Test Report

Product name ..... :	Wireless Subwoofer
Trademark ..... :	TCL, FFALCON
Model no. ..... :	S60K-SW
Series Model(s). ..... :	S60K Pro-SW, S60KS-SW, S61K-SW, S62K-SW, S63K-SW, S64K-SW
FCC ID ..... :	2BEHES60KSW
Report No ..... :	C260227073-RF04
Test Standards ..... :	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209
Applicant ..... :	TCL OVERSEAS MARKETING LTD.
Address of applicant ..... :	Unit 1905, 19/F, Nan Fung Centre, 264-298 Castle Peak Road, Tsuen Wan, New Territories, Hong Kong
Manufacturer ..... :	TCL OVERSEAS MARKETING LTD.
Manufacturer Address ..... :	Unit 1905, 19/F, Nan Fung Centre, 264-298 Castle Peak Road, Tsuen Wan, New Territories, Hong Kong
Date of Test Date ..... :	Feb 27, 2026 to May 13, 2026
Date of issue. ..... :	May 18, 2026
Test result ..... :	Compliance

Prepared By : Adil Yang/Engineer

Reviewed By : Greg Zhang/Engineer

Approved By : Tom Gan/Manager

The test results in the report only apply to the tested sample. The test report shall be invalid without all the signatures of preparer, reviewer and approver. Any objections must be raised to CSIC within 15 days since the date when the report is received. It will not be taken into consideration beyond this limit.

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	May 18, 2026	Initial Issue	ALL	Adil Yang

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1. TEST SUMMARY

1.1. TEST DESCRIPTION

Test procedures according to the technical standards:

Item	Clause	Result	Note
Conducted Emission on AC Mains	Part 15.207(a)	PASS	
Maximum Conducted Output Power	Part 15.247(b)(3)	PASS	
Radiated Spurious Emission	Part 15.247(c) Part 15.205	PASS	
Conducted Spurious Emissions Measured in 100 kHz Bandwidth	Part 15.247(d)	PASS	
Conducted Power Spectral Density	Part 15.247(e)	PASS	
6dB Bandwidth	Part 15.247(a)(2)	PASS	
Antenna Requirement	Part 15.247(b)(4) Part 15.203	PASS	

Note:
1) “N/A” denotes test is not applicable in this Test Report.
2) All tests are according to ANSI C63.10-2020.
3) The statements of test result on the above are decided by the request of test standard only; the measurement uncertainties are not factored into this compliance determination.
4) The information of measurement uncertainty is available upon the customer’s request.

1.2. TEST FACILITY

Shenzhen Central Standard International Center Co., Ltd. (CSIC)

Room 201, Building 1, Mogen Fashion Industrial Park, No. 10, Shilongzai Road, Xinshi Community, Dalang Street, Longhua District, Shenzhen.

The test facility is recognized, certified or accredited by the following organizatios:

CNAS	Registration No.: L11671	
FCC	Registration No.: 0031378433	Designation Number: CN1317
IC	CAB identifier: CN0051	
A2LA	Lab Cert. No.: 6426.01	

1.3. MEASUREMENT UNCERTAINTY

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Below is the best measurement capability for Shenzhen Central Standard International Center Co., Ltd.

Test Items	Measurement Uncertainty	Notes
RF output power, conducted	±1.06dB	(1)
Unwanted Emissions, conducted	±1.32dB	(1)
All emissions, radiated 9KHz-30MHz	±4.86dB	(1)
All emissions, radiated 30-1GHz	±4.86dB	(1)
All emissions, radiated 1G-6GHz	±5.08dB	(1)
All emissions, radiated>6G	±5.30dB	(1)
Conducted Emission (9KHz-150KHz)	±3.18dB	(1)
Conducted Emission (150KHz-30MHz)	±3.20dB	(1)

Note(1): This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

2. GENERAL INFORMATION

2.1. GENERAL DESCRIPTION OF EUT

EUT(Product Specifications)	
Product Name:	Wireless Subwoofer
Model:	S60K-SW
Series Model(s):	S60K Pro-SW, S60KS-SW, S61K-SW, S62K-SW, S63K-SW, S64K-SW
Power supply:	AC 100-240V 50/60Hz
Hardware version:	S60K-SW
Software version:	V15
Technical Specification of SRD	
Frequency Range:	2402 MHz to 2480 MHz, 2404 MHz to 2478 MHz
Type of Modulation:	GFSK
Channel Number:	1M: 40 channels 2M: 38 channels
Data Rate:	1 Mbps, 2 Mbps
Channel Separation:	2 MHz
Antenna Type:	PCB
Antenna Gain:	3.16 dBi
Remark:	

Note:

1. For a more detailed features description, please refer to the manufacture's specifications or the user's manual.
2. Full tests were applied to the sample(C260227073-Y02/02) only in this document.

2.2. DESCRIPTION OF TEST MODES AND TEST FREQUENCY

The EUT has been tested under typical operating conditions. The Applicant provides communication tools software to control the EUT for staying in continuous transmitting mode for testing.

Operation Frequency List for SRD：

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	**2402.00**	10	2422.00
1	**2404.00**	11	2424.00
2	2406.00	12	2426.00
3	2408.00	13	2428.00
4	2410.00	14	2430.00
5	2412.00	15	2432.00
6	2414.00	16	2434.00
7	2416.00	17	2436.00
8	2418.00	18	2438.00
9	2420.00	**19**	**2440.00**
20	2442.00	30	2462.00
21	2444.00	31	2464.00
22	2446.00	32	2466.00
23	2448.00	33	2468.00
24	2450.00	34	2470.00
25	2452.00	35	2472.00
26	2454.00	36	2474.00
27	2456.00	37	2476.00
28	2458.00	**38**	**2478.00**
29	2460.00	**39**	**2480.00**

For SRD 1M		
Test Channel	EUT Channel	Test Frequency (MHz)
lowest	CH00	2402
middle	CH19	2440
highest	CH39	2480
For SRD 2M		
Test Channel	EUT Channel	Test Frequency (MHz)
lowest	CH01	2404
middle	CH19	2440
highest	CH38	2478

2.3. MEASUREMENT INSTRUMENTS LIST

RF Conducted measurement					
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibrated until**
1	Spectrum Analyzer	Agilent	N9020A	MY50200391	May. 25, 2026
2	Vector Signal Generator	Agilent	N5182A	MY50140130	May. 24, 2026
3	Signal Generator	R&S	SMCV100B	103780	May. 24, 2026
4	MIMO power meter	KEYSIGHT	U2021XA	MY55080015	May. 24, 2026
5	Automatic control unit	MW	MW100-RFCB	MY54250020	May. 24, 2026
6	Programmable constant temperature and humidity chamber	Angui	AG1000L	2304061049	Jul. 24, 2026
7	MTS 8310E	MW	V 2.0.0.0		
RF Radiated measurement					
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibrated until**
1	EMI TEST RECEIVER	R&S	ESRP3	101936	May.25, 2026
2	Spectrum Analyzer	R&S	FSV40	101401	Feb.25, 2027
3	Bilog Antenna	Sunol	JB1	N/A	Jul.10, 2027
4	Horn Antenna	COMMW	ZAB-1-18G-50	20171109	Jun.03, 2026
5	Amplifier	COMMW	DLNA-30-1000-01	122417799	Nov.26, 2026
6	Amplifier	COMMW	DPA8-1000-18000-1012	8220837	Feb.25, 2027
7	Band Reject Filters	MICRO TRONICS	BRM 50702-02	006	May.23, 2026
8	Cable 6m-1	XINQY	XQY-CLA520-NJ-SMAJ-6M	25051772	May.23, 2026
9	Cable 1m	JunCoax	JA800-NMSM-1M	N/A	May.23, 2026
10	Cable-005	SUCOFLEX	104PEA4M	N/A	May.23, 2026
11	3M Chamber	Maor	9*6*6	--	Aug.15, 2028
12	EZ-EMC	Farad	V3.1		
Mains Terminal Disturbance Voltage Test equipment					
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Calibrated until**
1	EMI Test Receiver	R&S	ESCI3	101413	Feb.25, 2027
2	LISN	R&S	ENV216	100002	Feb.25, 2027
3	LISN	MEB	NNB 42	---	May.25, 2026
4	Cable 1.8m-1	XINQY	XQY-CMR200-NJ-BNCJ-1.8M	---	May.23, 2026
5	Shelding Room	Maor	8*4*3	--	Aug.14, 2028
6	EZ-EMC	Fara	V3.1		

Note: The cable loss has calculated in test result which connection between each test instruments.

2.4. DESCRIPTION OF THE TEST MODES

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

Worst Mode	Description	Data Rate
Mode 1	TX CH0	1 Mbps
Mode 2	TX CH19	1 Mbps
Mode 3	TX CH39	1 Mbps
Mode 4	TX CH01	2 Mbps
Mode 5	TX CH19	2 Mbps
Mode 6	TX CH38	2 Mbps

Note:
1) The measurements are performed at the high, middle, low available channels.
2) All the bit rate of transmitter have been tested and found the lowest rate is found to be the worst case and recorded.
3) This test was performed with EUT in X, Y, Z position and worst case was found when EUT in X position.
4) For radiated emission above 1 GHz test, 1GHz-25GHz have been pre-tested and in this report only recorded the worst case. The remaining spurious points are all below the limit value of 20dB.

For AC Conducted Emission

Test Case	
AC Conducted Emission	Mode7: Working

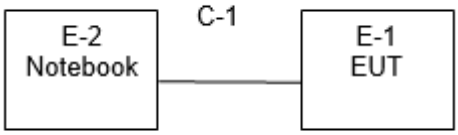
2.5. TEST SOFTWARE AND POWER LEVEL

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

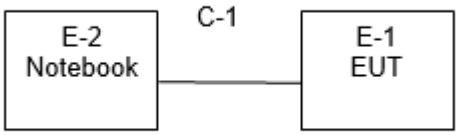
Test Software Version	FCC_Test_Tools_V2.25 for SRD		
Frequency	2402MHz	2440MHz	2480MHz
SRD 1M	6	6	6
Frequency	2404MHz	2440MHz	2478MHz
SRD 2M	6	6	6

2.6. BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

a. Radiated Spurious Emission Test



b. Conducted Emission Test



2.7. DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

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

Necessary accessories					
Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
N/A	N/A	N/A	N/A	N/A	N/A

Support units					
Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
E-2	Notebook	DELL	Vostro 3400	N/A	N/A
E-3	Mobile Phone	XiaoMi	Redmi K70	C33018fb	N/A
E-4	3.1 Channel Dolby Atmos Sound Bar with Wireless Subwoofer	TCL	S60K	N/A	N/A
C-1	USB Cable	N/A	100cm	N/A	N/A
C-2	HDMI Cable	N/A	150cm	N/A	N/A

Note:

1) The support equipment was authorized by Declaration of Confirmation.
2) For detachable type I/O cable should be specified the length in cm in『Length』column.

2.8. ENVIRONMENTAL CONDITIONS FOR TESTING

Test Item	Temperature (°C)	Relative Humidity (%)	Test Voltage	Tested by
Conducted Emission on AC Mains	24.0	52.0	100.5	Jabi Jiang
Radiated Spurious Emission	24.2	56.0	101.2	Momo Gan
Conducted Spurious Emissions Measured in 100 kHz Bandwidth	24.3	53.0	101.0	Fiona Huang
Conducted Power Spectral Density	24.3	53.0	101.0	Fiona Huang
99% Bandwidth	24.3	53.0	101.0	Fiona Huang
6dB Bandwidth	24.3	53.0	101.0	Fiona Huang
Maximum Conducted Output Power	24.3	53.0	101.0	Fiona Huang

3. EMC TEST

3.1. Conducted Emission on AC Mains Measurement

Limit

Operating frequency band. In case the emission fall within the restricted band specified on Part 207(a) limit in the table below has to be followed.

FREQUENCY (MHz)	Conducted Emission limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56 *	56 - 46 *
0.5 - 5	56	46
5 - 30	60	50

Note:

1) The tighter limit applies at the band edges.
2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

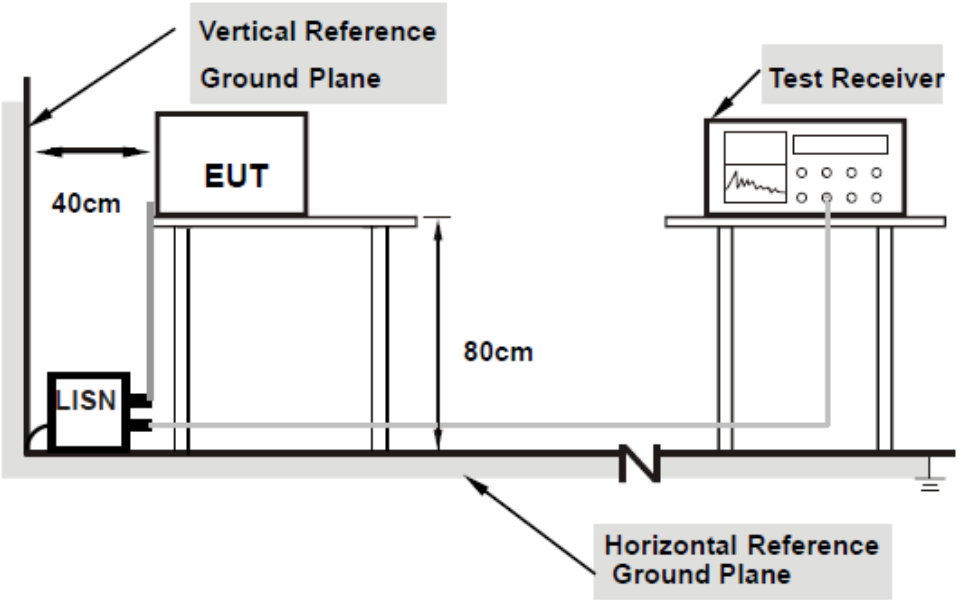
The following table is the setting of the receiver.

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

Test Procedure

a) The EUT was 0.8 meters from the horizontal ground plane and 0.4 meters from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment's powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b) Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c) I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d) LISN at least 80 cm from nearest part of EUT chassis.
e) For the actual test configuration, please refer to the related Item –EUT Test Photos.

Test Setup



Note:

1) Support units were connected to second LISN.
2) Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

EUT OPERATING CONDITIONS

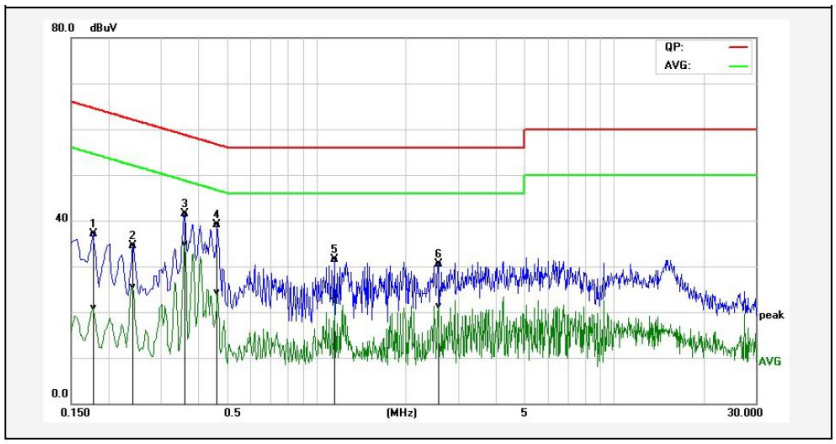
The EUT was configured for testing in a typical fashion (as a customer would normally use it).
The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

Test Results

Note: All modes have been tested, and the report only reflects the worst mode.

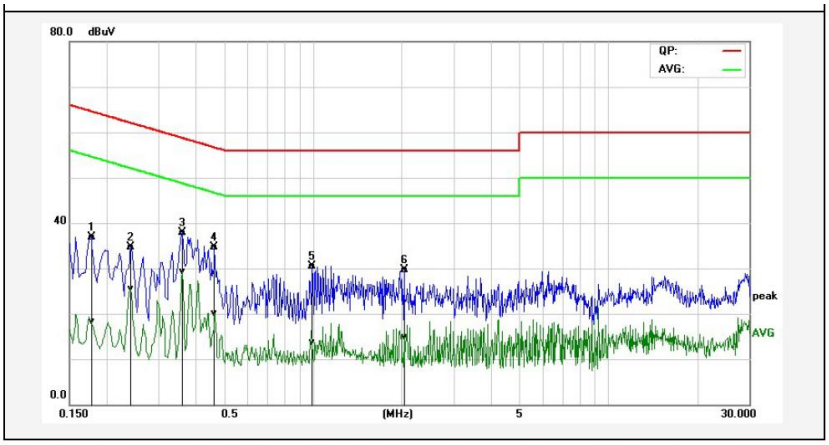
Test Mode：	Working	Test Voltage ：	AC 110V/60Hz

L



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1P	0.1780	27.27	11.22	9.74	37.01	20.96	64.57	54.58	-27.56	-33.62	Pass
2P	0.2420	24.67	15.82	9.74	34.41	25.56	62.02	52.03	-27.61	-26.47	Pass
3*	0.3620	31.67	25.17	9.73	41.40	34.90	58.68	48.68	-17.28	-13.78	Pass
4P	0.4660	29.36	14.53	9.73	39.09	24.26	56.58	46.58	-17.49	-22.32	Pass
5P	1.1500	21.69	12.70	9.72	31.41	22.42	56.00	46.00	-24.59	-23.58	Pass
6P	2.5700	20.74	11.46	9.75	30.49	21.21	56.00	46.00	-25.51	-24.79	Pass

N



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1P	0.1780	27.21	8.56	9.74	36.95	18.30	64.57	54.58	-27.62	-36.28	Pass
2P	0.2420	24.90	15.73	9.75	34.65	25.48	62.02	52.03	-27.37	-26.55	Pass
3*	0.3620	28.03	19.53	9.78	37.81	29.31	58.68	48.68	-20.87	-19.37	Pass
4P	0.4660	24.87	10.24	9.82	34.69	20.06	56.58	46.58	-21.89	-26.52	Pass
5P	0.9980	20.51	3.71	9.92	30.43	13.63	56.00	46.00	-25.57	-32.37	Pass
6P	2.0420	19.67	4.86	10.12	29.79	14.98	56.00	46.00	-26.21	-31.02	Pass

Correction Factor = insertion loss of LISN + cable loss;
Reading = Reading Amplitude in the instrument;
Result = Correction Factor + Reading;
Margin = Result – Limit

3.2. Radiated Spurious Emission Measurement

Limit

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205 (a)&209(a) limit in the table and according to ANSI C63.10 below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1GHz)

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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1GHz)

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

Notes:
1) The limit for radiated test was performed according to FCC PART 15C.
2) The tighter limit applies at the band edges.
3) Emission level (dBuV/m)=20log Emission level (uV/m).

For Radiated Emission	
Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak/QP/AVG
Start Frequency	9 KHz/150KHz(Peak/QP/AVG)
Stop Frequency	150KHz/30MHz(Peak/QP/AVG)
RB / VB (emission in restricted band)	200Hz (From 9kHz to 0.15MHz)/
	9KHz (From 0.15MHz to 30MHz);
	200Hz (From 9kHz to 0.15MHz)/
	9KHz (From 0.15MHz to 30MHz)
Attenuation	Auto
Detector	Peak/QP
Start Frequency	30 MHz(Peak/QP)
Stop Frequency	1000 MHz (Peak/QP)
RB / VB (emission in restricted band)	120 kHz / 300 kHz

Attenuation	Auto
Detector	Peak/AVG
Start Frequency	1000 MHz(Peak/AVG)
Stop Frequency	10th carrier hamonic(Peak/AVG)
RB / VB (emission in restricted band)	1 MHz / 3 MHz(Peak)
	1 MHz/1/T MHz(AVG)

For Restricted band	
Spectrum Parameter	Setting
Detector	Peak/AVG
Start/Stop Frequency	Lower Band Edge: 2310 to 2410 MHz
	Upper Band Edge: 2476 to 2500 MHz
RB / VB	1 MHz / 3 MHz(Peak)
	1 MHz/1/T MHz(AVG)
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for Peak & AVG
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for Peak & AVG
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

Test Procedure

a) The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz,and above 1GHz.
b) The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c) The height of the equipment shall be 0.8 m(above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. horizontal and vertical polarizations of the antenna are set to make the measurement.
d) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then QuasiPeak detector mode re-measured.
e) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f) For the actual test configuration, please refer to the related Item –EUT Test Photos.

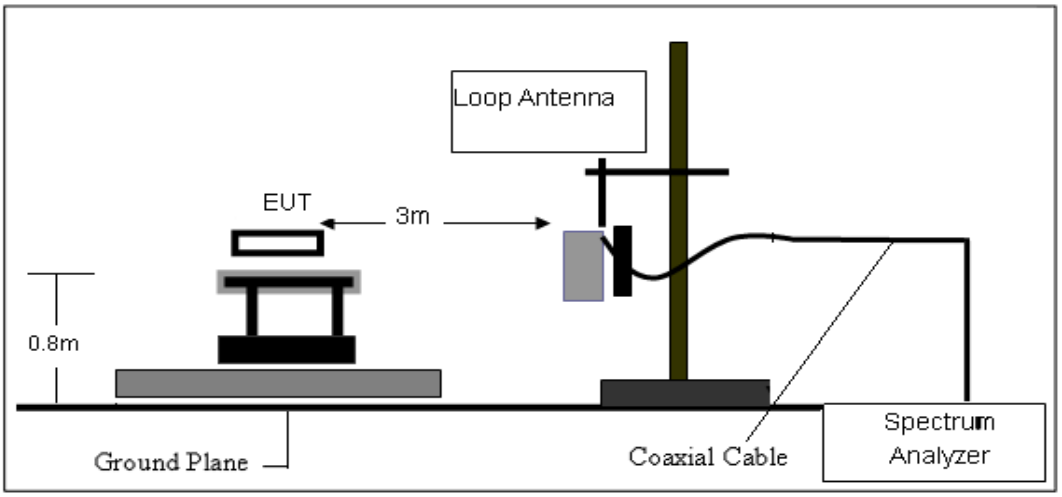
Note:
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

DEVIATION FROM TEST STANDARD

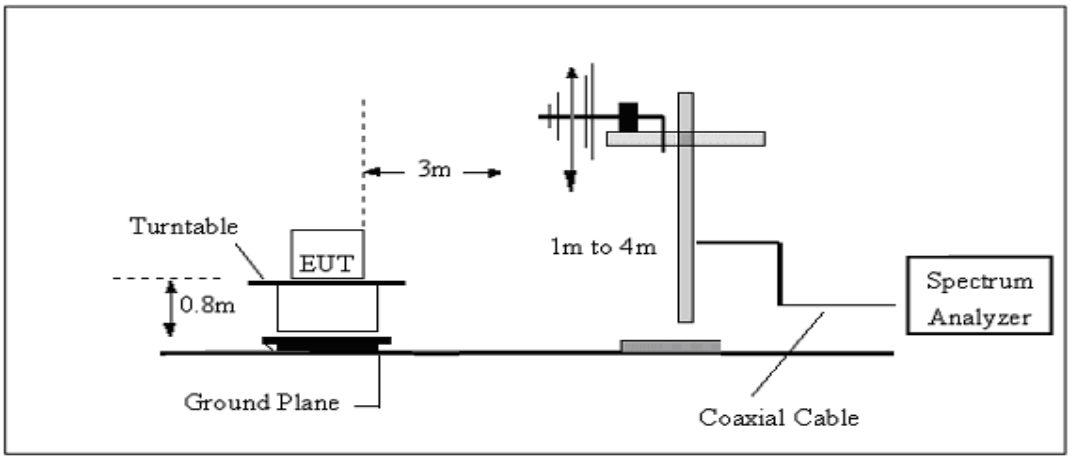
No deviation.

Test Setup

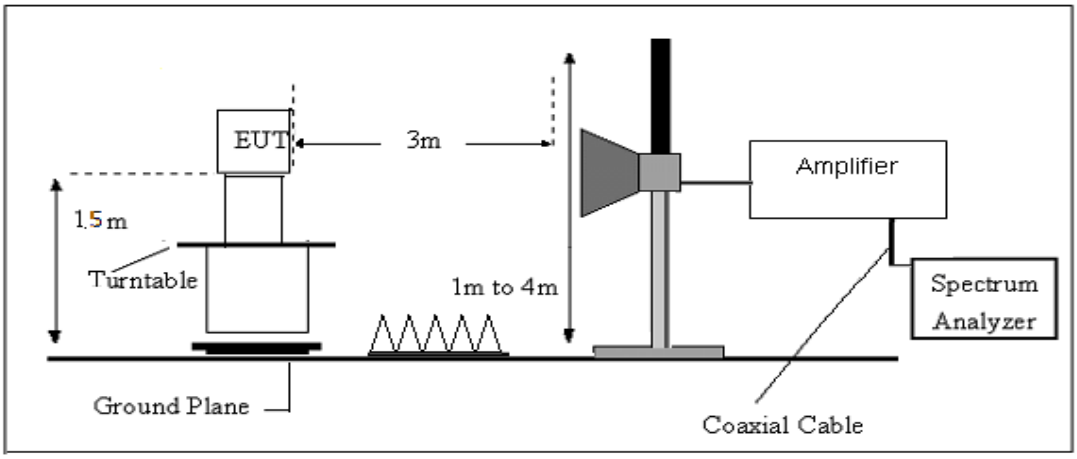
1. Radiated Emission Test-Up Frequency Below 30MHz



2. Radiated Emission Test-Up Frequency 30MHz~1GHz



3. Radiated Emission Test-Up Frequency Above 1GHz



EUT OPERATING CONDITIONS

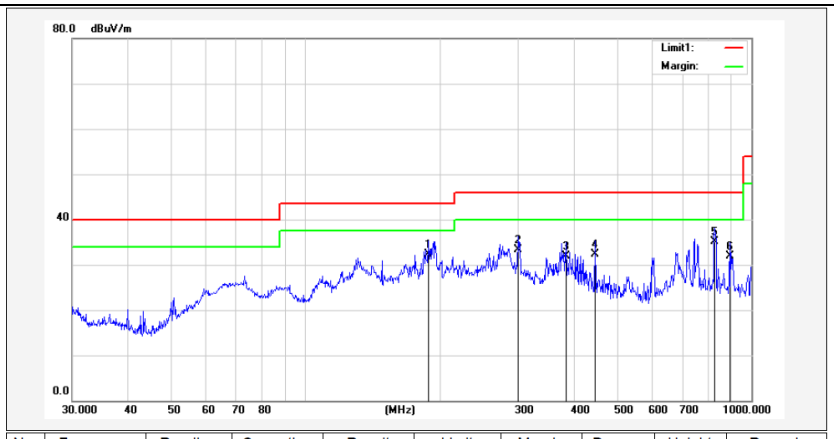
The EUT tested system was configured as the statements of 2.5 Unless otherwise a special operating condition is specified in the follows during the testing.

Test Result

Below 1GHz:
All modes have been tested, and the report only reflects the worst mode.

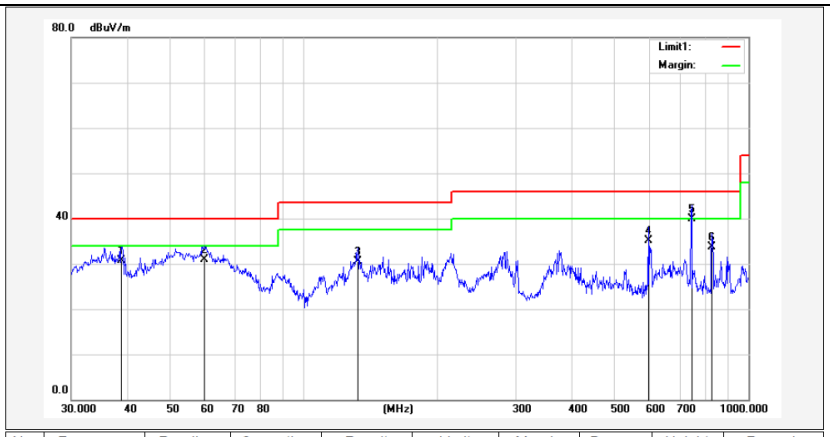
Test Mode:	Working

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	189.0741	52.24	-20.01	32.23	43.50	-11.27			QP
2	300.3672	50.69	-17.44	33.25	46.00	-12.75			QP
3	383.9318	47.45	-15.47	31.98	46.00	-14.02			QP
4	446.4141	46.11	-13.78	32.33	46.00	-13.67			QP
5*	827.4932	42.84	-7.68	35.16	46.00	-10.84			QP
6	893.8567	38.86	-7.01	31.85	46.00	-14.15			QP

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	38.8880	49.07	-18.40	30.67	40.00	-9.33			QP
2	59.6492	55.68	-24.69	30.99	40.00	-9.01			QP
3	132.2205	48.53	-18.00	30.53	43.50	-12.97			QP
4	595.1327	46.51	-11.39	35.12	46.00	-10.88			QP
5*	744.8661	48.72	-8.88	39.84	46.00	-6.16			QP
6	827.4933	41.43	-7.68	33.75	46.00	-12.25			QP

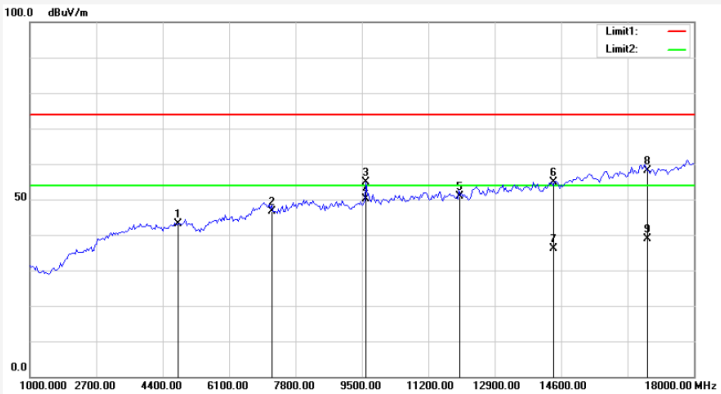
Correction Factor = antenna factor + cable loss – amplifier gain;
Reading = Reading Amplitude in the instrument;
Result = Correction Factor + Reading;
Margin = Result – Limit.

Above 1GHz:

Note: Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz - 26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.
The margin values corresponding to all frequency points are less than 20dB=74dBuV/m - 54dBuV/m, meeting the 54dBuV/m requirement, no average test is performed.

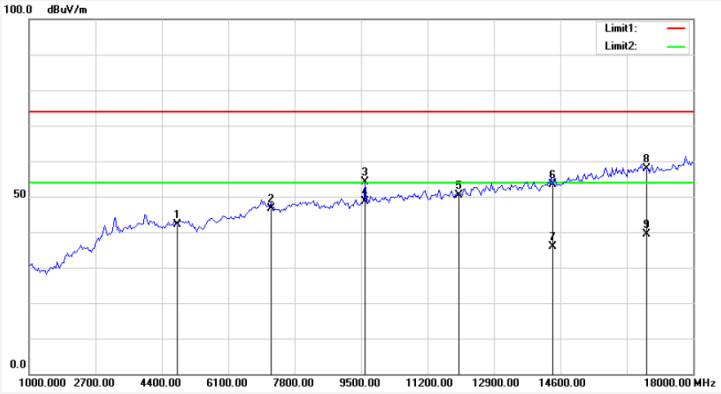
SRD 1M:

GFSK - Low Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4804.000	57.32	-14.22	43.10	74.00	-30.90			peak
2	7206.000	54.05	-7.44	46.61	74.00	-27.39			peak
3	9602.000	60.80	-5.85	54.95	74.00	-19.05			peak
4*	9608.000	56.03	-5.83	50.20	54.00	-3.80			AVG
5	12010.000	53.55	-2.55	51.00	74.00	-23.00			peak
6	14412.000	53.56	1.41	54.97	74.00	-19.03			peak
7	14412.000	34.63	1.41	36.04	54.00	-17.96			AVG
8	16814.000	51.36	6.86	58.22	74.00	-15.78			peak
9	16814.000	32.13	6.86	38.99	54.00	-15.01			AVG

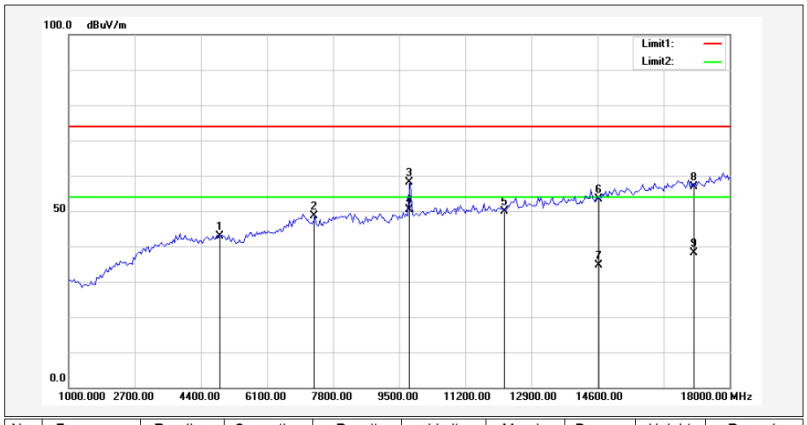
GFSK - Low Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4804.000	56.36	-14.22	42.14	74.00	-31.86			peak
2	7206.000	54.04	-7.44	46.60	74.00	-27.40			peak
3	9602.000	59.88	-5.85	54.03	74.00	-19.97			peak
4*	9608.000	54.41	-5.83	48.58	54.00	-5.42			AVG
5	12010.000	52.99	-2.55	50.44	74.00	-23.56			peak
6	14412.000	52.09	1.41	53.50	74.00	-20.50			peak
7	14412.000	34.37	1.41	35.78	54.00	-18.22			AVG
8	16814.000	51.11	6.86	57.97	74.00	-16.03			peak
9	16814.000	32.58	6.86	39.44	54.00	-14.56			AVG

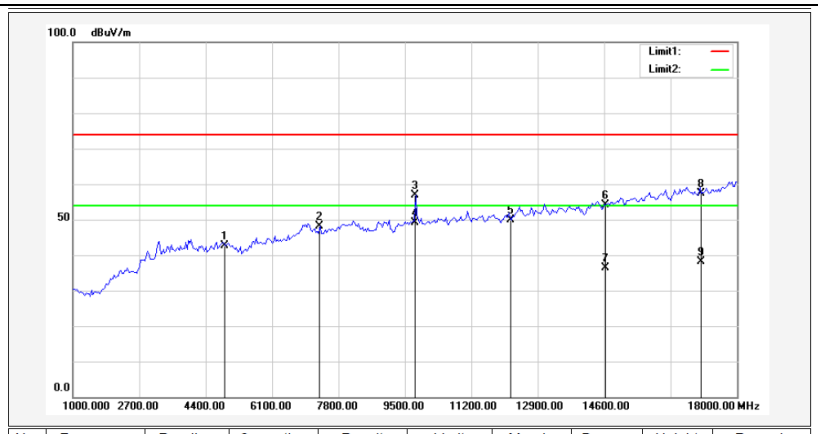
Correction Factor = antenna factor + cable loss – amplifier gain;
Reading = Reading Amplitude in the instrument;
Result = Correction Factor + Reading;
Margin = Result – Limit.

GFSK - Middle Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4880.000	57.02	-14.09	42.93	74.00	-31.07			peak
2	7320.000	56.53	-7.89	48.64	74.00	-25.36			peak
3	9760.000	63.31	-5.27	58.04	74.00	-15.96			peak
4*	9760.000	55.66	-5.27	50.39	54.00	-3.61			AVG
5	12200.000	52.08	-2.20	49.88	74.00	-24.12			peak
6	14640.000	51.27	2.03	53.30	74.00	-20.70			peak
7	14640.000	32.53	2.03	34.56	54.00	-19.44			AVG
8	17080.000	49.58	7.28	56.86	74.00	-17.14			peak
9	17080.000	30.91	7.28	38.19	54.00	-15.81			AVG

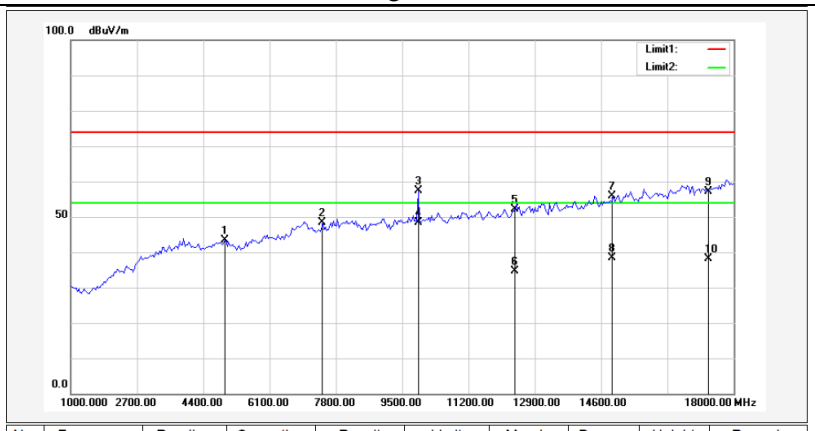
GFSK - Middle Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4880.000	56.73	-14.09	42.64	74.00	-31.36			peak
2	7320.000	55.97	-7.89	48.08	74.00	-25.92			peak
3	9760.000	62.24	-5.27	56.97	74.00	-17.03			peak
4*	9760.000	54.48	-5.27	49.21	54.00	-4.79			AVG
5	12200.000	52.05	-2.20	49.85	74.00	-24.15			peak
6	14640.000	52.04	2.03	54.07	74.00	-19.93			peak
7	14640.000	34.30	2.03	36.33	54.00	-17.67			AVG
8	17080.000	50.07	7.28	57.35	74.00	-16.65			peak
9	17080.000	30.89	7.28	38.17	54.00	-15.83			AVG

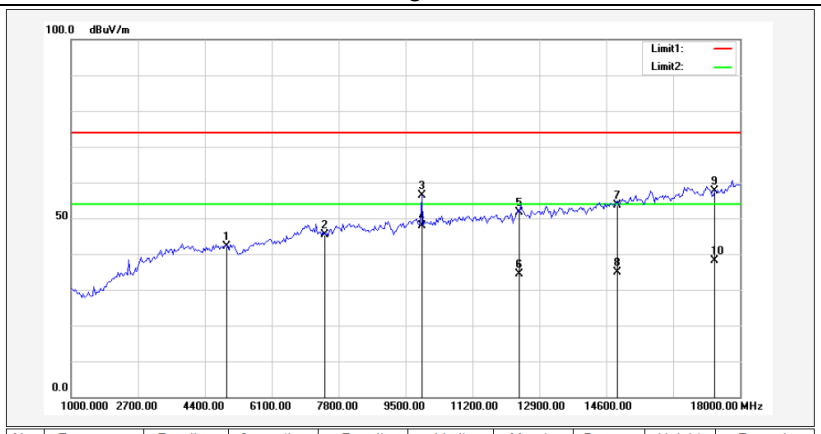
Correction Factor = antenna factor + cable loss – amplifier gain;
Reading = Reading Amplitude in the instrument;
Result = Correction Factor + Reading;
Margin = Result – Limit.

GFSK - High Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4960.000	57.47	-14.01	43.46	74.00	-30.54			peak
2	7440.000	56.80	-8.46	48.34	74.00	-25.66			peak
3	9908.000	62.34	-4.84	57.50	74.00	-16.50			peak
4*	9920.000	53.15	-4.82	48.33	54.00	-5.67			AVG
5	12400.000	53.91	-1.83	52.08	74.00	-21.92			peak
6	12400.000	36.35	-1.83	34.52	54.00	-19.48			AVG
7	14880.000	53.30	2.70	56.00	74.00	-18.00			peak
8	14880.000	35.71	2.70	38.41	54.00	-15.59			AVG
9	17360.000	49.38	7.66	57.04	74.00	-16.96			peak
10	17360.000	30.40	7.66	38.06	54.00	-15.94			AVG

GFSK - High Vertical

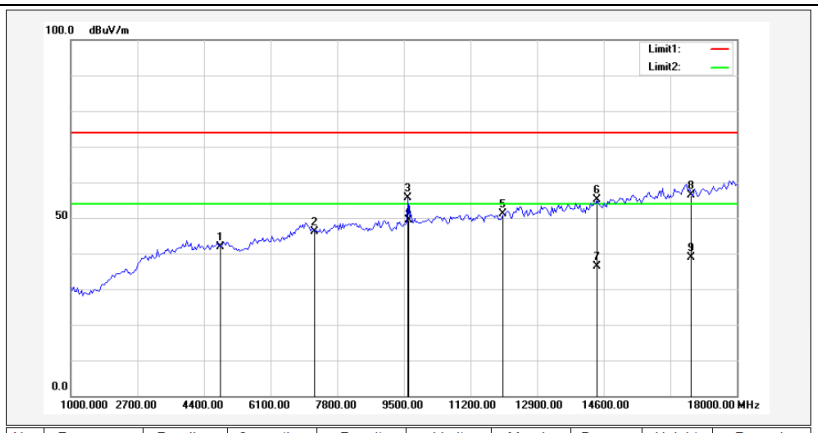


No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4960.000	56.06	-14.01	42.05	74.00	-31.95			peak
2	7440.000	53.93	-8.46	45.47	74.00	-28.53			peak
3	9908.000	61.30	-4.84	56.46	74.00	-17.54			peak
4*	9920.000	52.63	-4.82	47.81	54.00	-6.19			AVG
5	12400.000	53.45	-1.83	51.62	74.00	-22.38			peak
6	12400.000	36.11	-1.83	34.28	54.00	-19.72			AVG
7	14880.000	50.93	2.70	53.63	74.00	-20.37			peak
8	14880.000	32.06	2.70	34.76	54.00	-19.24			AVG
9	17360.000	49.98	7.66	57.64	74.00	-16.36			peak
10	17360.000	30.58	7.66	38.24	54.00	-15.76			AVG

Correction Factor = antenna factor + cable loss – amplifier gain;
Reading = Reading Amplitude in the instrument;
Result = Correction Factor + Reading;
Margin = Result – Limit.

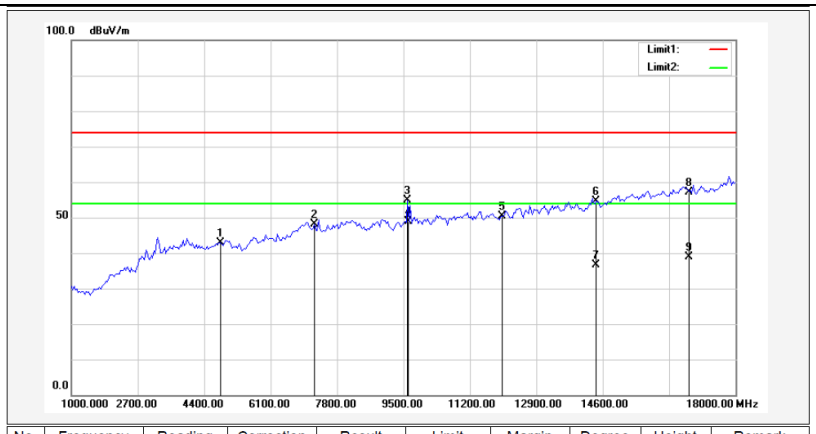
SRD 2M:

GFSK - Low Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4808.000	56.21	-14.21	42.00	74.00	-32.00			peak
2	7212.000	53.63	-7.46	46.17	74.00	-27.83			peak
3	9602.000	61.46	-5.85	55.61	74.00	-18.39			peak
4*	9616.000	55.13	-5.81	49.32	54.00	-4.68			AVG
5	12020.000	53.59	-2.53	51.06	74.00	-22.94			peak
6	14424.000	53.74	1.45	55.19	74.00	-18.81			peak
7	14424.000	34.97	1.45	36.42	54.00	-17.58			AVG
8	16828.000	49.60	6.89	56.49	74.00	-17.51			peak
9	16828.000	32.02	6.89	38.91	54.00	-15.09			AVG

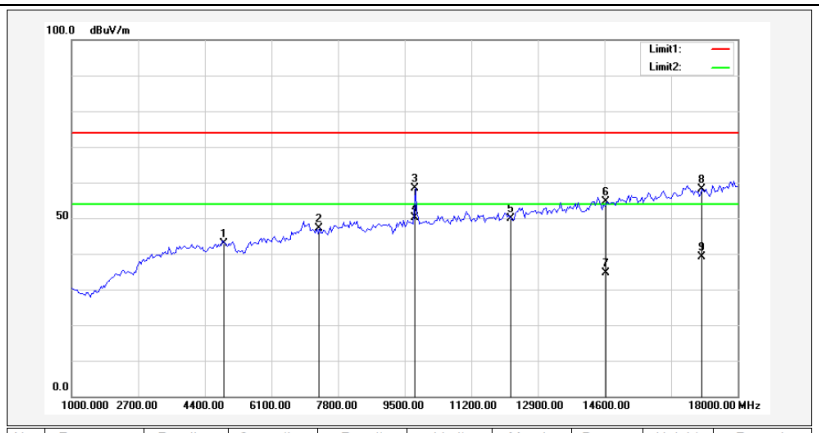
GFSK - Low Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4808.000	57.10	-14.21	42.89	74.00	-31.11			peak
2	7212.000	55.54	-7.46	48.08	74.00	-25.92			peak
3	9602.000	60.62	-5.85	54.77	74.00	-19.23			peak
4*	9616.000	54.73	-5.81	48.92	54.00	-5.08			AVG
5	12020.000	52.92	-2.53	50.39	74.00	-23.61			peak
6	14424.000	53.28	1.45	54.73	74.00	-19.27			peak
7	14424.000	35.09	1.45	36.54	54.00	-17.46			AVG
8	16810.000	50.40	6.85	57.25	74.00	-16.75			peak
9	16810.000	31.94	6.85	38.79	54.00	-15.21			AVG

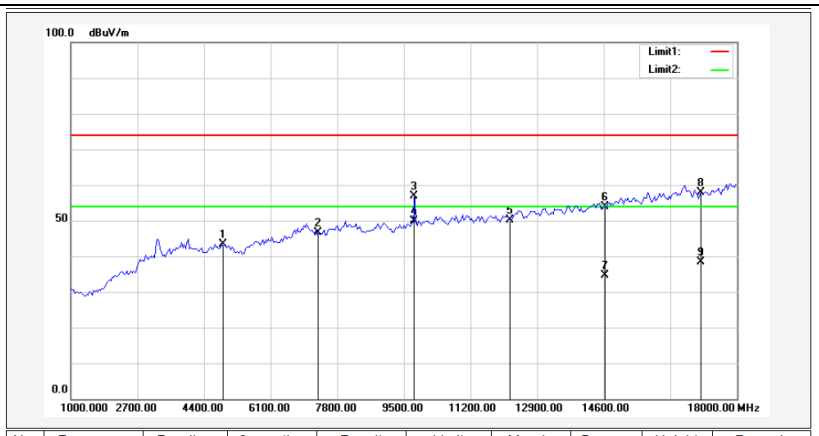
Correction Factor = antenna factor + cable loss – amplifier gain;
Reading = Reading Amplitude in the instrument;
Result = Correction Factor + Reading;
Margin = Result – Limit.

GFSK - Middle Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4880.000	57.08	-14.09	42.99	74.00	-31.01			peak
2	7320.000	55.09	-7.89	47.20	74.00	-26.80			peak
3	9760.000	63.63	-5.27	58.36	74.00	-15.64			peak
4*	9760.000	55.40	-5.27	50.13	54.00	-3.87			AVG
5	12200.000	52.07	-2.20	49.87	74.00	-24.13			peak
6	14640.000	52.70	2.03	54.73	74.00	-19.27			peak
7	14640.000	32.55	2.03	34.58	54.00	-19.42			AVG
8	17080.000	50.83	7.28	58.11	74.00	-15.89			peak
9	17080.000	31.96	7.28	39.24	54.00	-14.76			AVG

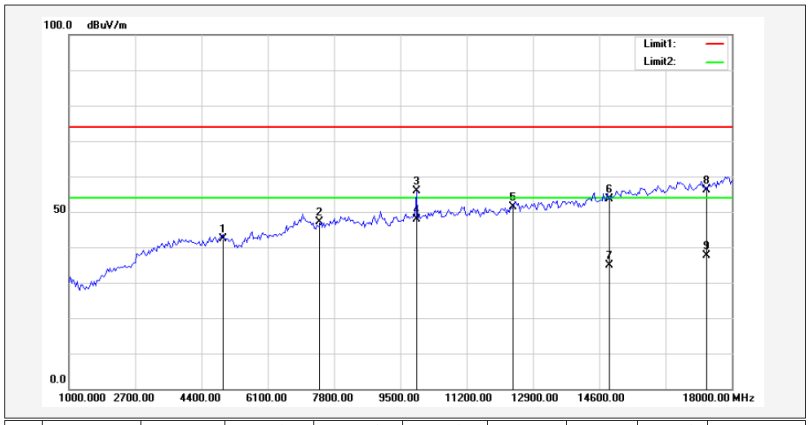
GFSK - Middle Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4880.000	57.39	-14.09	43.30	74.00	-30.70			peak
2	7320.000	54.56	-7.89	46.67	74.00	-27.33			peak
3	9760.000	62.23	-5.27	56.96	74.00	-17.04			peak
4*	9760.000	55.10	-5.27	49.83	54.00	-4.17			AVG
5	12200.000	52.32	-2.20	50.12	74.00	-23.88			peak
6	14640.000	51.77	2.03	53.80	74.00	-20.20			peak
7	14640.000	32.72	2.03	34.75	54.00	-19.25			AVG
8	17080.000	50.63	7.28	57.91	74.00	-16.09			peak
9	17080.000	31.06	7.28	38.34	54.00	-15.66			AVG

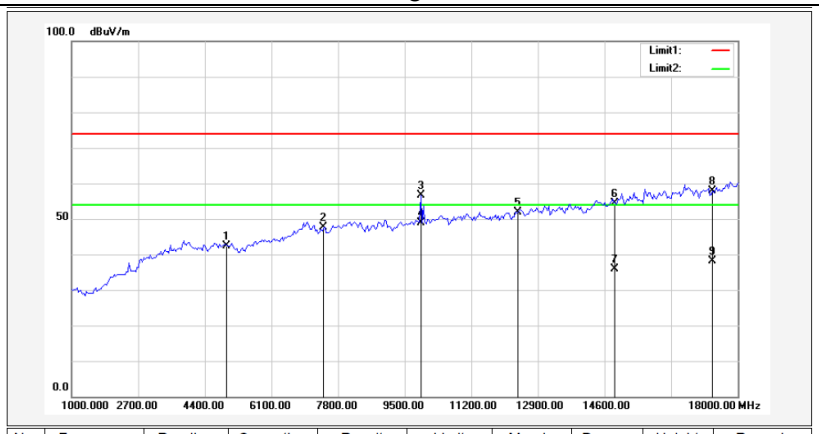
Correction Factor = antenna factor + cable loss – amplifier gain;
Reading = Reading Amplitude in the instrument;
Result = Correction Factor + Reading;
Margin = Result – Limit.

GFSK - High Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4956.000	56.36	-14.01	42.35	74.00	-31.65			peak
2	7434.000	55.49	-8.43	47.06	74.00	-26.94			peak
3	9908.000	60.76	-4.84	55.92	74.00	-18.08			peak
4*	9912.000	52.76	-4.83	47.93	54.00	-6.07			AVG
5	12390.000	53.17	-1.84	51.33	74.00	-22.67			peak
6	14868.000	50.88	2.67	53.55	74.00	-20.45			peak
7	14868.000	32.13	2.67	34.80	54.00	-19.20			AVG
8	17346.000	48.45	7.65	56.10	74.00	-17.90			peak
9	17346.000	29.91	7.65	37.56	54.00	-16.44			AVG

GFSK - High Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correction factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (deg.)	Height (cm)	Remark
1	4956.000	56.47	-14.01	42.46	74.00	-31.54			peak
2	7434.000	56.11	-8.43	47.68	74.00	-26.32			peak
3	9908.000	61.55	-4.84	56.71	74.00	-17.29			peak
4*	9912.000	53.60	-4.83	48.77	54.00	-5.23			AVG
5	12390.000	53.77	-1.84	51.93	74.00	-22.07			peak
6	14868.000	51.64	2.67	54.31	74.00	-19.69			peak
7	14868.000	33.19	2.67	35.86	54.00	-18.14			AVG
8	17346.000	50.29	7.65	57.94	74.00	-16.06			peak
9	17346.000	30.46	7.65	38.11	54.00	-15.89			AVG

Correction Factor = antenna factor + cable loss – amplifier gain;
Reading = Reading Amplitude in the instrument;
Result = Correction Factor + Reading;
Margin = Result – Limit.

3.3. Restricted Bands Measurement

Limit

For FCC:

FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (GHz)
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

Restricted Frequency Band (MHz)	Distance Meters(at 3m)	
	Peak (dBuV/m)	Average (dBuV/m)
2310 to 2390	74	54
2483.5 to 2500	74	54
	Peak (dBm)Note1	Average (dBm)Note1
2310 to 2390	-21.20	-41.20
2483.5 to 2500	-21.20	-41.20

Note:
1. E = EIRP-20 log d +104.8
Where, E is the electric field strength in dBuV/m; EIRP is the equivalent isotropically radiated power in dBm; d is the specified measurement distance in m.
2. According the ANSI C63.10 11.12.2 antenna-port conducted measurements may also be used as an alternative to radiated measurements for determining compliance in the restricted frequency bands requirements. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test forcabinet/case emissions is required.

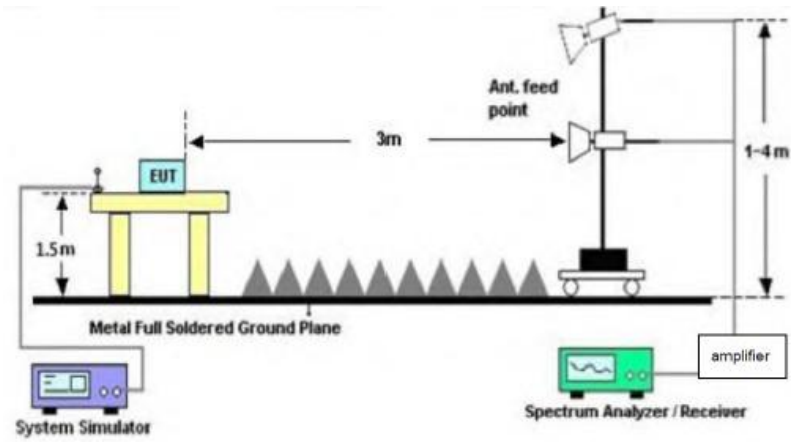
Test Procedure

Radiated measurement
1. Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement. 3. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

4. The Peak Value and average value both need to comply with applicable limit above 1 GHz. 5. Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values. 6. For the actual test configuration, please see the test setup photo.
Conducted measurement
1. Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 11.12.2.3 through 11.12.2.5 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively). 2. Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP (see 11.12.2.6 for guidance on determining the applicable antenna gain). 3. Add the appropriate maximum ground reflection factor to the EIRP (6 dB for frequencies ⩽30 MHz; 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive; and 0 dB for frequencies > 1000 MHz). 4. For MIMO devices, measure the power of each chain and sum the EIRP of all chains in linear terms (i.e., watts and mW). 5. Convert the resultant EIRP to an equivalent electric field strength using the following relationship: E = EIRP-20 log d +104.8 Where, E is the electric field strength in dBuV/m. EIRP is the equivalent isotropically radiated power in dBm. d is the specified measurement distance in m. 6. Compare the resultant electric field strength level with the applicable regulatory limit. 7. Perform the radiated spurious emission test.

Test Configuration

Radiated measurement



Conducted measurement

The EUT is connected to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

Test Results

Pass
Please refer to Appendix A.

Remark: The test uses antenna-port conducted measurements as an alternative to radiated measurements for determining compliance in the restricted frequency bands requirements.

3.4. Conducted Spurious Emissions Measured in 100 kHz Bandwidth Measurement

Limit

According to FCC section 15.247(d), 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.

Test Procedure

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold
For Band edge	
Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 2327 – 2427 MHz
	Upper Band Edge: 2447 – 2547 MHz
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

Test Configuration

The EUT is connected to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.5 Unless otherwise a special operating condition is specified in the follows during the testing.

Test Results

Pass
Please refer to Appendix A.

3.5. Conducted Power Spectral Density Measurement

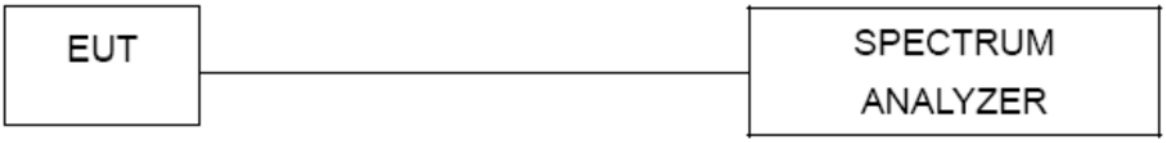
Limits

Test Item	Limit	Frequency Range (MHz)	Result
Power Spectral Density	≤8 dBm(RBW≥3KHz)	2400-2483.5	PASS

Test Procedure

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. Set the RBW to: 100 kHz ⩾ RBW ⩾ 3 kHz.
4. Set the VBW ⩾ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

TEST SETUP



EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.5 Unless otherwise a special operating condition is specified in the follows during the testing.

Test Results

Pass
Please refer to Appendix A.

3.6. 6dB BANDWIDTH Measurement

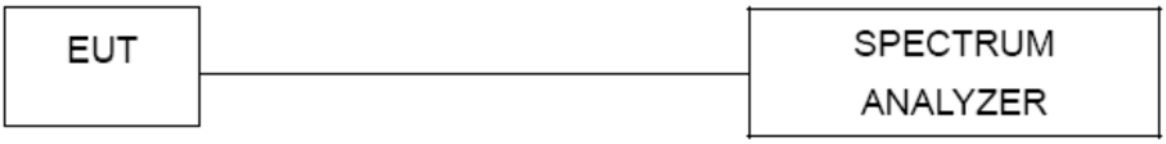
Limits

Test Item	Limit	Frequency Range (MHz)	Result
Bandwidth	≥500KHz	2400-2483.5	PASS

Test Procedure

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW- 3RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be- 6 dB.

TEST SETUP



EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.5 Unless otherwise a special operating condition is specified in the follows during the testing.

Test Results

Pass
Please refer to Appendix A.

3.7. 99% BANDWIDTH Measurement

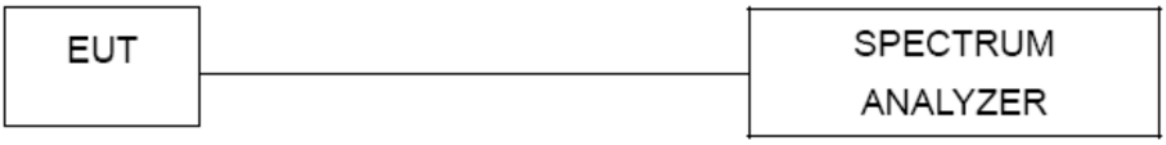
Limits

Frequency Range (MHz)	Limit
2400-2483.5	/

Test Procedure

The EUT was operating in Bluetooth mode and controlled its channel. Printed out the test result from the
spectrum by hard copy function.
The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
Set to the maximum power setting and enable the EUT transmit continuously
Set RBW = 1%-5% OBW(43KHz).
Set the video bandwidth (VBW) =130 kHz.
Set Span=4MHz
Set Detector = Peak.
Set Trace mode = max hold.
Set Sweep = auto couple.
Allow the trace to stabilize.
Use the 99 % power bandwidth function of the instrument.
Measure the maximum width of the emission.
Measure and record the results in the test report.

TEST SETUP



EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.5 Unless otherwise a special operating condition is specified in the follows during the testing.

Test Results

Pass
Please refer to Appendix A.

3.8. Maximum Conducted Output Power Measurement

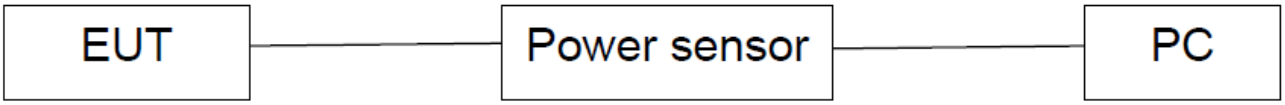
Limits

Section	Test Item	Limit	Frequency Range (MHz)
15.247 (b)(3)	Output Power	1 watt or 30dBm	2400-2483.5

Test Procedure

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS/DSS bandwidth and shall use a fast-responding diode detector.

TEST SETUP



EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.5 Unless otherwise a special operating condition is specified in the follows during the testing.

Test Results

Pass
Please refer to Appendix A.

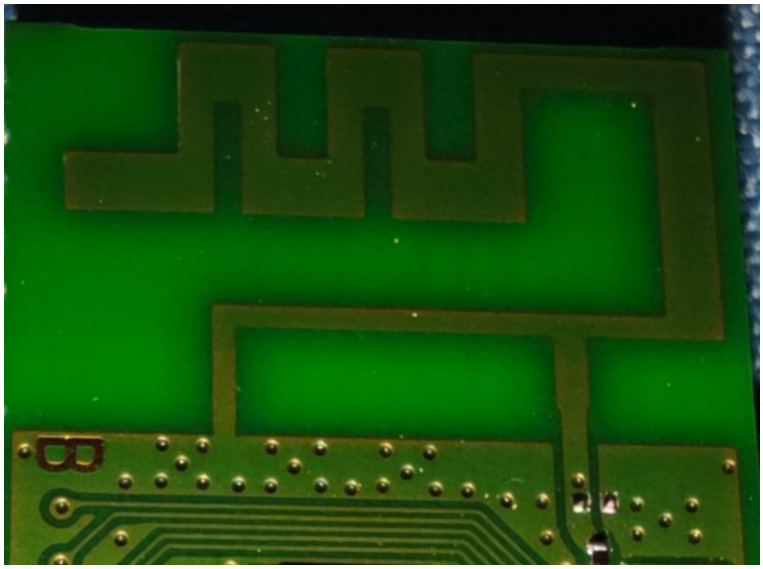
3.9. ANTENNA REQUIREMENT

STANDARD REQUIREMENT

According to the manufacturer declared, the EUT has PCB antenna, the directional gain of antenna is 3.16 dBi, and the antenna and other components are all on the same PCB and cannot be replaced. Therefore, the EUT is considered sufficient to comply with the provision.

EUT ANTENNA

The EUT antenna is PCB antenna. It comply with the standard requirement.



4. TEST PHOTOS

Please refer to Appendix G Test Setup.

5. EUT PHOTOS

External Photos Please refer to Appendix E and Internal Photos Please refer to Appendix F.

**************************THE END***************************