APPLICATION FOR CERTIFICATION

On Behalf of

Merry Electronics Co., Ltd.

Personal Sound Amplifier

Model No. : ME-700R

FCC ID : I55-ME-700R

Brand: MERRY

Prepared for : Merry Electronics Co., Ltd.
No. 22, 23rd. road, Taichung Industrial Park,
Taichung, Taiwan

Prepared by : AUDIX Technology Corporation
EMC Department
No. 53-11, Dingfu, Linkou Dist.,
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File Number	:	C1M1409254
Report Number	:	EM-F140593
Date of Test	:	2014. 10. 01 ~ 06
Date of Report	:	2014. 10. 06

TABLE OF CONTENTS

TEST REPORT CERTIFICATION

Applicant	:	Merry Electronics Co., Ltd.
Manufacturer	:	Merry Electronics Co., Ltd.
EUT Description	:	Personal Sound Amplifier
FCC ID	:	**I55-ME-700R**
	(A) Model No.	: ME-700R
	(B) Serial No.	: N/A
	(C) Brand	: MERRY
	(D) Power Supply	: DC 3.1 ~ 4.2V
	(E) Test Voltage	: (1) AC 120V, 60Hz (Via Switching Power Supply) (2) DC 3.7V (Battery)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C, Oct 2013
(FCC 47 CFR Part 15C, §15.205 and §15.207 and §15.209 and §15.247)
And ANSI C63.4:2003

The device described above was tested by AUDIX Technology Corporation to determine the maximum emission levels emanating from the device. The maximum emission levels were compared to the FCC Part 15 subpart C limits.

The measurement results are contained in this test report and AUDIX Technology Corporation is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliant with the requirements of FCC standard.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX Technology Corporation.

Date of Test: 2014. 10. 01 ~ 06 Date of Report: 2014. 10. 06

Producer: _____
(Tina Huang/Administrator)

Signatory: _____
(Ben Cheng/Manager)

1. DESCRIPTION OF REVISION HISTORY

Edition No.	Date of Revision	Revision Summary	Report Number
0	2014. 10. 06	Original Report.	EM-F140593

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Product	Personal Sound Amplifier
Model Number	ME-700R
Serial Number	N/A
Brand Name	MERRY
Applicant	Merry Electronics Co., Ltd. No. 22, 23rd. road, Taichung Industrial Park, Taichung, Taiwan
Manufacturer	Merry Electronics Co., Ltd. No. 22, 23rd. road, Taichung Industrial Park, Taichung, Taiwan
FCC ID	I55-ME-700R
Fundamental Range	2402MHz ~ 2480MHz
Frequency Channel	40 channels
Radio Technology	GFSK
Data Transfer Rate	1Mbps
Antenna Type	Multi-layers Chip Antenna, 2.44dBi
Switching Power Supply	Sunny, M/N: SYS1460-0805 Input: 100-240V~, 1.0A, 50-60Hz, Output: DC 5V, 1.6A
USB Y Cable	Shielded, Detachable, 0.75m
USB Cable	Shielded, Detachable, 0.3m
Earphone	Non-Shielded, Detachable, 0.7m
Date of Receipt of Sample	2014. 09. 24
Date of Test	2014. 10. 01 ~ 06

2.2. Tested Supporting System Details

2.2.1. Support Peripheral Unit

No.	Product	Brand	Model No.	Serial No.	FCC ID
1.	Power Socket	N/A	N/A	N/A	N/A
2.	Notebook PC	DELL	P20G	P20G001	By DoC

2.2.2. Cable Lists

Cable Description Of The Above Support Units	
1.	AC Power Code: Non-Shielded, Detachable, 1.8m
2.	AC Adapter ACBEL, M/N AA90PM111 Power Cord：I/P: Non-Shielded, Detachable, 1.8m O/P: Shielded, Undetachable, 1.8m, Bonded a ferrite core

2.3. Description of Test Facility

Name of Firm	:	**AUDIX Technology Corporation** **EMC Department** No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan
Test Location & Facility (C7/AC)	:	**No. 7 Shielded Room** **Semi-Anechoic Chamber** No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan May 11, 2012 File on Federal Communication Commission Registration Number: 90993
NVLAP Lab. Code	:	200077-0
TAF Accreditation No	:	1724

2.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty
Conduction Test	150kHz~30MHz	±3.43dB
Radiation Test (Distance: 3m)	30MHz~300MHz	± 2.91dB
	300MHz~1000MHz	± 2.74dB
	Above 1GHz	± 5.02dB

Remark：Uncertainty = $ku_c(y)$

Test Item	Uncertainty
6dB Bandwidth	± 0.05kHz
Maximum peak output power	± 0.33dBm
Emission Limitations	± 0.13dB
Band edges	± 0.13dB
Power spectral density	± 0.13dB

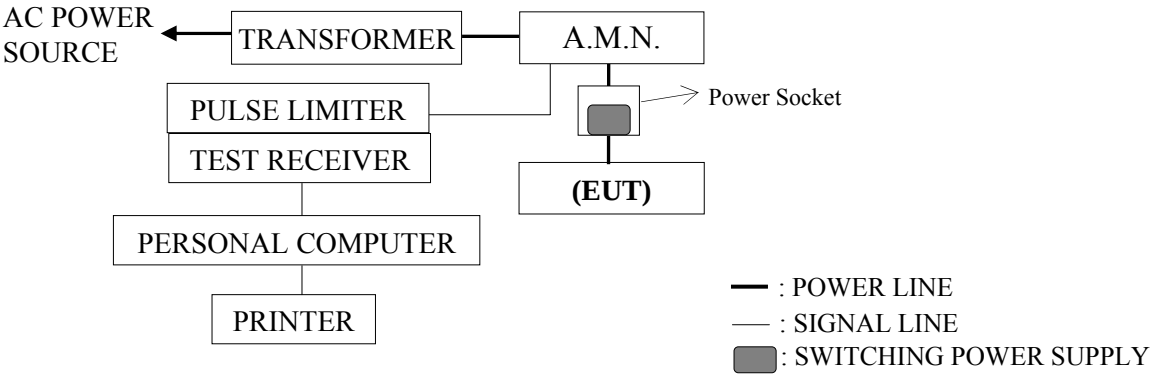
3. CONDUCTED EMISSION MEASUREMET

3.1. Test Equipment

The following test equipment was used during the conducted emission measurement：(No. 7 Shielded Room)

Item	Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Interval
1.	Test Receiver	R&S	ESCI	101276	2014. 04. 14	1 Year
2.	A.M.N.	R&S	ENV4200	100169	2014. 05. 06	1 Year
3.	Pulse Limiter	R&S	ESH3-Z2	101495	2014. 01. 18	1 Year

3.2. Block Diagram of Test Setup



EUT: PERSONAL SOUND AMPLIFIER

3.3. Powerline Conducted Emission Limit (§15.207)

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level	Average Level
150kHz ~ 500kHz	66 ~ 56 dBμV	56 ~ 46 dBμV
500kHz ~ 5MHz	56 dBμV	46 dBμV
5MHz ~ 30MHz	60 dBμV	50 dBμV

Remark 1.: If the average limit is met when using a Quasi-Peak detector, the EUT shall be deemed to meet both limits and measurement with the average detector is unnecessary.
2.: The lower limit applies at the band edges.

3.4. Operating Condition of EUT

3.4.1. Setup the EUT and simulator as shown on 3.2.

3.4.2. Turn on the power of all equipment.

3.4.3. Set to EUT (Personal Sound Amplifier) on Charging during all testing.

3.5. Test Procedure

The EUT link to Switching Power Supply was placed on the table which was above the ground by 80cm and Switching Power Supply's power cord connected to the AC mains through an Artificial Mains Network (A.M.N.). This provided a 50 ohm coupling impedance for the measuring equipment. (Please refer to the block diagram of the test setup and photographs.)
Both sides of A.C. line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions simulators of the interface cables should be manipulated according to ANSI C63.4-2003 regulation during conducted measurement.

The bandwidth of the R&S Test Receiver ESCI was set at 9kHz.

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

All the final readings from Test Receiver were measured with the Quasi-Peak detector and Average detector. Remark: If the Average limit is met when using a Quasi-Peak detector, the Average detector is unnecessary)

3.6. Conducted Emission Measurement Results

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

EUT was performed during this section testing and all the test results are attached in next pages.

EUT：Personal Sound Amplifier M/N：ME-700R

Test Date：2014. 10. 06 Temperature：25℃ Humidity：52%

The details are as follows：

Mode	Test Mode	Reference Test Data	
		Neutral	Line
1.	Charge	# 2	# 1

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No.53-11, Dingfu, Linkou Dist.,New Taipei City
244, Taiwan R.O.C.
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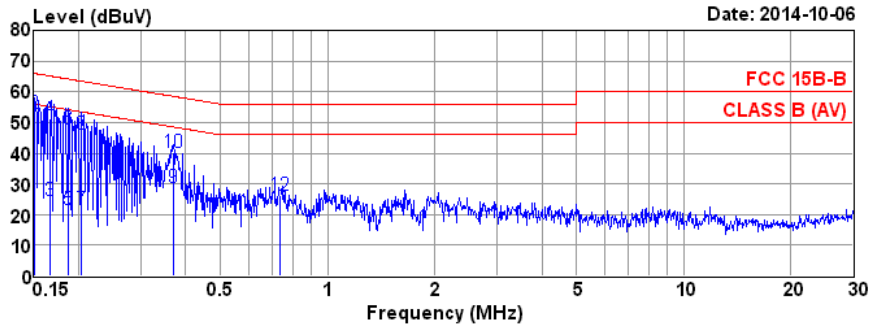
Email:emc@audixtech.com

Data: 2 File: D:\test data\REPORT\2014\C1M1409XXX\C1M1409254-C-D(rf).EM6 (4)



Site no. : No.7 Shielded Room Data no. : 2
Condition : ENV4200 100169 LISN Phase : NEUTRAL
Limit : FCC 15B-B
Env. / Ins. : 25*C / 52% ESCI (1276) Engineer : John
EUT : ME-700R
Power Rating : 120Vac/60Hz
Test Mode : CHARGE

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Emission Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.151	10.67	0.02	9.85	6.50	27.04	55.96	28.92	Average
2	0.151	10.67	0.02	9.85	32.26	52.80	65.96	13.16	QP
3	0.167	10.64	0.02	9.85	4.23	24.74	55.12	30.38	Average
4	0.167	10.64	0.02	9.85	30.82	51.33	65.12	13.79	QP
5	0.187	10.61	0.03	9.85	1.05	21.54	54.15	32.61	Average
6	0.187	10.61	0.03	9.85	27.56	48.05	64.15	16.10	QP
7	0.204	10.59	0.03	9.85	1.33	21.80	53.45	31.65	Average
8	0.204	10.59	0.03	9.85	25.71	46.18	63.45	17.27	QP
9	0.369	10.48	0.03	9.86	8.31	28.68	48.52	19.84	Average
10	0.369	10.48	0.03	9.86	19.80	40.17	58.52	18.35	QP
11	0.735	10.46	0.04	9.85	1.52	21.87	46.00	24.13	Average
12	0.735	10.46	0.04	9.85	5.74	26.09	56.00	29.91	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
2. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

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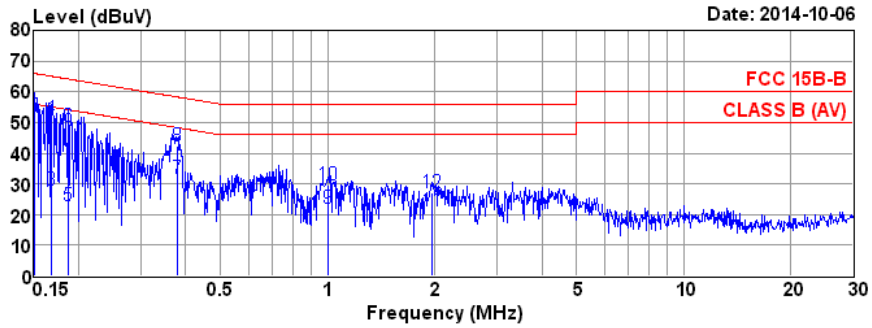
Data: 1 File: D:\test data\REPORT\2014\C1M1409XXX\C1M1409254-C-D(rf).EM6 (4)



Site no. : No.7 Shielded Room Data no. : 1
Condition : ENV4200 100169 LISN Phase : LINE
Limit : FCC 15B-B
Env. / Ins. : 25*C / 52% ESCI (1276) Engineer : John
EUT : ME-700R
Power Rating : 120Vac/60Hz
Test Mode : CHARGE

	Freq. (MHz)	AMN Factor (dB)	Cable Loss (dB)	Pulse Att. (dB)	Emission Reading (dBµV)	Emission Level (dBµV)	Limits (dBµV)	Margin (dB)	Remark
1	0.151	10.66	0.02	9.85	6.03	26.56	55.96	29.40	Average
2	0.151	10.66	0.02	9.85	31.72	52.25	65.96	13.71	QP
3	0.168	10.64	0.02	9.85	7.32	27.83	55.08	27.25	Average
4	0.168	10.64	0.02	9.85	30.77	51.28	65.08	13.80	QP
5	0.186	10.61	0.03	9.85	2.29	22.78	54.20	31.42	Average
6	0.186	10.61	0.03	9.85	28.13	48.62	64.20	15.58	QP
7	0.379	10.49	0.03	9.86	11.26	31.64	48.30	16.66	Average
8	0.379	10.49	0.03	9.86	22.04	42.42	58.30	15.88	QP
9	1.005	10.46	0.04	9.85	1.50	21.85	46.00	24.15	Average
10	1.005	10.46	0.04	9.85	9.51	29.86	56.00	26.14	QP
11	1.970	10.50	0.06	9.86	0.73	21.15	46.00	24.85	Average
12	1.970	10.50	0.06	9.86	6.59	27.01	56.00	28.99	QP

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.
2. If the average limit is met when useing a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

4. RADIATED EMISSION MEASUREMENT

4.1. Test Equipment

The following test equipment was used during the radiated emission measurement:

4.1.1. For Frequency Range 30MHz~1000MHz (at Semi-Anechoic Chamber)

Item	Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2014. 09. 15	1 Year
2.	Test Receiver	R & S	ESCS30	100338	2014. 06. 24	1 Year
3.	Amplifier	HP	8447D	2944A06305	2014. 02. 18	1 Year
4.	Bilog Antenna	CHASE	CBL6112D	33821	2014. 08. 02	1 Year

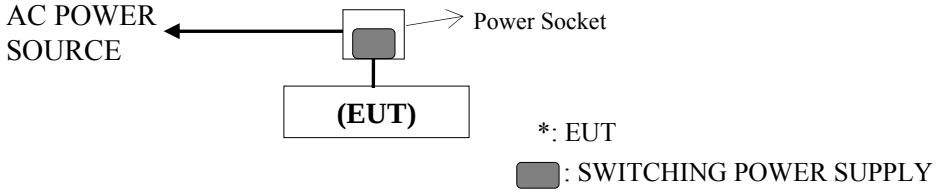
4.1.2. For Frequency Above 1GHz (at Semi-Anechoic Chamber)

Item	Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9010A-526	MY53400071	2014. 09. 15	1 Year
2.	Test Receiver	R & S	ESCS30	100338	2014. 06. 24	1 Year
3.	Amplifier	HP	8447D	2944A06305	2014. 02. 18	1 Year
4.	2.4GHz Notch Filter	K&L	7NSL10-2441. 5E130.5-00	1	2014. 06. 12	1 Year
5.	3G High Pass Filter	Microware Circuits	H3G018G1	484796	2014. 06. 12	1 Year
6.	Horn Antenna	EMCO	3115	9609-4927	2014. 06. 16	1 Year
7.	Horn Antenna	EMCO	3116	2653	2014. 10. 10	1 Year

4.2. Test Setup

4.2.1. Block Diagram of connection between EUT and simulators

[Charge Mode]

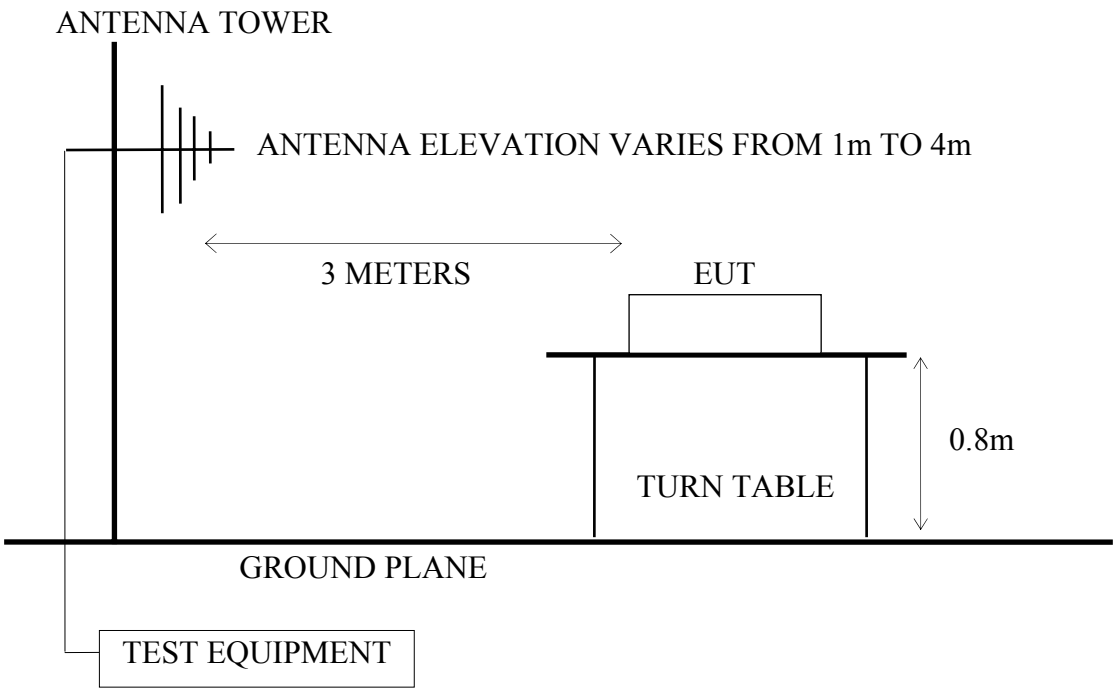


EUT: PERSONAL SOUND AMPLIFIER

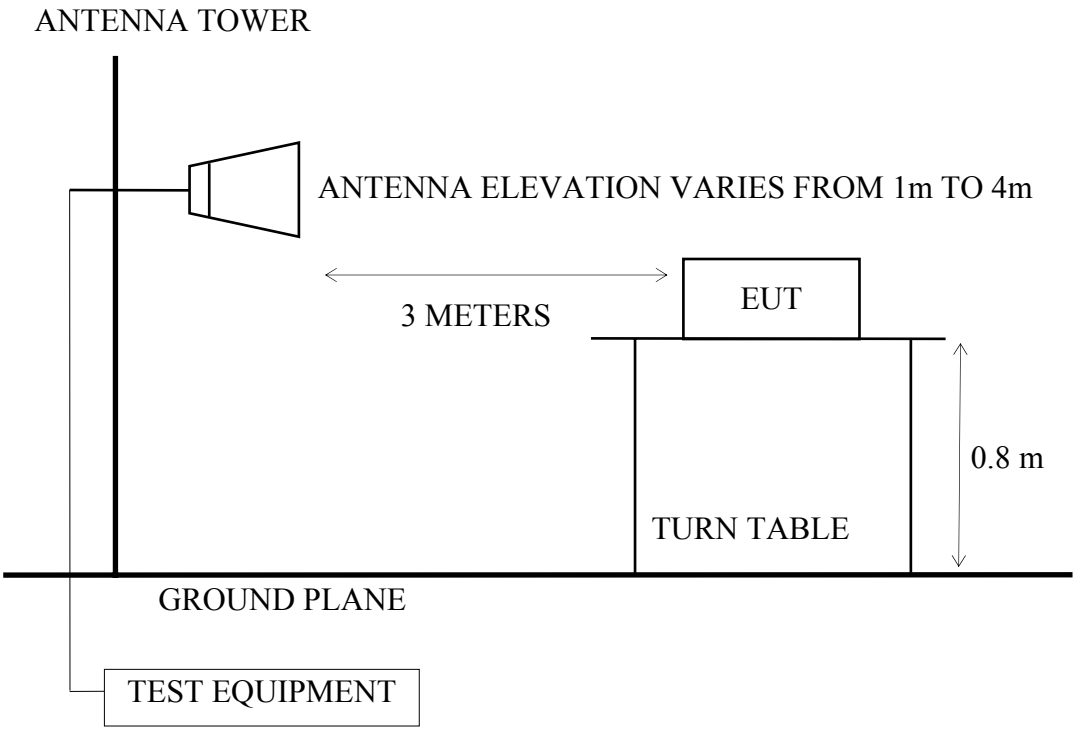
[Stand-Alone Transmit Mode]

EUT: PERSONAL SOUND AMPLIFIER

4.2.2. Semi-Anechoic Chamber (3m) Setup Diagram for 30-1000MHz



4.2.3. Semi-Anechoic Chamber (3m) Setup Diagram for above 1GHz



4.3. Radiated Emission Limits (§15.209)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMITS	
		μV/m	dBμV/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
Above 1000	3	74.0 dBμV/m (Peak) 54.0 dBμV/m (Average)	

Remark：(1) Emission level (dBμV/m) = 20 log Emission level (μV/m)
(2) The tighter limit applies at the edge between two frequency bands.
(3) Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
(4) The limits in this table are based on CFR 47 Part 15.205(a)(b) and Part 15.209 (a).
(5) The over 1GHz limit, FCC limit is used based on CFR 47 Part 15.35(b) and Part 15.205(b) & Part 15.209(e) and Part 15.207(c).

4.4. Operating Condition of EUT

4.4.1. Set up the EUT (**Personal Sound Amplifier**) as shown on 4.2.

4.4.2. To turn on the power of all equipment.

4.4.3. Charge mode: The Personal Sound Amplifier (EUT) charging with Switching Power Supply via the USB cable.

4.4.4. TX Mode: The test program “Blue Test” was used to enable the EUT to transmit data at different channel frequency individually.

4.4.5. The EUT set to continuously transmit signals at 2402MHz, 2440MHz and 2480MHz during all test time.

4.5. Test Procedure

The EUT and its simulators were placed on a turn table which was 0.8 meter above the ground. The turn table rotated 360 degrees to determine the position of the maximum emission level. EUT was set 3 meters away from the receiving antenna which was mounted on an antenna tower. The antenna could be moved up and down between 1 to 4 meters to find out the maximum emission level. Broadband antennas such as calibrated biconical and log-periodical antenna or horn antenna were used as a receiving antenna. Both horizontal and vertical polarization of the antenna were set on measurement. In order to find the maximum emission, all of the interface cables were manipulated according to FCC ANSI C63.4-2003 regulation.

The bandwidth of the R&S Test Receiver ESCS30 was set at 120kHz. (For 30MHz to 1000MHz)

The resolution bandwidth and video bandwidth of test spectrum analyzer is 1MHz for peak detection (PK) at frequency above 1GHz.

The resolution bandwidth of test spectrum analyzer is 1MHz and the video bandwidth is 10Hz for average detection (AV) at frequency above 1GHz.

The frequency range from 30MHz to 25GHz (Up to 10^{th} harmonics from fundamental frequency) was checked. 30MHz to 1000MHz was measured with Quasi-Peak detector.

Pursuant to ANSI 63.4: 4.2, peak detector is an alternate option for frequency from 30MHz to 1000MHz.

Above 1GHz was measured with peak and average detector. For frequency from 1000Hz o 25000Hz, we checked it in 1 meter distance and with a shorter cable 2 meter instead of original's. There is no signal exist.

Pursuant to ANSI C63.4 8.3.1.2, when peak value complies with the average limit, we didn't perform measurement in average detector.

4.6. Test Results

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

EUT: Personal Sound Amplifier M/N: ME-700R

Test Date: 2014. 10. 01 Temperature: 26℃ Humidity: 43%

For Frequency Range 30MHz~1000MHz:
The EUT emitted the fundamental frequency with data code at the stand, side and lying conditions.

The EUT select **worst position "stand"** and with following test modes was performed during this section testing and all the test results are listed in section 4.6.1.

No	Test Mode	Channel	Frequency	Test Mode	Reference Test Data No.	
					Horizontal	Vertical
1.	---	---	---	Charge	# 10	# 5
2.	BLE	CH 0	2402MHz	Transmit	# 6	# 1
3.		CH 19	2440MHz		# 7	# 2
4.		CH 39	2480MHz		# 8	# 3

* Above all final readings were measured with Peak detector.

Frequency above 1GHz:
The emissions (up to 25GHz) not reported are too low to be measured.

For Restricted Bands:

The EUT select **worst position "stand "** and with following test modes was performed during this section testing and all the test results are listed in section 4.6.2.

No	Test Mode	Channel	Frequency	Test Mode	Reference Test Data No.	
					Horizontal	Vertical
1.	BLE	CH 0	2402MHz	Transmit	# 1, # 2	# 3, # 4
2.		CH 39	2480MHz		# 5, # 6	# 7, # 8

4.6.1. For 30-1000MHz Frequency Range Measurement Results

Charge Mode

Site no. : Audix NO.1 Chamber Data no. : 10
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : HORIZONTAL
Limit : 30M-1G
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 5V
Test Mode : Charge

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	169.68	9.51	3.76	14.68	27.95	43.50	15.55	Peak
2	290.93	13.00	4.60	15.34	32.94	46.00	13.06	Peak
3	487.84	16.80	6.35	8.64	31.79	46.00	14.21	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Site no. : Audix NO.1 Chamber Data no. : 5
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : VERTICAL
Limit : 30M-1G
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 5V
Test Mode : Charge

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	31.94	17.52	2.37	8.60	28.49	40.00	11.51	Peak
2	297.72	13.09	4.64	12.85	30.58	46.00	15.42	Peak
3	487.84	16.80	6.35	10.74	33.89	46.00	12.11	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

BLE, Transmit, Frequency: 2402MHz

Site no. : Audix NO.1 Chamber Data no. : 6
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : HORIZONTAL
Limit : 30M-1G
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2402MHz_BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	31.94	17.52	2.37	0.57	20.46	40.00	19.54	Peak
2	291.90	13.02	4.61	14.93	32.56	46.00	13.44	Peak
3	395.69	15.47	5.62	8.59	29.68	46.00	16.32	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Site no. : Audix NO.1 Chamber Data no. : 1
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : VERTICAL
Limit : 30M-1G
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2402MHz_BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	31.94	17.52	2.37	8.54	28.43	40.00	11.57	Peak
2	281.23	12.86	4.54	15.34	32.74	46.00	13.26	Peak
3	480.08	16.71	6.30	10.62	33.63	46.00	12.37	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

BLE, Transmit, Frequency: 2440MHz

Site no. : Audix NO.1 Chamber Data no. : 7
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : HORIZONTAL
Limit : 30M-1G
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2440MHz_BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	31.94	17.52	2.37	1.25	21.14	40.00	18.86	Peak
2	290.93	13.00	4.60	13.19	30.79	46.00	15.21	Peak
3	934.04	20.77	7.75	2.07	30.59	46.00	15.41	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Site no. : Audix NO.1 Chamber Data no. : 2
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : VERTICAL
Limit : 30M-1G
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2440MHz_BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	31.94	17.52	2.37	9.33	29.22	40.00	10.78	Peak
2	288.99	12.98	4.59	8.13	25.70	46.00	20.30	Peak
3	487.84	16.80	6.35	9.90	33.05	46.00	12.95	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

BLE, Transmit, Frequency: 2480MHz

Site no. : Audix NO.1 Chamber Data no. : 8
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : HORIZONTAL
Limit : 30M-1G
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2480MHz_BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	93.05	9.67	3.17	8.65	21.49	43.50	22.01	Peak
2	220.12	10.59	4.13	13.43	28.15	46.00	17.85	Peak
3	297.72	13.09	4.64	13.08	30.81	46.00	15.19	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

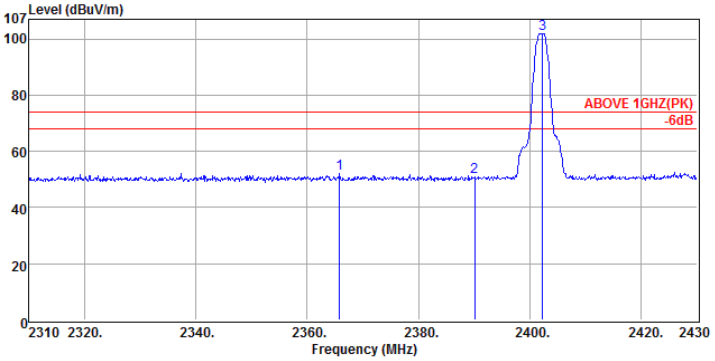
Site no. : Audix NO.1 Chamber Data no. : 3
Dis. / Ant. : 3m CBL6112D 33821 Ant. pol. : VERTICAL
Limit : 30M-1G
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2480MHz_BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	31.94	17.52	2.37	8.77	28.66	40.00	11.34	Peak
2	287.05	12.95	4.58	13.07	30.60	46.00	15.40	Peak
3	487.84	16.80	6.35	10.73	33.88	46.00	12.12	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

4.6.2. Restricted Bands Measurement Results

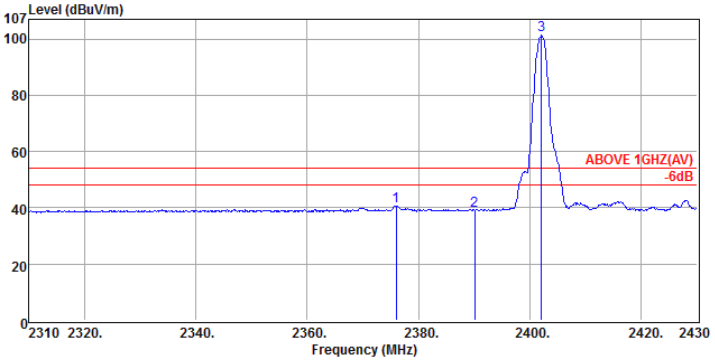
Date of Test：	2014. 10. 01	Temperature：	26℃
EUT：	Personal Sound Amplifier	Humidity：	43%
Test Mode：	**BLE, Transmit, Channel 0, Frequency: 2402MHz**		



Site no. : Audix NO.1 Chamber
Dis. / Ant. : 3m 3115(4927)
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 26*C / 43% N9010A
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2402MHz_BLE
Data no. : 1
Ant. pol. : HORIZONTAL
Engineer : Jerome_Chang

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2385.80	28.18	5.20	18.71	52.09	74.00	21.91	Peak
2	2390.04	28.20	5.24	17.29	50.73	74.00	23.27	Peak
3	2402.28	28.21	5.26	68.55	102.02	74.00	-28.02	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber
Dis. / Ant. : 3m 3115(4927)
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 26*C / 43% N9010A
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2402MHz_BLE
Data no. : 2
Ant. pol. : HORIZONTAL
Engineer : Jerome_Chang

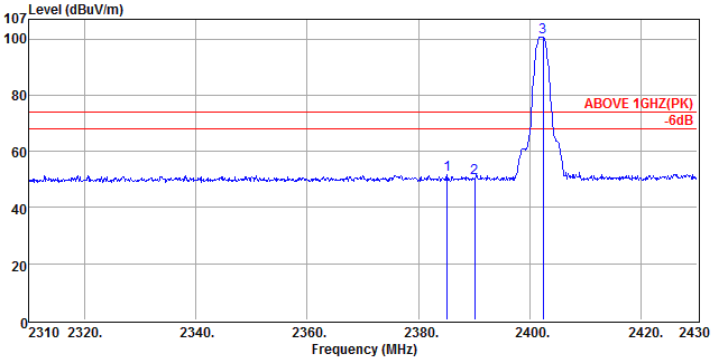
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2376.00	28.18	5.22	7.28	40.68	54.00	13.32	Average
2	2390.04	28.20	5.24	5.65	39.09	54.00	14.91	Average
3	2402.04	28.21	5.26	67.81	101.28	54.00	-47.28	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： 2014. 10. 01 Temperature： 26℃

EUT： Personal Sound Amplifier Humidity： 43%

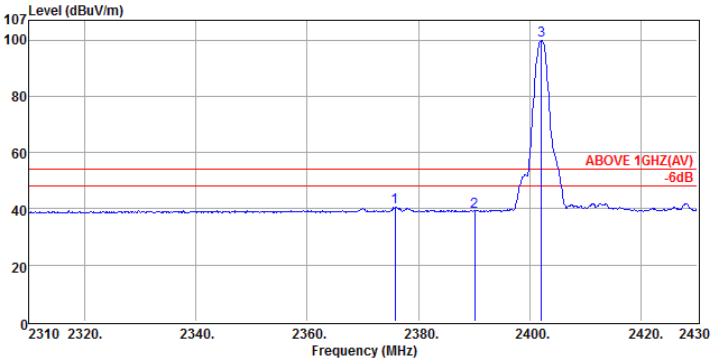
Test Mode： **BLE, Transmit, Channel 0, Frequency: 2402MHz**



Site no. : Audix NO.1 Chamber Data no. : 3
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2402MHz_BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2385.12	28.20	5.23	18.09	51.52	74.00	22.48	Peak
2	2390.04	28.20	5.24	17.14	50.58	74.00	23.42	Peak
3	2402.40	28.21	5.26	67.11	100.58	74.00	-26.58	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

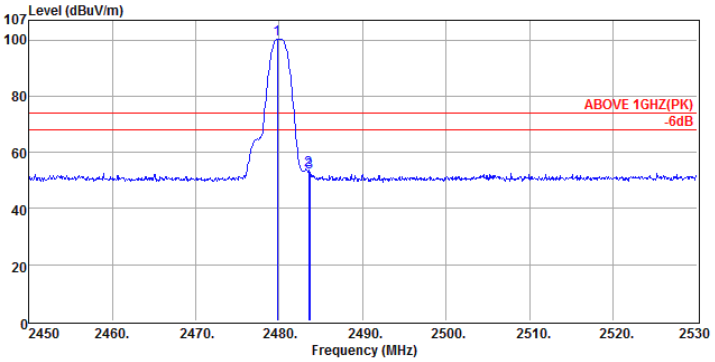


Site no. : Audix NO.1 Chamber Data no. : 4
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2402MHz_BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2375.76	28.18	5.22	7.21	40.61	54.00	13.39	Average
2	2390.04	28.20	5.24	5.69	39.13	54.00	14.87	Average
3	2402.04	28.21	5.26	66.54	100.01	54.00	-46.01	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test：	2014. 10. 01	Temperature：	26℃
EUT：	Personal Sound Amplifier	Humidity：	43%
Test Mode：	**BLE, Transmit, Channel 39, Frequency: 2480MHz**		

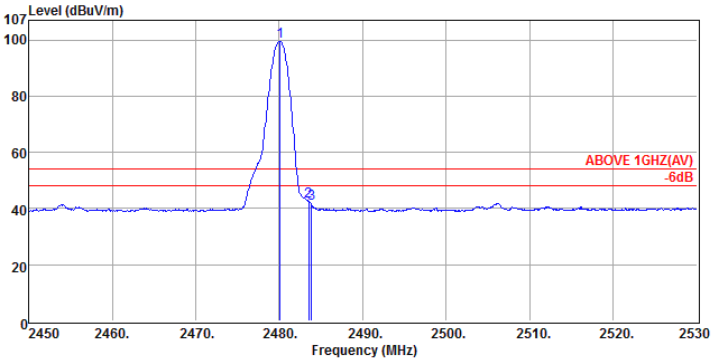


Site no. : Audix NO.1 Chamber
Dis. / Ant. : 3m 3115(4927)
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 26*C / 43% N9010A
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2480MHz_BLE

Data no. : 5
Ant. pol. : HORIZONTAL
Engineer : Jerome_Chang

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2479.76	28.28	5.36	66.75	100.39	74.00	-26.39	Peak
2	2483.52	28.29	5.37	20.00	53.66	74.00	20.34	Peak
3	2483.68	28.29	5.37	19.21	52.87	74.00	21.13	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber
Dis. / Ant. : 3m 3115(4927)
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 26*C / 43% N9010A
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2480MHz_BLE

Data no. : 6
Ant. pol. : HORIZONTAL
Engineer : Jerome_Chang

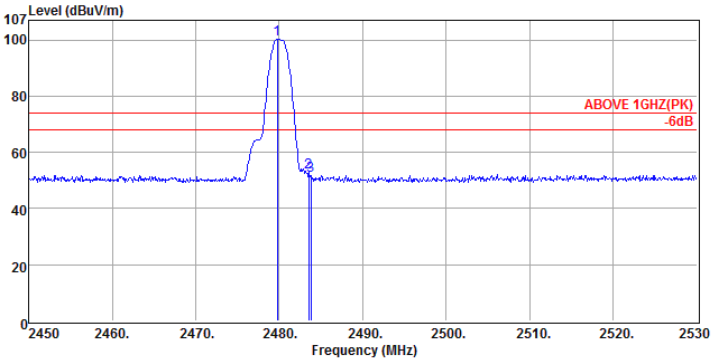
	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2480.08	28.28	5.36	65.94	99.58	54.00	-45.58	Average
2	2483.52	28.29	5.37	9.06	42.72	54.00	11.28	Average
3	2483.84	28.29	5.37	7.99	41.65	54.00	12.35	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

Date of Test： 2014. 10. 01 Temperature： 26℃

EUT： Personal Sound Amplifier Humidity： 43%

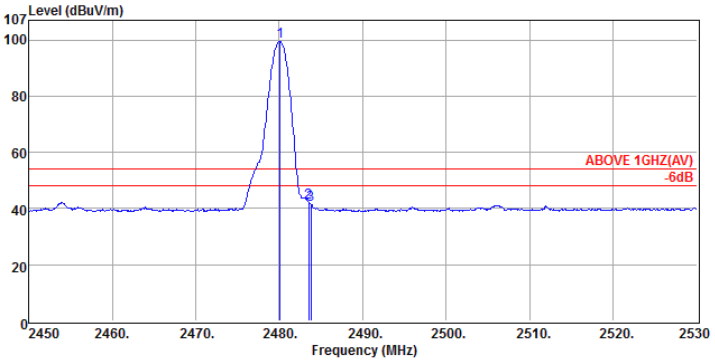
Test Mode： **BLE, Transmit, Channel 39, Frequency: 2480MHz**



Site no. : Audix NO.1 Chamber Data no. : 7
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(PK)
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2480MHz_BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2479.76	28.28	5.36	66.64	100.28	74.00	-26.28	Peak
2	2483.52	28.29	5.37	19.40	53.06	74.00	20.94	Peak
3	2483.76	28.29	5.37	18.11	51.77	74.00	22.23	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : Audix NO.1 Chamber Data no. : 8
Dis. / Ant. : 3m 3115(4927) Ant. pol. : VERTICAL
Limit : ABOVE 1GHZ(AV)
Env. / Ins. : 26*C / 43% N9010A Engineer : Jerome_Chang
EUT : ME-700R
Power Rating : DC 3.7V
Test Mode : TX 2480MHz_BLE

	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBμV)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Remark
1	2480.08	28.28	5.36	65.82	99.46	54.00	-45.46	Average
2	2483.52	28.29	5.37	8.51	42.17	54.00	11.83	Average
3	2483.76	28.29	5.37	7.90	41.56	54.00	12.44	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
2. The emission levels that are 20dB below the official limit are not reported.

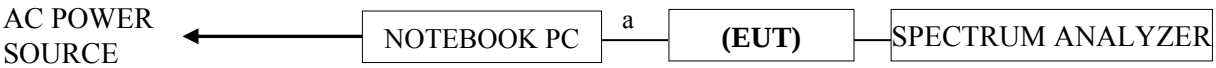
5. 6dB BANDWIDTH MEASUREMENT

5.1. Test Equipment

The following test equipment was used during the Emission Bandwidth measurement:

Item	Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	2014. 07. 25	1 Year

5.2. Block Diagram of Test Setup



a: USB CABLE

EUT: PERSONAL SOUND AMPLIFIER

5.3. Specification Limits [§15.247(a)(2)]

The minimum 6dB bandwidth shall be at least 500kHz.

5.4. Operating Condition of EUT

The test program "Blue Test" was used to enable the EUT to transmit data at different channel frequency individually.

5.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 1.5% EBW, VBW≥3xRBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.
The measurement guideline was according to KDB 558074 D01 DTS Meas Guidance is v03r02.

5.6. Test Results

PASSED. All the test results are attached in next pages.

Test Date : 2014. 10. 06 Temperature : 26℃ Humidity : 60%

No	Test Mode	Channel	Frequency	**6dB Bandwidth(kHz)**
1	BLE	CH 0	2402MHz	715
2		CH 19	2440MHz	710
3		CH 39	2480MHz	715

[Limit: least 500kHz]

BLE, Frequency: 2402MHz

BLE, Frequency: 2440MHz

BLE, Frequency: 2480MHz

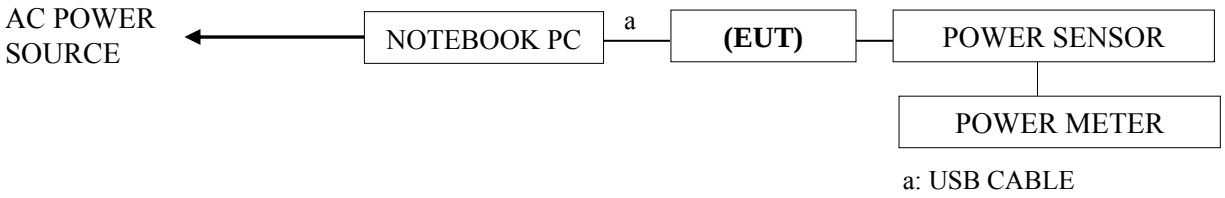
6. MAXIMUM PEAK OUTPUT POWER MEASUREMENT

6.1. Test Equipment

The following test equipment was used during the maximum peak output power measurement:

Item	Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Interval
1.	Power Meter	Anritsu	ML2495A	1145008	2013. 10. 23	1 Year
2.	Power Sensor	Anritsu	MA2411B	1126096	2013. 10. 23	1 Year

6.2. Block Diagram of Test Setup



EUT: PERSONAL SOUND AMPLIFIER

6.3. Specification Limits (§15.247(b)-(3))

The Limits of maximum Peak Output Power for digital modulation in 2400-2483.5MHz is: 1Watt. (30dBm)

6.4. Operating Condition of EUT

The test program “Blue Test” was used to enable the EUT to transmit data at different channel frequency individually.

6.5. Test Procedure

The transmitter output was connected to the power sensor and record the reading of power meter.
The measurement guideline was according to KDB 558074 D01 DTS Meas Guidance is v03r02.

6.6. Test Results

PASSED. All the test results are listed below.

Test Date : 2014. 10. 06 Temperature : 26℃ Humidity : 60%

No	Test Mode	Channel	Frequency	**Peak Output Power (dBm)**
1	BLE	CH 0	2402MHz	**7.36**
2		CH 19	2440MHz	**7.54**
3		CH 39	2480MHz	**7.61**

[Limit: 1Watt. (30dBm)]

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7. EMISSION LIMITATIONS MEASUREMENT

7.1. Test Equipment

The following test equipment was used during the emission limitations test：

Item	Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	2014. 07. 25	1 Year

7.2. Block Diagram of Test Setup

The same as section.5.2

7.3. Specification Limits [§15.247(c)]

7.3.1. In any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (See Section 15.205(c)).(※This test result attaching to §4.6.1.2 and §4.6.2.2)

7.3.2. The reference level for determining limit of emission limitations is according to the value measured indicated in plots at section 9.6.

7.4. Operating Condition of EUT

Test program RF Test is used for enabling the EUT transmitting continuing.

7.5. Test Procedure

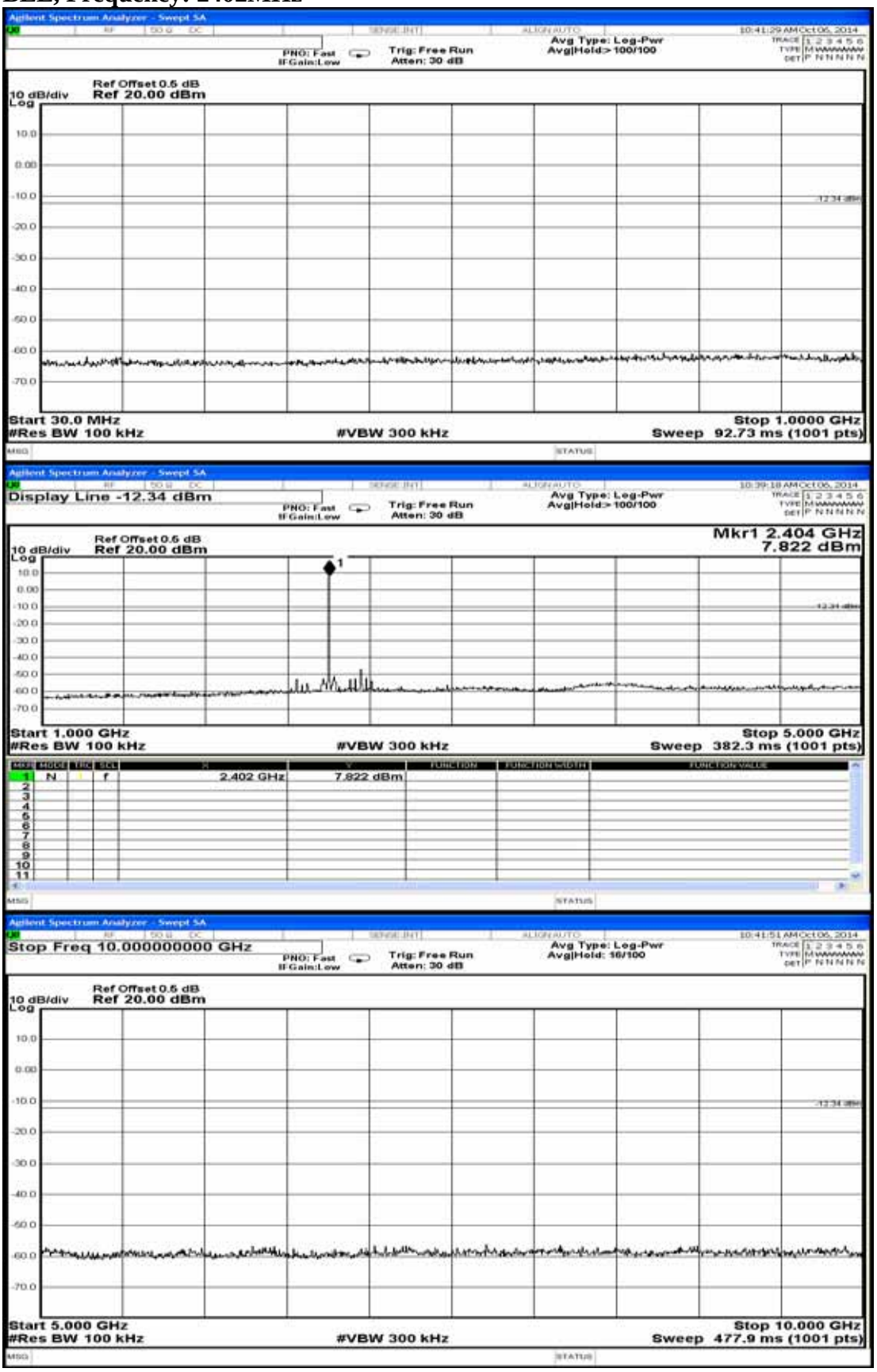
The RF output of EUT was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measure by spectrum analyzer with 100kHz RBW and 300kHz VBW.
The measurement guideline was according to KDB 558074 D01 DTS Meas Guidance is v03r02.

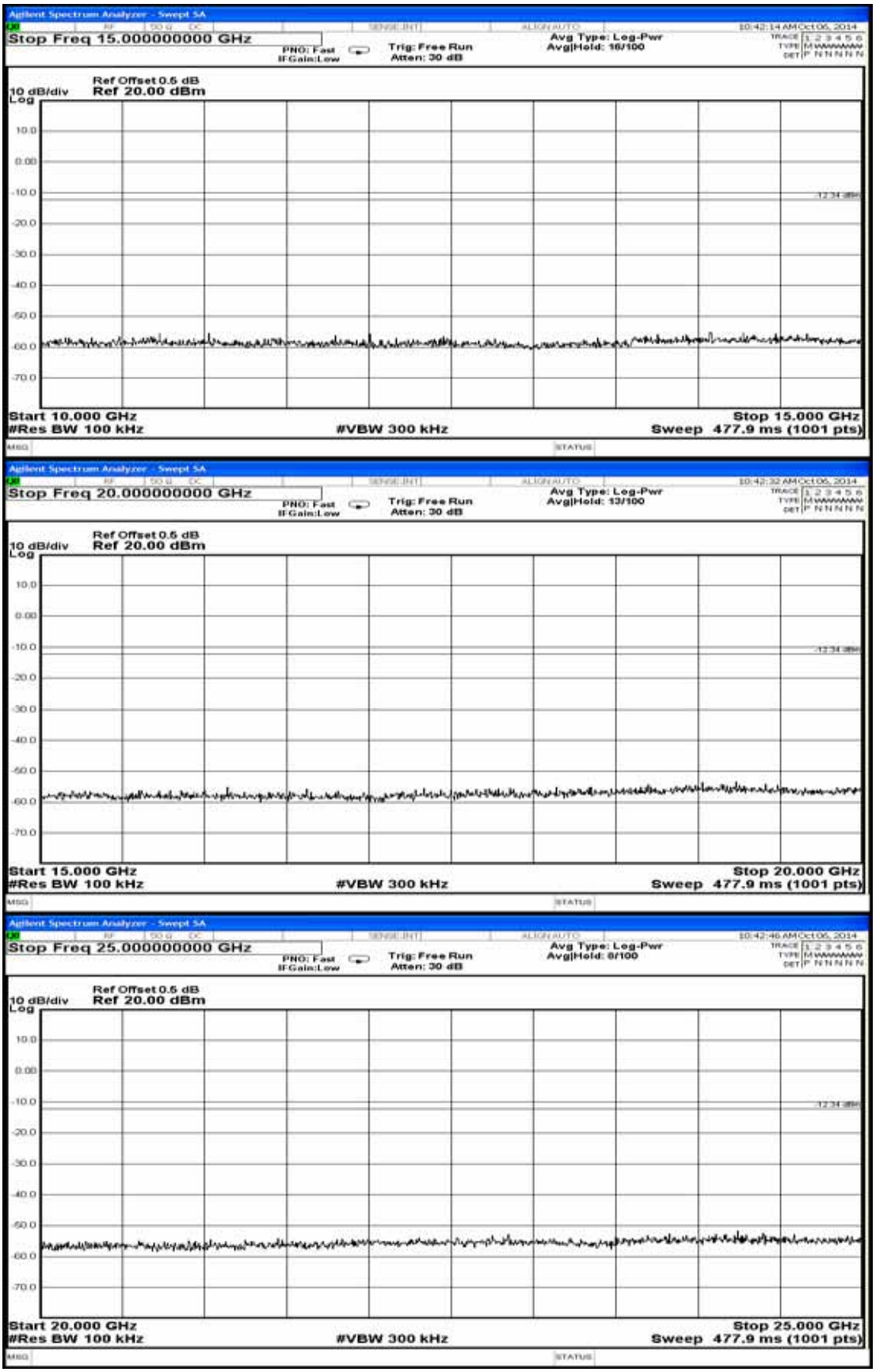
7.6. Test Results

PASSED. The testing data was attached in the next pages.

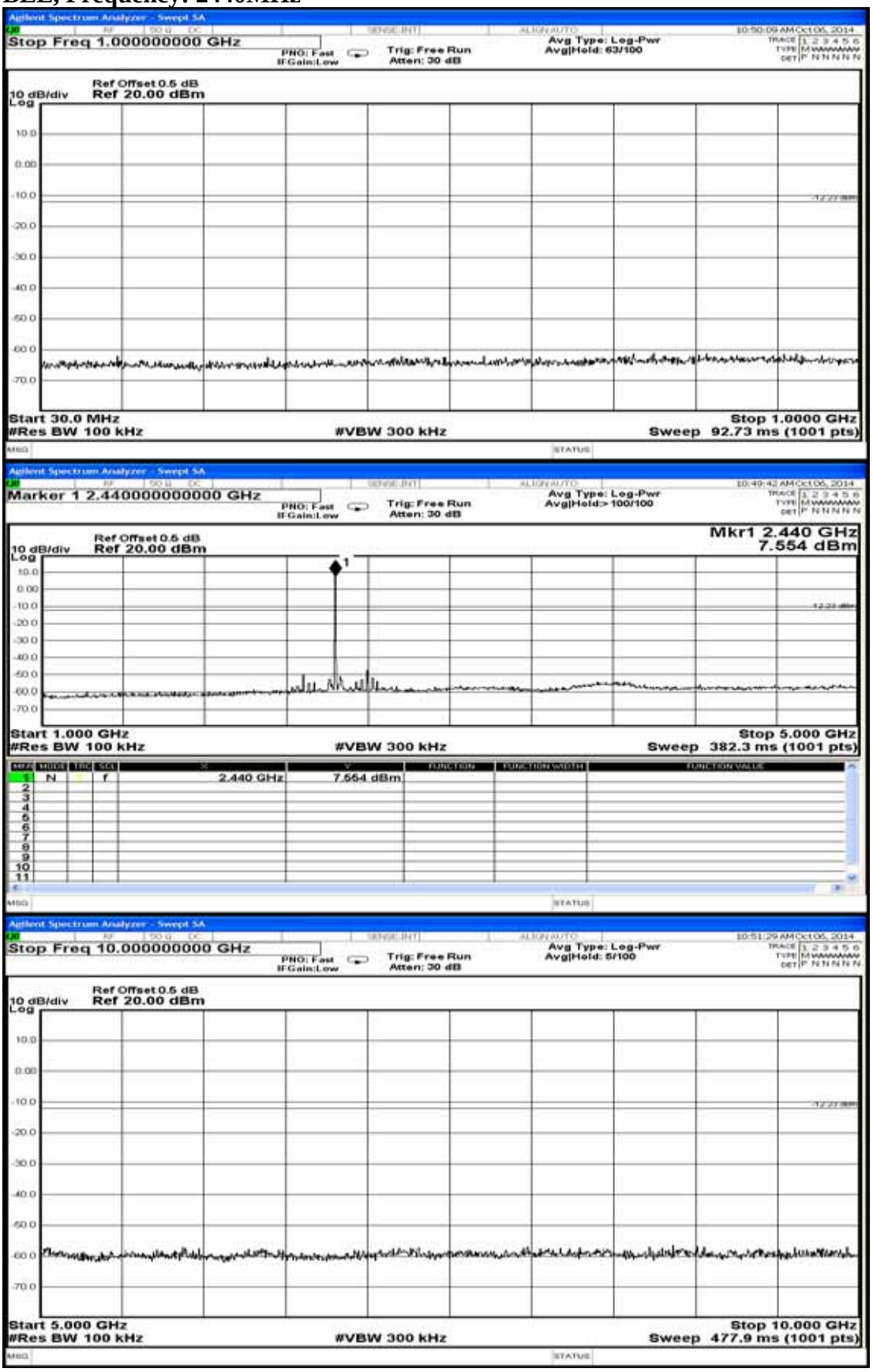
Test Date: 2014. 10. 06 Temperature: 26℃ Humidity: 52%

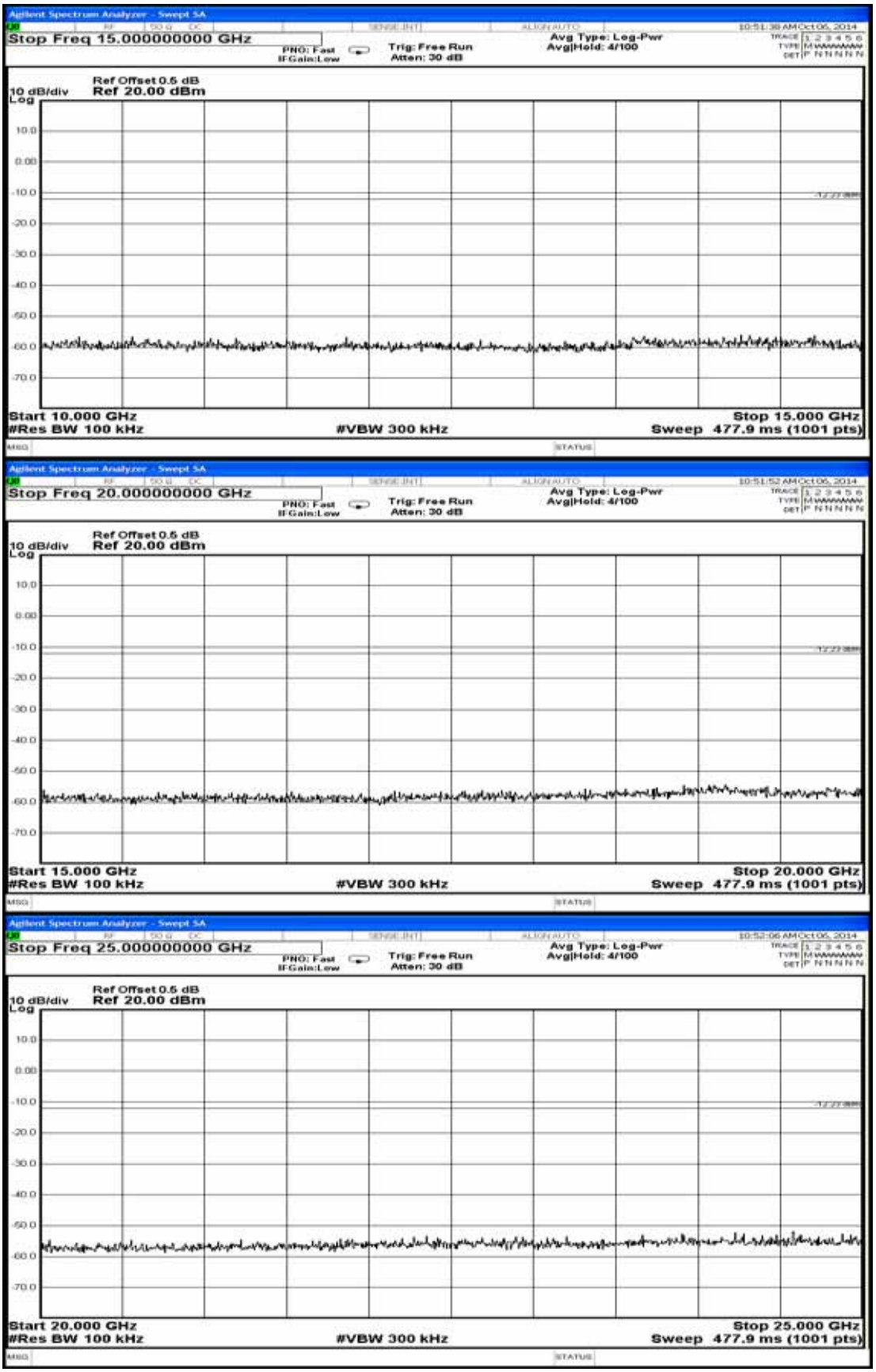
BLE, Frequency: 2402MHz



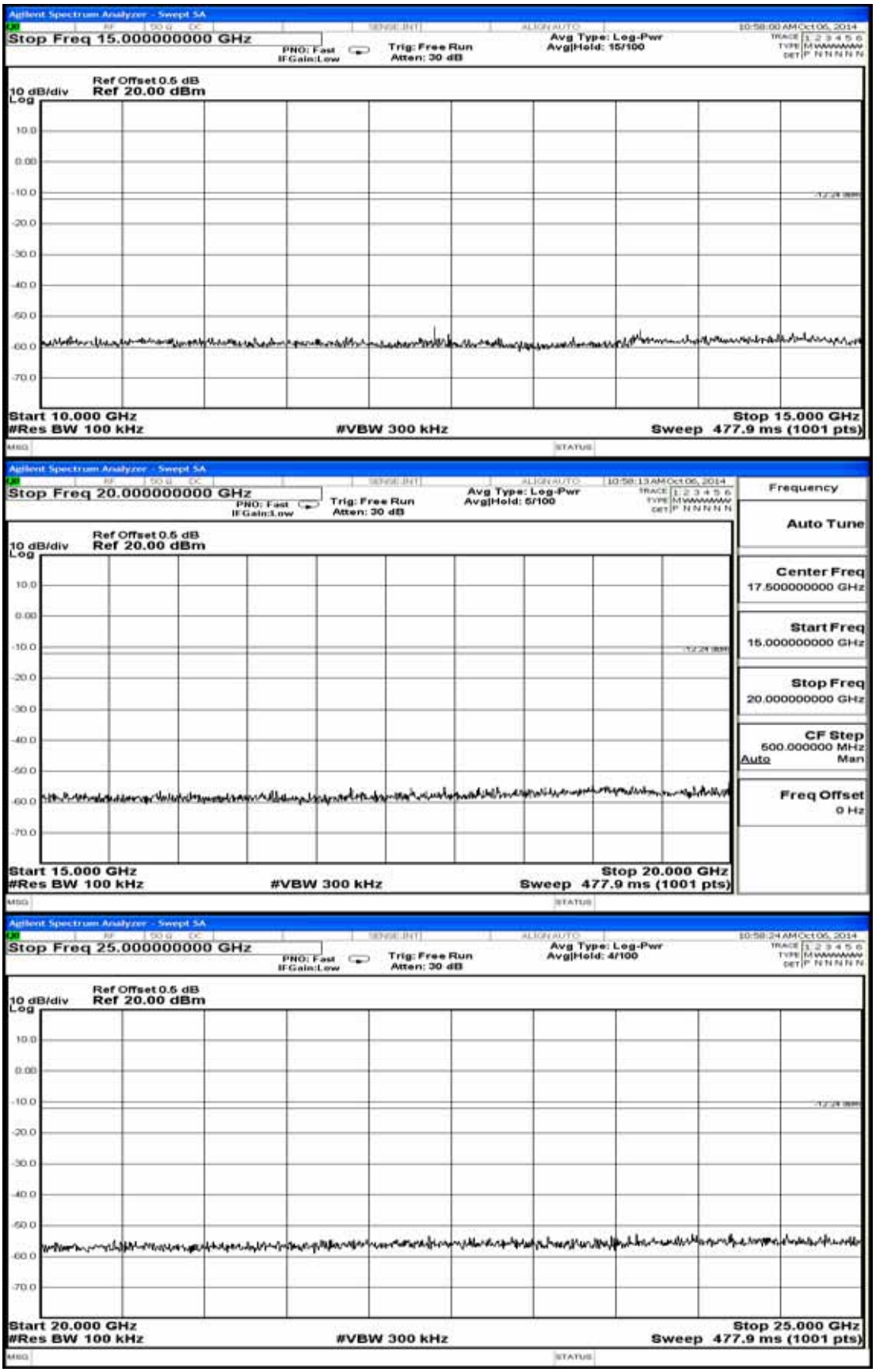

Agilent Spectrum Analyzer - Swept SA
Stop Freq 15.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 16/100
10:42:14 AM Oct 06, 2014
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 477.9 ms (1001 pts)
Agilent Spectrum Analyzer - Swept SA
Stop Freq 20.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 13/100
10:42:32 AM Oct 06, 2014
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 477.9 ms (1001 pts)
Agilent Spectrum Analyzer - Swept SA
Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 8/100
10:42:46 AM Oct 06, 2014
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 20.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 477.9 ms (1001 pts)

BLE, Frequency: 2440MHz




Agilent Spectrum Analyzer - Swept SA
Stop Freq 15.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 4/100
10:51:38 AM Oct 06, 2014
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 477.9 ms (1001 pts)
Agilent Spectrum Analyzer - Swept SA
Stop Freq 20.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 4/100
10:51:52 AM Oct 06, 2014
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 477.9 ms (1001 pts)
Agilent Spectrum Analyzer - Swept SA
Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 4/100
10:52:06 AM Oct 06, 2014
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 20.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 477.9 ms (1001 pts)

BLE, Frequency: 2480MHz


Agilent Spectrum Analyzer - Swept SA
Stop Freq 15.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 15/100
10:58:00 AM Oct 06, 2014
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 10.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 15.000 GHz
Sweep 477.9 ms (1001 pts)
Agilent Spectrum Analyzer - Swept SA
Stop Freq 20.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 5/100
10:58:13 AM Oct 06, 2014
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 15.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 20.000 GHz
Sweep 477.9 ms (1001 pts)
Frequency
Auto Tune
Center Freq
17.500000000 GHz
Start Freq
15.000000000 GHz
Stop Freq
20.000000000 GHz
CF Step
500.000000 MHz
Auto
Man
Freq Offset
0 Hz
Agilent Spectrum Analyzer - Swept SA
Stop Freq 25.000000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 4/100
10:58:24 AM Oct 06, 2014
Ref Offset 0.5 dB
10 dB/div
Log
Ref 20.00 dBm
Start 20.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25.000 GHz
Sweep 477.9 ms (1001 pts)

8. BAND EDGES MEASUREMENT

8.1. Test Equipment

The following test equipment was used during the band edges measurement:

Item	Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	2014. 07. 25	1 Year

8.2. Block Diagram of Test Setup

The same as section.5.2.

8.3. Specification Limits [§15.247(c)]

The highest level should be at least 20 dB below reference level as measured in section 9.6.

8.4. Operating Condition of EUT

The test program "Blue Test" was used to enable the EUT to transmit data at different channel frequency individually.

8.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. Set both RBW=100 kHz and VBW to 300kHz with suitable frequency span including 100kHz bandwidth from band edge.

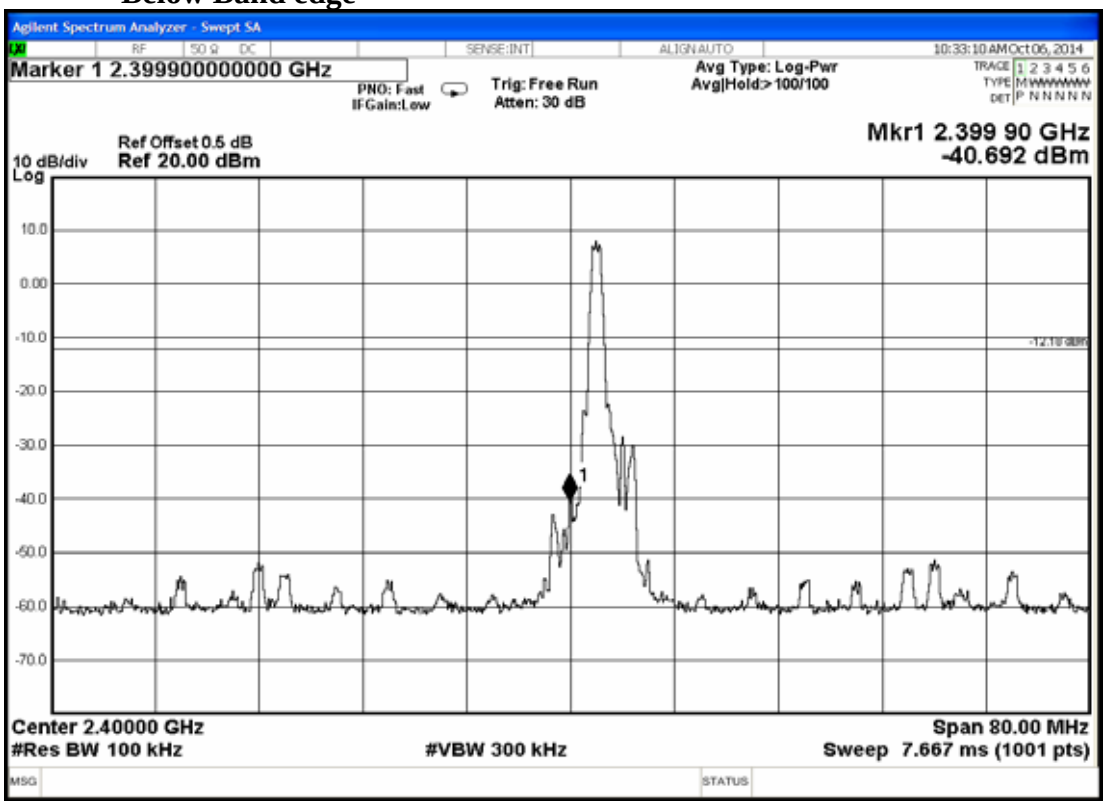
The measurement guideline was according to KDB 558074 D01 DTS Meas Guidance is v03r02.

8.6. Test Results

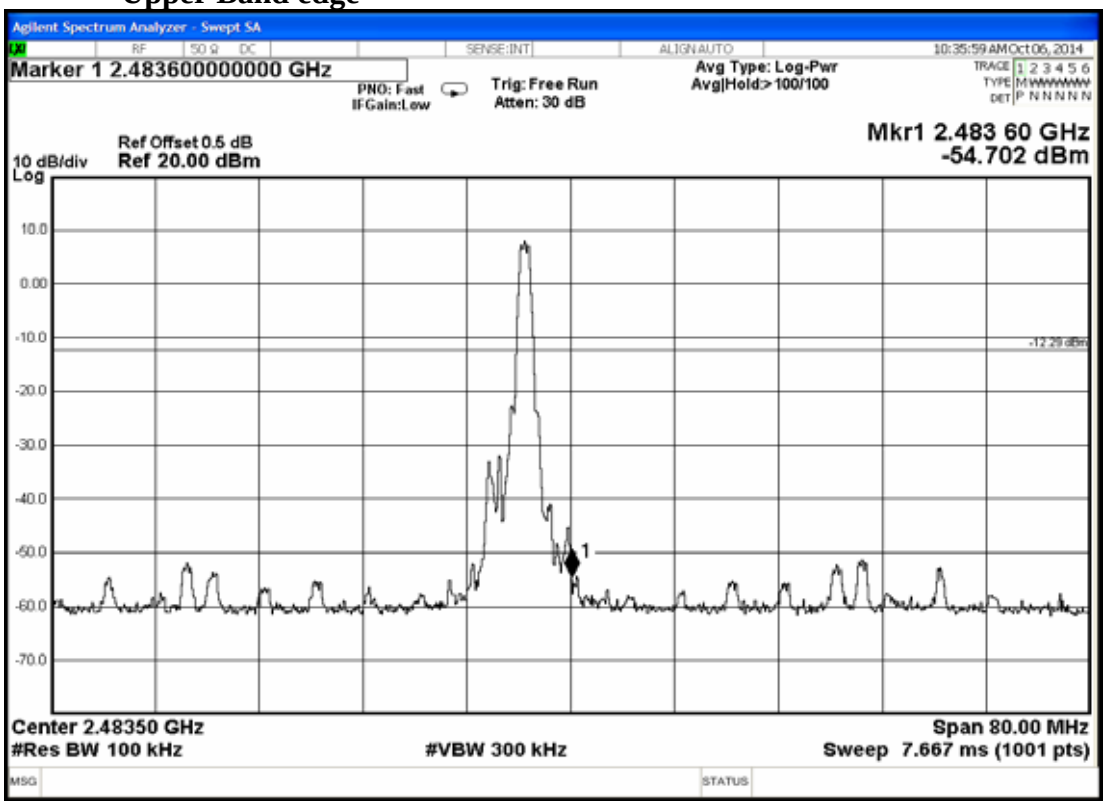
PASSED. All the test results are attached in next pages.

Test Date: 2014. 10. 06 Temperature: 24℃ Humidity : 60%

Below Band edge



Upper Band edge



9. POWER SPECTRAL DENSITY MEASUREMENT

9.1. Test Equipment

The following test equipment was used during the power spectral density measurement:

Item	Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Interval
1.	Spectrum Analyzer	Agilent	N9030A-544	US51350140	2014. 07. 25	1 Year

9.2. Block Diagram of Test Setup

The same as section.5.2.

9.3. Specification Limits [§15.247(d)]

The peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band.

9.4. Operating Condition of EUT

The test program "Blue Test" was used to enable the EUT to transmit data at different channel frequency individually.

9.5. Test Procedure

The transmitter output was connected to the spectrum analyzer. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using 100kHz RBW and ≥300kHz VBW, set sweep time = Auto.
The measurement guideline was according to KDB 558074 D01 DTS Meas Guidance is v03r02.

9.6. Test Results

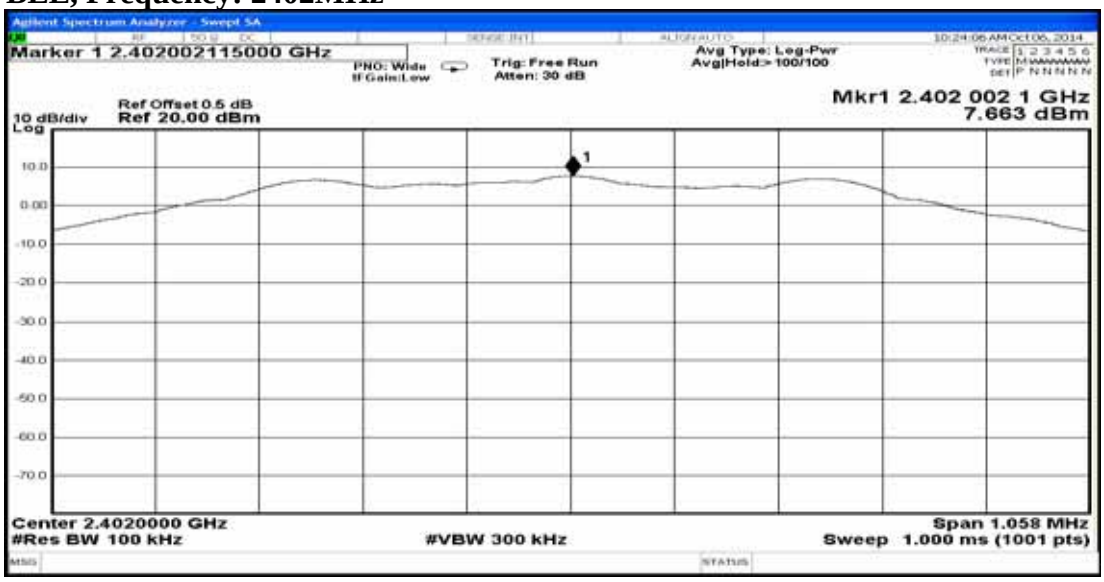
PASSED. All the test results are attached in next pages.

Test Date : 2014. 10. 06 Temperature : 24℃ Humidity : 60%

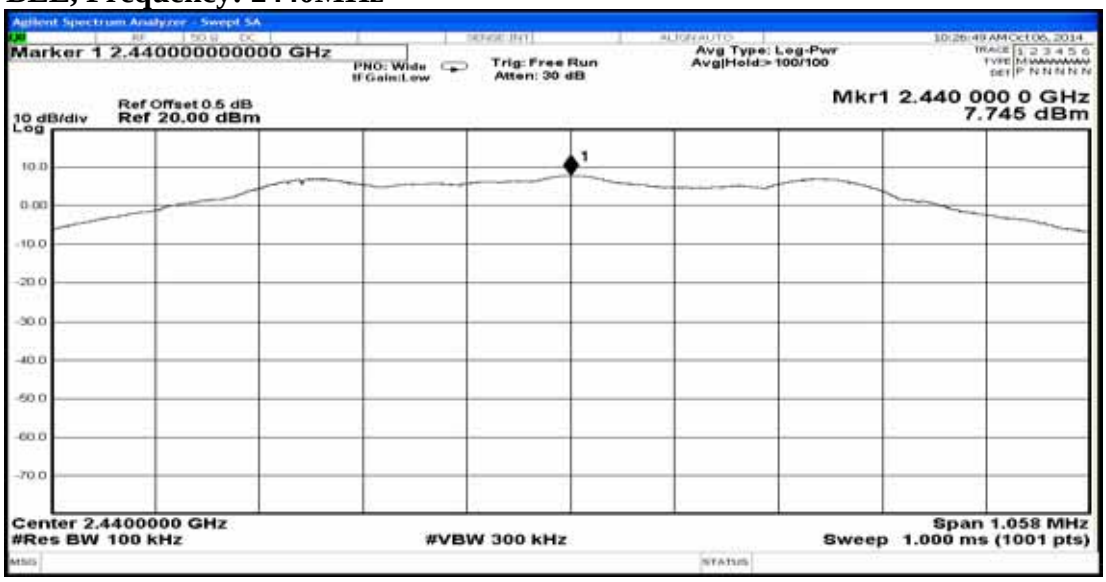
No	Test Mode	Channel	Frequency	**Power Spectral Density (dBm)**
1	BLE	CH 0	2402MHz	**7.663**
2		CH 19	2440MHz	**7.745**
3		CH 39	2480MHz	**7.689**

[Limit: 8dBm]

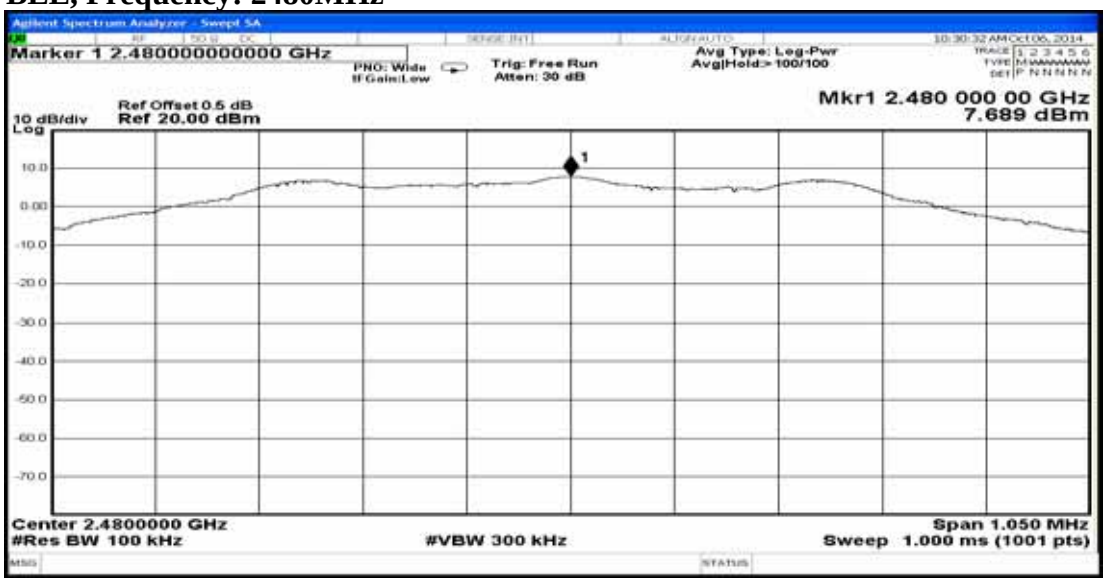
BLE, Frequency: 2402MHz



BLE, Frequency: 2440MHz



BLE, Frequency: 2480MHz



10. DEVIATION TO TEST SPECIFICATIONS

【NONE】

11. PHOTOGRAPHS

11.1. Photos of Conducted Disturbance Measurement

FRONT VIEW OF CONDUCTED MEASUREMENT

BACK VIEW OF CONDUCTED MEASUREMENT

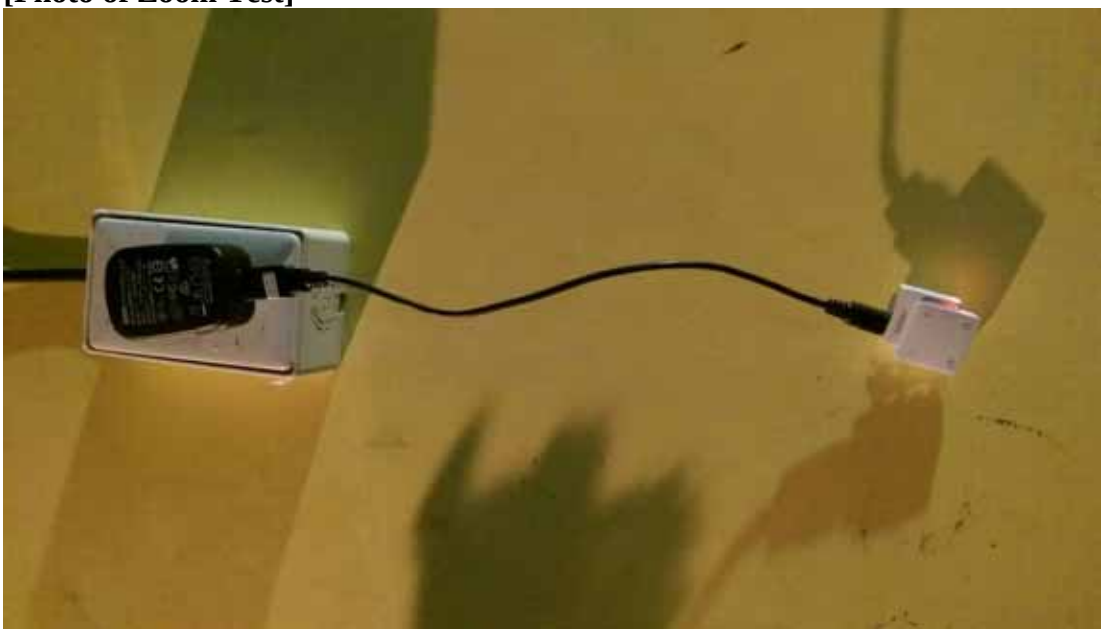
[Photo of Zoom Test]

11.2.Photos of Radiated Measurement at Semi-Anechoic Chamber

11.2.1. Frequency Range 30MHz-1GHz

[Charge Mode]

[Photo of Zoom Test]



[Stand-Alone Transmit Mode] (Position: Side)

[Stand-Alone Transmit Mode] (Position: Lie)

[Stand-Alone Transmit Mode] (Position: Stand)

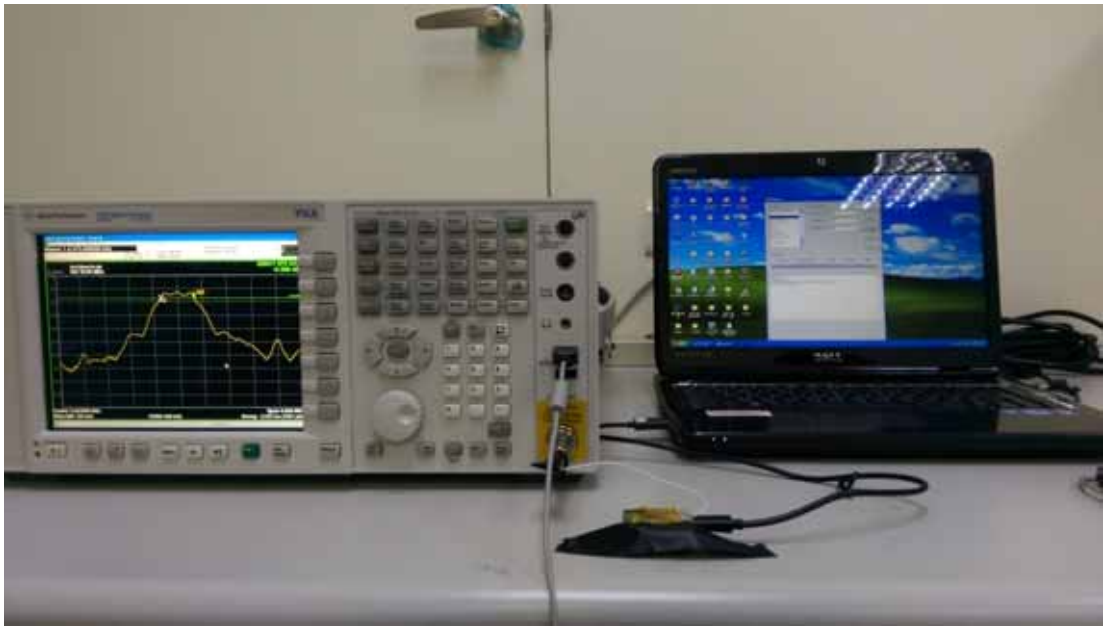
11.2.2.Frequency Above 1GHz

[Stand-Alone Transmit Mode] (Position: Side)

[Stand-Alone Transmit Mode] (Position: Lie)

[Stand-Alone Transmit Mode] (Position: Stand)

11.3.Photo of Section RF Conducted Measurement



11.4.Photo of Maximum Peak Output Power Measurement