FCC TEST REPORT

For

SHENZHEN JINGDU TECHNOLOGY CO., LTD

Wireless USB Microphone

Test Model: WXM24

Additional Model: Please Refer to Page 6

Prepared for Address	:	SHENZHEN JINGDU TECHNOLOGY CO.,LTD 3F, Building D, Fuxinlin Park, Hangcheng industrial Park, Qianjin 2 Road, Xixiang town, Baoan District, Shenzhen, China
Prepared by Address	:	Shenzhen LCS Compliance Testing Laboratory Ltd. 101, 201 Bldg A & 301 Bldg C, Juji Industrial Park Yabianxueziwei, Shajing Street, Baoan District, Shenzhen, 518000, China
Tel Fax Web Mail	: : :	(+86)755-82591330 (+86)755-82591332 www.LCS-cert.com webmaster@LCS-cert.com
Date of receipt of test sample Number of tested samples Sample No Serial number Date of Test Date of Report	::	February 22, 2022 1 220221053A Prototype February 22, 2022 ~ March 07, 2022 March 07, 2022



Scan code to check authenticity



FCC TEST REPORT FCC CFR 47 PART 74

Report Reference No :	LCS220221069AEA	
Date of Issue:	March 07, 2022	
Testing Laboratory Name :	Shenzhen LCS Compliance Testing Labora	atory Ltd.
	101, 201 Bldg A & 301 Bldg C, Juji Industrial Shajing Street, Baoan District, Shenzhen, 518	
Testing Location/ Procedure :	Full application of Harmonised standards ■ Partial application of Harmonised standards □ Other standard testing method □	1
Applicant's Name: :	SHENZHEN JINGDU TECHNOLOGY CO.,L	ſD
Address :	3F, Building D, Fuxinlin Park, Hangcheng inde Road, Xixiang town, Baoan District, Shenzhei	
Test Specification		
Standard::	FCC CFR 47 PART 74	
Test Report Form No :	LCSEMC-1.0	
TRF Originator:	Shenzhen LCS Compliance Testing Laborato	ry Ltd.
Master TRF:	Dated 2011-03	
This publication may be reproduced i Shenzhen LCS Compliance Testing L material. Shenzhen LCS Compliance	g Laboratory Ltd. All rights reserved. In whole or in part for non-commercial purposes aboratory Ltd. is acknowledged as copyright or Testing Laboratory Ltd. takes no responsibility g from the reader's interpretation of the reprodu	wner and source of the for and will not
EUT Description :	Wireless USB Microphone	
Trade Mark :	Bietrun, KAPEBOW	
Model/ Type reference :	WXM24	
Ratings:	DC 3.7V by Rechargeable Li-ion Battery, 100	0mAh
Result:	Positive	
Compiled by:	Supervised by:	Approved by:

Vera Den

Wang Jin

To Ling

Vera Deng/ Administrator

Jin Wang/ Technique principal

Gavin Liang/ Manager



ſ

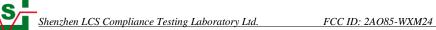
FCC -- TEST REPORT

Test Report No. : LCS220221069AEA		<u>March 07, 2022</u>	
1631 NEPUT NO LOS22022 1003AEA		Date of issue	
Type / Model	: WXM24		
EUT	: Wireless USB Micropho	ne	
Applicant	: SHENZHEN JINGDU T	ECHNOLOGY CO.,LTD	
Address	-	Park, Hangcheng industrial Park, Qianjin 2 pan District, Shenzhen, China	
Telephone	: /		
Fax	: /		
Manufacturer	: Shenzhen LongXiang	Intelligent Technology Co. Ltd.	
Address	: FLOOR 4, BUILDING D, FUXINLIN INDUSTRIAL AREA, HENGCHENG INDUSTRIAL ZONE FUHUA COMMU NITY XIXIANG STREET, BAOAN DISTRICT SHENZHENGUANGDONG CHINA		
Telephone	: /		
Fax	: /		
Factory	: Shenzhen LongXiang	Intelligent Technology Co. Ltd.	
Address	HENGCHENG INDUST	, FUXINLIN INDUSTRIAL AREA, RIAL ZONE FUHUA COMMU NITY DAN DISTRICT SHENZHENGUANGDONG	
Telephone	: /		
Fax	: /		

Test Result	Positive				

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



Revision History

Revision	Issue Date	Revisions	Revised By
000	March 07, 2022	Initial Issue	Gavin Liang



1.	GENERAL INFORMATION	6
	 1.1. DESCRIPTION OF DEVICE (EUT) 1.2. HOST SYSTEM CONFIGURATION LIST AND DETAILS 1.3. EXTERNAL I/O CABLE 	6
	1.4. DESCRIPTION OF TEST FACILITY	0
	1.5. STATEMENT OF THE MEASUREMENT UNCERTAINTY	7
	1.6. MEASUREMENT UNCERTAINTY	
	1.7. DESCRIPTION OF TEST MODES	
	1.8. FREQUENCY OF CHANNELS	
2.	TEST METHODOLOGY	
	2.1. EUT CONFIGURATION	
	2.2. EUT EXERCISE	
	2.3. GENERAL TEST PROCEDURES	
3.	SYSTEM TEST CONFIGURATION	
	3.1. JUSTIFICATION	
	3.2. EUT EXERCISE SOFTWARE	
	3.3. SPECIAL ACCESSORIES	
	3.5. EQUIPMENT MODIFICATIONS	
	3.6. TEST SETUP	
	SUMMARY OF TEST RESULTS	
5.	TEST RESULT	. 11
	5.1. TRANSMITTER OUTPUT POWER	
	5.2. OCCUPIED BANDWIDTH AND EMISSION MASK	. 13
	5.3. TRANSMITTER UNWANTED EMISSIONS (RADIATED OR CONDUCTED)	. 15
	5.5. FREQUENCY STABILITY	
	5.6. MODULATION CHARACTERISTICS	
	5.7. NECESSARY BANDWIDTH (BN) FOR ANALOGUE SYSTEMS	
6.	LIST OF MEASURING EQUIPMENTS	. 26
7.	TEST SETUP PHOTOGRAPHS OF EUT	. 27
8.	EXTERIOR PHOTOGRAPHS OF THE EUT	. 27
9.	INTERIOR PHOTOGRAPHS OF THE EUT	. 27



1. GENERAL INFORMATION

1.1. Description of Device (EUT)			
EUT	: Wireless USB Microphone		
Test Model	: WXM24		
Model Number	: WXM24A , WXM24B, WXM24C, WXM24D, WXM24-1, WXM24-2, WXM24-3, WXM24-4		
Model Declaration	: PCB board, structure and internal of these model(s) are the same,		
	So no additional models were tested.		
Hardware Version	:/		
Software Version	:/		
Power Supply	: DC 3.7V by Rechargeable Li-ion Battery, 1000mAh		
UHF(530.8MHz-544.8MHz)			
Operation frequency	: 530.8MHz-544.8MHz		
Modulation Type	: FM		
Channel Number	: 15channels		
Channel Spacing	: 1MHz		
Antenna Type	: External Antenna		
Antenna Gain	: 0dBi		
Extreme temp. Tolerance	: -20°C to +45°C		

1.2. Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	Certificate
				SDOC

1.3. External I/O Cable

I/O Port Description	Quantity	Cable
/	/	/

1.4. Description of Test Facility

NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024.

Test Firm Registration Number: 254912

CAB identifier is CN0071.

CNAS Registration Number is L4595.

Test Firm Registration Number: 254912.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.4:2014 and CISPR 16-1-4:2010 SVSWR requirement for radiated emission above 1GHz.



1.5. Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

1.6. Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty		9KHz~30MHz	±3.10dB	(1)
		30MHz~200MHz	±2.96dB	(1)
	:	200MHz~1000MHz	±3.10dB	(1)
		1GHz~26.5GHz	±3.80dB	(1)
		26.5GHz~40GHz	±3.90dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	±1.63dB	(1)
Power disturbance	:	30MHz~300MHz	±1.60dB	(1)

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

1.7. Description of Test Modes

The EUT has been tested under operating condition.

This test was performed with EUT in X, Y, Z position and the worst case was found when EUT in X position.

Worst-case mode and channel used for 150 kHz-30 MHz power line conducted emissions was the mode and channel with the highest output power, which was determined to be (HCH).

Worst-case mode and channel used for 9kHz-1000 MHz radiated emissions was the mode and channel with the highest output power, that was determined to be (HCH).

Pre-test AC conducted emission at charge from PC mode, recorded worst case.

Pre-test AC conducted emission at both voltage AC 120V/60Hz and AC 240V/50Hz, recorded worst case.

Worst-Case data rates were utilized from preliminary testing of the Chipset, worst-case data rates used during the testing are as follows:

1.8. Frequency of Channels

Channel	Frequency(MHz)	Channel	Frequency(MHz)
00	530.8	10	540.8
01	531.8	11	541.8
02	532.8	12	542.8
03	533.8	13	543.8
04	534.8	14	544.8
05	535.8		
06	536.8		
07	537.8		
08	538.8		
09	539.8		



2. TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen LCS Compliance Testing Laboratory Ltd.

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section FCC Rules Part 74.

2.3. General Test Procedures

2.3.1 Radiated Emissions

please refer to radated spurioes emission

3. SYSTEM TEST CONFIGURATION

3.1. Justification

The system was configured for testing in a continuous transmits condition.

3.2. EUT Exercise Software

The system was configured for testing in a continuous transmits condition; and transmission frequency by switch button control.

3.3. Special Accessories

N/A

3.4. Block Diagram/Schematics

Please refer to the related document

3.5. Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

3.6. Test Setup

Please refer to the test setup photo.



4. SUMMARY OF TEST RESULTS

Applied Standard: FCC Part 74				
FCC Rules	FCC Rules Description of Test			
FCC Part 74.861(e)(1)(ii) FCC Part 2.1046	Maximum Conducted Output Power	Compliant		
FCC Part 74.861 (e)(5) FCC Part 2.1049	Occupied Bandwidth	Compliant		
FCC Part 74.861 (e)(4) FCC Part 2.1055	Frequency error	Compliant		
FCC Part 74.861(e)(6) 2.1053	Transmitter unwanted emissions(radiated or conducted)	Compliant		
FCC Part 2.1049 FCC Part 2.1047	Modulation characteristic	Compliant		
FCC Part 74.861 (e)(7) FCC Part 2.1049	Necessary bandwidth (BN) for analogue systems	Compliant		

5. TEST RESULT

- 5.1. Transmitter output power
- 5.1.1. Measurement description:

Two traces are captured to show the difference between input- and output signals and to measure the effective output power of the device. Trace 1 shows the measurement results of the output signal and trace 2 shows the measurement results of the input signal. Marker D2 in the plots shows the difference between the input and the output signal

5.1.2. Measurement:

Measurement parameter				
Detector:	Peak (worst case) / Average (RMS)			
Sweep time:	Auto / 20s			
Resolution bandwidth:	> emission bandwidth			
Video bandwidth:	> resolution bandwidth			
Span:	> 2 times emissions bandwidth			
Trace mode:	Max. hold			
	Peak:			
	Unmodulated carrier			
	RMS:			
	Modulate the transmitter with a 2.5 kHz			
	tone at a level 16 dB higher than that			
EUT configuration:	required to produce a frequency			
	deviation of \pm 75 kHz, or to produce			
	50% of the manufacturer's rated			
	deviation, whichever is less.			

5.1.3. Limits:

FCC

470 MHz to 608 MHz 250 mW (average) / 24 dBm (average)

5.1.4. Test result:

The EUT was programmed to be in continuously transmitting mode.

5.1.5. Test result

Test Mode	Channel	Frequency (MHz)	Measured Maximum Peak Power(dBm)	Measured Maximum Average Power(dBm)	Limits Average (dBm)	Verdict
	00	530.8	15.771	/		
FM	07	537.8	15.576	/	24	PASS
	14	544.8	15.563	/		

Max	imum Peak Out	put Powe	r	Мах	kimum Peak Out	put Powe	r
Agilent Spectrum Analyzer - Swept SA				Agilent Spectrum Analyzer - Swept SA			
Center Freq 530.800000 MHz	PNO: Fast IFGain:Low Atten: 30 dB	ALIGNAUTO Avg Type: Log-Pwr Avg Hold>100/100	02:09:37 PM Mar 07, 2022 TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P N N N N N	02 RL RF 50 Q AC Marker 1 537.824000000 MHz	PNO: Fast IFGain:Low PNO: Fast	ALIGNAUTO Avg Type: Log-Pwr Avg Hold:>100/100	02:23:07 PM Mar 07, 2022 TRACE 1 2 3 4 5 6 TYPE M MAXAMM DET P N N N N N
Ref Offset 10 dB 10 dB/div Ref 30.00 dBm			Mkr1 530.794 MHz 15.771 dBm	Ref Offset 10 dB 10 dB/div Ref 30.00 dBm	1 1 1		Mkr1 537.824 MHz 15.576 dBm
200 100 100 100 100 100 100 100			Span 1.000 MHz	200 100 100 100 100 100 100 100			Span 1.000 MHz
#Res BW 300 kHz	#VBW 1.0 MHz		eep 1.000 ms (1001 pts)	#Res BW 300 kHz	#VBW 1.0 MHz		eep 1.000 ms (1001 pts)
MSG		STATUS		MSG		STATUS	
(Channel 0 / 530	.8MHz		(Channel 7 / 537.	8 MHz	
Agilent Spectrum Analyzer - Swept SA RL RF SOR AC Center Freq 544.800000 MHz	SENSE:INT SOURCE OFF PN0: Fast IFGain:Lew Atten: 30 dB	ALIGNAUTO Avg Type: Log-Pwr Avg Hold>100/100	02:16:53 PM Mar 07, 2022 TRACE 11 2 3 4 5 6 TYPE M WWWWWW DET P N N N N N				
Ref Offset 10 dB 10 dB/div Ref 30.00 dBm Log			Mkr1 544.803 MHz 15.563 dBm				
-20.0							
-40.0 -50.0 -60.0							
Center 544.8000 MHz			Span 1.000 MHz				
#Res BW 300 kHz	#VBW 1.0 MHz	SW	eep 1.000 ms (1001 pts)				
С	hannel 14 / 544						



- 5.2. Occupied bandwidth and Emission Mask
- 5.2.1. Measurement description:

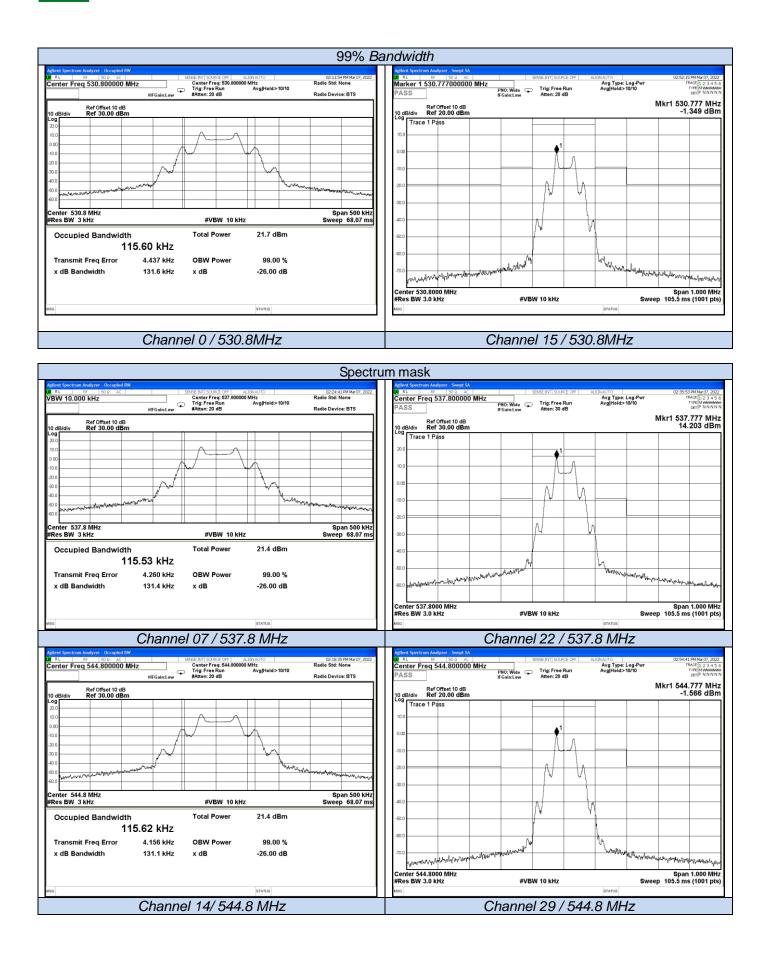
Two traces are captured to show the difference between input- and output signals and to measure the effective bandwidth of the output signal. Trace 1 shows the measurement results of the output signal and trace 2 shows the measurement results of the input signal.

5.2.2. Measurement:

Measurement parameter				
Detector:	Peak			
Sweep time:	Auto			
Resolution bandwidth:	1 % to 5 % of the occupied bandwidth			
Video bandwidth:	3 x resolution bandwidth			
Span:	2 x emission bandwidth			
Trace mode:	Max. hold			
Analyzer function:	99% power occupied bandwidth			
	function			
EUT:	Modulated signal with max. frequency			
	deviation			

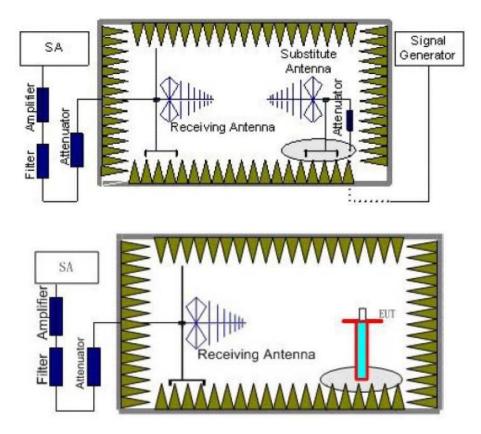
5.2.3. Result:

Test Mode	Channel	Frequency (MHz)	99% Bandwidth (KHz)	Limits (KHz)	Verdict
	00	530.8	115.60		
FM	07	537.8	115.53	200	PASS
	14	544.8	115.63		





- 5.3. Transmitter unwanted emissions(radiated or conducted)
- 5.3.1. Measurement description:
- TEST CONFIGURATION



TEST PROCEDURE

- EUT was placed on a 1.50 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.50 m. Detected emissions were maximized at each frequency by rotating the EUT through 360 ° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.
- 2. A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. The level of the spurious emissions can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.
- 3. The EUT is then put into continuously transmitting mode at its maximum power level during the test.Set Test Receiver or Spectrum RBW=1MHz,VBW=3MHz, And the maximum value of the receiver should be recorded as (P_r).
- 4. The EUT shall be replaced by a substitution antenna. In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (P_r). The



power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

- 5. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna. The cable loss (P_{cl}) , the Substitution Antenna Gain (G_a) and the Amplifier Gain (P_{Ag}) should be recorded after test. The measurement results are obtained as described below: Power(EIRP)=P_{Mea}- P_{Ag} - P_{cl} + G_a
- 6. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
- 7. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP 2.15 dBi.
- 8. In order to make sure test results more clearly, we set frequency range and sweep time for difference frequency range as follows table:

TEST LIMITS

FCC & IC (according to ETSI EN 300 422-1 V2.1.2 (2017-01))					
	Max. spurious level				
State	47 MHz to 74 MHzOther frequenciesAll frequencies87.5 MHz to 118 MHzOther frequencies> 1000 MHz174 MHz to 230 MHz≤ 1000 MHz> 1000 MHz				
Operating	4.0 nW	250 nW	1.00 µW		
Standby	2.0 nW	2.0 nW	20.0 nW		

FCC & IC					
The mean power of emissions shall be attenuated below	the mean output power of the transmitter in				
accordance with the follow	ing schedule:				
On any frequency removed from the operating frequency by					
more than 50 percent up to and including 100 percent of the	25 dB				
On any frequency removed from the operating frequency by					
more than 100 percent up to and including 250 percent of	35 dB				
On any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth: at least	43 + 10log10 (mean output power in watts) dB				



Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
		530.8MHz			
184.12	Н	-68.84	-54.00	-14.84	PK
233.86	Н	-68.26	-36.00	-32.26	PK
845.45	Н	-68.69	-54.00	-14.69	PK
977.46	Н	-49.73	-36.00	-13.73	PK
1381.55	V	-43.35	-30.00	-13.35	PK
1382.78	V	-42.70	-30.00	-12.70	PK
2467.47	V	-40.32	-30.00	-10.32	РК
2468.74	V	-39.77	-30.00	-9.77	PK

5.3.2. Results for Radiated Emissions

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
		537.8MHz			
183.71	Н	-67.40	-54.00	-13.40	PK
234.31	Н	-68.04	-36.00	-32.04	PK
847.44	Н	-66.59	-54.00	-12.59	PK
976.13	Н	-49.77	-36.00	-13.77	PK
1386.21	V	-38.47	-30.00	-8.47	PK
1382.79	V	-44.08	-30.00	-14.08	PK
2469.30	V	-44.04	-30.00	-14.04	PK
2473.95	V	-42.15	-30.00	-12.15	PK

Frequency (MHz)	Polarization (H/V)	Measure Level (dBm)	Limit (dBm)	Margin (dB)	Detector
		544.8MHz			
184.42	Н	-65.55	-54.00	-11.55	PK
233.68	Н	-70.83	-36.00	-34.83	PK
848.36	Н	-65.14	-54.00	-11.14	PK
977.07	Н	-53.99	-36.00	-17.99	PK
1385.48	V	-38.21	-30.00	-8.21	PK
1379.25	V	-45.70	-30.00	-15.70	PK
2467.59	V	-39.89	-30.00	-9.89	PK
2471.90	V	-38.22	-30.00	-8.22	PK

Note: 1, All detected emissions are more than 20 dB below the limit, In addition to main frequency.

5.4. Conducted spurious emission

5.4.1. Description:

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. The EUT is set to channel 6. This measurement is repeated for DSSS and OFDM modulation. If peaks are found channel 1 and channel 11 will be measured too. The measurement is performed with the data rate producing the highest output power. Both power lines, phase and neutral line, are measured. Found peaks are re-measured with average and quasi peak detection to show compliance to the limits.

5.4.2. Measurement:

Measurement parameter				
Detector:	Peak - Quasi Peak / Average			
Sweep time:	Auto			
Resolution bandwidth:	F < 150 kHz: 200 Hz			
	F > 150 kHz: 9 kHz			
Video bandwidth:	F < 150 kHz: 1 kHz			
	F > 150 kHz: 100 kHz			
Span:	9 kHz to 30 MHz			
Trace mode:	Max Hold			

5.4.3. Limits:

FCC					
Frequency (MHz)	Quasi-Peak (dBµV/m)	Average (dBµV/m)			
0.15 – 0.5	66 to 56*	56 to 46*			
0.5 – 5	56	46			
5 – 30.0	60	50			

5.4.4. Results:

Not Applicable.

Report No.: LCS220221069AEA



5.5. Frequency Stability

Test Requirement: FCC CFR 47 Part 74.e) 4)

Test Method: FCC CFR 47 Part 2.1055

Requirements:+/-50 ppm

(e) For low power auxiliary stations operating in the bands allocated for TV broadcasting, the following technical requirements apply:

(4) The frequency tolerance of the transmitter shall be 0.005 percent.

Test Procedure:

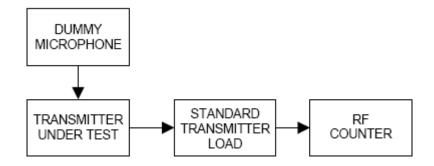
Frequency stability versus Environmental Temperature

The equipment under test was connected to an external DC power supply and the RF output was connected to a frequency counter via feed through attenuators.

The EUT was placed inside the temperature chamber. After the temperature stabilized for approximately 20 minutes, the frequency of the output signal was recorded from the counter.

Frequency Stability versus Input Voltage

At room temperature ($25 \pm 5^{\circ}$ C), an external variable DC power supply was connected to the EUT. The frequency of the transmitter was measured for 115%, 100% and 85% of the nominal operating input voltage. For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.





Test Result:

Assigned Frequency: 530.8MHz,					
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapsed Total emission within +/- 26.54 kHz			
50	3.7	+2.71			
40	3.7	+2.32			
30	3.7	+2.14			
20	3.7	+1.76			
10	3.7	+1.25			
0	3.7	+1.02			
-10	3.7	+1.00			
-20	3.7	+0.98			
-30	3.7	+0.97			
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapse Total emission within Max +/- 26.54kHz			
25	4.07	+2.57			
25	3.7	+2.64			
25	3.15	+1.68			

Assigned Frequency: 537.8 MHz,					
Environment Temperature (°C)	Power Supplied (Vdc)				
50	3.7	+2.97			
40	3.7	+2.87			
30	3.7	+2.56			
20	3.7	+2.39			
10	3.7	+1.42			
0	3.7	+1.35			
-10	3.7	+1.08			
-20	3.7	+1.05			
-30	3.7	+0.98			
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapse Total emission within Max +/- 26.89 kHz			
25	4.07	+2.98			
25	3.7	+2.34			
25	3.15	+1.87			

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd. Page 20 of 27

Assigned Frequency: 544.8 MHz,					
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapsed Total emission within +/- 27.24 kHz			
50	3.7	+2.68			
40	3.7	+2.39			
30	3.7	+2.25			
20	3.7	+2.10			
10	3.7	+1.86			
0	3.7	+1.42			
-10	3.7	+1.38			
-20	3.7	+1.08			
-30	3.7	+0.86			
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapsed Total emission within Max +/- 27.24 kHz			
25	4.07	+2.63			
25	3.7	+1.54			
25	3.15	+0.99			

Battery end point: 3.7Vdc

The results: The unit does meet the FCC requirements.



5.6. Modulation Characteristics

Test Requirement: FCC CFR 47 Part 74.e) 3)

Test Method:FCC CFR 47 Part 2.1047 & TIA/EIA 603 E 2016:Land Mobile FM or PM Communications Equipment Measurement and Performance Standards

Requirements:

(e) For low power auxiliary stations operating in the bands allocated for TV broadcasting, the following technical requirements apply:

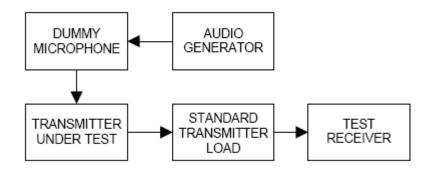
(3) Any form of modulation may be used. A maximum deviation of \pm 75 kHz is permitted when frequency modulation is employed.

Test Procedure:

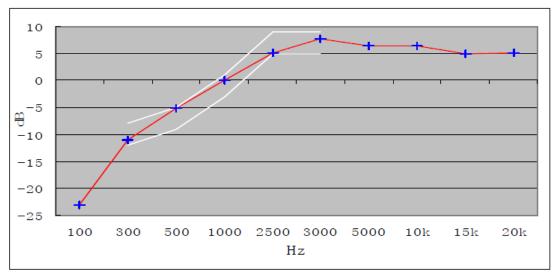
Audio Frequency Response

The RF output of the transceiver was connected to the input of FSP 30 with FM deviation module through sufficient attenuation so as not to overload the meter or distort the reading. An audio signal generator was connected to the audio input of microphone.

The audio signal input level was adjusted to obtain 20% of the maximum rated system deviation at 1 kHz, and recorded as DEV REF. With the audio signal generator level unchanged, set the generator frequency between 100 to 5000 Hz. The transmitter deviations (DEV FREQ) were measured and the audio frequency response was calculated as 20log10 [DEV FREQ / DEV REF]

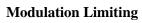


The plot(s) of Audio Frequency Response is presented hereinafter as reference.



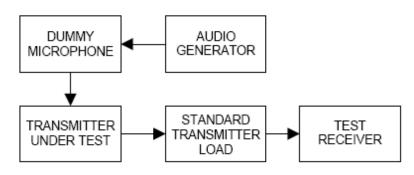
0dB=10mV at 1kHz (20% of the maximum rated system deviation).



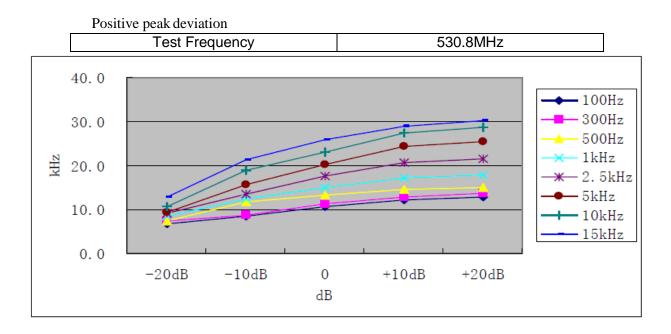


- a) Adjust the transmitter per the manufacturer's procedure for full rated system deviation.
- b) Set the test receiver to measure peak positive deviation. Set the audio bandwidth for ≤0.25 Hz to ≥15,000 Hz. Turn the de-emphasis function off.
- c) Apply a **1000 Hz** modulating signal to the transmitter from the audio frequency generator, and adjust the level to obtain **60% of full rated** system deviation.
- d) Increase the level from the audio frequency generator by 20 dB in one step (rise time between the 10% and 90% points shall be 0.1 second maximum).
- e) Measure both the instantaneous and steady-state deviation at and after the time of increasing the audio input level.

With the level from the audio frequency generator held constant at the level obtained in step e), slowly vary the audio frequency from 100 to 15k Hz and observe the steady-state deviation. Record the maximum deviation.



Test at five different modulating frequencies (100Hz ,300Hz, 500Hz, 1KHz, 2.5kHz, 5kHz, 10kHz, 15kHz), the output level of the audio generator was varied up to 1V and the FM deviation level was recorded.



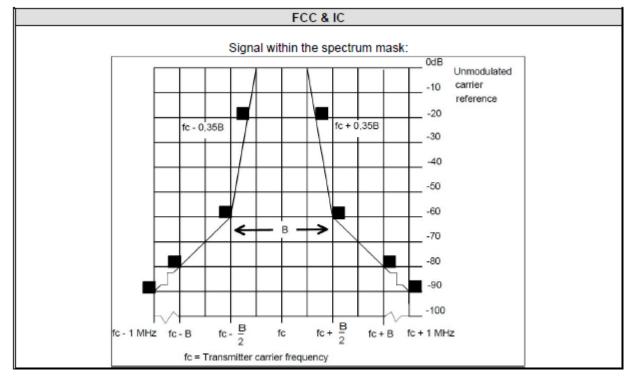


5.7. Necessary bandwidth (BN) for analogue systems

5.7.1.Measurement:

Measurement parameter				
Detector:	Peak - Quasi Peak / Average			
Sweep time:	Auto			
Resolution bandwidth:	1 kHz			
Video bandwidth:	1 kHz			
Span:	Fc-1MHz to fc+1MHz(2MHz)			
Trace mode:	Max Hold			

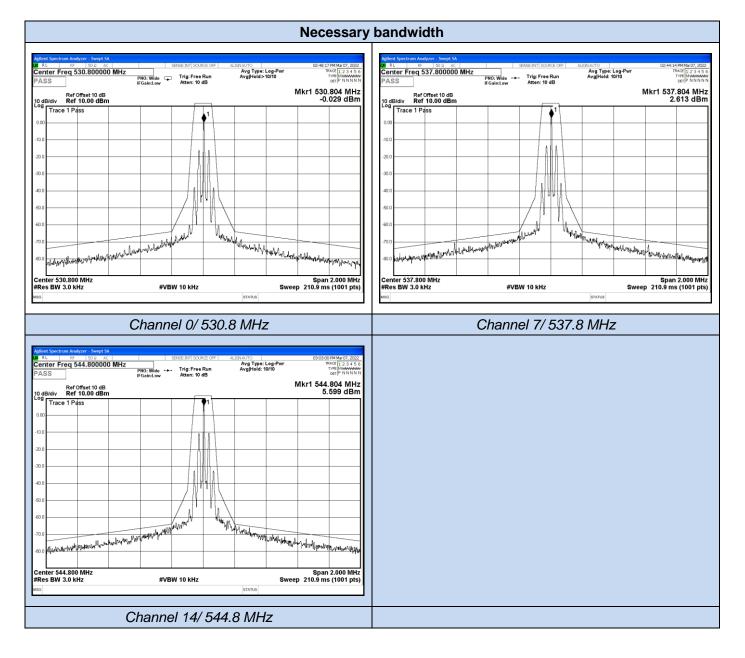
5.7.2.Limits:





Report No.: LCS220221069AEA

5.7.3. Results:





6. LIST OF MEASURING EQUIPMENTS

Item	Equipment	Manufacturer	Model No.	Serial No.	Cal Date	Due Date
1	MXA Signal Analyzer	Agilent	N9020A	MY49100060	2021-11-16	2022-11-15
2	DC Power Supply	Agilent	E3642A	N/A	2021-11-25	2022-11-24
3	Temperature & Humidity Chamber	GUANGZHOU GOGNWEN	GDS-100	70932	2021-10-07	2022-10-06
4	EMI Test Software	AUDIX	E3	/	N/A	N/A
5	3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	2021-06-21	2022-06-20
6	Positioning Controller	MF	MF7082	MF78020803	2021-06-21	2022-06-20
7	Active Loop Antenna	SCHWARZBECK	FMZB 1519B	00005	2021-07-25	2024-07-24
8	By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-07-25	2024-07-24
9	Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-07-01	2024-06-30
10	EMI Test Receiver	R&S	ESR 7	101181	2021-06-21	2022-06-20
11	RS SPECTRUM ANALYZER	R&S	FSP40	100503	2021-11-16	2022-11-15
12	Broadband Preamplifier	/	BP-01M18G	P190501	2021-06-21	2022-06-20
13	EMI Test Receiver	R&S	ESPI	101840	2021-06-21	2022-06-20
14	Artificial Mains	R&S	ENV216	101288	2021-06-21	2022-06-20
15	10dB Attenuator	SCHWARZBECK	MTS-IMP-136	261115-001-0032	2021-06-21	2022-06-20
16	EMI Test Software	Farad	EZ	/	N/A	N/A



7. TEST SETUP PHOTOGRAPHS OF EUT

Please refer to separated files for Test Setup Photos of the EUT.

8. EXTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for External Photos of the EUT.

9. INTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for Internal Photos of the EUT.

-----THE END OF REPORT------