

TEST REPORT

FCC ID: 2AQLY-SUMMIT

Product: Handheld Translation And Recording Device

Model No.: Summit

Additional Model No.: G1, Pro, G2, G3, G4, G5

Trade Mark: Langogo

Report No.: TCT191024E039

Issued Date: Nov. 28, 2019

Issued for:

Langogo Technology Co., LTD.

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518000, China**

Issued By:

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TABLE OF CONTENTS

1. Test Certification	3
2. Test Result Summary	3
3. EUT Description.....	5
4. General Information.....	9
4.1. Test environment and mode.....	9
4.2. Test Mode.....	13
4.3. Description of Support Units	16
4.4. Configuration of Tested System.....	16
4.5. Measurement Results Explanation Example.....	16
5. Facilities and Accreditations	17
5.1. Facilities	17
5.2. Location.....	17
5.3. Measurement Uncertainty	17
6. Test Results and Measurement Data.....	18
6.1. Conducted Output Power Measurement.....	18
6.2. Peak to Average Ratio	19
6.3. 99% Occupied Bandwidth and 26dB Bandwidth Measurement.....	20
6.4. Band Edge and Conducted Spurious Emission Measurement.....	21
6.5. Field Strength of Spurious Radiation Measurement	23
6.6. Frequency Stability Measurement.....	39
Appendix A: Photographs of Test Setup	
Appendix B: Photographs of EUT	
Test Data: Refer to Appendix For LTE Band 2, Appendix For LTE Band 4,	
Appendix For LTE Band 5, Appendix For LTE Band 7,	
Appendix For LTE Band 26, Appendix For LTE Band 41	

1. Test Certification

Product:	Handheld Translation And Recording Device
Model No.:	Summit
Additional Model:	G1, Pro, G2, G3, G4, G5
Trade Mark:	Langogo
Applicant:	Langogo Technology Co., LTD.
Address:	2 / F, Boxun Building, Keyuan North Road, Nanshan District, Shenzhen 518000, China
Manufacturer:	Jiangxi Hongyaoda Communication Co., Ltd.
Address:	No.69, North Huangjin Avenue, Ganzhou Economic and Technological Development Zone, Ganzhou City, Jiangxi Province, China
Date of Test:	Oct. 25, 2019 – Nov. 27, 2019
Applicable Standards:	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part22 FCC CFR Title 47 Part24 FCC CFR Title 47 Part27

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:Kevin Huang**Kevin Huang****Date:**Nov. 27, 2019**Reviewed By:**Beryl Zhao**Beryl Zhao****Date:**Nov. 28, 2019**Approved By:**Tomsin**Tomsin****Date:**Nov. 28, 2019

2. Test Result Summary

Requirement	CFR 47 Section	Result
Conducted Output Power	§2.1046; §22.913; §24.232(c); §27.50(d); §27.50(c); §27.50(b);	PASS
Peak-to-Average Ratio	§2.1046; §24.232(d) §27.50(d); §27.50(c); §27.50(b);	PASS
Effective Radiated Power	§2.1046; §22.913; §24.232(c); §27.50(d); §27.50(c); §27.50(b);	PASS
Equivalent Isotropic Radiated Power	§2.1046; §22.913; §24.232(c); §27.50(d); §27.50(c); §27.50(b);	PASS
Occupied Bandwidth	§2.1049; §24.238(b); §27.53;	PASS
Band Edge	§2.1051; §22.917(a); §27.53(h); §27.53(c); §27.53(g); §24.238(a);	PASS
Conducted Spurious Emission	§2.1051; §22.917(a); §27.53(h); §27.53(g); §27.53(c); §24.238(a);	PASS
Field Strength of Spurious Radiation	§2.1053; §22.917(a); §27.53(g) ; §27.53(c); §27.53(h); §24.238(a);	PASS
Frequency Stability for Temperature & Voltage	§2.1055; §22.355; §27.54; §24.235;	PASS

Note:

1. PASS: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.

3. EUT Description

Product Name:	Handheld Translation And Recording Device
Model :	Summit
Additional Model:	G1, Pro, G2, G3, G4, G5
Trade Mark:	Langogo
Tx Frequency:	LTE Band 2: 1850 MHz ~ 1910 MHz LTE Band 4: 1710 MHz ~ 1755 MHz LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 26: 824 MHz ~ 849 MHz LTE Band 41: 2555 MHz ~ 2655 MHz
Rx Frequency:	LTE Band 2: 1930MHz ~ 1990 MHz LTE Band 4: 2110 MHz ~ 2155 MHz LTE Band 5: 869 MHz ~ 894 MHz LTE Band 7: 2620 MHz ~ 2690 MHz LTE Band 26: 869 MHz ~ 894 MHz LTE Band 41: 2555 MHz ~ 2655 MHz
Bandwidth:	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 7: 5MHz /10MHz/15MHz /20MHz LTE Band 26: 1.4MHz /3MHz /5MHz /10MHz /15MHz LTE Band 41: 5MHz /10MHz /15MHz /20MHz
Maximum Output Power to Antenna:	LTE Band 2: 23.27dBm LTE Band 4: 22.82dBm LTE Band 5: 23.70dBm LTE Band 7: 23.20dBm LTE Band 26: 23.42dBm LTE Band 41: 23.01dBm
99% Occupied Bandwidth:	LTE Band 2: 17M9G7D LTE Band 4: 17M9G7D LTE Band 5: 8M97G7D LTE Band 7: 18M0G7D LTE Band 26: 13M5G7D LTE Band 41: 18M0G7D
Type of Modulation:	QPSK/16QAM
Antenna Type:	Internal Antenna
Antenna Gain:	LTE Band 2: 1.54dBi LTE Band 4: 1.75dBi LTE Band 5: 0.54dBi LTE Band 7: 0.99dBi LTE Band 26: 0.54dBi

	LTE Band 41: 0.95dBi
Power Supply:	Rechargeable Li-ion Battery DC 3.85V
Remark:	All models above are identical in interior structure, electrical circuits and components, just model names and colors are different for the marketing requirement.

Emission Designator

LTE Band 2	QPSK		16QAM	
BW(MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
1.4	1M09G7D	0.207	1M08W7D	0.161
3	2M69G7D	0.200	2M68W7D	0.160
5	4M48G7D	0.204	4M48W7D	0.161
10	8M95G7D	0.203	8M96W7D	0.162
15	13M4G7D	0.200	13M4W7D	0.163
20	17M9G7D	0.212	17M9W7D	0.163
LTE Band 4	QPSK		16QAM	
BW(MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
1.4	1M08G7D	0.185	1M08W7D	0.148
3	2M69G7D	0.185	2M68W7D	0.144
5	4M48G7D	0.188	4M48W7D	0.147
10	8M96G7D	0.187	8M94W7D	0.149
15	13M4G7D	0.183	13M4W7D	0.150
20	17M9G7D	0.191	17M9W7D	0.150
LTE Band 5	QPSK		16QAM	
BW(MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
1.4	1M08G7D	0.231	1M08W7D	0.192
3	2M68G7D	0.230	2M68W7D	0.191
5	4M48G7D	0.233	4M48W7D	0.193
10	8M97G7D	0.234	8M96W7D	0.193
LTE Band 7	QPSK		16QAM	
BW(MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
5	4M51G7D	0.208	4M51W7D	0.163
10	9M00G7D	0.207	8M99W7D	0.169
15	13M5G7D	0.201	13M5W7D	0.164
20	18M0G7D	0.209	18M0W7D	0.163

LTE Band 26	QPSK		16QAM	
BW(MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
1.4	1M09G7D	0.216	1M09W7D	0.213
3	2M69G7D	0.213	2M69W7D	0.177
5	4M51G7D	0.216	4M51W7D	0.179
10	8M99G7D	0.218	8M99W7D	0.181
15	13M5G7D	0.220	13M5W7D	0.182
LTE Band 41	QPSK		16QAM	
BW(MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
5	4M51G7D	0.198	4M52W7D	0.195
10	8M99G7D	0.195	8M99W7D	0.162
15	13M5G7D	0.198	13M5W9D	0.164
20	18M0G7D	0.200	17M9W7D	0.166

4. General Information

4.1. Test environment and mode

Operating Environment:

Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar

Test Mode:

Operation mode:	Keep the EUT in continuous transmitting with modulation
-----------------	---------------------------------------------------------

The sample was placed 0.8m above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

Description Operation Frequency

LTE Band 2(1.4MHz)		LTE Band 2(3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
18607	1850.7	18615	1851.5
18900	1880	18900	1880
19193	1909.3	19185	1908.5
LTE Band 2(5MHz)		LTE Band 2(10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
18625	1852.5	18650	1855
18900	1880	18900	1880
19175	1907.5	19150	1905
LTE Band 2(15MHz)		LTE Band 2(20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
18675	1857.5	18700	1860
18900	1880	18900	1880
19125	1902.5	19100	1900

LTE Band 4(1.4MHz)		LTE Band 4(3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
19957	1710.7	19965	1711.5
20175	1732.5	20175	1732.5
20393	1754.3	20385	1753.5
LTE Band 4(5MHz)		LTE Band 4(10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
19975	1712.5	20000	1715
20175	1732.5	20175	1732.5
20375	1752.5	20350	1750
LTE Band 4(15MHz)		LTE Band 4(20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20025	1717.5	20050	1720
20175	1732.5	20175	1732.5
20325	1747.5	20300	1745

LTE Band 5(1.4MHz)		LTE Band 5(3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20407	824.7	20415	825.5
20525	836.5	20525	836.5
20643	848.3	20635	847.5
LTE Band 5(5MHz)		LTE Band 5(10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20425	826.5	20450	829
20525	836.5	20525	836.5
20625	846.5	20600	844

LTE Band 7(5MHz)		LTE Band 7(10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20775	2502.5	20800	2505.0
21100	2535	21100	2535
21425	2567.5	21400	2565.0
LTE Band 7(15MHz)		LTE Band 7(20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20825	2507.5	20850	2510.0
21100	2535	21100	2535
21375	2562.5	21350	2560.0

LTE Band 26(1.4MHz)		LTE Band 26(3MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26797	824.7	26805	825.5
26915	836.5	26915	836.5
27033	848.3	27025	847.5
LTE Band 26(5MHz)		LTE Band 26(10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
26815	826.5	26840	829.0
26915	836.5	26915	836.5
27015	846.5	26990	844.0
LTE Band 26(15MHz)			
Channel	Frequency (MHz)		
26865	831.5		
26915	836.5		
26965	841.5		

LTE Band 41(5MHz)		LTE Band 41(10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
40265	2557.5	40290	2560
40740	2605	40740	2605
41215	2652.5	41190	2650
LTE Band 41(15MHz)		LTE Band 41(20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
40315	2562.5	40340	2565
40740	2605	40740	2605
41165	2647.5	40140	2645

4.2. Test Mode

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Mode		
Band	Radiated TCs	Conducted TCs
LTE Band 2	QPSK Link (1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz)	16QAM Link (1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz)
LTE Band 4	QPSK Link (1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz)	16QAM Link (1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz / 20MHz)
LTE Band 5	QPSK Link (1.4MHz / 3MHz / 5MHz / 10MHz)	16QAM Link (1.4MHz / 3MHz / 5MHz / 10MHz)
LTE Band 7	QPSK Link (5MHz / 10MHz / 15MHz / 20MHz)	16QAM Link (5MHz / 10MHz / 15MHz / 20MHz)
LTE Band 26	QPSK Link (1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz)	16QAM Link (1.4MHz / 3MHz / 5MHz / 10MHz / 15MHz)
LTE Band 41	QPSK Link (5MHz / 10MHz / 15MHz / 20MHz)	16QAM Link (5MHz / 10MHz / 15MHz / 20MHz)

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas License Digital Systems v03 with maximum output power. Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Max. Output Power	2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v
	7	-	-	v	v	v	v	v	v	v	v	v	v	v	v
	26	v	v	v	v	v	-	v	v	v	v	v	v	v	v
	41	-	-	v	v	v	v	v	v	v	v	v	v	v	v
Peak-to-Average Ratio	2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v
	7	-	-	v	v	v	v	v	v	v	v	v	v	v	v
	26	v	v	v	v	v	-	v	v	v	v	v	v	v	v
	41	-	-	v	v	v	v	v	v	v	v	v	v	v	v
26dB and 99% Bandwidth	2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v
	7	-	-	v	v	v	v	v	v	v	v	v	v	v	v
	26	v	v	v	v	v	-	v	v	v	v	v	v	v	v
	41	-	-	v	v	v	v	v	v	v	v	v	v	v	v

Test Items	Band	Bandwidth (MHz)						Modulation		RB #			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1	Half	Full	L	M	H
Conducted Band Edge	2	v	v	v	v	v	v	v	v	v	v	v	v	-	v
	4	v	v	v	v	v	v	v	v	v	v	v	v	-	v
	5	v	v	v	v	-	-	v	v	v	v	v	v	-	v
	7	-	-	v	v	v	v	v	v	v	v	v	v	-	v
	26	v	v	v	v	v	-	v	v	v	v	v	v	v	v
	41	-	-	v	v	v	v	v	v	v	v	v	v	v	v
Conducted Spurious Emission	2	v	v	v	v	v	v	v	v	v	-	-	v	v	v
	4	v	v	v	v	v	v	v	v	v	-	-	v	v	v
	5	v	v	v	v	-	-	v	v	v	-	-	v	v	v
	7	-	-	v	v	v	v	v	v	v	-	-	v	v	v
	26	v	v	v	v	v	-	v	v	v	v	v	v	v	v
	41	-	-	v	v	v	v	v	v	v	v	v	v	v	v
Frequency Stability	2	v	-	-	-	-	-	v	v	v	-	-	v	v	v
	4	v	-	-	-	-	-	v	v	v	-	-	v	v	v
	5	v	-	-	-	-	-	v	v	v	-	-	v	v	v
	7	-	-	v	-	-	-	v	v	v	-	-	v	v	v
	26	v	-	-	-	-	-	v	v	v	-	-	v	v	v
	41	-	-	v	-	-	-	v	v	v	-	-	v	v	v
E.R.P./ E.I.R.P.	2	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	4	v	v	v	v	v	v	v	v	v	v	v	v	v	v
	5	v	v	v	v	-	-	v	v	v	v	v	v	v	v
	7	-	-	v	v	v	v	v	v	v	v	v	v	v	v
	26	v	v	v	v	v	-	v	v	v	v	v	v	v	v
	41	-	-	v	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	2	v	-	-	-	-	-	v	v	v	-	-	v	v	v
	4	v	-	-	-	-	-	v	v	v	-	-	v	v	v
	5	v	-	-	-	-	-	v	v	v	-	-	v	v	v
	7	-	-	v	-	-	-	v	v	v	-	-	v	v	v
	26	v	-	-	-	-	-	v	v	v	-	-	v	v	v
	41	-	-	v	-	-	-	v	v	v	-	-	v	v	v
Note	<ol style="list-style-type: none"> The mark "v" means that this configuration is chosen for testing The mark "-" means that this bandwidth is not supported. 														

4.3. Description of Support Units

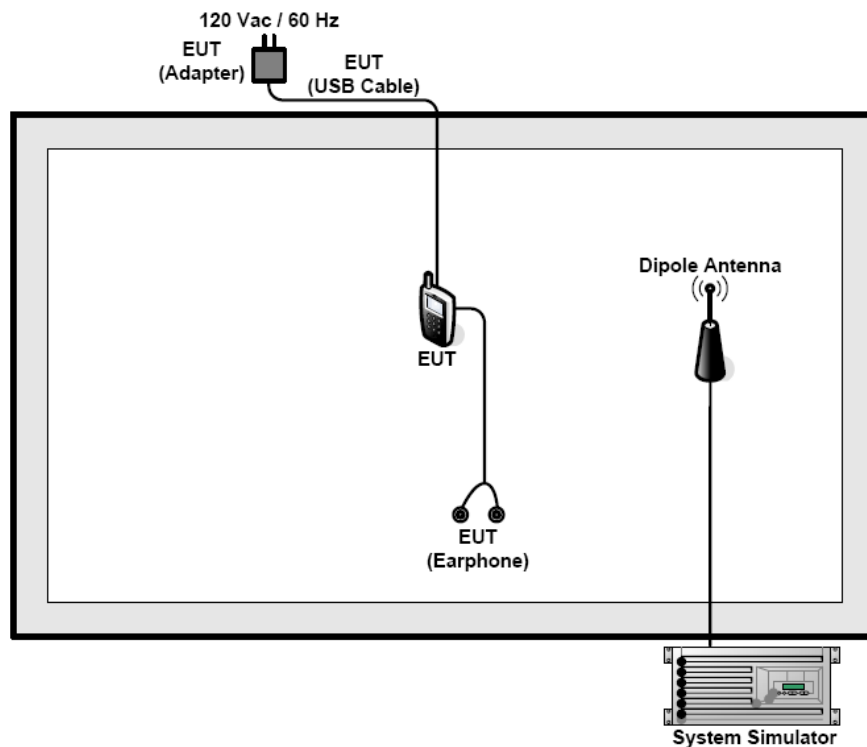
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4. Configuration of Tested System



4.5. Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between RF conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level will be exactly the RF output level. The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

$$\text{Offset} = \text{RF cable loss} + \text{attenuator factor}.$$

5. Facilities and Accreditations

5.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098

Shenzhen Tongce Testing Lab.

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

Shenzhen Tongce Testing Lab

Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

5.3. Measurement Uncertainty

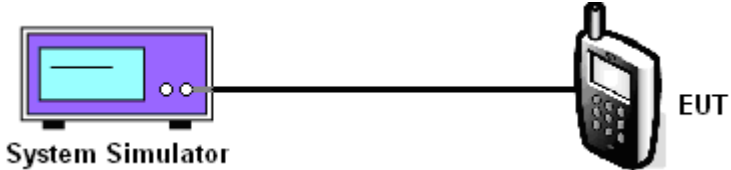
The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 2.56\text{dB}$
2	RF power, conducted	$\pm 0.12\text{dB}$
3	Spurious emissions, conducted	$\pm 0.11\text{dB}$
4	All emissions, radiated(<1G)	$\pm 3.92\text{dB}$
5	All emissions, radiated(>1G)	$\pm 4.28\text{dB}$
6	Temperature	$\pm 0.1^{\circ}\text{C}$
7	Humidity	$\pm 1.0\%$

6. Test Results and Measurement Data

6.1. Conducted Output Power Measurement

6.1.1. Test Specification

Test Requirement:	FCC part 27.50(c), FCC part 27.50(d) and FCC part 27.50(h), FCC part 24.232(c), FCC part 22.913;
Test Method:	FCC part 2.1046
Limits:	LTE Band 2: 2W LTE Band 4: 1W LTE Band 5: 7W LTE Band 7: 2W LTE Band 26: 7W LTE Band 41: 2W
Test Setup:	 <p>The diagram illustrates the test setup. On the left is a 'System Simulator' represented by a purple rectangular box with a screen and two ports. A black cable connects one of these ports to the 'EUT' (Equipment Under Test), which is depicted as a black mobile phone on the right.</p>
Test Procedure:	<ol style="list-style-type: none"> 1. The transmitter output port was connected to the system simulator. 2. Set EUT at maximum power through system simulator. 3. Select lowest, middle, highest channels for each band and different modulation. 4. Measure and record the power level from the system simulator.
Test Result:	PASS

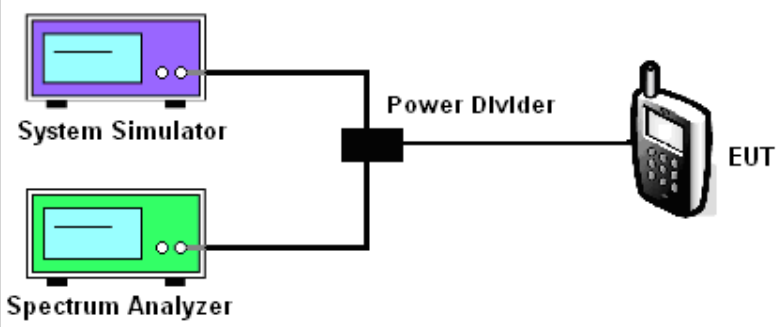
6.1.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Wideband Radio Communication Tester	R&S	CMW500	114220	Jul. 29, 2020
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 08, 2020
Antenna Connector	TCT	RFC-02	N/A	Sep. 08, 2020

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.2. Peak to Average Ratio

6.2.1. Test Specification

Test Requirement:	FCC part 2.1046; 22.913; 24.232; 27.50(d); 27.50(c); 27.50(b)
Test Method:	FCC KDB 971168 D01v03
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup:	 <p>The diagram shows a System Simulator (purple monitor icon) and a Spectrum Analyzer (green monitor icon) connected to a central Power Divider (black box). The Power Divider is then connected to the EUT (Equipment Under Test, represented by a mobile phone icon).</p>
Test Procedure:	<ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 D01v03 Section 5.7.1. 2. The EUT was connected to spectrum analyzer and system simulator via a power divider. 3. Set EUT to transmit at maximum output power. 4. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer. <p>Record the maximum PAPR level associated with a probability of 0.1%.</p>
Test Result:	PASS

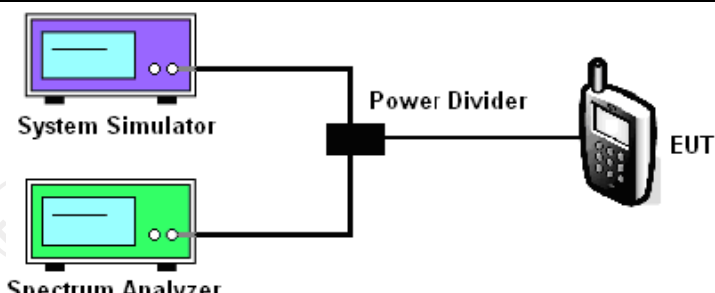
6.2.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Wideband Radio Communication Tester	R&S	CMW500	114220	Jul. 29, 2020
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2020
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 08, 2020
Antenna Connector	TCT	RFC-02	N/A	Sep. 08, 2020

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.3. 99% Occupied Bandwidth and 26dB Bandwidth Measurement

6.3.1. Test Specification

Test Requirement:	FCC part 27.53(h)(3) and FCC part 27.53(m)(6), FCC part 24.238(b)
Test Method:	FCC part 2.1049
Limit:	N/A
Test Setup:	 <p>The diagram illustrates the test setup. A System Simulator (represented by a purple box) and a Spectrum Analyzer (represented by a green box) are connected to a central Power Divider (represented by a black box). The Power Divider is then connected to the EUT (Equipment Under Test, represented by a mobile phone icon).</p>
Test Procedure:	<ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 D01v03 Section 4.2. 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider. 3. The RF output of the EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. 4. The 99% occupied bandwidth were measured, set RBW= 1% of OBW, VBW= 3*RBW, sample detector, trace maximum hold. 5. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3*RBW, peak detector, trace maximum hold.
Test Result:	PASS

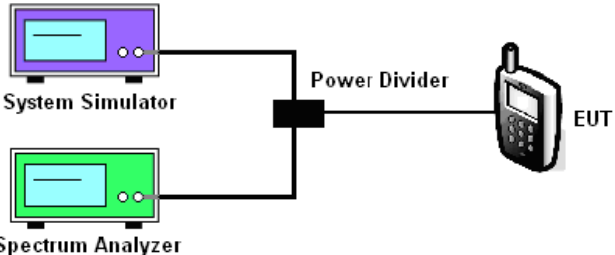
6.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Wideband Radio Communication Tester	R&S	CMW500	114220	Jul. 29, 2020
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2020
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 08, 2020
Antenna Connector	TCT	RFC-02	N/A	Sep. 08, 2020

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.4. Band Edge and Conducted Spurious Emission Measurement

6.4.1. Test Specification

Test Requirement:	FCC part 27.53(h), FCC part 27.53(g) , FCC part 27.53(m)(4), FCC part 24.238(a), 22.917(a)
Test Method:	FCC part2.1051
Limit:	-13dBm
Test Setup:	 <p>The diagram shows a System Simulator (purple box) and a Spectrum Analyzer (green box) connected to a Power Divider (black box). The Power Divider is connected to the EUT (Equipment Under Test, represented by a mobile phone icon).</p>
Test Procedure:	<ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 D01v03 Section 6.0. 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider. 3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement. 4. The band edges of low and high channels for the highest RF powers were measured. 5. The conducted spurious emission for the whole frequency range was taken. 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band. 7. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power $P(\text{Watts}) = P(\text{W}) - [43 + 10\log(P)] (\text{dB}) = [30 + 10\log(P)] (\text{dBm}) - [43 + 10\log(P)] (\text{dB}) = -13\text{dBm}$. For Band 17, the limit line is derived from $55 + 10\log(P)$ dB below the transmitter power
Test Result:	PASS

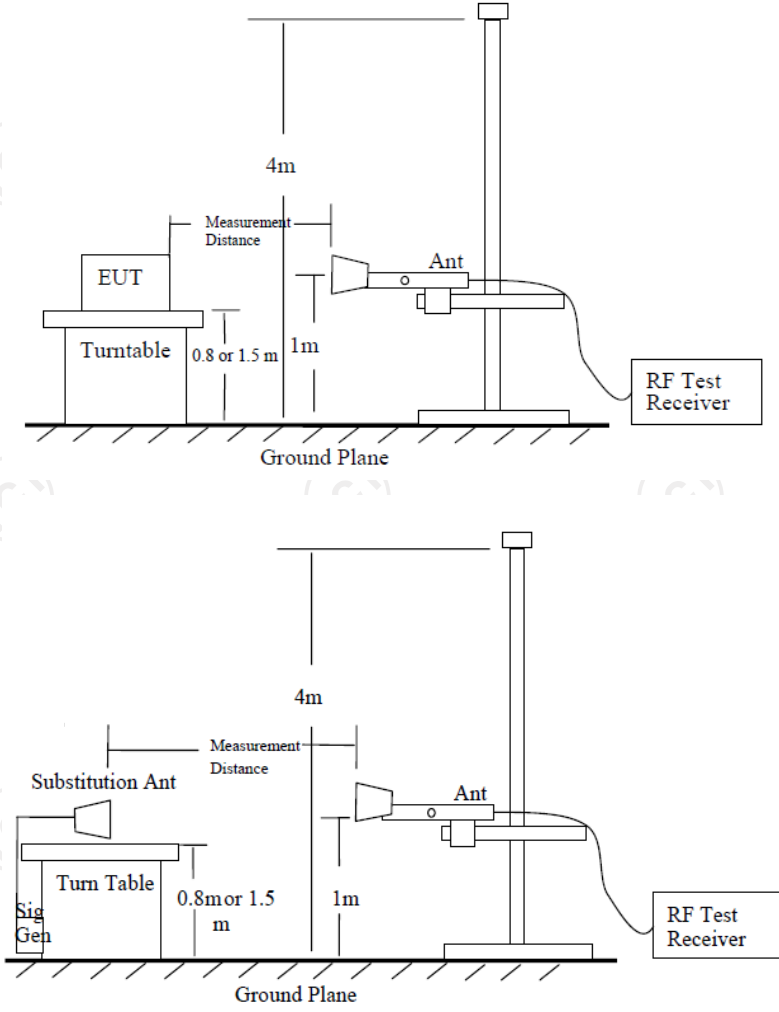
6.4.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Wideband Radio Communication Tester	R&S	CMW500	114220	Jul. 29, 2020
Spectrum Analyzer	Agilent	N9020A	MY49100619	Sep. 11, 2020
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 08, 2020
Antenna Connector	TCT	RFC-02	N/A	Sep. 08, 2020

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.5. Field Strength of Spurious Radiation Measurement

6.5.1. Test Specification

Test Requirement:	FCC part 27.53(g) ,FCC part 27.53(h), FCC part 27.53(m)(4), FCC part 22.917(a), 24.238(b)
Test Method:	FCC part 2.1053
Limit:	30MHz~20GHz -13dBm
Test setup:	 <p>The diagrams illustrate two test setups for field strength measurement. Both setups are conducted on a ground plane. In the top diagram, the Equipment Under Test (EUT) is placed on a turntable at a height of 0.8 or 1.5 meters. The measurement distance from the EUT to the receiving antenna (Ant) is 4 meters. The receiving antenna is mounted on a tower at a height of 1 meter. An RF Test Receiver is connected to the antenna. In the bottom diagram, a Substitution Antenna is placed on a turntable at a height of 0.8 or 1.5 meters. The measurement distance from the Substitution Ant to the receiving antenna (Ant) is 4 meters. The receiving antenna is mounted on a tower at a height of 1 meter. An RF Test Receiver is connected to the antenna. A signal generator (Sig Gen) is also shown connected to the substitution antenna.</p>
Test Procedure:	<ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 D01v03 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12. 2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground. 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower. 4. The table was rotated 360 degrees to determine the position of the highest spurious emission. 5. The height of the receiving antenna is varied between

	<p>one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.</p> <p>6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.</p> <p>7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.</p> <p>8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.</p> <p>9. Taking the record of output power at antenna port.</p> <p>10. Repeat step 7 to step 8 for another polarization.</p> <p>11. $EIRP\ (dBm) = S.G.\ Power - Tx\ Cable\ Loss + Tx\ Antenna\ Gain$</p> <p>12. $ERP\ (dBm) = EIRP - 2.15$</p> <p>13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.</p> <p>14. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)</p> <p>$= P(W) - [43 + 10\log(P)]\ (dB)$</p> <p>$= [30 + 10\log(P)]\ (dBm) - [43 + 10\log(P)]\ (dB)$</p> <p>$= -13dBm.$</p>
Test results:	PASS
Remark:	All modulations have been tested, but only the worst modulation show in this test item.

6.5.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 11, 2020
Spectrum Analyzer	ROHDE&SCHW ARZ	R&S	FSQ40	Sep. 11, 2020
Signal Generator	HP	83623B	3614A00396	Sep. 08, 2020
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 06, 2020
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 06, 2020
Broadband Antenna	Schwarzbeck	VULB9163	412	Sep. 06, 2020
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Sep. 06, 2020
Horn Antenna	Schwarzbeck	BBH 9170	582	Sep. 06, 2020
Dipole Antenna	TCT	TCT-RF	N/A	Sep. 08, 2020
Coax cable (9kHz-40GHz)	TCT	RE-high-02	N/A	Sep. 08, 2020
Coax cable (9kHz-40GHz)	TCT	RE-High-04	N/A	Sep. 08, 2020
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

6.5.3. Test Data

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
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Note: 1. Emission Level=Reading+ Cable loss+Antenna factor-Amp factor

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

Band	Band 2(QPSK, 20MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3720.00	Vertical	-33.07	-13.00	PASS
5580.00	V	-38.41		
7440.00	V	-52.93		
3720.00	Horizontal	-31.26		
5580.00	H	-37.59		
7440.00	H	-50.14		
Band	Band 2(QPSK, 20MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-32.62	-13.00	PASS
5640.00	V	-43.39		
7520.00	V	-51.03		
3760.00	Horizontal	-30.81		
5640.00	H	-38.57		
7520.00	H	-51.70		
Band	Band 2(QPSK, 20MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3800.00	Vertical	-34.47	-13.00	PASS
5700.00	V	-43.29		
7600.00	V	-51.63		
3800.00	Horizontal	-30.96		
5700.00	H	-39.52		
7600.00	H	-53.37		

Band	Band 2(16QAM, 20MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3720.00	Vertical	-33.12	-13.00	PASS
5580.00	V	-38.56		
7440.00	V	-52.54		
3720.00	Horizontal	-31.41		
5580.00	H	-37.66		
7440.00	H	-50.53		
Band	Band 2(16QAM, 20MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3760.00	Vertical	-32.99	-13.00	PASS
5640.00	V	-43.13		
7520.00	V	-51.27		
3760.00	Horizontal	-30.73		
5640.00	H	-38.51		
7520.00	H	-51.70		
Band	Band 2(16QAM, 20MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3800.00	Vertical	-34.43	-13.00	PASS
5700.00	V	-43.27		
7600.00	V	-51.17		
3800.00	Horizontal	-30.55		
5700.00	H	-39.92		
7600.00	H	-53.44		

Band	Band 4(QPSK, 20MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3440.00	Vertical	-33.22	-13.00	PASS
5160.00	V	-38.17		
6880.00	V	-52.56		
3440.00	Horizontal	-31.34		
5160.00	H	-37.66		
6880.00	H	-50.49		
Band	Band 4(QPSK, 20MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3465.00	Vertical	-32.71	-13.00	PASS
5197.50	V	-43.52		
6930.00	V	-51.46		
3465.00	Horizontal	-30.77		
5197.50	H	-38.62		
6930.00	H	-51.39		
Band	Band 4(QPSK, 20MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3490.00	Vertical	-34.67	-13.00	PASS
5235.00	V	-43.95		
6980.00	V	-51.49		
3490.00	Horizontal	-30.88		
5235.00	H	-39.61		
6980.00	H	-53.82		

Report No.: TCT19102420

Band	Band 4(16QAM, 20MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3440.00	Vertical	-33.41	-13.00	PASS
5160.00	V	-38.56		
6880.00	V	-52.57		
3440.00	Horizontal	-31.86		
5160.00	H	-37.69		
6880.00	H	-50.51		
Band	Band 4(16QAM, 20MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3465.00	Vertical	-32.88	-13.00	PASS
5197.50	V	-43.19		
6930.00	V	-51.38		
3465.00	Horizontal	-30.92		
5197.50	H	-38.54		
6930.00	H	-51.81		
Band	Band 4(16QAM, 20MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
3490.00	Vertical	-34.92	-13.00	PASS
5235.00	V	-43.27		
6980.00	V	-51.52		
3490.00	Horizontal	-30.73		
5235.00	H	-39.92		
6980.00	H	-53.21		

Report No.: TCT19102420

Band	Band 5(QPSK, 10MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1658.00	Vertical	-34.11	-13.00	PASS
2487.00	V	-38.20		
3316.00	V	-53.52		
1658.00	Horizontal	-33.30		
2487.00	H	-36.77		
3316.00	H	-50.49		
Band	Band 5(QPSK, 10MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.00	Vertical	-32.63	-13.00	PASS
2509.50	V	-43.42		
3346.00	V	-51.60		
1673.00	Horizontal	-30.89		
2509.50	H	-37.62		
3346.00	H	-51.33		
Band	Band 5(QPSK, 10MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1688.00	Vertical	-35.67	-13.00	PASS
2532.00	V	-44.65		
3376.00	V	-59.39		
1688.00	Horizontal	-30.68		
2532.00	H	-39.71		
3376.00	H	-54.92		

Report No.: TCT19102420

Band	Band 5(16QAM, 10MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1658.00	Vertical	-32.47	-13.00	PASS
2487.00	V	-37.32		
3316.00	V	-53.69		
1658.00	Horizontal	-31.72		
2487.00	H	-37.19		
3316.00	H	-50.67		
Band	Band 5(16QAM, 10MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.00	Vertical	-32.21	-13.00	PASS
2509.50	V	-43.38		
3346.00	V	-51.50		
1673.00	Horizontal	-30.34		
2509.50	H	-38.67		
3346.00	H	-51.92		
Band	Band 5(16QAM, 10MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1688.00	Vertical	-34.68	-13.00	PASS
2532.00	V	-43.49		
3376.00	V	-51.66		
1688.00	Horizontal	-30.51		
2532.00	H	-39.96		
3376.00	H	-53.27		

Band	Band 7(QPSK, 20MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5020.00	Vertical	-34.52	-13.00	PASS
7530.00	V	-38.39		
10040.00	V	-53.67		
5020.00	Horizontal	-33.95		
7530.00	H	-36.64		
10040.00	H	-50.88		
Band	Band 7(QPSK, 20MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5070.00	Vertical	-32.76	-13.00	PASS
7605.00	V	-43.51		
10140.00	V	-51.77		
5070.00	Horizontal	-30.60		
7605.00	H	-37.27		
10140.00	H	-51.18		
Band	Band 7(QPSK, 20MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5120.00	Vertical	-35.62	-13.00	PASS
7680.00	V	-44.87		
10240.00	V	-59.44		
5120.00	Horizontal	-30.63		
7680.00	H	-39.84		
10240.00	H	-54.79		

Band	Band 7(16QAM, 20MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5020.00	Vertical	-33.05	-13.00	PASS
7530.00	V	-37.16		
10040.00	V	-53.22		
5020.00	Horizontal	-31.67		
7530.00	H	-38.10		
10040.00	H	-50.77		
Band	Band 7(16QAM, 20MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5070.00	Vertical	-32.96	-13.00	PASS
7605.00	V	-43.47		
10140.00	V	-51.62		
5070.00	Horizontal	-30.83		
7605.00	H	-38.95		
10140.00	H	-51.80		
Band	Band 7(16QAM, 20MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5120.00	Vertical	-34.72	-13.00	PASS
7680.00	V	-43.66		
10240.00	V	-51.08		
5120.00	Horizontal	-30.94		
7680.00	H	-39.43		
10240.00	H	-53.00		

Report No.: TCT19102420

Band	Band 26(QPSK, 15MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1663.00	Vertical	-34.32	-13.00	PASS
2494.50	V	-38.46		
3326.00	V	-53.99		
1663.00	Horizontal	-33.11		
2494.50	H	-36.26		
3326.00	H	-50.78		
Band	Band 26(QPSK, 15MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.00	Vertical	-32.21	-13.00	PASS
2509.50	V	-43.39		
3346.00	V	-51.53		
1673.00	Horizontal	-30.42		
2509.50	H	-37.95		
3346.00	H	-51.60		
Band	Band 26(QPSK, 15MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1683.00	Vertical	-34.12	-13.00	PASS
2524.50	V	-44.91		
3366.00	V	-59.28		
1683.00	Horizontal	-30.73		
2524.50	H	-39.60		
3366.00	H	-54.33		

Report No.: TCT19102420

Band	Band 26(16QAM, 15MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1663.00	Vertical	-33.16	-13.00	PASS
2494.50	V	-37.43		
3326.00	V	-53.61		
1663.00	Horizontal	-31.09		
2494.50	H	-38.34		
3326.00	H	-50.80		
Band	Band 26(16QAM, 15MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1673.00	Vertical	-32.62	-13.00	PASS
2509.50	V	-43.99		
3346.00	V	-51.13		
1673.00	Horizontal	-30.50		
2509.50	H	-38.34		
3346.00	H	-51.85		
Band	Band 26(16QAM, 15MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
1683.00	Vertical	-34.46	-13.00	PASS
2524.50	V	-43.92		
3366.00	V	-51.31		
1683.00	Horizontal	-30.59		
2524.50	H	-39.00		
3366.00	H	-53.14		


Band	Band 41(QPSK, 20MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5130.00	Vertical	-33.91	-13.00	PASS
7695.00	V	-38.76		
10260.00	V	-54.08		
5130.00	Horizontal	-33.41		
7695.00	H	-36.56		
10260.00	H	-50.22		
Band	Band 41(QPSK, 20MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5210.00	Vertical	-32.55	-13.00	PASS
7815.00	V	-43.30		
10420.00	V	-51.11		
5210.00	Horizontal	-30.29		
7815.00	H	-37.96		
10420.00	H	-51.67		
Band	Band 41(QPSK, 20MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5290.00	Vertical	-34.06	-13.00	PASS
7935.00	V	-44.18		
10580.00	V	-59.43		
5290.00	Horizontal	-30.95		
7935.00	H	-39.77		
10580.00	H	-54.63		

Report No.: TCT19102420

Band	Band 41(16QAM, 20MHz)		Test channel:	Lowest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5130.00	Vertical	-33.38	-13.00	PASS
7695.00	V	-37.61		
10260.00	V	-53.79		
5130.00	Horizontal	-31.84		
7695.00	H	-38.31		
10260.00	H	-50.14		
Band	Band 41(16QAM, 20MHz)		Test channel:	Middle
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5210.00	Vertical	-32.37	-13.00	PASS
7815.00	V	-43.44		
10420.00	V	-51.27		
5210.00	Horizontal	-30.63		
7815.00	H	-38.88		
10420.00	H	-51.01		
Band	Band 41(16QAM, 20MHz)		Test channel:	Highest
Test mode:			Temperature :	25°C
			Relative Humidity:	56%
Note:	Spurious emissions within 30-1000MHz were found more than 20dB below limit line.			
Frequency (MHz)	Spurious Emission		Limit (dBm)	Result
	Polarization	Level (dBm)		
5290.00	Vertical	-34.09	-13.00	PASS
7935.00	V	-43.13		
10580.00	V	-51.59		
5290.00	Horizontal	-30.43		
7935.00	H	-39.66		
10580.00	H	-53.64		

6.6. Frequency Stability Measurement

6.6.1. Test Specification

Test Requirement:	FCC part 27.54, FCC part 22.355, 24.235
Test Method:	FCC Part 2.1055
Limit:	±2.5 ppm
Test Setup:	 <p>The diagram illustrates the test setup. On the left, a 'System Simulator' is connected via a cable to an 'EUT' (Equipment Under Test) which is placed inside a 'Thermal Chamber'.</p>
Test Procedure:	<p>Test Procedures for Temperature Variation</p> <ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 D01v03 Section 9.0. 2. The EUT was set up in the thermal chamber and connected with the system simulator. 3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute. 4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute. <p>Test Procedures for Voltage Variation</p> <ol style="list-style-type: none"> 1. The testing follows FCC KDB 971168 D01v03 Section 9.0. 2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator. 3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT. 4. The variation in frequency was measured for the worst case.
Test Result:	PASS

6.6.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Wideband Radio Communication Tester	R&S	CMW500	114220	Jul. 29, 2020
Programable tempratuce and humidity chamber	JQ	JQ-2000	N/A	Sep. 08, 2020
DC power supply	Kingrang	KR3005K 30V/5A	N/A	Sep. 08, 2020
RF cable (9kHz-40GHz)	TCT	RE-04	N/A	Sep. 08, 2020
Antenna Connector	TCT	RFC-03	N/A	Sep. 08, 2020

Note: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

Appendix A: Photographs of Test Setup

Refer to test report TCT191024E024

Appendix B: Photographs of EUT

Refer to test report TCT191024E024

**Test Data for Appendix For LTE Band 2, Appendix For LTE Band 4,
Appendix For LTE Band 5, Appendix For LTE Band 7, Appendix For LTE
Band 26, Appendix For LTE Band 41**

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