

TEST REPORT

Applicant Name: Shenzhen Youmi Intelligent Technology Co., Ltd.
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Report Number: 2401T76732E-RF-00D
FCC ID: 2ATZ4-TG79PA15

Test Standard (s)

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

Sample Description

Product Type: Smart Tablet Computer
Model No.: TG4FBG9TA
Multiple Model(s) No.: TG4HBG9PA, TG4FBG7TA
Trade Mark: UMIDIGI
Date Received: 2024/05/22
Issue Date: 2024/08/05

Test Result:

Pass▲

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

Prepared and Checked By:

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Gala Liu
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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	2401T76732E-RF-00D	Original Report	2024/08/05

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Smart Tablet Computer			
Tested Model	TG4FBG9TA			
Multiple Model(s)	TG4HBG9PA, TG4FBG7TA			
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 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 2: 1850-1910MHz(TX); 1930-1990MHz(RX) LTE Band 5: 824-849MHz(TX); 869-894MHz(RX) LTE Band 7: 2500-2570MHz(TX); 2620-2690MHz(TX) LTE Band 12: 699-716MHz(TX); 729-746MHz(RX) LTE Band 41: 2535-2655MHz(TX/RX)			
Modulation Technique	2G: GMSK, 8PSK 3G: BPSK, QPSK, 16QAM, 64QAM 4G: QPSK, 16QAM			
Antenna Specification [#]	Antenna	Operation Bands	Antenna Gain (G _T) (dBi)	L _C (dB)
	MAIN ANT	GSM 850/WCDMA/LTE B5	-1.75	0.5
		PCS1900/WCDMA/LTE B2	1.15	0.8
		LTE B7	2.30	0.8
		LTE B12	-2.55	0.5
		LTE B41	2.30	0.8
Note: Lc= Signal Attenuation in the connecting cable between the transmitter and antenna, in dB.				
Voltage Range	DC 3.85V from Li-ion Battery or DC 5/9/12V from Adapter			
Sample serial number	2LNX-2 for Radiated Emissions Test 2LNX-1 for RF Conducted Test (Assigned by BACL, Shenzhen)			
Sample/EUT Status	Good condition			
Normal/Extreme Condition [#]	VL.: Low Voltage 3.27V _{DC} VN.: Normal Voltage 3.85V _{DC} VH: High Voltage 4.4V _{DC}			
Adapter Information	Model: QZ-02002AC00 Input: AC 100-240V, 50/60Hz, 0.5A Output: DC 5.0V, 3.0A or DC 9.0V, 2.22A or DC 12.0V, 1.67A(20.0W)			
Note: The Multiple models are electrically identical with the test model except for model name and sales channels. Please refer to the declaration letter [#] for more detail, which was provided by manufacturer.				

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.

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 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 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 B41	5	2537.5	2595	2652.5
	10	2540	2595	2650
	15	2542.5	2595	2647.5
	20	2545	2595	2645

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

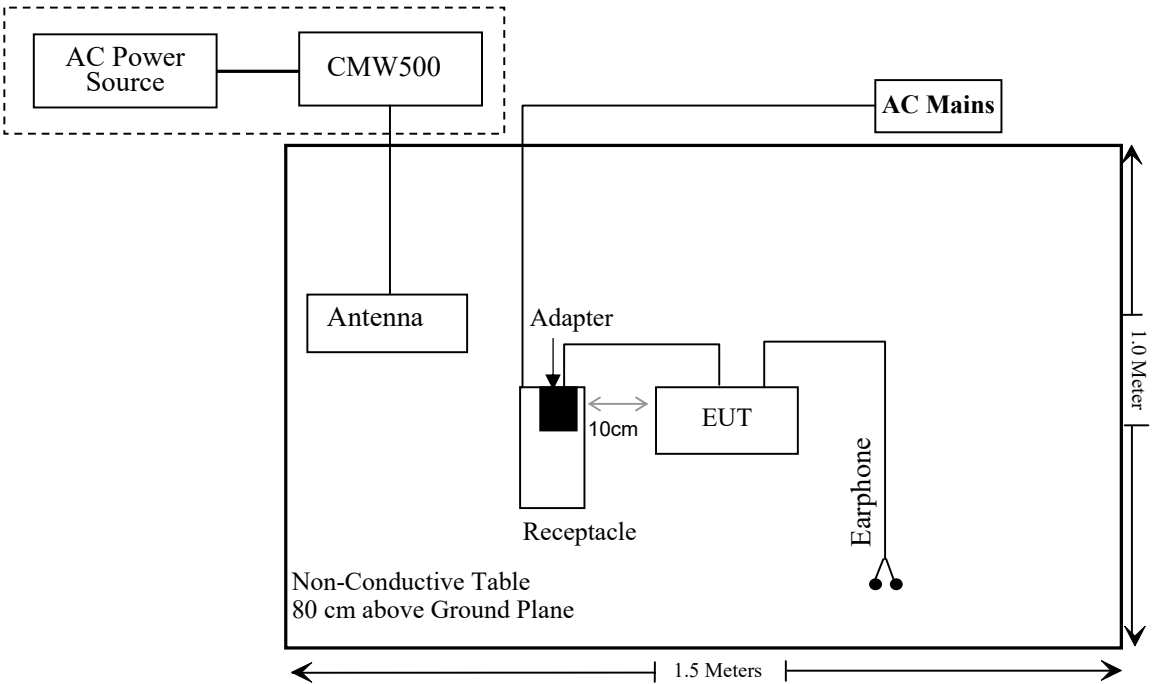
Manufacturer	Description	Model	Serial Number
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	146520
Unknown	Receptacle	Unknown	Unknown
Unknown	Earphone	Unknown	Unknown

Support Cable Description

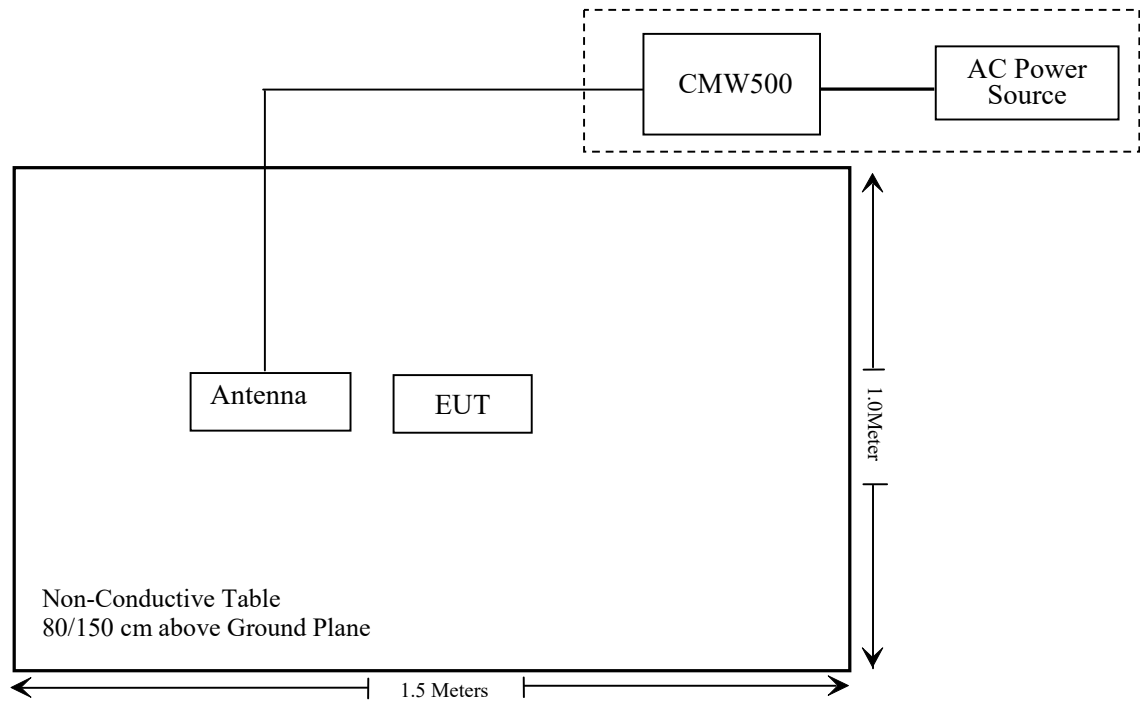
Cable Description	Length (m)	From / Port	To
Unshielded Detachable AC cable	1.2	AC Power	CMW500
Un-shielding Detachable USB Cable	1.0	EUT	Adapter
Un-shielding Detachable Audio Cable	1.5	EUT	Earphone
Un-shielded Un-detachable AC Cable	1.5	Receptacle	LISN/AC Main

Block Diagram of Test Setup

For Radiated Emissions below 1GHz:



For radiated spurious emission above 1GHz



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

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Radiated Emission Test					
R&S	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 Cable 1	F-03-EM236	2023/08/03	2024/08/02
Unknown	Cable	Chamber Cable 4	EC-007	2023/08/03	2024/08/02
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	2023/06/29	2024/06/28
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2026/07/25
A.H.System	Horn Antenna	SAS-200/571	135	2021/07/14	2024/07/13
Unknown	RF Cable	KMSE	0735	2023/10/08	2024/10/07
Unknown	RF Cable	UFA147	219661	2023/10/08	2024/10/07
Unknown	1.3G High Pass filter	1.3GHz	101120	2023/08/03	2024/08/02
JD	Filter Switch Unit	DT7210FSU	DQ77930	NCR	NCR
JD	Multiplex Switch Test Control Set	DT7220FSU	DQ77926	NCR	NCR
A.H.System	Pre-amplifier	PAM-1840VH	190	2023/08/02	2024/08/01
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
Agilent	Signal Generator	N5183A	MY50140588	2023/12/18	2024/12/17
RF Conducted Test					
R&S	spectrum analyzer	FSV40	101942	2023/12/18	2024/12/17
BACL	Temperature & Humidity Chamber	BTH-150-40	30145	2024/01/16	2025/01/15
Rohde & Schwarz	Wideband Radio Communication Tester	CMW500	146520	2024/05/21	2025/05/20
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 Control Set	DT7210SCU	DQ77929	NCR	NCR
narda	Power divider	SN5	100005	2023/12/07	2024/12/06
WEINSCHL	3dB Attenuator	Unknown	F-03-EM220	2023/07/04	2024/07/03
WEINSCHL	3dB Attenuator	Unknown	F-03-EM220	2024/06/27	2025/06/26
Unknown	RF Cable	65475	01670515	2023/07/04	2024/07/03
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).

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

Applicable Standard

FCC§1.1310 and §2.1093.

Test Result

Compliant, please refer to the SAR report: 2402T76732E-20A[#].

FCC§2.1047 - MODULATION CHARACTERISTIC

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.

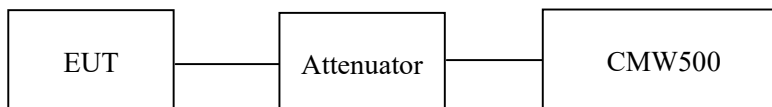
According to §27.50(c), Control and mobile stations in the 698-746 MHz band are limited to 30 watts ERP. And Portable stations (hand-held devices) in the 600 MHz uplink band and the 698-746 MHz band, and fixed and mobile stations in the 600 MHz uplink band are limited to 3 watts ERP.

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 CMW500 through sufficient attenuation.



Test Data

Environmental Conditions

Temperature:	24.5~26.5 °C
Relative Humidity:	45~65 %
ATM Pressure:	101 kPa

The testing was performed by Bamboo Zhan from 2024-06-02 to 2024-06-14.

Test Result: Compliant. Please refer to the Appendix.

Note:

$EIRP = \text{Conducted Power(dBm)} - L_c(\text{dB}) + G_T(\text{dBi})$

$ERP = \text{Conducted Power(dBm)} - L_c(\text{dB}) + G_T(\text{dBd})$

$G_T(\text{dBd}) = G_T(\text{dBi}) - 2.15$

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

Applicable Standard

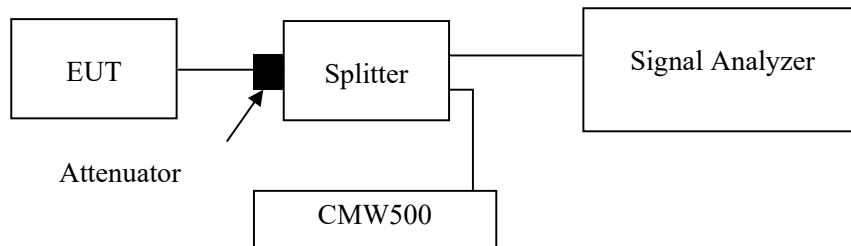
FCC 47 §2.1049, §22.917, §22.905, §24.238 and §27.53.

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

Temperature:	24.5~26.5 °C
Relative Humidity:	45~65 %
ATM Pressure:	101 kPa

The testing was performed by Bamboo Zhan and Jim Cheng from 2024-06-02 to 2024-07-16.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix.

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

Applicable Standard

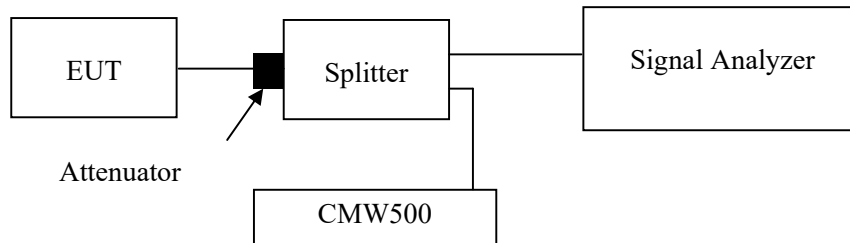
FCC §2.1051, §22.917(a) & §24.238(a) & §27.53.

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 10th 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

Temperature:	24.5~26.5 °C
Relative Humidity:	45~65 %
ATM Pressure:	101 kPa

The testing was performed by Bamboo Zhan from 2024-06-02 to 2024-06-14.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix.

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 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 2024-06-13 for below 1GHz and Dylan Yang on 2024-06-07 for above 1GHz.

EUT operation mode: Transmitting (Pre-scan in the X, Y and Z axes of orientation, the worst case z-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								
951.5	32.52	H	-64.0	1.36	0.0	-65.36	-13	52.36
951.5	32.53	V	-61.5	1.36	0.0	-62.86	-13	49.86
1648.40	46.95	H	-60.75	0.90	8.60	-53.05	-13	40.05
1648.40	48.13	V	-60.07	0.90	8.60	-52.37	-13	39.37
2472.60	63.01	H	-44.39	1.10	8.80	-36.69	-13	23.69
2472.60	60.20	V	-46.90	1.10	8.80	-39.20	-13	26.20
3296.80	49.96	H	-56.04	1.30	8.80	-48.54	-13	35.54
3296.80	47.57	V	-58.13	1.30	8.80	-50.63	-13	37.63
Middle Channel								
952.7	32.91	H	-63.6	1.36	0.0	-64.96	-13	51.96
952.7	32.89	V	-61.2	1.36	0.0	-62.56	-13	49.56
1673.20	50.67	H	-56.93	0.90	8.60	-49.23	-13	36.23
1673.20	49.09	V	-59.01	0.90	8.60	-51.31	-13	38.31
2509.80	68.51	H	-38.89	1.10	8.80	-31.19	-13	18.19
2509.80	67.87	V	-39.23	1.10	8.80	-31.53	-13	18.53
3346.40	49.63	H	-56.37	1.30	8.80	-48.87	-13	35.87
3346.40	46.56	V	-59.14	1.30	8.80	-51.64	-13	38.64
High Channel								
950.9	33.29	H	-63.2	1.36	0.0	-64.56	-13	51.56
950.9	33.14	V	-60.9	1.36	0.0	-62.26	-13	49.26
1697.60	55.42	H	-52.18	0.90	8.60	-44.48	-13	31.48
1697.60	55.99	V	-52.11	0.90	8.60	-44.41	-13	31.41
2546.40	72.14	H	-35.26	1.10	8.80	-27.56	-13	14.56
2546.40	72.01	V	-35.09	1.10	8.80	-27.39	-13	14.39
3395.20	46.56	H	-59.44	1.30	9.90	-50.84	-13	37.84
3395.20	44.62	V	-61.08	1.30	9.90	-52.48	-13	39.48

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								
953.3	32.76	H	-63.7	1.36	0.0	-65.06	-13	52.06
953.3	32.75	V	-61.3	1.36	0.0	-62.66	-13	49.66
3700.40	52.59	H	-52.81	1.30	11.00	-43.11	-13	30.11
3700.40	52.03	V	-53.27	1.30	11.00	-43.57	-13	30.57
Middle Channel								
954.4	33.07	H	-63.4	1.36	0.0	-64.76	-13	51.76
954.4	33.02	V	-61.0	1.36	0.0	-62.36	-13	49.36
3760.00	50.08	H	-55.02	1.30	10.70	-45.62	-13	32.62
3760.00	50.16	V	-54.94	1.30	10.70	-45.54	-13	32.54
High Channel								
953.5	33.57	H	-62.9	1.36	0.0	-64.26	-13	51.26
953.5	33.34	V	-60.7	1.36	0.0	-62.06	-13	49.06
3819.60	51.99	H	-53.11	1.30	10.70	-43.71	-13	30.71
3819.60	52.48	V	-52.62	1.30	10.70	-43.22	-13	30.22

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								
952.6	32.87	H	-63.6	1.36	0.0	-64.96	-13	51.96
952.6	32.76	V	-61.3	1.36	0.0	-62.66	-13	49.66
3704.80	47.65	H	-57.75	1.30	11.00	-48.05	-13	35.05
3704.80	56.02	V	-49.28	1.30	11.00	-39.58	-13	26.58
5557.20	56.93	H	-45.47	1.70	10.90	-36.27	-13	23.27
5557.20	71.47	V	-31.13	1.70	10.90	-21.93	-13	8.93
Middle Channel								
950.7	33.06	H	-63.4	1.36	0.0	-64.76	-13	51.76
950.7	32.94	V	-61.1	1.36	0.0	-62.46	-13	49.46
3760.00	49.48	H	-55.62	1.30	10.70	-46.22	-13	33.22
3760.00	59.85	V	-45.25	1.30	10.70	-35.85	-13	22.85
5640.00	57.67	H	-44.73	1.70	10.90	-35.53	-13	22.53
5640.00	70.25	V	-32.35	1.70	10.90	-23.15	-13	10.15
High Channel								
959.6	33.58	H	-62.9	1.36	0.0	-64.26	-13	51.26
959.6	33.47	V	-60.6	1.36	0.0	-61.96	-13	48.96
3815.20	51.31	H	-53.79	1.30	10.70	-44.39	-13	31.39
3815.20	62.78	V	-42.32	1.30	10.70	-32.92	-13	19.92
5722.80	59.20	H	-43.00	1.70	11.10	-33.60	-13	20.60
5722.80	68.07	V	-34.23	1.70	11.10	-24.83	-13	11.83

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								
957.5	32.58	H	-63.9	1.36	0.0	-65.26	-13	52.26
957.5	32.51	V	-61.5	1.36	0.0	-62.86	-13	49.86
1652.80	40.86	H	-66.74	0.90	8.60	-59.04	-13	46.04
1652.80	48.35	V	-59.75	0.90	8.60	-52.05	-13	39.05
2479.20	53.30	H	-54.10	1.10	8.80	-46.40	-13	33.40
2479.20	57.75	V	-49.35	1.10	8.80	-41.65	-13	28.65
3305.60	51.02	H	-54.98	1.30	8.80	-47.48	-13	34.48
3305.60	60.95	V	-44.75	1.30	8.80	-37.25	-13	24.25
Middle Channel								
953.3	33.32	H	-63.2	1.36	0.0	-64.56	-13	51.56
953.3	33.17	V	-60.9	1.36	0.0	-62.26	-13	49.26
1672.80	42.55	H	-65.05	0.90	8.60	-57.35	-13	44.35
1672.80	51.06	V	-57.04	0.90	8.60	-49.34	-13	36.34
2509.20	50.75	H	-56.65	1.10	8.80	-48.95	-13	35.95
2509.20	52.63	V	-54.47	1.10	8.80	-46.77	-13	33.77
3345.60	44.83	H	-61.17	1.30	8.80	-53.67	-13	40.67
3345.60	53.21	V	-52.49	1.30	8.80	-44.99	-13	31.99
High Channel								
959.7	33.71	H	-62.8	1.36	0.0	-64.16	-13	51.16
959.7	33.68	V	-60.4	1.36	0.0	-61.76	-13	48.76
1693.20	43.88	H	-63.72	0.90	8.60	-56.02	-13	43.02
1693.20	51.34	V	-56.76	0.90	8.60	-49.06	-13	36.06
2539.80	48.33	H	-59.07	1.10	8.80	-51.37	-13	38.37
2539.80	47.65	V	-59.45	1.10	8.80	-51.75	-13	38.75
3386.40	42.46	H	-63.54	1.30	9.90	-54.94	-13	41.94
3386.40	50.29	V	-55.41	1.30	9.90	-46.81	-13	33.81

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_1RB0, Low Channel								
951.4	32.83	H	-63.7	1.36	0.0	-65.06	-13	52.06
951.4	32.82	V	-61.2	1.36	0.0	-62.56	-13	49.56
3701.40	47.10	H	-58.30	1.30	11.00	-48.60	-13	35.60
3701.40	56.31	V	-48.99	1.30	11.00	-39.29	-13	26.29
5552.10	55.18	H	-47.22	1.70	10.90	-38.02	-13	25.02
5552.10	70.71	V	-31.89	1.70	10.90	-22.69	-13	9.69
QPSK, 1.4MHz_1RB0, Middle Channel								
958.7	32.91	H	-63.6	1.36	0.0	-64.96	-13	51.96
958.7	32.93	V	-61.1	1.36	0.0	-62.46	-13	49.46
3760.00	48.07	H	-57.03	1.30	10.70	-47.63	-13	34.63
3760.00	58.24	V	-46.86	1.30	10.70	-37.46	-13	24.46
5640.00	55.89	H	-46.51	1.70	10.90	-37.31	-13	24.31
5640.00	66.88	V	-35.72	1.70	10.90	-26.52	-13	13.52
QPSK, 1.4MHz_1RB0, High Channel								
955.2	33.34	H	-63.2	1.36	0.0	-64.56	-13	51.56
955.2	33.29	V	-60.8	1.36	0.0	-62.16	-13	49.16
3818.60	49.05	H	-56.05	1.30	10.70	-46.65	-13	33.65
3818.60	61.87	V	-43.23	1.30	10.70	-33.83	-13	20.83
5727.90	56.42	H	-45.78	1.70	11.10	-36.38	-13	23.38
5727.90	65.99	V	-36.31	1.70	11.10	-26.91	-13	13.91

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_1RB0, Low Channel								
958.9	32.71	H	-63.8	1.36	0.0	-65.16	-13	52.16
958.9	32.74	V	-61.3	1.36	0.0	-62.66	-13	49.66
1649.40	42.07	H	-65.63	0.90	8.60	-57.93	-13	44.93
1649.40	46.76	V	-61.44	0.90	8.60	-53.74	-13	40.74
2474.10	51.38	H	-56.02	1.10	8.80	-48.32	-13	35.32
2474.10	53.18	V	-53.92	1.10	8.80	-46.22	-13	33.22
3298.80	44.51	H	-61.49	1.30	8.80	-53.99	-13	40.99
3298.80	55.24	V	-50.46	1.30	8.80	-42.96	-13	29.96
QPSK, 1.4MHz_1RB0, Middle Channel								
950.7	33.02	H	-63.5	1.36	0.0	-64.86	-13	51.86
950.7	33.05	V	-61.0	1.36	0.0	-62.36	-13	49.36
1673.00	40.59	H	-67.01	0.90	8.60	-59.31	-13	46.31
1673.00	47.53	V	-60.57	0.90	8.60	-52.87	-13	39.87
2509.50	51.46	H	-55.94	1.10	8.80	-48.24	-13	35.24
2509.50	53.03	V	-54.07	1.10	8.80	-46.37	-13	33.37
3346.00	45.64	H	-60.36	1.30	8.80	-52.86	-13	39.86
3346.00	51.96	V	-53.74	1.30	8.80	-46.24	-13	33.24
QPSK, 1.4MHz_1RB0, High Channel								
953.3	33.51	H	-63.0	1.36	0.0	-64.36	-13	51.36
953.3	33.43	V	-60.6	1.36	0.0	-61.96	-13	48.96
1696.60	42.25	H	-65.35	0.90	8.60	-57.65	-13	44.65
1696.60	48.88	V	-59.22	0.90	8.60	-51.52	-13	38.52
2544.90	50.66	H	-56.74	1.10	8.80	-49.04	-13	36.04
2544.90	51.56	V	-55.54	1.10	8.80	-47.84	-13	34.84
3393.20	42.21	H	-63.79	1.30	9.90	-55.19	-13	42.19
3393.20	51.03	V	-56.57	1.30	9.90	-47.97	-13	34.97

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_1RB0, Low Channel								
959.7	32.84	H	-63.7	1.36	0.0	-65.06	-25	40.06
959.7	32.67	V	-61.4	1.36	0.0	-62.76	-25	37.76
5005.00	66.02	H	-37.28	1.50	9.80	-28.98	-25	3.98
5005.00	-67.22	V	-36.06	1.50	9.80	-27.76	-25	2.76
7507.50	51.75	H	-44.25	1.90	10.80	-35.35	-25	10.35
7507.50	51.30	V	-45.00	1.90	10.80	-36.10	-25	11.10
QPSK, 5MHz_1RB0, Middle Channel								
956.4	33.04	H	-63.5	1.36	0.0	-64.86	-25	39.86
956.4	32.82	V	-61.2	1.36	0.0	-62.56	-25	37.56
5070.00	67.10	H	-36.10	1.50	9.60	-28.00	-25	3.00
5070.00	67.64	V	-35.50	1.50	9.60	-27.40	-25	2.40
7605.00	53.10	H	-42.80	1.90	11.00	-33.70	-25	8.70
7605.00	53.61	V	-42.59	1.90	11.00	-33.49	-25	8.49
QPSK, 5MHz_1RB0, High Channel								
958.5	33.24	H	-63.3	1.36	0.0	-64.66	-25	39.66
958.5	33.09	V	-61.0	1.36	0.0	-62.36	-25	37.36
5135.00	65.02	H	-38.18	1.50	9.60	-30.08	-25	5.08
5135.00	66.47	V	-36.13	1.50	9.60	-28.03	-25	3.03
7702.50	49.50	H	-46.30	1.90	10.90	-37.30	-25	12.30
7702.50	51.63	V	-44.57	1.90	10.90	-35.57	-25	10.57

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_1RB0, Low Channel								
959.9	32.59	H	-63.9	1.36	0.0	-65.26	-13	52.26
959.9	32.61	V	-61.4	1.36	0.0	-62.76	-13	49.76
1399.40	41.79	H	-65.91	0.80	7.90	-58.81	-13	45.81
1399.40	44.84	V	-63.56	0.80	7.90	-56.46	-13	43.46
2099.10	59.30	H	-48.00	1.00	8.30	-40.70	-13	27.70
2099.10	60.04	V	-47.76	1.00	8.30	-40.46	-13	27.46
2798.80	42.03	H	-64.57	1.20	9.20	-56.57	-13	43.57
2798.80	43.44	V	-62.86	1.20	9.20	-54.86	-13	41.86
QPSK, 1.4MHz_1RB0, Middle Channel								
951.4	33.19	H	-63.3	1.36	0.0	-64.66	-13	51.66
951.4	33.11	V	-60.9	1.36	0.0	-62.26	-13	49.26
1415.00	40.02	H	-67.68	0.80	7.90	-60.58	-13	47.58
1415.00	46.01	V	-62.39	0.80	7.90	-55.29	-13	42.29
2122.50	58.68	H	-48.62	1.00	8.30	-41.32	-13	28.32
2122.50	58.30	V	-49.50	1.00	8.30	-42.20	-13	29.20
2830.00	41.27	H	-65.33	1.20	9.20	-57.33	-13	44.33
2830.00	45.72	V	-60.58	1.20	9.20	-52.58	-13	39.58
QPSK, 1.4MHz_1RB0, High Channel								
957.8	33.76	H	-62.7	1.36	0.0	-64.06	-13	51.06
957.8	33.86	V	-60.2	1.36	0.0	-61.56	-13	48.56
1430.60	39.72	H	-67.98	0.80	7.90	-60.88	-13	47.88
1430.60	46.07	V	-62.33	0.80	7.90	-55.23	-13	42.23
2145.90	59.43	H	-47.87	1.00	8.30	-40.57	-13	27.57
2145.90	57.31	V	-50.49	1.00	8.30	-43.19	-13	30.19
2861.20	41.49	H	-64.81	1.20	9.00	-57.01	-13	44.01
2861.20	42.68	V	-63.42	1.20	9.00	-55.62	-13	42.62

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_1RB0, Low Channel								
952.3	33.43	H	-63.1	1.36	0.0	-64.46	-25	39.46
952.3	33.24	V	-60.8	1.36	0.0	-62.16	-25	37.16
5075.00	65.73	H	-37.47	1.50	9.60	-29.37	-25	4.37
5075.00	66.62	V	-35.98	1.50	9.60	-27.88	-25	2.88
7612.50	53.28	H	-42.62	1.90	11.00	-33.52	-25	8.52
7612.50	52.46	V	-43.74	1.90	11.00	-34.64	-25	9.64
QPSK, 5MHz_1RB0, Middle Channel								
950.2	33.61	H	-62.9	1.36	0.0	-64.26	-25	39.26
950.2	33.59	V	-60.5	1.36	0.0	-61.86	-25	36.86
5190.00	67.29	H	-35.71	1.60	9.70	-27.61	-25	2.61
5190.00	66.12	V	-36.58	1.60	9.70	-28.48	-25	3.48
7785.00	49.64	H	-46.06	1.90	11.10	-36.86	-25	11.86
7785.00	50.97	V	-45.13	1.90	11.10	-35.93	-25	10.93
QPSK, 5MHz_1RB0, High Channel								
956.6	33.86	H	-62.6	1.36	0.0	-63.96	-25	38.96
956.6	33.75	V	-60.3	1.36	0.0	-61.66	-25	36.66
5305.00	66.81	H	-36.09	1.60	10.00	-27.69	-25	2.69
5305.00	66.42	V	-36.25	1.60	10.00	-27.85	-25	2.85
7957.50	55.17	H	-40.43	1.90	11.10	-31.23	-25	6.23
7957.50	51.17	V	-44.73	1.90	11.10	-35.53	-25	10.53

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 (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.

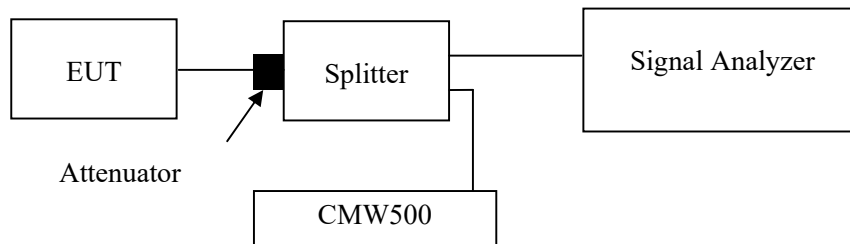
According to FCC §27.53 (m), For mobile digital stations, the attenuation factor shall be not less than $40 + 10 \log(P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log(P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel 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 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.

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:	24.5~26.5 °C
Relative Humidity:	45~65 %
ATM Pressure:	101 kPa

The testing was performed by Bamboo Zhan and Jim Cheng from 2024-06-02 to 2024-07-09.

EUT operation mode: Transmitting (Worst case)

Test Result: Compliant. Please refer to the Appendix.

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.

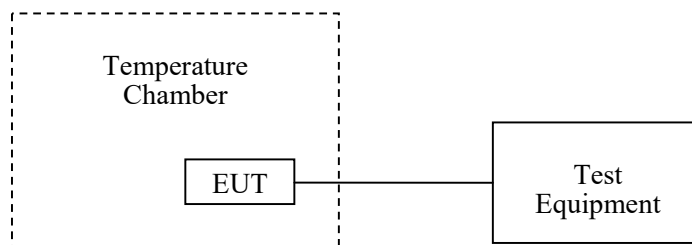
Test Procedure

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**

Temperature:	24.5~26.5 °C
Relative Humidity:	45~65 %
ATM Pressure:	101 kPa

The testing was performed by Bamboo Zhan from 2024-06-02 to 2024-06-14.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix.

EUT PHOTOGRAPHS

Please refer to the attachment 2401T76732E-RF External photo and 2401T76732E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment 2401T76732E-RFC Test Setup photo.

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