

APPLICATION CERTIFICATION FCC Part 15C On Behalf of GOOD EVER TRADING LIMITED

Mini BT Speaker Model No.: CB-335092, CB-335092B, CB-335072C, CB-335097, CB-335098, CB-335116, CB-335117, CB-335118, 2BOOM-BT280, CPP-4661, CPP-4668, CPP-4672

FCC ID: 2AM7T-CB-335092

Prepared for	 GOOD EVER TRADING LIMITED RM 1701, Zhuoyue Building, Fuhua Yi Rd., Futian Central Zone,
Address	Shenzhen, China
Prepared by	 Shenzhen Accurate Technology Co., Ltd. 1/F., Building A, Changyuan New Material Port, Science & Industry
Address	Park, Nanshan District, Shenzhen, Guangdong, P.R. China
	Tel: (0755) 26503290 Fax: (0755) 26503396

Report No.: ATE20171768Date of Test: August 25-September 1, 2017Date of Report: September 4, 2017



TABLE OF CONTENTS

Description

Page

Т	est R	eport Certification	
1.	GE	ENERAL INFORMATION	5
	1.1.	Description of Device (EUT)	5
	1.2.	Special Accessory and Auxiliary Equipment	5
	1.3.	Carrier Frequency of Channels	
	1.4.	Description of Test Facility	
	1.5.	Measurement Uncertainty	
2.		EASURING DEVICE AND TEST EQUIPMENT	
3.	OP	PERATION OF EUT DURING TESTING	
	3.1.	Operating Mode	
	3.2.	Configuration and peripherals	
4.	TE	ST PROCEDURES AND RESULTS	10
5.	PO	WER LINE CONDUCTED MEASUREMENT	11
	5.1.	Block Diagram of Test	
	5.2.	Power Line Conducted Emission Measurement Limits	
	5.3.	Configuration of EUT on Measurement	
	5.4.	Operating Condition of EUT	
	5.5.	Test Procedure	
	5.6.	Data Sample	
	5.7.	Power Line Conducted Emission Measurement Results	
6.	6D	B BANDWIDTH MEASUREMENT	
	6.1.	Block Diagram of Test Setup	
	6.2.	The Requirement For Section 15.247(a)(2)	
	6.3.	EUT Configuration on Measurement	
	6.4.	Operating Condition of EUT	
	6.5.	Test Procedure	
_	6.6.	Test Result	
7.		AXIMUM PEAK OUTPUT POWER	
	7.1.	Block Diagram of Test Setup	
	7.2.	The Requirement For Section 15.247(b)(3)	
	7.3.	EUT Configuration on Measurement	
	7.4.	Operating Condition of EUT Test Procedure	
	7.5. 7.6.	Test Result	
8.		WER SPECTRAL DENSITY MEASUREMENT	
0.	8.1.	Block Diagram of Test Setup	
	8.2.	The Requirement For Section 15.247(e)	
	8.3.	EUT Configuration on Measurement	
	8.4.	Operating Condition of EUT	
	8.5.	Test Procedure	
	8.6.	Test Result	
9.	BA	ND EDGE COMPLIANCE TEST	
	9.1.	Block Diagram of Test Setup	
	9.2.	The Requirement For Section 15.247(d)	
	9.3.	EUT Configuration on Measurement	

Report No.: ATE20171768



9.4. 9.5.

9.6.

Page 3 of 51 Block Diagram of Test Setup. 35

10.1.	Block Diagram of Test Setup	35
10.2.	The Limit For Section 15.247(d)	
10.3.	Restricted bands of operation	
10.4.	Configuration of EUT on Measurement	
10.5.	Operating Condition of EUT	
	Test Procedure	
10.7.	Data Sample	
	The Field Strength of Radiation Emission Measurement Results	
11. AN'	ΓΕΝΝΑ REQUIREMENT	
11.1.	The Requirement	51
11.2.	Antenna Construction	51



Test Report Certification

Applicant	:	GOOD EVER TRADING LIMITED
Manufacturer	:	GOOD EVER TRADING LIMITED
EUT Description	:	Mini BT Speaker
Model No.	:	CB-335092, CB-335092B, CB-335072C, CB-335097, CB-335098, CB-335116, CB-335117, CB-335118, 2BOOM-BT280, CPP-4661, CPP-4668, CPP-4672
Trade Mark	:	n.a.

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.247: 2016 ANSI C63.10: 2013

The EUT was tested according to DTS test procedure of Apr 05, 2017 KDB558074 D01 DTS Meas Guidance v04 for compliance to FCC 47CFR 15.247 requirements

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

Date of Test :	August 25-September 1, 2017
Date of Report:	September 4, 2017
	BobWarg
Prepared by :	TECHNOLOG
	(Bc Mart C ji eer)
	D APPROVED A
Approved & Authorized Signer :	Jenn V
	(Sean Liu, Manager)



1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT Model Number	:	Mini BT Speaker CB-335092, CB-335092B, CB-335072C, CB-335097, CB-335098, CB-335116, CB-335117, CB-335118, 2BOOM-BT280, CPP-4661, CPP-4668, CPP-4672 (Note: We hereby state that these models are identical in interior structure, electrical circuits and components, and just model names are different for the marketing requirement. So we prepare the CB-335092 for test.)
Trade Mark	:	n.a.
Bluetooth version	:	BT V4.2
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	40
Antenna Gain	:	1dBi
Antenna type	:	PCB Antenna
Power Supply	:	DC 3.7V & DC 5V(Power by USB port)
Modulation mode	:	GFSK
Applicant	:	GOOD EVER TRADING LIMITED
Address	:	RM 1701, Zhuoyue Building, Fuhua Yi Rd., Futian Central Zone, Shenzhen, China
Manufacturer	:	GOOD EVER TRADING LIMITED
Address	:	RM 1701, Zhuoyue Building, Fuhua Yi Rd., Futian Central Zone, Shenzhen, China
Date of sample received	:	August 21, 2017
Date of Test	•	August 25-September 1, 2017
Sample No.	:	1701429
	-	

1.2. Special Accessory and Auxiliary Equipment

Adapter:	Model:BEK-QC-001
-	INPUT: 120V~60Hz
	OUTPUT:5V/1A



Channel	Frequceny (MHz)	Channel	Frequceny (MHz)	Channel	Frequceny (MHz)	Channe 1	Frequceny (MHz)
0	2402	10	2422	20	2442	30	2462
1	2404	11	2424	21	2444	31	2464
2	2406	12	2426	22	2446	32	2466
3	2408	13	2428	23	2448	33	2468
4	2410	14	2430	24	2450	34	2470
5	2412	15	2432	25	2452	35	2472
6	2414	16	2434	26	2454	36	2474
7	2416	17	2436	27	2456	37	2476
8	2418	18	2438	28	2458	38	2478
9	2420	19	2440	29	2460	39	2480

1.3.Carrier Frequency of Channels



1.4.Description of Test Facility

EMC Lab	:	Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358
		Listed by Innovation, Science and Economic Development Canada (ISEDC)
		The Registration Number is 5077A-2
		Accredited by China National Accreditation Service for Conformity Assessment (CNAS)
		The Registration Number is CNAS L3193
Name of Firm Site Location	:	1/F., Building A, Changyuan New Material Port, Science
		& Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

1.5.Measurement Uncertainty

Conducted Emission Expanded Uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	3.08dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.42dB, k=2
Radiated emission expanded uncertainty (Above 1GHz)	=	4.06dB, k=2



2. MEASURING DEVICE AND TEST EQUIPMENT

		т	C /NT		0 111 / 1 /1
Kind of equipment	Manufacturer	Туре	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 7, 2017	1 Year
				,	
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 7, 2017	1 Year
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 7, 2017	1 Year
Pre-Amplifier	Rohde&Schwarz	CBLU118354	3791	Jan. 7, 2017	1 Year
		0-01			
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 13, 2017	1 Year
				,	
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 13, 2017	1 Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 13, 2017	1 Year
	Sentralecter	2011/1202	<i>J</i> 1202 000	oun: 10, 2017	1 1001
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 13, 2017	1 Year
LICN	Dahda & Cahwarz	ECU2 75	100205	Ion 7 2017	1 Voor
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 7, 2017	1 Year
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 7, 2017	1 Year
				,	
Highpass Filter	Wainwright	WHKX3.6/18	N/A	Jan. 7, 2017	1 Year
	Instruments	G-10SS			
Band Reject Filter	Wainwright	WRCG2400/2	N/A	Jan. 7, 2017	1 Year
5	Instruments	485-2375/2510			
		-60/11SS			
L		00/1100		1	

Table 1: List of Test and Measurement Equipment



3. OPERATION OF EUT DURING TESTING

3.1.Operating Mode

The mode is used: **BLE Transmitting mode** Low Channel: 2402MHz Middle Channel: 2440MHz High Channel: 2480MHz

3.2. Configuration and peripherals

	EUT]
Figure 1 Se	etup: Transmit	tting mode



4. TEST PROCEDURES AND RESULTS

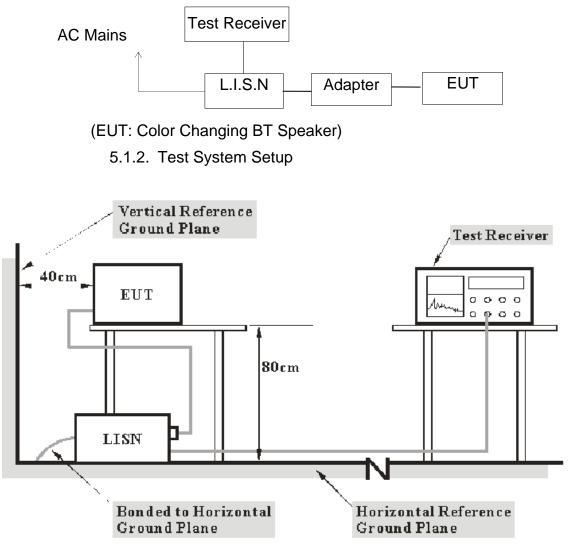
FCC Rules	Description of Test	Result
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(b)(3)	Maximum Peak Output Power Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	Compliant
Section 15.203	Antenna Requirement	Compliant



5. POWER LINE CONDUCTED MEASUREMENT

5.1.Block Diagram of Test

5.1.1.Block diagram of connection between the EUT and simulators



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



Frequency	Limit dB(μV)						
(MHz)	Quasi-peak Level	Average Level					
0.15 - 0.50	66.0 - 56.0 *	56.0 - 46.0 *					
0.50 - 5.00	56.0	46.0					
5.00 - 30.00	60.0	50.0					
NOTE1: The lower limit sh	all apply at the transition fre	quencies.					
NOTE2: The limit decreas	NOTE2: The limit decreases linearly with the logarithm of the frequency in the						
range 0.15MHz t	o 0.50MHz.						

5.3.Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

5.4. Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipment.

5.4.3.Let the EUT work in test mode and measure it.

5.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.



5.6.Data Sample

Frequency (MHz)	Transducer value (dB)	QuasiPeak Level (dBµV)	Average Level (dBµV)	QuasiPeak Limit (dBuV)	Average Limit (dBµV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
3.660000	11.4	45.00	33.60	56.0	46.0	-11.0	-12.4	Pass

 $\begin{array}{l} \mbox{Frequency(MHz)} = \mbox{Emission frequency in MHz} \\ \mbox{Transducer value(dB)} = \mbox{Insertion loss of LISN + Cable Loss} \\ \mbox{Level(dB}_{\mu}V) = \mbox{Quasi-peak Reading/Average Reading + Transducer value} \\ \mbox{Limit (dB}_{\mu}V) = \mbox{Limit stated in standard} \\ \mbox{Margin} = \mbox{Limit (dB}_{\mu}V) - \mbox{Level (dB}_{\mu}V) \end{array}$

Calculation Formula: Margin = Limit ($dB\mu V$) - Level ($dB\mu V$)



5.7. Power Line Conducted Emission Measurement Results

PASS.

Test mode : C	0 0		//60Hz)				
EUT mode : C MEASUREMENT			804-02	fin"			
2017-8-25 13:				_			
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	Ρ
0.158000 0.740000 1.276000 4.205000 5.615000 13.850000	42.80 45.80 38.80 32.50 37.60 33.90	10.8 11.1 11.2 11.4 11.5 11.6	66 56 56 60 60	22.8 10.2 17.2 23.5 22.4 26.1	QP QP QP QP QP QP	L1 L1 L1 L1 L1 L1	GN GN GN GN GN
MEASUREMENT	RESULT	: " VV -0	804-02	_fin2"			
2017-8-25 13:	49						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	P
0.206000 0.740000 1.004000 3.620000 7.885000 12.415000	33.80 33.10 30.40 31.20 29.20 25.70	10.8 11.1 11.1 11.4 11.5 11.6	53 46 46 50 50	19.6 12.9 15.6 14.8 20.8 24.3	AV AV AV AV AV AV	L1 L1 L1 L1 L1 L1	GN GN GN GN GN
MEASUREMENT	RESULT	: "VV-0	804-01	_fin"			
2017-8-25 13:		- 1	- · · ·				_
_					Detector	Line	P
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB			-
					QP QP QP QP QP QP	N N N N N N	GN GN GN GN GN
MHz 0.316000 0.744000 0.956000 3.660000 8.240000	dBµV 41.10 49.00 45.00 45.00 40.50 37.40	dB 10.9 11.1 11.1 11.4 11.5 11.6	dBμV 56 56 56 60 60	dB 18.7 7.0 11.0 11.0 19.5 22.6	QP QP QP QP QP	N N N N	GN GN GN GN
MHz 0.316000 0.744000 0.956000 3.660000 8.240000 13.040000 MEASUREMENT 2017-8-25 13:	dBµV 41.10 49.00 45.00 45.00 40.50 37.40 RESULT :45	dB 10.9 11.1 11.1 11.4 11.5 11.6 : "VV-0	dBμV 56 56 56 60 60 804-01	dB 18.7 7.0 11.0 19.5 22.6 	QP QP QP QP QP QP	N N N N N	GN GN GN GN
MHZ 0.316000 0.744000 0.956000 3.660000 8.240000 13.040000 MEASUREMENT	dBµV 41.10 49.00 45.00 45.00 40.50 37.40 RESULT	dB 10.9 11.1 11.1 11.4 11.5 11.6 : "VV-0	dBμV 56 56 56 60 60 804-01	dB 18.7 7.0 11.0 19.5 22.6 	QP QP QP QP QP	N N N N N	GN GN GN GN
MHz 0.316000 0.744000 0.956000 3.660000 8.240000 13.040000 MEASUREMENT 2017-8-25 13: Frequency	dBµV 41.10 49.00 45.00 45.00 40.50 37.40 RESULT :45 Level	dB 10.9 11.1 11.1 11.4 11.5 11.6 : "VV-0 Transd	dBµV 60 56 56 60 60 804-01 Limit	dB 18.7 7.0 11.0 19.5 22.6 	QP QP QP QP QP QP AV AV AV AV	N N N N N	GN GN GN GN

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.



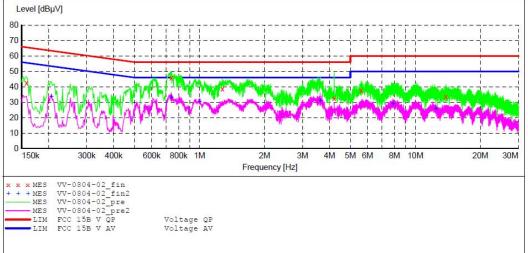
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Manufacturer:	Mini BT Speaker M/N:CB-335092 GOOD EVER TRADING LIMITED
Operating Condition:	
Test Site:	1#Shielding Room
Operator:	DING
Test Specification:	L 120V/60Hz
Comment:	Report NO.:ATE20171768
Start of Test:	2017-8-25 / 13:47:34

SCAN TABLE: "V 150K-30MHz fin"

Short Desc	ription:		SUB STD VTE	RM2 1.70			
Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer	
	30.0 MHz		QuasiPeak Average	1.0 s	9 kHz	NSLK8126 2008	



MEASUREMENT RESULT: "VV-0804-02_fin"

2017-8-25 13:	49						
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.158000	42.80	10.8	66	22.8	QP	L1	GND
0.740000	45.80	11.1	56	10.2	QP	L1	GND
1.276000	38.80	11.2	56	17.2	QP	L1	GND
4.205000	32.50	11.4	56	23.5	QP	L1	GND
5.615000	37.60	11.5	60	22.4	QP	L1	GND
13.850000	33.90	11.6	60	26.1	QP	L1	GND

MEASUREMENT RESULT: "VV-0804-02_fin2"

201	7-8-25 13:	49						
I	Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
	0.206000	33.80	10.8	53	19.6	AV	L1	GND
	0.740000	33.10	11.1	46	12.9	AV	L1	GND
	1.004000	30.40	11.1	46	15.6	AV	L1	GND
	3.620000	31.20	11.4	46	14.8	AV	L1	GND
	7.885000	29.20	11.5	50	20.8	AV	L1	GND
1	L2.415000	25.70	11.6	50	24.3	AV	L1	GND



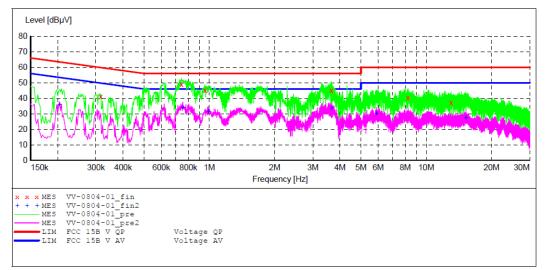
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT:	Mini BT Speaker M/N:CB-335092
Manufacturer:	GOOD EVER TRADING LIMITED
Operating Condition:	Charging
Test Site:	1#Shielding Room
Operator:	DING
Test Specification:	N 120V/60Hz
Comment:	Report NO.:ATE20171768
Start of Test:	2017-8-25 / 13:44:00

SCAN TABLE: "V 150K-30MHz fin"

Short Description:				SUB_STD_VTER	RM2 1.70		
	Start	Stop	Step	Detector	Meas.	IF	Transducer
	Frequency	Frequency	Width		Time	Bandw.	
	150.0 kHz	30.0 MHz	4.5 kHz	QuasiPeak	1.0 s	9 kHz	NSLK8126 2008
				Average			
				Average			



MEASUREMENT RESULT: "VV-0804-01_fin"

2017-8-25 13:	45						
Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
MHz	dBµV	dB	dBµV	dB			
0.316000	41.10	10.9	60	18.7	QP	N	GND
0.744000	49.00	11.1	56	7.0	QP	Ν	GND
0.956000	45.00	11.1	56	11.0	QP	Ν	GND
3.660000	45.00	11.4	56	11.0	QP	Ν	GND
8.240000	40.50	11.5	60	19.5	QP	Ν	GND
13.040000	37.40	11.6	60	22.6	QP	Ν	GND

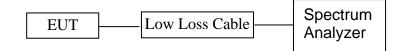
MEASUREMENT RESULT: "VV-0804-01_fin2"

2017-8-25 13: Frequency MHz	45 Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.204000 0.754000 0.988000 3.660000 5.890000 15.245000	35.70 34.00 31.50 33.60 30.20 27.80	10.8 11.1 11.1 11.4 11.5 11.7	53 46 46 50 50	17.7 12.0 14.5 12.4 19.8 22.2	AV AV AV AV AV AV	N N N N N	GND GND GND GND GND GND



6. 6DB BANDWIDTH MEASUREMENT

6.1.Block Diagram of Test Setup





6.2. The Requirement For Section 15.247(a)(2)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.3.EUT Configuration on Measurement

The equipment is installed on the emission measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

6.4. Operating Condition of EUT

- 6.4.1.Setup the EUT and simulator as shown as Section 6.1.
- 6.4.2.Turn on the power of all equipment.
- 6.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480 MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

6.5.Test Procedure

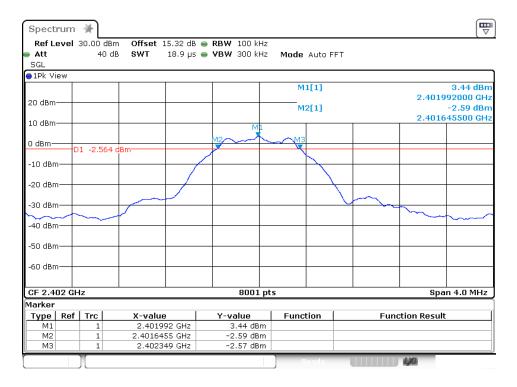
- 6.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 6.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to300 kHz.
- 6.5.3.The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.



6.6.Test Result

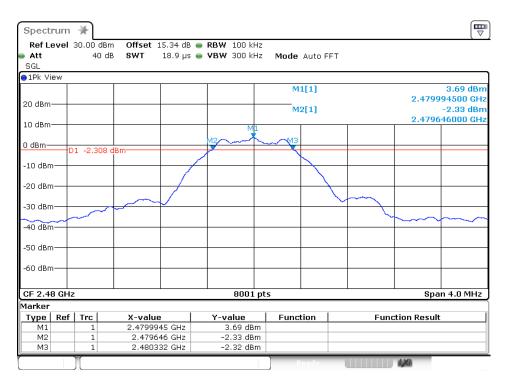
Channel	Frequency (MHz)	6 dB Bandwith (MHz)	Minimum Limit(MHz)	PASS/FAIL
0	2402	0.704	0.5	PASS
19	2440	0.697	0.5	PASS
39	2480	0.686	0.5	PASS

The spectrum analyzer plots are attached as below.





Spect	rum	₩								
Ref Li Att SGL	evel	30.00 4(dBm Offset) dB SWT		RBW 100 kHz VBW 300 kHz		Auto FFT			
😑 1Pk Vi	e₩									
20 dBm							1[1]			3.56 dBm 91000 GHz
10 dBm						IVI.	2[1]			-2.45 dBm 39000 GHz
10 0.011					₩					
0 dBm-	D	1 -2.4	44 dBm							
-10 dBn	<u>ו</u> רי						<u> </u>			
-20 dBn	<u>ا</u> ر									
-30 dBn			\sim					\sim		
~~~~		$\sim$	$\gamma$						$\sim$	~~~~~
-40 dBn	ר ו									
-50 dBn	-+-									
-60 dBn	n									
CF 2.4	4 GHz	2		·	8001 p	ts		·	Spa	n 4.0 MHz
Marker										
Туре	Ref	Trc	X-valu		Y-value	Func	tion	Fund	tion Result	
M1 M2		1		91 GHz	3.56 dBm -2.45 dBm					
M3		1	2.4390		-2.45 dBm					
		)[				) R	eady [		1,70	





# 7. MAXIMUM PEAK OUTPUT POWER

# 7.1.Block Diagram of Test Setup





7.2. The Requirement For Section 15.247(b)(3)

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

## 7.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

## 7.4. Operating Condition of EUT

7.4.1.Setup the EUT and simulator as shown as Section 7.1.

- 7.4.2.Turn on the power of all equipment.
- 7.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480 MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

### 7.5.Test Procedure

- 7.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 7.5.2.Set RBW of spectrum analyzer to 3 MHz and VBW to 3 MHz.
- 7.5.3.Measurement the maximum peak output power.



# 7.6.Test Result

Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass / Fail	
0	2402	3.97	30	PASS	
19	2440	4.08	30	PASS	
39	2480	4.16	30	PASS	

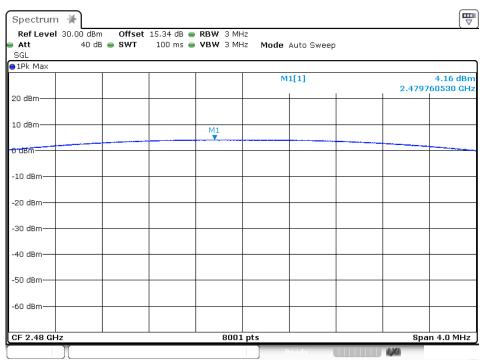
The spectrum analyzer plots are attached as below.

Spectrum 🔆					
SGL	32 dB 👄 <b>RBW</b> 3 MH 00 ms 👄 <b>VBW</b> 3 MH		Sweep		
●1Pk Max					3.97 dBm
		M1[1]			3.97 dBm /5470 GHz
20 dBm					
10 dBm					
		M1			
e dem					
10 40					
-10 dBm					
-20 dBm	 				
-30 dBm					
-40 dBm					
-50 dBm					
-60 dBm					
CF 2.402 GHz	8001	l pts		Span	4.0 MHz
][		Ready		1/1	



#### channel 19

Spectrum 🔆				
Ref Level 30.00	.34 dB <b>● RBW</b> 3 MH LOO ms <b>● VBW</b> 3 MH			
SGL	 			
●1Pk Max	 	M1[1]		4.08 dBm
		MILI	2.4396	4.08 dBm 41540 GHz
20 dBm				
10 dBm	M1			
O dBm				
-10 dBm				
-20 dBm				
-30 dBm				
-40 dBm				
-50 dBm				
-30 ubiii-				
-60 dBm				
CF 2.44 GHz	 8001	pts	Spa	n 4.0 MHz
	 	Ready	4,40	





# 8. POWER SPECTRAL DENSITY MEASUREMENT

# 8.1.Block Diagram of Test Setup





8.2. The Requirement For Section 15.247(e)

Section 15.247(e): 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.

## 8.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

# 8.4. Operating Condition of EUT

- 8.4.1.Setup the EUT and simulator as shown as Section 8.1.
- 8.4.2.Turn on the power of all equipment.
- 8.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.



## **8.5.Test Procedure**

- 8.5.1.The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 8.5.2.Measurement Procedure PKPSD:
- 8.5.3.This procedure must be used if maximum peak conducted output power was used to demonstrate compliance to the fundamental output power limit, and is optional if the maximum (average) conducted output power was used to demonstrate compliance.
  - 1. Set analyzer center frequency to DTS channel center frequency.
  - 2. Set the span to 1.5 times the DTS channel bandwidth.
  - 3. Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
  - 4. Set the VBW  $\geq$  3 x RBW.
  - 5. Detector = peak.
  - 6. Sweep time = auto couple.
  - 7. Trace mode = max hold.
  - 8. Allow trace to fully stabilize.
  - 9. Use the peak marker function to determine the maximum amplitude level.
  - 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
- 8.5.4.Measurement the maximum power spectral density.

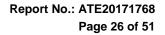


# 8.6.Test Result

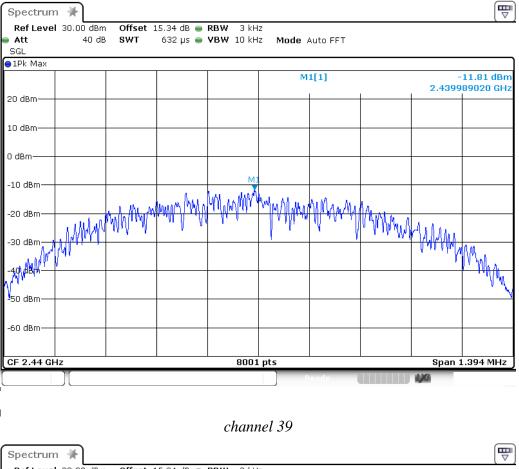
CHANNEL NUMBER	FREQUENCY (MHz)	PSD (dBm/3KHz)	LIMIT (dBm/3KHz)	PASS/FAIL	
0	2402	-11.95	8	PASS	
19	2440	-11.81	8	PASS	
39	2480	-11.70	8	PASS	

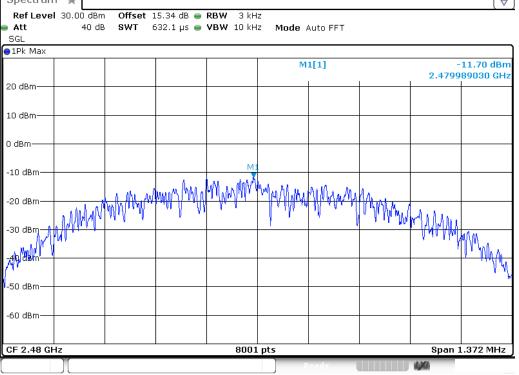
The spectrum analyzer plots are attached as below.

#### P Spectrum ₩ Ref Level 30.00 dBm Offset 15.32 dB 👄 RBW 3 kHz Att 40 dB SWT 631.9 µs 👄 **VBW** 10 kHz Mode Auto FFT SGL ⊖1Pk Max M1[1] -11.95 dBm 2.401989620 GHz 20 dBm-10 dBm 0 dBm -10 dBm MMM HAAMMAMM WIMM on Ana MANA YM WAA MA ANA WWW. -20 dBm -30 dBm 40<mark>08</mark> -**5**0 dBm -60 dBm· CF 2.402 GHz 8001 pts Span 1.408 MHz











# 9. BAND EDGE COMPLIANCE TEST

# 9.1.Block Diagram of Test Setup





# 9.2. The Requirement For Section 15.247(d)

Section 15.247(d): 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

# 9.3.EUT Configuration on Measurement

The equipment are installed on the emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

# 9.4. Operating Condition of EUT

- 9.4.1.Setup the EUT and simulator as shown as Section 9.1.
- 9.4.2.Turn on the power of all equipment.
- 9.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480 MHz. We select 2402MHz, 2480MHz TX frequency to transmit.



## 9.5.Test Procedure

Conducted Band Edge:

- 9.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.
- 9.5.2.Set RBW of spectrum analyzer to 100 kHz and VBW to 300 kHz.
- 9.5.3. Radiate Band Edge:
- 9.5.4. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
- 9.5.5.The turntable was rotated for 360 degrees to determine the position of maximum emission level.
- 9.5.6.EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 9.5.7.Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

9.5.8.RBW=100kHz, VBW=300kHz

9.5.9. The band edges was measured and recorded.

9.6.Test Result

Pass

Channel	Frequency	Delta peak to band emission	Limit(dBc)
0	2.4GHz	33.74	20
39	2.4835GHz	35.41	20



Spectrum	*									
Ref Level				• RBW 100 kHz						
Att	40 (	dB SWT 1	l32.6 µs 🧉	• <b>VBW</b> 300 kHz	: Mode	Auto F	FT			
SGL										
●1Pk Max										
					M	1[1]				3.44 dBm
20 dBm										199480 GHz
					M	2[1]				-37.18 dBm
10 dBm					M1				2.40	000000 GHz
					<b>X</b>					
0 dBm					1					
-10 dBm					11					
-20 dBm	01 -16.56	60 dBm								
20 0011					11.					
-30 d					<u> </u>					
L. T.			MЗ	M2	A			and the second second	her ma	week the warment
V40 aBm	manine franksky sta	and the second	AND A REAL PROPERTY AND	washe warned	n y my	NAMMAN	-	- HAVANA (KHAVA	INNA INTEN	A REAL PROPERTY OF A REAL PROPER
-50 dBm										
co do-										
-60 dBm										
CF 2.4 GHz				8001 p	ts				Spa	n 60.0 MHz
Marker										
Type Ref	Trc	X-value		Y-value	Func	tion		Fun	ction Resu	t _
M1	1	2.40199	48 GHz	3.44 dBm						
M2	1		.4 GHz	-37.18 dBm						
M3	1		39 GHz	-38.78 dBm						
M4	1	2.37354	75 GHz	-35.13 dBm						
					R	eadv			1.00	

channel 39

Spectrum	₩					
Ref Level			3 👄 RBW 100 kHz			
Att	40 (	dB <b>SWT</b> 132.6 μ:	s 👄 <b>VBW</b> 300 kHz	Mode Auto I	FFT	
SGL						
⊜1Pk Max						
				M1[1]		3.46 dBn
20 dBm						2.47999790 GH
				M2[1]		-38.87 dBn
10 dBm			M1			2.48350000 GH
			VII			
0 dBm			<u> </u>			
-10 dBm						
C	1 -16.54	10 dBm				
-20 dBm						
-30 dBm			/ M2	1014	MB	
Mound M	Mm Jump	month and month	washing many	munder water bullet	wyman H. Alexy you The	e en anna mental anna that an an
-to abin	1.1		· · [ '	· · · ·		
-50 dBm						
00 00.00						
-60 dBm						
CF 2.4835 0			8001 pt			Span 60.0 MHz
	пг		0001 pt	.5		5pan 00.0 MHz
Marker			1 .		1	
Type Ref	Trc	X-value	Y-value	Function	Fun	ction Result
M1	1	2.4799979 GHz	3.46 dBm			
M2	1	2.4835 GHz	-38.87 dBm			
M3 M4	1	2.5 GHz 2.49076 GHz	-38.69 dBm			
1714	1	2.49076 GHZ	-35.32 dBm			
	Т					1.1.1.1.1.1



### **Radiated Band Edge Result**

Date of Test:	August 31, 2017	Temperature:	25°C
EUT:	Mini BT Speaker	Humidity:	50%
Model No .:	CB-335092	Power Supply:	AC 120V/60Hz
Test Mode:	TX (2402MHz) GFSK	Test Engineer:	Frank

Free	quency	Reading(dBµV/m)		Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(1	MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
239	90.000	30.11	39.64	-3.96	26.15	35.68	54.00	74.00	-27.85	-38.32	Vertical
240	00.000	49.23	58.46	-3.91	45.32	54.55	54.00	74.00	-8.68	-19.45	Vertical
239	90.000	30.01	39.88	-3.96	26.05	35.92	54.00	74.00	-27.95	-38.08	Horizontal
240	00.000	46.12	55.96	-3.91	42.21	52.05	54.00	74.00	-11.79	-21.95	Horizontal

Date of Test:	August 31, 2017	Temperature:	25°C
EUT:	Mini BT Speaker	Humidity:	50%
Model No.:	CB-335092	Power Supply:	AC 120V/60Hz
Test Mode:	TX (2480MHz) GFSK	Test Engineer:	Frank

Frequency	Reading(dBµV/m)		Factor(dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2483.500	30.25	41.02	-3.50	26.75	37.52	54.00	74.00	-27.25	-36.48	Vertical
2500.000	32.56	41.71	-3.42	29.14	38.29	54.00	74.00	-24.86	-35.71	Vertical
2483.500	30.12	39.84	-3.50	26.62	36.34	54.00	74.00	-27.38	-37.66	Horizontal
2500.000	31.25	41.71	-3.42	27.83	38.29	54.00	74.00	-26.17	-35.71	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.

2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows: Result = Reading + Corrected Factor

3. Display the measurement of peak values.



# ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.Chir Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Report No.: ATE20171768

Page 31 of 51

				dustry Park,N	Valisilari Ol	ienznen	,F.IX.OII	na		:+86-0755			
b No.	.: yjzh1 #173	3				F	Polarizat	ion: \	/ertical				
andaı	rd: FCC PK					F	Power Source: DC 5V						
st ite	m: Radiatio	n Test				0	Date: 20	17/09/0	1				
mp.(	C)/Hum.(%	) 25 C/5	5 %			٦	Time: 19	:13:53					
JT:	JT: Mini BT Speaker Engineer Signature: YJZ									JZH			
ode: TX 2402 MHz Distance: 3m													
odel:	CB-33509	2											
anufa	cturer: GOO	D EVER TR	ADING LI	MITED									
ote:	Report NO.	: ATE20171	768										
100.0	0 dBu∀/m												
									limit1:				
90									limit2:	· · · · · · · · · · · · · · · · · · ·			
80													
70													
60							3			I			
							, and the second						
60 50							3						
						.1 .	3 //			w with stat			
50 40		ynakodowanytek społeceje	werferner afterner	110-14 Charles and the	hydabaan aadamay hadama	ware all and	3 American	homewood	Many Markarthan Na	normative by her man			
50	hulana niya turki naya	ynakad servet a na andre an	un en fertilika militar og sen at se	Morthelfertuburrundles	hydeboorseigeng/hedrag		3	Mitanalia	MenyMatanta.com/a	normetylen.Mahan			
50 40	hulon nayaberden nyh		un en festiver righten yn de	Marthelfertuburrundes	hydebron ook yn rych drag		3	homework	Meng/NationNeN	arraniselylikaldular			
50 40 30 20		yndrod warrot of workson o		Marthoffen schurgen Ale	hade been rode and hade	1 	3 	homework	Hengt Nationalise All	,09-0364440-112.be			
50 40 30 20 10.0				Workeller, June of the	hydebroannol yn yr hefery		3 ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Yndraadad	MenyMakarka.w/a		MHz		
50 40 30 20 10.0	300.000					0					MHz		
50 40 30 20 10.0 23	300.000 Freq.	Reading	Factor	Result	Limit	Margin	Detector	Height (cm)	Men,/Meterthawily Degree (deg.)		MHz		
50 40 30 20 10.0 23	300.000					0		Height	Degree	2440.0	MHz		
50 40 30 20 10.0	300.000 Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	peak	Height (cm)	Degree (deg.)	2440.0	MHz		

4

2400.000

49.23

-3.91

45.32

54.00

-8.68

AVG

150

136



#### Report No.: ATE20171768 Page 32 of 51

ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

				usuy Faik,i	tunonun or		-			_			
	o.: yjzh1 #174	4			F	Polarization: Horizontal							
Standa	ard: FCC PK					F	Power Source: DC 5V						
Test ite	em: Radiatio	on Test				0	Date: 2017/09/01						
Temp.(	( C)/Hum.(%	) 25 C/5	5 %			г	Time: 19:15:00						
EUT:	Mini BT	Speaker				E	Engineer	Signat	ure: Y	JZH			
Mode:	e: TX 2402 MHz Distance: 3m												
Model: CB-335092													
Manufa	acturer: GOO	D EVER TR	ADING LI	MITED									
Note:	Report NO	: ATE20171	768										
Note.	Report No.	. //1220171	100										
100	.0 dBuV/m												
									limit1:				
90							<del>-</del>		limit2	· -			
							[]						
80							{}-						
70													
60													
50							····*						
							N.						
40			L			1		Marthan Mark	AND MADE ADDRESS	marked by the state			
30	and an international states of the second	18. yaketa dala dala dalar dalar Alar yaketa dalar dala	al Malina an Alamanda	an a	haddar on Andrew Southed Andrew Southed States	haddebaljetes/1959-194	·	an destations	a second s				
30						2							
20													
10.0	) 2300.000									2440.0	MUN		
2	.300.000									2440.0	mr12		
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark			
1	2390.000	39.88	-3.96	35.92	74.00	-38.08	peak	150	74				
2	2390.000	30.01	-3.96	26.05	54.00	-27.95	AVG	150	74				
3	2400.000	55.96	-3.91	52.05	74.00	-21.95	peak	150	47				
4	2400.000	46.12	-3.91	42.21	54.00	-11.79	AVG	150	47				
			L	I	L	L	I	1	I	l			

A	TC®	F1	,Bldg,A,Cl	<b>TE TECH</b> nangyuan Ne dustry Park,I	ew Material	Port Ke	yuan Rd	l,		Page 33 Site: 1# Chambe +86-0755-265032 ::+86-0755-265033
Job No	o.: yj <b>z</b> h1 #175			allocity i carre, i			Polarizati		lorizonta	al
	ard: FCC PK					F	Power So	ource:	DC 5V	
	em: Radiatio	n Test					Date: 201			
	( C)/Hum.(%		5 %				ime: 19			
EUT:	Mini BT S		- /0				Ingineer		ure: Y	JZH
Mode:							Distance:	-		
Model						-				
	acturer: GOO									
Note:	Report NO.:									
100	).0 dBu∀/m									
									limit1:	
90									limit2:	
80		{								
70										
60										
			-							
50										
40	4									
	Murenahanduran	with how we with the first	John word with which	whether approximately	heren production and any services	Alexander	nushaafnoodsmaph	madylandila	where we are a state of the sta	brankninger
30				4						
			° I							
20										
10.	0									
	2440.000									2600.0 MHz
No.	Freq.	Reading	Factor	Result	Limit	Margin	Detector	Height	Degree	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)		(cm)	(deg.)	
	2483.500	39.84	-3.50	36.34	74.00	-37.66	peak	150	301	
2	2483.500	30.12	-3.50	26.62	54.00	-27.38	AVG	150	301	
	2500.000	41.71	-3.42	38.29	74.00	-35.71	peak	150	154	1
3	2500.000	31.25	-3.42	27.83	54.00	-26.17	AVG	150	154	



# ATC ATC R

# ACCURATE TECHNOLOGY CO., LTD.

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

Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

Job N	b No.: yjzh1 #176 Polarization: Vertical											
Stand	ard: FCC PK					F	Power Source: DC 5V					
Test it	em: Radiatio	n Test				C	Date: 2017/09/01					
Temp	.( C)/Hum.(%	) 25 C/5	5 %	Т	Time: 19:19:11							
EUT:	Mini BT :	Speaker	Ingineer	Signatu	ure: Y	JZH						
Mode:												
Model												
Manufacturer: GOOD EVER TRADING LIMITED												
Note:	Report NO	: ATE20171	768									
Hoto.	reportio.											
10	0.0 dBu¥/m											
									limit1: limit2:			
90			• • • • • • • • • • • • • • • • • • • •									
		1										
80												
70												
60												
			1									
50												
40		J.	L	2						and the second		
40	where we have been a set of the s	which you want the	berne communities	when the stand of the	anon-happener hand	appropriation	multimeter	warmight	and the second second second	Kenney Herberger Herberger		
30				4								
			9									
20												
10	.0											
	2440.000									2600.0 MHz		
	<b>F</b>	<b>D</b>	= .	Desult	1.5 . 9				-			
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark		
1	2483.500	41.02	-3.50	37.52	74.00	-36.48	peak	150	223			
2	2483.500	30.25	-3.50	26.75	54.00	-27.25	AVG	150	223	-		
3	2500.000	41.71	-3.42	38.29	74.00	-35.71	peak	150	76			
4	2500.000	32.56	-3.42	29.14	54.00	-24.86	AVG	150	76			

Note:

- 1. Emissions attenuated more than 20 dB below the permissible value are not reported.
- 2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

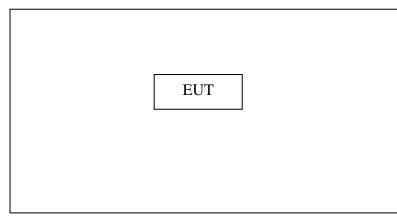
3. Display the measurement of peak values.



# **10.RADIATED SPURIOUS EMISSION TEST**

# 10.1.Block Diagram of Test Setup

10.1.1.Block diagram of connection between the EUT and peripherals

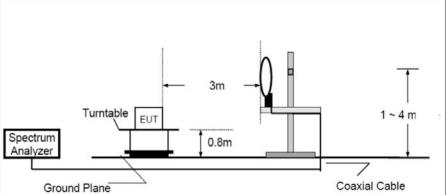


Setup: Transmitting mode

(EUT: Mini BT Speaker)

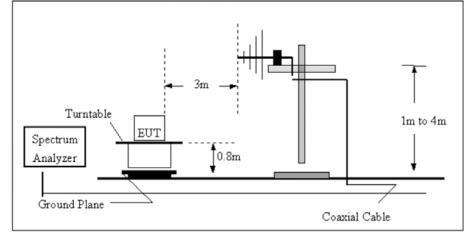
10.1.2.Semi-Anechoic Chamber Test Setup Diagram

(A)Radiated Emission Test Set-Up, Frequency below 30MHz

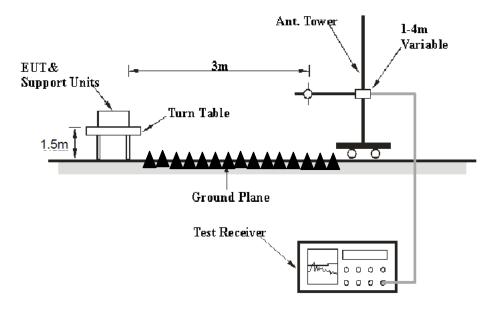




(B)Radiated Emission Test Set-Up, Frequency 30-1000MHz



### (C) Radiated Emission Test Set-Up, Frequency above 1GHz



# 10.2.The Limit For Section 15.247(d)

Section 15.247(d): 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 Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).



#### 10.3.Restricted bands of operation

10.3.1.FCC Part 15.205 Restricted bands of operation

pem	inded in any of the freque	ney bands listed below.	
MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	$(^{2})$
13.36-13.41			

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

¹Until February 1, 1999, this restricted band shall be 0.490-0.510  2 Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

### 10.4.Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

### 10.5. Operating Condition of EUT

10.5.1.Setup the EUT and simulator as shown as Section 10.1.

10.5.2.Turn on the power of all equipment.

10.5.3.Let the EUT work in TX modes measure it. The transmit frequency are



2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

#### 10.6.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground(Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9 kHz to 25GHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency	Reading	Factor	Result	Limit	Margin	Remark
(MHz)	(dBμv)	(dB/m)	(dBµv/m)	(dBµv/m)	(dB)	
31.5125	32.71	-15.07	17.64	40.00	-22.36	QP

10.7.Data Sample

Frequency(MHz) = Emission frequency in MHz

Reading(dB $\mu$ v) = Uncorrected Analyzer/Receiver reading Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain Result(dB $\mu$ v/m) = Reading(dB $\mu$ v) + Factor(dB/m) Limit (dB $\mu$ v/m) = Limit stated in standard Margin (dB) = Result(dB $\mu$ v/m) - Limit (dB $\mu$ v/m) QP = Quasi-peak Reading Calculation Formula: Margin(dB) = Result (dB $\mu$ V/m)–Limit(dB $\mu$ V/m) Result(dB $\mu$ V/m)= Reading(dB $\mu$ V)+ Factor(dB/m) The "Margin" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.



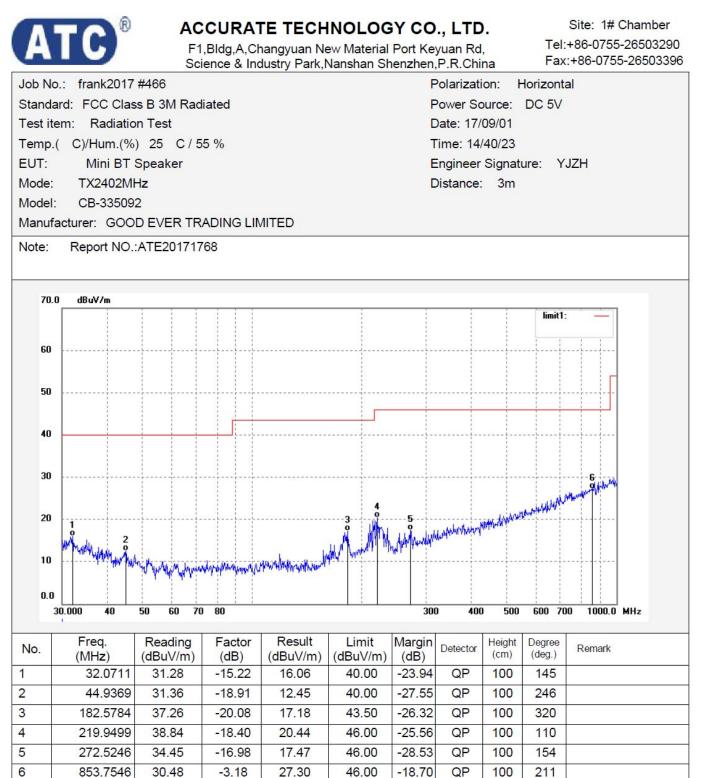
## 10.8. The Field Strength of Radiation Emission Measurement Results

PASS.

Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.

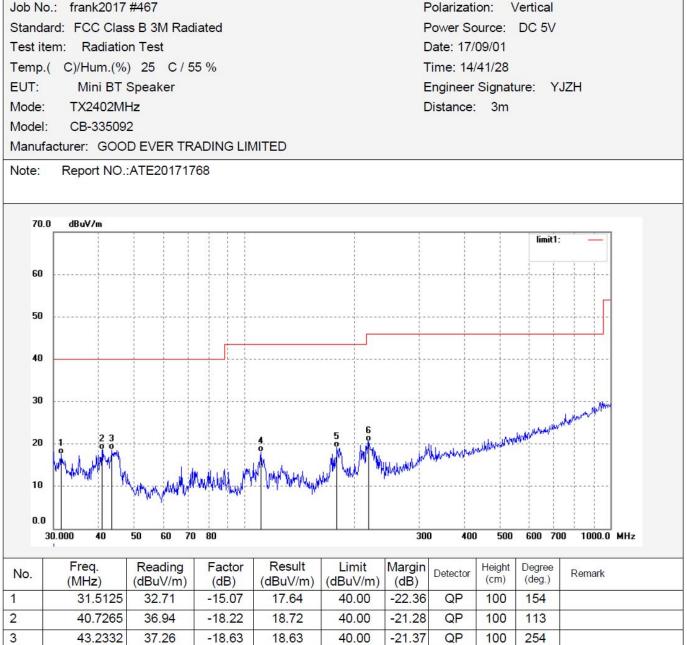
2. *: Denotes restricted band of operation.

3. The radiation emissions from 18-25GHz are not reported, because the test values lower than the limits of 20dB.





Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396



43.50

43.50

46.00

-25.32

-24.26

-25.49

QP

QP

QP

100

100

100

306

245

257

4

5

6

110.8580

178.7697

218.4097

40.01

39.69

38.91

-21.83

-20.45

-18.40

18.18

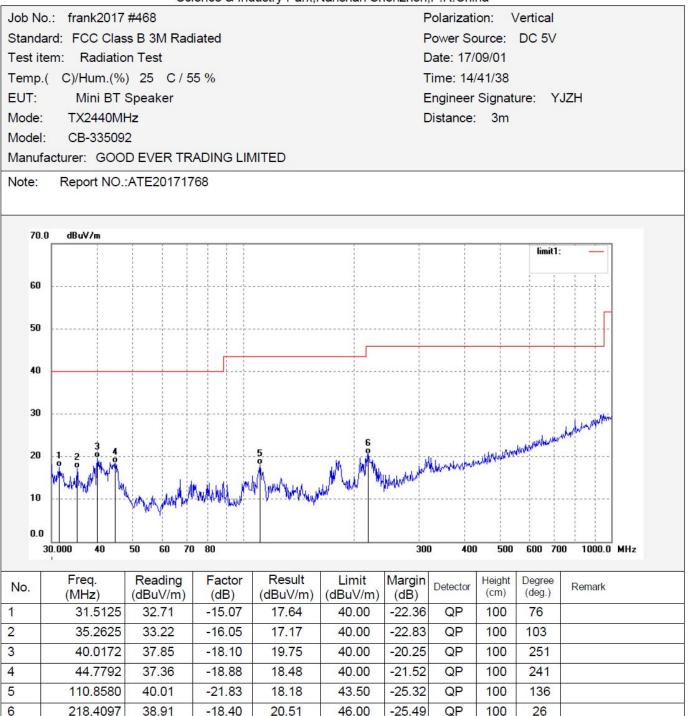
19.24

20.51



### ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Report No.: ATE20171768 Page 41 of 51

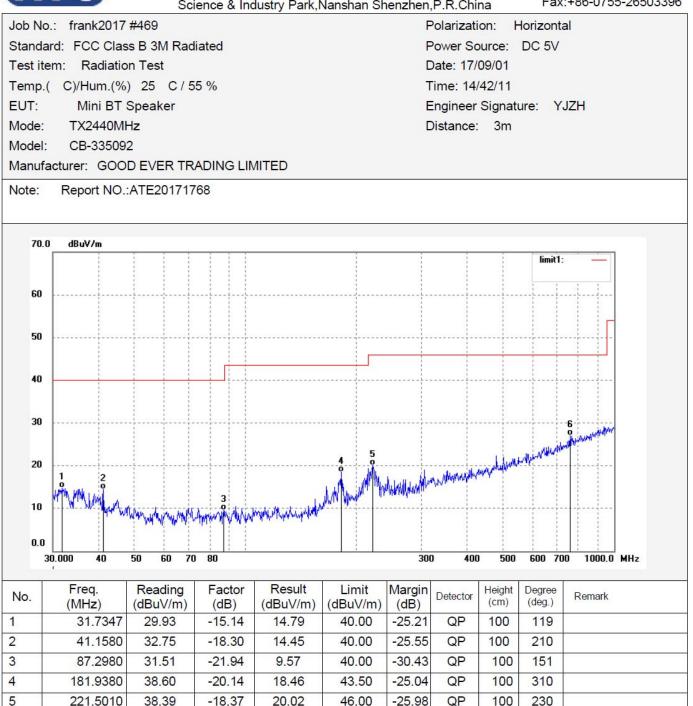




#### Report No.: ATE20171768 Page 42 of 51

# ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396



QP

100

115

-19.01

760.2866

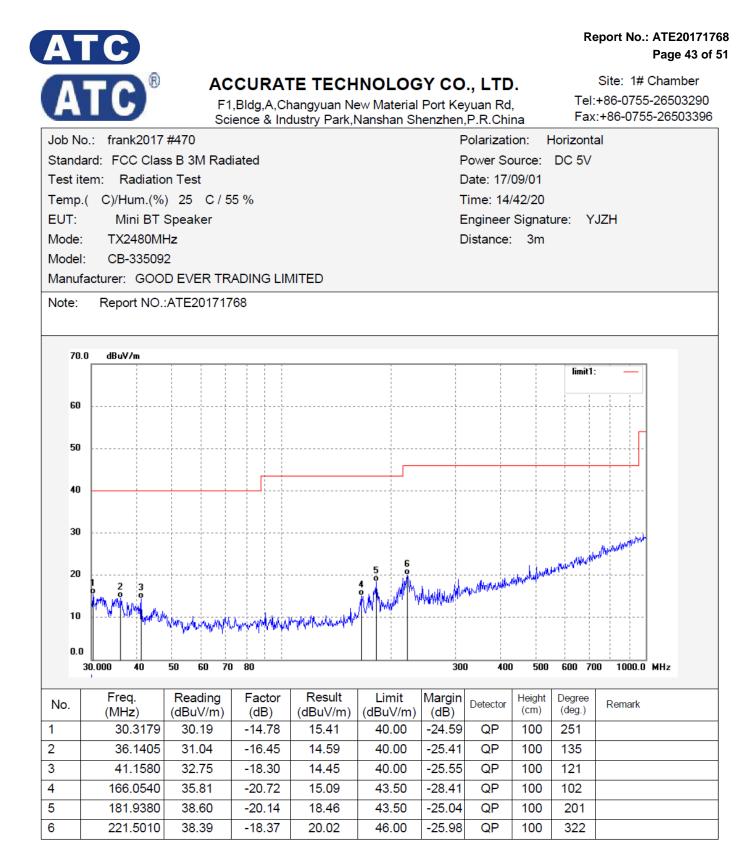
31.90

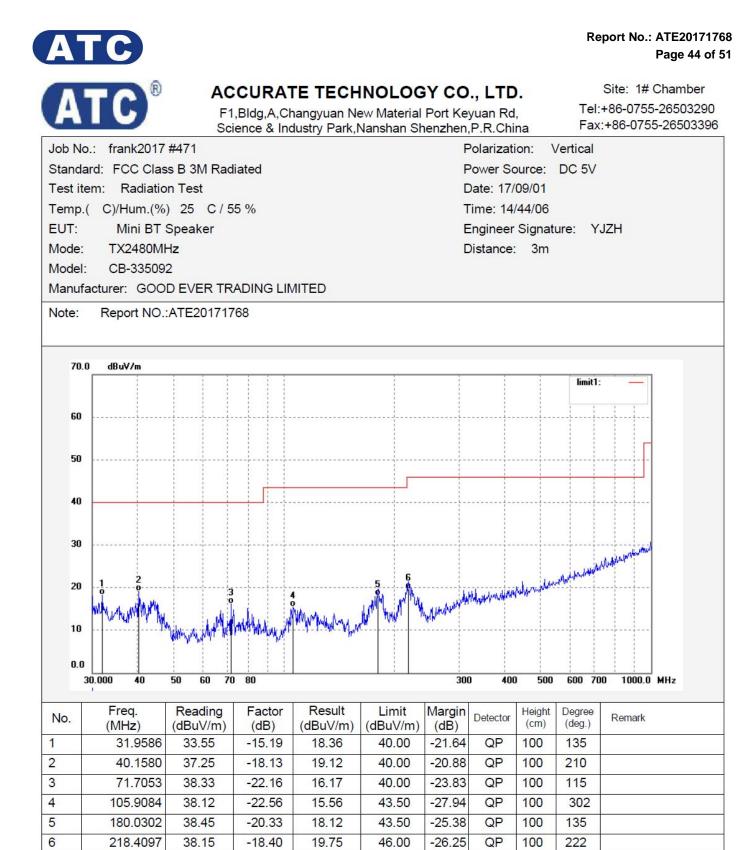
-4.91

26.99

46.00

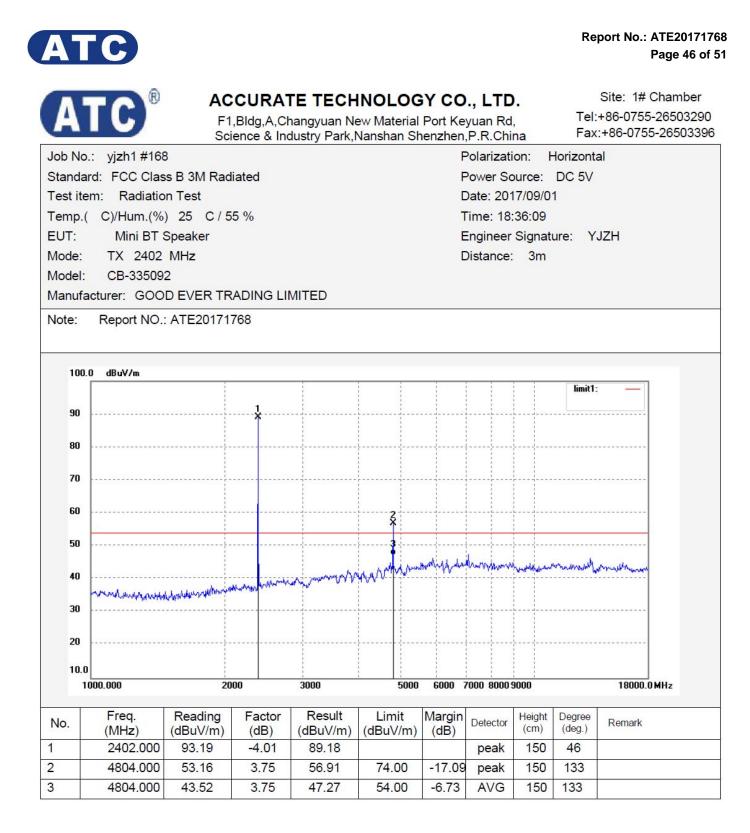
6







ob No	.: yjzh1 #167	7				F	Polarizati	ion: V	/ertical	
								ource:	DC 5V	
est ite	em: Radiatio	n Test				C	Date: 201	7/09/01	1	
emp.(	C)/Hum.(%	) 25 C/5	5 %			1	Fime: 18:	31:50		
UT:	Mini BT S	Speaker				E	Engineer	Signatu	ure: Y	JZH
lode:	TX 2402	MHz				[	Distance:	3m		
lodel:	CB-33509	2								
lanufa	acturer: GOO	D EVER TR	RADING LI	MITED						
ote:	Report NO.:	: ATE20171	768							
100.	0 dBu∀/m			-					limit1:	
			1							
90			····¥·····		• • • • • • • • • • • • • • • • • •					
80								ļ		
70			·····							
60										
00					2 X					
50										
	Manan Manana Ang				, I	Mushik	Man My mary	-hardhanner	- Marine	Man Mar Mar Mar
40			and all America	winner	WWWWW	a				
30	Manager and Amarken	ward have been been been been been been been be	NALAN CAN L. A	12.5						
00										
20										
10.0										
	000.000	20	100	3000	5000	6000	7000 8000 9	9000		18000.0 MHz
	Freq.	Reading	Factor	Result	Limit	Margin	Detector	Height	Degree	Demerk
No.	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Delector	(cm)	(deg.)	Remark
	2402.000	93.69	-4.01	89.68			peak	150	113	
	4804.000	52.44	3.75	56.19	74.00	-17.81		150	246	
	4804.000	43.25	3.75	47.00	54.00	-7.00	AVG	150	246	





## ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd, Science & Industry Park,Nanshan Shenzhen,P.R.China Site: 1# Chamber Tel:+86-0755-26503290 Fax:+86-0755-26503396

ob No.	: yjzh1 #169	9				1	Polarizat	ion: I	-lorizonta	al
tandar	rd: FCC Clas	s B 3M Rad	liated			1	Power So	ource:	DC 5V	
est ite	m: Radiatio	n Test					Date: 20	17/09/0	1	
emp.(	C)/Hum.(%)	) 25 C/5	5 %				Time: 18	:39:32		
UT:	Mini BT S						Engineer	Signat	ure: Y	JZH
ode:	TX 2440	MHz				1	Distance	3m		
odel:	CB-33509	2								
anufa	cturer: GOO		RADING LI	MITED						
ote:	Report NO.:	ATE20171	768							
100.0	0 dBuV/m			1	:			: :	limit1:	
			1						ninci.	
90			····· *····							
80										
70										
60										
00		1		1	×	1				
50										
-						La Alana A.A.	AL	amoral	Wermannel	Murallanan
40	N. 11	الأسيرير الرار	whom tom	www.www.www.hw	and the server a	ARC N. COM. A	ο			
30	n and an and a stand of the second	William and the Constant					ļ			
20				1						
20 10.0					5 5					
10.0	000.000	20	000	3000	5000	6000	7000 8000	9000		18000.0 MHz
10.0 10					1200000	110.000000		1	Dearee	
10.0	500.000 Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	3000 Result (dBuV/m)	Limit (dBuV/m)	6000 Margin (dB)		9000 Height (cm)	Degree (deg.)	18000.0 MHz Remark
10.0 10	Freq.	Reading	Factor	Result	Limit	Margin		Height		

3

4880.000

44.12

4.00

48.12

54.00

-5.88

AVG

150

210



#### Report No.: ATE20171768 Page 48 of 51

## ACCURATE TECHNOLOGY CO., LTD.

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

		50	ience & in	dustry Park,I	vansnan Sr	enznen	,P.R.Chi	na	T QA	+00-0755-2050555
lob No	.: yjzh1 #170	)				F	Polarizati	on: \	/ertical	
Standa	rd: FCC Clas	s B 3M Rad	liated			F	Power Sc	ource:	DC 5V	
est ite	em: Radiatio	n Test				[	Date: 201	7/09/0	1	
emp.(	C)/Hum.(%	) 25 C/5	5 %			-	Time: 18:	42:41		
UT:	Mini BT S	Speaker				E	Engineer	Signat	ure: Y	JZH
/lode:	TX 2440	MHz				[	Distance:	3m		
/lodel:	CB-33509	2								
/lanufa	acturer: GOO	D EVER TR	ADING LI	MITED						
lote:	Report NO.	: ATE20171	768							
100.	0 dBuV/m									
100.									limit1:	
90			1							
80										
-										
70										
60					<b>9</b>					
					×					
50			·		<b>3</b>					
					, I		methow	ANTONIA	mohneymoth	Marandonen
40	N. 1. A	. I alimit	prover heren	apart and have been	And the designed of the second se	419 - F 3199 - S				
30	" "WAY WAY WAY WAY WAY WAY WAY WAY WAY WAY	whether whether a								
20										
10.0										
	000.000	20	000	3000	5000	6000	7000 8000	9000		18000.0 MHz
No.	Freq.	Reading	Factor	Result	Limit	Margin	Detector	Height	Degree	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Delector	(cm)	(deg.)	T CHIGH
	2440.000	93.10	-3.83	89.27			peak	150	87	
2	4880.000	53.00	4.00	57.00	74.00	-17.0	peak	150	110	
3	4880.000	42.13	4.00	46.13	54.00	-7.87	AVG	150	110	



#### Report No.: ATE20171768 Page 49 of 51

ACCURATE TECHNOLOGY CO., LTD.

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

ob No	o.: yjzh1 #171			dustry Park,I			Polarizati		/ertical	
								ource:	DC 5V	
est ite	em: Radiatio	n Test				[	Date: 201	17/09/0	1	
emp.	( C)/Hum.(%	) 25 C/5	5 %			-	Time: 18	56:33		
UT:	Mini BT S	a second a second second				E	Engineer	Signat	ure: Y	JZH
lode:	TX 2480	and the second					Distance:			
lodel:	CB-33509	2								
lanufa	acturer: GOO	D EVER TR	ADING LI	MITED						
lote:	Report NO.:	ATE20171	768							
100	.0 dBuV/m									
		1		1					limit1:	_
90			·····{j·····					ļļ		
			Î							
80										
70										
10										
60					2			ļ		
50					1	····			n	wanter march
40	Hadrenari			W SALE WARA	unamplable	www.www.	Manager	internet Annual	. Church	
	Marthur Month	and the stand the second	all the share while the	medical a satisfy in an						
30										
20										
20										
10.0		20		2000	F000	000	7000 0000	0000		10000 01411-
1	000.000	20	00	3000	5000	PUUU	7000 8000	9000		18000.0 MHz
lo.	Freq.	Reading	Factor	Result	Limit	Margin	Detector	Height	Degree	Remark
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Delocio	(cm)	(deg.)	Kondik
	2480.000	91.56	-3.67	87.89	74.00	17.0	peak	150	167	
	4960.000	52.51	4.49	57.00	74.00	-17.0	peak	150	57	
	4960.000	43.23	4.49	47.72	54.00	-6.28	AVG	150	57	



# ACCURATE TECHNOLOGY CO., LTD.

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

		Sc	ience & Ind	dustry Park,	Nanshan Sr	enznen	,P.R.Chi	na	I ax	.+00-0755-2050358
ob No	o.: yjzh1 #172	2				F	Polarizati	ion: H	Horizonta	al
tanda	ard: FCC Clas	s B 3M Rad	liated			F	Power Sc	ource:	DC 5V	
est ite	em: Radiatio	n Test				0	Date: 201	17/09/0	1	
emp.(	( C)/Hum.(%	) 25 C/5	5 <mark>%</mark>			٦	Time: 18:	:58:58		
UT:	Mini BT :	Speaker				E	Engineer	Signat	ure: Y	JZH
lode:	TX 2480	MHz				0	Distance:	3m		
lodel:	CB-33509	2								
lanufa	acturer: GOO	D EVER TR	ADING LI	MITED						
lote:	Report NO.	: ATE20171	768							
100.	.0 dBuV/m			1					limit1:	( <u>******</u> )
			1							
90			×				hh 1 1 1 1	6 = = = = = = = = = 1 1 1 1 1 1		
80								ļļ		
		1		1		1				
70										
60						1				
00					×					
50										
				1	300 000	1.100.00.01	Maryan	monum	where where	When and the second second
40			white and hand when	vour bourger	And Augusta	iRa and the Al	totte i de construction de la construction de la construcción de la co			
30	when with the states in the second	high and the second street								
50										
20		·····								
10.0										
	000.000	20	00	3000	5000	6000 7	7000 8000	9000		18000.0 MHz
	Freq.	Reading	Factor	Result	Limit	Margin		Height	Degree	
lo.	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Detector	(cm)	(deg.)	Remark
	2480.000	92.06	-3.67	88.39			peak	150	331	
	4960.000	52.17	4.42	56.59	74.00	-17.41	peak	150	287	



# **11.ANTENNA REQUIREMENT**

### 11.1.The Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

#### 11.2.Antenna Construction

Device is equipped with external Antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 1.0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.

