FCC TEST REPORT

Test report On Behalf of Shenzhen Krono Digital Co., Ltd.

For

Mobile Phone

Model No.: NET,KR-10,KR-15,KR-20,KR-25,KR-30,KR-35,KR-40,KR-45,KR-50,KR-32,KR-1,KR-8,KR-B31,KR-21,KR-2,KR-3,KR-4,KR-5,KR-6,KR-7,KR-MAX,KR SENIOR,KR RETRO,KR DELTA, KR PRO, KR MAX, KR ARMOUR, KR SLIM, MT01,MT02,MT03,MT07,TR-5,TR-6,TR-7,TR-8, TR-9, TR-10, TR-15, TR-20, TR-25, TR-30, TX-2, TX-3,TX-4,TX-5,TX-6

FCC ID: 2AU97-KR

Prepared for :Shenzhen Krono Digital Co., Ltd.1319, 13th Floor, SegPlaza, Huaqiangbei, Futian District, Shenzhen, Guangdong,
China

Prepared By : Shenzhen Tongzhou Testing Co.,Ltd 1th Floor, Building 1, Haomai High-tech Park, Huating Road 387, Dalang Street, Longhua, Shenzhen, China

Date of Test: 2022/8/1 ~ 2022/9/8

Date of Report: 2022/9/9

Report Number: TZ220803579-E2

The test report apply only to the specific sample(s) tested under stated test conditions It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



TEST RESULT CERTIFICATION

Applicant's name:	Shenzhen Krono Digital Co., Ltd.
Address:	1319, 13th Floor, SegPlaza, Huaqiangbei, Futian District, Shenzhen, Guangdong, China
Manufacture's Name	Shenzhen Krono Digital Co., Ltd.
Address:	1319, 13th Floor, SegPlaza, Huaqiangbei, Futian District, Shenzhen, Guangdong, China
Product description	
Trade Mark	KRONO
Product name:	Mobile Phone
Model and/or type reference .:	Refer to page1
Standards	FCC Rules and Regulations Part 22 & Part 24 ANSI C63.26:2015

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Date of Test	
Date (s) of performance of tests::	2022/8/1 ~ 2022/9/8
Date of Issue	2022/9/9
Test Result	Pass

Testing Engineer

2

Anna Hu

(Anna Hu)

Technical Manager :

lugo

(Hugo Chen)

Authorized Signatory :

(Andy Zhang)



Revision History

Revision Issue Date		Revisions	Revised By
000 2022/9/9		Initial Issue	Andy Zhang



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1 TEST STANDARDS

The tests were performed according to following standards:

FCC Part 2: FREQUENCY ALLOCA-TIONS AND RADIO TREATY MAT-TERS; GENERAL RULES AND REG-ULATIONS

FCC Part 22 Subpart H: PRIVATE LAND MOBILE RADIO SERVICES.

FCC Part 24 Subpart E: PUBLIC MOBILE SERVICES

<u>ANSI/TIA-603-E-2016</u>: Land Mobile FM or PM Communications Equipment Measurement and Performance Standards.

ANSI C63.26-2015: IEEE/ANSI Standard for Compliance Testing of Transmitters Used in Licensed Radio Services

FCCKDB971168D01 Power Meas License Digital Systems



2 SUMMARY

2 3			
2.1	Product Description EUT	: Mobile Phone	
	Model Number	NET,KR-10,KR-15,KR-20,KR-25,KR-30,KR-35,KR-40,KR-45,KR- 50,KR-32,KR-1,KR-8,KR-B31,KR-21,KR-2,KR-3,KR-4,KR-5,KR- 6,KR-7,KR-MAX,KR SENIOR,KR RETRO,KR DELTA, KR PRO, KR MAX, KR ARMOUR, KR SLIM, MT01,MT02,MT03,MT07,TR-5,TR- 6,TR-7,TR-8, TR-9, TR-10, TR-15, TR-20, TR-25, TR-30, TX-2, TX- 3,TX-4,TX-5,TX-6	
	Model Declaration	: All the same except for the model name	
Test Model : NET		: NET	
	Power Supply	: DC 3.8V by battery charged from Adapter	
	Hardware version	: FD16_MB_V1.0	
	Software version	: UMS9107_FD13_T107_KR40_V01	
	Sample ID	: TZ220803579–1# TZ220803579–2#	
	Bluetooth		
	Bluetooth Version	: V5.0	
	Operation Frequency	: 2402 – 2480 MHz	
	Channel Number	: 79 Channels for Bluetooth BR/EDR(DSS)	
Modulation Technology : GFSK, π/4-DQPSK, 8-DPSK for Bluetooth BR/EDR		: GFSK, π/4-DQPSK, 8-DPSK for Bluetooth BR/EDR (DSS)	
	Data Rates	: Bluetooth BR/EDR (DSS): 1/2/3Mbps	
	Antenna Type And Gain	: Monopole antenna,2.1dBi	
GSM GSM FCC Operation Frequency : GSM850(UL: 824 – 849 MHz/DL: 869 – 894 MHz) GSM1900(UL: 1850 –1910 MHz/DL: 1930 – 1990 MHz			
		. GSM850(UL: 824 – 849 MHz/DL: 869 – 894 MHz) . GSM1900(UL: 1850 –1910 MHz/DL: 1930 – 1990 MHz)	
	Channel Separation	: 0.2MHz	
	Modulation Technology	: GMSK,8PSK	
	Antenna Type And Gain	Internal Antenna : GSM850: 0.2 dBi PCS1900: 0.51dBi	
	UTRA		
	UTRA FCC Operation Frequency	. WCDMA BAND II (UL: 1850 –1910 MHz/DL: 1930 – 1990 MHz) . WCDMA BAND V (UL: 824 – 849 MHz/DL: 869 – 894 MHz)	
	Channel Separation	: 0.2MHz	
	Modulation Technology	: OFDM (16QAM, QPSK)	
	Antenna Type And Gain	Internal Antenna : WCDMA BAND II: 0.51dBi WCDMA BAND V: 0.2dBi	
	E-UTRA		
	E-UTRA FCC Operation Frequency	FDD Band 2 (UL: 1850 – 1910 MHz/DL: 1930 – 1990 MHz) FDD Band 4 (UL: 1710 – 1755 MHz/DL: 2110 – 2155 MHz) FDD Band 5 (UL: 824 – 849 MHz/DL: 869 – 894 MHz) FDD Band 7 (UL: 2500 – 2570 MHz/DL: 2620 – 2690 MHz)	
Channel Separation : 0.1 MHz		: 0.1 MHz	



Modulation Technology	: OFDM (16QAM, QPSK)
Antenna Type And Gain	Internal Antenna FDD Band 2:0.51 dBi FDD Band 4:0.37 dBi FDD Band 5:0.2 dBi FDD Band 7:0.69 dBi

Note 1: Antenna position refer to EUT Photos. Note 2: the above information was supplied by the applicant.



GSM/WCDMA Card Slot :

	Maximum ERP/EIRP (dBm)	Max. Conducted Power (dBm)	Max. Average Burst Power (dBm)	
GSM 850 27.34		32.47	32.00	
GPRS 850	GPRS 850 26.68		32.03	
PCS 1900	PCS 1900 25.68		28.35	
GPRS 1900 24.57		28.61	28.31	
UMTS BAND II	19.22	27.66	22.65	
UMTS BAND V	18.50	28.31	23.38	



2.2 Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	Certificate

2.3 Short description of the Equipment under Test (EUT)

EUT is subscriber equipment in the GSM/WCDMA/LTE system. Frequency bands Shows in section 2.1.

2.4 Normal Accessory setting

Fully charged battery was used during the test.

2.5 EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

• supplied by the manufacturer

 $\, \odot \,$ - supplied by the lab

	Model:	
	Input:	
	Output:	

2.6 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: 2AU97-KR filing to comply with FCC Part 22 and FCC Part 24 Rules.

2.7 Modifications

No modifications were implemented to meet testing criteria.



3 TEST ENVIRONMENT

3.1 Test Facility

FCC

Designation Number: CN1275 Test Firm Registration Number: 167722 Shenzhen Tongzhou Testing Co.,Ltd has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA

Certificate Number: 5463.01 Shenzhen Tongzhou Testing Co.,Ltd has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

IC

ISED#: 22033 CAB identifier: CN0099 Shenzhen Tongzhou Testing Co.,Ltd has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010

3.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature:	15-35 ° C
Humidity:	30-60 %
Atmospheric pressure:	950-1050mbar



3.3 Test Description

PCS 1900/UMTS BAND II:

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 24.232(c)	EIRP ≤ 2W(33dBm)	Pass	TZ220803579-2#
Bandwidth	2.1049 24.238(a)	OBW: No limit. EBW: No limit.	Pass	TZ220803579-1#
Band Edges	2.1051, 24.238(a)	-13dBm	Pass	TZ220803579-1#
Spurious Emission at Antenna Terminals	2.1051, 24.238(a)	-13dBm	Pass	TZ220803579-1#
Field Strength of Spurious Radiation	2.1053, 24.238(a)	-13dBm	Pass	TZ220803579-2#
Frequency Stability	2.1055, 24.235	the fundamental emission stays within the authorized frequency block.	Pass	TZ220803579-1#
Peak to average ratio	24.232(d)	<13dB	Pass	TZ220803579-1#

GSM850/UMTS BAND V:

Test Item	FCC Rule No.	Requirements	Judgement	Sample ID
Effective (Isotropic) Radiated Power	2.1046, 22.913(a)	ERP ≤ 7W(38.5dBm)	Pass	TZ220803579-2#
Occupied Bandwidth	2.1049	OBW: No limit.	Pass	TZ220803579-1#
Emission Bandwidth	22.917(b)	EBW: No limit.	Pass	TZ220803579-1#
Band Edges Compliance	2.1051, 22.917(a)(b)	-13dBm	Pass	TZ220803579-1#
Spurious Emission at Antenna Terminals	2.1051, 22.917	-13dBm	Pass	TZ220803579-1#
Field Strength of Spurious Radiation	2.1053, 22.917	-13dBm	Pass	TZ220803579-2#
Frequency Stability	2.1055, 22.355	the fundamental emissions stay within the authorized bands of operation. (2.5ppm)	Pass	TZ220803579-1#
Peak to average ratio	2.1046, 2.913(a)	<13dB	Pass	TZ220803579-1#

Remark: The measurement uncertainty is not included in the test result.



3.4 Equipment Used during the Test

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	MXA Signal Analyzer	Keysight	N9020A	MY52091623	2022/1/13	2023/1/12
2	Power Sensor	Agilent	U2021XA	MY5365004	2022/1/13	2023/1/12
3	Power Meter	Agilent	U2531A	TW53323507	2022/1/13	2023/1/12
4	Loop Antenna	schwarzbeck	FMZB1519B	00023	2019/11/16	2022/11/15
5	Wideband Antenna	schwarzbeck	VULB 9163	958	2019/11/16	2022/11/15
6	Horn Antenna	schwarzbeck	9120D-1141	1574	2019/11/16	2022/11/15
7	EMI Test Receiver	R&S	ESCI	100849/003	2022/1/12	2023/1/11
8	Controller	MF	MF7802	N/A	N/A	N/A
9	Amplifier	schwarzbeck	BBV 9743	209	2022/1/12	2023/1/11
10	Amplifier	Tonscend	TSAMP- 0518SE		2022/1/12	2023/1/11
11	RF Cable(below 1GHz)	HUBER+SUHNE R	RG214	N/A	2022/1/12	2023/1/11
12	RF Cable(above 1GHz)	HUBER+SUHNE R	RG214	N/A	2022/1/14	2023/1/13
12	RE test software	Tonscend	JS32-RE	V2.0.2.0	N/A	N/A
14	Test Software	Tonscend	JS1120-3	V2.5.77.0418	N/A	N/A
15	Horn Antenna	A-INFO	LB-180400- KF	J211020657	2020/10/12	2022/10/11
16	Amplifier	CDSA	PAP-1840	17021	2021/10/10	2022/10/09
17	Spectrum Analyzer	R&S	FSP40	100550	2022/1/10	2023/1/9
18	UNIVERSAL RADIO COMMUNICATION	R&S	CMW500	101855	2022/1/13	2023/1/12
19	Signal Generator	Keysight	N5182A	MY4620709	2022/1/13	2023/1/12

3.5 Measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to ETSI TR 100 028 " Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics" and is documented in the Shenzhen Tongzhou Testing Co.,Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Tongzhou Testing Co.,Ltd is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	3.10 dB	(1)
Radiated Emission	1~18GHz	3.70 dB	(1)
Radiated Emission	18-40GHz	3.90 dB	(1)
Conducted Disturbance	0.15~30MHz	1.63 dB	(1)
Conducted Power	9KHz~18GHz	0.61 dB	(1)
Spurious RF Conducted Emission	9KHz~40GHz	1.22 dB	(1)
Band Edge Compliance of RF Emission	9KHz~40GHz	1.22 dB	(1)
Occuiped Bandwidth	9KHz~40GHz	-	(1)
Frequency Error	9KHz~40GHz	1 x 10 ⁻⁷	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.



4 DESCRIPTION OF TEST MODES

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMU 200)to ensure max power transmission and proper modulation. Three channels (The top channel, the middle channel and the bottom channel) were chosen for testing on both GSM and PCS frequency band. ***Note: GSM/GPRS 850, GSM/GPRS 1900, WCDMA/HSPA band II, WCDMA/HSPA band V mode have been tested during the test.

The worst condition was recorded in the test report if no other modes test data.

5 TEST CONDITIONS AND RESULTS

5.1 OUTPUT POWER

5.1.1 CONDUCTED OUTPUT POWER

5.1.1.1 MEASUREMENT METHOD

The transmitter output port was connected to base station.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

Measure the maximum burst average power and average power for other modulation signal.

The EUT was setup for the max output power with pseudo random data modulation. Power was measured with Spectrum Analyzer. The measurements were performed on all modes(GSM/GPRS 850, GSM/GPRS 1900, WCDMA/HSPA band II, WCDMA/HSPA band V)at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.

5.1.1.2 MEASUREMENT RESULT

Pass

Temperature	24.8 ℃	Humidity	58%
Test Engineer	Anna Hu		



GSM850 836.6 Voice 32.46 31.98 -9.03 22.95 0.48 13 F GSM850 848.8 Voice 32.44 31.97 -9.03 22.94 0.47 13 F GSM850 824.2 GPRS ISbt 32.48 32.03 -9.03 22.96 0.45 13 F GSM850 886.6 GPRS ISbt 32.44 31.99 -9.03 22.96 0.44 13 F GSM850 886.6 GPRS ISbt 32.43 31.99 -9.03 22.96 0.44 13 F GSM850 884.8 GPRS Slots 30.35 29.93 -6.02 23.87 0.43 13 F GSM850 884.6 GPRS Slots 28.27 27.85 -4.26 23.59 0.42 13 F GSM850 884.8 GPRS Slots 28.26 27.81 -4.26 23.54 0.44 13 F GSM850 844.8 GPRS Slots <th>Band F</th> <th>UL Frequency(MHz)</th> <th>Mode</th> <th>Peak Power(dBm)</th> <th>Avg.Burst Power(dBm)</th> <th>Duty cycle Factor(dB)</th> <th>Frame Power(dBm)</th> <th>Peak to Average(dB)</th> <th>limit(dB)</th> <th>Conclusion</th>	Band F	UL Frequency(MHz)	Mode	Peak Power(dBm)	Avg.Burst Power(dBm)	Duty cycle Factor(dB)	Frame Power(dBm)	Peak to Average(dB)	limit(dB)	Conclusion
GSM850 848.8 Voice 32.44 31.97 .9.03 22.94 0.47 13 F GSM850 824.2 GPRS 1Slot 32.48 32.03 .9.03 23 0.45 13 F GSM850 836.6 GPRS 1Slot 32.44 31.99 .9.03 22.96 0.45 13 F GSM850 848.8 GPRS 2Slots 30.35 29.93 -6.02 23.91 0.42 13 F GSM850 836.6 GPRS 2Slots 30.32 29.89 -6.02 23.87 0.43 13 F GSM850 848.8 GPRS 2Slots 30.32 29.89 -6.02 23.87 0.43 13 F GSM850 848.8 GPRS 2Slots 30.32 29.7 27.55 -4.26 23.59 0.42 13 F GSM850 846.8 GPRS 3Slots 28.27 27.85 -4.26 23.54 0.44 13 F GSM850 846.	GSM850	824.2	Voice	32.47	32	-9.03	22.97	0.47	13	Pass
GSM850 8242 GPRS 1Slot 32.48 32.03 9.03 22 0.45 13 F GSM850 836.6 GPRS 1Slot 32.44 31.99 9.03 22.96 0.45 13 F GSM850 848.8 GPRS 1Slot 32.43 31.99 9.03 22.96 0.44 13 F GSM850 824.2 GPRS 2Slots 30.35 29.93 -6.02 23.87 0.43 13 F GSM850 848.8 GPRS 2Slots 30.3 29.87 -6.02 23.87 0.43 13 F GSM850 848.8 GPRS 3Slots 28.27 27.85 4.26 23.54 0.44 13 F GSM850 848.8 GPRS 3Slots 28.26 27.81 4.26 23.55 0.42 13 F GSM850 848.8 GPRS 3Slots 28.26 27.56 -3.01 22.56 0.44 13 F GSM850 848.8 GPRS	GSM850	836.6	Voice	32.46	31.98	-9.03	22.95	0.48	13	Pass
GSM850 836.6 GPRS 1Slot 32.44 31.99 -9.03 22.96 0.45 13 F GSM850 848.8 GPRS 1Slot 32.43 31.99 -9.03 22.96 0.44 13 F GSM850 824.2 GPRS 2Slots 30.35 29.93 -6.02 23.87 0.43 13 F GSM850 836.6 GPRS 2Slots 30.32 29.89 -6.02 23.87 0.43 13 F GSM850 848.8 GPRS 3Slots 28.27 27.85 -4.26 23.59 0.42 13 F GSM850 836.6 GPRS 3Slots 28.26 27.81 -4.26 23.55 0.45 13 F GSM850 848.8 GPRS 4Slots 26.01 25.57 -3.01 22.56 0.44 13 F GSM850 848.8 GPRS 4Slots 26.02 25.56 -3.01 22.59 0.47 13 F GSM850 848.8	GSM850	848.8	Voice	32.44	31.97	-9.03	22.94	0.47	13	Pass
GSM850 848.8 GPRS 1Slot 32.43 31.99 -9.03 22.96 0.44 13 F GSM850 824.2 GPRS 2Slots 30.35 29.93 -6.02 23.91 0.42 13 F GSM850 836.6 GPRS 2Slots 30.32 29.89 -6.02 23.87 0.43 13 F GSM850 848.8 GPRS 2Slots 30.3 29.87 -6.02 23.85 0.43 13 F GSM850 848.8 GPRS 3Slots 28.27 27.85 4.426 23.55 0.44 13 F GSM850 848.8 GPRS 3Slots 28.26 27.81 4.26 23.55 0.45 13 F GSM850 848.8 GPRS 4Slots 26.01 25.57 -3.01 22.56 0.44 13 F GSM850 848.8 GPRS 4Slots 26.07 25.66 -3.01 22.59 0.47 13.8 F GSM1900 1880.	GSM850	824.2	GPRS 1Slot	32.48	32.03	-9.03	23	0.45	13	Pass
GSM850 8242 GPRS 25lots 30.35 29.93 -6.02 23.91 0.42 13 F GSM850 836.6 GPRS 25lots 30.32 29.89 -6.02 23.87 0.43 13 F GSM850 848.8 GPRS 25lots 30.3 29.87 -6.02 23.85 0.43 13 F GSM850 824.2 GPRS 35lots 28.27 27.85 4.426 23.59 0.42 13 F GSM850 836.6 GPRS 35lots 28.24 27.8 4.426 23.55 0.44 13 F GSM850 848.8 GPRS 35lots 28.26 27.81 4.426 23.55 0.45 13 F GSM850 848.8 GPRS 45lots 26.01 25.57 -3.01 22.55 0.46 13 F GSM850 848.8 GPRS 45lots 26.07 25.6 -3.01 22.59 0.47 13 F GSM1900 1860.2	GSM850	836.6	GPRS 1Slot	32.44	31.99	-9.03	22.96	0.45	13	Pass
GSM850 836.6 GPRS 2Slots 30.32 29.89 -6.02 23.87 0.43 13 F GSM850 848.8 GPRS 2Slots 30.3 29.87 -6.02 23.85 0.43 13 F GSM850 824.2 GPRS 3Slots 28.27 27.85 -4.26 23.59 0.42 13 F GSM850 886.6 GPRS 3Slots 28.24 27.8 -4.26 23.55 0.44 13 F GSM850 884.8 GPRS 3Slots 28.26 27.81 -4.26 23.55 0.45 13 F GSM850 884.8 GPRS 4Slots 26.01 25.57 -3.01 22.56 0.44 13 F GSM850 886.6 GPRS 4Slots 26.07 25.6 -3.01 22.59 0.47 13 F GSM1900 1860 Voice 28.33 28.03 -9.03 19.25 0.23 13 F GSM1900 1880 G	GSM850	848.8	GPRS 1Slot	32.43	31.99	-9.03	22.96	0.44	13	Pass
GSM850 848.8 GPRS 25lots 30.3 29.87 -6.02 23.85 0.43 13 F GSM850 824.2 GPRS 35lots 28.27 27.85 -4.26 23.59 0.42 13 F GSM850 836.6 GPRS 35lots 28.24 27.8 -4.26 23.55 0.44 13 F GSM850 848.8 GPRS 35lots 28.26 27.81 -4.26 23.55 0.45 13 F GSM850 824.2 GPRS 4Slots 26.01 25.57 -3.01 22.55 0.46 13 F GSM850 836.6 GPRS 4Slots 26.07 25.6 -3.01 22.59 0.47 13 F GSM1900 1850.2 Voice 28.33 28.03 -9.03 19.25 0.23 13 F GSM1900 1880 Voice 28.55 28.24 -9.03 19.25 0.33 13 F GSM1900 1880.2 GPR	GSM850	824.2	GPRS 2Slots	30.35	29.93	-6.02	23.91	0.42	13	Pass
GSM850 824.2 GPRS 3Slots 28.27 27.85 4.26 23.59 0.42 13 F GSM850 836.6 GPRS 3Slots 28.24 27.8 4.26 23.54 0.44 13 F GSM850 848.8 GPRS 3Slots 28.26 27.81 4.26 23.55 0.45 13 F GSM850 824.2 GPRS 4Slots 26.01 25.57 -3.01 22.56 0.44 13 F GSM850 836.6 GPRS 4Slots 26.02 25.56 -3.01 22.55 0.46 13 F GSM850 848.8 GPRS 4Slots 26.07 25.6 -3.01 22.59 0.47 13 F GSM1900 1850.2 Voice 28.33 28.03 -9.03 19.25 0.23 13 F GSM1900 1880 Voice 28.68 28.35 -9.03 19.25 0.23 13 F GSM1900 1880 GPRS 1S	GSM850	836.6	GPRS 2Slots	30.32	29.89	-6.02	23.87	0.43	13	Pass
GSM850 836.6 GPRS 3Slots 28.24 27.8 4.26 23.54 0.44 13 F GSM850 848.8 GPRS 3Slots 28.26 27.81 4.26 23.55 0.45 13 F GSM850 824.2 GPRS 4Slots 26.01 25.57 -3.01 22.56 0.44 13 F GSM850 836.6 GPRS 4Slots 26.02 25.56 -3.01 22.55 0.46 13 F GSM850 848.8 GPRS 4Slots 26.07 25.6 -3.01 22.59 0.47 13 F GSM1900 1850.2 Voice 28.33 28.03 -9.03 19.25 0.23 13 F GSM1900 1880 Voice 28.68 28.35 -9.03 19.22 0.33 13 F GSM1900 1860.2 GPRS 1Slot 28.57 28.07 -9.03 19.04 0.3 13 F GSM1900 1860.2 GPRS	GSM850	848.8	GPRS 2Slots	30.3	29.87	-6.02	23.85	0.43	13	Pass
GSM850 848.8 GPRS 3Slots 28.26 27.81 4.26 23.55 0.45 13 F GSM850 824.2 GPRS 4Slots 26.01 25.57 -3.01 22.56 0.44 13 F GSM850 836.6 GPRS 4Slots 26.02 25.56 -3.01 22.55 0.46 13 F GSM850 848.8 GPRS 4Slots 26.07 25.6 -3.01 22.59 0.47 13 F GSM1900 1850.2 Voice 28.33 28.03 -9.03 19.25 0.23 13 F GSM1900 1880 Voice 28.68 28.35 -9.03 19.25 0.23 13 F GSM1900 190.8 Voice 28.68 28.35 -9.03 19.24 0.33 13 F GSM1900 1850.2 GPRS 1Slot 28.55 28.24 -9.03 19.21 0.31 13 F GSM1900 1880.2 GPRS 1	GSM850	824.2	GPRS 3Slots	28.27	27.85	-4.26	23.59	0.42	13	Pass
GSM850824.2GPRS 4Slots26.0125.57-3.0122.560.4413FGSM850836.6GPRS 4Slots26.0225.56-3.0122.550.4613FGSM850848.8GPRS 4Slots26.0725.6-3.0122.590.4713FGSM19001850.2Voice28.3328.03-9.03190.313FGSM19001880Voice28.5128.28-9.0319.250.2313FGSM1900190.8Voice28.6828.35-9.0319.320.3313FGSM19001860.2GPRS 1Slot28.3728.07-9.0319.440.313FGSM19001850.2GPRS 1Slot28.5528.24-9.0319.240.3113FGSM19001850.2GPRS 1Slot28.5528.24-9.0319.240.3113FGSM19001880GPRS 1Slot28.6128.31-9.0319.240.3113FGSM19001880GPRS 2Slots26.5526.25-6.0220.280.3313FGSM19001880GPRS 2Slots26.6626.31-6.0220.290.2913FGSM19001850.2GPRS 2Slots25.0624.78-4.2620.460.2813FGSM19001860.2GPRS 3Slots25.0324.74-4.2620.460.2813<	GSM850	836.6	GPRS 3Slots	28.24	27.8	-4.26	23.54	0.44	13	Pass
GSM850 836.6 GPRS 4Slots 26.02 25.56 -3.01 22.55 0.46 13 F GSM850 848.8 GPRS 4Slots 26.07 25.6 -3.01 22.59 0.47 13 F GSM1900 1850.2 Voice 28.33 28.03 -9.03 19 0.3 13 F GSM1900 1880 Voice 28.51 28.28 -9.03 19.25 0.23 13 F GSM1900 1909.8 Voice 28.68 28.35 -9.03 19.25 0.23 13 F GSM1900 1909.8 Voice 28.68 28.35 -9.03 19.24 0.33 13 F GSM1900 1850.2 GPRS 1Slot 28.57 28.24 -9.03 19.24 0.3 13 F GSM1900 1909.8 GPRS 1Slot 28.61 28.31 -9.03 19.28 0.3 13 F GSM1900 1880 GPRS 2Slots <td>GSM850</td> <td>848.8</td> <td>GPRS 3Slots</td> <td>28.26</td> <td>27.81</td> <td>-4.26</td> <td>23.55</td> <td>0.45</td> <td>13</td> <td>Pass</td>	GSM850	848.8	GPRS 3Slots	28.26	27.81	-4.26	23.55	0.45	13	Pass
GSM850 848.8 GPRS 4Slots 26.07 25.6 -3.01 22.59 0.47 13 F GSM1900 1850.2 Voice 28.33 28.03 -9.03 19 0.3 13 F GSM1900 1880 Voice 28.51 28.28 -9.03 19.25 0.23 13 F GSM1900 1909.8 Voice 28.68 28.35 -9.03 19.25 0.23 13 F GSM1900 1909.8 Voice 28.68 28.35 -9.03 19.24 0.33 13 F GSM1900 1850.2 GPRS 1Slot 28.55 28.24 -9.03 19.24 0.31 13 F GSM1900 1880 GPRS 1Slot 28.55 28.24 -9.03 19.28 0.3 13 F GSM1900 1909.8 GPRS 2Slots 26.58 26.3 -6.02 20.28 0.3 13 F GSM1900 1880 GPRS 2Slots	GSM850	824.2	GPRS 4Slots	26.01	25.57	-3.01	22.56	0.44	13	Pass
GSM1900 1850.2 Voice 28.33 28.03 -9.03 19 0.3 13 F GSM1900 1880 Voice 28.51 28.28 -9.03 19.25 0.23 13 F GSM1900 1909.8 Voice 28.68 28.35 -9.03 19.25 0.23 13 F GSM1900 1909.8 Voice 28.68 28.35 -9.03 19.32 0.33 13 F GSM1900 1850.2 GPRS 1Slot 28.37 28.07 -9.03 19.04 0.3 13 F GSM1900 1880 GPRS 1Slot 28.55 28.24 -9.03 19.21 0.31 13 F GSM1900 1909.8 GPRS 1Slot 28.61 28.31 -9.03 19.28 0.3 13 F GSM1900 1860.2 GPRS 2Slots 26.58 26.31 -6.02 20.28 0.28 13 F GSM1900 1880 GPRS 2Slots </td <td>GSM850</td> <td>836.6</td> <td>GPRS 4Slots</td> <td>26.02</td> <td>25.56</td> <td>-3.01</td> <td>22.55</td> <td>0.46</td> <td>13</td> <td>Pass</td>	GSM850	836.6	GPRS 4Slots	26.02	25.56	-3.01	22.55	0.46	13	Pass
GSM1900 1880 Voice 28.51 28.28 -9.03 19.25 0.23 13 F GSM1900 1909.8 Voice 28.68 28.35 -9.03 19.32 0.33 13 F GSM1900 1850.2 GPRS 1Slot 28.37 28.07 -9.03 19.04 0.3 13 F GSM1900 1850.2 GPRS 1Slot 28.55 28.24 -9.03 19.21 0.31 13 F GSM1900 1880 GPRS 1Slot 28.55 28.24 -9.03 19.21 0.31 13 F GSM1900 1909.8 GPRS 1Slot 28.61 28.31 -9.03 19.28 0.3 13 F GSM1900 1850.2 GPRS 2Slots 26.58 26.3 -6.02 20.28 0.28 13 F GSM1900 1880. GPRS 2Slots 26.6 26.31 -6.02 20.29 0.29 13 F GSM1900 1860.2 <td< td=""><td>GSM850</td><td>848.8</td><td>GPRS 4Slots</td><td>26.07</td><td>25.6</td><td>-3.01</td><td>22.59</td><td>0.47</td><td>13</td><td>Pass</td></td<>	GSM850	848.8	GPRS 4Slots	26.07	25.6	-3.01	22.59	0.47	13	Pass
GSM1900 1909.8 Voice 28.68 28.35 -9.03 19.32 0.33 13 F GSM1900 1850.2 GPRS 1Slot 28.37 28.07 -9.03 19.04 0.3 13 F GSM1900 1880 GPRS 1Slot 28.55 28.24 -9.03 19.21 0.31 13 F GSM1900 1880 GPRS 1Slot 28.55 28.24 -9.03 19.21 0.31 13 F GSM1900 1909.8 GPRS 1Slot 28.61 28.31 -9.03 19.28 0.3 13 F GSM1900 1850.2 GPRS 2Slots 26.58 26.3 -6.02 20.28 0.28 13 F GSM1900 1880 GPRS 2Slots 26.55 26.25 -6.02 20.29 0.29 13 F GSM1900 1909.8 GPRS 2Slots 25.06 24.78 -4.26 20.29 0.29 13 F GSM1900 1850.2	GSM1900	1850.2	Voice	28.33	28.03	-9.03	19	0.3	13	Pass
GSM1900 1850.2 GPRS 1Slot 28.37 28.07 -9.03 19.04 0.3 13 F GSM1900 1880 GPRS 1Slot 28.55 28.24 -9.03 19.21 0.31 13 F GSM1900 1909.8 GPRS 1Slot 28.55 28.24 -9.03 19.21 0.31 13 F GSM1900 1909.8 GPRS 1Slot 28.61 28.31 -9.03 19.28 0.3 13 F GSM1900 1850.2 GPRS 2Slots 26.58 26.3 -6.02 20.28 0.28 13 F GSM1900 1880 GPRS 2Slots 26.55 26.25 -6.02 20.23 0.3 13 F GSM1900 1880 GPRS 2Slots 26.6 26.31 -6.02 20.29 0.29 13 F GSM1900 1909.8 GPRS 2Slots 25.06 24.78 -4.26 20.52 0.28 13 F GSM1900 1880	GSM1900	1880	Voice	28.51	28.28	-9.03	19.25	0.23	13	Pass
GSM19001880GPRS 1Slot28.5528.24-9.0319.210.3113FGSM19001909.8GPRS 1Slot28.6128.31-9.0319.280.313FGSM19001850.2GPRS 2Slots26.5826.3-6.0220.280.2813FGSM19001880GPRS 2Slots26.5526.25-6.0220.230.313FGSM19001880GPRS 2Slots26.626.31-6.0220.290.2913FGSM19001909.8GPRS 2Slots26.626.31-6.0220.290.2913FGSM19001850.2GPRS 3Slots25.0624.78-4.2620.520.2813FGSM19001880GPRS 3Slots25.0324.74-4.2620.460.2813FGSM19001909.8GPRS 3Slots25.0324.74-4.2620.480.2913FGSM19001850.2GPRS 4Slots23.122.85-3.0119.840.2513F	GSM1900	1909.8	Voice	28.68	28.35	-9.03	19.32	0.33	13	Pass
GSM1900 1909.8 GPRS 1Slot 28.61 28.31 -9.03 19.28 0.3 13 F GSM1900 1850.2 GPRS 2Slots 26.58 26.3 -6.02 20.28 0.28 13 F GSM1900 1880 GPRS 2Slots 26.55 26.25 -6.02 20.28 0.28 13 F GSM1900 1880 GPRS 2Slots 26.55 26.25 -6.02 20.23 0.3 13 F GSM1900 1880 GPRS 2Slots 26.6 26.31 -6.02 20.29 0.29 13 F GSM1900 1909.8 GPRS 2Slots 25.06 24.78 -4.26 20.52 0.28 13 F GSM1900 1880 GPRS 3Slots 25.03 24.72 -4.26 20.46 0.28 13 F GSM1900 1909.8 GPRS 3Slots 25.03 24.74 -4.26 20.46 0.29 13 F GSM1900 1850.2	GSM1900	1850.2	GPRS 1Slot	28.37	28.07	-9.03	19.04	0.3	13	Pass
GSM1900 1850.2 GPRS 2Slots 26.58 26.3 -6.02 20.28 0.28 13 F GSM1900 1880 GPRS 2Slots 26.55 26.25 -6.02 20.23 0.3 13 F GSM1900 1800 GPRS 2Slots 26.65 26.25 -6.02 20.23 0.3 13 F GSM1900 1909.8 GPRS 2Slots 26.6 26.31 -6.02 20.29 0.29 13 F GSM1900 1850.2 GPRS 3Slots 25.06 24.78 -4.26 20.52 0.28 13 F GSM1900 1880 GPRS 3Slots 25 24.72 -4.26 20.46 0.28 13 F GSM1900 1909.8 GPRS 3Slots 25.03 24.74 -4.26 20.46 0.28 13 F GSM1900 1909.8 GPRS 4Slots 23.1 22.85 -3.01 19.84 0.25 13 F	GSM1900	1880	GPRS 1Slot	28.55	28.24	-9.03	19.21	0.31	13	Pass
GSM1900 1880 GPRS 2Slots 26.55 26.25 -6.02 20.23 0.3 13 F GSM1900 1909.8 GPRS 2Slots 26.6 26.31 -6.02 20.23 0.3 13 F GSM1900 1909.8 GPRS 2Slots 26.6 26.31 -6.02 20.29 0.29 13 F GSM1900 1850.2 GPRS 3Slots 25.06 24.78 -4.26 20.52 0.28 13 F GSM1900 1880 GPRS 3Slots 25 24.72 -4.26 20.46 0.28 13 F GSM1900 1909.8 GPRS 3Slots 25.03 24.74 -4.26 20.46 0.28 13 F GSM1900 1909.8 GPRS 3Slots 25.03 24.74 -4.26 20.48 0.29 13 F GSM1900 1850.2 GPRS 4Slots 23.1 22.85 -3.01 19.84 0.25 13 F	GSM1900	1909.8	GPRS 1Slot	28.61	28.31	-9.03	19.28	0.3	13	Pass
GSM1900 1909.8 GPRS 2Slots 26.6 26.31 -6.02 20.29 0.29 13 F GSM1900 1850.2 GPRS 3Slots 25.06 24.78 -4.26 20.52 0.28 13 F GSM1900 1880 GPRS 3Slots 25 24.72 -4.26 20.46 0.28 13 F GSM1900 1909.8 GPRS 3Slots 25.03 24.74 -4.26 20.46 0.28 13 F GSM1900 1909.8 GPRS 3Slots 25.03 24.74 -4.26 20.48 0.29 13 F GSM1900 1850.2 GPRS 4Slots 23.1 22.85 -3.01 19.84 0.25 13 F	GSM1900	1850.2	GPRS 2Slots	26.58	26.3	-6.02	20.28	0.28	13	Pass
GSM1900 1850.2 GPRS 3Slots 25.06 24.78 -4.26 20.52 0.28 13 F GSM1900 1880 GPRS 3Slots 25 24.72 -4.26 20.46 0.28 13 F GSM1900 1880 GPRS 3Slots 25 24.72 -4.26 20.46 0.28 13 F GSM1900 1909.8 GPRS 3Slots 25.03 24.74 -4.26 20.48 0.29 13 F GSM1900 1850.2 GPRS 4Slots 23.1 22.85 -3.01 19.84 0.25 13 F	GSM1900	1880	GPRS 2Slots	26.55	26.25	-6.02	20.23	0.3	13	Pass
GSM1900 1880 GPRS 3Slots 25 24.72 -4.26 20.46 0.28 13 F GSM1900 1909.8 GPRS 3Slots 25.03 24.74 -4.26 20.48 0.29 13 F GSM1900 1909.8 GPRS 3Slots 25.03 24.74 -4.26 20.48 0.29 13 F GSM1900 1850.2 GPRS 4Slots 23.1 22.85 -3.01 19.84 0.25 13 F	GSM1900	1909.8	GPRS 2Slots	26.6	26.31	-6.02	20.29	0.29	13	Pass
GSM1900 1909.8 GPRS 3Slots 25.03 24.74 -4.26 20.48 0.29 13 F GSM1900 1850.2 GPRS 4Slots 23.1 22.85 -3.01 19.84 0.25 13 F	GSM1900	1850.2	GPRS 3Slots	25.06	24.78	-4.26	20.52	0.28	13	Pass
GSM1900 1850.2 GPRS 4Slots 23.1 22.85 -3.01 19.84 0.25 13 F	GSM1900	1880	GPRS 3Slots	25	24.72	-4.26	20.46	0.28	13	Pass
	GSM1900	1909.8	GPRS 3Slots	25.03	24.74	-4.26	20.48	0.29	13	Pass
GSM1900 1880 GPRS 4Slots 23.02 22.76 -3.01 19.75 0.26 13 F	GSM1900	1850.2	GPRS 4Slots	23.1	22.85	-3.01	19.84	0.25	13	Pass
	GSM1900	1880	GPRS 4Slots	23.02	22.76	-3.01	19.75	0.26	13	Pass
GSM1900 1909.8 GPRS 4Slots 23.03 22.76 -3.01 19.75 0.27 13 F	GSM1900	1909.8	GPRS 4Slots	23.03	22.76	-3.01	19.75	0.27	13	Pass



Туре Fi	requency(MHz)	Mode	Peak Power(dBm)	Average Power(dBm)	Peak to Average(dB)	Limit	Conclusion
UMTS BAND II	1852.4	RMC	24.65	21.74	2.91	13	Pass
UMTS BAND II	1880	RMC	24.82	21.65	3.17	13	Pass
UMTS BAND II	1907.6	RMC	25.21	22.02	3.19	13	Pass
UMTS BAND II	1852.4	HSDPA Subset1	24.94	20.56	4.38	13	Pass
UMTS BAND II	1852.4	HSDPA Subset2	25.3	20.54	4.76	13	Pass
UMTS BAND II	1852.4	HSDPA Subset3	25.49	20.56	4.93	13	Pass
UMTS BAND II	1852.4	HSDPA Subset4	25.35	20.51	4.84	13	Pass
UMTS BAND II	1880	HSDPA Subset1	26.06	21.35	4.71	13	Pass
UMTS BAND II	1880	HSDPA Subset2	26.21	21.4	4.81	13	Pass
UMTS BAND II	1880	HSDPA Subset3	26.4	21.38	5.02	13	Pass
UMTS BAND II	1880	HSDPA Subset4	26.02	21.37	4.65	13	Pass
UMTS BAND II	1907.6	HSDPA Subset1	26.23	21.76	4.47	13	Pass
UMTS BAND II	1907.6	HSDPA Subset2	27.65	21.78	5.87	13	Pass
UMTS BAND II	1907.6	HSDPA Subset3	26.17	21.72	4.45	13	Pass
UMTS BAND II	1907.6	HSDPA Subset4	26.2	21.79	4.41	13	Pass
UMTS BAND II	1852.4	HSUPA Subset1	26.07	20.52	5.55	13	Pass
UMTS BAND II	1852.4	HSUPA Subset2	25.72	20.47	5.25	13	Pass
UMTS BAND II	1852.4	HSUPA Subset3	25.98	20.6	5.38	13	Pass
UMTS BAND II	1852.4	HSUPA Subset4	25.9	21.04	4.86	13	Pass
UMTS BAND II	1852.4	HSUPA Subset5	25.96	19.7	6.26	13	Pass
UMTS BAND II	1880	HSUPA Subset1	26.55	21.92	4.63	13	Pass
UMTS BAND II	1880	HSUPA Subset2	26.59	21.37	5.22	13	Pass
UMTS BAND II	1880	HSUPA Subset3	26.78	21.44	5.34	13	Pass
UMTS BAND II	1880	HSUPA Subset4	26.82	21.45	5.37	13	Pass
UMTS BAND II	1880	HSUPA Subset5	26.58	22.31	4.27	13	Pass
UMTS BAND II	1907.6	HSUPA Subset1	27.42	22.2	5.22	13	Pass
UMTS BAND II	1907.6	HSUPA Subset2	26.7	21.67	5.03	13	Pass
UMTS BAND II	1907.6	HSUPA Subset3	26.54	21.67	4.87	13	Pass
UMTS BAND II	1907.6	HSUPA Subset4	26.46	21.67	4.79	13	Pass
UMTS BAND II	1907.6	HSUPA Subset5	27.66	22.65	5.01	13	Pass
UMTS BAND V	826.4	RMC	25.66	22.33	3.33	13	Pass
UMTS BAND V	836.4	RMC	27.1	23.31	3.79	13	Pass
UMTS BAND V	846.6	RMC	26.48	23.38	3.1	13	Pass
UMTS BAND V	826.4	HSDPA Subset1	24.48	19.92	4.56	13	Pass
UMTS BAND V	826.4	HSDPA Subset2	24.61	20.13	4.48	13	Pass
UMTS BAND V	826.4	HSDPA Subset3	25.17	20.44	4.73	13	Pass
UMTS BAND V	826.4	HSDPA Subset4	25.11	20.32	4.79	13	Pass
UMTS BAND V	836.4	HSDPA Subset1	26.43	21.49	4.94	13	Pass
UMTS BAND V	836.4	HSDPA Subset2	26.2	21.47	4.73	13	Pass
UMTS BAND V	836.4	HSDPA Subset3	27.07	21.46	5.61	13	Pass
UMTS BAND V	836.4	HSDPA Subset4	26.63	21.54	5.09	13	Pass
UMTS BAND V	846.6	HSDPA Subset1	26.1	21.57	4.53	13	Pass
UMTS BAND V	846.6	HSDPA Subset2	28.31	21.56	6.75	13	Pass
UMTS BAND V	846.6	HSDPA Subset3	26.39	21.58	4.81	13	Pass
UMTS BAND V	846.6	HSDPA Subset4	26.82	21.56	5.26	13	Pass



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UMTS BAND V	826.4	HSUPA Subset1	25.74	20.3	5.44	13	Pass
UMTS BAND V	826.4	HSUPA Subset2	25.77	20.31	5.46	13	Pass
UMTS BAND V	826.4	HSUPA Subset3	25.69	20.33	5.36	13	Pass
UMTS BAND V	826.4	HSUPA Subset4	26.08	20.34	5.74	13	Pass
UMTS BAND V	826.4	HSUPA Subset5	25.53	21.25	4.28	13	Pass
UMTS BAND V	836.4	HSUPA Subset1	26.12	21.28	4.84	13	Pass
UMTS BAND V	836.4	HSUPA Subset2	26.12	21.39	4.73	13	Pass
UMTS BAND V	836.4	HSUPA Subset3	25.98	21.3	4.68	13	Pass
UMTS BAND V	836.4	HSUPA Subset4	25.28	20.43	4.85	13	Pass
UMTS BAND V	836.4	HSUPA Subset5	26.92	22.16	4.76	13	Pass
UMTS BAND V	846.6	HSUPA Subset1	27.73	22.1	5.63	13	Pass
UMTS BAND V	846.6	HSUPA Subset2	26.75	21.46	5.29	13	Pass
UMTS BAND V	846.6	HSUPA Subset3	26.48	21.55	4.93	13	Pass
UMTS BAND V	846.6	HSUPA Subset4	26.52	21.52	5	13	Pass
UMTS BAND V	846.6	HSUPA Subset5	27.26	22.45	4.81	13	Pass

According to 3GPP 25.101 sub-clause 6.2.2, the maximum output power is allowed to be reduced by following the table.

Table 6.1aA: UE maximum output power with HS-DPCCH and E-DCH

UE Transmit Channel Configuration	CM(db)	MPR(db)			
For all combinations of ,DPDCH,DPCCH	0≤ CM≤3.5	MAX(CM-1,0)			
HS-DPDCH, E-DPDCH and E-DPCCH					
Note: CM=1 for $\beta_c/\beta_d=12/15$, $\beta_{hs}/\beta_c=24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH,					
E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.					

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the HSUPA mode since the device also provides a compensate for the power back-off by increasing the gain of TX_AGC in the transceiver (PA) device.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.



5.1.2 RADIATED OUTPUT POWER

5.1.2.1 MEASUREMENT METHOD

The measurements procedures specified in ANSI/TIA-603-E-2016 were applied.

1. Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signal operating below 1GHz are performed using dipole antennas. Measurements on signals operating above 1GHz are performed using broadband horn antennas. All measurements are performed as RMS average measurements while the EUT operating at its maximum duty cycle, at maximum power, and at the approximate frequencies.

2. In an anechoic antenna test chamber, a half-wave dipole antenna for the frequency band of interest is placed at the reference centre of the chamber. An RF Signal source for the frequency band of interest is connected to the dipole with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A known (measured) power (Pin) is applied to the input of the dipole, and the power received (Pr) at the chamber's probe antenna is recorded.

3. The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established as ARpl=Pin + 2.15 - Pr. TheARpl is the attenuation of "reference path loss", and including the gain of receive antenna, the cable loss and the air loss. The measurement results are obtained as described below: Power=PMea+ARpl

4. The EUT is substituted for the dipole at the reference centre of the chamber and a scan is performed to obtain the radiation pattern.

5. From the radiation pattern, the co-ordinates where the maximum antenna gain occurs are identified.

6. The EUT is then put into continuously transmitting mode at its maximum power level.

7. Power mode measurements are performed with the receiving antenna placed at the coordinates determined in Step 3 to determine the output power as defined in Rule 24.232 (b) and (c). The "reference path loss" from Step1 is added to this result.

8. This value is EIRP since the measurement is calibrated using a half-wave dipole antenna of known gain (2.15 dBi) and known input power (Pin).

9. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP-2.15dBi...

5.1.2.2 PROVISIONS APPLICABLE

Mode	FCC Part Section(s)	Nominal Peak Power
GSM/GPRS 850	22.913(a)(2)	<=38.45dBm (7W). ERP
GSM/GPRS 1900	24.232(c)	<=33dBm (2W). EIRP
UMTS BAND II	24.232(c)	<=33dBm (2W),EIRP
UMTS BANDV	22.913(a)(2)	<=38.45dBm (7W).ERP



5.1.2.3 MEASUREMENT RESULT

Pass

Temperature	24.8 ℃	Humidity	58%
Test Engineer	Anna Hu		

	Radiated Power (ERP) for GSM 850						
		Res	sult				
Mode	Frequency	Max. Peak ERP	Polarization	Conclusion			
		(dBm)	Of Max. E.R.P				
	824.2	27.34	Horizontal	Pass			
	836.6	26.09	Horizontal	Pass			
GSM -	848.8	26.98	Horizontal	Pass			
GSIVI	824.2	22.46	Vertical	Pass			
	836.6	22.03	Vertical	Pass			
	848.8	21.94	Vertical	Pass			
	824.2	26.68	Horizontal	Pass			
	836.6	26.16	Horizontal	Pass			
	848.8	24.71	Horizontal	Pass			
GPRS -	824.2	21.54	Vertical	Pass			
	836.6	21.23	Vertical	Pass			
	848.8	20.03	Vertical	Pass			



	Radiated Power (E.I.R.P) for GSM1900						
		Re	sult				
Mode	Frequency	Max. Peak ERP	Polarization	Conclusion			
		(dBm)	Of Max. E.I.R.P				
	1850.2	25.68	Horizontal	Pass			
	1880.0	25.58	Horizontal	Pass			
GSM -	1909.8	25.42	Horizontal	Pass			
GSIVI	1850.2	20.50	Vertical	Pass			
	1880.0	22.03	Vertical	Pass			
	1909.8	21.18	Vertical	Pass			
	1850.2	24.01	Horizontal	Pass			
	1880.0	24.57	Horizontal	Pass			
GPRS -	1909.8	22.72	Horizontal	Pass			
GPRO	1850.2	20.66	Vertical	Pass			
Γ	1880.0	21.53	Vertical	Pass			
Γ	1909.8	21.52	Vertical	Pass			



Radiated Power (E.I.R.P) for UMTS band II									
		Res	ult						
Mode	Frequency	Max. Peak E.I.R.P	Polarization	Conclusion					
		(dBm)	Of Max. E.I.R.P						
	1852.4	19.13	Horizontal	Pass					
	1880	19.22	Horizontal	Pass					
UMTS	1907.6	18.57	Horizontal	Pass					
OWIG	1852.4	14.33	Vertical	Pass					
-	1880	12.41	Vertical	Pass					
	1907.6	13.23	Vertical	Pass					

	Radiated Power (ERP) for UMTS band V										
			Result								
Mode	Frequency	Max. Peak ERP	Polarization	Conclusion							
		(dBm)	Of Max. E.R.P								
	826.4	18.50	Horizontal	Pass							
	836.4	18.32	Horizontal	Pass							
UMTS	846.6	18.20	Horizontal	Pass							
010113	826.4	11.83	Vertical	Pass							
	836.4	12.89	Vertical	Pass							
	846.6	11.16	Vertical	Pass							

Note: Above is the worst mode data.



5.2 PEAK-TO-AVERAGE RATIO

5.2.1 MEASUREMENT METHOD

Use one of the procedures presented in 4.1 to measure the total peak power and record as PPk. Use one of the applicable procedures presented 4.2 to measure the total average power and record as PAvg. Both the peak and average power levels must be expressed in the same logarithmic units (e.g., dBm). Determine the PAPR from:

PAPR (dB) = PPk (dBm) - PAvg (dBm).

5.2.2 PROVISIONS APPLICABLE

This is the test for the Peak-to-Average Ratio from the EUT.

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. 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.



5.2.3 MEASUREMENT RESULT

Modes	Max Peak to Average Ratio(dB)	Upper limit(dB)	Result						
GSM850	0.48	13	Pass						
GPRS850	0.47	13	Pass						
PCS1900	0.33	13	Pass						
GPRS1900	0.31	13	Pass						
UMTS BAND II	6.26	13	Pass						
UMTS BAND V	6.75	13	Pass						
Note: refer to section	Note: refer to section of 5.1.1.2.								



5.3 OCCUPIED BANDWIDTH

5.3.1 MEASUREMENT METHOD

1. The Occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper Frequency limits, the mean power radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

2. RBW=1~5% of the expected OBW, VBW>=3 x RBW, Detector=Peak, Trace mode=max hold, Sweep=auto couple, and the trace was allowed to stabilize.

5.3.2 PROVISIONS APPLICABLE

The emission bandwidth is defined as two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26Db below the transmitter power

5.3.3 MEASUREMENT RESULT

Pass

Temperature	24.8 ℃	Humidity	58%
Test Engineer	Anna Hu		

Туре	Frequency(MHz)	Mode	Occupied Bandwidth(KHz)	Emission Bandwidth(KHz)	Limit
GSM850	824.2	Voice	241.16	310	No limit
GSM850	836.6	Voice	246.68	308.9	No limit
GSM850	848.8	Voice	238.26	304.9	No limit
GSM850	824.2	GPRS 1Slot	253.86	326.5	No limit
GSM850	836.6	GPRS 1Slot	241.86	299.5	No limit
GSM850	848.8	GPRS 1Slot	252.12	320.4	No limit
GSM1900	1850.2	Voice	241.16	299.2	No limit
GSM1900	1880	Voice	239.76	302.5	No limit
GSM1900	1909.8	Voice	246.17	312.4	No limit
GSM1900	1850.2	GPRS 1Slot	241.8	303.4	No limit
GSM1900	1880	GPRS 1Slot	249.26	318.5	No limit
GSM1900	1909.8	GPRS 1Slot	244.2	314.9	No limit

Туре	Frequency(MHz)	Mode	Occupied Bandwidth(KHz)	Emission Bandwidth(KHz)	Limit
UMTS BAND II	1852.4	RMC	4177.8	4699	No limit
UMTS BAND II	1880	RMC	4156.1	4675	No limit
UMTS BAND II	1907.6	RMC	4175.2	4695	No limit
UMTS BAND V	826.4	RMC	4179.5	4713	No limit
UMTS BAND V	836.4	RMC	4199.6	4700	No limit
UMTS BAND V	846.6	RMC	4185.3	4680	No limit



GSM850-824.2MHz-Voice

Agilent Spectrum											
					E:PULSE reg: 824.200	000 MHz	ALIGNAUTO	12:12:48 Pf Radio Std:	4 Sep 01, 2022 None	Fr	requency
	9 024.200		Gain:Low	Trig: Fre #Atten: 1		Avg Hold	: 100/100	Radio Dev	ice: BTS		
		#IFC	sain:Low	#Attent 1	0 40			Radio Dev			
	Ref Offset: Ref 35.00										
10 dB/div Log	Rel 35.00	лавт									
25.0				~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	$h \sim h \sim \chi_{c}$					0	Center Freq
15.0					-1/2	4				824	4.200000 MHz
5.00			~~~			- M					
-5.00			, 1 ⁴			1 Vn	h.a.				
-15.0		July July	Ŷ			· ,	- march				
-25.0	0	Y						mun o			
-35.0	4 Martin							1 1 A	n . n . D &n		
-45.0 NWww.TwoAd								1 1 2	monthalph		
-55.0											
Center 824	.2 MHz							Sp	an 1 MHz		
#Res BW 8	.2 kHz			#VE	3W 24 kH	z			14.27 ms		CF Step 100.000 kHz
					T-4-LD		07.0			Auto	Man
Occupie	ed Bandy				Total Po	ower	37.5	6 dBm			
		241	.16 I	KH Z							Freq Offset
Transmit	t Freg Erre	or	-79	99 Hz	OBW P	ower	99	0.00 %			0 Hz
x dB Bar	•		310.0		x dB			00 dB			
X OB Bar	nawiath		310.0	J KHZ	хав		-20.	ου αΒ			
							r 1				
MSG								5			

GSM850-836.6MHz-Voice

	trum Analyzer - Occ										
LXI RL Center F	RF 50 Ω	AC COR			E:PULSE req: 836.600	000 MHz	ALIGN AUTO	12:13:57 Pl Radio Std	M Sep 01, 2022 None	Freque	ncy
Contor I			⊶ Gain:Low	Trig: Free #Atten: 1	e Run	Avg Hold	: 100/100	Radio Dev	vice: BTS		
	J		Jumeon						1		
10 dB/div	Ref Offset: Ref 35.00										
Log 25.0				Da	Λ. α						
15.0				- when						836.6000	er Freq
5.00			لى م	1	-	Why Ire				836.6000	
-5.00						<u>کر</u>					
-15.0		and the second	V			γn	$1_{V_{U_{N}}}$				
-25.0		~ ⁿ /V					- W.	ኒስ			
-35.0	A MANA							M. Wordward			
-45.0	Mar Ard V V							- 10 9	Prophesest		
-55.0											
Center 8	836.6 MHz							Sp	an 1 MHz		
#Res BW	Ø 8.2 kHz			#VE	3W 24 kH	lz		Sweep	14.27 ms		F Step
Occu	pied Band	width			Total Po	ower	37.3	3 dBm		<u>Auto</u>	Man
	pica Bana		.68 k	U 7							
										Freq	Offset
Trans	mit Freq Erro	or	80	0 Hz	OBW P	ower	99	9.00 %			0 Hz
x dB l	Bandwidth		308.9	kHz	x dB		-26.	00 dB			
							~				
MSG								S			



GSM850-848.8MHz-Voice

	um Analyzer - Occ									I	
Center F	RF 50 Ω req 848.800			Center F	E:PULSE req: 848.800		ALIGNAUTO	12:14:29P Radio Std	M Sep 01, 2022 : None	Fre	equency
			Gain:Low		Trig: Free Run Avg Hold: 100/100 #Atten: 18 dB Rad			Radio Dev	vice: BTS		
			Jam.cow								
10 dB/div	Ref Offset: Ref 35.00										
Log				_	. A A						
25.0				J. My Mary							enter Freq
5.00						N.				848	.800000 MHz
-5.00			المم مس								
-15.0		\sim	~~			\ \vr	man and a start and a start a				
-25.0		America					1 mg	ļ			
	- AND							Wymphan.			
-45.0	mannaph							, May	᠇ᠬᢦᢊᡃᢇᢔᡞ		
-55.0											
Center 8	40.0 MU-							0	an d Bille		
#Res BW				#VE	3W 24 kH	Iz			an 1 MHz 14.27 ms		CF Step
								· · ·		Auto	100.000 kHz Man
Occu	pied Bandy				Total P	ower	37.7	′ dBm			
		238	.26 kl	Hz						ء ا	reg Offset
Transr	nit Freg Erro	or	-537	′ Hz	OBW P	ower	99	0.00 %		l .	0 Hz
	andwidth		304.91		x dB			00 dB			
	anuwiun		504.91	NΠZ	хuв		-20.	00 08			
MSG								5			

GSM850-824.2MHz-GPRS 1Slot

Agilent Spectru											
Center Fre	RF 50 Ω eq 824.200		REC		SE:PULSE Freq: 824.200		ALIGN AUTO	12:21:24 PM Radio Std:	4 Sep 01, 2022 None	Frequency	,
			- Gain:Low	Trig: Fre #Atten: *		Avg Hold	: 100/100	Radio Dev	ice: BTS		
	Def Offerst	07 40									
10 dB/div	Ref Offset Ref 35.0										
25.0				-100	Malak					Center F	rea
15.0				nn	Mann	h.				824.200000	
5.00			~~~	-		- h					
-5.00						- <u></u>	n				
-15.0		alash v.v.	w/			- V	1 VVVV				
-25.0								bl.			
-35.0	A							- Wym	ᠰᡣᡗᢇᠬ᠕ᢧᠶ		
-45.0 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	10.										
Center 824 #Res BW				#V	BW 24 kH	Iz			an 1 MHz 14.27 ms	CF S	
										100.000 <u>Auto</u>	kHz Man
Occup	ied Band				Total P	ower	36.9) dBm			
		253	.86 k	KHZ						Freq Of	fset
Transm	it Freq Err	or	1.685	kHz	OBW P	ower	99	9.00 %			0 Hz
x dB Ba	ndwidth		326.5	kHz	x dB		-26.	00 dB			
							4				
MSG								S			



GSM850-836.6MHz-GPRS 1Slot

Agilent Spectrum Analyzer - Occupied BW					
RL RF 50 Ω AC C Center Freq 836.600000 MH		NSE:PULSE Freq: 836.600000 MHz		1 PM Sep 01, 2022 itd: None	Frequency
	FGain:Low #Atten:		l: 100/100 Radio D	evice: BTS	
Ref Offset 27 dB 10 dB/div Ref 35.00 dBm					
Log 25.0 15.0 5.00					Center Freq 836.600000 MHz
-5.00 -15.0 -25.0			hallow april a		
-35.0 -45.0 -55.0				n	
Center 836.6 MHz #Res BW 8.2 kHz	#1	/BW 24 kHz		Span 1 MHz p 14.27 ms	CF Step 100.000 kHz
Occupied Bandwidth		Total Power	38.1 dBm		<u>Auto</u> Man
24	1.86 kHz				Freq Offset
Transmit Freq Error	160 Hz	OBW Power	99.00 %		0 Hz
x dB Bandwidth	299.5 kHz	x dB	-26.00 dB		
MSG					

GSM850-848.8MHz-GPRS 1Slot

Agilent Spectrum Analyzer - Occupied I					
RL RF 50 Ω AC Center Freq 848.800000		ISE:PULSE Freq: 848.800000 MHz	ALIGNAUTO 12:22:41F Radio Sto	M Sep 01, 2022 1: None	Frequency
	#IFGain:Low #Atten:		d: 100/100 Radio De	vice: BTS	
	HI Gam.cow		Tradio De		
Ref Offset 27 dB 10 dB/div Ref 35.00 dBr					
Log					
25.0	- A WA	www.han			Center Freq
15.0					848.800000 MHz
-5.00					
-15.0	mound	6	m .		
-25.0			1 V WY		
			Y Warmer		
-35.0 -45.0			- Y.M	man prover	
-55.0					
Center 848.8 MHz					
#Res BW 8.2 kHz	#V	/BW 24 kHz		oan 1 MHz 14.27 ms	CF Step
			•		100.000 kHz Auto Man
Occupied Bandwidt		Total Power	36.9 dBm		
2	:52.12 kHz				Freq Offset
Transmit Freq Error	329 Hz	OBW Power	99.00 %		0 Hz
x dB Bandwidth	320.4 kHz	x dB	-26.00 dB		
MSG			STATUS		



GSM1900-1850.2MHz-Voice

Agilent Spectrum Analyzer -										
Center Freg 1.850				E:PULSE req: 1.850200	0000 GHz	ALIGN AUTO	12:26:21P Radio Std	M Sep 01, 2022 : None	Fr	equency
		Gain:Low	Trig: Free #Atten: 18	e Run	Avg Hold	l: 100/100	Radio Dev	vice: BTS		
		Gam.Low	in according to				Than be			
	set 27 dB 5.00 dBm									
Log					1					
25.0			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	min						Center Freq
15.0		~~	North North	لمح	1				1.85	0200000 GHz
5.00		~~~~			- M					
-5.00					h					
-15.0	and the	V				W WWW Land				
-35.0						•V1	λ_{α}			
-35.0 -45.0							JANN NA			
-55.0					_			۰۲۰۰		
Center 1.85 GHz #Res BW 8.2 kHz			#\/F	3W 24 kH	7			an 1 MHz 14.27 ms		CF Step
#RC3 DW 0.2 KHZ			#VL	799 24 KII	2		Gweep	14.27 1113	Auto	100.000 kHz Man
Occupied Bar	ndwidth			Total Po	ower	33.8	3 dBm		Auto	Iviai i
	241	.16 k	Hz							Freq Offset
Transmit Freq E	rror	-1.054		OBW P	wor	90	9.00 %		l '	0 Hz
· ·					JWCI					
x dB Bandwidth	1	299.2	KHZ	x dB		-26.	00 dB			
MSC							6			
MSG						STATUS	3			

GSM1900-1880MHz-Voice

Agilent Spectrum Ar		· · · · · · · · · · · · · · · · · · ·									
Center Freq		AC COR		Center F	E:PULSE req: 1.88000		ALIGNAUTO	Radio Std:	4 Sep 01, 2022 None	Free	quency
				Trig: Free #Atten: 14		Avg Hold	l: 100/100	Radio Dev	ice: BTS		
,,,	D. CO	2.10									
10 dB/div	Ref Offset 2 Ref 35.00										
Log 25.0											enter Freq
15.0				- Arran	m	m					00000 GHz
5.00				jur v		[4,					
-5.00			- A			- M					
-15.0		~~~	w.d			<u>`</u> \	~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
-25.0		,~~``					- 0/104	\			
-35.0 -45.0	www							- Sula Survey	<u>ምም</u> በም		
-45.0 AVAAAAA	-								1 W 1		
Center 1.88 (#Res BW 8.2				#VE	3W 24 kH	7			an 1 MHz 14.27 ms		CF Step
								· · ·		1 Auto	00.000 kHz Man
Occupied	d Bandv				Total Po	ower	33.8	8 dBm			
		239	.76 k	Hz						F	req Offset
Transmit I	Freq Erro	or	-31	6 Hz	OBW P	ower	99	9.00 %			0 Hz
x dB Band	dwidth		302.5	kHz	x dB		-26.	00 dB			
MSG							Ko STATU:	s			



GSM1900-1909.8MHz-Voice

Agilent Spectrum Analyzer - Occupied BW					
RL RF 50 Ω AC CO Center Freq 1.909800000 GH		E:PULSE reg: 1.909800000 GHz		8 PM Sep 01, 2022 Std: None	Frequency
· · · · · · · · · · · · · · · · · · ·	Gain:Low #Atten: 1			evice: BTS	
#IF	Gain:Low Whiten: I		Tradio E	ience. B10	
Ref Offset 27 dB 10 dB/div Ref 35.00 dBm					
Log	İ				
25.0	1 min	www.			Center Freq
15.0		- Way			1.909800000 GHz
5.00	کسر				
-5.00	n m l				
-15.0	10		WWW BAR		
-35.0			T The		
-35.0			12mm	www.	
-55.0					
Center 1.91 GHz #Res BW 8.2 kHz	#\/E	3W 24 kHz		Span 1 MHz p 14.27 ms	CF Step
#Res BW 8.2 KHZ	#VE	5VV 24 KHZ	Swee	p 14.27 ms	100.000 kHz
Occupied Bandwidth		Total Power	33.5 dBm		<u>Auto</u> Man
246	.17 kHz				F == 0.55 = 1
					Freq Offset 0 Hz
Transmit Freq Error	981 Hz	OBW Power	99.00 %		0 H2
x dB Bandwidth	312.4 kHz	x dB	-26.00 dB		
			-1		
MSG			STATUS		

GSM1900-1850.2MHz-GPRS 1Slot

Agilent Spectrum Analyzer - Occupied BW					
RL RF 50 Ω AC CO CO Conter Freg 1.850200000 G		SE:PULSE	ALIGNAUTO 12:34:14F Radio Sto	M Sep 01, 2022 I: None	Frequency
·	FGain:Low #Atten:		l: 100/100 Radio De	vice: BTS	
	Gam.20w				
Ref Offset 27 dB 10 dB/div Ref 35.00 dBm					
Log 25.0					A
15.0	m	mond			Center Freq 1.850200000 GHz
5.00	- Marine	1000 Mara			1.850200000 GH2
-5.00		`\			
-15.0			Awm		
-25.0			- man		
-35.0			- m		
-35.0 -45.0 -75.0				··· · · · · · · · · · · · · · · · · ·	
-55.0				1	
Center 1.85 GHz				an 1 MHz	CF Step
#Res BW 8.2 kHz	#\	/BW 24 kHz	Sweep	14.27 ms	100.000 kHz
Occupied Bandwidth		Total Power	34.1 dBm		<u>Auto</u> Man
	1.80 kHz				
			~~ ~~ ~		Freq Offset 0 Hz
Transmit Freq Error	-812 Hz	OBW Power	99.00 %		
x dB Bandwidth	303.4 kHz	x dB	-26.00 dB		
MSG			STATUS		
			No miles		



GSM1900-1880MHz-GPRS 1Slot

Agilent Spectrum Analyz		DEC.	CENC	E:PULSE			10.05.00.0	1001-0000	1	
Center Freq 1.8			Center Fi	req: 1.88000	0000 GHz	ALIGNAUTO	Radio Std:	4 Sep 01, 2022 None	Fr	equency
I		Gain:Low	Trig: Free #Atten: 18		Avg Hold	: 100/100	Radio Dev	ice: BTS		
Ref	Offset 27 dB									
	35.00 dBm	·								
25.0			- 6 m	5.76. R						Center Freq
15.0			MANN	WWWW W	n				1.88	0000000 GHz
5.00					Mr.					
-5.00		ant			h					
-15.0	Annon	ฟ				h~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~				
-35.0	ver					***\	-			
-45.0 -45.0	V~						What	white w		
-55.0								4		
Center 1.88 GHz	I						Sp	an 1 MHz		
#Res BW 8.2 kH	z		#VE	3W 24 kH	z			14.27 ms		CF Step 100.000 kHz
Occupied B	andwidth			Total Po	ower	33.5	i dBm		<u>Auto</u>	Man
		.26 kH	47							
										Freq Offset 0 Hz
Transmit Free	•	1.108 k		OBW P	ower		0.00 %			
x dB Bandwid	dth	318.5 k	Hz	x dB		-26.	00 dB			
MSG							3			
						-				

GSM1900-1909.8MHz-GPRS 1Slot

XX RL RF 50 Q AC CORREC SENSE-PULSE ALIGN AUTO 12:35:12 PM Sep01, 2022 Frequence Center Freq 1.909800000 GHz Center Freq: 1.909800000 GHz Center Freq: 1.909800000 GHz Radio Std: None Radio Std: None #IFGain:Low #IFGain:Low #Atten: 18 dB Radio Device: BTS Center 10 dB/div Ref Offset 27 dB Center Center Center Center 250 Condition Center Center Center Center Center	су
Trig: Free Run Avg Hold: 100/100 #IFGain:Low #Atten: 18 dB Radio Device: BTS Ref Offset 27 dB 10 dB/div Ref 35.00 dBm	
Ref Offset 27 dB 10 dB/div Ref 35.00 dBm	
10 dB/div Ref 35.00 dBm	
25.0 Know nu work da Center	
15.0 1.90980000 5.00 1.90980000	0 GHz
5.00 Yth	
-25.0 WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW	
-35.0 × 1/2 · · · · · · · · · · · · · · · · · · ·	
-35.0 -45.0 www.www.www.www.www.www.www.www.www.w	
-55.0	
Center 1.91 GHz Span 1 MHz	
#Dec Bill 9.2 kHz #V/Bill 24 kHz Sween 14.27 mc CF	Step
Auto	Man
Occupied Bandwidth Total Power 33.7 dBm	
244.20 kHz Freq C	Offset
Transmit Freq Error 1.750 kHz OBW Power 99.00 %	0 Hz
x dB Bandwidth 314.9 kHz x dB -26.00 dB	
MSG Istatus	



UMTS BAND II-1852.4MHz-RMC

	Spectru	m Analyzer - Oc										
IXI RL		RF 50 Ω		RREC			100000 CL		LIGN AUTO	12:39:18P Radio Std	M Sep 01, 2022	Frequency
Cente	er Fr	eq 1.85240	JUUUU G			er Freq: 1.852 Free Run			100/100	Radio Std	: None	
			#1F	Gain:Low		n: 18 dB				Radio Dev	ice: BTS	
10 dB/	/div	Ref Offset Ref 35.0										
Log 25.0												Center Freq
15.0					0							1.852400000 GHz
5.00				m	wand own	water worke	and William					1.852400000 GH2
								٦				
-5.00 —				1/				H				
-15.0 —				/				H١	Www.	www.		
-25.0 —	m Ma	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Mar Marchan 1				-	\vdash		** · · · · · · · · · · · · · · · · · ·	\sim	
-35.0 🕰	1.0.10						_	\vdash				
-45.0 —							_					
-55.0												
I L												
		352 GHz 100 kHz			#	VBW 300	kHz				n 12 MHz p 1.2 ms	CF Step 1.200000 MHz
00	cup	ied Band	lwidth			Total	Power		29.2	dBm		<u>Auto</u> Man
			4.17	78 N	1Hz							Freq Offset
Tra	ansm	it Freq Err	ror	23.078	kHz	OBW	Power		99	.00 %		0 Hz
xd	IB Ba	andwidth		4.699	MHz	x dB			-26.	00 dB		
MSG										5		

UMTS BAND II-1880MHz-RMC

	um Analyzer - Occ											
Center Fr	RF 50 Ω eq 1.88000				E:PULSE reg: 1.88000	0000 GHz		LIGNAUTO	12:40:57 PM Radio Std:	4 Sep 01, 2022 None	Frec	uency
	04 1.00000		Gain:Low	Trig: Fre #Atten: 1		Avg Ho	ld:	100/100	Radio Dev	ice: BTS		
		#IFC	sain:Low	watten. h	0 40				Radio Dev			
10 dB/div	Ref Offset: Ref 35.00											
Log	Kei 33.00	JUDIII				<u> </u>						
25.0											Ce	nter Freq
15.0			7~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	wwwwww	www.	March Color					1.8800	00000 GHz
5.00			7				5					
-5.00			/				Y					
-15.0			/				1					
-25.0	www.www.www	$\sim \sim $						Jun Low Low	man			
-45.0	-way and the second									Www.dullwry		
-45.0												
-33.0												
Center 1.				-40 (1						n 12 MHz		CF Step
#Res BW	100 KHZ			#VE	300 k	HZ			Swee	p 1.2 ms		00000 MHz
Occup	ied Band	width			Total Pe	ower		29.3	dBm		Auto	Man
		4 15	61 MI	47							_	
											Fr	eq Offset
Transm	hit Freq Erro	or	18.475	кНz	OBW P	ower		99	0.00 %			0 Hz
x dB Ba	andwidth		4.675 N	/IHz	x dB			-26.	00 dB			
MSG									5			



UMTS BAND II-1907.6MHz-RMC

	ctrum Analyzer -									
(XI RL			DRREC		E:PULSE req: 1.9076	00000 CH-	ALIGN AUTC	12:41:58P Radio Std	M Sep 01, 2022	Frequency
Center	Freq 1.907	600000 G	Hz				d: 100/100	Radio Sta	: None	
		#1	FGain:Low	#Atten: 1		0.		Radio Dev	ice: BTS	
		set 27 dB								
10 dB/div		5et 27 dB								
Log										
25.0										Center Freq
15.0			~~~~	wathress of	mour	mannen.				1.907600000 GHz
5.00						1				
-5.00						· · · · · ·	۲			
-15.0							1			
			d				h			
-25.0 -35.0 ml	man	m	4				Vum	······		
ľ									www.hyh	
-45.0									Y	
-55.0										
Contor	1.908 GHz							Sna	n 12 MHz	
	W 100 kHz			#\/F	3W 300 I	kH7			p 1.2 ms	CF Step
									p	1.200000 MHz Auto Man
Occ	upied Bar	ndwidth			Total P	ower	29	.3 dBm		Auto Man
	••••		752 MI							
		4.1								Freq Offset
Tran	smit Freq E	rror	-13.121	kHz	OBW F	ower	ç	99.00 %		0 Hz
	Bandwidth		4.695 N	лu-	x dB		20	6.00 dB		
	Banuwiuun		4.095 h	nnz	хив		-20	uв		
MSG							I STAT	us		
							-			

UMTS BAND V-826.4MHz-RMC

	um Analyzer - Occ										
Center F	RF 50 Ω req 826.400				E:PULSE reg: 826.400	000 MHz	/	ALIGNAUTO	04:15:26 PM Radio Std:	4 Sep 01, 2022 None	Frequency
Contor I	04 020.400		Gain:Low	Trig: Fre #Atten: 1		Avg Ho	old:	100/100	Radio Dev	ice: BTS	
		#IFC	sain:Low	#Attent P	0 40				Radio Dev		
10 dB/div	Ref Offset: Ref 35.00										
Log 25.0											0
15.0					where we want						Center Freq 826.400000 MHz
5.00			and the second second	***********	አሳ ጉሌሳ ግራህ	- Contraction	λ.				828.400000 MIH2
-5.00			ſ				\mathbf{i}				
-15.0							Ì	1			
-25.0	102.0	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~						hy	~~~		
-35.0 - Argaded	when	www						Lann	www.le w.r	My Marine Marine	
-45.0											
-55.0											
Center 8	26.4 MHz								Spa	n 12 MHz	
#Res BW				#VE	300 k	Hz				p 1.2 ms	CF Step 1.200000 MHz
Occur	bied Band	width			Total P	ower		30.0) dBm		<u>Auto</u> Man
	Sied Balla		06 NAL	1-							
		4.17	95 MI	72							Freq Offset
Transn	nit Freq Erre	or	12.769 k	κHz	OBW P	ower		99	0.00 %		0 Hz
x dB B	andwidth		4.713 N	1Hz	x dB			-26.	00 dB		
MSG									6		



UMTS BAND V-836.4MHz-RMC

		trum Analyzer - Oo	cupied BW									
LXI R		RF 50 S		RREC		E:PULSE req: 836.400	000 MHz	ALIGN A	AUTO	04:16:44 Pf Radio Std:	4 Sep 01, 2022	Frequency
Cer	iterr	-req 836.40			🚽 Trig: Fre	e Run	Avg Hol	d: 100/1	00			
			#IF	Gain:Low	#Atten: 1	8 dB				Radio Dev	ice: BTS	
10 0	B/div	Ref Offse Ref 35.0										
Log												
25.0												Center Freq
15.0				mana		-	mon					836.400000 MHz
5.00				1				<u>۱</u>				
-5.00	<u> </u>			/				¥—				
-15.0	<u> </u>		-	/				<u> </u>				
-25.0		w	Marmon and and					<u> </u>	ᢣᡊᡗᡅ	war wardy	^{Mallow} and the states	
-35.0	1 mar	V 1.5									"WOUNG W	
-45.0												
-55.0												
		336.4 MHz / 100 kHz			#\/	3W 300 k	·H7				n 12 MHz p 1.2 ms	CF Step
777.0	3 04				#VI	500 N				JWCC	p 1.2 m3	1.200000 MHz
)ccu	pied Band	dwidth			Total P	ower		30.9	dBm		<u>Auto</u> Man
			4 19	96 M	H7							
			7.10	00 101	112							Freq Offset
т	rans	mit Freq Er	ror	10.957	kHz	OBW P	ower		99	.00 %		0 Hz
х	dB I	Bandwidth		4.700	MHz	x dB			-26.	00 dB		
MSG								П.	STATUS			
								- O				

UMTS BAND V-846.6MHz-RMC

Agilent Spectrum											
Center Fre	RF 50 Ω		EC		E:PULSE reg: 846.600	000 MHz	A	LIGN AUTO	04:18:31 Pf Radio Std:	4 Sep 01, 2022 None	Frequency
	<u>q 040.0000</u>		in:Low	Trig: Free #Atten: 1		Avg Ho	old:	100/100	Radio Dev	ice: BTS	
		#IFGa	in:Low	whiten. It	540				Radio Dev		
10 dB/div	Ref Offset 2 Ref 35.00										
Log			1								
25.0											Center Fred
15.0			hanna hanna		ᠳᡏᡐᡵᢪᡊᡃᡟᢑᢒᢦ᠇᠊ᡐᢛᢧ᠇	monny					846.600000 MHz
5.00		/	1				h				
-5.00							ł				
-15.0		· - > /						6			
-25.0	man and a start of the	Mar and a second						· Wwwwwww	mann	man a	
-45.0										1 224 22 (24)	
-45.0											
-55.0											
Center 846				<i>4</i> 0 (F						n 12 MHz	CF Step
#Res BW 1	IUU KHZ			#VE	300 k	HZ			Swee	p 1.2 ms	1.200000 MHz
Occupi	ed Bandw	/idth			Total P	ower		30.9	dBm		<u>Auto</u> Mar
		4.185	53 MI	47							
											Freq Offset
Transmi	it Freq Erro	r -1	5.904 I	кHz	OBW P	ower		99	0.00 %		0 Hz
x dB Ba	ndwidth		4.680 N	1Hz	x dB			-26.	00 dB		
1											
MSG								K STATUS	5		



5.4 BAND EDGE

5.4.1 MEASUREMENT METHOD

1. All out of band emissions are measured with an analyzer spectrum connected to the antenna terminal of the EUT while the EUT at its maximum duty cycle, at maximum power, and at the approximate frequencies. All data rates were investigated to determine the worst case configuration

2. The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

3. Start and stop frequency were set such that the band edge would be placed in the center of the plot.

4. Span was set large enough so as to capture all out of band emissions near the band edge.

5. RBW>1% of the emission bandwidth, VBW >=3 x RBW, Detector=RMS, Number of points>=2 x Span/RBW,

Trace mode=max hold, Sweep time=auto couple, and the trace was allowed to stabilize

5.4.2 PROVISIONS APPLICABLE

As Specified in FCC rules of 22.917(a), 24.238(a)and KDB 971168 D1 V03R01.

5.4.3 MEASUREMENT RESULT

Pass

Temperature	24.8 ℃	Humidity	58%
Test Engineer	Anna Hu		



GSM850-824.2MHz-Voice

	Spectrum	i Anal	yzer - Sw	ept SA									
Cente	er Fre	RF q 8	50 Ω 23.800	0000 MH	RREC Z		E:PULSE	#Avg Typ Avg Hold		TRA	M Sep 01, 2022 CE 1 2 3 4 5 1 PE MWWWWW	5	Frequency
10 dB/			Offset 27 30.00 (dB	NO: Wide Gain:Low	#Atten: 1				823.99	5 2 MHz 01 dBm	v 1	Auto Tune
20.0 - 10.0 -								/	N Contraction	ha			Center Freq 823.800000 MHz
-10.0 -20.0 -30.0										- North	-13.00 dBm	-	Start Freq 823.000000 MHz
-40.0 — -50.0 — -60.0 —	iliterenter	u an that	hand the state of	tytydrafui tyrtafu'i	ne geogramit	peinenessen ander after	AN A C				P V M		Stop Freq 824.600000 MHz
#Res	823.00 BW 6.	.2 kl	MHz Hz	×	#VE	3W 18 kHz*		ICTION FUI		3.000 s (6000 MHz (2001 pts)		CF Step 160.000 kHz <u>uto</u> Man
1 N 2 3 4 5 6 7 8 9 10 11				823.995	2 MHz	-17.001 dl							Freq Offset 0 Hz
MSG										5			

GSM850-848.8MHz-Voice

	um Analyzer - Swept SA								
Center Fi	RF 50 Ω AC req 849.200000		SENSE		#Avg Type Avg Hold:		TRAC	1 Sep 01, 2022 E 1 2 3 4 5 6 E M WWWWW	Frequency
10 dB/div	Ref Offset 27 dB Ref 30.00 dBm	PNO: Wide ↔ IFGain:Low	#Atten: 18				849.022	ANNNN	Auto Tune
		wide-yl							Center Freq 849.200000 MHz
-10.0 -20.0 -30.0	Mar and a second		1					-13:00 dBm	Start Freq 848.400000 MHz
-40.0 -50.0					trleisigen bis y start og for	Marina ang tang tang tang tang tang tang tan	՝՝ ի տրական դ stop 850.0	havraintellarainteellara	Stop Freq 850.000000 MHz
#Res BW			18 kHz*	FUNC		#Sweep	3.000 s (000 MHz 2001 pts)	CF Step 160.000 kHz <u>Auto</u> Man
MKB MODE TF 1 N 1 2 3 - 4 - - 6 - - 7 - - 8 - - 9 - - 10 - - 11 - -		9.022 4 MHz	-18.373 dB			ACTION WIDTH			Freq Offset 0 Hz
MSG							3		



GSM850-824.2MHz-GPRS 1Slot

	nt Spe	ctru	m An	alyz			SA														
الاس R Cer	nter	Fre	RF Pq 8		50 s 3.80						1	SE:PU			д Тур∢	ALIGN AUTO e: RMS 10/10	T	RACE	ep 01, 2022 1 2 3 4 5 MWW/WW	6	Frequency
10 4	B/div				set 2 0.00				0: Wi ain:L	de ↔ ow	#Atten: 1			0181			823.9	DET /	ANNNN	N Z	Auto Tune
20.0 10.0		v	Ke												M	al and a second					Center Freq 823.800000 MHz
-10.0 -20.0 -30.0														● ¹ 1 ////	4			17 1 y	13:00 dBn	- -	Start Freq 823.000000 MHz
-40.0 -50.0 -60.0	-	ni M	hir þr fi	,	ماروندورانه	M		** #	ter ter		in the state of th	n fr	1							4	Stop Freq 824.600000 MHz
#Re	rt82 esB	W 6	i.2 I	۲					#	¢VBW	18 kHz*	:				#Sweep		s (20	001 pts)	CF Step 160.000 kHz <u>Auto</u> Man
1 2 3 4 5 6 7 8 9 10 11	N		f			8	× 323.9	77 6	MH		-18.168 c	IBm.	FUN					CTION			Freq Offset 0 Hz
MSG																	6				

GSM850-848.8MHz-GPRS 1Slot

Agilent Spectrum Analyzer - Swept SA				
XX RL RF 50 Ω AC CORREC Center Freq 849.200000 MHz		ALIGNAUTO #Avg Type: RMS Avg Hold: 10/10	12:23:30 PM Sep 01, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWWW	Frequency
IFGair Ref Offset 27 dB			849.028 0 MHz	Auto Tune
10 dB/div Ref 30.00 dBm			-19.453 dBm	Center Freq 849.200000 MHz
-20.0				Start Freq 848.400000 MHz
-30.0 -40.0 -50.0	Martin Martin Martin Martin Martin Martin			Stop Freq 850.000000 MHz
-60.0 Start 848.4000 MHz #Res BW 6.2 kHz	#VBW 18 kHz*		אין	CF Step 160.000 kHz
MKR MODE TRC SCL X 1 N 1 f 849.028 0 M	Y FUNCT	-	FUNCTION VALUE	Auto Man
2 3 4 5 6				Freq Offset 0 Hz
7 8 9 10 11				
MSG	ini		\$	



GSM1900-1850.2MHz-Voice

Agilen	nt Sp	ectr	um /	Ana	lyzer	- Sw	ept S	A																			
Cen		r Fr		RF		50 Ω 980	да 000	-		z] _,	ig: Fre	E:PUL			#Avg T Avg He	Гуре			12		ACE	ep 01, 1 2 3 M WM	45	6	Frequency
10 di Log	B/di	iv			Offse 30.					0: W ain:L	ide ↔ .ow		tten: 1						Mkr	11			DET 97	6 G	Hz		Auto Tune
20.0 10.0 0.00																+			/***	-tay	144. L						Center Fred 1.849800000 GH2
-10.0 -20.0 -30.0															 	pr Maria	●1/=						\)0 dDn		Start Fred 1.849000000 GH2
-40.0 -50.0 -60.0	****	04-1 ⁴	***	****	****	ور مراجع	a separat		Maratika	#####	u di pisto di sedi di	₩	ng lyse of	-		+								- The second sec	h _{uhuha}		Stop Fred 1.850600000 GH2
Star #Re	s B	sw	6.2	2 k		Hz		×		#	¢νв₩	18	kHz*		FII	NCTIL	אח		#Swe	ep		1.850 00 s	(20	001			CF Step 160.000 kHz Auto Mar
1 2 3 4 5 6 7 8 9	N			f				49 99	97 6	GH		-20	.043 dl	3m													Freq Offse 0 H;
10 11 <																			r 🔊	TATUS	5				>		

GSM1900-1909.8MHz-Voice

Agilent Spectrum Analyzer - Swept SA					
XX RL RF 50Ω AC Center Freq 1.910200000		sense:pulse	ALIGNAUTO #Avg Type: RMS Avg Hold: 10/10	12:29:26 PM Sep 01, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWWW	Frequency
Ref Offset 27 dB 10 dB/div Ref 30.00 dBm		tten: 18 dB		.910 023 2 GHz -22.447 dBm	Auto Tune
20.0 10.0 0.00	with the				Center Freq 1.910200000 GHz
-10.0 -20.0 -30.0				-13:00 dDm	Start Freq 1.909400000 GHz
-40.0 -50.0 -60.0		******	lan a fear for the state of the	10-7461-047161-164-164-164-164-164-164-164-164-164-	Stop Freq 1.911000000 GHz
Start 1.9094000 GHz #Res BW 6.2 kHz	#VBW 18		St #Sweep	op 1.9110000 GHz 3.000 s (2001 pts)	CF Step 160.000 kHz <u>Auto</u> Mar
	023 2 GHz -22.	447 dBm			Freq Offset 0 Hz
MSG				5	



	ectrum Analyze	r - Swept SA								
(X) RL Center	RF Freq 1.84	9800000 GI			PULSE	#Avg Typ Avg Hold		TRAC	4 Sep 01, 2022 CE 1 2 3 4 5 6 PE M WWWWWW	Frequency
10 dB/di			NO: Wide ↔ Gain:Low	#Atten: 18				₀ .849 99	7 6 GHz 22 dBm	Auto Tune
20.0 10.0							i for the state of	White a		Center Freq 1.849800000 GHz
-10.0 -20.0 -30.0					J.			- No.	-13.00 dDm	Start Freq 1.849000000 GHz
-40.0 -50.0 -60.0	4	Ungerstrand for provide the state	ender vir eine der	un and the second s					- Marken Market	Stop Freq 1.850600000 GHz
Start 1.	.8490000 G W 6.2 kHz	SHz ×		N 18 kHz*		ICTION FU	St #Sweep	3.000 s (5000 GHz 2001 pts)	CF Step 160.000 kHz <u>Auto</u> Man
N 2 3 3 4 5 6 7 8 9 10 11 10 11 11		1.849 997	6 GHz	-23.022 dE						Freq Offset 0 Hz
MSG								5		

GSM1900-1909.8MHz-GPRS 1Slot

Agilent Spectrum Analyzer - Swept SA					
KE RF 50 Ω AC Center Freq 1.910200000	GHz	E:PULSE #Avg Typ e Run Avg Hold	e: RMS	51 PM Sep 01, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWWW	Frequency
Ref Offset 27 dB	PNO: Wide 🗭 Trig: Free IFGain:Low #Atten: 18		Mkr1 1.910 (DETANNNN	Auto Tune
10 dB/div Ref 30.00 dBm 20.0 10.0					Center Freq 1.910200000 GHz
-10.0				-1 3:00 dBm	Start Freq 1.909400000 GHz
-40.0 -50.0 -60.0		****	, A, A, A, A, A, A , A , A , A , A , A	unija ili ili ili ili ili ili ili ili ili il	Stop Freq 1.911000000 GHz
Start 1.9094000 GHz #Res BW 6.2 kHz MKR MODE TRC SCL ×	#VBW 18 kHz*	FUNCTION FU	#Sweep 3.000	· · /	CF Step 160.000 kHz <u>Auto</u> Man
	22 4 GHz -22.687 dE				Freq Offset 0 Hz
MSG	•		STATUS		



UMTS BAND II-1852.4MHz-RMC

	rum Analyzer - Swe							
Center F	RF 50 Ω req 1.84740		SENSE:PULS	#Avg Typ		TRAC	M Sep 01, 2022 CE 1 2 3 4 5 6 PE M WWWWW	Frequency
10 dB/div	Ref Offset 27 Ref 30.00 (#Atten: 18 dB	n Avginoid.		□ 1 1.849	75 GHz 09 dBm	Auto Tune
20.0 10.0								Center Freq 1.847400000 GHz
-10.0 -20.0 -30.0				1		h	-13:00 dBm	Start Freq 1.837400000 GHz
-40.0 -50.0 -60.0								Stop Freq 1.857400000 GHz
Start 1.83 #Res BW	75 kHz	#VE ×	3W 220 kHz*		#Sweep	3.000 s (5740 GHz 2001 pts)	CF Step 2.000000 MHz <u>Auto</u> Man
1 N 2 3 4 5 6 7		1.849 75 GHz	-27.509 dBm					Freq Offset 0 Hz
8 9 10 11 <			Ed.		K STATUS	\$	×	

UMTS BAND II-1907.6MHz-RMC

	rum Analyzer - Swej								
Center F	RF 50 Ω req 1.91260			PULSE	#Avg Typ Avg Hold		TRAC	1 Sep 01, 2022 E 1 2 3 4 5 6 E MWWWWW	Frequency
10 dB/div	Ref Offset 27 Ref 30.00 d		#Atten: 18				□ 1 1.910	06 GHz 03 dBm	Auto Tune
20.0 10.0									Center Fred 1.912600000 GHz
-10.0 -20.0 -30.0			1					-13.00 dDm	Start Fred 1.902600000 GHz
-40.0 -50.0 -60.0					*		· · · · · · · · · · · · · · · · · · ·		Stop Fred 1.922600000 GH
Start 1.90 #Res BW	75 kHz	#VB	W 220 kHz*		TION FU	#Sweep	3.000 s (260 GHz 2001 pts)	CF Stej 2.000000 MH <u>Auto</u> Ma
1 N 1 2 3 4 5 6 7 7 8 9		1.910 06 GHz	-35.103 dE	3m					Freq Offse 0 H:
10 11 <			m			I STATUS	\$	>	



UMTS BAND V-826.4MHz-RMC

	rum Analyzer - Sv							
Center F	RF 50 1 50 1 50 1	0000 MHz	SENSE:PU	#Avg	ALIGNAUTO Type: RMS Iold: 10/10	TRAC	M Sep 01, 2022 CE 1 2 3 4 5 6 PE M WWWWWW	Frequency
10 dB/div	Ref Offset 2 Ref 30.00					⊳ kr1 823.	ET A N N N N N	Auto Tune
20.0 10.0					,			Center Freq 821.400000 MHz
-10.0 -20.0 -30.0				1		\downarrow	-13.00 dBm	Start Freq 811.400000 MHz
-40.0 -50.0 -60.0		<u> </u>					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Stop Freq 831.400000 MHz
Start 811 #Res BW	75 kHz	×	BW 220 kHz*	FUNCTION	#Sweep	3.000 s (1.40 MHz 2001 pts)	CF Step 2.000000 MHz <u>Auto</u> Man
1 N 2 3 4 5 6 7 7 8 9 10 11		823.88 MHz	-27.081 dBm					Freq Offset 0 Hz
MSG					🚺 STATU	JS		

UMTS BAND V-846.6MHz-RMC

	n Analyzer - Swep	ot SA								
Center Fre	RF 50 ລ ຊ 851.6000		I]	:PULSE	#Avg Ty Avg Hol		TRAC	1 Sep 01, 2022 E 1 2 3 4 5 6 E MWWWWW	Frequency
10 dB/div	Ref Offset 27 c Ref 30.00 dl	IFGair JB	:Fast ↔►→ n:Low	#Atten: 18				⊳ kr1 849.		Auto Tune
20.0 10.0			~							Center Freq 851.600000 MHz
-10.0 -20.0 -30.0									-13.00 dBm	Start Freq 841.600000 MHz
-40.0					m have					Stop Freq 861.600000 MHz
Start 841.6 #Res BW 7	5 kHz	×		220 kHz*	FUN		#Sweep	3.000 s (1.60 MHz 2001 pts) NVALUE	CF Step 2.000000 MHz <u>Auto</u> Man
1 N 1 2 3 4 5 6 7	f	849.12 N		-30.781 dE	3m				I	Freq Offset 0 Hz
8 9 10 11 < MSG				HTTI			K STATU:	5	×	



5.5 SPURIOUS EMISSION

5.5.1 CONDUCTED SPURIOUS EMISSION

5.5.1.1 MEASUREMENT METHOD

The following steps outline the procedure used to measure the conducted emissions from the EUT. 1. The level of the carrier and the various conducted spurious and harmonic frequency is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the approximate frequencies. All data rates were investigated to determine the worst case configuration.

2. Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the equipment of PCS1900 band, this equates to a frequency range of 30 MHz to 19.1 GHz, data taken from 30 MHz to 20 GHz. For GSM850, data taken from 30 MHz to 9 GHz.

3. Determine EUT transmit frequencies: the following typical channelswere chosen to conducted emissions testing.

Typical Channels for testing of GSM 850								
Channel	Frequency (MHz)							
128	824.2							
190	836.6							
251	848.8							

Typical Channels for testing of PCS 1900							
Channel	Frequency (MHz)						
512	1850.2						
661	1880.0						
810	1909.8						



Typical Channels for testing of UMTS band II							
Channel	Frequency (MHz)						
9262	1852.4						
9400	1880						
9538	1907.6						

Typical Channels for	or testing of UMTS band V
Channel	Frequency (MHz)
4132	826.4
4182	836.4
4233	846.6

5.5.1.2 PROVISIONS APPLICABLE

On any frequency outside frequency band of the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

5.5.1.3 MEASUREMENT RESULT

Pass

Temperature	24.8 °C	Humidity	58%
Test Engineer	Anna Hu		



GSM850-824.2MHz-Voice@30mHz-1GHz@Pass

		ctru		alyzer - Sw														
Cen		Fre	RF q (AC 0			SENSE				Туре	ALIGN AUTO : RMS 100/100			M Sep 01, 2 CE 1 2 3 4 PE M W/W/W	56	Frequency
10 di	B/div			Offset 27	7 dB	PNO: Fast IFGain:Lov		#Atten: 24						kr	[.] 1 877.	et P N N N	Hz	Auto Tune
Log 25.0 15.0 5.00																		Center Freq 515.000000 MHz
-5.00 -15.0 -25.0															1	-13.00		Start Freq 30.000000 MHz
-35.0 -45.0 -55.0			High and a second s	falsjer fil filisjer								Aulung	un an the standing billion in					Stop Freq 1.000000000 GHz
Star #Re:	s B	W 1	.0 P	VIHz	×		/BW	3.0 MHz		FUNC	CTION		weep 1.3		<u> </u>			CF Step 97.000000 MHz <u>Auto</u> Man
1 2 3 4 5 6 7 8 9 10 11	N	1	f		877	.05 MHz		-29.237 dE	3m									Freq Offset 0 Hz
MSG			I	1							1			s				

GSM850-824.2MHz-Voice@1GHz-9GHz@Pass

Agilent Spectrum Analy					
Center Fred 5	50 Ω AC CORREC	SENSE:PULSE	ALIGNAUTO #Avg Type: RMS	12:13:49 PM Sep 01, 2022 TRACE 1 2 3 4 5 6	Frequency
Ref O	PNO: Fas IFGain:Lo ffset 27 dB 20.00 dBm		AvgjHold: 100/100	түре Милини Det P NNNNN kr1 2.666 0 GHz -25.416 dBm	Auto Tune
10.0 0.00 -10.0				-13.00 dDm	Center Freq 5.000000000 GHz
-20.0 -30.0 -40.0			in you you ha had baar an a far you ha ha you ha ha you ha ha you ha ha you ha		Start Freq 1.000000000 GHz
-50.0					Stop Freq 9.000000000 GHz
Start 1.000 GHz #Res BW 1.0 MI		/BW 3.0 MHz	Sweep 1	Stop 9.000 GHz 3.33 ms (20001 pts)	CF Step 800.000000 MHz <u>Auto</u> Man
1 N 1 f 2 - - - - 3 -	2.666 0 GHz	-25.416 dBm			Freq Offset 0 Hz
10			STAT	us	



GSM850-836.6MHz-Voice@30mHz-1GHz@Pass

Agilen		ectru				ept SA														
Cen		· Fr	RF eq		50 Ω .000	AC	M⊢				1	ENSE:PU		Туре	ALIGN AUTO e: RMS 100/100	1	TRA	M Sep 01, : CE <u>1</u> 2 3 PE M WWW	456	Frequency
10 d	B/di			f Offs f 35					: Fast in:Lov		#Atten			1010.			876.	91 M 92 dE	Hz	Auto Tune
Log 25.0 15.0 5.00																				Center Freq 515.000000 MHz
-5.00 -15.0 -25.0																	1	-13.00		Start Freq 30.000000 MHz
-35.0 -45.0 -55.0			di jule						i i i i i i i i i i i i i i i i i i i		unu yuhahan						i haritata			Stop Freq 1.000000000 GHz
Star #Re	sВ	w	1.0	MHz			< 876.			/BW	3.0 MI		CTION		weep 1.	333) ms (2	0000 G 0001 j 0004UE		CF Step 97.000000 MHz <u>Auto</u> Man
1 2 3 4 5 6							070.	911			-29.092	авт								Freq Offset 0 Hz
7 8 9 10 11																				
MSG															I o statu	s			>	

GSM850-836.6MHz-Voice@1GHz-9GHz@Pass

	um Analyzer - Swept	SA						
Center Fr	RF 50 Ω		SENSE:PULS	E #Avg Type	ALIGN AUTO e: RMS	12:14:21 PM 9 TRACE	ep01,2022	Frequency
10 dB/div	Ref Offset 27 dl	PNO: Fast ↔ IFGain:Low B	, ⊐ Trig: Free Run #Atten: 24 dB	Avg Hold:		r1 6.294 -25.83		Auto Tune
10.0 0.00							-13:00 dBm	Center Freq 5.000000000 GHz
-20.0 -30.0 -40.0								Start Freq 1.000000000 GHz
-50.0 -60.0 -70.0								Stop Freq 9.000000000 GHz
Start 1.00 #Res BW	1.0 MHz	#VBV	√ 3.0 MHz		weep 13.	Stop 9.0 .33 ms (20 FUNCTION	001 pts)	CF Step 800.000000 MHz <u>Auto</u> Man
1 N 1 2 3 4 5 6 7 8 9		6.294 8 GHz	-25.837 dBm					Freq Offset 0 Hz
10 11 MSG			illi		To STATUS		×	



GSM850-848.8MHz-Voice@30mHz-1GHz@Pass

		ectru	m Ar	nalyze	er - Swe	ept S/	1														
<mark>⊮</mark> ℝ Cen		· Fr	RF eq		50 Ω 5.000		MH				1	ENSE:F			<u>д</u> Тур	ALIGN AUTO e: RMS : 100/100	12:	TRA	4 Sep 01, 20 E 1 2 3 4 PE M W/W/M	56	Frequency
10 d	B/di	iv			set 27 5.00 (IF		: Fast in:Lov		#Atten							₀ 408.	30 MH 33 dB	N N	Auto Tune
Log 25.0 15.0 5.00																					Center Freq 515.000000 MHz
-5.00 -15.0 -25.0										•	1								-13.00 d	18m	Start Freq 30.000000 MHz
-35.0 -45.0 -55.0		H.M.	i i i i i i i i i i i i i i i i i i i										ini i televile								Stop Freq 1.00000000 GHz
Star #Re	s B	SW 1	1.0	MH:	z		×			/BW	3.0 M			NCTION		weep 1.3	333 I	ms (2	0000 GH 0001 p1		CF Step 97.000000 MHz <u>Auto</u> Man
1 2 3 4 5 6 7 8 9 10 11	N		f				408.	30 1	MHz		-29.533	3 dBr	n								Freq Offset 0 Hz
MSG																	s				·

GSM850-848.8MHz-Voice@1GHz-9GHz@Pass

	um Analyzer - Swej	ot SA							
Center F	RF 50 Ω req 5.00000			NSE:PULSE	#Avg Type Avg Hold:		TRAC	4 Sep 01, 2022 E 1 2 3 4 5 6 E MWWWWW	Frequency
		IFGain:			Avginoid.		DI	TP NNNN B 0 GHz	Auto Tune
10 dB/div	Ref Offset 27 Ref 20.00 d							51 dBm	
10.0									Center Freq
-10.0								-13:00 dDm	5.00000000 GHz
-20.0	مرادر والمرادر المرادر المراد				ى جاء بوغان ، بر ب المؤلفان بر ا	والمحتان وبال فعنادية بالتعادية	والمراجع ومعتقد والمعاوم والمعاومة والم	dhid sikiki	Start Freq
-40.0						a normality of the last of the			1.000000000 GHz
-50.0									Stop Freq
-70.0									9.000000000 GHz
Start 1.00 #Res BW			#VBW 3.0 MH	17	s	weep 13		.000 GHz 0001 pts)	CF Step 800.000000 MHz
MKR MODE TH	RC SCL	×	Y	FU		NCTION WIDTH			<u>Auto</u> Man
1 N 1 2 3	f	3.168 0 GH	Hz -25.851	aBm					Freq Offset
4 5 6								=	0 Hz
7 8									
9 10 11									
MSG							5		



GSM1900-1850.2MHz-Voice@30mHz-1GHz@Pass

Agilent Spec	trum Ana	ılyzer - Swej	ot SA									
(X) RL Center	Freq 5	50 Ω 515.000	AC COR	:		SE:PULS		#Avg Ty AvaiHal	ALIGNAUTO pe: RMS d: 100/100	TRA	M Sep 01, 2022 CE 1 2 3 4 5 6 PE M WWWWW	Frequency
10 dB/div		Offset 27	dB	10: Fast Sain:Low	#Atten:					□ 1kr1 893.	ET P N N N N N	Auto Tune
Log 10.0 0.00											-13.00 dBm	Center Freq 515.000000 MHz
-20.0 -30.0 -40.0	(Weither School of		t Berne The party <mark>data berne (</mark> af social 10 ker 19 an de se de secie data data data data data data data dat					ing of the init			1	Start Freq 30.000000 MHz
-50.0 -60.0 -70.0												Stop Freq 1.000000000 GHz
Start 30. #Res BV	V 1.0 N		×	#V	BW 3.0 MH	z	FUNC		Sweep 1	.333 ms (2	0000 GHz 0001 pts)	CF Step 97.000000 MHz <u>Auto</u> Man
1 N 2 3 4 5 6 7	1 f		893.06	5 MHz	-29.266 (JBm						Freq Offset 0 Hz
8 9 10 11 <									I A STAT		×	

GSM1900-1850.2MHz-Voice@1GHz-7GHz@Pass

Agilent		trur		alyze			SA														
LXI RL			RF		50 :		AC	COR			SE	ENSE:P	ULSE		ALIGN A		12:27		Sep 01, 2		Frequency
Cent	ter	Fre	q 2	1.0	000	000	000	PN	Z 10: Fa ain:L	st ⊶⊷ ow	Trig: F #Atten			vg Tyj vg Holo	oe: RMS 1: 5/5	5		TYP	E 1 2 3 E M WWW T A N N I	~~~~	
10 dE	3/div				set 2 5.00											Mk			2 8 G 34 dE		Auto Tune
Log 15.0 5.00																					Center Freq 4.000000000 GHz
-15.0 -25.0 -35.0							تاریخ د چند			● ¹				 					-13.00) dBm	Start Freq 1.000000000 GHz
-45.0 -55.0 -65.0																				_	Stop Freq 7.000000000 GHz
Star #Res	s BV	V 1	.0 P		z				#	vвw	3.0 M	Hz*			#Swe	<u> </u>	.000	s (20	000 G 0001 p		CF Step 600.000000 MHz <u>Auto</u> Man
			f				× 3.	182 8	3 GH:		-34.334	dBn					FL	37RE1 11U			Freq Offsel 0 Hz
MSG															1 08	STATUS					



GSM1900-1850.2MHz-Voice@7GHz-13.6GHz@Pass

Agilent Spee			pt SA								
(X∥ RL Center	Freq '	50 Ω 10.3000	00000 G	RREC			#Avg Tyj	ALIGNAUTO ce: RMS d: 100/100	TRA	M Sep 01, 2022 CE 1 2 3 4 5 6 PE M WWWWWW	Frequency
10 dB/div		Offset 27	dB	NO: Fast + Gain:Low	#Atten: 2				□ 12.788	20 GHz 26 dBm	Auto Tune
		20.00 0								-13:00 dBm	Center Freq 10.30000000 GHz
-20.0 -30.0 (mul) -40.0					nation das sur y la statistication 1989 - Constanting and a statistication			Ta i a li ka ika ili majindir Ngang yawa ya pa panta we			Start Freq 7.00000000 GHz
-50.0 -60.0 -70.0											Stop Freq 13.60000000 GHz
Start 7.0 #Res BV	n 1.0 ľ	MHz	×		W 3.0 MHz	F		Sweep 12	2.00 ms (2	.600 GHz 0001 pts) IN VALUE	CF Step 660.000000 MHz <u>Auto</u> Man
1 N 2 3 4 5 6 7 8 9 9 9 10 11			12.788 2		-25.526 dl	3m					Freq Offset 0 Hz
MSG		•				•		I STATU:	s		

GSM1900-1850.2MHz-Voice@13.6GHz-20GHz@Pass

		ctrui		alyzer -	Swept	SA										
lxi R			RF				CORREC		SENSI	E:PULSE			ALIGN AUTO		M Sep 01, 2022	Frequency
Cen	iter	Fre) pe	16.80	000	0000	GHz		Trig: Free				e: RMS : 100/100		CE 1 2 3 4 5 6 PE M WWWWW	
							PNO: F IFGain:	ast 🔸	#Atten: 24			vginoid	. 100/100		PNNNN	
_							iroain.	-0w	ar iteerin 2							Auto Tune
			Ref	Offset	27 di	в							Mkr1		72 GHz	
	B/div	,	Ref	f 20.0	0 dE	Sm								-20.0	00 dBm	
Log																
10.0			-													Center Freq
0.00			_													16.800000000 GHz
-10.0															10.00 /0	
														 ↓-	-13.00 dDm	
-20.0			-					رادىر يە	ادار مطافحات خطافين			بمانق ا ر		والمتحافظ المتعادية	اللولاني ومروقة فالمتلحظ	Start Freq
-30.0	1		الأربيها	ي الأربية العربية. ولي الأربية العربية	والمادي	A hele a			ويقيب والمحمد والمراجع	in the second second		an a states				13.60000000 GHz
-40.0																13.00000000 GHZ
-50.0																01
-60.0			_													Stop Freq
-70.0																20.000000000 GHz
10.0																
Sta	t 13	60	ດ ດ	Hz										Ston 20).000 GHz	CF Step
#Re							:	#VBW	3.0 MHz			S	ween 16		20001 pts)	640.000000 MHz
														,		Auto Man
	MODE	TRC				×			Y		FUNCTIO	N FU	NCTION WIDTH	FUNCT	ION VALUE	<u>Auto</u> mun
<u>1</u> 2	N	1	f			19.040	6 72 GH	IZ	-20.000 di	3m						
3												-				Freq Offset
4																0 Hz
5 6								_							=	
7								-								
8																
9								_								
10 11																
<			I	1				-				_		1	>	
MSG													I statu	s		
mod													SIAIO	Ŭ		



GSM1900-1880MHz-Voice@30mHz-1GHz@Pass

<u> </u>		ctru	n An	alyzer - Sw	ept SA													
<mark>ιχι</mark> ℝ Cen		Fre	RF q (្រច 515.00					SENSE				Туре	ALIGN AUTO : RMS 100/100	TRA	M Sep 01, 2022 .CE 1 2 3 4 5 ('PE M WWWWW	5	Frequency
10 di	B/div			Offset 23			10: Fast Sain:Lov		#Atten: 24			1810	1014.		r1 791.	89 MHz 13 dBm	⊻	Auto Tune
Log 10.0 0.00 -10.0																-13.00 dBm		Center Freq 515.000000 MHz
-20.0 -30.0 -40.0					ki na ni ini		di la	ludiyal Y	a la face a the second and the second at t	lenetel	henistie lty		i i i i i i i i i i i i i i i i i i i			yl-sar halfstar (fr. , fr. far post generation yr frang (fr. fran f		Start Freq 30.000000 MHz
-50.0 -60.0 -70.0																		Stop Freq 1.000000000 GHz
Star #Re	s B	W 1	0.	٧Hz	×			/BW	3.0 MHz		FUNC	CTION		weep 1.3	333 ms (2	0000 GHz 20001 pts; 001 value		CF Step 97.000000 MHz Auto Man
1 2 3 4 5 6 7 8 9 10 11	N	1	f			791.89) MHz		-28.813 dE	3m								Freq Offset 0 Hz
MSG																		

GSM1900-1880MHz-Voice@1GHz-7GHz@Pass

Agilent Spectrum Analyzer - Swept SA					
RL RF 50 Ω AC Center Freq 4.000000000 C C C C	GHz	NSE:PULSE #Avg Typ	e: RMS TRA	M Sep 01, 2022 CE 1 2 3 4 5 6	Frequency
Ref Offset 27 dB	PNO: Fast +++ Trig: F	iree Run Avg Hold : 24 dB		4 9 GHz 66 dBm	Auto Tune
15.0 5.00					Center Freq 4.00000000 GHz
-15.0 -25.0 -35.0	1 			-13.00 dBm	Start Freq 1.000000000 GHz
-45.0 -55.0 -65.0					Stop Freq 7.00000000 GHz
Start 1.000 GHz #Res BW 1.0 MHz	#VBW 3.0 MI		#Sweep 1.000 s (2		CF Step 600.000000 MHz Auto Man
	184 9 GHz -34.366	dBm			Freq Offset 0 Hz
MSG			STATUS		



GSM1900-1880MHz-Voice@7GHz-13.6GHz@Pass

Agilent Spect	rum Analyz	zer - Swep	ot SA									
Center F	RF req 10	50 Ω .30000		Hz		SE:PULSE		#Avg Tyj	ALIGNAUTO ce: RMS d: 100/100	TRA	M Sep 01, 2022 CE 1 2 3 4 5 6 PE M WWWWW	Frequency
		ffset 27 d	dB	10: Fast Sain:Low	#Atten:			Avgirion		^₀ 13.361	74 GHz	Auto Tune
10 dB/div Log 10.0	Ref 2	20.00 dl	Bm							-25.3	35 dBm	Center Freq
-10.0											<u>-13:00</u> dBm_ ▲1	10.30000000 GHz
-30.0 4000		u li et tidde.			ada dinaka di sedari anna di se kasend Angang segara sera di se kasend		it, itt lie av		ali, waa sa sa sa sa sa lahihi			Start Freq 7.000000000 GHz
-50.0 -60.0 -70.0												Stop Freq 13.60000000 GHz
Start 7.0 #Res BW		łz		#VI	3W 3.0 MH	z		5	Sweep 12		.600 GHz 0001 pts)	CF Step 660.000000 MHz Auto Man
MKR MODE 1 1 N 2	nc scu 1 f		× 13.361 74	4 GHz	-25.335 c	lBm	FUNC	TION FL	INCTION WIDTH	FUNCTI	DN VALUE	
3 4 5 6												Freq Offset 0 Hz
7 8 9 10												
11 MSG					1001				I o statu	s	>	

GSM1900-1880MHz-Voice@13.6GHz-20GHz@Pass

		ctru		alyzer		pt SA													
LXI R		_	RF		50 Ω	AC	CORRE			SENS	E:PULSE				LIGN AUTO		OPM Sep 01,		Frequency
Cen	ter	Fre	ed .	16.8	000	0000	0 GH	lz		Trig: Free	Dun				: RMS 100/100	1	RACE 1 2 3 TYPE MWW		Trequency
): Fast in:Low		#Atten: 24			CT AIL		1007100		DET P N N	NNN	
<u> </u>															B d Lund	40.00	<u></u>		Auto Tune
				Offse											IVIKET		3 20 G		
10 d	B/di∖	/	Re	f 20.(00 d	IBm										-20.	437 di	smj	
Log																			
10.0			-																Center Freq
0.00																		_	16.80000000 GHz
-10.0																	42.0	d d D m	
			-													⊢ ♦ ' ·	-13.0	Jubin	
-20.0			-				1.0.1	. دد اطالمد	م. فيدن	محوط فأحدوه فأعو خفاعال	-		الاربية والأرد	وراليعين	ير الاندارية .	a la se la se	والإعادة والعاري		Start Freq
-30.0	, 1		h, d	يىل بالايە يا مەرب ب	le de la composición de la composi Composición de la composición de la comp				Mar	يا – بريميا ويتحدث او <u>ب</u>					the state of the state of the state	1 mar 1	· · · · · · · · · · · · · · · · · · ·	- 447 - 41	13.60000000 GHz
-40.0																			10.0000000000000
-50.0																			Stop Freq
-60.0			-															_	
-70.0																			20.00000000 GHz
Star	t 13	3.60	10 G	Hz												Stop	20.000 C	Hz	CF Step
#Re	s Bl	W 1	.0	VIHz				#VI	BW :	3.0 MHz				S١	veep 16				640.000000 MHz
																	<u> </u>		Auto Man
MKR 1	NODE		SCL f			X 40.0	02.00			Y 00.427.40	2	FUNC	TION	FUN	CTION WIDTH	FUN	CTION VALUE	^	
2	N	1	T			19.0	03 20	GHZ	-	20.437 dE	sm							-	
3																			Freq Offset
4																		_	0 Hz
5																		=	
7																		_	
8																			
9		-																_0	
11																		-	
<										Ш								>	
MSG																s			
															-				



GSM1900-1909.8MHz-Voice@30mHz-1GHz@Pass

9		ctrur		alyzer - Sv	vept SA														
Cen		Fre	RF q (50 s 515.00					1	E:PULS			Туре	ALIGN AUTO : RMS 100/100		TRACE	ep 01, 202 1 2 3 4 5 M WWWW	6	Frequency
10 dE	B/div			Offset 2		PNC IFGa	0: Fast ain:Lov	v - • - ·	#Atten: 24			יופיס	1014.		kr1 87 -29	DET	PNNNN	N Z	Auto Tune
Log 10.0 0.00 -10.0																	-13.00 dB		Center Freq 515.000000 MHz
-20.0 -30.0 -40.0	leniiyii		idd ysh				i in the second se	i liliyiyi		Mariata	de se de la constante de la consta	(**********				•1- •	hin and a bha		Start Freq 30.000000 MHz
-50.0 -60.0 -70.0																			Stop Freq 1.000000000 GHz
Star #Re:	s Bl	N 1	.0 I	MHz	X		#V	вw	3.0 MHz		FUN	וחוד		weep 1.	333 ms		· ·	5)	CF Step 97.000000 MHz Auto Man
1 2 3 4 5 6	N	1	f			877.25	MHz		-29.201 di	3m									Freq Offset 0 Hz
7 8 9 10 11																		-	
MSG														🚺 STATU	s				

GSM1900-1909.8MHz-Voice@1GHz-7GHz@Pass

Agilent Spect												
Center F	RF	50Ω AC			SENSE:	PULSE	#Ava	ALIGN AU Type: RMS	TO 1		4 Sep 01, 2022 E 1 2 3 4 5 6	Frequency
	164 4.00	000000	PNO: Fast IFGain:Lov		Trig: Free #Atten: 24			lold: 5/5		TYF DE		Auto Tune
10 dB/div		set 27 dB , 00 dBm							Mkr1	3.184 -34.60	16 GHz 01 dBm	Auto Tune
15.0 5.00												Center Freq 4.000000000 GHz
-5.00 -15.0 -25.0 -35.0				↓ 1-							-13.00 dBm	Start Freq 1.000000000 GHz
-45.0												Stop Freq 7.00000000 GHz
Start 1.0 #Res BW	/ 1.0 MHz			/BW	3.0 MHz*				p 1.00	00 s (2	.000 GHz 0001 pts)	CF Step 600.000000 MHz Auto Man
MKR MODE 1 1 N 2 3 4 5 6 7 7 8 9 10 11 1 4 5 6 7 8 9 10 11 1 1 1 1 1 1 1 1 1 1 1 1		×	3.184 6 GHz		-34.601 dB			FUNCTION WI		FUNCTIL		Freq Offset 0 Hz
MSG								К <mark>о</mark> зт	TATUS			



GSM1900-1909.8MHz-Voice@7GHz-13.6GHz@Pass

		ectrur	n Ana	alyzer - Sw	ept SA												
⊩ <mark>الان</mark> neCer		Fre	RF q 1	50 Ω				SENSE				Туре	ALIGN AUTO : RMS 100/100	TRA	M Sep 01, 2022 CE 1 2 3 4 5 (PE M WWWWW	6	Frequency
				Offset 27		PNO: Fas IFGain:Lo		#Atten: 24						12.935	05 GHz		Auto Tune
10 c Log	B/di	v	Ref	20.00	dBm									-25.0	10 dBm		
10.0 0.00															-13.00 dDm	н.	Center Freq 10.300000000 GHz
-20.0															1		
-30.0 -40.0						laine station											Start Freq 7.000000000 GHz
-50.0																I	Stop Freq
-60.0																	13.600000000 GHz
	Int 7. es B					#\	vвw	3.0 MHz				S۱	weep 12		3.600 GHz 20001 pts)		CF Step 660.000000 MHz Auto Man
MKB	MODE	TRC	SCL f		×	5 05 GHz		-25.010 di	2	FUNC	CTION	FUN	CTION WIDTH	FUNCT	ION VALUE	Í	<u>Auto</u> Ivian
23456					12.93	DO GHZ		-25.010 df	sm								Freq Offset 0 Hz
7 8 9 10																	
11															~		
MSG														;	>		
													•				

GSM1900-1909.8MHz-Voice@13.6GHz-20GHz@Pass

		ctru		alyzer - I															
LXI R		Ere	RF		Ω AC	CORI			SENSI	E:PULSE		#Avg Ty			12:30		Sep 01, 202		Frequency
Cen	ler	Fre	ped	10.80		PN	⊓∠ IO: Fast iain:Lov		Trig: Free #Atten: 24			Avg Ho	id: 100	/100	10.0	TYPE DE		₩¥ IN	Auto Tune
10 d	B/div	,		Offset f 20.0		ı								VIKTI			28 GH 3 dBr		
Log 10.0																			Center Freq
0.00													_						16.800000000 GHz
-10.0															 1		-13.00 dE	htte	
-20.0																			
-30.0						alajaka si akisi A						اللية أولى أوليا الم 1944 - معرفة المراجعة						1	Start Freq 13.60000000 GHz
-40.0			_								_								10.00000000000000
-50.0			_																
-60.0			-								-		_						Stop Freq 20.00000000 GHz
-70.0			_																20.000000000 GH2
Star	└ † 13	3 60	<u>n c</u>	Hz											Ston	20	000 GH		CE Stop
#Re							#V	'ΒW	3.0 MHz				Swee	ep 16			001 pt		CF Step 640.000000 MHz
MKR		TRC				×			Y		FUNCT	ION F	UNCTIO	N WIDTH	FU	NCTION	N VALUE	>	<u>Auto</u> Man
<u>1</u> 2	Ν	1	f		19	009 28	3 GHz		-19.223 di	3m									
3																			Freq Offset
5																		=	0 Hz
7																			
8 9																			
10 11																		-	
<		•	•	•															
MSG													ų	STATUS	6				



UMTS BAND II-1852.4MHz-RMC@30mHz-1GHz@Pass

Agilent Spect	rum Ana	lyzer - Swe	pt SA									
Center F	req 5	50 Ω 15.000		2				ALIGN Type: Ri Iold: 100		TRAC	4 Sep 01, 2022 E 1 2 3 4 5 6 E MWWWWW	Frequency
10 dB/div		Offset 27 20.00 d	dB	NO: Fast Gain:Low	#Atten: 2		יועייס			.r1 282.	25 MHz 08 dBm	Auto Tune
10.0 0.00											-13.00 dBm	Center Freq 515.000000 MHz
-20.0 -30.0 -40.0			1- h,∙b/edu vytiji		n (j. 1975) je se ku kati kranj in da National po june kati po june je se kati po je se se kati po je se se kati			iya ya kata	l validas verdi di si konstanta per per	alley bill die die alle alle alle alle alle alle alle al		Start Freq 30.000000 MHz
-50.0 -60.0 -70.0												Stop Freq 1.000000000 GHz
Start 30.0 #Res BW	1.0 №	IHz	×	#VE	3W 3.0 MH2	-	UNCTION	Swee	<u> </u>	33 ms (2	0000 GHz 0001 pts)	CF Step 97.000000 MHz <u>Auto</u> Man
1 N 2 3	1 f		282.2	5 MHz	-29.208 d	Bm						Freq Offset 0 Hz
All MSG					iui			Ú.	STATUS		>	

UMTS BAND II-1852.4MHz-RMC@1GHz-7GHz@Pass

Agilent Spectrum Analyzer - Swept SA					
X RL RF 50 Ω AC Center Freq 4.000000000		ENSE:PULSE	ALIGNAUTO Type: RMS	12:40:15 PM Sep 01, 20 TRACE 1 2 3 4	
Ref Offset 27 dB	PNO: East +++ Trig: I		Hold: 5/5	TYPE MWWW DET A N N N	Auto Tune
10 dB/div Ref 25.00 dBm 15.0 5.00 -5.00				-34.483 dB	Center Freq 4.000000000 GHz
-15.0	▲1 → ↓ → → ↓ → ↓ → ↓ → ↓ → ↓ → ↓ → ↓ → ↓ →			-13.00 d	Em Start Freq 1.00000000 GHz
-45.0 -55.0 -65.0					Stop Freq 7.000000000 GHz
Start 1.000 GHz #Res BW 1.0 MHz	#VBW 3.0 M	Hz*	#Sweep 1	Stop 7.000 GH .000 s (20001 pt FUNCTION VALUE	IZ CF Step s) 600.000000 MHz Auto Man
1 N 1 f 2: 2	675 8 GHz 34.483	3 dBm		>	Freq Offset 0 Hz
MSG			Ko status		



UMTS BAND II-1852.4MHz-RMC@7GHz-13.6GHz@Pass

		nalyzer - Sw	ept SA								
(X) RL Cente	r Freq		000000 G					ALIGNAUTO ype: RMS old: 100/100	TRA	M Sep 01, 2022 CE <u>1</u> 2 3 4 5 6 PE M WAAAAAAA	Frequency
10 dB/d		f Offset 27	ifc dB	NO: Fast + Gain:Low	#Atten: 2				[□] 1 13.126	ET P N N N N N	Auto Tune
10.0 0.00										-17-00 dBm	Center Freq 10.300000000 GHz
-20.0 -30.0		the order of the second se				lle, gje storet e			n in antiticity in the		Start Freq 7.000000000 GHz
-50.0 -60.0 -70.0											Stop Freq 13.60000000 GHz
#Res E	7.000 Gi 3W 1.0	MHz	×		W 3.0 MHz		FUNCTION	Sweep 1	2.00 ms (2	.600 GHz 0001 pts)	CF Step 660.000000 MHz <u>Auto</u> Man
1 N 2 3 4 5 6 7 8	1 f		13.126 4	5 GHz	-24.244 dl	3m				I	Freq Offset 0 Hz
9 10 11 <					1011			K STATU	Ju	 ►	

UMTS BAND II-1852.4MHz-RMC@13.6GHz-20GHz@Pass

		ctrui		alyzer -		ot SA													
LXI R			RF		0Ω	AC	COR			SENS	E:PULS	Æ			ALIGN AUTO		3 PM Sep C		Frequency
Cen	ter	Fre	ed ,	16.80	000	0000				Trig: Fre	~ D				e: RMS 100/100	1	RACE 1 2 TYPE M W		Trequency
			Ref	Offset	27 0	ıв		IO: Fast iain:Lov		#Atten: 2		•	- Ar ali	1010.		16.72	DET P N	GHZ	Auto Tune
10 di	B/div			f 20.0												-19.	882 0	∣Bm	
Log 10.0																			Center Freq
0.00	<u> </u>		-								-								16.80000000 GHz
-10.0			_								. <u>1</u> —						-1	9.00 dDm	
-20.0											1								
-30.0				a adadha	لالتشمين	يناسس		ي و العربي و بر العربي	مناطبة في مناطبة في الم	روز الله من الله الله عن الله عن الله عن الله عن الله الله عن الله عن الله عن الله عن الله عن الله ع الله الله الله الله الله الله الله الله		ر النوايين. من النوايين		la milata A second	الم المراجع المراجع الم الم المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع المراجع ال				Start Freq
	Г						-												13.60000000 GHz
-40.0																			
-50.0											-								Stop Freq
-60.0	<u> </u>		-								+								20.000000000 GHz
-70.0			_																20.00000000 GHZ
Star														_			20.000		CF Step
#Re	s Bì	N 1	.0 I	viHz				#\	/BW	3.0 MHz	<u> </u>			S	weep 16	6.00 ms	(2000	1 pts)	
MKR		TRC	SCL			×				Y		FUN	CTION	FUN	ICTION WIDTH	FUN	CTION VAL	UE 🔼	<u>Auto</u> Man
1	Ν	1	f			16.7	29 60) GHz		-19.882 d	Bm								
2																		_	Freq Offset
4																			0 Hz
5 6																			
7																			
8																			
10																			
11																	1	~	
															1			>	
MSG																5			



UMTS BAND II-1880MHz-RMC@30mHz-1GHz@Pass

	ectrum A	nalyzer - Swe	ept SA							
(X) RL Center	Freq		000 MHz				ALIGN AUTO (ype: RMS old: 100/100	TRA	M Sep 01, 2022 CE 1 2 3 4 5 6 PE M WWWWWW	Frequency
10 dB/di		f Offset 27	dB	NO: Fast + Gain:Low	#Atten: 24			^₀ //kr1 943.	ET P N N N N N	Auto Tune
Log 10.0 0.00 -10.0									- 13:00 dDm	Center Freq 515.000000 MHz
-20.0 -30.0 -40.0		, Jan Barratt, fa kar til se Sener fra se strategi	ada dal 10 ang maratan 1 ang maratan 1		de ad attalie finale more si dente cid		la cal La cal tanàna dia minana Manana amin'ny kaodim-paositra dia mandritra dia mandritra dia mandritra dia mandritra dia mandritra dia mandri	an fi lainte, hy ser frankjuster judite Metri fi Matti angena ng Panjadi kina		Start Freq 30.000000 MHz
-50.0 -60.0 -70.0										Stop Freq 1.00000000 GHz
Start 30 #Res B	W 1.0	MHz	×	#VB	W 3.0 MHz		Sweep	1.333 ms (2	0000 GHz 0001 pts)	CF Step 97.000000 MHz <u>Auto</u> Man
1 N 2 3 4 5 6 7 8 9				6 MHz	-29.738 dł					Freq Offset 0 Hz
10 11 < MSG					111		I∫₀ sta`	TUS	 >	

UMTS BAND II-1880MHz-RMC@1GHz-7GHz@Pass

Agilent Spectrum Analyzer - Swept SA					
🕅 RL RF 50 Ω AC		NSE:PULSE #Avg 1	ALIGNAUTO 1 Vpe: RMS	2:41:16 PM Sep 01, 2022 TRACE 1 2 3 4 5 6	Frequency
Ref Offset 27 dB	PNO: Fast Trig: Fu IFGain:Low #Atten:	ree Run AvgjHo :24 dB	Mkr1	2.672 8 GHz -34.148 dBm	Auto Tune
					Center Freq 4.000000000 GHz
-15.0	▲ ¹			-13.00 dBm	Start Freq 1.000000000 GHz
-45.0 -55.0 -65.0					Stop Freq 7.000000000 GHz
Start 1.000 GHz #Res BW 1.0 MHz MKR MODE TRO SCL	#VBW 3.0 MH	FUNCTION	#Sweep 1.00	Stop 7.000 GHz 00 s (20001 pts) FUNCTION VALUE	CF Step 600.000000 MHz <u>Auto</u> Man
1 N 1 f 2; 2 -	672 8 GHz -34.148	dBm		×	Freq Offset 0 Hz
MSG			I STATUS		



UMTS BAND II-1880MHz-RMC@7GHz-13.6GHz@Pass

	Spectr	um An	alyzer - Sv												
Cent	er Fi	RF req		Ω AC 000000		SENSE	E:PULSE		#Avg T Avg Ho	ype: Ri		TR/	M Sep 01, 2 ACE 1 2 3 4 YPE M WWW	456	Frequency
10 dB	/div		Offset 2		PNO: Fas IFGain:Lo	#Atten: 24						12.978	DETPNN	Hz	Auto Tune
10.0 - -10.0 -													-13:00		Center Freq 10.300000000 GHz
-20.0 - -30.0 -		t en se				la od stan kilo slan tin kantin k najveno granova se slane	النازي ط	ka na star ka					•1		Start Freq 7.00000000 GHz
-50.0 - -60.0 - -70.0 -															Stop Freq 13.60000000 GHz
Start #Res	BW	1.0	MHz	×		3.0 MHz		FUNC	TION		ep 12 NWIDTH	Stop 1 .00 ms (: EUNCI			CF Step 660.000000 MHz <u>Auto</u> Man
1 2 3 4 5 6 6 7 8 9 10 11 <		f		12.97	'8 28 GHz	25.652 dE	3m								Freq Offset 0 Hz
MSG										ų,	STATUS	;			ц

UMTS BAND II-1880MHz-RMC@13.6GHz-20GHz@Pass

Agilent S	pectru	im An	alyzer - S	wept SA										
(XI RL Cente	r Fr	RF	50 16 800		CORREC		SENSE	PULSE	#Ava		LIGN AUTO		M Sep 01, 2022	Frequency
10 dB/d		Ref	Offset 2	27 dB	PNO: Fa IFGain:L	ast ↔►→ .ow	Trig: Free #Atten: 24				100/100	، 19.089	60 GHz	Auto Tune
Log 10.0 - 0.00 - -10.0 -			20.00									1	-13.00 dBm	Center Freq 16.80000000 GHz
-20.0 — -30.0 M -40.0 —							_{an} la ste y lata di Lin.			ر براد الور براد الور				Start Freq 13.600000000 GHz
-50.0														Stop Freq 20.000000000 GHz
Start ' #Res I	BW	1.0 [VIHz	×	#	¢∨BW	3.0 MHz	F	JNCTION		veep 16	.00 ms (2	0.000 GHz 20001 pts)	CF Step 640.000000 MHz <u>Auto</u> Man
1 N 2 3 3 4 5 6 7 8 9 10 11		f			89 60 GH	2	-20.870 dE							Freq Offset 0 Hz
MSG												3		



UMTS BAND II-1907.6MHz-RMC@30mHz-1GHz@Pass

		trum	Ana	lyzer - Sw	ept SA													
ເ≫ RL Cent	-	Fre	RF q 5	50 Ω 15.00					SENS				Туре	ALIGN AUTO : RMS 100/100	TRA	M Sep 01, 202 CE 1 2 3 4 5 /PE M WWWW	6	Frequency
10 dE	3/div			Offset 27 20.00			NO: Fast Gain:Lov		#Atten: 24			Or Ali			kr1 898	PNNNN	z I	Auto Tune
Log 10.0 • 0.00 •																-13.00 dE		Center Freq 515.000000 MHz
-20.0 -30.0 -40.0	frank ji ka ka		wietwi	Lass al la sub di su basa Ang sub	a kalina k	, fistige, jag) – Stanstorf II) and a sin Sylverige second at the Stan	يو ان و د برو برو ا	in den skyr	-		p fi a v á t Maria Jackiel tá smír Maria de la grafa de la serie		1		Start Freq 30.000000 MHz
-50.0 · -60.0 · -70.0 ·																		Stop Freq 1.000000000 GHz
Start #Res	s BV	V 1.	o Iv Scui		X			/BW	3.0 MHz		FUNC	TION		weep 1.3	333 ms (2	0000 GH 20001 pt: DN VALUE	s)	CF Step 97.000000 MHz <u>Auto</u> Man
1 2 3 4 5 6 7 8 9 10 11	N		f			898.54	4 MHz		-29.366 dt	3m								Freq Offset 0 Hz
MSG														I o STATUS	5			IJ

UMTS BAND II-1907.6MHz-RMC@1GHz-7GHz@Pass

Agilent Spectrum Analyzer - Swept SA					
🕅 RL RF 50 Ω AC Center Freq 4.000000000		ENSE:PULSE	ALIGN AUTO	12:42:54 PM Sep 01, 2022 TRACE 1 2 3 4 5 6	Frequency
Center Fred 4.00000000	PNO: East +++ Trig:		lold: 5/5	TYPE MWWWWW DET A N N N N N	
Ref Offset 27 dB 10 dB/div Ref 25.00 dBm			Mkr1	l 2.666 2 GHz -34.337 dBm	Auto Tune
15.0 5.00					Center Freq 4.000000000 GHz
-15.0 -25.0 -35.0	◆ ¹			-13.00 dBm	Start Freq 1.00000000 GHz
-45.0 -55.0 -65.0					Stop Freq 7.00000000 GHz
Start 1.000 GHz #Res BW 1.0 MHz	#VBW 3.0 M		#Sweep 1.0	Stop 7.000 GHz 000 s (20001 pts) FUNCTION VALUE	CF Step 600.000000 MHz <u>Auto</u> Man
	.666 2 GHz .34.33				Freq Offset 0 Hz
MSG			I STATUS		



UMTS BAND II-1907.6MHz-RMC@7GHz-13.6GHz@Pass

		ctrum	n Ana	alyzer - S														
Cen		Fre	RF q 1	50 10.300		000 C			SENS				Туре	ALIGN AUTO : RMS 100/100	TRA	M Sep 01, 202 CE 1 2 3 4 5 /PE M WW/W/	6	Frequency
10 d	B/div			Offset 2		IF	PNO: Fas Gain:Lo		#Atten: 24			1810	1010.		13.164	73 GH	Z I	Auto Tune
Log 10.0 0.00 -10.0																-17 no de		Center Freq 10.300000000 GHz
-20.0 -30.0 -40.0)	nt ayu	and the second	hangin t				ينور وي روي الرو	Anna , y paddi di anala General pagetanya ang bag				ișt co de	ugushan a kafa kan ya ana k	a sea tha an a bhann		i.	Start Freq 7.00000000 GHz
-50.0 -60.0 -70.0																		Stop Freq 13.60000000 GHz
Star #Re	s B\	N 1.	.0 N	ИНZ		× 3.164 7			7 3.0 MHz		FUNC	CTION		weep 12 ction width	.00 ms (:	3.600 GH 20001 pt IONVALUE		CF Step 660.000000 MHz <u>Auto</u> Man
1 2 3 4 5 6 7 8 9 10 11 <	N	1			1	3.164 /	(3 GHz		-24.838 df	3m								Freq Offset 0 Hz
MSG															5			

UMTS BAND II-1907.6MHz-RMC@13.6GHz-20GHz@Pass

				er - Sw														
LXI RI			र⊧ ⊾16	50 Ω		CORRE			SENS	E:PULSE		#Avg Typ	ALIGNAUTO			p01,202		Frequency
						PNO	: Fast in:Low		Trig: Free #Atten: 24			Avg Hold	: 100/100	19.03	TYPE N DET F	NNNN	Ň	Auto Tune
10 di Log	B/div			set 27 0.00 (dBn		
10.0																	-	Center Freq
0.00																	Ш	16.80000000 GHz
-10.0			+					-			-			− ∎¹	=	-13.00 dD	•	
-20.0 -30.0		والمعام		للادرجال إستار بخاله	الخناسي	التر الما يحاط	ر بر اندار رو با دار		بر بر مرد (میران مایند بین	فالدار وتواليه فأل						م روانا النور		Start Freq
-40.0										· ·								13.600000000 GHz
-50.0			-															
-60.0	<u> </u>		-								-						Ш	Stop Freq 20.00000000 GHz
-70.0			+								-							
Star #Re	t 13.				1		#\/		3.0 MHz				weep 1			00 GH		CF Step
	MODE			2	×		#V	DVV	3.0 IVINZ		FUNCTI							640.000000 MHz <u>Auto</u> Man
<mark>1</mark> 2	N	1 1			19.0	032 96 (GHz		-20.775 di	3m								
3			-				_											Freq Offset 0 Hz
5																		0 HZ
7																		
9 10																		
11																	~	
MSG													🚺 STATU	IS				



UMTS BAND V-826.4MHz-RMC@30mHz-1GHz@Pass

Agilen		pectr	rum		alyzer		SA																				
Cen	_	r F	re	RF q t	515.	50 Ω 000	.c)0		z] _{Tei}	sensi g: Fre					Гуре	ALIGN AU : RMS 100/100		0		ACE 1	901,2 234 4 0000	56		Frequency
10 d	B/d	iv			Offs 35.					r ⊢ast n:Lov	v ••		ten: 2									931 -30.0	оет (F	2 MI	HZ		Auto Tune
Log 25.0 15.0 5.00																											Center Free 515.000000 MH:
-5.00 -15.0 -25.0	╞																							-13.00	dBm		Start Free 30.000000 MH:
-35.0 -45.0 -55.0	1.1.1				,					<u>inijiri</u>					*****			NI4. In		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,							Stop Free 1.000000000 GH:
Star #Re	S E MOD	зw	1.	o n Set	/IHz		×				ΒW		MHz		FUI	NCTIO	IN		weep			:op 1. ms (2	200	01 p		A	CF Step 97.000000 MH: uto Mar
1 2 3 4 5 6	N			f			 9:	31.6	2 1	1Hz		-30.0	066 di	Bm													Freq Offse 0 H:
7 8 9 10 11																									-		
MSG																			ri <mark>o</mark> s1	TATUS							

UMTS BAND V-826.4MHz-RMC@1GHz-9GHz@Pass

Agilent Spectrum Analyzer - Swept SA			
RL RF 50 Ω AC Center Freq 5.000000000	CORREC SENSE:PULS	#Avg Type: RMS	04:16:28 PM Sep 01, 2022 TRACE 1 2 3 4 5 6 Frequency
Ref Offset 27 dB	PNO: Fast ++++ Trig: Free Rur IFGain:Low #Atten: 24 dB		2.786 4 GHz -24.978 dBm
10.0 0.00 -10.0			Center Freq 5.000000000 GHz
-20.0 -30.0 -40.0		ntentin general and a star day file of factors and a star of the	Start Freq 1.00000000 GHz
-50.0 -60.0 -70.0			9.000000000 GHz
Start 1.000 GHz #Res BW 1.0 MHz MKR MODE TRC SCL	#VBW 3.0 MHz		Stop 9.000 GHz CF Step 3 ms (20001 pts) 800.000000 MHz FUNCTION VALUE Auto
1 N 1 f 2 2	.786 4 GHz .24.978 dBm		Freq Offset 0 Hz
MSG		STATUS	



UMTS BAND V-836.4MHz-RMC@30mHz-1GHz@Pass

Agilen		ectr																														
Cen		· Fr	· ·	Բ 5՝		οΩ 00	д(00		MH:]_	se rig:F	ENSE:					∕g Typ alHold	e:		;	0	D4:1	TRA	CE	ep 01, 2 1 2 3 • M W/W	456		Frequency	
10 d	B/di	iv			offset 35.0			<u> </u>			: Fas n:Lo	t⊶► w		Atten							•. •					ء 87.	рет (F . 96	^D NN B dE	Hz	1	Auto Tu	ne
Log 25.0 15.0 5.00																															Center Fr 515.000000 M	- 1
-5.00 -15.0 -25.0																							•	1				-13.00			Start Fr 30.000000 M	- 1
-35.0 -45.0 -55.0					<u>internet</u>		is in					Angendiki	i i i i i i i i i i i i i i i i i i i				<u>i depter</u>											in the second			Stop Fr 1.000000000 G	- 1
Star #Re	s B	w	1.0 C SI	M	Hz			×						0 MI			F	UNC	TION			<u> </u>) 1. Vidth	333	3 m	is (2	200	00 G 001 p /ALUE			CF St 97.000000 M Auto M	
1 2 3 4 5 6 7	N		f					71	87.9	16 N	AHZ		-29	9.698	BdB	m															Freq Offs 0	set Hz
8 9 10 11 <																						L	STATU	s					~			

UMTS BAND V-836.4MHz-RMC@1GHz-9GHz@Pass

Agilent					t SA												
(XI RL Cent		R rea		50 Ω 0000	AC 0000	CORREC GHZ			E:PULS		#Avg		ERMS		09 PM Sep TRACE 1 2	23456	Frequency
10 dB		Re	of Offse	et 27 c	IВ	PNO: IFGain	Fast ↔ :Low	, Trig: Fre #Atten: 2			Avg∣⊦	lold:	100/100 Mł	(r1 7.6 -25	DET P 1		Auto Tune
Log - 10.0 - 0.00 -																13:00 dBm	Center Freq 5.000000000 GHz
-20.0 - -30.0 -40.0 -					i de la constanti de la constan La constanti de la constanti de	* * *						i ti ni yi	ditani ditang kanala	11			Start Freq 1.000000000 GHz
-50.0 - -60.0 - -70.0 -																	Stop Freq 9.000000000 GHz
Start #Res	s BW	/ 1.0	MHz		X		#VBV	√ 3.0 MHz Y		FUNC	TION		weep 13	1.33 ms	0 9.000 (2000	1 pts)	CF Step 800.000000 MHz <u>Auto</u> Man
2 3 4 5 6 7 8 9	N	1 f			7.6	28 0 G	Hz	-25.894 d	Bm								Freq Offset 0 Hz
10 11 <								1001						s		>	



UMTS BAND V-846.6MHz-RMC@30mHz-1GHz@Pass

		ectru	m An	alyzer -	Swe	pt SA	L																
Cen		Fre	RF eq :	515.C	50Ω)00	AC 000] 	SENSE a: Free				g Typ (Hold:		IS	04:	TRA	M Sep 01 CE 1 2 3 PE M W/	456	Frequency
10 di	B/di [,]			Offse f 35.0					D: Fasi in:Lov			ten: 24					. 1007			□ 747.	07 N 92 d	1Hz	Auto Tune
Log 25.0 15.0 5.00																							Center Freq 515.000000 MHz
-5.00 -15.0 -25.0																		1				00 dBm	Start Freq 30.000000 MHz
-35.0 -45.0 -55.0									***	i i i i i i i i i i i i i i i i i i i	ing line de	1,1991abite		ipper Alexia						<u>iinen tuolii</u>	eterijiyi		Stop Freq 1.00000000 GHz
Star #Re	sВ	W 1	.0	MHz			~		#\	/BW	3.0	MHz		FUN	CTION			р 1.: width	333 I	ns (2	0000	pts)	CF Step 97.000000 MHz <u>uto</u> Man
1 2 3 4 5 6 7 8 9	N	1	f				747	.07	MHz		-29.6	92 dE	<u>3m</u>										Freq Offset 0 Hz
9 10 11 < MSG																	Ū.	STATU	s			>	

UMTS BAND V-846.6MHz-RMC@1GHz-9GHz@Pass

	rum Analyzer - Swept S	A						
Center F	RF 50 Ω AC		SENSE:PULS	#Avg Typ		TRAC	Sep 01, 2022 E 1 2 3 4 5 6	Frequency
10 dB/div	Ref Offset 27 dB	PNO: Fast ← IFGain:Low	➡ Trig: Free Run #Atten: 24 dB	Avg Hold:		.r1 3.114	8 GHz	Auto Tune
Log 10.0 0.00							-13.00 dDm	Center Freq 5.000000000 GHz
-20.0 -30.0								Start Freq 1.000000000 GHz
-50.0 -60.0 -70.0								Stop Freq 9.000000000 GHz
Start 1.00 #Res BW	1.0 MHz	×	W 3.0 MHz		weep 13	Stop 9. .33 ms (20		CF Step 800.000000 MHz <u>Auto</u> Man
1 N 2 3 4 5 7 7 8 9	1 f	3.114 8 GHz	-25.211 dBm					Freq Offset 0 Hz
9 10 11 ×			Int			2	×	



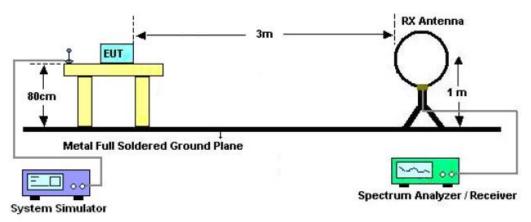
5.5.2 RADIATED SPURIOUS EMISSION

5.5.2.1 MEASUREMENT METHOD

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emissions, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz VBW and RBW for peak reading. Then 1MHz RBW and 10Hz VBW for average reading in spectrum analyzer. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
- 8.If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.

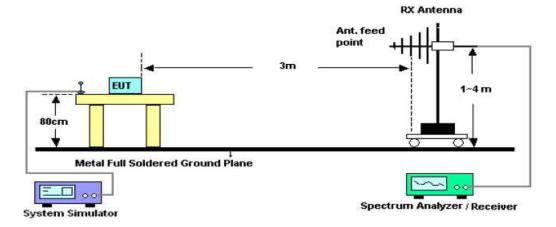
5.5.2.2 TEST SETUP



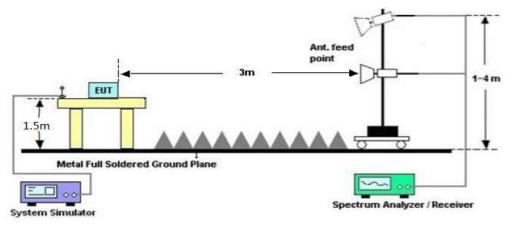


Radiated Emission Test-Setup Frequency Below 30MHz

RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



5.5.2.3 PROVISIONS APPLICABLE

(a) On any frequency outside a licensee's frequency block (e.g. A, D, B, etc.) within the USPCS spectrum,
 the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least
 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at



least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out. **Note:** only result the worst condition of each test mode:



5.5.2.4 MEASUREMENT RESULT

Pass

Temperature	24.8 ℃	Humidity	58%
Test Engineer	Anna Hu		

GSM 850:

	The Worst Test Results for Channel 128/824.2 MHz											
Frequency	Emission Level	Limits	Margin	Comment								
(MHz)	(dBm)	(dBm)	(dB)	Comment								
1648.28	-58.90	-13	45.90	Horizontal								
3296.63	-40.94	-13	27.94	Horizontal								
4945.03	-50.67	-13	37.67	Horizontal								
1648.23	-38.82	-13	25.82	Vertical								
3296.70	-49.16	-13	36.16	Vertical								
4945.02	-47.58	-13	34.58	Vertical								

PCS 1900:

	The Worst Test Results for Channel512/1850.2MHz											
Frequency	Emission Level	Limits	Margin	Comment								
(MHz)	(dBm)	(dBm)	(dB)	Comment								
3700.30	-58.19	-13	45.19	Horizontal								
7400.60	-40.83	-13	27.83	Horizontal								
11101.02	-51.96	-13	38.96	Horizontal								
3700.28	-42.21	-13	29.21	Vertical								
7400.63	-52.85	-13	39.85	Vertical								
11101.08	-44.54	-13	31.54	Vertical								

WCDMA BAND II:

	The Worst Test Results for Channel 9400/1880MHz											
Frequency	Emission Level	Limits	Margin	Comment								
(MHz)	(dBm)	(dBm)	(dB)	Comment								
3757.44	-56.72	-13	43.72	Horizontal								
7517.16	-37.30	-13	24.30	Horizontal								
11275.71	-53.32	-13	40.32	Horizontal								
3756.44	-40.72	-13	27.72	Vertical								
7516.95	-51.92	-13	38.92	Vertical								
11277.37	-47.76	-13	34.76	Vertical								





WCDMA BAND V:

	The Worst Test Results for Channel 4132/826.4MHz											
Frequency	Emission Level	Limits	Margin	Comment								
(MHz)	(dBm)	(dBm)	(dB)	Comment								
1650.06	-56.20	-13	43.20	Horizontal								
3302.39	-41.82	-13	28.82	Horizontal								
4955.53	-55.11	-13	42.11	Horizontal								
1649.34	-37.93	-13	24.93	Vertical								
3300.71	-52.01	-13	39.01	Vertical								
4954.08	-48.21	-13	35.21	Vertical								

RESULT: PASS

Note:

- 11. Margin = Limit Emission Level
- 12. Below 30MHZ no Spurious found and Above is the worst mode data.



5.6 FREQUENCY STABILITY

5.6.1 MEASUREMENT METHOD

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMU200 DIGITAL RADIO COMMUNICATION TESTER.

1 Measure the carrier frequency at room temperature.

2 Subject the EUT to overnight soak at -10 $^{\circ}$ C.

3 With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on channel 661 for PCS 1900 band , channel 190 for GSM 850 band, channel 9400 for UMTS band II, channel 1412 for UMTS band IV and channel 4175 for UMTS band V measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.

4 Repeat the above measurements at 10° C increments from -10° C to $+50^{\circ}$ C. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

5 Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1 1/2 hours unpowered, to allow any self-heating to stabilize, before continuing.

6 Subject the EUT to overnight soak at $+50^{\circ}$ C.

7 With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.

8 Repeat the above measurements at 10° C increments from +50°C to -10°C. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

9 At all temperature levels hold the temperature to +/- $0.5\,^\circ\!\mathrm{C}$ during the measurement procedure.

5.6.2 PROVISIONS APPLICABLE

5.6.2.1 FOR HAND CARRIED BATTERY POWERED EQUIPMENT

According to the ANSI/TIA-603-E-2016, the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 3.4VDC and 4.2VDC, with a nominal voltage of 3.7VDC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of -10 % and +12.5 %. For the purposes of measuring frequency stability these voltage limits are to be used.



5.6.2.2 FOR EQUIPMENT POWERED BY PRIMARY SUPPLY VOLTAGE

According to the ANSI/TIA-603-E-2016,the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. For this EUT section 2.1055(d)(1) applies. This requires varying primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment, the normal environment temperature is 20°C.



5.6.3 MEASUREMENT RESULT

Pass

For GSM

Test Band=GSM850/GSM1900

			Volta	ge			
Band	Channel	Voltage	Temperature	Deviation	Deviation	Limit	Verdict
Dallu	Channel	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	verdict
GSM850	128	VL	TN	11.56	0.0138	2.5	PASS
GSM850	128	VN	TN	8.95	0.0107	2.5	PASS
GSM850	128	VH	TN	14.08	0.0168	2.5	PASS
GSM850	190	VL	TN	7.92	0.0095	2.5	PASS
GSM850	190	VN	TN	12.61	0.0151	2.5	PASS
GSM850	190	VH	TN	8.32	0.0100	2.5	PASS
GSM850	251	VL	TN	9.05	0.0108	2.5	PASS
GSM850	251	VN	TN	7.55	0.0090	2.5	PASS
GSM850	251	VH	TN	11.07	0.0132	2.5	PASS
GPRS850	128	VL	TN	3.35	0.0040	2.5	PASS
GPRS850	128	VN	TN	4.33	0.0052	2.5	PASS
GPRS850	128	VH	TN	5.26	0.0063	2.5	PASS
GPRS850	190	VL	TN	5.71	0.0068	2.5	PASS
GPRS850	190	VN	TN	5.37	0.0064	2.5	PASS
GPRS850	190	VH	TN	1.58	0.0019	2.5	PASS
GPRS850	251	VL	TN	5.68	0.0068	2.5	PASS
GPRS850	251	VN	TN	6.18	0.0074	2.5	PASS
GPRS850	251	VH	TN	4.7	0.0056	2.5	PASS
GSM1900	512	VL	TN	12.37	0.0066	2.5	PASS
GSM1900	512	VN	TN	12.67	0.0067	2.5	PASS
GSM1900	512	VH	TN	12.49	0.0066	2.5	PASS
GSM1900	661	VL	TN	22.86	0.0122	2.5	PASS
GSM1900	661	VN	TN	25.48	0.0136	2.5	PASS
GSM1900	661	VH	TN	25.18	0.0134	2.5	PASS
GSM1900	810	VL	TN	27.24	0.0145	2.5	PASS
GSM1900	810	VN	TN	29.32	0.0156	2.5	PASS
GSM1900	810	VH	TN	27.06	0.0144	2.5	PASS
GPRS1900	512	VL	TN	7.3	0.0039	2.5	PASS
GPRS1900	512	VN	TN	10.22	0.0054	2.5	PASS
GPRS1900	512	VH	TN	13.27	0.0071	2.5	PASS
GPRS1900	661	VL	TN	23.41	0.0125	2.5	PASS
GPRS1900	661	VN	TN	24.29	0.0129	2.5	PASS
GPRS1900	661	VH	TN	27.95	0.0149	2.5	PASS
GPRS1900	810	VL	TN	25.9	0.0138	2.5	PASS
GPRS1900	810	VN	TN	22.68	0.0121	2.5	PASS
GPRS1900	810	VH	TN	26.58	0.0141	2.5	PASS



			Temper	ature			
		Voltage	Temperature	Deviation	Deviation	Limit	
Band	Channel	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	Verdict
GSM850	128	VN	-30	10.32	0.0123	2.5	PASS
GSM850	128	VN	-20	6.89	0.0082	2.5	PASS
GSM850	128	VN	-10	10.5	0.0126	2.5	PASS
GSM850	128	VN	0	9.02	0.0108	2.5	PASS
GSM850	128	VN	10	11.05	0.0132	2.5	PASS
GSM850	128	VN	20	8.23	0.0098	2.5	PASS
GSM850	128	VN	30	10.67	0.0128	2.5	PASS
GSM850	128	VN	40	11.57	0.0138	2.5	PASS
GSM850	128	VN	50	8.79	0.0105	2.5	PASS
GSM850	190	VN	-30	9.68	0.0116	2.5	PASS
GSM850	190	VN	-20	13.12	0.0157	2.5	PASS
GSM850	190	VN	-10	8.54	0.0102	2.5	PASS
GSM850	190	VN	0	10.33	0.0124	2.5	PASS
GSM850	190	VN	10	7.68	0.0092	2.5	PASS
GSM850	190	VN	20	7.85	0.0094	2.5	PASS
GSM850	190	VN	30	9.23	0.0110	2.5	PASS
GSM850	190	VN	40	8.47	0.0101	2.5	PASS
GSM850	190	VN	50	10.83	0.0130	2.5	PASS
GSM850	251	VN	-30	8.91	0.0107	2.5	PASS
GSM850	251	VN	-20	7.96	0.0095	2.5	PASS
GSM850	251	VN	-10	8.63	0.0103	2.5	PASS
GSM850	251	VN	0	10.98	0.0131	2.5	PASS
GSM850	251	VN	10	6.87	0.0082	2.5	PASS
GSM850	251	VN	20	7	0.0084	2.5	PASS
GSM850	251	VN	30	6.57	0.0079	2.5	PASS
GSM850	251	VN	40	12.68	0.0152	2.5	PASS
GSM850	251	VN	50	10.47	0.0125	2.5	PASS
GPRS850	128	VN	-30	4.77	0.0057	2.5	PASS
GPRS850	128	VN	-20	9.23	0.0110	2.5	PASS
GPRS850	128	VN	-10	8.77	0.0105	2.5	PASS
GPRS850	128	VN	0	10.41	0.0125	2.5	PASS
GPRS850	128	VN	10	9.34	0.0112	2.5	PASS
GPRS850	128	VN	20	7.65	0.0092	2.5	PASS
GPRS850	128	VN	30	9.84	0.0118	2.5	PASS
GPRS850	128	VN	40	7.45	0.0089	2.5	PASS
GPRS850	128	VN	50	9.57	0.0114	2.5	PASS
GPRS850	190	VN	-30	5.68	0.0068	2.5	PASS
GPRS850	190	VN	-20	8.44	0.0101	2.5	PASS
GPRS850	190	VN	-10	3.86	0.0046	2.5	PASS
GPRS850	190	VN	0	0.74	0.0009	2.5	PASS
GPRS850	190	VN	10	-0.2	-0.0002	2.5	PASS
GPRS850	190	VN	20	2.28	0.0027	2.5	PASS
GPRS850	190	VN	30	-1.07	-0.0013	2.5	PASS
GPRS850	190	VN	40	0.06	0.0001	2.5	PASS



GPRS850	190	VN	50	-0.34	-0.0004	2.5	PASS
GPRS850	251	VN	-30	8.47	0.0101	2.5	PASS
GPRS850	251	VN	-20	6.85	0.0082	2.5	PASS
GPRS850	251	VN	-10	6.93	0.0083	2.5	PASS
GPRS850	251	VN	0	7.12	0.0085	2.5	PASS
GPRS850	251	VN	10	7.41	0.0089	2.5	PASS
GPRS850	251	VN	20	5.24	0.0063	2.5	PASS
GPRS850	251	VN	30	2.71	0.0032	2.5	PASS
GPRS850	251	VN	40	5.1	0.0061	2.5	PASS
GPRS850	251	VN	50	5.57	0.0067	2.5	PASS
GSM1900	512	VN	-30	11.56	0.0061	2.5	PASS
GSM1900	512	VN	-20	10.55	0.0056	2.5	PASS
GSM1900	512	VN	-10	7.78	0.0041	2.5	PASS
GSM1900	512	VN	0	10.8	0.0057	2.5	PASS
GSM1900	512	VN	10	8.34	0.0044	2.5	PASS
GSM1900	512	VN	20	7.06	0.0038	2.5	PASS
GSM1900	512	VN	30	8.77	0.0047	2.5	PASS
GSM1900	512	VN	40	12.58	0.0067	2.5	PASS
GSM1900	512	VN	50	10.91	0.0058	2.5	PASS
GSM1900	661	VN	-30	25.89	0.0138	2.5	PASS
GSM1900	661	VN	-20	25.13	0.0134	2.5	PASS
GSM1900	661	VN	-10	25.71	0.0137	2.5	PASS
GSM1900	661	VN	0	24.58	0.0131	2.5	PASS
GSM1900	661	VN	10	26.09	0.0139	2.5	PASS
GSM1900	661	VN	20	24.9	0.0132	2.5	PASS
GSM1900	661	VN	30	24.93	0.0133	2.5	PASS
GSM1900	661	VN	40	27.08	0.0144	2.5	PASS
GSM1900	661	VN	50	29.18	0.0155	2.5	PASS
GSM1900	810	VN	-30	26.23	0.0140	2.5	PASS
GSM1900	810	VN	-20	27.06	0.0144	2.5	PASS
GSM1900	810	VN	-10	23.56	0.0125	2.5	PASS
GSM1900	810	VN	0	23.98	0.0128	2.5	PASS
GSM1900	810	VN	10	26.72	0.0142	2.5	PASS
GSM1900	810	VN	20	28.48	0.0151	2.5	PASS
GSM1900	810	VN	30	31.19	0.0166	2.5	PASS
GSM1900	810	VN	40	30.5	0.0162	2.5	PASS
GSM1900	810	VN	50	25.07	0.0133	2.5	PASS
GPRS1900	512	VN	-30	13.23	0.0070	2.5	PASS
GPRS1900	512	VN	-20	12.32	0.0066	2.5	PASS
GPRS1900	512	VN	-10	16.77	0.0089	2.5	PASS
GPRS1900	512	VN	0	14.91	0.0079	2.5	PASS
GPRS1900	512	VN	10	18.01	0.0096	2.5	PASS
GPRS1900	512	VN	20	10.41	0.0055	2.5	PASS
GPRS1900	512	VN	30	19.37	0.0103	2.5	PASS
GPRS1900	512	VN	40	22.23	0.0118	2.5	PASS
GPRS1900	512	VN	50	19.62	0.0104	2.5	PASS
GPRS1900	661	VN	-30	26.01	0.0138	2.5	PASS



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GPRS1900	661	VN	-20	25.25	0.0134	2.5	PASS
GPRS1900	661	VN	-10	23.04	0.0123	2.5	PASS
GPRS1900	661	VN	0	31.52	0.0168	2.5	PASS
GPRS1900	661	VN	10	27.82	0.0148	2.5	PASS
GPRS1900	661	VN	20	28.62	0.0152	2.5	PASS
GPRS1900	661	VN	30	31.04	0.0165	2.5	PASS
GPRS1900	661	VN	40	23.53	0.0125	2.5	PASS
GPRS1900	661	VN	50	30.06	0.0160	2.5	PASS
GPRS1900	810	VN	-30	23.8	0.0127	2.5	PASS
GPRS1900	810	VN	-20	23.31	0.0124	2.5	PASS
GPRS1900	810	VN	-10	30.06	0.0160	2.5	PASS
GPRS1900	810	VN	0	29.66	0.0158	2.5	PASS
GPRS1900	810	VN	10	30.16	0.0160	2.5	PASS
GPRS1900	810	VN	20	29.05	0.0155	2.5	PASS
GPRS1900	810	VN	30	25.11	0.0134	2.5	PASS
GPRS1900	810	VN	40	32.51	0.0173	2.5	PASS
GPRS1900	810	VN	50	28.44	0.0151	2.5	PASS



For WCDMA

Test Band=WCDMA850/WCDMA1900

			Volta	ge				
Band	Channel	Voltage	Temperature	Deviation	Deviation	Limit	Verdict	
Danu	Channel	(Vdc)	(°C)	(Hz)	(ppm)	(ppm)	Verdict	
Band II	9262	VL	TN	-23.69	-0.0126	2.5	PASS	
Band II	9262	VN	TN	-25.54	-0.0136	2.5	PASS	
Band II	9262	VH	TN	-23.17	-0.0123	2.5	PASS	
Band II	9400	VL	TN	-22.55	-0.0120	2.5	PASS	
Band II	9400	VN	TN	-26.58	-0.0141	2.5	PASS	
Band II	9400	VH	TN	-26.99	-0.0144	2.5	PASS	
Band II	9538	VL	TN	-23.73	-0.0126	2.5	PASS	
Band II	9538	VN	TN	-26.67	-0.0142	2.5	PASS	
Band II	9538	VH	TN	-29.91	-0.0159	2.5	PASS	
Band V	4132	VL	TN	-11.74	-0.0140	2.5	PASS	
Band V	4132	VN	TN	-11.04	-0.0132	2.5	PASS	
Band V	4132	VH	TN	-13.12	-0.0157	2.5	PASS	
Band V	4182	VL	TN	-3.63	-0.0043	2.5	PASS	
Band V	4182	VN	TN	-7.21	-0.0086	2.5	PASS	
Band V	4182	VH	TN	-13.13	-0.0157	2.5	PASS	
Band V	4233	VL	TN	-8.03	-0.0096	2.5	PASS	
Band V	4233	VN	TN	-9.11	-0.0109	2.5	PASS	
Band V	4233	VH	TN	-17.15	-0.0205	2.5	PASS	

Temperature										
Band	Channel	Voltage	Temperature	Deviation	Deviation	Limit	Verdict			
		(Vdc)	(°C)	(Hz)	(ppm)	(ppm)				
Band II	9262	VN	-30	-20.87	-0.0111	2.5	PASS			
Band II	9262	VN	-20	-21.84	-0.0116	2.5	PASS			
Band II	9262	VN	-10	-31.85	-0.0169	2.5	PASS			
Band II	9262	VN	0	-20.93	-0.0111	2.5	PASS			
Band II	9262	VN	10	-21.16	-0.0113	2.5	PASS			
Band II	9262	VN	20	-25.74	-0.0137	2.5	PASS			
Band II	9262	VN	30	-23.84	-0.0127	2.5	PASS			
Band II	9262	VN	40	-18.52	-0.0099	2.5	PASS			
Band II	9262	VN	50	-22.52	-0.0120	2.5	PASS			
Band II	9400	VN	-30	-28.16	-0.0150	2.5	PASS			
Band II	9400	VN	-20	-24.57	-0.0131	2.5	PASS			
Band II	9400	VN	-10	-23.27	-0.0124	2.5	PASS			
Band II	9400	VN	0	-22.33	-0.0119	2.5	PASS			
Band II	9400	VN	10	-22.19	-0.0118	2.5	PASS			
Band II	9400	VN	20	-24.78	-0.0132	2.5	PASS			
Band II	9400	VN	30	-21.4	-0.0114	2.5	PASS			
Band II	9400	VN	40	-23.99	-0.0128	2.5	PASS			
Band II	9400	VN	50	-18.5	-0.0098	2.5	PASS			



Band II	9538	VN	-30	-24.29	-0.0129	2.5	PASS
Band II	9538	VN	-20	-22.93	-0.0122	2.5	PASS
Band II	9538	VN	-10	-27.88	-0.0148	2.5	PASS
Band II	9538	VN	0	-19.8	-0.0105	2.5	PASS
Band II	9538	VN	10	-24.31	-0.0129	2.5	PASS
Band II	9538	VN	20	-24.44	-0.0130	2.5	PASS
Band II	9538	VN	30	-19.74	-0.0105	2.5	PASS
Band II	9538	VN	40	-21.29	-0.0113	2.5	PASS
Band II	9538	VN	50	-21.26	-0.0113	2.5	PASS
Band V	4132	VN	-30	-9.51	-0.0114	2.5	PASS
Band V	4132	VN	-20	-12.81	-0.0153	2.5	PASS
Band V	4132	VN	-10	-10.51	-0.0126	2.5	PASS
Band V	4132	VN	0	-12.71	-0.0152	2.5	PASS
Band V	4132	VN	10	-12.99	-0.0155	2.5	PASS
Band V	4132	VN	20	-13.62	-0.0163	2.5	PASS
Band V	4132	VN	30	-8.77	-0.0105	2.5	PASS
Band V	4132	VN	40	-9.75	-0.0117	2.5	PASS
Band V	4132	VN	50	-13.48	-0.0161	2.5	PASS
Band V	4182	VN	-30	-14.13	-0.0169	2.5	PASS
Band V	4182	VN	-20	-8.93	-0.0107	2.5	PASS
Band V	4182	VN	-10	-13.5	-0.0161	2.5	PASS
Band V	4182	VN	0	-5.56	-0.0067	2.5	PASS
Band V	4182	VN	10	-10.51	-0.0126	2.5	PASS
Band V	4182	VN	20	-14.96	-0.0179	2.5	PASS
Band V	4182	VN	30	-5.55	-0.0066	2.5	PASS
Band V	4182	VN	40	-6.33	-0.0076	2.5	PASS
Band V	4182	VN	50	-8.08	-0.0097	2.5	PASS
Band V	4233	VN	-30	-11.41	-0.0136	2.5	PASS
Band V	4233	VN	-20	-8.11	-0.0097	2.5	PASS
Band V	4233	VN	-10	-9.9	-0.0118	2.5	PASS
Band V	4233	VN	0	-10.03	-0.0120	2.5	PASS
Band V	4233	VN	10	-10.58	-0.0127	2.5	PASS
Band V	4233	VN	20	-4.28	-0.0051	2.5	PASS
Band V	4233	VN	30	-8.66	-0.0104	2.5	PASS
Band V	4233	VN	40	-2.53	-0.0030	2.5	PASS
Band V	4233	VN	50	-8.8	-0.0105	2.5	PASS



6 Test Set up Photos of the EUT

Please refer to separated files for Test Setup Photos of the EUT.

7 External Photos of the EUT

Please refer to separated files for External Photos of the EUT.

8 Internal Photos of the EUT

Please refer to separated files for Internal Photos of the EUT.