Neutron Engineering Inc.—

The neutron Engineering Inc.				
FCC Radio Test Report				
FCC ID: ATL-MOBIROCKBLK				
This report concerns (check one):				
<ul> <li>Issued Date : Mar. 21, 2013</li> <li>Project No. : 1301C253</li> <li>Equipment : High Fidelity Bluetooth Speaker Dock for Mobile Device</li> <li>Model Name : iMM711; MOBIROCKBLK; MOBIROCKBSBLK; MOBIROCKVDEBLK</li> <li>Applicant : iLuv Creative Technology</li> <li>Address : 2 Harbor Park Drive, Port Washington NY 11050, USA</li> <li>Manufacturer : Dong guan Synst Electronics.Co.,Ltd</li> <li>Address : The Science&amp;Technology Industrial Park Houjie Town, Dongguan, Guangdong, China</li> </ul>				
<b>Tested by:</b> Neutron Engineering Inc. EMC Laboratory <b>Date of Receipt:</b> Jan. 24, 2013 <b>Date of Test:</b> Jan. 24, 2013 ~ Mar. 20, 2013				
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#### Declaration

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1 . EUT TEST PHOTO		10'



# **1. CERTIFICATION**

Equipment	:	High Fidelity Bluetooth Speaker Dock for Mobile Device
Brand Name	:	iLuv
Model Name	:	iMM711; MOBIROCKBLK; MOBIROCKBSBLK; MOBIROCKVDEBLK
Applicant	:	iLuv Creative Technology
Date of Test	:	Jan. 24, 2013 ~ Mar. 20, 2013
Test Item	:	ENGINEERING SAMPLE
Standards	:	FCC Part15, Subpart C(15.247) / ANSI C63.4 : 2009 /
		FCC Public Notice DA 00-705, March 30, 2000.

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-1301C253) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).



# 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

APPLIED STANDARD: 47 CFR Part 15, Subpart C					
Standard Section47 CFRPart 15	- Test Item	Judgment	Remark		
15.207	Conducted Emission	PASS			
15.247(d)	Antenna conducted Spurious Emission	PASS			
15.247 (a)(1)	Hopping Channel Separation	PASS			
15.247 (b)(1)	Peak Output Power	PASS			
15.247(d) 15.209	Radiated Spurious Emission	PASS			
15.247 (a)(1)(iii)	Number of Hopping Frequency	PASS			
15.247 (a)(1)(iii)	Dwell Time	PASS			
15.205	Restricted Bands	PASS			
15.203	Antenna Requirement	PASS			

NOTE:

- (1)" N/A" denotes test is not applicable in this test report.
- (2) According to FCC Public Notice DA 00-705, March 30, 2000.



### 2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-C02/DG-CB03** at the location of No.3, Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.523792 Neutron's test firm number for FCC 319330

#### 2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

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

#### A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
DG-C02	CISPR	150 KHz ~ 30MHz	1.94	

#### B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)	NOTE
		30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	Н	3.60	
		200MHz ~ 1,000MHz	V	3.86	
DG-CB03	CISPR	200MHz ~ 1,000MHz	Н	3.94	
DG-CB03	CISER	1GHz~18GHz	V	3.12	
		1GHz~18GHz	Н	3.68	
		18GHz~40GHz	V	4.15	
		18GHz~40GHz	Н	4.14	

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# **3. GENERAL INFORMATION**

## 3.1 GENERAL DESCRIPTION OF EUT

Equipment	High Fidelity Bluetooth Speaker Dock for Mobile Device			
Brand Name	iLuv			
Model Name	iMM711; MOBIROCKBLK; MOBIROCKBSBLK; MOBIROCKVDEBLK			
Model Difference	Difference is model name.			
	The EUT is a High Fidelity Bluetooth Speaker Dock Mobile Device.			
	Operation Frequency	2402~2480 MHz		
	Modulation Technology	GFSK(1Mbps)		
	Bit Rate of Transmitter	$\pi$ /4-DQPSK(2Mbps)		
		8-DPSK(3Mbps)		
	Number of Channel	79 CH. Note 2(Page 9)		
Product Description	Antenna Designation	Please see Note 3.(Page 9)		
	Antenna Gain(Peak)	Thease see Note S.(Tage S)		
	Output Power	3.89 dBm (1Mbps)		
		3.45 dBm (3Mbps)		
	exhibited in User's Manu	n, features, or specification ual, the EUT is considered as an More details of EUT technical		
Dower Source	DC voltage supplied from AC/DC adapter.			
Power Source	Adapter Model: KSS35-	Adapter Model: KSS35-190-1890U		
Power Rating	I/P AC 100-240V~ 50-60	I/P AC 100-240V~ 50-60Hz 900mA O/P DC 19V 1890mA		
Connecting I/O Port(s)	Please refer to the User	Please refer to the User's Manual		

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

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2.

		Chann	el List		
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

#### 3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Printed	N/A	0



#### 3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description	
Mode 1	TX Mode NOTE (1)	
Mode 2	Bluetooth	

The EUT system operated these modes were found to be the worst case during the pre-scanning test as following:

For Conducted Emission					
Final Test Mode	Description				
Mode 2 Bluetooth					

For Radiated Emission					
Final Test Mode Description					
Mode 1 TX Mode NOTE (1)					

#### Note:

(1) The measurements are performed at the high, middle, low available channels.

#### 3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS

Test software version	BlueTest3					
Frequency	2402 MHz	2441 MHz	2480 MHz			
Parameters-1Mbps	48	48	48			
Parameters-3Mbps	48	48	48			

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	WING THE CONFIGURATION OF SYSTEM TESTED	
conducted:		
	E-1 EUT	7
Radiated:		
	E-1 EUT	

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#### 3.5 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	High Fidelity Bluetooth Speaker Dock for Mobile Device	iLuv	iMM711	ATL-MOBIROCKBL K	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note
-	-	-	-	

Note:

(1) For detachable type I/O cable should be specified the length in m in  $\[$  Length  $\]$  column.



## 4. EMC EMISSION TEST

### 4.1 CONDUCTED EMISSION MEASUREMENT

## 4.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B	Standard	
FREQUENCT (MITZ)	Quasi-peak	Average	Quasi-peak	Average	Stanuaru
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

#### 4.1.2 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00052765	May.04.2013
2	LISN	R&S	ENV216	100087	May.04.2013
3	Test Cable	N/A	C_17	N/A	Mar.28.2013
4	EMI TEST RECEIVER	R&S	ESCS30	826547/022	May.04.2013
5	50Ω Terminator	SHX	TF2-3G-A	08122902	May.04.2013

Remark: "N/A" denotes no model no., serial no. or no calibration specified. All calibration period of Equipment List is One Year.

#### The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz



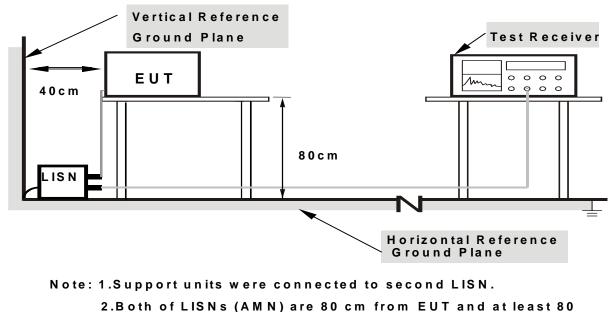
### 4.1.3 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

## 4.1.5 TEST SETUP



from other units and other metal planes

#### 4.1.6 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

The EUT is continue Transmitter/Receive data or Hopping on mode.



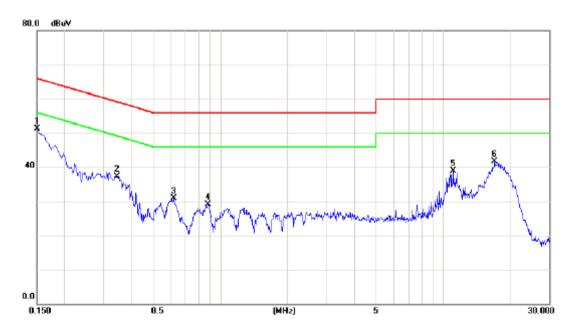
#### 4.1.7 TEST RESULTS

#### Remark

- (1) All readings are QP Mode value unless otherwise stated AVG in column of Note ... If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform. In this case, a " \* " marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150KHz to 30MHz.



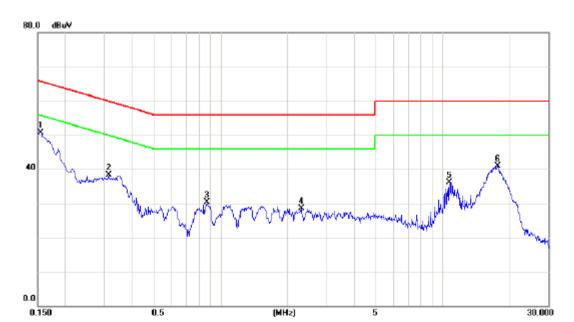
EUT:	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name:	iMM711
Temperature:	<b>25</b> ℃	Relative Humidity:	55 %
Test Voltage:	AC 120V/60Hz	Phase:	Line
Test Mode:	Bluetooth		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1500	41.74	9.65	51.39	66.00	-14.61	peak	
2		0.3460	27.54	9.69	37.23	59.06	-21.83	peak	
3		0.6180	21.29	9.70	30.99	56.00	-25.01	peak	
4		0.8820	19.44	9.71	29.15	56.00	-26.85	peak	
5		11.1420	28.76	10.12	38.88	60.00	-21.12	peak	
6		17.0340	31.47	10.29	41.76	60.00	-18.24	peak	



EUT:	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name:	iMM711
Temperature:	25 ℃	Relative Humidity:	55 %
Test Voltage:	AC 120V/60Hz	Phase:	Neutral
Test Mode:	Bluetooth		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment	
1	*	0.1555	41.04	9.68	50.72	65.70	-14.98	peak		
2		0.3140	28.69	9.68	38.37	59.86	-21.49	peak		
3		0.8700	20.59	9.71	30.30	56.00	-25.70	peak		
4		2.3100	18.69	9.78	28.47	56.00	-27.53	peak		
5		10.7580	25.94	10.13	36.07	60.00	-23.93	peak		
6		17.7980	30.50	10.39	40.89	60.00	-19.11	peak		

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#### 4.2 RADIATED EMISSION MEASUREMENT

#### 4.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies	Field Strength	Measurement Distance
(MHz)	(micorvolts/meter)	(meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	(dBuV/m) (at 3M)		
	PEAK	AVERAGE	
Above 1000	74	54	

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 - 1000	5000
Above 1000	5 <sup>th</sup> harmonic of the highest frequency or 40 GHz, whichever is lower

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## 4.2.2 MEASUREMENT INSTRUMENTS LIST ANS SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	May.25.2013
2	Amplifier	HP	8447D	2944A09673	May.04.2013
3	Test Receiver	R&S	ESCI	100382	May.04.2013
4	Test Cable	N/A	C-01_CB03	N/A	Jun.30.2013
5	Antenna	ETS	3115	00075789	May.25.2013
6	Amplifier	Agilent	8449B	3008A02274	May.04.2013
7	Spectrum	Agilent	E4408B	US39240143	Nov. 16.2013
8	Test Cable	HUBER+SUHNER	C-45	N/A	May.02.2013
9	Controller	СТ	SC100	N/A	N/A
10	Horn Antenna	EMCO	3115	9605-4803	May.25.2013
11	Active Loop Antenna	R&S	HFH2-Z2	830749/020	May.04.2013
12	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Oct.23.2013

Remark: "N/A" denotes no model no., serial no. or no calibration specified. All calibration period of Equipment List is One Year.

Spectrum Parameter	Setting		
Attenuation	Auto		
Start Frequency	1000 MHz		
Stop Frequency	10th carrier harmonic		
RB / VB (emission in restricted			
band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average		

Receiver Parameter	Setting		
Attenuation	Auto		
Start ~ Stop Frequency	9kHz~90kHz for PK/AVG detector		
Start ~ Stop Frequency	90kHz~110kHz for QP detector		
Start ~ Stop Frequency	110kHz~490kHz for PK/AVG detector		
Start ~ Stop Frequency	490kHz~30MHz for QP detector		
Start ~ Stop Frequency	30MHz~1000MHz for QP detector		



### 4.2.3 TEST PROCEDURE

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

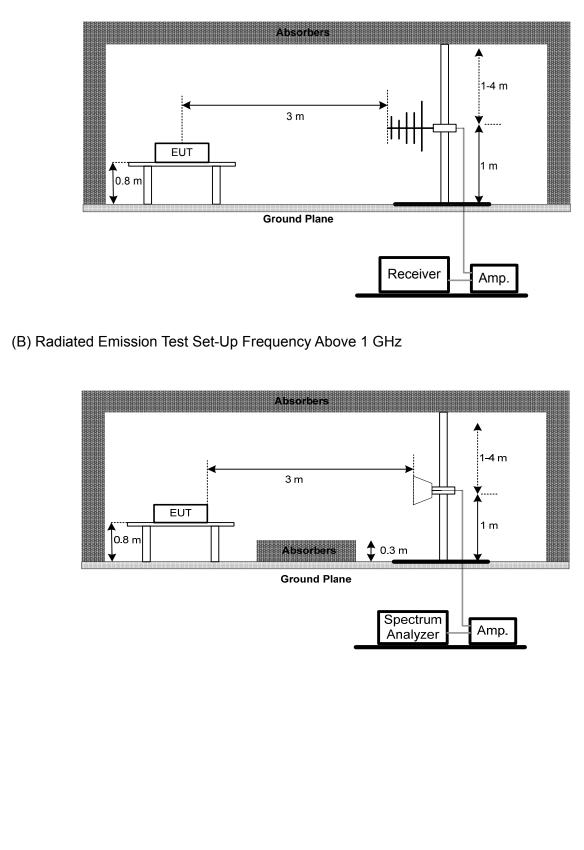
#### 4.2.4 DEVIATION FROM TEST STANDARD

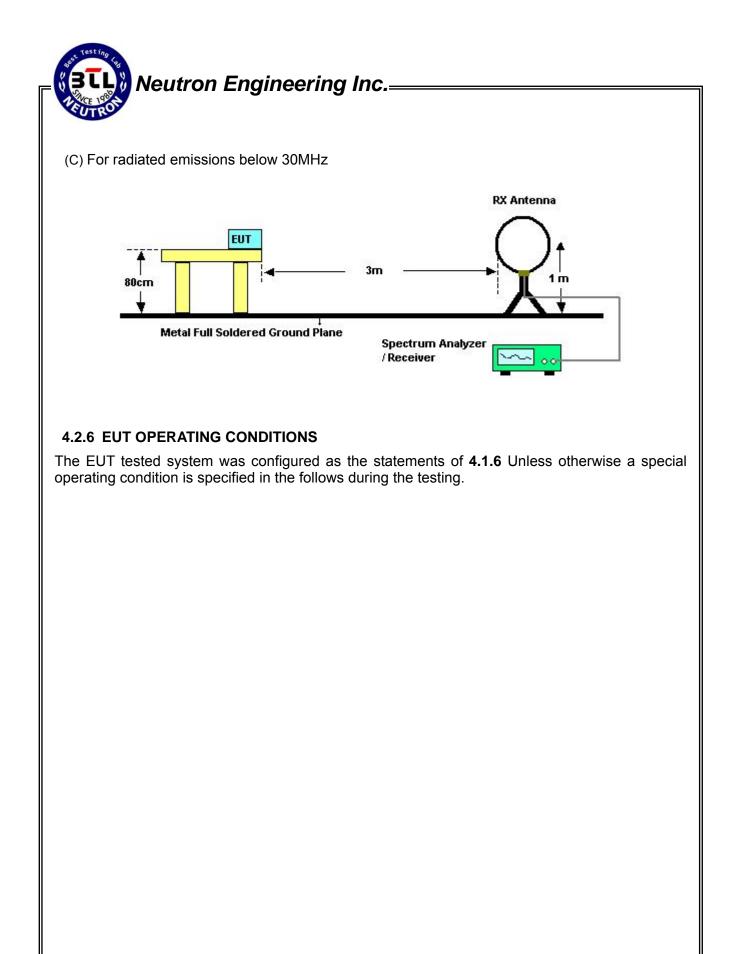
No deviation



## 4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz





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### 4.2.7 TEST RESULTS (9K~ 30MHZ)

EUT:	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name:	iMM711
Temperature:	<b>25</b> ℃	Relative Humidity:	58 %
Test Voltage:	AC 120V/60Hz		
Test Mode:	TX Mode		

Freq.	Ant.	Reading(RA)	Corr.Factor(CF)	Measured(FS)	Limits(QP)	Margin	Note
(MHz)	0°/90°	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	NOLE
0.0098	0°	29.40	24.30	53.70	127.78	-74.08	AVG
0.0098	0°	43.14	24.30	67.44	147.78	-80.34	PK
0.0254	0°	33.78	23.96	57.74	119.51	-61.77	AVG
0.0254	0°	29.42	23.96	53.38	139.51	-86.13	PK
0.0396	0°	29.04	23.06	52.10	115.65	-63.55	AVG
0.0396	0°	39.71	23.06	62.77	135.65	-72.88	PK
0.0669	0°	20.06	22.06	42.12	111.10	-68.97	AVG
0.0669	0°	38.69	22.06	60.75	131.10	-70.34	PK
0.4652	0°	23.89	19.88	43.77	94.25	-50.48	AVG
0.4652	0°	28.02	19.88	47.90	114.25	-66.35	PK
1.8750	0°	27.35	19.51	46.86	69.54	-22.68	QP

Freq.	Ant.	Reading(RA)	Corr.Factor(CF)	Measured(FS)	Limits(QP)	Margin	Note
(MHz)	0°/90°	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	NOLE
0.0095	90°	26.42	24.30	50.72	128.05	-77.33	AVG
0.0095	90°	51.69	24.30	75.99	148.05	-72.06	PK
0.0227	90°	19.79	24.13	43.92	120.48	-76.56	AVG
0.0227	90°	34.57	24.13	58.70	140.48	-81.78	PK
0.0365	90°	20.14	23.26	43.40	116.36	-72.96	AVG
0.0365	90°	32.15	23.26	55.41	136.36	-80.95	PK
0.0674	90°	21.44	22.05	43.49	111.03	-67.54	AVG
0.0674	90°	29.66	22.05	51.71	131.03	-79.32	PK
0.3680	90°	21.07	20.12	41.19	96.29	-55.10	AVG
0.3680	90°	24.96	20.12	45.08	116.29	-71.21	PK
1.4170	90°	24.71	19.56	44.27	64.58	-20.31	QP

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor = 40 log (specific distance / test distance) (dB);.
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor.

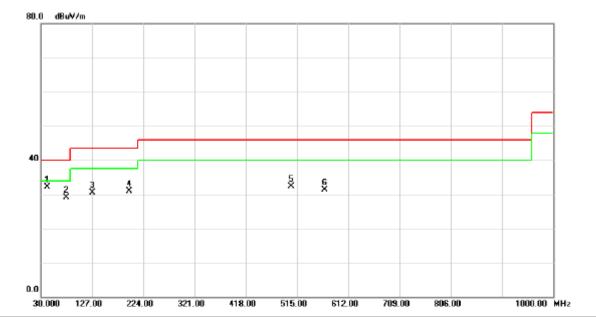


#### 4.2.8 TEST RESULTS (30MHZ - 1000MHZ)

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz.
- (2) All readings are Peak unless otherwise stated QP in column of <sup>©</sup>Note <sup>\_</sup> . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (3) Measuring frequency range from 30MHz to 1000MHz.
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.



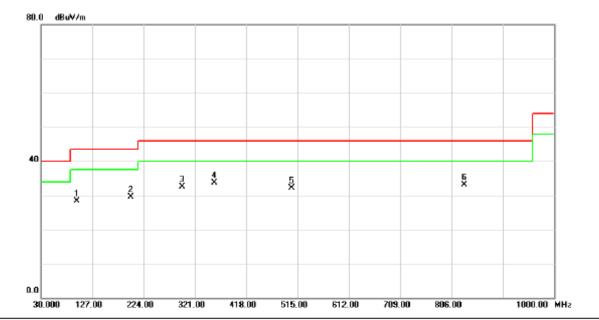
	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode :	TX 2402MHz –CH00-1Mbps		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	42.1552	48.82	-16.77	32.05	40.00	-7.95	peak	
2		78.6213	48.19	-19.15	29.04	40.00	-10.96	peak	
3	1	127.2430	48.94	-18.41	30.53	43.50	-12.97	peak	
4	1	197.7443	47.89	-16.97	30.92	43.50	-12.58	peak	
5	ţ	504.0600	40.46	-8.24	32.22	46.00	-13.78	peak	
6	ţ	567.2681	37.51	-6.22	31.29	46.00	-14.71	peak	



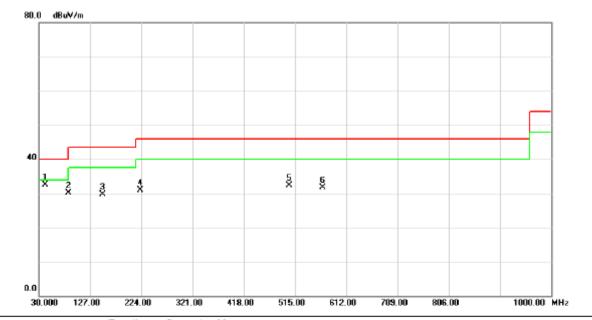
	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode :	TX 2402MHz –CH00-1Mbps		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		98.0700	47.05	-18.68	28.37	43.50	-15.13	peak	
2	2	200.1751	46.53	-16.93	29.60	43.50	-13.90	peak	
3	2	297.4184	45.14	-12.64	32.50	46.00	-13.50	peak	
4	* 3	358.1954	44.95	-11.25	33.70	46.00	-12.30	peak	
5	5	504.0600	40.35	-8.24	32.11	46.00	-13.89	peak	
6	8	329.8242	36.20	-3.09	33.11	46.00	-12.89	peak	



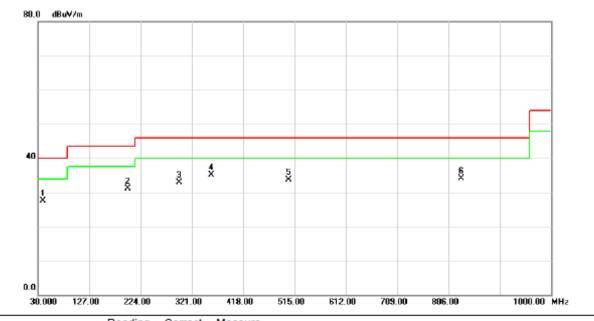
	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode :	TX 2441MHz –CH39-1Mbps		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	42.1552	49.32	-16.77	32.55	40.00	-7.45	peak	
2		85.9145	49.28	-19.27	30.01	40.00	-9.99	peak	
3	1	151.5535	47.64	-17.85	29.79	43.50	-13.71	peak	
4	2	222.0551	47.27	-16.27	31.00	46.00	-15.00	peak	
5	Ę	504.0600	40.46	-8.24	32.22	46.00	-13.78	peak	
6	Ę	567.2681	38.01	-6.22	31.79	46.00	-14.21	peak	



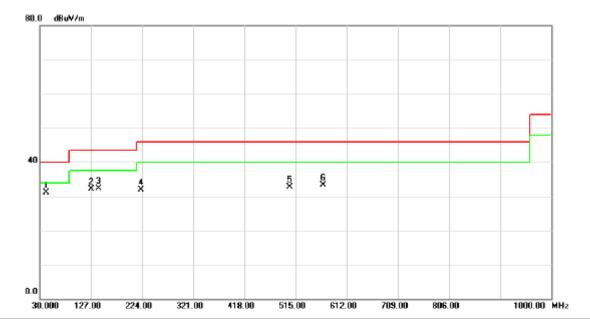
	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode :	TX 2441MHz –CH39-1Mbps		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		39.7242	44.35	-16.90	27.45	40.00	-12.55	peak	
2	1	200.1751	48.03	-16.93	31.10	43.50	-12.40	peak	
3	1	297.4184	45.64	-12.64	33.00	46.00	-13.00	peak	
4	* :	358.1954	46.45	-11.25	35.20	46.00	-10.80	peak	
5	ţ	504.0600	41.85	-8.24	33.61	46.00	-12.39	peak	
6	8	829.8242	37.20	-3.09	34.11	46.00	-11.89	peak	



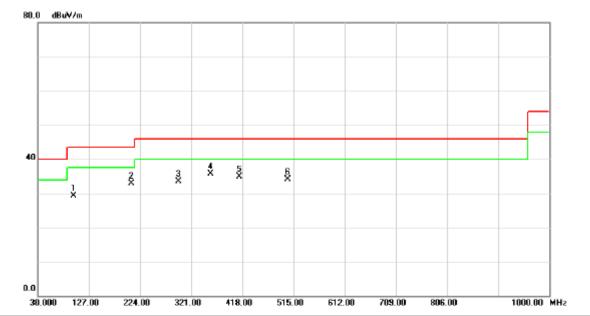
EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Test Voltage:	AC 120V/60Hz	Phase:	Vertical
Test Mode :	TX 2480MHz –CH78-1Mbps		



No.	Mk.	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	42.1552	47.82	-16.77	31.05	40.00	-8.95	peak	
2		127.2430	50.44	-18.41	32.03	43.50	-11.47	peak	
3		141.8291	50.18	-17.97	32.21	43.50	-11.29	peak	
4		222.0551	48.27	-16.27	32.00	46.00	-14.00	peak	
5		504.0600	40.96	-8.24	32.72	46.00	-13.28	peak	
6		567.2681	39.51	-6.22	33.29	46.00	-12.71	peak	



	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Test Voltage:	AC 120V/60Hz	Phase:	Horizontal
Test Mode :	TX 2480MHz –CH78-1Mbps		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		98.0700	48.05	-18.68	29.37	43.50	-14.13	peak	
2	:	207.4686	49.71	-16.82	32.89	43.50	-10.61	peak	
3		297.4184	46.14	-12.64	33.50	46.00	-12.50	peak	
4	* ;	358.1954	46.95	-11.25	35.70	46.00	-10.30	peak	
5	4	411.6791	44.52	-9.63	34.89	46.00	-11.11	peak	
6	;	504.0600	42.35	-8.24	34.11	46.00	-11.89	peak	

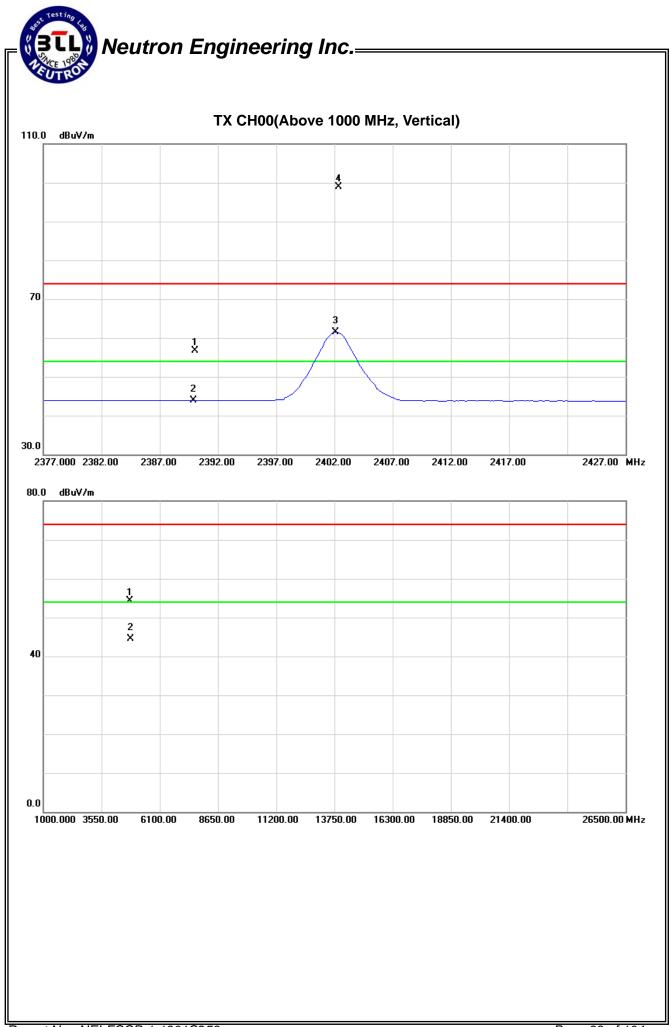
# Neutron Engineering Inc.=

## 4.2.9 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2402MHz – CH 00-1Mbps		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
rieq.	AIILF UI.	Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	24.36	11.63	32.28	56.64	43.91	74.00	54.00	X/E
2402.38	V	66.67	29.21	32.27	98.94	61.48			X/F
4804.20	V	48.25	38.46	6.11	54.36	44.57	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of "Note ]. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
  - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna





EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2402MHz – CH 00-1Mbps		

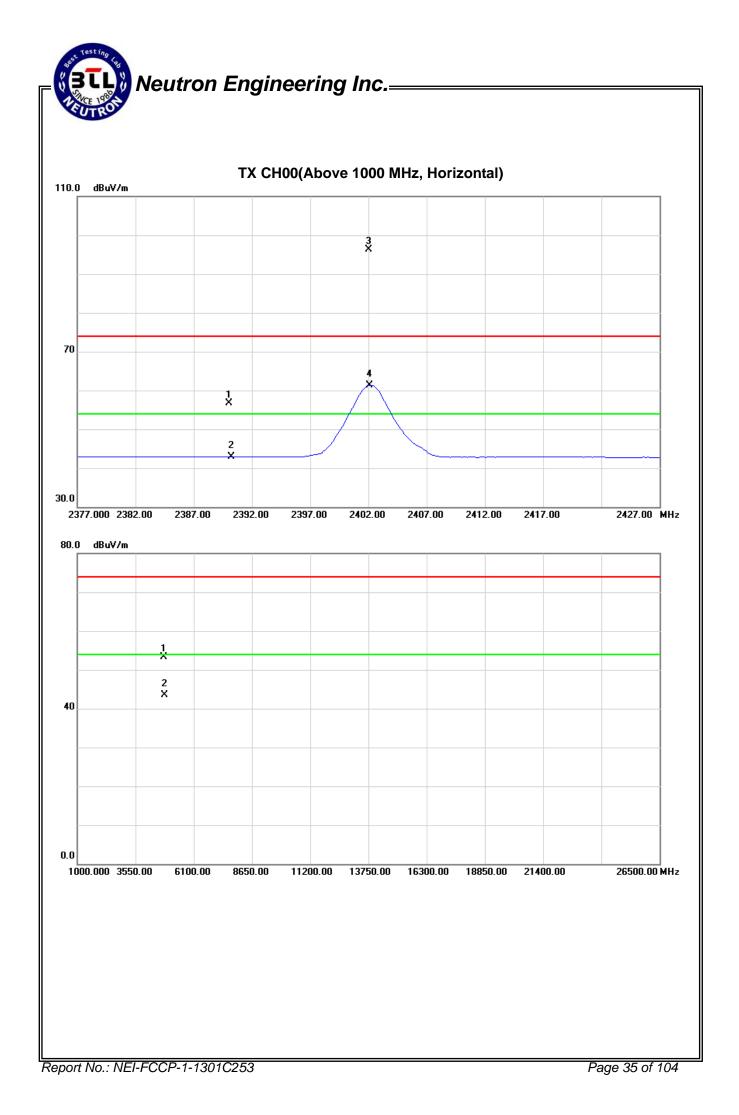
Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	Н	24.51	10.60	32.28	56.79	42.88	74.00	54.00	X/E
2402.02	Н	64.06	29.10	32.27	96.33	61.37			X/F
4804.21	Н	47.15	37.34	6.11	53.26	43.45	74.00	54.00	X/H

Remark :

- (1) All readings are Peak unless otherwise stated QP in column of "Note ]. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

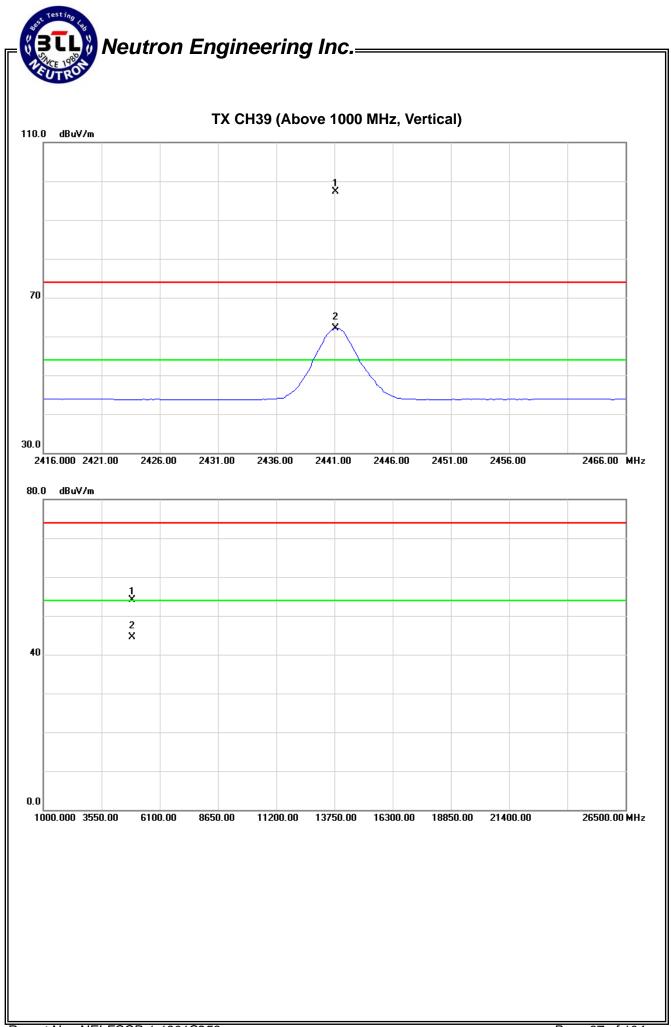




	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2441MHz –CH39-1Mbps	·	

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2441.12	V	65.08	29.92	32.23	97.31	62.15			X/F
4882.10	V	47.63	38.05	6.43	54.06	44.48	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of <sup>T</sup>Note ... Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis : "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

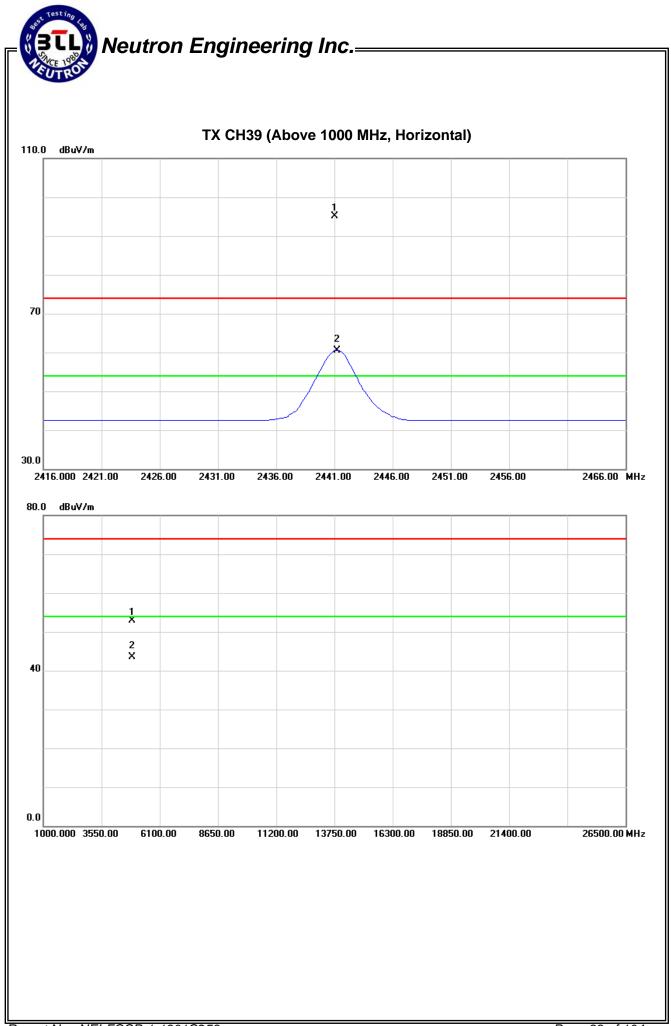




	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2441MHz –CH39-1Mbps	·	

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2441.05	Н	62.89	28.30	32.23	95.12	60.53			X/F
4882.00	Н	46.52	37.15	6.43	52.95	43.58	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of <sup>T</sup>Note ... Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency.
   "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis : "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within
- the 3 dB cone of radiation BW of the used antenna



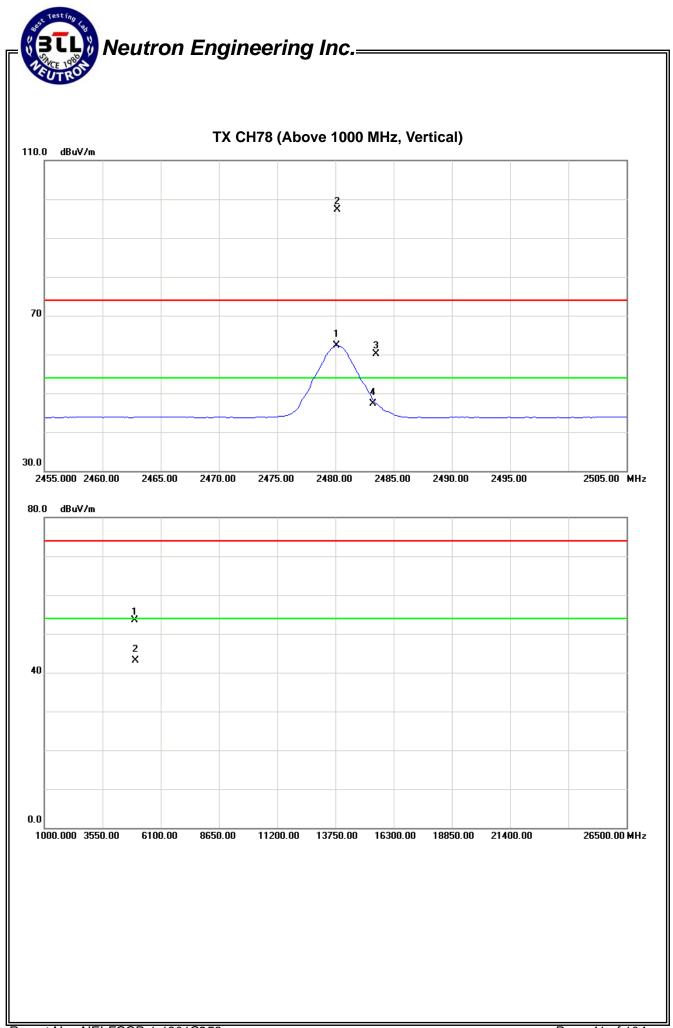


EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> °C	Relative Humidity :	58 %
Pressure :	1010hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2480MHz –CH78-1Mbps		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2480.15	V	65.10	30.10	32.18	97.28	62.28			X/F
2483.50	V	27.94	15.22	32.17	60.11	47.39	74.00	54.00	X/E
4960.23	V	46.84	36.36	6.74	53.58	43.10	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of "Note ]. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown "\*" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand



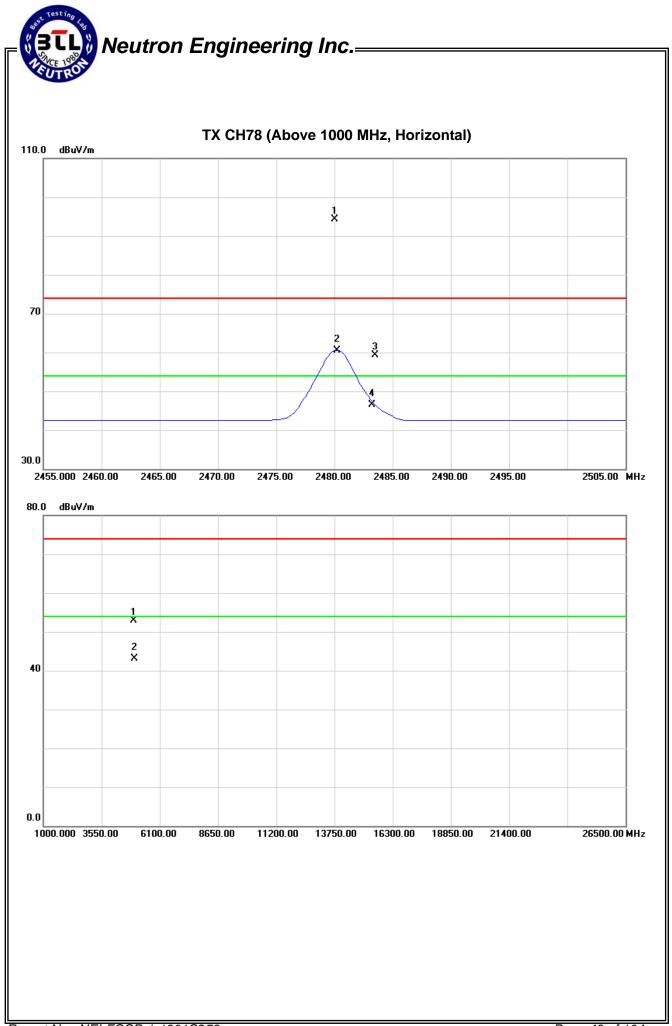


EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2480MHz –CH78-1Mbps		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2480.00	Н	62.08	28.38	32.18	94.26	60.56			X/F
2483.50	Н	27.21	14.38	32.17	59.38	46.55	74.00	54.00	X/E
4960.24	Н	46.12	36.30	6.74	52.86	43.04	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of "Note ]. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown "\*" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand



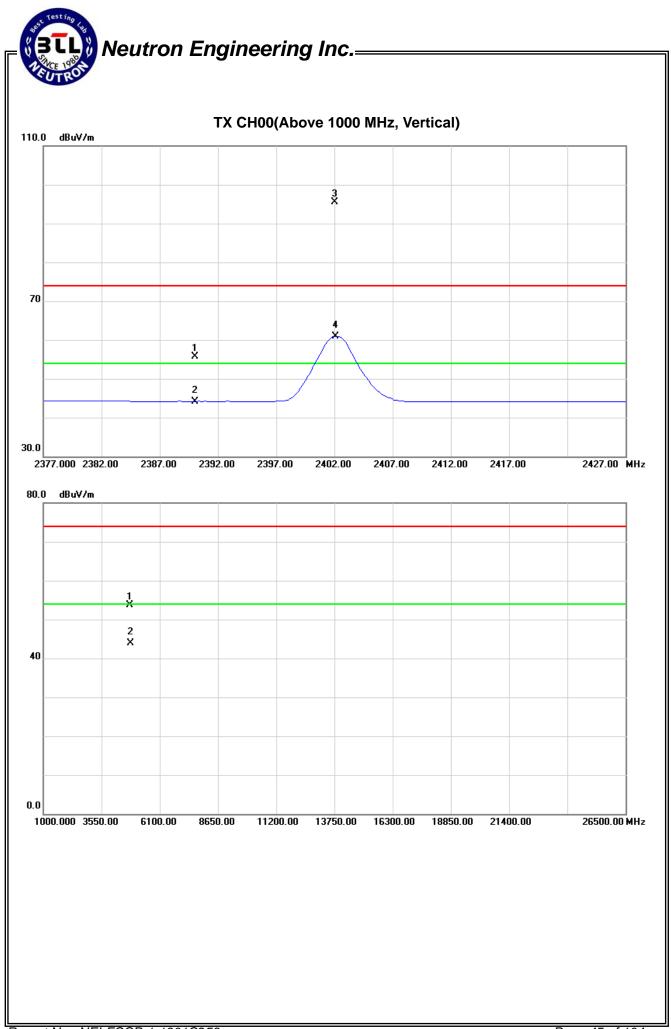


EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2402MHz – CH 00-3Mbps	·	

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	23.36	11.91	32.28	55.64	44.19	74.00	54.00	X/E
2402.00	V	63.18	28.72	32.27	95.45	60.99			X/F
4803.95	V	47.50	37.72	6.11	53.61	43.83	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of "Note ... Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency.
   "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand



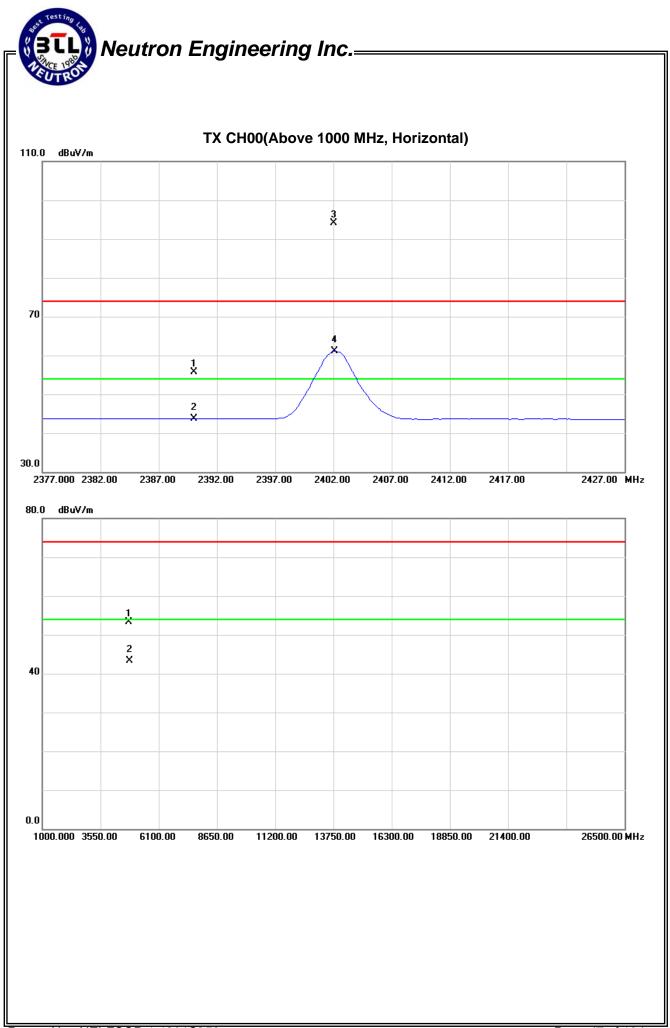


	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2402MHz – CH 00-3Mbps	•	

	Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
			Peak	AV		Peak	AV	Peak	AV	Note
	(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
4	2390.00	Н	23.34	11.42	32.28	55.62	43.70	74.00	54.00	X/E
1	2402.00	Н	61.89	28.80	32.27	94.16	61.07			X/F
4	4804.15	Н	47.17	37.10	6.11	53.28	43.21	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of "Note ]. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand

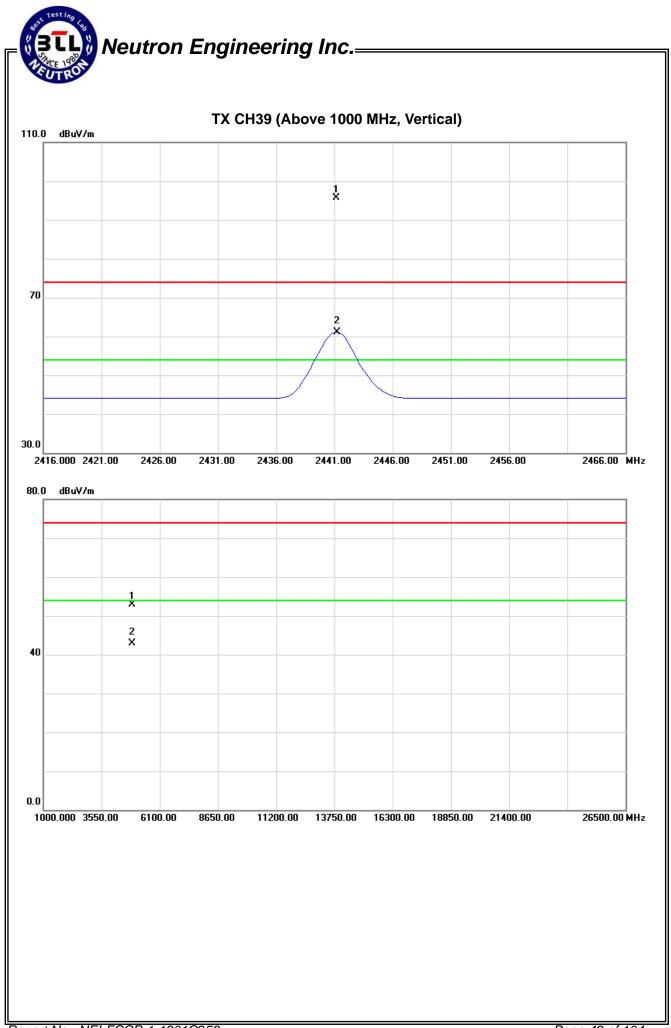




	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2441MHz –CH39-3Mbps		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2441.14	V	63.51	28.79	32.23	95.74	61.02			X/F
4882.12	V	46.53	36.42	6.43	52.96	42.85	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of <sup>T</sup>Note ... Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency.
   "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis : "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

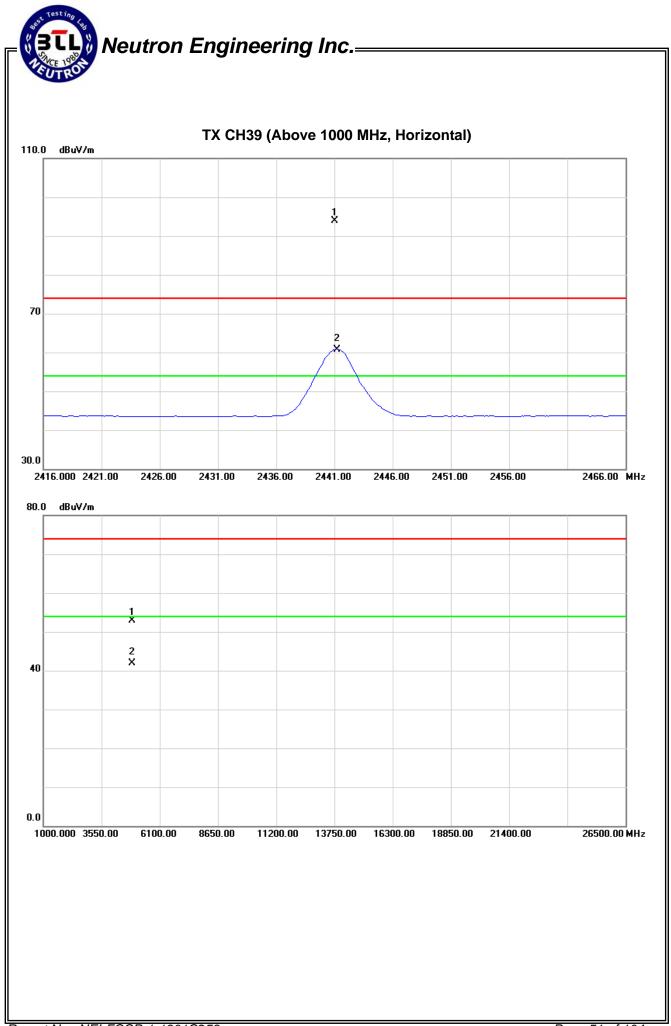




	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2441MHz –CH39-3Mbps		

Freq.	Ant.Pol.	Read	ling	Ant./CF	Ad	ct.	Lir	nit	
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2441.02	Н	61.58	28.57	32.23	93.81	60.80			X/F
4882.14	Н	46.47	35.51	6.43	52.90	41.94	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of <sup>T</sup>Note ... Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency.
   "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis : "X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna



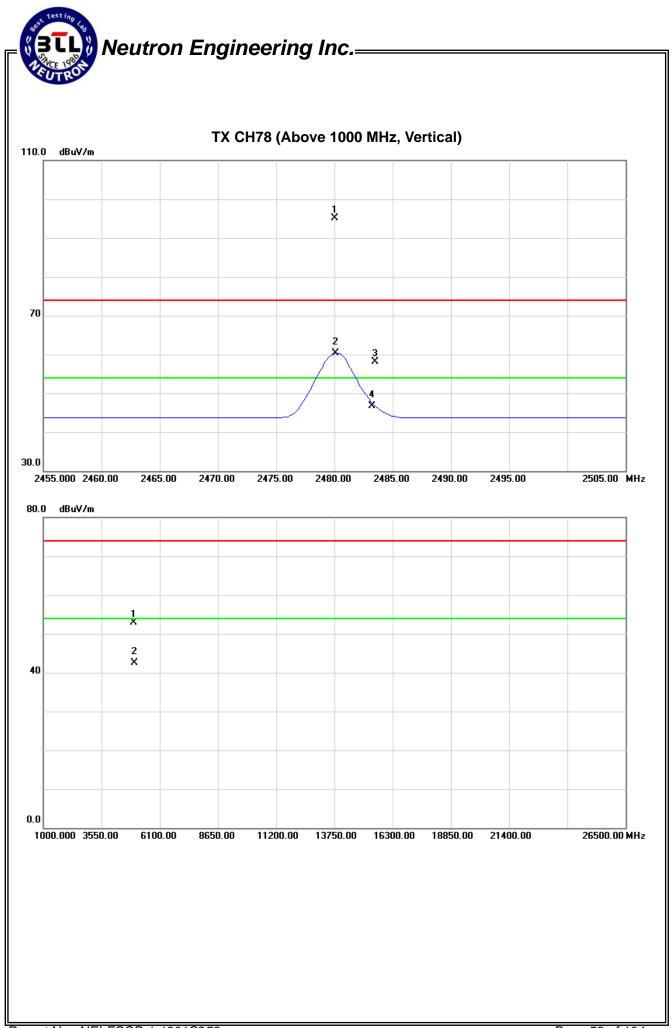


EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2480MHz –CH78-3Mbps		

Freq.	Ant.Pol.	Rea	ding	Ant./CF	A	ct.	Lir	nit	
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2480.05	V	62.92	28.14	32.18	95.10	60.32			X/F
2483.50	V	25.96	14.63	32.17	58.13	46.80	74.00	54.00	X/E
4960.08	V	46.13	35.67	6.74	52.87	42.41	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of "Note ]. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown "\*" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand



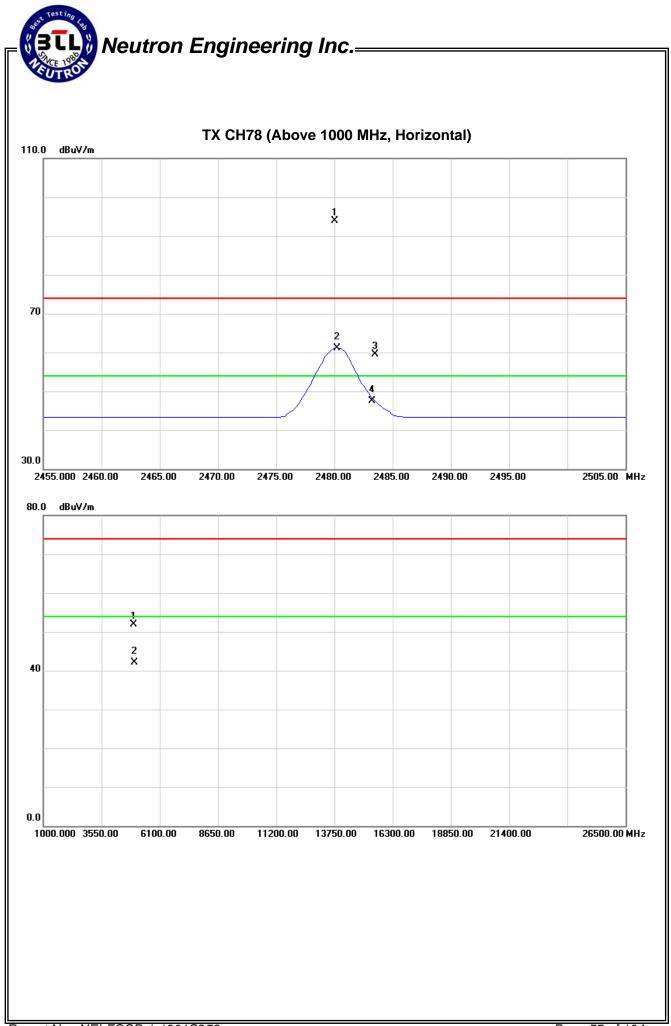


EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2480MHz –CH78-3Mbps		

Freq.	Ant.Pol.	Rea	ding	Ant./CF	A	ct.	Lir	nit	
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2480.01	Н	61.65	29.02	32.18	93.83	61.20			X/F
2483.50	Н	27.24	15.28	32.17	59.41	47.45	74.00	54.00	X/E
4959.95	Н	45.22	35.35	6.74	51.96	42.09	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of "Note ]. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .
- (4) Data of measurement within this frequency range shown "\*" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table; "Y" - denotes Vertical Stand; "Z" - denotes Side Stand



# 5. NUMBER OF HOPPING CHANNEL

### 5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.247 (a)(1)(iii)	Number of Hopping Channel	2400-2483.5	PASS

#### 5.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov. 16.2013

Remark: "N/A" denotes no model no., serial no. or no calibration specified. All calibration period of Equipment List is One Year.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RB	100 kHz
VB	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

#### 5.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

#### 5.1.3 DEVIATION FROM STANDARD

No deviation.

#### 5.1.4 TEST SETUP

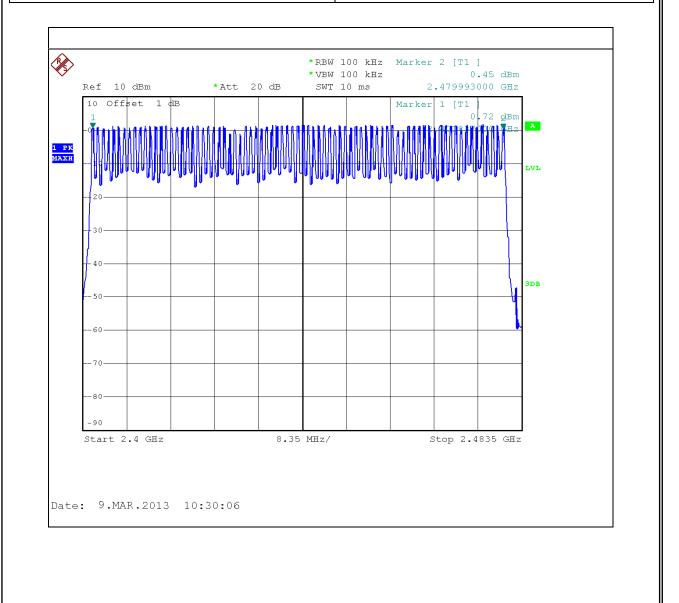
EUT	SPECTRUM
	ANALYZER

#### 5.1.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

## 5.1.6 TEST RESULTS

EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode : Hopping Mode -1Mbps			
Number of Hopping Channel			79

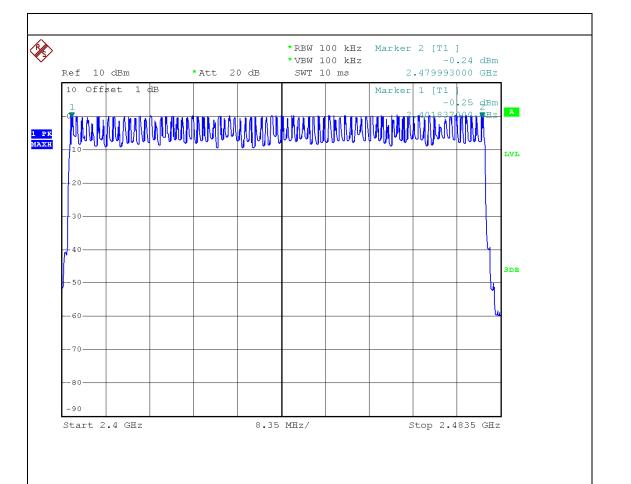


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EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	Hopping Mode -3Mbps		

79

#### Number of Hopping Channel



Date: 9.MAR.2013 10:33:07

# 6. AVERAGE TIME OF OCCUPANCY

### 6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247), Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(1)(iii)	Average Time of Occupancy	0.4sec	2400-2483.5	PASS

#### 6.1.1 MEASUREMENT INSTRUMENTS LIST

Iten	N Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov. 16.2013

Remark: "N/A" denotes no model no., serial no. or no calibration specified. All calibration period of Equipment List is One Year.

#### 6.1.2 TEST PROCEDURE

- a. The transmitter output (antenna port) was connected to the spectrum analyzer
- b. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
- c. Use a video trigger with the trigger level set to enable triggering only on full pulses.
- d. Sweep Time is more than once pulse time.
- e. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- f. Measure the maximum time duration of one single pulse.
- g. Set the EUT for DH5, DH3 and DH1 packet transmitting.
- $\overset{}{\text{h}}$  . Measure the maximum time duration of one single pulse.
- i. DH5 Packet permit maximum 1600/ 79 / 6 = 3.37 hops per second in each channel (5 time slots TX, 1 time slot RX). So, the dwell time is the time duration of the pulse times 3.37 x 31.6 = 106.6 within 31.6 seconds.
- j. DH3 Packet permit maximum 1600 / 79 / 4 = 5.06 hops per second in each channel (3 time slots TX, 1 time slot RX). So, the dwell time is the time duration of the pulse times 5.06 x 31.6 = 160 within 31.6 seconds.
- k. DH1 Packet permit maximum 1600 / 79 /2 = 10.12 hops per second in each channel (1 time slot RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 10.12 x 31.6 = 320 within 31.6 seconds.

#### 6.1.3 DEVIATION FROM STANDARD

No deviation.

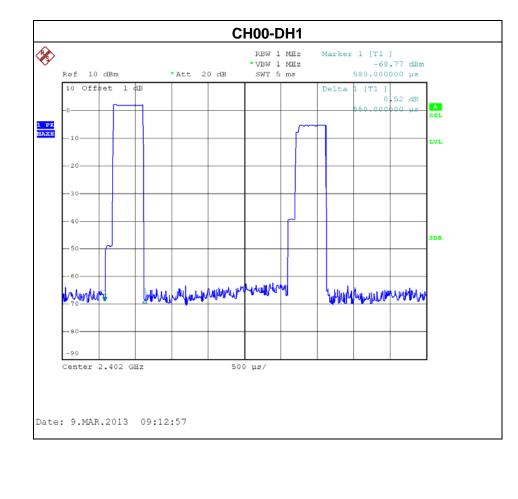
, Testing		
Neutron Eng	ineering Inc.=	
EUTRO		
I.4 TEST SETUP		
EUT		SPECTRUM
		ANALYZER
1.5 EUT OPERATION COND	TIONS	
e EUT tested system was cor	figured as the statem	nents of 4.1.6 Unless otherwise a spec
erating condition is specified i	h the follows during th	he testing.

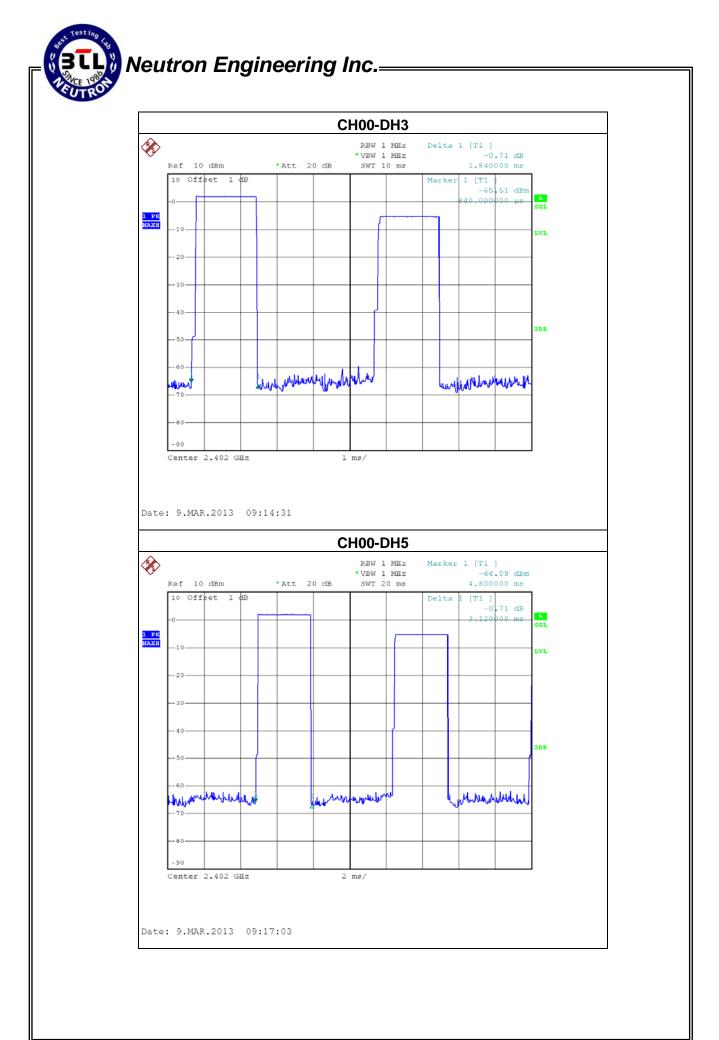


## 6.1.6 TEST RESULTS

	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH00-DH1/DH3/DH5-1Mbps		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2402 MHz	3.1200	0.3328	0.4000
DH3	2402 MHz	1.8400	0.2944	0.4000
DH1	2402 MHz	0.5500	0.1760	0.4000

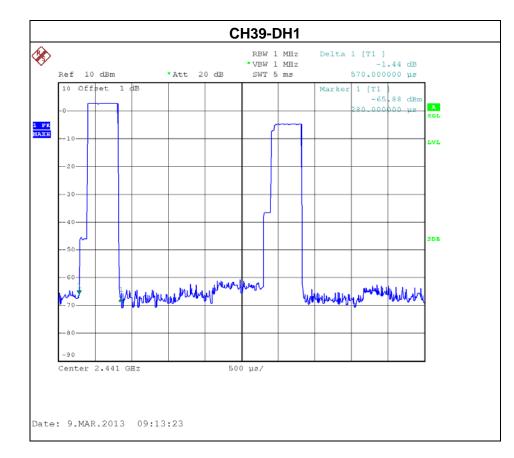


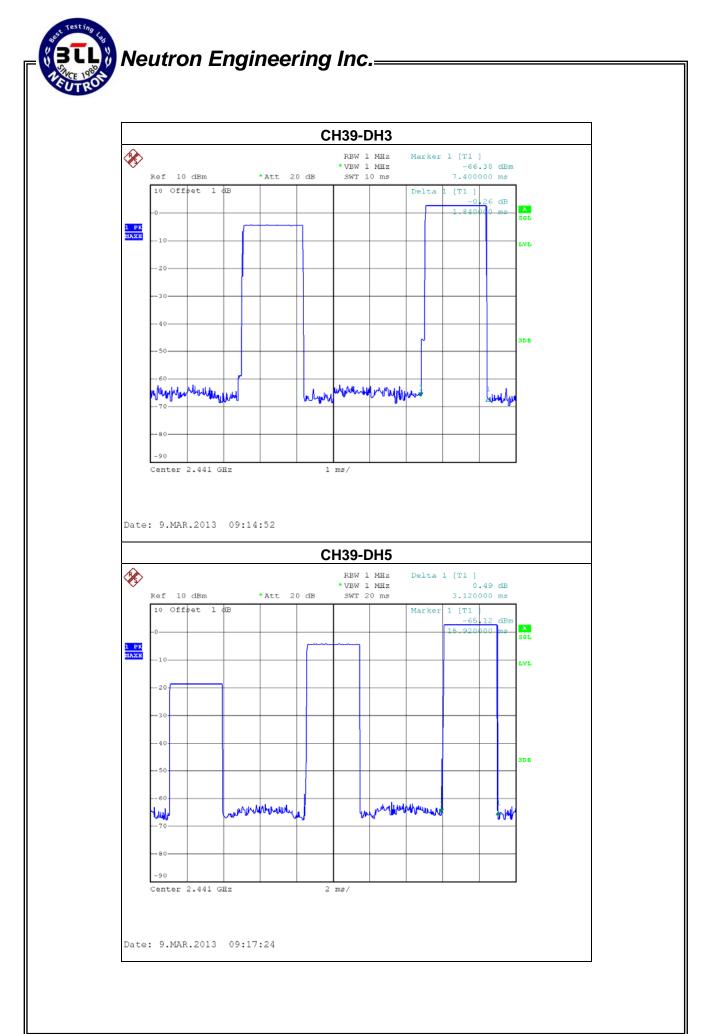




EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	IMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH39 -DH1/DH3/DH5 -1Mbps		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2441 MHz	3.1200	0.3328	0.4000
DH3	2441 MHz	1.8400	0.2944	0.4000
DH1	2441 MHz	0.5700	0.1824	0.4000

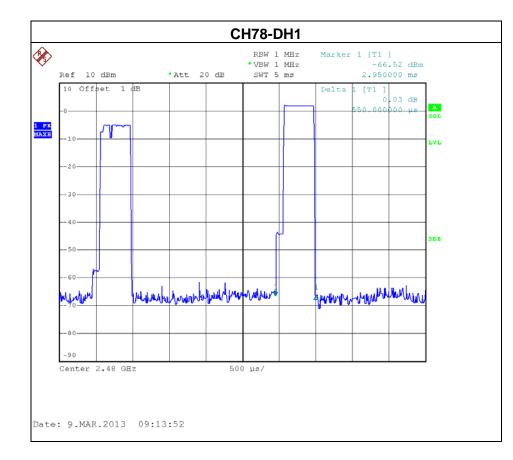


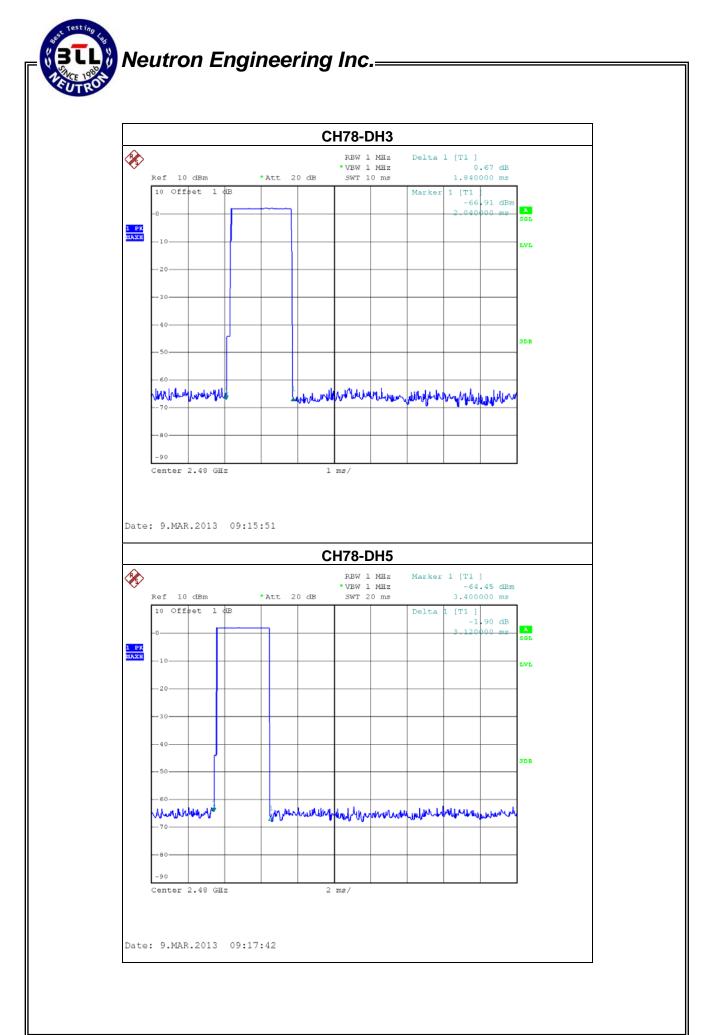




EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	IMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH78 -DH1/DH3/DH5-1Mbps	·	

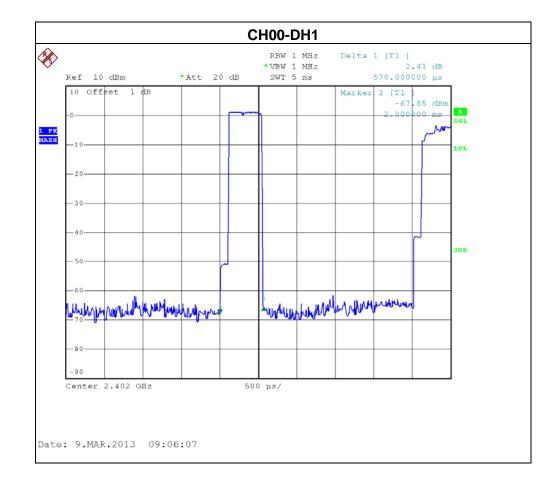
Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2480 MHz	3.1200	0.3328	0.4000
DH3	2480 MHz	1.8400	0.2944	0.4000
DH1	2480 MHz	0.5500	0.1760	0.4000



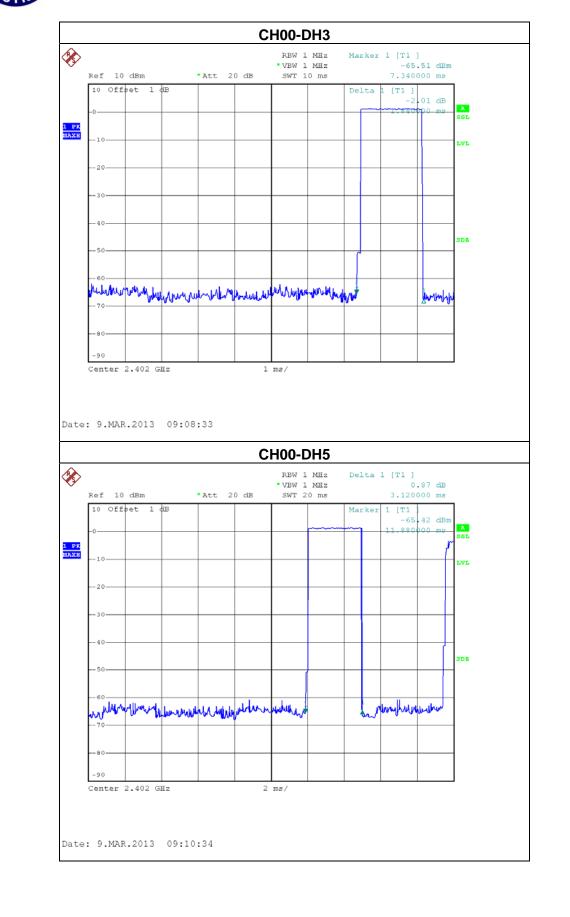


EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	IMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH00-DH1/DH3/DH5-3Mbps		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2402 MHz	3.1200	0.3328	0.4000
DH3	2402 MHz	1.8400	0.2944	0.4000
DH1	2402 MHz	0.5700	0.1824	0.4000



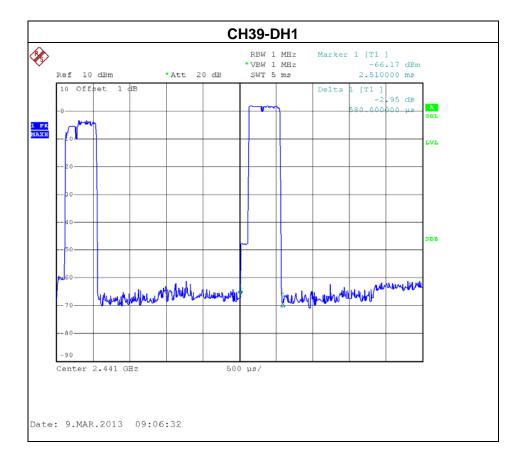


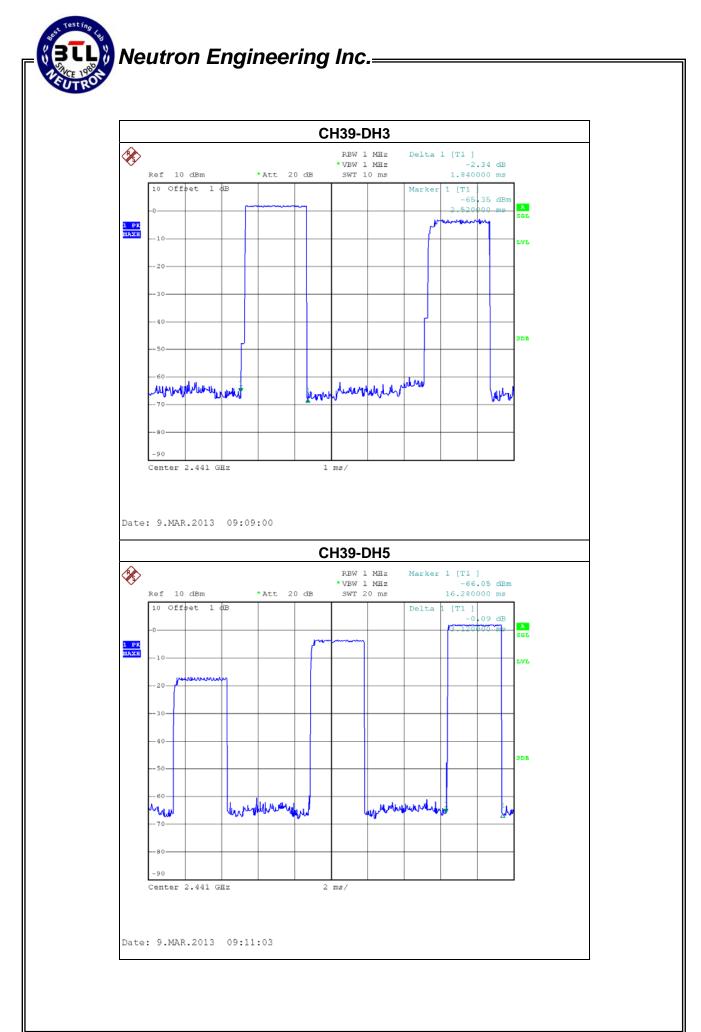




EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	IMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH39 -DH1/DH3/DH5-3Mbps		

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2441 MHz	3.1200	0.3328	0.4000
DH3	2441 MHz	1.8400	0.2944	0.4000
DH1	2441 MHz	0.5800	0.1856	0.4000

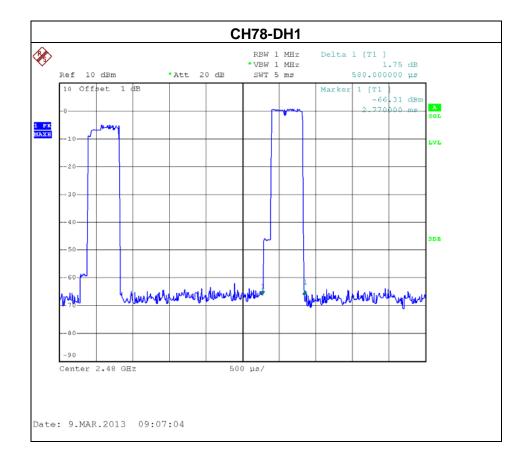


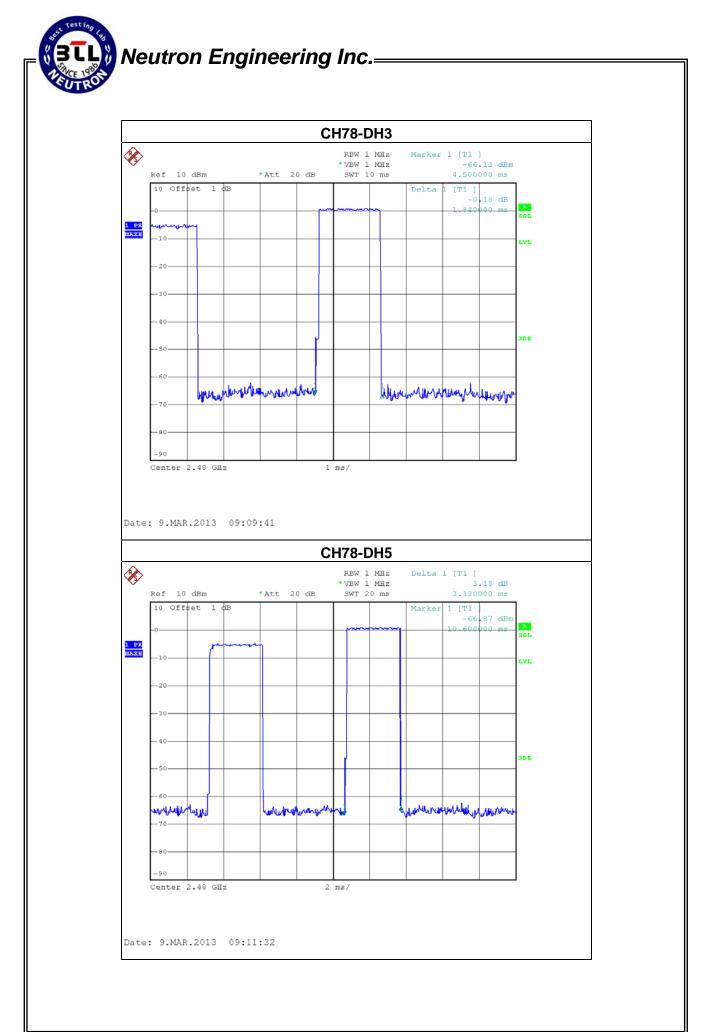




	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	IMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH78 -DH1/DH3/DH5-3Mbps	·	

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (s)	Limits (s)
DH5	2480 MHz	3.1200	0.3328	0.4000
DH3	2480 MHz	1.8400	0.2944	0.4000
DH1	2480 MHz	0.5800	0.1856	0.4000







# 7. HOPPING CHANNEL SEPARATION MEASUREMENT

#### 7.1 APPLIED PROCEDURES / LIMIT

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

### 7.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov. 16.2013

Remark: "N/A" denotes no model no., serial no. or no calibration specified. All calibration period of Equipment List is One Year.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz
VB	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

# 7.1.2 TEST PROCEDURE

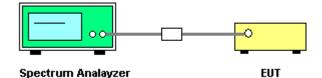
- a. The EUT must have its hopping function enabled
- b. Span = wide enough to capture the peaks of two adjacent channels Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span Video (or Average) Bandwidth (VBW) ≥ RBW Sweep = auto Detector function = peak

Trace = max hold

#### 7.1.3 DEVIATION FROM STANDARD

No deviation.

# 7.1.4 TEST SETUP



# 7.1.5 EUT OPERATION CONDITIONS

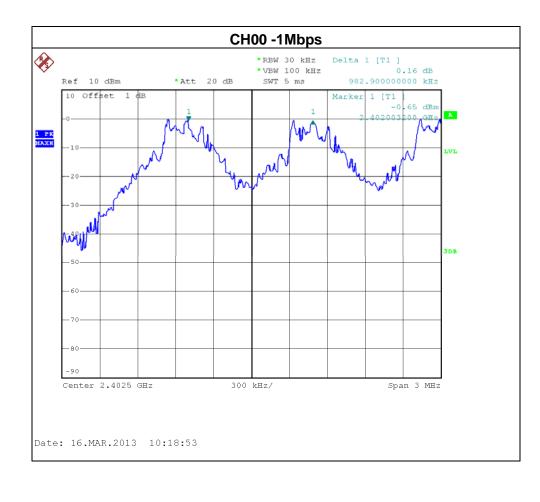
The EUT was programmed to be in hopping mode.

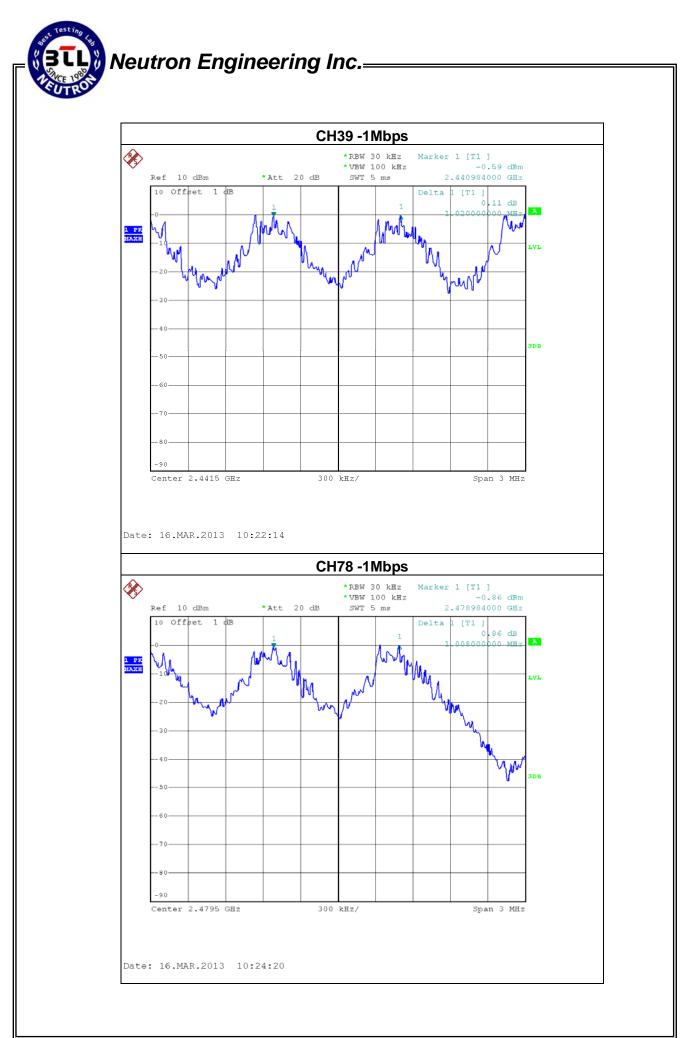


EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode : Hopping on -CH00 / CH39 /CH78-1Mbps			

Frequency	Ch. Separation (MHz)	20dB Bandwidth (MHz)	Result
2402 MHz	0.983	0.82	Complies
2441 MHz	1.020	0.82	Complies
2480 MHz	1.008	0.83	Complies

#### Ch. Separation Limits: >20dB bandwidth or >2/3 of 20dB bandwidth



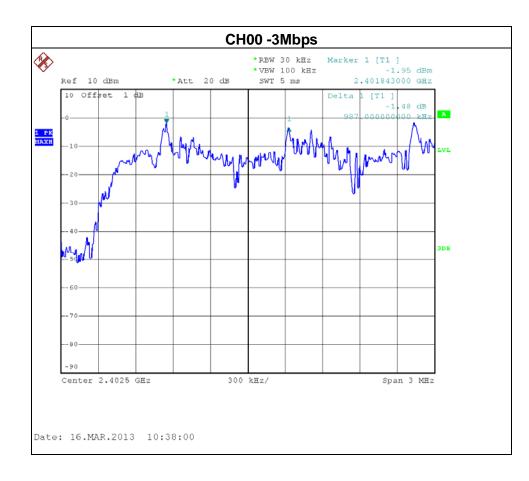


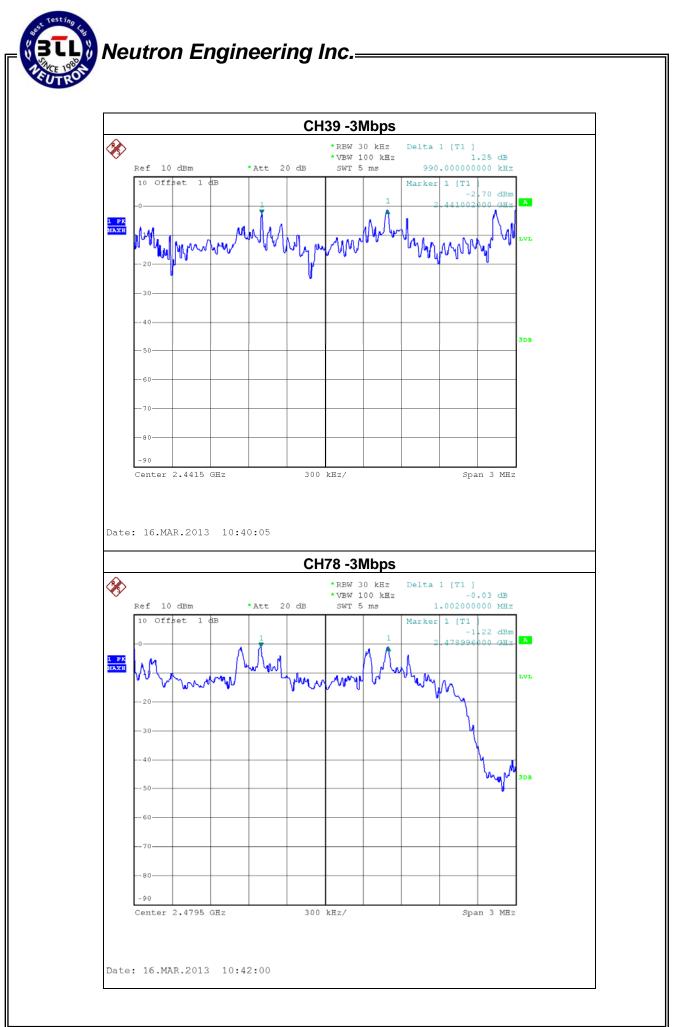


	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	IMM711
Temperature :		Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode : Hopping on -CH00 / CH39 /CH78-3Mbps			

Frequency	Ch. Separation (MHz)	20dB Bandwidth (MHz)	Result
2402 MHz	0.987	1.20	Complies
2441 MHz	0.990	1.20	Complies
2480 MHz	1.002	1.20	Complies

# Ch. Separation Limits: >20dB bandwidth or >2/3 of 20dB bandwidth





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# 8. BANDWIDTH TEST

### 8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C					
Section	Test Item	Frequency Range (MHz)			
15.247 (a)(2)	Bandwidth	2400-2483.5			

### 8.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

I	ltem	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
	1	Spectrum Analyzer	R&S	FSP 40	100185	Nov. 16.2013

Remark: "N/A" denotes no model no., serial no. or no calibration specified. All calibration period of Equipment List is One Year.

Spectrum Parameter	Setting	
Attenuation	Auto	
Span Frequency	> Measurement Bandwidth or Channel Separation	
RB	30 kHz (20dB Bandwidth) / 30 kHz (Channel Separation)	
VB	100 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)	
Detector	Peak	
Trace	Max Hold	
Sweep Time	Auto	

# 8.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 30KHz, VBW=100KHz, Sweep time = Auto.

#### 8.1.3 DEVIATION FROM STANDARD

No deviation.

#### 8.1.4 TEST SETUP

EUT	SPECTRUM	ĺ
	ANALYZER	

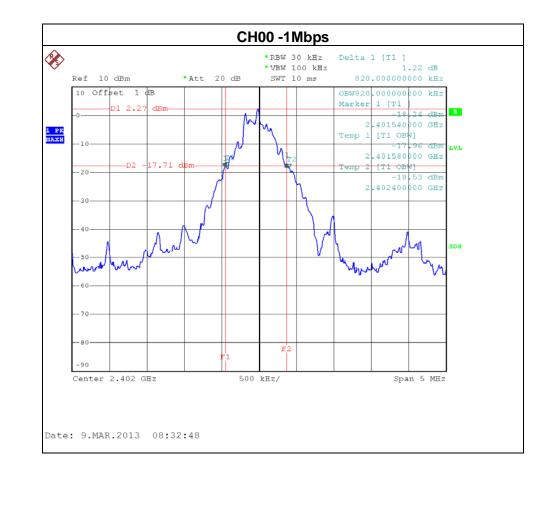
# 8.1.5 EUT OPERATION CONDITIONS

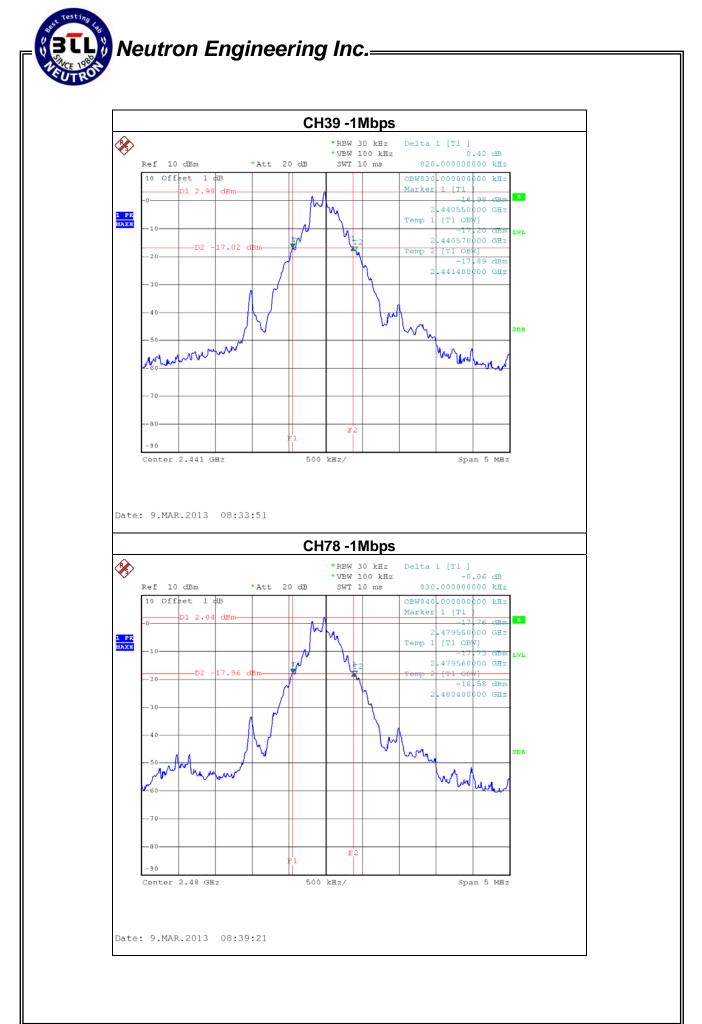
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH00 / CH39 /CH78-1Mbps		

Frequency	20dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Result
2402 MHz	0.82	0.82	PASS
2441 MHz	0.82	0.83	PASS
2480 MHz	0.83	0.84	PASS

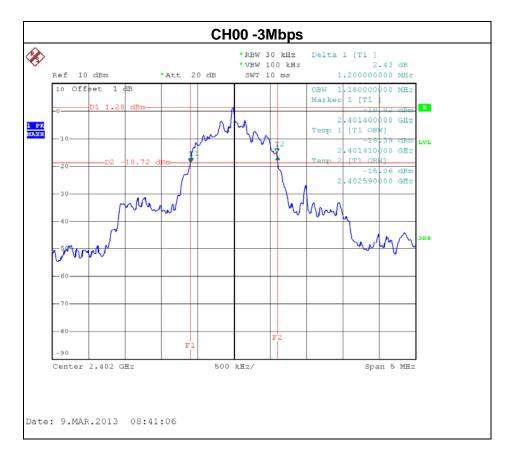


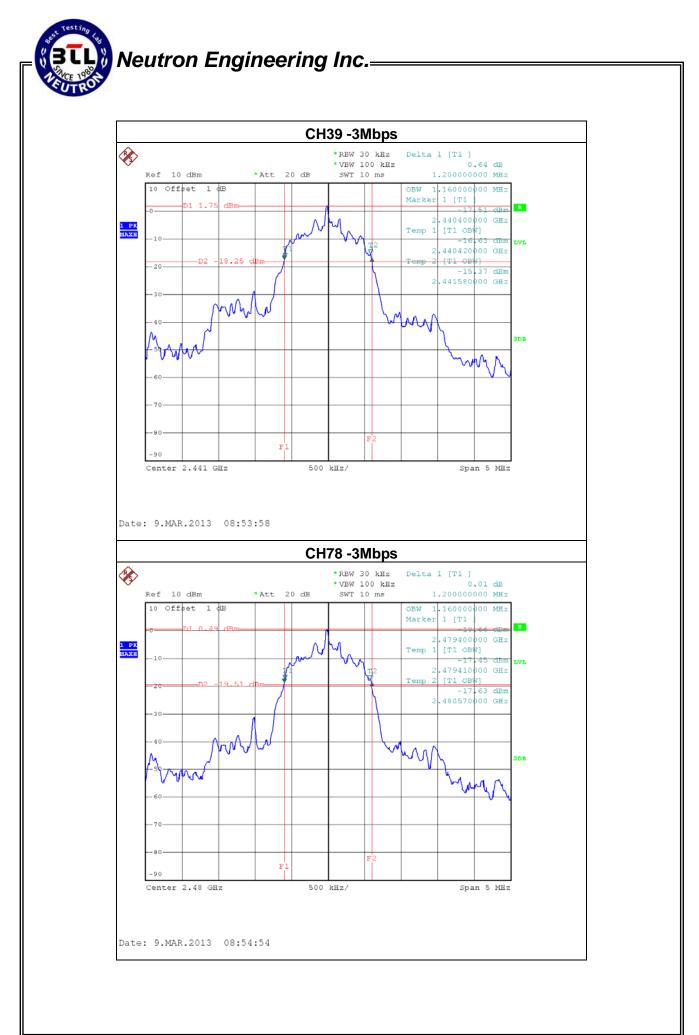




EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH00 / CH39 /CH78-3Mbps		

Frequency	20dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	Result
2402 MHz	1.20	1.18	PASS
2441 MHz	1.20	1.16	PASS
2480 MHz	1.20	1.16	PASS





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# 9. PEAK OUTPUT POWER TEST

# 9.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247), Subpart C					
Section	Test Item	Limit	Frequency Range (MHz)	Result	
15.247 (b)(1)	Peak Output Power	0.125 watt or 21dBm	2400-2483.5	PASS	

### 9.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov. 16.2013

Remark: "N/A" denotes no model no., serial no. or no calibration specified. All calibration period of Equipment List is One Year.

### 9.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 3MHz, VBW= 3MHz, Sweep time = Auto.

#### 9.1.3 DEVIATION FROM STANDARD

No deviation.

#### 9.1.4 TEST SETUP



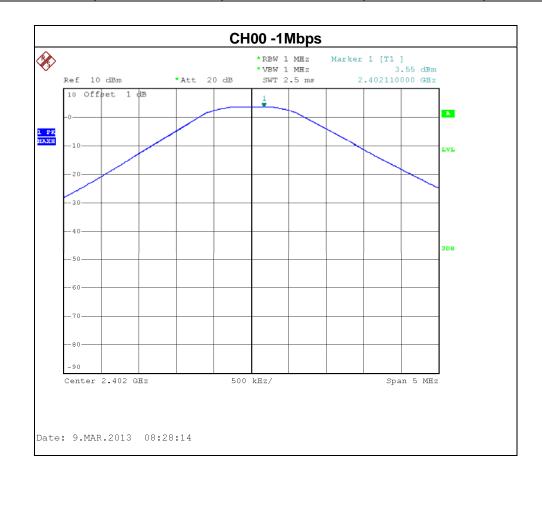
# 9.1.5 EUT OPERATION CONDITIONS

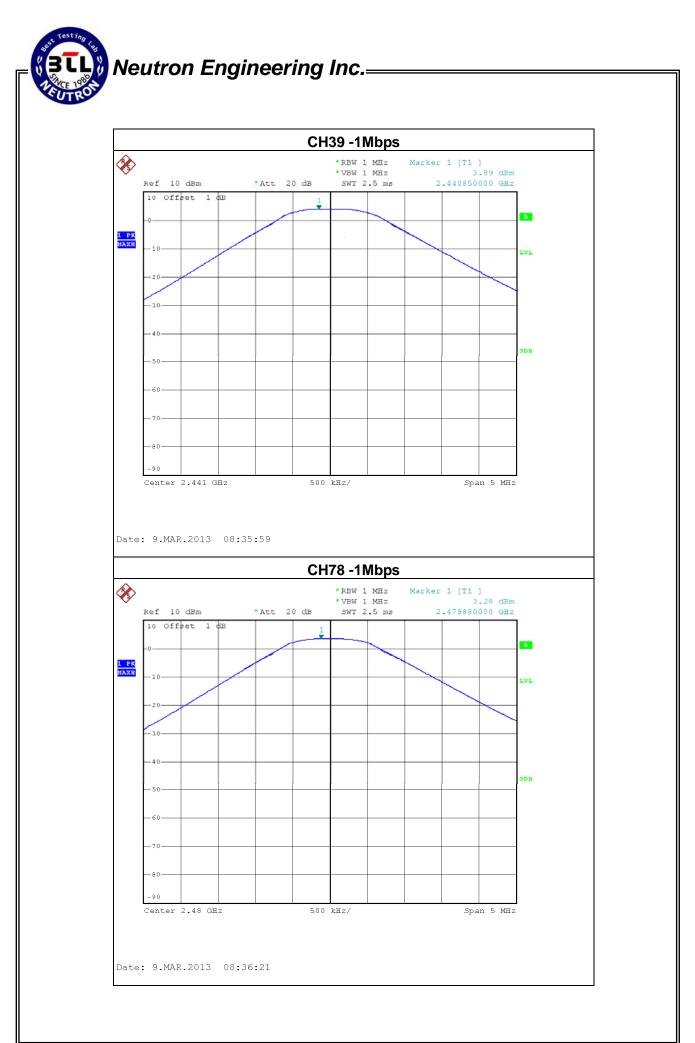
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.



EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH00/ CH39 /CH78 -1Mbps		

Test Channel	Frequency (MHz)	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH00	2402	3.55	21	0.125
CH39	2441	3.89	21	0.125
CH78	2480	3.28	21	0.125

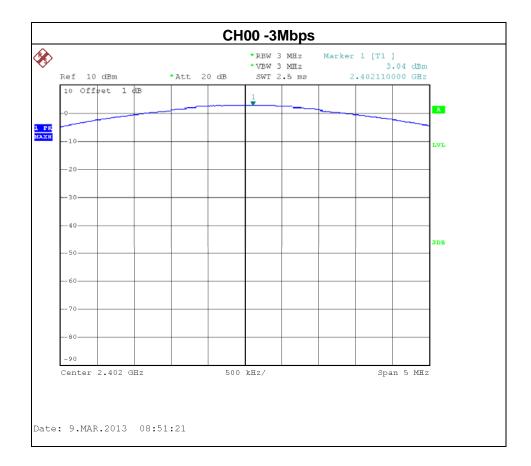


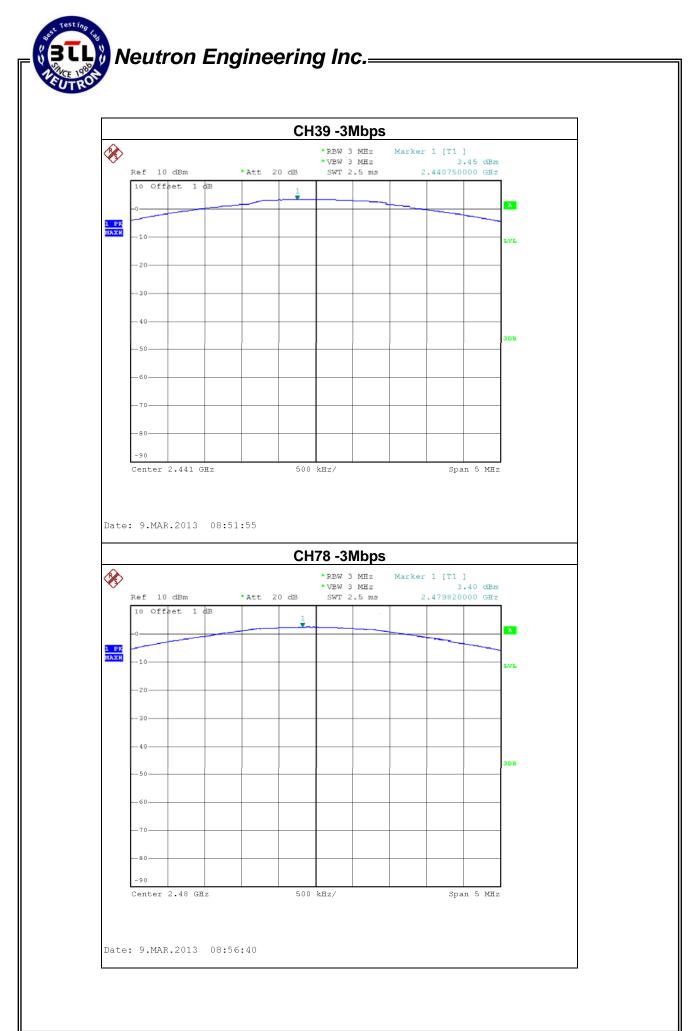




	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH00/ CH39 /CH78 -3Mbps		

Test Channel	Frequency (MHz)	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH00	2402	3.04	21	0.125
CH39	2441	3.45	21	0.125
CH78	2480	3.40	21	0.125





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# **10. ANTENNA CONDUCTED SPURIOUS EMISSION**

#### **10.1 APPLIED PROCEDURES / LIMIT**

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

#### 10.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Ite	em	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
	1	Spectrum Analyzer	R&S	FSP 40	100185	Nov. 16.2013

Remark: "N/A" denotes no model no., serial no. or no calibration specified. All calibration period of Equipment List is One Year.

#### 10.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

#### **10.1.3 DEVIATION FROM STANDARD**

No deviation.

#### 10.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

#### 10.1.5 EUT OPERATION CONDITIONS

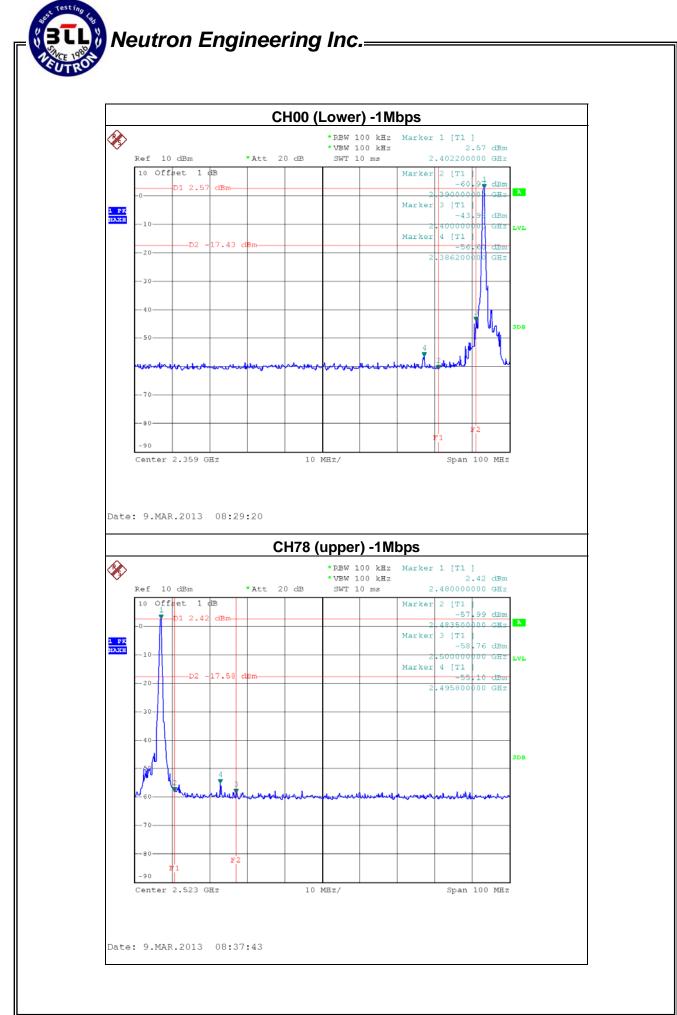
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

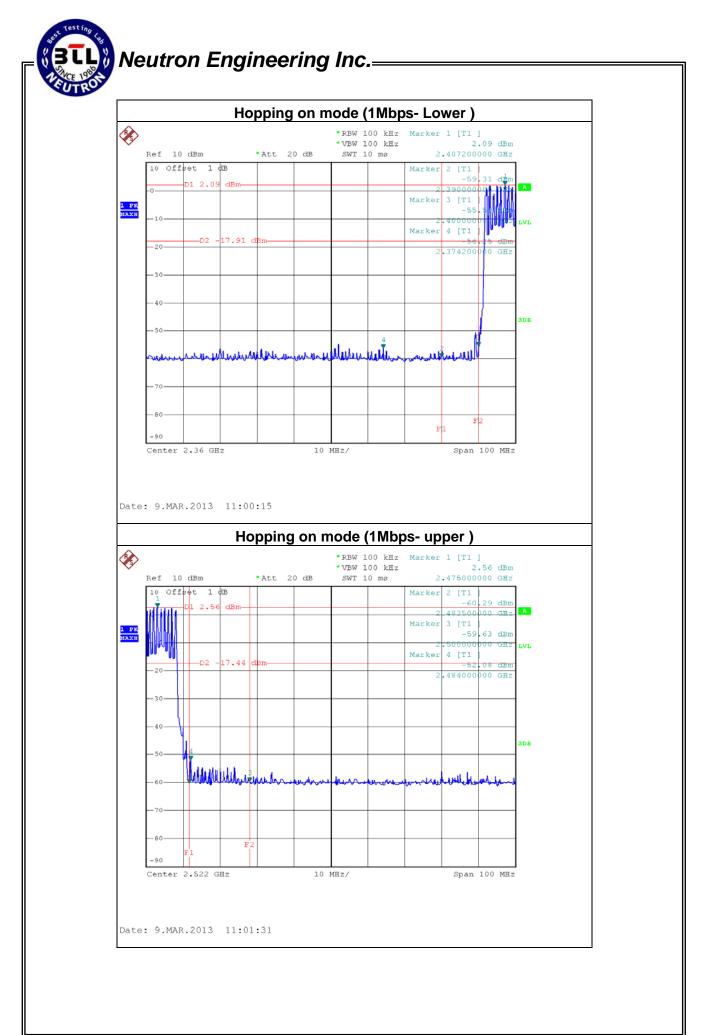


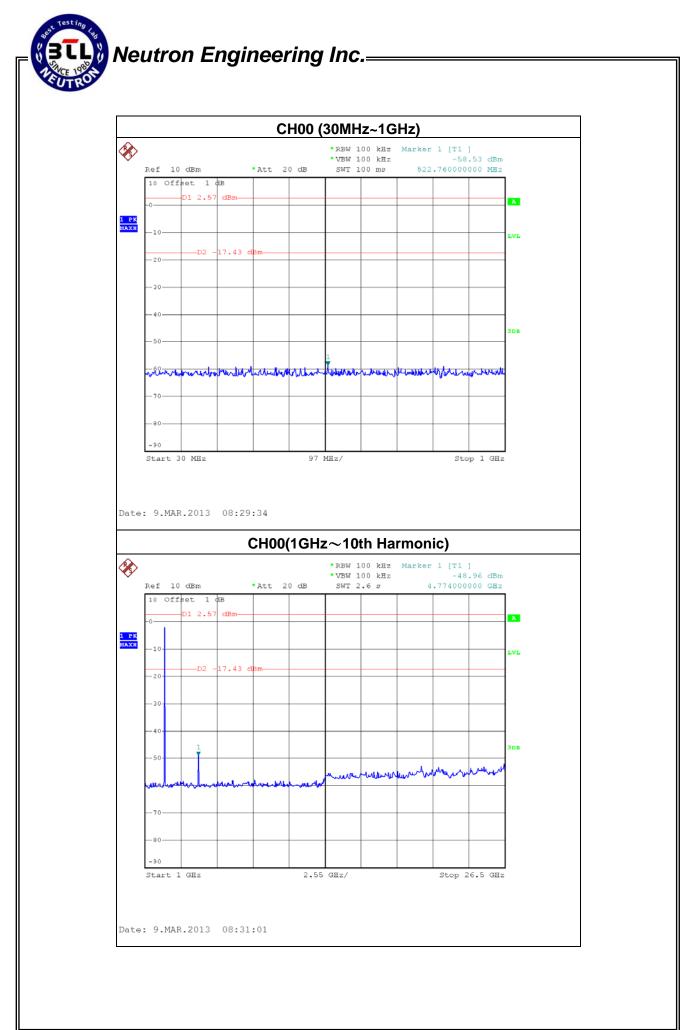
	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH00 / CH39/ CH78-1Mbps & Hopping on mode (1Mbps)		

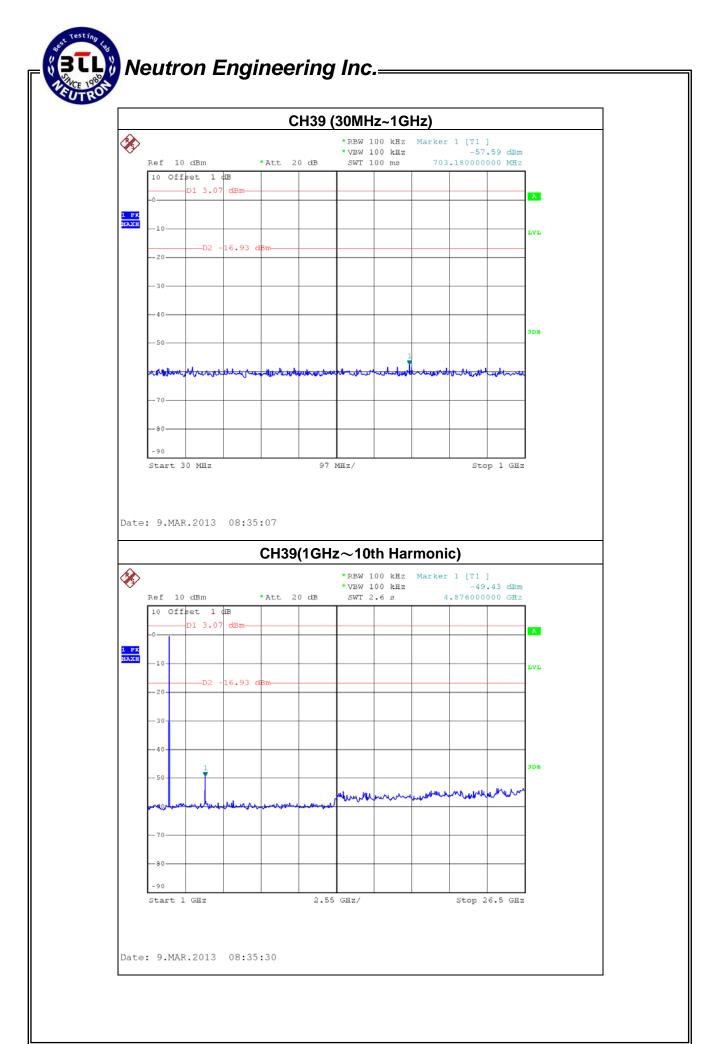
The max. radio frequency power in any 100kHz bandwidth within the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.			
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)		
2400.00	-43.98	2495.80	-55.10		
Result					

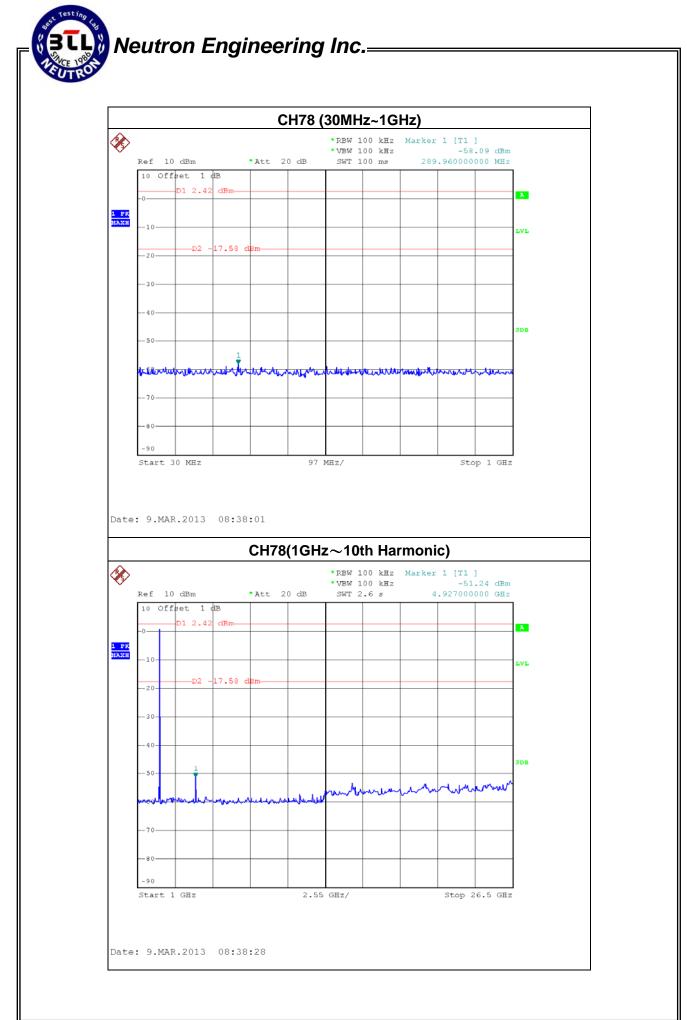
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.









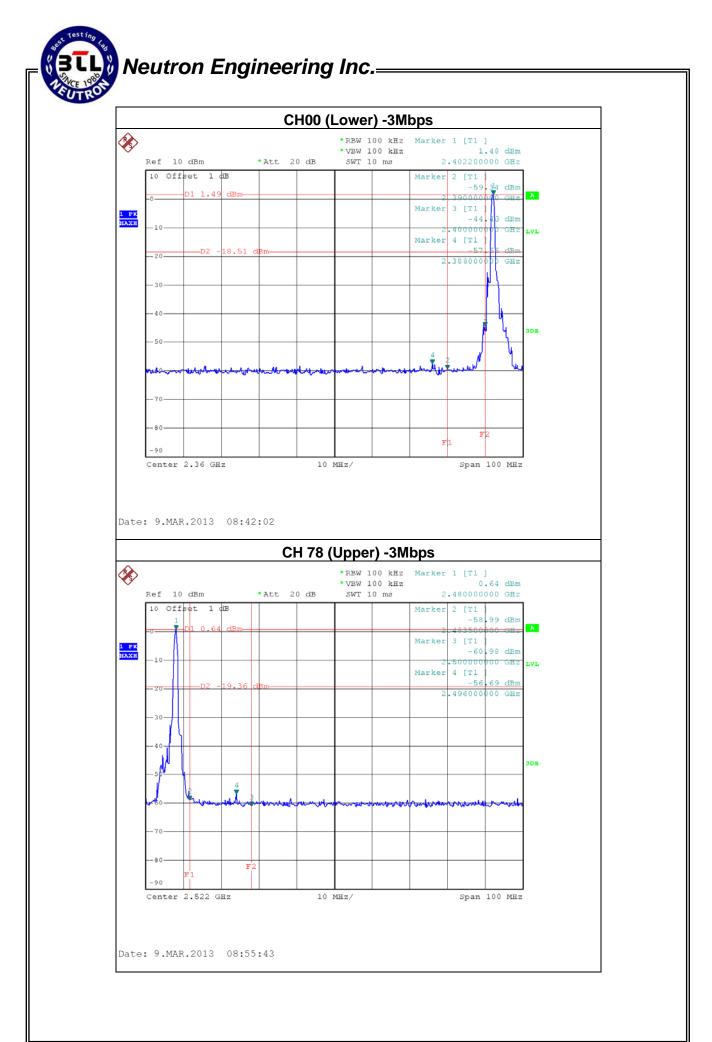


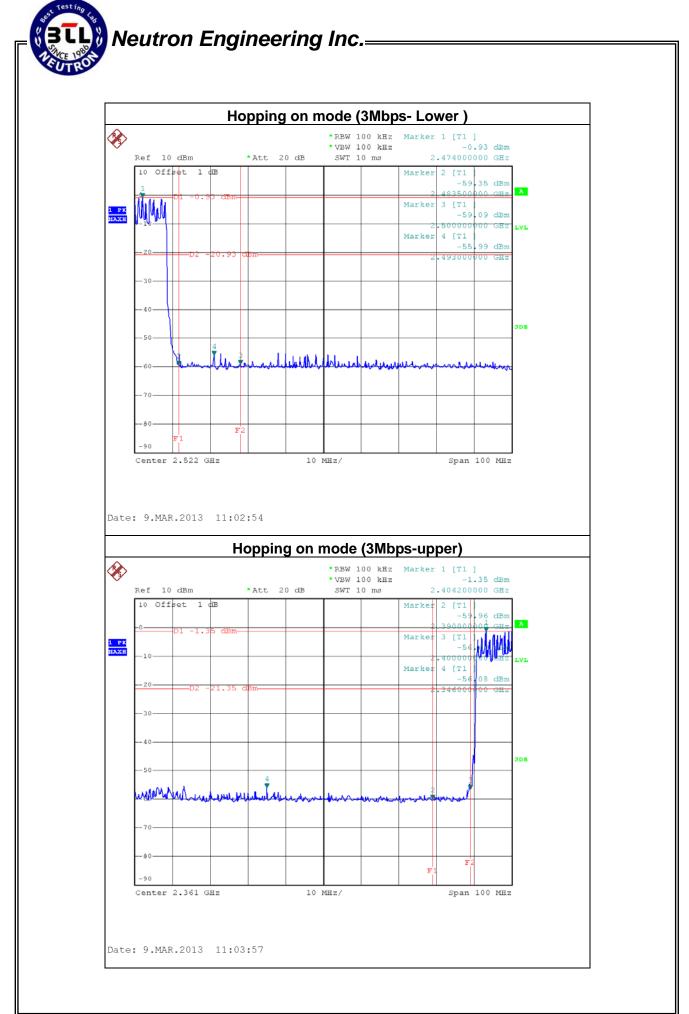


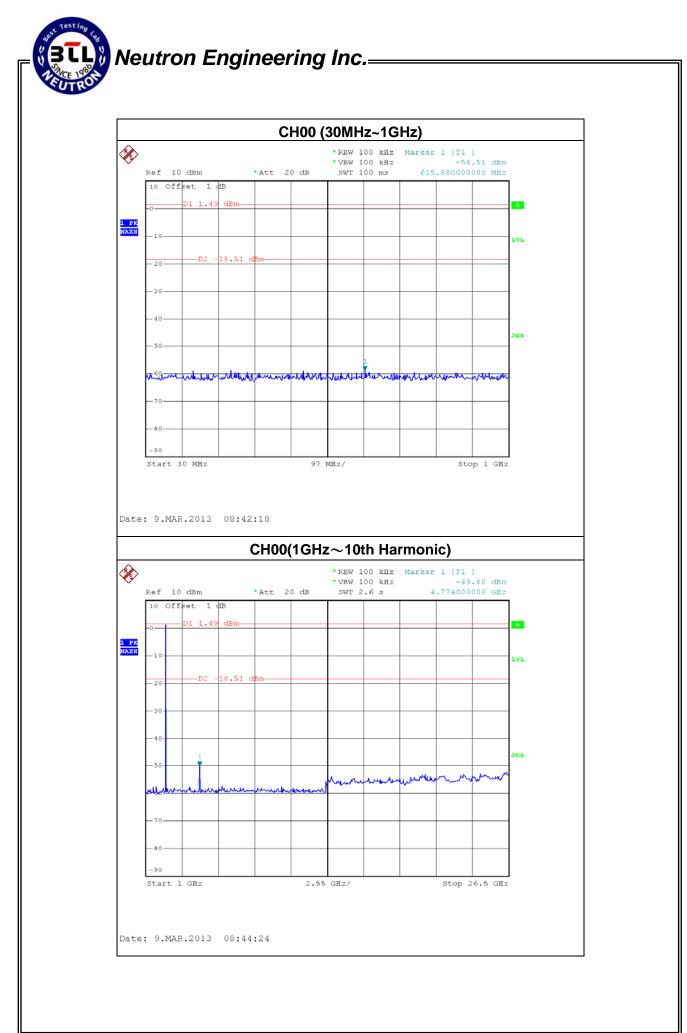
EUT :	High Fidelity Bluetooth Speaker Dock for Mobile Device	Model Name :	iMM711
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1009 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH00 / CH39/ CH78 -3Mbps & Hopping on mode (3Mbps)		

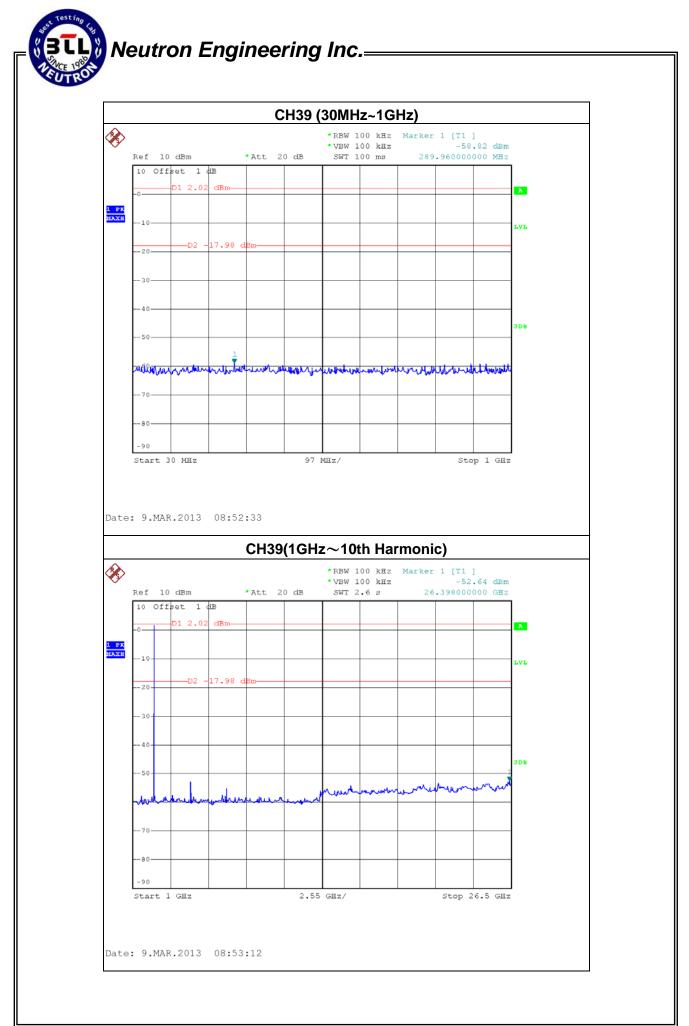
The max. radio frequency power in any 100kHz bandwidth within the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.				
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)			
2400.00	-44.43	2496.00	-56.69			
Result						

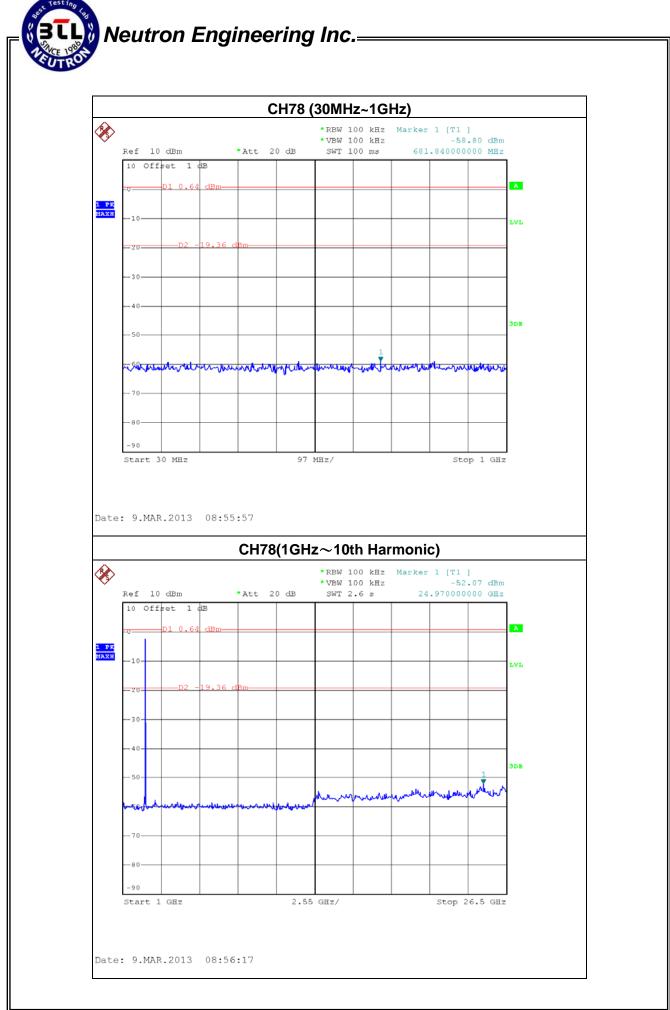
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.









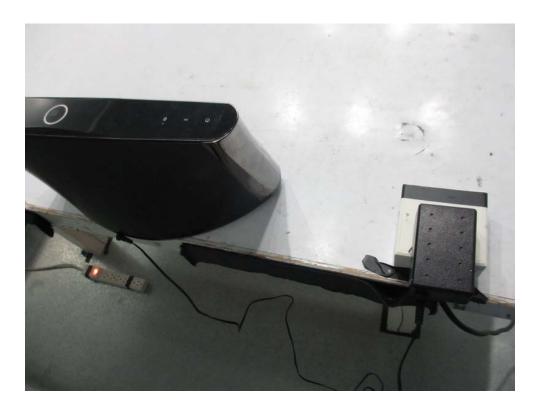


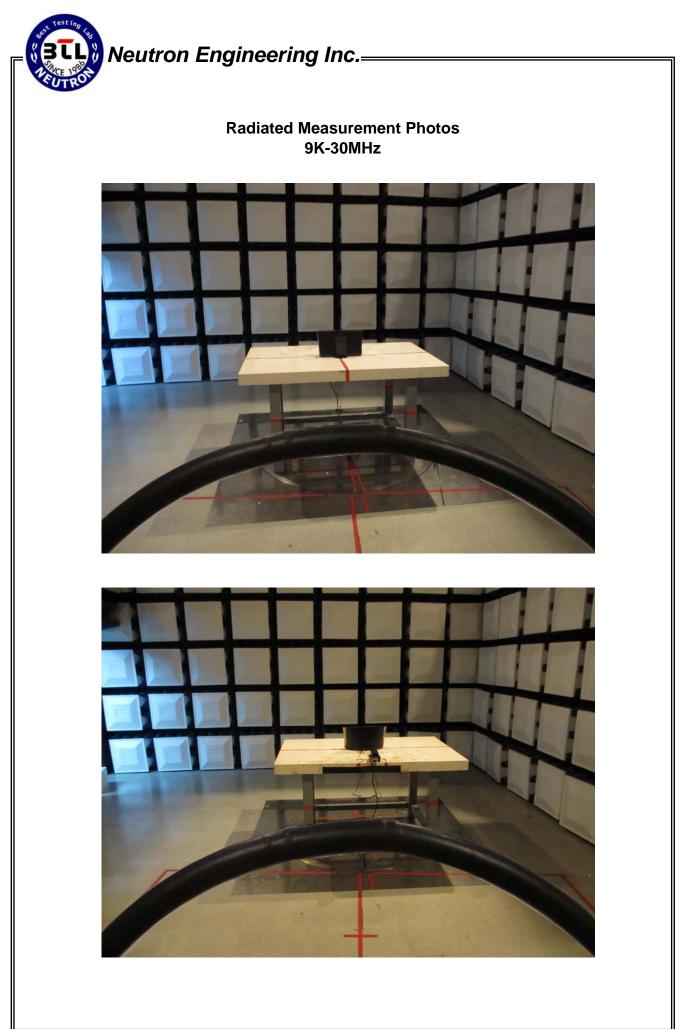


# **11. EUT TEST PHOTO**

**Conducted Measurement Photos** 









# Radiated Measurement Photos 30MHz-1GHz

