# FCC PART 15C TEST REPORT FOR CERTIFICATION On Behalf of

# Tymphany HK Limited

Speaker

Model Number: EON ONE

FCC ID: 2AAGJEONONE

Prepared for: Tymphany HK Limited

Room 1307-8, Dominon Centre, 43-59 Queen's Road East,

WanChai, Hong Kong

Prepared By: EST Technology Co., Ltd.

Santun(guantai Road), Houjie Town, DongGuan City,

GuangDong, China.

Tel: 86-769-83081888-808

Report Number: ESTE-R1603013

Date of Test : February 22~ March 03, 2016

Date of Report: March 09, 2016

# TABLE OF CONTENTS

<u>Descr</u>	<u>iption</u>	1	Page
TEST R	EPORT	VERIFICATION	4
1.	GEN	ERAL INFORMATION	5
	1.1.	Description of Device (EUT)	5
2.	Sum	IMARY OF TEST	
	2.1.	Summary of test result	
	2.2.	Test Facilities	
	2.3.	Measurement uncertainty	
	2.4.	Assistant equipment used for test	8
	2.5.	Block Diagram	8
	2.6.	Test mode	8
	2.7.	Channel List for Bluetooth	
	2.8.	Test Equipment	10
3	Pow	VER LINE CONDUCTED EMISSION TEST	11
	3.1.	Limit	11
	3.2.	Test Procedure	11
	3.4.	Test Result	11
	3.5.	Test data	12
4	RAD	IATED EMISSION TEST	16
	4.1 L	.imit	16
	4.2.	Test Procedure	17
	4.3	Test Result	17
	4.4	Test Data	18
5	BAN	ID EDGE COMPLIANCE TEST	36
	5.1	Limit	36
	5.2	Test Procedure	36
	5.3	Test Result	36
	5.4	Test Data	37
6	6dB	Bandwidth Test	41
	6.1	Limit	41
	6.2	Test Procedure	41
	6.3	Test Result	41
	6.4	Test Data	42
7	OUT	PUT POWER TEST	44
	7.1	Limit	44
	7.2	Test Procedure	44
	7.3	Test Procedure	44
	7.4	Test Result	45
	7.5	Test Data	46
8	Pow	VER SPECTRAL DENSITY TEST	48
	8.1	Limit	48
	8.2	Test Procedure	48
	8.3	Test Result	49

#### FCC ID: 2AAGJEONONE

	8.4	Test Data	50
9	ANT	ENNA REQUIREMENTS	52
		Limit	
	9.2	Result	50

**Test Report Verification** 

	Test Keport verificati					
Annligante	Tymphany HK Limited					
Applicant: Address:	Room 1307-8, Dominon Centre, 43-59 Queen's Road East,					
Address:	WanChai, Hong Kong					
Manufacturer						
Address:	8500 Balboa Blvd. Northridge, CA. 913	329				
E.U.T:	Speaker					
<b>Model Number:</b>	EON ONE					
<b>Power Supply:</b>	AC 100-120V/220-240V 50/60Hz					
Test Voltage:	AC 120V/60Hz					
rest voltage.	AC 240V/60Hz					
Trade Name:	JBL Serial No.:					
Date of Receipt:	February 22, 2016 Date of Tes	st: February 22~ March 03, 2016				
Test Specification:	FCC Rules and Regulations Part 15 Sul	bpart C:2015				
rest specification.	ANSI C63.10:2013					
	The device described above is tested by					
Test Result:	measurement results were contained in this test report and EST Technology					
rest result.	Co., Ltd. was assumed full responsibility for the accuracy and completeness					
		hese measurements. Also, this report shows that the EUT to be				
	technically compliance with the FCC Rules and Regulations Part 15 Subpart					
	C requirements.					
	This report applies to above tested samp					
	in part without written approval of EST					
		Date: March 09, 2016				
Prepared by:	Tested by:	Approved by:				
/						
Ada	tom	Trementh				
Russ	Zione /					
Ada / Assistant	Tony.Tang / Engineer	Iceman.Hu / Manager				
Other Aspects:						
None.						
Abbreviations: OK/P=pas.	sed fail/F=failed n.a/N=not applicable	E.U.T=equipment under tested				
	jani -janea mari-noi appueude	2.0.1 equipment under resieu				
This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be						
duplicated in extracts without written approval of EST Technology Co., Ltd.						

EST

# 1. GENERAL INFORMATION

# 1.1. Description of Device (EUT)

Product Name	:	Speaker			
Model Number	:	EON ONE			
FCC ID	:	2AAGJEONONE			
Operation frequency	:	2402MHz~2480MHz			
Number of channel		79	40		
Antenna	:	Internal antenna,	2.13 dBi gain		
BT BDR: BT EDR: π/4		Dula-mode Bluetooth 4.0 BT BDR: GFSK BT EDR: π/4-DQPSK BT EDR: 8-DPSK	Dula-mode Bluetooth 4.0 BLE: GFSK		
Sample Type	:	Prototype production			



# 2. SUMMARY OF TEST

# 2.1. Summary of test result

<b>Description of Test Item</b>	Standard	Results
Power Line Conducted Emission	FCC Part 15: 15.207 ANSI C63.10:2013	PASS
Radiated Emission	FCC Part 15: 15.209 ANSI C63.10:2013 KDB 558074	PASS
Band Edge Compliance	FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074	PASS
6dB Bandwidth	FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074	PASS
Peak Output Power	FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074	PASS
Power Spectral Density	FCC Part 15: 15.247 ANSI C63.10:2013 KDB 558074	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

Note: KDB 558074 D01 DTS Meas Guidance v03r04



#### 2.2. Test Facilities

EMC Lab : Certificated by CNAL, CHINA

Registration No.: L5288

Date of registration: December 07, 2015

Certificated by FCC, USA Registration No.: 989591

Date of registration: November 20, 2013

Certificated by Industry Canada Registration No.: 9405A-1

Date of registration: December 30, 2015

Certificated by VCCI, Japan

Registration No.: R-3663 & C-4103 Date of registration: July 25, 2011

Certificated by TUV Rheinland, Germany Registration No.: UA 50195514 0001 Date of registration: January 07, 2011

Certificated by TUV/PS, Shenzhen

Registration No.: SCN1017

Date of registration: January 27, 2011

Certificated by Intertek ETL SEMKO Registration No.: 2011-RTL-L1-18 Date of registration: April 28, 2011

Certificated by Siemic, Inc. Registration No.: SLCN021

Date of registration: November 8, 2011

Certificated by Nemko, Hong Kong

Registration No.: 175193

Date of registration: May 4, 2011

Name of Firm : EST Technology Co., Ltd.

Site Location : San Tun Management Zone, Houjie Town, Dongguan,

Guangdong, China

### 2.3. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	2.54dB
Uncertainty for Radiation Emission test (30MHz-1GHz)	3.62
Uncertainty for Radiation Emission test (1GHz to 18GHz)	4.86
Uncertainty for radio frequency	7×10-8
Uncertainty for conducted RF Power	0.20dB
Uncertainty for Power density test	0.26dB

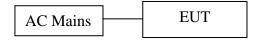
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

### 2.4. Assistant equipment used for test

#### 2.4.1. N/A

# 2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.1 meter high above ground. EUT was be set into BT test mode by Bluesuite software before test.



(EUT: Speaker)

#### 2.6. Test mode

A special test software was used to control EUT work in Continuous TX mode(100% duty cycle), and select test channel, wireless mode and data rate.

Mode	Channel	Frequency
	Low	2402MHz
BT 4.0-BLE GFSK	Middle	2440MHz
	High	2480MHz

EST Technology Co., Ltd Report No. ESTE-R1603013 Page 8 of 52

## 2.7. Channel List for Bluetooth

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2402	2	2404
3	2406	4	2408
5	2410	6	2412
7	2414	8	2416
9	2418	10	2420
11	2422	12	2424
13	2426	14	2428
15	2430	16	2432
17	2434	18	2436
19	2438	20	2440
21	2442	22	2444
23	2446	24	2448
25	2450	26	2452
27	2454	28	2456
29	2458	30	2460
31	2462	32	2464
33	2466	34	2468
35	2470	36	2472
37	2474	38	2476
39	2478	40	2480



# 2.8. Test Equipment

# 2.8.1. For conducted emission test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESHS30	832354	June,28,15	1 Year
Artificial Mains Networ	Rohde & Schwarz	ENV216	101260	June,28,15	1 Year
Pulse Limiter		ESSP-920BT- Z2	101100	June,28,15	1 Year

## 2.8.2. For radiated emission test(30-1000MHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESVS10		June,28,15	
Spectrum Analyzer	Agilent	E4411B	MY5014069 7	June,28,15	1 Year
Bilog Antenna	Teseq	CBL 6111D	27090	June,28,15	1 Year
Signal Amplifier	Agilent	310N	187037	June,28,15	1 Year
RF Cable	Hubersuhner	W10.02	534123	June,28,15	1 Year

# 2.8.3. For radiated emission test(above 1GHz)

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Horn Antenna	SCHWARZB ECK	BBHA 9120 D	BBHA9120D1 002	June,28,15	1 Year
Signal Amplifier	SCHWARZB ECK	BBV9718	9718-212	June,28,15	1 Year
Spectrum Analyzer	Agilent	E4408B	MY44211139	June,28,15	1 Year
RF Cable	Hubersuhner	RG 214/U	513423	June,28,15	1 Year
Spectrum Analyzer	Rohde &Schwarz	FSV	103173	June,28,15	1 Year

EST Technology Co., Ltd Report No. ESTE-R1603013 Page 10 of 52

### 3 POWER LINE CONDUCTED EMISSION TEST

#### 3.1. Limit

	Maximum RF Line Voltage			
Frequency	Quasi-Peak Level	Average Level		
	$dB(\mu V)$	$dB(\mu V)$		
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*		
500kHz ~ 5MHz	56	46		
5MHz ~ 30MHz	60	50		

Notes: 1. \* Decreasing linearly with logarithm of frequency.

#### 3.2. Test Procedure

The EUT was placed on a non-metallic table, 10cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line 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: 2009 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESHS30) is set at 10kHz.

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

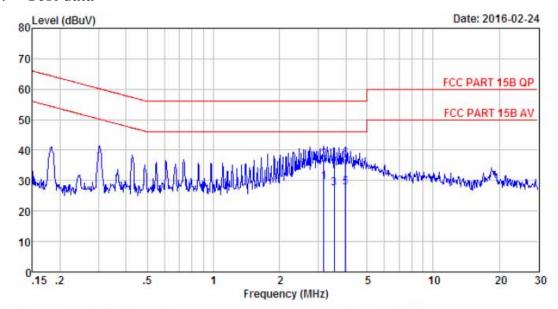
#### 3.4. Test Result

**PASS.** (All emissions not reported below are too low against the prescribed limits.)

EST Technology Co., Ltd Report No. ESTE-R1603013 Page 11 of 52

<sup>2.</sup> The lower limit shall apply at the transition frequencies.

### 3.5. Test data



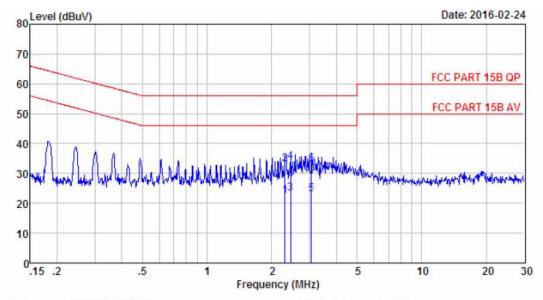
Site no : 844 Shield Room Data no. : 1133 Env. / Ins. : Temp:24.3°C Humi:58% Press:101.50kPa LINE Phase : LINE

Limit : FCC PART 15B QP

Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE
Test Mode : TX Mode

		LISN	Cable		Emission			
	Freq. (MHz)	Factor (db)	Loss (db)	Reading dBuV)	Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	3.173	9.63	9.84	10.00	29.47	46.00	16.53	Average
2	3.173	9.63	9.84	17.50	36.97	56.00	19.03	QP
3	3.547	9.64	9.84	8.09	27.57	46.00	18.43	Average
4	3.547	9.64	9.84	16.49	35.97	56.00	20.03	QP
5	3.985	9.64	9.84	8.40	27.88	46.00	18.12	Average
6	3.985	9.64	9.84	17.60	37.08	56.00	18.92	QP



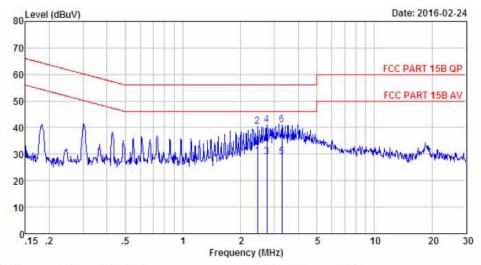


Site no : 844 Shield Room Data no. : 1135 Env. / Ins. : Temp:24.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL

Limit : FCC PART 15B QP

Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE
Test Mode : TX Mode

		LISN	Cable	E .	Emission			
	Freq.	Factor (db)	Loss (db)	Reading dBuV)	Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	2.309	9.62	9.84	3.01	22.47	46,00	23,53	Average
2	2.309	9.62	9.84	13.71	33.17	56.00	22.83	QP
3	2.448	9.63	9.84	3.99	23.46	46.00	22.54	Average
4	2.448	9.63	9.84	14.49	33.96	56.00	22.04	QP
5	3.058	9.63	9.85	3.60	23.08	46.00	22.92	Average
6	3.058	9.63	9.85	13.50	32.98	56.00	23.02	QP

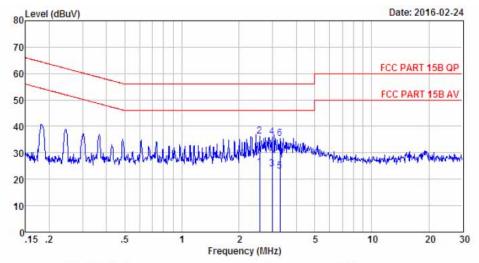


Site no : 844 Shield Room Data no. : 1121 Env. / Ins. : Temp:24.3'C Humi:58% Press:101.50kPa LINE Phase : LINE Limit : FCC PART 15B QP Engineer : Tony

EUI : Speaker Power : AC 240V/50Hz : EON ONE M/N : TX Mode Test Mode

	Freq.	ISN Factor (db)	Cable Loss (db)	Reading dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	2,448	9.62	9.84	9.90	29.36	46.00	16.64	Average
2	2.448	9.62	9.84	20.85	40.31	56.00	15.69	QP
3	2.750	9.62	9.83	9.51	28.96	46.00	17.04	Average
4	2.750	9.62	9.83	21.49	40.94	56.00	15.06	QP
5	3.293	9.63	9.84	9.50	28.97	46.00	17.03	Average
6	3.293	9.63	9.84	21.65	41.12	56.00	14.88	QP





Side no : 844 Shield Room Data no. : 1123 Env. / Ins. : Temp:24.3'C Humi:58% Press:101.50kPa LINE Phase : NEUTRAL Limit : FCC PART 15B QP Engineer : Toru

: Tony Engineer EUT : Speaker : AC 240V/50Hz Power : EON ONE M/N : TX Mode Test Mode

	Freq.	ISN Factor (db)	Cable Loss (db)	Reading dBuV)	Emission Level (dBuv)	Limits (dBuv)	Margin (dB)	Remark
1	2.567	9.63	9.84	5.10	24.57	46.00	21.43	Average
2	2.567	9.63	9.84	16.92	36.39	56.00	19.61	QP
3	2.993	9.63	9.85	4.40	23.88	46.00	22.12	Average
4	2.993	9.63	9.85	16.53	36.01	56.00	19.99	QP
5	3.293	9.64	9.84	3.50	22.98	46.00	23.02	Average
6	3.293	9.64	9.84	16.02	35.50	56.00	20.50	QP



# 4 RADIATED EMISSION TEST

#### 4.1 Limit

4.1.1 15.209 limits

FREQUENCY	DISTANCE	FIELD STREN	NGTHS LIMIT	
MHz	Meters	μV/m	$dB(\mu V)/m$	
30 ~ 88	3	100	40.0	
88 ~ 216	3	150	43.5	
216 ~ 960	3	200	46.0	
960 ~ 1000	3	500	54.0	
Above 1000	3	74.0 dB(μV	V)/m (Peak)	
		54.0 dB(μ <sup>V</sup>	V)/m (Average)	

Remark : (1) Emission level  $dB\mu V = 20$  log Emission level  $\mu V/m$ 

- (2) The smaller limit shall apply at the cross point between two frequency bands.
- (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.1.2 15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
<sup>1</sup> 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)

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

EST Technology Co., Ltd Report No. ESTE-R1603013 Page 16 of 52

#### 4.2. Test Procedure

EUT and its simulators are placed on a turn table, which is 0.1 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna are set on test.

The bandwidth of the EMI test receiver is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

PEAK detector, 1MHz/1MHz for PAEK measurement,

PEAK detector, 1MHz/10Hz for Average measurement

The frequency range from 30MHz to 10<sup>th</sup> harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

#### 4.3 Test Result

#### PASS.

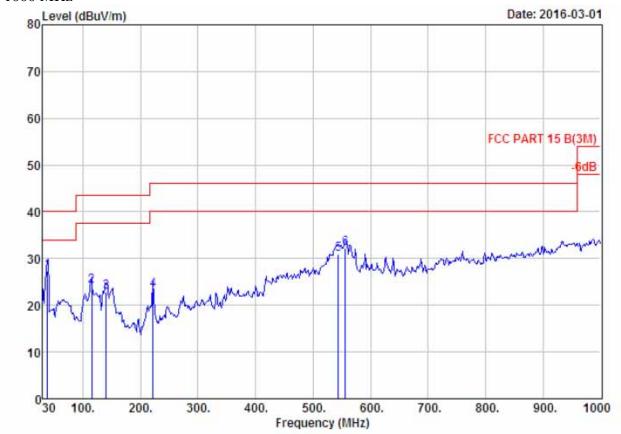
All the emissions from 30MHz to 25 GHz were comply with 15.209 limits.

- Note: 1. For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.
  - 2. The frequency 2402MHz. 2440MHz and 2480 MHz is fundamental frequency which no limit, the limit on plots is automatically generated by the software, it's not fundamental limit, we can't remove it.

EST Technology Co., Ltd Report No. ESTE-R1603013 Page 17 of 52

### 4.4 Test Data

#### 30-1000 MHz



Site no. : 966 1# chamber Data no. : 341
Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL

Limit : FCC PART 15 B (3M)

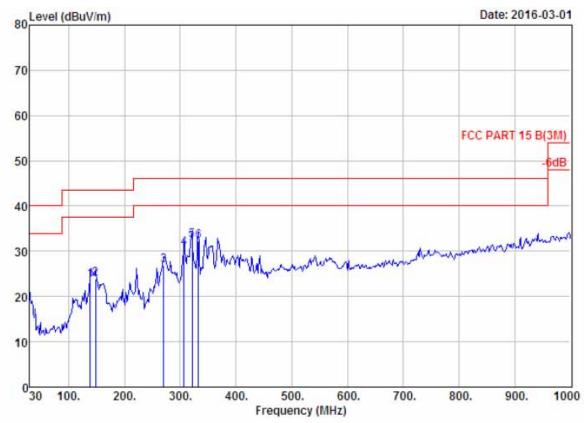
Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

Test Mode : GFSK TX 2402MHz

Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
37.76	14.05	0.79	12.50	27.34	40.00	12.66	QP
115.36	10.93	1.46	11.68	24.07	43.50	19.43	QP
140.58	11.40	1.49	9.90	22.79	43.50	20.71	QP
222.06	9.31	2.01	11.87	23.19	46.00	22.81	QP
544.10	19.46	3,20	8.33	30.99	46.00	15.01	QP
555.74	19.61	3.25	9.30	32.16	46.00	13.84	QP





Site no. : 966 1# chamber Data no. : 342

Dis. / Ant. : 3m 27137 Ant. pol. : HORIZONTAL

Limit : FCC PART 15 B(3M)

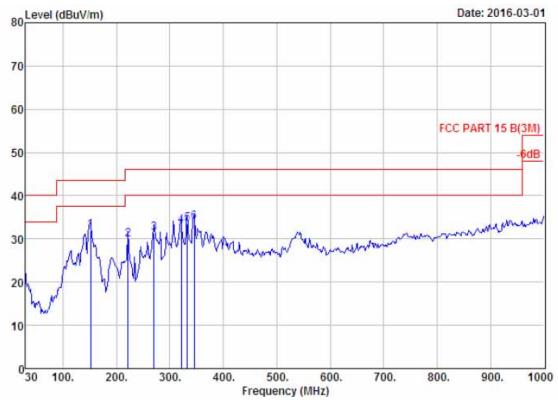
Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

Test Mode : GFSK TX 2402MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	138.64	11.42	1.54	10.81	23.77	43.50	19.73	QP
2	148.34	11.00	1.69	11.26	23.95	43.50	19.55	QP
3	270.56	12.53	2.27	12.10	26.90	46.00	19.10	QP
. 4	306.45	13.13	2.35	15.16	30.64	46.00	15.36	QP
5	321.00	13.60	2.41	16.50	32.51	46.00	13.49	QP
6	332.64	13.93	2.48	15.90	32.31	46.00	13.69	QP





Site no. : 966 1# chamber Dis. / Ant. : 3m 27137

Data no. : 343 Ant. pol. : HORIZONTAL

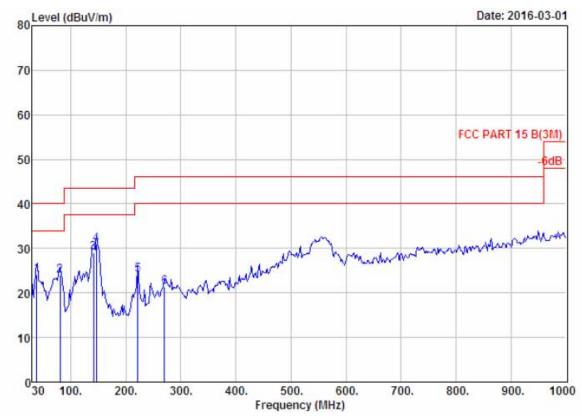
Limit

: FCC PARI 15 B(3M) : Temp:23.6';Humi:56%;Press:101.52kPa Env. / Ins.

: Tony Engineer EUT : Speaker : AC 120V/60Hz Power : EON ONE M/N Test Mode : GFSK TX 2440MHz

	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
 1	151.25	10.82	1.61	19.61	32.04	43.50	11.46	QP
2	222.06	9.31	2.01	18.57	29.89	46.00	16.11	QP
3	270.56	12.53	2.27	16.53	31.33	46.00	14.67	QP
4	321.00	13.60	2.41	17.08	33.09	46.00	12.91	QP
5	332.64	13.93	2.48	17.07	33.48	46.00	12.52	QP
6	345.25	14.32	2.54	16.98	33.84	46.00	12.16	QP





: 966 1# chamber Data no. : 344 Site no. Ant. pol. : VERTICAL Dis. / Ant. : 3m 27137

: FCC PART 15 B (3M) Limit

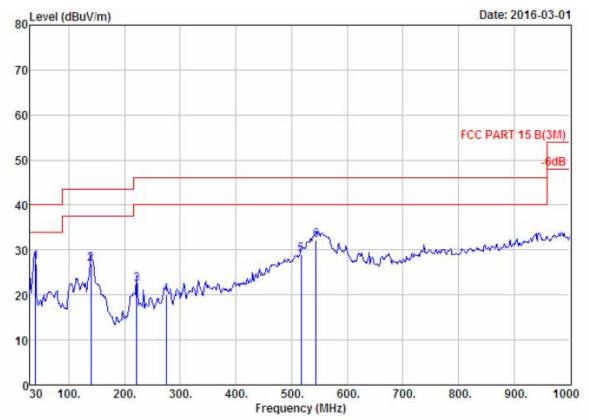
Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony EUT : Speaker Power : AC 120V/60Hz : EON ONE M/N

Test Mode : GFSK TX 2440MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
 1	37.76	14.05	0.79	9.30	24.14	40.00	15.86	QP
2	80.44	7.07	1.25	15.48	23.80	40.00	16.20	QP
3	141.55	11.36	1.51	16.12	28.99	43.50	14.51	QP
. 4	146.40	11.15	1.58	18.21	30.94	43.50	12.56	QP
5	222.06	9.31	2.01	12.84	24.16	46.00	21.84	QP
6	270.56	12.53	2.27	6.45	21.25	46.00	24.75	QP





Site no. : 966 1# chamber Data no. : 345
Dis. / Ant. : 3m 27137 Ant. pol. : VERTICAL

Limit : FCC PART 15 B(3M)

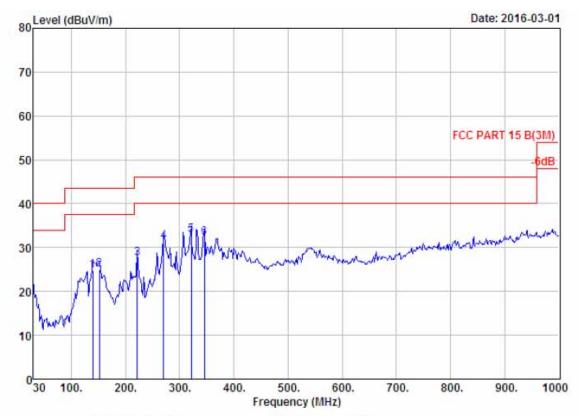
Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

Test Mode : GFSK TX 2480MHz

		Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
-	1	39.70	12.90	0.81	13.62	27.33	40.00	12,67	QP
	2	139.61	11.43	1.51	13.96	26.90	43.50	16.60	QP
	3	222.06	9.31	2.01	11.05	22.37	46.00	23.63	QP
	4	274.44	12.39	2.22	5.46	20.07	46.00	25.93	QP
	5	516.94	17.95	3.15	7.82	28.92	46.00	17.08	QP
	6	544.10	19.46	3.20	9.46	32.12	46.00	13.88	QP





: 966 1# chamber : 3m 27137 Site no.

Data no. : 346 Ant. pol. : HORIZONTAL Dis. / Ant.

: FCC PART 15 B (3M) Limit

Env. / Ins. : Temp:23.6';Humi:56%;Press:101.52kPa

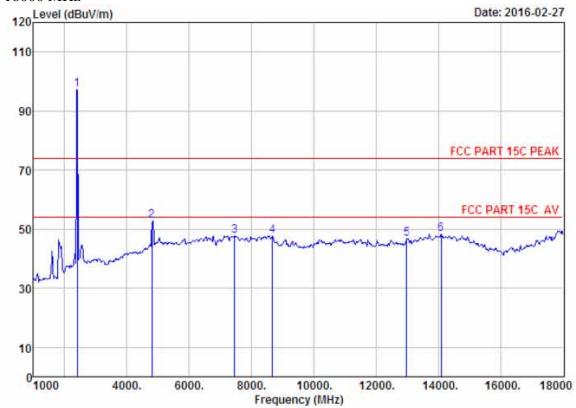
Engineer : Tony EUT : Speaker : AC 120V/60Hz Power M/N : EON ONE

Test Mode : GFSK TX 2480MHz

	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
 1	139.61	11.43	1.51	11.73	24.67	43.50	18.83	QP
2	151.25	10.82	1.61	12.52	24.95	43.50	18.55	QP
3	222.06	9.31	2.01	16.14	27.46	46.00	18.54	QP
4	270.56	12.53	2.27	16.55	31.35	46.00	14.65	QP
5	321.00	13.60	2.41	16.90	32.91	46.00	13.09	QP
6	345.25	14.32	2.54	15.42	32.28	46.00	13.72	QP



#### 1000-18000 MHz



Data no. : 315 Ant. pol. : HORIZONTAL Site no. : 1# 966 chamber Dis. / Ant. : 3m ANT 1-18G

: FCC PART 15C PEAK Limit

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

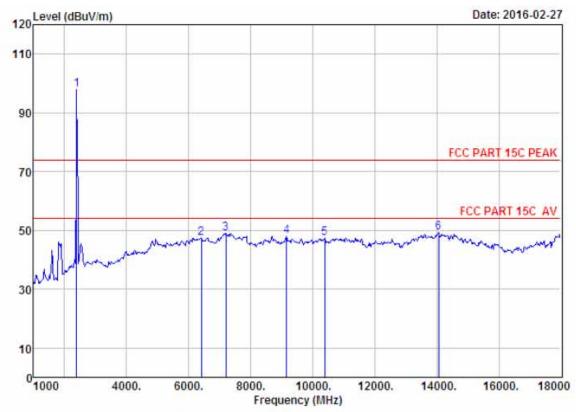
Engineer : Tony EUT : Speaker : AC 120V/60Hz Power M/N : EON ONE

Test Mode : GFSK TX 2402MHz

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.00	27.61	6.62	34.64	97.84	97.43	74.00	-23.43	Peak
2	4804.00	31.25	11.77	35.64	45.55	52.93	74.00	21.07	Peak
3	7460.00	36.52	11.61	34.21	33.89	47.81	74.00	26.19	Peak
4	8667.00	37.30	11.45	33.67	32.67	47.75	74.00	26.25	Peak
5	12985.00	38.89	11.41	33.04	29.47	46.73	74.00	27.27	Peak
6	14090.00	41.54	10.91	33.13	29.15	48.47	74.00	25.53	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.





Site no. : 1# 966 chamber Data no. : 316
Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL

Limit : FCC PARI 15C PEAK

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

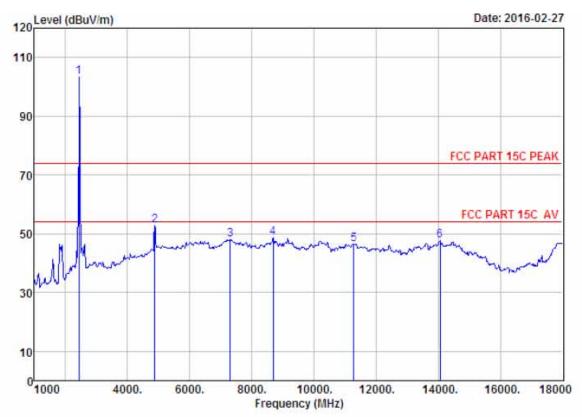
Engineer : Tony
EUI : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

Test Mode : GFSK TX 2402MHz

	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2394.00	27.61	6.62	34.62	98.31	97.92	74.00	-23.92	Peak
2	6406.00	33.99	12.21	35.35	36.61	47.46	74.00	26.54	Peak
3	7205.00	36.52	11.54	33.92	34.83	48.97	74.00	25.03	Peak
4	9160.00	37.69	11.54	34.07	32.84	48.00	74.00	26.00	Peak
5	10384.00	38.77	11.38	34.53	31.83	47.45	74.00	26.55	Peak
6	14056.00	41.51	10.90	33.06	30.02	49.37	74.00	24.63	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.





Site no. : 1# 966 chamber Data no. : 319
Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

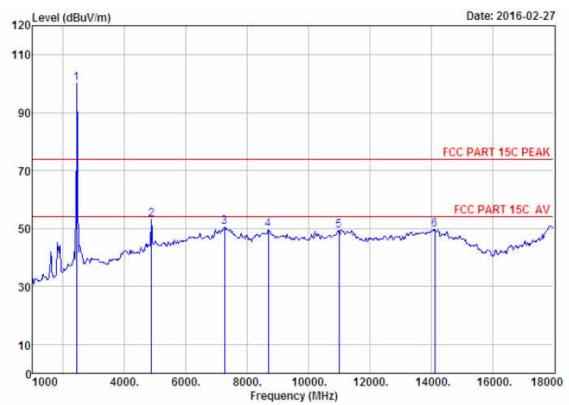
Engineer : Tony
EUI : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

Test Mode : GFSK TX 2440MHz

	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2440.00	27.60	6.67	34.85	103.89	103.31	74.00	-29.31	Peak
2	4880.00	31.37	12.07	35.76	45.25	52.93	74.00	21.07	Peak
3	7307.00	36.55	11.57	34.12	34.10	48.10	74.00	25.90	Peak
4	8684.00	37.32	11.45	33.66	33.61	48.72	74.00	25.28	Peak
5	11285.00	39.33	11.08	33.32	29.44	46.53	74.00	27.47	Peak
6	14056.00	41.51	10.90	33.06	28.43	47.78	74.00	26.22	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.





Site no. : 1# 966 chamber Data no. : 320 Dis. / Ant. : 3m ANT 1-18G Limit : FCC PART 15C PEAK Ant. pol. : VERTICAL

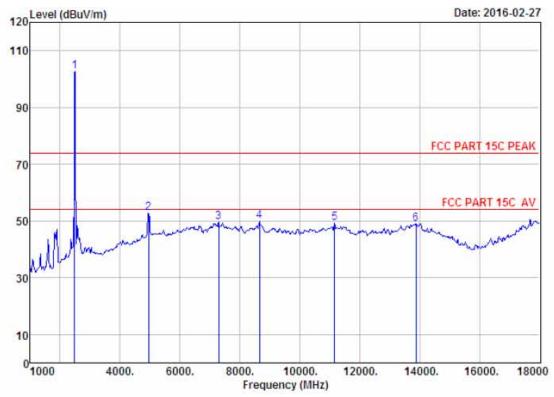
Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

: Tony Engineer EUT : Speaker Power : AC 120V/60Hz M/N : EON ONE : GFSK TX 2440MHz Test Mode

	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2440.00	27.60	6.67	34.85	100.71	100.13	74.00	-26.13	Peak
2	4880,00	31.37	12.07	35.76	45.54	53.22	74.00	20.78	Peak
3	7256.00	36.53	11.55	34.02	36.55	50.61	74.00	23.39	Peak
4	8684.00	37.32	11.45	33.66	34.38	49.49	74.00	24.51	Peak
5	10996.00	39.52	11.29	34.11	32.52	49.22	74.00	24.78	Peak
6	14124.00	41.57	10.91	33.22	30.36	49.62	74.00	24.38	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.





Site no. : 1# 966 chamber Data no. : 321 : 3m ANT 1-18G Ant. pol. : VERTICAL Dis. / Ant.

: FCC PART 15C PEAK Limit

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

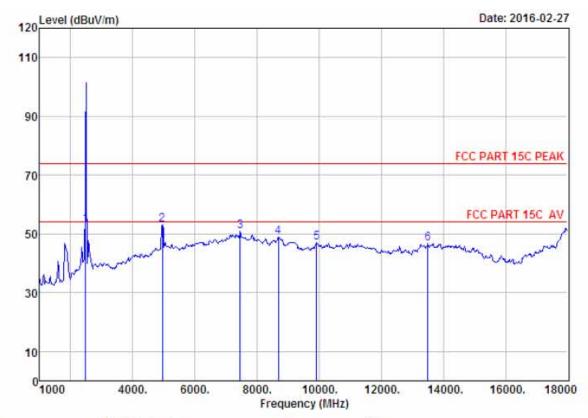
Engineer : Tony EUT : Speaker Power : AC 120V/60Hz M/N : EON ONE

: GFSK TX 2480MHz Test Mode

	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.00	27.58	6.71	35.11	103.48	102.66	74.00	-28.66	Peak
2	4960.00	31.49	12.44	36.01	45.02	52.94	74,00	21.06	Peak
3	7290.00	36.54	11.56	34.09	35.57	49.58	74.00	24.42	Peak
4	8650.00	37.27	11.45	33.68	34.89	49.93	74.00	24.07	Peak
5	11166.00	39.41	11.17	33.31	31.90	49.17	74.00	24.83	Peak
6	13886.00	41.16	11.04	33.03	29.78	48.95	74.00	25.05	Peak

Remarks: 1, Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.





Site no. : 1# 966 chamber Data no. : 322

Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony
EUI : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

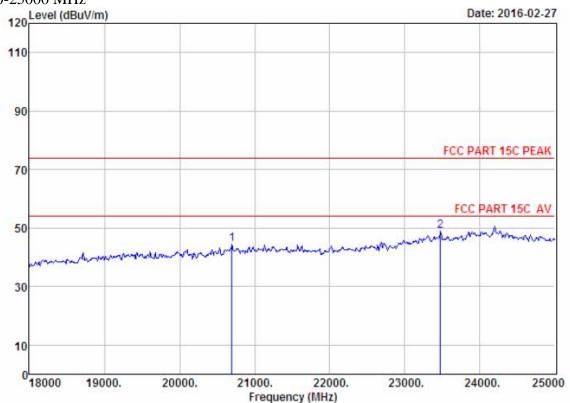
Test Mode : GFSK TX 2480MHz

	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.00	27.58	6.71	35.11	53.87	53.05	74.00	20.95	Peak
2	4960.00	31.49	12.44	36.01	45.13	53.05	74.00	20.95	Peak
3	7460.00	36.52	11.61	34.21	37.00	50.92	74.00	23.08	Peak
4	8684.00	37.32	11.45	33.66	33.99	49.10	74.00	24.90	Peak
5	9925.00	38.14	11.61	34.97	32.38	47.16	74.00	26.84	Peak
6	13495.00	40.07	11.50	32.65	27.72	46.64	74.00	27.36	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.



#### 18000-25000 MHz



Site no. : 1# 966 chamber Data no. : 305
Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

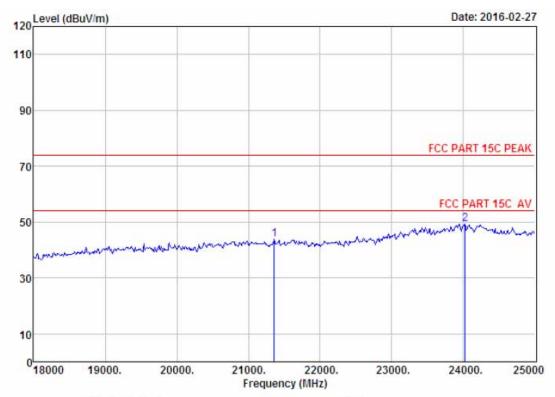
Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE
Test Mode : GFSK TX 2402MHz

	Freq.	Ant. Factor (dB/m)	Loss	A	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	20695.00	46.11	19.99	36.07	14.34	44.37	74.00	29.63	Peak
2	23474.00	45.70	21.57	33.35	15.07	48.99	74.00	25.01	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.





Site no. : 1# 966 chamber Data no. : 306
Dis. / Ant. : 3m ANT ABVOE 18G Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

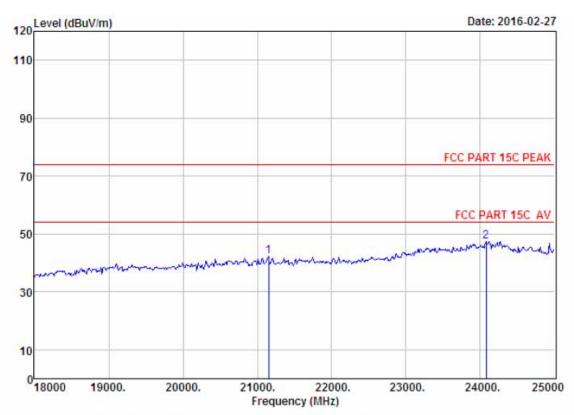
Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

Test Mode : GFSK TX 2402MHz

	Freq.				Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	21360.00	46.08	20,28	35.49	12.82	43.69	74.00	30.31	Peak
2	24020.00	45.60	22.06	32.84	14.53	49.35	74.00	24.65	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.





Site no. : 1# 966 chamber Data no. : 307

Dis. / Ant. : 3m ANT ABVOE 18G Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

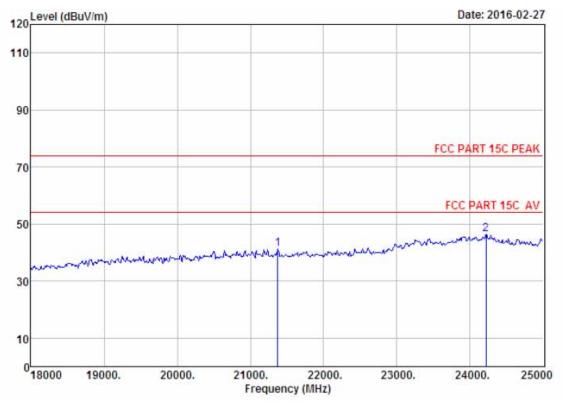
Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

Test Mode : GFSK TX 2440MHz

	Freq. (MHz)		Loss	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	21150.00	46.21	20.20	35.67	11.48	42.22	74.00	31.78	Peak
2	24076.00	45.61	22.09	32.92	12.61	47.39	74.00	26.61	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.





Site no. : 1# 966 chamber Data no. : 308
Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

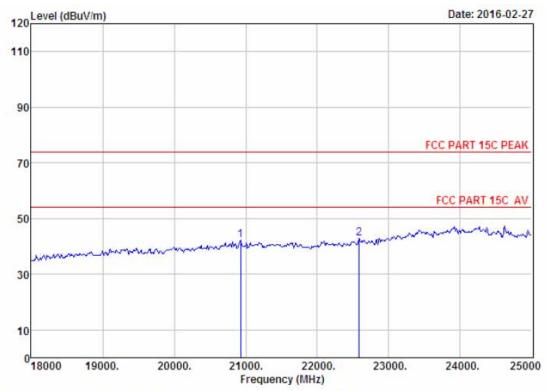
Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

Test Mode : GFSK TX 2440MHz

	Freq.		Cable Loss (dB)	And the State of the second	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	21374.00	46.08	20.29	35.46	10.51	41.42	74.00	32.58	Peak
2	24216.00	45.65	22.17	33.15	11.83	46.50	74.00	27.50	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.





Site no. : 1# 966 chamber Data no. : 309
Dis. / Ant. : 3m ANT ABOVE 18G Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

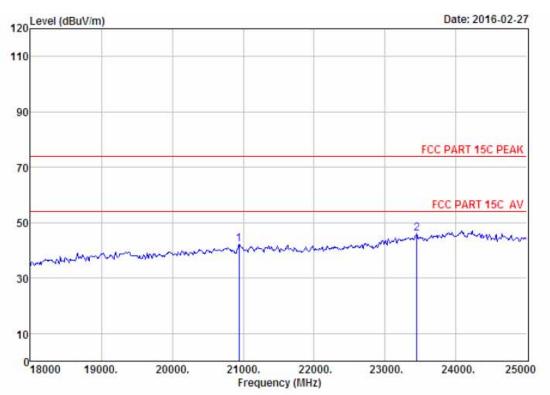
Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE
Test Mode : GFSK TX 2480MHz

	Freq.	Ant. Factor (dB/m)			Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	20926.00	46.26	20.10	35.87	11.71	42.20	74.00	31.80	Peak
2	22585.00	45.77	20.90	34.30	10.54	42.91	74.00	31.09	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.





Site no. : 1# 966 chamber Data no. : 310
Dis. / Ant. : 3m ANT ABVOE 18G Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony
EUI : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

Test Mode : GFSK TX 2480MHz

1212023	Freq.		Cable Loss (dB)		Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	20940.00	46.27	20.11	35.85	11.60	42.13	74.00	31.87	Peak
2	23446.00	45.69	21.55	33.38	12.24	46.10	74.00	27.90	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.



## 5 BAND EDGE COMPLIANCE TEST

#### 5.1 Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits

#### 5.2 Test Procedure

- 1. The EUT is placed on a turntable, which is 0.1m above the ground plane and worked at highest radiated power.
- 2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
- 3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
- 4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:

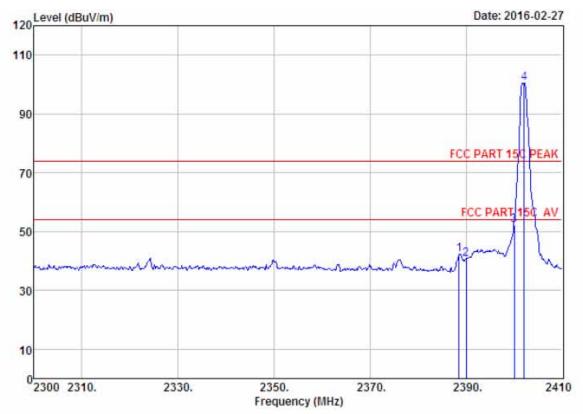
```
Peak: RBW = 1MHz, VBW = 1MHz, Detector=PEAK detector, Sweep time = auto.
AV: RBW = 1MHz, VBW = 10Hz, Detector=PEAK detector, Sweep time = auto.
```

#### 5.3 Test Result

Pass (The testing data was attached in the next pages.)

- Note: 1. For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.
  - 2. The frequency 2402MHz and 2480 MHz is fundamental frequency which no limit, the limit on plots is automatically generated by the software, it's not fundamental limit, we can't remove it.

#### 5.4 Test Data



Site no. : 1# 966 chamber Data no. : 317 : 3m ANT 1-18G : FCC PART 15C PEAK Dis. / Ant. Ant. pol. : VERTICAL

Limit

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony EUI : Speaker Power : AC 120V/60Hz M/N : EON ONE

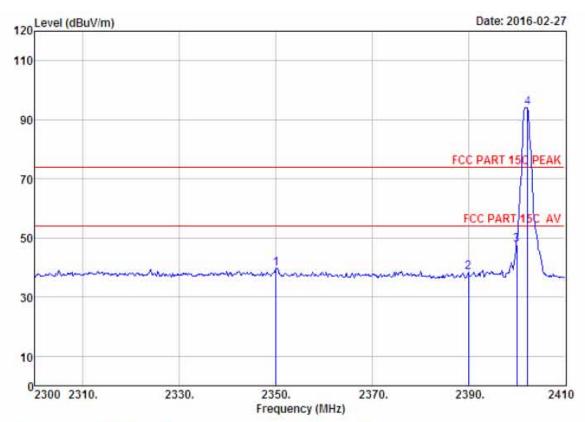
Test Mode : GFSK TX 2402MHz

	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)	Amp Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2388.55	27.64	6.62	34.62	42,60	42,24	74.00	31.76	Peak
2	2390.00	27.64	6.62	34.62	41.13	40.77	74.00	33.23	Peak
3	2400.00	27.61	6.62	34.64	52.59	52.18	74.00	21.82	Peak
4	2402.08	27.61	6.62	34.64	100.99	100.58	74.00	-26.58	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

2. The emission levels that are 20dB below the official limit are not reported.





Site no. : 1# 966 chamber Data no. : 318
Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony

EUT : Speaker

Power : AC 120V/60Hz

M/N : EON ONE

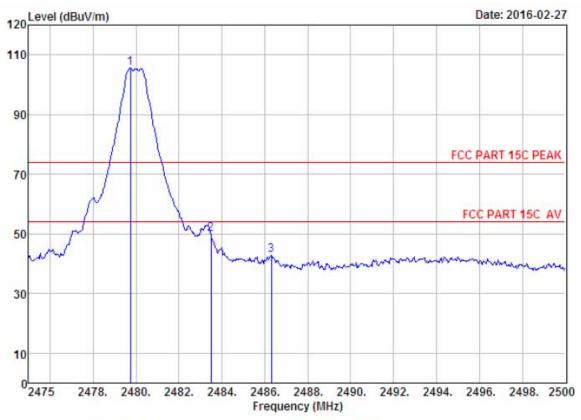
Test Mode : GFSK TX 2402MHz

	Freq.	Ant. Factor (dB/m)	Cable Loss (dB)		Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2350.05	27.70	6.56	34.57	40.10	39.79	74.00	34.21	Peak
2	2390.00	27.64	6.62	34.62	38.67	38.31	74.00	35.69	Peak
3	2400.00	27.61	6.62	34.64	48.19	47.78	74.00	26.22	Peak
4	2402,30	27.61	6.62	34.64	94.59	94.18	74.00	-20.18	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

The emission levels that are 20dB below the official limit are not reported.





Site no. : 1# 966 chamber Data no. : 323

Dis. / Ant. : 3m ANT 1-18G Ant. pol. : HORIZONTAL

Limit : FCC PART 15C PEAK

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

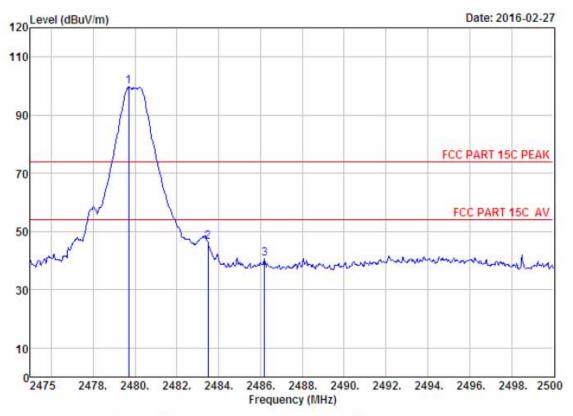
Test Mode : GFSK TX 2480MHz

	Freq.			100	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.75	27.58	6.71	35.11	106.38	105.56	74.00	-31.56	Peak
2	2483.50	27.58	6.71	35.11	50.83	50.01	74.00	23.99	Peak
3	2486.30	27.58	6.71	35.11	43.73	42.91	74.00	31.09	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

The emission levels that are 20dB below the official limit are not reported.





Site no. : 1# 966 chamber Data no. : 324
Dis. / Ant. : 3m ANT 1-18G Ant. pol. : VERTICAL

Limit : FCC PART 15C PEAK

Env. / Ins. : Temp:23.6'; Humi:56%; Press:101.52kPa

Engineer : Tony
EUT : Speaker
Power : AC 120V/60Hz
M/N : EON ONE

Test Mode : GFSK TX 2480MHz

	Freq.		Cable Loss (dB)	The Gast	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.70	27.58	6.71	35.11	100.59	99.77	74.00	-25.77	Peak
2	2483.50	27.58	6.71	35.11	47.22	46.40	74.00	27.60	Peak
3	2486.20	27.58	6.71	35.11	41.49	40.67	74.00	33.33	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss - Amp Factor + Reading.

The emission levels that are 20dB below the official limit are not reported.



# 6 6dB Bandwidth Test

# 6.1 Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

# 6.2 Test Procedure

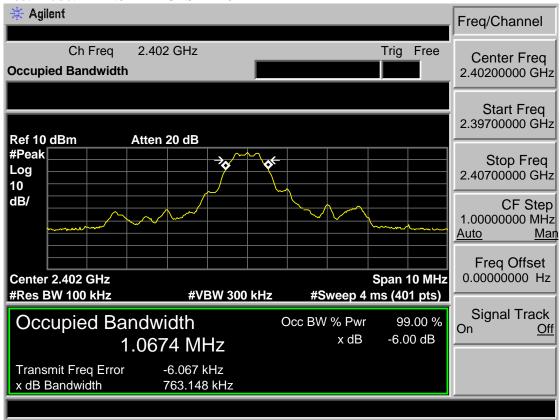
- 1, Connected the EUT's antenna port to spectrum analyzer device.
- 2, Follow the test procedure as described in KDB 558074 D01 DTS Meas Guidance v03r04
  - (1). Set resolution bandwidth (RBW) = 100 kHz.
  - (2). Set the video bandwidth (VBW)  $\geq 3 \times RBW$ .
  - (3). Detector = Peak.
  - (4). Trace mode = max hold.
  - (5). Sweep = auto couple.
  - (6). Allow the trace to stabilize.
  - (7). Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

# 6.3 Test Result

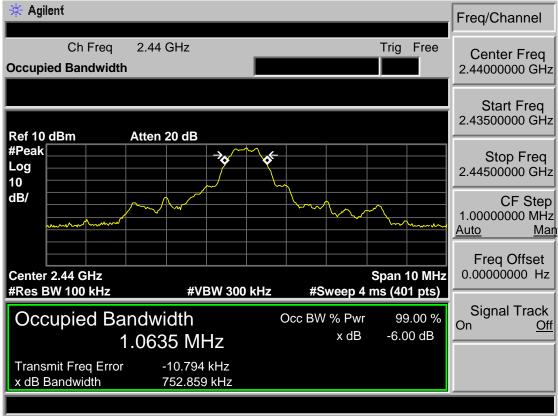
EUT: Speaker										
M/N: EON ON	M/N: EON ONE									
Test date: 2016	Test date: 2016-03-01 Tested by: Tony.Tang Test site: RF Site									
Test Mode	СН	6dB bandwidth ( MHz )	Limit (KHz)							
DT 4 0 DI E	CH1	0.763	>500							
BT 4.0-BLE GFSK	CH20	0.753	>500							
GrSK	CH40	0.761	>500							
Conclusion: I	Conclusion: PASS									

# 6.4 Test Data

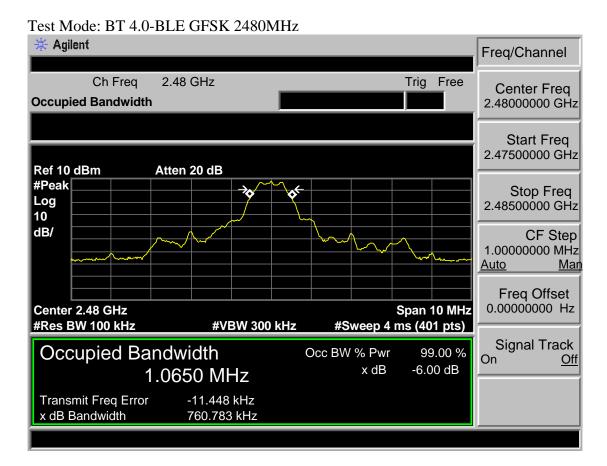
Test Mode: BT 4.0-BLE GFSK 2402MHz



Test Mode: BT 4.0-BLE GFSK 2440MHz









# 7 OUTPUT POWER TEST

# 7.1 Limit

For systems using digital modulation in the 2400—2483.5MHz, The Peak out put Power shall not exceed 1W(30dBm)

# 7.2 Test Procedure

# 7.3Test Procedure

- 1, Connected the EUT's antenna port to spectrum analyzer device.
- 2, Follow the test procedure as described in KDB 558074 D01 DTS Meas Guidance v03r04
  - (1). Set the RBW  $\geq$  DTS bandwidth.
  - (2). Set VBW  $\geq$  3 x RBW.
  - (3). Set span  $\geq$  3 x RBW.
  - (4). Sweep time = auto couple.
  - (5). Detector = peak.
  - (6). Trace mode = max hold.
  - (7). Allow trace to fully stabilize.
  - (8). Use peak marker function to determine the peak amplitude level.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offs

EST Technology Co., Ltd Report No. ESTE-R1603013 Page 44 of 52



# 7.4 Test Result

EUT: Speaker			
M/N:EON ONE	E		
Test date: 2016-	03-01	Test site: 3m Chamber	Tested by: Tony Tang
		Pass	
Test Mode	СН	Peak output Power (dBm)	Limit (dBm)
DT 4 O DI E	CH1	5.91	30
BT 4.0-BLE GFSK	CH20	6.70	30
Grak	CH40	6.73	30
Conclusion: PA	ASS		

EST Technology Co., Ltd Report No. ESTE-R1603013 Page 45 of 52

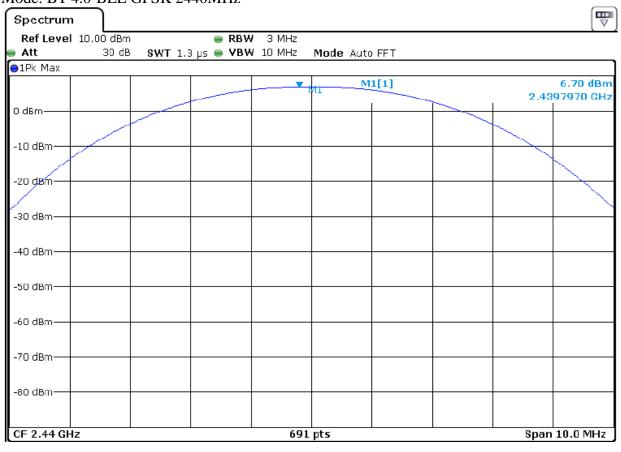


# 7.5 Test Data

# Test Mode: BT 4.0-BLE GFSK 2402MHz



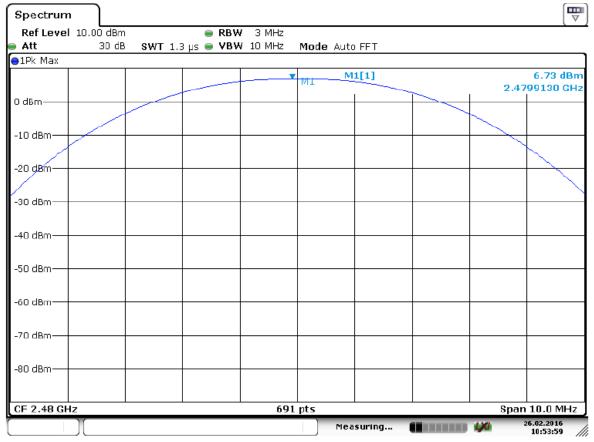
# Test Mode: BT 4.0-BLE GFSK 2440MHz





EST Technology Co., Ltd Report No. ESTE-R1603013 Page 46 of 52

# Test Mode: BT 4.0-BLE GFSK 2480MHz





EST Technology Co., Ltd Report No. ESTE-R1603013 Page 47 of 52

# 8 POWER SPECTRAL DENSITY TEST

# 8.1 Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

# 8.2 Test Procedure

- 1, Connected the EUT's antenna port to spectrum analyzer device.
- 2, Follow the test procedure as described in KDB 558074 D01 DTS Meas Guidance v03r04
- (1). Set analyzer center frequency to DTS channel center frequency.
- (2). Set the span to 1.5 times the DTS bandwidth.
- (3). Set the RBW to:  $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$ .
- (4). Set the VBW  $\geq$  3 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.

EST Technology Co., Ltd Report No. ESTE-R1603013 Page 48 of 52



# 8.3 Test Result

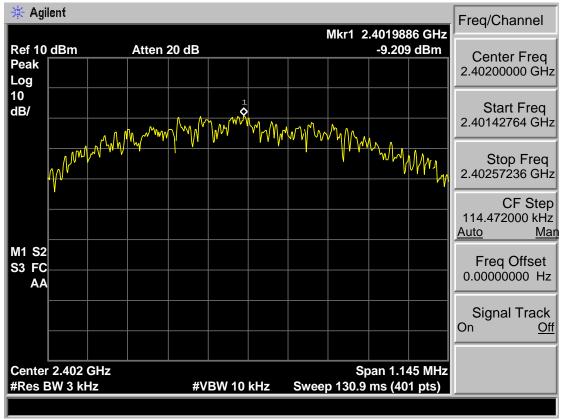
EUT: Speaker									
M/N: EON ONI	Ε								
Test date: 2016-	03-01	Test site: 3m Chamber	Tested by: Tony Tang						
	Pass								
Test Mode	СН	Power density (dBm/3kHz)	Limit (dBm/3kHz)						
DT 4 0 DI E	CH1	-9.209	8						
BT 4.0-BLE GFSK	CH20	-8.017	8						
OFSK	CH40	-7.489	8						
Conclusion: PASS									

EST Technology Co., Ltd Report No. ESTE-R1603013 Page 49 of 52

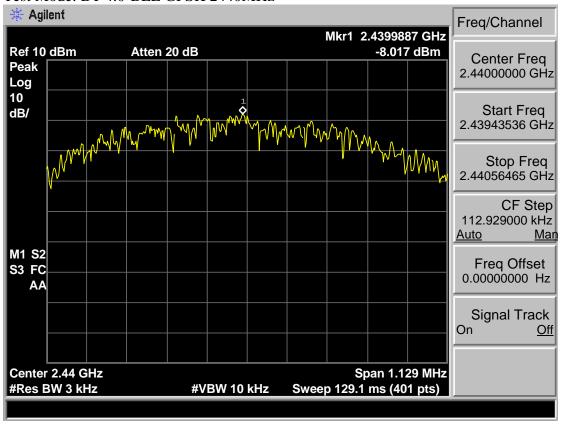


# 8.4 Test Data

Test Mode: BT 4.0-BLE GFSK 2402MHz



Test Mode: BT 4.0-BLE GFSK 2440MHz





EST Technology Co., Ltd

Center 2.48 GHz

#Res BW 3 kHz



#VBW 10 kHz

Test Mode: BT 4.0-BLE GFSK 2480MHz



Span 1.141 MHz

Sweep 130.5 ms (401 pts)

# 9 ANTENNA REQUIREMENTS

# 9.1 Limit

For intentional device, according to FCC 47 CFR 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. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

# 9.2 Result

The antennas used for this product are internal Antenna and that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is only 2.13dBi.

EST Technology Co., Ltd Report No. ESTE-R1603013 Page 52 of 52

