# **FCC&IC** Radio Test Report

**FCC ID: RWO-RZ120111** IC: 8092D-RZ120111

This report concerns (check one): Original Grant Class II Change

**Issued Date** : Oct. 24, 2013

Project No. : 1308C237 Equipment : Bluetooth Music Headphones

Model Name: RZ12-0111 Applicant for: Razer Inc.

**FCC** 

Applicant for: Razer INC.

IC

Address : 2035 Corte Del Nogal, Suite 101.

Carlsbad California 92011. USA

**Tested by:** Neutron Engineering Inc. EMC Laboratory

Date of Receipt: Aug. 30, 2013

Date of Test: Aug. 30, 2013~Oct. 23, 2013

**Testing Engineer** 

**Technical Manager** 

(Leo Hung)

**Authorized Signatory:** 

(Steven Lu)

# **Neutron Engineering Inc.**

No.3, Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.

> TEL: 0769-8318-3000 FAX: 0769-8319-6000



#### **Declaration**

**Neutron** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**, or National Institute of Standards and Technology (**NIST**) of **U.S.A**.

**Neutron**'s reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **Neutron** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **Neutron** issued reports.

**Neutron**'s reports must not be used by the client to claim product endorsement by the authorities or any agency of the Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and **Neutron-self**, extracts from the test report shall not be reproduced except in full with **Neutron**'s authorized written approval.

**Neutron**'s laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

#### Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Report No.: NEI-FICP-2-1308C237 Page 2 of 58

# REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
NEI-FICP-2-1308C237	Original Issue.	Oct. 24, 2013

Report No.: NEI-FICP-2-1308C237 Page 3 of 58

Table of Contents F	age
REPORT ISSUED HISTORY	3
1. CERTIFICATION	6
2 . SUMMARY OF TEST RESULTS	7
2.1 TEST FACILITY	8
2.2 MEASUREMENT UNCERTAINTY	8
3 . GENERAL INFORMATION	9
3.1 GENERAL DESCRIPTION OF EUT	9
3.2 DESCRIPTION OF TEST MODES	11
3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING	11
3.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTE	
3.5 DESCRIPTION OF SUPPORT UNITS	13
4 . EMC EMISSION TEST	14
4.1 CONDUCTED EMISSION MEASUREMENT 4.1.1 POWER LINE CONDUCTED EMISSION LIMITS	14 14
4.1.1 POWER LINE CONDUCTED EMISSION LIMITS 4.1.2 MEASUREMENT INSTRUMENTS LIST AND SETTING	14
4.1.3 TEST PROCEDURE	15
4.1.4 DEVIATION FROM TEST STANDARD	15
4.1.5 TEST SETUP 4.1.6 EUT OPERATING CONDITIONS	15 15
4.1.7 TEST RESULTS	16
4.2 RADIATED EMISSION MEASUREMENT	19
4.2.1 RADIATED EMISSION LIMITS	19
4.2.2 MEASUREMENT INSTRUMENTS LIST ANS SETTING	20
4.2.3 TEST PROCEDURE 4.2.4 DEVIATION FROM TEST STANDARD	21 21
4.2.5 TEST SETUP	22
4.2.6 EUT OPERATING CONDITIONS	23
4.2.7 TEST RESULTS (BELOW 30MHZ)	24
4.2.8 TEST RESULTS-BETWEEN 30MHZ AND 1000MHZ 4.2.8 TEST RESULTS (ABOVE 1000 MHZ)	25 32
5 . BANDWIDTH TEST	44
5.1 APPLIED PROCEDURES / LIMIT	44
5.1.1 MEASUREMENT INSTRUMENTS LIST	44 44
5.1.2 TEST PROCEDURE	44
5.1.3 DEVIATION FROM STANDARD	44
5.1.4 TEST SETUP	44
5.1.5 EUT OPERATION CONDITIONS	44

Report No.: NEI-FICP-2-1308C237 Page 4 of 58

<b>(STL)</b> Neutron Er	ngineering Inc.————	
PUTROS	Table of Contents	Page
5.1.6 TEST RESULT	rs .	45
6. MAXIMUM OUTPUT	POWER TEST	47
6.1 APPLIED PROCED	URES / LIMIT	47
6.1.1 MEASUREME	NT INSTRUMENTS LIST	47
6.1.2 TEST PROCE	DURE	47
6.1.3 DEVIATION FI	ROM STANDARD	47
6.1.4 TEST SETUP		47
6.1.5 EUT OPERAT		47
6.1.6 TEST RESULT	S	48
7. ANTENNA CONDUC	TED SPURIOUS EMISSION	50
7.1 APPLIED PROCED	URES / LIMIT	50
7.1.1 MEASUREME	NT INSTRUMENTS LIST	50
7.1.2 TEST PROCE	- <del></del>	50
7.1.3 DEVIATION FI	ROM STANDARD	50
7.1.4 TEST SETUP		50
7.1.5 EUT OPERAT		50
7.1.6 TEST RESULT	S	51
8. POWER SPECTRAL	DENSITY TEST	56
8.1 APPLIED PROCED	URES / LIMIT	56
8.1.1 MEASUREME	NT INSTRUMENTS LIST	56
8.1.2 TEST PROCE	<del>-</del>	56
8.1.3 DEVIATION FI	ROM STANDARD	56
8.1.4 TEST SETUP		56
8.1.5 EUT OPERAT	ON CONDITIONS	56

56 57

Report No.: NEI-FICP-2-1308C237 Page 5 of 58

8.1.6 TEST RESULTS

#### 1. CERTIFICATION

Equipment : Bluetooth Music Headphones

Brand Name: RAZER Model Name: RZ12-0111

Applicant for : Razer Inc. FCC

Applicant for : Razer INC.

IC

Manufacturer: Razer (Asia-Pacific) Pte Ltd Address : 514 Chai Chee Lane #07-01 ~ 06 Singapore 469029

RAZER TECHNOLOGY AND DEVELOPMENT (SHENZHEN) CO., LTD Factory

Address East Wing, 3rd Floor, Block 2, Phase 1 of Vision Shenzhen Business Park Keji

South Road, Hi-Tech Industrial Park, Shenzhen 518057, China

Date of Test : Aug. 30, 2013~Oct. 23, 2013 Test Item : ENGINEERING SAMPLE

Standard(s): FCC Part15, Subpart C(15.247):2012 / ANSI C63.4-2009

Canada RSS-210:2010 RSS-GEN Issue 3, Dec 2010

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-FICP-2-1308C237) 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).

Report No.: NEI-FICP-2-1308C237 Page 6 of 58

# 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

Appl	Applied Standard(s): FCC Part15 (15.247) , Subpart C:2012 Canada RSS-210:2010; RSS-GEN Issue 3, Dec 2010						
Standard	(s) Section	Test Item	Judgment	Remark			
15.207	RSS-GEN 7.2.2	Conducted Emission	PASS				
15.247(d)	RSS-210 Annex 8 (A8.5)	Antenna conducted Spurious Emission	PASS				
15.247(a)(2)	RSS-210 Annex 8 (A8.2(a))	6dB Bandwidth	PASS				
15.247(b)(3)	RSS-210 Annex 8 (A8.4(4))	Peak Output Power	PASS				
15.247(e)	RSS-210 Annex 8 (A8.2(b))	Power Spectral Density	PASS				
15.203	-	Antenna Requirement	PASS				
15.209/15.205	RSS-210 Annex 8 (A8.5)	Transmitter Radiated Emissions	PASS				

### NOTE:

- (1)" N/A" denotes test is not applicable in this test report.
- (2) The test follows FCC KDB Publication No. 558074 D01 DTS Meas Guidance v03r01 (Measurement Guidelines of DTS)

Report No.: NEI-FICP-2-1308C237 Page 7 of 58

#### 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 is 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 %  $\circ$ 

### 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
		9KHz~30MHz	V	3.79	
		9KHz~30MHz	Н	3.57	
		30MHz ~ 200MHz	V	3.82	
	DG-CB03 CISPR	30MHz ~ 200MHz	Н	3.60	
DG-CB03		200MHz ~ 1,000MHz	V	3.86	
DG-GB03 GISFIX	200MHz ~ 1,000MHz	Н	3.94		
	1GHz~18GHz	V	3.12		
		1GHz~18GHz	Н	3.68	
		18GHz~40GHz	V	4.15	
		18GHz~40GHz	Н	4.14	

Report No.: NEI-FICP-2-1308C237 Page 8 of 58

# 3. GENERAL INFORMATION

# 3.1 GENERAL DESCRIPTION OF EUT

Equipment	Bluetooth Music Headphones			
Brand Name	RAZER			
Model Name	RZ12-0111			
Model Difference	N/A			
Product Description	Operation Frequency Modulation Technology Bit Rate of Transmitter Number of Channel Antenna Designation Antenna Gain(Peak) Peak Output Power  More details of EUT technical specification, please refer to the User's Manual.			
Power Source	#1 Supplied from lithium battery. #2 Supplied from host system for charging.			
Power Rating	#1 DC 3.7V #2 DC 5V			
Connecting I/O Port(s)	Please refer to the User's	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.

Report No.: NEI-FICP-2-1308C237 Page 9 of 58



2

Channel List			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	20	2442
01	2404	21	2444
02	2406	22	2446
03	2408	23	2448
04	2410	24	2450
05	2412	25	2452
06	2414	26	2454
07	2416	27	2456
08	2418	28	2458
09	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Printed	N/A	0.72

Report No.: NEI-FICP-2-1308C237 Page 10 of 58

### 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 <b>NOTE (1)</b>
Mode 2	Bluetooth

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

9	9
	For Conducted
Final Tost Mode	

For Conducted Test		
Final Test Mode	Description	
Mode 2	Bluetooth	

For Radiated Test					
Final Test Mode	Description				
Mode 1	TX Mode <b>NOTE (1)</b>				

## 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 Bluetooth 4.0.

Test software version	Bluetest				
Frequency	2402MHz	2440 MHz	2480MHz		
GFSK-1Mbps	48	48	48		

Report No.: NEI-FICP-2-1308C237 Page 11 of 58

# E-1 E-2 **EUT** Notebook

C-1: USB Cable

# Radiated:

E-1 EUT

Report No.: NEI-FICP-2-1308C237

### 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 / IC	Series No.	Note
E-1	Bluetooth Music Headphones	RAZER	RZ12-0111	RWO-RZ120111 / 8092D-RZ120111	Ν/Δ	EUT
E-2	Notebook	ASUS	F9Eseries	DOC	7AN0AS301331	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.8m	

### Note:

(1) For detachable type I/O cable should be specified the length in m in <code>"Length\_"</code> column.

Report No.: NEI-FICP-2-1308C237 Page 13 of 58

# 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		
TREQUENCT (MHZ)	Quasi-peak Average		Quasi-peak Average		Standard	
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	Apr. 25, 2014
2	LISN	R&S	ENV216	100087	Nov.16, 2013
3	Test Cable	N/A	C_17	N/A	Mar.15.2014
4	EMI TEST RECEIVER	R&S	ESCS30	826547/022	Apr. 25, 2014
5	50Ω Terminator	SHX	TF2-3G-A	08122902	Apr. 25, 2014

Remark: "N/A" denotes no model name, serial no. or 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		

Report No.: NEI-FICP-2-1308C237 Page 14 of 58

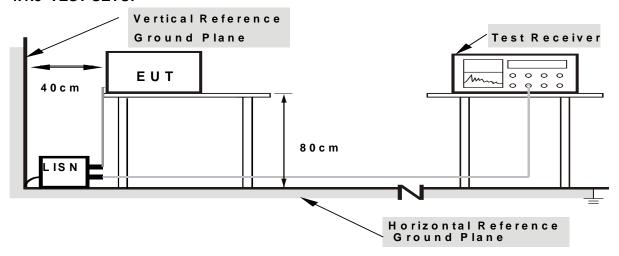
#### 4.1.3 TEST PROCEDURE

- 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



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 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 was programmed to be in continuously transmitting mode.

Report No.: NEI-FICP-2-1308C237 Page 15 of 58

### 4.1.7 TEST RESULTS

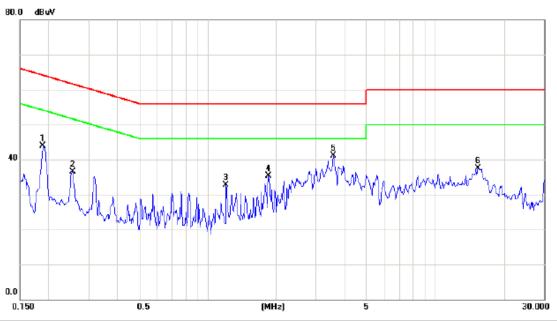
#### Remark

- (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.
- (3) " N/A" denotes test is not applicable in this test report.

Report No.: NEI-FICP-2-1308C237 Page 16 of 58



EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	<b>25</b> ℃	Relative Humidity:	50 %
Test Power:	AC 120V/60Hz	Phase:	Line
Test Mode:	Bluetooth		

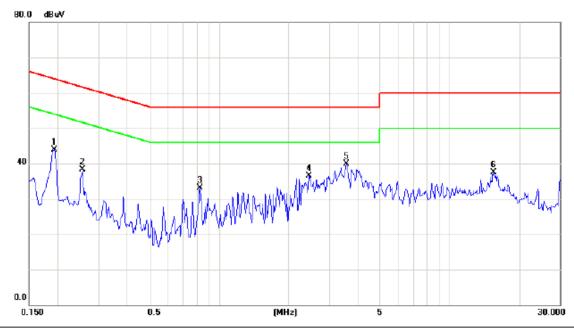


No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBu∀	dB	dBu∀	dBu∀	dB	Detector	Comment
1	0.1890	34.32	9.68	44.00	64.08	-20.08	peak	
2	0.2553	26.86	9.68	36.54	61.58	-25.04	peak	
3	1.2082	22.97	9.72	32.69	56.00	-23.31	peak	
4	1.8490	25.46	9.76	35.22	56.00	-20.78	peak	
5 *	3.5663	31.31	9.80	41.11	56.00	-14.89	peak	
6	15.4296	27.33	10.23	37.56	60.00	-22.44	peak	

Report No.: NEI-FICP-2-1308C237 Page 17 of 58



EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	<b>25</b> ℃	Relative Humidity:	50 %
Test Power:	AC 120V/60Hz	Phase:	Neutral
Test Mode:	Bluetooth		



No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBu∀	dB	dBu∀	dBu∀	dB	Detector	Comment
1	0.1930	34.20	9.69	43.89	63.91	-20.02	peak	
2	0.2553	28.70	9.68	38.38	61.58	-23.20	peak	
3	0.8296	23.42	9.72	33.14	56.00	-22.86	peak	
4	2.4584	26.72	9.79	36.51	56.00	-19.49	peak	
5 *	3.5663	30.13	9.81	39.94	56.00	-16.06	peak	
6	15.5273	27.11	10.30	37.41	60.00	-22.59	peak	

Report No.: NEI-FICP-2-1308C237 Page 18 of 58

#### 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
960~1000	500	3

Section 15.33 Frequency range of radiated measurements.

Unless otherwise noted in the specific rule section under which the equipment operates for an intentional radiator the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in this paragraph:

- (1) If the intentional radiator operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
- (2) If the intentional radiator operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.
- (3) If the intentional radiator operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower, unless specified otherwise elsewhere in the rules
- (4) If the intentional radiator contains a digital device, regardless of whether this digital device controls the functions of the intentional radiator or the digital device is used for additional control or function purposes other than to enable the operation of the intentional radiator, the frequency range shall be investigated up to the range specified in paragraphs (a)(1)-(a)(3) of this section or the range applicable to the digital device, as shown in paragraph (b)(1) of this Section, whichever is the higher frequency range of investigation.

Report No.: NEI-FICP-2-1308C237 Page 19 of 58

# 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	Apr. 25, 2014
2	Amplifier	HP	8447D	2944A09673	Apr. 25, 2014
3	Test Receiver	R&S	ESCI	100382	Apr. 25, 2014
4	Test Cable	N/A	C-01_CB03	N/A	Jul. 02, 2014
5	Antenna	ETS	3115	00075789	Apr. 25, 2014
6	Amplifier	Agilent	8449B 3008A022		Apr. 25, 2014
7	Spectrum	Agilent	E4408B	US39240143	Nov. 16, 2013
8	Test Cable	Test Cable HUBER+SUHNE R C-45		N/A	Apr. 30, 2014
9	Controller	Controller CT SC100 N/A		N/A	N/A
10	Horn Antenna	EMCO	3115	9605-4803	Apr. 25, 2014
11	Active Loop Antenna	R&S	HFH2-Z2 830749/020		Apr. 25, 2014
12	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Oct.23, 2013

Remark: "N/A" denotes no model name, serial no. or 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				
RBW / VBW	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average				
(Emission in restricted band)					

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		

Report No.: NEI-FICP-2-1308C237 Page 20 of 58



#### 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 fully-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
------------------------------------

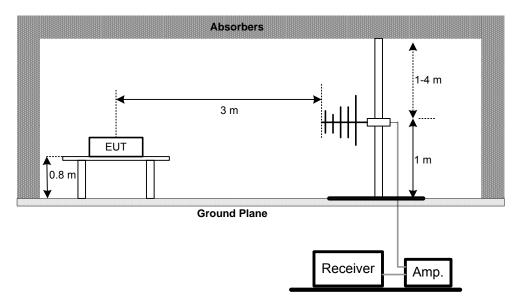
No deviation

Report No.: NEI-FICP-2-1308C237 Page 21 of 58

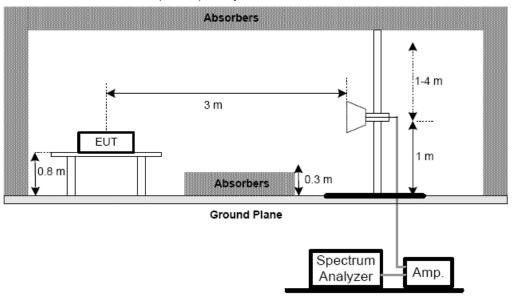


# 4.2.5 TEST SETUP

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



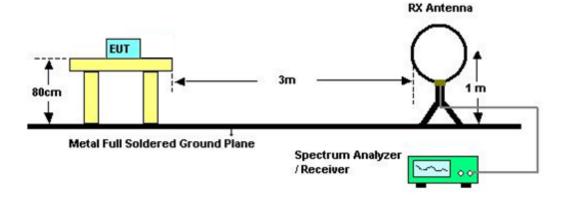
(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



Report No.: NEI-FICP-2-1308C237 Page 22 of 58



(C) For radiated emissions below 30MHz



# **4.2.6 EUT OPERATING 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.

Report No.: NEI-FICP-2-1308C237 Page 23 of 58

# 4.2.7 TEST RESULTS (BELOW 30MHZ)

EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	26° C	Relative Humidity:	53 %
Test Voltage :	DC 3.7V		
Test Mode :	TX 2402MHz -CH00-1Mbps		

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.0098	0°	27.14	24.30	51.44	127.78	-76.34	AVG
0.0098	0°	29.33	24.30	53.63	147.78	-94.15	PK
0.0228	0°	22.15	24.12	46.27	120.45	-74.17	AVG
0.0228	0°	24.81	24.12	48.93	140.45	-91.51	PK
0.0394	0°	19.65	23.07	42.72	115.69	-72.97	AVG
0.0394	0°	21.97	23.07	45.04	135.69	-90.65	PK
0.0603	0°	20.35	22.19	42.54	112.00	-69.45	AVG
0.0603	0°	23.06	22.19	45.25	132.00	-86.74	PK
0.3280	0°	20.74	20.21	40.95	97.29	-56.33	AVG
0.3280	0°	23.12	20.21	43.33	117.29	-73.95	PK
1.5140	0°	27.58	19.55	47.13	64.00	-16.87	QP

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.0094	90°	19.58	24.30	43.88	128.14	-84.26	AVG
0.0094	90°	22.46	24.30	46.76	148.14	-101.38	PK
0.0239	90°	18.75	24.05	42.80	120.04	-77.23	AVG
0.0239	90°	20.34	24.05	44.39	140.04	-95.64	PK
0.0458	90°	22.65	22.67	45.32	114.39	-69.07	AVG
0.0458	90°	25.34	22.67	48.01	134.39	-86.38	PK
0.0627	90°	20.19	22.15	42.34	111.66	-69.32	AVG
0.0627	90°	23.75	22.15	45.90	131.66	-85.76	PK
0.3840	90°	20.55	20.08	40.63	95.92	-55.29	AVG
0.3840	90°	23.07	20.08	43.15	115.92	-72.77	PK
1.2658	90°	25.1900	19.57	44.76	65.56	-20.79	QP

# Remark:

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

Report No.: NEI-FICP-2-1308C237 Page 24 of 58

### 4.2.8 TEST RESULTS-BETWEEN 30MHZ AND 1000MHZ

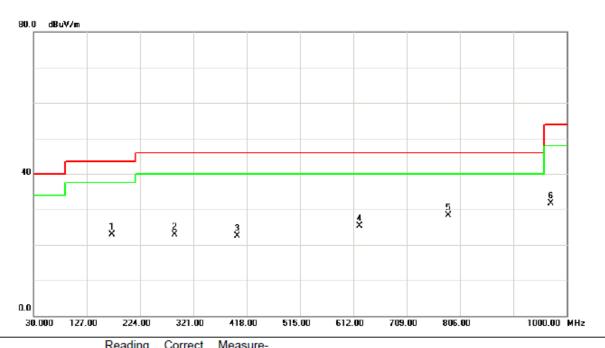
#### Remark:

- (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 <code>『Note』</code>. 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.

Report No.: NEI-FICP-2-1308C237 Page 25 of 58



EUT:	Bluetooth Music Headphones	Model Name:	RZ12-0111
Temperature:	28 ℃	Relative Humidity:	56 %
Test Power:	DC 3.7V	Phase:	Vertical
Test Mode:	TX 2402MHz -CH00-1Mbps		

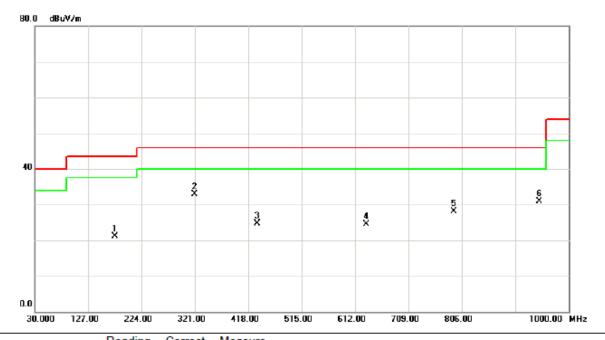


No.	Mk	. Freq.	Level	Factor	ment	Limit	Over		
		MHz	dBu∀	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		172.5900	35.65	-12.75	22.90	43.50	-20.60	peak	
2		287.0500	34.98	-12.03	22.95	46.00	-23.05	peak	
3		400.5400	32.30	-9.87	22.43	46.00	-23.57	peak	
4		622.6700	32.31	-6.95	25.36	46.00	-20.64	peak	
5	*	784.6600	32.00	-3.66	28.34	46.00	-17.66	peak	
6		970.9000	31.96	-0.19	31.77	54.00	-22.23	peak	

Report No.: NEI-FICP-2-1308C237 Page 26 of 58



EUT:	Bluetooth Music Headphones	Model Name:	RZ12-0111
Temperature:	<b>28</b> ℃	Relative Humidity:	56 %
Test Power:	DC 3.7V	Phase:	Horizontal
Test Mode:	TX 2402MHz -CH00-1Mbps		

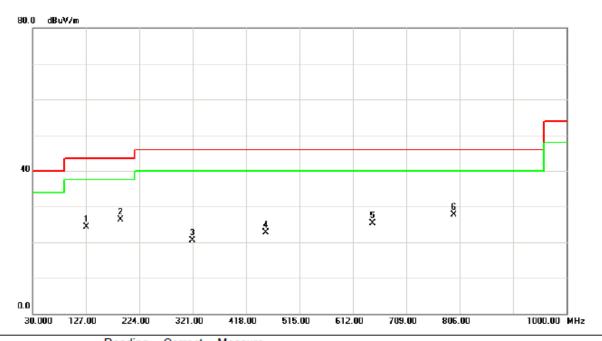


No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBu∀	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		175.5000	33.89	-12.79	21.10	43.50	-22.40	peak	
2	*	320.0300	44.22	-11.33	32.89	46.00	-13.11	peak	
3		434.4900	33.83	-9.21	24.62	46.00	-21.38	peak	
4		631.4000	30.99	-6.51	24.48	46.00	-21.52	peak	
5		791.4500	31.58	-3.41	28.17	46.00	-17.83	peak	
6		946.6500	31.43	-0.58	30.85	46.00	-15.15	peak	

Report No.: NEI-FICP-2-1308C237 Page 27 of 58



EUT:	Bluetooth Music Headphones	Model Name:	RZ12-0111
Temperature:	28 ℃	Relative Humidity:	56 %
Test Power:	DC 3.7V	Phase:	Vertical
Test Mode:	TX 2440MHz -CH19-1Mbps		

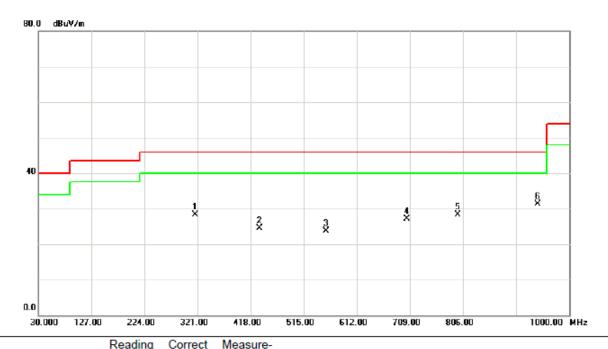


	No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
-			MHz	dBu∀	dB	dBuV/m	dBuV/m	dB	Detector	Comment
-	1		127.0000	37.89	-13.50	24.39	43.50	-19.11	peak	
-	2	*	190.0500	40.52	-14.31	26.21	43.50	-17.29	peak	
-	3		320.0300	31.83	-11.33	20.50	46.00	-25.50	peak	
-	4		452.9200	31.74	-8.99	22.75	46.00	-23.25	peak	
-	5		646.9200	30.95	-5.72	25.23	46.00	-20.77	peak	
-	6		795.3300	31.00	-3.28	27.72	46.00	-18.28	peak	
_										

Report No.: NEI-FICP-2-1308C237 Page 28 of 58



EUT:	Bluetooth Music Headphones	Model Name:	RZ12-0111
Temperature:	<b>28</b> ℃	Relative Humidity:	56 %
Test Power:	DC 3.7V	Phase:	Horizontal
Test Mode:	TX 2440MHz -CH19-1Mbps		

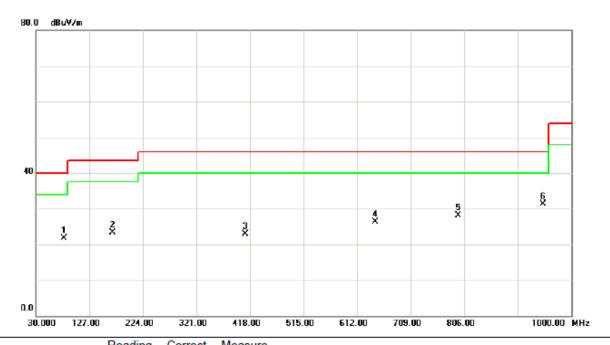


	No.	Mk	. Freq.	Level	Factor	ment	Limit	Over		
_			MHz	dBu∀	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1		316.1500	39.52	-11.31	28.21	46.00	-17.79	peak	
	2		434.4900	33.73	-9.21	24.52	46.00	-21.48	peak	
	3		555.7400	31.38	-7.70	23.68	46.00	-22.32	peak	
	4		703.1800	31.84	-4.81	27.03	46.00	-18.97	peak	
_	5		796.3000	31.47	-3.25	28.22	46.00	-17.78	peak	
	6	*	941.8000	31.93	-0.65	31.28	46.00	-14.72	peak	
_										

Report No.: NEI-FICP-2-1308C237 Page 29 of 58



EUT:	Bluetooth Music Headphones	Model Name:	RZ12-0111
Temperature:	28 ℃	Relative Humidity:	56 %
Test Power:	DC 3.7V	Phase:	Vertical
Test Mode:	TX 2480MHz –CH39-1Mbps		

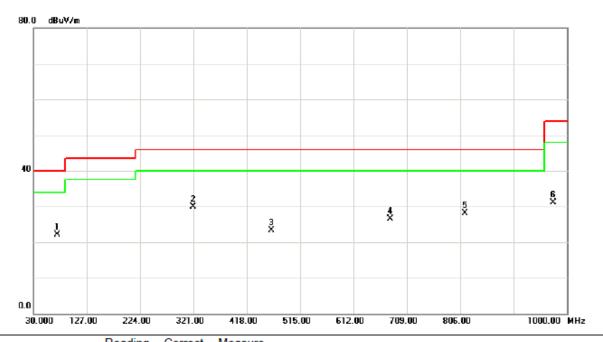


N	o. N	∕lk.	Freq.	Level	Factor	ment	Limit	Over		
			MHz	dBu∀	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1	8	31.4100	39.26	-17.60	21.66	40.00	-18.34	peak	
	2	16	88.7100	36.08	-12.85	23.23	43.50	-20.27	peak	
	3	40	9.2700	32.65	-9.71	22.94	46.00	-23.06	peak	
	4	64	14.9800	32.15	-5.82	26.33	46.00	-19.67	peak	
	5	79	95.3300	31.37	-3.28	28.09	46.00	-17.91	peak	
	6 *	94	18.5900	31.91	-0.54	31.37	46.00	-14.63	peak	

Report No.: NEI-FICP-2-1308C237 Page 30 of 58



EUT:	Bluetooth Music Headphones	Model Name:	RZ12-0111
Temperature:	<b>28</b> ℃	Relative Humidity:	56 %
Test Power:	DC 3.7V	Phase:	Horizontal
Test Mode:	TX 2480MHz –CH39-1Mbps		



	No.	Mk.	Freq.	Reading Level	Factor	Measure- ment	Limit	Over		
-			MHz	dBu∀	dB	dBuV/m	dBuV/m	dB	Detector	Comment
	1		73.6500	38.70	-16.65	22.05	40.00	-17.95	peak	
	2	*	320.0300	41.22	-11.33	29.89	46.00	-16.11	peak	
	3		462.6200	32.62	-9.27	23.35	46.00	-22.65	peak	
	4		678.9300	31.59	-5.12	26.47	46.00	-19.53	peak	
	5		813.7600	31.43	-3.27	28.16	46.00	-17.84	peak	
	6		974.7800	31.33	-0.13	31.20	54.00	-22.80	peak	
_										

Report No.: NEI-FICP-2-1308C237 Page 31 of 58

#### 4.2.8 TEST RESULTS (ABOVE 1000 MHZ)

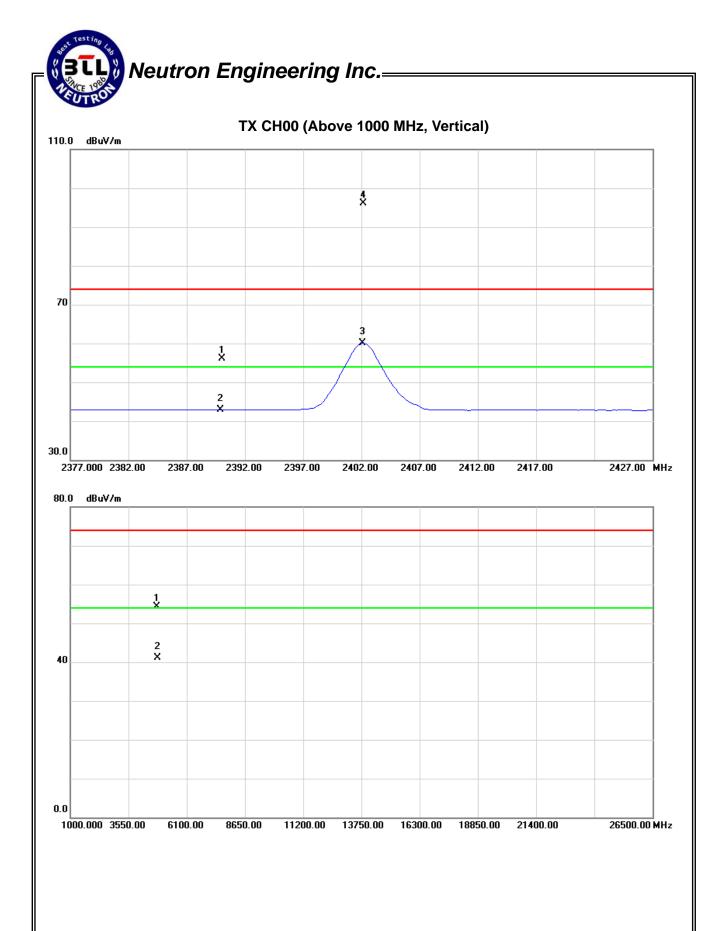
EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	23 ℃	Relative Humidity:	51 %
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX 2402MHz – CH 00-1Mbps		

Eroa	Ant Dol	Reading		Ant./CF	Ant./CF Act.		Lir		
Freq.	Freq. Ant.Pol.		AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	23.74	10.66	32.28	56.02	42.94	74.00	54.00	X/E
2402.13	V	63.83	27.74	32.27	96.10	60.01			X/F
4804.05	V	48.22	34.95	6.11	54.33	41.06	74.00	54.00	X/H

#### Remark:

- (1) All readings are Peak unless otherwise stated QP in column of  ${}^{\mathbb{F}}$ Note ${}_{\mathbb{J}}$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  ${}^{\circ}$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency of 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  $\circ$
- (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

Report No.: NEI-FICP-2-1308C237 Page 32 of 58





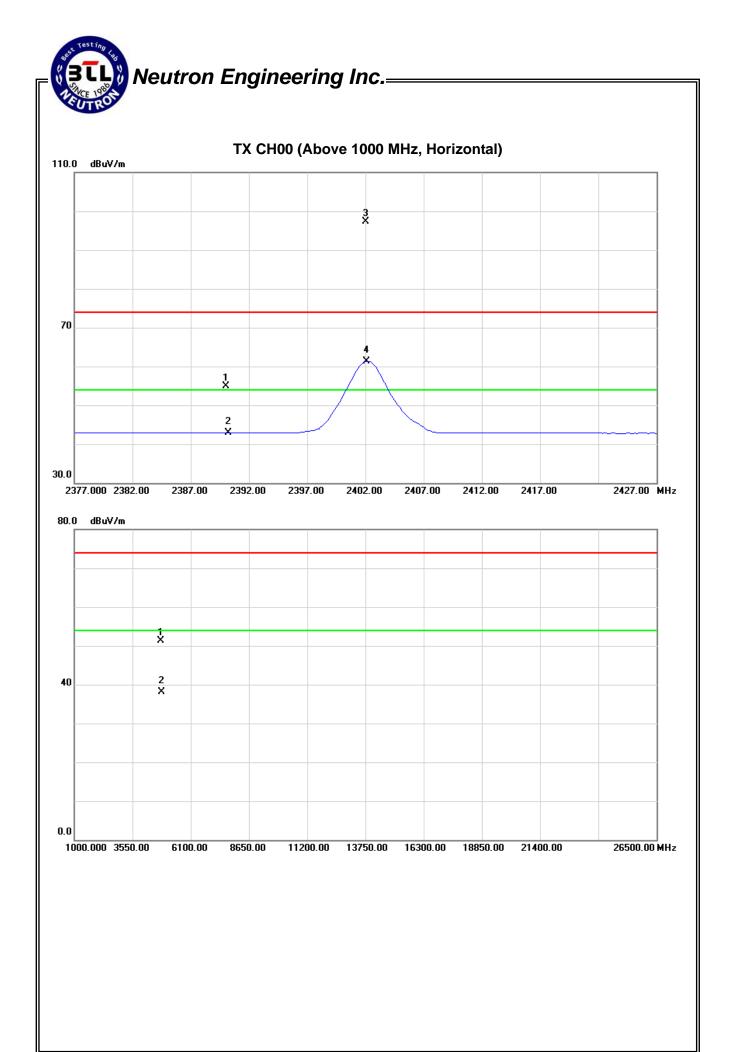
EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	<b>23</b> ℃	Relative Humidity:	51 %
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX 2402MHz – CH 00-1Mbps		

Freq.	Ant.Pol.	Rea	ding	Ant./CF	Ad	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	22.58	10.63	32.28	54.86	42.91	74.00	54.00	X/E	
2402.00	Н	64.96	29.13	32.27	97.23	61.40			X/F	
4804.02	Н	45.12	32.06	6.11	51.23	38.17	74.00	54.00	X/H	

#### Remark:

- (1) All readings are Peak unless otherwise stated QP in column of  $\lceil$ Note $_{
  m J}$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  $_{
  m O}$
- (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

Report No.: NEI-FICP-2-1308C237 Page 34 of 58





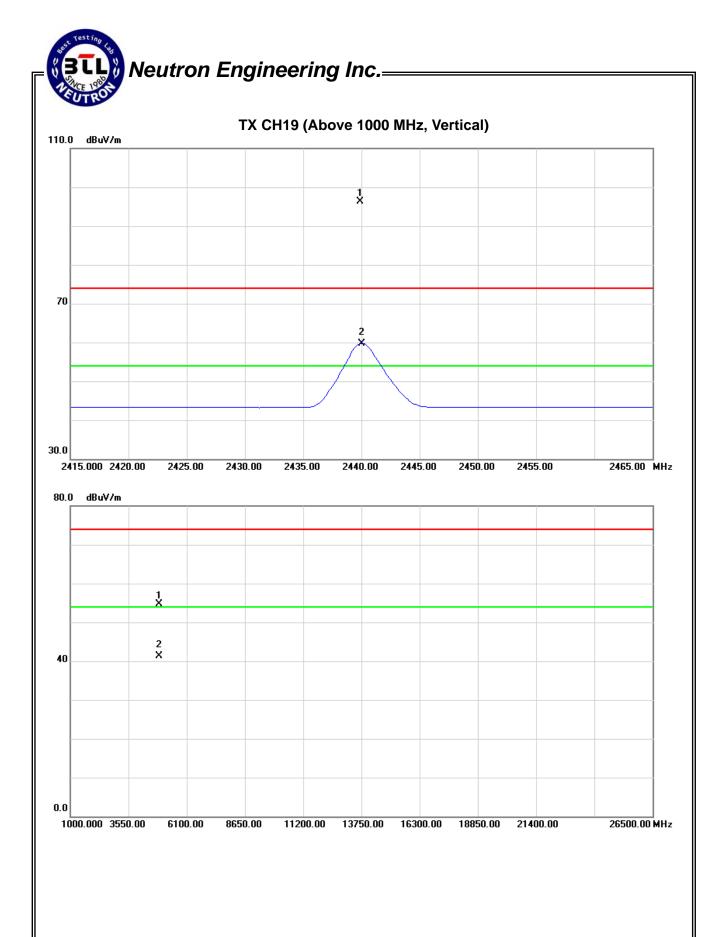
EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	23 ℃	Relative Humidity:	51 %
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX 2440MHz -CH19-1Mbps		

Freq.	Ant.Pol.	Rea	ding	Ant./CF	A	ct.	Lir	mit		
		Peak	AV		Peak	AV	Peak	AV	Note	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)		
2439.88	V	64.02	27.57	32.22	96.24	59.79			X/F	
4880.16	V	48.25	34.87	6.42	54.67	41.29	74.00	54.00	X/H	

#### Remark:

- (1) All readings are Peak unless otherwise stated QP in column of  $\lceil$ Note $_{
  m J}$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  $_{
  m O}$
- (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  $\circ$
- (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

Report No.: NEI-FICP-2-1308C237 Page 36 of 58





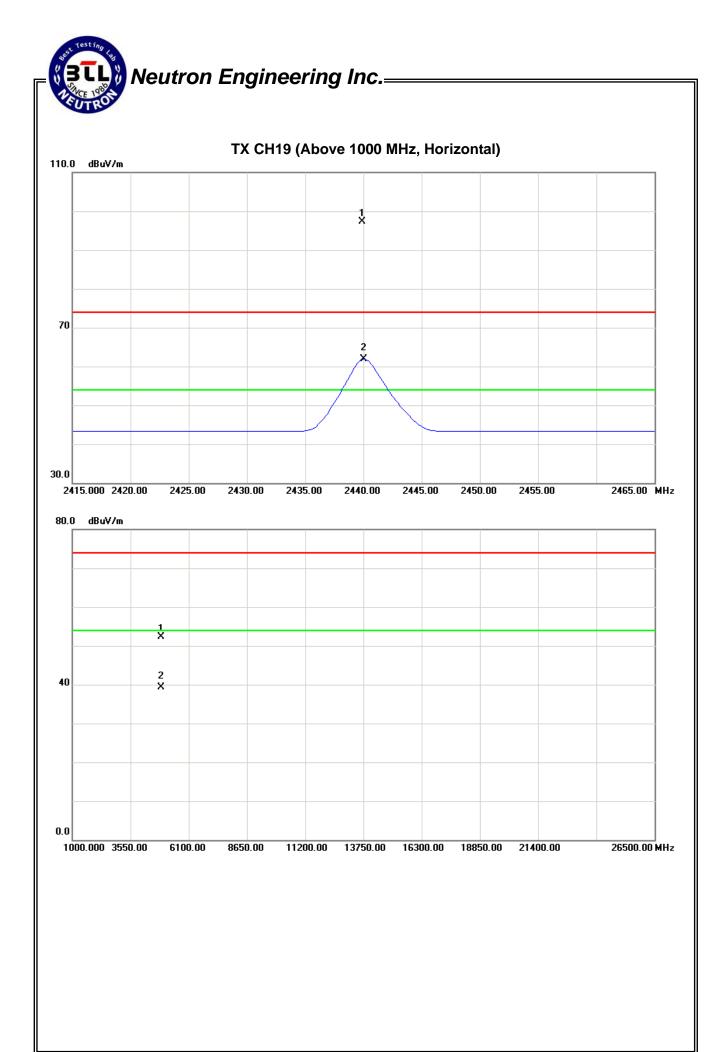
EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	<b>23</b> ℃	Relative Humidity:	51 %
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX 2440MHz -CH19-1Mbps		

Freg. Ant.Pol.		Rea	ding	Ant./CF	A	ct.	Liı	nit	
Freq.	ANILIPOI.	Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2439.88	Н	65.13	29.60	32.22	97.35	61.82			X/F
4880.04	Н	45.85	32.98	6.42	52.27	39.40	74.00	54.00	X/H

# Remark:

- (1) All readings are Peak unless otherwise stated QP in column of  $\lceil$ Note $_{
  m J}$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  $_{
  m O}$
- (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

Report No.: NEI-FICP-2-1308C237 Page 38 of 58





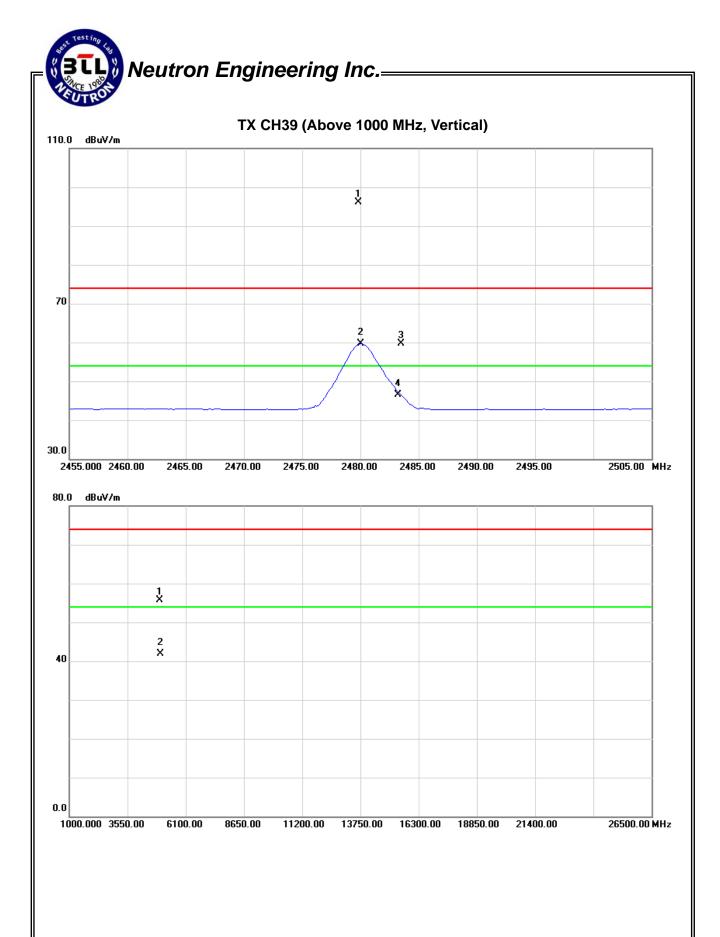
EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	<b>23</b> ℃	Relative Humidity:	51 %
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX 2480MHz –CH39-1Mbps		

Freq.	Ant.Pol.	Reading		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)	
2479.85	٧	63.98	27.46	32.18	96.16	59.64			X/F
2483.50	V	27.55	14.29	32.17	59.72	46.46	74.00	54.00	X/E
4960.02	V	48.99	35.26	6.74	55.73	42.00	74.00	54.00	X/H

## Remark:

- (1) All readings are Peak unless otherwise stated QP in column of  $\lceil$ Note $_{
  m J}$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  $_{
  m O}$
- (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

Report No.: NEI-FICP-2-1308C237 Page 40 of 58





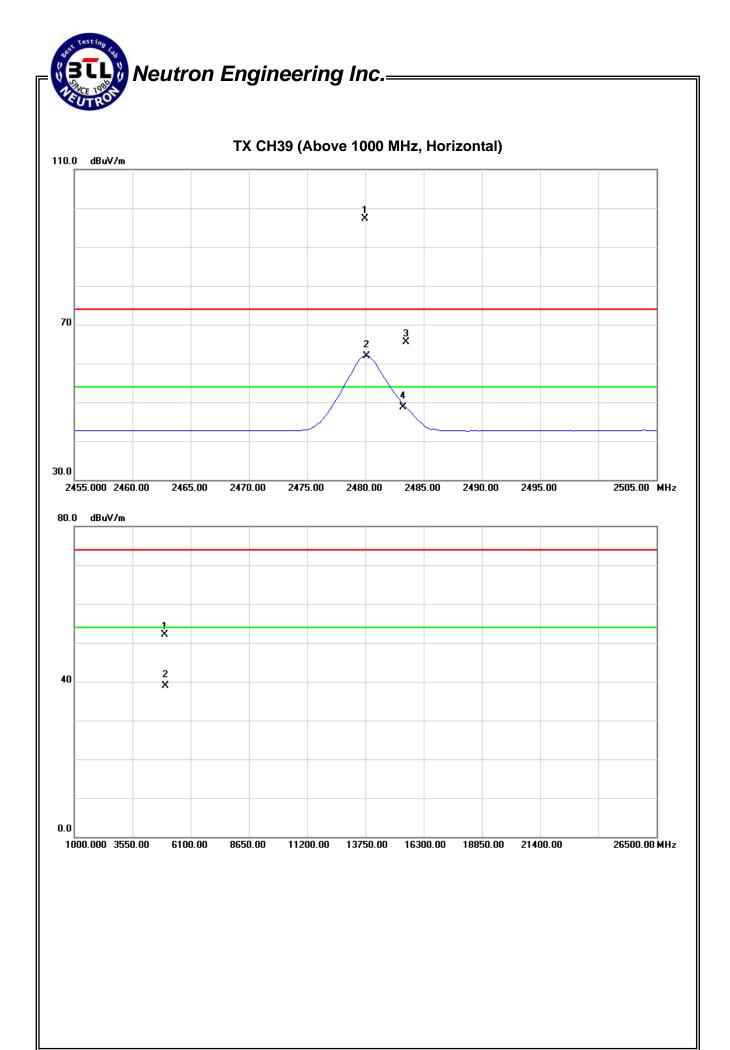
EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	<b>23</b> ℃	Relative Humidity:	51 %
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX 2480MHz -CH39-1Mbps		

Freq.	Ant.Pol.	Reading		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)	
2479.95	Н	65.22	29.81	32.18	97.40	61.99			X/F
2483.50	Н	33.37	16.48	32.17	65.54	48.65	74.00	54.00	X/E
4960.05	Н	45.27	32.09	6.74	52.01	38.83	74.00	54.00	X/H

## Remark:

- (1) All readings are Peak unless otherwise stated QP in column of  $\lceil$ Note $_{
  m J}$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  $_{
  m O}$
- (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

Report No.: NEI-FICP-2-1308C237 Page 42 of 58



# 5. BANDWIDTH TEST

# 5.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C						
Section	Test Item	Limit	Frequency Range (MHz)	Result		
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS		

#### **5.1.1 MEASUREMENT INSTRUMENTS LIST**

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 name, serial no. or calibration specified.

All calibration period of equipment list is one year.

# **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=300KHz, Sweep time = 2.5 ms.

# **5.1.3 DEVIATION FROM STANDARD**

No deviation.

# 5.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

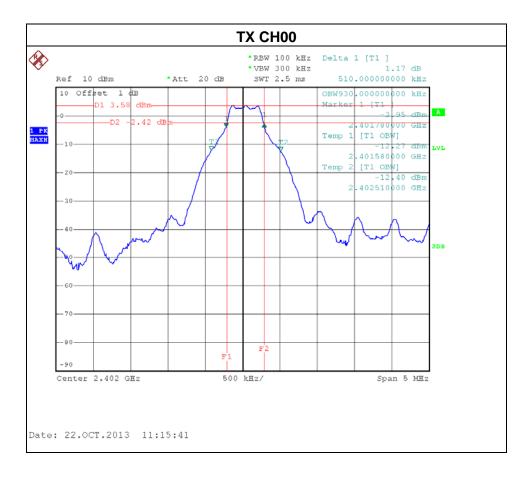
#### **5.1.5 EUT OPERATION CONDITIONS**

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.

Report No.: NEI-FICP-2-1308C237 Page 44 of 58

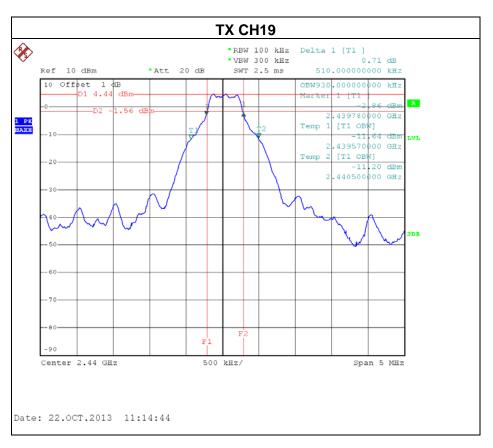
EUT:	Bluetooth Music Headphones	Model Name. :	RZ12-0111
Temperature:	<b>28</b> ℃	Relative Humidity:	60 %
Pressure:	1016 hPa	Test Voltage :	DC 3.7V
Test Mode :	CH00, CH19, CH39 - 1Mbps		

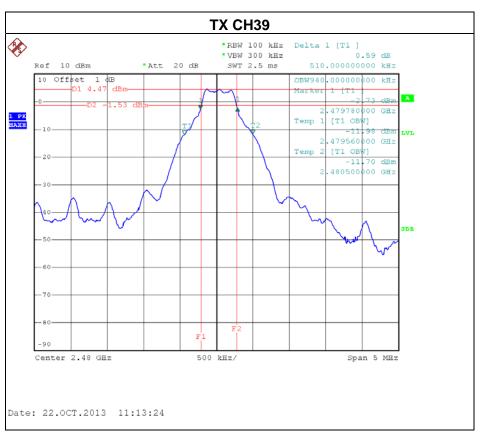
Frequency	6dB Bandwidth (MHz)	99% Occupied Bandwidth (MHz)	LIMIT (MHz)
2402 MHz	0.51	0.93	>=500KHz
2440 MHz	0.51	0.93	>=500KHz
2480 MHz	0.51	0.94	>=500KHz



Report No.: NEI-FICP-2-1308C237 Page 45 of 58







# 6. MAXIMUM OUTPUT POWER TEST

# 6.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C						
Section	Test Item	Limit	Frequency Range (MHz)	Result		
15.247(b)(3)	Maximum Output Power	1 watt or 30dBm	2400-2483.5	PASS		

#### 6.1.1 MEASUREMENT INSTRUMENTS LIST

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 name, serial no. or calibration specified.

All calibration period of equipment list is one year.

#### 6.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the power meter and antenna output port as show in the block diagram below,
- b. The maximum peak conducted output power was performed in accordance with method 9.3.1 of FCC KDB 558074

# **6.1.3 DEVIATION FROM STANDARD**

No deviation.

# 6.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

#### **6.1.5 EUT OPERATION CONDITIONS**

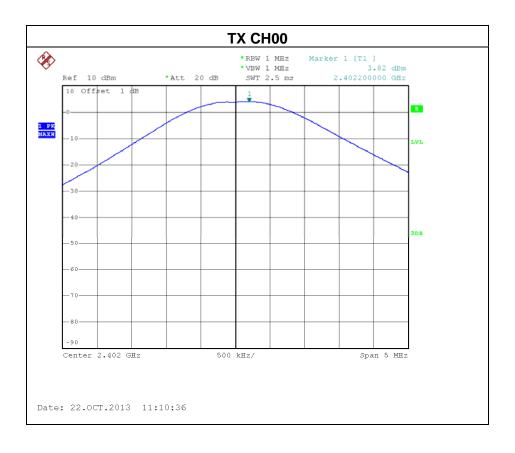
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

Transmit output power was measured while the host equipment supply voltage was varied from 85 % to 115 % of the nominal rated supply voltage. No change in transmit output power was observed.

Report No.: NEI-FICP-2-1308C237 Page 47 of 58

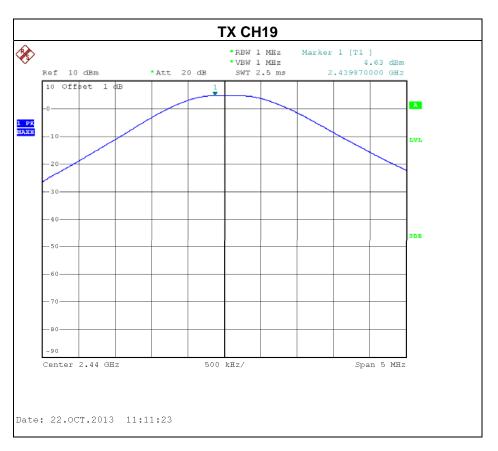
EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	28 ℃	Relative Humidity:	60 %
Pressure:	1016 hPa	Test Voltage :	DC 3.7V
Test Mode :	CH00, CH19, CH39 - 1Mbps		

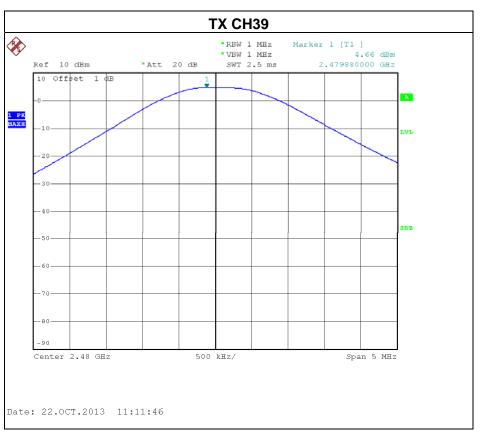
Test Channel	Frequency (MHz)	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH00	2402MHz	3.82	30	1
CH19	2440MHz	4.63	30	1
CH39	2480MHz	4.66	30	1



Report No.: NEI-FICP-2-1308C237 Page 48 of 58







#### 7. ANTENNA CONDUCTED SPURIOUS EMISSION

## 7.1 Applied procedures / limit

30dBc 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
960~1000	500	3

#### 7.1.1 MEASUREMENT INSTRUMENTS LIST

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 name, serial no. or calibration specified.

All calibration period of equipment list is one year.

# 7.1.2 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=300KHz, Sweep time = 10 ms.

#### 7.1.3 DEVIATION FROM STANDARD

No deviation.

# 7.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

# 7.1.5 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.

Report No.: NEI-FICP-2-1308C237 Page 50 of 58

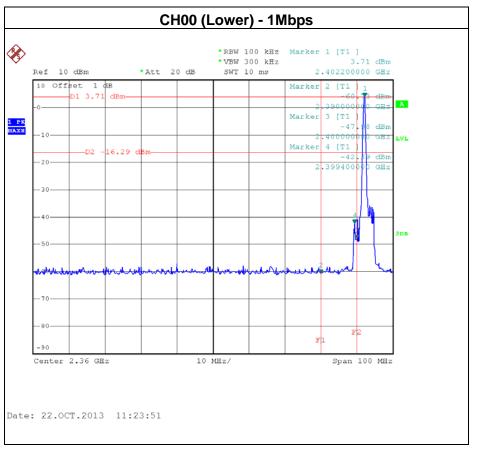
EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	<b>28</b> ℃	Relative Humidity:	60 %
Pressure:	1016 hPa	Test Voltage :	DC 3.7V
Test Mode :	CH00, CH19, CH39 - 1Mbps		

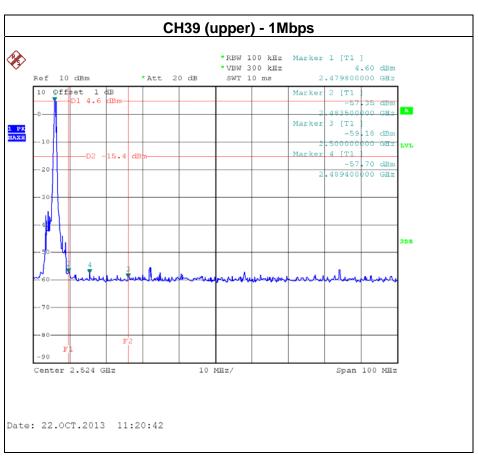
Channel of Worst Data: CH39			
The max. radio frequency power in any 100kHz bandwidth outside the frequency band bandwidth within the frequency band.			
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2399.40	-42.39	2483.50	-57.35
Result			

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.

Report No.: NEI-FICP-2-1308C237 Page 51 of 58

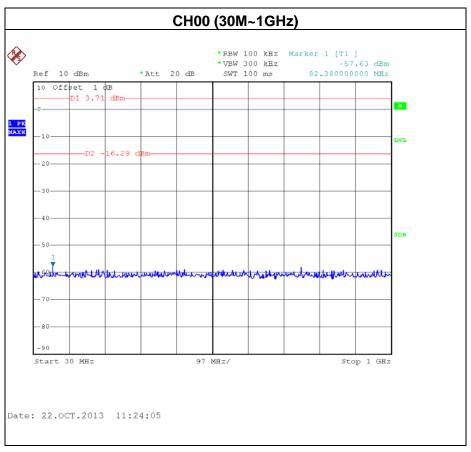


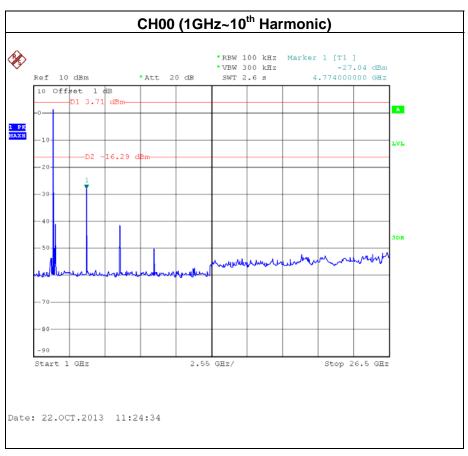




Report No.: NEI-FICP-2-1308C237 Page 52 of 58



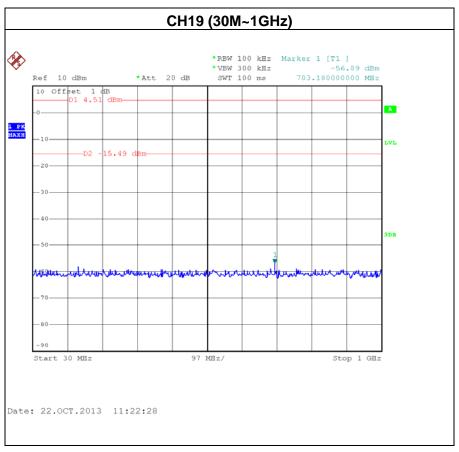


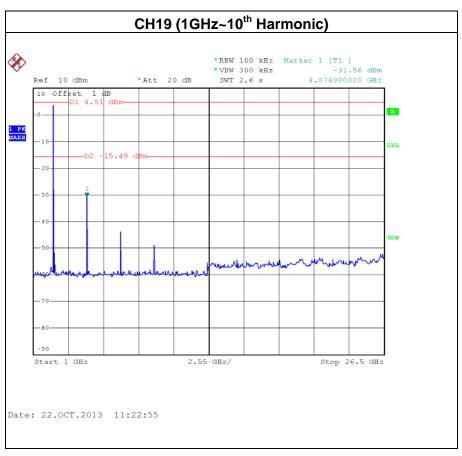


Page 53 of 58

Report No.: NEI-FICP-2-1308C237

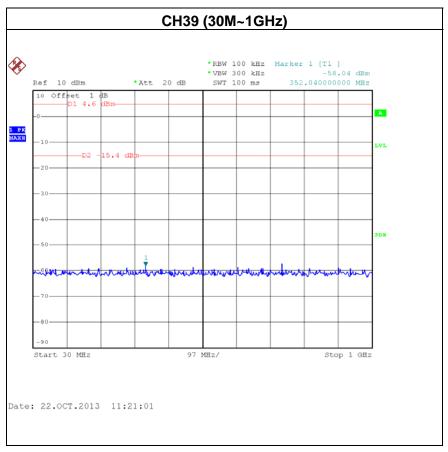


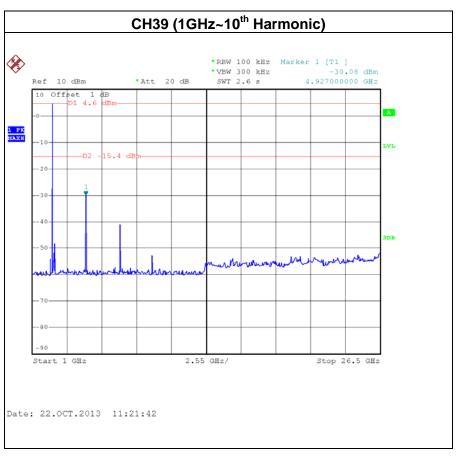




Report No.: NEI-FICP-2-1308C237 Page 54 of 58







Report No.: NEI-FICP-2-1308C237

# 8. POWER SPECTRAL DENSITY TEST

## 8.1 Applied procedures / limit

FCC Part15 (15.247) , Subpart C					
Section	Test Item	Limit	Frequency Range (MHz)	Result	
15.247(e)	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS	

## **8.1.1 MEASUREMENT INSTRUMENTS LIST**

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 name, serial no. or calibration specified.

All calibration period of equipment list is one year.

#### **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=3KHz, VBW=10 KHz, Sweep time = auto.

### 8.1.3 DEVIATION FROM STANDARD

No deviation.

#### 8.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

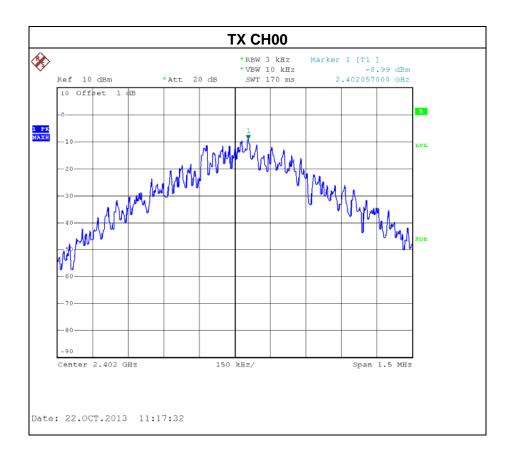
# **8.1.5 EUT OPERATION CONDITIONS**

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.

Report No.: NEI-FICP-2-1308C237 Page 56 of 58

EUT:	Bluetooth Music Headphones	Model Name :	RZ12-0111
Temperature:	28 ℃	Relative Humidity:	60 %
Pressure:	1016 hPa	Test Voltage :	DC 3.7V
Test Mode :	CH00, CH19, CH39 -1Mbps		

Test Channel	Frequency (MHz)	Power Density (dBm)	LIMIT (dBm)
CH00	2402MHz	-8.99	8
CH19	2440MHz	-8.12	8
CH39	2480MHz	-8.21	8



Report No.: NEI-FICP-2-1308C237 Page 57 of 58



