

FCC TEST REPORT

Product Name: Mobile Phone
Trade Mark: BLU
Model No.: C5L MAX
Add. Model No.: N/A
Report Number: 220126014RFM-1
Test Standards: FCC 47 CFR Part 22 Subpart H
FCC 47 CFR Part 24 Subpart E
FCC 47 CFR Part 27 Subpart L
FCC ID: YHLBLUC5LMX173
Test Result: PASS
Date of Issue: March 25, 2022

Prepared for:

BLU Products, Inc
10814 NW 33rd St # 100 Doral, FL 33172, USA

Prepared by:

Shenzhen UnionTrust Quality and Technology Co., Ltd.
Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and
technology park, Longhua district, Shenzhen, China

TEL: +86-755-2823 0888

FAX: +86-755-2823 0886

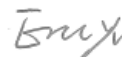
Prepared by:



Calvin Chen

Senior Project Engineer

Reviewed by:



Eric Yu

Project Supervisor

Approved by:



Kevin Liang

Assistant Manager

Date:

March 25, 2022

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

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Version

Version No.	Date	Description
V1.0	March 25, 2022	Original



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UTTR-RF-FCC23G-V1.1

CONTENTS

1. GENERAL INFORMATION	4
1.1 CLIENT INFORMATION	4
1.2 EUT INFORMATION	4
1.2.1 GENERAL DESCRIPTION OF EUT	4
1.2.2 DESCRIPTION OF ACCESSORIES	5
1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD	6
1.4 DESCRIPTION OF SUPPORT UNITS	7
1.5 TEST LOCATION.....	7
1.6 TEST FACILITY.....	7
1.7 DEVIATION FROM STANDARDS	7
1.8 ABNORMALITIES FROM STANDARD CONDITIONS.....	7
1.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER	7
1.10 MEASUREMENT UNCERTAINTY	7
2. TEST SUMMARY	9
3. EQUIPMENT LIST	11
4. TEST CONFIGURATION	12
4.1 ENVIRONMENTAL CONDITIONS FOR TESTING	12
4.2 TEST SETUP	13
4.2.1 FOR RADIATED EMISSIONS TEST SETUP	13
4.2.2 FOR CONDUCTED RF TEST SETUP	14
4.3 TEST CHANNELS	15
4.4 SYSTEM TEST CONFIGURATION	16
4.5 PRE-SCAN	16
5. RADIO TECHNICAL REQUIREMENTS SPECIFICATION	19
5.1 REFERENCE DOCUMENTS FOR TESTING	19
5.2 MAXIMUM ERP/EIRP	19
5.3 CONDUCTED OUTPUT POWER	21
5.4 PEAK-TO-AVERAGE RATIO	22
5.5 99%&26dB BANDWIDTH	27
5.6 BAND EDGE AT ANTENNA TERMINALS	32
5.7 SPURIOUS EMISSIONS AT ANTENNA TERMINALS	36
5.8 FIELD STRENGTH OF SPURIOUS RADIATION.....	41
5.9 FREQUENCY STABILITY	47
APPENDIX 1 PHOTOS OF TEST SETUP	50
APPENDIX 2 PHOTOS OF EUT CONSTRUCTIONAL DETAILS	50

1. GENERAL INFORMATION

1.1 CLIENT INFORMATION

Applicant:	BLU Products, Inc
Address of Applicant:	10814 NW 33rd St # 100 Doral, FL 33172, USA
Manufacturer:	BLU Products, Inc
Address of Manufacturer:	10814 NW 33rd St # 100 Doral, FL 33172, USA

1.2 EUT INFORMATION

1.2.1 General Description of EUT

Product Name:	Mobile Phone		
Model No.:	C5L MAX		
Add. Model No.:	N/A		
Trade Mark:	BLU		
DUT Stage:	Production Unit		
EUT Supports Function: (Provided by the customer)	GSM Bands:	GSM850/1900	
	UTRA Bands:	Band II/ Band IV/ Band V	
	E-UTRA Bands:	FDD Band 2/ Band 4/ Band 5/ Band 7/Band 12/Band 17/ Band 66/	
	2.4 GHz ISM Band:	IEEE 802.11b/g/n	
		Bluetooth 5.0	
	RNSS Bands:	1559 MHz to 1610 MHz	GPS/ GLONASS/ BDS
	BSR:	VHF Band II	FM
Software Version:	BLU_C0173WW_V11.0.03.02_GENERIC 22-02-2022 10:36 (Provided by the customer)		
Hardware Version:	A507_MB_V6.0 (Provided by the customer)		
Sample Received Date:	January 26, 2022		
Sample Tested Date:	February 15, 2022 to March 3, 2022		

1.2.2 Description of Accessories

Adapter	
Model No.:	US-FC-0750
Input:	100-240 V~50/60 Hz 0.2 A
Output:	5.0 V $\overline{\overline{=}}$ 750 mA
DC Cable:	0.9 Meter, Unshielded without ferrite

Battery	
Model No.:	C775444200L
Battery Type:	Lithium-ion Rechargeable Battery
Rated Voltage:	3.8 Vdc
Limited Charge Voltage:	4.35 Vdc
Rated Capacity:	2000 mAh

Cable	
Description:	USB Micro-B Plug Cable
Cable Type:	Unshielded without ferrite
Length:	1 Meter

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1.3 PRODUCT SPECIFICATION SUBJECTIVE TO THIS STANDARD

Support Networks:	GSM, GPRS, EDGE, WCDMA, HSDPA, HSUPA	
Type of Modulation:	GSM/GPRS:	GMSK
	EDGE:	GMSK, 8PSK
	WCDMA	BPSK
	HSDPA/DC-HSDPA:	QPSK
	HSUPA:	QPSK
Frequency Range:	GSM/GPRS/EDGE 850:	824.2-848.8 MHz
	GSM/GPRS/EDGE 1900:	1850.2-1909.8 MHz
	WCDMA Band II:	1852.4-1907.6 MHz
	WCDMA Band IV:	1712.4-1752.6 MHz
	WCDMA Band V:	826.4-846.6 MHz
Max RF Output Power:	GSM/GPRS 850:	32.79dBm
	EDGE 850:	25.96dBm
	GSM/GPRS 1900:	29.08dBm
	EDGE 1900:	24.35dBm
	WCDMA Band II:	24.51dBm
	WCDMA Band IV:	23.53dBm
	WCDMA Band V:	24.33dBm
Emission Designator:	GSM/GPRS 850:	244KGXW
	EDGE 850:	240KG7W
	GSM/GPRS 1900:	242KGXW
	EDGE 1900:	245KG7W
	WCDMA Band II:	4M17F9W
	WCDMA Band IV:	4M16F9W
	WCDMA Band V:	4M17F9W
IEMI:	Radiation: 362523432421801, 362523432421819	
	Conducted: 362523432421447, 362523432421454	
Antenna Type:	PIFA Antenna	
Antenna Gain:	GSM 850:	-1.5 dBi
	PCS 1900:	-1.7 dBi
	WCDMA Band II:	-1.6 dBi
	WCDMA Band IV:	-1.6 dBi
	WCDMA Band V:	-1.5 dBi
GPRS/EDGE Class:	Class 12	
Normal Test Voltage:	3.8 Vdc	
Extreme Test Voltage:	3.6 to 4.35Vdc	
Extreme Test Temperature:	-20 °C to +55 °C	

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1.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested with associated equipment below.

1) Support Cable

Cable No.	Description	Connector	Length	Supplied by
1	Antenna Cable	SMA	0.30 Meter	UnionTrust

1.5 TEST LOCATION

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China, China 518109
Telephone: +86 (0) 755 2823 0888
Fax: +86 (0) 755 2823 0886

1.6 TEST FACILITY

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

CNAS-Lab Code: L9069

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable under the ISO/IEC 17025 to international or national standards. Equipment has been calibrated by accredited calibration laboratories.

A2LA-Lab Certificate No.: 4312.01

Shenzhen UnionTrust Quality and Technology Co., Ltd. has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

ISED Wireless Device Testing Laboratories

CAB identifier: CN0032

FCC Accredited Lab.

Designation Number: CN1194

Test Firm Registration Number: 259480

1.7 DEVIATION FROM STANDARDS

None.

1.8 ABNORMALITIES FROM STANDARD CONDITIONS

None.

1.9 OTHER INFORMATION REQUESTED BY THE CUSTOMER

None.

1.10 MEASUREMENT UNCERTAINTY

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Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product 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.

No.	Item	Measurement Uncertainty
1	Conducted emission 9kHz-150kHz	±3.2 dB
2	Conducted emission 150kHz-30MHz	±2.7 dB
3	Radiated spurious emissions 30MHz-1GHz	± 4.9 dB
4	Radiated spurious emissions 1GHz-18GHz	± 4.8 dB
5	Radiated spurious emissions 18GHz-40GHz	± 5.1 dB
6	Occupied Bandwidth	± 1.86 %
7	DC Supply Voltages	± 0.68 %
8	Temperature	± 0.62 °C
9	Humidity	± 3.9 %
10	Conducted spurious emissions	± 2.7 dB
11	DC Supply Voltages	± 0.68 %
12	AC Supply Voltages	± 1.2 %
13	Radio Frequency	± 6.5 x 10 ⁻⁸
14	RF Power, Conducted	± 0.9 dB

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2. TEST SUMMARY

FCC 47 CFR Part 22 Subpart H Test Cases			
Test Item	Test Requirement	Test Method	Result
Effective Radiated Power (ERP)	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 22.913(a)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 22.913(a)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	FCC 47 CFR Part 22.913(a)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	FCC 47 CFR Part 2.1049(h)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 22.917(a)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 22.917(a)(b)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 22.917(a)(b)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 22.355	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

FCC 47 CFR Part 24 Subpart E Test Cases			
Test Item	Test Requirement	Test Method	Result
Equivalent Isotropic Radiated Power (EIRP)	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 24.232(c)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 24.232(c)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	FCC 47 CFR Part 24.232(d)	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	FCC 47 CFR Part 2.1049(h) & FCC 47 CFR Part 24.238(b)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 24.238(a)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 24.238(a)(b)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 24.238(a)(b)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 24.235	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

FCC 47 CFR Part 27 Subpart L Test Cases			
Test Item	Test Requirement	Test Method	Result
Equivalent Isotropic Radiated Power (EIRP)	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(d)(4)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Conducted Output Power	FCC 47 CFR Part 2.1046(a) & FCC 47 CFR Part 27.50(d)(4)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Peak-to-average ratio	FCC 47 CFR Part 27.50(d)(5)	KDB 971168 D01v03r01	PASS
99%&26dB Bandwidth	FCC 47 CFR Part 2.1049(h) & FCC 47 CFR Part 27.53(h)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	FCC 47 CFR Part 27.53(h)(1)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	FCC 47 CFR Part 2.1051 & FCC 47 CFR Part 27.53(h)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	FCC 47 CFR Part 2.1053 & FCC 47 CFR Part 27.53(h)	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS
Frequency stability	FCC 47 CFR Part 2.1055 & FCC 47 CFR Part 27.54	ANSI C63.26-2015 & KDB 971168 D01v03r01	PASS

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3. EQUIPMENT LIST

Radiated Emission Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm dd, yyyy)	Cal. Due date (mm dd, yyyy)
☒	3M Chamber & Accessory Equipment	ETS-LINDGREN	3M	N/A	Jan. 22, 2021	Jan. 21, 2024
☒	Receiver	R&S	ESIB26	100114	Nov. 05, 2021	Nov. 04, 2022
☐	Loop Antenna	ETS-LINDGREN	6502	00202525	Nov. 11, 2021	Nov. 10, 2023
☒	Broadband Antenna	ETS-LINDGREN	3142E	00201566	Nov. 11, 2021	Nov. 10, 2023
☒	6dB Attenuator	Talent	RA6A5-N-18	18103001	Nov. 11, 2021	Nov. 10, 2023
☒	Preamplifier	HP	8447F	2805A02960	Nov. 05, 2022	Nov. 04, 2022
☐	Broadband Antenna (Pre-amplifier)	ETS-LINDGREN	3142E-PA	00201891	Apr. 30, 2021	Apr. 29, 2023
☐	6dB Attenuator	Talent	RA6A5-N-18	18103002	Nov. 05, 2021	Nov. 04, 2022
☐	Horn Antenna	ETS-LINDGREN	3117	00164202	Nov. 11, 2021	Nov. 10, 2023
☒	Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3117-PA	00201874	Apr. 30, 2021	Apr. 29, 2023
☐	Horn Antenna	ETS-LINDGREN	3116C	00200180	Jun. 19, 2020	Jun. 18, 2022
☒	Horn Antenna (Pre-amplifier)	ETS-LINDGREN	3116C-PA	00202652	Nov. 14, 2020	Nov. 13, 2022
☒	Multi device Controller	ETS-LINDGREN	7006-001	00160105	N/A	N/A
☒	Test Software	Audix	e3	Software Version: 9.160323		

RF Test Equipment List						
Used	Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm dd, yyyy)	Cal. Due date (mm dd, yyyy)
☒	Receiver	R&S	ESR7	1316.3003K07-101181-K3	Nov. 05, 2021	Nov. 4, 2022
☒	EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY51440197	Apr. 22, 2021	Apr. 21, 2022
☒	Wideband Radio Communication Tester	R&S	CMW500	120932	Apr. 22, 2021	Apr. 21, 2022
☐	Wideband Radio Communication Tester	R&S	CMW500	119583	Apr. 22, 2021	Apr. 21, 2022
☐	Universal Radio Communication Tester	R&S	CMU200	114713	Nov. 05, 2021	Nov. 4, 2022
☒	DC Source	KIKUSUI	PWR400L	LK003024	N/A	N/A
☒	Temp & Humidity chamber	Votisch	VT4002	58566133290020	Apr. 21, 2021	Apr. 20, 2022

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E-mail: info@uttlab.com

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4. TEST CONFIGURATION

4.1 ENVIRONMENTAL CONDITIONS FOR TESTING

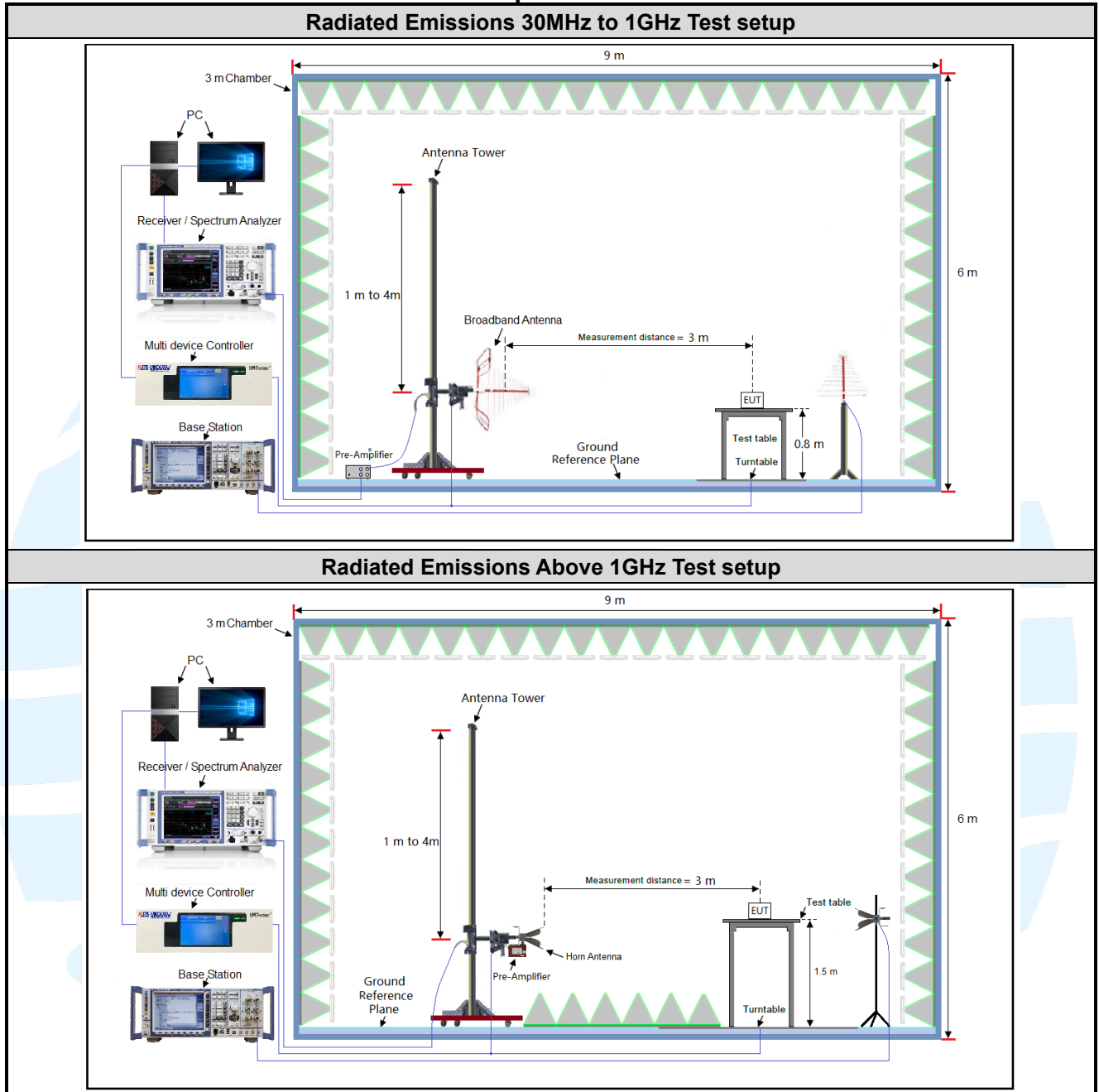
Test Environment	Selected Values During Tests		
Test Condition	Ambient		
	Temperature (°C)	Voltage (V)	Relative Humidity (%)
TN/VN	+15 to +35	3.8	20 to 75
TL/VL	-20	3.6	20 to 75
TH/VL	+55	3.6	20 to 75
TL/VH	-20	4.35	20 to 75
TH/VH	+55	4.35	20 to 75

Remark:

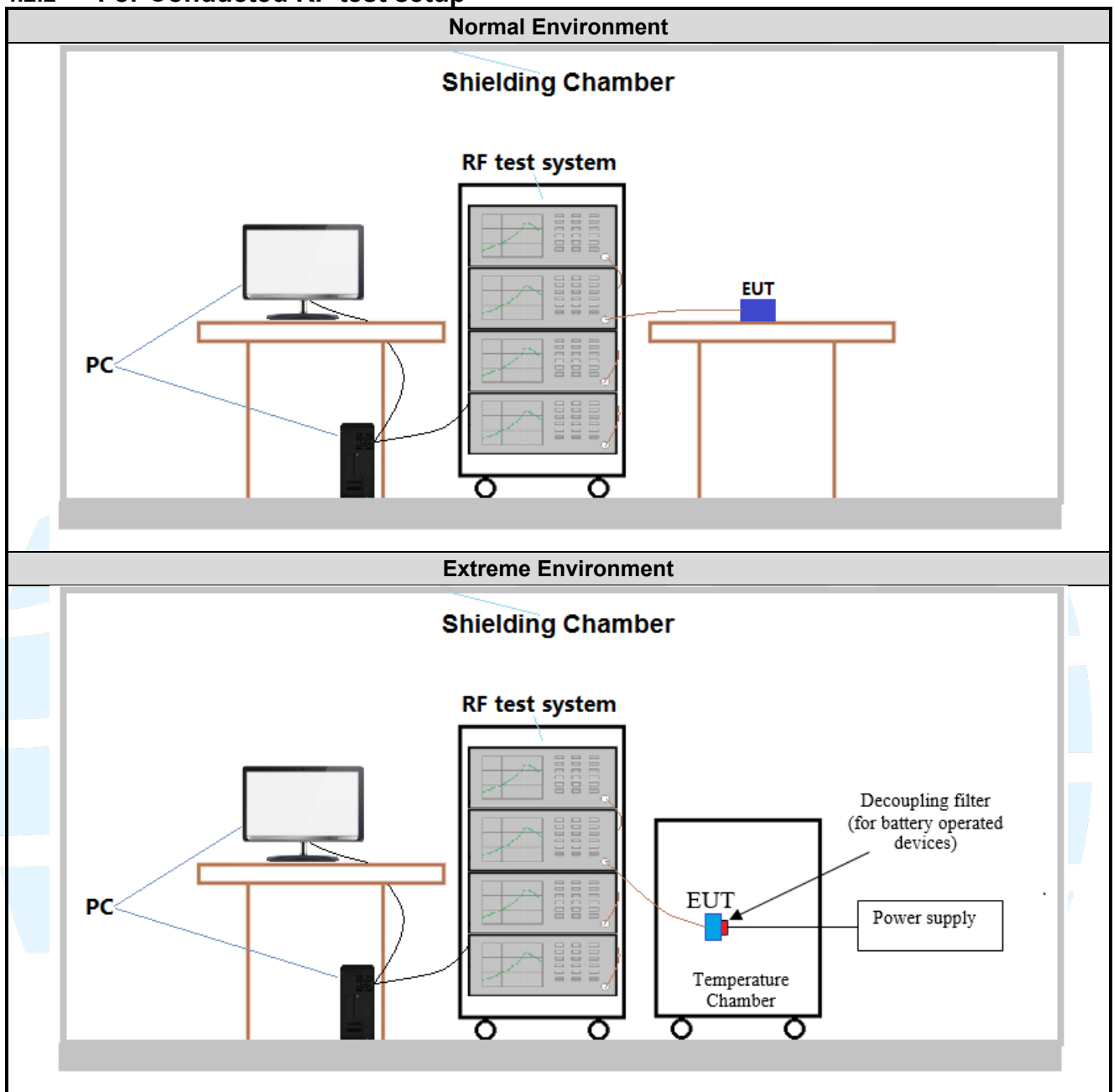
- 1) The EUT just work in such extreme temperature of -20 °C to +55 °C and the extreme voltage of 3.6 V to 4.35 V, so here the EUT is tested in the temperature of -20 °C to +55 °C and the voltage of 3.6 V to 4.35 V.
- 2) VN: Normal Voltage; TN: Normal Temperature;
TL: Low Extreme Test Temperature; TH: High Extreme Test Temperature;
VL: Low Extreme Test Voltage; VH: High Extreme Test Voltage.

4.2 TEST SETUP

4.2.1 For Radiated Emissions test setup



4.2.2 For Conducted RF test setup



4.3 TEST CHANNELS

Bands	Tx/Rx Frequency	RF Channel		
		Low(L)	Middle(M)	High(H)
GSM/GPRS/ EDGE850	Tx (824 MHz ~ 849 MHz)	Channel 128	Channel 190	Channel 251
		824.2 MHz	836.6 MHz	848.8 MHz
WCDMA band V	Tx (824 MHz ~ 849 MHz)	Channel 4132	Channel 4182	Channel 4233
		826.4 MHz	836.4 MHz	846.6 MHz

Bands	Tx/Rx Frequency	RF Channel		
		Low(L)	Middle(M)	High(H)
GSM/GPRS/ EDGE1900	Tx (1850 MHz-1910 MHz)	Channel 512	Channel 661	Channel 810
		1850.2 MHz	1880.0 MHz	1909.8 MHz
WCDMA Band II	Tx (1850 MHz-1910 MHz)	Channel 9262	Channel 9400	Channel 9538
		1852.4 MHz	1880.0 MHz	1907.6 MHz

Bands	Tx/Rx Frequency	RF Channel		
		Low(L)	Middle(M)	High(H)
WCDMA Band IV	Tx (1710 MHz-1755 MHz)	Channel 1312	Channel 1412	Channel 1513
		1712.4 MHz	1732.4 MHz	1752.6 MHz

4.4 SYSTEM TEST CONFIGURATION

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, radiated emission were performed with the EUT set to transmit at the channel with highest output power as worst-case scenario. It was powered by a 3.8Vdc rechargeable Li-on battery. Only the worst case data were recorded in this test report.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, X/Y/Z axis, and antenna ports.

The worst case was found when positioned as the table below.

Bands	Mode	Antenna Port	Worst-case axis positioning
GSM 850	1TX	Chain 0	Y axis
PCS 1900	1TX	Chain 0	Y axis
WCDMA Band II	1TX	Chain 0	Y axis
WCDMA Band IV	1TX	Chain 0	Y axis
WCDMA Band V	1TX	Chain 0	Y axis

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000MHz. The resolution is 1 MHz or greater for frequencies above 1000MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

4.5 PRE-SCAN

Pre-scan under all rate at lowest middle and highest channel, find the transmitter power as below:

SIM 1 Card Conducted transmitter power measurement result.

GSM 850 Maximum Average Power (dBm)			
Channel	128	190	251
Frequency(MHz)	824.2 MHz	836.6 MHz	848.8 MHz
GSM (GMSK, 1Tx-slot)	32.65	32.67	32.78
GPRS (GMSK, 1Tx-slot)	32.66	32.69	32.79
GPRS (GMSK, 2Tx-slot)	30.44	30.49	30.61
GPRS (GMSK, 3Tx-slot)	28.40	28.39	28.49
GPRS (GMSK, 4Tx-slot)	26.17	26.14	26.22
EDGE (8PSK, 1Tx-slot)	25.90	25.96	25.82
EDGE (8PSK, 2Tx-slot)	24.92	24.96	24.86
EDGE (8PSK, 3Tx-slot)	22.54	22.61	22.47
EDGE (8PSK, 4Tx-slot)	19.92	19.95	19.84

PCS 1900 Maximum Average Power (dBm)			
Channel	512	661	810
Frequency(MHz)	1850.2 MHz	1880.0 MHz	1909.8 MHz
GSM (GMSK, 1Tx-slot)	27.05	26.84	26.53
GPRS (GMSK, 1Tx-slot)	29.08	29.05	28.92
GPRS (GMSK, 2Tx-slot)	26.96	26.75	26.44
GPRS (GMSK, 3Tx-slot)	25.45	25.21	24.88
GPRS (GMSK, 4Tx-slot)	23.46	23.24	22.86
EDGE (8PSK, 1Tx-slot)	24.23	24.35	24.03
EDGE (8PSK, 2Tx-slot)	22.22	22.37	21.92
EDGE (8PSK, 3Tx-slot)	19.55	19.60	19.32
EDGE (8PSK, 4Tx-slot)	17.25	17.41	17.61

WCDMA Band II Maximum Average Power (dBm)			
Channel	9262	9400	9538
Frequency(MHz)	1852.4 MHz	1880.0 MHz	1907.6 MHz
RMC 12.2kbps	24.51	24.41	24.30
HSDPA Subtest-1	24.50	24.44	24.33
HSDPA Subtest-2	23.14	23.32	22.79
HSDPA Subtest-3	22.88	23.07	22.55
HSDPA Subtest-4	23.09	23.22	22.65
HSUPA Subtest-1	23.66	23.82	23.26
HSUPA Subtest-2	23.54	23.72	23.18
HSUPA Subtest-3	23.74	23.78	23.21
HSUPA Subtest-4	23.66	23.75	23.20
HSUPA Subtest-5	23.58	23.72	23.13

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Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

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WCDMA Band IV Maximum Average Power (dBm)			
Channel	1312	1412	1513
Frequency(MHz)	1712.4 MHz	1732.4 MHz	1752.6 MHz
RMC 12.2kbps	23.51	23.49	23.53
HSDPA Subtest-1	23.50	23.50	23.49
HSDPA Subtest-2	22.08	21.80	21.93
HSDPA Subtest-3	21.64	21.36	21.54
HSDPA Subtest-4	21.68	21.42	21.61
HSUPA Subtest-1	23.05	22.94	22.91
HSUPA Subtest-2	23.10	22.98	22.93
HSUPA Subtest-3	23.00	22.84	22.76
HSUPA Subtest-4	22.99	22.88	22.83
HSUPA Subtest-5	22.98	22.86	22.81

WCDMA Band V Maximum Average Power (dBm)			
Channel	4132	4182	4233
Frequency(MHz)	826.4 MHz	836.4 MHz	846.6 MHz
RMC 12.2kbps	24.20	24.21	24.33
HSDPA Subtest-1	24.07	24.15	24.30
HSDPA Subtest-2	23.83	23.68	23.66
HSDPA Subtest-3	23.81	23.62	23.65
HSDPA Subtest-4	23.79	23.62	23.64
HSUPA Subtest-1	23.84	23.64	23.68
HSUPA Subtest-2	23.79	23.69	23.63
HSUPA Subtest-3	23.82	23.53	23.64
HSUPA Subtest-4	23.77	23.61	23.63
HSUPA Subtest-5	23.83	23.58	23.65

Pre-scan all bandwidth and RB, find worse case mode are chosen to the report, the worse mode applicability and tested channel detail as below:

Band	Radiated	Conducted
GSM/GPRS/EDGE 850/1900	1) GSM (GMSK, 1Tx-slot) Link 2) GPRS (GMSK, 1Tx-slot) Link 3) EDGE (8PSK, 1Tx-slot) Link	1) GSM (GMSK, 1Tx-slot) Link 2) GPRS (GMSK, 1Tx-slot) Link 3) EDGE (8PSK, 1Tx-slot) Link
WCDMA Band II/IVV	RMC 12.2kbps Link	RMC 12.2kbps Link

5. RADIO TECHNICAL REQUIREMENTS SPECIFICATION

5.1 REFERENCE DOCUMENTS FOR TESTING

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 22	Public Mobile Services
3	FCC 47 CFR Part 27	Miscellaneous Wireless Communications Services
4	FCC 47 CFR Part 24	Personal Communications Services
5	ANSI C63.26-2015	American National Standard for Compliance Testing of Transmitters Used in Licensed Radio Services
6	KDB 971168 D01	KDB 971168 D01 Power Meas License Digital Systems v03r01

5.2 MAXIMUM ERP/EIRP

Test Requirement: FCC 47 CFR Part 2.1046(a),
FCC 47 CFR Part 22.913(a),
FCC 47 CFR Part 24.232(c),
FCC 47 CFR Part 27.50(d)(4)

Test Method: KDB 971168 D01v03r01 Section 5.6 & ANSI C63.26-2015

Limit:

FCC 47 CFR Part 22.913(a)

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

FCC 47 CFR Part 24.232(c)

Mobile and portable stations are limited to 2 watts EIRP.

FCC 47 CFR Part 27.50(d)(4)

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.

Test Procedure:

$$\text{ERP or EIRP} = P_{\text{Meas}} + G_T - L_C$$

where:

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

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);

L_C = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

Test Setup: Refer to section 4.2.1 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass

Test Data: See table below

Bands	Modulation	Max. Conducted Avg. Power	Ant. Gain	Limit	ERP		Result
		(dBm)	(dBi)	(W)	(dBm)	(W)	
GSM 850 (824-849 MHz)	GPRS	32.79	-1.50	7.0	29.14	0.820352	Pass
	EDGE	25.96	-1.50		23.81	0.240436	Pass
WCDMA Band V (824-849 MHz)	RMC	23.53	-1.60	7.0	19.78	0.095060	Pass
	HSUPA	23.50	-1.60		19.75	0.094406	Pass
	HSDPA	23.05	-1.60		19.30	0.085114	Pass

Bands	Modulation	Max. Conducted Avg. Power	Ant. Gain	Limit	EIRP		Result
		(dBm)	(dBi)	(W)	(dBm)	(W)	
PCS 1900 (1850-1910 MHz)	GPRS	29.08	-1.70	2.0	27.38	0.547016	Pass
	EDGE	24.35	-1.70		22.65	0.184077	Pass
WCDMA Band II (1850-1910 MHz)	RMC	24.51	-1.60	2.0	22.91	0.195434	Pass
	HSUPA	24.50	-1.60		22.90	0.194984	Pass
	HSDPA	23.82	-1.60		22.22	0.166725	Pass
WCDMA Band IV (1710-1755 MHz)	RMC	24.33	-1.50	1.0	22.83	0.191867	Pass
	HSUPA	24.30	-1.50		22.80	0.190546	Pass
	HSDPA	23.84	-1.50		22.34	0.171396	Pass

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Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

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5.3 CONDUCTED OUTPUT POWER

Test Requirement: FCC 47 CFR Part 2.1046(a),
FCC 47 CFR Part 22.913(a),
FCC 47 CFR Part 24.232(c),
FCC 47 CFR Part 27.50(d)(4)

Test Method: KDB 971168 D01v03r01 & ANSI C63.26-2015

Limit:

FCC 47 CFR Part 22.913(a)

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

FCC 47 CFR Part 24.232(c)

Mobile and portable stations are limited to 2 watts EIRP.

FCC 47 CFR Part 27.50(d)(4)

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.

Test Procedure:

The EUT was set up for the maximum power with GSM, GPRS, EDGE, WCDMA, CDMA2000, and LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass

Test Data: The full result refer to section 4.5 for details.

5.4 PEAK-TO-AVERAGE RATIO

Test Requirement: FCC 47 CFR Part 22.913(a),
FCC 47 CFR Part 24.232(c),
FCC 47 CFR Part 27.50(d)(5)

Test Method: KDB 971168 D01v03r01 Section 5.7

Limit: In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB

Test Procedure:

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer.

- Set resolution/measurement bandwidth $\geq$ signal's occupied bandwidth
- Set the number of counts to a value that stabilizes the measured CCDF curve
- Record the maximum PAPR level associated with a probability of 0.1 %

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

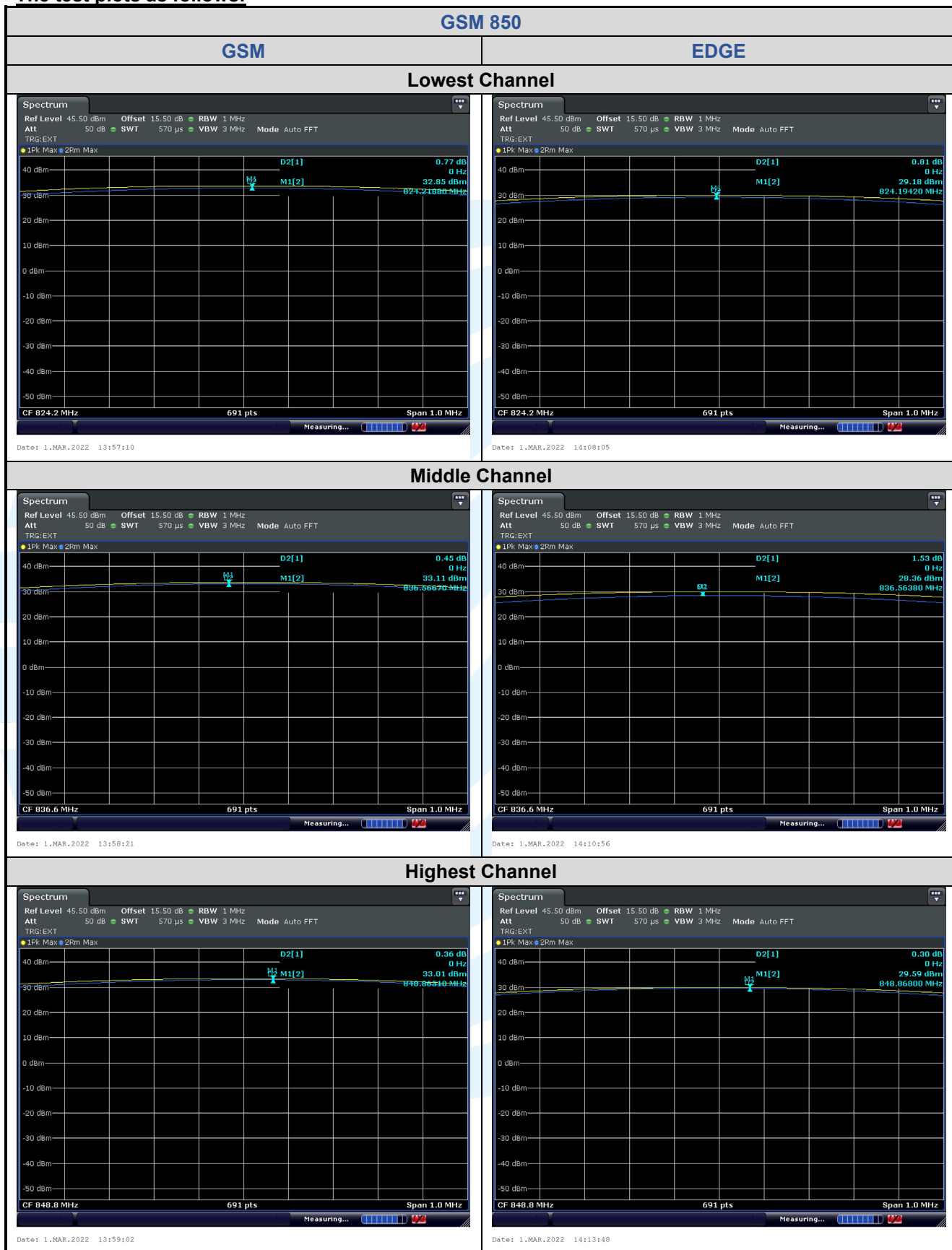
Test Mode: Link mode

Test Results: Pass

Test Data: See table below

Bands	Modulation	Peak-to-average ratio (dB)			Limit (dBm)	Result
		Lowest	Middle	Highest		
GSM 850	GSM	0.77	0.45	0.36	13	Pass
	EDGE	0.81	1.53	0.30	13	Pass
PCS 1900	GSM	0.29	2.05	0.61	13	Pass
	EDGE	0.23	0.26	0.33	13	Pass
WCDMA Band II	RMC 12.2kbps	2.88	2.84	2.77	13	Pass
WCDMA Band IV	RMC 12.2kbps	2.95	2.83	2.91	13	Pass
WCDMA Band V	RMC 12.2kbps	2.60	2.85	2.54	13	Pass

The test plots as follows:



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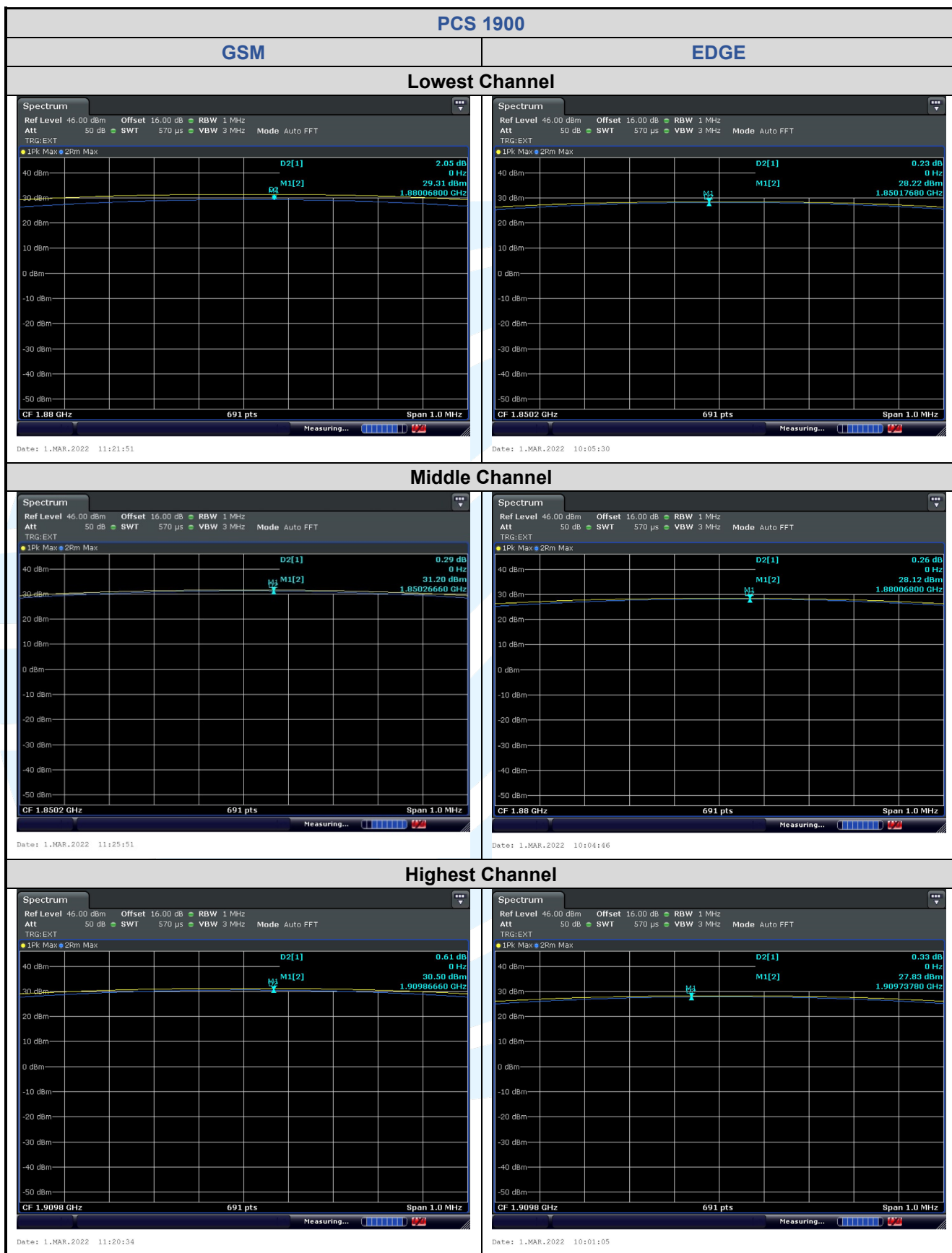
Tel: +86-755-28230888

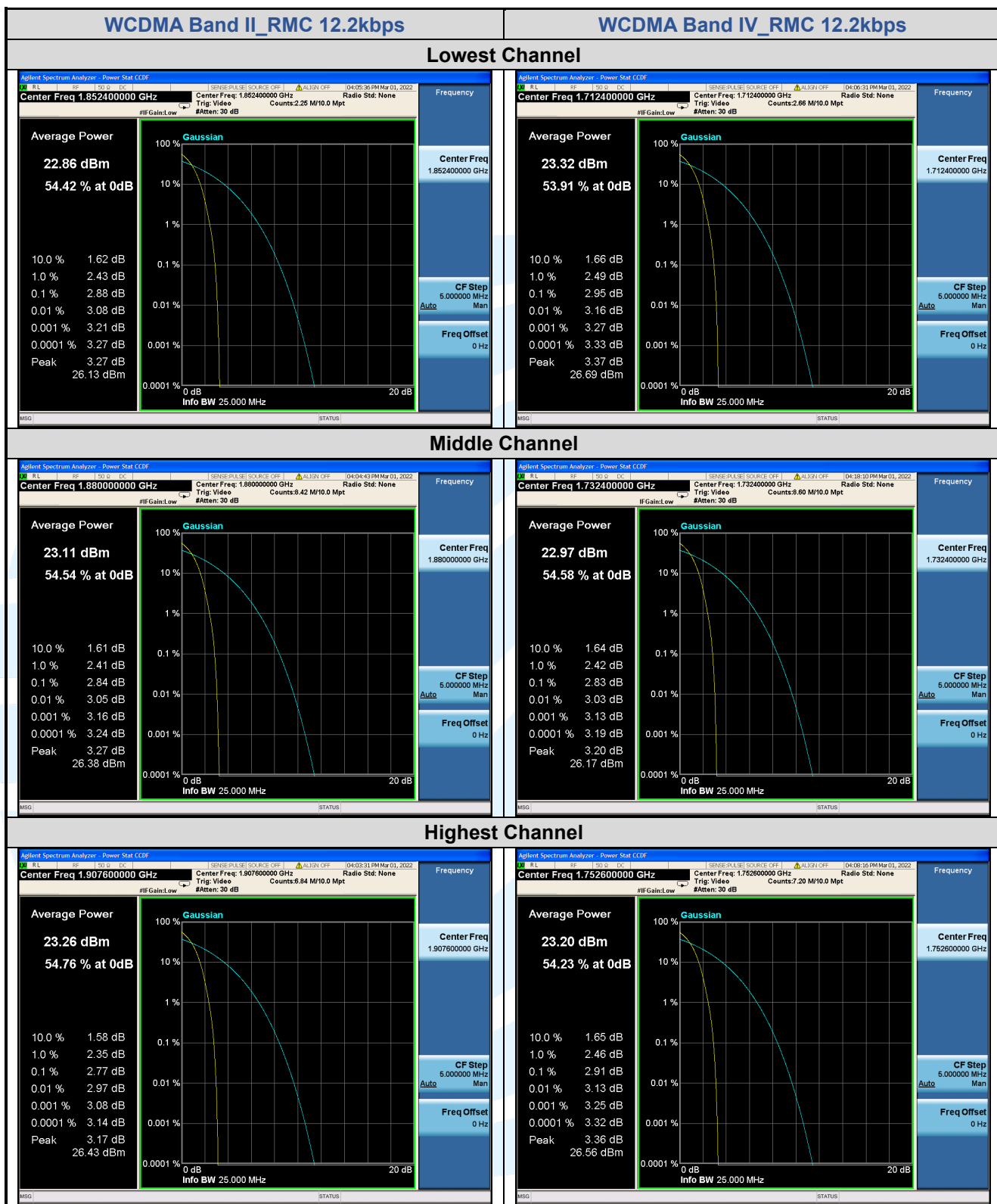
Fax: +86-755-28230886

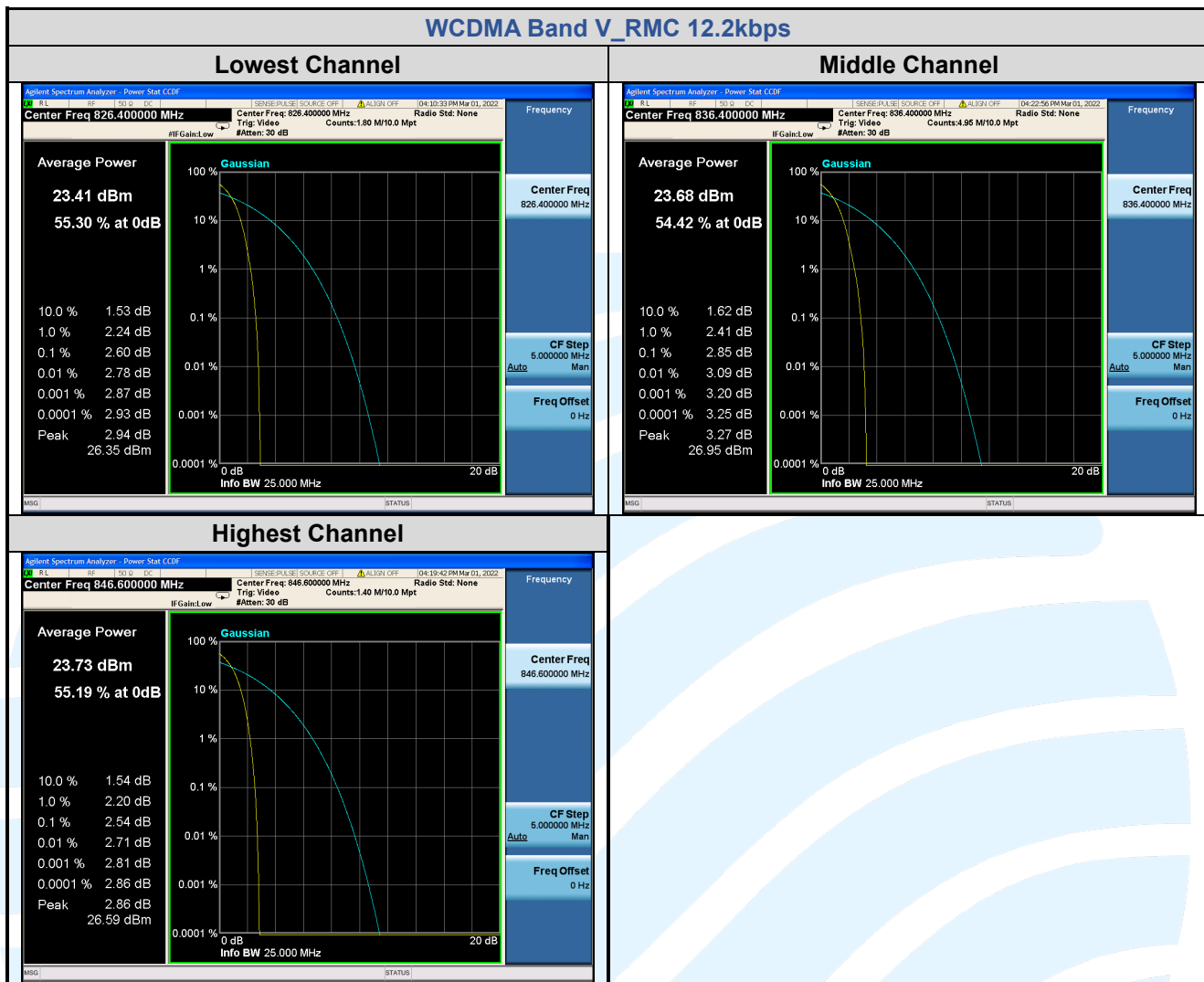
E-mail: info@uttlab.com

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Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

Fax: +86-755-28230886

E-mail: info@uttlab.com

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5.599%&26DB BANDWIDTH

Test Requirement: FCC 47 CFR Part 2.1049(h),
FCC 47 CFR Part 22.917(b),
FCC 47 CFR Part 24.238(b),
FCC 47 CFR Part 27.53(h)

Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01 Section 4

Limit: No Limit, for reporting purposes only.

Test Procedure:

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The 99% and -26dB bandwidths was also measured and recorded.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass

Test Data: See table below

Bands	Modulation	Channel	Frequency (MHz)	26 dB BW (kHz)	99% BW (kHz)
GSM 850	GPRS	128	824.2	319.60	242.41
		190	836.6	305.70	241.35
		251	848.8	312.30	243.75
	EDGE	128	824.2	316.10	240.28
		190	836.6	310.90	238.94
		251	848.8	314.20	235.43
PCS 1900	GPRS	512	1850.2	311.90	242.09
		661	1880.0	310.20	240.08
		810	1909.8	308.20	241.77
	EDGE	512	1850.2	304.50	245.00
		661	1880.0	309.60	245.07
		810	1909.8	315.80	240.87

Bands	Modulation	Channel	Frequency (MHz)	26 dB BW (MHz)	99% BW (MHz)
WCDMA Band II	RMC 12.2kbps	9262	1852.4	4.696	4.1675
		9400	1880.0	4.689	4.1508
		9538	1907.6	4.701	4.1659
WCDMA Band IV	RMC 12.2kbps	1312	1712.4	4.677	4.1539
		1412	1732.4	4.674	4.1413
		1513	1752.6	4.684	4.1575
WCDMA Band V	RMC 12.2kbps	4132	826.4	4.703	4.1585
		4182	836.4	4.677	4.1545
		4233	846.6	4.704	4.1702

Shenzhen UnionTrust Quality and Technology Co., Ltd.

Address: Unit D/E of 9/F and 16/F, Block A, Building 6, Baoneng science and technology park, Longhua district, Shenzhen, China

Tel: +86-755-28230888

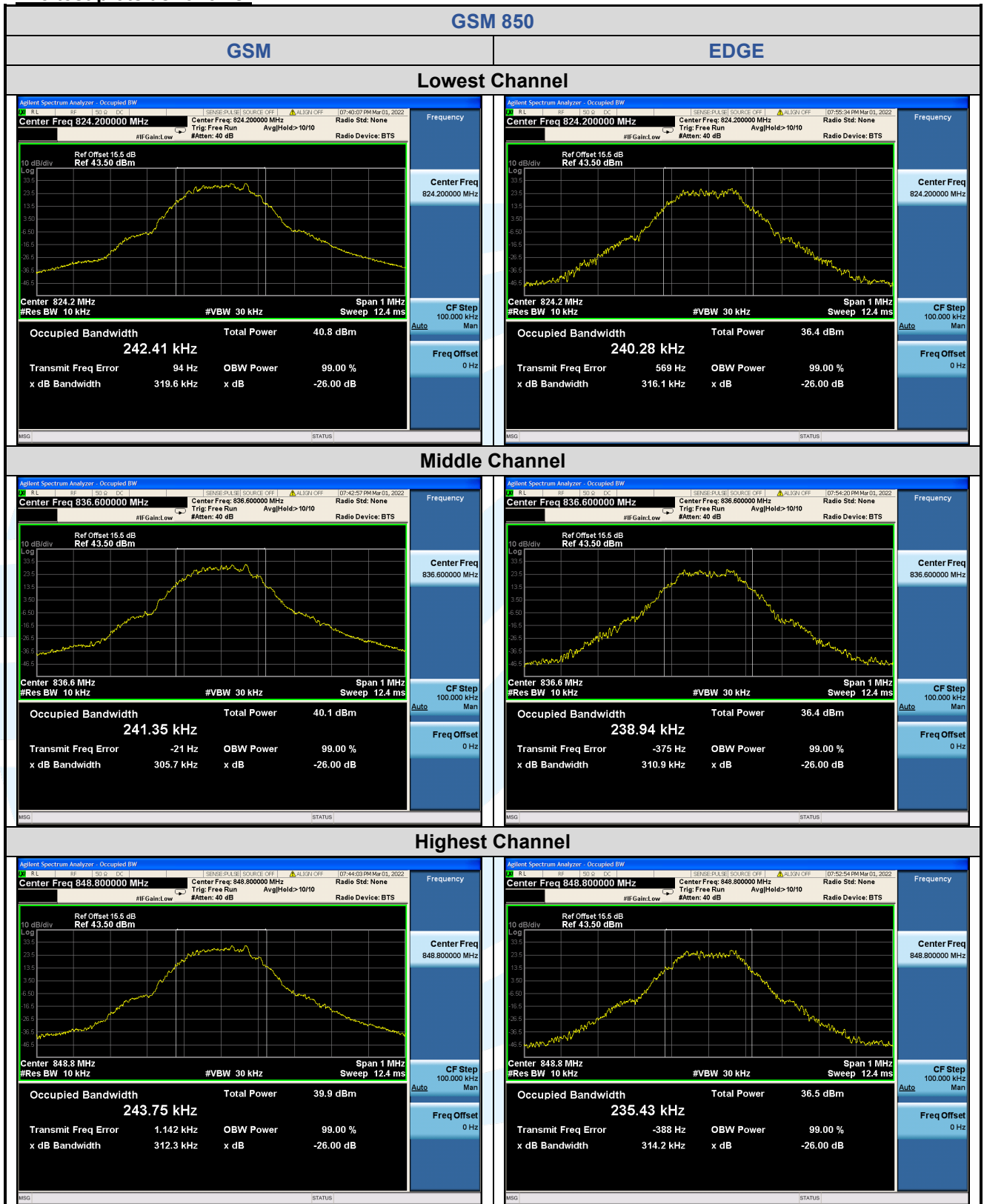
Fax: +86-755-28230886

E-mail: info@uttlab.com

<http://www.uttlab.com>

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The test plots as follows:



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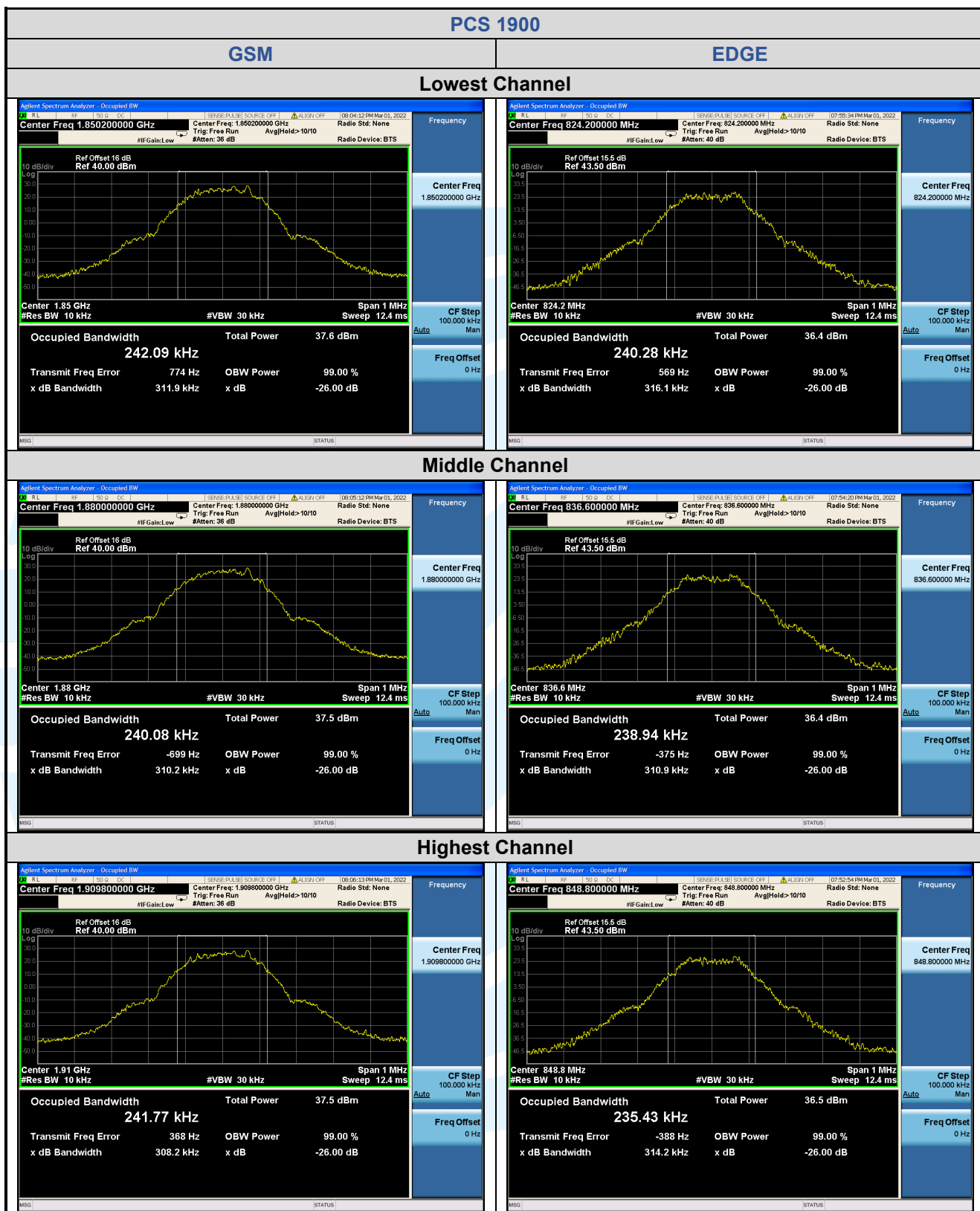
Tel: +86-755-28230888

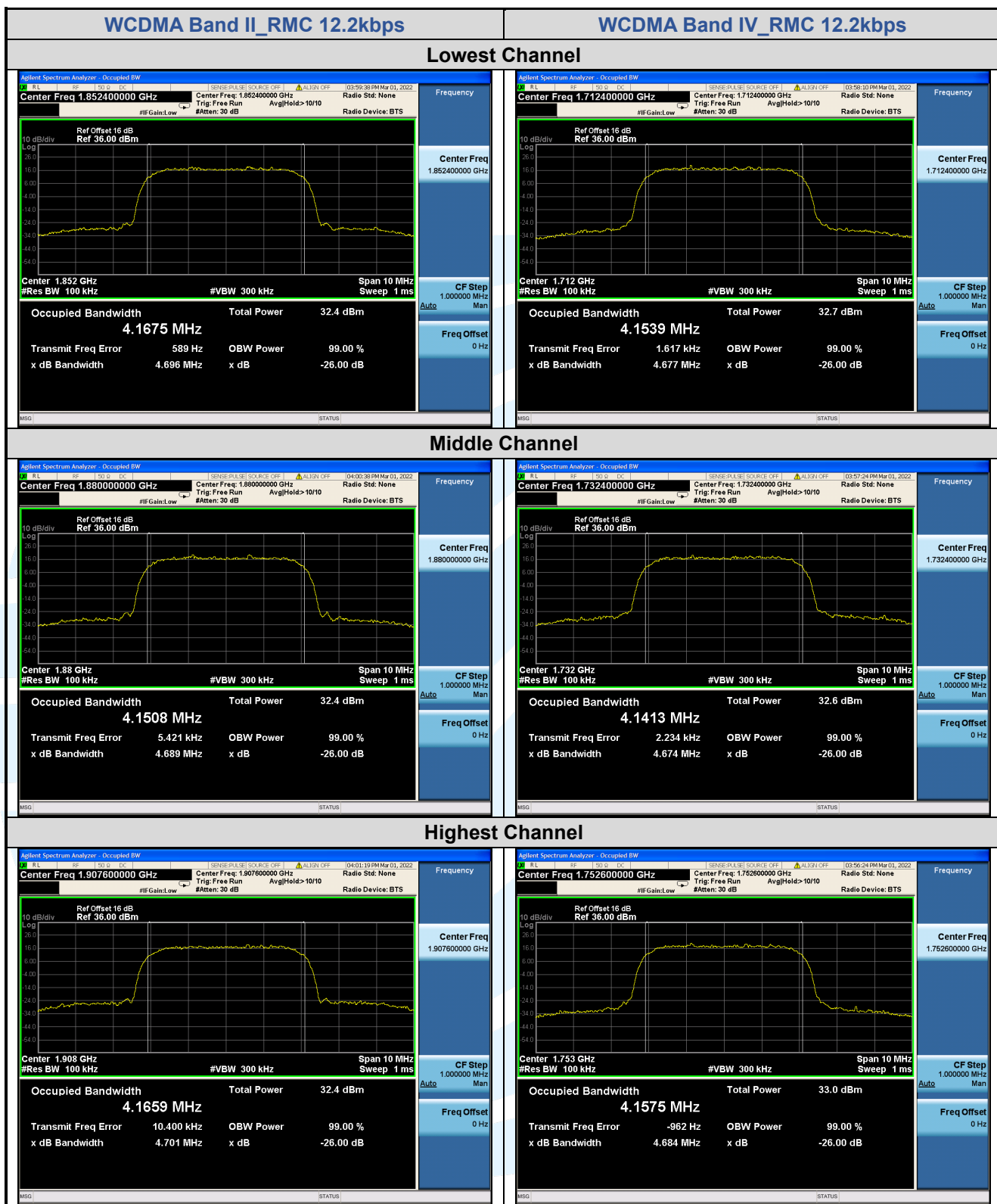
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5.6 BAND EDGE AT ANTENNA TERMINALS

Test Requirement: FCC 47 CFR Part 2.1051,
FCC 47 CFR Part 22.917(a),
FCC 47 CFR Part 24.238(a),
FCC 47 CFR Part 27.53(h)(1)

Test Method: ANSI C63.26-2015 & KDB 971168 D01v03r01

Limit:

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. The emission limit equal to -13 dBm.

Test Procedure:

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer.

For each band edge measurement:

- 1) Set the spectrum analyzer span to include the block edge frequency.
- 2) Set a marker to point the corresponding band edge frequency in each test case.
- 3) Set display line at -13 dBm
- 4) Set resolution bandwidth to at least 1% of emission bandwidth.
- 5) Set spectrum analyzer with RMS detector.
- 6) Record the max trace plot into the test report

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

Test Setup: Refer to section 4.2.2 for details.

Instruments Used: Refer to section 3 for details

Test Mode: Link mode

Test Results: Pass