

APPLICATION CERTIFICATION FCC Part 15C On Behalf of Braven LC.

Braven 2300 Portable Bluetooth Speaker Model No.: 2300

FCC ID: Z7RB23

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Report No.	:	ATE20151699
Date of Test	:	Jan 28, 2016Feb 06, 2016
Date of Report	:	Feb 17, 2016



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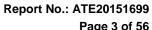
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(C) Test Voltage: AC 100--240V/60Hz

Measurement Procedure Used:

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

The EUT was tested according to DTS test procedure of Jan 07, 2016 KDB558074 D01 DTS Meas Guidance v03r04 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 : Date of Report: Jan 28, 2016--Feb 06, 2016 Feb 17, 2016

Prepared by :

7im Zha

(Tim.zhang, Engineer)

Approved & Authorized Signer :

(Sean Liu, Manager)



1. GENERAL INFORMATION

1.1.Description of Device (EUT)

EUT	:	Braven 2300 Portable Bluetooth Speaker
Model Number	:	2300
Bluetooth version	:	BT V4.0 Dual Mode This report is for BT V4.0 LE mode
Frequency Range	:	2402MHz-2480MHz
Number of Channels	:	40 for BT V4.0 LE 79 for BT classic mode
Antenna Gain	:	0dBi
Antenna type	:	PCB Antenna
Trade Name	:	Braven
Test Voltage	:	AC 100240V/60Hz
Adapter	:	Model: DYS902-250300W Input: AC100-240V; 50/60Hz 1.5A MAX Output: DC 25.0V; 3.0A
Modulation mode	:	GFSK for BT V4.0 LE GFSK, $\pi/4$ DQPSK, 8DPSK for BT classic mode
Applicant	:	Braven LC
Address	:	6001 Oak Canyon, Irvine, CA, USA 92618.
Manufacturer	:	Braven LC
Address	:	6001 Oak Canyon, Irvine, CA, USA 92618.
Factory	:	Zhao Yang Electronic(Shenzhen) Co., Ltd.
Address	:	Building 2, De Yong Jia Industrial Park, Guang Qiao Road, Yu Lv Community, Gong Ming Street, Guang Ming New District, Shenzhen ,518132, China
Date of sample received	:	Jan 27, 2016
Date of Test	:	Jan 28, 2016Feb 06, 2016



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

1.2.Carrier Frequency of Channels

1.3. Special Accessory and Auxiliary Equipment

PC

Manufacturer: LENOVO M/N: 4290-RT8 S/N: R9-FW93G 11/08



1.4.Description of Test Facility

EMC Lab	:	Accredited by TUV Rheinland Shenzhen
		Listed by FCC The Registration Number is 752051
		Listed by Industry Canada The Registration Number is 5077A-2
		Accredited by China National Accreditation Committee for Laboratories The Certificate Registration Number is L3193
Name of Firm Site Location	:	ACCURATE TECHNOLOGY CO. LTD F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, 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

Kind of equipment	Manufacturer	Туре	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 10, 2016	Jan. 09, 2017
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 10, 2016	Jan. 09, 2017
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 10, 2016	Jan. 09, 2017
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 10, 2016	Jan. 09, 2017
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 14, 2016	Jan. 13, 2017
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 14, 2016	Jan. 13, 2017
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 14, 2016	Jan. 12, 2017
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 14, 2016	Jan. 13, 2017
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 10, 2016	Jan. 09, 2017
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 10, 2016	Jan. 09, 2017
Highpass Filter	Wainwright Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 10, 2016	Jan. 09, 2017
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 10, 2016	Jan. 09, 2017

Table 1: List of Test and Measurement Equipment

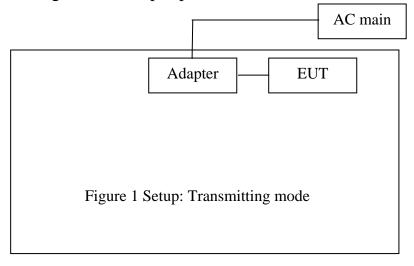


3. OPERATION OF EUT DURING TESTING

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





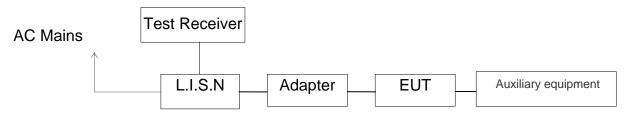
4. TEST PROCEDURES AND RESULTS

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 15.247(d)	Conducted 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 Setup



(EUT: Braven 2300 Portable Bluetooth Speaker)

5.2. Power Line Conducted Emission Measurement Limits

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 decreases linearly with the logarithm of the frequency in the						
range 0.15MHz to 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 C63.4: 2014 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. Power Line Conducted Emission Measurement Results

PASS.

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



Test mode : BT communicating(AC 120V/60Hz)							
MEASUREMENT	RESULT	: "YAQ0	12_fir	1″			
1/29/2016 9:4 Frequency MHz			Limit dBµV	Margin dB	Detector	Line	PE
0.155000 0.350000 0.880000	37.70 32.60 19.20	10.5 10.6 10.8			Ω̃Ρ	L1 L1 L1	GND GND GND
MEASUREMENT	RESULT	: "YAQ0	12_fin	12"			
1/29/2016 9:4 Frequency MHz			Limit dBµV	2	Detector	Line	PE
0.345000 0.695000 1.040000	23.00 22.80 20.50	10.6 10.8 10.9	49 46 46	23.2	AV	L1 L1 L1	GND GND GND
MEASUREMENT	RESULT	: "YAQ0	11_fir	a ''			
1/29/2016 9:4		Tranad	Timit	Mangin	Detector	Tino	PE
Frequency MHz	dBµV		dBµV	-	Detector	LINe	FL
0.170000 0.345000 0.875000	40.00 32.90 25.10	10.5 10.6 10.8		25.0 26.2 30.9	QP	N N N	GND GND GND
MEASUREMENT	RESULT	: "YAQ0	11_fir	12"			
1/29/2016 9:4 Frequency MHz		Transd dB	Limit dBµV	2	Detector	Line	PE
0.345000 0.695000 1.040000	23.40 22.40 20.00	10.6 10.8 10.9	49 46 46		AV AV AV	N N N	GND GND GND



Test mode : BT	communi	icating(A	C 240V/	60Hz)			
MEASUREMENT	RESULT	: "YAQ0	07_fir	1″			
1/29/2016 9:2 Frequency MHz			Limit dBµV		Detector	Line	PE
0.370000 0.820000 0.895000	32.50		56	21.4 23.5 27.2	QP	L1 L1 L1	GND GND GND
MEASUREMENT	RESULT	: "YAQ0	07_fin	12"			
1/29/2016 9:2 Frequency MHz					Detector	Line	PE
0.375000 0.780000 1.040000	22.60		46	20.0 23.4 25.0	AV	L1 L1 L1	GND GND GND
MEASUREMENT	RESULT	: "YAQ(008_fin	n″			
1/29/2016 9:3 Frequency MHz	Level		Limit dBµV	-	Detector	Line	PE
0.370000 0.780000 0.895000	34.00		56		ΏΡ	N N N	GND GND GND
MEASUREMENT 1/29/2016 9:		: "YAQ(008_fin	n2″			
Frequency MHz	Level		Limit dBµV		Detector	Line	PE
0.375000 0.780000 1.040000	23.20		46	19.6 22.8 24.9	AV	N N N	GND GND GND

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

The spectral diagrams are attached as below.

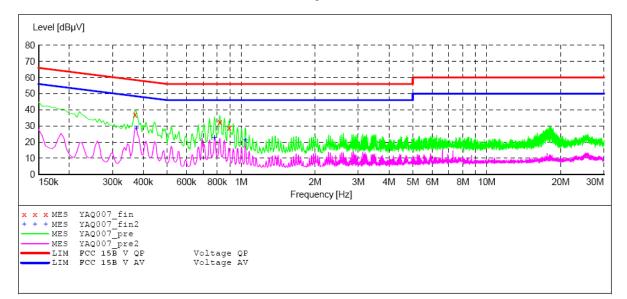


CONDUCTED EMISSION STANDARD FCC PART 15B

EUT:	Braven 2300 Portable Bluetooth Speaker M/N:2300	
Manufacturer:	Braven LC	
Operating Condition:	BT Operation	
Test Site:	1#Shielding Room	
Operator:	star	
Test Specification:	L 240V/60Hz	
Comment:	Report No.:ATE20151699	
Start of Test:	1/29/2016 / 9:23:24AM	

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

~							
	Short Desci	ription:	_S1	UB_STD_VTE	RM2 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: "YAQ007 fin"

1/29/2016 9:26AM

Frequency MHz		Transd dB		2		Line	PE
0.370000 0.820000 0.895000	32.50	10.8	56	23.5	<i></i> ΏР	L1 L1 L1	GND GND GND

MEASUREMENT RESULT: "YAQ007_fin2"

1/29/2016 9:20 Frequency MHz			Limit dBµV	Margin dB	Detector	Line	PE
0.375000 0.780000 1.040000	28.40 22.60 21.00	10.7 10.8 10.9	10	20.0 23.4 25.0	AV	L1 L1 L1	GND GND GND

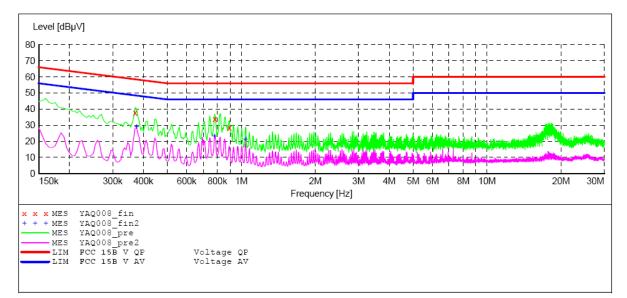


CONDUCTED EMISSION STANDARD FCC PART 15B

EUT:	Braven 2300 Portable Bluetooth Speaker M/N:2300
Manufacturer:	Braven LC
Operating Condition:	BT Operation
Test Site:	1#Shielding Room
Operator:	star
Test Specification:	N 240V/60Hz
Comment:	Report No.:ATE20151699
Start of Test:	1/29/2016 / 9:26:58AM

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

Short Desci	ciption:	_St	JB_STD_VTE	RM2 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: "YAQ008 fin"

1/29/2016 9:30AM

Frequency MHz	Level dBµV		Limit dBµV	Margin dB	Detector	Line	PE
0.370000 0.780000 0.895000	34.00	10.7 10.8 10.8	56	20.9 22.0 27.4	ΏΡ	N N N	GND GND GND

MEASUREMENT RESULT: "YAQ008_fin2"

1/29/2016	9:30AM						
Frequen	cv Level	Transd	Limit	Margin	Detector	Line	PE
1	Hz dBuV		dBuV	dB			
14	ոշ սերտ	uь	ubμv	uв			
0.3750	00 28.80	10.7	48	19.6	AV	Ν	GND
0.7800	00 23.20	10.8	46	22.8	7, 7, 7	N	GND
0.7800	00 23.20	IU.0	40	22.0	AV	IN	GND
1.0400	00 21.10	10.9	46	24.9	AV	N	GND

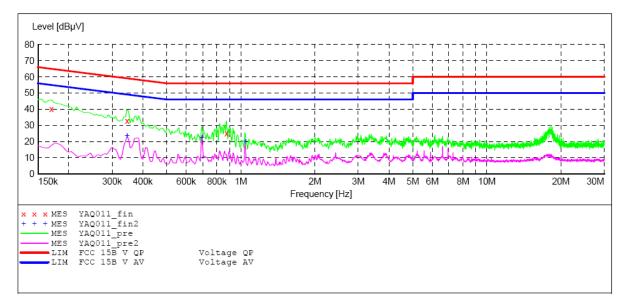


CONDUCTED EMISSION STANDARD FCC PART 15B

EUT:	Braven 2300 Portable Bluetooth Speaker M/N:2300
Manufacturer:	Braven LC
Operating Condition:	BT Operation
Test Site:	1#Shielding Room
Operator:	star
Test Specification:	N 120V/60Hz
Comment:	Report No.:ATE20151699
Start of Test:	1/29/2016 / 9:40:04AM

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

Short Desci	ription:	_ST	UB_STD_VTE	RM2 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			
	Short Desc Start Frequency 9.0 kHz	Short Description: Start Stop Frequency Frequency 9.0 kHz 150.0 kHz	Start Stop Step Frequency Frequency Width 9.0 kHz 150.0 kHz 100.0 Hz	Short Description:SUB_STD_VTEStartStopStepFrequencyFrequencyWidth9.0 kHz150.0 kHz100.0 HzQuasiPeakAverage150.0 kHz30.0 MHz5.0 kHzQuasiPeak	Short Description:SUB_STD_VTERM2 1.70StartStopStepDetector Meas.FrequencyFrequency Width9.0 kHz150.0 kHz150.0 kHz100.0 HzQuasiPeak1.0 sAverage150.0 kHz30.0 MHz5.0 kHzQuasiPeak1.0 s	Short Description:SUB_STD_VTERM2 1.70StartStopStepDetector Meas.IFFrequencyFrequencyWidthTimeBandw.9.0 kHz150.0 kHz100.0 HzQuasiPeak 1.0 s200 HzAverage150.0 kHz30.0 MHz5.0 kHzQuasiPeak 1.0 s9 kHz



MEASUREMENT RESULT: "YAQ011 fin"

1/29/2016 9:43AM

Frequency MHz	Level dBµV		Limit dBµV	Margin dB	Detector	Line	PE
0.170000 0.345000 0.875000	32.90	10.6	59	25.0 26.2 30.9	<i></i> ΏР	N N N	GND GND GND

MEASUREMENT RESULT: "YAQ011_fin2"

1/	29/2016 9:4	3AM						
	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHZ	dBuV	dB	dBuV	dB			
	11112	αDμV	QLD	GLD H V	GLD			
	0 045000	0.0 4.0	10 0	4.0	05 7			011
	0.345000	23.40	10.6	49	25.7	AV	N	GND
	0.695000	22.40	10.8	46	23.6	AV	N	GND
	1.040000	20.00	10.9	46	26.0	AV	N	GND
	1.010000	20.00	2010		20.0			

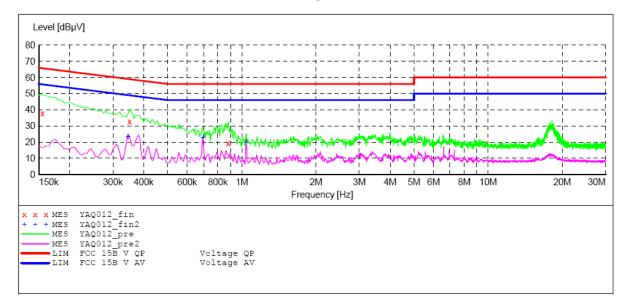


CONDUCTED EMISSION STANDARD FCC PART 15B

EUT:	Braven 2300 Portable Bluetooth Speaker	M/N:2300
Manufacturer:	Braven LC	
Operating Condition:	BT Operation	
Test Site:	1#Shielding Room	
Operator:	star	
Test Specification:	L 120V/60Hz	
Comment:	Report No.:ATE20151699	
Start of Test:	1/29/2016 / 9:44:12AM	

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

~							
	Short Desci	ription:	_ST	UB_STD_VTE	RM2 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: "YAQ012 fin"

1/29/2016 9:47AM

Frequency MHz		Transd dB		Margin dB	Detector	Line	PE
0.155000 0.350000 0.880000	32.60	10.6	59	26.4	<i></i> ΏР	L1 L1 L1	GND GND GND

MEASUREMENT RESULT: "YAQ012_fin2"

1/29/2016 9:4 Frequency		Transd	Limit	Margin	Detector	Line	PE
MHz	dBµV		dBµV	dB	Decestor	LINC	10
0.345000	23.00	10.6	49	26.1	AV	L1	GND
0.695000	22.80	10.8	46	23.2	AV	L1	GND
1.040000	20.50	10.9	46	25.5	AV	L1	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	0.7004	0.5	PASS
19	2440	0.6946	0.5	PASS
39	2480	0.7004	0.5	PASS

The spectrum analyzer plots are attached as below.

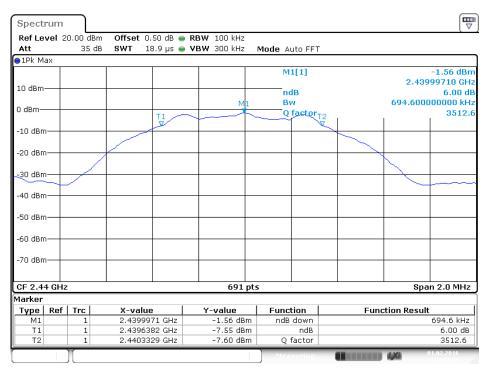
Spectrum							
Ref Level 2 Att	20.00 dBm 35 dB	Offset 0.50 dB 👄 1 SWT 18.9 µs 👄 1		Mode Auto FFT			
1Pk Max		· · · ·					
				M1[1]			-1.94 dBn
10 dBm						2.401	99710 GH
				ndB			6.00 dl
0 dBm			M1	Bw		700.4000	00000 kH
		T1 V	$\downarrow \uparrow$	Q factor T2	1	1	3429.3
-10 dBm		- P					
-20 dBm-+							
		1				\searrow	
-30 dBm							
-40 dBm							
-50 dBm							
60 d0							
-60 dBm							
-70 dBm							
-70 0.0111							
CF 2.402 G	Hz		691 pts			Spa	n 2.0 MHz
Marker							
Type Ref M1	Trc 1	2.4019971 GHz	Y-value -1.94 dBm	Function ndB down	Fund	ction Result	700.4 kHz
T1	1	2.4019971 GH2 2.4016498 GHz	-7.90 dBm	nub uown ndB			6.00 dB
T2	1	2.4023502 GHz	-7.90 dBm	Q factor			3429.3
)[Measuring		4,40)1.02.2016 16:12:51

channel 0

Date: 1.FEB.2016 16:42:51

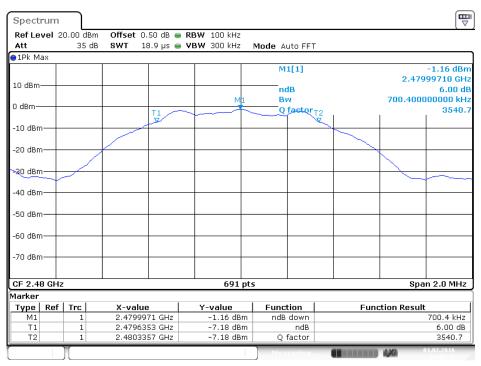


channel 19



Date: 1.FEB.2016 16:42:29

channel 39



Date: 1.FEB.2016 16:41:43



7. MAXIMUM PEAK OUTPUT POWER

7.1.Block Diagram of Test Setup



(EUT: Braven 2	2300 Portable	Bluetooth	Speaker)
----------------	---------------	-----------	----------

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.Test method is options 1 from KDB558074 D01 DTS Meas Guidance v03r04
- 7.5.3.Set RBW of spectrum analyzer to 1 MHz and VBW to 3 MHz.
- 7.5.4.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	-1.77	30	PASS
19	2440	-1.40	30	PASS
39	2480	-1.12	30	PASS

The spectrum analyzer plots are attached as below.

Spectrum									
Ref Level 2			0.50 dB 👄 R						
Att 1Pk Max	35 dB	SWT	1 ms 🛑 V	BW 3 MHz	Mode Aut	to Sweep			
					м	1[1]		2.403	-1.77 dBm 227500 GHz
10 dBm							+		
0 dBm						M1			
-10 dBm									
-20 dBm									
-30 dBm									
-40 dBm									
-50 dBm									
-60 dBm									
-70 dBm									
CF 2.402 GI	Hz			691	pts			Spa	in 2.0 MHz
)[]				Mea	suring		_	01.02.2016

channel 0

Date: 1.FEB.2016 16:39:21

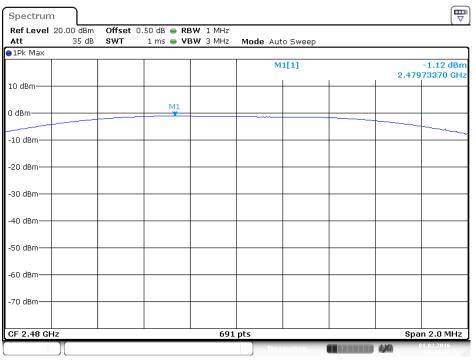


channel 19

Ref Level 20.00 dBm	Offset 0.50 dB 👄 RBW		
Att 35 dB	SWT 1 ms 🖷 VBW	3 MHz Mode Auto Sweep	
)1Pk Max		M1[1]	-1.40 dBn 2.43969900 GH
LO dBm			
) dBm	M1		
10 dBm			
20 dBm			
30 dBm			
40 dBm			
50 dBm			
60 dBm			
70 dBm			
CF 2.44 GHz		691 pts	Span 2.0 MHz

Date: 1.FEB.2016 16:40:18

channel 39



Date: 1.FEB.2016 16:40:40



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 EUT was tested according to DTS test procedure of Jan 07, 2016 KDB558074 D01 DTS Meas Guidance v03r04 for compliance to FCC 47CFR 15.247 requirements.
- 8.5.2. The transmitter output was connected to the spectrum analyzer through a low loss cable.
- 8.5.3.Measurement Procedure PKPSD:
- 8.5.4. 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.
- 8.5.5.Measurement the maximum power spectral density.

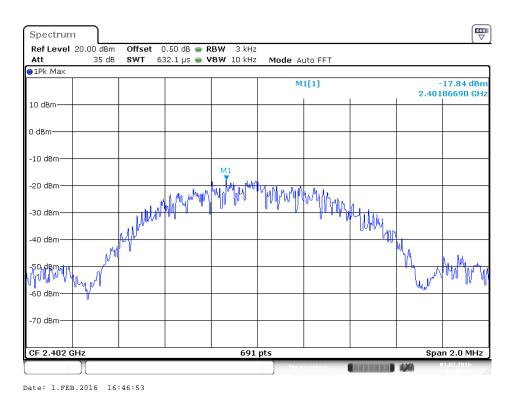


8.6.Test Result

CHANNEL NUMBER	FREQUENCY (MHz)	PSD (dBm/3KHz)	LIMIT (dBm/3KHz)	PASS/FAIL
0	2402	-17.84	8	PASS
19	2440	-17.28	8	PASS
39	2480	-16.87	8	PASS

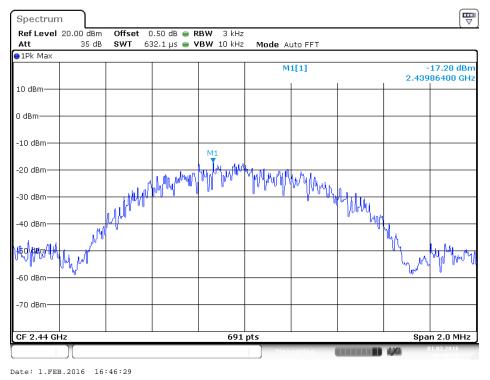
The spectrum analyzer plots are attached as below.

channel 0

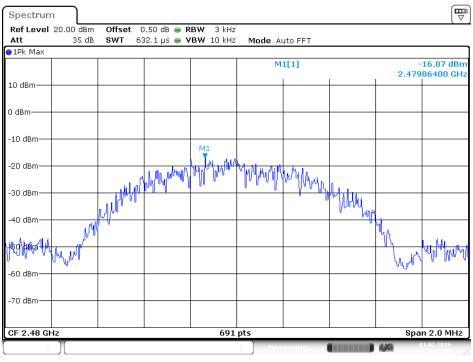




channel 19



channel 39



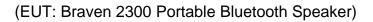
Date: 1.FEB.2016 16:45:45



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 1.5m 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=1MHz, VBW=1MHz

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	48.37	20
39	2.4835GHz	55.91	20

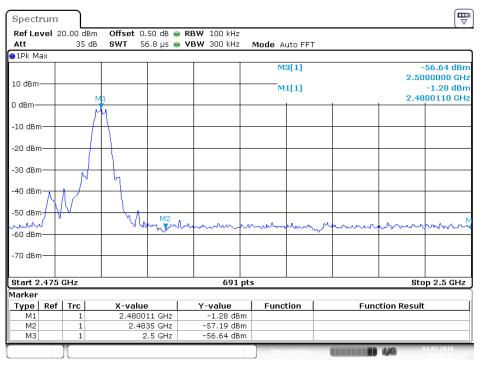


channel 0

Spectrum						
Ref Level 20						
Att	35 dB	SWT 1.1 ms (● VBW 300 kHz	Mode Auto Sw	еер	
∋1Pk Max						
				M1[1]		-2.49 dBr
10 dBm						2.402040 GH
				M2[1]		-50.86 dBr
0 dBm —						2.400000 _M
						l ľ
-10 dBm						
-20 dBm						
-30 dBm						
10.10						
-40 dBm						
-50 dBm						M2
manne	. بىيە ئىلايىت	Ab days of all when a	work a remaining the		. Instantion of the state of	M3
-60 dBm		10000000000000000000000000000000000000				and a construction of a second
-70 dBm						
Start 2.31 GF	17		691 pt	l		Stop 2.405 GHz
darker			001 pt.	-		
Type Ref	Trc	X-value	Y-value	Function	Fun	ction Result
M1	1	2.40204 GHz	-2.49 dBm			
M2	1	2.4 GHz	-50.86 dBm			
MЗ	1	2.39 GHz	-55.61 dBm			
	(Measuring.		01.02.2016

Date: 1.FEB.2016 16:48:29

channel 39



Date: 1.FEB.2016 16:49:30



Radiated Band Edge Result

Date of Test:	Jan 30, 2016	Temperature:	25°C
	Braven 2300 Portable		
EUT:	Bluetooth Speaker	Humidity:	50%
Model No.:	2300	Power Supply:	AC 120V/60Hz
Test Mode:	TX (2402MHz) GFSK	Test Engineer:	Star
		-	

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	
2390.000	32.48	40.80	-8.00	24.48	32.80	54.00	74.00	-29.52	-41.20	Vertical
2400.000	49.71	58.78	-7.97	41.74	50.81	54.00	74.00	-12.26	-23.19	Vertical
2390.000	32.69	41.20	-8.00	24.69	33.20	54.00	74.00	-29.31	-40.80	Horizontal
2400.000	48.14	57.84	-7.97	40.17	49.87	54.00	74.00	-13.83	-24.13	Horizontal

Date of Test: Jan 30, 2016

EUT: Model No.: Test Mode:

Braven 2300 Portable **Bluetooth Speaker** 2300 TX (2480MHz) GFSK Temperature:

Humidity: 50% Power Supply: Test Engineer: Star

AC 120V/60Hz

25°C

Frequency	Reading	(dBµV/m)	Factor(dB)	Result(dBµV/m)		Limit(dl	BµV/m)	Margin(dB)		Polarization
(MHz)	AV	PEAK	Corr.	AV	PEAK	AV	PEAK	AV	PEAK	
2483.500	39.00	48.96	-7.76	31.24	41.20	54.00	74.00	-22.76	-32.80	Vertical
2500.000	33.57	42.41	-7.71	25.86	34.70	54.00	74.00	-28.14	-39.30	Vertical
2483.500	42.04	50.05	-7.76	34.28	42.29	54.00	74.00	-19.72	-31.71	Horizontal
2500.000	32.00	41.12	-7.71	24.29	33.41	54.00	74.00	-29.71	-40.59	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.

Α	ТС	JIAC-MRA	ESTING IAS L3193						Re		ATE201516 Page 33 of
A	TC®	F1	,Bldg,A,Cł	TE TECH nangyuan Ne dustry Park,I	ew Material	Port Ke	yuan Ro	ł,			Chamber -26503290 5-26503396
Job No	o.: STAR2016	6 #252				F	Polarizat	ion: H	Horizonta	al	
Standa	ard: FCC PK					F	Power S	ource:	AC 120	V/60Hz	
Test ite	em: Radiatio	on Test				0	Date: 16	/01/30/			
Temp.	(C)/Hum.(%) 25 C/5	5 %			Т	Time: 11	/41/38			
EUT:		300 Portable	e Bluetoot	h Speaker			Engineer		ure: st	ar	
Vode:		lHz				0	Distance	: 3m			
Model:											
Vanuf	acturer: Brave	en LC									
Note:	Report No.:.	ATE201516	99								
90.0	0 dBuV/m										
									limit1:	-	
80							1		limit2:		
70							•••••				
60											
00											
50							\$				
							6				
40	1					3	····/				
30	her how when the growthe galant	ubiter tradition that with	externed how which	where the second second second	newspillinghamme	ntwiking	when	University	rotherplane	manufertalistic	
	2					ŧ					
20											
10											
10											
0.0	2300.000									2440.0	
	2300.000									2440.0	MHZ
No.	Freq.	Reading	Factor	Result	Limit	Margin	Detector	Height	Degree	Remark	
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)		(cm)	(deg.)		
	2310.000	41.39	-8.21	33.18	74.00	-40.82	peak				
2	2310.000	33.29	-8.21	25.08	54.00	-28.92	AVG				
3	2390.000 2390.000	41.20 32.69	-8.00	33.20 24.69	74.00 54.00	-40.80 -29.31	peak AVG				
4 5	2390.000	32.69 57.84	-8.00	49.87	74.00	-29.31					
	2400.000						peak				
3	2400.000	48.14	-7.97	40.17	54.00	-13.83	AVG				

Report No.: ATE20151699

CNAS



ATC

ACCURATE TECHNOLOGY CO., LTD.

Material Dant Ka

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

AIL			hangyuan Ne dustry Park,I							-26503290 5-26503396
Job No.: STAF	2016 #253				F	Polarizati	ion: \	/ertical		
Standard: FCC	PK				F	Power So	ource:	AC 120	V/60Hz	
Test item: Rad	diation Test				0	Date: 16/	01/30/			
Temp.(C)/Hur	m.(%) 25 C/5	55 %			T	ime: 11	/42/38			
EUT: Brav	ven 2300 Portab	le Bluetoot	h Speaker		E	Engineer	Signat	ure: st	ar	
Mode: TX 24	102MHz				0	Distance:	3m			
Model: 2300										
Manufacturer: I	Braven LC									
Note: Report	No.:ATE201516	99								
90.0 dBuV/n								limit1:		
80						A		limit2:		
70										
60										
50						5				
						6				
40						····•				
30	mound	hethlineditra Astronom	temperatura	nondrangehaven	Mushappa	www.	hundhara	Anglanderson	ntraksakakak Merinter	
20										
10										
0.0 2300.000									2440.0	MHz
No. Freq. (MHz)		Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark	
2310	.000 41.89	-8.21	33.68	74.00	-40.32	peak				
2310	.000 33.20	-8.21	24.99	54.00	-29.01	AVG				
2390	.000 40.80	-8.00	32.80	74.00	-41.20	peak				
0000										

4

5

6

2390.000

2400.000

2400.000

32.48

58.78

49.71

-8.00

-7.97

-7.97

24.48

50.81

41.74

54.00

74.00

54.00

-29.52

-23.19

-12.26

AVG

peak

AVG





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

100		Sci	ience & Ind	dustry Park,I	Nanshan Sh	enzhen	P.R.Chi	na	Fax	:+86-0755-26503396		
Job N	o.: STAR201	6 #254				F	Polarizati	on: H	Horizonta	al		
Stand	ard: FCC PK					F	Power Sc	ource:	AC 120	V/60Hz		
Test it	em: Radiatio	on Test				Date: 16/01/30/						
Temp	.(C)/Hum.(%) 25 C/5	5 %			Г	- ime: 11/	43/54				
EUT:	Braven 2	2300 Portabl	e Bluetoot	h Speaker		Engineer Signature: star						
Mode:	TX 2480M	lHz				0	Distance:	3m				
Model	: 2300											
Manuf	acturer: Brave	en LC										
Note:	Report No.:	ATE201516	99									
10	0.0 dBu¥/m											
									limit1: limit2:			
90												
80												
00												
70												
			1									
60		·										
50												
50			1									
40			<u> </u>									
	multipleting	hermohermulad	a my the man	and Bally March March	personal the second second	white water hope	upper the manual	har you have a second	numment	warrante		
30				4								
20												
10.										2000.0.1411		
	2440.000									2600.0 MHz		
No.	Freq.	Reading	Factor	Result	Limit	Margin	Detector	Height	Degree	Pomark		
	(MHz)	(dBuV/m)	(dB)	(dBuV/m)	(dBuV/m)	(dB)		(cm)	(deg.)	Remark		
1	2483.500	50.05	-7.76	42.29	74.00	-31.71	peak					
2	2483.500	42.04	-7.76	34.28	54.00	-19.72	AVG					
3	2500.000	41.12	-7.71	33.41	74.00	-40.59	peak					

4

2500.000

32.00

-7.71

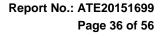
24.29

54.00

-29.71

AVG





ATC®

ACCURATE TECHNOLOGY CO., LTD.

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

		50	ience & Inc	ustry Park,	vansnan Sr	ienznen	P.R.Chi	na	Tax	.+00-0755-	20000000	
Job N	o.: STAR201	6 #255				F	Polarizati	on: \	/ertical			
Stand	lard: FCC PK					F	Power Sc	urce:	AC 120	V/60Hz		
Test i	tem: Radiatio	on Test			[Date: 16/01/30/						
Temp	.(C)/Hum.(%) 25 C/5	5 %		Г	Time: 11/44/51						
EUT:	Braven 2	2300 Portabl	e Bluetootl	h Speaker		E	Engineer	Signat	ure: st	ar		
Mode	: TX 2480M	lHz				[Distance:	3m				
Mode	I: 2300											
Manu	facturer: Brave	en LC										
Note:	Report No.:	ATE201516	99									
10	0.0 dBuV/m								limit1:			
									limit2:			
90			4									
80												
70												
60												
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		{										
40			*	~								
	mar and the second where	when when the work	3 mound	uth Firmmath growth	roundwhappener	www.	mantenda	forther when	with	momenture		
30				4								
20												
10												
10	2440.000									2600.0 N	4Hz	
			-									
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	48.96	-7.76	41.20	74.00	-32.80	peak					
2	2483.500	39.00	-7.76	31.24	54.00	-22.76	AVG					
3	2500.000	42.41	-7.71	34.70	74.00	-39.30	peak					
4	2500.000	33.57	-7.71	25.86	54.00	-28.14	AVG					



10.RADIATED SPURIOUS EMISSION TEST

10.1.Block Diagram of Test Setup

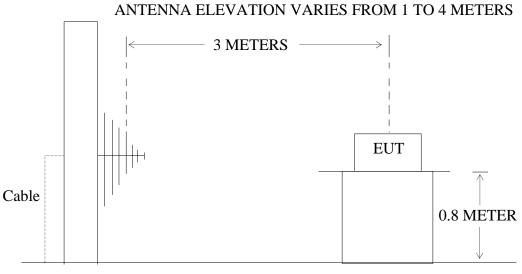
10.1.1.Block diagram of connection between the EUT and peripherals

Adapter	EUT	

Setup: Transmitting mode

(EUT: Braven 2300 Portable Bluetooth Speaker)

10.1.2.Semi-Anechoic Chamber Test Setup Diagram



GROUND PLANE



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

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

1	intered in any of the freque		j
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			

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 2402-2480 MHz. 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



10.7.The Field Strength of Radiation Emission Measurement Results **PASS.**

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

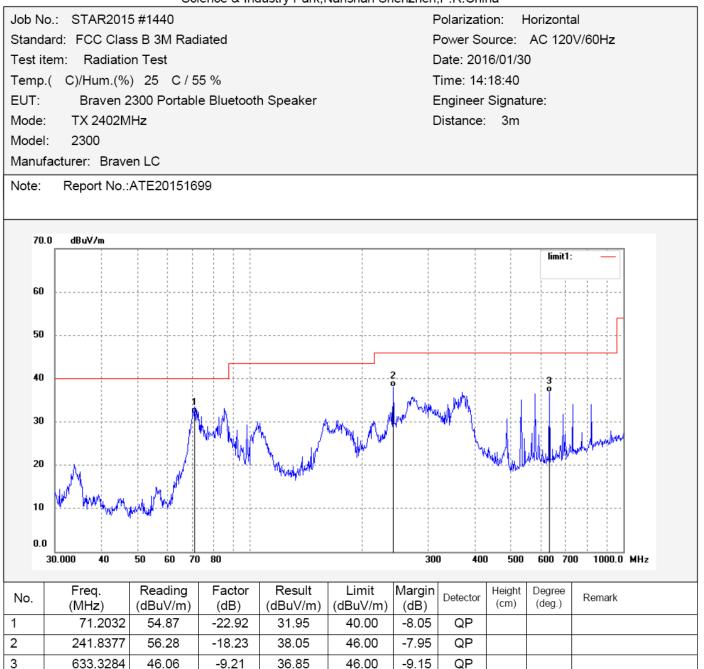
2. *: Denotes restricted band of operation.

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





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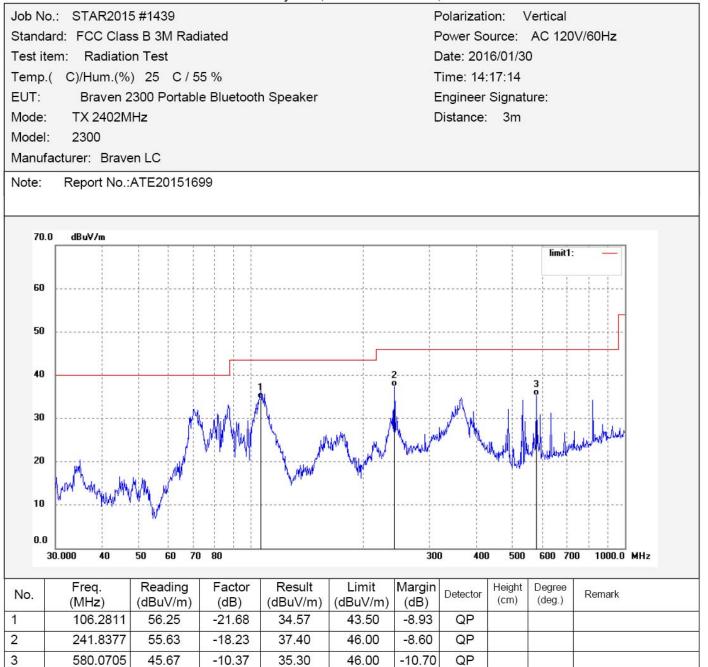




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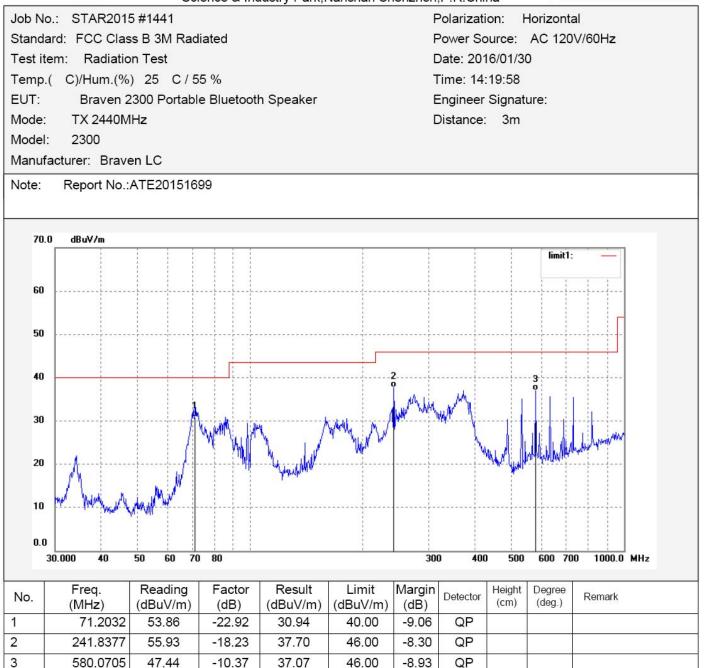




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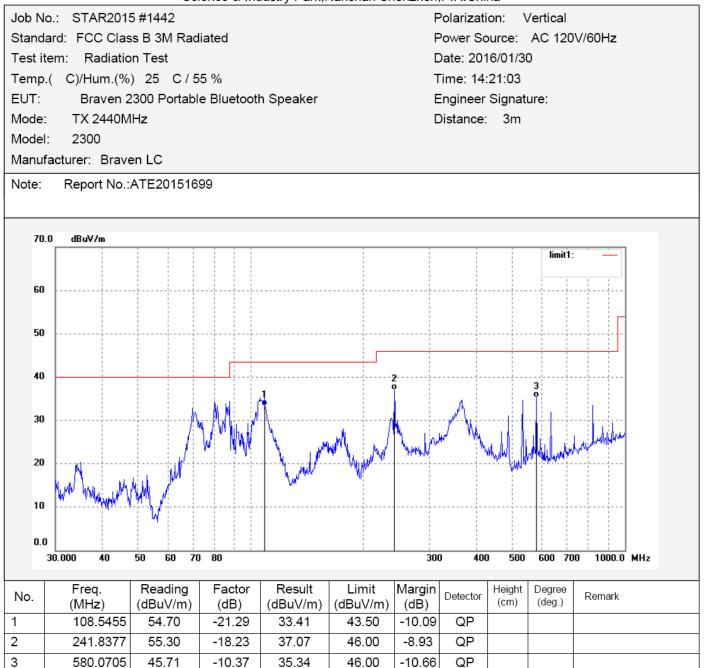
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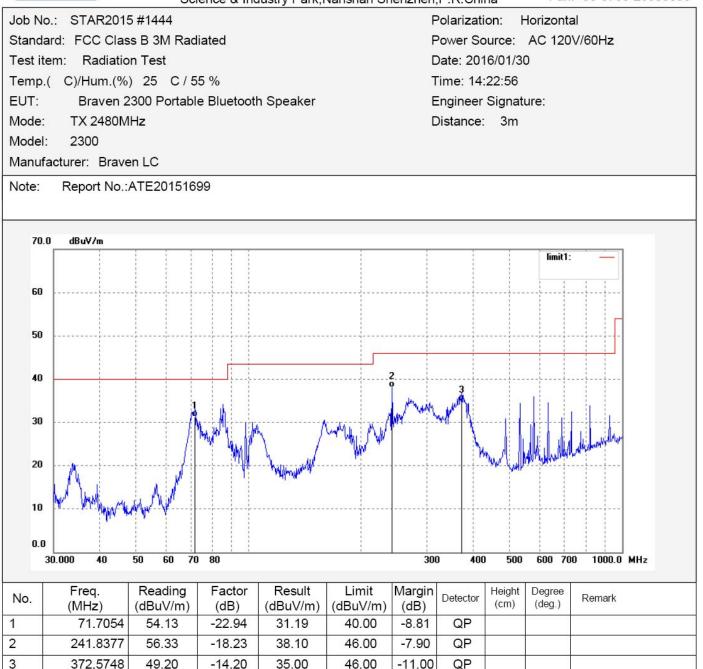
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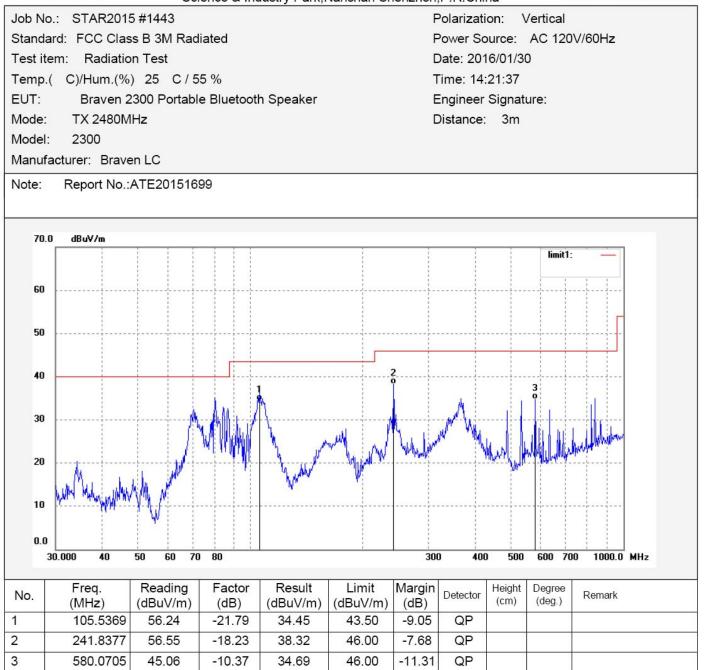




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	13337.303	38.43	10.04	48.47	54.00	-5.53	peak					
	13337.303	27.68	10.04	37.72	54.00	-16.28	AVG					





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	15248.165	35.97	12.94	48.91	54.00	-5.09	peak					
2	15248.165	25.87	12.94	38.81	54.00	-15.19						
	102 10.100	20.01	12.01	00.01	01.00	10.10	1.00					





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No.	(MHz) 13415.172	(dBuV/m) 38.54	(dB) 10.21	(dBuV/m) 48.75	54.00	-5.25	peak				



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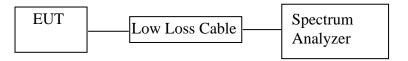
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lo.		-					Detector	(cm)		Remark		



11.CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST

11.1.Block Diagram of Test Setup



(EUT: Braven 2300 Portable Bluetooth Speaker)

11.2. 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).

11.3.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.

11.4.Operating Condition of EUT

- 11.4.1.Setup the EUT and simulator as shown as Section 11.1.
- 11.4.2.Turn on the power of all equipment.
- 11.4.3.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.



11.5.Test Procedure

- 11.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.
- 11.5.2.Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz
- 11.5.3. The Conducted Spurious Emission was measured and recorded.

11.6.Test Result

Pass.

The spectrum analyzer plots are attached as below.

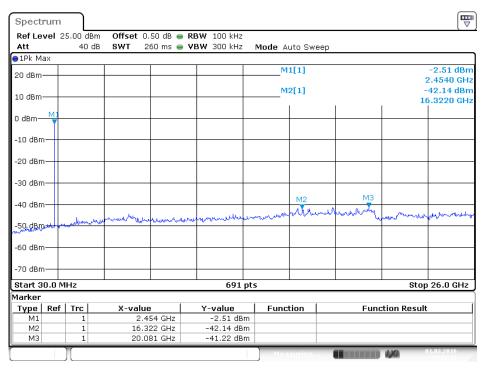
BLE Channel Low 2402MHz

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BLE Channel Middle 2440MHz



Date: 1.FEB.2016 16:52:45

BLE Channel High 2480MHz

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Marker							
Туре	Ref		X-value	Y-value	Function	Fur	nction Result
M1 M2		1	2.492 GHz 11.023 GHz	-1.57 dBm -43.99 dBm			
M3		1	18.051 GHz	-41.24 dBm			

Date: 1.FEB.2016 16:51:56



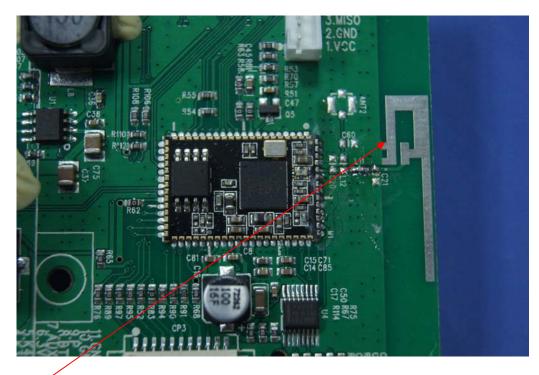
12.ANTENNA REQUIREMENT

12.1.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.

12.2.Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 0dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



Antenna