TEST REPORT

Report Number: 14040868-E7V2

Applicant	:	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.
Model	:	A2632
Brand	:	APPLE
FCC ID	:	BCG-E8139A
IC	:	579C-E8139A
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:
AUGUST 10, 2022

Prepared by:
UL LLC
47173 Benicia Street
Fremont, CA 94538, U.S.A.
TEL: (510) 319-4000
FAX: (510) 661-0888

ACCREDITED
CERT #0751.05

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	7/29/2022	Initial Review	Eric Ting
V2	8/10/2022	Removed FCC Part 90	Eric Ting

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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	A2632
Brand	APPLE
FCC ID	BCG-E8139A
IC	579C-E8139A
EUT Description	SMARTPHONE
Serial Number	Conducted: C7H205400AZ1LYT2G, Radiated: KFJ2592MFD & KCF16NH2M0
Sample Receipt Date	APRIL 19, 2022
Date Tested	APRIL 21, 2022 to JULY 05, 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

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.

The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise.

This document may not be altered or revised in any way unless done so by UL 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.

Approved & Released By:	Reviewed By:	Prepared By:
		
Thu Chan Staff Engineer UL LLC	Eric Ting Test Engineer UL LLC	Tony Li Test 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, 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
☒	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	550739
☒	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA	US0104	22541	550739
☐	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 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

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

ERP/EIRP = PMeas + GT − 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 (Ant 1)								
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	33.50	-5.70	11.5	27.80	0.603	243.63	244KGXW
	EGPRS	28.00			22.30	0.170	246.98	247KG7W
Part 22 850MHz (Ant 1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.2-848.8	GPRS	33.50	-5.70	7.0	25.65	0.367	243.63	244KGXW
	EGPRS	28.00			20.15	0.104	246.98	247KG7W
Part 24 / RSS 133 1900MHz (Ant 3)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1850.2-1909.8	GPRS	31.50	-1.00	2.0	30.50	1.122	242.93	243KGXW
	EGPRS	26.50			25.50	0.355	250.69	251KG7W

WCDMA MODE

RSS 132 Band 5 (Ant 1)								
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	-5.70	11.5	20.00	0.100	4149	4M15F9W
	HSDPA	24.74			19.04	0.080	4137	4M14F9W
Part 22 Band 5 (Ant 1)								
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	-5.70	7.0	17.85	0.061	4149	4M15F9W
	HSDPA	24.74			16.89	0.049	4137	4M14F9W
Part 24 / RSS 133 Band 2 (Ant 3)								
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	25.20	-1.00	2.0	24.20	0.263	4143	4M14F9W
	HSDPA	24.20			23.20	0.209	4151	4M15F9W
Part 27 / RSS 139 Band 4 (Ant 3)								
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	25.20	-1.20	1.0	24.00	0.251	4154	4M15F9W
	HSDPA	24.20			23.00	0.200	4151	4M15F9W

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	-5.7	-6.1		
GSM1900 and WCDMA 2 1850 – 1910 MHz	-2.1	-1.1	-1.0	-2.4
WCDMA 4 1710 – 1755 MHz	-3.4	-0.7	-1.2	-1.7

6.5. WORST-CASE CONFIGURATION AND MODE

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

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

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

The worst-case scenario for all measurements as followed:
- GSM GPRS
- GSM EGPRS
- WCDMA REL 99
- WCDMA HSDPA

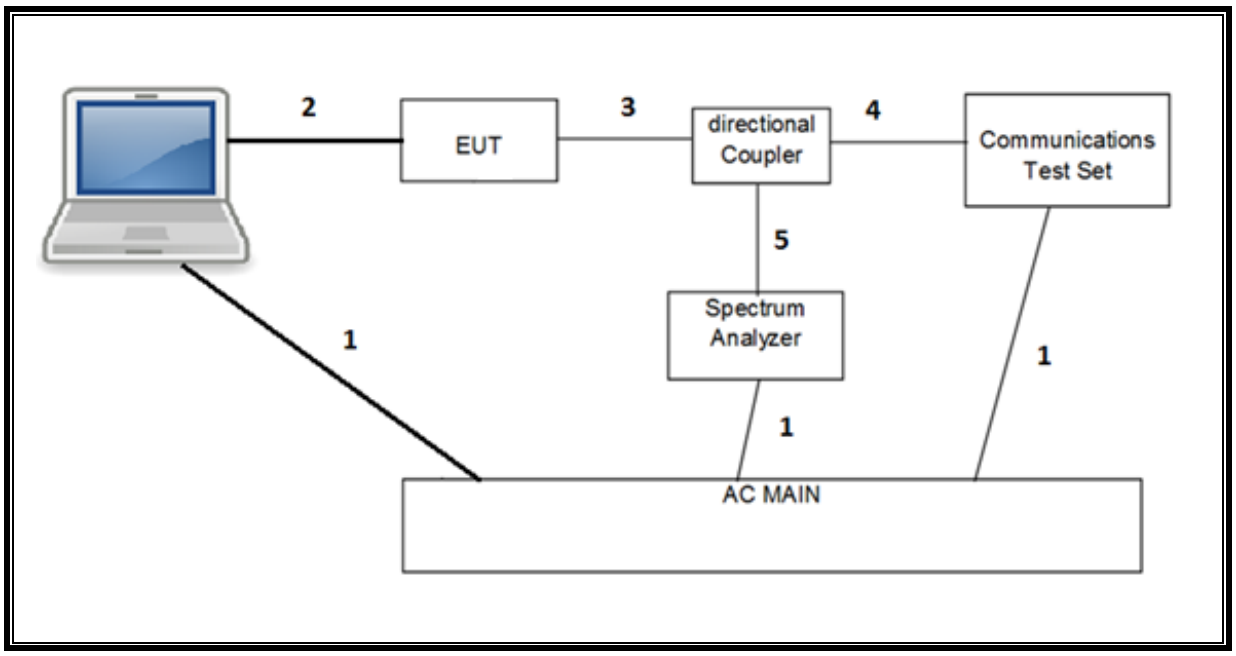
Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 18GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

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.

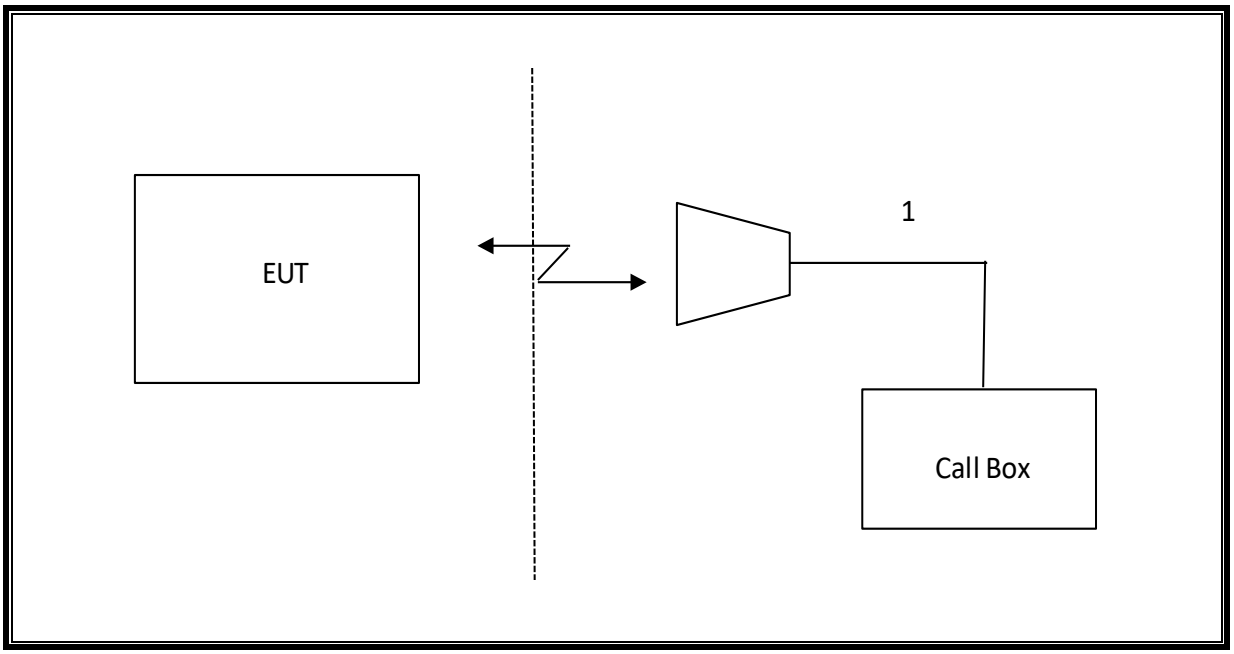
6.6. DESCRIPTION OF TEST SETUP

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:

1. * Testing is completed before equipment expiration date.
2. ** 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:	38602	Test Date:	4/22/2022

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)	
					ANT 1	ANT 2
GPRS (GMSK)	CS1	1	128	824.2	33.20	32.22
			190	836.6	33.49	**32.50**
			251	848.8	**33.50**	32.45
		2	128	824.2	32.20	31.21
			190	836.6	32.50	31.50
			251	848.8	32.49	31.45
EGPRS (8PSK)	MCS5	1	128	824.2	27.72	26.80
			190	836.6	**28.00**	25.82
			251	848.8	27.91	**27.00**
		2	128	824.2	26.72	25.66
			190	836.6	27.00	26.00
			251	848.8	26.90	25.50

8.1.2. GSM 1900

Test Engineer ID:	38602	Test Date:	4/22/2022

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	31.73	29.21	**31.50**	28.76
			661	1880	31.98	29.46	31.34	28.54
			810	1909.8	**32.00**	**29.50**	31.47	**29.00**
		2	512	1850.2	30.71	28.17	30.14	27.84
			661	1880	31.00	28.44	30.44	28.00
			810	1909.8	31.00	28.50	30.50	27.87
EGPRS (8PSK)	MCS5	1	512	1850.2	26.89	24.31	25.98	23.93
			661	1880	**27.00**	24.36	25.78	23.85
			810	1909.8	**27.00**	**24.50**	**26.50**	**24.00**
		2	512	1849.33	25.90	22.84	25.50	22.86
			661	1879.13	26.00	23.50	25.27	23.00
			810	1908.93	25.99	22.72	25.08	22.97

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 ≥ RBW ≥ 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
	βc/βd	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} (Note1, 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 Δ_{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 Δ_{NACK} = 30/15 with $\beta_{hs} = 30/15 * \beta_c$, and Δ_{CQI} = 24/15 with $\beta_{hs} = 24/15 * \beta_c$.

Note 3: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, 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 β_c = 11/15 and β_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} (Note1)	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	209/225	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	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 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 Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c.

Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_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 β_c = 10/15 and β_d = 15/15.

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

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

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

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

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

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

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

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

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

HSPA+ REL 7

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

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

Sub-test	β_c (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	$\beta_{ed}1$: 30/15 $\beta_{ed}2$: 30/15	$\beta_{ed}3$: 24/15 $\beta_{ed}4$: 24/15	3.5	2.5	14	105	105

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

RESULT

8.2.1. WCDMA BAND 5

Test Engineer ID:	38602	Test Date:	4/28/2022

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	25.64	24.62
			4233	846.6	N/A	25.63	24.61
	HSDPA	Subtest 1	4132	826.4	0	**24.74**	23.71
			4183	836.6	0	24.66	23.63
			4233	846.6	0	24.64	23.63
		Subtest 2	4132	826.4	0	24.72	23.69
			4183	836.6	0	24.66	23.62
			4233	846.6	0	24.64	23.61
		Subtest 3	4132	826.4	0.5	24.21	23.22
			4183	836.6	0.5	24.16	23.15
			4233	846.6	0.5	24.12	23.11
		Subtest 4	4132	826.4	0.5	24.20	23.18
			4183	836.6	0.5	24.14	23.10
			4233	846.6	0.5	24.11	23.10
	HSPA (HSDPA & HSUPA)	Subtest 1	4132	826.4	0	24.70	23.65
			4183	836.6	0	24.63	23.61
			4233	846.6	0	24.61	23.63
		Subtest 2	4132	826.4	2	22.70	21.68
			4183	836.6	2	22.63	21.61
			4233	846.6	2	22.64	21.62
		Subtest 3	4132	826.4	1	23.68	22.65
			4183	836.6	1	23.76	22.61
			4233	846.6	1	23.63	22.61
		Subtest 4	4132	826.4	2	22.70	21.68
			4183	836.6	2	22.66	21.64
			4233	846.6	2	22.62	21.61
		Subtest 5	4132	826.4	0	24.30	23.26
			4183	836.6	0	24.24	23.20
			4233	846.6	0	24.23	23.21
	DC-HSDPA	Subtest 1	4132	826.4	0	24.71	23.67
			4183	836.6	0	24.66	23.60
			4233	846.6	0	24.62	23.61
		Subtest 2	4132	826.4	0	24.73	23.71
			4183	836.6	0	24.67	23.60
			4233	846.6	0	24.63	23.59
		Subtest 3	4132	826.4	0.5	24.21	23.19
			4183	836.6	0.5	24.14	23.11
			4233	846.6	0.5	24.10	23.09
		Subtest 4	4132	826.4	0.5	24.18	23.16
			4183	836.6	0.5	24.15	23.11
			4233	846.6	0.5	24.11	23.10

8.2.2. WCDMA BAND 2

Test Engineer ID:	38602	Test Date:	4/28/2022

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	**25.70**	**23.40**	**25.20**	**22.60**
			9400	1880.0	N/A	25.61	23.30	25.14	22.44
			9538	1907.6	N/A	25.56	23.26	25.14	22.57
	HSDPA	Subtest 1	9262	1852.4	0	24.70	**22.42**	24.16	**21.61**
			9400	1880.0	0	24.60	22.32	24.14	21.45
			9538	1907.6	0	24.59	22.30	24.14	21.57
		Subtest 2	9262	1852.4	0	24.70	22.41	**24.20**	21.58
			9400	1880.0	0	24.60	22.33	24.13	21.45
			9538	1907.6	0	24.60	22.31	24.13	21.58
		Subtest 3	9262	1852.4	0.5	24.19	21.91	23.69	21.09
			9400	1880.0	0.5	24.11	21.81	23.65	20.96
			9538	1907.6	0.5	24.10	21.76	23.63	21.07
		Subtest 4	9262	1852.4	0.5	24.19	21.90	23.68	21.05
			9400	1880.0	0.5	24.11	21.82	23.63	20.96
			9538	1907.6	0.5	24.07	21.81	23.62	21.07
	HSPA (HSDPA & HSUPA)	Subtest 1	9262	1852.4	0	24.70	22.41	**24.20**	**21.61**
			9400	1880.0	0	24.63	22.32	24.13	21.48
			9538	1907.6	0	24.59	22.32	24.16	21.57
		Subtest 2	9262	1852.4	2	22.68	20.43	22.21	19.58
			9400	1880.0	2	22.61	20.32	22.14	19.47
			9538	1907.6	2	22.59	20.34	22.15	19.57
		Subtest 3	9262	1852.4	1	23.69	21.38	23.19	20.60
			9400	1880.0	1	23.59	21.31	23.14	20.51
			9538	1907.6	1	23.61	21.30	23.16	20.61
		Subtest 4	9262	1852.4	2	22.68	20.40	22.22	19.59
			9400	1880.0	2	22.62	20.30	22.17	19.49
			9538	1907.6	2	22.58	20.33	22.13	19.60
		Subtest 5	9262	1852.4	0	24.29	22.01	23.77	21.18
			9400	1880.0	0	24.23	21.92	23.74	21.06
			9538	1907.6	0	24.20	21.89	23.74	21.19
	DC-HSDPA	Subtest 1	9262	1852.4	0	**24.71**	22.40	24.19	21.57
			9400	1880.0	0	24.62	22.35	24.15	21.45
			9538	1907.6	0	24.59	22.31	24.13	21.57
		Subtest 2	9262	1852.4	0	24.70	**22.42**	24.19	21.59
			9400	1880.0	0	24.64	22.33	24.15	21.46
			9538	1907.6	0	24.58	22.30	24.13	21.57
		Subtest 3	9262	1852.4	0.5	24.23	21.92	23.68	21.09
			9400	1880.0	0.5	24.14	21.83	23.64	20.94
			9538	1907.6	0.5	24.09	21.78	23.62	21.08
		Subtest 4	9262	1852.4	0.5	24.20	21.92	23.66	21.08
			9400	1880.0	0.5	24.13	21.80	23.64	20.97
			9538	1907.6	0.5	24.11	21.82	23.64	21.06

8.2.3. WCDMA BAND 4

Test Engineer ID:	38602	Test Date:	4/28/2022

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	**25.70**	**23.40**	**25.20**	**22.60**
			1413	1732.6	N/A	25.65	23.34	25.13	22.48
			1513	1752.6	N/A	25.65	23.36	25.13	22.56
	HSDPA	Subtest 1	1312	1712.4	0	**24.70**	**22.43**	24.19	21.63
			1413	1732.6	0	24.64	22.35	24.12	21.49
			1513	1752.6	0	24.66	22.36	24.14	21.56
		Subtest 2	1312	1712.4	0	24.68	22.39	**24.20**	**21.64**
			1413	1732.6	0	24.63	22.33	24.13	21.48
			1513	1752.6	0	24.67	22.35	24.14	21.57
		Subtest 3	1312	1712.4	0.5	24.19	21.89	23.70	21.09
			1413	1732.6	0.5	24.11	21.83	23.63	21.00
			1513	1752.6	0.5	24.14	21.84	23.63	21.07
		Subtest 4	1312	1712.4	0.5	24.21	21.87	23.67	21.11
			1413	1732.6	0.5	24.14	21.82	23.61	20.98
			1513	1752.6	0.5	24.15	21.86	23.62	21.07
	HSPA (HSDPA & HSUPA)	Subtest 1	1312	1712.4	0	**24.70**	22.36	24.16	21.61
			1413	1732.6	0	24.63	22.33	24.12	21.50
			1513	1752.6	0	24.66	22.37	24.12	21.58
		Subtest 2	1312	1712.4	2	22.68	20.37	22.18	19.61
			1413	1732.6	2	22.63	20.37	22.11	19.53
			1513	1752.6	2	22.65	20.38	22.12	19.57
		Subtest 3	1312	1712.4	1	23.67	21.35	23.20	20.62
			1413	1732.6	1	23.65	21.34	23.11	20.52
			1513	1752.6	1	23.64	21.37	23.13	20.61
		Subtest 4	1312	1712.4	2	22.69	20.40	22.15	19.59
			1413	1732.6	2	22.64	20.35	22.13	19.52
			1513	1752.6	2	22.66	20.38	22.09	19.59
		Subtest 5	1312	1712.4	0	24.28	21.94	23.78	21.19
			1413	1732.6	0	24.20	21.91	23.71	21.07
			1513	1752.6	0	24.23	21.97	23.71	21.17
	DC-HSDPA	Subtest 1	1312	1712.4	0	24.68	22.41	**24.20**	21.61
			1413	1732.6	0	24.66	22.36	24.13	21.52
			1513	1752.6	0	24.66	22.38	24.12	21.58
		Subtest 2	1312	1712.4	0	24.69	22.42	**24.20**	**21.64**
			1413	1732.6	0	24.65	22.34	24.11	21.50
			1513	1752.6	0	24.65	22.38	24.14	21.57
		Subtest 3	1312	1712.4	0.5	24.22	21.90	23.68	21.13
			1413	1732.6	0.5	24.14	21.83	23.60	21.01
			1513	1752.6	0.5	24.16	21.91	23.63	21.09
		Subtest 4	1312	1712.4	0.5	24.20	21.92	23.71	21.10
			1413	1732.6	0.5	24.14	21.85	23.62	21.01
			1513	1752.6	0.5	24.14	21.90	23.63	21.06

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.

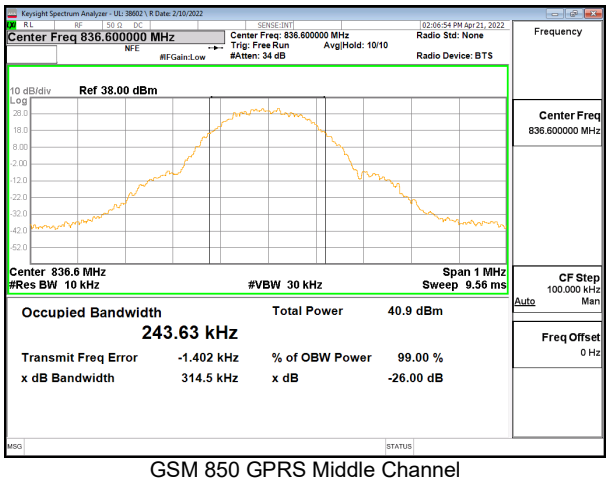
GSM

Band	Modulation	Channel	f(MHz)	99% BW (KHz)	-26dB BW (KHz)
850	GPRS	190	836.6	243.63	314.5
	EGPRS			246.98	311.3
1900	GPRS	661	1880.0	242.93	311.3
	EGPRS			250.69	318.6

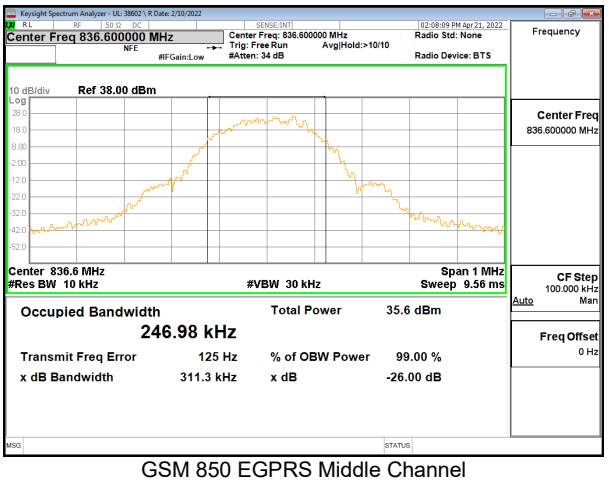
WCDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	REL 99	4408	836.6	4.1493	4.702
	HSDPA			4.1375	4.697
BAND 2	REL 99	9800	1880.0	4.1437	4.691
	HSDPA			4.1510	4.691
BAND 4	REL 99	1638	1732.6	4.1543	4.704
	HSDPA			4.1512	4.712

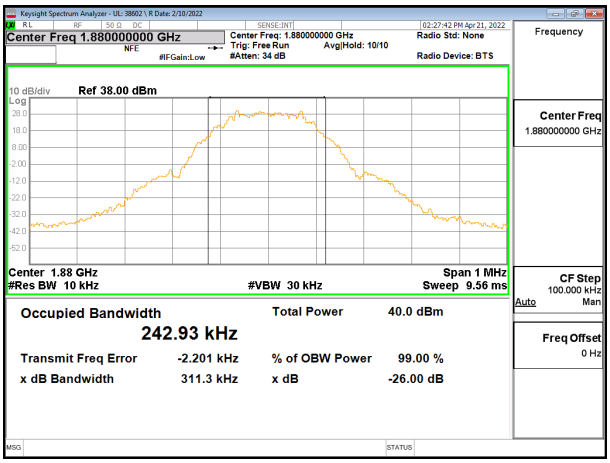
9.1.1. GSM



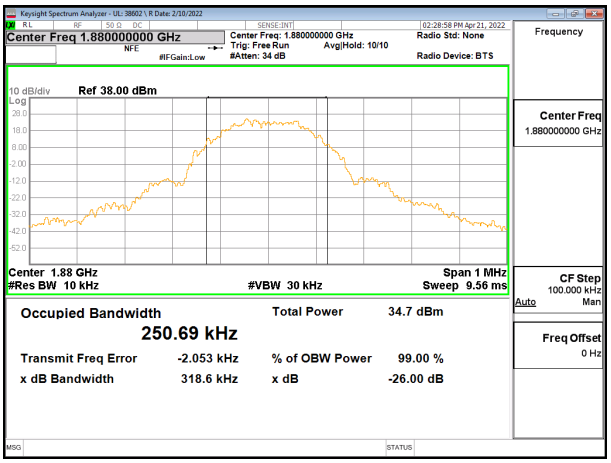
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel

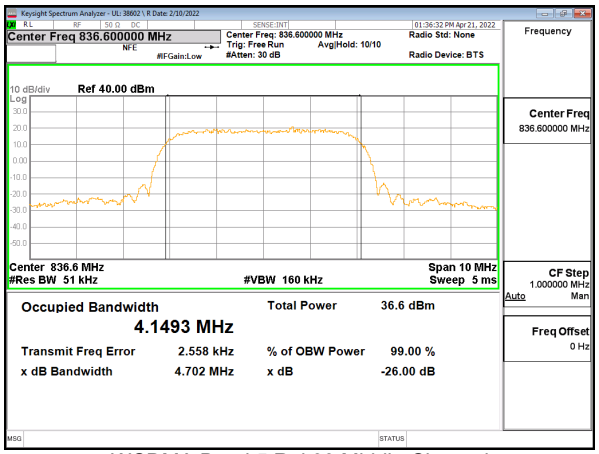


GSM 1900 GPRS Middle Channel

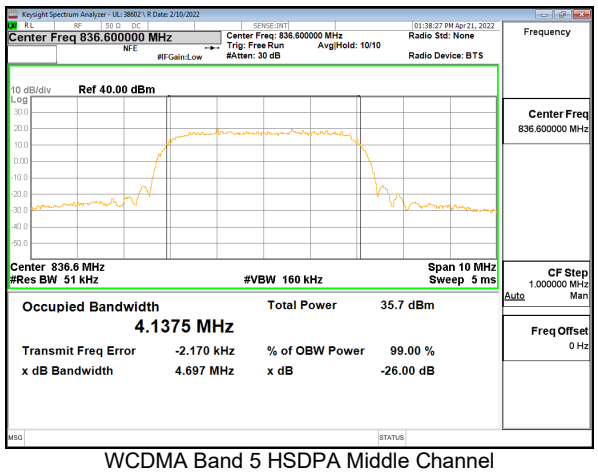


GSM 1900 EGPRS Middle Channel

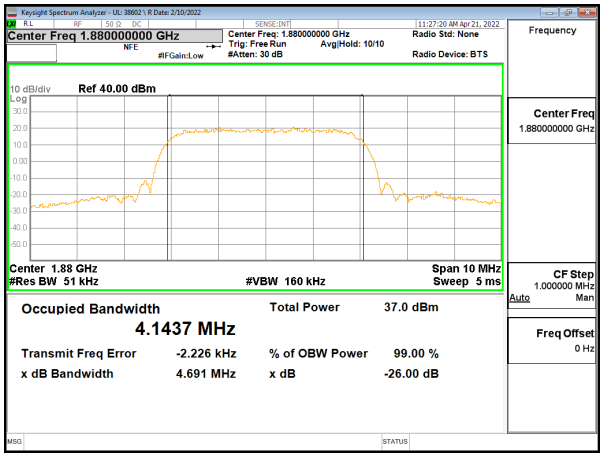
9.1.2. WCDMA



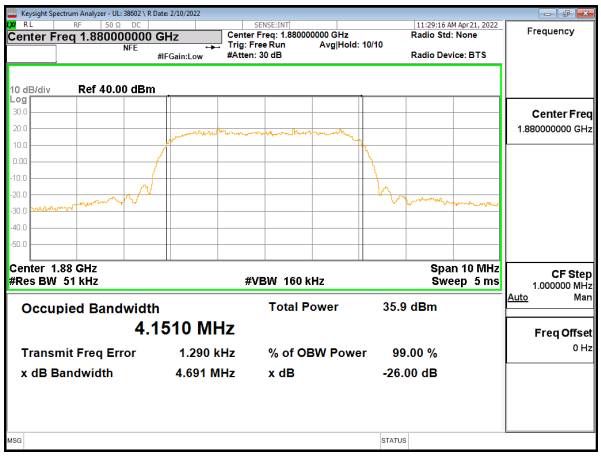
WCDMA Band 5 Rel 99 Middle Channel



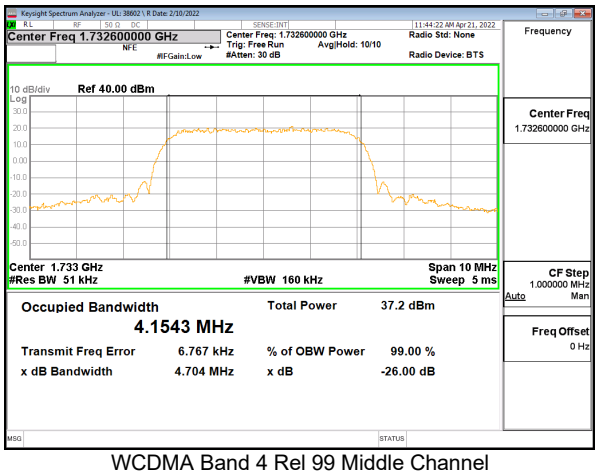
WCDMA Band 5 HSDPA Middle Channel



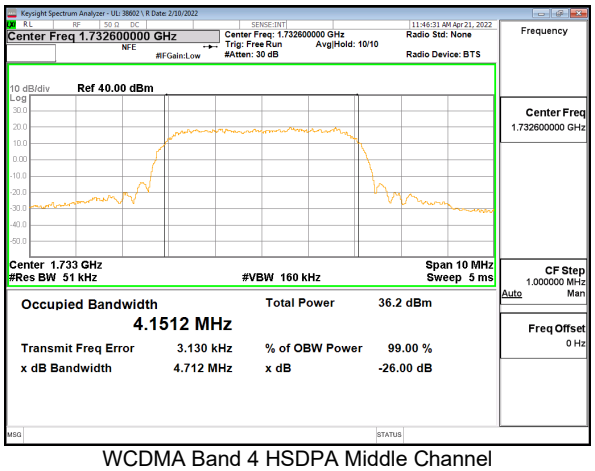
WCDMA Band 2 Rel 99 Middle Channel



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.

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 log10p (watts).

(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least43 + 10 log10 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 log10p(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 log10p (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,Footnote2 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 least43 + 10 log10 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 log10 p (watts) dB.

TEST PROCEDURE

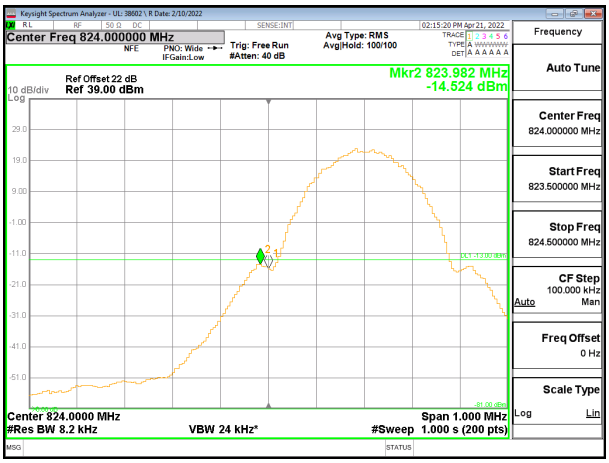
The transmitter output was connected to a R&S CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer. For each band edge measurement:

- 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.

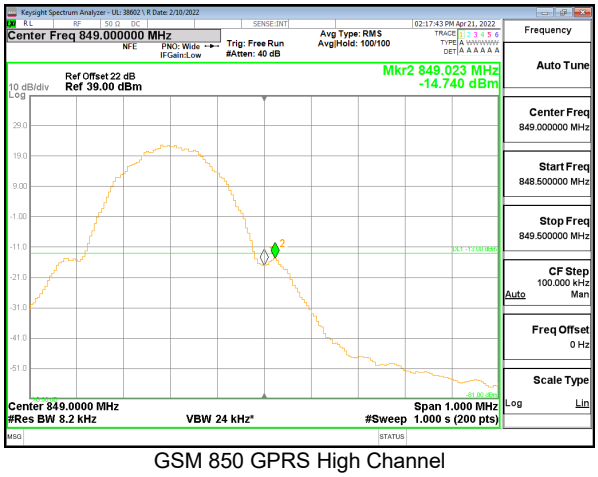
RESULTS

9.2.1. GSM

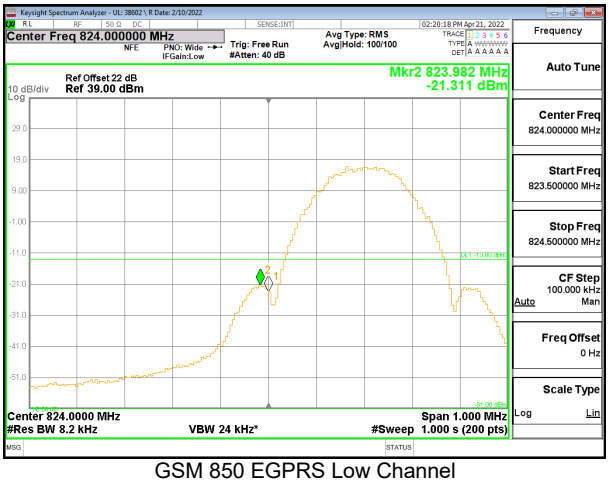
GSM 850



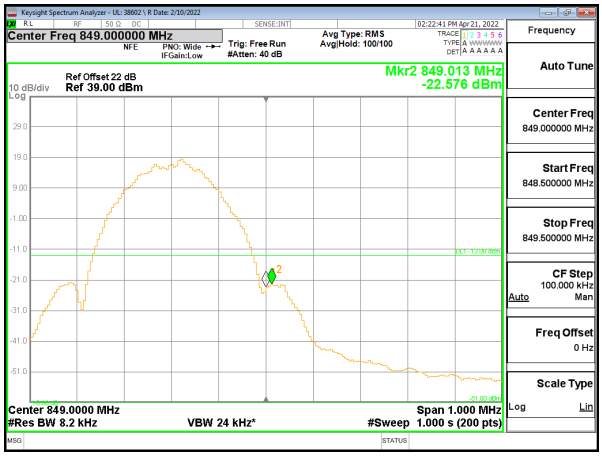
GSM 850 GPRS Low Channel



GSM 850 GPRS High Channel

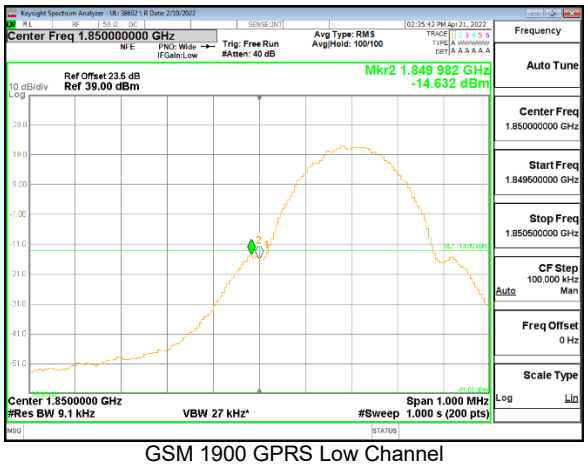


GSM 850 EGPRS Low Channel

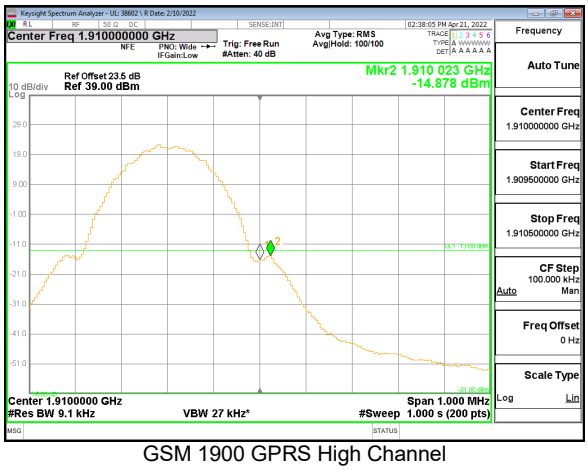


GSM 850 EGPRS High Channel

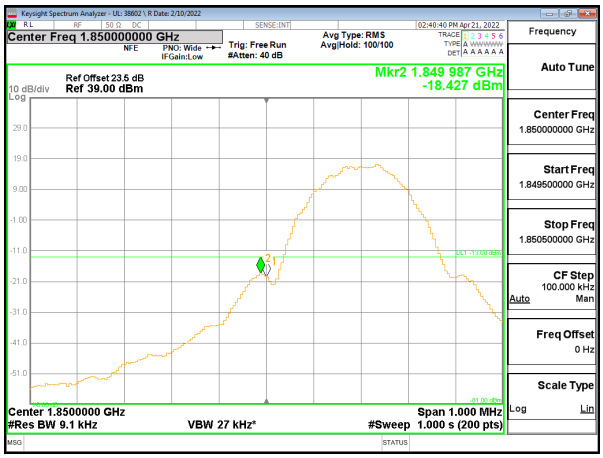
GSM 1900



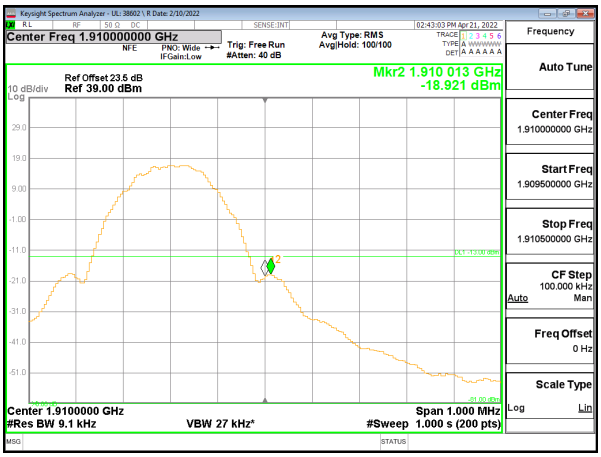
GSM 1900 GPRS Low Channel



GSM 1900 GPRS High Channel



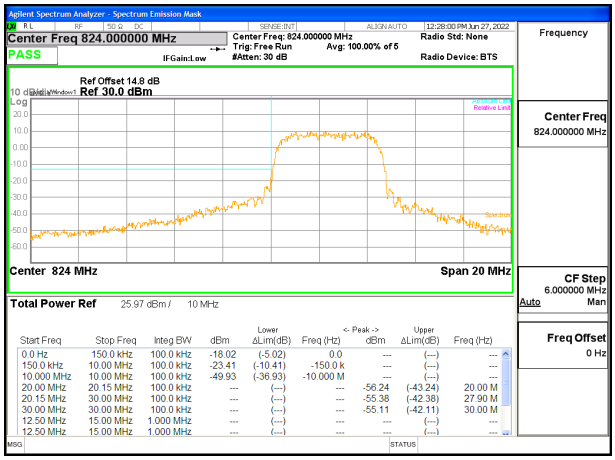
GSM 1900 EGPRS Low Channel



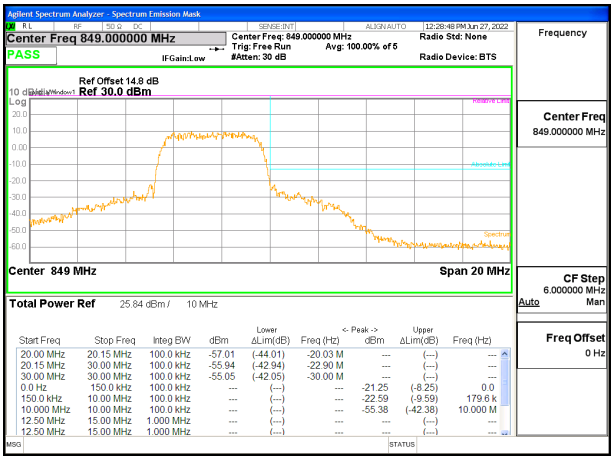
GSM 1900 EGPRS High Channel

9.2.2. WCDMA

WCDMA BAND 5



WCDMA Band 5 Rel 99 Low Channel



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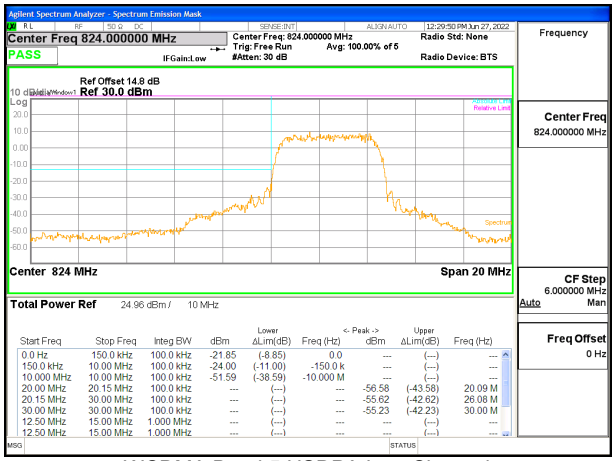
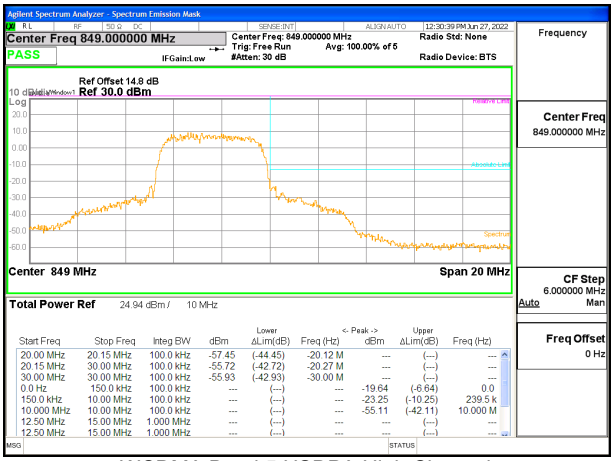
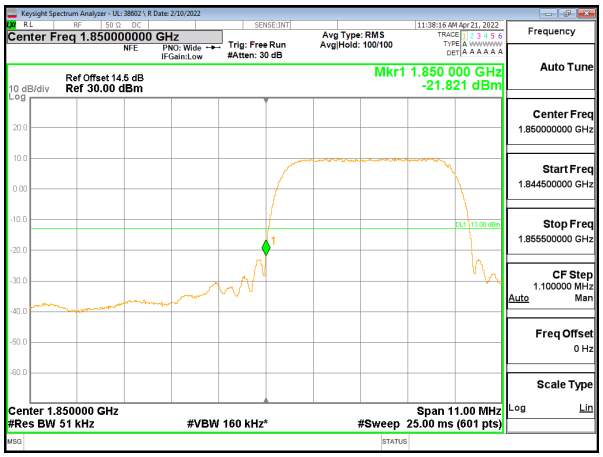


WCDMA Band 5 HSDPA Low Channel



WCDMA Band 5 HSDPA High Channel

WCDMA BAND 2



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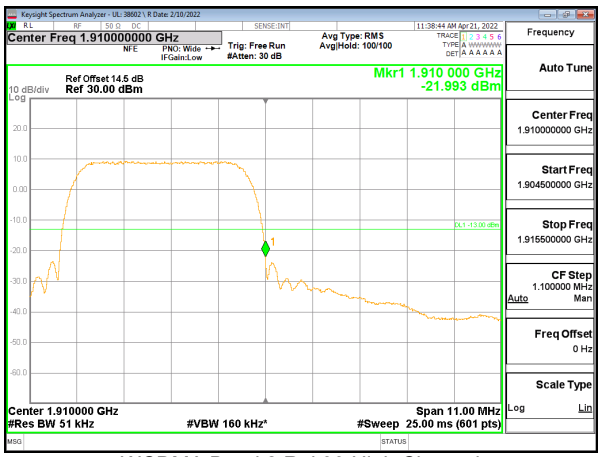
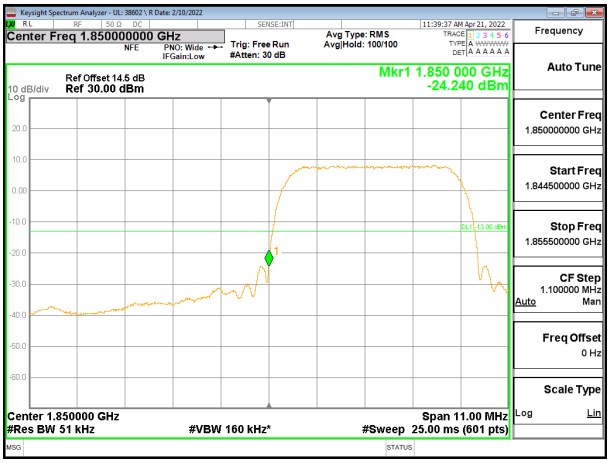
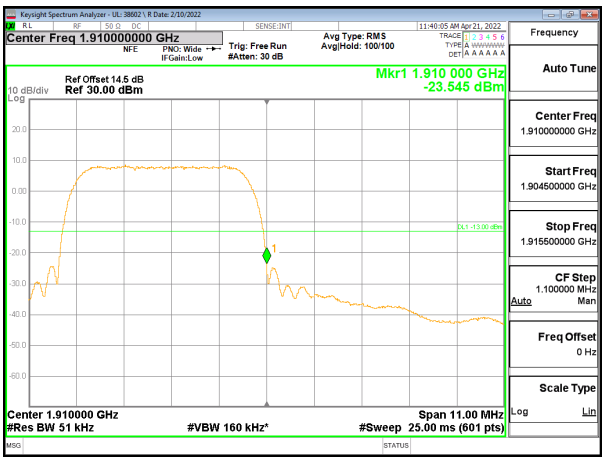


WCDMA Band 2 Rel 99 High Channel

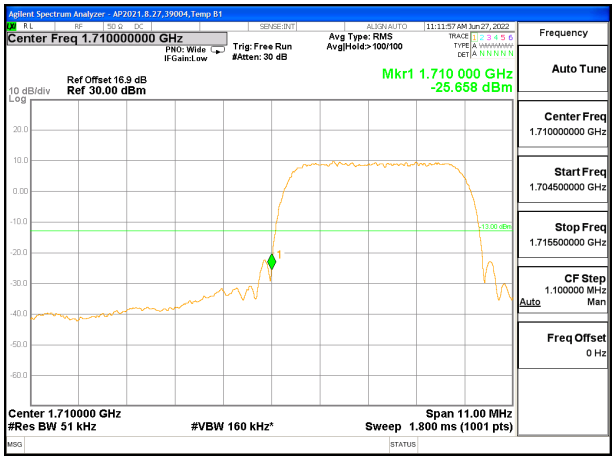


WCDMA Band 2 HSDPA Low Channel

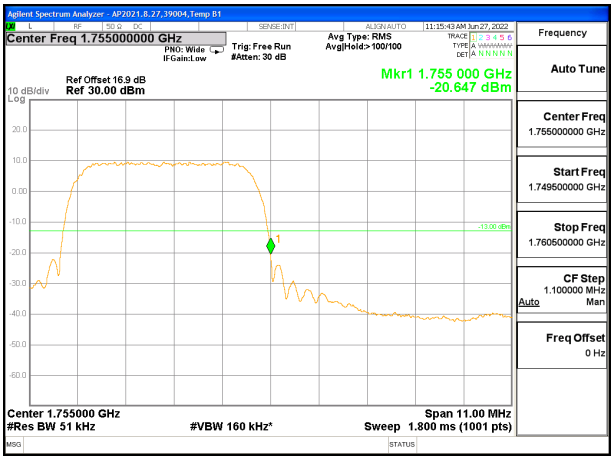


WCDMA Band 2 HSDPA High Channel

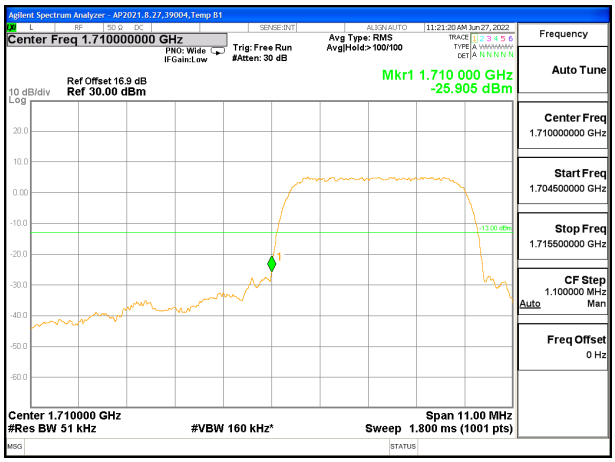
WCDMA BAND 4



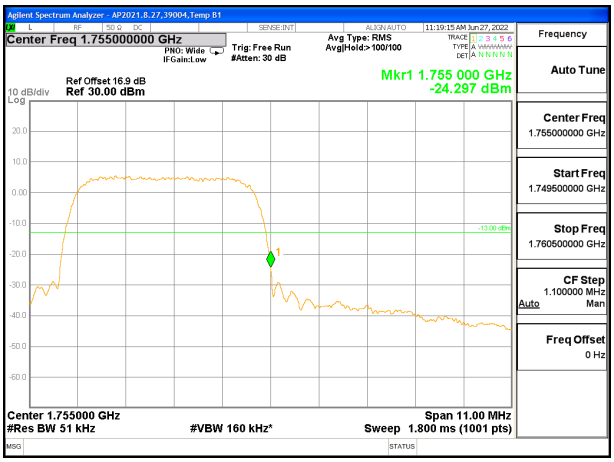
WCDMA Band 4 Rel 99 Low Channel



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, and §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.

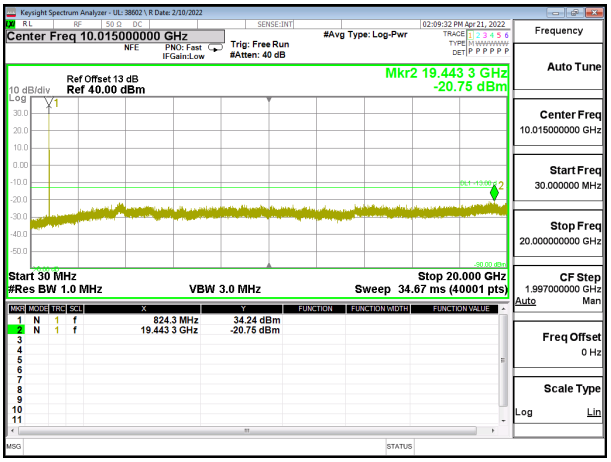
For each out of band emissions measurement:

- 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)

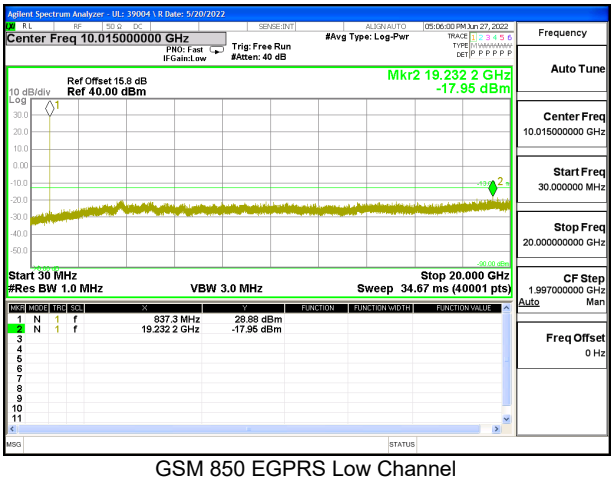
RESULTS

9.3.1. GSM

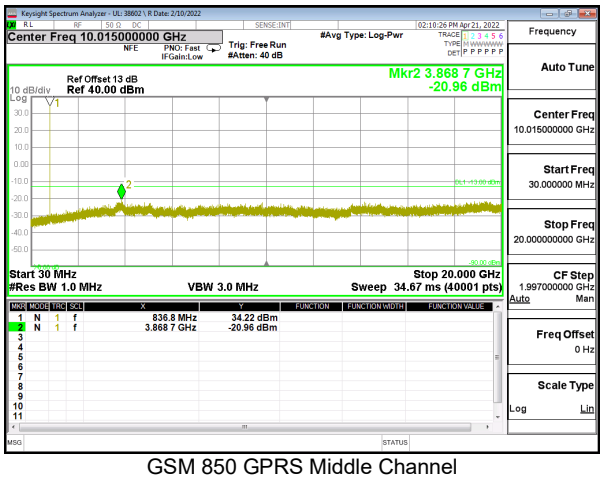
GSM 850



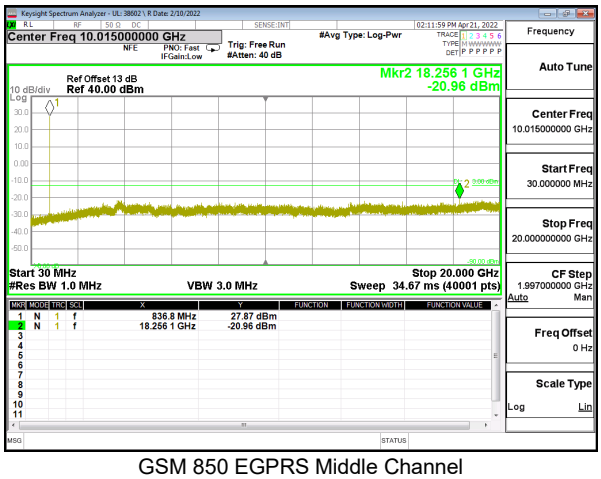
GSM 850 GPRS Low Channel



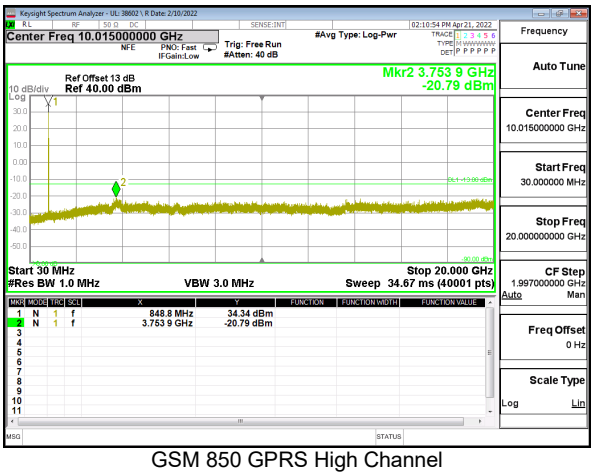
GSM 850 EGPRS Low Channel



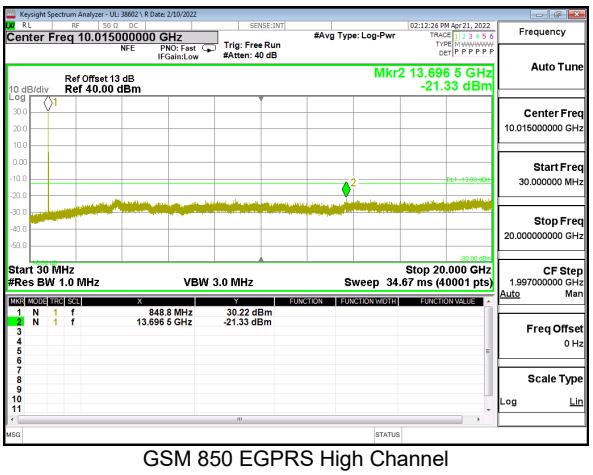
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel

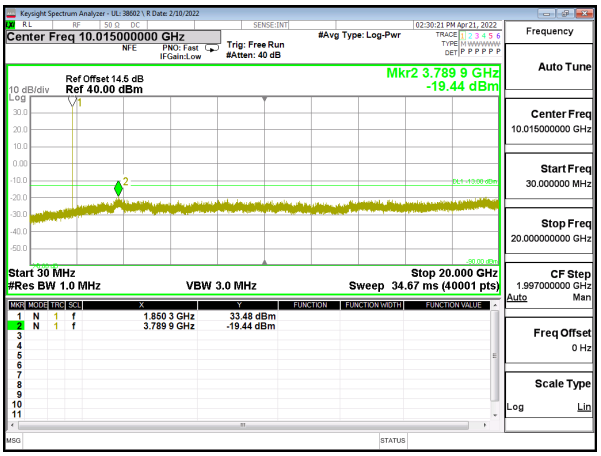


GSM 850 GPRS High Channel

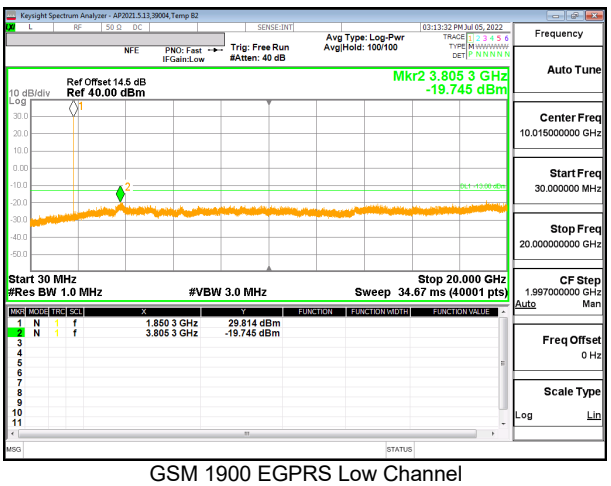


GSM 850 EGPRS High Channel

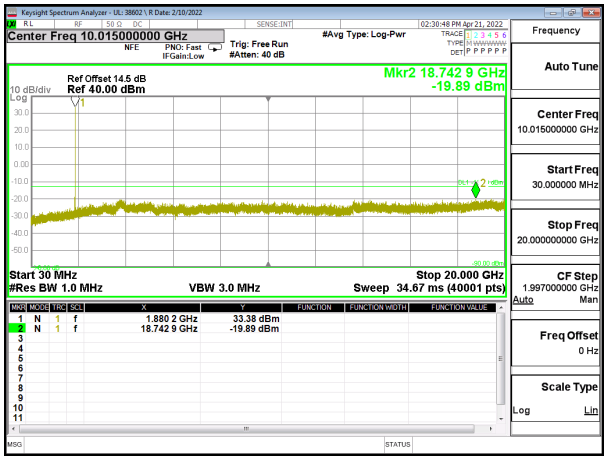
GSM 1900



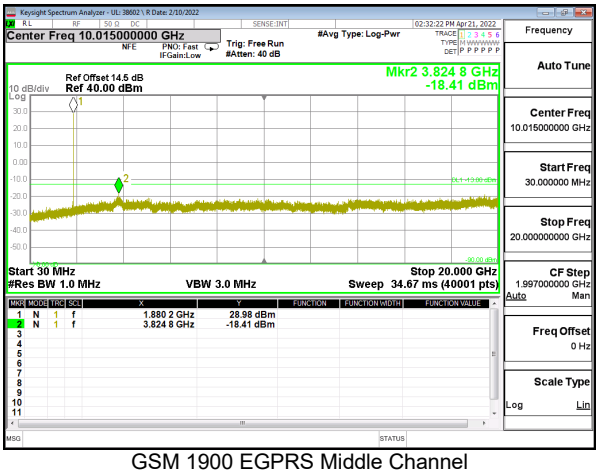
GSM 1900 GPRS Low Channel



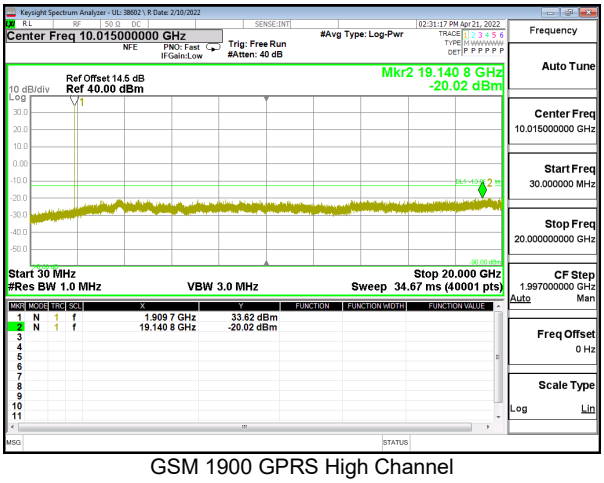
GSM 1900 EGPRS Low Channel



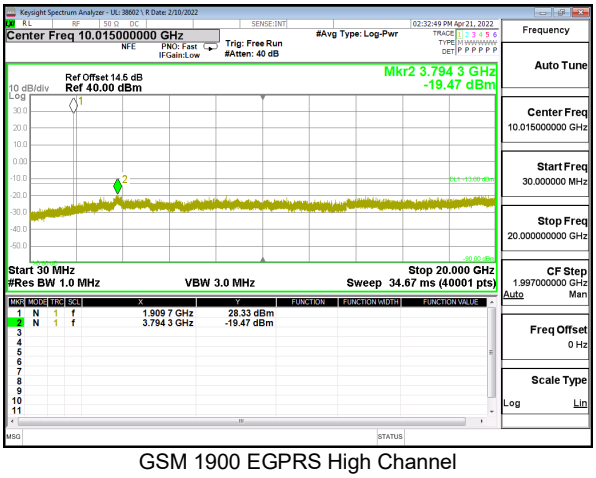
GSM 1900 GPRS Middle Channel



GSM 1900 EGPRS Middle Channel



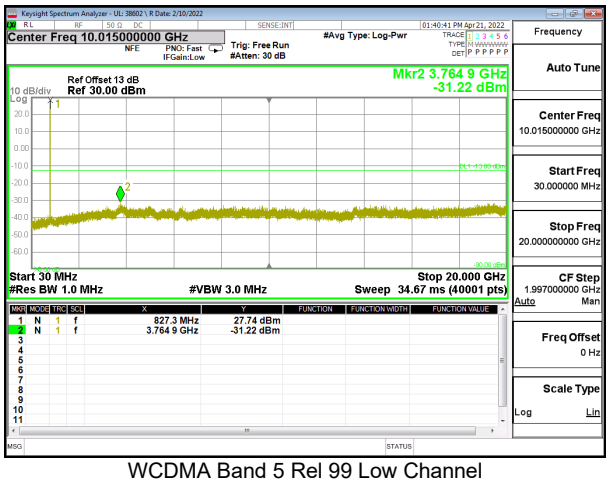
GSM 1900 GPRS High Channel



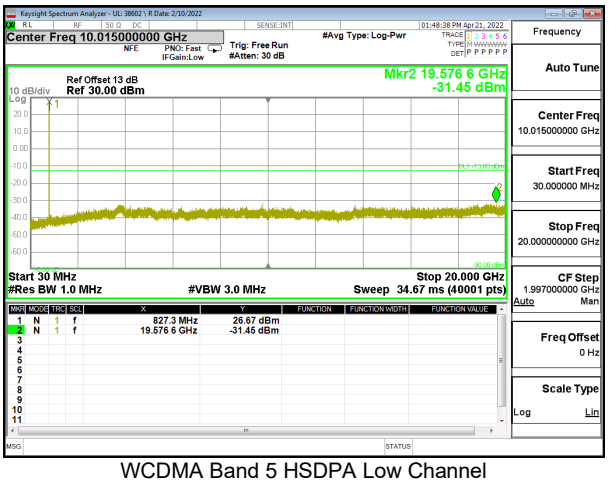
GSM 1900 EGPRS High Channel

9.3.2. WCDMA

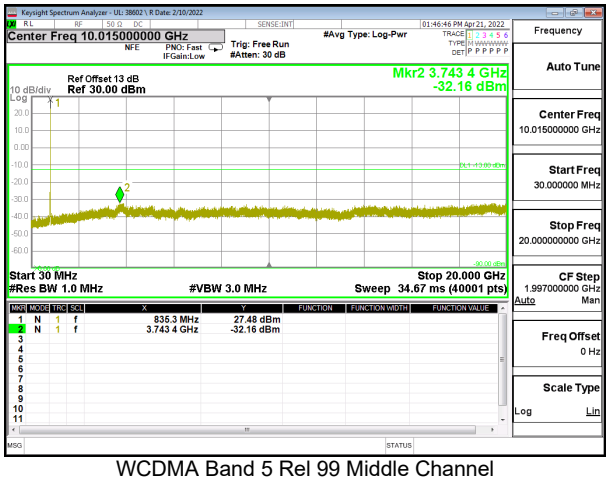
WCDMA BAND 5



WCDMA Band 5 Rel 99 Low Channel



WCDMA Band 5 HSDPA Low Channel



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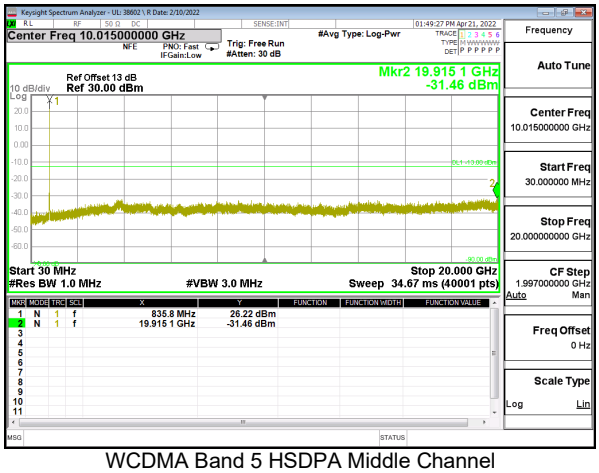

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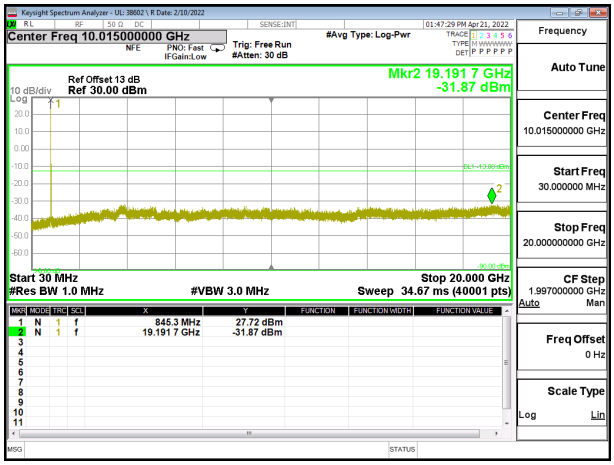
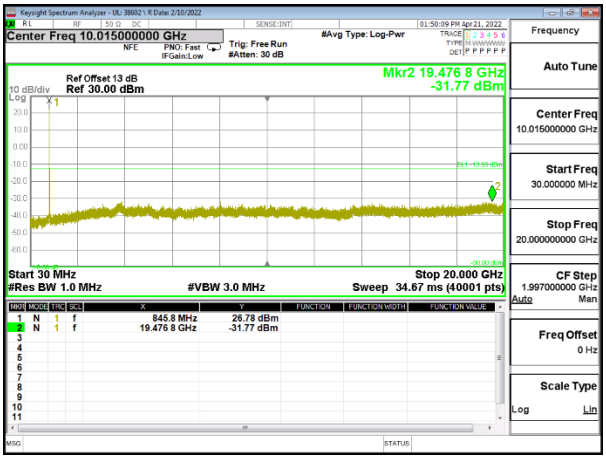
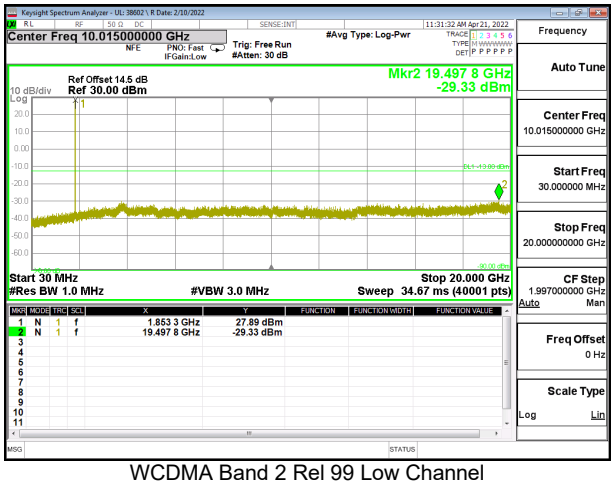


WCDMA Band 5 Rel 99 High Channel



WCDMA Band 5 HSDPA High Channel

WCDMA BAND 2



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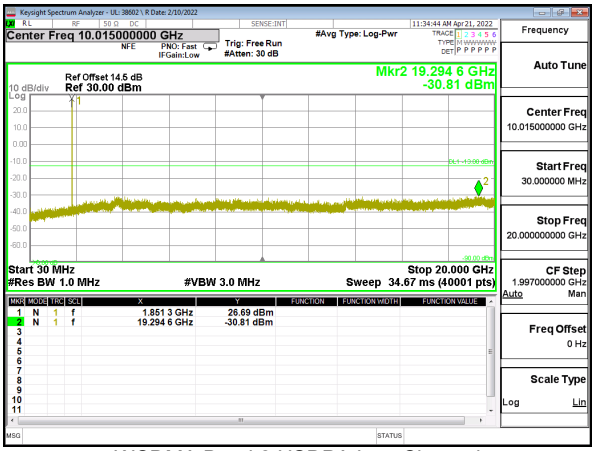
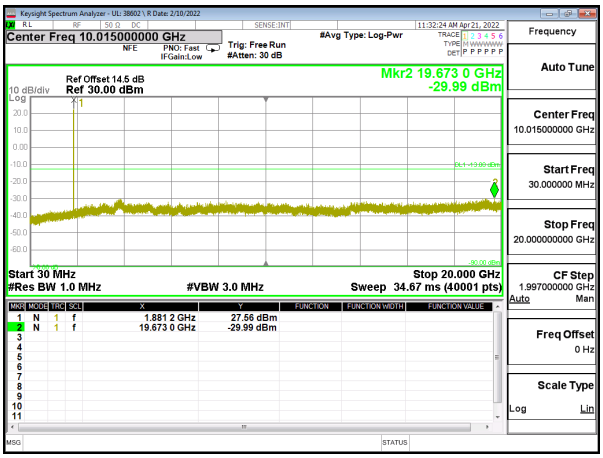
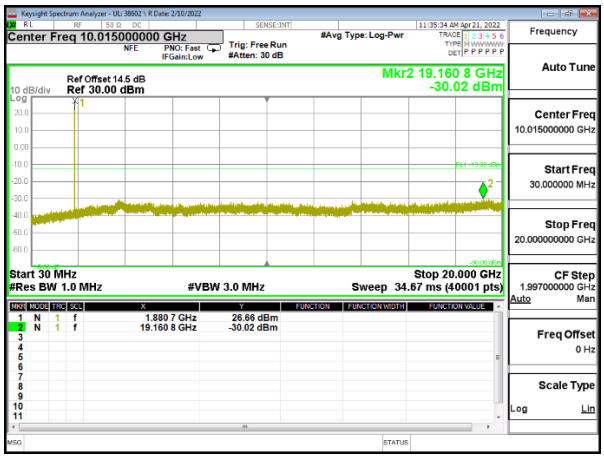


WCDMA Band 2 HSDPA Low Channel



WCDMA Band 2 Rel 99 Middle Channel



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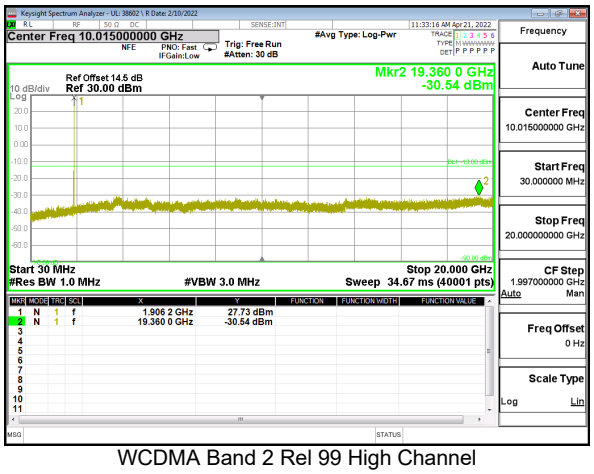
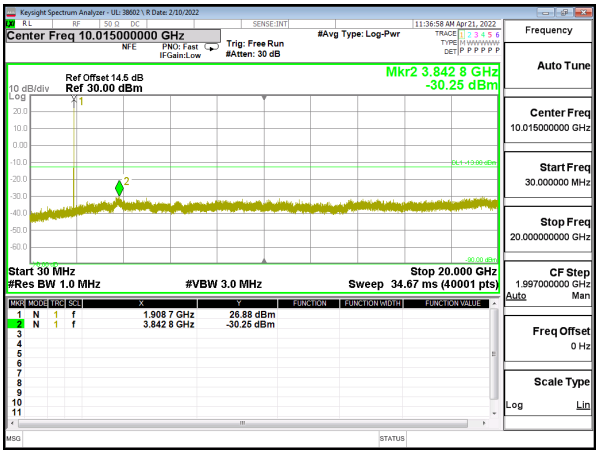
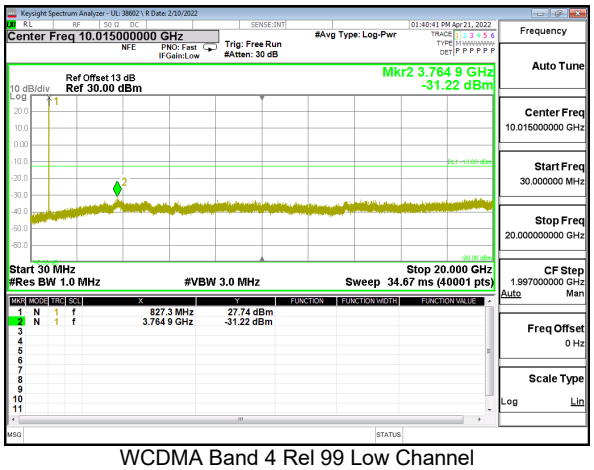


WCDMA Band 2 Rel 99 High Channel

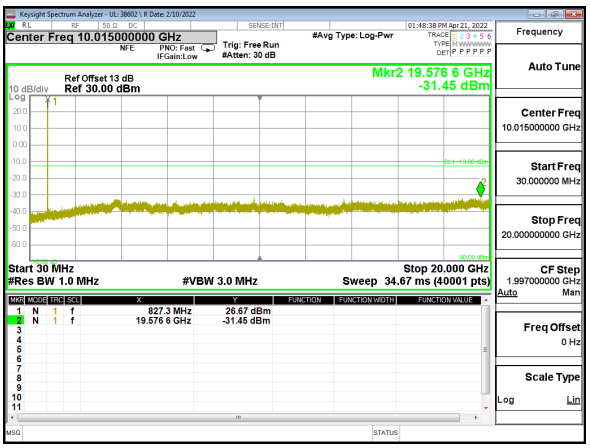


WCDMA Band 2 HSDPA High Channel

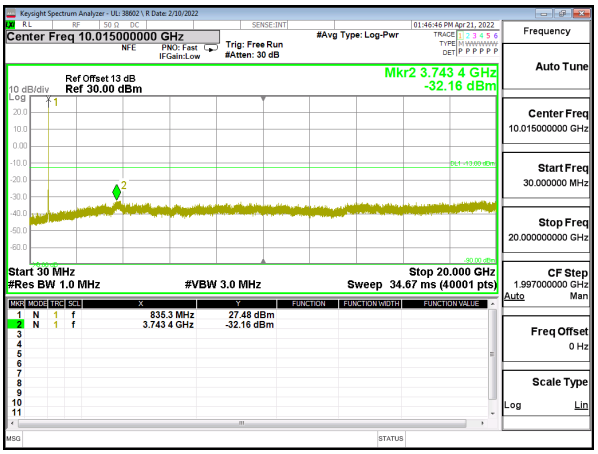
WCDMA BAND 4



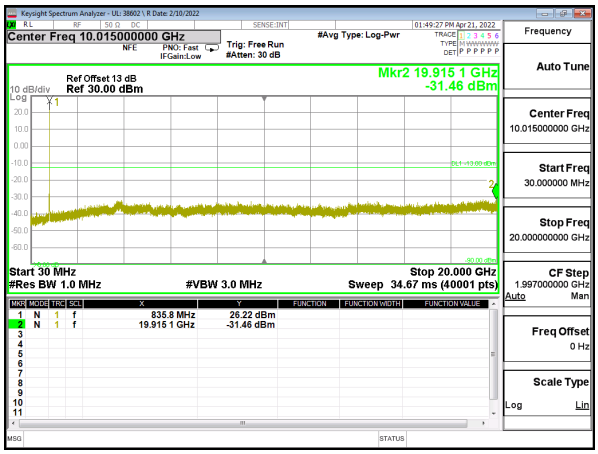
WCDMA Band 4 Rel 99 Low Channel



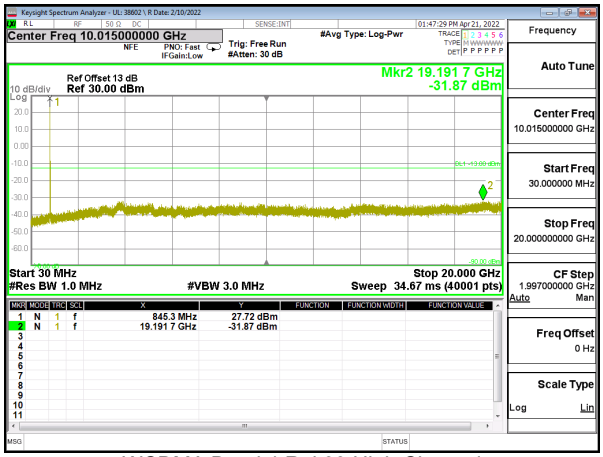
WCDMA Band 4 HSDPA Low Channel



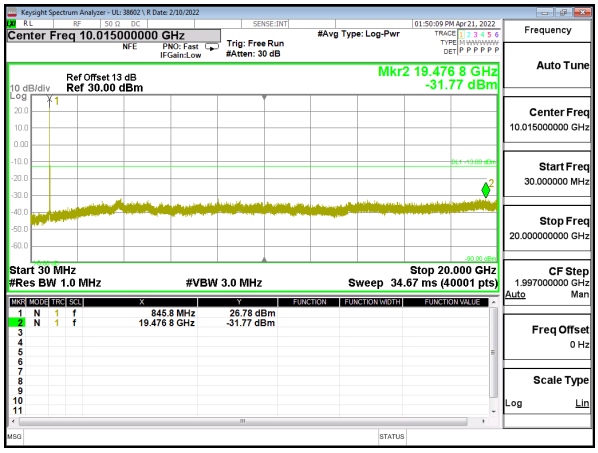
WCDMA Band 4 Rel 99 Middle Channel



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°C
- Voltage = (85% - 115%)

  Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.
  End Voltage, 3.0VDC.

Frequency Stability vs Temperature:
The EUT is place inside a temperature chamber. The temperature is set to 20ºC 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 +50ºC 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:	44366	Test Date:	6/24/2022

GPRS 850

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)		824.0844	848.9005			
Extreme (50°C)		824.0844	848.9005	27.6	0.033	Yes
Extreme (40°C)		824.0844	848.9005	24.1	0.029	Yes
Extreme (30°C)		824.0844	848.9005	21.4	0.026	Yes
Extreme (10°C)	Normal	824.0844	848.9005	22.6	0.027	Yes
Extreme (0°C)		824.0844	848.9005	24.5	0.029	Yes
Extreme (-10°C)		824.0844	848.9005	18.1	0.022	Yes
Extreme (-20°C)		824.0844	848.9005	20.8	0.025	Yes
Extreme (-30°C)		824.0844	848.9005	20.4	0.024	Yes
20°C	15%	824.0844	848.9005	23.8	0.028	Yes
	-15%	824.0844	848.9005	24.1	0.029	Yes
	End Point Voltage	824.0844	848.9005	27.5	0.033	Yes

GPRS 1900

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	1850.0511	1909.9549			
Extreme (50°C)		1850.0511	1909.9549	24.7	0.013	Yes
Extreme (40°C)		1850.0511	1909.9549	29.3	0.016	Yes
Extreme (30°C)		1850.0511	1909.9549	29.9	0.016	Yes
Extreme (10°C)		1850.0511	1909.9549	30.6	0.016	Yes
Extreme (0°C)		1850.0511	1909.9549	27.4	0.015	Yes
Extreme (-10°C)		1850.0511	1909.9549	31.1	0.017	Yes
Extreme (-20°C)		1850.0511	1909.9549	28.7	0.015	Yes
Extreme (-30°C)		1850.0511	1909.9549	25.6	0.014	Yes
20°C	15%	1850.0511	1909.9549	32.9	0.018	Yes
	-15%	1850.0511	1909.9549	23.9	0.013	Yes
	End Point Voltage	1850.0511	1909.9549	30.1	0.016	Yes

9.4.2. WCDMA

Test Engineer ID:	44366	Test Date:	6/24/2022

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	824.0844	848.9005			
Extreme (50°C)		824.0844	848.9005	0.6	0.001	Yes
Extreme (40°C)		824.0844	848.9005	1.0	0.001	Yes
Extreme (30°C)		824.0844	848.9005	-0.5	-0.001	Yes
Extreme (10°C)		824.0844	848.9005	-0.5	-0.001	Yes
Extreme (0°C)		824.0844	848.9005	-0.8	-0.001	Yes
Extreme (-10°C)		824.0844	848.9005	0.9	0.001	Yes
Extreme (-20°C)		824.0844	848.9005	0.8	0.001	Yes
Extreme (-30°C)		824.0844	848.9005	-0.8	-0.001	Yes
20°C	15%	824.0844	848.9005	-0.6	-0.001	Yes
	-15%	824.0844	848.9005	-1.0	-0.001	Yes
	End Point Voltage	824.0844	848.9005	0.7	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	1850.0975	1909.9600			
Extreme (50°C)		1850.0975	1909.9600	5.9	0.003	Yes
Extreme (40°C)		1850.0975	1909.9600	3.5	0.002	Yes
Extreme (30°C)		1850.0975	1909.9600	9.2	0.005	Yes
Extreme (10°C)		1850.0975	1909.9600	9.6	0.005	Yes
Extreme (0°C)		1850.0975	1909.9600	6.8	0.004	Yes
Extreme (-10°C)		1850.0975	1909.9600	7.6	0.004	Yes
Extreme (-20°C)		1850.0975	1909.9600	6.3	0.003	Yes
Extreme (-30°C)		1850.0975	1909.9600	5.9	0.003	Yes
20°C	15%	1850.0975	1909.9600	1.1	0.001	Yes
	-15%	1850.0975	1909.9600	5.5	0.003	Yes
	End Point Voltage	1850.0975	1909.9600	9.9	0.005	Yes

WCDMA REL 99 BAND 4

Band	4	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1710	1755			
Temperature	Voltage	Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Normal (20°C)	Normal	1710.0955	1754.9107			
Extreme (50°C)		1710.0955	1754.9107	-2.3	-0.001	Yes
Extreme (40°C)		1710.0955	1754.9107	-0.1	0.000	Yes
Extreme (30°C)		1710.0955	1754.9107	-0.3	0.000	Yes
Extreme (10°C)		1710.0955	1754.9107	-3.7	-0.002	Yes
Extreme (0°C)		1710.0955	1754.9107	-1.8	-0.001	Yes
Extreme (-10°C)		1710.0955	1754.9107	-2.0	-0.001	Yes
Extreme (-20°C)		1710.0955	1754.9107	-1.8	-0.001	Yes
Extreme (-30°C)		1710.0955	1754.9107	-2.3	-0.001	Yes
20°C	15%	1710.0955	1754.9107	-3.2	-0.002	Yes
	-15%	1710.0955	1754.9107	-3.0	-0.002	Yes
	End Point Voltage	1710.0955	1754.9107	-1.6	-0.001	Yes

9.5. PEAK-TO-AVERAGE POWER RATIO

LIMIT

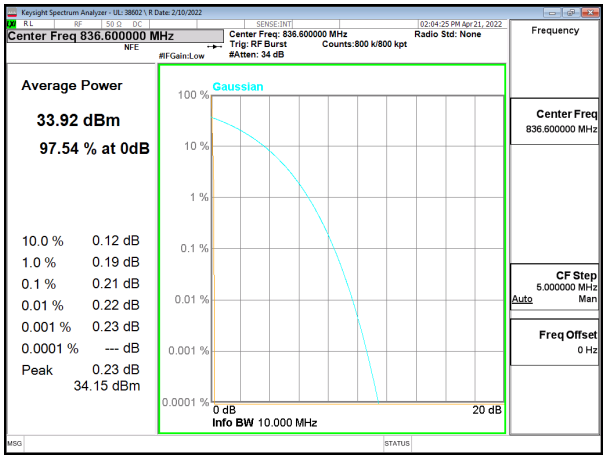
In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

RESULT

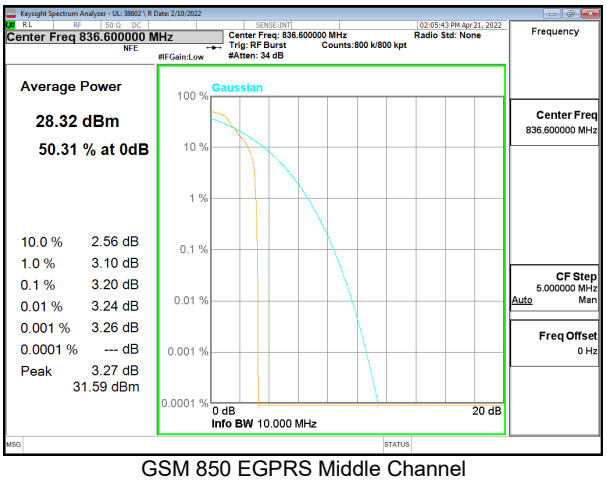
Ant 1 was used to measure as the worst case. The results from all CCDF plots are passed with 13dB peak-to-average power ratio criteria.

Test Engineer ID:	38602	Test Date:	4/22/2022

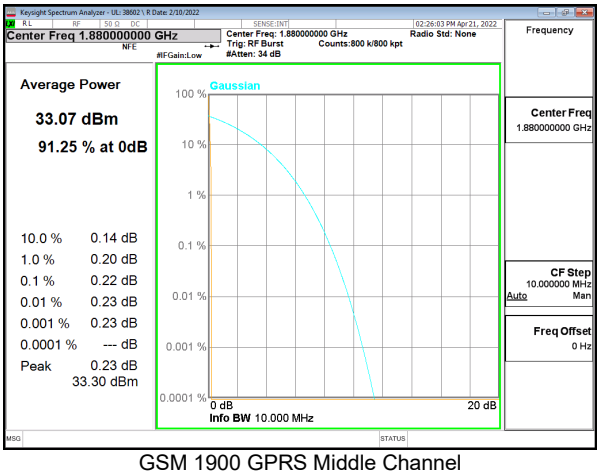
9.5.1. GSM



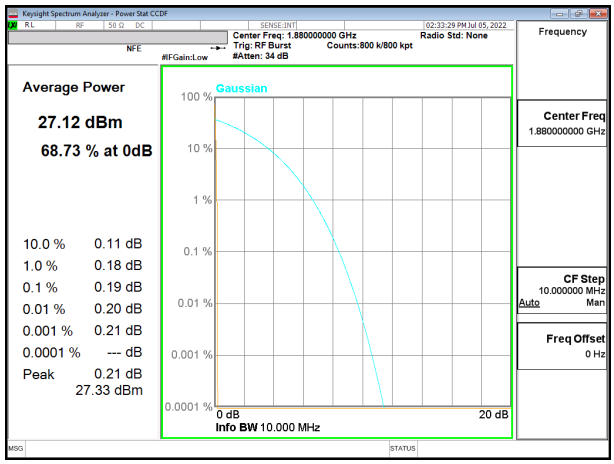
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel

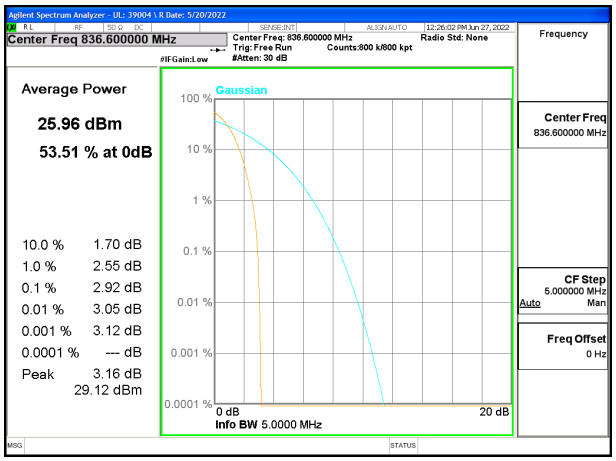


GSM 1900 GPRS Middle Channel

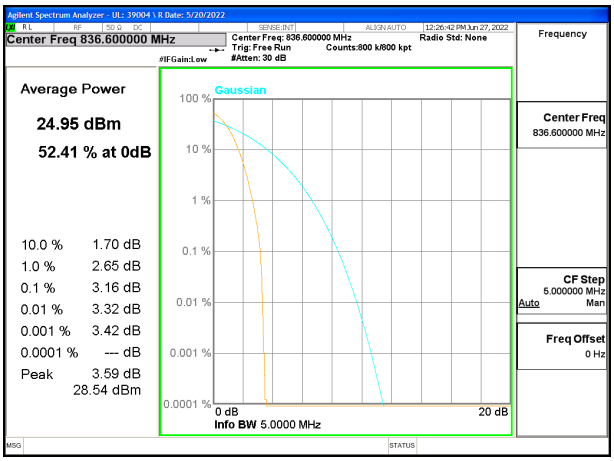


GSM 1900 EGPRS Middle Channel

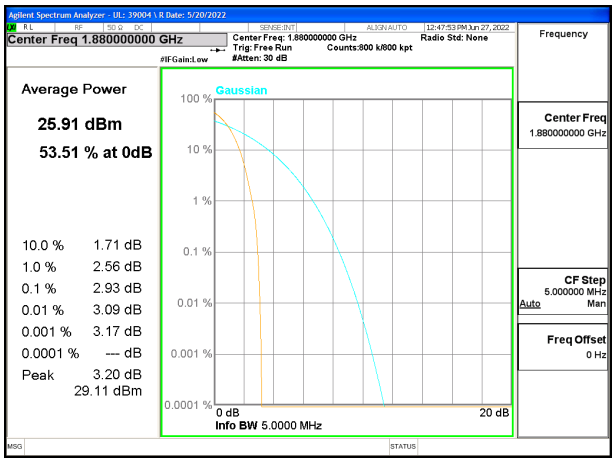
9.5.2. WCDMA



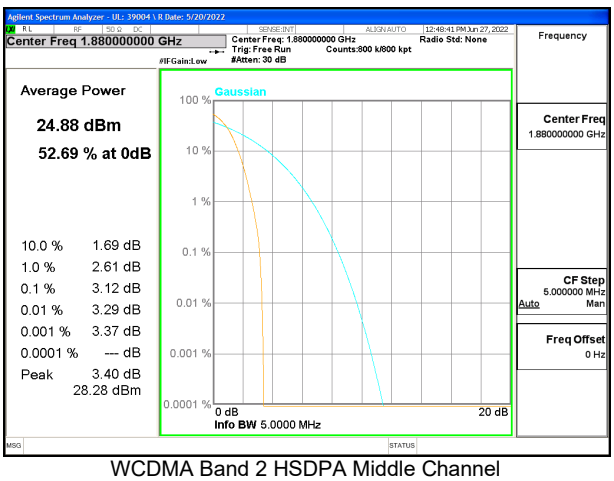
WCDMA Band 5 Rel 99 Middle Channel



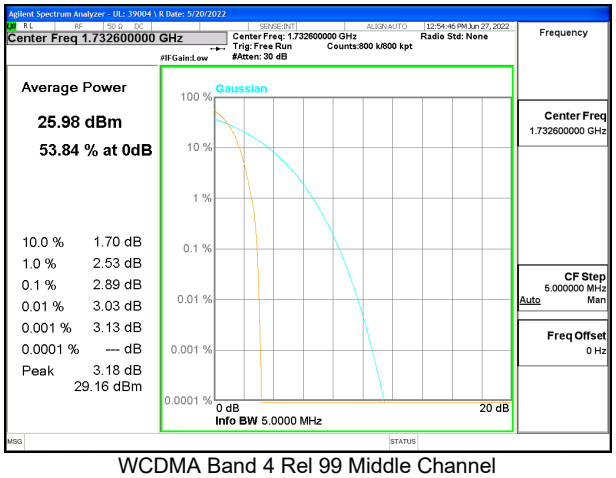
WCDMA Band 5 HSDPA Middle Channel



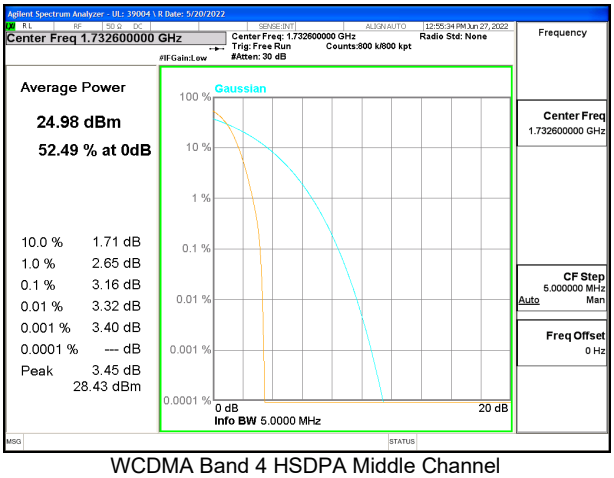
WCDMA Band 2 Rel 99 Middle Channel



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.

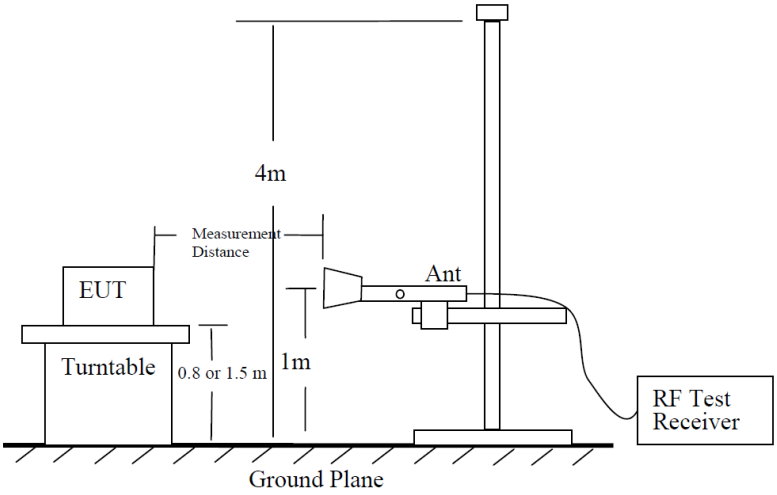


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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

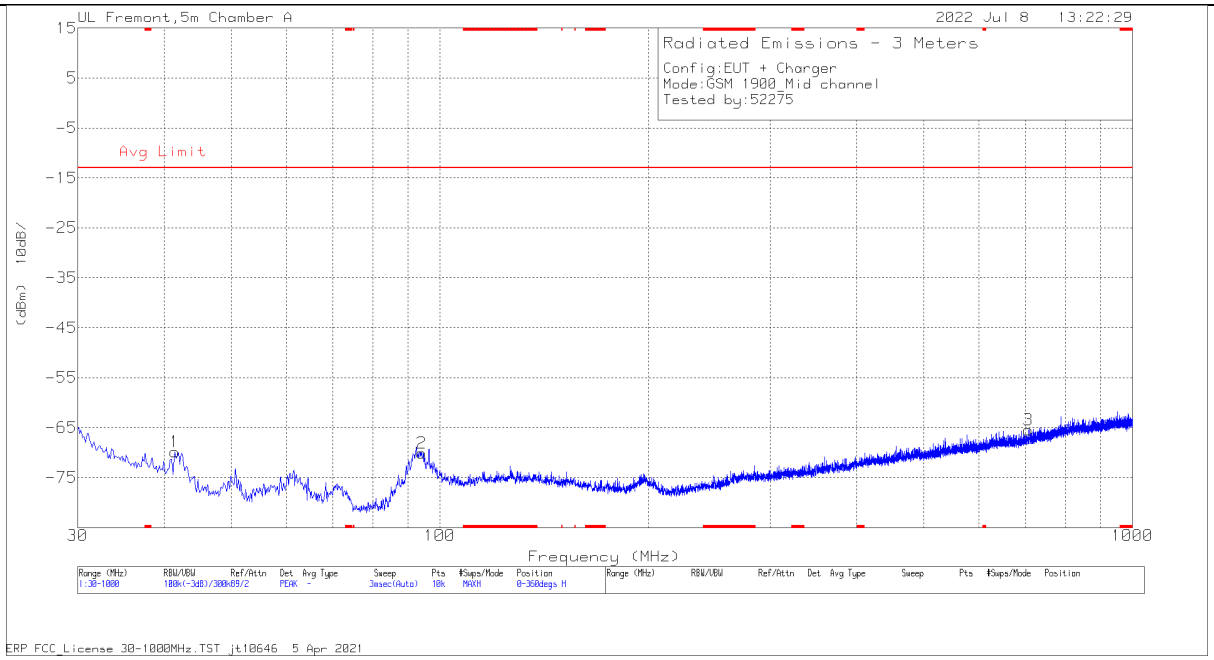
a) E (dBµV/m) = Measured amplitude level (dBµV) + Cable Loss (dB) + Antenna Factor (dB/m).
b) E (dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m).
c) E (dBµV/m) = EIRP (dBm) − 20log(D) + 104.8; where D is the measurement distance (in the far field region) in m.
d) EIRP (dBm) = E (dBµV/m) + 20log(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*Log(3)=9.5424

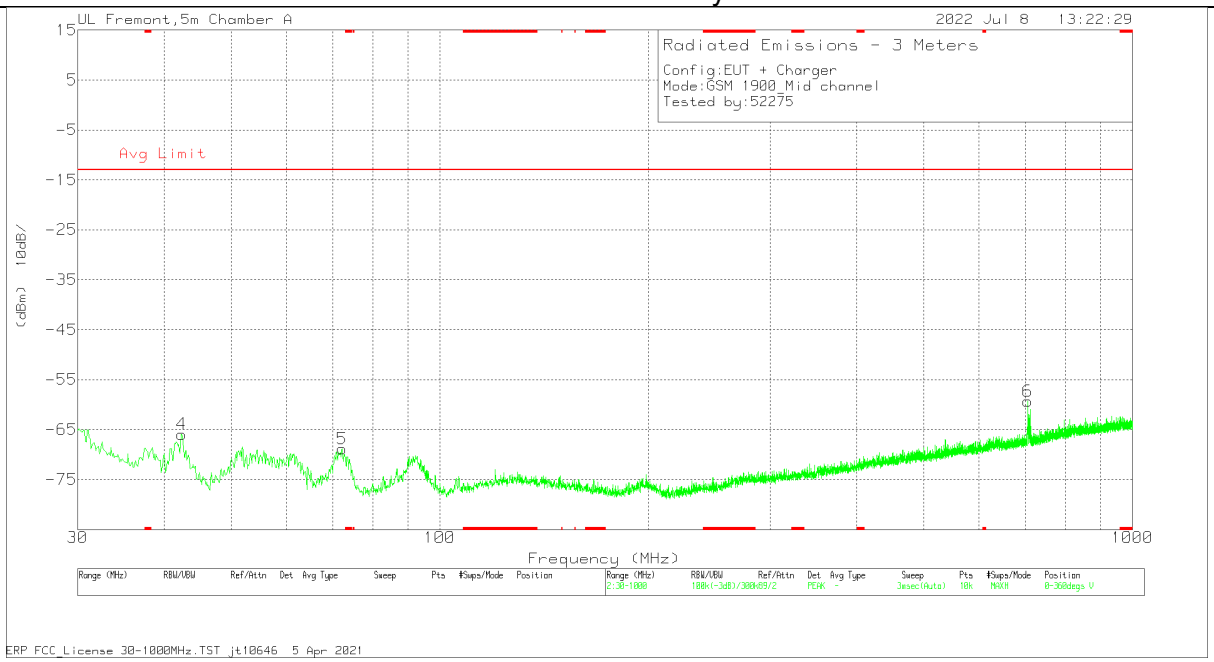
Then, EIRP (dBm) = E (dBµV/m) + 9.5424 − 104.8 = E (dBµV/m) – 95.2576

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

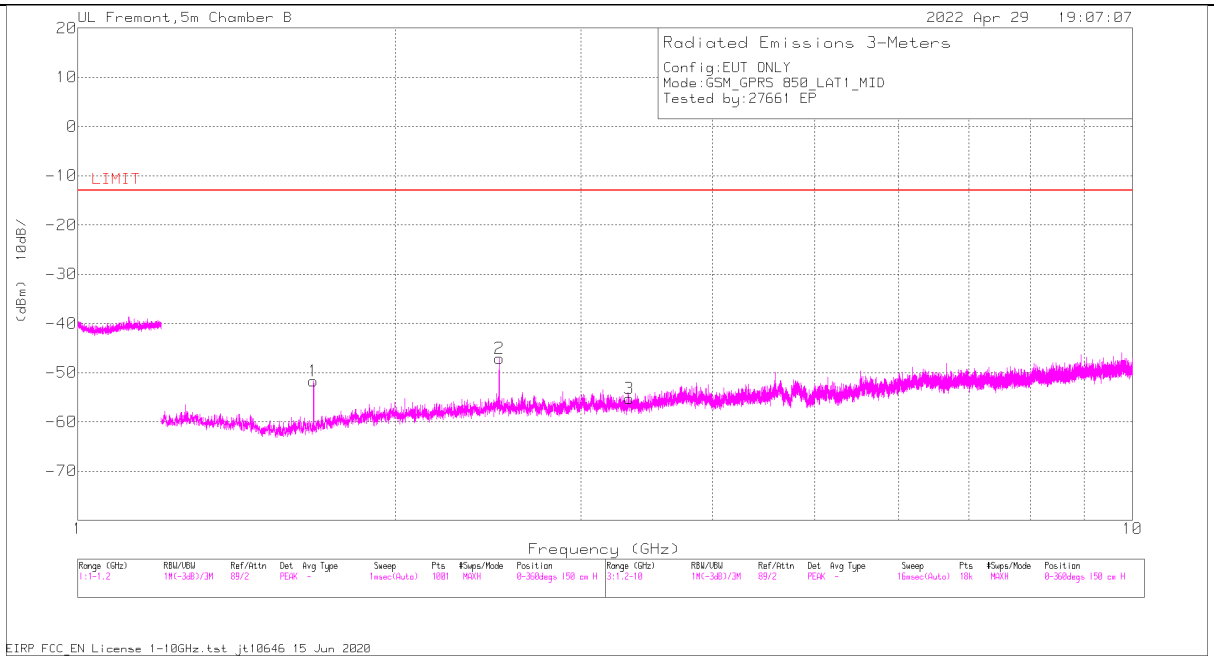


Vertical Polarity

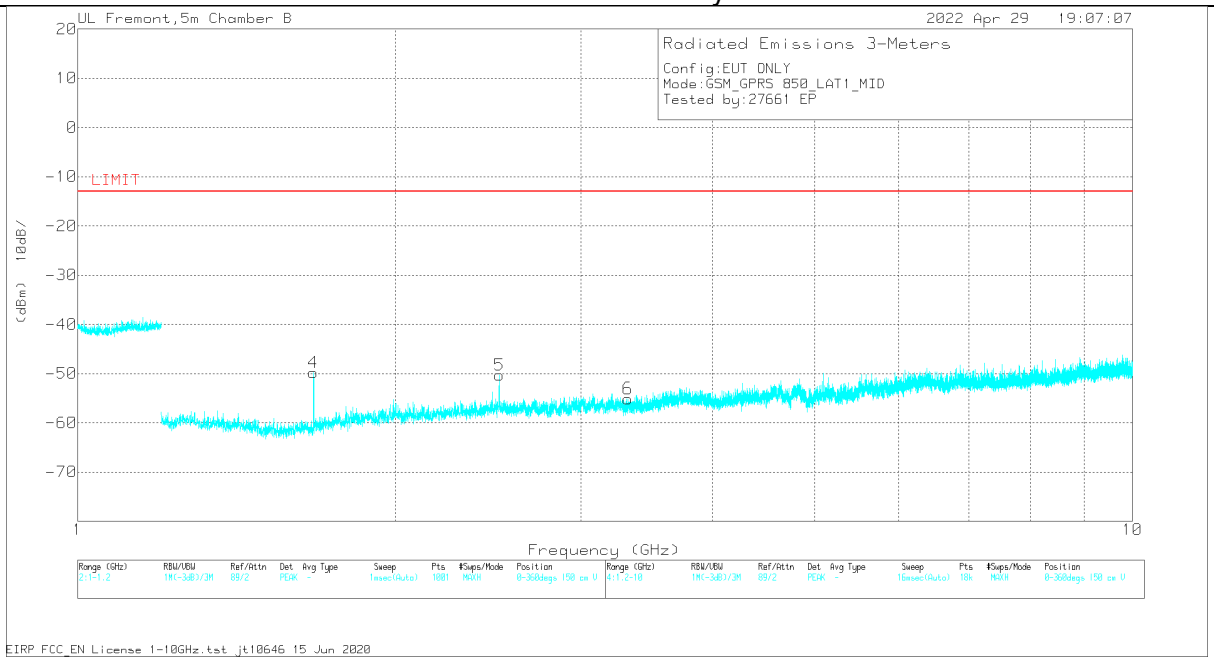
Trace Markers

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	41.446	32.52	Pk	19.9	-27.1	-95.2	-69.88	-13	-56.88	H
4	42.416	37.19	Pk	19.2	-27.1	-95.2	-65.91	-13	-52.91	V
5	72.195	38.69	Pk	14.4	-26.7	-95.2	-68.81	-13	-55.81	V
2	94.117	36.76	Pk	14.7	-26.4	-95.2	-70.14	-13	-57.14	H
6	705.799	33.66	Pk	26.4	-24.2	-95.2	-59.34	-13	-46.34	V
3	706.963	27.52	Pk	26.4	-24.2	-95.2	-65.48	-13	-52.48	H

Example Plot Above 1GHz



Horizontal Polarity



Vertical Polarity

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
1.673245	49.32	Pk	28.4	-34.9	.7	-95.2	-51.68	-13	-38.68	H
1.673245	51.24	Pk	28.4	-34.9	.7	-95.2	-49.76	-13	-36.76	V
2.509734	49.61	Pk	32.7	-34.7	.5	-95.2	-47.09	-13	-34.09	H
2.509734	46.34	Pk	32.7	-34.7	.5	-95.2	-50.36	-13	-37.36	V
3.324223	40.81	Pk	32.6	-33.8	.5	-95.2	-55.09	-13	-42.09	V
3.332534	40.54	Pk	32.6	-33.7	.5	-95.2	-55.26	-13	-42.26	H

Pk - Peak detector

10.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 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), and §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 log10p (watts).

(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least43 + 10 log10 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 log10p(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 log10p (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,Footnote2 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 least43 + 10 log10 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 log10 p (watts) dB.

TEST PROCEDURE

KDB 971168 D01

RESULTS

10.1.1. GSM 850

GPRS MODE

Project #:	14040868
Date:	04/29/2022
Test Engineer:	27661
Configuration;	EUT Only
Mode:	GPRS 850
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl (dB)	172654 HPF (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.648411	61.17	Pk	28.4	-34.9	0.7	-95.2	-39.83	-13	-26.83	H
1.648501	59.56	Pk	28.4	-34.9	0.7	-95.2	-41.44	-13	-28.44	V
2.473067	43.51	Pk	32.6	-34.8	0.5	-95.2	-53.39	-13	-40.39	H
2.478934	41.96	Pk	32.5	-34.8	0.5	-95.2	-55.04	-13	-42.04	V
3.264089	40.77	Pk	32.8	-33.8	0.4	-95.2	-55.03	-13	-42.03	V
3.2768	41.08	Pk	32.8	-33.8	0.5	-95.2	-54.62	-13	-41.62	H
Mid Channel, 836.6 MHz										
1.673245	49.32	Pk	28.4	-34.9	0.7	-95.2	-51.68	-13	-38.68	H
1.673245	51.24	Pk	28.4	-34.9	0.7	-95.2	-49.76	-13	-36.76	V
2.509734	49.61	Pk	32.7	-34.7	0.5	-95.2	-47.09	-13	-34.09	H
2.509734	46.34	Pk	32.7	-34.7	0.5	-95.2	-50.36	-13	-37.36	V
3.324223	40.81	Pk	32.6	-33.8	0.5	-95.2	-55.09	-13	-42.09	V
3.332534	40.54	Pk	32.6	-33.7	0.5	-95.2	-55.26	-13	-42.26	H
High Channel, 848.8 MHz										
1.697619	57.45	Pk	28.9	-34.9	0.6	-95.2	-43.15	-13	-30.15	V
1.697652	57.01	Pk	28.9	-34.9	0.6	-95.2	-43.59	-13	-30.59	H
2.54607	49.69	Pk	32.5	-34.7	0.7	-95.2	-47.01	-13	-34.01	V
2.5464	52.84	Pk	32.5	-34.7	0.7	-95.2	-43.86	-13	-30.86	H
3.394623	41.47	Pk	32.6	-33.5	0.5	-95.2	-54.13	-13	-41.13	H
3.395601	40.65	Pk	32.5	-33.5	0.5	-95.2	-55.05	-13	-42.05	V

EGPRS MODE

Project #:	14040868
Date:	04/29/2022
Test Engineer:	27661
Configuration;	EUT Only
Mode:	EGPRS 850
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl (dB)	172654 HPF (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.648611	56.17	Pk	28.4	-34.9	0.7	-95.2	-44.83	-13	-31.83	V
1.6488	42.61	Pk	28.4	-34.9	0.7	-95.2	-58.39	-13	-45.39	H
2.472388	49.94	Pk	32.6	-34.8	0.5	-95.2	-46.96	-13	-33.96	V
2.472498	53.75	Pk	32.6	-34.8	0.5	-95.2	-43.15	-13	-30.15	H
3.287067	39.64	Pk	32.7	-33.8	0.5	-95.2	-56.16	-13	-43.16	V
3.290489	40.25	Pk	32.7	-33.8	0.5	-95.2	-55.55	-13	-42.55	H
Mid Channel, 836.6 MHz										
1.672985	44.98	Pk	28.4	-34.9	0.7	-95.2	-56.02	-13	-43.02	H
1.673485	56.23	Pk	28.4	-34.9	0.7	-95.2	-44.77	-13	-31.77	V
2.5112	41.86	Pk	32.7	-34.7	0.5	-95.2	-54.84	-13	-41.84	V
2.515111	41.21	Pk	32.7	-34.7	0.5	-95.2	-55.49	-13	-42.49	H
3.370178	40.32	Pk	32.6	-33.6	0.5	-95.2	-55.38	-13	-42.38	H
3.378001	40.74	Pk	32.6	-33.6	0.5	-95.2	-54.96	-13	-41.96	V
High Channel, 848.8 MHz										
1.697759	53.34	Pk	28.9	-34.9	0.6	-95.2	-47.26	-13	-34.26	H
1.697869	50.97	Pk	28.9	-34.9	0.6	-95.2	-49.63	-13	-36.63	V
2.544445	40.78	Pk	32.5	-34.7	0.7	-95.2	-55.92	-13	-42.92	V
2.550311	40.77	Pk	32.4	-34.7	0.7	-95.2	-56.03	-13	-43.03	H
3.391201	40.53	Pk	32.6	-33.5	0.5	-95.2	-55.07	-13	-42.07	H
3.396089	40.15	Pk	32.5	-33.5	0.5	-95.2	-55.55	-13	-42.55	V

10.1.2. GSM 1900

GPRS MODE

Project #:	14040868
Date:	5/4/2022
Test Engineer:	26120
Configuration;	EUT Only
Mode:	GPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700313	37.92	Pk	33.2	-32.3	-95.2	-56.38	-13	-43.38	H
3.700313	37.16	Pk	33.2	-32.3	-95.2	-57.14	-13	-44.14	V
5.550469	37.48	Pk	34.9	-29.7	-95.2	-52.52	-13	-39.52	H
5.550469	37.36	Pk	34.9	-29.7	-95.2	-52.64	-13	-39.64	V
7.401094	32.64	Pk	35.7	-26.3	-95.2	-53.16	-13	-40.16	H
7.401094	32.47	Pk	35.7	-26.3	-95.2	-53.33	-13	-40.33	V
Mid Channel, 1880MHz									
3.75140	42.08	Pk	33.5	-32.1	-95.2	-51.72	-13	-38.72	V
3.79410	41.37	Pk	33.6	-31.9	-95.2	-52.13	-13	-39.13	H
5.53080	40.56	Pk	34.9	-29.6	-95.2	-49.34	-13	-36.34	H
5.56690	39.31	Pk	34.9	-29.7	-95.2	-50.69	-13	-37.69	V
7.53840	35.57	Pk	35.8	-26.1	-95.2	-49.93	-13	-36.93	H
7.57880	36.37	Pk	35.8	-26.2	-95.2	-49.23	-13	-36.23	V
High Channel, 1909.8MHz									
3.819375	40.04	Pk	33.7	-31.8	-95.2	-53.26	-13	-40.26	H
3.819375	39.81	Pk	33.7	-31.8	-95.2	-53.49	-13	-40.49	V
5.729531	35.54	Pk	34.8	-29	-95.2	-53.86	-13	-40.86	H
5.729531	36.51	Pk	34.8	-29	-95.2	-52.89	-13	-39.89	V
7.639219	31.91	Pk	35.9	-26.5	-95.2	-53.89	-13	-40.89	H
7.639219	33.78	Pk	35.9	-26.5	-95.2	-52.02	-13	-39.02	V

EGPRS MODE

Project #:	14040868
Date:	5/4/2022
Test Engineer:	26120
Configuration;	EUT Only
Mode:	EGPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700313	38.8	Pk	33.2	-32.3	-95.2	-55.5	-13	-42.5	H
3.700313	37.24	Pk	33.2	-32.3	-95.2	-57.06	-13	-44.06	V
5.550469	37.08	Pk	34.9	-29.7	-95.2	-52.92	-13	-39.92	H
5.550469	35.95	Pk	34.9	-29.7	-95.2	-54.05	-13	-41.05	V
7.400625	32.04	Pk	35.7	-26.3	-95.2	-53.76	-13	-40.76	V
7.401094	32.75	Pk	35.7	-26.3	-95.2	-53.05	-13	-40.05	H
Mid Channel, 1880MHz									
3.759844	41.03	Pk	33.5	-32.1	-95.2	-52.77	-13	-39.77	H
3.760313	36.62	Pk	33.6	-32.1	-95.2	-57.08	-13	-44.08	V
5.640000	36.44	Pk	35	-30.1	-95.2	-53.86	-13	-40.86	H
5.640000	37.22	Pk	35	-30.1	-95.2	-53.08	-13	-40.08	V
7.520156	34.54	Pk	35.7	-26.1	-95.2	-51.06	-13	-38.06	H
7.520156	33.59	Pk	35.7	-26.1	-95.2	-52.01	-13	-39.01	V
High Channel, 1909.8MHz									
3.819844	39.55	Pk	33.7	-31.8	-95.2	-53.75	-13	-40.75	H
3.821250	40.27	Pk	33.7	-31.8	-95.2	-53.03	-13	-40.03	V
5.729531	36.29	Pk	34.8	-29	-95.2	-53.11	-13	-40.11	H
5.729531	35.91	Pk	34.8	-29	-95.2	-53.49	-13	-40.49	V
7.639219	33.39	Pk	35.9	-26.5	-95.2	-52.41	-13	-39.41	H
7.639219	32.88	Pk	35.9	-26.5	-95.2	-52.92	-13	-39.92	V

10.1.3. WCDMA BAND 5

REL 99 MODE

Project #:	14040868
Date:	5/13/2022
Test Engineer:	45258
Configuration;	EUT Only
Mode:	REL 99 Band 5
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.653804	41.7	Pk	28.5	-29.4	0.8	-95.2	-53.6	-13	-40.6	V
1.655216	41.03	Pk	28.5	-29.4	0.8	-95.2	-54.27	-13	-41.27	H
2.480400	38.06	Pk	32.2	-28.1	0.5	-95.2	-52.54	-13	-39.54	H
2.480400	36.95	Pk	32.2	-28.1	0.5	-95.2	-53.65	-13	-40.65	V
3.305156	35.28	Pk	32.5	-26.5	0.7	-95.2	-53.22	-13	-40.22	H
3.305156	34.47	Pk	32.5	-26.5	0.7	-95.2	-54.03	-13	-41.03	V
Mid Channel, 836.6MHz										
1.670482	41.56	Pk	28.5	-29.3	0.7	-95.2	-53.74	-13	-40.74	H
1.671521	41.99	Pk	28.5	-29.3	0.7	-95.2	-53.31	-13	-40.31	V
2.513156	39.89	Pk	32.4	-28.1	0.7	-95.2	-50.31	-13	-37.31	V
2.513645	38.43	Pk	32.4	-28.1	0.7	-95.2	-51.77	-13	-38.77	H
3.346712	36	Pk	32.7	-26.5	0.5	-95.2	-52.5	-13	-39.5	H
3.346712	34.84	Pk	32.7	-26.5	0.5	-95.2	-53.66	-13	-40.66	V
High Channel, 846.6MHz										
1.694012	41.99	Pk	28.5	-29.2	0.7	-95.2	-53.21	-13	-40.21	H
1.696212	41.98	Pk	28.6	-29.2	0.7	-95.2	-53.12	-13	-40.12	V
2.540045	39.38	Pk	32.2	-27.8	0.7	-95.2	-50.72	-13	-37.72	H
2.540045	37.2	Pk	32.2	-27.8	0.7	-95.2	-52.9	-13	-39.9	V
3.387289	37.85	Pk	32.8	-26.4	0.6	-95.2	-50.35	-13	-37.35	H
3.387289	34.78	Pk	32.8	-26.4	0.6	-95.2	-53.42	-13	-40.42	V

HSDPA MODE

Project #:	14040868
Date:	5/13/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 5
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.652711	37.41	Pk	28.4	-29.4	0.8	-95.2	-57.99	-13	-44.99	H
1.652711	36.39	Pk	28.4	-29.4	0.8	-95.2	-59.01	-13	-46.01	V
2.479423	35.12	Pk	32.3	-28.1	0.5	-95.2	-55.38	-13	-42.38	H
2.479423	36.99	Pk	32.3	-28.1	0.5	-95.2	-53.51	-13	-40.51	V
3.306623	34.97	Pk	32.7	-26.5	0.7	-95.2	-53.33	-13	-40.33	H
3.306623	36.33	Pk	32.7	-26.5	0.7	-95.2	-51.97	-13	-38.97	V
Mid Channel, 836.6MHz										
1.672338	42.47	Pk	28.5	-29.3	0.7	-95.2	-52.83	-13	-39.83	H
1.676070	44.26	Pk	28.4	-29.3	0.7	-95.2	-51.14	-13	-38.14	V
2.509734	38.98	Pk	32.4	-28.1	0.7	-95.2	-51.22	-13	-38.22	H
2.509734	38.74	Pk	32.4	-28.1	0.7	-95.2	-51.46	-13	-38.46	V
3.347200	36.1	Pk	32.7	-26.5	0.5	-95.2	-52.4	-13	-39.4	H
3.347200	35.53	Pk	32.7	-26.5	0.5	-95.2	-52.97	-13	-39.97	V
High Channel, 846.6MHz										
1.693289	40.43	Pk	28.5	-29.2	0.7	-95.2	-54.77	-13	-41.77	V
1.693621	43.38	Pk	28.5	-29.2	0.7	-95.2	-51.82	-13	-38.82	H
2.539556	35.3	Pk	32.2	-27.8	0.7	-95.2	-54.8	-13	-41.8	H
2.539556	36.08	Pk	32.2	-27.8	0.7	-95.2	-54.02	-13	-41.02	V
3.386801	35.07	Pk	32.8	-26.4	0.6	-95.2	-53.13	-13	-40.13	H
3.386801	34.3	Pk	32.8	-26.4	0.6	-95.2	-53.9	-13	-40.9	V

10.1.4. WCDMA BAND 2

REL 99 MODE

Project #:	14040868
Date:	5/9/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.705469	35.72	Pk	33.3	-25.1	-95.2	-51.28	-13	-38.28	H
3.705469	33.85	Pk	33.3	-25.1	-95.2	-53.15	-13	-40.15	V
5.557500	33.6	Pk	34.7	-22.6	-95.2	-49.5	-13	-36.5	H
5.557500	31.67	Pk	34.7	-22.6	-95.2	-51.43	-13	-38.43	V
7.409531	30.25	Pk	35.5	-19.7	-95.2	-49.15	-13	-36.15	H
7.409531	28.5	Pk	35.5	-19.7	-95.2	-50.9	-13	-37.9	V
Mid Channel, 1880MHz									
3.760313	36.57	Pk	33.4	-24.9	-95.2	-50.13	-13	-37.13	H
3.760313	34.53	Pk	33.4	-24.9	-95.2	-52.17	-13	-39.17	V
5.640469	32.12	Pk	34.8	-22	-95.2	-50.28	-13	-37.28	H
5.640469	32.34	Pk	34.8	-22	-95.2	-50.06	-13	-37.06	V
7.520156	30.04	Pk	35.6	-19.6	-95.2	-49.16	-13	-36.16	H
7.520156	29.45	Pk	35.6	-19.6	-95.2	-49.75	-13	-36.75	V
High Channel, 1907.6MHz									
3.816094	38.03	Pk	33.3	-25.2	-95.2	-49.07	-13	-36.07	H
3.816094	34.69	Pk	33.3	-25.2	-95.2	-52.41	-13	-39.41	V
5.722969	31.85	Pk	34.9	-23.1	-95.2	-51.55	-13	-38.55	H
5.722969	31.41	Pk	34.9	-23.1	-95.2	-51.99	-13	-38.99	V
7.630313	32.09	Pk	35.7	-18.4	-95.2	-45.81	-13	-32.81	H
7.630313	29.25	Pk	35.7	-18.4	-95.2	-48.65	-13	-35.65	V

HSDPA MODE

Project #:	14040868
Date:	5/9/2022
Test Engineer:	45258
Configuration;	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.704063	37.87	Pk	33.3	-25.2	-95.2	-49.23	-13	-36.23	H
3.704063	34.25	Pk	33.3	-25.2	-95.2	-52.85	-13	-39.85	V
5.557500	34.54	Pk	34.7	-22.6	-95.2	-48.56	-13	-35.56	H
5.557500	31.67	Pk	34.7	-22.6	-95.2	-51.43	-13	-38.43	V
7.410000	30.24	Pk	35.5	-19.7	-95.2	-49.16	-13	-36.16	H
7.410000	27.93	Pk	35.5	-19.7	-95.2	-51.47	-13	-38.47	V
Mid Channel, 1880MHz									
3.759375	34.47	Pk	33.4	-24.9	-95.2	-52.23	-13	-39.23	H
3.759375	33.02	Pk	33.4	-24.9	-95.2	-53.68	-13	-40.68	V
5.640469	31.17	Pk	34.8	-22	-95.2	-51.23	-13	-38.23	H
5.640469	34.95	Pk	34.8	-22	-95.2	-47.45	-13	-34.45	V
7.520156	30.89	Pk	35.6	-19.6	-95.2	-48.31	-13	-35.31	H
7.520156	31.31	Pk	35.6	-19.6	-95.2	-47.89	-13	-34.89	V
High Channel, 1907.6MHz									
3.814688	37.18	Pk	33.3	-25.2	-95.2	-49.92	-13	-36.92	H
3.814688	33.12	Pk	33.3	-25.2	-95.2	-53.98	-13	-40.98	V
5.721563	32.81	Pk	34.9	-23.1	-95.2	-50.59	-13	-37.59	H
5.721563	31.36	Pk	34.9	-23.1	-95.2	-52.04	-13	-39.04	V
7.630313	30.83	Pk	35.7	-18.4	-95.2	-47.07	-13	-34.07	H
7.630313	29.25	Pk	35.7	-18.4	-95.2	-48.65	-13	-35.65	V

10.1.5. WCDMA BAND 4

REL 99 MODE

Project #:	14040868
Date:	5/10/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.425156	35.67	Pk	32.7	-26.1	-95.2	-52.93	-13	-39.93	H
3.425156	33.93	Pk	32.7	-26.1	-95.2	-54.67	-13	-41.67	V
5.137969	35.93	Pk	34.3	-23.3	-95.2	-48.27	-13	-35.27	H
5.137969	32.71	Pk	34.3	-23.3	-95.2	-51.49	-13	-38.49	V
6.849375	30.62	Pk	35.5	-20.8	-95.2	-49.88	-13	-36.88	H
6.849375	31.6	Pk	35.5	-20.8	-95.2	-48.9	-13	-35.9	V
Mid Channel, 1732.6MHz									
3.465000	36.44	Pk	32.6	-26.1	-95.2	-52.26	-13	-39.26	H
3.465000	33.74	Pk	32.6	-26.1	-95.2	-54.96	-13	-41.96	V
5.197031	32.57	Pk	34.4	-23.9	-95.2	-52.13	-13	-39.13	H
5.197031	36.91	Pk	34.4	-23.9	-95.2	-47.79	-13	-34.79	V
6.930469	32.11	Pk	35.4	-20.7	-95.2	-48.39	-13	-35.39	H
6.930469	32.75	Pk	35.4	-20.7	-95.2	-47.75	-13	-34.75	V
High Channel, 1752.61MHz									
3.504844	33.38	Pk	32.7	-25.5	-95.2	-54.62	-13	-41.62	H
3.504844	35.85	Pk	32.7	-25.5	-95.2	-52.15	-13	-39.15	V
5.2575	33.99	Pk	34.4	-23.5	-95.2	-50.31	-13	-37.31	H
5.2575	31.26	Pk	34.4	-23.5	-95.2	-53.04	-13	-40.04	V
7.011094	31.77	Pk	35.5	-19.6	-95.2	-47.53	-13	-34.53	H
7.011094	29.57	Pk	35.5	-19.6	-95.2	-49.73	-13	-36.73	V

HSDPA MODE

Project #:	14040868
Date:	5/10/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.424219	36.42	Pk	32.7	-26.1	-95.2	-52.18	-13	-39.18	H
3.424219	33.36	Pk	32.7	-26.1	-95.2	-55.24	-13	-42.24	V
5.136563	33.31	Pk	34.4	-23.3	-95.2	-50.79	-13	-37.79	H
5.136563	32.1	Pk	34.4	-23.3	-95.2	-52	-13	-39	V
6.849844	31.03	Pk	35.5	-20.8	-95.2	-49.47	-13	-36.47	H
6.849844	33.06	Pk	35.5	-20.8	-95.2	-47.44	-13	-34.44	V
Mid Channel, 1732.6MHz									
3.464531	35.53	Pk	32.6	-26.1	-95.2	-53.17	-13	-40.17	H
3.464531	34.65	Pk	32.6	-26.1	-95.2	-54.05	-13	-41.05	V
5.197969	34.27	Pk	34.4	-23.9	-95.2	-50.43	-13	-37.43	H
5.197969	35.26	Pk	34.4	-23.9	-95.2	-49.44	-13	-36.44	V
6.930000	31.28	Pk	35.4	-20.7	-95.2	-49.22	-13	-36.22	H
6.930000	29.81	Pk	35.4	-20.7	-95.2	-50.69	-13	-37.69	V
High Channel, 1752.61MHz									
3.505313	36.3	Pk	32.7	-25.5	-95.2	-51.7	-13	-38.7	H
3.505313	33.14	Pk	32.7	-25.5	-95.2	-54.86	-13	-41.86	V
5.257969	34.44	Pk	34.4	-23.5	-95.2	-49.86	-13	-36.86	H
5.257969	32.38	Pk	34.4	-23.5	-95.2	-51.92	-13	-38.92	V
7.010625	32.01	Pk	35.5	-19.6	-95.2	-47.29	-13	-34.29	H
7.010625	29.97	Pk	35.5	-19.6	-95.2	-49.33	-13	-36.33	V

10.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 2

10.2.1. GSM 850

GPRS MODE

Project #:	14040868
Date:	04/29/2022
Test Engineer:	27661
Configuration;	EUT Only
Mode:	GPRS 850
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl (dB)	172654 HPF (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.644889	40.88	Pk	28.4	-34.9	0.7	-95.2	-60.12	-13	-47.12	H
1.652711	40.83	Pk	28.4	-34.9	0.7	-95.2	-60.17	-13	-47.17	V
2.472279	55.15	Pk	32.6	-34.8	0.5	-95.2	-41.75	-13	-28.75	H
2.472428	58.88	Pk	32.6	-34.8	0.5	-95.2	-38.02	-13	-25.02	V
3.301245	40.02	Pk	32.6	-33.8	0.5	-95.2	-55.88	-13	-42.88	V
3.301734	40.68	Pk	32.6	-33.9	0.5	-95.2	-55.32	-13	-42.32	H
Mid Channel, 836.6 MHz										
1.678622	41.64	Pk	28.5	-34.9	0.7	-95.2	-59.26	-13	-46.26	V
1.684000	41.31	Pk	28.7	-34.9	0.7	-95.2	-59.39	-13	-46.39	H
2.509894	55.11	Pk	32.7	-34.7	0.5	-95.2	-41.59	-13	-28.59	V
2.510003	51.57	Pk	32.7	-34.7	0.5	-95.2	-45.13	-13	-32.13	H
3.358934	40.08	Pk	32.5	-33.6	0.5	-95.2	-55.72	-13	-42.72	H
3.367734	40.1	Pk	32.5	-33.7	0.5	-95.2	-55.8	-13	-42.8	V
High Channel, 848.8 MHz										
1.702578	41.51	Pk	29	-34.9	0.6	-95.2	-58.99	-13	-45.99	V
1.705511	41.86	Pk	29	-34.9	0.6	-95.2	-58.64	-13	-45.64	H
2.54629	53.96	Pk	32.5	-34.7	0.7	-95.2	-42.74	-13	-29.74	H
2.54657	56.43	Pk	32.5	-34.7	0.7	-95.2	-40.27	-13	-27.27	V
3.387289	41.24	Pk	32.5	-33.5	0.5	-95.2	-54.46	-13	-41.46	H
3.388267	40.7	Pk	32.6	-33.5	0.5	-95.2	-54.9	-13	-41.9	V

EGPRS MODE

Project #:	14040868
Date:	04/30/2022
Test Engineer:	27661
Configuration;	EUT Only
Mode:	EGPRS 850
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl (dB)	172654 HPF (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.631689	41.27	Pk	28.4	-34.9	0.7	-95.2	-59.73	-13	-46.73	H
1.640489	41.65	Pk	28.4	-34.9	0.7	-95.2	-59.35	-13	-46.35	V
2.472339	54.05	Pk	32.6	-34.8	0.5	-95.2	-42.85	-13	-29.85	V
2.472898	54.15	Pk	32.6	-34.8	0.5	-95.2	-42.75	-13	-29.75	H
3.305645	40.35	Pk	32.6	-33.8	0.5	-95.2	-55.55	-13	-42.55	V
3.309556	40.81	Pk	32.6	-33.8	0.5	-95.2	-55.09	-13	-42.09	H
Mid Channel, 836.6 MHz										
1.676178	41.2	Pk	28.5	-34.9	0.7	-95.2	-59.7	-13	-46.7	V
1.682045	42.32	Pk	28.6	-34.9	0.7	-95.2	-58.48	-13	-45.48	H
2.509734	43.18	Pk	32.7	-34.7	0.5	-95.2	-53.52	-13	-40.52	V
2.509923	53.36	Pk	32.7	-34.7	0.5	-95.2	-43.34	-13	-30.34	H
3.342800	41.02	Pk	32.5	-33.7	0.4	-95.2	-54.98	-13	-41.98	V
3.343289	41.15	Pk	32.5	-33.7	0.4	-95.2	-54.85	-13	-41.85	H
High Channel, 848.8 MHz										
1.706000	40.87	Pk	29	-34.9	0.6	-95.2	-59.63	-13	-46.63	H
1.710889	41.25	Pk	29.1	-34.9	0.7	-95.2	-59.05	-13	-46.05	V
2.543956	41.43	Pk	32.5	-34.7	0.6	-95.2	-55.37	-13	-42.37	V
2.550311	41.91	Pk	32.4	-34.7	0.7	-95.2	-54.89	-13	-41.89	H
3.374089	40.51	Pk	32.6	-33.6	0.5	-95.2	-55.19	-13	-42.19	V
3.377512	40.29	Pk	32.6	-33.6	0.5	-95.2	-55.41	-13	-42.41	H

10.2.2. GSM 1900

GRPS MODE

Project #:	14040868
Date:	5/4/2022
Test Engineer:	26120
Configuration;	EUT Only
Mode:	GPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700313	39.11	Pk	33.2	-32.3	-95.2	-55.19	-13	-42.19	H
3.700781	37.45	Pk	33.2	-32.3	-95.2	-56.85	-13	-43.85	V
5.552813	35.95	Pk	34.9	-29.7	-95.2	-54.05	-13	-41.05	V
5.553281	38.4	Pk	34.9	-29.7	-95.2	-51.6	-13	-38.6	H
7.401094	32.69	Pk	35.7	-26.3	-95.2	-53.11	-13	-40.11	H
7.401094	34.52	Pk	35.7	-26.3	-95.2	-51.28	-13	-38.28	V
Mid Channel, 1880MHz									
3.760313	38.98	Pk	33.6	-32.1	-95.2	-54.72	-13	-41.72	H
3.760313	38.32	Pk	33.6	-32.1	-95.2	-55.38	-13	-42.38	V
5.640000	36.53	Pk	35	-30.1	-95.2	-53.77	-13	-40.77	H
5.640000	37.59	Pk	35	-30.1	-95.2	-52.71	-13	-39.71	V
7.520156	33.72	Pk	35.7	-26.1	-95.2	-51.88	-13	-38.88	H
7.520156	33.86	Pk	35.7	-26.1	-95.2	-51.74	-13	-38.74	V
High Channel, 1909.8MHz									
3.818906	38.9	Pk	33.7	-31.8	-95.2	-54.4	-13	-41.4	H
3.818906	36.32	Pk	33.7	-31.8	-95.2	-56.98	-13	-43.98	V
5.729531	36.38	Pk	34.8	-29	-95.2	-53.02	-13	-40.02	H
5.729531	36.5	Pk	34.8	-29	-95.2	-52.9	-13	-39.9	V
7.639219	33.22	Pk	35.9	-26.5	-95.2	-52.58	-13	-39.58	H
7.639219	31.03	Pk	35.9	-26.5	-95.2	-54.77	-13	-41.77	V

EGPRS MODE

Project #:	14040868
Date:	5/4/2022
Test Engineer:	26120
Configuration;	EUT Only
Mode:	EGPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700313	38.8	Pk	33.2	-32.3	-95.2	-55.5	-13	-42.5	H
3.700313	37.24	Pk	33.2	-32.3	-95.2	-57.06	-13	-44.06	V
5.550469	37.08	Pk	34.9	-29.7	-95.2	-52.92	-13	-39.92	H
5.550469	35.95	Pk	34.9	-29.7	-95.2	-54.05	-13	-41.05	V
7.400625	32.04	Pk	35.7	-26.3	-95.2	-53.76	-13	-40.76	V
7.401094	32.75	Pk	35.7	-26.3	-95.2	-53.05	-13	-40.05	H
Mid Channel, 1880MHz									
3.760313	37.66	Pk	33.6	-32.1	-95.2	-56.04	-13	-43.04	H
3.760313	36.98	Pk	33.6	-32.1	-95.2	-56.72	-13	-43.72	V
5.640000	36.1	Pk	35	-30.1	-95.2	-54.2	-13	-41.2	H
5.640000	37.7	Pk	35	-30.1	-95.2	-52.6	-13	-39.6	V
7.520156	32.14	Pk	35.7	-26.1	-95.2	-53.46	-13	-40.46	H
7.520156	32.91	Pk	35.7	-26.1	-95.2	-52.69	-13	-39.69	V
High Channel, 1909.8MHz									
3.819844	36.57	Pk	33.7	-31.8	-95.2	-56.73	-13	-43.73	H
3.819844	37.4	Pk	33.7	-31.8	-95.2	-55.9	-13	-42.9	V
5.729531	37.05	Pk	34.8	-29	-95.2	-52.35	-13	-39.35	H
5.729531	36.99	Pk	34.8	-29	-95.2	-52.41	-13	-39.41	V
7.639219	32.69	Pk	35.9	-26.5	-95.2	-53.11	-13	-40.11	H
7.639219	33.84	Pk	35.9	-26.5	-95.2	-51.96	-13	-38.96	V

10.2.1. WCDMA BAND 5

REL 99 MODE

Project #:	14040868
Date:	5/16/2022
Test Engineer:	45258
Configuration;	EUT Only
Mode:	REL 99 Band 5
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.652711	40.26	Pk	28.5	-29.4	0.8	-95.2	-55.04	-13	-42.04	H
1.652711	38.26	Pk	28.5	-29.4	0.8	-95.2	-57.04	-13	-44.04	V
2.478445	37.06	Pk	32.2	-28.1	0.5	-95.2	-53.54	-13	-40.54	H
2.478445	38.43	Pk	32.2	-28.1	0.5	-95.2	-52.17	-13	-39.17	V
3.305645	36.82	Pk	32.5	-26.5	0.7	-95.2	-51.68	-13	-38.68	H
3.305645	36.68	Pk	32.5	-26.5	0.7	-95.2	-51.82	-13	-38.82	V
Mid Channel, 836.6MHz										
1.673245	40.58	Pk	28.4	-29.3	0.7	-95.2	-54.82	-13	-41.82	H
1.673245	39.66	Pk	28.4	-29.3	0.7	-95.2	-55.74	-13	-42.74	V
2.509734	38.53	Pk	32.4	-28.1	0.7	-95.2	-51.67	-13	-38.67	H
2.509734	37.25	Pk	32.4	-28.1	0.7	-95.2	-52.95	-13	-39.95	V
3.346223	36.34	Pk	32.7	-26.5	0.5	-95.2	-52.16	-13	-39.16	H
3.346223	34.89	Pk	32.7	-26.5	0.5	-95.2	-53.61	-13	-40.61	V
High Channel, 846.6MHz										
1.692311	39.87	Pk	28.5	-29.2	0.7	-95.2	-55.33	-13	-42.33	H
1.692311	38.26	Pk	28.5	-29.2	0.7	-95.2	-56.94	-13	-43.94	V
2.540534	36.84	Pk	32.2	-27.8	0.7	-95.2	-53.26	-13	-40.26	H
2.540534	38.36	Pk	32.2	-27.8	0.7	-95.2	-51.74	-13	-38.74	V
3.384356	37.05	Pk	32.8	-26.4	0.6	-95.2	-51.15	-13	-38.15	H
3.384356	35.38	Pk	32.8	-26.4	0.6	-95.2	-52.82	-13	-39.82	V

HSDPA MODE

Project #:	14040868
Date:	5/13/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 5
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.653200	38.52	Pk	28.5	-29.4	0.8	-95.2	-56.78	-13	-43.78	H
1.653200	39.14	Pk	28.5	-29.4	0.8	-95.2	-56.16	-13	-43.16	V
2.477956	38.64	Pk	32.2	-28.1	0.5	-95.2	-51.96	-13	-38.96	H
2.477956	37.19	Pk	32.2	-28.1	0.5	-95.2	-53.41	-13	-40.41	V
3.305645	36.13	Pk	32.5	-26.5	0.7	-95.2	-52.37	-13	-39.37	H
3.305645	35.71	Pk	32.5	-26.5	0.7	-95.2	-52.79	-13	-39.79	V
Mid Channel, 836.6MHz										
1.673245	39.37	Pk	28.4	-29.3	0.7	-95.2	-56.03	-13	-43.03	H
1.673245	40.28	Pk	28.4	-29.3	0.7	-95.2	-55.12	-13	-42.12	V
2.506311	38.99	Pk	32.3	-28	0.7	-95.2	-51.21	-13	-38.21	H
2.506311	37.4	Pk	32.3	-28	0.7	-95.2	-52.8	-13	-39.8	V
3.346712	35.32	Pk	32.7	-26.5	0.5	-95.2	-53.18	-13	-40.18	H
3.346712	35.48	Pk	32.7	-26.5	0.5	-95.2	-53.02	-13	-40.02	V
High Channel, 846.6MHz										
1.692311	40.13	Pk	28.5	-29.2	0.7	-95.2	-55.07	-13	-42.07	H
1.692311	37.48	Pk	28.5	-29.2	0.7	-95.2	-57.72	-13	-44.72	V
2.539556	35.7	Pk	32.2	-27.8	0.7	-95.2	-54.4	-13	-41.4	H
2.539556	37.21	Pk	32.2	-27.8	0.7	-95.2	-52.89	-13	-39.89	V
3.385334	36.14	Pk	32.8	-26.4	0.6	-95.2	-52.06	-13	-39.06	H
3.385334	35.05	Pk	32.8	-26.4	0.6	-95.2	-53.15	-13	-40.15	V

10.2.2. WCDMA BAND 2

REL 99 MODE

Project #:	14040868
Date:	5/12/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.704531	35.49	Pk	33.3	-25.1	-95.2	-51.51	-13	-38.51	H
3.704531	35.21	Pk	33.3	-25.1	-95.2	-51.79	-13	-38.79	V
5.556094	35.92	Pk	34.7	-22.6	-95.2	-47.18	-13	-34.18	H
5.556094	33.34	Pk	34.7	-22.6	-95.2	-49.76	-13	-36.76	V
7.409063	32.24	Pk	35.5	-19.7	-95.2	-47.16	-13	-34.16	H
7.409063	30.74	Pk	35.5	-19.7	-95.2	-48.66	-13	-35.66	V
Mid Channel, 1880MHz									
3.760781	36.5	Pk	33.4	-24.9	-95.2	-50.2	-13	-37.2	H
3.760781	34.23	Pk	33.4	-24.9	-95.2	-52.47	-13	-39.47	V
5.641875	35.46	Pk	34.8	-22	-95.2	-46.94	-13	-33.94	H
5.641875	33.63	Pk	34.8	-22	-95.2	-48.77	-13	-35.77	V
7.520156	31.7	Pk	35.6	-19.6	-95.2	-47.5	-13	-34.5	H
7.520156	31.85	Pk	35.6	-19.6	-95.2	-47.35	-13	-34.35	V
High Channel, 1907.6MHz									
3.815156	36.37	Pk	33.3	-25.2	-95.2	-50.73	-13	-37.73	H
3.815156	35.21	Pk	33.3	-25.2	-95.2	-51.89	-13	-38.89	V
5.722969	32.54	Pk	34.9	-23.1	-95.2	-50.86	-13	-37.86	H
5.722969	33.07	Pk	34.9	-23.1	-95.2	-50.33	-13	-37.33	V
7.630313	29.04	Pk	35.7	-18.4	-95.2	-48.86	-13	-35.86	H
7.630313	31.44	Pk	35.7	-18.4	-95.2	-46.46	-13	-33.46	V

HSDPA MODE

Project #:	14040868
Date:	5/9/2022
Test Engineer:	45258
Configuration;	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.704531	35.75	Pk	33.3	-25.1	-95.2	-51.25	-13	-38.25	H
3.704531	36.31	Pk	33.3	-25.1	-95.2	-50.69	-13	-37.69	V
5.557969	32.85	Pk	34.7	-22.6	-95.2	-50.25	-13	-37.25	H
5.557969	33.1	Pk	34.7	-22.6	-95.2	-50.00	-13	-37.00	V
7.410000	33.38	Pk	35.5	-19.7	-95.2	-46.02	-13	-33.02	H
7.410000	29.75	Pk	35.5	-19.7	-95.2	-49.65	-13	-36.65	V
Mid Channel, 1880MHz									
3.76125	36.28	Pk	33.4	-24.9	-95.2	-50.42	-13	-37.42	H
3.76125	35.62	Pk	33.4	-24.9	-95.2	-51.08	-13	-38.08	V
5.641406	33.5	Pk	34.8	-22	-95.2	-48.9	-13	-35.9	H
5.641406	34.2	Pk	34.8	-22	-95.2	-48.2	-13	-35.2	V
7.520625	30.25	Pk	35.6	-19.6	-95.2	-48.95	-13	-35.95	H
7.520625	31.12	Pk	35.6	-19.6	-95.2	-48.08	-13	-35.08	V
High Channel, 1907.6MHz									
3.815156	35.61	Pk	33.3	-25.2	-95.2	-51.49	-13	-38.49	H
3.815156	36.21	Pk	33.3	-25.2	-95.2	-50.89	-13	-37.89	V
5.722031	32.94	Pk	34.9	-23.1	-95.2	-50.46	-13	-37.46	H
5.722031	33.61	Pk	34.9	-23.1	-95.2	-49.79	-13	-36.79	V
7.629375	32.48	Pk	35.7	-18.4	-95.2	-45.42	-13	-32.42	H
7.629375	30.09	Pk	35.7	-18.4	-95.2	-47.81	-13	-34.81	V

10.2.3. WCDMA BAND 4

REL 99 MODE

Project #:	14040868
Date:	5/10/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.424688	36.4	Pk	32.7	-26.1	-95.2	-52.2	-13	-39.2	H
3.424688	34.25	Pk	32.7	-26.1	-95.2	-54.35	-13	-41.35	V
5.138438	35.05	Pk	34.3	-23.3	-95.2	-49.15	-13	-36.15	H
5.138438	33.47	Pk	34.3	-23.3	-95.2	-50.73	-13	-37.73	V
6.848906	29.86	Pk	35.5	-20.8	-95.2	-50.64	-13	-37.64	H
6.848906	31.99	Pk	35.5	-20.8	-95.2	-48.51	-13	-35.51	V
Mid Channel, 1732.6MHz									
3.464531	35.24	Pk	32.6	-26.1	-95.2	-53.46	-13	-40.46	H
3.464531	34.33	Pk	32.6	-26.1	-95.2	-54.37	-13	-41.37	V
5.196563	35.85	Pk	34.4	-23.9	-95.2	-48.85	-13	-35.85	H
5.196563	36.71	Pk	34.4	-23.9	-95.2	-47.99	-13	-34.99	V
6.933750	32.98	Pk	35.4	-20.6	-95.2	-47.42	-13	-34.42	H
6.933750	31.5	Pk	35.4	-20.6	-95.2	-48.9	-13	-35.9	V
High Channel, 1752.61MHz									
3.505313	33.13	Pk	32.7	-25.5	-95.2	-54.87	-13	-41.87	H
3.505313	39.32	Pk	32.7	-25.5	-95.2	-48.68	-13	-35.68	V
5.259375	32.52	Pk	34.4	-23.4	-95.2	-51.68	-13	-38.68	H
5.259375	35.73	Pk	34.4	-23.4	-95.2	-48.47	-13	-35.47	V
7.011563	29.13	Pk	35.5	-19.6	-95.2	-50.17	-13	-37.17	H
7.011563	33.04	Pk	35.5	-19.6	-95.2	-46.26	-13	-33.26	V

HSDPA MODE

Project #:	14040868
Date:	5/10/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.424688	33.93	Pk	32.7	-26.1	-95.2	-54.67	-13	-41.67	H
3.424688	34.41	Pk	32.7	-26.1	-95.2	-54.19	-13	-41.19	V
5.137969	32.89	Pk	34.3	-23.3	-95.2	-51.31	-13	-38.31	H
5.137969	33.77	Pk	34.3	-23.3	-95.2	-50.43	-13	-37.43	V
6.949219	32.16	Pk	35.5	-20.4	-95.2	-47.94	-13	-34.94	H
6.949219	29.17	Pk	35.5	-20.4	-95.2	-50.93	-13	-37.93	V
Mid Channel, 1732.6MHz									
3.463594	33.83	Pk	32.6	-26.1	-95.2	-54.87	-13	-41.87	H
3.463594	36.07	Pk	32.6	-26.1	-95.2	-52.63	-13	-39.63	V
5.198906	33.45	Pk	34.4	-23.9	-95.2	-51.25	-13	-38.25	H
5.198906	34.26	Pk	34.4	-23.9	-95.2	-50.44	-13	-37.44	V
6.93	32.7	Pk	35.4	-20.7	-95.2	-47.8	-13	-34.8	H
6.93	32.16	Pk	35.4	-20.7	-95.2	-48.34	-13	-35.34	V
High Channel, 1752.61MHz									
3.505781	32.53	Pk	32.7	-25.5	-95.2	-55.47	-13	-42.47	H
3.505781	35.16	Pk	32.7	-25.5	-95.2	-52.84	-13	-39.84	V
5.257969	33.37	Pk	34.4	-23.5	-95.2	-50.93	-13	-37.93	H
5.257969	32.86	Pk	34.4	-23.5	-95.2	-51.44	-13	-38.44	V
7.009688	31.36	Pk	35.5	-19.6	-95.2	-47.94	-13	-34.94	H
7.009688	30.85	Pk	35.5	-19.6	-95.2	-48.45	-13	-35.45	V

10.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 3

10.3.1. GSM 1900

GRPS

Project #:	14040868
Date:	5/4/2022
Test Engineer:	26120
Configuration;	EUT Only
Mode:	GPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700313	38.88	Pk	33.2	-32.3	-95.2	-55.42	-13	-42.42	H
3.700313	38.48	Pk	33.2	-32.3	-95.2	-55.82	-13	-42.82	V
5.550469	36.5	Pk	34.9	-29.7	-95.2	-53.5	-13	-40.5	H
5.550469	37.7	Pk	34.9	-29.7	-95.2	-52.3	-13	-39.3	V
7.401094	33.01	Pk	35.7	-26.3	-95.2	-52.79	-13	-39.79	H
7.401094	34.81	Pk	35.7	-26.3	-95.2	-50.99	-13	-37.99	V
Mid Channel, 1880MHz									
3.760313	38.05	Pk	33.6	-32.1	-95.2	-55.65	-13	-42.65	H
3.760313	38.76	Pk	33.6	-32.1	-95.2	-54.94	-13	-41.94	V
5.640469	36.4	Pk	35	-30.1	-95.2	-53.9	-13	-40.9	H
5.641875	38.64	Pk	35	-30.1	-95.2	-51.66	-13	-38.66	V
7.520156	32.78	Pk	35.7	-26.1	-95.2	-52.82	-13	-39.82	H
7.520156	32.3	Pk	35.7	-26.1	-95.2	-53.3	-13	-40.3	V
High Channel, 1909.8MHz									
3.818906	37.79	Pk	33.7	-31.8	-95.2	-55.51	-13	-42.51	H
3.818906	38.44	Pk	33.7	-31.8	-95.2	-54.86	-13	-41.86	V
5.729063	35.85	Pk	34.8	-29	-95.2	-53.55	-13	-40.55	H
5.729063	36.02	Pk	34.8	-29	-95.2	-53.38	-13	-40.38	V
7.639219	33.09	Pk	35.9	-26.5	-95.2	-52.71	-13	-39.71	H
7.639219	34.35	Pk	35.9	-26.5	-95.2	-51.45	-13	-38.45	V

EGPRS

Project #:	14040868
Date:	5/5/2022
Test Engineer:	26120
Configuration;	EUT Only
Mode:	EGPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700781	39.43	Pk	33.2	-32.3	-95.2	-54.87	-13	-41.87	H
3.700781	38.64	Pk	33.2	-32.3	-95.2	-55.66	-13	-42.66	V
5.55	37.11	Pk	34.9	-29.7	-95.2	-52.89	-13	-39.89	H
5.550469	36.34	Pk	34.9	-29.7	-95.2	-53.66	-13	-40.66	V
7.399688	33.34	Pk	35.7	-26.3	-95.2	-52.46	-13	-39.46	H
7.400156	34.29	Pk	35.7	-26.3	-95.2	-51.51	-13	-38.51	V
Mid Channel, 1880MHz									
3.759844	39.23	Pk	33.5	-32.1	-95.2	-54.57	-13	-41.57	H
3.760313	38.15	Pk	33.6	-32.1	-95.2	-55.55	-13	-42.55	V
5.64	35.28	Pk	35	-30.1	-95.2	-55.02	-13	-42.02	H
5.640469	35.88	Pk	35	-30.1	-95.2	-54.42	-13	-41.42	V
7.520156	33.3	Pk	35.7	-26.1	-95.2	-52.3	-13	-39.3	H
7.520156	32.49	Pk	35.7	-26.1	-95.2	-53.11	-13	-40.11	V
High Channel, 1909.8MHz									
3.819844	40.06	Pk	33.7	-31.8	-95.2	-53.24	-13	-40.24	H
3.819844	37.28	Pk	33.7	-31.8	-95.2	-56.02	-13	-43.02	V
5.729531	37.01	Pk	34.8	-29	-95.2	-52.39	-13	-39.39	H
5.729531	35.13	Pk	34.8	-29	-95.2	-54.27	-13	-41.27	V
7.639219	34.51	Pk	35.9	-26.5	-95.2	-51.29	-13	-38.29	H
7.639219	33.52	Pk	35.9	-26.5	-95.2	-52.28	-13	-39.28	V

10.3.2. WCDMA BAND 2

REL 99 MODE

Project #:	14040868
Date:	5/12/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.705000	35.48	Pk	33.3	-25.1	-95.2	-51.52	-13	-38.52	H
3.705000	36.06	Pk	33.3	-25.1	-95.2	-50.94	-13	-37.94	V
5.557969	34.8	Pk	34.7	-22.6	-95.2	-48.3	-13	-35.3	H
5.557969	33.09	Pk	34.7	-22.6	-95.2	-50.01	-13	-37.01	V
7.410000	30.75	Pk	35.5	-19.7	-95.2	-48.65	-13	-35.65	H
7.410000	31.23	Pk	35.5	-19.7	-95.2	-48.17	-13	-35.17	V
Mid Channel, 1880MHz									
3.759844	34.75	Pk	33.4	-24.9	-95.2	-51.95	-13	-38.95	H
3.759844	36.25	Pk	33.4	-24.9	-95.2	-50.45	-13	-37.45	V
5.639531	35.56	Pk	34.8	-22	-95.2	-46.84	-13	-33.84	H
5.639531	32.06	Pk	34.8	-22	-95.2	-50.34	-13	-37.34	V
7.520156	30.83	Pk	35.6	-19.6	-95.2	-48.37	-13	-35.37	H
7.520156	31.85	Pk	35.6	-19.6	-95.2	-47.35	-13	-34.35	V
High Channel, 1907.6MHz									
3.816563	36.72	Pk	33.3	-25.2	-95.2	-50.38	-13	-37.38	H
3.816563	36.52	Pk	33.3	-25.2	-95.2	-50.58	-13	-37.58	V
5.722969	32.59	Pk	34.9	-23.1	-95.2	-50.81	-13	-37.81	H
5.722969	34.35	Pk	34.9	-23.1	-95.2	-49.05	-13	-36.05	V
7.630781	31.59	Pk	35.7	-18.4	-95.2	-46.31	-13	-33.31	H
7.630781	30.8	Pk	35.7	-18.4	-95.2	-47.1	-13	-34.1	V

HSDPA MODE

Project #:	14040868
Date:	5/12/2022
Test Engineer:	45258
Configuration;	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.705000	34.71	Pk	33.3	-25.1	-95.2	-52.29	-13	-39.29	H
3.705000	37.38	Pk	33.3	-25.1	-95.2	-49.62	-13	-36.62	V
5.556563	34.86	Pk	34.7	-22.6	-95.2	-48.24	-13	-35.24	H
5.556563	32.85	Pk	34.7	-22.6	-95.2	-50.25	-13	-37.25	V
7.410469	30.37	Pk	35.5	-19.7	-95.2	-49.03	-13	-36.03	H
7.410469	29.45	Pk	35.5	-19.7	-95.2	-49.95	-13	-36.95	V
Mid Channel, 1880MHz									
3.759844	36.88	Pk	33.4	-24.9	-95.2	-49.82	-13	-36.82	H
3.759844	36.79	Pk	33.4	-24.9	-95.2	-49.91	-13	-36.91	V
5.640469	33.65	Pk	34.8	-22	-95.2	-48.75	-13	-35.75	H
5.640469	32.87	Pk	34.8	-22	-95.2	-49.53	-13	-36.53	V
7.520625	31.5	Pk	35.6	-19.6	-95.2	-47.7	-13	-34.7	H
7.520625	32.06	Pk	35.6	-19.6	-95.2	-47.14	-13	-34.14	V
High Channel, 1907.6MHz									
3.815625	36.33	Pk	33.3	-25.2	-95.2	-50.77	-13	-37.77	H
3.815625	35.13	Pk	33.3	-25.2	-95.2	-51.97	-13	-38.97	V
5.722969	33.83	Pk	34.9	-23.1	-95.2	-49.57	-13	-36.57	H
5.722969	33.52	Pk	34.9	-23.1	-95.2	-49.88	-13	-36.88	V
7.628906	31.22	Pk	35.7	-18.4	-95.2	-46.68	-13	-33.68	H
7.628906	32.46	Pk	35.7	-18.4	-95.2	-45.44	-13	-32.44	V

10.3.3. WCDMA BAND 4

REL 99 MODE

Project #:	14040868
Date:	5/11/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.425625	35.44	Pk	32.7	-26.1	-95.2	-53.16	-13	-40.16	H
3.425625	34.79	Pk	32.7	-26.1	-95.2	-53.81	-13	-40.81	V
5.137969	33.19	Pk	34.3	-23.3	-95.2	-51.01	-13	-38.01	H
5.137969	33.66	Pk	34.3	-23.3	-95.2	-50.54	-13	-37.54	V
6.849844	31.63	Pk	35.5	-20.8	-95.2	-48.87	-13	-35.87	H
6.849844	30.4	Pk	35.5	-20.8	-95.2	-50.1	-13	-37.1	V
Mid Channel, 1732.6MHz									
3.465000	33.9	Pk	32.6	-26.1	-95.2	-54.8	-13	-41.8	H
3.465000	36.03	Pk	32.6	-26.1	-95.2	-52.67	-13	-39.67	V
5.258438	32.44	Pk	34.4	-23.5	-95.2	-51.86	-13	-38.86	H
5.258438	33.76	Pk	34.4	-23.5	-95.2	-50.54	-13	-37.54	V
7.012031	33.08	Pk	35.5	-19.6	-95.2	-46.22	-13	-33.22	H
7.012031	31.55	Pk	35.5	-19.6	-95.2	-47.75	-13	-34.75	V
High Channel, 1752.61MHz									
3.505781	34.55	Pk	32.7	-25.5	-95.2	-53.45	-13	-40.45	H
3.505781	33.72	Pk	32.7	-25.5	-95.2	-54.28	-13	-41.28	V
5.257969	34.15	Pk	34.4	-23.5	-95.2	-50.15	-13	-37.15	H
5.257969	31.65	Pk	34.4	-23.5	-95.2	-52.65	-13	-39.65	V
7.009688	32.51	Pk	35.5	-19.6	-95.2	-46.79	-13	-33.79	H
7.009688	30.61	Pk	35.5	-19.6	-95.2	-48.69	-13	-35.69	V

HSDPA MODE

Project #:	14040868
Date:	5/11/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.524063	35.93	Pk	32.9	-25.3	-95.2	-51.67	-13	-38.67	H
3.524063	36.15	Pk	32.9	-25.3	-95.2	-51.45	-13	-38.45	V
5.126719	33.26	Pk	34.4	-23.1	-95.2	-50.64	-13	-37.64	H
5.126719	35.25	Pk	34.4	-23.1	-95.2	-48.65	-13	-35.65	V
6.850313	31.23	Pk	35.5	-20.8	-95.2	-49.27	-13	-36.27	H
6.850313	31.86	Pk	35.5	-20.8	-95.2	-48.64	-13	-35.64	V
Mid Channel, 1732.6MHz									
3.565781	34.75	Pk	32.9	-25	-95.2	-52.55	-13	-39.55	H
3.565781	33.9	Pk	32.9	-25	-95.2	-53.4	-13	-40.4	V
5.198438	34.04	Pk	34.4	-23.9	-95.2	-50.66	-13	-37.66	H
5.198438	31.35	Pk	34.4	-23.9	-95.2	-53.35	-13	-40.35	V
6.929063	33.13	Pk	35.4	-20.7	-95.2	-47.37	-13	-34.37	H
6.929063	32.02	Pk	35.4	-20.7	-95.2	-48.48	-13	-35.48	V
High Channel, 1752.61MHz									
3.508125	37.3	Pk	32.8	-25.5	-95.2	-50.6	-13	-37.6	H
3.508125	35.53	Pk	32.8	-25.5	-95.2	-52.37	-13	-39.37	V
5.257969	35.31	Pk	34.4	-23.5	-95.2	-48.99	-13	-35.99	H
5.257969	32.39	Pk	34.4	-23.5	-95.2	-51.91	-13	-38.91	V
7.008281	33.63	Pk	35.5	-19.6	-95.2	-45.67	-13	-32.67	H
7.008281	30.46	Pk	35.5	-19.6	-95.2	-48.84	-13	-35.84	V

10.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 4

10.4.1. GSM 1900

GRPS

Project #:	14040868
Date:	5/5/2022
Test Engineer:	26120
Configuration;	EUT Only
Mode:	GPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.703125	38.96	Pk	33.2	-32.3	-95.2	-55.34	-13	-42.34	V
3.703594	40.35	Pk	33.2	-32.3	-95.2	-53.95	-13	-40.95	H
5.550469	35.9	Pk	34.9	-29.7	-95.2	-54.1	-13	-41.1	H
5.550469	35.42	Pk	34.9	-29.7	-95.2	-54.58	-13	-41.58	V
7.400156	33.64	Pk	35.7	-26.3	-95.2	-52.16	-13	-39.16	V
7.400625	33.02	Pk	35.7	-26.3	-95.2	-52.78	-13	-39.78	H
Mid Channel, 1880MHz									
3.760313	38.21	Pk	33.6	-32.1	-95.2	-55.49	-13	-42.49	H
3.760313	37.62	Pk	33.6	-32.1	-95.2	-56.08	-13	-43.08	V
5.640000	36.73	Pk	35	-30.1	-95.2	-53.57	-13	-40.57	H
5.640000	35.82	Pk	35	-30.1	-95.2	-54.48	-13	-41.48	V
7.520156	31.82	Pk	35.7	-26.1	-95.2	-53.78	-13	-40.78	H
7.520625	35.13	Pk	35.8	-26.1	-95.2	-50.37	-13	-37.37	V
High Channel, 1909.8MHz									
3.819375	37.62	Pk	33.7	-31.8	-95.2	-55.68	-13	-42.68	H
3.819375	37.35	Pk	33.7	-31.8	-95.2	-55.95	-13	-42.95	V
5.729531	34.01	Pk	34.8	-29	-95.2	-55.39	-13	-42.39	H
5.729531	34.53	Pk	34.8	-29	-95.2	-54.87	-13	-41.87	V
7.639219	31.93	Pk	35.9	-26.5	-95.2	-53.87	-13	-40.87	H
7.639219	32.68	Pk	35.9	-26.5	-95.2	-53.12	-13	-40.12	V

EGPRS

Project #:	14040868
Date:	5/5/2022
Test Engineer:	26120
Configuration;	EUT Only
Mode:	EGPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.699844	39.67	Pk	33.2	-32.3	-95.2	-54.63	-13	-41.63	H
3.699844	37.97	Pk	33.2	-32.3	-95.2	-56.33	-13	-43.33	V
5.550469	36.66	Pk	34.9	-29.7	-95.2	-53.34	-13	-40.34	H
5.550938	38.38	Pk	34.9	-29.7	-95.2	-51.62	-13	-38.62	V
7.400625	31.34	Pk	35.7	-26.3	-95.2	-54.46	-13	-41.46	H
7.400625	34.02	Pk	35.7	-26.3	-95.2	-51.78	-13	-38.78	V
Mid Channel, 1880MHz									
3.760313	38.06	Pk	33.6	-32.1	-95.2	-55.64	-13	-42.64	H
3.760313	39.41	Pk	33.6	-32.1	-95.2	-54.29	-13	-41.29	V
5.640000	37.11	Pk	35	-30.1	-95.2	-53.19	-13	-40.19	H
5.640000	37.19	Pk	35	-30.1	-95.2	-53.11	-13	-40.11	V
7.520156	32.73	Pk	35.7	-26.1	-95.2	-52.87	-13	-39.87	H
7.520156	33.52	Pk	35.7	-26.1	-95.2	-52.08	-13	-39.08	V
High Channel, 1909.8MHz									
3.819844	38.03	Pk	33.7	-31.8	-95.2	-55.27	-13	-42.27	H
3.819844	37.8	Pk	33.7	-31.8	-95.2	-55.5	-13	-42.5	V
5.729531	34.66	Pk	34.8	-29	-95.2	-54.74	-13	-41.74	H
5.729531	35.46	Pk	34.8	-29	-95.2	-53.94	-13	-40.94	V
7.629375	32.37	Pk	35.8	-26.6	-95.2	-53.63	-13	-40.63	H
7.629375	33.54	Pk	35.8	-26.6	-95.2	-52.46	-13	-39.46	V

10.4.2. WCDMA BAND 2

REL 99 MODE

Project #:	14040868
Date:	5/13/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.706875	37.16	Pk	33.4	-25.1	-95.2	-49.74	-13	-36.74	H
3.706875	35.59	Pk	33.4	-25.1	-95.2	-51.31	-13	-38.31	V
5.557031	34.06	Pk	34.7	-22.6	-95.2	-49.04	-13	-36.04	H
5.557031	35.24	Pk	34.7	-22.6	-95.2	-47.86	-13	-34.86	V
7.410000	30.6	Pk	35.5	-19.7	-95.2	-48.8	-13	-35.8	H
7.410000	30.51	Pk	35.5	-19.7	-95.2	-48.89	-13	-35.89	V
Mid Channel, 1880MHz									
3.758906	35.76	Pk	33.4	-24.9	-95.2	-50.94	-13	-37.94	H
3.758906	34.36	Pk	33.4	-24.9	-95.2	-52.34	-13	-39.34	V
5.639531	34.53	Pk	34.8	-22	-95.2	-47.87	-13	-34.87	H
5.639531	32.83	Pk	34.8	-22	-95.2	-49.57	-13	-36.57	V
7.521563	31.73	Pk	35.6	-19.6	-95.2	-47.47	-13	-34.47	H
7.521563	32.39	Pk	35.6	-19.6	-95.2	-46.81	-13	-33.81	V
High Channel, 1907.6MHz									
3.814688	35.25	Pk	33.3	-25.2	-95.2	-51.85	-13	-38.85	H
3.814688	35.9	Pk	33.3	-25.2	-95.2	-51.2	-13	-38.2	V
5.723906	32.52	Pk	34.9	-23.2	-95.2	-50.98	-13	-37.98	H
5.723906	33.83	Pk	34.9	-23.2	-95.2	-49.67	-13	-36.67	V
7.628906	31.2	Pk	35.7	-18.4	-95.2	-46.7	-13	-33.7	V
7.629375	30.16	Pk	35.7	-18.4	-95.2	-47.74	-13	-34.74	H

HSDPA MODE

Project #:	14040868
Date:	5/12/2022
Test Engineer:	45258
Configuration;	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.705000	36.59	Pk	33.3	-25.1	-95.2	-50.41	-13	-37.41	H
3.705000	35.2	Pk	33.3	-25.1	-95.2	-51.8	-13	-38.8	V
5.557500	32.22	Pk	34.7	-22.6	-95.2	-50.88	-13	-37.88	H
5.557500	32.73	Pk	34.7	-22.6	-95.2	-50.37	-13	-37.37	V
7.410000	31.53	Pk	35.5	-19.7	-95.2	-47.87	-13	-34.87	H
7.410000	28.87	Pk	35.5	-19.7	-95.2	-50.53	-13	-37.53	V
Mid Channel, 1880MHz									
3.760313	35.09	Pk	33.4	-24.9	-95.2	-51.61	-13	-38.61	H
3.760313	36.01	Pk	33.4	-24.9	-95.2	-50.69	-13	-37.69	V
5.640938	32.26	Pk	34.8	-22	-95.2	-50.14	-13	-37.14	H
5.640938	33.35	Pk	34.8	-22	-95.2	-49.05	-13	-36.05	V
7.521094	31.01	Pk	35.6	-19.6	-95.2	-48.19	-13	-35.19	H
7.521094	30.02	Pk	35.6	-19.6	-95.2	-49.18	-13	-36.18	V
High Channel, 1907.6MHz									
3.815625	36.26	Pk	33.3	-25.2	-95.2	-50.84	-13	-37.84	H
3.815625	36.93	Pk	33.3	-25.2	-95.2	-50.17	-13	-37.17	V
5.722969	31.92	Pk	34.9	-23.1	-95.2	-51.48	-13	-38.48	H
5.722969	33.68	Pk	34.9	-23.1	-95.2	-49.72	-13	-36.72	V
7.630313	32.47	Pk	35.7	-18.4	-95.2	-45.43	-13	-32.43	H
7.630313	29.91	Pk	35.7	-18.4	-95.2	-47.99	-13	-34.99	V

10.4.3. WCDMA BAND 4

REL 99 MODE

Project #:	14040868
Date:	5/11/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.425156	34.88	Pk	32.7	-26.1	-95.2	-53.72	-13	-40.72	H
3.425156	34.52	Pk	32.7	-26.1	-95.2	-54.08	-13	-41.08	V
5.137969	33.94	Pk	34.3	-23.3	-95.2	-50.26	-13	-37.26	H
5.137969	33.68	Pk	34.3	-23.3	-95.2	-50.52	-13	-37.52	V
6.850313	30.72	Pk	35.5	-20.8	-95.2	-49.78	-13	-36.78	H
6.850313	31.91	Pk	35.5	-20.8	-95.2	-48.59	-13	-35.59	V
Mid Channel, 1732.6MHz									
3.466406	35.09	Pk	32.6	-26.1	-95.2	-53.61	-13	-40.61	H
3.466406	33.9	Pk	32.6	-26.1	-95.2	-54.8	-13	-41.8	V
5.198438	33.01	Pk	34.4	-23.9	-95.2	-51.69	-13	-38.69	H
5.198438	34.96	Pk	34.4	-23.9	-95.2	-49.74	-13	-36.74	V
6.930000	31.94	Pk	35.4	-20.7	-95.2	-48.56	-13	-35.56	H
6.930000	30.81	Pk	35.4	-20.7	-95.2	-49.69	-13	-36.69	V
High Channel, 1752.61MHz									
3.506250	32.58	Pk	32.7	-25.5	-95.2	-55.42	-13	-42.42	H
3.506250	35.11	Pk	32.7	-25.5	-95.2	-52.89	-13	-39.89	V
5.257969	33.71	Pk	34.4	-23.5	-95.2	-50.59	-13	-37.59	H
5.257969	33.51	Pk	34.4	-23.5	-95.2	-50.79	-13	-37.79	V
7.009688	30.35	Pk	35.5	-19.6	-95.2	-48.95	-13	-35.95	H
7.009688	32.02	Pk	35.5	-19.6	-95.2	-47.28	-13	-34.28	V

HSDPA MODE

Project #:	14040868
Date:	5/11/2022
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 80402 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.424688	33.74	Pk	32.7	-26.1	-95.2	-54.86	-13	-41.86	H
3.424688	34.84	Pk	32.7	-26.1	-95.2	-53.76	-13	-40.76	V
5.137500	33.17	Pk	34.3	-23.3	-95.2	-51.03	-13	-38.03	H
5.137500	33.02	Pk	34.3	-23.3	-95.2	-51.18	-13	-38.18	V
6.850781	30.64	Pk	35.5	-20.8	-95.2	-49.86	-13	-36.86	H
6.850781	33.2	Pk	35.5	-20.8	-95.2	-47.3	-13	-34.3	V
Mid Channel, 1732.6MHz									
3.466875	35.6	Pk	32.6	-26.1	-95.2	-53.1	-13	-40.1	H
3.466875	34.08	Pk	32.6	-26.1	-95.2	-54.62	-13	-41.62	V
5.197500	34.5	Pk	34.4	-23.9	-95.2	-50.2	-13	-37.2	H
5.197500	33.86	Pk	34.4	-23.9	-95.2	-50.84	-13	-37.84	V
6.930000	32.93	Pk	35.4	-20.7	-95.2	-47.57	-13	-34.57	H
6.930000	30.81	Pk	35.4	-20.7	-95.2	-49.69	-13	-36.69	V
High Channel, 1752.61MHz									
3.505313	32.71	Pk	32.7	-25.5	-95.2	-55.29	-13	-42.29	H
3.505313	34.38	Pk	32.7	-25.5	-95.2	-53.62	-13	-40.62	V
5.258438	32.68	Pk	34.4	-23.5	-95.2	-51.62	-13	-38.62	H
5.258438	32.45	Pk	34.4	-23.5	-95.2	-51.85	-13	-38.85	V
7.010625	30.74	Pk	35.5	-19.6	-95.2	-48.56	-13	-35.56	H
7.010625	31.71	Pk	35.5	-19.6	-95.2	-47.59	-13	-34.59	V

11. SETUP PHOTOS

Please refer to 14040868-EP1V1 for setup photos.

END OF REPORT