

FCC ID TEST REPORT

Prepared for : Dayton Audio Division of Parts Express
Address : 725 Pleasant Valley Rd Springboro, Ohio 45066 USA

Trade Name : DAYTON AUDIO
E.U.T : Wireless Audio Transmitter
Model Number : Wave-link WLS

Prepared by : Keyway Testing Technology(Guangdong) Co., Ltd.
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Report No. : 2025071775476329-00
Date of Test: : Jul 17 ~ Aug 25, 2025
Date of Report : Aug. 25, 2025

Applicant:	Dayton Audio Division of Parts Express	
Address:	725 Pleasant Valley Rd Springboro, Ohio 45066 USA	
Manufacturer 1:	Vistron (Dongguan) Audio Equipment Co., Ltd	
Address:	No.17,Ji Cai Street, Song Gang District, Qing Xi Town, Dong Guan City, Guang Dong Province, China	
E.U.T:	Wireless Audio Transmitter	
Model Number:	Wave-link WLS	
Trade Name:	DAYTON AUDIO	
Date of Receipt:	Jul 17, 2025	
Date of Test:	Jul 17~Aug 25, 2025	
Test Specification :	FCC CFR47 Part 15 Section 15.247	
Test Result:	The equipment under test was found to be compliance with the requirements of the standards applied.	
Issue Date: Aug. 25, 2025		
Tested by:	Reviewed by:	Authorized by:
Hugh Zhang	Billy Zeng	 
Hugh Zhang/Engineer	Billy Zeng / Supervisor	Cherry Chen / Manager
<p><i>Abbreviations: OK/P=passed fail/F=failed N/A=not applicable E.U.T=equipment under tested</i></p> <p><i>This device described above has been tested by Keyway, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.</i></p> <p><i>This report shall not be reproduced except in full, without the written approval of Keyway, this document may be altered or revised by Keyway, personal only, and shall be noted in the revision of the document.</i></p>		

Revision Record

Version	Chapter	Date	Modifier	Remark
00		Aug. 25, 2025		Original

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1 Test Summary

Test Items	Test Requirement	Result
Conduct Emission	15.207	N/A
Radiated Spurious Emissions	15.205(a) 15.209 15.247(d)	PASS
Conducted Spurious Emission	15.247(d)	PASS
Band edge	15.247(d) 15.205(a)	PASS
6dB&99% Bandwidth	15.247(a)(2)	PASS
Maximum Peak Output Power	15.247(b)(3)	PASS
Power Spectral Density	15.247(e)	PASS
Antenna Requirement	15.203 15.247 (b) (4)	PASS

Remark:

“N/A” denotes test is not applicable in this Test Report.

2 GENERAL PRODUCT INFORMATION

2.1 Description of Device (EUT)

Product Name:	Wireless Audio Transmitter
Trademark	DAYTON AUDIO
Test Model No.:	Wave-link WLS
Sample ID:	250520001
Model No.:	N/A
Model Difference:	N/A
Operation Frequency:	2403-2475MHz
Number of Channel:	24 channels
Type of Modulation:	GFSK
Antenna installation:	PCB Antenna
Antenna Gain:	1.79 dBi
Power supply:	DC 5V by Adapter
Hardware Version:	V3.0
Software Version:	V1.0
AC/DC Adapter information:	MODEL:MKC-0500500HU INPUT:100-240V~ 50/60Hz 0.4A OUTPUT:5Vdc/500mA

Remark:The information in this section is provided by the applicant or manufacturer, Kayway is not liable to the accuracy, suitability, reliability or/and integrity of the information.

2.2 Channel List

The EUT has been tested under its typical operating condition.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting. Only the worst case data were reported.

The EUT has been associated with peripherals pursuant to ANSI C63.10-2013 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: radiation (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The details of test channels and bandwidth were for RF conductive measurement.

Frequency and Channel list :

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2406	1	2409	2	2412
3	2415	4	2418	5	2421
6	2424	7	2427	8	2430
9	2433	10	2436	11	2439
12	2442	13	2445	14	2448
15	2451	16	2454	17	2457
18	2460	19	2463	20	2466
21	2469	22	2472	23	2475

Test Frequency and Channel :

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2406	12	2442	23	2475

2.3 Test Mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

Test Software	Button V.01 (Through the internal engineering program, the switch button operates the fixed frequency)
Power level setup	15

3 TEST SITES

3.1 Test Facilities

Site Description

EMC Lab. : Certificated by Nemko
 Registration No.: ELA 814
 Date of registration: September 25, 2024

Certificated by CMA China
 Registration No.: 202319016955
 Date of registration: July 23, 2024

Certificated by A2LA
 Certificate Number: 7404.01
 Valid To: March 31, 2027

Name of Firm : Keyway Testing Technology (Guangdong) Co., Ltd.
 Site Location : 21st Floor, Building 6, Dongyi Intelligent Equipment New ,
 Energy Vehicle Park, No.30 of Tangxia, District, Dongshen
 Road, Tangxia Town, Dongguan City, Guangdong province, China

3.2 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

Parameter	Uncertainty
RF output power, conducted	$\pm 1.0\text{dB}$
Power Spectral Density, conducted	$\pm 2.2\text{dB}$
Radio Frequency	$\pm 1 \times 10^{-6}$
Bandwidth	$\pm 1.5 \times 10^{-6}$
Duty Cycle	$\pm 2\%$
Spurious emissions, conducted	$\pm 0.21\text{dB}$
Temperature	$\pm 1^\circ\text{C}$
Humidity	$\pm 5\%$
DC and low frequency voltages	$\pm 3\%$
Conducted Emissions (150kHz~30MHz)	$\pm 3.64\text{dB}$
Radiated Emission(9KHz~30MHz)	$\pm 4.51\text{dB}$
Radiated Emission(30MHz~1GHz)	$\pm 5.03\text{dB}$
Radiated Emission(1GHz~25GHz)	$\pm 4.74\text{dB}$
Radiated Emission(25GHz~40GHz)	$\pm 3.38\text{dB}$

3.3 List of Test and Measurement Instruments

Equipment	Manufacturer	Model No.	Serial No.	Date of Cal.	Valid until
For conducted emission at the mains terminals and signal port test 944 Shielded Room					
Test Software	FARAD	EZ-EMC Ver.FARAD-3A1+	KWET-089	/	/
EMI Test Receiver	Rohde&Schwarz	ESCI	101156	Apr 14, 25	Apr 13, 26
ArtificialMains Network	Rohde&Schwarz	ENV216	101314	Mar 05, 25	Mar 04, 26
RF Cable	FUJIKURA	3D-2W	KWET-030	Apr 14, 25	Apr 13, 26
Socket	Gongniu	KWET-003A1	KWET-003A1	Feb 21, 25	Feb 20, 26
For radiated emission test (30MHz-1GHz)966 Chamber 2					
Test Software	FARAD	EZ-EMC Ver.FARAD-3A1+	KWET-087	/	/
EMI Test Receiver	Rohde&Schwarz	ESCI	101178	Apr 14, 25	Apr 13, 26
TRILOG Broadband Antenna	Schwarzbeck	VULB 9168	00829	May 10, 25	May 09, 26
3m Semi-anechoic Chamber	YIHENDIANZI	966	YH-KW-966-02	Mar 07, 26	Mar 06, 29
RF Cable	EMC Instruments	EMCCFD400-NM-NM-2000	240307	Apr 14, 25	Apr 13, 26
RF Cable	EMC Instruments	EMCCFD400-NM-NM-9000	240309	Apr 14, 25	Apr 13, 26
For radiated emission test (Above 1GHz)966 Chamber 2					
Test Software	FARAD	EZ-EMC Ver.FARAD-3A1+	KWET-087	/	/
EMI Test Receiver	Rohde&Schwarz	ESCI	101178	Apr 14, 25	Apr 13, 26
Spectrum Analyzer	Agilent	N9020A	MY56070279	Apr 14, 25	Apr 13, 26
Spectrum analyzer	R&S	FSV 40	101059	Nov 06, 25	Nov 05, 26
Horn Antenna	DAZE	ZN30701	11003	Jul 27, 25	Jul 26, 26
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	1368	May 16, 25	May 15, 26
Signal Amplifier	WCS Technology	DLNA-18000-40000	KWET-138	Apr 19, 25	Apr 18, 26
3m anechoic Chamber	YIHENDIANZI	966	YH-KW-966-02	Mar 07, 25	Mar 06, 29
RF Cable(1G-18GHz)	EMC Instruments	EMC105-SM-SM-1000	240301	Apr 14, 25	Apr 13, 26
RF Cable(1G-18GHz)	EMC Instruments	EMC105-SM-SM-2000	240302	Apr 14, 25	Apr 13, 26
RF Cable(1G-18GHz)	EMC Instruments	EMC105-SM-SM-9000	240303	Apr 14, 25	Apr 13, 26
RF Cable(18G-40GHz)	WCS Technology	CA360P-29M29M-1M	W2415130001	Apr 14, 25	Apr 13, 26
RF Cable(18G-40GHz)	WCS Technology	CA360P-29M29M-9M	W2415110001	Apr 14, 25	Apr 13, 26
For conducted emission test (RF)					
MXG Signal Analyzer	Agilent	N9020A	MY56070279	Apr 14, 25	Apr 13, 26



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RF SWITCH BOX	CSKJ	SMU-1003	KWET-047	Apr 14, 25	Apr 13, 26
Attenuator	R&S	ESH3-Z2	102696	Apr 14, 25	Apr 13, 26
Power Meter	Agilent	E4418B	MY41294414	May 15, 25	May 14, 26
RF sma cable	Keysight	ULC-1m-SMSM+	1623	May 15, 25	May 14, 26
RF sma cable	Keysight	ULC-1m-SMSM+	1623	May 15, 25	May 14, 26
RF sma cable	Keysight	ULC-1.5FT-SMSM+	1623	May 15, 25	May 14, 26
RF sma cable	Keysight	ULC-1.5FT-SMSM+	1623	May 15, 25	May 14, 26
Coupler	Keysight	ZHDC-10-63-S+	SF331801603	May 15, 25	May 14, 26
Test Software	CSKJ	CS-305X	KWET-149	/	/

3.4 Description of Support Units

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

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Wireless Audio Transmitter	DAYTON AUDIO	Wave-link WLS	N/A	EUT

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.

4 Conducted Emission

Test Requirement : FCC CFR 47 Part 15 Section 15.207

Test Method : ANSI C63.10: 2013 (clause 6.2)

Test Result : PASS

Frequency Range : 150kHz to 30MHz

Class/Severity : Class B

4.1 E.U.T. Operation

Operating Environment :

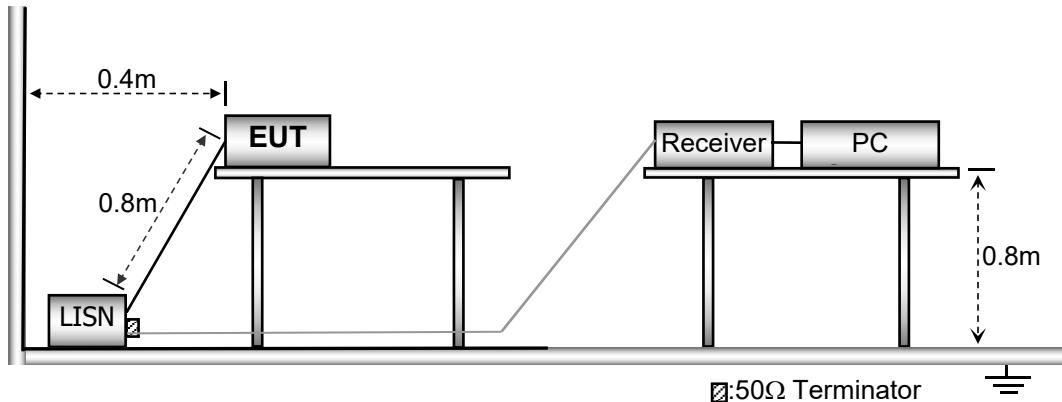
Temperature (° C) : 23.5

Humidity(%) : 54

Atmospheric Pressure(mbar) : 1015

4.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10:2013.



4.3 Measurement Procedure

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured was complete.

4.4 Conducted Emission Limit

Conducted Emission

Frequency(MHz)	Quasi-peak	Average
0.15-0.5	66-56	56-46
0.5-5.0	56	46
5.0-30.0	60	50

Note:

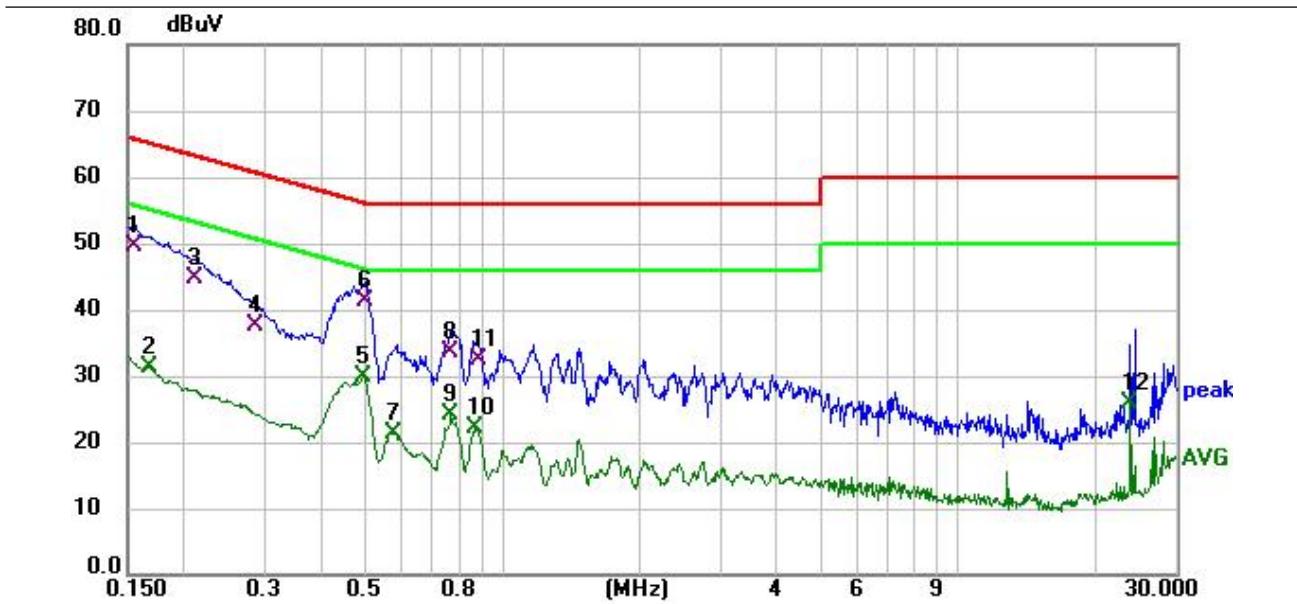
1. The lower limit shall apply at the transition frequencies
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.5 Measurement Description

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

4.6 Conducted Emission Test Result

M/N : Wave-link WLS
 Operation Mode : TX GFSK Low Channel
 Test Voltage : DC 5V from Adapter
 Test Specification : Line



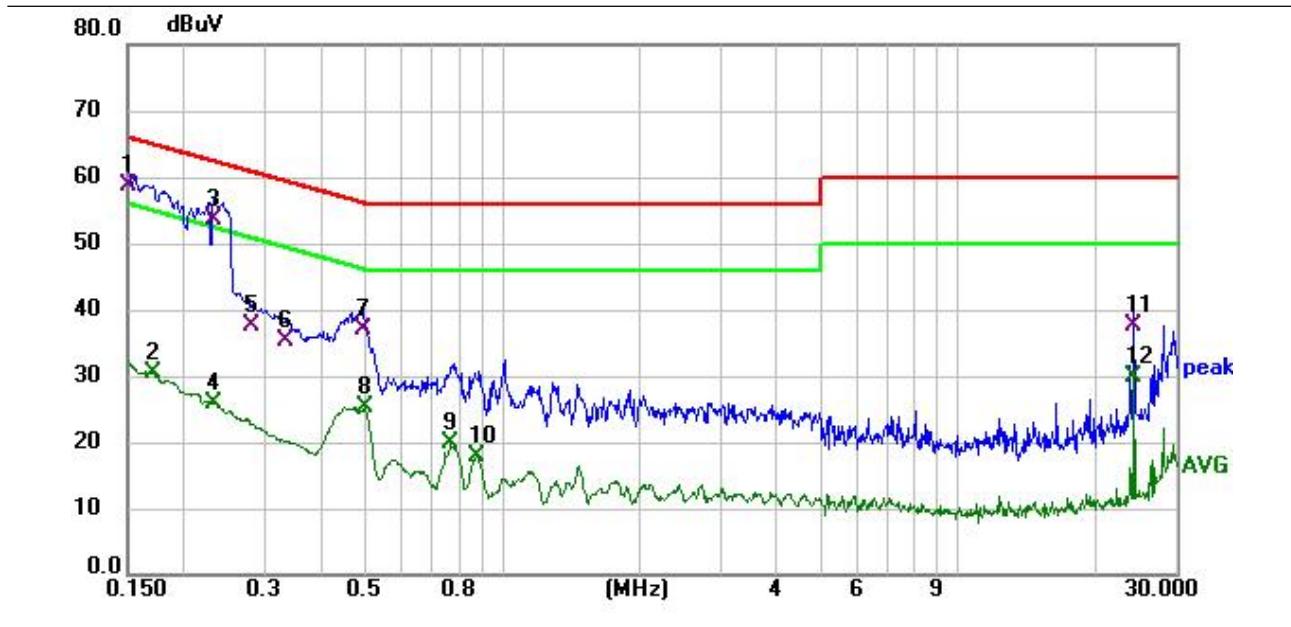
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.156	39.82	9.82	49.64	65.67	-16.03	QP
2	0.168	21.50	9.83	31.33	55.06	-23.73	AVG
3	0.210	34.85	9.83	44.68	63.21	-18.53	QP
4	0.285	27.80	9.85	37.65	60.67	-23.02	QP
5	0.495	19.91	9.95	29.86	46.08	-16.22	AVG
6 *	0.498	31.23	9.95	41.18	56.03	-14.85	QP
7	0.572	11.31	9.97	21.28	46.00	-24.72	AVG
8	0.770	23.64	10.07	33.71	56.00	-22.29	QP
9	0.770	13.95	10.07	24.02	46.00	-21.98	AVG
10	0.874	11.95	10.10	22.05	46.00	-23.95	AVG
11	0.882	22.36	10.10	32.46	56.00	-23.54	QP
12	23.820	13.47	12.29	25.76	50.00	-24.24	AVG

Remark:

Emission Level=Reading+Factor

Factor=Cable Loss+ANT Factor+Preamp Factor

M/N : Wave-link WLS
 Operation Mode : TX GFSK Low Channel
 Test Voltage : DC 5V from Adapter
 Test Specification : Neutral



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1 *	0.150	48.79	9.81	58.60	66.00	-7.40	QP
2	0.171	20.65	9.83	30.48	54.91	-24.43	AVG
3	0.231	43.79	9.82	53.61	62.41	-8.80	QP
4	0.231	16.13	9.82	25.95	52.41	-26.46	AVG
5	0.282	27.80	9.84	37.64	60.76	-23.12	QP
6	0.333	25.48	9.86	35.34	59.38	-24.04	QP
7	0.492	27.12	9.95	37.07	56.13	-19.06	QP
8	0.498	15.30	9.95	25.25	46.03	-20.78	AVG
9	0.770	9.90	10.07	19.97	46.00	-26.03	AVG
10	0.878	7.78	10.10	17.88	46.00	-28.12	AVG
11	24.380	25.11	12.34	37.45	60.00	-22.55	QP
12	24.380	17.58	12.34	29.92	50.00	-20.08	AVG

Remark:

Emission Level=Reading+Factor

Factor=Cable Loss+ANT Factor+Preamp Factor

5 Radiated Spurious Emissions

Test Requirement : FCC CFR47 Part 15 Section 15.209 & 15.247

Test Method : ANSI C63.10:2013(clause 6.3-6.6)

Test Result : PASS

Measurement Distance : 3m

Limit : See the follow table

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	20log ^{(2400/F(kHz))} + 80
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	20log ^{(24000/F(kHz))} + 40
1.705 ~ 30	30	30	100 * 30	20log ⁽³⁰⁾ + 40
30 ~ 88	100	3	100	20log ⁽¹⁰⁰⁾
88 ~ 216	150	3	150	20log ⁽¹⁵⁰⁾
216 ~ 960	200	3	200	20log ⁽²⁰⁰⁾
Above 960	500	3	500	20log ⁽⁵⁰⁰⁾

5.1 EUT Operation

Operating Environment :

Temperature (° C) : 23.5

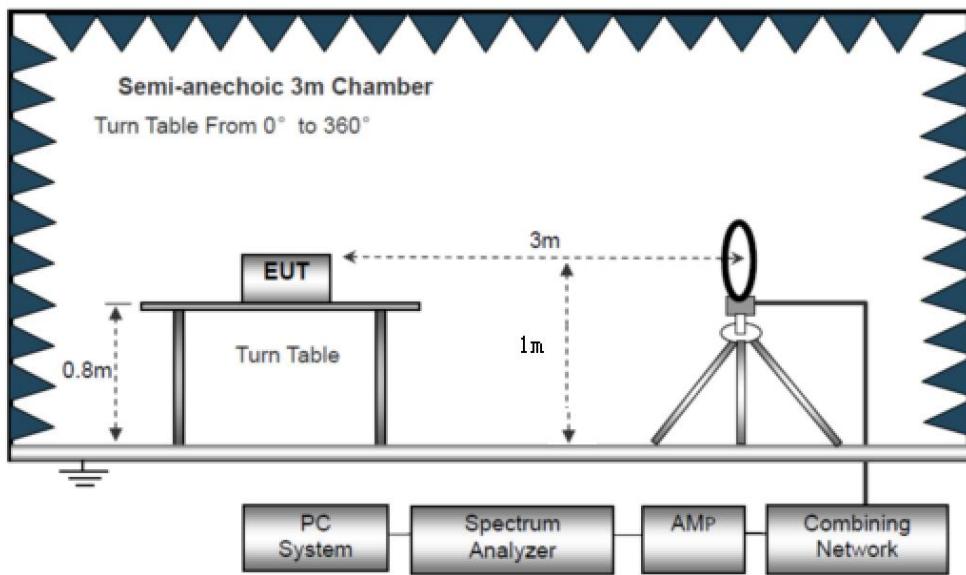
Humidity(%) : 54

Atmospheric Pressure(mbar) : 1015

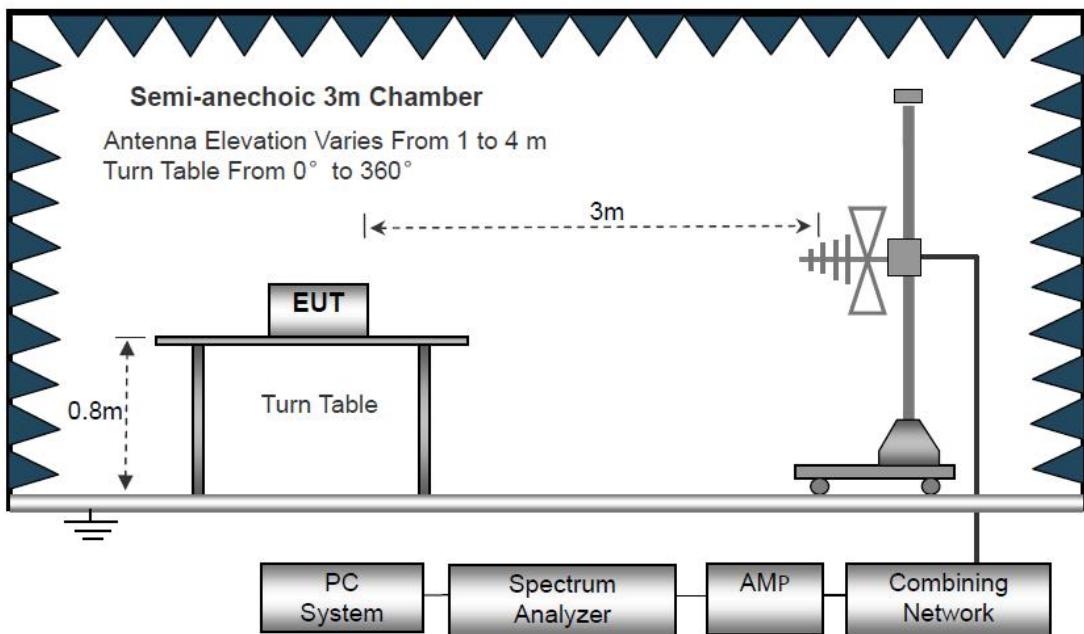
5.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site

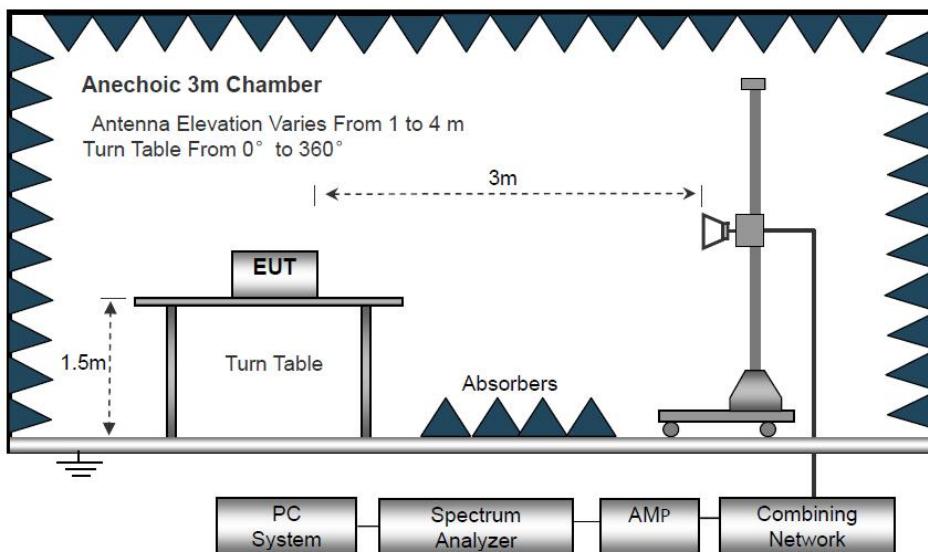
The test setup for emission measurement below 30MHz



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz



5.3 Spectrum Analyzer Setup

Below 30MHz			
IF Bandwidth	:	10kHz	
Resolution Bandwidth	:	10kHz	
Video Bandwidth	:	10kHz	
30MHz ~ 1GHz			
Detector	:	PK	QP
Resolution Bandwidth	:	100kHz	120kHz
Video Bandwidth	:	300kHz	300kHz
Above 1GHz			
Detector	:	PK	AV
Resolution Bandwidth	:	1MHz	1MHz
Video Bandwidth	:	3MHz	10Hz

5.4 Test Procedure

1. Below 1000MHz, The EUT was placed on a turn table which is 0.8m above ground plane, And above 1000MHz, The EUT was placed on a styrofoam table which is 1.5m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions. The spectrum was investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are tested under 3-axes(X,Y,Z) position(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand), After pre-test, It was found that the worse radiation emission was get at the X position. So the data shown was the X position only.
8. The test above 1GHz must be use the fully anechoic room, and the test below 1GHz use the half anechoic room

5.5 Summary of Test Results

Test Frequency: 9KHz-30MHz

Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
--	--	--	--	>20

Note:

The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

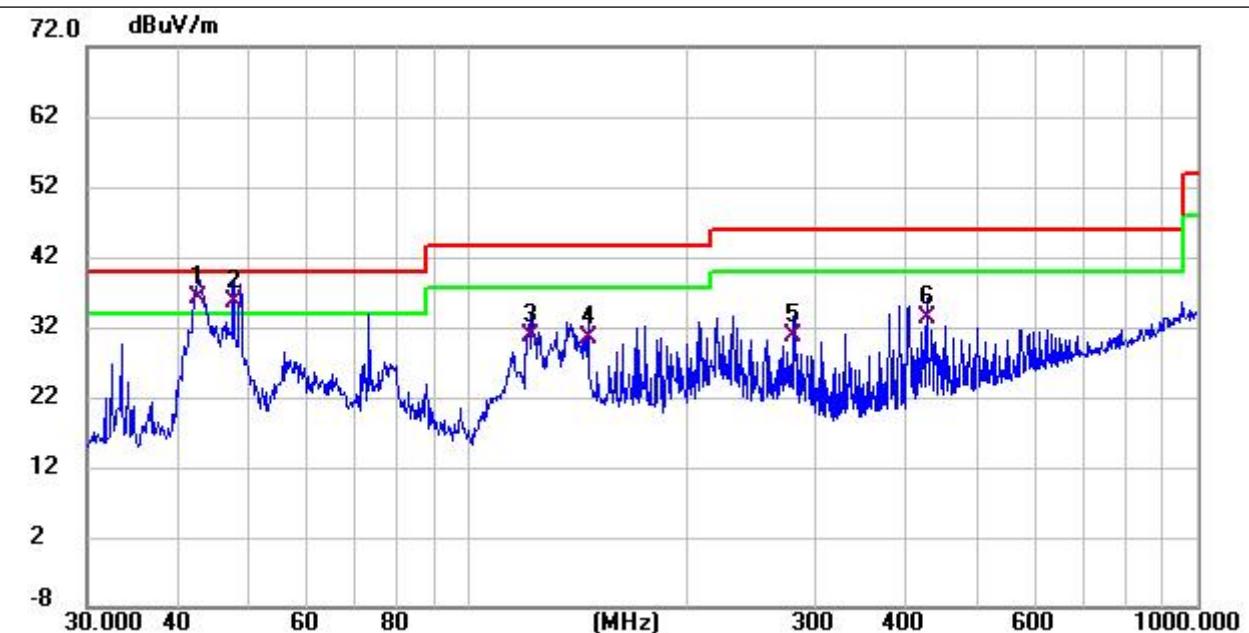
Distance extrapolation factor = $40\log(\text{Specific distance/ test distance})$ (dB);
 Limit line=Specific limits(dBuV) + distance extrapolation factor.

Test Frequency: 30MHz ~ 1GHz

All the modulation modes were tested the data of the worst mode (TX GFSK Low Channel) are recorded in the following pages and the others modulation methods do not exceed the limits.

Please refer to the following test plots:

M/N : Wave-link WLS
 Operation Mode : TX GFSK Low Channel
 Test Voltage : DC 5V from Adapter
 Test Specification : Vertical



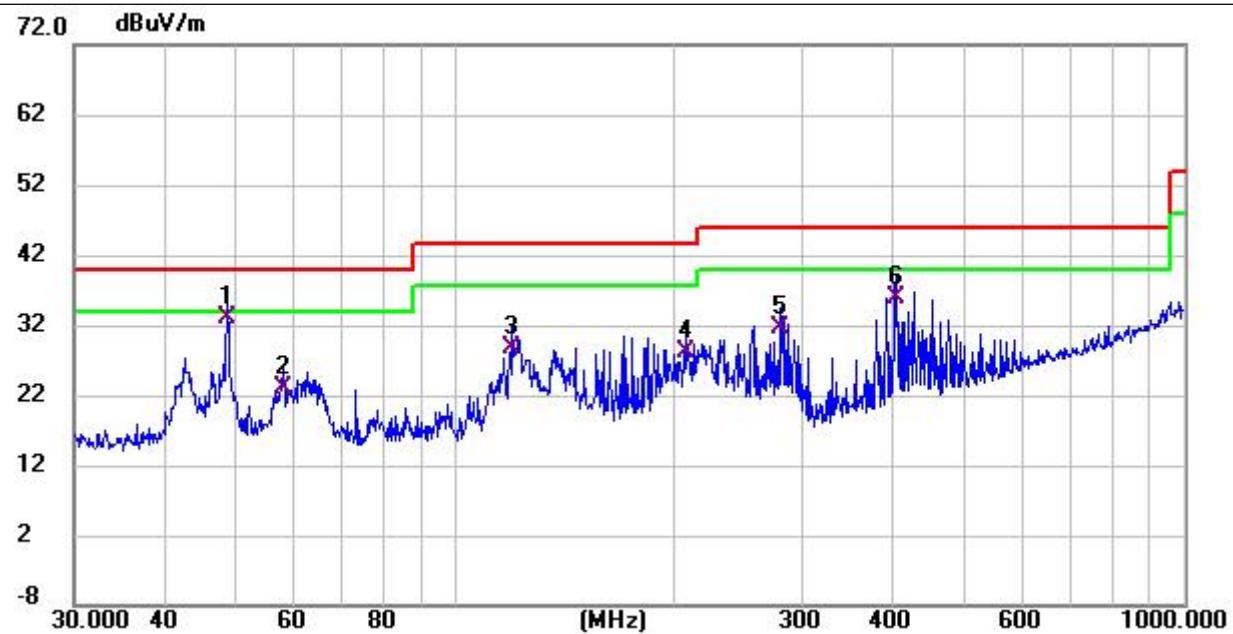
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	42.600	22.92	13.21	36.13	40.00	-3.87	QP
2 !	47.658	22.07	13.50	35.57	40.00	-4.43	QP
3	121.975	17.67	13.13	30.80	43.50	-12.70	QP
4	146.373	18.22	12.07	30.29	43.50	-13.21	QP
5	280.024	16.51	14.18	30.69	46.00	-15.31	QP
6	426.521	15.55	17.70	33.25	46.00	-12.75	QP

Remark:

Emission Level=Reading+Factor

Factor=Cable Loss+ANT Factor+Preamp Factor

M/N : Wave-link WLS
 Operation Mode : TX GFSK Low Channel
 Test Voltage : DC 5V from Adapter
 Test Specification : Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	48.672	20.51	12.40	32.91	40.00	-7.09	QP
2	58.203	10.42	12.56	22.98	40.00	-17.02	QP
3	119.856	14.58	14.19	28.77	43.50	-14.73	QP
4	207.123	17.20	10.95	28.15	43.50	-15.35	QP
5	280.024	17.27	14.18	31.45	46.00	-14.55	QP
6	403.250	18.72	17.19	35.91	46.00	-10.09	QP

Remark:

Emission Level=Reading+Factor

Factor=Cable Loss+ANT Factor+Preamp Factor

Test Frequency: From 1GHz to 25GHz

Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Low Channel:2406MHz									
V	4812	53.98	30.55	5.77	24.66	53.86	74	-20.14	PK
V	4812	44.67	30.55	5.77	24.66	44.55	54	-9.45	AV
V	7218	53.85	30.33	6.32	24.55	54.39	74	-19.61	PK
V	7218	44.65	30.33	6.32	24.55	45.19	54	-8.81	AV
V	9624	51.01	30.85	7.45	24.69	52.30	74	-21.7	PK
V	9624	41.68	30.85	7.45	24.69	42.97	54	-11.03	AV
V	12030	48.76	31.02	8.99	25.57	52.30	74	-21.7	PK
V	12030	40.96	31.02	8.99	25.57	44.50	54	-9.5	AV
H	4812	55.97	30.55	5.77	24.66	55.85	74	-18.15	PK
H	4812	45.81	30.55	5.77	24.66	45.69	54	-8.31	AV
H	7218	52.49	30.33	6.32	24.55	53.03	74	-20.97	PK
H	7218	42.74	30.33	6.32	24.55	43.28	54	-10.72	AV
H	9624	51.11	30.85	7.45	24.69	52.40	74	-21.6	PK
H	9624	41.84	30.85	7.45	24.69	43.13	54	-10.87	AV
H	12030	48.60	31.02	8.99	25.57	52.14	74	-21.86	PK
H	12030	39.15	31.02	8.99	25.57	42.69	54	-11.31	AV



KEYWAY

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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
Middle Channel:2442MHz									
V	4884	55.68	30.55	5.77	24.66	55.56	74	-18.44	PK
V	4884	44.55	30.55	5.77	24.66	44.43	54	-9.57	AV
V	7326	52.93	30.33	6.32	24.55	53.47	74	-20.53	PK
V	7326	44.08	30.33	6.32	24.55	44.62	54	-9.38	AV
V	9768	50.75	30.85	7.45	24.69	52.04	74	-21.96	PK
V	9768	41.98	30.85	7.45	24.69	43.27	54	-10.73	AV
V	12210	49.96	31.02	8.99	25.57	53.50	74	-20.50	PK
V	12210	39.71	31.02	8.99	25.57	43.25	54	-10.75	AV
H	4884	54.96	30.55	5.77	24.66	54.84	74	-19.16	PK
H	4884	44.69	30.55	5.77	24.66	44.57	54	-9.43	AV
H	7326	52.70	30.33	6.32	24.55	53.24	74	-20.76	PK
H	7326	45.02	30.33	6.32	24.55	45.56	54	-8.44	AV
H	9768	52.86	30.85	7.45	24.69	54.15	74	-19.85	PK
H	9768	42.86	30.85	7.45	24.69	44.15	54	-9.85	AV
H	12210	51.39	31.02	8.99	25.57	54.93	74	-19.07	PK
H	12210	41.18	31.02	8.99	25.57	44.72	54	-9.28	AV



KEYWAY

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Polar (H/V)	Frequency	Meter Reading	Pre- amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detect or Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB)	(dBuV/m)	(dBuV/ m)	(dB)	
High Channel:2475MHz									
V	4950.00	54.38	30.55	5.77	24.66	54.26	74	-19.74	PK
V	4950.00	43.59	30.55	5.77	24.66	43.47	54	-10.53	AV
V	7425.00	51.95	30.33	6.32	24.55	52.49	74	-21.51	PK
V	7425.00	43.87	30.33	6.32	24.55	44.41	54	-9.59	AV
V	9900.00	49.18	30.85	7.45	24.69	50.47	74	-23.53	PK
V	9900.00	38.48	30.85	7.45	24.69	39.77	54	-14.23	AV
V	12375.00	48.93	31.02	8.99	25.57	52.47	74	-21.53	PK
V	12375.00	40.13	31.02	8.99	25.57	43.67	54	-10.33	AV
H	4950.00	53.59	30.55	5.77	24.66	53.47	74	-20.53	PK
H	4950.00	44.97	30.55	5.77	24.66	44.85	54	-9.15	AV
H	7425.00	53.07	30.33	6.32	24.55	53.61	74	-20.39	PK
H	7425.00	43.80	30.33	6.32	24.55	44.34	54	-9.66	AV
H	9900.00	51.23	30.85	7.45	24.69	52.52	74	-21.48	PK
H	9900.00	40.87	30.85	7.45	24.69	42.16	54	-11.84	AV
H	12375.00	48.73	31.02	8.99	25.57	52.27	74	-21.73	PK
H	12375.00	38.31	31.02	8.99	25.57	41.85	54	-12.15	AV

Note:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,

Margin= Emission Level - Limit

2. If peak below the average limit, the average emission was no test.

3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



KEYWAY

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Radiated Band Emission Measuremen:

	Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifie r (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV /m)	Margin(dB)	Detector Type	Result
GFSK	Low Channel 2406MHz										
	H	2390	56.13	30.22	4.85	23.98	54.74	74	-19.26	PK	PASS
	H	2390	47.74	30.22	4.85	23.98	46.35	54	-7.65	AV	PASS
	H	2400	54.69	30.22	4.85	23.98	53.30	74	-20.7	PK	PASS
	H	2400	45.03	30.22	4.85	23.98	43.64	54	-10.36	AV	PASS
	V	2390	55.75	30.22	4.85	23.98	54.36	74	-19.64	PK	PASS
	V	2390	45.15	30.22	4.85	23.98	43.76	54	-10.24	AV	PASS
	V	2400	55.15	30.22	4.85	23.98	53.76	74	-20.24	PK	PASS
	V	2400	45.88	30.22	4.85	23.98	44.49	54	-9.51	AV	PASS
	High Channel 2475MHz										
	H	2483.5	56.18	35.11	3.56	27.75	52.38	74	-21.62	PK	PASS
	H	2483.5	45.98	35.11	3.56	27.75	42.18	54	-11.82	AV	PASS
	H	2500	57.29	35.1	3.57	27.8	53.56	74	-20.44	PK	PASS
	H	2500	47.11	35.1	3.57	27.8	43.38	54	-10.62	AV	PASS
	V	2483.5	55.92	35.11	3.56	27.75	52.12	74	-21.88	PK	PASS
	V	2483.5	56.33	35.11	3.56	27.75	52.53	54	-1.47	AV	PASS
	V	2500	55.94	35.1	3.57	27.8	52.21	74	-21.79	PK	PASS
	V	2500	46.60	35.1	3.57	27.8	42.87	54	-11.13	AV	PASS
Remark:											
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit											

6 Conduct Band Edge And Spurious Emissions Measurement

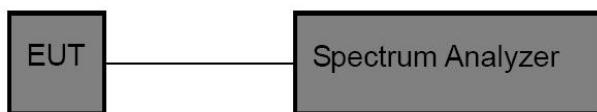
Test Requirement : Section 15.247(d) In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

Test Method : ANSI C63.10:2013 (clause 6.10)

Test Limit : Regulation 15.247 (d), In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

RSS-247 §5.5:
 In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

6.1 Test Setup



6.2 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz, Sweep = auto
Detector function = peak, Trace = max hold

6.3 Test Result

Please see the attachment for data.

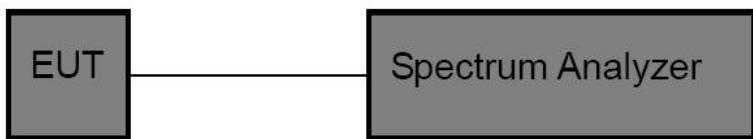
7 6dB&99% Bandwidth Measurement

Test Requirement : FCC CFR47 Part 15 Section 15.247

Test Method : ANSI C63.10:2013 (clause 11.8)

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

7.1 Test Setup



7.2 Test Procedure

For 6dB Bandwidth Measurement

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

For 99% Bandwidth Measurement

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 1%-5% OBW, VBW \geq 3RBW

7.3 Test Result

Please see the attachment for data.

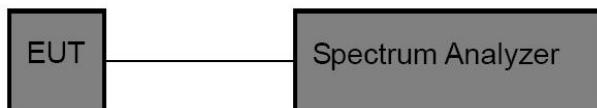
8 Maximum Peak Output Power

Test Requirement : FCC CFR47 Part 15 Section 15.247 (b)(3)

Test Method : ANSI C63.10:2013(clause 11.9)

Test Limit : Regulation 15.247 (b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power.
RSS-247§5.4 (d)
For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

8.1 Test Setup



8.2 Test Procedure

1. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above,
2. Spectrum Setting:

Set the RBW = 1 MHz.

Set the VBW $\geq [3 \times \text{RBW}]$.

Set the span $\geq [1.5 \times \text{DTS bandwidth}]$.

Detector = peak.

Sweep time = auto couple.

Trace mode = max hold.

Allow trace to fully stabilize.

8.3 Test Result

Please see the attachment for data.

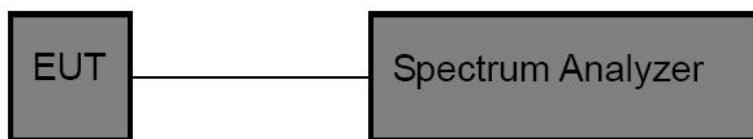
9 Power Spectral density

Test Requirement : FCC CFR47 Part 15 Section 15.247 (e)

Test Method : ANSI C63.10:2013(clause 11.10)

Test Limit : Regulation 15.247(f) The power spectral density conducted from the intentional radiator to the antenna due to the digital modulation operation of the hybrid system, with the frequency hopping operation turned off, shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

9.1 Test Setup



9.2 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 3kHz. VBW = 9.1kHz, Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

9.3 Test Result

Please see the attachment for data.

10 On Time and Duty Cycle

10.1 Standard Applicable

None: for reporting purpose only.

10.2 Measuring Instruments and Setting

Please refer to equipment's list in this report. The following table is the setting of the spectrum analyzer.

10.3 Test Setup



10.4 Test Procedures

1. Set the centre frequency of the spectrum analyzer to the transmitting frequency;
2. Set the span=0MHz, RBW=8MHz, VBW=8MHz, Sweep time= 8.0ms (10001pts) ;
3. Detector = RMS;
4. Trace mode = Single hold.

10.5 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

10.6 Test result

Please see the attachment for data.

11 Antenna Application

11.1 Antenna Requirement

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.

According to RSS-GEN section 6.8

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

11.2 Result

The EUT'S antenna, permanent attached antenna, is Internal Antenna. The antenna's gain is 0.95dBi, and meets the requirement.

12 Test Setup and EUT Photos

Reference to the attachment for details.

*****THE END REPORT*****