
FCC Test Report

Report No.: AGC01329150604FE03

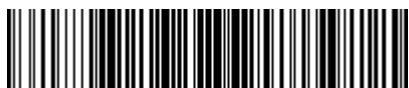
FCC ID : 2ADORT900
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : Bluetooth speaker
BRAND NAME : ROYQUEEN, ISOUND
MODEL NAME : T900, T950, iGlowSound Tower, ISOUND-6703
CLIENT : Shenzhen Royqueen Audio Technology Co., Ltd.
DATE OF ISSUE : July 21,2015
STANDARD(S) : FCC Part 15 Rules
TEST PROCEDURE(S)
REPORT VERSION : V1.0

Attestation of Global Compliance (Shenzhen) Co., Ltd



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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	July 21,2015	Valid	Original Report

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1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen Royqueen Audio Technology Co., Ltd.
Address	The 2nd Floor, Shenhui Industrial Park, No. 1010 Bulong Road, Longhua New District, Shenzhen, China.
Manufacturer	Shenzhen Royqueen Audio Technology Co., Ltd.
Address	The 2nd Floor, Shenhui Industrial Park, No. 1010 Bulong Road, Longhua New District, Shenzhen, China.
Product Designation	Bluetooth speaker
Brand Name	ROYQUEEN, ISOUND
Test Model	T900
Series Model	T950, iGlowSound Tower, ISOUND-6703
Difference description	All the same except for the appearance color.
Date of test	July 08, 2015 to July 10, 2015
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-US-BR/RF

We hereby certify that:

The above equipment was tested by Compliance Certification Service(Shenzhen) Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2009) and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rules Part 15.249.

Prepared By

Time Huang

Time Huang July 21,2015

Checked By

Forrest Lei

Forrest Lei July 21,2015

Authorized By

Solger Zhang

Solger Zhang July 21,2015

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	2.402 GHz to 2.480GHz
RF Output Power	1.04dBm(Max)
Bluetooth Version	V4.0
Modulation	GFSK, $\pi/4$ -DQPSK, 8DPSK
Number of channels	79 for traditional BT 40 for BLE
Hardware Version	V1.0
Software Version	V1.0
Antenna Designation	PCB Antenna (Met 15.203 Antenna requirement)
Antenna Gain	0dBi
Power Supply	DC 3.7V by battery
Note: The USB port only used for charging and can't be used to transfer data with PC. The device supports NFC function, but NFC tag is passive.	

2.2. TABLE OF CARRIER FREQUENCIES

Traditional Bluetooth channel List

Frequency Band	Channel Number	Frequency
2400~2483.5MHZ	0	2402MHZ
	1	2403MHZ
	:	:
	38	2440 MHZ
	39	2441 MHZ
	40	2442 MHZ
	:	:
	77	2479 MHZ
	78	2480 MHZ

BLE Channel List

Frequency Band	Channel Number	Frequency
2400~2483.5MHZ	0	2402MHZ
	1	2404MHZ
	:	:
	38	2478 MHZ
	39	2480 MHZ

3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	$\pm 3.18\text{dB}$
2	All emissions, radiated	$\pm 3.91\text{dB}$
3	Temperature	$\pm 0.5^\circ\text{C}$
4	Humidity	$\pm 2\%$

4. DESCRIPTION OF TEST MODES

NO.	TEST MODE DESCRIPTION
1	Low channel GFSK
2	Middle channel GFSK
3	High channel GFSK
4	Low channel $\pi/4$ -DQPSK
5	Middle channel $\pi/4$ -DQPSK
6	High channel $\pi/4$ -DQPSK
7	Low channel 8DPSK
8	Middle channel 8DPSK
9	High channel 8DPSK
10	Normal operation (BT)

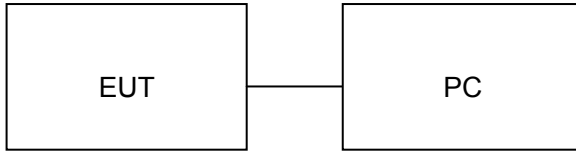
Note:

- All the test modes can be supply by fully battery, only the result of the worst case was recorded in the report, if no other cases.
- For Radiated Emission, 3axis were chosen for testing for each applicable mode.

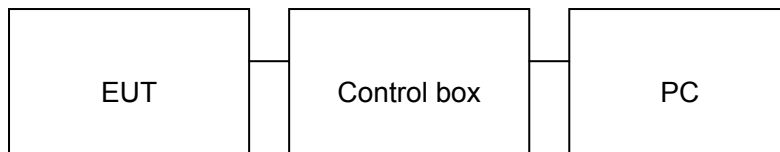
5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure 1: (Normal hopping)



Configure 2: (Control continuous TX)



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Bluetooth speaker	ROYQUEEN	T900	EUT
2	PC	Dell	A1465	A.E
3	Control box	N/A	N/A	A.E
4	USB Cable	N/A	0.5m, unshielded	A.E
5	Audio Cable	N/A	1.4m, unshielded	A.E
6	IPOD	APPLE	A1369	A.E
7	Phone	HUAWEI	P7	A.E

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.249	Radiated Emission	Compliant
§15.249	Band Edges	Compliant
§15.207	Conduction Emission	Compliant
N/A	BANDWIDTH	Compliant

6. TEST FACILITY

Site	Compliance Certification Service(Shenzhen) Inc.
Location	No.10-1 Mingkeda Logistics Park, No.18 Huanguan South RD. Guan lan Town,Baoan Distr
FCC Registration No.	441872
Description	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2009.

7 ALL TEST EQUIPMENT LIST

Radiated Emission Test Site 966(2)					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
PSA Series Spectrum Analyzer	Agilent	E4446A	US44300399	03/01/2015	03/01/2016
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	03/09/2015	03/08/2016
Amplifier	MITEQ	AM-1604-3000	1123808	03/18/2015	03/17/2016
High Noise Amplifier	Agilent	8449B	3008A01838	03/18/2015	03/17/2016
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170-497	07/10/2015	07/09/2016
Bilog Antenna	SCHAFFNER	CBL6143	5082	03/01/2015	03/01/2016
Horn Antenna	SCHWARZBECK	BBHA9120	D286	03/01/2015	03/01/2016
Loop Antenna	COM-POWER	AL-130	121044	09/27/2014	09/26/2015
Turn Table	N/A	N/A	N/A	N.C.R	N.C.R
Controller	Sunol Sciences	SC104V	022310-1	N.C.R	N.C.R
Controller	CT	N/A	N/A	N.C.R	N.C.R
Temp. / Humidity Meter	Anymetre	JR913	N/A	02/28/2015	02/27/2016
Antenna Tower	SUNOL	TLT2	N/A	N.C.R	N.C.R
Test S/W	FARAD	LZ-RF / CCS-SZ-3A2			

Conducted Emission Test Site					
Name of Equipment	Manufacturer	Model Number	Serial Number	Last Calibration	Due Calibration
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI	100783	03/09/2015	03/08/2016
LISN(EUT)	ROHDE&SCHWARZ	ENV216	101543-WX	03/09/2015	03/08/2016
LISN	EMCO	3825/2	8901-1459	03/09/2015	03/08/2016
Temp. / Humidity Meter	VICTOR	HTC-1	N/A	03/04/2015	03/03/2016
Test S/W	FARAD	EZ-EMC/ CCS-3A1-CE			

8. RADIATED EMISSION

8.1 TEST LIMIT

Standard FCC15.249

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
900-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

Standard FCC 15.209

Frequency (MHz)	Distance Meters	Field Strengths Limit	
		μ V/m	dB(μ V)/m
0.009 ~ 0.490	300	2400/F(kHz)	---
0.490 ~ 1.705	30	24000/F(kHz)	---
1.705 ~ 30	30	30	---
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	Other:74.0 dB(μ V)/m (Peak) 54.0 dB(μ V)/m (Average)	

Remark: (1) Emission level dB μ V = 20 log Emission level μ 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.

8.2. MEASUREMENT PROCEDURE

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1.5MHz VBW and RBW for peak reading. Then 1.5MHz RBW and 10Hz VBW for average reading in spectrum analyzer.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

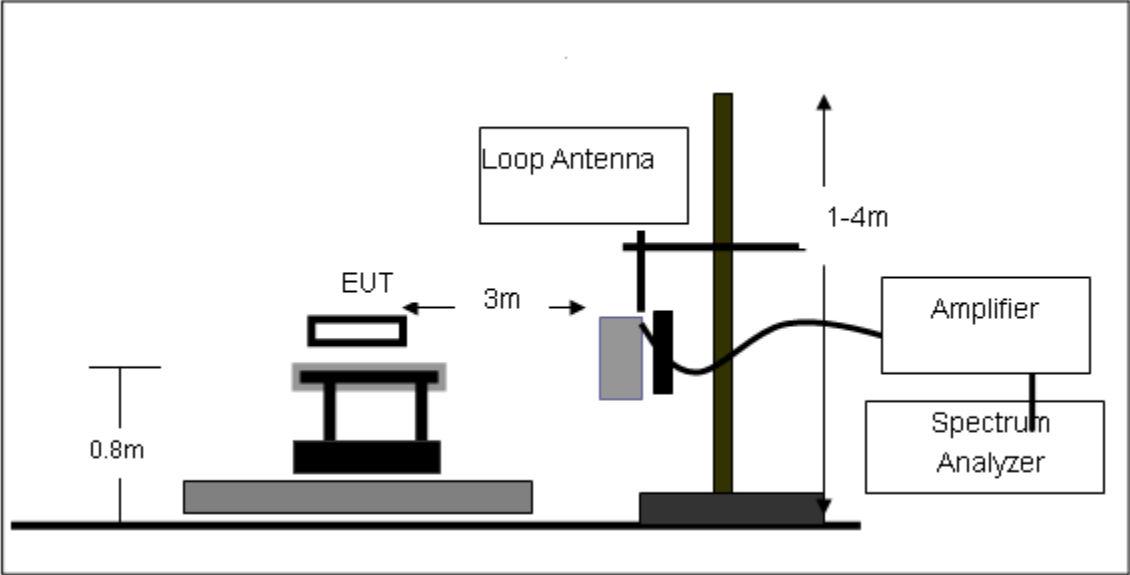
The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1.5MHz/1.5MHz for Peak, 1.5MHz/10Hz for Average

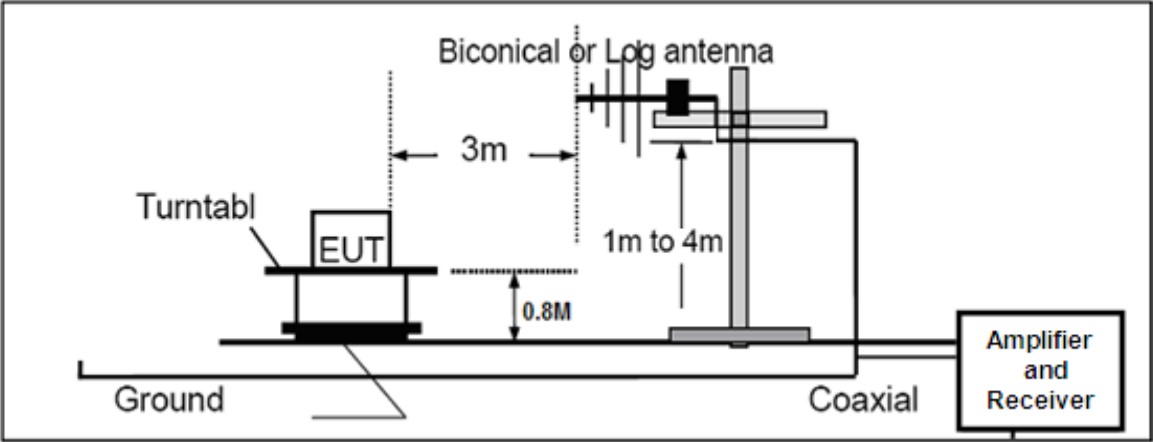
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

8.3. TEST SETUP

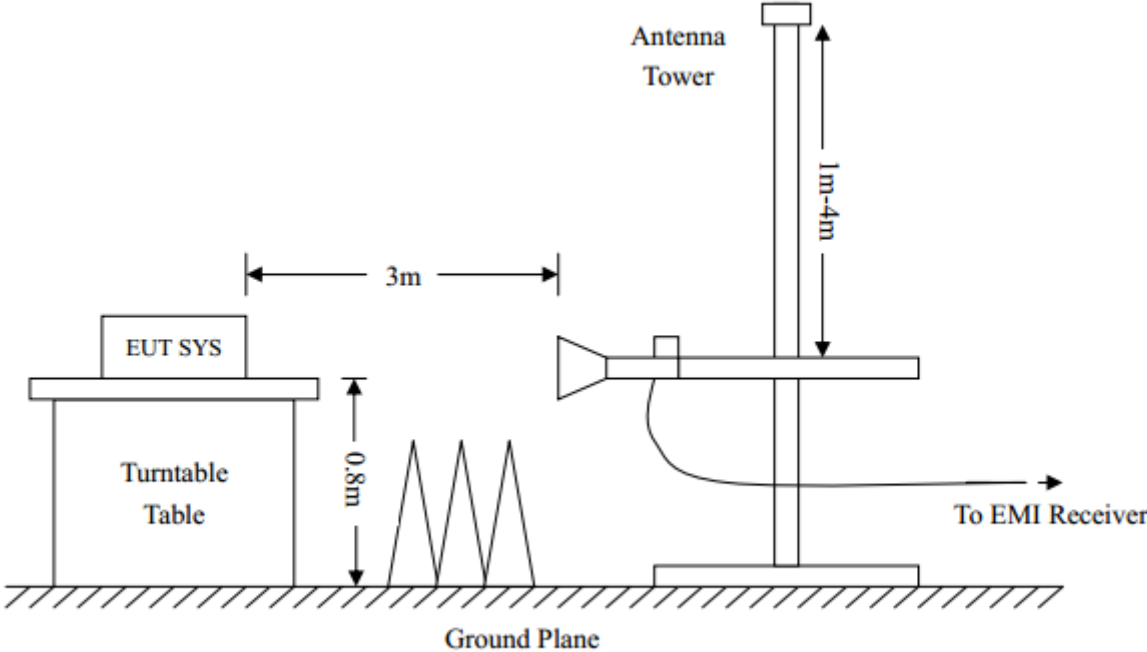
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



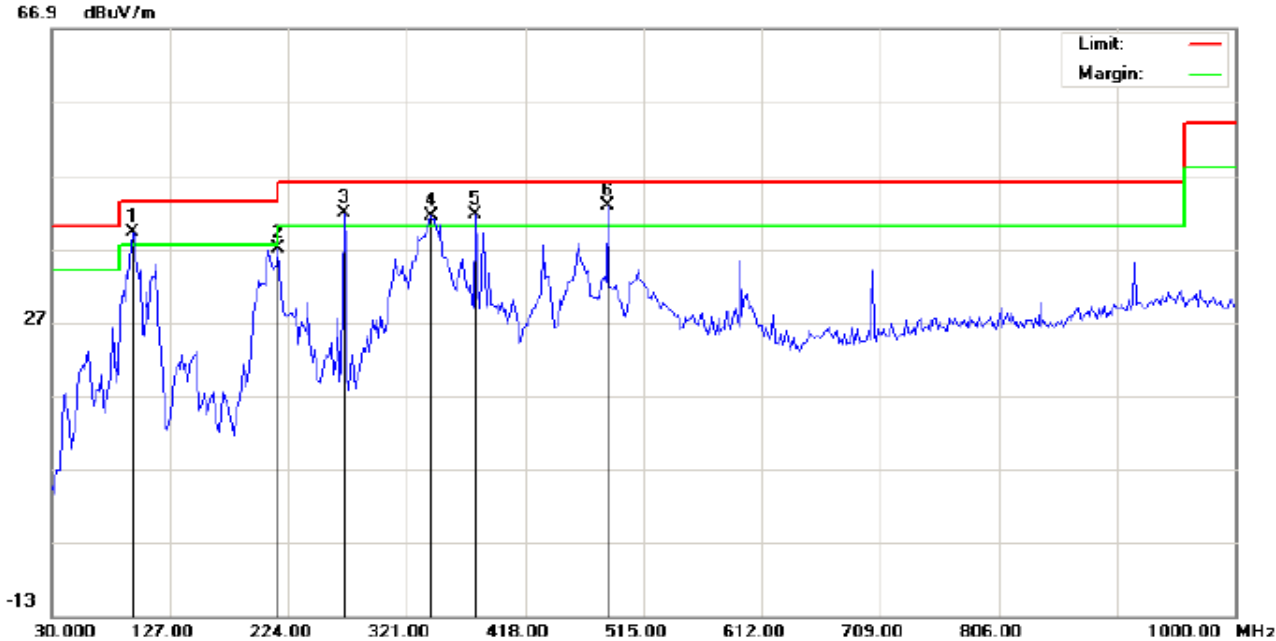
**8.4. TEST RESULT(Worst modulation:GFSK)
 FOR TRADITIONAL BLUETOOTH**

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHZ

RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL-HORIZONTAL

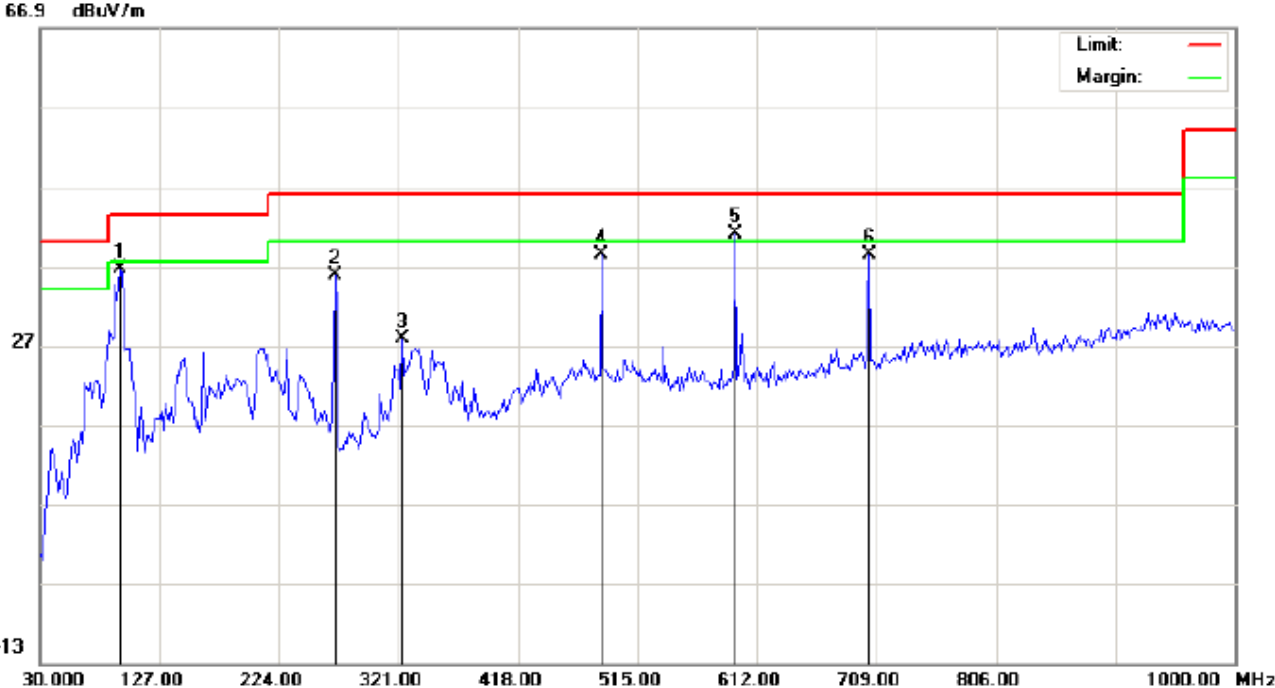


Site: site #1	Polarization: <i>Horizontal</i>	Temperature: 24.5
Limit: FCC Class B 3M Radiation	Power:	Humidity: 52.8 %
EUT: Bluetooth Speaker	Distance: 3m	
M/N: T900		
Mode: Low Channel TX		
Note:		

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	!	96.2833	29.20	10.07	39.27	43.50	-4.23	peak			
2		215.9167	24.43	12.60	37.03	43.50	-6.47	peak			
3	!	269.2667	27.31	14.48	41.79	46.00	-4.21	peak			
4	!	340.4000	23.22	18.10	41.32	46.00	-4.68	peak			
5	!	377.5833	22.75	18.92	41.67	46.00	-4.33	peak			
6	*	485.9000	21.84	20.98	42.82	46.00	-3.18	peak			

RESULT: PASS

RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL -VERTICAL



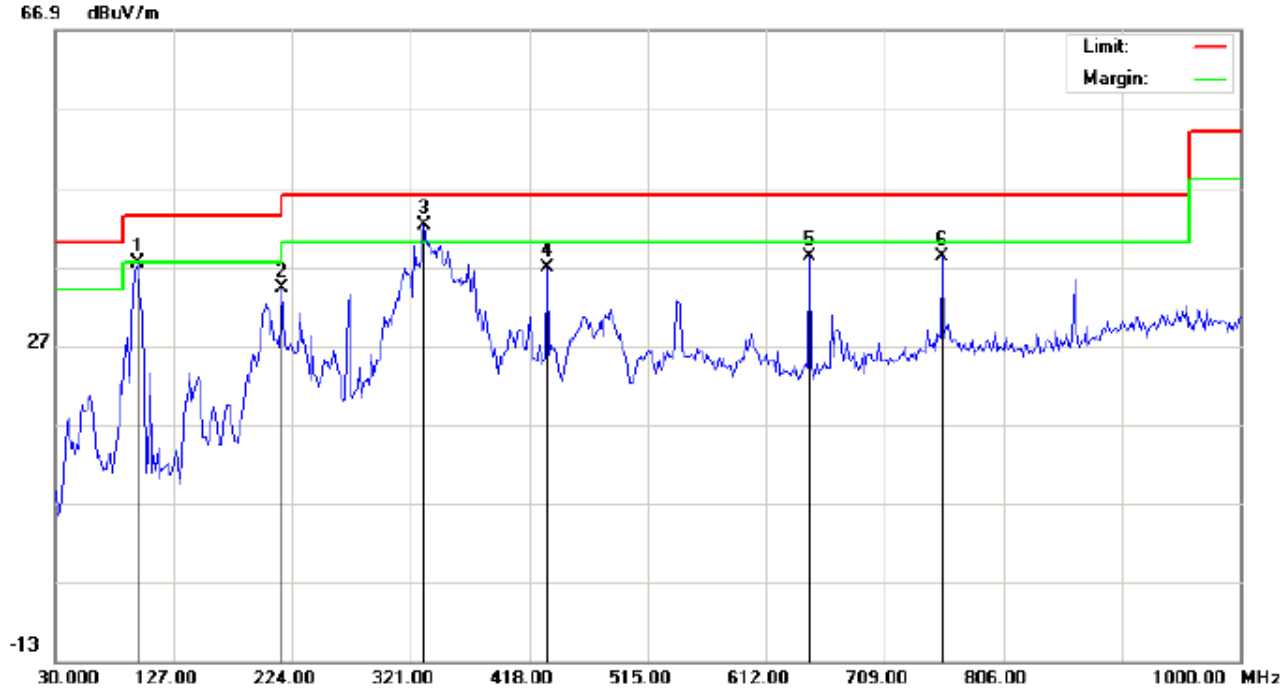
Site: site #1	Polarization: <i>Vertical</i>	Temperature: 24.5
Limit: FCC Class B 3M Radiation	Power:	Humidity: 52.8 %
EUT: Bluetooth Speaker	Distance: 3m	
M/N: T900		
Mode: Low Channel TX		
Note:		

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		94.6667	35.14	1.42	36.56	43.50	-6.94	peak			
2		269.2667	21.26	14.48	35.74	46.00	-10.26	peak			
3		324.2333	10.87	17.02	27.89	46.00	-18.11	peak			
4		485.9000	17.45	20.98	38.43	46.00	-7.57	peak			
5	*	594.2167	18.36	22.70	41.06	46.00	-4.94	peak			
6		702.5333	13.18	25.26	38.44	46.00	-7.56	peak			

RESULT: PASS

- Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.
2. The "Factor" value can be calculated automatically by software of measurement system.

RADIATED EMISSION TEST- (30MHZ-1GHZ)-MIDDLE CHANNEL-HORIZONTAL



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: Middle Channel TX
 Note:

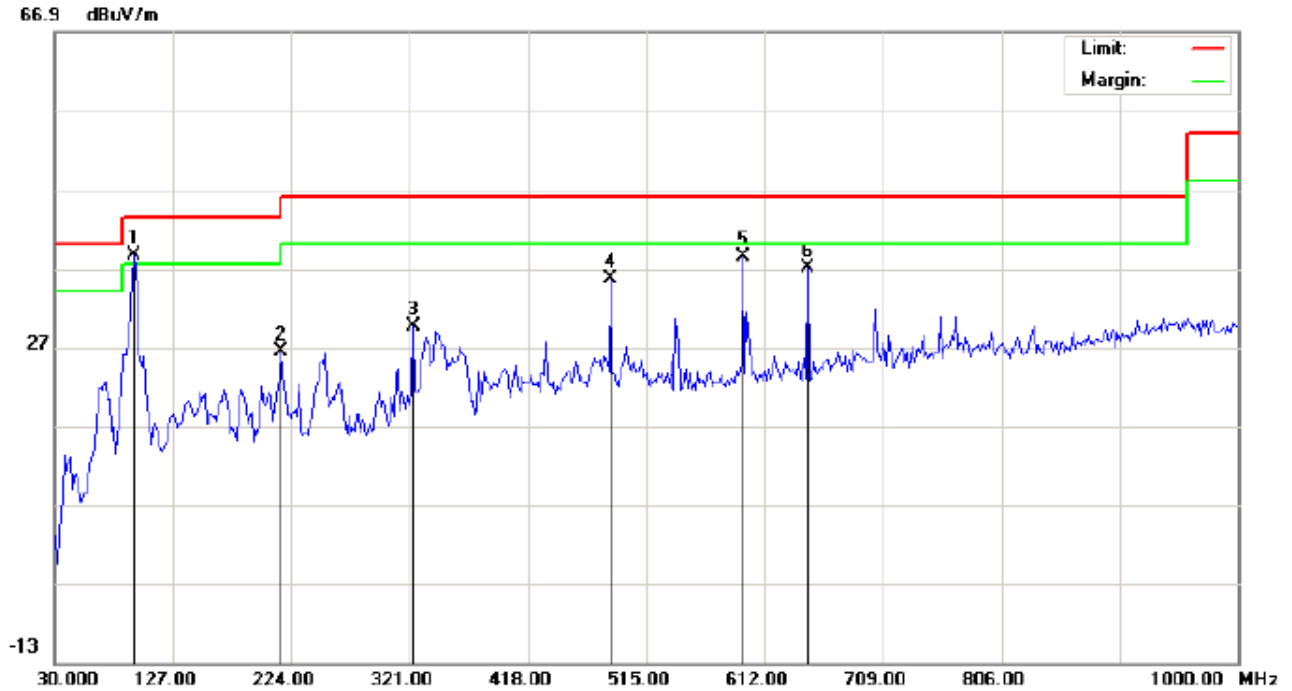
Polarization: *Horizontal*
 Power:
 Distance: 3m

Temperature: 24.5
 Humidity: 52.8 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		97.9000	27.11	10.25	37.36	43.50	-6.14	peak			
2		215.9167	21.67	12.60	34.27	43.50	-9.23	peak			
3	*	332.3167	24.61	17.56	42.17	46.00	-3.83	peak			
4		432.5500	16.72	20.06	36.78	46.00	-9.22	peak			
5		647.5667	14.28	23.84	38.12	46.00	-7.88	peak			
6		755.8832	11.56	26.71	38.27	46.00	-7.73	peak			

RESULT: PASS

RADIATED EMISSION TEST- (30MHZ-1GHZ)- MIDDLE CHANNEL -VERTICAL



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: Middle Channel TX
 Note:

Polarization: *Vertical*
 Power:
 Distance: 3m

Temperature: 24.5
 Humidity: 52.8 %

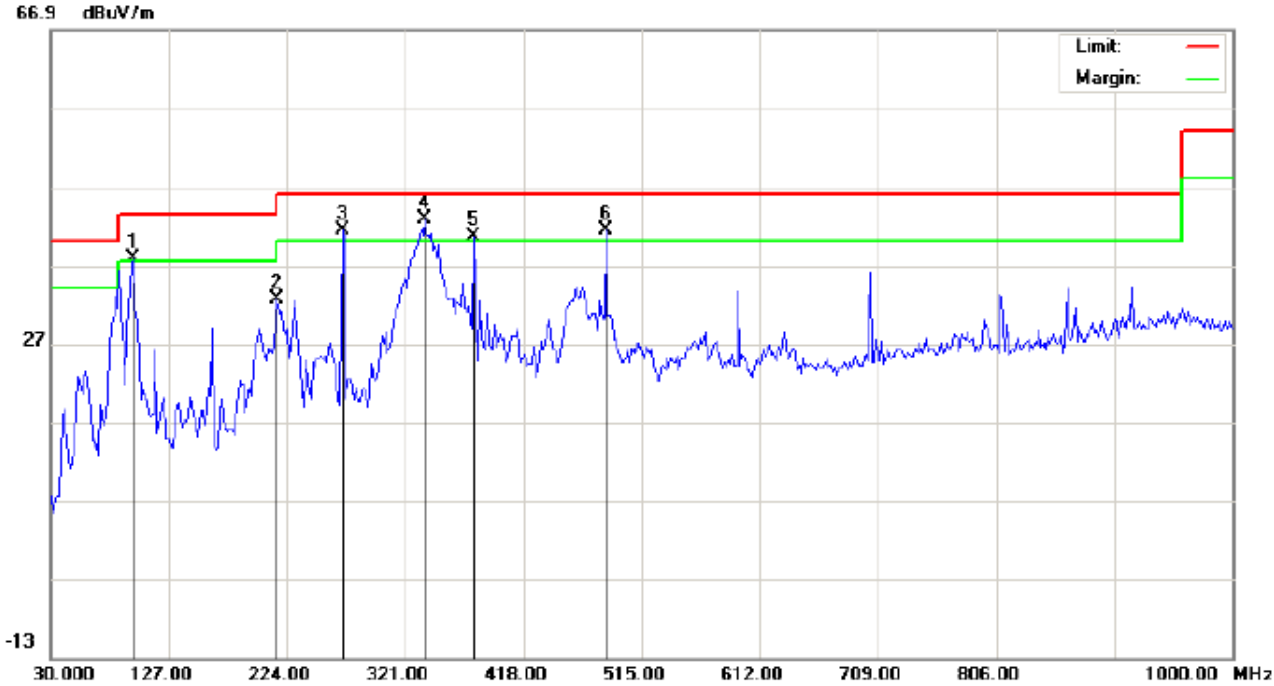
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	94.6667	37.24	1.42	38.66	43.50	-4.84	peak			
2		215.9167	15.90	10.56	26.46	43.50	-17.04	peak			
3		324.2333	12.64	17.02	29.66	46.00	-16.34	peak			
4		485.9000	14.65	20.98	35.63	46.00	-10.37	peak			
5		594.2167	15.75	22.70	38.45	46.00	-7.55	peak			
6		647.5667	13.18	23.80	36.98	46.00	-9.02	peak			

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL-HORIZONTAL



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: High Channel TX
 Note:

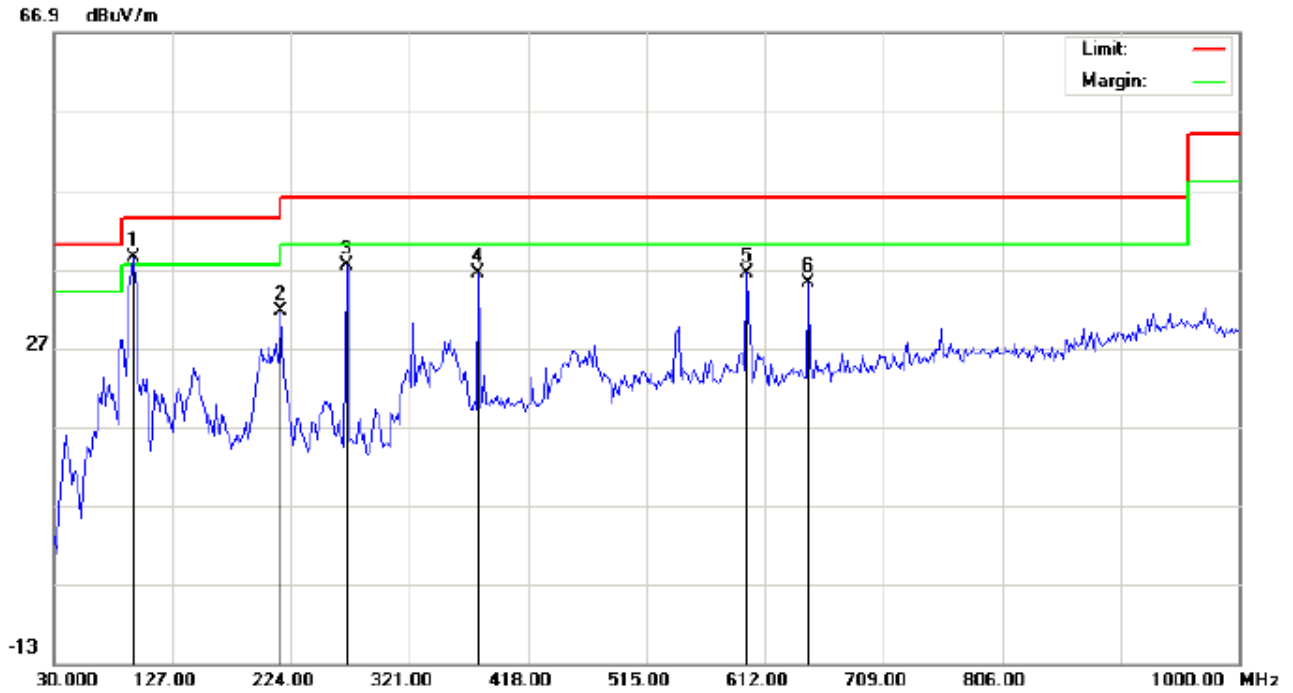
Polarization: *Horizontal*
 Power:
 Distance: 3m

Temperature: 24.5
 Humidity: 52.8 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	!	97.9000	27.65	10.25	37.90	43.50	-5.60	peak			
2		215.9167	19.91	12.60	32.51	43.50	-10.99	peak			
3	!	269.2667	26.90	14.48	41.38	46.00	-4.62	peak			
4	*	337.1666	24.99	17.89	42.88	46.00	-3.12	peak			
5	!	377.5833	21.70	18.92	40.62	46.00	-5.38	peak			
6	!	485.9000	20.48	20.98	41.46	46.00	-4.54	peak			

RESULT: PASS

RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL -VERTICAL



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: High Channel TX
 Note:

Polarization: *Vertical*
 Power:
 Distance: 3m

Temperature: 24.5
 Humidity: 52.8 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	94.6667	36.96	1.42	38.38	43.50	-5.12	peak			
2		215.9167	21.09	10.56	31.65	43.50	-11.85	peak			
3		269.2667	22.95	14.48	37.43	46.00	-8.57	peak			
4		377.5833	17.41	18.92	36.33	46.00	-9.67	peak			
5		597.4500	13.78	22.72	36.50	46.00	-9.50	peak			
6		647.5667	11.47	23.80	35.27	46.00	-10.73	peak			

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The "Factor" value can be calculated automatically by software of measurement system.

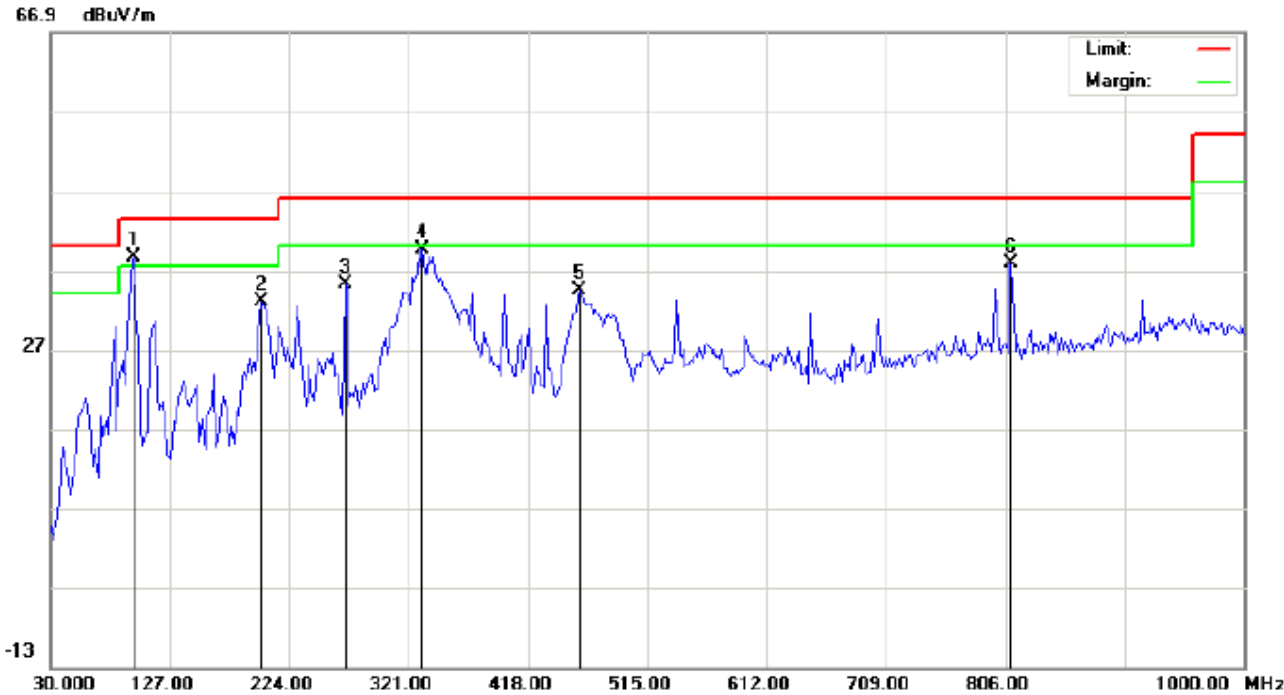
FOR BLE

RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.

RADIATED EMISSION BELOW 1GHZ

RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL-HORIZONTAL



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: Low Channel TX
 Note:

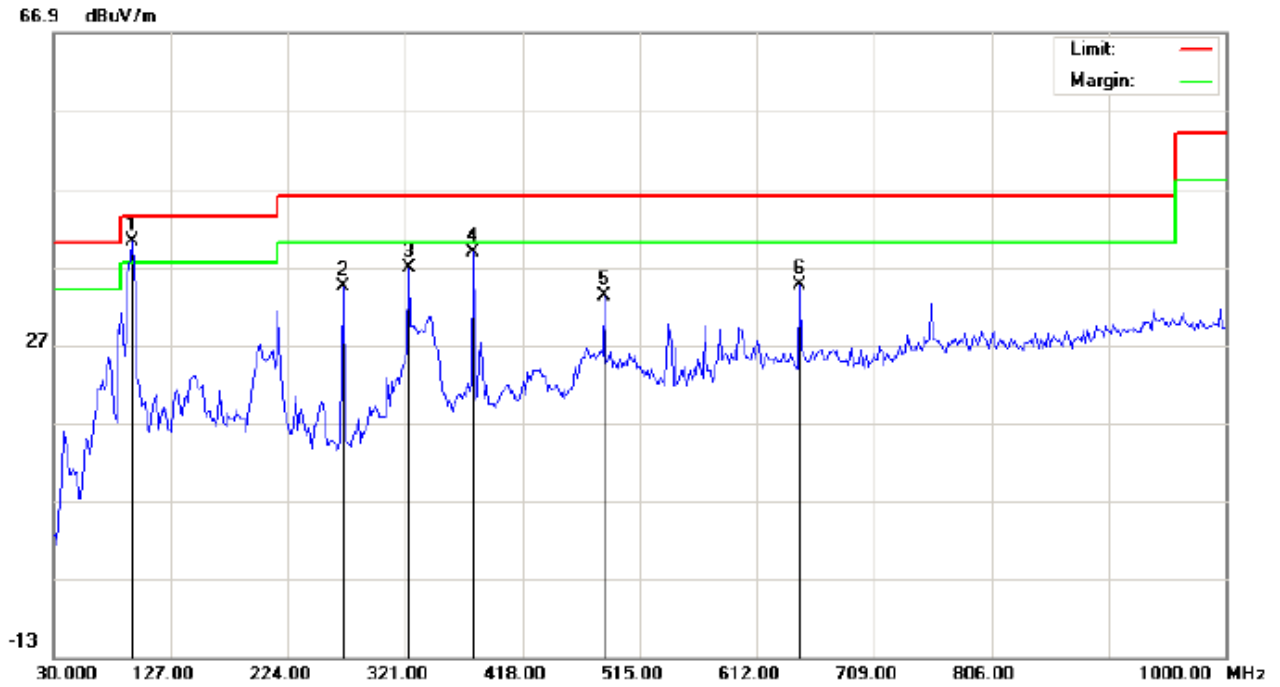
Polarization: *Horizontal*
 Power:
 Distance: 3m

Temperature: 24.5
 Humidity: 52.8 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	97.9000	28.28	10.25	38.53	43.50	-4.97	peak			
2		201.3667	20.94	12.05	32.99	43.50	-10.51	peak			
3		269.2667	20.73	14.48	35.21	46.00	-10.79	peak			
4		332.3167	22.13	17.56	39.69	46.00	-6.31	peak			
5		460.0333	13.67	20.70	34.37	46.00	-11.63	peak			
6		810.8500	10.54	27.32	37.86	46.00	-8.14	peak			

RESULT: PASS

RADIATED EMISSION TEST- (30MHZ-1GHZ)-LOW CHANNEL -VERTICAL



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: Low Channel TX
 Note:

Polarization: *Vertical*
 Power:
 Distance: 3m

Temperature: 24.5
 Humidity: 52.8 %

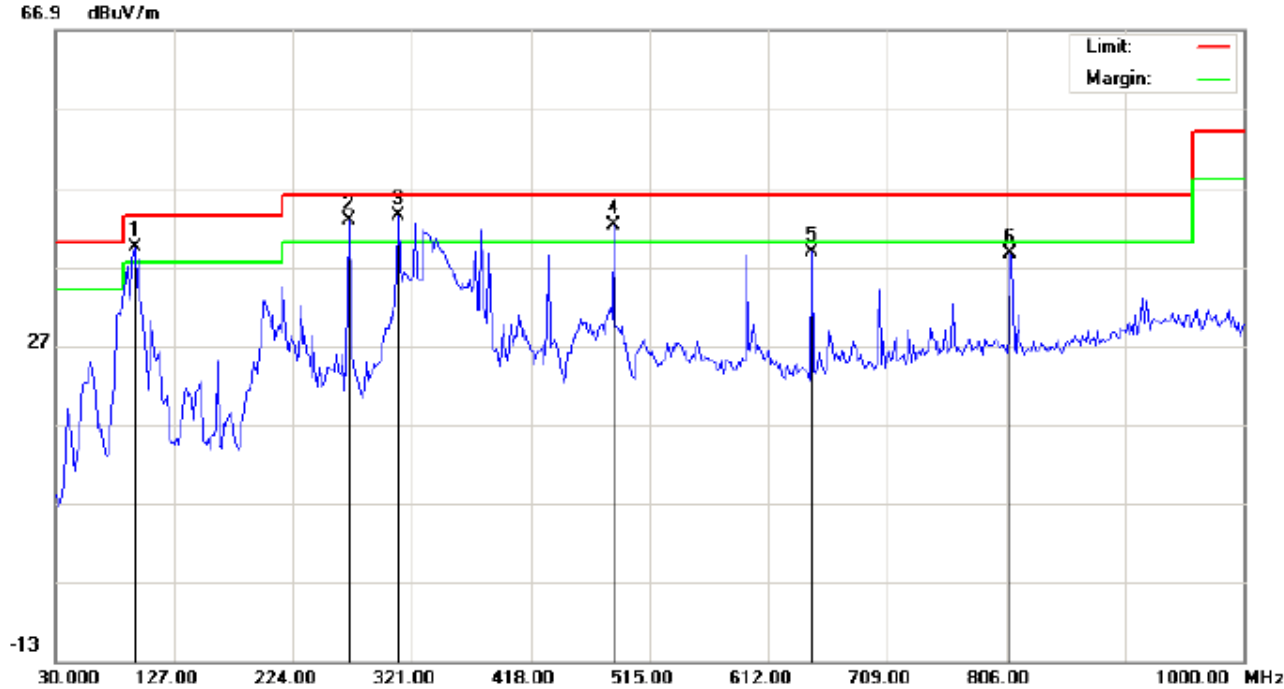
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	94.6667	38.71	1.42	40.13	43.50	-3.37	peak			
2		269.2667	20.00	14.48	34.48	46.00	-11.52	peak			
3		324.2333	19.74	17.02	36.76	46.00	-9.24	peak			
4		377.5833	19.91	18.92	38.83	46.00	-7.17	peak			
5		485.9000	12.32	20.98	33.30	46.00	-12.70	peak			
6		647.5667	10.77	23.80	34.57	46.00	-11.43	peak			

RESULT: PASS

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

2. The “Factor” value can be calculated automatically by software of measurement system.

RADIATED EMISSION TEST- (30MHZ-1GHZ)-MIDDLE CHANNEL-HORIZONTAL



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: Middle Channel TX
 Note:

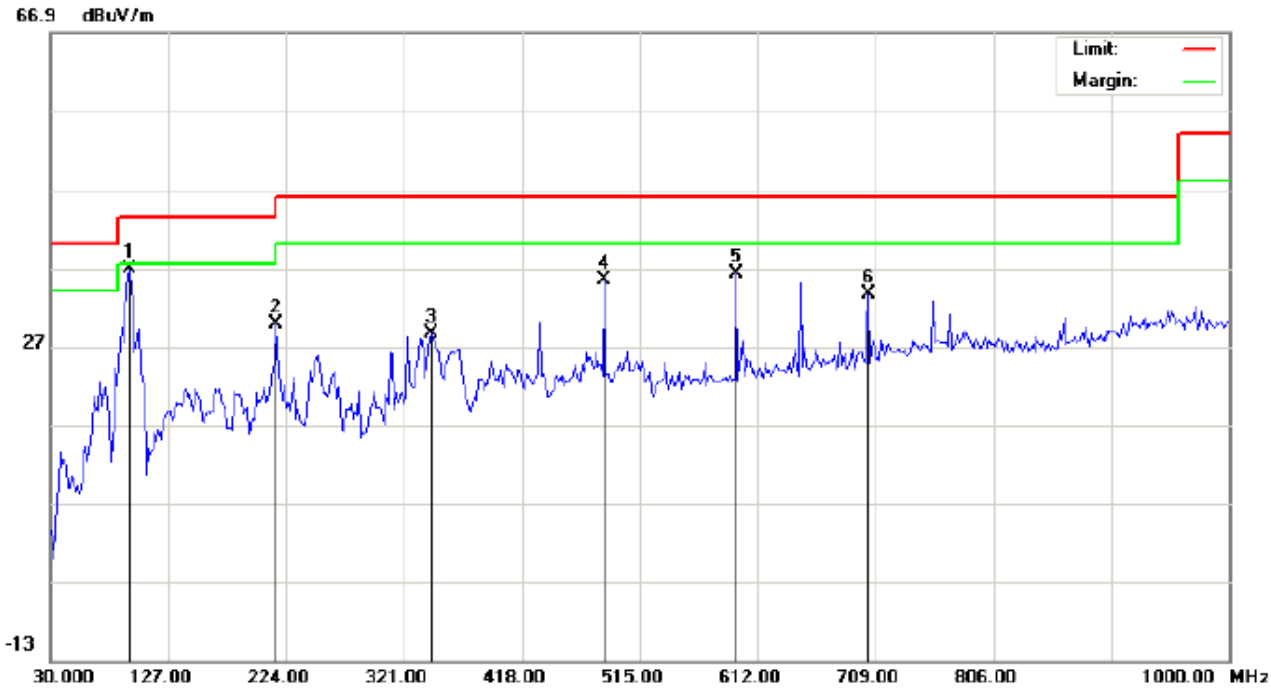
Polarization: *Horizontal*
 Power:
 Distance: 3m

Temperature: 24.5
 Humidity: 52.8 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	!	94.6667	29.46	9.89	39.35	43.50	-4.15	peak			
2	!	269.2667	28.24	14.48	42.72	46.00	-3.28	peak			
3	*	309.6833	27.28	16.05	43.33	46.00	-2.67	peak			
4	!	485.9000	21.20	20.98	42.18	46.00	-3.82	peak			
5		647.5667	15.03	23.84	38.87	46.00	-7.13	peak			
6		809.2333	11.21	27.32	38.53	46.00	-7.47	peak			

RESULT: PASS

RADIATED EMISSION TEST- (30MHZ-1GHZ)- MIDDLE CHANNEL -VERTICAL



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: Middle Channel TX
 Note:

Polarization: *Vertical*
 Power:
 Distance: 3m

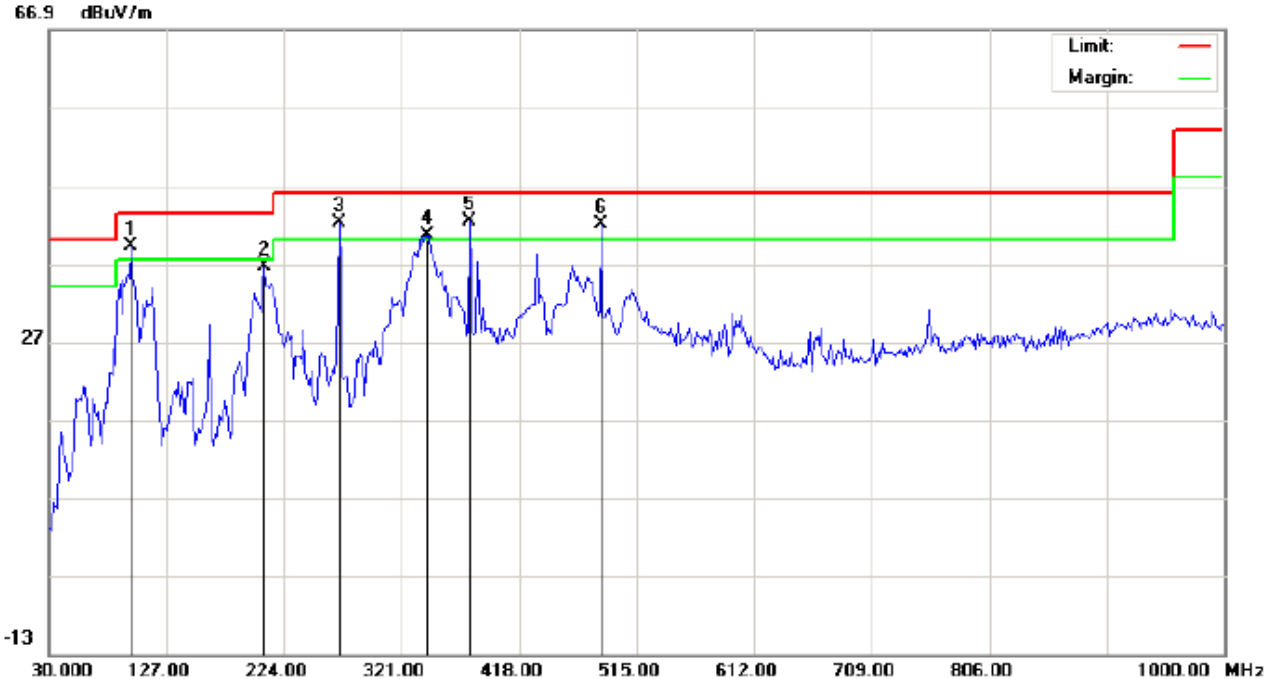
Temperature: 24.5
 Humidity: 52.8 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	94.6667	35.36	1.42	36.78	43.50	-6.72	peak			
2		215.9167	19.24	10.56	29.80	43.50	-13.70	peak			
3		343.6333	10.34	18.32	28.66	46.00	-17.34	peak			
4		485.9000	14.34	20.98	35.32	46.00	-10.68	peak			
5		594.2167	13.54	22.70	36.24	46.00	-9.76	peak			
6		702.5333	8.35	25.26	33.61	46.00	-12.39	peak			

RESULT: PASS

- Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.
 2. The "Factor" value can be calculated automatically by software of measurement system.

RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL-HORIZONTAL



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: High Channel TX
 Note:

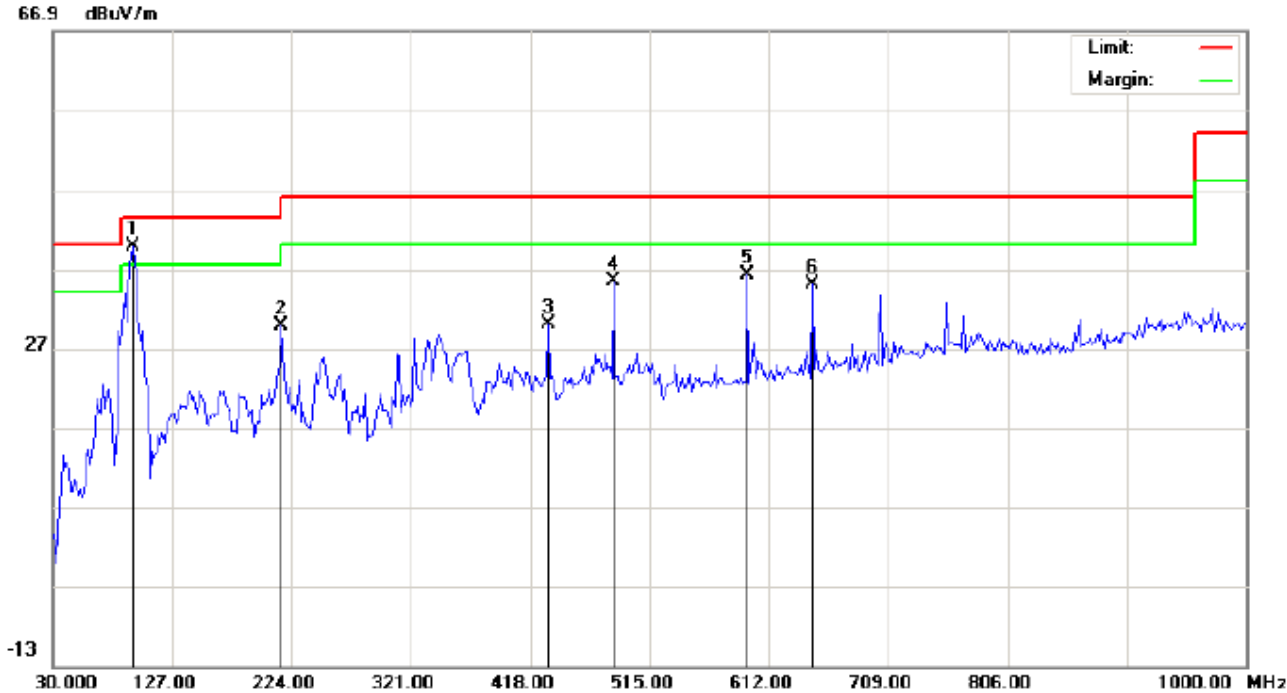
Polarization: *Horizontal*
 Power:
 Distance: 3m

Temperature: 24.5
 Humidity: 52.8 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	!	97.9000	28.98	10.25	39.23	43.50	-4.27	peak			
2		207.8333	24.40	12.30	36.70	43.50	-6.80	peak			
3	!	269.2667	27.67	14.48	42.15	46.00	-3.85	peak			
4	!	342.0167	22.47	18.21	40.68	46.00	-5.32	peak			
5	*	377.5833	23.39	18.92	42.31	46.00	-3.69	peak			
6	!	485.9000	21.01	20.98	41.99	46.00	-4.01	peak			

RESULT: PASS

RADIATED EMISSION TEST- (30MHZ-1GHZ)-HIGH CHANNEL -VERTICAL



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: High Channel TX
 Note:

Polarization: *Vertical*
 Power:
 Distance: 3m

Temperature: 24.5
 Humidity: 52.8 %

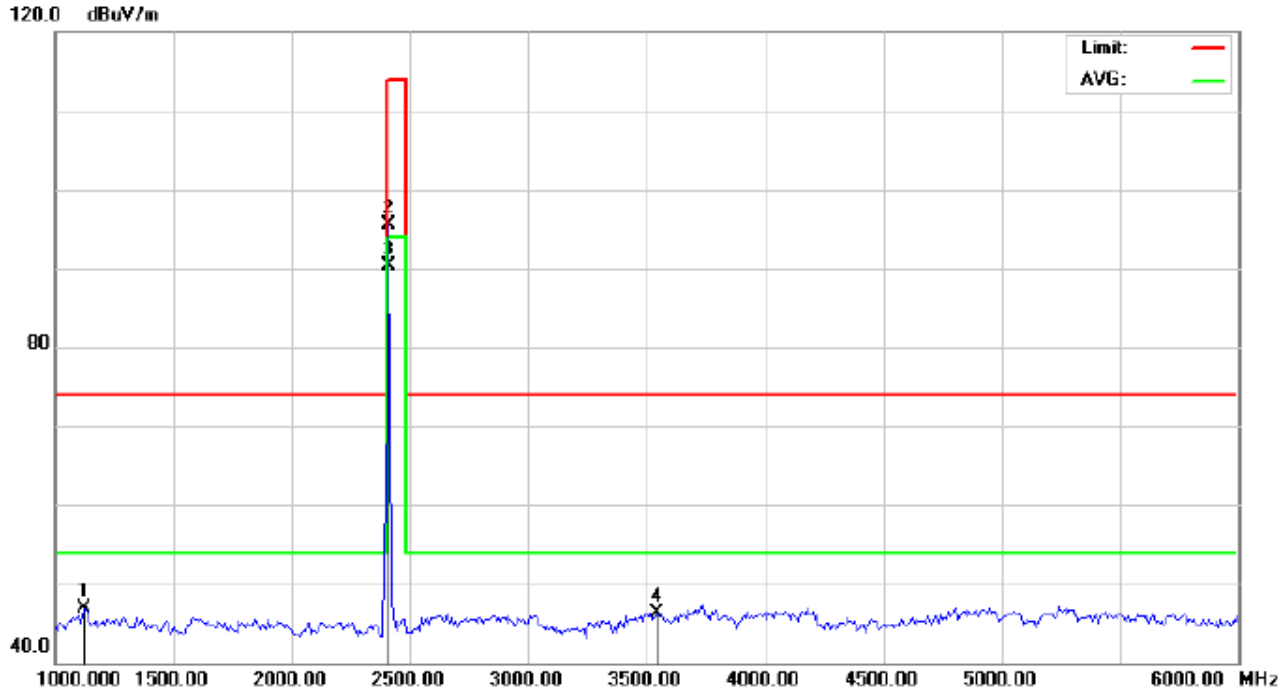
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	94.6667	38.36	1.42	39.78	43.50	-3.72	peak			
2		215.9165	19.24	10.56	29.80	43.50	-13.70	peak			
3		432.5500	10.03	20.06	30.09	46.00	-15.91	peak			
4		485.8999	14.34	20.98	35.32	46.00	-10.68	peak			
5		594.2165	13.54	22.70	36.24	46.00	-9.76	peak			
6		647.5665	11.21	23.80	35.01	46.00	-10.99	peak			

RESULT: PASS

- Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.
 2. The "Factor" value can be calculated automatically by software of measurement system.

**RADIATED EMISSION ABOVE 1GHZ
 FOR TRADITIONAL BLUETOOTH**

RADIATED EMISSION TEST- (ABOVE 1GHZ)-LOW CHANNEL-HORIZONTAL



Site: site #1
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)-
 EUT:Bluetooth speaker
 M/N:T900
 Mode: Low Channel TX
 Note:

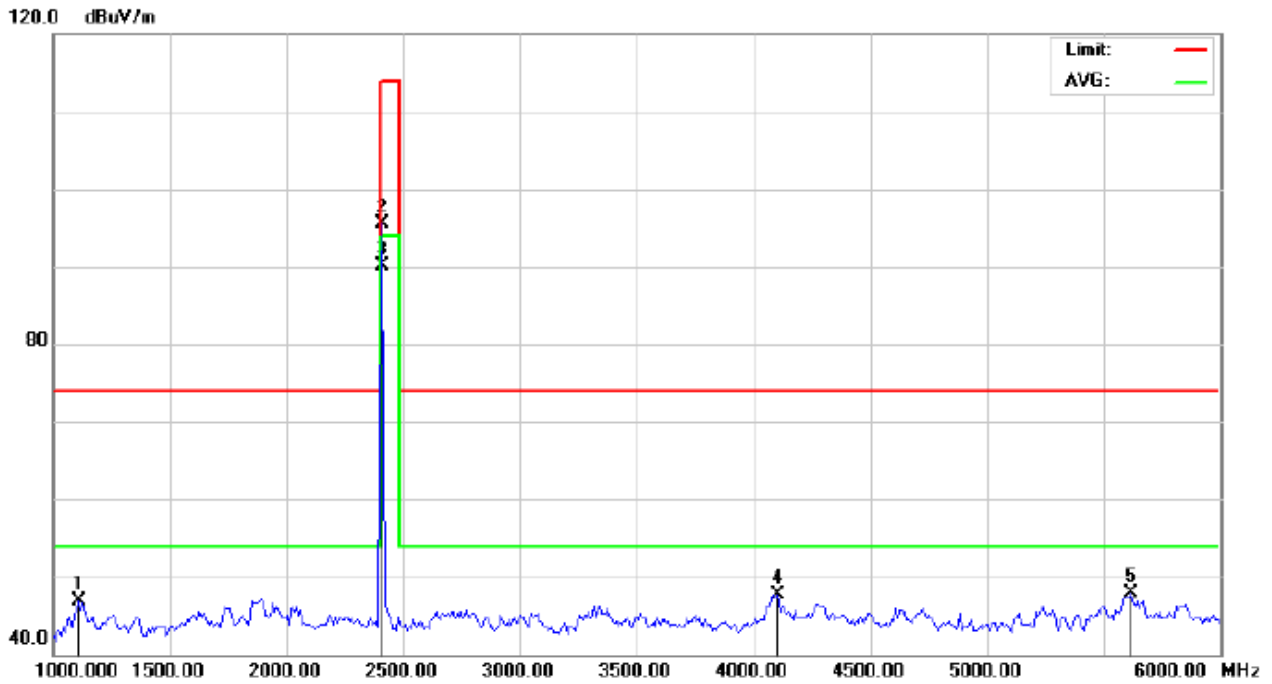
Polarization: *Horizontal*
 Power:
 Distance: 3m

Temperature: 26
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		1125.000	62.43	-15.54	46.89	74.00	-27.11	peak			
2		2402.000	105.23	-9.68	95.55	114.00	-18.45	peak			
3	*	2402.000	99.94	-9.68	90.26	94.00	-3.74	AVG	100	59	
4		3541.667	53.96	-7.63	46.33	74.00	-27.67	peak			

RESULT: PASS

RADIATED EMISSION TEST- (ABOVE 1GHZ)-LOW CHANNEL- VERTICAL

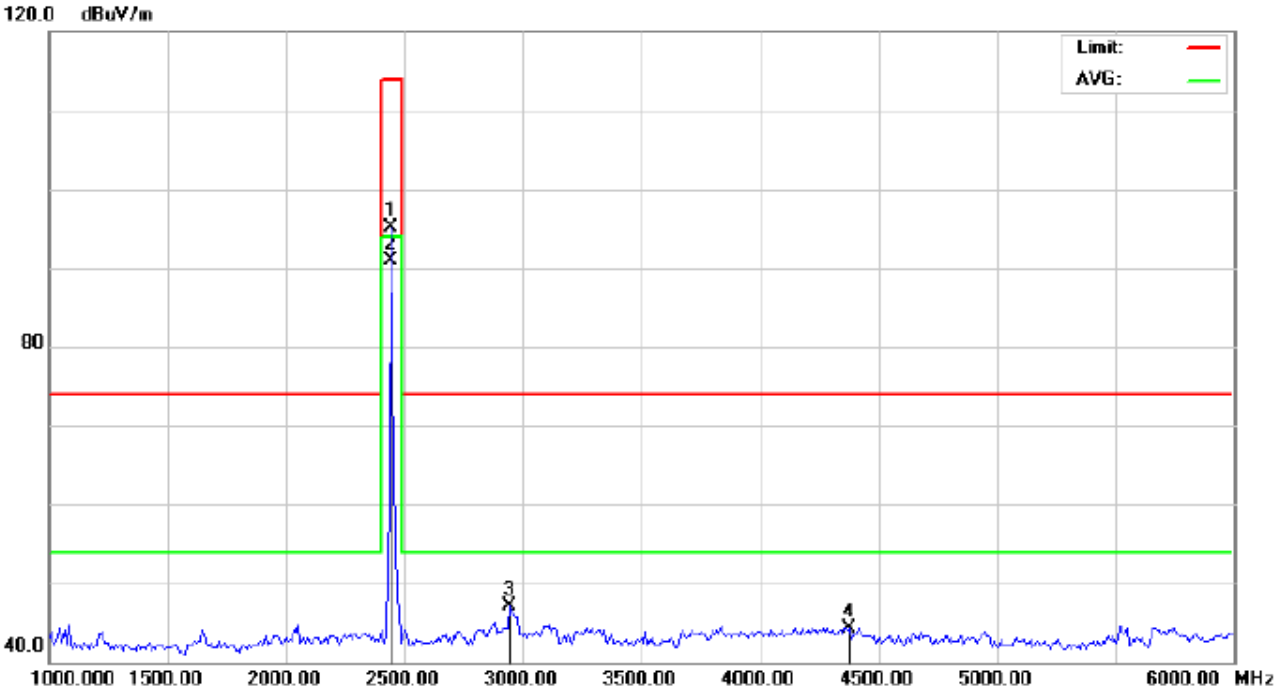


Site: site #1 Polarization: *Vertical* Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %
EUT:Bluetooth speaker Distance: 3m
M/N:T900
Mode: Low Channel TX
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		1108.333	62.52	-15.54	46.98	74.00	-27.02	peak			
2		2402.000	105.23	-9.68	95.55	114.00	-18.45	peak			
3	*	2402.000	99.81	-9.68	90.13	94.00	-3.87	AVG	100	50	
4		4100.000	52.24	-4.47	47.77	74.00	-26.23	peak			
5		5616.667	49.59	-1.76	47.83	74.00	-26.17	peak			

RESULT: PASS

RADIATED EMISSION TEST- (ABOVE 1GHZ)-MIDDLE CHANNEL-HORIZONTAL

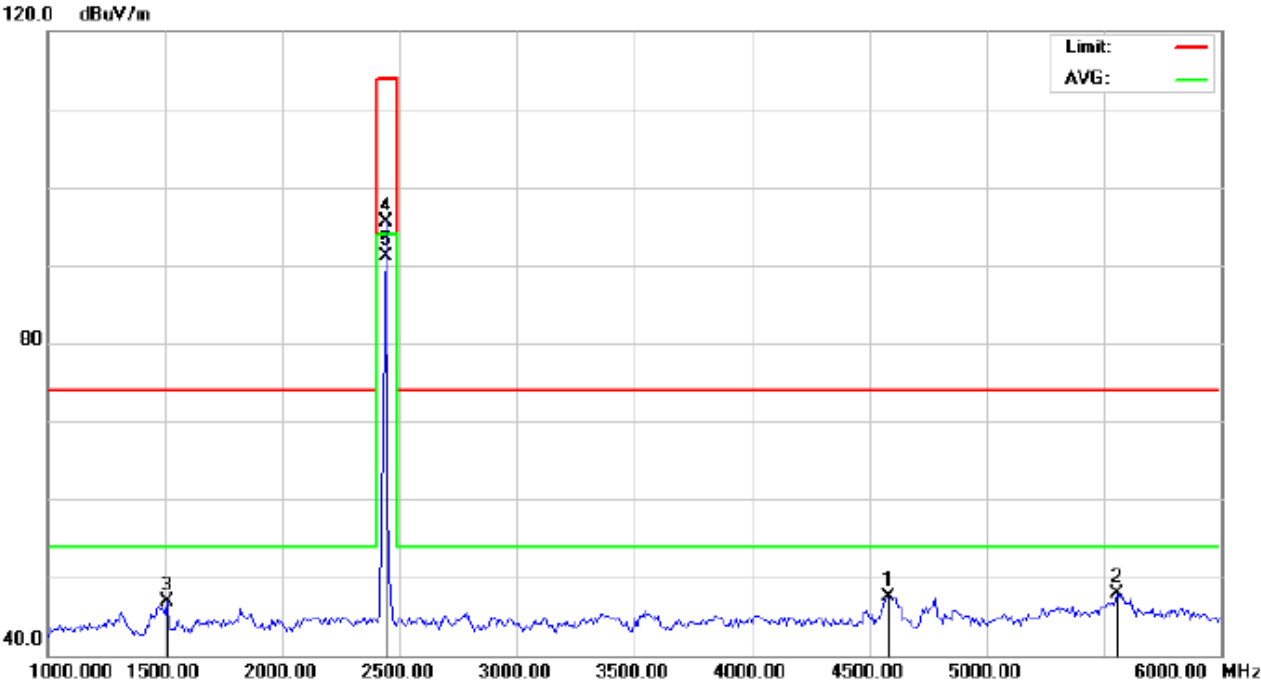


Site: site #1 Polarization: *Horizontal* Temperature: 26
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %
 EUT:Bluetooth speaker Distance: 3m
 M/N:T900
 Mode: Middle Channel TX
 Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2441.000	104.79	-9.63	95.16	114.00	-18.84	peak			
2	*	2441.000	100.52	-9.63	90.89	94.00	-3.11	AVG	150	180	
3		2941.667	55.57	-8.50	47.07	74.00	-26.93	peak			
4		4375.000	47.93	-3.53	44.40	74.00	-29.60	peak			

RESULT: PASS

RADIATED EMISSION TEST- (ABOVE 1GHZ)-MIDDLE CHANNEL- VERTICAL



Site: site #1
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)-
 EUT:Bluetooth speaker
 M/N:T900
 Mode: Middle Channel TX
 Note:

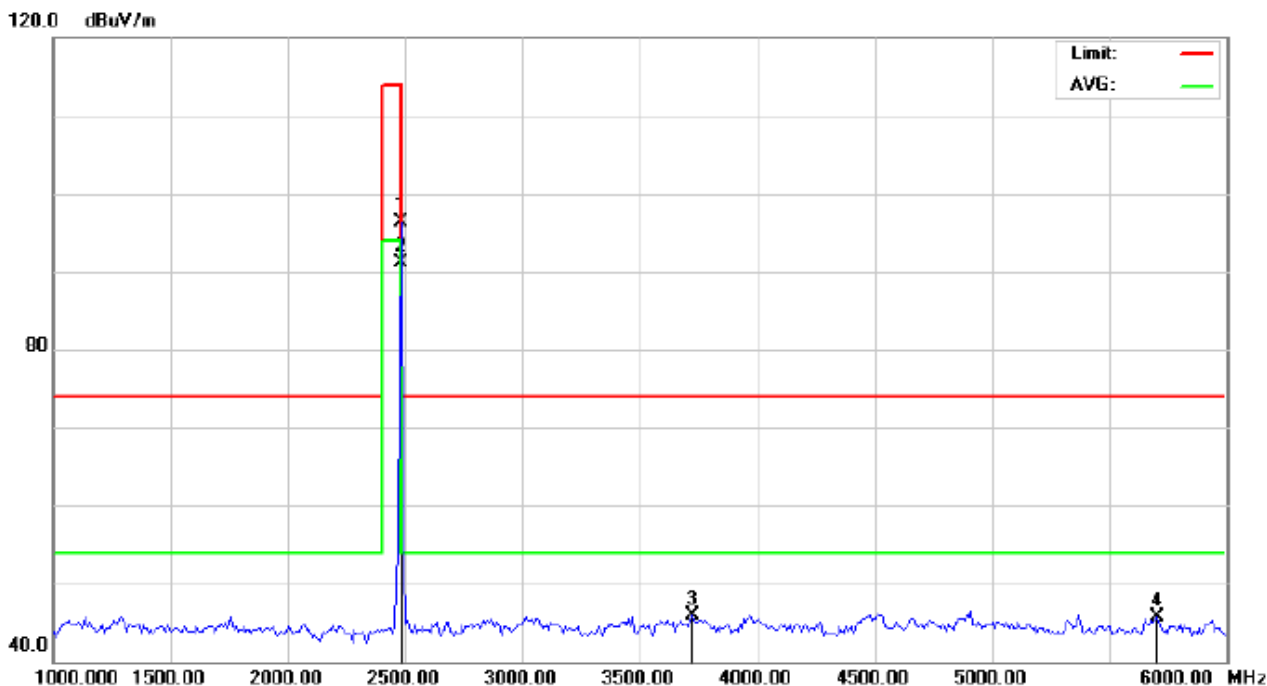
Polarization: *Vertical*
 Power:
 Distance: 3m

Temperature: 26
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		4583.333	50.39	-2.89	47.50	74.00	-26.50	peak			
2		5558.333	49.67	-1.78	47.89	74.00	-26.11	peak			
3		1508.333	62.24	-15.29	46.95	74.00	-27.05	peak			
4		2441.000	105.23	-9.63	95.60	114.00	-18.40	peak			
5	*	2441.000	100.70	-9.63	91.07	94.00	-2.93	AVG	150	360	

RESULT: PASS

RADIATED EMISSION TEST- (ABOVE 1GHZ)-HIGH CHANNEL-HORIZONTAL



Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)-
EUT:Bluetooth speaker
M/N:T900
Mode: High Channel TX
Note:

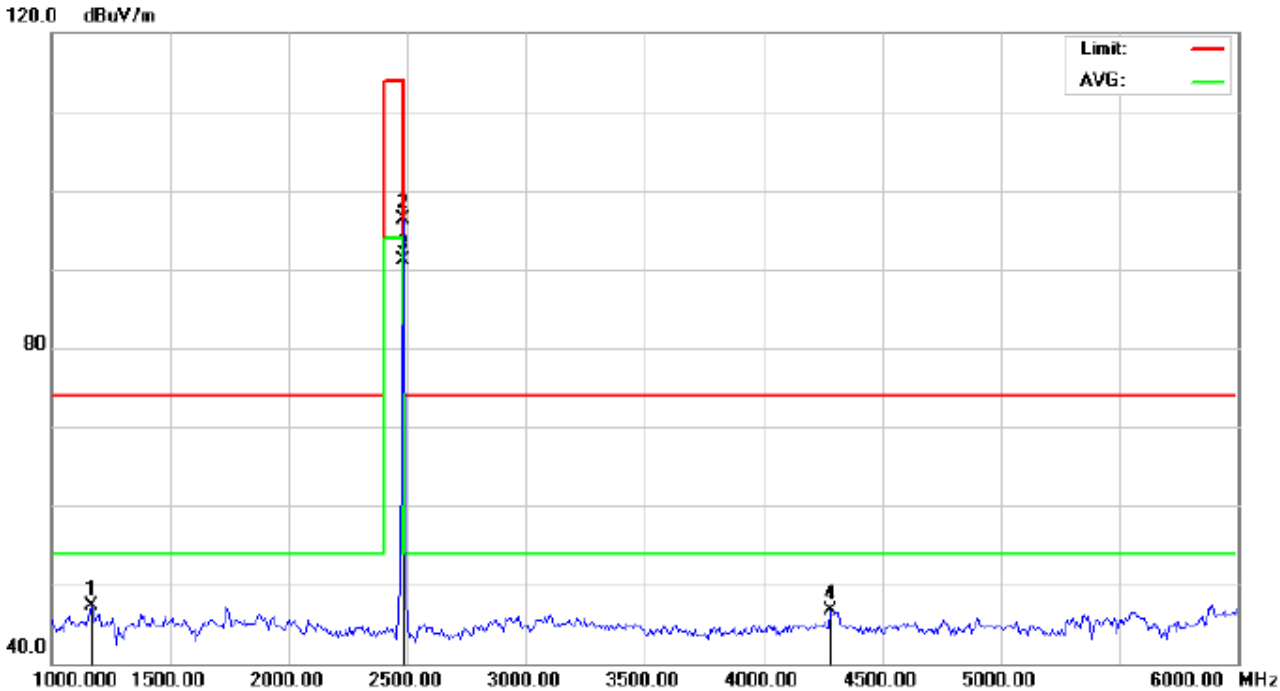
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 26
Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2480.000	105.87	-9.59	96.28	114.00	-17.72	peak			
2	*	2480.000	100.61	-9.59	91.02	94.00	-2.98	AVG	100	150	
3		3725.000	52.48	-6.50	45.98	74.00	-28.02	peak			
4		5700.000	47.35	-1.72	45.63	74.00	-28.37	peak			

RESULT: PASS

RADIATED EMISSION TEST- (ABOVE 1GHZ)-HIGH CHANNEL- VERTICAL



Site: site #1
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)-
 EUT:Bluetooth speaker
 M/N:T900
 Mode: High Channel TX
 Note:

Polarization: *Vertical*
 Power:
 Distance: 3m

Temperature: 26
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		1166.667	62.82	-15.52	47.30	74.00	-26.70	peak			
2		2480.000	105.87	-9.59	96.28	114.00	-17.72	peak			
3	*	2480.000	100.66	-9.59	91.07	94.00	-2.93	AVG	150	360	
4		4283.333	50.56	-3.85	46.71	74.00	-27.29	peak			

RESULT: PASS

Note: 6~25GHz at least have 20dB margin. No recording in the test report.
 Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.
 The “Factor” value can be calculated automatically by software of measurement system.

Field strength of the fundamental signal**Peak value**

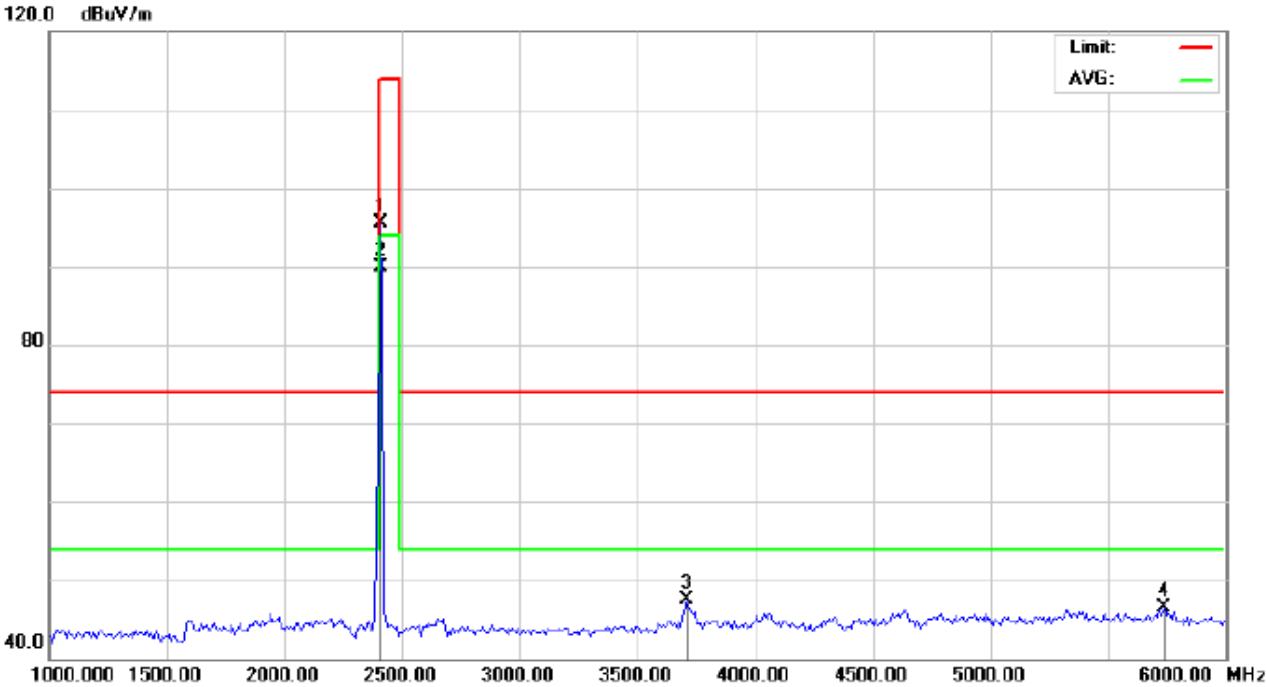
Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	105.23	-9.68	95.55	114	-18.45	Horizontal
2402	105.23	-9.68	95.55	114	-18.45	Vertical
2441	104.79	-9.63	95.16	114	-18.84	Horizontal
2441	105.23	-9.63	95.60	114	-18.40	Vertical
2480	105.87	-9.59	96.28	114	-17.72	Horizontal
2480	105.87	-9.59	96.28	114	-17.72	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	99.94	-9.68	90.26	94	-3.74	Horizontal
2402	99.81	-9.68	90.13	94	-3.87	Vertical
2441	100.52	-9.63	90.89	94	-3.11	Horizontal
2441	100.70	-9.63	91.07	94	-2.93	Vertical
2480	100.61	-9.59	91.02	94	-2.98	Horizontal
2480	100.66	-9.59	91.07	94	-2.93	Vertical

FOR BLE

RADIATED EMISSION TEST- (ABOVE 1GHZ)-LOW CHANNEL-HORIZONTAL



Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)-
EUT:Bluetooth speaker
M/N:T900
Mode: Low Channel TX
Note:

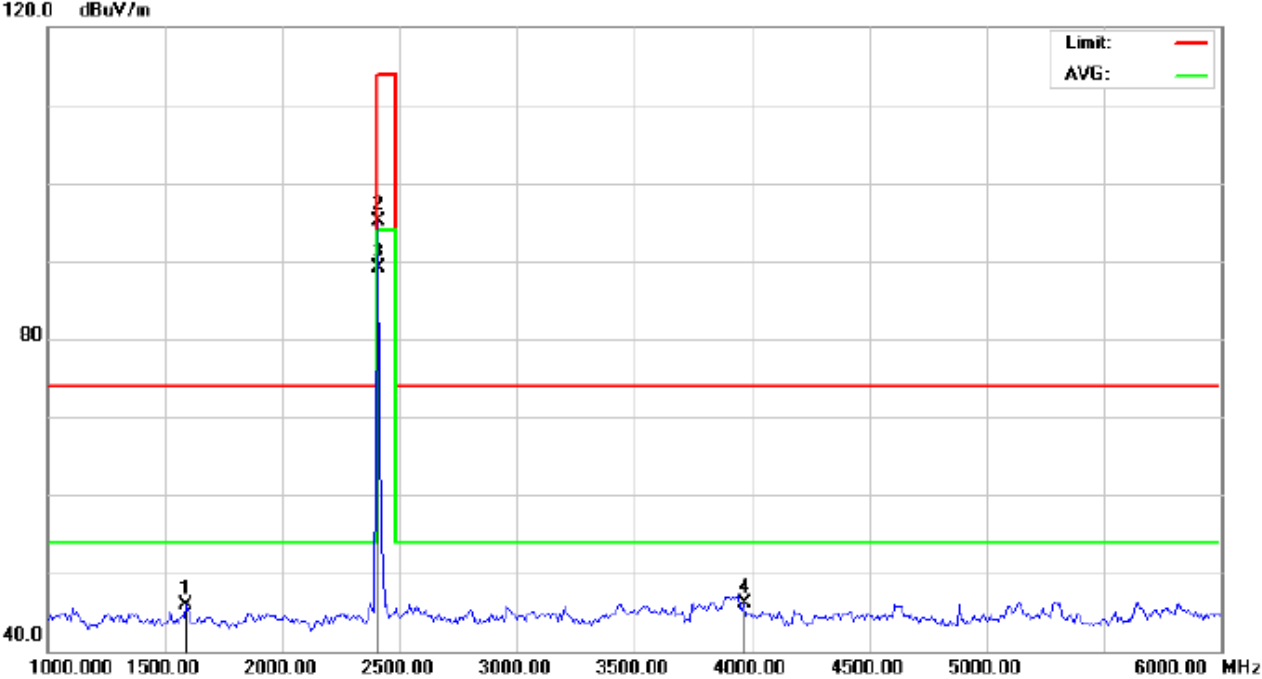
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 26
Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2402.000	105.23	-9.68	95.55	114.00	-18.45	peak			
2	*	2402.000	99.49	-9.68	89.81	94.00	-4.19	AVG	150	360	
3		3708.333	54.15	-6.61	47.54	74.00	-26.46	peak			
4		5733.333	48.26	-1.70	46.56	74.00	-27.44	peak			

RESULT: PASS

RADIATED EMISSION TEST- (ABOVE 1GHZ)-LOW CHANNEL- VERTICAL

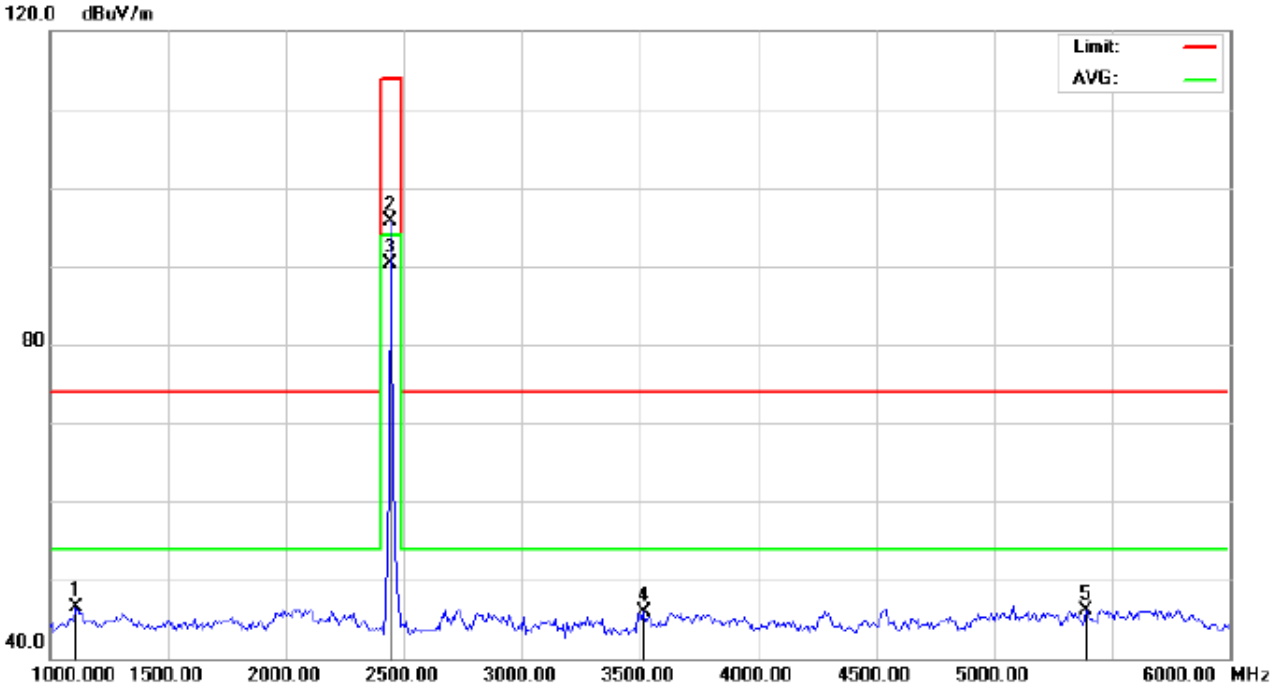


Site: site #1	Polarization: <i>Vertical</i>	Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)-	Power:	Humidity: 60 %
EUT:Bluetooth speaker	Distance: 3m	
M/N:T900		
Mode: Low Channel TX		
Note:		

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		1591.667	60.23	-14.42	45.81	74.00	-28.19	peak			
2		2402.000	104.73	-9.68	95.05	114.00	-18.95	peak			
3	*	2402.000	98.69	-9.68	89.01	94.00	-4.99	AVG	150	100	
4		3966.667	51.14	-5.02	46.12	74.00	-27.88	peak			

RESULT: PASS

RADIATED EMISSION TEST- (ABOVE 1GHZ)-MIDDLE CHANNEL-HORIZONTAL

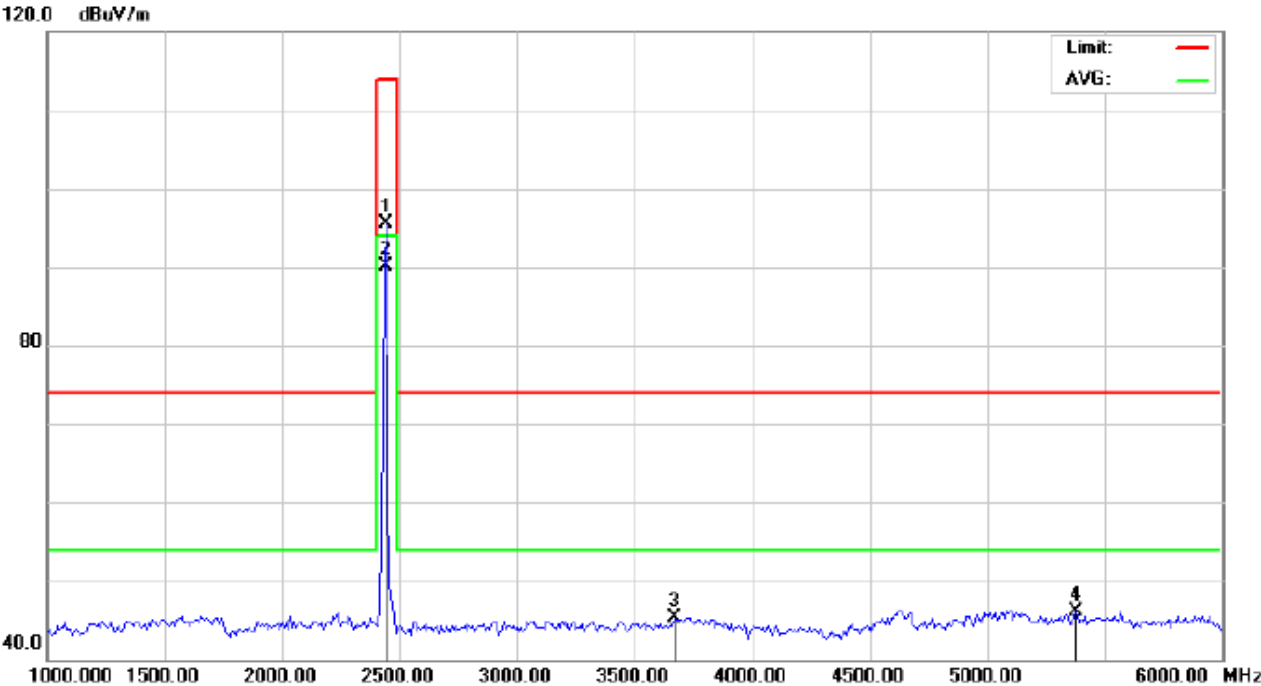


Site: site #1 Polarization: *Horizontal* Temperature: 26
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %
 EUT:Bluetooth speaker Distance: 3m
 M/N:T900
 Mode: Middle Channel TX
 Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		1108.333	62.09	-15.54	46.55	74.00	-27.45	peak			
2		2440.000	105.30	-9.64	95.66	114.00	-18.34	peak			
3	*	2440.000	99.85	-9.64	90.21	94.00	-3.79	AVG	100	153	
4		3516.667	53.77	-7.79	45.98	74.00	-28.02	peak			
5		5391.667	47.88	-1.81	46.07	74.00	-27.93	peak			

RESULT: PASS

RADIATED EMISSION TEST- (ABOVE 1GHZ)-MIDDLE CHANNEL- VERTICAL



Site: site #1
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)-
 EUT:Bluetooth speaker
 M/N:T900
 Mode: Middle Channel TX
 Note:

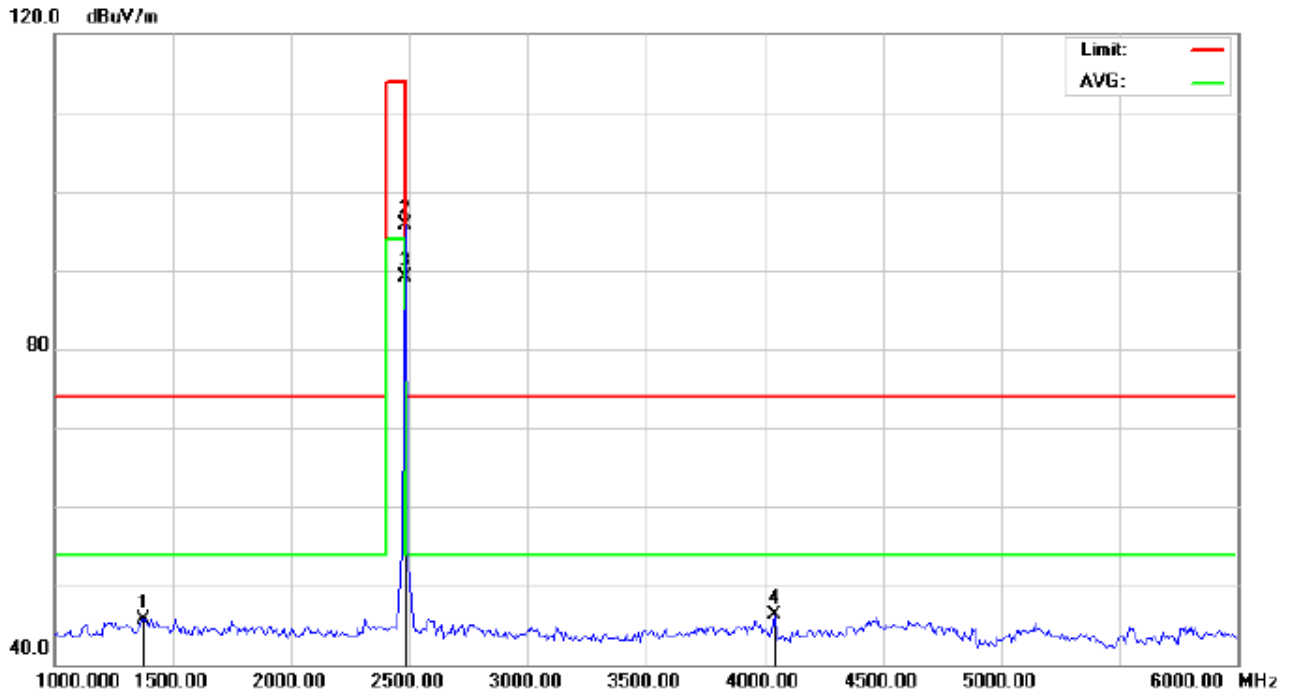
Polarization: *Vertical*
 Power:
 Distance: 3m

Temperature: 26
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2440.000	105.24	-9.64	95.60	114.00	-18.40	peak			
2	*	2440.000	99.76	-9.64	90.12	94.00	-3.88	AVG	100	360	
3		3666.667	52.15	-6.86	45.29	74.00	-28.71	peak			
4		5375.000	47.94	-1.81	46.13	74.00	-27.87	peak			

RESULT: PASS

RADIATED EMISSION TEST- (ABOVE 1GHZ)-HIGH CHANNEL-HORIZONTAL

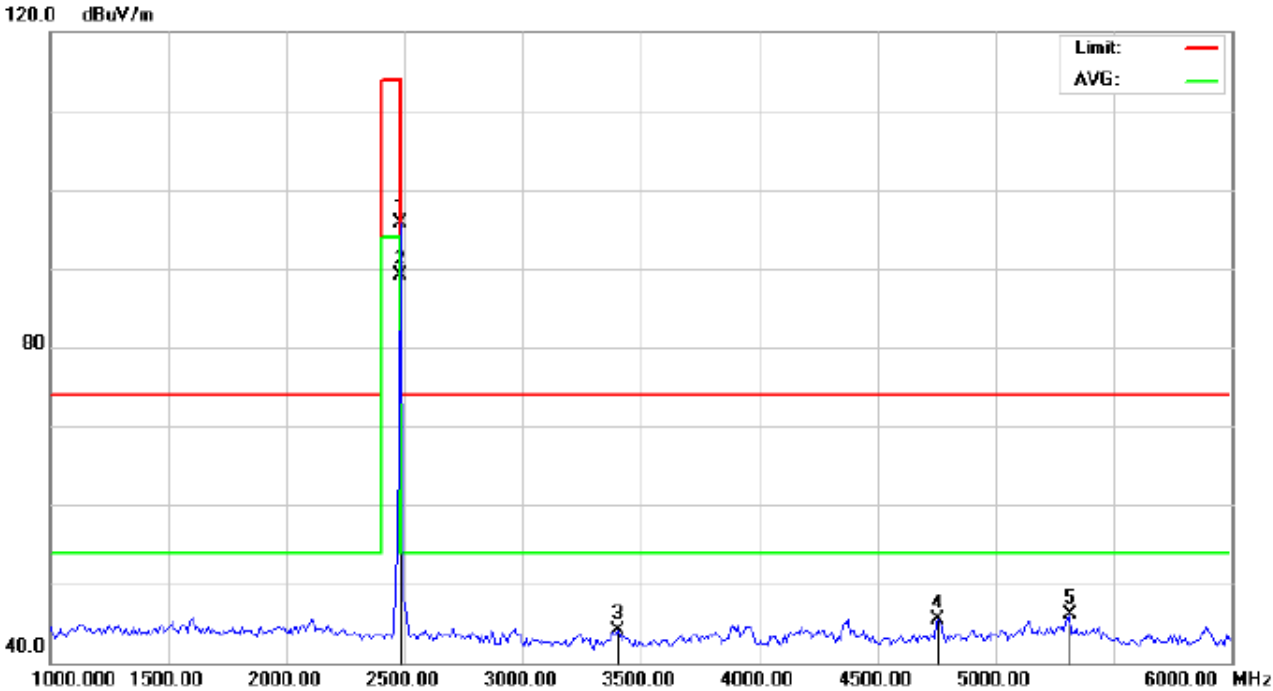


Site: site #1 Polarization: *Horizontal* Temperature: 26
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %
 EUT:Bluetooth speaker Distance: 3m
 M/N:T900
 Mode: High Channel TX
 Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		1375.000	61.19	-15.43	45.76	74.00	-28.24	peak			
2		2480.000	105.37	-9.59	95.78	114.00	-18.22	peak			
3	*	2480.000	98.65	-9.59	89.06	94.00	-4.94	AVG	100	258	
4		4041.667	50.91	-4.67	46.24	74.00	-27.76	peak			

RESULT: PASS

RADIATED EMISSION TEST- (ABOVE 1GHZ)-HIGH CHANNEL- VERTICAL



Site: site #1 Polarization: *Vertical* Temperature: 26
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %
 EUT:Bluetooth speaker Distance: 3m
 M/N:T900
 Mode: High Channel TX
 Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2480.000	105.37	-9.59	95.78	114.00	-18.22	peak			
2	*	2480.000	98.75	-9.59	89.16	94.00	-4.84	AVG	100	360	
3		3400.000	52.06	-7.98	44.08	74.00	-29.92	peak			
4		4758.333	47.89	-2.43	45.46	74.00	-28.54	peak			
5		5316.667	47.91	-1.81	46.10	74.00	-27.90	peak			

RESULT: PASS

Note: 6~25GHz at least have 20dB margin. No recording in the test report.
 Factor=Antenna Factor + Cable loss - Amplifier gain, Margin=Measurement-Limit.
 The "Factor" value can be calculated automatically by software of measurement system.

Field strength of the fundamental signal

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	105.23	-9.68	95.55	114	-18.45	Horizontal
2402	104.73	-9.68	95.05	114	-18.95	Vertical
2440	105.30	-9.64	95.66	114	-18.34	Horizontal
2440	105.24	-9.64	95.60	114	-18.40	Vertical
2480	105.37	-9.59	95.78	114	-18.22	Horizontal
2480	105.37	-9.59	95.78	114	-18.22	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	99.49	-9.68	89.81	94	-4.19	Horizontal
2402	98.69	-9.68	89.01	94	-4.99	Vertical
2440	99.85	-9.64	90.21	94	-3.79	Horizontal
2440	99.76	-9.64	90.12	94	-3.88	Vertical
2480	98.65	-9.59	89.06	94	-4.94	Horizontal
2480	98.75	-9.59	89.16	94	-4.84	Vertical

9. BAND EDGE EMISSION

9.1. MEASUREMENT PROCEDURE

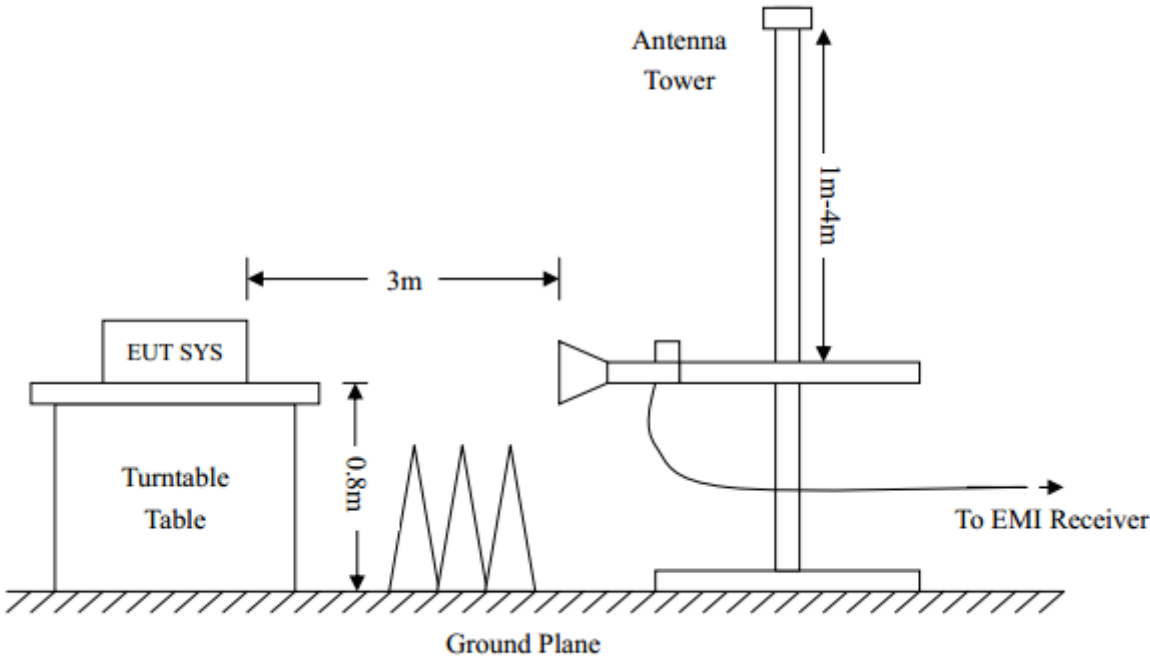
1The EUT operates at hopping-off test mode. The lowest or highest channels are tested to verify the largest transmission and spurious emissions power at the continuous transmission mode.

2Max hold the trace of the setp 1,and the EUT operates at hopping-on test mode to verify the largest spurious emissions power.

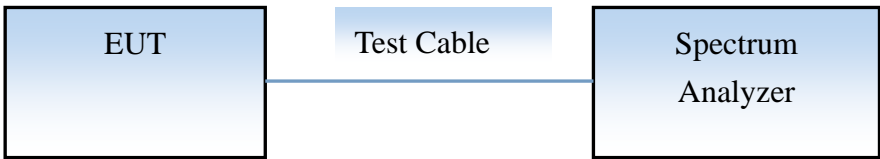
3Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission: (a) PEAK: RBW=VBW=1.5MHz / Sweep=AUTO

9.2 TEST SETUP

RADIATED EMISSION TEST SETUP

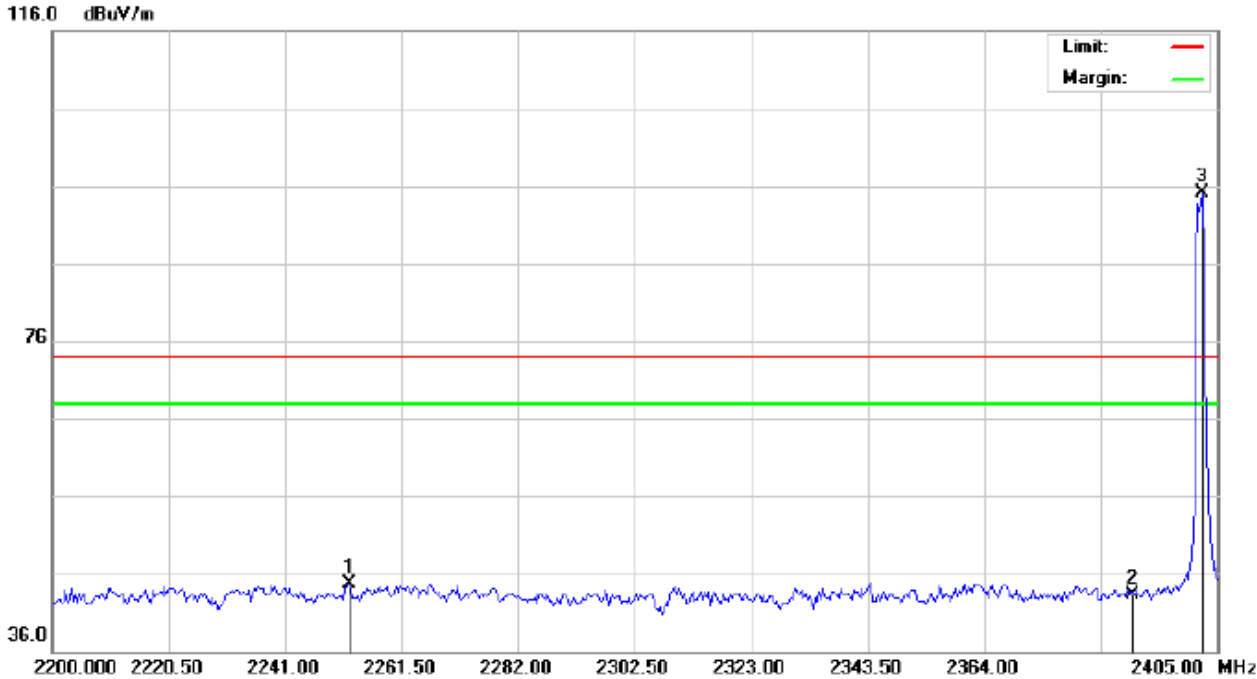


CONDUCTED TEST SETUP



**9.3 RADIATED TEST RESULT(Worst modulation:GFSK)
 FOR TRADITIONAL BLEUTOOTH**

TEST PLOT OF BAND EDGE FOR LOW CHANNEL-Horizontal



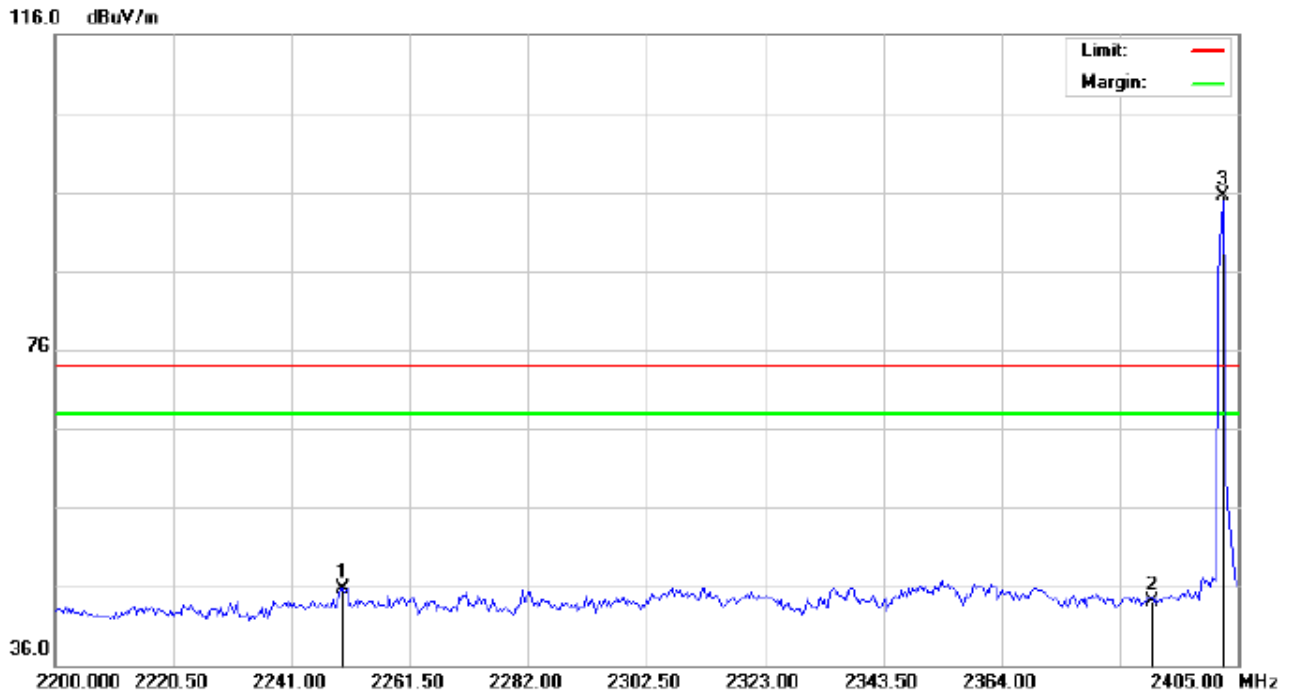
Site: site #1
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)
 EUT: Bluetooth speaker
 M/N: T900
 Mode: Low Channel TX
 Note:

Polarization: *Horizontal*
 Power:
 Distance:

Temperature: 26
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2252.275	34.49	10.16	44.65	74.00	-29.35	peak			
2		2390.000	33.00	10.31	43.31	74.00	-30.69	peak			
3	*	2402.000	84.72	10.32	95.04	74.00	21.04	peak			

TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical



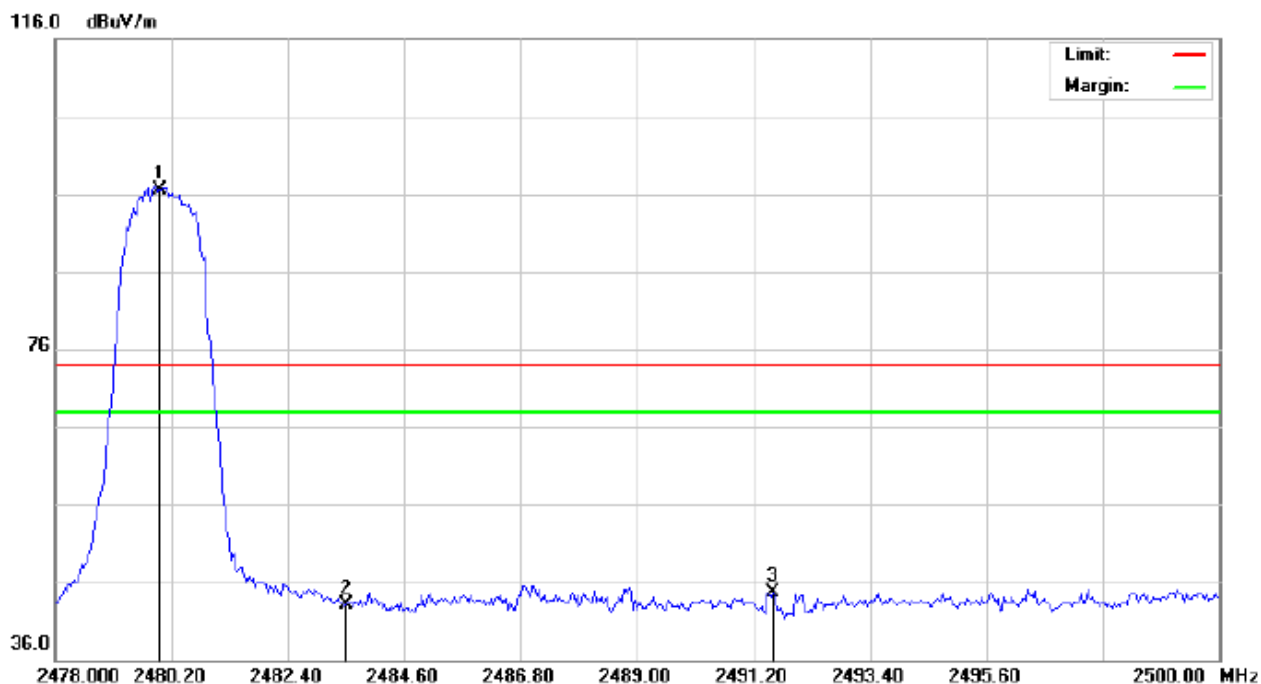
Site: site #1
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)
 EUT: Bluetooth speaker
 M/N: T900
 Mode: Low Channel TX
 Note:

Polarization: *Vertical*
 Power:
 Distance:

Temperature: 26
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2249.883	35.60	10.15	45.75	74.00	-28.25	peak			
2		2390.000	33.71	10.31	44.02	74.00	-29.98	peak			
3	*	2402.000	85.09	10.32	95.41	74.00	21.41	peak			

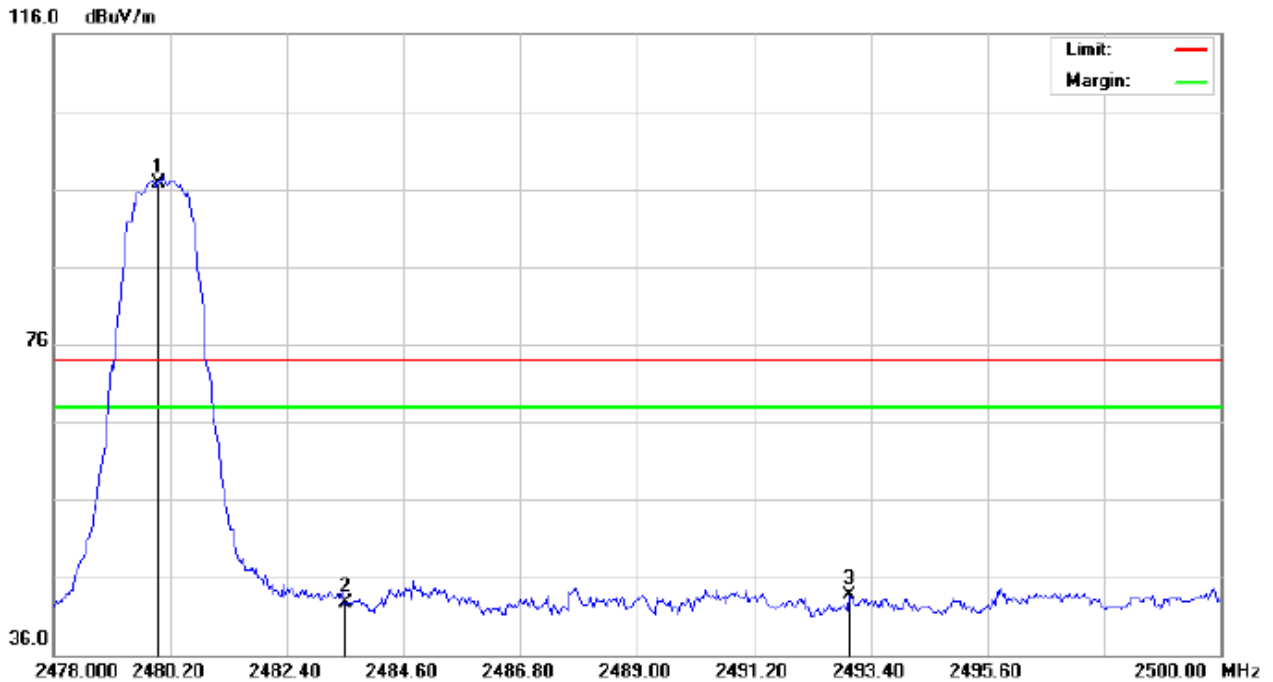
TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Horizontal



Site: site #1 Polarization: *Horizontal* Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK) Power: Humidity: 60 %
EUT: Bluetooth speaker Distance:
M/N: T900
Mode: High Channel TX
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	86.05	10.41	96.46	74.00	22.46	peak			
2		2483.500	32.69	10.41	43.10	74.00	-30.90	peak			
3		2491.567	34.36	10.42	44.78	74.00	-29.22	peak			

TEST PLOT OF BAND EDGE FOR HIGH CHANNEL-Vertical



Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT: Bluetooth speaker
M/N: T900
Mode: High Channel TX
Note:

Polarization: **Vertical**
Power:
Distance:

Temperature: 26
Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	86.32	10.41	96.73	74.00	22.73	peak			
2		2483.500	32.26	10.41	42.67	74.00	-31.33	peak			
3		2492.997	33.29	10.42	43.71	74.00	-30.29	peak			

RESULT: PASS

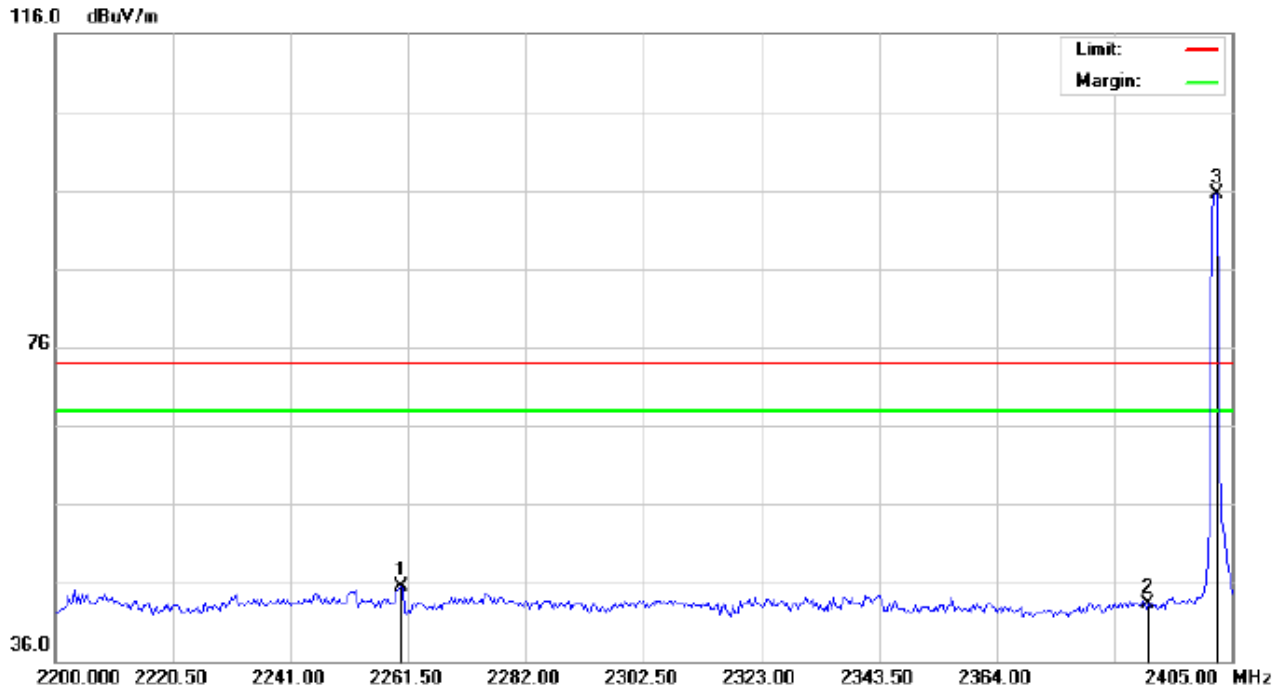
Note: The other modes radiation emission have enough 20dB margin.

Factor=Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The "Factor" value can be calculated automatically by software of measurement system.

FOR BLE

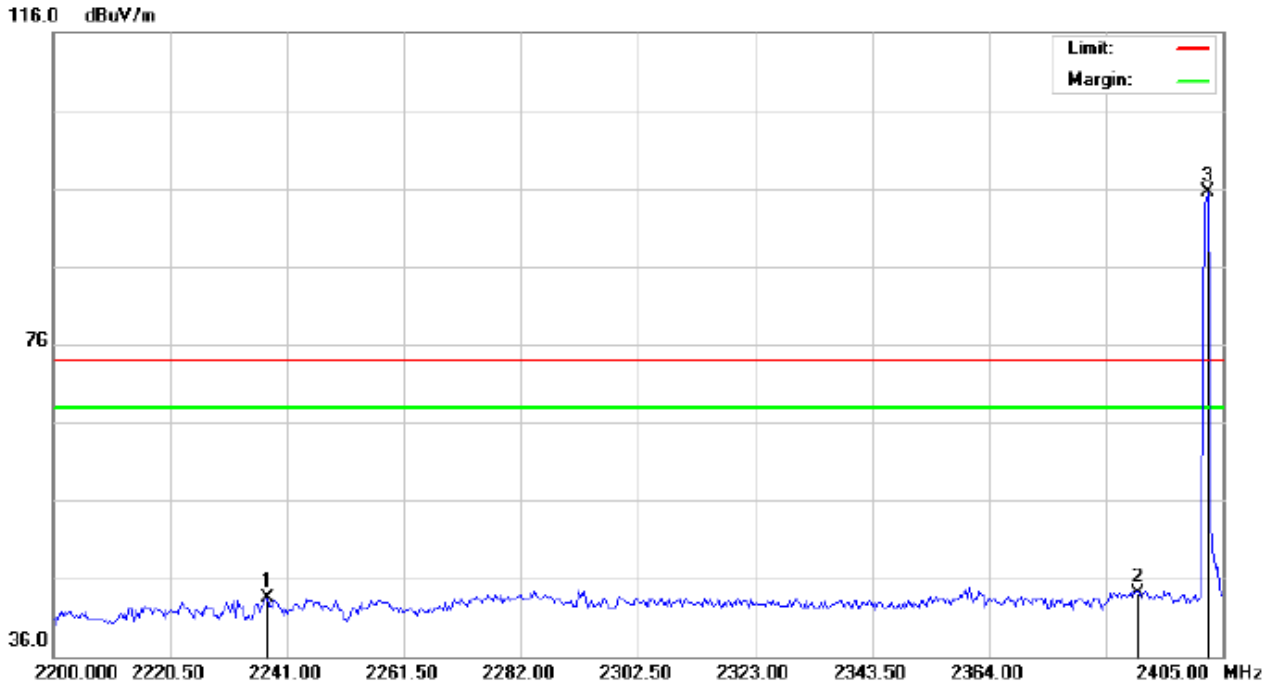
TEST PLOT OF BAND EDGE FOR LOW CHANNEL-Horizontal



Site: site #1 Polarization: *Horizontal* Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK) Power: Humidity: 60 %
EUT: Bluetooth speaker Distance:
M/N: T900
Mode: Low Channel TX
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2260.133	35.36	10.17	45.53	74.00	-28.47	peak			
2		2390.000	33.00	10.31	43.31	74.00	-30.69	peak			
3	*	2402.000	85.22	10.32	95.54	74.00	21.54	peak			

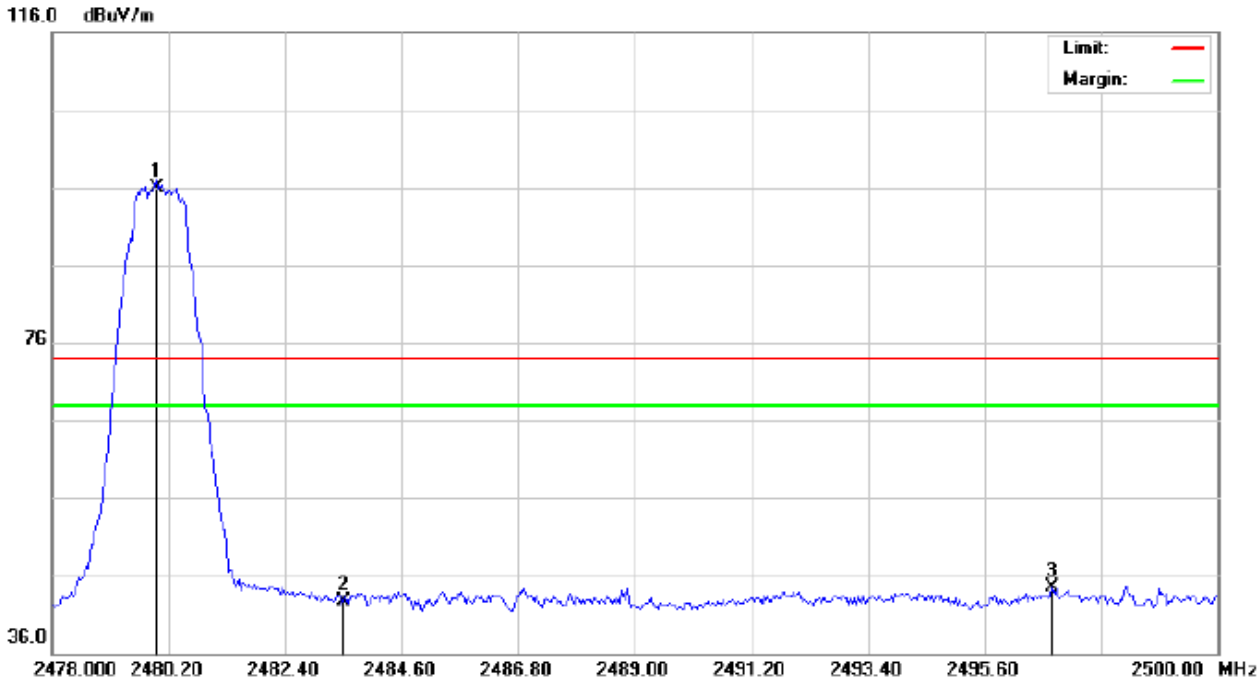
TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical



Site: site #1	Polarization: <i>Vertical</i>	Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)	Power:	Humidity: 60 %
EUT: Bluetooth speaker	Distance:	
M/N: T900		
Mode: Low Channel TX		
Note:		

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2237.583	33.45	10.14	43.59	74.00	-30.41	peak			
2		2390.000	33.71	10.31	44.02	74.00	-29.98	peak			
3	*	2402.000	85.09	10.32	95.41	74.00	21.41	peak			

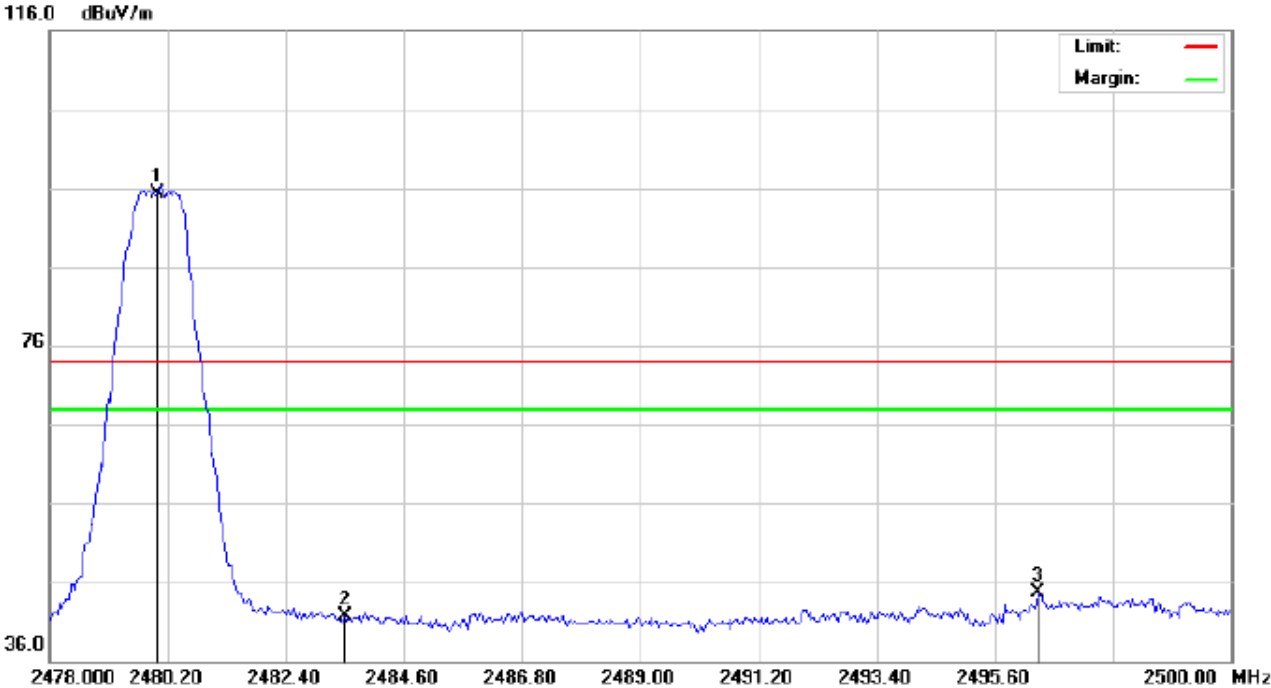
TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Horizontal



Site: site #1	Polarization: Horizontal	Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)	Power:	Humidity: 60 %
EUT: Bluetooth speaker	Distance:	
M/N: T900		
Mode: High Channel TX		
Note:		

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	85.55	10.41	95.96	74.00	21.96	peak			
2		2483.500	32.19	10.41	42.60	74.00	-31.40	peak			
3		2496.883	34.08	10.43	44.51	74.00	-29.49	peak			

TEST PLOT OF BAND EDGE FOR HIGH CHANNEL-Vertical



Site: site #1
 Limit: FCC Class B 3M Radiation above 1GHZ(PK)
 EUT: Bluetooth speaker
 M/N: T900
 Mode: High Channel TX
 Note:

Polarization: *Vertical*
 Power:
 Distance:

Temperature: 26
 Humidity: 60 %

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dBuV/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	84.82	10.41	95.23	74.00	21.23	peak			
2		2483.500	31.26	10.41	41.67	74.00	-32.33	peak			
3		2496.407	34.34	10.43	44.77	74.00	-29.23	peak			

RESULT: PASS

Note: The other modes radiation emission have enough 20dB margin.

Factor=Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

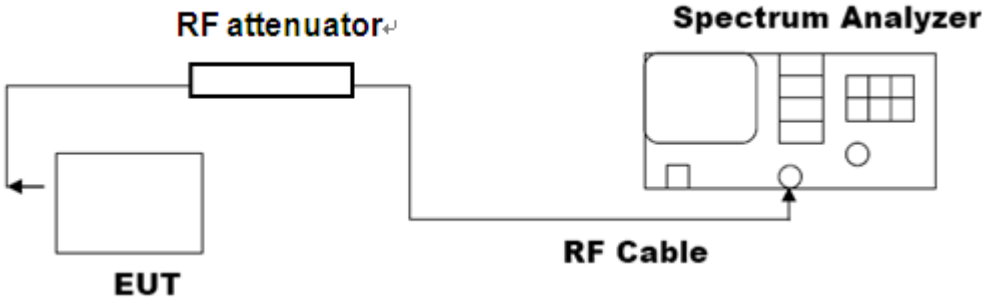
The "Factor" value can be calculated automatically by software of measurement system.

10. 20DB BANDWIDTH

10.1. MEASUREMENT PROCEDURE

1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
3. Set Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel
 RBW ≥ 1% of the 20 dB bandwidth, VBW ≥ RBW; Sweep = auto; Detector function = peak
4. Set SPA Trace 1 Max hold, then View.

10.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

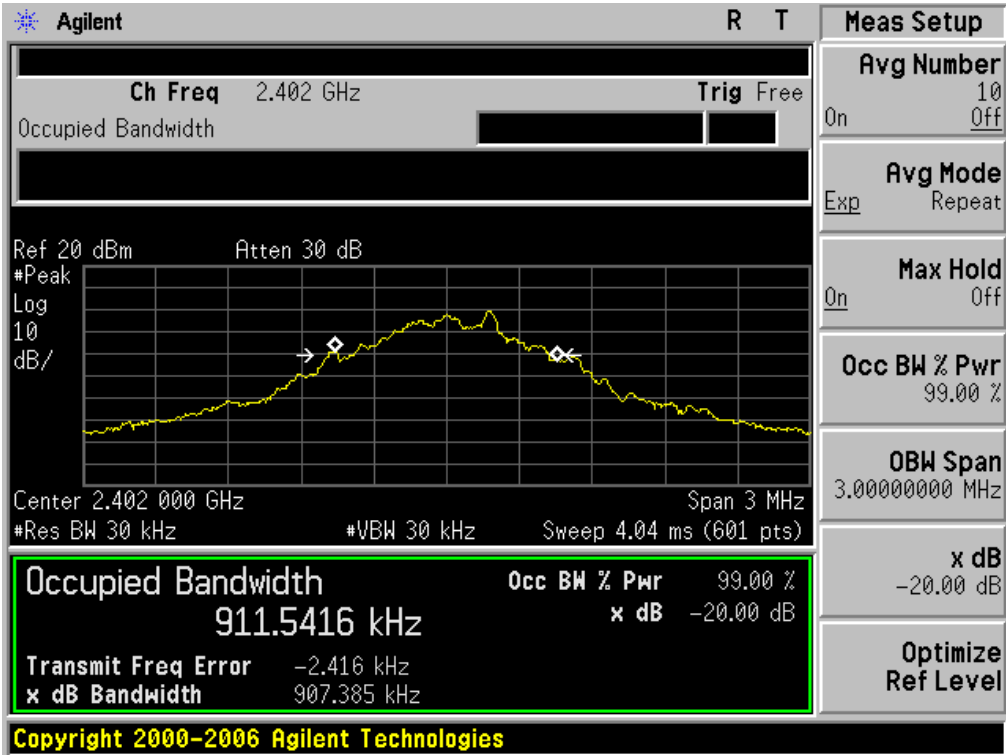


10.3. LIMITS AND MEASUREMENT RESULTS

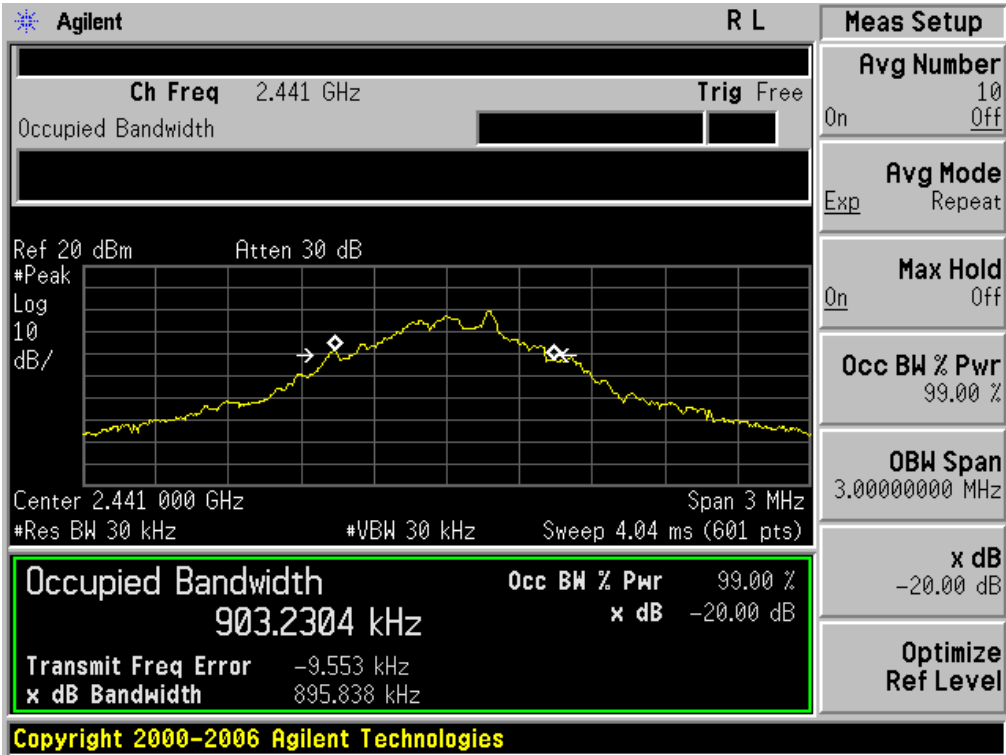
FOR TRADITIONAL BLUETOOTH

BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	0.907	PASS
	Middle Channel	0.896	PASS
	High Channel	0.912	PASS

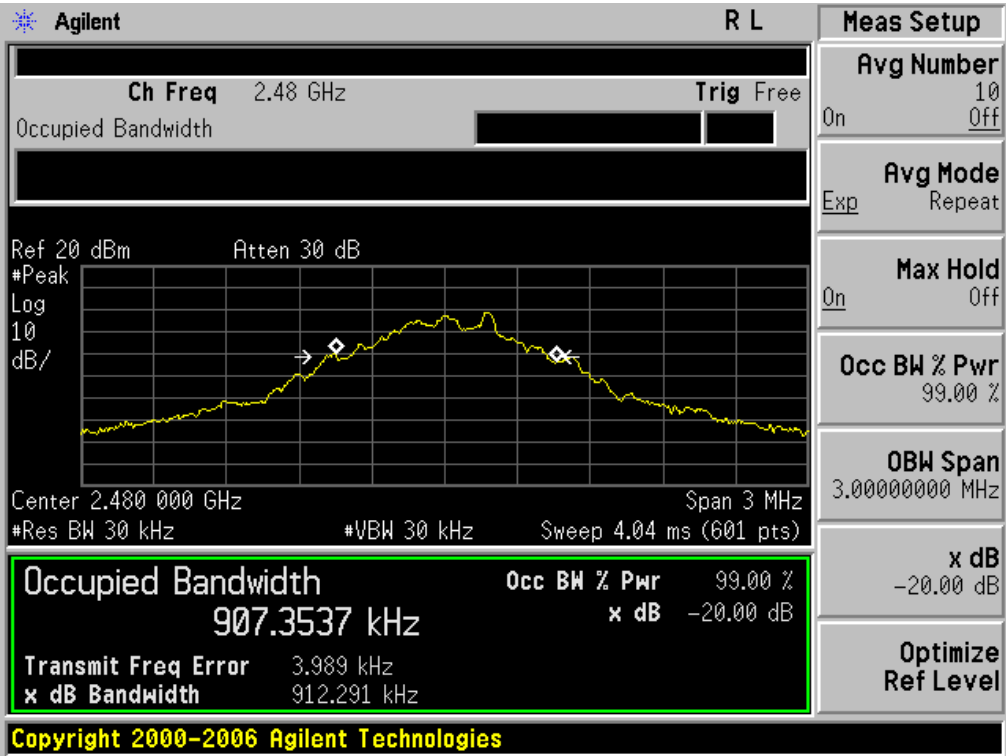
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

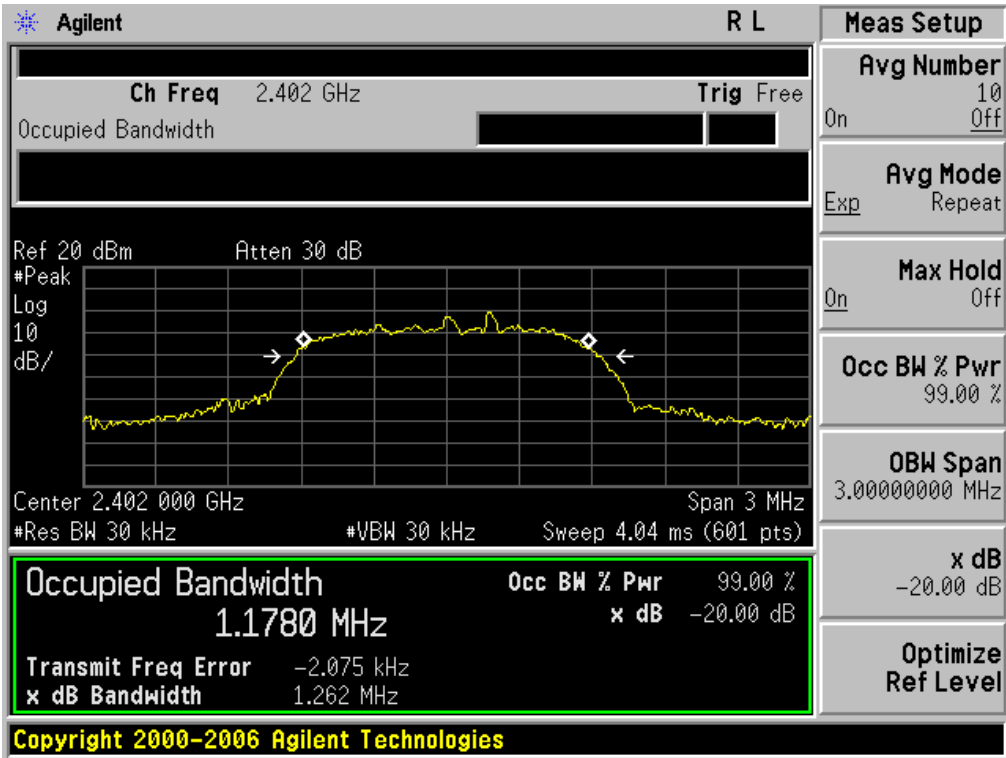


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

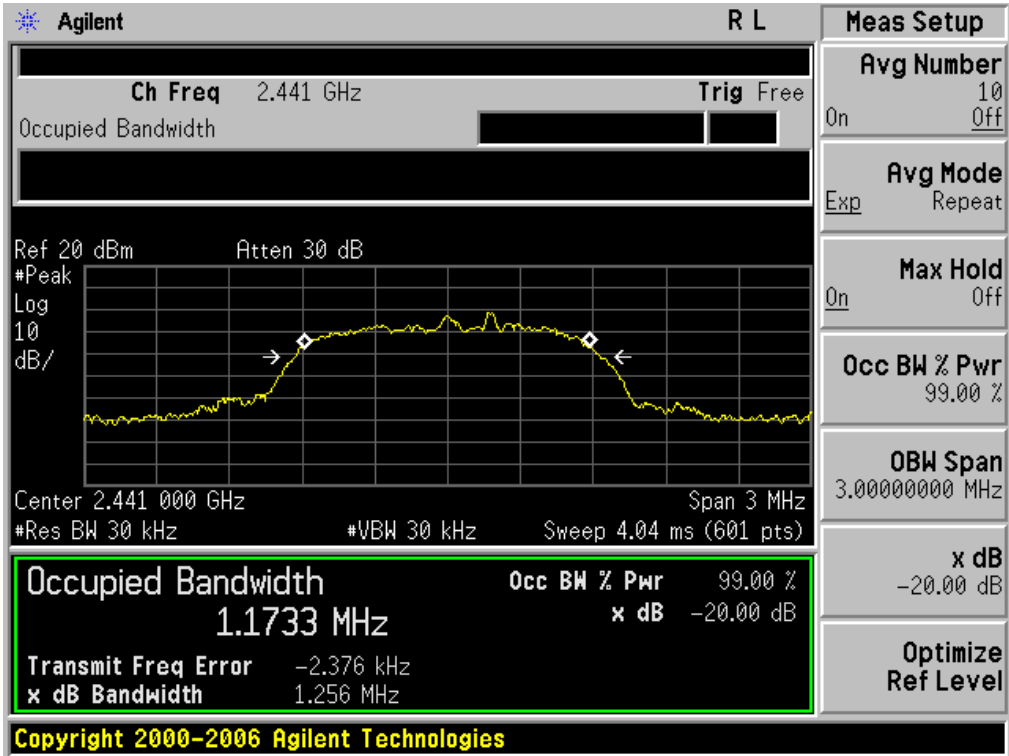


BLUETOOTH 2Mbps LIMITS AND MEASUREMENT RESULT			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.262	PASS
	Middle Channel	1.256	PASS
	High Channel	1.257	PASS

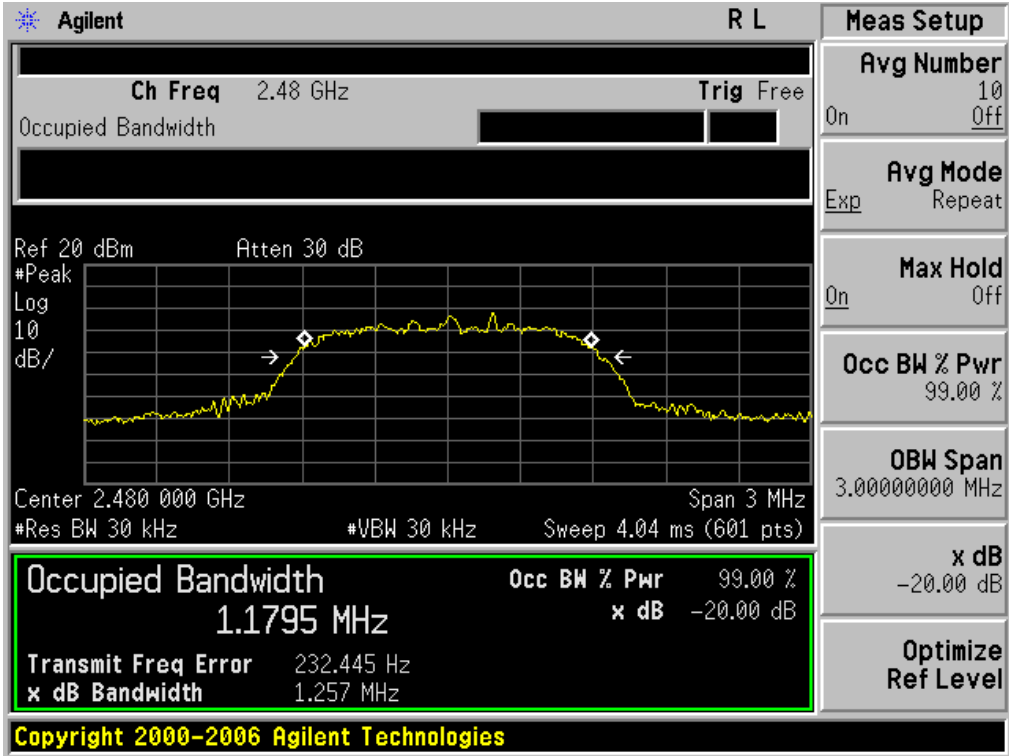
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

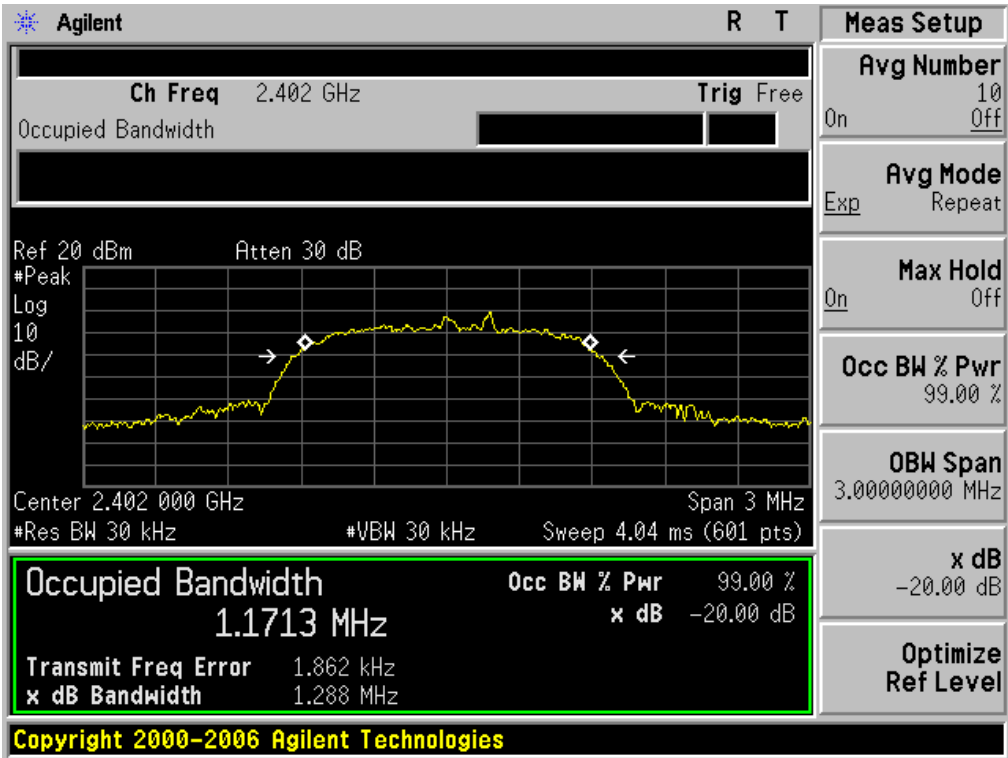


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

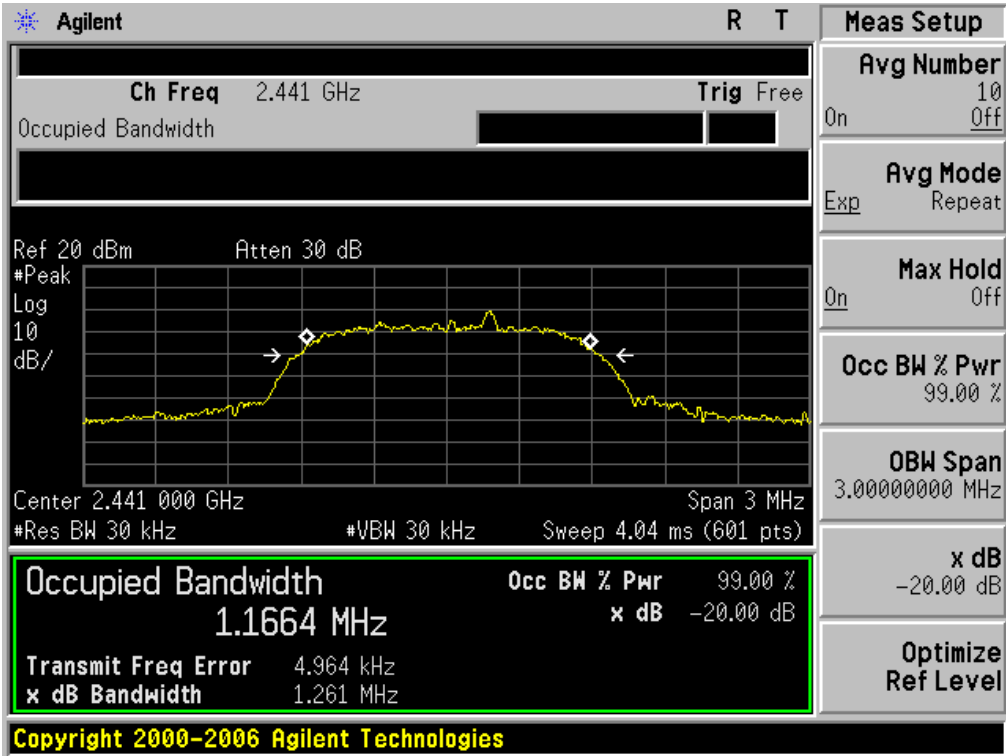


BLUETOOTH 3MBPS LIMITS AND MEASUREMENT RESULT			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.288	PASS
	Middle Channel	1.261	PASS
	High Channel	1.266	PASS

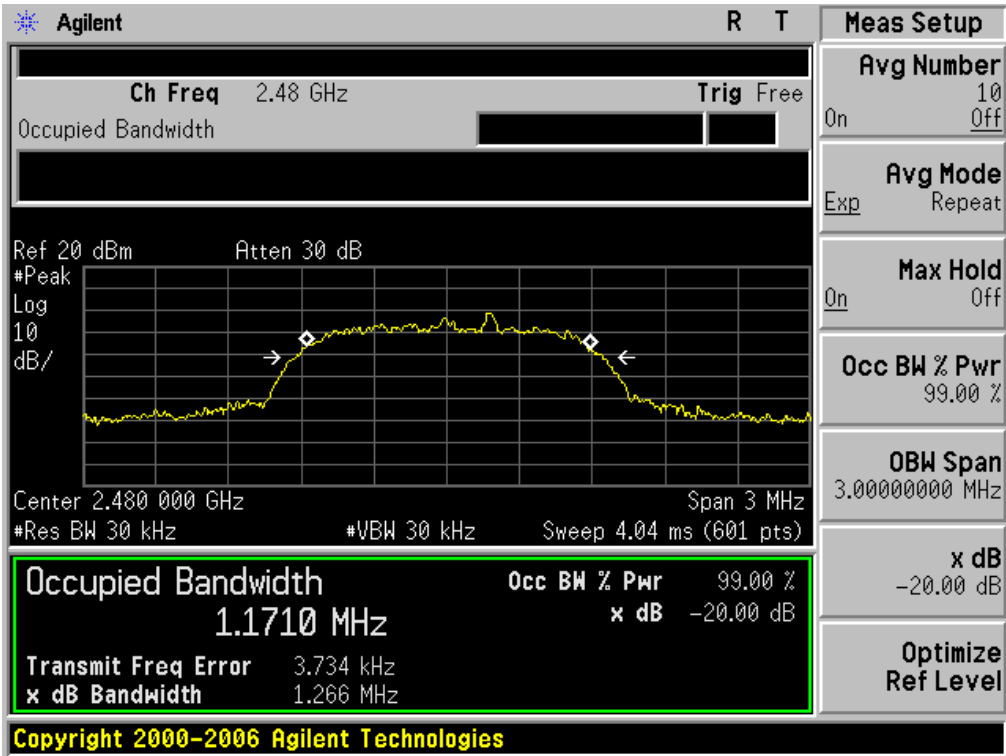
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



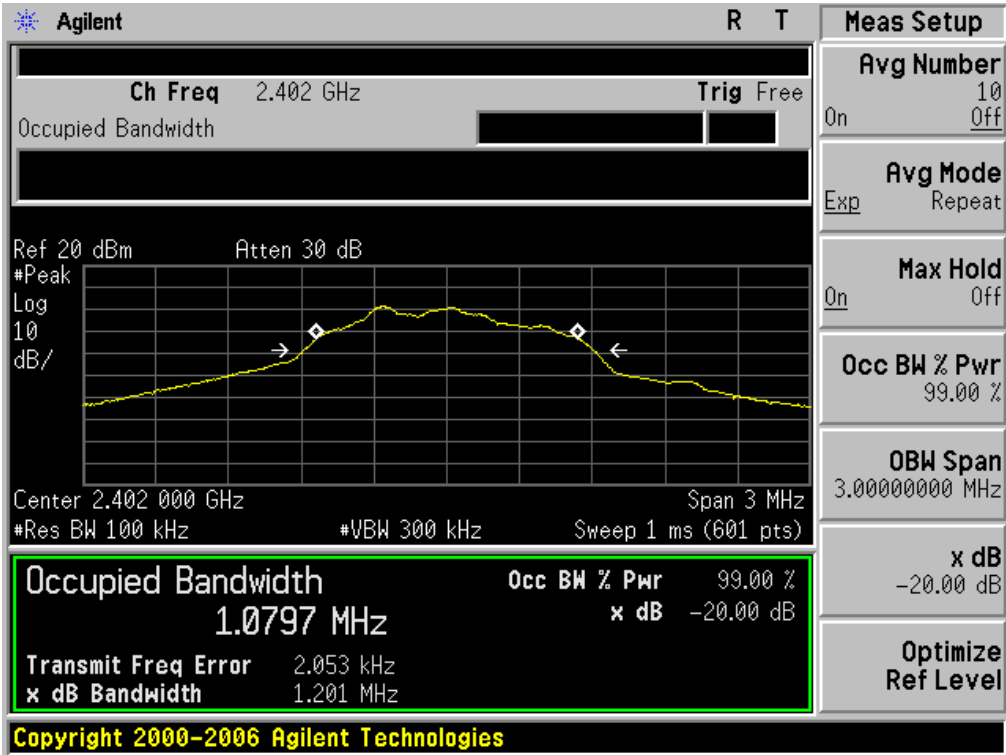
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



FOR BLE

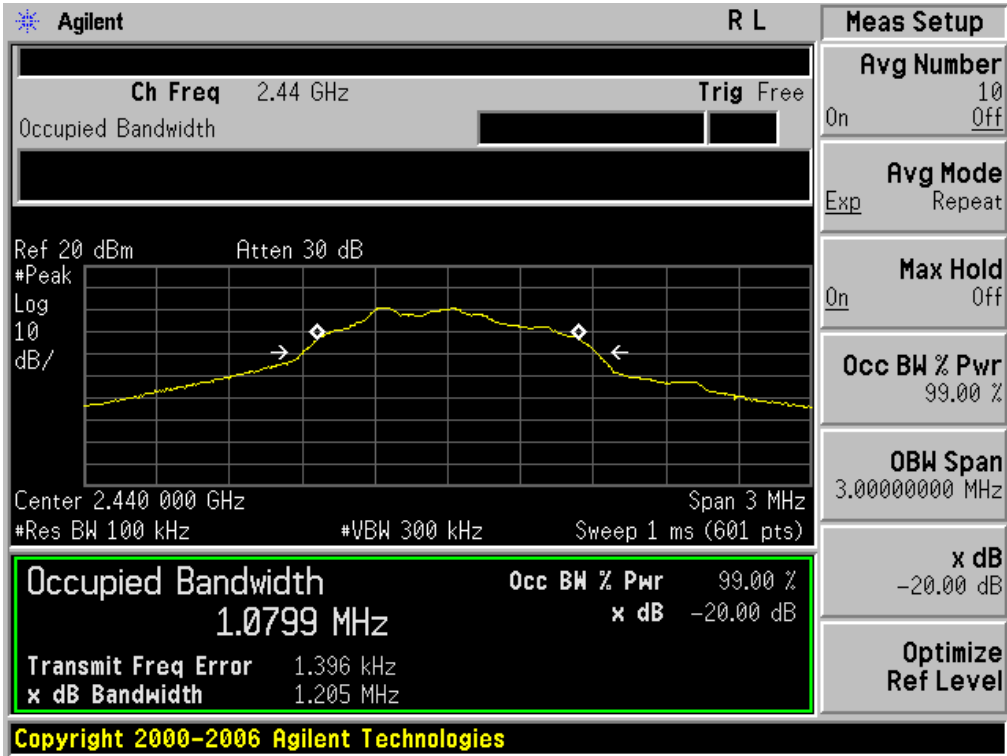
BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.201	PASS
	Middle Channel	1.205	PASS
	High Channel	1.200	PASS

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

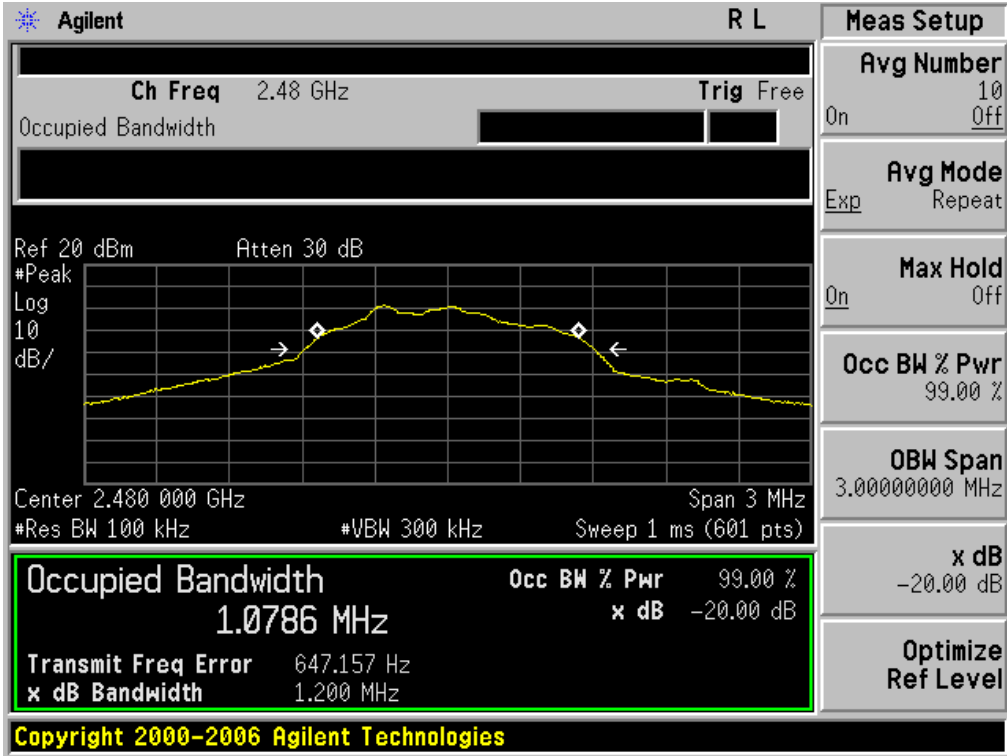


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TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



11. FCC LINE CONDUCTED EMISSION TEST

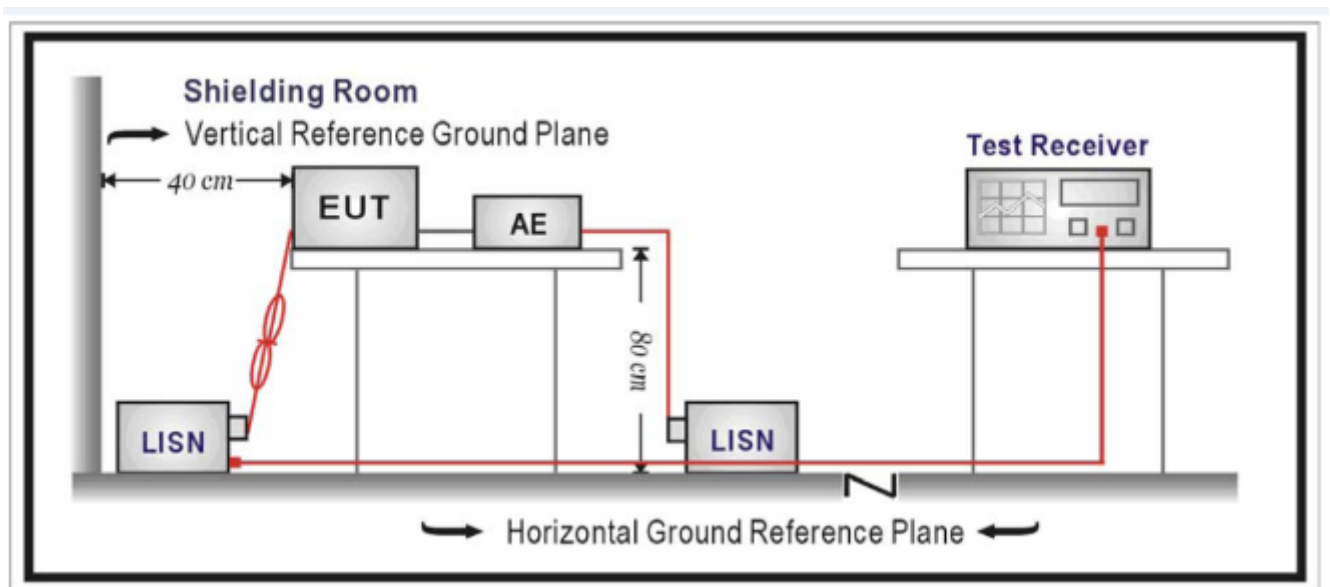
11.1. LIMITS OF LINE CONDUCTED EMISSION TEST

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

11.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST



11.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.4.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4. All support equipments received AC120V/60Hz power from a LISN, if any.
5. The EUT received DC charging voltage by PC which received 120V/60Hz power by a LISN..
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

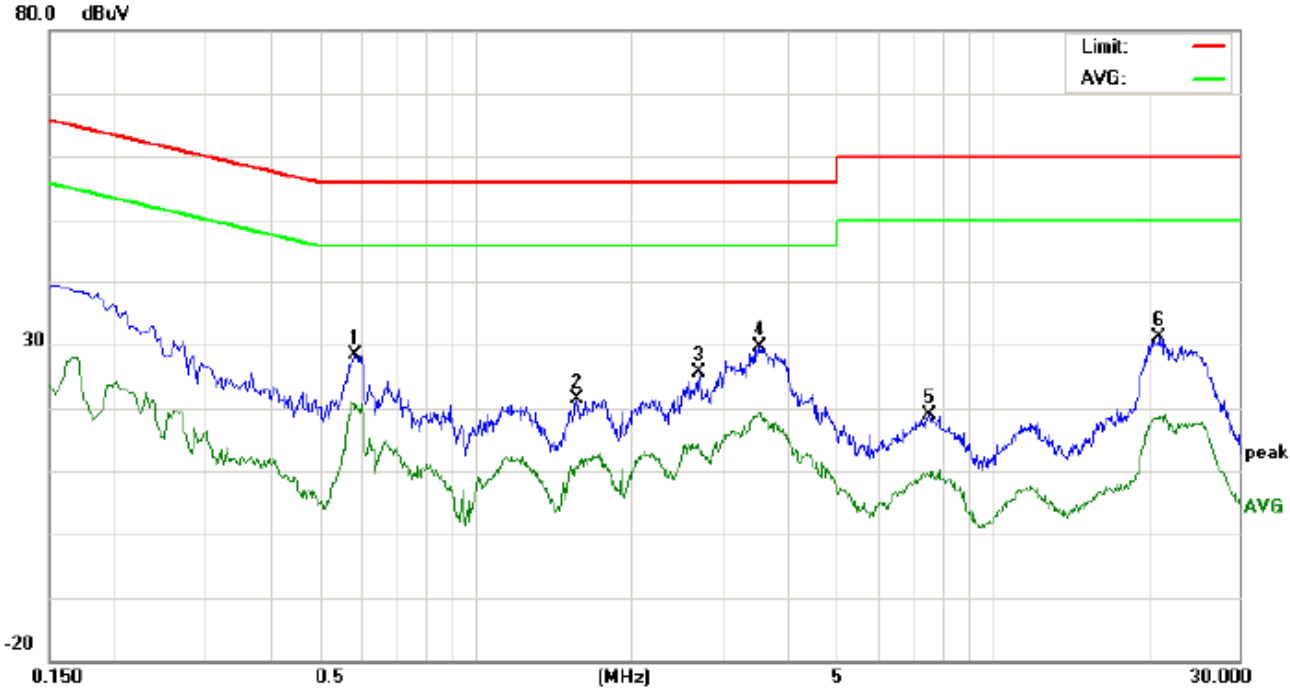
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

11.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

- EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less -2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.

**11.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST
 FOR TRADITIONAL BLUETOOTH**

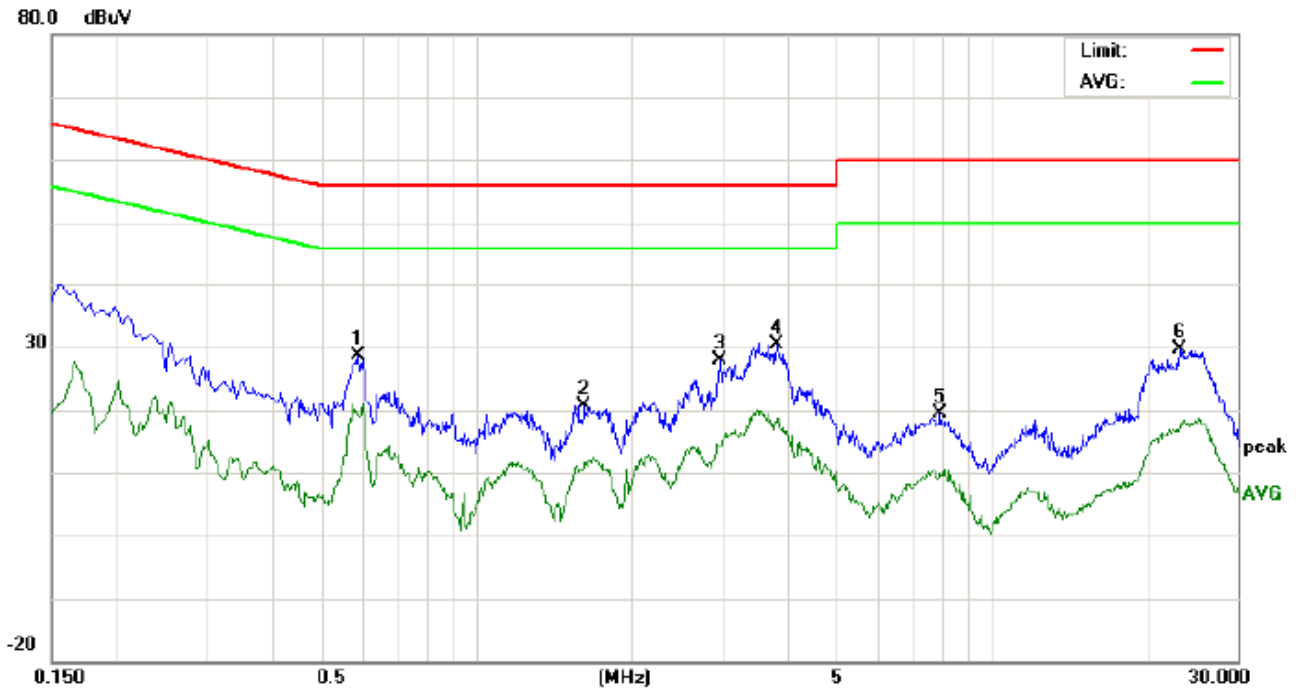
Line Conducted Emission Test Line 1-L



Site: Conduction Phase: **L1** Temperature: 22.7
 Limit: FCC Class B Conduction(QP) Power: Humidity: 53.9 %
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: BT Link with charging
 Note:

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		dB	Peak	QP	AVG	QP	AVG	QP		
1	0.5859	28.31		19.75	0.00	28.31		19.75	56.00	46.00	-27.69	-26.25	P	
2	1.5700	21.45		10.86	0.00	21.45		10.86	56.00	46.00	-34.55	-35.14	P	
3	2.7179	25.67		13.49	0.00	25.67		13.49	56.00	46.00	-30.33	-32.51	P	
4	3.5579	29.64		19.10	0.00	29.64		19.10	56.00	46.00	-26.36	-26.90	P	
5	7.5259	18.80		9.41	0.00	18.80		9.41	60.00	50.00	-41.20	-40.59	P	
6	21.0940	31.07		18.63	0.00	31.07		18.63	60.00	50.00	-28.93	-31.37	P	

Line Conducted Emission Test Line 2-N

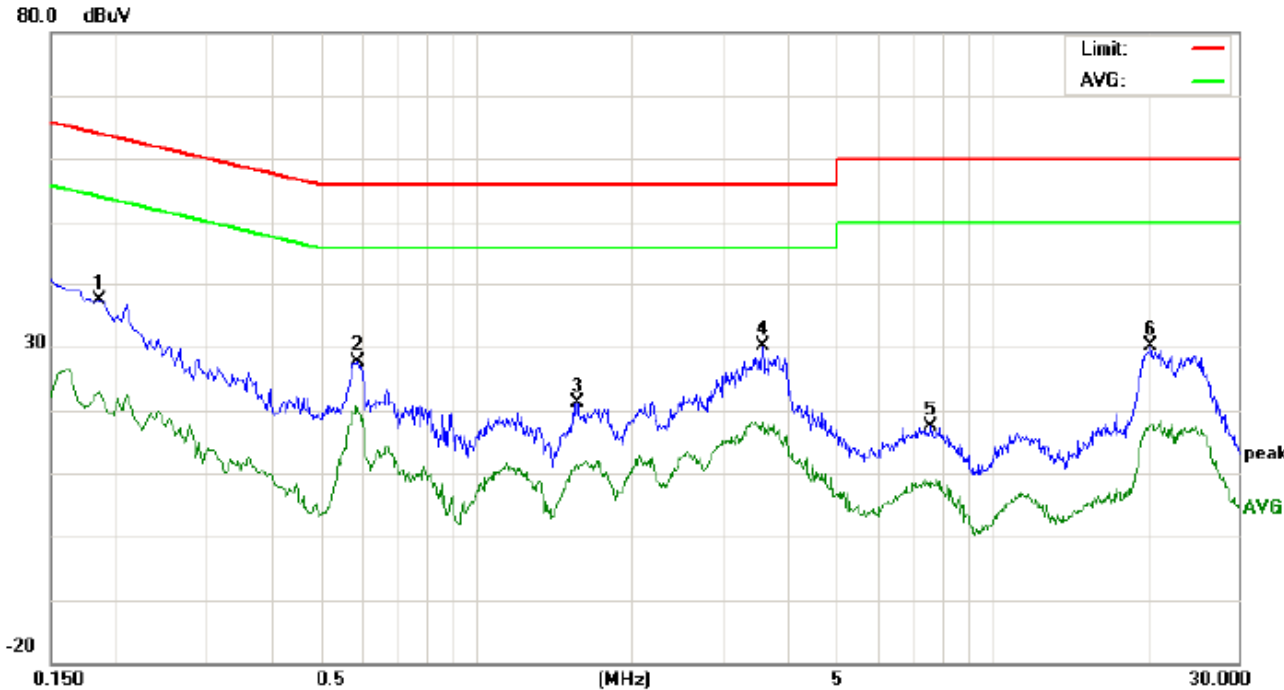


Site: Conduction Phase: **N** Temperature: 22.7
Limit: FCC Class B Conduction(QP) Power: Humidity: 53.9 %
EUT: Bluetooth Speaker
M/N: T900
Mode: BT Link with charging
Note:

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		dB	Peak	QP	AVG	QP	AVG	QP		
1	0.5899	28.56		19.41	0.00	28.56		19.41	56.00	46.00	-27.44	-26.59	P	
2	1.6259	20.72		11.61	0.00	20.72		11.61	56.00	46.00	-35.28	-34.39	P	
3	2.9739	27.81		14.10	0.00	27.81		14.10	56.00	46.00	-28.19	-31.90	P	
4	3.8380	30.42		18.58	0.00	30.42		18.58	56.00	46.00	-25.58	-27.42	P	
5	7.9499	19.27		9.98	0.00	19.27		9.98	60.00	50.00	-40.73	-40.02	P	
6	23.2620	29.53		17.41	0.00	29.53		17.41	60.00	50.00	-30.47	-32.59	P	

FOR BLE

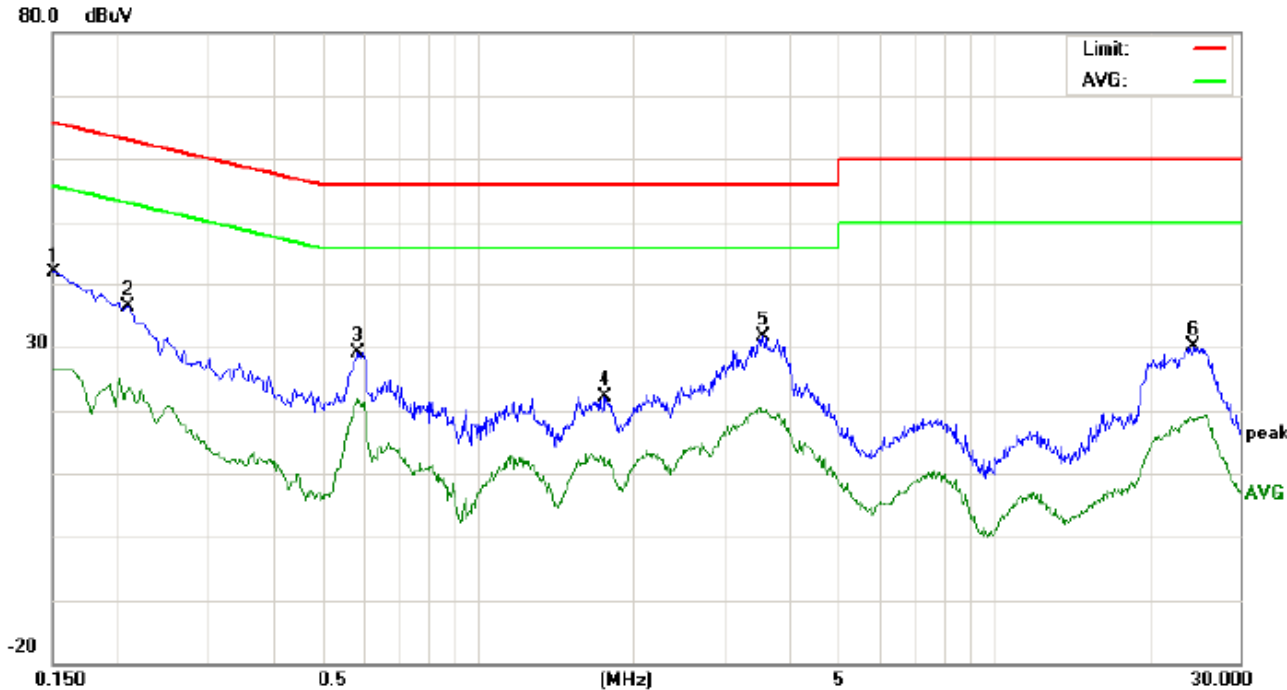
Line Conducted Emission Test Line 1-L



Site: Conduction Phase: *L1* Temperature: 22.7
 Limit: FCC Class B Conduction(QP) Power: Humidity: 53.9 %
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: BT Link with charging
 Note:

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		dB	Peak	QP	AVG	QP	AVG	QP		
1	0.1860	37.37		22.88	0.00	37.37		22.88	64.21	54.21	-26.84	-31.33	P	
2	0.5899	27.68		20.30	0.00	27.68		20.30	56.00	46.00	-28.32	-25.70	P	
3	1.5740	21.01		11.44	0.00	21.01		11.44	56.00	46.00	-34.99	-34.56	P	
4	3.5980	30.05		18.05	0.00	30.05		18.05	56.00	46.00	-25.95	-27.95	P	
5	7.6140	17.39		7.78	0.00	17.39		7.78	60.00	50.00	-42.61	-42.22	P	
6	20.3380	30.02		17.46	0.00	30.02		17.46	60.00	50.00	-29.98	-32.54	P	

Line Conducted Emission Test Line 2-N



Site: Conduction Phase: *N* Temperature: 22.7
 Limit: FCC Class B Conduction(QP) Power: Humidity: 53.9 %
 EUT: Bluetooth Speaker
 M/N: T900
 Mode: BT Link with charging
 Note:

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor (dB)	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1499	41.95		26.33	0.00	41.95		26.33	66.00	56.00	-24.05	-29.67	P	
2	0.2100	36.47		23.72	0.00	36.47		23.72	63.20	53.20	-26.73	-29.48	P	
3	0.5860	29.22		21.91	0.00	29.22		21.91	56.00	46.00	-26.78	-24.09	P	
4	1.7660	22.10		11.31	0.00	22.10		11.31	56.00	46.00	-33.90	-34.69	P	
5	3.5780	31.74		19.80	0.00	31.74		19.80	56.00	46.00	-24.26	-26.20	P	
6	24.4580	30.03		18.56	0.00	30.03		18.56	60.00	50.00	-29.97	-31.44	P	

APPENDIX A: PHOTOGRAPHS OF TEST SETUP
FCC LINE CONDUCTED EMISSION TEST SETUP



FCC RADIATED EMISSION TEST SETUP





APPENDIX B: PHOTOGRAPHS OF EUT
TOP VIEW OF EUT



BOTTOM VIEW OF EUT



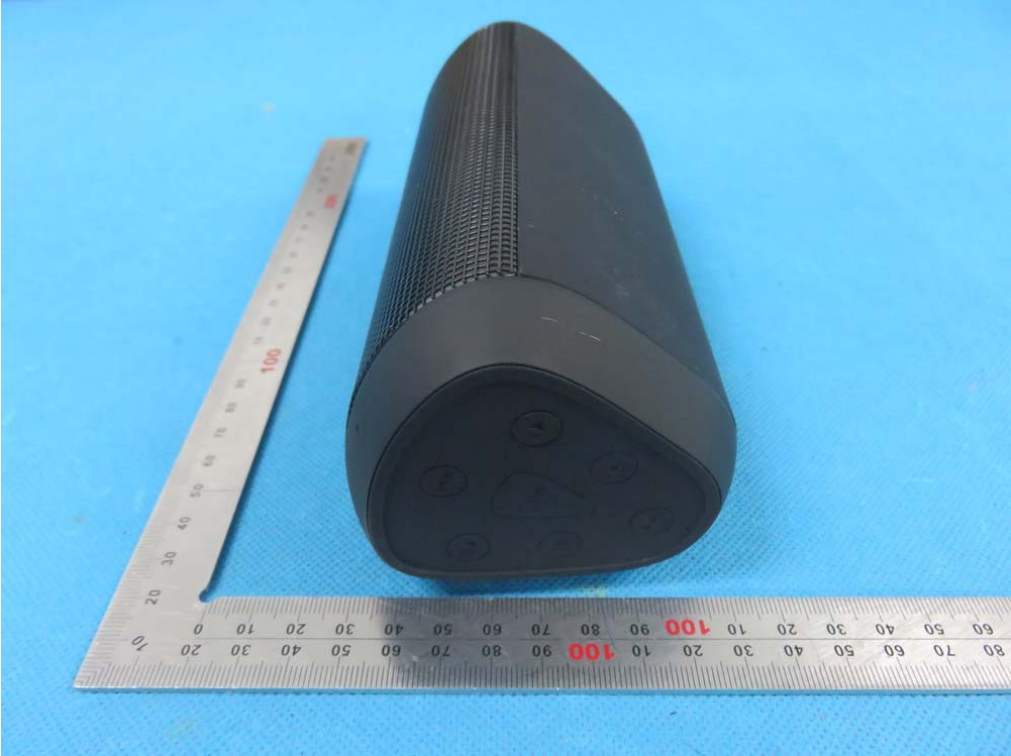
FRONT VIEW OF EUT



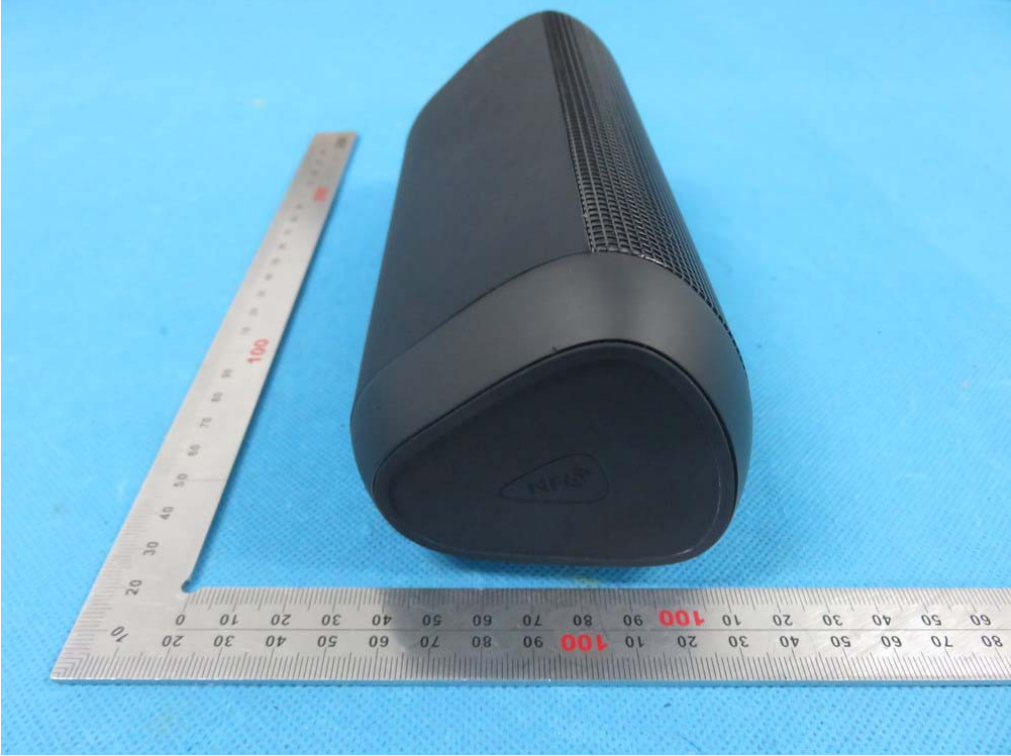
BACK VIEW OF EUT



LEFT VIEW OF EUT



RIGHT VIEW OF EUT



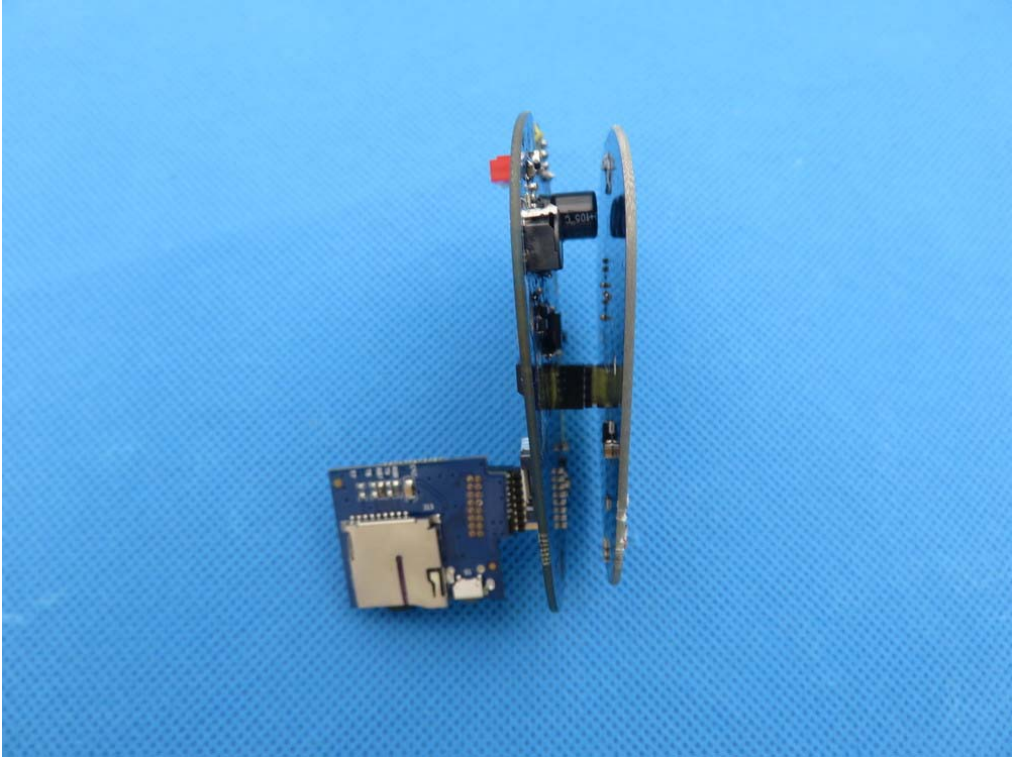
VIEW OF EUT (Port)



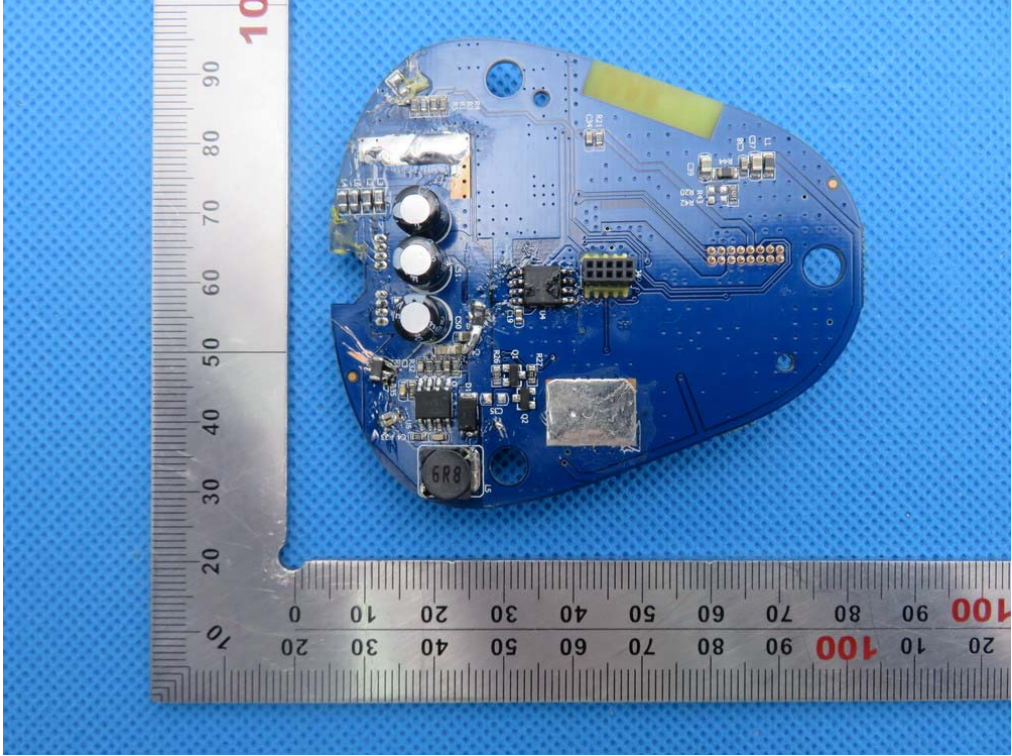
OPEN VIEW OF EUT



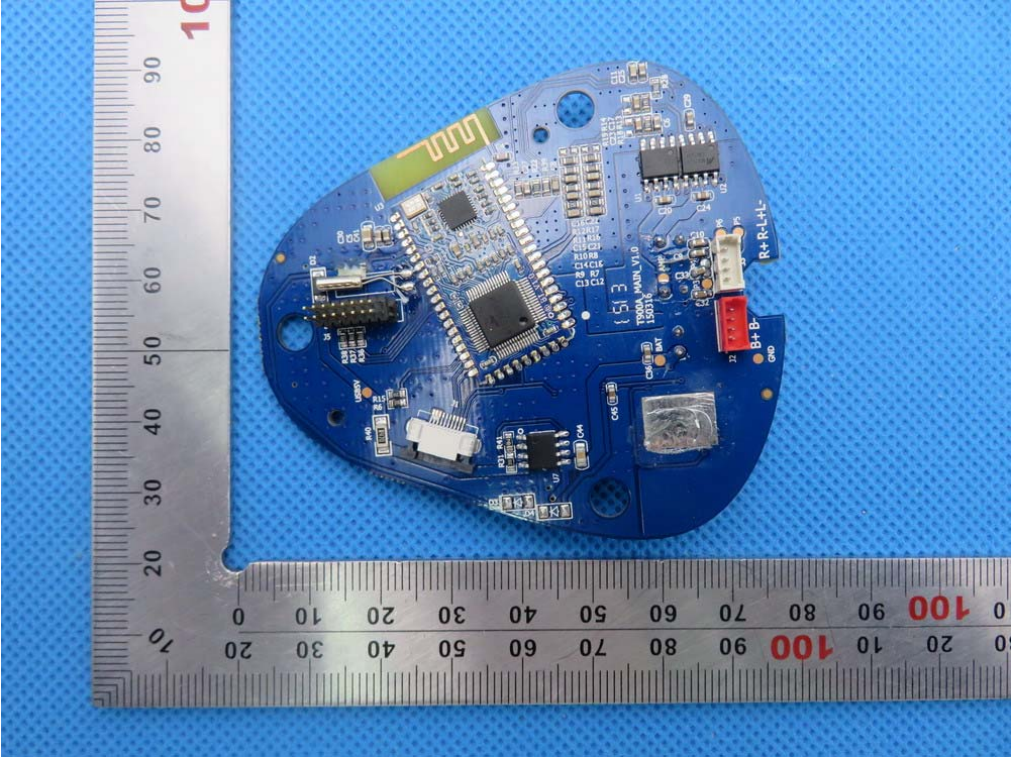
INTERNAL VIEW OF EUT-1



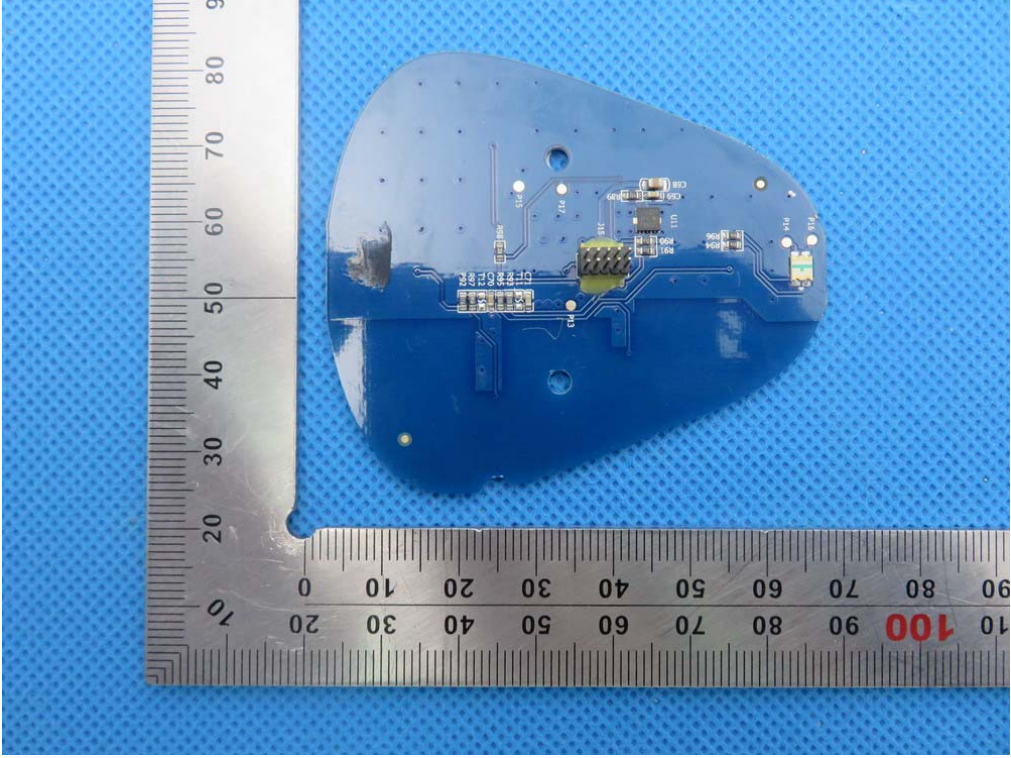
INTERNAL VIEW OF EUT-2



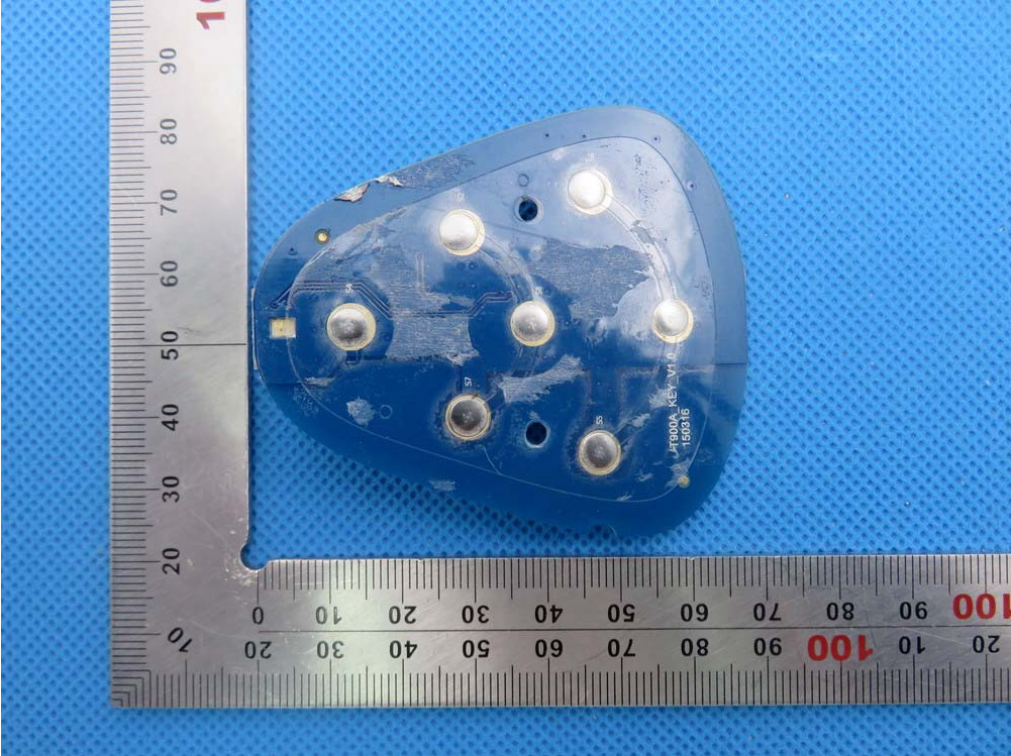
INTERNAL VIEW OF EUT-3



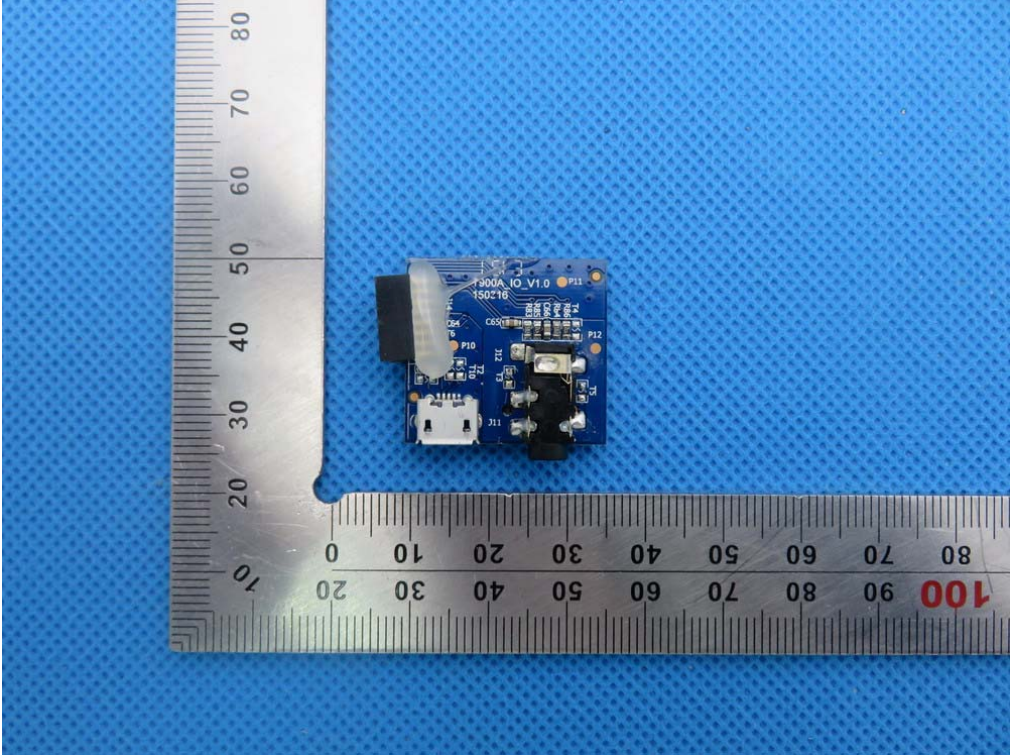
INTERNAL VIEW OF EUT-4



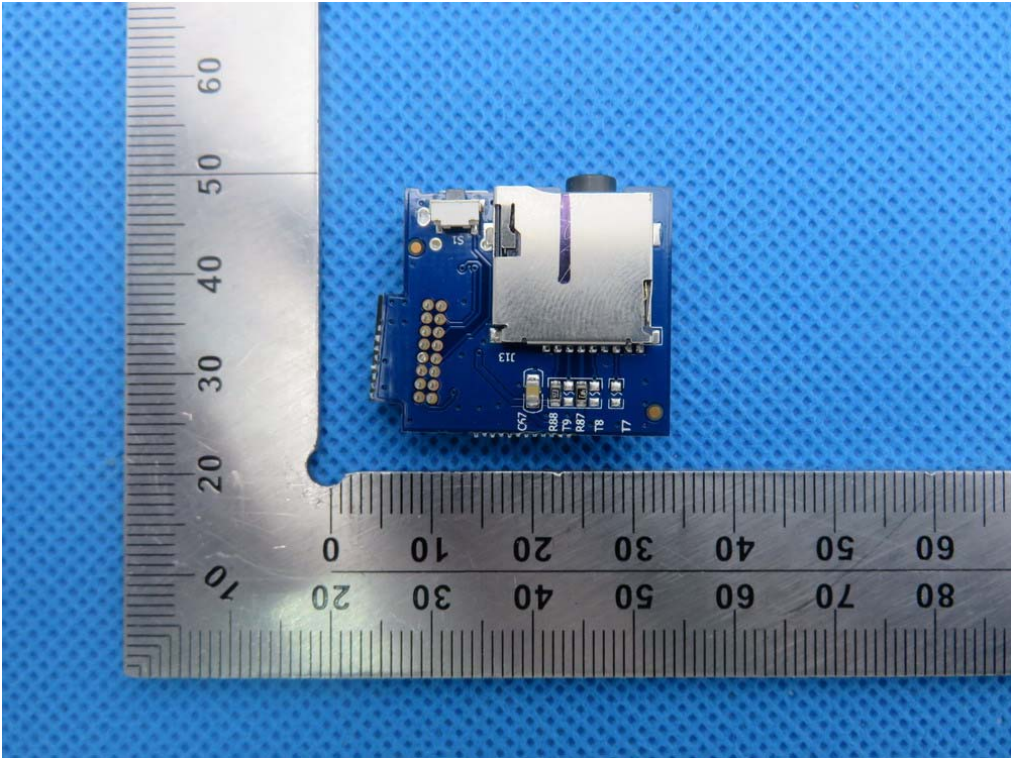
INTERNAL VIEW OF EUT-5



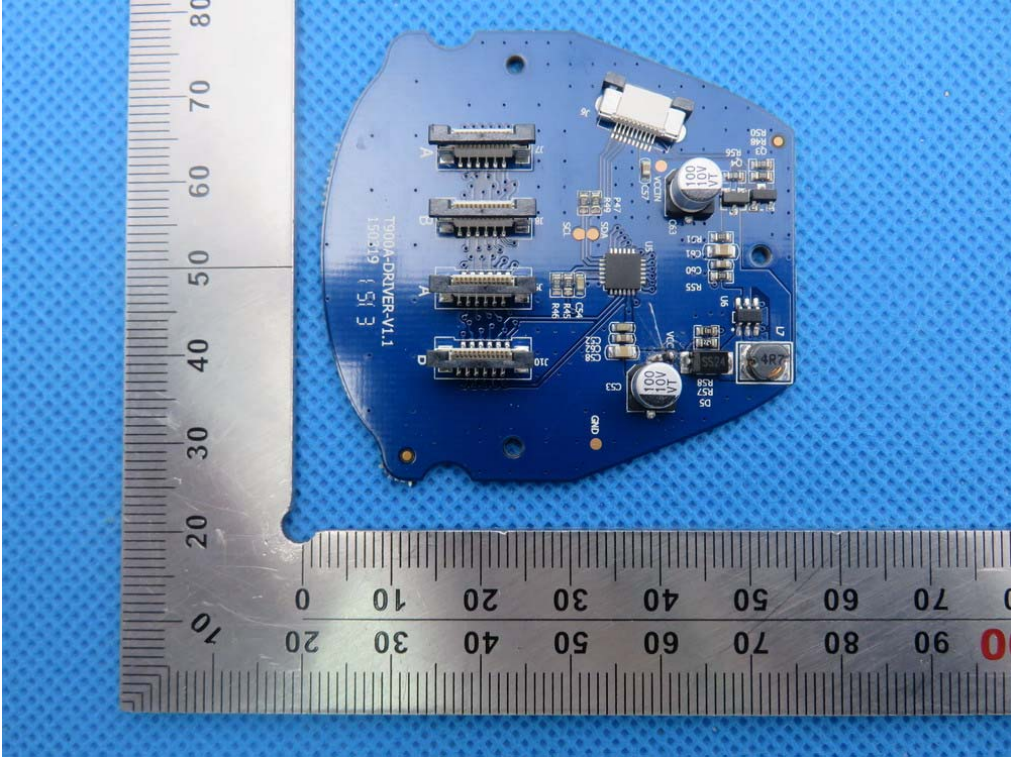
INTERNAL VIEW OF EUT-6



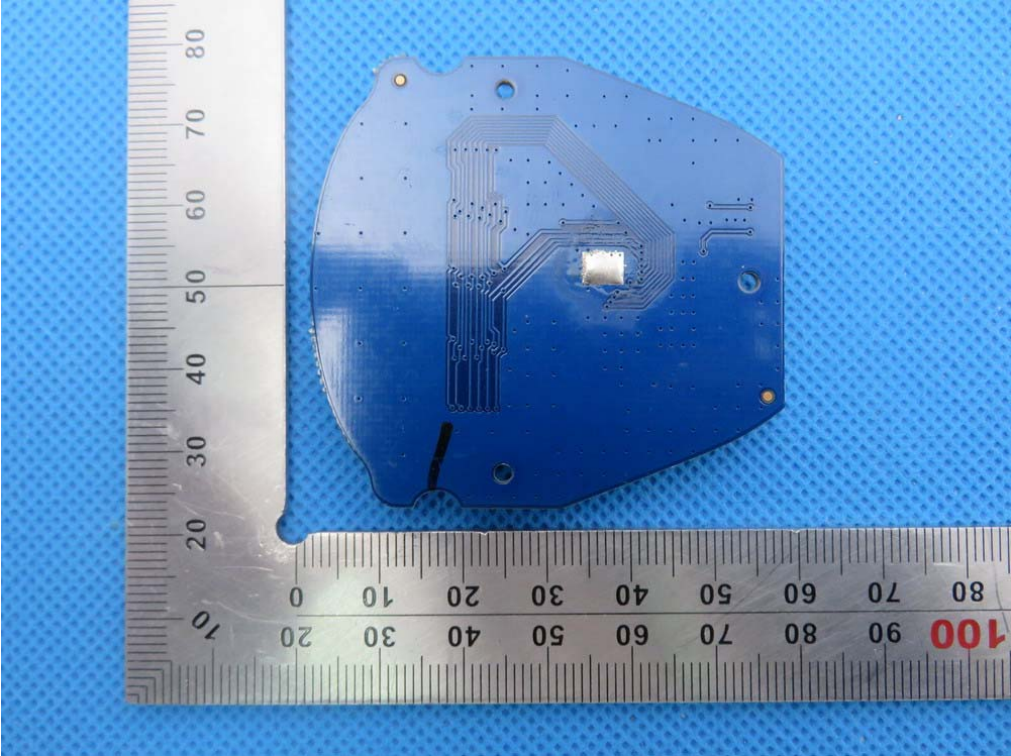
INTERNAL VIEW OF EUT-7



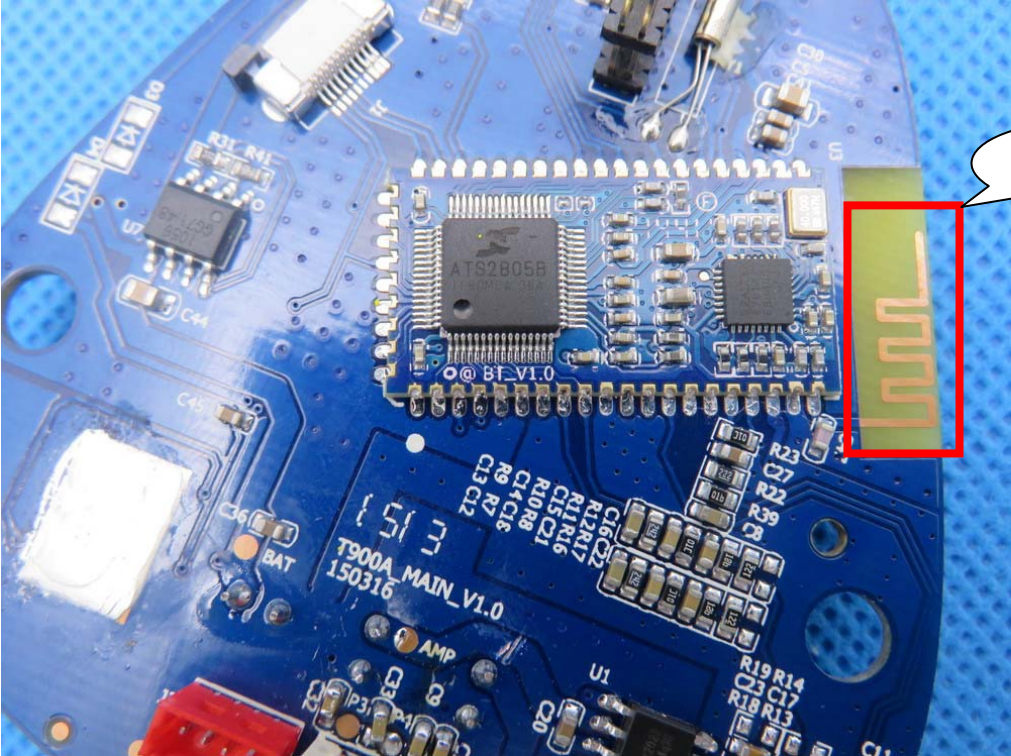
INTERNAL VIEW OF EUT-8



INTERNAL VIEW OF EUT-9



INTERNAL VIEW OF EUT-10



INTERNAL VIEW OF EUT-11



INTERNAL VIEW OF EUT-12

