 R2	GRWVL72	N/A
2	Adapter	DELL	DA330PM111	N/A	N/A
3	Mouse	Belkin	BBZ012	N/A	N/A
4	Keyboard	Belkin	BBZ011	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	AC Line: Unshielded, Detachable 0.8m, DC Line: Unshielded, Detachable 1.8m
2	N/A

3.5 CONFIGURATION OF SYSTEM UNDER TEST





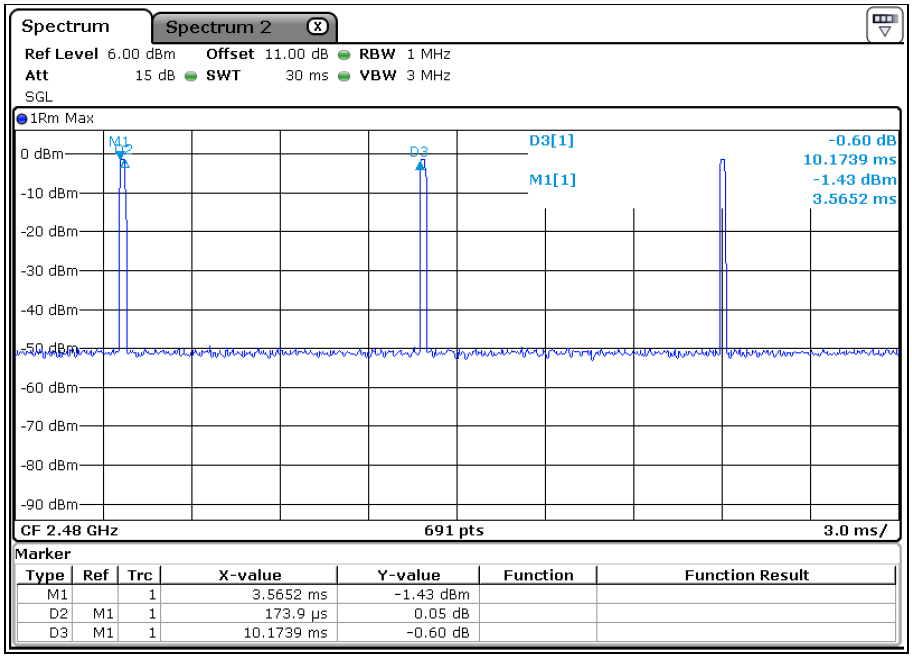
3.6 DUTY CYCLE OF TESET SIGNAL

Tp =10.1739ms

Ton =0.1739ms

Duty Cycle = Ton / Tp * 100% = 0.1739/10.1739≈ 1.70%

AV factor=20 log (Duty cycle) = 20Log(1.70%)≈ -35.34dB



4. TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15 ~ 0.5	66 to 56	56 to 46
0.5 ~ 5	56	46
5 ~ 30	60	50

NOTE: 1.The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESR7	101494	Oct. 10, 25
Artificial Mains Network	Rohde&Schwarz	ENV216	101173	Oct. 10, 25
Artificial Mains Network	Rohde&Schwarz	ESH3-Z5	100317	Oct. 09, 25
Voltage probe	SCHWARZBECK	TK 9421	TK 9421-176	Jul. 10, 25
Test software	ADT	ADT_Cond_V7.3.7	N/A	N/A

NOTES:

1. The test was performed in shielded room 553.
2. Equipment are calibrated by calibration laboratory accredited to ISO/IEC 17025 by a mutually recognized Accreditation.
3. Test Site: No. 96, Guantai Road (Houjie Section), Houjie Town, Dongguan City, Guangdong Province. 523942. People's Republic of China.

4.1.3 TEST PROCEDURES

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

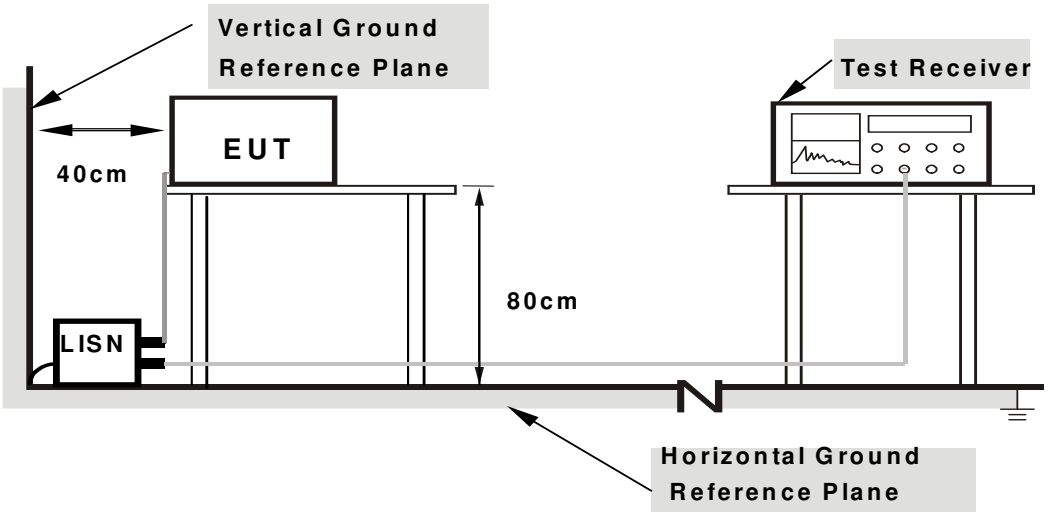
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

4.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.1.6 EUT OPERATING CONDITIONS

a. Turned on the power and connected of all equipment.
b. EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

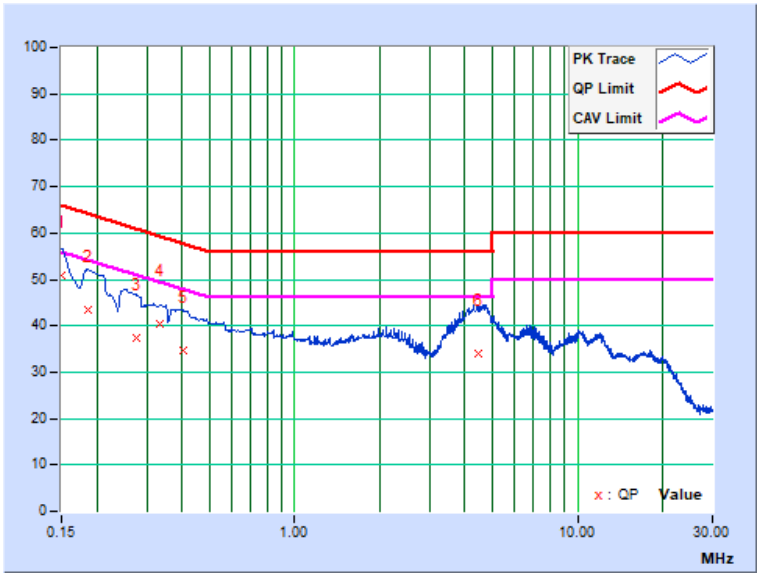
4.1.7 TEST RESULTS

CONDUCTED WORST-CASE DATA: 2.4G SRD (GFSK) CH1

PHASE	Line	6dB BANDWIDTH	9kHz

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	**0.15000**	**9.74**	**41.02**	**20.93**	**50.76**	**30.67**	**66.00**	**56.00**	**-15.24**	**-25.33**
2	0.18600	9.79	33.66	19.39	43.45	29.18	64.21	54.21	-20.76	-25.03
3	0.27433	9.80	27.47	13.89	37.27	23.69	60.99	50.99	-23.71	-27.29
4	0.33264	9.81	30.46	21.76	40.27	31.57	59.39	49.39	-19.12	-17.82
5	0.40229	9.82	24.96	14.57	34.78	24.39	57.81	47.81	-23.03	-23.42
6	4.43850	10.06	23.94	13.44	34.00	23.50	56.00	46.00	-22.00	-22.50

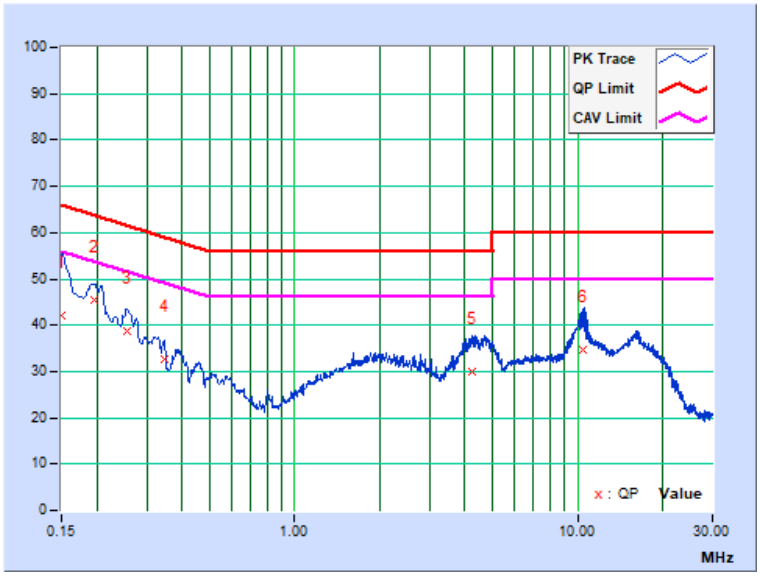
REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



PHASE	Neutral	6dB BANDWIDTH	9kHz

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.15000	9.78	32.39	5.66	42.17	15.44	66.00	56.00	-23.83	-40.56
2	0.19566	9.74	35.72	19.55	45.46	29.29	63.79	53.79	-18.33	-24.50
3	0.25478	9.72	28.84	10.46	38.56	20.18	61.60	51.60	-23.04	-31.42
4	0.34517	9.69	23.12	7.31	32.81	17.00	59.08	49.08	-26.27	-32.08
5	4.23150	9.93	20.11	9.15	30.04	19.08	56.00	46.00	-25.96	-26.92
6	10.40100	10.37	24.45	17.31	34.82	27.68	60.00	50.00	-25.18	-22.32

REMARKS: 1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
3. The emission levels of other frequencies were very low against the limit.
4. Margin value = Emission level - Limit value
5. Correction factor = Insertion loss + Cable loss
6. Emission Level = Correction Factor + Reading Value.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

According to §15.249(a), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field strength of fundamental (milli-volts/meter)	Field strength of harmonics (micro-volts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Oct. 10, 25
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Apr. 07, 25
Active Loop Antenna (9KHz -30MHz)	SCHWARZBECK	FMZB 1519B	1519B-045	Apr. 13, 25
Amplifier (9KHz -1GHz)	Burgeon	BPA-530	100210	Feb. 21, 25
Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	9168-554	Dec. 25, 25
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	0085519	Oct. 19, 25
Horn Antenna (18GHz -40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170147	Apr. 12, 25
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	May. 20, 25
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Apr. 24, 25
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Jan. 02, 25
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	N/A

NOTE:

1. The test was performed in 966 Chamber.
2. Equipment are calibrated by calibration laboratory accredited to ISO/IEC 17025 by a mutually recognized Accreditation.
3. Test Site: No. 96, Guantai Road (Houjie Section), Houjie Town, Dongguan City, Guangdong Province. 523942. People's Republic of China.
4. The FCC Site Registration No. is 749762.

4.2.3 TEST PROCEDURES

a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1.3m above the ground.

g. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Other wise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

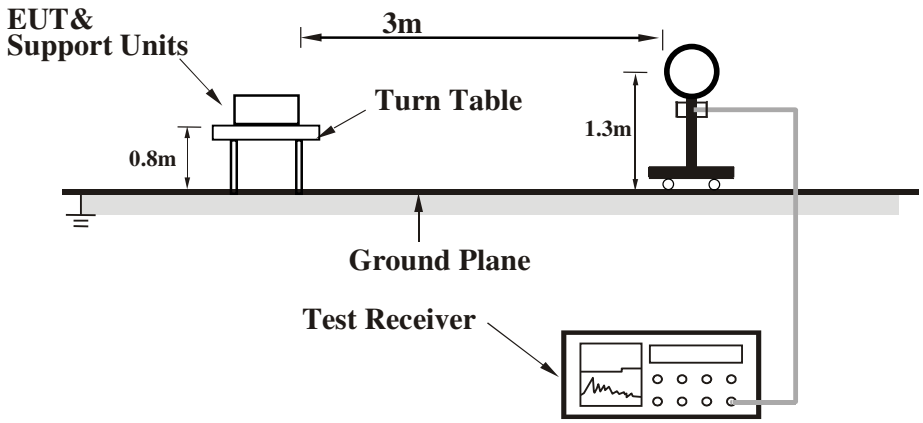
1. The resolution bandwidth and video bandwidth of test receiver is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. Average value =PK Emission +AV Factor.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

4.2.4 DEVIATION FROM TEST STANDARD

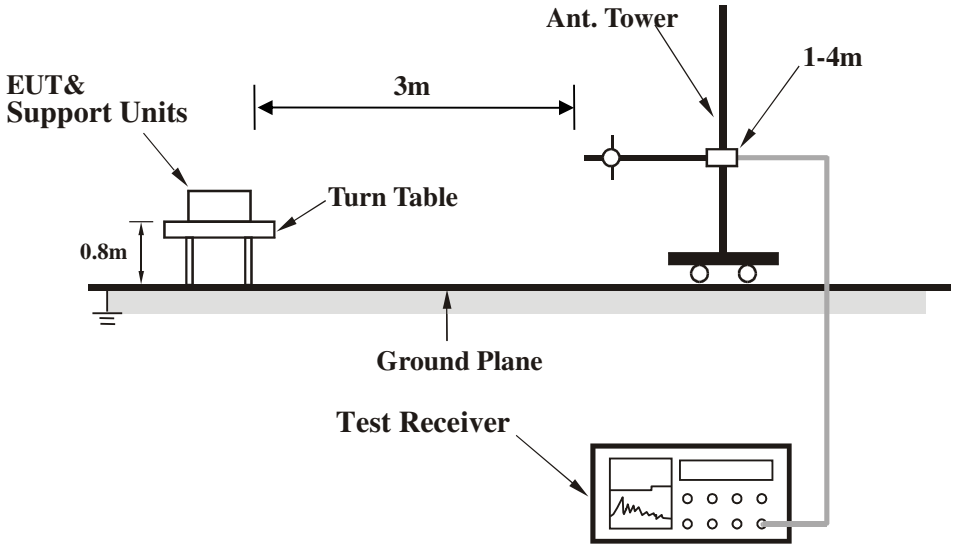
No deviation.

4.2.5 TEST SETUP

Below 30MHz test setup

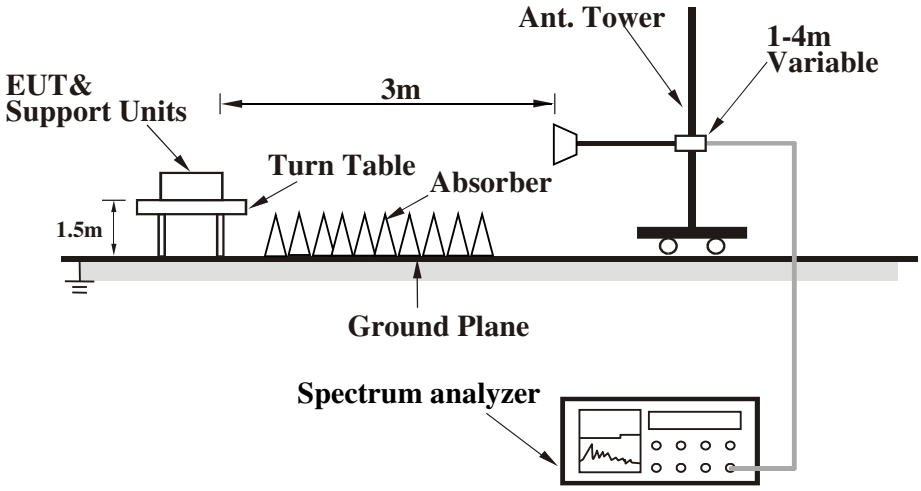


Below 1GHz test setup



Note: For the actual test configuration, please refer to the attached file (Test Setup Photo).

Above 1GHz test setup



Note: For the actual test configuration, please refer to the attached file (Test Setup Photo).

4.2.6 EUT OPERATING CONDITIONS

c) Turned on the power of all equipment.

d) EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

4.2.7 TEST RESULTS

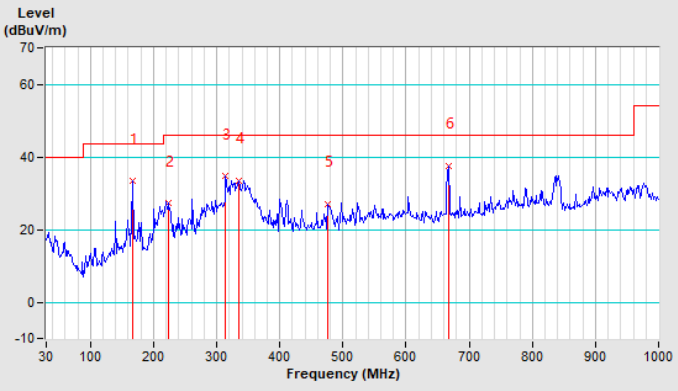
BELOW 1GHz WORST-CASE DATA:

CHANNEL	TX Middle Channel	**DETECTOR FUNCTION**	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	166.79	33.3 QP	43.5	-10.2	1.66 H	300	50.5	-17.2
2	222.76	27.1 QP	46.0	-18.9	1.96 H	270	45.8	-18.6
3	314.47	34.6 QP	46.0	-11.4	1.05 H	358	49.7	-15.0
4	334.68	33.6 QP	46.0	-12.5	1.50 H	317	48.1	-14.6
5	476.14	27.0 QP	46.0	-19.1	2.12 H	255	37.5	-10.5
6	**667.34**	**37.6 QP**	**46.0**	**-8.40**	**1.22 H**	**344**	**44.3**	**-6.80**

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value.

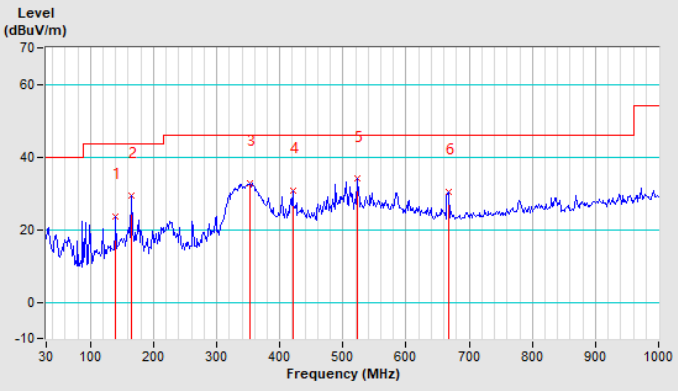


CHANNEL	TX Middle Channel	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	140.37	23.5 QP	43.5	-20.0	2.01 V	117	40.9	-17.3
2	165.24	29.4 QP	43.5	-14.1	1.83 V	100	46.5	-17.1
3	353.33	32.9 QP	46.0	-13.2	1.58 V	75	47.0	-14.1
4	420.18	30.7 QP	46.0	-15.3	2.21 V	137	42.8	-12.1
5	522.77	34.0 QP	46.0	-12.0	1.37 V	54	43.7	-9.8
6	667.34	30.4 QP	46.0	-15.6	2.50 V	165	37.2	-6.8

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. 9KHz~30MHz have been test and test data more than 20dB margin.
5. Margin value = Emission level – Limit value.



ABOVE 1GHz DATA:

CHANNEL	TX Low Channel	**DETECTOR FUNCTION**	Peak (PK) Average (AV)
FREQUENCY RANGE	1GHz ~ 25GHz		

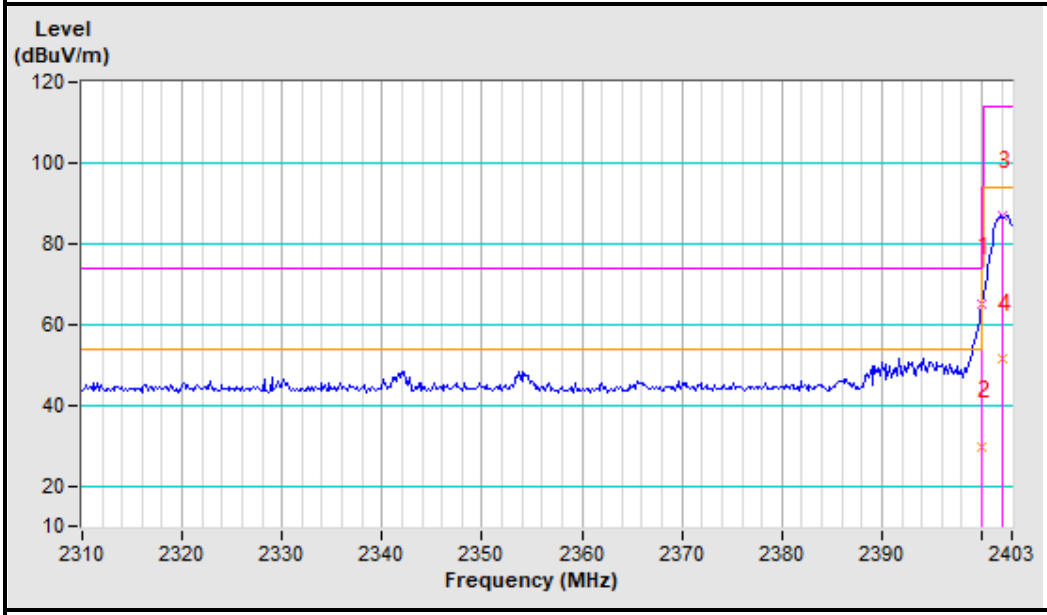
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2400.00	64.95 PK	74.00	-9.05	174	27	62.07	2.88
2	2400.00	29.61 AV	2.87	-24.39	174	27	26.73	2.88
3	*2402.00	86.71 PK	114.00	-27.29	188	360	83.84	2.87
4	***2402.00**	**51.37 AV**	**94.00**	**-42.63**	**188**	**360**	**48.50**	**2.87**
5	4804.00	46.1 PK	74.0	-27.9	3.89 H	45	39.5	6.7
6	4804.00	10.8 AV	54.0	-43.2	3.89 H	45	4.1	6.7
7	7206.00	45.0 PK	74.0	-29.0	3.22 H	28	34.3	10.7
8	7206.00	9.7 AV	54.0	-44.3	3.22 H	28	-1.0	10.7
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	**FREQ. (MHz)**	**EMISSION LEVEL (dBuV/m)**	**LIMIT (dBuV/m)**	**MARGIN (dB)**	**ANTENNA HEIGHT (m)**	**TABLE ANGLE (Degree)**	**RAW VALUE (dBuV)**	**CORRECTION FACTOR (dB/m)**
1	2400.00	62.11 PK	74.00	-11.89	400	24	59.23	2.88
2	2400.00	26.77 AV	2.87	-27.23	400	24	23.89	2.88
3	*2402.00	83.82 PK	114.00	-30.18	169	156	80.95	2.87
4	*2402.00	48.48 AV	94.00	-45.52	169	156	45.61	2.87
5	4804.00	49.3 PK	74.0	-24.7	4.00 V	85	42.6	6.7
6	4804.00	14.0 AV	54.0	-40.0	4.00 V	85	7.3	6.7
7	7206.00	44.0 PK	74.0	-30.0	4.00 V	360	33.3	10.7
8	7206.00	8.6 AV	54.0	-45.4	4.00 V	360	-2.1	10.7

REMARK:

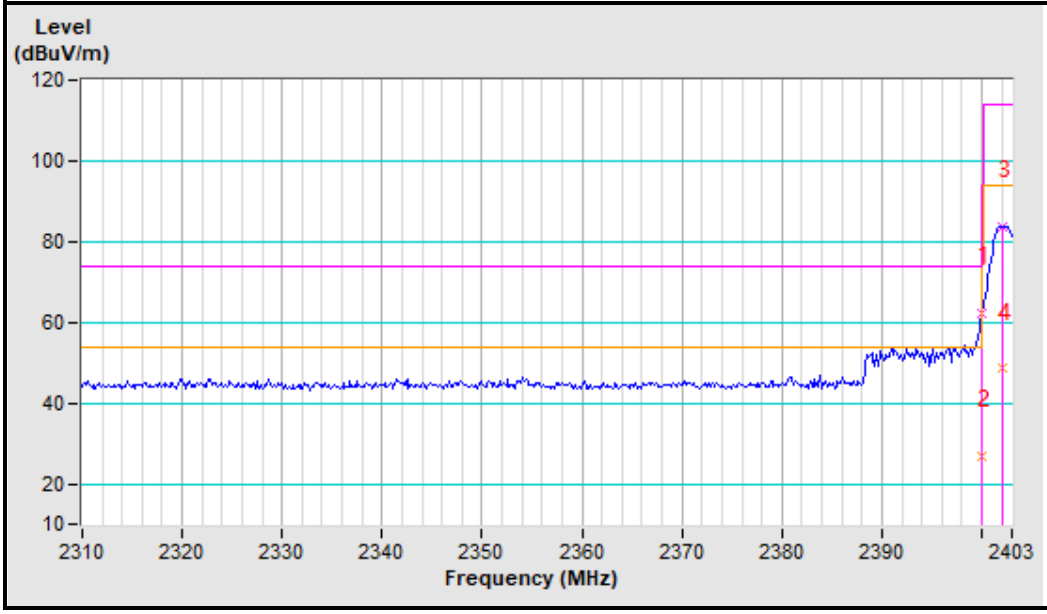
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. Average value =PK Emission +20*log (duty cycle)Where the duty factor is calculated from following formula: 20 log (Duty cycle) = 20Log(1.70%)≈-35.34dB, Please see page 10 for plotted duty.

Band edge Plot

2402MHz Horizontal



2402MHz Vertical



CHANNEL	TX Middle Channel	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2440.00	85.7 PK	114.0	-28.3	1.00 H	58	82.8	2.9
2	*2440.00	50.4 AV	94.0	-43.6	1.00 H	58	47.5	2.9
3	4880.00	47.8 PK	74.0	-26.2	2.54 H	48	41.0	6.9
4	4880.00	12.5 AV	54.0	-41.5	2.54 H	48	5.6	6.9
5	7320.00	43.7 PK	74.0	-30.3	3.24 H	360	32.8	10.9
6	7320.00	8.3 AV	54.0	-45.7	3.24 H	360	-2.6	10.9
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2440.00	84.1 PK	114.0	-29.9	1.65 V	58	81.2	2.9
2	*2440.00	48.8 AV	94.0	-45.3	1.65 V	58	45.9	2.9
3	4880.00	45.8 PK	74.0	-28.2	4.00 V	89	39.0	6.9
4	4880.00	10.5 AV	54.0	-43.5	4.00 V	89	3.7	6.9
5	7320.00	43.2 PK	74.0	-30.8	1.65 V	8	32.3	10.9
6	7320.00	7.9 AV	54.0	-46.1	1.65 V	8	-3.0	10.9

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. Average value =PK Emission +20*log (duty cycle)Where the duty factor is calculated from following formula: 20 log (Duty cycle) = 20Log(1.70%)≈-35.34dB, Please see page 10 for plotted duty.

CHANNEL	TX High Channel	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

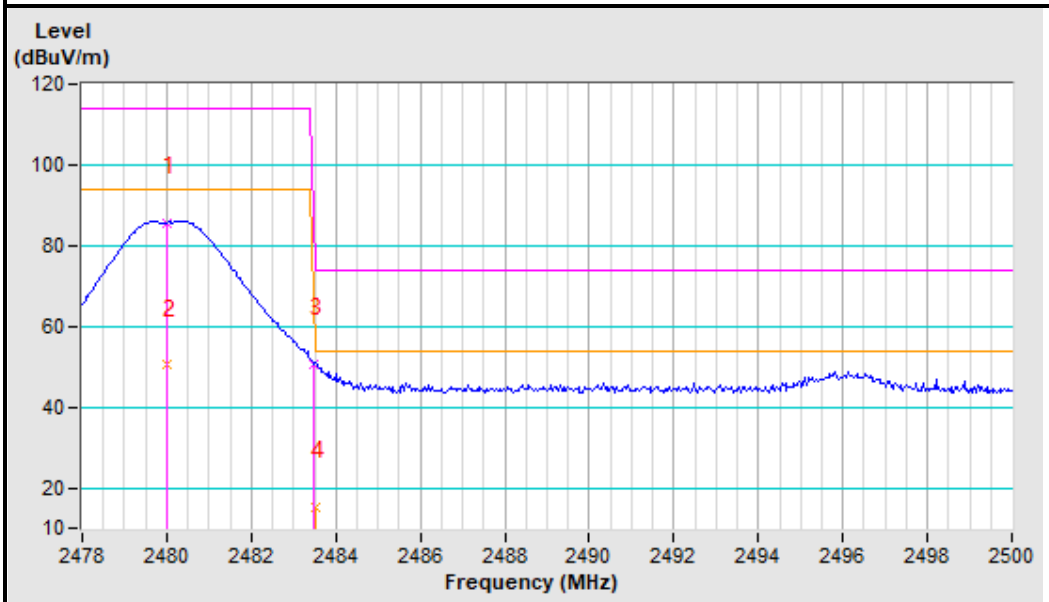
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	85.71 PK	114.00	-28.29	100	47	82.80	2.91
2	*2480.00	50.37 AV	2.92	-43.63	100	47	47.46	2.91
3	2483.50	50.65 PK	74.00	-23.35	100	0	47.73	2.92
4	2483.50	15.31 AV	54.00	-38.69	100	0	12.39	2.92
5	4960.00	48.0 PK	74.0	-26.0	3.35 H	48	40.9	7.1
6	4960.00	12.6 AV	54.0	-41.4	3.35 H	48	5.6	7.1
7	7440.00	43.4 PK	74.0	-30.6	3.68 H	214	32.3	11.1
8	7440.00	8.1 AV	54.0	-45.9	3.68 H	214	-3.0	11.1
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2480.00	83.10 PK	114.00	-30.90	100	45	80.19	2.91
2	*2480.00	47.76 AV	2.92	-46.24	100	45	44.85	2.91
3	2483.50	49.01 PK	74.00	-24.99	100	0	46.09	2.92
4	2483.50	13.67 AV	54.00	-40.33	100	0	10.75	2.92
5	4960.00	46.3 PK	74.0	-27.7	2.47 V	45	39.3	7.1
6	4960.00	7.9 AV	54.0	-46.1	4.00 V	84	0.9	7.1
7	7440.00	43.3 PK	74.0	-30.7	4.00 V	84	32.1	11.1
8	7440.00	11.0 AV	54.0	-43.0	4.00 V	84	-0.2	11.1

REMARK:

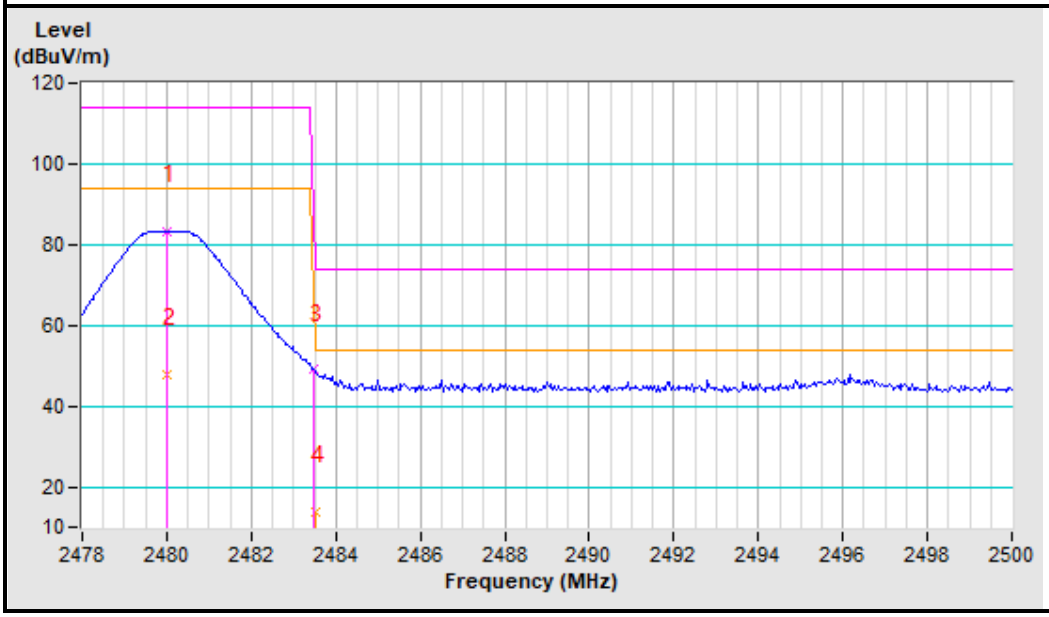
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The emission levels of other frequencies were greater than 20dB margin.
4. Margin value = Emission level – Limit value.
5. " * ": Fundamental frequency.
6. Average value =PK Emission +20*log (duty cycle)Where the duty factor is calculated from following formula: 20 log (Duty cycle) = 20Log(1.70%)≈-35.34dB, Please see page 10 for plotted duty.

Band edge Plot

2480MHz Horizontal



2480MHz Vertical



4.3 20dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 20dB BANDWIDTH MEASUREMENT

According to FCC 15.215(c), 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.

4.3.2 4.2.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Power Sensor	Keysight	U2021XA	MY57320002	Apr. 07, 25
Digital Multimeter	FLUKE	15B	A1220010DG	N/A
Humid & Temp Programmable Tester	Haida	HD-225T	110807201	Oct. 10, 25
Oscilloscope	Agilent	DSO9254A	MY51260160	Jul. 07, 25
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Oct. 09, 25
Signal Generator	Agilent	N5183A	MY50140980	Jul. 11, 25
MXG-B RF Vector Signal Generator	Keysight	N5182B	MY56200288	Jul. 11, 25
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	N/A
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A
DC Source	Keysight	E3642A	MY56146098	N/A
Test software	ADT	ADT_RF Test Software V6.6.5.3	N/A	N/A

NOTE:

1. The test was performed in RF Oven room.
2. Equipment are calibrated by calibration laboratory accredited to ISO/IEC 17025 by a mutually recognized Accreditation.
3. Test Site: No. 96, Guantai Road (Houjie Section), Houjie Town, Dongguan City, Guangdong Province. 523942. People's Republic of China.

4.3.3 TEST PROCEDURE

a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.

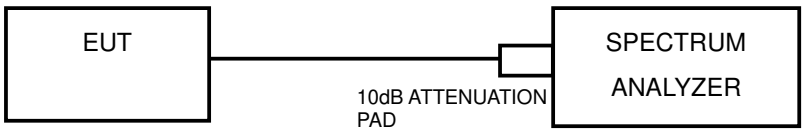
c. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.

d. Repeat above procedures until all frequencies measured were complete.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

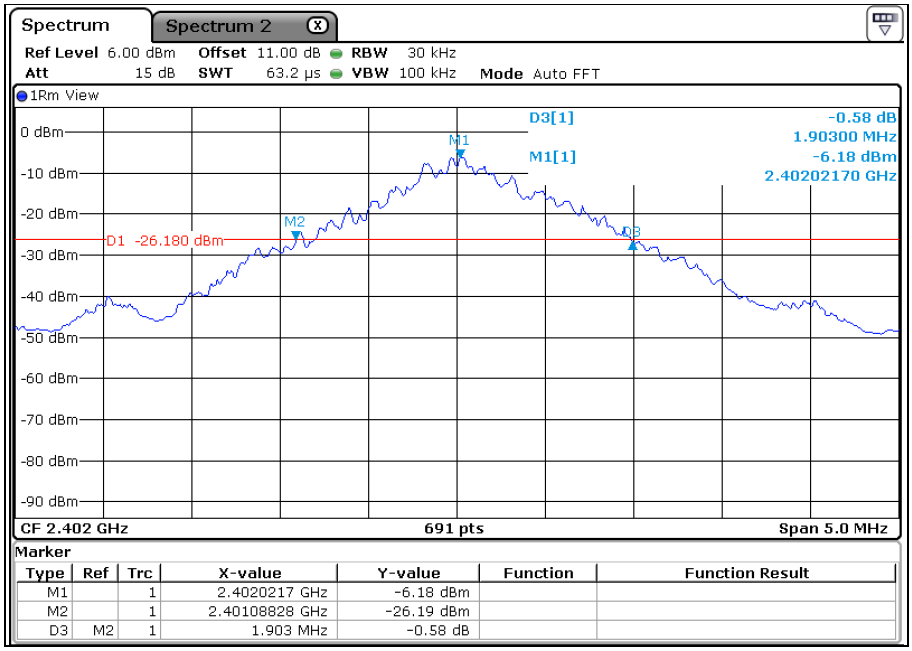
a) Turned on the power of all equipment.

b) EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.

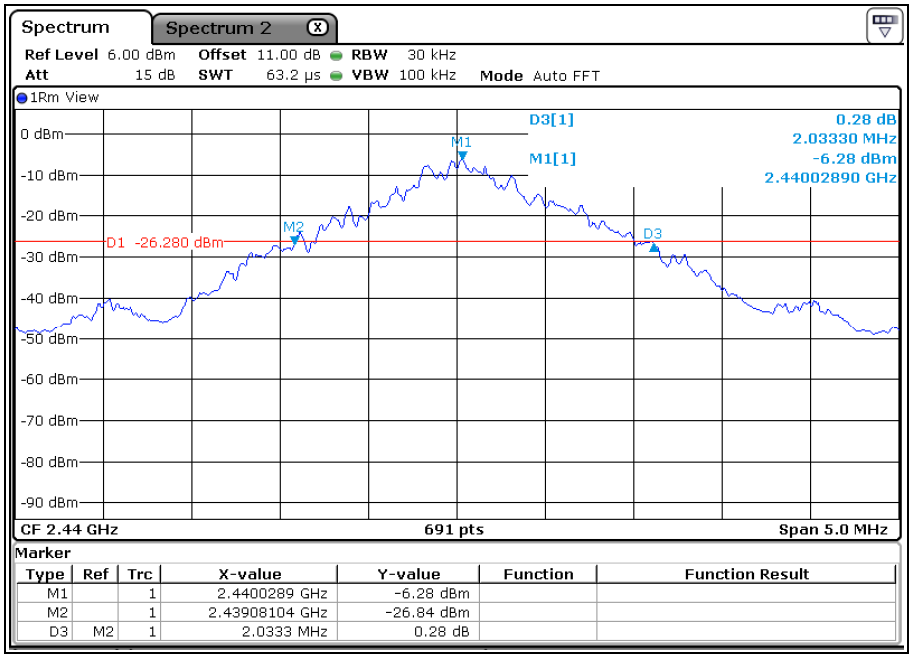
4.3.7 TEST RESULTS

CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)
Low	2402	1.903
Middle	2440	2.0333
High	2480	2.055

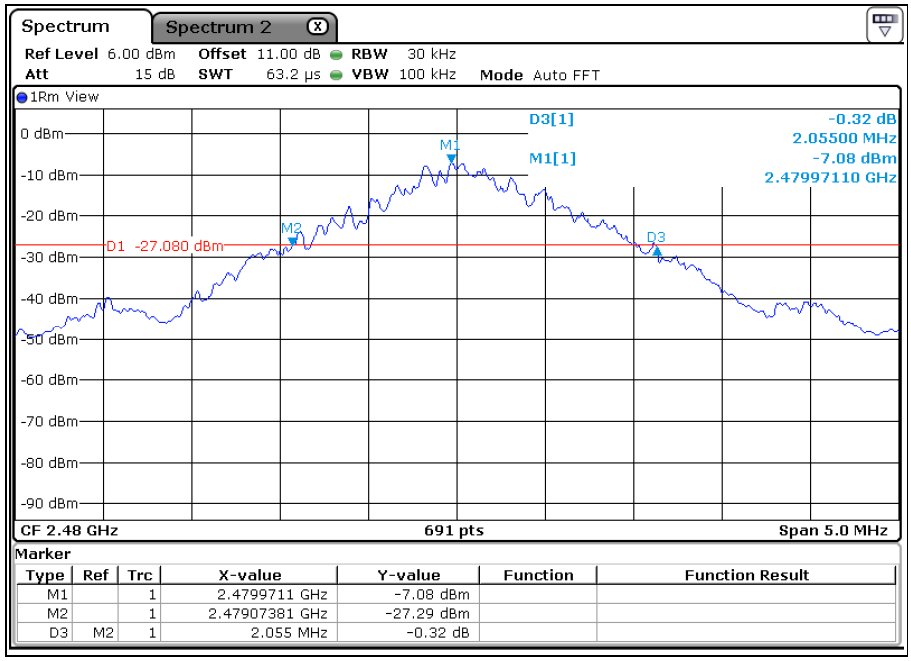
Test Data: Low channel



Test Data: Middle channel



Test Data: High channel



5. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

6. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---