

RF TEST REPORT

Applicant	Positioning Universal Inc
FCC ID	2AHRH-FJ1510LW
Product	GPS Tracker
Brand	FJ1510LW
Model	FJ1510LW
Report No.	R2310A1080-R1
Issue Date	November 14, 2023

TA Technology (Shanghai) Co., Ltd. tested the above equipment in accordance with the requirements in **FCC CFR47 Part 2 (2022)/ FCC CFR 47 Part 22H (2022)**. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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Summary of Measurement Results

No.	Test Case	Clause in FCC rules	Verdict
1	RF Power Output and Effective Radiated Power	2.1046 22.913(a)(5)	PASS
2	Radiated Spurious Emission	2.1053 / 22.917 (a)	PASS
Date of Testing: October 12, 2023 ~ October 20, 2023 Date of Sample Received: October 10, 2023			
Note: PASS: The EUT complies with the essential requirements in the standard. FAIL: The EUT does not comply with the essential requirements in the standard. All indications of Pass/Fail in this report are opinions expressed by TA Technology (Shanghai) Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.			

This report only tests RF Power Output and Radiated Spurious Emission for FJ1510LW, and Effective Radiated Power also re-evaluated.
Other test items refer to the Module report (Report No.: 1M2106040065-04.R17, FCC ID: R17LE910CXWWX).

1. Test Laboratory

1.1. Notes of the Test Report

This report shall not be reproduced in full or partial, without the written approval of **TA Technology (Shanghai) Co., Ltd.** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1.2. Test Facility

FCC (Designation number: CN1179, Test Firm Registration Number: 446626)

TA Technology (Shanghai) Co., Ltd. has been listed on the US Federal Communications Commission list of test facilities recognized to perform measurements.

A2LA (Certificate Number: 3857.01)

TA Technology (Shanghai) Co., Ltd. has been listed by American Association for Laboratory Accreditation to perform measurement.

1.3. Testing Location

Company: TA Technology (Shanghai) Co., Ltd.
Address: Building 3, No.145, Jintang Rd, Pudong Shanghai, P.R.China
City: Shanghai
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2. General Description of Equipment Under Test

2.1. Applicant and Manufacturer Information

Applicant	Positioning Universal Inc
Applicant address	4660 La Jolla Village Drive, Suite 1100, San Diego, CA92122, United States
Manufacturer	Positioning Universal Inc
Manufacturer address	4660 La Jolla Village Drive, Suite 1100, San Diego, CA92122, United States

2.2. General Information

EUT Description			
Model	FJ1510LW		
IMEI	Conducted: 351077450066348 Radiated: 351077450078004		
Hardware Version	P4		
Software Version	1.2.0		
Power Supply	External power supply		
Antenna Type	PIFA Antenna		
Antenna Gain	0.19 dBi		
Test Mode(s)	LTE Band 5/26;		
Test Modulation	(LTE) QPSK, 16QAM		
LTE Category	1		
Maximum E.R.P.	LTE Band 5:	21.24 dBm	
	LTE Band 26:	21.32 dBm	
Rated Power Supply Voltage	12V		
Operating Voltage	Minimum: 7V Maximum: 36V		
Operating Temperature	Lowest: -30°C Highest: +70°C		
Operating Frequency Range(s)	Band	Tx (MHz)	Rx (MHz)
	LTE Band 5	824 ~ 849	869 ~ 894
	LTE Band 26	824 ~ 849	869 ~ 894
EUT Accessory			
Battery	Manufacturer: Shenzhen Shenlan Aifa Technology Co.Ltd Model: SL 533060		
Auxiliary Test Equipment			
Adapter	Manufacturer: Shenzhen Aquilstar Technology Co., Ltd. Model: ASSA67e-120200		
Note: 1. The EUT is sent from the applicant to TA and the information of the EUT is declared by the applicant.			

3. Applied Standards

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

Test standards:

FCC CFR 47 Part 22H (2022)

FCC CFR47 Part 2 (2022)

Reference standard:

ANSI C63.26-2015

KDB 971168 D01 Power Meas License Digital Systems v03r01

4. Test Configuration

Radiated measurements are performed by rotating the EUT in three different orthogonal test planes. EUT stand-up position (Z axis), lie-down position (X, Y axis). Receiver antenna polarization (horizontal and vertical), the worst emission was found in position (Z axis, vertical polarization) and the worst case was recorded.

All mode and data rates and positions and RB size and modulations were investigated.

Subsequently, only the worst case emissions are reported.

The following testing in LTE is set based on the maximum RF Output Power.

Test modes are chosen as the worst case configuration below for LTE Band 5/26

Test items	Modes	Bandwidth (MHz)					Modulation		RB			Test Channel		
		1.4	3	5	10	15	QPSK	16QAM	1	50%	100%	L	M	H
RF power output and Effective Radiated power	LTE Band 5	O	O	O	O	-	O	O	O	O	O	O	O	O
	LTE Band 26	O	O	O	O	O	O	O	O	O	O	O	O	O
Radiated Spurious Emission	LTE Band 5	O	-	O	O	-	O	-	O	-	-	-	O	-
	LTE Band 26	O	-	O	-	O	O	-	O	-	-	-	O	-
Note	1. The mark "O" means that this configuration is chosen for testing. 2. The mark "-" means that this configuration is not testing.													

5. Test Case

5.1. RF Power Output and Effective Radiated Power

Ambient Condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

Methods of Measurement

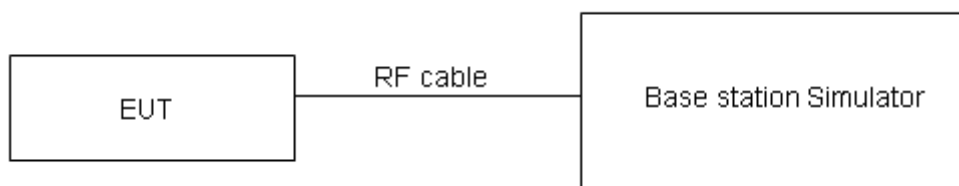
During the process of the testing, The EUT was connected to the Base Station Simulator with a known loss. The EUT is controlled by the Base Station Simulator test set to ensure max power transmission with proper modulation.

ERP can then be calculated as follows:

$EIRP \text{ (dBm)} = \text{Output Power (dBm)} + \text{Antenna Gain (dBi)}$

$EIRP \text{ (dBm)} = ERP \text{ (dBm)} + 2.15 \text{ (dB)}$.

Test Setup



Limits

No specific RF power output requirements in part 2.1046.

Rule Part 22.913(a)(5) specifies that "Mobile/portable stations are limited to 7 watts ERP".

Limit	$\leq 7 \text{ W}$ (38.45 dBm)
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 2$, $U = 0.4 \text{ dB}$ for RF power output, $k = 2$, $U = 1.19 \text{ dB}$ for ERP.

Test Results

Refer to the section 6.1 of this report for test data.

5.2. Radiated Spurious Emission

Ambient Condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

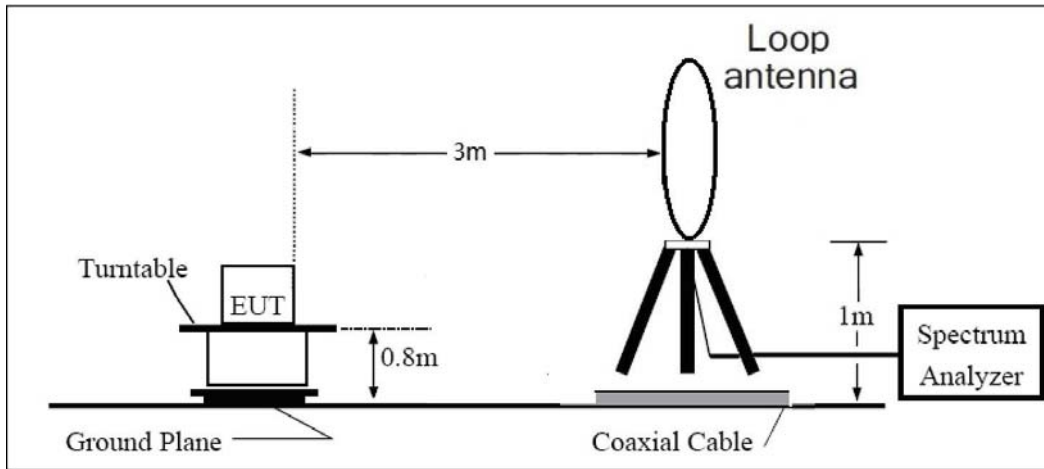
Method of Measurement

- The testing follows FCC KDB 971168 v03r01 Section 5.8 and ANSI C63.26-2015.
- Below 1GHz: The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H). Above 1GHz: (Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.) The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).
- A loop antenna, A log-periodic antenna or 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.
- The EUT is then put into continuously transmitting mode at its maximum power level during the test. Set Test Receiver or Spectrum RBW=100kHz, VBW=300kHz, and the maximum value of the receiver should be recorded as (Pr).
- 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 (PMea) 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 (Pr). The power of signal source (PMea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
- 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 (Pcl) ,the Substitution Antenna Gain (Ga) and the Amplifier Gain (PAg) should be recorded after test.
- The measurement results are obtained as described below:
 Power (EIRP) = PMea - PAg - Pcl + Ga
 The measurement results are amend as described below:
 Power (EIRP) = PMea - Pcl + Ga
- This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dB.

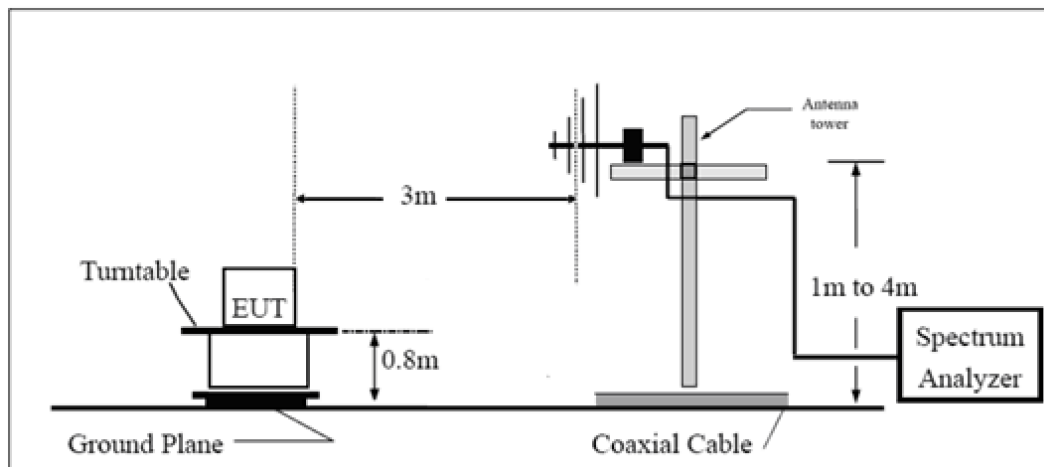
The modulation mode and RB allocation refer to section 5.1, using the maximum output power configuration.

Test Setup

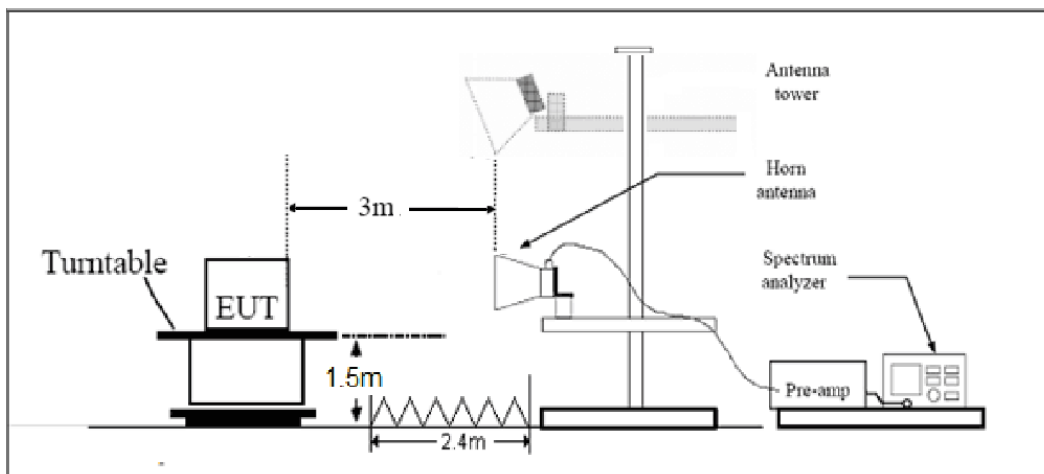
9KHz~ 30MHz



30MHz~ 1GHz



Above 1GHz



Note: Area side: 2.4mX3.6m

Limits

Rule Part 22.917(a) specifies 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.”

Limit	-13 dBm
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor $k = 1.96$, $U = 3.55$ Db.

Test Results

Refer to the section 6.2 of this report for test data.

6. Test Result

6.1. RF Power Output and Effective Radiated Power

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	ERP (dBm)
LTE Band5	1.4	20407	1	#0	QPSK	22.68	20.72
LTE Band5	1.4	20407	1	#Mid	QPSK	22.89	20.93
LTE Band5	1.4	20407	1	#Max	QPSK	22.88	20.92
LTE Band5	1.4	20407	3	#0	QPSK	22.55	20.59
LTE Band5	1.4	20407	3	#Mid	QPSK	22.65	20.69
LTE Band5	1.4	20407	3	#Max	QPSK	22.62	20.66
LTE Band5	1.4	20407	6	#0	QPSK	21.51	19.55
LTE Band5	1.4	20525	1	#0	QPSK	22.38	20.42
LTE Band5	1.4	20525	1	#Mid	QPSK	22.64	20.68
LTE Band5	1.4	20525	1	#Max	QPSK	22.46	20.50
LTE Band5	1.4	20525	3	#0	QPSK	22.81	20.85
LTE Band5	1.4	20525	3	#Mid	QPSK	22.81	20.85
LTE Band5	1.4	20525	3	#Max	QPSK	22.72	20.76
LTE Band5	1.4	20525	6	#0	QPSK	21.63	19.67
LTE Band5	1.4	20643	1	#0	QPSK	22.74	20.78
LTE Band5	1.4	20643	1	#Mid	QPSK	22.90	20.94
LTE Band5	1.4	20643	1	#Max	QPSK	22.67	20.71
LTE Band5	1.4	20643	3	#0	QPSK	22.69	20.73
LTE Band5	1.4	20643	3	#Mid	QPSK	22.68	20.72
LTE Band5	1.4	20643	3	#Max	QPSK	22.58	20.62
LTE Band5	1.4	20643	6	#0	QPSK	21.66	19.70
LTE Band5	3	20415	1	#0	QPSK	22.77	20.81
LTE Band5	3	20415	1	#Mid	QPSK	22.70	20.74
LTE Band5	3	20415	1	#Max	QPSK	22.79	20.83
LTE Band5	3	20415	8	#0	QPSK	21.51	19.55
LTE Band5	3	20415	8	#Mid	QPSK	21.58	19.62
LTE Band5	3	20415	8	#Max	QPSK	21.60	19.64
LTE Band5	3	20415	15	#0	QPSK	21.41	19.45
LTE Band5	3	20525	1	#0	QPSK	22.74	20.78
LTE Band5	3	20525	1	#Mid	QPSK	22.55	20.59
LTE Band5	3	20525	1	#Max	QPSK	22.60	20.64
LTE Band5	3	20525	8	#0	QPSK	21.74	19.78
LTE Band5	3	20525	8	#Mid	QPSK	21.75	19.79
LTE Band5	3	20525	8	#Max	QPSK	21.59	19.63
LTE Band5	3	20525	15	#0	QPSK	21.64	19.68
LTE Band5	3	20635	1	#0	QPSK	22.75	20.79
LTE Band5	3	20635	1	#Mid	QPSK	22.68	20.72

LTE Band5	3	20635	1	#Max	QPSK	22.73	20.77
LTE Band5	3	20635	8	#0	QPSK	21.80	19.84
LTE Band5	3	20635	8	#Mid	QPSK	21.81	19.85
LTE Band5	3	20635	8	#Max	QPSK	21.67	19.71
LTE Band5	3	20635	15	#0	QPSK	21.67	19.71
LTE Band5	5	20425	1	#0	QPSK	22.36	20.40
LTE Band5	5	20425	1	#Mid	QPSK	22.47	20.51
LTE Band5	5	20425	1	#Max	QPSK	22.43	20.47
LTE Band5	5	20425	12	#0	QPSK	21.54	19.58
LTE Band5	5	20425	12	#Mid	QPSK	21.54	19.58
LTE Band5	5	20425	12	#Max	QPSK	21.59	19.63
LTE Band5	5	20425	25	#0	QPSK	21.46	19.50
LTE Band5	5	20525	1	#0	QPSK	22.62	20.66
LTE Band5	5	20525	1	#Mid	QPSK	22.57	20.61
LTE Band5	5	20525	1	#Max	QPSK	22.62	20.66
LTE Band5	5	20525	12	#0	QPSK	21.93	19.97
LTE Band5	5	20525	12	#Mid	QPSK	21.94	19.98
LTE Band5	5	20525	12	#Max	QPSK	21.69	19.73
LTE Band5	5	20525	25	#0	QPSK	21.67	19.71
LTE Band5	5	20625	1	#0	QPSK	22.62	20.66
LTE Band5	5	20625	1	#Mid	QPSK	22.52	20.56
LTE Band5	5	20625	1	#Max	QPSK	22.41	20.45
LTE Band5	5	20625	12	#0	QPSK	21.80	19.84
LTE Band5	5	20625	12	#Mid	QPSK	21.64	19.68
LTE Band5	5	20625	12	#Max	QPSK	21.65	19.69
LTE Band5	5	20625	25	#0	QPSK	21.76	19.80
LTE Band5	10	20450	1	#0	QPSK	22.50	20.54
LTE Band5	10	20450	1	#Mid	QPSK	22.80	20.84
LTE Band5	10	20450	1	#Max	QPSK	22.68	20.72
LTE Band5	10	20450	25	#0	QPSK	21.65	19.69
LTE Band5	10	20450	25	#Mid	QPSK	21.66	19.70
LTE Band5	10	20450	25	#Max	QPSK	21.66	19.70
LTE Band5	10	20450	50	#0	QPSK	21.64	19.68
LTE Band5	10	20525	1	#0	QPSK	22.75	20.79
LTE Band5	10	20525	1	#Mid	QPSK	22.79	20.83
LTE Band5	10	20525	1	#Max	QPSK	22.54	20.58
LTE Band5	10	20525	25	#0	QPSK	21.81	19.85
LTE Band5	10	20525	25	#Mid	QPSK	21.81	19.85
LTE Band5	10	20525	25	#Max	QPSK	21.56	19.60
LTE Band5	10	20525	50	#0	QPSK	21.71	19.75
LTE Band5	10	20600	1	#0	QPSK	22.65	20.69
LTE Band5	10	20600	1	#Mid	QPSK	23.20	21.24
LTE Band5	10	20600	1	#Max	QPSK	22.53	20.57
LTE Band5	10	20600	25	#0	QPSK	21.76	19.80

LTE Band5	10	20600	25	#Mid	QPSK	21.76	19.80
LTE Band5	10	20600	25	#Max	QPSK	21.81	19.85
LTE Band5	10	20600	50	#0	QPSK	21.70	19.74
LTE Band5	1.4	20407	1	#0	16QAM	22.61	20.65
LTE Band5	1.4	20407	1	#Mid	16QAM	22.64	20.68
LTE Band5	1.4	20407	1	#Max	16QAM	22.40	20.44
LTE Band5	1.4	20407	3	#0	16QAM	22.11	20.15
LTE Band5	1.4	20407	3	#Mid	16QAM	22.12	20.16
LTE Band5	1.4	20407	3	#Max	16QAM	22.11	20.15
LTE Band5	1.4	20407	6	#0	16QAM	20.86	18.90
LTE Band5	1.4	20525	1	#0	16QAM	22.47	20.51
LTE Band5	1.4	20525	1	#Mid	16QAM	22.41	20.45
LTE Band5	1.4	20525	1	#Max	16QAM	22.42	20.46
LTE Band5	1.4	20525	3	#0	16QAM	22.19	20.23
LTE Band5	1.4	20525	3	#Mid	16QAM	22.04	20.08
LTE Band5	1.4	20525	3	#Max	16QAM	21.77	19.81
LTE Band5	1.4	20525	6	#0	16QAM	20.80	18.84
LTE Band5	1.4	20643	1	#0	16QAM	20.86	18.90
LTE Band5	1.4	20643	1	#Mid	16QAM	21.20	19.24
LTE Band5	1.4	20643	1	#Max	16QAM	20.80	18.84
LTE Band5	1.4	20643	3	#0	16QAM	21.33	19.37
LTE Band5	1.4	20643	3	#Mid	16QAM	21.10	19.14
LTE Band5	1.4	20643	3	#Max	16QAM	20.90	18.94
LTE Band5	1.4	20643	6	#0	16QAM	20.05	18.09
LTE Band5	3	20415	1	#0	16QAM	22.11	20.15
LTE Band5	3	20415	1	#Mid	16QAM	22.18	20.22
LTE Band5	3	20415	1	#Max	16QAM	22.02	20.06
LTE Band5	3	20415	8	#0	16QAM	21.04	19.08
LTE Band5	3	20415	8	#Mid	16QAM	21.05	19.09
LTE Band5	3	20415	8	#Max	16QAM	21.14	19.18
LTE Band5	3	20415	15	#0	16QAM	20.81	18.85
LTE Band5	3	20525	1	#0	16QAM	22.39	20.43
LTE Band5	3	20525	1	#Mid	16QAM	22.16	20.20
LTE Band5	3	20525	1	#Max	16QAM	22.12	20.16
LTE Band5	3	20525	8	#0	16QAM	21.08	19.12
LTE Band5	3	20525	8	#Mid	16QAM	20.94	18.98
LTE Band5	3	20525	8	#Max	16QAM	20.91	18.95
LTE Band5	3	20525	15	#0	16QAM	21.00	19.04
LTE Band5	3	20635	1	#0	16QAM	21.31	19.35
LTE Band5	3	20635	1	#Mid	16QAM	21.21	19.25
LTE Band5	3	20635	1	#Max	16QAM	20.51	18.55
LTE Band5	3	20635	8	#0	16QAM	20.33	18.37
LTE Band5	3	20635	8	#Mid	16QAM	20.20	18.24
LTE Band5	3	20635	8	#Max	16QAM	20.14	18.18

LTE Band5	3	20635	15	#0	16QAM	20.24	18.28
LTE Band5	5	20425	1	#0	16QAM	21.99	20.03
LTE Band5	5	20425	1	#Mid	16QAM	22.22	20.26
LTE Band5	5	20425	1	#Max	16QAM	22.20	20.24
LTE Band5	5	20425	12	#0	16QAM	20.95	18.99
LTE Band5	5	20425	12	#Mid	16QAM	20.71	18.75
LTE Band5	5	20425	12	#Max	16QAM	20.67	18.71
LTE Band5	5	20425	25	#0	16QAM	20.85	18.89
LTE Band5	5	20525	1	#0	16QAM	21.89	19.93
LTE Band5	5	20525	1	#Mid	16QAM	21.49	19.53
LTE Band5	5	20525	1	#Max	16QAM	21.56	19.60
LTE Band5	5	20525	12	#0	16QAM	20.88	18.92
LTE Band5	5	20525	12	#Mid	16QAM	21.16	19.20
LTE Band5	5	20525	12	#Max	16QAM	20.55	18.59
LTE Band5	5	20525	25	#0	16QAM	20.80	18.84
LTE Band5	5	20625	1	#0	16QAM	21.33	19.37
LTE Band5	5	20625	1	#Mid	16QAM	20.83	18.87
LTE Band5	5	20625	1	#Max	16QAM	20.85	18.89
LTE Band5	5	20625	12	#0	16QAM	20.28	18.32
LTE Band5	5	20625	12	#Mid	16QAM	20.38	18.42
LTE Band5	5	20625	12	#Max	16QAM	20.18	18.22
LTE Band5	5	20625	25	#0	16QAM	20.39	18.43
LTE Band5	10	20450	1	#0	16QAM	22.15	20.19
LTE Band5	10	20450	1	#Mid	16QAM	22.30	20.34
LTE Band5	10	20450	1	#Max	16QAM	21.96	20.00
LTE Band5	10	20450	25	#0	16QAM	21.01	19.05
LTE Band5	10	20450	25	#Mid	16QAM	21.00	19.04
LTE Band5	10	20450	25	#Max	16QAM	21.18	19.22
LTE Band5	10	20525	1	#0	16QAM	22.70	20.74
LTE Band5	10	20525	1	#Mid	16QAM	22.48	20.52
LTE Band5	10	20525	1	#Max	16QAM	21.85	19.89
LTE Band5	10	20525	25	#0	16QAM	21.04	19.08
LTE Band5	10	20525	25	#Mid	16QAM	21.14	19.18
LTE Band5	10	20525	25	#Max	16QAM	20.55	18.59
LTE Band5	10	20600	1	#0	16QAM	21.25	19.29
LTE Band5	10	20600	1	#Mid	16QAM	21.97	20.01
LTE Band5	10	20600	1	#Max	16QAM	20.52	18.56
LTE Band5	10	20600	25	#0	16QAM	20.36	18.40
LTE Band5	10	20600	25	#Mid	16QAM	20.57	18.61
LTE Band5	10	20600	25	#Max	16QAM	20.57	18.61

Band	Bandwidth (MHz)	UL Channel	RB Size	RB Position	Modulation	Power (dBm)	ERP (dBm)
LTE Band26	1.4	26797	1	#0	QPSK	23.00	21.04
LTE Band26	1.4	26797	1	#Mid	QPSK	23.16	21.20
LTE Band26	1.4	26797	1	#Max	QPSK	23.14	21.18
LTE Band26	1.4	26797	3	#0	QPSK	22.73	20.77
LTE Band26	1.4	26797	3	#Mid	QPSK	22.73	20.77
LTE Band26	1.4	26797	3	#Max	QPSK	22.79	20.83
LTE Band26	1.4	26797	6	#0	QPSK	21.57	19.61
LTE Band26	1.4	26915	1	#0	QPSK	23.03	21.07
LTE Band26	1.4	26915	1	#Mid	QPSK	23.14	21.18
LTE Band26	1.4	26915	1	#Max	QPSK	22.92	20.96
LTE Band26	1.4	26915	3	#0	QPSK	22.99	21.03
LTE Band26	1.4	26915	3	#Mid	QPSK	22.99	21.03
LTE Band26	1.4	26915	3	#Max	QPSK	22.89	20.93
LTE Band26	1.4	26915	6	#0	QPSK	21.95	19.99
LTE Band26	1.4	27033	1	#0	QPSK	22.78	20.82
LTE Band26	1.4	27033	1	#Mid	QPSK	22.96	21.00
LTE Band26	1.4	27033	1	#Max	QPSK	22.72	20.76
LTE Band26	1.4	27033	3	#0	QPSK	22.92	20.96
LTE Band26	1.4	27033	3	#Mid	QPSK	22.92	20.96
LTE Band26	1.4	27033	3	#Max	QPSK	22.73	20.77
LTE Band26	1.4	27033	6	#0	QPSK	21.81	19.85
LTE Band26	3	26805	1	#0	QPSK	22.79	20.83
LTE Band26	3	26805	1	#Mid	QPSK	22.60	20.64
LTE Band26	3	26805	1	#Max	QPSK	22.57	20.61
LTE Band26	3	26805	8	#0	QPSK	21.63	19.67
LTE Band26	3	26805	8	#Mid	QPSK	21.63	19.67
LTE Band26	3	26805	8	#Max	QPSK	21.56	19.60
LTE Band26	3	26805	15	#0	QPSK	21.50	19.54
LTE Band26	3	26915	1	#0	QPSK	23.08	21.12
LTE Band26	3	26915	1	#Mid	QPSK	23.01	21.05
LTE Band26	3	26915	1	#Max	QPSK	22.98	21.02
LTE Band26	3	26915	8	#0	QPSK	21.94	19.98
LTE Band26	3	26915	8	#Mid	QPSK	21.95	19.99
LTE Band26	3	26915	8	#Max	QPSK	21.86	19.90
LTE Band26	3	26915	15	#0	QPSK	21.88	19.92
LTE Band26	3	27025	1	#0	QPSK	22.95	20.99
LTE Band26	3	27025	1	#Mid	QPSK	22.86	20.90
LTE Band26	3	27025	1	#Max	QPSK	22.81	20.85
LTE Band26	3	27025	8	#0	QPSK	21.88	19.92
LTE Band26	3	27025	8	#Mid	QPSK	21.89	19.93
LTE Band26	3	27025	8	#Max	QPSK	21.85	19.89

LTE Band26	3	27025	15	#0	QPSK	21.84	19.88
LTE Band26	5	26815	1	#0	QPSK	22.52	20.56
LTE Band26	5	26815	1	#Mid	QPSK	22.45	20.49
LTE Band26	5	26815	1	#Max	QPSK	22.40	20.44
LTE Band26	5	26815	12	#0	QPSK	21.48	19.52
LTE Band26	5	26815	12	#Mid	QPSK	21.48	19.52
LTE Band26	5	26815	12	#Max	QPSK	21.51	19.55
LTE Band26	5	26815	25	#0	QPSK	21.48	19.52
LTE Band26	5	26915	1	#0	QPSK	22.75	20.79
LTE Band26	5	26915	1	#Mid	QPSK	22.58	20.62
LTE Band26	5	26915	1	#Max	QPSK	22.59	20.63
LTE Band26	5	26915	12	#0	QPSK	22.03	20.07
LTE Band26	5	26915	12	#Mid	QPSK	22.03	20.07
LTE Band26	5	26915	12	#Max	QPSK	21.85	19.89
LTE Band26	5	26915	25	#0	QPSK	21.95	19.99
LTE Band26	5	27015	1	#0	QPSK	22.74	20.78
LTE Band26	5	27015	1	#Mid	QPSK	22.82	20.86
LTE Band26	5	27015	1	#Max	QPSK	22.62	20.66
LTE Band26	5	27015	12	#0	QPSK	21.86	19.90
LTE Band26	5	27015	12	#Mid	QPSK	21.87	19.91
LTE Band26	5	27015	12	#Max	QPSK	21.81	19.85
LTE Band26	5	27015	25	#0	QPSK	21.83	19.87
LTE Band26	10	26840	1	#0	QPSK	22.78	20.82
LTE Band26	10	26840	1	#Mid	QPSK	23.08	21.12
LTE Band26	10	26840	1	#Max	QPSK	22.67	20.71
LTE Band26	10	26840	25	#0	QPSK	21.60	19.64
LTE Band26	10	26840	25	#Mid	QPSK	21.58	19.62
LTE Band26	10	26840	25	#Max	QPSK	21.81	19.85
LTE Band26	10	26840	50	#0	QPSK	21.70	19.74
LTE Band26	10	26915	1	#0	QPSK	22.73	20.77
LTE Band26	10	26915	1	#Mid	QPSK	22.98	21.02
LTE Band26	10	26915	1	#Max	QPSK	22.50	20.54
LTE Band26	10	26915	25	#0	QPSK	21.90	19.94
LTE Band26	10	26915	25	#Mid	QPSK	21.91	19.95
LTE Band26	10	26915	25	#Max	QPSK	21.69	19.73
LTE Band26	10	26915	50	#0	QPSK	21.82	19.86
LTE Band26	10	26990	1	#0	QPSK	22.92	20.96
LTE Band26	10	26990	1	#Mid	QPSK	23.28	21.32
LTE Band26	10	26990	1	#Max	QPSK	22.79	20.83
LTE Band26	10	26990	25	#0	QPSK	21.86	19.90
LTE Band26	10	26990	25	#Mid	QPSK	21.86	19.90
LTE Band26	10	26990	25	#Max	QPSK	21.90	19.94
LTE Band26	10	26990	50	#0	QPSK	21.81	19.85
LTE Band26	15	26865	1	#0	QPSK	22.74	20.78

LTE Band26	15	26865	1	#Mid	QPSK	22.88	20.92
LTE Band26	15	26865	1	#Max	QPSK	22.67	20.71
LTE Band26	15	26865	36	#0	QPSK	21.77	19.81
LTE Band26	15	26865	36	#Mid	QPSK	21.69	19.73
LTE Band26	15	26865	36	#Max	QPSK	21.75	19.79
LTE Band26	15	26865	75	#0	QPSK	21.69	19.73
LTE Band26	15	26915	1	#0	QPSK	22.87	20.91
LTE Band26	15	26915	1	#Mid	QPSK	22.92	20.96
LTE Band26	15	26915	1	#Max	QPSK	22.74	20.78
LTE Band26	15	26915	36	#0	QPSK	21.92	19.96
LTE Band26	15	26915	36	#Mid	QPSK	21.93	19.97
LTE Band26	15	26915	36	#Max	QPSK	21.68	19.72
LTE Band26	15	26915	75	#0	QPSK	21.81	19.85
LTE Band26	15	26965	1	#0	QPSK	22.79	20.83
LTE Band26	15	26965	1	#Mid	QPSK	22.66	20.70
LTE Band26	15	26965	1	#Max	QPSK	22.68	20.72
LTE Band26	15	26965	36	#0	QPSK	21.73	19.77
LTE Band26	15	26965	36	#Mid	QPSK	21.74	19.78
LTE Band26	15	26965	36	#Max	QPSK	21.74	19.78
LTE Band26	15	26965	75	#0	QPSK	21.47	19.51
LTE Band26	1.4	26797	1	#0	16QAM	22.50	20.54
LTE Band26	1.4	26797	1	#Mid	16QAM	22.55	20.59
LTE Band26	1.4	26797	1	#Max	16QAM	22.28	20.32
LTE Band26	1.4	26797	3	#0	16QAM	21.98	20.02
LTE Band26	1.4	26797	3	#Mid	16QAM	22.10	20.14
LTE Band26	1.4	26797	3	#Max	16QAM	22.08	20.12
LTE Band26	1.4	26797	6	#0	16QAM	20.93	18.97
LTE Band26	1.4	26915	1	#0	16QAM	22.57	20.61
LTE Band26	1.4	26915	1	#Mid	16QAM	22.60	20.64
LTE Band26	1.4	26915	1	#Max	16QAM	22.63	20.67
LTE Band26	1.4	26915	3	#0	16QAM	22.20	20.24
LTE Band26	1.4	26915	3	#Mid	16QAM	22.17	20.21
LTE Band26	1.4	26915	3	#Max	16QAM	22.04	20.08
LTE Band26	1.4	26915	6	#0	16QAM	21.07	19.11
LTE Band26	1.4	27033	1	#0	16QAM	21.20	19.24
LTE Band26	1.4	27033	1	#Mid	16QAM	20.98	19.02
LTE Band26	1.4	27033	1	#Max	16QAM	20.98	19.02
LTE Band26	1.4	27033	3	#0	16QAM	21.07	19.11
LTE Band26	1.4	27033	3	#Mid	16QAM	20.81	18.85
LTE Band26	1.4	27033	3	#Max	16QAM	21.18	19.22
LTE Band26	1.4	27033	6	#0	16QAM	20.32	18.36
LTE Band26	3	26805	1	#0	16QAM	22.18	20.22
LTE Band26	3	26805	1	#Mid	16QAM	21.89	19.93
LTE Band26	3	26805	1	#Max	16QAM	21.84	19.88

LTE Band26	3	26805	8	#0	16QAM	21.07	19.11
LTE Band26	3	26805	8	#Mid	16QAM	21.31	19.35
LTE Band26	3	26805	8	#Max	16QAM	21.02	19.06
LTE Band26	3	26805	15	#0	16QAM	20.86	18.90
LTE Band26	3	26915	1	#0	16QAM	22.66	20.70
LTE Band26	3	26915	1	#Mid	16QAM	22.38	20.42
LTE Band26	3	26915	1	#Max	16QAM	22.27	20.31
LTE Band26	3	26915	8	#0	16QAM	21.22	19.26
LTE Band26	3	26915	8	#Mid	16QAM	21.16	19.20
LTE Band26	3	26915	8	#Max	16QAM	20.77	18.81
LTE Band26	3	26915	15	#0	16QAM	20.81	18.85
LTE Band26	3	27025	1	#0	16QAM	21.33	19.37
LTE Band26	3	27025	1	#Mid	16QAM	21.06	19.10
LTE Band26	3	27025	1	#Max	16QAM	20.97	19.01
LTE Band26	3	27025	8	#0	16QAM	20.70	18.74
LTE Band26	3	27025	8	#Mid	16QAM	20.31	18.35
LTE Band26	3	27025	8	#Max	16QAM	20.05	18.09
LTE Band26	3	27025	15	#0	16QAM	20.29	18.33
LTE Band26	5	26815	1	#0	16QAM	21.85	19.89
LTE Band26	5	26815	1	#Mid	16QAM	21.71	19.75
LTE Band26	5	26815	1	#Max	16QAM	21.78	19.82
LTE Band26	5	26815	12	#0	16QAM	20.44	18.48
LTE Band26	5	26815	12	#Mid	16QAM	20.63	18.67
LTE Band26	5	26815	12	#Max	16QAM	20.43	18.47
LTE Band26	5	26815	25	#0	16QAM	20.77	18.81
LTE Band26	5	26915	1	#0	16QAM	22.28	20.32
LTE Band26	5	26915	1	#Mid	16QAM	22.23	20.27
LTE Band26	5	26915	1	#Max	16QAM	22.02	20.06
LTE Band26	5	26915	12	#0	16QAM	20.80	18.84
LTE Band26	5	26915	12	#Mid	16QAM	20.84	18.88
LTE Band26	5	26915	12	#Max	16QAM	20.50	18.54
LTE Band26	5	26915	25	#0	16QAM	20.69	18.73
LTE Band26	5	27015	1	#0	16QAM	21.15	19.19
LTE Band26	5	27015	1	#Mid	16QAM	21.16	19.20
LTE Band26	5	27015	1	#Max	16QAM	21.25	19.29
LTE Band26	5	27015	12	#0	16QAM	20.44	18.48
LTE Band26	5	27015	12	#Mid	16QAM	20.45	18.49
LTE Band26	5	27015	12	#Max	16QAM	19.93	17.97
LTE Band26	5	27015	25	#0	16QAM	20.31	18.35
LTE Band26	10	26840	1	#0	16QAM	22.24	20.28
LTE Band26	10	26840	1	#Mid	16QAM	22.25	20.29
LTE Band26	10	26840	1	#Max	16QAM	22.08	20.12
LTE Band26	10	26840	25	#0	16QAM	20.99	19.03
LTE Band26	10	26840	25	#Mid	16QAM	20.94	18.98

LTE Band26	10	26840	25	#Max	16QAM	21.16	19.20
LTE Band26	10	26915	1	#0	16QAM	22.54	20.58
LTE Band26	10	26915	1	#Mid	16QAM	23.00	21.04
LTE Band26	10	26915	1	#Max	16QAM	21.87	19.91
LTE Band26	10	26915	25	#0	16QAM	21.07	19.11
LTE Band26	10	26915	25	#Mid	16QAM	21.13	19.17
LTE Band26	10	26915	25	#Max	16QAM	20.83	18.87
LTE Band26	10	26990	1	#0	16QAM	21.29	19.33
LTE Band26	10	26990	1	#Mid	16QAM	22.00	20.04
LTE Band26	10	26990	1	#Max	16QAM	20.61	18.65
LTE Band26	10	26990	25	#0	16QAM	20.48	18.52
LTE Band26	10	26990	25	#Mid	16QAM	20.53	18.57
LTE Band26	10	26990	25	#Max	16QAM	20.42	18.46
LTE Band26	15	26865	1	#0	16QAM	22.28	20.32
LTE Band26	15	26865	1	#Mid	16QAM	22.23	20.27
LTE Band26	15	26865	1	#Max	16QAM	21.74	19.78
LTE Band26	15	26915	1	#0	16QAM	22.54	20.58
LTE Band26	15	26915	1	#Mid	16QAM	22.70	20.74
LTE Band26	15	26915	1	#Max	16QAM	21.93	19.97
LTE Band26	15	26965	1	#0	16QAM	21.82	19.86
LTE Band26	15	26965	1	#Mid	16QAM	20.82	18.86
LTE Band26	15	26965	1	#Max	16QAM	20.13	18.17

6.2. Radiated Spurious Emission

Sweep the whole frequency band through the range from 9kHz to the 10th harmonic of the carrier, the emissions below the noise floor will not be recorded in the report.

LTE Band 5 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.00	-65.10	1.70	8.70	Vertical	-60.25	-13.00	47.25	14
3	2509.50	-60.81	2.30	12.00	Vertical	-53.26	-13.00	40.26	188
4	3346.00	-65.26	2.70	12.70	Vertical	-57.41	-13.00	44.41	97
5	4182.50	-63.47	3.00	12.50	Vertical	-56.12	-13.00	43.12	176
6	5019.00	-62.25	3.40	12.50	Vertical	-55.30	-13.00	42.30	305
7	5855.50	-60.98	3.40	12.80	Vertical	-53.73	-13.00	40.73	99
8	6692.00	-58.44	4.10	11.50	Vertical	-53.19	-13.00	40.19	0
9	7528.50	-56.32	4.20	12.20	Vertical	-50.47	-13.00	37.47	31
10	8365.00	-55.42	4.30	12.50	Vertical	-49.37	-13.00	36.37	226

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.

LTE Band 5 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1668.60	-66.23	1.70	8.70	Vertical	-61.38	-13.00	48.38	22
3	2503.30	-57.20	2.30	12.00	Vertical	-49.65	-13.00	36.65	217
4	3336.00	-66.01	2.70	12.70	Vertical	-58.16	-13.00	45.16	276
5	4170.00	-63.77	3.00	12.50	Vertical	-56.42	-13.00	43.42	66
6	5004.00	-60.23	3.40	12.50	Vertical	-53.28	-13.00	40.28	46
7	5838.00	-61.18	3.40	12.80	Vertical	-53.93	-13.00	40.93	305
8	6672.00	-58.61	4.10	11.50	Vertical	-53.36	-13.00	40.36	187
9	7506.00	-56.99	4.20	12.20	Vertical	-51.14	-13.00	38.14	27
10	8340.00	-56.16	4.30	12.50	Vertical	-50.11	-13.00	37.11	196

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
2. The worst emission was found in the antenna is Vertical position.

LTE Band 5 10MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1663.00	-66.12	1.70	8.70	Vertical	-61.27	-13.00	48.27	225
3	2494.50	-56.78	2.30	12.00	Vertical	-49.23	-13.00	36.23	298
4	3326.00	-66.02	2.70	12.70	Vertical	-58.17	-13.00	45.17	305
5	4157.50	-63.85	3.00	12.50	Vertical	-56.50	-13.00	43.50	226
6	4989.00	-62.31	3.40	12.50	Vertical	-55.36	-13.00	42.36	111
7	5820.50	-60.84	3.40	12.80	Vertical	-53.59	-13.00	40.59	30
8	6652.00	-58.41	4.10	11.50	Vertical	-53.16	-13.00	40.16	296
9	7483.50	-56.43	4.20	12.20	Vertical	-50.58	-13.00	37.58	17
10	8315.00	-55.98	4.30	12.50	Vertical	-49.93	-13.00	36.93	305

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
 2. The worst emission was found in the antenna is Vertical position.

LTE Band 26 1.4MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1673.00	-66.32	1.70	8.70	Vertical	-61.47	-13.00	48.47	270
3	2509.50	-60.19	2.30	12.00	Vertical	-52.64	-13.00	39.64	315
4	3346.00	-65.72	2.70	12.70	Vertical	-57.87	-13.00	44.87	46
5	4182.50	-64.02	3.00	12.50	Vertical	-56.67	-13.00	43.67	304
6	5019.00	-59.62	3.40	12.50	Vertical	-52.67	-13.00	39.67	296
7	5855.50	-60.62	3.40	12.80	Vertical	-53.37	-13.00	40.37	310
8	6692.00	-59.14	4.10	11.50	Vertical	-53.89	-13.00	40.89	4
9	7528.50	-57.50	4.20	12.20	Vertical	-51.65	-13.00	38.65	176
10	8365.00	-56.89	4.30	12.50	Vertical	-50.84	-13.00	37.84	229

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
 2. The worst emission was found in the antenna is Vertical position.

LTE Band 26 5MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1668.00	-67.79	1.70	8.70	Vertical	-62.94	-13.00	49.94	2
3	2502.00	-59.45	2.30	12.00	Vertical	-51.90	-13.00	38.90	315
4	3336.00	-66.01	2.70	12.70	Vertical	-58.16	-13.00	45.16	89
5	4170.00	-63.80	3.00	12.50	Vertical	-56.45	-13.00	43.45	305
6	5004.00	-59.29	3.40	12.50	Vertical	-52.34	-13.00	39.34	66
7	5838.00	-61.33	3.40	12.80	Vertical	-54.08	-13.00	41.08	49
8	6672.00	-59.69	4.10	11.50	Vertical	-54.44	-13.00	41.44	186
9	7506.00	-56.19	4.20	12.20	Vertical	-50.34	-13.00	37.34	31
10	8340.00	-56.06	4.30	12.50	Vertical	-50.01	-13.00	37.01	280

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
 2. The worst emission was found in the antenna is Vertical position.

LTE Band 26 15MHz CH-Middle

Harmonic	Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	1658.00	-65.85	1.70	8.70	Vertical	-61.00	-13.00	48.00	270
3	2487.00	-56.70	2.30	12.00	Vertical	-49.15	-13.00	36.15	315
4	3316.00	-65.37	2.70	12.70	Vertical	-57.52	-13.00	44.52	179
5	4145.00	-63.01	3.00	12.50	Vertical	-55.66	-13.00	42.66	305
6	4974.00	-61.50	3.40	12.50	Vertical	-54.55	-13.00	41.55	176
7	5803.00	-61.04	3.40	12.80	Vertical	-53.79	-13.00	40.79	229
8	6632.00	-58.32	4.10	11.50	Vertical	-53.07	-13.00	40.07	93
9	7461.00	-55.90	4.20	12.20	Vertical	-50.05	-13.00	37.05	176
10	8290.00	-55.97	4.30	12.50	Vertical	-49.92	-13.00	36.92	28

Note: 1. The other Spurious RF Radiated emissions level is no more than noise floor.
 2. The worst emission was found in the antenna is Vertical position.

7. Main Test Instruments

Name	Manufacturer	Type	Serial Number	Calibration Date	Expiration Date
Wireless Communication Tester	R&S	CMW500	150415	2023-05-12	2024-05-11
Spectrum Analyzer	R&S	FSV30	104028	2023-05-12	2024-05-11
Loop Antenna	SCHWARZBECK	FMZB1519	1519-047	2023-04-16	2026-04-15
TRILOG Broadband Antenna	SCHWARZBECK	VULB 9163	01439	2021-06-30	2024-06-29
Horn Antenna	Schwarzbeck	BBHA 9120D	01799	2022-09-01	2025-08-31
Software	R&S	EMC32	10.35.10	/	/

ANNEX A: The EUT Appearance

The EUT Appearance is submitted separately.

ANNEX B: Test Setup Photos

The Test Setup Photos is submitted separately.

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