



FCC Radio Test Report

FCC ID: 2A22Z-W314

This report concerns: Original Grant

Project No. : 2308C213
Equipment : Botslab PT 4G LTE Cellular Camera
Brand Name : Botslab
Test Model : W314
Series Model : W314lite, W314pro, W314s
Applicant : Botslab, Inc.
Address : 919 North Market Street, Suite 950, Wilmington, New Castle, Delaware, USA
Manufacturer : Botslab, Inc.
Address : 919 North Market Street, Suite 950, Wilmington, New Castle, Delaware, USA
Date of Receipt : Dec. 01, 2023
Date of Test : Dec. 19, 2023 ~ Dec. 21, 2023
Issued Date : Dec. 26, 2023
Report Version : R00
Test Sample : Engineering Sample No.: DG20231201107
Standard(s) : 47 CFR FCC Part 90 Subpart R
 47 CFR FCC Part 2

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

Prepared by : Edward Li
 Edward Li

Approved by : Steven Lu
 Steven Lu

Room 108, Building 2, No. 1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong 523000 China.

Tel: +86-769-8318-3000 Web: www.newbtl.com Service mail: btl_qa@newbtl.com

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with standards traceable to international standard(s) and/or national standard(s).

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and ourselves, the test report shall not be reproduced, except in full, without our written approval.

BTL's laboratory quality assurance procedures are in compliance with the ISO/IEC 17025: 2017 requirements, and accredited by the conformity assessment authorities listed in this test report.

BTL is not responsible for the sampling stage, so the results only apply to the sample as received.

The information, data and test plan are provided by manufacturer which may affect the validity of results, so it is manufacturer's responsibility to ensure that the apparatus meets the essential requirements of applied standards and in all the possible configurations as representative of its intended use.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

Please note that the measurement uncertainty is provided for informational purpose only and are not use in determining the Pass/Fail results.

Table of Contents	Page
REPORT ISSUED HISTORY	4
1 . APPLICABLE STANDARDS	5
2 . SUMMARY OF TEST RESULTS	5
2.1 TEST FACILITY	6
2.2 MEASUREMENT UNCERTAINTY	6
2.3 TEST ENVIRONMENT CONDITIONS	6
3 . GENERAL INFORMATION	7
3.1 GENERAL DESCRIPTION OF EUT	7
3.2 DESCRIPTION OF TEST MODES	8
3.3 BLOCK DIGRAM SHOWING THE CONFIGURATIONOFSYSTEMTESTED	9
3.4 DESCRIPTION OF SUPPORT UNITS	9
4 . TEST RESULT	10
4.1 RADIATED SPURIOUS EMISSIONS MEASUREMENT	10
4.1.1 LIMIT	10
4.1.2 TEST PROCEDURES	10
4.1.3 TEST SETUP LAYOUT	10
4.1.4 TEST DEVIATION	11
4.1.5 TEST RESULTS (9KHZ TO 30MHZ)	11
4.1.6 TEST RESULTS (30MHZ TO 1000MHZ)	11
4.1.7 TEST RESULTS (ABOVE 1000MHZ)	11
5 . LIST OF MEASUREMENT EQUIPMENTS	12
6. EUT TEST PHOTO	13
APPENDIX A - RADIATED SPURIOUS EMISSIONS (9KHZ TO 30MHZ)	16
APPENDIX B - RADIATED SPURIOUS EMISSIONS (30MHZ TO 1000MHZ)	18
APPENDIX C - RADIATED SPURIOUS EMISSIONS (ABOVE 1000MHZ)	20

REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-4-2308C213	R00	Original Report.	Dec. 26, 2023	Valid

1. APPLICABLE STANDARDS

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

ANSI C63.26-2015

The following reference test guidance is not within the scope of accreditation of NVLAP:

ANSI/TIA/EIA-603-E-2016

KDB 971168 D01 Power Meas License Digital Systems v03r01

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

FCC Part 90 Subpart R & Part 2			
Standard(s) Section	Test Item	Judgment	Remark
2.1046 & 90.542 (a)(7)	Effective Radiated Power	PASS	Note (2)
2.1049	Occupied Bandwidth	PASS	Note (2)
2.1053 & 90.543(e)(3)	Conducted Spurious Emissions	PASS	Note (2)
2.1053 & 90.543(e)(3) & 90.543(f)	Radiated Spurious Emissions	PASS	-----
2.1051 & 90.210(n)	Mask Measurements	PASS	Note (2)
-	Peak To Average Ratio	PASS	Note (2)
2.1053 & 90.543(e)(2)(3)	Conducted Band Edge Measurement	PASS	Note (2)
2.1055 & 90.539(e)	Frequency Stability	PASS	Note (2)

Note:

(1) "N/A" denotes test is not applicable in this test report.

(2) The test results please refer to the test report No: CN23AZPG 001.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is at the location of Room 108, Building 2, No. 1, Yile Road, Songshan Lake Zone, Dongguan City, Guangdong 523000.

2.2 MEASUREMENT UNCERTAINTY

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2))

The BTL measurement uncertainty as below table:

A. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	U_i (dB)
SSL-CB01	CISPR	9kHz ~ 30MHz	2.74

Test Site	Method	Measurement Frequency Range	Ant. H / V	U_i (dB)
SSL-CB01	CISPR	30MHz ~ 200MHz	V	4.70
		30MHz ~ 200MHz	H	3.56
		200MHz ~ 1,000MHz	V	4.92
		200MHz ~ 1,000MHz	H	4.54
		1GHz ~ 6GHz	-	4.56
		6GHz ~ 18GHz	-	5.14

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

2.3 TEST ENVIRONMENT CONDITIONS

Test Item	Temperature	Humidity	Test Voltage	Tested By
Radiated Spurious Emissions (9 kHz to 30 MHz)	25°C	60%	DC 3.6V	Brand Duan
Radiated Spurious Emissions (30 MHz to 1000 MHz)	24°C	44 ~ 45%	DC 3.6V	Brand Duan
Radiated Spurious Emissions (Above 1000 MHz)	24°C	44 ~ 45%	DC 3.6V	Brand Duan

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Botslab PT 4G LTE Cellular Camera	
Brand Name	Botslab	
Test Model	W314	
Series Model	W314lite, W314pro, W314s	
Model Difference(s)	Only differ in model name.	
Hardware Version	W314	
Software Version	3.4.23	
Power Source	1# Supplied from battery. Model: 1INR19/66-4 2# Supplied from Type-C port.	
Power Rating	1# DC 3.6V, 9180mAh, 33.1Wh 2# DC 5V	
IMEI No.	868105045956982	
Modulation Type	LTE	Uplink: QPSK,16QAM

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

2. Channel List:

LTE Band 14					
Test Frequency ID	Bandwidth (MHz)	N _{UL}	Frequency of Uplink (MHz)	N _{DL}	Frequency of Downlink (MHz)
Low Range	5	23305	790.5	5305	760.5
	10	23330	793	5330	763
Mid Range	5/10	23330	793	5330	763
High Range	5	23355	795.5	5.55	763.5
	10	23330	793	5330	763

3. Table for Filed Antenna:

Brand	P/N	Antenna Type	Connector	Gain (dBi)	Note
	YJC-6C275-W03	Dipole	XD	0.36	LTE Band 14

Note: The antenna gain is provided by the manufacturer.

3.2 DESCRIPTION OF TEST MODES

Following mode(s) is (were) found to be the worst case(s) and selected for the final test.

LTE BAND 14 MODE					
Test Item	Available Channel	Tested Channel	Channel Bandwidth	Modulation	Mode
Radiated Spurious Emissions	23305 to 23355	23330	5MHz	QPSK	1RB
	23330	23330	10MHz	QPSK	1RB

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATIONOFSYSTEMTESTED



3.4 DESCRIPTION OF SUPPORT UNITS

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.
-	-	-	-	-

Item	Cable Type	Shielded Type	Ferrite Core	Length
-	-	-	-	-

4. TEST RESULT

4.1 RADIATED SPURIOUS EMISSIONS MEASUREMENT

4.1.1 LIMIT

Out of band emissions: 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 emission limit equal to -13dBm.

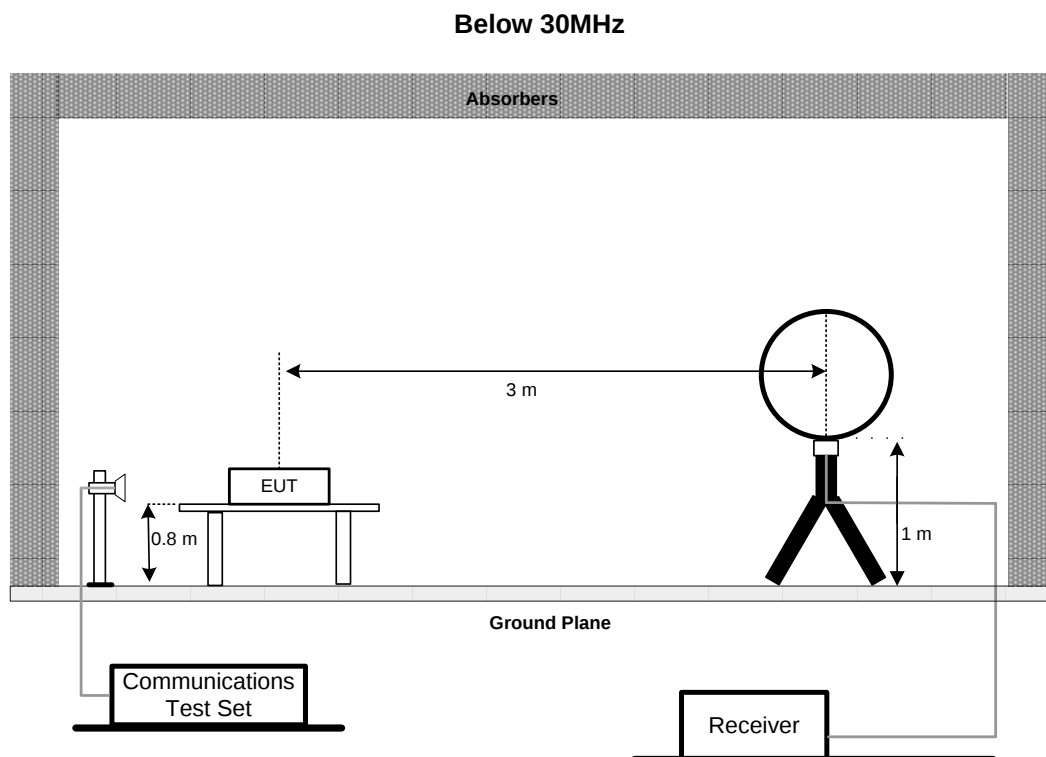
For operations in the 758-775 MHz and 788-805 MHz bands, all emissions including harmonics in the band 1559-1610 MHz shall be limited to -70 dBW/MHz (-40dBm/MHz) equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW (-50dBm) EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

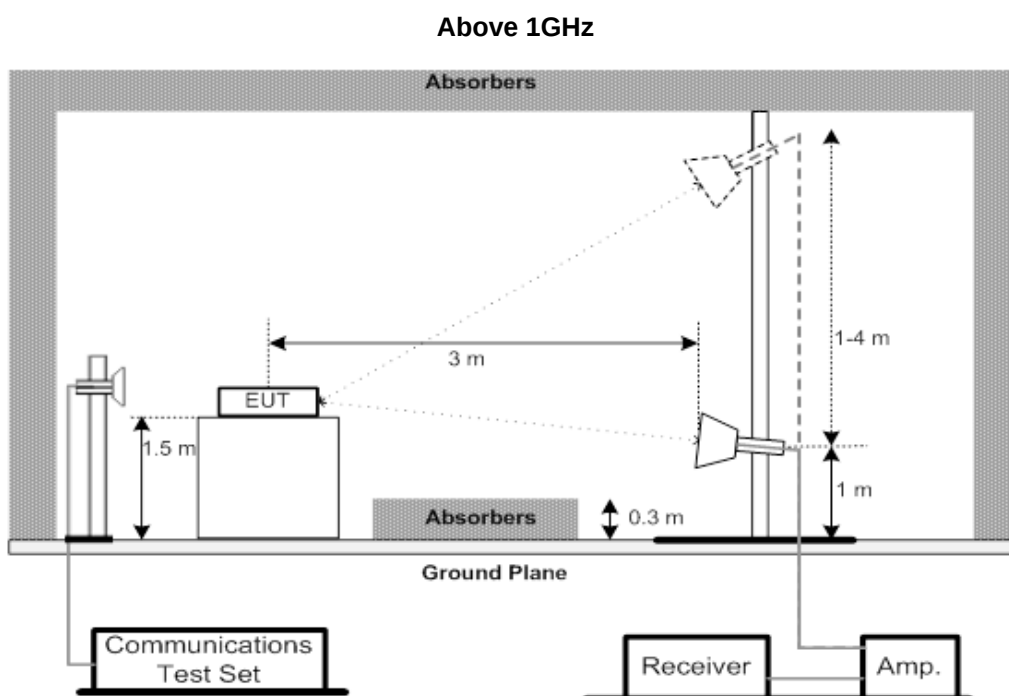
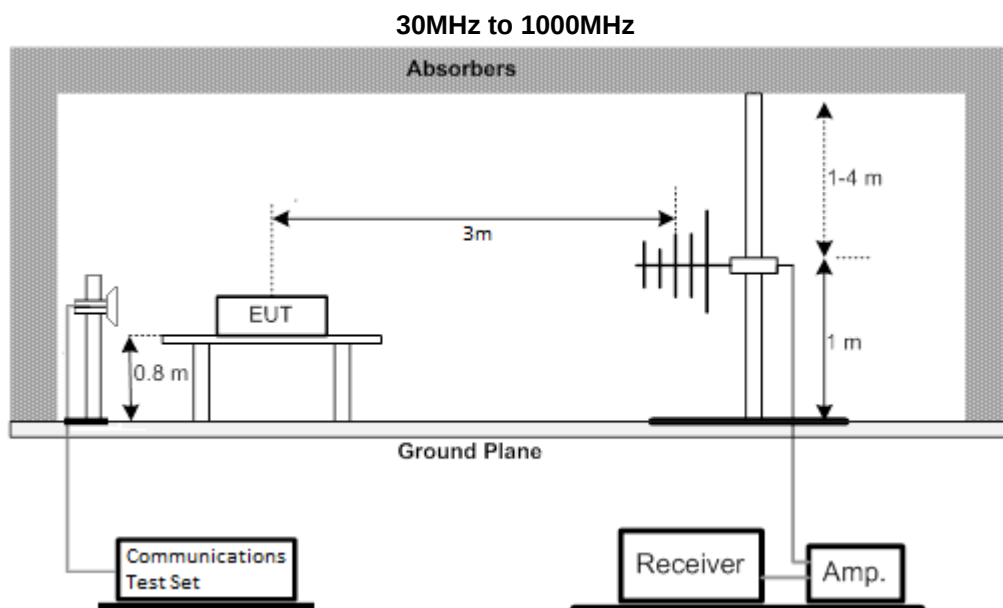
$E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20 \log D + 104.8$; where D is the measurement distance in meters. The emission limit equal to 82.3dB $\mu\text{V/m}$.

4.1.2 TEST PROCEDURES

ANSI C63.26-2015 - Section 5.2.7 & 5.5.

4.1.3 TEST SETUP LAYOUT





4.1.4 TEST DEVIATION

No deviation.

4.1.5 TEST RESULTS (9KHZ TO 30MHZ)

Please refer to the APPENDIX A.

4.1.6 TEST RESULTS (30MHZ TO 1000MHZ)

Please refer to the APPENDIX B.

4.1.7 TEST RESULTS (ABOVE 1000MHZ)

Please refer to the APPENDIX C.

5. LIST OF MEASUREMENT EQUIPMENTS

Radiated Emissions - 9 kHz to 30 MHz

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Active Loop Antenna	Schwarzbeck	FMZB 1513-60	1513-60-025	Apr. 01, 2024
2	MXE EMI Receiver	Keysight	N9038A	MY59050118	Feb. 10, 2024
3	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-3000	N/A	Jun. 08, 2024
4	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-7000	N/A	Jun. 08, 2024
5	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
6	966 Chamber room	TaiHe	9*6*6 (NSA&VSWR)	N/A	Jan. 07, 2024

Radiated Emissions - 30 MHz to 1 GHz

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB9168	01269	May 15, 2024
2	Attenuator	EMC INSTRUMENT	EMCI-N-6-06	AN-N0697	May 15, 2024
3	Preamplifier	EMC INSTRUMENT	EMC001330	980825	Feb. 10, 2024
4	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-2500	N/A	Jun. 08, 2024
5	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-7000	N/A	Jun. 08, 2024
6	Cable	EMC INSTRUMENT	EMCCFD400-NM-NM-3000	N/A	Jun. 08, 2024
7	MXE EMI Receiver	KEYSIGHT	N9038A	MY59050118	Feb. 10, 2024
8	Positioning Controller	MF	MF-7802BS	N/A	N/A
9	Max-Full Antenna Corp	MF	MFA-560BSN	N/A	N/A
10	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
11	966 Chamber room	TaiHe	9*6*6 (NSA&VSWR)	N/A	Jan. 07, 2024

Radiated Emissions - Above 1 GHz

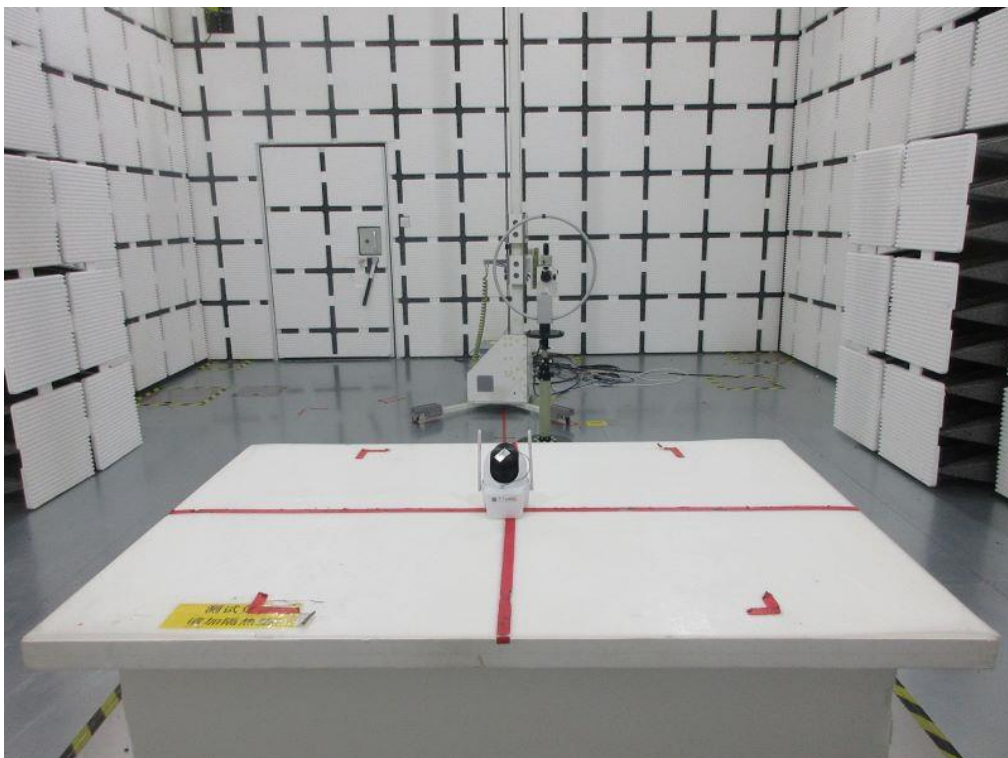
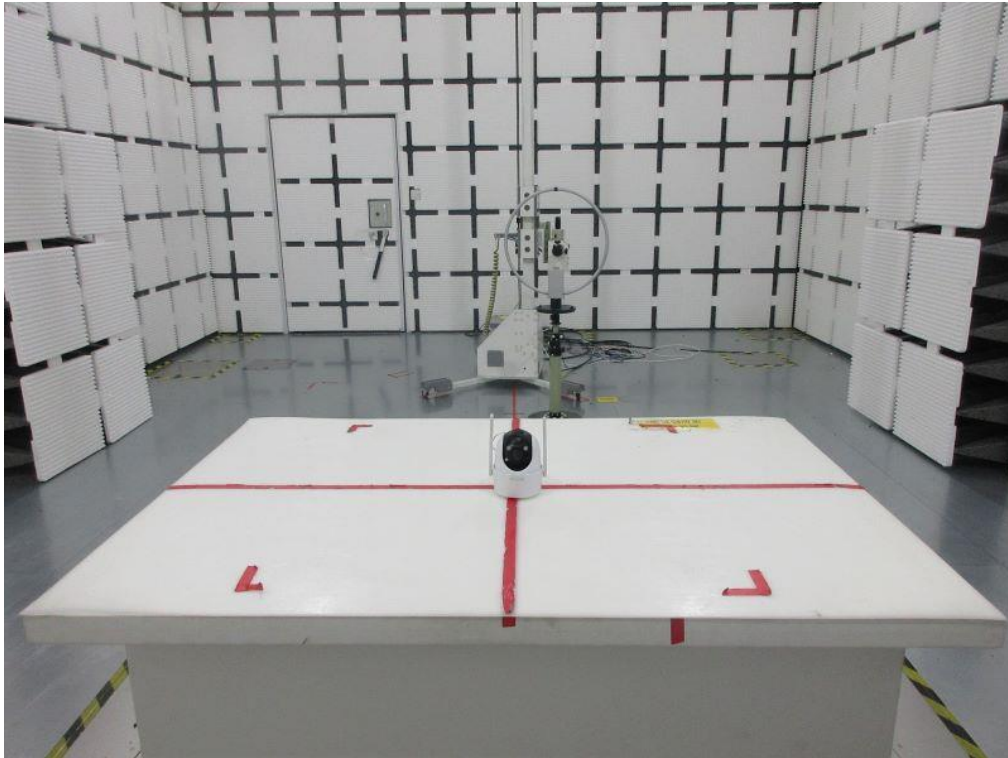
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	MXE EMI Receiver	Keysight	N9038A	MY59050118	Feb. 10, 2024
2	Measurement Software	Farad	EZ-EMC Ver.NB-03A1-01	N/A	N/A
3	Preamplifier	EMC INSTRUMENT	EMC118A45SE	980739	Feb. 10, 2024
4	Cable	EMC INSTRUMENT	EMC104-SM-SM-10000	N/A	Jun. 08, 2024
5	Cable	EMC INSTRUMENT	EMC104-SM-SM-3000	N/A	Jun. 08, 2024
6	Cable	EMC INSTRUMENT	EMC104-SM-SM-800	N/A	Jun. 08, 2024
7	Double Ridged Broadband Horn Antenna	RF SPIN	DRH18-E	210106A18E	Jul. 04, 2024
8	Band Reject Filter	COM-MW	ZHPF6-C3000-18000-174	07213126	Jul. 07, 2024
9	Band Reject Filter	COM-MW	ZHPF6-C1500-10000-1753	07213128	Jul. 07, 2024
10	966 Chamber room	TaiHe	9*6*6 (NSA&VSWR)	N/A	Jan. 07, 2024

Remark: "N/A" denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

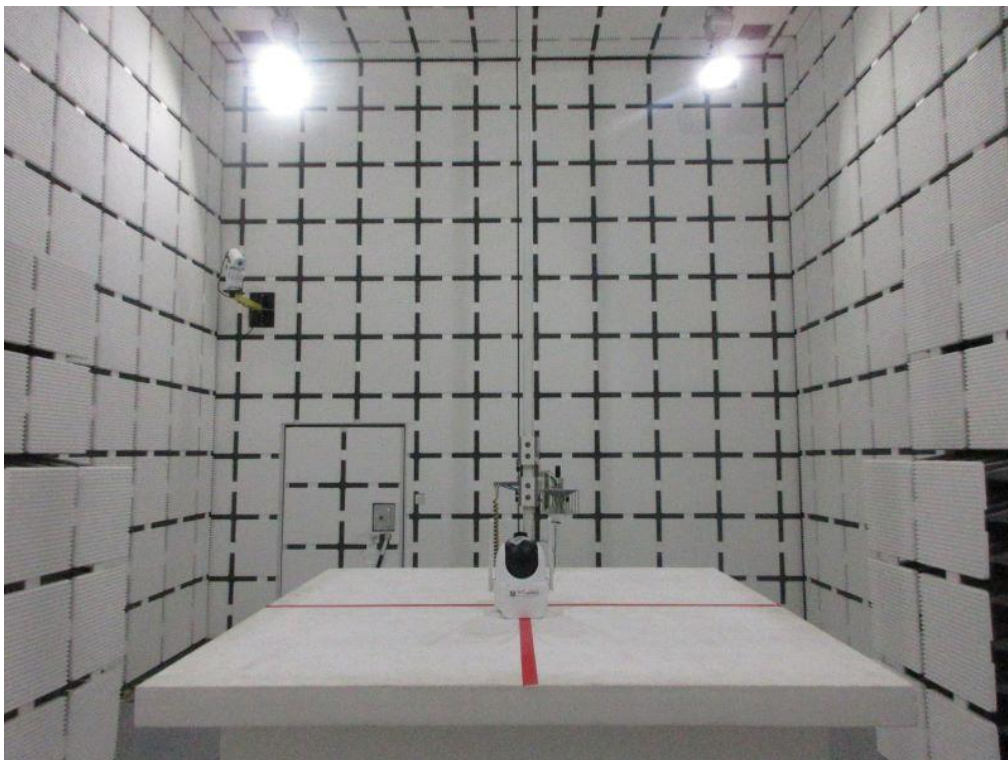
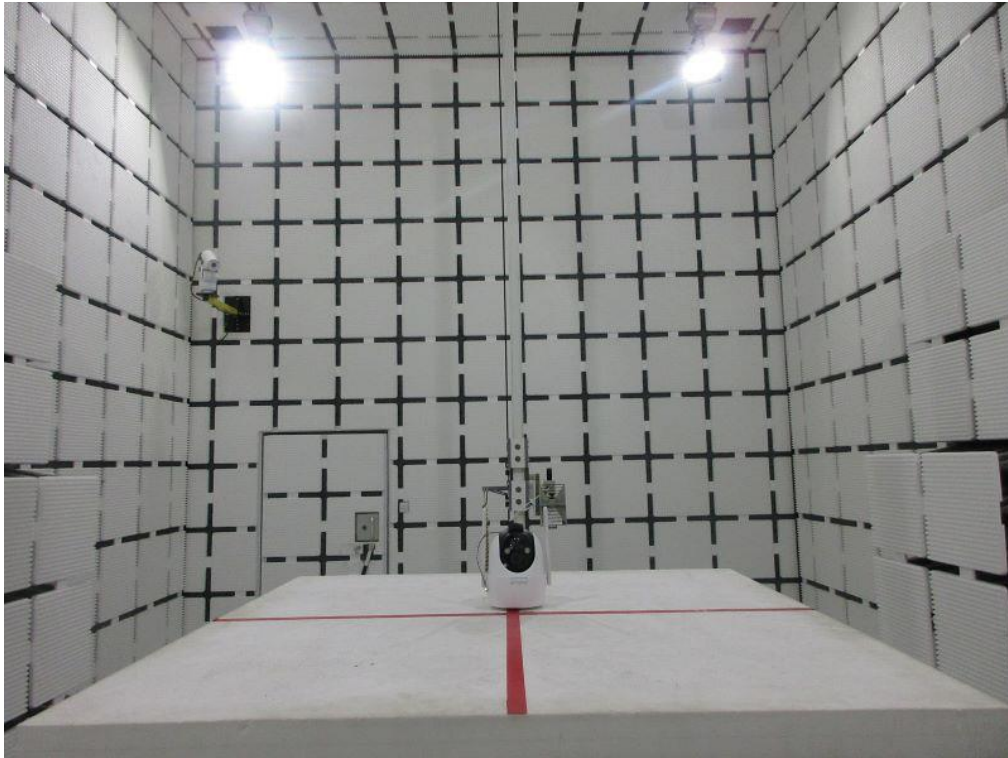
6. EUT TEST PHOTO

Radiated Emissions Test Photos

9 kHz to 30 MHz



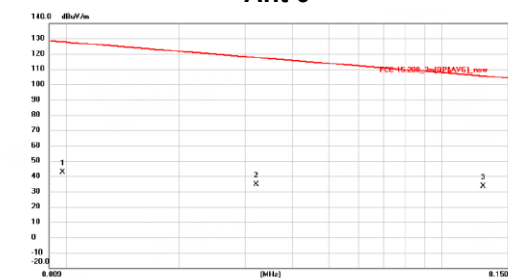
Radiated Emissions Test Photos**30 MHz to 1 GHz**

Radiated Emissions Test Photos**Above 1 GHz**

APPENDIX A - RADIATED SPURIOUS EMISSIONS (9KHZ TO 30MHZ)

Test Mode : TX Mode

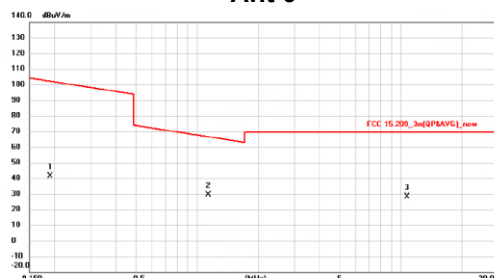
Ant 0°



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0098	21.28	21.26	42.54	127.78	-85.24	AVG	
2	0.0321	14.72	20.02	34.74	117.47	-82.73	AVG	
3 *	0.1288	13.26	20.16	33.42	105.41	-71.99	AVG	

Test Mode : TX Mode

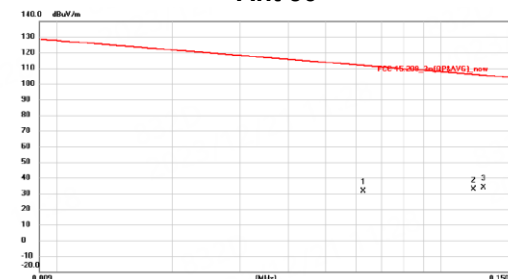
Ant 0°



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.1894	21.14	20.09	41.23	102.06	-60.83	AVG	
2 *	1.1350	9.19	20.02	29.21	66.50	-37.29	QP	
3	10.7468	7.53	20.61	28.14	69.54	-41.40	QP	

Test Mode : TX Mode

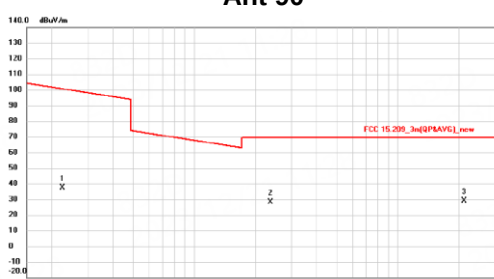
Ant 90°



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.0626	11.18	20.04	31.22	111.67	-80.45	AVG	
2	0.1215	12.41	20.16	32.57	105.92	-73.35	AVG	
3 *	0.1290	13.50	20.16	33.66	105.40	-71.74	AVG	

Test Mode : TX Mode

Ant 90°

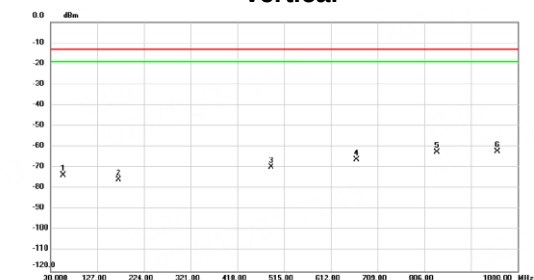


No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	0.2256	17.17	20.07	37.24	100.54	-63.30	AVG	
2	2.3738	8.33	20.02	28.35	69.54	-41.19	QP	
3 *	21.0898	7.88	21.07	28.95	69.54	-40.59	QP	

APPENDIX B - RADIATED SPURIOUS EMISSIONS (30MHZ TO 1000MHZ)

Test Mode : LTE Band 14_TX CH23330_5MHz

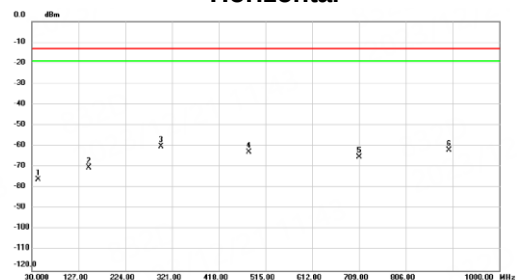
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		56.675	-71.01	-2.69	-73.70	-13.00	-60.70	peak	
2		172.105	-73.08	-2.64	-75.72	-13.00	-62.72	peak	
3		487.840	-72.56	2.82	-69.74	-13.00	-56.74	peak	
4		665.835	-72.50	6.43	-66.07	-13.00	-53.07	peak	
5		832.190	-71.32	8.69	-62.63	-13.00	-49.63	peak	
6	*	957.320	-72.17	9.96	-62.21	-13.00	-49.21	peak	

Test Mode : LTE Band 14_TX CH23330_5MHz

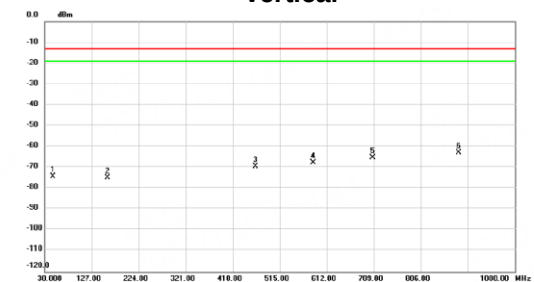
Horizontal



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		44.065	-73.43	-2.59	-76.02	-13.00	-63.02	peak	
2		147.855	-68.21	-2.28	-70.49	-13.00	-57.49	peak	
3	*	298.690	-58.51	-1.69	-60.20	-13.00	-47.20	peak	
4		480.080	-65.66	2.72	-62.94	-13.00	-49.94	peak	
5		709.485	-72.54	7.15	-65.39	-13.00	-52.39	peak	
6		896.210	-71.29	9.30	-61.99	-13.00	-48.99	peak	

Test Mode : LTE Band 14_TX CH23330_10MHz

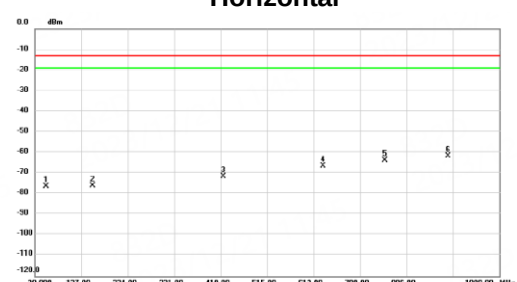
Vertical



No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		47.945	-71.94	-2.43	-74.37	-13.00	-61.37	peak	
2		159.495	-72.76	-2.11	-74.87	-13.00	-61.87	peak	
3		464.560	-71.90	2.49	-69.41	-13.00	-56.41	peak	
4		584.355	-72.64	4.93	-67.71	-13.00	-54.71	peak	
5		707.545	-72.45	7.09	-65.36	-13.00	-52.36	peak	
6	*	884.570	-71.93	9.16	-62.77	-13.00	-49.77	peak	

Test Mode : LTE Band 14_TX CH23330_10MHz

Horizontal

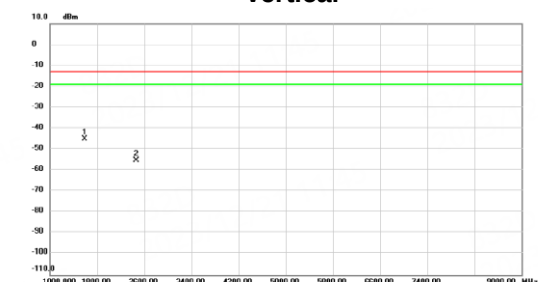


No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Margin dB	Detector	Comment
1		53.765	-73.85	-2.50	-76.35	-13.00	-63.35	peak	
2		150.765	-73.83	-2.12	-75.95	-13.00	-62.95	peak	
3		423.820	-73.06	1.45	-71.61	-13.00	-58.61	peak	
4		632.370	-72.33	5.93	-66.40	-13.00	-53.40	peak	
5		761.380	-72.10	8.46	-63.64	-13.00	-50.64	peak	
6	*	893.785	-70.84	9.27	-61.57	-13.00	-48.57	peak	

APPENDIX C - RADIATED SPURIOUS EMISSIONS (ABOVE 1000MHZ)

Test Mode : LTE Band 14_TX CH23330_5MHz

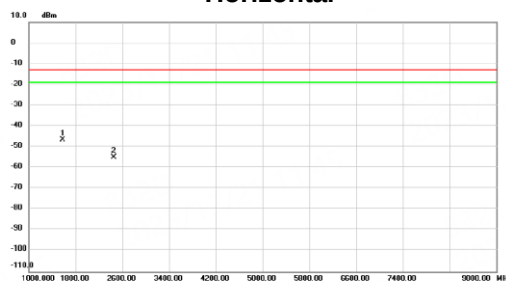
Vertical



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
	MHz	dBm	dB	dBm	dBm	dB		
1 *	1588.000	-50.18	5.10	-45.08	-13.00	-32.08	peak	
2	2468.000	-62.06	6.95	-55.11	-13.00	-42.11	peak	

Test Mode : LTE Band 14_TX CH23330_5MHz

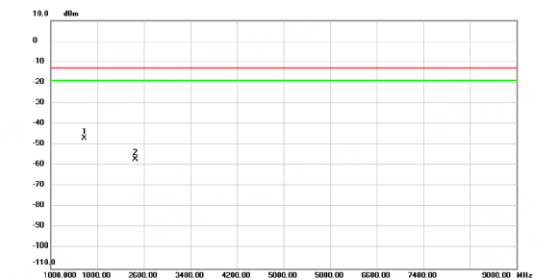
Horizontal



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
	MHz	dBm	dB	dBm	dBm	dB		
1 *	1584.000	-51.63	5.09	-46.54	-13.00	-33.54	peak	
2	2460.000	-61.85	6.94	-54.91	-13.00	-41.91	peak	

Test Mode : LTE Band 14_TX CH23330_10MHz

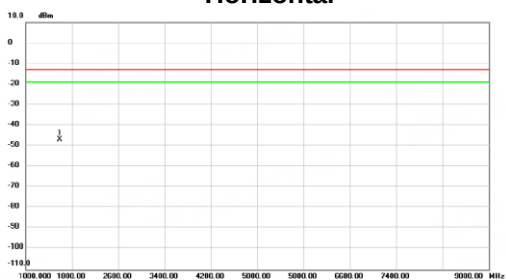
Vertical



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
	MHz	dBm	dB	dBm	dBm	dB		
1 *	1580.000	-52.03	5.09	-46.94	-13.00	-33.94	peak	
2	2456.000	-64.01	6.93	-57.08	-13.00	-44.08	peak	

Test Mode : LTE Band 14_TX CH23330_10MHz

Horizontal



No. Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin	Detector	Comment
	MHz	dBm	dB	dBm	dBm	dB		
1 *	1588.000	-52.03	5.10	-46.93	-13.00	-33.93	peak	

End of Test Report