

# TEST REPORT

Applicant Name: TECNO MOBILE LIMITED  
Address: FLAT N 16/F BLOCK B UNIVERSAL INDUSTRIAL CENTRE 19-25 SHAN MEI STREET FOTAN NT HONGKONG  
Report Number: 2401U81808E-RF-00D  
FCC ID: 2ADYY-KL8

## Test Standard (s)

FCC PART 22H; FCC PART 24E; FCC PART 27

## Sample Description

Product Type: Mobile Phone  
Model No.: KL8  
Multiple Model(s) No.: N/A  
Trade Mark: TECNO  
Date Received: 2024/06/19  
Issue Date: 2024/08/02

Test Result:	Pass▲
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▲ In the configuration tested, the EUT complied with the standards above.

## Prepared and Checked By:

*Andy Yu*

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Andy Yu  
RF Engineer

## Approved By:

*Nancy Wang*

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Nancy Wang  
RF Supervisor

Note: The information marked # is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

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## DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	2401U81808E-RF-00D	Original Report	2024/08/02

**GENERAL INFORMATION**

**Product Description for Equipment under Test (EUT)**

Product	Mobile Phone		
Tested Model	KL8		
Multiple Model(s)	N/A		
Frequency Range	LTE Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) LTE Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) LTE Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(TX) LTE Band 17: 704-716MHz(TX); 734-746MHz(RX) LTE Band 38: 2570-2620MHz(TX/RX) LTE Band 41: 2496-2690MHz(TX/RX) LTE Band 66: 1710-1780MHz(TX); 2110-2200MHz(RX)		
Uplink Intra CA Bands	CA_5B, CA_7C, CA_38C, CA_41C, CA_66C		
Uplink Inter CA Bands	CA_B7A-B5A, CA_B2A-B7A, CA_B2A-B4A CA_B4A-B5A, CA_B4A-B17A, CA_B4A-B7A		
Modulation Technique	QPSK, 16QAM, 64QAM, 256QAM		
Antenna Specification <sup>#</sup>	Operation Bands	Antenna Gain (G <sub>T</sub> ) (dBi)	L <sub>C</sub> (dB)
	LTE B5	-5.68	0
	LTE B7/B38/B41	-3.09	0
	LTE B66	-3.04	0
	Note: Lc= Signal Attenuation in the connecting cable between the transmitter and antenna, in dB.		
Voltage Range	DC 3.87V from battery or DC 5V /7.5V from adapter		
Sample serial number	2N77-2 for Radiated Emissions Test 2N77-1 for RF Conducted Test (Assigned by BAACL, Shenzhen)		
Sample/EUT Status	Good condition		
Normal/Extreme condition <sup>#</sup>	VL: Low Voltage 3.45V VN: Normal Voltage 3.87V VH: High Voltage 4.45V (provided by the applicant)		
Adapter Information	Model: U180TSA Input: 100-240V,50/60Hz,0.6A Output: 5.0V,2.4A or 7.5V,2.4A,18.0W Max		

## Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, and Part 27 of the Federal Communication Commission's rules.

The objective is to determine the compliance of the EUT with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability and band edge.

## Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2-Subpart J as well as the following parts:

Part 22 Subpart H - Public Mobile Services  
 Part 24 Subpart E - Personal Communication Services  
 Part 27 - Miscellaneous Wireless Communications Services

ANSI C63.26-2015: American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services  
 KDB 971168 D01: Power Meas License Digital Systems v03r01

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

## Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		±5%
RF output power, conducted		0.72 dB(k=2, 95% level of confidence)
Unwanted Emission, conducted		1.75 dB(k=2, 95% level of confidence)
RF Frequency		213.55 Hz(k=2, 95% level of confidence)
Radiated Emissions	30MHz~200MHz (Horizontal)	4.48dB(k=2, 95% level of confidence)
	30MHz~200MHz (Vertical)	4.55dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Horizontal)	4.85dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Vertical)	5.05dB(k=2, 95% level of confidence)
	1GHz - 6GHz	5.35dB(k=2, 95% level of confidence)
	6GHz - 18GHz	5.44dB(k=2, 95% level of confidence)
	18GHz - 40GHz	5.16dB(k=2, 95% level of confidence)
Temperature		±1°C
Humidity		±1%
Supply voltages		±0.4%

*Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.*

## Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 715558, the FCC Designation No. : CN5045.

## SYSTEM TEST CONFIGURATION

### Description of Test Configuration

The final qualification test was performed with the EUT operating at normal mode.

LTE Band 5B_CA Frequency List				
Bandwidth (MHz)	Mode	Lowest (MHz)	Middle (MHz)	Highest (MHz)
3+5	PCC	825.6	834.1	842.6
	SCC	829.5	838.0	846.5
5+10	PCC	826.8	831.8	836.8
	SCC	834	839	844
10+5	PCC	829	834	839
	SCC	836.2	841.2	846.2
10+10	PCC	829	831.6	834.1
	SCC	838.9	841.5	844

LTE Band 7C_CA Frequency List				
Bandwidth (MHz)	Mode	Lowest (MHz)	Middle (MHz)	Highest (MHz)
20+20	PCC	2510.0	2525.1	2540.2
	SCC	2529.8	2544.9	2560.0
20+15	PCC	2510.0	2527.6	2545.1
	SCC	2527.1	2544.7	2562.2
15+20	PCC	2507.8	2525.3	2542.9
	SCC	2524.9	2542.4	2560.0
20+10	PCC	2510.0	2530.1	2550.1
	SCC	2524.4	2544.5	2564.5
10+20	PCC	2505.5	2525.6	2545.6
	SCC	2519.9	2540.0	2560.0
15+15	PCC	2507.5	2527.5	2547.5
	SCC	2522.5	2542.5	2562.5
15+10	PCC	2507.5	2530.1	2552.7
	SCC	2519.5	2542.1	2564.7

LTE Band 38C_CA Frequency List				
Bandwidth (MHz)	Mode	Lowest (MHz)	Middle (MHz)	Highest (MHz)
20+20	PCC	2580.0	2585.1	2590.2
	SCC	2599.8	2604.9	2610.0
15+15	PCC	2577.5	2587.5	2597.5
	SCC	2592.5	2602.5	2612.5



LTE Band 41C CA Frequency List				
Bandwidth (MHz)	Mode	Lowest (MHz)	Middle (MHz)	Highest (MHz)
20+20	PCC	2506.0	2583.1	2660.2
	SCC	2525.8	2602.9	2680.0
20+15	PCC	2506.0	2585.6	2665.1
	SCC	2523.1	2602.7	2682.2
15+20	PCC	2503.8	2593.3	2662.9
	SCC	2520.9	2600.4	2680.0
20+10	PCC	2506.0	2588.1	2670.1
	SCC	2520.4	2602.5	2684.5
10+20	PCC	2501.5	2583.6	2665.6
	SCC	2515.9	2598.0	2680.0
20+5	PCC	2506.0	2590.5	2675.0
	SCC	2517.7	2602.2	2686.7
5+20	PCC	2499.3	2583.8	2668.3
	SCC	2511.0	2595.5	2680.0
15+15	PCC	2503.5	2585.5	2667.5
	SCC	2518.5	2600.5	2682.5
10+15	PCC	2501.3	2585.9	2670.5
	SCC	2513.3	2597.9	2682.5
15+10	PCC	2503.5	2588.1	2672.7
	SCC	2515.5	2600.1	2684.7

LTE Band 66C CA Frequency List				
Bandwidth (MHz)	Mode	Lowest (MHz)	Middle (MHz)	Highest (MHz)
10+15	PCC	1715.3	1747.9	1760.5
	SCC	1727.3	1759.9	1772.5
15+10	PCC	1717.5	1750.1	1762.7
	SCC	1729.5	1762.1	1774.7
10+20	PCC	1715.5	1745.6	1755.6
	SCC	1729.9	1760.0	1770.0
20+10	PCC	1720.0	1750.1	1760.1
	SCC	1734.4	1764.5	1774.5
15+15	PCC	1717.5	1747.5	1757.5
	SCC	1732.5	1762.5	1772.5
15+20	PCC	1717.8	1745.3	1752.9
	SCC	1734.9	1762.4	1770.0
20+15	PCC	1720.0	1747.6	1755.1
	SCC	1737.1	1764.7	1772.2
20+5	PCC	1720.0	1752.5	1765.0
	SCC	1731.7	1764.2	1776.7
5+20	PCC	1713.3	1745.8	1758.3
	SCC	1725.0	1757.5	1770.0
20+20	PCC	1720.0	1745.1	1750.2
	SCC	1739.8	1764.9	1770.0

**Equipment Modifications**

No modification was made to the EUT.

**Support Equipment List and Details**

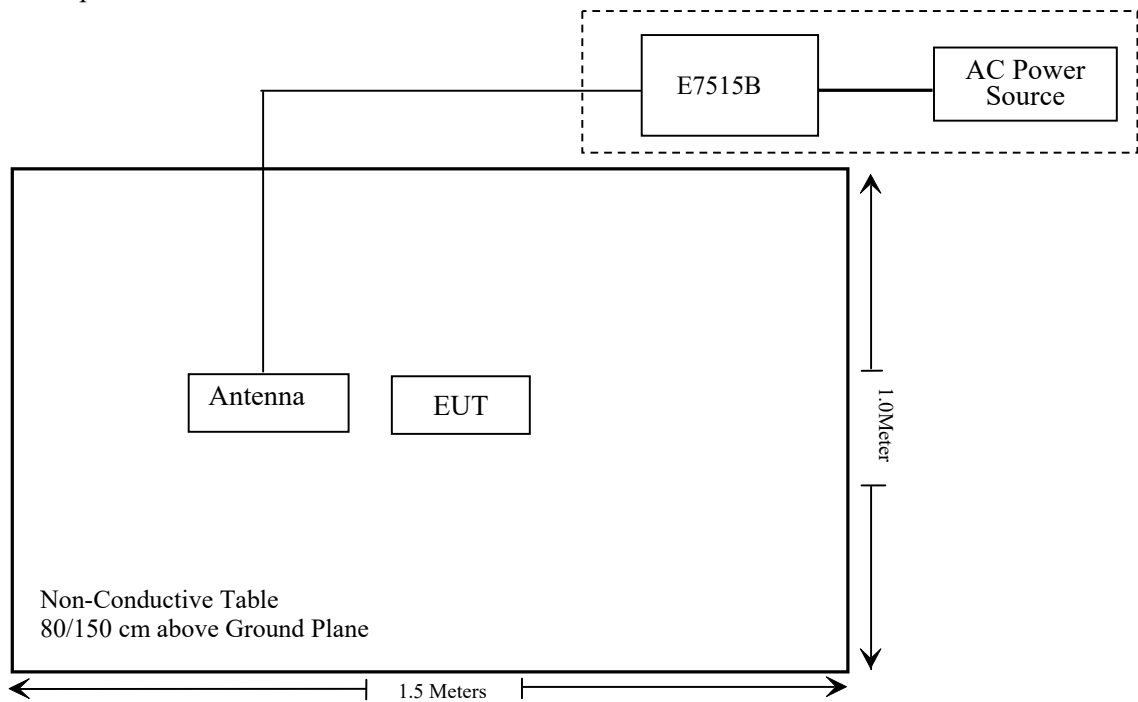
Manufacturer	Description	Model	Serial Number
Keysight	UXM 5G Wireless Test Platform	E7515B	MY58120284

**Support Cable Description**

Cable Description	Length (m)	From / Port	To
Un-shielded Un-detachable AC Cable	1.2	AC Power	MT8000A

**Block Diagram of Test Setup**

For radiated spurious emission



## SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307, §2.1093	RF Exposure Information	Compliant
§2.1046; § 22.913 (a) (d); § 24.232 (c) (d); §27.50 (c) (h);	RF Output Power	Compliant*
§ 2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53	Occupied Bandwidth	Compliant*
§ 2.1051; §22.917 (a); § 24.238 (a); §27.53;	Spurious Emissions at Antenna Terminal	Compliant*
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a); § 24.238 (a); §27.53 (h) (m)	Band Edge	Compliant*
§ 2.1055; § 22.355; § 24.235; §27.54;	Frequency stability	Compliant*

Note\*: The test items of inter band CA were cover by LTE single carrier due to the CA power is reduced according to 3GPP MRP.

**TEST EQUIPMENT LIST**

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>Radiated Emission Test</b>					
Rohde & Schwarz	EMI Test Receiver	ESR3	102455	2024/01/16	2025/01/15
Sonoma instrument	Pre-amplifier	310 N	186238	2024/05/21	2025/05/20
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2026/07/19
Unknown	Cable	Chamber A Cable 1	N/A	2024/06/18	2025/06/17
Unknown	Cable	XH500C	J-10M-A	2024/06/18	2025/06/17
Agilent	Signal Generator	N5183A	MY50140588	2023/12/18	2024/12/17
COM-POWER	Dipole Antenna	AD-100	721027	NCR	NCR
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2024/03/27	2025/03/26
COM-POWER	Pre-amplifier	PA-122	181919	2024/06/18	2025/06/17
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2026/07/25
The Electro-Mechanics Co.	Horn Antenna	3115	9107-3694	2024/06/06	2027/06/05
Unknown	RF Cable	KMSE	735	2024/06/18	2025/06/17
Unknown	RF Cable	UFA147	219661	2024/06/18	2025/06/17
Unknown	RF Cable	XH750A-N	J-10M	2024/06/18	2025/06/17
Agilent	Signal Generator	N5183A	MY50140588	2023/12/18	2024/12/17
JD	Multiplex Switch Test Control Set	DT7220FSU	DQ77926	2024/06/18	2025/06/17
A.H.System	Pre-amplifier	PAM-1840VH	190	2024/06/18	2025/06/17
Electro-Mechanics Co	Horn Antenna	3116	9510-2270	2023/09/18	2026/09/17
Electro-Mechanics Co	Horn Antenna	3116	2026	2023/09/18	2026/09/17
UTIFLEX	RF Cable	NO. 13	232308-001	2023/08/03	2024/08/02

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
<b>RF Conducted Test</b>					
Rohde & Schwarz	Spectrum Analyzer	FSV40	101942	2023/12/18	2024/12/17
BACL	Temperature & Humidity Chamber	BTH-150-40	30144	2024/01/16	2025/01/15
Fluke	Digital Multimeter	287	19000011	2024/05/21	2025/05/20
Keysight	UXM 5G Wireless Test Platform	E7515B	MY58120284	2024/05/17	2025/05/16
JD	Filter Switch Unit	DT7210FSU	DQ77930	NCR	NCR
narda	Power divider	SN5	100005	2024/06/27	2025/06/26
Unknown	RF Cable	65475	01670515	2024/06/27	2025/06/26

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

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## **FCC §1.1307(b) & §2.1093 - RF EXPOSURE INFORMATION**

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### **Applicable Standard**

FCC§1.1310 and §2.1093.

### **Test Result**

Compliant, please refer to the SAR report: 2401U81808E-SA.

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## **FCC§2.1047 - MODULATION CHARACTERISTIC**

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According to FCC § 2.1047(d), Part 22H,24E&27 there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

## FCC § 2.1046, § 22.913 (a) (d) & § 24.232 (c) (d); §27.50 (c) (h) - RF OUTPUT POWER

### Applicable Standard

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.

According to §27.50(d), Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.

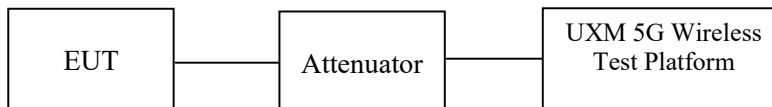
According to §27.50(c), Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP. And Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

According to §27.50(h), the maximum EIRP must not exceed 2Watts (33dBm) for 2496-2690MHz.

### Test Procedure

Conducted method: ANSI C63.26-2015 Section 5.2

The RF output of the transmitter was connected to the UXM 5G Wireless Test Platform through sufficient attenuation.



### Test Data

#### Environmental Conditions

<b>Temperature:</b>	24.5-26.5
<b>Relative Humidity:</b>	45-60 %
<b>ATM Pressure:</b>	101kPa

The testing was performed by Jim Cheng from 2024-07-24 to 2024-07-27.

*EUT operation mode: Transmitting (Worst case record in the reports)*

Please refer to the Appendix D4 for Transmitter Conducted Output Power

Please refer to the Appendix E3 for Peak-to-average ratio (PAR)



## FCC §2.1049, §22.917, §22.905 & §24.238&§27.53 - OCCUPIED BANDWIDTH

### Applicable Standard

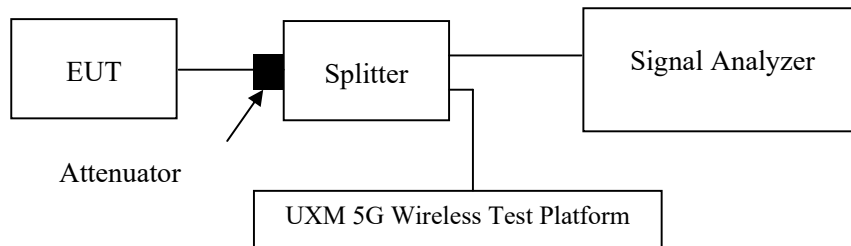
FCC 47 §2.1049, §22.917, §22.905, §24.238 and §27.53.

### Test Procedure

ANSI C63.26-2015 Section 5.4.4

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 1% to 5% of the anticipated emission bandwidth and the 26 dB & 99% bandwidth was recorded.



### Test Data

#### Environmental Conditions

<b>Temperature:</b>	24.5~26.5°C
<b>Relative Humidity:</b>	45-60%
<b>ATM Pressure:</b>	101 kPa

The testing was performed by Jim Cheng from 2024-07-25 to 2024-07-29.

EUT operation mode: Transmitting

**Test Result: Compliant**

Please refer to the Appendix F3 for occupied bandwidth

## FCC §2.1051, §22.917(a) & §24.238(a) & §27.53 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

### Applicable Standard

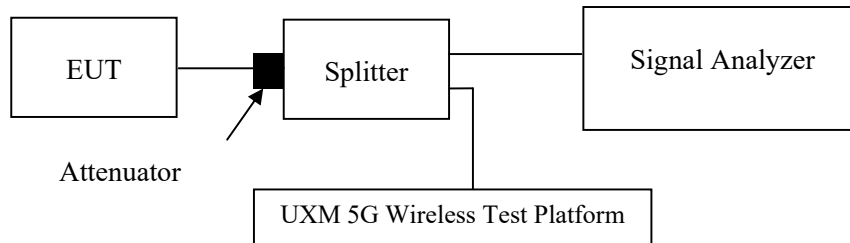
FCC §2.1051, §22.917(a) & §24.238(a) & §27.53.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

### Test Procedure

ANSI C63.26-2015 Section 5.7

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10<sup>th</sup> harmonic.



Note: the worst path loss (cable loss and splitter inset loss) among the test frequency range was added into plots.

### Test Data

#### Environmental Conditions

<b>Temperature:</b>	24.5~.5°C
<b>Relative Humidity:</b>	45~60%
<b>ATM Pressure:</b>	101.0 kPa

The testing was performed by Jim Cheng from 2024-07-25 to 2024-07-29.

*EUT operation mode: Transmitting*

**Test result: Compliant**

Please refer to the Appendix G3 for spurious emissions at antenna terminals.

**FCC § 2.1053; § 22.917 (a); § 24.238 (a); §27.53 - SPURIOUS RADIATED EMISSIONS**

**Applicable Standard**

FCC § 2.1053, §22.917(a)& § 24.238(a) &§ 27.53.

**Test Procedure**

ANSI/TIA-603-E-2016 Section 2.2.12  
KDB 671168 D01 v03r01 Section 6.2

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the receiving antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

**Test Data**

**Environmental Conditions**

<b>Temperature:</b>	25~25.6 °C
<b>Relative Humidity:</b>	50 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Anson Su on 2024-07-03 for below 1GHz and by Dylan Yang on 2024-07-03.*

*EUT operation mode: Transmitting (Pre-scan in the X, Y and Z axes of orientation, the worst case Y-axis of orientation was recorded)*

**LTE Bands:** (pre-scan QPSK & 16QAM & 65QAM & 256QAM with all bandwidths, the worst case as below)

Intra band:

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
LTE CA_5B Low Channel								
1651.2	45.72	H	-61.4	0.90	8.60	-53.7	-13	40.7
1651.2	48.75	V	-59.5	0.90	8.60	-51.8	-13	38.8
2476.8	45.74	H	-61.6	1.10	8.80	-53.9	-13	40.9
2476.8	46.51	V	-60.7	1.10	8.80	-53.0	-13	40.0
LTE CA_5B Middle Channel								
1668.2	46.12	H	-61.4	0.90	8.60	-53.7	-13	40.7
1668.2	48.17	V	-60.2	0.90	8.60	-52.5	-13	39.5
2502.3	46.37	H	-60.8	1.10	8.80	-53.1	-13	40.1
2502.3	47.85	V	-59.7	1.10	8.80	-52.0	-13	39.0
LTE CA_5B High Channel								
1693.0	46.58	H	-61.2	0.90	8.60	-53.5	-13	40.5
1693.0	47.59	V	-60.4	0.90	8.60	-52.7	-13	39.7
2539.5	46.47	H	-61.3	1.10	8.80	-53.6	-13	40.6
2539.5	48.75	V	-58.3	1.10	8.80	-50.6	-13	37.6

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
CA_7C Low Channel								
5011.0	45.68	H	-57.5	1.50	9.80	-49.2	-25	24.2
5011.0	45.31	V	-57.4	1.50	9.80	-49.1	-25	24.1
7516.5	40.24	H	-55.8	1.90	10.80	-46.9	-25	21.9
7516.5	41.21	V	-55.3	1.90	10.80	-46.4	-25	21.4
CA_7C Middle Channel								
5051.2	46.21	H	-56.8	1.50	9.60	-48.7	-25	23.7
5051.2	45.98	V	-58.1	1.50	9.60	-50.0	-25	25.0
7576.8	41.32	H	-54.7	1.90	11.00	-45.6	-25	20.6
7576.8	42.18	V	-54.2	1.90	11.00	-45.1	-25	20.1
CA_7C High Channel								
5091.2	45.98	H	-57.2	1.50	9.60	-49.1	-25	24.1
5091.2	44.98	V	-57.6	1.50	9.60	-49.5	-25	24.5
7636.8	42.42	H	-53.6	1.90	11.00	-44.5	-25	19.5
7636.8	42.87	V	-53.6	1.90	11.00	-44.5	-25	19.5
CA_38C Low Channel								
5155.0	48.51	H	-54.7	1.50	9.60	-46.6	-25	21.6
5155.0	47.85	V	-55.5	1.50	9.60	-47.4	-25	22.4
CA_38C Middle Channel								
5175.0	49.47	H	-53.6	1.60	9.70	-45.5	-25	20.5
5175.0	48.24	V	-54.4	1.60	9.70	-46.3	-25	21.3
CA_38C High Channel								
5195.0	47.65	H	-55.4	1.60	9.70	-47.3	-25	22.3
5195.0	46.23	V	-56.3	1.60	9.70	-48.2	-25	23.2

Frequency (MHz)	Receiver Reading (dBµV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
CA_41C Low Channel								
4998.6	60.21	H	-43.5	1.50	9.80	-35.2	-25	10.2
4998.6	58.27	V	-44.3	1.50	9.80	-36.0	-25	11.0
CA_41C Middle Channel								
5167.6	59.74	H	-44.1	1.60	9.70	-36.0	-25	11.0
5167.6	58.74	V	-44.6	1.60	9.70	-36.5	-25	11.5
CA_41C High Channel								
5336.6	62.52	H	-40.3	1.70	10.50	-31.5	-25	6.5
5336.6	59.34	V	-43.5	1.70	10.50	-34.7	-25	9.7
CA_66C Low Channel								
3434.6	42.47	H	-62.3	1.30	9.90	-53.7	-13	40.7
3434.6	43.24	V	-62.1	1.30	9.90	-53.5	-13	40.5
LTE CA_66C Middle Channel								
3491.6	43.24	H	-62.6	1.30	10.50	-53.4	-13	40.4
3491.6	44.25	V	-61.5	1.30	10.50	-52.3	-13	39.3
CA_66C High Channel								
3516.6	41.64	H	-64.2	1.30	10.90	-54.6	-13	41.6
3516.6	42.27	V	-62.7	1.30	10.90	-53.1	-13	40.1

**Note:**

Absolute Level = Reading Level + Substituted Factor

Substituted Factor contains: Substituted Level - Cable loss+ Antenna Gain

Margin = Limit-Absolute Level

The radiated spurious emission data of below 1GHz and other spurious emission is 20dB below the limit which was not recorded.

Inter band:

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
LTE CA_B7A-B5A Low Channel								
5005.0	44.71	H	-58.4	1.5	9.8	-50.1	-25	25.1
5005.0	44.27	V	-58.3	1.5	9.8	-50.0	-25	25.0
1649.4	46.68	H	-60.3	0.9	8.6	-52.6	-13	39.6
1649.4	47.61	V	-60.4	0.9	8.6	-52.7	-13	39.7
LTE CA_B7A-B5A Middle Channel								
5070.0	45.18	H	-57.7	1.50	9.60	-49.6	-25	24.6
5070.0	44.75	V	-59.3	1.50	9.60	-51.2	-25	26.2
1673.0	47.21	H	-60.2	0.90	8.60	-52.5	-13	39.5
1673.0	48.54	V	-59.7	0.90	8.60	-52.0	-13	39.0
LTE CA_B7A-B5A High Channel								
5135.0	45.12	H	-58.1	1.50	9.60	-50.0	-25	25.0
5135.0	44.43	V	-58.0	1.50	9.60	-49.9	-25	24.9
1696.6	47.41	H	-60.2	0.90	8.60	-52.5	-13	39.5
1696.6	47.96	V	-60.0	0.90	8.60	-52.3	-13	39.3

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
LTE CA_B2A-B7A Low Channel								
3701.4	43.54	H	-61.9	1.30	11.00	-52.2	-13	39.2
3701.4	44.28	V	-61.1	1.30	11.00	-51.4	-13	38.4
5005.0	45.17	H	-58.0	1.5	9.8	-49.7	-25	24.7
5005.0	44.68	V	-58.1	1.5	9.8	-49.8	-25	24.8
LTE CA_B2A-B7A Middle Channel								
3760	42.69	H	-62.5	1.30	10.70	-53.1	-13	40.1
3760	42.91	V	-62.3	1.30	10.70	-52.9	-13	39.9
5070.0	44.98	H	-57.9	1.50	9.60	-49.8	-25	24.8
5070.0	44.47	V	-59.7	1.50	9.60	-51.6	-25	26.6
LTE CA_B2A-B7A High Channel								
3818.6	45.61	H	-59.5	1.30	10.70	-50.1	-13	37.1
3818.6	44.46	V	-60.7	1.30	10.70	-51.3	-13	38.3
5135.0	45.52	H	-57.7	1.50	9.60	-49.6	-25	24.6
5135.0	44.68	V	-57.8	1.50	9.60	-49.7	-25	24.7
LTE CA_B2A-B4A Low Channel								
3701.4	44.02	H	-61.4	1.30	11.00	-51.7	-13	38.7
3701.4	43.86	V	-61.5	1.30	11.00	-51.8	-13	38.8
3421.4	43.18	H	-62.9	1.30	9.90	-54.3	-13	41.3
3421.4	43.84	V	-61.8	1.30	9.90	-53.2	-13	40.2
LTE CA_B2A-B4A Middle Channel								
3760	43.02	H	-62.1	1.30	10.70	-52.7	-13	39.7
3760	43.51	V	-61.7	1.30	10.70	-52.3	-13	39.3
3465	43.47	H	-62.4	1.30	10.50	-53.2	-13	40.2
3465	43.92	V	-61.6	1.30	10.50	-52.4	-13	39.4
LTE CA_B2A-B4A High Channel								
3818.6	44.57	H	-60.4	1.30	10.70	-51.0	-13	38.0
3818.6	44.12	V	-61.0	1.30	10.70	-51.6	-13	38.6
3508.6	42.43	H	-63.5	1.30	10.50	-54.3	-13	41.3
3508.6	43.97	V	-61.6	1.30	10.50	-52.4	-13	39.4



Frequency (MHz)	Receiver Reading (dBµV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
LTE CA_B4A-B5A Low Channel								
3421.4	44.21	H	-61.8	1.30	9.90	-53.2	-13	40.2
3421.4	43.43	V	-62.2	1.30	9.90	-53.6	-13	40.6
1649.4	46.02	H	-60.9	0.9	8.6	-53.2	-13	40.2
1649.4	47.02	V	-61.0	0.9	8.6	-53.3	-13	40.3
LTE CA_B4A-B5A Middle Channel								
3465	43.21	H	-62.6	1.30	10.50	-53.4	-13	40.4
3465	43.74	V	-61.8	1.30	10.50	-52.6	-13	39.6
1673.0	46.75	H	-60.7	0.90	8.60	-53.0	-13	40.0
1673.0	47.65	V	-60.6	0.90	8.60	-52.9	-13	39.9
LTE CA_B4A-B5A High Channel								
3508.6	42.75	H	-63.2	1.30	10.50	-54.0	-13	41.0
3508.6	43.47	V	-62.1	1.30	10.50	-52.9	-13	39.9
1696.6	46.87	H	-60.8	0.90	8.60	-53.1	-13	40.1
1696.6	47.27	V	-60.7	0.90	8.60	-53.0	-13	40.0

Frequency (MHz)	Receiver Reading (dBμV)	Polar (H / V)	Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBi/dBd)			
LTE CA_B4A-B17A Low Channel								
3421.4	44.57	H	-61.5	1.30	9.90	-52.9	-13	39.9
3421.4	43.84	V	-61.8	1.30	9.90	-53.2	-13	40.2
1413	42.29	H	-65.5	0.80	7.90	-58.4	-13	45.4
1413	42.04	V	-66.4	0.80	7.90	-59.3	-13	46.3
LTE CA_B4A-B17A Middle Channel								
3465	43.87	H	-62.0	1.30	10.50	-52.8	-13	39.8
3465	43.57	V	-62.1	1.30	10.50	-52.9	-13	39.9
1420	43.04	H	-64.7	0.80	7.90	-57.6	-13	44.6
1420	42.95	V	-65.5	0.80	7.90	-58.4	-13	45.4
LTE CA_B4A-B17A High Channel								
3508.6	42.54	H	-63.4	1.30	10.50	-54.2	-13	41.2
3508.6	43.07	V	-62.5	1.30	10.50	-53.3	-13	40.3
1427	43.55	H	-64.2	0.80	7.90	-57.1	-13	44.1
1427	43.48	V	-65.0	0.80	7.90	-57.9	-13	44.9
LTE CA_B4A-B7A Low Channel								
3421.4	43.98	H	-62.1	1.30	9.90	-53.5	-13	40.5
3421.4	42.27	V	-63.4	1.30	9.90	-54.8	-13	41.8
5005.0	44.98	H	-58.2	1.5	9.8	-49.9	-25	24.9
5005.0	44.07	V	-58.5	1.5	9.8	-50.2	-25	25.2
LTE CA_B4A-B7A Middle Channel								
3465	42.78	H	-63.2	1.30	10.50	-54.0	-13	41.0
3465	41.67	V	-64.1	1.30	10.50	-54.9	-13	41.9
5070.0	45.75	H	-57.1	1.50	9.60	-49.0	-25	24.0
5070.0	44.32	V	-59.6	1.50	9.60	-51.5	-25	26.5
LTE CA_B4A-B7A High Channel								
3508.6	43.07	H	-62.9	1.30	10.50	-53.7	-13	40.7
3508.6	42.34	V	-63.2	1.30	10.50	-54.0	-13	41.0
5135.0	45.78	H	-57.5	1.50	9.60	-49.4	-25	24.4
5135.0	43.21	V	-58.9	1.50	9.60	-50.8	-25	25.8

**Note:**

Absolute Level = Reading Level + Substituted Factor

Substituted Factor contains: Substituted Level - Cable loss+ Antenna Gain

Margin = Limit-Absolute Level

The radiated spurious emission data of below 1GHz and other spurious emission is 20dB below the limit which was not recorded.

**FCC§ 22.917 (a); § 24.238 (a); §27.53 (h)(m) - BAND EDGES**

**Applicable Standard**

According to § 22.917(a), the power of any emissions 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.

According to §24.238(a), the power of any emissions 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.

According to FCC §27.53 (h), 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.

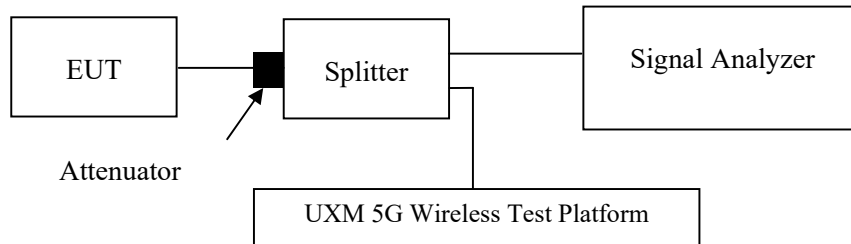
According to FCC §27.53 (m), For mobile digital stations, the attenuation factor shall be not less than  $40 + 10 \log (P)$  dB on all frequencies between the channel edge and 5 megahertz from the channel edge,  $43 + 10 \log (P)$  dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and  $55 + 10 \log (P)$  dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that  $43 + 10 \log (P)$  dB on all frequencies between 2490.5 MHz and 2496 MHz and  $55 + 10 \log (P)$  dB at or below 2490.5MHz.

**Test Procedure**

ANSI C63.26-2015 Section 5.7

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency



**Test Data****Environmental Conditions**

<b>Temperature:</b>	24.5~26.5 °C
<b>Relative Humidity:</b>	45~60 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Jim Cheng from 2024-07-25 to 2024-07-29.*

*EUT operation mode: Transmitting (Worst case)*

***Test Result: Compliant***

*Please refer to the Appendix H1 for band edges.*

**FCC § 2.1055; § 22.355; § 24.235; §27.54 - FREQUENCY STABILITY**

**Applicable Standard**

FCC § 2.1055, §22.355, §24.235&§27.54.

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile > 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

According to §24.235&§27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

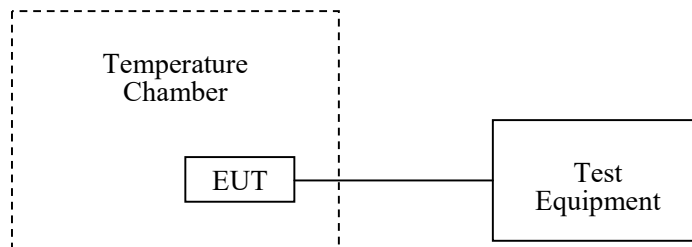
**Test Procedure**

ANSI C63.26-2015 Section 5.6

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



**Test Data****Environmental Conditions**

<b>Temperature:</b>	24.5~26.5 °C
<b>Relative Humidity:</b>	45~60 %
<b>ATM Pressure:</b>	101 kPa

*The testing was performed by Jim Cheng from 2024-07-24 to 2024-07-27.*

*EUT operation mode: Transmitting*

***Test Result: Compliant***

Please refer to the Appendix I25 for frequency stability.

## **EUT PHOTOGRAPHS**

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Please refer to the attachment 2403U81808E-RF-EXP External photo and 2403U81808E-RF-INP Internal photo.

## **TEST SETUP PHOTOGRAPHS**

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Please refer to the attachment 2401U81808E-RF Test Setup photo.

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