



TEST REPORT

Report Number: 14040863-E7V2

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

Model : A2650

Brand : APPLE

FCC ID : BCG-E8140A

IC : 579C-E8140A

EUT Description : SMARTPHONE

Test Standard(s) : FCC CFR47 PART 22H, 24E, AND 27L
ISED RSS-GEN ISSUE 5, RSS-132 ISSUE 3, RSS-133
ISSUE 6, AND RSS-139 ISSUE 3

Date Of Issue:

JULY 06, 2022

Prepared by:

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Revision History

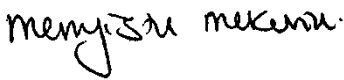


<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
V1	6/28/2022	Initial Review	Mengistu Mekuria
V2	7/6/2022	Fixed antenna naming, sections 1, 6, and 9	Binod Sitaula

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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	A2650	
Brand	APPLE	
FCC ID	BCG-E8140A	
IC	579C-E8140A	
EUT Description	SMARTPHONE	
Serial Number	P6Q40VXVX1, MX6MQD93RY (CONDUCTED) AND R9VD6JPQTY, JJJ377FDJ2 (RADIATED)	
Sample Receipt Date	FEBRUARY 15, 2022	
Date Tested	FEBRUARY 16, 2022 to JUNE 14, 2022	
Applicable Standards	FCC CFR 47 Part 2, Part 22, Part 24, and Part 27 ISED RSS-GEN ISSUE 5, RSS-132 Issue 3, RSS-133 Issue 6, RSS-139 Issue 3.	
Test Results	COMPLIES	
<p>UL LLC 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.</p> <p>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.</p> <p>This document may not be altered or revised in any way unless done so by UL LLC and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL LLC will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, any agency of the Federal Government, or any agency of the U.S. government.</p>		
Approved & Released By:	Reviewed By:	Prepared By:
		
Mengistu Mekuria Staff Engineer UL LLC.	Tewodros Woldemichael Laboratory Engineer UL LLC.	Binod Sitaula Laboratory Engineer UL LLC.

2. SUMMARY OF TEST RESULTS

This report contains data provided by the customer which can impact the validity of results. UL LLC is only responsible for the validity of results after the integration of the data provided by the customer.

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)	-	Complies	
Equivalent Isotropic Radiated power	24.232 (c), 27.50 (d) (4)	RSS132§5.4 RSS133§6.4 & SRSP-510, 5.1.2 RSS139§6.5	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§6.6	Complies	
Out of Band Emissions	2.1051, 22.917 (a), 24.238 (a), 27.53 (h),	RSS132§5.5 RSS133§6.5 RSS139§6.6	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§6.5	Complies	
Field Strength of Spurious Radiation	2.1053, 22.917 (a), 24.238 (a), 27.53 (h),	RSS132§5.5 RSS133§6.5 RSS139§6.6	Complies	

3. TEST METHODOLOGY

The tests documented in this report were performed in accordance with the following:

- ANSI C63.26:2015
- FCC CFR 47 Part 2, Part 22, Part 24, and Part 27.
- [FCC KDB 971168 D01 v03r01](#): Power Meas License Digital Systems
- [FCC KDB 971168 D02 v02r01](#): Misc Rev Approv License Devices
- [FCC KDB 412172 D01 v01r01](#). Determining ERP and EIRP
- ISED RSS-GEN Issue 5, ISED RSS-132 Issue 3, RSS-133 Issue 6, RSS-139 Issue 3.

4. FACILITIES AND ACCREDITATION

UL LLC 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
<input checked="" type="checkbox"/>	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
<input checked="" type="checkbox"/>	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA	US0104	22541	550739
<input type="checkbox"/>	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA	US0104	2324B	550739

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}
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.84 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
Occupied Channel Bandwidth	±1.22 %
Temperature	±2.26%
Supply voltages	±0.57 %
Time	±3.39 %

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)

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

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

Final Voltage (dBuV) = Measured Voltage (dBuV) + Cable Loss (dB) + Limiter Factor (dB) + LISN Insertion Loss.

$$36.5 \text{ dBuV} + 0 \text{ dB} + 10.1 \text{ dB} + 0 \text{ dB} = 46.6 \text{ dBuV}$$

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

The Apple iPhone is a smartphone with multimedia functions (music, application support, and video), cellular GSM, GPRS, EGPRS, UMTS, LTE, 5G FR1, IEEE 802.11a/b/g/n/ac/ax, Bluetooth, Ultra-Wideband, GPS, NFC, and MSS. All models except reference model support at least one UICC based SIM. The second SIM is either an UICC based p-SIM (physical SIM) or e-SIM (electronic SIM). The device supports a built-in inductive charging transmitter and receiver. The rechargeable battery is not user accessible.

Testing was performed on the parent model and is used to support the application for the parent and variants identified in this report based on the test plan submitted and approved via KDB inquiry by the FCC and by ISED-Canada.

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)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.2-848.8	GPRS	33.35	-5.00	11.5	28.35	0.684	244.79	245KGXW
	EGPRS	27.96			22.96	0.198	238.73	239KG7W
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	33.35	-5.00	7.0	26.20	0.417	244.79	245KGXW
	EGPRS	27.96			20.81	0.121	238.73	239KG7W
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	30.40	0.80	2.0	31.20	1.318	239.49	239KGXW
	EGPRS	25.40			26.20	0.417	243.74	244KG7W

WCDMA MODE

RSS 132 Band 5(Ant1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
826.4-846.6	REL 99	25.70	-5.00	11.5	20.70	0.117	4137	4M14F9W
	HSDPA	25.54			20.54	0.113	4150	4M15F9W
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	-5.00	7.0	18.55	0.072	4137	4M14F9W
	HSDPA	25.54			18.39	0.069	4150	4M15F9W
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	0.80	2.0	26.30	0.427	4154	4M15F9W
	HSDPA	25.26			26.06	0.404	4148	4M15F9W
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	-1.40	1.0	24.10	0.257	4145	4M15F9W
	HSDPA	25.37			23.97	0.249	4161	4M16F9W

6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version: 0.15.02

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	-5.0	-5.2		
GSM1900 and WCDMA 2 1850 – 1910 MHz	-3.4	-2.7	0.8	-1.3
WCDMA 4 1710 – 1755 MHz	-2.4	-5.1	-1.4	-1.8

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	Z	Z	N/A	N/A
1710 – 1915 MHz	Y	X	Y	Y

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

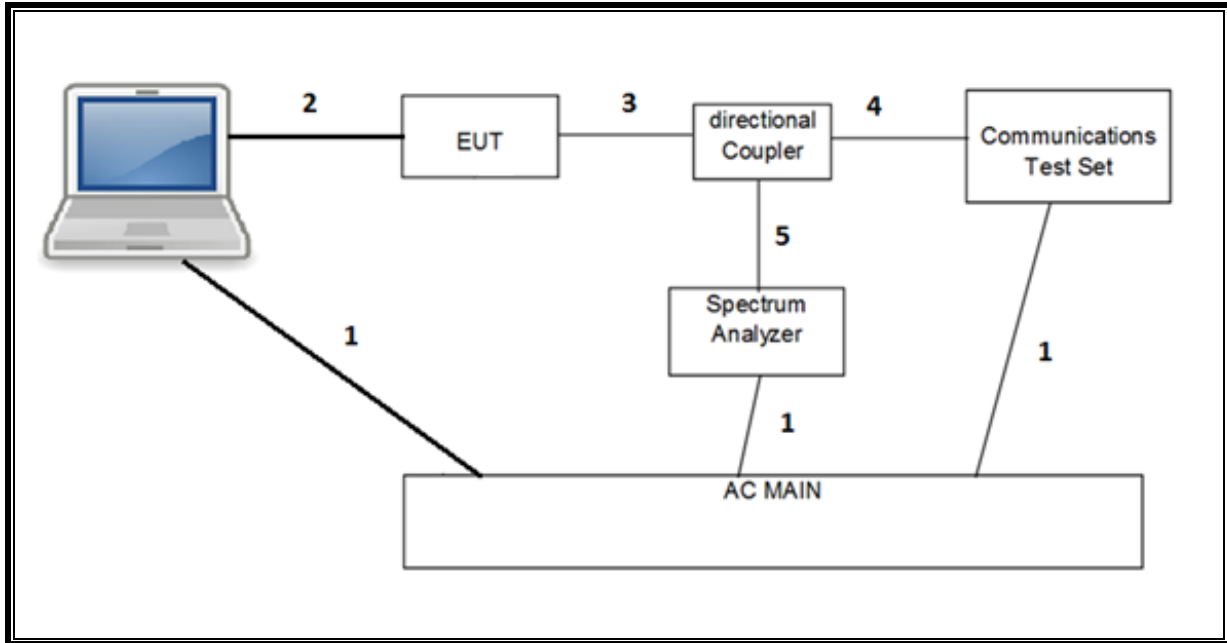
Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

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.

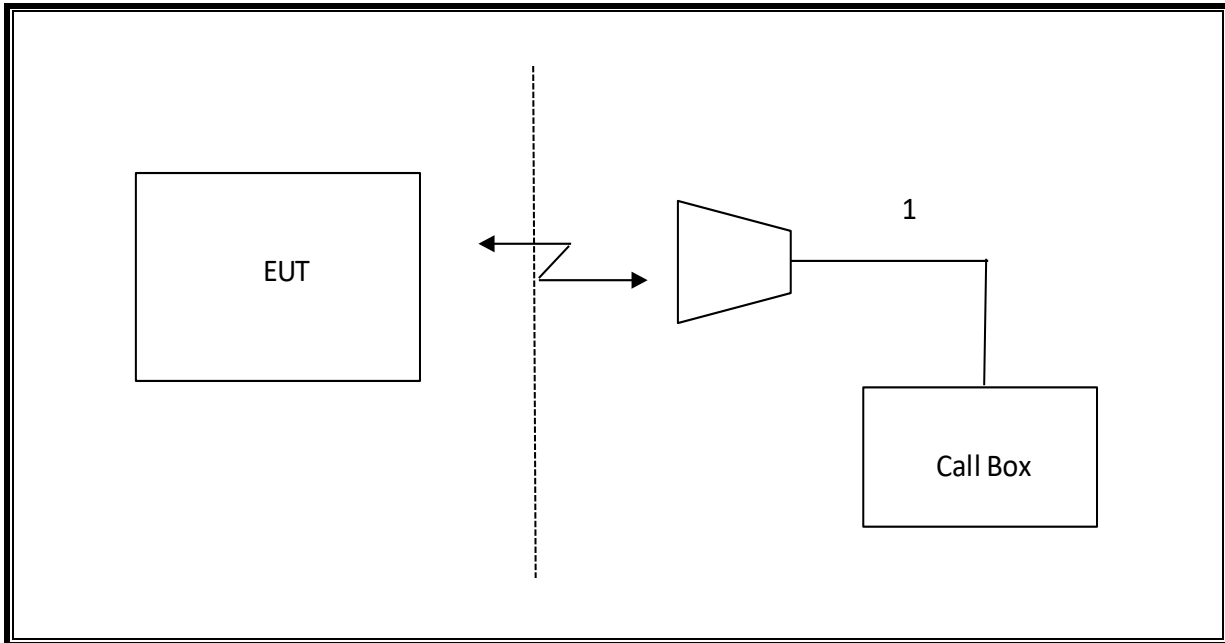
6.6. DESCRIPTION OF TEST SETUP

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	80402	6/14/2022
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB3	85151	3/21/2023
*RF Amplifier, 1-18GHz	T1165	AFS42-00101800-25-S-42	T1165	6/12/2022
*Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T1165	6/12/2022
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	85212	1/30/2023
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	85827	connection purpose only
Antenna, Horn 1-18GHz	ETS Lindgren	3117	80403	5/26/2023
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	125178	1/24/2023
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	80105	connection purpose only
Antenna, Broadband Hybrid, 30MHz to 3GHz	Sunol Sciences Corp.	JB3	203089	1/31/2023
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	170649	7/07/2022
Directional Coupler	KRYTAR	152613	T1536	9/23/2022
Directional Coupler	KRYTAR	152613	T1537	9/23/2022
Power Meter, P-series single channel	Keysight	N1911A	82174	1/24/2023
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight	N1921A	90388	1/24/2023
Filter, HPF 1.2GHz	Micro-Tronics	152043	152043	7/29/2022
Filter, BRF 1850 – 1910 MHz	Micro-Tronics	155055	155055	12/20/2022
Filter, BRF 2495 – 2690 MHz	Micro-Tronics	155050	155055	7/30/2022
Filter, BRF 3.4 – 3.8GHz	Micro-Tronics	208398	208398	7/30/2022
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	80397	2/1/2023
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	85201	2/1/2023
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	85214	2/2/2023
Spectrum Analyzer, PXA, 3Hz to 50GHz w/Ext. Mixer	Keysight	N9030A	80400	2/1/2023
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	85806	2/22/2023
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	85943	2/20/2023
Wireless Test Platform, UXM 5G	Keysight	E7515B	207269	1/24/2023
*Environmental Chamber	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	82472	6/15/2022
Antenna, Active Loop 9KHz to 30MHz	EMCO	6502	T35	10/05/2022
UL AUTOMATION SOFTWARE				
CLT Software	UL	UL RF	Ver 3.7.6, Match 1, 2022	
Power Measurement Software	UL	UL RF	Ver 3.4.9, April 29, 2022	
Radiated test software	UL	UL RF	Ver 9.5 June 15, 2022	

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 VERIFICATION

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:	25602	Test Date:	3/31/2022
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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	32.06	32.00
			190	836.6	33.35	32.38
			251	848.8	33.31	32.14
		2	128	824.2	31.84	31.54
			190	836.6	32.12	31.74
			251	848.8	32.08	31.44
EGPRS (8PSK)	MCS5	1	128	824.2	27.59	26.77
			190	836.6	27.96	27.00
			251	848.8	27.87	26.87
		2	128	824.2	26.94	26.89
			190	836.6	27.02	25.96
			251	848.8	26.96	26.00

8.1.2. GSM 1900

Test Engineer ID:	25602	Test Date:	3/31/2022
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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	31.11	29.23	30.40	28.70
			661	1880.0	31.50	29.50	30.25	29.00
			810	1909.8	31.47	29.31	30.17	28.92
		2	512	1850.2	30.14	28.12	29.60	27.51
			661	1880.0	30.36	28.42	29.53	27.89
			810	1909.8	30.55	28.43	29.64	27.82
EGPRS (8PSK)	MCS5	1	512	1850.2	26.46	24.40	25.40	23.84
			661	1880.0	26.61	24.50	25.21	24.00
			810	1909.8	26.55	24.42	25.22	23.89
		2	512	1850.2	25.33	23.49	24.48	22.85
			661	1880.0	25.52	23.64	24.41	23.04
			810	1909.8	25.43	23.46	24.28	22.84

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
<p>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.</p> <p>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.</p>		

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 (Note3)	β_d	β_{HS} (Note1)	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
<p>Note 1: $\Delta_{ACK}, \Delta_{NACK}$ and $\Delta_{CQI} = 30/15$ with $\beta_{hs} = 30/15 * \beta_c$.</p> <p>Note 2: CM = 3.5 and the MPR is based on the relative CM difference, MPR = MAX(CM-1,0).</p> <p>Note 3: DPDCH is not configured, therefore the β_c is set to 1 and $\beta_d = 0$ by default.</p> <p>Note 4: β_{ed} can not be set directly; it is set by Absolute Grant Value.</p> <p>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.</p>											

RESULT

8.2.1. WCDMA BAND 5

Test Engineer ID:	25602	Test Date:	3/31/2022
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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	24.70	
			4183	836.6	N/A	25.59	24.61	
			4233	846.6	N/A	25.56	24.62	
	HSDPA	Subtest 1	4132	826.4	0	25.54	24.67	
			4183	836.6	0	25.43	24.58	
			4233	846.6	0	25.38	24.58	
		Subtest 2	4132	826.4	0	25.54	24.67	
			4183	836.6	0	25.44	24.58	
			4233	846.6	0	25.39	24.59	
		Subtest 3	4132	826.4	0.5	25.03	24.17	
			4183	836.6	0.5	24.92	24.09	
			4233	846.6	0.5	24.89	24.08	
		Subtest 4	4132	826.4	0.5	25.03	24.18	
			4183	836.6	0.5	16.48	24.07	
			4233	846.6	0.5	24.88	24.06	
		HSPA (HSDPA & HSUPA)	Subtest 1	4132	826.4	0	25.50	24.68
				4183	836.6	0	25.41	24.58
				4233	846.6	0	25.37	24.57
			Subtest 2	4132	826.4	2	23.50	22.68
				4183	836.6	2	23.41	22.58
				4233	846.6	2	23.34	22.56
	Subtest 3		4132	826.4	1	24.50	23.68	
			4183	836.6	1	24.39	23.58	
			4233	846.6	1	24.33	23.57	
	Subtest 4		4132	826.4	2	23.51	22.66	
			4183	836.6	2	23.41	22.56	
			4233	846.6	2	23.35	22.56	
	Subtest 5		4132	826.4	0	25.07	24.21	
			4183	836.6	0	24.98	24.12	
			4233	846.6	0	24.95	24.14	
	DC-HSDPA		Subtest 1	4132	826.4	0	25.52	24.68
				4183	836.6	0	25.42	24.58
				4233	846.6	0	25.37	24.60
		Subtest 2	4132	826.4	0	25.53	24.71	
			4183	836.6	0	25.43	24.60	
			4233	846.6	0	25.39	24.60	
		Subtest 3	4132	826.4	0.5	25.03	24.19	
			4183	836.6	0.5	24.92	24.10	
			4233	846.6	0.5	24.86	24.09	
		Subtest 4	4132	826.4	0.5	25.04	24.20	
			4183	836.6	0.5	24.93	24.10	
			4233	846.6	0.5	24.88	24.09	

8.2.2. WCDMA BAND 2

Test Engineer ID:	25602	Test Date:	3/31/2022
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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	25.64	23.34	25.50	23.37	
			9400	1880.0	N/A	25.70	23.39	25.49	23.40	
			9538	1907.6	N/A	25.65	23.40	25.43	23.33	
	HSDPA	Subtest 1	9262	1852.4	0	25.23	23.34	25.26	22.83	
			9400	1880.0	0	25.27	23.36	25.26	22.85	
			9538	1907.6	0	25.20	23.31	25.22	22.76	
		Subtest 2	9262	1852.4	0	25.20	23.28	25.23	22.80	
			9400	1880.0	0	25.24	23.30	25.23	22.82	
			9538	1907.6	0	25.17	23.30	25.17	22.74	
		Subtest 3	9262	1852.4	0.5	24.72	22.84	24.80	22.35	
			9400	1880.0	0.5	24.62	22.81	24.77	22.36	
			9538	1907.6	0.5	24.67	22.79	24.69	22.26	
		Subtest 4	9262	1852.4	0.5	24.72	22.81	24.76	22.33	
			9400	1880.0	0.5	24.77	22.82	24.78	22.35	
			9538	1907.6	0.5	24.68	22.78	24.68	22.24	
		HSPA (HSDPA & HSUPA)	Subtest 1	9262	1852.4	0	25.16	23.25	25.23	22.79
				9400	1880.0	0	25.22	23.28	25.22	22.78
				9538	1907.6	0	25.12	23.26	25.19	22.70
	Subtest 2		9262	1852.4	2	23.13	21.22	23.23	20.76	
			9400	1880.0	2	23.19	21.26	23.21	20.80	
			9538	1907.6	2	23.10	21.22	23.14	20.69	
	Subtest 3		9262	1852.4	1	24.14	22.24	24.22	21.79	
			9400	1880.0	1	24.18	22.25	24.20	21.79	
			9538	1907.6	1	24.10	22.22	24.15	21.70	
	Subtest 4		9262	1852.4	2	23.18	21.24	23.24	20.77	
			9400	1880.0	2	23.19	21.27	23.20	20.76	
			9538	1907.6	2	23.10	21.23	23.15	20.71	
	Subtest 5		9262	1852.4	0	24.77	22.83	24.80	22.33	
			9400	1880.0	0	24.77	22.83	24.81	22.34	
			9538	1907.6	0	24.69	22.83	24.73	22.26	
	DC-HSDPA	Subtest 1	9262	1852.4	0	25.24	23.29	25.28	22.81	
			9400	1880.0	0	25.31	23.35	25.29	22.85	
			9538	1907.6	0	25.21	23.34	25.23	22.78	
		Subtest 2	9262	1852.4	0	25.18	23.28	25.26	22.77	
			9400	1880.0	0	25.23	23.33	25.26	22.82	
			9538	1907.6	0	25.17	23.30	25.19	22.75	
		Subtest 3	9262	1852.4	0.5	24.72	22.83	24.81	22.33	
			9400	1880.0	0.5	24.79	22.85	24.79	22.38	
			9538	1907.6	0.5	24.70	22.80	24.74	22.29	
		Subtest 4	9262	1852.4	0.5	24.73	22.83	24.79	22.33	
			9400	1880.0	0.5	24.78	22.86	24.81	22.36	
			9538	1907.6	0.5	24.69	22.83	24.75	22.28	

8.2.3. WCDMA BAND 4

Test Engineer ID:	25602	Test Date:	3/31/2022
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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	25.68	23.38	25.49	23.39	
			1413	1732.6	N/A	25.70	23.36	25.45	23.40	
			1513	1752.6	N/A	25.64	23.40	25.50	23.31	
	HSDPA	Subtest 1	1312	1712.4	0	25.45	23.50	25.40	22.98	
			1413	1732.6	0	25.47	23.47	25.34	22.99	
			1513	1752.6	0	25.38	23.50	25.37	22.89	
		Subtest 2	1312	1712.4	0	25.44	23.49	25.37	22.98	
			1413	1732.6	0	25.42	23.44	25.30	22.97	
			1513	1752.6	0	25.34	23.44	25.35	22.84	
		Subtest 3	1312	1712.4	0.5	24.95	22.96	24.87	22.46	
			1413	1732.6	0.5	24.91	22.91	24.80	22.44	
			1513	1752.6	0.5	24.84	22.87	24.85	22.36	
		Subtest 4	1312	1712.4	0.5	24.96	22.98	24.91	22.41	
			1413	1732.6	0.5	24.97	22.96	24.83	22.45	
			1513	1752.6	0.5	24.87	22.97	24.88	22.36	
		HSPA (HSDPA & HSUPA)	Subtest 1	1312	1712.4	0	25.41	23.42	25.38	22.95
				1413	1732.6	0	25.39	23.41	25.29	22.92
				1513	1752.6	0	25.30	23.41	25.32	22.82
	Subtest 2		1312	1712.4	2	23.41	21.46	23.36	21.00	
			1413	1732.6	2	23.37	21.36	23.26	20.96	
			1513	1752.6	2	23.29	21.40	23.32	20.86	
	Subtest 3		1312	1712.4	1	24.40	22.46	24.35	21.98	
			1413	1732.6	1	24.35	22.40	24.01	21.96	
			1513	1752.6	1	24.32	22.42	24.29	21.86	
	Subtest 4		1312	1712.4	2	23.41	21.43	23.34	20.97	
			1413	1732.6	2	23.38	21.39	23.25	20.94	
			1513	1752.6	2	23.28	21.42	23.30	20.86	
	Subtest 5		1312	1712.4	0	25.00	23.02	24.91	22.51	
			1413	1732.6	0	24.96	22.95	24.82	22.51	
			1513	1752.6	0	24.87	22.99	24.87	22.40	
	DC-HSDPA	Subtest 1	1312	1712.4	0	25.47	23.49	25.39	23.01	
			1413	1732.6	0	25.47	23.47	25.31	23.05	
			1513	1752.6	0	25.38	23.50	25.35	22.91	
		Subtest 2	1312	1712.4	0	25.44	23.48	25.39	23.01	
			1413	1732.6	0	25.44	23.43	25.29	23.00	
			1513	1752.6	0	25.34	23.45	25.32	22.89	
		Subtest 3	1312	1712.4	0.5	24.96	22.96	24.87	22.51	
			1413	1732.6	0.5	24.93	22.91	24.79	22.49	
			1513	1752.6	0.5	24.83	22.96	24.83	22.39	
		Subtest 4	1312	1712.4	0.5	24.98	23.00	24.90	22.51	
			1413	1732.6	0.5	24.98	22.96	24.84	22.50	
			1513	1752.6	0.5	24.88	22.98	24.86	22.41	

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.

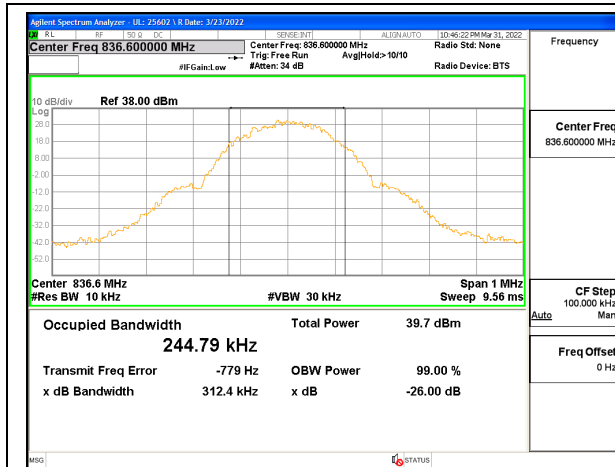
GSM

Band	Modulation	Channel	f(MHz)	99% BW (KHz)	-26dB BW (KHz)
850	GPRS	190	836.6	244.79	312.4
	EGPRS			238.73	304.5
1900	GPRS	661	1880.0	239.49	318.4
	EGPRS			243.74	304.4

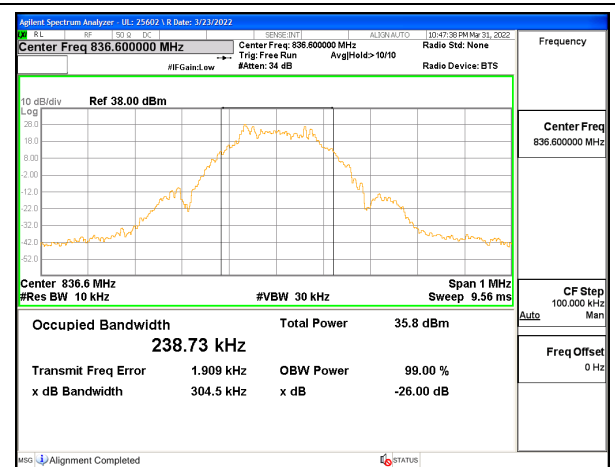
WCDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	REL 99	4408	836.6	4.1373	4.683
	HSDPA			4.1500	4.674
BAND 2	REL 99	9800	1880.0	4.1535	4.705
	HSDPA			4.1476	4.688
BAND 4	REL 99	1638	1732.6	4.1445	4.692
	HSDPA			4.1614	4.693

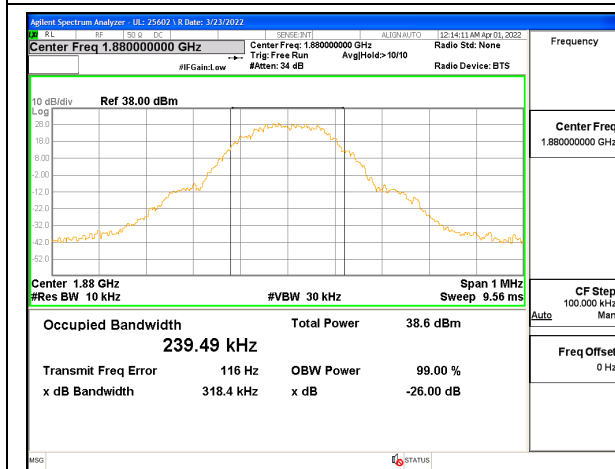
9.1.1. GSM



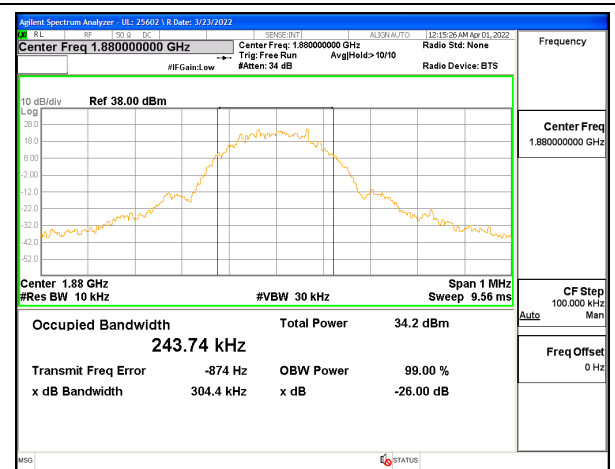
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel

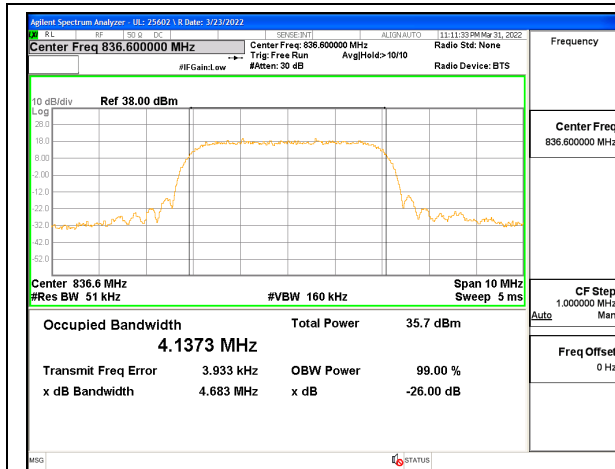


GSM 1900 GPRS Middle Channel

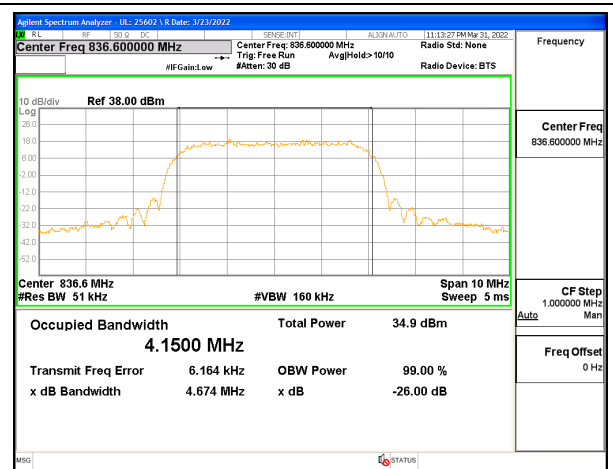


GSM 1900 EGPRS Middle Channel

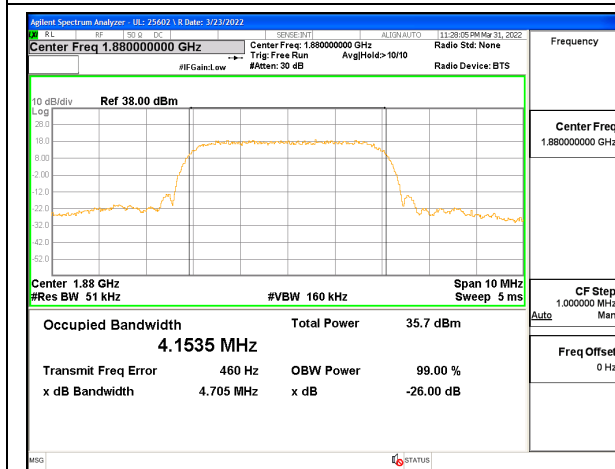
9.1.2. WCDMA



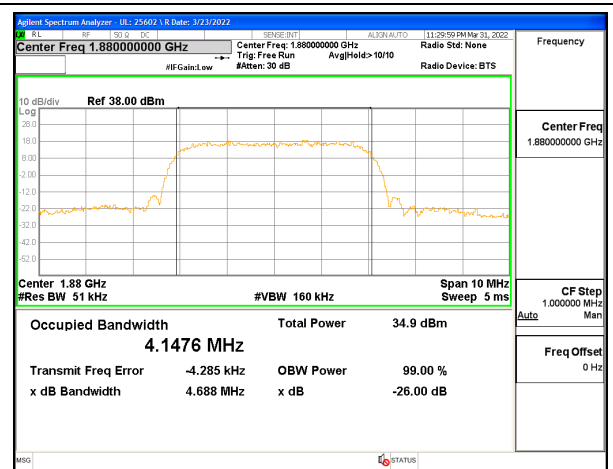
WCDMA Band 5 Rel 99 Middle Channel



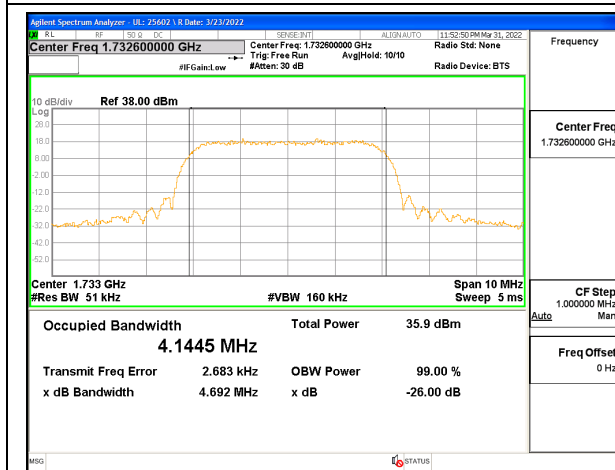
WCDMA Band 5 HSDPA Middle Channel



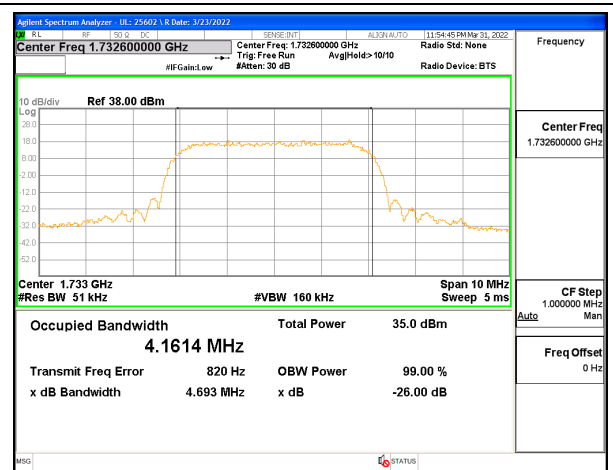
WCDMA Band 2 Rel 99 Middle Channel



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.

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§6.6

- (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

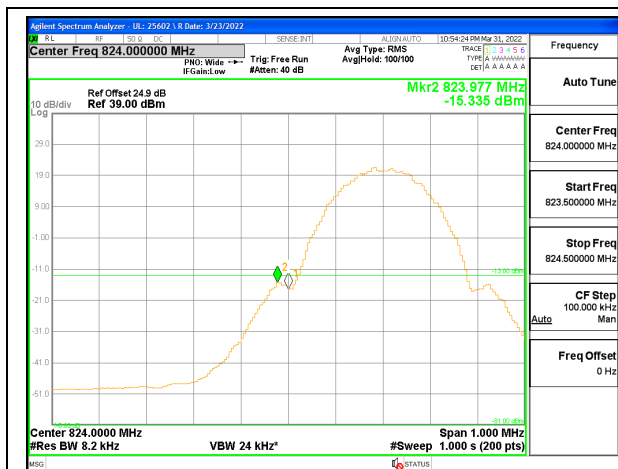
The transmitter output was connected to a R&S CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

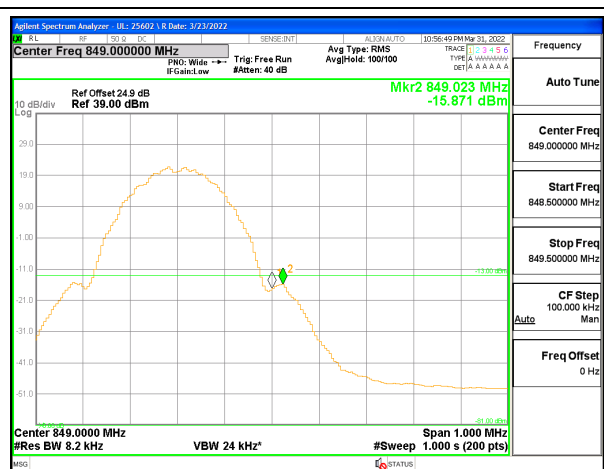
- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

RESULTS

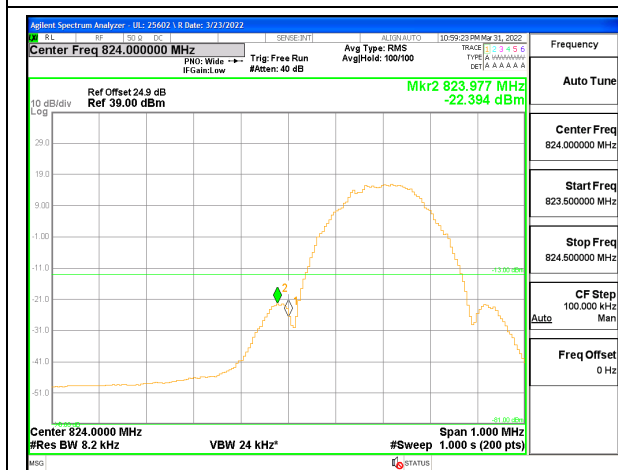
9.2.1. GSM 850



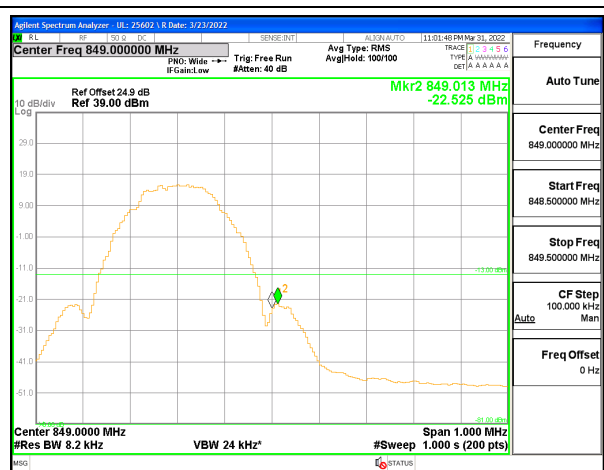
GSM 850 GPRS Low Channel



GSM 850 GPRS High Channel

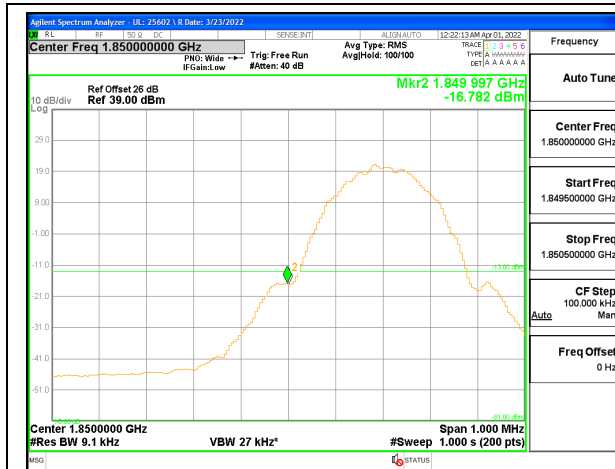


GSM 850 EGPRS Low Channel

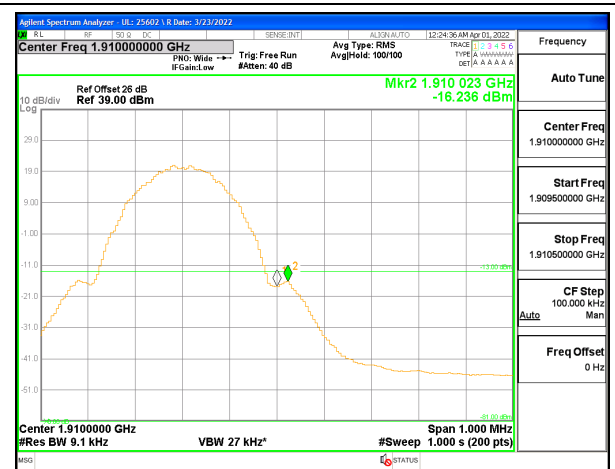


GSM 850 EGPRS High Channel

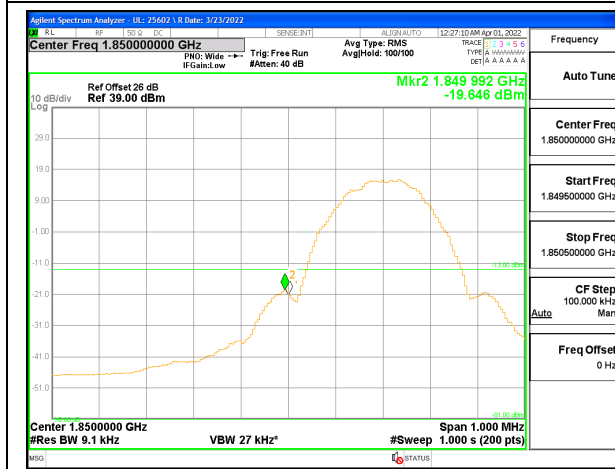
9.2.2. GSM 1900



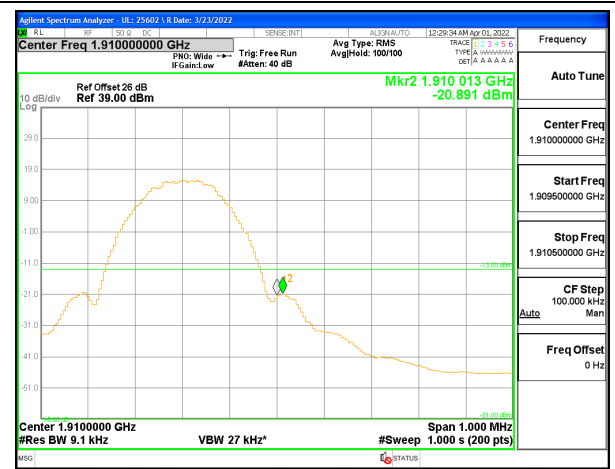
GSM 1900 GPRS Low Channel



GSM 1900 GPRS High Channel

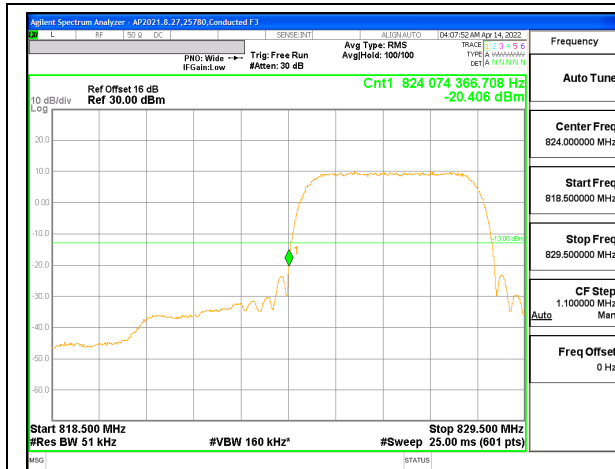


GSM 1900 EGPRS Low Channel

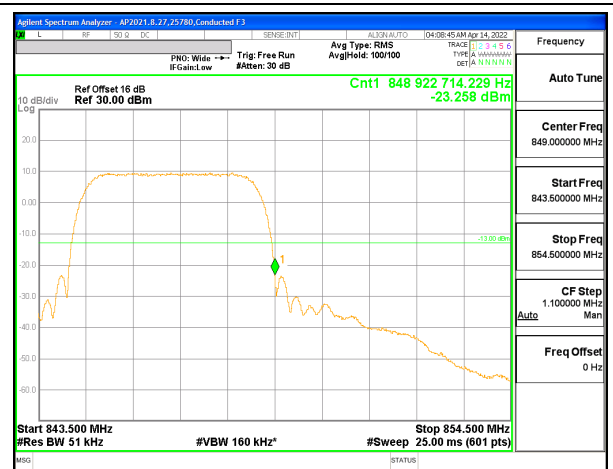


GSM 1900 EGPRS High Channel

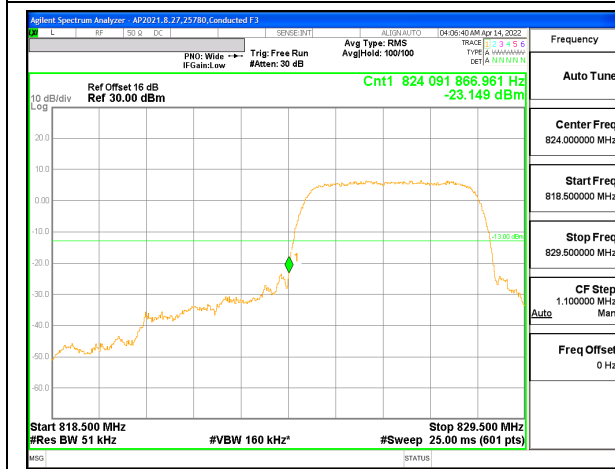
9.2.3. WCDMA BAND 5



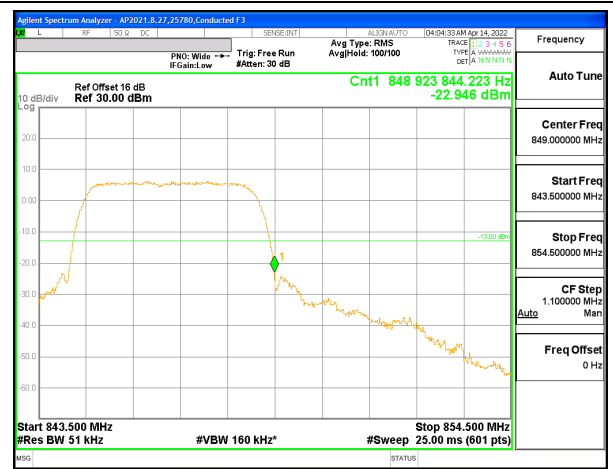
WCDMA Band 5 Rel 99 Low Channel



WCDMA Band 5 Rel 99 High Channel

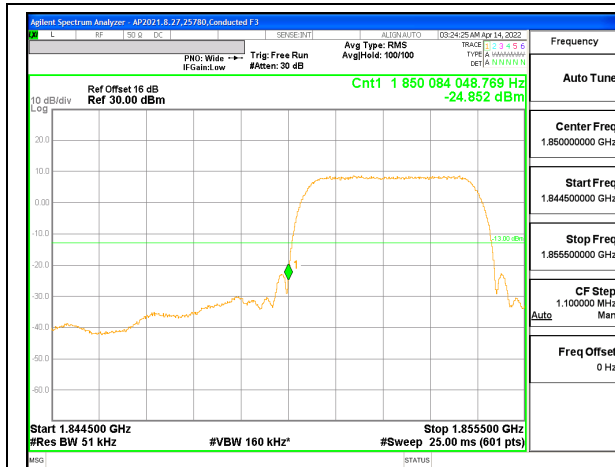


WCDMA Band 5 HSDPA Low Channel

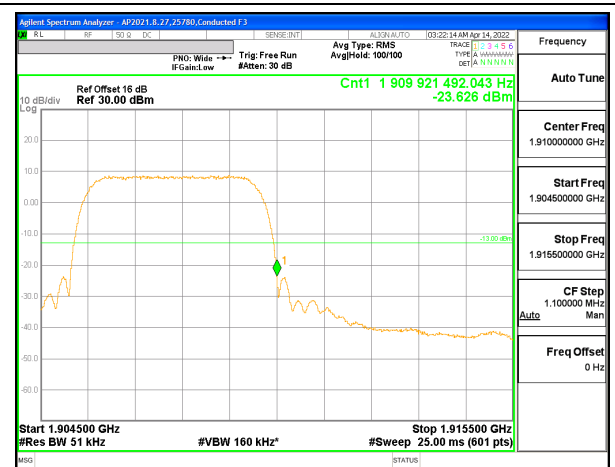


WCDMA Band 5 HSDPA High Channel

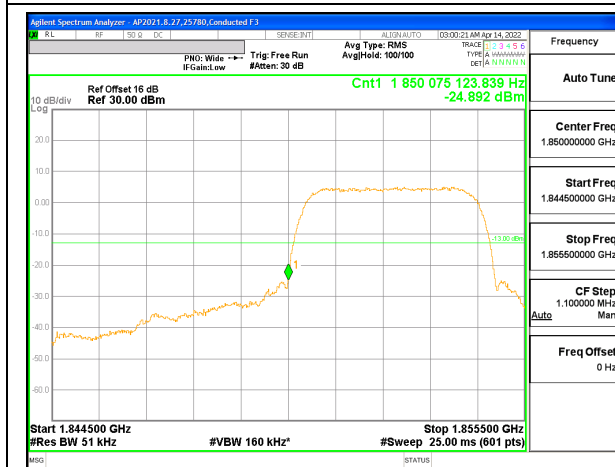
9.2.4. WCDMA BAND 2



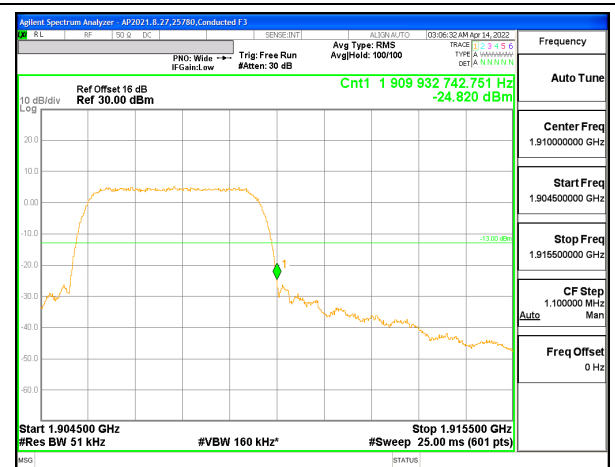
WCDMA Band 2 Rel 99 Low Channel



WCDMA Band 2 Rel 99 High Channel

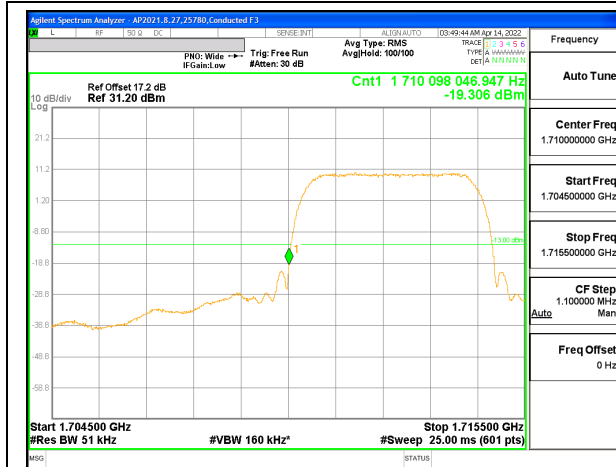


WCDMA Band 2 HSDPA Low Channel

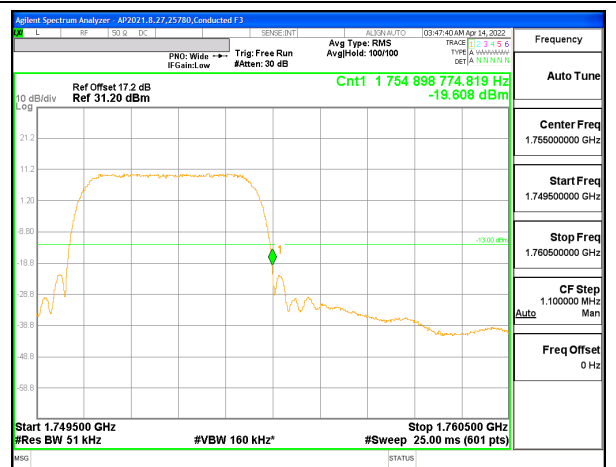


WCDMA Band 2 HSDPA High Channel

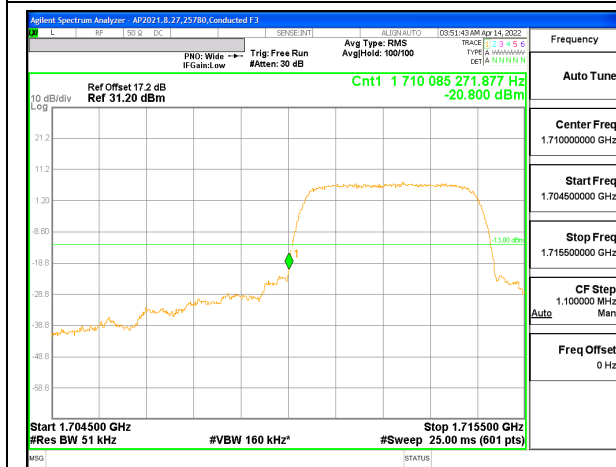
9.2.5. WCDMA BAND 4



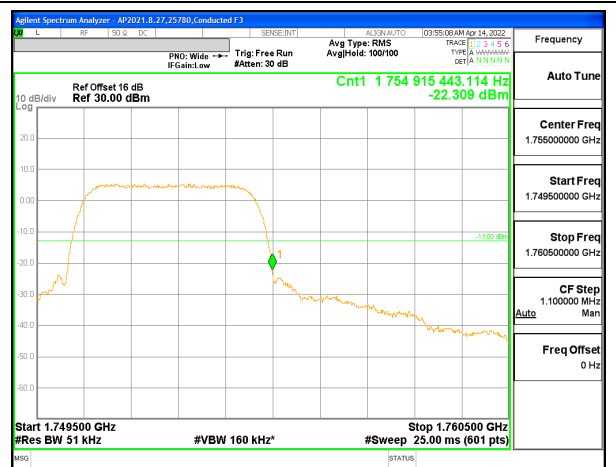
WCDMA Band 4 Rel 99 Low Channel



WCDMA Band 4 Rel 99 High Channel



WCDMA Band 4 HSDPA Low Channel



WCDMA Band 4 HSDPA High Channel

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§6.6

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§6.6

The minimum permissible attenuation level of any spurious emissions is $43 + 10 \log (P)$ dB where transmitting power (P) in Watts.

TEST PROCEDURE

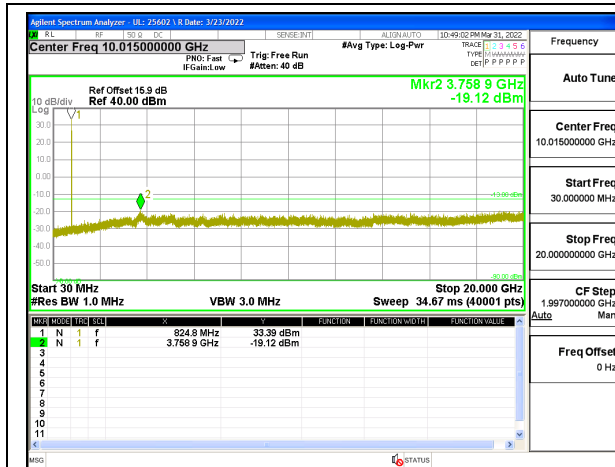
The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case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

For each out of band emissions measurement:

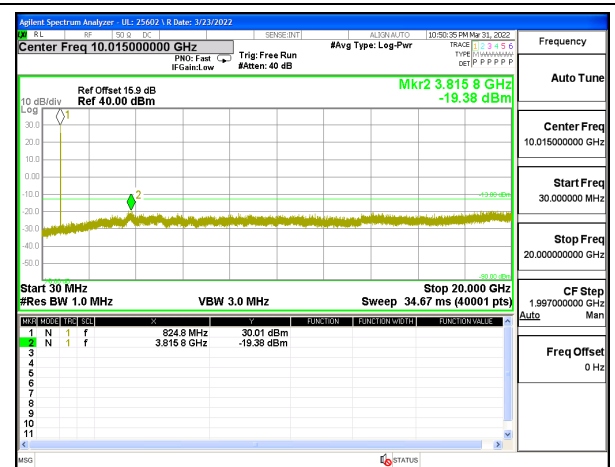
- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.
(NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

RESULTS

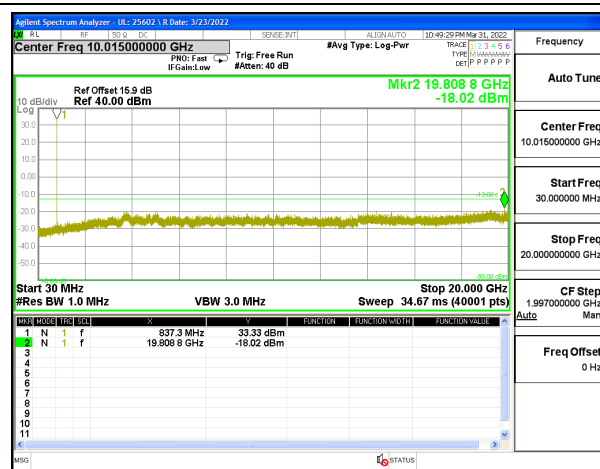
9.3.1. GSM 850



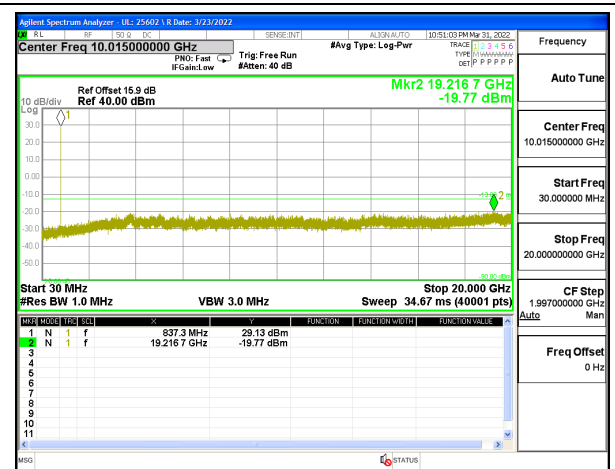
GSM 850 GPRS Low Channel



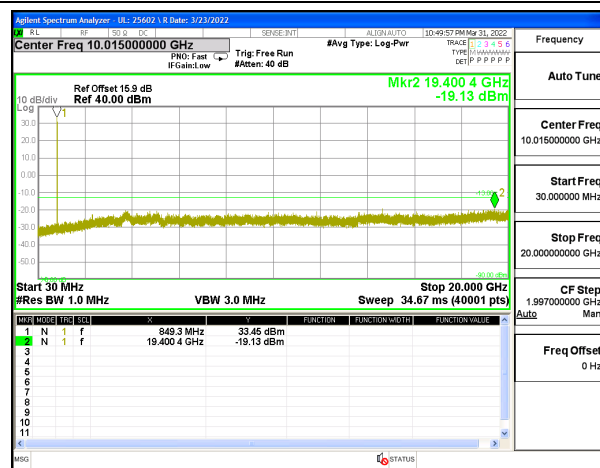
GSM 850 EGPRS Low Channel



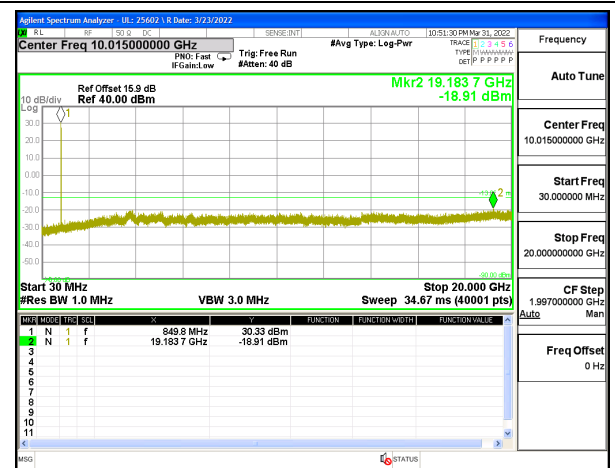
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel

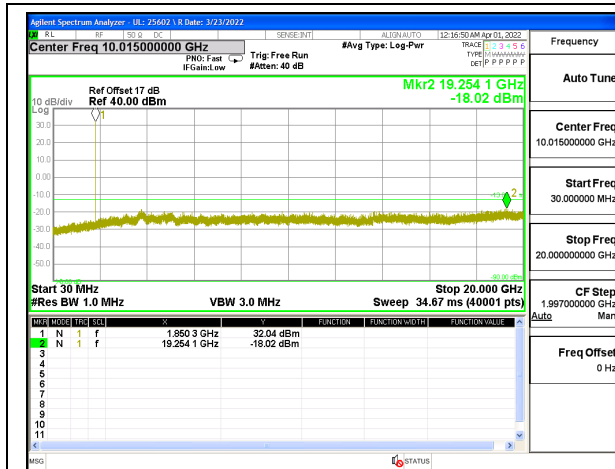


GSM 850 GPRS High Channel



GSM 850 EGPRS High Channel

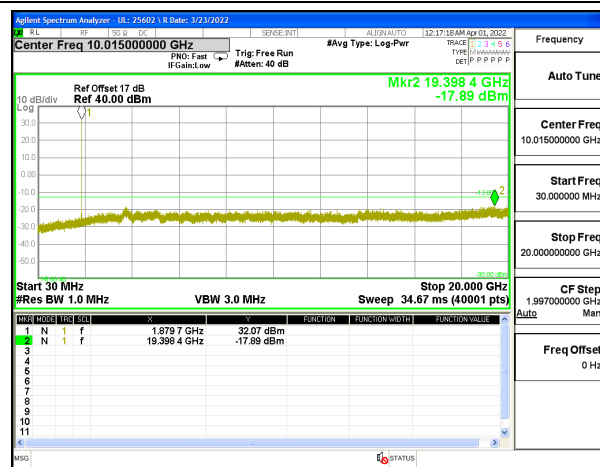
9.3.2. GSM 1900



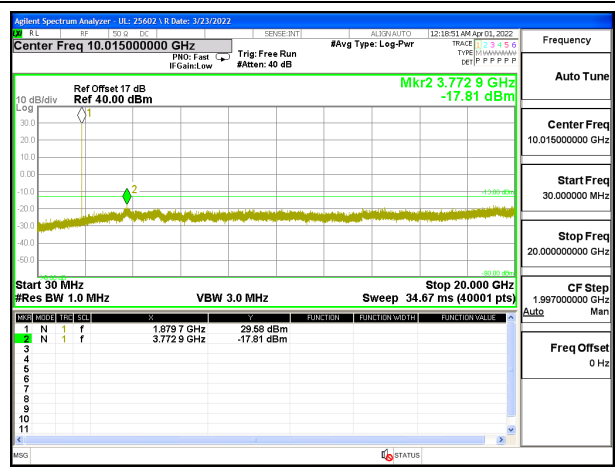
GSM 1900 GPRS Low Channel



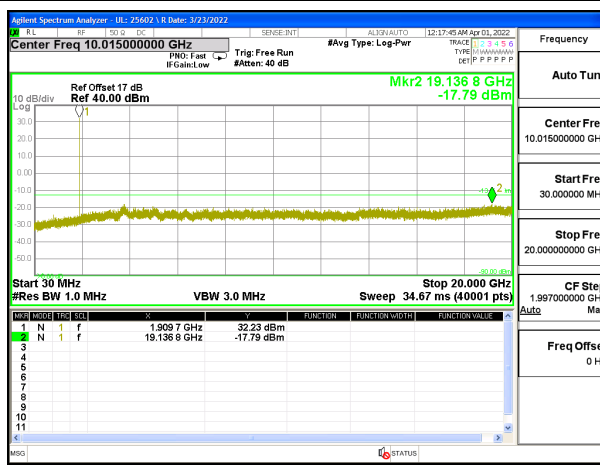
GSM 1900 EGPRS Low Channel



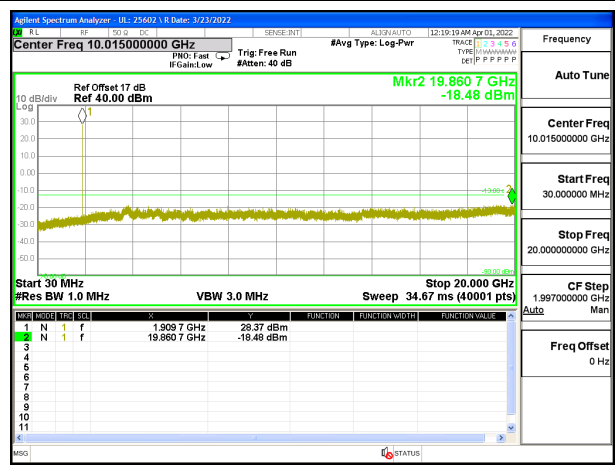
GSM 1900 GPRS Middle Channel



GSM 1900 EGPRS Middle Channel

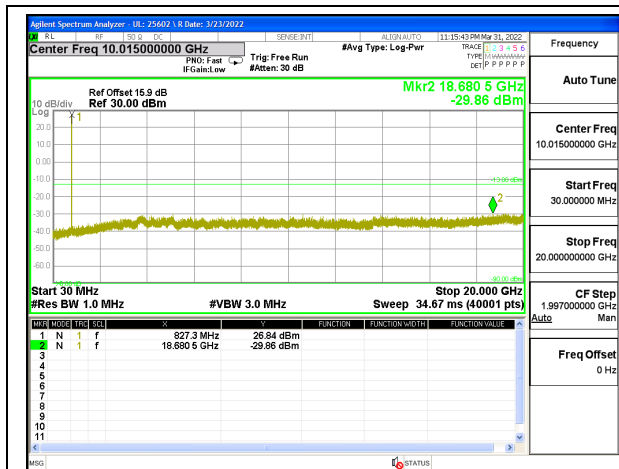


GSM 1900 GPRS High Channel

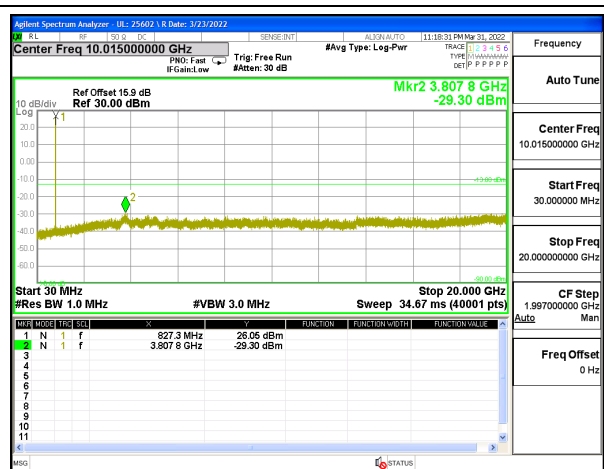


GSM 1900 EGPRS High Channel

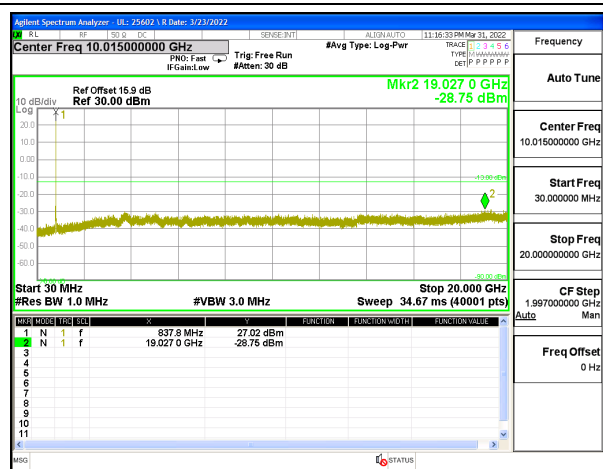
9.3.3. WCDMA BAND 5



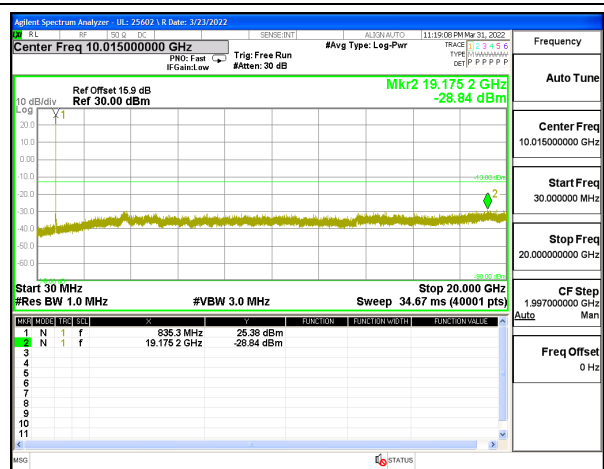
WCDMA Band 5 Rel 99 Low Channel



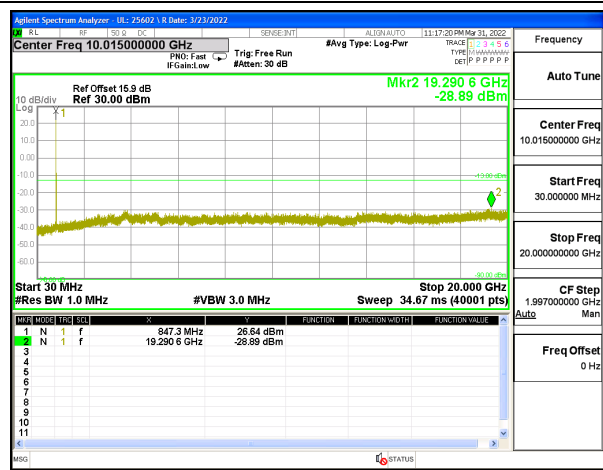
WCDMA Band 5 HSDPA Low Channel



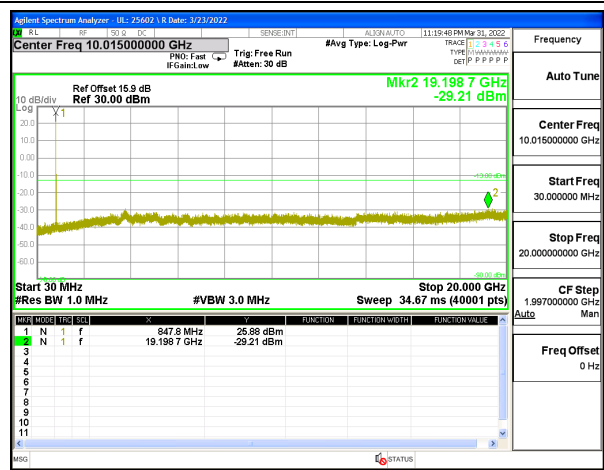
WCDMA Band 5 Rel 99 Middle Channel



WCDMA Band 5 HSDPA Middle Channel

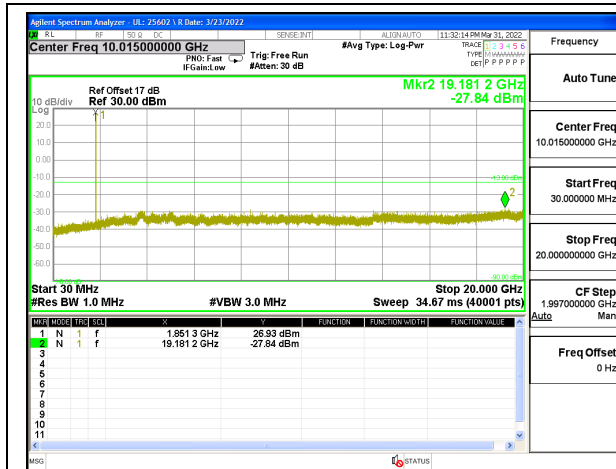


WCDMA Band 5 Rel 99 High Channel

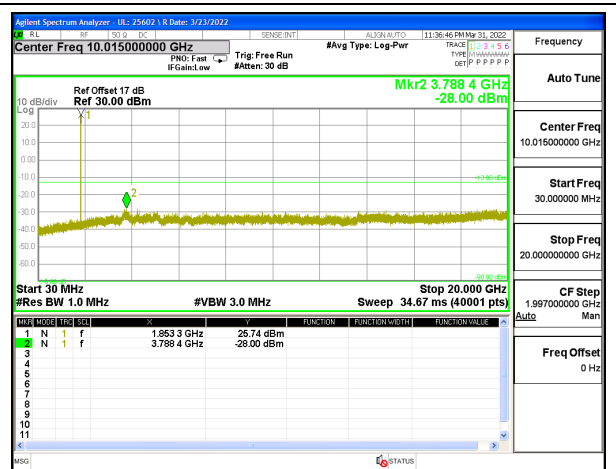


WCDMA Band 5 HSDPA High Channel

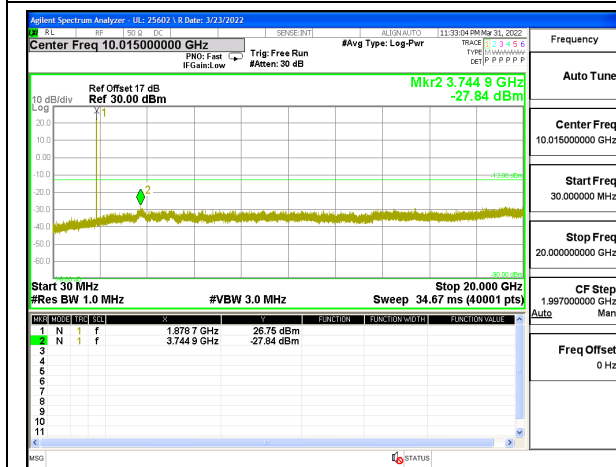
9.3.4. WCDMA BAND 2



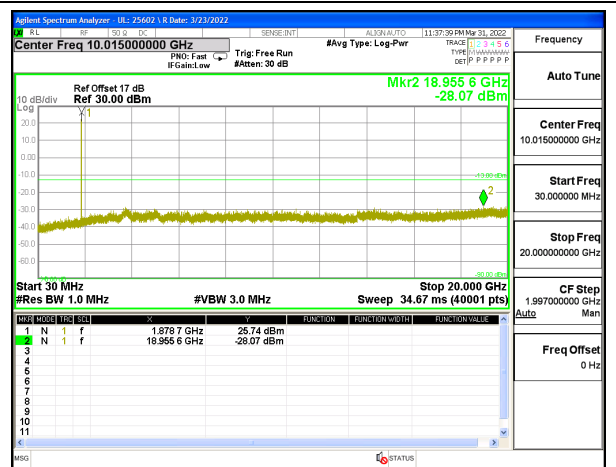
WCDMA Band 2 Rel 99 Low Channel



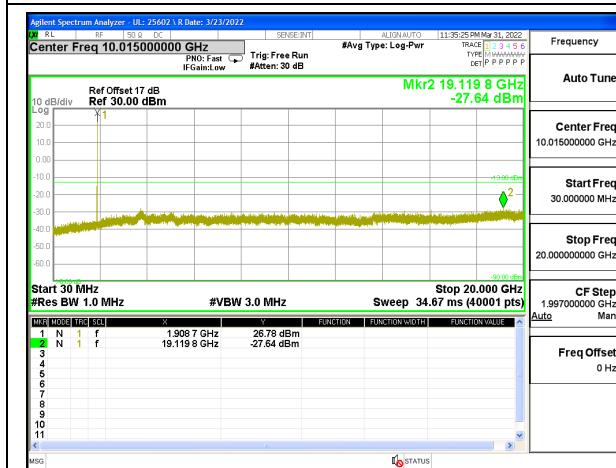
WCDMA Band 2 HSDPA Low Channel



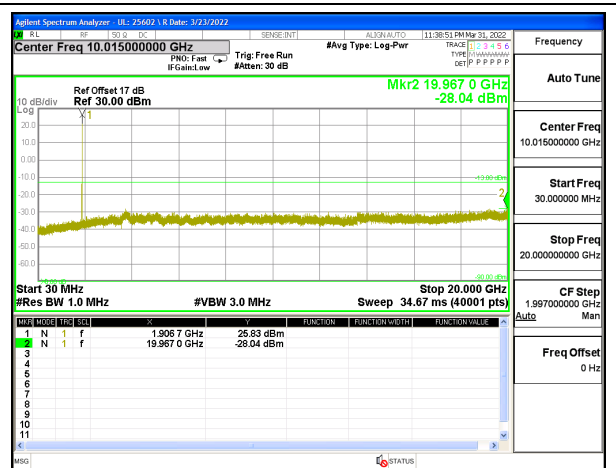
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel

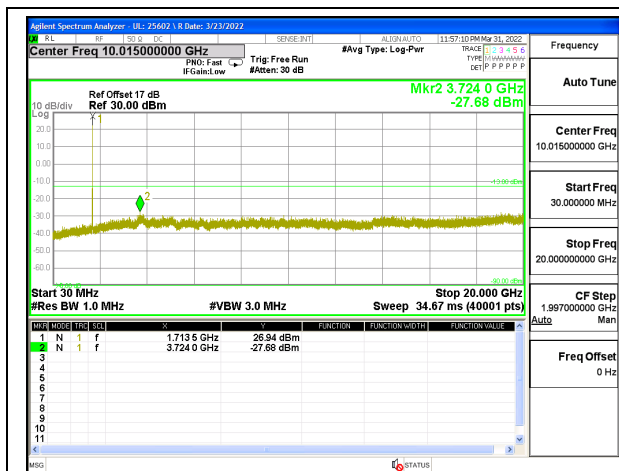


WCDMA Band 2 Rel 99 High Channel

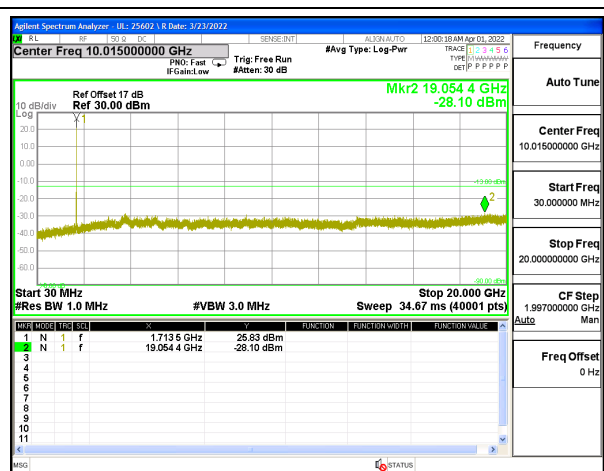


WCDMA Band 2 HSDPA High Channel

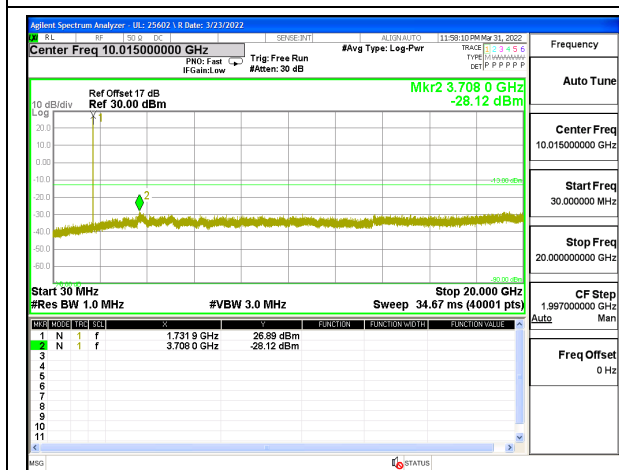
9.3.5. WCDMA BAND 4



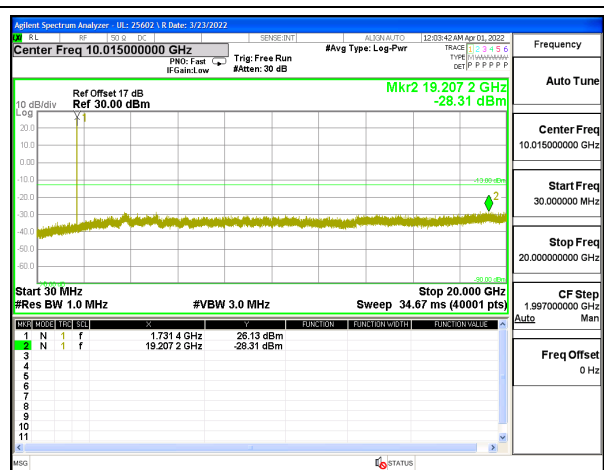
WCDMA Band 4 Rel 99 Low Channel



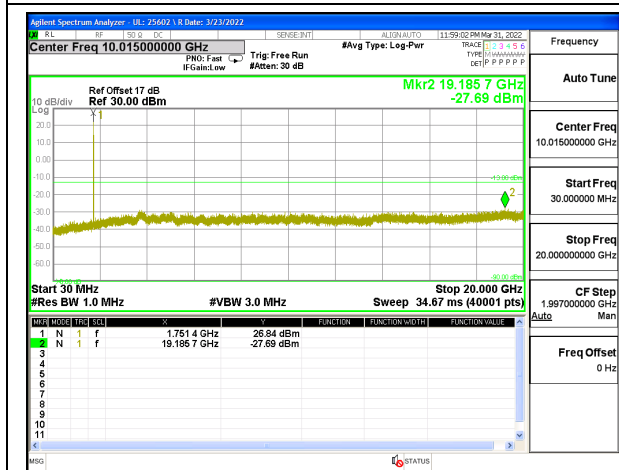
WCDMA Band 4 HSDPA Low Channel



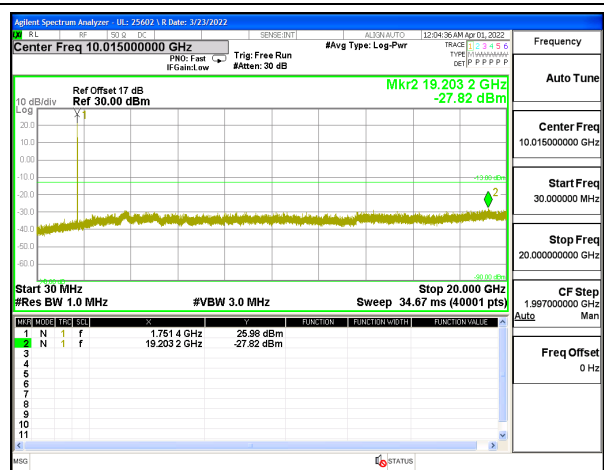
WCDMA Band 4 Rel 99 Middle Channel



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§6.4

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.

RSS132§5.3

The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 SRSP for mobile stations and ± 1.5 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 occupied bandwidth stays within each of the sub-bands (see Section 5.1) when tested to the temperature and supply voltage variations specified in RSS-Gen.

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§6.4

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:	25602	Test Date:	5/10/2022
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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)			
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)					
Normal (20°C)	Normal	824.0217	848.9744					
Extreme (50°C)		824.0217	848.9744	21.1	0.025	Yes		
Extreme (40°C)		824.0217	848.9744	19.3	0.023	Yes		
Extreme (30°C)		824.0217	848.9744	23.2	0.028	Yes		
Extreme (10°C)		824.0217	848.9744	25.5	0.030	Yes		
Extreme (0°C)		824.0217	848.9744	26.9	0.032	Yes		
Extreme (-10°C)		824.0217	848.9744	21.0	0.025	Yes		
Extreme (-20°C)		824.0217	848.9744	20.7	0.025	Yes		
Extreme (-30°C)		824.0217	848.9744	20.5	0.025	Yes		
20°C	15%	824.0217	848.9744	22.3	0.027	Yes		
	-15%	824.0217	848.9744	16.7	0.020	Yes		
	End Point Voltage	824.0217	848.9744	20.2	0.024	Yes		

GPRS 1900

Band	2	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1850	1910		2.5	Within Authorized Frequency Block (Hz)
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	
Normal (20°C)	Normal	1850.0188	1909.9680			
Extreme (50°C)		1850.0188	1909.9680	21.1	0.011	Yes
Extreme (40°C)		1850.0188	1909.9680	29.2	0.016	Yes
Extreme (30°C)		1850.0188	1909.9680	26.6	0.014	Yes
Extreme (10°C)		1850.0188	1909.9680	28.7	0.015	Yes
Extreme (0°C)		1850.0188	1909.9680	25.3	0.013	Yes
Extreme (-10°C)		1850.0188	1909.9680	30.1	0.016	Yes
Extreme (-20°C)		1850.0188	1909.9680	28.7	0.015	Yes
Extreme (-30°C)		1850.0188	1909.9680	32.3	0.017	Yes
20°C	15%	1850.0188	1909.9680	25.7	0.014	Yes
	-15%	1850.0188	1909.9680	23.1	0.012	Yes
	End Point Voltage	1850.0188	1909.9680	30.5	0.016	Yes

9.4.2. WCDMA

Test Engineer ID:	25602	Test Date:	5/11/2022
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WCDMA REL 99 BAND 5

Band		5		Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		824	849	2.5				
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)	Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)			
Normal (20°C)	Normal	824.1233	848.8776					
Extreme (50°C)		824.1233	848.8776	0.2	0.000	Yes		
Extreme (40°C)		824.1233	848.8776	-0.2	0.000	Yes		
Extreme (30°C)		824.1233	848.8776	-0.3	0.000	Yes		
Extreme (10°C)		824.1233	848.8776	0.1	0.000	Yes		
Extreme (0°C)		824.1233	848.8776	0.3	0.000	Yes		
Extreme (-10°C)		824.1233	848.8776	0.5	0.001	Yes		
Extreme (-20°C)		824.1233	848.8776	0.7	0.001	Yes		
Extreme (-30°C)		824.1233	848.8776	0.7	0.001	Yes		
20°C		15%	824.1233	848.8776	0.3	0.000	Yes	
	-15%	824.1233	848.8776	-0.2	0.000	Yes		
	End Point Voltage	824.1233	848.8776	0.6	0.001	Yes		

WCDMA REL 99 BAND 2

Band		2		Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1850	1910	2.5				
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)	Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)			
Normal (20°C)	Normal	1850.1037	1909.9047					
Extreme (50°C)		1850.1037	1909.9047	2.9	0.002	Yes		
Extreme (40°C)		1850.1037	1909.9047	2.1	0.001	Yes		
Extreme (30°C)		1850.1037	1909.9047	1.4	0.001	Yes		
Extreme (10°C)		1850.1037	1909.9047	1.7	0.001	Yes		
Extreme (0°C)		1850.1037	1909.9047	5.1	0.003	Yes		
Extreme (-10°C)		1850.1037	1909.9047	8.4	0.004	Yes		
Extreme (-20°C)		1850.1037	1909.9047	9.6	0.005	Yes		
Extreme (-30°C)		1850.1037	1909.9047	10.5	0.006	Yes		
20°C	15%	1850.1037	1909.9047	1.3	0.001	Yes		
	-15%	1850.1037	1909.9047	1.9	0.001	Yes		
	End Point Voltage	1850.1037	1909.9047	10.8	0.006	Yes		

WCDMA REL 99 BAND 4

Band	4	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1710	1755		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)			
Normal (20°C)	Normal	1710.1236	1754.8760			
Extreme (50°C)		1710.1236	1754.8760	-2.1	-0.001	Yes
Extreme (40°C)		1710.1236	1754.8760	-3.3	-0.002	Yes
Extreme (30°C)		1710.1236	1754.8760	-2.7	-0.002	Yes
Extreme (10°C)		1710.1236	1754.8760	-2.2	-0.001	Yes
Extreme (0°C)		1710.1236	1754.8760	-1.7	-0.001	Yes
Extreme (-10°C)		1710.1236	1754.8760	-1.3	-0.001	Yes
Extreme (-20°C)		1710.1236	1754.8760	-0.7	0.000	Yes
Extreme (-30°C)		1710.1236	1754.8760	-0.9	-0.001	Yes
20°C	15%	1710.1236	1754.8760	-2.6	-0.002	Yes
	-15%	1710.1236	1754.8760	-2.2	-0.001	Yes
	End Point Voltage	1710.1236	1754.8760	-1.4	-0.001	Yes

9.5. PEAK-TO-AVERAGE POWER RATIO

LIMIT

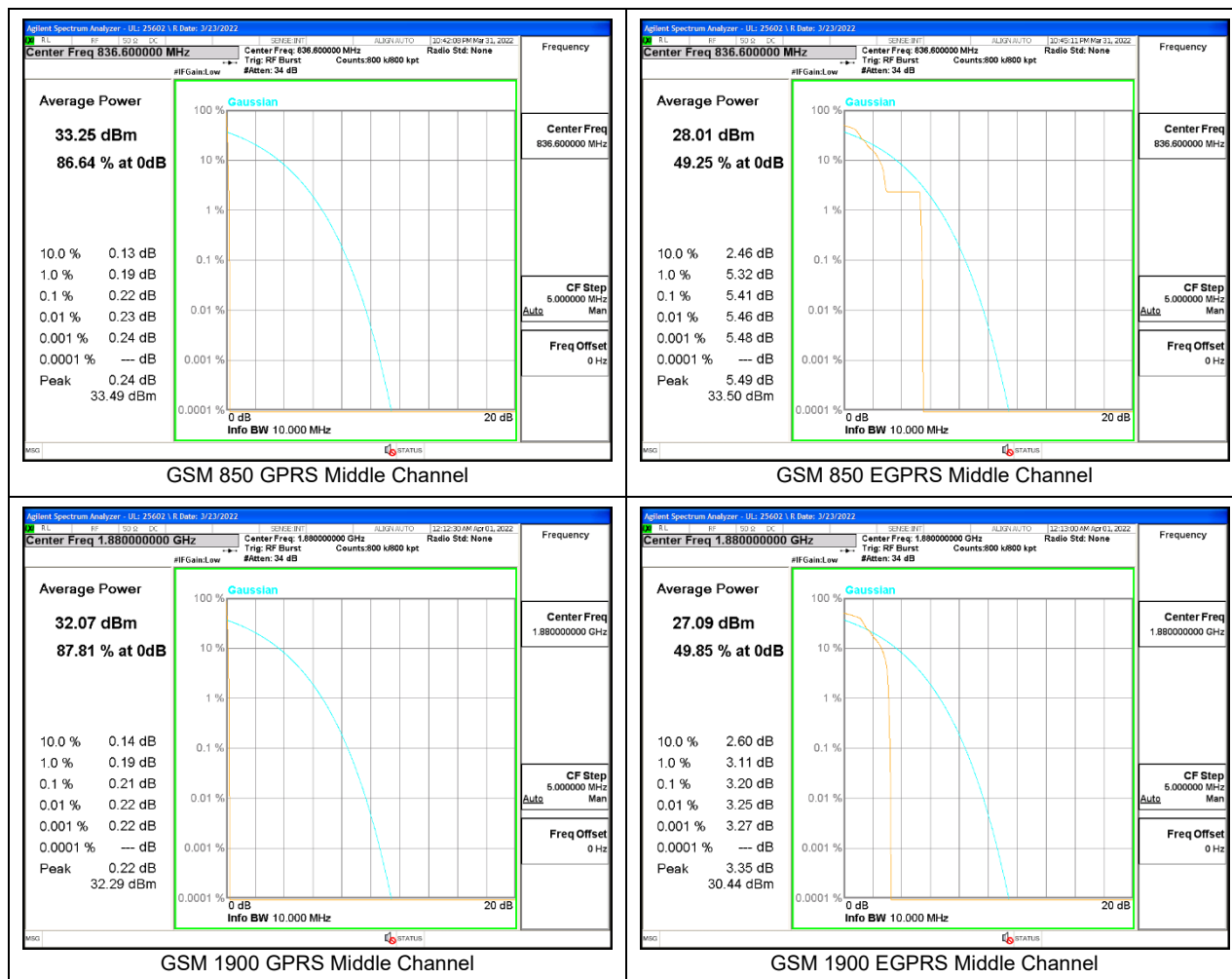
In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

RESULT

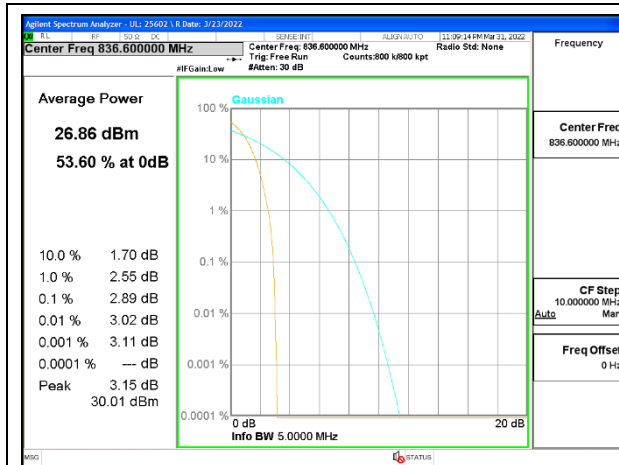
Ant 1 was used to measure as the worst case. The results from all CCDF plots are passed with 13dB peak-to-average power ratio criteria.

Test Engineer ID:	25602	Test Date:	3/23/2022
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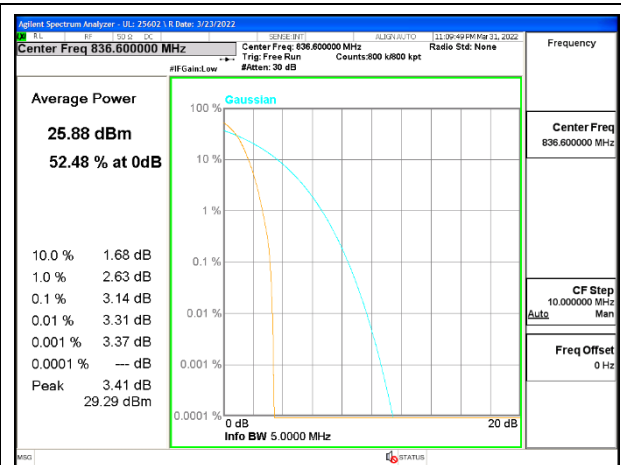
9.5.1. GSM



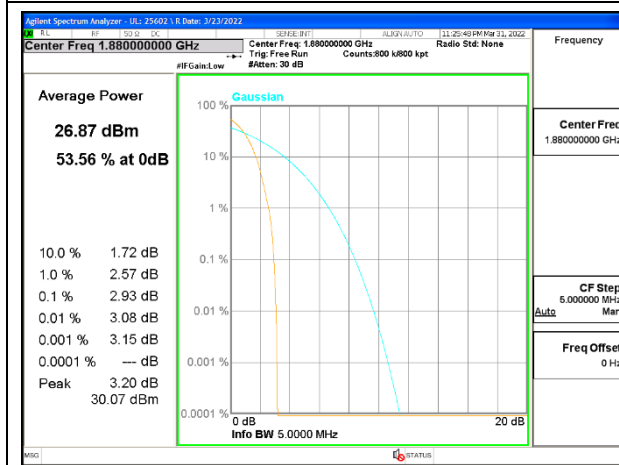
9.5.2. WCDMA



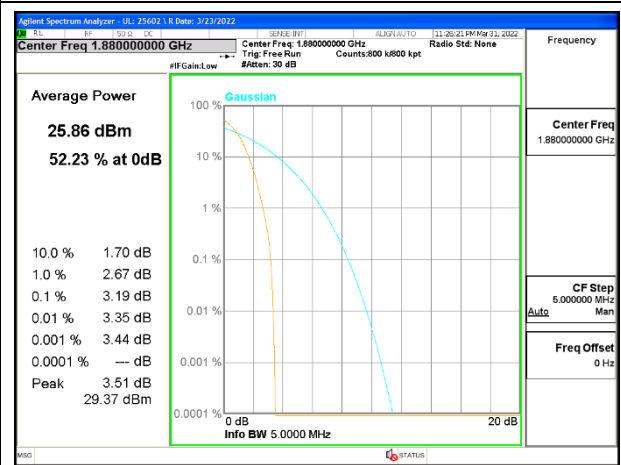
WCDMA Band 5 Rel 99 Middle Channel



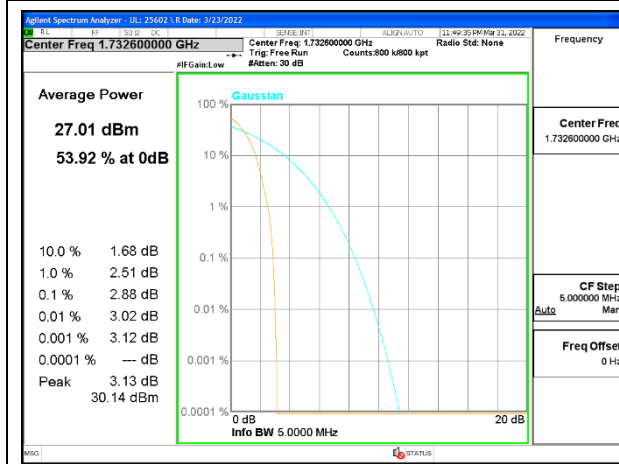
WCDMA Band 5 HSDPA Middle Channel



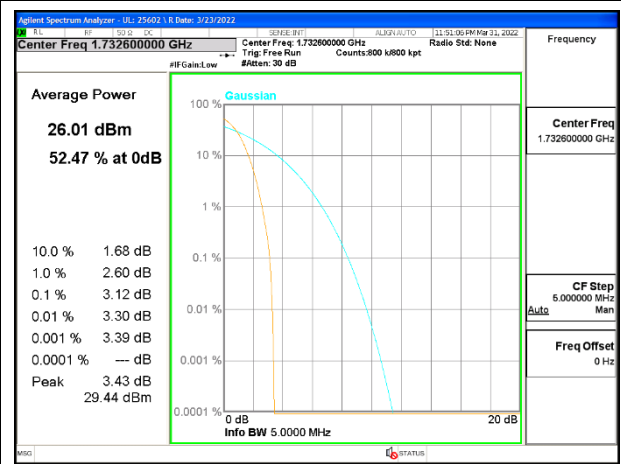
WCDMA Band 2 Rel 99 Middle Channel



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.

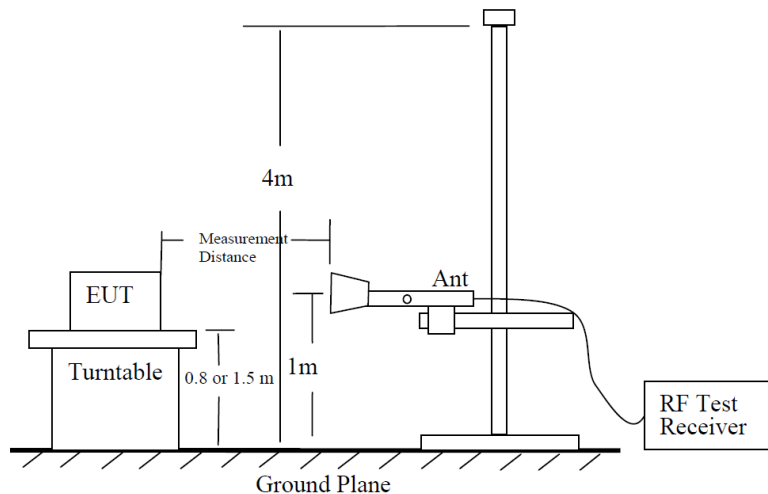


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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.

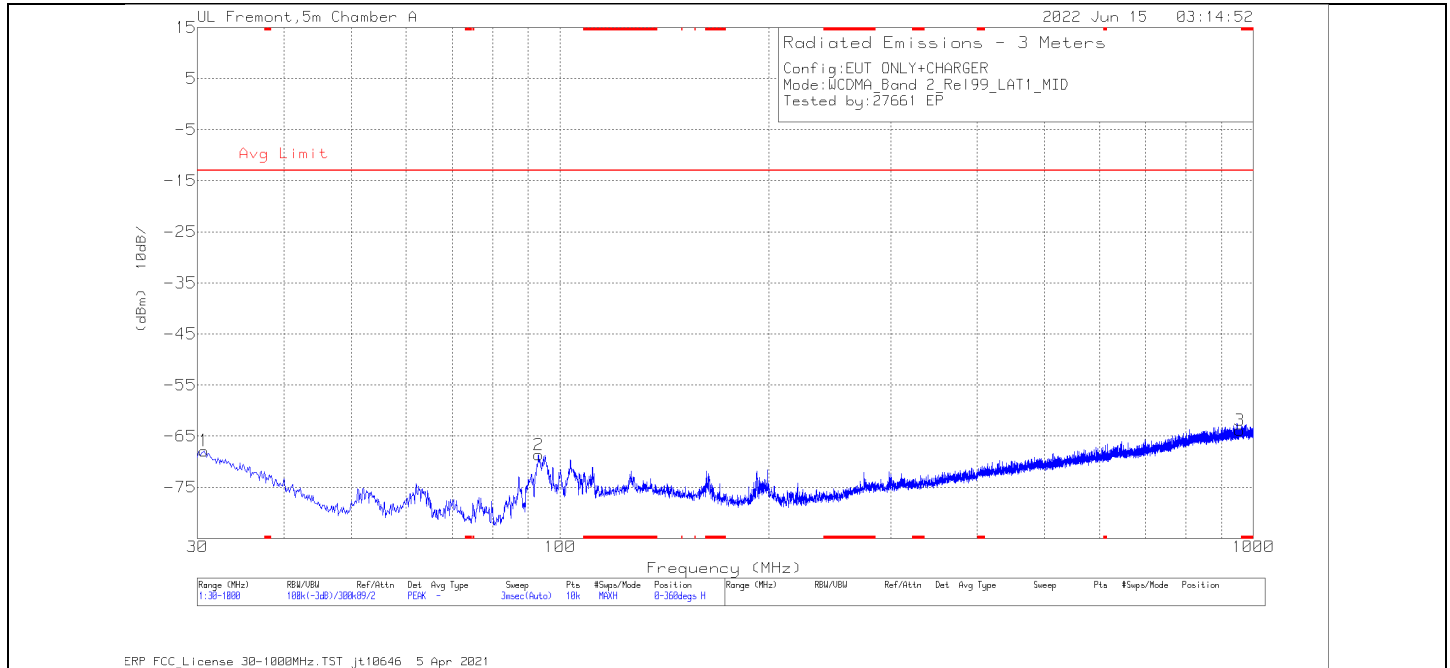
So, from d)

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

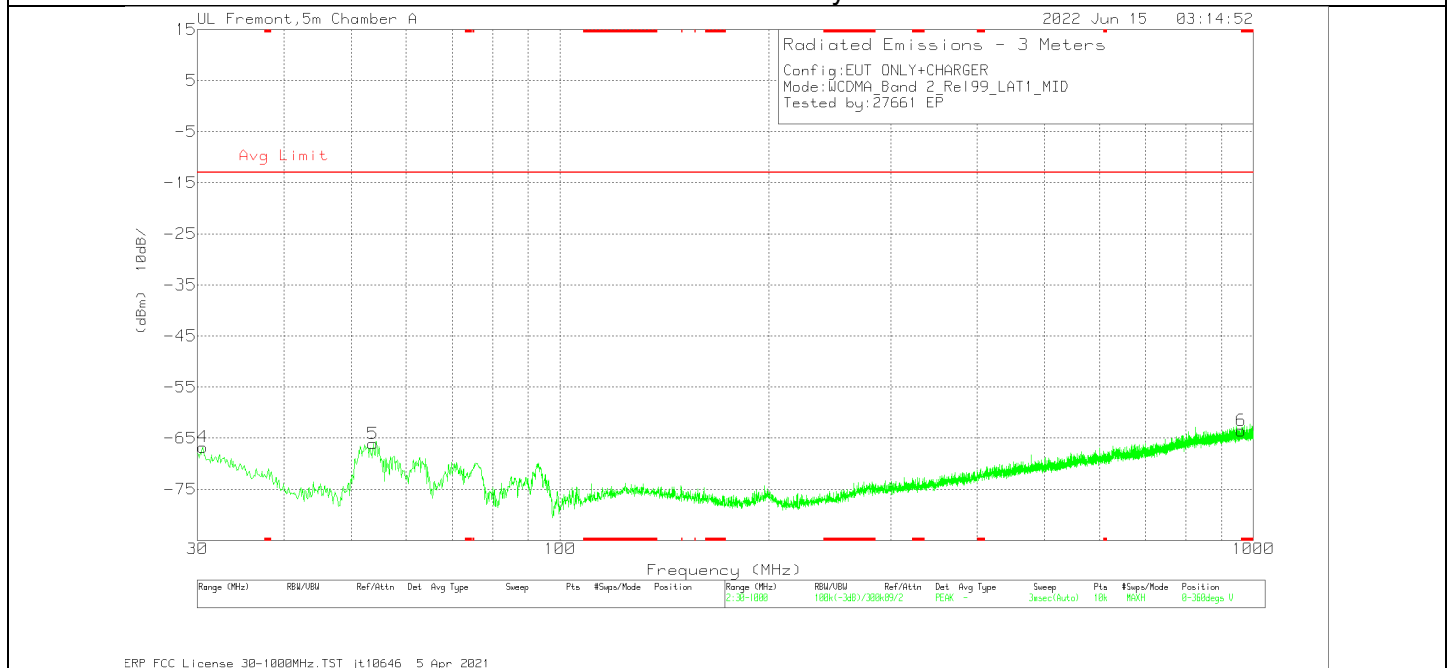
Then, $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 9.5424 - 104.8 = E \text{ (dB}\mu\text{V/m)} - 95.2576$

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 Below 1GHz



Horizontal Polarity

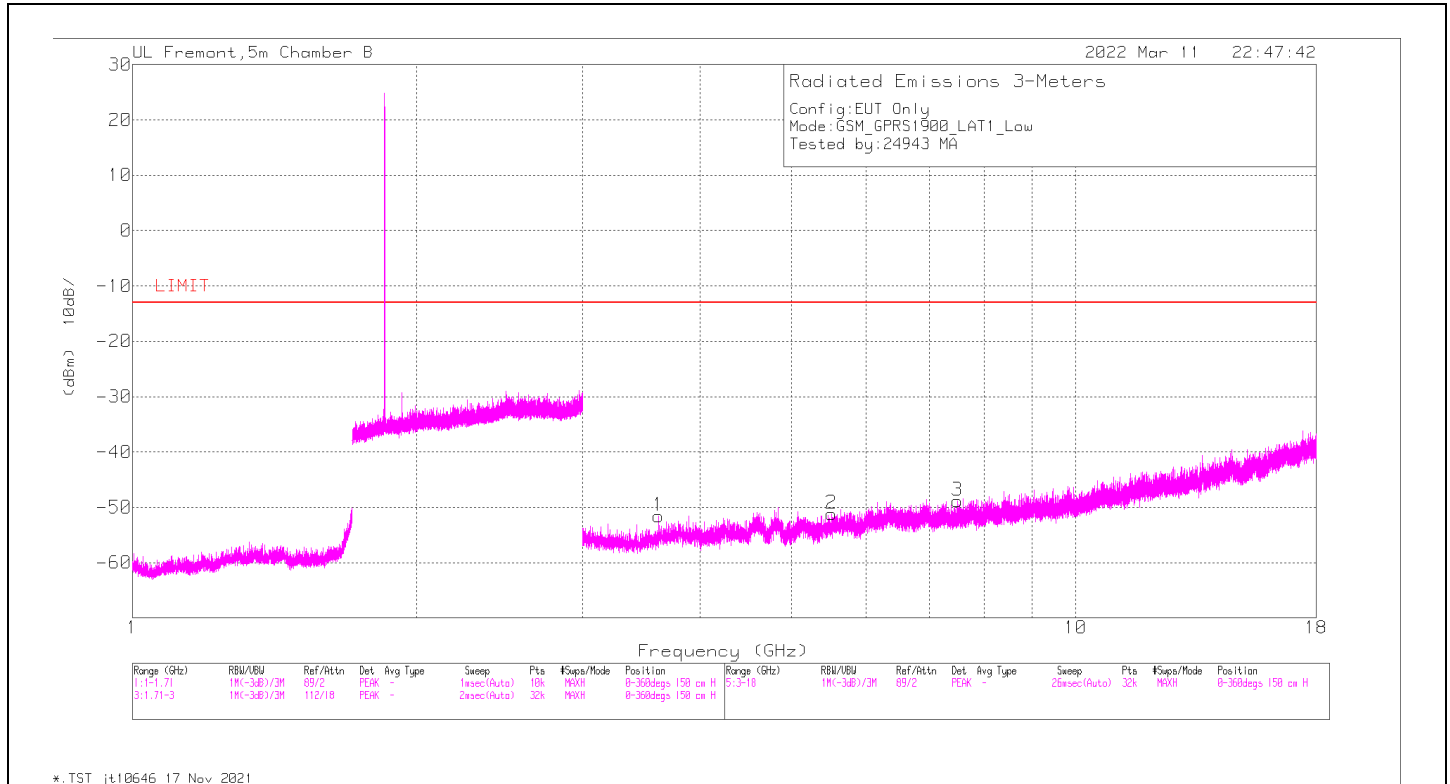


Vertical Polarity

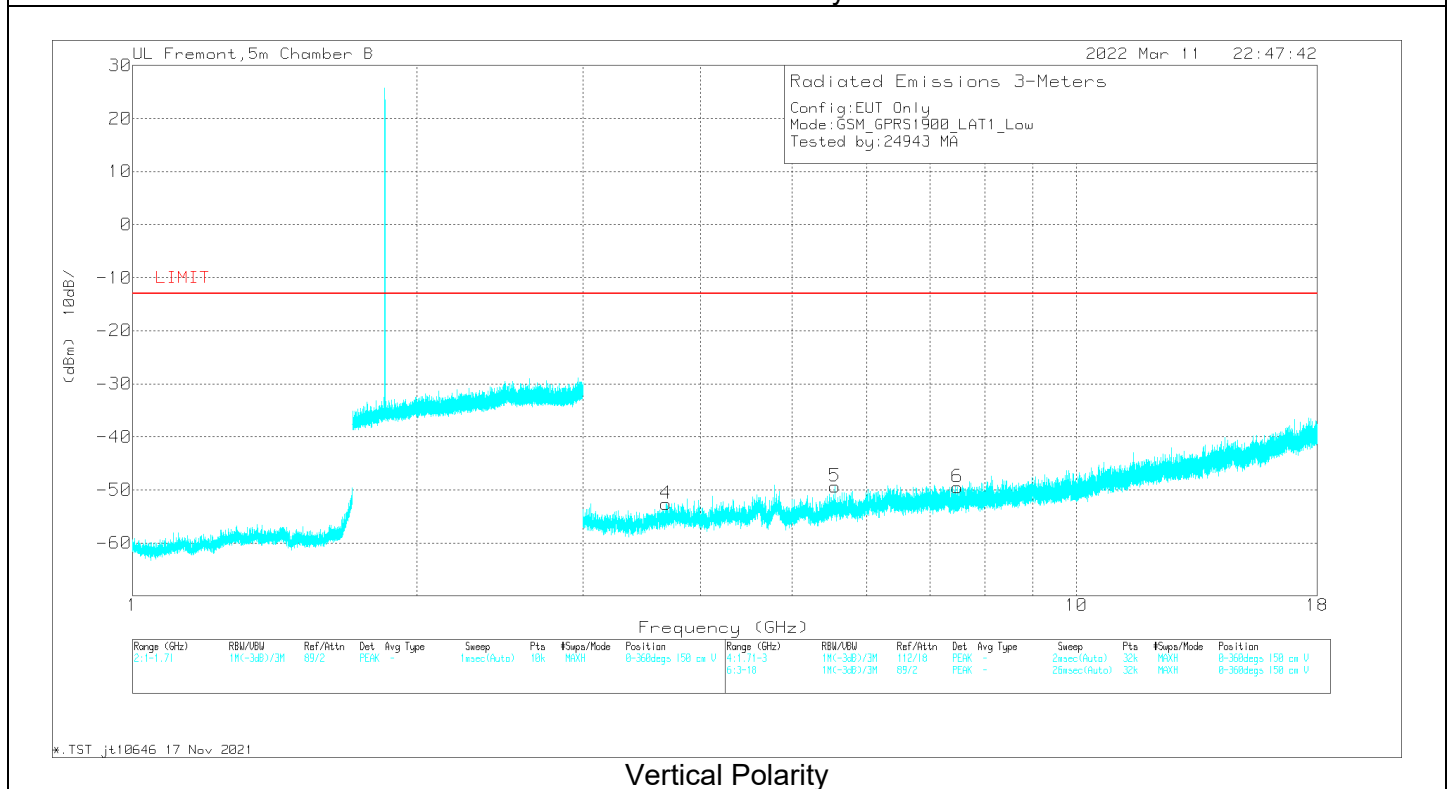
Trace Markers

Marker	Frequency (MHz)	Meter Reading (dBuV)	Det	85151 ACF (dB)_3m	Amp/Cbl (dB/m)	EIRP CF	Corrected Reading (dBm)	Avg Limit	Margin (dB)	Polarity
1	30.679	27.41	Pk	27.2	-27.3	-95.2	-67.89	-13	-54.89	H
2	93.147	38.43	Pk	14.5	-26.4	-95.2	-68.67	-13	-55.67	H
3	956.156	24.54	Pk	29	-22.2	-95.2	-63.86	-13	-50.86	H
4	30.582	28.45	Pk	27.3	-27.3	-95.2	-66.75	-13	-53.75	V
2	93.147	38.43	Pk	14.5	-26.4	-95.2	-68.67	-13	-55.67	H
6	960.424	24.87	Pk	29.1	-22.3	-95.2	-63.53	-13	-50.53	V

Example Plot Above 1GHz



Horizontal Polarity



Vertical Polarity

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
1	3.614063	43.02	Pk	33.2	-32.6	-95.2	-51.58	-13	-38.58	H
4	3.674531	41.77	Pk	33.2	-32.4	-95.2	-52.63	-13	-39.63	V
2	5.515313	38.7	Pk	34.8	-29.5	-95.2	-51.2	-13	-38.2	H
5	5.550469	40.59	Pk	34.9	-29.7	-95.2	-49.41	-13	-36.41	V
6	7.479375	36.25	Pk	35.7	-26.2	-95.2	-49.45	-13	-36.45	V
3	7.495781	36.81	Pk	35.8	-26.3	-95.2	-48.89	-13	-35.89	H

10.1. FIELD STRENGTH OF SPURIOUS RADIATION, Antenna 1

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, and §27.53
ISED: RSS132§5.5; RSS133§6.5 and RSS139§6.6

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§6.6

- (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 #:	14040863
Date:	03/09/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	GPRS 850
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.6483	56.18	Pk	28.4	-34.9	.7	-95.2	-44.82	-13	-31.82	V
1.6485	56.47	Pk	28.4	-34.9	.7	-95.2	-44.53	-13	-31.53	H
2.4724	55.47	Pk	32.6	-34.8	.5	-95.2	-41.43	-13	-28.43	V
2.4726	55.36	Pk	32.6	-34.8	.5	-95.2	-41.54	-13	-28.54	H
3.2514	42.24	Pk	32.9	-33.9	.4	-95.2	-53.56	-13	-40.56	V
3.2890	41.92	Pk	32.7	-33.8	.5	-95.2	-53.88	-13	-40.88	H
Mid Channel, 836.6 MHz										
1.6731	54.43	Pk	28.4	-34.9	.7	-95.2	-46.57	-13	-33.57	V
1.6731	56.11	Pk	28.4	-34.9	.7	-95.2	-44.89	-13	-31.89	H
2.5096	55.78	Pk	32.7	-34.7	.5	-95.2	-40.92	-13	-27.92	V
2.5096	54.71	Pk	32.7	-34.7	.5	-95.2	-41.99	-13	-28.99	H
3.3692	43.00	Pk	32.6	-33.7	.5	-95.2	-52.8	-13	-39.80	V
3.3844	42.32	Pk	32.5	-33.6	.5	-95.2	-53.48	-13	-40.48	H
High Channel, 848.8 MHz										
1.6977	53.27	Pk	28.9	-34.9	.6	-95.2	-47.33	-13	-34.33	H
1.6977	48.71	Pk	28.9	-34.9	.6	-95.2	-51.89	-13	-38.89	V
2.5464	49.76	Pk	32.5	-34.7	.7	-95.2	-46.94	-13	-33.94	H
2.5464	47.17	Pk	32.5	-34.7	.7	-95.2	-49.53	-13	-36.53	V
3.4802	41.81	Pk	32.9	-33.4	.5	-95.2	-53.39	-13	-40.39	V
3.4895	42.17	Pk	32.9	-33.4	.5	-95.2	-53.03	-13	-40.03	H

EGPRS MODE

Project #:	14040863
Date:	03/10/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	EGPRS 850
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.6483	56.31	Pk	28.4	-34.9	.7	-95.2	-44.69	-13	-31.69	H
1.6483	53.42	Pk	28.4	-34.9	.7	-95.2	-47.58	-13	-34.58	V
2.4271	43.46	Pk	32.1	-34.8	.6	-95.2	-53.84	-13	-40.84	H
2.5058	43.98	Pk	32.7	-34.8	.5	-95.2	-52.82	-13	-39.82	V
3.1942	42.95	Pk	32.8	-33.9	.5	-95.2	-52.85	-13	-39.85	V
3.2455	43.16	Pk	32.9	-33.9	.4	-95.2	-52.64	-13	-39.64	H
Mid Channel, 836.6 MHz										
1.6730	54.13	Pk	28.4	-34.9	.7	-95.2	-46.87	-13	-33.87	V
1.6731	54.26	Pk	28.4	-34.9	.7	-95.2	-46.74	-13	-33.74	H
2.5097	56.3	Pk	32.7	-34.7	.5	-95.2	-40.4	-13	-27.4	V
2.5100	56.57	Pk	32.7	-34.7	.5	-95.2	-40.13	-13	-27.13	H
3.3316	42.00	Pk	32.6	-33.7	.5	-95.2	-53.8	-13	-40.80	H
3.3369	42.35	Pk	32.6	-33.7	.5	-95.2	-53.45	-13	-40.45	V
High Channel, 848.8 MHz										
1.6977	54.29	Pk	28.9	-34.9	.6	-95.2	-46.31	-13	-33.31	H
1.6978	52.76	Pk	28.9	-34.9	.6	-95.2	-47.84	-13	-34.84	V
2.6036	43.68	Pk	32.3	-34.7	.7	-95.2	-53.22	-13	-40.22	H
2.6192	43.36	Pk	32.4	-34.7	.6	-95.2	-53.54	-13	-40.54	V
3.3814	41.93	Pk	32.5	-33.6	.5	-95.2	-53.87	-13	-40.87	H
3.3873	42.76	Pk	32.5	-33.5	.5	-95.2	-52.94	-13	-39.94	V

10.1.2. GSM 1900

GPRS MODE

Project #:	14040863
Date:	03/11/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.6141	43.02	Pk	33.2	-32.6	-95.2	-51.58	-13	-38.58	H
3.6745	41.77	Pk	33.2	-32.4	-95.2	-52.63	-13	-39.63	V
5.5153	38.70	Pk	34.8	-29.5	-95.2	-51.20	-13	-38.20	H
5.5505	40.59	Pk	34.9	-29.7	-95.2	-49.41	-13	-36.41	V
7.4794	36.25	Pk	35.7	-26.2	-95.2	-49.45	-13	-36.45	V
7.4958	36.81	Pk	35.8	-26.3	-95.2	-48.89	-13	-35.89	H
Mid Channel, 1880MHz									
3.7514	42.08	Pk	33.5	-32.1	-95.2	-51.72	-13	-38.72	V
3.7941	41.37	Pk	33.6	-31.9	-95.2	-52.13	-13	-39.13	H
5.5308	40.56	Pk	34.9	-29.6	-95.2	-49.34	-13	-36.34	H
5.5669	39.31	Pk	34.9	-29.7	-95.2	-50.69	-13	-37.69	V
7.5384	35.57	Pk	35.8	-26.1	-95.2	-49.93	-13	-36.93	H
7.5788	36.37	Pk	35.8	-26.2	-95.2	-49.23	-13	-36.23	V
High Channel, 1909.8MHz									
3.8152	40.48	Pk	33.7	-31.8	-95.2	-52.82	-13	-39.82	H
3.8388	40.88	Pk	33.6	-31.8	-95.2	-52.52	-13	-39.52	V
5.6761	39.87	Pk	34.9	-29.9	-95.2	-50.33	-13	-37.33	V
5.7398	38.64	Pk	34.8	-28.7	-95.2	-50.46	-13	-37.46	H
7.7531	36.23	Pk	35.8	-25.7	-95.2	-48.87	-13	-35.87	V
7.7789	36.79	Pk	35.9	-25.6	-95.2	-48.11	-13	-35.11	H

EGPRS MODE

Project #:	14040863
Date:	03/11/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.7144	41.97	Pk	33.3	-32.2	-95.2	-52.13	-13	-39.13	H
3.7219	40.81	Pk	33.4	-32.2	-95.2	-53.19	-13	-40.19	V
5.4112	40.15	Pk	34.5	-29.9	-95.2	-50.45	-13	-37.45	V
5.4820	40.25	Pk	34.7	-29.2	-95.2	-49.45	-13	-36.45	H
7.4419	36.92	Pk	35.7	-26.3	-95.2	-48.88	-13	-35.88	H
7.4967	36.37	Pk	35.8	-26.3	-95.2	-49.33	-13	-36.33	V
Mid Channel, 1880MHz									
3.7097	41.98	Pk	33.3	-32.3	-95.2	-52.22	-13	-39.22	V
3.7134	42.07	Pk	33.3	-32.2	-95.2	-52.03	-13	-39.03	H
5.6091	39.05	Pk	35	-29.7	-95.2	-50.85	-13	-37.85	H
5.7056	39.9	Pk	34.8	-29.3	-95.2	-49.80	-13	-36.80	V
7.4845	36.65	Pk	35.7	-26.3	-95.2	-49.15	-13	-36.15	H
7.5028	35.71	Pk	35.8	-26.3	-95.2	-49.99	-13	-36.99	V
High Channel, 1909.8MHz									
3.8588	41.57	Pk	33.6	-31.8	-95.2	-51.83	-13	-38.83	V
3.8747	41.92	Pk	33.7	-31.7	-95.2	-51.28	-13	-38.28	H
5.6559	40.62	Pk	34.9	-30.0	-95.2	-49.68	-13	-36.68	V
5.7488	37.96	Pk	34.8	-28.5	-95.2	-50.94	-13	-37.94	H
7.6894	37.70	Pk	35.8	-26.2	-95.2	-47.90	-13	-34.90	V
7.7224	36.86	Pk	35.8	-26.1	-95.2	-48.64	-13	-35.64	H

10.1.3. WCDMA BAND 5

REL 99 MODE

Project #:	14040863
Date:	03/14/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	REL 99 Band 5
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.6547	42.9	Pk	28.3	-34.9	.7	-95.2	-58.20	-13	-45.20	H
1.6552	43.47	Pk	28.3	-34.9	.7	-95.2	-57.63	-13	-44.63	V
2.4457	42.83	Pk	32.3	-34.7	.6	-95.2	-54.17	-13	-41.17	V
2.4540	42.34	Pk	32.4	-34.7	.6	-95.2	-54.56	-13	-41.56	H
3.3995	42.53	Pk	32.5	-33.5	.5	-95.2	-53.17	-13	-40.17	V
3.4132	43.42	Pk	32.6	-33.5	.5	-95.2	-52.18	-13	-39.18	H
Mid Channel, 836.6MHz										
1.6747	43.12	Pk	28.4	-34.9	.7	-95.2	-57.88	-13	-44.88	V
1.6767	43.56	Pk	28.5	-34.9	.7	-95.2	-57.34	-13	-44.34	H
2.4910	42.93	Pk	32.8	-34.8	.5	-95.2	-53.77	-13	-40.77	H
2.5078	43.03	Pk	32.7	-34.7	.5	-95.2	-53.67	-13	-40.67	V
3.3511	42.40	Pk	32.5	-33.7	.4	-95.2	-53.60	-13	-40.60	H
3.3726	43.05	Pk	32.6	-33.7	.5	-95.2	-52.75	-13	-39.75	V
High Channel, 846.6MHz										
1.6380	42.85	Pk	28.4	-34.9	.7	-95.2	-58.15	-13	-45.15	V
1.6688	44.11	Pk	28.3	-34.9	.7	-95.2	-56.99	-13	-43.99	H
2.5141	42.55	Pk	32.7	-34.7	.5	-95.2	-54.15	-13	-41.15	V
2.5513	42.67	Pk	32.4	-34.7	.7	-95.2	-54.13	-13	-41.13	H
3.3892	41.17	Pk	32.6	-33.5	.5	-95.2	-54.43	-13	-41.43	H
3.3922	42.58	Pk	32.6	-33.5	.5	-95.2	-53.02	-13	-40.02	V

HSDPA MODE

Project #:	14040863
Date:	03/14/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	HSDPA Band 5
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.6820	43.27	Pk	28.6	-34.9	.7	-95.2	-57.53	-13	-44.53	H
1.6933	42.87	Pk	28.8	-34.9	.6	-95.2	-57.83	-13	-44.83	V
2.386	43.81	Pk	31.9	-34.8	.6	-95.2	-53.69	-13	-40.69	V
2.4369	42.86	Pk	32.2	-34.8	.6	-95.2	-54.34	-13	-41.34	H
3.3096	42.15	Pk	32.6	-33.8	.5	-95.2	-53.75	-13	-40.75	H
3.3628	42.43	Pk	32.5	-33.7	.5	-95.2	-53.47	-13	-40.47	V
Mid Channel, 836.6MHz										
1.6110	43.16	Pk	28.4	-34.9	.7	-95.2	-57.84	-13	-44.84	H
1.6209	42.34	Pk	28.4	-34.9	.7	-95.2	-58.66	-13	-45.66	V
2.5308	43.32	Pk	32.6	-34.7	.5	-95.2	-53.48	-13	-40.48	V
2.5498	42.96	Pk	32.5	-34.7	.7	-95.2	-53.74	-13	-40.74	H
3.3687	42.16	Pk	32.6	-33.7	.5	-95.2	-53.64	-13	-40.64	H
3.3775	41.87	Pk	32.6	-33.6	.5	-95.2	-53.83	-13	-40.83	V
High Channel, 846.6MHz										
1.6913	42.54	Pk	28.8	-34.9	.6	-95.2	-58.16	-13	-45.16	H
1.6918	42.90	Pk	28.8	-34.9	.6	-95.2	-57.8	-13	-44.80	V
2.4946	44.16	Pk	32.8	-34.8	.5	-95.2	-52.54	-13	-39.54	V
2.5092	43.36	Pk	32.7	-34.7	.5	-95.2	-53.34	-13	-40.34	H
3.3022	42.49	Pk	32.6	-33.9	.5	-95.2	-53.51	-13	-40.51	V
3.3179	41.98	Pk	32.6	-33.7	.5	-95.2	-53.82	-13	-40.82	H

10.1.4. WCDMA BAND 2

REL 99 MODE

Project #:	14040863
Date:	03/11/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.6300	42.76	Pk	33.1	-32.6	-95.2	-51.94	-13	-38.94	V
3.6713	42.45	Pk	33.2	-32.5	-95.2	-52.05	-13	-39.05	H
5.5894	39.94	Pk	34.9	-29.6	-95.2	-49.96	-13	-36.96	H
5.6578	39.42	Pk	35.0	-30.1	-95.2	-50.88	-13	-37.88	V
7.4859	38.18	Pk	35.7	-26.3	-95.2	-47.62	-13	-34.62	H
7.5773	38.13	Pk	35.8	-26.2	-95.2	-47.47	-13	-34.47	V
Mid Channel, 1880MHz									
3.7538	41.48	Pk	33.5	-32.1	-95.2	-52.32	-13	-39.32	H
3.8034	41.79	Pk	33.6	-31.8	-95.2	-51.61	-13	-38.61	V
5.5908	39.84	Pk	34.9	-29.6	-95.2	-50.06	-13	-37.06	V
5.6198	39.25	Pk	35	-29.9	-95.2	-50.85	-13	-37.85	H
7.5319	36.33	Pk	35.8	-26.1	-95.2	-49.17	-13	-36.17	H
7.5914	37.17	Pk	35.8	-26.2	-95.2	-48.43	-13	-35.43	V
High Channel, 1907.6MHz									
3.816094	41.62	Pk	33.7	-31.8	-95.2	-51.68	-13	-38.68	V
3.82125	41.89	Pk	33.7	-31.8	-95.2	-51.41	-13	-38.41	H
5.71875	39.32	Pk	34.8	-29.2	-95.2	-50.28	-13	-37.28	V
5.758594	38.8	Pk	34.9	-28.4	-95.2	-49.90	-13	-36.90	H
7.56375	36.48	Pk	35.8	-26.3	-95.2	-49.22	-13	-36.22	V
7.72125	37.07	Pk	35.9	-26.1	-95.2	-48.33	-13	-35.33	H

HSDPA MODE

Project #:	14040863
Date:	03/11/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.7894	42.47	Pk	33.6	-31.9	-95.2	-51.03	-13	-38.03	V
3.8025	41.97	Pk	33.6	-31.8	-95.2	-51.43	-13	-38.43	H
5.5242	39.11	Pk	34.9	-29.6	-95.2	-50.79	-13	-37.79	V
5.5261	39.11	Pk	34.9	-29.6	-95.2	-50.79	-13	-37.79	H
7.5066	36.05	Pk	35.7	-26.2	-95.2	-49.65	-13	-36.65	H
7.5923	36.56	Pk	35.8	-26.2	-95.2	-49.04	-13	-36.04	V
Mid Channel, 1880MHz									
3.6286	42.66	Pk	33.1	-32.6	-95.2	-52.04	-13	-39.04	H
3.6394	41.13	Pk	33.1	-32.5	-95.2	-53.47	-13	-40.47	V
5.7450	38.51	Pk	34.8	-28.6	-95.2	-50.49	-13	-37.49	V
5.8200	39.64	Pk	35.0	-28.3	-95.2	-48.86	-13	-35.86	H
7.5900	36.03	Pk	35.8	-26.2	-95.2	-49.57	-13	-36.57	H
7.7555	37.44	Pk	35.9	-25.6	-95.2	-47.46	-13	-34.46	V
High Channel, 1907.6MHz									
3.7955	40.44	Pk	33.6	-31.9	-95.2	-53.06	-13	-40.06	V
3.7969	40.92	Pk	33.6	-31.9	-95.2	-52.58	-13	-39.58	H
5.5580	39.68	Pk	34.9	-29.6	-95.2	-50.22	-13	-37.22	H
5.7534	37.79	Pk	34.8	-28.4	-95.2	-51.01	-13	-38.01	V
7.6083	36.08	Pk	35.8	-26.4	-95.2	-49.72	-13	-36.72	V
7.7705	37.21	Pk	35.8	-25.6	-95.2	-47.79	-13	-34.79	H

10.1.5. WCDMA BAND 4

REL 99 MODE

Project #:	14040863
Date:	03/15/2022
Test Engineer:	27661
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.4523	41.60	Pk	32.7	-33	-95.2	-53.90	-13	-40.90	V
3.4627	41.78	Pk	32.8	-33	-95.2	-53.62	-13	-40.62	H
5.1516	39.43	Pk	34.3	-29.8	-95.2	-51.27	-13	-38.27	V
5.1577	39.82	Pk	34.3	-29.7	-95.2	-50.78	-13	-37.78	H
6.8752	36.16	Pk	35.9	-26.6	-95.2	-49.74	-13	-36.74	V
6.8827	36.68	Pk	35.9	-26.6	-95.2	-49.22	-13	-36.22	H
Mid Channel, 1732.6MHz									
3.4064	41.72	Pk	32.5	-33.0	-95.2	-53.98	-13	-40.98	V
3.4167	41.34	Pk	32.6	-33.0	-95.2	-54.26	-13	-41.26	H
5.1202	39.11	Pk	34.2	-30.1	-95.2	-51.99	-13	-38.99	V
5.1220	39.58	Pk	34.2	-30.1	-95.2	-51.52	-13	-38.52	H
6.8597	35.52	Pk	35.8	-26.7	-95.2	-50.58	-13	-37.58	V
6.8611	36.67	Pk	35.8	-26.6	-95.2	-49.33	-13	-36.33	H
High Channel, 1752.61MHz									
3.4838	40.95	Pk	32.9	-32.9	-95.2	-54.25	-13	-41.25	V
3.5020	41.43	Pk	33.0	-32.9	-95.2	-53.67	-13	-40.67	H
5.2228	38.48	Pk	34.2	-29.0	-95.2	-51.52	-13	-38.52	V
5.2458	38.56	Pk	34.1	-28.9	-95.2	-51.44	-13	-38.44	H
7.0120	36.78	Pk	35.7	-26.5	-95.2	-49.22	-13	-36.22	V
7.0373	35.92	Pk	35.6	-26.8	-95.2	-50.48	-13	-37.48	H

HSDPA MODE

Project #:	14040863
Date:	03/15/2022
Test Engineer:	27661
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.4345	42.15	Pk	32.7	-33.0	-95.2	-53.35	-13	-40.35	H
3.4383	40.33	Pk	32.7	-33.0	-95.2	-55.17	-13	-42.17	V
5.1145	38.83	Pk	34.2	-30.2	-95.2	-52.37	-13	-39.37	V
5.1178	40.57	Pk	34.2	-30.2	-95.2	-50.63	-13	-37.63	H
6.8245	36.29	Pk	35.7	-26.8	-95.2	-50.01	-13	-37.01	V
6.8550	36.79	Pk	35.7	-26.7	-95.2	-49.41	-13	-36.41	H
Mid Channel, 1732.6MHz									
3.4636	41.08	Pk	32.8	-33.0	-95.2	-54.32	-13	-41.32	H
3.4673	40.67	Pk	32.8	-32.9	-95.2	-54.63	-13	-41.63	V
5.1802	38.16	Pk	34.2	-29.2	-95.2	-52.04	-13	-39.04	H
5.1881	38.32	Pk	34.2	-29.2	-95.2	-51.88	-13	-38.88	V
6.9117	35.51	Pk	35.8	-26.3	-95.2	-50.19	-13	-37.19	V
6.9314	35.69	Pk	35.8	-26.0	-95.2	-49.71	-13	-36.71	H
High Channel, 1752.61MHz									
3.4777	41.87	Pk	32.9	-32.9	-95.2	-53.33	-13	-40.33	V
3.4964	40.92	Pk	32.9	-32.9	-95.2	-54.28	-13	-41.28	H
5.2240	39.06	Pk	34.2	-29	-95.2	-50.94	-13	-37.94	V
5.2434	38.37	Pk	34.1	-28.8	-95.2	-51.53	-13	-38.53	H
6.9942	34.97	Pk	35.7	-26.3	-95.2	-50.83	-13	-37.83	V
7.0111	36.82	Pk	35.7	-26.5	-95.2	-49.18	-13	-36.18	H

10.2. FIELD STRENGTH OF SPURIOUS RADIATION, Antenna 2

10.2.1. GSM 850

GPRS MODE

Project #:	14040863
Date:	03/10/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	GPRS 850
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.6024	42.73	Pk	28.0	-34.9	.7	-95.2	-58.67	-13	-45.67	V
1.6141	42.95	Pk	28.4	-34.9	.7	-95.2	-58.05	-13	-45.05	H
2.4872	43.32	Pk	32.7	-34.8	.5	-95.2	-53.48	-13	-40.48	V
2.4946	43.29	Pk	32.8	-34.8	.5	-95.2	-53.41	-13	-40.41	H
3.2465	41.75	Pk	32.9	-33.9	.4	-95.2	-54.05	-13	-41.05	H
3.2646	42.54	Pk	32.8	-33.8	.4	-95.2	-53.26	-13	-40.26	V
Mid Channel, 836.6 MHz										
1.6380	43.42	Pk	28.4	-34.9	.7	-95.2	-57.58	-13	-44.58	H
1.6400	42.81	Pk	28.4	-34.9	.7	-95.2	-58.19	-13	-45.19	V
2.4794	43.15	Pk	32.6	-34.8	.5	-95.2	-53.75	-13	-40.75	H
2.4882	43.95	Pk	32.7	-34.8	.5	-95.2	-52.85	-13	-39.85	V
3.2455	42.83	Pk	32.9	-33.9	.4	-95.2	-52.97	-13	-39.97	H
3.2455	41.67	Pk	32.9	-33.9	.4	-95.2	-54.13	-13	-41.13	V
High Channel, 848.8 MHz										
1.7089	43.00	Pk	29.1	-34.9	.7	-95.2	-57.30	-13	-44.30	H
1.7260	42.93	Pk	29.4	-34.9	.8	-95.2	-56.97	-13	-43.97	V
2.4965	43.37	Pk	32.8	-34.8	.5	-95.2	-53.33	-13	-40.33	V
2.5410	43.56	Pk	32.5	-34.7	.6	-95.2	-53.24	-13	-40.24	H
3.3066	42.29	Pk	32.6	-33.8	.5	-95.2	-53.61	-13	-40.61	V
3.3545	42.41	Pk	32.5	-33.7	.4	-95.2	-53.59	-13	-40.59	H

EGPRS MODE

Project #:	14040863
Date:	03/10/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	EGPRS 850
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBUV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.5970	43.34	Pk	27.9	-34.9	.7	-95.2	-58.16	-13	-45.16	V
1.6092	44.07	Pk	28.3	-34.9	.7	-95.2	-57.03	-13	-44.03	H
2.4569	42.52	Pk	32.4	-34.7	.6	-95.2	-54.38	-13	-41.38	V
2.4648	43.41	Pk	32.5	-34.8	.5	-95.2	-53.59	-13	-40.59	H
3.1878	42.23	Pk	32.8	-34.0	.5	-95.2	-53.67	-13	-40.67	H
3.2861	42.22	Pk	32.8	-33.8	.5	-95.2	-53.48	-13	-40.48	V
Mid Channel, 836.6 MHz										
1.6268	43.99	Pk	28.4	-34.9	.7	-95.2	-57.01	-13	-44.01	H
1.6493	43.41	Pk	28.4	-34.9	.7	-95.2	-57.59	-13	-44.59	V
2.5234	43.88	Pk	32.7	-34.7	.5	-95.2	-52.82	-13	-39.82	H
2.5518	43.68	Pk	32.4	-34.7	.7	-95.2	-53.12	-13	-40.12	V
3.2264	42.09	Pk	32.9	-33.8	.5	-95.2	-53.51	-13	-40.51	V
3.2357	42.99	Pk	32.9	-33.8	.5	-95.2	-52.61	-13	-39.61	H
High Channel, 848.8 MHz										
1.7114	43.37	Pk	29.1	-34.9	.7	-95.2	-56.93	-13	-43.93	H
1.7236	43.00	Pk	29.4	-34.9	.8	-95.2	-56.9	-13	-43.90	V
2.5083	43.57	Pk	32.7	-34.7	.5	-95.2	-53.13	-13	-40.13	V
2.5210	43.25	Pk	32.7	-34.7	.5	-95.2	-53.45	-13	-40.45	H
3.3677	42.16	Pk	32.5	-33.7	.5	-95.2	-53.74	-13	-40.74	V
3.3726	42.76	Pk	32.6	-33.7	.5	-95.2	-53.04	-13	-40.04	H

10.2.2. GSM 1900

GPRS MODE

Project #:	14040863
Date:	03/11/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.6872	41.73	Pk	33.2	-32.4	-95.2	-52.67	-13	-39.67	H
3.6980	41.04	Pk	33.2	-32.3	-95.2	-53.26	-13	-40.26	V
5.5505	40.27	Pk	34.9	-29.7	-95.2	-49.73	-13	-36.73	V
5.6034	40.21	Pk	34.9	-29.7	-95.2	-49.79	-13	-36.79	H
7.2984	36.33	Pk	35.7	-25.9	-95.2	-49.07	-13	-36.07	H
7.3594	36.85	Pk	35.7	-26.6	-95.2	-49.25	-13	-36.25	V
Mid Channel, 1880MHz									
3.6994	42.15	Pk	33.2	-32.3	-95.2	-52.15	-13	-39.15	H
3.7350	41.75	Pk	33.5	-32.2	-95.2	-52.15	-13	-39.15	V
5.5884	39.70	Pk	34.9	-29.6	-95.2	-50.2	-13	-37.20	V
5.6723	39.99	Pk	34.9	-29.9	-95.2	-50.21	-13	-37.21	H
7.4738	36.42	Pk	35.7	-26.2	-95.2	-49.28	-13	-36.28	H
7.6181	37.18	Pk	35.8	-26.5	-95.2	-48.72	-13	-35.72	V
High Channel, 1909.8MHz									
3.8306	41.26	Pk	33.7	-31.8	-95.2	-52.04	-13	-39.04	H
3.8353	40.78	Pk	33.7	-31.8	-95.2	-52.52	-13	-39.52	V
5.7014	39.65	Pk	34.9	-29.4	-95.2	-50.05	-13	-37.05	V
5.7188	39.54	Pk	34.8	-29.2	-95.2	-50.06	-13	-37.06	H
7.7077	36.1	Pk	35.9	-26.1	-95.2	-49.3	-13	-36.30	H
7.7691	36.12	Pk	35.8	-25.6	-95.2	-48.88	-13	-35.88	V

EGPRS MODE

Project #:	14040863
Date:	03/11/2022
Test Engineer:	24943
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.7538	41.37	Pk	33.5	-32.1	-95.2	-52.43	-13	-39.43	V
3.7847	41.22	Pk	33.6	-31.9	-95.2	-52.28	-13	-39.28	H
5.5289	38.97	Pk	34.9	-29.6	-95.2	-50.93	-13	-37.93	V
5.5425	39.73	Pk	34.9	-29.7	-95.2	-50.27	-13	-37.27	H
7.4789	36.23	Pk	35.7	-26.2	-95.2	-49.47	-13	-36.47	H
7.5539	37.29	Pk	35.8	-26.3	-95.2	-48.41	-13	-35.41	V
Mid Channel, 1880MHz									
3.6361	42.62	Pk	33.1	-32.6	-95.2	-52.08	-13	-39.08	H
3.6459	42.06	Pk	33.1	-32.5	-95.2	-52.54	-13	-39.54	V
5.5763	39.17	Pk	34.9	-29.7	-95.2	-50.83	-13	-37.83	V
5.7066	40.31	Pk	34.8	-29.3	-95.2	-49.39	-13	-36.39	H
7.5028	36.72	Pk	35.8	-26.3	-95.2	-48.98	-13	-35.98	V
7.5459	36.10	Pk	35.8	-26.2	-95.2	-49.50	-13	-36.50	H
High Channel, 1909.8MHz									
3.7838	41.40	Pk	33.6	-31.9	-95.2	-52.1	-13	-39.10	V
3.8152	40.18	Pk	33.7	-31.8	-95.2	-53.12	-13	-40.12	H
5.6972	39.58	Pk	34.9	-29.4	-95.2	-50.12	-13	-37.12	H
5.7581	38.42	Pk	34.9	-28.4	-95.2	-50.28	-13	-37.28	V
7.6992	37.12	Pk	35.8	-26.1	-95.2	-48.38	-13	-35.38	H
7.7363	36.34	Pk	35.8	-25.9	-95.2	-48.96	-13	-35.96	V

10.2.3. WCDMA BAND 5

REL 99 MODE

Project #:	14040863
Date:	03/15/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	REL 99 Band 5
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.6459	40.88	Pk	28.5	-29.4	.7	-95.2	-54.52	-13	-41.52	V
1.6547	40.94	Pk	28.5	-29.4	.8	-95.2	-54.36	-13	-41.36	H
2.4701	39.6	Pk	32.2	-28.2	.5	-95.2	-51.10	-13	-38.10	H
2.4780	37.33	Pk	32.2	-28.1	.5	-95.2	-53.27	-13	-40.27	V
3.3174	36.62	Pk	32.6	-26.6	.6	-95.2	-51.98	-13	-38.98	H
3.3267	36.94	Pk	32.6	-26.6	.6	-95.2	-51.66	-13	-38.66	V
Mid Channel, 836.6MHz										
1.669822	40.44	Pk	28.5	-29.3	.7	-95.2	-54.86	-13	-41.86	H
1.671289	39.48	Pk	28.5	-29.3	.7	-95.2	-55.82	-13	-42.82	V
2.505823	37.78	Pk	32.3	-28	.7	-95.2	-52.42	-13	-39.42	H
2.510711	37.24	Pk	32.4	-28.1	.7	-95.2	-52.96	-13	-39.96	V
3.335467	38.46	Pk	32.6	-26.6	.5	-95.2	-50.24	-13	-37.24	H
3.344267	36.95	Pk	32.6	-26.5	.5	-95.2	-51.65	-13	-38.65	V
High Channel, 846.6MHz										
1.6928	39.45	Pk	28.5	-29.2	.7	-95.2	-55.75	-13	-42.75	H
1.6967	38.78	Pk	28.6	-29.2	.6	-95.2	-56.42	-13	-43.42	V
2.5205	37.61	Pk	32.4	-28.1	.8	-95.2	-52.49	-13	-39.49	V
2.5264	37.99	Pk	32.4	-28.1	.8	-95.2	-52.11	-13	-39.11	H
3.3834	36.27	Pk	32.8	-26.4	.6	-95.2	-51.93	-13	-38.93	V
3.3848	37.43	Pk	32.8	-26.4	.6	-95.2	-50.77	-13	-37.77	H

HSDPA MODE

Project #:	14040863
Date:	03/15/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	HSDPA Band 5
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.6620	39.58	Pk	28.5	-29.4	.8	-95.2	-55.72	-13	-42.72	V
1.6713	40.37	Pk	28.5	-29.3	.7	-95.2	-54.93	-13	-41.93	H
2.4819	38.15	Pk	32.2	-28.1	.5	-95.2	-52.45	-13	-39.45	V
2.4882	37.86	Pk	32.2	-28.0	.5	-95.2	-52.64	-13	-39.64	H
3.2934	37.66	Pk	32.6	-26.4	.8	-95.2	-50.54	-13	-37.54	H
3.2959	36.24	Pk	32.6	-26.4	.8	-95.2	-51.96	-13	-38.96	V
Mid Channel, 836.6MHz										
1.6644	40.04	Pk	28.5	-29.4	.8	-95.2	-55.26	-13	-42.26	V
1.6747	41.10	Pk	28.4	-29.3	.7	-95.2	-54.30	-13	-41.30	H
2.5097	37.91	Pk	32.4	-28.1	.7	-95.2	-52.29	-13	-39.29	V
2.5127	38.61	Pk	32.4	-28.1	.7	-95.2	-51.59	-13	-38.59	H
3.3526	36.76	Pk	32.7	-26.5	.6	-95.2	-51.64	-13	-38.64	V
3.3555	38.29	Pk	32.7	-26.6	.6	-95.2	-50.21	-13	-37.21	H
High Channel, 846.6MHz										
1.6791	39.82	Pk	28.4	-29.3	.7	-95.2	-55.58	-13	-42.58	H
1.6801	39.07	Pk	28.4	-29.3	.7	-95.2	-56.33	-13	-43.33	V
2.5195	38.01	Pk	32.4	-28.1	.8	-95.2	-52.09	-13	-39.09	V
2.5224	37.72	Pk	32.4	-28.1	.8	-95.2	-52.38	-13	-39.38	H
3.3819	36.39	Pk	32.8	-26.5	.6	-95.2	-51.91	-13	-38.91	H
3.3858	36.68	Pk	32.8	-26.4	.6	-95.2	-51.52	-13	-38.52	V

10.2.4. WCDMA BAND 2

REL 99 MODE

Project #:	14040863
Date:	03/15/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.6905	38.36	Pk	33.3	-25.5	-95.2	-49.04	-13	-36.04	H
3.6989	36.21	Pk	33.3	-25.3	-95.2	-50.99	-13	-37.99	V
5.5711	35.00	Pk	34.7	-22.5	-95.2	-48.00	-13	-35.00	H
5.5763	34.87	Pk	34.8	-22.3	-95.2	-47.83	-13	-34.83	V
7.3959	32.87	Pk	35.5	-19.6	-95.2	-46.43	-13	-33.43	H
7.4072	33.00	Pk	35.5	-19.7	-95.2	-46.40	-13	-33.40	V
Mid Channel, 1880MHz									
3.7575	36.53	Pk	33.4	-24.9	-95.2	-50.17	-13	-37.17	V
3.7748	37.09	Pk	33.3	-24.8	-95.2	-49.61	-13	-36.61	H
5.6470	35.03	Pk	34.8	-21.9	-95.2	-47.27	-13	-34.27	V
5.6475	35.58	Pk	34.8	-21.9	-95.2	-46.72	-13	-33.72	H
7.5263	33.02	Pk	35.6	-19.6	-95.2	-46.18	-13	-33.18	H
7.5305	33.67	Pk	35.6	-19.6	-95.2	-45.53	-13	-32.53	V
High Channel, 1907.6MHz									
3.8030	37.57	Pk	33.3	-25.3	-95.2	-49.63	-13	-36.63	V
3.8072	38.58	Pk	33.3	-25.3	-95.2	-48.62	-13	-35.62	H
5.7281	35.48	Pk	34.9	-23.2	-95.2	-48.02	-13	-35.02	V
5.7323	35.72	Pk	35.0	-23.3	-95.2	-47.78	-13	-34.78	H
7.6308	31.82	Pk	35.7	-18.4	-95.2	-46.08	-13	-33.08	V
7.6388	33.47	Pk	35.7	-18.4	-95.2	-44.43	-13	-31.43	H

HSDPA MODE

Project #:	14040863
Date:	03/15/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.7233	37.9	Pk	33.4	-24.9	-95.2	-48.80	-13	-35.80	H
3.7252	36.22	Pk	33.4	-25	-95.2	-50.58	-13	-37.58	V
5.5781	35.93	Pk	34.8	-22.3	-95.2	-46.77	-13	-33.77	H
5.5800	34.45	Pk	34.8	-22.2	-95.2	-48.15	-13	-35.15	V
7.4109	33.23	Pk	35.5	-19.7	-95.2	-46.17	-13	-33.17	V
7.4161	33.13	Pk	35.5	-19.8	-95.2	-46.37	-13	-33.37	H
Mid Channel, 1880MHz									
3.7383	37.61	Pk	33.4	-25.1	-95.2	-49.29	-13	-36.29	H
3.7397	37.84	Pk	33.4	-25.1	-95.2	-49.06	-13	-36.06	V
5.6409	34.60	Pk	34.8	-22.0	-95.2	-47.80	-13	-34.80	V
5.6445	35.05	Pk	34.8	-21.9	-95.2	-47.25	-13	-34.25	H
7.5389	33.86	Pk	35.6	-19.5	-95.2	-45.24	-13	-32.24	H
7.5563	33.18	Pk	35.6	-18.9	-95.2	-45.32	-13	-32.32	V
High Channel, 1907.6MHz									
3.8297	37.44	Pk	33.4	-25.2	-95.2	-49.56	-13	-36.56	H
3.8395	38.09	Pk	33.4	-25.3	-95.2	-49.01	-13	-36.01	V
5.7216	35.43	Pk	34.9	-23.1	-95.2	-47.97	-13	-34.97	H
5.7441	34.68	Pk	34.9	-23.3	-95.2	-48.92	-13	-35.92	V
7.6144	32.45	Pk	35.7	-18.6	-95.2	-45.65	-13	-32.65	H
7.6350	31.57	Pk	35.7	-18.4	-95.2	-46.33	-13	-33.33	V

10.2.5. WCDMA BAND 4

REL 99 MODE

Project #:	14040863
Date:	03/17/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.4463	38.65	Pk	32.7	-26.1	-95.2	-49.95	-13	-36.95	H
3.4500	37.26	Pk	32.7	-26.1	-95.2	-51.34	-13	-38.34	V
5.1520	36.25	Pk	34.4	-23.5	-95.2	-48.05	-13	-35.05	H
5.1558	36.45	Pk	34.3	-23.6	-95.2	-48.05	-13	-35.05	V
6.8278	32.64	Pk	35.4	-20.6	-95.2	-47.76	-13	-34.76	V
6.8334	33.76	Pk	35.5	-20.6	-95.2	-46.54	-13	-33.54	H
Mid Channel, 1732.6MHz									
3.4833	35.98	Pk	32.7	-25.7	-95.2	-52.22	-13	-39.22	H
3.4847	35.56	Pk	32.6	-25.7	-95.2	-52.74	-13	-39.74	V
5.1994	36.35	Pk	34.4	-23.9	-95.2	-48.35	-13	-35.35	H
5.2116	35.43	Pk	34.4	-23.9	-95.2	-49.27	-13	-36.27	V
6.9427	33.45	Pk	35.5	-20.4	-95.2	-46.65	-13	-33.65	H
6.9427	33.12	Pk	35.5	-20.4	-95.2	-46.98	-13	-33.98	V
High Channel, 1752.61MHz									
3.5227	36.72	Pk	32.9	-25.3	-95.2	-50.88	-13	-37.88	V
3.5255	37.27	Pk	32.9	-25.3	-95.2	-50.33	-13	-37.33	H
5.2392	36.79	Pk	34.4	-23.8	-95.2	-47.81	-13	-34.81	H
5.2467	35.3	Pk	34.4	-23.5	-95.2	-49.00	-13	-36.00	V
7.0322	33.81	Pk	35.5	-19.8	-95.2	-45.69	-13	-32.69	V
7.0336	33.4	Pk	35.5	-19.8	-95.2	-46.10	-13	-33.10	H

HSDPA MODE

Project #:	14040863
Date:	03/17/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.4364	37.20	Pk	32.7	-26.1	-95.2	-51.40	-13	-38.40	H
3.4392	36.78	Pk	32.7	-26.1	-95.2	-51.82	-13	-38.82	V
5.1253	35.08	Pk	34.4	-23.1	-95.2	-48.82	-13	-35.82	V
5.1413	36.51	Pk	34.3	-23.3	-95.2	-47.69	-13	-34.69	H
6.8194	33.36	Pk	35.5	-20.6	-95.2	-46.94	-13	-33.94	V
6.8353	33.39	Pk	35.5	-20.6	-95.2	-46.91	-13	-33.91	H
Mid Channel, 1732.6MHz									
3.4753	36.47	Pk	32.7	-25.9	-95.2	-51.93	-13	-38.93	H
3.4805	35.35	Pk	32.7	-25.8	-95.2	-52.95	-13	-39.95	V
5.2003	36.39	Pk	34.4	-23.9	-95.2	-48.31	-13	-35.31	H
5.2064	35.5	Pk	34.4	-23.9	-95.2	-49.2	-13	-36.20	V
6.9431	33.71	Pk	35.5	-20.4	-95.2	-46.39	-13	-33.39	H
6.9502	32.86	Pk	35.5	-20.4	-95.2	-47.24	-13	-34.24	V
High Channel, 1752.61MHz									
3.5025	35.84	Pk	32.8	-25.5	-95.2	-52.06	-13	-39.06	V
3.5184	36.00	Pk	32.9	-25.4	-95.2	-51.70	-13	-38.70	H
5.2556	34.73	Pk	34.4	-23.4	-95.2	-49.47	-13	-36.47	H
5.2636	33.90	Pk	34.4	-23.4	-95.2	-50.30	-13	-37.30	V
6.9675	32.53	Pk	35.5	-20.3	-95.2	-47.47	-13	-34.47	V
6.9942	34.35	Pk	35.5	-19.7	-95.2	-45.05	-13	-32.05	H

10.3. FIELD STRENGTH OF SPURIOUS RADIATION, Antenna 3

10.3.1. GSM 1900

GPRS MODE

Project #:	14040863
Date:	03/10/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.6998	37.57	Pk	33.3	-25.3	-95.2	-49.63	-13	-36.63	V
3.7003	40.89	Pk	33.3	-25.3	-95.2	-46.31	-13	-33.31	H
5.5289	36.07	Pk	34.7	-22.6	-95.2	-47.03	-13	-34.03	V
5.5331	35.08	Pk	34.7	-22.5	-95.2	-47.92	-13	-34.92	H
7.4034	33.22	Pk	35.5	-19.6	-95.2	-46.08	-13	-33.08	V
7.4180	32.94	Pk	35.5	-19.9	-95.2	-46.66	-13	-33.66	H
Mid Channel, 1880MHz									
3.7598	38.25	Pk	33.4	-24.9	-95.2	-48.45	-13	-35.45	H
3.7598	39.82	Pk	33.4	-24.9	-95.2	-46.88	-13	-33.88	V
5.6452	34.68	Pk	34.8	-21.9	-95.2	-47.62	-13	-34.62	H
5.6466	33.84	Pk	34.8	-21.9	-95.2	-48.46	-13	-35.46	V
7.5075	33.33	Pk	35.6	-19.7	-95.2	-45.97	-13	-32.97	H
7.5103	32.08	Pk	35.6	-19.6	-95.2	-47.12	-13	-34.12	V
High Channel, 1909.8MHz									
3.8020	37.79	Pk	33.3	-25.3	-95.2	-49.41	-13	-36.41	V
3.8194	40.35	Pk	33.3	-25.2	-95.2	-46.75	-13	-33.75	H
5.7563	35.44	Pk	35	-23.2	-95.2	-47.96	-13	-34.96	V
5.7642	36.07	Pk	35	-23.1	-95.2	-47.23	-13	-34.23	H
7.5947	32.41	Pk	35.7	-18.7	-95.2	-45.79	-13	-32.79	V
7.6088	34.06	Pk	35.7	-18.7	-95.2	-44.14	-13	-31.14	H

EGPRS MODE

Project #:	14040863
Date:	03/10/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.7134	39.93	Pk	33.4	-25.0	-95.2	-46.87	-13	-33.87	V
3.7378	40.02	Pk	33.4	-25.1	-95.2	-46.88	-13	-33.88	H
5.5294	36.95	Pk	34.7	-22.6	-95.2	-46.15	-13	-33.15	V
5.5313	36.24	Pk	34.7	-22.5	-95.2	-46.76	-13	-33.76	H
7.4016	34.02	Pk	35.5	-19.6	-95.2	-45.28	-13	-32.28	H
7.4161	34.4	Pk	35.5	-19.8	-95.2	-45.10	-13	-32.10	V
Mid Channel, 1880MHz									
3.7580	38.72	Pk	33.4	-24.9	-95.2	-47.98	-13	-34.98	V
3.7598	40.02	Pk	33.4	-24.9	-95.2	-46.68	-13	-33.68	H
5.6400	38.95	Pk	34.8	-22.0	-95.2	-43.45	-13	-30.45	H
5.644	35.62	Pk	34.8	-21.9	-95.2	-46.68	-13	-33.68	V
7.5370	34.39	Pk	35.6	-19.5	-95.2	-44.71	-13	-31.71	H
7.5445	33.23	Pk	35.6	-19.3	-95.2	-45.67	-13	-32.67	V
High Channel, 1909.8MHz									
3.8348	40.85	Pk	33.4	-25.2	-95.2	-46.15	-13	-33.15	V
3.8372	38.88	Pk	33.4	-25.3	-95.2	-48.22	-13	-35.22	H
5.7295	38.39	Pk	35	-23.2	-95.2	-45.01	-13	-32.01	H
5.7441	38.74	Pk	34.9	-23.3	-95.2	-44.86	-13	-31.86	V
7.6228	32.66	Pk	35.7	-18.4	-95.2	-45.24	-13	-32.24	V
7.6252	33.14	Pk	35.7	-18.4	-95.2	-44.76	-13	-31.76	H

10.3.2. WCDMA BAND 2

REL 99 MODE

Project #:	14040863
Date:	03/15/2022
Test Engineer:	27661
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.6736	40.77	Pk	33.2	-32.4	-95.2	-53.63	-13	-40.63	V
3.6923	41.03	Pk	33.2	-32.3	-95.2	-53.27	-13	-40.27	H
5.5294	38.38	Pk	34.9	-29.5	-95.2	-51.42	-13	-38.42	V
5.5411	39.04	Pk	34.9	-29.6	-95.2	-50.86	-13	-37.86	H
7.3636	36.3	Pk	35.7	-26.6	-95.2	-49.8	-13	-36.80	V
7.3884	36.56	Pk	35.7	-26.4	-95.2	-49.34	-13	-36.34	H
Mid Channel, 1880MHz									
3.7772	40.99	Pk	33.5	-32.0	-95.2	-52.71	-13	-39.71	V
3.7781	40.67	Pk	33.5	-32.0	-95.2	-53.03	-13	-40.03	H
5.6288	38.00	Pk	35.1	-30.0	-95.2	-52.10	-13	-39.10	V
5.6489	38.76	Pk	35.0	-30.1	-95.2	-51.54	-13	-38.54	H
7.5023	35.31	Pk	35.8	-26.3	-95.2	-50.39	-13	-37.39	V
7.5211	35.98	Pk	35.8	-26.1	-95.2	-49.52	-13	-36.52	H
High Channel, 1907.6MHz									
3.7978	40.96	Pk	33.6	-31.9	-95.2	-52.54	-13	-39.54	H
3.8128	41.85	Pk	33.6	-31.8	-95.2	-51.55	-13	-38.55	V
5.6681	38.64	Pk	35.0	-30.0	-95.2	-51.56	-13	-38.56	V
5.6991	38.87	Pk	34.9	-29.4	-95.2	-50.83	-13	-37.83	H
7.5811	35.65	Pk	35.8	-26.2	-95.2	-49.95	-13	-36.95	V
7.6195	36.45	Pk	35.7	-26.5	-95.2	-49.55	-13	-36.55	H

HSDPA MODE

Project #:	14040863
Date:	03/15/2022
Test Engineer:	27661
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.7144	40.10	Pk	33.3	-32.2	-95.2	-54.00	-13	-41.00	V
3.7252	42.43	Pk	33.4	-32.2	-95.2	-51.57	-13	-38.57	H
5.5322	37.96	Pk	34.9	-29.6	-95.2	-51.94	-13	-38.94	V
5.5345	38.81	Pk	34.8	-29.6	-95.2	-51.19	-13	-38.19	H
7.4081	36.43	Pk	35.7	-26.3	-95.2	-49.37	-13	-36.37	V
7.4222	35.62	Pk	35.8	-26.4	-95.2	-50.18	-13	-37.18	H
Mid Channel, 1880MHz									
3.7308	40.59	Pk	33.4	-32.2	-95.2	-53.41	-13	-40.41	V
3.7430	41.72	Pk	33.5	-32.1	-95.2	-52.08	-13	-39.08	H
5.6569	39.12	Pk	34.9	-30.1	-95.2	-51.28	-13	-38.28	H
5.6644	38.40	Pk	35	-30.0	-95.2	-51.8	-13	-38.80	V
7.5267	35.84	Pk	35.8	-26.1	-95.2	-49.66	-13	-36.66	V
7.5492	36.52	Pk	35.7	-26.2	-95.2	-49.18	-13	-36.18	H
High Channel, 1907.6MHz									
3.8067	40.58	Pk	33.6	-31.8	-95.2	-52.82	-13	-39.82	H
3.8067	39.82	Pk	33.6	-31.8	-95.2	-53.58	-13	-40.58	V
5.7281	38.13	Pk	34.8	-29.0	-95.2	-51.27	-13	-38.27	V
5.7408	38.09	Pk	34.8	-28.7	-95.2	-51.01	-13	-38.01	H
7.6130	36.84	Pk	35.8	-26.4	-95.2	-48.96	-13	-35.96	V
7.6547	36.85	Pk	35.8	-26.6	-95.2	-49.15	-13	-36.15	H

10.3.3. WCDMA BAND 4

REL 99 MODE

Project #:	14040863
Date:	03/16/2022
Test Engineer:	27661
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.4041	41.38	Pk	32.5	-33.0	-95.2	-54.32	-13	-41.32	H
3.4083	41.74	Pk	32.5	-33.0	-95.2	-53.96	-13	-40.96	V
5.1089	39.9	Pk	34.1	-30.2	-95.2	-51.4	-13	-38.4	V
5.1206	39.65	Pk	34.2	-30.1	-95.2	-51.45	-13	-38.45	H
6.8620	36.11	Pk	35.8	-26.6	-95.2	-49.89	-13	-36.89	V
6.8653	36.06	Pk	35.8	-26.6	-95.2	-49.94	-13	-36.94	H
Mid Channel, 1732.6MHz									
3.4833	41.61	Pk	32.9	-32.9	-95.2	-53.59	-13	-40.59	H
3.4894	40.86	Pk	32.9	-32.9	-95.2	-54.34	-13	-41.34	V
5.1778	38.77	Pk	34.2	-29.2	-95.2	-51.43	-13	-38.43	V
5.1975	38.42	Pk	34.2	-29.1	-95.2	-51.68	-13	-38.68	H
6.9427	35.25	Pk	35.8	-26.1	-95.2	-50.25	-13	-37.25	V
6.9459	36.28	Pk	35.7	-26.1	-95.2	-49.32	-13	-36.32	H
High Channel, 1752.61MHz									
3.4631	41.27	Pk	32.8	-33.0	-95.2	-54.13	-13	-41.13	V
3.4805	42.21	Pk	32.9	-32.9	-95.2	-52.99	-13	-39.99	H
5.2373	37.04	Pk	34.2	-28.9	-95.2	-52.86	-13	-39.86	V
5.2594	37.95	Pk	34.2	-29.0	-95.2	-52.05	-13	-39.05	H
7.0303	36.37	Pk	35.6	-26.8	-95.2	-50.03	-13	-37.03	V
7.0388	36.12	Pk	35.7	-26.8	-95.2	-50.18	-13	-37.18	H

HSDPA MODE

Project #:	14040863
Date:	03/16/2022
Test Engineer:	27661
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.4252	41.34	Pk	32.6	-33.0	-95.2	-54.26	-13	-41.26	V
3.4336	41.64	Pk	32.7	-33.0	-95.2	-53.86	-13	-40.86	H
5.0930	39.21	Pk	34.2	-30.4	-95.2	-52.19	-13	-39.19	V
5.1295	39.45	Pk	34.2	-30.1	-95.2	-51.65	-13	-38.65	H
6.8442	36.47	Pk	35.8	-26.8	-95.2	-49.73	-13	-36.73	V
6.8588	37.28	Pk	35.8	-26.7	-95.2	-48.82	-13	-35.82	H
Mid Channel, 1732.6MHz									
3.4505	40.77	Pk	32.7	-33.0	-95.2	-54.73	-13	-41.73	H
3.4528	40.44	Pk	32.7	-33.0	-95.2	-55.06	-13	-42.06	V
5.2008	39.24	Pk	34.2	-29.2	-95.2	-50.96	-13	-37.96	V
5.2045	38.55	Pk	34.2	-29.1	-95.2	-51.55	-13	-38.55	H
6.9155	36.83	Pk	35.8	-26.3	-95.2	-48.87	-13	-35.87	H
6.9201	35.72	Pk	35.8	-26.2	-95.2	-49.88	-13	-36.88	V
High Channel, 1752.61MHz									
3.5175	41.48	Pk	33.1	-32.8	-95.2	-53.42	-13	-40.42	H
3.5273	40.93	Pk	33.1	-32.8	-95.2	-53.97	-13	-40.97	V
5.2280	37.13	Pk	34.2	-29.0	-95.2	-52.87	-13	-39.87	V
5.2411	38.45	Pk	34.2	-28.8	-95.2	-51.35	-13	-38.35	H
6.9745	35.76	Pk	35.8	-26.3	-95.2	-49.94	-13	-36.94	V
7.0003	36.84	Pk	35.7	-26.4	-95.2	-49.06	-13	-36.06	H

10.4. FIELD STRENGTH OF SPURIOUS RADIATION, Antenna 4

10.4.1. GSM 1900

GPRS MODE

Project #:	14040863
Date:	03/11/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.6769	36.75	Pk	33.2	-25.6	-95.2	-50.85	-13	-37.85	V
3.6806	38.80	Pk	33.2	-25.6	-95.2	-48.80	-13	-35.80	H
5.5245	35.84	Pk	34.8	-22.7	-95.2	-47.26	-13	-34.26	H
5.5252	34.63	Pk	34.8	-22.7	-95.2	-48.47	-13	-35.47	V
7.3777	32.40	Pk	35.6	-19.4	-95.2	-46.60	-13	-33.60	V
7.3847	32.88	Pk	35.6	-19.5	-95.2	-46.22	-13	-33.22	H
Mid Channel, 1880MHz									
3.7598	39.34	Pk	33.4	-24.9	-95.2	-47.36	-13	-34.36	H
3.7767	38.27	Pk	33.3	-24.8	-95.2	-48.43	-13	-35.43	V
5.5875	35.88	Pk	34.8	-22	-95.2	-46.52	-13	-33.52	H
5.6306	35.26	Pk	34.9	-22.1	-95.2	-47.14	-13	-34.14	V
7.5127	33.41	Pk	35.6	-19.6	-95.2	-45.79	-13	-32.79	H
7.5248	33.11	Pk	35.6	-19.6	-95.2	-46.09	-13	-33.09	V
High Channel, 1909.8MHz									
3.8194	39.9	Pk	33.3	-25.2	-95.2	-47.20	-13	-34.20	V
3.8302	38.32	Pk	33.4	-25.2	-95.2	-48.68	-13	-35.68	H
5.7295	37.08	Pk	35.0	-23.2	-95.2	-46.32	-13	-33.32	H
5.7375	34.23	Pk	35.0	-23.4	-95.2	-49.37	-13	-36.37	V
7.6284	32.65	Pk	35.7	-18.4	-95.2	-45.25	-13	-32.25	V
7.6425	33.45	Pk	35.7	-18.4	-95.2	-44.45	-13	-31.45	H

EGPRS MODE

Project #:	14040863
Date:	03/10/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.6970	40.04	Pk	33.3	-25.4	-95.2	-47.26	-13	-34.26	V
3.7031	37.69	Pk	33.3	-25.2	-95.2	-49.41	-13	-36.41	H
5.5284	34.86	Pk	34.7	-22.6	-95.2	-48.24	-13	-35.24	V
5.5336	35.22	Pk	34.7	-22.5	-95.2	-47.78	-13	-34.78	H
7.3894	33.95	Pk	35.5	-19.6	-95.2	-45.35	-13	-32.35	H
7.3922	32.85	Pk	35.5	-19.6	-95.2	-46.45	-13	-33.45	V
Mid Channel, 1880MHz									
3.7739	37.58	Pk	33.3	-24.8	-95.2	-49.12	-13	-36.12	V
3.7748	36.57	Pk	33.3	-24.8	-95.2	-50.13	-13	-37.13	H
5.6320	35.72	Pk	34.8	-22.1	-95.2	-46.78	-13	-33.78	V
5.6414	35.48	Pk	34.8	-22.0	-95.2	-46.92	-13	-33.92	H
7.4953	34.05	Pk	35.6	-19.9	-95.2	-45.45	-13	-32.45	H
7.5108	32.52	Pk	35.6	-19.6	-95.2	-46.68	-13	-33.68	V
High Channel, 1909.8MHz									
3.8250	37.76	Pk	33.3	-25.2	-95.2	-49.34	-13	-36.34	V
3.8409	37.47	Pk	33.4	-25.3	-95.2	-49.63	-13	-36.63	H
5.7164	35.03	Pk	35.0	-23.1	-95.2	-48.27	-13	-35.27	V
5.7188	35.11	Pk	34.9	-23.1	-95.2	-48.29	-13	-35.29	H
7.6275	33.54	Pk	35.7	-18.4	-95.2	-44.36	-13	-31.36	V
7.6388	32.85	Pk	35.7	-18.4	-95.2	-45.05	-13	-32.05	H

10.4.2. WCDMA BAND 2

REL 99 MODE

Project #:	14040863
Date:	03/11/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.7069	36.87	Pk	33.4	-25.1	-95.2	-50.03	-13	-37.03	V
3.7139	37.71	Pk	33.4	-25.0	-95.2	-49.09	-13	-36.09	H
5.5795	35.60	Pk	34.8	-22.2	-95.2	-47.00	-13	-34.00	H
5.5828	34.64	Pk	34.8	-22.2	-95.2	-47.96	-13	-34.96	V
7.4217	34.18	Pk	35.5	-19.9	-95.2	-45.42	-13	-32.42	H
7.4316	33.41	Pk	35.6	-20.1	-95.2	-46.29	-13	-33.29	V
Mid Channel, 1880MHz									
3.7444	37.29	Pk	33.4	-25.1	-95.2	-49.61	-13	-36.61	V
3.7523	37.11	Pk	33.4	-25.0	-95.2	-49.69	-13	-36.69	H
5.6292	35.00	Pk	34.9	-22.1	-95.2	-47.40	-13	-34.40	V
5.6348	35.66	Pk	34.8	-22.1	-95.2	-46.84	-13	-33.84	H
7.4981	33.40	Pk	35.7	-19.9	-95.2	-46.00	-13	-33.00	H
7.5127	34.05	Pk	35.6	-19.6	-95.2	-45.15	-13	-32.15	V
High Channel, 1907.6MHz									
3.7922	36.71	Pk	33.3	-25.2	-95.2	-50.39	-13	-37.39	V
3.8020	37.44	Pk	33.3	-25.3	-95.2	-49.76	-13	-36.76	H
5.7291	34.96	Pk	35.0	-23.2	-95.2	-48.44	-13	-35.44	V
5.7352	35.83	Pk	35.0	-23.3	-95.2	-47.67	-13	-34.67	H
7.6486	33.32	Pk	35.7	-18.6	-95.2	-44.78	-13	-31.78	H
7.6552	32.37	Pk	35.7	-18.7	-95.2	-45.83	-13	-32.83	V

HSDPA MODE

Project #:	14040863
Date:	03/14/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.7139	37.70	Pk	33.4	-25.0	-95.2	-49.1	-13	-36.10	V
3.7219	36.81	Pk	33.4	-24.9	-95.2	-49.89	-13	-36.89	H
5.5683	35.26	Pk	34.7	-22.6	-95.2	-47.84	-13	-34.84	V
5.5767	34.65	Pk	34.8	-22.3	-95.2	-48.05	-13	-35.05	H
7.3852	32.25	Pk	35.6	-19.5	-95.2	-46.85	-13	-33.85	V
7.3973	32.97	Pk	35.6	-19.6	-95.2	-46.23	-13	-33.23	H
Mid Channel, 1880MHz									
3.7753	36.35	Pk	33.3	-24.8	-95.2	-50.35	-13	-37.35	V
3.7908	39.71	Pk	33.3	-25.1	-95.2	-47.29	-13	-34.29	H
5.6423	34.70	Pk	34.8	-22.0	-95.2	-47.7	-13	-34.70	V
5.6480	35.08	Pk	34.9	-21.9	-95.2	-47.12	-13	-34.12	H
7.4934	34.21	Pk	35.6	-20	-95.2	-45.39	-13	-32.39	V
7.4958	33.26	Pk	35.6	-19.9	-95.2	-46.24	-13	-33.24	H
High Channel, 1907.6MHz									
3.8044	37.37	Pk	33.3	-25.3	-95.2	-49.83	-13	-36.83	V
3.8133	37.57	Pk	33.3	-25.2	-95.2	-49.53	-13	-36.53	H
5.7042	35.24	Pk	34.8	-23.0	-95.2	-48.16	-13	-35.16	H
5.7159	34.75	Pk	35.0	-23.1	-95.2	-48.55	-13	-35.55	V
7.6167	33.44	Pk	35.7	-18.6	-95.2	-44.66	-13	-31.66	H
7.6289	33.18	Pk	35.7	-18.4	-95.2	-44.72	-13	-31.72	V

10.4.3. WCDMA BAND 4

REL 99 MODE

Project #:	14040863
Date:	03/14/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.4336	38.14	Pk	32.7	-26.1	-95.2	-50.46	-13	-37.46	V
3.4383	37.07	Pk	32.7	-26.1	-95.2	-51.53	-13	-38.53	H
5.1108	35.06	Pk	34.4	-22.7	-95.2	-48.44	-13	-35.44	V
5.1127	36.11	Pk	34.4	-22.8	-95.2	-47.49	-13	-34.49	H
6.8611	34.29	Pk	35.5	-20.9	-95.2	-46.31	-13	-33.31	V
6.8648	34.44	Pk	35.5	-20.9	-95.2	-46.16	-13	-33.16	H
Mid Channel, 1732.6MHz									
3.4458	36.32	Pk	32.7	-26.1	-95.2	-52.28	-13	-39.28	V
3.4636	37.17	Pk	32.6	-26.1	-95.2	-51.53	-13	-38.53	H
5.1863	36.79	Pk	34.4	-24	-95.2	-48.01	-13	-35.01	H
5.1942	35.35	Pk	34.4	-24	-95.2	-49.45	-13	-36.45	V
6.9323	34.16	Pk	35.4	-20.7	-95.2	-46.34	-13	-33.34	V
6.9436	33.13	Pk	35.5	-20.4	-95.2	-46.97	-13	-33.97	H
High Channel, 1752.61MHz									
3.4870	36.09	Pk	32.6	-25.6	-95.2	-52.11	-13	-39.11	V
3.4969	36.67	Pk	32.7	-25.5	-95.2	-51.33	-13	-38.33	H
5.2416	36.20	Pk	34.4	-23.7	-95.2	-48.30	-13	-35.30	V
5.2598	35.26	Pk	34.4	-23.4	-95.2	-48.94	-13	-35.94	H
7.0092	34.14	Pk	35.5	-19.6	-95.2	-45.16	-13	-32.16	H
7.0106	33.20	Pk	35.5	-19.6	-95.2	-46.10	-13	-33.10	V

HSDPA MODE

Project #:	14040863
Date:	03/14/2022
Test Engineer:	30606
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.4041	38.24	Pk	32.8	-25.9	-95.2	-50.06	-13	-37.06	V
3.4050	36.47	Pk	32.8	-25.9	-95.2	-51.83	-13	-38.83	H
5.13140	34.59	Pk	34.4	-23.2	-95.2	-49.41	-13	-36.41	V
5.1403	35.44	Pk	34.3	-23.3	-95.2	-48.76	-13	-35.76	H
6.8227	33.1	Pk	35.4	-20.6	-95.2	-47.3	-13	-34.3	V
6.8255	33.66	Pk	35.5	-20.6	-95.2	-46.64	-13	-33.64	H
Mid Channel, 1732.6MHz									
3.4613	37.27	Pk	32.6	-26.1	-95.2	-51.43	-13	-38.43	V
3.4725	37.26	Pk	32.6	-26.0	-95.2	-51.34	-13	-38.34	H
5.2125	36.63	Pk	34.4	-23.9	-95.2	-48.07	-13	-35.07	H
5.2130	35.89	Pk	34.4	-23.9	-95.2	-48.81	-13	-35.81	V
6.9459	34.13	Pk	35.5	-20.4	-95.2	-45.97	-13	-32.97	V
6.9563	33.22	Pk	35.5	-20.4	-95.2	-46.88	-13	-33.88	H
High Channel, 1752.61MHz									
3.5039	36.97	Pk	32.8	-25.5	-95.2	-50.93	-13	-37.93	V
3.5213	36.41	Pk	32.9	-25.4	-95.2	-51.29	-13	-38.29	H
5.2706	35.43	Pk	34.4	-23.4	-95.2	-48.77	-13	-35.77	H
5.2720	34.86	Pk	34.4	-23.4	-95.2	-49.34	-13	-36.34	V
7.0116	33.49	Pk	35.5	-19.6	-95.2	-45.81	-13	-32.81	H
7.0130	34.05	Pk	35.5	-19.6	-95.2	-45.25	-13	-32.25	V

11. SETUP PHOTOS

Please refer to 14040863-EP1V1 for setup photos.

END OF REPORT