

TEST REPORT

Report Number: 14982484-E17V3

Applicant : APPLE, INC
1 APPLE PARK WAY
CUPERTINO, CA 95014, U.S.A.

Model : A3081

Brand : APPLE

FCC ID : BCG-E8688A

IC : 579C-E8688A

EUT Description : SMARTPHONE

Test Standard(s) : FCC 47 CFR PART 2, PART 22H, 24E, AND 27L
ISED RSS-GEN ISSUE 5, RSS-132 ISSUE 4, RSS-133
ISSUE 6, AND RSS-139 ISSUE 4

Date Of Issue:
2024-08-08

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Revision History

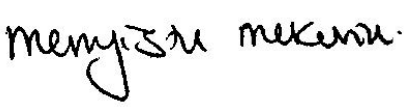
Rev.	Issue Date	Revisions	Revised By
V1	2024-07-01	Initial Review	Mengistu Mekuria
V2	2024-07-31	Addressed TCB feedback on Section 1, 7 & 9	Binod Sitaula
V3	2024-08-08	Addressed TCB feedback on Section 8.1.1 & 8.1.2	Mengistu Mekuria

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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE, INC 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.	
Model	A3081	
Brand	APPLE	
FCC ID	BCG-E8688A	
IC	579C-E8688A	
EUT Description	SMARTPHONE	
Serial Number	W0QPLWTPXT, C07H450007Y0000FGR, C07H5V000PZ0000FGR (Conducted) YCD77JQN20, L6YHHL2R7XF, G5VJH9QNYW (Radiated)	
Sample Receipt Date	2023-11-16	
Date Tested	2023-11-16 to 2024-06-10	
Applicable Standards	FCC 47 CFR Part 2, Part 22, Part 24, and Part 27 ISED RSS-GEN ISSUE 5, RSS-132 Issue 4, RSS-133 Issue 6, RSS-139 Issue 4.	
Test Results	COMPLIES	
UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise. This document may not be altered or revised in any way unless done so by UL Verification Services Inc., and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document.		
Approved & Released By:	Reviewed By:	Prepared By:
		
Mengistu Mekuria Staff Engineer UL Verification Services Inc.	Tewodros Woldemichael Laboratory Engineer Associate UL Verification Services Inc.	Matthew Wu Laboratory Engineer UL Verification Services Inc.

2. SUMMARY OF TEST RESULTS

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for correctly integrating customer-provided data with measurements performed by UL Verification Services Inc.

Requirement Description	Requirement Clause Number (FCC)	Requirement Clause Number (ISED)	Result	Remarks
RF Conducted Output Power	2.1046,	-	Complies	
Effective Radiated Power	22.913 (a)(5)	RSS132§5.4	Complies	
Equivalent Isotropic Radiated power	24.232 (c), 27.50 (d) (4)	RSS133§6.4 & SRSP-510, 5.1.2 RSS139§5.5	Complies	
Occupied Bandwidth	2.1049	RSS132 RSS133§2.3 RSS139 RSS-GEN§6.7	Complies	
Band Edge and Emission Mask	2.1051, 22.917 (a), 24.238 (a), 27.53 (h),	RSS132§5.5 RSS133§6.5 RSS139§5.6	Complies	
Out of Band Emissions	2.1051, 22.917 (a), 24.238 (a), 27.53 (h),	RSS132§5.5 RSS133§6.5 RSS139§5.6	Complies	
Frequency Stability	2.1055, 22.355, 24.235, 27.54	RSS132§5.3 RSS133§6.3 RSS139§6.4	Complies	
Peak-to-Average Ratio	22.913 (d), 24.232 (d), 27.50 (d) (5)	RSS132§5.4 RSS133§6.4 RSS139§5.5	Complies	
Field Strength of Spurious Radiation	2.1053, 22.917 (a), 24.238 (a), 27.53 (h),	RSS132§5.5 RSS133§6.5 RSS139§5.6	Complies	

3. TEST METHODOLOGY

- The tests documented in this report were performed in accordance with the following:
- ANSI C63.26:2015
 - FCC 47 CFR Part 2, Part 22, Part 24, and Part 27.
 - [FCC KDB 971168 D01 v03r01](#): Power Meas License Digital Systems
 - [FCC KDB 971168 D02 v02r02](#): Misc Rev Approv License Devices
 - [FCC KDB 412172 D01 v01r01](#). Determining ERP and EIRP
 - ISED RSS-GEN Issue 5, ISED RSS-132 Issue 4, RSS-133 Issue 6, RSS-139 Issue 4.

4. FACILITIES AND ACCREDITATION

UL Verification Services Inc is accredited by A2LA, certification #0751.05, for all testing performed within the scope of this report. Testing was performed at the locations noted below.

	Address	ISED CABID	ISED Company Number	FCC Registration
☒	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
☒	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA			
☒	Building 3: 843 Auburn Court, Fremont, CA 94538, USA			
☐	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA			
☒	Building 5: 47670 Kato Rd, Fremont, CA 94538, USA			

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

All test and measuring equipment utilized to perform the tests documented in this report are calibrated on a regular basis, with a maximum time between calibrations of one year or the manufacturers' recommendation, whichever is less, and where applicable is traceable to recognized national standards.

5.2. DECISION RULES

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

5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	U _{Lab}
Conducted Antenna Port Emission Measurement	1.940
Power Spectral Density	2.466
Time Domain Measurements Using SA	3.39
RF Power Measurement Direct Method Using Power Meter	0.450 Peak; 1.300 Ave.
Radio Frequency (Spectrum Analyzer)	141.16 Hz
Occupied Bandwidth	1.22%
Worst Case Conducted Disturbance, 9KHz to 0.15 MHz	3.78 db
Worst Case Conducted Disturbance, 0.15 to 30 MHz	3.40 db
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.87 db
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 db
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 db
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 db
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 db

Uncertainty figures are valid to a confidence level of 95%.

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The Apple iPhone is a smartphone with cellular GSM, GPRS, EGPRS, WCDMA, LTE, 5G NR1, 5G NR2, IEEE 802.11a/b/g/n/ac/ax/be, Bluetooth (BT), Ultra-Wideband (UWB), Global Positioning System (GPS), Near-Field Communication (NFC), Narrow-Band (NB) UNII, 802.15.4, 802.15.4ab-Narrow Band (NB) and Mobile Satellite Service (MSS) technologies. The rechargeable battery is not user accessible. This device is not user-serviceable and requires special tools to disassemble.

6.2. MAXIMUM OUTPUT POWER

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015
KDB 971168 D01 Section 5.6

$$\text{ERP/EIRP} = \text{PMeas} + \text{GT} - \text{LC}$$

where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);

PMeas = measured transmitter output power or PSD, in dBm or dBW;

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

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

For devices utilizing multiple antennas, KDB 662911 provides guidance for determining the effective array transmit antenna gain term to be used in the above equation.

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted and ERP/EIRP output powers as follows:

GSM MODES

RSS 132 850MHz(Ant1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.2-848.8	GPRS	33.50	-4.60	3.0	26.75	0.473	242.69	243KGXW
	EGPRS	28.00			21.25	0.133	244.11	244KG7W
Part 22 850MHz(Ant1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.2-848.8	GPRS	33.50	-4.60	3.0	26.75	0.473	242.69	243KGXW
	EGPRS	28.00			21.25	0.133	244.11	244KG7W
Part 24 / RSS 133 1900MHz(Ant3)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1850.2-1909.8	GPRS	31.50	-1.40	2.0	30.10	1.023	245.75	246KGXW
	EGPRS	26.50			25.10	0.324	249.83	250KG7W

WCDMA MODE

RSS 132 Band 5(Ant1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
826.4-846.6	REL 99	25.70	-4.60	3.0	18.95	0.079	4137	4M14F9W
	HSDPA	25.50			18.75	0.075	4143	4M14F9W
Part 22 Band 5(Ant1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
826.4-846.6	REL 99	25.70	-4.60	3.0	18.95	0.079	4137	4M14F9W
	HSDPA	25.50			18.75	0.075	4143	4M14F9W
Part 24 / RSS 133 Band 2(Ant3)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1852.4-1907.6	REL 99	25.50	-1.40	2.0	24.10	0.257	4150	4M15F9W
	HSDPA	25.08			23.68	0.233	4156	4M16F9W
Part 27 / RSS 139 Band 4(Ant3)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1712.4-1752.6	REL 99	25.50	-2.30	1.0	23.20	0.209	4164	4M16F9W
	HSDPA	24.47			22.17	0.165	4146	4M15F9W

6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 0.02.01.

6.4. MAXIMUM ANTENNA GAIN

The antenna(s) gain(s) and type, as provided by the manufacturer' are as follows:

Frequency Band	ANT 1 Antenna Gain (dBi)	ANT 2 Antenna Gain (dBi)	ANT 3 Antenna Gain (dBi)	ANT 4 Antenna Gain (dBi)
GSM850 and WCDMA 5 824 – 849MHz	-4.6	-5.6		
GSM1900 and WCDMA 2 1850 – 1910 MHz	-4.0	-3.7	-1.4	-0.6
WCDMA 4 1710 – 1755 MHz	-2.9	-3.6	-2.3	-1.6

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT was investigated in three orthogonal orientations X/Y/Z on all ANT 1, ANT2, ANT3 and ANT4 antennas to determine the worst-case orientation. The following table exhibits the worst-case orientation for different frequency bands. The full tests of the EUT have made upon the orientations that shown in the table below.

Frequency Bands	ANT1	ANT2	ANT3	ANT4
824 – 849 MHz	X	X	N/A	N/A
1710 – 1915 MHz	X	X	X	X

Based on average conducted output power measurement investigations. The worst-case is Ant1 with the highest power. Therefore, Ant 1 was used to perform all conducted tests.

The worst-case scenario for all measurements as followed:

- GSM GPRS
- GSM EGPRS
- WCDMA REL 99
- WCDMA HSDPA

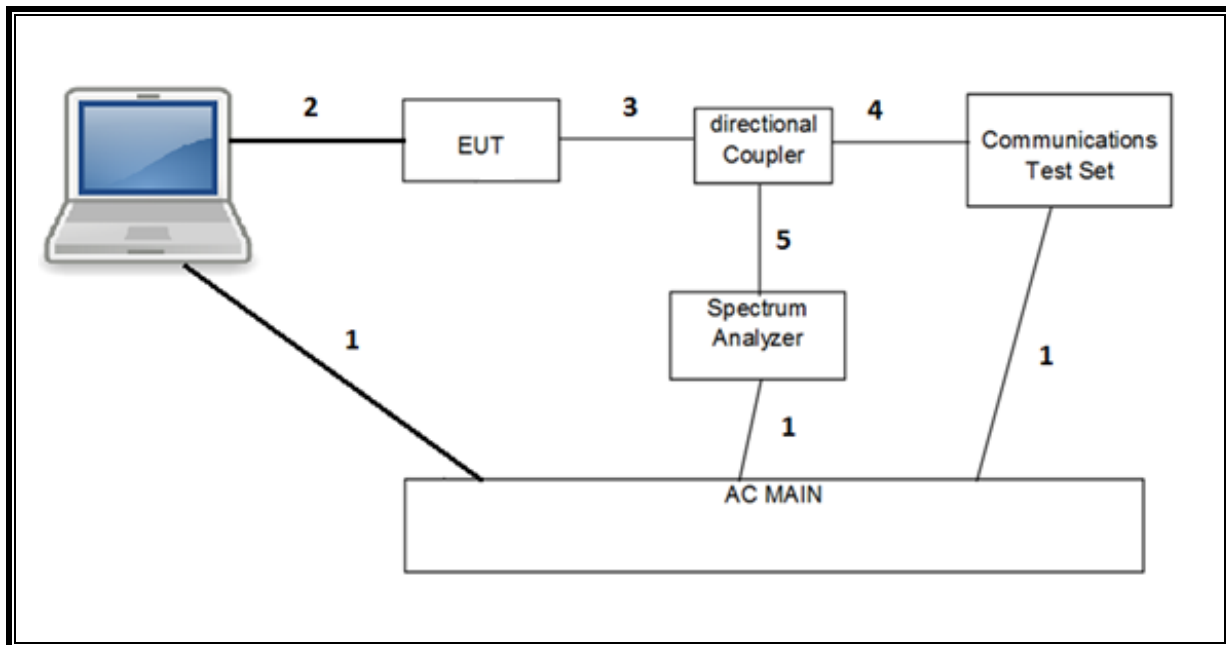
Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

For simultaneous transmission of multiple channels in the 2.4GHz/5GH WLAN, UWB, and Cellular bands, tests were conducted for various configurations having the highest power, least separation in frequencies and widest operation bandwidths. No noticeable new emission was found.

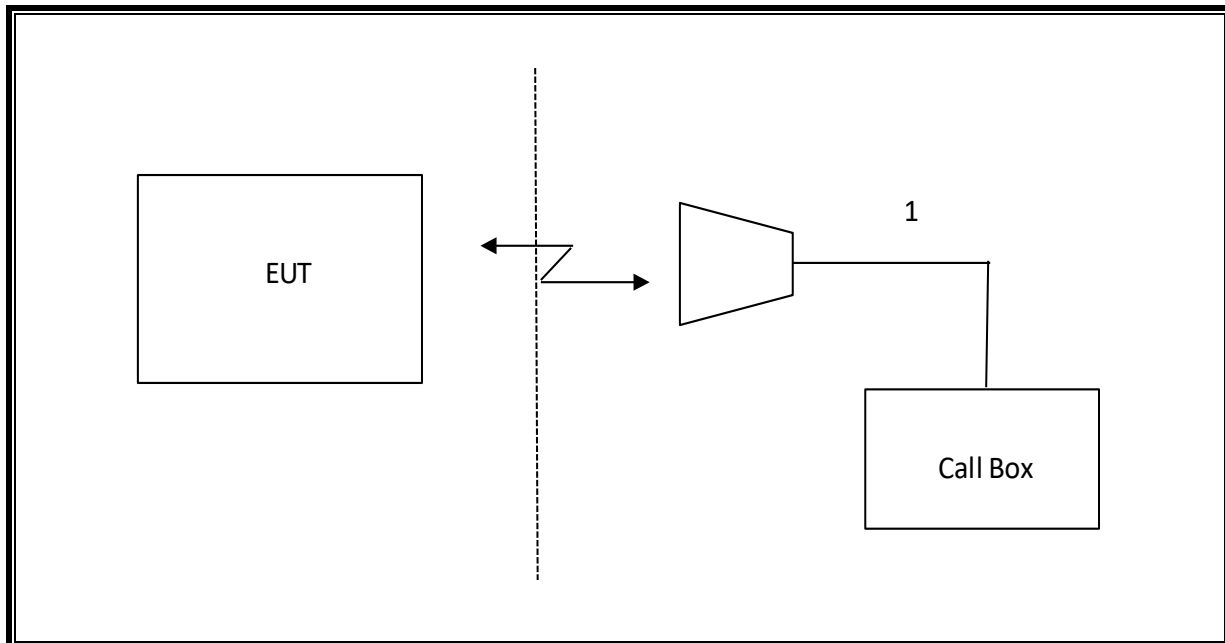
6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description		Manufacturer	Model	Serial Number		FCC ID/ DoC
Laptop		Apple	MacBook Pro	HRP082673		BCGA1708
AC/DC adapter		Apple	A1718	C4H64450HH3GN8RA6		--
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	AC	3	US 115V	Un-shielded	2.0	N/A
2	USB	1	DC	Un-shielded	1.0	N/A
3	RF In/Out	1	EUT	Un-shielded	0.6	N/A
4	RF In/Out	1	Communication Test Set	Un-shielded	1.2	N/A
5	RF In/Out	1	Barrel	N/A	N/A	N/A
I/O CABLES (RF RADIATED TEST)						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	RF In/Out	1	Antenna	Un-shielded	5.0	N/A

CONDUCTED SETUP



RADIATED SETUP



7. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Antenna, Horn 1-18GHz	ETS-Lindgren	3117	80430	2024-08-31
Antenna, Horn 1-18GHz	ETS Lindgren	3117	79834	2024-06-30
Antenna, Broadband Hybrid, 30MHz to 3000MHz	SUNAR	JB3	222009	2024-10-31
RF Filter Box, 1-18GHz	UL-FR1	NA	217255	2024-10-31
Antenna, Passive Loop 30Hz - 1MHz	ELECTRO-METRICS	EM-6871	170014	2024-08-31
Antenna, Passive Loop 100KHz - 30MHz	ELECTRO-METRICS	EM-6872	170016	2024-08-31
RF Filter Box, 1-18GHz	UL-FR1	RATS 2	226781	2024-09-30
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	430250	2024-09-30
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	169936	2025-02-28
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	169935	2025-02-28
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	85943	2025-02-28
Directional Coupler	KRYTAR	152610	198816	2024-10-31
Directional Coupler	KRYTAR	152610	231664	2025-01-22
Power Meter, P-series single channel	Keysight	N1912A	90719	2025-01-31
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight	N1921A	81319	2025-01-31
Filter, HPF 1.2GHz	Wainwright Instruments GmbH	WHKX6-948-1.2/15G-40ST	99	2024-10-31
Spectrum Analyzer, PXA, 2Hz to 44GHz	Keysight	N9030B	231739	2025-01-31
Spectrum Analyzer, PXA, 2Hz to 44GHz	Keysight	N9030B	245120	2025-02-28
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	85212	2025-02-28
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	222793	2025-02-28
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	222797	2025-02-28
Chamber, Environmental	Thermotron Corp.	SM-16C Mini-Max	179936	2024-06-30
Transmitting Antenna, Horn Antenna	TEKBOX Digital Solutions	TBMA4	226709	C.N.R.
Antenna, Horn 18 to 26.5GHz	A.R.A.	MWH-1826/B	199659	2024-12-31
*Amplifier 18-26.5GHz, +5Vdc, -54dBm P1dB	AMPLICAL	AMP18G26.5-60	234683	2024-03-29
DC Power Supply	GWINSTEK	GPS18500	N/A	C.N.R.
UL AUTOMATION SOFTWARE				
CLT Software	UL	UL RF	V2023.11.21.0	
Power Measurement Software	UL	UL RF	V2023.08.14.0	
Radiated test software	UL	UL RF	Ver 9.5 2023-05-01	

NOTES:

- * Testing is completed before equipment expiration date.
- ** Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

8. RF OUTPUT POWER MEASUREMENT

EUT includes different power levels for head use configuration and body use configuration and the below tables contain the highest of all configurations average conducted output powers as follows:

8.1. GSM

Using CMW500 Communication Test Set

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900

Press **Connection control** to choose the different menus

Press **RESET** > choose all to reset all settings

Connection	Press Signal Off to turn off the signal and change settings Network Support > GSM+GPRS or GSM+EGPRS Main Service > Packet Data Service selection > Test Mode A – Auto Slot Config. off
MS Signal	Press Slot Config bottom on the right twice to select and change the number of time slots and power setting > Slot configuration > Uplink/Gamma > 33 dBm for GPRS 850/900 > 27 dBm for EGPRS 850/900 > 30 dBm for GPRS1800/1900 > 26 dBm for EGPRS1800/1900
BS Signal	Enter the same channel number for TCH channel (test channel) and BCCH channel Frequency Offset > + 0 Hz Mode > BCCH and TCH BCCH Level > -85 dBm (May need to adjust if link is not stable) BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel] Channel Type > Off P0> 4 dB Slot Config > Unchanged (if already set under MS Signal) TCH > choose desired test channel Hopping > Off Main Timeslot > 3 (Default)
Network	Coding Scheme > CS 1 (GPRS) and MCS5 (EGPRS) Bit Stream > 2E9-1PSR Bit Pattern
AF/RF	Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input
Connection	Press Signal On to turn on the signal and change settings

RESULT

8.1.1. GSM 850

Test Engineer ID:	25780	Test Date:	1/16/2024
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Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)	
					ANT 1	ANT 2
GPRS (GMSK)	CS1	1	128	824.2	32.41	31.64
			190	836.6	33.26	31.89
			251	848.8	33.50	31.88
		2	128	824.2	32.12	31.47
			190	836.6	32.50	31.50
			251	848.8	32.26	31.48
EGPRS (8PSK)	MCS5	1	128	824.2	27.24	26.89
			190	836.6	27.66	26.97
			251	848.8	28.00	27.00
		2	128	824.2	26.89	25.90
			190	836.6	26..95	25.96
			251	848.8	27.00	26.00

8.1.2. GSM 1900

Test Engineer ID:	25780	Test Date:	1/16/2024
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Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)			
					ANT 1	ANT 2	ANT 3	ANT 4
GPRS (GMSK)	CS1	1	512	1850.2	32.00	28.86	31.23	28.51
			661	1880.0	31.34	28.99	31.29	28.73
			810	1909.8	31.56	29.09	31.50	28.90
		2	512	1850.2	31.00	28.43	30.17	27.63
			661	1880.0	30.55	28.44	30.27	27.84
			810	1909.8	30.63	28.50	30.50	28.00
EGPRS (8PSK)	MCS5	1	512	1850.2	27.00	24.00	26.21	23.76
			661	1880.0	26.23	23.91	26.25	23.91
			810	1909.8	26.62	23.98	26.50	24.00
		2	512	1850.2	25.87	22.99	25.17	22.58
			661	1880.0	26.00	22.84	25.25	22.66
			810	1909.8	25.62	23.00	25.50	23.00

8.2. WCDMA

TEST PROCEDURE

The transmitter output was connected to the input terminal of Directional Coupler via calibrated coaxial cable. The output coupling terminal of the Directional Coupler was directly connected to a spectrum analyzer while the output through terminal connected to the communication test set via calibrated coaxial cable.

The output power was measured with the spectrum analyzer at the low, middle and high channel in each band.

- Set the spectrum analyzer span wide enough or greater than the modulated signal BW.
- Set a spectrum analyzer at peak detection mode with VBW $\geq$ RBW $\geq$ 26dB BW, typically 5MHz.
- Set a marker to point the corresponding peak value.

REL 99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 specification. The DUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7).

Mode	Subtest	Rel99
WCDMA General Settings	Loopback Mode	Test Mode 2
	Rel99 RMC	12.2kbps RMC
	Power Control Algorithm	Algorithm2
	β_c/β_d	8/15

HSDPA REL 5

The following 4 Sub-tests were completed according to Release 5 procedures in table C.10.1.4 of 3GPP TS 34.121-1. A summary of these settings are illustrated below:

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.

Note 2: For the HS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude (EVM) with HS-DPCCH test in clause 5.13.1A, and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and $\Delta_{NACK} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$, and $\Delta_{CQI} = 24/15$ with $\beta_{hs} = 24/15 * \beta_c$.

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.

Note 4: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 11/15$ and $\beta_d = 15/15$.

HSPA REL 6 (HSDPA & HSUPA)

The following 5 Sub-tests were completed according to Release 6 procedures in table C.11.1.3 of 3GPP TS 34.121-1. A summary of these settings are illustrated below:

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/25	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. For sub-test 5, Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 5/15$ with $\beta_{hs} = 5/15 * \beta_c$.

Note 2: 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.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signalled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: In case of testing by UE using E-DPDCH Physical Layer category 1, Sub-test 3 is omitted according to TS25.306 Table 5.1g.

Note 5: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Note 6: For subtests 2, 3 and 4, UE may perform E-DPDCH power scaling at max power which could results in slightly smaller MPR values.

DUAL CARRIER HSDPA (DC-HSDPA (REL 8, CAT 24))

The following 4 Sub-tests for DC-HSDPA were completed according to Release 8 procedures in table C08.1.12 of 3GPP TS 34.121-1. A summary of subtest settings are illustrated below:

Table C.8.1.12: Fixed Reference Channel H-Set 12

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK

Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.

Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.

HSPA+ REL 7

The following 1 Sub-test was completed according to Release 7 procedures in table C.11.1.4 of 3GPP TS34.121. A summary of these settings are illustrated below:

Table C.11.1.4: β values for transmitter characteristics tests with HS-DPCCH and E-DCH with 16QAM

Sub-test	β_c (Note 3)	β_d	β_{HS} (Note 1)	β_{ec}	β_{ed} (2xSF2) (Note 4)	β_{ed} (2xSF4) (Note 4)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 4)	E-TFCI (Note 5)	E-TFCI (boost)
1	1	0	30/15	30/15	β_{ed1} : 30/15 β_{ed2} : 30/15	β_{ed3} : 24/15 β_{ed4} : 24/15	3.5	2.5	14	105	105
Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$. Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0). Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default. Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value. Note 5: All the sub-tests require the UE to transmit 2SF2+2SF4 16QAM EDCH and they apply for UE using E-DPDCH category 7. E-DCH TTI is set to 2ms TTI and E-DCH table index = 2. To support these E-DCH configurations DPDCH is not allocated. The UE is signalled to use the extrapolation algorithm.											

RESULT

8.2.1. WCDMA BAND 5

Test Engineer ID:	25780	Test Date:	1/25/2024
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Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)	
						ANT 1	ANT 2
W-CDMA Band 5 (850MHz)	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	25.70	25.20
			4183	836.6	N/A	25.52	25.07
			4233	846.6	N/A	25.34	24.89
	HSDPA	Subtest 1	4132	826.4	0	25.50	25.06
			4183	836.6	0	25.31	24.87
			4233	846.6	0	25.12	24.71
		Subtest 2	4132	826.4	0	25.49	25.03
			4183	836.6	0	25.32	24.90
			4233	846.6	0	25.13	24.72
		Subtest 3	4132	826.4	0.5	24.99	24.54
			4183	836.6	0.5	24.80	24.40
			4233	846.6	0.5	24.62	24.22
		Subtest 4	4132	826.4	0.5	24.97	24.56
			4183	836.6	0.5	24.81	24.38
			4233	846.6	0.5	24.61	24.22
	HSPA (HSDPA & HSUPA)	Subtest 1	4132	826.4	0	25.50	25.04
			4183	836.6	0	25.25	24.87
			4233	846.6	0	25.03	24.73
		Subtest 2	4132	826.4	2	23.47	23.03
			4183	836.6	2	23.23	22.87
			4233	846.6	2	23.04	22.70
		Subtest 3	4132	826.4	1	24.49	24.04
			4183	836.6	1	24.23	23.89
			4233	846.6	1	24.07	23.72
		Subtest 4	4132	826.4	2	23.48	23.08
			4183	836.6	2	23.26	22.93
			4233	846.6	2	23.04	22.72
		Subtest 5	4132	826.4	0	25.09	24.63
			4183	836.6	0	24.78	24.46
			4233	846.6	0	24.67	24.22
	DC-HSDPA	Subtest 1	4132	826.4	0	25.49	25.05
			4183	836.6	0	25.31	24.88
			4233	846.6	0	25.11	24.70
		Subtest 2	4132	826.4	0	25.49	25.02
			4183	836.6	0	25.31	24.88
			4233	846.6	0	25.14	24.72
		Subtest 3	4132	826.4	0.5	25.00	24.57
			4183	836.6	0.5	24.78	24.41
			4233	846.6	0.5	24.58	24.22
		Subtest 4	4132	826.4	0.5	25.00	24.58
			4183	836.6	0.5	24.79	24.40
			4233	846.6	0.5	24.60	24.19

8.2.2. WCDMA BAND 2

Test Engineer ID:	25780	Test Date:	1/25/2024
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Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)			
						ANT 1	ANT 2	ANT 3	ANT 4
W-CDMA Band 2 (1900MHz)	Rel 99	RMC, 12.2 kbps	9262	1852.4	N/A	25.67	23.40	25.06	22.90
			9400	1880.0	N/A	25.70	22.99	25.14	22.40
			9538	1907.6	N/A	25.69	23.06	25.50	22.53
	HSDPA	Subtest 1	9262	1852.4	0	24.74	22.39	25.08	21.91
			9400	1880.0	0	24.71	21.95	24.14	19.36
			9538	1907.6	0	24.66	21.06	24.45	19.02
		Subtest 2	9262	1852.4	0	24.71	22.39	25.05	21.93
			9400	1880.0	0	24.70	21.92	24.13	19.37
			9538	1907.6	0	24.65	21.09	24.45	19.04
		Subtest 3	9262	1852.4	0.5	24.24	21.90	24.61	21.45
			9400	1880.0	0.5	24.18	21.45	23.66	18.88
			9538	1907.6	0.5	24.14	20.59	23.96	18.54
		Subtest 4	9262	1852.4	0.5	24.23	21.91	24.59	21.45
			9400	1880.0	0.5	24.19	21.46	23.65	18.87
			9538	1907.6	0.5	24.16	20.59	23.97	18.53
	HSPA (HSDPA & HSUPA)	Subtest 1	9262	1852.4	0	25.11	22.46	25.06	21.94
			9400	1880.0	0	25.02	21.98	24.11	19.39
			9538	1907.6	0	24.54	21.03	24.44	19.05
		Subtest 2	9262	1852.4	2	23.86	20.45	23.05	19.95
			9400	1880.0	2	23.06	19.97	22.06	17.34
			9538	1907.6	2	22.51	19.03	22.40	17.03
		Subtest 3	9262	1852.4	1	24.95	21.45	24.09	20.95
			9400	1880.0	1	24.04	20.99	23.09	18.39
			9538	1907.6	1	23.56	20.05	23.40	18.04
		Subtest 4	9262	1852.4	2	23.92	20.45	23.08	19.97
			9400	1880.0	2	23.06	19.98	22.09	17.40
			9538	1907.6	2	22.58	19.03	22.43	17.06
		Subtest 5	9262	1852.4	0	24.52	22.02	24.70	21.52
			9400	1880.0	0	24.64	21.52	23.68	18.98
			9538	1907.6	0	24.18	20.57	24.04	18.60
	DC-HSDPA	Subtest 1	9262	1852.4	0	24.67	22.37	25.05	21.91
			9400	1880.0	0	24.72	21.95	24.11	19.35
			9538	1907.6	0	24.69	21.03	24.44	19.02
		Subtest 2	9262	1852.4	0	24.71	22.39	25.08	21.93
			9400	1880.0	0	24.68	21.92	24.13	19.35
			9538	1907.6	0	24.67	21.00	24.43	19.05
		Subtest 3	9262	1852.4	0.5	24.19	21.92	24.57	21.46
			9400	1880.0	0.5	24.19	21.43	23.60	18.83
			9538	1907.6	0.5	24.16	20.57	23.92	18.55
		Subtest 4	9262	1852.4	0.5	24.21	21.90	24.57	21.45
			9400	1880.0	0.5	24.19	21.43	23.60	18.85
			9538	1907.6	0.5	24.19	20.56	23.94	18.56

8.2.3. WCDMA BAND 4

Test Engineer ID:	25780	Test Date:	1/25/2024
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Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)			
						ANT 1	ANT 2	ANT 3	ANT 4
W-CDMA Band 4 (1700MHz)	Rel 99	RMC, 12.2 kbps	1312	1712.4	N/A	25.61	22.99	25.33	22.76
			1413	1732.6	N/A	25.70	23.10	25.38	22.70
			1513	1752.6	N/A	25.69	23.40	25.50	22.90
	HSDPA	Subtest 1	1312	1712.4	0	24.73	23.06	23.32	21.76
			1413	1732.6	0	24.76	23.11	24.36	21.74
			1513	1752.6	0	24.74	23.37	24.45	21.11
		Subtest 2	1312	1712.4	0	24.70	23.02	23.33	21.75
			1413	1732.6	0	24.76	23.09	24.34	21.74
			1513	1752.6	0	24.75	23.36	24.47	21.10
		Subtest 3	1312	1712.4	0.5	24.20	22.49	22.82	21.25
			1413	1732.6	0.5	24.22	22.59	23.86	21.23
			1513	1752.6	0.5	24.23	22.85	24.01	21.59
		Subtest 4	1312	1712.4	0.5	24.21	22.55	22.83	21.24
			1413	1732.6	0.5	24.25	22.61	23.85	21.20
			1513	1752.6	0.5	24.24	22.87	23.96	21.59
	HSPA (HSDPA & HSUPA)	Subtest 1	1312	1712.4	0	24.54	22.98	23.31	21.78
			1413	1732.6	0	24.99	23.09	24.33	21.75
			1513	1752.6	0	25.50	23.37	24.45	21.15
		Subtest 2	1312	1712.4	2	22.52	20.98	21.31	19.74
			1413	1732.6	2	22.98	21.11	22.33	19.72
			1513	1752.6	2	23.50	21.38	22.43	21.11
		Subtest 3	1312	1712.4	1	23.55	21.97	22.31	20.73
			1413	1732.6	1	23.97	22.06	23.28	20.72
			1513	1752.6	1	24.51	22.37	23.44	21.12
		Subtest 4	1312	1712.4	2	22.57	21.02	21.32	19.78
			1413	1732.6	2	23.01	21.11	22.31	19.79
			1513	1752.6	2	23.52	21.36	22.46	21.13
		Subtest 5	1312	1712.4	0	24.15	22.60	22.84	21.33
			1413	1732.6	0	24.55	22.64	23.93	21.28
			1513	1752.6	0	25.10	22.91	24.06	21.69
	DC-HSDPA	Subtest 1	1312	1712.4	0	24.62	23.02	23.31	21.73
			1413	1732.6	0	24.68	23.25	24.34	21.75
			1513	1752.6	0	24.66	22.52	24.45	21.12
		Subtest 2	1312	1712.4	0	24.65	23.01	23.29	21.74
			1413	1732.6	0	24.66	23.26	24.33	21.72
			1513	1752.6	0	24.65	22.51	24.42	21.08
		Subtest 3	1312	1712.4	0.5	24.14	22.53	22.79	21.23
			1413	1732.6	0.5	24.15	22.75	23.81	21.21
			1513	1752.6	0.5	24.15	23.03	23.97	21.57
		Subtest 4	1312	1712.4	0.5	24.16	22.52	22.82	21.24
			1413	1732.6	0.5	24.17	22.76	23.86	21.20
			1513	1752.6	0.5	24.15	23.04	23.97	21.59

9. CONDUCTED TEST RESULTS

9.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049
ISED: RSS132; RSS133§2.3; RSS139

LIMITS

For reporting purposes only.

TEST PROCEDURE

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

RESULTS

There is no limit required and power is the same for low, middle, and high channel; therefore, only middle channel was tested.

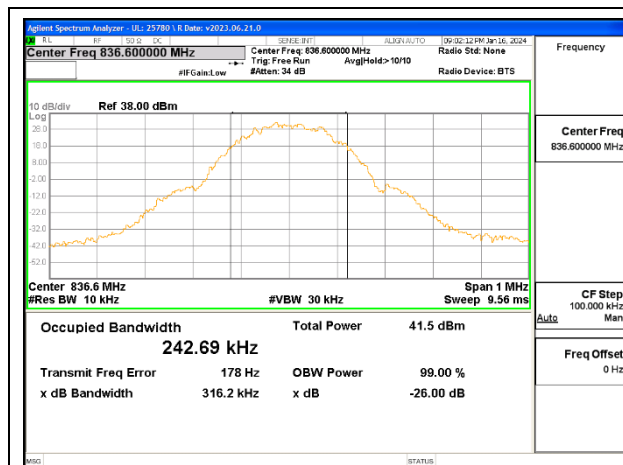
GSM

Band	Modulation	Channel	f(MHz)	99% BW (KHz)	-26dB BW (KHz)
850	GPRS	190	836.6	242.7	316.2
	EGPRS			244.1	303.6
1900	GPRS	661	1880.0	245.7	324.5
	EGPRS			249.8	316.3

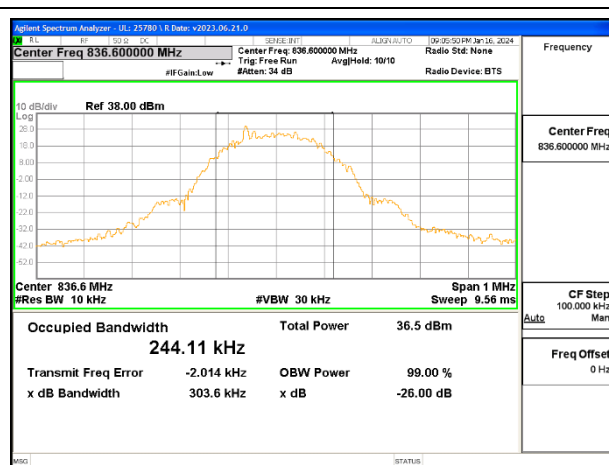
WCDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	REL 99	4183	836.6	4.137	4.692
	HSDPA			4.143	4.698
BAND 2	REL 99	9400	1880.0	4.150	4.703
	HSDPA			4.156	4.707
BAND 4	REL 99	1413	1732.6	4.164	4.711
	HSDPA			4.146	4.705

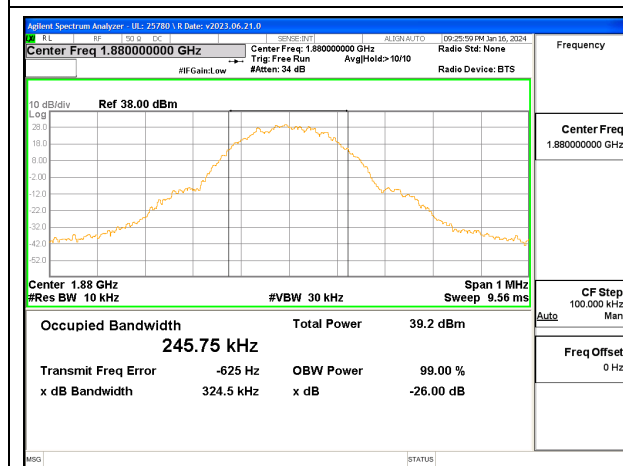
9.1.1. GSM



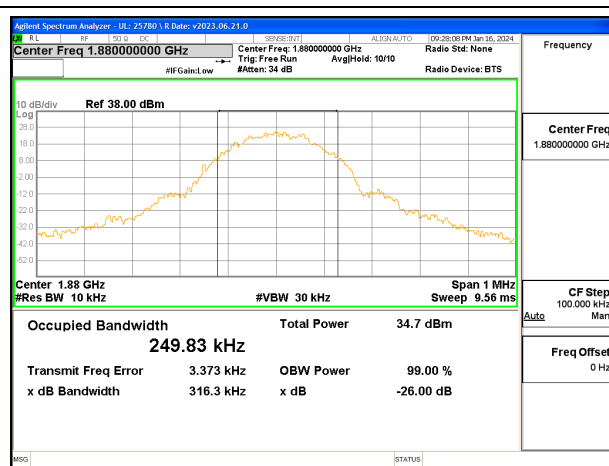
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel

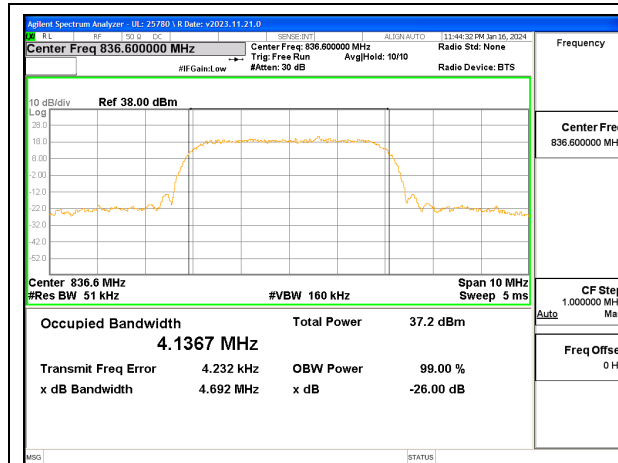


GSM 1900 GPRS Middle Channel

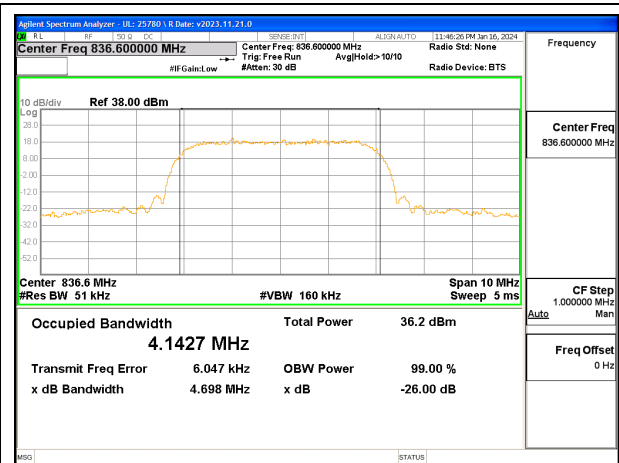


GSM 1900 EGPRS Middle Channel

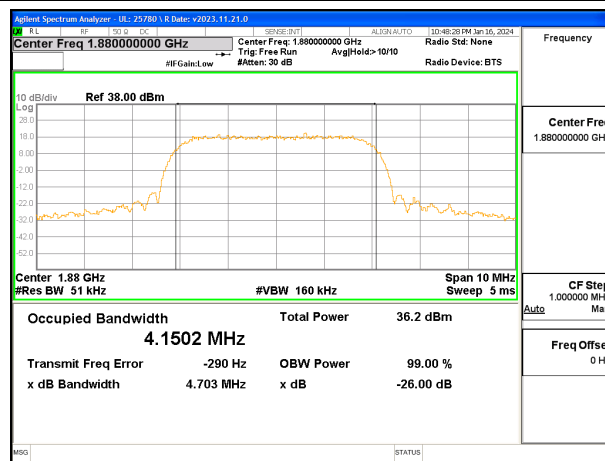
9.1.2. WCDMA



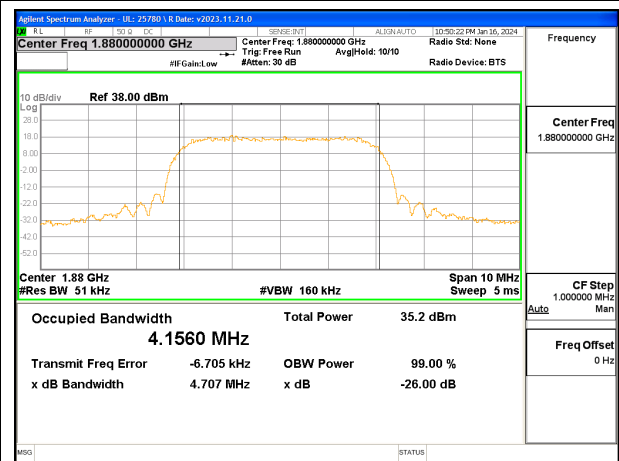
WCDMA Band 5 Rel 99 Middle Channel



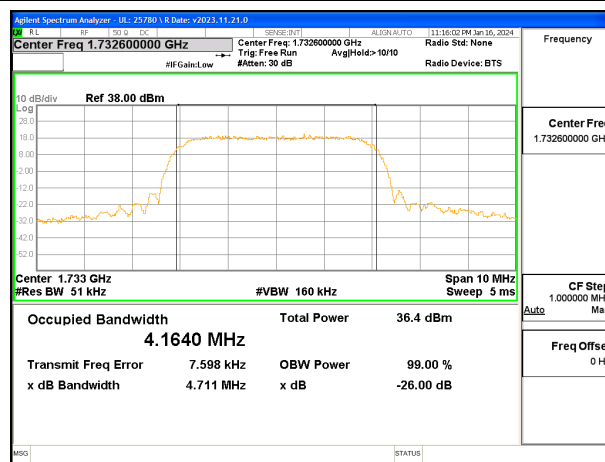
WCDMA Band 5 HSDPA Middle Channel



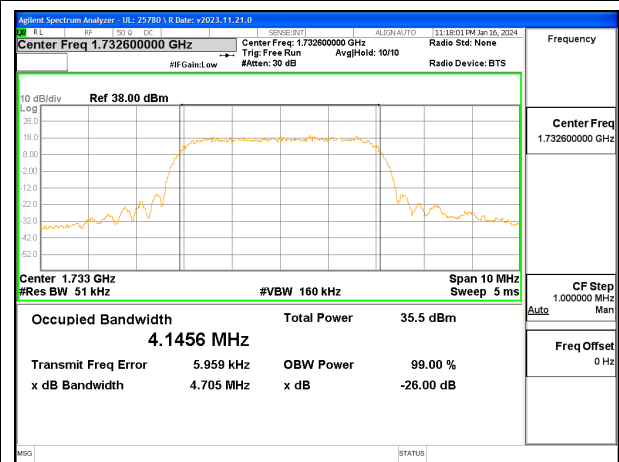
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel



WCDMA Band 4 Rel 99 Middle Channel



WCDMA Band 4 HSDPA Middle Channel

9.2. BAND EDGE AND EMISSION MASK

LIMITS

FCC: §22.917(a), §24.238, §27.53 (h)

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

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

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

NOTE: According to 971168 D02 Misc Rev Approv License Devices v02r01, Section VIII (c):

For Section 90.691(a) compliance testing, use RBW = 300 Hz for offsets less than 37.5 kHz from a channel edge; RBW = 100 kHz is allowed for offsets greater than 37.5 kHz.

RSS132§5.5

Equipment shall meet the unwanted emission limits specified below:

- (i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated below the transmitter output power P (dBW) by at least $43 + 10 \log(p)$ dB.
- (ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated below the transmitter output power P (dBW) by at least $43 + 10 \log(p)$ dB. If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

p is the output power specified in watts.

RSS133§6.5.1

Equipment shall comply with the limits in (i) and (ii) below.

- (iii) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10}(p(\text{watts}))$.
- (iv) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10}(p(\text{watts}))$. If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS139§5.6

Unwanted emissions shall be measured in terms of average values.

For all equipment, the TRP or total conducted power (sum of conducted power across all antenna connectors) of the unwanted emissions outside the frequency block or frequency block group shall not exceed the limits shown in table 4.

Table 6: Unwanted emission limits	
Offset from the edge of the frequency block or frequency block group	Unwanted emission limits
≤1 MHz	-13 dBm/(1% of B*)
>1 MHz	-13 dBm/MHz

*B is the frequency block or frequency block group.

TEST PROCEDURE

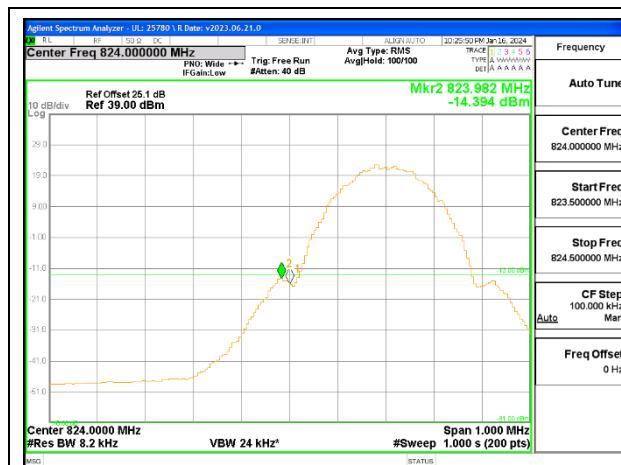
The transmitter output was connected to a R&S CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

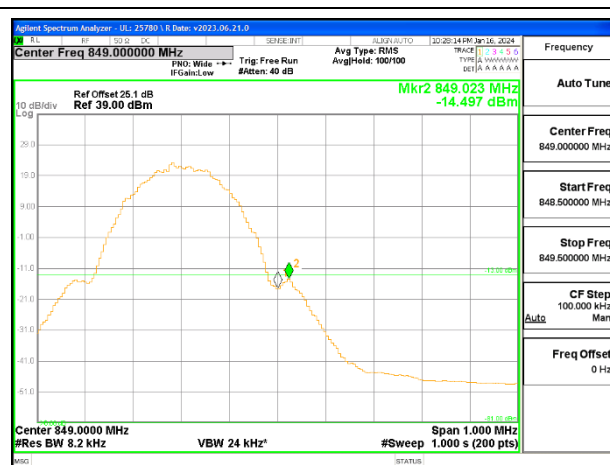
- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

RESULTS

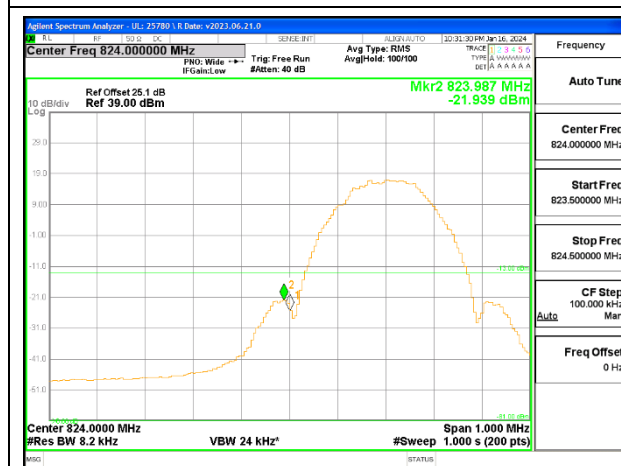
9.2.1. GSM 850



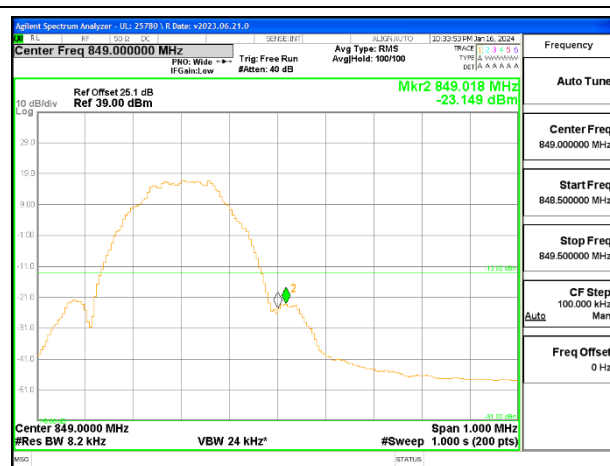
GSM 850 GPRS Low Channel



GSM 850 GPRS High Channel

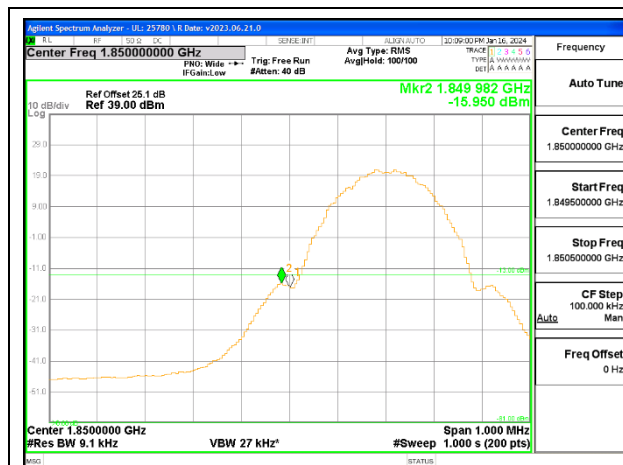


GSM 850 EGPRS Low Channel

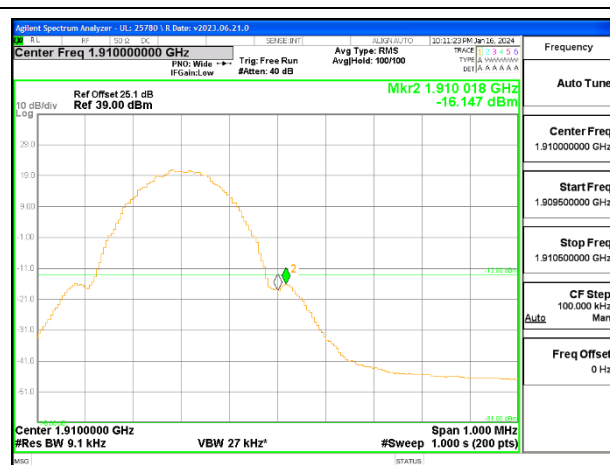


GSM 850 EGPRS High Channel

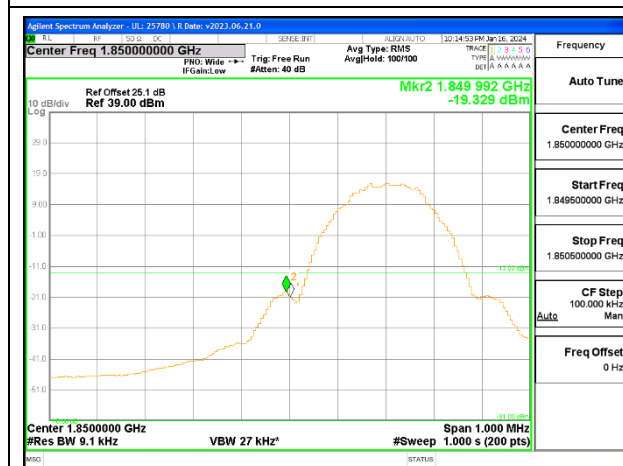
9.2.2. GSM 1900



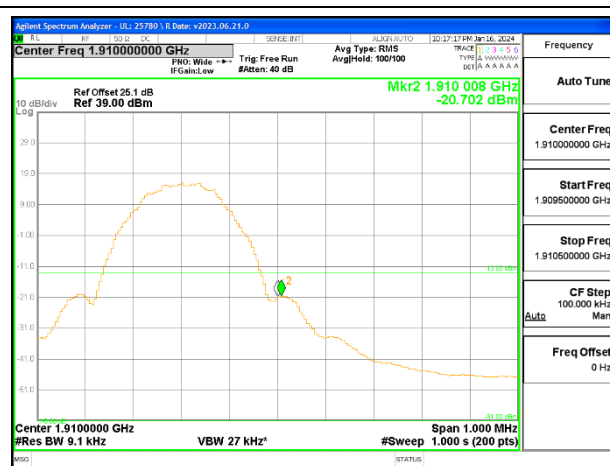
GSM 1900 GPRS Low Channel



GSM 1900 GPRS High Channel

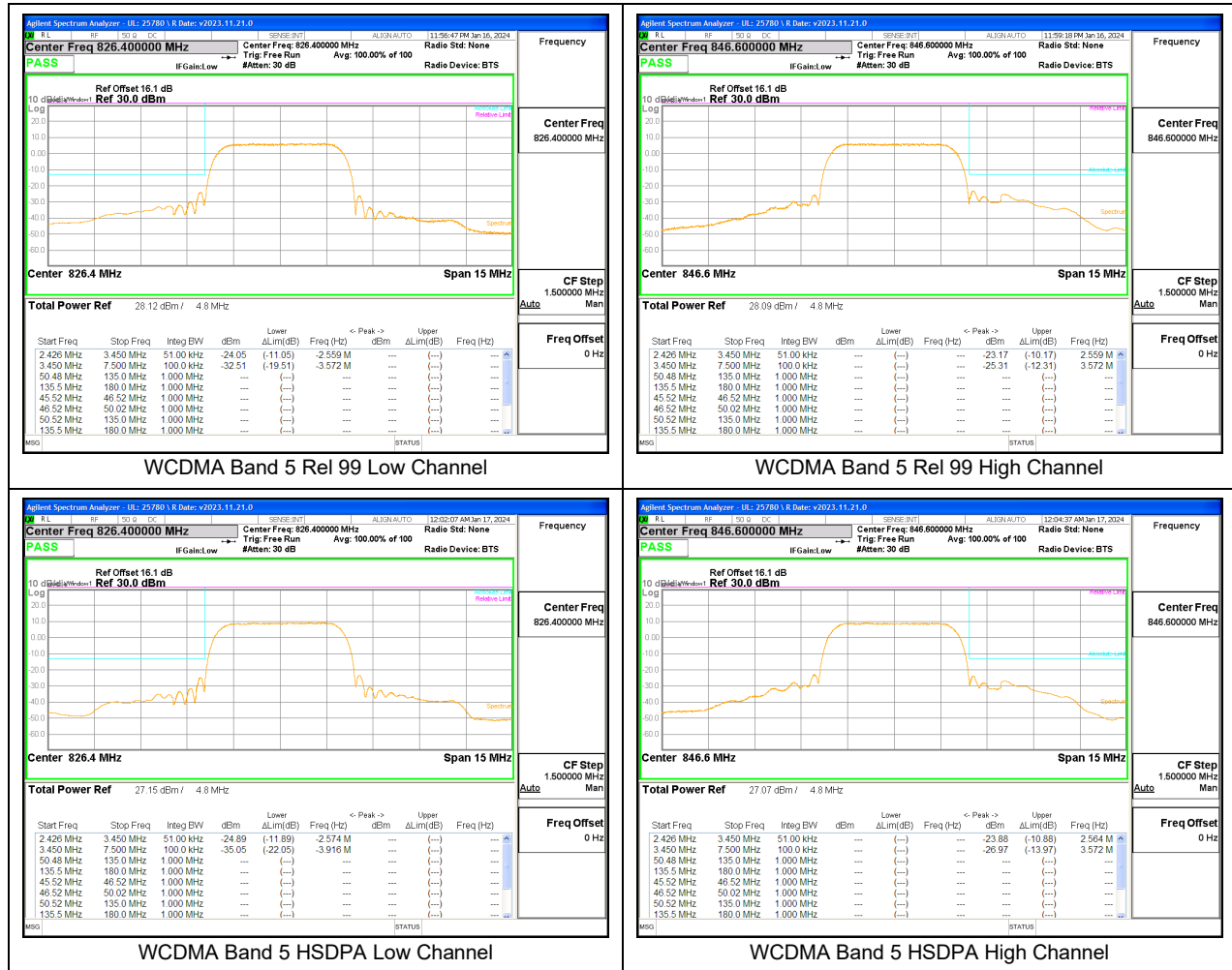


GSM 1900 EGPRS Low Channel

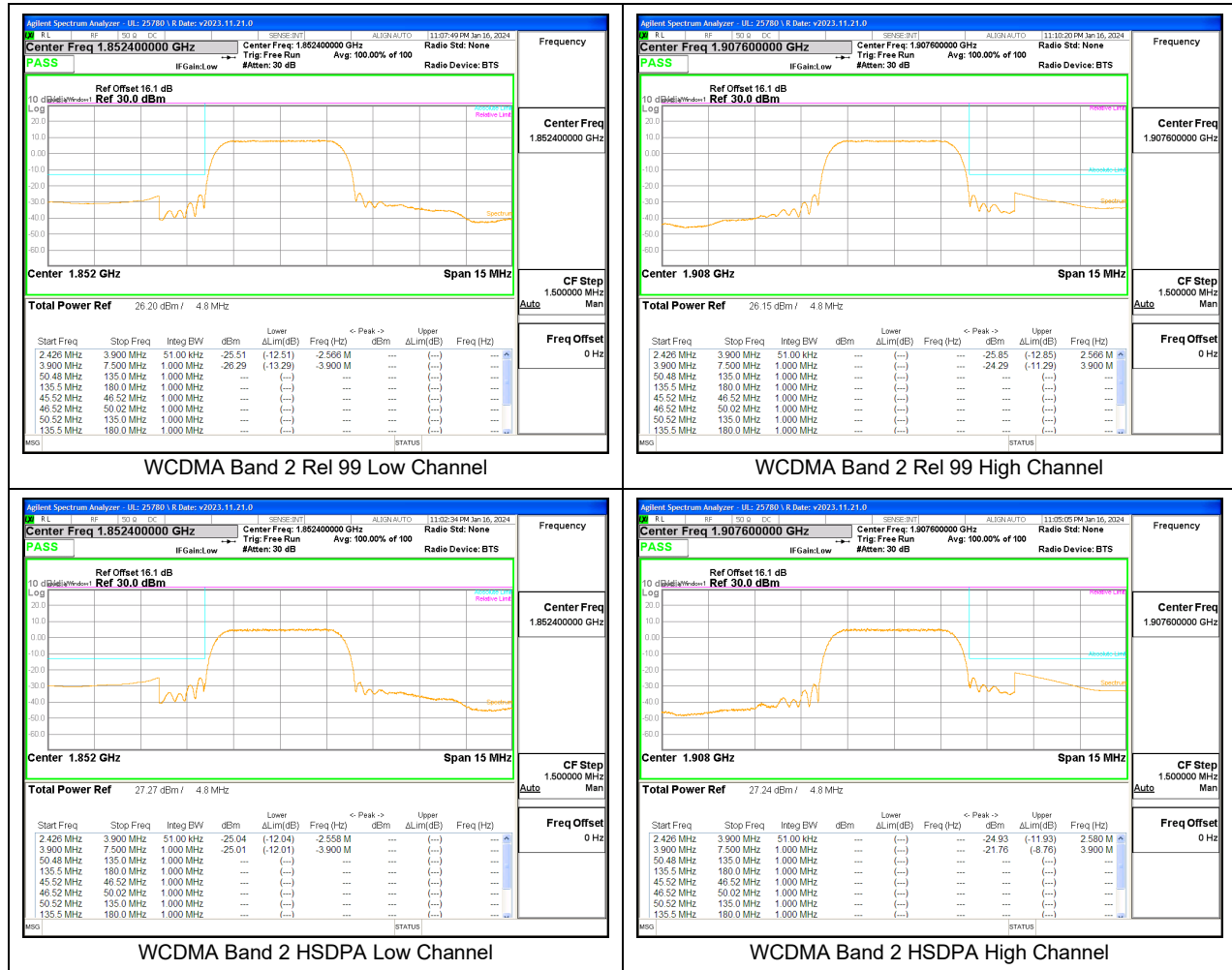


GSM 1900 EGPRS High Channel

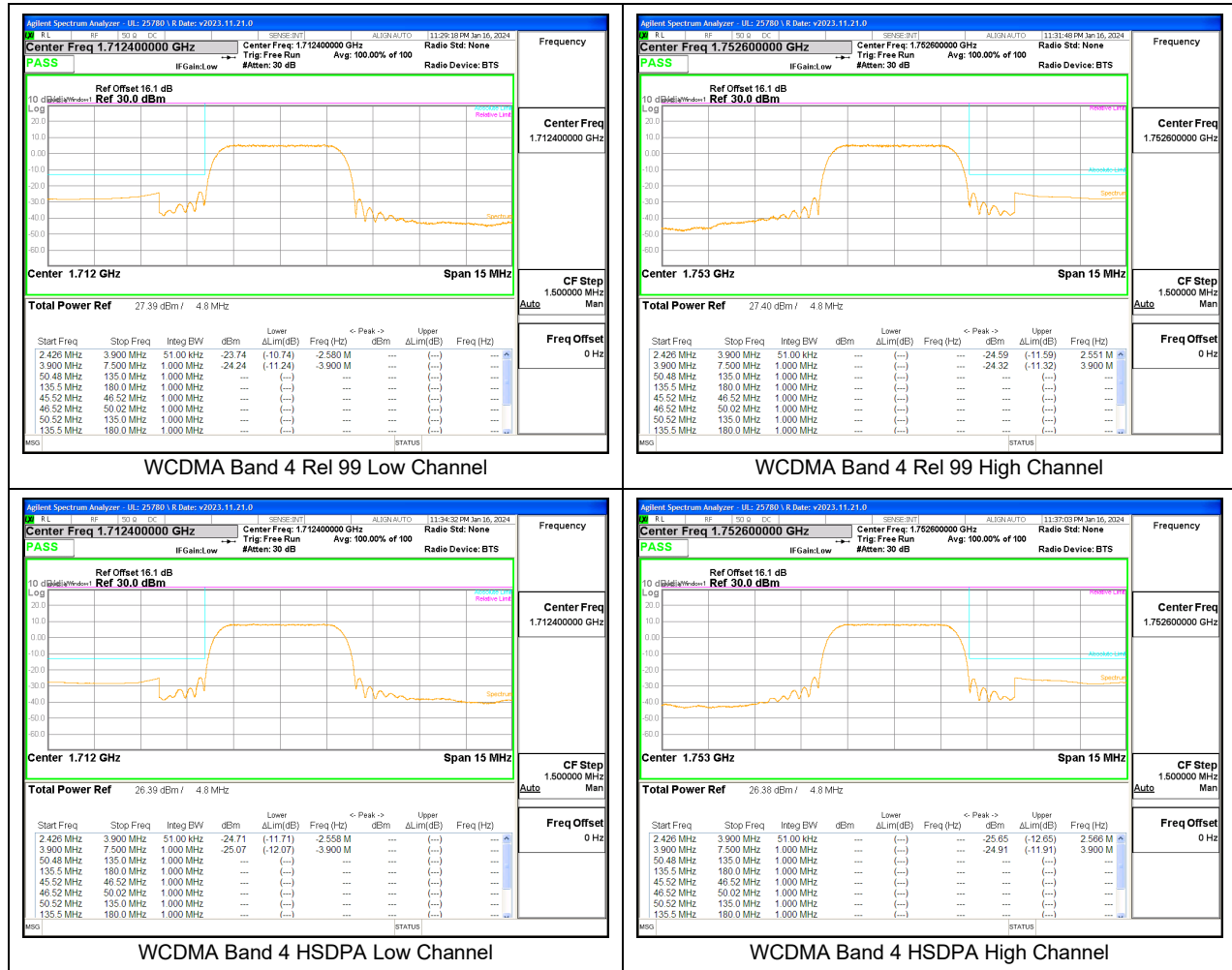
9.2.3. WCDMA BAND 5



9.2.4. WCDMA BAND 2



9.2.5. WCDMA BAND 4



9.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.917, §24.238, and §27.53
ISED: RSS132§5.5; RSS133§6.5 and RSS139§5.6

LIMITS

FCC: §22.917(a), §24.238, §27.53 (h)
The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.

RSS132§5.5, RSS133§6.5.1, RSS139§5.6
The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.
(NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

RESULTS

9.3.1. GSM 850

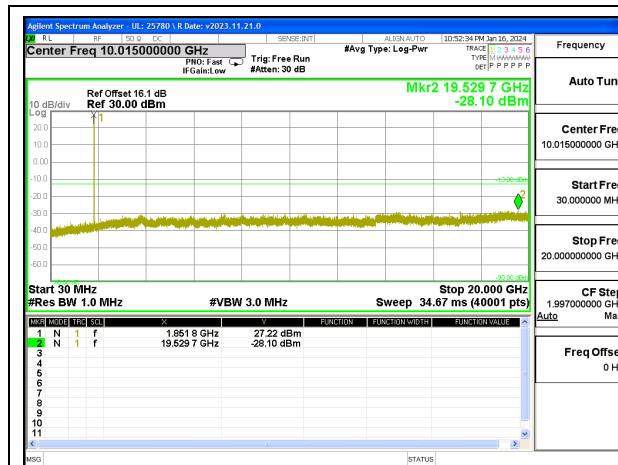




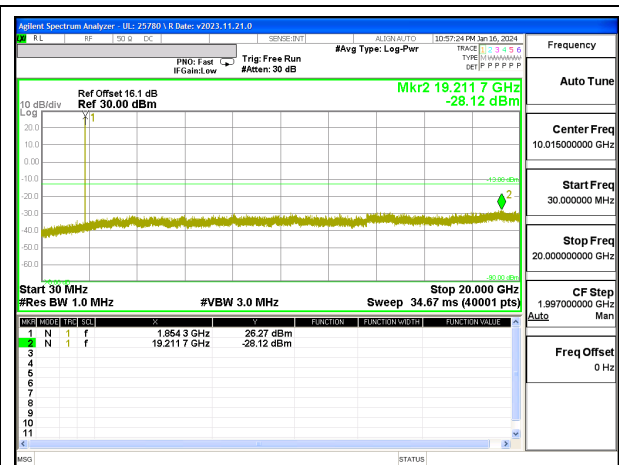
9.3.3. WCDMA BAND 5



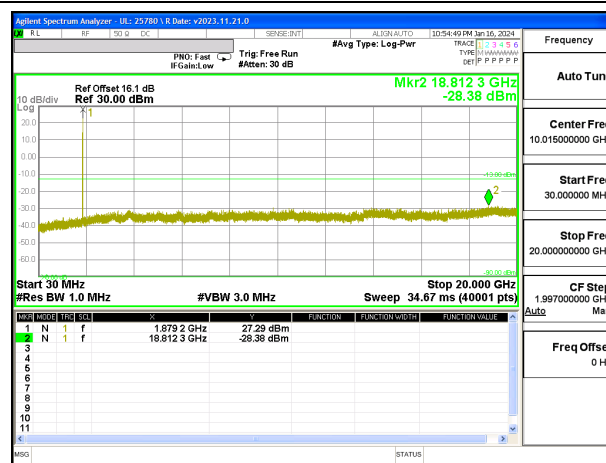
9.3.4. WCDMA BAND 2



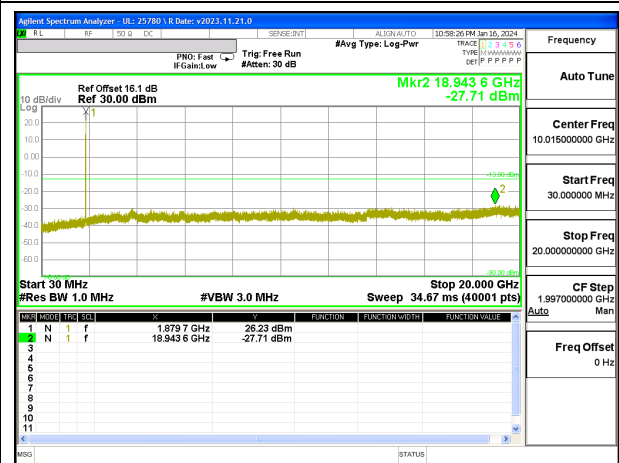
WCDMA Band 2 Rel 99 Low Channel



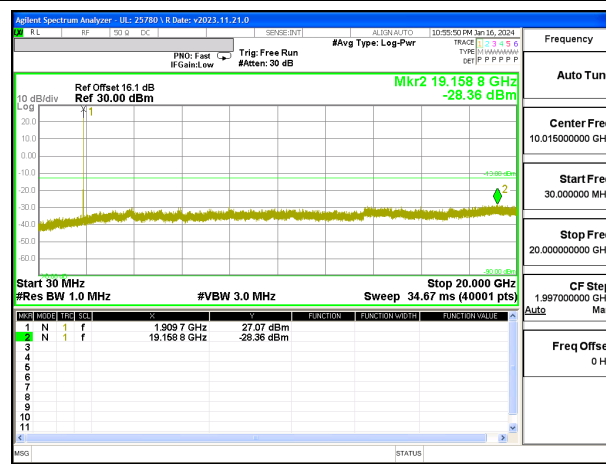
WCDMA Band 2 HSDPA Low Channel



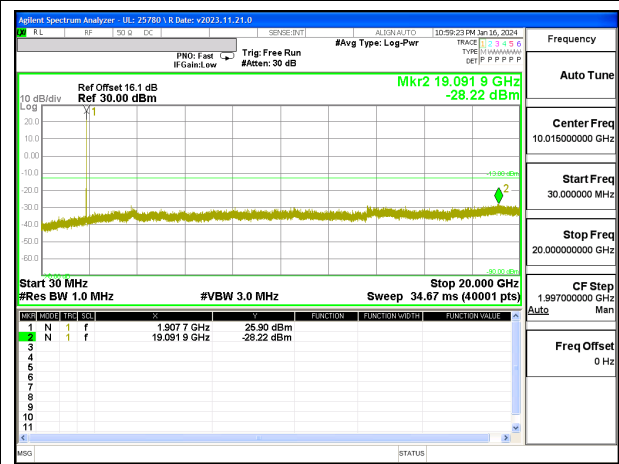
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel

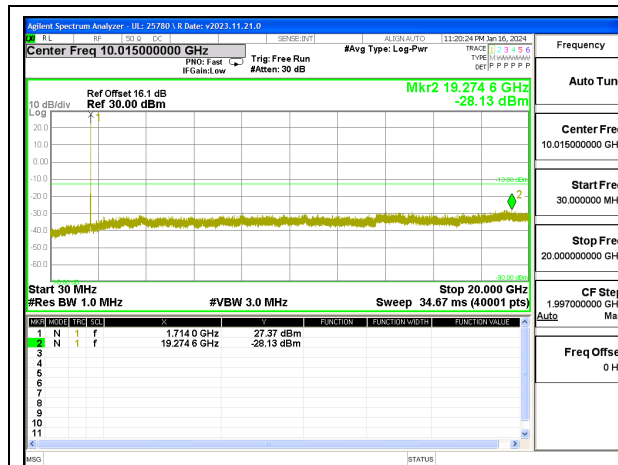


WCDMA Band 2 Rel 99 High Channel

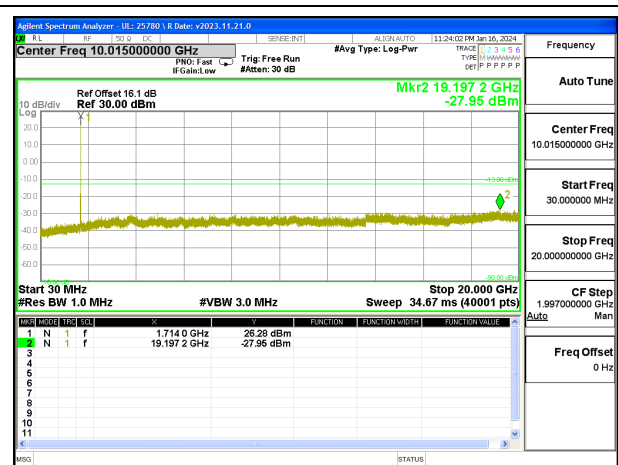


WCDMA Band 2 HSDPA High Channel

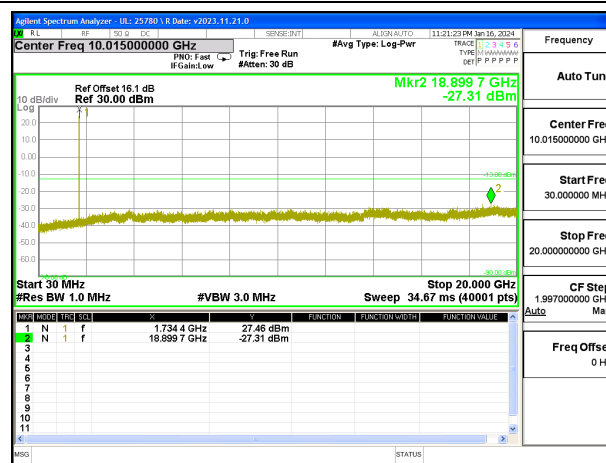
9.3.5. WCDMA BAND 4



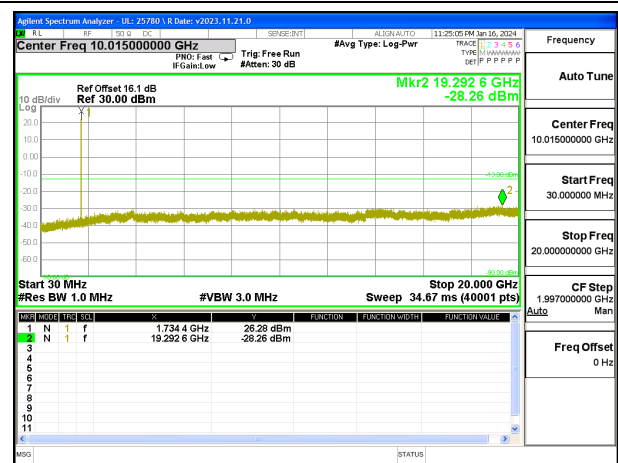
WCDMA Band 4 Rel 99 Low Channel



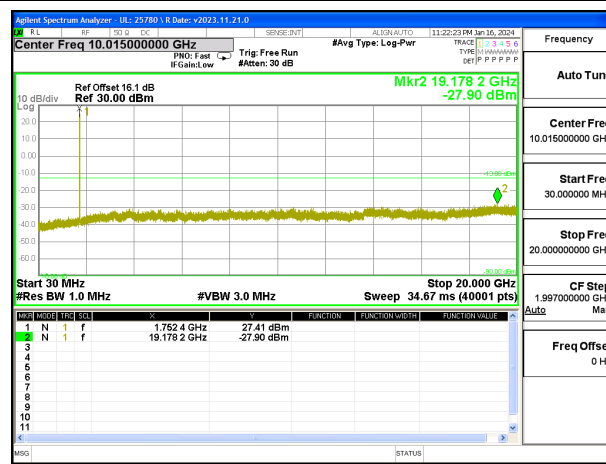
WCDMA Band 4 HSDPA Low Channel



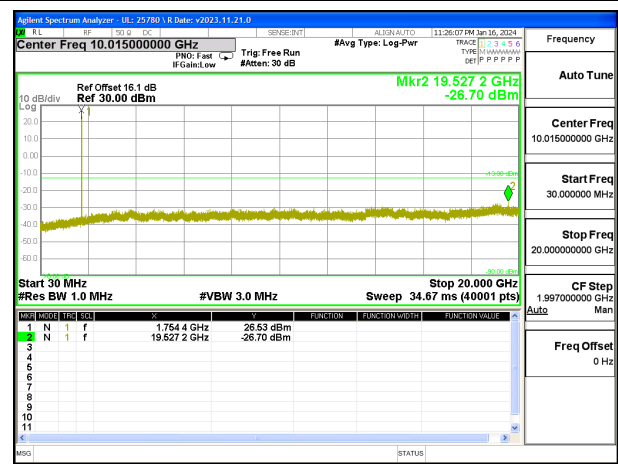
WCDMA Band 4 Rel 99 Middle Channel



WCDMA Band 4 HSDPA Middle Channel



WCDMA Band 4 Rel 99 High Channel



WCDMA Band 4 HSDPA High Channel

9.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, and §27.54
ISED: RSS132§5.3; RSS133§6.3 and RSS139§5.4

LIMITS

FCC §22.355

The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 ppm for mobile stations.

FCC §24.235 & §27.54

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

RSS133§6.3

The carrier frequency shall not depart from the reference frequency, in excess of ± 2.5 ppm for mobile stations and ± 1.0 ppm for base stations.

In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the emission bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

RSS139§5.4

The frequency stability shall be sufficient to ensure that the occupied bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30°C to $+50^{\circ}\text{C}$
- Voltage = (85% - 115%)

Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.

End Voltage, 2.95VDC.

Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to 20°C and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until $+50^{\circ}\text{C}$ is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

RESULTS

See the following pages.

9.4.1. GSM

Test Engineer ID:	12482	Test Date:	1/30/2024
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GPRS 850

Band	5	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		824	849		2.5	Within Authorized Frequency Block (Hz)
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	
Temperature	Voltage					
Normal (20°C)	Normal	824.0244	848.9792			
Extreme (50°C)		824.0244	848.9792	26.2	0.031	Yes
Extreme (40°C)		824.0244	848.9792	24.8	0.030	Yes
Extreme (30°C)		824.0244	848.9792	30.8	0.037	Yes
Extreme (10°C)		824.0244	848.9792	25.4	0.030	Yes
Extreme (0°C)		824.0244	848.9792	27.1	0.032	Yes
Extreme (-10°C)		824.0244	848.9792	33.0	0.039	Yes
Extreme (-20°C)		824.0244	848.9792	35.5	0.042	Yes
Extreme (-30°C)		824.0244	848.9792	34.0	0.041	Yes
20°C	15%	824.0244	848.9792	28.7	0.034	Yes
	-15%	824.0244	848.9792	29.6	0.035	Yes
	End Point Voltage	824.0244	848.9792	29.7	0.035	Yes

GSM 1900

Band	2	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1850	1910		2.5	Within Authorized Frequency Block (Hz)
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	
Temperature	Voltage					
Normal (20°C)	Normal	1850.0274	1909.9581			
Extreme (50°C)		1850.0274	1909.9581	26.1	0.014	Yes
Extreme (40°C)		1850.0274	1909.9581	27.5	0.015	Yes
Extreme (30°C)		1850.0274	1909.9581	28.4	0.015	Yes
Extreme (10°C)		1850.0274	1909.9581	32.8	0.017	Yes
Extreme (0°C)		1850.0274	1909.9581	36.9	0.020	Yes
Extreme (-10°C)		1850.0274	1909.9581	-34.3	-0.018	Yes
Extreme (-20°C)		1850.0274	1909.9581	38.0	0.020	Yes
Extreme (-30°C)		1850.0274	1909.9581	41.4	0.022	Yes
20°C	15%	1850.0274	1909.9581	32.6	0.017	Yes
	-15%	1850.0274	1909.9581	33.7	0.018	Yes
	End Point Voltage	1850.0274	1909.9581	33.6	0.018	Yes

9.4.2. WCDMA

Test Engineer ID:	12482	Test Date:	2/1/2024
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WCDMA REL 99 BAND 5

Band	5	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		824	849		2.5	Within Authorized Frequency Block (Hz)
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	
Temperature	Voltage					
Normal (20°C)	Normal	824.1468	848.9045			
Extreme (50°C)		824.1468	848.9045	-3.4	-0.004	Yes
Extreme (40°C)		824.1468	848.9045	-2.5	-0.003	Yes
Extreme (30°C)		824.1468	848.9045	-2.3	-0.003	Yes
Extreme (10°C)		824.1468	848.9045	-2.3	-0.003	Yes
Extreme (0°C)		824.1468	848.9045	-2.4	-0.003	Yes
Extreme (-10°C)		824.1468	848.9045	2.0	0.002	Yes
Extreme (-20°C)		824.1468	848.9045	3.0	0.004	Yes
Extreme (-30°C)		824.1468	848.9045	2.8	0.003	Yes
20°C	15%	824.1468	848.9045	-2.5	-0.003	Yes
	-15%	824.1468	848.9045	-3.1	-0.004	Yes
	End Point Voltage	824.1468	848.9045	-2.1	-0.003	Yes

WCDMA REL 99 BAND 2

Band	2	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1850	1910		2.5	Within Authorized Frequency Block (Hz)
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	
Temperature	Voltage					
Normal (20°C)	Normal	1850.1618	1909.8517			
Extreme (50°C)		1850.1618	1909.8517	4.5	0.002	Yes
Extreme (40°C)		1850.1618	1909.8517	5.4	0.003	Yes
Extreme (30°C)		1850.1618	1909.8517	4.8	0.003	Yes
Extreme (10°C)		1850.1618	1909.8517	5.2	0.003	Yes
Extreme (0°C)		1850.1618	1909.8517	2.5	0.001	Yes
Extreme (-10°C)		1850.1618	1909.8517	6.3	0.003	Yes
Extreme (-20°C)		1850.1618	1909.8517	6.6	0.003	Yes
Extreme (-30°C)		1850.1618	1909.8517	7.5	0.004	Yes
20°C	15%	1850.1618	1909.8517	4.8	0.003	Yes
	-15%	1850.1618	1909.8517	4.2	0.002	Yes
	End Point Voltage	1850.1618	1909.8517	3.9	0.002	Yes

WCDMA REL 99 BAND 4

Band	4	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1710	1755			
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	1710.1397	1754.8435			
Extreme (50°C)		1710.1397	1754.8435	-6.8	-0.004	Yes
Extreme (40°C)		1710.1397	1754.8435	-6.1	-0.004	Yes
Extreme (30°C)		1710.1397	1754.8435	-6.4	-0.004	Yes
Extreme (10°C)		1710.1397	1754.8435	5.4	0.003	Yes
Extreme (0°C)		1710.1397	1754.8435	-4.5	-0.003	Yes
Extreme (-10°C)		1710.1397	1754.8435	-4.3	-0.002	Yes
Extreme (-20°C)		1710.1397	1754.8435	-3.7	-0.002	Yes
Extreme (-30°C)		1710.1397	1754.8435	-4.0	-0.002	Yes
20°C	15%	1710.1397	1754.8435	-7.4	-0.004	Yes
	-15%	1710.1397	1754.8435	-6.5	-0.004	Yes
	End Point Voltage	1710.1397	1754.8435	-6.9	-0.004	Yes

9.5. PEAK-TO-AVERAGE POWER RATIO

LIMIT

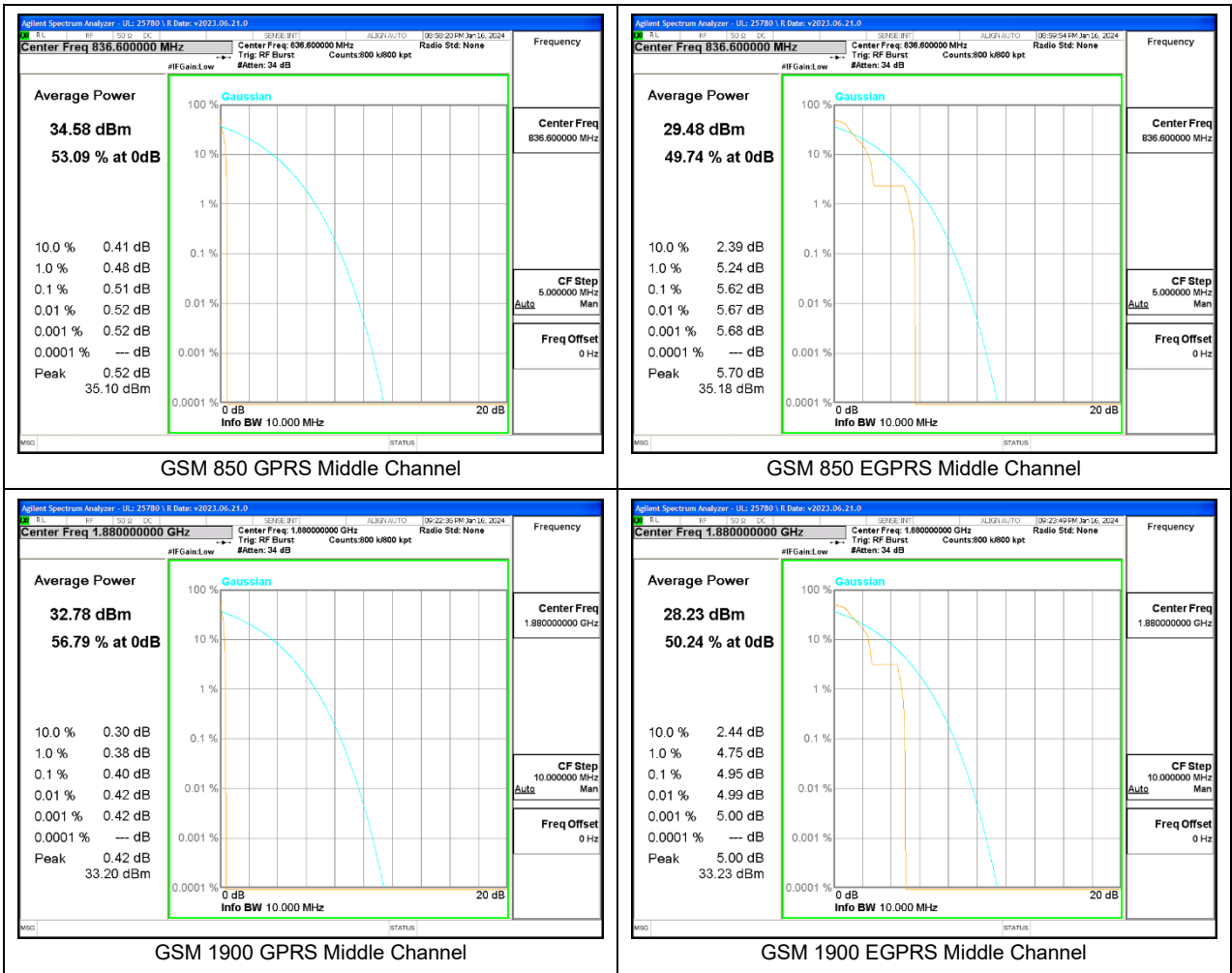
In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

RESULT

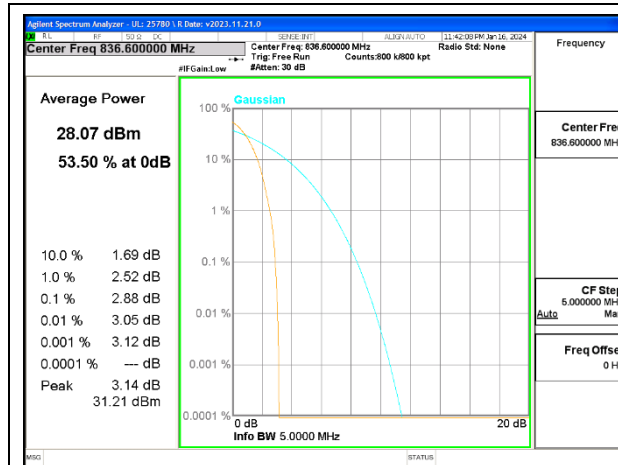
Ant 1 was used to measure as the worst case. The results from all CCDF plots are passed with 13dB peak-to-average power ratio criteria.

Test Engineer ID:	25780	Test Date:	1/16/2023
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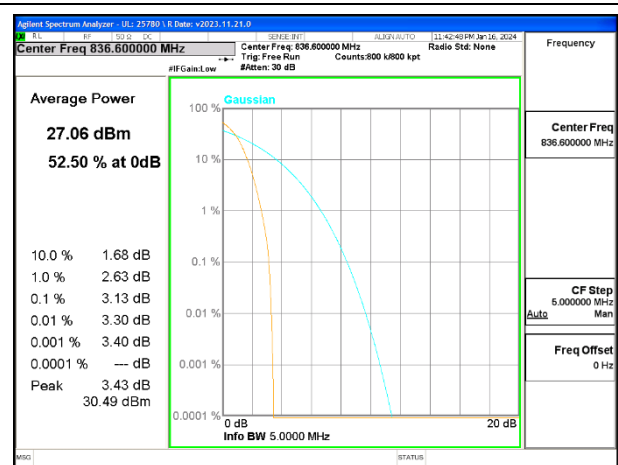
9.5.1. GSM



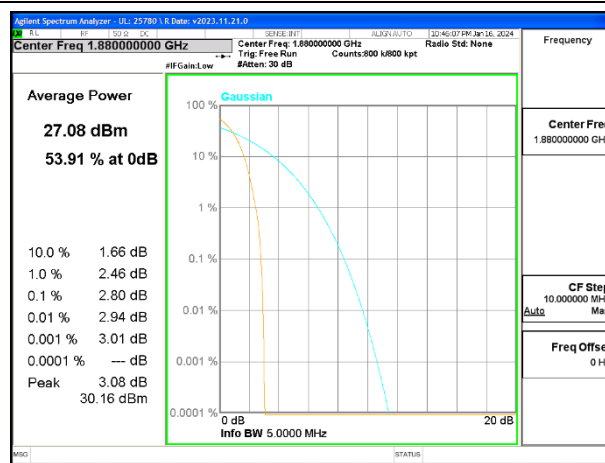
9.5.2. WCDMA



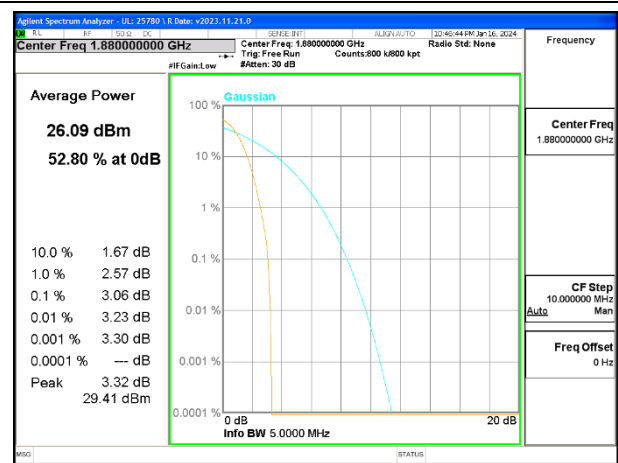
WCDMA Band 5 Rel 99 Middle Channel



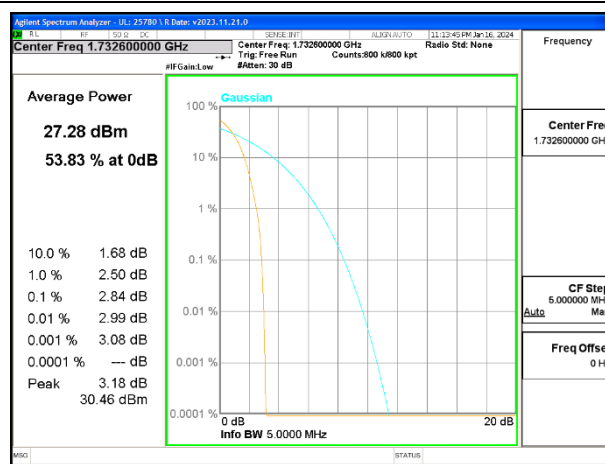
WCDMA Band 5 HSDPA Middle Channel



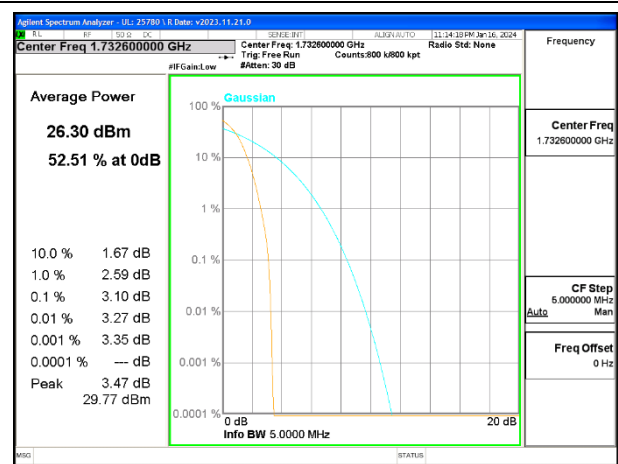
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel



WCDMA Band 4 Rel 99 Middle Channel



WCDMA Band 4 HSDPA Middle Channel

10. RADIATED TEST RESULTS

Radiated measurement using the Field Strength Method

Using the test configuration shown in Figure 6 below, we measure the radiated emissions directly from the EUT and convert the measured field strength or received power to ERP or EIRP, as required, for comparison to the applicable limits. As stated in 5.5.1 of ANSI C63.26-2015, the field strength measurement method using a test site validated to the requirements of ANSI C63.4 is an alternative to the substitution measurement method.

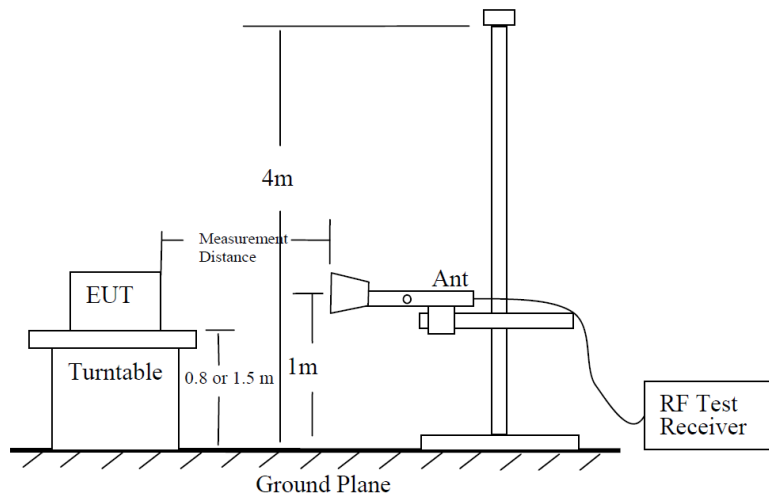


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

Radiated Power Measurement Calculation According to ANSI C63.26-2015

- a) $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dB}\mu\text{V)} + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$.
- b) $E \text{ (dB}\mu\text{V/m)} = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$.
- c) $E \text{ (dB}\mu\text{V/m)} = \text{EIRP (dBm)} - 20\log(D) + 104.8$; where D is the measurement distance (in the far field region) in m.
- d) $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m.

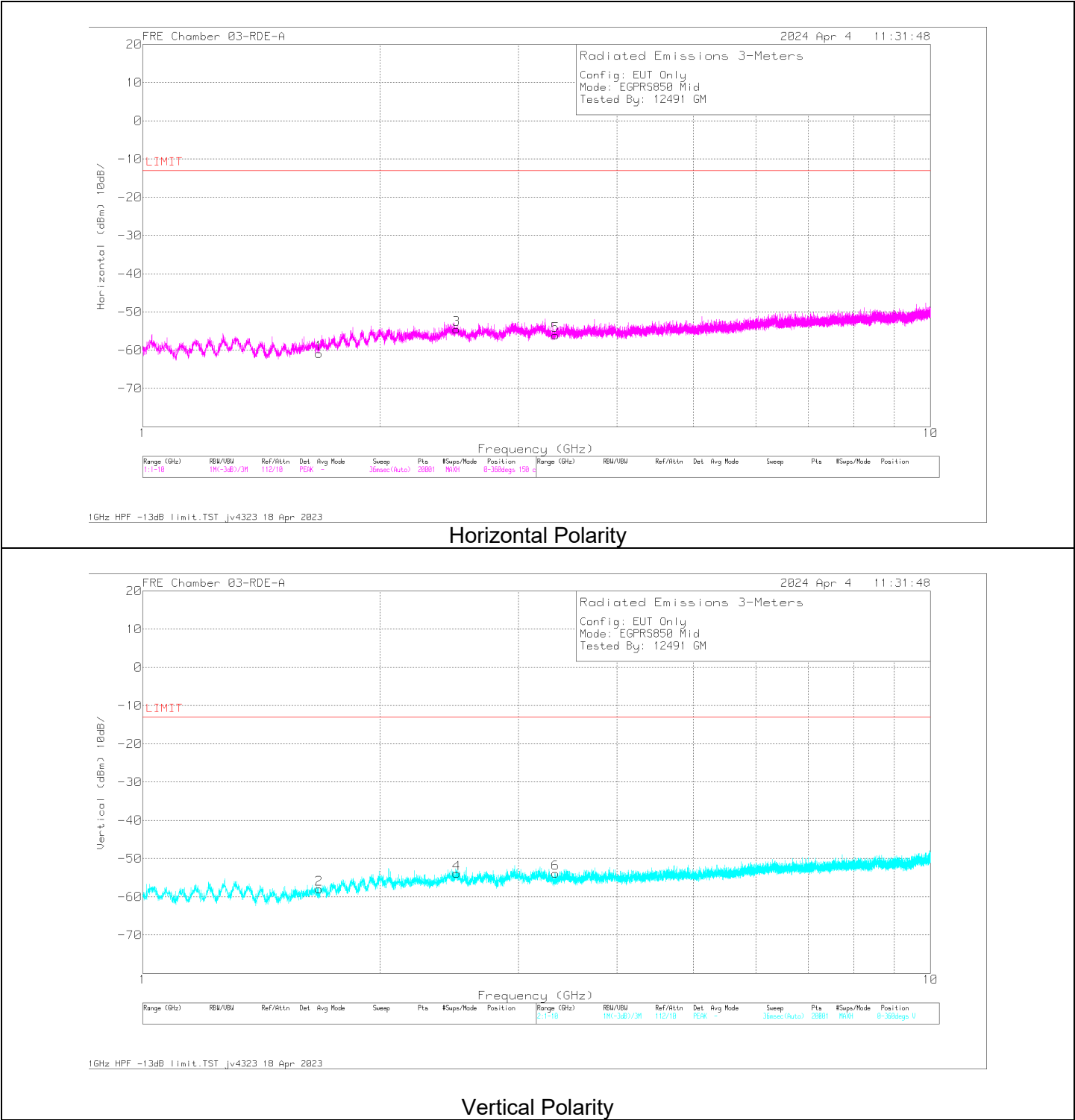
So, from d)

The measuring distance is usually at 3m, then $20 \cdot \log(3) = 9.5424$

Then, $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 9.5424 - 104.8 = E \text{ (dB}\mu\text{V/m)} - 95.2576$

Note: Confidence check of each chamber is performed daily to see if any degradation from expected/normal reading reference data. Ambient check of each chamber is performed monthly.

Example Plot



Trace Markers

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
1.673650	54.85	Pk	29.0	-95.2	-49.50	-60.85	-13	-47.85	H
1.673650	57.79	Pk	29.0	-95.2	-49.50	-57.91	-13	-44.91	V
2.503450	57.15	Pk	32.2	-95.2	-48.61	-54.46	-13	-41.46	H
2.504350	57.69	Pk	32.2	-95.2	-48.59	-53.90	-13	-40.90	V
3.342700	53.39	Pk	32.6	-95.2	-46.87	-56.08	-13	-43.08	H
3.342700	55.64	Pk	32.6	-95.2	-46.87	-53.83	-13	-40.83	V

10.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANT1

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, and §27.53
ISED: RSS132§5.5; RSS133§6.5 and RSS139§5.6

LIMIT

FCC: §22.917(a), §24.238(a), §27.53 (h)
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

RSS132§5.5

Mobile and base station equipment shall comply with the limits in (i) and (ii) below.

- (i) In the first 1.0 MHz band immediately outside and adjacent to each of the sub-bands specified in Section 5.1, the power of emissions per any 1% of the occupied bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).
- (ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any 100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

RSS133§6.5.1

Equipment shall comply with the limits in (i) and (ii) below.

- (i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts).
- (ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least $43 + 10 \log_{10} p$ (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS139§5.6

- (i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block, Footnote 2 which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.
- (ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least $43 + 10 \log_{10} p$ (watts) dB.

TEST PROCEDURE

KDB 971168 D01

RESULTS

10.1.1. GSM 850

GPRS MODE

Project #:	14982484
Date:	2024-04-01
Test Engineer:	18494
Configuration:	EUT Only
Mode:	GPRS 850
Chamber #:	03-RDE-A

Frequency (MHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 824.2MHz									
1.648426	76.05	Pk	28.7	-95.2	-49.63	-40.08	-13	-27.08	H
1.648527	74.48	Pk	28.7	-95.2	-49.62	-41.64	-13	-28.64	V
2.458673	61.02	Pk	32.1	-95.2	-49.13	-51.21	-13	-38.21	H
2.462457	60.53	Pk	32.1	-95.2	-49.25	-51.82	-13	-38.82	V
3.295900	56.61	Pk	32.7	-95.2	-46.62	-52.51	-13	-39.51	V
3.296328	57.25	Pk	32.7	-95.2	-46.58	-51.83	-13	-38.83	H
Mid Channel, 836.6MHz									
1.673210	67.95	Pk	29.0	-95.2	-49.47	-47.72	-13	-34.72	H
1.673397	71.58	Pk	29.0	-95.2	-49.48	-44.10	-13	-31.10	V
2.509594	68.57	Pk	32.2	-95.2	-48.68	-43.11	-13	-30.11	H
2.509733	63.87	Pk	32.2	-95.2	-48.67	-47.8	-13	-34.8	V
3.343245	56.77	Pk	32.6	-95.2	-46.84	-52.67	-13	-39.67	H
3.346615	57.46	Pk	32.6	-95.2	-46.98	-52.12	-13	-39.12	V
High Channel, 848.8MHz									
1.697589	77.34	Pk	29.3	-95.2	-49.53	-38.09	-13	-25.09	H
1.697624	73.95	Pk	29.3	-95.2	-49.53	-41.48	-13	-28.48	V
2.546509	68.62	Pk	32.2	-95.2	-48.54	-42.92	-13	-29.92	H
2.546673	61.80	Pk	32.2	-95.2	-48.53	-49.73	-13	-36.73	V
3.393544	57.95	Pk	32.6	-95.2	-47.31	-51.96	-13	-38.96	V
3.394025	58.90	Pk	32.6	-95.2	-47.33	-51.03	-13	-38.03	H

EGPRS MODE

Project #:	14982484
Date:	2024-04-04
Test Engineer:	12491
Configuration:	EUT Only
Mode:	EGPRS 850
Chamber #:	03-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 824.2MHz									
1.647100	57.61	Pk	28.7	-95.2	-49.57	-58.46	-13	-45.46	H
1.647100	57.04	Pk	28.7	-95.2	-49.57	-59.03	-13	-46.03	V
2.470150	57.36	Pk	32.1	-95.2	-49.15	-54.89	-13	-41.89	H
2.470150	57.78	Pk	32.1	-95.2	-49.15	-54.47	-13	-41.47	V
3.295000	53.50	Pk	32.7	-95.2	-46.69	-55.69	-13	-42.69	H
3.295450	53.44	Pk	32.7	-95.2	-46.65	-55.71	-13	-42.71	V
Mid Channel, 836.6MHz									
1.673650	54.85	Pk	29.0	-95.2	-49.50	-60.85	-13	-47.85	H
1.673650	57.79	Pk	29.0	-95.2	-49.50	-57.91	-13	-44.91	V
2.503450	57.15	Pk	32.2	-95.2	-48.61	-54.46	-13	-41.46	H
2.504350	57.69	Pk	32.2	-95.2	-48.59	-53.90	-13	-40.90	V
3.342700	53.39	Pk	32.6	-95.2	-46.87	-56.08	-13	-43.08	H
3.342700	55.64	Pk	32.6	-95.2	-46.87	-53.83	-13	-40.83	V
High Channel, 848.8MHz									
1.697950	57.57	Pk	29.3	-95.2	-49.54	-57.87	-13	-44.87	H
1.697050	57.61	Pk	29.3	-95.2	-49.51	-57.80	-13	-44.80	V
2.542600	55.60	Pk	32.2	-95.2	-48.47	-55.87	-13	-42.87	V
2.543950	56.46	Pk	32.2	-95.2	-48.58	-55.12	-13	-42.12	H
3.394900	55.31	Pk	32.6	-95.2	-47.30	-54.59	-13	-41.59	H
3.394900	55.11	Pk	32.6	-95.2	-47.30	-54.79	-13	-41.79	V

10.1.2. GSM 1900

GPRS MODE

Project #:	14982484
Date:	2024-04-04
Test Engineer:	12491
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	03-RDE-A

Frequency (MHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700000	53.76	Pk	33.0	-95.2	-47.12	-55.56	-13	-42.56	H
7.395000	52.44	Pk	35.6	-95.2	-45.60	-52.76	-13	-39.76	H
3.700500	53.85	Pk	33.0	-95.2	-47.16	-55.51	-13	-42.51	V
7.393000	53.01	Pk	35.6	-95.2	-45.66	-52.25	-13	-39.25	V
5.554500	52.65	Pk	34.4	-95.2	-46.98	-55.13	-13	-42.13	H
5.554500	53.39	Pk	34.4	-95.2	-46.98	-54.39	-13	-41.39	V
Mid Channel, 1880MHz									
3.777000	54.78	Pk	33.2	-95.2	-46.85	-54.07	-13	-41.07	H
7.526000	52.04	Pk	35.7	-95.2	-45.38	-52.84	-13	-39.84	H
3.777000	54.00	Pk	33.2	-95.2	-46.85	-54.85	-13	-41.85	V
7.526000	52.11	Pk	35.7	-95.2	-45.38	-52.77	-13	-39.77	V
5.638000	53.26	Pk	34.4	-95.2	-46.69	-54.23	-13	-41.23	V
5.640000	52.11	Pk	34.4	-95.2	-46.73	-55.42	-13	-42.42	H
High Channel, 1909.8MHz									
3.819500	53.30	Pk	33.3	-95.2	-46.87	-55.47	-13	-42.47	H
7.640000	53.51	Pk	35.7	-95.2	-44.77	-50.76	-13	-37.76	H
3.819500	53.57	Pk	33.3	-95.2	-46.87	-55.20	-13	-42.20	V
7.640000	51.84	Pk	35.7	-95.2	-44.77	-52.43	-13	-39.43	V
5.728500	52.96	Pk	34.5	-95.2	-46.46	-54.20	-13	-41.2	H
5.728500	53.92	Pk	34.5	-95.2	-46.46	-53.24	-13	-40.24	V

EGPRS MODE

Project #:	14982484
Date:	2024-04-04
Test Engineer:	12491
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	03-RDE-A

Frequency (MHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.702000	54.27	Pk	33.0	-95.2	-47.27	-55.20	-13	-42.20	H
7.398500	52.80	Pk	35.6	-95.2	-45.66	-52.46	-13	-39.46	H
3.702000	54.06	Pk	33.0	-95.2	-47.27	-55.41	-13	-42.41	V
7.398500	52.75	Pk	35.6	-95.2	-45.66	-52.51	-13	-39.51	V
5.551500	54.45	Pk	34.4	-95.2	-47.00	-53.35	-13	-40.35	H
5.551500	53.15	Pk	34.4	-95.2	-47.00	-54.65	-13	-41.65	V
Mid Channel, 1880MHz									
3.758500	55.38	Pk	33.2	-95.2	-47.11	-53.73	-13	-40.73	H
7.520500	54.36	Pk	35.7	-95.2	-45.42	-50.56	-13	-37.56	H
3.762500	57.15	Pk	33.2	-95.2	-46.88	-51.73	-13	-38.73	V
7.521500	53.01	Pk	35.7	-95.2	-45.37	-51.86	-13	-38.86	V
5.639500	55.06	Pk	34.4	-95.2	-46.71	-52.45	-13	-39.45	H
5.640000	57.03	Pk	34.4	-95.2	-46.73	-50.50	-13	-37.50	V
High Channel, 1909.8MHz									
3.823563	57.64	Pk	33.3	-95.2	-46.72	-50.98	-13	-37.98	H
7.640298	55.98	Pk	35.7	-95.2	-44.78	-48.30	-13	-35.30	H
3.817378	57.38	Pk	33.3	-95.2	-46.71	-51.23	-13	-38.23	V
7.638228	56.33	Pk	35.7	-95.2	-44.83	-48.00	-13	-35.00	V
5.729141	57.27	Pk	34.5	-95.2	-46.45	-49.88	-13	-36.88	H
5.731058	57.35	Pk	34.5	-95.2	-46.51	-49.86	-13	-36.86	V

10.1.3. WCDMA BAND 5

REL 99 MODE

Project #:	14982484
Date:	2024-04-21
Test Engineer:	12494
Configuration:	EUT Only
Mode:	REL 99 Band 5
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 826.4MHz									
1.653400	57.64	Pk	28.3	-95.2	-49.7	-58.96	-13	-45.96	H
1.653400	57.06	Pk	28.3	-95.2	-49.7	-59.54	-13	-46.54	V
2.478700	57.55	Pk	32.2	-95.2	-50.0	-55.45	-13	-42.45	H
2.478700	56.69	Pk	32.2	-95.2	-50.0	-56.31	-13	-43.31	V
3.304450	54.54	Pk	33.0	-95.2	-48.2	-55.86	-13	-42.86	H
3.304450	55.12	Pk	33.0	-95.2	-48.2	-55.28	-13	-42.28	V
Mid Channel, 836.6MHz									
1.693450	57.22	Pk	28.8	-95.2	-49.8	-58.98	-13	-45.98	H
1.693450	56.62	Pk	28.8	-95.2	-49.8	-59.58	-13	-46.58	V
2.537200	57.08	Pk	32.3	-95.2	-50.2	-56.02	-13	-43.02	H
2.537200	57.16	Pk	32.3	-95.2	-50.2	-55.94	-13	-42.94	V
3.383650	52.68	Pk	33.1	-95.2	-47.57	-56.99	-13	-43.99	H
3.383650	53.05	Pk	33.1	-95.2	-47.57	-56.62	-13	-43.62	V
High Channel, 846.6MHz									
1.670050	58.09	Pk	28.5	-95.2	-49.7	-58.31	-13	-45.31	H
1.674100	58.04	Pk	28.6	-95.2	-49.7	-58.26	-13	-45.26	V
2.537200	57.12	Pk	32.3	-95.2	-50.2	-55.98	-13	-42.98	H
2.537200	57.33	Pk	32.3	-95.2	-50.2	-55.77	-13	-42.77	V
3.389050	55.27	Pk	33.1	-95.2	-47.4	-54.23	-13	-41.23	H
3.389050	55.28	Pk	33.1	-95.2	-47.4	-54.22	-13	-41.22	V

HSDPA MODE

Project #:	14982484
Date:	2024-03-21
Test Engineer:	12491
Configuration:	EUT Only
Mode:	HSDPA Band 5
Chamber #:	03-RDE-B

Frequency (MHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 826.4MHz									
1.651150	56.40	Pk	28.3	-95.2	-49.7	-60.20	-13	-47.20	V
1.657900	57.97	Pk	28.4	-95.2	-49.7	-58.53	-13	-45.53	H
2.453050	57.04	Pk	32.2	-95.2	-49.9	-55.86	-13	-42.86	H
2.467000	56.63	Pk	32.3	-95.2	-49.8	-56.07	-13	-43.07	V
3.312550	54.76	Pk	33.0	-95.2	-48.1	-55.54	-13	-42.54	V
3.317050	55.80	Pk	33.0	-95.2	-48.0	-54.40	-13	-41.40	H
Mid Channel, 836.6MHz									
1.697500	56.67	Pk	28.9	-95.2	-49.8	-59.43	-13	-46.43	H
1.697050	61.30	Pk	28.9	-95.2	-49.8	-54.80	-13	-41.80	V
2.515150	56.08	Pk	32.2	-95.2	-50.1	-57.02	-13	-44.02	V
2.525500	57.06	Pk	32.3	-95.2	-50.2	-56.04	-13	-43.04	H
3.385900	53.10	Pk	33.1	-95.2	-47.6	-56.60	-13	-43.6	V
3.399850	53.36	Pk	33.2	-95.2	-47.5	-56.14	-13	-43.14	H
High Channel, 846.6MHz									
1.692550	56.29	Pk	28.8	-95.2	-49.8	-59.91	-13	-46.91	H
1.685800	57.42	Pk	28.7	-95.2	-49.7	-58.78	-13	-45.78	V
2.528650	56.24	Pk	32.3	-95.2	-50.1	-56.76	-13	-43.76	V
2.535850	57.74	Pk	32.3	-95.2	-50.2	-55.36	-13	-42.36	H
3.381850	53.91	Pk	33.1	-95.2	-47.5	-55.69	-13	-42.69	V
3.387700	53.48	Pk	33.1	-95.2	-47.4	-56.05	-13	-43.05	H

10.1.4. WCDMA BAND 2

REL 99 MODE

Project #:	14982484
Date:	2024-03-19
Test Engineer:	12501
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.705500	54.33	Pk	33.5	-95.2	-47.2	-54.57	-13	-41.57	H
7.402500	54.03	Pk	35.9	-95.2	-47.8	-53.07	-13	-40.07	H
3.705500	54.33	Pk	33.5	-95.2	-47.2	-54.57	-13	-41.57	H
7.402500	54.03	Pk	35.9	-95.2	-47.8	-53.07	-13	-40.07	H
5.562500	54.19	Pk	34.4	-95.2	-48.7	-55.31	-13	-42.31	H
5.572000	55.48	Pk	34.4	-95.2	-48.7	-54.02	-13	-41.02	H
Mid Channel, 1880MHz									
3.763500	54.44	Pk	33.6	-95.2	-47.75	-54.91	-13	-41.91	H
7.635500	53.39	Pk	35.9	-95.2	-47.30	-53.21	-13	-40.21	H
3.769500	53.94	Pk	33.6	-95.2	-47.85	-55.51	-13	-42.51	H
7.649000	55.18	Pk	35.9	-95.2	-47.40	-51.52	-13	-38.52	H
5.610500	54.02	Pk	34.4	-95.2	-48.55	-55.33	-13	-42.33	H
5.640000	54.91	Pk	34.4	-95.2	-48.30	-54.19	-13	-41.19	H
High Channel, 1907.6MHz									
3.835500	30.95	Pk	33.6	-95.2	-22.85	-53.50	-13	-40.50	H
7.690500	25.75	Pk	35.9	-95.2	-17.15	-50.70	-13	-37.70	H
3.827500	32.19	Pk	33.7	-95.2	-22.95	-52.26	-13	-39.26	V
7.655000	25.14	Pk	35.9	-95.2	-17.10	-51.26	-13	-38.26	V
5.726500	27.94	Pk	34.5	-95.2	-20.05	-52.81	-13	-39.81	H
5.758000	28.72	Pk	34.6	-95.2	-19.90	-51.78	-13	-38.78	V

HSDPA MODE

Project #:	14982484
Date:	2024-03-19
Test Engineer:	12501
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	04-RDE-T

Frequency (MHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.699000	53.72	Pk	33.5	-95.2	-47.2	-55.18	-13	-42.18	H
7.402500	54.63	Pk	35.9	-95.2	-47.8	-52.47	-13	-39.47	H
3.699000	53.72	Pk	33.5	-95.2	-47.2	-55.18	-13	-42.18	H
7.390000	54.00	Pk	35.8	-95.2	-47.8	-53.20	-13	-40.20	H
5.55275	55.05	Pk	34.4	-95.2	-48.6	-54.35	-13	-41.35	H
5.55275	55.05	Pk	34.4	-95.2	-48.6	-54.35	-13	-41.35	H
Mid Channel, 1880MHz									
3.763500	53.70	Pk	33.6	-95.2	-47.75	-55.65	-13	-42.65	H
7.531000	54.26	Pk	36.0	-95.2	-47.9	-52.84	-13	-39.84	H
3.802500	55.18	Pk	33.6	-95.2	-47.9	-54.32	-13	-41.32	H
7.531000	54.26	Pk	36.0	-95.2	-47.9	-52.84	-13	-39.84	H
5.640000	54.19	Pk	34.4	-95.2	-48.3	-54.91	-13	-41.91	H
5.659000	54.84	Pk	34.4	-95.2	-48.3	-54.26	-13	-41.26	H
High Channel, 1907.6MHz									
3.809000	54.71	Pk	33.6	-95.2	-47.9	-54.79	-13	-41.79	H
7.635500	52.73	Pk	35.9	-95.2	-47.3	-53.87	-13	-40.87	H
3.809000	54.71	Pk	33.6	-95.2	-47.9	-54.79	-13	-41.79	H
7.662000	54.99	Pk	35.9	-95.2	-47.6	-51.91	-13	-38.91	H
5.728000	54.33	Pk	34.5	-95.2	-48	-54.37	-13	-41.37	H
5.757500	54.48	Pk	34.6	-95.2	-48.2	-54.32	-13	-41.32	H

10.1.5. WCDMA BAND 4

REL 99 MODE

Project #:	14982484
Date:	2024-04-02
Test Engineer:	12501
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	2303000 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
5.139000	56.50	Pk	34.3	-95.2	-49.4	-53.80	-13	-40.80	H
5.139000	55.01	Pk	34.3	-95.2	-49.4	-55.29	-13	-42.29	V
3.411500	54.61	Pk	33.2	-95.2	-47.8	-55.19	-13	-42.19	V
3.423500	54.26	Pk	33.2	-95.2	-47.8	-55.49	-13	-42.49	H
6.862500	53.87	Pk	35.7	-95.2	-47.4	-53.03	-13	-40.03	H
6.862500	52.99	Pk	35.7	-95.2	-47.4	-53.91	-13	-40.91	V
Mid Channel, 1732.6MHz									
3.465000	53.80	Pk	33.2	-95.2	-47.4	-55.60	-13	-42.60	H
3.476500	54.56	Pk	33.2	-95.2	-47.4	-54.84	-13	-41.84	V
5.192500	55.09	Pk	34.4	-95.2	-49.3	-55.01	-13	-42.01	H
5.219500	55.24	Pk	34.4	-95.2	-49.1	-54.66	-13	-41.66	V
6.922000	53.33	Pk	35.7	-95.2	-46.9	-53.07	-13	-40.07	H
6.934000	52.45	Pk	35.7	-95.2	-46.8	-53.85	-13	-40.85	V
High Channel, 1752.6MHz									
3.513000	54.77	Pk	33.3	-95.2	-47.0	-54.13	-13	-41.13	H
3.507000	53.54	Pk	33.3	-95.2	-47.0	-55.36	-13	-42.36	V
5.246500	53.90	Pk	34.4	-95.2	-49.1	-56.00	-13	-43.00	V
5.255500	55.24	Pk	34.4	-95.2	-49.2	-54.76	-13	-41.76	H
7.018000	53.33	Pk	35.8	-95.2	-47.4	-53.47	-13	-40.47	H
7.030000	55.35	Pk	35.8	-95.2	-47.5	-51.55	-13	-38.55	V

HSDPA MODE

Project #:	14982484
Date:	2024-03-20
Test Engineer:	12501
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
5.143500	58.02	Pk	34.3	-95.2	-49.4	-52.28	-13	-39.28	H
5.105500	57.23	Pk	34.2	-95.2	-49.4	-53.17	-13	-40.17	V
3.411000	57.06	Pk	33.2	-95.2	-47.8	-52.74	-13	-39.74	H
3.414500	55.94	Pk	33.2	-95.2	-47.8	-53.86	-13	-40.86	V
6.823000	55.49	Pk	35.7	-95.2	-47.3	-51.31	-13	-38.31	V
6.842000	55.06	Pk	35.7	-95.2	-47.5	-51.94	-13	-38.94	H
Mid Channel, 1732.6MHz									
3.500000	33.34	Pk	33.2	-95.2	-23.9	-52.56	-13	-39.56	H
8.156000	24.60	Pk	36.1	-95.2	-16.6	-51.10	-13	-38.10	H
3.545500	31.99	Pk	33.3	-95.2	-23.8	-53.71	-13	-40.71	V
8.169000	25.75	Pk	36.1	-95.2	-16.6	-49.95	-13	-36.95	V
5.549000	29.49	Pk	34.4	-95.2	-20.8	-52.11	-13	-39.11	V
5.555000	28.75	Pk	34.4	-95.2	-20.8	-52.85	-13	-39.85	H
High Channel, 1752.6MHz									
3.484500	56.58	Pk	33.2	-95.2	-47.2	-52.62	-13	-39.62	V
3.487000	55.64	Pk	33.2	-95.2	-47.3	-53.66	-13	-40.66	H
5.241500	57.06	Pk	34.4	-95.2	-49.2	-52.94	-13	-39.94	H
5.243500	56.88	Pk	34.4	-95.2	-49.2	-53.07	-13	-40.07	V
7.005000	55.41	Pk	35.8	-95.2	-47.2	-51.19	-13	-38.19	H
7.030500	55.89	Pk	35.8	-95.2	-47.5	-51.01	-13	-38.01	V

10.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT2

10.2.1. GSM 850

GPRS MODE

Project #:	14982484
Date:	2024-04-05
Test Engineer:	12491
Configuration:	EUT Only
Mode:	GPRS 850
Chamber #:	03-RDE-A

Frequency (MHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 824.2MHz									
1.697050	58.59	Pk	29.3	-95.2	-49.51	-56.82	-13	-43.82	V
1.697500	58.22	Pk	29.3	-95.2	-49.53	-57.21	-13	-44.21	H
2.545300	56.14	Pk	32.2	-95.2	-48.6	-55.46	-13	-42.46	V
2.546200	55.26	Pk	32.2	-95.2	-48.56	-56.30	-13	-43.30	H
3.394900	54.73	Pk	32.6	-95.2	-47.30	-55.17	-13	-42.17	H
3.395350	53.93	Pk	32.6	-95.2	-47.28	-55.95	-13	-42.95	V
Mid Channel, 836.6MHz									
1.674100	55.60	Pk	29.0	-95.2	-49.53	-60.13	-13	-47.13	H
3.346750	55.35	Pk	32.6	-95.2	-47.00	-54.25	-13	-41.25	H
1.674100	55.52	Pk	29.0	-95.2	-49.53	-60.21	-13	-47.21	V
3.346750	54.32	Pk	32.6	-95.2	-47.00	-55.28	-13	-42.28	V
2.507050	56.26	Pk	32.2	-95.2	-48.68	-55.42	-13	-42.42	H
2.507500	55.88	Pk	32.2	-95.2	-48.70	-55.82	-13	-42.82	V
High Channel, 848.8MHz									
1.674550	56.23	Pk	29.0	-95.2	-49.56	-59.53	-13	-46.53	H
1.674550	56.77	Pk	29.0	-95.2	-49.56	-58.99	-13	-45.99	V
2.422450	60.85	Pk	32.0	-95.2	-49.62	-51.97	-13	-38.97	V
2.423350	56.87	Pk	32.0	-95.2	-49.63	-55.96	-13	-42.96	H
3.344950	52.84	Pk	32.6	-95.2	-46.82	-56.58	-13	-43.58	H
3.344950	53.28	Pk	32.6	-95.2	-46.82	-56.14	-13	-43.14	V

EGPRS MODE

Project #:	14982484
Date:	2024-04-05
Test Engineer:	12491
Configuration:	EUT Only
Mode:	EGPRS 850
Chamber #:	03-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 824.2MHz									
2.330200	56.66	Pk	31.7	-95.2	-49.49	-56.33	-13	-43.33	H
2.330200	60.98	Pk	31.7	-95.2	-49.49	-52.01	-13	-39.01	V
1.647550	57.12	Pk	28.7	-95.2	-49.60	-58.98	-13	-45.98	V
1.648450	57.46	Pk	28.7	-95.2	-49.63	-58.67	-13	-45.67	H
3.296350	53.48	Pk	32.7	-95.2	-46.58	-55.6	-13	-42.60	V
3.296800	53.19	Pk	32.7	-95.2	-46.55	-55.86	-13	-42.86	H
Mid Channel, 836.6MHz									
1.674100	56.25	Pk	29	-95.2	-49.53	-59.48	-13	-46.48	H
1.674100	57.42	Pk	29	-95.2	-49.53	-58.31	-13	-45.31	V
2.507500	58.63	Pk	32.2	-95.2	-48.70	-53.07	-13	-40.07	V
2.508850	57.23	Pk	32.2	-95.2	-48.71	-54.48	-13	-41.48	H
3.343600	53.83	Pk	32.6	-95.2	-46.82	-55.59	-13	-42.59	V
3.344500	53.34	Pk	32.6	-95.2	-46.81	-56.07	-13	-43.07	H
High Channel, 848.8MHz									
1.697500	56.49	Pk	29.3	-95.2	-49.53	-58.94	-13	-45.94	H
1.697500	56.50	Pk	29.3	-95.2	-49.53	-58.93	-13	-45.93	V
2.547100	55.39	Pk	32.2	-95.2	-48.49	-56.10	-13	-43.10	H
2.547100	55.67	Pk	32.2	-95.2	-48.49	-55.82	-13	-42.82	V
3.395800	54.88	Pk	32.6	-95.2	-47.24	-54.96	-13	-41.96	H
3.395800	54.91	Pk	32.6	-95.2	-47.24	-54.93	-13	-41.93	V

10.2.2. GSM 1900

GPRS MODE

Project #:	14982484
Date:	2024-04-05
Test Engineer:	12491
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	03-RDE-A

Frequency (MHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700500	54.36	Pk	33.0	-95.2	-47.16	-55.00	-13	-42.00	H
7.400500	54.19	Pk	35.6	-95.2	-45.72	-51.13	-13	-38.13	H
3.700000	53.67	Pk	33.0	-95.2	-47.12	-55.65	-13	-42.65	V
7.399000	53.30	Pk	35.6	-95.2	-45.68	-51.98	-13	-38.98	V
5.503000	53.77	Pk	34.4	-95.2	-47.05	-54.08	-13	-41.08	V
5.503500	53.68	Pk	34.4	-95.2	-47.06	-54.18	-13	-41.18	H
Mid Channel, 1880MHz									
3.758994	57.25	Pk	33.2	-95.2	-47.08	-51.83	-13	-38.83	H
7.520598	56.11	Pk	35.7	-95.2	-45.41	-48.8	-13	-35.80	H
3.757908	57.83	Pk	33.2	-95.2	-47.13	-51.3	-13	-38.30	V
7.517887	56.00	Pk	35.7	-95.2	-45.54	-49.04	-13	-36.04	V
5.639949	63.25	Pk	34.4	-95.2	-46.73	-44.28	-13	-31.28	H
5.640625	56.58	Pk	34.4	-95.2	-46.76	-50.98	-13	-37.98	V
High Channel, 1909.8MHz									
3.819500	53.44	Pk	33.3	-95.2	-46.87	-55.33	-13	-42.33	H
7.639000	52.39	Pk	35.7	-95.2	-44.80	-51.91	-13	-38.91	H
3.819500	54.10	Pk	33.3	-95.2	-46.87	-54.67	-13	-41.67	V
7.639000	51.69	Pk	35.7	-95.2	-44.80	-52.61	-13	-39.61	V
5.731000	52.07	Pk	34.5	-95.2	-46.51	-55.14	-13	-42.14	H
5.731000	52.42	Pk	34.5	-95.2	-46.51	-54.79	-13	-41.79	V

EGPRS MODE

Project #:	14982484
Date:	2024-04-05
Test Engineer:	12491
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	03-RDE-A

Frequency (MHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700000	53.54	Pk	33.0	-95.2	-47.12	-55.78	-13	-42.78	H
7.401500	52.97	Pk	35.6	-95.2	-45.72	-52.35	-13	-39.35	H
3.699000	52.81	Pk	33.0	-95.2	-47.05	-56.44	-13	-43.44	V
7.401500	53.21	Pk	35.6	-95.2	-45.72	-52.11	-13	-39.11	V
5.550000	53.75	Pk	34.4	-95.2	-46.93	-53.98	-13	-40.98	V
5.550500	54.24	Pk	34.4	-95.2	-46.96	-53.52	-13	-40.52	H
Mid Channel, 1880MHz									
3.762000	53.65	Pk	33.2	-95.2	-46.89	-55.24	-13	-42.24	H
7.519500	52.34	Pk	35.7	-95.2	-45.48	-52.64	-13	-39.64	H
3.763000	53.68	Pk	33.2	-95.2	-46.87	-55.19	-13	-42.19	V
7.519000	53.82	Pk	35.7	-95.2	-45.51	-51.19	-13	-38.19	V
5.640000	53.98	Pk	34.4	-95.2	-46.73	-53.55	-13	-40.55	V
5.640500	54.32	Pk	34.4	-95.2	-46.76	-53.24	-13	-40.24	H
High Channel, 1909.8MHz									
3.819000	53.39	Pk	33.3	-95.2	-46.83	-55.34	-13	-42.34	H
7.639000	54.50	Pk	35.7	-95.2	-44.80	-49.80	-13	-36.80	H
3.819000	54.09	Pk	33.3	-95.2	-46.83	-54.64	-13	-41.64	V
7.639000	52.69	Pk	35.7	-95.2	-44.8	-51.61	-13	-38.61	V
5.729000	52.40	Pk	34.5	-95.2	-46.45	-54.75	-13	-41.75	V
5.729500	53.88	Pk	34.5	-95.2	-46.46	-53.28	-13	-40.28	H

10.2.3. WCDMA BAND 5

REL 99 MODE

Project #:	14981484
Date:	2024-03-21
Test Engineer:	12491
Configuration:	EUT Only
Mode:	REL 99 Band 5
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 826.4MHz									
2.487700	57.69	Pk	32.2	-95.2	-50.0	-55.31	-13	-42.31	H
2.490850	57.13	Pk	32.2	-95.2	-50.0	-55.87	-13	-42.87	V
1.650700	57.04	Pk	28.3	-95.2	-49.7	-59.56	-13	-46.56	H
1.650700	57.00	Pk	28.3	-95.2	-49.7	-59.6	-13	-46.60	V
3.299050	54.53	Pk	33.0	-95.2	-48.1	-55.77	-13	-42.77	V
3.308050	54.10	Pk	33.0	-95.2	-48.0	-56.10	-13	-43.10	H
Mid Channel, 836.6MHz									
1.688950	57.31	Pk	28.7	-95.2	-49.7	-58.89	-13	-45.89	H
3.347200	55.02	Pk	33.1	-95.2	-47.6	-54.68	-13	-41.68	H
1.688950	61.13	Pk	28.7	-95.2	-49.7	-55.07	-13	-42.07	V
3.347200	54.98	Pk	33.1	-95.2	-47.6	-54.72	-13	-41.72	V
2.509750	58.34	Pk	32.2	-95.2	-50.1	-54.76	-13	-41.76	H
2.509750	58.57	Pk	32.2	-95.2	-50.1	-54.53	-13	-41.53	V
High Channel, 846.6MHz									
1.699300	55.86	Pk	28.9	-95.2	-49.8	-60.24	-13	-47.24	H
1.698850	56.49	Pk	28.9	-95.2	-49.8	-59.61	-13	-46.61	V
2.53675	57.76	Pk	32.3	-95.2	-50.2	-55.34	-13	-42.34	H
2.53675	56.74	Pk	32.3	-95.2	-50.2	-56.36	-13	-43.36	V
3.38185	53.01	Pk	33.1	-95.2	-47.5	-56.59	-13	-43.59	H
3.38185	54.78	Pk	33.1	-95.2	-47.5	-54.82	-13	-41.82	V

HSDPA MODE

Project #:	
Date:	4/3/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 5
Chamber #:	01-RDE-A

Frequency (MHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 826.4MHz									
1.656550	57.86	Pk	28.3	-95.2	-49.7	-58.74	-13	-45.74	H
1.656550	58.03	Pk	28.3	-95.2	-49.7	-58.57	-13	-45.57	V
2.480050	58.26	Pk	32.2	-95.2	-50.0	-54.74	-13	-41.74	H
2.480050	57.76	Pk	32.2	-95.2	-50.0	-55.24	-13	-42.24	V
3.305359	54.40	Pk	33	-95.2	-48.17	-55.97	-13	-42.97	H
3.305350	54.89	Pk	33	-95.2	-48.17	-55.48	-13	-42.48	V
Mid Channel, 836.6MHz									
1.672300	56.47	Pk	28.5	-95.2	-49.7	-59.93	-13	-46.93	H
3.348100	54.27	Pk	33.1	-95.2	-47.6	-55.43	-13	-42.43	H
1.672300	57.12	Pk	28.5	-95.2	-49.7	-59.28	-13	-46.28	V
3.347650	54.25	Pk	33.1	-95.2	-47.6	-55.45	-13	-42.45	V
2.507950	56.87	Pk	32.2	-95.2	-50.01	-56.14	-13	-43.14	H
2.507950	56.98	Pk	32.2	-95.2	-50.01	-56.03	-13	-43.03	V
High Channel, 846.6MHz									
1.697050	55.71	Pk	28.9	-95.2	-49.8	-60.39	-13	-47.39	H
1.697050	56.92	Pk	28.9	-95.2	-49.8	-59.18	-13	-46.18	V
2.525950	56.44	Pk	32.3	-95.2	-50.2	-56.66	-13	-43.66	V
2.529100	57.31	Pk	32.3	-95.2	-50.1	-55.69	-13	-42.69	H
3.378250	55.47	Pk	33.1	-95.2	-47.58	-54.21	-13	-41.21	V
3.385000	53.58	Pk	33.1	-95.2	-47.6	-56.12	-13	-43.12	H

10.2.4. WCDMA BAND 2

REL 99 MODE

Project #:	14982484
Date:	2024-03-22
Test Engineer:	12491
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.700500	54.85	Pk	33.5	-95.2	-47.2	-54.05	-13	-41.05	H
7.412500	54.12	Pk	35.9	-95.2	-47.9	-53.08	-13	-40.08	H
3.700500	52.36	Pk	33.5	-95.2	-47.2	-56.54	-13	-43.54	V
7.412500	53.24	Pk	35.9	-95.2	-47.9	-53.96	-13	-40.96	V
5.561000	53.61	Pk	34.4	-95.2	-48.7	-55.89	-13	-42.89	V
5.561500	55.21	Pk	34.4	-95.2	-48.7	-54.29	-13	-41.29	H
Mid Channel, 1880MHz									
3.762000	55.00	Pk	33.6	-95.2	-47.8	-54.40	-13	-41.40	H
7.520000	54.11	Pk	36.0	-95.2	-48.1	-53.19	-13	-40.19	H
3.762000	53.96	Pk	33.6	-95.2	-47.8	-55.44	-13	-42.44	V
7.520000	54.27	Pk	36.0	-95.2	-48.1	-53.03	-13	-40.03	V
5.639500	54.21	Pk	34.4	-95.2	-48.3	-54.89	-13	-41.89	H
5.639500	54.40	Pk	34.4	-95.2	-48.3	-54.70	-13	-41.70	V
High Channel, 1907.6MHz									
3.815500	54.88	Pk	33.6	-95.2	-47.85	-54.57	-13	-41.57	H
7.633000	55.22	Pk	35.9	-95.2	-47.30	-51.38	-13	-38.38	H
3.815500	54.60	Pk	33.6	-95.2	-47.85	-54.85	-13	-41.85	V
7.633000	53.37	Pk	35.9	-95.2	-47.30	-53.23	-13	-40.23	V
5.721000	54.80	Pk	34.5	-95.2	-48.00	-53.90	-13	-40.90	H
5.721000	54.27	Pk	34.5	-95.2	-48.00	-54.43	-13	-41.43	V

HSDPA MODE

Project #:	14982484
Date:	2024-03-21
Test Engineer:	12491
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.703000	54.70	Pk	33.5	-95.2	-47.3	-54.30	-13	-41.30	H
7.408500	54.25	Pk	35.9	-95.2	-47.8	-52.85	-13	-39.85	H
3.703000	53.81	Pk	33.5	-95.2	-47.3	-55.19	-13	-42.19	V
7.408500	53.70	Pk	35.9	-95.2	-47.8	-53.40	-13	-40.40	V
5.556000	54.64	Pk	34.4	-95.2	-48.6	-54.76	-13	-41.76	H
5.556000	55.06	Pk	34.4	-95.2	-48.6	-54.34	-13	-41.34	V
Mid Channel, 1880MHz									
3.767500	54.64	Pk	33.6	-95.2	-47.8	-54.76	-13	-41.76	H
7.521000	53.83	Pk	36.0	-95.2	-48.1	-53.47	-13	-40.47	H
3.767500	54.75	Pk	33.6	-95.2	-47.8	-54.65	-13	-41.65	V
7.520750	54.58	Pk	36.0	-95.2	-48.1	-52.72	-13	-39.72	V
5.643500	54.41	Pk	34.4	-95.2	-48.4	-54.79	-13	-41.79	H
5.644000	54.42	Pk	34.4	-95.2	-48.4	-54.78	-13	-41.78	V
High Channel, 1907.6MHz									
3.812500	54.76	Pk	33.6	-95.2	-47.75	-54.59	-13	-41.59	H
7.683000	54.90	Pk	35.9	-95.2	-47.70	-52.1	-13	-39.10	H
3.812500	54.40	Pk	33.6	-95.2	-47.75	-54.95	-13	-41.95	V
7.682500	54.36	Pk	35.9	-95.2	-47.70	-52.64	-13	-39.64	V
5.712000	53.30	Pk	34.5	-95.2	-48.10	-55.5	-13	-42.50	H
5.712000	54.61	Pk	34.5	-95.2	-48.10	-54.19	-13	-41.19	V

10.2.5. WCDMA BAND 4

REL 99 MODE

Project #:	14982484
Date:	2024-03-22
Test Engineer:	12491
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
5.132000	54.98	Pk	34.3	-95.2	-49.4	-55.32	-13	-42.32	H
5.132500	56.87	Pk	34.3	-95.2	-49.4	-53.43	-13	-40.43	V
3.429500	54.56	Pk	33.2	-95.2	-47.8	-55.24	-13	-42.24	H
3.429500	53.71	Pk	33.2	-95.2	-47.8	-56.09	-13	-43.09	V
6.849000	53.55	Pk	35.7	-95.2	-47.4	-53.35	-13	-40.35	H
6.849000	53.47	Pk	35.7	-95.2	-47.4	-53.43	-13	-40.43	V
Mid Channel, 1732.6MHz									
3.481000	57.87	Pk	33.2	-95.2	-47.2	-51.33	-13	-38.33	H
3.481000	54.21	Pk	33.2	-95.2	-47.2	-54.99	-13	-41.99	V
5.192500	55.08	Pk	34.4	-95.2	-49.3	-55.02	-13	-42.02	H
5.193000	56.22	Pk	34.4	-95.2	-49.3	-53.88	-13	-40.88	V
6.928000	53.31	Pk	35.7	-95.2	-46.9	-53.09	-13	-40.09	H
6.928000	52.52	Pk	35.7	-95.2	-46.9	-53.88	-13	-40.88	V
High Channel, 1752.6MHz									
3.500500	54.07	Pk	33.2	-95.2	-47.2	-55.13	-13	-42.13	H
3.500500	54.10	Pk	33.2	-95.2	-47.2	-55.10	-13	-42.10	V
5.255500	56.11	Pk	34.4	-95.2	-49.2	-53.89	-13	-40.89	H
5.255500	54.95	Pk	34.4	-95.2	-49.2	-55.05	-13	-42.05	V
7.010500	53.70	Pk	35.8	-95.2	-47.3	-53.00	-13	-40.00	V
7.011000	54.14	Pk	35.8	-95.2	-47.3	-52.56	-13	-39.56	H

HSDPA MODE

Project #:	14982484
Date:	2024-03-22
Test Engineer:	12491
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
5.134500	54.67	Pk	34.3	-95.2	-49.5	-55.68	-13	-42.68	H
5.134500	57.62	Pk	34.3	-95.2	-49.5	-52.73	-13	-39.73	V
3.425000	54.19	Pk	33.2	-95.2	-47.7	-55.51	-13	-42.51	H
3.425500	55.05	Pk	33.2	-95.2	-47.7	-54.65	-13	-41.65	V
6.850000	53.88	Pk	35.7	-95.2	-47.4	-53.02	-13	-40.02	H
6.850000	54.60	Pk	35.7	-95.2	-47.4	-52.30	-13	-39.30	V
Mid Channel, 1732.6MHz									
3.463500	53.58	Pk	33.2	-95.2	-47.5	-55.87	-13	-42.87	H
3.463500	55.02	Pk	33.2	-95.2	-47.5	-54.43	-13	-41.43	V
5.195000	55.27	Pk	34.4	-95.2	-49.3	-54.83	-13	-41.83	H
5.195000	56.26	Pk	34.4	-95.2	-49.3	-53.84	-13	-40.84	V
6.931000	54.63	Pk	35.7	-95.2	-46.9	-51.77	-13	-38.77	H
6.931000	52.78	Pk	35.7	-95.2	-46.9	-53.62	-13	-40.62	V
High Channel, 1752.6MHz									
3.505750	54.08	Pk	33.2	-95.2	-47.03	-54.95	-13	-41.95	H
3.506000	55.15	Pk	33.2	-95.2	-47.0	-53.85	-13	-40.85	V
5.255000	55.70	Pk	34.4	-95.2	-49.2	-54.30	-13	-41.30	H
5.255000	55.38	Pk	34.4	-95.2	-49.2	-54.62	-13	-41.62	V
7.013500	53.77	Pk	35.8	-95.2	-47.2	-52.83	-13	-39.83	H
7.013500	52.97	Pk	35.8	-95.2	-47.2	-53.63	-13	-40.63	V

10.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT3

10.3.1. GSM 1900

GPRS MODE

Project #:	14982484
Date:	2024-05-05
Test Engineer:	32145
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	03-RDE-A

Frequency (MHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.726500	56.29	Pk	33.1	-95.2	-47.05	-52.86	-13	-39.86	H
7.418000	54.70	Pk	35.6	-95.2	-45.71	-50.61	-13	-37.61	H
3.723000	56.50	Pk	33.1	-95.2	-47.17	-52.77	-13	-39.77	V
7.426500	54.55	Pk	35.7	-95.2	-45.76	-50.71	-13	-37.71	V
5.539000	55.52	Pk	34.4	-95.2	-46.97	-52.25	-13	-39.25	H
5.570500	55.44	Pk	34.3	-95.2	-47.04	-52.50	-13	-39.50	V
Mid Channel, 1880MHz									
3.774500	55.62	Pk	33.2	-95.2	-46.92	-53.3	-13	-40.3	H
7.529500	55.75	Pk	35.7	-95.2	-45.34	-49.09	-13	-36.09	H
3.785500	55.69	Pk	33.2	-95.2	-46.79	-53.10	-13	-40.10	V
7.528500	54.39	Pk	35.7	-95.2	-45.38	-50.49	-13	-37.49	V
5.627000	54.72	Pk	34.3	-95.2	-46.83	-53.01	-13	-40.01	V
5.649000	55.52	Pk	34.4	-95.2	-46.68	-51.96	-13	-38.96	H
High Channel, 1909.8MHz									
3.80200	55.10	Pk	33.3	-95.2	-46.82	-53.62	-13	-40.62	H
7.646500	54.99	Pk	35.7	-95.2	-44.8	-49.31	-13	-36.31	H
3.799500	54.76	Pk	33.3	-95.2	-46.62	-53.76	-13	-40.76	V
7.655500	53.87	Pk	35.7	-95.2	-44.85	-50.48	-13	-37.48	V
5.687500	55.52	Pk	34.4	-95.2	-46.69	-51.97	-13	-38.97	V
5.712000	54.68	Pk	34.5	-95.2	-46.44	-52.46	-13	-39.46	H

EGPRS MODE

Project #:	14982484
Date:	2024-05-05
Test Engineer:	32990
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	03-RDE-A

Frequency (MHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700500	53.72	Pk	33.2	-95.2	-47.16	-55.44	-13	-42.44	H
7.401000	53.15	Pk	35.8	-95.2	-45.73	-51.98	-13	-38.98	H
3.700500	53.63	Pk	33.2	-95.2	-47.16	-55.53	-13	-42.53	V
7.401000	51.79	Pk	35.8	-95.2	-45.73	-53.34	-13	-40.34	V
5.550500	53.66	Pk	34.4	-95.2	-46.96	-54.10	-13	-41.10	H
5.550500	55.04	Pk	34.4	-95.2	-46.96	-52.72	-13	-39.72	V
Mid Channel, 1880MHz									
3.760000	56.03	Pk	33.4	-95.2	-47.00	-52.77	-13	-39.77	H
7.521000	53.46	Pk	35.8	-95.2	-45.38	-51.32	-13	-38.32	H
3.760000	53.55	Pk	33.4	-95.2	-47.00	-55.25	-13	-42.25	V
7.521000	53.78	Pk	35.8	-95.2	-45.38	-51.00	-13	-38.00	V
5.640000	53.49	Pk	34.4	-95.2	-46.73	-54.04	-13	-41.04	H
5.640000	53.20	Pk	34.4	-95.2	-46.73	-54.33	-13	-41.33	V
High Channel, 1909.8MHz									
3.819500	54.08	Pk	33.5	-95.2	-46.9	-54.49	-13	-41.49	H
7.639000	51.54	Pk	35.9	-95.2	-44.8	-52.56	-13	-39.56	H
3.819500	54.29	Pk	33.5	-95.2	-46.9	-54.28	-13	-41.28	V
7.639000	54.70	Pk	35.9	-95.2	-44.8	-49.40	-13	-36.40	V
5.729500	52.89	Pk	34.6	-95.2	-46.46	-54.17	-13	-41.17	H
5.729500	54.24	Pk	34.6	-95.2	-46.46	-52.82	-13	-39.82	V

10.3.2. WCDMA BAND 2

REL 99 MODE

Project #:	14982484
Date:	2024-03-22
Test Engineer:	12501
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.712000	53.96	Pk	33.5	-95.2	-47.4	-55.14	-13	-42.14	H
3.699000	54.14	Pk	33.5	-95.2	-47.2	-54.76	-13	-41.76	V
5.524500	55.88	Pk	34.4	-95.2	-48.7	-53.62	-13	-40.62	V
5.553000	56.10	Pk	34.4	-95.2	-48.6	-53.30	-13	-40.30	H
7.018000	53.72	Pk	35.8	-95.2	-47.4	-53.08	-13	-40.08	H
7.018000	53.58	Pk	35.8	-95.2	-47.4	-53.22	-13	-40.22	V
Mid Channel, 1880MHz									
3.763500	54.02	Pk	33.6	-95.2	-47.75	-55.33	-13	-42.33	H
7.518000	53.66	Pk	36	-95.2	-48.1	-53.64	-13	-40.64	H
3.763500	54.3	Pk	33.6	-95.2	-47.75	-55.05	-13	-42.05	V
7.505500	54.62	Pk	36	-95.2	-48.2	-52.78	-13	-39.78	V
5.640000	53.21	Pk	34.4	-95.2	-48.3	-55.89	-13	-42.89	H
5.659000	54.01	Pk	34.4	-95.2	-48.3	-55.09	-13	-42.09	V
High Channel, 1907.6MHz									
3.806000	55.33	Pk	33.7	-95.2	-47.9	-54.07	-13	-41.07	H
7.638500	54.39	Pk	35.9	-95.2	-47.3	-52.21	-13	-39.21	H
3.806000	55.86	Pk	33.7	-95.2	-47.9	-53.54	-13	-40.54	V
7.638500	53.64	Pk	35.9	-95.2	-47.3	-52.96	-13	-39.96	V
5.731500	54.01	Pk	34.5	-95.2	-48.1	-54.74	-13	-41.74	H
5.801000	56.08	Pk	34.6	-95.2	-47.9	-52.42	-13	-39.42	V

HSDPA MODE

Project #:	14982484
Date:	2024-03-22
Test Engineer:	12501
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.696500	53.17	Pk	33.5	-95.2	-47.2	-55.73	-13	-42.73	H
7.406000	54.98	Pk	35.9	-95.2	-47.9	-52.22	-13	-39.22	H
3.702500	54.42	Pk	33.5	-95.2	-47.25	-54.53	-13	-41.53	V
7.393000	53.55	Pk	35.8	-95.2	-47.7	-53.55	-13	-40.55	V
5.556500	53.97	Pk	34.4	-95.2	-48.6	-55.43	-13	-42.43	H
5.556500	54.77	Pk	34.4	-95.2	-48.6	-54.63	-13	-41.63	V
Mid Channel, 1880MHz									
3.760500	54.13	Pk	33.6	-95.2	-47.85	-55.32	-13	-42.32	H
7.521500	56.34	Pk	36.0	-95.2	-48.05	-50.91	-13	-37.91	H
3.734500	55.17	Pk	33.5	-95.2	-47.6	-54.13	-13	-41.13	V
7.534500	55.07	Pk	36.0	-95.2	-47.9	-52.03	-13	-39.03	V
5.624000	54.92	Pk	34.4	-95.2	-48.4	-54.28	-13	-41.28	V
5.643500	55.16	Pk	34.4	-95.2	-48.4	-54.04	-13	-41.04	H
High Channel, 1907.6MHz									
3.812500	55.53	Pk	33.6	-95.2	-47.8	-53.82	-13	-40.82	H
7.652000	55.20	Pk	35.9	-95.2	-47.4	-51.50	-13	-38.50	H
3.812500	55.19	Pk	33.6	-95.2	-47.8	-54.16	-13	-41.16	V
7.638500	54.08	Pk	35.9	-95.2	-47.3	-52.52	-13	-39.52	V
5.71150	55.56	Pk	34.5	-95.2	-48.1	-53.24	-13	-40.24	V
5.7215	53.62	Pk	34.5	-95.2	-48.0	-55.08	-13	-42.08	H

10.3.3. WCDMA BAND 4

REL 99 MODE

Project #:	14982484
Date:	2024-03-22
Test Engineer:	12491
Configuration:	EUT Only
Mode:	REL 99 Band
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
5.139000	55.92	Pk	34.3	-95.2	-49.4	-54.38	-13	-41.38	H
5.148000	55.63	Pk	34.3	-95.2	-49.4	-54.67	-13	-41.67	V
3.423500	54.57	Pk	33.2	-95.2	-47.8	-55.18	-13	-42.18	H
3.423500	54.53	Pk	33.2	-95.2	-47.8	-55.22	-13	-42.22	V
6.839000	53.82	Pk	35.7	-95.2	-47.4	-53.08	-13	-40.08	H
6.886500	52.75	Pk	35.7	-95.2	-47.2	-53.95	-13	-40.95	V
Mid Channel, 1732.6MHz									
3.468000	54.62	Pk	33.2	-95.2	-47.5	-54.88	-13	-41.88	V
3.468500	55.15	Pk	33.2	-95.2	-47.5	-54.30	-13	-41.30	H
5.194500	54.45	Pk	34.4	-95.2	-49.3	-55.65	-13	-42.65	H
5.194500	54.18	Pk	34.4	-95.2	-49.3	-55.92	-13	-42.92	V
6.930500	53.25	Pk	35.7	-95.2	-46.9	-53.15	-13	-40.15	H
6.930500	54.26	Pk	35.7	-95.2	-46.9	-52.14	-13	-39.14	V
High Channel, 1752.6MHz									
3.502000	54.17	Pk	33.2	-95.2	-47.2	-55.03	-13	-42.03	H
3.502000	54.88	Pk	33.2	-95.2	-47.2	-54.32	-13	-41.32	V
5.258500	55.88	Pk	34.4	-95.2	-49.2	-54.12	-13	-41.12	H
5.258500	55.29	Pk	34.4	-95.2	-49.2	-54.71	-13	-41.71	V
7.011000	54.44	Pk	35.8	-95.2	-47.3	-52.26	-13	-39.26	H
7.011000	54.47	Pk	35.8	-95.2	-47.3	-52.23	-13	-39.23	V

HSDPA MODE

Project #:	14982484
Date:	2024-03-22
Test Engineer:	12491
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.508000	53.44	Pk	33.3	-95.2	-47.1	-55.56	-13	-42.56	H
3.507500	53.50	Pk	33.3	-95.2	-47.1	-55.45	-13	-42.45	V
5.258500	54.44	Pk	34.4	-95.2	-49.2	-55.56	-13	-42.56	H
5.259000	55.11	Pk	34.4	-95.2	-49.2	-54.89	-13	-41.89	V
7.010000	53.39	Pk	35.8	-95.2	-47.3	-53.31	-13	-40.31	V
7.010500	53.40	Pk	35.8	-95.2	-47.3	-53.30	-13	-40.30	H
Mid Channel, 1732.6MHz									
3.465000	55.18	Pk	33.2	-95.2	-47.4	-54.22	-13	-41.22	H
3.465000	54.00	Pk	33.2	-95.2	-47.4	-55.40	-13	-42.40	V
5.193000	54.46	Pk	34.4	-95.2	-49.3	-55.64	-13	-42.64	V
5.193500	54.96	Pk	34.4	-95.2	-49.3	-55.14	-13	-42.14	H
6.931000	53.66	Pk	35.7	-95.2	-46.9	-52.74	-13	-39.74	H
6.931000	54.46	Pk	35.7	-95.2	-46.9	-51.94	-13	-38.94	V
High Channel, 1752.6MHz									
5.136500	55.10	Pk	34.3	-95.2	-49.5	-55.30	-13	-42.30	H
5.136500	55.23	Pk	34.3	-95.2	-49.5	-55.17	-13	-42.17	V
3.425000	55.85	Pk	33.2	-95.2	-47.7	-53.85	-13	-40.85	V
3.425500	54.30	Pk	33.2	-95.2	-47.7	-55.40	-13	-42.40	H
6.848000	52.41	Pk	35.7	-95.2	-47.4	-54.49	-13	-41.49	H
6.848000	53.26	Pk	35.7	-95.2	-47.4	-53.64	-13	-40.64	V

10.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT4

10.4.1. GSM 1900

GPRS MODE

Project #:	14982484
Date:	2024-05-05
Test Engineer:	32145
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	01-RDE-B

Frequency (MHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.696000	55.99	Pk	33.0	-95.2	-47.19	-53.40	-13	-40.40	H
7.386500	54.40	Pk	35.6	-95.2	-45.65	-50.85	-13	-37.85	H
3.673500	55.52	Pk	33.0	-95.2	-47.16	-53.84	-13	-40.84	V
7.391500	54.71	Pk	35.6	-95.2	-45.68	-50.57	-13	-37.57	V
5.555000	55.57	Pk	34.4	-95.2	-46.96	-52.19	-13	-39.19	H
5.569500	55.02	Pk	34.3	-95.2	-47.01	-52.89	-13	-39.89	V
Mid Channel, 1880MHz									
3.784500	56.72	Pk	33.2	-95.2	-46.81	-52.09	-13	-39.09	H
7.521500	54.22	Pk	35.7	-95.2	-45.37	-50.65	-13	-37.65	H
3.777500	56.10	Pk	33.2	-95.2	-46.81	-52.71	-13	-39.71	V
7.497500	55.23	Pk	35.7	-95.2	-45.83	-50.10	-13	-37.10	V
5.642500	55.09	Pk	34.4	-95.2	-46.83	-52.54	-13	-39.54	H
5.664500	55.30	Pk	34.4	-95.2	-46.64	-52.14	-13	-39.14	V
High Channel, 1909.8MHz									
3.929000	56.50	Pk	33.3	-95.2	-47.26	-52.66	-13	-39.66	H
7.641500	53.94	Pk	35.7	-95.2	-44.79	-50.35	-13	-37.35	H
3.954000	55.37	Pk	33.3	-95.2	-47.18	-53.71	-13	-40.71	V
7.644000	54.21	Pk	35.7	-95.2	-44.82	-50.11	-13	-37.11	V
5.741500	54.65	Pk	34.5	-95.2	-46.57	-52.62	-13	-39.62	V
5.744000	55.49	Pk	34.6	-95.2	-46.54	-51.65	-13	-38.65	H

EGPRS MODE

Project #:	14982484
Date:	2024-04-08
Test Engineer:	32998
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	03-RDE-A

Frequency (MHz)	Meter Reading (dBuV)	Det	200897 ACF (dB/m) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.680500	55.78	Pk	33.0	-95.2	-47.06	-53.48	-13	-40.48	H
7.396500	54.66	Pk	35.6	-95.2	-45.61	-50.55	-13	-37.55	H
3.680500	55.28	Pk	33.0	-95.2	-47.06	-53.98	-13	-40.98	V
7.389000	54.60	Pk	35.6	-95.2	-45.66	-50.66	-13	-37.66	V
5.553000	55.11	Pk	34.4	-95.2	-47.03	-52.72	-13	-39.72	V
5.561000	55.08	Pk	34.3	-95.2	-46.97	-52.79	-13	-39.79	H
Mid Channel, 1880MHz									
3.760000	53.99	Pk	33.4	-95.2	-47.00	-54.81	-13	-41.81	H
7.520000	53.50	Pk	35.8	-95.2	-45.45	-51.35	-13	-38.35	H
3.760000	53.48	Pk	33.4	-95.2	-47.00	-55.32	-13	-42.32	V
7.520000	52.74	Pk	35.8	-95.2	-45.45	-52.11	-13	-39.11	V
5.640500	53.98	Pk	34.4	-95.2	-46.76	-53.58	-13	-40.58	H
5.640500	53.74	Pk	34.4	-95.2	-46.76	-53.82	-13	-40.82	V
High Channel, 1909.8MHz									
3.819500	53.18	Pk	33.5	-95.2	-46.87	-55.39	-13	-42.39	H
7.639000	53.97	Pk	35.9	-95.2	-44.80	-50.13	-13	-37.13	H
3.819500	55.20	Pk	33.5	-95.2	-46.87	-53.37	-13	-40.37	V
7.639000	52.83	Pk	35.9	-95.2	-44.80	-51.27	-13	-38.27	V
5.729500	53.83	Pk	34.6	-95.2	-46.46	-53.23	-13	-40.23	H
5.729500	52.93	Pk	34.6	-95.2	-46.46	-54.13	-13	-41.13	V

10.4.1. WCDMA BAND 2

REL 99 MODE

Project #:	14982484
Date:	2024-04-01
Test Engineer:	12501
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.712000	54.74	Pk	33.5	-95.2	-47.4	-54.36	-13	-41.36	H
7.415500	53.78	Pk	35.9	-95.2	-47.9	-53.42	-13	-40.42	H
3.712000	54.41	Pk	33.5	-95.2	-47.4	-54.69	-13	-41.69	V
7.441000	55.53	Pk	35.9	-95.2	-47.9	-51.67	-13	-38.67	V
5.553000	56.22	Pk	34.4	-95.2	-48.6	-53.18	-13	-40.18	H
5.553000	55.86	Pk	34.4	-95.2	-48.6	-53.54	-13	-40.54	V
Mid Channel, 1880MHz									
3.757000	53.23	Pk	33.6	-95.2	-47.7	-56.07	-13	-43.07	H
7.518000	55.12	Pk	36.0	-95.2	-48.1	-52.18	-13	-39.18	H
3.769500	54.37	Pk	33.6	-95.2	-47.85	-55.08	-13	-42.08	V
7.531000	54.33	Pk	36.0	-95.2	-47.9	-52.77	-13	-39.77	V
5.630000	55.57	Pk	34.4	-95.2	-48.4	-53.63	-13	-40.63	V
5.649500	54.71	Pk	34.4	-95.2	-48.3	-54.39	-13	-41.39	H
High Channel, 1907.6MHz									
3.815500	55.02	Pk	33.6	-95.2	-47.9	-54.43	-13	-41.43	H
7.622500	53.74	Pk	35.9	-95.2	-47.2	-52.76	-13	-39.76	H
3.815500	55.02	Pk	33.6	-95.2	-47.9	-54.43	-13	-41.43	H
7.649000	53.09	Pk	35.9	-95.2	-47.4	-53.61	-13	-40.61	H
5.718000	56.43	Pk	34.5	-95.2	-48.0	-52.27	-13	-39.27	H
5.718000	56.43	Pk	34.5	-95.2	-48.0	-52.27	-13	-39.27	H

HSDPA MODE

Project #:	14982484
Date:	2024-04-01
Test Engineer:	12501
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.705500	54.50	Pk	33.5	-95.2	-47.2	-54.40	-13	-41.40	H
7.415500	54.77	Pk	35.9	-95.2	-47.9	-52.43	-13	-39.43	H
3.712000	54.32	Pk	33.5	-95.2	-47.4	-54.78	-13	-41.78	V
7.415500	53.57	Pk	35.9	-95.2	-47.9	-53.63	-13	-40.63	V
5.553000	54.57	Pk	34.4	-95.2	-48.6	-54.83	-13	-41.83	H
5.572000	55.16	Pk	34.4	-95.2	-48.7	-54.34	-13	-41.34	V
Mid Channel, 1880MHz									
3.757000	54.73	Pk	33.6	-95.2	-47.7	-54.57	-13	-41.57	H
7.518000	53.58	Pk	36	-95.2	-48.1	-53.72	-13	-40.72	H
3.750500	52.85	Pk	33.6	-95.2	-47.7	-56.45	-13	-43.45	V
7.609500	54.07	Pk	35.9	-95.2	-47.1	-52.33	-13	-39.33	V
5.640000	53.46	Pk	34.4	-95.2	-48.3	-55.64	-13	-42.64	H
5.678500	55.14	Pk	34.4	-95.2	-48.3	-53.96	-13	-40.96	V
High Channel, 1907.6MHz									
3.815500	54.80	Pk	33.6	-95.2	-47.9	-54.65	-13	-41.65	H
7.624500	53.03	Pk	35.9	-95.2	-47.3	-53.52	-13	-40.52	H
3.809000	54.28	Pk	33.6	-95.2	-47.9	-55.22	-13	-42.22	V
7.622500	53.44	Pk	35.9	-95.2	-47.2	-53.06	-13	-40.06	V
5.725655	63.27	Pk	34.5	-95.2	-48.0	-45.43	-13	-32.43	V
5.726726	64.50	Pk	34.5	-95.2	-48.0	-44.20	-13	-31.20	H

10.4.2. WCDMA BAND 4

REL 99 MODE

Project #:	14982484
Date:	2024-04-02
Test Engineer:	12491
Configuration:	EUT Only
Mode:	REL 99 Band
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
5.139000	56.50	Pk	34.3	-95.2	-49.4	-53.80	-13	-40.80	H
5.139000	55.01	Pk	34.3	-95.2	-49.4	-55.29	-13	-42.29	V
3.411500	54.61	Pk	33.2	-95.2	-47.8	-55.19	-13	-42.19	V
3.423500	54.26	Pk	33.2	-95.2	-47.8	-55.49	-13	-42.49	H
6.862500	53.87	Pk	35.7	-95.2	-47.4	-53.03	-13	-40.03	H
6.862500	52.99	Pk	35.7	-95.2	-47.4	-53.91	-13	-40.91	V
Mid Channel, 1732.6MHz									
3.465000	53.80	Pk	33.2	-95.2	-47.4	-55.60	-13	-42.60	H
3.476500	54.56	Pk	33.2	-95.2	-47.4	-54.84	-13	-41.84	V
5.192500	55.09	Pk	34.4	-95.2	-49.3	-55.01	-13	-42.01	H
5.219500	55.24	Pk	34.4	-95.2	-49.1	-54.66	-13	-41.66	V
6.922000	53.33	Pk	35.7	-95.2	-46.9	-53.07	-13	-40.07	H
6.934000	52.45	Pk	35.7	-95.2	-46.8	-53.85	-13	-40.85	V
High Channel, 1752.6MHz									
3.513000	54.77	Pk	33.3	-95.2	-47	-54.13	-13	-41.13	H
3.507000	53.54	Pk	33.3	-95.2	-47	-55.36	-13	-42.36	V
5.246500	53.90	Pk	34.4	-95.2	-49.1	-56.00	-13	-43.00	V
5.255500	55.24	Pk	34.4	-95.2	-49.2	-54.76	-13	-41.76	H
7.018000	53.33	Pk	35.8	-95.2	-47.4	-53.47	-13	-40.47	H
7.030000	55.35	Pk	35.8	-95.2	-47.5	-51.55	-13	-38.55	V

HSDPA MODE

Project #:	14982484
Date:	2024-04-01
Test Engineer:	12501
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	03-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	230300 ACF (dB/m)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
5.139000	55.39	Pk	34.3	-95.2	-49.4	-54.91	-13	-41.91	H
5.130500	55.86	Pk	34.3	-95.2	-49.4	-54.44	-13	-41.44	V
3.423500	54.87	Pk	33.2	-95.2	-47.8	-54.88	-13	-41.88	H
3.423500	55.85	Pk	33.2	-95.2	-47.8	-53.9	-13	-40.90	V
6.851000	53.81	Pk	35.7	-95.2	-47.4	-53.09	-13	-40.09	H
6.862500	55.34	Pk	35.7	-95.2	-47.4	-51.56	-13	-38.56	V
Mid Channel, 1732.6MHz									
3.459000	54.18	Pk	33.2	-95.2	-47.5	-55.32	-13	-42.32	V
3.465000	55.34	Pk	33.2	-95.2	-47.4	-54.06	-13	-41.06	H
5.192500	55.86	Pk	34.4	-95.2	-49.3	-54.24	-13	-41.24	H
5.192500	55.72	Pk	34.4	-95.2	-49.3	-54.38	-13	-41.38	V
6.934000	56.2	Pk	35.7	-95.2	-46.8	-50.10	-13	-37.10	H
6.946000	53.22	Pk	35.7	-95.2	-46.8	-53.08	-13	-40.08	V
High Channel, 1752.6MHz									
3.507000	53.70	Pk	33.3	-95.2	-47.0	-55.20	-13	-42.20	H
3.507000	52.91	Pk	33.3	-95.2	-47.0	-55.99	-13	-42.99	V
5.255500	54.83	Pk	34.4	-95.2	-49.2	-55.17	-13	-42.17	H
5.255500	54.73	Pk	34.4	-95.2	-49.2	-55.27	-13	-42.27	V
7.018000	52.75	Pk	35.8	-95.2	-47.4	-54.05	-13	-41.05	H
7.018000	54.48	Pk	35.8	-95.2	-47.4	-52.32	-13	-39.32	V

11. SETUP PHOTOS

Please refer to 14982484-EP1V1 for Setup Photo Report for setup photos.

END OF REPORT