

TEST REPORT

Applicant Name: HONG KONG YO YOUNG INTELLIGENT CO., LIMITED
Address: 19H MAXGRAND PLAZA NO.3 TAI YAU STREET SAN PO
KONG,KOWLOON,HONGKONG
Report Number: 2401W90626E-RF-00F
FCC ID: 2A8X4-B3

Test Standard (s)

FCC PART 27; FCC PART 22H; FCC PART 24E; FCC PART 90

Sample Description

Product Type: Smart phone
Model No.: B3
Multiple Model(s) No.: N/A
Trade Mark: IIF150
Date Received: 2024/08/16
Issue Date: 2024/10/22

Test Result:

Pass▲

▲ In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

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Approved By:

Nancy Wang

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	2401W90626E-RF-00F	Original Report	2024/10/22

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Smart phone		
Tested Model	B3		
Multiple Model(s)	N/A		
Frequency Range	GSM 850: 824-849MHz(TX); 869-894MHz(RX) PCS 1900: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) WCDMA Band 4: 1710-1755MHz(TX); 2110-2155MHz(RX) WCDMA Band 5: 824-849MHz(TX); 869-894MHz(RX) 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(RX) LTE Band 12: 699-716MHz(TX); 729-746MHz(RX) LTE Band 13: 777-787MHz(TX); 746-756MHz(RX) LTE Band 17: 704-716MHz(TX); 734-746MHz(RX) LTE Band 25: 1850-1915MHz(TX); 1930-1995MHz(RX) LTE Band 26(Part 22): 824-849MHz(TX); 869-894MHz(RX) LTE Band 26(Part 90): 814-824MHz(TX); 859-869MHz(RX) LTE Band 38: 2570-2620MHz(TX/RX) LTE Band 41: 2535-2655MHz(TX/RX) LTE Band 66: 1710-1780MHz(TX); 2110-2200MHz(RX)		
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM 4G: QPSK, 16QAM		
Antenna Specification [#]	Operation Bands	Antenna Gain (G _T) (dBi)	L _C (dB)
	GSM 850/WCDMA B5/LTE B5/LTE B26	-2.10	0.5
	PCS1900/LTE B2/ LTE B25	-0.30	0
	WCDMA B2	0.92	0.8
	WCDMA B4	-1.32	0.8
	LTE B4/ LTE B66	-1.30	0.8
	LTE B7	-0.60	0
	LTE B12/ LTE B17	-3.71	0.5
	LTE B13	-2.57	0.5
	LTE B38	-0.10	0
	LTE B41	0	0
Note: L _c = Signal Attenuation in the connecting cable between the transmitter and antenna, in dB.			
Voltage Range	DC 3.87V from Li-ion Battery or DC 3.3-11V/5/9/12/15V from Adapter		
Sample serial number	2Q58-1 for Radiated Emissions Test 2Q58-2 for RF Conducted Test (Assigned by BACL, Shenzhen)		
Sample/EUT Status	Good condition		
Normal/Extreme Condition [#]	L.V.: Low Voltage 3.42V _{DC} N.V.: Normal Voltage 3.87V _{DC} H.V.: High Voltage 4.45V _{DC}		
Adapter Information	Model: FC69U Input: AC 100-240V, 50/60Hz, 0.8A Max Output: QC: DC 5V, 3A or 9V, 3A or 12V, 2.5A PD: DC 5V, 3A or 9V, 3A or 12V, 2.5A or 15V, 2A PPS: DC 3.3-11V, 2.72A		

Objective

This test report is in accordance with Part 2-Subpart J, Part 22-Subpart H, Part 24-Subpart E, Part 27 and Part 90 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
 Part 90 - Private Land Mobile Radio 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.

Frequency Band	Bandwidth (MHz)	Test Frequency (MHz)		
		Low	Middle	High
GSM850	0.25	824.2	836.6	848.8
PCS1900	0.25	1850.2	1880	1909.8
WCDMA B2	4.2	1852.4	1880	1907.6
WCDMA B4	4.2	1712.4	1732.4	1752.6
WCDMA B5	4.2	826.4	836.4	846.6
LTE B2	1.4	1850.7	1880	1909.3
	3	1851.5	1880	1908.5
	5	1852.5	1880	1907.5
	10	1855	1880	1905
	15	1857.5	1880	1902.5
	20	1860	1880	1900
LTE B4	1.4	1710.7	1732.5	1754.3
	3	1711.5	1732.5	1753.5
	5	1712.5	1732.5	1752.5
	10	1715	1732.5	1750
	15	1717.5	1732.5	1747.5
	20	1720	1732.5	1745
LTE B5	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
LTE B7	5	2502.5	2535	2567.5
	10	2505	2535	2565
	15	2507.5	2535	2562.5
	20	2510	2535	2560
LTE B12	1.4	699.7	707.5	715.3
	3	700.5	707.5	714.5
	5	701.5	707.5	713.5
	10	704.0	707.5	711.0
LTE B13	5	779.5	782	784.5
	10	/	782	/
LTE B17	5	706.5	710	713.5
	10	709	710	711

Frequency Band	Bandwidth (MHz)	Test Frequency (MHz)		
		Low	Middle	High
LTE B25	1.4	1850.7	1882.5	1914.3
	3	1851.5	1882.5	1913.5
	5	1852.5	1882.5	1912.5
	10	1855	1882.5	1910
	15	1857.5	1882.5	1907.5
	20	1860	1882.5	1905

Frequency Band	Bandwidth (MHz)	Test Frequency (MHz)		
		Lowest for 90s	Highest for 90s	Channel Cross 90s and 22H
LTE 26(Part 90s)	1.4	814.7	823.3	824
	3	815.5	822.5	824
	5	816.5	821.5	824
	10	819	/	824
	15	821.5	/	824
	Note: For 15MHz bandwidth, 821.5MHz cross Rules 90s and 22H.			
Frequency Band	Bandwidth (MHz)	Test Frequency (MHz)		
		Lowest for 22H	Middle for 22H	Highest for 22H
LTE 26(Part 22H)	1.4	824.7	836.5	848.3
	3	825.5	836.5	847.5
	5	826.5	836.5	846.5
	10	829	836.5	844
	15	831.5	836.5	841.5

Frequency Band	Bandwidth (MHz)	Test Frequency (MHz)		
		Low	Middle	High
LTE B38	5	2572.5	2595	2617.5
	10	2575	2595	2615
	15	2577.5	2595	2612.5
	20	2580	2595	2610
LTE B41	5	2537.5	2595	2652.5
	10	2540	2595	2650
	15	2542.5	2595	2647.5
	20	2545	2595	2645
LTE B66	1.4	1710.7	1745	1779.3
	3	1711.5	1745	1778.5
	5	1712.5	1745	1777.5
	10	1715	1745	1775
	15	1717.5	1745	1772.5
	20	1720	1745	1770

Equipment Modifications

No modification was made to the EUT.

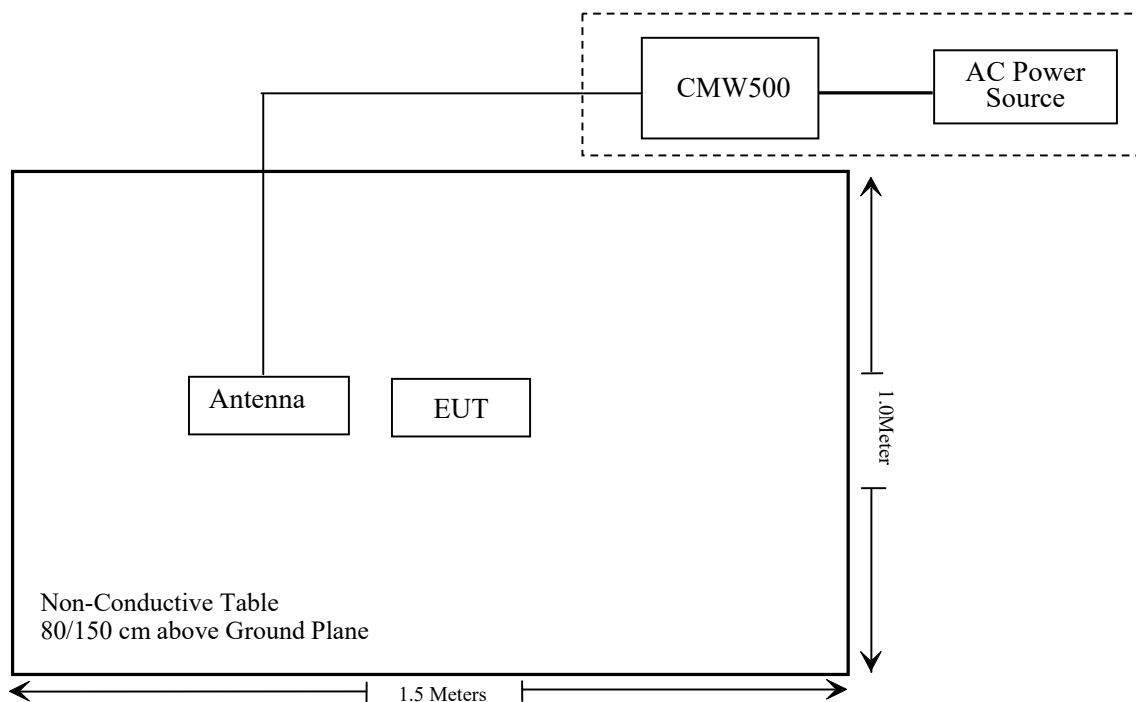
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	146520

Support Cable Description

Cable Description	Length (m)	From / Port	To
Unshielded Detachable AC cable	1.2	AC Power	CMW500

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC §1.1307(b) & §2.1093	RF Exposure Information	Compliant
§2.1046; § 22.913 (a)(d); § 24.232 (c)(d) ; §27.50(b)(c)(d)(h); §90.635	RF Output Power	Compliant
§2.1047	Modulation Characteristics	Not Applicable
§ 2.1049; § 22.905; § 22.917; § 24.238; §27.53 §90.209	Occupied Bandwidth	Compliant
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53; §90.691	Spurious Emissions at Antenna Terminal	Compliant
§ 2.1053; § 22.917 (a); § 24.238 (a); §27.53; §90.691	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a); § 24.238 (a); §27.53 (c)(g)(h)(m) §90.691	Band Edge	Compliant
§ 2.1055; § 22.355; § 24.235; §27.54; §90.213	Frequency stability	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
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
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
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	2024/06/18	2025/06/17
Agilent	Signal Generator	N5183A	MY50140588	2023/12/18	2024/12/17
RF Conducted Test					
Rohde & Schwarz	Spectrum Analyzer	FSV40	101942	2023/12/18	2024/12/17
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	146520	2024/05/21	2025/05/20
WEINSCHL	3dB Attenuator	Unknown	F-03-EM220	2024/06/27	2025/06/26
WEINSCHL	Power Splitter	1515	RH476	2024/06/27	2025/06/26
Unknown	RF Cable	65475	01670515	2024/06/27	2025/06/26
BACL	Temperature & Humidity Chamber	BTH-150-40	30145	2024/01/16	2025/01/15
instek	DC Power Supply	GPS-3030DD	EM832096	NCR	NCR
Fluke	Digital Multimeter	287	19000011	2024/05/21	2025/05/20
JD	Filter Switch Unit	DT7210FSU	DQ77930	NCR	NCR
JD	Multiplex Switch Test	DT7210SCU	DQ77929	NCR	NCR

* **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).

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

Applicable Standard

FCC§1.1307 and §2.1093.

Test Result

Compliant, please refer to the SAR report: 2403W90629E-20.

FCC§2.1047 - MODULATION CHARACTERISTIC

According to FCC § 2.1047(d), Part 22H,24E&27& 90 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(b)(c)(d)(h); §90.635 - 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(b), Portable stations (hand-held devices) transmitting in the 746-757 MHz, 776-788 MHz, and 805-806 MHz bands are limited to 3 watts ERP.

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(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.

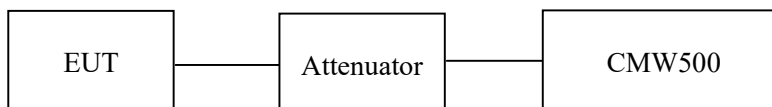
According to §27.50(h), the maximum EIRP must not exceed 2Watts (33dBm) for 2496-2690MHz.

According to §90.635, the maximum ERP must not exceed 100Watts (50dBm) for 814-824MHz.

Test Procedure

Conducted method: ANSI C63.26-2015 Section 5.2

The RF output of the transmitter was connected to the CMW500 through sufficient attenuation.



Test Data**Environmental Conditions**

Temperature:	23~27°C
Relative Humidity:	45~53%
ATM Pressure:	101 kPa

The testing was performed by Allen Bai from 2024-08-22 to 2024-10-10.

Test Result: Compliant

Note: The ERP is for below 1GHz, EIRP is for above 1GHz
 $EIRP = \text{Conducted Power (dBm)} - L_C(\text{dB}) + G_T(\text{dBi})$
 $ERP = \text{Conducted Power (dBm)} - L_C(\text{dB}) + G_T(\text{dBd})$
 $G_T(\text{dBd}) = G_T(\text{dBi}) - 2.15$

LTE Band 26 (Part 90s):

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel For 90S	Highest Channel For 90S	Cross Channel		
1.4MHz QPSK	RB1#0	24.13	24.09	24.37	19.62	50
	RB1#3	24.18	24.15	24.28		
	RB1#5	24.14	24.13	24.22		
	RB3#0	24.28	24.25	23.17		
	RB3#3	24.27	24.24	23.20		
	RB6#0	23.31	23.29	23.14		
1.4MHz 16QAM	RB1#0	23.17	23.25	23.53	18.82	50
	RB1#3	23.22	23.34	23.50		
	RB1#5	23.19	23.25	23.48		
	RB3#0	23.52	23.28	22.30		
	RB3#3	23.57	23.3	22.21		
	RB6#0	22.38	22.35	22.28		
3MHz QPSK	RB1#0	24.03	24.05	24.44	19.79	50
	RB1#8	24.08	24.14	24.54		
	RB1#14	24.03	23.98	24.43		
	RB6#0	23.23	23.2	23.22		
	RB6#9	23.22	23.19	23.38		
	RB15#0	23.25	23.22	23.44		
3MHz 16QAM	RB1#0	23.71	23.2	23.61	19.03	50
	RB1#8	23.78	23.29	23.64		
	RB1#14	23.62	23.19	23.65		
	RB6#0	22.34	22.26	22.34		
	RB6#9	22.36	22.31	22.50		
	RB15#0	22.37	22.22	22.43		
5MHz QPSK	RB1#0	24.33	24.26	24.31	19.65	50
	RB1#13	24.40	24.39	24.32		
	RB1#24	24.26	24.22	24.24		
	RB15#0	23.30	23.33	23.17		
	RB15#10	23.34	23.29	23.17		
	RB25#0	23.37	23.32	23.22		
5MHz 16QAM	RB1#0	23.44	23.24	23.48	18.76	50
	RB1#13	23.50	23.34	23.51		
	RB1#24	23.40	23.21	23.46		
	RB15#0	22.37	22.43	22.26		
	RB15#10	22.46	22.38	22.22		
	RB25#0	22.43	22.44	22.31		

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Channel For 90S	Highest Channel For 90S	Cross Channel		
10MHz QPSK	RB1#0	24.37	/	24.59	19.84	50
	RB1#25	24.36	/	24.43		
	RB1#49	24.30	/	24.44		
	RB25#0	23.21	/	23.43		
	RB25#25	23.23	/	23.47		
	RB50#0	23.23	/	23.44		
10MHz 16QAM	RB1#0	23.57	/	23.59	18.90	50
	RB1#25	23.52	/	23.60		
	RB1#49	23.49	/	23.65		
	RB25#0	22.33	/	22.36		
	RB25#25	22.31	/	22.51		
	RB50#0	22.33	/	22.47		
15MHz QPSK	RB1#0	24.53	/	24.27	19.79	50
	RB1#38	24.54	/	24.32		
	RB1#74	24.37	/	24.30		
	RB36#0	23.48	/	23.15		
	RB36#39	23.39	/	23.22		
	RB75#0	23.29	/	23.17		
15MHz 16QAM	RB1#0	23.86	/	23.54	19.11	50
	RB1#38	23.73	/	23.45		
	RB1#74	23.73	/	23.41		
	RB36#0	22.63	/	22.33		
	RB36#39	22.56	/	22.29		
	RB75#0	22.51	/	22.26		
Note: ERP= Conducted Power(dBm) - L _C (dB) + G _T (dBd) G _T (dBd)=G _T (dBi)-2.15						

LTE Band 26 (Part 22H):

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Frequency For 22H	Middle Frequency For 22H	Highest Frequency For 22H		
1.4MHz QPSK	RB1#0	24.04	24.05	24.09	19.47	38.45
	RB1#3	24.08	24.09	24.07		
	RB1#5	24.06	24.03	24.04		
	RB3#0	24.19	24.16	24.17		
	RB3#3	24.22	24.18	24.16		
	RB6#0	23.22	23.21	23.23		
1.4MHz 16QAM	RB1#0	23.12	23.09	23.21	18.70	38.45
	RB1#3	23.20	23.18	23.24		
	RB1#5	23.10	23.12	23.20		
	RB3#0	23.32	23.43	23.19		
	RB3#3	23.37	23.45	23.22		
	RB6#0	22.22	22.29	22.29		
3MHz QPSK	RB1#0	23.98	23.89	24.00	19.32	38.45
	RB1#8	24.03	23.99	24.07		
	RB1#14	23.92	23.92	23.93		
	RB6#0	23.07	23.10	23.10		
	RB6#9	23.11	23.10	23.13		
	RB15#0	23.10	23.18	23.20		
3MHz 16QAM	RB1#0	23.00	23.63	23.13	18.90	38.45
	RB1#8	23.09	23.65	23.20		
	RB1#14	23.00	23.54	23.15		
	RB6#0	22.11	22.28	22.15		
	RB6#9	22.08	22.21	22.21		
	RB15#0	22.23	22.29	22.18		
5MHz QPSK	RB1#0	24.26	24.24	24.24	19.60	38.45
	RB1#13	24.30	24.34	24.35		
	RB1#24	24.20	24.24	24.21		
	RB15#0	23.29	23.26	23.24		
	RB15#10	23.29	23.24	23.21		
	RB25#0	23.31	23.25	23.27		
5MHz 16QAM	RB1#0	23.35	23.18	23.61	18.95	38.45
	RB1#13	23.46	23.24	23.70		
	RB1#24	23.34	23.22	23.54		
	RB15#0	22.38	22.40	22.25		
	RB15#10	22.40	22.30	22.25		
	RB25#0	22.39	22.36	22.29		

Test Bandwidth & Modulation	Resource Block & RB offset	Conducted Average Output Power(dBm)			Maximum ERP (dBm)	ERP Limit (dBm)
		Lowest Frequency For 22H	Middle Frequency For 22H	Highest Frequency For 22H		
10MHz QPSK	RB1#0	24.31	24.23	24.29	19.56	38.45
	RB1#25	24.31	24.25	24.31		
	RB1#49	24.27	24.26	24.30		
	RB25#0	23.25	23.19	23.32		
	RB25#25	23.40	23.15	23.33		
	RB50#0	23.31	23.20	23.34		
10MHz 16QAM	RB1#0	23.35	23.94	23.47	19.20	38.45
	RB1#25	23.37	23.95	23.48		
	RB1#49	23.36	23.90	23.47		
	RB25#0	22.37	22.26	22.37		
	RB25#25	22.56	22.30	22.41		
	RB50#0	22.41	22.30	22.42		
15MHz QPSK	RB1#0	24.25	24.19	24.24	19.63	38.45
	RB1#38	24.31	24.25	24.38		
	RB1#74	24.21	24.20	24.24		
	RB36#0	23.17	23.14	23.36		
	RB36#39	23.24	23.18	23.36		
	RB75#0	23.20	23.15	23.38		
15MHz 16QAM	RB1#0	23.70	23.85	23.40	19.23	38.45
	RB1#38	23.76	23.98	23.53		
	RB1#74	23.69	23.90	23.47		
	RB36#0	22.18	22.18	22.37		
	RB36#39	22.26	22.20	22.39		
	RB75#0	22.25	22.21	22.44		
Note: ERP= Conducted Power(dBm) - L _C (dB) + G _T (dBd) G _T (dBd)=G _T (dBi)-2.15						

Peak-to-average ratio (PAR)

LTE Band: *(pre-scan all bandwidth, the worst case as below)*

LTE Band 26 (Part 90s) 15MHz Bandwidth

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Channel For 90s	Highest Channel For 90s	Cross Channel	
15MHz QPSK	RB1#0	3.07	/	2.90	13
	RB75#0	4.41	/	4.49	13
15MHz 16QAM	RB1#0	3.16	/	2.90	13
	RB75#0	4.41	/	4.52	13

LTE Band 26 (Part 22H) 15MHz Bandwidth

Test Bandwidth & Modulation	Resource Block & RB offset	Peak-to-average Ratio(dB)			Limit (dB)
		Lowest Frequency For 22H	Middle Frequency For 22H	Highest Frequency For 22H	
15MHz QPSK	RB1#0	5.42	5.80	5.80	13
	RB75#0	5.42	5.39	5.51	13
15MHz 16QAM	RB1#0	6.20	6.84	6.41	13
	RB75#0	6.49	6.49	6.46	13

The test data of GSM and WCDMA please refer to the Appendix A&B.
The test data of LTE other bands please refer to the Appendix C.

FCC §2.1049, §22.917, §22.905 & §24.238&§27.53&§90.209 - OCCUPIED BANDWIDTH

Applicable Standard

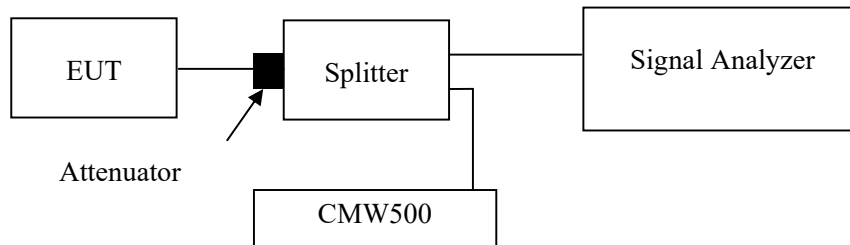
FCC 47 §2.1049, §22.917, §22.905, §24.238, §27.53&§90.209.

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

Temperature:	23~27°C
Relative Humidity:	45~53%
ATM Pressure:	101 kPa

The testing was performed by Allen Bai from 2024-08-22 to 2024-09-29

EUT operation mode: Transmitting

Test Result: Compliant

Please refer to the following tables and plots.

LTE Band 26 (Part 90s)

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Lowest For 90S	Lowest For 90S
1.4MHz QPSK	1.102	1.278
1.4MHz 16QAM	1.102	1.290
3MHz QPSK	2.683	2.928
3MHz 16QAM	2.683	2.940
5MHz QPSK	4.511	4.920
5MHz 16QAM	4.511	4.940
10MHz QPSK	8.942	9.600
10MHz 16QAM	8.942	9.640
15MHz QPSK	13.413	14.580
15MHz 16QAM	13.502	14.588

LTE Band 26 (Part 22H)

Operation Mode	99% Occupied Bandwidth (MHz)	26 dB Occupied Bandwidth (MHz)
	Middle Frequency For 22H	Middle Frequency For 22H
1.4MHz QPSK	1.096	1.284
1.4MHz 16QAM	1.108	1.314
3MHz QPSK	2.683	2.928
3MHz 16QAM	2.683	2.928
5MHz QPSK	4.511	4.940
5MHz 16QAM	4.511	4.960
10MHz QPSK	8.942	9.600
10MHz 16QAM	8.942	9.640
15MHz QPSK	13.413	14.580
15MHz 16QAM	13.473	14.580

The test data and plots of GSM and WCDMA please refer to the Appendix A&B.

The test data and plots of LTE other bands please refer to the Appendix C&E.

FCC §2.1051, §22.917(a) & §24.238(a) & §27.53 & §90.691 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

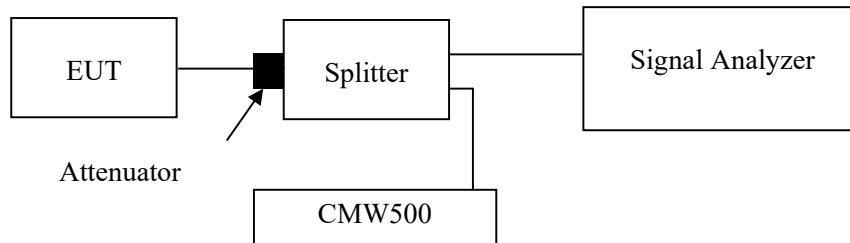
FCC §2.1051, §22.917(a) & §24.238(a) & §27.53 & §90.691.

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 10th harmonic.



Note 1: the worst path loss (cable loss and splitter inset loss) among the test frequency range was added into plots.

Note 2: Fundamental notch filter added in LTE bands test

Test Data

Environmental Conditions

Temperature:	23~27°C
Relative Humidity:	45~53%
ATM Pressure:	101 kPa

The testing was performed by Allen Bai from 2024-08-23 to 2024-10-22.

EUT operation mode: Transmitting

Test result: Compliant

Please refer to the following plots.

The test data and plots of GSM and WCDMA please refer to the Appendix A&B.

The test plots of LTE band please refer to the Appendix C&F&G.

FCC § 2.1053; § 22.917 (a); § 24.238 (a); §27.53; §90.691- SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917(a)& § 24.238(a) &§ 27.53 &§90.691.

Test Procedure

ANSI C63.26-2015 Section 5.5

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

Temperature:	25 °C
Relative Humidity:	50 %
ATM Pressure:	101 kPa

The testing was performed by Anson Su on 2024-09-13 for below 1GHz and Zenos Qiao on 2024-09-03 for above 1GHz.

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

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)			
GSM 850 (30MHz-10GHz)								
Low Channel								
954.3	32.59	H	-63.9	1.36	0.0	-65.26	-13	52.26
954.3	32.61	V	-61.4	1.36	0.0	-62.76	-13	49.76
1648.40	76.98	H	-30.7	0.90	8.60	-23.00	-13	10.00
1648.40	76.05	V	-32.1	0.90	8.60	-24.40	-13	11.40
2472.60	78.79	H	-28.6	1.10	8.80	-20.90	-13	7.90
2472.60	77.84	V	-29.3	1.10	8.80	-21.60	-13	8.60
3296.80	66.32	H	-39.7	1.30	8.80	-32.20	-13	19.20
3296.80	65.47	V	-40.2	1.30	8.80	-32.70	-13	19.70
Middle Channel								
951.8	33.18	H	-63.3	1.36	0.0	-64.66	-13	51.66
951.8	33.08	V	-61.0	1.36	0.0	-62.36	-13	49.36
1673.20	78.16	H	-29.4	0.90	8.60	-21.70	-13	8.70
1673.20	77.37	V	-30.8	0.90	8.60	-23.10	-13	10.10
2509.80	80.23	H	-27.1	1.10	8.80	-19.40	-13	6.40
2509.80	79.55	V	-27.6	1.10	8.80	-19.90	-13	6.90
3346.40	67.06	H	-38.9	1.30	8.80	-31.40	-13	18.40
3346.40	66.19	V	-39.5	1.30	8.80	-32.00	-13	19.00
High Channel								
953.3	33.83	H	-62.7	1.36	0.0	-64.06	-13	51.06
953.3	33.59	V	-60.5	1.36	0.0	-61.86	-13	48.86
1697.60	80.25	H	-27.3	0.90	8.60	-19.60	-13	6.60
1697.60	79.31	V	-28.8	0.90	8.60	-21.10	-13	8.10
2546.40	82.68	H	-24.7	1.10	8.80	-17.00	-13	4.00
2546.40	81.57	V	-25.5	1.10	8.80	-17.80	-13	4.80
3395.20	69.14	H	-36.8	1.30	9.90	-28.20	-13	15.20
3395.20	68.49	V	-37.2	1.30	9.90	-28.60	-13	15.60

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)			
PCS 1900(30MHz-20GHz)								
Low Channel								
958.9	32.75	H	-63.8	1.36	0.0	-65.16	-13	52.16
958.9	32.72	V	-61.3	1.36	0.0	-62.66	-13	49.66
3700.40	65.15	H	-40.3	1.30	11.00	-30.60	-13	17.60
3700.40	63.72	V	-41.5	1.30	11.00	-31.80	-13	18.80
Middle Channel								
952.7	32.99	H	-63.5	1.36	0.0	-64.86	-13	51.86
952.7	32.85	V	-61.2	1.36	0.0	-62.56	-13	49.56
3760.00	66.47	H	-38.7	1.30	10.70	-29.30	-13	16.30
3760.00	64.98	V	-40.1	1.30	10.70	-30.70	-13	17.70
High Channel								
950.0	33.57	H	-62.9	1.36	0.0	-64.26	-13	51.26
950.0	33.42	V	-60.6	1.36	0.0	-61.96	-13	48.96
3819.60	67.86	H	-37.3	1.30	10.70	-27.90	-13	14.90
3819.60	66.39	V	-38.7	1.30	10.70	-29.30	-13	16.30

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)			
WCDMA Band 2 (30MHz-20GHz)								
Low Channel								
951.6	32.52	H	-64.0	1.36	0.0	-65.36	-13	52.36
951.6	32.55	V	-61.5	1.36	0.0	-62.86	-13	49.86
3704.80	44.11	H	-61.3	1.30	11.00	-51.60	-13	38.60
3704.80	44.82	V	-60.5	1.30	11.00	-50.80	-13	37.80
Middle Channel								
950.2	33.35	H	-63.2	1.36	0.0	-64.56	-13	51.56
950.2	33.21	V	-60.8	1.36	0.0	-62.16	-13	49.16
3760.00	45.24	H	-59.9	1.30	10.70	-50.50	-13	37.50
3760.00	45.24	V	-59.9	1.30	10.70	-50.50	-13	37.50
High Channel								
958.5	33.58	H	-62.9	1.36	0.0	-64.26	-13	51.26
958.5	33.34	V	-60.7	1.36	0.0	-62.06	-13	49.06
3815.20	45.24	H	-61.8	1.30	10.70	-52.40	-13	39.40
3815.20	45.24	V	-60.6	1.30	10.70	-51.20	-13	38.20

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)			
WCDMA Band 4 (30MHz-20GHz)								
Low Channel								
959.4	32.61	H	-63.9	1.36	0.0	-65.26	-13	52.26
959.4	32.72	V	-61.3	1.36	0.0	-62.66	-13	49.66
3424.80	46.05	H	-59.9	1.30	9.90	-51.30	-13	38.30
3424.80	44.52	V	-61.2	1.30	9.90	-52.60	-13	39.60
Middle Channel								
951.6	33.18	H	-63.3	1.36	0.0	-64.66	-13	51.66
951.6	33.09	V	-61.0	1.36	0.0	-62.36	-13	49.36
3464.80	45.90	H	-60.0	1.30	10.50	-50.80	-13	37.80
3464.80	45.94	V	-59.7	1.30	10.50	-50.50	-13	37.50
High Channel								
958.5	33.72	H	-62.8	1.36	0.0	-64.16	-13	51.16
958.5	33.59	V	-60.5	1.36	0.0	-61.86	-13	48.86
3505.20	44.53	H	-61.4	1.30	10.50	-52.20	-13	39.20
3505.20	44.33	V	-61.3	1.30	10.50	-52.10	-13	39.10

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)			
WCDMA Band 5 (30MHz-10GHz)								
Low Channel								
953.9	32.87	H	-63.6	1.36	0.0	-64.96	-13	51.96
953.9	32.89	V	-61.2	1.36	0.0	-62.56	-13	49.56
1652.80	49.14	H	-58.5	0.90	8.60	-50.80	-13	37.80
1652.80	47.48	V	-60.6	0.90	8.60	-52.90	-13	39.90
Middle Channel								
957.1	33.52	H	-63.0	1.36	0.0	-64.36	-13	51.36
957.1	33.47	V	-60.6	1.36	0.0	-61.96	-13	48.96
1672.80	48.21	H	-59.4	0.90	8.60	-51.70	-13	38.70
1672.80	49.47	V	-58.6	0.90	8.60	-50.90	-13	37.90
High Channel								
956.0	33.91	H	-62.6	1.36	0.0	-63.96	-13	50.96
956.0	33.86	V	-60.2	1.36	0.0	-61.56	-13	48.56
1693.20	46.28	H	-61.3	0.90	8.60	-53.60	-13	40.60
1693.20	47.19	V	-60.9	0.90	8.60	-53.20	-13	40.20

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

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)			
Band 2 (30MHz-20GHz)								
QPSK, 1.4MHz_1RB#0, Low Channel								
955.0	31.24	H	-65.3	1.36	0.0	-66.66	-13	53.66
955.0	31.18	V	-62.9	1.36	0.0	-64.26	-13	51.26
3701.40	44.07	H	-61.3	1.30	11.00	-51.60	-13	38.60
3701.40	44.75	V	-60.6	1.30	11.00	-50.90	-13	37.90
QPSK, 1.4MHz_1RB#0, Middle Channel								
956.7	32.94	H	-63.6	1.36	0.0	-64.96	-13	51.96
956.7	32.83	V	-61.2	1.36	0.0	-62.56	-13	49.56
3760.00	45.19	H	-59.9	1.30	10.70	-50.50	-13	37.50
3760.00	47.95	V	-57.6	1.30	10.70	-48.20	-13	35.20
QPSK, 1.4MHz_1RB#0, High Channel								
957.8	33.03	H	-63.5	1.36	0.0	-64.86	-13	51.86
957.8	32.95	V	-61.1	1.36	0.0	-62.46	-13	49.46
3818.60	43.39	H	-61.7	1.30	10.70	-52.30	-13	39.30
3818.60	43.81	V	-61.3	1.30	10.70	-51.90	-13	38.90

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)			
Band 4 (30MHz-20GHz)								
QPSK, 1.4MHz_1RB#0, Low Channel								
950.0	31.35	H	-65.2	1.36	0.0	-66.56	-13	53.56
950.0	31.25	V	-62.8	1.36	0.0	-64.16	-13	51.16
3421.40	48.83	H	-57.2	1.30	9.90	-48.60	-13	35.60
3421.40	46.16	V	-59.5	1.30	9.90	-50.90	-13	37.90
QPSK, 1.4MHz_1RB#0, Middle Channel								
953.2	32.82	H	-63.7	1.36	0.0	-65.06	-13	52.06
953.2	32.74	V	-61.3	1.36	0.0	-62.66	-13	49.66
3465.00	47.72	H	-58.8	1.30	10.50	-49.60	-13	36.60
3465.00	48.15	V	-57.5	1.30	10.50	-48.30	-13	35.30
QPSK, 1.4MHz_1RB#0, High Channel								
958.9	33.14	H	-63.4	1.36	0.0	-64.76	-13	51.76
958.9	33.03	V	-61.0	1.36	0.0	-62.36	-13	49.36
3508.60	45.28	H	-60.6	1.30	10.50	-51.40	-13	38.40
3508.60	43.36	V	-62.2	1.30	10.50	-53.00	-13	40.00

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)			
Band 5 (30MHz-10GHz)								
QPSK, 1.4MHz_1RB#0, Low Channel								
954.5	31.43	H	-65.1	1.36	0.0	-66.46	-13	53.46
654.5	31.32	V	-62.7	1.36	0.0	-64.06	-13	51.06
1649.40	53.16	H	-54.5	0.90	8.60	-46.80	-13	33.80
1649.40	54.21	V	-54.0	0.90	8.60	-46.30	-13	33.30
QPSK, 1.4MHz_1RB#0, Middle Channel								
957.0	32.75	H	-63.8	1.36	0.0	-65.16	-13	52.16
957.0	32.63	V	-61.4	1.36	0.0	-62.76	-13	49.76
1673.00	50.13	H	-57.6	0.90	8.60	-49.90	-13	36.90
1673.00	48.34	V	-59.9	0.90	8.60	-52.20	-13	39.20
QPSK, 1.4MHz_1RB#0, High Channel								
951.6	33.24	H	-63.3	1.36	0.0	-64.66	-13	51.66
951.6	33.15	V	-60.9	1.36	0.0	-62.26	-13	49.26
1696.60	56.17	H	-51.5	0.90	8.60	-43.80	-13	30.80
1696.60	54.26	V	-53.9	0.90	8.60	-46.20	-13	33.20

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)			
Band 7 (30MHz-27GHz)								
QPSK, 5MHz_1RB#0, Low Channel								
958.0	32.29	H	-64.2	1.36	0.0	-65.56	-25	40.56
958.0	32.37	V	-61.7	1.36	0.0	-63.06	-25	38.06
5005.00	45.33	H	-58.0	1.50	9.80	-49.70	-25	24.70
5005.00	44.78	V	-57.82	1.50	9.80	-49.52	-25	24.52
QPSK, 5MHz_1RB#0, Middle Channel								
952.7	32.48	H	-64.0	1.36	0.0	-65.36	-25	40.36
952.7	32.51	V	-61.5	1.36	0.0	-62.86	-25	37.86
5070.00	54.3	H	-48.9	1.50	9.60	-40.80	-25	15.80
5070.00	50.06	V	-52.5	1.50	9.60	-44.40	-25	19.40
QPSK, 5MHz_1RB#0, High Channel								
953.3	32.71	H	-63.8	1.36	0.0	-65.16	-25	40.16
953.3	32.84	V	-61.2	1.36	0.0	-62.56	-25	37.56
5135.00	45.45	H	-57.8	1.50	9.60	-49.70	-25	24.70
5135.00	45.98	V	-56.6	1.50	9.60	-48.50	-25	23.50

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)			
Band 12 (30MHz-10GHz)								
QPSK, 1.4MHz_1RB#0, Low Channel								
954.5	31.54	H	-65.0	1.36	0.0	-66.36	-13	53.36
954.5	31.44	V	-62.6	1.36	0.0	-63.96	-13	50.96
2798.80	68.85	H	-37.8	1.20	9.20	-29.80	-13	16.80
2798.80	67.12	V	-39.2	1.20	9.20	-31.20	-13	18.20
3498.50	67.51	H	-38.4	1.30	10.50	-29.20	-13	16.20
3498.50	62.3	V	-43.3	1.30	10.50	-34.10	-13	21.10
QPSK, 1.4MHz_1RB#0, Middle Channel								
953.5	32.63	H	-63.9	1.36	0.0	-65.26	-13	52.26
953.5	32.52	V	-61.5	1.36	0.0	-62.86	-13	49.86
2830.00	62.33	H	-44.3	0.80	7.90	-37.20	-13	24.20
2830.00	58.74	V	-47.6	0.80	7.90	-40.50	-13	27.50
3537.50	58.71	H	-47.2	1.00	8.30	-39.90	-13	26.90
3537.50	54.55	V	-51.1	1.00	8.30	-43.80	-13	30.80
QPSK, 1.4MHz_1RB#0, High Channel								
955.9	33.37	H	-63.1	1.36	0.0	-64.46	-13	51.46
955.9	33.29	V	-60.8	1.36	0.0	-62.16	-13	49.16
2861.20	69.41	H	-36.9	0.80	7.90	-29.80	-13	16.80
2861.20	66.62	V	-39.9	0.80	7.90	-32.80	-13	19.80

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)			
Band 13 (30MHz-10GHz)								
QPSK, 5MHz_1RB#0, Low Channel								
951.7	31.63	H	-64.9	1.36	0.0	-66.26	-13	53.26
951.7	31.52	V	-62.5	1.36	0.0	-63.86	-13	50.86
1559.00	50.01	H	-57.7	0.90	8.60	-50.00	-40	10.00
1559.00	49.87	V	-58.3	0.90	8.60	-50.60	-40	10.60
QPSK, 5MHz_1RB#0, Middle Channel								
958.2	32.54	H	-64.0	1.36	0.0	-65.36	-13	52.36
958.2	32.44	V	-61.6	1.36	0.0	-62.96	-13	49.96
1564.00	48.41	H	-59.3	0.90	8.60	-51.60	-40	11.60
1564.00	52.63	V	-55.6	0.90	8.60	-47.90	-40	7.90
QPSK, 5MHz_1RB#0, High Channel								
956.0	33.52	H	-63.0	1.36	0.0	-64.36	-13	51.36
956.0	33.48	V	-60.6	1.36	0.0	-61.96	-13	48.96
1569.00	47.11	H	-60.6	0.90	8.60	-52.90	-40	12.90
1569.00	48.52	V	-59.7	0.90	8.60	-52.00	-40	12.00

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)			
Band 17 (30MHz-10GHz)								
QPSK, 5MHz_1RB#0, Low Channel								
954.2	31.72	H	-64.8	1.36	0.0	-66.16	-13	53.16
954.2	31.63	V	-62.4	1.36	0.0	-63.76	-13	50.76
2826.00	71.45	H	-35.2	0.80	7.90	-28.10	-13	15.10
2826.00	65.32	V	-41.0	0.80	7.90	-33.90	-13	20.90
3532.50	64.9	H	-41.0	1.00	8.30	-33.70	-13	20.70
3532.50	64.01	V	-41.6	1.00	8.30	-34.30	-13	21.30
QPSK, 5MHz_1RB#0, Middle Channel								
956.9	32.41	H	-64.1	1.36	0.0	-65.46	-13	52.46
956.9	32.35	V	-61.7	1.36	0.0	-63.06	-13	50.06
2840.00	47.70	H	-60.00	0.80	7.90	-52.90	-13	39.90
2840.00	48.20	V	-58.10	0.80	7.90	-51.00	-13	38.00
QPSK, 5MHz_1RB#0, High Channel								
958.8	33.63	H	-62.9	1.36	0.0	-64.26	-13	51.26
958.8	33.51	V	-60.5	1.36	0.0	-61.86	-13	48.86
2854.00	65.30	H	-41.0	1.20	9.00	-33.20	-13	20.20
2854.00	64.50	V	-41.6	1.20	9.00	-33.80	-13	20.80
3567.50	60.10	H	-45.6	1.30	10.90	-36.00	-13	23.00
3567.50	58.00	V	-47.4	1.30	10.90	-37.80	-13	24.80

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)			
Band 25(30MHz-20GHz)								
QPSK, 1.4MHz_1RB#0, Low Channel								
955.8	31.82	H	-64.7	1.36	0.0	-66.06	-13	53.06
955.8	31.74	V	-62.3	1.36	0.0	-63.66	-13	50.66
3701.400	44.07	H	-61.3	1.30	11.00	-51.60	-13	38.60
3701.400	44.75	V	-60.6	1.30	11.00	-50.90	-13	37.90
QPSK, 1.4MHz_1RB#0, Middle Channel								
957.4	32.32	H	-64.2	1.36	0.0	-65.56	-13	52.56
957.4	32.24	V	-61.8	1.36	0.0	-63.16	-13	50.16
3765.000	45.19	H	-59.9	1.30	10.70	-50.50	-13	37.50
3765.000	47.95	V	-57.2	1.30	10.70	-47.80	-13	34.80
QPSK, 1.4MHz_1RB#0, High Channel								
951.5	33.72	H	-62.8	1.36	0.0	-64.16	-13	51.16
951.5	33.63	V	-60.4	1.36	0.0	-61.76	-13	48.76
3828.600	43.39	H	-61.7	1.30	10.70	-52.30	-13	39.30
3828.600	43.81	V	-61.3	1.30	10.70	-51.90	-13	38.90

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)			
Band 26_ Part 90s (30MHz-10GHz)								
QPSK, 1.4MHz_1RB#0, Low Channel								
958.5	31.92	H	-64.6	1.36	0.0	-65.96	-13	52.96
958.5	31.86	V	-62.2	1.36	0.0	-63.56	-13	50.56
1629.40	48.81	H	-58.8	0.90	8.60	-51.10	-13	38.10
1629.40	49.58	V	-58.6	0.90	8.60	-50.90	-13	37.90
2444.10	57.69	H	-49.7	1.10	9.10	-41.70	-13	28.70
2444.10	58.75	V	-48.5	1.10	9.10	-40.50	-13	27.50
3258.80	48.93	H	-57.1	1.30	8.80	-49.60	-13	36.60
3258.80	48.34	V	-57.3	1.30	8.80	-49.80	-13	36.80
QPSK, 1.4MHz_1RB#0, High Channel								
950.2	32.23	H	-64.3	1.36	0.0	-65.66	-13	52.66
950.2	32.15	V	-61.9	1.36	0.0	-63.26	-13	50.26
1646.60	52.63	H	-55.0	0.90	8.60	-47.30	-13	34.30
1646.60	53.78	V	-54.4	0.90	8.60	-46.70	-13	33.70
2469.90	58.12	H	-49.2	1.10	8.80	-41.50	-13	28.50
2469.90	59.39	V	-47.7	1.10	8.80	-40.00	-13	27.00
3293.20	48.47	H	-57.5	1.30	8.80	-50.00	-13	37.00
3293.20	47.95	V	-57.7	1.30	8.80	-50.20	-13	37.20
QPSK, 1.4MHz_1RB#0, Cross Channel								
951.3	33.81	H	-62.7	1.36	0.0	-64.06	-13	51.06
951.3	33.72	V	-60.3	1.36	0.0	-61.66	-13	48.66
1648.00	49.94	H	-57.7	0.90	8.60	-50.00	-13	37.00
1648.00	50.48	V	-57.7	0.90	8.60	-50.00	-13	37.00
2472.00	58.09	H	-49.3	1.10	9.10	-41.30	-13	28.30
2472.00	59.45	V	-47.8	1.10	9.10	-39.80	-13	26.80
3296.00	49.71	H	-56.3	1.30	8.80	-48.80	-13	35.80
3296.00	50.62	V	-55.1	1.30	8.80	-47.60	-13	34.60

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)			
Band 26_ Part 22H (30MHz-10GHz)								
QPSK, 1.4MHz_1RB#0, Low Channel								
951.7	33.61	H	-62.9	1.36	0.0	-64.25	-13	51.25
951.7	33.52	V	-60.5	1.36	0.0	-61.87	-13	48.87
1649.40	55.79	H	-51.9	0.90	8.60	-44.20	-13	31.20
1649.40	54.56	V	-53.6	0.90	8.60	-45.90	-13	32.90
2474.10	55.87	H	-51.5	1.10	8.80	-43.80	-13	30.80
2474.10	56.31	V	-50.8	1.10	8.80	-43.10	-13	30.10
3298.80	48.32	H	-57.7	1.30	8.80	-50.20	-13	37.20
3298.80	47.65	V	-58.0	1.30	8.80	-50.50	-13	37.50
QPSK, 1.4MHz_1RB#0, Middle Channel								
953.6	32.61	H	-63.9	1.36	0.0	-65.22	-13	52.22
953.6	33.02	V	-61.0	1.36	0.0	-62.37	-13	49.37
1673.00	54.45	H	-53.1	0.90	8.60	-45.40	-13	32.40
1673.00	55.27	V	-52.9	0.90	8.60	-45.20	-13	32.20
2509.50	56.51	H	-50.9	1.10	8.80	-43.20	-13	30.20
2509.50	57.72	V	-49.4	1.10	8.80	-41.70	-13	28.70
3346.00	47.86	H	-58.1	1.30	8.80	-50.60	-13	37.60
3346.00	47.18	V	-58.5	1.30	8.80	-51.00	-13	38.00
QPSK, 1.4MHz_1RB#0, High Channel								
958.2	33.51	H	-63.0	1.36	0.0	-64.31	-13	51.31
958.2	32.82	V	-61.2	1.36	0.0	-62.55	-13	49.55
1696.60	50.96	H	-56.6	0.90	8.60	-48.90	-13	35.90
1696.60	51.89	V	-56.3	0.90	8.60	-48.60	-13	35.60
2544.90	57.63	H	-49.7	1.10	8.80	-42.00	-13	29.00
2544.90	58.25	V	-48.9	1.10	8.80	-41.20	-13	28.20
3393.20	48.18	H	-57.8	1.30	9.90	-49.20	-13	36.20
3393.20	47.57	V	-58.1	1.30	9.90	-49.50	-13	36.50

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)			
Band 38 (30MHz-26.5GHz)								
QPSK, 5MHz_1RB#0, Low Channel								
950.2	33.21	H	-63.3	1.36	0.0	-64.66	-25	39.66
950.2	33.31	V	-60.7	1.36	0.0	-62.06	-25	37.06
5145.00	54.20	H	-49.0	1.50	9.60	-40.90	-25	15.9
5145.00	49.06	V	-53.5	1.50	9.60	-45.40	-25	20.40
QPSK, 5MHz_1RB#0, Middle Channel								
957.4	33.34	H	-63.2	1.36	0.0	-64.56	-25	39.56
957.4	33.42	V	-60.6	1.36	0.0	-61.96	-25	36.96
5190.00	47.20	H	-55.8	1.60	9.70	-47.70	-25	22.7
5190.00	46.50	V	-56.2	1.60	9.70	-48.10	-25	23.1
QPSK, 5MHz_1RB#0, High Channel								
957.7	33.41	H	-63.1	1.36	0.0	-64.46	-25	39.46
957.7	33.53	V	-60.5	1.36	0.0	-61.86	-25	36.86
5235.00	46.06	H	-56.9	1.60	9.70	-48.80	-25	23.80
5235.00	45.24	V	-57.5	1.60	9.70	-49.40	-25	24.40

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)			
Band 41 (30MHz-27GHz)								
QPSK, 5MHz_1RB#0, Low Channel								
954.3	33.51	H	-63.0	1.36	0.0	-64.36	-25	39.36
954.3	33.62	V	-60.4	1.36	0.0	-61.76	-25	36.76
5075.00	53.48	H	-49.7	1.50	9.60	-41.60	-25	16.60
5075.00	49.65	V	-52.9	1.50	9.60	-44.80	-25	19.80
QPSK, 5MHz_1RB#0, Middle Channel								
959.8	33.63	H	-62.9	1.36	0.0	-64.26	-25	39.26
959.8	33.74	V	-60.3	1.36	0.0	-61.66	-25	36.66
5190.00	51.95	H	-51.1	1.60	9.70	-43.00	-25	18.00
5190.00	49.97	V	-52.7	1.60	9.70	-44.60	-25	19.60
QPSK, 5MHz_1RB#0, High Channel								
954.5	33.79	H	-62.7	1.36	0.0	-64.06	-25	39.06
954.5	33.85	V	-60.2	1.36	0.0	-61.56	-25	36.56
5305.00	51.31	H	-51.6	1.60	10.00	-43.20	-25	18.20
5305.00	48.11	V	-54.6	1.60	10.00	-46.20	-25	21.20

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)			
Band 66 (30MHz-20GHz)								
QPSK, 1.4MHz_1RB#0, Low Channel								
954.7	32.03	H	-64.5	1.36	0.0	-65.86	-13	52.86
954.7	31.95	V	-62.1	1.36	0.0	-63.46	-13	50.46
3421.40	48.80	H	-57.2	1.30	9.90	-48.60	-13	35.60
3421.40	45.53	V	-60.2	1.30	9.90	-51.60	-13	38.60
QPSK, 1.4MHz_1RB#0, Middle Channel								
952.8	32.15	H	-64.4	1.36	0.0	-65.76	-13	52.76
952.8	32.06	V	-62.0	1.36	0.0	-63.36	-13	50.36
3490.00	46.62	H	-59.3	1.30	10.50	-50.10	-13	37.10
3490.00	46.73	V	-58.9	1.30	10.50	-49.70	-13	36.70
QPSK, 1.4MHz_1RB#0, High Channel								
958.6	33.96	H	-62.5	1.36	0.0	-63.86	-13	50.86
958.6	33.85	V	-60.2	1.36	0.0	-61.56	-13	48.56
3558.60	49.41	H	-56.3	1.30	10.90	-46.70	-13	33.70
3558.60	44.22	V	-61.1	1.30	10.90	-51.50	-13	38.50

Note:

Absolute Level = Reading Level + Substituted Factor

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

Margin = Limit-Absolute Level

FCC§ 22.917 (a); § 24.238 (a); §27.53(c)(g)(h)(m); §90.691 - 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 (c) (g) (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 than $43 + 10 \log(P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log(P)$ dB at or below 2490.5MHz.

According to § 90.691, (a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least $43 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

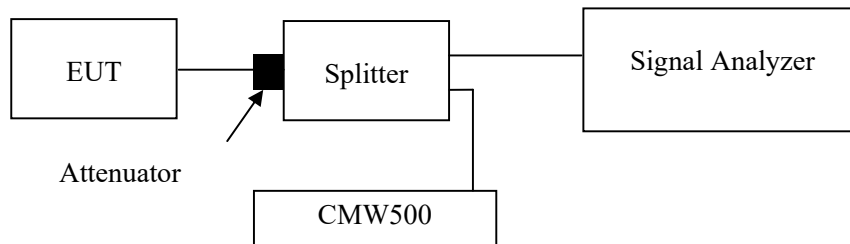
(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section

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

Temperature:	23~27°C
Relative Humidity:	45~53%
ATM Pressure:	101 kPa

The testing was performed by Allen Bai from 2024-08-23 to 2024-09-29.

EUT operation mode: Transmitting (Worst case)

Test Result: Compliant

Please refer to the following plots.

The test data of GSM and WCDMA please refer to the Appendix A&B.

The test plots of LTE bands please refer to the Appendix C&D.

FCC § 2.1055; § 22.355; § 24.235; §27.54; §90.213- FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055, §22.355, §24.235&§27.54&§90.213.

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.

According to §90.213, unless noted elsewhere, transmitters used in the services governed by this part must have a minimum frequency stability as specified in the following table:

TABLE 1 TO §90.213(a)—MINIMUM FREQUENCY STABILITY

[Parts per million (ppm)]

Frequency range (MHz)	Fixed and base stations	Mobile stations	
		Over 2 watts output power	2 watts or less output power
Below 25	^{1 2 3} 100	100	200
25-50	20	20	50
72-76	5		50
150-174	^{5 11} 5	⁶ 5	^{4 6} 50
216-220	1.0		1.0
220-222 ¹²	0.1	1.5	1.5
421-512	^{7 11 14} 2.5	⁸ 5	⁸ 5
806-809	¹⁴ 1.0	1.5	1.5
809-824	¹⁴ 1.5	2.5	2.5
851-854	1.0	1.5	1.5
854-869	1.5	2.5	2.5
896-901	¹⁴ 0.1	1.5	1.5
902-928	2.5	2.5	2.5
902-928 ¹³	2.5	2.5	2.5
929-930	1.5		
935-940	0.1	1.5	1.5
1427-1435	⁹ 300	300	300
Above 2450 ¹⁰			

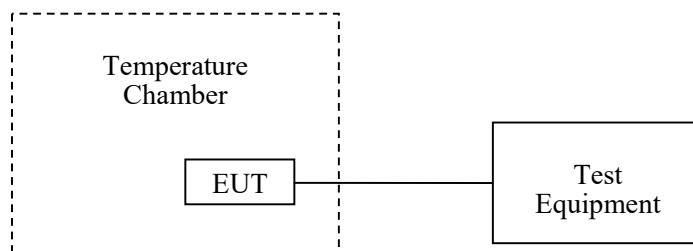
Test Procedure

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

Temperature:	23~27°C
Relative Humidity:	45~53%
ATM Pressure:	101 kPa

The testing was performed by Allen Bai from 2024-08-22 to 2024-09-22.

EUT operation mode: Transmitting

Test Result: Compliant

Please refer to the following tables.

LTE Band 26(Part 90s)
QPSK:

Test Modulation:	15 MHz QPSK		Test Channel:	821.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.87	5.26	0.006	2.5
	-20	3.87	4.22	0.005	2.5
	-10	3.87	3.15	0.004	2.5
	0	3.87	7.21	0.009	2.5
	10	3.87	5.94	0.007	2.5
	20	3.87	4.32	0.005	2.5
	30	3.87	5.24	0.006	2.5
	40	3.87	6.84	0.008	2.5
	50	3.87	3.28	0.004	2.5
Frequency Stability vs. Voltage	20	3.42	6.45	0.008	2.5
	20	4.45	7.11	0.009	2.5

16QAM:

Test Modulation:	15 MHz 16QAM		Test Channel:	821.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.87	8.24	0.010	2.5
	-20	3.87	5.61	0.007	2.5
	-10	3.87	7.84	0.010	2.5
	0	3.87	8.02	0.010	2.5
	10	3.87	6.26	0.008	2.5
	20	3.87	8.73	0.011	2.5
	30	3.87	9.84	0.012	2.5
	40	3.87	8.67	0.011	2.5
	50	3.87	6.91	0.008	2.5
Frequency Stability vs. Voltage	20	3.42	3.37	0.004	2.5
	20	4.45	8.61	0.010	2.5

LTE Band 26(Part 22H)
QPSK:

Test Modulation:	15 MHz QPSK		Test Channel:	836.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.87	6.48	0.008	2.5
	-20	3.87	4.67	0.006	2.5
	-10	3.87	4.18	0.005	2.5
	0	3.87	6.35	0.008	2.5
	10	3.87	3.39	0.004	2.5
	20	3.87	5.18	0.006	2.5
	30	3.87	9.55	0.011	2.5
	40	3.87	4.17	0.005	2.5
	50	3.87	6.61	0.008	2.5
Frequency Stability vs. Voltage	20	3.42	3.67	0.004	2.5
	20	4.45	3.37	0.004	2.5

16QAM:

Test Modulation:	15 MHz 16QAM		Test Channel:	836.5	MHz
Test Item	Temperature (°C)	Voltage (V _{DC})	Frequency Error		Limit
			(Hz)	(ppm)	(ppm)
Frequency Stability vs. Temperature	-30	3.87	4.28	0.005	2.5
	-20	3.87	4.91	0.006	2.5
	-10	3.87	2.37	0.003	2.5
	0	3.87	7.18	0.009	2.5
	10	3.87	8.25	0.010	2.5
	20	3.87	7.37	0.009	2.5
	30	3.87	5.61	0.007	2.5
	40	3.87	7.37	0.009	2.5
	50	3.87	6.18	0.007	2.5
Frequency Stability vs. Voltage	20	3.42	5.78	0.007	2.5
	20	4.45	2.51	0.003	2.5

*The test data of GSM and WCDMA please refer to the Appendix A&B.
The test data of LTE other bands please refer to the Appendix C.*

EUT PHOTOGRAPHS

Please refer to the attachment 2401W90626E-RF External photo and 2401W90626E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401W90626E-RFD Test Setup photo.

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