

Prüfbericht-Nr.: <i>Test report No.:</i>	50080939 001	Auftrags-Nr.: <i>Order No.:</i>	164088597	Seite 1 von 29 Page 1 of 29
Kunden-Referenz-Nr.: <i>Client reference No.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	22.03.2017	
Auftraggeber: <i>Client:</i>	THUMBS UP(UK) LTD Unit L, Braintree Industrial Estate, Brain Tree Road, South Ruislip, HA4 0EJ, United Kingdom			
Prüfgegenstand: <i>Test item:</i>	BT boom box speaker			
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	BOOMSPKBKPRM (Trademark: PRIMARK)			
Auftrags-Inhalt: <i>Order content:</i>	FCC approval			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209 FCC KDB Publication 447498 v06 CFR47 FCC Part 15: Subpart B Section 15.107 CFR47 FCC Part 15: Subpart B Section 15.109			
Wareneingangsdatum: <i>Date of receipt:</i>	22.03.2017	Please refer to photo documents		
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000527977-001 to 003			
Prüfzeitraum: <i>Testing period:</i>	22.04.2017 - 27.04.2017			
Ort der Prüfung: <i>Place of testing:</i>	Shenzhen Accurate Technology Co., Ltd.			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
 12.07.2017 Alex Lan / Project Engineer		 12.07.2017 Winnie Hou / Technical Certifier		
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>
Sonstiges / Other:				
FCC ID: 2AHHEBOOMSPKBTPRM				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged:</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT*RESULT: Passed***5.1.2 PEAK OUTPUT POWER***RESULT: Passed***5.1.3 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100kHz BANDWIDTH***RESULT: Passed***5.1.4 SPURIOUS EMISSION***RESULT: Passed***5.1.5 20dB BANDWIDTH***RESULT: Passed***5.1.6 FREQUENCY SEPARATION***RESULT: Passed***5.1.7 NUMBER OF HOPPING FREQUENCY***RESULT: Passed***5.1.8 TIME OF OCCUPANCY***RESULT: Passed***5.1.9 CONDUCTED EMISSIONS***RESULT: Passed***5.1.10 RADIATED EMISSION***RESULT: Passed***6.1.1 ELECTROMAGNETIC FIELDS***RESULT: Pass*

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Test Result

Remark: *The model name and type designation were "Octangle Bluetooth Boombox" and "BT-003S" during test, finally they were changed to "BT boom box speaker" and "BOOMSPPKBKPRM" by client.

2 Test Sites

2.1 Test Facilities

Shenzhen Accurate Technology Co., Ltd.

F1, Bldg. A, Changyuan New Material Port, Keyuan Rd., Science & Industry Park Nanshan District, Shenzhen 518057, P.R. China

FCC Registration No.: 752051

Test site Industry Canada No.: 5077A-2

The tests at the test site have been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Spurious emission and Radiated emission				
Spectrum Analyzer	Rohde&Schwarz	FSV40	101495	2018-01-06
Test Receiver	Rohde&Schwarz	ESCS30	100307	2018-01-06
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	2018-01-09
Loop Antenna	Schwarzbeck	FMZB1516	1516131	2018-01-09
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	2018-01-09
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	2018-01-09
RF Switching Unit+PreAMP	Compliance Direction	RSU-M2	38322	2018-01-06
Pre-Amplifier	Rohde&Schwarz	CBLU11835 40-01	3791	2018-01-06
Radio Test Suite				
Spectrum Analyzer	Rohde & Schwarz	FSV40	101495	2018-01-06
Conducted Emission				
Test Receiver	Rohde & Schwarz	ESCS30	100307	2018-01-06
L.I.S.N.	Schwarzbeck	NLSK8126	8126431	2018-01-06
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100815	2018-01-06
50Ω Coaxial Switch	Anritsu Corp	MP59B	6200283933	2018-01-06

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements are $\pm 3\text{dB}$.

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix 1 of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The Shenzhen Accurate Technology Co., Ltd. test facility located at F1, Bldg. A, Changyuan New Material Port, Keyuan Rd., Science & Industry Park Nanshan District, Shenzhen 518057, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a BT boom box speaker which supports Bluetooth function.
For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Rating of EUT

Kind of Equipment:	BT boom box speaker
Type Designation:	BOOMSPKBKPRM
Trade Mark:	PRIMARK
FCC ID	2AHHEBOOMSPKBTPRM

Table 3: Technical Specification of Bluetooth (BDR & EDR)

Technical Specification	Value
Operating Frequency band	2402 – 2480 MHz
Bluetooth Core Version	2.1 + EDR
Channel Number	79 channels
Channel separation	1MHz
Extreme Temperature Range	-20°C to +55°C
Operating Voltage	DC 3.7V, 500mAh via built-in lithium Battery DC 5V, 500mA via Micro USB interface for Charging
Battery	Model: 523450AR Ratings: 3.7V, 500mAh
Modulation	GFSK, $\pi/4$ DQPSK
Antenna Type	Internal Antenna, Non-User Replaceable
Antenna Gain	-0.58 dBi

Table 4: RF channel and frequency of Bluetooth (BDR & EDR mode)

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	2402.00	20	2422.00	40	2442.00	60	2462.00
1	2403.00	21	2423.00	41	2443.00	61	2463.00
2	2404.00	22	2424.00	42	2444.00	62	2464.00
3	2405.00	23	2425.00	43	2445.00	63	2465.00
4	2406.00	24	2426.00	44	2446.00	64	2466.00
5	2407.00	25	2427.00	45	2447.00	65	2467.00
6	2408.00	26	2428.00	46	2448.00	66	2468.00
7	2409.00	27	2429.00	47	2449.00	67	2469.00
8	2410.00	28	2430.00	48	2450.00	68	2470.00
9	2411.00	29	2431.00	49	2451.00	69	2471.00
10	2412.00	30	2432.00	50	2452.00	70	2472.00
11	2413.00	31	2433.00	51	2453.00	71	2473.00
12	2414.00	32	2434.00	52	2454.00	72	2474.00
13	2415.00	33	2435.00	53	2455.00	73	2475.00
14	2416.00	34	2436.00	54	2456.00	74	2476.00
15	2417.00	35	2437.00	55	2457.00	75	2477.00
16	2418.00	36	2438.00	56	2458.00	76	2478.00
17	2419.00	37	2439.00	57	2459.00	77	2479.00
18	2420.00	38	2440.00	58	2460.00	78	2480.00
19	2421.00	39	2441.00	59	2461.00		

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Bluetooth Transmitting mode (BR & EDR)
 - 1. low channel
 - 2. middle channel
 - 3. high channel
- B. On, Bluetooth hopping mode
- C. On, Play with Aux-in
- D. Charging
- E. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Technical Description
- PCB Layout
- Photo Document
- Circuit Diagram
- Instruction Manual
- Rating Label

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.4: 2014 and ANSI C63.10: 2013.

4.3 Special Accessories and Auxiliary Equipment

The EUT was tested with following accessories:

Description	Manufacturer	Type	S/N
iPhone6S PLUS	Apple	ML6D2 CH/A	C35QJ76JGRWM
Notebook	LENOVO	ThinkPad X240	N/A

4.4 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

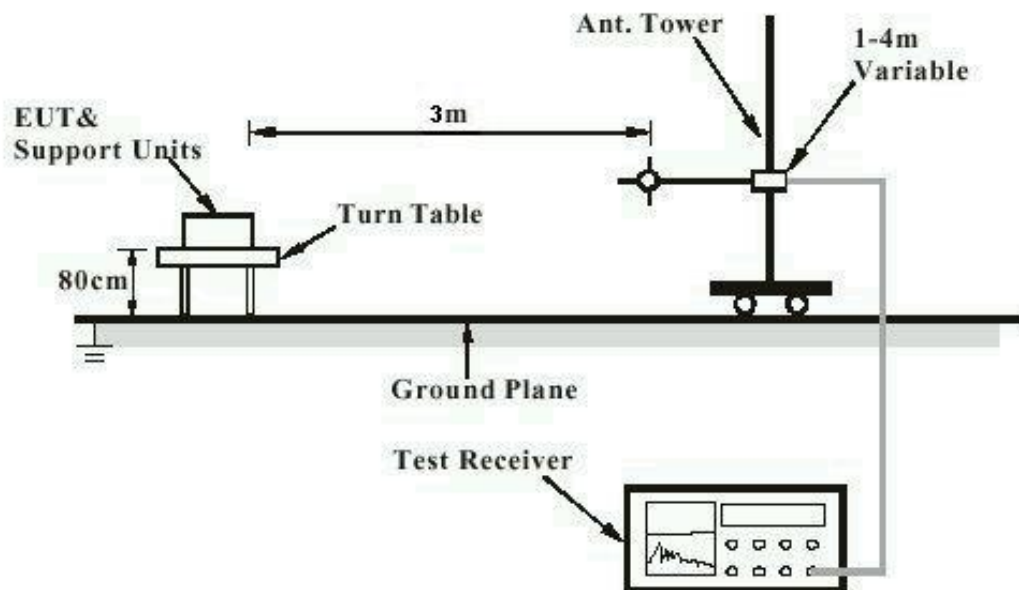


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

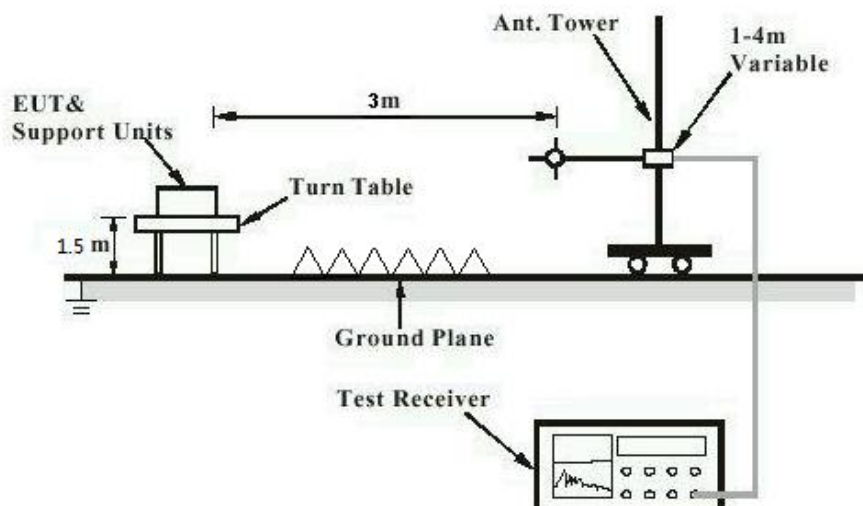


Diagram of Measurement Equipment Configuration for Mains Conduction Measurement

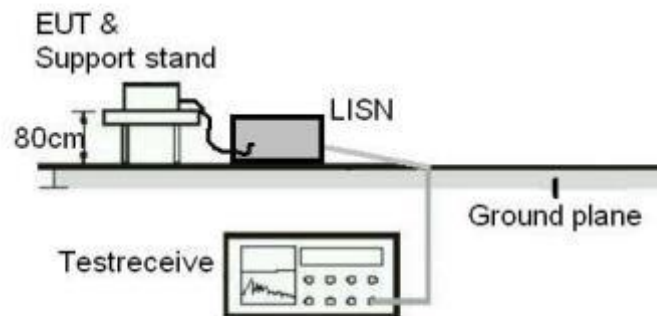
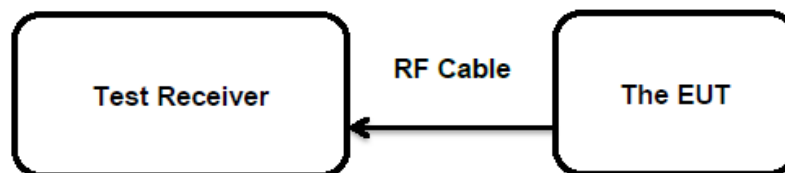


Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:**Passed**

Test standard	:	FCC Part 15.247(b)(4) and Part 15.203
Limit	:	the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is -0.58 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT photo for details.

5.1.2 Peak Output Power

RESULT:
Passed

Test date : 2017-04-22
 Test standard : FCC Part 15.247(b)(1)
 Basic standard : ANSI C63.10: 2013
 Limit : FHSS < 1 Watts
 Kind of test site : Shielded room

Test setup

Test Channel : Low/ Middle/ High
 Operation Mode : A
 Ambient temperature : 25°C
 Relative humidity : 55%
 Atmospheric pressure : 101 kPa

Table 5: Test result of Peak Output Power

Test Mode	Channel Frequency (MHz)	Measured Peak Output Power		Limit (W)
		(dBm)	(W)	
GFSK	2402	-3.75	0.00042	< 1
	2441	-3.55	0.00044	
	2480	-4.17	0.00038	
$\pi/4$ DQPSK	2402	-2.46	0.00057	< 1
	2441	-2.24	0.00060	
	2480	-2.79	0.00053	

Note: The cable loss is taken into account in results.

5.1.3 Conducted spurious emissions measured in 100kHz Bandwidth**RESULT:****Passed**

Date of testing : 2017-04-22
Test standard : FCC part 15.247(d)
Basic standard : ANSI C63.10: 2013
Limit : 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power);
In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site : Shield room

Test setup

Test Channel : Low/ High
Operation mode : A
Ambient temperature : 25°C
Relative humidity : 55%
Atmospheric pressure : 101 kPa

All emissions are more than 20dB below fundamental, details refer to Appendix 1, and compliance is achieved as well.

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5.1.4 Spurious Emission

RESULT:**Passed**

Date of testing	:	2017-04-22
Test standard	:	FCC part 15.247(d) FCC Part 15.205
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.247(d)
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Test Channel	:	Low/ Middle/ High
Operation mode	:	A
Ambient temperature	:	25°C
Relative humidity	:	55%
Atmospheric pressure	:	101 kPa

Remark:

During the pretest the EUT was rotated through three orthogonal axes to determine the attitude that maximizes the emissions. After that the EUT was manually handled to find the orientation that has the maximum emission, which is the orientation shown in the test setup photos.
Testing was carried out within frequency range 9 kHz to the tenth harmonics.

For details refer to Appendix 1.

5.1.5 20dB Bandwidth

RESULT:
Passed

Date of testing : 2017-04-22
 Test standard : FCC Part 15.247(a)(1)
 Basic standard : ANSI C63.10: 2013
 Kind of test site : Shielded room

Test setup

Test Channel : Low/ Middle/ High
 Operation Mode : A
 Ambient temperature : 25°C
 Relative humidity : 55%
 Atmospheric pressure : 101 kPa

Table 6: Test result of 20dB Bandwidth

Test Mode	Channel Frequency (MHz)	20dB Bandwidth (kHz)	2/3 of 20dB Bandwidth (kHz)	Limit (MHz)
GFSK	2402	911.7	607.800	/
	2441	907.4	604.933	
	2480	907.4	604.933	
$\pi/4$ DQPSK	2402	1189.6	793.067	/
	2441	1189.6	793.067	
	2480	1189.6	793.067	

5.1.6 Frequency Separation

RESULT:
Passed

Date of testing : 2017-04-22
 Test standard : FCC part 15.247(a)(1)
 Basic standard : ANSI C63.10: 2013
 Limit : $\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth, whichever is greater

Test setup

Test Channel : Low/ Middle/ High
 Operation Mode : B
 Ambient temperature : 25°C
 Relative humidity : 55%
 Atmospheric pressure : 101 kPa

Table 7: Test result of Frequency Separation

Channel	Channel Frequency (MHz)	Measured Channel Separation (KHz)	Limit (kHz)	Result
Low Channel	2402	1002.9	$\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth	Pass
Adjacency Channel	2403			
Mid Channel	2441	1002.9	$\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth	Pass
Adjacency Channel	2442			
High Channel	2480	1002.9	$\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth	Pass
Adjacency Channel	2479			

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5.1.7 Number of hopping frequency

RESULT:**Passed**

Date of testing : 2017-04-22
Test standard : FCC part 15.247(a)(1)(iii)
Basic standard : ANSI C63.10: 2013
Limits : ≥ 15 non-overlapping channels
Kind of test site : Shield room

Test setup

Test Channel : Low/ Middle/ High
Operation Mode : B
Ambient temperature : 25°C
Relative humidity : 55%
Atmospheric pressure : 101 kPa

Table 8: Test result of Number of hopping frequency

Frequency Range	Measured Quantity of Hopping Channel	Limit	Result
<u>2400</u> to <u>2483.5</u> MHz	79	≥ 15	Pass

5.1.8 Time of Occupancy

RESULT:
Passed

Date of testing : 2017-04-22
 Test standard : FCC part 15.247(a)(1)(iii)
 Basic standard : ANSI C63.10: 2013
 Limits : <0.4s
 Kind of test site : Shield room

Test setup

Test Channel : Low/ Middle/ High
 Operation Mode : A
 Ambient temperature : 25°C
 Relative humidity : 55%
 Atmospheric pressure : 101 kPa

Table 9: Test result of Time of Occupancy

Test Mode	Channel	Data Packet	Pulse width (ms)	Measured Dwell time(s)	Limit (s)
GFSK	2402	DH1	0.399	0.128	< 0.4s
		DH3	1.659	0.265	
		DH5	2.935	0.313	
	2441	DH1	0.399	0.128	
		DH3	1.681	0.269	
		DH5	2.935	0.313	
	2480	DH1	0.399	0.128	
		DH3	1.681	0.269	
		DH5	2.935	0.313	
$\pi/4$ DQPSK	2402	2DH1	0.406	0.130	
		2DH3	1.681	0.269	
		2DH5	2.935	0.313	
	2441	2DH1	0.413	0.132	
		2DH3	1.667	0.267	
		2DH5	2.935	0.313	
	2480	2DH1	0.406	0.130	
		2DH3	1.681	0.269	
		2DH5	2.957	0.315	

Note:

Dwell time = Pulse width x (Hopping rate / Number of channels) x Period

Period = 0.4 (seconds/ channel) x 79 (channel) = 31.6 seconds

5.1.9 Conducted emissions

RESULT:**Passed**

Date of testing	:	2017-04-27
Test standard	:	FCC Part 15.107(a) & FCC Part 15.207(a)
Basic standard	:	ANSI C63.10: 2013 & ANSI C63.4: 2014
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.207(a) & FCC Part 15.207(a)
Kind of test site	:	Shield room

Test setup

Input Voltage	:	AC 120V, 60Hz via AC/DC Adapter of Notebook
Operation Mode	:	B+D, C+D
Earthing	:	Not connected
Ambient temperature	:	25°C
Relative humidity	:	55%
Atmospheric pressure	:	101 kPa

For details refer to Appendix 1.

5.1.10 Radiated Emission**RESULT:****Passed**

Date of testing	:	2017-04-22
Test standard	:	FCC Part 15.109(a) & FCC Part 15.209(a)
Basic standard	:	ANSI C63.4: 2014
Frequency range	:	30 - 6000MHz
Classification	:	Class B
Limit	:	FCC Part 15.109(a) & FCC Part 15.209(a)
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Input Voltage	:	DC 3.7V, 500mAh via built-in lithium Battery DC 5V, 500mA via Micro USB interface for Charging
Operation mode	:	C, D
Earthing	:	Not connected
Ambient temperature	:	23°C
Relative humidity	:	48%
Atmospheric pressure	:	101 kPa

Test data refer to Appendix 1.

6 Safety Human Exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

RESULT:**Pass****Test Specification**

Test standard : FCC KDB Publication 447498 v06

Measurement Record:

The minimum distance for the EUT is 5mm.

Since maximum peak output power of the transmitter is $-2.24 \text{ dBm} \approx 0.60 \text{ mW} < 10 \text{ mW}$.

Hence the EUT is excluded from SAR evaluation according to FCC KDB Publication 447498 D01 General RF Exposure Guidance v06.

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Note 1: Testing was carried out within frequency range 9 kHz to the tenth harmonics. The measurement results below 30MHz and above 18GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

Figure 1: Test figure of spurious emissions, mode A.1, Horizontal polarity (30MHz – 1GHz)

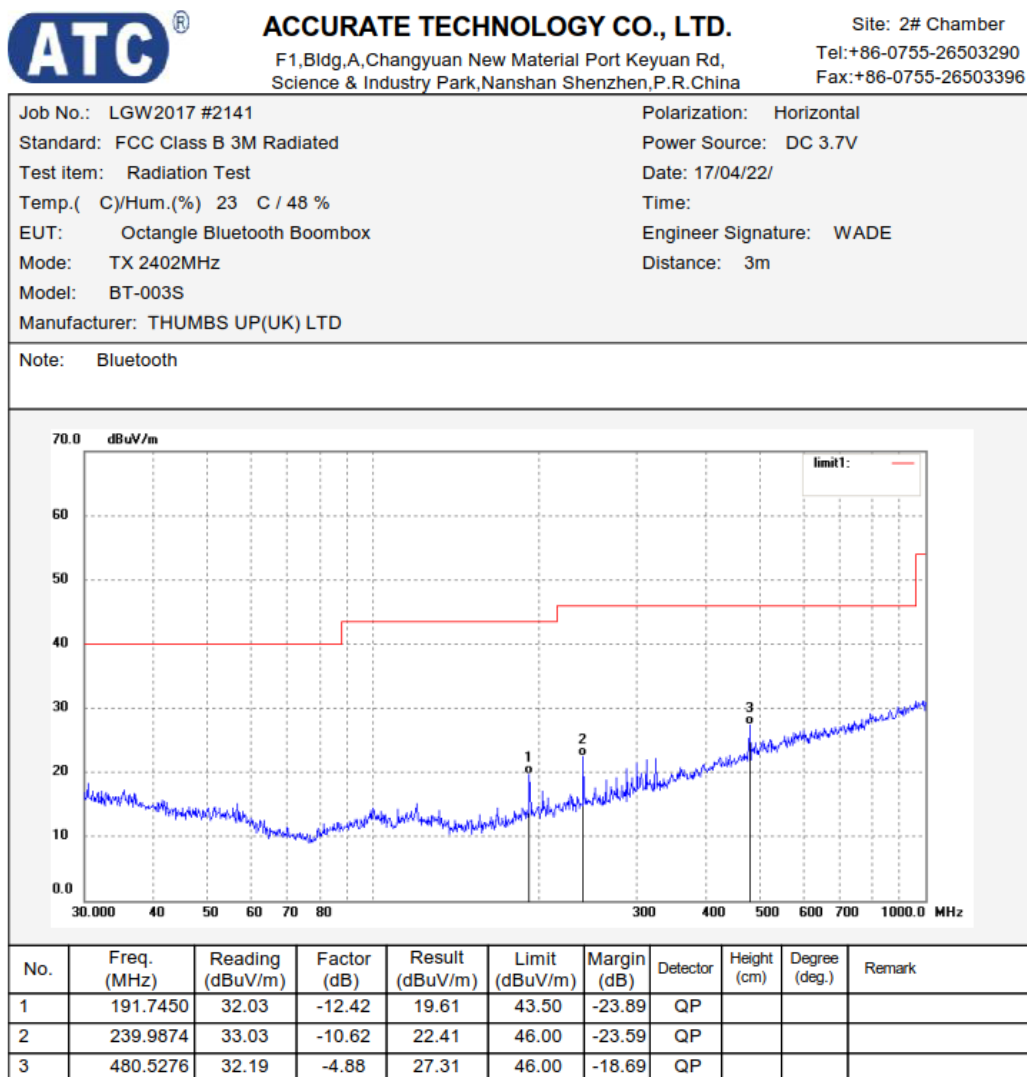


Figure 2: Test figure of spurious emissions, mode A.1, Vertical polarity (30MHz – 1GHz)



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg.A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2017 #2142

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Octangle Bluetooth Boombox

Mode: TX 2402MHz

Model: BT-003S

Manufacturer: THUMBS UP(UK) LTD

Polarization: Vertical

Power Source: DC 3.7V

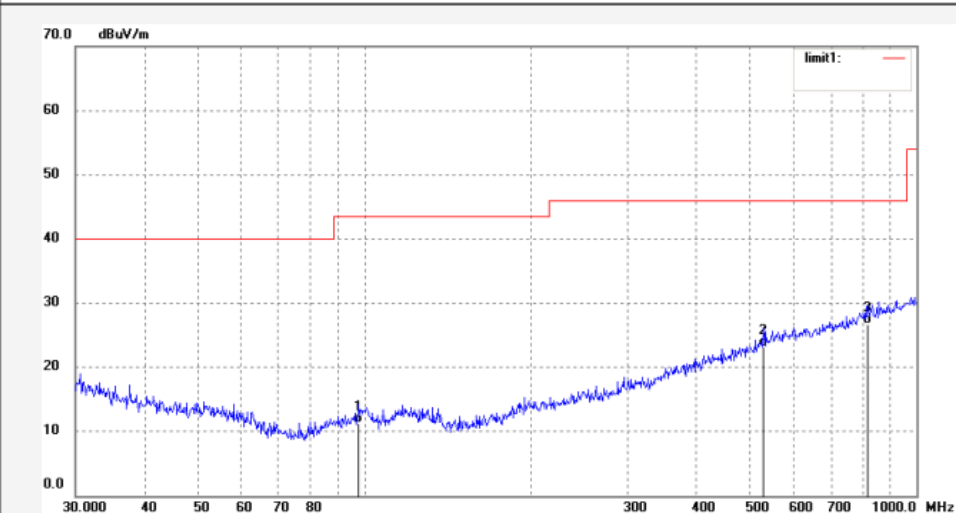
Date: 17/04/22/

Time:

Engineer Signature: WADE

Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	97.7982	25.01	-13.80	11.21	43.50	-32.29	QP			
2	528.2458	26.93	-3.71	23.22	46.00	-22.78	QP			
3	815.9678	25.66	1.08	26.74	46.00	-19.26	QP			

Figure 3: Test figure of spurious emissions, mode A.1, Horizontal polarity (1GHz –18GHz)



ACCURATE TECHNOLOGY CO., LTD.

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Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2017 #2109

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Octangle Bluetooth Boombox

Mode: TX 2402MHz

Model: BT-003S

Manufacturer: THUMBS UP(UK) LTD

Polarization: Horizontal

Power Source: DC 3.7V

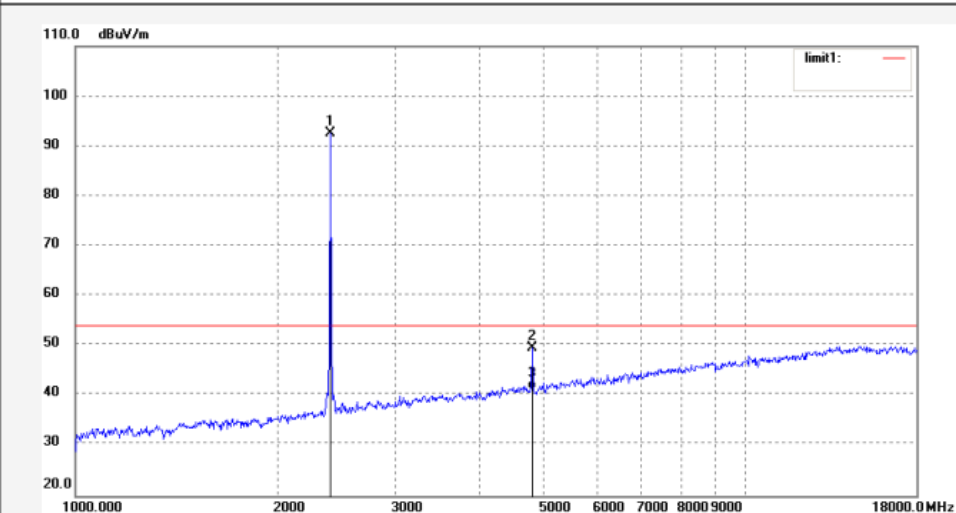
Date: 17/04/22/

Time:

Engineer Signature: WADE

Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	94.26	-1.61	92.65	/	/	peak			
2	4804.025	44.75	4.90	49.65	74.00	-24.35	peak			
3	4804.025	36.41	4.90	41.31	54.00	-12.69	AVG			

Figure 4: Test figure of spurious emissions, mode A.1, Vertical polarity (1GHz – 18GHz)

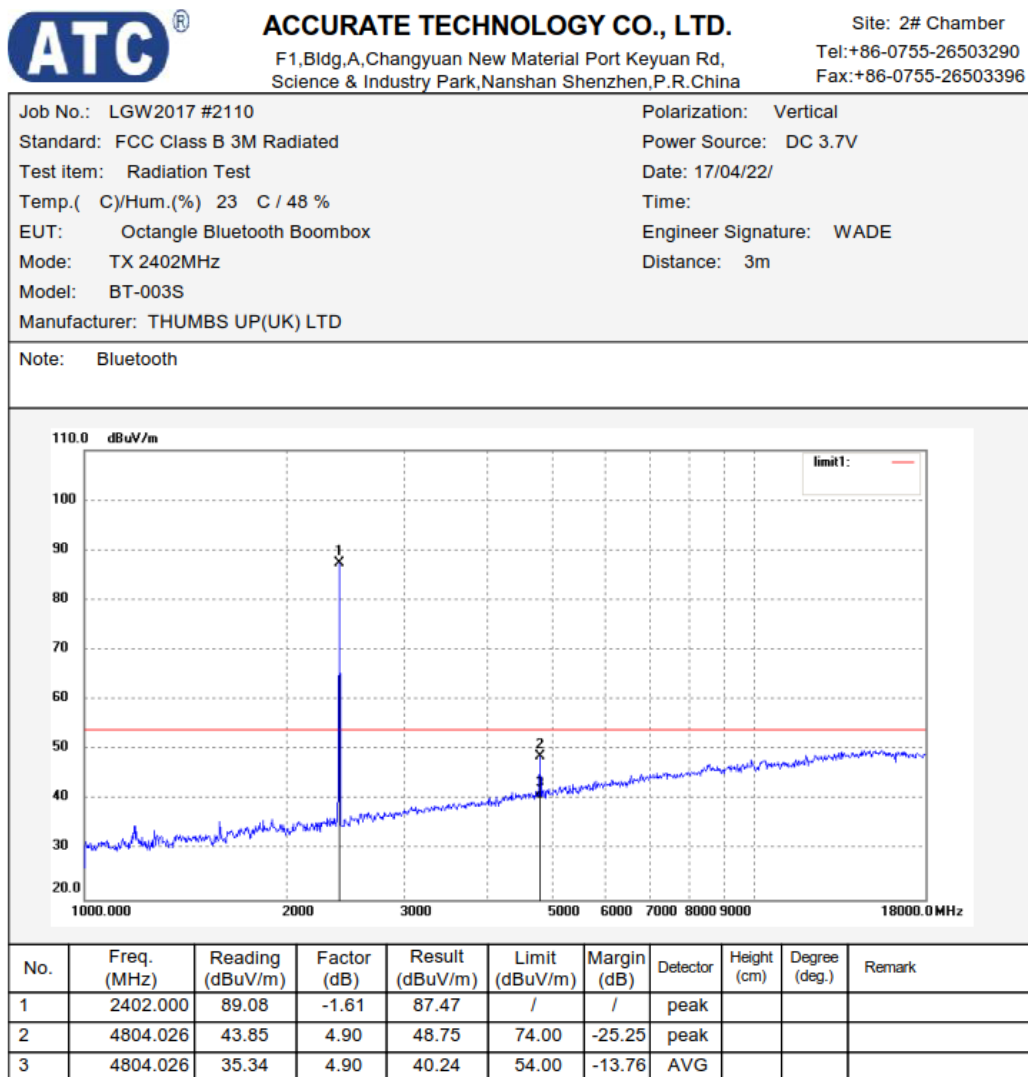


Figure 5: Test figure of spurious emissions, mode A.2, Horizontal polarity (30MHz – 1GHz)

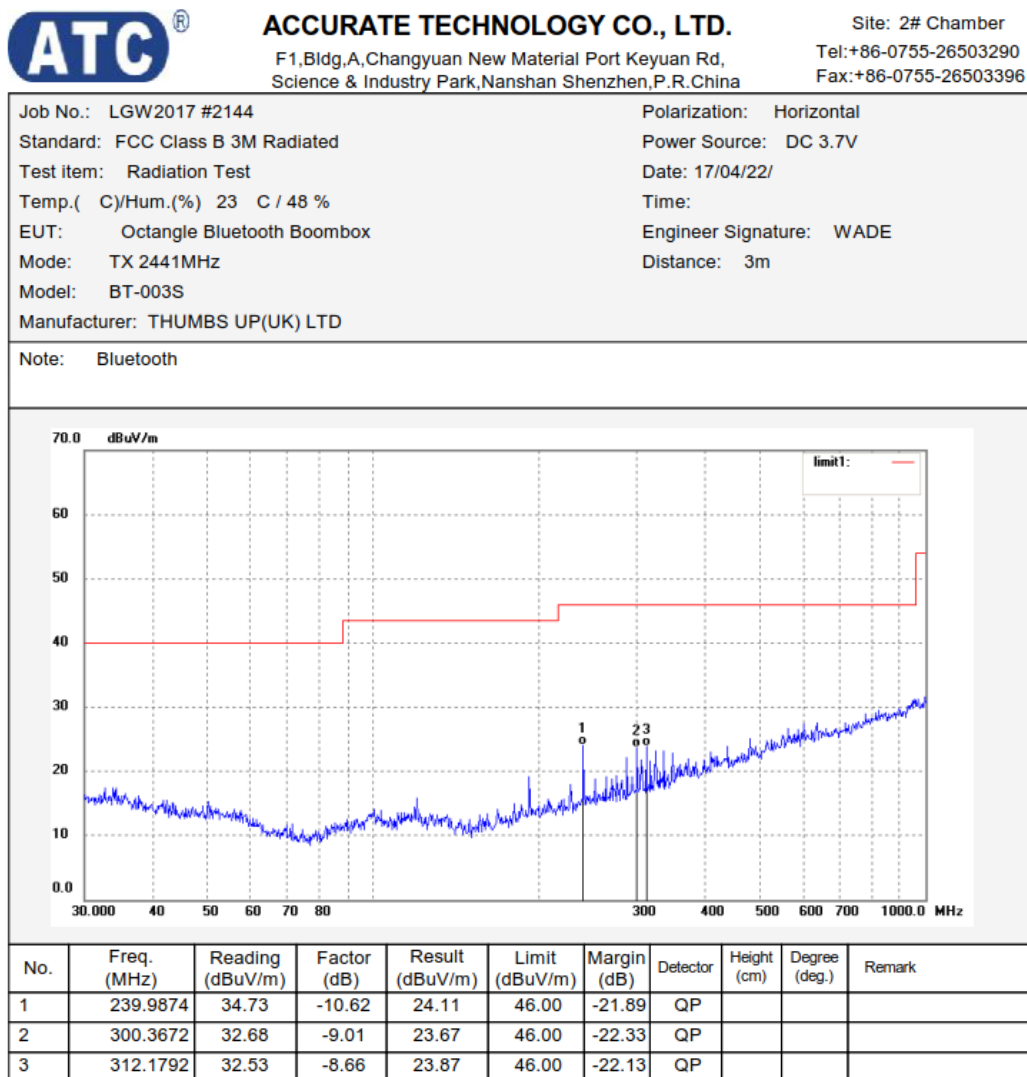


Figure 6: Test figure of spurious emissions, mode A.2, Vertical polarity (30MHz – 1GHz)



ACCURATE TECHNOLOGY CO., LTD.

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Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2017 #2143

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Octangle Bluetooth Boombox

Mode: TX 2441MHz

Model: BT-003S

Manufacturer: THUMBS UP(UK) LTD

Polarization: Vertical

Power Source: DC 3.7V

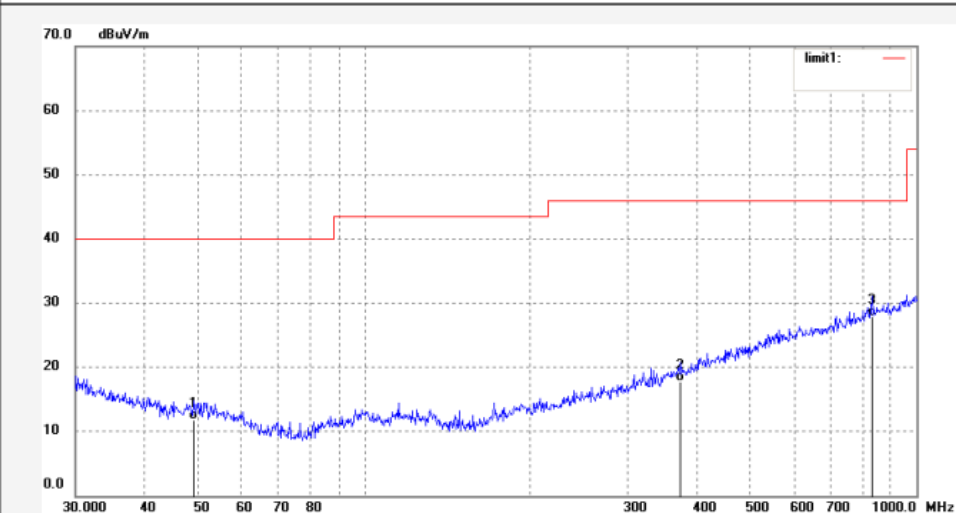
Date: 17/04/22/

Time:

Engineer Signature: WADE

Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	49.1865	24.43	-12.58	11.85	40.00	-28.15	QP			
2	373.3110	24.92	-7.11	17.81	46.00	-28.19	QP			
3	830.4002	26.61	1.37	27.98	46.00	-18.02	QP			

Figure 7: Test figure of spurious emissions, mode A.2, Horizontal polarity (1GHz – 18GHz)

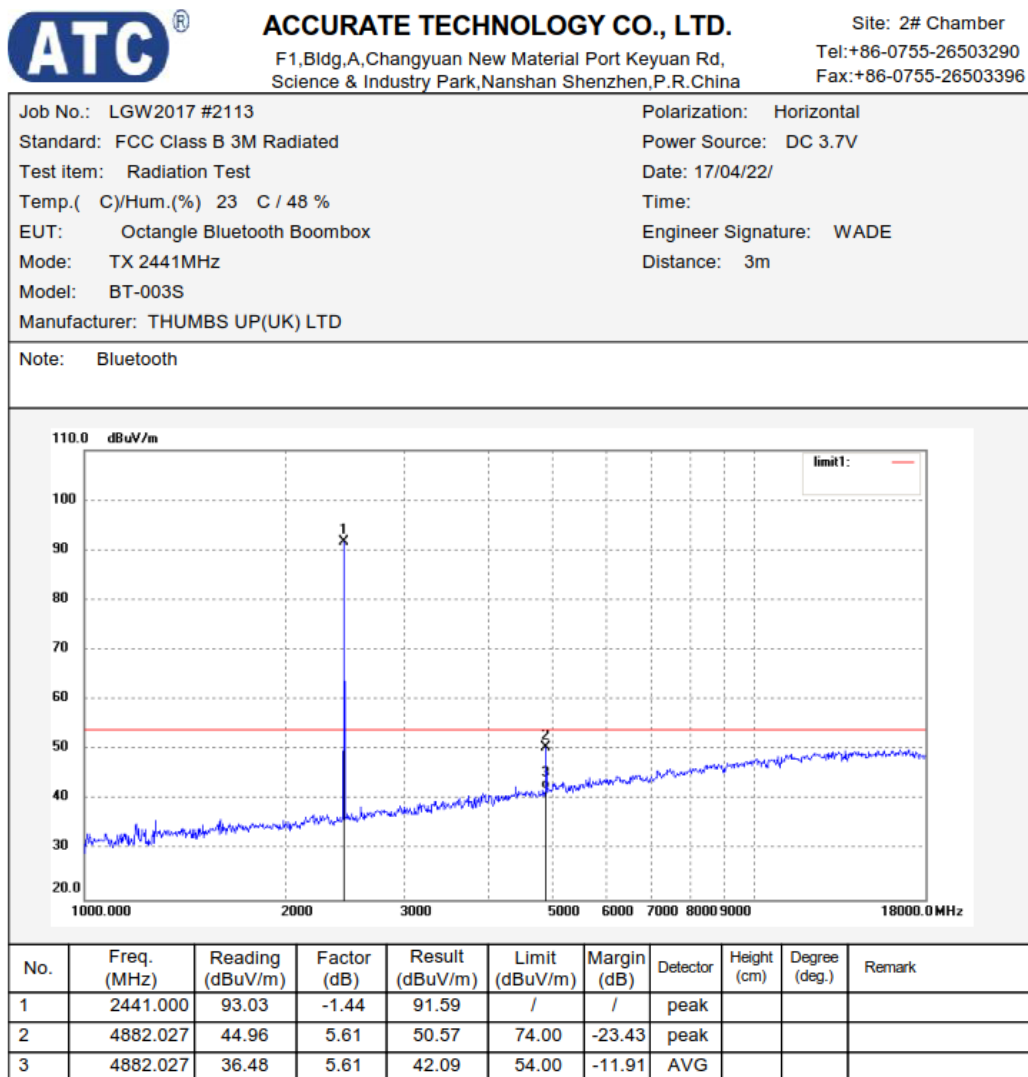


Figure 8: Test figure of spurious emissions, mode A.2, Vertical polarity (1GHz – 18GHz)



ACCURATE TECHNOLOGY CO., LTD.

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Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2017 #2114

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Octangle Bluetooth Boombox

Mode: TX 2441MHz

Model: BT-003S

Manufacturer: THUMBS UP(UK) LTD

Polarization: Vertical

Power Source: DC 3.7V

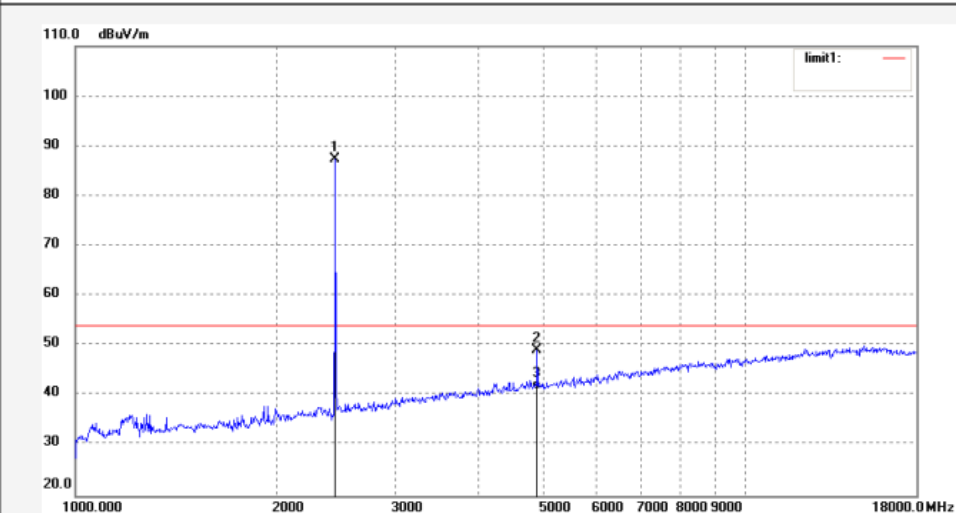
Date: 17/04/22/

Time:

Engineer Signature: WADE

Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	88.79	-1.44	87.35	/	/	peak			
2	4882.025	43.61	5.61	49.22	74.00	-24.78	peak			
3	4882.025	35.62	5.61	41.23	54.00	-12.77	AVG			

Figure 9: Test figure of spurious emissions, mode A.3, Horizontal polarity (30MHz – 1GHz)

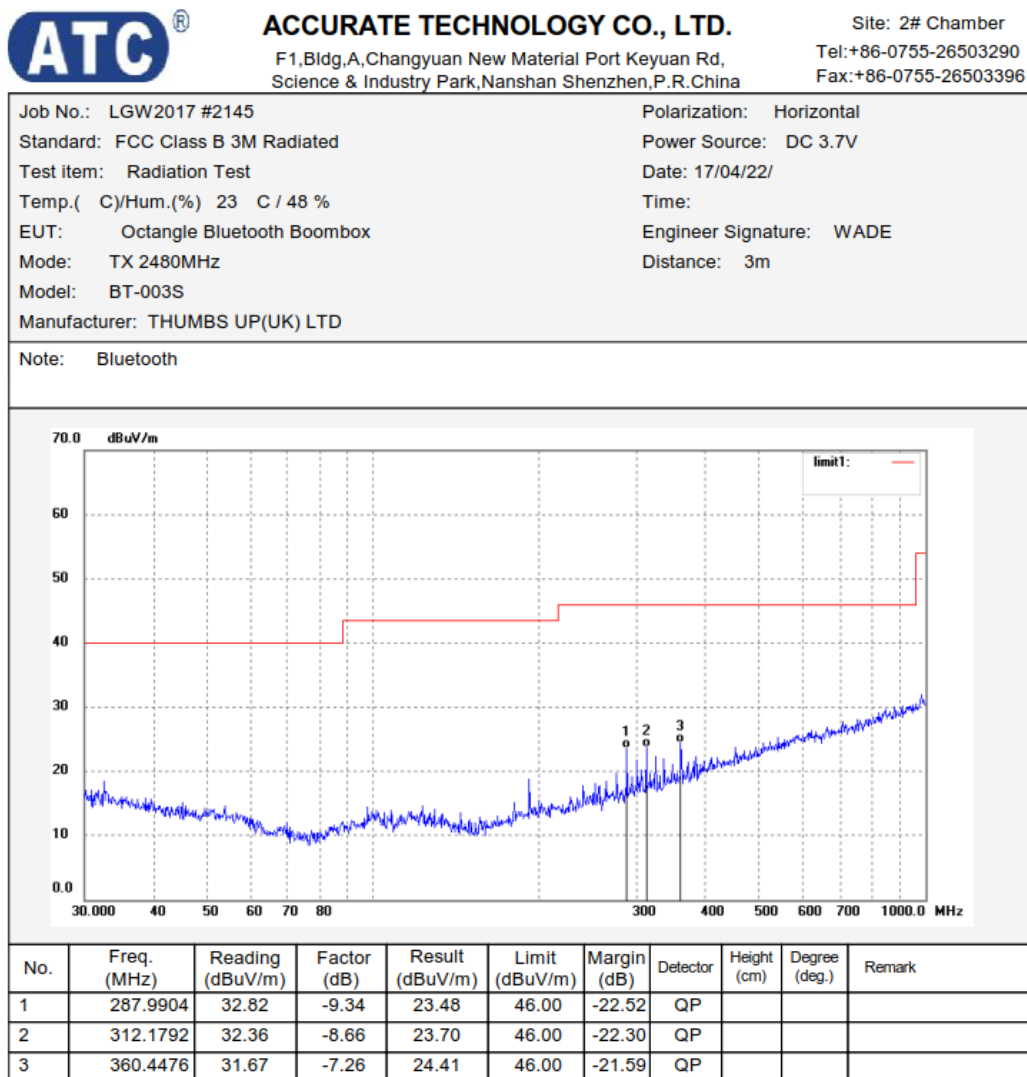


Figure 10: Test figure of spurious emissions, mode A.3, Vertical polarity (30MHz – 1GHz)



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg.A,Changyuan New Material Port Keyuan Rd,
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Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2017 #2146

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Octangle Bluetooth Boombox

Mode: TX 2480MHz

Model: BT-003S

Manufacturer: THUMBS UP(UK) LTD

Polarization: Vertical

Power Source: DC 3.7V

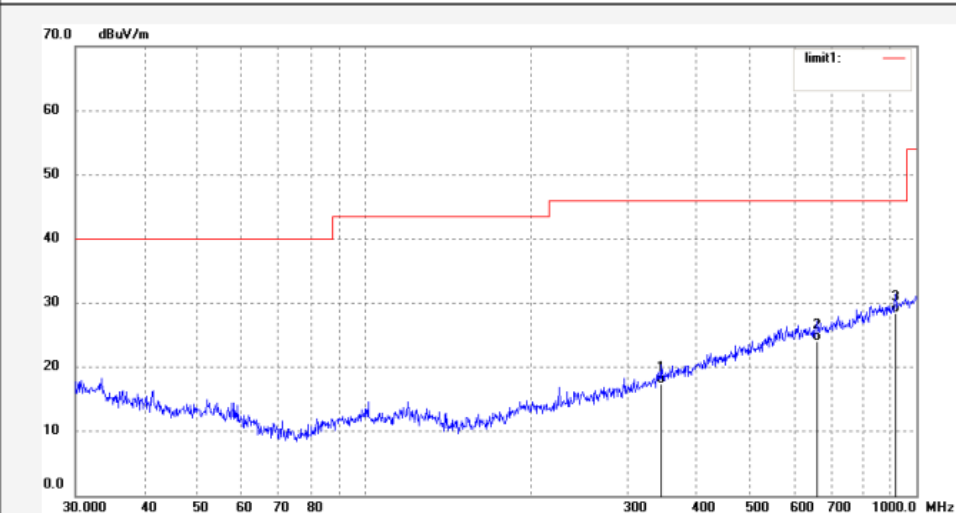
Date: 17/04/22/

Time:

Engineer Signature: WADE

Distance: 3m

Note: Bluetooth



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	344.3854	24.99	-7.57	17.42	46.00	-28.58	QP			
2	661.1504	25.73	-1.59	24.14	46.00	-21.86	QP			
3	916.0687	25.96	2.40	28.36	46.00	-17.64	QP			

Figure 11: Test figure of spurious emissions, mode A.3, Horizontal polarity (1GHz –18GHz)

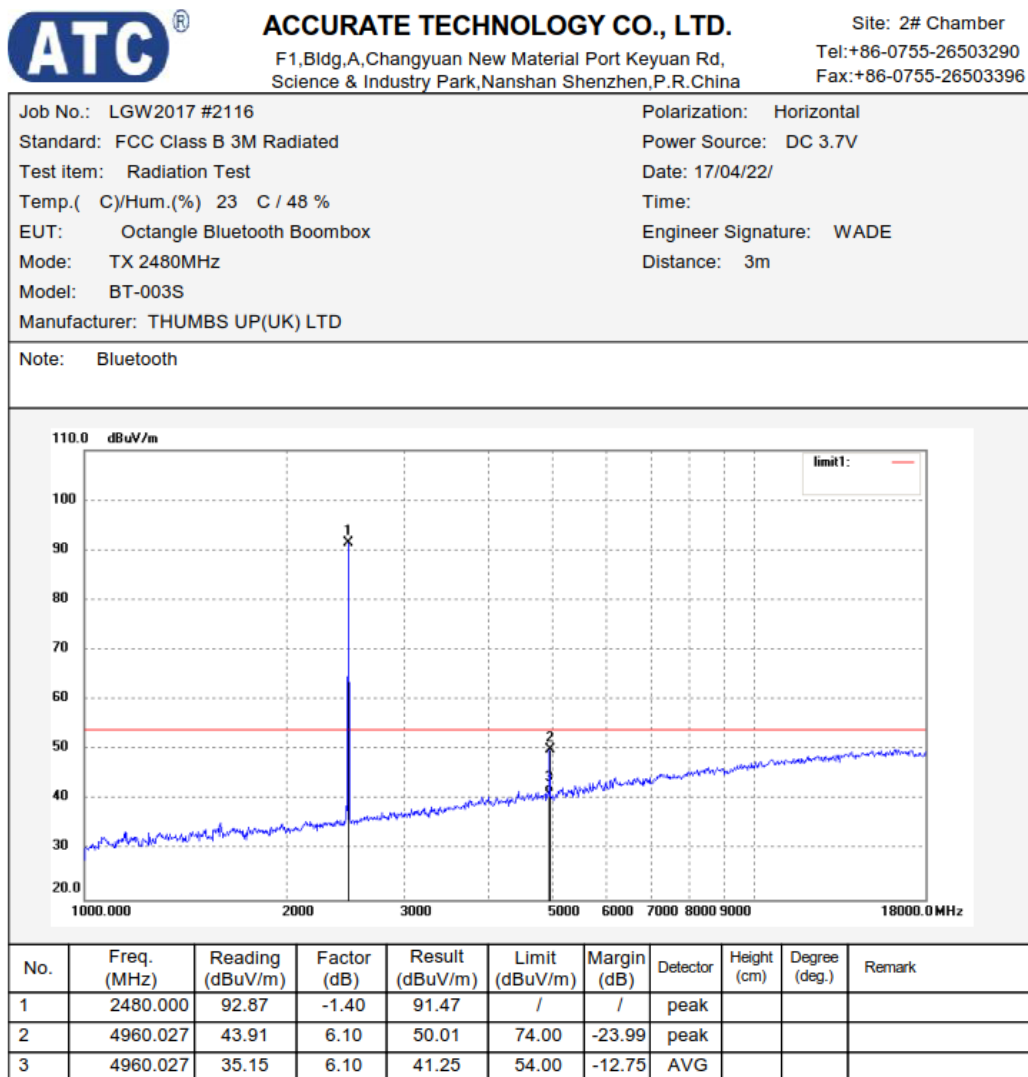


Figure 12: Test figure of spurious emissions, mode A.3, Vertical polarity (1GHz – 18GHz)

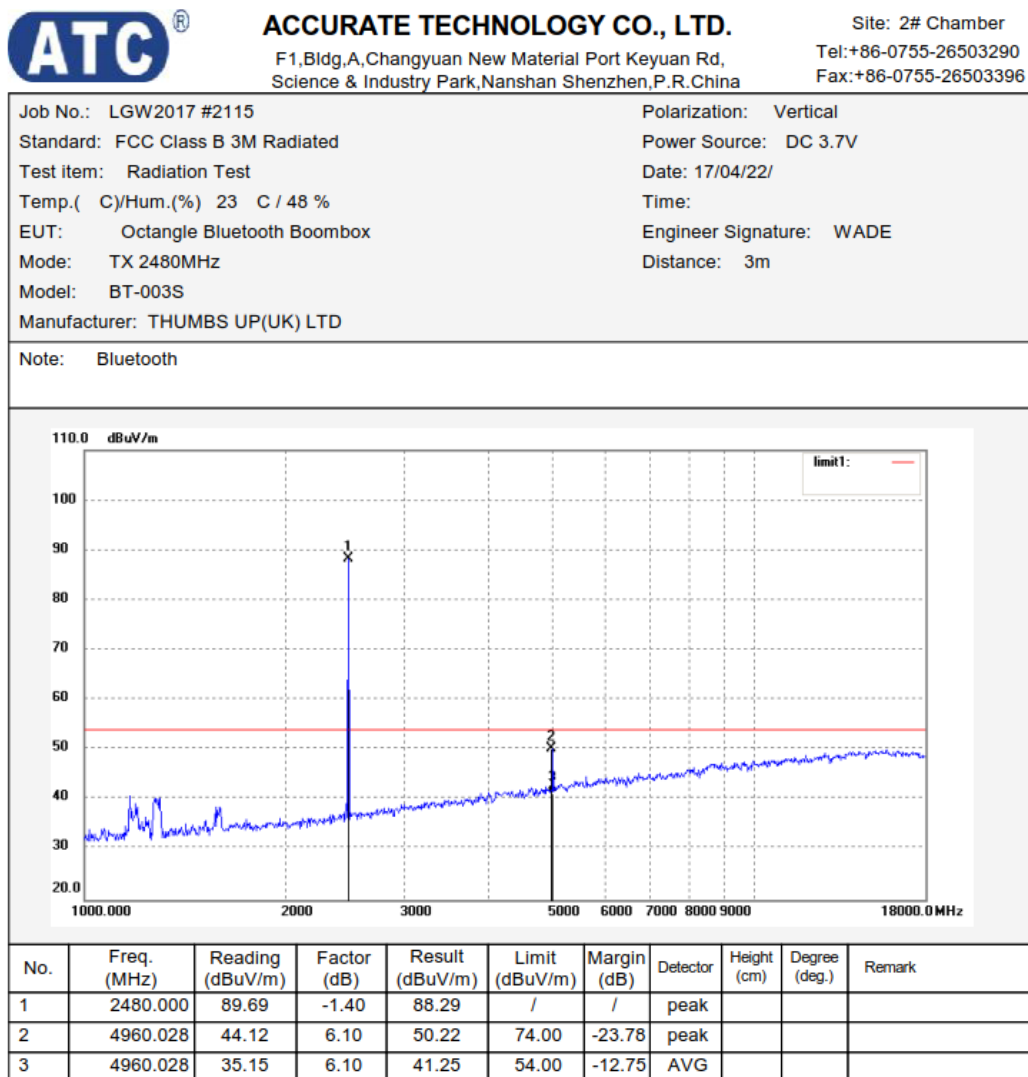


Figure 13: Test figure of Radiated emissions in restricted bands, Mode A.1, Horizontal

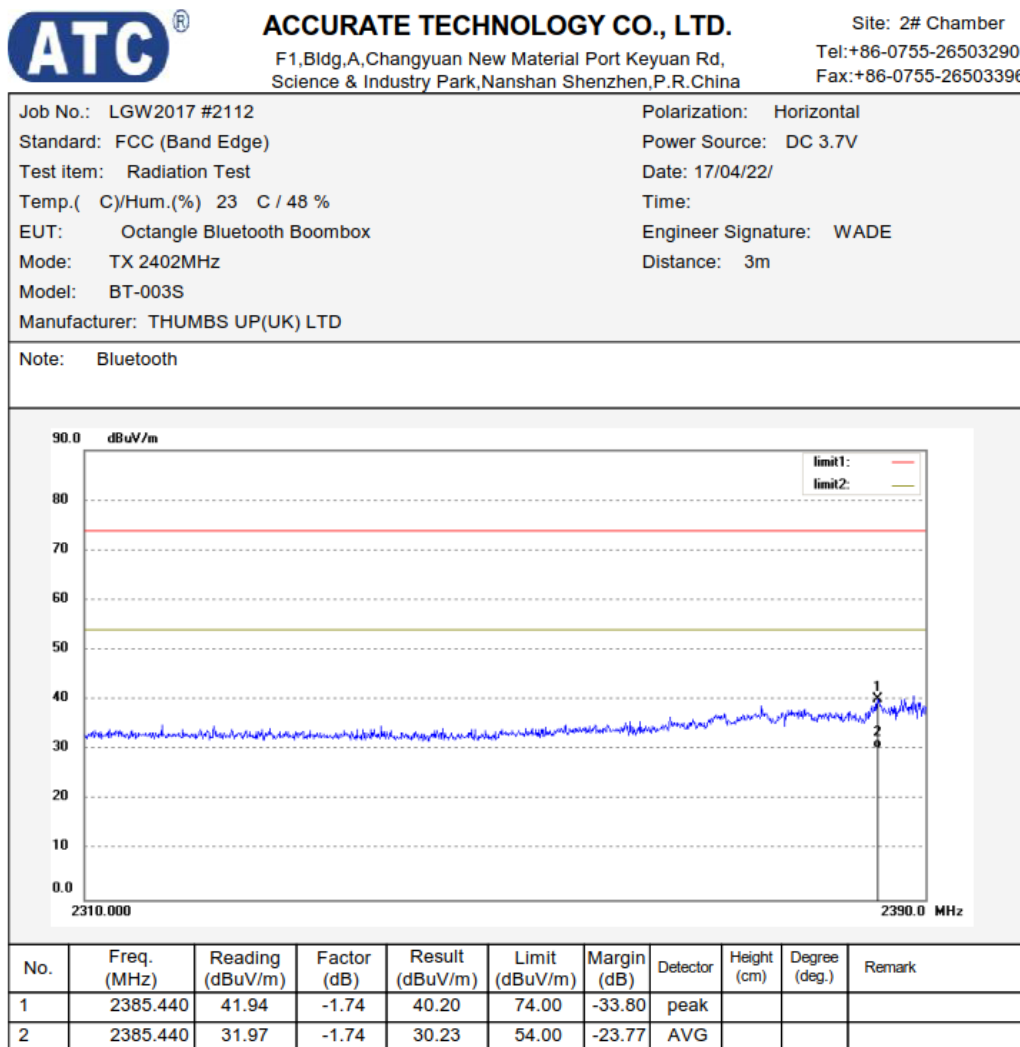


Figure 14: Test figure of Radiated emissions in restricted bands, Mode A.1, Vertical

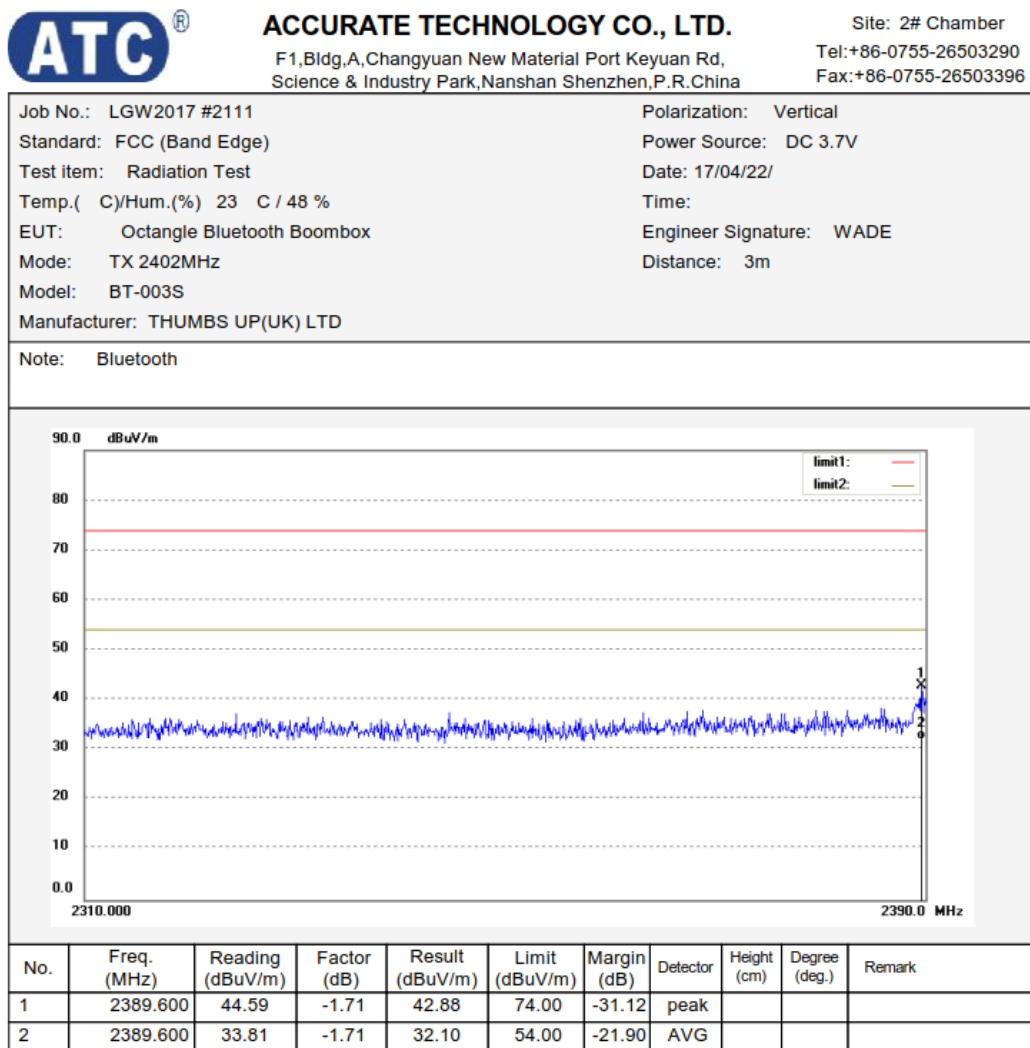


Figure 15: Test figure of Radiated emissions in restricted bands, Mode A.3, Horizontal

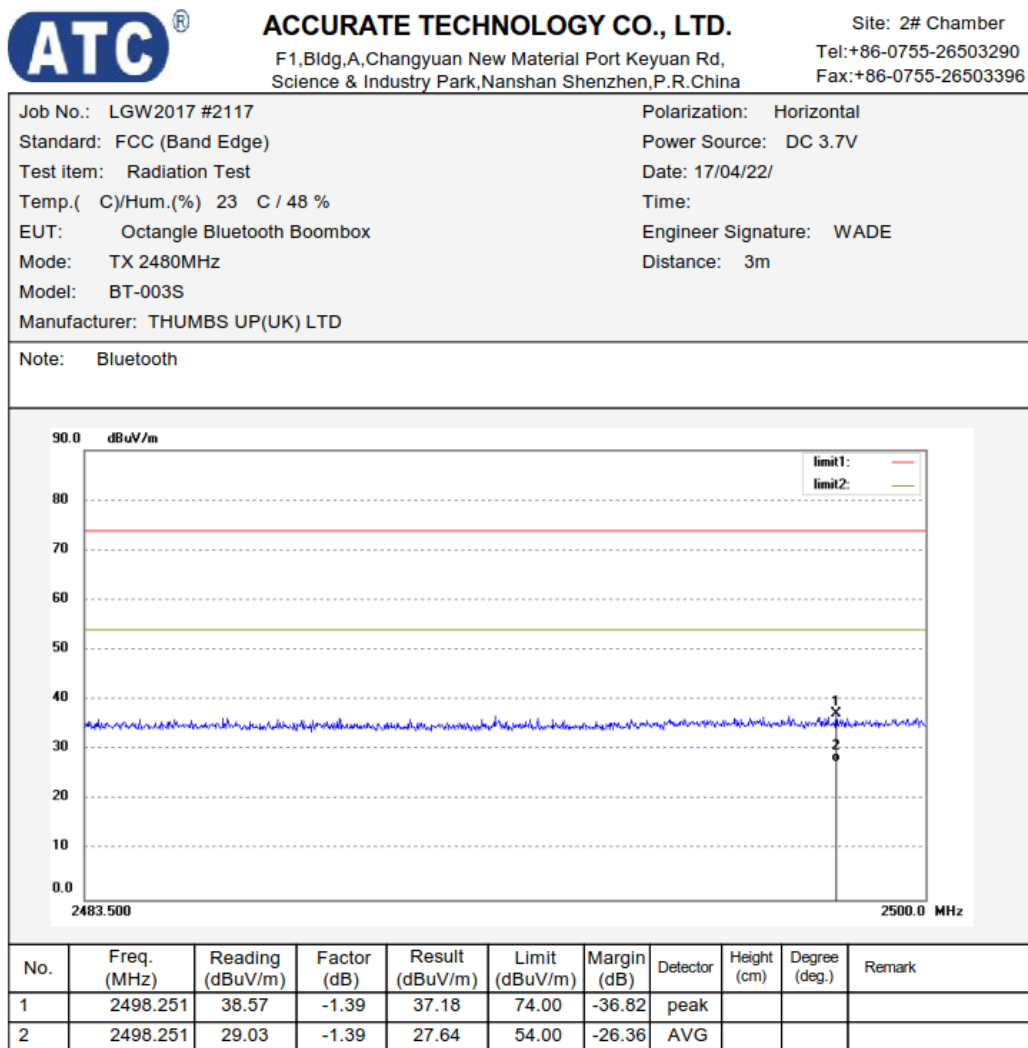


Figure 16: Test figure of Radiated emissions in restricted bands, Mode A.3, Vertical

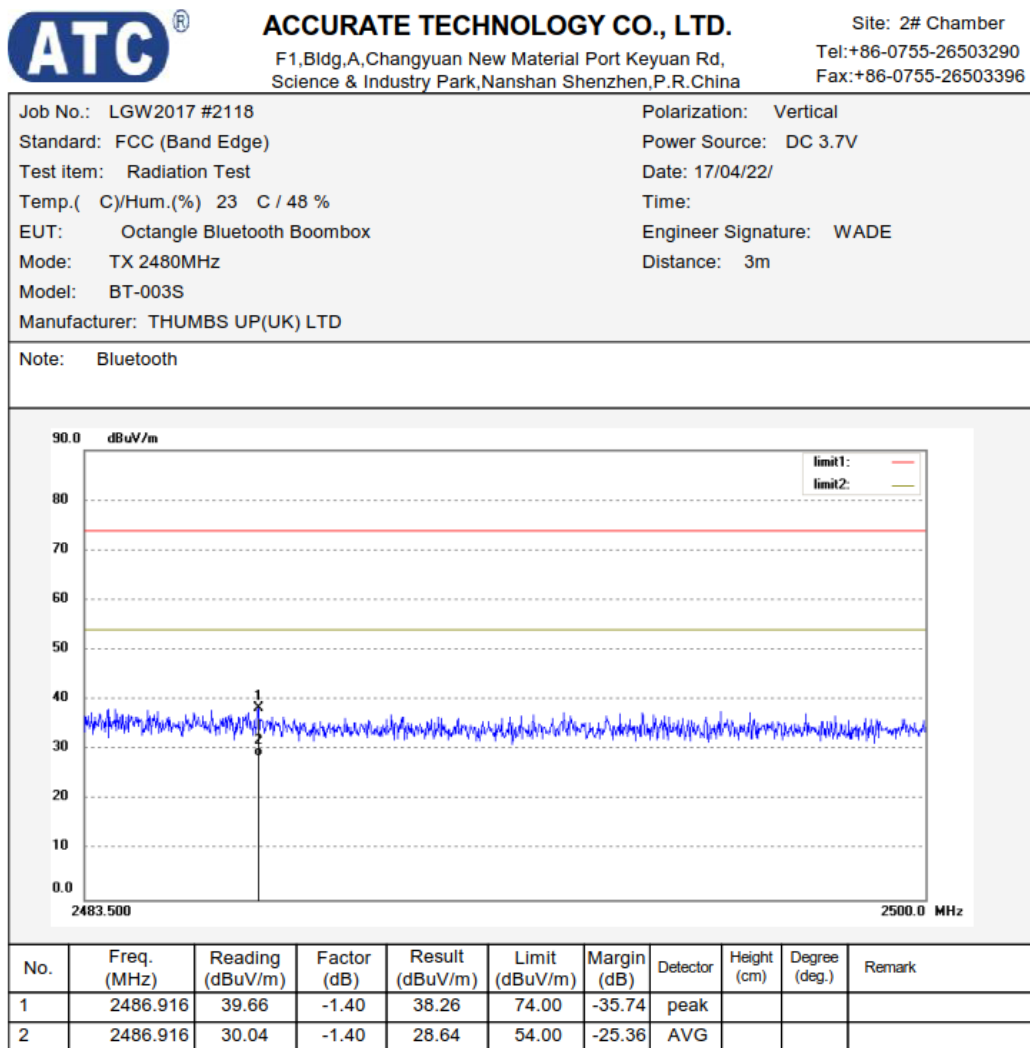


Figure 17: Test figure of conducted emissions in 100kHz Bandwidth, Mode A.1

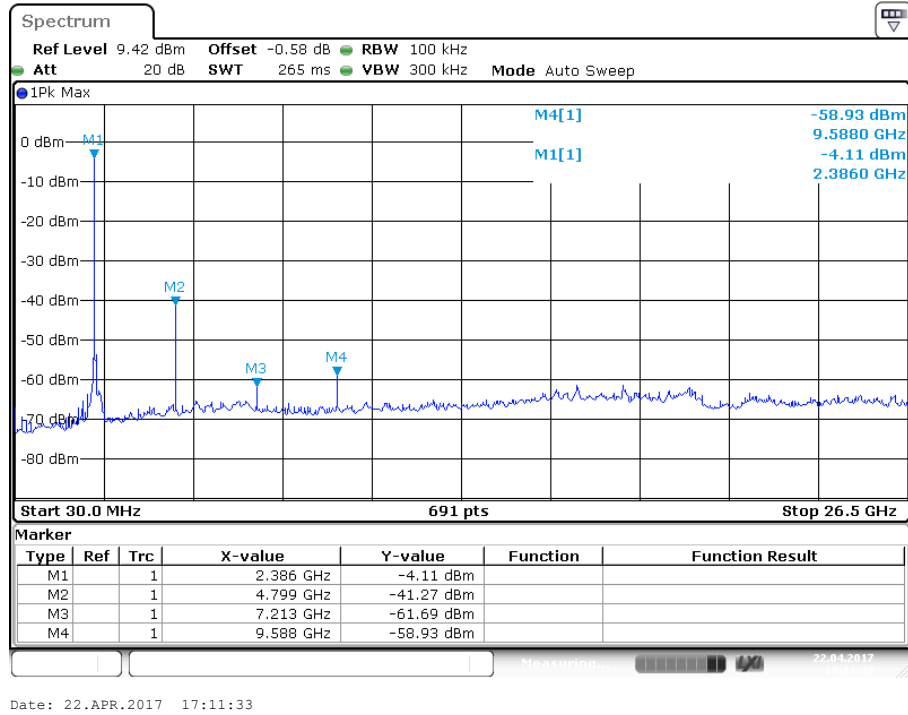


Figure 18: Test figure of conducted emissions in 100kHz Bandwidth, Mode A.2

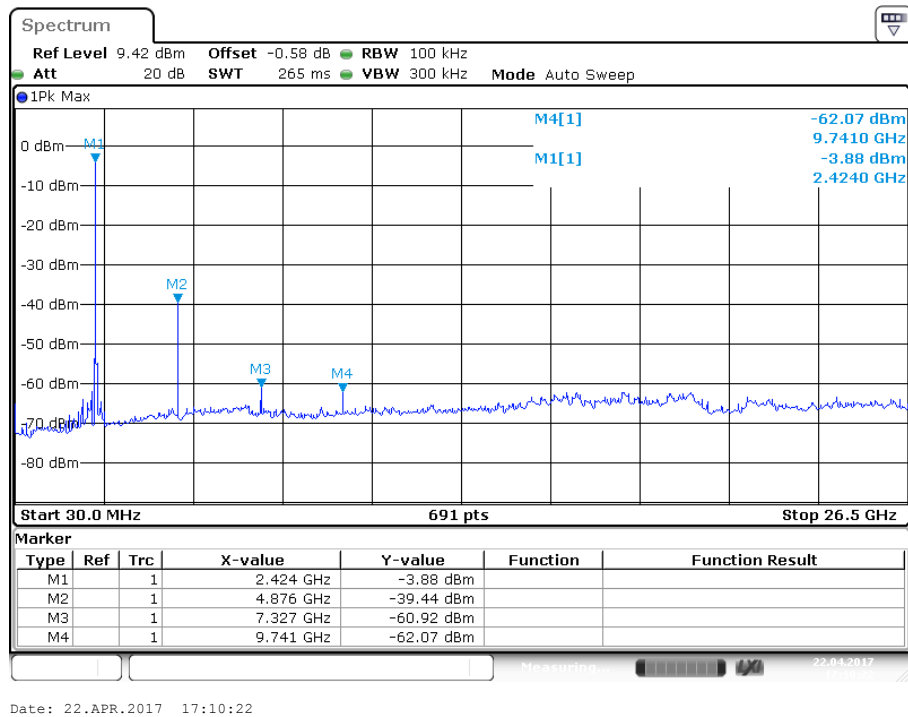


Figure 19: Test figure of conducted emissions in 100kHz Bandwidth, Mode A.3

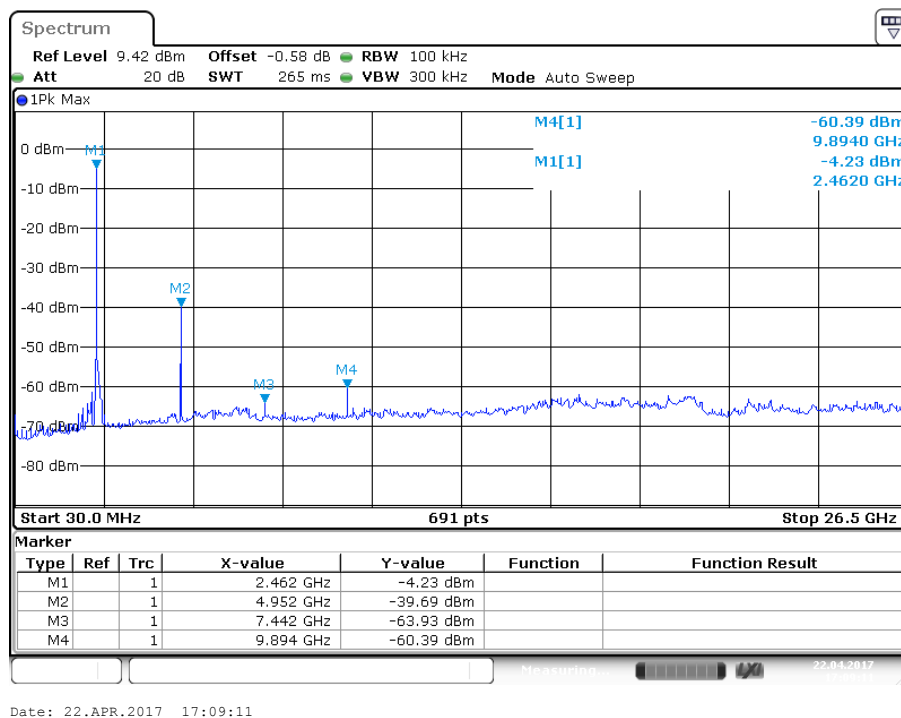


Figure 20: Test figure of Frequency Band Edge in 100kHz Bandwidth, Mode A.1

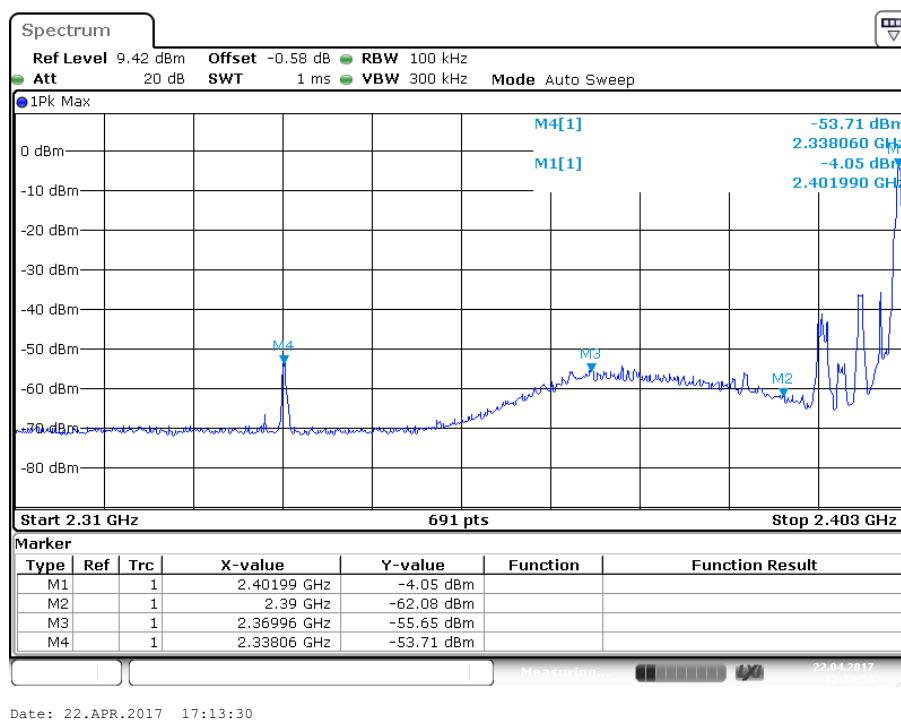
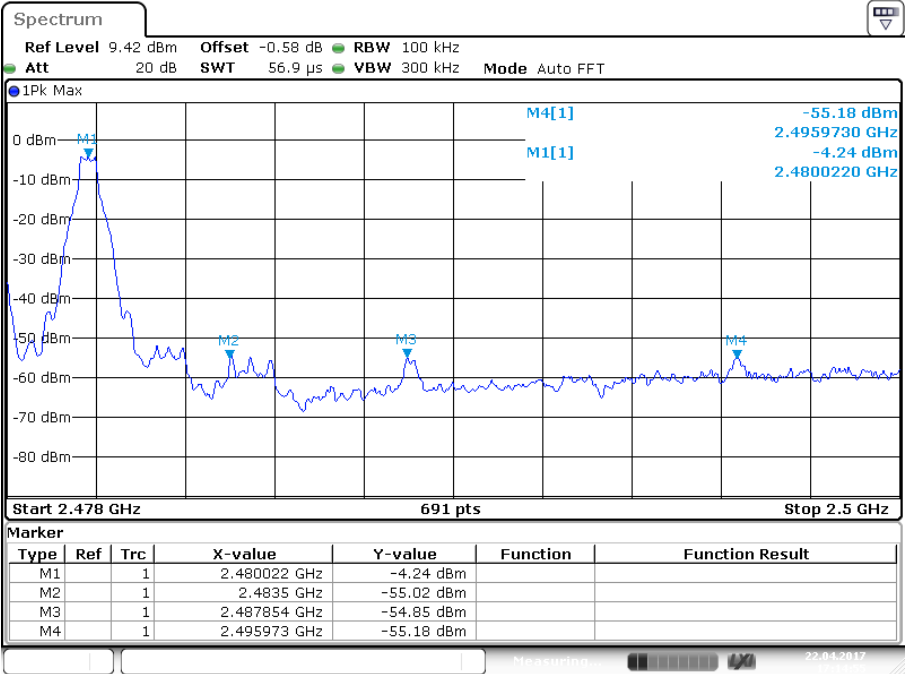


Figure 21: Test figure of Frequency Band Edge in 100kHz Bandwidth, Mode A.3



Date: 22.APR.2017 17:14:55

Figure 22: Test figure of Conducted emissions, Mode B+D, line live

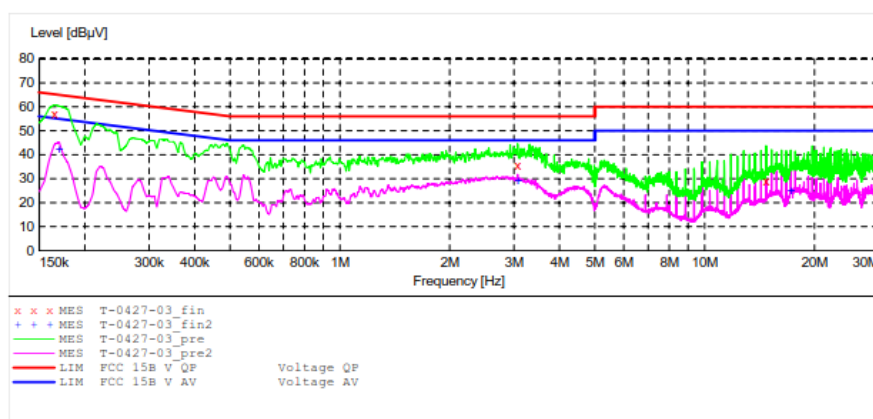
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Octangle Bluetooth Boombox M/N:BT-003S
 Manufacturer: THUMBS UP(UK) LTD
 Operating Condition: Charging + Audio in
 Test Site: 1#Shielding Room
 Operator: LGWADE
 Test Specification: L 120V/60Hz
 Comment: Mains Port
 Start of Test: 4/27/2017 /

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "T-0427-03_fin"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.165000	57.20	10.5	65	8.0	QP	L1	GND
3.070000	35.70	11.1	56	20.3	QP	L1	GND
14.740000	29.10	11.4	60	30.9	QP	L1	GND

MEASUREMENT RESULT: "T-0427-03_fin2"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.170000	42.00	10.5	55	13.0	AV	L1	GND
3.070000	29.10	11.1	46	16.9	AV	L1	GND
17.215000	24.90	11.4	50	25.1	AV	L1	GND

Figure 23: Test figure of Conducted emissions, Mode B+D, line neutral

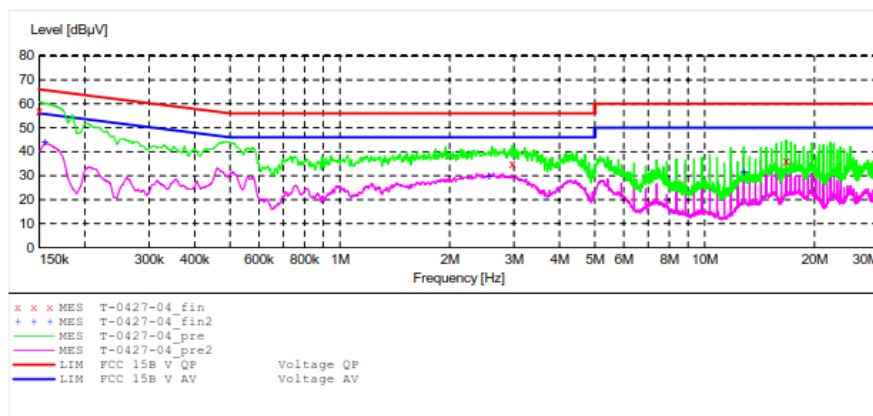
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Octangle Bluetooth Boombox M/N:BT-003S
 Manufacturer: THUMBS UP(UK) LTD
 Operating Condition: Charging + Audio in
 Test Site: 1#Shielding Room
 Operator: LGWADE
 Test Specification: N 120V/60Hz
 Comment: Mains Port
 Start of Test: 4/27/2017 /

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "T-0427-04_fin"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	57.20	10.5	66	8.8	QP	N	GND
2.970000	34.90	11.1	56	21.1	QP	N	GND
16.720000	36.00	11.4	60	24.0	QP	N	GND

MEASUREMENT RESULT: "T-0427-04_fin2"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.155000	44.10	10.5	56	11.6	AV	N	GND
2.560000	29.70	11.0	46	16.3	AV	N	GND
12.790000	31.50	11.3	50	18.5	AV	N	GND

Figure 24: Test figure of Conducted emissions, Mode C+D, line live

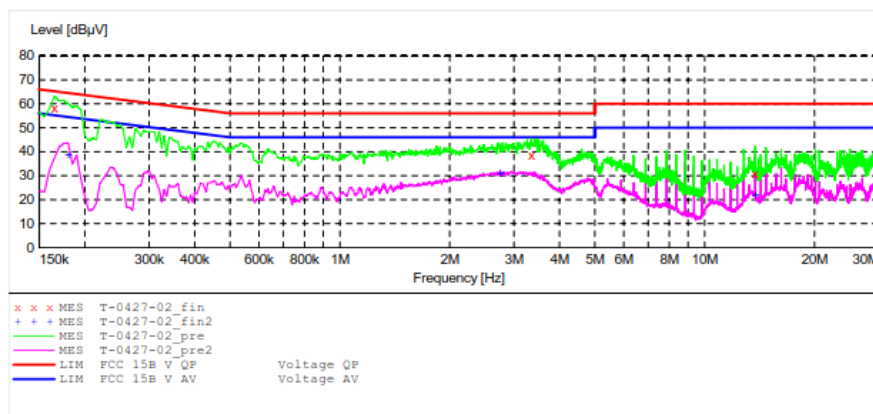
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Octangle Bluetooth Boombox M/N:BT-003S
 Manufacturer: THUMBS UP(UK) LTD
 Operating Condition: Transmitting
 Test Site: 1#Shielding Room
 Operator: LGWADE
 Test Specification: L 120V/60Hz
 Comment: Mains Port
 Start of Test: 4/27/2017 /

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "T-0427-02_fin"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.165000	58.40	10.5	65	6.8	QP	L1	GND
3.350000	38.60	11.1	56	17.4	QP	L1	GND
13.750000	30.50	11.3	60	29.5	QP	L1	GND

MEASUREMENT RESULT: "T-0427-02_fin2"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.180000	38.60	10.5	55	15.9	AV	L1	GND
2.750000	30.50	11.0	46	15.5	AV	L1	GND
13.750000	22.10	11.3	50	27.9	AV	L1	GND

Figure 25: Test figure of Conducted emissions, Mode C+D, line neutral

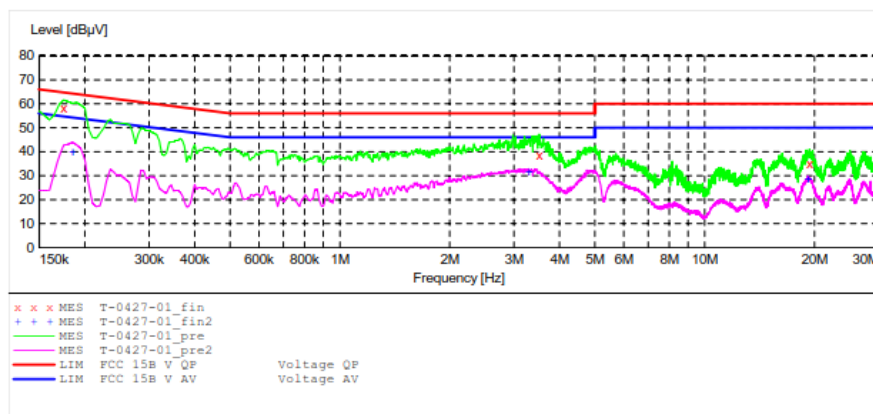
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Octangle Bluetooth Boombox M/N:BT-003S
 Manufacturer: THUMBS UP(UK) LTD
 Operating Condition: Transmitting
 Test Site: 1#Shielding Room
 Operator: LGWADE
 Test Specification: N 120V/60Hz
 Comment: Mains Port
 Start of Test: 4/27/2017 /

SCAN TABLE: "V 9K-30MHz fin"

Short Description: SUB STD VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "T-0427-01_fin"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.175000	57.90	10.5	65	6.8	QP	N	GND
3.520000	38.80	11.1	56	17.2	QP	N	GND
19.375000	34.80	11.4	60	25.2	QP	N	GND

MEASUREMENT RESULT: "T-0427-01_fin2"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.185000	39.90	10.5	54	14.4	AV	N	GND
3.290000	31.50	11.1	46	14.5	AV	N	GND
19.180000	28.10	11.4	50	21.9	AV	N	GND

Figure 26: Test figure of Radiated emissions, Mode C, Below 1GHz, Horizontal

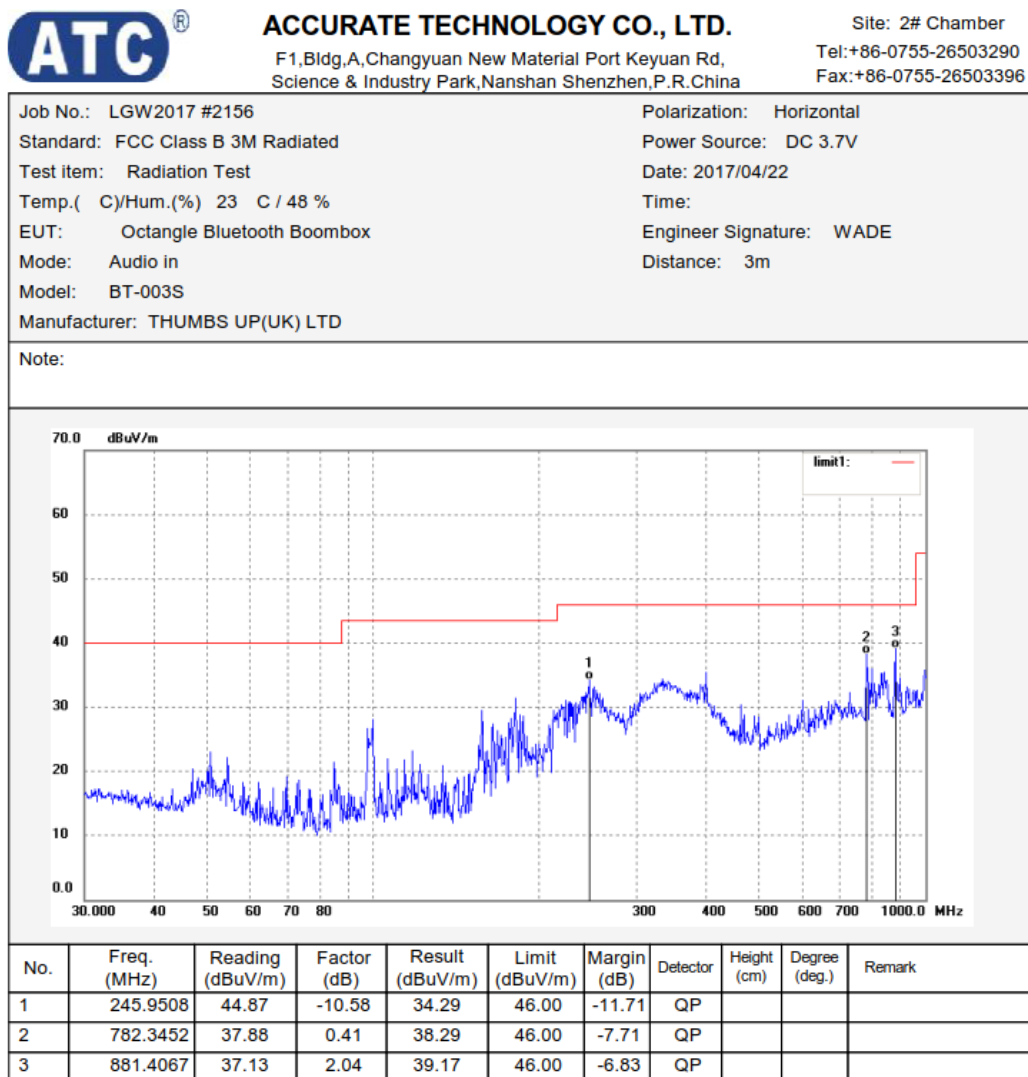


Figure 27: Test figure of Radiated emissions, Mode C, Below 1GHz, Vertical

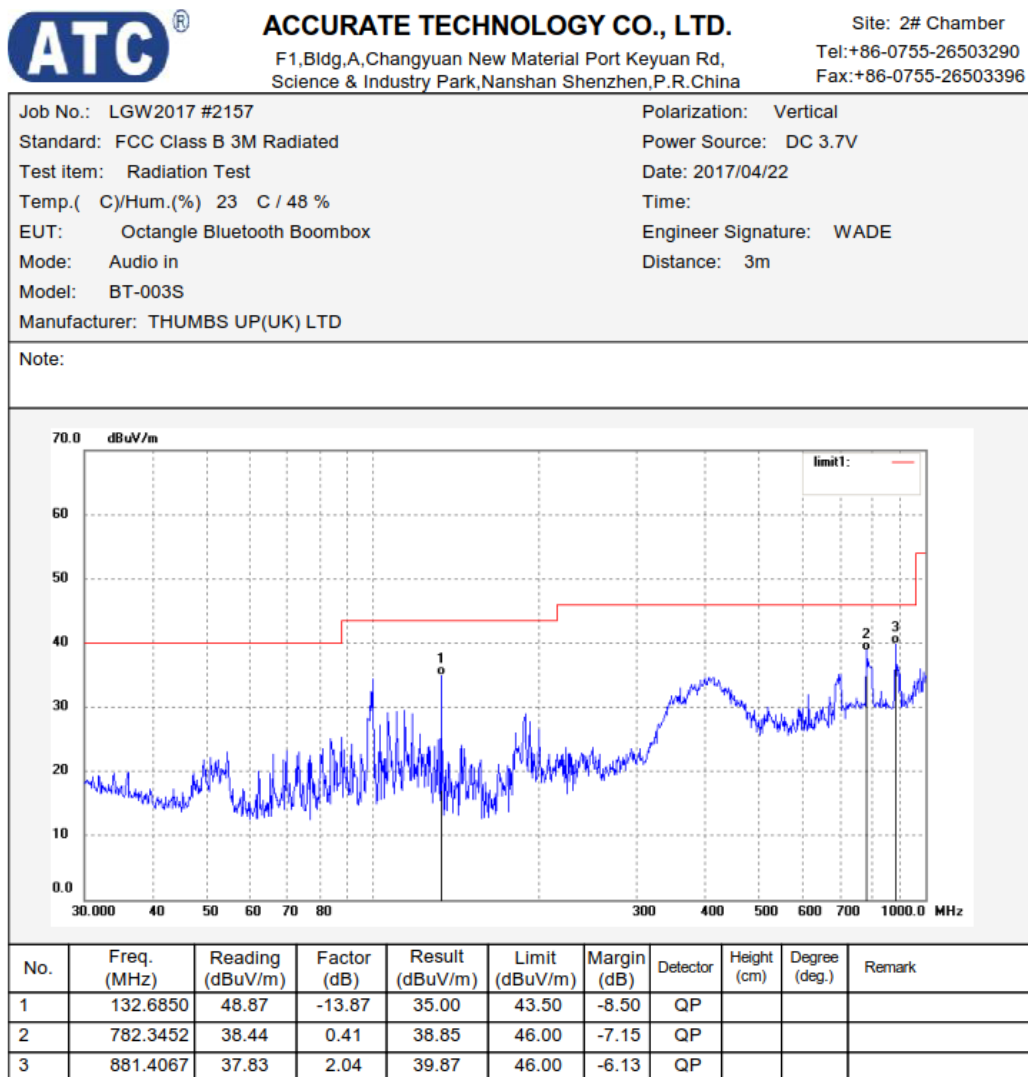


Figure 28: Test figure of Radiated emissions, Mode C, Above 1GHz, Horizontal

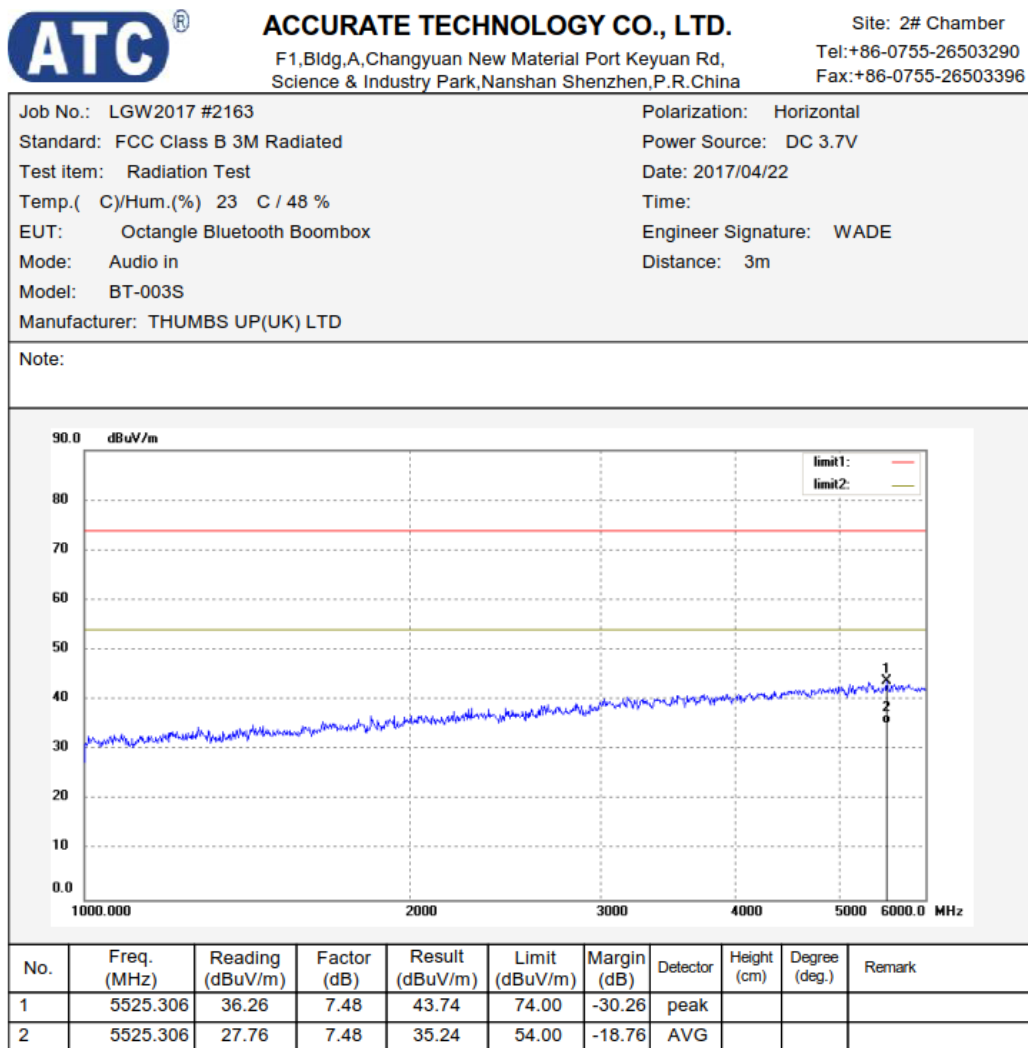


Figure 29: Test figure of Radiated emissions, Mode C, Above 1GHz, Vertical



ACCURATE TECHNOLOGY CO., LTD.

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Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: LGW2017 #2162

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Octangle Bluetooth Boombox

Mode: Audio in

Model: BT-003S

Manufacturer: THUMBS UP(UK) LTD

Polarization: Vertical

Power Source: DC 3.7V

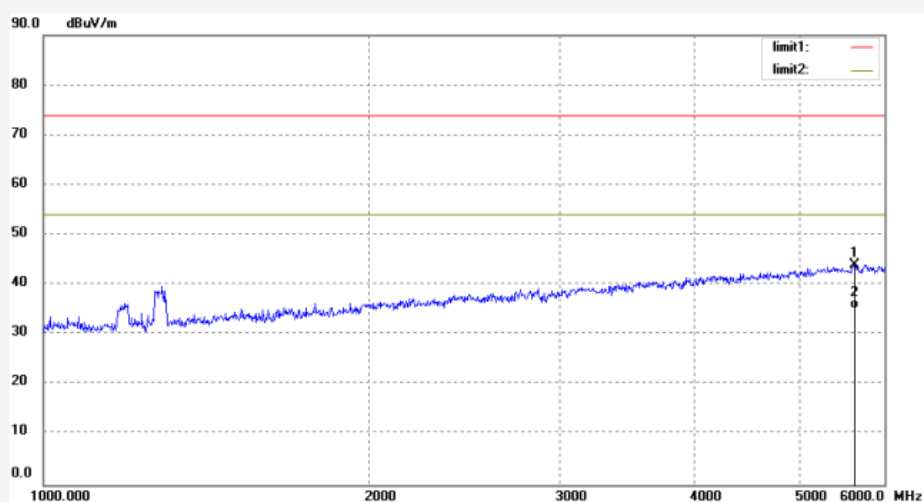
Date: 2017/04/22

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	5625.198	36.29	7.65	43.94	74.00	-30.06	peak			
2	5625.198	27.59	7.65	35.24	54.00	-18.76	AVG			

Figure 30: Test figure of Radiated emissions, Mode D, Below 1GHz, Horizontal

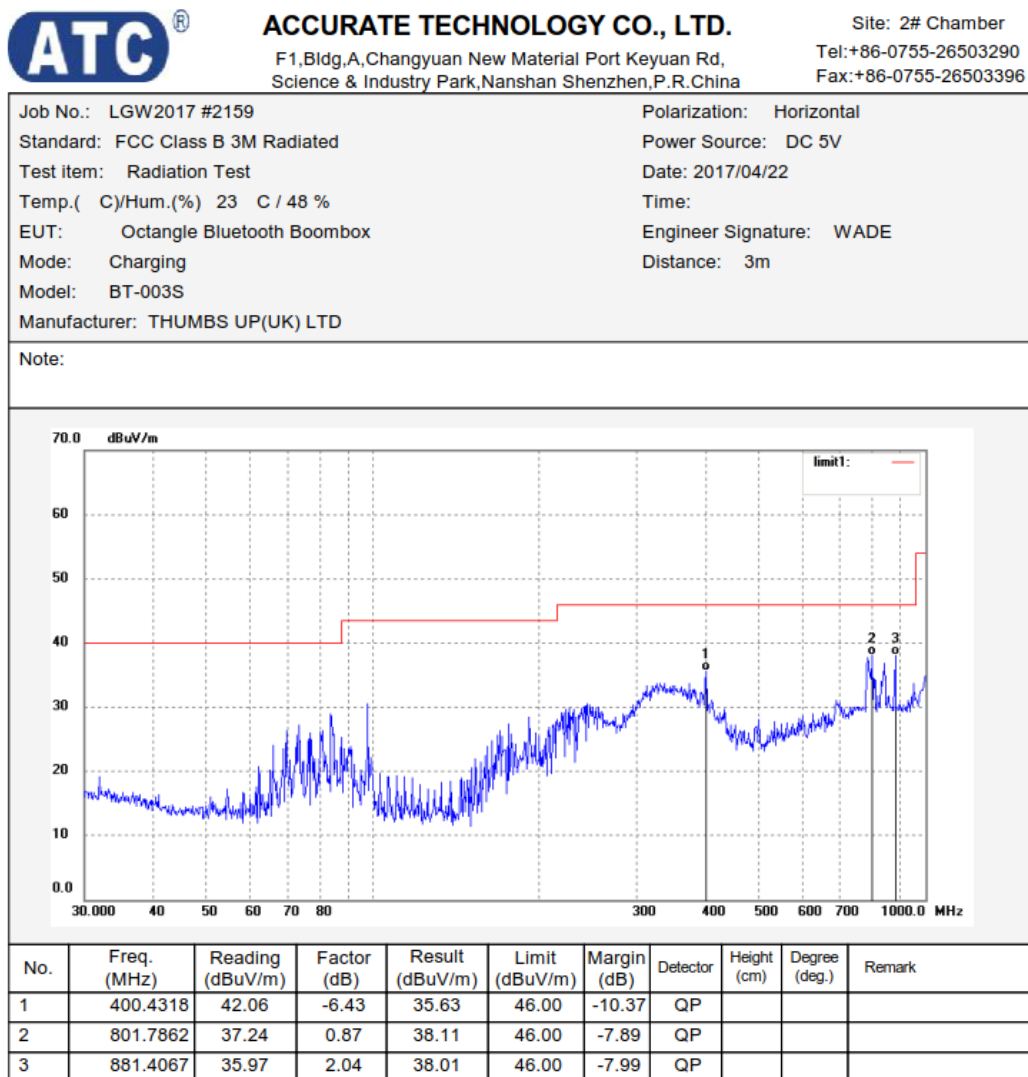


Figure 31: Test figure of Radiated emissions, Mode D, Below 1GHz, Vertical



ACCURATE TECHNOLOGY CO., LTD.

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Site: 2# Chamber

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Fax:+86-0755-26503396

Job No.: LGW2017 #2158

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

Temp.(C)/Hum.(%) 23 C / 48 %

EUT: Octangle Bluetooth Boombox

Mode: Charging

Model: BT-003S

Manufacturer: THUMBS UP(UK) LTD

Polarization: Vertical

Power Source: DC 5V

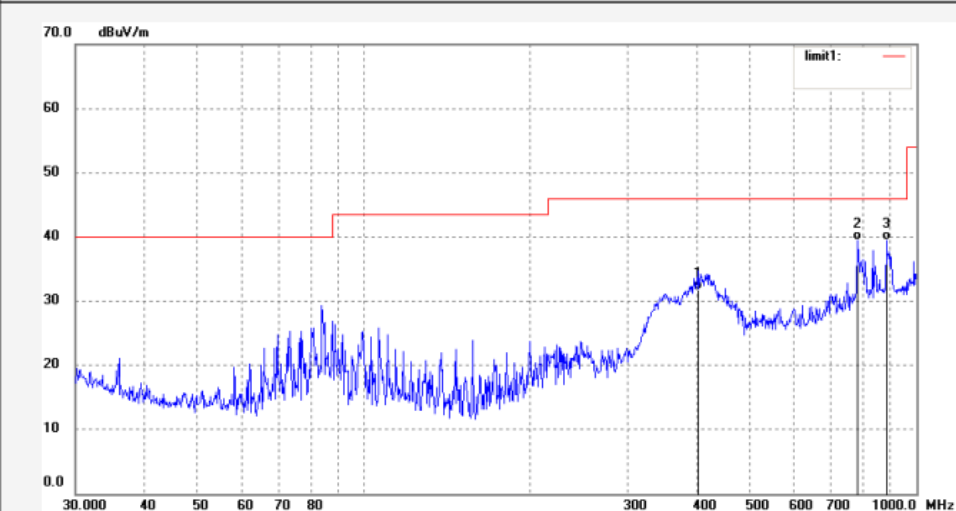
Date: 2017/04/22

Time:

Engineer Signature: WADE

Distance: 3m

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	401.8385	38.10	-6.41	31.69	46.00	-14.31	QP			
2	782.3452	39.11	0.41	39.52	46.00	-6.48	QP			
3	881.4067	37.36	2.04	39.40	46.00	-6.60	QP			

Figure 32: Test figure of Radiated emissions, Mode D, Above 1GHz, Horizontal

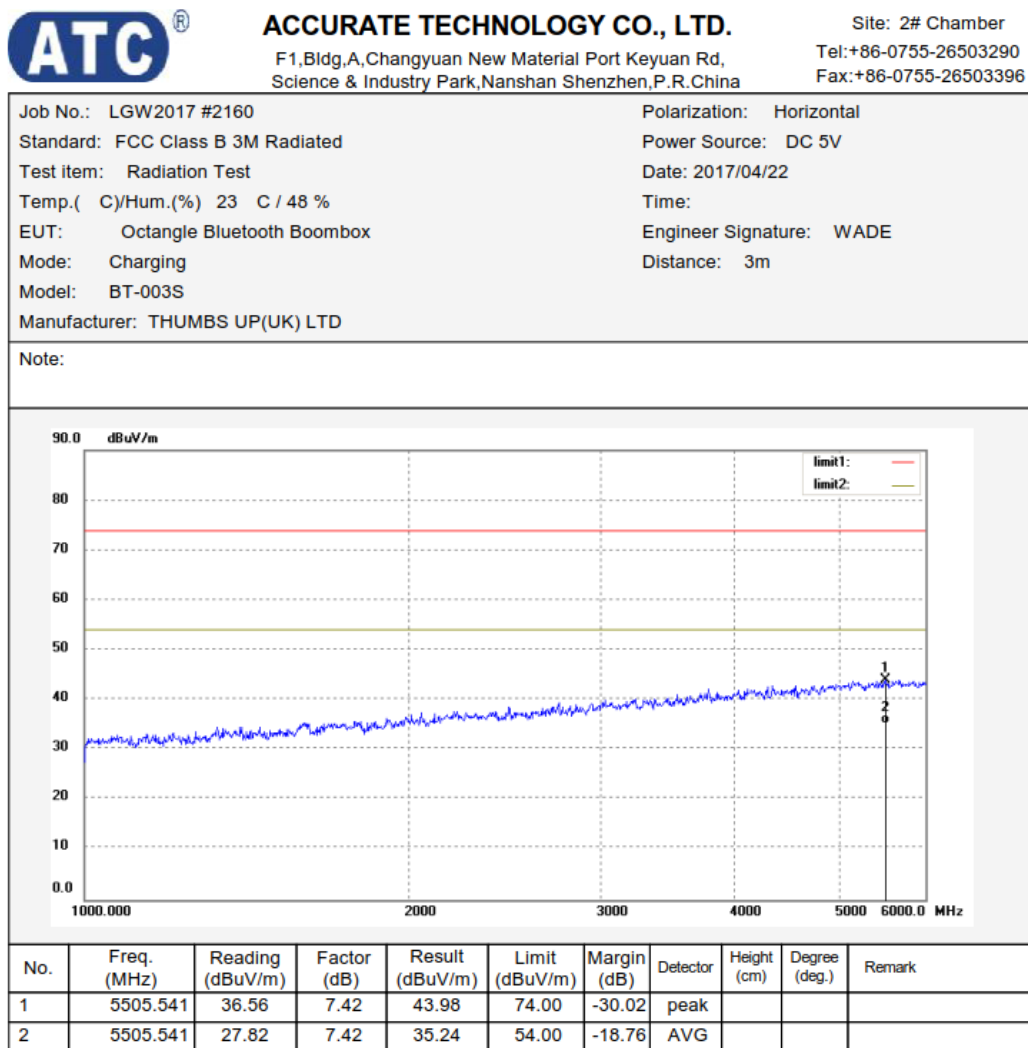


Figure 33: Test figure of Radiated emissions, Mode D, Above 1GHz, Vertical

