



AXLAB Testing Co.,Ltd.

Report No.: MAX250312110P01-R01

FCC TEST REPORT

FCC ID:2BOTV-U-2022

Product : Wireless microphone

Model Name : U-2022, U-2020, U-2021, U-2023, U-9800, U-17A1,
U-17A2, UM4D, UM2D, UMID, U-26, U-27

Brand : N/A

Report No. : MAX250312110P01-R01

Prepared for

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Prepared by

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TEST RESULT CERTIFICATION

Applicant's name : Enping City Lichuang technology Co., LTD
Address : 4/F, No.5 Shaluogang Road, Enping City, China
Manufacture's name : Enping City Lichuang technology Co., LTD
Address : 4/F, No.5 Shaluogang Road, Enping City, China
Product name : Wireless microphone
Model name : U-2022, U-2020, U-2021, U-2023, U-9800, U-17A1,
U-17A2, UM4D, UM2D, UMID, U-26, U-27
Standards : FCC CFR47 Part 15 Section 15.236
Test procedure : ANSI C63.10:2020
Date of test : Apr. 01, 2025-Apr. 17, 2025
Date of Issue : Apr. 18, 2025

This device described above has been tested by MAXLAB, 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:

Engineer/ Cindy Zheng

Technical Manager:

RF Manager/ Vivian Jiang

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AXLAB Testing Co.,Ltd.

Report No.: MAX250312110P01-R01

1. VERSION

Report No.	Version	Description	Approved
MAX250312110P01-R01	Rev.01	Initial issue of report	Apr. 18, 2025

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	N/A	
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.: FCC-Registration No:562200 Designation Number: CN1338

MAXLAB Testing Co., Ltd.has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA-Lab Cert.No:4707.01

MAXLAB Testing Co, Ltd.has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

Industry Canada Registration Number.Is:11093A

CAB identifier: CN0019

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

Name of Firm: MAXLAB Testing Co, Ltd.

Site Location: 1/F, Building B, Xinshidai GR Park, Shiyan Street, Bao'an District, Shenzhen, Guangdong, 518052, People's Republic of China

2.2 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	$\pm 1.5 \times 10^{-6}$
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(9KHz~30MHz)	$\pm 4.51\text{dB}$
Radiated Emission(30MHz~1GHz)	$\pm 5.03\text{dB}$
Radiated Emission(1GHz~25GHz)	$\pm 4.74\text{dB}$
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
Model Name	U-2022
Serial Model	U-2020, U-2021, U-2023, U-9800, U-17A1, U-17A2, UM4D, UM2D, UMID, U-26, U-27
Model Difference	Everything is the same except for the model name and the appearance color
Hardware version	N/A
Software version	N/A
Operation Frequency:	551-594.675MHz
Modulation Type:	DQPSK
Antenna Type:	Internal antenna
Antenna Gain:	-0.25 dBi
Ratings	DC 3V (1.5AA Battery*2)
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 C63.10-2020 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)
01	551.000	24	560.275	47	575.325	70	584.825
02	551.250	25	560.750	48	575.600	71	585.325
03	551.525	26	561.250	49	575.900	72	585.850
04	551.825	27	561.775	50	576.225	73	586.400
05	552.150	28	562.325	51	576.575	74	586.975
06	552.500	29	562.900	52	576.950	75	587.575
07	552.875	30	563.500	53	577.350	76	588.200
08	553.275	31	564.125	54	577.775	77	588.500
09	553.700	32	564.425	55	578.225	78	588.825
10	554.150	33	564.750	56	578.700	79	589.175
11	554.625	34	565.100	57	579.200	80	589.550
12	555.125	35	565.475	58	579.725	81	589.950
13	555.650	36	565.875	59	580.275	82	590.375
14	556.200	37	566.300	60	580.850	83	590.825
15	556.775	38	566.750	61	581.450	84	591.300
16	557.375	39	567.225	62	581.725	85	591.800
17	557.650	40	567.725	63	582.025	86	592.325
18	557.950	41	568.250	64	582.350	87	592.825
19	558.275	42	568.800	65	582.700	88	593.450
20	558.625	43	569.375	66	583.075	89	594.050
21	559.000	44	569.975	67	583.475	90	594.675
22	559.400	45	570.600	68	583.900	91	
23	559.825	46	575.075	69	584.350	92	

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)
Low Channel	01	551.000
Mid Channel	45	570.600
High Channel	90	594.675

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

Radiated 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

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

Conducted Emission					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
Shielding Room	ZhongYu Electron	7.3(L)x3.1(W)x2.9(H)	MAX252	2024-10-27	2025-10-26
EMI Test Receiver	R&S	ESCI 7	MAX552	2024-10-27	2025-10-26
Coaxial Switch	ANRITSU CORP	MP59B	MAX225	2024-10-27	2025-10-26
ENV216 2-L-V-NETZNACH B.DE	ROHDE&SCHWARZ	ENV216	MAX226	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX227	N/A	N/A
Thermo meter	KTJ	TA328	MAX233	2024-10-27	2025-10-26
Absorbing clamp	Elektronik-Feinmechanik	MDS21	MAX229	2024-10-27	2025-10-26
LISN	R&S	ENV216	308	2024-10-27	2025-10-26
LISN	R&S	ENV216	314	2024-10-27	2025-10-26

Radiation Test equipment					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	MAX250	2024-10-27	2025-10-26
Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	MAX251	N/A	N/A
EMI Test Receiver	Rohde & Schwarz	ESU26	MAX203	2024-10-27	2025-10-26
BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	MAX214	2024-10-27	2025-10-26
Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	MAX208	2024-10-27	2025-10-26
Horn Antenna	ETS-LINDGREN	3160	MAX217	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX213	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX211	2024-10-27	2025-10-26
Coaxial cable	MAX	N/A	MAX210	2024-10-27	2025-10-26
Coaxial Cable	MAX	N/A	MAX212	2024-10-27	2025-10-26
Amplifier(100kHz-3 GHz)	HP	8347A	MAX204	2024-10-27	2025-10-26
Amplifier(2GHz-20 GHz)	HP	84722A	MAX206	2024-10-27	2025-10-26
Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	MAX218	2024-10-27	2025-10-26
Band filter	Amindeon	82346	MAX219	2024-10-27	2025-10-26
Power Meter	Anritsu	ML2495A	MAX540	2024-10-27	2025-10-26
Power Sensor	Anritsu	MA2411B	MAX541	2024-10-27	2025-10-26
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	MAX575	2024-10-27	2025-10-26
Splitter	Agilent	11636B	MAX237	2024-10-27	2025-10-26
Loop Antenna	ZHINAN	ZN30900A	MAX534	2024-10-27	2025-10-26
Breitband hornantenne	SCHWARZBECK	BBHA 9170	MAX579	2024-10-27	2025-10-26
Amplifier	TDK	PA-02-02	MAX574	2024-10-27	2025-10-26
Amplifier	TDK	PA-02-03	MAX576	2024-10-27	2025-10-26

PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	MAX578	2024-10-27	2025-10-26
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RF Conducted Test:					
Test Equipment	Manufacturer	Model	Serial No.	Date of Cal.	Due Date
MXA Signal Analyzer	Agilent	N9020A	MAX566	2024-10-27	2025-10-26
EMI Test Receiver	R&S	ESCI 7	MAX552	2024-10-27	2025-10-26
Spectrum Analyzer	Agilent	E4440A	MAX533	2024-10-27	2025-10-26
MXG vector Signal Generator	Agilent	N5182A	MAX567	2024-10-27	2025-10-26
ESG Analog Signal Generator	Agilent	E4428C	MAX568	2024-10-27	2025-10-26
USB RF Power Sensor	DARE	RPR3006W	MAX569	2024-10-27	2025-10-26
RF Switch Box	Shongyi	RFSW3003328	MAX571	2024-10-27	2025-10-26
Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	MAX572	2024-10-27	2025-10-26

Other

Item	Name	Manufacturer	Model	Software version
1	EMC Conduction Test System	EZ	EZ-EMC	EMC-CON 3A1.1+
2	EMC radiation test system	EZ	EZ-EMC	FA-03A2 RE+
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 C63.10:2020
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

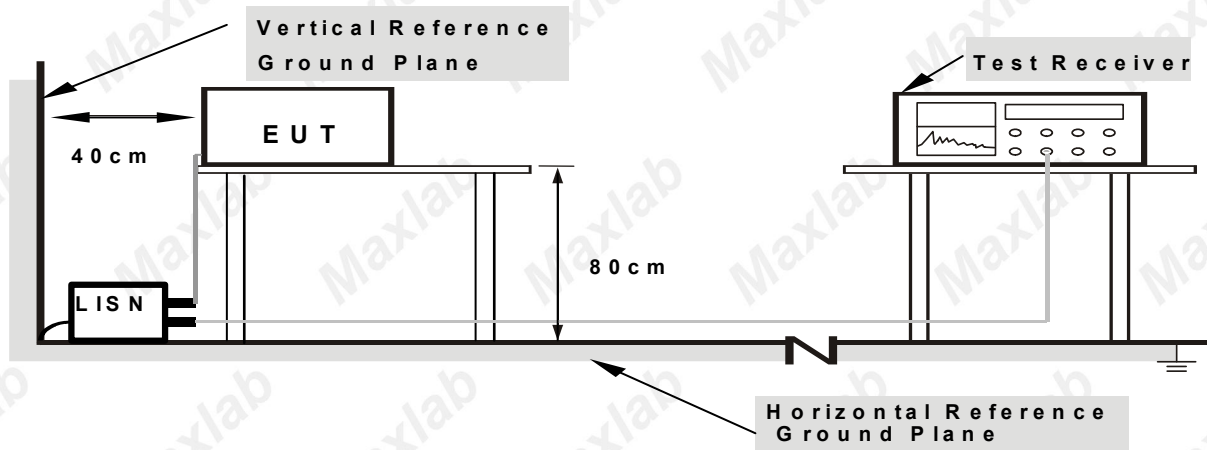
4.1.2 TEST PROCEDURE

- 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.
- 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.
- 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.
- LISN at least 80 cm from nearest part of EUT chassis.
- 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 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

NOTE:THE PRODUCT IS DC POWER SUPPLY, THIS TEST ITEM IS NOT APPLICABLE

4.2 RADIATED EMISSION MEASUREMENT

Test Requirement:	ETSI EN 300 422-1 V2.2.1 (2021-11)				
Test Method:	ANSI C63.10:2020				
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

Remark:

$dbm = 10 \log(mw)$

$EIRP = E_{meas} + 20 \log(d_{meas}) - 104.7$

EIRP is the equivalent isotropically radiated power, in dBm

E_{meas} is the field strength of the emission at the measurement distance, in dBuV/m

d_{meas} is the measurement distance, in 3m

So $4nW = 4 \times 10^{-6} mW = -54dbm$ $250nW = 250 \times 10^{-6} mW = -36dbm$

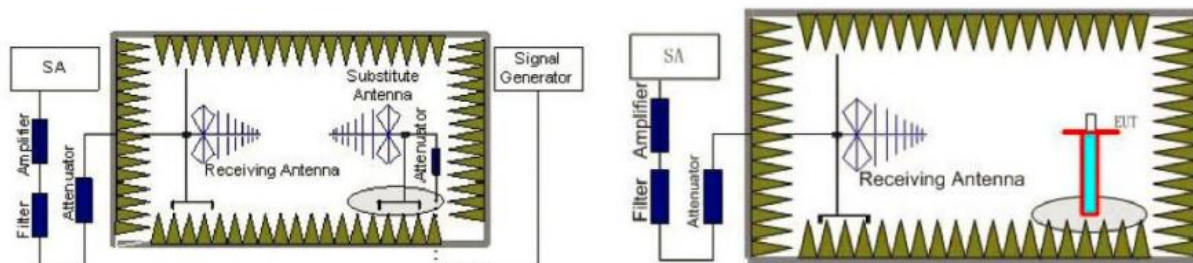
$E_{meas} = (-54) - 20 \log(3) + 104.7$
= 41.16 dBuV/m

$E_{meas} = (-36) - 20 \log(3) + 104.7$
= 59.16 dBuV/m

4.2.2 DEVIATION FROM TEST STANDARD

No deviation

4.2.3 TEST SETUP



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 EUT was placed on a turntable with 1.5m height
2. The test distance between the receiving antenna and the EUT is 3 meter, while the receiving (test)antenna is kept at 1.5 meter height.
3. Set EUT in continuous transmitting with maximum output power at test frequency.
4. The table was rotated from 0 to 360 degree to search the highest radiated emission.
5. Repeat step 3 to 4 for each polarization and test channel to find the worst emission level
6. The results obtained are compared to the limits in order to prove compliance with the requirement

4.2.5 TEST RESULTS

Radiated Spurious Emission (9KHz-30MHz)

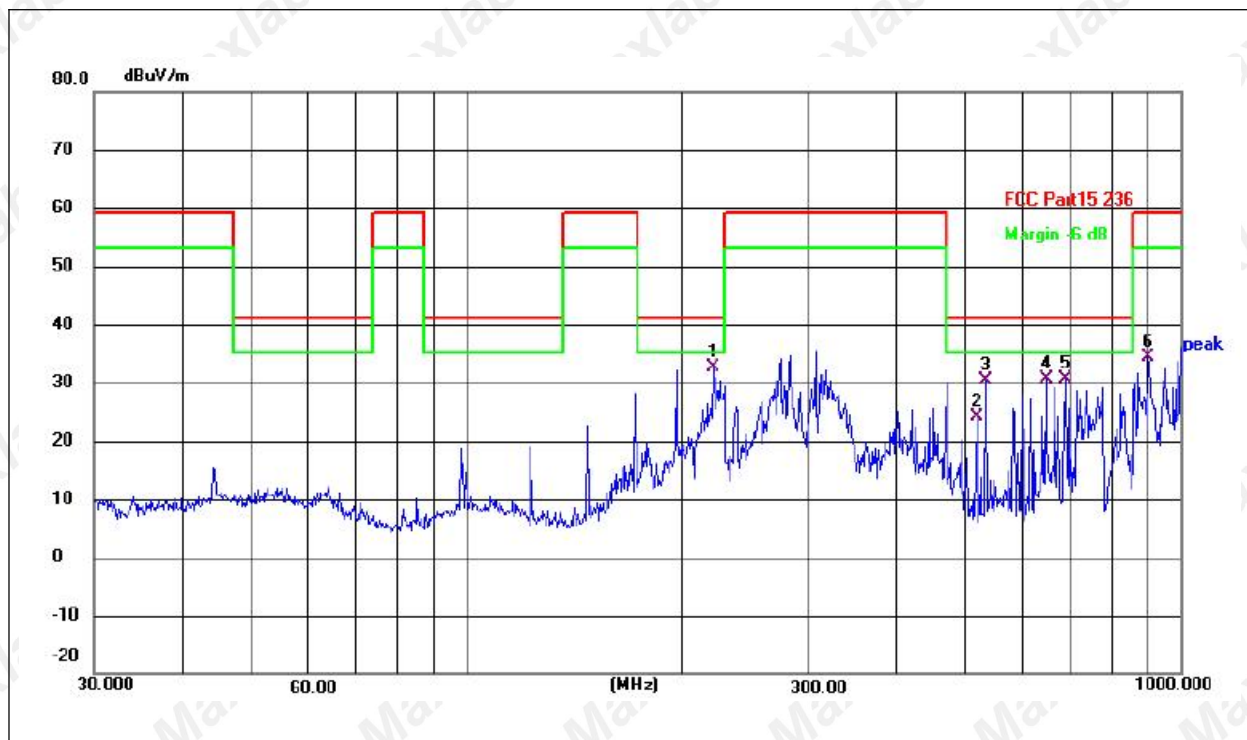
Freq. (MHz)	Ant.Pol. H/V	Emission Level (dBuV/m)	Limit 3m (dBuV/m)	Over (dB)
--	--	--	--	>20

Note:

1. The amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.
2. Distance extrapolation factor = $40\log(\text{Specific distance}/\text{test distance})$ (dB);
3. Limit line=Specific limits(dBuV) + distance extrapolation factor.

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)		

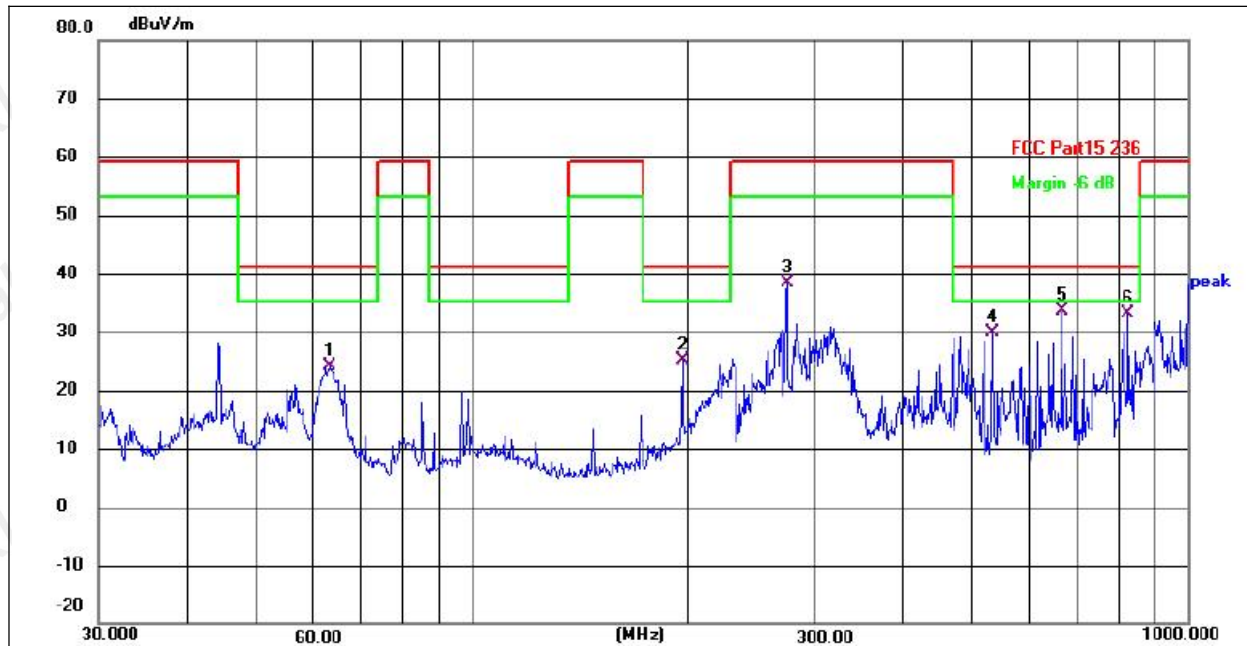


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	221.3920	48.18	-15.58	32.60	41.16	-8.56	QP
2	517.2480	33.60	-9.37	24.23	41.16	-16.93	QP
3	531.9633	39.64	-9.14	30.50	41.16	-10.66	QP
4	647.3854	38.06	-7.42	30.64	41.16	-10.52	QP
5	689.5643	37.15	-6.53	30.62	41.16	-10.54	QP
6	900.1471	37.45	-3.08	34.37	59.16	-24.79	QP

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.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	63.3132	40.18	-16.04	24.14	41.16	-17.02	QP
2	196.5098	41.82	-16.59	25.23	41.16	-15.93	QP
3	275.1570	52.56	-14.15	38.41	59.16	-20.75	QP
4	531.9633	39.13	-9.14	29.99	41.16	-11.17	QP
5	665.8034	40.68	-7.02	33.66	41.16	-7.50	QP
6	824.5968	37.42	-4.29	33.13	41.16	-8.03	QP

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)

Frequency	Reading	Correct	Result	Limit	Margin	Polar
(MHz)	(dBm)	(dB)	(dBm)	(dBm)	(dB)	H/V
Low Channel-551MHz						
1102.0	-45.21	7.78	-37.43	-30	-7.43	H
1653.0	-50.26	13.12	-37.14	-30	-7.14	H
1102.0	-46.76	7.78	-38.98	-30	-8.98	V
1653.0	-47.69	13.12	-34.57	-30	-4.57	V
Middle Channel-570.6MHz						
1141.2	-54.27	8.03	-46.24	-30	-16.24	H
1711.8	-52.33	12.36	-39.97	-30	-9.97	H
1141.2	-52.35	8.03	-44.32	-30	-14.32	V
1711.8	-49.78	12.36	-37.42	-30	-7.42	V
High Channel-594.675MHz						
1189.350	-53.89	8.01	-45.88	-30	-15.88	H
1784.025	-56.78	13.27	-43.51	-30	-13.51	H
1189.350	-54.36	8.01	-46.35	-30	-16.35	V
1784.025	-53.23	13.27	-39.96	-30	-9.96	V

Note :

1. Result = Reading + Corrected Factor
2. The fundamental wave filtered out during the test.

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
551.0MHz	-0.937	-0.25	-1.187	17	PASS
570.6MHz	-1.595	-0.25	-1.845	17	PASS
594.675MHz	-2.550	-0.25	-2.800	17	PASS

Remark: cable loss is 3dBm, It has been compensated in the test diagram.

Low Channel



Mid 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) 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 4.2.3 of ETSI EN 300 422-1 V2.2.1 (2021-11) (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

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 = 1kHz, VBW = 3kHz
3. Mark the -20dB BANDWIDTH

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



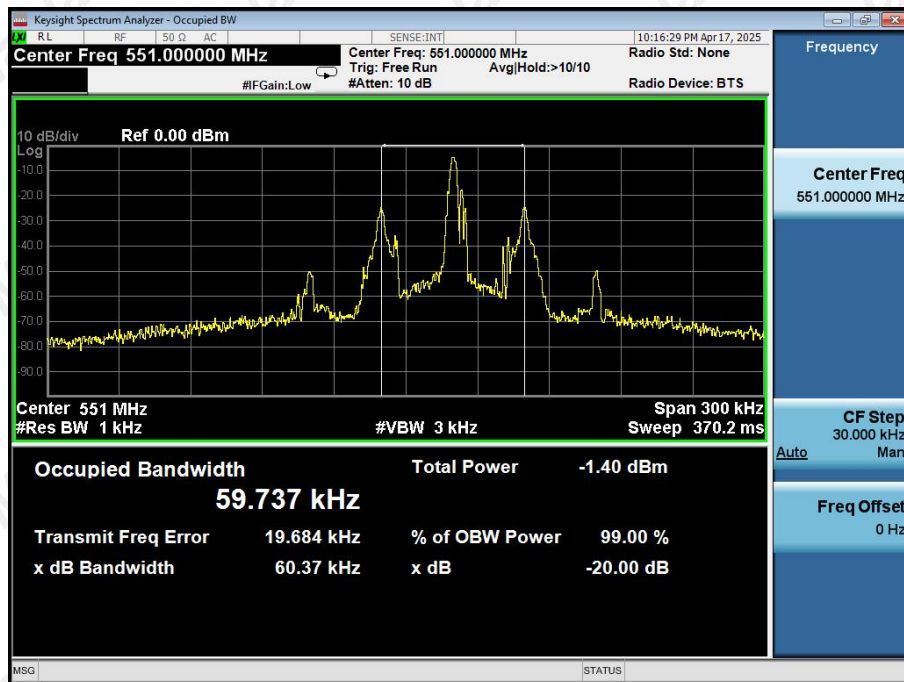
6.5 EUT OPERATION CONDITIONS

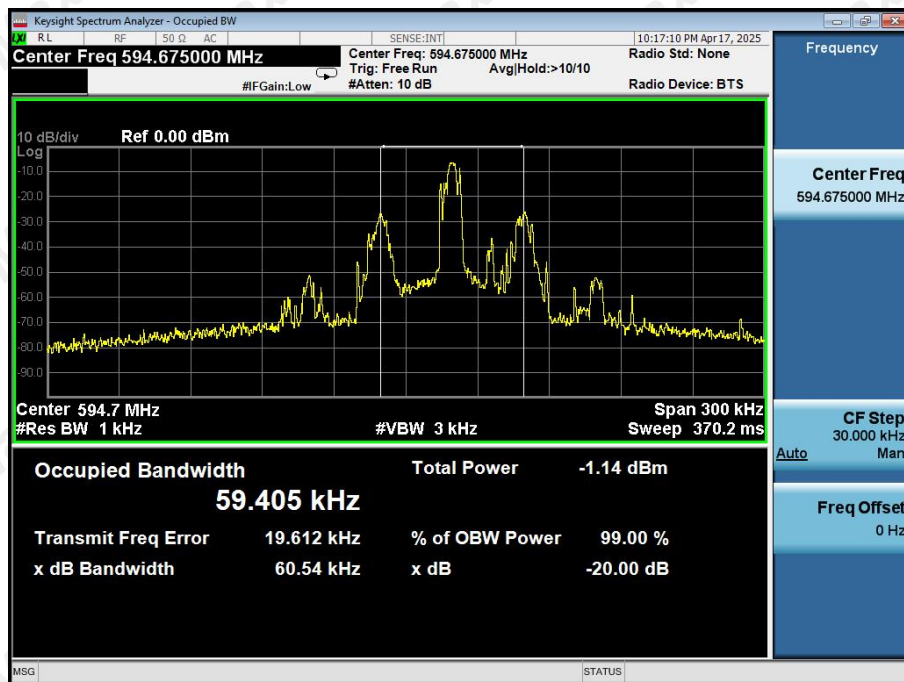
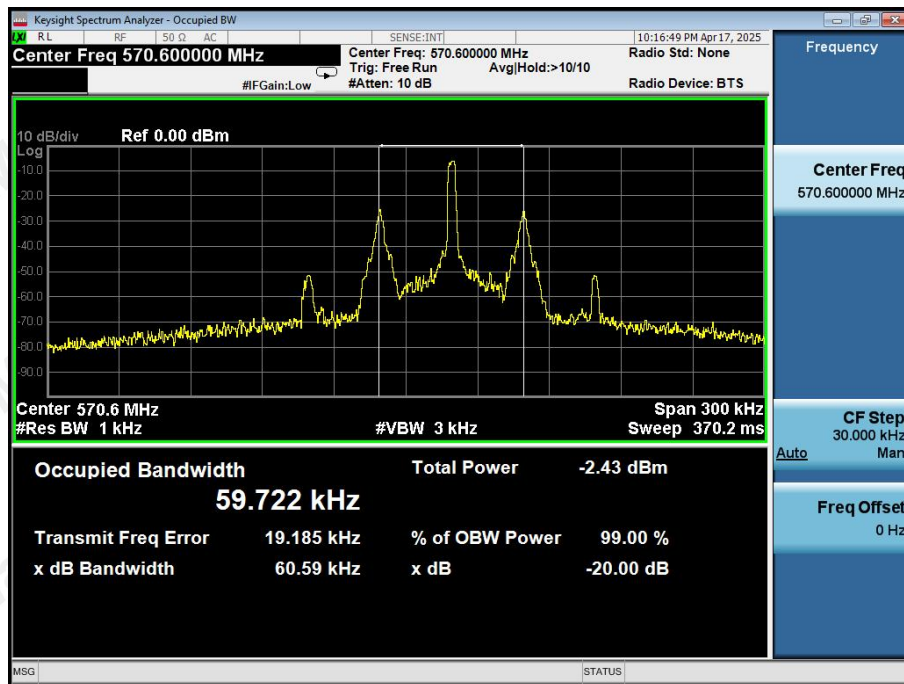
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULTS

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

Frequency (MHz)	-20 bandwidth (KHz)	Limit (KHz)	Result
551.0MHz	60.37	200	Pass
570.6MHz	60.59	200	Pass
594.675MHz	60.54	200	Pass





7. NECESSARY BANDWIDTH

7.1 LIMIT



**Transmit spectral power mask for equipment employing digital modulation,
except WMAS, RBW = 1 kHz**

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 §4.2.4.2 of ETSI EN 300 422-1 V2.2.1 (2021-11), 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 4.2.4.2 of ETSI EN 300 422-1 V2.2.1 (2021-11).

According to ETSI EN 300 422-2 V2.1.1 section 4.2.4.2, the transmitter output spectrum shall be within the mask defined in the following figure.

7.2 TEST SETUP

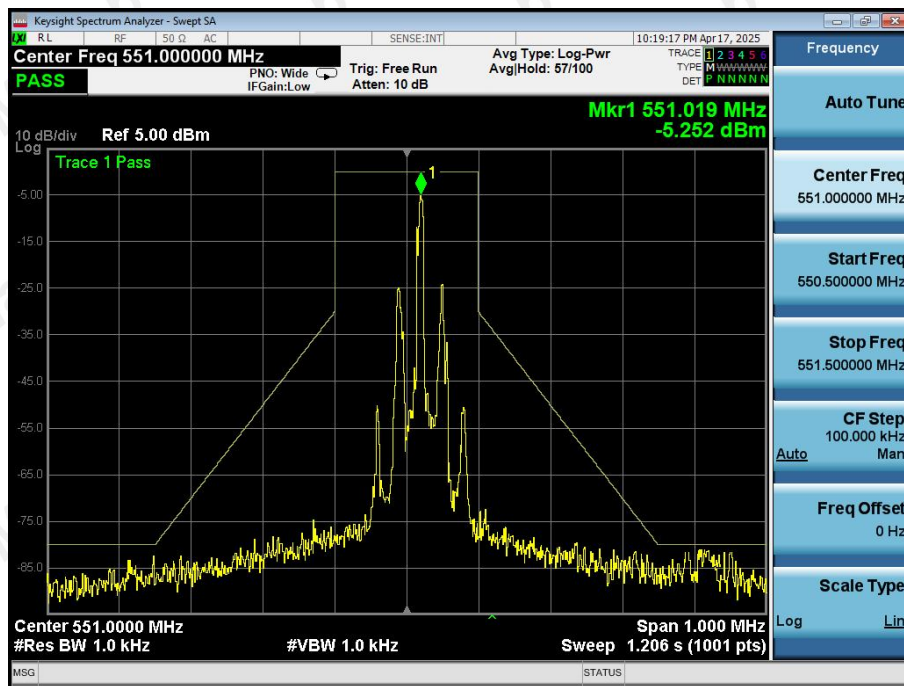


7.3 TEST PROCEDURE

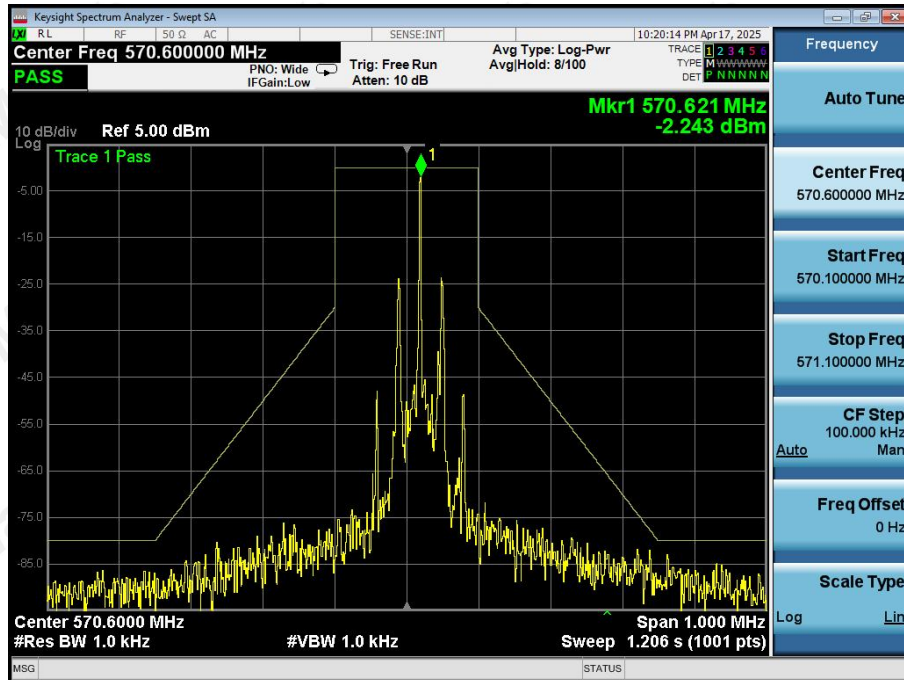
ETSI EN 300 422-1 V2.2.1 Clause 4.2.4.

7.4 TEST RESULTS

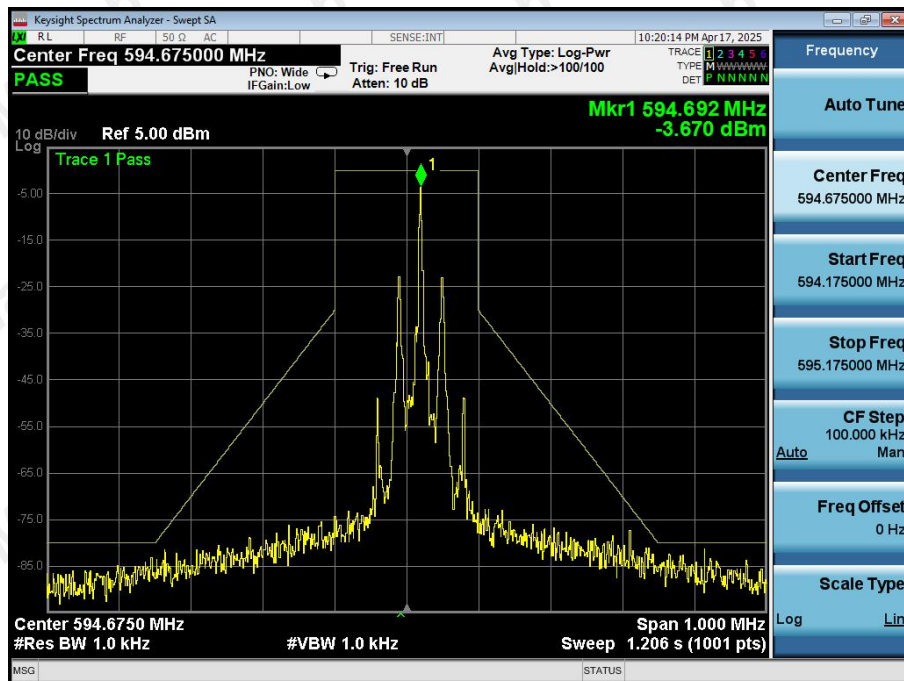
Low Channel



Mid Channel



High Channel



8. FREQUENCY STABILITY

8.1 Limit

$\pm 0.005\% \times 551.0\text{MHz} = 27.55\text{ KHz}$

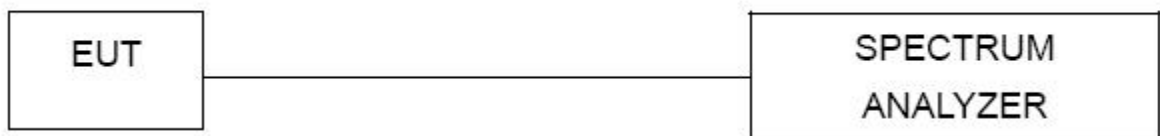
$\pm 0.005\% \times 570.6\text{MHz} = 28.53\text{ KHz}$

$\pm 0.005\% \times 594.675\text{MHz} = 29.73\text{ KHz}$

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)	
551.0	N	N	551.015	15	±27.55	Pass
		L	551.013	13		Pass
		H	551.013	13		Pass
	L	N	551.015	15		Pass
		L	551.016	16		Pass
		H	551.015	15		Pass
	H	N	551.014	14		Pass
		L	551.014	14		Pass
		H	551.015	15		Pass

Test frequency	Test Conditions		Measure Frequency	Frequency Error	Limit	Result
(MHz)	Voltage (V)	Temperature(°C)	(MHz)	(KHz)	(KHz)	
570.6	N	N	570.615	15	±28.53	Pass
		L	570.616	16		Pass
		H	570.616	16		Pass
	L	N	570.614	14		Pass
		L	570.616	16		Pass
		H	570.615	15		Pass
	H	N	570.615	15		Pass
		L	570.615	15		Pass
		H	570.615	15		Pass

Test frequency	Test Conditions		Measure Frequency	Frequency Error	Limit	Result
(MHz)	Voltage (V)	Temperature(°C)	(MHz)	(KHz)	(KHz)	
594.675	N	N	594.689	14	±29.73	Pass
		L	594.690	15		Pass
		H	594.689	14		Pass
	L	N	594.690	15		Pass
		L	594.690	15		Pass
		H	594.691	16		Pass
	H	N	594.691	16		Pass
		L	594.690	15		Pass
		H	594.690	15		Pass

Note: LV=Low voltage=2.55V NV=nominal voltage=3V HV= High voltage=3.45V

9. TEST PHOTO & EUT PHOTO

Reference to the appendix for details.

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