



TEST REPORT

Report Number : 13573777-E7V2

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

Model : A2481

Brand : APPLE

FCC ID : BCG-E3994A

IC : 579C-E3994A

EUT Description : SMARTPHONE

Test Standard(s) : FCC CFR47 PART 22H, 24E, 27L, AND 90S
ISED RSS-GEN ISSUE 5, RSS-132 ISSUE 3, RSS-133 ISSUE
6, AND RSS-139 ISSUE 3

Date Of Issue:
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Revision History

Rev.	Issue Date	Revisions	Revised By
V1	7/30/2021	Initial Review	Mengistu Mekuria
V2	8/5/2021	Updated sections 6.1 and 6.5 according to TCB feedback. Updated 6.5 to clarify that conducted tests were selected based on worst case conducted power.	John Thompson

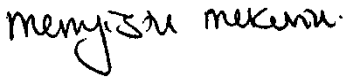
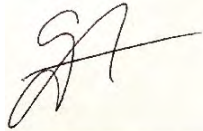
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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A.	
Model	A2481	
Brand	APPLE	
FCC ID	BCG-E3994A	
IC	579C-E3994A	
EUT Description	SMARTPHONE	
Serial Number	C7H1233003P0MMN5A (CONDUCTED) AND N433JJJ3K0 (RADIATED)	
Sample Receipt Date	MAY 14, 2021	
Date Tested	MAY 14, 2021 to JULY 22, 2021	
Applicable Standards	FCC CFR 47 Part 2, Part 22, Part 24, Part 27 and Part 90 ISED RSS-Gen Issue 5, RSS-132 Issue 3, RSS-133 Issue 6, RSS-139 Issue 3.	
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 Lead Test Engineer UL Verification Services Inc.	John Thompson Laboratory Engineer UL Verification Services Inc.	Sintia Andrean 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, 90.635 (b)	-	Complies	
Effective Radiated Power	22.913 (a)(5)	-	Complies	
Equivalent Isotropic Radiated power	24.232 (c), 27.50 (d) (4)	RSS132§5.4 RSS133§6.4 & SRSP-510, 5.1.2 RSS139§6.5	Complies	
Occupied Bandwidth	2.1049	RSS132 RSS133§2.3 RSS139 RSS-GEN§6.7	Complies	
Band Edge and Emission Mask	2.1051, 22.917 (a), 24.238 (a), 27.53 (h), 90.691(a)	RSS132§5.5 RSS133§6.5 RSS139§6.6	Complies	
Out of Band Emissions	2.1051, 22.917 (a), 24.238 (a), 27.53 (h), 90.691 (a)	RSS132§5.5 RSS133§6.5 RSS139§6.6	Complies	
Frequency Stability	2.1055, 22.355, 24.235, 27.54, 90.213	RSS132§5.3 RSS133§6.3 RSS139§6.4	Complies	
Peak-to-Average Ratio	22.913 (d), 24.232 (d), 27.50 (d) (5)	RSS132§5.4 RSS133§6.4 RSS139§6.5	Complies	
Field Strength of Spurious Radiation	2.1053, 22.917 (a), 24.238 (a), 27.53 (h), 90.691 (a)	RSS132§5.5 RSS133§6.5 RSS139§6.6	Complies	

3. TEST METHODOLOGY

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

- ANSI C63.26:2015
- FCC CFR 47 Part 2, Part 22, Part 24, Part 27 and Part 90
- [FCC KDB 971168 D01 v03r01](#): Power Meas License Digital Systems
- [FCC KDB 971168 D02 v02r01](#): Misc Rev Approv License Devices
- [FCC KDB 412172 D01 v01r01](#): Determining ERP and EIRP
- ISED RSS-Gen Issue 5, RSS-132 Issue 3, RSS-133 Issue 6, RSS-139 Issue 3.

4. FACILITIES AND ACCREDITATION

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

	Address	ISED CABID	ISED Company Number	FCC Registration
☒	Building 1: 47173 Benicia Street, Fremont, CA 94538, USA	US0104	2324A	208313
☒	Building 2: 47266 Benicia Street, Fremont, CA 94538, USA	US0104	22541	208313
☒	Building 4: 47658 Kato Rd, Fremont, CA 94538, USA	US0104	2324B	208313

5. DECISION RULES AND MEASUREMENT UNCERTAINTY

5.1. METROLOGICAL TRACEABILITY

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

5.2. DECISION RULES

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

5.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U _{Lab}
Worst Case Radiated Disturbance, 9KHz to 30 MHz	2.84 dB
Worst Case Radiated Disturbance, 30 to 1000 MHz	6.01 dB
Worst Case Radiated Disturbance, 1000 to 18000 MHz	4.73 dB
Worst Case Radiated Disturbance, 18000 to 26000 MHz	4.51 dB
Worst Case Radiated Disturbance, 26000 to 40000 MHz	5.29 dB
Occupied Channel Bandwidth	±1.22 %
Temperature	±2.26%
Supply voltages	±0.57 %
Time	±3.39 %

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

5.4. SAMPLE CALCULATION

RADIATED EMISSIONS

Where relevant, the following sample calculation is provided:

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

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

MAINS CONDUCTED EMISSIONS

Where relevant, the following sample calculation is provided:

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

36.5 dBuV + 0 dB + 10.1 dB + 0 dB = 46.6 dBuV

6. EQUIPMENT UNDER TEST

6.1. DESCRIPTION OF EUT

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

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

CDMA BC10 band is supported in USA only.

6.2. MAXIMUM OUTPUT POWER

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015
KDB 971168 D01 Section 5.6

$ERP/EIRP = P_{Meas} + GT - LC$

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

P_{Meas} = measured transmitter output power or PSD, in dBm or dBW;

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

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

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

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

GSM MODES

RSS 132 850MHz (ANT 1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.2-848.8	GPRS	33.50	-4.80	11.5	28.70	0.741	241.3	241KGXW
	EGPRS	28.00			23.20	0.209	243.0	243KG7W
Part 22 850MHz (ANT 1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.2-848.8	GPRS	33.50	-4.80	7.0	26.55	0.452	241.3	241KGXW
	EGPRS	28.00			21.05	0.127	243.0	243KG7W
Part 24 / RSS 133 1900MHz (ANT 3)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1850.2-1909.8	GPRS	31.00	0.20	2.0	31.20	1.318	244.8	245KGXW
	EGPRS	26.50			26.70	0.468	250.9	251KG7W

CDMA MODES

Part 90 BC10 (ANT 1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Limit (W)	Conducted (Average) (W)		99% BW (kHz)	Emission Designator	
817.25-822.75	1xRTT	25.70	100.0	0.372		1277.9	1M28F9W	
	1xEV-DO Rev A	25.70		0.372		1276.4	1M28F9W	
RSS 132 BC0 (ANT 1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.7-848.31	1xRTT	22.50	-4.80	11.5	17.70	0.059	1275.7	1M28F9W
	1xEV-DO Rev A	22.50			17.70	0.059	1281.6	1M28F9W
Part 22 BC0 (ANT 1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.7-848.31	1xRTT	22.50	-4.80	7.0	15.55	0.036	1275.7	1M28F9W
	1xEV-DO Rev A	22.50			15.55	0.036	1281.6	1M28F9W
Part 24 / RSS 133 BC1 (ANT 1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1851.25-1908.75	1xRTT	25.70	-0.90	2.0	24.80	0.302	1270.2	1M27F9W
	1xEV-DO Rev A	25.70			24.80	0.302	1283.0	1M28F9W

WCDMA MODE

RSS 132 Band 5 (ANT 1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
826.4-846.6	REL 99	25.70	-4.80	11.5	20.90	0.123	4142.1	4M14F9W
	HSDPA	24.73			19.93	0.098	4135.2	4M14F9W
Part 22 Band 5 (ANT 1)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
826.4-846.6	REL 99	25.70	-4.80	7.0	18.75	0.075	4142.1	4M14F9W
	HSDPA	24.73			17.78	0.060	4135.2	4M14F9W
Part 24 / RSS 133 Band 2 (ANT 3)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1852.4-1907.6	REL 99	25.20	0.20	2.0	25.40	0.347	4126.5	4M13F9W
	HSDPA	24.20			24.40	0.275	4156.4	4M16F9W
Part 27 / RSS 139 Band 4 (ANT 3)								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
1712.4-1752.6	REL 99	25.20	0.40	1.0	25.60	0.363	4141.7	4M14F9W
	HSDPA	24.28			24.68	0.294	4138.2	4M14F9W

6.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version: 0.21.02-1.

6.4. MAXIMUM ANTENNA GAIN

The antenna(s) gain 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)
BC10 816 – 824MHz	-4.8	-5.9		
GSM850, BC0, WCDMA 5 824 – 849MHz	-4.8	-5.9		
GSM1900, BC1, WCDMA 2 1850 – 1910 MHz	-0.9	-2.8	0.2	-0.9
WCDMA 4 1710 – 1755 MHz	-2.1	-2.3	0.4	-0.6

6.5. WORST-CASE CONFIGURATION AND MODE

The EUT was investigated in three orthogonal orientations X/Y/Z on all ANT 1, ANT2, ANT3, and ANT 4 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
663 – 849 MHz	X	Y	N/A	N/A
1710 – 1915 MHz	X	X	X	X

Based on average conducted output power measurement investigations. The worst-case antenna port 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
- CDMA 2000 1xRTT
- CDMA 2000 1xEV-DO REV. A
- WCDMA REL 99
- WCDMA HSDPA

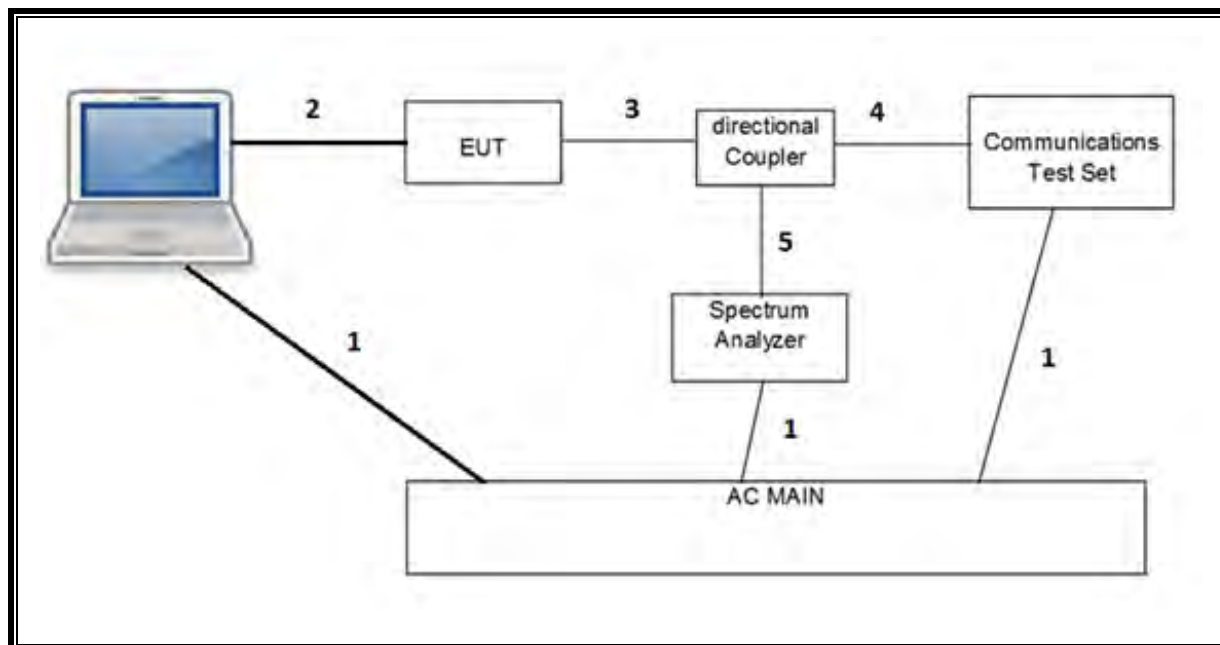
Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

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.

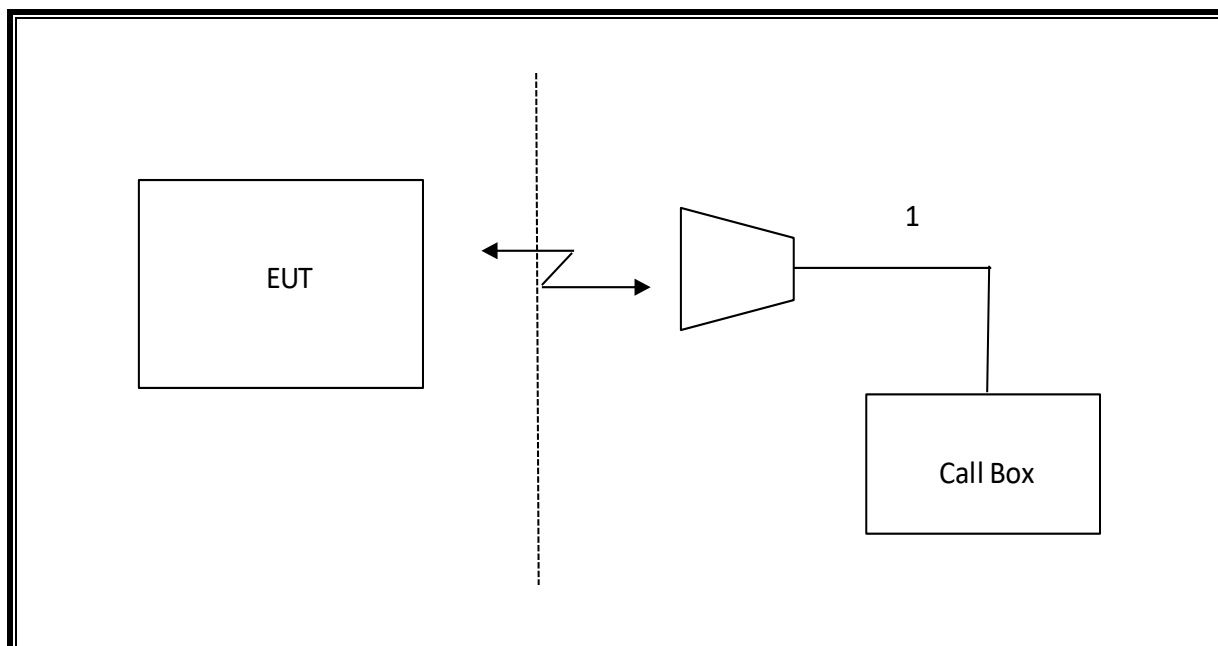
6.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description		Manufacturer	Model	Serial Number		FCC ID/ DoC
Laptop		Apple	MacBook Pro	C02VD7SAH22		BCGA1708
AC/DC adapter		Apple	A1718	C4H714302LCGN8RA5		-
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	T345	05/26/2022
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T136	07/07/2022
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	T900	02/24/2022
Amplifier, 1 to 18GHz	Miteq	AFS42-00101800-25-S-42	T1165	06/12/2022
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T907	07/22/2022
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	T285	07/22/2021
Spectrum Analyzer, PXA 3Hz to 50GHz	Keysight	N9030B	207995	05/27/2022
Spectrum Analyzer, PXA, 3Hz to 50GHz w/Ext. Mixer	Keysight	N9030A	T342	01/25/2022
Spectrum Analyzer, PSA 3Hz to 44GHz	Keysight	E4446A	T123	01/22/2022
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	AE0038201512	connection purpose only
Wireless Communication Test Set, Call Box	Agilent	E5515C	T211	04/3/2022
Directional Coupler	KRYTAR	152610	T1161	09/16/2021
Directional Coupler	KRYTAR	152610	T1536	09/16/2021
Directional Coupler	KRYTAR	152610	T1537	09/16/2021
Power Meter, P-series single channel	Keysight	N1912A	T1272	01/21/2022
Power Sensor, P - series, 50MHz to 18GHz, Wideband	Keysight	N1921A	T1224	01/28/2022
Filter, HPF 3.0GHz	Micro-Tronics	HPM17543	T487	04/27/2022
*Filter, HPF 1.2GHz	Micro-Tronics	WHKX1.2/15G-6ST	T1737	6/23/2021
Filter, BRF 1850 – 1910 MHz	Micro-Tronics	BRM50714-02	T1796	06/10/2022
Spectrum Analyzer, PXA, 3Hz to 44GHz	Keysight	N9030A	T1210	01/22/2022
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T979	02/22/2022
*Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	T754	06/21/2021
*Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	T1154	06/21/2021
Amplifier, 26.5GHz to 40GHz	Miteq	NSP 4000 SP2	T88	04/22/2022
Amplifier, 1 to 26.5GHz, 23.5dB Gain minimum	Keysight	8449B	T404	04/19/2022
Antenna, Horn 18 to 26.5GHz	ARA	MWH-1826/B	T447	04/22/2022
Antenna, Horn 26.5GHz to 40GHz	ARA	MWH-2640	T1864	04/19/2022
Spectrum Analyzer	Keysight	8564E	T106	01/27/2022
Antenna, Active Loop 9KHz to 30MHz	EMCO	6502	T1616	12/02/2021
UL AUTOMATION SOFTWARE				
CLT Software	UL	UL RF	Ver 3.4, June 08 2021	
Power Measurement Software	UL	UL RF	Ver 3.1.4, May 20, 2021	
Radiated test software	UL	UL RF	Ver 9.5 July 7, 2020	

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:	10646	Test Date:	6/7/2021
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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	32.89	31.36
			190	836.6	33.50	32.00
			251	848.8	33.34	31.81
		2	128	824.2	31.99	30.47
			190	836.6	32.50	31.00
			251	848.8	32.48	30.89
EGPRS (8PSK)	MCS5	1	128	824.2	27.57	26.11
			190	836.6	28.00	26.50
			251	848.8	27.91	26.39
		2	128	824.2	26.67	25.11
			190	836.6	27.00	25.50
			251	848.8	27.00	25.41

8.1.2. GSM 1900

Test Engineer ID:	10646	Test Date:	6/7/2021
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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	31.83	29.50	30.99	29.00
			661	1880	32.00	29.44	31.00	28.76
			810	1909.8	31.83	29.36	30.89	28.63
		2	512	1850.2	30.89	28.50	29.98	28.00
			661	1880	31.00	28.48	30.00	27.80
			810	1909.8	30.87	28.40	29.89	27.67
EGPRS (8PSK)	MCS5	1	512	1850.2	26.60	24.19	26.45	23.93
			661	1880	26.81	24.50	26.50	24.00
			810	1909.8	27.00	24.48	26.44	23.95
		2	512	1850.2	25.83	23.30	25.45	22.90
			661	1880	25.72	23.26	25.50	23.00
			810	1909.8	26.00	23.50	25.43	22.96

8.2. CDMA

Maximum output power is verified on the Low, Middle and High channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E for 1xRTT, section 3.1.2.3.4 of 3GPP2 C.S0033-0/TIA-866 for Rel. 0 and section 4.3.4 of 3GPP2 C.S0033-A for Rev. A

1xRTT/ 1xAdvanced

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

<u>Application</u>	<u>Rev, License</u>
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CDMA2000 Mobile Test	B.15.18, L
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- Protocol Rev > 6 (IS-2000-0)
- System ID: 18; NID: 65535, Reg. Ch. #: 610 for Cell, 600 for PCS & 450 for AWS
- Radio Config (RC) > RC1 or RC3
- Service Option (SO) Setup > SO55 or SO32
- Traffic Data Rate > Full
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

1xEV-DO - Release 0 (REL 0)

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

EVDO Release 0 - RTAP

- Call Setup > Shift & Preset
- Call Control:
 - Access Network Info > Cell Parameters > Sector ID > 00000000 : 00000000 : 00000000 : 00000000 > Subnet Mask > 0
 - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Params:
 - Cell Power > -105.5 dBm/1.23 MHz
 - Channel > (Enter channel number)
 - Application Config > Enhanced Test Application Protocol > RTAP
 - RTAP Rate > 153.6 kbps
 - Rvs Power Ctrl > Active bits
 - Protocol Rel > 0 (1xEV-DO)
- Press "Start Data Connection" when "Session Open" appear in "Active Cell"
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

EVDO Release 0 - FTAP

- Call Setup > Shift & Preset
- Call Control:
 - Access Network Info > Cell Parameters > Sector ID > 00000000 : 00000000 : 00000000 : 00000000 > Subnet Mask > 0
 - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Params:
 - Cell Power > -105.5 dBm/1.23 MHz
 - Cell Band > (Select US Cellular or US PCS)
 - Channel > (Enter channel number)
 - Application Config > Enhanced Test Application Protocol > FTAP (default)
 - FTAP Rate > 307.2 kbps (2 Slot, QPSK)
 - Rvs Power Ctrl > Active bits
 - Protocol Rel > 0 (1xEV-DO)
- Press "Start Data Connection" when "Session Open" appear in "Active Cell"
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

1xEV-DO - Revision A (REV A)

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

<u>Application</u>	<u>Rev, License</u>
1xEV-DO Terminal Test	A.09.13

EVDO Rev. A – RETAP

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > RETAP
- R-Data Pkt Size > 4096
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
 - PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters
 - Sector ID > 00000000: 00000000: 00000000: 00000000
 - Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots
 - ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

EVDO Rev. A - FETAP

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > FETAP
- F-Traffic Format > 4 (1024, 2,128) Canonical (307.2k, QPSK)
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
 - PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters > Sector ID > 00000000: 00000000: 00000000: 00000000
 - Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots
 - ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

1x Advanced Setup Procedures used to establish the test signals

Call box setup procedure

- Protocol Rev > 6 (IS-2000-0)
- System ID: 331; NID: 65535, Reg. Ch. #.:
- Radio Config (RC) > Fwd11,Rvs8
- Service Option (SO) Setup > SO75 (Loopback)
- Traffic Data Rate > Full
- Rvs Power Ctrl > All Up bits (Maximum TxPout)
- Reverse Power Control Mode: 00-200 to 400 bps
- Smart blanking was disabled.

1xEV-DO Rev. B Setup Procedures used to establish the test signals

Call box setup procedure

- CMW 500 Signal Generator > 1xEV-DO Taskbar Enable
- CMW 500 1xEV-DO Signaling Configuration Window >
- 1xEV-DO Signaling On Window:
Under Access Network Control:
Band Class: BC0: US Cellular
RF Channel: 31
1xEV-DO Power: -70 dBm
Release B
- 1xEV-DO Signaling Configuration Window

Under RF Frequency Band / Channel: Enter Ch. Frequency

- Under Carrier Configuration: RF Frequency
For Two Carriers: Low Channel (1013)

	<u>RF Channel</u>	<u>RF Channel Offset</u>
Carrier [0]	31	0
Carrier [1]	1013	982

- Under Carrier Configuration: RF Pilot

	<u>Carrier Sector</u>	<u>Active on AN</u>	<u>Assigned to AT</u>
Pilot [0]	C0/S0	✓	✓
	CA/S1	✓	✓

For Three Carriers: Low Channel (1013)

	<u>RF Channel</u>	<u>RF Channel Offset</u>
Carrier [0]	72	0
Carrier [1]	31	-41
Carrier [2]	1013	941

- Under Carrier Configuration: RF Pilot

	<u>Carrier Sector</u>	<u>Active on AN</u>	<u>Assigned to AT</u>
Pilot [0]	C0/S0	✓	✓
Pilot [1]	C1/S1	✓	✓
Pilot [2]	C2/S2	✓	✓

- Rvs Power Ctrl > All Up bits (to get the maximum power)

RESULT

8.2.1. CDMA BC10

Test Engineer ID:	39006	Test Date:	6/6/2021
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Band	Mode	Radio Configuration (RC)	Service Option (SO)	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)	
						ANT 1	ANT 2
BC10 (800MHz)	1xRTT	RC1	2 (Loopback)	450	817.25	25.42	24.26
				560	820.00	25.34	24.28
				670	822.75	25.33	24.25
			55 (Loopback)	450	817.25	25.70	24.25
				560	820.00	25.35	24.29
				670	822.75	25.33	24.26
		RC2	9 (Loopback)	450	817.25	25.40	24.30
				560	820.00	25.33	24.28
				670	822.75	25.32	24.24
			55 (Loopback)	450	817.25	25.42	24.29
				560	820.00	25.34	24.27
				670	822.75	25.33	24.25
		RC3	2 (Loopback)	450	817.25	25.42	24.29
				560	820.00	25.35	24.30
				670	822.75	25.34	24.25
			55 (Loopback)	450	817.25	25.42	24.28
				560	820.00	25.36	24.28
				670	822.75	25.34	24.27
			32 (+ F-SCH)	450	817.25	25.41	24.51
				560	820.00	25.35	24.44
				670	822.75	25.33	24.43
			32 (+ SCH)	450	817.25	25.40	24.49
				560	820.00	25.35	24.47
				670	822.75	25.34	24.43
		RC4	2 (Loopback)	450	817.25	25.40	24.28
				560	820.00	25.35	24.29
				670	822.75	25.33	24.23
			55 (Loopback)	450	817.25	25.38	24.28
				560	820.00	25.36	24.29
				670	822.75	25.34	24.25
			32 (+ F-SCH)	450	817.25	25.41	24.52
				560	820.00	25.35	24.48
				670	822.75	25.34	24.44
			32 (+ SCH)	450	817.25	25.62	24.56
				560	820.00	25.34	24.47
				670	822.75	25.33	24.45
		RC5	9 (Loopback)	450	817.25	25.40	24.26
				560	820.00	25.32	24.29
				670	822.75	25.31	24.26
			55 (Loopback)	450	817.25	25.40	24.30
				560	820.00	25.34	24.27
				670	822.75	25.33	24.24
	1xAdvanced	RC11	2 (Loopback)	450	817.25	25.45	24.35
				560	820.00	25.40	24.34
				670	822.75	25.37	24.33
			75 (Loopback)	450	817.25	25.46	24.35
				560	820.00	25.40	24.35
				670	822.75	25.38	24.32
			32 (+ F-SCH)	450	817.25	25.44	24.32
				560	820.00	25.40	24.29
				670	822.75	25.39	24.33
			32 (+ SCH)	450	817.25	25.45	24.33
				560	820.00	25.38	24.33
				670	822.75	25.37	24.34
	1xEVDO Rel. 0	FTAP Rate: 307.2 kbps(2 slot, QPSK)	RTAP Rate: 153.6 kbps	450	817.25	25.66	24.27
				560	820.00	25.56	24.27
				670	822.75	25.55	24.26
	1xEVDO Rev. A	FETAP: 307.2k, QPSK/ ACK	RETAP: 4096	450	817.25	25.68	24.30
				560	820.00	25.70	24.29
				670	822.75	25.65	24.27

8.2.2. CDMA BC0

Test Engineer ID:	39006	Test Date:	6/6/2021
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Band	Mode	Radio Configuration (RC)	Service Option (SO)	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)	
						ANT 1	ANT 2
BC0 (850MHz)	1xRTT	RC1	2 (Loopback)	1013	824.70	22.13	21.66
				384	836.52	22.10	21.64
				777	848.31	22.11	21.66
			55 (Loopback)	1013	824.70	22.14	21.65
				384	836.52	22.10	21.66
				777	848.31	22.12	21.65
		RC2	9 (Loopback)	1013	824.70	22.15	21.65
				384	836.52	22.12	21.66
				777	848.31	22.13	21.65
			55 (Loopback)	1013	824.70	22.16	21.65
				384	836.52	22.14	21.64
				777	848.31	22.14	21.66
		RC3	2 (Loopback)	1013	824.70	22.16	21.66
				384	836.52	22.14	21.65
				777	848.31	22.15	21.66
			55 (Loopback)	1013	824.70	22.15	21.66
				384	836.52	22.13	21.66
				777	848.31	22.14	21.65
			32 (+ F-SCH)	1013	824.70	22.15	21.91
				384	836.52	22.13	21.83
				777	848.31	22.14	21.85
			32 (+ SCH)	1013	824.70	22.15	21.89
				384	836.52	22.13	21.84
				777	848.31	22.15	21.83
		RC4	2 (Loopback)	1013	824.70	22.14	21.66
				384	836.52	22.13	21.64
				777	848.31	22.15	21.67
			55 (Loopback)	1013	824.70	22.14	21.65
				384	836.52	22.12	21.66
				777	848.31	22.15	21.65
			32 (+ F-SCH)	1013	824.70	22.15	21.89
				384	836.52	22.13	21.82
				777	848.31	22.15	21.84
			32 (+ SCH)	1013	824.70	22.15	21.90
				384	836.52	22.13	21.82
				777	848.31	22.15	21.85
		RC5	9 (Loopback)	1013	824.70	22.16	21.65
				384	836.52	22.12	21.63
				777	848.31	22.13	21.66
			55 (Loopback)	1013	824.70	22.14	21.65
				384	836.52	22.12	21.65
				777	848.31	22.14	21.67
	1xAdvanced	RC11	2 (Loopback)	1013	824.70	22.50	21.71
				384	836.52	22.19	21.71
				777	848.31	22.21	21.71
			75 (Loopback)	1013	824.70	22.20	21.72
				384	836.52	22.18	21.71
				777	848.31	22.20	21.72
			32 (+ F-SCH)	1013	824.70	22.22	21.96
				384	836.52	22.20	21.89
				777	848.31	22.21	21.92
			32 (+ SCH)	1013	824.70	22.22	22.00
				384	836.52	22.19	21.91
				777	848.31	22.19	21.94
		1xEVDO Rel. 0	FTAP Rate: 307.2 kbps(2 slot, QPSK) RTAP Rate: 153.6 kbps	1013	824.70	22.50	21.91
				384	836.52	22.46	22.00
				777	848.31	22.33	21.88
		1xEVDO Rev. A	FETAP: 307.2k, QPSK/ ACK RETAP: 4096	1013	824.70	22.46	21.92
				384	836.52	22.41	22.00
				777	848.31	22.48	21.89

8.2.3. CDMA BC1

Test Engineer ID:		39006		Test Date:		6/6/2021	
Band	Mode	Radio Configuration (RC)	Service Option (SO)	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)	
						ANT 1	ANT 2
BC1 (1900MHz)	1xRTT	RC1	2 (Loopback)	25	1851.25	25.58	23.04
				600	1880.00	25.54	23.09
				1175	1908.75	25.60	22.95
			55 (Loopback)	25	1851.25	25.57	23.03
				600	1880.00	25.58	23.09
				1175	1908.75	24.62	22.96
		RC2	9 (Loopback)	25	1851.25	25.54	23.02
				600	1880.00	23.60	23.07
				1175	1908.75	25.61	22.95
			55 (Loopback)	25	1851.25	23.59	23.02
				600	1880.00	25.62	23.07
				1175	1908.75	25.64	22.57
		RC3	2 (Loopback)	25	1851.25	25.60	23.01
				600	1880.00	25.61	23.08
				1175	1908.75	25.70	22.92
			55 (Loopback)	25	1851.25	25.63	23.01
				600	1880.00	25.65	23.08
				1175	1908.75	25.68	22.92
			32 (+ F-SCH)	25	1851.25	25.61	23.02
				600	1880.00	25.63	23.07
				1175	1908.75	25.65	22.92
			32 (+ SCH)	25	1851.25	25.59	23.02
				600	1880.00	25.61	23.09
				1175	1908.75	25.62	22.94
		RC4	2 (Loopback)	25	1851.25	25.61	23.01
				600	1880.00	25.59	23.06
				1175	1908.75	25.62	22.94
			55 (Loopback)	25	1851.25	25.58	23.00
				600	1880.00	25.61	23.05
				1175	1908.75	25.64	22.95
			32 (+ F-SCH)	25	1851.25	25.61	22.95
				600	1880.00	25.66	23.10
				1175	1908.75	25.65	22.89
			32 (+ SCH)	25	1851.25	25.56	22.99
				600	1880.00	25.55	23.06
				1175	1908.75	25.58	22.93
		RC5	9 (Loopback)	25	1851.25	25.53	22.97
				600	1880.00	25.57	23.05
				1175	1908.75	25.60	23.20
			55 (Loopback)	25	1851.25	25.55	22.96
				600	1880.00	25.57	23.03
				1175	1908.75	25.61	22.91
	1xAdvanced	RC11	2 (Loopback)	25	1851.25	25.62	23.05
				600	1880.00	25.66	22.99
				1175	1908.75	25.68	22.97
			75 (Loopback)	25	1851.25	25.61	23.02
				600	1880.00	25.65	23.12
				1175	1908.75	25.69	23.00
			32 (+ F-SCH)	25	1851.25	25.58	23.07
				600	1880.00	25.61	23.13
				1175	1908.75	25.65	22.99
			32 (+ SCH)	25	1851.25	25.59	23.00
				600	1880.00	25.63	23.08
				1175	1908.75	25.70	22.95
	1xEV/DO Rel. 0	FTAP Rate: 307.2 kbps(2 slot, QPSK)	RTAP Rate: 153.6 kbps	25	1851.25	25.62	22.71
				600	1880	25.70	23.20
				1175	1908.75	25.67	22.92
	1xEV/DO Rev. A	FETAP: 307.2k, QPSK/ ACK	RETAP: 4096	25	1851.25	25.59	22.90
				600	1880	25.67	23.09
				1175	1908.75	25.68	23.06

8.3. WCDMA

TEST PROCEDURE

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

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

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

REL 99

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

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

HSDPA REL 5

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

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

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

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

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

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

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

HSPA REL 6 (HSDPA & HSUPA)

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

HSPA+ REL 7

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

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

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

RESULT

8.3.1. WCDMA BAND 5

Test Engineer ID:	19171	Test Date:	4/22/2021
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Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)	
						ANT 1	ANT 2
W-CDMA Band 5 (850MHz)	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	25.70	24.70
			4183	836.6	N/A	25.68	24.65
			4233	846.6	N/A	25.63	24.61
	HSDPA	Subtest 1	4132	826.4	0	24.71	23.73
			4183	836.6	0	24.66	23.64
			4233	846.6	0	24.62	23.60
		Subtest 2	4132	826.4	0	24.72	23.67
			4183	836.6	0	24.66	23.63
			4233	846.6	0	24.64	23.55
		Subtest 3	4132	826.4	0.5	24.21	23.17
			4183	836.6	0.5	24.17	23.09
			4233	846.6	0.5	24.12	23.07
		Subtest 4	4132	826.4	0.5	24.20	23.17
			4183	836.6	0.5	24.15	23.08
			4233	846.6	0.5	24.12	23.03
	HSPA (HSDPA & HSUPA)	Subtest 1	4132	826.4	0	24.68	23.68
			4183	836.6	0	24.65	23.61
			4233	846.6	0	24.62	23.61
		Subtest 2	4132	826.4	2	22.70	21.68
			4183	836.6	2	22.68	21.63
			4233	846.6	2	22.61	21.60
		Subtest 3	4132	826.4	1	23.72	22.69
			4183	836.6	1	21.32	22.63
			4233	846.6	1	23.61	22.60
		Subtest 4	4132	826.4	2	22.71	21.70
			4183	836.6	2	22.66	21.63
			4233	846.6	2	22.61	21.58
		Subtest 5	4132	826.4	0	24.28	23.26
			4183	836.6	0	24.24	23.20
			4233	846.6	0	24.18	23.16
	DC-HSDPA	Subtest 1	4132	826.4	0	24.73	23.73
			4183	836.6	0	24.69	23.67
			4233	846.6	0	24.64	23.62
		Subtest 2	4132	826.4	0	24.73	23.68
			4183	836.6	0	24.69	23.61
			4233	846.6	0	24.65	23.58
		Subtest 3	4132	826.4	0.5	24.22	23.16
			4183	836.6	0.5	24.17	23.11
			4233	846.6	0.5	24.13	23.06
		Subtest 4	4132	826.4	0.5	24.23	23.17
			4183	836.6	0.5	24.16	23.10
			4233	846.6	0.5	24.12	23.05

8.3.2. WCDMA BAND 2

Test Engineer ID:	19171	Test Date:	4/22/2021
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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	23.19	25.09	23.15
			9400	1880.0	N/A	25.67	23.20	25.15	23.19
			9538	1907.6	N/A	25.69	23.16	25.20	23.20
	HSDPA	Subtest 1	9262	1852.4	0	24.69	22.19	24.11	22.17
			9400	1880.0	0	24.68	22.20	24.14	22.19
			9538	1907.6	0	24.68	22.15	24.17	22.21
		Subtest 2	9262	1852.4	0	24.70	22.18	24.10	22.15
			9400	1880.0	0	24.68	22.20	24.16	22.20
			9538	1907.6	0	24.67	22.16	24.20	22.20
		Subtest 3	9262	1852.4	0.5	24.18	21.68	23.61	21.66
			9400	1880.0	0.5	24.20	21.70	23.67	21.71
			9538	1907.6	0.5	24.18	21.66	23.69	21.73
		Subtest 4	9262	1852.4	0.5	24.21	21.69	23.63	21.65
			9400	1880.0	0.5	24.18	21.71	23.66	21.70
			9538	1907.6	0.5	24.19	21.65	23.70	21.70
	HSPA (HSDPA & HSUPA)	Subtest 1	9262	1852.4	0	24.69	22.18	24.12	22.16
			9400	1880.0	0	24.68	22.20	24.14	22.22
			9538	1907.6	0	24.65	22.16	24.16	22.22
		Subtest 2	9262	1852.4	2	22.69	20.15	22.07	20.16
			9400	1880.0	2	22.67	20.18	22.15	20.20
			9538	1907.6	2	22.66	20.14	22.17	20.20
		Subtest 3	9262	1852.4	1	23.69	21.16	11.48	21.14
			9400	1880.0	1	23.67	21.19	23.13	21.18
			9538	1907.6	1	23.67	21.14	23.13	21.23
		Subtest 4	9262	1852.4	2	22.73	20.21	22.15	20.20
			9400	1880.0	2	22.70	20.24	22.18	20.23
			9538	1907.6	2	22.70	20.18	22.18	20.25
		Subtest 5	9262	1852.4	0	24.31	21.75	23.70	21.74
			9400	1880.0	0	24.31	21.77	23.74	21.78
			9538	1907.6	0	24.32	21.73	23.76	21.79
	DC-HSDPA	Subtest 1	9262	1852.4	0	24.80	22.20	23.96	22.20
			9400	1880.0	0	24.81	22.22	24.02	22.24
			9538	1907.6	0	24.79	22.16	24.03	22.23
		Subtest 2	9262	1852.4	0	24.80	22.20	23.98	22.20
			9400	1880.0	0	24.80	22.21	24.01	22.25
			9538	1907.6	0	24.77	22.15	24.02	22.23
		Subtest 3	9262	1852.4	0.5	24.30	21.70	23.47	21.72
			9400	1880.0	0.5	24.27	21.72	23.51	21.74
			9538	1907.6	0.5	24.28	21.64	23.52	21.74
		Subtest 4	9262	1852.4	0.5	24.30	21.72	23.49	21.73
			9400	1880.0	0.5	24.29	21.70	23.51	21.75
			9538	1907.6	0.5	24.28	21.67	23.51	21.74

8.3.3. WCDMA BAND 4

Test Engineer ID:	19171	Test Date:	4/22/2021
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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	23.20	25.20	23.20
			1413	1732.6	N/A	25.62	23.11	25.13	23.18
			1513	1752.6	N/A	25.62	23.10	25.17	23.14
	HSDPA	Subtest 1	1312	1712.4	0	24.69	22.26	24.23	22.18
			1413	1732.6	0	24.61	22.17	24.17	22.16
			1513	1752.6	0	24.61	22.15	24.20	22.14
		Subtest 2	1312	1712.4	0	24.67	22.26	24.25	22.19
			1413	1732.6	0	24.62	22.20	24.18	22.18
			1513	1752.6	0	24.61	22.20	24.22	22.13
		Subtest 3	1312	1712.4	0.5	24.21	21.81	23.78	21.71
			1413	1732.6	0.5	24.13	21.74	23.70	21.68
			1513	1752.6	0.5	24.10	21.74	23.75	21.64
		Subtest 4	1312	1712.4	0.5	24.18	21.81	23.79	21.70
			1413	1732.6	0.5	24.11	21.71	23.71	21.66
			1513	1752.6	0.5	24.09	21.64	23.75	21.64
	HSPA (HSDPA & HSUPA)	Subtest 1	1312	1712.4	0	24.65	22.31	24.28	22.20
			1413	1732.6	0	24.58	22.23	24.19	22.18
			1513	1752.6	0	24.56	22.22	24.21	22.15
		Subtest 2	1312	1712.4	2	22.70	20.29	22.24	20.19
			1413	1732.6	2	22.59	20.17	22.15	20.14
			1513	1752.6	2	22.60	20.18	22.19	20.12
		Subtest 3	1312	1712.4	1	23.64	21.26	23.23	21.18
			1413	1732.6	1	23.57	21.15	23.16	21.11
			1513	1752.6	1	23.58	21.19	23.20	21.13
		Subtest 4	1312	1712.4	2	22.71	20.33	22.32	20.23
			1413	1732.6	2	22.63	20.23	22.23	20.18
			1513	1752.6	2	22.61	20.25	22.26	20.16
		Subtest 5	1312	1712.4	0	24.26	21.87	23.89	21.79
			1413	1732.6	0	24.16	21.79	23.78	21.75
			1513	1752.6	0	24.17	21.80	23.82	21.72
	DC-HSDPA	Subtest 1	1312	1712.4	0	24.69	22.34	24.16	22.21
			1413	1732.6	0	24.62	22.24	24.10	22.19
			1513	1752.6	0	24.63	22.22	24.12	22.17
		Subtest 2	1312	1712.4	0	24.66	22.36	24.21	22.23
			1413	1732.6	0	24.61	22.26	24.13	22.17
			1513	1752.6	0	24.60	22.25	24.17	22.16
		Subtest 3	1312	1712.4	0.5	24.19	21.89	23.78	21.73
			1413	1732.6	0.5	24.11	21.78	23.67	21.69
			1513	1752.6	0.5	24.12	21.67	23.70	21.66
		Subtest 4	1312	1712.4	0.5	24.19	21.88	23.77	21.72
			1413	1732.6	0.5	24.11	21.66	23.67	21.67
			1513	1752.6	0.5	24.11	21.66	23.71	21.66

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	241.2638	325.743
	EGPRS			243.0495	333.190
1900	GPRS	661	1880.0	244.8481	307.396
	EGPRS			250.9134	315.817

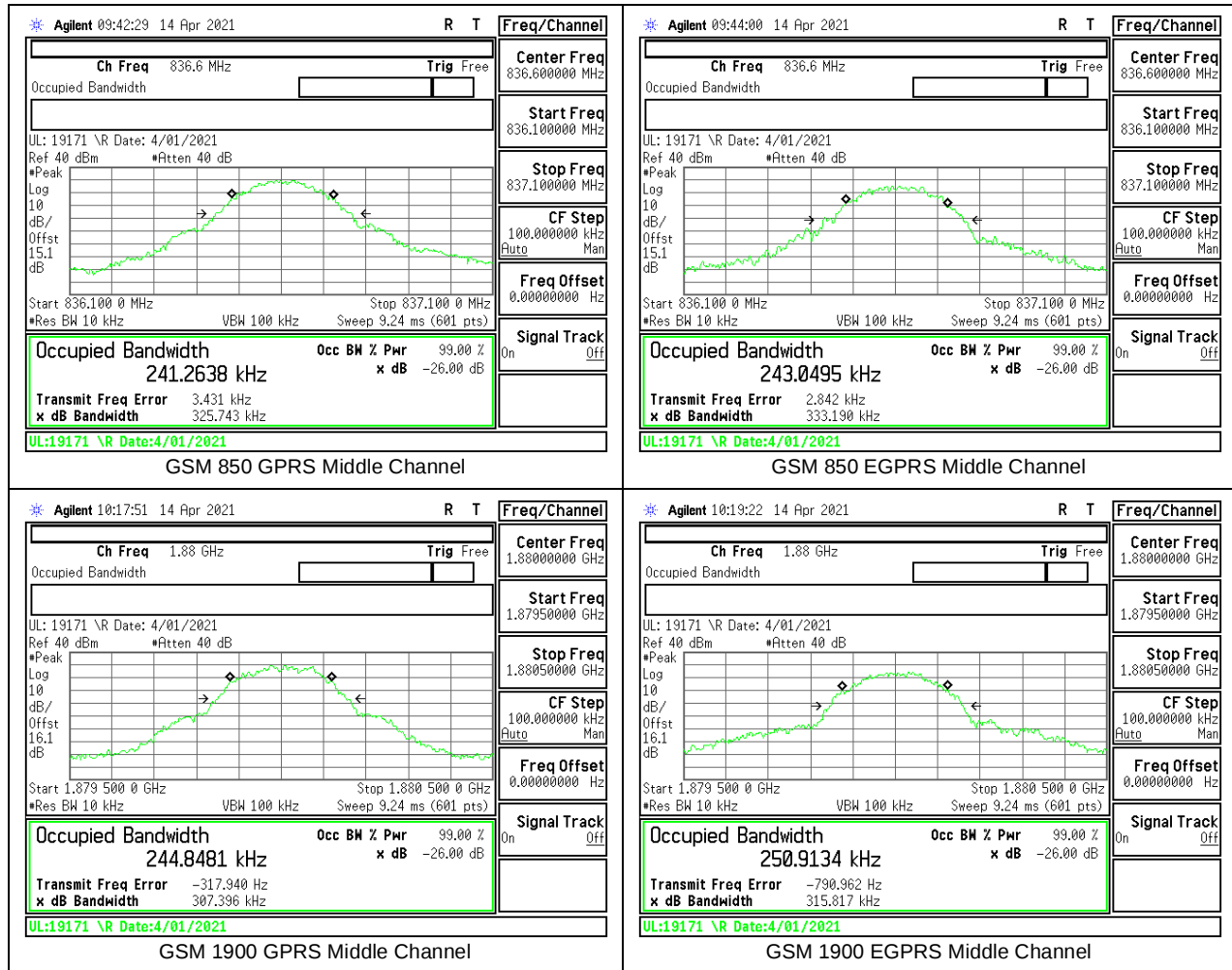
CDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BC10	1xRTT	560	820.0	1.2779	1.437
	1xEV-DO Rev A			1.2764	1.431
BC0	1xRTT	384	836.5	1.2757	1.429
	1xEV-DO Rev A			1.2816	1.431
BC1	1xRTT	600	1880.0	1.2702	1.426
	1xEV-DO Rev A			1.2830	1.435

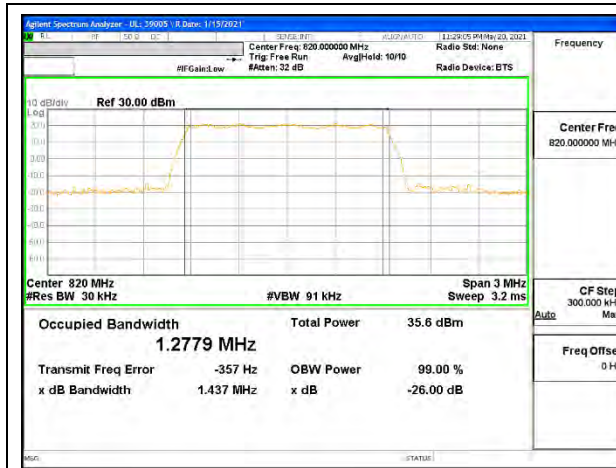
WCDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	REL 99	4408	836.6	4.1421	4.701
	HSDPA			4.1352	4.711
BAND 2	REL 99	9800	1880.0	4.1265	4.682
	HSDPA			4.1564	4.702
BAND 4	REL 99	1638	1732.6	4.1417	4.697
	HSDPA			4.1382	4.678

9.1.1. GSM



9.1.2. CDMA



CDMA BC10 1xRTT Middle Channel



CDMA BC10 1xEV-DO Rev A Middle Channel



CDMA BC0 1xRTT Middle Channel



CDMA BC0 1xEV-DO Rev A Middle Channel

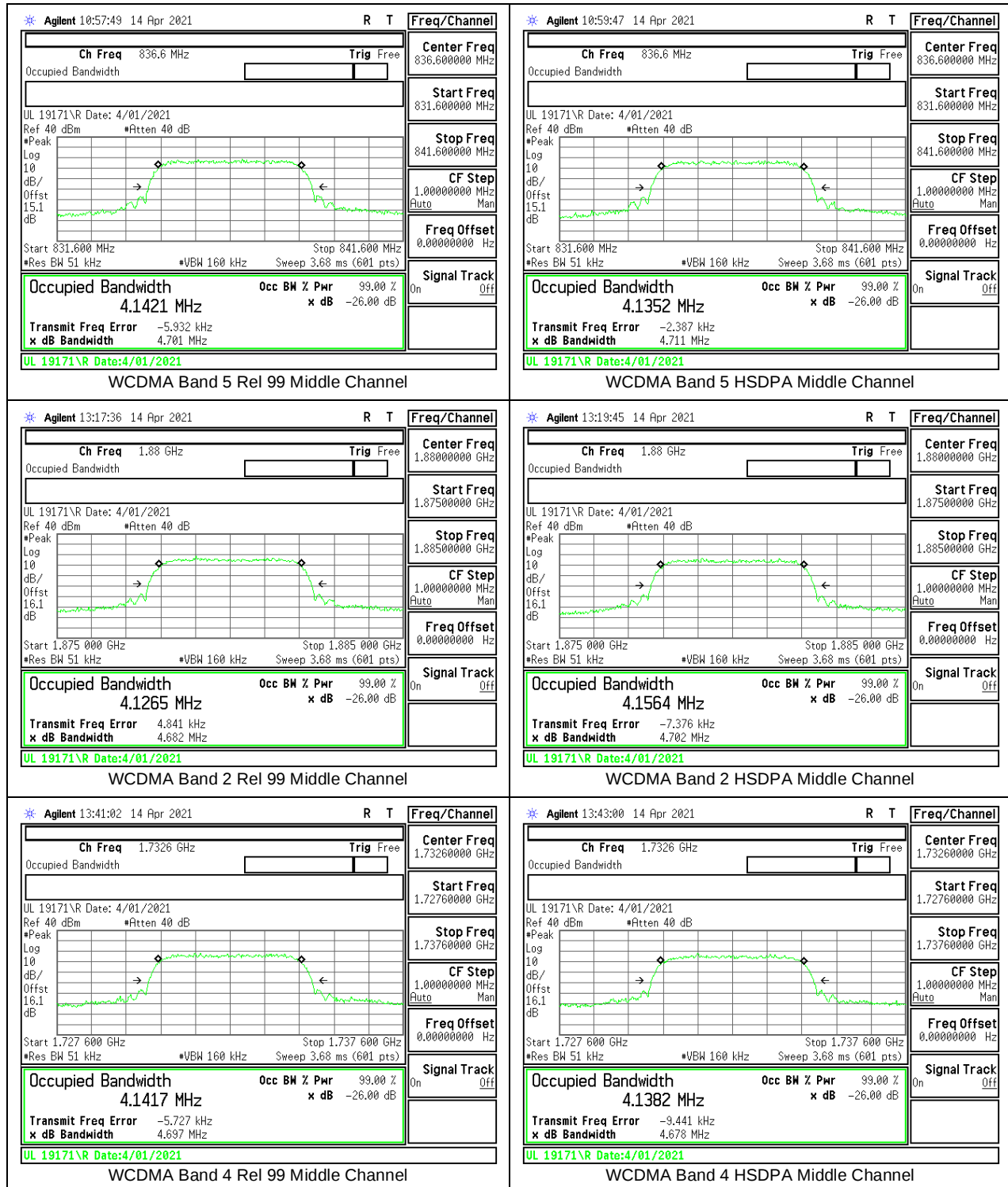


CDMA BC1 1xRTT Middle Channel



CDMA BC1 1xEV-DO Rev A Middle Channel

9.1.3. WCDMA



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.

FCC: §90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(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§6.6

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

TEST PROCEDURE

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

For each band edge measurement:

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

RESULTS

9.2.1. GSM 850



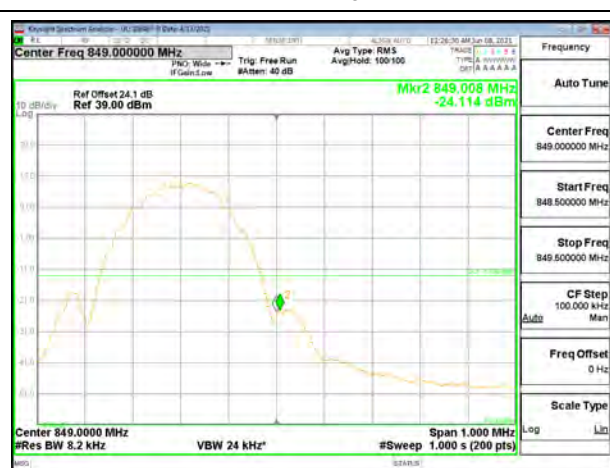
GSM 850 GPRS Low Channel



GSM 850 GPRS High Channel



GSM 850 EGPRS Low Channel

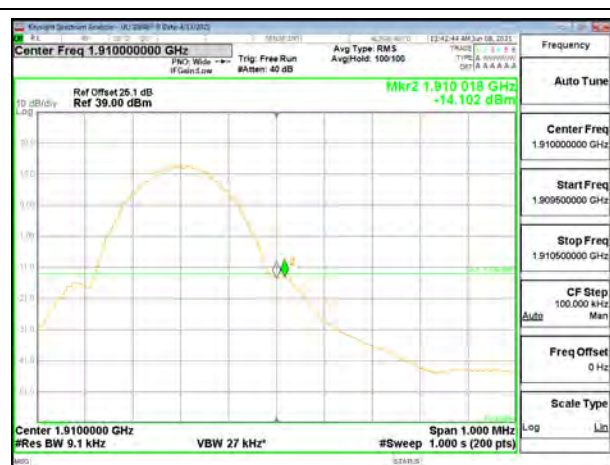


GSM 850 EGPRS High Channel

9.2.2. GSM 1900



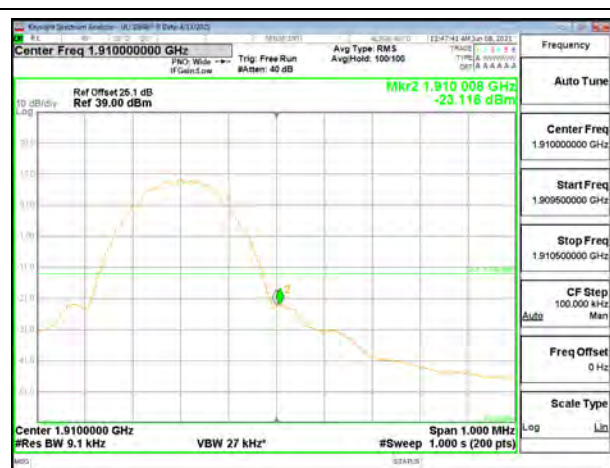
GSM 1900 GPRS Low Channel



GSM 1900 GPRS High Channel



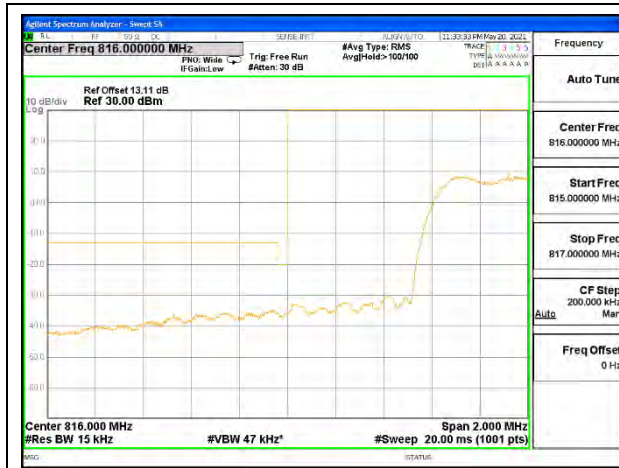
GSM 1900 EGPRS Low Channel



GSM 1900 EGPRS High Channel

9.2.3. CDMA BC10

Test Engineer ID:	10646	Test Date:	5/17/2021
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CDMA BC10 1xRTT Low Channel, RBW=1% of EBW



CDMA BC10 1xRTT High Channel, RBW=1% of EBW



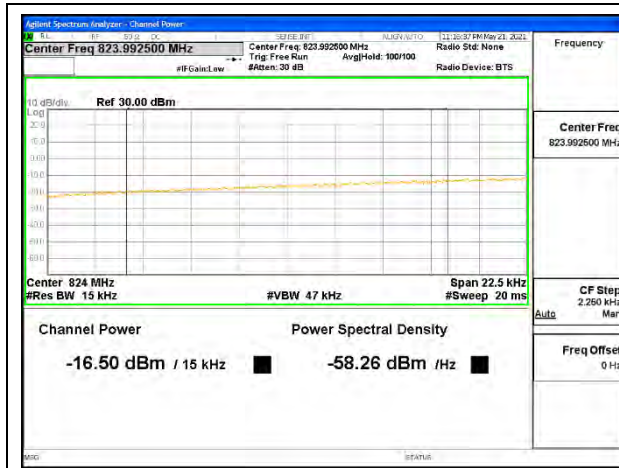
CDMA BC10 1xEV-DO Rev A Low Channel, RBW=1% of EBW



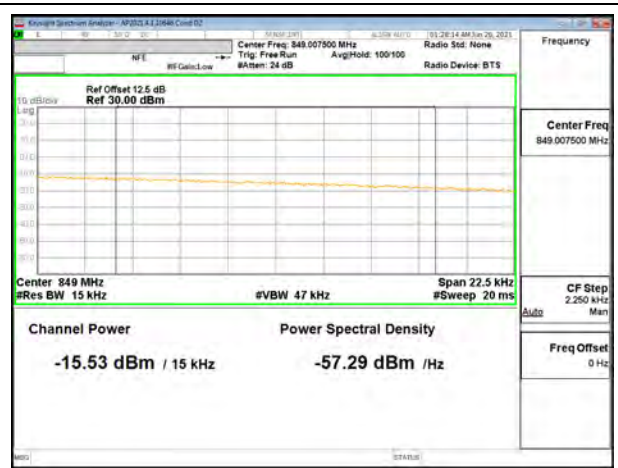
CDMA BC10 1xEV-DO Rev A High Channel, RBW=1% of EBW

9.2.4. CDMA BC0

Test Engineer ID:	10646	Test Date:	6/20/2021
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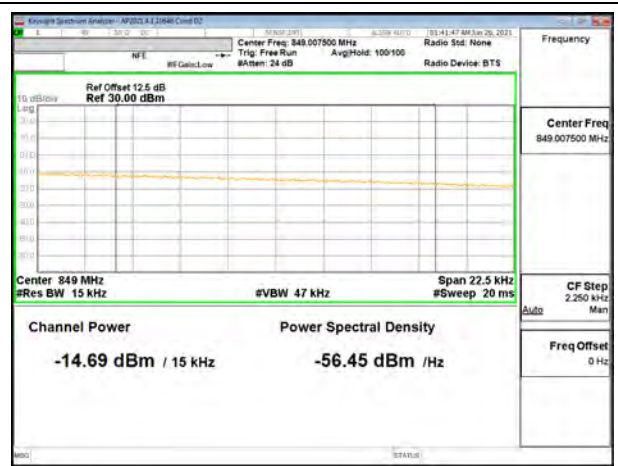
CDMA BC0 1xRTT Low Channel



CDMA BC0 1xRTT High Channel

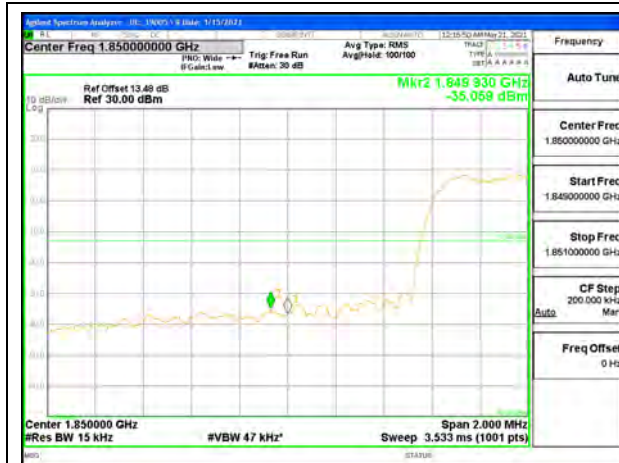


CDMA BC0 1xEV-DO Rev A Low Channel

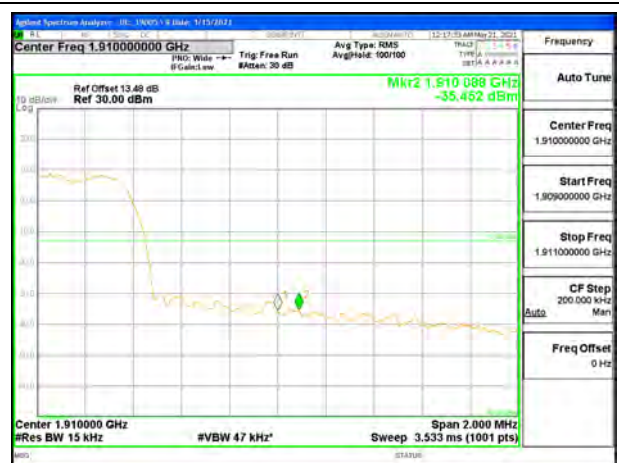


CDMA BC0 1xEV-DO Rev A High Channel

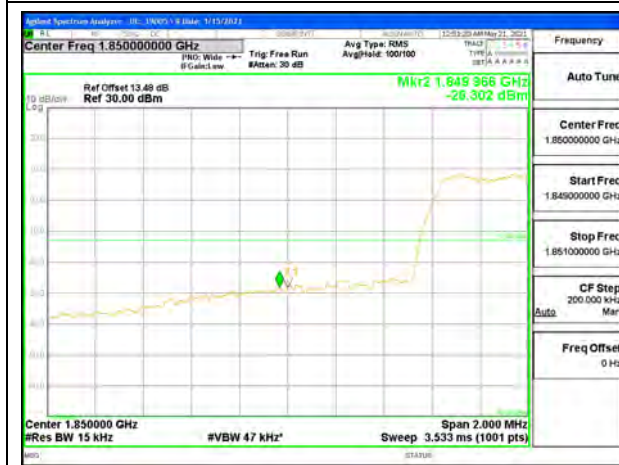
9.2.5. CDMA BC1



CDMA BC1 1xRTT Low Channel



CDMA BC1 1xRTT High Channel

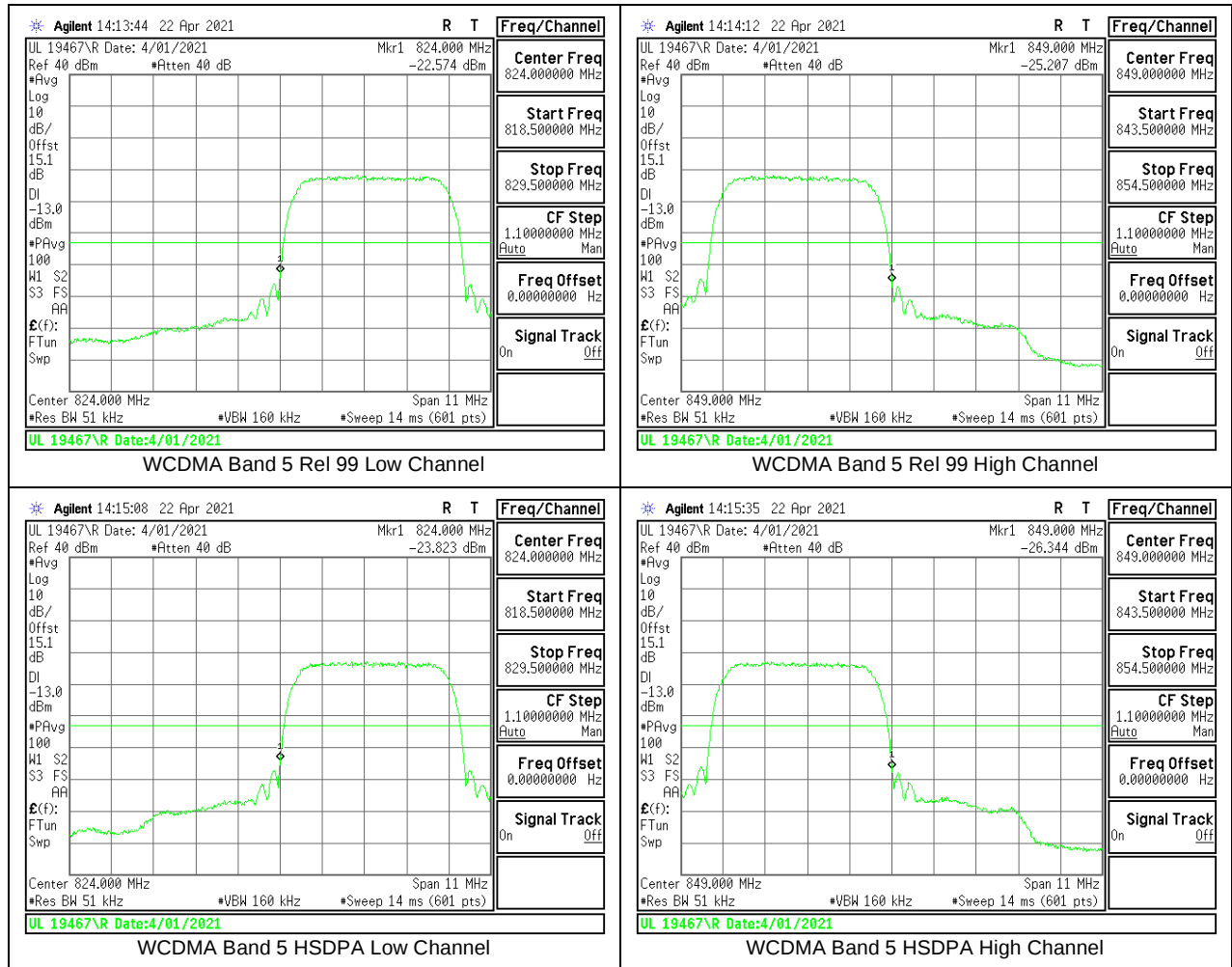


CDMA BC1 1xEV-DO Rev A Low Channel

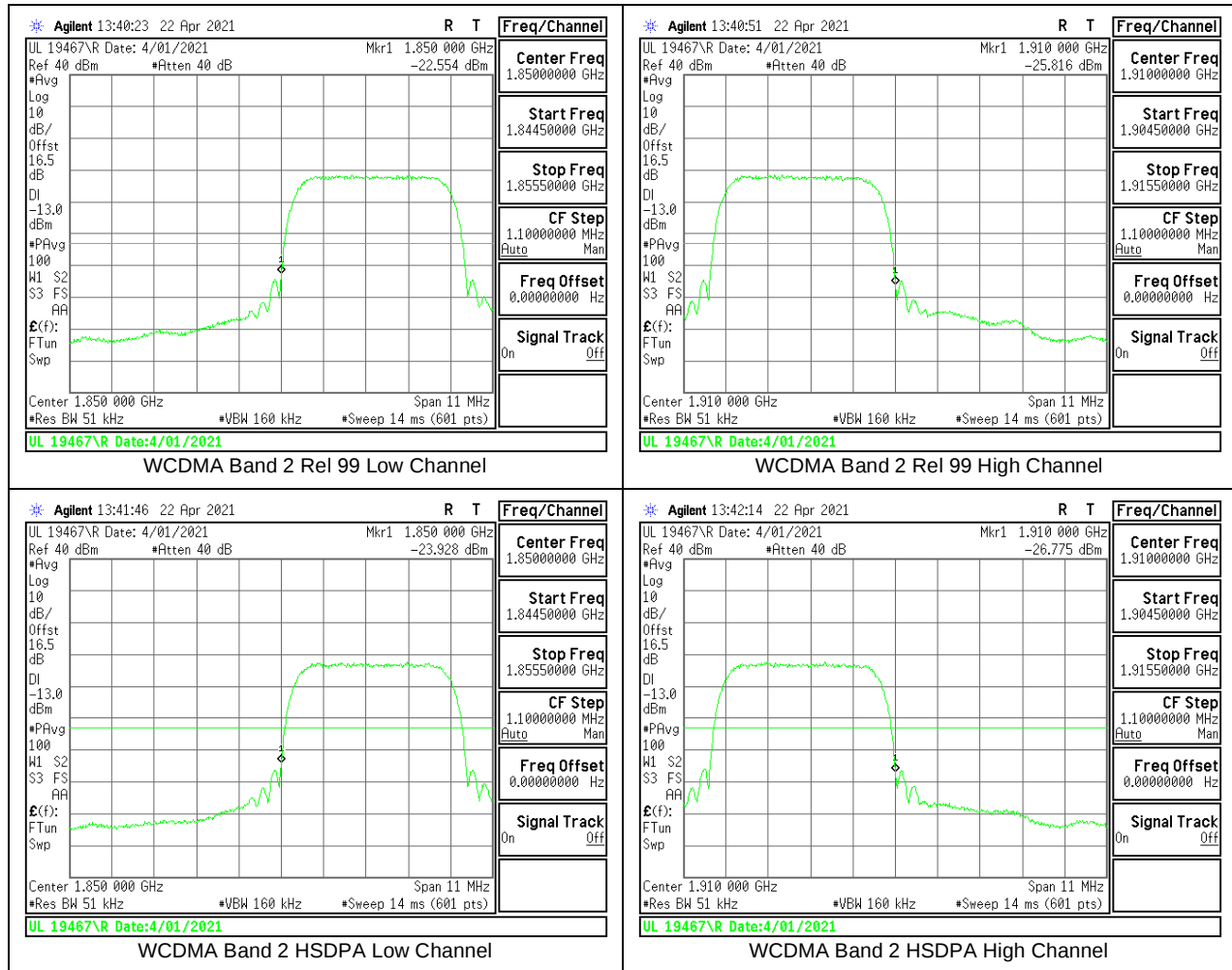


CDMA BC1 1xEV-DO Rev A High Channel

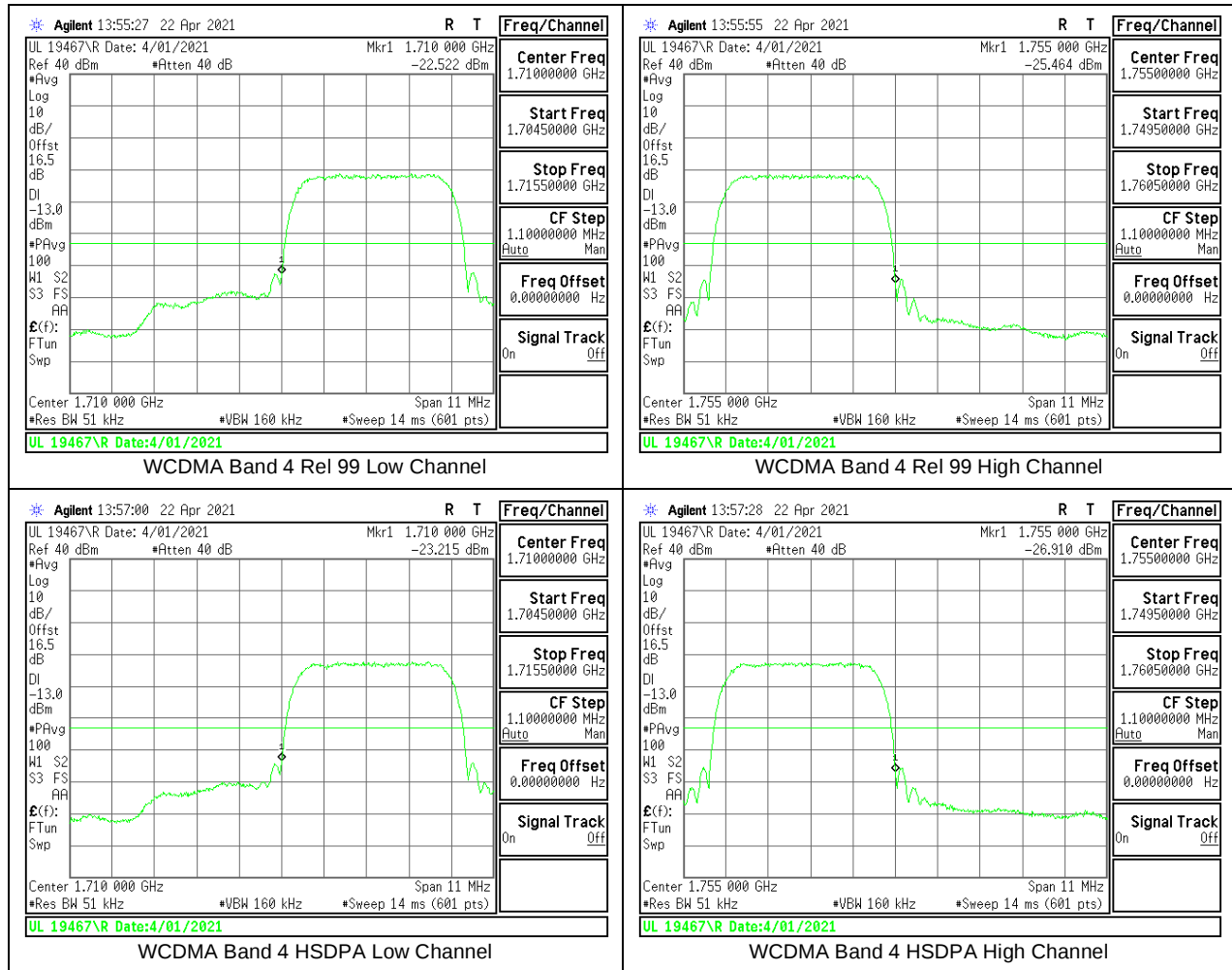
9.2.6. WCDMA BAND 5



9.2.7. WCDMA BAND 2



9.2.8. WCDMA BAND 4



9.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.917, §24.238, §27.53 and §90.691
ISED: RSS132§5.5; RSS133§6.5 and RSS139§6.6

LIMITS

FCC: §22.917(a), §24.238, §27.53 (h), §90.691

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

RSS132§5.5, RSS133§6.5.1, RSS139§6.6

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

TEST PROCEDURE

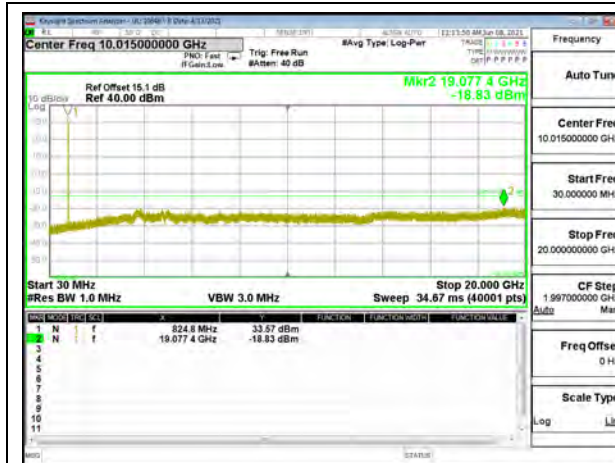
The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case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

For each out of band emissions measurement:

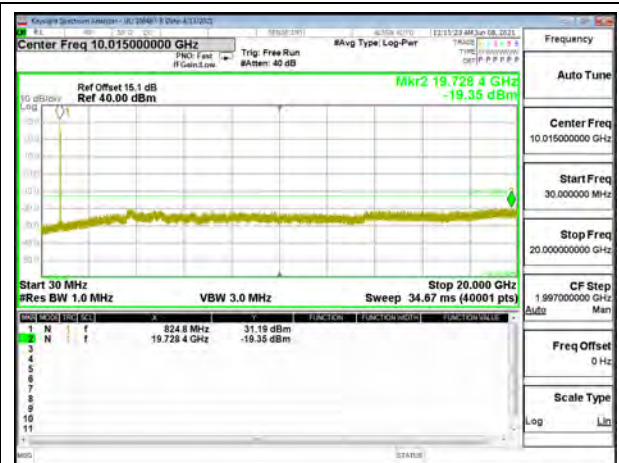
- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.
(NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

RESULTS

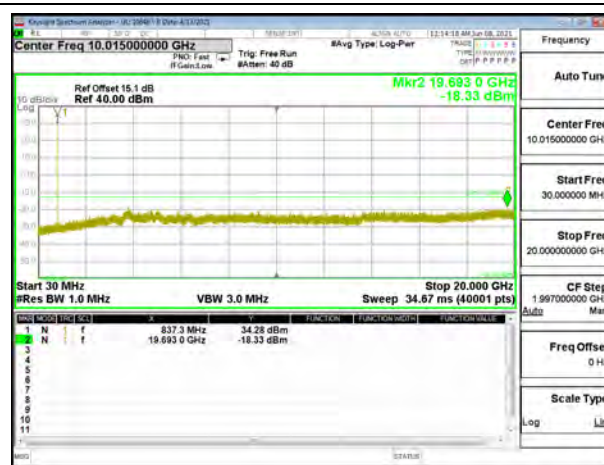
9.3.1. GSM 850



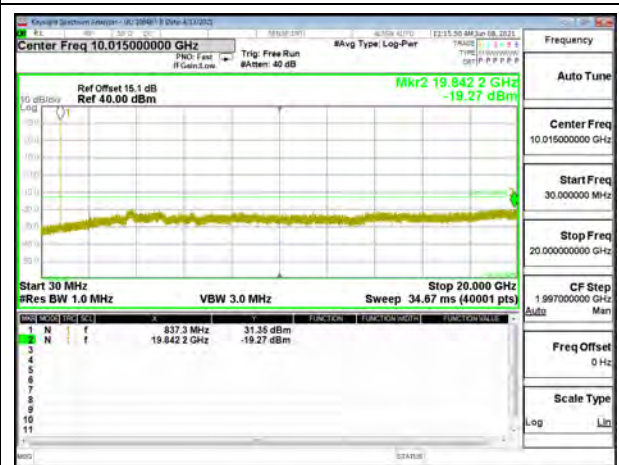
GSM 850 GPRS Low Channel



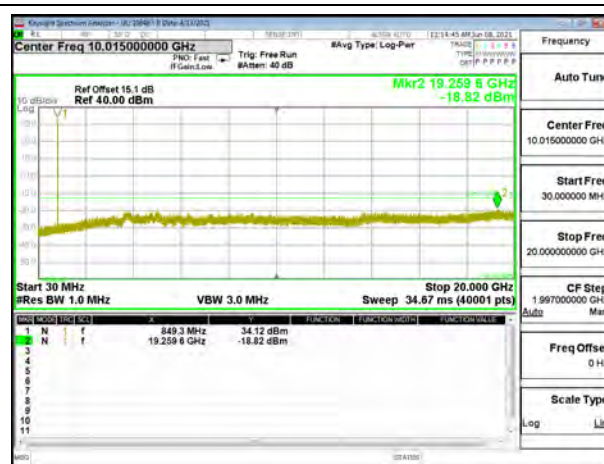
GSM 850 EGPRS Low Channel



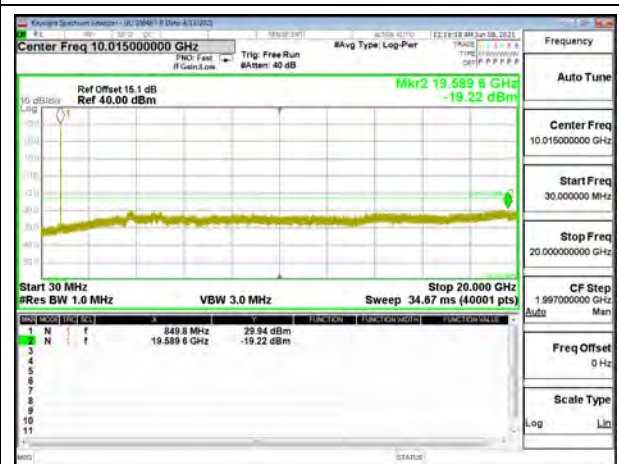
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel

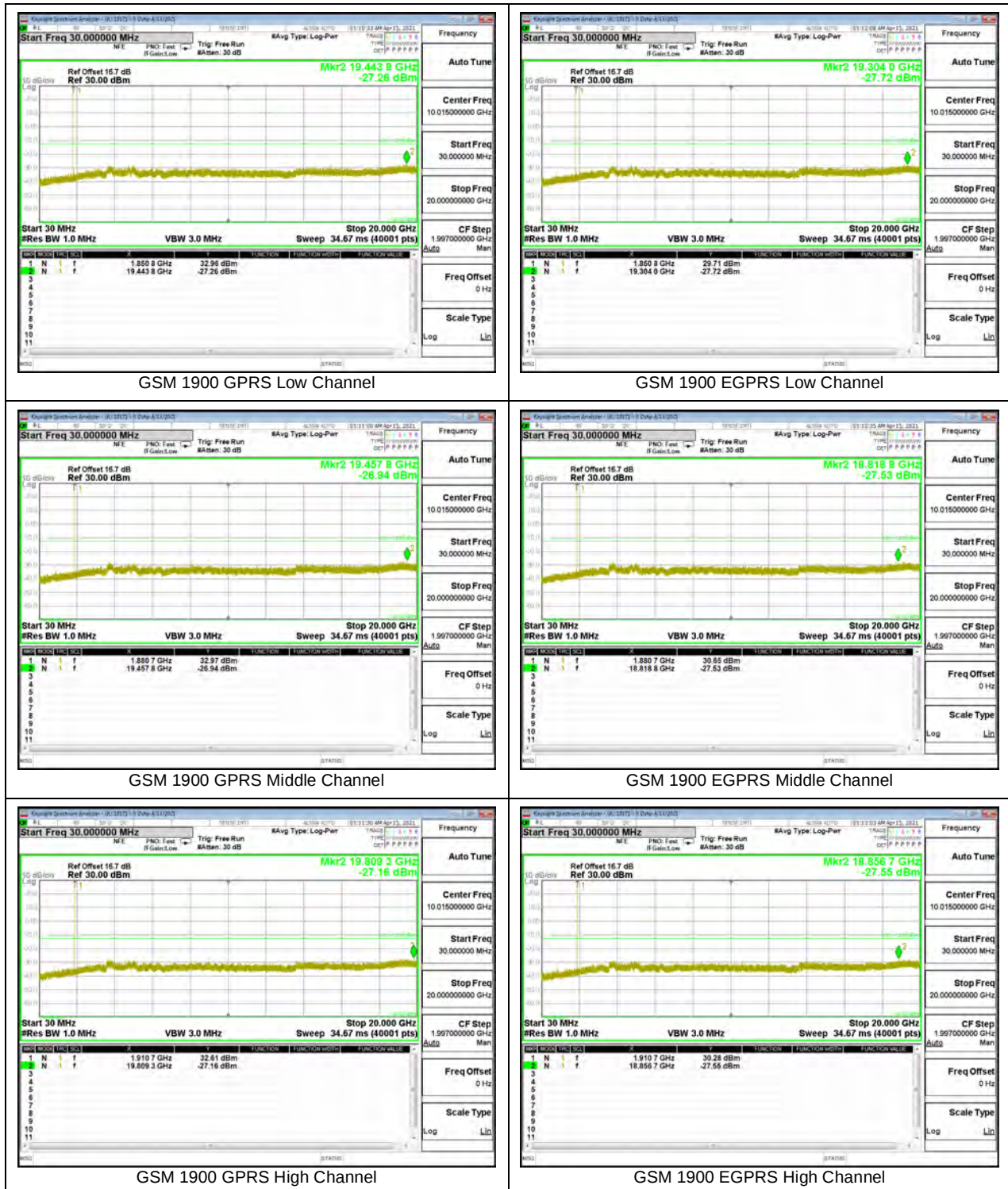


GSM 850 GPRS High Channel

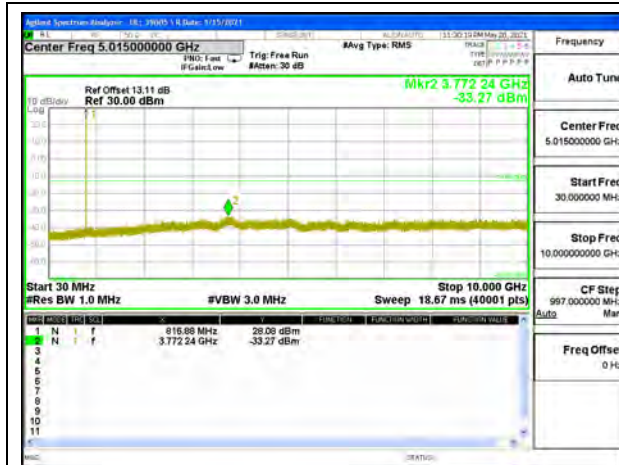


GSM 850 EGPRS High Channel

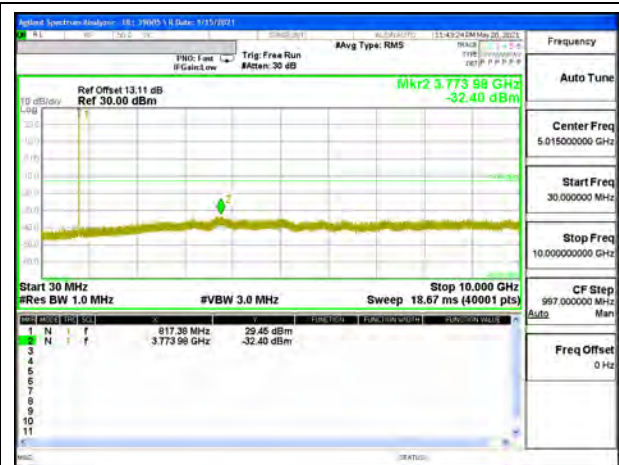
9.3.2. GSM 1900



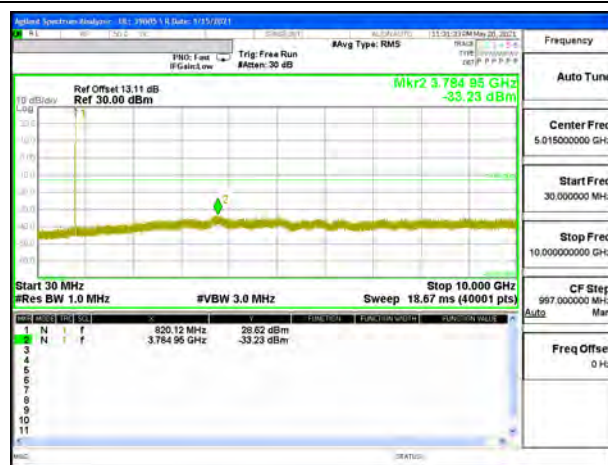
9.3.3. CDMA BC10



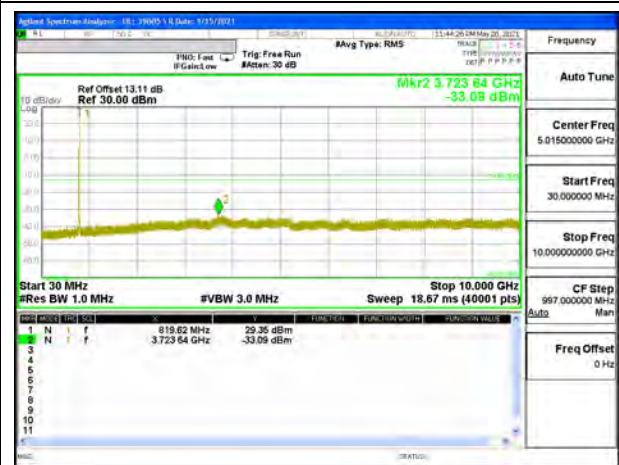
CDMA BC10 1xRTT Low Channel



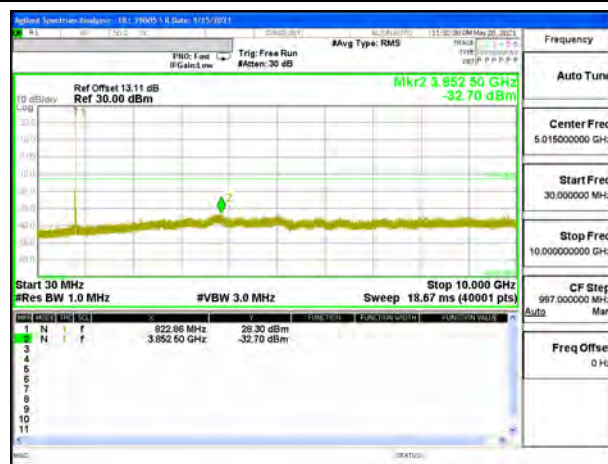
CDMA BC10 1xEV-DO Rev A Low Channel



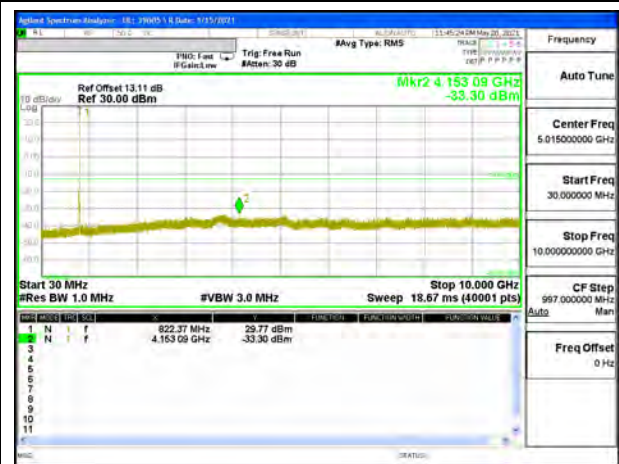
CDMA BC10 1xRTT Middle Channel



CDMA BC10 1xEV-DO Rev A Middle Channel

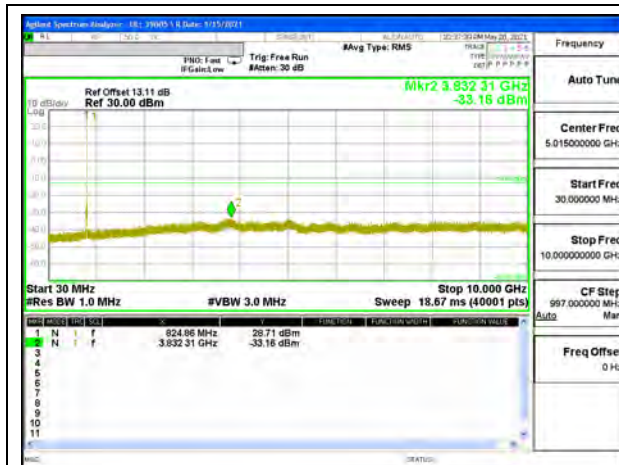


CDMA BC10 1xRTT High Channel

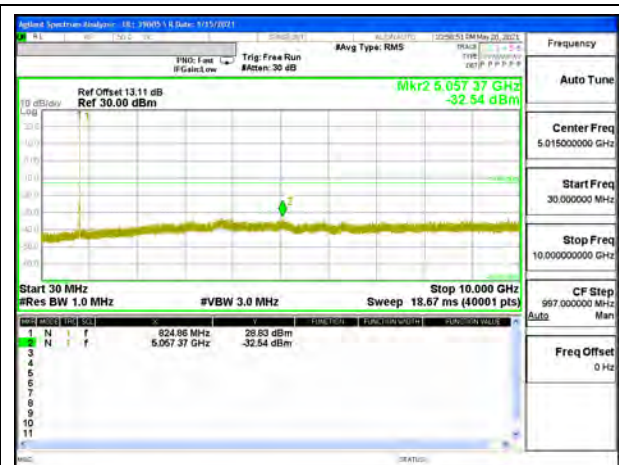


CDMA BC10 1xEV-DO Rev A High Channel

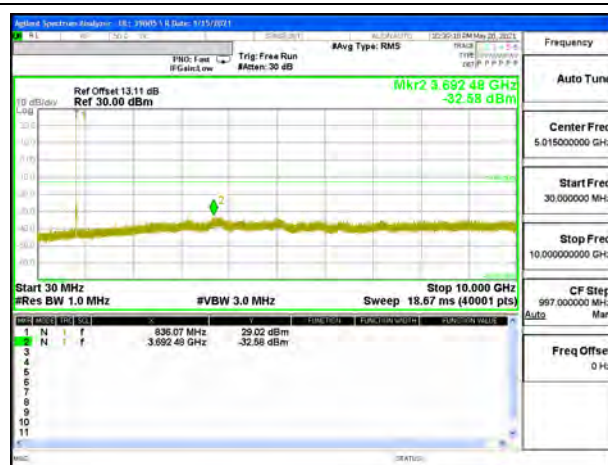
9.3.4. CDMA BC0



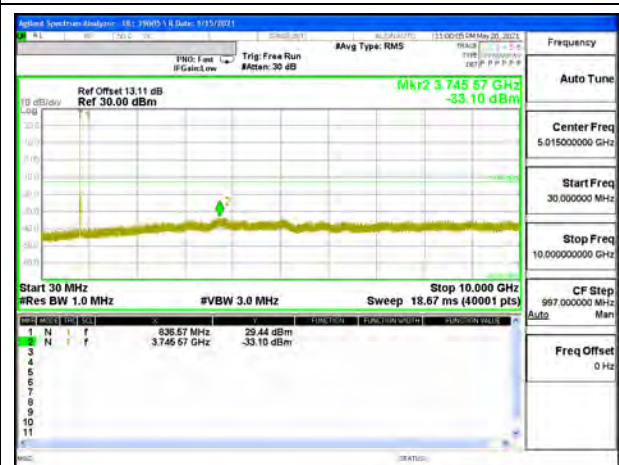
CDMA BC0 1xRTT Low Channel



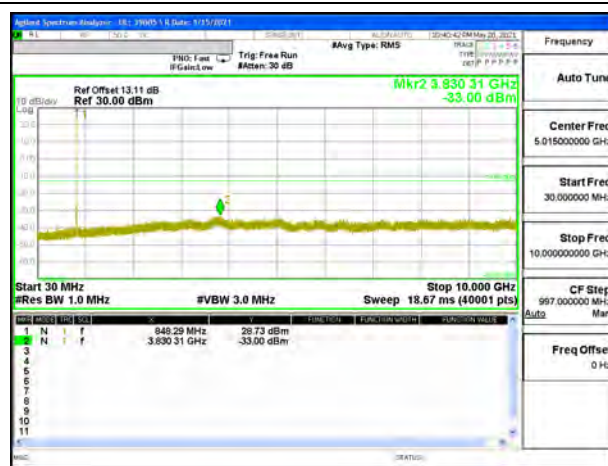
CDMA BC0 1xEV-DO Rev A Low Channel



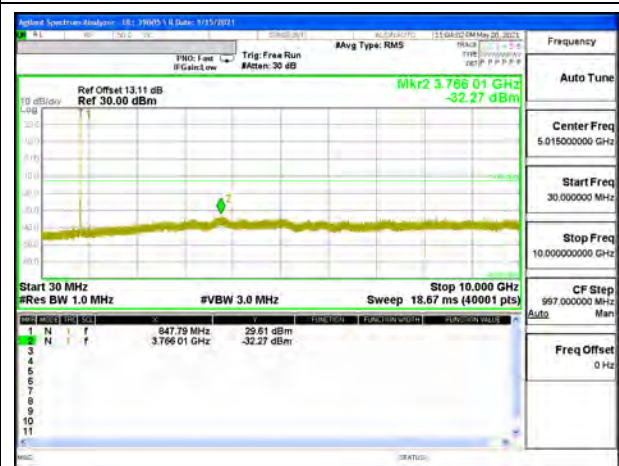
CDMA BC0 1xRTT Middle Channel



CDMA BC0 1xEV-DO Rev A Middle Channel

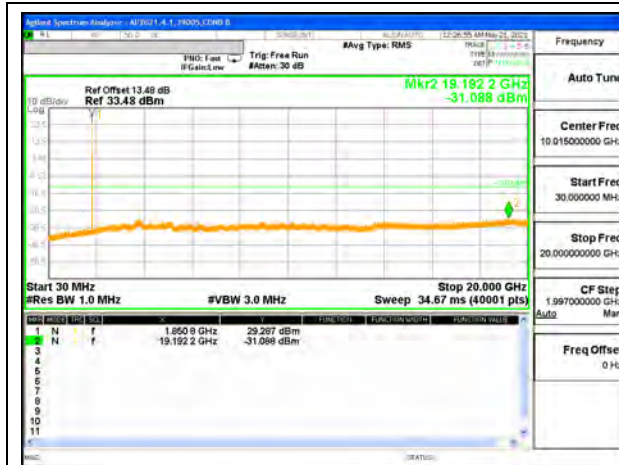


CDMA BC0 1xRTT High Channel

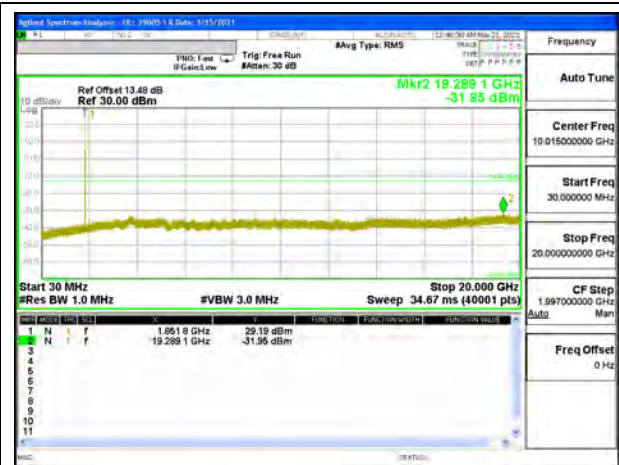


CDMA BC0 1xEV-DO Rev A High Channel

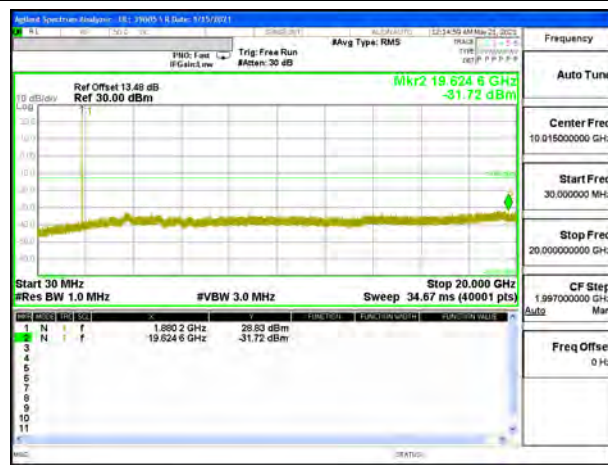
9.3.5. CDMA BC1



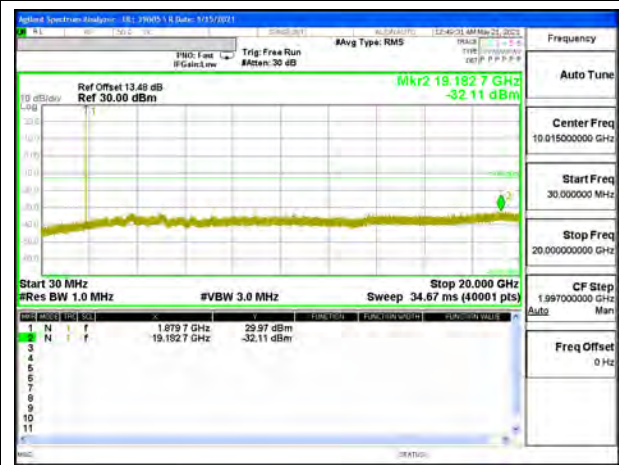
CDMA BC1 1xRTT Low Channel



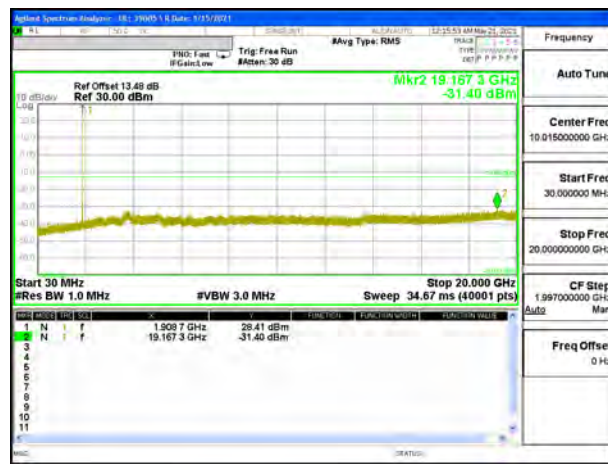
CDMA BC1 1xEV-DO Rev A Low Channel



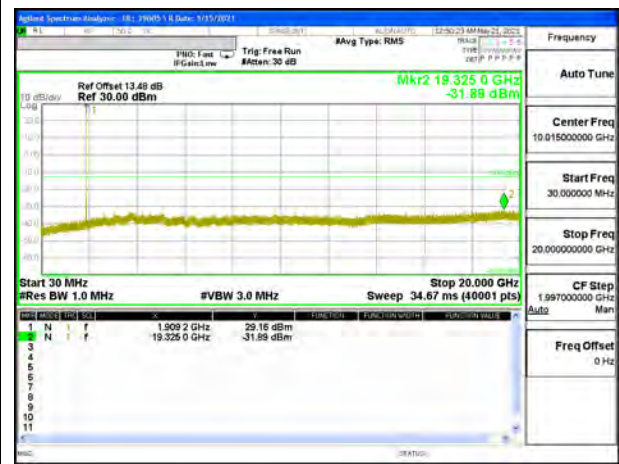
CDMA BC1 1xRTT Middle Channel



CDMA BC1 1xEV-DO Rev A Middle Channel

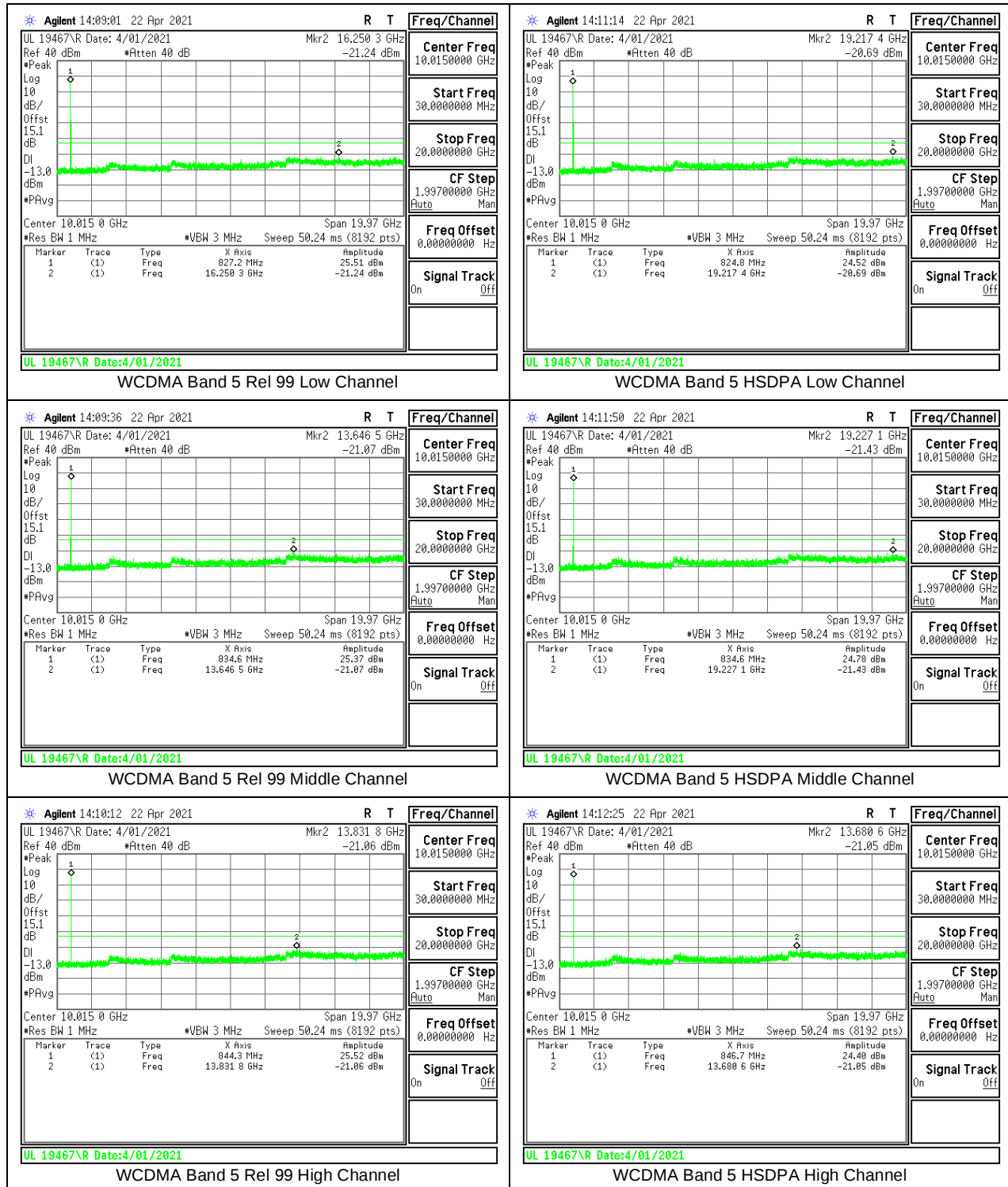


CDMA BC1 1xRTT High Channel

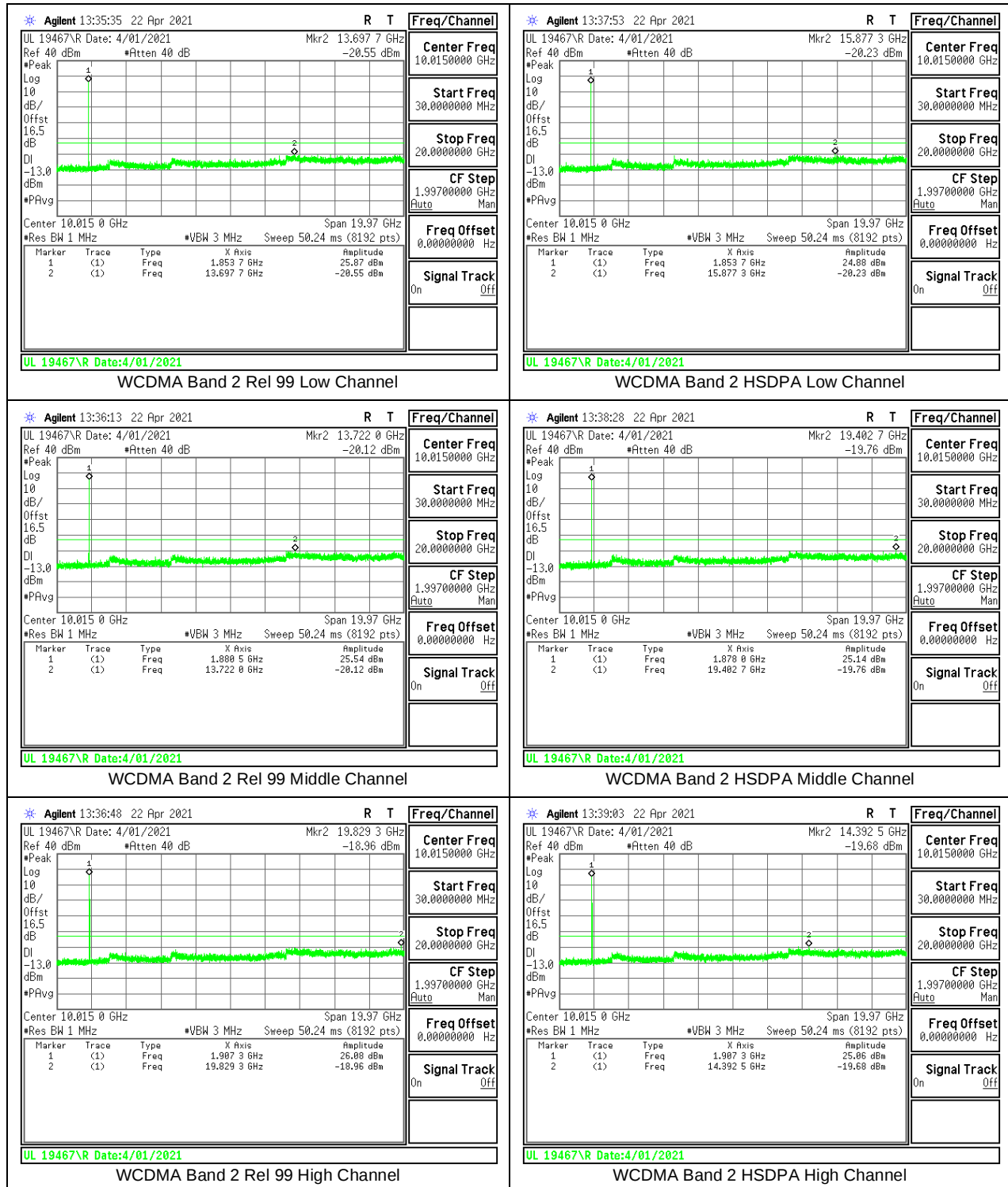


CDMA BC1 1xEV-DO Rev A High Channel

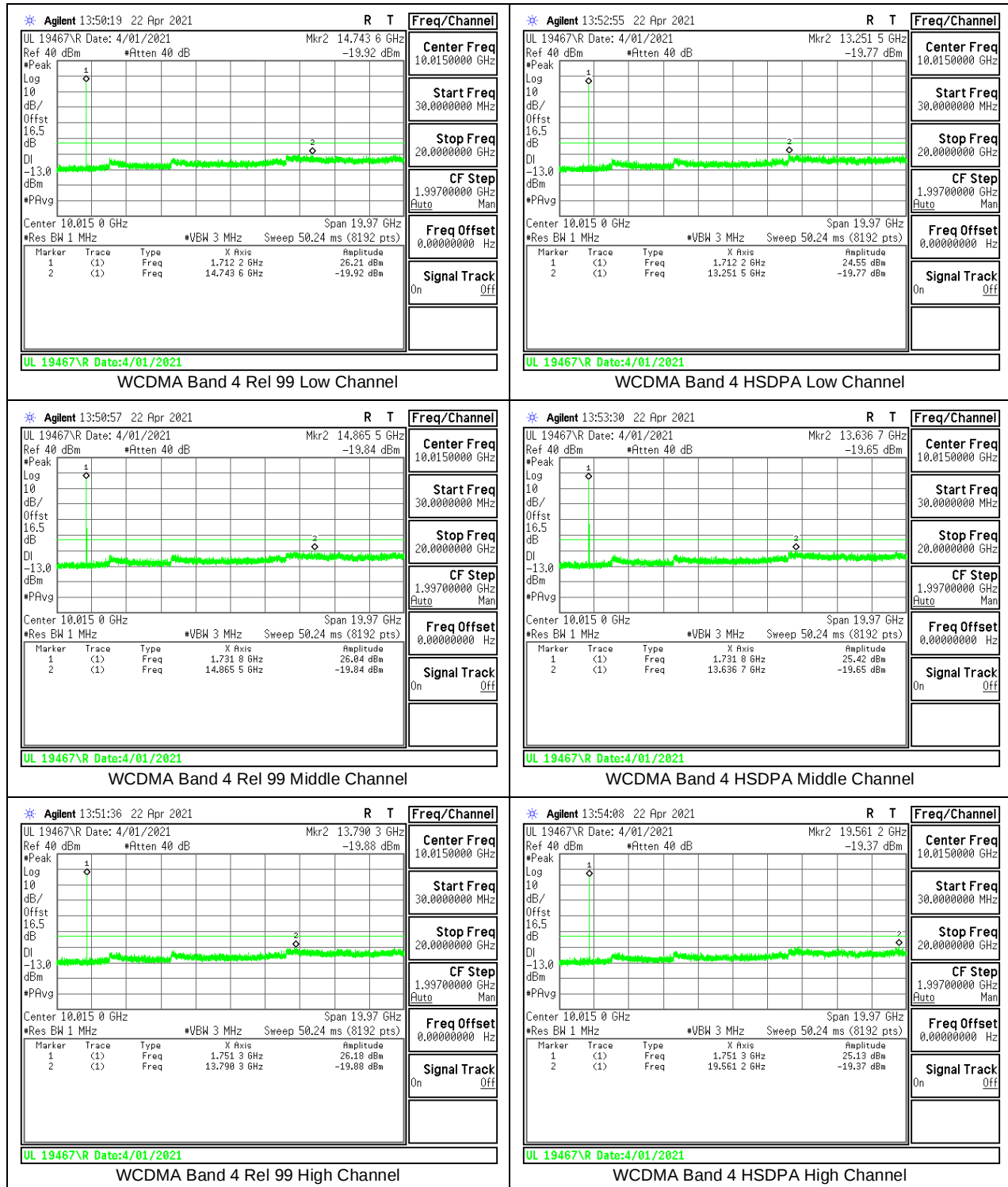
9.3.6. WCDMA BAND 5



9.3.7. WCDMA BAND 2



9.3.8. WCDMA BAND 4



9.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.54 and §90.213
ISED: RSS132§5.3; RSS133§6.3 and RSS139§6.4

LIMITS

FCC §22.355, §90.213

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, 3.80VDC and High voltage, 4.37VDC.
End Voltage, 3.00VDC.

Frequency Stability vs Temperature:

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

Frequency Stability vs Voltage:

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

RESULTS

See the following pages.

9.4.1. GSM

Test Engineer ID:	10646	Test Date:	6/7/2021
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GPRS 850

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.0247	848.9804		
Extreme (50C)		824.0248	848.9805	24.8	0.030
Extreme (40C)		824.0248	848.9805	25.4	0.030
Extreme (30C)		824.0248	848.9805	23.6	0.028
Extreme (10C)		824.0248	848.9805	21.0	0.025
Extreme (0C)		824.0248	848.9805	25.2	0.030
Extreme (-10C)		824.0248	848.9805	23.5	0.028
Extreme (-20C)		824.0248	848.9805	25.6	0.031
Extreme (-30C)		824.0248	848.9805	25.2	0.030
20C	15%	824.0248	848.9805	28.3	0.034
	-15%	824.0248	848.9805	26.5	0.032
	End Point	824.0248	848.9805	24.2	0.029

GPRS 1900

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	1850.0274	1909.9800		
Extreme (50C)		1850.0274	1909.9800	36.1	0.019
Extreme (40C)		1850.0274	1909.9800	35.5	0.019
Extreme (30C)		1850.0274	1909.9800	33.4	0.018
Extreme (10C)		1850.0274	1909.9800	30.5	0.016
Extreme (0C)		1850.0274	1909.9800	33.3	0.018
Extreme (-10C)		1850.0274	1909.9800	34.3	0.018
Extreme (-20C)		1850.0274	1909.9800	34.5	0.018
Extreme (-30C)		1850.0274	1909.9800	34.1	0.018
20C	15%	1850.0274	1909.9800	37.5	0.020
	-15%	1850.0274	1909.9800	35.5	0.019
	End Point	1850.0274	1909.9800	33.3	0.018

9.4.2. CDMA

Test Engineer ID:	10646	Test Date:	6/7/2021
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CDMA 1xRTT BC10

Limit		816	824	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	816.5678	823.4432		
Extreme (50C)		816.5679	823.4432	27.6	0.034
Extreme (40C)		816.5679	823.4432	28.4	0.035
Extreme (30C)		816.5679	823.4432	25.9	0.032
Extreme (10C)		816.5679	823.4432	28.1	0.034
Extreme (0C)		816.5679	823.4432	28.9	0.035
Extreme (-10C)		816.5679	823.4432	27.8	0.034
Extreme (-20C)		816.5679	823.4432	25.5	0.031
Extreme (-30C)		816.5679	823.4432	24.3	0.030
20C	15%	816.5679	823.4432	21.1	0.026
	-15%	816.5679	823.4432	21.4	0.026
	End Point	816.5679	823.4432	20.7	0.025

CDMA 1xRTT BC0

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.0223	848.9882		
Extreme (50C)		824.0224	848.9882	22.8	0.027
Extreme (40C)		824.0224	848.9883	23.5	0.028
Extreme (30C)		824.0224	848.9882	20.9	0.025
Extreme (10C)		824.0224	848.9882	21.9	0.026
Extreme (0C)		824.0224	848.9882	21.1	0.025
Extreme (-10C)		824.0224	848.9883	26.1	0.031
Extreme (-20C)		824.0224	848.9883	24.5	0.029
Extreme (-30C)		824.0224	848.9882	22.2	0.027
20C	15%	824.0224	848.9883	26.4	0.032
	-15%	824.0224	848.9882	17.5	0.021
	End Point	824.0224	848.9883	23.5	0.028

CDMA 1xRTT BC1

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	1850.5682	1909.4332		
Extreme (50C)		1850.5682	1909.4332	31.1	0.017
Extreme (40C)		1850.5682	1909.4332	31.5	0.017
Extreme (30C)		1850.5682	1909.4332	30.8	0.016
Extreme (10C)		1850.5682	1909.4332	30.8	0.016
Extreme (0C)		1850.5682	1909.4332	35.6	0.019
Extreme (-10C)		1850.5682	1909.4332	33.5	0.018
Extreme (-20C)		1850.5682	1909.4332	32.3	0.017
Extreme (-30C)		1850.5682	1909.4332	29.9	0.016
20C	15%	1850.5682	1909.4332	27.4	0.015
	-15%	1850.5682	1909.4332	25.2	0.013
	End Point	1850.5682	1909.4332	23.8	0.013

9.4.3. WCDMA

Test Engineer ID:	10646	Test Date:	6/7/2021
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WCDMA REL 99 BAND 5

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.1393	848.8642		
Extreme (50C)		824.1393	848.8642	-2.6	-0.003
Extreme (40C)		824.1393	848.8642	-2.7	-0.003
Extreme (30C)		824.1393	848.8642	-2.5	-0.003
Extreme (10C)		824.1393	848.8642	2.8	0.003
Extreme (0C)		824.1393	848.8642	2.3	0.003
Extreme (-10C)		824.1393	848.8642	2.9	0.003
Extreme (-20C)		824.1393	848.8642	4.1	0.005
Extreme (-30C)		824.1393	848.8642	3.8	0.004
20C	15%	824.1393	848.8642	-2.4	-0.003
	-15%	824.1393	848.8642	2.0	0.002
	End Point	824.1393	848.8642	-1.6	-0.002

WCDMA REL 99 BAND 2

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1850.1161	1909.8776		
Extreme (50C)		1850.1162	1909.8776	15.6	0.008
Extreme (40C)		1850.1162	1909.8776	13.9	0.007
Extreme (30C)		1850.1162	1909.8776	13.8	0.007
Extreme (10C)		1850.1162	1909.8776	14.8	0.008
Extreme (0C)		1850.1162	1909.8776	15.7	0.008
Extreme (-10C)		1850.1162	1909.8776	17.8	0.009
Extreme (-20C)		1850.1162	1909.8776	17.4	0.009
Extreme (-30C)		1850.1162	1909.8776	17.6	0.009
20C	15%	1850.1162	1909.8776	14.7	0.008
	-15%	1850.1162	1909.8776	14.5	0.008
	End Point	1850.1162	1909.8776	14.1	0.008

WCDMA REL 99 BAND 4

Limit		1710	1755	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1710.1365	1754.8617		
Extreme (50C)		1710.1365	1754.8617	-14.6	-0.008
Extreme (40C)		1710.1365	1754.8617	-15.2	-0.009
Extreme (30C)		1710.1365	1754.8617	-15.8	-0.009
Extreme (10C)		1710.1365	1754.8617	-14.4	-0.008
Extreme (0C)		1710.1365	1754.8617	-11.3	-0.007
Extreme (-10C)		1710.1365	1754.8617	-12.7	-0.007
Extreme (-20C)		1710.1365	1754.8617	-9.7	-0.006
Extreme (-30C)		1710.1365	1754.8617	-10.6	-0.006
20C	15%	1710.1365	1754.8617	-15.6	-0.009
	-15%	1710.1365	1754.8617	-15.3	-0.009
	End Point	1710.1365	1754.8617	-15.9	-0.009

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:	10646	Test Date:	5/16/2021
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9.5.1. GSM



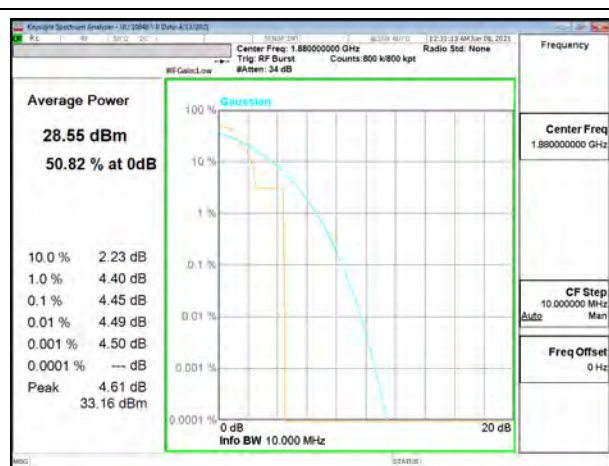
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel



GSM 1900 GPRS Middle Channel

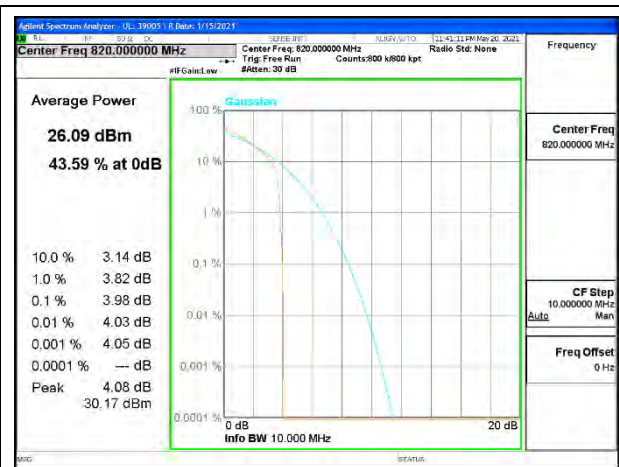


GSM 1900 EGPRS Middle Channel

9.5.2. CDMA



CDMA BC10 1xRTT Middle Channel



CDMA BC10 1xEV-DO Rev A Middle Channel



CDMA BC0 1xRTT Middle Channel



CDMA BC0 1xEV-DO Rev A Middle Channel



CDMA BC1 1xRTT Middle Channel



CDMA BC1 1xEV-DO Rev A Middle Channel

9.5.3. WCDMA



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.

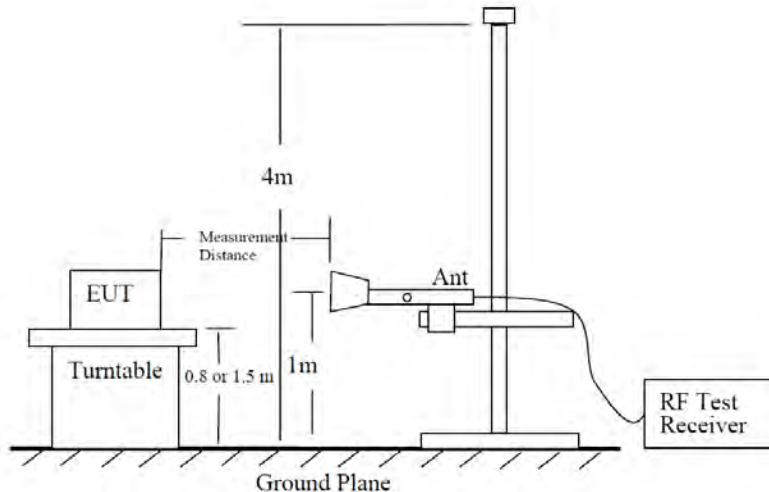


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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.

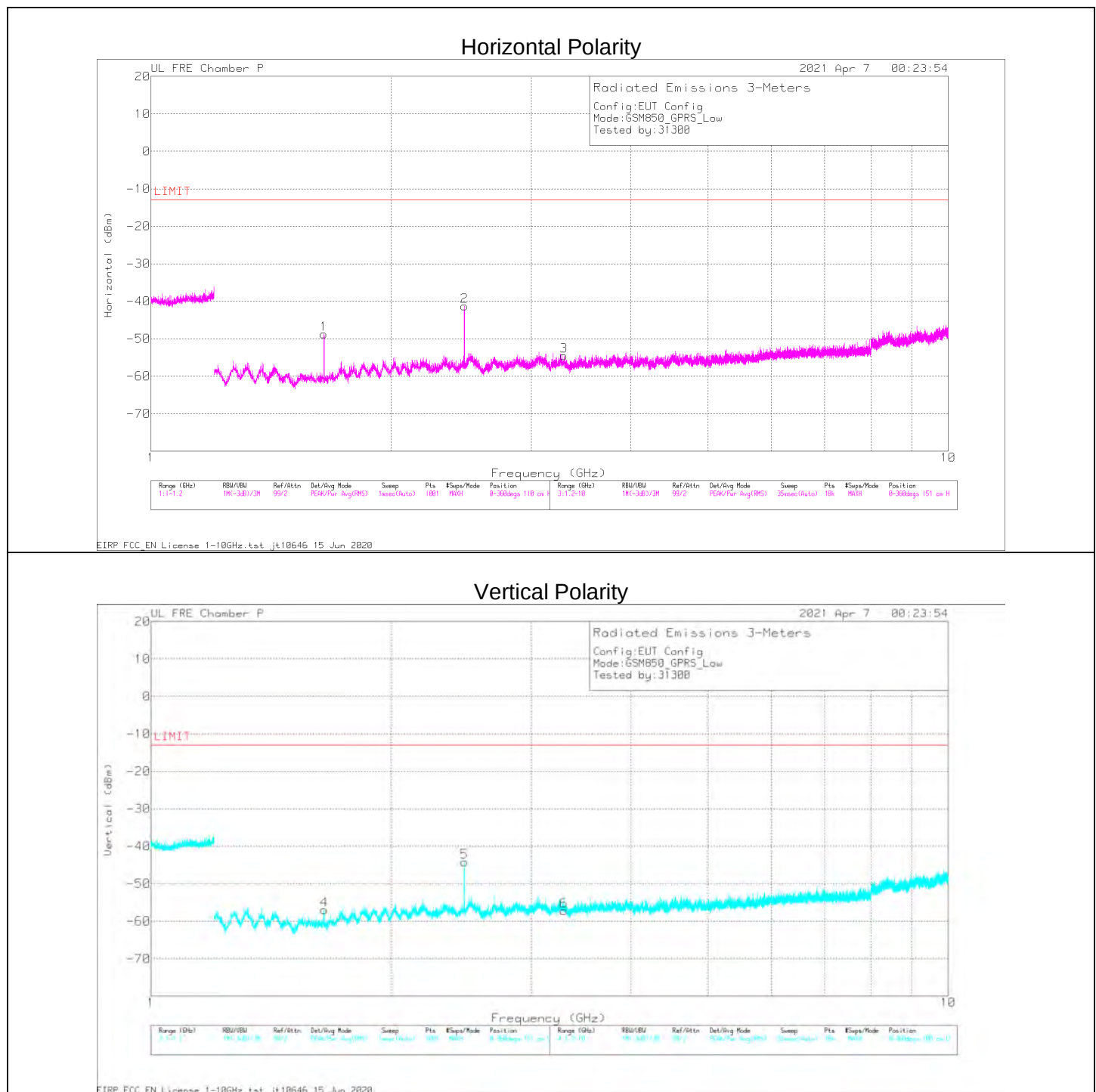
So, from d)

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 that: we do confidence check to our chambers every day to see if any degradation from expected/normal reading reference data. Also we do ambient check to all our chambers every month.

10.1. Example Plot



Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF 200896 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
1.64837	68.41	Pk	28.5	-44.5	.8	-95.2	-41.99	-13	-28.99	H
1.64846	66.69	Pk	28.5	-44.5	.8	-95.2	-43.71	-13	-30.71	V
2.47246	67.08	Pk	32.4	-43.9	.5	-95.2	-39.12	-13	-26.12	V
2.47259	68.2	Pk	32.4	-43.9	.5	-95.2	-38.0	-13	-25.0	H
3.29388	51.59	Pk	32.6	-40.8	.8	-95.2	-51.01	-13	-38.01	V
3.29557	51.77	Pk	32.6	-40.9	.8	-95.2	-50.93	-13	-37.93	H

Pk - Peak detector

10.2. FIELD STRENGTH OF SPURIOUS RADIATION, Ant 1

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, §27.53 and §90.691.
ISED: RSS132§5.5; RSS133§6.5 and RSS139§6.6

LIMIT

FCC: §22.917(a), §24.238(a), §27.53 (h), §90.691

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

RSS132§5.5

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

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

RSS133§6.5.1

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

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

RSS139§6.6

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

TEST PROCEDURE

KDB 971168 D01

RESULTS

10.2.1. GSM 850

GPRS MODE

Project #:	13573777
Date:	7/21/2021
Test Engineer:	25196
Configuration:	EUT Only
Mode:	GSM850 GPRS
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.64832	50.25	Pk	28.4	-34.9	.8	-95.2	-50.65	-13	-37.65	H
1.65613	42.96	Pk	28.3	-34.9	.8	-95.2	-58.04	-13	-45.04	V
2.47249	49.21	Pk	32.6	-34.8	.5	-95.2	-47.69	-13	-34.69	V
2.47288	48.09	Pk	32.6	-34.8	.5	-95.2	-48.81	-13	-35.81	H
3.47382	42.63	Pk	32.9	-33.4	.7	-95.2	-52.37	-13	-39.37	H
3.48947	40.99	Pk	32.9	-33.4	.9	-95.2	-53.81	-13	-40.81	V
Mid Channel, 836.6 MHz										
1.67344	49.92	Pk	28.4	-34.9	.7	-95.2	-51.08	-13	-38.08	H
1.71969	43.24	Pk	29.4	-34.9	.6	-95.2	-56.86	-13	-43.86	V
2.50982	53.66	Pk	32.7	-34.7	.7	-95.2	-42.84	-13	-29.84	H
2.50981	52.46	Pk	32.7	-34.7	.7	-95.2	-44.04	-13	-31.04	V
3.28804	42.88	Pk	32.7	-33.8	.8	-95.2	-52.62	-13	-39.62	H
3.29489	42.44	Pk	32.7	-33.8	.8	-95.2	-53.06	-13	-40.06	V
High Channel, 848.8 MHz										
1.6972	44.94	Pk	28.9	-34.9	.7	-95.2	-55.56	-13	-42.56	H
1.71284	42.82	Pk	29.2	-34.9	.6	-95.2	-57.48	-13	-44.48	V
2.54609	53.28	Pk	32.5	-34.7	.7	-95.2	-43.42	-13	-30.42	V
2.54646	52.87	Pk	32.5	-34.7	.7	-95.2	-43.83	-13	-30.83	H
3.28364	42.03	Pk	32.8	-33.8	.8	-95.2	-53.37	-13	-40.37	H
3.28902	42.14	Pk	32.7	-33.8	.8	-95.2	-53.36	-13	-40.36	V

EGPRS MODE

Project #:	13573777
Date:	4/6/2021
Test Engineer:	31300
Configuration:	EUT Only
Mode:	GSM850 EGPRS
Chamber #:	Chamber P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.64849	68.21	Pk	28.5	-44.5	.8	-95.2	-42.19	-13	-29.19	V
1.64857	70.5	Pk	28.5	-44.5	.8	-95.2	-39.9	-13	-26.9	H
2.47261	66.87	Pk	32.4	-43.9	.5	-95.2	-39.33	-13	-26.33	H
2.47263	63.53	Pk	32.4	-43.9	.5	-95.2	-42.67	-13	-29.67	V
3.29479	51.62	Pk	32.6	-40.9	.8	-95.2	-51.08	-13	-38.08	V
3.29499	50.92	Pk	32.6	-40.9	.8	-95.2	-51.78	-13	-38.78	H
Mid Channel, 836.6 MHz										
1.67333	68.51	Pk	28.5	-44.6	.7	-95.2	-42.09	-13	-29.09	V
1.67337	70.04	Pk	28.5	-44.6	.7	-95.2	-40.56	-13	-27.56	H
2.50978	63.03	Pk	32.7	-43.9	.7	-95.2	-42.67	-13	-29.67	V
2.51004	68.43	Pk	32.7	-43.9	.7	-95.2	-37.27	-13	-24.27	H
3.34685	51.21	Pk	32.2	-40.8	.6	-95.2	-51.99	-13	-38.99	H
3.34765	51.26	Pk	32.2	-40.9	.6	-95.2	-52.04	-13	-39.04	V
High Channel, 848.8 MHz										
1.69774	69.01	Pk	28.5	-44.4	.7	-95.2	-41.39	-13	-28.39	H
1.69777	68.0	Pk	28.5	-44.4	.7	-95.2	-42.4	-13	-29.4	V
2.54637	66.29	Pk	32.5	-43.8	.7	-95.2	-39.51	-13	-26.51	H
2.54638	60.35	Pk	32.5	-43.8	.7	-95.2	-45.45	-13	-32.45	V
3.39518	50.7	Pk	32.3	-40.9	.6	-95.2	-52.5	-13	-39.5	H
3.39671	50.82	Pk	32.3	-40.8	.6	-95.2	-52.28	-13	-39.28	V

10.2.2. GSM 1900

GPRS MODE

Project #:	13573777
Date:	7/22/2021
Test Engineer:	24948
Configuration:	EUT Only
Mode:	GPRS1900 GPRS
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.70594	41.63	Pk	33.2	-32.3	-95.2	-52.67	-13	-39.67	H
3.74859	41.57	Pk	33.5	-32.1	-95.2	-52.23	-13	-39.23	V
5.47453	39.87	Pk	34.6	-29.1	-95.2	-49.83	-13	-36.83	H
5.55094	40.58	Pk	34.9	-29.7	-95.2	-49.42	-13	-36.42	V
7.51547	36.43	Pk	35.7	-26.2	-95.2	-49.27	-13	-36.27	H
7.53469	35.54	Pk	35.8	-26.1	-95.2	-49.96	-13	-36.96	V
Mid Channel, 1880MHz									
3.77859	41.17	Pk	33.5	-32	-95.2	-52.53	-13	-39.53	H
4.61297	40.68	Pk	34.2	-29.2	-95.2	-49.52	-13	-36.52	V
5.45484	38.73	Pk	34.6	-29.3	-95.2	-51.17	-13	-38.17	H
6.20565	37.73	Pk	35.9	-28	-95.2	-49.57	-13	-36.57	V
7.65516	37.55	Pk	35.8	-26.6	-95.2	-48.45	-13	-35.45	H
7.75828	36.6	Pk	35.8	-25.6	-95.2	-48.4	-13	-35.4	V
High Channel, 1909.8MHz									
3.66914	42.82	Pk	33.2	-32.5	-95.2	-51.68	-13	-38.68	H
3.75609	40.93	Pk	33.5	-32.1	-95.2	-52.87	-13	-39.87	V
5.64005	45.96	Pk	35	-30.1	-95.2	-44.34	-13	-31.34	V
5.70984	40.19	Pk	34.8	-29.2	-95.2	-49.41	-13	-36.41	H
7.66359	37.46	Pk	35.8	-26.5	-95.2	-48.44	-13	-35.44	V
7.74422	36.25	Pk	35.9	-25.8	-95.2	-48.85	-13	-35.85	H

EGPRS MODE

Project #:	13573777
Date:	7/22/2021
Test Engineer:	24948
Configuration:	EUT Only
Mode:	GSM1900 EGPRS
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.99234	40.77	Pk	33.6	-31.4	-95.2	-52.23	-13	-39.23	V
4.61109	40.29	Pk	34.2	-29.2	-95.2	-49.91	-13	-36.91	H
5.55094	40.96	Pk	34.9	-29.7	-95.2	-49.04	-13	-36.04	V
6.16641	38.07	Pk	36	-28	-95.2	-49.13	-13	-36.13	H
6.93469	37.49	Pk	35.8	-26	-95.2	-47.91	-13	-34.91	V
7.45594	36.94	Pk	35.8	-26.1	-95.2	-48.56	-13	-35.56	H
Mid Channel, 1880MHz									
3.75656	41.44	Pk	33.5	-32.1	-95.2	-52.36	-13	-39.36	H
3.80531	41.63	Pk	33.6	-31.9	-95.2	-51.87	-13	-38.87	V
5.59781	39.72	Pk	35	-29.7	-95.2	-50.18	-13	-37.18	H
5.63985	46.1	Pk	35	-30.1	-95.2	-44.2	-13	-31.2	V
8.175	37.72	Pk	35.8	-25.7	-95.2	-47.38	-13	-34.38	V
8.81672	36.86	Pk	36.1	-24.2	-95.2	-46.44	-13	-33.44	H
High Channel, 1909.8MHz									
3.74203	41.37	Pk	33.5	-32.1	-95.2	-52.43	-13	-39.43	V
3.93234	42.16	Pk	33.8	-31.8	-95.2	-51.04	-13	-38.04	H
5.71688	39.26	Pk	34.8	-29.2	-95.2	-50.34	-13	-37.34	H
6.40266	37.66	Pk	35.8	-26.9	-95.2	-48.64	-13	-35.64	V
7.71563	36.66	Pk	35.9	-26.1	-95.2	-48.74	-13	-35.74	V
7.74422	36.49	Pk	35.9	-25.8	-95.2	-48.61	-13	-35.61	H

10.2.3. CDMA BC10

1xRTT MODE

Project #:	13573777
Date:	5/13/2021
Test Engineer:	50822
Configuration:	EUT Only
Mode:	1xRTT BC10
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 817.25MHz										
1.75098	36.71	Pk	25.6	-27.6	.7	-95.2	-59.79	-13	-46.79	V
1.76467	36.89	Pk	25.7	-27.6	.6	-95.2	-59.61	-13	-46.61	H
2.47747	36.61	Pk	29	-26.6	.5	-95.2	-55.69	-13	-42.69	V
2.54493	36.16	Pk	29.2	-26.6	.7	-95.2	-55.74	-13	-42.74	H
3.73587	37.79	Pk	30.5	-25.2	.5	-95.2	-51.61	-13	-38.61	V
3.79258	36.58	Pk	30.8	-25.1	.7	-95.2	-52.22	-13	-39.22	H
Mid Channel, 820.00MHz										
1.76564	37.22	Pk	25.7	-27.6	.6	-95.2	-59.28	-13	-46.28	V
1.76956	36.59	Pk	25.7	-27.5	.6	-95.2	-59.81	-13	-46.81	H
2.59187	35.8	Pk	29.2	-26.5	.4	-95.2	-56.3	-13	-43.3	V
2.6344	36.29	Pk	29.1	-26.2	.6	-95.2	-55.41	-13	-42.41	H
3.85271	36.76	Pk	31.1	-24.9	.5	-95.2	-51.74	-13	-38.74	H
3.8796	36.19	Pk	31.4	-25.2	.6	-95.2	-52.21	-13	-39.21	V
High Channel, 822.75MHz										
1.8116	36.48	Pk	25.9	-27.6	.6	-95.2	-59.82	-13	-46.82	H
1.8688	35.82	Pk	26.1	-27.4	.6	-95.2	-60.08	-13	-47.08	V
2.81773	36.03	Pk	28.8	-26	.6	-95.2	-55.77	-13	-42.77	H
2.90036	36.5	Pk	29.2	-25.8	.5	-95.2	-54.8	-13	-41.8	V
3.72609	37.99	Pk	30.4	-25.2	.5	-95.2	-51.51	-13	-38.51	H
3.78427	36.42	Pk	30.8	-25.1	.6	-95.2	-52.48	-13	-39.48	V

1xEV-DO REV A MODE

Project #:	13573777
Date:	4/19/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC10
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 817.25MHz										
1.63122	55.81	Pk	28.2	-45	.7	-95.2	-55.49	-13	-42.49	V
1.63499	58.77	Pk	28.3	-45.1	.7	-95.2	-52.53	-13	-39.53	H
2.43945	55.4	Pk	32.2	-44.2	.5	-95.2	-51.3	-13	-38.3	V
2.45076	59.19	Pk	32.2	-44.3	.5	-95.2	-47.61	-13	-34.61	H
3.29748	52.82	Pk	32.5	-42.4	.8	-95.2	-51.48	-13	-38.48	H
3.29917	52.46	Pk	32.5	-42.4	.8	-95.2	-51.84	-13	-38.84	V
Mid Channel, 820MHz										
1.63452	55.98	Pk	28.2	-45.1	.7	-95.2	-55.42	-13	-42.42	V
1.63932	59.1	Pk	28.3	-45.1	.7	-95.2	-52.2	-13	-39.2	H
2.45905	56.39	Pk	32.2	-44.3	.5	-95.2	-50.41	-13	-37.41	V
2.45907	60.36	Pk	32.2	-44.3	.5	-95.2	-46.44	-13	-33.44	H
3.28184	52.29	Pk	32.5	-42.6	.8	-95.2	-52.21	-13	-39.21	V
3.28274	52.18	Pk	32.5	-42.7	.8	-95.2	-52.42	-13	-39.42	H
High Channel, 822.75MHz										
1.64002	55.72	Pk	28.4	-45.1	.7	-95.2	-55.48	-13	-42.48	V
1.64474	58.02	Pk	28.4	-45.2	.7	-95.2	-53.28	-13	-40.28	H
2.46913	56.2	Pk	32.4	-44.4	.5	-95.2	-50.5	-13	-37.5	V
2.46939	62.54	Pk	32.4	-44.4	.5	-95.2	-44.16	-13	-31.16	H
3.29423	52.39	Pk	32.5	-42.5	.8	-95.2	-52.01	-13	-39.01	H
3.31299	51.86	Pk	32.4	-42.3	.6	-95.2	-52.64	-13	-39.64	V

10.2.4. CDMA BC0

1xRTT MODE

Project #:	13573777
Date:	05/12/2021
Test Engineer:	50822
Configuration:	EUT Only
Mode:	1xRTT BC0
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.7MHz										
1.67178	36.35	Pk	25	-27.8	.7	-95.2	-60.95	-13	-47.95	H
1.68204	36.28	Pk	24.9	-27.8	.7	-95.2	-61.12	-13	-48.12	V
2.63587	36.75	Pk	29.2	-26.2	.6	-95.2	-54.85	-13	-41.85	H
2.66373	35.39	Pk	29.2	-26.2	.5	-95.2	-56.31	-13	-43.31	V
3.73636	37.77	Pk	30.5	-25.2	.5	-95.2	-51.63	-13	-38.63	V
3.78378	36.28	Pk	30.8	-25.1	.6	-95.2	-52.62	-13	-39.62	H
Mid Channel, 836.52MHz										
1.64587	37.41	Pk	24.9	-27.8	.7	-95.2	-59.99	-13	-46.99	H
1.67178	36.49	Pk	25	-27.8	.7	-95.2	-60.81	-13	-47.81	V
2.5684	36.23	Pk	29.3	-26.5	.5	-95.2	-55.67	-13	-42.67	V
2.61729	36.54	Pk	29.2	-26.4	.6	-95.2	-55.26	-13	-42.26	H
3.21422	36.14	Pk	31.4	-25.6	.5	-95.2	-52.76	-13	-39.76	V
3.27827	36.56	Pk	31.3	-25.3	.8	-95.2	-51.84	-13	-38.84	H
High Channel, 848.31MHz										
1.93284	35.85	Pk	26.5	-27.2	.5	-95.2	-59.55	-13	-46.55	V
1.93578	37.02	Pk	26.5	-27.2	.5	-95.2	-58.38	-13	-45.38	H
2.71116	36.53	Pk	29.1	-26.1	.5	-95.2	-55.17	-13	-42.17	H
2.73022	36.53	Pk	29	-26.2	.5	-95.2	-55.37	-13	-42.37	V
3.79649	37.67	Pk	30.9	-25.2	.7	-95.2	-51.13	-13	-38.13	H
3.86005	37.73	Pk	31.3	-25.1	.6	-95.2	-50.67	-13	-37.67	V

1xEV-DO REV A MODE

Project #:	13573777
Date:	04/17/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC0
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.7MHz										
1.64	36.93	Pk	25	-27.8	.7	-95.2	-60.37	-13	-47.37	V
1.6532	36.76	Pk	24.9	-27.8	.8	-95.2	-60.54	-13	-47.54	H
2.47258	36.18	Pk	29	-26.6	.5	-95.2	-56.12	-13	-43.12	V
2.49164	35.47	Pk	29	-26.6	.6	-95.2	-56.73	-13	-43.73	H
3.29782	35.75	Pk	31.2	-25.5	.8	-95.2	-52.95	-13	-39.95	H
3.30516	34.97	Pk	31.1	-25.6	.7	-95.2	-54.03	-13	-41.03	V
Mid Channel, 836.52MHz										
1.6752	34.99	Pk	25	-27.8	.7	-95.2	-62.31	-13	-49.31	V
1.68009	36.18	Pk	24.9	-27.8	.7	-95.2	-61.22	-13	-48.22	H
2.54249	36.31	Pk	29.2	-26.6	.7	-95.2	-55.59	-13	-42.59	H
2.54396	36.26	Pk	29.2	-26.6	.7	-95.2	-55.64	-13	-42.64	V
3.34476	35.91	Pk	31	-25.6	.6	-95.2	-53.29	-13	-40.29	V
3.35356	34.18	Pk	31	-25.5	.6	-95.2	-54.92	-13	-41.92	H
High Channel, 848.31MHz										
1.69818	36.77	Pk	25.1	-27.7	.7	-95.2	-60.33	-13	-47.33	V
1.7016	36.39	Pk	25.1	-27.7	.6	-95.2	-60.81	-13	-47.81	H
2.52978	35.55	Pk	29.2	-26.7	.8	-95.2	-56.35	-13	-43.35	H
2.54053	36.51	Pk	29.3	-26.7	.7	-95.2	-55.39	-13	-42.39	V
3.35404	34.27	Pk	31	-25.5	.6	-95.2	-54.83	-13	-41.83	V
3.3648	34.61	Pk	31	-25.6	.6	-95.2	-54.59	-13	-41.59	H

10.2.5. CDMA BC1

1xRTT MODE

Project #:	13573777
Date:	04/16/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	1xRTT BC1
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.76068	36.79	Pk	33.7	-27.9	.6	-95.2	-52.01	-13	-39.01	V
3.76601	38.68	Pk	33.7	-27.9	.6	-95.2	-50.12	-13	-37.12	H
5.53629	34.37	Pk	34.9	-25.6	.7	-95.2	-50.83	-13	-37.83	V
5.55908	34.73	Pk	34.9	-25.6	.6	-95.2	-50.57	-13	-37.57	H
7.34439	33.52	Pk	36.2	-22.6	.5	-95.2	-47.58	-13	-34.58	V
7.40645	34.09	Pk	36.2	-23	.4	-95.2	-47.51	-13	-34.51	H
Mid Channel, 1880MHz										
3.75534	36.55	Pk	33.6	-27.9	.6	-95.2	-52.35	-13	-39.35	V
3.76504	37.54	Pk	33.7	-27.9	.6	-95.2	-51.26	-13	-38.26	H
5.67642	34.84	Pk	35.2	-25.4	.5	-95.2	-50.06	-13	-37.06	V
5.68369	36.65	Pk	35.2	-25.5	.5	-95.2	-48.35	-13	-35.35	H
7.56937	34.44	Pk	35.9	-22.7	.4	-95.2	-47.16	-13	-34.16	V
7.57325	32.52	Pk	35.9	-22.7	.4	-95.2	-49.08	-13	-36.08	H
High Channel, 1908.75MHz										
3.81741	37.16	Pk	33.7	-27.7	.6	-95.2	-51.44	-13	-38.44	V
3.82032	36.9	Pk	33.7	-27.7	.5	-95.2	-51.8	-13	-38.8	H
5.72587	36.16	Pk	35.2	-25.9	.6	-95.2	-49.14	-13	-36.14	H
5.72587	36.98	Pk	35.2	-25.9	.6	-95.2	-48.32	-13	-35.32	V
7.6518	33.91	Pk	35.8	-22.4	.4	-95.2	-47.49	-13	-34.49	H
7.67847	32.82	Pk	35.9	-22.1	.5	-95.2	-48.08	-13	-35.08	V

1xEV-DO REV A MODE

Project #:	13573777
Date:	06/30/2021
Test Engineer:	30606
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC1
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.69718	37.95	Pk	33.4	-25.5	.7	-95.2	-48.65	-13	-35.65	V
3.72321	37.51	Pk	33.4	-25.9	.7	-95.2	-49.49	-13	-36.49	H
5.5395	35.04	Pk	34.9	-23.1	.7	-95.2	-47.66	-13	-34.66	H
5.56363	35.36	Pk	35	-23.3	.5	-95.2	-47.64	-13	-34.64	V
7.40106	34.34	Pk	36.2	-20.2	.5	-95.2	-44.36	-13	-31.36	V
7.41576	33.5	Pk	36.2	-20.4	.4	-95.2	-45.5	-13	-32.5	H
Mid Channel, 1880MHz										
3.76065	38.23	Pk	33.7	-25.8	.6	-95.2	-48.47	-13	-35.47	V
3.77962	37.53	Pk	33.6	-26.1	.6	-95.2	-49.57	-13	-36.57	H
5.65832	36.23	Pk	35.2	-23.1	.5	-95.2	-46.37	-13	-33.37	V
5.65886	36.11	Pk	35.2	-23.1	.5	-95.2	-46.49	-13	-33.49	H
7.49324	34.57	Pk	36.1	-20.3	.4	-95.2	-44.43	-13	-31.43	H
7.51875	34.28	Pk	36	-20.1	.4	-95.2	-44.62	-13	-31.62	V
High Channel, 1908.75MHz										
3.82804	37.92	Pk	33.7	-25.7	.5	-95.2	-48.78	-13	-35.78	V
3.83098	39.08	Pk	33.7	-25.8	.5	-95.2	-47.72	-13	-34.72	H
5.70731	35.28	Pk	35.2	-23.5	.7	-95.2	-47.52	-13	-34.52	V
5.71479	36.07	Pk	35.3	-23.5	.6	-95.2	-46.73	-13	-33.73	H
7.56726	33.64	Pk	35.9	-19.9	.4	-95.2	-45.16	-13	-32.16	H
7.65606	33.71	Pk	35.8	-19.8	.5	-95.2	-44.99	-13	-31.99	V

10.2.6. WCDMA BAND 5

REL 99 MODE

Project #:	13573777
Date:	04/8/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	REL 99 Band 5
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.64358	40.88	Pk	29.1	-30.8	.7	-95.2	-55.32	-13	-42.32	V
1.65409	42.23	Pk	29	-30.7	.8	-95.2	-53.87	-13	-40.87	H
2.47594	49.5	Pk	33.3	-29.7	.5	-95.2	-41.6	-13	-28.6	H
2.48085	40.69	Pk	33.4	-29.6	.5	-95.2	-50.21	-13	-37.21	V
3.30064	38.93	Pk	33	-28.4	.8	-95.2	-50.87	-13	-37.87	V
3.30343	39.85	Pk	33	-28.5	.7	-95.2	-50.15	-13	-37.15	H
Mid Channel, 836.6MHz										
1.66941	42.44	Pk	28.9	-30.6	.7	-95.2	-53.76	-13	-40.76	H
1.67796	42.03	Pk	28.9	-30.6	.7	-95.2	-54.17	-13	-41.17	V
2.50434	47.17	Pk	33.5	-29.7	.7	-95.2	-43.53	-13	-30.53	H
2.51161	41.79	Pk	33.5	-29.7	.7	-95.2	-48.91	-13	-35.91	V
3.34071	38.93	Pk	32.9	-28.5	.5	-95.2	-51.37	-13	-38.37	V
3.35059	39.3	Pk	33	-28.5	.5	-95.2	-50.9	-13	-37.9	H
High Channel, 846.6MHz										
1.67569	39.68	Pk	29	-30.6	.7	-95.2	-56.42	-13	-43.42	V
1.68302	39.48	Pk	28.9	-30.6	.7	-95.2	-56.72	-13	-43.72	H
2.53414	49.94	Pk	33.3	-29.3	.7	-95.2	-40.56	-13	-27.56	H
2.53829	42.45	Pk	33.4	-29.4	.7	-95.2	-48.05	-13	-35.05	V
3.36138	38.25	Pk	33	-28.5	.6	-95.2	-51.85	-13	-38.85	V
3.37409	37.27	Pk	33	-28.6	.6	-95.2	-52.93	-13	-39.93	H

HSDPA MODE

Project #:	13573777
Date:	04/8/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	HSDPA Band 5
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.64701	56.46	Pk	28.5	-46	.7	-95.2	-55.54	-13	-42.54	H
1.66157	56.6	Pk	28.9	-46	.8	-95.2	-54.9	-13	-41.9	V
2.47911	57.27	Pk	32.1	-45.3	.5	-95.2	-50.63	-13	-37.63	V
2.48277	65.11	Pk	32.1	-45.3	.5	-95.2	-42.79	-13	-29.79	H
3.29823	54.04	Pk	32.6	-43.6	.8	-95.2	-51.36	-13	-38.36	V
3.30379	53.43	Pk	32.6	-43.7	.7	-95.2	-52.17	-13	-39.17	H
Mid Channel, 836.6MHz										
1.67343	56.01	Pk	29.1	-46	.7	-95.2	-55.39	-13	-42.39	V
1.68187	55.94	Pk	29.1	-46	.7	-95.2	-55.46	-13	-42.46	H
2.5075	55.79	Pk	32.1	-45.4	.7	-95.2	-52.01	-13	-39.01	H
2.51024	55.75	Pk	32.1	-45.4	.7	-95.2	-52.05	-13	-39.05	V
3.33263	53.15	Pk	32.7	-43.6	.5	-95.2	-52.45	-13	-39.45	H
3.34768	52.99	Pk	32.7	-43.6	.5	-95.2	-52.61	-13	-39.61	V
High Channel, 846.6MHz										
1.68362	54.84	Pk	28.4	-45.1	.7	-95.2	-56.36	-13	-43.36	V
1.70022	55.1	Pk	28.7	-45.1	.6	-95.2	-55.9	-13	-42.9	H
2.54211	62.8	Pk	32.1	-44.3	.6	-95.2	-44	-13	-31	H
2.54263	57.13	Pk	32.1	-44.2	.6	-95.2	-49.57	-13	-36.57	V
3.40364	51.32	Pk	32.5	-42.1	.6	-95.2	-52.88	-13	-39.88	H
3.40902	51.84	Pk	32.6	-42	.5	-95.2	-52.26	-13	-39.26	V

10.2.7. WCDMA BAND 2

REL 99 MODE

Project #:	13573777
Date:	04/8/2021
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70132	39.85	Pk	33.4	-27.5	.7	-95.2	-48.75	-13	-35.75	V
3.70449	38.26	Pk	33.4	-27.6	.7	-95.2	-50.44	-13	-37.44	H
5.55472	37.22	Pk	35	-25.5	.6	-95.2	-47.88	-13	-34.88	H
5.55975	38.24	Pk	34.9	-25.6	.6	-95.2	-47.06	-13	-34.06	V
8.41591	34.07	Pk	36.1	-22.2	.9	-95.2	-46.33	-13	-33.33	H
8.41737	34.67	Pk	36.1	-22.2	.9	-95.2	-45.73	-13	-32.73	V
Mid Channel, 1880MHz										
3.75728	37.73	Pk	33.6	-27.9	.6	-95.2	-51.17	-13	-38.17	V
3.76698	37.68	Pk	33.7	-27.9	.6	-95.2	-51.12	-13	-38.12	H
5.63811	36.08	Pk	35.1	-25.6	.6	-95.2	-49.02	-13	-36.02	V
5.67836	34.85	Pk	35.2	-25.4	.5	-95.2	-50.05	-13	-37.05	H
7.50537	32.88	Pk	36	-22.6	.4	-95.2	-48.52	-13	-35.52	V
7.53252	33.37	Pk	36	-22.8	.4	-95.2	-48.23	-13	-35.23	H
High Channel, 1907.6MHz										
3.87864	38.31	Pk	33.8	-27.4	.7	-95.2	-49.79	-13	-36.79	V
3.88045	38.68	Pk	33.8	-27.3	.7	-95.2	-49.32	-13	-36.32	H
5.69685	36.96	Pk	35.2	-25.7	.6	-95.2	-48.14	-13	-35.14	H
5.72219	39.21	Pk	35.2	-25.9	.6	-95.2	-46.09	-13	-33.09	V
7.60677	34.29	Pk	35.9	-22.6	.4	-95.2	-47.21	-13	-34.21	V
7.61341	35.08	Pk	35.8	-22.5	.4	-95.2	-46.42	-13	-33.42	H

HSDPA MODE

Project #:	13573777
Date:	04/14/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.68116	36.53	Pk	30.2	-25.3	.7	-95.2	-53.07	-13	-40.07	V
3.70685	37.69	Pk	30.3	-25.2	.7	-95.2	-51.71	-13	-38.71	H
5.55423	36.33	Pk	33.3	-23.2	.6	-95.2	-48.17	-13	-35.17	H
5.56005	37.16	Pk	33.2	-23.4	.6	-95.2	-47.64	-13	-34.64	V
7.4273	34.04	Pk	36.8	-21.6	.4	-95.2	-45.56	-13	-32.56	H
7.42924	33.55	Pk	36.8	-21.6	.4	-95.2	-46.05	-13	-33.05	V
Mid Channel, 1880MHz										
3.84262	36.62	Pk	31.2	-24.8	.5	-95.2	-51.68	-13	-38.68	V
3.84698	38.63	Pk	31.2	-24.8	.5	-95.2	-49.67	-13	-36.67	H
5.6095	34.87	Pk	33.2	-23.2	.5	-95.2	-49.83	-13	-36.83	V
5.63714	35.87	Pk	33.1	-23.5	.6	-95.2	-49.13	-13	-36.13	H
7.51991	33.33	Pk	36.7	-21.3	.4	-95.2	-46.07	-13	-33.07	H
7.56888	33.31	Pk	36.9	-21.6	.4	-95.2	-46.19	-13	-33.19	V
High Channel, 1907.6MHz										
3.75922	37.25	Pk	30.6	-25.3	.6	-95.2	-52.05	-13	-39.05	V
3.79025	37.25	Pk	30.8	-25.1	.7	-95.2	-51.55	-13	-38.55	H
5.75303	34.05	Pk	33.1	-22.5	.5	-95.2	-50.05	-13	-37.05	H
5.75885	34.01	Pk	33.1	-22.6	.5	-95.2	-50.19	-13	-37.19	V
7.65034	33.48	Pk	36.9	-20.8	.4	-95.2	-45.22	-13	-32.22	V
7.66343	33	Pk	37	-20.8	.5	-95.2	-45.5	-13	-32.5	H

10.2.8. WCDMA BAND 4

REL 99 MODE

Project #:	13573777
Date:	04/12/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.42578	51.77	Pk	32.5	-41.2	-95.2	-52.13	-13	-39.13	V
3.44997	51.2	Pk	32.6	-40.9	-95.2	-52.3	-13	-39.3	H
5.13144	50.78	Pk	34.2	-40.7	-95.2	-50.92	-13	-37.92	H
5.14069	59.54	Pk	34.2	-40.8	-95.2	-42.26	-13	-29.26	V
6.83458	48.19	Pk	35.5	-38	-95.2	-49.51	-13	-36.51	H
6.85187	48.26	Pk	35.4	-38.1	-95.2	-49.64	-13	-36.64	V
Mid Channel, 1732.6MHz									
3.46272	52.65	Pk	32.6	-40.8	-95.2	-50.75	-13	-37.75	V
3.48174	50.63	Pk	32.6	-41	-95.2	-52.97	-13	-39.97	H
5.19366	58.47	Pk	34.2	-40.9	-95.2	-43.43	-13	-30.43	V
5.20000	56.75	Pk	34.2	-40.9	-95.2	-45.15	-13	-32.15	H
6.92711	48.8	Pk	35.6	-38.3	-95.2	-49.1	-13	-36.1	H
6.92765	48.05	Pk	35.6	-38.3	-95.2	-49.85	-13	-36.85	V
High Channel, 1752.61MHz									
3.51499	51.36	Pk	32.7	-41	-95.2	-52.14	-13	-39.14	V
3.5324	51.05	Pk	32.8	-41	-95.2	-52.35	-13	-39.35	H
5.25422	51.85	Pk	34.1	-41	-95.2	-50.25	-13	-37.25	H
5.2614	55.1	Pk	34.2	-41	-95.2	-46.9	-13	-33.9	V
6.9304	48.9	Pk	35.6	-38.3	-95.2	-49.0	-13	-36.0	V
6.93415	48.04	Pk	35.7	-38.3	-95.2	-49.76	-13	-36.76	H

HSDPA MODE

Project #:	13573777
Date:	04/12/2021
Test Engineer:	39005
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712MHz									
3.39447	51.7	Pk	32.5	-41.3	-95.2	-52.30	-13	-39.30	V
3.41566	52.36	Pk	32.6	-41.2	-95.2	-51.44	-13	-38.44	H
5.13973	52.8	Pk	34.2	-40.8	-95.2	-49.00	-13	-36.00	V
5.14048	61.34	Pk	34.2	-40.8	-95.2	-40.46	-13	-27.46	H
6.79393	48.16	Pk	35.5	-38.2	-95.2	-49.74	-13	-36.74	V
6.85366	48.57	Pk	35.5	-38.1	-95.2	-49.23	-13	-36.23	H
Mid Channel, 1732.6MHz									
3.41531	50.65	Pk	32.6	-41.2	-95.2	-53.15	-13	-40.15	H
3.41672	50.17	Pk	32.5	-41.2	-95.2	-53.73	-13	-40.73	V
5.13375	48.33	Pk	34.2	-40.7	-95.2	-53.37	-13	-40.37	H
5.13984	48.62	Pk	34.2	-40.7	-95.2	-53.08	-13	-40.08	V
6.83672	46	Pk	35.5	-38	-95.2	-51.70	-13	-38.70	H
6.84797	47.24	Pk	35.4	-38.2	-95.2	-50.76	-13	-37.76	V
High Channel, 1752.6MHz									
3.48703	49.63	Pk	32.7	-41	-95.2	-53.87	-13	-40.87	V
3.51516	49.48	Pk	32.7	-41	-95.2	-54.02	-13	-41.02	H
5.22516	48.91	Pk	34.2	-40.9	-95.2	-52.99	-13	-39.99	V
5.26922	49	Pk	34.1	-40.8	-95.2	-52.90	-13	-39.90	H
7.00922	46.38	Pk	35.6	-38.1	-95.2	-51.32	-13	-38.32	V
7.05656	46.65	Pk	35.6	-38.1	-95.2	-51.05	-13	-38.05	H

10.3. FIELD STRENGTH OF SPURIOUS RADIATION, Ant 2

10.3.1. GSM 850

GPRS MODE

Project #:	13573777
Date:	04/8/2021
Test Engineer:	31300
Configuration:	EUT Only
Mode:	GSM850 GPRS
Chamber #:	Chamber P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.64848	66.25	Pk	28.5	-44.5	.8	-95.2	-44.15	-13	-31.15	H
1.64854	64.81	Pk	28.5	-44.5	.8	-95.2	-45.59	-13	-32.59	V
2.47248	61.66	Pk	32.4	-43.9	.5	-95.2	-44.54	-13	-31.54	V
2.47267	65.71	Pk	32.4	-43.9	.5	-95.2	-40.49	-13	-27.49	H
3.29566	51.98	Pk	32.6	-40.9	.8	-95.2	-50.72	-13	-37.72	V
3.29781	51.8	Pk	32.6	-41	.8	-95.2	-51.0	-13	-38.0	H
Mid Channel, 836.6 MHz										
1.6733	66.37	Pk	28.5	-44.6	.7	-95.2	-44.23	-13	-31.23	V
1.67338	66.08	Pk	28.5	-44.6	.7	-95.2	-44.52	-13	-31.52	H
2.50959	64.86	Pk	32.7	-43.9	.7	-95.2	-40.84	-13	-27.84	V
2.51005	69.11	Pk	32.7	-43.9	.7	-95.2	-36.59	-13	-23.59	H
3.34577	50.86	Pk	32.2	-40.9	.6	-95.2	-52.44	-13	-39.44	H
3.34811	50.79	Pk	32.2	-40.9	.6	-95.2	-52.51	-13	-39.51	V
High Channel, 848.8 MHz										
1.69767	66.81	Pk	28.5	-44.4	.7	-95.2	-43.59	-13	-30.59	H
1.69774	66.31	Pk	28.5	-44.4	.7	-95.2	-44.09	-13	-31.09	V
2.54639	65.06	Pk	32.5	-43.8	.7	-95.2	-40.74	-13	-27.74	V
2.54655	70.21	Pk	32.5	-43.8	.7	-95.2	-35.59	-13	-22.59	H
3.39516	51.51	Pk	32.3	-40.9	.6	-95.2	-51.69	-13	-38.69	V
3.39568	50.73	Pk	32.3	-40.8	.6	-95.2	-52.37	-13	-39.37	H

EGPRS MODE

Project #:	13573777
Date:	04/7/2021
Test Engineer:	31300
Configuration:	EUT Only
Mode:	GSM850 EGPRS
Chamber #:	Chamber P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.2 MHz										
1.64853	70.55	Pk	28.5	-44.5	.8	-95.2	-39.85	-13	-26.85	H
1.64856	68.47	Pk	28.5	-44.5	.8	-95.2	-41.93	-13	-28.93	V
2.47232	64.15	Pk	32.4	-43.9	.5	-95.2	-42.05	-13	-29.05	V
2.47263	66.35	Pk	32.4	-43.9	.5	-95.2	-39.85	-13	-26.85	H
3.29577	50.91	Pk	32.6	-40.9	.8	-95.2	-51.79	-13	-38.79	H
3.2973	51.1	Pk	32.6	-40.9	.8	-95.2	-51.6	-13	-38.6	V
Mid Channel, 836.6 MHz										
1.69777	68.84	Pk	28.5	-44.4	.7	-95.2	-41.56	-13	-28.56	H
1.69777	67.55	Pk	28.5	-44.4	.7	-95.2	-42.85	-13	-29.85	V
2.54641	61.77	Pk	32.5	-43.8	.7	-95.2	-44.03	-13	-31.03	V
2.54656	65.88	Pk	32.5	-43.8	.7	-95.2	-39.92	-13	-26.92	H
3.39461	51.18	Pk	32.3	-40.8	.6	-95.2	-51.92	-13	-38.92	H
3.3957	50.47	Pk	32.3	-40.8	.6	-95.2	-52.63	-13	-39.63	V
High Channel, 848.8 MHz										
1.69761	66.89	Pk	28.5	-44.4	.7	-95.2	-43.51	-13	-30.51	V
1.69773	68.25	Pk	28.5	-44.4	.7	-95.2	-42.15	-13	-29.15	H
2.54644	65.91	Pk	32.5	-43.8	.7	-95.2	-39.89	-13	-26.89	H
2.54654	61.89	Pk	32.5	-43.8	.7	-95.2	-43.91	-13	-30.91	V
3.39452	51.01	Pk	32.3	-40.8	.6	-95.2	-52.09	-13	-39.09	H
3.3952	50.68	Pk	32.3	-40.9	.6	-95.2	-52.52	-13	-39.52	V

10.3.2. GSM 1900

GPRS MODE

Project #:	13573777
Date:	04/1/2021
Test Engineer:	31300
Configuration:	EUT Only
Mode:	GSM1900 GPRS
Chamber #:	Chamber P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.69966	52.06	Pk	33	-40	-95.2	-50.14	-13	-37.14	H
7.40254	48.08	Pk	35.5	-36.7	-95.2	-48.32	-13	-35.32	H
5.55089	50.54	Pk	34.2	-38.6	-95.2	-49.06	-13	-36.06	H
3.69993	51.21	Pk	33	-39.9	-95.2	-50.89	-13	-37.89	V
7.39872	47.73	Pk	35.5	-36.7	-95.2	-48.67	-13	-35.67	V
5.55046	53.04	Pk	34.2	-38.6	-95.2	-46.56	-13	-33.56	V
Mid Channel, 1880MHz									
3.66981	51.82	Pk	33	-40.1	-95.2	-50.48	-13	-37.48	V
5.64021	55.22	Pk	34.3	-38.3	-95.2	-43.98	-13	-30.98	V
7.51957	47.58	Pk	35.6	-36.4	-95.2	-48.42	-13	-35.42	V
3.66877	51.96	Pk	33	-40.1	-95.2	-50.34	-13	-37.34	H
5.64004	51.57	Pk	34.3	-38.2	-95.2	-47.53	-13	-34.53	H
7.51975	47.37	Pk	35.6	-36.4	-95.2	-48.63	-13	-35.63	H
High Channel, 1909.8MHz									
7.63988	47.19	Pk	35.7	-36	-95.2	-48.31	-13	-35.31	V
3.82039	51.68	Pk	33.3	-40	-95.2	-50.22	-13	-37.22	V
5.72907	55.01	Pk	34.3	-38.2	-95.2	-44.09	-13	-31.09	V
3.821	51	Pk	33.3	-40	-95.2	-50.9	-13	-37.9	H
7.63834	48.32	Pk	35.7	-35.9	-95.2	-47.08	-13	-34.08	H
5.72915	50.1	Pk	34.3	-38.2	-95.2	-49.0	-13	-36.0	H

EGPRS MODE

Project #:	13573777
Date:	04/1/2021
Test Engineer:	31300
Configuration:	EUT Only
Mode:	GSM1900 EGPRS
Chamber #:	Chamber P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.69876	51.1	Pk	33	-40	-95.2	-51.1	-13	-38.1	V
7.40091	47.62	Pk	35.5	-36.7	-95.2	-48.78	-13	-35.78	V
5.55049	56.79	Pk	34.2	-38.6	-95.2	-42.81	-13	-29.81	V
3.69843	51.96	Pk	33	-40	-95.2	-50.24	-13	-37.24	H
7.39883	47.73	Pk	35.5	-36.7	-95.2	-48.67	-13	-35.67	H
5.55047	46.41	Pk	34.2	-38.6	-95.2	-53.19	-13	-40.19	H
Mid Channel, 1880MHz									
3.76073	50.76	Pk	33.3	-39.8	-95.2	-50.94	-13	-37.94	H
7.51966	48.1	Pk	35.6	-36.4	-95.2	-47.9	-13	-34.9	H
5.63984	54.99	Pk	34.3	-38.3	-95.2	-44.21	-13	-31.21	H
3.76056	50.73	Pk	33.3	-39.8	-95.2	-50.97	-13	-37.97	V
7.52044	48.7	Pk	35.6	-36.4	-95.2	-47.3	-13	-34.3	V
5.63989	57.38	Pk	34.3	-38.3	-95.2	-41.82	-13	-28.82	V
High Channel, 1909.8MHz									
3.82015	51.17	Pk	33.3	-40	-95.2	-50.73	-13	-37.73	H
7.63872	47.34	Pk	35.7	-35.9	-95.2	-48.06	-13	-35.06	H
5.7292	52.77	Pk	34.3	-38.2	-95.2	-46.33	-13	-33.33	H
3.81947	50.88	Pk	33.3	-40	-95.2	-51.02	-13	-38.02	V
7.63876	48.15	Pk	35.7	-35.9	-95.2	-47.25	-13	-34.25	V
5.72954	55.47	Pk	34.3	-38.2	-95.2	-43.63	-13	-30.63	V

10.3.3. CDMA BC10

1xRTT MODE

Project #:	13573777
Date:	04/16/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	1xRTT BC10
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 817.25MHz										
1.62975	41.33	Pk	29.1	-30.8	.7	-95.2	-54.87	-13	-41.87	V
1.63395	40.68	Pk	29	-30.8	.7	-95.2	-55.62	-13	-42.62	H
2.5131	48.99	Pk	33.5	-29.6	.7	-95.2	-41.61	-13	-28.61	V
2.51899	42.43	Pk	33.5	-29.6	.8	-95.2	-48.07	-13	-35.07	H
3.25219	38.78	Pk	33.1	-28.4	.4	-95.2	-51.32	-13	-38.32	V
3.25474	38.96	Pk	33.1	-28.3	.4	-95.2	-51.04	-13	-38.04	H
Mid Channel, 820MHz										
1.63557	40.39	Pk	29	-30.8	.7	-95.2	-55.91	-13	-42.91	V
1.64398	40.34	Pk	29.1	-30.8	.7	-95.2	-55.86	-13	-42.86	H
2.46061	44.44	Pk	33.1	-29.8	.5	-95.2	-46.96	-13	-33.96	V
2.46412	39.89	Pk	33.2	-29.7	.5	-95.2	-51.31	-13	-38.31	H
3.29147	38.23	Pk	33	-28.2	.8	-95.2	-51.37	-13	-38.37	H
3.29312	38.88	Pk	33	-28.3	.8	-95.2	-50.82	-13	-37.82	V
High Channel, 822.75MHz										
1.6431	41.47	Pk	29.1	-30.8	.7	-95.2	-54.73	-13	-41.73	H
1.6454	41.31	Pk	29.1	-30.8	.7	-95.2	-54.89	-13	-41.89	V
2.46824	41.98	Pk	33.3	-29.8	.5	-95.2	-49.22	-13	-36.22	H
2.46872	44.7	Pk	33.3	-29.8	.5	-95.2	-46.5	-13	-33.5	V
3.27206	38.23	Pk	33	-28.5	.7	-95.2	-51.77	-13	-38.77	V
3.29111	38.96	Pk	33	-28.2	.8	-95.2	-50.64	-13	-37.64	H

1xEV-DO REV A MODE

Project #:	13573777
Date:	04/20/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC10
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 817.25MHz										
1.62973	37.7	Pk	25	-27.9	.7	-95.2	-59.7	-13	-46.7	V
1.64704	38.35	Pk	24.9	-27.8	.8	-95.2	-58.95	-13	-45.95	H
2.45156	35.97	Pk	28.8	-26.7	.5	-95.2	-56.63	-13	-43.63	H
2.45204	40.67	Pk	28.8	-26.7	.5	-95.2	-51.93	-13	-38.93	V
3.26898	34.53	Pk	31.3	-25.5	.6	-95.2	-54.27	-13	-41.27	V
3.27338	35.56	Pk	31.3	-25.5	.7	-95.2	-53.14	-13	-40.14	H
Mid Channel, 820MHz										
1.63902	36.96	Pk	25	-27.8	.7	-95.2	-60.34	-13	-47.34	V
1.64	36.38	Pk	25	-27.8	.7	-95.2	-60.92	-13	-47.92	H
2.45889	35.6	Pk	28.9	-26.6	.5	-95.2	-56.8	-13	-43.8	H
2.46116	44.59	Pk	28.9	-26.6	.5	-95.2	-47.81	-13	-34.81	V
3.28413	35.66	Pk	31.3	-25.4	.8	-95.2	-52.84	-13	-39.84	H
3.29	36.04	Pk	31.2	-25.4	.8	-95.2	-52.56	-13	-39.56	V
High Channel, 822.75MHz										
1.63902	36.86	Pk	25	-27.8	.7	-95.2	-60.44	-13	-47.44	V
1.6444	37.19	Pk	25	-27.8	.7	-95.2	-60.11	-13	-47.11	H
2.46769	37.49	Pk	28.9	-26.7	.5	-95.2	-55.01	-13	-42.01	H
2.46942	42.53	Pk	28.9	-26.7	.5	-95.2	-49.97	-13	-36.97	V
3.28022	36.93	Pk	31.4	-25.3	.8	-95.2	-51.37	-13	-38.37	H
3.28462	35.36	Pk	31.3	-25.3	.8	-95.2	-53.04	-13	-40.04	V

10.3.4. CDMA BC0

1xRTT MODE

Project #:	13573777
Date:	04/16/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	1xRTT BC0
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.7MHz										
1.63768	40.37	Pk	29	-30.8	.7	-95.2	-55.93	-13	-42.93	V
1.65533	41.38	Pk	29	-30.7	.8	-95.2	-54.72	-13	-41.72	H
2.47311	49.4	Pk	33.3	-29.7	.5	-95.2	-41.7	-13	-28.7	V
2.47345	44.69	Pk	33.3	-29.7	.5	-95.2	-46.41	-13	-33.41	H
3.27732	38.62	Pk	33.1	-28.4	.8	-95.2	-51.08	-13	-38.08	H
3.28911	38.82	Pk	33	-28.2	.9	-95.2	-50.68	-13	-37.68	V
Mid Channel, 836.52MHz										
1.66174	41.01	Pk	29	-30.7	.8	-95.2	-55.09	-13	-42.09	V
1.67625	41.88	Pk	29	-30.6	.7	-95.2	-54.22	-13	-41.22	H
2.509	45.66	Pk	33.5	-29.7	.7	-95.2	-45.04	-13	-32.04	H
2.5105	48.02	Pk	33.5	-29.7	.7	-95.2	-42.68	-13	-29.68	V
3.35564	39.33	Pk	33	-28.5	.6	-95.2	-50.77	-13	-37.77	H
3.36739	38.95	Pk	33	-28.4	.6	-95.2	-51.05	-13	-38.05	V
High Channel, 848.31MHz										
1.67388	40.47	Pk	29	-30.6	.7	-95.2	-55.63	-13	-42.63	V
1.6866	40.96	Pk	29.1	-30.6	.7	-95.2	-55.04	-13	-42.04	H
2.54422	45.45	Pk	33.3	-29.4	.6	-95.2	-45.25	-13	-32.25	V
2.54499	43.62	Pk	33.3	-29.4	.6	-95.2	-47.08	-13	-34.08	H
3.39638	38.33	Pk	33	-28.4	.6	-95.2	-51.67	-13	-38.67	H
3.40342	38.25	Pk	33	-28.2	.6	-95.2	-51.55	-13	-38.55	V

1xEV-DO REV A MODE

Project #:	13573777
Date:	04/20/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC0
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 824.7MHz										
1.65032	57.61	Pk	28.4	-45.1	.8	-95.2	-53.49	-13	-40.49	V
1.65389	55.69	Pk	28.4	-45.1	.8	-95.2	-55.41	-13	-42.41	H
2.47485	64.63	Pk	32.4	-44.4	.5	-95.2	-42.07	-13	-29.07	H
2.47503	66.51	Pk	32.4	-44.4	.5	-95.2	-40.19	-13	-27.19	V
4.12353	52.72	Pk	33.4	-41.5	.6	-95.2	-49.98	-13	-36.98	H
4.12721	50.57	Pk	33.3	-41.5	.6	-95.2	-52.23	-13	-39.23	V
Mid Channel, 836.52MHz										
1.67249	59.61	Pk	28.4	-45.1	.7	-95.2	-51.59	-13	-38.59	V
1.67353	58.01	Pk	28.4	-45.1	.7	-95.2	-53.19	-13	-40.19	H
2.50968	60.64	Pk	32.4	-44.4	.7	-95.2	-45.86	-13	-32.86	H
2.51069	65.18	Pk	32.4	-44.4	.7	-95.2	-41.32	-13	-28.32	V
3.32825	52.48	Pk	32.4	-42.4	.6	-95.2	-52.12	-13	-39.12	V
3.33531	52.3	Pk	32.5	-42.3	.5	-95.2	-52.2	-13	-39.2	H
High Channel, 848.31MHz										
1.69681	56.82	Pk	28.5	-45.1	.6	-95.2	-54.38	-13	-41.38	V
1.69736	55.54	Pk	28.5	-45.1	.6	-95.2	-55.66	-13	-42.66	H
2.54616	61.55	Pk	32.1	-44.2	.6	-95.2	-45.15	-13	-32.15	H
2.54617	66.81	Pk	32.1	-44.2	.6	-95.2	-39.89	-13	-26.89	V
3.36685	52.08	Pk	32.5	-42.1	.6	-95.2	-52.12	-13	-39.12	V
3.38984	51.58	Pk	32.5	-42.2	.6	-95.2	-52.72	-13	-39.72	H

10.3.5. CDMA BC1

1xRTT MODE

Project #:	13573777
Date:	04/16/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	1xRTT BC1
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.76021	51.41	Pk	33.3	-41.3	.6	-95.2	-51.19	-13	-38.19	V
3.78577	51.72	Pk	33.3	-41.5	.7	-95.2	-50.98	-13	-37.98	H
5.54206	49.83	Pk	34.3	-40.5	.7	-95.2	-50.87	-13	-37.87	H
5.55425	51.78	Pk	34.3	-40.4	.6	-95.2	-48.92	-13	-35.92	V
7.3978	48.26	Pk	35.6	-38.5	.5	-95.2	-49.34	-13	-36.34	H
7.41515	47.86	Pk	35.7	-38.4	.4	-95.2	-49.64	-13	-36.64	V
Mid Channel, 1880MHz										
3.71364	48.91	Pk	33.1	-41.5	.7	-95.2	-53.99	-13	-40.99	V
3.75195	48.83	Pk	33.3	-41.3	.6	-95.2	-53.77	-13	-40.77	H
5.63908	49.03	Pk	34.3	-40.2	.6	-95.2	-51.47	-13	-38.47	H
5.64005	50.19	Pk	34.3	-40.1	.6	-95.2	-50.21	-13	-37.21	V
7.51749	46.15	Pk	35.6	-38.4	.4	-95.2	-51.45	-13	-38.45	V
7.52137	46.17	Pk	35.6	-38.4	.4	-95.2	-51.43	-13	-38.43	H
High Channel, 1908.75MHz										
3.80334	50.49	Pk	33.3	-41.4	.6	-95.2	-52.21	-13	-39.21	V
3.80577	49.35	Pk	33.3	-41.4	.6	-95.2	-53.35	-13	-40.35	H
5.70939	48.71	Pk	34.3	-40	.7	-95.2	-51.49	-13	-38.49	V
5.72636	48.21	Pk	34.3	-39.9	.6	-95.2	-51.99	-13	-38.99	H
7.62707	46.78	Pk	35.7	-38.3	.4	-95.2	-50.62	-13	-37.62	H
7.63725	46.83	Pk	35.7	-38.3	.4	-95.2	-50.57	-13	-37.57	V

1xEV-DO REV A MODE

Project #:	13573777
Date:	06/1/2021
Test Engineer:	30606
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC1
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.69952	38.08	Pk	33.4	-25.5	.7	-95.2	-48.52	-13	-35.52	V
3.7067	37.93	Pk	33.4	-25.5	.7	-95.2	-48.67	-13	-35.67	H
5.54009	35.21	Pk	34.9	-23	.7	-95.2	-47.39	-13	-34.39	H
5.55331	36.15	Pk	35	-23.1	.6	-95.2	-46.55	-13	-33.55	V
7.38345	33.61	Pk	36.2	-20.3	.6	-95.2	-45.09	-13	-32.09	V
7.4209	34.25	Pk	36.2	-20.5	.4	-95.2	-44.85	-13	-31.85	H
Mid Channel, 1880MHz										
3.76475	39.18	Pk	33.7	-25.8	.6	-95.2	-47.52	-13	-34.52	H
3.76481	38.26	Pk	33.7	-25.8	.6	-95.2	-48.44	-13	-35.44	V
5.6373	35.87	Pk	35.1	-23.4	.6	-95.2	-47.03	-13	-34.03	V
5.66284	36.86	Pk	35.2	-23	.4	-95.2	-45.74	-13	-32.74	H
7.4955	34.2	Pk	36.1	-20.3	.4	-95.2	-44.8	-13	-31.8	V
7.50668	34.46	Pk	36	-20.1	.4	-95.2	-44.44	-13	-31.44	H
High Channel, 1908.75MHz										
3.82066	38.58	Pk	33.7	-25.7	.5	-95.2	-48.12	-13	-35.12	V
3.82546	38.46	Pk	33.7	-25.7	.5	-95.2	-48.24	-13	-35.24	H
5.70446	35.61	Pk	35.2	-23.5	.6	-95.2	-47.29	-13	-34.29	V
5.71026	36.09	Pk	35.2	-23.5	.7	-95.2	-46.71	-13	-33.71	H
7.63285	34.87	Pk	35.9	-19.6	.4	-95.2	-43.63	-13	-30.63	H
7.64322	34.45	Pk	35.9	-19.6	.4	-95.2	-44.05	-13	-31.05	V

10.3.6. WCDMA BAND 5

REL 99 MODE

Project #:	13573777
Date:	04/14/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	REL 99 Band 5
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.64105	55.26	Pk	28.4	-45.1	.7	-95.2	-55.94	-13	-42.94	H
1.64868	56.04	Pk	28.4	-45.1	.7	-95.2	-55.16	-13	-42.16	V
2.47542	58.13	Pk	32.4	-44.4	.5	-95.2	-48.57	-13	-35.57	V
2.48286	59.24	Pk	32.4	-44.3	.5	-95.2	-47.36	-13	-34.36	H
3.32065	52.13	Pk	32.5	-42.4	.6	-95.2	-52.37	-13	-39.37	H
3.3262	52.16	Pk	32.4	-42.4	.6	-95.2	-52.44	-13	-39.44	V
Mid Channel, 836.6MHz										
1.63847	55.47	Pk	28.3	-45.1	.7	-95.2	-55.83	-13	-42.83	V
1.64084	55.34	Pk	28.4	-45.1	.7	-95.2	-55.86	-13	-42.86	H
2.50579	57.46	Pk	32.5	-44.3	.7	-95.2	-48.84	-13	-35.84	H
2.50628	59.58	Pk	32.5	-44.4	.7	-95.2	-46.82	-13	-33.82	V
3.28723	52.17	Pk	32.5	-42.6	.9	-95.2	-52.23	-13	-39.23	V
3.29934	52.12	Pk	32.5	-42.4	.8	-95.2	-52.18	-13	-39.18	H
High Channel, 846.6MHz										
1.67726	55.16	Pk	28.4	-45.1	.7	-95.2	-56.04	-13	-43.04	V
1.69112	55.11	Pk	28.5	-45.1	.7	-95.2	-55.99	-13	-42.99	H
2.54199	60.15	Pk	32.1	-44.3	.7	-95.2	-46.55	-13	-33.55	V
2.54224	57.58	Pk	32.1	-44.3	.6	-95.2	-49.22	-13	-36.22	H
3.38089	52	Pk	32.5	-42.1	.6	-95.2	-52.2	-13	-39.2	V
3.38659	51.73	Pk	32.5	-42.2	.6	-95.2	-52.57	-13	-39.57	H

HSDPA MODE

Project #:	1357377
Date:	04/13/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	HSDPA Band 5
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.64391	54.46	Pk	28.4	-45.1	.7	-95.2	-56.74	-13	-43.74	V
1.6532	53.56	Pk	28.4	-45.1	.8	-95.2	-57.54	-13	-44.54	H
2.45498	53.29	Pk	32.1	-44.3	.5	-95.2	-53.61	-13	-40.61	V
2.48138	54.08	Pk	32.4	-44.3	.5	-95.2	-52.52	-13	-39.52	H
3.31053	50.01	Pk	32.4	-42.3	.7	-95.2	-54.39	-13	-41.39	H
3.31493	49.94	Pk	32.5	-42.4	.6	-95.2	-54.56	-13	-41.56	V
Mid Channel, 836.6MHz										
1.67474	56.1	Pk	28.4	-45.1	.7	-95.2	-55.1	-13	-42.1	H
1.68611	54.95	Pk	28.5	-45.1	.7	-95.2	-56.15	-13	-43.15	V
2.50653	56.04	Pk	32.5	-44.4	.7	-95.2	-50.36	-13	-37.36	H
2.50718	57.98	Pk	32.5	-44.4	.7	-95.2	-48.42	-13	-35.42	V
3.35494	51.52	Pk	32.5	-42.2	.6	-95.2	-52.78	-13	-39.78	V
3.35872	51.76	Pk	32.5	-42.1	.6	-95.2	-52.44	-13	-39.44	H
High Channel, 846.6MHz										
1.67821	55.42	Pk	28.4	-45.1	.7	-95.2	-55.78	-13	-42.78	V
1.688	55.45	Pk	28.5	-45.1	.7	-95.2	-55.65	-13	-42.65	H
2.54208	59.97	Pk	32.1	-44.3	.7	-95.2	-46.73	-13	-33.73	V
2.54299	58.37	Pk	32.1	-44.2	.6	-95.2	-48.33	-13	-35.33	H
3.38197	51.58	Pk	32.5	-42.1	.6	-95.2	-52.62	-13	-39.62	V
3.38507	51.85	Pk	32.5	-42.2	.6	-95.2	-52.45	-13	-39.45	H

10.3.7. WCDMA BAND 2

REL 99 MODE

Project #:	13573777
Date:	04/9/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.718	51.33	Pk	33.1	-41.6	.7	-95.2	-51.67	-13	-38.67	V
3.73164	50.7	Pk	33.2	-41.5	.7	-95.2	-52.1	-13	-39.1	H
5.55352	55.13	Pk	34.4	-40.4	.6	-95.2	-45.47	-13	-32.47	H
5.55785	50.92	Pk	34.3	-40.3	.6	-95.2	-49.68	-13	-36.68	V
8.41412	48.53	Pk	35.7	-36.8	.9	-95.2	-46.87	-13	-33.87	H
8.42755	47.69	Pk	35.8	-36.6	1	-95.2	-47.31	-13	-34.31	V
Mid Channel, 1880MHz										
3.77154	50.81	Pk	33.2	-41.5	.6	-95.2	-52.09	-13	-39.09	V
3.7778	51.12	Pk	33.2	-41.5	.6	-95.2	-51.78	-13	-38.78	H
5.55372	54.11	Pk	34.4	-40.4	.6	-95.2	-46.49	-13	-33.49	V
5.55987	52.21	Pk	34.3	-40.3	.6	-95.2	-48.39	-13	-35.39	H
7.46558	48.12	Pk	35.5	-38.3	.4	-95.2	-49.48	-13	-36.48	V
7.47467	47.95	Pk	35.6	-38.3	.4	-95.2	-49.55	-13	-36.55	H
High Channel, 1907.6MHz										
3.85296	50.7	Pk	33.4	-41.4	.5	-95.2	-52.0	-13	-39.0	V
3.87426	51.04	Pk	33.5	-41.5	.7	-95.2	-51.46	-13	-38.46	H
5.71902	56.81	Pk	34.4	-40	.6	-95.2	-43.39	-13	-30.39	H
5.71991	56.9	Pk	34.4	-40	.6	-95.2	-43.3	-13	-30.3	V
7.58498	48.69	Pk	35.7	-38.2	.5	-95.2	-48.51	-13	-35.51	V
7.58859	48.86	Pk	35.7	-38.3	.5	-95.2	-48.44	-13	-35.44	H

HSDPA MODE

Project #:	13573777
Date:	04/14/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70701	37.37	Pk	30.3	-25.2	.7	-95.2	-52.03	-13	-39.03	H
3.70934	38.32	Pk	30.4	-25.1	.7	-95.2	-50.88	-13	-37.88	V
5.55459	40.22	Pk	33.3	-23.2	.6	-95.2	-44.28	-13	-31.28	V
5.5835	36.56	Pk	33.2	-23.4	.3	-95.2	-48.54	-13	-35.54	H
7.33091	35.14	Pk	37	-21	.4	-95.2	-43.66	-13	-30.66	V
7.39638	35.23	Pk	36.9	-21.2	.5	-95.2	-43.77	-13	-30.77	H
Mid Channel, 1880MHz										
3.75486	36.77	Pk	30.6	-25.3	.6	-95.2	-52.53	-13	-39.53	H
3.76165	36.97	Pk	30.7	-25.3	.6	-95.2	-52.23	-13	-39.23	V
5.61387	35.14	Pk	33.2	-23.4	.6	-95.2	-49.66	-13	-36.66	V
5.65314	35.37	Pk	33.1	-23.3	.5	-95.2	-49.53	-13	-36.53	H
7.52282	33.22	Pk	36.8	-21.2	.4	-95.2	-45.98	-13	-32.98	H
7.56016	33.7	Pk	36.8	-21.7	.4	-95.2	-46.0	-13	-33.0	V
High Channel, 1907.6MHz										
3.83486	36.01	Pk	31	-24.9	.5	-95.2	-52.59	-13	-39.59	V
3.84117	36.45	Pk	31.1	-24.9	.5	-95.2	-52.05	-13	-39.05	H
5.72539	35.32	Pk	33	-22.7	.6	-95.2	-48.98	-13	-35.98	H
5.72539	36.64	Pk	33	-22.7	.6	-95.2	-47.66	-13	-34.66	V
7.65034	33.8	Pk	36.9	-20.8	.4	-95.2	-44.9	-13	-31.9	H
7.65665	34.47	Pk	37	-20.8	.5	-95.2	-44.03	-13	-31.03	V

10.3.8. WCDMA BAND 4

REL 99 MODE

Project #:	13573777
Date:	04/13/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.48459	51.18	Pk	32.7	-41	-95.2	-52.32	-13	-39.32	V
3.49287	51.17	Pk	32.7	-41.2	-95.2	-52.53	-13	-39.53	H
5.14057	54.9	Pk	34.2	-40.8	-95.2	-46.9	-13	-33.9	V
5.14076	62.1	Pk	34.2	-40.8	-95.2	-39.7	-13	-26.7	H
6.84648	48.38	Pk	35.4	-38.1	-95.2	-49.52	-13	-36.52	H
6.85091	47.97	Pk	35.4	-38.2	-95.2	-50.03	-13	-37.03	V
Mid Channel, 1732.6MHz									
3.46183	51.27	Pk	32.6	-40.8	-95.2	-52.13	-13	-39.13	V
3.47714	51.64	Pk	32.6	-40.9	-95.2	-51.86	-13	-38.86	H
5.17996	50.41	Pk	34.2	-41	-95.2	-51.59	-13	-38.59	V
5.20151	57.12	Pk	34.1	-40.9	-95.2	-44.88	-13	-31.88	H
6.92341	48.33	Pk	35.5	-38.3	-95.2	-49.67	-13	-36.67	V
6.92514	48.71	Pk	35.6	-38.3	-95.2	-49.19	-13	-36.19	H
High Channel, 1752.6MHz									
3.47391	35.19	Pk	30.3	-24.5	-95.2	-54.21	-13	-41.21	V
3.52031	34.32	Pk	30.2	-24.7	-95.2	-55.38	-13	-42.38	H
5.24016	34.28	Pk	33.5	-24	-95.2	-51.42	-13	-38.42	V
5.24484	34.61	Pk	33.6	-24.1	-95.2	-51.09	-13	-38.09	H
7.20188	34.81	Pk	37.1	-19.7	-95.2	-42.99	-13	-29.99	V
7.20984	32.77	Pk	37.1	-19.6	-95.2	-44.93	-13	-31.93	H

HSDPA MODE

Project #:	13573777
Date:	04/13/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber Q

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.43008	51.96	Pk	32.6	-41.2	-95.2	-51.84	-13	-38.84	V
3.45125	51.49	Pk	32.7	-40.9	-95.2	-51.91	-13	-38.91	H
5.13091	51.06	Pk	34.2	-40.7	-95.2	-50.64	-13	-37.64	V
5.14026	61.51	Pk	34.2	-40.8	-95.2	-40.29	-13	-27.29	H
6.85663	48.17	Pk	35.5	-38.2	-95.2	-49.73	-13	-36.73	H
6.86635	47.9	Pk	35.5	-38.2	-95.2	-50.0	-13	-37.0	V
Mid Channel, 1732.6MHz									
3.46485	52.58	Pk	32.6	-40.8	-95.2	-50.82	-13	-37.82	V
3.46855	51.34	Pk	32.6	-40.8	-95.2	-52.06	-13	-39.06	H
5.20015	55.18	Pk	34.2	-40.9	-95.2	-46.72	-13	-33.72	V
5.20073	59.59	Pk	34.1	-40.9	-95.2	-42.41	-13	-29.41	H
6.92947	48.56	Pk	35.6	-38.3	-95.2	-49.34	-13	-36.34	H
6.93349	49.07	Pk	35.7	-38.3	-95.2	-48.73	-13	-35.73	V
High Channel, 1752.6MHz									
3.49772	51.25	Pk	32.7	-41	-95.2	-52.25	-13	-39.25	V
3.52608	51.26	Pk	32.8	-40.9	-95.2	-52.04	-13	-39.04	H
5.26116	53.51	Pk	34.2	-41	-95.2	-48.49	-13	-35.49	V
5.26151	59.53	Pk	34.2	-41	-95.2	-42.47	-13	-29.47	H
6.96785	47.82	Pk	35.7	-38.2	-95.2	-49.88	-13	-36.88	H
6.98101	48.3	Pk	35.5	-38.2	-95.2	-49.6	-13	-36.6	V

10.4. FIELD STRENGTH OF SPURIOUS RADIATION, Ant 3

10.4.1. GSM 1900

GPRS MODE

Project #:	13573777
Date:	04/2/2021
Test Engineer:	31300
Configuration:	EUT Only
Mode:	GSM1900 GPRS
Chamber #:	Chamber P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.70125	49.14	Pk	33	-40	-95.2	-53.06	-13	-40.06	H
5.55047	45.7	Pk	34.2	-38.6	-95.2	-53.9	-13	-40.9	H
7.40203	43.18	Pk	35.5	-36.7	-95.2	-53.22	-13	-40.22	H
3.70078	47.08	Pk	33	-40	-95.2	-55.12	-13	-42.12	V
5.55047	48.18	Pk	34.2	-38.6	-95.2	-51.42	-13	-38.42	V
7.40156	42.21	Pk	35.5	-36.7	-95.2	-54.19	-13	-41.19	V
Mid Channel, 1880MHz									
3.75984	46	Pk	33.3	-39.8	-95.2	-55.7	-13	-42.7	H
5.63906	45.7	Pk	34.3	-38.4	-95.2	-53.6	-13	-40.6	H
7.52016	42.93	Pk	35.6	-36.4	-95.2	-53.07	-13	-40.07	H
3.75984	46.39	Pk	33.3	-39.8	-95.2	-55.31	-13	-42.31	V
5.63906	44.48	Pk	34.3	-38.4	-95.2	-54.82	-13	-41.82	V
7.52016	41.99	Pk	35.6	-36.4	-95.2	-54.01	-13	-41.01	V
High Channel, 1909.8MHz									
3.81938	46.35	Pk	33.3	-40	-95.2	-55.55	-13	-42.55	H
5.72906	45.44	Pk	34.3	-38.2	-95.2	-53.66	-13	-40.66	H
7.63875	42.75	Pk	35.7	-35.9	-95.2	-52.65	-13	-39.65	H
3.81938	44.95	Pk	33.3	-40	-95.2	-56.95	-13	-43.95	V
5.72906	47.52	Pk	34.3	-38.2	-95.2	-51.58	-13	-38.58	V
7.63969	42.64	Pk	35.7	-36	-95.2	-52.86	-13	-39.86	V

EGPRS MODE

Project #:	13573777
Date:	04/2/2021
Test Engineer:	31300
Configuration:	EUT Only
Mode:	GSM1900 EGPRS
Chamber #:	Chamber P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.70031	46.13	Pk	33	-39.9	-95.2	-55.97	-13	-42.97	H
5.55047	44.8	Pk	34.2	-38.6	-95.2	-54.8	-13	-41.8	H
7.39969	43.4	Pk	35.5	-36.7	-95.2	-53.0	-13	-40.0	H
3.70031	47.23	Pk	33	-39.9	-95.2	-54.87	-13	-41.87	V
5.55047	45.98	Pk	34.2	-38.6	-95.2	-53.62	-13	-40.62	V
7.39969	41.97	Pk	35.5	-36.7	-95.2	-54.43	-13	-41.43	V
Mid Channel, 1880MHz									
3.76359	47.56	Pk	33.3	-39.7	-95.2	-54.04	-13	-41.04	H
5.64047	46.03	Pk	34.3	-38.3	-95.2	-53.17	-13	-40.17	H
7.52203	43.47	Pk	35.6	-36.4	-95.2	-52.53	-13	-39.53	H
3.76359	45.22	Pk	33.3	-39.7	-95.2	-56.38	-13	-43.38	V
5.63953	48.32	Pk	34.3	-38.3	-95.2	-50.88	-13	-37.88	V
7.52203	42.91	Pk	35.6	-36.4	-95.2	-53.09	-13	-40.09	V
High Channel, 1909.8MHz									
3.81938	46.51	Pk	33.3	-40	-95.2	-55.39	-13	-42.39	H
5.72906	45.81	Pk	34.3	-38.2	-95.2	-53.29	-13	-40.29	H
7.63875	43.04	Pk	35.7	-35.9	-95.2	-52.36	-13	-39.36	H
3.81938	45.53	Pk	33.3	-40	-95.2	-56.37	-13	-43.37	V
5.72953	45.35	Pk	34.3	-38.2	-95.2	-53.75	-13	-40.75	V
7.63875	41.52	Pk	35.7	-35.9	-95.2	-53.88	-13	-40.88	V

10.4.2. WCDMA BAND 2

REL 99 MODE

Project #:	13573777
Date:	04/15/2021
Test Engineer:	16069
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.69922	52.9	Pk	33.5	-43	.7	-95.2	-51.1	-13	-38.1	H
3.70741	52.78	Pk	33.6	-43	.7	-95.2	-51.12	-13	-38.12	V
5.54286	51.21	Pk	34.4	-41.7	.7	-95.2	-50.59	-13	-37.59	H
5.56103	52.62	Pk	34.4	-41.7	.5	-95.2	-49.38	-13	-36.38	V
7.40007	49.83	Pk	35.7	-39.7	.5	-95.2	-48.87	-13	-35.87	V
7.42075	50.01	Pk	35.8	-39.7	.4	-95.2	-48.69	-13	-35.69	H
Mid Channel, 1880MHz										
3.7417	53.15	Pk	33.6	-43	.6	-95.2	-50.85	-13	-37.85	H
3.76533	52.69	Pk	33.5	-42.9	.6	-95.2	-51.31	-13	-38.31	V
5.6193	52.05	Pk	34.5	-41.4	.6	-95.2	-49.45	-13	-36.45	H
5.6436	51.41	Pk	34.7	-41.4	.6	-95.2	-49.89	-13	-36.89	V
7.51826	48.94	Pk	35.7	-39.4	.4	-95.2	-49.56	-13	-36.56	H
7.52428	49.51	Pk	35.8	-39.3	.4	-95.2	-48.79	-13	-35.79	V
High Channel, 1907.6MHz										
3.80568	53.16	Pk	33.5	-42.8	.6	-95.2	-50.74	-13	-37.74	V
3.82364	52.8	Pk	33.5	-42.9	.5	-95.2	-51.3	-13	-38.3	H
5.71971	51.19	Pk	34.7	-41.2	.6	-95.2	-49.91	-13	-36.91	H
5.72622	51.07	Pk	34.6	-41.3	.6	-95.2	-50.23	-13	-37.23	V
7.63052	49.04	Pk	35.9	-39.2	.4	-95.2	-49.06	-13	-36.06	H
7.63502	48.86	Pk	35.8	-39.1	.4	-95.2	-49.24	-13	-36.24	V

HSDPA MODE

Project #:	13573777
Date:	04/14/2021
Test Engineer:	43575
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70671	52.62	Pk	33.5	-43	.7	-95.2	-51.38	-13	-38.38	V
3.72058	53.22	Pk	33.5	-42.9	.7	-95.2	-50.68	-13	-37.68	H
5.55585	51.56	Pk	34.4	-41.7	.6	-95.2	-50.34	-13	-37.34	V
5.56291	51.89	Pk	34.4	-41.7	.5	-95.2	-50.11	-13	-37.11	H
7.40464	50.24	Pk	35.7	-39.7	.4	-95.2	-48.56	-13	-35.56	V
7.40678	49.7	Pk	35.7	-39.7	.4	-95.2	-49.1	-13	-36.1	H
Mid Channel, 1880MHz										
3.7473	53.71	Pk	33.6	-43	.6	-95.2	-50.29	-13	-37.29	V
3.7612	52.94	Pk	33.5	-42.8	.6	-95.2	-50.96	-13	-37.96	H
5.64991	50.92	Pk	34.6	-41.4	.5	-95.2	-50.58	-13	-37.58	V
5.65368	50.68	Pk	34.6	-41.4	.5	-95.2	-50.82	-13	-37.82	H
7.5114	49.5	Pk	35.8	-39.5	.4	-95.2	-49.0	-13	-36.0	H
7.5146	49.1	Pk	35.7	-39.5	.4	-95.2	-49.5	-13	-36.5	V
High Channel, 1907.6MHz										
3.78849	53.02	Pk	33.5	-42.7	.7	-95.2	-50.68	-13	-37.68	H
3.80461	52.89	Pk	33.5	-42.8	.6	-95.2	-51.01	-13	-38.01	V
5.70806	50.52	Pk	34.6	-41.2	.7	-95.2	-50.58	-13	-37.58	H
5.72067	51.67	Pk	34.7	-41.2	.6	-95.2	-49.43	-13	-36.43	V
7.62889	48.65	Pk	35.9	-39.2	.4	-95.2	-49.45	-13	-36.45	V
7.63569	48.73	Pk	35.8	-39.1	.4	-95.2	-49.37	-13	-36.37	H

10.4.3. WCDMA BAND 4

REL 99 MODE

Project #:	13573777
Date:	04/14/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.42188	34.06	Pk	30.6	-24.7	-95.2	-55.24	-13	-42.24	V
3.42281	35.17	Pk	30.5	-24.6	-95.2	-54.13	-13	-41.13	H
5.09672	34.43	Pk	33.9	-21.7	-95.2	-48.57	-13	-35.57	V
5.13938	34.96	Pk	33.8	-22.4	-95.2	-48.84	-13	-35.84	H
6.78094	33.37	Pk	35.9	-22.1	-95.2	-48.03	-13	-35.03	V
6.8325	33.69	Pk	36	-21.6	-95.2	-47.11	-13	-34.11	H
Mid Channel, 1732.6MHz									
3.65484	38.38	Pk	30.1	-24.5	-95.2	-51.22	-13	-38.22	V
3.66422	36.77	Pk	30.1	-24.7	-95.2	-53.03	-13	-40.03	H
5.17688	34.89	Pk	33.7	-23.1	-95.2	-49.71	-13	-36.71	V
5.19844	38.1	Pk	33.7	-23.6	-95.2	-47.0	-13	-34.0	H
6.93328	32.75	Pk	36.4	-20.9	-95.2	-46.95	-13	-33.95	H
6.96563	33.34	Pk	36.4	-21.4	-95.2	-46.86	-13	-33.86	V
High Channel, 1752.6MHz									
3.51753	37.23	Pk	30.1	-24.8	-95.2	-52.67	-13	-39.67	H
3.52582	37.66	Pk	30.2	-24.7	-95.2	-52.04	-13	-39.04	V
5.25634	36.84	Pk	33.5	-23.9	-95.2	-48.76	-13	-35.76	H
7.07928	34.71	Pk	36.6	-20.8	-95.2	-44.69	-13	-31.69	H
7.08639	36.17	Pk	36.7	-20.6	-95.2	-42.93	-13	-29.93	V
5.26266	34.99	Pk	33.4	-24	-95.2	-50.81	-13	-37.81	v

HSDPA MODE

Project #:	13573777
Date:	04/14/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.42328	35.29	Pk	30.5	-24.7	-95.2	-54.11	-13	-41.11	H
3.43031	36.4	Pk	30.6	-24.8	-95.2	-53.0	-13	-40.0	V
5.08313	36.45	Pk	33.8	-21.8	-95.2	-46.75	-13	-33.75	V
5.08359	34.76	Pk	33.8	-21.8	-95.2	-48.44	-13	-35.44	H
6.85219	33.3	Pk	36.1	-20.9	-95.2	-46.7	-13	-33.7	H
6.86063	32.34	Pk	36.2	-20.8	-95.2	-47.46	-13	-34.46	V
Mid Channel, 1732.6MHz									
3.46641	33.27	Pk	30.3	-24.4	-95.2	-56.03	-13	-43.03	V
3.47813	34.6	Pk	30.2	-24.5	-95.2	-54.9	-13	-41.9	H
5.20266	34.46	Pk	33.6	-23.6	-95.2	-50.74	-13	-37.74	H
5.21906	36.3	Pk	33.5	-23.7	-95.2	-49.1	-13	-36.1	V
6.97125	33.98	Pk	36.5	-21.3	-95.2	-46.02	-13	-33.02	H
7.00594	34.01	Pk	36.5	-21.9	-95.2	-46.59	-13	-33.59	V
High Channel, 1752.6MHz									
3.52922	35.09	Pk	30.1	-24.7	-95.2	-54.71	-13	-41.71	H
3.53156	34.58	Pk	30.1	-24.7	-95.2	-55.22	-13	-42.22	V
5.20922	34.48	Pk	33.6	-23.7	-95.2	-50.82	-13	-37.82	V
5.2275	35.37	Pk	33.5	-23.8	-95.2	-50.13	-13	-37.13	H
6.98109	33.06	Pk	36.3	-21.4	-95.2	-47.24	-13	-34.24	V
6.9825	34.72	Pk	36.4	-21.4	-95.2	-45.48	-13	-32.48	H

10.5. FIELD STRENGTH OF SPURIOUS RADIATION, Ant 4

10.5.1. GSM 1900

GPRS MODE

Project #:	13573777
Date:	04/2/2021
Test Engineer:	31300
Configuration:	EUT Only
Mode:	GSM1900 GPRS
Chamber #:	Chamber P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.70078	46.9	Pk	33	-40	-95.2	-55.3	-13	-42.3	H
5.55047	47.88	Pk	34.2	-38.6	-95.2	-51.72	-13	-38.72	H
7.40063	42.54	Pk	35.5	-36.7	-95.2	-53.86	-13	-40.86	H
3.70078	46.76	Pk	33	-40	-95.2	-55.44	-13	-42.44	V
5.55047	52.55	Pk	34.2	-38.6	-95.2	-47.05	-13	-34.05	V
7.40063	42.11	Pk	35.5	-36.7	-95.2	-54.29	-13	-41.29	V
Mid Channel, 1880MHz									
3.70078	46.76	Pk	33	-40	-95.2	-55.44	-13	-42.44	V
5.55047	52.55	Pk	34.2	-38.6	-95.2	-47.05	-13	-34.05	V
7.40063	42.11	Pk	35.5	-36.7	-95.2	-54.29	-13	-41.29	V
3.76219	44.07	Pk	33.3	-39.7	-95.2	-57.53	-13	-44.53	V
5.64	50.52	Pk	34.3	-38.2	-95.2	-48.58	-13	-35.58	V
7.52344	41.2	Pk	35.6	-36.4	-95.2	-54.8	-13	-41.8	V
High Channel, 1909.8MHz									
3.82172	46.99	Pk	33.3	-40	-95.2	-54.91	-13	-41.91	H
5.72953	46.41	Pk	34.3	-38.2	-95.2	-52.69	-13	-39.69	H
7.64063	43.15	Pk	35.7	-36	-95.2	-52.35	-13	-39.35	H
3.82078	46.56	Pk	33.3	-40	-95.2	-55.34	-13	-42.34	V
5.72906	53.46	Pk	34.3	-38.2	-95.2	-45.64	-13	-32.64	V
7.64016	42.96	Pk	35.7	-36	-95.2	-52.54	-13	-39.54	V

EGPRS MODE

Project #:	13573777
Date:	04/5/2021
Test Engineer:	31300
Configuration:	EUT Only
Mode:	GSM1900 EGPRS
Chamber #:	Chamber P

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz									
3.70172	47.52	Pk	33	-40	-95.2	-54.68	-13	-41.68	H
3.70172	45.98	Pk	33	-40	-95.2	-56.22	-13	-43.22	V
5.55047	44.21	Pk	34.2	-38.6	-95.2	-55.39	-13	-42.39	H
5.55047	43.61	Pk	34.2	-38.6	-95.2	-55.99	-13	-42.99	V
7.40109	41.99	Pk	35.5	-36.7	-95.2	-54.41	-13	-41.41	H
7.40109	42.72	Pk	35.5	-36.7	-95.2	-53.68	-13	-40.68	V
Mid Channel, 1880MHz									
3.75938	46.33	Pk	33.3	-39.8	-95.2	-55.37	-13	-42.37	H
3.76078	47.99	Pk	33.3	-39.8	-95.2	-53.71	-13	-40.71	V
5.64047	43.64	Pk	34.3	-38.3	-95.2	-55.56	-13	-42.56	H
5.64047	44.8	Pk	34.3	-38.3	-95.2	-54.4	-13	-41.4	V
7.52016	42.45	Pk	35.6	-36.4	-95.2	-53.55	-13	-40.55	H
7.52016	42.14	Pk	35.6	-36.4	-95.2	-53.86	-13	-40.86	V
High Channel, 1909.8MHz									
3.81984	46.25	Pk	33.3	-40	-95.2	-55.65	-13	-42.65	H
3.81984	44.71	Pk	33.3	-40	-95.2	-57.19	-13	-44.19	V
5.73	43.58	Pk	34.3	-38.2	-95.2	-55.52	-13	-42.52	H
5.73	44.23	Pk	34.3	-38.2	-95.2	-54.87	-13	-41.87	V
7.63969	42.28	Pk	35.7	-36	-95.2	-53.22	-13	-40.22	H
7.63969	42.48	Pk	35.7	-36	-95.2	-53.02	-13	-40.02	V

10.5.2. WCDMA BAND 2

REL 99 MODE

Project #:	13573777
Date:	04/15/2021
Test Engineer:	43575
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.71191	52.71	Pk	33.6	-43	.7	-95.2	-51.19	-13	-38.19	H
3.71353	53.27	Pk	33.6	-42.9	.7	-95.2	-50.53	-13	-37.53	V
5.55424	53.41	Pk	34.4	-41.7	.6	-95.2	-48.49	-13	-35.49	H
5.5586	52.88	Pk	34.4	-41.7	.6	-95.2	-49.02	-13	-36.02	V
7.39887	48.84	Pk	35.7	-39.7	.5	-95.2	-49.86	-13	-36.86	H
7.40837	49.06	Pk	35.7	-39.7	.4	-95.2	-49.74	-13	-36.74	V
Mid Channel, 1880MHz										
3.76133	53.52	Pk	33.5	-42.8	.6	-95.2	-50.38	-13	-37.38	H
5.61808	51.81	Pk	34.5	-41.4	.6	-95.2	-49.69	-13	-36.69	H
5.63818	51.7	Pk	34.5	-41.5	.6	-95.2	-49.9	-13	-36.9	V
7.52525	49.33	Pk	35.8	-39.3	.4	-95.2	-48.97	-13	-35.97	H
7.52649	49.32	Pk	35.8	-39.4	.4	-95.2	-49.08	-13	-36.08	V
3.76133	53.52	Pk	33.5	-42.8	.6	-95.2	-50.38	-13	-37.38	H
High Channel, 1907.6MHz										
3.81426	52.77	Pk	33.5	-42.9	.6	-95.2	-51.23	-13	-38.23	H
3.81529	52.33	Pk	33.5	-42.9	.6	-95.2	-51.67	-13	-38.67	V
5.72375	50.93	Pk	34.6	-41.3	.6	-95.2	-50.37	-13	-37.37	V
5.72516	50.83	Pk	34.6	-41.3	.6	-95.2	-50.47	-13	-37.47	H
7.61874	49.01	Pk	35.9	-39.1	.4	-95.2	-48.99	-13	-35.99	V
7.64341	48.81	Pk	35.9	-39.1	.4	-95.2	-49.19	-13	-36.19	H

HSDPA MODE

Project #:	13573777
Date:	04/15/2021
Test Engineer:	43575
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber O

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.69576	52.85	Pk	33.5	-43	.7	-95.2	-51.15	-13	-38.15	H
3.69635	52.46	Pk	33.5	-43	.7	-95.2	-51.54	-13	-38.54	V
5.54332	51.03	Pk	34.4	-41.7	.7	-95.2	-50.77	-13	-37.77	H
5.55425	57.87	Pk	34.4	-41.7	.6	-95.2	-44.03	-13	-31.03	V
7.39653	49.57	Pk	35.7	-39.7	.5	-95.2	-49.13	-13	-36.13	V
7.41445	49.41	Pk	35.8	-39.6	.4	-95.2	-49.19	-13	-36.19	H
Mid Channel, 1880MHz										
3.75964	53.21	Pk	33.5	-42.8	.6	-95.2	-50.69	-13	-37.69	H
3.76009	52.65	Pk	33.5	-42.8	.6	-95.2	-51.25	-13	-38.25	V
5.62466	50.77	Pk	34.6	-41.4	.6	-95.2	-50.63	-13	-37.63	H
5.62695	51.01	Pk	34.6	-41.4	.6	-95.2	-50.39	-13	-37.39	V
7.50425	49.1	Pk	35.7	-39.5	.4	-95.2	-49.5	-13	-36.5	H
7.51339	49.3	Pk	35.7	-39.5	.4	-95.2	-49.3	-13	-36.3	V
High Channel, 1907.6MHz										
3.79394	52.73	Pk	33.5	-42.8	.7	-95.2	-51.07	-13	-38.07	H
3.8074	53.15	Pk	33.4	-42.8	.6	-95.2	-50.85	-13	-37.85	V
5.71971	56.48	Pk	34.7	-41.2	.6	-95.2	-44.62	-13	-31.62	V
5.71972	56.41	Pk	34.7	-41.2	.6	-95.2	-44.69	-13	-31.69	H
7.62117	49.69	Pk	35.9	-39.1	.4	-95.2	-48.31	-13	-35.31	H
7.64414	49.06	Pk	35.9	-39.1	.4	-95.2	-48.94	-13	-35.94	V

10.5.3. WCDMA BAND 4

REL 99 MODE

Project #:	13573777
Date:	04/15/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.41344	34.62	Pk	30.6	-24.8	-95.2	-54.78	-13	-41.78	V
3.42656	34.98	Pk	30.5	-24.7	-95.2	-54.42	-13	-41.42	H
5.10375	34.75	Pk	34	-21.8	-95.2	-48.25	-13	-35.25	V
5.1075	34.95	Pk	33.9	-21.9	-95.2	-48.25	-13	-35.25	H
6.84422	33.29	Pk	36.2	-21.2	-95.2	-46.91	-13	-33.91	V
6.86109	33.6	Pk	36.2	-20.8	-95.2	-46.2	-13	-33.2	H
Mid Channel, 1732.6MHz									
3.46093	36.84	Pk	30.3	-24.7	-95.2	-52.76	-13	-39.76	H
3.48585	37.8	Pk	30.2	-24.7	-95.2	-51.9	-13	-38.9	V
5.2007	37.33	Pk	33.7	-23.6	-95.2	-47.77	-13	-34.77	V
5.2016	36.02	Pk	33.7	-23.6	-95.2	-49.08	-13	-36.08	H
6.90165	34.95	Pk	36.2	-20.9	-95.2	-44.95	-13	-31.95	V
6.92426	35.48	Pk	36.2	-20.8	-95.2	-44.32	-13	-31.32	H
High Channel, 1752.6MHz									
3.50052	36.57	Pk	30.1	-24.7	-95.2	-53.23	-13	-40.23	V
3.52105	36.93	Pk	30.2	-24.7	-95.2	-52.77	-13	-39.77	H
5.2566	40.45	Pk	33.5	-23.9	-95.2	-45.15	-13	-32.15	V
5.25863	37.71	Pk	33.4	-23.9	-95.2	-47.99	-13	-34.99	H
6.96011	35.29	Pk	36.4	-21.4	-95.2	-44.91	-13	-31.91	V
6.96663	35.19	Pk	36.4	-21.4	-95.2	-45.01	-13	-32.01	H

HSDPA MODE

Project #:	13573777
Date:	04/15/2021
Test Engineer:	39006
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	EIRP CF	Corrected Reading (dBm)	Harmonics limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz									
3.42703	34.13	Pk	30.5	-24.7	-95.2	-55.27	-13	-42.27	V
3.43219	34.43	Pk	30.6	-24.9	-95.2	-55.07	-13	-42.07	H
5.11875	33.97	Pk	33.9	-22.1	-95.2	-49.43	-13	-36.43	V
5.13516	35.3	Pk	33.8	-22.3	-95.2	-48.4	-13	-35.4	H
6.81	32.74	Pk	36	-21.7	-95.2	-48.16	-13	-35.16	H
6.84188	33.04	Pk	36.2	-21.3	-95.2	-47.26	-13	-34.26	V
Mid Channel, 1732.6MHz									
3.43828	34.61	Pk	30.5	-24.9	-95.2	-54.99	-13	-41.99	V
3.46125	34.93	Pk	30.3	-24.6	-95.2	-54.57	-13	-41.57	H
5.14922	34	Pk	33.8	-22.4	-95.2	-49.8	-13	-36.8	V
5.18531	34.66	Pk	33.6	-23.4	-95.2	-50.34	-13	-37.34	H
6.91875	33.29	Pk	36.3	-20.7	-95.2	-46.31	-13	-33.31	V
6.97219	32.91	Pk	36.5	-21.3	-95.2	-47.09	-13	-34.09	H
High Channel, 1752.6MHz									
3.48516	34.44	Pk	30.2	-24.7	-95.2	-55.26	-13	-42.26	V
3.50391	34.62	Pk	30.2	-24.7	-95.2	-55.08	-13	-42.08	H
5.25797	36.79	Pk	33.4	-23.9	-95.2	-48.91	-13	-35.91	V
5.28656	35.68	Pk	33.4	-23.5	-95.2	-49.62	-13	-36.62	H
7.03219	33.38	Pk	36.5	-21.5	-95.2	-46.82	-13	-33.82	H
7.03406	33.3	Pk	36.5	-21.5	-95.2	-46.9	-13	-33.9	V

11. SETUP PHOTOS

Please refer to 13573777-EP1V1 for setup photos

END OF REPORT