

FCC TEST REPORT

Product Name : Bluetooth Kitchen Scale
Trade Name : N/A
Model/Type reference : GKS-1136-BT
Serial Number : N/A
Ratings : DC 4.5V
FCC ID : OU9GKS1136BT
Report Number : EESZF08280010
Date : Sep. 09, 2013
Regulations : See below

Test Standards	Results
<input checked="" type="checkbox"/> 47 CFR FCC Part 15 Subpart C 15.247:2012	PASS

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Date: Sep. 09, 2013

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Check No.: V1022591449

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N/A means not applicable.

1. GENERAL INFORMATION

Applicant: Guangdong Transtek Medical Electronics Co., Ltd
Zone A, 5/F., Investment Building No. 12 Huizhan East Rd.,
Torch Develop, Guangdong

Manufacturer: Guangdong Transtek Medical Electronics Co., Ltd
Zone A, 5/F., Investment Building No. 12 Huizhan East Rd.,
Torch Develop, Guangdong

Equipment Authorization: Certification

FCC ID: OU9GKS1136BT

Product Name: Bluetooth Kitchen Scale

Trade Name: N/A

Model/Type reference: GKS-1136-BT

Serial Number: N/A

Report Number: EESZF08280010

Sample Received Date: Aug. 28, 2013

Sample tested Date: Aug. 28, 2013 to Sep. 09, 2013

The above equipment was tested by Centre Testing International (Shenzhen) Corporation for compliance with the requirements set forth in the FCC Rules and Regulations Part 15, Subpart C and the measurement procedure according to ANSI C63.4:2003.

2. PRODUCT INFORMATION

Items	Description
Rating	DC 4.5V
Operating Frequency	2402MHz to 2480MHz
Type of Modulation:	GFSK
Number of Channels	40 Channels
Channel Separation:	2MHz
Antenna Type	PCB antenna
Antenna gain	0 dBi

Frequencies information:

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

Remark: Test frequencies are lowest channel (2402MHz), middle channel (2440MHz) and highest channel (2480MHz).

3. TEST SUMMARY

Clause	Test Item	Rule	Result
1	Conducted Emission	15.207	N/A(See Note 1)
2	6dB Bandwidth	15.247(a)(2)	PASS
3	Peak Output Power	15.247(b)(3)	PASS
4	Power Spectral Density	15.247(e)	PASS
5	Bandedge Emission	15.247(d)	PASS
6	Spurious RF Conducted Emission	15.247(d)	PASS
7	Radiated Emission	15.247(d)	PASS
8	Antenna requirements	15.203	PASS(See Note 2)

Note: 1. The product is power by battery.

2.The EUT uses a PCB layout antenna which in accordance with Section 15.203 is considered sufficient to comply with the provisions of this section.

4. MEASUREMENT UNCERTAINTY

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

Test item	Value (dB)
Conducted disturbance	2.7
Radiated disturbance	4.4

5. FACILITIES AND ACCREDITATIONS

5.1 TEST FACILITY

All test facilities used to collect the test data are located at Hongwei Industrial Zone, 70 Area, Bao'an District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4, CISPR 16-1-1 and other equivalent standards.

5.2 TEST EQUIPMENT LIST

Instrumentation: The following list contains equipments used at CTI for testing.

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

Equipment used during the tests:

Equipment	Manufacturer	Model	Serial No.	Calibration Date	Calibration Due Date
Receiver	R&S	ESCI	100009	07/20/2013	07/19/2014
LISN	R&S	ENV216	100098	07/20/2013	07/19/2014
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	07/13/2013	07/12/2016
Spectrum Analyzer	Agilent	E4443A	MY45300910	01/19/2013	01/18/2014
Spectrum Analyzer	R&S	FSP40	100416	07/07/2013	07/06/2014
Receiver	R&S	ESCI	100435	07/20/2013	07/19/2014
TRILOG Broadband Antenna	schwarzbeck	VULB 9163	618	06/26/2013	06/25/2014
Multi device Controller	ETS-LINGREN	2090	00057230	N/A	N/A
Horn Antenna	ETS-LINGREN	3117	00057407	07/20/2013	07/19/2014
Microwave Preamplifier	Agilent	8449B	3008A02425	04/17/2013	04/16/2014
Loop Antenna	ETS-LINDGREN	6502	00071730	07/23/2013	07/22/2015

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC/EN 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

6. SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	Data Cable	Power Cord
1.	---	---	---	---	---	---

Notes:

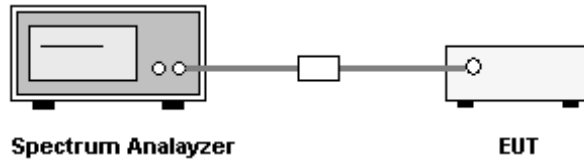
1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

7. 6DB BANDWIDTH MEASUREMENT

7.1. LIMITS

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 500 kHz.

7.2. BLOCK DIAGRAM OF TEST SETUP



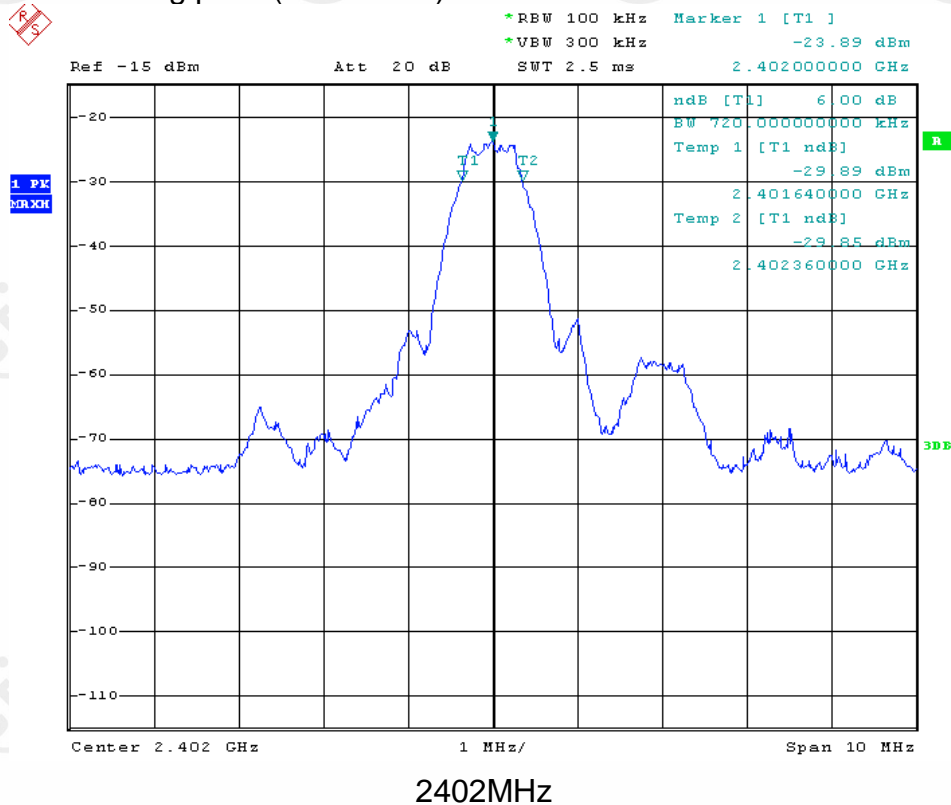
7.3. TEST PROCEDURE

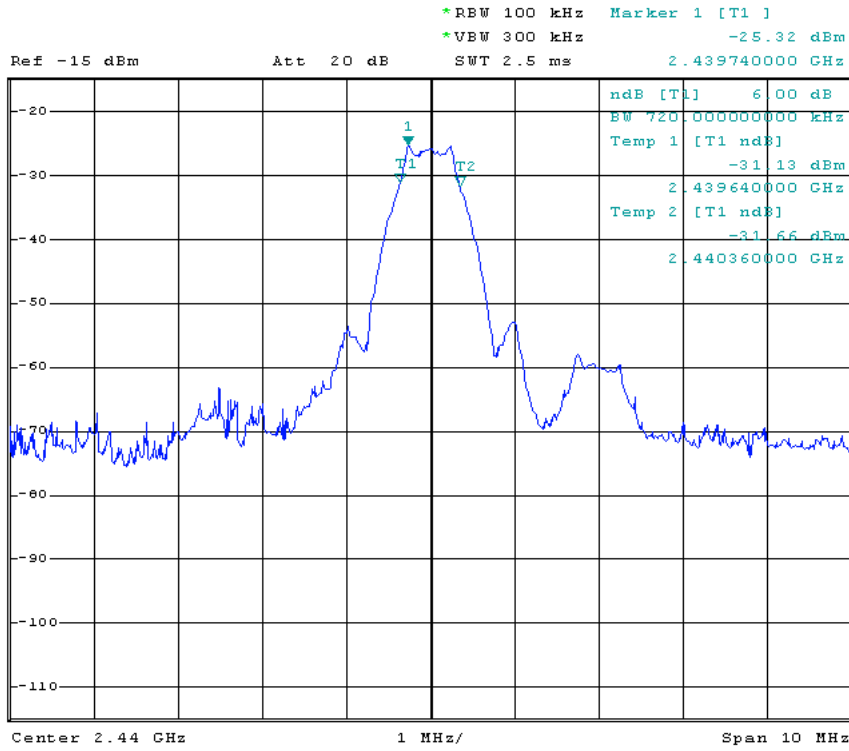
1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set spectrum analyzer's RBW and VBW to applicable value with Peak in Max Hold.
3. A PEAK output reading was taken, a DISPLAY line was drawn 6 dB lower than PEAK level.
4. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

Note: For more detail measurement procedure or testing method, please reference measurement procedure KDB 558074 document which is published on FCC website.

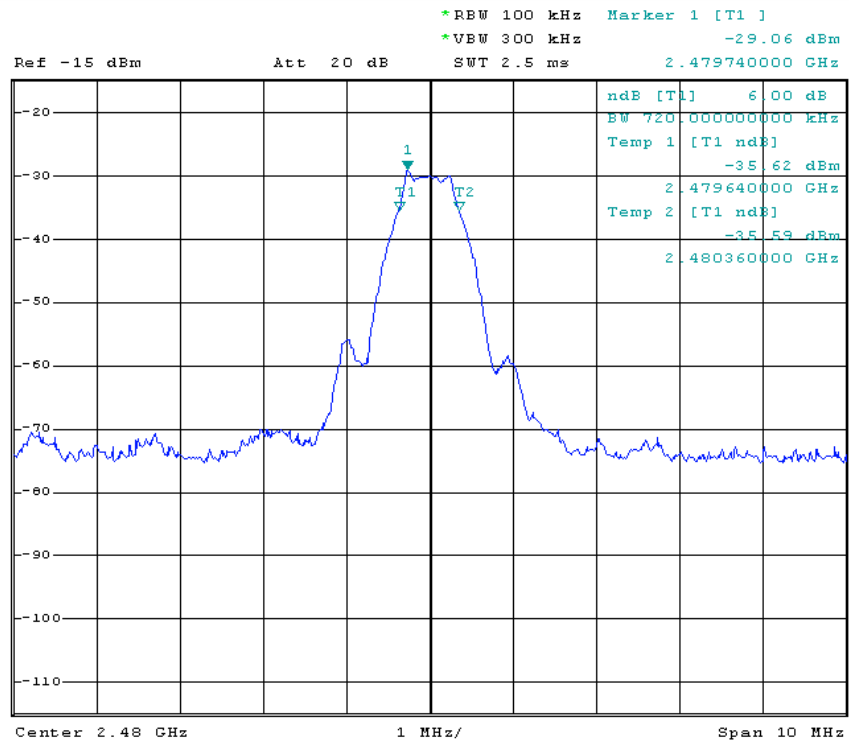
7.4. TEST RESULT

Please see the following plots (worst case).





2440MHz



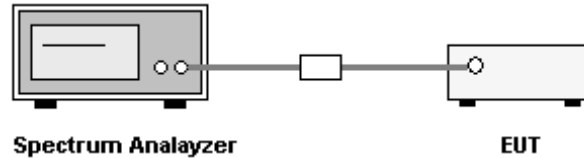
2480MHz

8. POWER SPECTRAL DENSITY MEASUREMENT

8.1. LIMITS

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

8.2. BLOCK DIAGRAM OF TEST SETUP



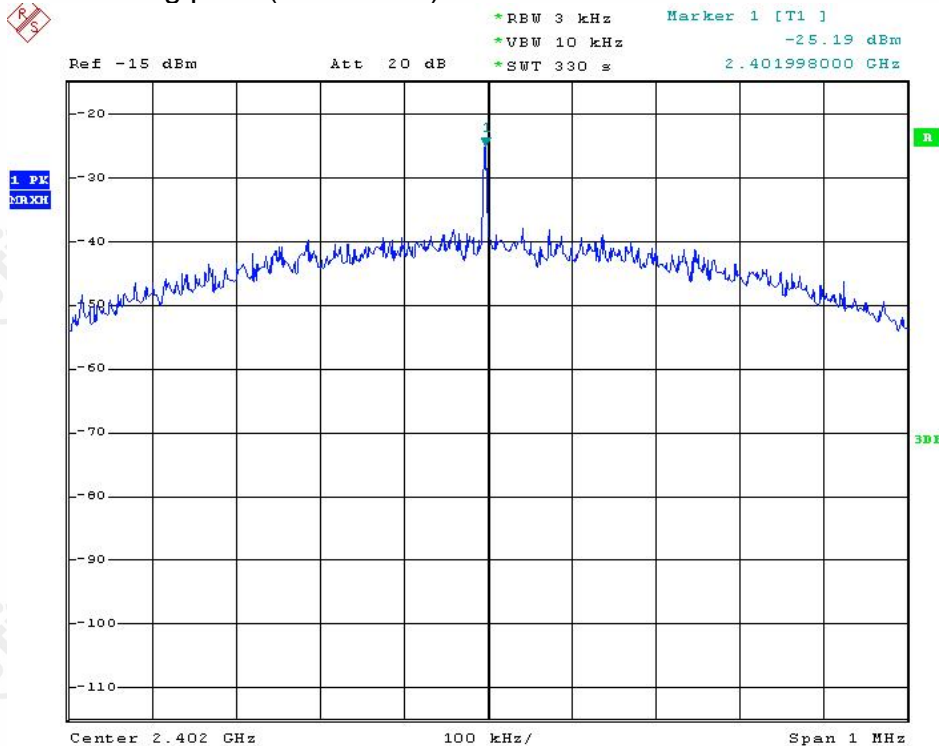
8.3. TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set spectrum analyzer's RBW and VBW to applicable and set span wide enough to capture the whole plot, record the frequency of the max emission in the plot.
3. Set the frequency as center frequency, and set RBW = 3 kHz, VBW >RBW, sweep= (SPAN/3 kHz) with Peak detector in Max Hold mode.
4. Read the output peak data from the spectrum analyzer directly.

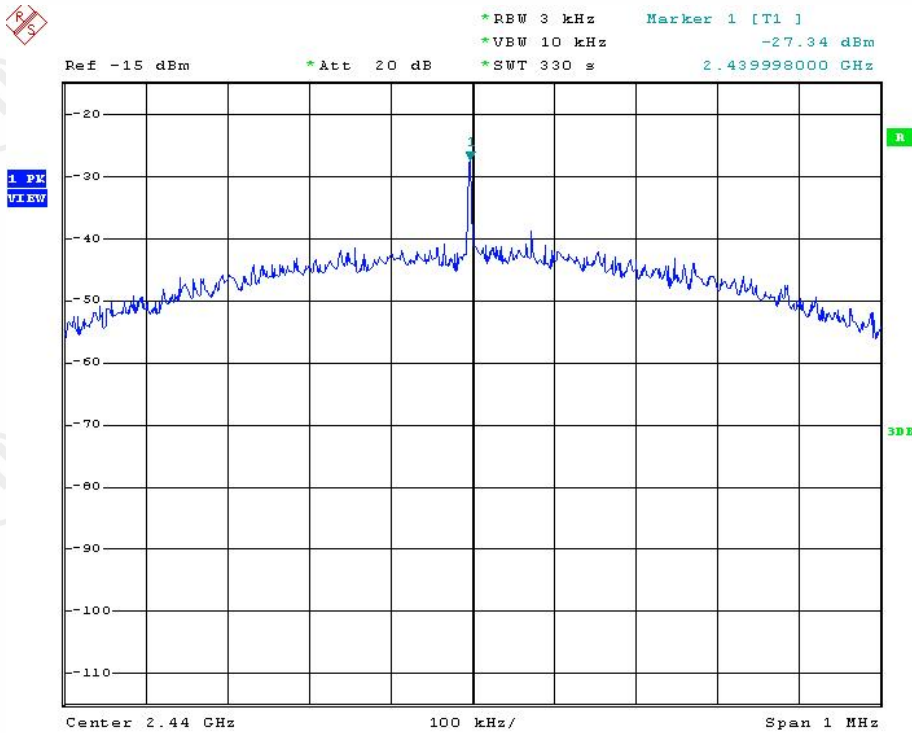
Note: For more detail measurement procedure or testing method, please reference measurement procedure KDB 558074 document which is published on FCC website.

8.4. TEST RESULT

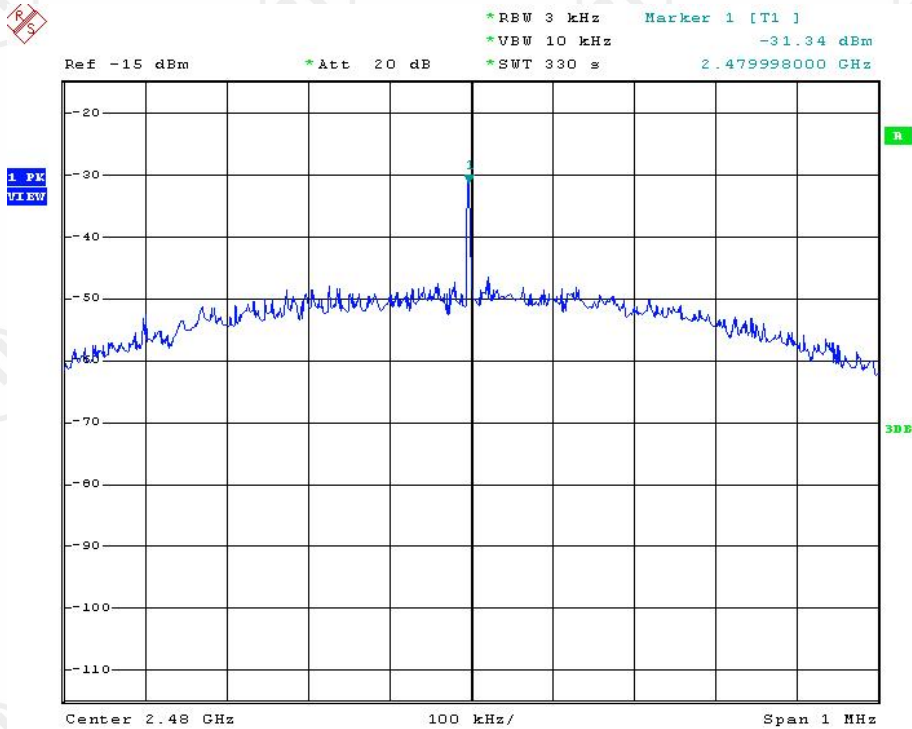
Please see the following plots (worst case).



2402MHz



2440MHz



2480MHz

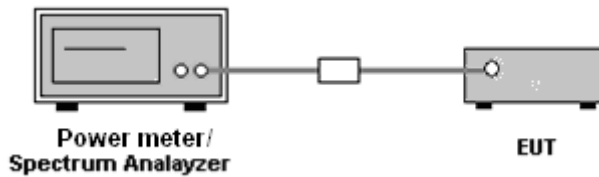
9. MAXIMUM PEAK CONDUCTED OUTPUT POWER MEASUREMENT

9.1. LIMITS

The maximum peak conducted output power of the intentional radiator shall not exceed the following:

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt (30dBm).

9.2. BLOCK DIAGRAM OF TEST SETUP



9.3. TEST PROCEDURE

1. The transmitter output (antenna port) was connected to the power meter.
2. Power was read directly from power meter.

Note: For more detail measurement procedure or testing method, please reference measurement procedure KDB 558074 document which is published on FCC website.

9.4. TEST RESULT

Frequency (MHz)	Output (dBm)	Cable Loss (dBm)	Final Result (dBm)	Limit (dBm)
2402	-4.03	0.2	-3.83	30
2440	-4.14	0.2	-3.94	30
2480	-3.94	0.2	-3.74	30

Max output power = -3.74dBm

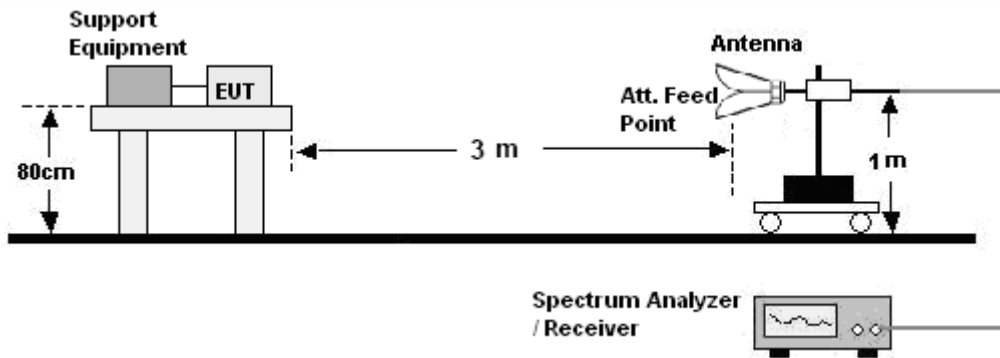
For RF Safety, please see RF Exposures Evaluation report.

10. BANDEDGE EMISSION MEASUREMENT

10.1. LIMITS

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 §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a).

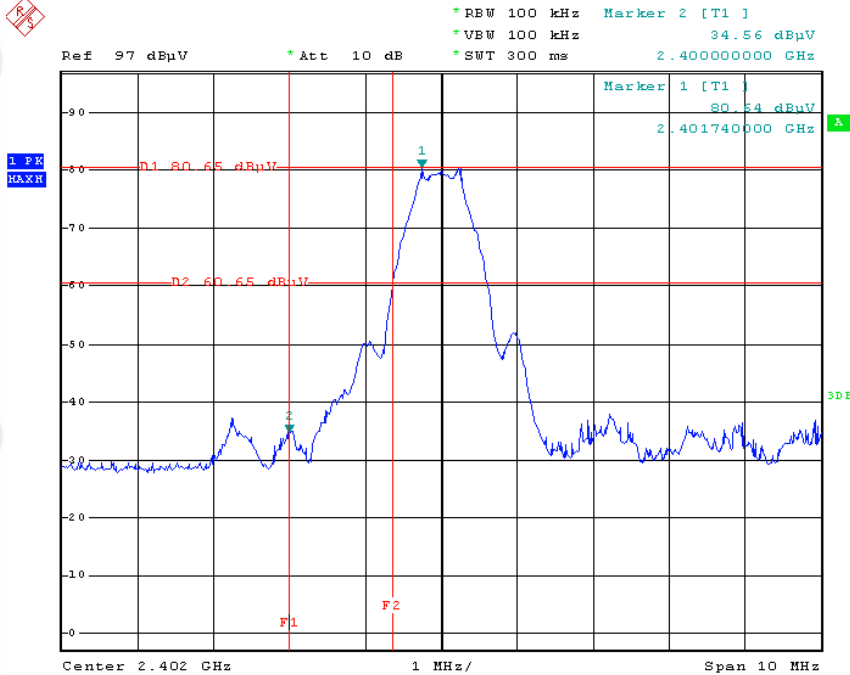
10.2. BLOCK DIAGRAM OF TEST SETUP



10.3. TEST PROCEDURE

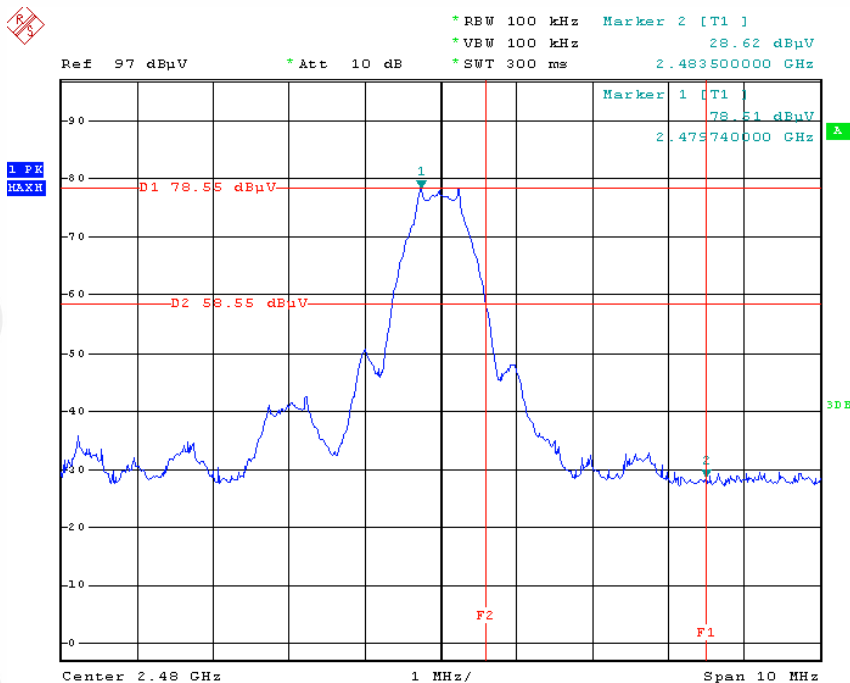
1. The EUT was placed on the non-conductive turntable 0.8m above the ground at a chamber.
2. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, set 100kHz RBW. Record the maximum PK field strength in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
3. Record the emission drops at the band-edge relative to the highest fundamental emission level.
4. Use the marker-delta method to determine band-edge compliance as required.

10.4. TEST RESULT



2402MHz

The fundamental frequency (2402MHz) is 97.65dBuV/m in clause 12, and delta is 46.08dB, so the PK emission of 2400MHz is 51.57dBuV/m, and it is less than the AV limit (54dBuV/m). It complies with the standard's requirements.



2480MHz

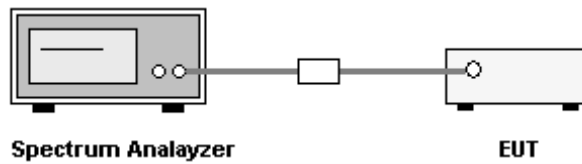
The fundamental frequency (2480MHz) is 96.15dBuV/m in clause 12, and delta is 49.89dB, so the PK emission of 2483.5MHz is 46.26dBuV/m, and it is less than the AV limit (54dBuV/m). It complies with the standard's requirements.

11. SPURIOUS RF CONDUCTED EMISSIONS MEASUREMENT

11.1. LIMITS

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.

11.2. BLOCK DIAGRAM OF TEST SETUP

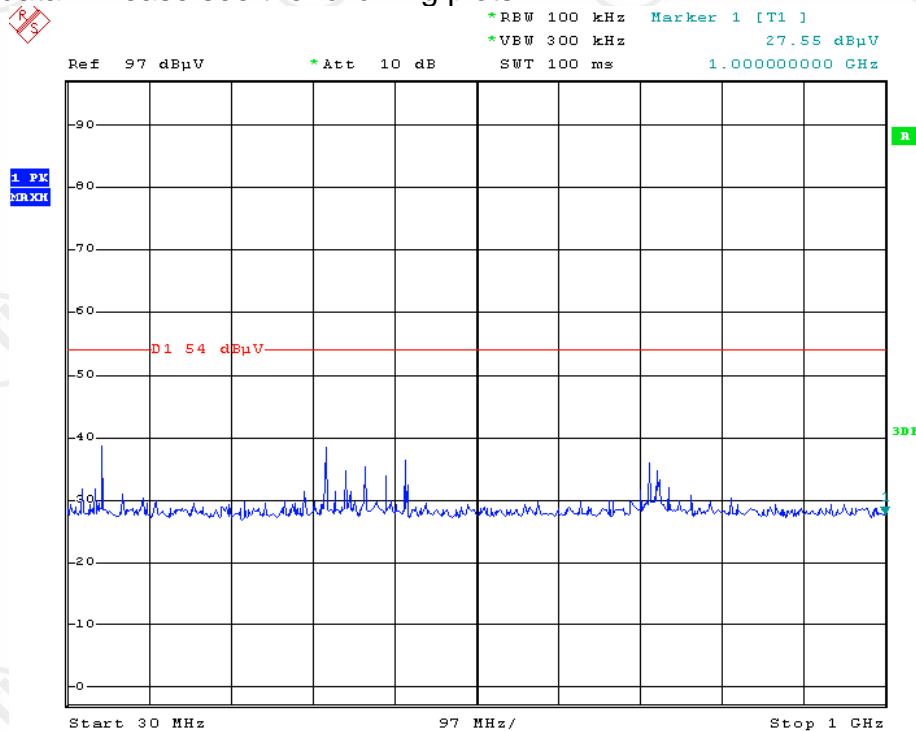


11.3. TEST PROCEDURE

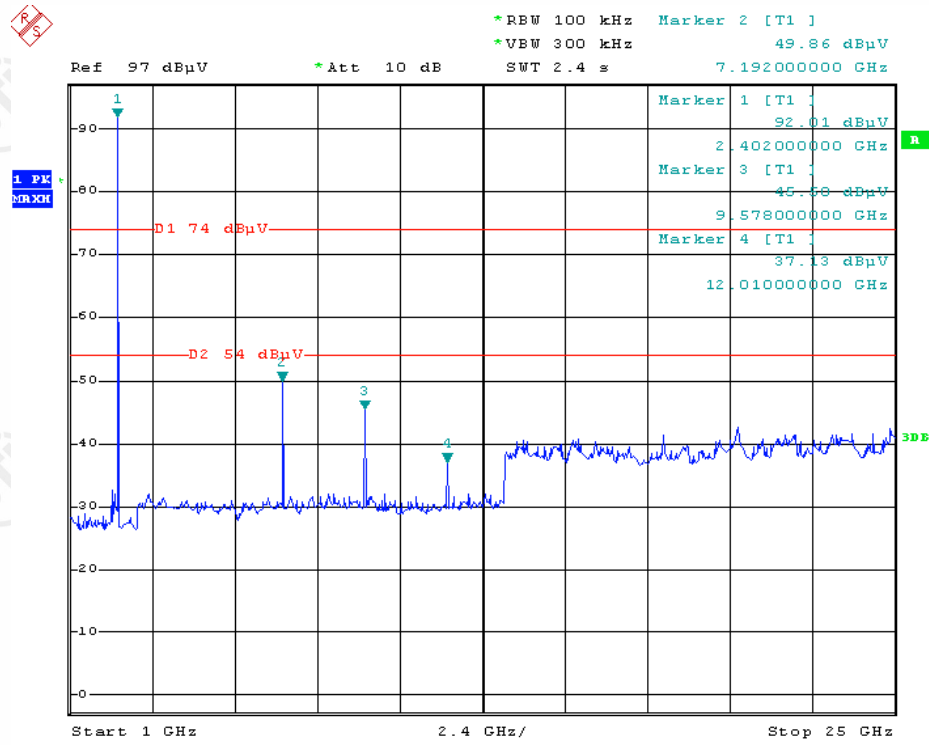
1. The transmitter output (antenna port) was connected to the spectrum analyzer.
2. Set spectrum analyzer's RBW and VBW to applicable value with Peak in Max Hold.
3. Record the peak level of the in-band emission and all spurious emissions from the lowest frequency generated in the EUT up through the 10th harmonic.

11.4. TEST RESULT

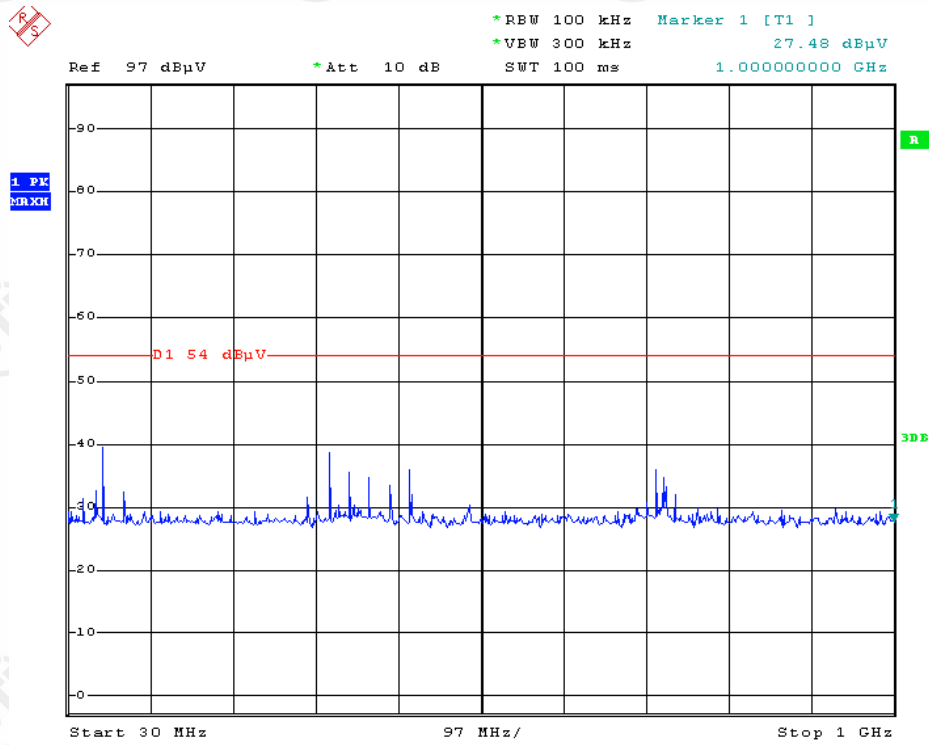
Worst case data---Please see the following plots.



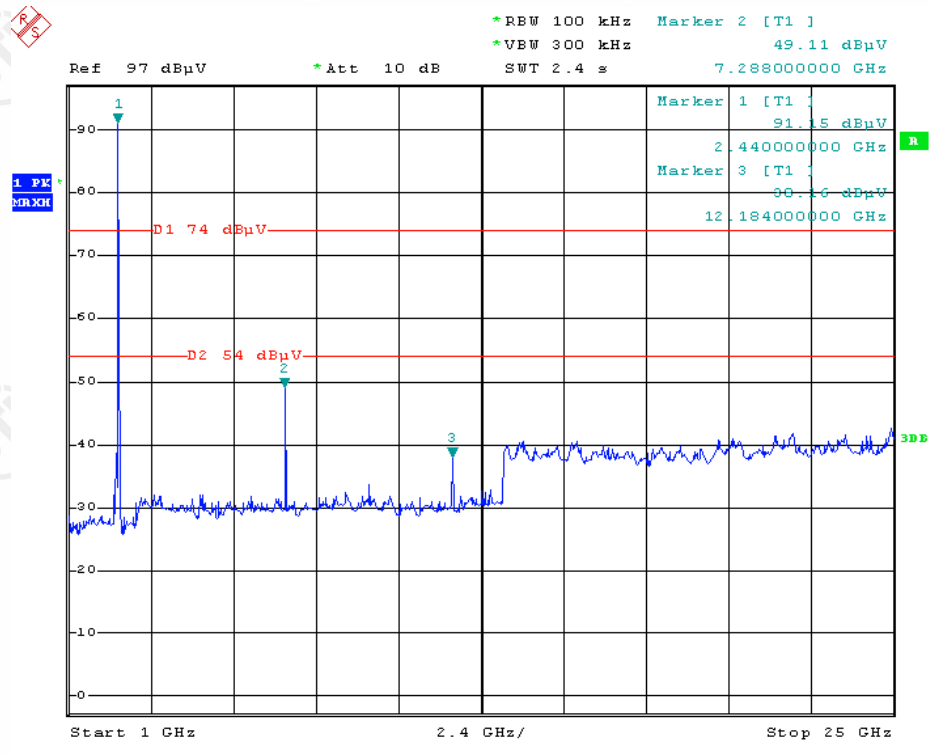
2402MHz (30MHz~1GHz)



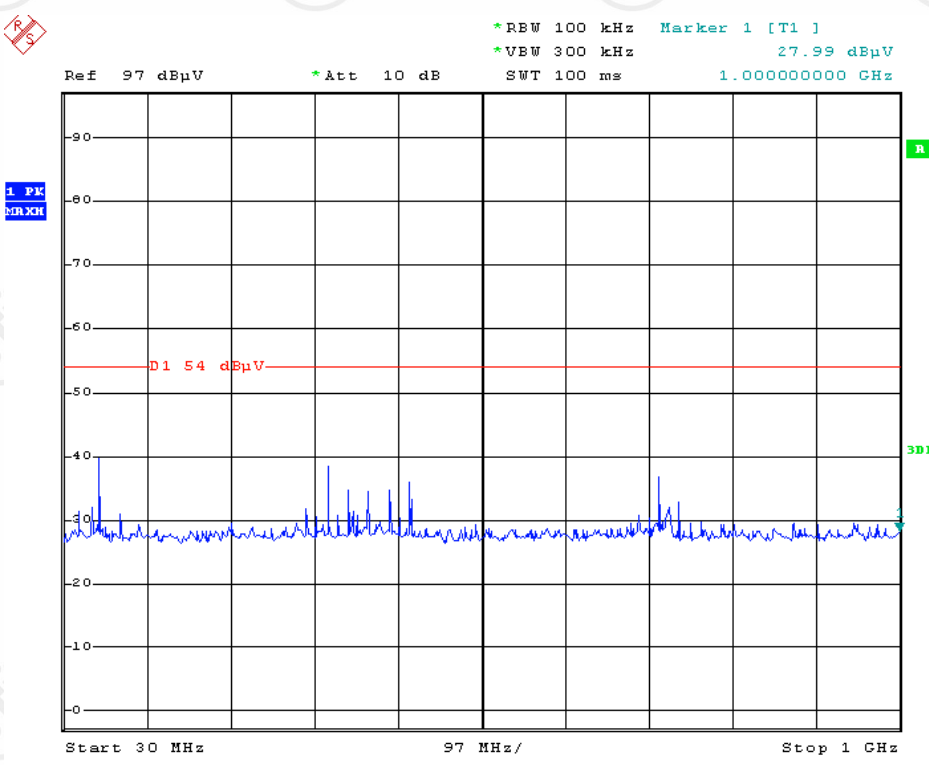
2402MHz (1GHz~25GHz)



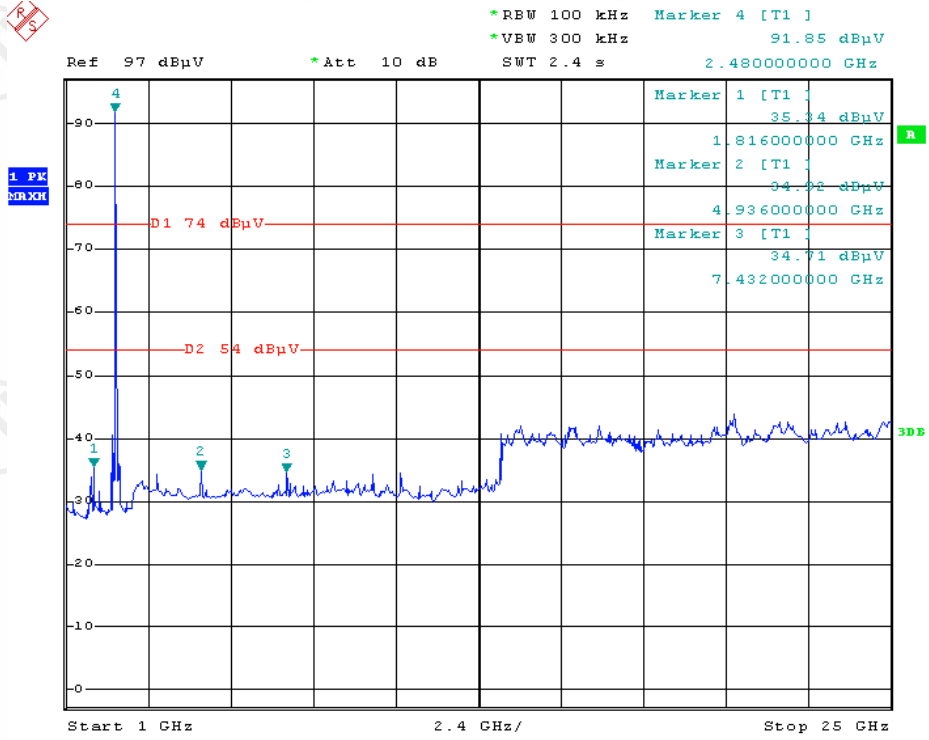
2440MHz (30MHz~1GHz)



2440MHz (1GHz~25GHz)



2480MHz (30MHz~1GHz)



2480MHz (1GHz~25GHz)

12. RADIATED EMISSIONS MEASUREMENT

12.1. LIMITS

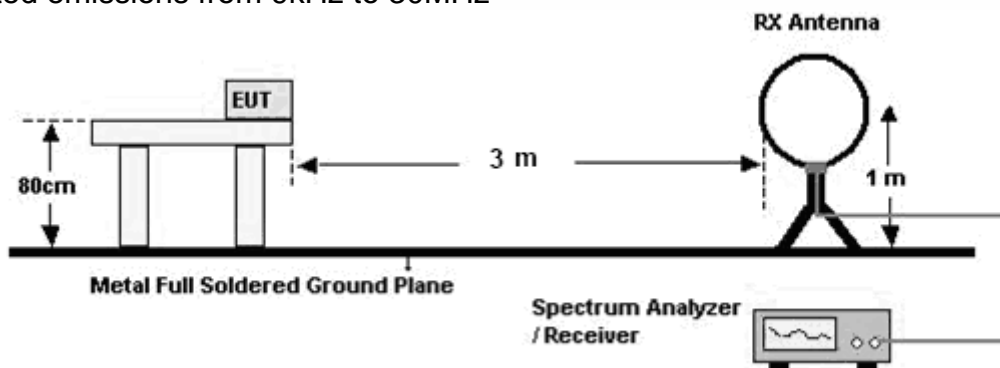
The field strength of any emissions, which appear outside of operating frequency band and restricted band specified on 15.205(a), shall not exceed the general radiated emission limits as below.

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	Distance (m)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

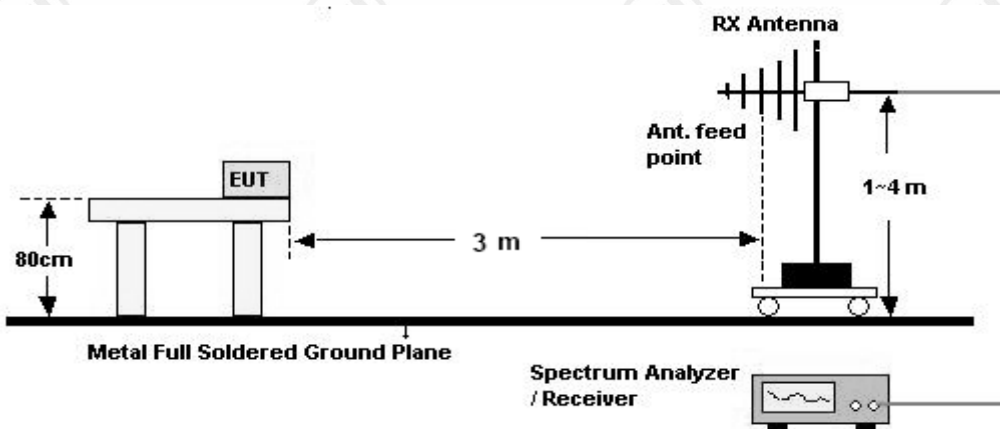
Note: the tighter limit applies at the band edges.

12.2. BLOCK DIAGRAM OF TEST SETUP

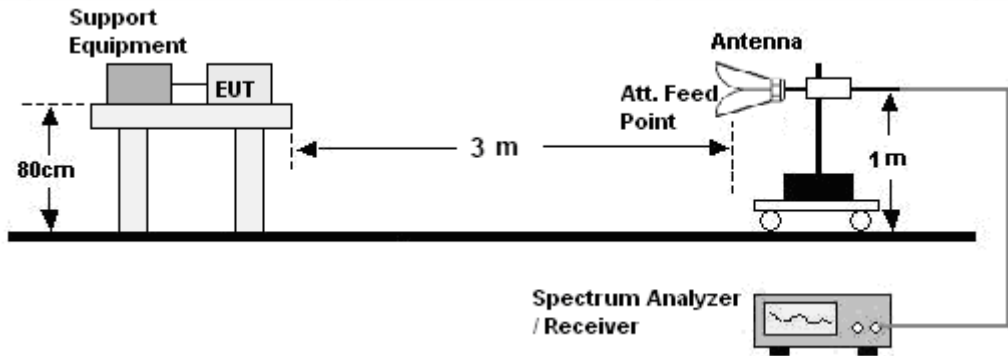
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30 - 1000MHz



For radiated emissions from 1GHz to 25GHz



12.3. TEST PROCEDURE

Below 30MHz:

- The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The maximum values of the field strength are recorded by adjusting the polarizations of the test antenna and rotating the turntable.
- For each suspected emission, the EUT was arranged to its worst case and then turn table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test frequency analyzer system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

30MHz ~ 1GHz:

- The EUT was placed on the non-conductive turntable 0.8m above the ground at a chamber.
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where EUT radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

Above 1GHz:

- The EUT was placed on the non-conductive turntable 0.8m above the ground at a chamber.
- Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, set 1MHz RBW. Record the maximum PK field strength in the full band when the antenna is varied in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- For each frequency whose maximum record was higher or close to limit, measure its AV value: rotate the turntable from 0 to 360 degrees to find the degree where EUT radiated

the maximum emission, then set the test frequency analyzer/receiver to AV value and specified bandwidth with Maximum Hold Mode, and record the maximum value.

12.4. TEST RESULT

Below 30MHz:

No emissions were found higher than the background below 30MHz and background is lower than the limit, so it deems to compliance with the limit without recorded.

30MHz ~ 25GHz:

Test Results-(Measurement Distance: 3m)_Channel low					
Frequency (MHZ)	Antenna Polarization (H / V)	Detector (PK / QP / AV)	Final Emission (dB μ V/m)	Limit (dB μ V/m)	Result (Pass / Fail)
183.580	H	QP	29.58	43.5	Pass
414.760	H	PK	31.90	46.0	Pass
2402.000*	H	PK	90.12	---	Pass
4774.000	H	PK	37.02	54.0	Pass
6780.000	H	PK	40.62	54.0	Pass
185.200	V	QP	25.57	43.5	Pass
505.300	V	QP	30.87	46.0	Pass
2402.000*	V	PK	97.65	---	Pass
4876.000	V	PK	47.75	54.0	Pass
7324.000	V	PK	50.67	54.0	Pass

*: fundamental frequency

Test Results-(Measurement Distance: 3m)_Channel middle					
Frequency (MHZ)	Antenna Polarization (H / V)	Detector (PK / QP / AV)	Final Emission (dB μ V/m)	Limit (dB μ V/m)	Result (Pass / Fail)
322.610	H	QP	32.19	46.0	Pass
506.910	H	PK	30.98	46.0	Pass
2440.000*	H	PK	86.50	---	Pass
4502.000	H	PK	37.01	54.0	Pass
6984.000	H	PK	39.98	54.0	Pass
432.550	V	QP	33.84	46.0	Pass
731.630	V	QP	34.20	46.0	Pass
2440.000*	V	PK	96.70	---	Pass
4876.000	V	PK	47.68	54.0	Pass
7324.000	V	PK	49.91	54.0	Pass

*: fundamental frequency

Test Results-(Measurement Distance: 3m)_Channel high					
Frequency (MHZ)	Antenna Polarization (H / V)	Detector (PK / QP / AV)	Final Emission (dB μ V/m)	Limit (dB μ V/m)	Result (Pass / Fail)
185.200	H	QP	30.72	43.5	Pass
590.983	H	PK	30.70	46.0	Pass
2480.000*	H	PK	87.80	---	Pass
4264.000	H	PK	36.24	54.0	Pass
5964.000	H	PK	40.01	54.0	Pass
418.000	V	QP	27.87	46.0	Pass
599.066	V	QP	30.42	46.0	Pass
2480.000*	V	PK	96.15	---	Pass
4944.000	V	PK	44.28	54.0	Pass
7426.000	V	PK	44.91	54.0	Pass

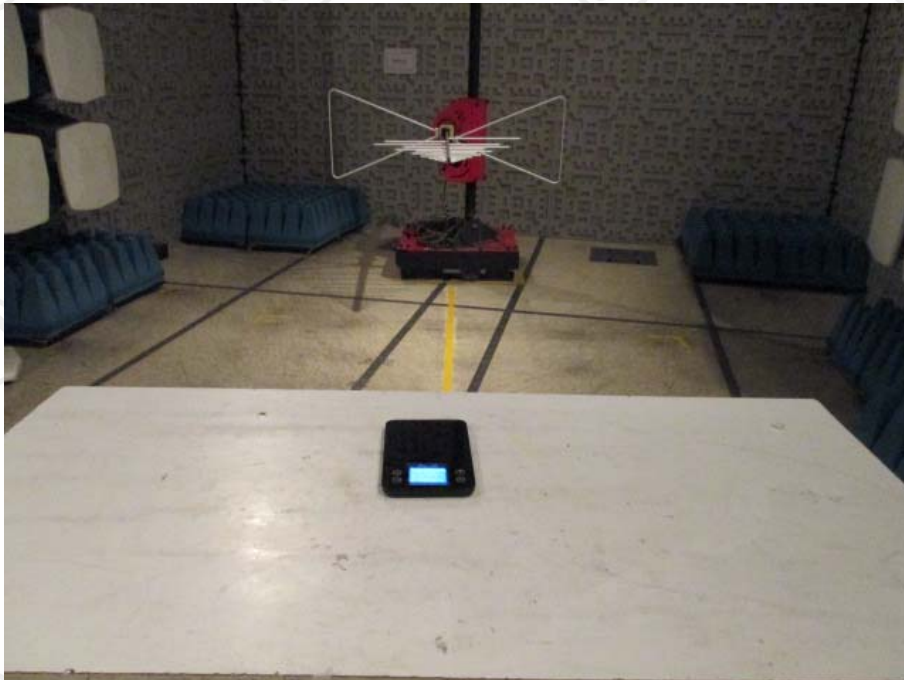
*: fundamental frequency Remark:

1. The above tables show that the frequencies peak data are all below the average limit, so the average data of these frequencies are deems to fulfill the average limits and not reported.
2. If the emissions are much lower than the limit and the relevant data are not reported.
3. All outside of operating frequency band and restricted band specified are below 15.209.

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP



TEST SETUP OF RADIATED EMISSION-1



TEST SETUP OF RADIATED EMISSION-2



TEST SETUP OF RADIATED EMISSION-3

APPENDIX 2 EXTERNAL PHOTOGRAPHS OF PRODUCT



View of Product-1



View of Product-2

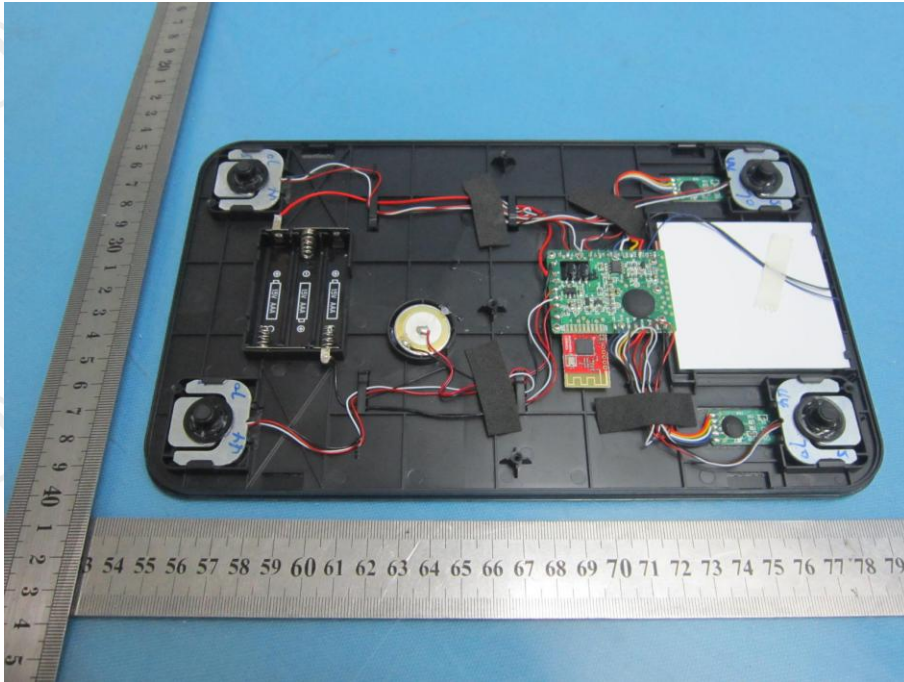
APPENDIX 3 INTERNAL PHOTOGRAPHS OF PRODUCT



View of Product-1



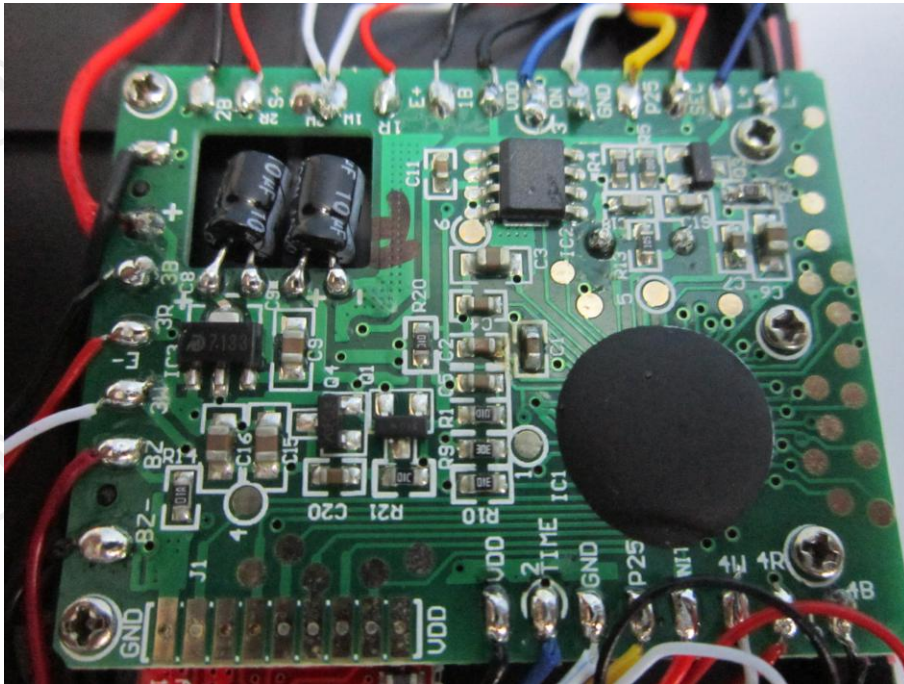
View of Product-2



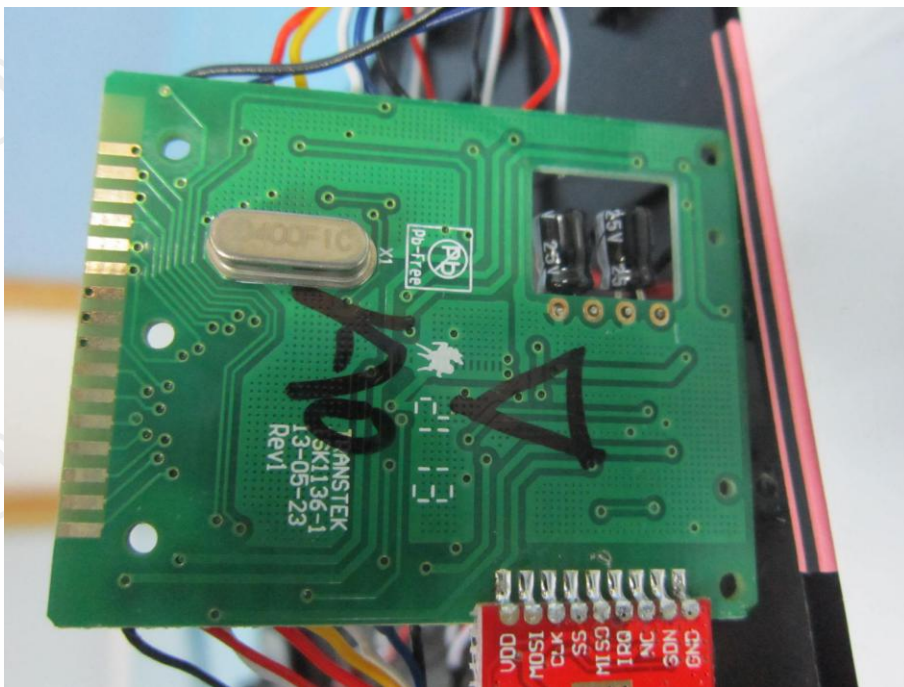
View of Product-3



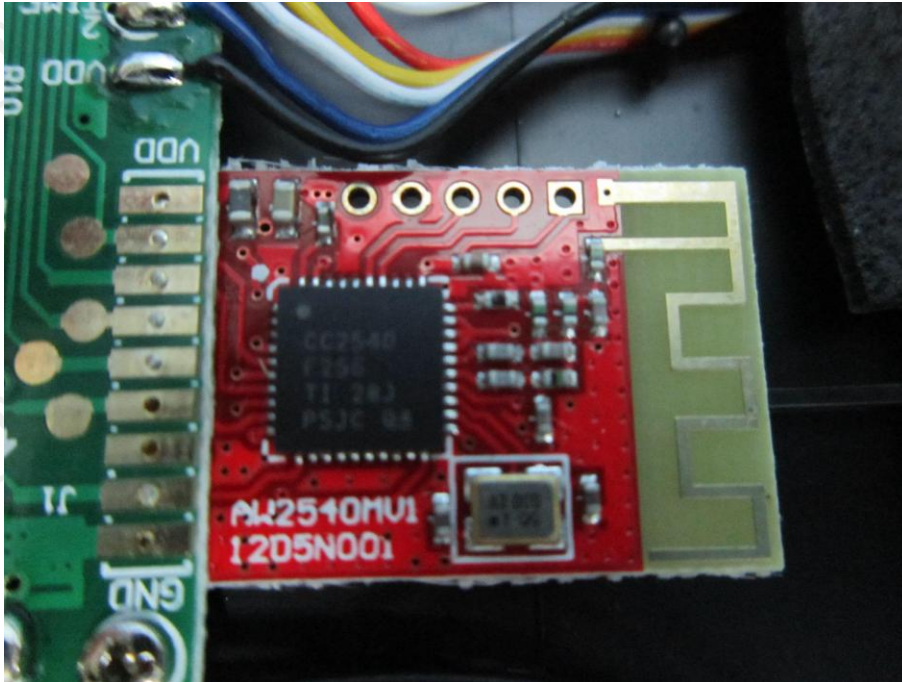
View of Product-4



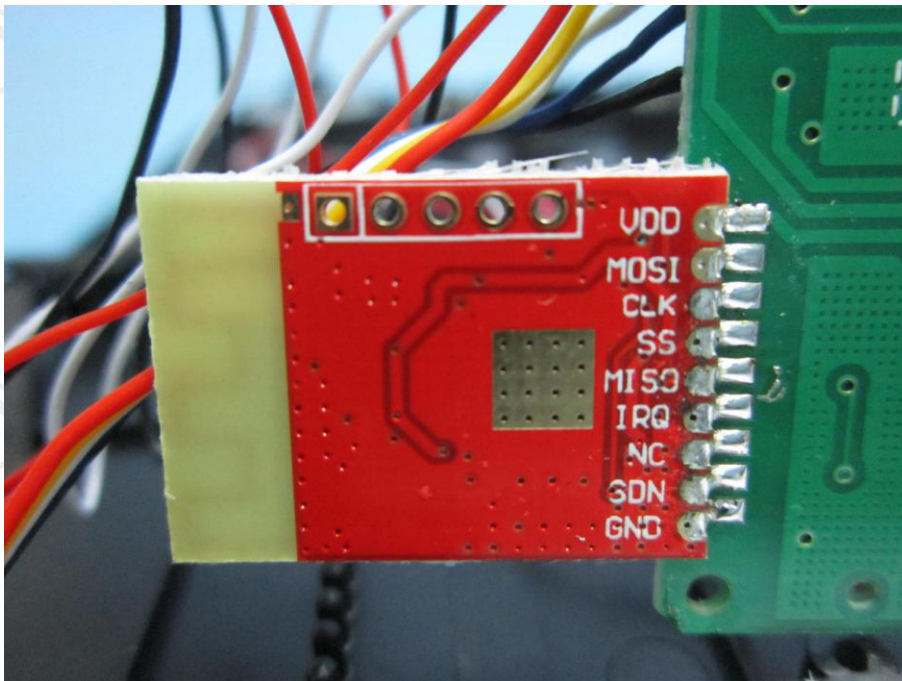
View of Product-5



View of Product-6



View of Product-7(Bluetooth Module)



View of Product-8(Bluetooth Module)

*** End of Report ***

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