TEST REPORT

Report Number. : 13179116-E7V2

Applicant	:	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A
Model	:	A2172
FCC ID	:	BCG-E3542A
IC	:	579C-E3542A
EUT Description	:	SMARTPHONE
Test Standard(s)	:	FCC CFR47 PART 22H, 24E, 27L, AND 90S ISED RSS-132 ISSUE 3, RSS-133 ISSUE 6, AND RSS-139 ISSUE 3

Date Of Issue:
SEPTEMBER 08, 2020

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NVLAP TESTING

NVLAP Lab code: 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
V1	8/27/2020	Initial Review	Mengistu Mekuria
V2	9/8/2020	Addressed TCB Feedback	Glenn Escano

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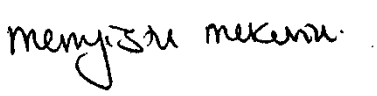
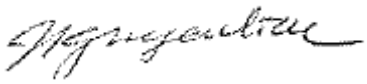
1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A
Model	A2172
FCC ID	BCG-E3542A
IC	579C-E3542A
EUT Description	SMARTPHONE
Serial Number	MODEL (A2172): C070033L5P573(Conducted) and G6TCN00YQ5HL (Radiated)
Date Tested	MARCH 11, 2020 to AUGUST 11, 2020
Applicable Standards	FCC CFR47 PART 22H, 24E, 27L, AND 90S ISED RSS-132 ISSUE 3, RSS-133 ISSUE 6, AND 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 NVLAP, 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.	Glenn Escano Project Engineer UL Verification Services Inc.	Lieu Nguyen Laboratory Engineer UL Verification Services Inc.

2. 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-132 Issue 3, RSS-133 Issue 6, RSS-139 Issue 3.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 and 47266 Benicia Street, and 47658 Kato Road, Fremont, California, USA. The following table identifies which facilities were utilized for radiated emission measurements documented in this report. Specific facilities are also identified in the test results sections.

47173 Benicia Street	47266 Benicia Street	47658 Kato Rd.
☒ Chamber A (IC:2324B-1)	☐ Chamber D (IC:22541-1)	☒ Chamber I (IC: 2324A-5)
☒ Chamber B (IC:2324B-2)	☐ Chamber E (IC:22541-2)	☐ Chamber J (IC: 2324A-6)
☐ Chamber C (IC:2324B-3)	☐ Chamber F (IC:22541-3)	☐ Chamber K (IC: 2324A-1)
	☐ Chamber G (IC:22541-4)	☐ Chamber L (IC: 2324A-3)
	☐ Chamber H (IC:22541-5)	☐ Chamber M (IC: 2324A-2)

The above test sites and facilities are covered under FCC Test Firm Registration # 208313. Chambers above are covered under Industry Canada company address and respective code: 2324A.
UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 200065-0

4. DECISION RULES AND MEASUREMENT UNCERTAINTY

4.1. 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.

4.2. 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.)

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	U_{Lab}
Conducted Disturbance, 9KHz to 0.15 MHz	3.84 dB
Conducted Disturbance, 0.15 to 30 MHz	3.65 dB
Radiated Disturbance, 9KHz to 30 MHz	2.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.88 dB
Radiated Disturbance,1000 to 18000 MHz	4.24 dB
Radiated Disturbance,18000 to 26000 MHz	4.37 dB
Radiated Disturbance,26000 to 40000 MHz	5.17 dB
Occupied Channel Bandwidth	±0.39 %
Temperature	±0.9 °C
Supply voltages	±0.45 %
Time	±0.02 %

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

4.4. 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

5. EQUIPMENT UNDER TEST

5.1. 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.

5.2. MAXIMUM OUTPUT POWER

EIRP/ERP TEST PROCEDURE

ANSI C63.26:2015
KDB 971168 D01 Section 5.6

ERP/EIRP = PMeas + GT − LC
where: ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMeas, typically dBW or dBm);
PMeas = measured transmitter output power or PSD, in dBm or dBW;
GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);
LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

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

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

GSM MODES

RSS 132 850MHz								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.2-848.8	GPRS	33.50	-5.20	11.5	28.30	0.676	241.3	241KGXW
	EGPRS	28.00			22.80	0.191	233.56	234KG7W
Part 22 850MHz								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
824.2-848.8	GPRS	33.50	-5.20	7.0	26.15	0.412	241.3	241KGXW
	EGPRS	28.00			20.65	0.116	233.56	234KG7W
Part 24 / RSS 133 1900MHz								
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	1.00	2.0	32.00	1.585	244.63	245KGXW
	EGPRS	26.00			27.00	0.501	242.31	242KG7W

CDMA MODES

Part 90 BC10								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
817.25-822.75	1xRTT	25.70	-5.20	100.0	20.50	0.112	1275.6	1M28F9W
	1xEV-DO Rev A	25.60			20.40	0.110	1282.1	1M28F9W
RSS 132 BC0								
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	25.70	-5.20	11.5	20.50	0.112	1278.2	1M28F9W
	1xEV-DO Rev A	25.70			20.50	0.112	1278.2	1M28F9W
Part 22 BC0								
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	25.70	-5.20	7.0	18.35	0.068	1278.2	1M28F9W
	1xEV-DO Rev A	25.70			18.35	0.068	1278.2	1M28F9W
Part 24 / RSS 133 BC1								
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	-2.20	2.0	23.50	0.224	1279.8	1M28F9W
	1xEV-DO Rev A	25.60			23.40	0.219	1278.8	1M28F9W

WCDMA MODE

RSS 132 Band 5

Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	EIRP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
826.4-846.6	REL 99	25.70	-5.20	11.5	20.50	0.112	4146.8	4M15F9W
	HSDPA	24.70			19.50	0.089	4151.9	4M15F9W

Part 22 Band 5

Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Antenna Gain (dBi)	Limit (W)	ERP		99% BW (kHz)	Emission Designator
					(dBm)	(W)		
826.4-846.6	REL 99	25.70	-5.20	7.0	18.35	0.068	4146.8	4M15F9W
	HSDPA	24.70			17.35	0.054	4151.9	4M15F9W

Part 24 / RSS 133 Band 2

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	24.70	1.00	2.0	25.70	0.372	4147.8	4M15F9W
	HSDPA	23.80			24.80	0.302	4135.1	4M14F9W

Part 27 / RSS 139 Band 4

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	25.70	-1.90	1.0	23.80	0.240	4160.8	4M16F9W
	HSDPA	24.70			22.80	0.191	4150.7	4M15F9W

5.3. SOFTWARE AND FIRMWARE

The EUT firmware installed during testing was version 0.28.03-1.

5.4. MAXIMUM ANTENNA GAIN

Frequency Range (MHz)	ANT 1 Antenna Gain (dBi)	ANT 2 Antenna Gain (dBi)	ANT 3 Antenna Gain (dBi)	ANT 4 Antenna Gain (dBi)
816 - 824	-5.2	-5.4	NA	NA
824 - 849	-5.2	-5.4	NA	NA
1710 – 1755	-1.9	-1.0	-1.5	-3.0
1850 - 1910	-2.2	-3.8	1.0	-1.8

5.5. WORST-CASE CONFIGURATION AND MODE

The EUT was investigated in three orthogonal orientations X/Y/Z on Ant1/Ant2 for GSM850, WCDMA Band 5, CDMA BC10, CDMA BC0, and CDMA BC1. And Ant1/ Ant2/ Ant3/ Ant4 for GSM1900, WCDMA Band 2 and WCDMA Band 4, it was determined that X - orientation was the worst-case orientation for cell and secondary bands to both ANT1 and ANT2. For PCS and AWS bands, Y- orientation to ANT1 and X- orientation to ANT2, ANT3, and ANT4 were the worst-case orientation without AC/DC adapter, headphones or laptop.

Based on average conducted output power measurement investigations. The worst-case is Ant. 1 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

CDMA BC10 band is supported in USA only.

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.

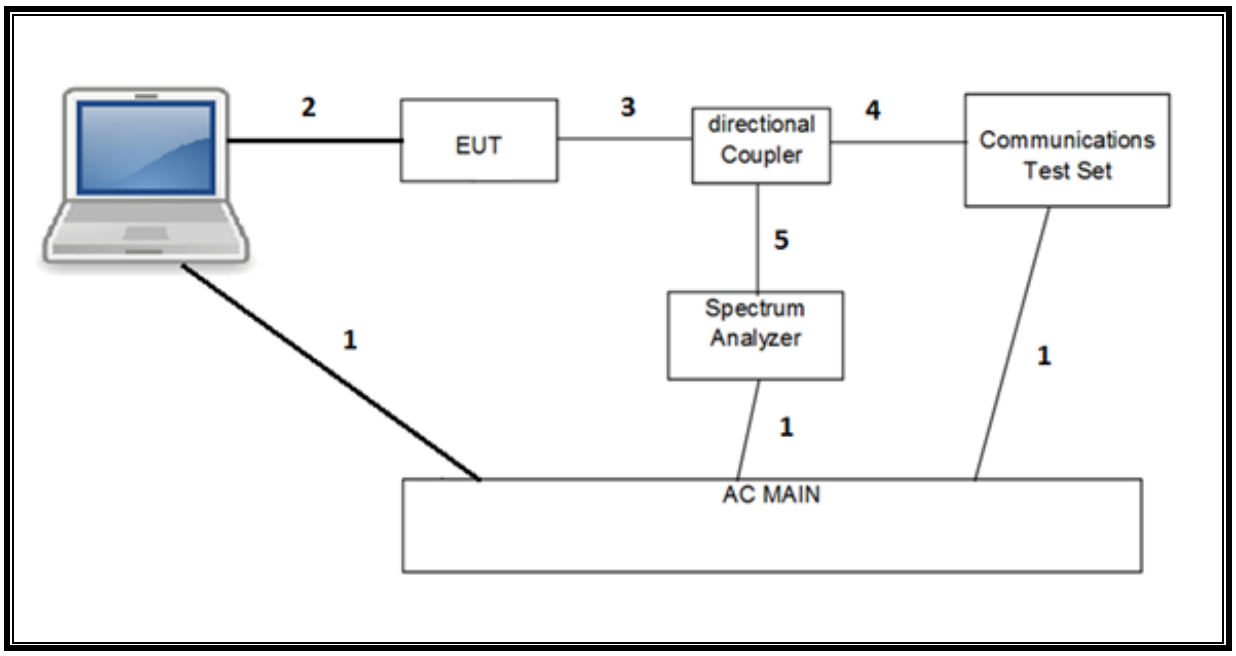
5.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT				
Description	**Manufacturer**	**Model**	**Serial Number**	**FCC ID/ DoC**
Laptop	Apple	A1398	C02PM012G3QD	QDS-BRCM1069
Laptop AC/DC adapter	Liteon Technology	PA-1450-BA1	B123	N/A

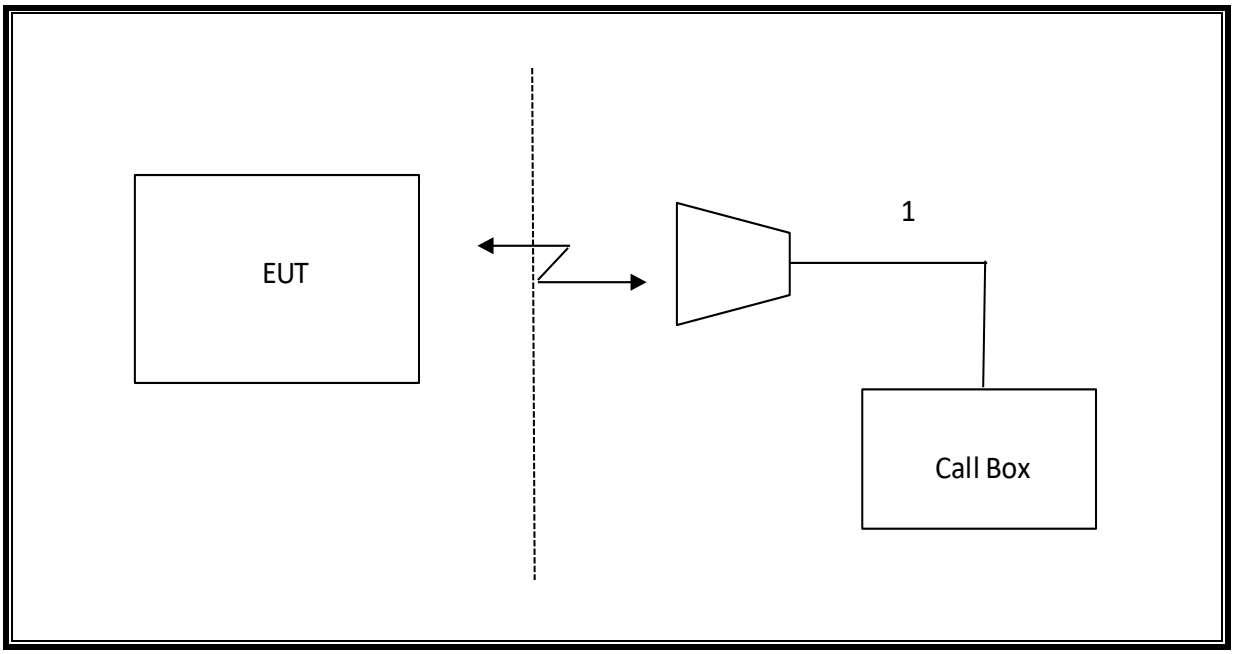
I/O CABLES (RF CONDUCTED TEST)						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
1	AC	3	US 115V	Un-shielded	2.0	N/A
2	USB	1	DC	Un-shielded	1.0	N/A
3	RF In/Out	1	EUT	Un-shielded	0.6	N/A
4	RF In/Out	1	Communication Test Set	Un-shielded	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



6. 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	A.H. Systems, Inc.	SAS-571	T962	01/25/2021
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T346	07/20/2021
Antenna, Horn 1-18GHz	ETS Lindgren	3117	T136	07/07/2021
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	T407	05/20/2021
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	PRE0184052	11/12/2020
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences	JB3	PRE0181575	09/05/2020
Antenna, Active Loop 9KHz to 30MHz	ETS-Lindgren	6502	T757	10/01/2020
Antenna Horn, 18 to 26GHz	ARA	SWH-28	T125	04/17/2021
Antenna, Horn 26-40GHz	ARA	MWH-2640/B	PRE0182203	04/17/2021
*Amplifier, 1 to 18GHz	MITEQ	AFS42-00101800-25-S-42	T1165	05/18/2020
Amplifier, 1 to 18GHz	MITEQ	AFS42-00101800-25-S-42	PRE0181078	05/06/2021
Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	PRE0180176	07/14/2021
Amplifier, 100KHz to 1GHz, 32dB	Keysight	8447D	T15	10/26/2020
*Amplifier, 10KHz to 1GHz, 32dB	Sonoma	310N	PRE0180175	05/29/2020
Pre-Amp 18-26GHz	Agilent Technology	8449B	T404	04/8/2021
Amplifier, 26-40GHz	Miteq	TTA2640	T1864	04/08/2021
Filter, BRF 1850 – 1910 MHz	Micro-Tronics	BRM50714-02	T1796	06/23/2021
Filter, BRF 824 – 848 MHz	Micro-Tronics	BRM20025	PRE0191180	06/23/2021
Filter, HPF 1.2 GHz	MICRO-TRONICS	MICRO-TRONICS	T1737	06/23/2021
*Directional Coupler	KRYTAR	152610	T1536	06/09/2020
Directional Coupler	KRYTAR	152610	T1161	08/14/2020
*Directional Coupler	KRYTAR	152613	T1537	06/08/2020
Spectrum Analyzer, PXA 3Hz to 44GHZ	Keysight	N9030A	T340	01/22/2021
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T1454	07/15/2021
Spectrum Analyzer, PXA 3Hz to 44GHz	Keysight	N9030A	T907	01/22/2021
Spectrum Analyzer, PSA, 3Hz to 44GHz	Keysight	N9030A	T908	05/05/2021
Spectrum Analyzer, PSA, 3Hz to 26.5GHz	Keysight	E4440A	T198	01/28/2021
Spectrum Analyzer, PSA, 3Hz to 44GHz	Keysight	E4440A	T200	01/24/2021
EMI TEST RECEIVER	Rohde & Schwarz	ESW44	PRE0179522	02/18/2021
Wireless Communications Test Set, 8960 Series 10	Agilent	E5515C	T211	02/18/2021
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T948	08/10/2021
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T1871	02/25/2021
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T972	02/24/2021
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T260	02/19/2021
Wideband Communication Test Set, Call Box	R&S GmbH & Co. KG	CMW500	T959	02/19/2021
Chamber, Environmental	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	T754	12/22/2020
Environmental Chamber	Cincinnati Sub Zero	ZPHS-8-3.5-SCT/WC	T1154	12/22/2020
Power Meter, P-series single channel	Keysight	N1912A	T1245	01/22/2021
Power Sensor	Keysight	N1921A	T1225	02/23/2021

UL AUTOMATION SOFTWARE			
CLT Software	UL	UL RF	Ver 7.6, November 11, 2017
Power Measurement Software	UL	UL RF	Ver 2.7, 2019
Radiated test software	UL	UL RF	Ver 9.5 June 15, 2019

NOTES:

* Testing is completed before equipment expiration date.

7. 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:

7.1. 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

GSM 850

Test Engineer ID:	38602	Test Date:	3/9/2020

Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power	
					ANT 1	ANT 2
GPRS (GMSK)	CS1	1	128	824.2	33.29	32.00
			190	836.6	**33.50**	31.47
			251	848.8	33.16	31.16
		2	128	824.2	31.97	30.38
			190	836.6	31.90	30.00
			251	848.8	31.57	29.69
EGPRS (8PSK)	MCS5	1	128	824.2	27.74	26.50
			190	836.6	**28.00**	26.34
			251	848.8	27.84	26.27
		2	128	824.2	26.43	25.11
			190	836.6	26.66	25.01
			251	848.8	26.62	24.96

GSM 1900

Test Engineer ID:	38602	Test Date:	3/10/2020

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	31.76	29.50	31.00	29.00
			661	1880.0	**32.00**	29.31	30.63	28.88
			810	1909.8	31.64	29.05	30.59	28.60
		2	512	1850.2	29.90	28.31	29.90	27.67
			661	1880.0	29.92	28.28	29.83	27.66
			810	1909.8	29.80	28.02	29.68	27.40
EGPRS (8PSK)	MCS5	1	512	1850.2	26.33	24.13	25.81	24.00
			661	1880.0	**27.00**	24.23	25.74	23.47
			810	1909.8	26.40	24.50	26.00	23.20
		2	512	1850.2	25.08	23.08	24.72	22.51
			661	1880.0	25.23	23.19	24.68	22.39
			810	1909.8	25.15	23.28	24.79	22.11

7.2. 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

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

Application	Rev, License
CDMA2000 Mobile Test	B.15.18, L

- 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 Parms:
  - 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 Parms:
  - 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.

Application	Rev, License
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.

RESULT

CDMA BC10

Test Engineer ID:	38602	Test Date:	7/27/2020

Band	Mode	Radio Configuration (RC)	Service Option (SO)	Ch No.	Freq. (MHz)	Condcuted Average Power (dBm)	
						ANT 1	ANT 2
BC10 (800MHz)	1xRTT	RC1	2 (Loopback)	450	817.25	25.7	23.6
				560	820.00	25.7	23.5
				670	822.75	25.7	23.6
			55 (Loopback)	450	817.25	25.7	23.6
				560	820.00	25.7	23.6
				670	822.75	25.7	23.6
		RC2	9 (Loopback)	450	817.25	25.7	23.6
				560	820.00	25.7	23.6
				670	822.75	25.6	23.6
			55 (Loopback)	450	817.25	25.7	23.6
				560	820.00	25.7	23.6
				670	822.75	25.7	23.6
		RC3	2 (Loopback)	450	817.25	25.7	23.6
				560	820.00	**25.7**	23.6
				670	822.75	25.6	23.6
			55 (Loopback)	450	817.25	25.6	23.6
				560	820.00	25.7	23.6
				670	822.75	25.6	23.6
		RC4	2 (Loopback)	450	817.25	25.7	23.6
				560	820.00	25.7	23.6
				670	822.75	25.6	23.6
			55 (Loopback)	450	817.25	25.6	23.6
				560	820.00	25.7	23.6
				670	822.75	25.6	23.6
		RC5	9 (Loopback)	450	817.25	25.6	23.6
				560	820.00	25.6	23.6
				670	822.75	25.7	23.6
			55 (Loopback)	450	817.25	25.7	23.6
				560	820.00	25.6	23.6
				670	822.75	25.6	23.6
	1xEVDO Rel. 0	FTAP Rate: 307.2 kbps(2 slot, QPSK)	RTAP Rate: 153.6 kbps	450	817.25	25.6	23.6
				560	820.00	25.6	23.5
				670	822.75	25.6	23.5
	1xEVDO Rev. A	FETAP: 307.2k, QPSK/ ACK	RETAP: 4096	450	817.25	25.6	**23.6**
				560	820.00	25.6	23.5
				670	822.75	**25.6**	23.5

CDMA BC0

Test Engineer ID:	38602	Test Date:	7/27/2020

Band	Mode	Radio Configuration (RC)	Service Option (SO)	Ch No.	Freq. (MHz)	Condcuted Average Power (dBm)	
						ANT 1	ANT 2
BC0 (850MHz)	1xRTT	RC1	2 (Loopback)	1013	824.70	**25.7**	23.6
				384	836.52	25.7	23.6
				777	848.31	25.6	23.6
			55 (Loopback)	1013	824.70	**25.7**	23.6
				384	836.52	25.7	23.6
				777	848.31	25.6	23.6
		RC2	9 (Loopback)	1013	824.70	25.7	23.6
				384	836.52	25.7	23.6
				777	848.31	25.6	23.6
			55 (Loopback)	1013	824.70	25.7	23.6
				384	836.52	25.7	23.6
				777	848.31	25.6	23.6
		RC3	2 (Loopback)	1013	824.70	25.7	23.6
				384	836.52	25.6	23.6
				777	848.31	25.6	23.6
			55 (Loopback)	1013	824.70	25.7	23.6
				384	836.52	25.6	23.6
				777	848.31	25.6	23.6
		RC4	2 (Loopback)	1013	824.70	25.7	23.6
				384	836.52	25.6	23.6
				777	848.31	25.6	23.6
			55 (Loopback)	1013	824.70	25.7	23.6
				384	836.52	25.6	23.6
				777	848.31	25.6	23.6
		RC5	9 (Loopback)	1013	824.70	25.7	23.6
				384	836.52	25.6	23.6
				777	848.31	25.6	23.6
			55 (Loopback)	1013	824.70	25.7	23.6
				384	836.52	25.6	23.6
				777	848.31	25.6	23.6
	1xEVDO Rel. 0	FTAP Rate: 307.2 kbps(2 slot, QPSK)	RTAP Rate: 153.6 kbps	1013	824.70	**25.7**	23.5
				384	836.52	25.6	23.5
				777	848.31	25.6	23.5
	1xEVDO Rev. A	FETAP: 307.2k, QPSK/ ACK	RETAP: 4096	1013	824.70	25.7	23.5
				384	836.52	25.7	**23.6**
				777	848.31	25.5	23.6

CDMA BC1

Test Engineer ID:	38602	Test Date:	7/27/2020

Band	Mode	Radio Configuration (RC)	Service Option (SO)	Ch No.	Freq. (MHz)	Condcuted Average Power (dBm)	
						ANT 1	ANT 2
BC1 (1900MHz)	1xRTT	RC1	2 (Loopback)	25	1851.25	25.3	23.0
				600	1880.00	25.2	22.8
				1175	1908.75	25.3	22.9
			55 (Loopback)	25	1851.25	25.3	23.0
				600	1880.00	25.2	22.9
				1175	1908.75	25.3	22.9
		RC2	9 (Loopback)	25	1851.25	25.3	23.0
				600	1880.00	25.2	22.9
				1175	1908.75	25.3	22.9
			55 (Loopback)	25	1851.25	25.3	23.0
				600	1880.00	25.2	22.9
				1175	1908.75	25.3	22.9
		RC3	2 (Loopback)	25	1851.25	25.3	**23.1**
				600	1880.00	25.3	22.9
				1175	1908.75	25.3	22.9
			55 (Loopback)	25	1851.25	25.3	23.0
				600	1880.00	25.2	22.9
				1175	1908.75	25.3	22.9
		RC4	2 (Loopback)	25	1851.25	25.3	23.0
				600	1880.00	25.2	22.9
				1175	1908.75	25.3	22.9
			55 (Loopback)	25	1851.25	25.3	23.1
				600	1880.00	25.3	22.9
				1175	1908.75	25.3	22.9
		RC5	9 (Loopback)	25	1851.25	**25.7**	23.1
				600	1880.00	25.3	22.9
				1175	1908.75	25.3	22.9
			55 (Loopback)	25	1851.25	25.3	23.0
				600	1880.00	25.3	22.9
				1175	1908.75	25.3	22.9
	1xEVDO Rel. 0	FTAP Rate: 307.2 kbps(2 slot, QPSK)	RTAP Rate: 153.6 kbps	25	1851.25	**25.7**	23.0
				600	1880	25.6	22.9
				1175	1908.75	**25.7**	23.1
	1xEVDO Rev. A	FETAP: 307.2k, QPSK/ ACK	RETAP: 4096	25	1851.25	25.4	22.9
				600	1880	25.6	22.8
				1175	1908.75	25.6	22.9

7.3. 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 ≥ RBW.≥ 26dB BW, typically 5MHz.
- Set a marker to point the corresponding peak value.

REL 99

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

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

HSDPA REL 5

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c.

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

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

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

HSPA REL 6 (HSDPA & HSUPA)

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

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

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 4) (Note 5)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2) (Note 6)	AG Index (Note 5)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed}1$: 47/15 $\beta_{ed}2$: 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15	0	-	-	5/15	5/15	47/15	4	1	1.0	0.0	12	67

Note 1: For sub-test 1 to 4, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 30/15 with β_{hs} = 30/15 * β_c. For sub-test 5, Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 5/15 with β_{hs} = 5/15 * β_c.

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

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

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

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

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

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

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

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

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

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

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

RESULT

WCDMA BAND 5

Test Engineer ID:	38602	Test Date:	3/10/2020

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	25.6	23.8
			4183	836.6	N/A	25.7	**23.9**
			4233	846.6	N/A	**25.7**	23.9
	HSDPA	Subtest 1	4132	826.4	0	24.6	22.8
			4183	836.6	0	24.7	22.9
			4233	846.6	0	24.7	22.9
		Subtest 2	4132	826.4	0	24.6	22.7
			4183	836.6	0	24.7	22.8
			4233	846.6	0	**24.7**	22.8
		Subtest 3	4132	826.4	0.5	24.1	22.3
			4183	836.6	0.5	24.2	22.3
			4233	846.6	0.5	24.3	22.3
		Subtest 4	4132	826.4	0.5	24.1	22.4
			4183	836.6	0.5	24.2	22.4
			4233	846.6	0.5	24.2	22.4
	HSPA (HSDPA & HSUPA)	Subtest 1	4132	826.4	0	24.6	22.8
			4183	836.6	0	24.7	22.8
			4233	846.6	0	24.7	22.8
		Subtest 2	4132	826.4	2	22.6	20.8
			4183	836.6	2	22.7	20.9
			4233	846.6	2	22.7	20.8
		Subtest 3	4132	826.4	1	23.6	21.8
			4183	836.6	1	23.7	21.8
			4233	846.6	1	23.7	21.8
		Subtest 4	4132	826.4	2	22.6	20.8
			4183	836.6	2	22.7	20.8
			4233	846.6	2	22.7	20.8
		Subtest 5	4132	826.4	0	24.2	22.3
			4183	836.6	0	24.3	22.4
			4233	846.6	0	24.3	22.4
	DC-HSDPA	Subtest 1	4132	826.4	0	24.6	22.8
			4183	836.6	0	24.6	22.9
			4233	846.6	0	24.6	22.9
		Subtest 2	4132	826.4	0	24.7	22.7
			4183	836.6	0	24.5	22.8
			4233	846.6	0	24.5	22.8
		Subtest 3	4132	826.4	0.5	24.2	22.2
			4183	836.6	0.5	24.2	22.3
			4233	846.6	0.5	24.3	22.3
		Subtest 4	4132	826.4	0.5	24.2	22.3
			4183	836.6	0.5	24.2	22.4
			4233	846.6	0.5	24.3	22.4

WCDMA BAND 2

Test Engineer ID:	38602	Test Date:	4/9/2020

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	25.4	**23.1**	**24.7**	22.6
			9400	1880.0	N/A	25.6	23.0	24.6	**22.7**
			9538	1907.6	N/A	**25.7**	23.0	24.7	22.7
	HSDPA	Subtest 1	9262	1852.4	0	24.4	22.2	23.8	21.6
			9400	1880.0	0	24.6	22.0	23.6	21.7
			9538	1907.6	0	24.6	22.1	23.7	21.7
		Subtest 2	9262	1852.4	0	24.4	22.2	23.8	21.5
			9400	1880.0	0	24.5	22.1	23.6	21.7
			9538	1907.6	0	**24.6**	22.1	23.7	21.6
		Subtest 3	9262	1852.4	0.5	23.9	21.7	23.3	20.9
			9400	1880.0	0.5	24.1	21.6	23.1	21.1
			9538	1907.6	0.5	24.1	21.6	23.2	21.1
		Subtest 4	9262	1852.4	0.5	23.9	21.7	23.3	21.0
			9400	1880.0	0.5	24.0	21.6	23.1	21.1
			9538	1907.6	0.5	24.1	21.6	23.2	21.1
	HSPA (HSDPA & HSUPA)	Subtest 1	9262	1852.4	0	24.4	22.2	23.8	21.5
			9400	1880.0	0	24.3	22.0	23.5	21.6
			9538	1907.6	0	24.3	22.0	23.5	21.6
		Subtest 2	9262	1852.4	2	22.4	20.0	21.8	19.5
			9400	1880.0	2	22.4	19.9	21.5	19.6
			9538	1907.6	2	22.3	20.0	21.5	19.6
		Subtest 3	9262	1852.4	1	23.4	21.0	22.7	20.4
			9400	1880.0	1	23.4	20.9	22.5	20.6
			9538	1907.6	1	23.4	20.9	22.5	20.5
		Subtest 4	9262	1852.4	2	22.4	20.1	21.7	19.5
			9400	1880.0	2	22.4	20.0	21.5	19.6
			9538	1907.6	2	22.3	20.0	21.5	19.5
		Subtest 5	9262	1852.4	0	24.1	21.7	23.3	21.0
			9400	1880.0	0	24.0	21.6	23.1	21.1
			9538	1907.6	0	24.0	21.6	23.1	21.1
	DC-HSDPA	Subtest 1	9262	1852.4	0	24.5	22.1	23.8	21.5
			9400	1880.0	0	24.5	22.0	23.6	21.6
			9538	1907.6	0	24.6	22.0	23.7	21.6
		Subtest 2	9262	1852.4	0	24.5	22.2	23.8	21.5
			9400	1880.0	0	24.5	22.1	23.6	21.6
			9538	1907.6	0	24.5	22.1	23.7	21.6
		Subtest 3	9262	1852.4	0.5	24.0	21.7	23.3	21.0
			9400	1880.0	0.5	24.0	21.6	23.1	21.1
			9538	1907.6	0.5	24.0	21.6	23.2	21.1
		Subtest 4	9262	1852.4	0.5	24.1	21.7	23.3	21.0
			9400	1880.0	0.5	24.0	21.6	23.1	21.2
			9538	1907.6	0.5	24.1	21.6	23.2	21.2

WCDMA BAND 4

Test Engineer ID:	38602	Test Date:	3/10/2020

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	25.6	**23.1**	24.6	**22.7**
			1413	1732.6	N/A	25.7	23.1	**24.7**	22.6
			1513	1752.6	N/A	**25.7**	23.0	24.7	22.7
	HSDPA	Subtest 1	1312	1712.4	0	24.7	22.1	23.7	21.7
			1413	1732.6	0	24.7	22.1	23.7	21.6
			1513	1752.6	0	24.7	22.1	23.7	21.7
		Subtest 2	1312	1712.4	0	24.7	22.1	23.7	21.7
			1413	1732.6	0	**24.7**	22.1	23.7	21.6
			1513	1752.6	0	24.7	22.0	23.6	21.6
		Subtest 3	1312	1712.4	0.5	24.2	21.6	23.2	21.1
			1413	1732.6	0.5	23.7	21.6	23.2	21.1
			1513	1752.6	0.5	24.2	21.5	23.1	21.1
		Subtest 4	1312	1712.4	0.5	24.1	21.6	23.1	21.2
			1413	1732.6	0.5	24.1	21.6	23.2	21.1
			1513	1752.6	0.5	24.2	21.5	23.1	21.1
	HSPA (HSDPA & HSUPA)	Subtest 1	1312	1712.4	0	24.6	22.1	23.6	21.5
			1413	1732.6	0	24.6	22.0	23.7	21.6
			1513	1752.6	0	24.6	22.0	23.6	21.6
		Subtest 2	1312	1712.4	2	22.6	20.0	21.6	19.7
			1413	1732.6	2	22.6	19.9	21.6	19.6
			1513	1752.6	2	22.6	19.9	21.5	19.6
		Subtest 3	1312	1712.4	1	23.6	21.0	22.6	20.7
			1413	1732.6	1	23.4	20.9	22.6	20.6
			1513	1752.6	1	23.6	20.9	22.4	20.6
		Subtest 4	1312	1712.4	2	22.7	20.1	21.5	19.7
			1413	1732.6	2	22.8	20.0	21.6	19.6
			1513	1752.6	2	22.6	20.0	21.5	19.6
		Subtest 5	1312	1712.4	0	24.3	21.7	23.2	21.2
			1413	1732.6	0	24.3	21.6	23.2	21.1
			1513	1752.6	0	24.2	21.5	23.1	21.1
	DC-HSDPA	Subtest 1	1312	1712.4	0	24.7	22.1	23.6	21.7
			1413	1732.6	0	24.7	22.0	23.7	21.6
			1513	1752.6	0	24.7	22.0	23.6	21.7
		Subtest 2	1312	1712.4	0	24.7	22.1	23.6	21.7
			1413	1732.6	0	24.7	22.1	23.7	21.6
			1513	1752.6	0	24.7	22.0	23.6	21.7
		Subtest 3	1312	1712.4	0.5	24.2	21.6	23.2	21.2
			1413	1732.6	0.5	24.2	21.6	23.2	21.1
			1513	1752.6	0.5	24.2	21.5	23.1	21.2
		Subtest 4	1312	1712.4	0.5	24.3	21.6	23.2	21.2
			1413	1732.6	0.5	24.2	21.6	23.2	21.1
			1513	1752.6	0.5	24.2	21.5	23.1	21.2

8. CONDUCTED TEST RESULTS

8.1. 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	241.30	319.9
	EGPRS			233.56	299.9
1900	GPRS	661	1880.0	244.63	313.8
	EGPRS			242.31	307.5

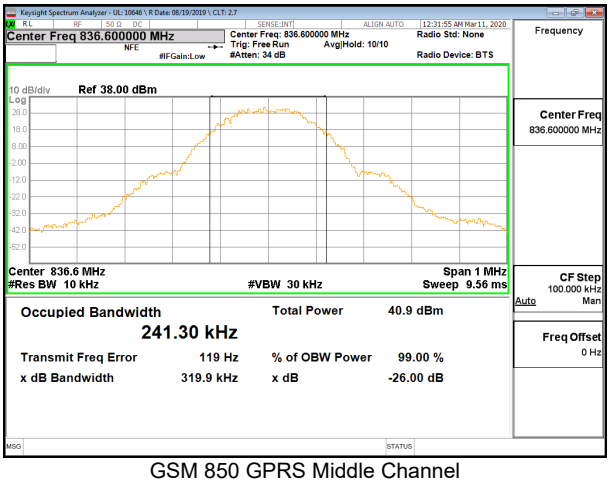
CDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BC10	1xRTT	560	820.0	1.2756	1.427
	1xEV-DO Rev A			1.2821	1.432
BC0	1xRTT	384	836.5	1.2782	1.429
	1xEV-DO Rev A			1.2782	1.437
BC1	1xRTT	600	1880.0	1.2798	1.434
	1xEV-DO Rev A			1.2788	1.438

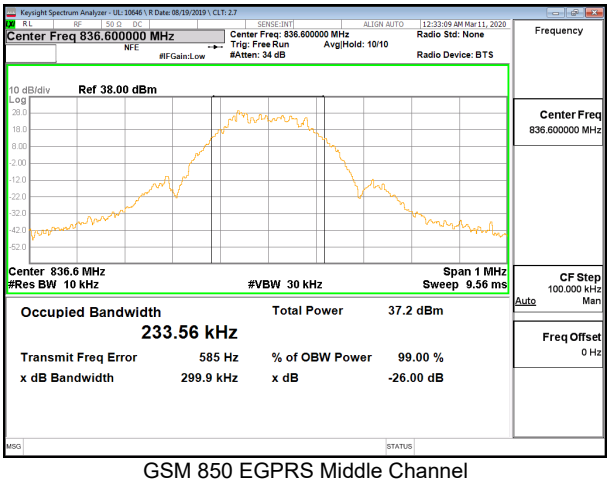
WCDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	REL 99	4408	836.6	4.1468	4.709
	HSDPA			4.1519	4.672
BAND 2	REL 99	9800	1880.0	4.1478	4.690
	HSDPA			4.1351	4.711
BAND 4	REL 99	1638	1732.6	4.1608	4.759
	HSDPA			4.1507	4.725

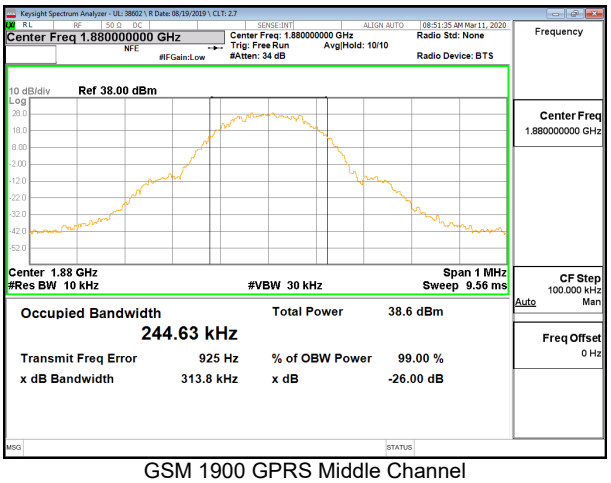
8.1.1. GSM



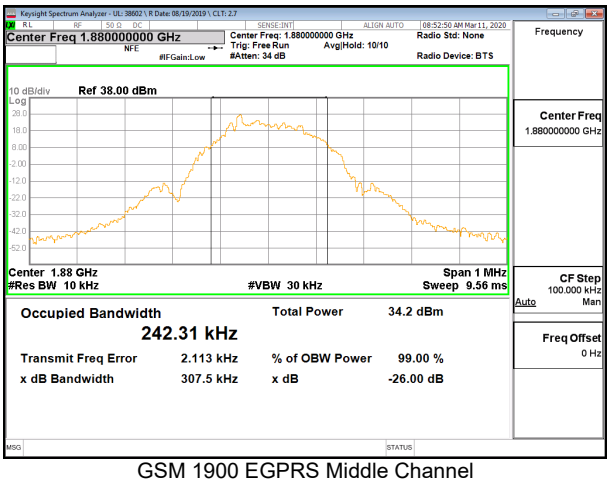
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel

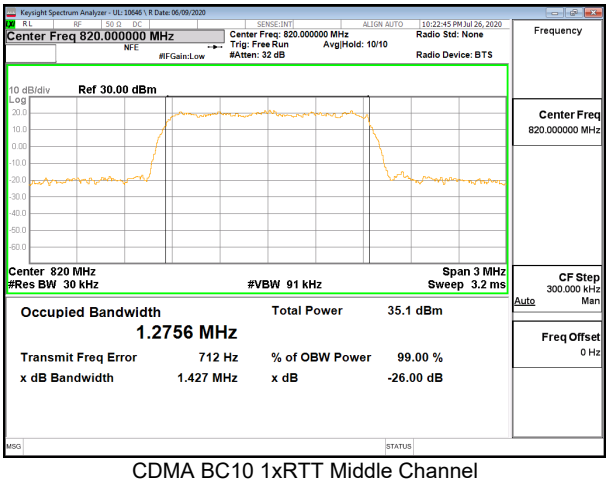


GSM 1900 GPRS Middle Channel

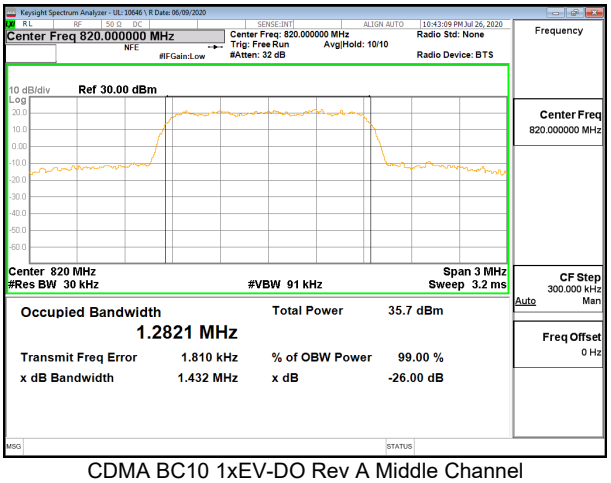


GSM 1900 EGPRS Middle Channel

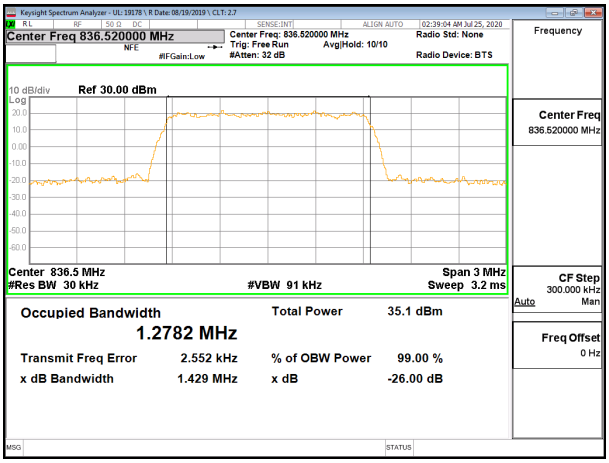
8.1.2. CDMA



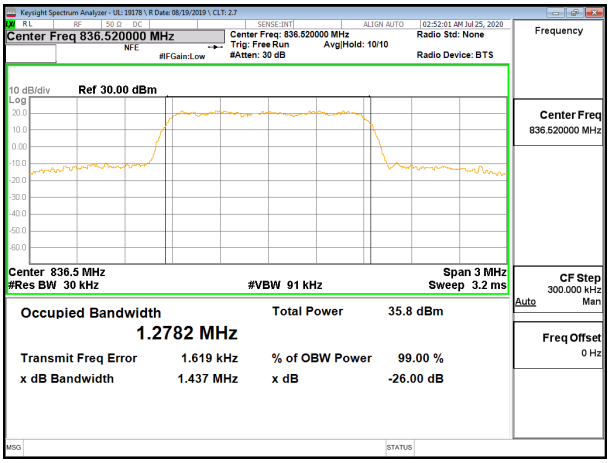
CDMA BC10 1xRTT Middle Channel



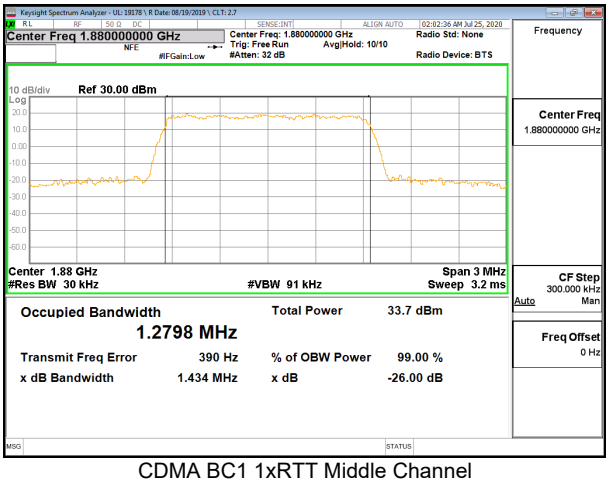
CDMA BC10 1xEV-DO Rev A Middle Channel



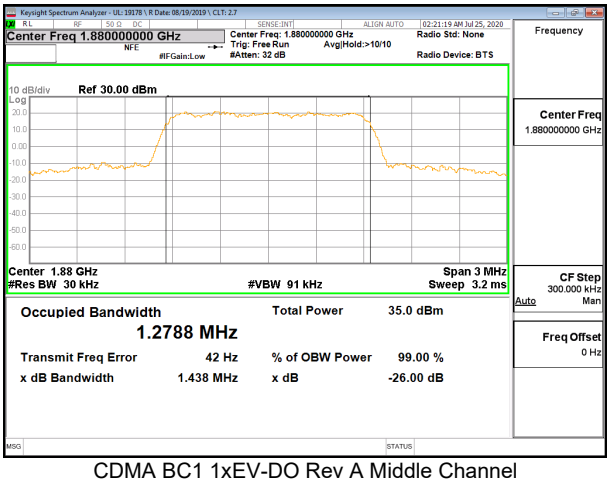
CDMA BC0 1xRTT Middle Channel



CDMA BC0 1xEV-DO Rev A Middle Channel

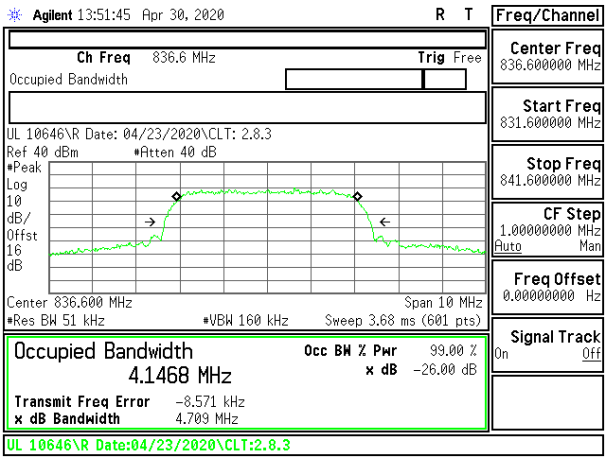


CDMA BC1 1xRTT Middle Channel

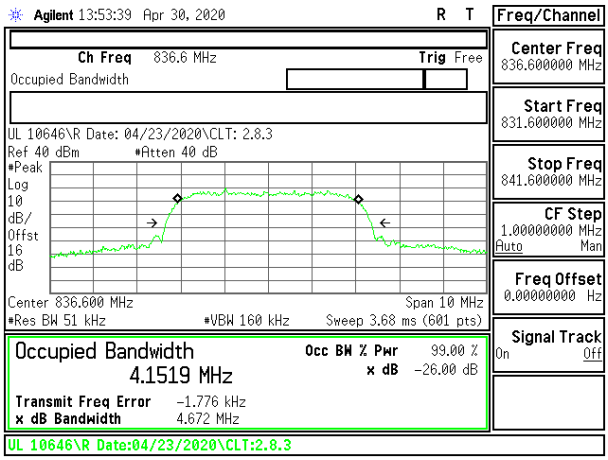


CDMA BC1 1xEV-DO Rev A Middle Channel

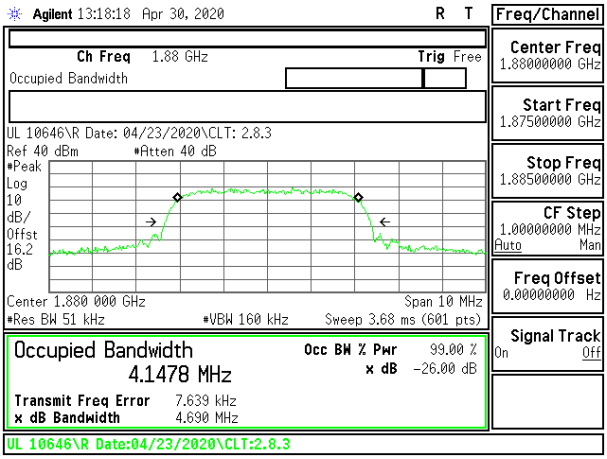
8.1.3. WCDMA



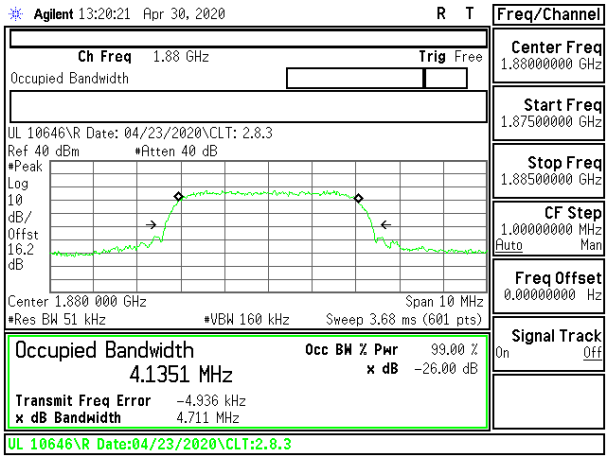
WCDMA Band 5 Rel 99 Middle Channel



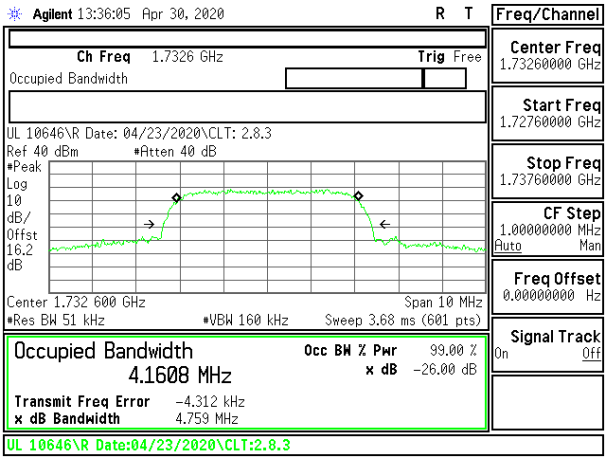
WCDMA Band 5 HSDPA Middle Channel



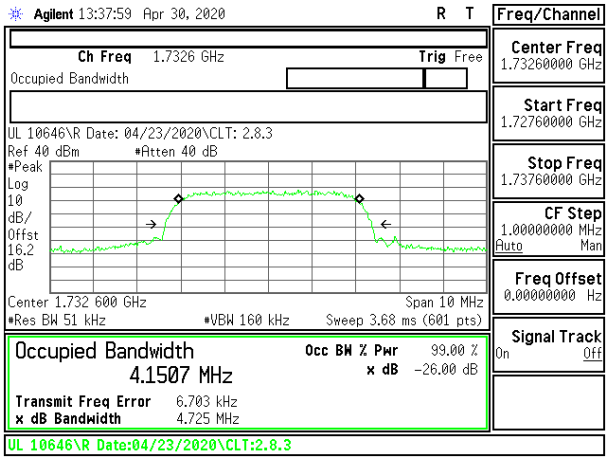
WCDMA Band 2 Rel 99 Middle Channel



WCDMA Band 2 HSDPA Middle Channel



WCDMA Band 4 Rel 99 Middle Channel



WCDMA Band 4 HSDPA Middle Channel

8.2. BAND EDGE AND EMISSION MASK

LIMITS

FCC: §22.917, §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 Log10(f/6.1) decibels or 50 + 10 Log10(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 + 10Log10(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 log10p (watts).
(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least43 + 10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

RSS133§6.5
Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment’s operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p(watts).
(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS139§6.6

(i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment’s smallest operating frequency block,Footnote2 which can contain the equipment’s occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least43 + 10 log10 p (watts) dB.
(ii) After the first 1.0 MHz outside the equipment’s smallest operating frequency block, which can contain the equipment’s occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log10 p (watts) dB.

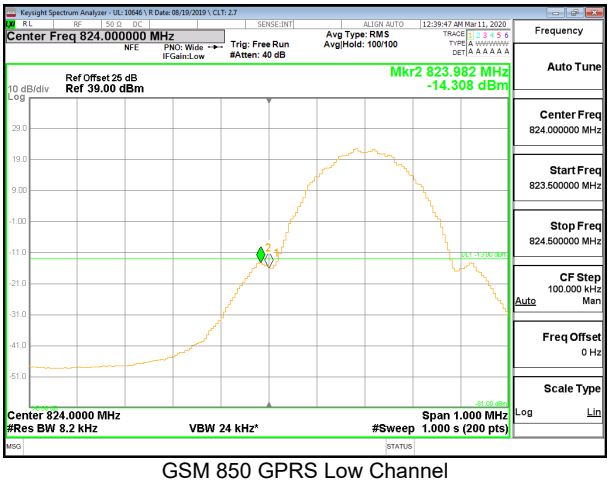
TEST PROCEDURE

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

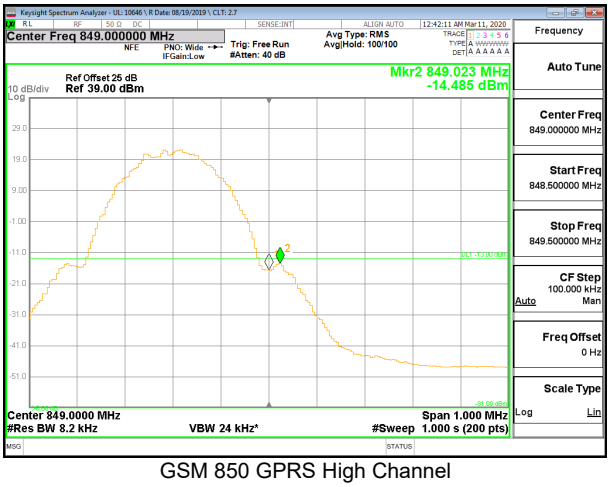
- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

RESULTS

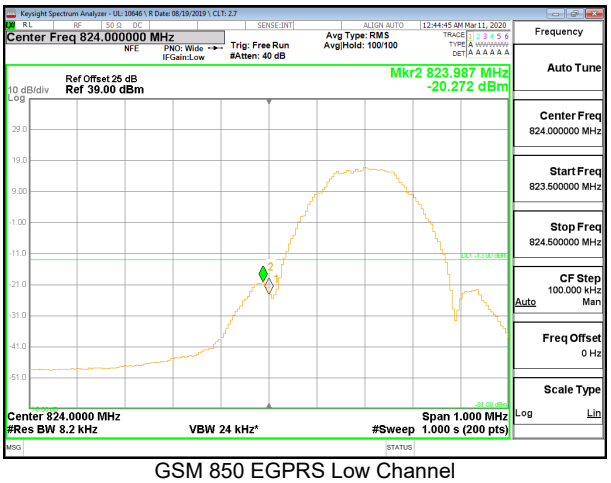
8.2.1. GSM 850



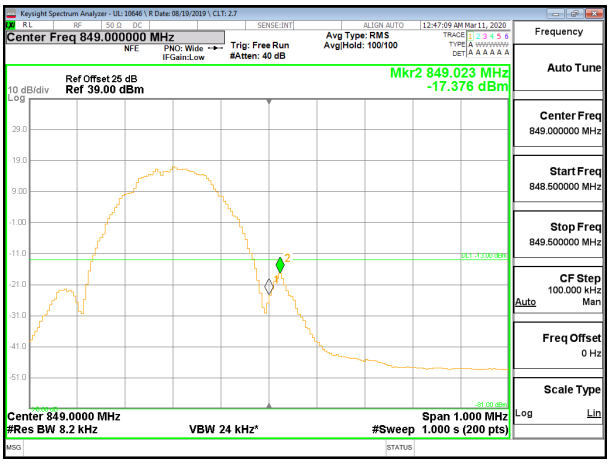
GSM 850 GPRS Low Channel



GSM 850 GPRS High Channel

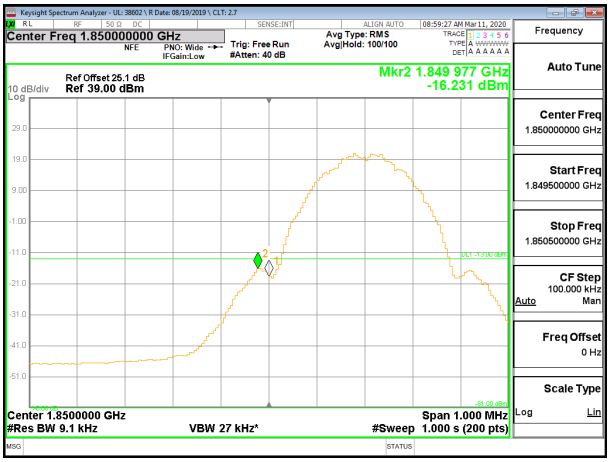


GSM 850 EGPRS Low Channel

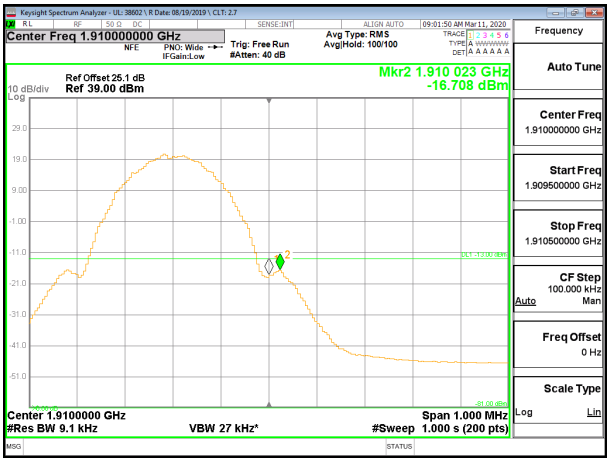


GSM 850 EGPRS High Channel

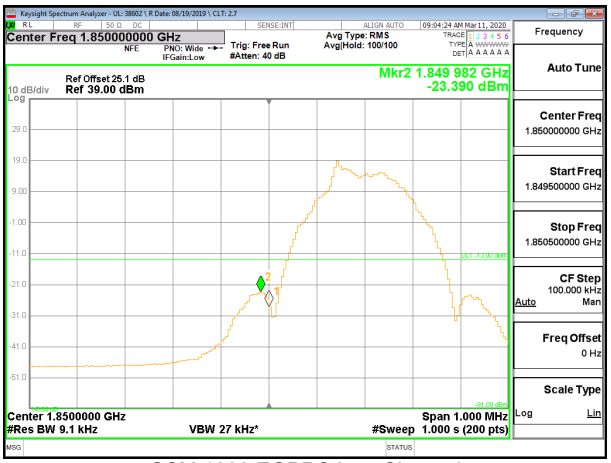
8.2.2. GSM 1900



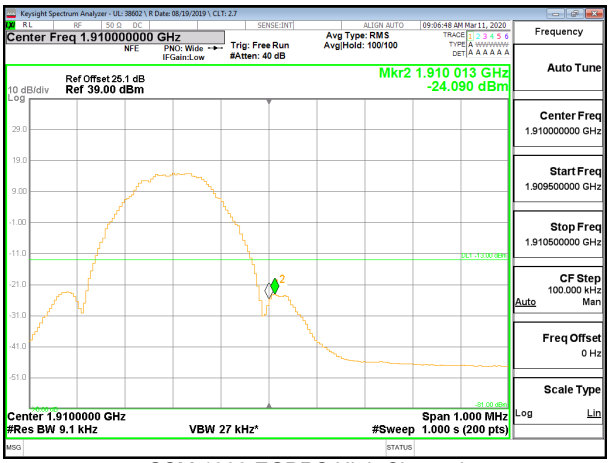
GSM 1900 GPRS Low Channel



GSM 1900 GPRS High Channel

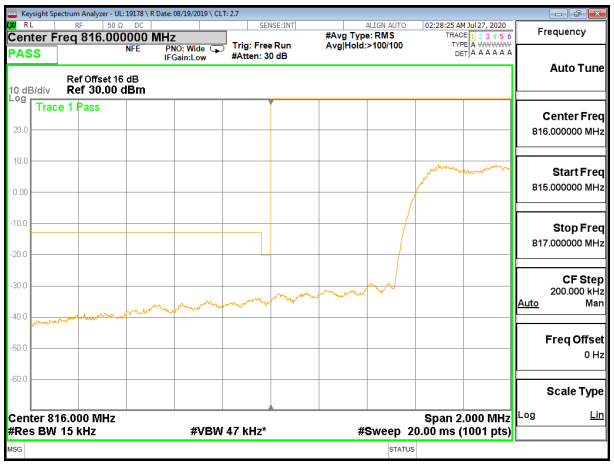


GSM 1900 EGPRS Low Channel

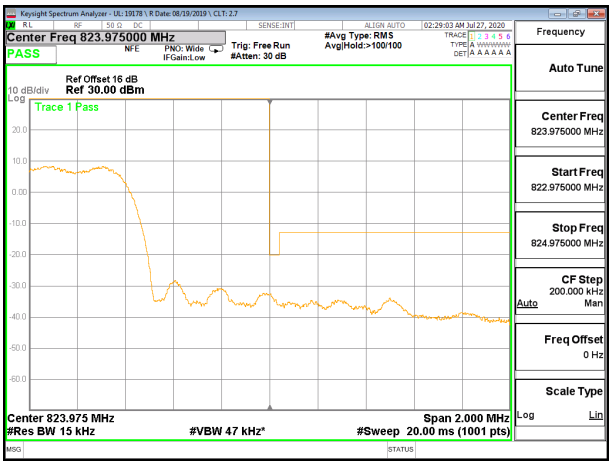


GSM 1900 EGPRS High Channel

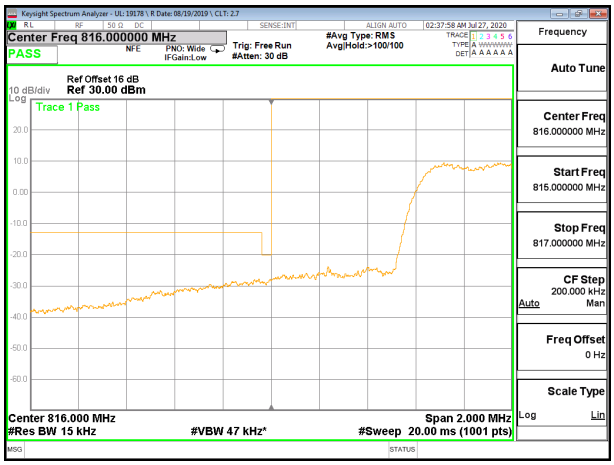
8.2.3. CDMA BC10



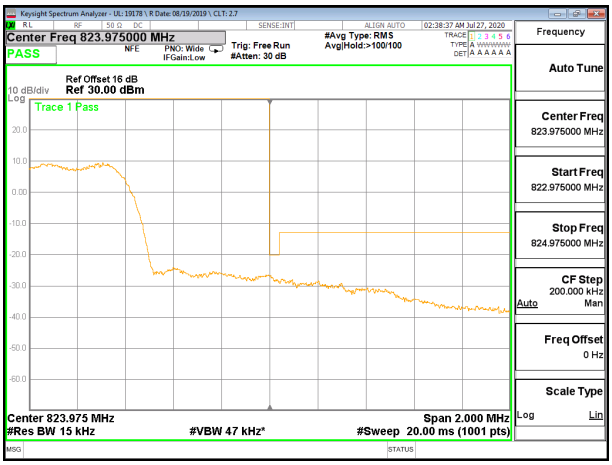
CDMA BC10 1xRTT Low Channel, RBW=1% of EBW



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

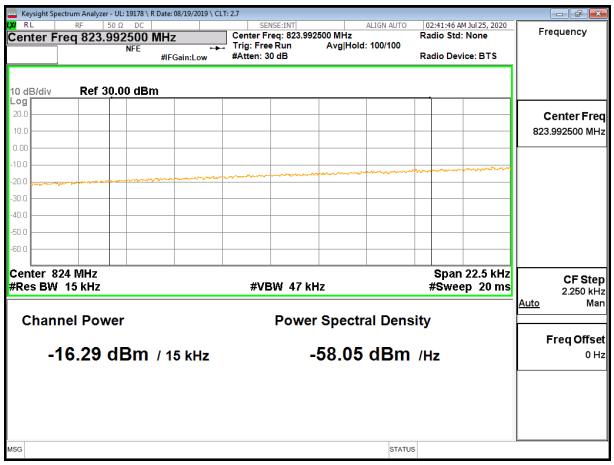


CDMA BC10 1xEV-DO Rev A Low Channel, RBW=1% of EBW

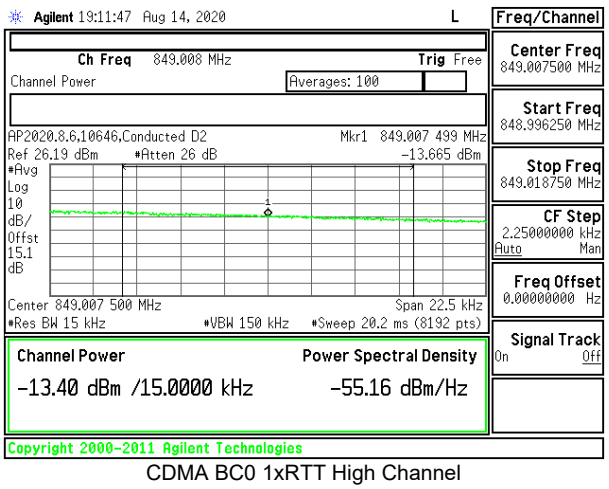


CDMA BC10 1xEV-DO Rev A High Channel, RBW=1% of EBW

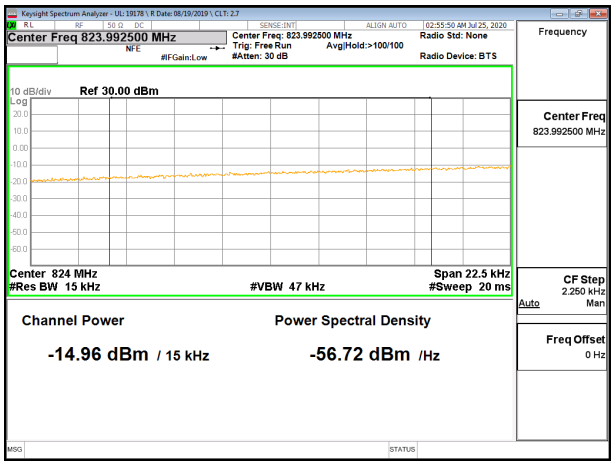
8.2.4. CDMA BC0



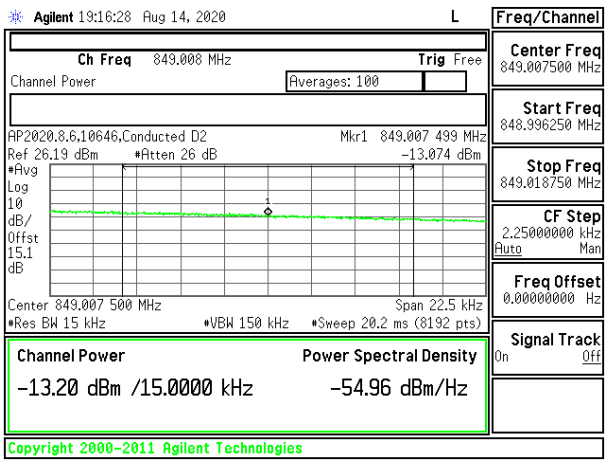
CDMA BC0 1xRTT Low Channel



CDMA BC0 1xRTT High Channel

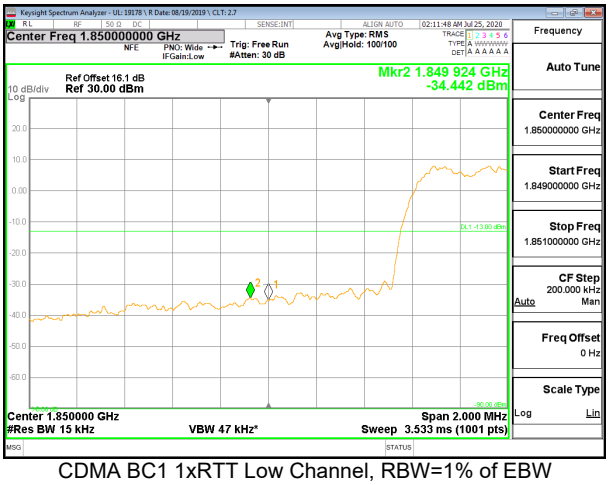


CDMA BC0 1xEV-DO Rev A Low Channel

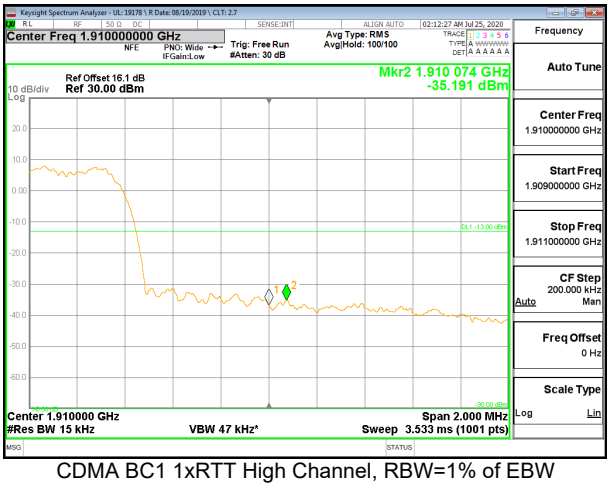


CDMA BC0 1xEV-DO Rev A High Channel

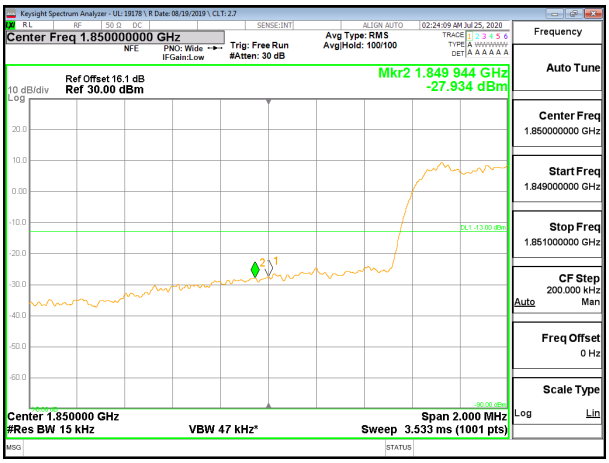
8.2.5. CDMA BC1



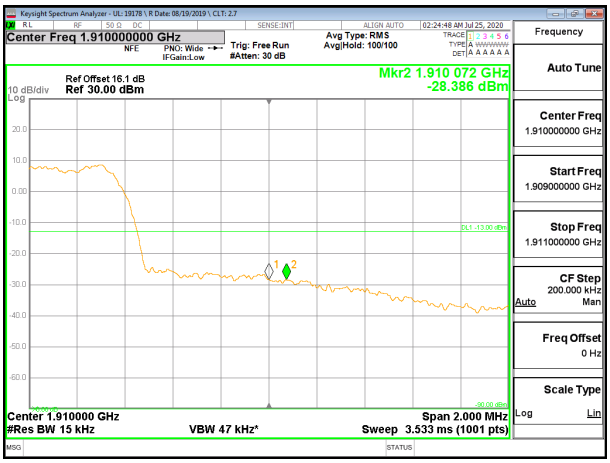
CDMA BC1 1xRTT Low Channel, RBW=1% of EBW



CDMA BC1 1xRTT High Channel, RBW=1% of EBW

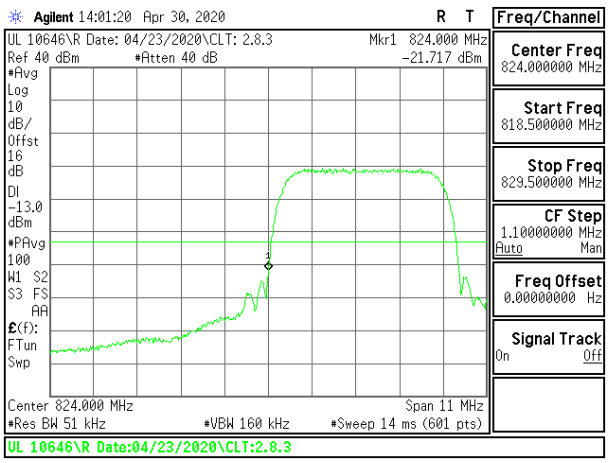


CDMA BC1 1xEV-DO Rev A Low Channel, RBW=1% of EBW

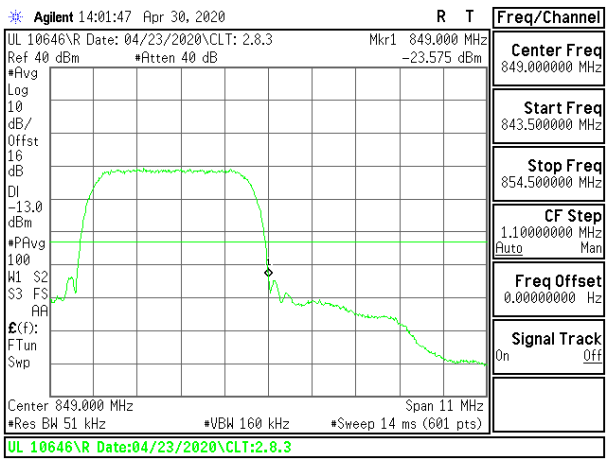


CDMA BC1 1xEV-DO Rev A High Channel, RBW=1% of EBW

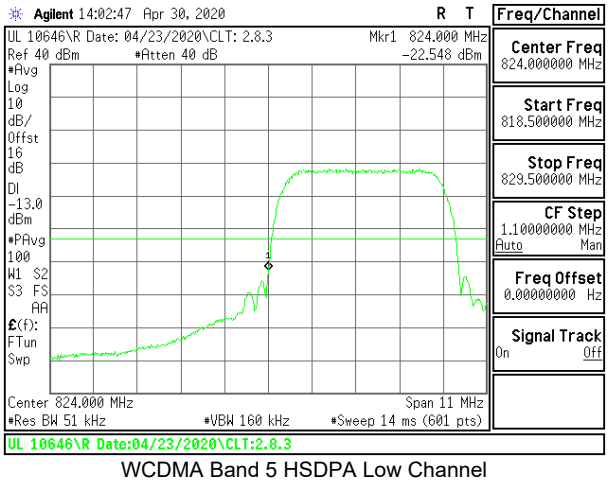
8.2.6. WCDMA BAND 5



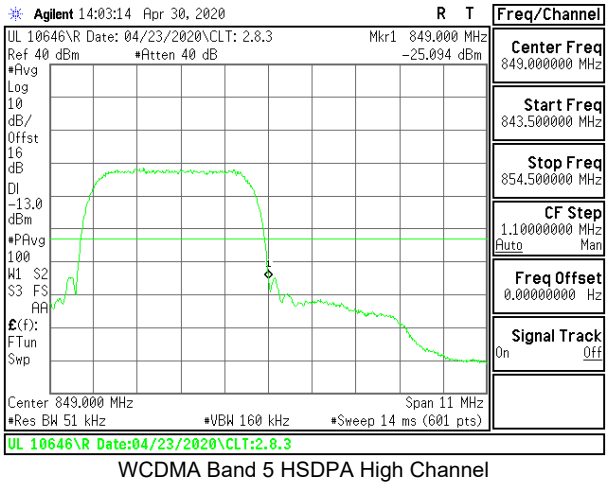
WCDMA Band 5 Rel 99 Low Channel



WCDMA Band 5 Rel 99 High Channel

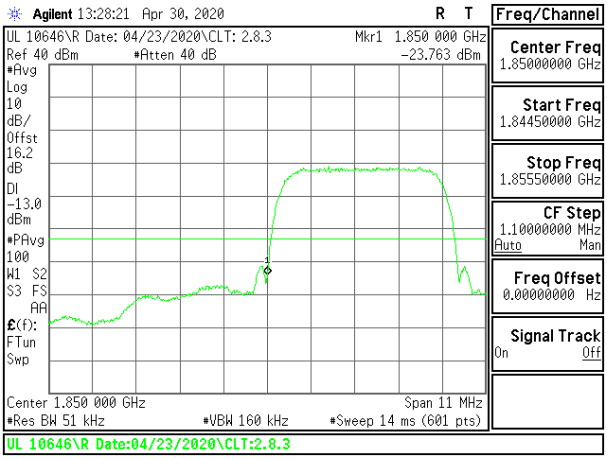


WCDMA Band 5 HSDPA Low Channel

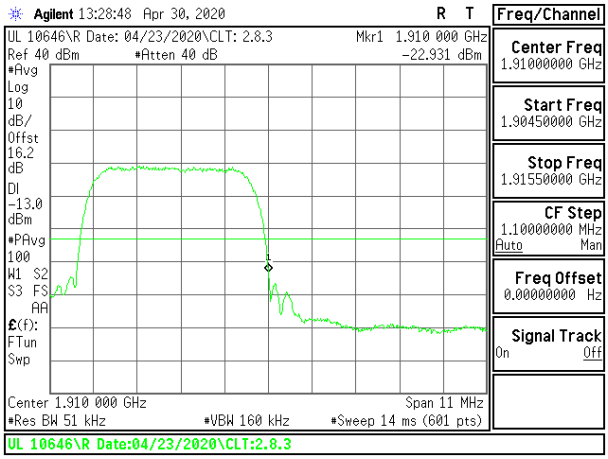


WCDMA Band 5 HSDPA High Channel

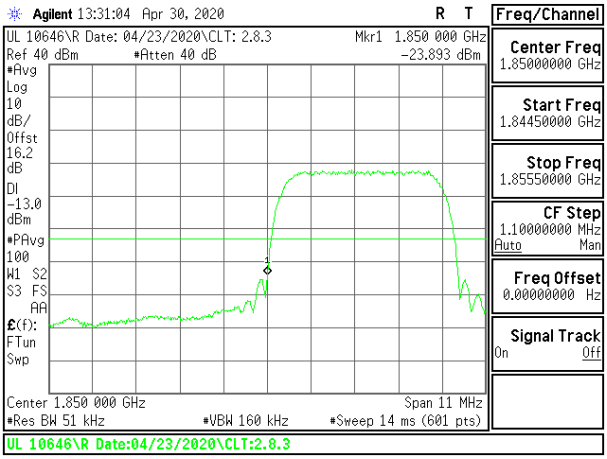
8.2.7. WCDMA BAND 2



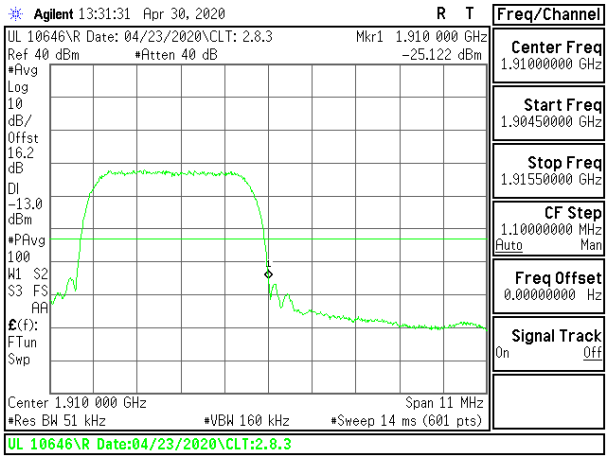
WCDMA Band 2 Rel 99 Low Channel



WCDMA Band 2 Rel 99 High Channel

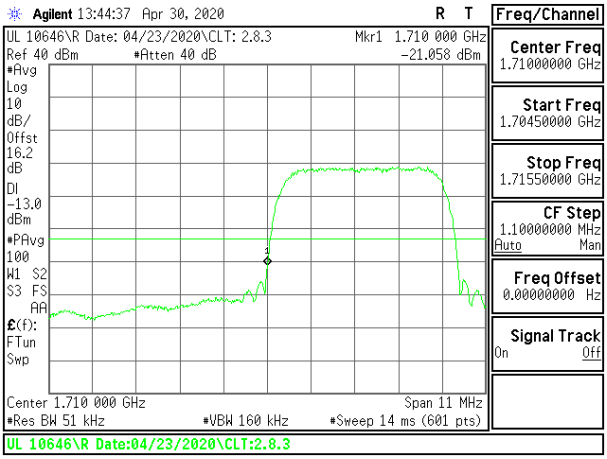


WCDMA Band 2 HSDPA Low Channel

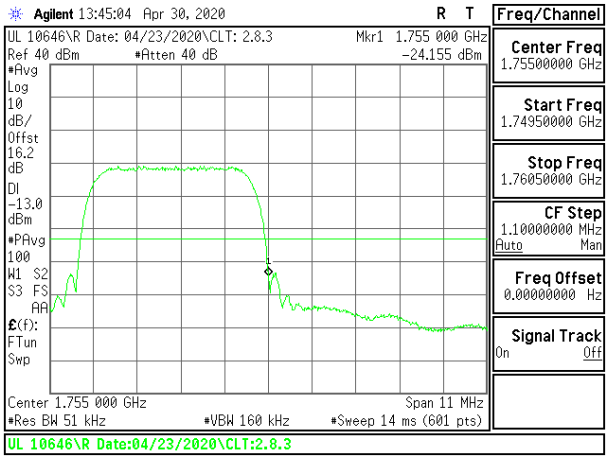


WCDMA Band 2 HSDPA High Channel

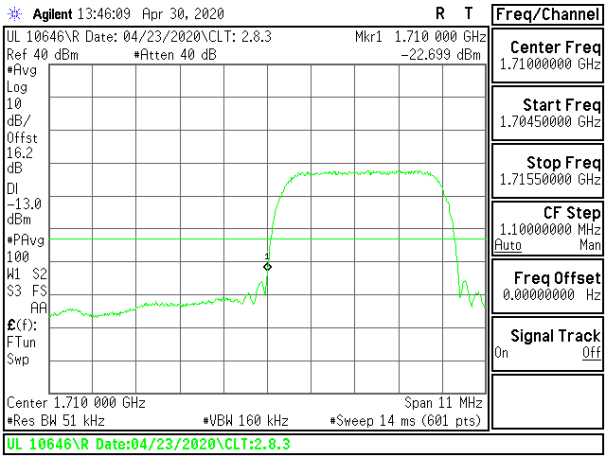
8.2.8. WCDMA BAND 4



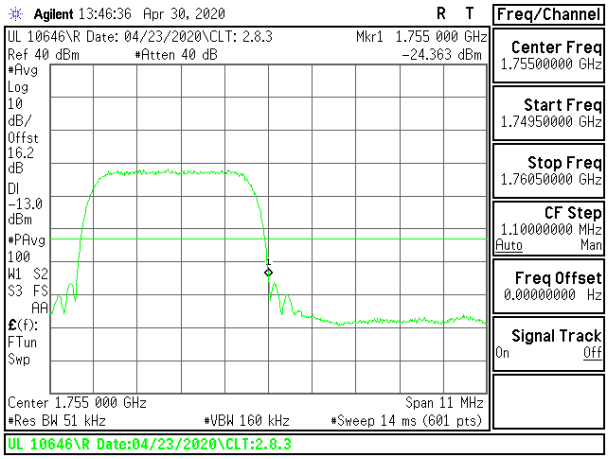
WCDMA Band 4 Rel 99 Low Channel



WCDMA Band 4 Rel 99 High Channel



WCDMA Band 4 HSDPA Low Channel



WCDMA Band 4 HSDPA High Channel

8.3. 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, §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, 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

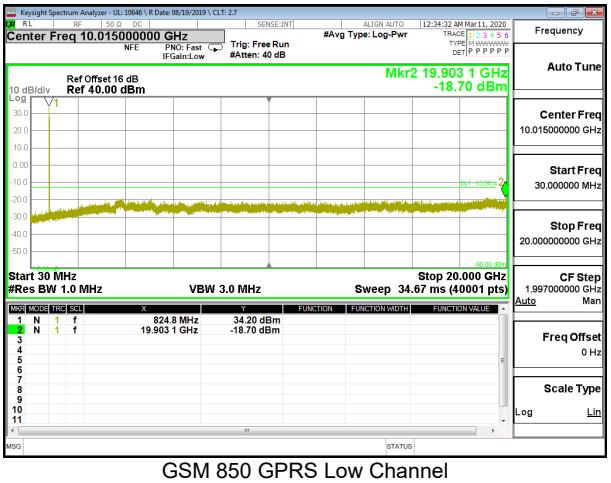
The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case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

For each out of band emissions measurement:

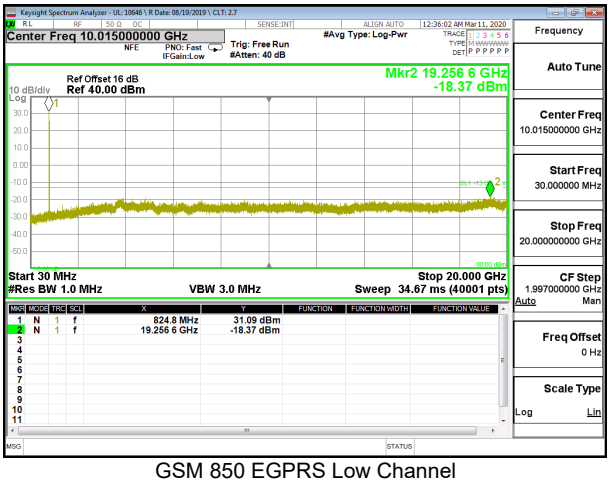
- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz. (NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

RESULTS

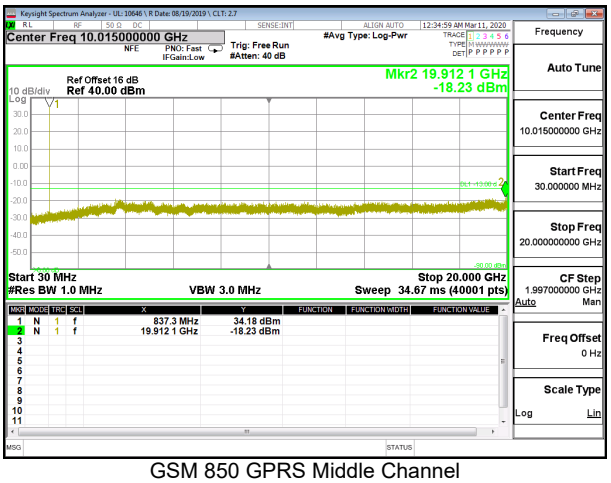
8.3.1. GSM 850



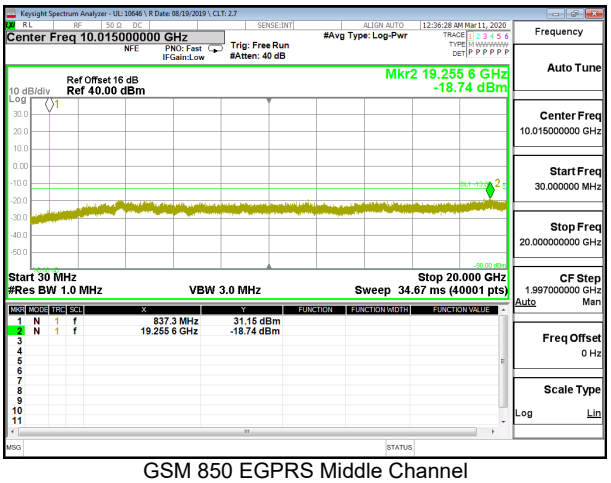
GSM 850 GPRS Low Channel



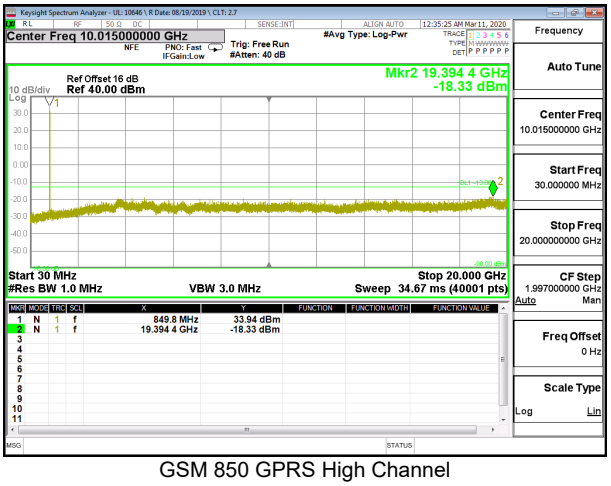
GSM 850 EGPRS Low Channel



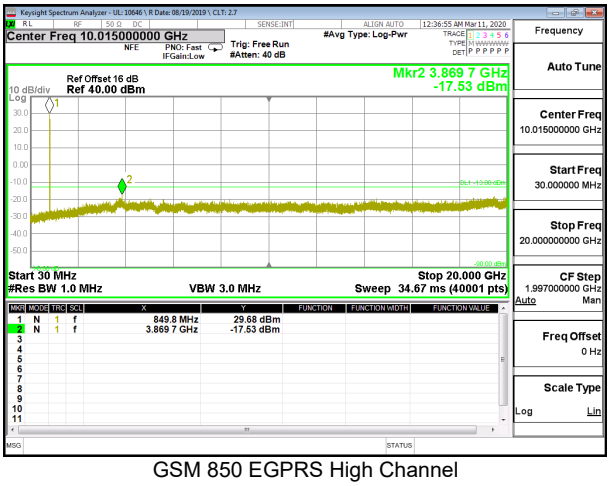
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel

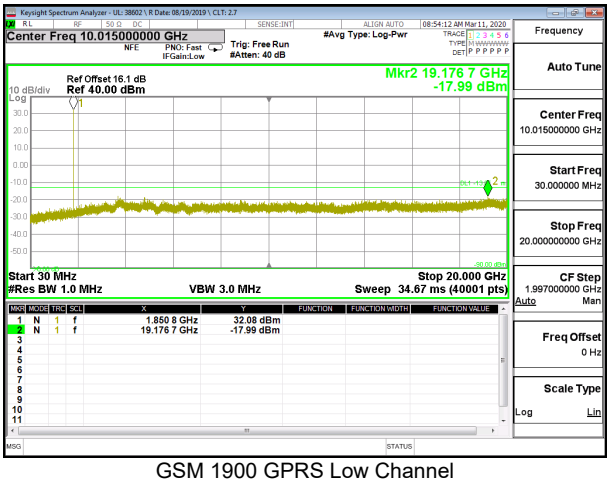


GSM 850 GPRS High Channel

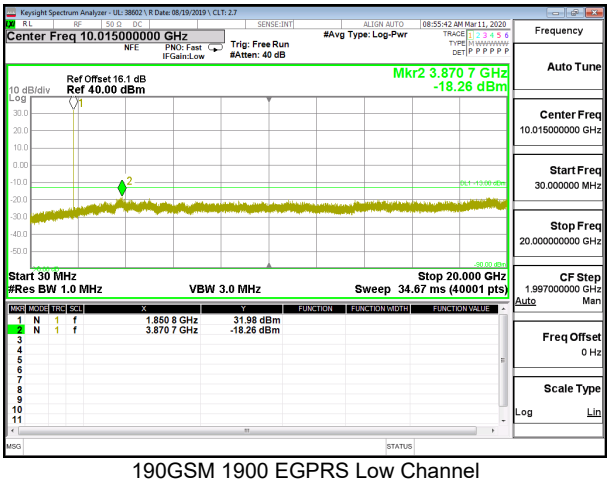


GSM 850 EGPRS High Channel

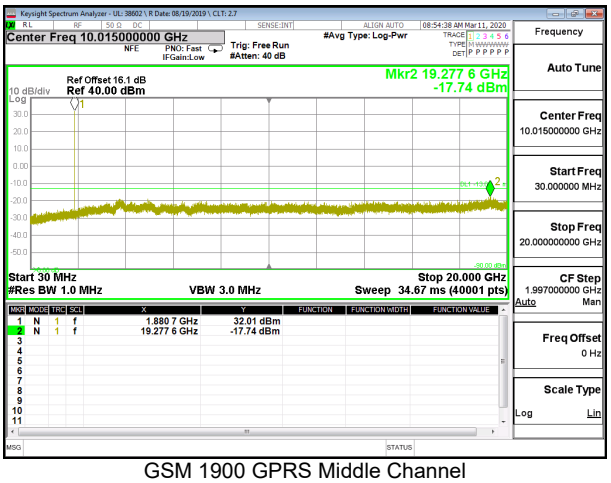
8.3.2. GSM 1900



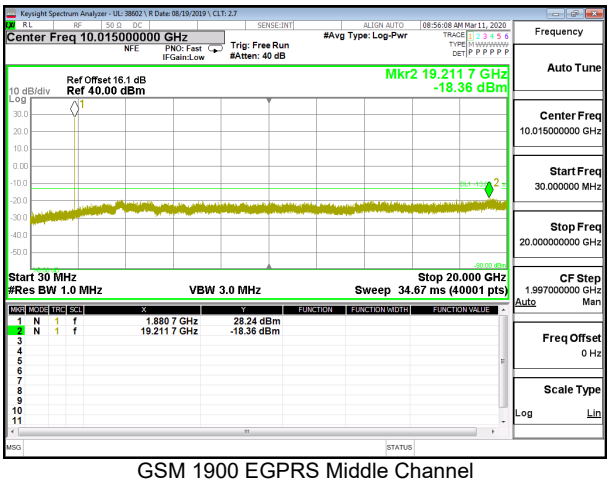
GSM 1900 GPRS Low Channel



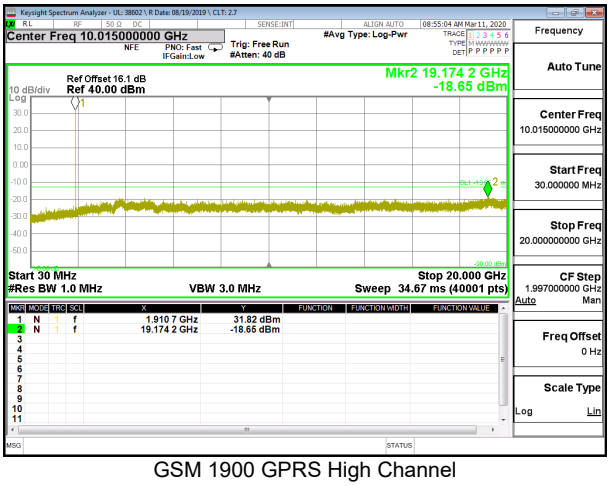
190GSM 1900 EGPRS Low Channel



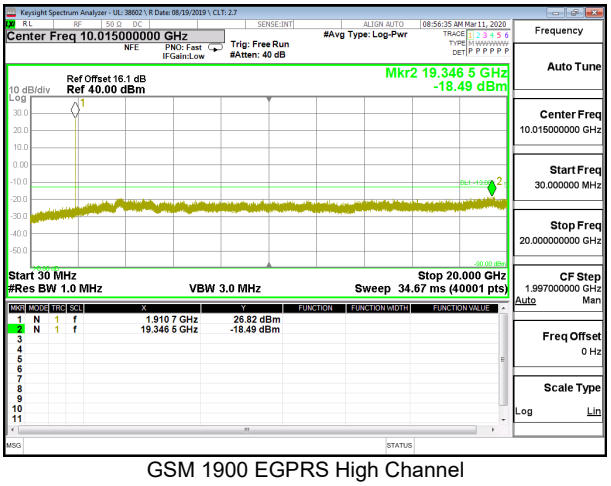
GSM 1900 GPRS Middle Channel



GSM 1900 EGPRS Middle Channel

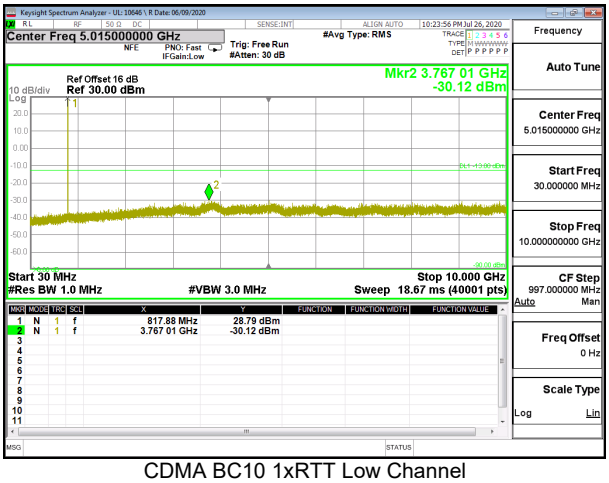


GSM 1900 GPRS High Channel

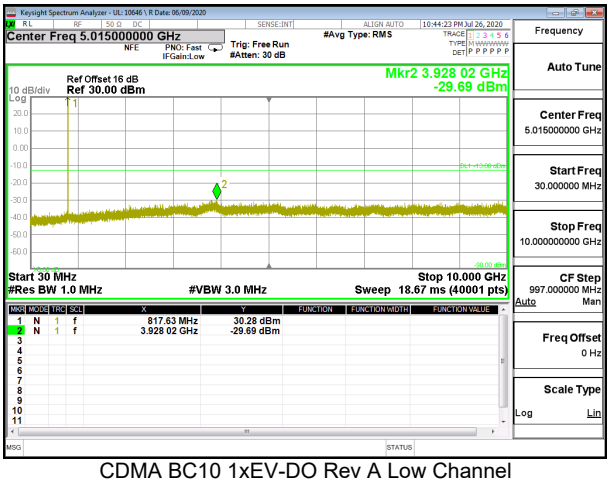


GSM 1900 EGPRS High Channel

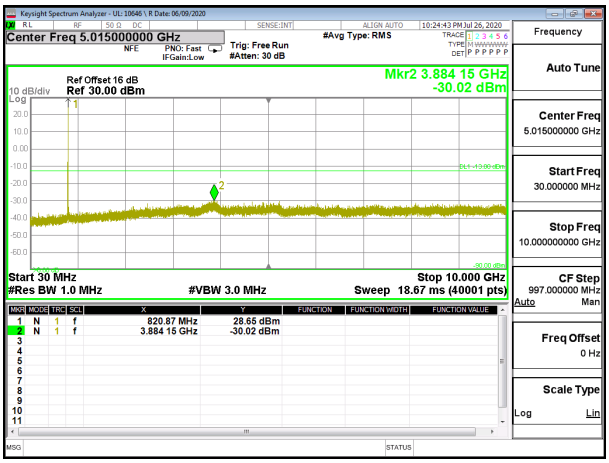
8.3.3. CDMA BC10



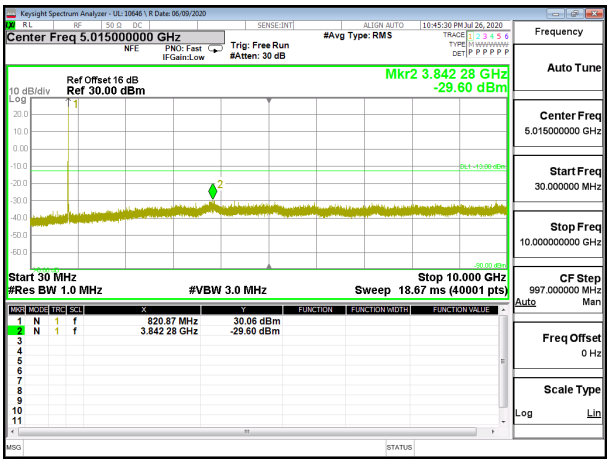
CDMA BC10 1xRTT Low Channel



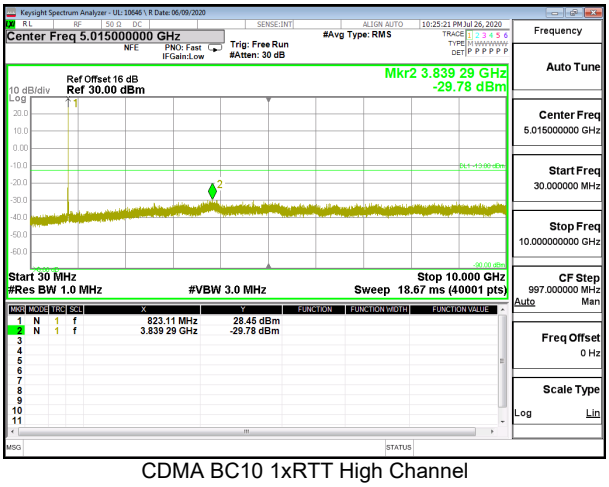
CDMA BC10 1xEV-DO Rev A Low Channel



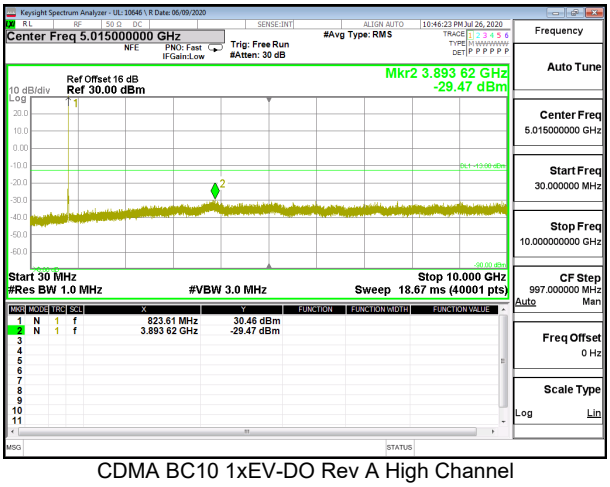
CDMA BC10 1xRTT Middle Channel



CDMA BC10 1xEV-DO Rev A Middle Channel

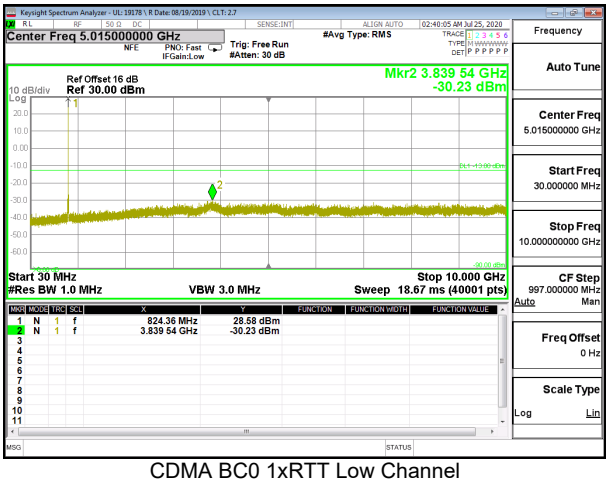


CDMA BC10 1xRTT High Channel

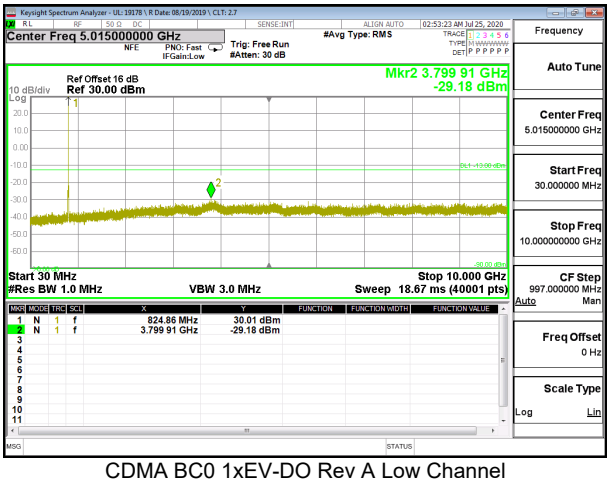


CDMA BC10 1xEV-DO Rev A High Channel

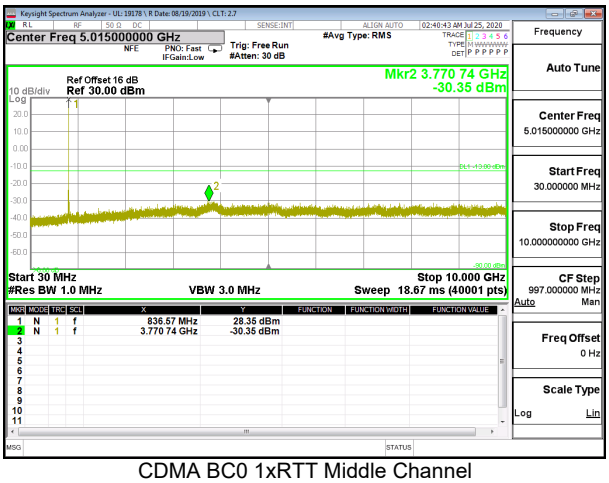
8.3.4. CDMA BC0



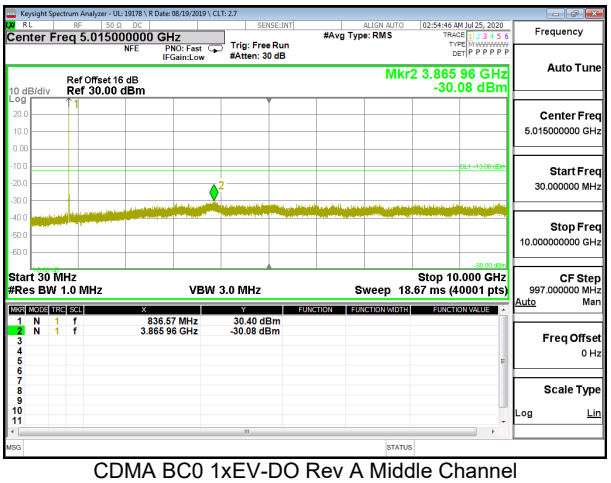
CDMA BC0 1xRTT Low Channel



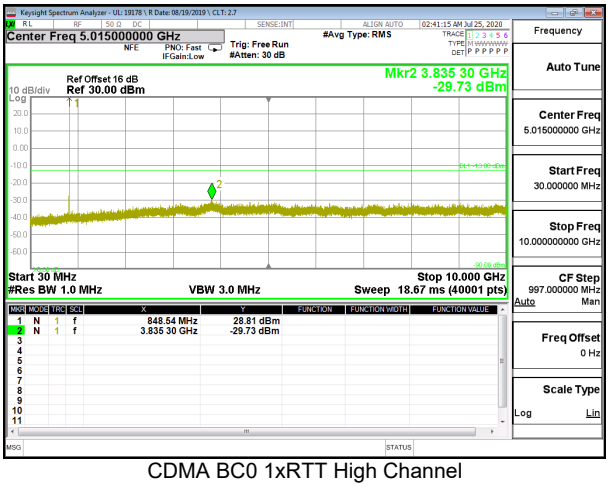
CDMA BC0 1xEV-DO Rev A Low Channel



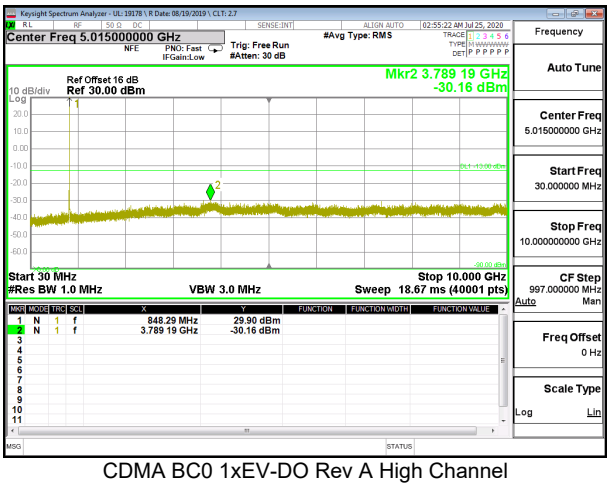
CDMA BC0 1xRTT Middle Channel



CDMA BC0 1xEV-DO Rev A Middle Channel

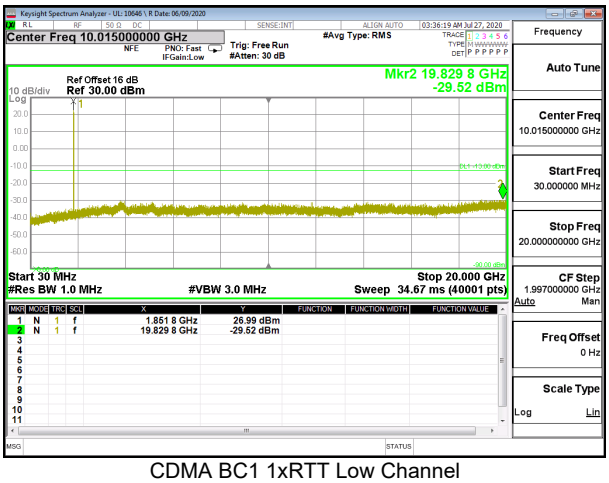


CDMA BC0 1xRTT High Channel

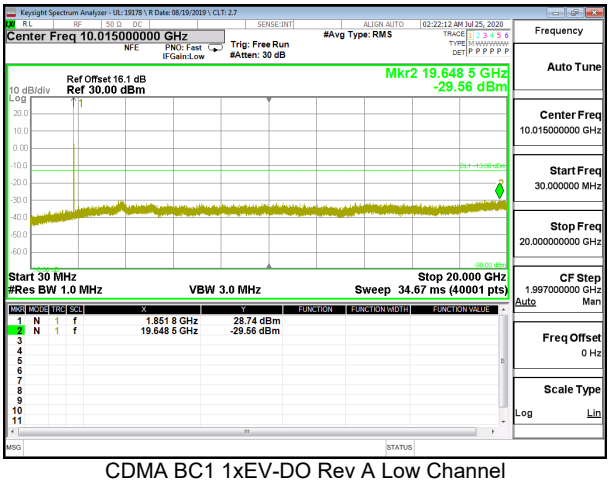


CDMA BC0 1xEV-DO Rev A High Channel

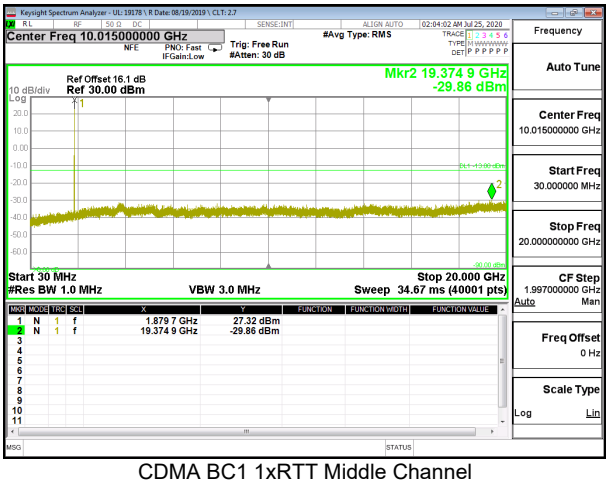
8.3.5. CDMA BC1



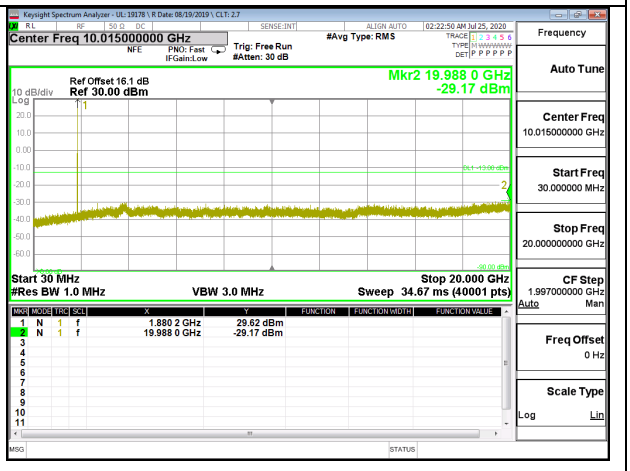
CDMA BC1 1xRTT Low Channel



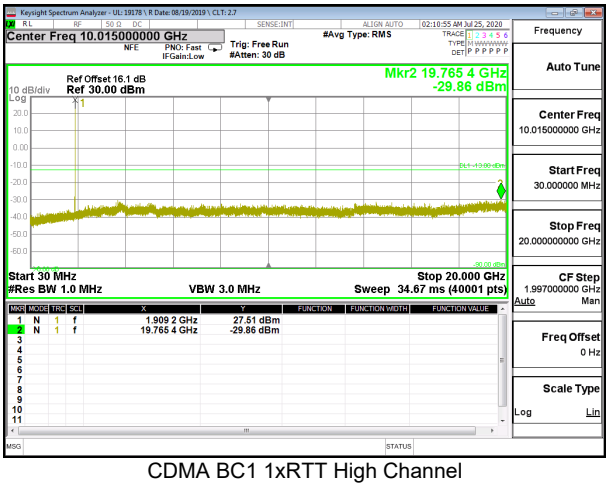
CDMA BC1 1xEV-DO Rev A Low Channel



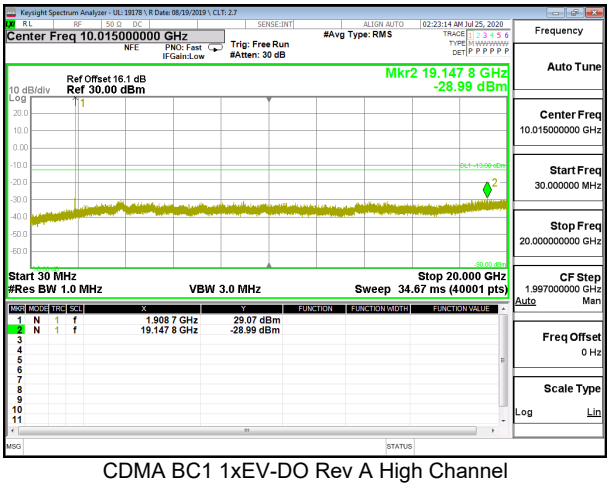
CDMA BC1 1xRTT Middle Channel



CDMA BC1 1xEV-DO Rev A Middle Channel

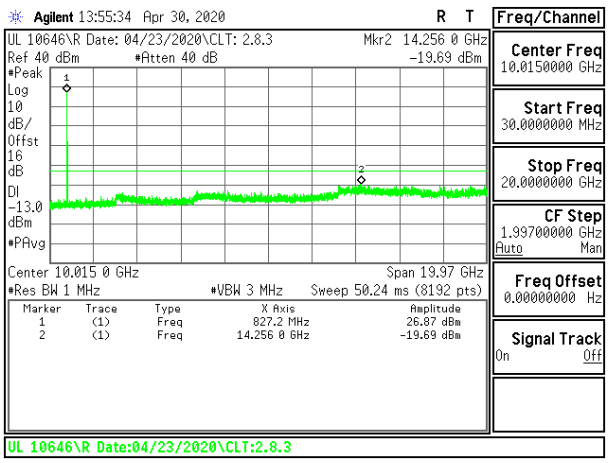


CDMA BC1 1xRTT High Channel

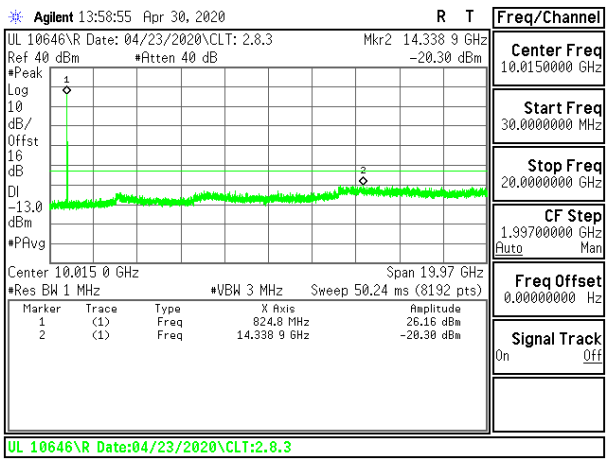


CDMA BC1 1xEV-DO Rev A High Channel

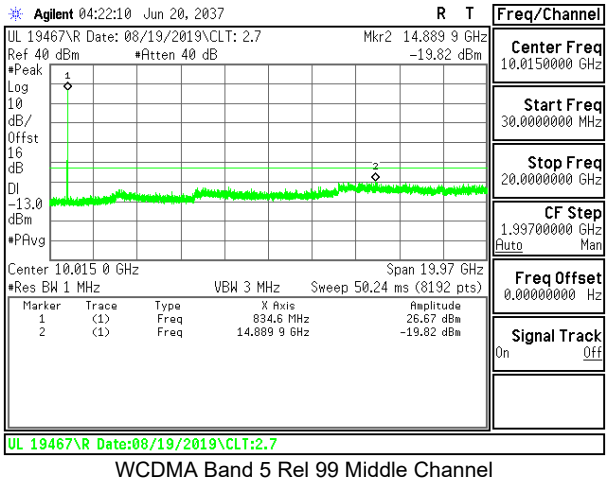
8.3.6. WCDMA BAND 5



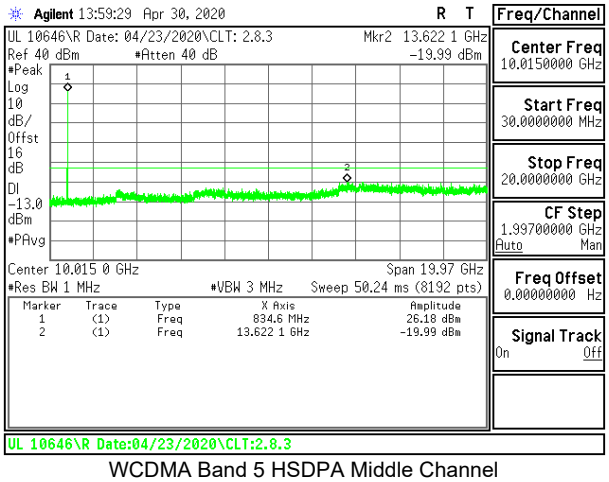
WCDMA Band 5 Rel 99 Low Channel



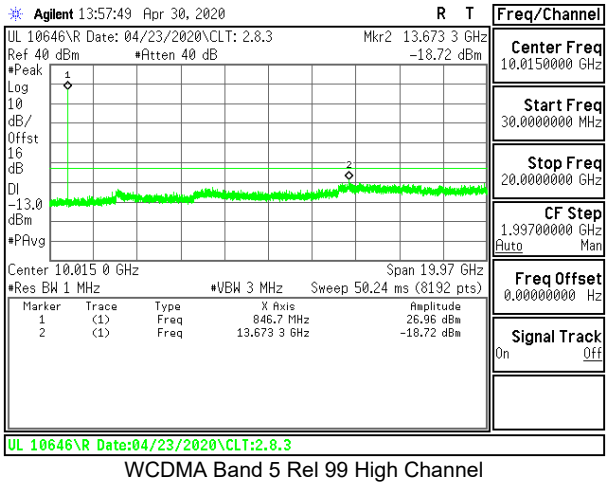
WCDMA Band 5 HSDPA Low Channel



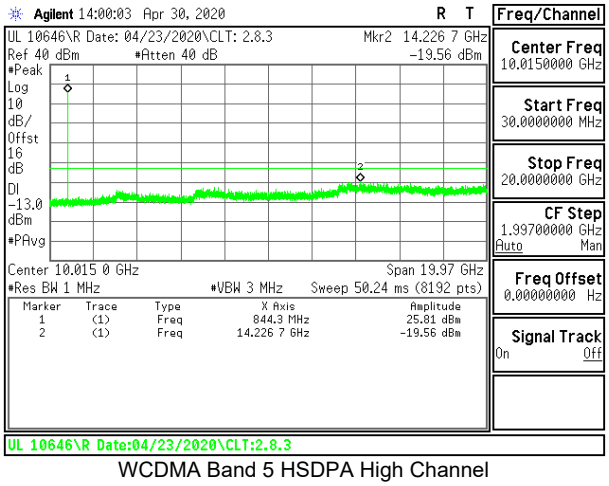
WCDMA Band 5 Rel 99 Middle Channel



WCDMA Band 5 HSDPA Middle Channel

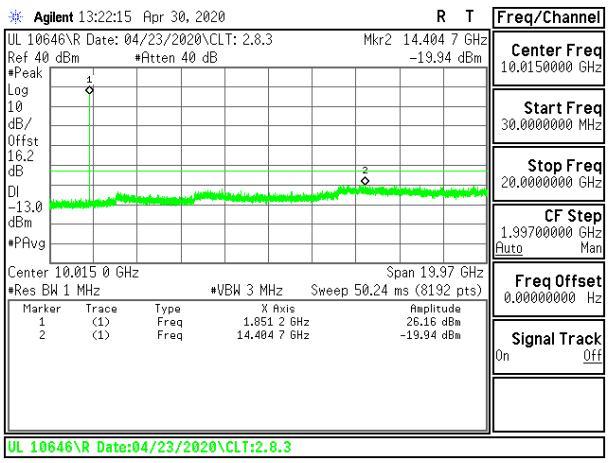


WCDMA Band 5 Rel 99 High Channel

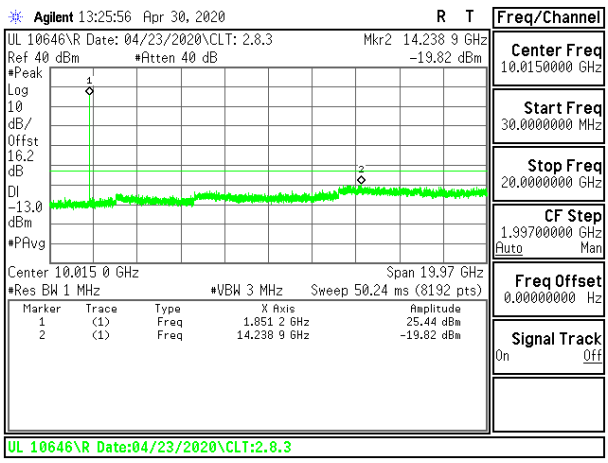


WCDMA Band 5 HSDPA High Channel

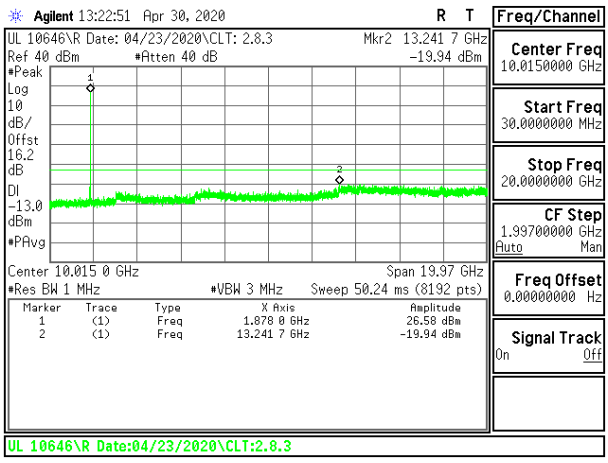
8.3.7. WCDMA BAND 2



WCDMA Band 2 Rel 99 Low Channel



WCDMA Band 2 HSDPA Low Channel



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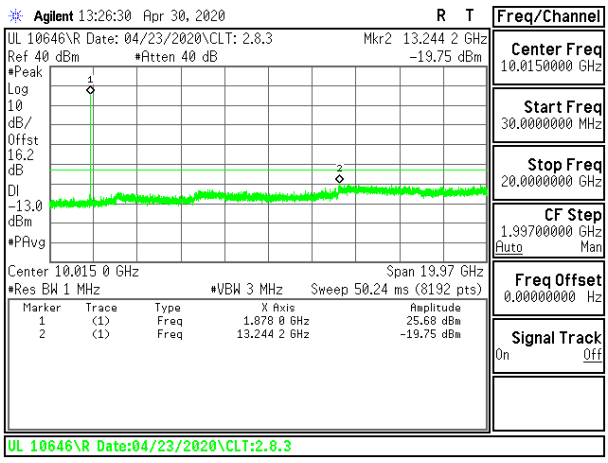

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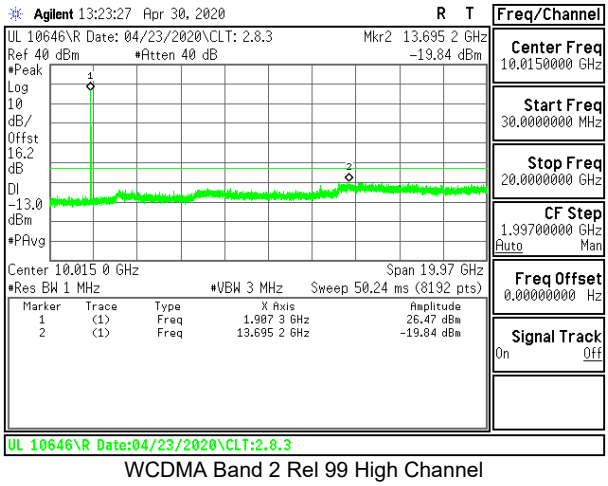

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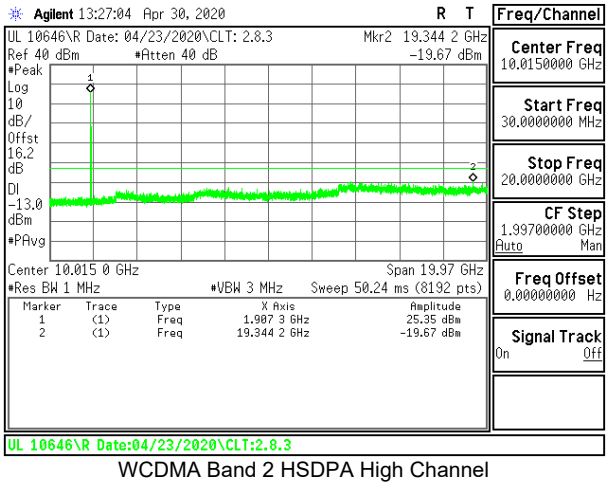
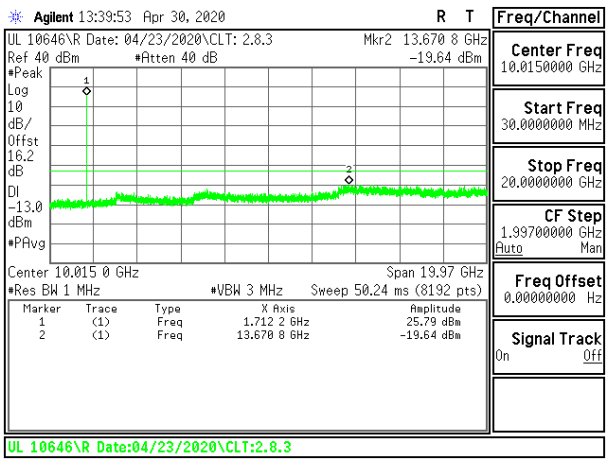
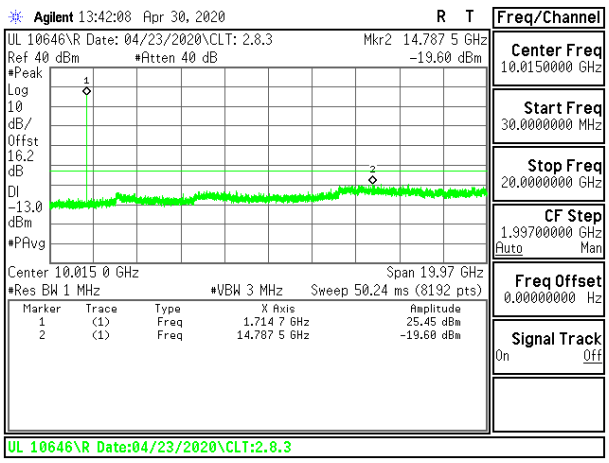


WCDMA Band 2 HSDPA High Channel

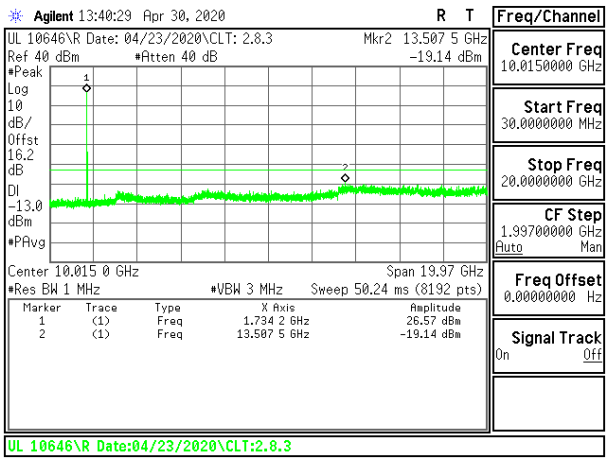
8.3.8. WCDMA BAND 4



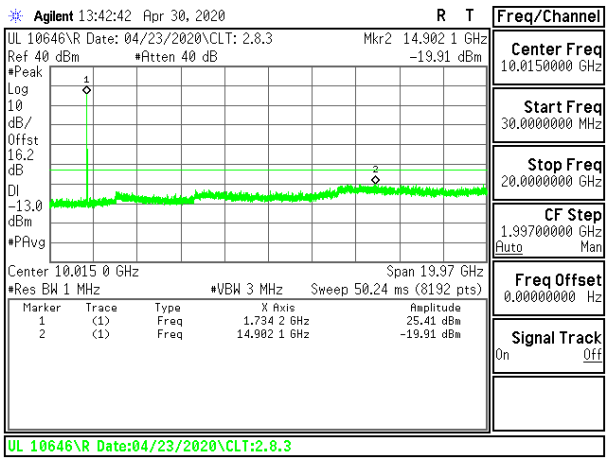
WCDMA Band 4 Rel 99 Low Channel



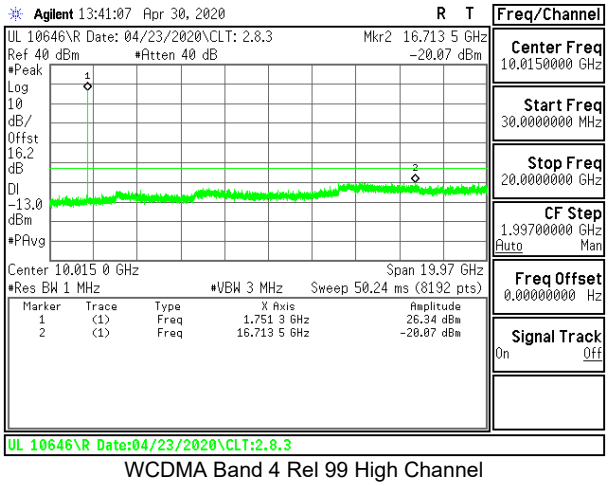
WCDMA Band 4 HSDPA Low Channel



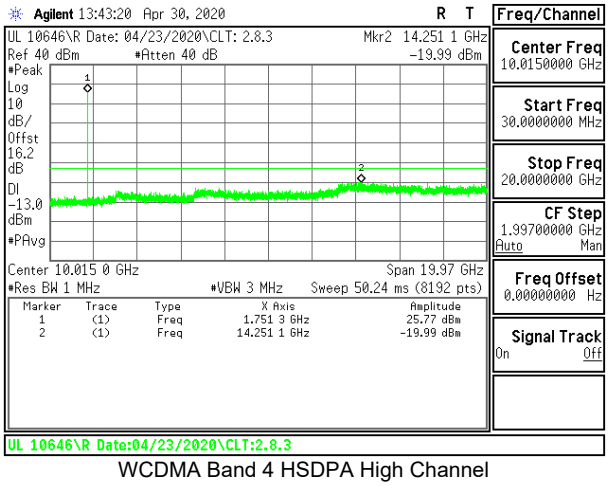
WCDMA Band 4 Rel 99 Middle Channel



WCDMA Band 4 HSDPA Middle Channel



WCDMA Band 4 Rel 99 High Channel



WCDMA Band 4 HSDPA High Channel

8.4. 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°C
- Voltage = (85% - 115%)

  Low voltage, 3.23VDC, Normal, 3.8VDC and High voltage, 4.37VDC.
  End Voltage, 3.2VDC.

Frequency Stability vs Temperature:
The EUT is place inside a temperature chamber. The temperature is set to 20ºC and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50ºC is reached.

Frequency Stability vs Voltage:
The peak frequency error is recorded (worst-case).

RESULTS

See the following pages.

8.4.1. GSM

Test Engineer ID:	19178	Test Date:	6/21/2020

GPRS 850

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.0329	848.9632		
Extreme (50C)		824.0329	848.9632	18.6300	0.0223
Extreme (40C)		824.0328	848.9631	-51.5900	-0.0617
Extreme (30C)		824.0329	848.9632	22.6600	0.0271
Extreme (10C)		824.0329	848.9632	23.4100	0.0280
Extreme (0C)		824.0329	848.9632	29.0200	0.0347
Extreme (-10C)		824.0329	848.9632	23.5000	0.0281
Extreme (-20C)		824.0329	848.9632	25.5700	0.0306
Extreme (-30C)		824.0329	848.9632	35.0900	0.0419
20C	15%	824.0329	848.9632	20.0800	0.0240
	-15%	824.0329	848.9632	20.0800	0.0240
	End Point	824.0329	848.9632	23.5700	0.0282

GPRS 1900

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	1850.0348	1909.9623		
Extreme (50C)		1850.0348	1909.9623	26.5700	0.0141
Extreme (40C)		1850.0348	1909.9623	-45.5700	-0.0242
Extreme (30C)		1850.0348	1909.9623	-44.6500	-0.0238
Extreme (10C)		1850.0348	1909.9623	17.2700	0.0092
Extreme (0C)		1850.0348	1909.9623	30.2200	0.0161
Extreme (-10C)		1850.0348	1909.9623	29.1900	0.0155
Extreme (-20C)		1850.0348	1909.9623	32.5100	0.0173
Extreme (-30C)		1850.0348	1909.9623	43.4900	0.0231
20C	15%	1850.0348	1909.9623	25.7600	0.0137
	-15%	1850.0348	1909.9623	29.9900	0.0160
	End Point	1850.0348	1909.9623	29.1900	0.0155

8.4.2. CDMA

Test Engineer ID:	38602	Test Date:	8/1/2020

CDMA 1xRTT BC10

Limit		816.35	823.65	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	816.5738	823.4275		
Extreme (50C)		816.5738	823.4275	0.8	0.001
Extreme (40C)		816.5738	823.4275	1.2	0.001
Extreme (30C)		816.5738	823.4275	1.9	0.002
Extreme (10C)		816.5738	823.4275	3.6	0.004
Extreme (0C)		816.5738	823.4275	4.2	0.005
Extreme (-10C)		816.5738	823.4275	3.4	0.004
Extreme (-20C)		816.5738	823.4275	4.1	0.005
Extreme (-30C)		816.5738	823.4275	4.8	0.006
20C	15%	816.5738	823.4275	1.5	0.002
	-15%	816.5738	823.4275	2.2	0.003
	End Point	816.5738	823.4275	3.5	0.004

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	824.0210	848.9871		
Extreme (50C)		824.0210	848.9871	0.8	0.001
Extreme (40C)		824.0210	848.9871	1.6	0.002
Extreme (30C)		824.0210	848.9871	1.5	0.002
Extreme (10C)		824.0210	848.9871	4.4	0.005
Extreme (0C)		824.0210	848.9871	3.5	0.004
Extreme (-10C)		824.0210	848.9871	4.3	0.005
Extreme (-20C)		824.0210	848.9871	3.5	0.004
Extreme (-30C)		824.0210	848.9871	5.7	0.007
20C	15%	824.0210	848.9871	2.2	0.003
	-15%	824.0210	848.9871	3.1	0.004
	End Point	824.0210	848.9871	3.8	0.005

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	1850.5704	1909.4279		
Extreme (50C)		1850.5704	1909.4279	9.7	0.005
Extreme (40C)		1850.5704	1909.4279	10.5	0.006
Extreme (30C)		1850.5704	1909.4279	11.7	0.006
Extreme (10C)		1850.5704	1909.4279	11.6	0.006
Extreme (0C)		1850.5704	1909.4279	12.8	0.007
Extreme (-10C)		1850.5704	1909.4279	13.4	0.007
Extreme (-20C)		1850.5704	1909.4279	14.2	0.008
Extreme (-30C)		1850.5704	1909.4279	14.5	0.008
20C	15%	1850.5704	1909.4279	11.3	0.006
	-15%	1850.5704	1909.4279	12.4	0.007
	End Point	1850.5704	1909.4279	13.3	0.007

8.4.3. WCDMA

Test Engineer ID:	50820	Test Date:	6/24/2020

WCDMA REL 99 BAND 5

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)		824.0745	848.9225		
Extreme (50C)		824.0745	848.9225	6.2	0.0074
Extreme (40C)		824.0745	848.9225	7.6	0.0090
Extreme (30C)		824.0745	848.9225	7.7	0.0092
Extreme (10C)	Normal	824.0745	848.9225	8.7	0.0104
Extreme (0C)		824.0745	848.9225	8.6	0.0103
Extreme (-10C)		824.0745	848.9225	7.3	0.0087
Extreme (-20C)		824.0745	848.9225	6.0	0.0072
Extreme (-30C)		824.0745	848.9225	6.5	0.0078
	15%	824.0745	848.9225	6.8	0.008
20C	-15%	824.0745	848.9225	-3.5	-0.004
	End Point	824.0745	848.9225	4.3	0.005

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)		1850.0876	1909.9120		
Extreme (50C)		1850.0876	1909.9120	7.8	0.0042
Extreme (40C)		1850.0876	1909.9120	9.1	0.0049
Extreme (30C)		1850.0876	1909.9120	8.6	0.0046
Extreme (10C)	Normal	1850.0876	1909.9120	9.3	0.0049
Extreme (0C)		1850.0876	1909.9120	8.8	0.0047
Extreme (-10C)		1850.0876	1909.9120	6.3	0.0033
Extreme (-20C)		1850.0876	1909.9120	7.6	0.0040
Extreme (-30C)		1850.0876	1909.9120	6.2	0.0033
	15%	1850.0876	1909.9120	9.4	0.005
20C	-15%	1850.0876	1909.9120	7.2	0.004
	End Point	1850.0876	1909.9120	6.0	0.003

WCDMA REL 99 BAND 4

Limit		1710	1755	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	1710.0821	1754.9227		
Extreme (50C)		1710.0821	1754.9227	6.8	0.0039
Extreme (40C)		1710.0821	1754.9227	7.6	0.0044
Extreme (30C)		1710.0821	1754.9227	7.2	0.0041
Extreme (10C)		1710.0821	1754.9227	8.5	0.0049
Extreme (0C)		1710.0821	1754.9227	7.8	0.0045
Extreme (-10C)		1710.0821	1754.9227	6.4	0.0037
Extreme (-20C)		1710.0821	1754.9227	6.2	0.0036
Extreme (-30C)		1710.0821	1754.9227	7.4	0.0043
20C	15%	1710.0821	1754.9227	8.1	0.00
	-15%	1710.0821	1754.9227	6.7	0.00
	End Point	1710.0821	1754.9227	5.5	0.00

8.5. PEAK-TO-AVERAGE POWER RATIO

LIMIT

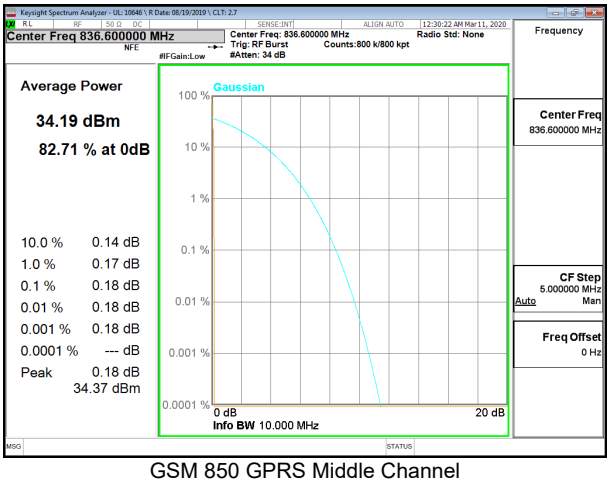
In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

RESULT

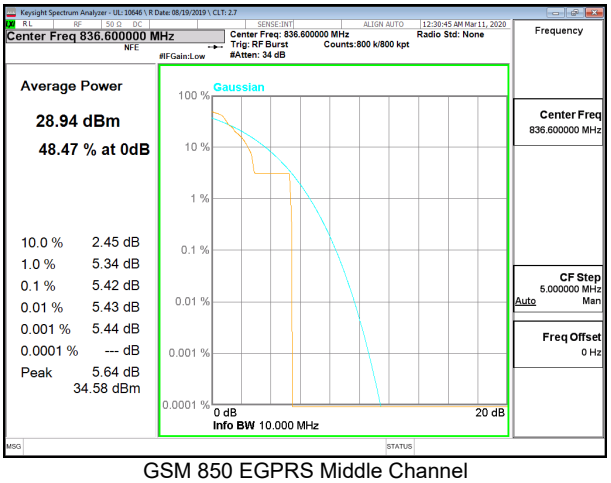
Ant 1 was used to measure as the worst case. The results from all CCDF plots are passed with 13dB peak-to-average power ratio criteria.

8.5.1. GSM

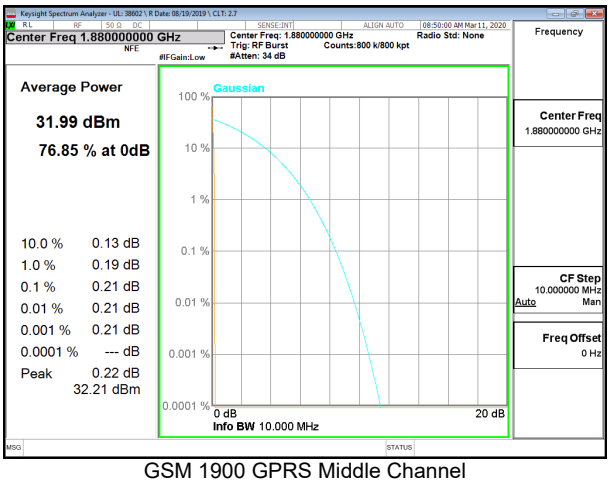
Test Engineer ID:	10646	Test Date:	3/11/2020



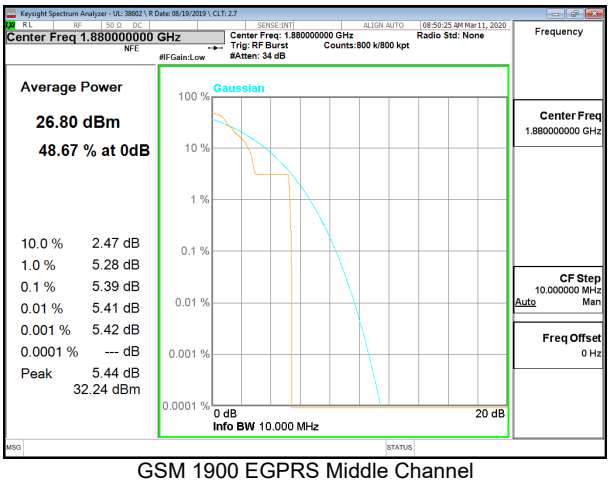
GSM 850 GPRS Middle Channel



GSM 850 EGPRS Middle Channel



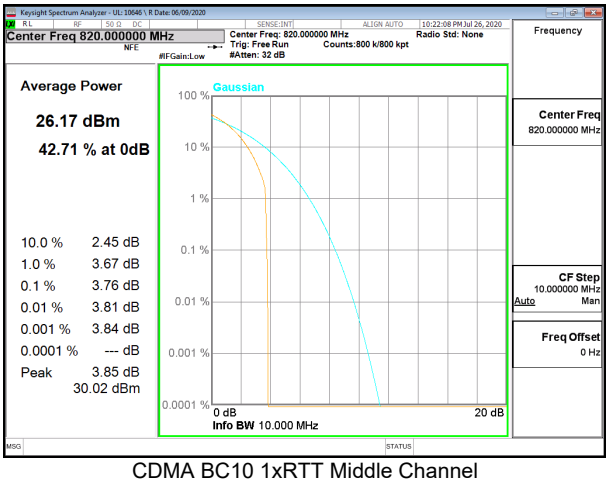
GSM 1900 GPRS Middle Channel



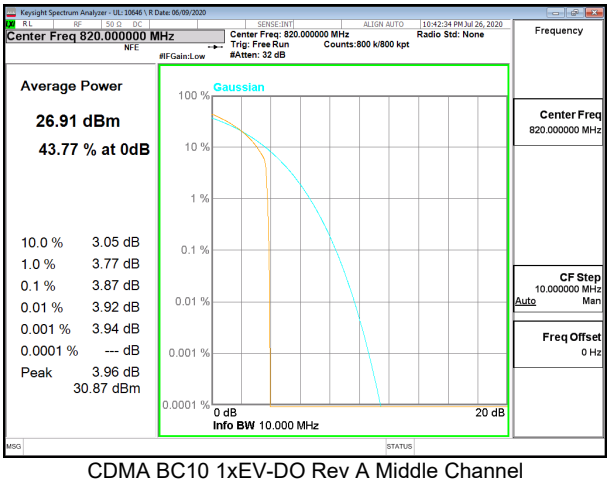
GSM 1900 EGPRS Middle Channel

8.5.2. CDMA

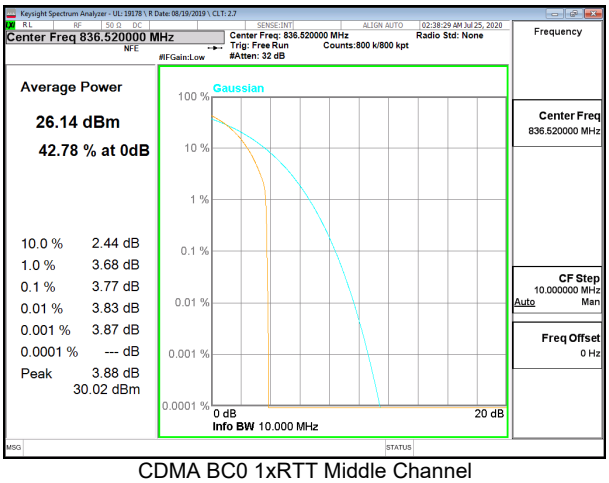
Test Engineer ID:	10646	Test Date:	7/25/2020 – 7/26/2020



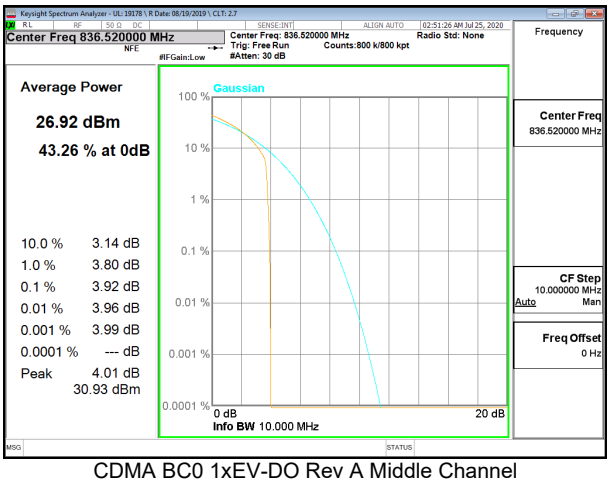
CDMA BC10 1xRTT Middle Channel



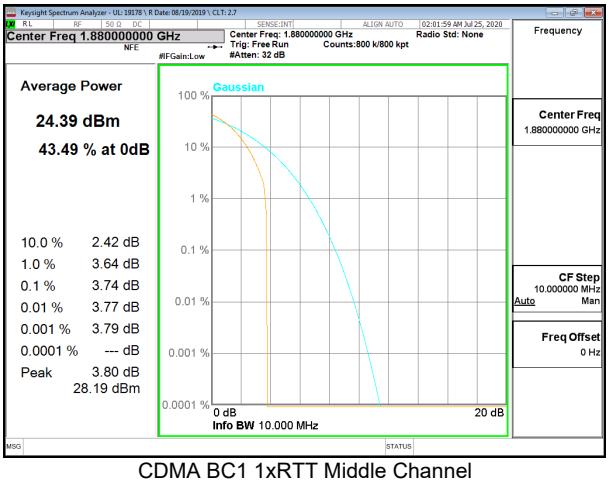
CDMA BC10 1xEV-DO Rev A Middle Channel



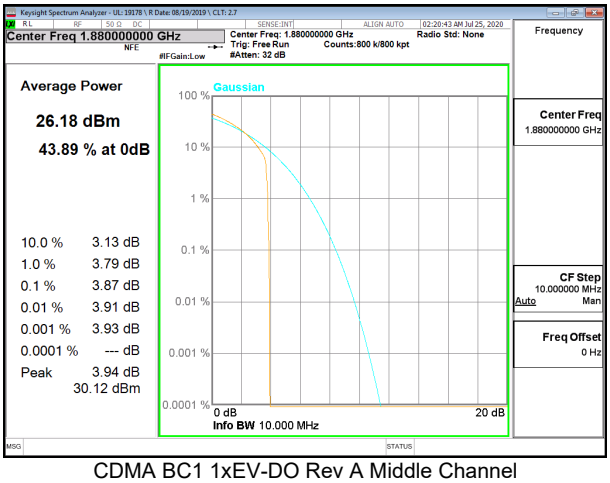
CDMA BC0 1xRTT Middle Channel



CDMA BC0 1xEV-DO Rev A Middle Channel



CDMA BC1 1xRTT Middle Channel



CDMA BC1 1xEV-DO Rev A Middle Channel

8.5.3. WCDMA

Test Engineer ID:	10646	Test Date:	4/30/2020

9. RADIATED TEST RESULTS

Radiated measurement using the Field Strength Method

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

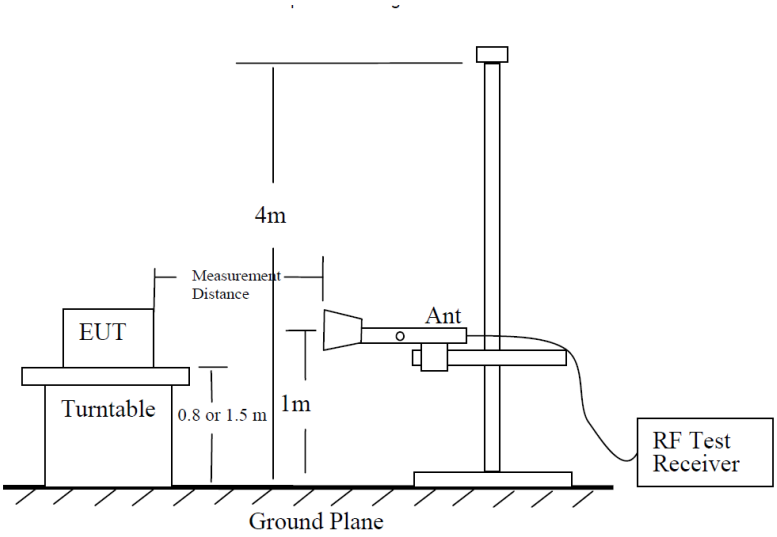


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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

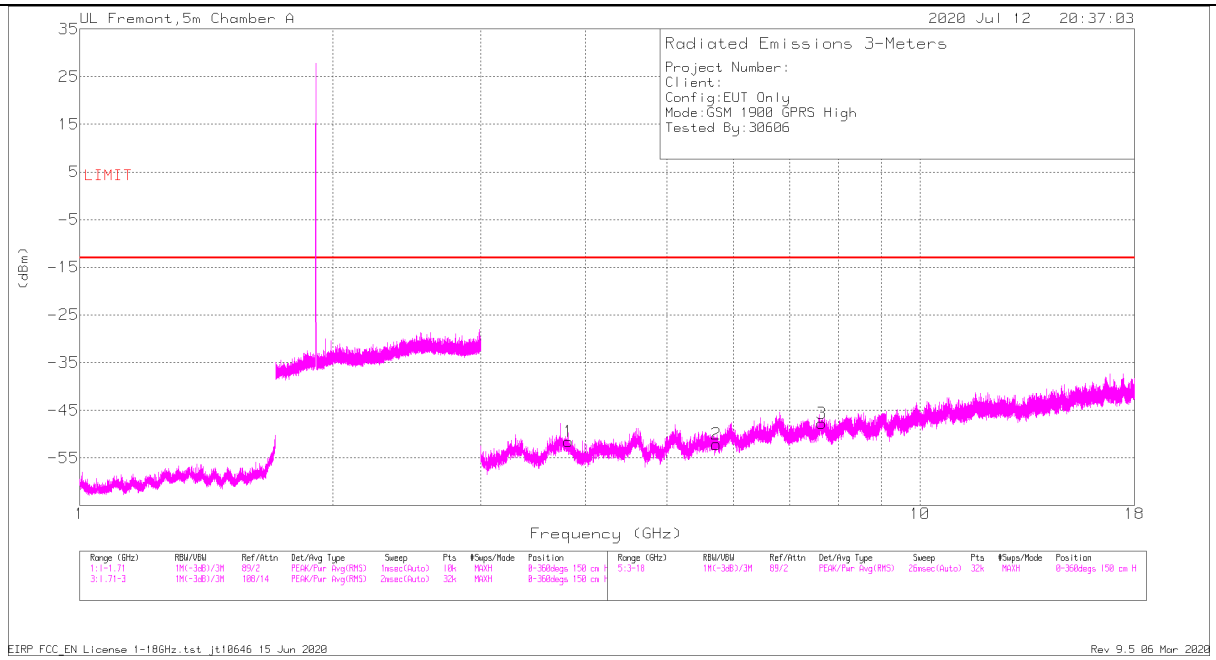
a) E (dBµV/m) = Measured amplitude level (dBµV) + Cable Loss (dB) + Antenna Factor (dB/m).
b) E (dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m).
c) E (dBµV/m) = EIRP (dBm) − 20log(D) + 104.8; where D is the measurement distance (in the far field region) in m.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

So, from d)
The measuring distance is usually at 3m, then 20*Log(3)=9.5424

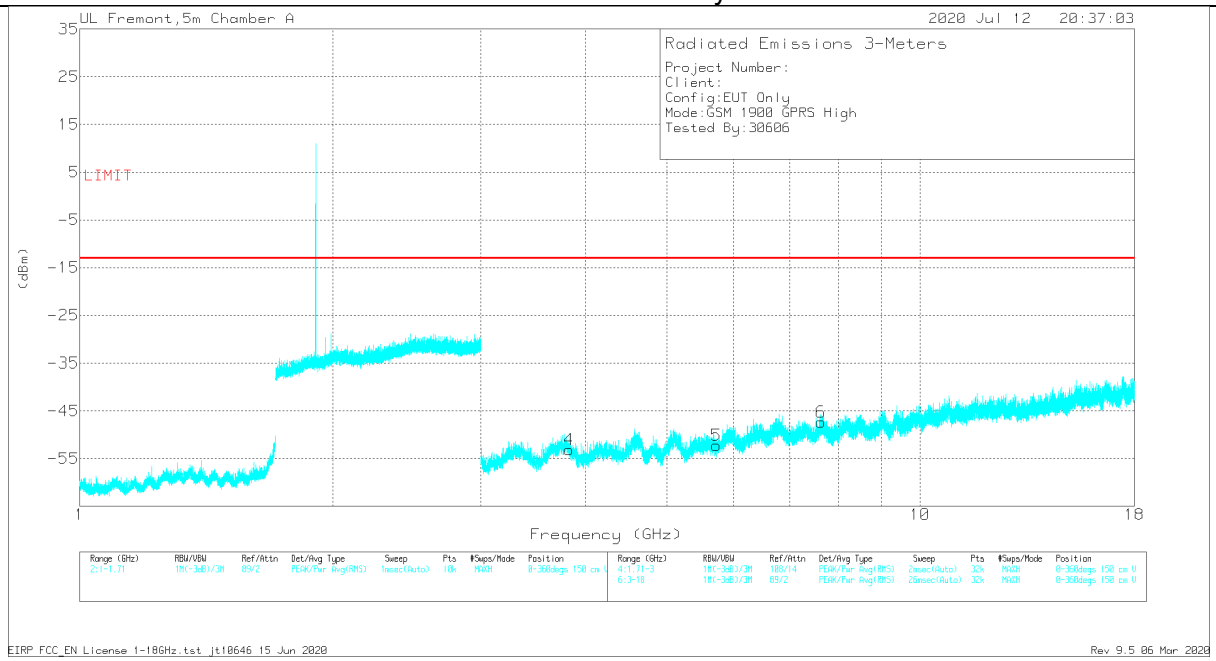
Then, EIRP (dBm) = E (dBµV/m) + 9.5424 − 104.8 = E (dBµV/m) – 95.2576

Note 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.

9.1. Example Plot



Horizontal Polarity



Vertical Polarity

Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
1	3.81984	37.68	Pk	33.7	-27.8	-95.2	-51.62	-13	-38.62	H
4	3.82406	36.15	Pk	33.7	-27.8	-95.2	-53.15	-13	-40.15	V
2	5.72438	34.95	Pk	35.2	-27.1	-95.2	-52.15	-13	-39.15	H
5	5.72438	34.86	Pk	35.2	-27.1	-95.2	-52.24	-13	-39.24	V
6	7.63125	33.3	Pk	35.9	-21.4	-95.2	-47.4	-13	-34.4	V
3	7.63922	33.01	Pk	35.9	-21.5	-95.2	-47.79	-13	-34.79	H

Pk - Peak detector

Radiated Emissions

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl/Fltr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Polarity
1	3.82004	40.75	Pk	33.7	-27.8	-95.2	-48.55	-13	-35.55	H
4	3.82041	41.5	Pk	33.7	-27.8	-95.2	-47.8	-13	-34.8	V
2	5.72166	38.87	Pk	35.3	-27.1	-95.2	-48.13	-13	-35.13	H
5	5.72901	39.2	Pk	35.2	-27.1	-95.2	-47.9	-13	-34.9	V
6	7.63126	36.53	Pk	35.9	-21.4	-95.2	-44.17	-13	-31.17	V
3	7.64200	36.33	Pk	35.9	-21.5	-95.2	-44.47	-13	-31.47	H

Pk - Peak detector

EIRP FCC_EN License 1-18GHz.tst jt10646 15 Jun 2020
Rev 9.5 06 Mar 2020

9.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT1

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 log10p (watts).

(ii) After the first 1.0 MHz immediately outside and adjacent to each of the sub-bands, the power of emissions in any100 kHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least43 + 10 log10 p (watts). If the measurement is performed using 1% of the occupied bandwidth, power integration over 100 kHz is required.

RSS133§6.5
Equipment shall comply with the limits in (i) and (ii) below.

(i) In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p(watts).

(ii) After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least 43 + 10 log10p (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.

RSS139§6.6

(i) In the first 1.0 MHz bands immediately outside and adjacent to the equipment's smallest operating frequency block,Footnote2 which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least43 + 10 log10 p (watts) dB.

(ii) After the first 1.0 MHz outside the equipment's smallest operating frequency block, which can contain the equipment's occupied bandwidth, the emission power in any 1 MHz bandwidth shall be attenuated below the transmitter output power P (in dBW) by at least 43 + 10 log10 p (watts) dB.

TEST PROCEDURE

KDB 971168 D01

RESULTS

9.2.1. GSM 850

GPRS MODE

Project #:	13179116
Date:	7/13/2020
Test Engineer:	30606
Configuration:	EUT Only
Mode:	GSM850 GPRS
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, 824.2 MHz										
1.64855	44.94	Pk	29.0	-32.4	.8	-95.2	-52.86	-13	-39.86	H
2.47265	44.01	Pk	33.3	-31.4	.5	-95.2	-48.79	-13	-35.79	H
3.28713	40.26	Pk	33.0	-30.2	.8	-95.2	-51.34	-13	-38.34	H
1.65968	41.48	Pk	29.0	-32.3	.8	-95.2	-56.22	-13	-43.22	V
2.47229	40.84	Pk	33.3	-31.4	.5	-95.2	-51.96	-13	-38.96	V
3.30002	40.42	Pk	33.0	-30.1	.8	-95.2	-51.08	-13	-38.08	V
Mid Channel, 836.6 MHz										
1.69155	42.18	Pk	29.1	-32.2	.7	-95.2	-55.42	-13	-42.42	H
2.51347	40.33	Pk	33.5	-31.4	.7	-95.2	-52.07	-13	-39.07	H
3.32845	40.45	Pk	33	-30.2	.6	-95.2	-51.35	-13	-38.35	H
1.68176	41.47	Pk	28.9	-32.2	.7	-95.2	-56.33	-13	-43.33	V
2.52928	41.39	Pk	33.4	-31.2	.8	-95.2	-50.81	-13	-37.81	V
3.34571	39.64	Pk	33	-30.1	.6	-95.2	-52.06	-13	-39.06	V
High Channel, 848.8 MHz										
1.70237	41.87	Pk	29.4	-32.3	.6	-95.2	-55.63	-13	-42.63	H
2.54654	43.13	Pk	33.3	-31	.7	-95.2	-49.07	-13	-36.07	H
3.3969	39.7	Pk	33	-30.1	.6	-95.2	-52	-13	-39	H
1.69732	42.19	Pk	29.1	-32.3	.7	-95.2	-55.51	-13	-42.51	V
2.55141	40.9	Pk	33.2	-31	.6	-95.2	-51.5	-13	-38.5	V
3.40681	40.16	Pk	33	-30	.6	-95.2	-51.44	-13	-38.44	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179116
Date:	5/1/2020
Test Engineer:	20792
Configuration:	EUT Only
Mode:	GSM850 EGPRS
Chamber #:	Chamber I

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										
1.6445	41.25	Pk	29.1	-32.5	.7	-95.2	-56.65	-13	-43.65	H
2.47219	44.02	Pk	33.3	-31.4	.5	-95.2	-48.78	-13	-35.78	H
3.28329	40.14	Pk	33.1	-30.2	.8	-95.2	-51.36	-13	-38.36	H
1.6254	42.08	Pk	29.0	-32.4	.7	-95.2	-55.82	-13	-42.82	V
2.45936	42.09	Pk	33.1	-31.4	.5	-95.2	-50.91	-13	-37.91	V
3.27896	40.36	Pk	33.1	-30.2	.8	-95.2	-51.14	-13	-38.14	V
Mid Channel, 836.6 MHz										
1.68469	41.59	Pk	29	-32.2	.7	-95.2	-56.11	-13	-43.11	H
2.51	43.49	Pk	33.4	-31.4	.7	-95.2	-49.01	-13	-36.01	H
3.326	40.46	Pk	33	-30.2	.6	-95.2	-51.34	-13	-38.34	H
1.66386	41.45	Pk	29	-32.2	.8	-95.2	-56.15	-13	-43.15	V
2.50944	41.53	Pk	33.5	-31.4	.7	-95.2	-50.87	-13	-37.87	V
3.35827	39.8	Pk	33	-30.1	.6	-95.2	-51.9	-13	-38.9	V
High Channel, 848.8 MHz										
1.70171	42.29	Pk	29.3	-32.3	.6	-95.2	-55.31	-13	-42.31	H
2.54652	53.62	Pk	33.3	-31	.7	-95.2	-38.58	-13	-25.58	H
3.38403	40.7	Pk	33	-30.2	.6	-95.2	-51.1	-13	-38.1	H
1.69505	41.52	Pk	29	-32.3	.7	-95.2	-56.28	-13	-43.28	V
2.54656	47.15	Pk	33.3	-31	.7	-95.2	-45.05	-13	-32.05	V
3.38907	40.65	Pk	33	-30.2	.6	-95.2	-51.15	-13	-38.15	V

Pk – Peak Detector

9.2.2. GSM 1900

GPRS MODE

Project #:	13179116
Date:	7/12/2020
Test Engineer:	30606
Configuration:	EUT Only
Mode:	GSM1900 GPRS
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, 1850.2MHz										
3.69649	40.48	Pk	33.4	-27.4	1	-95.2	-47.72	-13	-34.72	H
5.55059	39.35	Pk	35	-26.6	1	-95.2	-46.45	-13	-33.45	H
7.40161	37.09	Pk	36.2	-23.1	1	-95.2	-44.01	-13	-31.01	H
3.69921	39.91	Pk	33.4	-27.5	1	-95.2	-48.39	-13	-35.39	V
5.54957	39.06	Pk	35	-26.6	1	-95.2	-46.74	-13	-33.74	V
7.40301	36.36	Pk	36.2	-23.1	1	-95.2	-44.74	-13	-31.74	V
Mid Channel, 1880MHz										
3.76155	40.81	Pk	33.7	-27.1	1	-95.2	-46.79	-13	-33.79	H
5.63804	38.4	Pk	35.1	-26.4	1	-95.2	-47.1	-13	-34.1	H
7.51588	36.64	Pk	36	-23.4	1	-95.2	-44.96	-13	-31.96	H
3.75746	40.47	Pk	33.6	-27.1	1	-95.2	-47.23	-13	-34.23	V
5.64145	38.32	Pk	35.2	-26.4	1	-95.2	-47.08	-13	-34.08	V
7.51673	36.86	Pk	36	-23.4	1	-95.2	-44.74	-13	-31.74	V
High Channel, 1909.8MHz										
3.82004	40.75	Pk	33.7	-27.8	1	-95.2	-47.55	-13	-34.55	H
5.72166	38.87	Pk	35.3	-27.1	1	-95.2	-47.13	-13	-34.13	H
7.642	36.33	Pk	35.9	-21.5	1	-95.2	-43.47	-13	-30.47	H
3.82041	41.5	Pk	33.7	-27.8	1	-95.2	-46.8	-13	-33.8	V
5.72901	39.2	Pk	35.2	-27.1	1	-95.2	-46.9	-13	-33.9	V
7.63126	36.53	Pk	35.9	-21.4	1	-95.2	-43.17	-13	-30.17	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179116
Date:	7/12/2020
Test Engineer:	30606
Configuration:	EUT Only
Mode:	GSM1900 EGPRS
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, 1850.2MHz										
3.70335	39.85	Pk	33.4	-27.4	1	-95.2	-48.35	-13	-35.35	H
5.54819	38.12	Pk	35	-26.6	1	-95.2	-47.68	-13	-34.68	H
7.40731	35.57	Pk	36.2	-23.3	1	-95.2	-45.73	-13	-32.73	H
3.70243	40.04	Pk	33.4	-27.4	1	-95.2	-48.16	-13	-35.16	V
5.55401	38.7	Pk	35	-26.6	1	-95.2	-47.1	-13	-34.1	V
7.40171	35.54	Pk	36.2	-23.1	1	-95.2	-45.56	-13	-32.56	V
Mid Channel, 1880MHz										
3.7548	40.21	Pk	33.6	-27.1	1	-95.2	-47.49	-13	-34.49	H
5.64779	37.75	Pk	35.1	-26.4	1	-95.2	-47.75	-13	-34.75	H
7.51694	35.89	Pk	36	-23.4	1	-95.2	-45.71	-13	-32.71	H
3.76279	40.79	Pk	33.7	-27.1	1	-95.2	-46.81	-13	-33.81	V
5.6414	37.92	Pk	35.2	-26.4	1	-95.2	-47.48	-13	-34.48	V
7.52129	36.43	Pk	36	-23.3	1	-95.2	-45.07	-13	-32.07	V
High Channel, 1909.8MHz										
3.81152	40.64	Pk	33.7	-27.6	1	-95.2	-47.46	-13	-34.46	H
5.73341	38.86	Pk	35.3	-27.1	1	-95.2	-47.14	-13	-34.14	H
7.64169	36.12	Pk	35.9	-21.5	1	-95.2	-43.68	-13	-30.68	H
3.81639	40.45	Pk	33.7	-27.7	1	-95.2	-47.75	-13	-34.75	V
5.72885	37.86	Pk	35.2	-27.1	1	-95.2	-48.24	-13	-35.24	V
7.64379	35.34	Pk	35.9	-21.6	1	-95.2	-44.56	-13	-31.56	V

Pk – Peak Detector

9.2.3. CDMA BC10

1xRTT MODE

Project #:	13179116
Date:	7/29/2020
Test Engineer:	50822
Configuration;	EUT Only
Mode:	1xRTT 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										
1.5785	41.22	Pk	24.9	-30.5	.9	-95.2	-58.68	-13	-45.68	H
2.32899	40.76	Pk	27.9	-29.5	.6	-95.2	-55.44	-13	-42.44	H
3.20251	40.05	Pk	31.2	-28.4	.6	-95.2	-51.75	-13	-38.75	H
1.67153	40.55	Pk	25	-30.4	.7	-95.2	-59.35	-13	-46.35	V
2.49837	40.19	Pk	29	-29.2	.6	-95.2	-54.61	-13	-41.61	V
3.2058	39.45	Pk	31.3	-28.4	.6	-95.2	-52.25	-13	-39.25	V
Mid Channel, 820MHz										
1.63173	40.94	Pk	25	-30.5	.7	-95.2	-59.06	-13	-46.06	H
2.37966	41.01	Pk	28.3	-29.5	.6	-95.2	-54.79	-13	-41.79	H
3.14838	39.89	Pk	30.9	-28.6	.5	-95.2	-52.51	-13	-39.51	H
1.63307	41.32	Pk	25	-30.5	.7	-95.2	-58.68	-13	-45.68	V
1.92786	41.1	Pk	26.3	-30	.5	-95.2	-57.3	-13	-44.3	V
3.07872	39.63	Pk	30.4	-28.5	.6	-95.2	-53.07	-13	-40.07	V
High Channel, 822.75MHz										
1.81435	40.63	Pk	25.9	-30.2	.6	-95.2	-58.27	-13	-45.27	H
2.46847	39.72	Pk	28.9	-29.4	.5	-95.2	-55.48	-13	-42.48	H
3.26022	39.52	Pk	31.3	-28.3	.5	-95.2	-52.18	-13	-39.18	H
1.80525	42.19	Pk	25.9	-30.2	.6	-95.2	-56.71	-13	-43.71	V
2.49663	40.32	Pk	29	-29.3	.6	-95.2	-54.58	-13	-41.58	V
3.33027	39.45	Pk	31	-28.2	.6	-95.2	-52.35	-13	-39.35	V

Pk - Peak detector

1xEV-DO REV A MODE

Project #:	13179116
Date:	7/29/2020
Test Engineer:	50822
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										
1.65465	40.99	Pk	24.9	-30.4	.8	-95.2	-58.91	-13	-45.91	H
2.45084	45.59	Pk	28.8	-29.4	.5	-95.2	-49.71	-13	-36.71	H
3.82604	39.58	Pk	31	-27.7	.4	-95.2	-51.92	-13	-38.92	H
1.63039	41.45	Pk	25	-30.5	.7	-95.2	-58.55	-13	-45.55	V
2.45266	41.71	Pk	28.8	-29.4	.5	-95.2	-53.59	-13	-40.59	V
3.89773	38.74	Pk	31.4	-27.5	.6	-95.2	-51.96	-13	-38.96	V
Mid Channel, 820MHz										
1.69116	40.76	Pk	25	-30.4	.7	-95.2	-59.14	-13	-46.14	H
2.45886	44.72	Pk	28.9	-29.4	.5	-95.2	-50.48	-13	-37.48	H
3.91125	40.2	Pk	31.4	-27.7	.6	-95.2	-50.7	-13	-37.7	H
1.85739	40.74	Pk	26	-30.1	.6	-95.2	-57.96	-13	-44.96	V
2.37638	40.21	Pk	28.3	-29.5	.6	-95.2	-55.59	-13	-42.59	V
3.71092	39.01	Pk	30.4	-27.7	.7	-95.2	-52.79	-13	-39.79	V
High Channel, 822.75MHz										
1.81072	40.81	Pk	25.9	-30.2	.6	-95.2	-58.09	-13	-45.09	H
2.46933	43.76	Pk	28.9	-29.3	.5	-95.2	-51.34	-13	-38.34	H
3.96135	38.74	Pk	31.5	-27.7	.6	-95.2	-52.06	-13	-39.06	H
1.75614	40.83	Pk	25.6	-30.3	.7	-95.2	-58.37	-13	-45.37	V
2.45142	40.27	Pk	28.8	-29.4	.5	-95.2	-55.03	-13	-42.03	V
4.03343	38.6	Pk	31.6	-27.6	.5	-95.2	-52.1	-13	-39.1	V

Pk - Peak detector

9.2.4. CDMA BC0

1xRTT MODE

Project #:	13179116
Date:	7/12/2020
Test Engineer:	19212
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										
1.64994	41.63	Pk	29	-32.4	.8	-95.2	-56.17	-13	-43.17	H
2.47412	44.08	Pk	33.3	-31.4	.5	-95.2	-48.72	-13	-35.72	H
3.29921	40.2	Pk	33	-30.1	.8	-95.2	-51.3	-13	-38.3	H
1.65069	42.05	Pk	29	-32.4	.8	-95.2	-55.75	-13	-42.75	V
2.47344	42.16	Pk	33.3	-31.4	.5	-95.2	-50.64	-13	-37.64	V
3.2978	39.59	Pk	33	-30.1	.8	-95.2	-51.91	-13	-38.91	V
Mid Channel, 836.52MHz										
1.67488	41.89	Pk	29	-32.2	.7	-95.2	-55.81	-13	-42.81	H
2.50971	40.38	Pk	33.5	-31.4	.7	-95.2	-52.02	-13	-39.02	H
3.34593	40.32	Pk	33	-30.1	.6	-95.2	-51.38	-13	-38.38	H
1.67227	41.88	Pk	29	-32.2	.7	-95.2	-55.82	-13	-42.82	V
2.50811	40.61	Pk	33.5	-31.4	.7	-95.2	-51.79	-13	-38.79	V
3.34453	39.98	Pk	32.9	-30.2	.6	-95.2	-51.92	-13	-38.92	V
High Channel, 848.31MHz										
1.69649	42.22	Pk	29.1	-32.3	.7	-95.2	-55.48	-13	-42.48	H
2.54464	41.03	Pk	33.3	-31	.7	-95.2	-51.17	-13	-38.17	H
3.39416	40.48	Pk	33	-30.2	.6	-95.2	-51.32	-13	-38.32	H
1.69488	41.47	Pk	29	-32.3	.7	-95.2	-56.33	-13	-43.33	V
2.5449	41.14	Pk	33.3	-31	.7	-95.2	-51.06	-13	-38.06	V
3.39123	40.17	Pk	33	-30.2	.6	-95.2	-51.63	-13	-38.63	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179116
Date:	7/29/2020
Test Engineer:	50822
Configuration;	EUT Only
Mode:	1xEV-DO REV A BC0
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, 824.7MHz										
1.4957	41.45	Pk	24.8	-30.6	.9	-95.2	-58.65	-13	-45.65	H
2.47497	45.54	Pk	29	-29.3	.5	-95.2	-49.46	-13	-36.46	H
3.19773	40.93	Pk	31.2	-28.5	.6	-95.2	-50.97	-13	-37.97	H
1.47611	42.34	Pk	24.9	-30.6	.9	-95.2	-57.66	-13	-44.66	V
2.61569	40.16	Pk	29.2	-29.1	.6	-95.2	-54.34	-13	-41.34	V
3.0795	40.1	Pk	30.4	-28.5	.6	-95.2	-52.6	-13	-39.6	V
Mid Channel, 836.52MHz										
1.86644	40.77	Pk	26.1	-30	.6	-95.2	-57.73	-13	-44.73	H
2.5108	47.29	Pk	29.1	-29.3	.7	-95.2	-47.41	-13	-34.41	H
4.80684	38.39	Pk	33	-27	.8	-95.2	-50.01	-13	-37.01	H
1.98073	40.92	Pk	27.3	-29.9	.6	-95.2	-56.28	-13	-43.28	V
2.50846	44.97	Pk	29.1	-29.3	.7	-95.2	-49.73	-13	-36.73	V
4.79614	38.65	Pk	32.9	-27.1	.6	-95.2	-50.15	-13	-37.15	V
High Channel, 848.31MHz										
1.64244	40.45	Pk	25	-30.4	.7	-95.2	-59.45	-13	-46.45	H
2.54444	42.79	Pk	29.2	-29.2	.7	-95.2	-51.71	-13	-38.71	H
3.80431	38.81	Pk	30.9	-27.8	.8	-95.2	-52.49	-13	-39.49	H
1.75196	40.37	Pk	25.6	-30.3	.7	-95.2	-58.83	-13	-45.83	V
2.54396	39.89	Pk	29.2	-29.2	.7	-95.2	-54.61	-13	-41.61	V
3.95929	39.23	Pk	31.5	-27.7	.6	-95.2	-51.57	-13	-38.57	V

Pk - Peak detector

9.2.5. CDMA BC1

1xRTT MODE

Project #:	13179116
Date:	7/11/2020
Test Engineer:	19497
Configuration:	EUT Only
Mode:	1xRTT BC1
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.70294	33.89	Pk	33.4	-27.4	1	-95.2	-54.31	-13	-41.31	H
5.55392	33.52	Pk	35	-26.6	1	-95.2	-52.28	-13	-39.28	H
7.40249	25.67	Pk	36.2	-23.1	1	-95.2	-55.43	-13	-42.43	H
3.7086	33.49	Pk	33.5	-27.4	1	-95.2	-54.61	-13	-41.61	V
5.55343	32.48	Pk	35	-26.6	1	-95.2	-53.32	-13	-40.32	V
7.40006	29.73	Pk	36.2	-23.1	1	-95.2	-51.37	-13	-38.37	V
Mid Channel, 1880MHz										
3.76082	33.73	Pk	33.7	-27.1	1	-95.2	-53.87	-13	-40.87	H
5.6415	31.63	Pk	35.2	-26.4	1	-95.2	-53.77	-13	-40.77	H
7.51931	29.59	Pk	36	-23.3	1	-95.2	-51.91	-13	-38.91	H
3.7604	35.11	Pk	33.6	-27.1	1	-95.2	-52.59	-13	-39.59	V
5.63965	31.63	Pk	35.1	-26.4	1	-95.2	-53.87	-13	-40.87	V
7.5182	30.29	Pk	36	-23.3	1	-95.2	-51.21	-13	-38.21	V
High Channel, 1908.75MHz										
3.81741	33.62	Pk	33.7	-27.7	1	-95.2	-54.58	-13	-41.58	H
5.72703	32.3	Pk	35.2	-27.1	1	-95.2	-53.8	-13	-40.8	H
7.63554	29.47	Pk	35.9	-21.4	1	-95.2	-50.23	-13	-37.23	H
3.8197	35.13	Pk	33.7	-27.7	1	-95.2	-53.07	-13	-40.07	V
5.72661	31.88	Pk	35.2	-27.1	1	-95.2	-54.22	-13	-41.22	V
7.63529	29.2	Pk	35.9	-21.4	1	-95.2	-50.5	-13	-37.5	V

Pk - Peak detector

1xEV-DO REV A MODE

Project #:	13179116
Date:	7/16/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC1
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
4.1907	37.27	Pk	31.8	-25.8	1	-95.2	-50.93	-13	-37.93	H
5.92868	36.9	Pk	34.2	-24.9	1	-95.2	-48	-13	-35	H
7.14602	36.18	Pk	36.8	-22.8	1	-95.2	-44.02	-13	-31.02	H
4.37578	38.99	Pk	32	-26.9	1	-95.2	-50.11	-13	-37.11	V
5.99889	37.04	Pk	34.5	-24.8	1	-95.2	-47.46	-13	-34.46	V
7.72243	35.33	Pk	37.1	-22	1	-95.2	-43.77	-13	-30.77	V
Mid Channel, 1880MHz										
4.75758	38.52	Pk	32.8	-25.2	1	-95.2	-48.08	-13	-35.08	H
6.51926	36.01	Pk	35.2	-23.8	1	-95.2	-46.79	-13	-33.79	H
8.73945	35.11	Pk	37.4	-21	1	-95.2	-42.69	-13	-29.69	H
3.80572	38.79	Pk	30.9	-27.4	1	-95.2	-51.91	-13	-38.91	V
5.05411	38.18	Pk	33.8	-24.8	1	-95.2	-47.02	-13	-34.02	V
7.21404	35.95	Pk	37.2	-22.6	1	-95.2	-43.65	-13	-30.65	V
High Channel, 1908.75MHz										
5.03936	37.12	Pk	33.7	-25	1	-95.2	-48.38	-13	-35.38	H
7.04237	36.81	Pk	36.6	-23.7	1	-95.2	-44.49	-13	-31.49	H
9.14189	35.28	Pk	38.7	-20.8	1	-95.2	-41.02	-13	-28.02	H
4.76168	37.71	Pk	32.8	-25.2	1	-95.2	-48.89	-13	-35.89	V
7.27933	35.71	Pk	37.1	-23.1	1	-95.2	-44.49	-13	-31.49	V
10.53889	34.77	Pk	39.5	-19.1	1	-95.2	-39.03	-13	-26.03	V

Pk - Peak detector

9.2.6. WCDMA BAND 5

REL 99 MODE

Project #:	13179116
Date:	5/4/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	REL 99 Band 5
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.64353	39.23	Pk	28.5	-31.7	.7	-95.2	-58.47	-13	-45.47	H
2.52903	38.03	Pk	32.3	-30.2	.7	-95.2	-54.37	-13	-41.37	H
3.3941	36.96	Pk	32.6	-29.3	.6	-95.2	-54.34	-13	-41.34	H
1.64659	38.44	Pk	28.5	-31.6	.7	-95.2	-59.16	-13	-46.16	V
2.54015	37.32	Pk	32.2	-30.1	.6	-95.2	-55.18	-13	-42.18	V
3.42736	36.98	Pk	32.7	-29.3	.8	-95.2	-54.02	-13	-41.02	V
Mid Channel, 836.6MHz										
1.67748	38.73	Pk	28.9	-31.6	.7	-95.2	-58.47	-13	-45.47	H
2.50787	37.53	Pk	32.3	-30.2	.6	-95.2	-54.97	-13	-41.97	H
3.3448	36.25	Pk	32.7	-29.2	.6	-95.2	-54.85	-13	-41.85	H
1.6648	38.94	Pk	28.7	-31.6	.7	-95.2	-58.46	-13	-45.46	V
2.50639	37.7	Pk	32.3	-30.2	.6	-95.2	-54.8	-13	-41.8	V
3.33291	36.78	Pk	32.8	-29.2	.8	-95.2	-54.02	-13	-41.02	V
High Channel, 846.6MHz										
1.70264	39.13	Pk	29.4	-31.7	.6	-95.2	-57.77	-13	-44.77	H
2.53359	37.58	Pk	32.2	-30.2	.8	-95.2	-54.82	-13	-41.82	H
3.40051	36.72	Pk	32.7	-29.2	.6	-95.2	-54.38	-13	-41.38	H
1.69563	39.04	Pk	29.1	-31.6	.6	-95.2	-58.06	-13	-45.06	V
2.53408	38.68	Pk	32.2	-30.2	.8	-95.2	-53.72	-13	-40.72	V
3.42468	36.74	Pk	32.7	-29.3	.6	-95.2	-54.46	-13	-41.46	V

Pk - Peak detector

HSDPA MODE

Project #:	13179116
Date:	5/4/2020
Test Engineer:	50822
Configuration;	EUT Only
Mode:	HSDPA Band 5
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 1.2GHz T1737 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 826.4MHz										
1.63918	39.58	Pk	28.4	-31.7	.7	-95.2	-58.22	-13	-45.22	H
2.47947	37.67	Pk	32.4	-30.5	.5	-95.2	-55.13	-13	-42.13	H
3.31605	36.37	Pk	32.7	-29.3	.8	-95.2	-54.63	-13	-41.63	H
1.62314	39.02	Pk	28.2	-31.7	.7	-95.2	-58.98	-13	-45.98	V
2.48719	37.1	Pk	32.3	-30.4	.5	-95.2	-55.7	-13	-42.7	V
3.29635	37.15	Pk	32.7	-29.2	.8	-95.2	-53.75	-13	-40.75	V
Mid Channel, 836.6MHz										
1.67704	39.59	Pk	28.9	-31.6	.7	-95.2	-57.61	-13	-44.61	H
2.52491	37.54	Pk	32.3	-30.1	.7	-95.2	-54.76	-13	-41.76	H
3.35472	36.74	Pk	32.6	-29.2	.8	-95.2	-54.26	-13	-41.26	H
1.68042	39.06	Pk	28.9	-31.6	.7	-95.2	-58.14	-13	-45.14	V
2.50526	38.32	Pk	32.3	-30.2	.6	-95.2	-54.18	-13	-41.18	V
3.37259	37.01	Pk	32.7	-29.3	.8	-95.2	-53.99	-13	-40.99	V
High Channel, 846.6MHz										
1.69344	38.98	Pk	29.1	-31.5	.6	-95.2	-58.02	-13	-45.02	H
2.52915	37.81	Pk	32.3	-30.2	.7	-95.2	-54.59	-13	-41.59	H
3.38465	36.69	Pk	32.7	-29.2	.8	-95.2	-54.21	-13	-41.21	H
1.69359	38.61	Pk	29.1	-31.5	.6	-95.2	-58.39	-13	-45.39	V
2.53876	37.63	Pk	32.2	-30.2	.6	-95.2	-54.97	-13	-41.97	V
3.38049	36.94	Pk	32.7	-29.3	.8	-95.2	-54.06	-13	-41.06	V

Pk - Peak detector

9.2.7. WCDMA BAND 2

REL 99 MODE

Project #:	13179116
Date:	5/4/2020
Test Engineer:	20792
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70371	35.06	Pk	33	-28.6	1	-95.2	-54.74	-13	-41.74	H
5.55956	35.37	Pk	35.1	-26.8	1	-95.2	-50.53	-13	-37.53	H
7.41102	32.35	Pk	35.5	-24.4	1	-95.2	-50.75	-13	-37.75	H
3.70362	36.79	Pk	33	-28.6	1	-95.2	-53.01	-13	-40.01	V
5.55779	33.87	Pk	35.1	-26.8	1	-95.2	-52.03	-13	-39.03	V
7.4101	34.21	Pk	35.5	-24.4	1	-95.2	-48.89	-13	-35.89	V
Mid Channel, 1880MHz										
3.75856	36.22	Pk	32.9	-28.4	1	-95.2	-53.48	-13	-40.48	H
5.64222	35.59	Pk	35.1	-26.6	1	-95.2	-50.11	-13	-37.11	H
7.52026	33.48	Pk	35.5	-23.9	1	-95.2	-49.12	-13	-36.12	H
3.76038	35.88	Pk	33	-28.4	1	-95.2	-53.72	-13	-40.72	V
5.63994	35.95	Pk	35.1	-26.6	1	-95.2	-49.75	-13	-36.75	V
7.51909	33.73	Pk	35.5	-23.9	1	-95.2	-48.87	-13	-35.87	V
High Channel, 1907.6MHz										
3.81609	37	Pk	32.9	-28.3	1	-95.2	-52.6	-13	-39.6	H
5.72275	34.38	Pk	35	-26.6	1	-95.2	-51.42	-13	-38.42	H
7.63215	33.31	Pk	35.6	-24	1	-95.2	-49.29	-13	-36.29	H
3.81616	37.42	Pk	32.9	-28.3	1	-95.2	-52.18	-13	-39.18	V
5.72384	33.93	Pk	34.9	-26.6	1	-95.2	-51.97	-13	-38.97	V
7.63068	33.15	Pk	35.6	-24.1	1	-95.2	-49.55	-13	-36.55	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179116
Date:	5/4/2020
Test Engineer:	20792
Configuration;	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70385	34.4	Pk	33	-28.6	1	-95.2	-55.4	-13	-42.4	H
5.55877	35.08	Pk	35.1	-26.8	1	-95.2	-50.82	-13	-37.82	H
7.41012	34.07	Pk	35.5	-24.4	1	-95.2	-49.03	-13	-36.03	H
3.70391	34.23	Pk	33	-28.6	1	-95.2	-55.57	-13	-42.57	V
5.55654	35.01	Pk	35.1	-26.8	1	-95.2	-50.89	-13	-37.89	V
7.4076	32.78	Pk	35.5	-24.4	1	-95.2	-50.32	-13	-37.32	V
Mid Channel, 1880MHz										
3.76181	35.66	Pk	33	-28.3	1	-95.2	-53.84	-13	-40.84	H
5.64055	35.37	Pk	35.1	-26.7	1	-95.2	-50.43	-13	-37.43	H
7.51891	33.64	Pk	35.5	-23.9	1	-95.2	-48.96	-13	-35.96	H
3.76159	34.18	Pk	33	-28.3	1	-95.2	-55.32	-13	-42.32	V
5.64145	35.91	Pk	35.1	-26.6	1	-95.2	-49.79	-13	-36.79	V
7.52176	32.4	Pk	35.5	-24	1	-95.2	-50.3	-13	-37.3	V
High Channel, 1907.6MHz										
3.8146	34.44	Pk	32.9	-28.4	1	-95.2	-55.26	-13	-42.26	H
5.72173	35.89	Pk	35	-26.6	1	-95.2	-49.91	-13	-36.91	H
7.63065	32.95	Pk	35.6	-24.1	1	-95.2	-49.75	-13	-36.75	H
3.8142	35.66	Pk	32.9	-28.4	1	-95.2	-54.04	-13	-41.04	V
5.72417	36.36	Pk	34.9	-26.7	1	-95.2	-49.64	-13	-36.64	V
7.63231	32.1	Pk	35.6	-24.1	1	-95.2	-50.6	-13	-37.6	V

Pk – Peak Detector

9.2.8. WCDMA BAND 4

REL 99 MODE

Project #:	13179116
Date:	5/4/2020
Test Engineer:	20792
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.42639	34.24	Pk	32.7	-29.3	1	-95.2	-56.56	-13	-43.56	H
5.13669	34.62	Pk	34.5	-27	1	-95.2	-52.08	-13	-39.08	H
6.84858	32.86	Pk	35.5	-25.3	1	-95.2	-51.14	-13	-38.14	H
3.42292	33.68	Pk	32.7	-29.2	1	-95.2	-57.02	-13	-44.02	V
5.13659	32.97	Pk	34.5	-27	1	-95.2	-53.73	-13	-40.73	V
6.85046	34.4	Pk	35.5	-25.3	1	-95.2	-49.6	-13	-36.6	V
Mid Channel, 1732.6MHz										
3.4631	35.88	Pk	32.8	-29.2	1	-95.2	-54.72	-13	-41.72	H
5.19638	33.62	Pk	34.4	-26.9	1	-95.2	-53.08	-13	-40.08	H
6.92993	33.37	Pk	35.6	-24.7	1	-95.2	-49.93	-13	-36.93	H
3.46657	36.66	Pk	32.8	-29.1	1	-95.2	-53.84	-13	-40.84	V
5.19607	33.14	Pk	34.4	-26.9	1	-95.2	-53.56	-13	-40.56	V
6.92972	34.3	Pk	35.6	-24.7	1	-95.2	-49	-13	-36	V
High Channel, 1752.6MHz										
3.50585	34.49	Pk	32.9	-28.8	1	-95.2	-55.61	-13	-42.61	H
5.25616	34.09	Pk	34.5	-26.9	1	-95.2	-52.51	-13	-39.51	H
7.01121	33.92	Pk	35.7	-24.9	1	-95.2	-49.48	-13	-36.48	H
3.50524	33.86	Pk	32.9	-28.8	1	-95.2	-56.24	-13	-43.24	V
5.2556	33.64	Pk	34.5	-26.9	1	-95.2	-52.96	-13	-39.96	V
7.01189	32.73	Pk	35.7	-24.8	1	-95.2	-50.57	-13	-37.57	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179116
Date:	5/4/2020
Test Engineer:	20792
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.42371	35.48	Pk	32.7	-29.2	1	-95.2	-55.22	-13	-42.22	H
5.13763	33.72	Pk	34.5	-27.1	1	-95.2	-53.08	-13	-40.08	H
6.85002	33.17	Pk	35.5	-25.3	1	-95.2	-50.83	-13	-37.83	H
3.42624	37.77	Pk	32.7	-29.3	1	-95.2	-53.03	-13	-40.03	V
5.13622	32.97	Pk	34.5	-27	1	-95.2	-53.73	-13	-40.73	V
6.85002	34.35	Pk	35.5	-25.3	1	-95.2	-49.65	-13	-36.65	V
Mid Channel, 1732.6MHz										
3.46573	37.18	Pk	32.8	-29.2	1	-95.2	-53.42	-13	-40.42	H
5.19633	34.35	Pk	34.4	-26.9	1	-95.2	-52.35	-13	-39.35	H
6.92874	34.14	Pk	35.6	-24.7	1	-95.2	-49.16	-13	-36.16	H
3.46439	37.63	Pk	32.8	-29.2	1	-95.2	-52.97	-13	-39.97	V
5.1965	35.06	Pk	34.4	-27	1	-95.2	-51.74	-13	-38.74	V
6.93059	33.56	Pk	35.7	-24.7	1	-95.2	-49.64	-13	-36.64	V
High Channel, 1752.6MHz										
3.50424	36.55	Pk	32.9	-28.8	1	-95.2	-53.55	-13	-40.55	H
5.25933	34.12	Pk	34.5	-26.8	1	-95.2	-52.38	-13	-39.38	H
7.00898	33.71	Pk	35.7	-24.9	1	-95.2	-49.69	-13	-36.69	H
3.50473	34.29	Pk	32.9	-28.8	1	-95.2	-55.81	-13	-42.81	V
5.2571	34.89	Pk	34.5	-26.7	1	-95.2	-51.51	-13	-38.51	V
7.01195	32.92	Pk	35.7	-24.8	1	-95.2	-50.38	-13	-37.38	V

Pk – Peak Detector

9.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT2

9.3.1. GSM 850

GPRS MODE

Project #:	13179116
Date:	5/2/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	GSM850 GPRS
Chamber #:	Chamber I

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										
1.71453	38.56	Pk	29.4	-31.6	.7	-95.2	-58.14	-13	-45.14	H
2.48085	37.29	Pk	32.4	-30.5	.5	-95.2	-55.51	-13	-42.51	H
3.31655	37.05	Pk	32.7	-29.3	.8	-95.2	-53.95	-13	-40.95	H
1.90013	38.72	Pk	30.6	-31.2	.7	-95.2	-56.38	-13	-43.38	V
2.5178	37.4	Pk	32.3	-30.2	.7	-95.2	-55	-13	-42	V
3.33457	37.15	Pk	32.8	-29.2	.6	-95.2	-53.85	-13	-40.85	V
Mid Channel, 836.6 MHz										
1.72299	38.34	Pk	29.5	-31.6	.7	-95.2	-58.26	-13	-45.26	H
2.52888	37.12	Pk	32.3	-30.2	.7	-95.2	-55.28	-13	-42.28	H
3.34669	35.74	Pk	32.7	-29.3	.6	-95.2	-55.46	-13	-42.46	H
1.71784	38.57	Pk	29.5	-31.7	.7	-95.2	-58.13	-13	-45.13	V
2.52787	37.72	Pk	32.3	-30.2	.7	-95.2	-54.68	-13	-41.68	V
3.35323	35.61	Pk	32.6	-29.2	.6	-95.2	-55.59	-13	-42.59	V
High Channel, 848.8 MHz										
1.69504	40.09	Pk	29.1	-31.6	.7	-95.2	-56.91	-13	-43.91	H
2.54353	39.04	Pk	32.2	-30.1	.7	-95.2	-53.36	-13	-40.36	H
3.40966	38.02	Pk	32.7	-29.3	.6	-95.2	-53.18	-13	-40.18	H
1.68427	39.75	Pk	29	-31.5	.7	-95.2	-57.25	-13	-44.25	V
2.5712	38.14	Pk	32.3	-29.7	.6	-95.2	-53.86	-13	-40.86	V
3.38782	37.39	Pk	32.6	-29.3	.6	-95.2	-53.91	-13	-40.91	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179116
Date:	5/2/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	GSM850 EGPRS
Chamber #:	Chamber I

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										
1.65358	38.69	Pk	28.5	-31.7	.8	-95.2	-58.91	-13	-45.91	H
2.47053	37.85	Pk	32.3	-30.4	.5	-95.2	-54.95	-13	-41.95	H
3.28811	36.67	Pk	32.8	-29.1	.8	-95.2	-54.03	-13	-41.03	H
1.63983	39.32	Pk	28.4	-31.8	.8	-95.2	-58.48	-13	-45.48	V
1.94698	38.54	Pk	30.8	-31.2	.7	-95.2	-56.36	-13	-43.36	V
3.28637	37.13	Pk	32.8	-29.2	.8	-95.2	-53.67	-13	-40.67	V
Mid Channel, 836.6 MHz										
1.67134	38.82	Pk	28.8	-31.5	.7	-95.2	-58.38	-13	-45.38	H
2.52988	37.33	Pk	32.2	-30.2	.7	-95.2	-55.17	-13	-42.17	H
3.34369	36.54	Pk	32.7	-29.3	.6	-95.2	-54.66	-13	-41.66	H
1.67316	38.65	Pk	28.8	-31.6	.7	-95.2	-58.65	-13	-45.65	V
2.5682	37.02	Pk	32.3	-29.7	.7	-95.2	-54.88	-13	-41.88	V
3.40821	36.33	Pk	32.7	-29.3	.6	-95.2	-54.87	-13	-41.87	V
High Channel, 848.8 MHz										
1.69803	39.01	Pk	29.2	-31.6	.7	-95.2	-57.89	-13	-44.89	H
2.57256	37.29	Pk	32.4	-29.7	.6	-95.2	-54.61	-13	-41.61	H
3.4143	36.13	Pk	32.7	-29.3	.6	-95.2	-55.07	-13	-42.07	H
1.71979	38.42	Pk	29.5	-31.6	.7	-95.2	-58.18	-13	-45.18	V
2.56194	37.55	Pk	32.3	-29.8	.6	-95.2	-54.55	-13	-41.55	V
3.39833	36.23	Pk	32.7	-29.2	.6	-95.2	-54.87	-13	-41.87	V

Pk – Peak Detector

9.3.2. GSM 1900

GPRS MODE

Project #:	13179116
Date:	5/1/2020
Test Engineer:	20792
Configuration:	EUT Only
Mode:	GSM1900 GPRS
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.70013	36.22	Pk	33	-28.6	1	-95.2	-53.58	-13	-40.58	H
5.55087	35.88	Pk	35.1	-26.8	1	-95.2	-50.02	-13	-37.02	H
7.40181	32.61	Pk	35.6	-24.3	1	-95.2	-50.29	-13	-37.29	H
3.7013	37.38	Pk	33	-28.7	1	-95.2	-52.52	-13	-39.52	V
5.55076	34.9	Pk	35.1	-26.8	1	-95.2	-51	-13	-38	V
7.4019	32.4	Pk	35.6	-24.3	1	-95.2	-50.5	-13	-37.5	V
Mid Channel, 1880MHz										
3.76006	35.7	Pk	33	-28.4	1	-95.2	-53.9	-13	-40.9	H
5.63993	39.95	Pk	35.1	-26.6	1	-95.2	-45.75	-13	-32.75	H
7.52152	31.66	Pk	35.5	-23.9	1	-95.2	-50.94	-13	-37.94	H
3.75912	35.44	Pk	32.9	-28.3	1	-95.2	-54.16	-13	-41.16	V
5.63995	37.3	Pk	35.1	-26.6	1	-95.2	-48.4	-13	-35.4	V
7.52102	32.89	Pk	35.5	-23.9	1	-95.2	-49.71	-13	-36.71	V
High Channel, 1909.8MHz										
3.81943	36.68	Pk	32.9	-28.3	1	-95.2	-52.92	-13	-39.92	H
5.72963	38.41	Pk	34.9	-26.6	1	-95.2	-47.49	-13	-34.49	H
7.64013	32.33	Pk	35.6	-24.1	1	-95.2	-50.37	-13	-37.37	H
3.81994	36.64	Pk	32.9	-28.2	1	-95.2	-52.86	-13	-39.86	V
5.72898	35.71	Pk	34.9	-26.6	1	-95.2	-50.19	-13	-37.19	V
7.64071	32.85	Pk	35.6	-24.1	1	-95.2	-49.85	-13	-36.85	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179116
Date:	5/1/2020
Test Engineer:	20792
Configuration:	EUT Only
Mode:	GSM1900 GPRS
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.70047	37.07	Pk	33	-28.7	1	-95.2	-52.83	-13	-39.83	H
5.55042	38.44	Pk	35.1	-26.8	1	-95.2	-47.46	-13	-34.46	H
7.39964	31.89	Pk	35.6	-24.3	1	-95.2	-51.01	-13	-38.01	H
3.70001	37.42	Pk	33	-28.6	1	-95.2	-52.38	-13	-39.38	V
5.55092	37.03	Pk	35.1	-26.8	1	-95.2	-48.87	-13	-35.87	V
7.39957	32.61	Pk	35.6	-24.3	1	-95.2	-50.29	-13	-37.29	V
Mid Channel, 1880MHz										
3.76006	35.7	Pk	33	-28.4	1	-95.2	-53.9	-13	-40.9	H
5.63993	39.95	Pk	35.1	-26.6	1	-95.2	-45.75	-13	-32.75	H
7.52152	31.66	Pk	35.5	-23.9	1	-95.2	-50.94	-13	-37.94	H
3.75912	35.44	Pk	32.9	-28.3	1	-95.2	-54.16	-13	-41.16	V
5.63995	37.3	Pk	35.1	-26.6	1	-95.2	-48.4	-13	-35.4	V
7.52102	32.89	Pk	35.5	-23.9	1	-95.2	-49.71	-13	-36.71	V
High Channel, 1909.8MHz										
3.82001	37.13	Pk	32.9	-28.2	1	-95.2	-52.37	-13	-39.37	H
5.72938	41.04	Pk	34.9	-26.6	1	-95.2	-44.86	-13	-31.86	H
7.6379	32.54	Pk	35.6	-24.1	1	-95.2	-50.16	-13	-37.16	H
3.81931	35.38	Pk	32.9	-28.3	1	-95.2	-54.22	-13	-41.22	V
5.72947	35.11	Pk	34.9	-26.6	1	-95.2	-50.79	-13	-37.79	V
7.64029	33.13	Pk	35.6	-24.1	1	-95.2	-49.57	-13	-36.57	V

Pk – Peak Detector

9.3.3. CDMA BC10

1xRTT MODE

Project #:	13179116
Date:	7/30/2020
Test Engineer:	50822
Configuration;	EUT Only
Mode:	1xRTT 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										
1.74858	41.9	Pk	25.6	-30.3	.7	-95.2	-57.3	-13	-44.3	H
2.62129	40.32	Pk	29.2	-29.1	.6	-95.2	-54.18	-13	-41.18	H
4.16797	38.32	Pk	31.8	-27.1	.8	-95.2	-51.38	-13	-38.38	H
1.69221	42.01	Pk	25	-30.4	.7	-95.2	-57.89	-13	-44.89	V
2.55532	40.22	Pk	29.3	-29.2	.6	-95.2	-54.28	-13	-41.28	V
5.00264	37.82	Pk	33.7	-25.9	.8	-95.2	-48.78	-13	-35.78	V
Mid Channel, 820MHz										
1.81489	41.13	Pk	25.9	-30.2	.6	-95.2	-57.77	-13	-44.77	H
2.44965	40.73	Pk	28.8	-29.4	.5	-95.2	-54.57	-13	-41.57	H
3.7911	39.06	Pk	30.8	-27.8	.7	-95.2	-52.44	-13	-39.44	H
1.86552	41.31	Pk	26.1	-30	.6	-95.2	-57.19	-13	-44.19	V
2.84595	39.62	Pk	28.9	-28.7	.7	-95.2	-54.68	-13	-41.68	V
4.40762	37.88	Pk	31.9	-26.9	.5	-95.2	-51.82	-13	-38.82	V
High Channel, 822.75MHz										
1.50481	42.04	Pk	24.8	-30.6	.8	-95.2	-58.16	-13	-45.16	H
3.01926	40.24	Pk	30.1	-28.7	.5	-95.2	-53.06	-13	-40.06	H
4.28136	37.86	Pk	31.8	-27	.6	-95.2	-51.94	-13	-38.94	H
2.03591	40.73	Pk	27	-29.7	.6	-95.2	-56.57	-13	-43.57	V
2.54931	40.49	Pk	29.3	-29.3	.6	-95.2	-54.11	-13	-41.11	V
3.20618	39.56	Pk	31.3	-28.4	.6	-95.2	-52.14	-13	-39.14	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179116
Date:	7/30/2020
Test Engineer:	50822
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										
1.81334	41.43	Pk	25.9	-30.2	.6	-95.2	-57.47	-13	-44.47	H
3.2038	40.25	Pk	31.3	-28.4	.6	-95.2	-51.45	-13	-38.45	H
4.46794	37.93	Pk	32	-26.8	.7	-95.2	-51.37	-13	-38.37	H
1.93036	40.93	Pk	26.4	-29.9	.5	-95.2	-57.27	-13	-44.27	V
3.13544	39.83	Pk	30.8	-28.5	.6	-95.2	-52.47	-13	-39.47	V
4.40232	38.3	Pk	31.9	-26.9	.5	-95.2	-51.4	-13	-38.4	V
Mid Channel, 820MHz										
1.97632	41.68	Pk	27.3	-29.9	.6	-95.2	-55.52	-13	-42.52	H
3.20463	39.71	Pk	31.3	-28.4	.6	-95.2	-51.99	-13	-38.99	H
4.63056	38.24	Pk	32.2	-27.1	.7	-95.2	-51.16	-13	-38.16	H
1.93325	40.56	Pk	26.5	-30	.5	-95.2	-57.64	-13	-44.64	V
3.01893	39.87	Pk	30.1	-28.7	.5	-95.2	-53.43	-13	-40.43	V
4.86031	38.79	Pk	33.3	-26.9	.6	-95.2	-49.41	-13	-36.41	V
High Channel, 822.75MHz										
1.75213	41.06	Pk	25.6	-30.3	.7	-95.2	-58.14	-13	-45.14	H
3.1383	39.84	Pk	30.8	-28.6	.6	-95.2	-52.56	-13	-39.56	H
3.87481	38.27	Pk	31.3	-27.6	.7	-95.2	-52.53	-13	-39.53	H
1.85844	41.52	Pk	26	-30.1	.6	-95.2	-57.18	-13	-44.18	V
3.26757	39.97	Pk	31.4	-28.2	.6	-95.2	-51.43	-13	-38.43	V
4.44381	38.18	Pk	31.9	-26.8	.5	-95.2	-51.42	-13	-38.42	V

Pk – Peak Detector

9.3.4. CDMA BC0

1xRTT MODE

Project #:	13179116
Date:	7/30/2020
Test Engineer:	50822
Configuration;	EUT Only
Mode:	1xRTT BC0
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBm)	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										
1.75823	41.77	Pk	25.6	-30.3	.7	-95.2	-57.43	-13	-44.43	H
2.50358	41.04	Pk	29	-29.3	.6	-95.2	-53.86	-13	-40.86	H
3.20603	40.57	Pk	31.3	-28.4	.6	-95.2	-51.13	-13	-38.13	H
1.6947	41.14	Pk	25	-30.3	.7	-95.2	-58.66	-13	-45.66	V
2.55845	40.59	Pk	29.2	-29.2	.5	-95.2	-54.11	-13	-41.11	V
3.26104	40.42	Pk	31.3	-28.3	.5	-95.2	-51.28	-13	-38.28	V
Mid Channel, 836.52MHz										
1.74813	40.94	Pk	25.6	-30.3	.7	-95.2	-58.26	-13	-45.26	H
2.73801	40.34	Pk	28.9	-28.9	.6	-95.2	-54.26	-13	-41.26	H
3.90945	39.68	Pk	31.4	-27.6	.6	-95.2	-51.12	-13	-38.12	H
1.76236	42.5	Pk	25.7	-30.3	.7	-95.2	-56.6	-13	-43.6	V
2.96091	39.56	Pk	29.6	-28.7	.5	-95.2	-54.24	-13	-41.24	V
3.89198	39.4	Pk	31.4	-27.5	.6	-95.2	-51.3	-13	-38.3	V
High Channel, 848.31MHz										
1.97904	41.14	Pk	27.3	-29.9	.6	-95.2	-56.06	-13	-43.06	H
2.68613	39.82	Pk	29.2	-28.9	.6	-95.2	-54.48	-13	-41.48	H
3.85013	39.71	Pk	31.1	-27.7	.5	-95.2	-51.59	-13	-38.59	H
2.04667	41.13	Pk	27	-29.7	.6	-95.2	-56.17	-13	-43.17	V
3.12303	38.83	Pk	30.7	-28.5	.7	-95.2	-53.47	-13	-40.47	V
4.82093	38.05	Pk	33.1	-27	.9	-95.2	-50.15	-13	-37.15	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179116
Date:	7/30/2020
Test Engineer:	50822
Configuration;	EUT Only
Mode:	1xEV-DO REV A BC0
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBm)	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										
1.9757	40.86	Pk	27.3	-29.9	.6	-95.2	-56.34	-13	-43.34	H
2.96802	39.24	Pk	29.7	-28.7	.5	-95.2	-54.46	-13	-41.46	H
4.33284	38.05	Pk	31.9	-26.9	.5	-95.2	-51.65	-13	-38.65	H
1.9947	40.01	Pk	27.4	-29.9	.5	-95.2	-57.19	-13	-44.19	V
3.14201	39.4	Pk	30.8	-28.6	.6	-95.2	-53	-13	-40	V
4.98713	38.55	Pk	33.6	-26	.8	-95.2	-48.25	-13	-35.25	V
Mid Channel, 836.52MHz										
1.62961	41.71	Pk	25	-30.5	.7	-95.2	-58.29	-13	-45.29	H
1.97752	41.66	Pk	27.3	-29.9	.6	-95.2	-55.54	-13	-42.54	H
2.67694	40.36	Pk	29.2	-28.9	.6	-95.2	-53.94	-13	-40.94	H
1.5744	42.27	Pk	25	-30.5	.9	-95.2	-57.53	-13	-44.53	V
2.32743	40.9	Pk	27.8	-29.5	.6	-95.2	-55.4	-13	-42.4	V
3.19298	39.92	Pk	31.2	-28.5	.6	-95.2	-51.98	-13	-38.98	V
High Channel, 848.31MHz										
1.97856	41.65	Pk	27.3	-29.9	.6	-95.2	-55.55	-13	-42.55	H
3.20275	40.69	Pk	31.2	-28.4	.6	-95.2	-51.11	-13	-38.11	H
5.0045	38.06	Pk	33.7	-25.9	.8	-95.2	-48.54	-13	-35.54	H
1.78235	40.41	Pk	25.9	-30.3	.6	-95.2	-58.59	-13	-45.59	V
2.73887	39.91	Pk	29	-28.9	.6	-95.2	-54.59	-13	-41.59	V
4.87351	37.67	Pk	33.3	-26.7	.5	-95.2	-50.43	-13	-37.43	V

Pk – Peak Detector

9.3.5. CDMA BC1

1xRTT MODE

Project #:	13179116
Date:	7/12/2020
Test Engineer:	19497
Configuration:	EUT Only
Mode:	1xRTT BC1
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.69442	33.6	Pk	33.3	-27.5	1	-95.2	-54.8	-13	-41.8	H
5.54576	32.11	Pk	35	-26.6	1	-95.2	-53.69	-13	-40.69	H
7.39469	29.43	Pk	36.1	-23	1	-95.2	-51.67	-13	-38.67	H
3.70631	33.84	Pk	33.4	-27.4	1	-95.2	-54.36	-13	-41.36	V
5.55827	31.81	Pk	34.9	-26.6	1	-95.2	-54.09	-13	-41.09	V
7.40159	29.98	Pk	36.2	-23.1	1	-95.2	-51.12	-13	-38.12	V
Mid Channel, 1880MHz										
3.82464	33.54	Pk	33.7	-27.8	1	-95.2	-54.76	-13	-41.76	H
5.64078	33.84	Pk	35.1	-26.4	1	-95.2	-51.66	-13	-38.66	H
7.25005	30.15	Pk	36.1	-23.3	1	-95.2	-51.25	-13	-38.25	H
3.82728	35.02	Pk	33.7	-27.9	1	-95.2	-53.38	-13	-40.38	V
5.62593	31.48	Pk	35.2	-26.3	1	-95.2	-53.82	-13	-40.82	V
7.24661	30.81	Pk	36	-23.4	1	-95.2	-50.79	-13	-37.79	V
High Channel, 1908.75MHz										
3.88913	33.13	Pk	33.9	-29.1	1	-95.2	-56.27	-13	-43.27	H
5.7501	31.62	Pk	35.2	-27.1	1	-95.2	-54.48	-13	-41.48	H
8.93964	28.95	Pk	36.4	-21.7	1	-95.2	-50.55	-13	-37.55	H
3.9124	33.55	Pk	33.8	-29.4	1	-95.2	-56.25	-13	-43.25	V
5.73531	32.55	Pk	35.3	-27.1	1	-95.2	-53.45	-13	-40.45	V
8.93234	29.65	Pk	36.4	-21.8	1	-95.2	-49.95	-13	-36.95	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179116
Date:	7/30/2020
Test Engineer:	50822
Configuration;	EUT Only
Mode:	1xEV-DO REV A BC1
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.89626	37.94	Pk	31.4	-26.8	1	-95.2	-51.66	-13	-38.66	H
5.05378	33.44	Pk	33.8	-24.8	1	-95.2	-51.76	-13	-38.76	H
7.49268	35.02	Pk	36.8	-23.2	1	-95.2	-45.58	-13	-32.58	H
4.20752	38.05	Pk	31.8	-25.7	1	-95.2	-50.05	-13	-37.05	V
5.49624	37.9	Pk	33	-26.2	1	-95.2	-49.5	-13	-36.5	V
7.81951	36.66	Pk	37.2	-22.2	1	-95.2	-42.54	-13	-29.54	V
Mid Channel, 1880MHz										
3.74383	40	Pk	30.5	-27.5	1	-95.2	-51.2	-13	-38.2	H
5.054	37.12	Pk	33.8	-24.8	1	-95.2	-48.08	-13	-35.08	H
7.16792	35.85	Pk	36.9	-22.7	1	-95.2	-44.15	-13	-31.15	H
3.80021	39.8	Pk	30.9	-27.3	1	-95.2	-50.8	-13	-37.8	V
5.10098	37.34	Pk	33.9	-24.7	1	-95.2	-47.66	-13	-34.66	V
7.18519	35.74	Pk	36.9	-22.8	1	-95.2	-44.36	-13	-31.36	V
High Channel, 1908.75MHz										
4.46713	38.03	Pk	32	-25.8	1	-95.2	-49.97	-13	-36.97	H
6.50432	35.78	Pk	35.3	-23.7	1	-95.2	-46.82	-13	-33.82	H
9.24023	34.52	Pk	38.7	-20.3	1	-95.2	-41.28	-13	-28.28	H
4.43865	37.77	Pk	32	-26.1	1	-95.2	-50.53	-13	-37.53	V
7.38683	36.26	Pk	36.9	-23.3	1	-95.2	-44.34	-13	-31.34	V
9.66546	35.19	Pk	38.7	-19.7	1	-95.2	-40.01	-13	-27.01	V

Pk – Peak Detector

9.3.6. WCDMA BAND 5

REL 99 MODE

Project #:	13179116
Date:	5/4/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	Rel 99 Band 5
Chamber #:	Chamber I

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										
1.64227	38.71	Pk	28.5	-31.7	.7	-95.2	-58.99	-13	-45.99	H
2.49496	38.04	Pk	32.3	-30.4	.6	-95.2	-54.66	-13	-41.66	H
3.32053	37.34	Pk	32.7	-29.3	.8	-95.2	-53.66	-13	-40.66	H
1.64191	39.32	Pk	28.5	-31.7	.7	-95.2	-58.38	-13	-45.38	V
2.4906	37.62	Pk	32.3	-30.4	.6	-95.2	-55.08	-13	-42.08	V
3.28203	37.59	Pk	32.8	-29.2	.8	-95.2	-53.21	-13	-40.21	V
Mid Channel, 836.6MHz										
1.67947	31.56	Pk	28.9	-31.6	.7	-95.2	-65.64	-13	-52.64	H
2.52401	38.25	Pk	32.3	-30.1	.7	-95.2	-54.05	-13	-41.05	H
3.36193	37.09	Pk	32.7	-29.2	.6	-95.2	-54.01	-13	-41.01	H
1.67932	38.99	Pk	28.9	-31.6	.7	-95.2	-58.21	-13	-45.21	V
2.50411	38	Pk	32.3	-30.2	.7	-95.2	-54.4	-13	-41.4	V
3.34549	36.56	Pk	32.7	-29.2	.6	-95.2	-54.54	-13	-41.54	V
High Channel, 846.6MHz										
1.68487	39.02	Pk	29.1	-31.6	.7	-95.2	-57.98	-13	-44.98	H
2.53688	37.57	Pk	32.2	-30.1	.7	-95.2	-54.83	-13	-41.83	H
3.39296	36.97	Pk	32.6	-29.3	.6	-95.2	-54.33	-13	-41.33	H
1.68133	38.93	Pk	28.9	-31.5	.7	-95.2	-58.17	-13	-45.17	V
2.54024	37.61	Pk	32.2	-30.1	.7	-95.2	-54.79	-13	-41.79	V
3.37491	36.98	Pk	32.7	-29.2	.6	-95.2	-54.12	-13	-41.12	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179116
Date:	5/4/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	HSDPA Band 5
Chamber #:	Chamber I

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										
1.65488	39.06	Pk	28.6	-31.6	.7	-95.2	-58.44	-13	-45.44	H
2.50487	37.7	Pk	32.3	-30.2	.6	-95.2	-54.8	-13	-41.8	H
3.30274	36.83	Pk	32.7	-29.2	.8	-95.2	-54.07	-13	-41.07	H
1.65705	39.51	Pk	28.6	-31.6	.7	-95.2	-57.99	-13	-44.99	V
2.52126	37.66	Pk	32.3	-30.1	.7	-95.2	-54.64	-13	-41.64	V
3.31578	36.76	Pk	32.7	-29.3	.8	-95.2	-54.24	-13	-41.24	V
Mid Channel, 836.6MHz										
1.6881	39.03	Pk	29.1	-31.6	.7	-95.2	-57.97	-13	-44.97	H
2.52391	37.76	Pk	32.3	-30.1	.7	-95.2	-54.54	-13	-41.54	H
3.34664	36.83	Pk	32.7	-29.3	.6	-95.2	-54.37	-13	-41.37	H
1.68828	39.16	Pk	29.1	-31.6	.7	-95.2	-57.84	-13	-44.84	V
2.51607	37.74	Pk	32.4	-30.1	.7	-95.2	-54.46	-13	-41.46	V
3.37475	36.57	Pk	32.7	-29.2	.6	-95.2	-54.53	-13	-41.53	V
High Channel, 846.6MHz										
1.68279	39.12	Pk	29	-31.6	.7	-95.2	-57.98	-13	-44.98	H
2.54445	37.84	Pk	32.2	-30.1	.7	-95.2	-54.56	-13	-41.56	H
3.40115	36.8	Pk	32.7	-29.2	.6	-95.2	-54.3	-13	-41.3	H
1.68538	38.95	Pk	29.1	-31.5	.7	-95.2	-57.95	-13	-44.95	V
2.54604	37.62	Pk	32.3	-30.1	.7	-95.2	-54.68	-13	-41.68	V
3.40008	36.84	Pk	32.7	-29.2	.6	-95.2	-54.26	-13	-41.26	V

Pk – Peak Detector

9.3.7. WCDMA BAND 2

REL 99 MODE

Project #:	13179116
Date:	5/4/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.68471	36.64	Pk	33	-28.9	1	-95.2	-53.46	-13	-40.46	H
5.56132	35.11	Pk	35.1	-26.8	1	-95.2	-50.79	-13	-37.79	H
7.51615	33.44	Pk	35.5	-23.9	1	-95.2	-49.16	-13	-36.16	H
3.73909	36.87	Pk	32.9	-28.4	1	-95.2	-52.83	-13	-39.83	V
5.58428	36.03	Pk	35.2	-26.6	1	-95.2	-49.57	-13	-36.57	V
7.59457	33.74	Pk	35.6	-24.2	1	-95.2	-49.06	-13	-36.06	V
Mid Channel, 1880MHz										
3.80404	36.65	Pk	32.9	-28.3	1	-95.2	-52.95	-13	-39.95	H
5.73752	35.72	Pk	34.9	-26.5	1	-95.2	-50.08	-13	-37.08	H
7.66906	32.99	Pk	35.6	-23.8	1	-95.2	-49.41	-13	-36.41	H
3.80289	36.64	Pk	32.9	-28.3	1	-95.2	-52.96	-13	-39.96	V
5.7506	35.6	Pk	35	-26.2	1	-95.2	-49.8	-13	-36.8	V
7.67721	32.69	Pk	35.7	-23.8	1	-95.2	-49.61	-13	-36.61	V
High Channel, 1907.6MHz										
3.80704	36.52	Pk	32.9	-28.3	1	-95.2	-53.08	-13	-40.08	H
5.71643	34.82	Pk	35	-26.7	1	-95.2	-51.08	-13	-38.08	H
7.65752	33.49	Pk	35.7	-24.1	1	-95.2	-49.11	-13	-36.11	H
3.7917	36.38	Pk	32.9	-28.3	1	-95.2	-53.22	-13	-40.22	V
5.7354	35.41	Pk	35	-26.5	1	-95.2	-50.29	-13	-37.29	V
7.76363	33.6	Pk	35.7	-23.8	1	-95.2	-48.7	-13	-35.7	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179116
Date:	5/4/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.6894	34.36	Pk	33	-28.9	1	-95.2	-55.74	-13	-42.74	H
5.54706	33.1	Pk	35.1	-26.9	1	-95.2	-52.9	-13	-39.9	H
7.42891	32.06	Pk	35.5	-24.4	1	-95.2	-51.04	-13	-38.04	H
3.66967	36.19	Pk	32.9	-28.9	1	-95.2	-54.01	-13	-41.01	V
5.52102	35.05	Pk	35	-26.5	1	-95.2	-50.65	-13	-37.65	V
7.39902	33.18	Pk	35.6	-24.3	1	-95.2	-49.72	-13	-36.72	V
Mid Channel, 1880MHz										
3.67369	32.99	Pk	32.9	-28.9	1	-95.2	-57.21	-13	-44.21	H
5.64658	30.99	Pk	35.1	-26.5	1	-95.2	-54.61	-13	-41.61	H
7.52149	29.82	Pk	35.5	-23.9	1	-95.2	-52.78	-13	-39.78	H
3.69278	36.09	Pk	33	-28.9	1	-95.2	-54.01	-13	-41.01	V
5.66998	34.75	Pk	35	-26.7	1	-95.2	-51.15	-13	-38.15	V
7.58483	33.29	Pk	35.6	-24.1	1	-95.2	-49.41	-13	-36.41	V
High Channel, 1907.6MHz										
3.80228	36.73	Pk	32.9	-28.3	1	-95.2	-52.87	-13	-39.87	H
5.71656	35.45	Pk	35	-26.7	1	-95.2	-50.45	-13	-37.45	H
7.66923	32.72	Pk	35.6	-23.8	1	-95.2	-49.68	-13	-36.68	H
3.78163	36.26	Pk	33	-28.2	1	-95.2	-53.14	-13	-40.14	V
5.73473	34.92	Pk	35	-26.6	1	-95.2	-50.88	-13	-37.88	V
7.73027	32.27	Pk	35.7	-23.5	1	-95.2	-49.73	-13	-36.73	V

Pk – Peak Detector

9.3.8. WCDMA BAND 4

REL 99 MODE

Project #:	13179116
Date:	5/4/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.42194	37.71	Pk	32.7	-29.3	1	-95.2	-53.09	-13	-40.09	H
5.14894	35.84	Pk	34.4	-27	1	-95.2	-50.96	-13	-37.96	H
6.87118	35.58	Pk	35.5	-25	1	-95.2	-48.12	-13	-35.12	H
3.4578	37.84	Pk	32.8	-29.1	1	-95.2	-52.66	-13	-39.66	V
5.18674	36.05	Pk	34.4	-27.1	1	-95.2	-50.85	-13	-37.85	V
6.87381	35.17	Pk	35.5	-25	1	-95.2	-48.53	-13	-35.53	V
Mid Channel, 1732.6MHz										
3.48548	37.35	Pk	32.9	-28.9	1	-95.2	-52.85	-13	-39.85	H
5.21425	35.78	Pk	34.4	-26.7	1	-95.2	-50.72	-13	-37.72	H
6.93676	34.39	Pk	35.7	-24.7	1	-95.2	-48.81	-13	-35.81	H
3.50045	37.28	Pk	32.9	-28.8	1	-95.2	-52.82	-13	-39.82	V
5.29861	35.73	Pk	34.5	-26.9	1	-95.2	-50.87	-13	-37.87	V
7.0597	35	Pk	35.6	-24.6	1	-95.2	-48.2	-13	-35.2	V
High Channel, 1752.6MHz										
3.50961	37.62	Pk	32.8	-28.7	1	-95.2	-52.48	-13	-39.48	H
5.25996	35.39	Pk	34.5	-26.7	1	-95.2	-51.01	-13	-38.01	H
7.00628	34.86	Pk	35.7	-24.8	1	-95.2	-48.44	-13	-35.44	H
3.50623	38.09	Pk	32.9	-28.8	1	-95.2	-52.01	-13	-39.01	V
5.24369	36.29	Pk	34.5	-26.9	1	-95.2	-50.31	-13	-37.31	V
7.04007	34.5	Pk	35.6	-24.9	1	-95.2	-49	-13	-36	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179116
Date:	5/5/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.41925	37.9	Pk	32.7	-29.2	1	-95.2	-52.8	-13	-39.8	H
5.15775	35.42	Pk	34.4	-27	1	-95.2	-51.38	-13	-38.38	H
6.87365	35.6	Pk	35.5	-25	1	-95.2	-48.1	-13	-35.1	H
3.39313	37.35	Pk	32.6	-29.3	1	-95.2	-53.55	-13	-40.55	V
5.21155	35.78	Pk	34.4	-26.8	1	-95.2	-50.82	-13	-37.82	V
6.85862	34.42	Pk	35.6	-25.2	1	-95.2	-49.38	-13	-36.38	V
Mid Channel, 1732.6MHz										
3.4632	38.17	Pk	32.8	-29.2	1	-95.2	-52.43	-13	-39.43	H
5.20994	35.89	Pk	34.4	-26.8	1	-95.2	-50.71	-13	-37.71	H
6.93371	34.84	Pk	35.7	-24.8	1	-95.2	-48.46	-13	-35.46	H
3.46758	37.5	Pk	32.8	-29	1	-95.2	-52.9	-13	-39.9	V
5.22045	35.71	Pk	34.4	-26.7	1	-95.2	-50.79	-13	-37.79	V
6.97726	34.25	Pk	35.7	-24.8	1	-95.2	-49.05	-13	-36.05	V
High Channel, 1752.6MHz										
3.52239	37.11	Pk	32.9	-28.6	1	-95.2	-52.79	-13	-39.79	H
5.27201	35.82	Pk	34.5	-26.7	1	-95.2	-50.58	-13	-37.58	H
7.00981	34.62	Pk	35.7	-24.8	1	-95.2	-48.68	-13	-35.68	H
3.5407	37.62	Pk	33	-28.4	1	-95.2	-51.98	-13	-38.98	V
5.3047	36.31	Pk	34.6	-26.9	1	-95.2	-50.19	-13	-37.19	V
6.99019	35.11	Pk	35.7	-24.8	1	-95.2	-48.19	-13	-35.19	V

Pk – Peak Detector

9.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT3

9.4.1. GSM 1900

GPRS MODE

Project #:	13179116
Date:	5/1/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.70128	36.03	Pk	33	-28.7	1	-95.2	-53.87	-13	-40.87	H
5.57241	34.43	Pk	35.2	-26.7	1	-95.2	-51.27	-13	-38.27	H
7.41275	32.32	Pk	35.5	-24.4	1	-95.2	-50.78	-13	-37.78	H
3.68169	36.59	Pk	33	-28.9	1	-95.2	-53.51	-13	-40.51	V
5.62573	34.75	Pk	35.2	-26.6	1	-95.2	-50.85	-13	-37.85	V
7.4768	33.12	Pk	35.6	-24.1	1	-95.2	-49.58	-13	-36.58	V
Mid Channel, 1880MHz										
3.76893	35.59	Pk	33	-28.2	1	-95.2	-53.81	-13	-40.81	H
5.64823	34.1	Pk	35.1	-26.6	1	-95.2	-51.6	-13	-38.6	H
7.53076	32.72	Pk	35.6	-23.8	1	-95.2	-49.68	-13	-36.68	H
3.7673	35.84	Pk	33	-28.2	1	-95.2	-53.56	-13	-40.56	V
5.71914	34.34	Pk	35	-26.7	1	-95.2	-51.56	-13	-38.56	V
7.48875	32.2	Pk	35.5	-23.9	1	-95.2	-50.4	-13	-37.4	V
High Channel, 1909.8MHz										
3.82063	35.78	Pk	32.9	-28.2	1	-95.2	-53.72	-13	-40.72	H
5.72012	34.8	Pk	35	-26.7	1	-95.2	-51.1	-13	-38.1	H
7.63849	32.92	Pk	35.6	-24.1	1	-95.2	-49.78	-13	-36.78	H
2.44083	42.92	Pk	32.2	-30.4	1	-95.2	-49.48	-13	-36.48	V
5.73921	34.83	Pk	34.9	-26.5	1	-95.2	-50.97	-13	-37.97	V
8.00276	32.99	Pk	35.7	-23.5	1	-95.2	-49.01	-13	-36.01	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179116
Date:	5/1/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.69506	36.35	Pk	33	-28.8	1	-95.2	-53.65	-13	-40.65	H
5.59068	35.09	Pk	35.2	-26.7	1	-95.2	-50.61	-13	-37.61	H
7.42652	33.4	Pk	35.5	-24.4	1	-95.2	-49.7	-13	-36.7	H
3.73318	36.53	Pk	32.9	-28.4	1	-95.2	-53.17	-13	-40.17	V
5.62835	34.71	Pk	35.2	-26.6	1	-95.2	-50.89	-13	-37.89	V
7.41427	33.94	Pk	35.5	-24.4	1	-95.2	-49.16	-13	-36.16	V
Mid Channel, 1880MHz										
3.77137	35.67	Pk	33	-28.3	1	-95.2	-53.83	-13	-40.83	H
3.77214	35.81	Pk	33	-28.2	1	-95.2	-53.59	-13	-40.59	H
5.65803	34.37	Pk	35.1	-26.8	1	-95.2	-51.53	-13	-38.53	H
7.54018	32.66	Pk	35.5	-23.9	1	-95.2	-49.94	-13	-36.94	V
3.80574	36.13	Pk	32.9	-28.3	1	-95.2	-53.47	-13	-40.47	V
5.73163	34.24	Pk	35	-26.5	1	-95.2	-51.46	-13	-38.46	V
High Channel, 1909.8MHz										
3.81992	36.23	Pk	32.9	-28.2	1	-95.2	-53.27	-13	-40.27	H
5.74132	35.67	Pk	34.9	-26.4	1	-95.2	-50.03	-13	-37.03	H
7.63954	33.27	Pk	35.6	-24.1	1	-95.2	-49.43	-13	-36.43	H
3.80583	36.38	Pk	32.9	-28.3	1	-95.2	-53.22	-13	-40.22	V
5.71883	34.97	Pk	35	-26.7	1	-95.2	-50.93	-13	-37.93	V
7.60666	32.7	Pk	35.7	-24.1	1	-95.2	-49.9	-13	-36.9	V

Pk – Peak Detector

9.4.2. WCDMA BAND 2

REL 99 MODE

Project #:	13179116
Date:	5/5/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70179	36.56	Pk	33	-28.8	1	-95.2	-53.44	-13	-40.44	H
5.57488	35.26	Pk	35.2	-26.7	1	-95.2	-50.44	-13	-37.44	H
7.39647	33.27	Pk	35.5	-24.3	1	-95.2	-49.73	-13	-36.73	H
3.74798	36.64	Pk	33	-28.3	1	-95.2	-52.86	-13	-39.86	V
5.58755	34.7	Pk	35.2	-26.7	1	-95.2	-51	-13	-38	V
7.41523	33.05	Pk	35.6	-24.4	1	-95.2	-49.95	-13	-36.95	V
Mid Channel, 1880MHz										
3.75612	36.47	Pk	32.9	-28.3	1	-95.2	-53.13	-13	-40.13	H
5.64124	34.76	Pk	35.1	-26.7	1	-95.2	-51.04	-13	-38.04	H
7.51792	33.23	Pk	35.5	-23.9	1	-95.2	-49.37	-13	-36.37	H
3.79997	36.64	Pk	33	-28.3	1	-95.2	-52.86	-13	-39.86	V
5.64308	35.09	Pk	35.1	-26.6	1	-95.2	-50.61	-13	-37.61	V
7.54887	32.74	Pk	35.6	-23.9	1	-95.2	-49.76	-13	-36.76	V
High Channel, 1907.6MHz										
3.8486	36.17	Pk	33	-28.4	1	-95.2	-53.43	-13	-40.43	H
5.72189	34.45	Pk	35	-26.6	1	-95.2	-51.35	-13	-38.35	H
7.61743	32.66	Pk	35.6	-24.1	1	-95.2	-50.04	-13	-37.04	H
3.85345	36.09	Pk	33	-28.3	1	-95.2	-53.41	-13	-40.41	V
5.8036	35.7	Pk	35.1	-26	1	-95.2	-49.4	-13	-36.4	V
7.56602	32.69	Pk	35.6	-23.9	1	-95.2	-49.81	-13	-36.81	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179116
Date:	5/5/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70044	36.72	Pk	33	-28.7	1	-95.2	-53.18	-13	-40.18	H
5.57371	36	Pk	35.2	-26.6	1	-95.2	-49.6	-13	-36.6	H
7.40129	33.35	Pk	35.6	-24.3	1	-95.2	-49.55	-13	-36.55	H
3.71947	37	Pk	32.9	-28.5	1	-95.2	-52.8	-13	-39.8	V
5.5888	35.42	Pk	35.2	-26.7	1	-95.2	-50.28	-13	-37.28	V
7.39564	33.46	Pk	35.5	-24.3	1	-95.2	-49.54	-13	-36.54	V
Mid Channel, 1880MHz										
3.66575	36.34	Pk	32.9	-28.9	1	-95.2	-53.86	-13	-40.86	H
5.63759	35.24	Pk	35	-26.5	1	-95.2	-50.46	-13	-37.46	H
7.51181	32.87	Pk	35.6	-23.9	1	-95.2	-49.63	-13	-36.63	H
3.67323	36.47	Pk	32.9	-28.9	1	-95.2	-53.73	-13	-40.73	V
5.65701	34.26	Pk	35.1	-26.8	1	-95.2	-51.64	-13	-38.64	V
7.6787	32.77	Pk	35.7	-23.8	1	-95.2	-49.53	-13	-36.53	V
High Channel, 1907.6MHz										
3.83148	27.15	Pk	32.9	-28.4	1	-95.2	-62.55	-13	-49.55	H
5.72446	34.5	Pk	34.9	-26.7	1	-95.2	-51.5	-13	-38.5	H
7.62481	32.95	Pk	35.7	-24.1	1	-95.2	-49.65	-13	-36.65	H
3.81287	36.31	Pk	32.9	-28.3	1	-95.2	-53.29	-13	-40.29	V
5.76984	34.43	Pk	35	-26.3	1	-95.2	-51.07	-13	-38.07	V
7.65376	32.9	Pk	35.6	-24.1	1	-95.2	-49.8	-13	-36.8	V

Pk – Peak Detector

9.4.3. WCDMA BAND 4

REL 99 MODE

Project #:	13179116
Date:	5/5/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.41693	37.14	Pk	32.7	-29.3	1	-95.2	-53.66	-13	-40.66	H
5.1403	34.48	Pk	34.5	-27.1	1	-95.2	-52.32	-13	-39.32	H
6.8646	33.68	Pk	35.6	-25.2	1	-95.2	-50.12	-13	-37.12	H
3.43436	36.76	Pk	32.7	-29.3	1	-95.2	-54.04	-13	-41.04	V
5.15934	34.98	Pk	34.4	-26.9	1	-95.2	-51.72	-13	-38.72	V
6.9818	33.4	Pk	35.6	-24.8	1	-95.2	-50	-13	-37	V
Mid Channel, 1732.6MHz										
3.46402	36.93	Pk	32.8	-29.2	1	-95.2	-53.67	-13	-40.67	H
5.20274	34.9	Pk	34.3	-26.9	1	-95.2	-51.9	-13	-38.9	H
6.94086	33.66	Pk	35.6	-24.6	1	-95.2	-49.54	-13	-36.54	H
3.47223	36.49	Pk	32.8	-29	1	-95.2	-53.91	-13	-40.91	V
5.25827	34.49	Pk	34.5	-26.8	1	-95.2	-52.01	-13	-39.01	V
6.9701	33.43	Pk	35.8	-24.8	1	-95.2	-49.77	-13	-36.77	V
High Channel, 1752.6MHz										
3.5101	36.44	Pk	32.8	-28.7	1	-95.2	-53.66	-13	-40.66	H
5.24865	34.93	Pk	34.5	-26.9	1	-95.2	-51.67	-13	-38.67	H
7.00976	33.13	Pk	35.7	-24.8	1	-95.2	-50.17	-13	-37.17	H
3.50331	36.43	Pk	32.9	-28.7	1	-95.2	-53.57	-13	-40.57	V
5.22921	34.92	Pk	34.5	-26.7	1	-95.2	-51.48	-13	-38.48	V
7.07488	33.06	Pk	35.6	-24.7	1	-95.2	-50.24	-13	-37.24	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179116
Date:	5/5/2020
Test Engineer:	50822
Configuration;	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.4194	37.11	Pk	32.7	-29.2	1	-95.2	-53.59	-13	-40.59	H
5.13024	35.45	Pk	34.4	-27.1	1	-95.2	-51.45	-13	-38.45	H
6.86762	33.91	Pk	35.5	-25.1	1	-95.2	-49.89	-13	-36.89	H
3.4248	36.79	Pk	32.7	-29.3	1	-95.2	-54.01	-13	-41.01	V
5.13804	35.05	Pk	34.5	-27	1	-95.2	-51.65	-13	-38.65	V
6.82147	34.57	Pk	35.6	-25.1	1	-95.2	-49.13	-13	-36.13	V
Mid Channel, 1732.6MHz										
3.46367	36.71	Pk	32.8	-29.2	1	-95.2	-53.89	-13	-40.89	H
5.19969	34.96	Pk	34.4	-26.9	1	-95.2	-51.74	-13	-38.74	H
6.9225	33.48	Pk	35.5	-24.8	1	-95.2	-50.02	-13	-37.02	H
3.46258	36.91	Pk	32.8	-29.2	1	-95.2	-53.69	-13	-40.69	V
5.21327	34.92	Pk	34.4	-26.7	1	-95.2	-51.58	-13	-38.58	V
6.94468	33.69	Pk	35.6	-24.6	1	-95.2	-49.51	-13	-36.51	V
High Channel, 1752.6MHz										
3.5068	36.73	Pk	32.9	-28.8	1	-95.2	-53.37	-13	-40.37	H
5.27674	35.59	Pk	34.6	-26.6	1	-95.2	-50.61	-13	-37.61	H
6.99953	33.42	Pk	35.6	-24.7	1	-95.2	-49.88	-13	-36.88	H
3.51171	36.54	Pk	32.8	-28.6	1	-95.2	-53.46	-13	-40.46	V
5.27468	34.84	Pk	34.5	-26.7	1	-95.2	-51.56	-13	-38.56	V
7.03469	33.67	Pk	35.6	-25	1	-95.2	-49.93	-13	-36.93	V

Pk – Peak Detector

9.5. FIELD STRENGTH OF SPURIOUS RADIATION, ANT4

9.5.1. GSM 1900

GPRS MODE

Project #:	13179116
Date:	5/1/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.70122	36.76	Pk	33	-28.7	1	-95.2	-53.14	-13	-40.14	H
5.55063	42.96	Pk	35.1	-26.8	1	-95.2	-42.94	-13	-29.94	H
7.41301	33	Pk	35.5	-24.4	1	-95.2	-50.1	-13	-37.1	H
3.70235	35.8	Pk	33	-28.7	1	-95.2	-54.1	-13	-41.1	V
5.56414	34.54	Pk	35.1	-26.7	1	-95.2	-51.26	-13	-38.26	V
7.44826	32.2	Pk	35.6	-24.3	1	-95.2	-50.7	-13	-37.7	V
Mid Channel, 1880MHz										
3.75824	36.87	Pk	32.9	-28.4	1	-95.2	-52.83	-13	-39.83	H
5.64001	40.01	Pk	35.1	-26.6	1	-95.2	-45.69	-13	-32.69	H
7.52695	32.25	Pk	35.6	-23.9	1	-95.2	-50.25	-13	-37.25	H
3.76912	35.26	Pk	33	-28.2	1	-95.2	-54.14	-13	-41.14	V
5.67853	34.74	Pk	34.9	-26.7	1	-95.2	-51.26	-13	-38.26	V
7.51939	32.14	Pk	35.5	-23.9	1	-95.2	-50.46	-13	-37.46	V
High Channel, 1909.8MHz										
3.82422	35.34	Pk	32.9	-28.3	1	-95.2	-54.26	-13	-41.26	H
5.72909	42.62	Pk	34.9	-26.6	1	-95.2	-43.28	-13	-30.28	H
7.63883	32.36	Pk	35.6	-24.1	1	-95.2	-50.34	-13	-37.34	H
3.83508	34.76	Pk	33	-28.4	1	-95.2	-54.84	-13	-41.84	V
5.75203	28.41	Pk	35	-26.3	1	-95.2	-57.09	-13	-44.09	V
7.64343	32.18	Pk	35.7	-24.1	1	-95.2	-50.42	-13	-37.42	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179116
Date:	5/1/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.70416	36.87	Pk	33	-28.6	1	-95.2	-52.93	-13	-39.93	H
5.55915	34.88	Pk	35.1	-26.8	1	-95.2	-51.02	-13	-38.02	H
7.41387	32.78	Pk	35.5	-24.4	1	-95.2	-50.32	-13	-37.32	H
3.68588	36.77	Pk	33	-28.8	1	-95.2	-53.23	-13	-40.23	V
5.62244	34.67	Pk	35.1	-26.7	1	-95.2	-51.13	-13	-38.13	V
7.42507	32.4	Pk	35.5	-24.3	1	-95.2	-50.6	-13	-37.6	V
Mid Channel, 1880MHz										
3.76455	35.85	Pk	33	-28.3	1	-95.2	-53.65	-13	-40.65	H
5.64761	34.3	Pk	35.1	-26.6	1	-95.2	-51.4	-13	-38.4	H
7.53596	33.22	Pk	35.5	-23.9	1	-95.2	-49.38	-13	-36.38	H
3.73824	36.33	Pk	32.9	-28.5	1	-95.2	-53.47	-13	-40.47	V
5.67038	34.51	Pk	35	-26.7	1	-95.2	-51.39	-13	-38.39	V
7.59537	32.98	Pk	35.6	-24.2	1	-95.2	-49.82	-13	-36.82	V
High Channel, 1909.8MHz										
3.83063	35.73	Pk	32.9	-28.3	1	-95.2	-53.87	-13	-40.87	H
5.72684	33.93	Pk	34.9	-26.7	1	-95.2	-52.07	-13	-39.07	H
7.63736	32.24	Pk	35.6	-24.1	1	-95.2	-50.46	-13	-37.46	H
3.83217	35.7	Pk	32.9	-28.4	1	-95.2	-54	-13	-41	V
5.74113	34.27	Pk	34.9	-26.4	1	-95.2	-51.43	-13	-38.43	V
7.64017	33.21	Pk	35.6	-24.1	1	-95.2	-49.49	-13	-36.49	V

Pk – Peak Detector

9.5.2. WCDMA BAND 2

REL 99 MODE

Project #:	13179116
Date:	5/5/2020
Test Engineer:	20792
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70358	37.78	Pk	33	-28.6	1	-95.2	-52.02	-13	-39.02	H
5.55847	35.18	Pk	35.1	-26.8	1	-95.2	-50.72	-13	-37.72	H
7.40997	34.81	Pk	35.5	-24.4	1	-95.2	-48.29	-13	-35.29	H
3.70525	34.76	Pk	33	-28.6	1	-95.2	-55.04	-13	-42.04	V
5.55789	35.57	Pk	35.1	-26.8	1	-95.2	-50.33	-13	-37.33	V
7.41018	33.07	Pk	35.5	-24.4	1	-95.2	-50.03	-13	-37.03	V
Mid Channel, 1880MHz										
3.76087	36.96	Pk	33	-28.4	1	-95.2	-52.64	-13	-39.64	H
5.64024	35.22	Pk	35.1	-26.7	1	-95.2	-50.58	-13	-37.58	H
7.52002	33.73	Pk	35.5	-23.9	1	-95.2	-48.87	-13	-35.87	H
3.75961	34.11	Pk	32.9	-28.4	1	-95.2	-55.59	-13	-42.59	V
5.64041	36.97	Pk	35.1	-26.7	1	-95.2	-48.83	-13	-35.83	V
7.5208	33.95	Pk	35.5	-23.9	1	-95.2	-48.65	-13	-35.65	V
High Channel, 1907.6MHz										
3.81342	36.98	Pk	32.9	-28.3	1	-95.2	-52.62	-13	-39.62	H
5.72155	33.76	Pk	35	-26.7	1	-95.2	-52.14	-13	-39.14	H
7.62956	33.17	Pk	35.6	-24	1	-95.2	-49.43	-13	-36.43	H
3.81682	36.96	Pk	32.9	-28.3	1	-95.2	-52.64	-13	-39.64	V
5.72379	33.99	Pk	34.9	-26.6	1	-95.2	-51.91	-13	-38.91	V
7.62954	32.63	Pk	35.6	-24	1	-95.2	-49.97	-13	-36.97	V

Pk – Peak Detector

HSDPA MODE

Company:	
Project #:	13179116
Date:	5/5/2020
Test Engineer:	20792
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70532	33.03	Pk	33	-28.6	1	-95.2	-56.77	-13	-43.77	H
5.55844	35.4	Pk	35.1	-26.8	1	-95.2	-50.5	-13	-37.5	H
7.41082	32.6	Pk	35.5	-24.4	1	-95.2	-50.5	-13	-37.5	H
3.70277	36.95	Pk	33	-28.7	1	-95.2	-52.95	-13	-39.95	V
5.55669	33.68	Pk	35.1	-26.8	1	-95.2	-52.22	-13	-39.22	V
7.41002	33.6	Pk	35.5	-24.4	1	-95.2	-49.5	-13	-36.5	V
Mid Channel, 1880MHz										
3.76	36.08	Pk	33	-28.4	1	-95.2	-53.52	-13	-40.52	H
5.63977	33.13	Pk	35.1	-26.6	1	-95.2	-52.57	-13	-39.57	H
7.5198	32.56	Pk	35.5	-23.9	1	-95.2	-50.04	-13	-37.04	H
3.76133	35.26	Pk	33	-28.3	1	-95.2	-54.24	-13	-41.24	V
5.63922	33.57	Pk	35.1	-26.6	1	-95.2	-52.13	-13	-39.13	V
7.51958	33.49	Pk	35.5	-23.9	1	-95.2	-49.11	-13	-36.11	V
High Channel, 1907.6MHz										
3.81309	35.17	Pk	32.9	-28.3	1	-95.2	-54.43	-13	-41.43	H
5.72185	36.04	Pk	35	-26.6	1	-95.2	-49.76	-13	-36.76	H
7.62915	32.64	Pk	35.7	-24.1	1	-95.2	-49.96	-13	-36.96	H
3.81464	36.17	Pk	32.9	-28.4	1	-95.2	-53.53	-13	-40.53	V
5.72173	35.94	Pk	35	-26.6	1	-95.2	-49.86	-13	-36.86	V
7.63214	32.49	Pk	35.6	-24	1	-95.2	-50.11	-13	-37.11	V

Pk – Peak Detector

9.5.3. WCDMA BAND 4

REL 99 MODE

Project #:	13179116
Date:	5/5/2020
Test Engineer:	20792
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.42522	37.71	Pk	32.7	-29.3	1	-95.2	-53.09	-13	-40.09	H
5.13768	34.27	Pk	34.5	-27.1	1	-95.2	-52.53	-13	-39.53	H
6.85119	34.45	Pk	35.5	-25.3	1	-95.2	-49.55	-13	-36.55	H
3.42461	35.87	Pk	32.7	-29.3	1	-95.2	-54.93	-13	-41.93	V
5.13594	36.94	Pk	34.5	-27	1	-95.2	-49.76	-13	-36.76	V
6.84957	33.12	Pk	35.5	-25.3	1	-95.2	-50.88	-13	-37.88	V
Mid Channel, 1732.6MHz										
3.46408	35.15	Pk	32.8	-29.2	1	-95.2	-55.45	-13	-42.45	H
5.19709	34.25	Pk	34.4	-27	1	-95.2	-52.55	-13	-39.55	H
6.93078	34.94	Pk	35.7	-24.7	1	-95.2	-48.26	-13	-35.26	H
3.46661	38.16	Pk	32.8	-29.1	1	-95.2	-52.34	-13	-39.34	V
5.19762	35.29	Pk	34.4	-27	1	-95.2	-51.51	-13	-38.51	V
6.93103	34.24	Pk	35.7	-24.6	1	-95.2	-48.86	-13	-35.86	V
High Channel, 1752.6MHz										
3.50592	36.39	Pk	32.9	-28.8	1	-95.2	-53.71	-13	-40.71	H
5.25623	36.37	Pk	34.5	-26.9	1	-95.2	-50.23	-13	-37.23	H
7.01096	34.1	Pk	35.7	-24.9	1	-95.2	-49.3	-13	-36.3	H
3.50501	36.13	Pk	32.9	-28.8	1	-95.2	-53.97	-13	-40.97	V
5.25558	34.1	Pk	34.5	-26.9	1	-95.2	-52.5	-13	-39.5	V
7.00903	32.68	Pk	35.7	-24.9	1	-95.2	-50.72	-13	-37.72	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179116
Date:	5/5/2020
Test Engineer:	20792
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber I

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T862 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.42391	36.87	Pk	32.7	-29.2	1	-95.2	-53.83	-13	-40.83	H
5.13917	33.86	Pk	34.5	-27.1	1	-95.2	-52.94	-13	-39.94	H
6.85035	33.45	Pk	35.5	-25.3	1	-95.2	-50.55	-13	-37.55	H
3.42267	36.9	Pk	32.7	-29.2	1	-95.2	-53.8	-13	-40.8	V
5.13761	35.77	Pk	34.5	-27.1	1	-95.2	-51.03	-13	-38.03	V
6.85084	33.66	Pk	35.5	-25.3	1	-95.2	-50.34	-13	-37.34	V
Mid Channel, 1732.6MHz										
3.46675	34.83	Pk	32.8	-29.1	1	-95.2	-55.67	-13	-42.67	H
5.19827	34.77	Pk	34.4	-26.9	1	-95.2	-51.93	-13	-38.93	H
6.93208	33.49	Pk	35.7	-24.7	1	-95.2	-49.71	-13	-36.71	H
3.46625	37.75	Pk	32.8	-29.2	1	-95.2	-52.85	-13	-39.85	V
5.19715	34.34	Pk	34.4	-27	1	-95.2	-52.46	-13	-39.46	V
6.93101	33.04	Pk	35.7	-24.6	1	-95.2	-50.06	-13	-37.06	V
High Channel, 1752.6MHz										
3.50417	35.7	Pk	32.9	-28.8	1	-95.2	-54.4	-13	-41.4	H
5.25921	34.02	Pk	34.5	-26.8	1	-95.2	-52.48	-13	-39.48	H
7.01166	32.73	Pk	35.7	-24.8	1	-95.2	-50.57	-13	-37.57	H
3.50678	36.65	Pk	32.9	-28.8	1	-95.2	-53.45	-13	-40.45	V
5.25719	35.11	Pk	34.5	-26.7	1	-95.2	-51.29	-13	-38.29	V
7.01147	32.9	Pk	35.7	-24.9	1	-95.2	-50.5	-13	-37.5	V

Pk – Peak Detector

10. SETUP PHOTOS

Please refer to 13179116-EP1V1 for setup photos

END OF REPORT