TEST REPORT

FCC Part 27

Report Reference No.:	**HK2304031237-8E**
FCC ID :	**2AVKP-BF-A50G**

Compiled by (position+printed name+signature)..:	File administrators Gary Qian
Supervised by (position+printed name+signature)..:	Technique principal Eden Hu
Approved by (position+printed name+signature)..:	Manager Jason Zhou
Date of issue.....:	Apr. 14, 2023

Testing Laboratory Name .....:	**Shenzhen HUAK Testing Technology Co., Ltd.**
Address.....:	1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Applicant's name.....:	**SHENZHEN BOVISION TECHNOLOGY CO.,LTD.**
Address.....:	2nd floor, building G, no. 8, shangxue industrial park, bantian street, longgang district, shenzhen, China

Test specification ..... **:**	
Standard ..... :	**FCC Part 27**

Test item description .....:	Solar 4G LTE Cellular Security Camera
Trade Mark .....:	N/A
Manufacturer.....:	**SHENZHEN BOVISION TECHNOLOGY CO.,LTD.**
Model/Type reference.....:	BF-A50G
Listed Models .....:	BF-A40G, BF-A60G, BF-A70G, BF-A80G, BF-B10G, BF-B20G, BF-B30G, BF-B40G, BF-B50G, BF-B60G, BF-B70G, BF-B80G, S2-4G, C20, C20US, C20EU, C20JP, C20AU, CA-6000C-4G, CA-6100C-4G
Ratings.....:	DC 5V from Type-C or 3.7V from Battery
Modulation .....:	QPSK, 16QAM
Hardware version .....:	V1.0
Software version .....:	V1.0
Frequency.....	LTE Band 71: 663MHz - 698 MHz
Result.....:	**PASS**

TESTREPORT

Test Report No. :	HK2304031237-8E	Apr. 14, 2023 Date of issue

Equipment under Test	:	Solar 4G LTE Cellular Security Camera
Model /Type	:	BF-A50G
Listed Models	:	BF-A40G, BF-A60G, BF-A70G, BF-A80G, BF-B10G, BF-B20G, BF-B30G, BF-B40G, BF-B50G, BF-B60G, BF-B70G, BF-B80G, S2-4G, C20, C20US, C20EU, C20JP, C20AU, CA-6000C-4G, CA-6100C-4G
Model Difference:		All model's the function, software and electric circuit are the same, only model named different. Test sample model: BF-A50G.
Applicant	:	**SHENZHEN BOVISION TECHNOLOGY CO.,LTD.**
Address	:	2nd floor, building G, no. 8, shangxue industrial park, bantian street, longgang district, shenzhen, China
Manufacturer	:	**SHENZHEN BOVISION TECHNOLOGY CO.,LTD.**
Address	:	2nd floor, building G, no. 8, shangxue industrial park, bantian street, longgang district, shenzhen, China

Test result	Pass

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.

Contents

1 SUMMARY

1.1 TEST STANDARDS

The tests were performed according to following standards:
FCC Part 27 : MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES
TIA/EIA 603 D June 2010:Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.
47 CFR FCC Part 15 Subpart B: - Unintentional Radiators
FCC Part 2: FREQUENCY ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REG-ULATIONS
KDB971168 D01 v03r01: MEASUREMENT GUIDANCE FOR CERTIFICATION OF LICENSED DIGITAL TRANSMITTERS

1.2 Test Description

Test Item	FCC /IC Rule No.	Result
RF Output Power	Part 2.1046 Part 27.50(c)(10)	Pass
Peak-to-Average Ratio	Part 2.1046	Compliance *
99% & -26 dB Occupied Bandwidth	Part 2.1049	Compliance *
Spurious Emissions at Antenna Terminal	Part 2.1051 Part 27.53(g)	Compliance *
Field Strength of Spurious Radiation	Part 2.1053 Part 27.53(g)	Pass
Out of band emission, Band Edge	Part 2.1051 Part 27.53(g)	Compliance *
Frequency stability	Part 2.1055 Part 27.54	Compliance *
NOTE 1:For theverdict, the“N/A”denotes“not applicable”, the“N/T”denotes “nottested”, the “ compliance *” Test data refers to FCC ID: XMR201909EC25AFX, and report number is: R1907A0408-R3V1.		

1.3 Information of the Test Laboratory

Shenzhen HUAK Testing Technology Co., Ltd.
Add.: 1-2/F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

Testing Laboratory Authorization:

A2LA Accreditation Code is 4781.01.
FCC Designation Number is CN1229.
Canada IC CAB identifier is CN0045.
CNAS Registration Number is L9589.

1.4 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 Shenzhen HUAK Testing Technology Co., Ltd.. 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.

Hereafter the best measurement capability for Shenzhen HUAK Testing Technology Co., Ltd.

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	Above 1GHz	4.32dB	(1)
Conducted Disturbance	0.15~30MHz	3.20dB	(1)

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

2 GENERAL INFORMATION

2.1 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2 Description of Test Modes

The EUT has been tested under typical operating condition. The CMW500 used to control the EUT staying in continuous transmitting and receiving mode for testing. Regards to the frequency band operation: the lowest、middle and highest frequency of channel were selected to perform the test, then shown on this report.

Note:

1. For the ERP/EIRP and radiated emission test, every axis (X, Y, Z) was verified, and show the worst resulton this report.
2. Test method and refer to 3GPP TS136521.

2.3 Test frequency list

TX Channel Bandwidth	Frequency (MHz)	channel
5 MHz	665.5	133147
	680.5	133297
	695.5	133447
10 MHz	668	133172
	680.5	133297
	693	133422
15 MHz	670.5	133197
	680.5	133297
	690.5	133397
20 MHz	673	133222
	680.5	133297
	688	133372

2.4 Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
LISN	ENV216	R&S	HKE-059	2023/02/17	2024/02/16
LISN	R&S	ENV216	HKE-002	2023/02/17	2024/02/16
Broadband antenna	Schwarzbeck	VULB 9163	HKE-012	2023/02/17	2024/02/16
Receiver	R&S	ESCI 7	HKE-010	2023/02/17	2024/02/16
Spectrum analyzer	Agilent	N9020A	HKE-048	2023/02/17	2024/02/16
RF automatic control unit	Tonscend	JS0806-2	HKE-060	2023/02/17	2024/02/16
Horn antenna	Schwarzbeck	9120D	HKE-013	2023/02/17	2024/02/16
Loop antenna	Schwarzbeck	FMZB 1519 B	HKE-014	2023/02/17	2024/02/16
Preamplifier	EMCI	EMC051845SE	HKE-015	2023/02/17	2024/02/16
Preamplifier	Agilent	83051A	HKE-016	2023/02/17	2024/02/16
Temperature and humidity meter	Boyang	HTC-1	HKE-075	2023/02/17	2024/02/16
High pass filter unit	Tonscend	JS0806-F	HKE-055	2023/02/17	2024/02/16
RF cable	Times	1-40G	HKE-034	2023/02/17	2024/02/16
Power meter	Agilent	E4419B	HKE-085	2023/02/17	2024/02/16
Power Sensor	Agilent	E9300A	HKE-086	2023/02/17	2024/02/16
Wireless Communication Test Set	R&S	CMW500	HKE-026	2023/02/17	2024/02/16
Wireless Communication Test Set	R&S	CMU200	HKE-029	2023/02/17	2024/02/16
High gain antenna	Schwarzbeck	LB-180400KF	HKE-054	2023/02/17	2024/02/16
Horn antenna	Schwarzbeck	9120D	HKE-135	2023/02/17	2024/02/16
High gain antenna	Schwarzbeck	LB-180400KF	HKE-128	2023/02/17	2024/02/16
Broadband antenna	Schwarzbeck	VULB 9163	HKE-087	2023/02/17	2024/02/16
Signal generator	Agilent	E4433B	HKE-120	2023/02/17	2024/02/16
Signal generator	Agilent	E4421B	HKE-121	2023/02/17	2024/02/16

2.5 Modifications

No modifications were implemented to meet testing criteria.

3 TEST CONDITIONS AND RESULTS

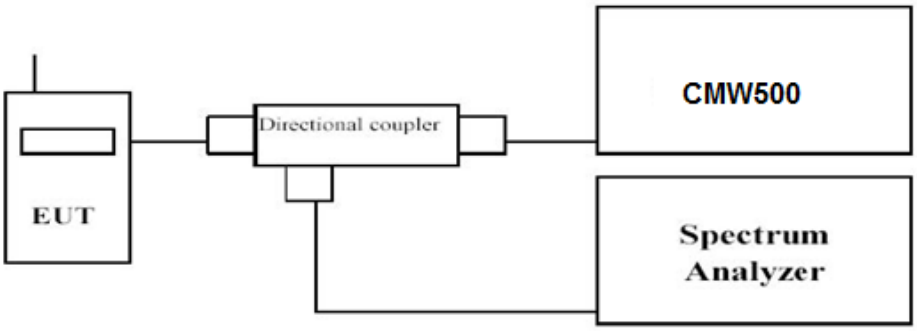
3.1 Output Power

LIMIT

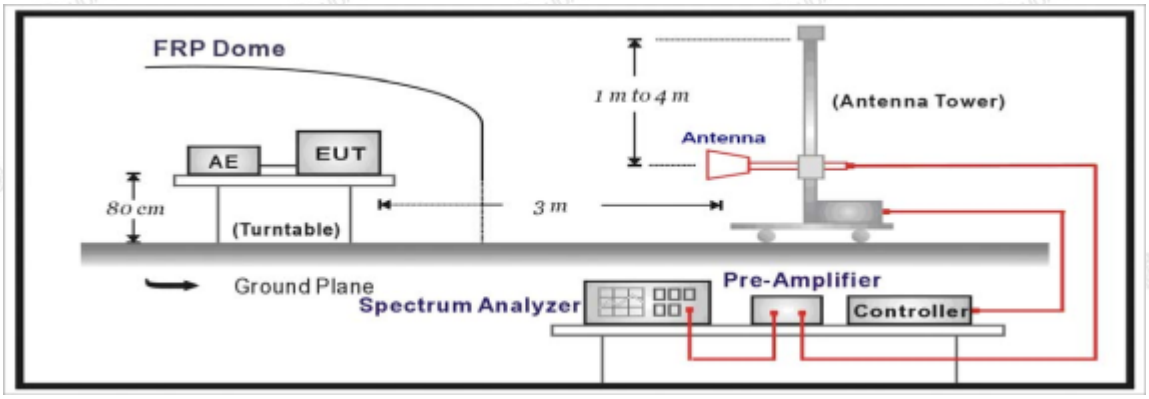
Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are FCC limited to 3 watts ERP."IC limited to 5 watts ERP."

TEST CONFIGURATION

Conducted Power Measurement



Radiated Power Measurement:



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603D

Conducted Power Measurement:

a) Place the EUT on a bench and set it in transmitting mode.
b) Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
c) EUT Communicate with CMW500, then select a channel for testing.
d) Add a correction factor to the display of spectrum, and then test.

Radiated Power Measurement:

a. The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
b. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to thefrequency of the transmitter
c. The output of the test antenna shall be connected to the measuring receiver.
d. The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
e. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.

f. The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
g. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
h. The maximum signal level detected by the measuring receiver shall be noted.
i. The transmitter shall be replaced by a substitution antenna.
j. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
k. The substitution antenna shall be connected to a calibrated signal generator.
l. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
m. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
n. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
o. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
p. The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
q. Test site anechoic chamber refer to ANSI C63.4.

TEST RESULTS

Test data refers to FCC ID: XMR201909EC25AFX, and report number is: R1907A0408-R3V1.

Radiated Measurement:

Remark:

1. *We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 71; recorded worst case for each Channel Bandwidth of LTE FDD Band 71.*
2. *EIRP=P_{Mea}(dBm)-P_{cl}(dB)+P_{Ag}(dB)+G_a(dBi)*
3. *ERP = EIRP – 2.15dBi as EIRP by subtracting the gain of the dipole.*
4. *Margin= Limit-ERP*

LTE FDD Band 71_Channel Bandwidth 5MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Correction (dB)	P_{Ag} (dB)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dBm)	Polarization
665.5	-17.8	2.38	8.23	2.15	36.7	22.6	24.75	34.77	12.17	V
680.5	-18.5	2.4	8.29	2.15	36.7	21.94	24.09	34.77	12.83	V
695.5	-17.93	2.43	8.28	2.15	36.7	22.47	24.62	34.77	12.3	V
665.5	-18.97	2.38	8.23	2.15	36.7	21.43	23.58	34.77	13.34	H
680.5	-17.4	2.4	8.29	2.15	36.7	23.04	25.19	34.77	11.73	H
695.5	-17.94	2.43	8.28	2.15	36.7	22.46	24.61	34.77	12.31	H

LTE FDD Band 71_Channel Bandwidth 10MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Correction (dB)	P_{Ag} (dB)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dBm)	Polarization
668	-15.3	2.38	8.23	2.15	36.7	25.1	27.25	34.77	7.52	V
680.5	-17.16	2.4	8.29	2.15	36.7	23.28	25.43	34.77	11.49	V
693	-17.11	2.43	8.28	2.15	36.7	23.29	25.44	34.77	11.48	V
668	-18.12	2.38	8.23	2.15	36.7	22.28	24.43	34.77	12.49	H
680.5	-17.72	2.4	8.29	2.15	36.7	22.72	24.87	34.77	12.05	H
693	-18.46	2.43	8.28	2.15	36.7	21.94	24.09	34.77	12.83	H

LTE FDD Band 71_Channel Bandwidth 15MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Correction (dB)	P_{Ag} (dB)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dBm)	Polarization
670.5	-17.29	2.38	8.23	2.15	36.7	23.11	25.26	34.77	11.66	V
680.5	-17.94	2.4	8.29	2.15	36.7	22.5	24.65	34.77	12.27	V
690.5	-16.95	2.43	8.28	2.15	36.7	23.45	25.6	34.77	11.32	V
670.5	-17.75	2.38	8.23	2.15	36.7	22.65	24.8	34.77	12.12	H
680.5	-17.15	2.4	8.29	2.15	36.7	23.29	25.44	34.77	11.48	H
690.5	-17.58	2.43	8.28	2.15	36.7	22.82	24.97	34.77	11.95	H

LTE FDD Band 71_Channel Bandwidth 20MHz_QPSK

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Correction (dB)	P_{Ag} (dB)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dBm)	Polarization
673	-17	2.38	8.23	2.15	36.7	23.4	25.55	34.77	11.37	V
680.5	-17.56	2.4	8.29	2.15	36.7	22.88	25.03	34.77	11.89	V
688	-17.26	2.43	8.28	2.15	36.7	23.14	25.29	34.77	11.63	V
673	-18.08	2.38	8.23	2.15	36.7	22.32	24.47	34.77	12.45	H
680.5	-18.13	2.4	8.29	2.15	36.7	22.31	24.46	34.77	12.46	H
688	-17.54	2.43	8.28	2.15	36.7	22.86	25.01	34.77	11.91	H

LTE FDD Band 71_Channel Bandwidth 5MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Correction (dB)	P_{Ag} (dB)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dBm)	Polarization
665.5	-18.3	2.38	8.23	2.15	36.7	22.1	24.25	34.77	12.67	V
680.5	-18.22	2.4	8.29	2.15	36.7	22.22	24.37	34.77	12.55	V
695.5	-18.12	2.43	8.28	2.15	36.7	22.28	24.43	34.77	12.49	V
665.5	-18.12	2.38	8.23	2.15	36.7	22.28	24.43	34.77	12.49	H
680.5	-17.39	2.4	8.29	2.15	36.7	23.05	25.2	34.77	11.72	H
695.5	-17.76	2.43	8.28	2.15	36.7	22.64	24.79	34.77	12.13	H

LTE FDD Band 71_Channel Bandwidth 10MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Correction (dB)	P_{Ag} (dB)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dBm)	Polarization
668	-17.83	2.38	8.23	2.15	36.7	22.57	24.72	34.77	12.2	V
680.5	-17.7	2.4	8.29	2.15	36.7	22.74	24.89	34.77	12.03	V
693	-17.47	2.43	8.28	2.15	36.7	22.93	25.08	34.77	11.84	V
668	-18.18	2.38	8.23	2.15	36.7	22.22	24.37	34.77	12.55	H
680.5	-18.01	2.4	8.29	2.15	36.7	22.43	24.58	34.77	12.34	H
693	-18.52	2.43	8.28	2.15	36.7	21.88	24.03	34.77	12.89	H

LTE FDD Band 71_Channel Bandwidth 15MHz_16QAM

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Correction (dB)	P_{Ag} (dB)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dBm)	Polarization
670.5	-18.45	2.38	8.23	2.15	36.7	21.95	24.1	34.77	12.82	V
680.5	-18.18	2.4	8.29	2.15	36.7	22.26	24.41	34.77	12.51	V
690.5	-18.2	2.43	8.28	2.15	36.7	22.2	24.35	34.77	12.57	V
670.5	-18.1	2.38	8.23	2.15	36.7	22.3	24.45	34.77	12.47	H
680.5	-17.72	2.4	8.29	2.15	36.7	22.72	24.87	34.77	12.05	H
690.5	-18.3	2.43	8.28	2.15	36.7	22.1	24.25	34.77	12.67	H

LTE FDD Band 71_Channel Bandwidth 20MHz_16QAM

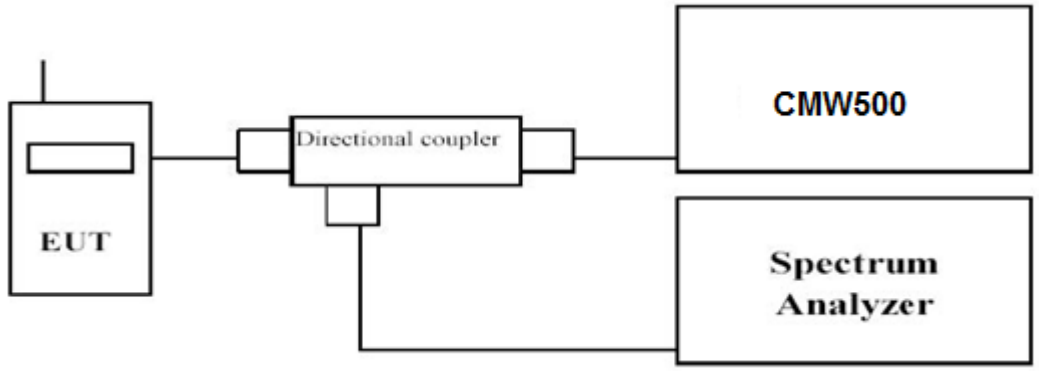
Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	Correction (dB)	P_{Ag} (dB)	ERP (dBm)	EIRP (dBm)	Limit (dBm)	Margin (dBm)	Polarization
673	-17.43	2.38	8.23	2.15	36.7	22.97	25.12	34.77	11.8	V
680.5	-18.08	2.4	8.29	2.15	36.7	22.36	24.51	34.77	12.41	V
688	-17.74	2.43	8.28	2.15	36.7	22.66	24.81	34.77	12.11	V
673	-18.75	2.38	8.23	2.15	36.7	21.65	23.8	34.77	13.12	H
680.5	-17.8	2.4	8.29	2.15	36.7	22.64	24.79	34.77	12.13	H
688	-17.56	2.43	8.28	2.15	36.7	22.84	24.99	34.77	11.93	H

3.3 Peak-to-Average Ratio (PAR)

LIMIT

The Peak-to-Average Ratio (PAR) of the transmission may not exceed 13 dB.

TEST CONFIGURATION



TEST PROCEDURE

1. Refer to instrument's analyzer instruction manual for details on how to use the power statistics/CCDF function;
2. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
3. Set the number of counts to a value that stabilizes the measured CCDF curve;
4. Set the measurement interval as follows:
   1). for continuous transmissions, set to 1 ms,
   2). for burst transmissions, employ an external trigger that is synchronized with the EUT burst timing sequence, or use the internal burst trigger with a trigger level that allows the burst to stabilize and set the measurement interval to a time that is less than or equal to the burst duration.
5. Record the maximum PAPR level associated with a probability of 0.1%.

TEST RESULTS

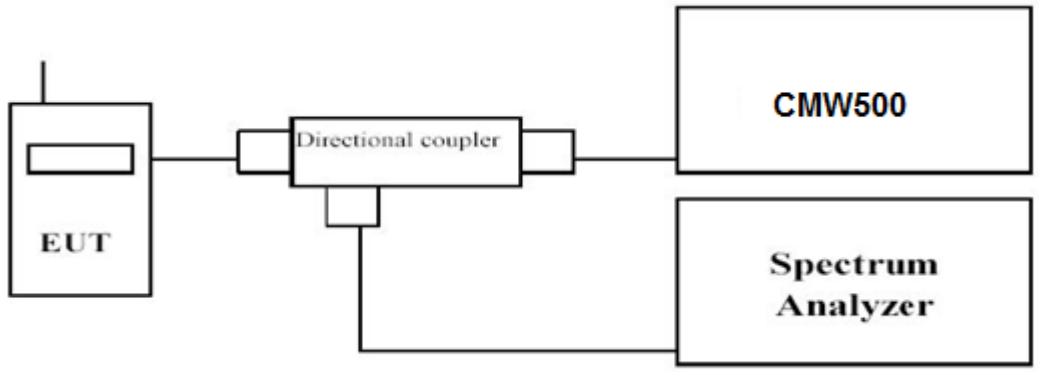
Test data refers to FCC ID: XMR201909EC25AFX, and report number is: R1907A0408-R3V1.

3.4 Occupied Bandwidth and Emission Bandwidth

LIMIT

N/A

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at low, middle and high channel in each band. The -26dBc Emission bandwidth was also measured and recorded.
Set RBW was set to about 1% of emission BW, VBW≥3 times RBW.
-26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

TEST RESULTS

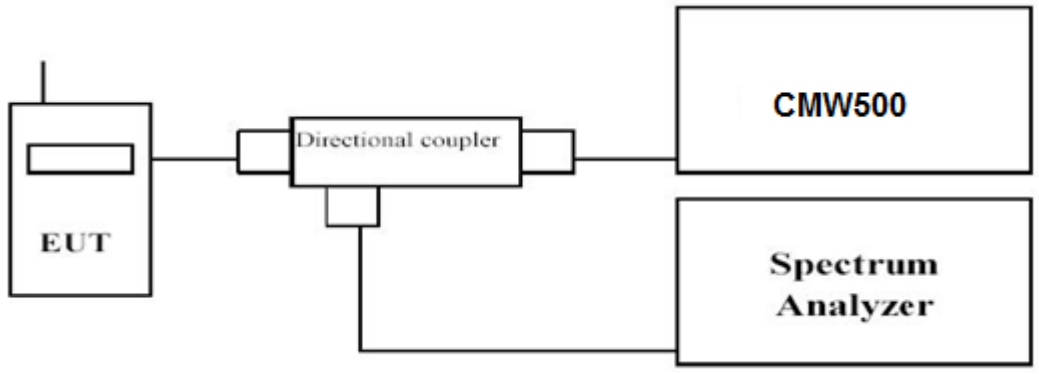
Test data refers to FCC ID: XMR201909EC25AFX, and report number is: R1907A0408-R3V1.

3.5 Band Edge compliance

LIMIT

that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.
The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

TEST CONFIGURATION



TEST PROCEDURE

1. The transmitter output port was connected to base station.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator, the path loss was compensated to the results for each measurement.
3. Set EUT at maximum power through base station.
4. Select lowest and highest channels for each band and different modulation.
5. Measure Band edge using RMS (Average) detector by spectrum

TEST RESULTS

Test data refers to FCC ID: XMR201909EC25AFX, and report number is: R1907A0408-R3V1.

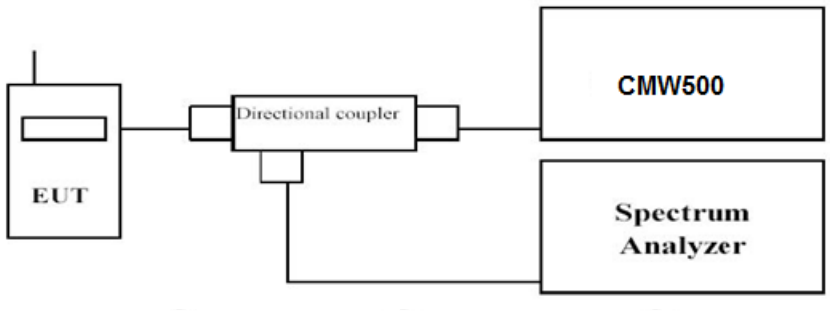
3.6 Spurious Emission

LIMIT

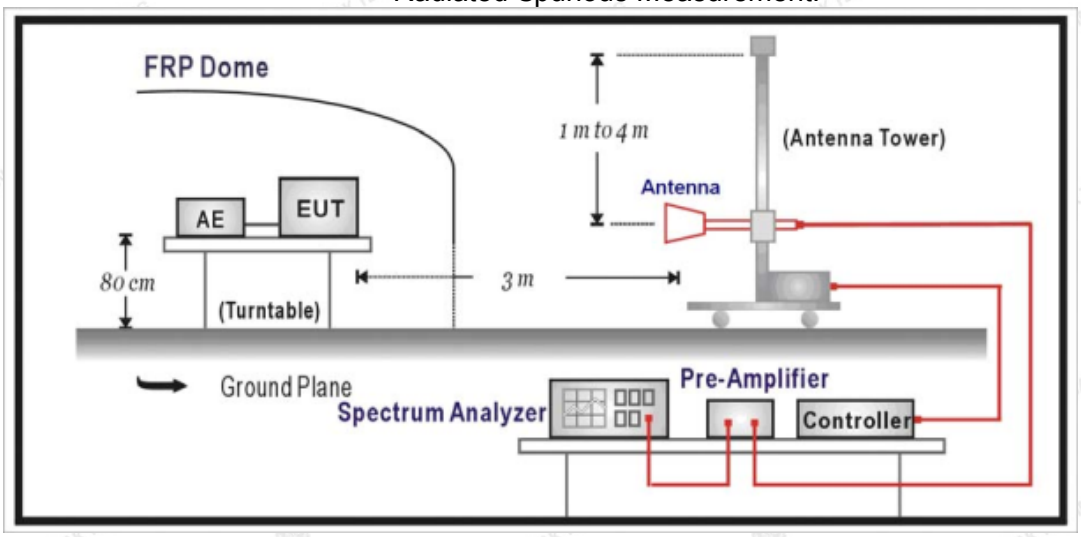
that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.
The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

TEST CONFIGURATION

Conducted Spurious Measurement:



Radiated Spurious Measurement:



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603D

Conducted Spurious Measurement:

a. Place the EUT on a bench and set it in transmitting mode.
b. Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
c. EUT Communicate with CMW500, then select a channel for testing.
d. Add a correction factor to the display of spectrum, and then test.
e. The resolution bandwidth of the spectrum analyzer was set sufficient scans were taken to show the out of band Emission if any up to10th harmonic.
f. Please refer to following tables for test antenna conducted emissions.

g.

Working Frequency	Sub range (GHz)	RBW	VBW	Sweep time (s)
LTE FDD Band 71	0.03~26.5	1 MHz	10MHz	Auto

Radiated Spurious Measurement:

a. The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
b. The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
c. The output of the test antenna shall be connected to the measuring receiver.
d. The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
e. The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
f. The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
g. The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
h. The maximum signal level detected by the measuring receiver shall be noted.
i. The transmitter shall be replaced by a substitution antenna.
j. The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
k. The substitution antenna shall be connected to a calibrated signal generator.
l. If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
m. The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
n. The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
o. The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
p. The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
q. The resolution bandwidth of the spectrum analyzer was set at 100 kHz for Part 22 and 1MHz for Part 24. The frequency range was checked up to 10th harmonic.
r. Test site anechoic chamber refer to ANSI C63.

TEST RESULTS

Test data refers to FCC ID: XMR201909EC25AFX, and report number is: R1907A0408-R3V1.

Radiated Measurement:

Remark:

1. *We were tested all RB Configuration refer 3GPP TS136 521 for each Channel Bandwidth of LTE FDD Band 71; recorded worst case for each Channel Bandwidth of LTE FDD Band 71.*
2. *EIRP=P_{Mea}(dBm)-P_{cl}(dB) +G_a(dBi)*
3. *We were not recorded other points as values lower than limits.*
4. *Margin = Limit - EIRP*

LTE FDD Band 71_Channel Bandwidth 5MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1331	-47.02	2.86	3.00	7.25	-44.78	-13.00	31.78	H
1996.5	-43.92	2.94	3.00	9.53	-39.48	-13.00	26.48	H
1331	-45.48	2.86	3.00	7.25	-43.24	-13.00	30.24	V
1996.5	-49.65	2.94	3.00	9.53	-45.21	-13.00	32.21	V

LTE FDD Band 71_Channel Bandwidth 5MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1361	-47.66	2.86	3.00	7.25	-45.42	-13.00	32.42	H
2041.5	-46.11	2.94	3.00	9.53	-41.67	-13.00	28.67	H
1361	-47.07	2.86	3.00	7.25	-44.83	-13.00	31.83	V
2041.5	-48.46	2.94	3.00	9.53	-44.02	-13.00	31.02	V

LTE FDD Band 71_Channel Bandwidth 5MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1391	-44.26	2.86	3.00	7.82	-41.45	-13.00	28.45	H
2086.5	-44.49	2.94	3.00	9.35	-40.23	-13.00	27.23	H
1391	-45.27	2.86	3.00	7.82	-42.46	-13.00	29.46	V
2086.5	-48.96	2.94	3.00	9.35	-44.7	-13.00	31.7	V

LTE FDD Band 71_Channel Bandwidth 10MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1336	-46.17	2.86	3.00	7.25	-43.93	-13.00	30.93	H
2004	-44.91	2.94	3.00	9.53	-40.47	-13.00	27.47	H
1336	-47.67	2.86	3.00	7.25	-45.43	-13.00	32.43	V
2004	-47.55	2.94	3.00	9.53	-43.11	-13.00	30.11	V

LTE FDD Band 71_Channel Bandwidth 10MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1361	-46.62	2.86	3.00	7.25	-44.38	-13.00	31.38	H
2041.5	-43.51	2.94	3.00	9.53	-39.07	-13.00	26.07	H
1361	-45.2	2.86	3.00	7.25	-42.96	-13.00	29.96	V
2041.5	-47.74	2.94	3.00	9.53	-43.3	-13.00	30.3	V

LTE FDD Band 71_Channel Bandwidth 10MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1386	-44.38	2.86	3.00	7.82	-41.57	-13.00	28.57	H
2079	-45.44	2.94	3.00	9.35	-41.18	-13.00	28.18	H
1386	-44.49	2.86	3.00	7.82	-41.68	-13.00	28.68	V
2079	-49.49	2.94	3.00	9.35	-45.23	-13.00	32.23	V

LTE FDD Band 71_Channel Bandwidth 15MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1341	-45.65	2.86	3.00	7.25	-43.41	-13.00	30.41	H
2011.5	-46.74	2.94	3.00	9.53	-42.3	-13.00	29.3	H
1341	-45.17	2.86	3.00	7.25	-42.93	-13.00	29.93	V
2011.5	-49.67	2.94	3.00	9.53	-45.23	-13.00	32.23	V

LTE FDD Band 71_Channel Bandwidth 15MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1361	-45.92	2.86	3.00	7.25	-43.68	-13.00	30.68	H
2041.5	-44.49	2.94	3.00	9.53	-40.05	-13.00	27.05	H
1361	-47.35	2.86	3.00	7.25	-45.11	-13.00	32.11	V
2041.5	-47.02	2.94	3.00	9.53	-42.58	-13.00	29.58	V

LTE FDD Band 71_Channel Bandwidth 15MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1381	-46.24	2.86	3.00	7.82	-43.43	-13.00	30.43	H
2071.5	-46.16	2.94	3.00	9.35	-41.9	-13.00	28.9	H
1381	-46	2.86	3.00	7.82	-43.19	-13.00	30.19	V
2071.5	-46.9	2.94	3.00	9.35	-42.64	-13.00	29.64	V

LTE FDD Band 71_Channel Bandwidth 20MHz_QPSK_ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1346	-46.69	2.86	3.00	7.25	-44.45	-13.00	31.45	H
2019	-45.17	2.94	3.00	9.53	-40.73	-13.00	27.73	H
1346	-45.7	2.86	3.00	7.25	-43.46	-13.00	30.46	V
2019	-49.36	2.94	3.00	9.53	-44.92	-13.00	31.92	V

LTE FDD Band 71_Channel Bandwidth 20MHz_QPSK_ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1361	-47.38	2.86	3.00	7.25	-45.14	-13.00	32.14	H
2041.5	-45.47	2.94	3.00	9.53	-41.03	-13.00	28.03	H
1361	-47.55	2.86	3.00	7.25	-45.31	-13.00	32.31	V
2041.5	-48.04	2.94	3.00	9.53	-43.6	-13.00	30.6	V

LTE FDD Band 71_Channel Bandwidth 20MHz_QPSK_ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1376	-46.4	2.86	3.00	7.82	-43.59	-13.00	30.59	H
2064	-45.4	2.94	3.00	9.35	-41.14	-13.00	28.14	H
1376	-45.85	2.86	3.00	7.82	-43.04	-13.00	30.04	V
2064	-48.6	2.94	3.00	9.35	-44.34	-13.00	31.34	V

LTE FDD Band 71_Channel Bandwidth 5MHz_16QAM _ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1331	-46.46	2.86	3.00	7.25	-44.22	-13.00	31.22	H
1996.5	-46.65	2.94	3.00	9.53	-42.21	-13.00	29.21	H
1331	-47.72	2.86	3.00	7.25	-45.48	-13.00	32.48	V
1996.5	-50.3	2.94	3.00	9.53	-45.86	-13.00	32.86	V

LTE FDD Band 71_Channel Bandwidth 5MHz_16QAM _ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1361	-45.13	2.86	3.00	7.25	-42.89	-13.00	29.89	H
2041.5	-43.79	2.94	3.00	9.53	-39.35	-13.00	26.35	H
1361	-44.73	2.86	3.00	7.25	-42.49	-13.00	29.49	V
2041.5	-48.2	2.94	3.00	9.53	-43.76	-13.00	30.76	V

LTE FDD Band 71_Channel Bandwidth 5MHz_16QAM _ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1391	-45.59	2.86	3.00	7.82	-42.78	-13.00	29.78	H
2086.5	-46.06	2.94	3.00	9.35	-41.8	-13.00	28.8	H
1391	-46.43	2.86	3.00	7.82	-43.62	-13.00	30.62	V
2086.5	-48.24	2.94	3.00	9.35	-43.98	-13.00	30.98	V

LTE FDD Band 71_Channel Bandwidth 10MHz_16QAM _ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1336	-46.66	2.86	3.00	7.25	-44.42	-13.00	31.42	H
2004	-45.55	2.94	3.00	9.53	-41.11	-13.00	28.11	H
1336	-47.34	2.86	3.00	7.25	-45.1	-13.00	32.1	V
2004	-48.94	2.94	3.00	9.53	-44.5	-13.00	31.5	V

LTE FDD Band 71_Channel Bandwidth 10MHz_16QAM _ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1361	-46.43	2.86	3.00	7.25	-44.19	-13.00	31.19	H
2041.5	-44.68	2.94	3.00	9.53	-40.24	-13.00	27.24	H
1361	-47.4	2.86	3.00	7.25	-45.16	-13.00	32.16	V
2041.5	-47.48	2.94	3.00	9.53	-43.04	-13.00	30.04	V

LTE FDD Band 71_Channel Bandwidth 10MHz_16QAM _ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1386	-45.72	2.86	3.00	7.82	-42.91	-13.00	29.91	H
2079	-45.33	2.94	3.00	9.35	-41.07	-13.00	28.07	H
1386	-46.93	2.86	3.00	7.82	-44.12	-13.00	31.12	V
2079	-48.59	2.94	3.00	9.35	-44.33	-13.00	31.33	V

LTE FDD Band 71_Channel Bandwidth 15MHz_16QAM _ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1341	-46.67	2.86	3.00	7.25	-44.43	-13.00	31.43	H
2011.5	-44.65	2.94	3.00	9.53	-40.21	-13.00	27.21	H
1341	-45.46	2.86	3.00	7.25	-43.22	-13.00	30.22	V
2011.5	-48.25	2.94	3.00	9.53	-43.81	-13.00	30.81	V

LTE FDD Band 71_Channel Bandwidth 15MHz_16QAM _ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1361	-44.53	2.86	3.00	7.25	-42.29	-13.00	29.29	H
2041.5	-45.5	2.94	3.00	9.53	-41.06	-13.00	28.06	H
1361	-45.8	2.86	3.00	7.25	-43.56	-13.00	30.56	V
2041.5	-47.11	2.94	3.00	9.53	-42.67	-13.00	29.67	V

LTE FDD Band 71_Channel Bandwidth 15MHz_16QAM _ High Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1381	-45.64	2.86	3.00	7.82	-42.83	-13.00	29.83	H
2071.5	-45.75	2.94	3.00	9.35	-41.49	-13.00	28.49	H
1381	-46.7	2.86	3.00	7.82	-43.89	-13.00	30.89	V
2071.5	-47.37	2.94	3.00	9.35	-43.11	-13.00	30.11	V

LTE FDD Band 71_Channel Bandwidth 20MHz_16QAM _ Low Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	Peak EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1346	-47.25	2.86	3.00	7.25	-45.01	-13.00	32.01	H
2019	-44.16	2.94	3.00	9.53	-39.72	-13.00	26.72	H
1346	-47.53	2.86	3.00	7.25	-45.29	-13.00	32.29	V
2019	-47.03	2.94	3.00	9.53	-42.59	-13.00	29.59	V

LTE FDD Band 71_Channel Bandwidth 20MHz_16QAM _ Middle Channel

Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1361	-46.16	2.86	3.00	7.25	-43.92	-13.00	30.92	H
2041.5	-45.11	2.94	3.00	9.53	-40.67	-13.00	27.67	H
1361	-46.61	2.86	3.00	7.25	-44.37	-13.00	31.37	V
2041.5	-50.36	2.94	3.00	9.53	-45.92	-13.00	32.92	V

LTE FDD Band 71_Channel Bandwidth 20MHz_16QAM _ High Channel

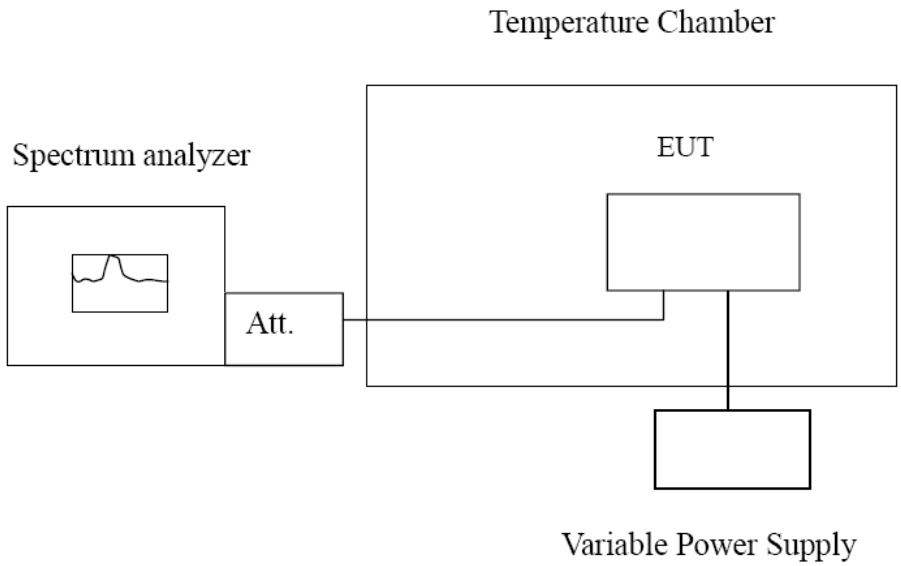
Frequency (MHz)	P_{Mea} (dBm)	P_{cl} (dB)	Diatance	G_a Antenna Gain(dB)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Polarization
1376	-47.13	2.86	3.00	7.82	-44.32	-13.00	31.32	H
2064	-46.08	2.94	3.00	9.35	-41.82	-13.00	28.82	H
1376	-46.24	2.86	3.00	7.82	-43.43	-13.00	30.43	V
2064	-49.14	2.94	3.00	9.35	-44.88	-13.00	31.88	V

3.7 Frequency Stability under Temperature & Voltage Variations

LIMIT

the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation and should not exceed 2.5ppm.

TEST CONFIGURATION



TEST PROCEDURE

The EUT was setup according to EIA/TIA 603D

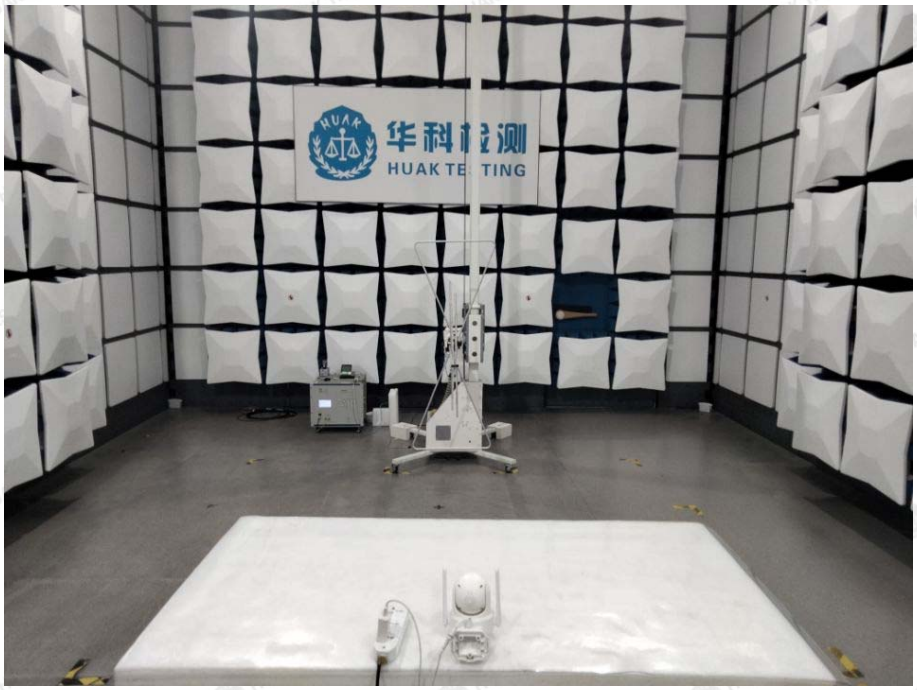
Frequency Stability Under Temperature Variations:
In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a “call mode”. This is accomplished with the use of R&S CMW500 DIGITAL RADIO COMMUNICATION TESTER.
1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30℃.
3. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on middle channel for LTE band 12, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10℃ increments from -30℃ to +50℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1.5 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50℃.
7. With the EUT, powered via nominal voltage, connected to the CMW500 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 ℃ increments from +50℃ to -30℃. Allow at least 1.5 hours at each temperature, unpowered, before making measurements
9. At all temperature levels hold the temperature to +/- 0.5℃ during the measurement procedure.
Frequency Stability Under Voltage Variations:
Set chamber temperature to 20℃. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.
Reduce the input voltage to specify extreme voltage variation (±15%) and endpoint, record the maximum frequency change.

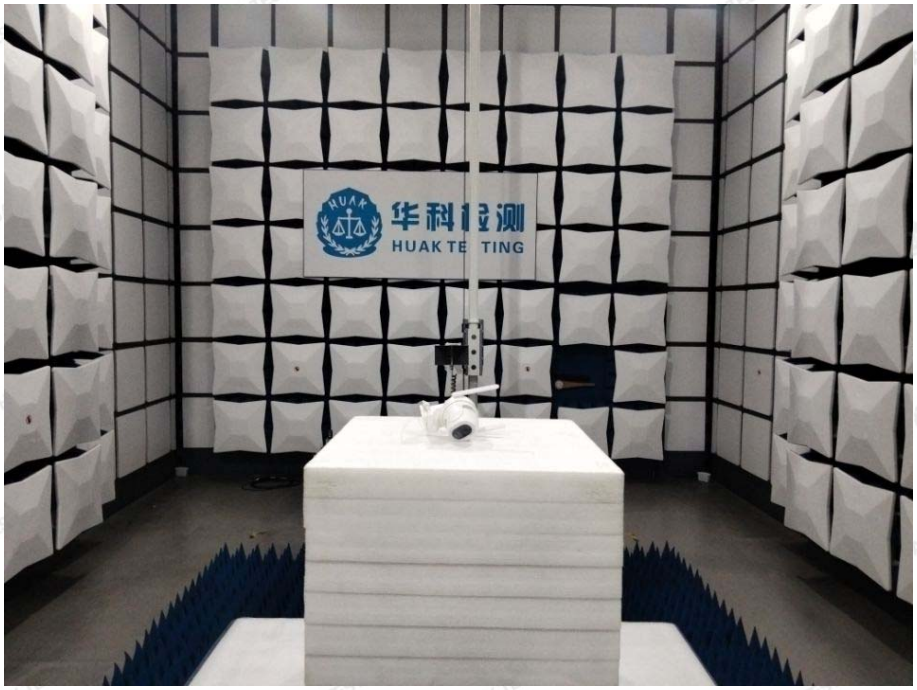
TEST RESULTS

Test data refers to FCC ID: XMR201909EC25AFX, and report number is: R1907A0408-R3V1.

TEL : +86-755 2302 9901 FAX : +86-755 2302 9901 E-mail : service@cer-mark.com
Add: 1-2F., Building B2, Junfeng Zhongcheng Zhizao Innovation Park, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

4 Test Setup Photos of the EUT





5 PHOTOS OF THE EUT

Reference to the report: ANNEX A of external photos and ANNEX B of internal photos

********** End of Report **********

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