Radio Spectrum

TEST REPORT

Report No.: 170600275TWN-001
Model No.: X1 PRO, X1, X2
Issued Date: Aug. 21, 2017

Applicant: Bonraybio Co., LTD.
4F., No. 118, Gongye 9th Rd., Dali Dist., Taichung City 41280, Taiwan

Test Method/ Standard: 47 CFR FCC Part 15.247 & ANSI C63.10 2013
KDB 558074 D01 v04

Registration No.: 960839

Test By: Intertek Testing Services Taiwan Ltd.,
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Testing Laboratory
0597

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Revision History

Report No.	Issue Date	Revision Summary
170600275TWN-001	Aug. 21, 2017	Original report

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Summary of Test Data

Test Requirement	Applicable Rule (Section 15.247)	Result
Minimum 6 dB Bandwidth	15.247(a)(2) KDB 558074 D01 v04	Pass
Maximum Peak Conducted Output Power	15.247(b)(3) KDB 558074 D01 v04 KDB 662911 D01 v02r01	Pass
Power Spectral Density	15.247(e)	Pass
Emissions In Non-Restricted Frequency Bands	15.247(d)	Pass
Emissions In Restricted Frequency Bands (Radiated emission measurements)	15.247(d), 15.205, 15.209	Pass
Emission On The Band Edge	15.247(d), 15.205	Pass
AC Power Line Conducted Emission	15.207	Pass
Antenna Requirement	15.203	Pass

1. General information

1.1. Identification of the EUT

Product:	Semen Quality Analyzer
Model No.:	X1 PRO
Operating Frequency:	2402 MHz ~ 2480 MHz
Channel Number:	40 channels
Access scheme:	GFSK
Rated Power:	1. DC 5 V from adapter 2. DC 3.7 V from battery
Power Cord:	N/A
Sample Received:	Aug. 3, 2017
Sample Received:	Workable
Test Date(s):	Aug. 3, 2017 ~ Aug. 16, 2017

Note 1: The test report only allows to be revised within three years from its original issued date unless further standard or the requirement was noticed.
Note 2: When determining the test conclusion, the Measurement Uncertainty of test has been considered.
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1.2. Adapter information

The EUT will be supplied with a power supply from below list:

No.	Brand	Model no.	Specification
Adapter	UE	UES12LCP-050200SPA	I/P : 100-240V , 50-60Hz , 0.5A O/P : 5V , 2A

1.3. Description of the EUT

The customer confirmed the models listed as below were series model to model X1 PRO (EUT), the difference between main model and series model are listed as below.

Product name	Model Number	Difference
Semen Quality Analyzer	X1 PRO	Full Function
Semen Quality Analyzer	X1	NO HDMI, USB
Home Fertility Test Device	X2	NO HDMI, USB, Touch screen

For more detail features, please refer to user's Manual.

1.4. Antenna Description

The antenna is affixed to the EUT using a unique connector, which allows for replacement of a broken antenna, but DOES NOT use a standard antenna jack or electrical connector.

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Antenna Gain : 1.6 dBi
Antenna Type : CCD Antenna
Connector Type : I-PEX

1.5. Operation Mode

The EUT was supplied with DC 5 V from adapter (Test voltage: 120 Vac, 60 Hz).
TX mode: EUT transmits continuously by entering test mode(BLE Test mode), and Touchscreen to change different channel.

The signal is maximized through rotation and placement in the three orthogonal axes.


X axis


Y axis


Z axis

After verifying three axes, we found the maximum electromagnetic field was occurred at X axis. The final test data was executed under this configuration.

1.6. Applied Test Modes and Channels

Test items	Mode	Channel	Antenna
Minimum 6 dB Bandwidth	BT 4.0	0, 20, 39	Chain0
Maximum peak conducted output power	BT 4.0	0, 20, 39	Chain0
Power Spectral Density	BT 4.0	0, 20, 39	Chain0
RF Antenna Conducted Spurious	BT 4.0	0, 20, 39	Chain0
Radiated spurious Emission 9kHz~1GHz	Worst case(Ch39)		
Radiated Spurious Emission 10GHz~10th Harmonic	BT 4.0	0, 20, 39	Chain0
Restricted-Band Band edge	BT 4.0	0, 39	Chain0
AC Power Line Conducted Emission	Normal Link		

2. Minimum 6 dB Bandwidth

2.1. Instrument Setting

Spectrum Function	Setting
Detector	Peak
RBW	100kHz
VBW	≧3 x RBW
Sweep	Auto couple
Trace	Allow the trace to stabilize
Span	Between two times and five times the occupied bandwidth
Attenuation	Auto

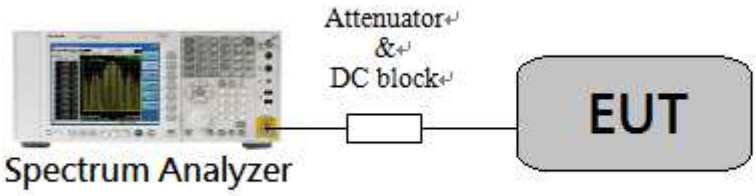
2.2. Test Procedure

Step 1 The transmitter output was connected to the spectrum analyzer

Step 2 Test was performed in accordance with clause 8.1 option1 of KDB 558074 D01

Step 3 Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

2.3. Test Diagram



2.4. Limit

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

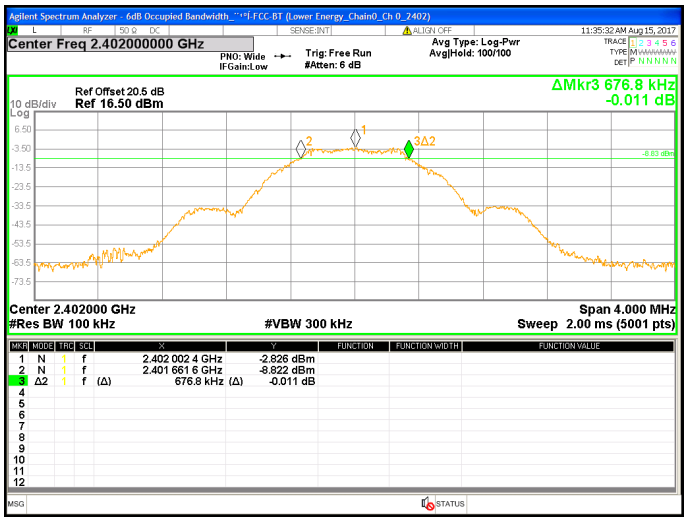
2.5. Operating Environment Condition

Temperature (℃) :	25
Relative Humidity (%) :	50
Atmospheric Pressure (hPa) :	1008
Test Date :	2017/8/15

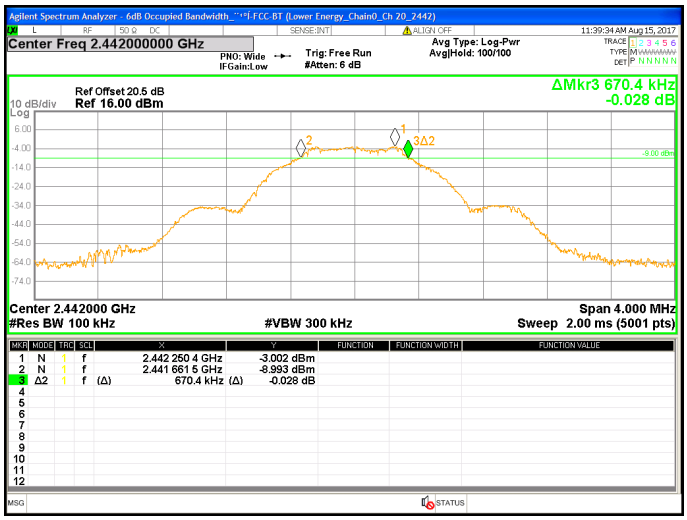
2.6. Test Results

Mode	Channel	Frequency (MHz)	6dB BW (MHz)	Limit (MHz)
BLE	0	2402	0.677	>0.5
BLE	20	2442	0.670	>0.5
BLE	39	2480	0.678	>0.5

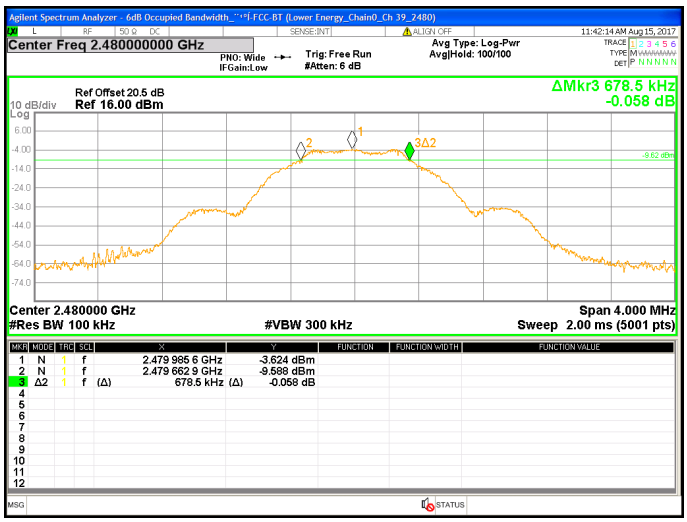
Chain0 : 6dB Bandwidth @ BLE Mode Ch 0



Chain0 : 6dB Bandwidth @ BLE Mode Ch 20



Chain0 : 6dB Bandwidth @ BLE Mode Ch 39



3. Maximum Peak Conducted Output Power

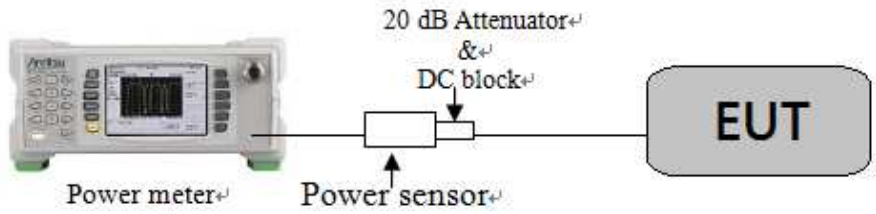
3.1. Instrument Setting

Power Meter Parameter	Setting
Bandwidth	65MHz bandwidth is greater than the EUT emission bandwidth
Detector	Peak & Average

3.2. Test Procedure

Test procedures refer to clause 9.1.3 peak power meter method and clause 9.2.3.2 measurement using a gated RF average power meter of KDB 558074 D01.

3.3. Test Diagram



3.4. Limit

For systems using digital modulation in the 2400-2483.5 MHz: 1 Watt (30dBm)

3.5. Operating Environment Condition

Temperature (℃) :	25
Relative Humidity (%) :	50
Atmospheric Pressure (hPa) :	1008
Test Date :	2017/8/17

3.6. Test Results

Mode	Channel	Pk Output Power (dBm)	Pk Output Power (mW)	Av Output Power (dBm)	Av Output Power (mW)	Limit (dBm)	Margin (dB)
BLE	0	-0.31	0.93	-1.96	0.64	30.00	-30.31
BLE	20	-0.47	0.897	-2.13	0.61	30.00	-30.47
BLE	39	-0.41	0.91	-2.29	0.59	30.00	-30.41

4. Power Spectral Density

4.1. Instrument Setting

Spectrum Function	Setting
Detector	Peak
RBW	≧3 kHz
VBW	≧3 x RBW
Sweep	Auto couple
Trace	Max hold
Span	1.5 times x 6dB bandwidth
Attenuation	Auto

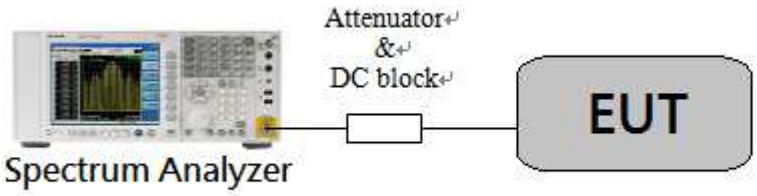
4.2. Test Procedure

Step 1 Test procedure refer to clause 10.2 method PKPSD (peak PSD) of KDB 558074 D01.

Step 2 Using the maximum conducted output power in the fundamental emission demonstrates compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.

Step 3 Use the peak marker function to determine the maximum amplitude level within the RBW.

4.3. Test Diagram



4.4. Limit

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

4.5. Operating Environment Condition

Temperature (℃) :	25
Relative Humidity (%) :	50
Atmospheric Pressure (hPa) :	1008
Test Date :	2017/8/15

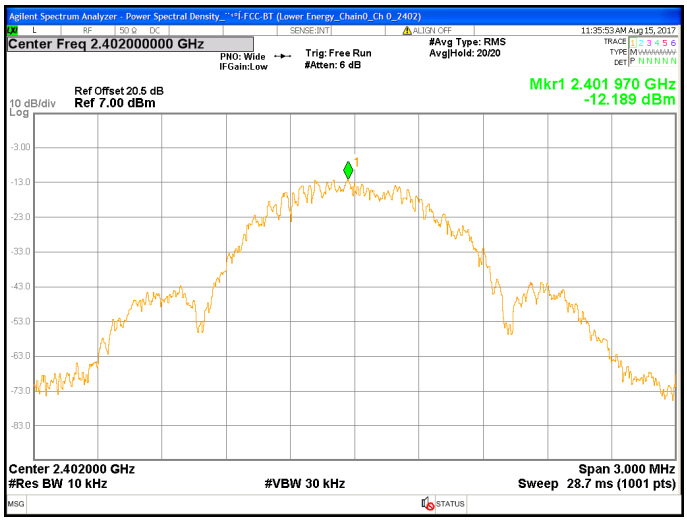
4.6. Test Results

Mode	Channel	Frequency (MHz)	PSD (dBm)@10kHz	Correction Factor (dB)	PSD (dBm)@3kHz	Limit (dBm)	Margin (dB)
BLE	0	2402	-12.19	5.23	-17.42	8	-25.42
BLE	20	2442	-12.26	5.23	-17.49	8	-25.49
BLE	39	2480	-12.78	5.23	-18.01	8	-26.01

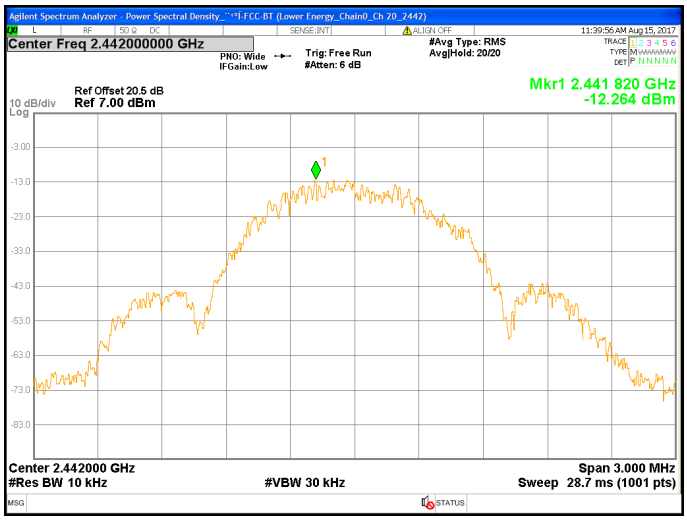
Note1: RBW Correction = 10*log(10kHz/3kHz) = 5.229

Note2: PSD in 3kHz = PSD in 10kHz – RBW Correction

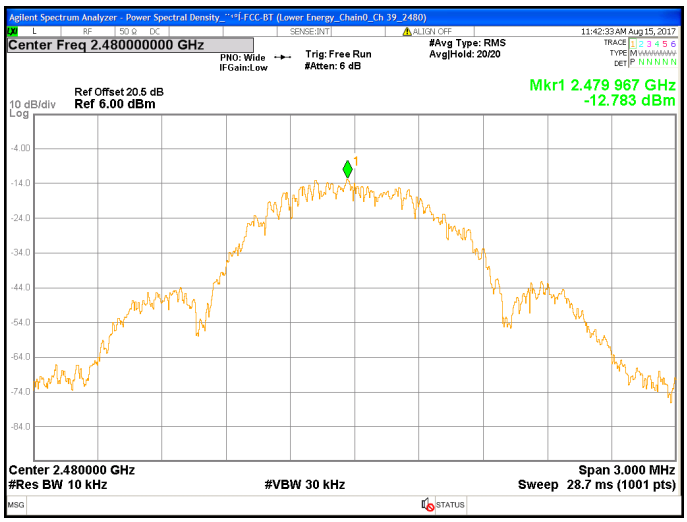
Chain0 : Power Spectral Density @ BLE Mode Ch 0



Chain0 : Power Spectral Density @ BLE Mode Ch 20



Chain0 : Power Spectral Density @ BLE Mode Ch 39



5. Emissions in Non-Restricted Frequency Bands

5.1. Instrument Setting

Spectrum Function	Setting (Reference level)	Setting (Emission level)
Detector	Peak	Peak
RBW	≧100 kHz	≧100 kHz
VBW	≧3 x RBW	≧3 x RBW
Sweep	Auto couple	Auto couple
Trace	Max hold	Max hold
Span	≧1.5 time 6dB bandwidth	
Attenuation	Auto	Auto

5.2. Test Procedure

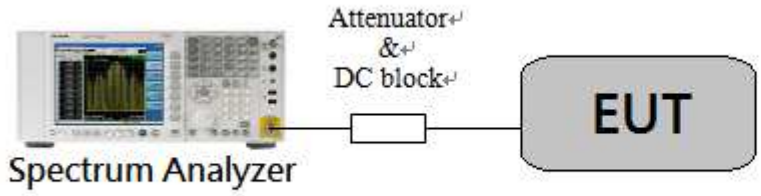
Step 1 The procedure was used in antenna-port conducted and connected to the spectrum analyzer.

Step 2 Set instrument center frequency to center frequency.

Step 3 Use the parameter configured in clause 5.1 to measure

Step 4 Use the peak marker function to determine the maximum amplitude level.

5.3. Test Diagram



5.4. Limit

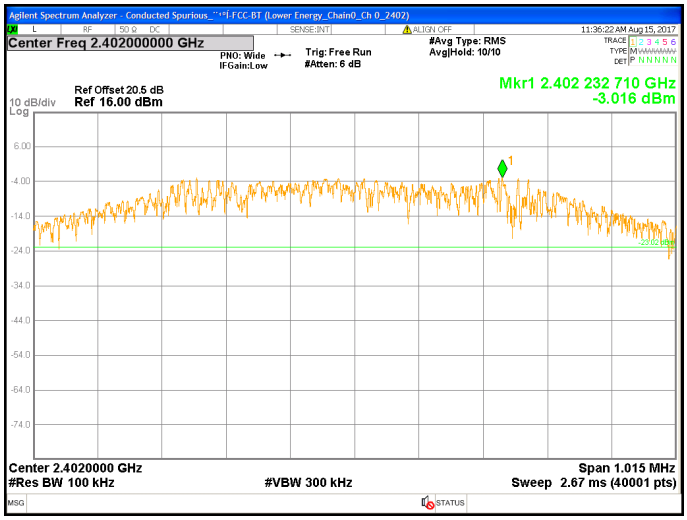
The peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz

5.5. Operating Environment Condition

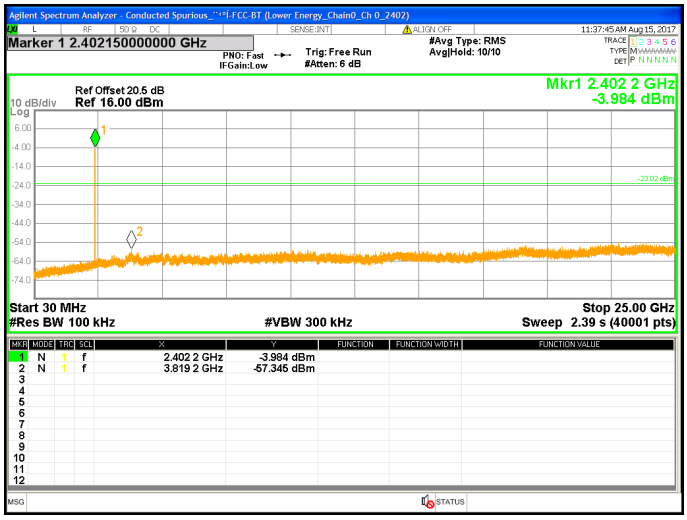
Temperature (℃) :	25
Relative Humidity (%) :	50
Atmospheric Pressure (hPa) :	1008
Test Date :	2017/8/15

5.6. Test results

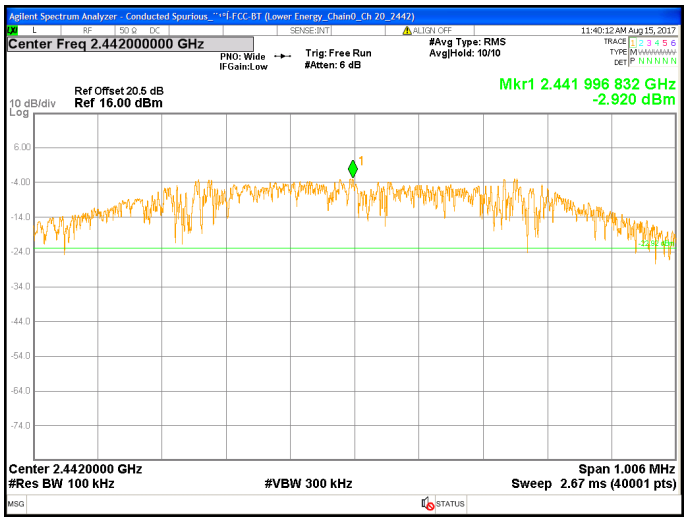
Chain0 : Conducted Spurious @ BLE Mode Ch 0



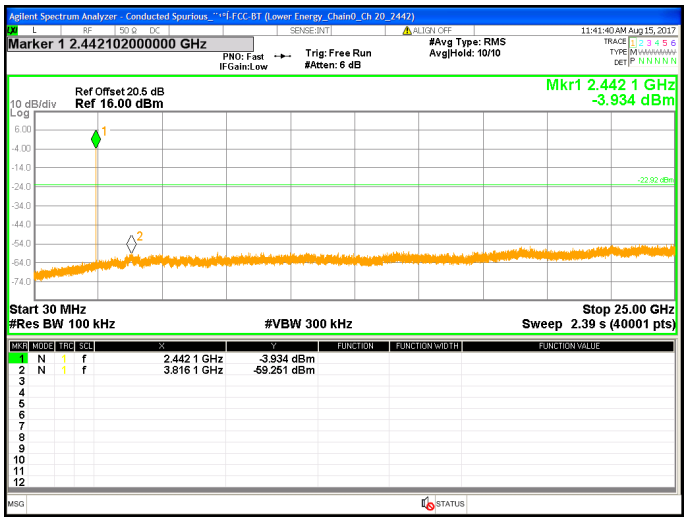
Chain0 : Conducted Spurious @ BLE Mode Ch 0



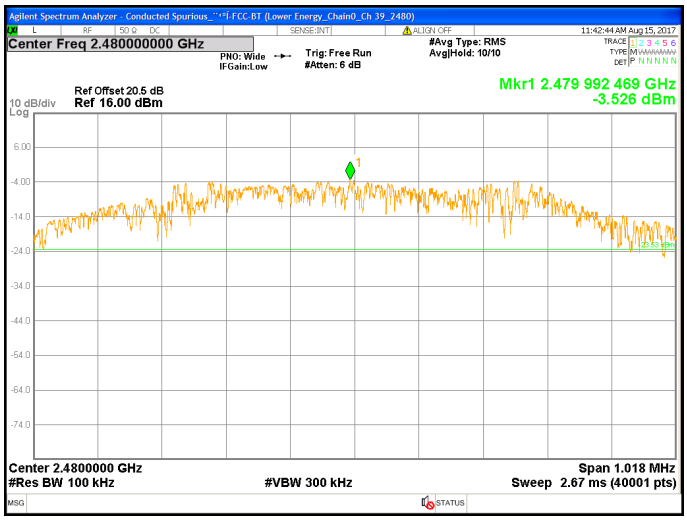
Chain0 : Conducted Spurious @ BLE Mode Ch 20



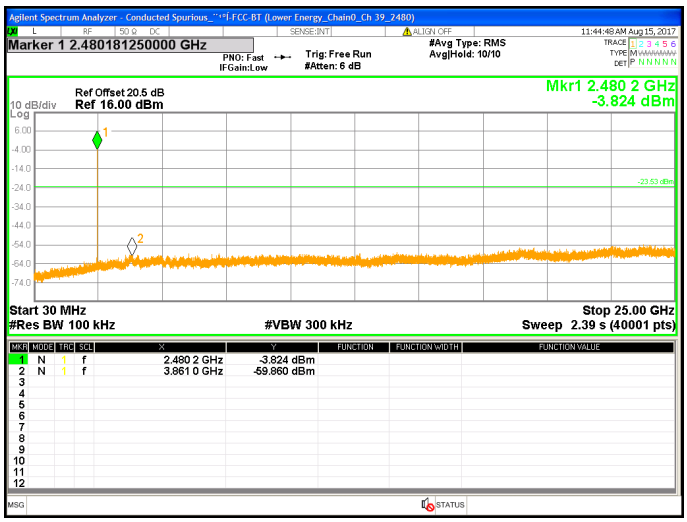
Chain0 : Conducted Spurious @ BLE Mode Ch 20



Chain0 : Conducted Spurious @ BLE Mode Ch 39



Chain0 : Conducted Spurious @ BLE Mode Ch 39



6. Emissions in Restricted Frequency Bands (Radiated emission measurements)

6.1. Instrument Setting

Receiver function	Setting (Below 1GHz)	Setting (Above 1GHz)
Detector	QP	Peak and average
RBW	9-150 kHz ; 200-300 Hz 0.15-30 MHz ; 9-10 kHz 30-1000 MHz ; 100-120 kHz	1MHz
VBW	≧3 x RBW	3MHz
Sweep	Auto couple	Auto couple
Start Frequency	9 KHz	1GHz
Stop Frequency	1 GHz	Tenth harmonic
Attenuation	Auto	Auto

6.2. Test Procedure

Step 1 Configure the EUT according to ANSI C63.10:2013. The EUT was placed on the top of the turntable 0.8 meter (below 1GHz) and 1.5 meter (above 1GHz) above ground. The center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.

Step 2 Power on the EUT and all the companion devices. The turntable was rotated by 360 degree to find the position of the maximum emission level.

Step 3 The height of the receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of the both horizontal and vertical polarization.

Step 4 If find the frequencies above the limit or below within 3dB, the antenna tower was scan (from 1m to 4m) and then the turntable was rotated to find the maximum reading.

Step 5 Set the test-receiver system to peak or CISPR quasi-peak detector with specified bandwidth under maximum hold mode.

Step 6 For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for reading in spectrum analyzer.
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.

Step 7 If the emissions level of the EUT in peak mode was 3dB lower than the average limit specified then testing will be stopped and peak values of the EUT will be reported.

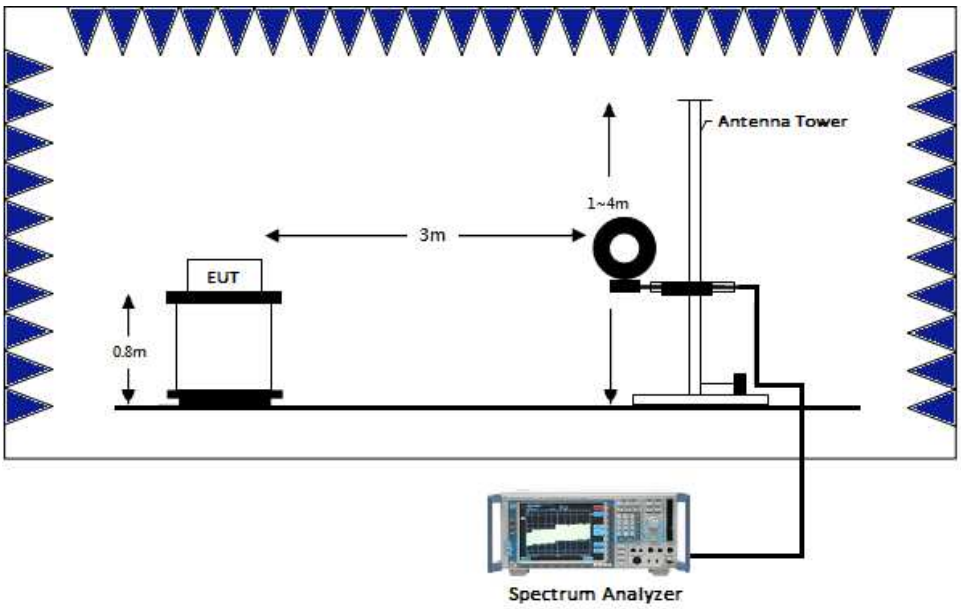
Otherwise, the emissions which do not have 3dB margin will be measured using the quasi-peak method for below 1GHz.

Step 8 For testing above 1GHz, The emissions level of the EUT in peak mode was lower than average limit, then testing will be stopped and peak values of the EUT will be reported, otherwise, the emission will be measured in average mode again and reported.

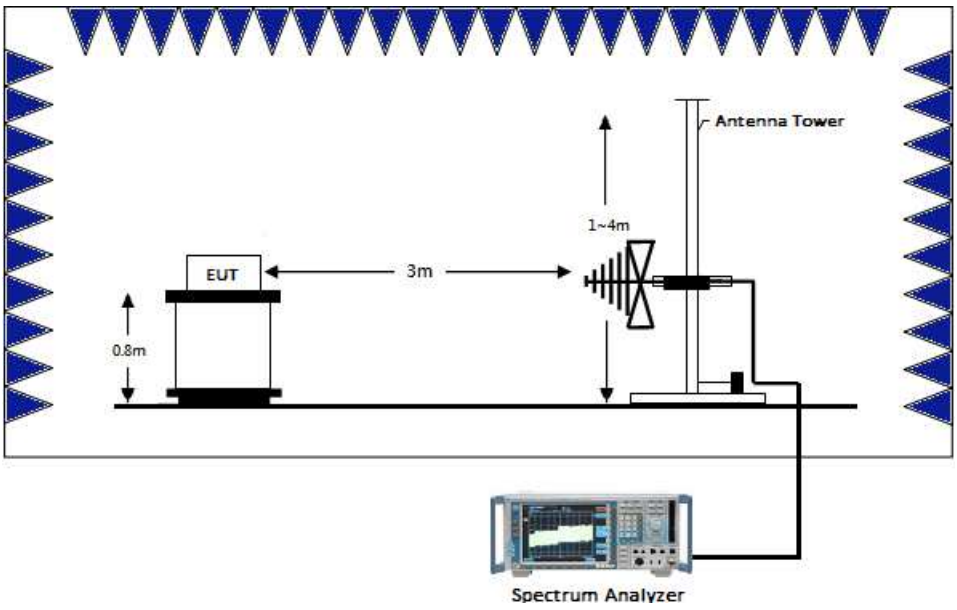
Step 9 In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be quasi-peak measured by receiver.

6.3. Test Diagram

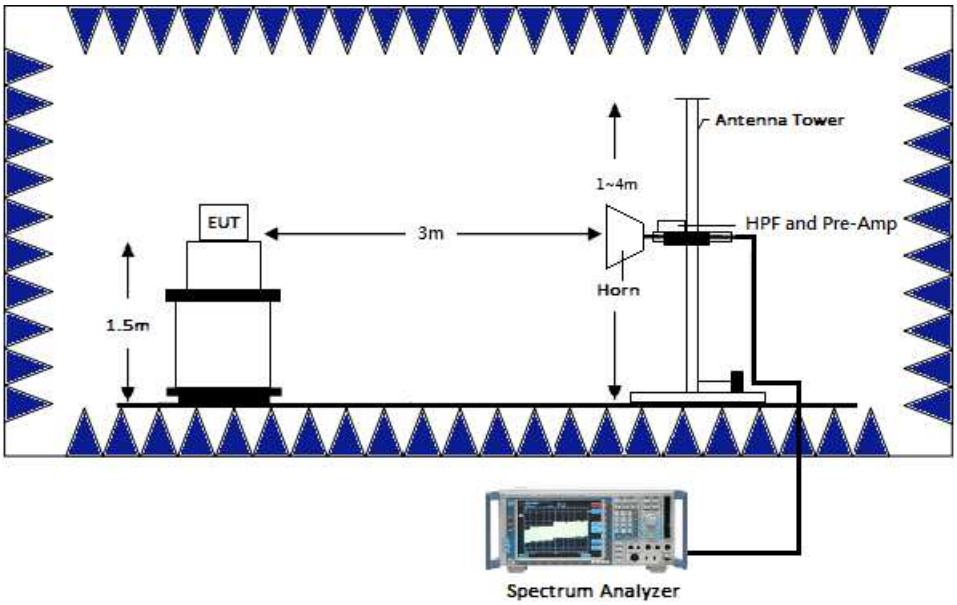
6.3.1. Radiated emission from 9kHz to 30MHz uses Loop Antenna:



6.3.2. Radiated emission below 1GHz using Bilog Antenna



6.3.3. Radiated emission above 1GHz using Horn Antenna



6.4. Limit

Frequency (MHz)	Field Strength (uV/m)	Measurement distance (m)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark:

1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

6.5. Operating Environment Condition

Temperature (℃) :	25
Relative Humidity (%) :	50
Atmospheric Pressure (hPa) :	1008
Test Date :	2017/8/10~2017/8/14

6.6. Test Result

6.6.1. Measurement results: frequencies 9kHz to 30MHz

The test was performed on EUT channel 0, 20, 39. The worst case occurred at channel 39.

Mode	Channel	Detector	Frequency (MHz)	Factor (dB/m)	Reading (dBuV/m)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)
BLE	39	QP	0.02	20.21	30.38	50.59	121.58	-70.99
BLE	39	QP	0.03	20.30	37.35	57.65	118.06	-60.41
BLE	39	QP	0.05	19.83	27.15	46.98	113.62	-66.64
BLE	39	QP	0.07	19.46	24.06	43.52	110.7	-67.18
BLE	39	QP	0.09	19.16	26.34	45.5	108.52	-63.02
BLE	39	QP	0.12	19.05	24.06	43.11	106.02	-62.91
BLE	39	QP	0.15	19.05	30.66	49.71	104.08	-54.37
BLE	39	QP	0.69	19.12	27.06	46.18	70.83	-24.65
BLE	39	QP	1.82	19.09	16.17	35.25	70	-34.75
BLE	39	QP	2.18	19.01	16.13	35.15	70	-34.85
BLE	39	QP	3.08	18.90	11.93	30.83	70	-39.17
BLE	39	QP	4.57	19.91	10.64	30.55	70	-39.45

Remark: Corr. Factor = Antenna Factor + Cable Loss

6.6.2. Measurement results: frequencies below 1 GHz

The test was performed on EUT channel 0, 20, 39. The worst case occurred at channel 39.

Mode	Channel	Ant Polarity	Detector	Frequency (MHz)	Factor (dB/m)	Reading(dBuV)	Corrected Reading (dBuV/m)	Limit (dBµV/m)	Margin (dB)
BLE	39	H	QP	134.76	19.67	0.8	20.46	43.5	-23.04
BLE	39	H	QP	317.12	22.19	9.94	32.13	46	-13.87
BLE	39	H	QP	375.32	23.69	11.54	35.23	46	-10.77
BLE	39	H	QP	394.72	24.19	10.61	34.8	46	-11.2
BLE	39	H	QP	435.46	25.42	5.83	31.26	40	-14.74
BLE	39	H	QP	922.40	33.79	1.1	34.89	46	-11.11
BLE	39	V	QP	43.58	20.28	6.76	27.04	40	-12.96
BLE	39	V	QP	78.50	16.43	3.7	20.12	40	-19.88
BLE	39	V	QP	101.78	15.69	4.92	20.6	43.5	-22.9
BLE	39	V	QP	154.16	20.61	1.5	22.11	43.5	-21.39
BLE	39	V	QP	245.34	19.83	4.86	24.69	46	-21.31
BLE	39	V	QP	918.52	33.74	1.43	35.17	46	-10.83

Remark: Corr. Factor = Antenna Factor + Cable Loss

6.6.3. Measurement results: frequency above 1GHz to 25GHz

Mode	Channel	Ant Polarity	Detector	Frequency (MHz)	Preamp (dB)	Factor (dB/m)	Reading (dBµV)	Corrected Reading (dBµV/m)	Limit (dBµV/m)	Margin (dB)
BLE	0	H	PK	4804	40.06	2.99	35.19	38.17	74	-35.83
BLE	0	H	PK	7206	38.18	9.87	30.36	40.22	74	-33.78
BLE	0	V	PK	4804	40.06	2.99	35.87	38.86	74	-35.14
BLE	0	V	PK	7206	38.18	9.87	30.23	40.09	74	-33.91
BLE	20	H	PK	4884	39.93	3.3	34.64	37.94	74	-36.06
BLE	20	H	PK	7326	38.05	10.35	30.76	41.12	74	-32.88
BLE	20	V	PK	4884	39.93	3.3	35.17	38.47	74	-35.53
BLE	20	V	PK	7326	38.05	10.35	29.92	40.27	74	-33.73
BLE	39	H	PK	4960	39.8	3.59	33.88	37.48	74	-36.52
BLE	39	H	PK	7440	37.93	10.82	30.24	41.06	74	-32.94
BLE	39	V	PK	4960	39.8	3.59	34.72	38.31	74	-35.69
BLE	39	V	PK	7440	37.93	10.82	30.99	41.81	74	-32.19

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

7. Emission on Band Edge

7.1. Instrument Setting

Spectrum Function	Setting
Detector	Peak and average
RBW	1MHz
VBW	3MHz
Sweep	Auto couple
Restrict bands	2310 MHz ~ 2390 MHz 2483.5 MHz ~ 2500 MHz
Attenuation	Auto

7.2. Test Procedure

The test procedure is the same as Emissions in Restricted Frequency Bands (Radiated emission measurements).

7.3. Operating Environment Condition

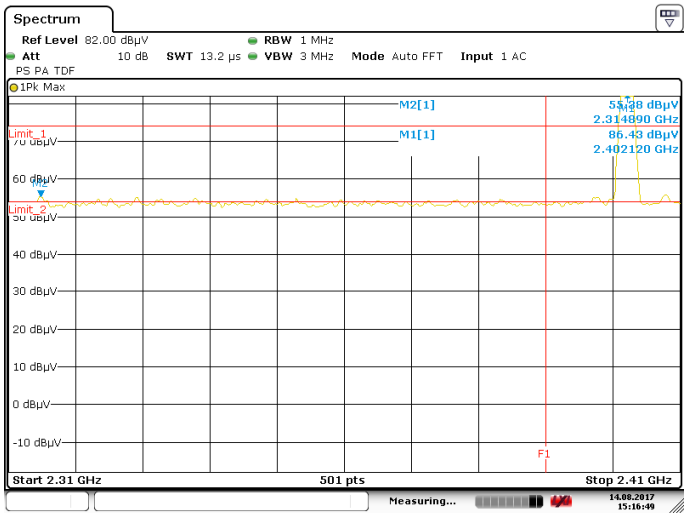
Temperature (℃) :	25
Relative Humidity (%) :	50
Atmospheric Pressure (hPa) :	1008
Test Date :	2017/8/14~2017/8/16

7.4. Test Results

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)	Restricted band (MHz)
BLE	2314.89	PK	V	34.47	20.91	55.38	74	-18.62	2310~2390
	2367.19	AV	V	34.46	7.16	41.62	54	-12.38	
	2487.60	PK	V	34.84	21.10	55.94	74	-18.06	2483.5~2500
	2483.50	AV	V	34.84	6.83	41.67	54	-12.33	

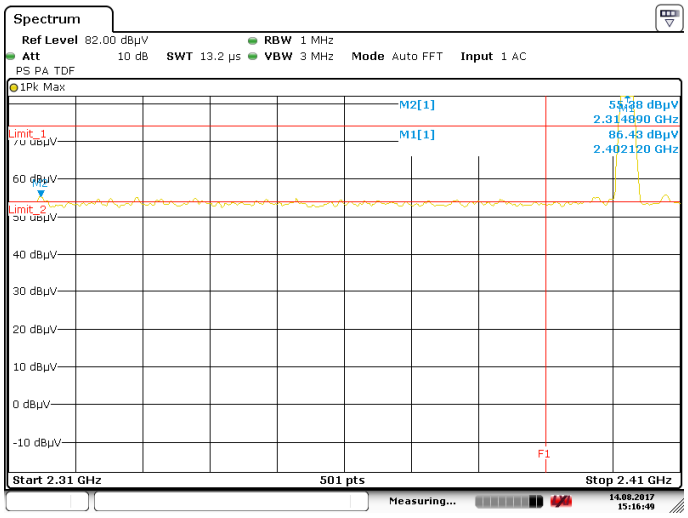
Remark: Correction Factor = Antenna Factor + Cable Loss

BLE : Restricted Band Bandedge @ BLE Mode Ch0 PK



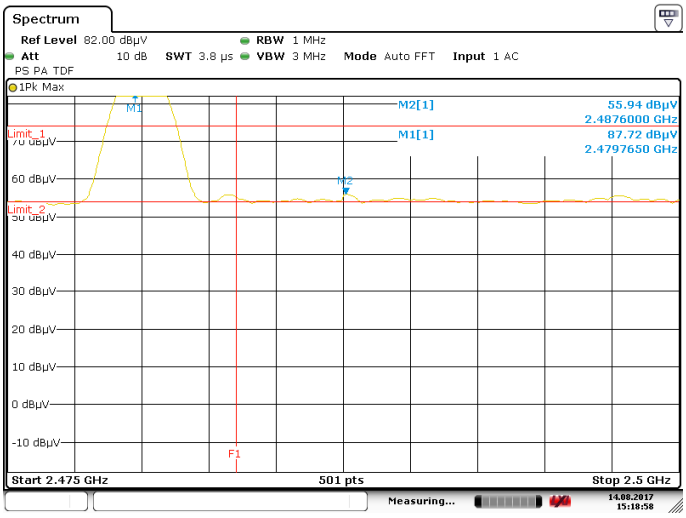
Date: 14.AUG.2017 15:16:49

BLE : Restricted Band Bandedge @ BLE Mode Ch0 AV



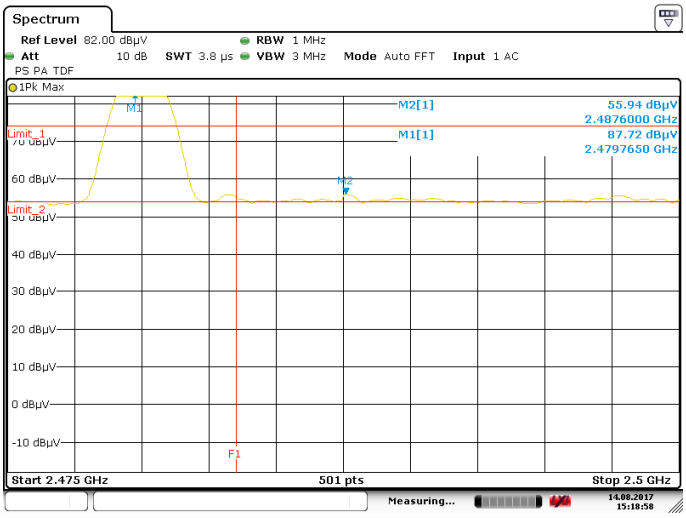
Date: 14.AUG.2017 15:16:49

BLE : Restricted Band Bandedge @ BLE Mode Ch39 PK



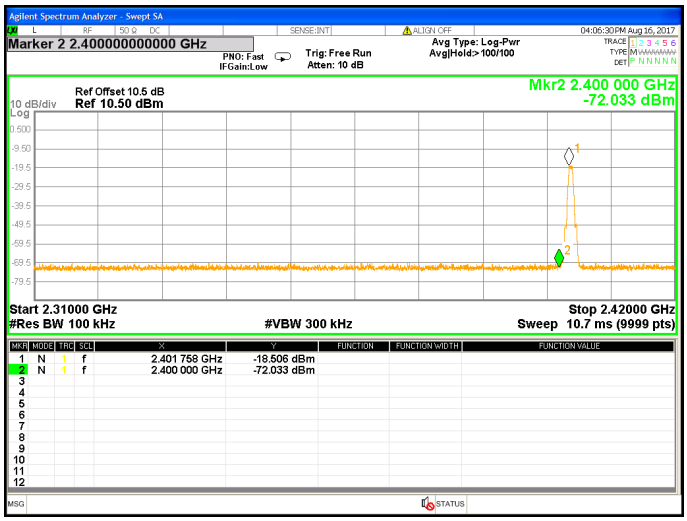
Date: 14.AUG.2017 15:18:58

BLE : Restricted Band Bandedge @ BLE Mode Ch39 AV

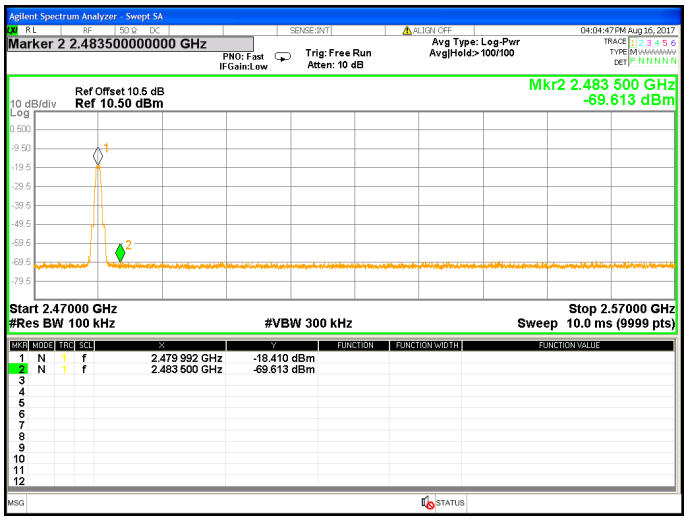


Date: 14.AUG.2017 15:18:58

BLE : Authorized Band Bandedge @ BLE ch0



BLE : Authorized Band Bandedge @ BLE ch39



8. AC Power Line Conducted Emission

8.1. Instrument Setting

Receiver Function	Setting
Detector	QP
Start frequency	0.15MHz
Stop frequency	30MHz
IF bandwidth	9 kHz
Attenuation	10dB

8.2. Test Procedure

Step 1 Configure the EUT according to ANSI C63.10:2013. The EUT or host of EHT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.

Step 2 Connect EUT or host of EUT to the power mains through a line impedance stabilization network.

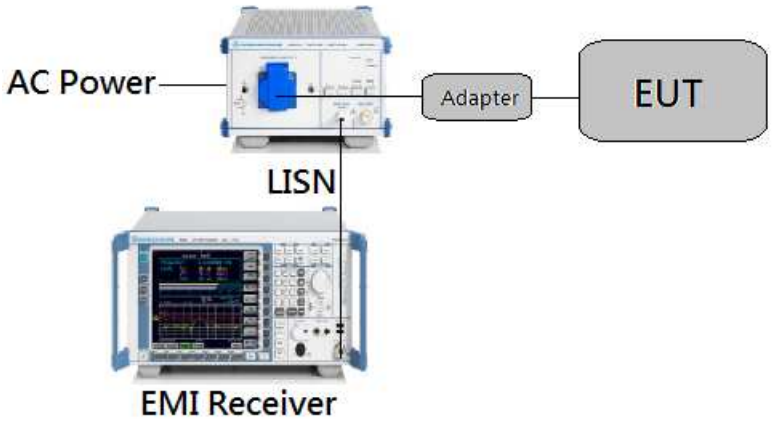
Step 3 All the companion devices are connected to the other LISN. The LISN should provide 50Uh/50ohms coupling impedance.

Step 4 The frequency range from 150 kHz to 30MHz was searched.

Step 5 Set the test-receiver system to peak detector and specified bandwidth with maximum hold mode.

Step 6 The measurement has to be done between each power line and ground at the power terminal.

8.3. Test Diagram



8.4. Limit

Frequency (MHz)	Conducted Limit (dBuV)	
	Q.P.	Ave.
0.15~0.50	66 – 56	56 – 46
0.50~5.00	56	46
5.00~30.0	60	50

8.5. Operating Environment Condition

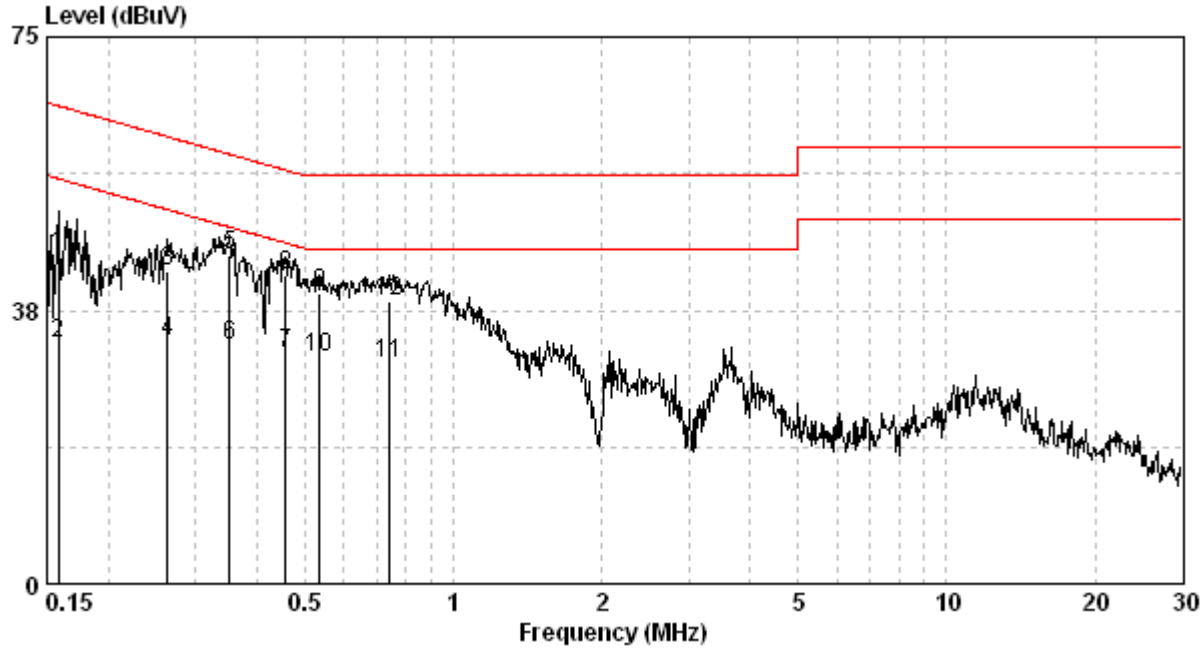
Temperature (℃) :	25
Relative Humidity (%) :	50
Atmospheric Pressure (hPa) :	1008
Test Date :	2017/8/15

8.6. Test Results

Phase:	Live Line			
Temperature:	25	℃	Model No.:	X1 PRO
Relative Humidity:	50	%	Test Date:	Aug. 15, 2017
Atmospheric Pressure:	1009	hPa	Remark:	N/A

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Margin (dB) Qp	Av
0.158	9.70	45.08	65.56	32.91	55.56	-20.48	-22.65
0.263	9.70	42.85	61.34	33.14	51.34	-18.49	-18.20
0.352	9.70	44.98	58.91	32.69	48.91	-13.93	-16.22
0.456	9.70	42.26	56.76	31.51	46.76	-14.50	-15.25
0.535	9.70	39.92	56.00	30.93	46.00	-16.08	-15.07
0.743	9.71	38.69	56.00	30.12	46.00	-17.31	-15.88

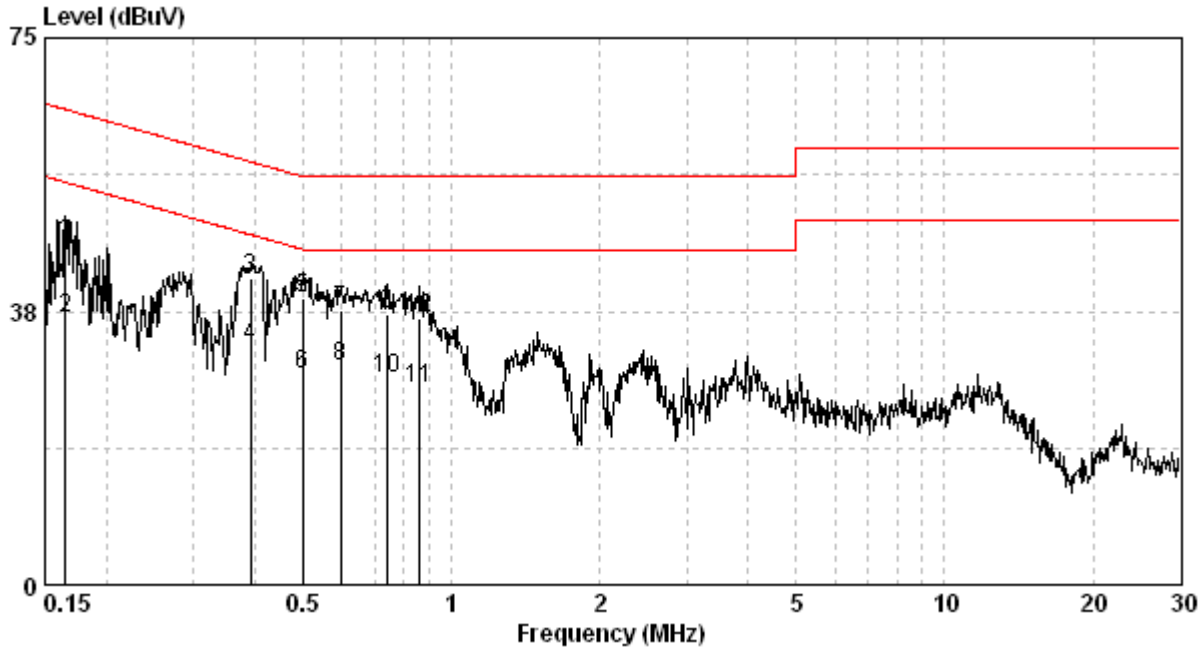
Remark:
1. Corr. Factor (dB) = AMN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)



Phase:	Neutral Line			
Temperature:	25	℃	Model No.:	X1 PRO
Relative Humidity:	50	%	Test Date:	Aug. 15, 2017
Atmospheric Pressure:	1009	hPa	Remark:	N/A

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level Av (dBuV)	Limit Av (dBuV)	Margin (dB) Qp	Av
0.165	9.73	46.94	65.21	36.63	55.21	-18.27	-18.58
0.391	9.73	41.96	58.03	32.72	48.03	-16.07	-15.31
0.499	9.73	39.37	56.01	28.93	46.01	-16.64	-17.08
0.598	9.73	37.51	56.00	30.00	46.00	-18.49	-16.00
0.739	9.73	36.98	56.00	28.31	46.00	-19.02	-17.69
0.862	9.73	36.63	56.00	27.06	46.00	-19.37	-18.94

Remark:
1. Corr. Factor (dB) = AMN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)



Appendix A: Test equipment list

Test Equipment/ Test site	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date
ESCI EMI Test Receiver	Rohde & Schwarz	ESCI	100018	2016/11/30	2017/11/29
Spectrum Analyzer	Rohde & Schwarz	FSP30	100245	2017/02/15	2018/02/14
Horn Antenna (1-18G)	SHWARZBECK	BBHA 9120 D	9120D-456	2014/08/29	2017/08/27
Horn Antenna (14-42G)	SHWARZBECK	BBHA 9170	BBHA9170159	2014/09/16	2017/09/14
Broadband Antenna	SHWARZBECK	VULB 9168	9168-172	2017/04/05	2018/04/04
Pre-Amplifier	EMC Co.	EMC12635SE	980205	2016/10/08	2017/10/07
Pre-Amplifier	MITEQ	JS4-26004000--27-8A	828825	2016/09/12	2017/09/11
Power Meter	Anritsu	ML2495A	0844001	2016/11/09	2017/11/08
Power Sensor	Anritsu	MA2411B	0738452	2016/11/09	2017/11/08
Signal Analyzer	Agilent	N9030A	MY51380492	2016/09/13	2017/09/12
966-2(A) Cable 9kHz~26.5GHz	SUHNER	SMA / EX 100	N/A	2017/08/15	2018/08/14
966-2(B) Cable 9kHz~26.5GHz	SUHNER	SUCOFLEX 104P	CB0005	2017/08/15	2018/08/14
RF Cable 9kHz~26.5GHz	SUHNER	SUCOFLEX 102	CB0006	2017/05/04	2018/05/03
966-2_3m Semi-Anechoic Chamber	966_2	CEM-966_2	N/A	2017/03/29	2018/03/28
High Pass Filter	Wainwright	WHKX3.0/ 18G-12SS	N/A	2017/06/02	2018/06/01
Active Loop Antenna	SCHWARZBECK MESS-ELEKTRONIC	FMZB1519	1519-067	2017/03/30	2018/03/29

Note: No Calibration Required (NCR).

Test Equipment/ Test site	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date
EMI Test Receiver	R&S	ESR7	101822	2017/06/01	2018/05/31
Two-Line V-Network	R&S	ENV216	101160	2016/11/16	2017/11/15
Two-Line -V-Network	R&S	ESH3-Z5	838979/014	2016/09/30	2017/09/29
CON-2 Shielded Room	N/A	N/A	N/A	NCR	NCR
CON-2 Cable	SUHNER	BNC / RG-58	2146637	2017/05/08	2018/05/07
Test software	Audix	e3	4.20040112L	NCR	NCR

Note: No Calibration Required (NCR).

Appendix B: Measurement Uncertainty

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

Item	Uncertainty
Vertically polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	5.14 dB
Horizontally polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	5.22 dB
Vertically polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m	3.64 dB
Horizontally polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m	3.64 dB
Vertically polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m	2.68 dB
Horizontally polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m	2.68 dB
Radiated disturbances from 9kHz~30MHz in a semi-anechoic chamber at a distance of 3m	3.54 dB
Emission on the Band Edge Test	3.64 dB
Minimum 6dB Bandwidth	0.85 dB
Maximum Conducted Output Power	0.42 dB
Power Spectral Density	0.85 dB
Emissions In Non-Restricted Frequency Bands	0.85 dB
AC Power Line Conducted Emission	2.48 dB