

TEST REPORT

Report Number: 14523771-E17V2

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

Model : A2849

Brand : APPLE

FCC ID : BCG-E8439A

IC : BCG-E8439A

EUT Description : SMARTPHONE

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

Date Of Issue:
2023-08-29

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Revision History

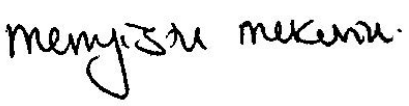
Rev.	Issue Date	Revisions	Revised By
V1	2023-07-10	Initial Review	Mengistu Mekuria
V2	2023-08-29	Addressed TCB Feedback Section cover page, section 1, 6.1, 6.2, 10.3.1, 10.4.3 & 11	Tewodros Woldemichael

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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	A2849	
Brand	APPLE	
FCC ID	BCG-E8439A	
IC	579C-E8439A	
EUT Description	SMARTPHONE	
Serial Number	W7W56L746D, FNVV33XXWW, W6RH2WDKJY (RADIATED) PV2DL69JHL, MN6T009G39, C07GVM000FQ000046Y (CONDUCTED)	
Sample Receipt Date	2023-02-05	
Date Tested	2023-02-05 TO 2023-07-15	
Applicable Standards	FCC 47 CFR Part 2, Part 22, Part 24, and Part 27 ISED RSS-GEN ISSUE 5, RSS-132 Issue 4, RSS-133 Issue 6, RSS-139 Issue 4.	
Test Results	COMPLIES	
UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report. The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. All samples tested were in good operating condition throughout the entire test program. Measurement Uncertainties are published for informational purposes only and were not taken into account unless noted otherwise. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. 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:
		
Mengistu Mekuria Staff Engineer UL Verification Services Inc.	Tewodros Woldemichael Laboratory Engineer UL Verification Services Inc.	Matthew Wu Laboratory Engineer UL Verification Services Inc.

2. SUMMARY OF TEST RESULTS

This report contains data provided by the customer which can impact the validity of results. UL Verification Services Inc. is only responsible for 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)	RSS132§5.4	Complies	
Equivalent Isotropic Radiated power	24.232 (c), 27.50 (d) (4)	RSS133§6.4 & SRSP-510, 5.1.2 RSS139§5.5	Complies	
Occupied Bandwidth	2.1049	RSS132 RSS133§2.3 RSS139 RSS-GEN§6.7	Complies	
Band Edge and Emission Mask	2.1051, 22.917 (a), 24.238 (a), 27.53 (h),	RSS132§5.5 RSS133§6.5 RSS139§5.6	Complies	
Out of Band Emissions	2.1051, 22.917 (a), 24.238 (a), 27.53 (h),	RSS132§5.5 RSS133§6.5 RSS139§5.6	Complies	
Frequency Stability	2.1055, 22.355, 24.235, 27.54	RSS132§5.3 RSS133§6.3 RSS139§6.4	Complies	
Peak-to-Average Ratio	22.913 (d), 24.232 (d), 27.50 (d) (5)	RSS132§5.4 RSS133§6.4 RSS139§5.5	Complies	
Field Strength of Spurious Radiation	2.1053, 22.917 (a), 24.238 (a), 27.53 (h),	RSS132§5.5 RSS133§6.5 RSS139§5.6	Complies	

3. TEST METHODOLOGY

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

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

4. FACILITIES AND ACCREDITATION

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

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

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

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

5.2. DECISION RULES

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

5.3. MEASUREMENT UNCERTAINTY

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

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

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

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

36.5 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 cellular GSM, GPRS, EGPRS, UMTS, LTE, 5G NR1, 5G NR2, IEEE 802.11a/b/g/n/ac/ax, Bluetooth (BT), Ultra-Wideband (UWB), GPS, NFC, 802.15ab-NB and MSS technologies. The rechargeable battery is not user accessible.

6.2. MAXIMUM OUTPUT POWER

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015
KDB 971168 D01 Section 5.6

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

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

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

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

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

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

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

GSM MODES

RSS 132 850MHz(Ant1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.2-848.8	GPRS	33.17	-5.50	3.0	25.52	0.356	247.02	247KGXW
	EGPRS	28.00			20.35	0.108	238.21	238KG7W
Part 22 850MHz(Ant1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.2-848.8	GPRS	33.17	-5.50	3.0	25.52	0.356	247.02	247KGXW
	EGPRS	28.00			20.35	0.108	238.21	238KG7W
Part 24 / RSS 133 1900MHz(Ant3)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1850.2-1909.8	GPRS	31.50	-1.00	2.0	30.50	1.122	246.11	246KGXW
	EGPRS	26.50			25.50	0.355	244.19	244KG7W

WCDMA MODE

RSS 132 Band 5(Ant1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
826.4-846.6	REL 99	25.70	-5.50	3.0	18.05	0.064	4147	4M15F9W
	HSDPA	25.43			17.78	0.060	4141	4M14F9W
Part 22 Band 5(Ant1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
826.4-846.6	REL 99	25.70	-5.50	3.0	18.05	0.064	4147	4M15F9W
	HSDPA	25.43			17.78	0.060	4141	4M14F9W
Part 24 / RSS 133 Band 2(Ant3)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1852.4-1907.6	REL 99	25.50	-1.00	2.0	24.50	0.282	4162	4M16F9W
	HSDPA	25.00			24.00	0.251	4173	4M17F9W
Part 27 / RSS 139 Band 4(Ant3)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1712.4-1752.6	REL 99	25.50	-2.90	1.0	22.60	0.182	4150	4M15F9W
	HSDPA	25.08			22.18	0.165	4171	4M17F9W

6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 0.13.02.

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	-5.5	-5		
GSM1900 and WCDMA 2 1850 – 1910 MHz	-5.5	-1.3	-1.0	-0.4
WCDMA 4 1710 – 1755 MHz	-3.6	-4.3	-2.9	-0.8

6.5. WORST-CASE CONFIGURATION AND MODE

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

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

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

The worst-case scenario for all measurements as followed:

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

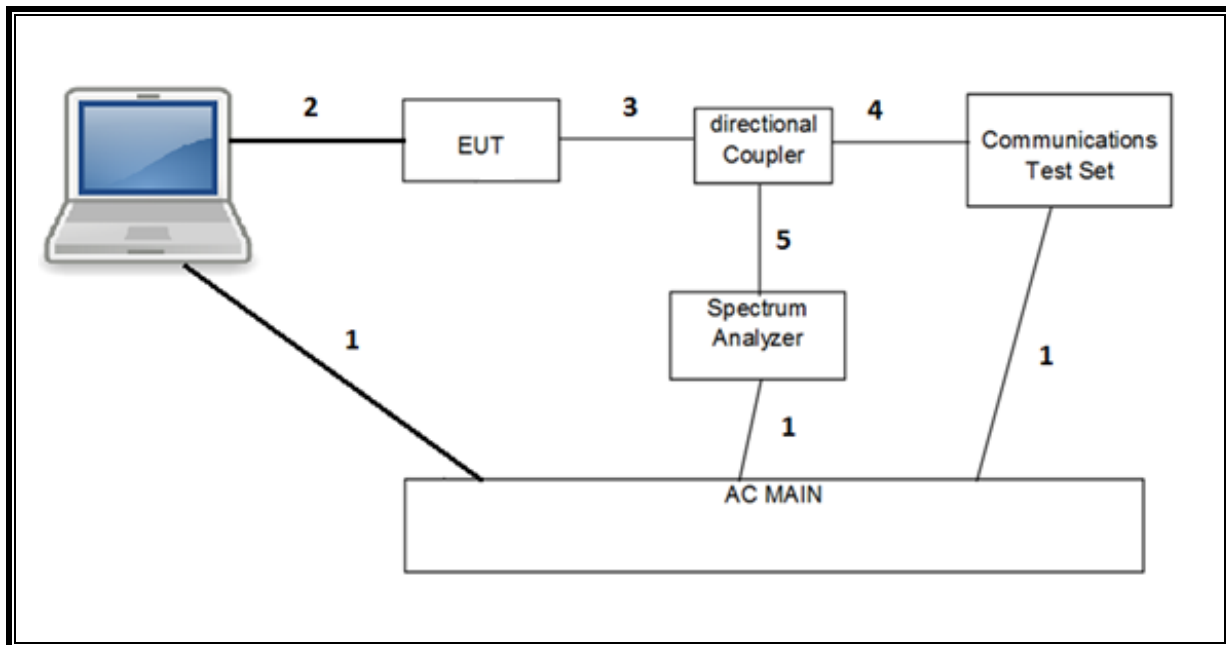
Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

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

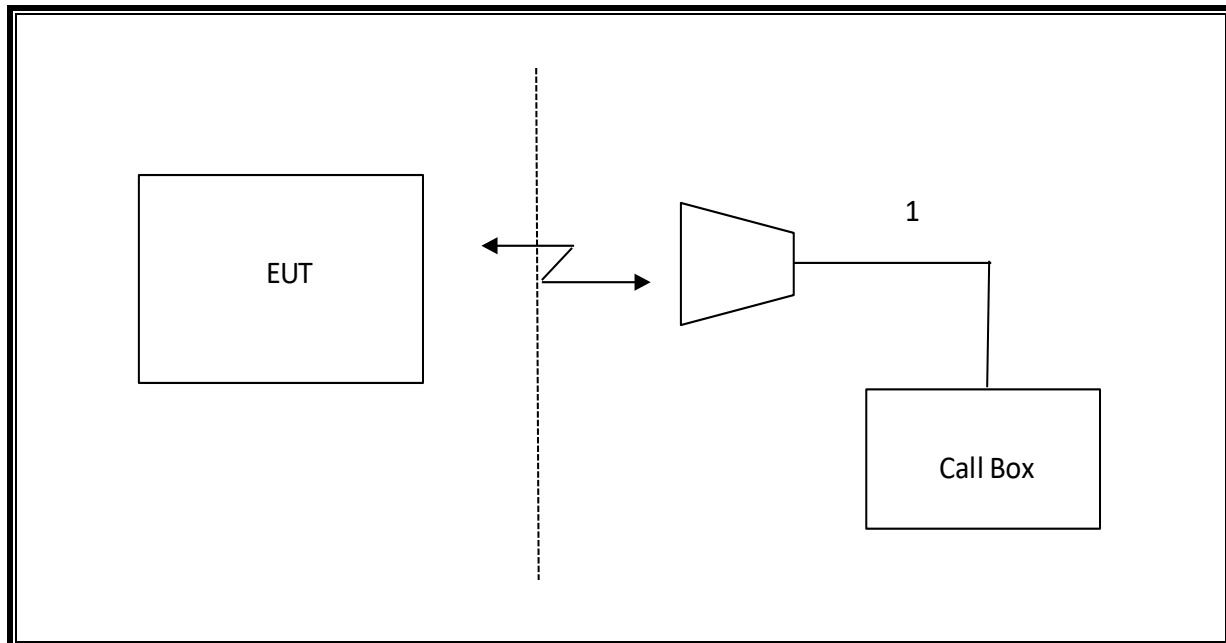
6.6. DESCRIPTION OF TEST SETUP

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

CONDUCTED SETUP



RADIATED SETUP



7. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
*Antenna, Horn 1-18GHz	ETS Lindgren	3117	79834	06/08/2023
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	85151	04/30/2024
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	85313	02/29/2024
Spectrum Analyzer, PXA	Keysight	N9030B	222074	07/16/2023
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	85201	02/29/2024
Spectrum Analyzer, PXA	Keysight	N9030B	85214	07/18/2023
Spectrum Analyzer, PXA	Keysight	N9030B	222073	07/22/2023
PXA Signal Analyzer	Keysight	N9030B	222073	07/22/2023
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	230548	02/29/2024
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	201498	02/29/2024
Directional Coupler	KRYTAR	152610	198816	09/23/2023
Directional Coupler	KRYTAR	152610	198817	09/23/2023
Directional Coupler	KRYTAR	152610	135712	09/23/2023
Power Meter, P-series single channel	Keysight	N1912A	90630	01/24/2024
Power Meter, P-series single channel	Keysight	N1912A	90719	01/31/2024
Power Meter, P-series single channel	Agilent	N1911A	82174	01/31/2024
Power Sensor, P- series, 50MHz to 18GHz, Wideband	Keysight	N1921A	90389	01/31/2024
Filter, BRF 2495 – 2690 MHz	Micro-Tronics	155050	155055	12/28/2023
Filter, BRF 3.4 – 3.8GHz	Micro-Tronics	208398	208398	08/19/2023
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	222792	02/29/2024
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	230298	02/29/2024
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	230295	02/29/2024
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	22796	02/29/2024
Wideband Communication Test Set, Call Box	Rohde & Schwarz	CMW500	230297	02/29/2024
*5G NR Communication Test Set, Call Box	Keysight	UXM	207269	01/31/2024
*5G NR Communication Test Set, Call Box	Keysight	UXM	199836	01/31/2024
*Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	82472	11/16/2023
*Amplifier, 218GHz to 26.5GHz	Ampical	AMP18G26.5-60	215705	02/26/2023
*Amplifier, 26.5GHz to 40GHz	Ampical	AMP26G40-65	172346	02/29/2024
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826/B	172362	03/31/2024
Antenna, Horn 26.5GHz to 40GHz	ARA	MWH-2640/B	172365	03/31/2024
*Antenna, Active Loop 100KHz to 30MHz	ELECTRO-METRICS	EM-6872	219911	05/10/2023
*Antenna, Active Loop 30Hz to 1MHz	ELECTRO-METRICS	EM-6871	219909	05/10/2023
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	236360	N/A
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	236285	N/A
10dB Fixed Attenuator	Pasternack Enterprises	PE7087-10	236355	N/A
UL AUTOMATION SOFTWARE				
CLT Software	UL	UL RF	Ver 3.4, May 20, 2022	
Power Measurement Software	UL	UL RF	Ver 3.1.4, April 29, 2022	
Radiated test software	UL	UL RF	Ver 9.5, Jan 21, 2022	

NOTES:

- * 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:	25780	Test Date:	7/9/2023
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Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)	
					ANT 1	ANT 2
GPRS (GMSK)	CS1	1	128	824.2	32.72	31.85
			190	836.6	33.17	32.26
			251	848.8	33.17	32.32
		2	128	824.2	32.00	31.43
			190	836.6	32.45	31.39
			251	848.8	32.50	31.50
EGPRS (8PSK)	MCS5	1	128	824.2	27.43	26.82
			190	836.6	27.77	26.99
			251	848.8	28.00	27.00
		2	128	824.2	26.73	25.52
			190	836.6	27.00	25.98
			251	848.8	26.83	26.00

8.1.2. GSM 1900

Test Engineer ID:	25780	Test Date:	5/5/2023
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Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)			
					ANT 1	ANT 2	ANT 3	ANT 4
GPRS (GMSK)	CS1	1	512	1850.2	31.23	28.93	31.50	28.23
			661	1880	32.00	29.09	31.24	28.94
			810	1909.8	31.22	28.95	31.19	29.00
		2	512	1850.2	30.30	28.24	30.50	28.00
			661	1880	30.31	28.21	30.32	27.78
			810	1909.8	30.17	28.03	30.42	27.72
EGPRS (8PSK)	MCS5	1	512	1850.2	26.56	23.66	26.50	23.97
			661	1880	26.75	24.00	26.28	23.98
			810	1909.8	26.75	23.86	26.25	24.00
		2	512	1850.2	25.66	23.00	25.50	23.00
			661	1880	25.98	22.97	25.44	22.97
			810	1909.8	26.00	22.85	25.48	22.95

8.2. WCDMA

TEST PROCEDURE

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

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

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

REL 99

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

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

HSDPA REL 5

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

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

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

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

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

Note 3: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of 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 $\beta_c = 11/15$ and $\beta_d = 15/15$.

HSPA REL 6 (HSDPA & HSUPA)

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

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

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

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

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

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

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

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

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

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

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

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

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

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

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

HSPA+ REL 7

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

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

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

RESULT

8.2.1. WCDMA BAND 5

Test Engineer ID:	25780	Test Date:	5/4/2023
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Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)	
						ANT 1	ANT 2
W-CDMA Band 5 (850MHz)	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	25.63	24.70
			4183	836.6	N/A	25.68	24.67
			4233	846.6	N/A	25.70	24.68
	HSDPA	Subtest 1	4132	826.4	0	25.36	24.56
			4183	836.6	0	25.39	24.50
			4233	846.6	0	25.41	24.50
		Subtest 2	4132	826.4	0	25.42	24.58
			4183	836.6	0	25.42	24.52
			4233	846.6	0	25.43	24.53
		Subtest 3	4132	826.4	0.5	24.91	24.10
			4183	836.6	0.5	24.90	24.01
			4233	846.6	0.5	24.44	24.02
		Subtest 4	4132	826.4	0.5	24.93	24.06
			4183	836.6	0.5	24.46	24.03
			4233	846.6	0.5	24.94	24.04
	HSPA (HSDPA & HSUPA)	Subtest 1	4132	826.4	0	25.39	24.55
			4183	836.6	0	25.40	24.56
			4233	846.6	0	25.43	24.55
		Subtest 2	4132	826.4	2	23.36	22.57
			4183	836.6	2	23.40	22.53
			4233	846.6	2	23.41	22.55
		Subtest 3	4132	826.4	1	24.38	23.56
			4183	836.6	1	24.38	23.54
			4233	846.6	1	24.42	23.53
		Subtest 4	4132	826.4	2	23.37	22.58
			4183	836.6	2	23.42	22.56
			4233	846.6	2	23.44	22.54
		Subtest 5	4132	826.4	0	24.95	24.10
			4183	836.6	0	24.97	24.08
			4233	846.6	0	24.99	24.11
	DC-HSDPA	Subtest 1	4132	826.4	0	25.36	24.54
			4183	836.6	0	25.38	24.52
			4233	846.6	0	25.42	24.53
		Subtest 2	4132	826.4	0	25.41	24.58
			4183	836.6	0	25.42	24.54
			4233	846.6	0	25.42	24.54
		Subtest 3	4132	826.4	0.5	24.91	24.09
			4183	836.6	0.5	24.90	24.03
			4233	846.6	0.5	24.91	24.00
		Subtest 4	4132	826.4	0.5	24.89	24.05
			4183	836.6	0.5	24.92	24.03
			4233	846.6	0.5	24.93	24.03

8.2.2. WCDMA BAND 2

Test Engineer ID:	25780	Test Date:	5/4/2023
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Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)			
						ANT 1	ANT 2	ANT 3	ANT 4
W-CDMA Band 2 (1900MHz)	Rel 99	RMC, 12.2 kbps	9262	1852.4	N/A	25.70	23.40	25.50	22.90
			9400	1880.0	N/A	25.55	23.25	25.43	22.83
			9538	1907.6	N/A	25.48	23.18	25.38	22.78
	HSDPA	Subtest 1	9262	1852.4	0	25.32	22.91	24.96	22.32
			9400	1880.0	0	25.15	22.77	24.88	22.35
			9538	1907.6	0	25.08	22.61	24.83	22.34
		Subtest 2	9262	1852.4	0	25.31	22.93	25.00	22.35
			9400	1880.0	0	25.16	22.77	24.91	22.36
			9538	1907.6	0	25.09	22.62	24.86	22.35
		Subtest 3	9262	1852.4	0.5	24.85	22.39	24.49	21.82
			9400	1880.0	0.5	24.68	22.27	24.41	21.86
			9538	1907.6	0.5	24.61	22.12	24.37	21.86
		Subtest 4	9262	1852.4	0.5	24.76	22.41	24.50	21.83
			9400	1880.0	0.5	24.65	22.22	24.40	21.87
			9538	1907.6	0.5	24.61	22.10	24.36	21.86
	HSPA (HSDPA & HSUPA)	Subtest 1	9262	1852.4	0	25.29	22.88	24.99	22.33
			9400	1880.0	0	25.18	22.77	24.97	22.38
			9538	1907.6	0	25.09	22.62	24.88	22.41
		Subtest 2	9262	1852.4	2	23.30	20.86	22.99	20.33
			9400	1880.0	2	23.09	20.73	22.93	20.38
			9538	1907.6	2	23.06	20.59	22.86	20.38
		Subtest 3	9262	1852.4	1	24.28	21.86	23.97	21.33
			9400	1880.0	1	24.11	21.75	23.95	21.41
			9538	1907.6	1	24.07	21.57	23.88	21.37
		Subtest 4	9262	1852.4	2	23.32	20.83	22.97	20.34
			9400	1880.0	2	23.17	20.74	22.96	20.39
			9538	1907.6	2	23.09	20.59	22.89	20.43
		Subtest 5	9262	1852.4	0	24.88	22.40	24.55	21.87
			9400	1880.0	0	24.75	22.26	24.52	21.96
			9538	1907.6	0	24.65	22.20	24.50	22.00
	DC-HSDPA	Subtest 1	9262	1852.4	0	25.31	22.88	25.02	22.36
			9400	1880.0	0	25.16	22.74	24.96	22.39
			9538	1907.6	0	25.10	22.59	24.89	22.37
		Subtest 2	9262	1852.4	0	25.34	22.89	25.00	22.38
			9400	1880.0	0	25.19	22.74	24.95	22.39
			9538	1907.6	0	25.07	22.57	24.88	22.36
		Subtest 3	9262	1852.4	0.5	24.84	22.35	24.53	21.87
			9400	1880.0	0.5	24.68	22.24	24.44	21.89
			9538	1907.6	0.5	24.59	22.09	24.38	21.87
		Subtest 4	9262	1852.4	0.5	24.86	22.38	24.49	21.89
			9400	1880.0	0.5	24.67	22.22	24.44	21.89
			9538	1907.6	0.5	24.60	22.07	24.38	21.86

8.2.3. WCDMA BAND 4

Test Engineer ID:	25780	Test Date:	5/4/2023
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Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)			
						ANT 1	ANT 2	ANT 3	ANT 4
W-CDMA Band 4 (1700MHz)	Rel 99	RMC, 12.2 kbps	1312	1712.4	N/A	25.70	23.40	25.50	22.84
			1413	1732.6	N/A	25.55	23.20	25.50	22.76
			1513	1752.6	N/A	25.67	23.33	25.46	22.90
	HSDPA	Subtest 1	1312	1712.4	0	25.67	23.19	25.07	22.41
			1413	1732.6	0	25.54	22.94	25.08	22.32
			1513	1752.6	0	25.67	23.06	25.03	22.47
		Subtest 2	1312	1712.4	0	25.68	23.14	25.07	22.37
			1413	1732.6	0	25.56	22.90	25.05	22.31
			1513	1752.6	0	25.67	23.07	25.04	22.43
		Subtest 3	1312	1712.4	0.5	25.16	22.70	24.56	21.91
			1413	1732.6	0.5	25.05	22.44	24.58	21.84
			1513	1752.6	0.5	25.14	22.58	24.56	21.96
		Subtest 4	1312	1712.4	0.5	25.19	22.65	24.59	21.86
			1413	1732.6	0.5	25.03	22.44	24.57	21.81
			1513	1752.6	0.5	25.17	22.58	24.58	21.97
	HSPA (HSDPA & HSUPA)	Subtest 1	1312	1712.4	0	25.64	23.17	25.07	22.39
			1413	1732.6	0	25.55	22.76	25.11	22.34
			1513	1752.6	0	25.64	23.12	25.17	22.52
		Subtest 2	1312	1712.4	2	23.61	21.13	23.07	20.37
			1413	1732.6	2	23.53	20.92	23.12	20.33
			1513	1752.6	2	23.59	21.07	23.11	20.50
		Subtest 3	1312	1712.4	1	24.61	22.14	24.08	21.40
			1413	1732.6	1	24.52	21.98	24.11	21.34
			1513	1752.6	1	24.59	22.09	24.09	21.45
		Subtest 4	1312	1712.4	2	23.63	21.20	23.12	20.43
			1413	1732.6	2	23.49	20.97	23.08	20.34
			1513	1752.6	2	23.23	21.10	23.11	20.48
		Subtest 5	1312	1712.4	0	25.23	22.71	24.65	21.93
			1413	1732.6	0	25.09	22.51	24.67	21.93
			1513	1752.6	0	25.07	22.67	24.66	22.05
	DC-HSDPA	Subtest 1	1312	1712.4	0	25.65	23.17	25.12	22.45
			1413	1732.6	0	25.52	22.95	25.13	22.38
			1513	1752.6	0	25.64	23.07	25.06	22.48
		Subtest 2	1312	1712.4	0	25.67	23.17	25.07	22.44
			1413	1732.6	0	25.55	22.90	25.05	22.29
			1513	1752.6	0	25.66	23.06	25.02	22.42
		Subtest 3	1312	1712.4	0.5	25.18	22.65	24.60	21.89
			1413	1732.6	0.5	25.03	22.43	24.56	21.82
			1513	1752.6	0.5	25.12	22.60	24.56	21.93
		Subtest 4	1312	1712.4	0.5	25.17	22.67	24.57	21.91
			1413	1732.6	0.5	25.03	22.44	24.57	21.80
			1513	1752.6	0.5	25.16	22.60	24.58	21.97

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.

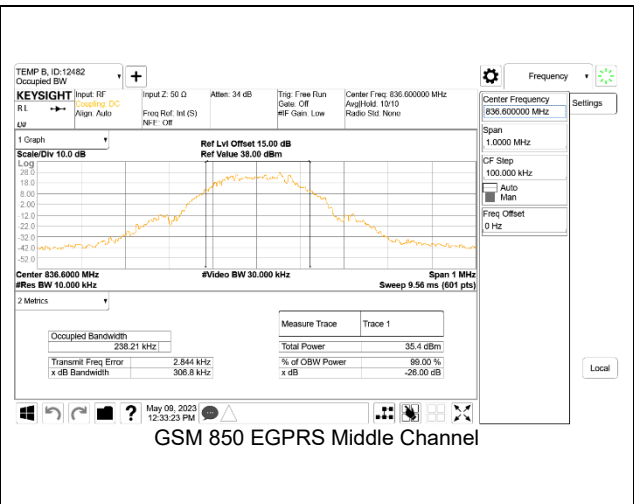
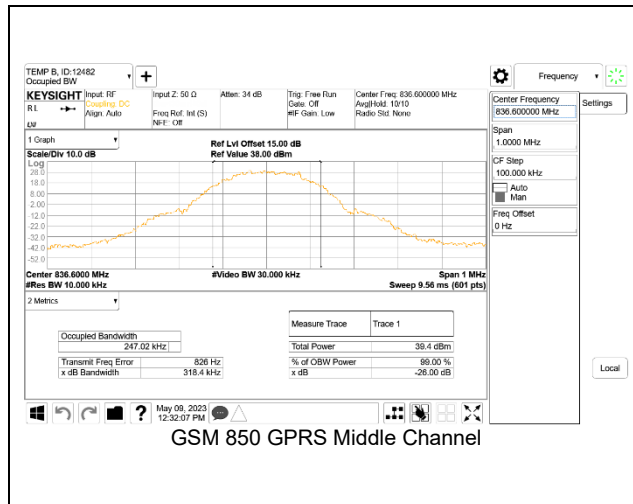
GSM

Band	Modulation	Channel	f(MHz)	99% BW (KHz)	-26dB BW (KHz)
850	GPRS	190	836.6	247.02	318.4
	EGPRS			238.21	306.8
1900	GPRS	661	1880.0	246.11	319.3
	EGPRS			244.19	299.7

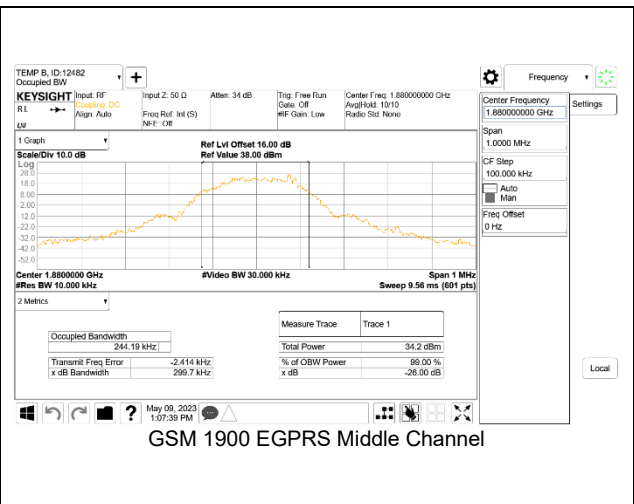
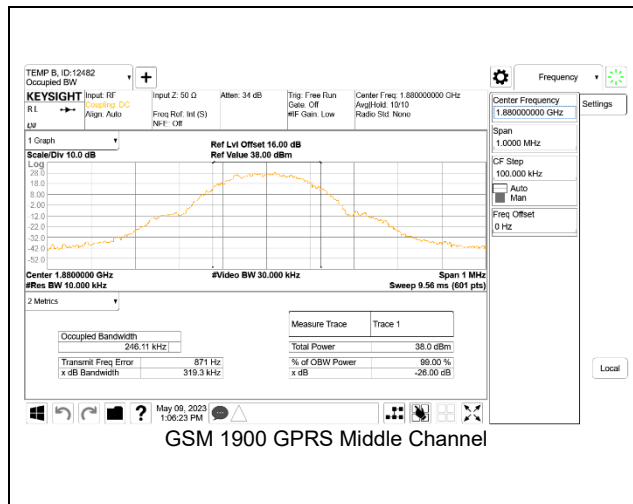
WCDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	REL 99	4408	836.6	4.1472	4.714
	HSDPA			4.1412	4.680
BAND 2	REL 99	9800	1880.0	4.1623	4.731
	HSDPA			4.1726	4.725
BAND 4	REL 99	1638	1732.6	4.1500	4.720
	HSDPA			4.1711	4.708

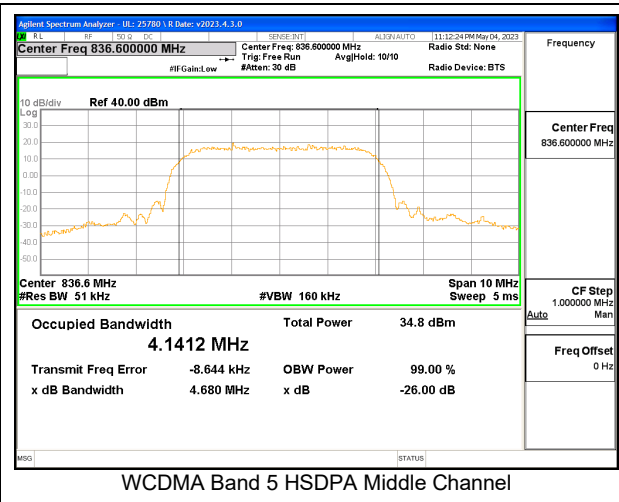
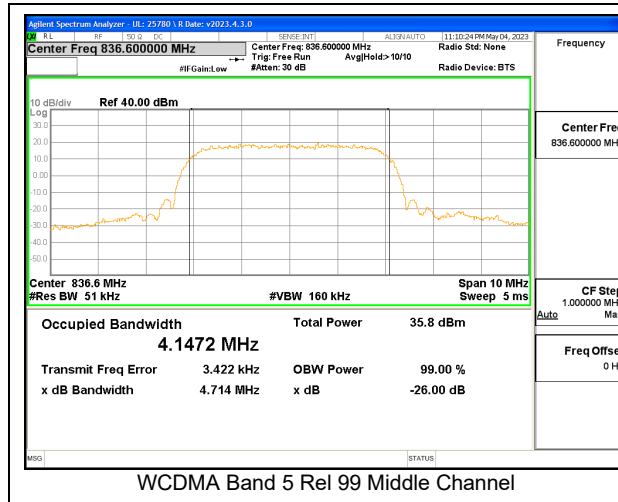
9.1.1. GSM 850



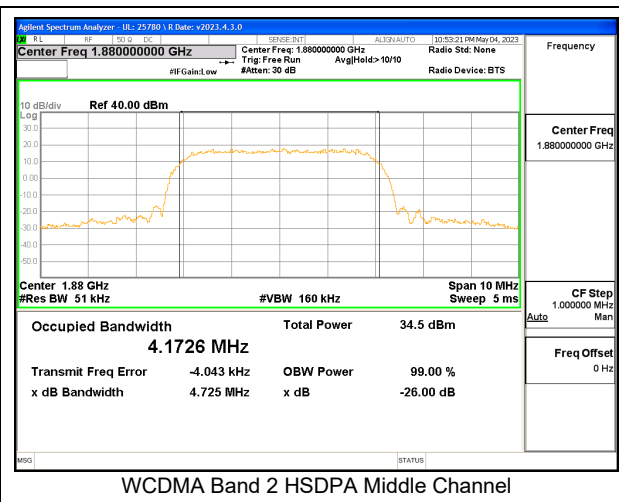
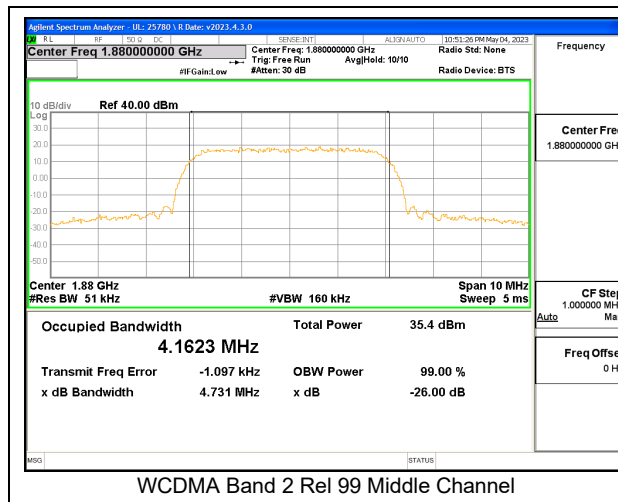
9.1.2. GSM 1900



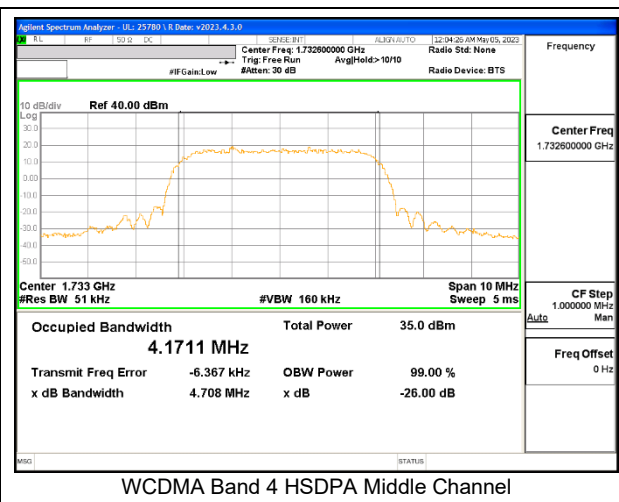
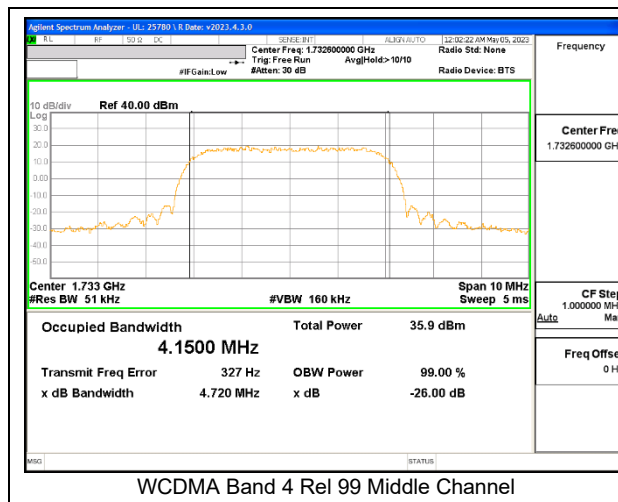
9.1.3. WCDMA BAND 5



9.1.4. WCDMA BAND 2



9.1.5. WCDMA BAND 4



9.2. BAND EDGE AND EMISSION MASK

LIMITS

FCC: §22.917(a), §24.238, §27.53 (h)

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

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

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

RSS132§5.5

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

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

RSS133§6.5.1

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

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

RSS139§5.6

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

TEST PROCEDURE

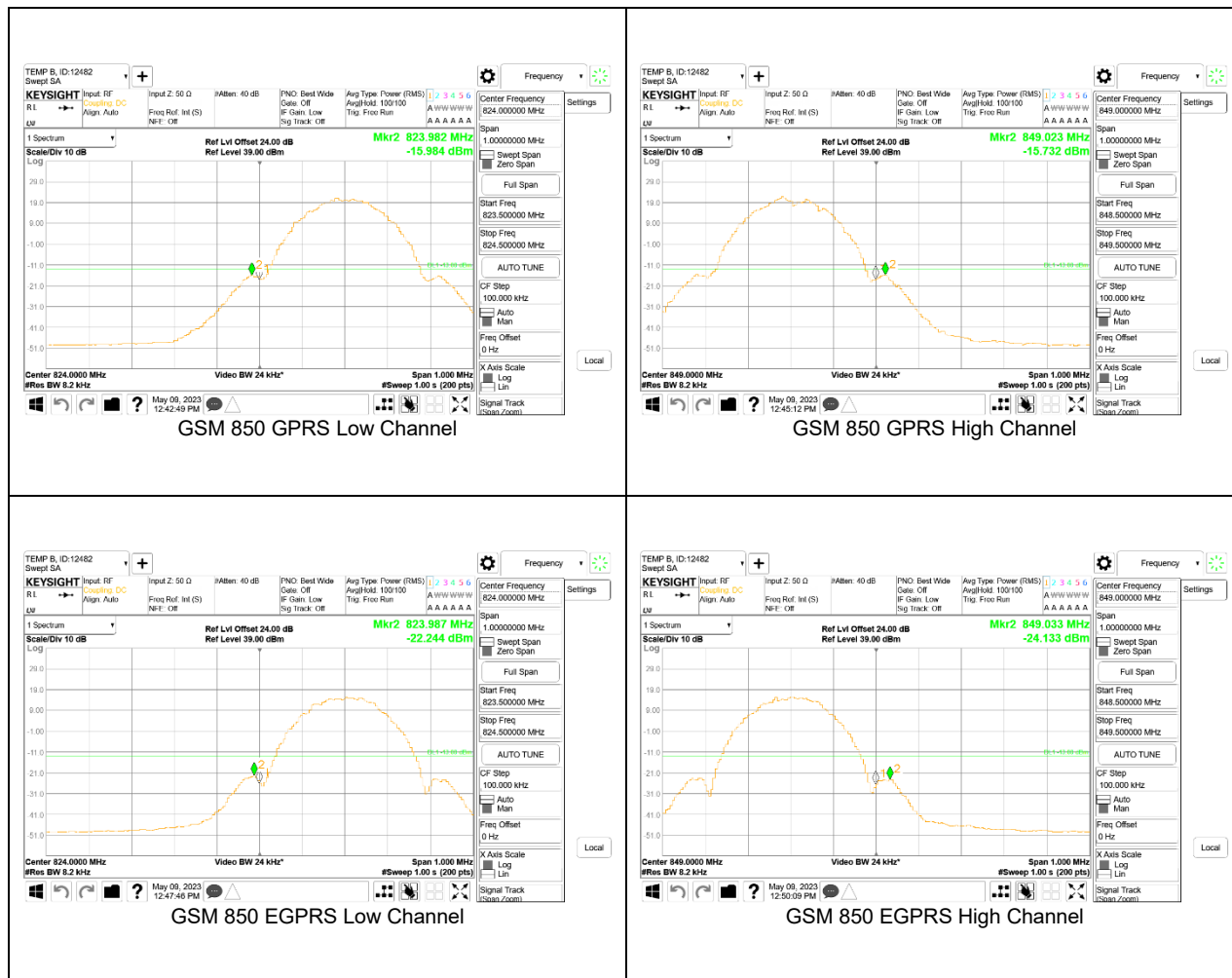
The transmitter output was connected to a R&S CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

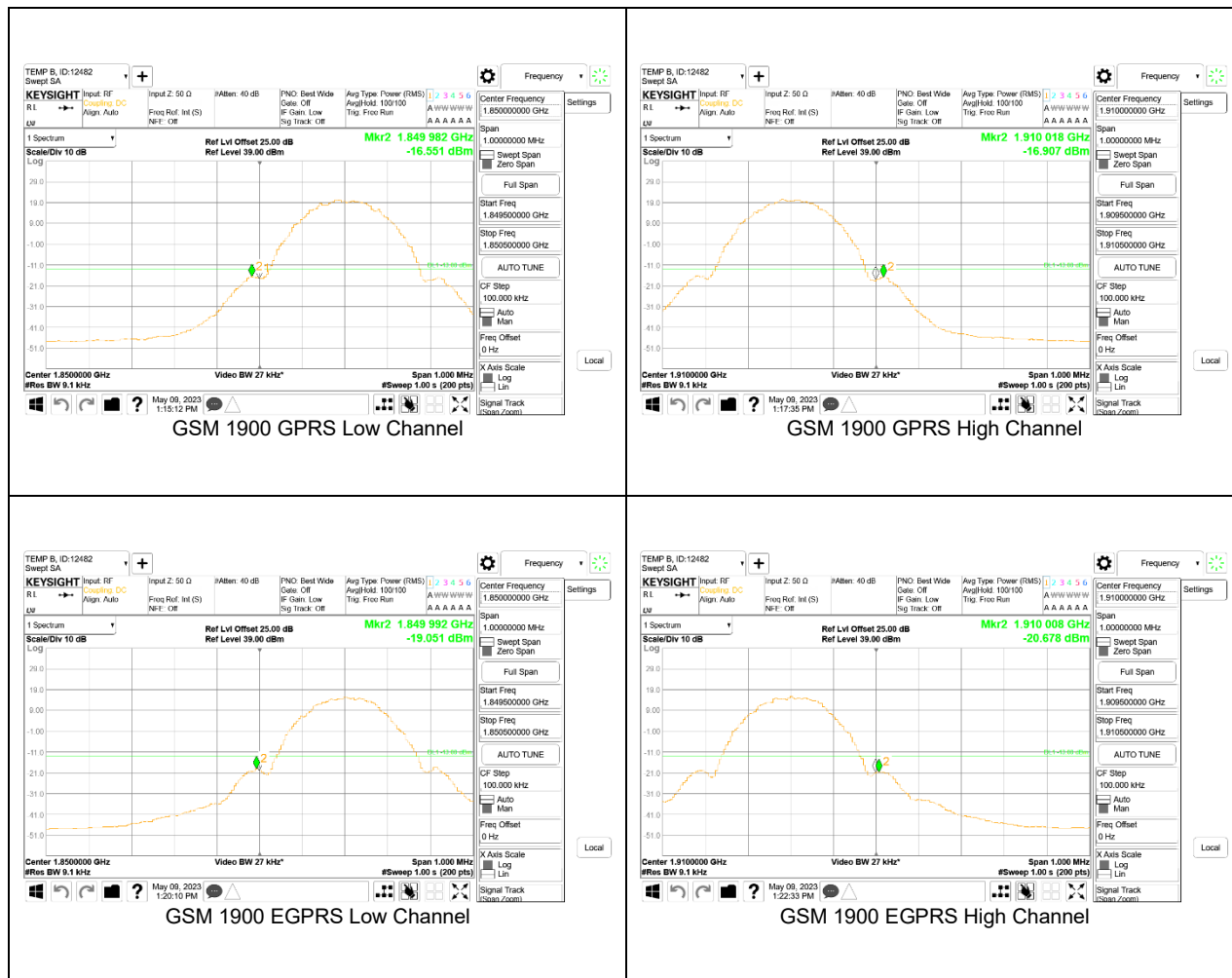
- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

RESULTS

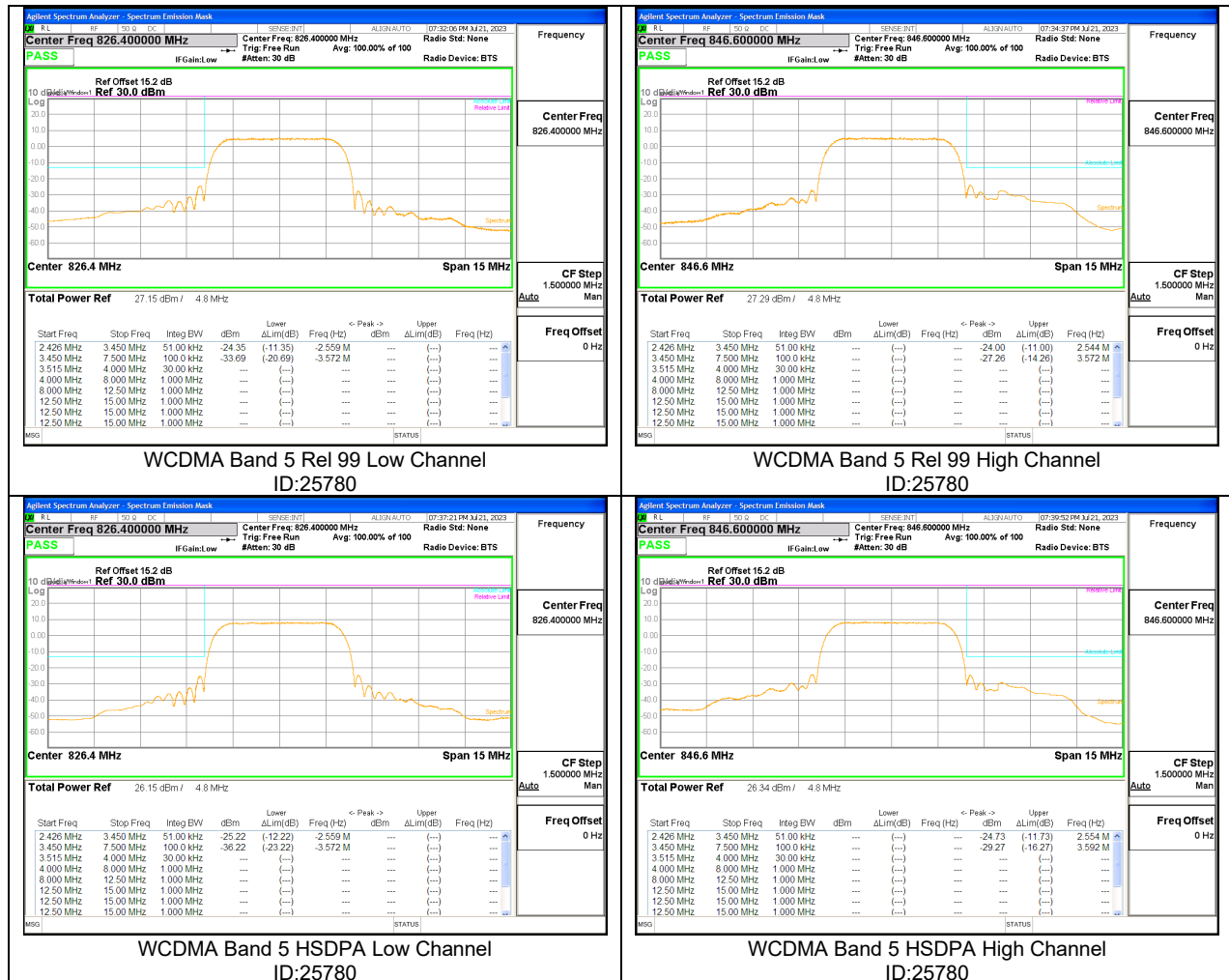
9.2.1. GSM 850



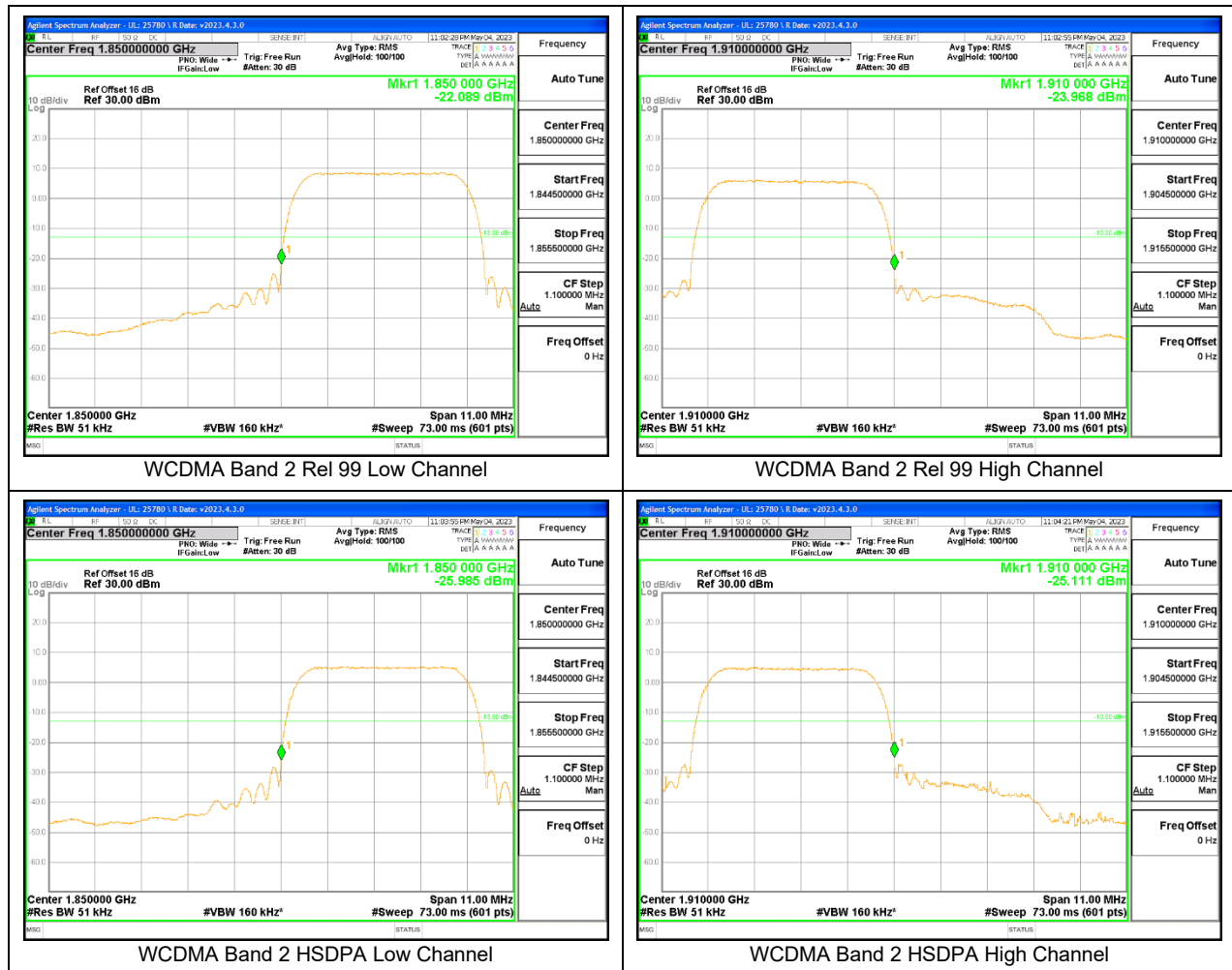
9.2.2. GSM 1900



9.2.3. WCDMA BAND 5



9.2.4. WCDMA BAND 2





9.3. OUT OF BAND EMISSIONS

RULE PART(S)

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

LIMITS

FCC: §22.917(a), §24.238, §27.53 (h)

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

RSS132§5.5, RSS133§6.5.1, RSS139§5.6

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

TEST PROCEDURE

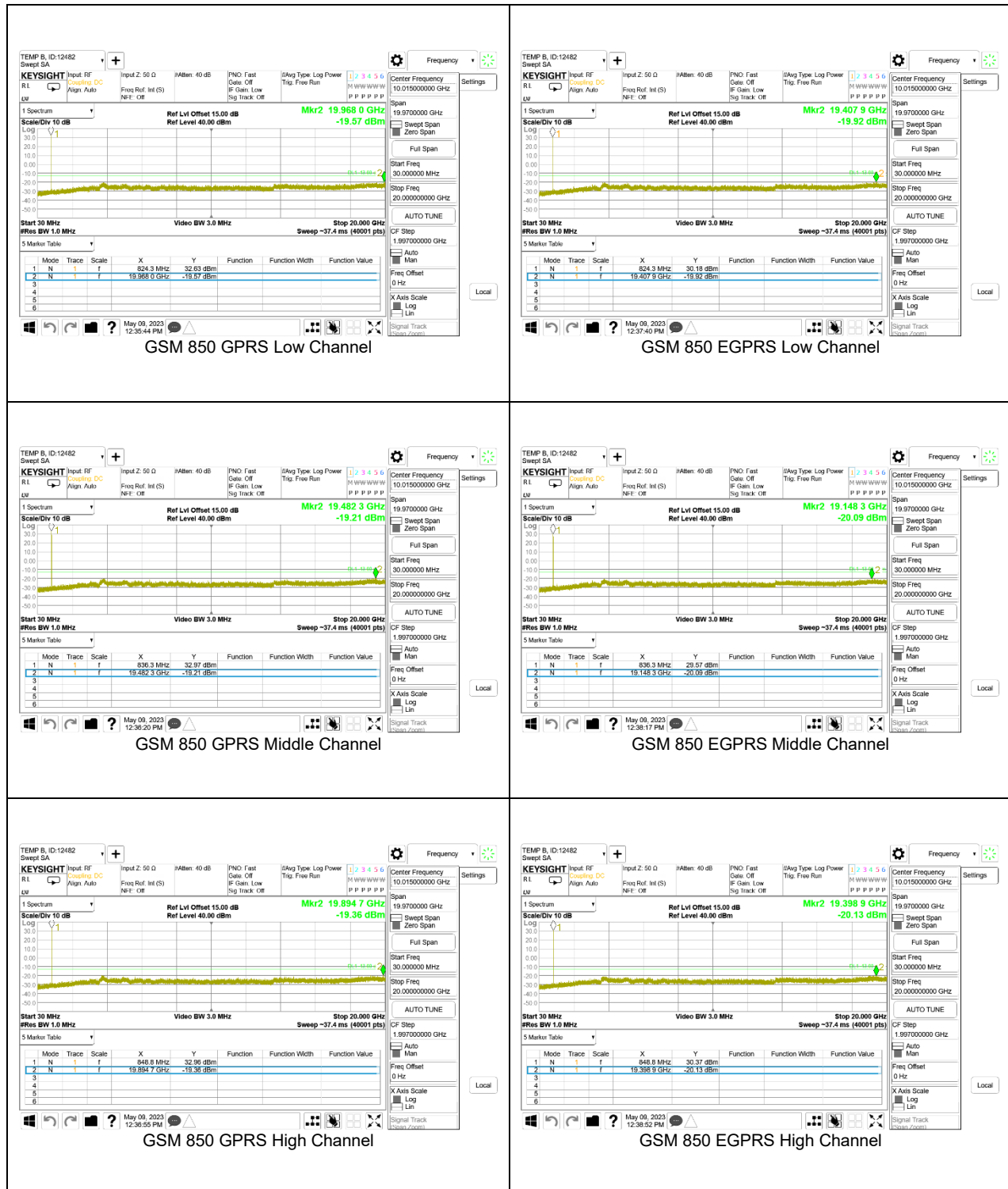
The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case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

For each out of band emissions measurement:

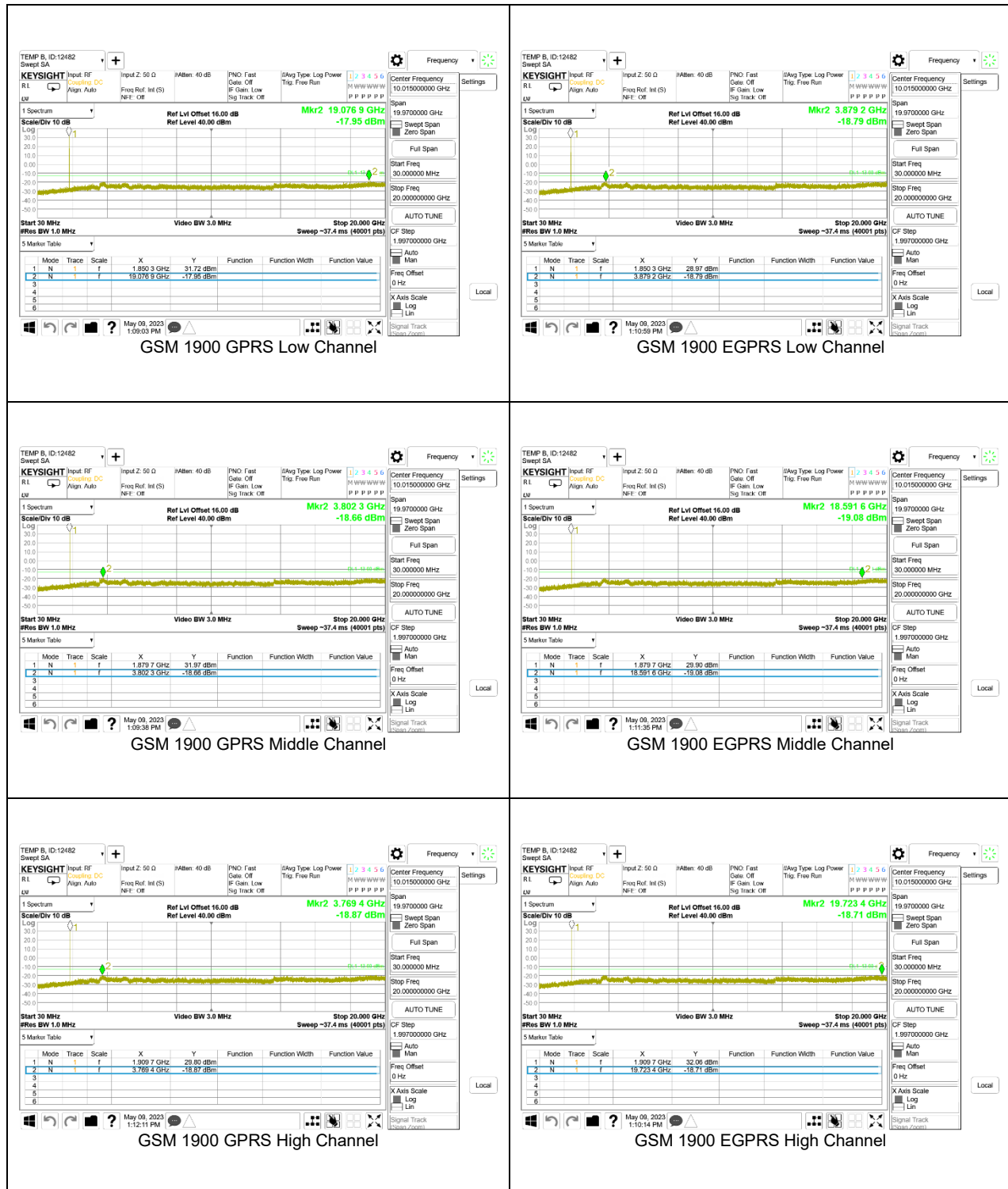
- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.
(NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

RESULTS

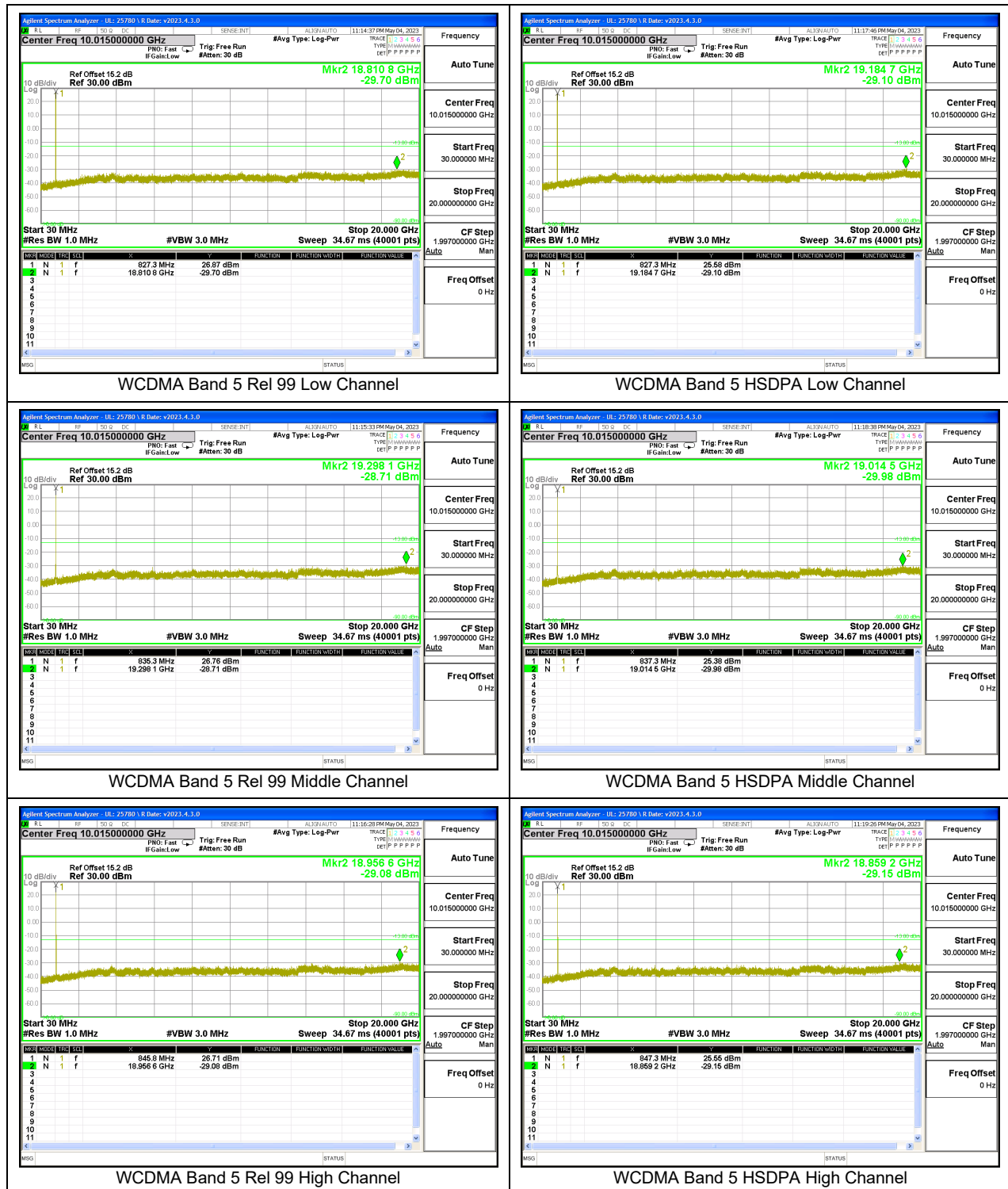
9.3.1. GSM 850



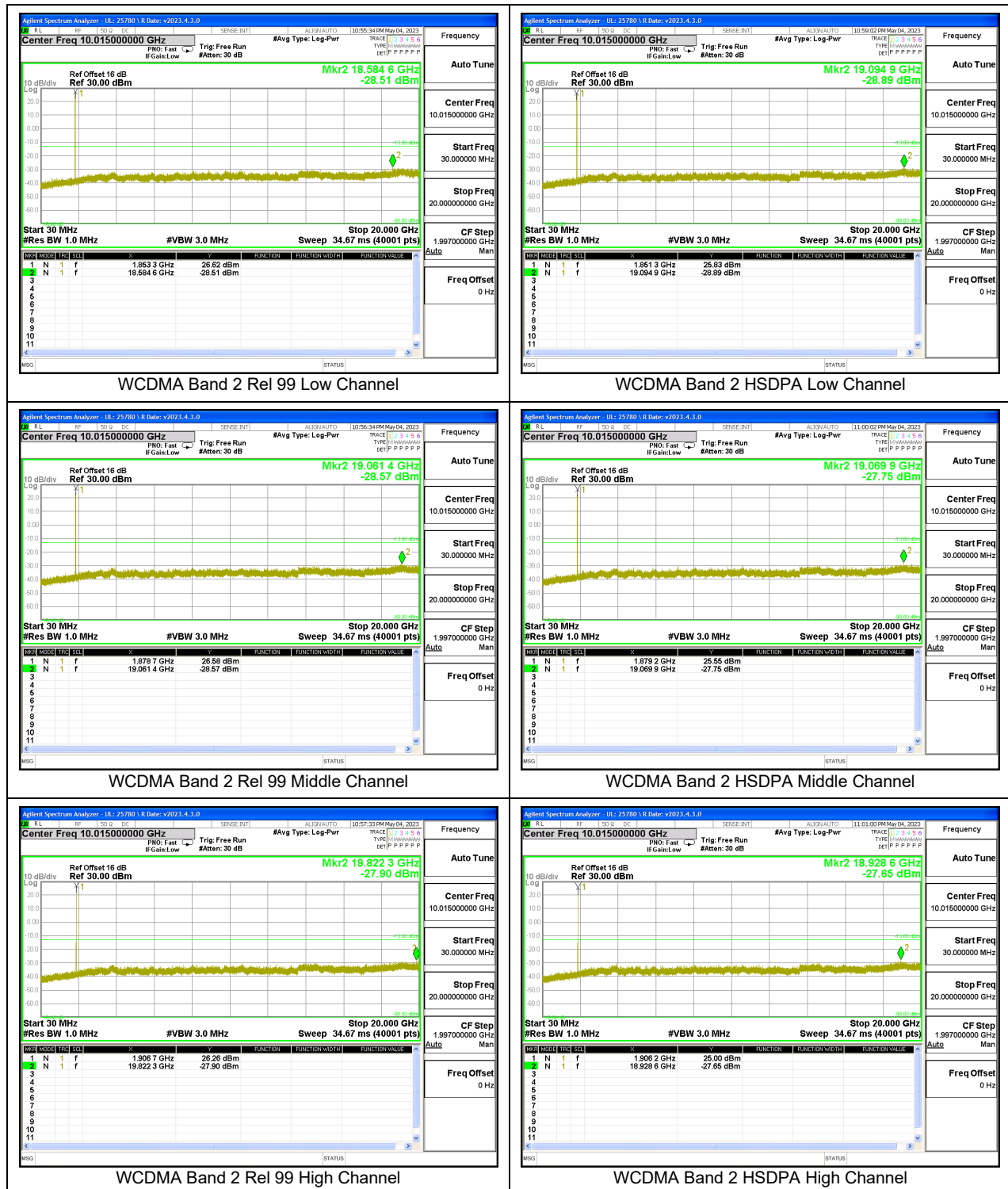
9.3.2. GSM 1900



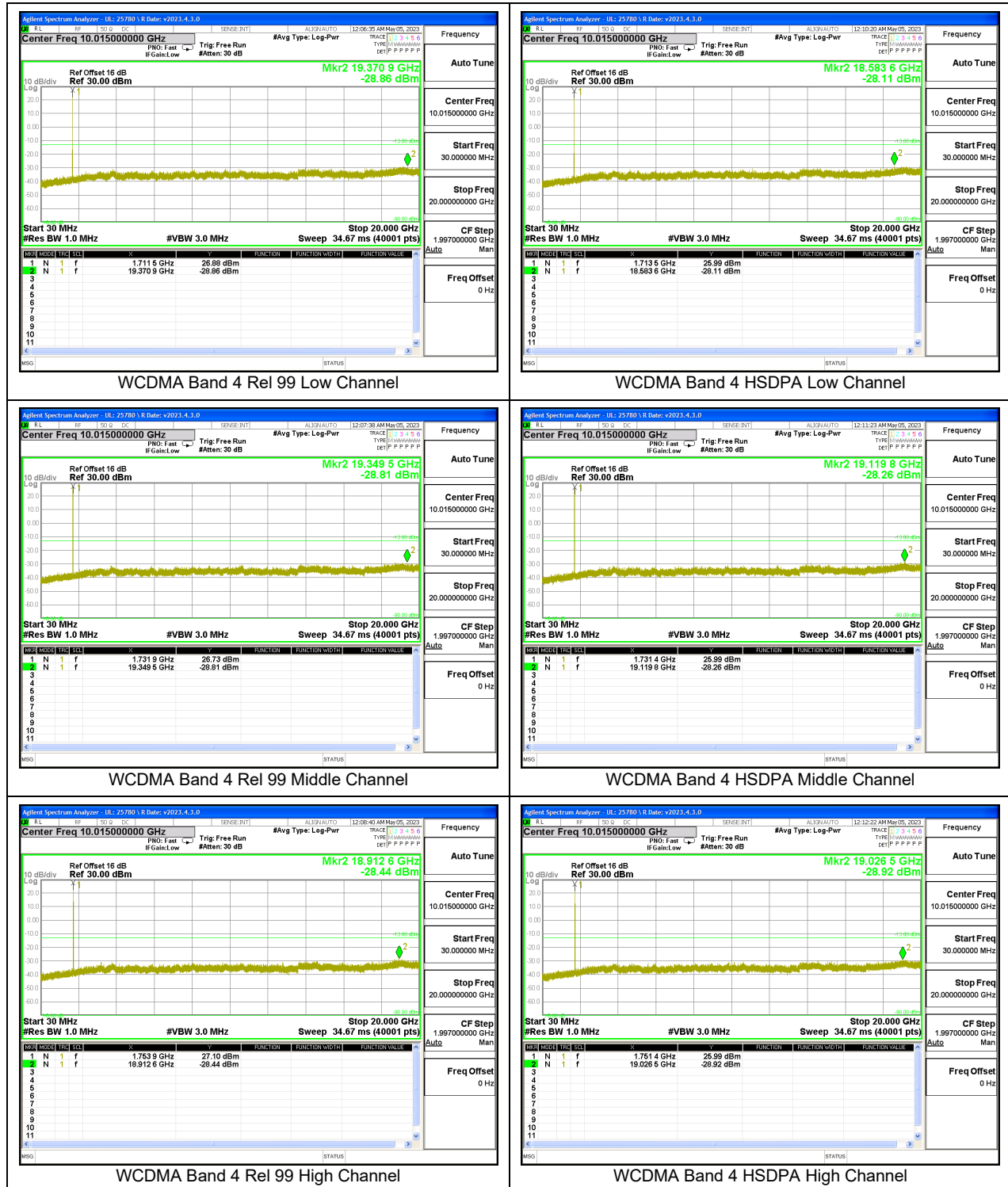
9.3.3. WCDMA BAND 5



9.3.4. WCDMA BAND 2



9.3.5. WCDMA BAND 4



9.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, and §27.54
ISED: RSS132§5.3; RSS133§6.3 and RSS139§6.4

LIMITS

FCC §22.355

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

FCC §24.235 & §27.54

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

RSS132§5.3

The carrier frequency shall not depart from the reference frequency in excess of ± 2.5 SRSP for mobile stations and ± 1.5 ppm for base stations.

In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the occupied bandwidth stays within each of the sub-bands (see Section 5.1) when tested to the temperature and supply voltage variations specified in RSS-Gen.

RSS133§6.3

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

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

RSS139§6.4

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

- Temp. = -30°C to $+50^{\circ}\text{C}$
- Voltage = (85% - 115%)
Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.
End Voltage, 2.95VDC.

Frequency Stability vs Temperature:

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

Frequency Stability vs Voltage:

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

RESULTS

See the following pages.

9.4.1. GSM 850

Test Engineer ID:	32061	Test Date:	3/15/2023
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Band	5	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		824	849		2.5	Within Authorized Frequency Block (Hz)
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)			
Temperature	Voltage				Frequency Stability (ppm)	
Normal (20°C)	Normal	824.0000	849.0000			
Extreme (50°C)		824.0000	849.0000	31.3	0.037	Yes
Extreme (40°C)		824.0000	849.0000	26.6	0.032	Yes
Extreme (30°C)		824.0000	849.0000	26.4	0.032	Yes
Extreme (10°C)		824.0000	849.0000	26.2	0.031	Yes
Extreme (0°C)		824.0000	849.0000	21.2	0.025	Yes
Extreme (-10°C)		824.0000	849.0000	29.8	0.036	Yes
Extreme (-20°C)		824.0000	849.0000	29.0	0.035	Yes
Extreme (-30°C)		824.0000	849.0000	30.8	0.037	Yes
20°C	15%	824.0000	849.0000	27.1	0.032	Yes
	-15%	824.0000	849.0000	29.2	0.035	Yes
	End Point Voltage	824.0000	849.0000	33.1	0.040	Yes

9.4.2. GSM 1900

Band	2	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1850	1910		2.5	
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
Temperature	Voltage					
Normal (20°C)	Normal	1850.0470	1909.9570			
Extreme (50°C)		1850.0470	1909.9570	34.8	0.019	Yes
Extreme (40°C)		1850.0470	1909.9570	33.2	0.018	Yes
Extreme (30°C)		1850.0470	1909.9570	37.6	0.020	Yes
Extreme (10°C)		1850.0470	1909.9570	33.5	0.018	Yes
Extreme (0°C)		1850.0470	1909.9570	26.3	0.014	Yes
Extreme (-10°C)		1850.0470	1909.9570	39.6	0.021	Yes
Extreme (-20°C)		1850.0470	1909.9570	35.5	0.019	Yes
Extreme (-30°C)		1850.0470	1909.9570	29.0	0.015	Yes
20°C	15%	1850.0470	1909.9570	30.6	0.016	Yes
	-15%	1850.0470	1909.9570	34.2	0.018	Yes
	End Point Voltage	1850.0470	1909.9570	35.6	0.019	Yes

9.4.3. WCDMA BAND 5

Test Engineer ID:	32061	Test Date:	1/20/2023
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Band	5	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		824	849		2.5	Within Authorized Frequency Block (Hz)
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)			
Temperature	Voltage				Frequency Stability (ppm)	
Normal (20°C)	Normal	824.0000	848.9340			
Extreme (50°C)		824.0000	848.9340	2.7	0.003	Yes
Extreme (40°C)		824.0000	848.9340	-2.9	-0.004	Yes
Extreme (30°C)		824.0000	848.9340	-3.0	-0.004	Yes
Extreme (10°C)		824.0000	848.9340	-2.8	-0.003	Yes
Extreme (0°C)		824.0000	848.9340	2.9	0.003	Yes
Extreme (-10°C)		824.0000	848.9340	2.5	0.003	Yes
Extreme (-20°C)		824.0000	848.9340	2.8	0.003	Yes
Extreme (-30°C)		824.0000	848.9340	3.6	0.004	Yes
20°C	15%	824.0000	848.9340	-3.1	-0.004	Yes
	-15%	824.0000	848.9340	-3.0	-0.004	Yes
	End Point Voltage	824.0000	848.9340	-2.9	-0.003	Yes

9.4.4. WCDMA 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	1850.0770	1909.9230			
Extreme (50°C)		1850.0770	1909.9230	6.6	0.004	Yes
Extreme (40°C)		1850.0770	1909.9230	5.8	0.003	Yes
Extreme (30°C)		1850.0770	1909.9230	5.0	0.003	Yes
Extreme (10°C)		1850.0770	1909.9230	5.2	0.003	Yes
Extreme (0°C)		1850.0770	1909.9230	6.3	0.003	Yes
Extreme (-10°C)		1850.0770	1909.9230	7.3	0.004	Yes
Extreme (-20°C)		1850.0770	1909.9230	7.4	0.004	Yes
Extreme (-30°C)		1850.0770	1909.9230	7.7	0.004	Yes
	15%	1850.0770	1909.9230	5.1	0.003	Yes

9.4.5. WCDMA BAND 4

Band	4	Frequency Range		Frequency Error Reading (Hz)	Limit	
Condition		1710	1755		Frequency Stability (ppm)	Within Authorized Frequency Block (Hz)
		Freq Reading @ Low End (MHz)	Freq Reading @ High End (MHz)			
Temperature	Voltage					
Normal (20°C)	Normal	1710.0770	1754.9340			
Extreme (50°C)		1710.0770	1754.9340	-5.8	-0.003	Yes
Extreme (40°C)		1710.0770	1754.9340	-6.0	-0.003	Yes
Extreme (30°C)		1710.0770	1754.9340	-6.6	-0.004	Yes
Extreme (10°C)		1710.0770	1754.9340	-7.1	-0.004	Yes
Extreme (0°C)		1710.0770	1754.9340	-5.8	-0.003	Yes
Extreme (-10°C)		1710.0770	1754.9340	-5.4	-0.003	Yes
Extreme (-20°C)		1710.0770	1754.9340	-4.7	-0.003	Yes
Extreme (-30°C)		1710.0770	1754.9340	-4.9	-0.003	Yes
20°C	15%	1710.0770	1754.9340	-7.0	-0.004	Yes
	-15%	1710.0770	1754.9340	-6.3	-0.004	Yes
	End Point Voltage	1710.0770	1754.9340	-6.7	-0.004	Yes

9.5. PEAK-TO-AVERAGE POWER RATIO

LIMIT

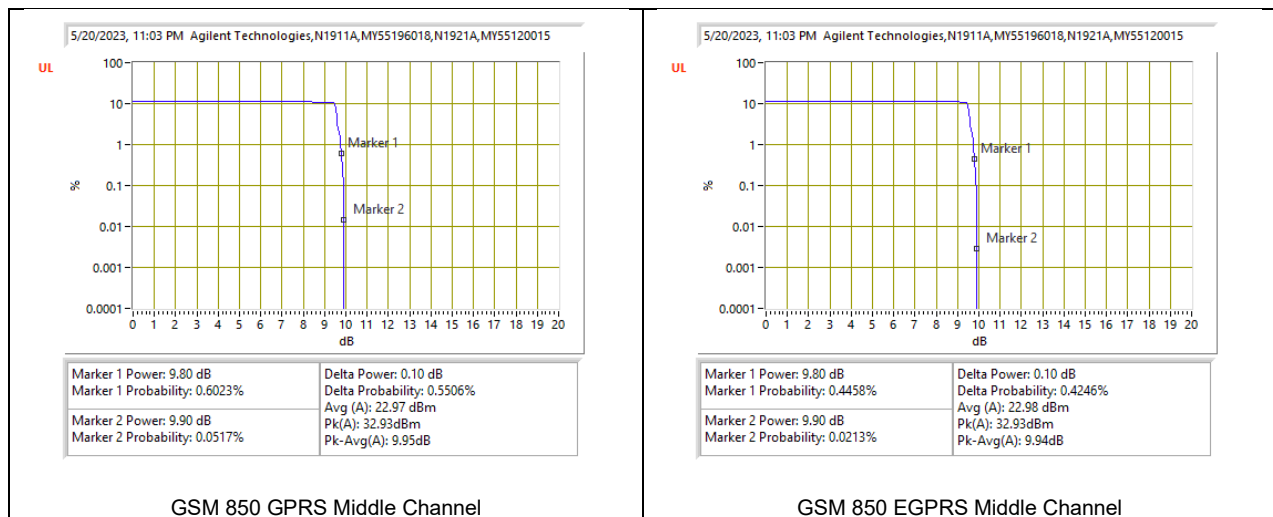
In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

RESULT

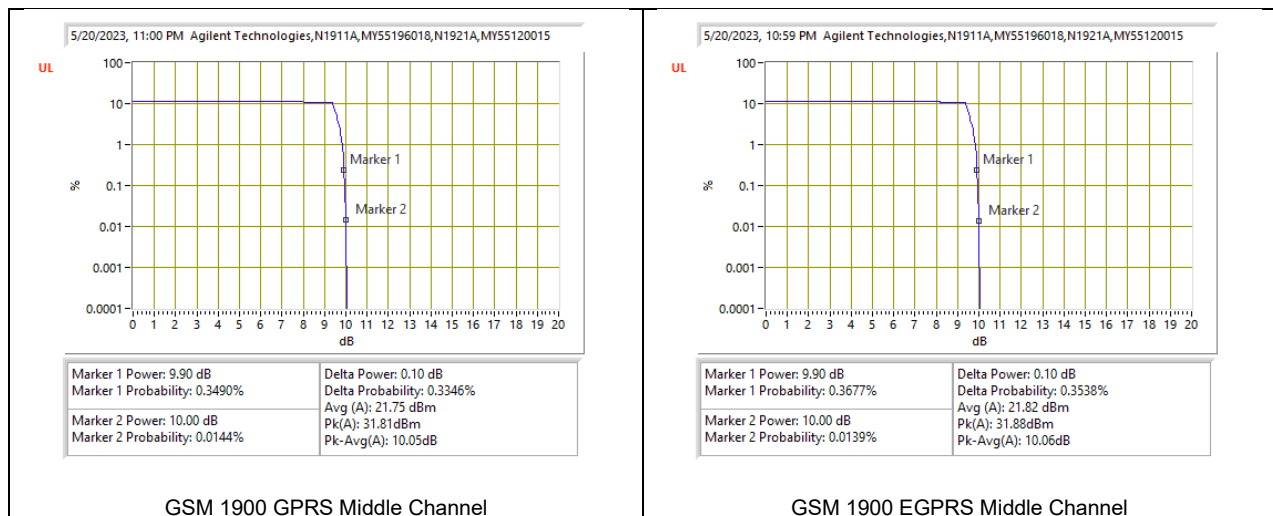
Ant 1 was used to measure as the worst case. The results from all CCDF plots are passed with 13dB peak-to-average power ratio criteria.

Test Engineer ID:	25780	Test Date:	5/5/2023
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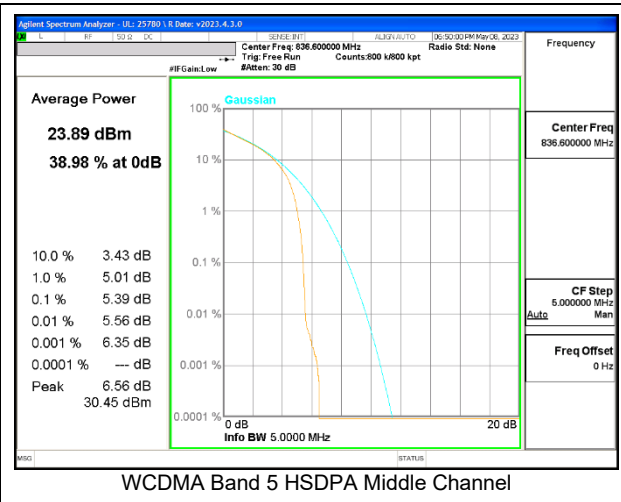
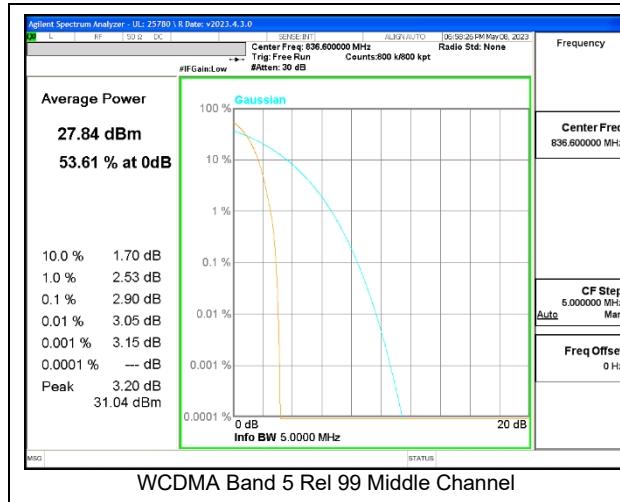
9.5.1. GSM 850



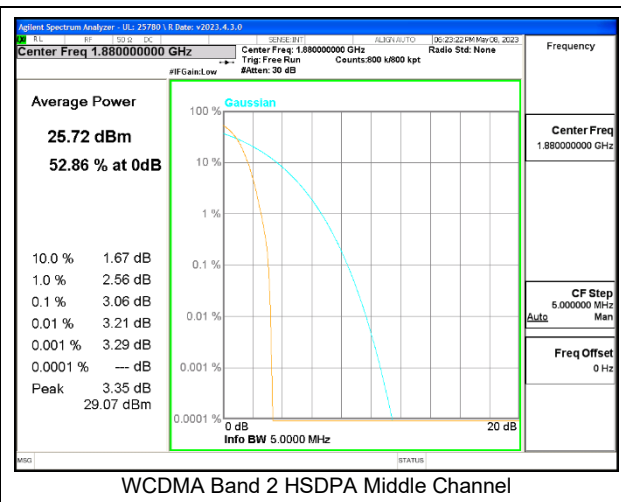
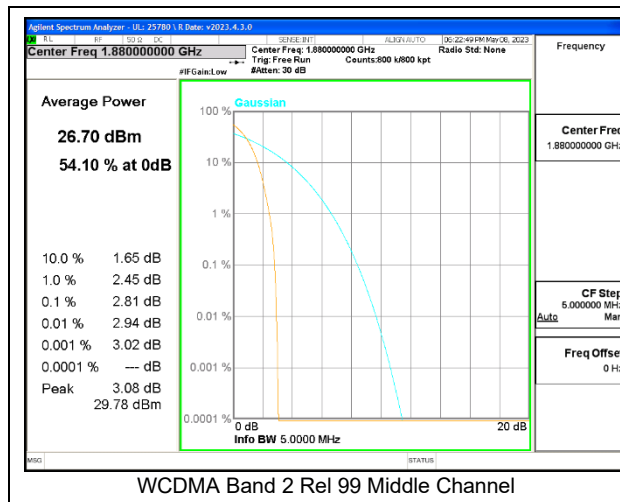
9.5.2. GSM 1900



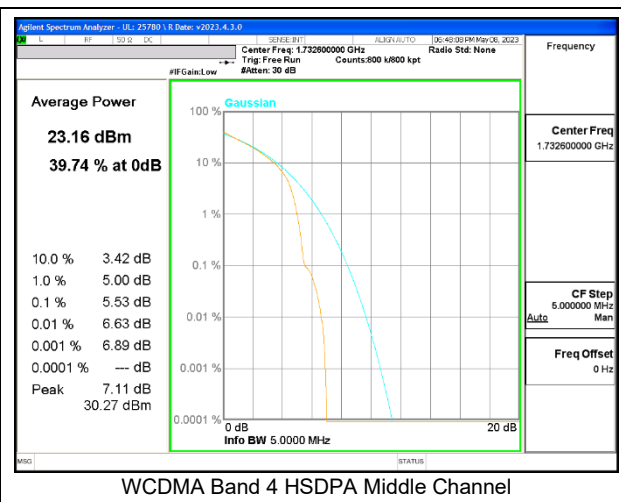
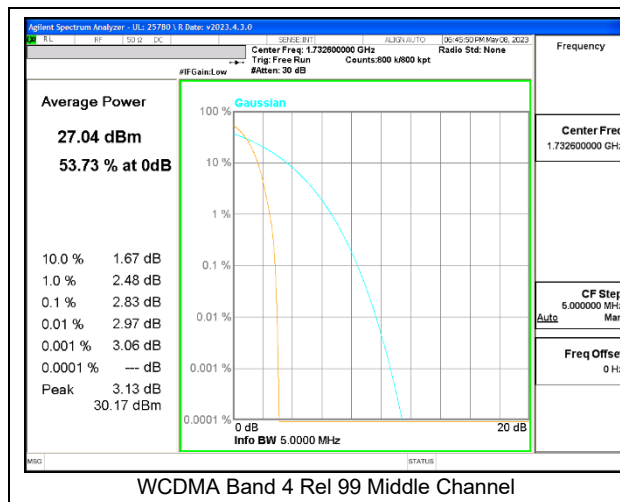
9.5.3. WCDMA BAND 5



9.5.4. WCDMA BAND 2



9.5.5. WCDMA BAND 4



10. RADIATED TEST RESULTS

Radiated measurement using the Field Strength Method

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

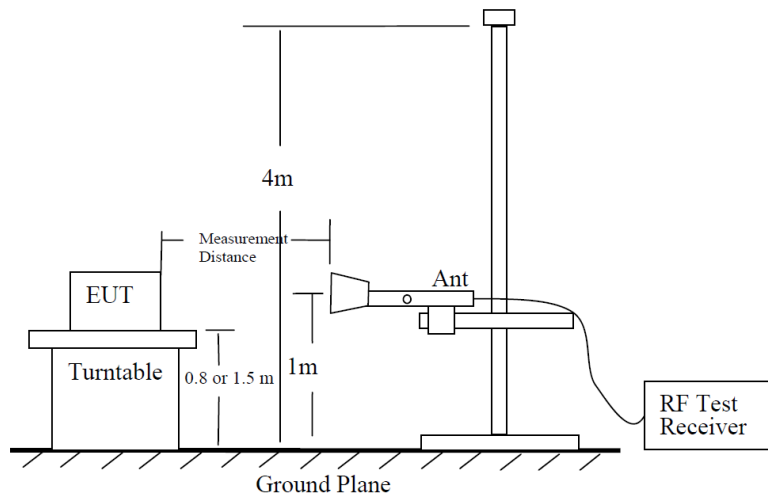


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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

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

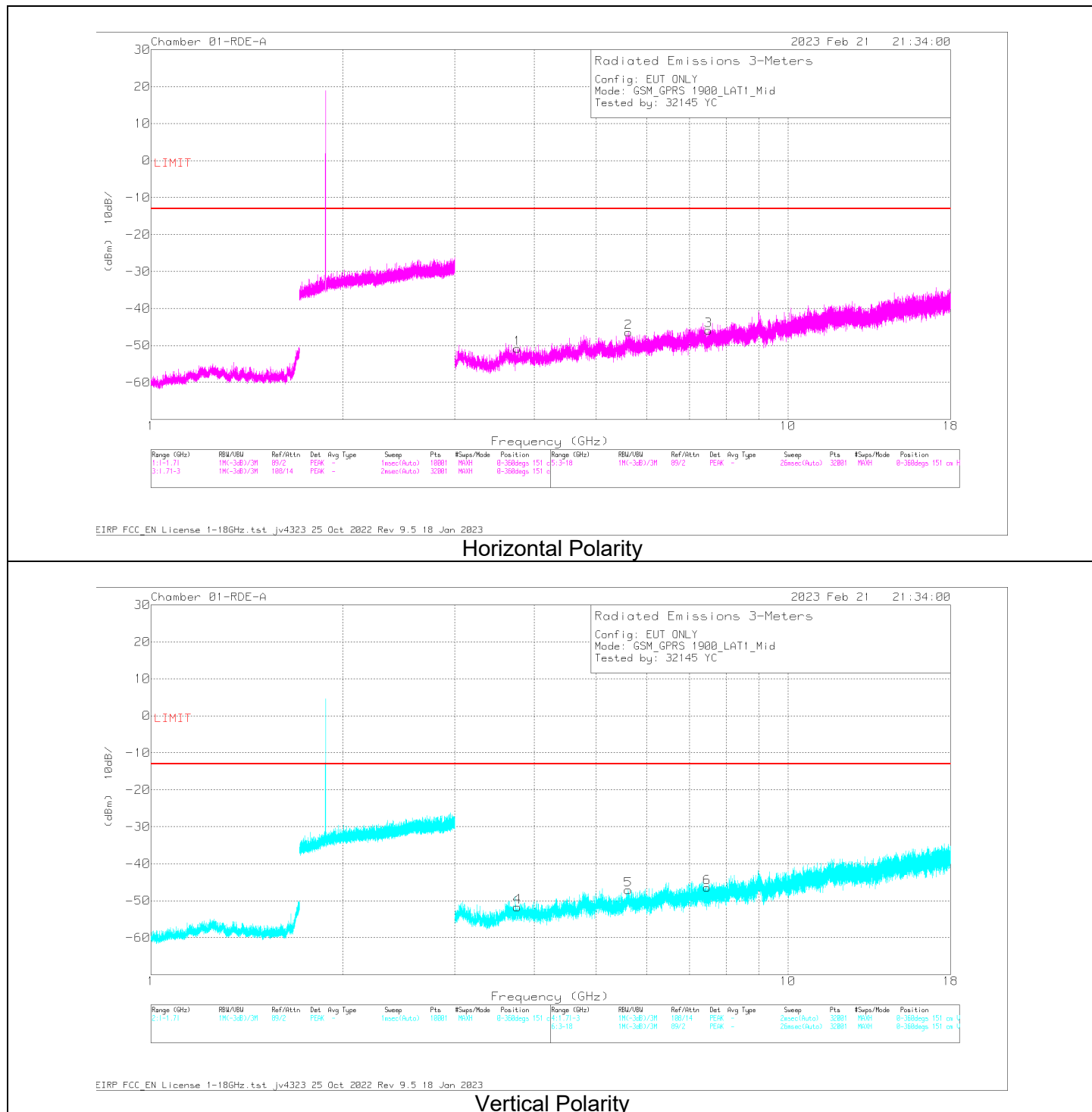
So, from d)

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

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

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

Example Plot Above 1GHz



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
4	3.760313	35.49	Pk	32.9	-95.2	-24.87	-51.68	-13	-38.68	V
1	3.760781	36.33	Pk	32.9	-95.2	-24.88	-50.85	-13	-37.85	H
5	5.615156	34.06	Pk	34.7	-95.2	-20.66	-47.10	-13	-34.10	V
2	5.624063	34.65	Pk	34.7	-95.2	-20.59	-46.44	-13	-33.44	H
6	7.465313	32.27	Pk	35.5	-95.2	-19.02	-46.45	-13	-33.45	V
3	7.503281	32.64	Pk	35.5	-95.2	-18.9	-45.96	-13	-32.96	H

Pk - Peak detector

10.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANT1

RULE PART(S)

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

LIMIT

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

RSS132§5.5

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

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

RSS133§6.5.1

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

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

RSS139§5.6

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

TEST PROCEDURE

KDB 971168 D01

RESULTS

10.1.1. GSM 850

GPRS MODE

Project #:	4790592293
Date:	3/28/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	GPRS 850
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.648311	37.86	Pk	28.5	.7	-95.2	-29.01	-57.15	-13	-44.15	H
1.647333	37.28	Pk	28.5	.7	-95.2	-28.94	-57.66	-13	-44.66	V
2.470886	38.58	Pk	32.3	.5	-95.2	-27.58	-51.40	-13	-38.40	H
2.472578	36.69	Pk	32.4	.5	-95.2	-27.59	-53.20	-13	-40.20	V
3.295867	35.40	Pk	32.8	.8	-95.2	-26.09	-52.29	-13	-39.29	H
3.296356	34.74	Pk	32.8	.8	-95.2	-26.06	-52.92	-13	-39.92	V
Mid Channel, 836.6 MHz										
1.673245	37.04	Pk	28.6	.7	-95.2	-28.72	-57.58	-13	-44.58	H
1.673245	38.91	Pk	28.6	.7	-95.2	-28.72	-55.71	-13	-42.71	V
2.509710	45.13	Pk	32.2	.7	-95.2	-27.54	-44.71	-13	-31.71	H
2.509806	46.35	Pk	32.2	.7	-95.2	-27.54	-43.49	-13	-30.49	V
3.346223	34.95	Pk	32.5	.5	-95.2	-26.25	-53.5	-13	-40.50	H
3.346223	34.52	Pk	32.5	.5	-95.2	-26.25	-53.93	-13	-40.93	V
High Channel, 848.8 MHz										
1.696711	36.66	Pk	28.9	.6	-95.2	-28.68	-57.72	-13	-44.72	H
1.696222	37.05	Pk	28.9	.7	-95.2	-28.69	-57.24	-13	-44.24	V
2.546400	41.85	Pk	32.4	.6	-95.2	-27.32	-47.67	-13	-34.67	H
2.546400	36.86	Pk	32.4	.6	-95.2	-27.32	-52.66	-13	-39.66	V
3.395112	33.53	Pk	32.5	.6	-95.2	-25.91	-54.48	-13	-41.48	H
3.395112	34.38	Pk	32.5	.6	-95.2	-25.91	-53.63	-13	-40.63	V

EGPRS MODE

Project #:	4790592293
Date:	3/28/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	EGPRS 850
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.647333	36.94	Pk	28.5	.7	-95.2	-28.94	-58.00	-13	-45.00	H
1.648800	37.04	Pk	28.5	.7	-95.2	-29.05	-58.01	-13	-45.01	V
2.472089	34.4	Pk	32.4	.5	-95.2	-27.61	-55.51	-13	-42.51	H
2.473067	36.53	Pk	32.4	.5	-95.2	-27.58	-53.35	-13	-40.35	V
3.296356	34.29	Pk	32.8	.8	-95.2	-26.06	-53.37	-13	-40.37	H
3.296356	34.86	Pk	32.8	.8	-95.2	-26.06	-52.80	-13	-39.80	V
Mid Channel, 836.6 MHz										
1.673245	36.35	Pk	28.6	.7	-95.2	-28.72	-58.27	-13	-45.27	H
1.673733	36.22	Pk	28.6	.7	-95.2	-28.67	-58.35	-13	-45.35	V
2.511670	37.96	Pk	32.2	.7	-95.2	-27.44	-51.78	-13	-38.78	H
2.509646	38.05	Pk	32.2	.7	-95.2	-27.54	-51.79	-13	-38.79	V
3.346223	33.73	Pk	32.5	.5	-95.2	-26.25	-54.72	-13	-41.72	H
3.346223	34.57	Pk	32.5	.5	-95.2	-26.25	-53.88	-13	-40.88	V
High Channel, 848.8 MHz										
1.697200	35.32	Pk	28.9	.6	-95.2	-28.70	-59.08	-13	-46.08	H
1.697200	35.61	Pk	28.9	.6	-95.2	-28.70	-58.79	-13	-45.79	V
2.546400	34.73	Pk	32.4	.6	-95.2	-27.32	-54.79	-13	-41.79	H
2.546400	35.67	Pk	32.4	.6	-95.2	-27.32	-53.85	-13	-40.85	V
3.395601	32.97	Pk	32.5	.6	-95.2	-25.93	-55.06	-13	-42.06	H
3.395601	34.66	Pk	32.5	.6	-95.2	-25.93	-53.37	-13	-40.37	V

10.1.2. GSM 1900

GPRS MODE

Project #:	4790592293
Date:	3/29/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF (dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700313	35.02	Pk	33.0	-95.2	-25.12	-52.30	-13	-39.30	H
3.700313	34.10	Pk	33.0	-95.2	-25.12	-53.22	-13	-40.22	V
5.550469	34.90	Pk	34.6	-95.2	-21.43	-47.13	-13	-34.13	H
5.550469	30.50	Pk	34.6	-95.2	-21.43	-51.53	-13	-38.53	V
7.400625	28.82	Pk	35.5	-95.2	-18.40	-49.28	-13	-36.28	H
7.400625	30.16	Pk	35.5	-95.2	-18.40	-47.94	-13	-34.94	V
Mid Channel, 1880MHz									
3.759375	36.85	Pk	32.9	-95.2	-24.88	-50.33	-13	-37.33	H
3.759375	32.44	Pk	32.9	-95.2	-24.88	-54.74	-13	-41.74	V
5.639531	31.20	Pk	34.6	-95.2	-20.72	-50.12	-13	-37.12	V
5.640000	35.53	Pk	34.6	-95.2	-20.72	-45.79	-13	-32.79	H
7.520156	31.78	Pk	35.4	-95.2	-18.64	-46.66	-13	-33.66	H
7.520156	29.81	Pk	35.4	-95.2	-18.64	-48.63	-13	-35.63	V
High Channel, 1909.8MHz									
3.820781	34.06	Pk	32.9	-95.2	-25.09	-53.33	-13	-40.33	H
3.820781	34.92	Pk	32.9	-95.2	-25.09	-52.47	-13	-39.47	V
5.730938	34.58	Pk	34.8	-95.2	-21.69	-47.51	-13	-34.51	H
5.730938	31.68	Pk	34.8	-95.2	-21.69	-50.41	-13	-37.41	V
7.640625	30.19	Pk	35.6	-95.2	-17.73	-47.14	-13	-34.14	H
7.640625	28.48	Pk	35.6	-95.2	-17.73	-48.85	-13	-35.85	V

EGPRS MODE

Project #:	4790592293
Date:	34/29/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF (dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.699844	35.49	Pk	33.0	-95.2	-25.14	-51.85	-13	-38.85	H
3.700313	33.05	Pk	33.0	-95.2	-25.12	-54.27	-13	-41.27	V
5.551406	31.81	Pk	34.6	-95.2	-21.45	-50.24	-13	-37.24	H
5.549766	32.57	Pk	34.7	-95.2	-21.44	-49.37	-13	-36.37	V
7.401094	31.64	Pk	35.5	-95.2	-18.41	-46.47	-13	-33.47	H
7.400625	30.73	Pk	35.5	-95.2	-18.4	-47.37	-13	-34.37	V
Mid Channel, 1880MHz									
3.760313	34.17	Pk	32.9	-95.2	-24.87	-53.00	-13	-40.00	H
3.760313	37.24	Pk	32.9	-95.2	-24.87	-49.93	-13	-36.93	V
5.641406	31.71	Pk	34.6	-95.2	-20.72	-49.61	-13	-36.61	H
5.640469	31.45	Pk	34.6	-95.2	-20.72	-49.87	-13	-36.87	V
7.521094	31.58	Pk	35.4	-95.2	-18.63	-46.85	-13	-33.85	H
7.521094	29.47	Pk	35.4	-95.2	-18.63	-48.96	-13	-35.96	V
High Channel, 1909.8MHz									
3.820781	33.96	Pk	32.9	-95.2	-25.09	-53.43	-13	-40.43	H
3.819844	36.42	Pk	32.9	-95.2	-25.06	-50.94	-13	-37.94	V
5.730469	33.14	Pk	34.8	-95.2	-21.68	-48.94	-13	-35.94	H
5.730469	32.14	Pk	34.8	-95.2	-21.68	-49.94	-13	-36.94	V
7.640625	31.42	Pk	35.6	-95.2	-17.73	-45.91	-13	-32.91	H
7.640625	27.82	Pk	35.6	-95.2	-17.73	-49.51	-13	-36.51	V

10.1.3. WCDMA BAND 5

REL 99 MODE

Project #:	4790592293
Date:	4/3/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 5
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.652711	36.46	Pk	28.4	.8	-95.2	-28.89	-58.43	-13	-45.43	H
1.653200	37.56	Pk	28.4	.8	-95.2	-28.89	-57.33	-13	-44.33	V
2.479911	34.67	Pk	32.3	.5	-95.2	-27.58	-55.31	-13	-42.31	H
2.479911	35.66	Pk	32.3	.5	-95.2	-27.58	-54.32	-13	-41.32	V
3.305156	35.04	Pk	32.7	.7	-95.2	-26.06	-52.82	-13	-39.82	H
3.305156	34.13	Pk	32.7	.7	-95.2	-26.06	-53.73	-13	-40.73	V
Mid Channel, 836.6 MHz										
1.673245	35.90	Pk	28.6	.7	-95.2	-28.72	-58.72	-13	-45.72	H
1.673245	36.70	Pk	28.6	.7	-95.2	-28.72	-57.92	-13	-44.92	V
2.509734	34.90	Pk	32.2	.7	-95.2	-27.54	-54.94	-13	-41.94	H
2.509734	35.59	Pk	32.2	.7	-95.2	-27.54	-54.25	-13	-41.25	V
3.346712	34.40	Pk	32.5	.5	-95.2	-26.23	-54.03	-13	-41.03	H
3.346712	34.87	Pk	32.5	.5	-95.2	-26.23	-53.56	-13	-40.56	V
High Channel, 848.8 MHz										
1.692800	37.57	Pk	28.8	.7	-95.2	-28.88	-57.01	-13	-44.01	H
1.692800	35.8	Pk	28.8	.7	-95.2	-28.88	-58.78	-13	-45.78	V
2.540534	34.27	Pk	32.3	.7	-95.2	-27.33	-55.26	-13	-42.26	H
2.540534	35.03	Pk	32.3	.7	-95.2	-27.33	-54.50	-13	-41.50	V
3.386312	34.4	Pk	32.4	.6	-95.2	-26.00	-53.80	-13	-40.80	H
3.386312	35.58	Pk	32.4	.6	-95.2	-26.00	-52.62	-13	-39.62	V

HSDPA MODE

Project #:	4790592293
Date:	3/14/2023
Test Engineer:	32145
Configuration:	EUT Only
Mode:	HSDPA Band 5
Chamber #:	05-RDE-D

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.652222	37.24	Pk	28.4	.8	-95.2	-28.90	-57.66	-13	-44.66	H
1.652222	36.51	Pk	28.4	.8	-95.2	-28.90	-58.39	-13	-45.39	V
2.481867	38.94	Pk	32.3	.5	-95.2	-27.55	-51.01	-13	-38.01	H
2.479423	34.73	Pk	32.3	.5	-95.2	-27.57	-55.24	-13	-42.24	V
3.306134	33.70	Pk	32.7	.7	-95.2	-26.12	-54.22	-13	-41.22	H
3.306134	34.00	Pk	32.7	.7	-95.2	-26.12	-53.92	-13	-40.92	V
Mid Channel, 836.6 MHz										
1.672756	37.08	Pk	28.6	.7	-95.2	-28.76	-57.58	-13	-44.58	H
1.672756	36.50	Pk	28.6	.7	-95.2	-28.76	-58.16	-13	-45.16	V
2.511955	43.67	Pk	32.2	.7	-95.2	-27.42	-46.05	-13	-33.05	H
2.514106	37.86	Pk	32.2	.7	-95.2	-27.38	-51.82	-13	-38.82	V
3.346223	34.90	Pk	32.5	.5	-95.2	-26.25	-53.55	-13	-40.55	H
3.346223	34.59	Pk	32.5	.5	-95.2	-26.25	-53.86	-13	-40.86	V
High Channel, 848.8 MHz										
1.693289	35.44	Pk	28.8	.7	-95.2	-28.87	-59.13	-13	-46.13	H
1.693289	34.79	Pk	28.8	.7	-95.2	-28.87	-59.78	-13	-46.78	V
2.535645	41.31	Pk	32.1	.7	-95.2	-27.34	-48.43	-13	-35.43	H
2.539556	35.10	Pk	32.2	.7	-95.2	-27.37	-54.57	-13	-41.57	V
3.386312	32.10	Pk	32.4	.6	-95.2	-26.00	-56.10	-13	-43.10	H
3.386312	32.56	Pk	32.4	.6	-95.2	-26.00	-55.64	-13	-42.64	V

10.1.4. WCDMA BAND 2

REL 99 MODE

Project #:	4790592293
Date:	4/4/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.705469	36.29	Pk	33.0	-95.2	-25.11	-51.02	-13	-38.02	H
3.705000	35.07	Pk	33.0	-95.2	-25.10	-52.23	-13	-39.23	V
5.557500	32.45	Pk	34.7	-95.2	-21.37	-49.42	-13	-36.42	H
5.557500	32.06	Pk	34.7	-95.2	-21.37	-49.81	-13	-36.81	V
7.409531	31.59	Pk	35.5	-95.2	-18.60	-46.71	-13	-33.71	H
7.409531	30.91	Pk	35.5	-95.2	-18.60	-47.39	-13	-34.39	V
Mid Channel, 1880MHz									
3.759844	36.76	Pk	32.9	-95.2	-24.86	-50.40	-13	-37.40	H
3.759844	34.99	Pk	32.9	-95.2	-24.86	-52.17	-13	-39.17	V
5.640938	32.12	Pk	34.6	-95.2	-20.71	-49.19	-13	-36.19	H
5.640938	32.49	Pk	34.6	-95.2	-20.71	-48.82	-13	-35.82	V
7.519219	33.35	Pk	35.4	-95.2	-18.68	-45.13	-13	-32.13	H
7.519688	31.24	Pk	35.4	-95.2	-18.66	-47.22	-13	-34.22	V
High Channel, 1907.6MHz									
3.815625	36.01	Pk	32.9	-95.2	-25.10	-51.39	-13	-38.39	H
3.815625	35.30	Pk	32.9	-95.2	-25.10	-52.10	-13	-39.10	V
5.722969	33.83	Pk	34.7	-95.2	-21.65	-48.32	-13	-35.32	H
5.723438	34.21	Pk	34.7	-95.2	-21.66	-47.95	-13	-34.95	V
7.631250	31.32	Pk	35.6	-95.2	-17.84	-46.12	-13	-33.12	H
7.631250	30.03	Pk	35.6	-95.2	-17.84	-47.41	-13	-34.41	V

HSDPA MODE

Project #:	4790592293
Date:	4/4/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF (dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.704531	35.69	Pk	33.0	-95.2	-25.09	-51.60	-13	-38.60	H
3.705000	34.62	Pk	33.0	-95.2	-25.1	-52.68	-13	-39.68	V
5.557031	33.13	Pk	34.7	-95.2	-21.37	-48.74	-13	-35.74	H
5.557031	33.06	Pk	34.7	-95.2	-21.37	-48.81	-13	-35.81	V
7.409531	32.48	Pk	35.5	-95.2	-18.60	-45.82	-13	-32.82	H
7.409531	30.21	Pk	35.5	-95.2	-18.60	-48.09	-13	-35.09	V
Mid Channel, 1880MHz									
3.759844	35.08	Pk	32.9	-95.2	-24.86	-52.08	-13	-39.08	H
3.759844	34.44	Pk	32.9	-95.2	-24.86	-52.72	-13	-39.72	V
5.640000	32.28	Pk	34.6	-95.2	-20.72	-49.04	-13	-36.04	V
5.640469	32.55	Pk	34.6	-95.2	-20.72	-48.77	-13	-35.77	H
7.520156	30.27	Pk	35.4	-95.2	-18.64	-48.17	-13	-35.17	H
7.520156	31.02	Pk	35.4	-95.2	-18.64	-47.42	-13	-34.42	V
High Channel, 1907.6MHz									
3.815156	35.18	Pk	32.9	-95.2	-25.11	-52.23	-13	-39.23	H
3.815156	34.59	Pk	32.9	-95.2	-25.11	-52.82	-13	-39.82	V
5.722031	32.07	Pk	34.7	-95.2	-21.64	-50.07	-13	-37.07	H
5.722500	33.61	Pk	34.7	-95.2	-21.65	-48.54	-13	-35.54	V
7.629375	32.67	Pk	35.6	-95.2	-17.87	-44.80	-13	-31.80	H
7.630313	30.69	Pk	35.6	-95.2	-17.85	-46.76	-13	-33.76	V

10.1.5. WCDMA BAND 4

REL 99 MODE

Project #:	4790592293
Date:	4/5/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.424688	32.70	Pk	32.6	-95.2	-25.78	-55.68	-13	-42.68	H
3.424688	32.58	Pk	32.6	-95.2	-25.78	-55.80	-13	-42.80	V
5.137500	35.14	Pk	34.4	-95.2	-22.50	-48.16	-13	-35.16	H
5.137500	34.74	Pk	34.4	-95.2	-22.50	-48.56	-13	-35.56	V
6.850313	31.59	Pk	35.5	-95.2	-19.90	-48.01	-13	-35.01	H
6.850313	30.24	Pk	35.5	-95.2	-19.90	-49.36	-13	-36.36	V
Mid Channel, 1732.6MHz									
3.465938	34.90	Pk	32.5	-95.2	-25.38	-53.18	-13	-40.18	H
3.465469	34.58	Pk	32.5	-95.2	-25.37	-53.49	-13	-40.49	V
5.195156	36.76	Pk	34.5	-95.2	-23.00	-46.94	-13	-33.94	V
5.201719	37.32	Pk	34.5	-95.2	-22.96	-46.34	-13	-33.34	H
6.929063	32.73	Pk	35.5	-95.2	-19.59	-46.56	-13	-33.56	H
6.929531	32.96	Pk	35.5	-95.2	-19.59	-46.33	-13	-33.33	V
High Channel, 1752.6MHz									
3.504844	31.74	Pk	32.5	-95.2	-24.43	-55.39	-13	-42.39	H
3.505313	34.32	Pk	32.5	-95.2	-24.41	-52.79	-13	-39.79	V
5.257500	32.83	Pk	34.6	-95.2	-22.35	-50.12	-13	-37.12	H
5.257500	31.50	Pk	34.6	-95.2	-22.35	-51.45	-13	-38.45	V
7.010156	32.58	Pk	35.5	-95.2	-18.80	-45.92	-13	-32.92	H
7.010156	30.69	Pk	35.5	-95.2	-18.80	-47.81	-13	-34.81	V

HSDPA MODE

Project #:	4790592293
Date:	4/5/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.425156	32.99	Pk	32.6	-95.2	-25.76	-55.37	-13	-42.37	H
3.425156	34.13	Pk	32.6	-95.2	-25.76	-54.23	-13	-41.23	V
5.137500	34.5	Pk	34.4	-95.2	-22.50	-48.80	-13	-35.80	H
5.137031	33.87	Pk	34.4	-95.2	-22.48	-49.41	-13	-36.41	V
6.848906	31.43	Pk	35.5	-95.2	-19.88	-48.15	-13	-35.15	H
6.849375	30.74	Pk	35.5	-95.2	-19.88	-48.84	-13	-35.84	V
Mid Channel, 1732.6MHz									
3.464531	34.10	Pk	32.5	-95.2	-25.36	-53.96	-13	-40.96	H
3.465938	33.01	Pk	32.5	-95.2	-25.38	-55.07	-13	-42.07	V
5.197500	34.21	Pk	34.5	-95.2	-23.03	-49.52	-13	-36.52	H
5.198438	34.66	Pk	34.5	-95.2	-23.02	-49.06	-13	-36.06	V
6.930000	32.75	Pk	35.5	-95.2	-19.59	-46.54	-13	-33.54	H
6.930469	31.82	Pk	35.5	-95.2	-19.57	-47.45	-13	-34.45	V
High Channel, 1752.6MHz									
3.505781	32.49	Pk	32.5	-95.2	-24.38	-54.59	-13	-41.59	H
3.505313	32.46	Pk	32.5	-95.2	-24.41	-54.65	-13	-41.65	V
5.257500	32.46	Pk	34.6	-95.2	-22.35	-50.49	-13	-37.49	H
5.257500	31.80	Pk	34.6	-95.2	-22.35	-51.15	-13	-38.15	V
7.009688	32.03	Pk	35.5	-95.2	-18.80	-46.47	-13	-33.47	H
7.009688	30.20	Pk	35.5	-95.2	-18.80	-48.30	-13	-35.30	V

10.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT2

10.2.1. GSM 850

GPRS MODE

Project #:	4790592293
Date:	3/30/2023
Test Engineer:	26120
Configuration:	EUT Only
Mode:	GPRS 850
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB) 3mH	172654 HPF (dB)	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.648311	40.24	Pk	28.3	.7	-95.2	-35.16	-61.12	-13	-48.12	H
1.648311	40.67	Pk	28.3	.7	-95.2	-35.16	-60.69	-13	-47.69	V
2.472089	39.91	Pk	32.2	.5	-95.2	-34.81	-57.4	-13	-44.40	H
2.472089	39.09	Pk	32.2	.5	-95.2	-34.81	-58.22	-13	-45.22	V
3.297334	39.10	Pk	32.7	.5	-95.2	-33.84	-56.74	-13	-43.74	H
3.296356	40.32	Pk	32.8	.5	-95.2	-33.85	-55.43	-13	-42.43	V
Mid Channel, 836.6 MHz										
1.673245	41.26	Pk	28.6	.7	-95.2	-35.20	-59.84	-13	-46.84	H
1.672756	40.13	Pk	28.6	.7	-95.2	-35.19	-60.96	-13	-47.96	V
2.509734	41.16	Pk	32.3	.5	-95.2	-34.87	-56.11	-13	-43.11	H
2.509734	41.35	Pk	32.3	.5	-95.2	-34.87	-55.92	-13	-42.92	V
3.346712	41.42	Pk	32.6	.4	-95.2	-33.81	-54.59	-13	-41.59	H
3.346223	39.49	Pk	32.6	.4	-95.2	-33.82	-56.53	-13	-43.53	V
High Channel, 848.8 MHz										
1.697200	39.59	Pk	28.9	.6	-95.2	-35.11	-61.22	-13	-48.22	V
1.697689	40.53	Pk	28.9	.6	-95.2	-35.13	-60.3	-13	-47.30	H
2.545911	40.12	Pk	32.2	.7	-95.2	-34.9	-57.08	-13	-44.08	V
2.5464	40.77	Pk	32.2	.7	-95.2	-34.88	-56.41	-13	-43.41	H
3.395601	39.12	Pk	32.6	.5	-95.2	-33.58	-56.56	-13	-43.56	H
3.395601	40.10	Pk	32.6	.5	-95.2	-33.58	-55.58	-13	-42.58	V

EGPRS MODE

Project #:	4790592293
Date:	3/28/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	EGPRS 850
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.648311	36.66	Pk	28.5	.7	-95.2	-29.01	-58.35	-13	-45.35	H
1.649289	35.93	Pk	28.4	.8	-95.2	-29.06	-59.13	-13	-46.13	V
2.472578	36.15	Pk	32.4	.5	-95.2	-27.59	-53.74	-13	-40.74	H
2.472578	34.83	Pk	32.4	.5	-95.2	-27.59	-55.06	-13	-42.06	V
3.296845	35.40	Pk	32.8	.8	-95.2	-26.03	-52.23	-13	-39.23	H
3.296845	34.41	Pk	32.8	.8	-95.2	-26.03	-53.22	-13	-40.22	V
Mid Channel, 836.6 MHz										
1.673245	36.97	Pk	28.6	.7	-95.2	-28.72	-57.65	-13	-44.65	H
1.673245	36.19	Pk	28.6	.7	-95.2	-28.72	-58.43	-13	-45.43	V
2.510711	35.00	Pk	32.2	.7	-95.2	-27.49	-54.79	-13	-41.79	H
2.509734	35.44	Pk	32.2	.7	-95.2	-27.54	-54.4	-13	-41.4	V
3.346223	34.03	Pk	32.5	.5	-95.2	-26.25	-54.42	-13	-41.42	H
3.346223	33.43	Pk	32.5	.5	-95.2	-26.25	-55.02	-13	-42.02	V
High Channel, 848.8 MHz										
1.697200	36.65	Pk	28.9	.6	-95.2	-28.7	-57.75	-13	-44.75	H
1.697200	36.32	Pk	28.9	.6	-95.2	-28.7	-58.08	-13	-45.08	V
2.546400	36.49	Pk	32.4	.6	-95.2	-27.32	-53.03	-13	-40.03	H
2.546400	35.62	Pk	32.4	.6	-95.2	-27.32	-53.90	-13	-40.90	V
3.395601	36.43	Pk	32.5	.6	-95.2	-25.93	-51.60	-13	-38.60	H
3.395112	34.05	Pk	32.5	.6	-95.2	-25.91	-53.96	-13	-40.96	V

10.2.2. GSM 1900

GPRS MODE

Project #:	4790592293
Date:	3/29/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF (dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.700781	34.62	Pk	32.9	-95.2	-25.09	-52.77	-13	-39.77	H
3.700781	35.89	Pk	32.9	-95.2	-25.09	-51.5	-13	-38.50	V
5.550469	33.81	Pk	34.6	-95.2	-21.43	-48.22	-13	-35.22	V
5.550938	33.96	Pk	34.6	-95.2	-21.44	-48.08	-13	-35.08	H
7.400156	28.94	Pk	35.5	-95.2	-18.38	-49.14	-13	-36.14	V
7.400625	29.74	Pk	35.5	-95.2	-18.40	-48.36	-13	-35.36	H
Mid Channel, 1880MHz									
3.760781	36.22	Pk	32.9	-95.2	-24.88	-50.96	-13	-37.96	H
3.760781	33.07	Pk	32.9	-95.2	-24.88	-54.11	-13	-41.11	V
5.640000	32.33	Pk	34.6	-95.2	-20.72	-48.99	-13	-35.99	H
5.640469	30.55	Pk	34.6	-95.2	-20.72	-50.77	-13	-37.77	V
7.520625	32.18	Pk	35.4	-95.2	-18.63	-46.25	-13	-33.25	H
7.520625	30.98	Pk	35.4	-95.2	-18.63	-47.45	-13	-34.45	V
High Channel, 1909.8MHz									
3.819844	35.72	Pk	32.9	-95.2	-25.06	-51.64	-13	-38.64	H
3.820313	34.95	Pk	32.9	-95.2	-25.08	-52.43	-13	-39.43	V
5.729531	31.82	Pk	34.8	-95.2	-21.69	-50.27	-13	-37.27	H
5.729531	31.43	Pk	34.8	-95.2	-21.69	-50.66	-13	-37.66	V
7.640156	30.99	Pk	35.6	-95.2	-17.73	-46.34	-13	-33.34	H
7.640156	30.26	Pk	35.6	-95.2	-17.73	-47.07	-13	-34.07	V

EGPRS MODE

Project #:	4790592293
Date:	3/30/2023
Test Engineer:	26120
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF (dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.699844	40.13	Pk	33.1	-95.2	-32.33	-54.3	-13	-41.30	H
3.699844	37.48	Pk	33.1	-95.2	-32.33	-56.95	-13	-43.95	V
5.549531	38.22	Pk	34.5	-95.2	-29.29	-51.77	-13	-38.77	H
5.549531	35.53	Pk	34.5	-95.2	-29.29	-54.46	-13	-41.46	V
7.400625	33.82	Pk	35.8	-95.2	-26.51	-52.09	-13	-39.09	H
7.400625	33.48	Pk	35.8	-95.2	-26.51	-52.43	-13	-39.43	V
Mid Channel, 1880MHz									
3.760313	37.50	Pk	33.2	-95.2	-32.17	-56.67	-13	-43.67	H
3.760313	37.04	Pk	33.2	-95.2	-32.17	-57.13	-13	-44.13	V
5.640000	37.80	Pk	34.5	-95.2	-30.10	-53.00	-13	-40.00	H
5.639063	37.59	Pk	34.5	-95.2	-30.11	-53.22	-13	-40.22	V
7.522031	33.26	Pk	35.9	-95.2	-26.42	-52.46	-13	-39.46	H
High Channel, 1909.8MHz									
3.819375	40.56	Pk	33.3	-95.2	-31.95	-53.29	-13	-40.29	H
3.818906	40.42	Pk	33.3	-95.2	-31.94	-53.42	-13	-40.42	V
5.730469	35.82	Pk	34.6	-95.2	-28.93	-53.71	-13	-40.71	H
5.730469	35.22	Pk	34.6	-95.2	-28.93	-54.31	-13	-41.31	V
7.639219	35.60	Pk	35.9	-95.2	-26.65	-50.35	-13	-37.35	H
7.639219	32.80	Pk	35.9	-95.2	-26.65	-53.15	-13	-40.15	V

10.2.3. WCDMA BAND 5

REL 99 MODE

Project #:	
Date:	4/4/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 5
Chamber #:	05-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.652711	35.87	Pk	28.4	.8	-95.2	-28.89	-59.02	-13	-46.02	H
1.652711	34.97	Pk	28.4	.8	-95.2	-28.89	-59.92	-13	-46.92	V
2.478445	35.52	Pk	32.3	.5	-95.2	-27.54	-54.42	-13	-41.42	V
2.478934	35.76	Pk	32.3	.5	-95.2	-27.56	-54.20	-13	-41.20	H
3.304178	35.48	Pk	32.7	.7	-95.2	-26.11	-52.43	-13	-39.43	H
3.305156	33.63	Pk	32.7	.7	-95.2	-26.06	-54.23	-13	-41.23	V
Mid Channel, 836.6 MHz										
1.673245	36.02	Pk	28.6	.7	-95.2	-28.72	-58.6	-13	-45.60	H
1.673245	34.93	Pk	28.6	.7	-95.2	-28.72	-59.69	-13	-46.69	V
2.509245	33.77	Pk	32.2	.7	-95.2	-27.55	-56.08	-13	-43.08	H
2.509245	34.53	Pk	32.2	.7	-95.2	-27.55	-55.32	-13	-42.32	V
3.347689	35.22	Pk	32.5	.5	-95.2	-26.18	-53.16	-13	-40.16	H
3.347200	34.32	Pk	32.5	.5	-95.2	-26.21	-54.09	-13	-41.09	V
High Channel, 848.8 MHz										
1.693778	36.57	Pk	28.8	.7	-95.2	-28.84	-57.97	-13	-44.97	H
1.693289	36.62	Pk	28.8	.7	-95.2	-28.87	-57.95	-13	-44.95	V
2.538089	35.62	Pk	32.2	.7	-95.2	-27.42	-54.10	-13	-41.10	H
2.537600	37.06	Pk	32.2	.7	-95.2	-27.41	-52.65	-13	-39.65	V
3.386312	32.57	Pk	32.4	.6	-95.2	-26.00	-55.63	-13	-42.63	H
3.386312	34.36	Pk	32.4	.6	-95.2	-26.00	-53.84	-13	-40.84	V

HSDPA MODE

Project #:	4790592293
Date:	4/3/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 5
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Amp/Cbl (dB)	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.651245	37.36	Pk	28.4	.8	-95.2	-28.95	-57.59	-13	-44.59	H
1.651733	35.36	Pk	28.4	.8	-95.2	-28.92	-59.56	-13	-46.56	V
2.478934	34.18	Pk	32.3	.5	-95.2	-27.56	-55.78	-13	-42.78	H
2.478445	35.71	Pk	32.3	.5	-95.2	-27.54	-54.23	-13	-41.23	V
3.305156	34.02	Pk	32.7	.7	-95.2	-26.06	-53.84	-13	-40.84	H
3.305156	33.31	Pk	32.7	.7	-95.2	-26.06	-54.55	-13	-41.55	V
Mid Channel, 836.6 MHz										
1.673245	35.84	Pk	28.6	.7	-95.2	-28.72	-58.78	-13	-45.78	H
1.673245	36.97	Pk	28.6	.7	-95.2	-28.72	-57.65	-13	-44.65	V
2.508267	34.81	Pk	32.2	.7	-95.2	-27.53	-55.02	-13	-42.02	H
2.507289	36.63	Pk	32.2	.7	-95.2	-27.48	-53.15	-13	-40.15	V
3.347200	34.18	Pk	32.5	.5	-95.2	-26.21	-54.23	-13	-41.23	H
3.346223	34.10	Pk	32.5	.5	-95.2	-26.25	-54.35	-13	-41.35	V
High Channel, 848.8 MHz										
1.693289	36.64	Pk	28.8	.7	-95.2	-28.87	-57.93	-13	-44.93	H
1.693289	35.17	Pk	28.8	.7	-95.2	-28.87	-59.40	-13	-46.40	V
2.540045	35.25	Pk	32.2	.7	-95.2	-27.35	-54.40	-13	-41.40	H
2.540045	35.12	Pk	32.2	.7	-95.2	-27.35	-54.53	-13	-41.53	V
3.386801	34.61	Pk	32.4	.6	-95.2	-26.02	-53.61	-13	-40.61	H
3.386801	33.45	Pk	32.4	.6	-95.2	-26.02	-54.77	-13	-41.77	V

10.2.4. WCDMA BAND 2

REL 99 MODE

Project #:	4790592293
Date:	4/6/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.423750	34.41	Pk	32.6	-95.2	-25.83	-54.02	-13	-41.02	H
3.423750	33.54	Pk	32.6	-95.2	-25.83	-54.89	-13	-41.89	V
5.137500	34.61	Pk	34.4	-95.2	-22.50	-48.69	-13	-35.69	H
5.137500	34.73	Pk	34.4	-95.2	-22.50	-48.57	-13	-35.57	V
6.849375	32.02	Pk	35.5	-95.2	-19.88	-47.56	-13	-34.56	H
6.849375	31.42	Pk	35.5	-95.2	-19.88	-48.16	-13	-35.16	V
Mid Channel, 1880MHz									
3.760781	35.50	Pk	32.9	-95.2	-24.88	-51.68	-13	-38.68	H
3.761250	35.37	Pk	32.9	-95.2	-24.89	-51.82	-13	-38.82	V
5.640000	32.68	Pk	34.6	-95.2	-20.72	-48.64	-13	-35.64	H
5.640000	33.49	Pk	34.6	-95.2	-20.72	-47.83	-13	-34.83	V
7.520625	31.65	Pk	35.4	-95.2	-18.63	-46.78	-13	-33.78	H
7.520625	31.03	Pk	35.4	-95.2	-18.63	-47.40	-13	-34.40	V
High Channel, 1907.6MHz									
3.816094	36.11	Pk	32.9	-95.2	-25.09	-51.28	-13	-38.28	H
3.815625	36.07	Pk	32.9	-95.2	-25.10	-51.33	-13	-38.33	V
5.722500	32.33	Pk	34.7	-95.2	-21.65	-49.82	-13	-36.82	H
5.722031	33.56	Pk	34.7	-95.2	-21.64	-48.58	-13	-35.58	V
7.630781	31.91	Pk	35.6	-95.2	-17.84	-45.53	-13	-32.53	H
7.630313	30.72	Pk	35.6	-95.2	-17.85	-46.73	-13	-33.73	V

HSDPA MODE

Project #:	4790592293
Date:	4/6/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.423750	33.42	Pk	32.6	-95.2	-25.83	-55.01	-13	-42.01	H
3.424688	32.90	Pk	32.6	-95.2	-25.78	-55.48	-13	-42.48	V
5.137969	33.28	Pk	34.4	-95.2	-22.52	-50.04	-13	-37.04	H
5.137031	33.24	Pk	34.4	-95.2	-22.48	-50.04	-13	-37.04	V
6.850313	31.08	Pk	35.5	-95.2	-19.90	-48.52	-13	-35.52	H
6.849375	34.08	Pk	35.5	-95.2	-19.88	-45.5	-13	-32.50	V
Mid Channel, 1880MHz									
3.760781	36.37	Pk	32.9	-95.2	-24.88	-50.81	-13	-37.81	H
3.760781	35.88	Pk	32.9	-95.2	-24.88	-51.30	-13	-38.30	V
5.640000	33.71	Pk	34.6	-95.2	-20.72	-47.61	-13	-34.61	H
5.640469	33.33	Pk	34.6	-95.2	-20.72	-47.99	-13	-34.99	V
7.519219	32.91	Pk	35.4	-95.2	-18.68	-45.57	-13	-32.57	H
7.519688	31.00	Pk	35.4	-95.2	-18.66	-47.46	-13	-34.46	V
High Channel, 1907.6MHz									
3.816094	36.03	Pk	32.9	-95.2	-25.09	-51.36	-13	-38.36	H
3.815156	35.09	Pk	32.9	-95.2	-25.11	-52.32	-13	-39.32	V
5.722500	31.55	Pk	34.7	-95.2	-21.65	-50.60	-13	-37.60	H
5.721563	31.96	Pk	34.7	-95.2	-21.64	-50.18	-13	-37.18	V
7.630781	31.7	Pk	35.6	-95.2	-17.84	-45.74	-13	-32.74	H
7.630313	31.69	Pk	35.6	-95.2	-17.85	-45.76	-13	-32.76	V

10.2.5. WCDMA BAND 4

REL 99 MODE

Project #:	4790592293
Date:	4/7/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Mid Channel, 1732.6MHz									
3.424688	32.35	Pk	32.6	-95.2	-25.78	-56.03	-13	-43.03	H
3.424688	33.78	Pk	32.6	-95.2	-25.78	-54.60	-13	-41.60	V
5.137031	34.67	Pk	34.4	-95.2	-22.48	-48.61	-13	-35.61	V
5.137969	33.71	Pk	34.4	-95.2	-22.52	-49.61	-13	-36.61	H
6.849375	32.12	Pk	35.5	-95.2	-19.88	-47.46	-13	-34.46	V
6.850313	31.35	Pk	35.5	-95.2	-19.90	-48.25	-13	-35.25	H
Low Channel, 1712.4MHz									
3.465000	33.96	Pk	32.5	-95.2	-25.36	-54.10	-13	-41.10	H
3.464531	34.66	Pk	32.5	-95.2	-25.36	-53.40	-13	-40.40	V
5.198438	32.30	Pk	34.5	-95.2	-23.02	-51.42	-13	-38.42	H
5.198906	33.01	Pk	34.5	-95.2	-23.02	-50.71	-13	-37.71	V
6.930938	31.78	Pk	35.5	-95.2	-19.55	-47.47	-13	-34.47	H
6.930000	31.96	Pk	35.5	-95.2	-19.59	-47.33	-13	-34.33	V
High Channel, 1752.61MHz									
3.504844	33.21	Pk	32.5	-95.2	-24.43	-53.92	-13	-40.92	H
3.505313	32.85	Pk	32.5	-95.2	-24.41	-54.26	-13	-41.26	V
5.257969	33.09	Pk	34.6	-95.2	-22.32	-49.83	-13	-36.83	H
5.257500	33.54	Pk	34.6	-95.2	-22.35	-49.41	-13	-36.41	V
7.010625	31.95	Pk	35.5	-95.2	-18.79	-46.54	-13	-33.54	H
7.011094	33.34	Pk	35.5	-95.2	-18.78	-45.14	-13	-32.14	V

HSDPA MODE

Project #:	4790592293
Date:	4/5/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Mid Channel, 1732.6MHz									
3.424688	34.59	Pk	32.6	-95.2	-25.78	-53.79	-13	-40.79	H
3.424688	34.38	Pk	32.6	-95.2	-25.78	-54.00	-13	-41.00	V
5.137500	36.38	Pk	34.4	-95.2	-22.5	-46.92	-13	-33.92	H
5.137969	36.12	Pk	34.4	-95.2	-22.52	-47.20	-13	-34.20	V
6.849375	31.31	Pk	35.5	-95.2	-19.88	-48.27	-13	-35.27	H
6.849375	30.45	Pk	35.5	-95.2	-19.88	-49.13	-13	-36.13	V
Low Channel, 1712.4MHz									
3.465469	33.72	Pk	32.5	-95.2	-25.37	-54.35	-13	-41.35	H
3.465000	34.65	Pk	32.5	-95.2	-25.36	-53.41	-13	-40.41	V
5.198438	34.35	Pk	34.5	-95.2	-23.02	-49.37	-13	-36.37	H
5.197969	35.94	Pk	34.5	-95.2	-23.02	-47.78	-13	-34.78	V
6.929531	33.21	Pk	35.5	-95.2	-19.59	-46.08	-13	-33.08	H
6.930469	32.28	Pk	35.5	-95.2	-19.57	-46.99	-13	-33.99	V
High Channel, 1752.61MHz									
3.205313	33.92	Pk	32.8	-95.2	-25.84	-54.32	-13	-41.32	H
3.205313	34.93	Pk	32.8	-95.2	-25.84	-53.31	-13	-40.31	V
5.257969	32.84	Pk	34.6	-95.2	-22.32	-50.08	-13	-37.08	H
5.257969	32.59	Pk	34.6	-95.2	-22.32	-50.33	-13	-37.33	V
7.010625	33.04	Pk	35.5	-95.2	-18.79	-45.45	-13	-32.45	H
7.010625	32.19	Pk	35.5	-95.2	-18.79	-46.30	-13	-33.30	V

10.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT3

10.3.1. GSM 1900

GPRS MODE

Project #:	4790592293
Date:	4/6/2023
Test Engineer:	32145
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	04-RDE-J

Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.694219	41.06	Pk	33.1	-95.2	-32.43	-53.47	-13	-40.47	H
3.670313	40.75	Pk	33.0	-95.2	-32.5	-53.95	-13	-40.95	V
5.556563	38.66	Pk	34.5	-95.2	-29.44	-51.48	-13	-38.48	H
5.596406	37.34	Pk	34.4	-95.2	-29.74	-53.2	-13	-40.20	V
7.397344	36.05	Pk	35.8	-95.2	-26.52	-49.87	-13	-36.87	V
7.412344	36.06	Pk	35.8	-95.2	-26.35	-49.69	-13	-36.69	H
Mid Channel, 1880MHz									
3.752813	40.36	Pk	33.2	-95.2	-32.13	-53.77	-13	-40.77	H
3.758906	40.38	Pk	33.2	-95.2	-32.15	-53.77	-13	-40.77	V
5.629688	38.63	Pk	34.4	-95.2	-30.07	-52.24	-13	-39.24	H
5.603438	37.57	Pk	34.4	-95.2	-29.8	-53.03	-13	-40.03	V
7.518750	36.11	Pk	35.9	-95.2	-26.41	-49.6	-13	-36.60	H
7.525313	36.09	Pk	35.9	-95.2	-26.39	-49.6	-13	-36.60	V
High Channel, 1909.8MHz									
3.795000	40.27	Pk	33.3	-95.2	-31.91	-53.54	-13	-40.54	V
3.808594	40.13	Pk	33.3	-95.2	-31.99	-53.76	-13	-40.76	H
5.715938	38.56	Pk	34.6	-95.2	-29.07	-51.11	-13	-38.11	H
5.724375	38.69	Pk	34.6	-95.2	-29.07	-50.98	-13	-37.98	V
7.648594	35.94	Pk	35.9	-95.2	-26.67	-50.03	-13	-37.03	H
7.628438	35.55	Pk	35.9	-95.2	-26.68	-50.43	-13	-37.43	V

EGPRS MODE

Project #:	4790592293
Date:	3/30/2023
Test Engineer:	26120
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	222740 ACF(dB) - 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.704063	39.01	Pk	33.1	-95.2	-32.33	-55.42	-13	-42.42	H
3.704063	37.69	Pk	33.1	-95.2	-32.33	-56.74	-13	-43.74	V
5.552344	38.22	Pk	34.5	-95.2	-29.36	-51.84	-13	-38.84	H
5.552344	36.33	Pk	34.5	-95.2	-29.36	-53.73	-13	-40.73	V
7.400156	34.50	Pk	35.8	-95.2	-26.49	-51.39	-13	-38.39	H
7.400156	33.64	Pk	35.8	-95.2	-26.49	-52.25	-13	-39.25	V
Mid Channel, 1880MHz									
3.759844	36.72	Pk	33.2	-95.2	-32.18	-57.46	-13	-44.46	H
3.759375	37.83	Pk	33.2	-95.2	-32.17	-56.34	-13	-43.34	V
5.640000	34.68	Pk	34.5	-95.2	-30.10	-56.12	-13	-43.12	H
5.640000	34.41	Pk	34.5	-95.2	-30.10	-56.39	-13	-43.39	V
7.520156	33.55	Pk	35.9	-95.2	-26.39	-52.14	-13	-39.14	H
7.519688	33.22	Pk	35.9	-95.2	-26.39	-52.47	-13	-39.47	V
High Channel, 1909.8MHz									
3.818906	38.37	Pk	33.3	-95.2	-31.94	-55.47	-13	-42.47	H
3.818906	36.90	Pk	33.3	-95.2	-31.94	-56.94	-13	-43.94	V
5.729531	34.83	Pk	34.6	-95.2	-28.90	-54.67	-13	-41.67	H
5.729531	35.89	Pk	34.6	-95.2	-28.90	-53.61	-13	-40.61	V
7.639688	34.34	Pk	35.9	-95.2	-26.72	-51.68	-13	-38.68	H
7.639219	35.68	Pk	35.9	-95.2	-26.65	-50.27	-13	-37.27	V

10.3.2. WCDMA BAND 2

REL 99 MODE

Project #:	4790592293
Date:	4/6/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1852.4MHz									
3.424219	34.77	Pk	32.6	-95.2	-25.81	-53.64	-13	-40.64	H
3.424219	33.01	Pk	32.6	-95.2	-25.81	-55.40	-13	-42.4	V
5.137031	32.95	Pk	34.4	-95.2	-22.48	-50.33	-13	-37.33	H
5.137500	33.04	Pk	34.4	-95.2	-22.50	-50.26	-13	-37.26	V
6.849375	30.78	Pk	35.5	-95.2	-19.88	-48.80	-13	-35.80	H
6.849375	32.46	Pk	35.5	-95.2	-19.88	-47.12	-13	-34.12	V
Mid Channel, 1880MHz									
3.760313	34.86	Pk	32.9	-95.2	-24.87	-52.31	-13	-39.31	H
3.760781	34.33	Pk	32.9	-95.2	-24.88	-52.85	-13	-39.85	V
5.640469	32.94	Pk	34.6	-95.2	-20.72	-48.38	-13	-35.38	H
5.640469	32.10	Pk	34.6	-95.2	-20.72	-49.22	-13	-36.22	V
7.521094	33.16	Pk	35.4	-95.2	-18.63	-45.27	-13	-32.27	H
7.520156	31.70	Pk	35.4	-95.2	-18.64	-46.74	-13	-33.74	V
High Channel, 1907.6MHz									
3.815625	36.39	Pk	32.9	-95.2	-25.10	-51.01	-13	-38.01	H
3.815156	36.03	Pk	32.9	-95.2	-25.11	-51.38	-13	-38.38	V
5.722031	33.06	Pk	34.7	-95.2	-21.64	-49.08	-13	-36.08	H
5.722031	32.20	Pk	34.7	-95.2	-21.64	-49.94	-13	-36.94	V
7.630313	30.09	Pk	35.6	-95.2	-17.85	-47.36	-13	-34.36	H
7.629844	32.46	Pk	35.6	-95.2	-17.86	-45.00	-13	-32.00	V

HSDPA MODE

Project #:	4790592293
Date:	4/10/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Mid Channel, 1732.6MHz									
3.704063	35.09	Pk	33.0	-95.2	-25.08	-52.19	-13	-39.19	H
3.704531	34.91	Pk	33.0	-95.2	-25.09	-52.38	-13	-39.38	V
5.557031	33.54	Pk	34.7	-95.2	-21.37	-48.33	-13	-35.33	H
5.557031	32.34	Pk	34.7	-95.2	-21.37	-49.53	-13	-36.53	V
7.409531	30.76	Pk	35.5	-95.2	-18.60	-47.54	-13	-34.54	H
7.408594	32.48	Pk	35.5	-95.2	-18.57	-45.79	-13	-32.79	V
Low Channel, 1712.4MHz									
3.759844	36.01	Pk	32.9	-95.2	-24.86	-51.15	-13	-38.15	H
3.760313	35.30	Pk	32.9	-95.2	-24.87	-51.87	-13	-38.87	V
5.639531	32.96	Pk	34.6	-95.2	-20.72	-48.36	-13	-35.36	H
5.640469	31.61	Pk	34.6	-95.2	-20.72	-49.71	-13	-36.71	V
7.520625	32.08	Pk	35.4	-95.2	-18.63	-46.35	-13	-33.35	H
7.520156	32.08	Pk	35.4	-95.2	-18.64	-46.36	-13	-33.36	V
High Channel, 1752.61MHz									
3.815156	35.41	Pk	32.9	-95.2	-25.11	-52.00	-13	-39.00	H
3.815156	36.38	Pk	32.9	-95.2	-25.11	-51.03	-13	-38.03	V
5.722031	33.70	Pk	34.7	-95.2	-21.64	-48.44	-13	-35.44	H
5.721563	32.84	Pk	34.7	-95.2	-21.64	-49.3	-13	-36.3	V
7.630313	31.28	Pk	35.6	-95.2	-17.85	-46.17	-13	-33.17	H
7.630781	31.98	Pk	35.6	-95.2	-17.84	-45.46	-13	-32.46	V

10.3.3. WCDMA BAND 4

REL 99 MODE

Project #:	4790592293
Date:	4/7/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	01-RDE-A

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Mid Channel, 1732.6MHz									
3.424688	32.77	Pk	32.6	-95.2	-25.78	-55.61	-13	-42.61	H
3.424219	32.78	Pk	32.6	-95.2	-25.81	-55.63	-13	-42.63	V
5.137500	33.86	Pk	34.4	-95.2	-22.50	-49.44	-13	-36.44	H
5.137500	32.76	Pk	34.4	-95.2	-22.50	-50.54	-13	-37.54	V
6.849844	30.65	Pk	35.5	-95.2	-19.89	-48.94	-13	-35.94	H
6.849844	30.94	Pk	35.5	-95.2	-19.89	-48.65	-13	-35.65	V
Low Channel, 1712.4MHz									
3.465000	34.44	Pk	32.5	-95.2	-25.36	-53.62	-13	-40.62	H
3.465938	33.58	Pk	32.5	-95.2	-25.38	-54.50	-13	-41.50	V
5.197031	35.33	Pk	34.5	-95.2	-23.04	-48.41	-13	-35.41	H
5.197969	32.94	Pk	34.5	-95.2	-23.02	-50.78	-13	-37.78	V
6.930000	32.65	Pk	35.5	-95.2	-19.59	-46.64	-13	-33.64	V
6.931406	32.40	Pk	35.5	-95.2	-19.55	-46.85	-13	-33.85	H
High Channel, 1752.61MHz									
3.504844	32.72	Pk	32.5	-95.2	-24.43	-54.41	-13	-41.41	V
3.50625	33.45	Pk	32.5	-95.2	-24.37	-53.62	-13	-40.62	H
5.2575	31.81	Pk	34.6	-95.2	-22.35	-51.14	-13	-38.14	V
5.258906	32.54	Pk	34.6	-95.2	-22.29	-50.35	-13	-37.35	H
7.010625	31.23	Pk	35.5	-95.2	-18.79	-47.26	-13	-34.26	V
7.011094	32.29	Pk	35.5	-95.2	-18.78	-46.19	-13	-33.19	H

HSDPA MODE

Project #:	4790592293
Date:	5/4/2023
Test Engineer:	26128
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	Horn Antenna ACF(dB)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.424219	32.49	Pk	32.6	-95.2	-25.81	-55.92	-13	-42.92	H
3.424219	32.26	Pk	32.6	-95.2	-25.81	-56.15	-13	-43.15	V
5.127188	33.61	Pk	34.4	-95.2	-22.33	-49.52	-13	-36.52	H
5.126719	32.73	Pk	34.4	-95.2	-22.33	-50.4	-13	-37.40	V
6.848906	33.13	Pk	35.5	-95.2	-19.88	-46.45	-13	-33.45	H
6.848906	31.00	Pk	35.5	-95.2	-19.88	-48.58	-13	-35.58	V
Mid Channel, 1732.6MHz									
3.464531	33.78	Pk	32.5	-95.2	-25.36	-54.28	-13	-41.28	H
3.465000	34.23	Pk	32.5	-95.2	-25.36	-53.83	-13	-40.83	V
5.197500	31.84	Pk	34.5	-95.2	-23.03	-51.89	-13	-38.89	H
5.196563	33.56	Pk	34.5	-95.2	-23.03	-50.17	-13	-37.17	V
6.929531	32.64	Pk	35.5	-95.2	-19.59	-46.65	-13	-33.65	H
6.929531	32.20	Pk	35.5	-95.2	-19.59	-47.09	-13	-34.09	V
High Channel, 1752.61MHz									
3.506250	32.14	Pk	32.5	-95.2	-24.37	-54.93	-13	-41.93	H
3.505313	32.36	Pk	32.5	-95.2	-24.41	-54.75	-13	-41.75	V
5.257969	30.78	Pk	34.6	-95.2	-22.32	-52.14	-13	-39.14	H
5.257969	32.04	Pk	34.6	-95.2	-22.32	-50.88	-13	-37.88	V
7.010156	32.00	Pk	35.5	-95.2	-18.80	-46.50	-13	-33.50	H
7.011094	31.38	Pk	35.5	-95.2	-18.78	-47.10	-13	-34.10	V

10.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT4

10.4.1. GSM 1900

GPRS MODE

Project #:	4790592293
Date:	3/30/2023
Test Engineer:	25196
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.715313	41.30	Pk	33.1	-95.2	-32.27	-53.07	-13	-40.07	H
3.710156	41.17	Pk	33.1	-95.2	-32.38	-53.31	-13	-40.31	V
5.550938	38.68	Pk	34.5	-95.2	-29.46	-51.48	-13	-38.48	H
5.550938	38.61	Pk	34.5	-95.2	-29.46	-51.55	-13	-38.55	V
7.402031	35.81	Pk	35.8	-95.2	-26.39	-49.98	-13	-36.98	V
7.410469	35.27	Pk	35.8	-95.2	-26.43	-50.56	-13	-37.56	H
Mid Channel, 1880MHz									
3.706875	40.19	Pk	33.1	-95.2	-32.35	-54.26	-13	-41.26	V
3.708750	39.48	Pk	33.1	-95.2	-32.34	-54.96	-13	-41.96	H
5.539219	37.57	Pk	34.5	-95.2	-29.30	-52.43	-13	-39.43	H
5.556094	39.22	Pk	34.5	-95.2	-29.45	-50.93	-13	-37.93	V
7.396406	36.29	Pk	35.8	-95.2	-26.59	-49.70	-13	-36.70	H
7.405781	35.35	Pk	35.8	-95.2	-26.40	-50.45	-13	-37.45	V
High Channel, 1909.8MHz									
3.834844	39.24	Pk	33.4	-95.2	-31.74	-54.30	-13	-41.30	H
3.838594	41.11	Pk	33.4	-95.2	-31.81	-52.50	-13	-39.50	V
5.714063	38.56	Pk	34.6	-95.2	-29.14	-51.18	-13	-38.18	H
5.665781	39.26	Pk	34.5	-95.2	-29.89	-51.33	-13	-38.33	V
7.649531	36.88	Pk	35.9	-95.2	-26.70	-49.12	-13	-36.12	H
7.743281	35.87	Pk	35.9	-95.2	-25.97	-49.40	-13	-36.40	V

EGPRS MODE

Project #:	4790592293
Date:	3/30/2023
Test Engineer:	25196
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	01-RDE-B

Frequency (GHz)	Meter Reading (dBuV)	Det	200786 ACF (dB) 3mH	EIRP CF	Gain/Loss (dB)	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.708281	39.73	Pk	33.1	-95.2	-32.34	-54.71	-13	-41.71	H
3.664688	39.86	Pk	33.0	-95.2	-32.48	-54.82	-13	-41.82	V
5.554219	38.06	Pk	34.5	-95.2	-29.38	-52.02	-13	-39.02	H
5.608594	38.63	Pk	34.4	-95.2	-29.87	-52.04	-13	-39.04	V
7.274063	35.45	Pk	35.8	-95.2	-26.10	-50.05	-13	-37.05	V
7.396406	36.40	Pk	35.8	-95.2	-26.59	-49.59	-13	-36.59	H
Mid Channel, 1880MHz									
3.750938	39.24	Pk	33.2	-95.2	-32.11	-54.87	-13	-41.87	H
3.731250	40.13	Pk	33.1	-95.2	-32.17	-54.14	-13	-41.14	V
5.654063	37.39	Pk	34.5	-95.2	-29.95	-53.26	-13	-40.26	H
5.664375	40.45	Pk	34.5	-95.2	-29.92	-50.17	-13	-37.17	V
7.534219	35.69	Pk	35.9	-95.2	-26.30	-49.91	-13	-36.91	H
7.517344	34.85	Pk	35.9	-95.2	-26.36	-50.81	-13	-37.81	V
High Channel, 1909.8MHz									
3.799453	42.36	Pk	33.3	-95.2	-31.91	-51.45	-13	-38.45	H
3.799688	40.15	Pk	33.3	-95.2	-31.93	-53.68	-13	-40.68	V
5.739375	37.76	Pk	34.6	-95.2	-28.9	-51.74	-13	-38.74	H
5.737031	37.98	Pk	34.6	-95.2	-28.96	-51.58	-13	-38.58	V
7.616719	36.42	Pk	35.9	-95.2	-26.61	-49.49	-13	-36.49	H
7.640625	35.67	Pk	35.9	-95.2	-26.74	-50.37	-13	-37.37	V

10.4.2. WCDMA BAND 2

REL 99 MODE

Project #:	4790592293
Date:	4/6/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	01-RDE-A

Frequency	Meter	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected	LIMIT	Margin	Polarity
Low Channel, 1852.4MHz									
3.424219	34.77	Pk	32.6	-95.2	-25.81	-53.64	-13	-40.64	H
3.424219	33.01	Pk	32.6	-95.2	-25.81	-55.40	-13	-42.40	V
5.137031	32.95	Pk	34.4	-95.2	-22.48	-50.33	-13	-37.33	H
5.137500	33.04	Pk	34.4	-95.2	-22.50	-50.26	-13	-37.26	V
6.849375	30.78	Pk	35.5	-95.2	-19.88	-48.80	-13	-35.80	H
6.849375	32.46	Pk	35.5	-95.2	-19.88	-47.12	-13	-34.12	V
Mid Channel, 1880MHz									
3.760313	34.86	Pk	32.9	-95.2	-24.87	-52.31	-13	-39.31	H
3.760781	34.33	Pk	32.9	-95.2	-24.88	-52.85	-13	-39.85	V
5.640469	32.94	Pk	34.6	-95.2	-20.72	-48.38	-13	-35.38	H
5.640469	32.10	Pk	34.6	-95.2	-20.72	-49.22	-13	-36.22	V
7.521094	33.16	Pk	35.4	-95.2	-18.63	-45.27	-13	-32.27	H
7.520156	31.70	Pk	35.4	-95.2	-18.64	-46.74	-13	-33.74	V
High Channel, 1907.6MHz									
3.815625	36.39	Pk	32.9	-95.2	-25.10	-51.01	-13	-38.01	H
3.815156	36.03	Pk	32.9	-95.2	-25.11	-51.38	-13	-38.38	V
5.722031	33.06	Pk	34.7	-95.2	-21.64	-49.08	-13	-36.08	H
5.722031	32.20	Pk	34.7	-95.2	-21.64	-49.94	-13	-36.94	V
7.630313	30.09	Pk	35.6	-95.2	-17.85	-47.36	-13	-34.36	H
7.629844	32.46	Pk	35.6	-95.2	-17.86	-45.00	-13	-32.00	V

HSDPA MODE

Project #:	4790592293
Date:	4/10/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	01-RDE-A

Frequency	Meter	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected	LIMIT	Margin	Polarity
Low Channel, 1852.4MHz									
3.704063	35.09	Pk	33.0	-95.2	-25.08	-52.19	-13	-39.19	H
3.704531	34.91	Pk	33.0	-95.2	-25.09	-52.38	-13	-39.38	V
5.557031	33.54	Pk	34.7	-95.2	-21.37	-48.33	-13	-35.33	H
5.557031	32.34	Pk	34.7	-95.2	-21.37	-49.53	-13	-36.53	V
7.409531	30.76	Pk	35.5	-95.2	-18.60	-47.54	-13	-34.54	H
7.408594	32.48	Pk	35.5	-95.2	-18.57	-45.79	-13	-32.79	V
Mid Channel, 1880MHz									
3.759844	36.01	Pk	32.9	-95.2	-24.86	-51.15	-13	-38.15	H
3.760313	35.30	Pk	32.9	-95.2	-24.87	-51.87	-13	-38.87	V
5.639531	32.96	Pk	34.6	-95.2	-20.72	-48.36	-13	-35.36	H
5.640469	31.61	Pk	34.6	-95.2	-20.72	-49.71	-13	-36.71	V
7.520156	32.08	Pk	35.4	-95.2	-18.64	-46.36	-13	-33.36	V
7.520625	32.08	Pk	35.4	-95.2	-18.63	-46.35	-13	-33.35	H
High Channel, 1907.6MHz									
3.815156	35.41	Pk	32.9	-95.2	-25.11	-52.00	-13	-39.00	H
3.815156	36.38	Pk	32.9	-95.2	-25.11	-51.03	-13	-38.03	V
5.722031	33.7	Pk	34.7	-95.2	-21.64	-48.44	-13	-35.44	H
5.721563	32.84	Pk	34.7	-95.2	-21.64	-49.30	-13	-36.30	V
7.630313	31.28	Pk	35.6	-95.2	-17.85	-46.17	-13	-33.17	H
7.630781	31.98	Pk	35.6	-95.2	-17.84	-45.46	-13	-32.46	V

10.4.3. WCDMA BAND 4

REL 99 MODE

Project #:	4790592293
Date:	4/7/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	01-RDE-A

Frequency	Meter	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected	LIMIT	Margin	Polarity
Low Channel, 1712.4MHz									
3.424688	32.77	Pk	32.6	-95.2	-25.78	-55.61	-13	-42.61	H
3.424219	32.78	Pk	32.6	-95.2	-25.81	-55.63	-13	-42.63	V
5.137500	33.86	Pk	34.4	-95.2	-22.50	-49.44	-13	-36.44	H
5.137500	32.76	Pk	34.4	-95.2	-22.50	-50.54	-13	-37.54	V
6.849844	30.65	Pk	35.5	-95.2	-19.89	-48.94	-13	-35.94	H
6.849844	30.94	Pk	35.5	-95.2	-19.89	-48.65	-13	-35.65	V
Mid Channel, 1732.6MHz									
3.465000	34.44	Pk	32.5	-95.2	-25.36	-53.62	-13	-40.62	H
3.465938	33.58	Pk	32.5	-95.2	-25.38	-54.5	-13	-41.50	V
5.197031	35.33	Pk	34.5	-95.2	-23.04	-48.41	-13	-35.41	H
5.197969	32.94	Pk	34.5	-95.2	-23.02	-50.78	-13	-37.78	V
6.931406	32.4	Pk	35.5	-95.2	-19.55	-46.85	-13	-33.85	H
6.930000	32.65	Pk	35.5	-95.2	-19.59	-46.64	-13	-33.64	V
High Channel, 1752.61MHz									
3.506250	33.45	Pk	32.5	-95.2	-24.37	-53.62	-13	-40.62	H
3.504844	32.72	Pk	32.5	-95.2	-24.43	-54.41	-13	-41.41	V
5.258906	32.54	Pk	34.6	-95.2	-22.29	-50.35	-13	-37.35	H
5.257500	31.81	Pk	34.6	-95.2	-22.35	-51.14	-13	-38.14	V
7.011094	32.29	Pk	35.5	-95.2	-18.78	-46.19	-13	-33.19	H
7.010625	31.23	Pk	35.5	-95.2	-18.79	-47.26	-13	-34.26	V

HSDPA MODE

Project #:	4790592293
Date:	4/7/2023
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	01-RDE-A

Frequency	Meter	Det	Horn Antenna ACF(dB)	EIRP CF	Gain/Loss (dB)	Corrected	LIMIT	Margin	Polarity
Low Channel, 1712.4MHz									
3.424219	32.49	Pk	32.6	-95.2	-25.81	-55.92	-13	-42.92	H
3.424219	32.26	Pk	32.6	-95.2	-25.81	-56.15	-13	-43.15	V
5.127188	33.61	Pk	34.4	-95.2	-22.33	-49.52	-13	-36.52	H
5.126719	32.73	Pk	34.4	-95.2	-22.33	-50.40	-13	-37.40	V
6.848906	33.13	Pk	35.5	-95.2	-19.88	-46.45	-13	-33.45	H
6.848906	31.00	Pk	35.5	-95.2	-19.88	-48.58	-13	-35.58	V
Mid Channel, 1732.6MHz									
3.464531	33.78	Pk	32.5	-95.2	-25.36	-54.28	-13	-41.28	H
3.465000	34.23	Pk	32.5	-95.2	-25.36	-53.83	-13	-40.83	V
5.196563	33.56	Pk	34.5	-95.2	-23.03	-50.17	-13	-37.17	V
5.197500	31.84	Pk	34.5	-95.2	-23.03	-51.89	-13	-38.89	H
6.929531	32.64	Pk	35.5	-95.2	-19.59	-46.65	-13	-33.65	H
6.929531	32.20	Pk	35.5	-95.2	-19.59	-47.09	-13	-34.09	V
High Channel, 1752.61MHz									
3.506250	32.14	Pk	32.5	-95.2	-24.37	-54.93	-13	-41.93	H
3.505313	32.36	Pk	32.5	-95.2	-24.41	-54.75	-13	-41.75	V
5.257969	30.78	Pk	34.6	-95.2	-22.32	-52.14	-13	-39.14	H
5.257969	32.04	Pk	34.6	-95.2	-22.32	-50.88	-13	-37.88	V
7.010156	32.00	Pk	35.5	-95.2	-18.80	-46.50	-13	-33.50	H
7.011094	31.38	Pk	35.5	-95.2	-18.78	-47.10	-13	-34.10	V

11. SETUP PHOTOS

Please refer to 14523771-EP1V1 for Setup Photo Report for setup photos.

END OF REPORT