

Test Report

FCC Part15 Subpart C

Product Name : Zipp Mini
Model No. : LTH200
FCC ID : Y2SLTH200
IC : 9452A-LTH200

Applicant : LIBRATONE A/S

Address : Marielundvej 43A, DK-2730 Herlev, Denmark

Date of Receipt : Dec. 17, 2015
Test Date : Dec. 18, 2015~ Dec. 28, 2015
Issued Date : Jan. 07, 2016
Report No. : 15C2057R -RF-US-P06V02
Report Version : V1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by any agency of the government.

The test report shall not be reproduced without the written approval of QuieTek Corporation.

Test Report Certification

Issued Date : Jan. 07, 2016
Report No. : 15C2057R-RF-US-P06V02



Product Name : Zipp Mini
Applicant : LIBRATONE A/S
Address : Marielundvej 43A, DK-2730 Herlev, Denmark
Manufacturer : Goertek Inc
Address : No 268 Dongfang Rd., New&high-tech Industry
Development Zone Weifang Shandong Province 261031,
PRC.
Model No. : LTH200
FCC ID : Y2SLTH200
IC : 9452A-LTH200
EUT Voltage : AC 100~240V, 50/60Hz, 1.0A
Brand Name : LIBRATONE
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2015
ANSI C63.4: 2014; ANSI C63.10: 2013
Industry Canada RSS-Gen Issue 4 / RSS-247 Issue 1
Test Result : Complied
Performed Location : Suzhou EMC Laboratory
No.99 Hongye Rd., Suzhou Industrial Park Loufeng
Hi-Tech Development Zone., Suzhou, China
TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098

Documented By : Alice Ni
(Senior Engineering Adm. Specialist: Alice Ni)

Reviewed By : Frank He
(Senior Engineer: Frank He)

Approved By : Harry Zhao
(Engineering Manager : Harry Zhao)

Laboratory Information

We, **Quietek Corporation**, are an independent EMC and safety consultancy that was established the whole facility in our laboratories. The test facility has been accredited/accepted(audited or listed) by the following related bodies in compliance with ISO 17025, EN 45001 and specified testing scope:

Taiwan R.O.C.	:	BSMI, NCC,TAF
USA	:	FCC
Japan	:	VCCI
China	:	CNAS

The related certificate for our laboratories about the test site and management system can be downloaded from Quietek Corporation's Web Site :<http://www.quietek.com/tw/ctg/cts/accreditations.htm>

The address and introduction of Quietek Corporation's laboratories can be founded in our Web site :
<http://www.quietek.com/>

If you have any comments, Please don't hesitate to contact us. Our contact information is as below:

HsinChu Testing Laboratory :

No.75-2, 3rd Lin, Wangye Keng, Yonghxing Tsuen, Qionglin Shiang, Hsinchu County 307, Taiwan, R.O.C.
TEL:+886-3-592-8858 / FAX:+886-3-592-8859 E-Mail : service@quietek.com

LinKou Testing Laboratory :

No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451, Taiwan, R.O.C.
TEL : 886-2-8601-3788 / FAX : 886-2-8601-3789 E-Mail : service@quietek.com

Suzhou Testing Laboratory :

No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., SuZhou, China
TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : service@quietek.com

TABLE OF CONTENTS

Description	Page
1. General Information	6
1.1. EUT Description	6
1.2. Mode of Operation	8
1.3. Tested System Details	9
1.4. Configuration of Tested System	10
1.5. EUT Exercise Software	11
2. Technical Test	12
2.1. Summary of Test Result	12
2.2. Test Environment	13
3. Radiated Emission	14
3.1. Test Equipment	14
3.2. Test Setup	15
3.3. Limit	16
3.4. Test Procedure	16
3.5. Uncertainty	16
3.6. Test Result	17
4. Radiated Emission Band Edge	20
4.1. Test Equipment	20
4.2. Test Setup	21
4.3. Limit	21
4.4. Test Procedure	21
4.5. Uncertainty	22
4.6. Test Result	23
5. Power Output	31
5.1. Test Equipment	31
5.2. Test Setup	31
5.3. Limit	31
5.4. Test Procedure	31
5.5. Uncertainty	32
5.6. Test Result	33

History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
15C2057R-RF-US-P06V02	V1.0	Initial Issued Report	Jan. 07, 2016

1. General Information

1.1. EUT Description

Product Name	Zipp Mini
Brand Name	LIBRATONE
Model No.	LTH200
Working Voltage	AC 100~240V, 50/60Hz, 1.0A
Bluetooth Specification	3.0 + Version 4.0
Frequency Range	2402- 2480 MHz
Channel Number	V3.0+HS: 79 V4.0: 40
Channel Separation	V3.0+HS: 1MHz V4.0: 2MHz
Type of Modulation	V3.0: GFSK, Pi/4 DQPSK, 8DPSK V4.0: GFSK
Data Rate	V3.0: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK) V4.0: 1Mbps
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

Note: This report was based on Quietek report No: 1560642R. This is to verify metal cover for top and bottom enclosure as 2nd enclosure source.

Bluetooth Working Frequency of Each Channel: (For V4.0)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	03	2408 MHz
04	2410 MHz	05	2412 MHz	06	2414 MHz	07	2416 MHz
08	2418 MHz	09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	15	2432 MHz
16	2434 MHz	17	2436 MHz	18	2438 MHz	19	2440 MHz
20	2442 MHz	21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	27	2456 MHz
28	2458 MHz	29	2460 MHz	30	2462 MHz	31	2464 MHz
32	2466 MHz	33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	39	2480 MHz

Bluetooth Antenna List

Antenna	Manufacturer	Model No.	Peak Gain
PIFA Antenna	Goertek	N/A	1.2dBi for 2.4GHz

1.2. Mode of Operation

QuieTek has verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmit-1Mbps(GFSK_BLE)

Note:

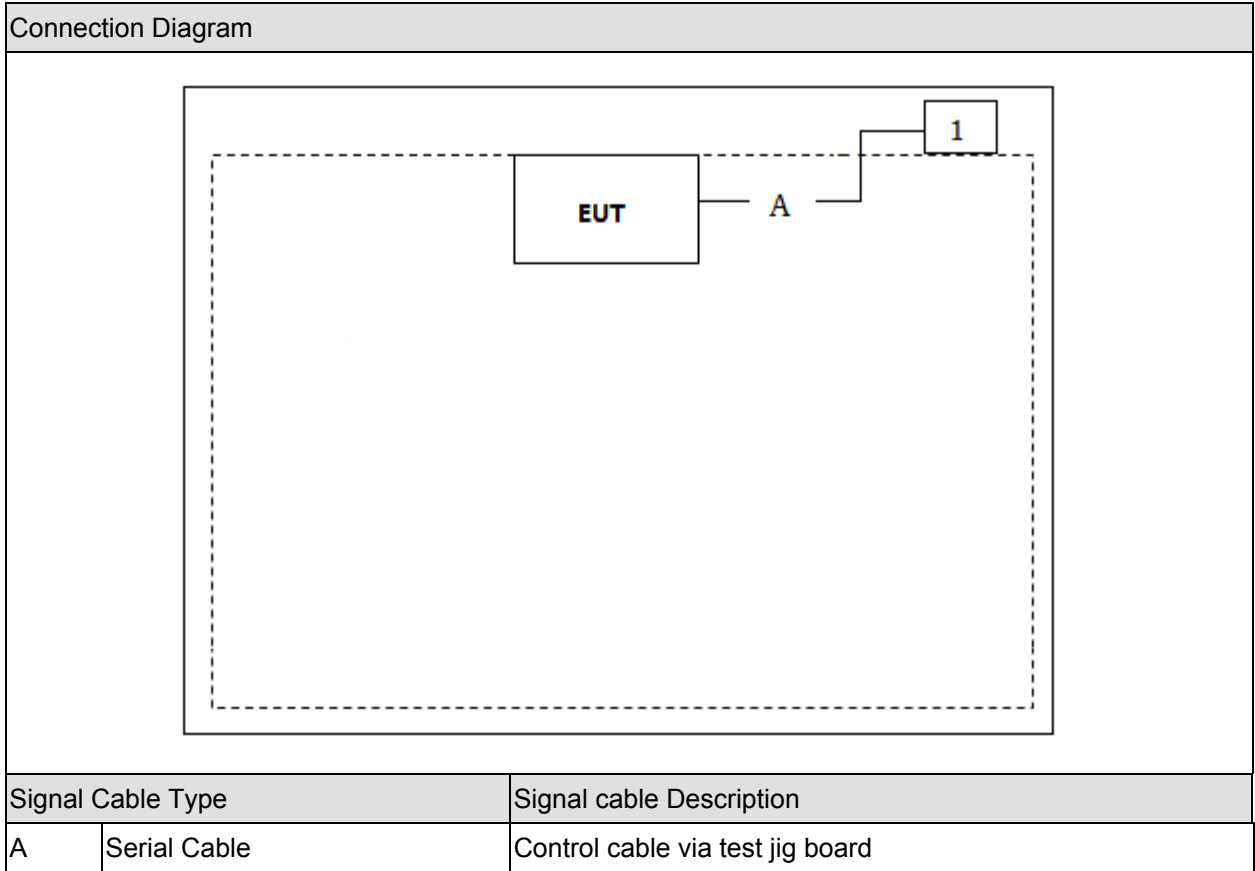
1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
2. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.

1.3. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product	Manufacturer	Model No.	Serial No.	Power Cord
1 Notebook	Asus	N80V	8BN0AS226971468	N/A

1.4. Configuration of Tested System



1.5. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Run the RF test software, and set the test mode and channel, then press OK to start continue Transmit.

2. Technical Test

2.1. Summary of Test Result

- No deviations from the test standards
 Deviations from the test standards as below description:

For FCC

Performed Test Item	Normative References	Test Performed	Deviation
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	Yes	No
Power Output	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(3)	Yes	No

For IC

Performed Test Item	Normative References	Test Performed	Deviation
Radiated Emission	RSS-247 Issue 1 May 2015 Section 5.5	Yes	No
Radiated Emission Band Edge	RSS-Gen Issue 4 November 2014 Section 8.10	Yes	No
Power Output	RSS-247 Issue 1 May 2015 Section 5.4	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

3. Radiated Emission

3.1. Test Equipment

Radiated Emission / AC-2

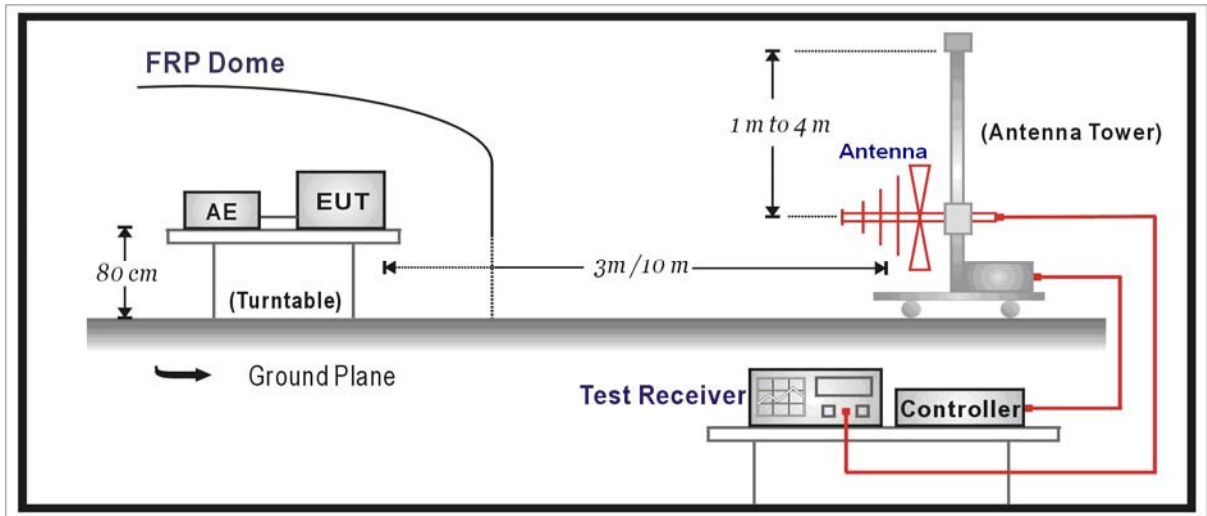
Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2016.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2015.11.25
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2015.10.10
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2016.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC2-TH	2016.01.08

Radiated Emission / AC-5

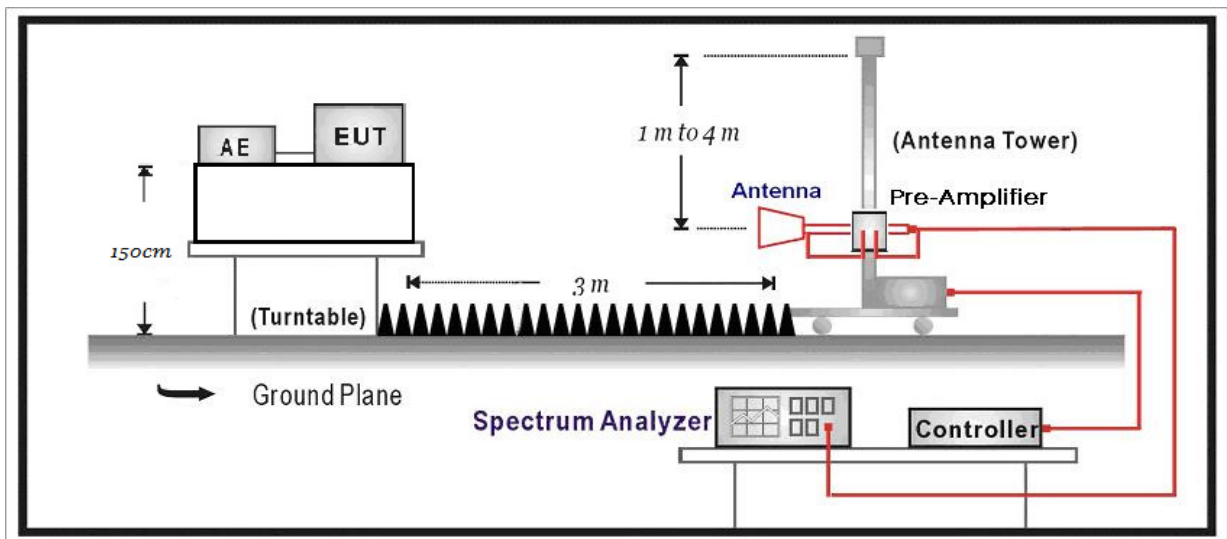
Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2016.05.12
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2015.10.15
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	499	2016.06.08
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2016.04.10
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.01
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2016.01.08

3.2. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



3.3. Limit

FCC Part 15 Subpart C Paragraph 15.209		
Frequency (MHz)	Distance (m)	Level (dBuV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

Note 1: The lower limit shall apply at the transition frequency.

Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

Note 3: E field strength (dBuV/m) = 20 log E field strength (uV/m)

3.4. Test Procedure

The EUT was setup according to ANSI C63.4, 2014 and tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 0.8 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.4:2009 on radiated measurement.

The resolution bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

The frequency range from 30MHz to 10th harmonic is checked.

Note: When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the “cone of radiation” of EUT. The 3dB beamwidth is 10~60 degrees for H-plane and 10~90 degrees for E-plane.

3.5. Uncertainty

The measurement uncertainty above 1GHz is defined as ± 3.9 dB

below 1GHz is defined as ± 3.8 dB

3.6. Test Result

All of the test result shown indicates the worst case, and spectrum analyzer parameters setting as shown below:

Peak detector: RBW = 1MHz, VBW = 3MHz, sweep time = 200ms;

Average detector: RBW = 1MHz, VBW = 10Hz, sweep time = auto.

Measure Level = Reading Level + Cable Loss + Antenna Factor - Preamplifier Gain

Mode 1: Transmitter-1Mbps(GFSK_BLE)

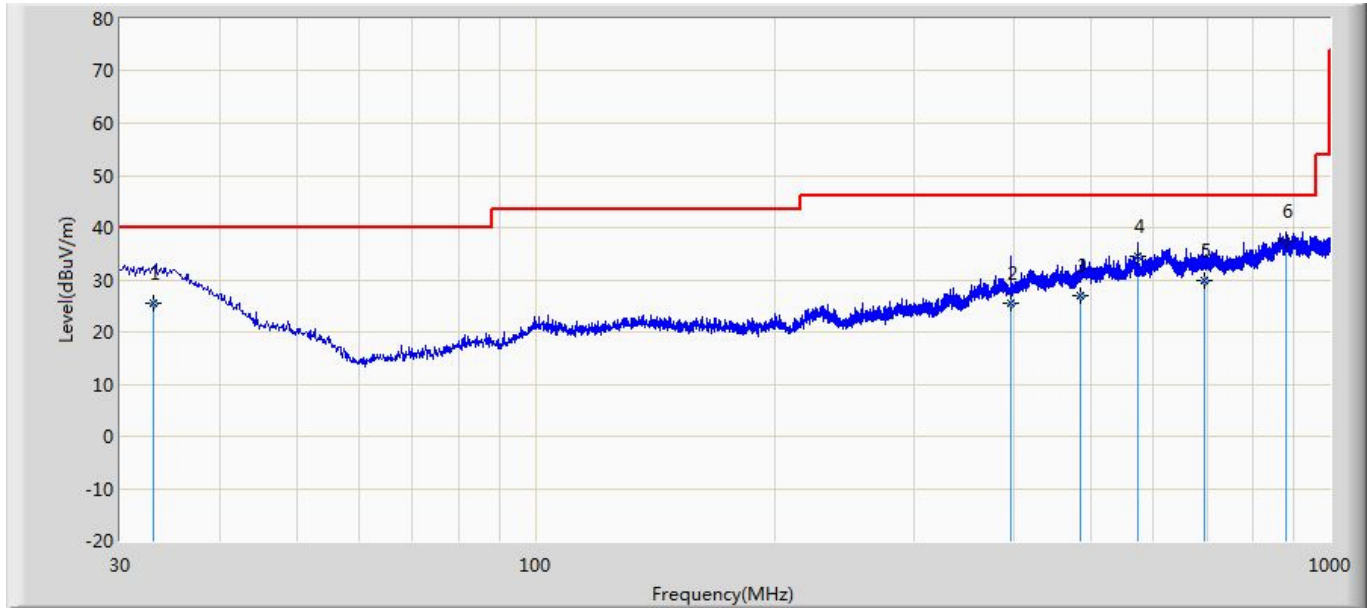
CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0	H	4804.0	48.9	-6.2	42.7	54(Note2)	-11.3	PK
	V	4804.0	50.6	-6.3	44.3	54(Note2)	-9.7	PK
	H	7206.0	43.2	-1.7	41.5	54(Note2)	-12.5	PK
	V	7206.0	44.2	-1.7	42.5	54(Note2)	-11.5	PK
	H	9608.0	37.2	4.9	42.1	54(Note2)	-11.9	PK
	V	9608.0	36.3	4.9	41.2	54(Note2)	-12.8	PK
19	H	4880.0	49.7	-6.2	43.5	54(Note2)	-10.5	PK
	V	4880.0	49.3	-6.2	43.1	54(Note2)	-10.9	PK
	H	7320.0	43.3	-1.4	41.9	54(Note2)	-12.1	PK
	V	7320.0	43.2	-1.4	41.8	54(Note2)	-12.2	PK
	H	9760.0	36.6	5.1	41.7	54(Note2)	-12.3	PK
	V	9760.0	36.7	5.2	41.9	54(Note2)	-12.1	PK
39	H	4960.0	49.5	-6.3	43.2	54(Note2)	-10.8	PK
	V	4960.0	50.0	-6.1	43.9	54(Note2)	-10.1	PK
	H	7440.0	43.9	-0.8	43.1	54(Note2)	-10.9	PK
	V	7440.0	43.4	-0.8	42.6	54(Note2)	-11.4	PK
	H	9920.0	36.6	5.5	42.1	54(Note2)	-11.9	PK
	V	9920.0	36.3	5.5	41.8	54(Note2)	-12.2	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

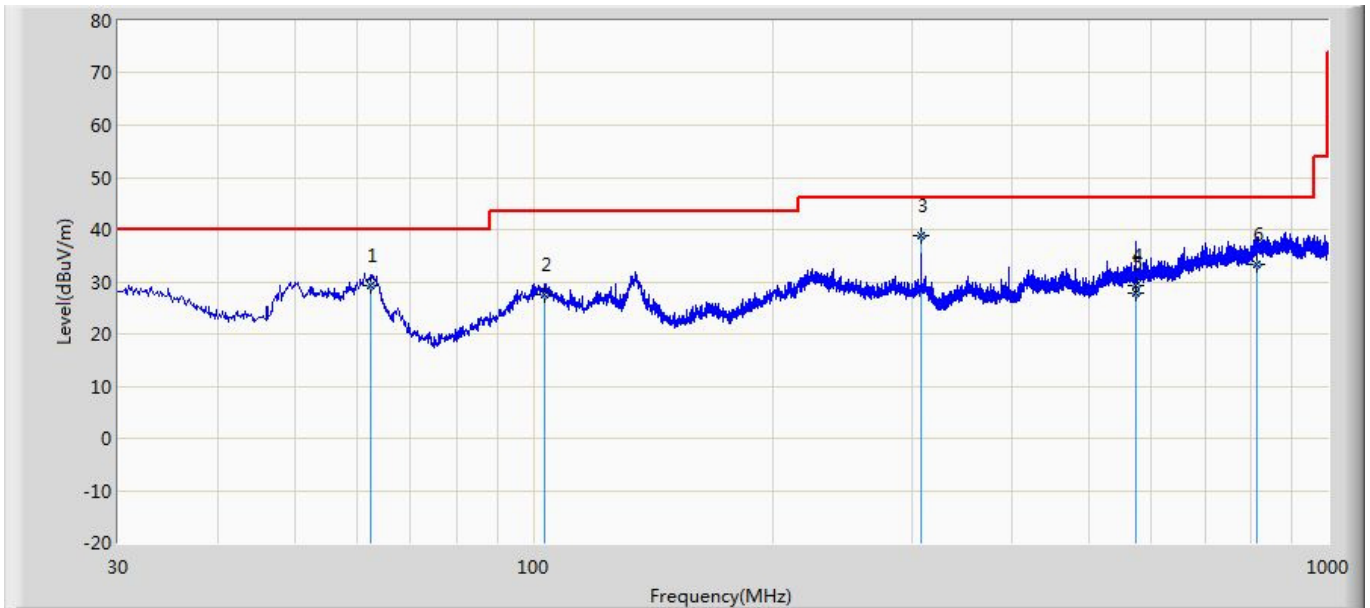
The worst case of Radiated Emission below 1GHz:

Site: AC2	Time: 2015/12/25 - 10:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_27611(30-2000MHz)	Polarity: Horizontal
EUT: Zipp Mini	Power: AC 120V/60Hz
Note: Mode1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		32.976	25.575	-1.793	-14.425	40.000	27.369	QP
2		396.000	25.629	0.764	-20.371	46.000	24.864	QP
3		485.754	27.056	-0.596	-18.944	46.000	27.653	QP
4		572.002	34.366	6.257	-11.634	46.000	28.109	QP
5		693.530	29.842	0.491	-16.158	46.000	29.351	QP
6	*	881.201	37.379	4.766	-8.621	46.000	32.613	QP

Site: AC2	Time: 2015/12/25 - 10:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_27611(30-2000MHz)	Polarity: Vertical
EUT: Zipp Mini	Power: AC 120V/60Hz
Note: Mode1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		62.453	29.323	13.113	-10.677	40.000	16.210	QP
2		103.158	27.519	5.237	-15.981	43.500	22.283	QP
3	*	307.900	38.833	14.576	-7.167	46.000	24.257	QP
4		571.876	29.327	2.201	-16.673	46.000	27.126	QP
5		572.639	27.958	0.831	-18.042	46.000	27.127	QP
6		813.430	33.231	0.442	-12.769	46.000	32.790	QP

4. Radiated Emission Band Edge

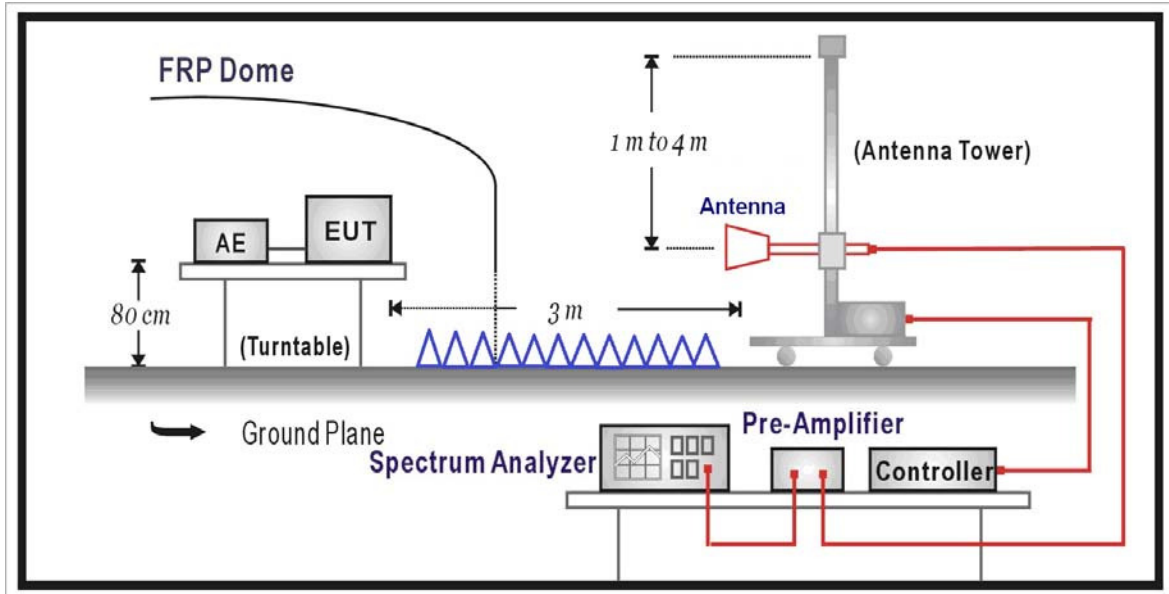
4.1. Test Equipment

Radiated Emission Band Edge / AC-5

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Spectrum Analyzer	Agilent	N9020A	MY49100159	2016.03.30
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.03
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.03
Bilog Antenna	Teseq GmbH	CBL6112D	27612	2015.10.15
DRG Horn	ETS-Lindgren	3117	00123988	2016.01.05
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2016.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2016.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2015.08.07
Temperature/Humidity Meter	Zhicheng	ZC1-2	AC5-TH	2016.01.08

Note 1: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

4.2. Test Setup



4.3. Limit

Radiated emissions which fall in the restricted bands, as defined in Section 15.205(a) of FCC part 15, must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

4.4. Test Procedure

According to ANSI C63.10: 2013.

This test is required for any spurious emission or modulation product that falls in a Restricted Band, as defined in Section 15.205 of FCC part 15. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW \geq RBW

Sweep = auto

Detector function = peak

Trace = max hold

Follow the guidelines in ANSI C63.4 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with

sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b) of FCC part 15.

Now set the VBW $\geq 1 / T$ (the minimum transmission duration), while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209 of FCC Part 15.

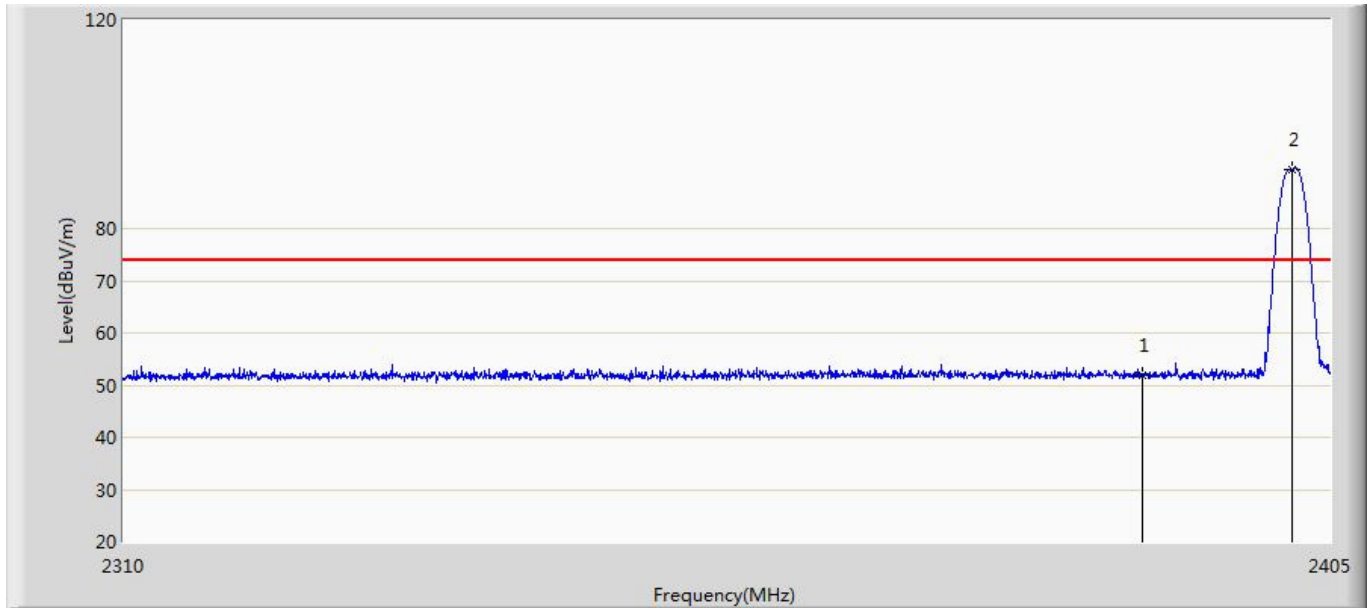
If the emission on which a radiated measurement must be made is located at the edge of the authorized band of operation, then the alternative “marker-Zipp Mini” method may be employed.

4.5. Uncertainty

The measurement uncertainty above 1G is defined as ± 3.9 dB

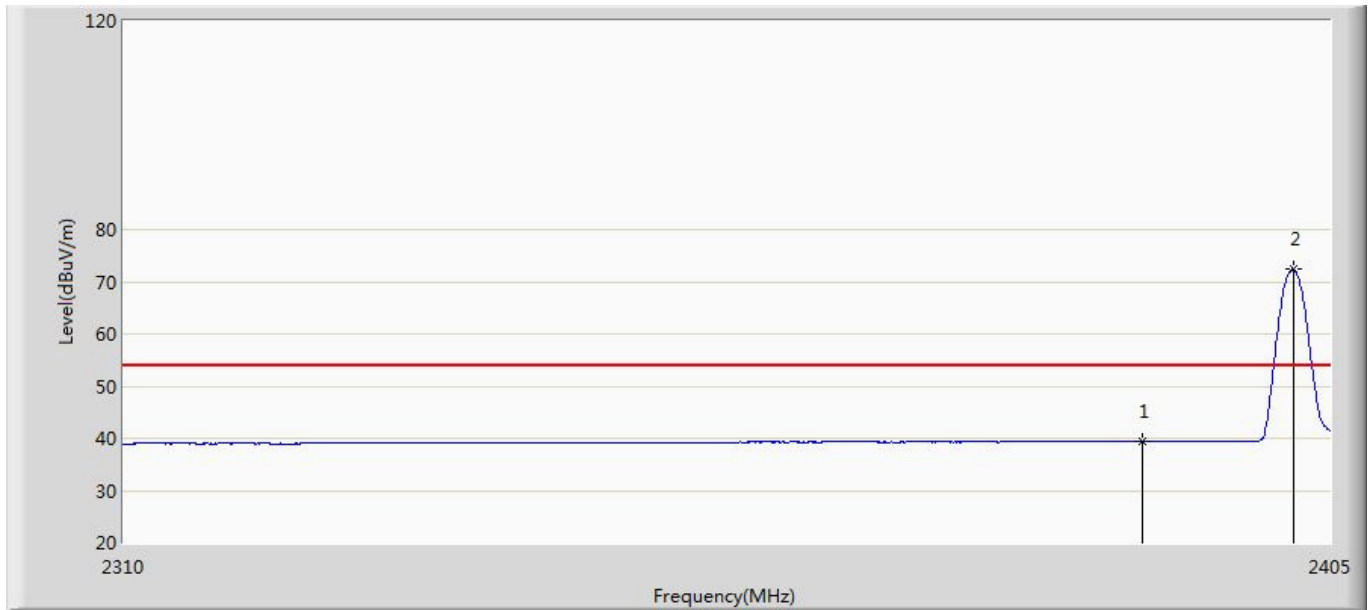
4.6. Test Result

Engineer: Damon	
Site: AC5	Time: 2015/12/24 - 10:03
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Zipp Mini	Power: AC 120V/60Hz
Note: Mode 1: Transmit at CH2402MHz by BLE	



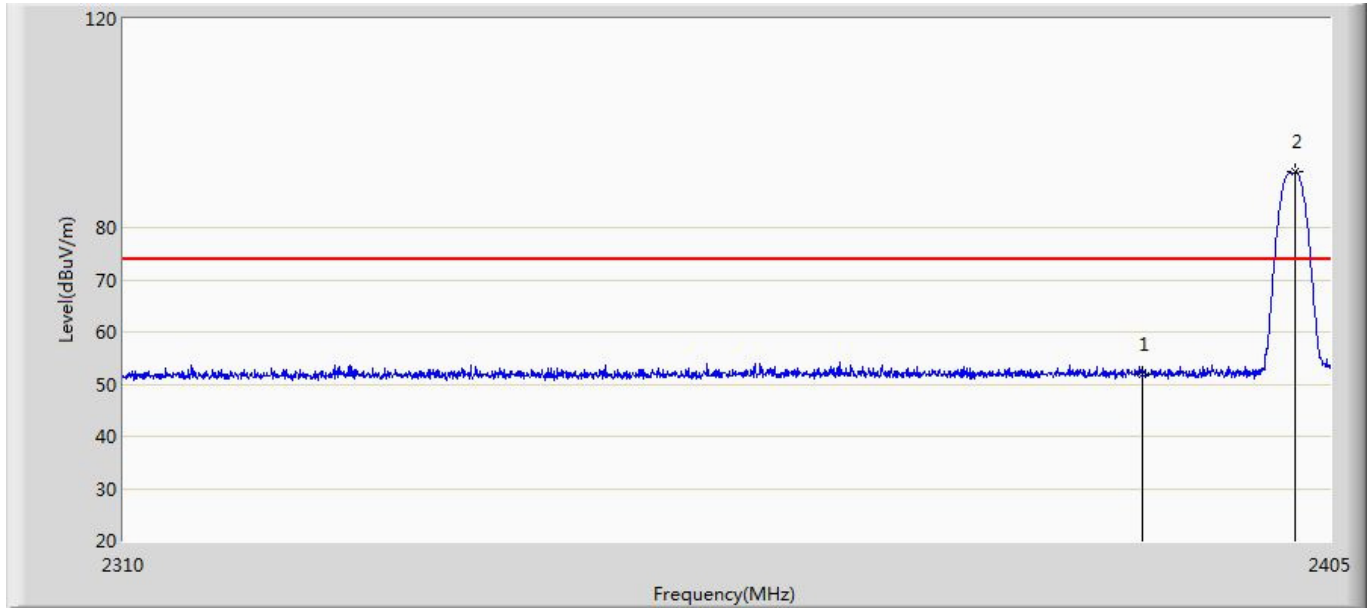
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.984	14.629	-22.016	74.000	37.355	PK
2	*	2401.913	91.304	53.962	N/A	N/A	37.342	PK

Engineer: Damon	
Site: AC5	Time: 2015/12/24 - 10:04
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Zipp Mini	Power: AC 120V/60Hz
Note: Mode 1: Transmit at CH2402MHz by BLE	



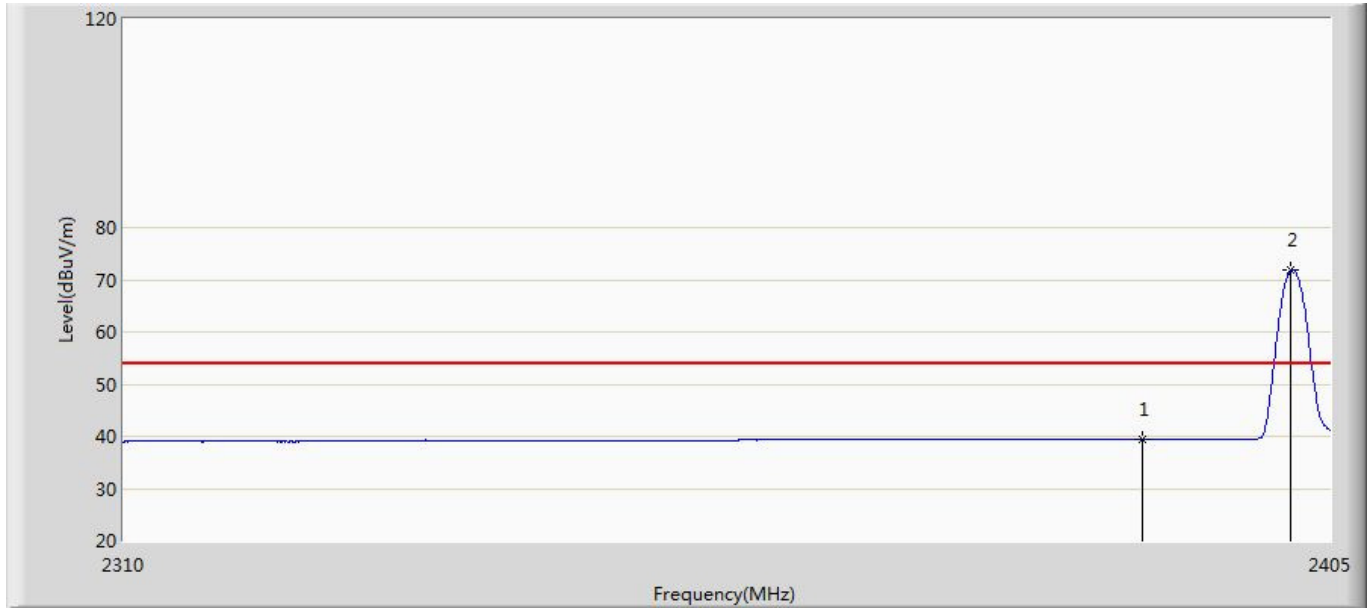
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.378	2.023	-14.622	54.000	37.355	AV
2	*	2402.055	72.393	35.051	N/A	N/A	37.341	AV

Engineer: Damon	
Site: AC5	Time: 2015/12/24 - 10:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Zipp Mini	Power: AC 120V/60Hz
Note: Mode 1: Transmit at CH2402MHz by BLE	



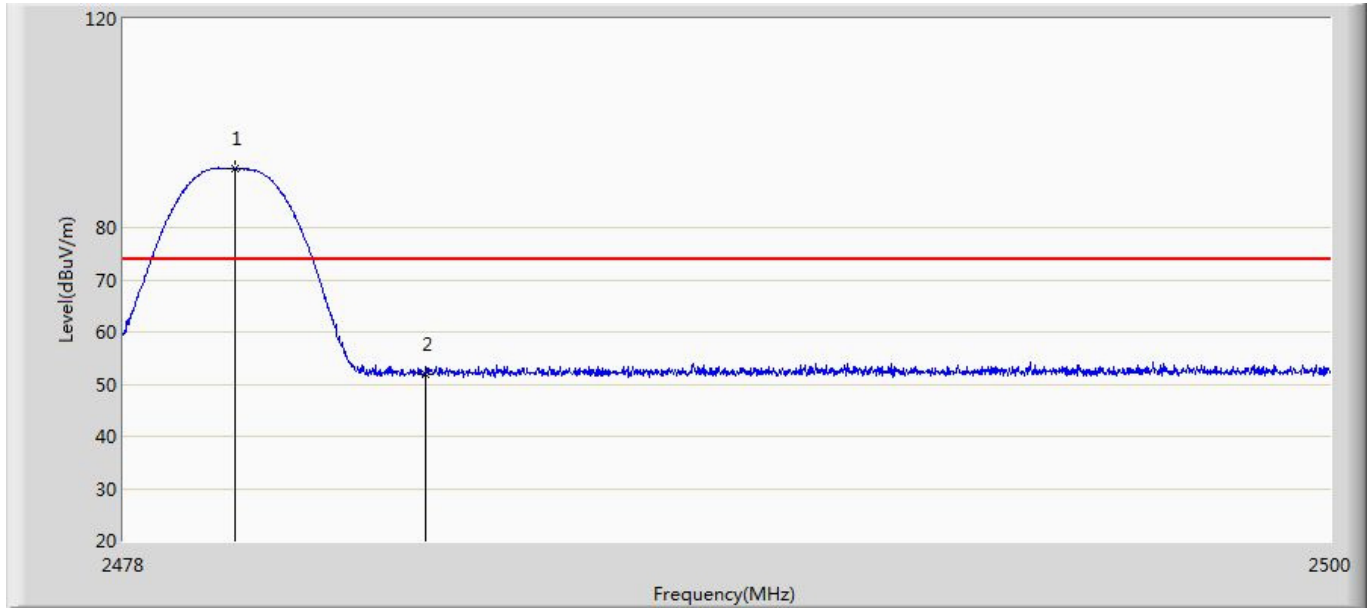
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.901	14.546	-22.099	74.000	37.355	PK
2	*	2402.198	90.657	53.316	N/A	N/A	37.342	PK

Engineer: Damon	
Site: AC5	Time: 2015/12/24 - 10:07
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Zipp Mini	Power: AC 120V/60Hz
Note: Mode 1: Transmit at CH2402MHz by BLE	



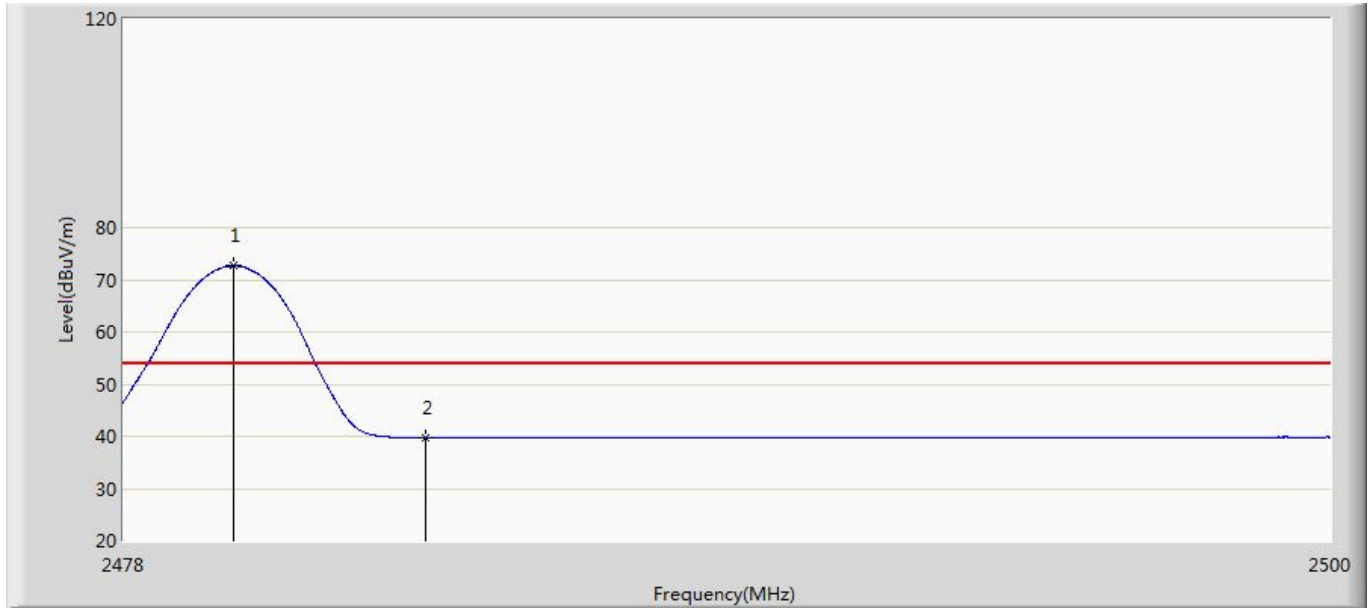
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	39.402	2.047	-14.598	54.000	37.355	AV
2	*	2401.865	71.796	34.454	N/A	N/A	37.342	AV

Engineer: Damon	
Site: AC5	Time: 2015/12/24 - 10:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Zipp Mini	Power: AC 120V/60Hz
Note: Mode 1: Transmit at CH2480MHz by BLE	



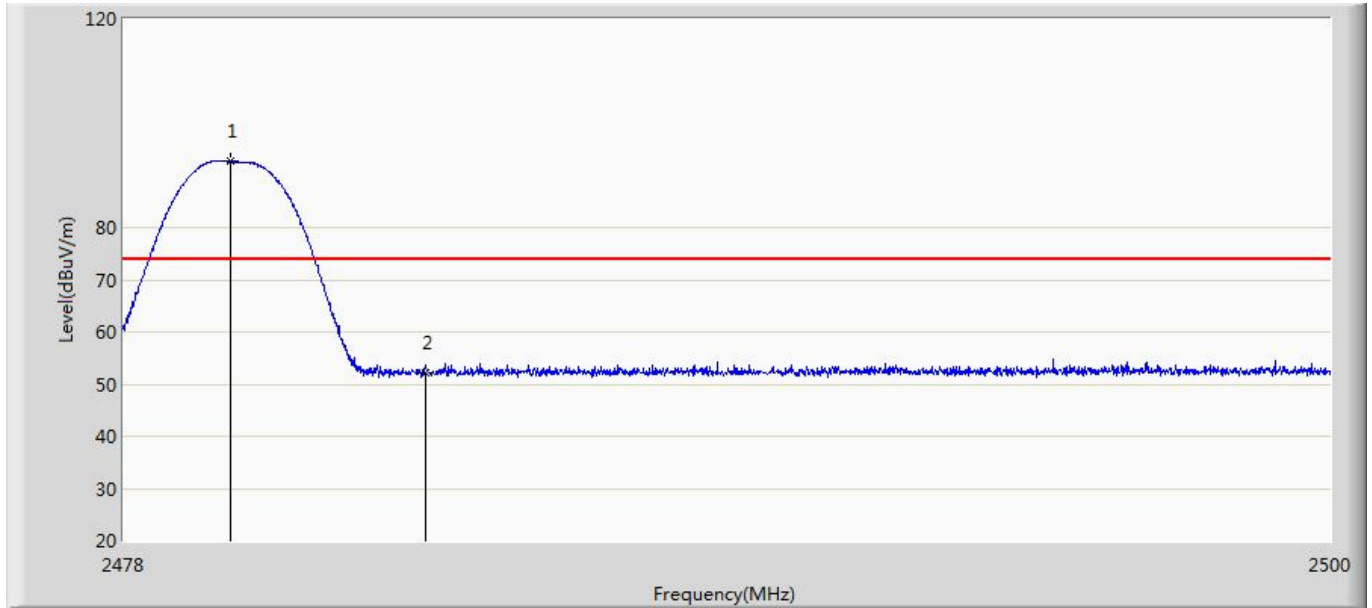
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.035	91.277	53.791	N/A	N/A	37.486	PK
2		2483.500	51.942	14.431	-22.058	74.000	37.511	PK

Engineer: Damon	
Site: AC5	Time: 2015/12/24 - 10:13
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Zipp Mini	Power: AC 120V/60Hz
Note: Mode 1: Transmit at CH2480MHz by BLE	



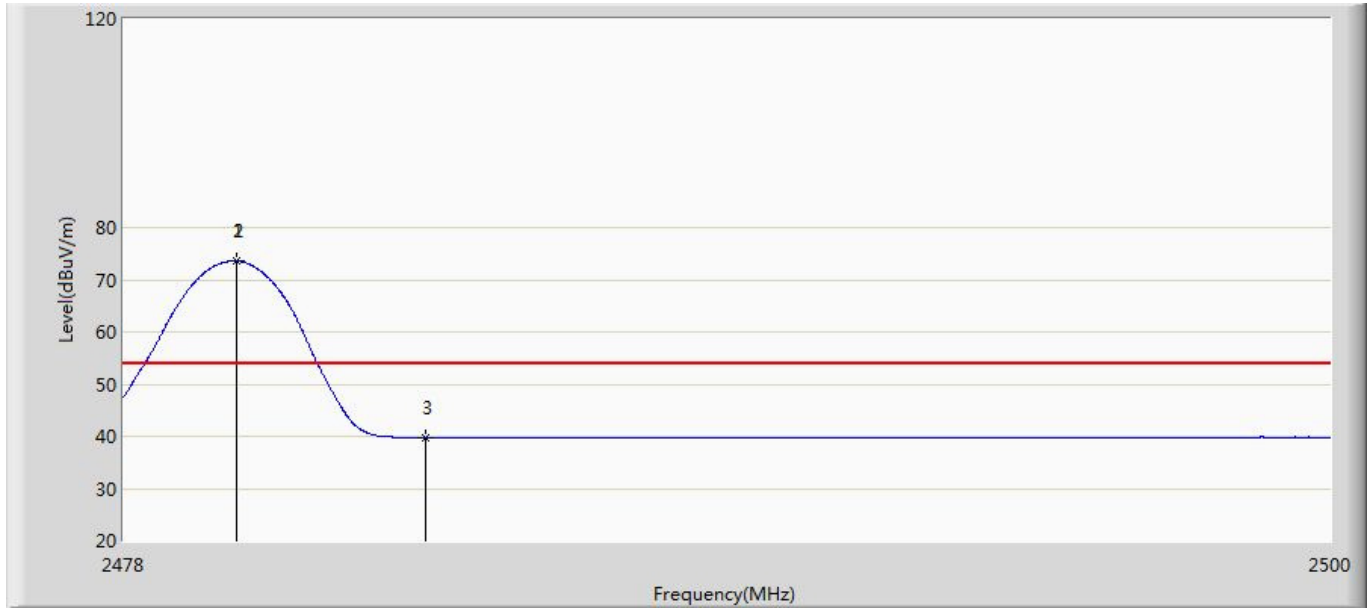
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.013	72.641	35.155	N/A	N/A	37.486	AV
2		2483.500	39.716	2.205	-14.284	54.000	37.511	AV

Engineer: Damon	
Site: AC5	Time: 2015/12/24 - 10:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Zipp Mini	Power: AC 120V/60Hz
Note: Mode 1: Transmit at CH2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.947	92.653	55.167	N/A	N/A	37.486	PK
2		2483.500	52.286	14.775	-21.714	74.000	37.511	PK

Engineer: Damon	
Site: AC5	Time: 2015/12/24 - 10:16
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Zipp Mini	Power: AC 120V/60Hz
Note: Mode 1: Transmit at CH2480MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.046	73.602	36.116	N/A	N/A	37.486	AV
2		2483.500	39.703	2.192	-14.297	54.000	37.511	AV

5. Power Output

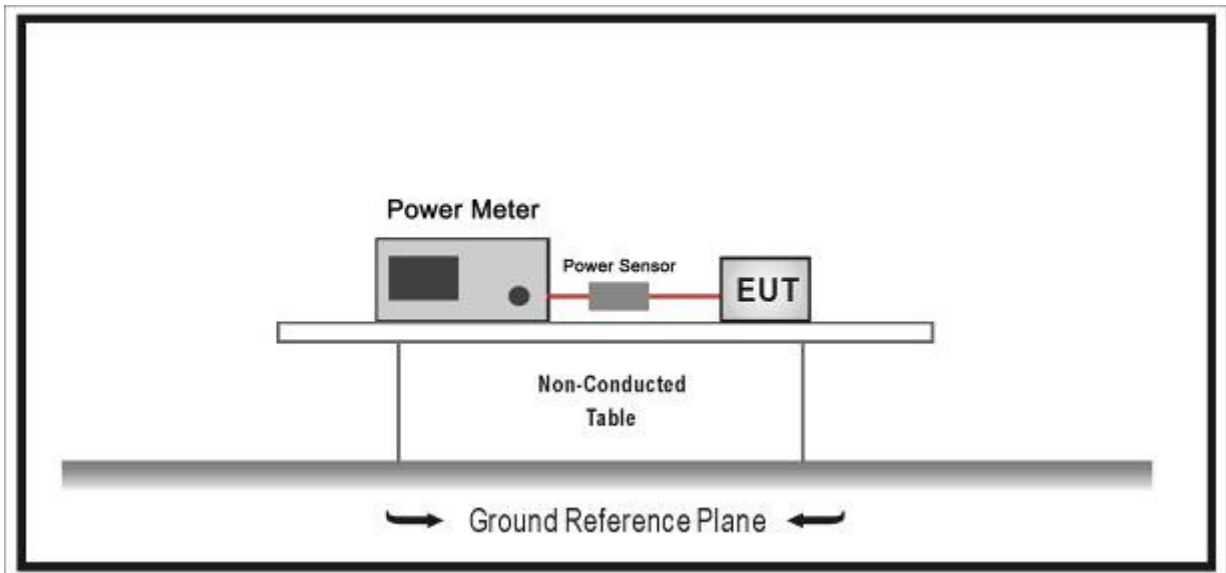
5.1. Test Equipment

Power Output / TR-8

Instrument	Manufacturer	Type No.	Serial No.	Cal. Due Date
Wideband Peak Power Meter	Anritsu	ML2495A	0905006	2016.11.10
Power Sensor	Anritsu	MA2411B	0846014	2016.11.10
Temperature/Humidity Meter	zhicheng	ZC1-2	TR8-TH	2016.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

5.2. Test Setup



5.3. Limit

The maximum peak power shall be less 1 Watt (30dBm).

Note: the conducted output power limit specified above is based on the use the antennas with directional gains that do not exceed 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values above, as appropriate, by the amount in dB that the directional gain of antenna exceeds 6 dBi.

For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1W. Except as provided in Section 5.4(5), the e.i.r.p. shall not exceed 4 W.

5.4. Test Procedure

The EUT was tested according to DTS test procedure of ANSI C63.10 for compliance to FCC 47CFR 15.247 requirements. The maximum conducted output power using ANSI C63.10 section 11.9.1.1 peak power meter method.

1. Power meter and sensor's minimum video bandwidth is 50MHz, larger than occupied bandwidth;
2. Fast responding diode sensors respond immediately to changes in power level to reduce total test time.
3. Use peak detector to test.

5.5. Uncertainty

The measurement uncertainty is defined as ± 1.27 dB

5.6. Test Result

Product	:	Zipp Mini
Test Item	:	Power Output
Test Site	:	TR8
Test Mode	:	Mode 1: Transmit-1Mbps(GFSK_BLE)

Channel No.	Frequency (MHz)	Power Output (dBm)	Output Power Limit (dBm)	Result
00	2402	4.33	30.00	Pass
19	2440	4.29	30.00	Pass
39	2480	3.86	30.00	Pass

_____ The End _____