




# TEST REPORT

<b>FCC ID</b> ..... :	2BLV5-22X02	
<b>Test Report No</b> ..... :	TCT240919E024	
<b>Date of issue</b> ..... :	Oct. 23, 2024	
<b>Testing laboratory</b> .....	SHENZHEN TONGCE TESTING LAB	
<b>Testing location/ address:</b>	2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China	
<b>Applicant's name</b> ..... :	LOCOSYS Technology Inc.	
<b>Address</b> ..... :	20F.-13, No.79, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 22101, Taiwan	
<b>Manufacturer's name</b> ... :	LOCOSYS Technology Inc.	
<b>Address</b> ..... :	20F.-13, No.79, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 22101, Taiwan	
<b>Standard(s)</b> .....	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part22 FCC CFR Title 47 Part24 FCC CFR Title 47 Part27 FCC CFR Title 47 Part90	
<b>Product Name</b> ..... :	RTK Base Station	
<b>Trade Mark</b> .....	LOCOSYS	
<b>Model/Type reference</b> ..... :	GB-104B, GB-10WB, GB-30WB, GB-34WB	
<b>Rating(s)</b> ..... :	Rechargeable Li-ion Battery DC 3.7V	
<b>Date of receipt of test item</b> .....	Sep. 19, 2024	
<b>Date (s) of performance of test</b> ..... :	Sep. 19, 2024 ~ Oct. 23, 2024	
<b>Tested by (+signature)</b> ... :	Rleo LIU	
<b>Check by (+signature)</b> .... :	Beryl ZHAO	
<b>Approved by (+signature):</b>	Tomsin	



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## 1. General Product Information

### 1.1. EUT description

Product Name.....:	RTK Base Station
Model/Type reference.....:	GB-104B
Sample Number.....:	TCT240919E022-0101
Tx Frequency.....:	LTE Band 5: 824 MHz ~ 849 MHz LTE Band 7: 2500 MHz ~ 2570 MHz LTE Band 41: 2496 MHz ~ 2690 MHz
Rx Frequency.....:	LTE Band 5: 869 MHz ~ 894 MHz LTE Band 7: 2620 MHz ~ 2690 MHz LTE Band 41: 2496 MHz ~ 2690 MHz
Bandwidth.....:	LTE Band 5: 1.4MHz /3MHz /5MHz /10MHz LTE Band 7: 5MHz /10MHz /15MHz /20MHz LTE Band 41: 5MHz /10MHz /15MHz /20MHz
Maximum Output Power to Antenna.....:	LTE Band 5: 24.22dBm LTE Band 7: 23.95dBm LTE Band 41: 23.52dBm
99% Occupied Bandwidth.....:	LTE Band 5: 8M94G7D LTE Band 7: 18M1G7D LTE Band 41: 18M1G7D
Type of Modulation.....:	QPSK/16QAM
Antenna Type.....:	PIFA Antenna
Antenna Gain.....:	LTE Band 5: -1.89dBi LTE Band 7: 0.16dBi LTE Band 41: 0.16dBi
Rating(s).....:	Rechargeable Li-ion Battery DC 3.7V

Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

### 1.2. Model(s) list

No.	Model No.	Tested with
1	GB-104B	<input checked="" type="checkbox"/>
Other models	GB-10WB, GB-30WB, GB-34WB	<input type="checkbox"/>

Note: GB-104B is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names. So the test data of GB-104B can represent the remaining models.

### 1.3. Emission Designator

LTE Band 5	QPSK		16QAM	
BW(MHz)	Emission Designator (99%OBW)	Maximum ERP(W)	Emission Designator (99%OBW)	Maximum ERP(W)
1.4	1M09G7D	0.104	1M09W7D	0.085
3	2M73G7D	0.104	2M73W7D	0.090
5	4M49G7D	0.098	4M49W7D	0.084
10	8M94G7D	0.101	8M94W7D	0.088

LTE Band 7	QPSK		16QAM	
BW(MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
5	4M47G7D	0.179	4M47W7D	0.155
10	8M94G7D	0.219	8M93W7D	0.190
15	13M5G7D	0.258		
20	18M1G7D	0.245		

LTE Band 41	QPSK		16QAM	
BW(MHz)	Emission Designator (99%OBW)	Maximum EIRP(W)	Emission Designator (99%OBW)	Maximum EIRP(W)
5	4M47G7D	0.223	4M47W7D	0.185
10	8M94G7D	0.222	8M94W7D	0.188
15	13M5G7D	0.233		
20	18M1G7D	0.198		

### 1.4. Test Frequency

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
21100	2535	21100	2535
21425	2567.5	21400	2565
LTE Band 7(15MHz)		LTE Band 7(20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
20825	2507.5	20850	2510
21100	2535	21100	2535
21375	2562.5	21350	2560

LTE Band 41(5MHz)		LTE Band 41(10MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
40065	2537.5	40090	2540
40740	2605	40740	2605
41415	2672.5	41390	2670
LTE Band 41(15MHz)		LTE Band 41(20MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
40115	2542.5	40140	2545
40740	2605	40740	2605
41365	2667.5	41340	2665

## 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); §90.542(a)	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); §90.542(a)	PASS
Equivalent Isotropic Radiated Power	§2.1046; §22.913; §24.232(c); §27.50(d); §27.50(c); §27.50(b); §90.542(a)	PASS
Occupied Bandwidth	§2.1049; §24.238(b); §27.53; §90.209(a)	PASS
Band Edge	§2.1051; §22.917(a); §27.53(h); §27.53(c); §27.53(g); §24.238(a); §90.543(e)	PASS
Conducted Spurious Emission	§2.1051; §22.917(a); §27.53(h); §27.53(g); §27.53(c); §24.238(a); §90.543(c)	PASS
Field Strength of Spurious Radiation	§2.1053; §22.917(a); §27.53(g); §27.53(c); §27.53(h); §24.238(a); §90.543(c)	PASS
Frequency Stability for Temperature & Voltage	§2.1055; §22.355; §27.54; §24.235; §90.213	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. General Information

#### 3.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar

Keep the EUT in communication with CMW500 and select channel with modulation  
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 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)
LTE Band 41	QPSK Link (5MHz / 10MHz / 15MHz / 20MHz)	16QAM Link (5MHz / 10MHz)

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. The sample was placed 0.8m/1.5m 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 polarization. The emissions worst-case are shown in Test Results of the following pages.

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	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	
	41	-	-	v	v	v	v	v	v	v	v	v	v	v	
Peak-to-Average Ratio	5	v	v	v	v	-	-	v	v	v	-	-	v	v	v
	7	-	-	v	v	v	v	v	v	v	-	-	v	v	v
	41	-	-	v	v	v	v	v	v	v	-	-	v	v	v
26dB and 99% Bandwidth	5	v	v	v	v	-	-	v	v	-	-	v	v	v	v
	7	-	-	v	v	v	v	v	v	-	-	v	v	v	v
	41	-	-	v	v	v	v	v	v	-	-	v	v	v	v
Conducted Band Edge	5	v	v	v	v	-	-	v	v	-	-	v	v	-	v
	7	-	-	v	v	v	v	v	v	-	-	v	v	-	v
	41	-	-	v	v	v	v	v	v	-	-	v	v	-	v
Conducted Spurious Emission	5	v	v	v	v	-	-	v	v	-	-	v	v	v	v
	7	-	-	v	v	v	v	v	v	-	-	v	v	v	v
	41	-	-	v	v	v	v	v	v	-	-	v	v	v	v
Frequency Stability	5	-	-	-	v	-	-	v	v	-	-	v	v	v	v
	7	-	-	-	-	-	v	v	-	-	-	v	v	v	v
	41	-	-	-	-	-	v	v	-	-	-	v	v	v	v
E.R.P./E.I.R.P.	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
	41	-	-	v	v	v	v	v	v	v	v	v	v	v	v
Radiated Spurious Emission	5	-	-	-	v	-	-	v	v	v	-	-	v	v	v
	7	-	-	v	-	-	-	v	v	v	-	-	v	v	v
	41	-	-	-	-	-	v	v	v	v	-	-	v	v	v
Note	The mark "v" means that this configuration is chosen for testing. The mark "-" means that this bandwidth is not supported.														



### 3.2. Description of Support Units

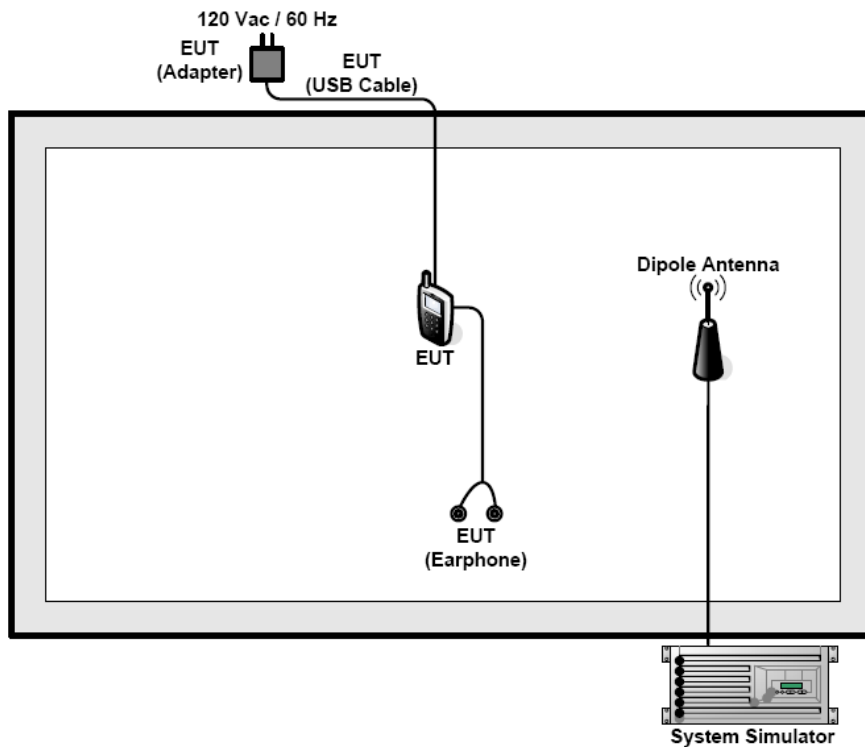
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

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.

### 3.3. Configuration of Tested System



### 3.4. 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.  
 $Offset = RF\ cable\ loss + attenuator\ factor.$

## 4. Facilities and Accreditations

### 4.1. Facilities

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

- FCC - Registration No.: 645098

SHENZHEN TONGCE TESTING LAB

Designation Number: CN1205

The testing lab 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

SHENZHEN TONGCE TESTING LAB

CAB identifier: CN0031

The testing lab has been registered by Innovation, Science and Economic Development Canada for radio equipment testing.

### 4.2. Location

SHENZHEN TONGCE TESTING LAB

Address: 2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China

TEL: +86-755-27673339

### 4.3. Measurement Uncertainty

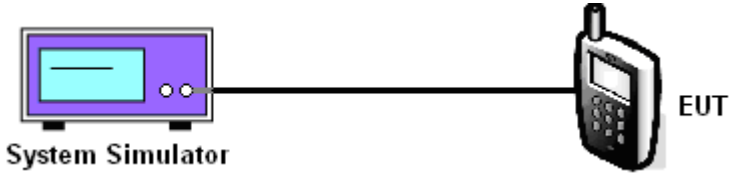
The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	$\pm 3.10$ dB
2	RF power, conducted	$\pm 0.12$ dB
3	Spurious emissions, conducted	$\pm 0.11$ dB
4	All emissions, radiated(<1 GHz)	$\pm 4.56$ dB
5	All emissions, radiated(1 GHz - 18 GHz)	$\pm 4.22$ dB
6	All emissions, radiated(18 GHz- 40 GHz)	$\pm 4.36$ dB

## 5. Test Results and Measurement Data

### 5.1. Effective Radiated Power and Effective Isotropic Radiated Power Measurement

#### 5.1.1. Test Specification

<b>Test Requirement:</b>	Refer to section 2
<b>Test Method:</b>	FCC part 2.1046
<b>Limit:</b>	LTE Band 5: 7W LTE Band 7: 2W LTE Band 41: 2W
<b>Test Setup:</b>	 <p>The diagram illustrates the test setup. On the left is a purple rectangular box labeled 'System Simulator' with a screen and two small circles. A black cable connects it to a mobile phone on the right labeled 'EUT'.</p>
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. The transmitter output port was connected to the system simulator.</li> <li>2. Set EUT at maximum power through system simulator.</li> <li>3. Select lowest, middle, highest channels for each band and different modulation.</li> <li>4. Measure and record the power level from the system simulator.</li> <li>5. Calculate the ERP and EIRP</li> </ol> <p>The relevant equation for determining the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:</p> $\text{ERP or EIRP} = P_{\text{Meas}} + G_{\text{T}} - L_{\text{C}}$ <p>where:</p> <ul style="list-style-type: none"> <li>ERP or EIRP = effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as <math>P_{\text{Meas}}</math>, typically dBW or dBm);</li> <li><math>P_{\text{Meas}}</math> = measured transmitter output power or PSD, in dBm or dBW;</li> <li><math>G_{\text{T}}</math> = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);</li> <li><math>L_{\text{C}}</math> = signal attenuation in the connecting cable between the transmitter and antenna, in dB.</li> </ul> <p><i>Note: For personal/portable radios utilizing an integral antenna, the factor <math>L_{\text{C}}</math> is typically negligible. However, in a fixed station transmit system that utilizes a long cable run</i></p>

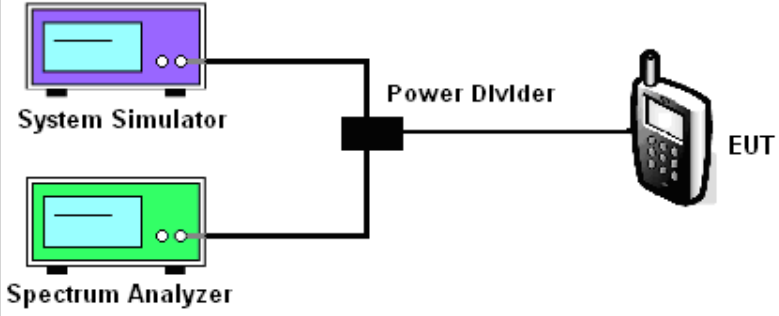
	<i>between the transmitter and the transmitting antenna, this factor can be significant.</i>
<b>Test Result:</b>	PASS

### 5.1.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Wideband Radio Communication Tester	R&S	CMW500	137557	Jan. 31, 2025
Combiner Box	Ascentest	AT890-RFB	/	/

## 5.2. Peak to Average Ratio

### 5.2.1. Test Specification

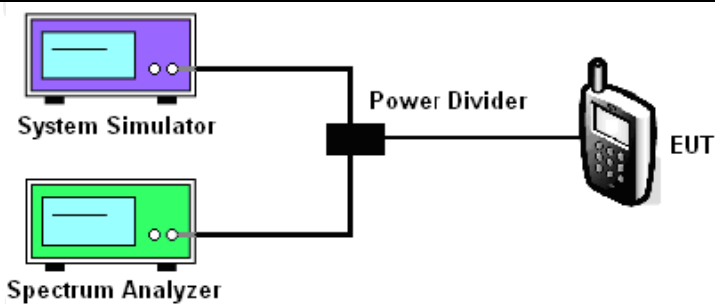
<b>Test Requirement:</b>	Refer to section 2
<b>Test Method:</b>	FCC KDB 971168 D01v03
<b>Limit:</b>	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
<b>Test Setup:</b>	 <p>The diagram illustrates the test setup. On the left, there are two instruments: a System Simulator (top) and a Spectrum Analyzer (bottom). Both are connected to a central Power Divider. The Power Divider is then connected to the EUT (Equipment Under Test), which is represented by a mobile phone icon on the right.</p>
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 D01v03 Section 5.7.1.</li> <li>2. The EUT was connected to spectrum analyzer and system simulator via a power divider.</li> <li>3. Set EUT to transmit at maximum output power.</li> <li>4. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer. Record the maximum PAPR level associated with a probability of 0.1%.</li> </ol>
<b>Test Result:</b>	PASS

### 5.2.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Wideband Radio Communication Tester	R&S	CMW500	137557	Jan. 31, 2025
Spectrum Analyzer	R&S	FSV40-N	102188	Jan. 31, 2025
Combiner Box	Ascentest	AT890-RFB	/	/

### 5.3. 99% Occupied Bandwidth and 26dB Bandwidth Measurement

#### 5.3.1. Test Specification

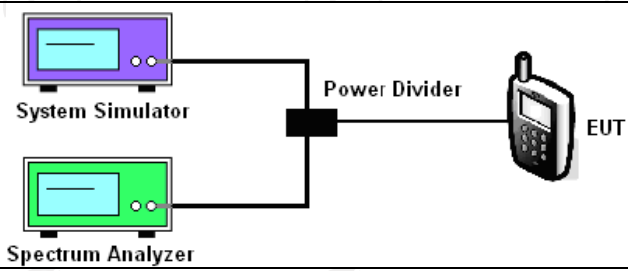
<b>Test Requirement:</b>	Refer to section 2
<b>Test Method:</b>	FCC part 2.1049
<b>Limit:</b>	N/A
<b>Test Setup:</b>	 <p>The diagram illustrates the test setup. On the left, there are two pieces of equipment: a System Simulator (top) and a Spectrum Analyzer (bottom). Both are connected to a central Power Divider. The Power Divider is then connected to the EUT (Equipment Under Test), which is represented by a mobile phone icon on the right.</p>
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 D01v03 Section 4.2.</li> <li>2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.</li> <li>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.</li> <li>4. The 99% occupied bandwidth were measured, set RBW= 1% of OBW, VBW= 3*RBW, sample detector, trace maximum hold.</li> <li>5. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3*RBW, peak detector, trace maximum hold.</li> </ol>
<b>Test Result:</b>	PASS

#### 5.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Wideband Radio Communication Tester	R&S	CMW500	137557	Jan. 31, 2025
Spectrum Analyzer	R&S	FSV40-N	102188	Jan. 31, 2025
Combiner Box	Ascentest	AT890-RFB	/	/

## 5.4. Band Edge and Conducted Spurious Emission Measurement

### 5.4.1. Test Specification

<b>Test Requirement:</b>	Refer to section 2
<b>Test Method:</b>	FCC part2.1051
<b>Limit:</b>	-13dbm Band 41: -10dBm/-13dbm/-25dbm
<b>Test Setup:</b>	 <p>The diagram illustrates the test setup. A System Simulator (top) and a Spectrum Analyzer (bottom) are connected to a central Power Divider. The Power Divider is then connected to the EUT (Equipment Under Test), represented by a mobile phone icon.</p>
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 D01v03 Section 6.0.</li> <li>2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.</li> <li>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.</li> <li>4. The band edges of low and high channels for the highest RF powers were measured.</li> <li>5. The conducted spurious emission for the whole frequency range was taken.</li> <li>6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.</li> <li>7. The limit line is derived from <math>43 + 10\log(P)</math> dB below the transmitter power  <math>P(\text{Watts}) = P(W) - [43 + 10\log(P)] (\text{dB}) = [30 + 10\log(P)] (\text{dBm}) - [43 + 10\log(P)] (\text{dB}) = -13\text{dBm}</math>.                      For Band 17, the limit line is derived from <math>55 + 10\log(P)</math> dB below the transmitter power</li> </ol>
<b>Test Result:</b>	PASS

**5.4.2. Test Instruments**

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Wideband Radio Communication Tester	R&S	CMW500	137557	Jan. 31, 2025
Spectrum Analyzer	R&S	FSV40-N	102188	Jan. 31, 2025
Combiner Box	Ascentest	AT890-RFB	/	/



## 5.5. Field Strength of Spurious Radiation Measurement

### 5.5.1. Test Specification

<b>Test Requirement:</b>	Refer to section 2
<b>Test Method:</b>	FCC part 2.1053
<b>Limit:</b>	For Band 5: -13dBm For Band 7, 41: -25dBm
<b>Test setup:</b>	
<b>Test Procedure:</b>	<ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 D01v03 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12.</li> <li>2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground.</li> <li>3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.</li> <li>4. The table was rotated 360 degrees to determine the position of the highest spurious emission.</li> <li>5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum</li> </ol>

	<p>spurious emission for both horizontal and vertical polarizations.</p> <ol style="list-style-type: none"> <li>6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.</li> <li>7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.</li> <li>8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.</li> <li>9. Taking the record of output power at antenna port.</li> <li>10. Repeat step 7 to step 8 for another polarization.</li> <li>11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain</li> <li>12. ERP (dBm) = EIRP - 2.15</li> <li>13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.</li> <li>14. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)             <ul style="list-style-type: none"> <li>= P(W) - [43 + 10log(P)] (dB)</li> <li>= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)</li> <li>= -13dBm.</li> </ul> </li> </ol>
<b>Test results:</b>	PASS
<b>Remark:</b>	All modulations have been tested, but only the worst modulation show in this test item.

**5.5.2. Test Instruments**

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Wideband Radio Communication Tester	R&S	CMW500	137557	Jan. 31, 2025
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 26, 2025
Signal Generator	Agilent	N5173B	MY58108823	Jan. 31, 2025
Broadband Antenna	Schwarzbeck	VULB9163	340	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jun. 28, 2025
Broadband Antenna	Schwarzbeck	VULB9163	412	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Jun. 28, 2025
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Feb. 02, 2025
Coaxial cable	SKET	RE-03-D	/	Jun. 26, 2025
Coaxial cable	SKET	RE-03-M	/	Jun. 26, 2025
Coaxial cable	SKET	RE-03-L	/	Jun. 26, 2025
Coaxial cable	SKET	RE-04-D	/	Jun. 26, 2025
Coaxial cable	SKET	RE-04-M	/	Jun. 26, 2025
Coaxial cable	SKET	RE-04-L	/	Jun. 26, 2025
Antenna Mast	Keleto	RE-AM	/	/
EMI Test Software	EZ_EMCC	FA-03A2 RE+	1.1.4.2	/

### 5.5.3. Test Data

#### Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dB $\mu$ V/m)	Limit@3m (dB $\mu$ V/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

<b>Band</b>	<b>Band 5(QPSK, 10MHz)</b>	<b>Test channel:</b>	<b>Lowest</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1658.00	Vertical	-42.13	-6.46	-48.59	-13.00	PASS
2487.00	V	-46.11	-2.84	-48.95		
3316.00	V	-60.72	-0.48	-61.20		
1658.00	Horizontal	-41.19	-6.30	-47.49		
2487.00	H	-42.10	-2.95	-45.05		
3316.00	H	-59.49	-0.10	-59.59		

<b>Band</b>	<b>Band 5(QPSK, 10MHz)</b>	<b>Test channel:</b>	<b>Middle</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1673.00	Vertical	-40.17	-6.46	-46.63	-13.00	PASS
2509.50	V	-52.95	-2.75	-55.70		
3346.00	V	-58.98	-0.47	-59.45		
1673.00	Horizontal	-39.13	-6.32	-45.45		
2509.50	H	-45.04	-2.86	-47.90		
3346.00	H	-59.81	-0.10	-59.91		

<b>Band</b>	<b>Band 5(QPSK, 10MHz)</b>	<b>Test channel:</b>	<b>Highest</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1688.00	Vertical	-44.49	-6.45	-50.94	-13.00	PASS
2532.00	V	-53.25	-2.65	-55.90		
3376.00	V	-64.82	-0.47	-65.29		
1688.00	Horizontal	-39.01	-6.34	-45.35		
2532.00	H	-49.06	-2.74	-51.80		
3376.00	H	-64.65	-0.10	-64.75		

<b>Band</b>	<b>Band 5(16QAM, 10MHz)</b>	<b>Test channel:</b>	<b>Lowest</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1658.00	Vertical	-39.53	-6.46	-45.99	-13.00	PASS
2487.00	V	-46.04	-2.84	-48.88		
3316.00	V	-60.61	-0.48	-61.09		
1658.00	Horizontal	-39.59	-6.30	-45.89		
2487.00	H	-46.46	-2.95	-49.41		
3316.00	H	-59.27	-0.10	-59.37		

<b>Band</b>	<b>Band 5(16QAM, 10MHz)</b>	<b>Test channel:</b>	<b>Middle</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1673.00	Vertical	-40.65	-6.46	-47.11	-13.00	PASS
2509.50	V	-52.68	-2.75	-55.43		
3346.00	V	-59.02	-0.47	-59.49		
1673.00	Horizontal	-36.80	-6.32	-43.12		
2509.50	H	-47.33	-2.86	-50.19		
3346.00	H	-59.81	-0.10	-59.91		

<b>Band</b>	<b>Band 5(16QAM, 10MHz)</b>	<b>Test channel:</b>	<b>Highest</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
1688.00	Vertical	-43.75	-6.45	-50.20	-13.00	PASS
2532.00	V	-51.88	-2.65	-54.53		
3376.00	V	-60.70	-0.47	-61.17		
1688.00	Horizontal	-40.04	-6.34	-46.38		
2532.00	H	-49.11	-2.74	-51.85		
3376.00	H	-63.12	-0.10	-63.22		

<b>Band</b>	<b>Band 7(QPSK, 20MHz)</b>	<b>Test channel:</b>	<b>Lowest</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5020.00	Vertical	-43.02	5.93	-37.09	-25.00	PASS
7530.00	V	-46.31	10.45	-35.86		
10040.00	V	-62.03	14.82	-47.21		
5020.00	Horizontal	-41.39	6.33	-35.06		
7530.00	H	-44.02	10.06	-33.96		
10040.00	H	-57.80	14.48	-43.32		

<b>Band</b>	<b>Band 7(QPSK, 20MHz)</b>	<b>Test channel:</b>	<b>Middle</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5070.00	Vertical	-39.99	6.01	-33.98	-25.00	PASS
7605.00	V	-51.82	10.54	-41.28		
10140.00	V	-60.25	14.88	-45.37		
5070.00	Horizontal	-37.78	6.42	-31.36		
7605.00	H	-46.03	10.24	-35.79		
10140.00	H	-59.81	14.65	-45.16		

<b>Band</b>	<b>Band 7(QPSK, 20MHz)</b>	<b>Test channel:</b>	<b>Highest</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5120.00	Vertical	-42.84	6.09	-36.75	-25.00	PASS
7680.00	V	-52.78	10.63	-42.15		
10240.00	V	-66.22	14.95	-51.27		
5120.00	Horizontal	-39.73	6.52	-33.21		
7680.00	H	-48.91	10.43	-38.48		
10240.00	H	-63.08	14.82	-48.26		

<b>Band</b>	<b>Band 7(16QAM, 10MHz)</b>	<b>Test channel:</b>	<b>Lowest</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5020.00	Vertical	-40.73	5.93	-34.80	-25.00	PASS
7530.00	V	-44.58	10.45	-34.13		
10040.00	V	-62.51	14.82	-47.69		
5020.00	Horizontal	-41.49	6.33	-35.16		
7530.00	H	-44.92	10.06	-34.86		
10040.00	H	-59.10	14.48	-44.62		

<b>Band</b>	<b>Band 7(16QAM, 10MHz)</b>	<b>Test channel:</b>	<b>Middle</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5070.00	Vertical	-40.47	6.01	-34.46	-25.00	PASS
7605.00	V	-52.05	10.54	-41.51		
10140.00	V	-61.88	14.88	-47.00		
5070.00	Horizontal	-38.06	6.42	-31.64		
7605.00	H	-47.11	10.24	-36.87		
10140.00	H	-60.12	14.65	-45.47		

<b>Band</b>	<b>Band 7(16QAM, 10MHz)</b>	<b>Test channel:</b>	<b>Highest</b>
<b>Test mode:</b>		<b>Temperature :</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5120.00	Vertical	-43.39	6.09	-37.30	-25.00	PASS
7680.00	V	-50.54	10.63	-39.91		
10240.00	V	-60.16	14.95	-45.21		
5120.00	Horizontal	-38.38	6.52	-31.86		
7680.00	H	-48.62	10.43	-38.19		
10240.00	H	-60.97	14.82	-46.15		



<b>Band</b>	<b>Band 41(QPSK, 20MHz)</b>	<b>Test channel:</b>	<b>Lowest</b>
<b>Test mode:</b>		<b>Temperature:</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5012.00	Vertical	-42.13	5.92	-36.21	-25.00	PASS
7518.00	V	-47.91	10.43	-37.48		
10024.00	V	-62.32	14.81	-47.51		
5012.00	Horizontal	-42.69	6.31	-36.38		
7518.00	H	-44.56	10.03	-34.53		
10024.00	H	-61.24	14.45	-46.79		

<b>Band</b>	<b>Band 41(QPSK, 20MHz)</b>	<b>Test channel:</b>	<b>Middle</b>
<b>Test mode:</b>		<b>Temperature:</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5186.00	Vertical	-43.38	6.19	-37.19	-25.00	PASS
7779.00	V	-52.43	10.74	-41.69		
10372.00	V	-63.26	15.04	-48.22		
5186.00	Horizontal	-38.81	6.64	-32.17		
7779.00	H	-44.80	10.68	-34.12		
10372.00	H	-61.09	15.04	-46.05		

<b>Band</b>	<b>Band 41(QPSK, 20MHz)</b>	<b>Test channel:</b>	<b>Highest</b>
<b>Test mode:</b>		<b>Temperature:</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5360.00	Vertical	-43.95	6.46	-37.49	-25.00	PASS
8040.00	V	-53.47	11.15	-42.32		
10720.00	V	-65.26	15.28	-49.98		
5360.00	Horizontal	-39.47	6.97	-32.50		
8040.00	H	-47.93	11.37	-36.56		
10720.00	H	-65.02	15.63	-49.39		

<b>Band</b>	<b>Band 41(16QAM, 10MHz)</b>	<b>Test channel:</b>	<b>Lowest</b>
<b>Test mode:</b>		<b>Temperature:</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5012.00	Vertical	-42.33	5.92	-36.41	-25.00	PASS
7518.00	V	-45.59	10.43	-35.16		
10024.00	V	-63.64	14.81	-48.83		
5012.00	Horizontal	-40.31	6.31	-34.00		
7518.00	H	-46.92	10.03	-36.89		
10024.00	H	-60.58	14.45	-46.13		

<b>Band</b>	<b>Band 41(16QAM, 10MHz)</b>	<b>Test channel:</b>	<b>Middle</b>
<b>Test mode:</b>		<b>Temperature:</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5186.00	Vertical	-41.67	6.19	-35.48	-25.00	PASS
7779.00	V	-51.94	10.74	-41.20		
10372.00	V	-61.08	15.04	-46.04		
5186.00	Horizontal	-40.26	6.64	-33.62		
7779.00	H	-48.19	10.68	-37.51		
10372.00	H	-60.73	15.04	-45.69		

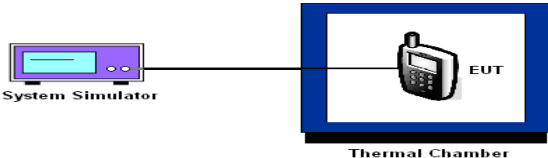
<b>Band</b>	<b>Band 41(16QAM, 10MHz)</b>	<b>Test channel:</b>	<b>Highest</b>
<b>Test mode:</b>		<b>Temperature:</b>	<b>25°C</b>
		<b>Relative Humidity:</b>	<b>56%</b>

**Note:** Spurious emissions within 30-1000MHz were found more than 20dB below limit line.

Frequency (MHz)	Spurious Emission				Limit (dBm)	Result
	Polarization	Level (dBm)	Correction Factor (dB)	Spurious emissions (dBm)		
5360.00	Vertical	-43.42	6.46	-36.96	-25.00	PASS
8040.00	V	-52.71	11.15	-41.56		
10720.00	V	-61.04	15.28	-45.76		
5360.00	Horizontal	-40.18	6.97	-33.21		
8040.00	H	-48.20	11.37	-36.83		
10720.00	H	-63.75	15.63	-48.12		

## 5.6. Frequency Stability Measurement

### 5.6.1. Test Specification

<b>Test Requirement:</b>	FCC part 27.54, FCC part 22.355, 24.235
<b>Test Method:</b>	FCC Part 2.1055
<b>Limit:</b>	±2.5 ppm
<b>Test Setup:</b>	 <p>The diagram shows a 'System Simulator' on the left connected by a line to a 'Thermal Chamber' on the right. Inside the thermal chamber, an 'EUT' (Equipment Under Test) is shown.</p>
<b>Test Procedure:</b>	<p><b>Test Procedures for Temperature Variation</b></p> <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 D01v03 Section 9.0.</li> <li>2. The EUT was set up in the thermal chamber and connected with the system simulator.</li> <li>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.</li> <li>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.</li> </ol> <p><b>Test Procedures for Voltage Variation</b></p> <ol style="list-style-type: none"> <li>1. The testing follows FCC KDB 971168 D01v03 Section 9.0.</li> <li>2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.</li> <li>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.</li> <li>4. The variation in frequency was measured for the worst case.</li> <li>5. The worst case(worst bandwidth) for frequency stability reported in the Test Data. The worst bandwidth is as follow: 1.4M is for LTE Band 2, 1.4M is for LTE Band 4, 1.4M is for LTE Band 5, 5M is for LTE Band 7, 1.4M is for LTE Band 12, 5M is for LTE Band 13, 5M is for LTE Band 17, 1.4M is for LTE Band 25, 1.4M is for LTE Band 26-1, 1.4M is for LTE Band 26-2, 5M is for LTE Band 41, 1.4M is for LTE Band 66</li> </ol>
<b>Test Result:</b>	PASS

**5.6.2. Test Instruments**

Equipment	Manufacturer	Model	Serial Number	Calibration Due
Wideband Radio Communication Tester	R&S	CMW500	137557	Jan. 31, 2025
Programable tempratuce and humidity chamber	JQ	JQ-2000	/	Jun. 26, 2025
DC power supply	Kingrang	KR3005K	/	Jun. 26, 2025
Combiner Box	AT890-RFB	Ascentest	/	/

## Appendix B: Photographs of Test Setup

Please refer to document Appendix No.: TCT240919E022-A

## Appendix C: Photographs of EUT

Please refer to document Appendix No.: TCT240919E022-B & TCT240919E022-C

**Test Data for Appendix Refer to Appendix For LTE Band 5, Appendix For LTE Band 7 and Appendix For LTE Band 41**

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