FCC TEST REPORT

According to

FCC Rules and Regulations Part 15 Subpart C

Applicant	:	**EGROUP COMPUTER SYSTEMS CO., LTD.**
Address	:	**No.239, Sec. 2, Tiding Blvd., Neihu Dist, Taipei City 14, Taiwan (R.O.C)**
Manufacturer	:	**EGROUP COMPUTER SYSTEMS CO., LTD.**
Address	:	**No.239, Sec. 2, Tiding Blvd., Neihu Dist, Taipei City 14, Taiwan (R.O.C)**
Equipment	:	**Tablet PC**
Model No.	:	**TE70SA3**
FCC ID	:	**2AEKR-TE70SA3**

■ The test result refers exclusively to the test presented test model / sample.

■ Without written approval of ***Cerpass Technology Corp.*** the test report shall not be reproduced except in full.

■ The test report must not be used by the clients to claim product certification approval by **NVLAP** or any agency of the Government.

I HEREBY CERTIFY THAT :
The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.10 – 2013** and the energy emitted by this equipment was ***passed.***
CISPR PUB. 22 and FCC Part 15 in both radiated and conducted emission class B limits. Testing was carried out on Jul 30th, 2015 at ***Cerpass Technology Corp.***

Prepared By: _____
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Approved By: _____
Miro Chueh

Laboratory accreditation

NVLAP LAB CODE 200814-0

Release History

Attachment No.	Date	Description
SEFB1507030	2015-07-30	Initial release

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1. Report of Measurements and Examinations

1.1 List of Measurements and Examinations

Performed Test Item	Normative References	Test Performed	Deviation	Result
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.207	Yes	N/A	Pass
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.209	Yes	No	Pass
RF Antenna Conducted Spurious	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(d)	Yes	No	Pass
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2014 15.247(d)	Yes	No	Pass
Operation Frequency Range of 20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2014 15.215(c)	Yes	No	Pass
Occupied Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(a)(2)	Yes	No	Pass
Output Power	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(b)(3)	Yes	No	Pass
Power Spectral Density	FCC CFR Title 47 Part 15 Subpart C: 2014 Section 15.247(e)	Yes	No	Pass

2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Product Name:	Tablet PC	
Model Name:	TE70SA3	
GPS	Class of SRD	Class 3
	Antenna Gain	PCB 1.27dBi
2G:	Support Band	GSM850/PCS1900
	GPRS Class	Class 12
	Uplink	GSM 850: 824~849MHz PCS 1900: 1850~1910MHz
	Downlink	GSM 850: 869~894MHz PCS 1900: 1930~1990MHz
	Type of modulation	GMSK for GPRS; 8PSK for EDGE
	Antenna Type	Dipole
	Antenna Gain	GSM 850: 1.17dBi PCS1900: 1.89dBi
3G	Support Band	WCDMA Band 2/WCDMA Band 5
	Uplink	WCDMA Band 2: 1850~1910MHz WCDMA Band 5: 824~849MHz
	Downlink	WCDMA Band 2: 1930~1990MHz WCDMA Band 5: 869~894MHz
	Type of modulation	QPSK for Uplink
	Antenna Type	Dipole
	Antenna Gain	Band 2: 1.98dBi Band 5: 1.34dBi
Bluetooth:	Bluetooth Specification	3.0HS + Version 4.0
	Modulation Type	V3.0+HS: GFSK, Pi/4 DQPSK, 8DPSK V4.0: GFSK
	Frequency Range	2402 - 2480 MHz
	Channel Number	V3.0+HS: 79

		V4.0: 40
	Data Rate	V3.0+HS: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps (8DPSK) V4.0: 1Mbps(GFSK)
	Channel Separation	V3.0+HS: 1MHz V4.0: 2MHz
	Antenna Type/ gain	PCB Antenna 1.27 dBi
Wi-Fi	Spreading	802.11b: DSSS 802.11g / n: OFDM
	Frequency Range	802.11b/g/n(20MHz): 2412-2462MHz
	Number of Channels	802.11b/g/n (20MHz):11
	Data Rate	802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: up to 300Mbps
	Antenna Type	PCB Antenna
	Peak Antenna Gain	1.27dBi
Adapter	Model No.:	WB-10E05FU
	Input	100-240V~50-60Hz 0.4A max.
	Output:	DC 5V, 2A

2.2 Carrier Frequency of Channels

Bluetooth Working Frequency of Each Channel: (For V4.0)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2404 MHz	02	2406 MHz	03	2408 MHz
04	2410 MHz	05	2412 MHz	06	2414 MHz	07	2416 MHz
08	2418 MHz	09	2420 MHz	10	2422 MHz	11	2424 MHz
12	2426 MHz	13	2428 MHz	14	2430 MHz	15	2432 MHz
16	2434 MHz	17	2436 MHz	18	2438 MHz	19	2440 MHz
20	2442 MHz	21	2444 MHz	22	2446 MHz	23	2448 MHz
24	2450 MHz	25	2452 MHz	26	2454 MHz	27	2456 MHz
28	2458 MHz	29	2460 MHz	30	2462 MHz	31	2464 MHz
32	2466 MHz	33	2468 MHz	34	2470 MHz	35	2472 MHz
36	2474 MHz	37	2476 MHz	38	2478 MHz	39	2480 MHz

2.3 Test Manner

1	Transmit by BLE

2.4 Description of Test System

No	Device	Manufacturer	Model No.	Description
1	N/A	N/A	N/A	N/A

2.5 General Information of Test

Test Site:	Cerpass Technology Corp.
Performand Location :	No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China
NVLAP LAB Code :	200814-0
FCC Registration Number :	916572, 331395
IC Registration Number :	7290A-1, 7290A-2

2.6 Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE/NEUTRAL	±2.71 dB
Radiated Emission	30 MHz ~ 25GHz	Vertical	±4.11 dB
		Horizontal	±4.10 dB
Occupied Bandwidth	---	---	±7500 Hz
Maximum Peak Output Power	---	---	±1.4 dB
Band Edges	---	---	±2.2 dB
Power Spectral Density	---	---	±2.2 dB

3. Antenna Requirements

3.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

4. Test of Conducted Emission

4.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.10-2013 Section 6.2. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 6.2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

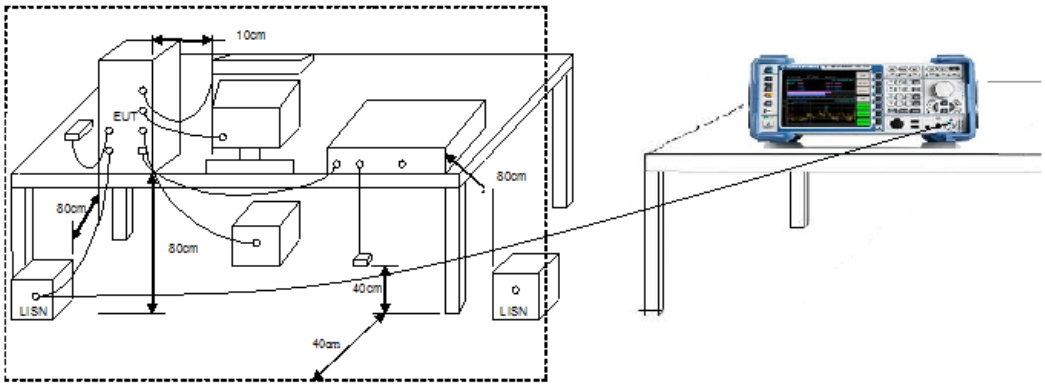
Frequency (MHz)	Quasi Peak (dB μ V)	AVG (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

4.2 Test Procedures

The EUT was setup according to ANSI C63.10, 2013 and tested according to DTS test procedure of Oct 2014 KDB558074 for compliance to FCC 47CFR 15.247 requirements. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs) Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source. The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length. Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

4.3 Typical Test Setup

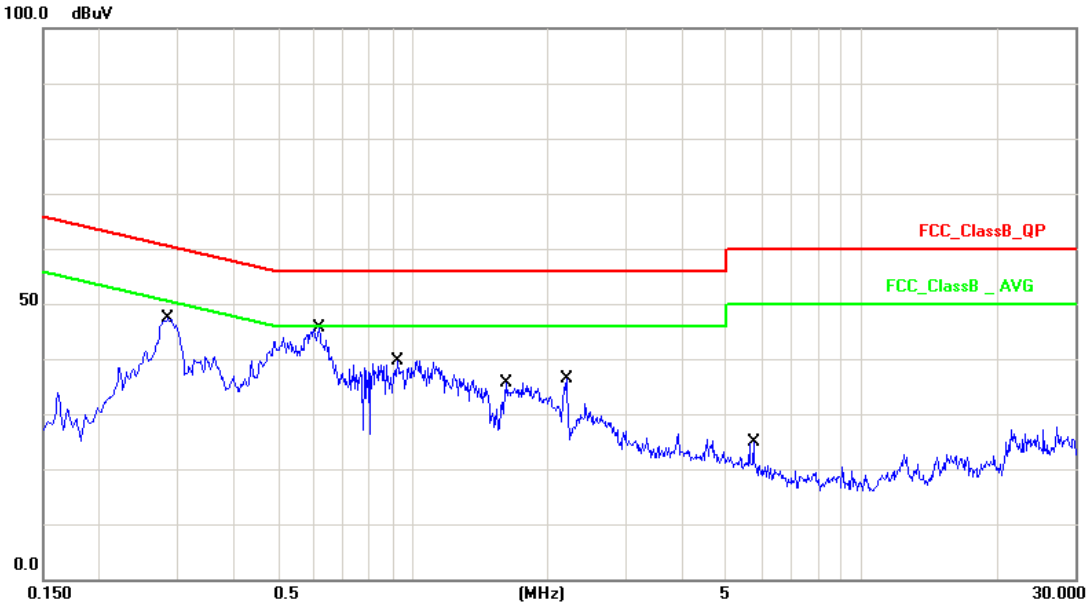


4.4 Measurement Equipment

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Test Receiver	R&S	ESCI	100565	2015.03.24	2016.03.23
AMN	R&S	ESH2-Z5	100182	2014.09.04	2015.09.03
Two-Line V-Network	R&S	ENV216	100325	2014.12.04	2015.12.03
ISN	FCC	FCC-TLISN-T2-02	20379	2015.03.24	2016.03.23
ISN	FCC	FCC-TLISN-T4-02	20380	2015.03.24	2016.03.23
ISN	FCC	FCC-TLISN-T8-02	20381	2015.03.24	2016.03.23
ISN	TESEQ	ISN ST08	30175	2015.03.24	2016.03.23
Current Probe	R&S	EZ-17	100303	2015.04.04	2016.04.03
Passive Voltage Probe	R&S	ESH2-Z3	100026	2015.03.29	2016.03.28
Pulse Limiter	R&S	ESH3-Z2	100529	2015.03.29	2016.03.28
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-004	2015.03.31	2016.03.30

4.5 Test Result and Data

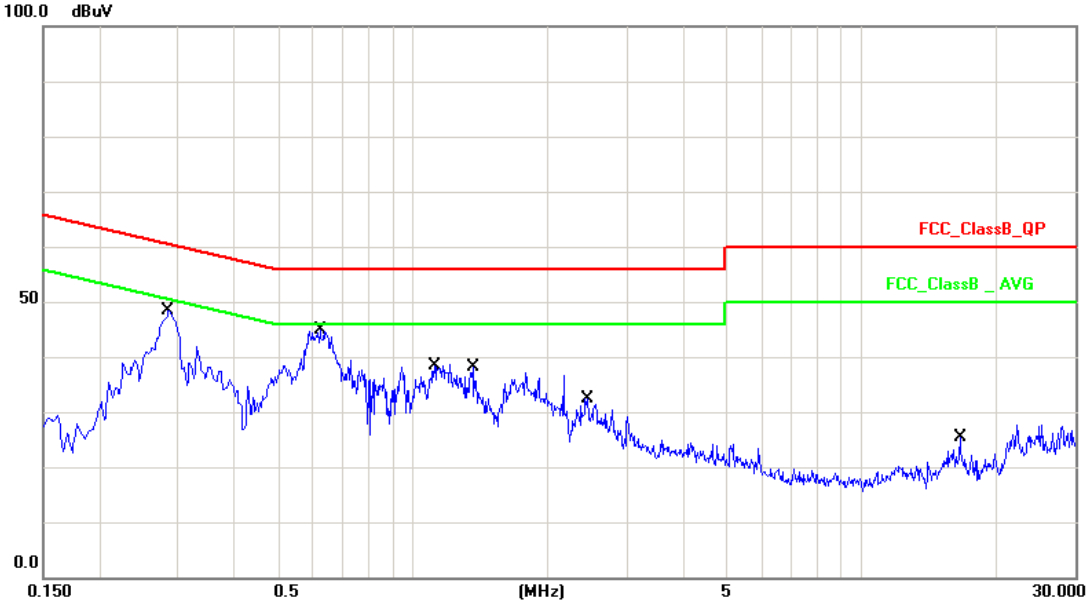
Test Mode :	Mode 1: Normal Operation with BT on		
AC Power :	AC 120V/60Hz	Phase :	LINE
Temperature :	22°C	Humidity :	50%
Pressure(mbar) :	1002	Date:	2015/07/15



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2860	10.14	37.87	48.01	60.64	-12.63	QP
2	0.2860	10.14	27.43	37.57	50.64	-13.07	AVG
3	0.6180	10.15	44.89	55.04	56.00	-0.96	QP
4	0.6180	10.15	29.15	39.30	46.00	-6.70	AVG
5	0.9260	10.16	30.59	40.75	56.00	-15.25	QP
6	0.9260	10.16	20.61	30.77	46.00	-15.23	AVG
7	1.6220	10.17	20.52	30.69	56.00	-25.31	QP
8	1.6220	10.17	13.17	23.34	46.00	-22.66	AVG
9	2.2020	10.17	14.83	25.00	56.00	-31.00	QP
10	2.2020	10.17	8.86	19.03	46.00	-26.97	AVG
11	5.7700	10.25	6.89	17.14	60.00	-42.86	QP
12	5.7700	10.25	1.42	11.67	50.00	-38.33	AVG

Note: Measurement Level = Reading Level + Correct Factor

Test Mode :	Mode 1: Normal Operation with BT on		
AC Power :	AC 120V/60Hz	Phase :	NEUTRAL
Temperature :	22°C	Humidity :	50%
Pressure(mbar) :	1002	Date:	2015/07/15



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2860	10.14	37.74	47.88	60.64	-12.76	QP
2	0.2860	10.14	27.59	37.73	50.64	-12.91	AVG
3	0.6220	10.15	43.64	53.79	56.00	-2.21	QP
4	0.6220	10.15	29.46	39.61	46.00	-6.39	AVG
5	1.1180	10.16	28.45	38.61	56.00	-17.39	QP
6	1.1180	10.16	20.30	30.46	46.00	-15.54	AVG
7	1.3619	10.16	23.18	33.34	56.00	-22.66	QP
8	1.3619	10.16	16.26	26.42	46.00	-19.58	AVG
9	2.4500	10.18	15.42	25.60	56.00	-30.40	QP
10	2.4500	10.18	9.51	19.69	46.00	-26.31	AVG
11	16.6380	10.46	5.66	16.12	60.00	-43.88	QP
12	16.6380	10.46	0.29	10.75	50.00	-39.25	AVG

Note: Measurement Level = Reading Level + Correct Factor

5. Test of Radiated Emission

5.1 Test Limit

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. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

FREQUENCIES(MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE(meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	24000/F(kHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

5.2 Test Procedures

a. The EUT was placed on a rotatable table top 0.8 meter for frequency below 1GHz and 1.5meter for frequency above 1GHz above ground.

b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.

c. The table was rotated 360 degrees to determine the position of the highest radiation.

d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.

e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.

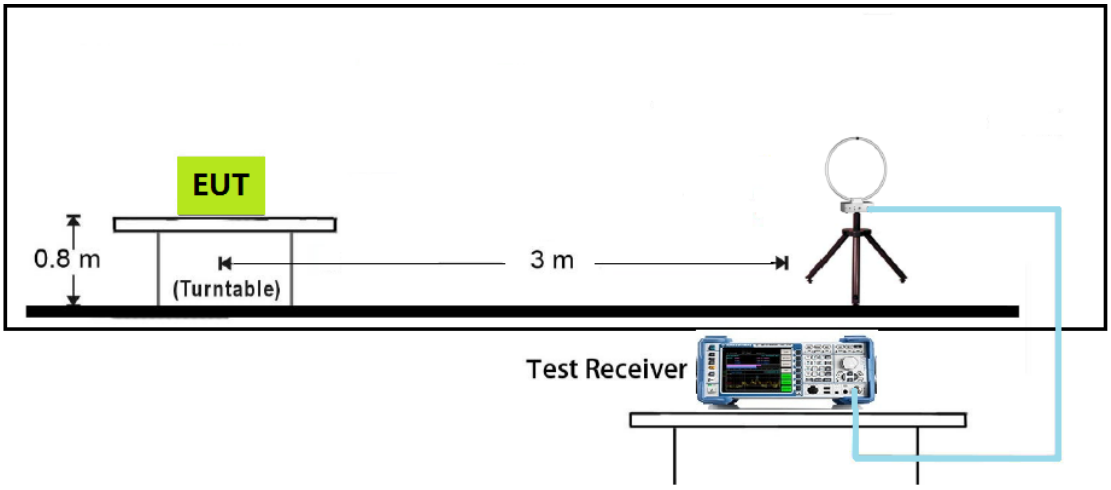
f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.

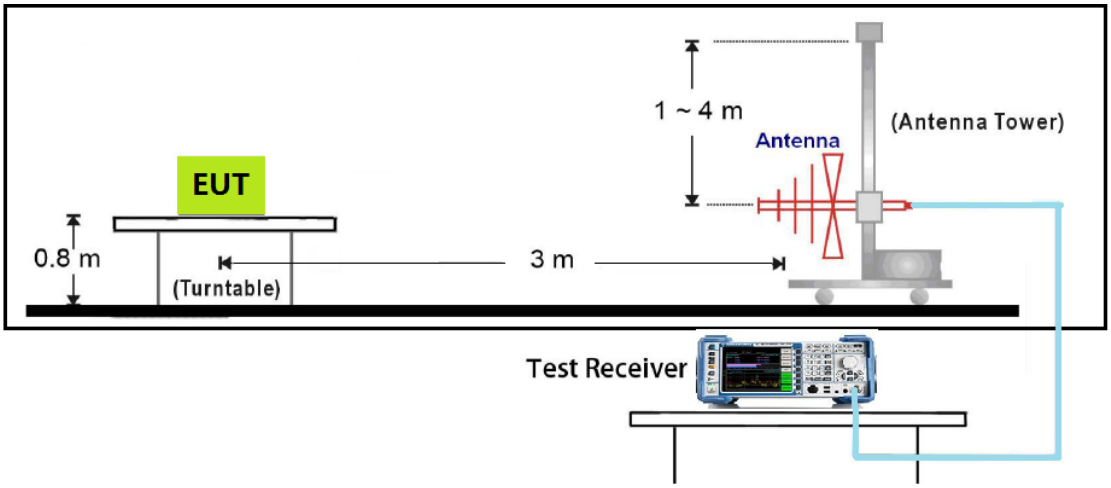
h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than AVG limit (that means the emission level in peak mode also complies with the limit in AVG mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in AVG mode again and reported.

5.3 Typical Test Setup

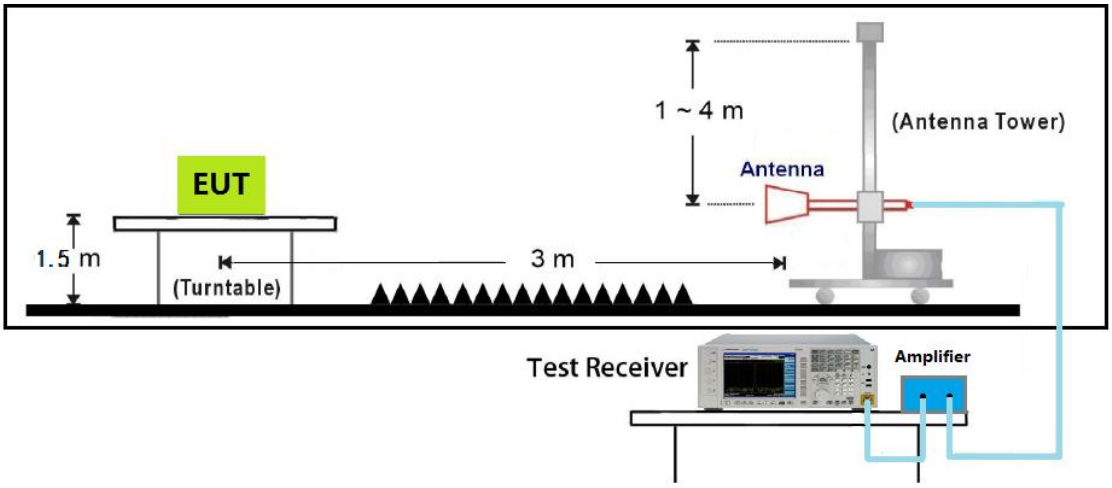
9kHZ~30MHz Test Setup



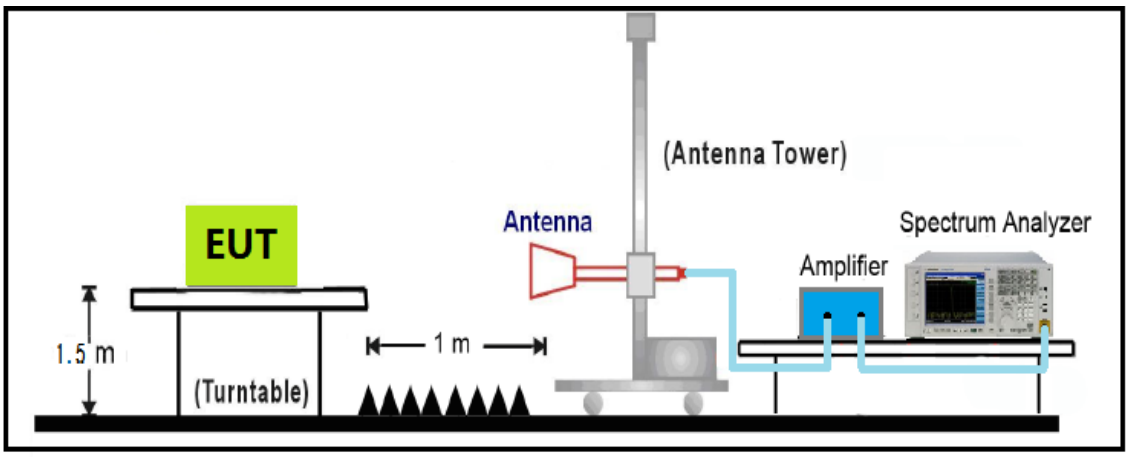
Below 1GHz Test Setup



1GHz~18GHz Test Setup



18GHz~40GHz Test Setup



5.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI	100563	2015.02.10	2016.02.09
H64 Preamplifier	HP	8447F	3113A05582	2015.03.24	2016.03.23
Preamplifier	Agilent	8449B	3008A02342	2015.03.24	2016.03.23
Ultra Broadband Antenna	R&S	HL562	100362	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-348	2015.05.24	2016.05.23
Spectrum Analyzer	R&S	FSP40	100324	2015.03.23	2016.03.24
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30

5.5 Test Result and Data

The 9kHz-30MHz spurious emission is under limit 20dB more.

5.5.1 Test Result and Data of Transmitter

Mode 1: Transmitter-1Mbps(GFSK_BLE)

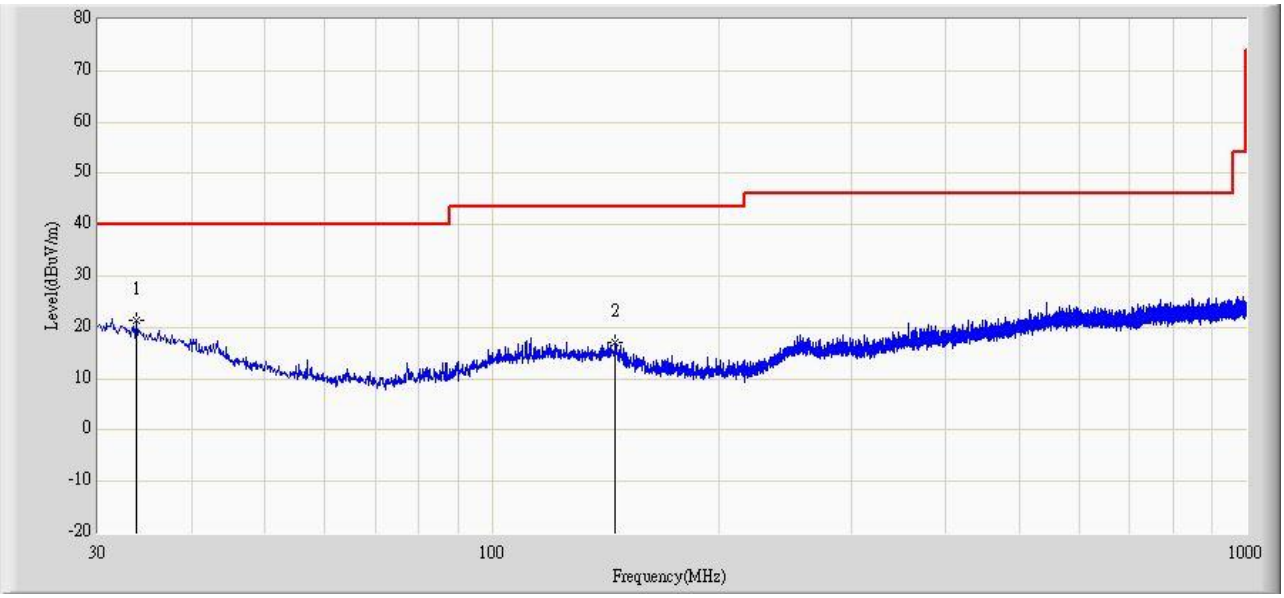
CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
0	H	4808.0	37.6	7.9	45.5	54(Note2)	-8.5	PK
	V	4808.0	37.9	7.8	45.7	54(Note2)	-8.3	PK
	H	7205.0	31.2	10.6	41.8	54(Note2)	-12.2	PK
	V	7205.0	32.3	10.6	42.9	54(Note2)	-11.1	PK
	H	9608.0	28.9	12.5	41.4	54(Note2)	-12.6	PK
	V	9608.0	28.8	12.6	41.4	54(Note2)	-12.6	PK
19	H	4876.0	33.8	8.0	41.8	54(Note2)	-12.2	PK
	V	4876.0	35.5	8.0	43.5	54(Note2)	-10.5	PK
	H	7324.0	32.3	10.8	43.1	54(Note2)	-10.9	PK
	V	7324.0	32.1	10.8	42.9	54(Note2)	-11.1	PK
	H	9760.0	28.5	12.7	41.2	54(Note2)	-12.8	PK
	V	9760.0	28.2	12.8	41.0	54(Note2)	-13.0	PK
39	H	4961.0	36.6	8.2	44.8	54(Note2)	-9.2	PK
	V	4961.0	34.4	8.3	42.7	54(Note2)	-11.3	PK
	H	7443.0	31.7	10.9	42.6	54(Note2)	-11.4	PK
	V	7443.0	29.9	10.9	40.8	54(Note2)	-13.2	PK
	H	9920.0	27.4	13.2	40.6	54(Note2)	-13.4	PK
	V	9920.0	26.2	13.3	39.5	54(Note2)	-14.5	PK

Note 1: The test trace is same as the ambient noise (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

2: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

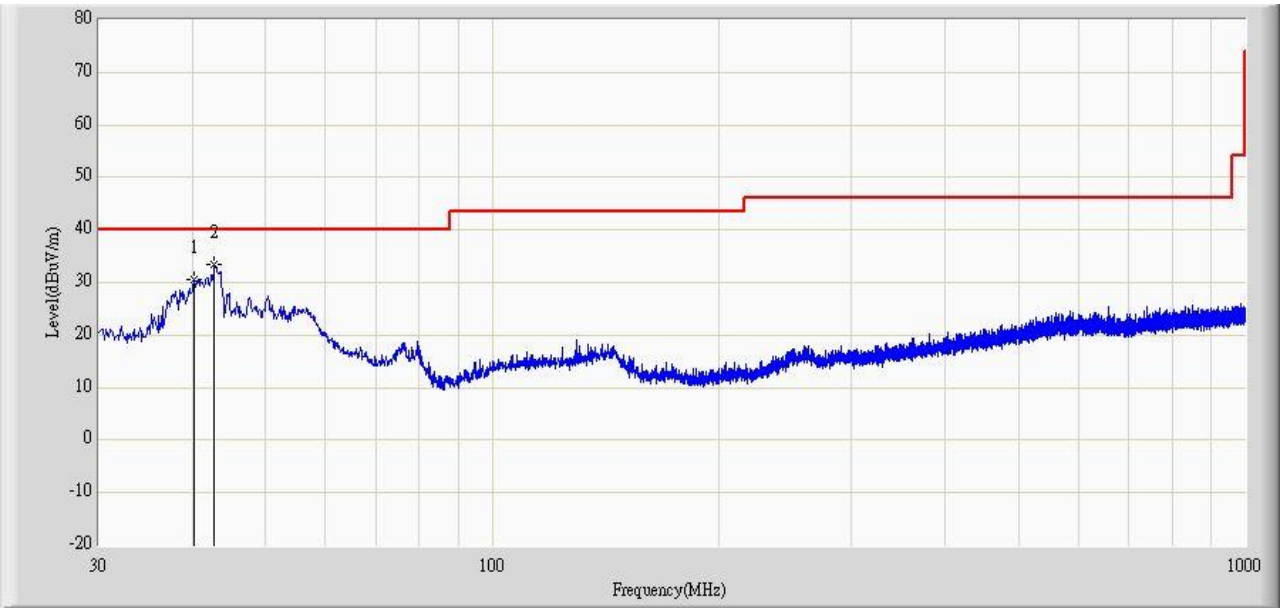
The worst case of Radiated Emission below 1GHz:

Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_27611(30-2000MHz)	Polarity: Horizontal
EUT: TE70SA3	Power: DC
Note: Mode1: Transmit at channel 2402MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	33.759	21.389	5.093	-18.611	40.000	16.296	QP
2		145.673	17.148	5.765	-26.352	43.500	11.383	QP

Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: CBL6112D_27611(30-2000MHz)	Polarity: Vertical
EUT: TE70SA3	Power: DC
Note: Mode1: Transmit at channel 2402MHz by BLE	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		40.185	30.548	16.805	-9.452	40.000	13.743	QP
2	*	42.731	33.561	21.077	-6.439	40.000	12.484	QP

6. Occupied Bandwidth

6.1 Test Limit

Systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725- 5850 MHz band. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.2 Test Procedures

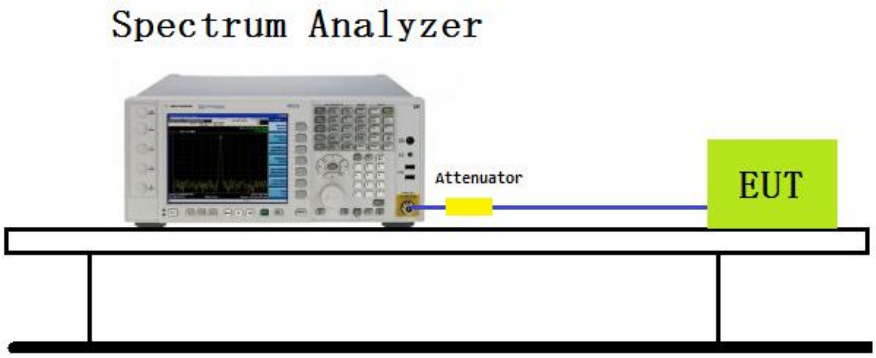
a. The transmitter output was connected to the spectrum analyzer.

b. Set RBW of spectrum analyzer to 100KHz and VBW ≥ 3x RBW.

c. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.

d. The 6dB Bandwidth was measured and recorded.

6.3 Test Setup Layout



6.4 Measurement Equipment

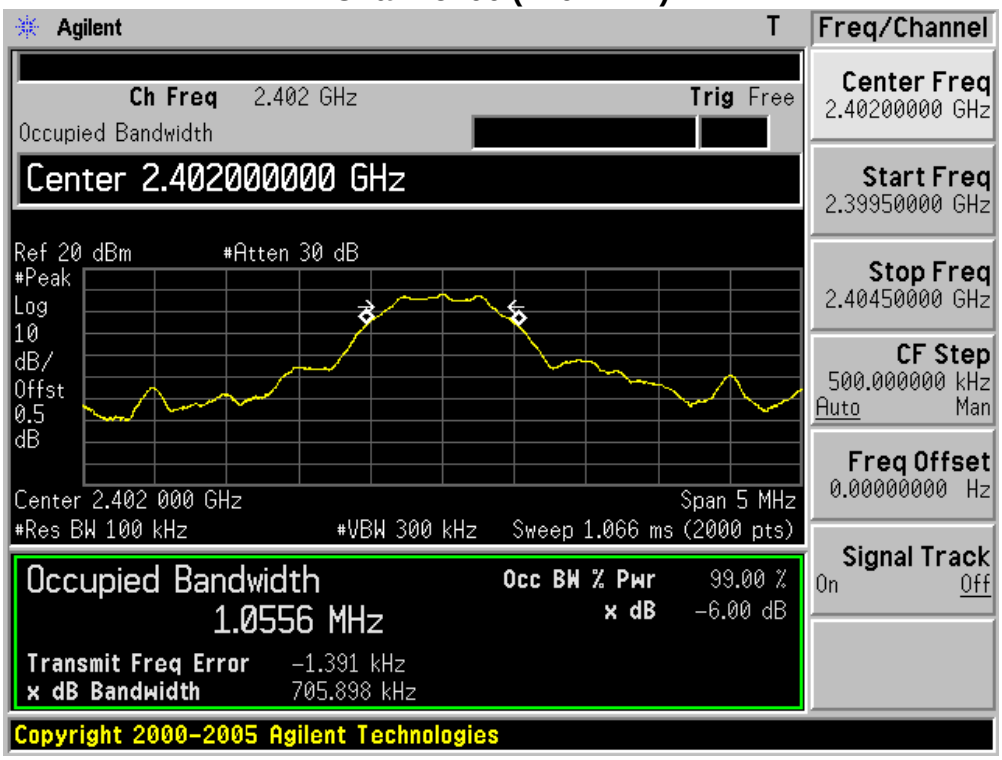
Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.02	2015.09.03

6.5 Test Result and Data

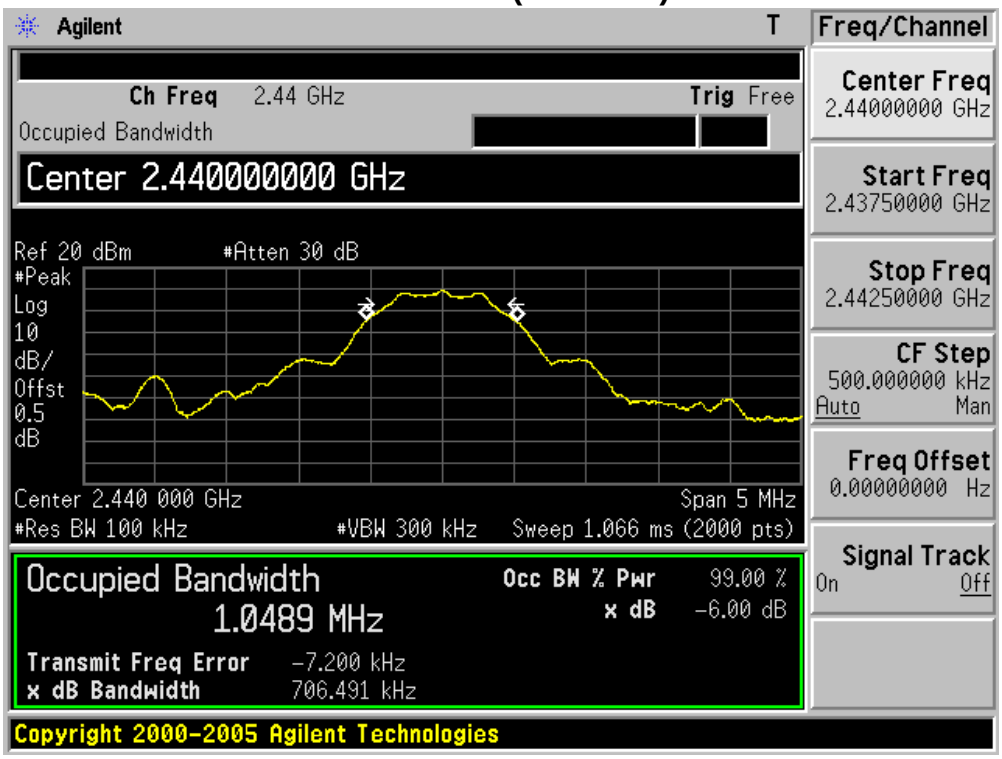
Test Item	:	6dB Occupied Bandwidth
Test Site	:	AC104
Test Mode	:	Mode 1: Transmit-1Mbps(GFSK_BLE)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
00	2402	705.9	500	Pass
19	2440	706.5	500	Pass
39	2480	702.0	500	Pass

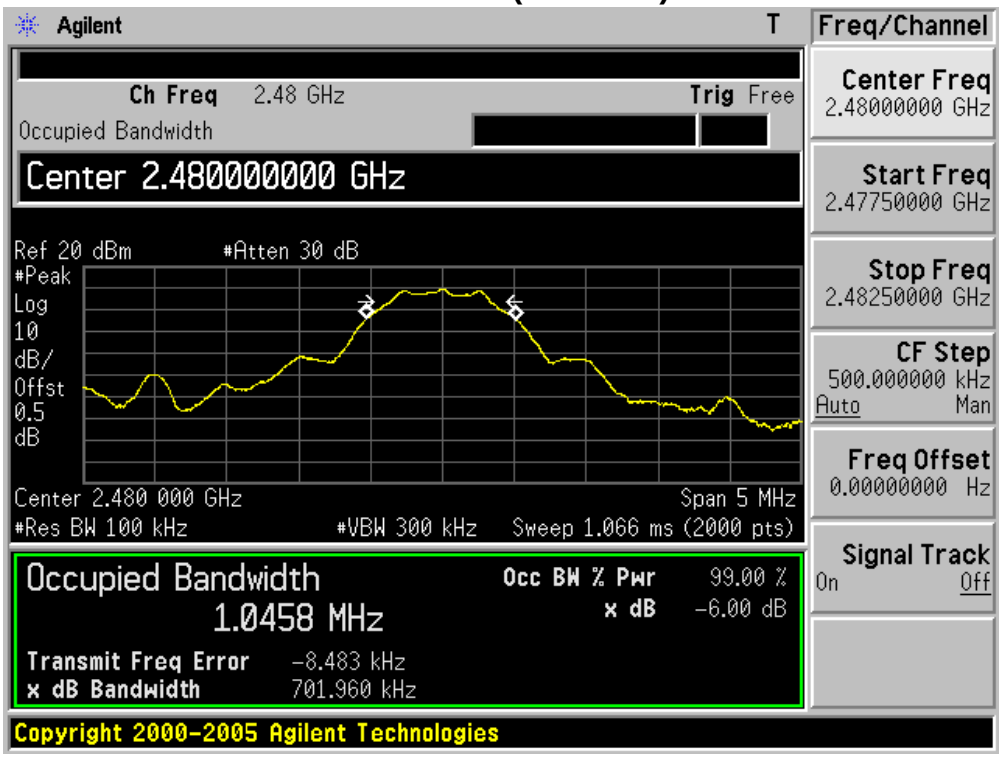
Channel 00 (2402MHz)



Channel 19 (2440MHz)



Channel 39 (2480MHz)



7. Maximum Output Power

7.1 Test Limit

The maximum power shall be less 1Watt (30dBm).

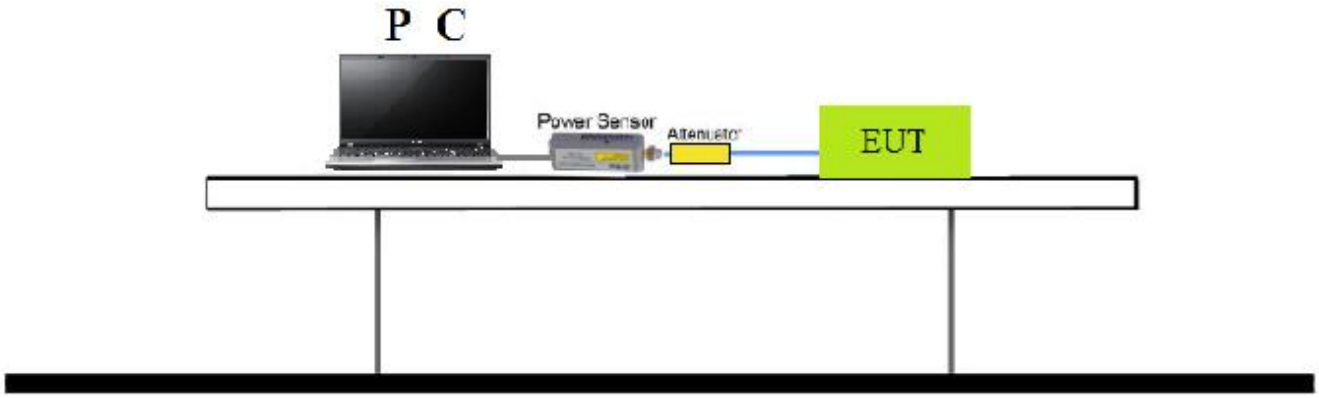
The conducted output power limits specified in §15.247(b) are based on the use of transmit antennae with directional gains that do not exceed 6 dBi. If transmit antennae with an effective directional gain greater than 6 dBi are used, then the conducted output power from the EUT shall be reduced as specified in §15.247(b) and (c).

Per RSS247 Issue 1 Section 5.4(4), for DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum conducted output power shall not exceed 1W.

7.2 Test Procedure

The EUT was tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements. The maximum conducted AVG output power using KDB 558074 D01v03r03 - Section 9.2.3.2 AVGPM-G Average Power Method.

7.3 Test Setup Layout



7.4 Measurement Equipment

Instrument	Manufacturer	Type No.	Serial No.	Calibration Date	Valid Date.
PC	Lenovo	E40-70	MP078UQV	N/A	N/A
POWER SENSOR	Agilent	U2021XA	MY53260020	2015/03/27	2016/03/26
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-003	2015/03/31	2016/03/30

7.5 Test Result and Data

Test Item	Maximum Average Output Power
Test Mode	Transmit by BLE
Test Date	2015-07-30

Channel No.	Frequency (MHz)	Average Power (dBm)	Required Limit (dBm)	Result
00	2402	-2.56	30	Pass
19	2440	-2.49	30	Pass
39	2480	-2.61	30	Pass

8. Band Edges Measurement

8.1 Test Limit

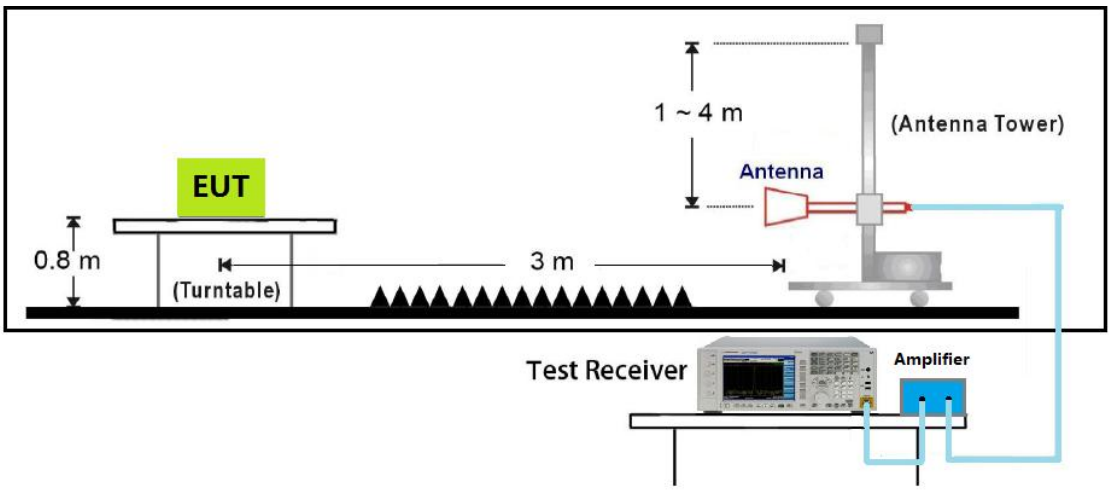
Below –20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

8.2 Test Procedure

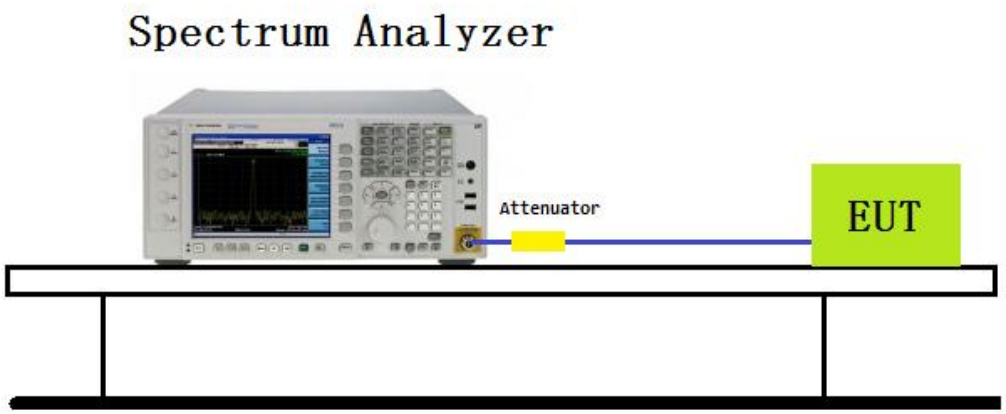
a. The transmitter output was connected to the spectrum analyzer via a low lose cable.
b. Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
c. The band edges was measured and recorded.

8.3 Test Setup Layout

Radiated



Conducted



8.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI	100563	2015.02.10	2016.02.09
H64 Preamplifier	HP	8447F	3113A05582	2015.03.24	2016.03.23
Preamplifier	Agilent	8449B	3008A02342	2015.03.24	2016.03.23
Ultra Broadband Antenna	R&S	HL562	100362	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-348	2015.05.24	2016.05.23
Spectrum Analyzer	R&S	FSP40	100324	2015.03.23	2016.03.24
Spectrum Analyzer	N9010A	Agilent	MY54200207	2014.10.09	2015.10.08
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30

Test Result and Data

Radiated

Site: AC102	Time: 2015/07/24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2402MHz by BLE	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	61.740	29.936	-12.260	74.000	31.804	PK
2	*	2401.791	93.970	62.120	N/A	N/A	31.846	PK

Site: AC102	Time: 2015/07/24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2402MHz by BLE	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.640	15.836	-6.360	54.000	31.804	AV
2	*	2401.884	54.409	22.562	N/A	N/A	31.847	AV

Site: AC102	Time: 2015/07/24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2402MHz by BLE	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	61.366	29.562	-12.634	74.000	31.804	PK
2	*	2401.977	92.860	61.013	N/A	N/A	31.847	PK

Site: AC102	Time: 2015/07/24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2402MHz by BLE	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	47.671	15.867	-6.329	54.000	31.804	AV
2	*	2401.977	56.047	24.200	N/A	N/A	31.847	AV

Site: AC102	Time: 2015/07/24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2480MHz by BLE	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.024	93.920	61.790	N/A	N/A	32.128	PK
2		2483.500	61.057	28.917	-12.943	74.000	32.140	PK

Site: AC102	Time: 2015/07/24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2480MHz by BLE	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.980	54.764	22.636	N/A	N/A	32.128	AV
2		2483.500	47.788	15.648	-6.212	54.000	32.140	AV

Site: AC102	Time: 2015/07/24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2480MHz by BLE	

No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.068	91.617	59.489	N/A	N/A	32.128	PK
2		2483.500	61.332	29.192	-12.668	74.000	32.140	PK

Site: AC102	Time: 2015/07/24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Tablet PC	Power: DC
Note: Mode1: Transmit at channel 2480MHz by BLE	

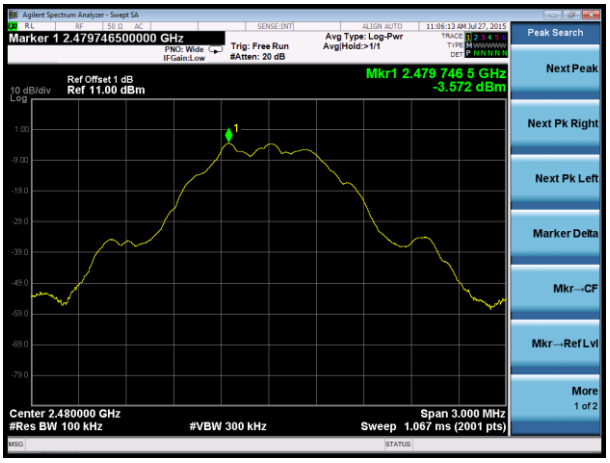
No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2480.024	55.655	23.527	N/A	N/A	32.128	AV
2		2483.500	47.747	15.607	-6.253	54.000	32.140	AV

Band Edge (20dBc RF Conducted Measurement)

Mode 1: Transmit by BLE (2402MHz)

Mode 1: Transmit by BLE (2440MHz)

Mode 1: Transmit by BLE (2480MHz)



9. Power Spectral Density

9.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

9.2 Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using KDB 558074 section 10.2 PKPSD (peak PSD) method.

a) Set analyzer center frequency to DTS channel center frequency.

b) Set the span to 1.5 times the DTS bandwidth.

c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz. (Actually we use 3kHz RBW)

d) Set the VBW ≥ 3 × RBW.

e) Detector = peak.

f) Sweep time = auto couple.

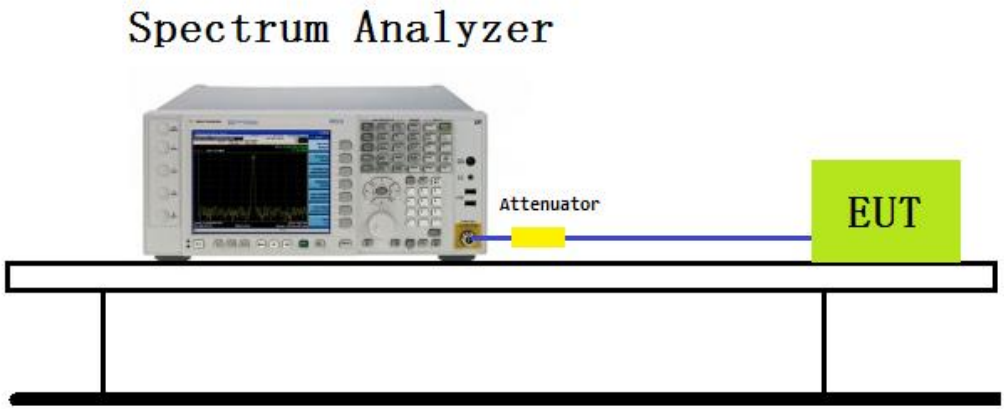
g) Trace mode = max hold.

h) Allow trace to fully stabilize.

i) Use the peak marker function to determine the maximum amplitude level within the band.

j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

9.3 Test Setup Layout



9.4 Measurement Equipment

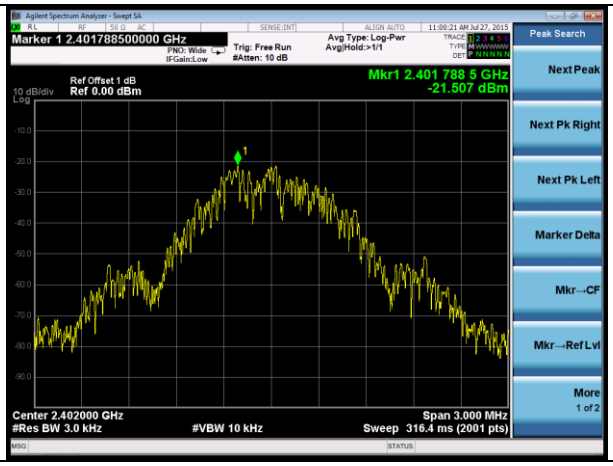
Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	N9010A	Agilent	MY54200207	2014/10/09	2015/10/08

9.5 Test Result and Data

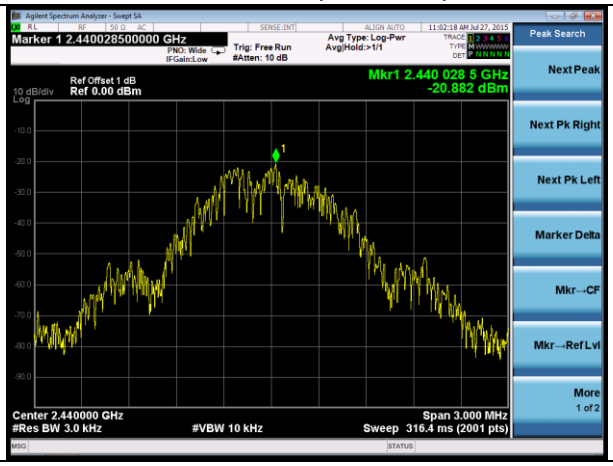
Test Item	Power Spectral Density
Test Mode	Transmit by BLE
Test Date	2015-07-27

Channel	Frequency (MHz)	Power Spectral Density (dBm/3kHz)	Limit (dBm/3kHz)	Result
00	2402	-21.507	8	Pass
19	2440	-20.882	8	Pass
39	2480	-22.304	8	Pass

Channel 00 (2402MHz)



Channel 19 (2440MHz)



Channel 39 (2480MHz)

10. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.250
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

**: Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

10.1 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:

This device complies with part 15 of the FCC Rules. Operation is subject to the following twoconditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.