RF SPOT CHECK REPORT

FCC ID:	XMR202212EG21GL
Application:	Quectel Wireless Solutions Co., Ltd.
Product:	LTE CAT1 Module
Model No.:	EG21-GL, EG21-GL MINIPCIE
Brand Name:	QUECTEL
FCC Rule Part(s):	Part 2, 22 (H), 24 (E), 27
Test Procedure(s):	ANSI C63.26: 2015
Result:	Complies
Received Date:	2023-01-11
Test Date:	2023-01-12 ~ 2023-02-15

Reviewed By: Sunny Sun

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.26-2015. Test results reported herein relate only to the item(s) tested.

Revision History

Report No.	Version	Description	Issue Date	Note
2212RSU048-U1	Rev. 01	Initial Report	2023-03-05	Valid

Note: The only difference between EG21-GL and EG25-GL is the type of BB chip. This report is based on FCC ID “XMR202212EG25GL” to assess the output power, band edge, radiated spurious emissions. This application for certification is leveraging the data reuse procedures from KDB 484596 based on reference FCC ID “XMR202212EG25GL” to cover this variant.

CONTENTS

1. General Information

1.1. Applicant

Quectel Wireless Solutions Co., Ltd.

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

1.2. Manufacturer

Quectel Wireless Solutions Co., Ltd.

Building 5, Shanghai Business Park Phase III (Area B), No.1016 Tianlin Road, Minhang District, Shanghai 200233, China

1.3. Testing Facility

☒	**Test Site – MRT Suzhou Laboratory**				
	Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China **Laboratory Location (Suzhou - SIP)** 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China				
	Laboratory Accreditations				
	A2LA: 3628.01		CNAS: L10551		
	FCC: CN1166		ISED: CN0001		
	VCCI:	☐R-20025	☐G-20034	☐C-20020	☐T-20020
		☐R-20141	☐G-20134	☐C-20103	☐T-20104
☐	**Test Site – MRT Shenzhen Laboratory**				
	Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China				
	Laboratory Accreditations				
	A2LA: 3628.02		CNAS: L10551		
	FCC: CN1284		ISED: CN0105		
☐	**Test Site – MRT Taiwan Laboratory**				
	Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)				
	Laboratory Accreditations				
	TAF: L3261-190725				
	FCC: 291082, TW3261		ISED: TW3261		

1.4. Product Information

Product Name	LTE CAT1 Module
Model No.	EG21-GL, EG21-GL MINIPCIE
Brand Name	QUECTEL
IMEI	Radiated Sample:865061060007503 Conducted Sample:865061060008329
GNSS Specification	GPS, GLONASS, Galileo, Bei Dou
GSM Band	GSM 850, PCS1900
UMTS Band	Band 2, 4, 5
E-UTRA Band	Band 2, 4, 5, 7, 12, 13, 25, 26, 38, 41, 66
Operating Temperature	-35 ~ 75 °C
Supply Voltage	3.3 ~ 4.3Vdc, typical 3.8Vdc
Remark: 1. The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer. 2. The models' difference by different encapsulations and all circuits are identical. The EG21-GL model was assessed in this report.	

1.5. Radio Specification under Testing

GSM Specification	
TX Frequency Range	850: 824 ~ 849MHz 1900: 1850 ~ 1910MHz
RX Frequency Range	850: 869 ~ 894MHz 1900: 1930 ~ 1990MHz
Modulation	GMSK, 8-PSK
Power Class	GSM900: 4, DCS1800: 1
Category	Multi-slot class 33
UMTS Specification	
TX Frequency Range:	WCDMA Band II: 1850 ~ 1910MHz, WCDMA Band IV: 1710 ~ 1755MHz WCDMA Band V: 824 ~ 849MHz
RX Frequency Range:	WCDMA Band II: 1930 ~ 1990MHz, WCDMA Band IV: 2110 ~ 2155MHz WCDMA Band V: 869 ~ 894MHz
Modulation	UL BPSK, QPSK & DL up to 64QAM
Power Class	3
Category	HSDPA: 24; HSUPA: 6

1.6. Description of Available Antennas

Technology	Frequency Range (MHz)	Antenna Type	MaxPeak Gain (dBi)
GSM 850	824 ~ 849	Dipole	2.13
PCS 1900	1850 ~ 1910		1.38
WCDMA Band II	1850 ~ 1910		1.38
WCDMA Band IV	1710 ~ 1755		2.00
WCDMA Band V	824 ~ 849		2.13

Note: All antenna information (Antenna type and Peak Gain) is provided by the manufacturer.

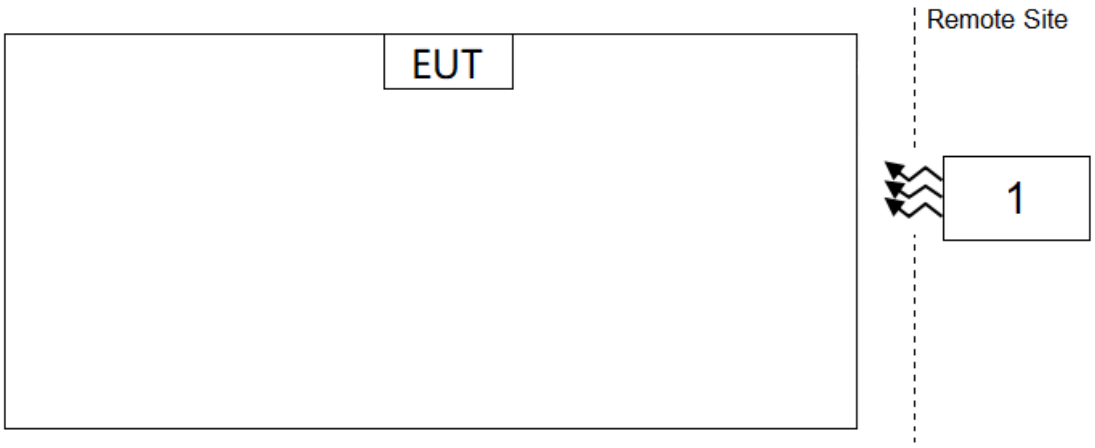
1.7. Test Methodology

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ANSI C63.26:2015
- FCC CFR 47 Part 22, Part 24, Part 27
- FCC KDB 971168 D01 v03r01: Power Meas License Digital Systems
- FCC KDB 971168 D02 v02r01: Misc Rev Approv License Devices
- FCC KDB 412172 D01 v01r01: Determining ERP and EIRP

2. Test Configuration

2.1. Test System Connnection Diagram



Product		Manufacturer	Model No.
1	Wideband Radio Communication Tester	R&S	CMW 500

2.2. Test Environment Condition

Ambient Temperature	15 ~ 35°C
Relative Humidity	20% ~ 75%RH

3. Measuring Instrument

Instrument	Manufacturer	Model No.	Asset No.	Cali. Interval	Cali. Due Date	Test Site
Anechoic Chamber	RIKEN	SIP-AC1	MRTSUE06554	1 year	2023-12-22	SIP-AC1
Preamplifier	EMCI	EMC051845SE	MRTSUE06600	1 year	2023-11-07	SIP-AC1
Horn Antenna	R&S	HF907	MRTSUE06610	1 year	2023-07-13	SIP-AC1
Thermohygrometer	testo	608-H1	MRTSUE06616	1 year	2023-11-01	SIP-AC1
Thermohygrometer	testo	608-H1	MRTSUE06620	1 year	2023-11-27	SIP-AC1
TRILOG Antenna	Schwarzbeck	VULB 9168	MRTSUE06645	1 year	2023-07-30	SIP-AC1
Communication Tester	R&S	CMW500	MRTSUE06243	1 year	2023-10-08	SIP
Thermohygrometer	testo	608-H1	MRTSUE06362	1 year	2023-02-15	WZ-SR6
Shielding Room	HUAMING	WZ-SR6	MRTSUE06443	N/A	N/A	WZ-SR6
Signal Analyzer	Keysight	N9020B	MRTSUE06583	1 year	2023-10-08	WZ-SR6
Signal Generator	Keysight	N5173B	MRTSUE06606	1 year	2023-11-25	WZ-SR6
5G Wireless Test Platform	Keysight	E7515B	MRTSUE06942	1 year	2023-03-03	WZ-SR6
Thermohygrometer	testo	608-H1	MRTSUE06362	1 year	2023-02-15	WZ-SR6
Radio Communication Analyzer	Anritsu	MT8821C	MRTSUE06960	1 year	2023-07-08	WZ-SR6
Communication Tester	R&S	CMW500	MRTSUE06108	1 year	2023-11-25	WZ-SR6
Directional Coupler	MVE	MVE4816-10	MRTSUE11118	1 year	2023-08-24	WZ
Attenuator	MVE	MVE2213	MRTSUE11094	1 year	2023-06-09	WZ
Attenuator	MVE	MVE2213	MRTSUE11095	1 year	2023-06-09	WZ
Attenuator	MVE	MVE2213	MRTSUE11096	1 year	2023-06-09	WZ

Software	Version	Function
EMI V3	V 3.0.0	EMI Test Software
Controller_MF 7802BS	1.02	RE Antenna & Turntable

4. Decision Rules and Measurement Uncertainty

4.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2. (Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

4.2. Measurement Uncertainty

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Radiated Spurious Emissions
Measurement Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): Horizontal: 9KHz ~ 300MHz: 5.04dB 300MHz ~ 1GHz: 4.95dB 1GHz ~ 40GHz: 6.40dB Vertical: 9KHz ~ 300MHz: 5.24dB 300MHz ~ 1GHz: 6.03dB 1GHz ~ 40GHz: 6.40dB
Conducted Spurious Emissions
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 0.78dB
Output Power
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 1.13dB

5. Test Result

5.1. Summary

FCC Part Section(s)	Test Description	Test Condition	Verdict
22.913(a)(5)	Equivalent Radiated Power	Conducted	Pass
27.50(d)(4) 24.232(c)	Equivalent Isotropic Radiated Power		
2.1051, 22.917(a) 24.238(a), 27.53(h)	Band Edge		Pass
2.1053, 22.917(a) 24.238(a), 27.53(h)	Spurious Emissions	Radiated	Pass

Notes:

1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
2) All supported modulation types were evaluated. The worst-case emission of modulation was selected. The power of EGPRS/HSDPA/HSUPA is lower than that of GPRS 1Tx Slot/WCDMA.Therefore, the Frequency Stability, Channel Band Edge, Radiated & Conducted Spurious Emission were presented worst-case in the test report.
3) For radiated emission tests, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst-case emissions.

5.2. Equivalent Isotropically Radiated Power Measurement

5.2.1. Test Limit

WCDMA Band II, PCS1900:

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.

WCDMA Band IV:

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.

WCDMA Band V, GSM850:

The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

5.2.2. Test Procedure

ANSI C63.26-2015 - Section 5.2

5.2.3. Test Setting

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

The relevant equation for determining the maximum ERP or EIRP from the measured RF output power is given in Equation (1) as follows:

ERP or EIRP = $P_{Meas} + G_T$

where

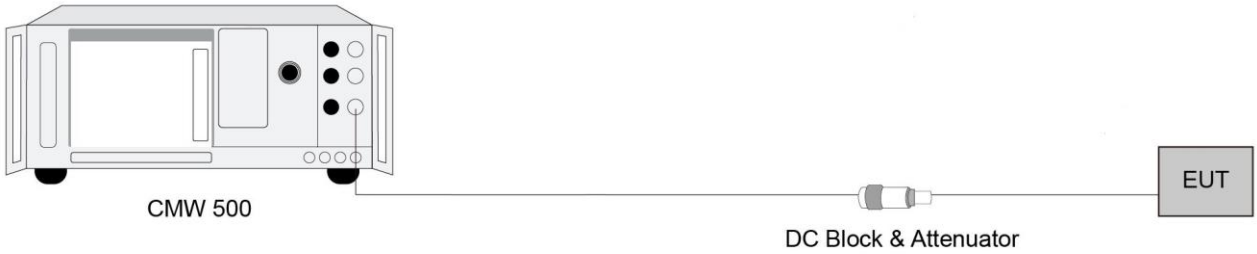
ERP or EIRP effective radiated power or equivalent isotropically radiated power, respectively (expressed in the same units as P_{Meas}, e.g., dBm or dBW)

P_{Meas} measured transmitter output power or PSD, in dBm or dBW

G_T gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP)

ERP = EIRP -2.15

5.2.4. Test Setup



5.2.5. Test Result

Refer to Appendix A.1.

5.3. Band Edge Measurement

5.3.1. Test Limit

For operations in the 824 ~ 849 MHz, 1850 ~ 1910 MHz, 1930 ~ 1990 MHz, 698 ~ 746 MHz and 1710 ~ 1755 MHz, the FCC limit is 43 + 10log10(P[Watts]) dB below the transmitter power P(Watts) in a 1 MHz bandwidth. However, in the 1MHz bands immediately outside and adjacent to the licensee's frequency block, a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

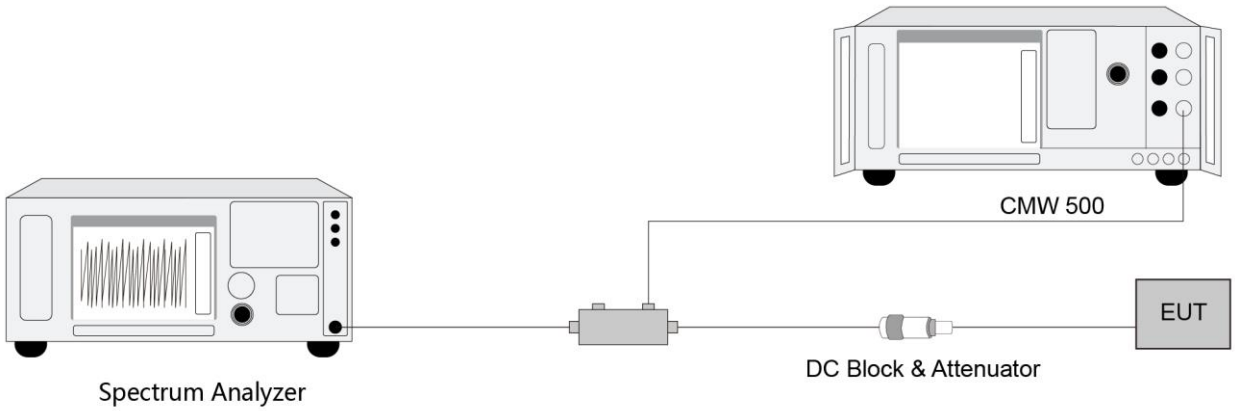
5.3.2. Test Procedure

ANSI C63.26-2015 - Section 5.7

5.3.3. Test Setting

1. Set the analyzer frequency to low or high channel
2. RBW ≥ The nominal RBW shall be in the range of 1% of the anticipated OBW (in the 1MHz band immediately outside and adjacent to the band edge). For improvement of the accuracy in the measurement of the average power of a noise-like emission, a RBW narrower than the specified reference bandwidth can be used (generally limited to no less than 1% of the OBW), provided that a subsequent integration is performed over the full required measurement bandwidth. This integration should be performed using the spectrum analyzer’s band power functions.
3. VBW ≥ 3*RBW
4. Sweep time = auto
5. Detector = power averaging (rms)
6. Set sweep trigger to “free run.”
7. User gate triggered such that the analyzer only sweeps when the device is transmitting at full power
8. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.

5.3.4. Test Setup



5.3.5. Test Result

Refer to Appendix A.2.

5.4. Radiated Spurious Emissions Measurement

5.4.1. Test Limit

Out of band emissions: The powerof any emission outside of theauthorized operating frequency ranges must be attenuated below the transmitting power (P) by a factorof at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

E (dBμV/m) = EIRP (dBm) - 20 log D + 104.8; where D is the measurement distance in meters. The emission limit equal to 82.3dBμV/m.

5.4.2. Test Procedure

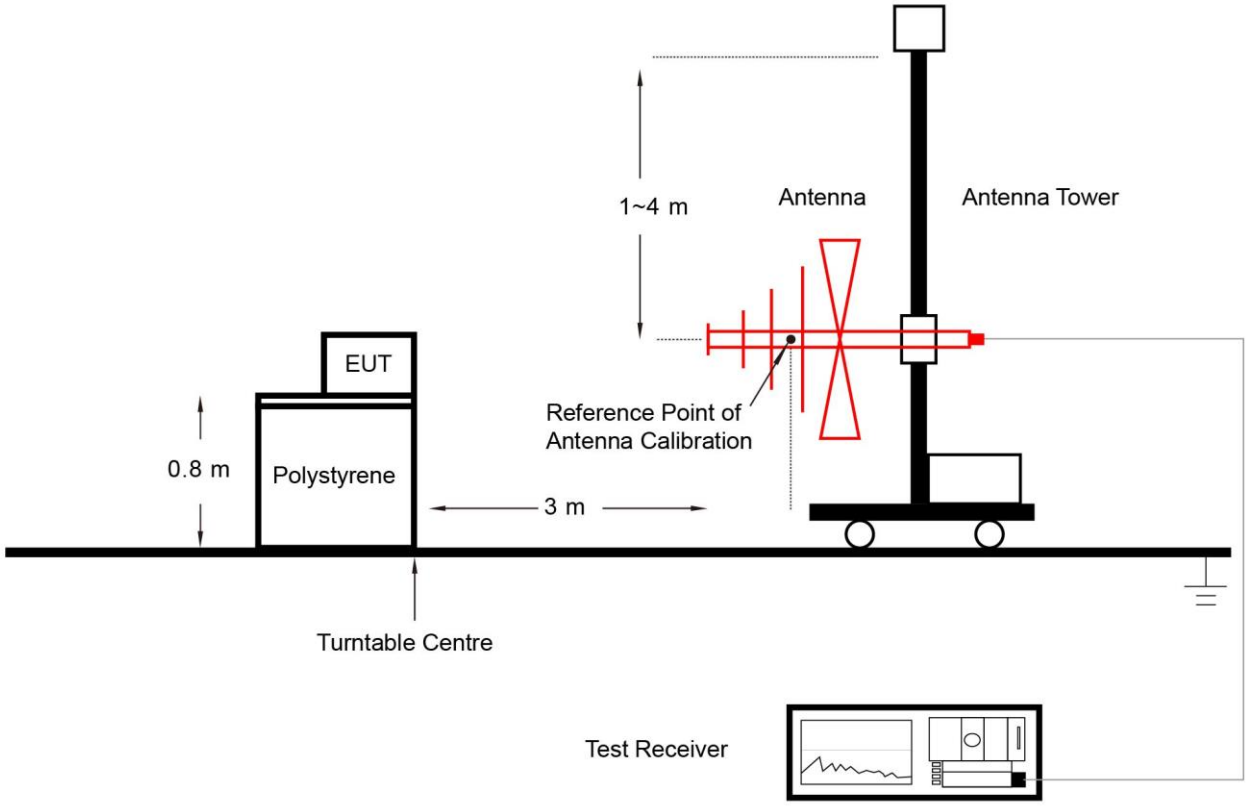
ANSI C63.26-2015 - Section 5.2.7 & 5.5

5.4.3. Test Setting

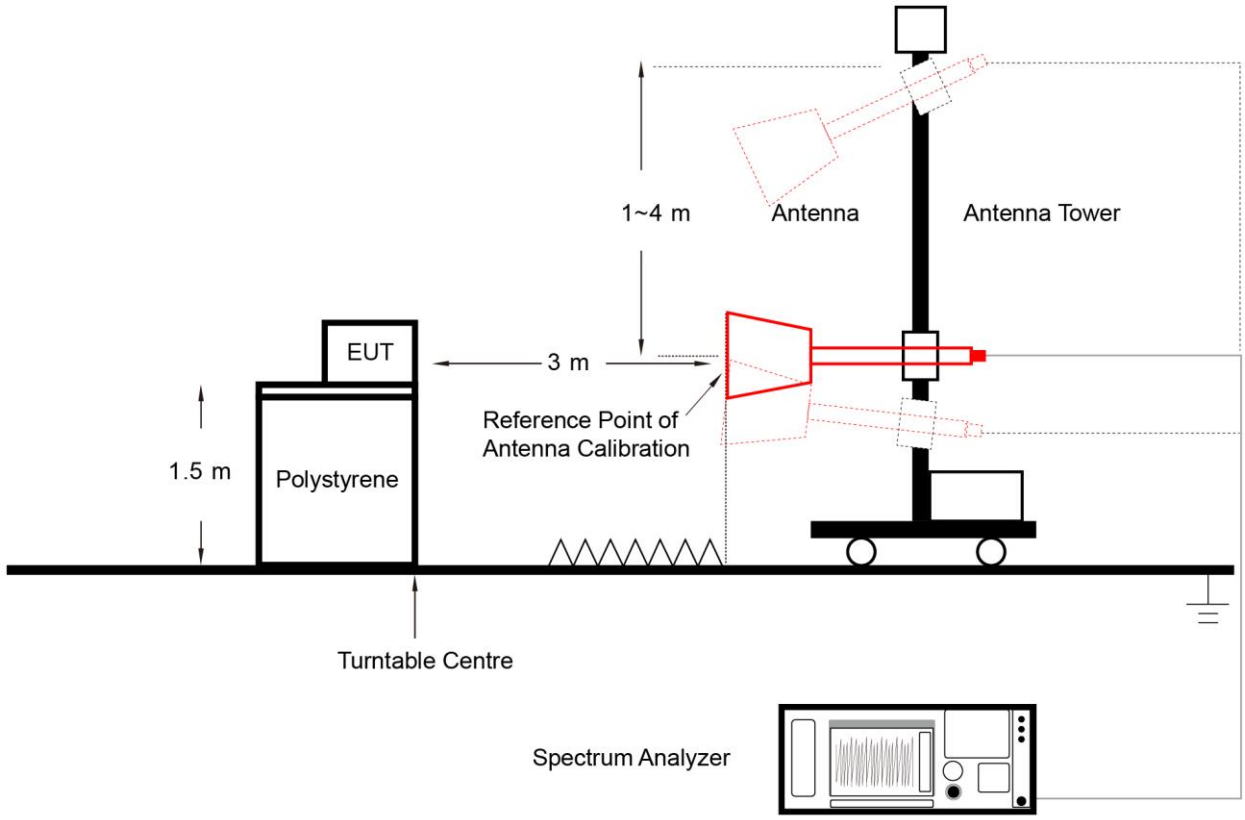
1. RBW = 1MHz
2. VBW ≥ 3*RBW
3. Sweep time ≥ 10 × (number of points in sweep) × (transmission symbol period)
4. Detector = Peak
5. Trace mode = max hold
6. The trace was allowed to stabilize

5.4.4. Test Setup

Below 1GHz Test Setup:



Above 1GHz Test Setup:



5.4.5. Test Result

Refer to Appendix A.3.

Appendix A - Test Result

A.1 Equivalent Isotropically Radiated Power Test Result

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2023/02/03	Test Band	GSM 850

Mode	Slot	Conducted Power (dBm)			Antenna Gain (dBi)	ERP (dBm)		
		GSM 850 Channel				GSM 850 Channel		
		128	189	251		128	189	251
GSM	/	32.36	32.73	32.97	2.13	32.34	32.71	32.95
GPRS	1	32.27	32.78	32.99	2.13	32.25	32.76	32.97
	2	30.35	30.95	31.41	2.13	30.33	30.93	31.39
	3	29.36	29.86	30.26	2.13	29.34	29.84	30.24
	4	28.06	28.73	29.01	2.13	28.04	28.71	28.99
EGPRS (GMSK)	1	32.14	32.62	32.88	2.13	32.12	32.60	32.86
	2	30.30	30.83	31.34	2.13	30.28	30.81	31.32
	3	29.31	29.87	30.26	2.13	29.29	29.85	30.24
	4	28.04	28.61	29.14	2.13	28.02	28.59	29.12
EGPRS (8PSK)	1	26.23	26.64	27.08	2.13	26.21	26.62	27.06
	2	25.05	25.51	25.97	2.13	25.03	25.49	25.95
	3	23.45	23.91	24.26	2.13	23.43	23.89	24.24
	4	22.18	22.63	23.19	2.13	22.16	22.61	23.17
Limit	38.45dBm							

Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) - 2.15

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2023/02/03	Test Band	GSM 1900

Mode	Slot	Conducted Power (dBm)			Antenna Gain (dBi)	EIRP (dBm)		
		PCS 1900 Channel				PCS 1900 Channel		
		512	661	810		512	661	810
GSM	/	29.93	29.95	29.85	1.38	31.31	31.33	31.23
GPRS	1	29.90	29.93	29.84	1.38	31.28	31.31	31.22
	2	29.01	28.98	28.99	1.38	30.39	30.36	30.37
	3	27.28	27.23	27.32	1.38	28.66	28.61	28.70
	4	26.16	26.97	26.97	1.38	27.54	28.35	28.35
EGPRS (GMSK)	1	29.96	29.98	29.83	1.38	31.34	31.36	31.21
	2	29.05	29.07	29.03	1.38	30.43	30.45	30.41
	3	27.39	27.30	27.26	1.38	28.77	28.68	28.64
	4	26.06	26.97	27.03	1.38	27.44	28.35	28.41
EGPRS (8PSK)	1	25.93	25.91	26.02	1.38	27.31	27.29	27.40
	2	25.75	25.79	25.80	1.38	27.13	27.17	27.18
	3	24.67	24.60	24.72	1.38	26.05	25.98	26.10
	4	23.49	23.54	23.56	1.38	24.87	24.92	24.94
Limit	33.01dBm							

Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2023/02/03	Test Band	WCDMA Band II

Mode	3GPP Subtest	Conducted Power (dBm)			Antenna Gain (dBi)	EIRP (dBm)		
		Band II Channel				Band II Channel		
		9262	9400	9538		9262	9400	9538
WCDMA R99	1	24.15	24.24	24.06	1.38	25.53	25.62	25.44
HSDPA	1	23.04	23.18	23.08	1.38	24.42	24.56	24.46
	2	23.07	23.22	23.18	1.38	24.45	24.60	24.56
	3	22.67	22.72	22.68	1.38	24.05	24.10	24.06
	4	22.66	22.71	22.68	1.38	24.04	24.09	24.06
HSUPA	1	22.57	22.72	22.91	1.38	23.95	24.10	24.29
	2	22.08	22.23	22.26	1.38	23.46	23.61	23.64
	3	21.66	21.81	21.85	1.38	23.04	23.19	23.23
	4	22.25	22.40	22.44	1.38	23.63	23.78	23.82
	5	23.09	23.18	23.18	1.38	24.47	24.56	24.56
Limit	33.01dBm							

Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2023/02/03 ~ 2023/02/15	Test Band	WCDMA Band IV

Mode	3GPP Subtest	Conducted Power (dBm)			Antenna Gain (dBi)	EIRP (dBm)		
		Band IV Channel				Band IV Channel		
		1312	1412	1513		1312	1412	1513
WCDMA R99	1	23.87	23.95	23.88	2.00	25.87	25.95	25.88
HSDPA	1	22.92	23.00	22.95	2.00	24.92	25.00	24.95
	2	22.93	23.02	22.93	2.00	24.93	25.02	24.93
	3	22.44	22.52	22.49	2.00	24.44	24.52	24.49
	4	22.44	22.52	22.48	2.00	24.44	24.52	24.48
HSUPA	1	22.63	22.62	22.48	2.00	24.63	24.62	24.48
	2	21.92	22.02	21.93	2.00	23.92	24.02	23.93
	3	21.63	21.61	21.59	2.00	23.63	23.61	23.59
	4	22.23	22.21	22.18	2.00	24.23	24.21	24.18
	5	22.97	22.95	22.95	2.00	24.97	24.95	24.95
Limit	30.00dBm							

Note: The EIRP (dBm) = Output Power (dBm) + Antenna Gain (dBi)

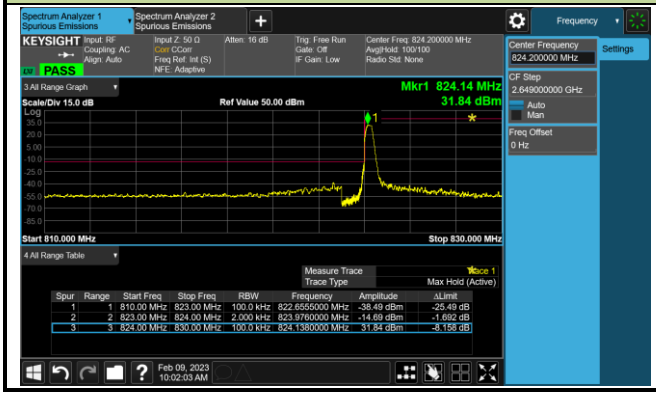
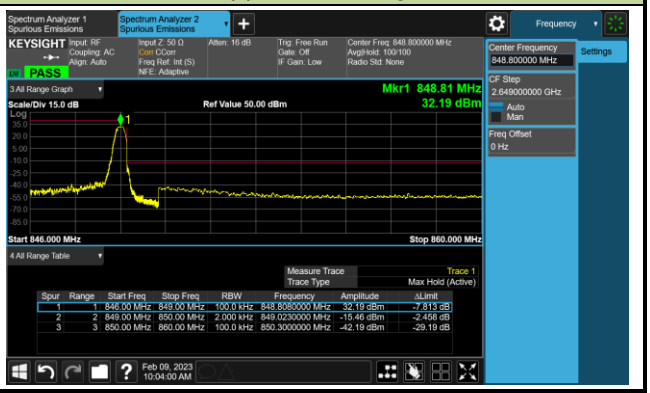
Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2023/02/03	Test Band	WCDMA Band V

Mode	3GPP Subtest	Conducted Power (dBm)			Antenna Gain (dBi)	ERP (dBm)		
		Band V Channel				Band V Channel		
		4132	4182	4233		4132	4182	4233
WCDMA R99	1	23.42	23.49	23.39	2.13	23.40	23.47	23.37
HSDPA	1	22.47	22.52	22.43	2.13	22.45	22.50	22.41
	2	22.46	22.53	22.50	2.13	22.44	22.51	22.48
	3	21.98	22.05	22.04	2.13	21.96	22.03	22.02
	4	21.97	22.05	22.04	2.13	21.95	22.03	22.02
HSUPA	1	22.17	22.36	22.16	2.13	22.15	22.34	22.14
	2	21.50	21.11	21.47	2.13	21.48	21.09	21.45
	3	21.11	20.68	21.10	2.13	21.09	20.66	21.08
	4	21.69	22.08	21.67	2.13	21.67	22.06	21.65
	5	22.49	22.52	22.45	2.13	22.47	22.50	22.43
Limit	38.45dBm							

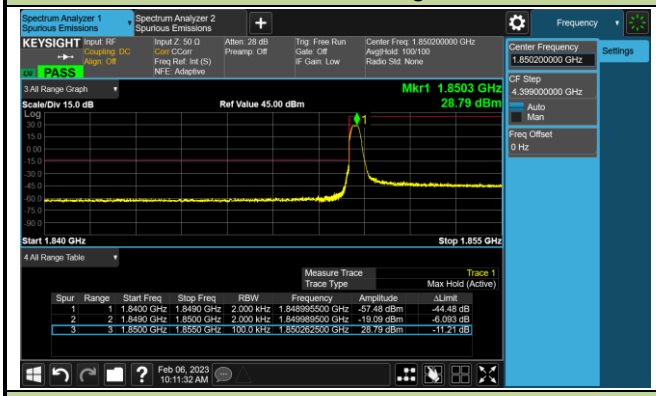
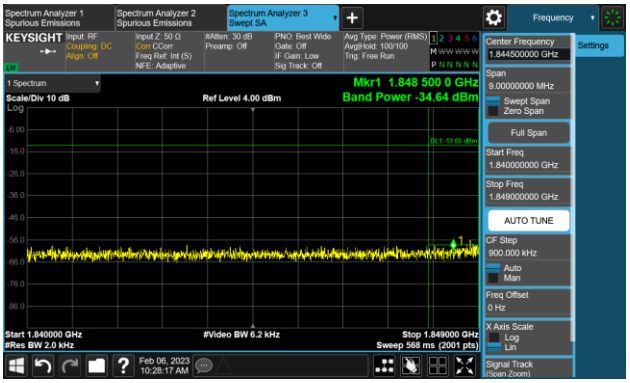
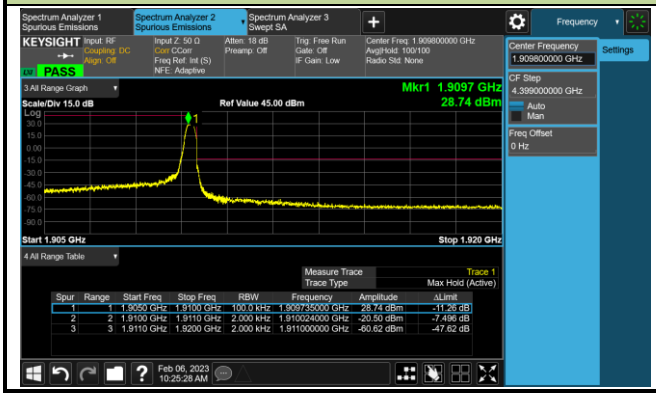
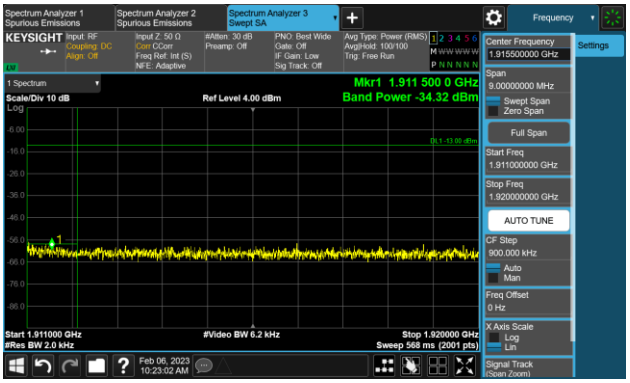
Note: The ERP (dBm) = Output Power (dBm) + Antenna Gain (dBi) – 2.15

A.2 Band Edge Test Result

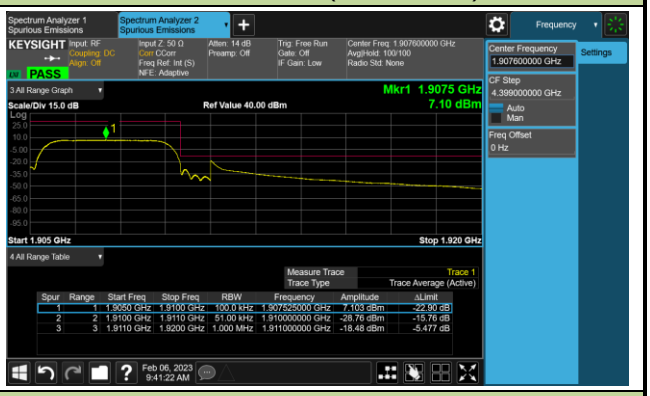
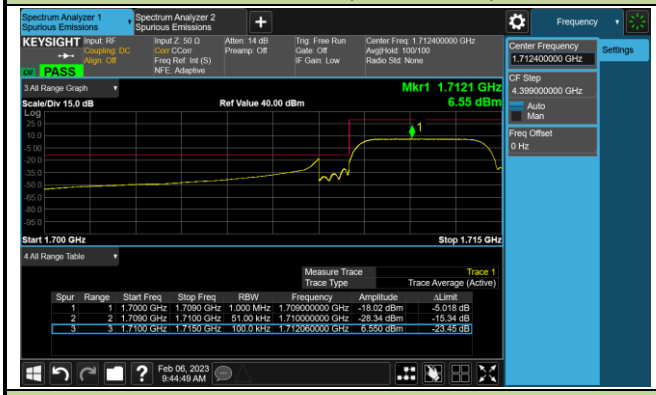
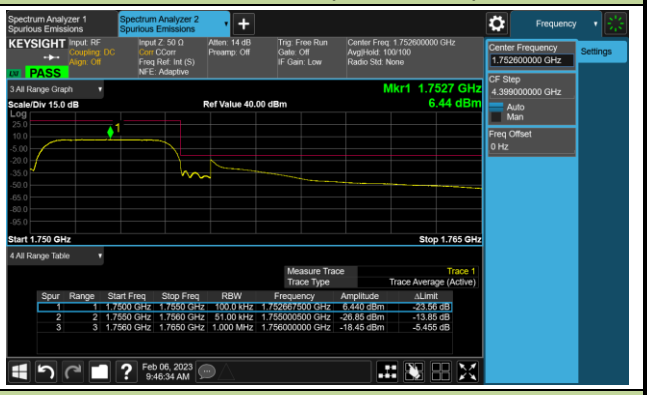
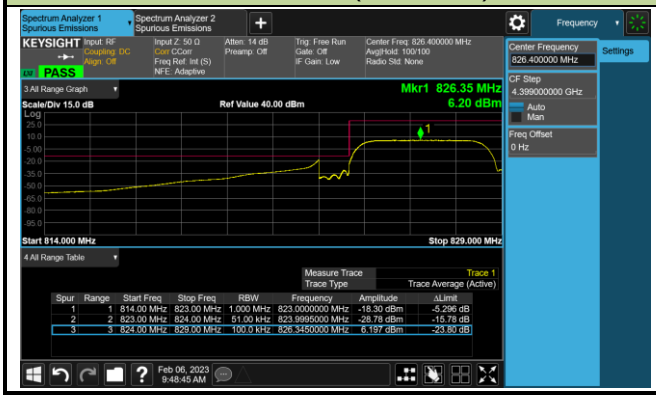
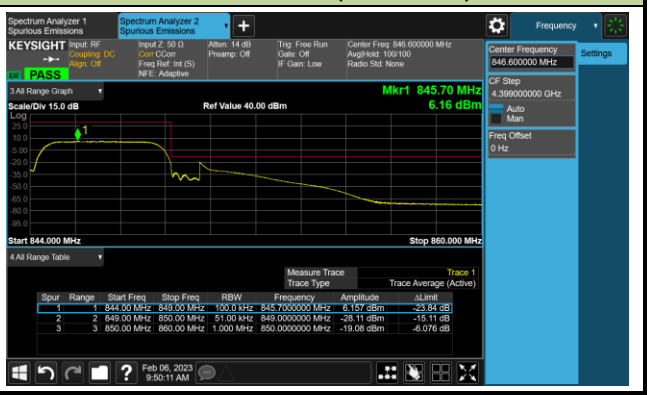
Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2023/02/09	Test Band	GSM 850

GSM 850_GPRS	
Lower Band Edge	Upper Band Edge
	

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2023/02/06	Test Band	PCS 1900

PCS 1900_GPRS	
Lower Band Edge	Lower Extended Band Edge
	
Upper Band Edge	Upper Extended Band Edge
	

Test Site	WZ-SR6	Test Engineer	Cloud Guo
Test Date	2023/02/06	Test Band	WCDMA Band II, IV, V

WCDMA Band II	
Channel 9262 (1852.4MHz)	Channel 9538 (1907.6MHz)
	
WCDMA Band IV	
Channel 1312 (1712.4MHz)	Channel 1513 (1752.6MHz)
	
WCDMA Band V	
Channel 4132 (826.4MHz)	Channel 4233 (846.6MHz)
	

A.3 Radiated Spurious Emissions Test Result

Test Site	SIP-AC1	Test Engineer	Yien Qian
Test Date	2023/01/17	Test Band	GSM 850_GPRS

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
158.5	18.1	18.1	36.2	82.3	-46.1	Peak	Horizontal
174.5	12.8	16.9	29.7	82.3	-52.6	Peak	Horizontal
34.4	14.8	16.9	31.7	82.3	-50.6	Peak	Vertical
141.1	11.7	17.7	29.4	82.3	-52.9	Peak	Vertical
1648.0	61.7	-19.7	42.0	82.3	-40.3	Peak	Horizontal
3500.0	56.7	-12.7	44.0	82.3	-38.3	Peak	Horizontal
1648.0	68.6	-19.7	48.9	82.3	-33.4	Peak	Vertical
1780.0	65.5	-19.4	46.1	82.3	-36.2	Peak	Vertical
Middle Channel							
159.5	17.9	18.1	36.0	82.3	-46.3	Peak	Horizontal
435.9	14.8	22.1	36.9	82.3	-45.4	Peak	Horizontal
446.6	15.6	22.3	37.9	82.3	-44.4	Peak	Vertical
714.8	14.7	27.0	41.7	82.3	-40.6	Peak	Vertical
1672.0	68.5	-19.8	48.7	82.3	-33.6	Peak	Horizontal
4748.0	52.6	-10.1	42.5	82.3	-39.8	Peak	Horizontal
1672.0	70.0	-19.8	50.2	82.3	-32.1	Peak	Vertical
1784.0	60.9	-19.4	41.5	82.3	-40.8	Peak	Vertical
High Channel							
158.5	17.5	18.1	35.6	82.3	-46.7	Peak	Horizontal
483.0	15.4	22.8	38.2	82.3	-44.1	Peak	Horizontal
156.6	13.6	18.2	31.8	82.3	-50.5	Peak	Vertical
441.8	14.0	22.3	36.3	82.3	-46.0	Peak	Horizontal
1696.0	65.7	-20.0	45.7	82.3	-36.6	Peak	Horizontal
3596.0	57.6	-12.5	45.1	82.3	-37.2	Peak	Vertical
1696.0	66.2	-20.0	46.2	82.3	-36.1	Peak	Vertical
1772.0	57.7	-19.3	38.4	82.3	-43.9	Peak	Horizontal
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).							

Test Site	SIP-AC1	Test Engineer	Yien Qian
Test Date	2023/01/17	Test Band	PCS 1900_GPRS

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
160.5	13.7	18.0	31.7	82.3	-50.6	Peak	Horizontal
839.5	15.9	28.7	44.6	82.3	-37.7	Peak	Horizontal
157.6	13.3	18.1	31.4	82.3	-50.9	Peak	Vertical
775.0	14.8	28.5	43.3	82.3	-39.0	Peak	Vertical
9610.5	50.1	-5.1	45.0	82.3	-37.3	Peak	Horizontal
17345.5	45.2	6.2	51.4	82.3	-30.9	Peak	Horizontal
11208.5	49.2	-4.3	44.9	82.3	-37.4	Peak	Vertical
17337.0	44.5	6.5	51.0	82.3	-31.3	Peak	Vertical
Middle Channel							
150.3	12.5	18.2	30.7	82.3	-51.6	Peak	Horizontal
766.2	13.9	28.4	42.3	82.3	-40.0	Peak	Horizontal
146.9	13.5	18.1	31.6	82.3	-50.7	Peak	Vertical
762.4	14.5	28.3	42.8	82.3	-39.5	Peak	Vertical
9661.5	50.0	-5.1	44.9	82.3	-37.4	Peak	Horizontal
15365.0	46.7	1.6	48.3	82.3	-34.0	Peak	Horizontal
8913.5	50.1	-5.4	44.7	82.3	-37.6	Peak	Vertical
17337.0	44.3	6.5	50.8	82.3	-31.5	Peak	Vertical
High Channel							
144.0	14.7	17.9	32.6	82.3	-49.7	Peak	Horizontal
791.9	15.0	28.4	43.4	82.3	-38.9	Peak	Horizontal
614.4	15.9	25.7	41.6	82.3	-40.7	Peak	Vertical
875.4	15.4	28.6	44.0	82.3	-38.3	Peak	Vertical
11574.0	49.5	-3.9	45.6	82.3	-36.7	Peak	Horizontal
17337.0	45.0	6.5	51.5	82.3	-30.8	Peak	Horizontal
10341.5	49.5	-5.0	44.5	82.3	-37.8	Peak	Vertical
15917.5	45.2	3.4	48.6	82.3	-33.7	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).							

Test Site	SIP-AC1	Test Engineer	Yien Qian
Test Date	2023/01/17	Test Band	WCDMA Band II

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
160.0	2.5	18.1	20.6	82.3	-61.7	Peak	Horizontal
847.7	0.4	28.8	29.2	82.3	-53.1	Peak	Horizontal
66.9	11.5	16.4	27.9	82.3	-54.4	Peak	Vertical
767.7	-0.4	28.4	28.0	82.3	-54.3	Peak	Vertical
7961.5	48.5	-5.9	42.6	82.3	-39.7	Peak	Horizontal
14889.0	45.6	1.4	47.0	82.3	-35.3	Peak	Horizontal
5768.5	52.8	-9.2	43.6	82.3	-38.7	Peak	Vertical
9338.5	48.2	-5.1	43.1	82.3	-39.2	Peak	Vertical
Middle Channel							
143.0	13.4	17.8	31.2	82.3	-51.1	Peak	Horizontal
478.1	4.6	22.7	27.3	82.3	-55.0	Peak	Horizontal
51.8	9.5	17.9	27.4	82.3	-54.9	Peak	Vertical
144.0	7.2	17.9	25.1	82.3	-57.2	Peak	Vertical
3762.5	57.7	-11.7	46.0	82.3	-36.3	Peak	Horizontal
5641.0	56.0	-9.5	46.5	82.3	-35.8	Peak	Horizontal
3762.5	60.7	-11.7	49.0	82.3	-33.3	Peak	Vertical
5632.5	53.8	-9.6	44.2	82.3	-38.1	Peak	Vertical
High Channel							
144.9	12.5	18.0	30.5	82.3	-51.8	Peak	Horizontal
481.5	4.3	22.8	27.1	82.3	-55.2	Peak	Horizontal
66.9	11.4	16.4	27.8	82.3	-54.5	Peak	Vertical
480.1	5.3	22.7	28.0	82.3	-54.3	Peak	Vertical
3813.5	57.4	-11.5	45.9	82.3	-36.4	Peak	Horizontal
5726.0	55.6	-9.7	45.9	82.3	-36.4	Peak	Horizontal
3813.5	63.9	-11.5	52.4	82.3	-29.9	Peak	Vertical
5726.0	55.4	-9.7	45.7	82.3	-36.6	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).							

Test Site	SIP-AC1	Test Engineer	Yien Qian
Test Date	2023/01/17	Test Band	WCDMA Band IV

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
144.0	14.2	17.9	32.1	82.3	-50.2	Peak	Horizontal
158.5	11.8	18.1	29.9	82.3	-52.4	Peak	Horizontal
54.7	9.8	17.9	27.7	82.3	-54.6	Peak	Vertical
475.7	5.3	22.6	27.9	82.3	-54.4	Peak	Vertical
3422.5	55.3	-12.8	42.5	82.3	-39.8	Peak	Horizontal
5131.0	51.9	-10.2	41.7	82.3	-40.6	Peak	Horizontal
3431.0	60.4	-12.8	47.6	82.3	-34.7	Peak	Vertical
5139.5	57.4	-10.1	47.3	82.3	-35.0	Peak	Vertical
Middle Channel							
158.5	10.9	18.1	29.0	82.3	-53.3	Peak	Horizontal
481.5	5.1	22.8	27.9	82.3	-54.4	Peak	Horizontal
54.3	10.3	17.9	28.2	82.3	-54.1	Peak	Vertical
480.6	5.4	22.7	28.1	82.3	-54.2	Peak	Vertical
3482.0	56.2	-12.4	43.8	82.3	-38.5	Peak	Horizontal
5224.5	53.8	-9.7	44.1	82.3	-38.2	Peak	Horizontal
3482.0	59.9	-12.4	47.5	82.3	-34.8	Peak	Vertical
5216.0	58.1	-9.7	48.4	82.3	-33.9	Peak	Vertical
High Channel							
144.5	14.5	18.0	32.5	82.3	-49.8	Peak	Horizontal
160.5	11.1	18.0	29.1	82.3	-53.2	Peak	Horizontal
66.9	11.1	16.4	27.5	82.3	-54.8	Peak	Vertical
139.1	7.0	17.5	24.5	82.3	-57.8	Peak	Vertical
3507.5	55.4	-12.6	42.8	82.3	-39.5	Peak	Horizontal
5258.5	53.2	-9.7	43.5	82.3	-38.8	Peak	Horizontal
3507.5	58.9	-12.6	46.3	82.3	-36.0	Peak	Vertical
5258.5	55.5	-9.7	45.8	82.3	-36.5	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).							

Test Site	SIP-AC1	Test Engineer	Yien Qian
Test Date	2023/01/17	Test Band	WCDMA Band V

Frequency (MHz)	Reading Level (dBμV)	Factor (dB/m)	Measure Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Detector	Polarization
Low Channel							
162.9	12.5	17.9	30.4	82.3	-51.9	Peak	Horizontal
688.1	10.1	26.6	36.7	82.3	-45.6	Peak	Horizontal
66.9	14.1	16.4	30.5	82.3	-51.8	Peak	Vertical
715.8	11.2	27.0	38.2	82.3	-44.1	Peak	Vertical
1652.0	58.8	-19.7	39.1	82.3	-43.2	Peak	Horizontal
2476.0	60.1	-16.3	43.8	82.3	-38.5	Peak	Horizontal
2980.0	50.8	-14.3	36.5	82.3	-45.8	Peak	Vertical
3664.0	50.9	-12.4	38.5	82.3	-43.8	Peak	Vertical
Middle Channel							
145.4	13.3	18.1	31.4	82.3	-50.9	Peak	Horizontal
162.9	13.1	17.9	31.0	82.3	-51.3	Peak	Horizontal
56.2	12.4	17.7	30.1	82.3	-52.2	Peak	Vertical
759.0	9.4	28.3	37.7	82.3	-44.6	Peak	Vertical
1672.0	63.4	-19.8	43.6	82.3	-38.7	Peak	Horizontal
2500.0	57.7	-16.4	41.3	82.3	-41.0	Peak	Horizontal
1672.0	57.7	-19.8	37.9	82.3	-44.4	Peak	Vertical
3604.0	50.6	-12.5	38.1	82.3	-44.2	Peak	Vertical
High Channel							
143.5	16.2	17.8	34.0	82.3	-48.3	Peak	Horizontal
739.6	9.2	27.7	36.9	82.3	-45.4	Peak	Horizontal
55.2	11.3	17.9	29.2	82.3	-53.1	Peak	Vertical
595.0	10.0	25.2	35.2	82.3	-47.1	Peak	Vertical
1696.0	63.6	-20.0	43.6	82.3	-38.7	Peak	Horizontal
2536.0	56.7	-16.1	40.6	82.3	-41.7	Peak	Horizontal
1696.0	56.8	-20.0	36.8	82.3	-45.5	Peak	Vertical
3644.0	51.2	-12.4	38.8	82.3	-43.5	Peak	Vertical
Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB/m).							

Appendix B - Test Setup Photograph

Refer to “2212RSU048-UT” file.

Appendix C - EUT Photograph

Refer to “2212RSU048-UE” file.

The End