



**BUREAU
VERITAS**

Test Report No.: RF170724N042



TEST REPORT

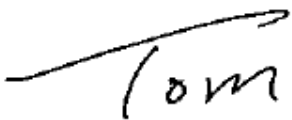
Applicant	Sam Ash Music Corporation
Address	262 Duffy Avenue Hicksville, NY 11801 USA

Manufacturer or Supplier	Sam Ash Music Corporation
Address	262 Duffy Avenue Hicksville, NY 11801 USA
Product	Professional Wireless System for Mobile Video
Brand Name	SAMSON
Model	HXD2
Additional Model & Model Difference	N/A
Date of tests	Jul. 25, 2017 ~ Jul. 31, 2017

the tests have been carried out according to the requirements of the following standard:

☒ **FCC Part 15, Subpart C, Section 15.247**

CONCLUSION: The submitted sample was found to COMPLY with the test requirement

Tested by Tom Chen Project Engineer / EMC Department	Approved by Glyn He Supervisor / EMC Department
	
	Date: Aug. 11, 2017

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF170724N042	Original release	Aug. 11, 2017



1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.247)			
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK
15.207	AC Power Conducted Emission	N/A	Powered from battery
15.205 15.209	Radiated Emission	PASS	Meet the requirement of limit.
15.247(d)	Out of band Emission Measurement	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted Output power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used

2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Radiated emissions	9KHz ~ 30MHz	3.10dB
	30MHz ~ 1GMHz	3.42dB
	1GHz ~ 18GHz	4.58dB
	18GHz ~ 40GHz	4.58dB

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



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Professional Wireless System for Mobile Video
MODEL NO.	HXD2
FCC ID	CCRHXD2
NOMINAL VOLTAGE	DC 3V(1.5V*AA*2) From Battery
MODULATION TYPE	DSSS
MODULATION TECHNOLOGY	GFSK
OPERATING FREQUENCY	2406-2478MHz
PEAK OUTPUT POWER	24.210mW (Max. Measured)
ANTENNA TYPE	PCBA Antenna, -4dBi Gain
I/O PORTS	Refer to user's manual
CABLE SUPPLIED	N/A

NOTE:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. Please refer to the EUT photo document (Reference No.: 170724N042) for detailed product photo.



3.2 DESCRIPTION OF TEST MODES

25 channels are provided for GFSK:

CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)	CHANNEL	FREQ. (MHZ)
0	2406	10	2436	20	2466
1	2409	11	2439	21	2469
2	2412	12	2442	22	2472
3	2415	13	2445	23	2475
4	2418	14	2448	24	2478
5	2421	15	2451		
6	2424	16	2454		
7	2427	17	2457		
8	2430	18	2460		
9	2433	19	2463		

3.2.1. CONFIGURATION OF SYSTEM UNDER TEST

Please see section 5 photographs of the test configuration for reference.

3.2.2. TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports

The worst case was found when positioned on X axis for radiated emission. Following test modes were selected for the final test, and the final worst case is marked in boldface and recorded in the report:

EUT CONFIGURE MODE	APPLICABLE TO				DESCRIPTION
	RE<1G	RE≥1G	PLC	APCM	
A	√	√	-	√	Powered by New Battery with Bluetooth link

Where **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission

RE≥1G: Radiated Emission above 1GHz
APCM: Antenna Port Conducted Measurement

NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

**RADIATED EMISSION TEST (BELOW 1GHz):**

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	0 to 24	24	DSSS	GFSK	1

For the test results, only the worst case was shown in test report.

RADIATED EMISSION TEST (ABOVE 1GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	0 to 24	0,12, 24	DSSS	GFSK	1

ANTENNA PORT CONDUCTED MEASUREMENT:

- ☒ This item includes all test value of each mode, but only includes spectrum plot of worst value of each mode.
- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
A	0 to 24	0,12, 24	DSSS	GFSK	1

TEST CONDITION:

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	TEST VOLTAGE	TESTED BY
RE<1G	25deg. C, 50%RH	DC 3.7V From Battery	Jerry
RE≥1G	25deg. C, 50%RH	DC 3.7V From Battery	Jerry
PLC	N/A	N/A	N/A
APCM	20deg. C, 55%RH	DC 3.7V From Battery	Jerry



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3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15, Subpart C, Section 15.247

558074 D01 DTS Meas Guidance v04

ANSI C63.10-2013

Note: All test items have been performed and recorded as per the above standards.

3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together without other necessary accessories or support units.



4 TEST TYPES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

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).

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

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
EMI Test Receiver	Rohde&Schwarz	ESU40	100449	Mar. 11,17	Mar. 10,18
Signal and Spectrum Analyzer	Rohde&Schwarz	FSV7	102331	Nov. 04,16	Nov. 03,17
Bilog Antenna (30MHz~1GHz)	Teseq	CBL 6111D	30643	Jul. 14, 17	Jul. 13, 18
Loop antenna (9KHz ~30MHz)	Daze	ZN30900A	0708	Mar. 12,17	Mar. 11,18
Amplifier (9kHz-1GHz)	SONOMA	310D	186955	Mar. 04,17	Mar. 03, 18
Horn Antenna (1GHz -18GHz)	ETS -Lindgren	3117	00062558	May 19,17	May 18,18
GPS Generator+ Antenna	TOJOIN	GNSS-5000A	E1-010119	Aug. 08, 16	Aug. 07, 17
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	NSEMC003	Mar. 06,17	Mar. 05,18
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
Horn Antenna (18GHz-40GHz)	SCHWARZBECK	BBHA 9170	BBHA9170242	Mar. 15,17	Mar. 14,18
Broadband Preamplifier (1GHz~18GHz)	SCHWARZBECK	BBV9718	305	Mar. 06,17	Mar. 05,18
Pre-Amplifier (18GHz-40GHz)	EMCI	EMC 184045	980102	Nov. 04,16	Nov. 03,17
Test Software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A	N/A
BLUETOOTH TESTER	Rohde&Schwarz	CBT32	100811	Aug. 08,16	Aug. 07,17
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A	N/A

NOTE:

1. The test was performed in BVDG_966 Chamber.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to CEPREI/CHINA, GREGT/CHINA and NIM/CHINA.
3. The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
4. The FCC Site Registration No. is 749762.



4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, For battery operated equipment, the equipment tests shall be performed using fresh batteries. The turntable was rotated to maximize the emission level.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.
5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

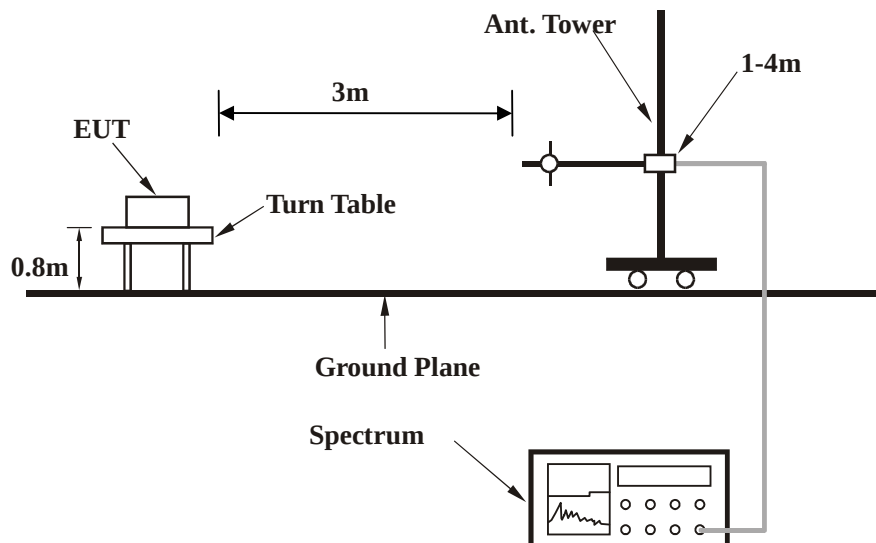
4.1.4 DEVIATION FROM TEST STANDARD

No deviation.



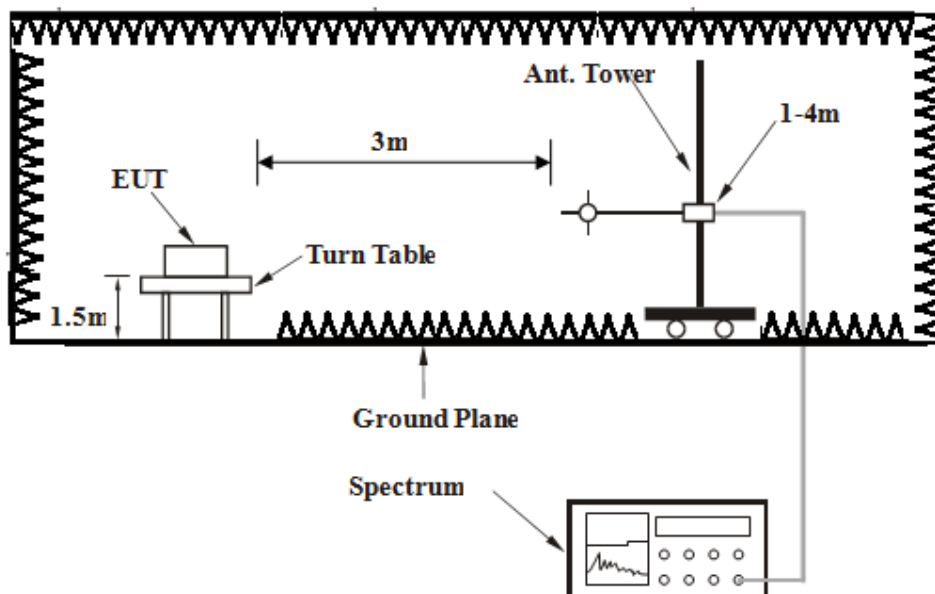
4.1.5 TEST SETUP

Below 1GHz test setup



Note: For the actual test configuration, please refer to the attached file (Test Setup Photo).

Above 1GHz test setup



Note: For the actual test configuration, please refer to the attached file (Test Setup Photo).



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4.1.6 EUT OPERATING CONDITIONS

- a. Set the EUT under full load condition and placed them on a testing table.
- b. Set the transmitter part of EUT under transmission condition continuously at specific channel frequency.
- c. The necessary accessories enable the EUT in full functions.



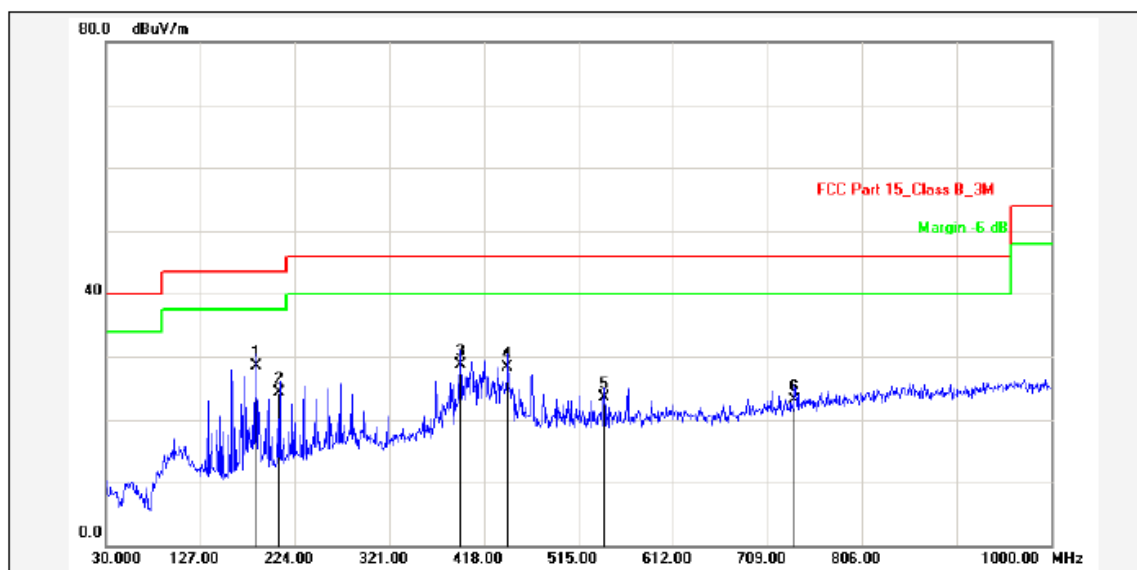
4.1.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA:

CHANNEL	TX Channel 24	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

Horizontal

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	184.2300	-13.88	42.38	28.50	43.50	-15.00	QP
2	208.4798	-13.28	37.58	24.30	43.50	-19.20	QP
3	393.7500	-9.14	37.94	28.80	46.00	-17.20	QP
4	442.2500	-8.16	36.46	28.30	46.00	-17.70	QP
5	541.1900	-6.65	30.15	23.50	46.00	-22.50	QP
6	737.1299	-2.89	26.09	23.20	46.00	-22.80	QP

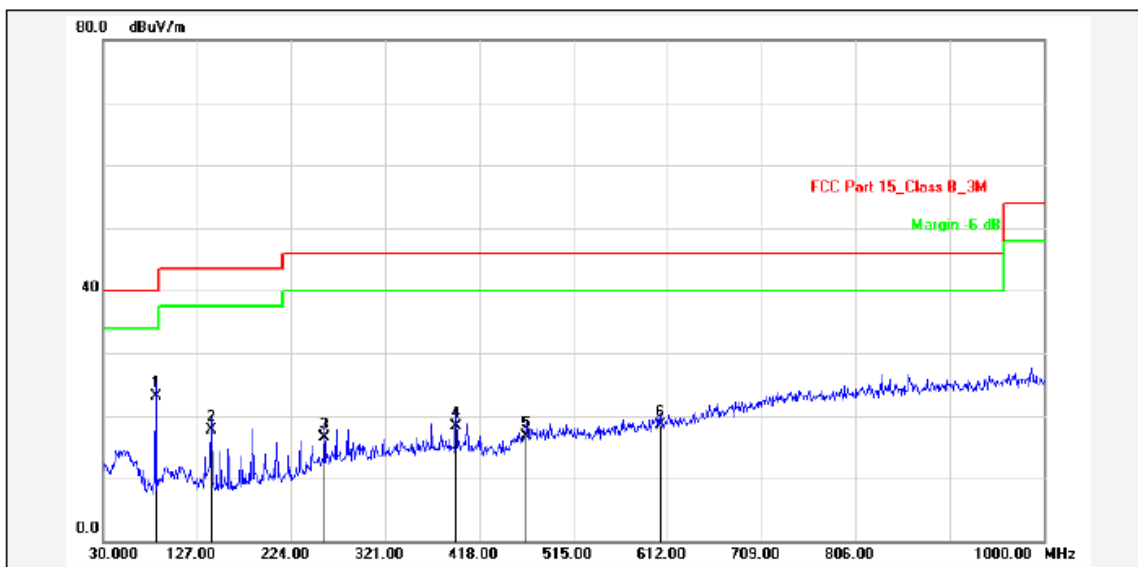




CHANNEL	TX Channel 24	DETECTOR FUNCTION	Quasi-Peak (QP)
FREQUENCY RANGE	9KHz ~ 1GHz		

Vertical

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	84.3200	-18.31	41.51	23.20	40.00	-16.80	QP
2	141.5500	-18.59	36.29	17.70	43.50	-25.80	QP
3	257.9499	-13.47	29.97	16.50	46.00	-29.50	QP
4	393.7500	-11.14	29.44	18.30	46.00	-27.70	QP
5	466.5000	-9.56	26.26	16.70	46.00	-29.30	QP
6	604.2400	-7.01	25.61	18.60	46.00	-27.40	QP





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ABOVE 1GHz TEST DATA:

CHANNEL	TX Channel 0	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

Horizontal

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	0.09	47.40	47.49	74.00	-26.51	peak
2	2390.000	0.09	32.83	32.92	54.00	-21.08	AVG
3	2399.000	0.13	48.36	48.49	74.00	-25.51	peak
4	2399.000	0.13	34.25	34.38	54.00	-19.62	AVG
5	4812.000	6.34	46.66	53.00	74.00	-21.00	peak
6	4812.000	6.34	32.61	38.95	54.00	-15.05	AVG
7	7218.000	10.46	45.57	56.03	74.00	-17.97	peak
8	7218.000	10.46	30.98	41.44	54.00	-12.56	AVG

Vertical

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	0.09	49.38	49.47	74.00	-24.53	peak
2	2390.000	0.09	38.57	38.66	54.00	-15.34	AVG
3	2399.000	0.13	49.37	49.50	74.00	-24.50	peak
4	2399.000	0.13	38.53	38.66	54.00	-15.34	AVG
5	4812.000	6.34	46.06	52.40	74.00	-21.60	peak
6	4812.000	6.34	32.11	38.45	54.00	-15.55	AVG
7	7218.000	10.46	45.66	56.12	74.00	-17.88	peak
8	7218.000	10.46	31.14	41.60	54.00	-12.40	AVG



CHANNEL	TX Channel 12	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

Horizontal

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2442.000	0.24	49.52	49.76	74.00	-24.24	peak
2	2442.000	0.24	38.96	39.20	54.00	-14.80	AVG
3	4884.000	6.61	47.51	54.12	74.00	-19.88	peak
4	4884.000	6.61	34.92	41.53	54.00	-12.47	AVG
5	7326.000	10.54	44.71	55.25	74.00	-18.75	peak
6	7326.000	10.54	31.42	41.96	54.00	-12.04	AVG
7	9768.000	12.85	46.29	59.14	74.00	-14.86	peak
8	9768.000	12.85	33.38	46.23	54.00	-7.77	AVG

Vertical

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2442.000	0.24	49.55	49.79	74.00	-24.21	peak
2	2442.000	0.24	39.30	39.54	54.00	-14.46	AVG
3	4884.000	6.61	46.88	53.49	74.00	-20.51	peak
4	4884.000	6.61	33.38	39.99	54.00	-14.01	AVG
5	7326.000	10.54	45.52	56.06	74.00	-17.94	peak
6	7326.000	10.54	31.51	42.05	54.00	-11.95	AVG
7	9768.000	12.85	45.23	58.08	74.00	-15.92	peak
8	9768.000	12.85	31.84	44.69	54.00	-9.31	AVG



CHANNEL	TX Channel 24	DETECTOR FUNCTION	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz		Average (AV)

Horizontal

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2478.000	0.34	49.77	50.11	74.00	-23.89	peak
2	2478.000	0.34	38.76	39.10	54.00	-14.90	AVG
3	2483.500	0.35	56.00	56.35	74.00	-17.65	peak
4	2483.500	0.35	45.03	45.38	54.00	-8.62	AVG
5	4956.000	6.88	51.95	58.83	74.00	-15.17	peak
6	4956.000	6.88	40.41	47.29	54.00	-6.71	AVG
7	7434.000	10.59	45.94	56.53	74.00	-17.47	peak
8	7434.000	10.59	31.60	42.19	54.00	-11.81	AVG
9	9912.000	13.10	47.07	60.17	74.00	-13.83	peak
10	9912.000	13.10	33.91	47.01	54.00	-6.99	AVG

Vertical

No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2478.000	0.34	49.87	50.21	74.00	-23.79	peak
2	2478.000	0.34	39.57	39.91	54.00	-14.09	AVG
3	2483.500	0.34	47.91	48.25	74.00	-25.75	peak
4	2483.500	0.34	36.12	36.46	54.00	-17.54	AVG
5	4956.000	6.88	47.01	53.89	74.00	-20.11	peak
6	4956.000	6.88	34.79	41.67	54.00	-12.33	AVG
7	7434.000	10.59	45.40	55.99	74.00	-18.01	peak
8	7434.000	10.59	30.97	41.56	54.00	-12.44	AVG
9	9912.000	13.10	46.99	60.09	74.00	-13.91	peak
10	9912.000	13.10	32.46	45.56	54.00	-8.44	AVG



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4.2 6dB BANDWIDTH MEASUREMENT

4.2.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.2.2 TEST INSTRUMENTS

Description	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due Date
Receiver	Rohde & Schwarz	ESC17	100837	Mar. 06, 2017	Mar. 05, 2018
DC Power Source	HUA YI	HY5003-2	N/A	Nov.02, 2016	Nov.01, 2017
Temperature & Humidity Chamber	HAIDA	DH-225T	N/A	Nov.04, 2016	Nov.03, 2017
Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	Mar. 06, 2017	Mar. 05, 2018
Pre-Amplifier	COM-Power	PAM-118	443007	Mar. 06, 2017	Mar. 05, 2018
Pre-Amplifier	Agilent	8449B	3008A02964	Nov.02, 2016	Nov.01, 2017
Pre-Amplifier	HP	HP 8447D	1145A00203	Mar. 06, 2017	Mar. 05, 2018
Power Sensor	DARE	RPR3006W	15I00041SNO64	Mar. 06, 2017	Mar. 05, 2018
Test Software	Acentest	AT890-SW	N/A	N/A	N/A
Cable	Huber+Suhner	CIL02	N/A	Mar. 06, 2017	Mar. 05, 2018
Communication Tester	Rohde & Schwarz	CMW500	149004	Mar. 07, 2017	Mar. 07, 2018
Bluetooth tester	Rohde & Schwarz	CBT	248SGB20D	Mar. 07, 2017	Mar. 07, 2018

NOTE:

1. The test was performed in the Dongguan NTC Co., Ltd that was accredited by CNAS.



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4.2.3 TEST PROCEDURE

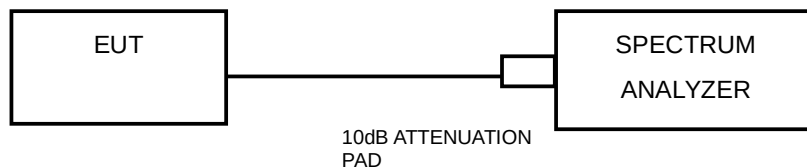
1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.



4.2.5 TEST SETUP



4.2.6 EUT OPERATING CONDITIONS

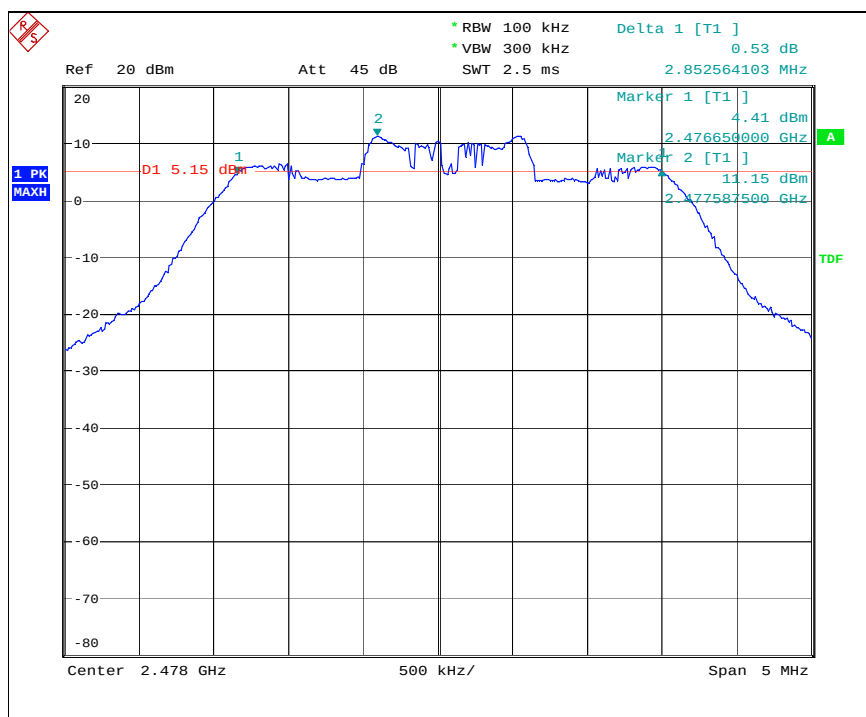
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



4.2.7 TEST RESULTS

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
0	2406	2.804	0.5	PASS
12	2442	2.441	0.5	PASS
24	2478	2.853	0.5	PASS

WORSE PLOT



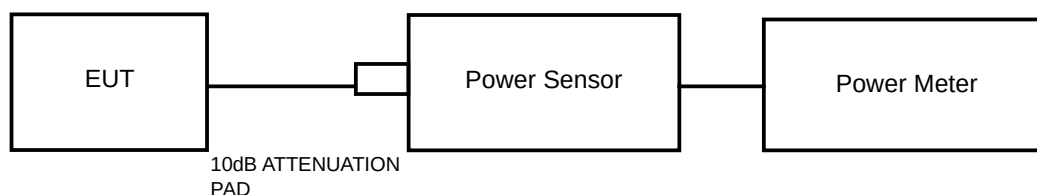


4.3 CONDUCTED OUTPUT POWER

4.3.1 LIMITS OF CONDUCTED OUTPUT POWER MEASUREMENT

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

4.3.2 TEST SETUP



4.3.3 TEST INSTRUMENTS

Description	Manufacturer	Model Number	Serial Number	Calibration Date	Calibration Due Date
Receiver	Rohde & Schwarz	ESCI7	100837	Mar. 06, 2017	Mar. 05, 2018
DC Power Source	HUA YI	HY5003-2	N/A	Nov.02, 2016	Nov.01, 2017
Temperature & Humidity Chamber	HAIDA	DH-225T	N/A	Nov.04, 2016	Nov.03, 2017
Spectrum Analyzer	Rohde & Schwarz	FSU26	200409/026	Mar. 06, 2017	Mar. 05, 2018
Pre-Amplifier	COM-Power	PAM-118	443007	Mar. 06, 2017	Mar. 05, 2018
Broadband Antenna	Schwarzbeck	VULB9162	9162-010	Apr. 25, 2017	Apr. 24, 2018
Pre-Amplifier	Agilent	8449B	3008A02964	Nov.02, 2016	Nov.01, 2017
Pre-Amplifier	HP	HP 8447D	1145A00203	Mar. 06, 2017	Mar. 05, 2018
Power Sensor	DARE	RPR3006W	15I00041SNO64	Mar. 06, 2017	Mar. 05, 2018
Test Software	Acentest	AT890-SW	N/A	N/A	N/A
Cable	Huber+Suhner	CIL02	N/A	Mar. 06, 2017	Mar. 05, 2018
Communication Tester	Rohde & Schwarz	CMW500	149004	Mar. 07, 2017	Mar. 07, 2018
Bluetooth tester	Rohde & Schwarz	CBT	248SGB20D	Mar. 07, 2017	Mar. 07, 2018

NOTE:

1. The test was performed in the Dongguan NTC Co., Ltd that was accredited by CNAS.



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4.3.4 TEST PROCEDURES

A peak sensor was used on the output port of the EUT. A peak power meter was used to read the response of the peak power sensor. Record the peak power level.

4.3.5 DEVIATION FROM TEST STANDARD

No deviation.

4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

4.3.7 TEST RESULTS

4.3.7.1 MAXIMUM PEAK OUTPUT POWER

BT-LE (GFSK)

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER (dBm)	PEAK POWER (mW)	PEAK POWER LIMIT (W)	PASS/FAIL
0	2406	12.81	19.099	1	PASS
12	2442	13.52	22.491	1	PASS
24	2478	13.84	24.210	1	PASS

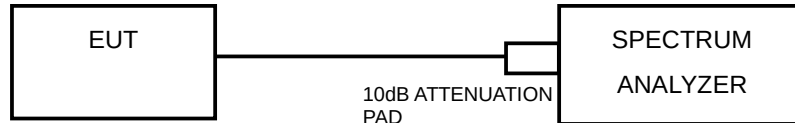


4.4 POWER SPECTRAL DENSITY MEASUREMENT

4.4.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm/3KHz.

4.4.2 TEST SETUP



4.4.3 TEST INSTRUMENTS

Refer to section 4.3.3 to get information of above instrument.

4.4.4 TEST PROCEDURE

1. Set the span to 1.5 times the DTS bandwidth
2. Set the RBW = 3 kHz, VBW $\geq 3 \times$ RBW, Detector = peak.
3. Sweep time = auto couple, Trace mode = max hold, allow trace to fully stabilize.
4. Use the peak marker function to determine the maximum amplitude level.

4.4.5 DEVIATION FROM TEST STANDARD

No deviation.

4.4.6 EUT OPERATING CONDITION

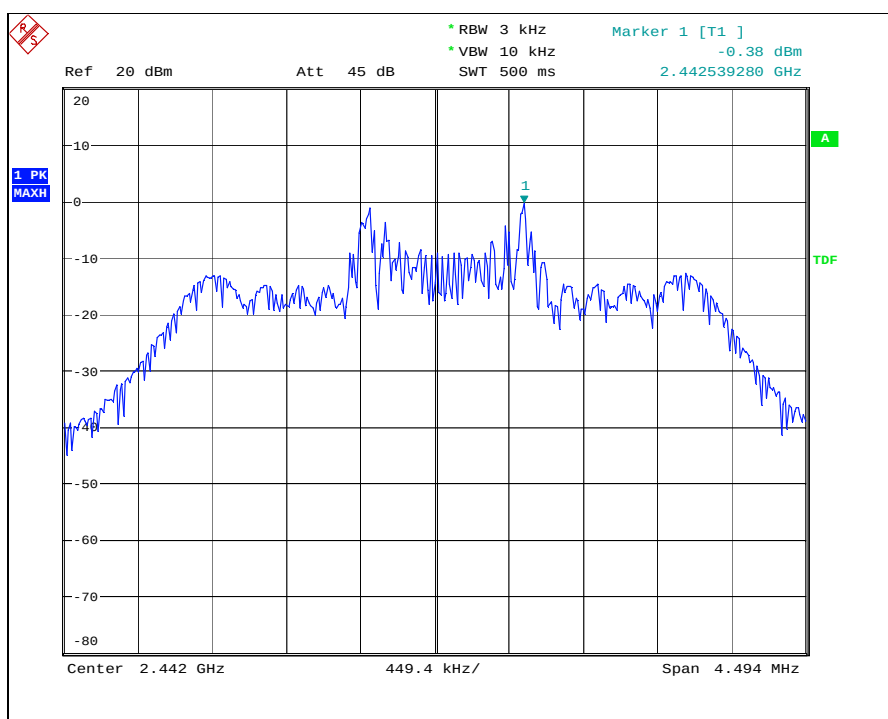
The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



4.4.7 TEST RESULTS

Channel	FREQ. (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)	PASS /FAIL
0	2406	-2.35	8	PASS
12	2442	-0.38	8	PASS
24	2478	-0.94	8	PASS

WORSE PLOT



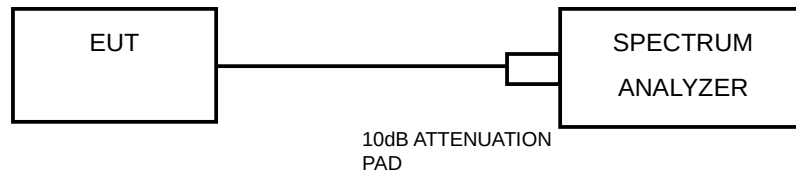


4.5 OUT OF BAND EMISSION MEASUREMENT

4.5.1 LIMITS OF OUT OF BAND EMISSION MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.5.2 TEST SETUP



4.5.3 TEST INSTRUMENTS

Refer to section 4.3.3 to get information of above instrument.

4.5.4 TEST PROCEDURE

MEASUREMENT PROCEDURE REF

1. Set the RBW = 100 kHz.
2. Set the VBW $\geq$ 300 kHz.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.



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MEASUREMENT PROCEDURE OOB

1. Set RBW = 100 kHz.
2. Set VBW $\geq$ 300 kHz.
3. Set span to encompass the spectrum to be examined
4. Detector = peak.
5. Trace Mode = max hold.
6. Sweep = auto couple.

4.5.5 DEVIATION FROM TEST STANDARD

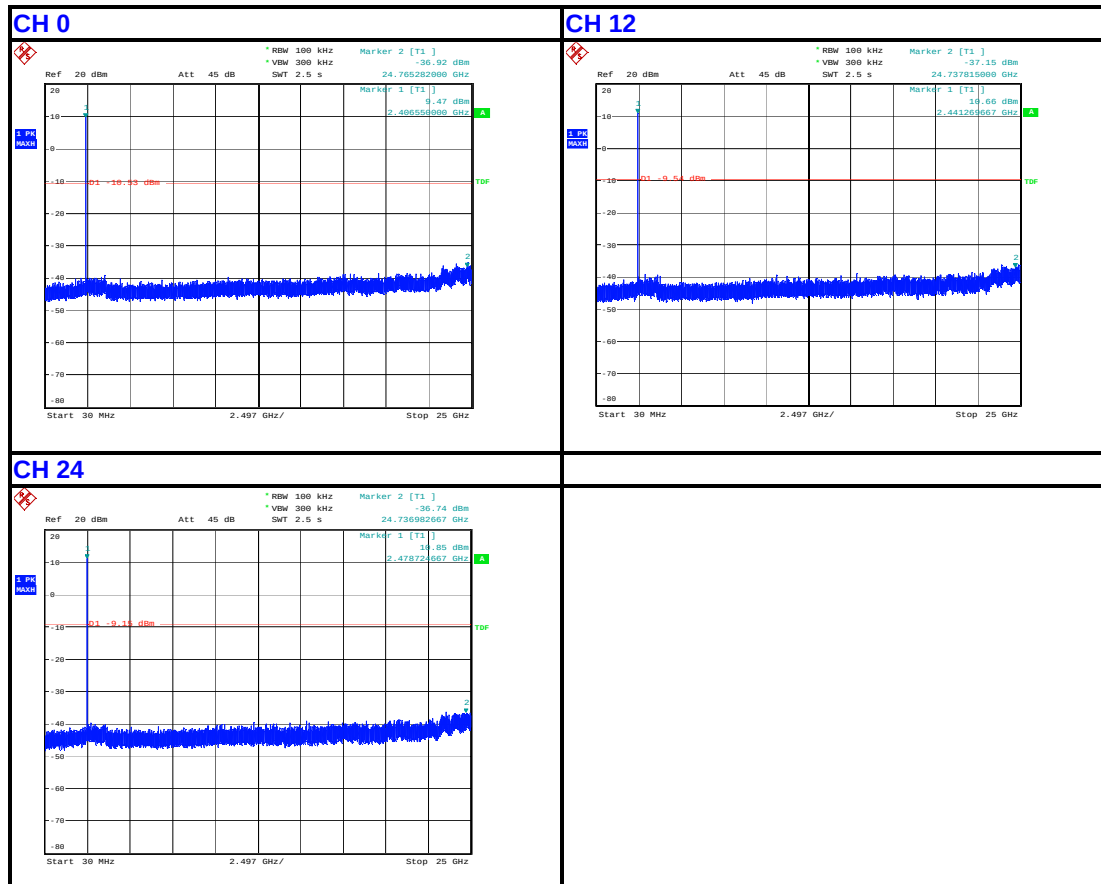
No deviation.

4.5.6 EUT OPERATING CONDITION

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



4.5.7 TEST RESULTS

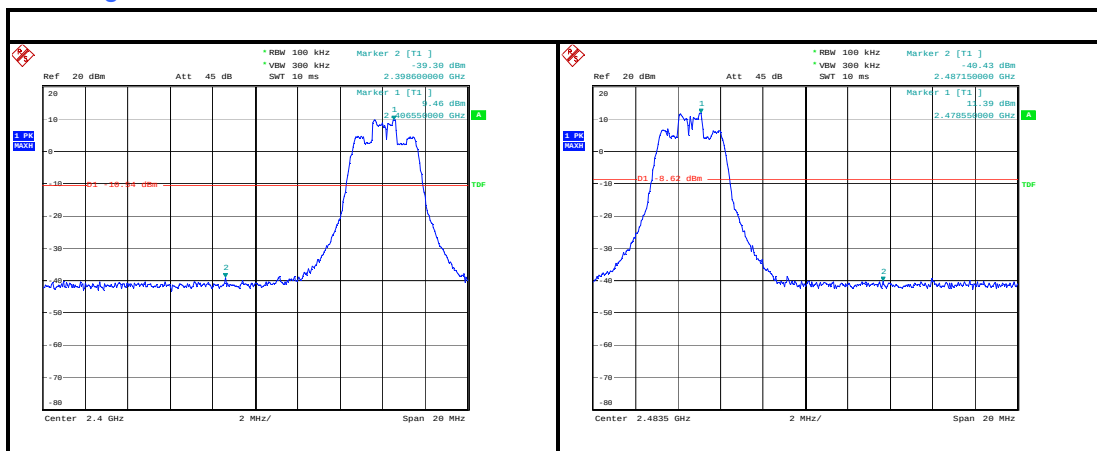




BUREAU
VERITAS

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Band Edge:





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5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



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6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END---