

FCC TEST REPORT

FCC ID: 2AU7P-W35DHB

Product : Wireless Microphone System
Model Name : W35H, W4U-RH4
Brand :  , 
Report No. : NCT23036041E

Prepared for

Soundking Electronics& Sound Co., Ltd.

No.818 Integrity Road, Yinzhou District , Ningbo city, Zhejiang Province, China

Prepared by

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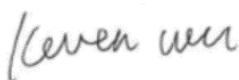
TEST RESULT CERTIFICATION

Applicant's name : Soundking Electronics& Sound Co., Ltd.
Address : No.818 Integrity Road, Yinzhou District , Ningbo city, Zhejiang
Province, China
Manufacture's name : Soundking Electronics& Sound Co., Ltd.
Address : No.818 Integrity Road, Yinzhou District , Ningbo city, Zhejiang
Province, China
Product name : Wireless Microphone System
Model name : W35H, W4U-RH4
Standards : FCC CFR47 Part 15 Section 15.247
Test procedure : ANSI C63.10:2013
Date of test : Sep. 04, 2023-Sep. 13, 2023
Date of Issue : Sep. 15, 2023

This device described above has been tested by NCT, 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.

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Test Engineer:


Keven Wu / Engineer

Technical Manager:


Henry Wang / Manager



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1. VERSION

Report No.	Version	Description	Approved
NCT23036041E	Rev.01	Initial issue of report	Sep. 15, 2023

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.236) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.203	Antenna Requirement	PASS	
15.207	Conducted Emission	N/A	
15.236(d)(1)	Maximum Radiated Power(EIRP)	PASS	
15.236(g)	Radiated Spurious Emission Measurement	PASS	
15.236(g)	Spurious Emission at Antenna Port	PASS	
15.236(f)(2)	Occupied Bandwidth Emission	PASS	
15.236(f)(3)	Frequency Stability	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY**Site Description**

EMC Lab. : Accredited by CNAS, 2022-09-27
The certificate is valid until 2028.01.07
The Laboratory has been assessed and proved to be in compliance with
CNAS-CL01:2006 (identical to ISO/IEC 17025:2017)
The Certificate Registration Number is L8251
Designation Number: CN1347
Test Firm Registration Number: 894804
Accredited by A2LA, June 14, 2023
The Certificate Registration Number is 6837.01

Accredited by Industry Canada, November 09, 2018
The Conformity Assessment Body Identifier is CN0150
Company Number: 30806
Name of Firm : Shenzhen NCT Testing Technology Co., Ltd.
Site Location : A101&2F B2, Fuqiao 6th Area, Xintian Community, Fuhai Street, Baoan
District, Shenzhen, People's Republic of China

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$ · where expanded 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	$\pm 1.5 \times 10^{-6}$
Time	$\pm 2\%$
Duty Cycle	$\pm 2\%$
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(30MHz~1GHz)	$\pm 5.03\text{dB}$
Radiated Emission(1GHz~25GHz)	$\pm 4.74\text{dB}$
Remark: The coverage Factor ($k=2$), and measurement Uncertainty for a level of Confidence of 95%	

3.GENERAL INFORMATION**3.1 GENERAL DESCRIPTION OF EUT**

Equipment	Wireless Microphone System
Model Name	W35H
Serial Model	W4U-RH4
Model Difference	PCB board, circuit, structure and internal of these model(s) are the same, Only model number is different for these model.
Hardware version	1.0
Software version	1.0
Operation Frequency:	520-544.75MHz
Modulation Type:	DQPSK
Antenna Type:	Internal Antenna
Antenna Gain:	1.87dBi
Ratings	DC 3V from battery
Remark: the Antenna gain is provided by customer from Antenna spec. and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.	

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.

Operation Frequency each of channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	520.000	26	526.250	51	532.500	76	538.750
2	520.250	27	526.500	52	532.750	77	539.000
3	520.500	28	526.750	53	533.000	78	539.250
4	520.750	29	527.000	54	533.250	79	539.500
5	521.000	30	527.250	55	533.500	80	539.750
6	521.250	31	527.500	56	533.750	81	540.000
7	521.500	32	527.750	57	534.000	82	540.250

8	521.750	33	528.000	58	534.250	83	540.500
9	522.000	34	528.250	59	534.500	84	540.750
10	522.250	35	528.500	60	534.750	85	541.000
11	522.500	36	528.750	61	535.000	86	541.250
12	522.750	37	529.000	62	535.250	87	541.500
13	523.000	38	529.250	63	535.500	88	541.750
14	523.250	39	529.500	64	535.750	89	542.000
15	523.500	40	529.750	65	536.000	90	542.250
16	523.750	41	530.000	66	536.250	91	542.500
17	524.000	42	530.250	67	536.500	92	542.750
18	524.250	43	530.500	68	536.750	93	543.000
19	524.500	44	530.750	69	537.000	94	543.250
20	524.750	45	531.000	70	537.250	95	543.500
21	525.000	46	531.250	71	537.500	96	543.750
22	525.250	47	531.500	72	537.750	97	544.000
23	525.500	48	531.750	73	538.000	98	544.250
24	525.750	49	532.000	74	538.250	99	544.500
25	526.000	50	532.250	75	538.500	100	544.750

Note:

1. Test of channel was included the lowest, middle and highest frequency in highest data rate and to perform the test, then record on this report.

Channel	Frequency(MHz)
1	520.000
51	532.500
100	544.750

3.2 DESCRIPTION OF TEST MODES

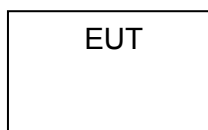
For All Emission	
Final Test Mode	Description
Transmitting mode	Keep the EUT in continuously transmitting mode

Note:

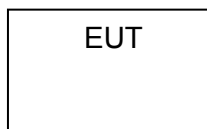
- (1) Fully-charged battery is used during the test

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission Test



Spurious emissions

**3.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)**

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 Microphone System		W35H	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

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.
- (3) “YES” is means “shielded” “with core”, “NO” is means “unshielded” “without core”.

3.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Name	Model No.	Serial No.	Manufacturer	Date of Cal.	Due Date
966 Shielded Room	966 Room	/	EMToni	2022/5/31	2025/5/30
EMI Test Receiver	ESCI	101178	Rohde & Schwarz	2023/6/21	2024/6/20
Spectrum Analyze (10Hz-26.5GHz)	N9020A	MY50510202	Agilent	2023/6/21	2024/6/20
Amplifi (30MHz-1GHz)	BBV 9743 B	00374	SCHNARZBECK	2023/6/21	2024/6/20
Bilog Antenna (30MHz-1GHz)	VULB9162	00473	SCHNARZBECK	2023/3/19	2025/3/18
Horn antenna (1GHz-18GHz)	BBHA 9120 D	02622	SCHNARZBECK	2023/3/19	2025/3/18
Pream plifier (1GHz-18GHz)	BBV 9718D	0024	SCHNARZBECK	2023/6/21	2024/6/20
Spectrum Analyze (10Hz-40GHz)	FSV 40	100952	Rohde & Schwarz	2023/6/21	2024/6/20
Pream plifier (15GHz-40GHz)	BBV 9718D	0024	SCHNARZBECK	2023/6/21	2024/6/20
Double Ridge Guide Horn Antenna (18GHz-40GHz)	SAS-574	588	A.H.System	2023/3/19	2025/3/18
Loop Antenna (9KHz-30MHz)	FMZB1519B	014	SCHNARZBECK	2023/6/21	2024/6/20
Amplifier (9KHz-30MHz)	CVP 9222 C	00109	SCHNARZBECK	2023/6/21	2024/6/20
MXG Signal Analyzer	N9020A	101178	RS	2023/6/21	2024/6/20
MXG Vector Signal Generator	N5182A	MY50510202	Agilent	2023/6/21	2024/6/20
MXG Analog Signal Generator	N5181A	00374	SCHWARZBECK	2023/6/21	2024/6/20
Power Sensor	TR1029-2	00473	SCHNARZBECK	2023/6/21	2024/6/20
RF Swith	TR1029-1	02622	SCHNARZBECK	2023/6/21	2024/6/20
Cable	DA800- 4000MM	NA	DA	2023/6/21	2024/6/20
Cable	DA800- 11000MM	NA	DA	2023/6/21	2024/6/20

Conduction Test equipment

Name	Model No.	Serial No.	Manufacturer	Date of Cal.	Due Date
944 Shielded Room	944 Room	/	EMToni	2022/5/31	2025/5/30
EMI Test Receiver	ESPI	101604	Rohde & Schwarz	2023/6/21	2024/6/20
LISN	ENV 216	102796	Rohde & Schwarz	2023/6/21	2024/6/20
LISN	VN1-13S	004023	CRANAGE	2023/6/21	2024/6/20
Cable	RG223-1500MM	NA	RG	2023/6/21	2024/6/20

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	AUDIX	e3	6.120718
2	EMC radiation test system	AUDIX	e3	6.120718
3	RF test system	TACHOY	RFTest	V1.0.0
4	RF communication test system	TACHOY	RFTest	V1.0.0

4. EMC EMISSION TEST**4.1 CONDUCTED EMISSION MEASUREMENT**

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS

(Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

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
IF Bandwidth	9 kHz

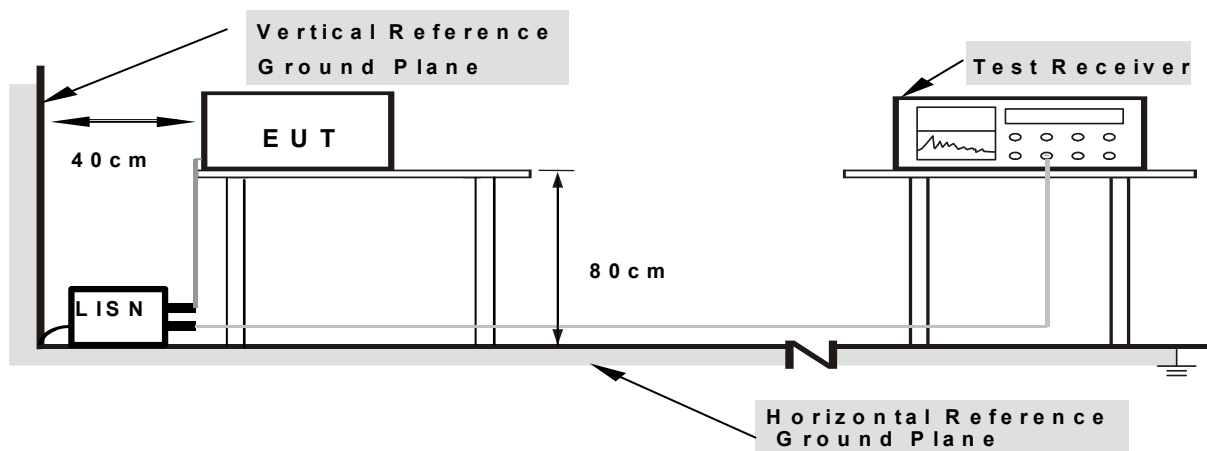
4.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments 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.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 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 cm from other units and other metal planes

4.1.5 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.

4.1.6 TEST RESULTS

N/A

4.2 RADIATED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Value
	9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
	150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
	Above 1GHz	Peak	1MHz	3MHz	Peak
		Peak	1MHz	10Hz	Average

4.2.1 RADIATED EMISSION LIMITS

According to 15.236(g)

Table 3: Limits for spurious emissions

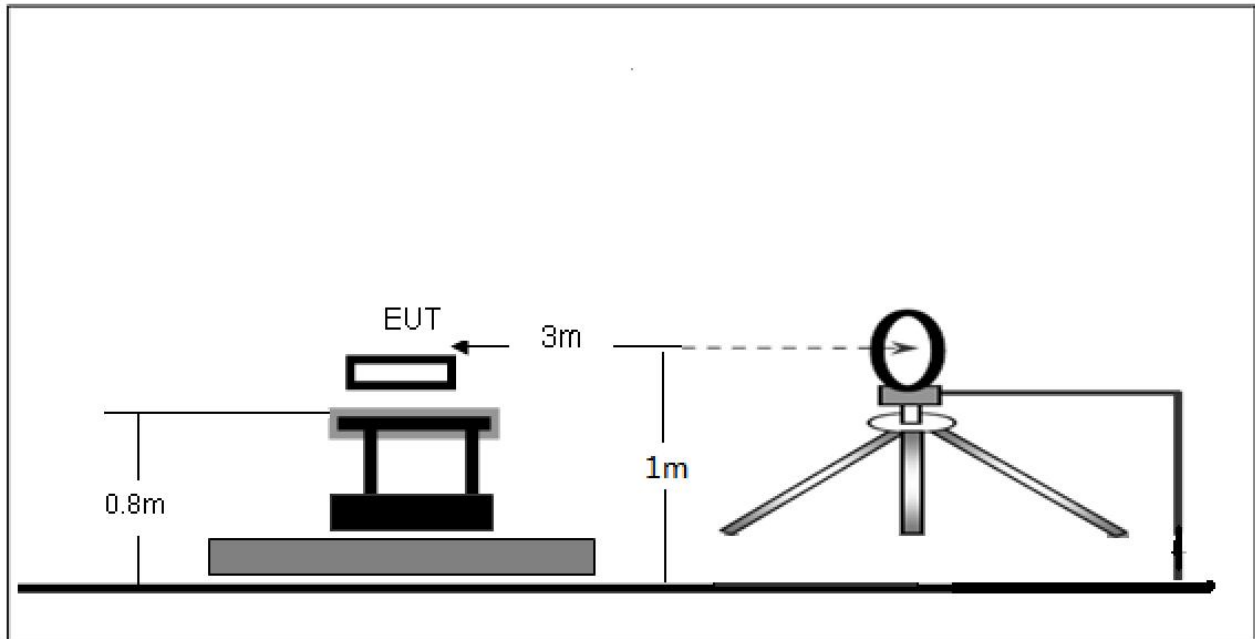
State	Frequency		
	47 MHz to 74 MHz 87,5 MHz to 137 MHz 174 MHz to 230 MHz 470 MHz to 862 MHz	Other Frequencies below 1 000 MHz	Frequencies above 1 000 MHz
Operation	4 nW	250 nW	1 µW
Standby	2 nW	2 nW	20 nW

4.2.2 DEVIATION FROM TEST STANDARD

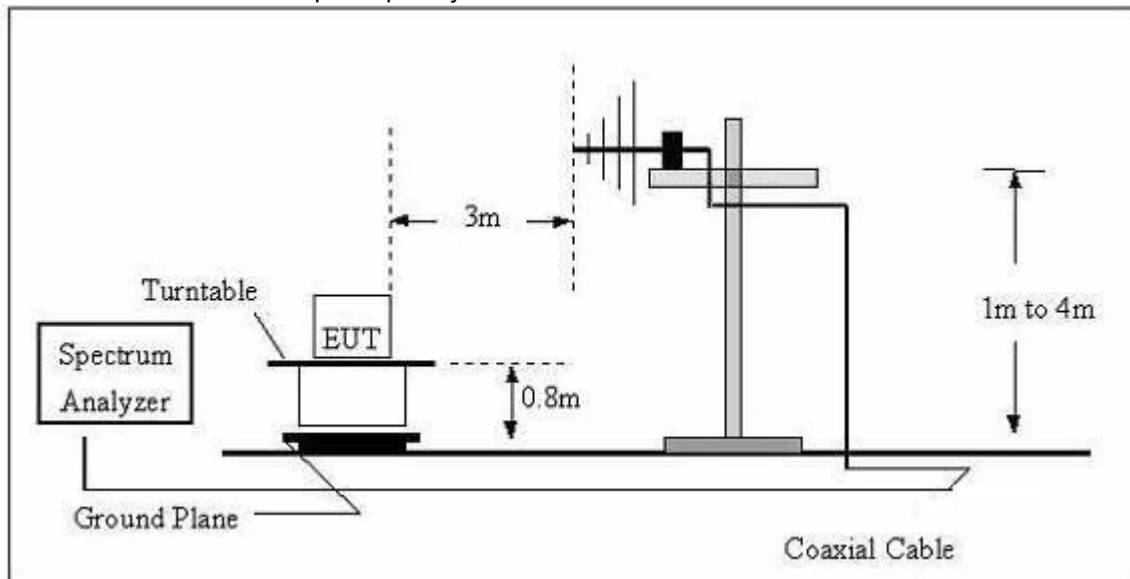
No deviation

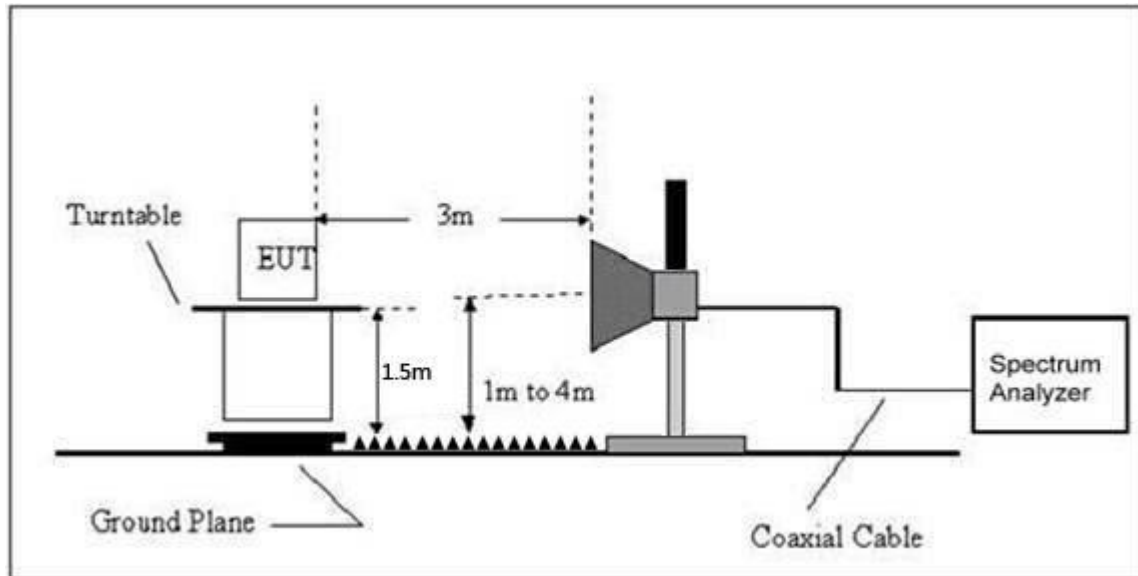
4.2.3 TEST SETUP

(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz

Frequency :9kHz-30MHz
RBW=10KHz,
VBW =30KHz
Sweep time= Auto
Trace = max hold
Detector function = peak

Frequency :30MHz-1GHz
RBW=120KHz,
VBW=300KHz
Sweep time= Auto
Trace = max hold
Detector function = peak

Frequency :Above 1GHz
RBW=1MHz,
VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto
Trace = max hold
QP Detector function = peak, AV

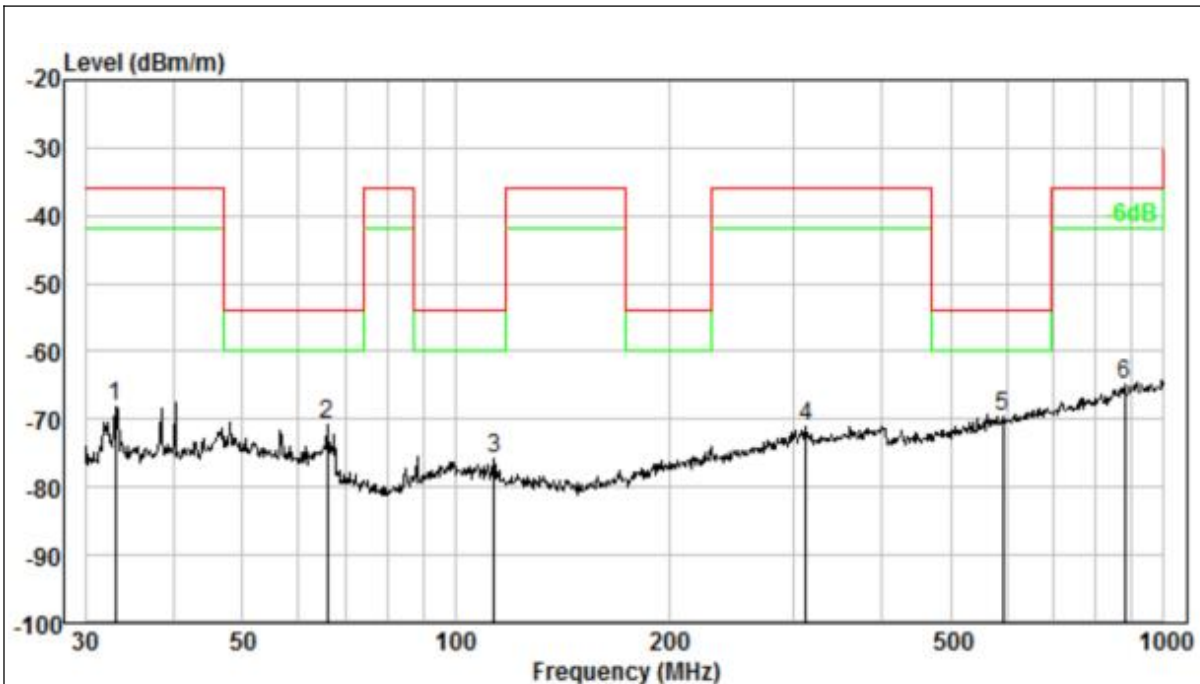
4.2.4 TEST PROCEDURE

1. The setup of EUT is according with per TIA/EIA Standard 603 and ANSI C63.4-2014 measurement procedure.
2. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.
3. The frequency range up to tenth harmonic of the fundamental frequency was investigated.
4. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

4.2.5 TEST RESULTS

Radiated Spurious Emission (Between 30MHz – 1GHz)

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101 kPa	Polarization :	Horizontal
Test Voltage :	DC 3V		
Test Mode :	TX Mode (Low Channel)		

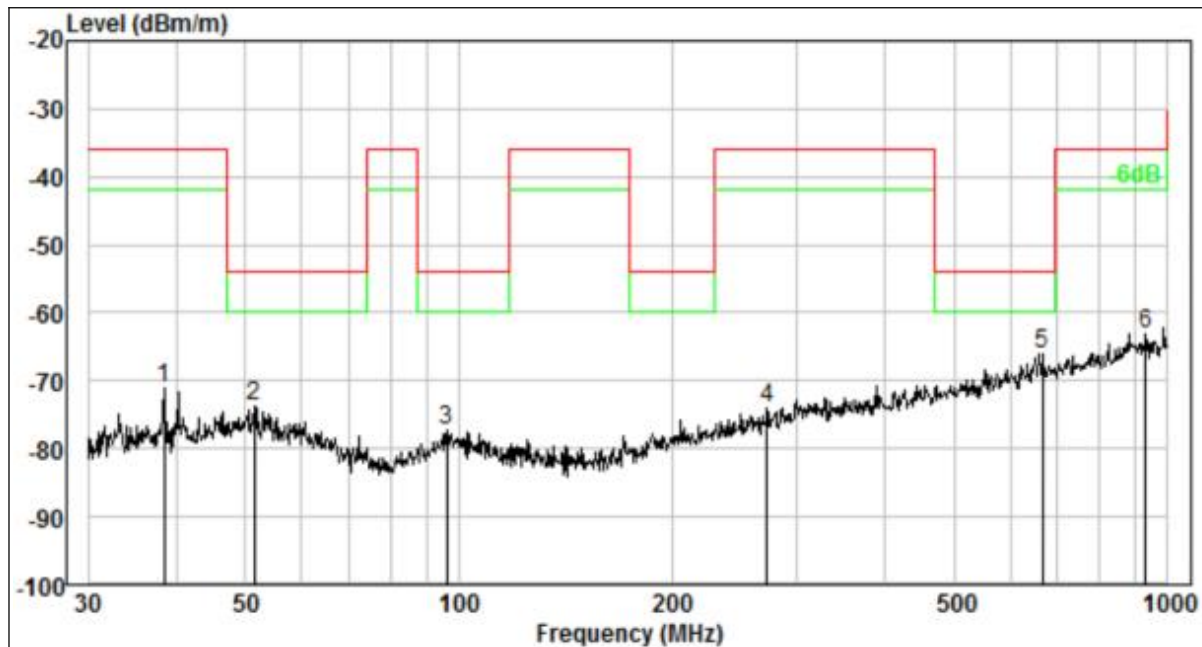


No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBm	Preamp Gain dB	Emission Level dBm	Limit dBm	Over Limit dB	Remark
1	33.095	0.03	10.89	-59.53	19.50	-68.11	-35.99	-32.12	Peak
2	65.803	0.28	10.24	-61.72	19.52	-70.72	-53.99	-16.73	Peak
3	113.316	0.42	9.60	-66.13	19.54	-75.65	-53.99	-21.66	Peak
4	312.179	0.92	13.57	-65.95	19.65	-71.11	-35.99	-35.12	Peak
5	593.050	1.29	18.58	-69.62	19.79	-69.54	-53.99	-15.55	Peak
6	881.407	1.45	22.28	-68.59	19.94	-64.80	-35.99	-28.81	Peak

Remarks:

- 1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 2.The emission levels of other frequencies are very lower than the limit and not show in test report.
- 3.All the modes have tested and record the worst mode(Low Channel) in the report.

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101 kPa	Polarization :	Vertical
Test Voltage :	DC 3V		
Test Mode :	TX Mode (Low Channel)		



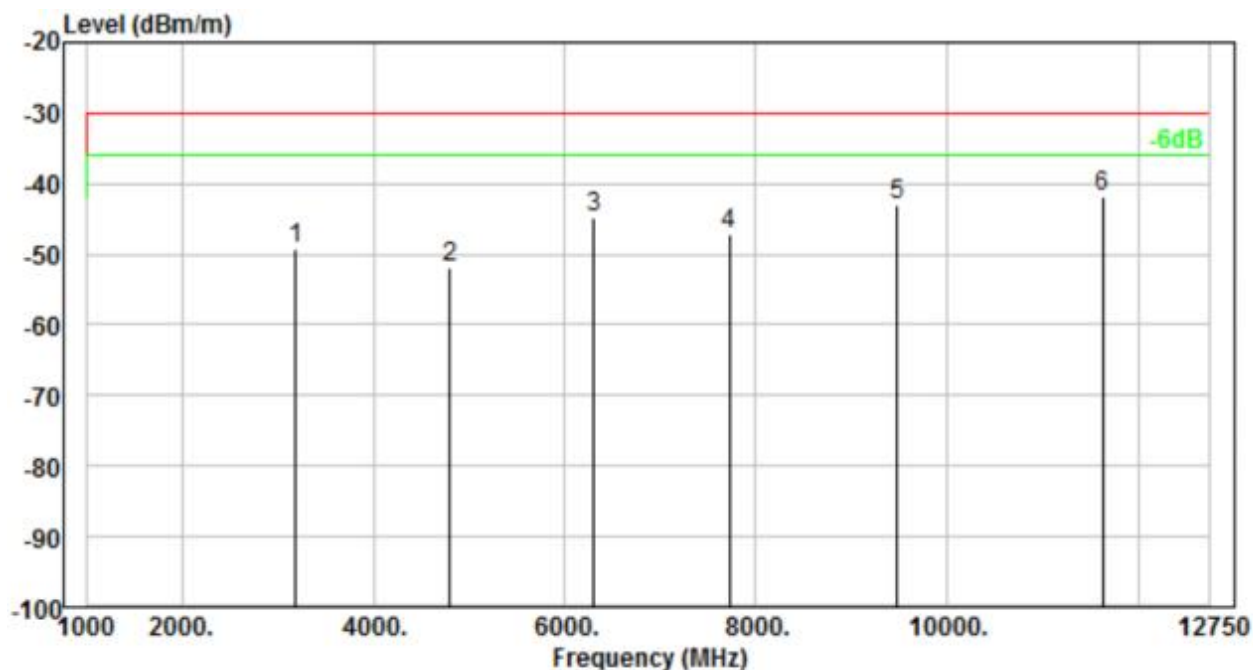
No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBm	Preamp Gain dB	Emission Level dBm	Limit dBm	Over Limit dB	Remark
1	38.346	0.04	11.89	-63.53	19.50	-71.10	-35.99	-35.11	Peak
2	51.481	0.18	13.12	-67.61	19.51	-73.82	-53.99	-19.83	Peak
3	96.099	0.40	10.30	-68.32	19.53	-77.15	-53.99	-23.16	Peak
4	272.278	0.83	12.80	-68.01	19.62	-74.00	-35.99	-38.01	Peak
5	665.804	1.27	19.69	-67.21	19.83	-66.08	-53.99	-12.09	Peak
6	932.272	1.44	22.76	-67.45	19.97	-63.22	-35.99	-27.23	Peak

Remarks:

- 1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
- 2.The emission levels of other frequencies are very lower than the limit and not show in test report.
- 3.All the modes have tested and record the worst mode(Low Channel) in the report.

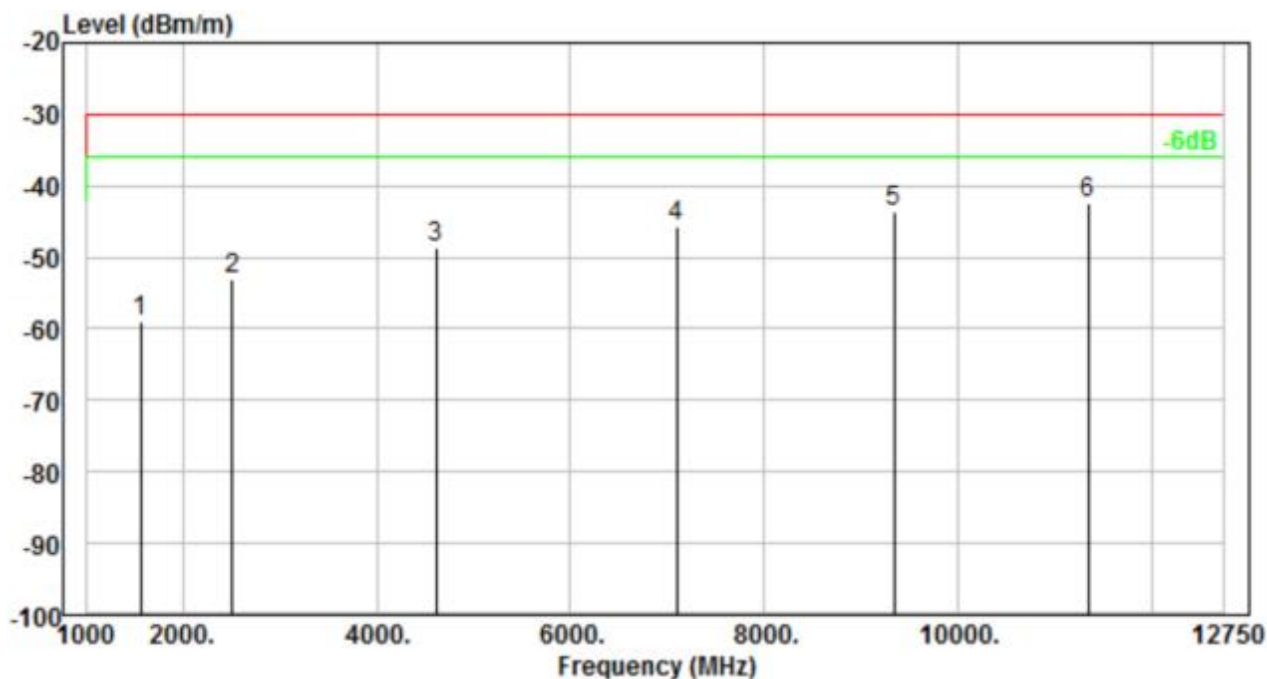
Radiated Spurious Emission (Above 1GHz)

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101 kPa	Polarization :	Horizontal
Test Voltage :	DC 3V		
Test Mode :	TX Mode (Low Channel)		



No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBm	Preamp Gain dB	Emission Level dBm	Limit dBm	Over Limit dB	Remark
1	3184.000	3.31	29.75	-53.53	28.85	-49.32	-29.99	-19.33	Peak
2	4804.000	4.09	32.26	-59.73	28.46	-51.84	-29.99	-21.85	Peak
3	6308.000	5.47	34.49	-56.73	28.03	-44.80	-29.99	-14.81	Peak
4	7728.000	6.61	36.46	-62.77	27.38	-47.08	-29.99	-17.09	Peak
5	9484.000	7.76	37.98	-63.34	25.50	-43.10	-29.99	-13.11	Peak
6	11632.000	8.90	38.72	-64.73	24.87	-41.98	-29.99	-11.99	Peak

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101 kPa	Polarization :	Vertical
Test Voltage :	DC 3V		
Test Mode :	TX Mode (Low Channel)		



No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBm	Preamp Gain dB	Emission Level dBm	Limit dBm	Over Limit dB	Remark
1	1564.000	1.97	25.49	-58.62	27.66	-58.82	-29.99	-28.83	Peak
2	2512.000	2.87	27.79	-55.22	28.47	-53.03	-29.99	-23.04	Peak
3	4612.000	4.02	32.03	-56.11	28.53	-48.59	-29.99	-18.60	Peak
4	7096.000	6.13	35.89	-59.65	27.93	-45.56	-29.99	-15.57	Peak
5	9346.000	7.68	37.85	-63.30	25.94	-43.71	-29.99	-13.72	Peak
6	11344.000	8.76	38.89	-65.73	24.45	-42.53	-29.99	-12.54	Peak

5. MAXIMUM RADIATED POWER(EIRP)**5.1 APPLIED PROCEDURES / LIMIT**

ACCORDING TO FCC 15.236(D)(1), FOR LOW POWER AUXILIARY STATION OPERATING IN THE 470-608, AND 614-698 MHZ BANDS, IN THE BANDS ALLOCATED AND ASSIGNED FOR BROADCAST TELEVISION AND IN THE 600 MHZ SERVICE BAND: 50 MW EIRP

5.2 TEST PROCEDURE

1. THE MAXIMUM PEAK OUTPUT POWER WAS MEASURED WITH A SPECTRUM ANALYZER CONNECTED TO THE ANTENNA TERMINAL WHILE EUT WAS OPERATING IN UNMODULATED SITUATION.
2. POWER WAS SUPPLIED TO THE BATTERY INPUT CONNECTOR A POWER SUPPLY. THE POWER SUPPLY WAS SET FOR +3.0VDC. THE SPECTRUM ANALYZER WAS CONNECTED AT ANTENNA TERMINAL TO MEASURE RF POWER OF THE CARRIER.
3. A MULTIMETER WAS CONNECTED IN SERIES WITH FINAL RF STAGE TO MEASURE THE CURRENT; A MULTIMETER WAS USED TO MEASURE FINAL RF STAGE SUPPLY VOLTAGE. THEN THE VOLTAGE V.S. CURRENT OF THE FINAL RF STAGE CAN BE SHOWN.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP**5.5 EUT OPERATION CONDITIONS**

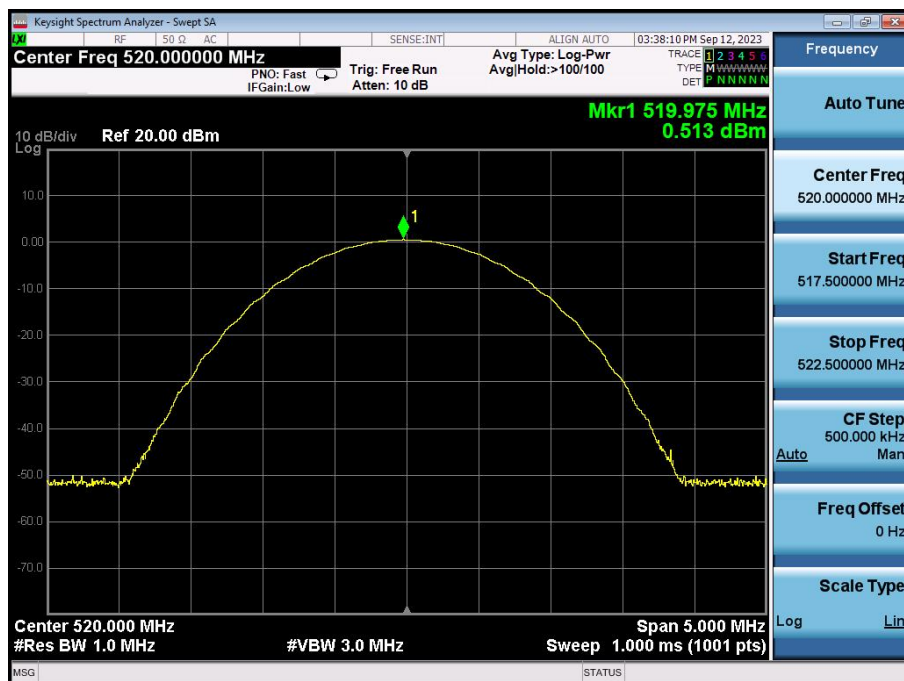
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULTS

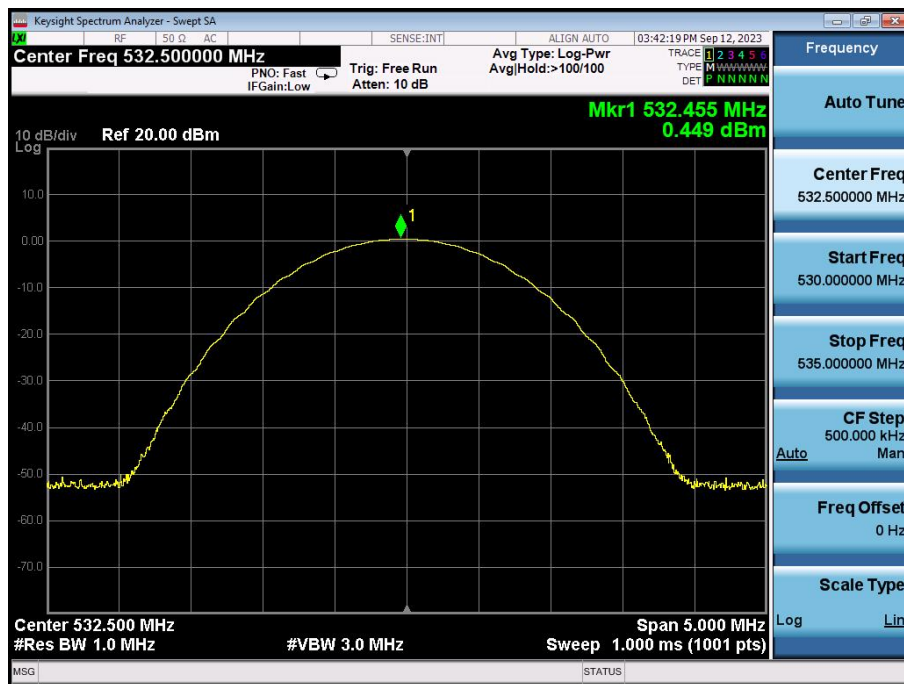
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 3V

Frequency	CONDUCTED OUTPUT POWER (dBm)	ANT GAIN (dBi)	EIRP (dBm)	Limit (dBm)	Result
520.00MHz	0.513	1.87	2.383	17	PASS
532.50MHz	0.449	1.87	2.319	17	PASS
544.75MHz	0.493	1.87	2.363	17	PASS

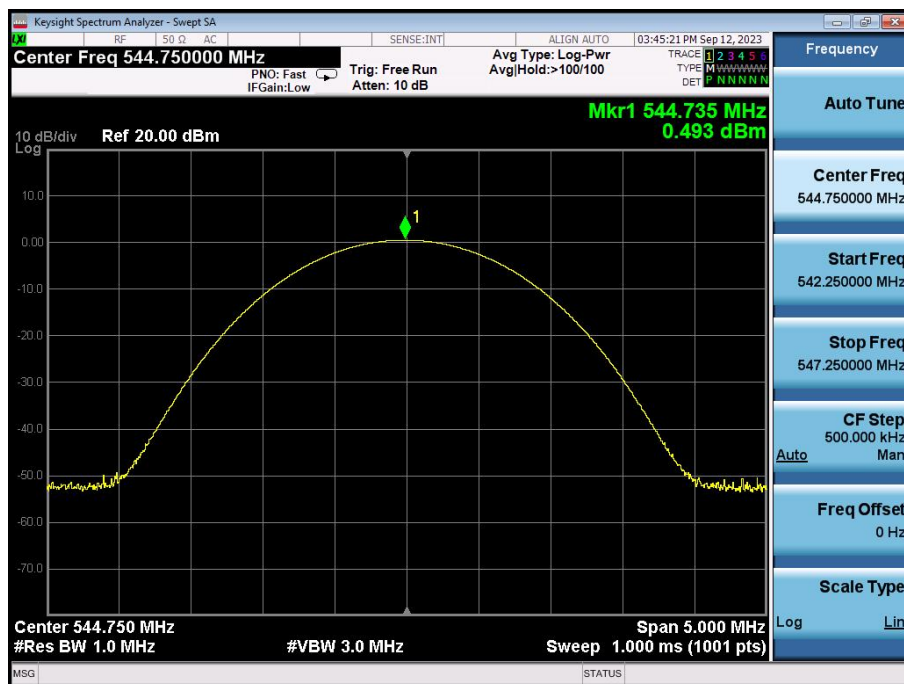
Low Channel



Middle Channel



High Channel



6. CHANNEL BANDWIDTH

6.1 APPLIED PROCEDURES / LIMIT

According to FCC 15.236(f)(2), The operating frequency within a permissible band of operation as defined in paragraph (c) must comply with the following requirements.

- (1) The frequency selection shall be offset from the upper or lower band limits by 25 kHz or an integral multiple thereof.
- (2) (2) One or more adjacent 25 kHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200kHz.
- (3) Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in Section 8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08) (incorporated by reference, see §15.38). Emissions outside this band shall comply with the limit specified at the edges of the ETSI mask

6.2 TEST PROCEDURE

According to TIA-603 for additional Test Set-Up procedures, the occupied bandwidth of emission was measured with a Spectrum Analyzer connected to the antenna terminal while EUT was operating in 2.5kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation. Then mark the -26dB Bandwidth and record it.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



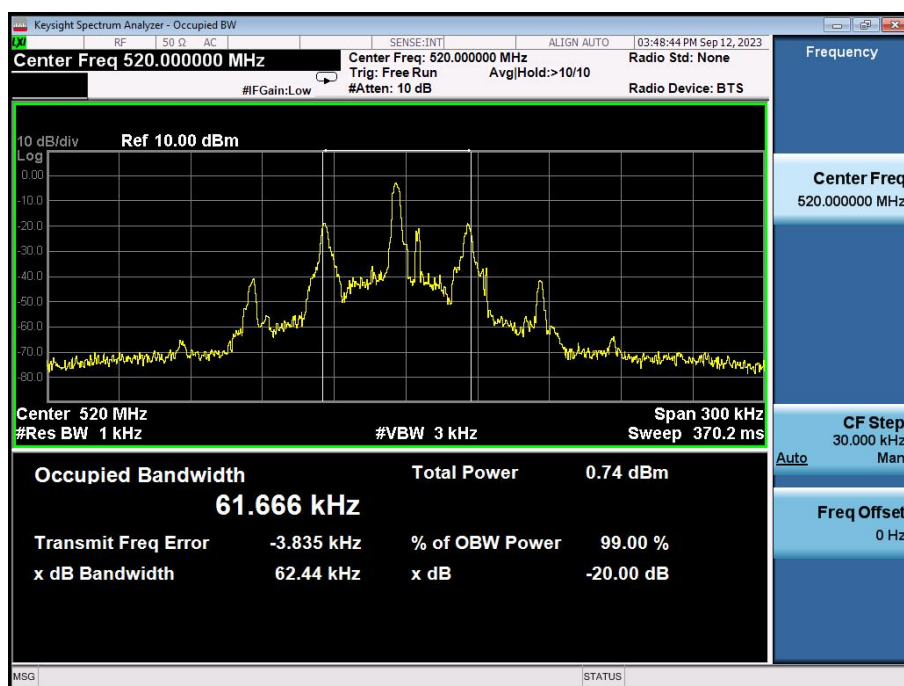
6.5 EUT OPERATION CONDITIONS

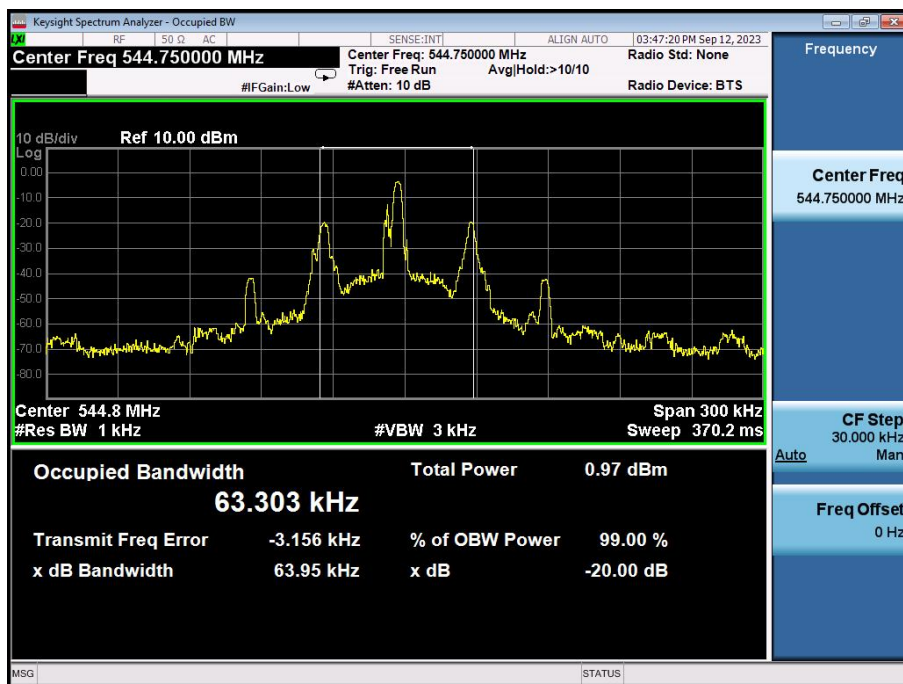
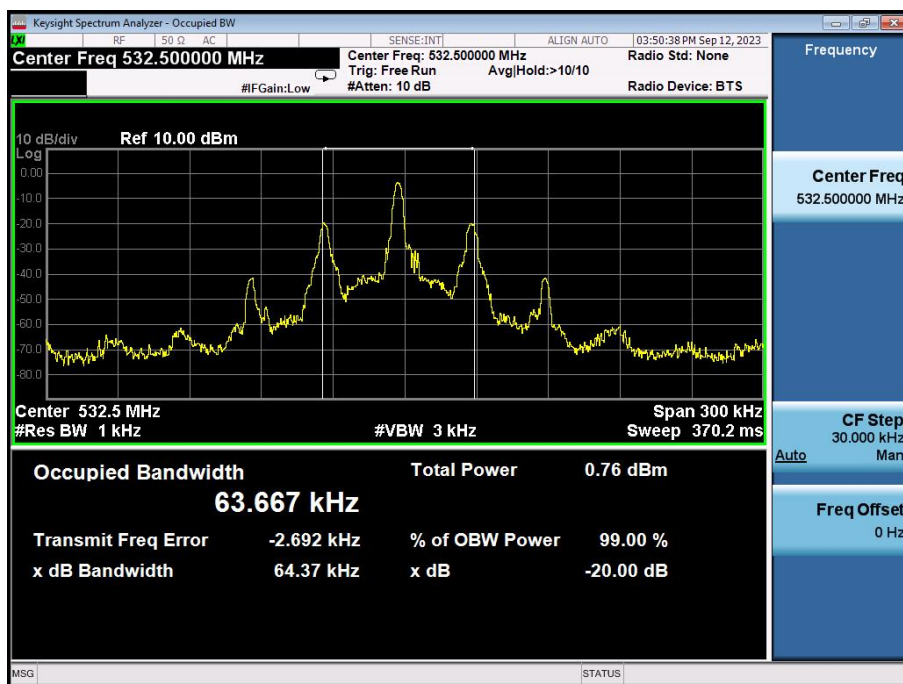
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULTS

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	101kPa	Test Voltage :	DC 3V

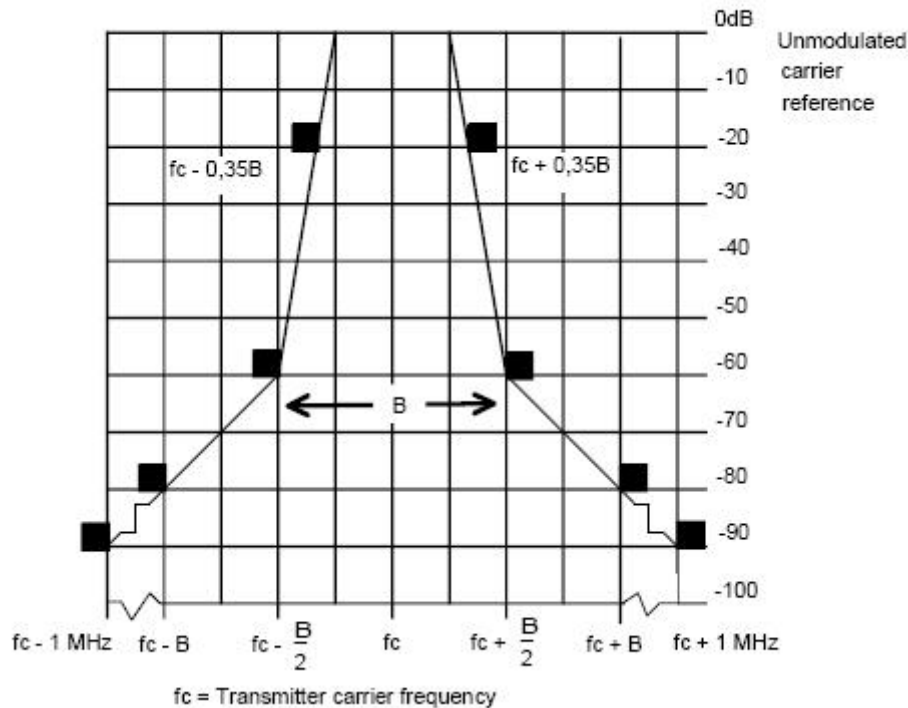
Frequency (MHz)	-20 bandwidth (KHz)	Limit (KHz)	Result
520.00MHz	62.44	200	Pass
532.50MHz	64.37	200	Pass
544.75MHz	63.95	200	Pass





7. NECESSARY BANDWIDTH

7.1 LIMIT



Standard Applicable

According to §15.236 (g) Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in §8.3 of ETSI EN 300 422-1 V1.4.2 (2011-08), Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3GHz frequency range; Part 1: Technical characteristics and methods of measurement. Emissions outside of this band shall comply with the limits specified in section 8.4 of ETSI EN 300 422-1 V1.4.2 (2011-08).

According to ETSI EN 300 422-2 V2.1.1 section 8.3, the transmitter output spectrum shall be within the mask defined in the following figure.

7.2 TEST SETUP



7.3 TEST PROCEDURE

The arrangement of test equipment as shown in figure B.1 shall be used. Note that the noise meter conforms to (quasi-peak) without weighting filter (flat).

With the Low Frequency (LF) audio signal generator set to 500 Hz, the audio input level to the DUT shall be adjusted to 8 dB below the limiting threshold (-8 dB (lim)) as declared by the manufacturer.

The corresponding audio output level from the demodulator shall be measured and recorded.

The input impedance of the noise meter shall be sufficiently high to avoid more than 0,1 dB change in input level when the meter is switched between input and output.

The audio input level shall be increased by 20 dB, i.e. to +12 dB (lim), and the corresponding change in output level shall be measured.

It shall be checked that the audio output level has increased by ≤ 10 dB.

If this condition is not met, the initial audio input level shall be increased from -8 dB (lim) in 1 dB steps until the above condition is fulfilled, and the input level recorded in the test report. This level replaces the value derived from the manufacturer's declaration and is defined as -8 dB (lim).

Measure the input level at the transmitter required to give +12 dB (lim).

The LF generator shall be replaced with the weighted noise source to Recommendation ITU-R BS.559-2 [i.3], band-limited to 15 kHz as described in IEC 60244-13 [2], and the level shall be adjusted such that the measured input to the transmitter corresponds to +12 dB (lim).

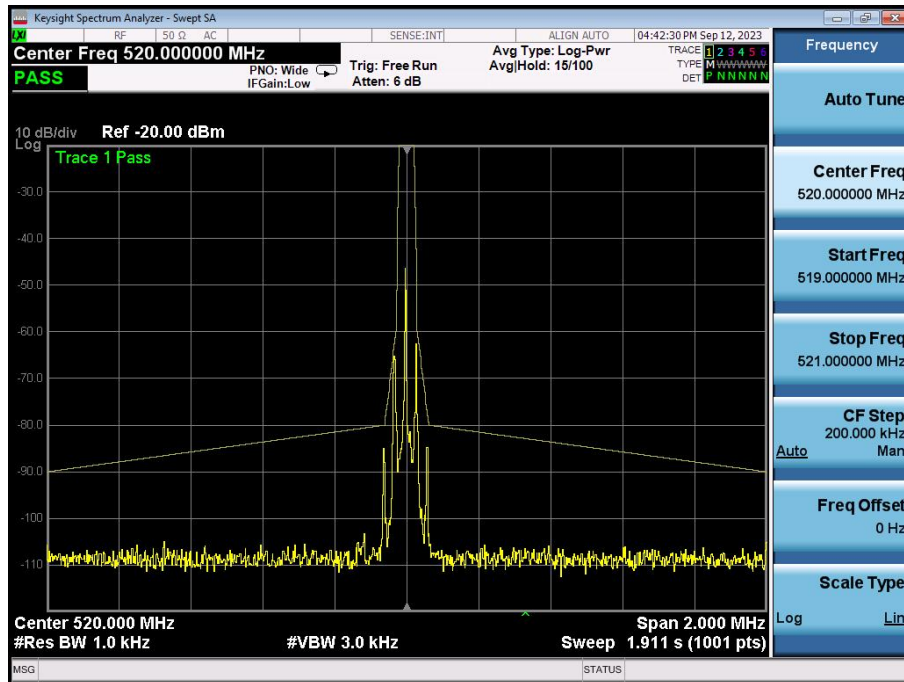
If the transmitter incorporates any ancillary coding or signalling channels (e.g. pilot-tones), these shall be enabled prior to any spectral measurements.

If the transmitter incorporates more than one audio input, e.g. stereo systems, the second and subsequent channels shall be simultaneously driven from the same noise source, attenuated to a level of -6 dB (lim).

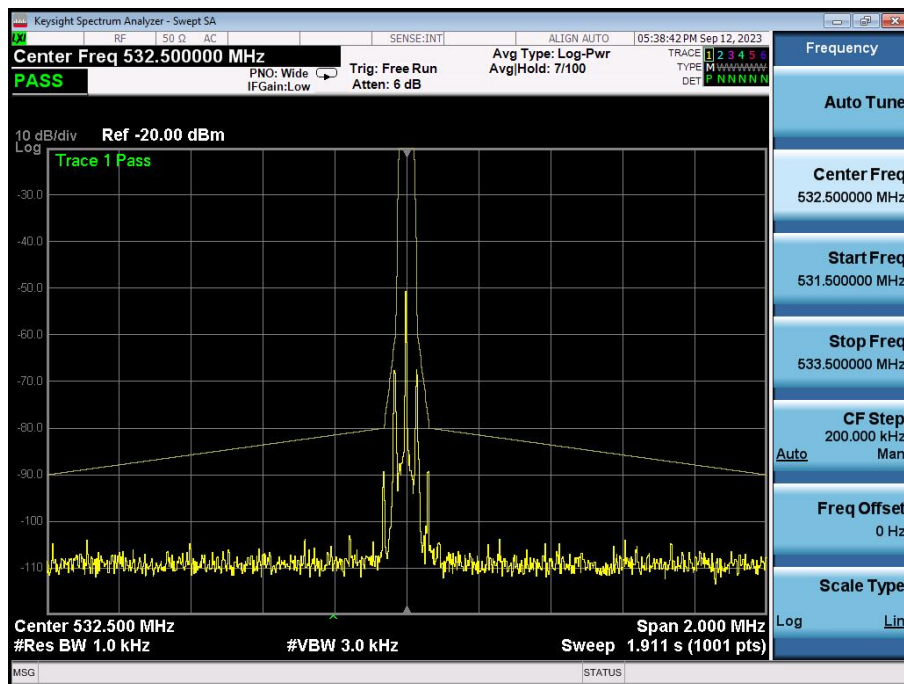
- centre frequency: f_c : Transmitter (Tx) nominal frequency;
- dispersion (Span): $f_c - 1$ MHz to $f_c + 1$ MHz;
- Resolution BandWidth (RBW): 1 kHz;
- Video BandWidth (VBW): 1 kHz;
- detector: Peak hold.

7.4 TEST RESULTS

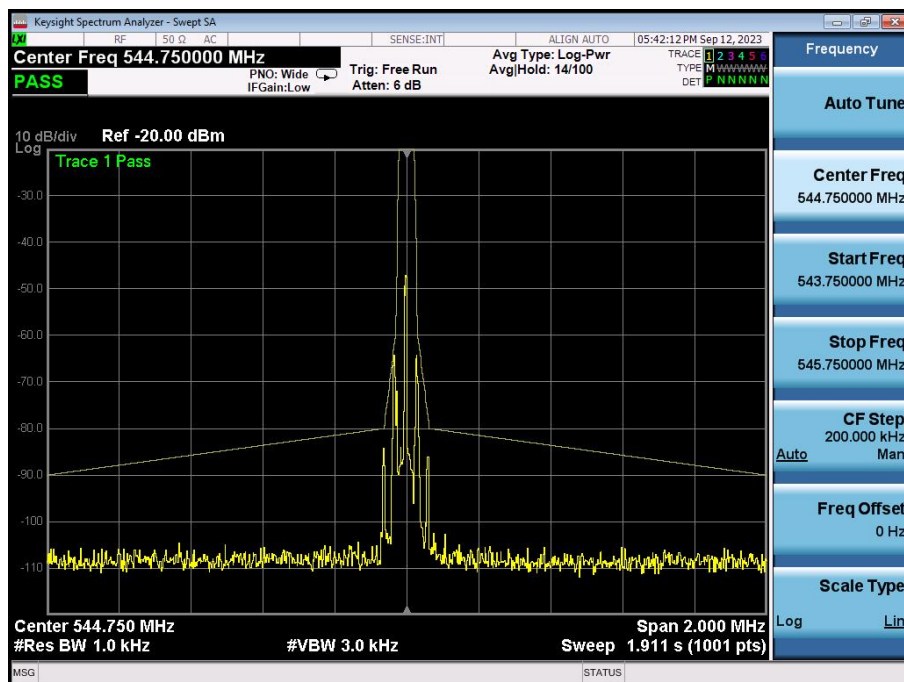
Low Channel



Middle Channel



High Channel



8. FREQUENCY STABILITY

8.1 Limit

$\pm 0.005\% \times 520\text{MHz} = 26\text{ KHz}$

$\pm 0.005\% \times 532.5\text{MHz} = 26.6\text{ KHz}$

$\pm 0.005\% \times 544.75\text{MHz} = 27.2\text{ KHz}$

8.2 Standard Applicable

According to FCC 15.236(f)(3), The frequency tolerance of the carrier signal shall be maintained within $\pm 0.005\%$ of the operating frequency over a temperature variation of -20 degrees to $+50$ degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. Battery operated equipment shall be tested using a new battery

8.3 TEST SETUP



8.4 Test Procedure

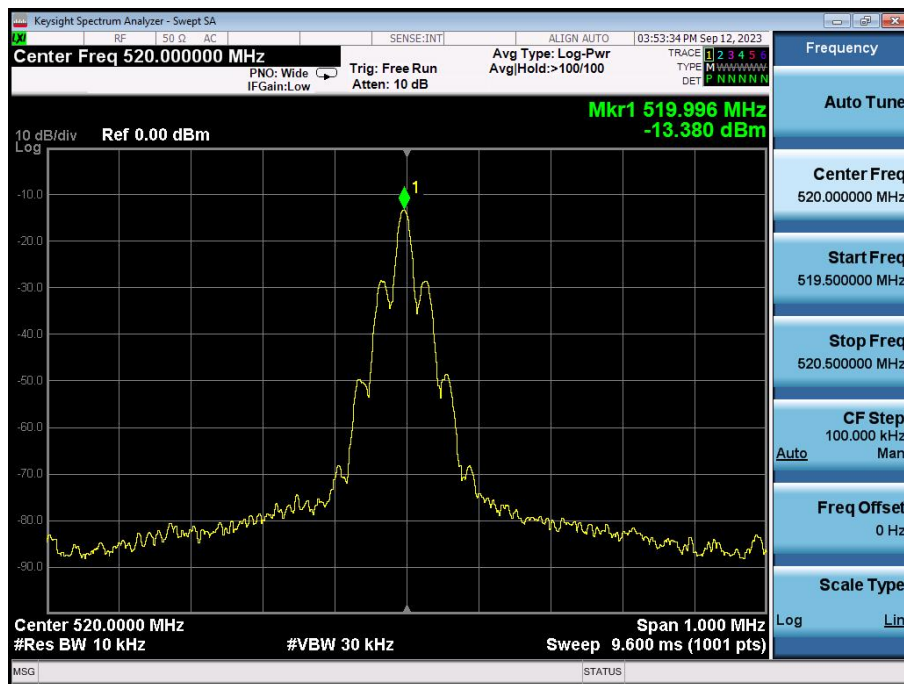
1. Setup the configuration of the ambient temperature from -20°C to 50°C with sufficient time. And measure the different power of the EUT with an artificial power from highest to end point voltage.
2. Set frequency counter center frequency to the right frequency needs to be measured band.

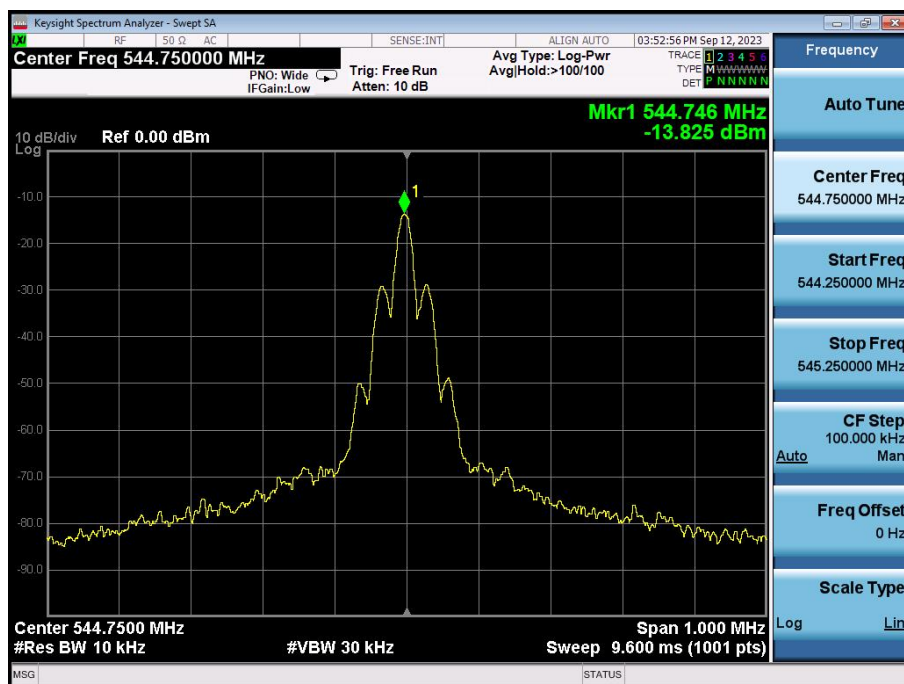
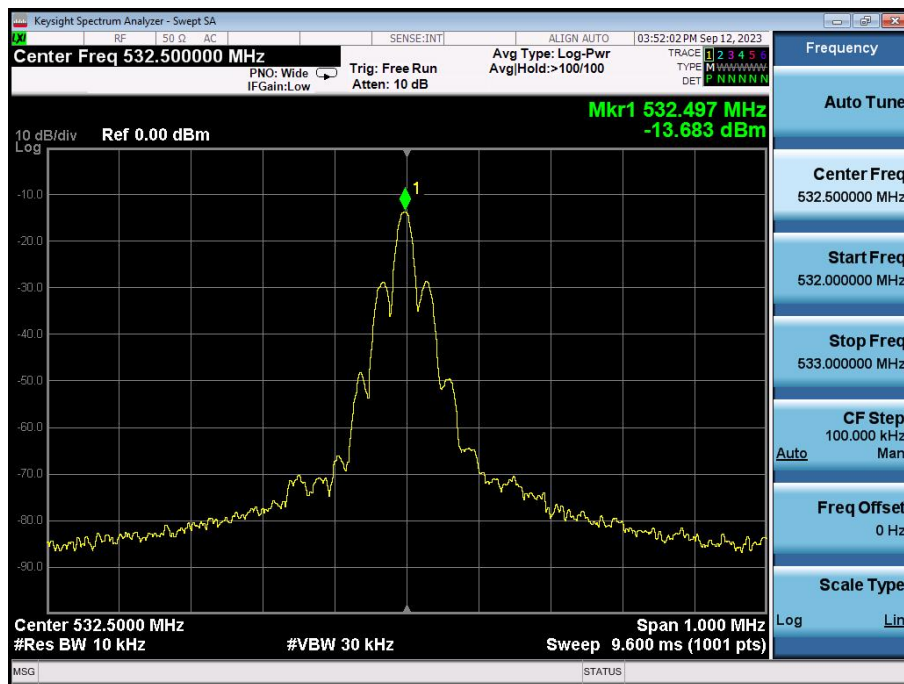
8.5 Test Result

Test frequency	Test Conditions		Measure Frequency	Frequency Error	Limit	Result
(MHz)	Voltage (V)	Temperature(°C)	(MHz)	(KHz)	(KHz)	
520.00	N	N	519.996	4	±26	Pass
		L	519.997	3		Pass
		H	519.996	4		Pass
	L	N	519.996	4		Pass
		L	519.996	4		Pass
		H	519.997	3		Pass
	H	N	519.996	4		Pass
		L	519.998	2		Pass
		H	519.996	4		Pass

Test frequency	Test Conditions		Measure Frequency	Frequency Error	Limit	Result
(MHz)	Voltage (V)	Temperature(°C)	(MHz)	(KHz)	(KHz)	
530.50	N	N	532.497	3	±26.6	Pass
		L	532.497	3		Pass
		H	532.498	2		Pass
	L	N	532.498	2		Pass
		L	532.497	3		Pass
		H	532.499	1		Pass
	H	N	532.497	3		Pass
		L	532.498	2		Pass
		H	532.498	2		Pass

Test frequency	Test Conditions		Measure Frequency	Frequency Error	Limit	Result
(MHz)	Voltage (V)	Temperature(°C)	(MHz)	(KHz)	(KHz)	
544.75	N	N	544.746	4	±27.2	Pass
		L	544.747	5		Pass
		H	544.746	4		Pass
	L	N	544.748	2		Pass
		L	544.746	4		Pass
		H	544.748	2		Pass
	H	N	544.746	4		Pass
		L	544.746	4		Pass
		H	544.748	2		Pass





9. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
EUT Antenna:	
The antennas are Internal antenna, the Max gain of the antennas are dBi, reference to the appendix II for details	

9. TEST SETUP PHOTO

Reference to the appendix I for details.

10. EUT CONSTRUCTIONAL DETAILS

Reference to the appendix II for details.

******* END OF REPORT *******