Prüfbericht-Nr.: *Test report no.*:	**CN23AZPG 001**	**Auftrags-Nr.:** *Order no.*:	**168443305**	Seite 1 von 22 *Page 1 of 22*
Kunden-Referenz-Nr.: *Client reference no.*:	N/A	**Auftragsdatum:** *Order date:*	2023-09-11	
Auftraggeber: *Client*:	**Botslab,Inc.** 919 North Market Street, Suite 950, Wilmington, New Castle, Delaware, USA			
Prüfgegenstand: *Test item*:	Botslab PT 4G LTE Cellular Camera			
Bezeichnung / Typ-Nr.: *Identification / Type no.*:	FCC:W314, W314lite, W314pro, W314s IC:W314 (Trademark: Botslab)			
Auftrags-Inhalt: *Order content*:	Test Report			
Prüfgrundlage: *Test specification*:	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 90 47 CFR FCC Part 2 KDB 971168 D01 ANSI C63.26		RSS-139 Issue 4 (October 2022) RSS-132 Issue 4 (January 2023) RSS-133 Issue 6 (January 2018) RSS-130 Issue 2 (February 2019) RSS-140 Issue 1 (April 2018) RSS-199 Issue 4 (July 2023) RSS-Gen Issue 5 (February 2021)	
Wareneingangsdatum: *Date of sample receipt*:	2023-09-12	Please refer to Photo Document		
Prüfmuster-Nr.: *Test sample no:*	A003560228-001~003			
Prüfzeitraum: *Testing period*:	2023-09-13 - 2023-09-19			
Ort der Prüfung: *Place of testing*:	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.			
Prüfergebnis*: *Test result**:	Pass			

geprüft von: tested by:	X Chris Chen Signed by: Chris Chen	**genehmigt von:** *authorized by*:	X Lin Lin Signed by: Lin Lin
Datum: *Date:* 2023-12-20		**Ausstellungsdatum:** *Issue date:* 2023-12-20	
Stellung / Position:	Department Manager	**Stellung** / Position:	Reviewer

Sonstiges / *Other*:	FCC ID: 2A22Z-W314 IC: 27673-W314, HVIN: W314
Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery*:	Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*

* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*P(ass) = passed a.m. test specification(s)*	*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

TUV Rheinland (Shenzhen) Co., Ltd., 1601-1604, 17-18F, Tower A Building 2, Shenzhen International Innovation Valley, Dashi 1st Road, Xili Street, Xili Community, Nanshan District, Shenzhen 518052, P. R. China
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Test Summary

5.1.1 RF POWER OUTPUT
RESULT: Pass

5.1.2 MODULATION CHARACTERISTICS
RESULT: Pass

5.1.3 OCCUPIED BANDWIDTH AND 26DB BANDWIDTH
RESULT: Pass

5.1.4 SPURIOUS EMISSIONS AT ANTENNA TERMINALS
RESULT: Pass

5.1.5 SPURIOUS EMISSIONS AT ANTENNA TERMINALS – BAND EDGE
RESULT: Pass

5.1.6 FIELD STRENGTH OF SPURIOUS RADIATION
RESULT: Pass

5.1.7 FREQUENCY STABILITY
RESULT: Pass

5.1.8 PEAK TO AVERAGE RATIO
RESULT: Pass

Contents

1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of Band 2 for WCDMA operation

Appendix B: Test Results of Band 4 for WCDMA operation

Appendix C: Test Results of Band 5 for WCDMA operation

Appendix D: Test Results of Band 2 for LTE operation

Appendix E: Test Results of Band 4 for LTE operation

Appendix F: Test Results of Band 5 for LTE operation

Appendix G: Test Results of Band 12 for LTE operation

Appendix H: Test Results of Band 13 for LTE operation

Appendix I: Test Results of Band 14 for LTE operation

Appendix J: Test Results of Band 66 for LTE operation

Appendix K: Test Results of Band 71 for LTE operation

Appendix L: Test Results of Field Strength of Spurious Radiation

Appendix M: Photographs of the Test Set-Up

1.2 Test Standard(s)

Applied Rules:	47 CFR FCC Part 22	RSS-139 Issue 4 (October 2022)
	47 CFR FCC Part 24	RSS-132 Issue 4 (January 2023)
	47 CFR FCC Part 27	RSS-133 Issue 6 (January 2018)
	47 CFR FCC Part 90	RSS-130 Issue 2 (February 2019)
	47 CFR FCC Part 2	RSS-140 Issue 1 (April 2018)
		RSS-199 Issue 4 (July 2023)
		RSS-Gen Issue 5 (February 2021)
Test Method:	KDB 971168 D01	
	ANSI C63.26	

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Shenzhen) Co., Ltd.
No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Accreditation Designation No.: CN1260
ISED Wireless Device Testing Laboratory: 25069

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (CTE6000)					
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date**	**Cal. Until**
Shielding Room 6#	Albatross	SR6	APC17151-SR6	2021-06-22	2024-06-22
Wideband Radio Communication Tester	R&S	CMW500	166305	2023-07-26	2024-07-25
Signal Analyzer	R&S	FSV 40	101475	2023-07-26	2024-07-25
Vector Signal Generator	R&S	SMBV100A	263466	2022-09-20	2023-09-21
Signal Generator	R&S	SMB100A	181041	2022-11-05	2023-11-06
High Speed Power Supply	KEITHLEY	2303	4080052	2022-11-05	2023-11-06
RF Control Unit	Tonscend	JS0806-1	19H8060192	N/A	N/A
Band Reject Filter Group	Tonscend	JS0806-F	19I8060194	2022-11-13	2023-11-14
Temp.&Humidity Chamber	GIANT FORCE	ITH-150-40-CP-AR	IAA1406-004	2022-10-31	2023-11-01
NB-IoT&Emtc Integration Filter Group	Tonscend	JS0806-F	21D8060410	2022-08-01	2024-07-31
Test Software	Tonscend	JS1120	N/A	N/A	N/A
Control PC	Dell	Inspiron3670	5HVGWS2	N/A	N/A
Radio Spectrum Testing (LRD2)					
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date**	**Cal. until**
Shielding Room 6#	Albatross	SR6	APC17151-SR6	2021-06-22	2024-06-22
Signal Analyzer	R&S	FSV 40	101475	2023-07-26	2024-07-25
Signal and spectrum analyzer	Rohde & Schwarz	FSV3030	101576	2022-11-05	2023-11-06
Vector signal generator	Rohde & Schwarz	SMBV100B	102642	2022-11-05	2023-11-06
Vector signal generator	Rohde & Schwarz	SMB100A	182690	2022-11-05	2023-11-06
Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	170345	2022-11-05	2023-11-06
1 channel power supply	Rohde & Schwarz	HMC8041	101712	2022-11-05	2023-11-06
Band Reject Filter Group	Tonscend	JS0806-F	21I8060483	2022-11-13	2023-11-14
RF Control Unit	Tonscend	JS0806-1	21H8060472	N/A	N/A
Test Software	Tonscend	JS1120	N/A	N/A	N/A
Control PC	Lenovo	TianYi510S-07IMB	2018AP3073	N/A	N/A
Unwanted Emission Testing (TS9975)					
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. Date**	**Cal. until**
EMI Test Receiver	R&S	ESR 7	102021	2023-07-26	2024-07-25

Signal Analyzer	R&S	FSV 40	101439	2023-07-26	2024-07-25
System Controller Interface	R&S	SCI-100	S10010038	N/A	N/A
Filterbank	R&S	Wlan	100759	2023-07-26	2024-07-25
OSP	R&S	OSP 120	102040	N/A	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2023-07-26	2024-07-25
Amplifier	R&S	SCU-18F	180070	2023-07-26	2024-07-25
Amplifier	R&S	SCU40A	100475	2023-07-26	2024-07-25
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2022-08-07	2024-08-06
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2022-08-07	2024-08-06
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2022-08-28	2024-08-27
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2022-08-07	2024-08-06
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A	N/A
3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2021-06-23	2024-06-22

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Table 2: Measurement Uncertainty

Parameter	Uncertainty (k=2)
RF output power, conducted	± 0.99 dB
Occupied Channel Bandwidth	± 2.08 %
RF power density, conducted	± 0.99 dB
Unwanted Emissions, conducted	± 0.89 dB
All emissions, radiated	±4.17 dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A to Appemdox M of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. File for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China. is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The EUT is a **Botslab PT 4G LTE Cellular Camera** which supports WCDMA and LTE functions.

All models are identical, only the model no. is different for market strategy.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 3: Technical Specification of EUT

General Information of EUT	**Value**
Product Name:	Botslab PT 4G LTE Cellular Camera
Test Model No.:	W314
FCC Model No.:	W314, W314lite, W314pro, W314s
IC Model No.:	W314
Trademark:	Botslab
FCC ID:	2A22Z-W314
IC:	27673-W314
HVIN:	W314
Operating Voltage:	Internal battery operated (3.6Vdc)
Testing Voltage:	Fully charged battery
Technical Specification of WCDMA	
Operational Frequency:	WCDMA Band 2: 1850 to 1910 MHz WCDMA Band 4: 1710 to 1755 MHz WCDMA Band 5: 824 to 849 MHz
Type of Modulation:	QPSK, 16QAM
Power Class:	Class 3
Subcarrier spacing:	200 KHz
TX and RX Antenna Ports:	1 * TRX, 1 * RX-only
Antenna Type:	Dipole
Antenna Number:	2
Antenna Gain:	Provided by the Client
	WCDMA Band 2: 3.21dBi
	WCDMA Band 4: 2.86dBi
	WCDMA Band 5: 0.24dBi
Technical Specification of LTE	
Operational Frequency:	LTE Band 2: 1850 to 1910 MHz LTE Band 4: 1710 to 1755 MHz LTE Band 5: 824 to 849 MHz LTE Band 12: 699 to 716 MHz LTE Band 13: 777 to 787 MHz

	LTE Band 14: 788 to 798 MHz LTE Band 66: 1710 to 1780 MHz LTE Band 71: 663 to 698 MHz
Type of Modulation:	QPSK, 16QAM
Power Class:	Class 3
Subcarrier spacing:	LTE Band 2: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 4: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 5: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 12: 1.4MHz, 3MHz, 5MHz, 10MHz LTE Band 13: 5MHz, 10MHz LTE Band 14: 5MHz, 10MHz LTE Band 66: 1.4MHz, 3MHz, 5MHz, 10MHz, 15MHz, 20MHz LTE Band 71: 5MHz, 10MHz, 15MHz, 20MHz
TX and RX Antenna Ports:	1 * TRX, 1 * RX-only
Antenna Type:	Dipole
Antenna Number:	2
Antenna Gain:	Provided by the Client
	LTE Band 2: 3.21dBi
	LTE Band 4: 2.86dBi
	LTE Band 5: 0.24dBi
	LTE Band 12: 0.78dBi
	LTE Band 13: 0.37dBi
	LTE Band 14: 0.36dBi
	LTE Band 66: 3.54dBi
	LTE Band 71: 0.95dBi

Table 4: RF Channel and Frequency of WCDMA

Support Band	Support Standard	Channel Frequency (MHz)	Channel Number
WCDMA Band 2	WCDMA/HSDPA/HSUPA	1852.4	9262
		1880.0	9400
		1907.6	9538
WCDMA Band 4	WCDMA/HSDPA/HSUPA	1712.4	1312
		1732.6	1413
		1752.6	1513
WCDMA Band 5	WCDMA/HSDPA/HSUPA	826.4	4132
		836.4	4182
		846.4	4233

Table 5: RF Channel and Frequency of LTE

Support Band	Bandwidth (MHz)	Channel Frequency (L/M/H) (MHz)	Channel Number (L/M/H)
LTE Band 2	1.4	1850.7 / 1880 / 1909.3	18607 / 18900 / 19193
	3	1851.5 / 1880 / 1908.5	18615 / 18900 / 19185
	5	1852.5 / 1880 / 1907.5	18625 / 18900 / 19175
	10	1855 / 1880 / 1905	18650 / 18900 / 19150
	15	1857.5 / 1880 / 1902.5	18675 / 18900 / 19125
	20	1860 / 1880 / 1900	18700 / 18900 / 19100
LTE Band 4	1.4	1710.7 / 1732.5 / 1754.3	19957 / 20175 / 20393
	3	1711.5 / 1732.5 / 1753.5	19965 / 20175 / 20385

	5	1712.5 / 1732.5 / 1752.5	19975 / 20175 / 20375
	10	1715.0 / 1732.5 / 1750.0	20000 / 20175 / 20350
	15	1717.5 / 1732.5 / 1747.5	20025 / 20175 / 20325
	20	1720.0 / 1732.5 / 1745.0	20050 / 20175 / 20300
LTE Band 5	1.4	824.7 / 836.5 / 848.3	20407 / 20525 / 20643
	3	825.5 / 836.5 / 847.5	20415 / 20525 / 20635
	5	826.5 / 836.5 / 846.5	20425 / 20525 / 20625
	10	829 / 836.5 / 844	20450 / 20525 / 20600
LTE Band 12	1.4	699.7 / 707.5 / 715.3	23017 / 23095/ 23173
	3	700.5 / 707.5 / 714.5	23025 / 23095/ 23165
	5	701.5 / 707.5 / 713.5	23035 / 23095/ 23155
	10	704 / 707.5 / 711	23060 / 23095/ 23130
LTE Band 13	5	779.5 / 782 / 784.5	23205 / 23230 / 23255
	10	782	23230
LTE Band 14	5	790.5 / 793 / 795.5	23305 / 23330 / 23355
	10	793	23330
LTE Band 66	1.4	1710.7 / 1745 / 1779.3	131979 / 132322 / 132665
	3	1711.5 / 1745 / 1778.5	131987 / 132322 / 132657
	5	1712.5 / 1745 / 1777.5	131997 / 132322 / 132647
	10	1715 / 1745 / 1775	132022 / 132322 / 132622
	15	1717.5 / 1745 / 1772.5	132047 / 132322 / 132597
	20	1720 / 1745 / 1770	132072 / 132322 / 132572
LTE Band 71	5	665.5 / 680.5 / 695.5	133147 / 133297 / 133447
	10	668 / 680.5 / 693	133172 / 133297 / 133422
	15	670.5 / 680.5 / 690.5	133197 / 133297 / 133397
	20	673 / 683 / 688	133222 / 133322 / 133372

3.3 Independent Operation Modes

The basic operation modes are:

A. On, WCDMA transmitting mode (Low /Middle / High channel)
B. On, LTE transmitting mode (Low /Middle / High channel)
C. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- Application Form
- Operation Description
- PCB Layout
- User Manual
- Block Diagram
- ID Label and Location Info

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in KDB 971168 D01 and ANSI C63.26.

According to clause 3.1, all tests were performed on model W314 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 6: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N
--	--	--	--

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

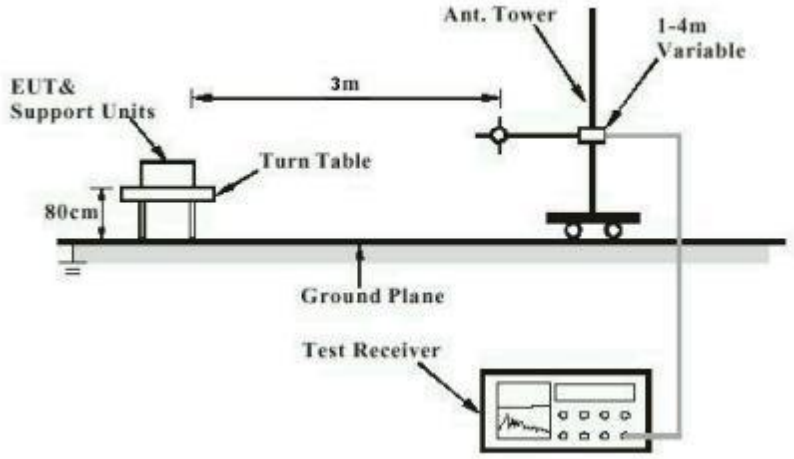


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

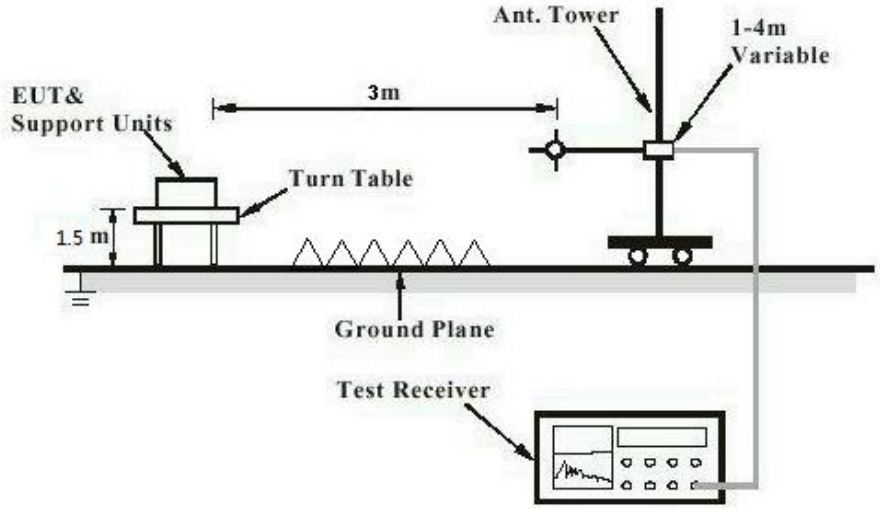
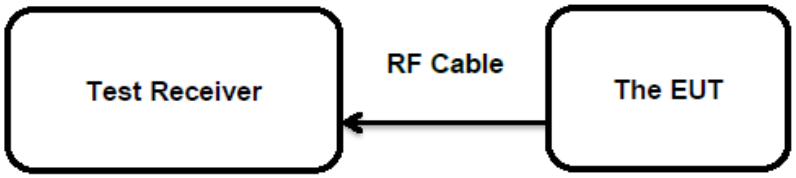


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Essential Requirements of Standard

5.1.1 RF Power Output

RESULT: **Pass**

Test Specification

Test standard	:	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 90 47 CFR FCC Part 2	RSS-130 Issue 2 RSS-132 Issue 4 RSS-133 Issue 6 RSS-139 Issue 4 RSS-140 Issue 1 RSS-199 Issue 4 RSS-Gen Issue 5	
Limits	:	Operating band	FCC Limit	ISED Limit
		Band 2	EIRP 2 watts	EIRP 2 watts
		Band 4	EIRP 1 watts	EIRP 1 watts
		Band 5	ERP 7 watts	ERP 11.5 watts
		Band 12	ERP 3 watts	ERP 3 watts
		Band 13	ERP 3 watts	ERP 3 watts
		Band 14	ERP 3 watts	ERP 3 watts
		Band 66	EIRP 1 watts	EIRP 1 watts
		Band 71	ERP 3 watts	ERP 3 watts
Test procedure	:	Clause 5.2.4.2 of ANSI C63.26		
Kind of test site	:	Shielded Room		

Test Setup

Date of testing	:	2023-09-12 to 2023-09-18
Input voltage	:	Fully charged battery
Operation mode	:	A, B
Test channel	:	Low / Middle / High
Ambient temperature	:	24.2 ℃
Relative humidity	:	53 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A ~ appendix K.

Note:
ERP or EIRP = P_{Meas} + G_T
where
ERP or EIRP: effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, e.g. dBm)
P_{Meas}: measured transmitter output power, in dBm
G_T: gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

5.1.2 Modulation Characteristics

RESULT: **Pass**

Test Specification

Test standard	:	47 CFR FCC Part 22	RSS-130 Issue 2
		47 CFR FCC Part 24	RSS-132 Issue 4
		47 CFR FCC Part 27	RSS-133 Issue 6
		47 CFR FCC Part 90	RSS-139 Issue 4
		47 CFR FCC Part 2	RSS-140 Issue 1
			RSS-199 Issue 4
			RSS-Gen Issue 5
Limits	:	"Other types of equipment", the use of higher order modulations such as OFDM or LTE or other modulation are acceptable for use	
Test procedure	:	Clause 5.2.3 of ANSI C63.26	
Kind of test site	:	Shielded Room	

Test Setup

Date of testing	:	2023-09-12 to 2023-09-18
Input voltage	:	Fully charged battery
Operation mode	:	A, B
Test channel	:	Low / Middle / High
Ambient temperature	:	24.2 ℃
Relative humidity	:	53 %
Atmospheric pressure	:	101 kPa

Note:
The device implement digital modulation such as QPSK and 16QAM, hence the EUT is deemed to comply with this requirement without additional testing.

5.1.3 Occupied Bandwidth and 26dB Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	47 CFR FCC Part 22	RSS-130 Issue 2
		47 CFR FCC Part 24	RSS-132 Issue 4
		47 CFR FCC Part 27	RSS-133 Issue 6
		47 CFR FCC Part 90	RSS-139 Issue 4
		47 CFR FCC Part 2	RSS-140 Issue 1
			RSS-199 Issue 4
			RSS-Gen Issue 5
Test requirement	:	Section 2.1049 of 47 CFR FCC Part 2	
Limits	:	N/A	
Test procedure	:	Section 5.4.3 of ANSI C63.26	
Kind of test site	:	Shielded Room	

Test Setup

Date of testing	:	2023-09-12 to 2023-09-18
Input voltage	:	Fully charged battery
Operation mode	:	A, B
Test channel	:	Low / Middle / High
Ambient temperature	:	24.2 ℃
Relative humidity	:	53 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A ~ appendix K.

5.1.4 Spurious Emissions at Antenna Terminals

RESULT: **Pass**

Test Specification

Test standard	:	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 90 47 CFR FCC Part 2	RSS-130 Issue 2 RSS-132 Issue 4 RSS-133 Issue 6 RSS-139 Issue 4 RSS-140 Issue 1 RSS-199 Issue 4 RSS-Gen Issue 5	
Limits	:	Operating band	FCC Limit	ISED Limit
		Band 2	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 4	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 5	< - 13 dBm /100kHz @ < 1GHz < - 13 dBm /1MHz @ > 1GHz	< - 13 dBm / 100 kHz
		Band 12	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 13	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 14	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 66	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 71	< - 13 dBm /100kHz	< - 13 dBm /100kHz
Test procedure	:	Section 5.7.4 of ANSI C63.26		
Kind of test site	:	Shielded Room		

Test Setup

Date of testing	:	2023-09-12 to 2023-09-18
Input voltage	:	Fully charged battery
Operation mode	:	A, B
Test channel	:	Low / Middle / High
Ambient temperature	:	24.2 ℃
Relative humidity	:	53 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A ~ appendix K.

The limit calculation:
Limit = P_{Meas} (dBm) – [43+10log(P_{Meas})] = −13 dBm

5.1.5 Spurious Emissions at Antenna Terminals – Band Edge

RESULT: **Pass**

Test Specification

Test standard	:	47 CFR FCC Part 22	RSS-130 Issue 2
		47 CFR FCC Part 24	RSS-132 Issue 4
		47 CFR FCC Part 27	RSS-133 Issue 6
		47 CFR FCC Part 90	RSS-139 Issue 4
		47 CFR FCC Part 2	RSS-140 Issue 1
			RSS-199 Issue 4
			RSS-Gen Issue 5

Limits	:	Operating band	FCC Limit	ISED Limit
		Band 2	< - 13 dBm /1%EBW	< - 13 dBm / 1%OBW
		Band 4	< - 13 dBm /1%EBW	< - 13 dBm / 1%OBW
		Band 5	< - 13 dBm /1%EBW	< - 13 dBm / 1%OBW
		Band 12	< - 13 dBm /30kHz	< - 13 dBm /30kHz
		Band 13	< - 13 dBm /30kHz	< - 13 dBm /30kHz
		Band 14	< - 13 dBm /30kHz	< - 13 dBm /30kHz
		Band 66	< - 13 dBm /1%EBW	< - 13 dBm / 1%OBW
		Band 71	< - 13 dBm /30kHz	< - 13 dBm /30kHz

Test procedure	:	Section 5.7.4 of ANSI C63.26
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2023-09-12 to 2023-09-18
Input voltage	:	Fully charged battery
Operation mode	:	A, B
Test channel	:	Low / Middle / High
Ambient temperature	:	24.2 ℃
Relative humidity	:	53 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A ~ appendix K.

The limit calculation:
Limit = P_{Meas} (dBm) – [43+10log(P_{Meas})] = −13 dBm

5.1.6 Field Strength of Spurious Radiation

RESULT: **Pass**

Test Specification

Test standard	:	47 CFR FCC Part 22 47 CFR FCC Part 24 47 CFR FCC Part 27 47 CFR FCC Part 90 47 CFR FCC Part 2	RSS-130 Issue 2 RSS-132 Issue 4 RSS-133 Issue 6 RSS-139 Issue 4 RSS-140 Issue 1 RSS-199 Issue 4 RSS-Gen Issue 5	
Limits	:	Operating band	FCC Limit	ISED Limit
		Band 2	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 4	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 5	< - 13 dBm /100kHz @ < 1GHz < - 13 dBm /1MHz @ > 1GHz	< - 13 dBm /100 kHz
		Band 12	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 13	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 14	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 66	< - 13 dBm /1MHz	< - 13 dBm /1MHz
		Band 71	< - 13 dBm /100kHz	< - 13 dBm /100kHz
Test procedure	:	Section 5.5 of ANSI C63.26		
Kind of test site	:	3m Semi-anechoic Chamber		

Test Setup

Date of testing	:	2023-09-18 to 2023-09-19
Input voltage	:	Fully charged battery
Operation mode	:	A, B
Test channel	:	Middle
Ambient temperature	:	Refer to test result
Relative humidity	:	Refer to test result
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix L.

The limit calculation:
Limit = PMeas (dBm) – [43+10log(PMeas)] = -13 dBm

Sweep the whole frequency band through the range from 9 kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in this report. The measurement is performed for all operational modes and both antenna polarization, only the data of the worst mode is recorded in this report.

5.1.7 Frequency Stability

RESULT: **Pass**

Test Specification

Test standard	:	47 CFR FCC Part 22	RSS-130 Issue 2
		47 CFR FCC Part 24	RSS-132 Issue 4
		47 CFR FCC Part 27	RSS-133 Issue 6
		47 CFR FCC Part 90	RSS-139 Issue 4
		47 CFR FCC Part 2	RSS-140 Issue 1
			RSS-199 Issue 4
			RSS-Gen Issue 5
Limits	:	Section 22.355 of 47 CFR FCC Part 22 “2.5ppm for mobile ≤ 3 watts” Section 24.235 of 47 CFR FCC Part 24 “The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.” Section 27.54 of 47 CFR FCC Part 27 “The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.” Section 90.213 of 47 CFR FCC Part 90 “2.5ppm for mobile stations which the output power is less than 2 watts”	
Test procedure	:	Section 5.6.3 of ANSI C63.26	
Kind of test site	:	Shielded Room	

Test Setup

Date of testing	:	2023-09-12 to 2023-09-18
Input voltage	:	Fully charged battery
Operation mode	:	A, B
Test channel	:	Low / Middle / High
Ambient temperature	:	24.2 ℃
Relative humidity	:	53 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A ~ appendix K.

5.1.8 Peak to Average Ratio

RESULT: **Pass**

Test Specification

Test standard	:	47 CFR FCC Part 22	RSS-130 Issue 2
		47 CFR FCC Part 24	RSS-132 Issue 4
		47 CFR FCC Part 27	RSS-133 Issue 6
		47 CFR FCC Part 90	RSS-139 Issue 4
		47 CFR FCC Part 2	RSS-140 Issue 1
			RSS-199 Issue 4
			RSS-Gen Issue 5
Limits	:	Section 22.913(d) of 47 CFR FCC Part 22 Section 24.232(d) of 47 CFR FCC Part 24 Section 27.50(d) of 47 CFR FCC Part 27 “The peak-to-average ratio (PAR) of the transmission must not exceed 13 dB”	
Test procedure	:	Section 5.2.6 of ANSI C63.26 RSS-Gen Issue 5	
Kind of test site	:	Shielded Room	

Test Setup

Date of testing	:	2023-09-12 to 2023-09-18
Input voltage	:	Fully charged battery
Operation mode	:	A, B
Test channel	:	Low / Middle / High
Ambient temperature	:	24.2 ℃
Relative humidity	:	53 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A ~ appendix K.

6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix M.

7 List of Tables