



TEST REPORT

Report Number. : 13190901-E7V2

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

Model : A2398

FCC ID : BCG-E3540A

IC : 579C-E3540A

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

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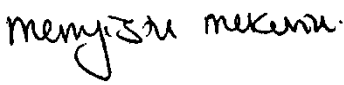
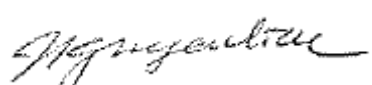
Revision History

Rev.	Issue Date	Revisions	Revised By
V1	09/25/2020	Initial Review	Mengistu Mekuria
V2	10/2/2020	Addressed TCB Feedback	John Thompson

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1. ATTESTATION OF TEST RESULTS

Applicant Name and Address	APPLE, INC. 1 APPLE PARK WAY CUPERTINO, CA 95014, U.S.A	
Model	A2398	
FCC ID	BCG-E3540A	
IC	579C-E3540A	
EUT Description	SMARTPHONE	
Serial Number	MODEL (A2398): C74033300DAP54Y5R (CONDUCTED) AND C7CCT01HQ91K (RADIATED)	
Date Tested	JULY 01, 2017 to SEPTEMBER 08, 2020	
Applicable Standards	FCC CFR47 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 Test 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
- ISSED 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 Road
☒ Chamber A	☐ Chamber D	☐ Chamber I
☒ Chamber B	☐ Chamber E	☐ Chamber J
☐ Chamber C	☐ Chamber F	☐ Chamber K
	☐ Chamber G	☐ Chamber L
	☐ Chamber H	☐ Chamber M

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 EUT is a smartphone with multimedia functions (music, application support, and video), Cellular GSM, GPRS, EGPRS, UMTS, LTE, 5G, CDMA, IEEE802.11a/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.

5.1. INTRODUCTION

This application for certification is leveraging the data reuse procedures from KDB 484596 D01 based on reference FCC ID BCG-E3539A / IC ID 579C-E3539A to cover variant model FCC ID BCG-E3540A / IC ID 579C-E3540A. The major difference between the parent/reference model and the variant model is the depopulation in the variant model of the mmWave transmitter. All other circuitry and features are identical. The data reuse test plan was approved via manufacturer KDB inquiry.

5.2. MODEL DIFFERENCES

The manufacturer hereby declares the following for models A2176 and A2398.

A2176 and A2398 are highly similar, with the only difference being the supported cellular bands.

They have the same PCB layout, design, common components, antennas, antenna locations and housing cases.

More specifically, their cellular modem, Wi-Fi, BT, NFC, WPT and UWB transmitters are identical, and removal of cellular bands is done by software and depopulation of band-specific components associated with the removed bands.

Spot check verification and additional full radiated spurious emission test on ANT2 have been done on model A2398 in accordance with the test plan approved via KDB inquiry. Comparison of the models, upper deviation is within 3dB range and all tests are under FCC/ISED Technical Limits. The results documented for model A2176 may be applied as representative to model A2398.

5.3. SPOT CHECK VERIFICATION RESULTS SUMMARY

A2398 SPOT CHECK RESULTS								
Technology	Worst Mode	Test Item	Channel	Measured Frequency MHz	Original Model: A2176 FCC ID : BCG-E3539A IC ID : 579C-E3539A	Sub Model: A2398 FCC ID: BCG-E3540A IC ID : 579C-E3540A	Delta (dB)	Remarks
GSM	GPRS 850	ERP	Low	824.2	27.75 dBm	27.55 dBm	-0.2	
	EGPRS 850	RSE	Low	3287.45	-52.29 dBm	-51.08 dBm	1.21	Noise Floor Level
	GPRS 1900	EIRP	Low	1850.2	30.8 dBm	30.8	0	
	GPRS 1900	RSE	High	5729.49	-41.32 dBm	-48.47 dBm	-7.15	Noise Floor Level
WCDMA	REL99 B5	ERP	Mid	836.6	19.95 dBm	19.75 dBm	-0.2	
	HSDPA B5	RSE	Mid	2506.73	-47.73 dBm	-54.73 dBm	-7	Noise Floor Level
	REL99 B2	EIRP	Mid	1880	24.5 dBm	24.5	0	
	REL99 B2	RSE	High	8144.61	-43.26 dBm	-45.35 dBm	-2.09	Noise Floor Level
	REL99 B4	EIRP	Low	1712.4	24.8 dBm	24.8 dBm	0	
	REL99 B4	RSE	High	7211.44	-43.49 dBm	-46.38 dBm	-2.89	Noise Floor Level

5.4. REFERENCE DETAIL

Reference application that contains the reused reference data.

Equipment Class	Reference FCC ID / IC ID	Reference Application	Report Title/Section
PCE	BCG-E3539A / 579C-E3539A	13179110-E7	FCC_IC 2G/3G Report / All Sections except Radiated spurious emission on ANT2

5.5. SOFTWARE AND FIRMWARE

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

5.6. 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	-3.6	-5.2	N/A	N/A
824 - 849	-3.6	-4.2	N/A	N/A
1850 - 1910	-1.2	-4.2	-0.3	-2.5
1710 - 1755	-1.0	-4.4	0.1	-2.2

5.7. 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 Y and X - orientation was the worst-case orientation for cell and secondary bands to ANT1 and ANT2 respectively. For PCS and AWS bands, Y- orientation to ANT1, Z- orientation to ANT2, ANT3, and X- orientation to 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.

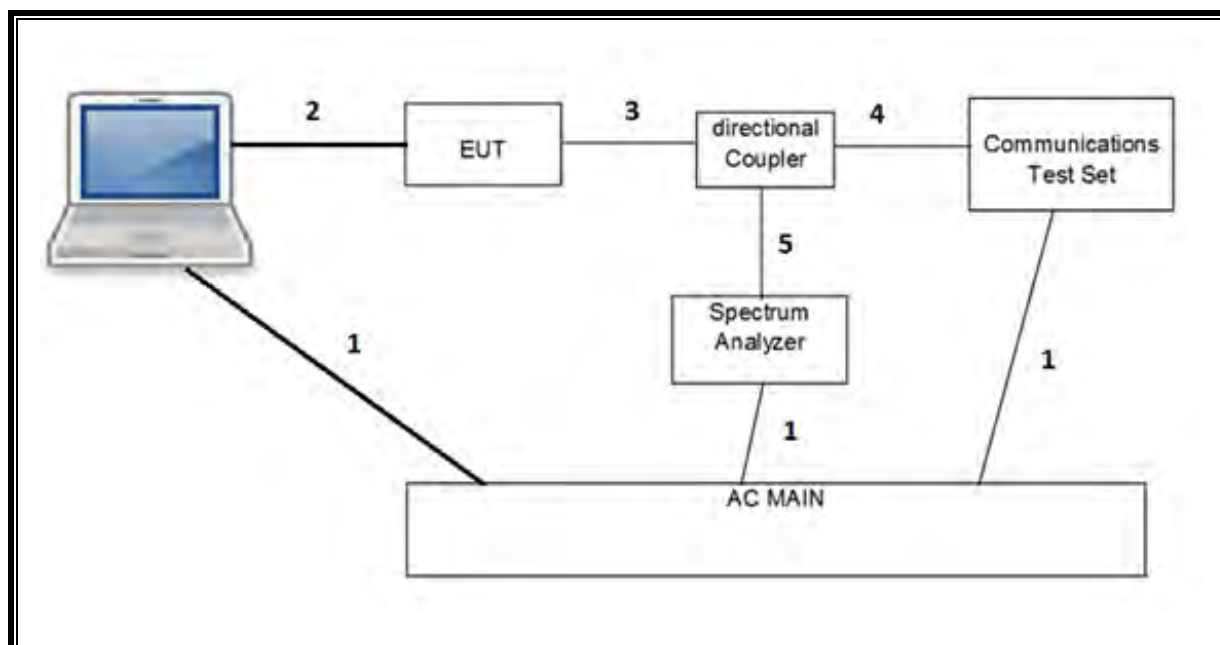
Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

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.

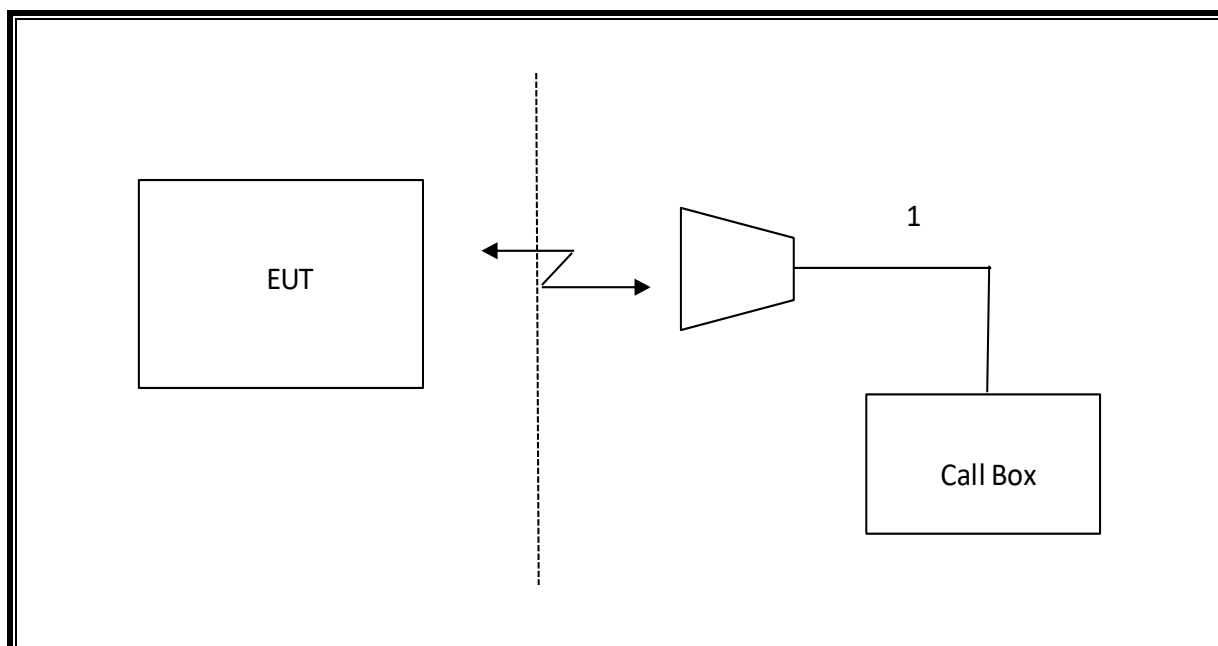
5.8. DESCRIPTION OF TEST SETUP

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	T136	07/07/2021
Antenna, Broadband Hybrid, 30MHz to 2000MHz	Sunol Sciences Corp.	JB3	T407	05/20/2021
Amplifier, 1 to 18GHz	MITEQ	AFS42-00101800-25-S-42	T931	05/11/2021
Amplifier, 1 to 18GHz	MITEQ	AFS42-00101800-25-S-42	T1165	08/10/2021
Amplifier, 9KHz to 1GHz, 32dB	SONOMA INSTRUMENT	310	PRE0180176	07/14/2021
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
*Directional Coupler	KRYTAR	152610	T1161	08/14/2020
Spectrum Analyzer, PXA 3Hz to 44GHZ	Keysight	N9030A	T340	01/22/2021
Spectrum Analyzer, PXA 3Hz to 44GHZ	Keysight	N9030A	T907	01/22/2021
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
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. RADIATED TEST RESULTS

7.1. FIELD STRENGTH OF SPURIOUS RADIATION, ANT2

7.1.1. GSM 850

GPRS MODE

Project #:	13190901
Date:	9/3/2020
Test Engineer:	19497
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										
1.63973	41.28	Pk	29.1	-30.8	.7	-95.2	-54.92	-13	-41.92	V
1.65032	40.98	Pk	29	-30.7	.8	-95.2	-55.12	-13	-42.12	H
2.47342	38.62	Pk	33.3	-29.7	.5	-95.2	-52.48	-13	-39.48	H
2.47456	38.92	Pk	33.3	-29.7	.5	-95.2	-52.18	-13	-39.18	V
3.29176	37.91	Pk	33	-28.2	.8	-95.2	-51.69	-13	-38.69	H
3.29176	38.76	Pk	33	-28.2	.8	-95.2	-50.84	-13	-37.84	V
Mid Channel, 836.6 MHz										
1.67061	40.01	Pk	25	-30.4	.7	-95.2	-59.89	-13	-46.89	H
1.67405	39.96	Pk	25	-30.4	.7	-95.2	-59.94	-13	-46.94	V
2.50987	41.09	Pk	29.1	-29.3	.7	-95.2	-53.61	-13	-40.61	V
2.50994	47.38	Pk	29.1	-29.3	.7	-95.2	-47.32	-13	-34.32	H
3.34041	37.66	Pk	31	-28.2	.6	-95.2	-54.14	-13	-41.14	H
3.34308	38.04	Pk	31	-28.2	.6	-95.2	-53.76	-13	-40.76	V
High Channel, 848.8 MHz										
1.69391	40.49	Pk	29	-30.5	.7	-95.2	-55.51	-13	-42.51	H
1.69915	40.85	Pk	29.2	-30.5	.6	-95.2	-55.05	-13	-42.05	V
2.54525	39.31	Pk	33.3	-29.5	.6	-95.2	-51.49	-13	-38.49	H
2.56401	38.93	Pk	33.1	-29.4	.4	-95.2	-52.17	-13	-39.17	V
3.38971	38.17	Pk	33	-28.5	.6	-95.2	-51.93	-13	-38.93	V
3.39309	38.61	Pk	33	-28.4	.6	-95.2	-51.39	-13	-38.39	H

Pk – Peak Detector

EGPRS MODE

Project #:	13190901
Date:	9/3/2020
Test Engineer:	19497
Configuration:	EUT Only
Mode:	GSM850 EGPRS
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										
1.64519	40.18	Pk	29.1	-30.8	.7	-95.2	-56.02	-13	-43.02	V
1.64987	39.94	Pk	29	-30.7	.8	-95.2	-56.16	-13	-43.16	H
2.47321	38.98	Pk	33.3	-29.7	.5	-95.2	-52.12	-13	-39.12	V
2.47564	39.45	Pk	33.3	-29.7	.5	-95.2	-51.65	-13	-38.65	H
3.29868	37.99	Pk	33	-28.3	.8	-95.2	-51.71	-13	-38.71	H
3.29973	38.02	Pk	33	-28.4	.8	-95.2	-51.78	-13	-38.78	V
Mid Channel, 836.6 MHz										
1.67266	40.57	Pk	25	-30.4	.7	-95.2	-59.33	-13	-46.33	V
1.67333	40.4	Pk	25	-30.4	.7	-95.2	-59.5	-13	-46.5	H
2.51	43.69	Pk	29.1	-29.3	.7	-95.2	-51.01	-13	-38.01	V
2.51003	49.66	Pk	29.1	-29.3	.7	-95.2	-45.04	-13	-32.04	H
3.34905	38.34	Pk	31	-28.2	.6	-95.2	-53.46	-13	-40.46	V
3.35392	37.99	Pk	31	-28.1	.6	-95.2	-53.71	-13	-40.71	H
High Channel, 848.8 MHz										
1.69362	40.18	Pk	29	-30.5	.7	-95.2	-55.82	-13	-42.82	H
1.70125	32.69	Pk	29.3	-30.5	.6	-95.2	-63.11	-13	-50.11	V
2.54198	38.66	Pk	33.4	-29.4	.7	-95.2	-51.84	-13	-38.84	H
2.54541	32.14	Pk	33.3	-29.5	.6	-95.2	-58.66	-13	-45.66	V
3.38837	38.88	Pk	33	-28.5	.6	-95.2	-51.22	-13	-38.22	V
3.39492	38.96	Pk	33	-28.4	.6	-95.2	-51.04	-13	-38.04	H

Pk – Peak Detector

7.1.2. GSM 1900

GPRS MODE

Project #:	13190901
Date:	9/5/2020
Test Engineer:	19497
Configuration:	EUT Only
Mode:	GPRS 1900
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										
3.69951	38.93	Pk	33.4	-27.3	1	-95.2	-49.17	-13	-36.17	H
3.70141	39.06	Pk	33.4	-27.3	1	-95.2	-49.04	-13	-36.04	V
5.5486	37.4	Pk	35	-24.9	1	-95.2	-46.7	-13	-33.7	V
5.5491	37.45	Pk	35	-24.9	1	-95.2	-46.65	-13	-33.65	H
7.38015	34.15	Pk	36.2	-21.9	1	-95.2	-45.75	-13	-32.75	V
7.40651	34.86	Pk	36.2	-22.2	1	-95.2	-45.34	-13	-32.34	H
Mid Channel, 1880MHz										
3.76004	39.08	Pk	30.6	-27.5	1	-95.2	-52.02	-13	-39.02	H
3.76608	39.45	Pk	30.8	-27.5	1	-95.2	-51.45	-13	-38.45	V
5.63938	36.55	Pk	33.1	-24.8	1	-95.2	-49.35	-13	-36.35	V
5.64196	36.98	Pk	33.2	-24.8	1	-95.2	-48.82	-13	-35.82	H
7.51744	35.52	Pk	36.7	-23.1	1	-95.2	-45.08	-13	-32.08	V
7.51941	36.29	Pk	36.7	-23.1	1	-95.2	-44.31	-13	-31.31	H
High Channel, 1909.8MHz										
3.78546	37.91	Pk	33.6	-27	1	-95.2	-49.69	-13	-36.69	V
3.82404	38.69	Pk	33.7	-27.4	1	-95.2	-49.21	-13	-36.21	H
5.73416	37.39	Pk	35.3	-25.6	1	-95.2	-47.11	-13	-34.11	V
5.73427	37.4	Pk	35.3	-25.6	1	-95.2	-47.1	-13	-34.1	H
7.62523	34.88	Pk	35.9	-21.1	1	-95.2	-44.52	-13	-31.52	V
7.63946	34.48	Pk	35.9	-21.2	1	-95.2	-45.02	-13	-32.02	H

Pk – Peak Detector

EGPRS MODE

Project #:	13190901
Date:	9/4/2020
Test Engineer:	19497
Configuration:	EUT Only
Mode:	EGPRS 1900
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										
3.69096	39.46	Pk	33.3	-27.5	1	-95.2	-48.94	-13	-35.94	V
3.70548	39.26	Pk	33.4	-27.3	1	-95.2	-48.84	-13	-35.84	H
5.55443	36.29	Pk	35	-24.9	1	-95.2	-47.81	-13	-34.81	H
5.58356	36.82	Pk	35	-24.7	1	-95.2	-47.08	-13	-34.08	V
7.40266	34.58	Pk	36.2	-22.1	1	-95.2	-45.52	-13	-32.52	H
7.40316	34.81	Pk	36.2	-22.1	1	-95.2	-45.29	-13	-32.29	V
Mid Channel, 1880MHz										
3.75961	39.41	Pk	30.6	-27.5	1	-95.2	-51.69	-13	-38.69	V
3.76041	38.72	Pk	30.7	-27.5	1	-95.2	-52.28	-13	-39.28	H
5.63953	36.98	Pk	33.1	-24.8	1	-95.2	-48.92	-13	-35.92	V
5.64085	37.23	Pk	33.1	-24.8	1	-95.2	-48.67	-13	-35.67	H
7.5183	36.09	Pk	36.7	-23.1	1	-95.2	-44.51	-13	-31.51	H
7.51981	35.6	Pk	36.7	-23.1	1	-95.2	-45	-13	-32	V
High Channel, 1909.8MHz										
3.80868	38.83	Pk	33.6	-27.4	1	-95.2	-49.17	-13	-36.17	V
3.82184	39.15	Pk	33.7	-27.4	1	-95.2	-48.75	-13	-35.75	H
5.72437	35.87	Pk	35.2	-25.6	1	-95.2	-48.73	-13	-35.73	V
5.73229	37.47	Pk	35.3	-25.6	1	-95.2	-47.03	-13	-34.03	H
7.64552	34.32	Pk	35.9	-21.3	1	-95.2	-45.28	-13	-32.28	H
7.64632	34.58	Pk	35.9	-21.3	1	-95.2	-45.02	-13	-32.02	V

Pk – Peak Detector

7.1.3. CDMA BC10

1xRTT MODE

Project #:	13190901
Date:	9/17/2020
Test Engineer:	20792
Configuration:	EUT Only
Mode:	1xRTT BC10
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, 817.25MHz										
1.63372	39.98	Pk	29.1	-30.8	.7	-95.2	-56.22	-13	-43.22	V
1.63465	40.83	Pk	29	-30.8	.7	-95.2	-55.47	-13	-42.47	H
2.45188	39.35	Pk	33	-29.8	.5	-95.2	-52.15	-13	-39.15	V
2.45318	38.72	Pk	33	-29.8	.5	-95.2	-52.78	-13	-39.78	H
3.26796	37.86	Pk	33	-28.5	.7	-95.2	-52.14	-13	-39.14	H
3.26949	37.9	Pk	33	-28.5	.7	-95.2	-52.1	-13	-39.1	V
Mid Channel, 820MHz										
1.63851	40.73	Pk	29.1	-30.8	.7	-95.2	-55.47	-13	-42.47	H
1.65925	39.77	Pk	29	-30.7	.8	-95.2	-56.33	-13	-43.33	V
2.42867	39.29	Pk	32.9	-29.7	.5	-95.2	-52.21	-13	-39.21	V
2.44695	39.26	Pk	33	-29.9	.5	-95.2	-52.34	-13	-39.34	H
3.22822	37.83	Pk	33	-28.2	.4	-95.2	-52.17	-13	-39.17	V
3.28803	38.19	Pk	33	-28.3	.9	-95.2	-51.41	-13	-38.41	H
High Channel, 822.75MHz										
1.64514	40.23	Pk	29.1	-30.8	.7	-95.2	-55.97	-13	-42.97	H
1.64548	40.58	Pk	29.1	-30.8	.7	-95.2	-55.62	-13	-42.62	V
2.46742	38.88	Pk	33.3	-29.8	.5	-95.2	-52.32	-13	-39.32	H
2.46834	39.34	Pk	33.3	-29.8	.5	-95.2	-51.86	-13	-38.86	V
3.2924	37.46	Pk	33	-28.2	.8	-95.2	-52.14	-13	-39.14	V
3.29251	38.49	Pk	33	-28.3	.8	-95.2	-51.21	-13	-38.21	H

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13190901
Date:	9/17/2020
Test Engineer:	30606
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC10
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, 817.25MHz										
1.83277	41.39	Pk	31.1	-30.4	.5	-95.2	-52.61	-13	-39.61	H
1.83432	41.32	Pk	31.1	-30.3	.5	-95.2	-52.58	-13	-39.58	V
2.45278	44.67	Pk	33	-29.8	.5	-95.2	-46.83	-13	-33.83	H
2.45496	48.32	Pk	33	-29.8	.5	-95.2	-43.18	-13	-30.18	V
3.69481	39.44	Pk	33.4	-27.5	.8	-95.2	-49.06	-13	-36.06	V
3.798	40.42	Pk	33.7	-28.1	.8	-95.2	-48.38	-13	-35.38	H
Mid Channel, 820MHz										
1.68301	40.12	Pk	28.9	-30.6	.7	-95.2	-56.08	-13	-43.08	V
1.72725	39.9	Pk	29.8	-30.5	.7	-95.2	-55.3	-13	-42.3	H
2.48195	39.04	Pk	33.4	-29.7	.5	-95.2	-51.96	-13	-38.96	V
2.49914	39.09	Pk	33.5	-29.8	.6	-95.2	-51.81	-13	-38.81	H
3.2424	38.89	Pk	33	-28.2	.4	-95.2	-51.11	-13	-38.11	V
3.30323	38.58	Pk	33	-28.5	.7	-95.2	-51.42	-13	-38.42	H
High Channel, 822.75MHz										
1.86119	40.31	Pk	31.4	-30.4	.6	-95.2	-53.29	-13	-40.29	V
1.87106	41.23	Pk	31.7	-30.4	.6	-95.2	-52.07	-13	-39.07	H
2.46853	45.4	Pk	33.3	-29.8	.5	-95.2	-45.8	-13	-32.8	H
2.4688	43.98	Pk	33.3	-29.8	.5	-95.2	-47.22	-13	-34.22	V
4.62147	38.65	Pk	34.2	-27.1	.7	-95.2	-48.75	-13	-35.75	V
4.81886	39.23	Pk	34.2	-27.2	.9	-95.2	-48.07	-13	-35.07	H

Pk – Peak Detector

7.1.4. CDMA BC0

1xRTT MODE

Project #:	13190901
Date:	8/18/2020
Test Engineer:	30606
Configuration:	EUT Only
Mode:	1xRTT BC0
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	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										
1.63362	40.5	Pk	29.1	-30.8	.7	-95.2	-55.7	-13	-42.7	V
1.73912	50.14	Pk	29.9	-30.6	.7	-95.2	-45.06	-13	-32.06	H
2.18049	39.12	Pk	31.6	-29.9	.5	-95.2	-53.88	-13	-40.88	V
2.49323	39.7	Pk	33.5	-29.8	.6	-95.2	-51.2	-13	-38.2	H
2.8344	38.64	Pk	32.5	-28.9	.7	-95.2	-52.26	-13	-39.26	V
3.3684	38.41	Pk	33	-28.5	.6	-95.2	-51.69	-13	-38.69	H
Mid Channel, 836.52MHz										
1.76301	49.55	Pk	30.1	-30.7	.7	-95.2	-45.55	-13	-32.55	H
1.80139	39.67	Pk	30.5	-30.6	.6	-95.2	-55.03	-13	-42.03	V
2.1263	38.75	Pk	31.6	-30	.5	-95.2	-54.35	-13	-41.35	V
2.55485	39.07	Pk	33.1	-29.6	.5	-95.2	-52.13	-13	-39.13	H
3.64689	39.21	Pk	33.6	-27.7	.5	-95.2	-49.59	-13	-36.59	H
3.76353	38.64	Pk	33.7	-27.9	.5	-95.2	-50.26	-13	-37.26	V
High Channel, 848.31MHz										
1.73356	40.43	Pk	29.9	-30.5	.7	-95.2	-54.67	-13	-41.67	V
1.78684	48.88	Pk	30.3	-30.6	.6	-95.2	-46.02	-13	-33.02	H
2.54196	40.02	Pk	33.4	-29.4	.7	-95.2	-50.48	-13	-37.48	V
2.57819	38.2	Pk	33.1	-29.2	.4	-95.2	-52.7	-13	-39.7	H
3.37401	37.89	Pk	33	-28.6	.6	-95.2	-52.31	-13	-39.31	H
3.38087	38.09	Pk	33	-28.6	.6	-95.2	-52.11	-13	-39.11	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13190901
Date:	8/18/2020
Test Engineer:	30606
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC0
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBm)	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										
1.87929	34.87	Pk	31.6	-30.4	.6	-95.2	-58.53	-13	-45.53	H
1.88968	39.94	Pk	31.7	-30.4	.6	-95.2	-53.36	-13	-40.36	V
2.45947	39.39	Pk	33.1	-29.8	.5	-95.2	-52.01	-13	-39.01	H
2.48016	39.41	Pk	33.4	-29.6	.5	-95.2	-51.49	-13	-38.49	V
3.13696	38.69	Pk	32.8	-28.8	.6	-95.2	-51.91	-13	-38.91	V
3.48436	38.19	Pk	33.1	-28	.9	-95.2	-51.01	-13	-38.01	H
Mid Channel, 836.52MHz										
1.64043	40.23	Pk	29.1	-30.8	.7	-95.2	-55.97	-13	-42.97	V
1.73414	40.76	Pk	30	-30.5	.7	-95.2	-54.24	-13	-41.24	H
2.53039	38.62	Pk	33.4	-29.4	.8	-95.2	-51.78	-13	-38.78	V
2.54146	38.95	Pk	33.4	-29.4	.7	-95.2	-51.55	-13	-38.55	H
3.65816	38.99	Pk	33.4	-27.6	.6	-95.2	-49.81	-13	-36.81	H
4.30166	37.55	Pk	33.5	-26.8	.6	-95.2	-50.35	-13	-37.35	V
High Channel, 848.31MHz										
1.7741	40.1	Pk	30.1	-30.6	.6	-95.2	-55	-13	-42	V
1.87692	39.66	Pk	31.7	-30.3	.6	-95.2	-53.54	-13	-40.54	H
2.54632	39.24	Pk	33.3	-29.5	.6	-95.2	-51.56	-13	-38.56	V
2.79691	39.55	Pk	32.8	-29.2	.5	-95.2	-51.55	-13	-38.55	H
3.07989	38.28	Pk	33	-28.7	.6	-95.2	-52.02	-13	-39.02	V
3.82013	39.08	Pk	33.7	-27.7	.5	-95.2	-49.62	-13	-36.62	H

Pk – Peak Detector

7.1.5. CDMA BC1

1xRTT MODE

Project #:	13190901
Date:	9/16/2020
Test Engineer:	30606
Configuration:	EUT Only
Mode:	1xRTT BC1
Chamber #:	ChamberA

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
4.31711	39.15	Pk	33.6	-26.6	1	-95.2	-48.05	-13	-35.05	V
4.79034	38.68	Pk	34.1	-25.3	1	-95.2	-46.72	-13	-33.72	H
5.60223	37.71	Pk	35	-24.2	1	-95.2	-45.69	-13	-32.69	V
6.43685	36.57	Pk	36.4	-23.4	1	-95.2	-44.63	-13	-31.63	H
7.5993	35.89	Pk	35.9	-21.3	1	-95.2	-43.71	-13	-30.71	V
9.01764	35.8	Pk	36.4	-19.7	1	-95.2	-41.7	-13	-28.7	H
Mid Channel, 1880MHz										
3.73929	38.78	Pk	33.5	-26.8	1	-95.2	-48.72	-13	-35.72	V
3.76774	38.52	Pk	33.6	-27	1	-95.2	-49.08	-13	-36.08	H
5.60288	36.76	Pk	35	-24.2	1	-95.2	-46.64	-13	-33.64	H
5.62149	37.04	Pk	35	-24.1	1	-95.2	-46.26	-13	-33.26	V
7.62333	35.21	Pk	35.9	-21.1	1	-95.2	-44.19	-13	-31.19	V
7.62841	34.93	Pk	35.9	-21.1	1	-95.2	-44.47	-13	-31.47	H
High Channel, 1908.75MHz										
4.79496	38.13	Pk	34.2	-25.2	1	-95.2	-47.07	-13	-34.07	H
4.82226	38.31	Pk	34.2	-25.4	1	-95.2	-47.09	-13	-34.09	V
6.42654	36.52	Pk	36.4	-23.3	1	-95.2	-44.58	-13	-31.58	H
6.48212	36.93	Pk	36.4	-22.7	1	-95.2	-43.57	-13	-30.57	V
8.47569	35.46	Pk	36.1	-20.8	1	-95.2	-43.44	-13	-30.44	V
9.33086	35.44	Pk	36.6	-20	1	-95.2	-42.16	-13	-29.16	H

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13190901
Date:	9/16//2020
Test Engineer:	30606
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC1
Chamber #:	Chamber A

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T136 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.70199	45.55	Pk	33.4	-27.3	1	-95.2	-42.55	-13	-29.55	V
3.70319	45.18	Pk	33.4	-27.3	1	-95.2	-42.92	-13	-29.92	H
4.82036	39.59	Pk	34.2	-25.4	1	-95.2	-45.81	-13	-32.81	H
4.83417	38.36	Pk	34.2	-25.7	1	-95.2	-47.34	-13	-34.34	V
6.38098	36.68	Pk	36.3	-23.8	1	-95.2	-45.02	-13	-32.02	V
6.44541	36.79	Pk	36.4	-23.4	1	-95.2	-44.41	-13	-31.41	H
Mid Channel, 1880MHz										
3.74971	39.57	Pk	33.6	-27	1	-95.2	-48.03	-13	-35.03	V
3.82606	38.68	Pk	33.7	-27.4	1	-95.2	-49.22	-13	-36.22	H
5.4171	37.53	Pk	34.8	-25.8	1	-95.2	-47.67	-13	-34.67	V
5.642	37.21	Pk	35.2	-24.3	1	-95.2	-46.09	-13	-33.09	H
7.52825	35.54	Pk	36	-22.2	1	-95.2	-44.86	-13	-31.86	H
7.60022	35.43	Pk	35.9	-21.3	1	-95.2	-44.17	-13	-31.17	V
High Channel, 1908.75MHz										
3.95152	38.94	Pk	33.8	-27.2	1	-95.2	-48.66	-13	-35.66	V
4.23217	38.28	Pk	33.5	-26.3	1	-95.2	-48.72	-13	-35.72	H
5.08271	37.49	Pk	34.4	-24.6	1	-95.2	-46.91	-13	-33.91	V
5.66315	36.4	Pk	35.2	-24.4	1	-95.2	-47	-13	-34	H
7.27518	35.79	Pk	36.1	-21.6	1	-95.2	-43.91	-13	-30.91	V
8.4544	36.29	Pk	36.2	-20.6	1	-95.2	-42.31	-13	-29.31	H

Pk – Peak Detector

7.1.6. WCDMA BAND 5

REL 99 MODE

Project #:	13190901
Date:	8/16/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	Rel 99 Band 5
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, 826.4MHz										
1.96349	40.29	Pk	27	-30	.6	-95.2	-57.31	-13	-44.31	V
1.97383	41.53	Pk	27.2	-30	.6	-95.2	-55.87	-13	-42.87	H
2.50258	40.98	Pk	29	-29.3	.6	-95.2	-53.92	-13	-40.92	H
2.50713	40.39	Pk	29.1	-29.3	.7	-95.2	-54.31	-13	-41.31	V
3.25576	40.3	Pk	31.3	-28.3	.4	-95.2	-51.5	-13	-38.5	H
3.26095	40.31	Pk	31.3	-28.3	.5	-95.2	-51.39	-13	-38.39	V
Mid Channel, 836.6MHz										
1.83208	40.8	Pk	26	-30.1	.6	-95.2	-57.9	-13	-44.9	H
1.85788	41.33	Pk	26	-30.1	.6	-95.2	-57.37	-13	-44.37	V
2.43787	40.86	Pk	28.8	-29.4	.5	-95.2	-54.44	-13	-41.44	H
2.44131	40.66	Pk	28.8	-29.4	.5	-95.2	-54.64	-13	-41.64	V
3.26088	40.06	Pk	31.3	-28.3	.5	-95.2	-51.64	-13	-38.64	V
3.32169	39.34	Pk	31.2	-28.1	.6	-95.2	-52.16	-13	-39.16	H
High Channel, 846.6MHz										
2.03507	40.99	Pk	27	-29.7	.6	-95.2	-56.31	-13	-43.31	H
2.03547	41.42	Pk	27	-29.7	.6	-95.2	-55.88	-13	-42.88	V
2.55246	40.45	Pk	29.3	-29.3	.6	-95.2	-54.15	-13	-41.15	H
2.56486	41.11	Pk	29.3	-29.2	.5	-95.2	-53.49	-13	-40.49	V
3.14074	40.2	Pk	30.8	-28.6	.6	-95.2	-52.2	-13	-39.2	H
3.26006	39.88	Pk	31.3	-28.3	.5	-95.2	-51.82	-13	-38.82	V

Pk – Peak Detector

HSDPA MODE

Project #:	13190901
Date:	8/16/2020
Test Engineer:	30606
Configuration:	EUT Only
Mode:	HSDPA Band 5
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, 826.4MHz										
1.67256	40.87	Pk	29	-30.6	.7	-95.2	-55.23	-13	-42.23	H
1.73116	40.69	Pk	29.9	-30.5	.7	-95.2	-54.41	-13	-41.41	V
2.4953	40.11	Pk	33.5	-29.8	.6	-95.2	-50.79	-13	-37.79	H
2.50517	39.82	Pk	33.5	-29.7	.7	-95.2	-50.88	-13	-37.88	V
3.35667	39.26	Pk	33	-28.5	.6	-95.2	-50.84	-13	-37.84	H
3.38438	38.82	Pk	33	-28.6	.6	-95.2	-51.38	-13	-38.38	V
Mid Channel, 836.6MHz										
1.65282	41.05	Pk	29	-30.7	.8	-95.2	-55.05	-13	-42.05	H
1.67677	41.06	Pk	28.9	-30.6	.7	-95.2	-55.14	-13	-42.14	V
2.44009	40.63	Pk	33	-29.8	.5	-95.2	-50.87	-13	-37.87	V
2.44159	40.33	Pk	33	-29.8	.5	-95.2	-51.17	-13	-38.17	H
3.36265	39.44	Pk	33	-28.4	.6	-95.2	-50.56	-13	-37.56	V
3.41159	39.18	Pk	33	-28.2	.5	-95.2	-50.72	-13	-37.72	H
High Channel, 846.6MHz										
1.64799	40.28	Pk	29.1	-30.7	.7	-95.2	-55.82	-13	-42.82	H
1.72905	40.87	Pk	29.8	-30.5	.7	-95.2	-54.33	-13	-41.33	V
2.15552	41.06	Pk	31.4	-30	.5	-95.2	-52.24	-13	-39.24	V
2.53972	40.77	Pk	33.4	-29.4	.7	-95.2	-49.73	-13	-36.73	H
3.13522	39.66	Pk	32.8	-28.8	.6	-95.2	-50.94	-13	-37.94	V
3.64294	39.32	Pk	33.6	-27.7	.5	-95.2	-49.48	-13	-36.48	H

Pk – Peak Detector

7.1.7. WCDMA BAND 2

REL 99 MODE

Project #:	13190901
Date:	8/16/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
4.14623	36.74	Pk	31.8	-26.3	1	-95.2	-51.96	-13	-38.96	H
4.20041	37.31	Pk	31.7	-25.7	1	-95.2	-50.89	-13	-37.89	V
5.04839	37.73	Pk	33.8	-24.8	1	-95.2	-47.47	-13	-34.47	V
5.05164	37.63	Pk	33.8	-24.7	1	-95.2	-47.47	-13	-34.47	H
7.21796	36.3	Pk	37.2	-22.6	1	-95.2	-43.3	-13	-30.3	V
7.25721	35.76	Pk	37.2	-23.1	1	-95.2	-44.34	-13	-31.34	H
Mid Channel, 1880MHz										
3.91238	38.64	Pk	31.5	-26.8	1	-95.2	-50.86	-13	-37.86	H
3.94722	38.51	Pk	31.6	-26.7	1	-95.2	-50.79	-13	-37.79	V
5.01424	37.54	Pk	33.7	-25.7	1	-95.2	-48.66	-13	-35.66	V
5.04969	37.65	Pk	33.8	-24.7	1	-95.2	-47.45	-13	-34.45	H
7.21331	35.67	Pk	37.2	-22.6	1	-95.2	-43.93	-13	-30.93	H
7.2802	36.06	Pk	37.1	-23.1	1	-95.2	-44.14	-13	-31.14	V
High Channel, 1907.6MHz										
4.12221	38.1	Pk	31.8	-26.6	1	-95.2	-50.9	-13	-37.9	V
4.13374	38.45	Pk	31.8	-26.5	1	-95.2	-50.45	-13	-37.45	H
5.04099	37.35	Pk	33.7	-24.9	1	-95.2	-48.05	-13	-35.05	V
5.09463	37.62	Pk	33.9	-24.7	1	-95.2	-47.38	-13	-34.38	H
7.21452	35.45	Pk	37.2	-22.6	1	-95.2	-44.15	-13	-31.15	H
7.26507	36.06	Pk	37.1	-23.1	1	-95.2	-44.14	-13	-31.14	V

Pk – Peak Detector

HSDPA MODE

Project #:	13190901
Date:	8/16/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.86558	38.64	Pk	31.2	-27.1	1	-95.2	-51.46	-13	-38.46	V
3.86797	38.97	Pk	31.2	-27.1	1	-95.2	-51.13	-13	-38.13	H
5.05804	37.41	Pk	33.8	-24.8	1	-95.2	-47.79	-13	-34.79	H
5.11879	37.46	Pk	33.9	-24.7	1	-95.2	-47.54	-13	-34.54	V
6.91018	36.44	Pk	36.2	-23.5	1	-95.2	-45.06	-13	-32.06	H
7.12597	35.88	Pk	36.8	-22.9	1	-95.2	-44.42	-13	-31.42	V
Mid Channel, 1880MHz										
4.13073	38.63	Pk	31.8	-26.5	1	-95.2	-50.27	-13	-37.27	H
4.26442	37.6	Pk	31.8	-26.1	1	-95.2	-50.9	-13	-37.9	V
5.05186	38.12	Pk	33.8	-24.7	1	-95.2	-46.98	-13	-33.98	H
5.18495	38.98	Pk	33.6	-25.6	1	-95.2	-47.22	-13	-34.22	V
7.10495	35.91	Pk	36.7	-22.7	1	-95.2	-44.29	-13	-31.29	H
7.28374	36.66	Pk	37.1	-23.2	1	-95.2	-43.64	-13	-30.64	V
High Channel, 1907.6MHz										
4.1291	38.38	Pk	31.7	-26.5	1	-95.2	-50.62	-13	-37.62	H
4.19472	38.36	Pk	31.8	-25.7	1	-95.2	-49.74	-13	-36.74	V
5.09578	37.4	Pk	33.9	-24.7	1	-95.2	-47.6	-13	-34.6	H
5.13313	37.33	Pk	33.8	-24.9	1	-95.2	-47.97	-13	-34.97	V
7.1998	36.49	Pk	37.1	-22.8	1	-95.2	-43.41	-13	-30.41	V
7.21114	35.54	Pk	37.1	-22.7	1	-95.2	-44.26	-13	-31.26	H

Pk – Peak Detector

7.1.8. WCDMA BAND 4

REL 99 MODE

Project #:	13190901
Date:	8/16/2020
Test Engineer:	30606
Configuration:	EUT Only
Mode:	REL 99 Band 4
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, 1712.4MHz										
3.45072	38.5	Pk	33.1	-28.1	1	-95.2	-50.7	-13	-37.7	V
3.81071	38.76	Pk	33.7	-27.4	1	-95.2	-49.14	-13	-36.14	H
5.03257	37.59	Pk	34.2	-25.1	1	-95.2	-47.51	-13	-34.51	H
5.04533	37.15	Pk	34.3	-24.9	1	-95.2	-47.65	-13	-34.65	V
6.77574	35.9	Pk	36.6	-21.9	1	-95.2	-43.6	-13	-30.6	H
6.84974	35.53	Pk	36.4	-23.5	1	-95.2	-45.77	-13	-32.77	V
Mid Channel, 1732.6MHz										
3.51789	37.89	Pk	33.2	-27.3	1	-95.2	-50.41	-13	-37.41	H
3.59839	38.32	Pk	33.3	-27.2	1	-95.2	-49.78	-13	-36.78	V
5.10588	37.47	Pk	34.5	-24.7	1	-95.2	-46.93	-13	-33.93	H
5.14425	37.84	Pk	34.5	-25.8	1	-95.2	-47.66	-13	-34.66	V
6.98187	35.64	Pk	36.1	-22.7	1	-95.2	-45.16	-13	-32.16	H
7.05322	35.1	Pk	36	-22	1	-95.2	-45.1	-13	-32.1	V
High Channel, 1752.6MHz										
3.42421	38.17	Pk	33	-28.2	1	-95.2	-51.23	-13	-38.23	V
3.53435	38.27	Pk	33.3	-27.3	1	-95.2	-49.93	-13	-36.93	H
5.12932	37.33	Pk	34.5	-25.4	1	-95.2	-47.77	-13	-34.77	V
5.51079	36.77	Pk	35	-25.5	1	-95.2	-47.93	-13	-34.93	H
6.82021	35.65	Pk	36.5	-22.9	1	-95.2	-44.95	-13	-31.95	V
7.31781	34.93	Pk	36	-21.3	1	-95.2	-44.57	-13	-31.57	H

Pk – Peak Detector

HSDPA MODE

Project #:	13190901
Date:	8/17/2020
Test Engineer:	30606
Configuration:	EUT Only
Mode:	HSDPA Band 4
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, 1712.4MHz										
3.48078	39.52	Pk	33.1	-27.8	1	-95.2	-49.38	-13	-36.38	H
3.54115	38.97	Pk	33.3	-27.1	1	-95.2	-49.03	-13	-36.03	V
5.07354	38.13	Pk	34.4	-24.7	1	-95.2	-46.37	-13	-33.37	H
5.12956	38.08	Pk	34.5	-25.5	1	-95.2	-47.12	-13	-34.12	V
6.98911	36.7	Pk	36.2	-22.5	1	-95.2	-43.8	-13	-30.8	V
7.0207	35.98	Pk	36.1	-22.5	1	-95.2	-44.62	-13	-31.62	H
Mid Channel, 1732.6MHz										
3.35644	39.12	Pk	33	-27.4	1	-95.2	-49.48	-13	-36.48	V
3.44958	39.47	Pk	33.1	-28.1	1	-95.2	-49.73	-13	-36.73	H
5.19652	38.69	Pk	34.6	-26.3	1	-95.2	-47.21	-13	-34.21	V
5.22567	38.46	Pk	34.6	-26.2	1	-95.2	-47.34	-13	-34.34	H
6.74808	36.07	Pk	36.8	-22.1	1	-95.2	-43.43	-13	-30.43	H
6.75113	36.7	Pk	36.8	-22	1	-95.2	-42.7	-13	-29.7	V
High Channel, 1752.6MHz										
3.50815	38.19	Pk	33.2	-27.3	1	-95.2	-50.11	-13	-37.11	H
3.53291	39.55	Pk	33.3	-27.3	1	-95.2	-48.65	-13	-35.65	V
5.20476	38.4	Pk	34.5	-26.3	1	-95.2	-47.6	-13	-34.6	V
5.22639	37.52	Pk	34.6	-26.2	1	-95.2	-48.28	-13	-35.28	H
7.00106	35.78	Pk	36.1	-22.5	1	-95.2	-44.82	-13	-31.82	H
7.05253	35.14	Pk	36	-22	1	-95.2	-45.06	-13	-32.06	V

Pk – Peak Detector

8. SETUP PHOTOS

Please refer to 13179110-EP1V1 for setup photos

Appendix A – Reference Test Report

Attached is the test report (13179110-E7) containing the reference data from the parent model as detailed in section 5.4.



TEST REPORT

Report Number. : 13179110-E7V2

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

Model : A2176

FCC ID : BCG-E3539A

IC : 579C-E3539A

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:
OCTOBER 02, 2020

Prepared by:
UL Verification Services Inc.
47173 Benicia Street
Fremont, CA 94538, U.S.A.
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FAX: (510) 661-0888



Revision History

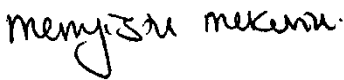
Rev.	Issue Date	Revisions	Revised By
V1	09/27/2020	Initial Review	Mengistu Mekuria
V2	10/01/2020	Addressed TCB Question at Section 5.2, 7.1, 7.2, and 7.3	Mengistu Mekuria

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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	A2176	
FCC ID	BCG-E3539A	
IC	579C-E3539A	
EUT Description	SMARTPHONE	
Serial Number	MODEL (A2176):C070033L5P573(Conducted) G6TC400TPT33(Radiated)	
Date Tested	AUGUST 26, 2020 to SEPTEMBER 09, 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 Operations Leader 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
- ISSED 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 Road
☐ Chamber A	☐ Chamber D	☐ Chamber I
☒ Chamber B	☐ Chamber E	☐ Chamber J
☐ Chamber C	☐ Chamber F	☐ Chamber K
	☐ Chamber G	☐ Chamber L
	☐ Chamber H	☐ Chamber M

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

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

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

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

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

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

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

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

GSM MODES

RSS 132 850MHz								
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	-3.60	11.5	29.90	0.977	247.9002	248KGXW
	EGPRS	28.00			24.40	0.275	250.5844	251KG7W
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	-3.60	7.0	27.75	0.596	247.9002	248KGXW
	EGPRS	28.00			22.25	0.168	250.5844	251KG7W
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	32.00	-1.20	2.0	30.80	1.202	247.8373	248KGXW
	EGPRS	27.00			25.80	0.380	251.1881	251KG7W

CDMA MODES

Part 90 BC10								
Frequency range (MHz)	Modulation	Conducted (Average) (dBm)	Limit (W)	Conducted (Average) (W)		99% BW (kHz)	Emission Designator	
817.25-822.75	1xRTT	25.41	100.0	0.348		1278	1M28F9W	
	1xEV-DO Rev A	25.70		0.372		1274.8	1M27F9W	
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	25.50	-3.60	11.5	21.90	0.155	1277	1M28F9W
	1xEV-DO Rev A	25.49			21.89	0.155	1281.9	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	25.50	-3.60	7.0	19.75	0.094	1277	1M28F9W
	1xEV-DO Rev A	25.49			19.74	0.094	1281.9	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	25.18	-1.20	2.0	23.98	0.250	1276.5	1M28F9W
	1xEV-DO Rev A	25.70			24.50	0.282	1274.7	1M27F9W

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	-3.60	11.5	22.10	0.162	4175.10	4M18F9W
	HSDPA	24.70			21.10	0.129	4136.50	4M14F9W
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	-3.60	7.0	19.95	0.099	4175.10	4M18F9W
	HSDPA	24.70			18.95	0.079	4136.50	4M14F9W
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	25.70	-1.20	2.0	24.50	0.282	4143.20	4M14F9W
	HSDPA	24.70			23.50	0.224	4153.50	4M15F9W
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	24.70	0.10	1.0	24.80	0.302	4139.60	4M14F9W
	HSDPA	23.80			23.90	0.245	4140.80	4M14F9W

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	-3.6	-6.7	N/A	N/A
824 - 849	-3.6	-4.8	N/A	N/A
1850 - 1910	-1.2	-4.6	-0.3	-2.5
1710 - 1755	-1.0	-3.3	0.1	-2.2

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 Y and X - orientation was the worst-case orientation for cell and secondary bands to ANT1 and ANT2 respectively. For PCS and AWS bands, Y- orientation to ANT1, Z- orientation to ANT2, ANT3, and X- orientation to 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.

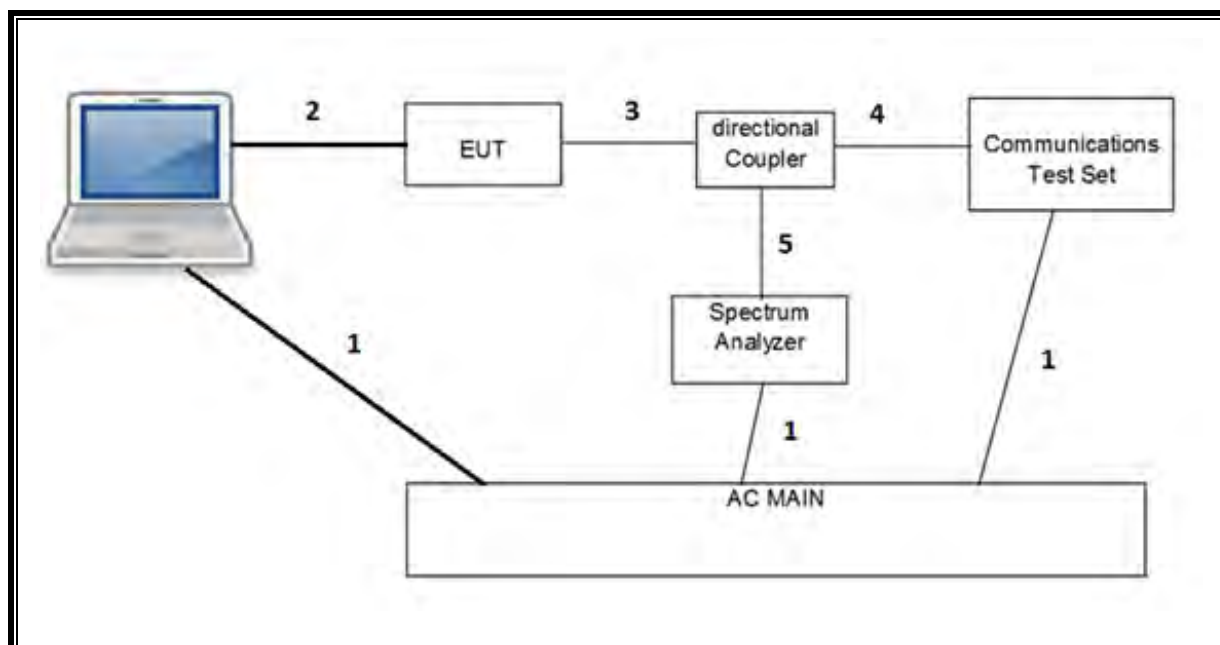
Radiated spurious emissions were investigated from 9kHz to 30MHz, 30MHz-1GHz and above 1GHz. There were no emissions found with less than 20dB of margin from 9kHz to 1GHz.

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.

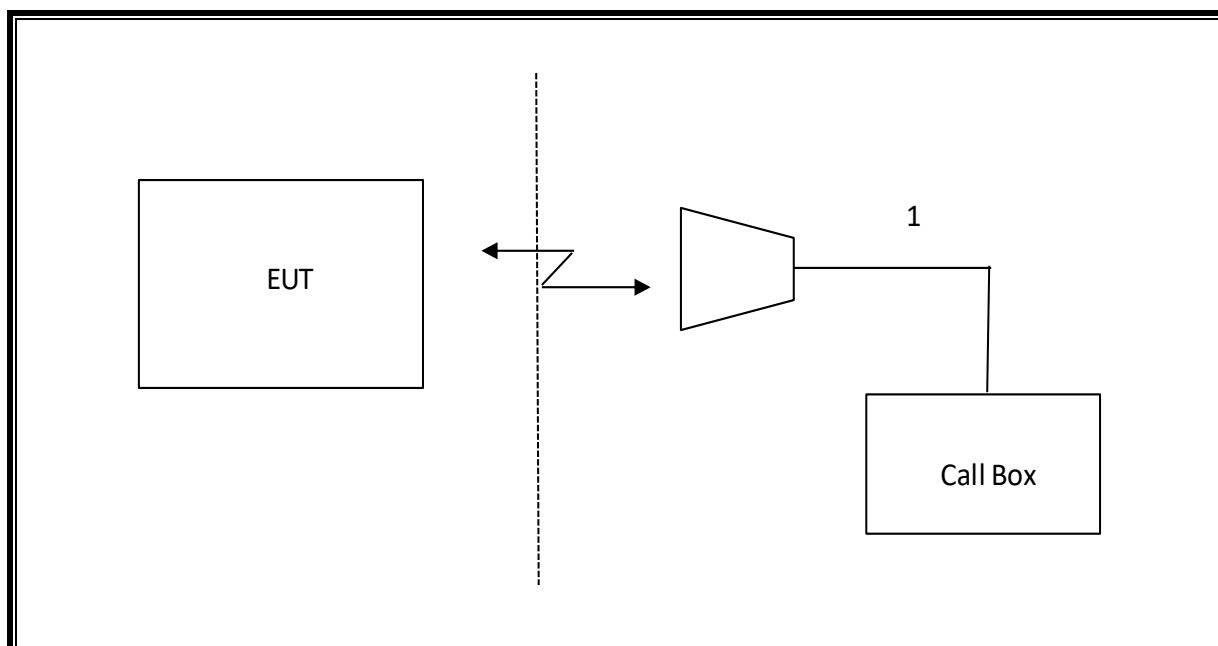
5.6. DESCRIPTION OF TEST SETUP

SUPPORT TEST EQUIPMENT						
Description		Manufacturer	Model	Serial Number	FCC ID/ DoC	
Laptop		Apple	A1398	C02PM012G3QD	QDS-BRCM1069	
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	08/10/2021
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
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	198816	05/15/2021
*Directional Coupler	KRYTAR	152610	T1161	08/14/2020
Directional Coupler	KRYTAR	152613	198817	05/15/2021
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:	19467	Test Date:	5/12/2020
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Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)	
					ANT 1	ANT 2
GPRS (GMSK)	CS1	1	128	824.2	33.50	32.00
			190	836.6	31.55	30.81
			251	848.8	33.33	32.00
		2	128	824.2	31.25	30.67
			190	836.6	32.50	31.00
			251	848.8	31.02	30.41
EGPRS (8PSK)	MCS5	1	128	824.2	28.00	26.44
			190	836.6	26.51	25.71
			251	848.8	27.64	26.50
		2	128	824.2	26.43	25.44
			190	836.6	27.00	25.50
			251	848.8	26.38	25.46

GSM 1900

Test Engineer ID:	19467	Test Date:	5/12/2020
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Mode	Coding Scheme	Time Slots	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)			
					ANT 1	ANT 2	ANT 3	ANT 4
GPRS (GMSK)	CS1	1	512	1850.2	32.00	29.50	31.00	29.00
			661	1880	30.99	28.78	31.00	28.25
			810	1909.8	31.58	29.50	30.99	29.00
		2	512	1850.2	29.71	28.44	30.00	27.79
			661	1880	31.00	28.50	29.99	28.00
			810	1909.8	29.19	28.43	29.83	27.63
EGPRS (8PSK)	MCS5	1	512	1850.2	26.62	24.43	25.83	23.87
			661	1880	25.81	23.62	26.00	23.38
			810	1909.8	27.00	24.50	25.91	24.00
		2	512	1850.2	25.55	23.42	25.00	22.93
			661	1880	26.00	23.50	24.98	23.00
			810	1909.8	25.61	23.46	24.88	22.95

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.

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

1xEV-DO - Release 0 (REL 0)

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

EVDO Release 0 - RTAP

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

EVDO Release 0 - FTAP

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

1xEV-DO - Revision A (REV A)

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

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

EVDO Rev. A – RETAP

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

EVDO Rev. A - FETAP

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

1x Advanced Setup Procedures used to establish the test signals

Call box setup procedure

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

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

Call box setup procedure

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

Under RF Frequency Band / Channel: Enter Ch. Frequency

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

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

- Under Carrier Configuration: RF Pilot

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

For Three Carriers: Low Channel (1013)

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

- Under Carrier Configuration: RF Pilot

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

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

RESULT

CDMA BC10

Test Engineer ID:	19190	Test Date:	8/28/2020
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Band	Mode	Radio Configuration (RC)	Service Option (SO)	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)	
						ANT 1	ANT 2
BC10 (800MHz)	1xRTT	RC1	2 (Loopback)	450	817.25	25.38	24.33
				560	820.00	25.32	24.29
				670	822.75	25.33	24.39
			55 (Loopback)	450	817.25	25.34	24.40
				560	820.00	25.39	24.36
				670	822.75	25.36	24.41
		RC2	9 (Loopback)	450	817.25	25.32	24.37
				560	820.00	25.40	24.40
				670	822.75	25.35	24.40
			55 (Loopback)	450	817.25	25.38	24.38
				560	820.00	25.38	24.45
				670	822.75	25.36	24.39
		RC3	2 (Loopback)	450	817.25	25.37	24.41
				560	820.00	25.39	24.45
				670	822.75	25.41	24.39
			55 (Loopback)	450	817.25	25.38	24.50
				560	820.00	25.34	24.46
				670	822.75	25.38	24.42
			32 (+ F-SCH)	450	817.25	25.40	24.20
				560	820.00	25.40	24.21
				670	822.75	25.38	24.22
			32 (+ SCH)	450	817.25	25.40	24.22
				560	820.00	25.40	24.20
				670	822.75	25.38	24.21
		RC4	2 (Loopback)	450	817.25	25.36	24.38
				560	820.00	25.38	24.42
				670	822.75	25.33	24.39
			55 (Loopback)	450	817.25	25.35	24.44
				560	820.00	25.37	24.41
				670	822.75	25.32	24.40
			32 (+ F-SCH)	450	817.25	25.40	24.25
				560	820.00	25.39	24.26
				670	822.75	25.38	24.26
			32 (+ SCH)	450	817.25	25.41	24.28
				560	820.00	25.40	24.27
				670	822.75	25.41	24.30
		RC5	9 (Loopback)	450	817.25	25.38	24.40
				560	820.00	25.32	24.38
				670	822.75	25.34	24.42
			55 (Loopback)	450	817.25	25.36	24.41
				560	820.00	25.35	24.38
				670	822.75	25.34	24.37
	1xAdvanced	RC11	2 (Loopback)	450	817.25	25.40	24.42
				560	820.00	25.39	24.41
				670	822.75	25.38	24.46
			75 (Loopback)	450	817.25	25.40	24.45
				560	820.00	25.38	24.43
				670	822.75	25.40	24.49
			32 (+ F-SCH)	450	817.25	25.40	24.30
				560	820.00	25.37	24.31
				670	822.75	25.37	24.32
			32 (+ SCH)	450	817.25	25.38	24.29
				560	820.00	25.40	24.28
				670	822.75	25.41	24.27
	1xEVDO Rel. 0	FTAP Rate: 307.2 kbps(2 slot, QPSK)	RTAP Rate: 153.6 kbps	450	817.25	25.67	24.28
				560	820.00	25.67	24.27
				670	822.75	25.66	24.27
	1xEVDO Rev. A	FETAP: 307.2k, QPSK/ ACK	RETAP: 4096	450	817.25	25.70	24.26
				560	820.00	25.70	24.27
				670	822.75	25.70	24.27

CDMA BC0

Test Engineer ID:	19190	Test Date:	8/28/2020
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Band	Mode	Radio Configuration (RC)	Service Option (SO)	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)	
						ANT 1	ANT 2
BC0 (850MHz)	1xRTT	RC1	2 (Loopback)	1013	824.70	25.38	24.20
				384	836.52	25.39	24.28
				777	848.31	25.40	24.29
			55 (Loopback)	1013	824.70	25.44	24.26
				384	836.52	25.46	24.33
				777	848.31	25.45	24.29
		RC2	9 (Loopback)	1013	824.70	25.40	24.24
				384	836.52	25.38	24.37
				777	848.31	25.44	24.28
			55 (Loopback)	1013	824.70	25.37	24.23
				384	836.52	25.38	24.26
				777	848.31	25.39	24.22
		RC3	2 (Loopback)	1013	824.70	25.41	24.41
				384	836.52	25.38	24.44
				777	848.31	25.46	24.34
			55 (Loopback)	1013	824.70	25.40	24.38
				384	836.52	25.46	24.33
				777	848.31	25.39	24.30
			32 (+ F-SCH)	1013	824.70	25.46	24.18
				384	836.52	25.47	24.17
				777	848.31	25.45	24.15
			32 (+ SCH)	1013	824.70	25.46	24.19
				384	836.52	25.48	24.18
				777	848.31	25.47	24.18
		RC4	2 (Loopback)	1013	824.70	25.46	24.34
				384	836.52	25.42	24.42
				777	848.31	25.38	24.39
			55 (Loopback)	1013	824.70	25.45	24.35
				384	836.52	25.46	24.47
				777	848.31	25.49	24.41
			32 (+ F-SCH)	1013	824.70	25.46	24.19
				384	836.52	25.48	24.16
				777	848.31	25.49	24.17
			32 (+ SCH)	1013	824.70	25.48	24.20
				384	836.52	25.50	24.18
				777	848.31	25.46	24.19
		RC5	9 (Loopback)	1013	824.70	25.46	24.23
				384	836.52	25.44	24.32
				777	848.31	25.46	24.50
			55 (Loopback)	1013	824.70	25.45	24.41
				384	836.52	25.37	24.37
				777	848.31	25.38	24.41
	1xAdvanced	RC11	2 (Loopback)	1013	824.70	25.46	24.30
				384	836.52	25.48	24.40
				777	848.31	25.49	24.36
			75 (Loopback)	1013	824.70	25.46	24.29
				384	836.52	25.47	24.36
				777	848.31	25.50	24.39
			32 (+ F-SCH)	1013	824.70	25.48	24.24
				384	836.52	25.50	24.24
				777	848.31	25.49	24.32
			32 (+ SCH)	1013	824.70	25.46	24.32
				384	836.52	25.47	24.32
				777	848.31	25.48	24.33
	1xEVDO Rel. 0	FTAP Rate: 307.2 kbps(2 slot, QPSK)	RTAP Rate: 153.6 kbps	1013	824.70	25.48	24.33
				384	836.52	25.49	24.33
				777	848.31	25.49	24.33
	1xEVDO Rev. A	FETAP: 307.2k, QPSK/ ACK	RETAP: 4096	1013	824.70	25.49	24.33
				384	836.52	25.49	24.33
				777	848.31	25.49	24.33

CDMA BC1

Test Engineer ID:		19190		Test Date:		Click or tap to enter a date.	
Band	Mode	Radio Configuration (RC)	Service Option (SO)	Ch No.	Freq. (MHz)	Conducted Average Power (dBm)	
						ANT 1	ANT 2
BC1 (1900MHz)	1xRTT	RC1	2 (Loopback)	25	1851.25	25.10	22.49
				600	1880.00	25.12	22.56
				1175	1908.75	25.13	22.50
			55 (Loopback)	25	1851.25	25.14	22.55
				600	1880.00	25.13	22.59
				1175	1908.75	25.14	22.43
		RC2	9 (Loopback)	25	1851.25	25.13	22.51
				600	1880.00	25.12	22.49
				1175	1908.75	25.13	22.56
			55 (Loopback)	25	1851.25	25.14	22.57
				600	1880.00	25.11	22.58
				1175	1908.75	25.12	22.61
		RC3	2 (Loopback)	25	1851.25	25.12	22.50
				600	1880.00	25.14	22.47
				1175	1908.75	25.12	22.53
			55 (Loopback)	25	1851.25	25.13	22.55
				600	1880.00	25.14	22.96
				1175	1908.75	25.11	22.50
			32 (+ F-SCH)	25	1851.25	25.15	22.74
				600	1880.00	25.18	22.72
				1175	1908.75	25.16	22.69
			32 (+ SCH)	25	1851.25	25.15	22.72
				600	1880.00	25.13	22.74
				1175	1908.75	25.16	22.68
		RC4	2 (Loopback)	25	1851.25	25.12	22.56
				600	1880.00	25.13	22.55
				1175	1908.75	25.10	22.48
			55 (Loopback)	25	1851.25	25.12	22.59
				600	1880.00	25.14	22.54
				1175	1908.75	25.13	22.51
			32 (+ F-SCH)	25	1851.25	25.12	22.72
				600	1880.00	25.13	22.75
				1175	1908.75	25.13	22.74
			32 (+ SCH)	25	1851.25	25.11	22.72
				600	1880.00	25.13	22.75
				1175	1908.75	25.12	22.74
		RC5	9 (Loopback)	25	1851.25	25.11	22.49
				600	1880.00	25.12	22.47
				1175	1908.75	25.12	22.51
			55 (Loopback)	25	1851.25	25.11	22.60
				600	1880.00	25.13	22.58
				1175	1908.75	25.09	22.50
	1xAdvanced	RC11	2 (Loopback)	25	1851.25	25.14	22.60
				600	1880.00	25.16	22.61
				1175	1908.75	25.15	22.59
			75 (Loopback)	25	1851.25	25.14	22.60
				600	1880.00	25.16	22.61
				1175	1908.75	25.13	22.60
			32 (+ F-SCH)	25	1851.25	25.10	22.79
				600	1880.00	25.17	22.81
				1175	1908.75	25.12	22.78
			32 (+ SCH)	25	1851.25	25.16	22.79
				600	1880.00	25.17	22.81
				1175	1908.75	25.10	22.78
	1xEVDO Rel. 0	FTAP Rate: 307.2 kbps (2 slot, QPSK)	RTAP Rate: 153.6 kbps	25	1851.25	25.54	23.01
				600	1880	25.70	23.10
				1175	1908.75	25.53	23.06
	1xEVDO Rev. A	FETAP: 307.2k, QPSK/ ACK	RETAP: 4096	25	1851.25	25.59	22.80
				600	1880	25.54	22.83
				1175	1908.75	25.53	22.75

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 $\geq$ RBW $\geq$ 26dB BW, typically 5MHz.
- Set a marker to point the corresponding peak value.

REL 99

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

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

HSDPA REL 5

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

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

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

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

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

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

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

HSPA REL 6 (HSDPA & HSUPA)

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

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

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

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

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

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

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

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

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

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

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

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

Parameter	Unit	Value
Nominal Avg. Inf. Bit Rate	kbps	60
Inter-TTI Distance	TTI's	1
Number of HARQ Processes	Processes	6
Information Bit Payload (N_{INF})	Bits	120
Number Code Blocks	Blocks	1
Binary Channel Bits Per TTI	Bits	960
Total Available SML's in UE	SML's	19200
Number of SML's per HARQ Proc.	SML's	3200
Coding Rate		0.15
Number of Physical Channel Codes	Codes	1
Modulation		QPSK
Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table.		
Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used.		

RESULT

WCDMA BAND 5

Test Engineer ID:	19467	Test Date:	5/12/2020
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Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)	
						ANT 1	ANT 2
W-CDMA Band 5 (850MHz)	Rel 99	RMC, 12.2 kbps	4132	826.4	N/A	25.7	24.5
			4183	836.6	N/A	25.7	24.4
			4233	846.6	N/A	25.6	24.5
	HSDPA	Subtest 1	4132	826.4	0	24.7	23.5
			4183	836.6	0	24.7	23.5
			4233	846.6	0	24.7	23.4
		Subtest 2	4132	826.4	0	24.7	23.5
			4183	836.6	0	24.7	23.4
			4233	846.6	0	24.7	23.4
		Subtest 3	4132	826.4	0.5	24.2	23.0
			4183	836.6	0.5	24.2	23.0
			4233	846.6	0.5	24.2	22.9
		Subtest 4	4132	826.4	0.5	24.2	23.0
			4183	836.6	0.5	24.2	23.0
			4233	846.6	0.5	24.2	23.0
	HSPA (HSDPA & HSUPA)	Subtest 1	4132	826.4	0	24.7	23.5
			4183	836.6	0	24.7	23.5
			4233	846.6	0	24.7	23.5
		Subtest 2	4132	826.4	2	22.7	21.5
			4183	836.6	2	22.7	21.5
			4233	846.6	2	22.7	21.5
		Subtest 3	4132	826.4	1	23.8	22.5
			4183	836.6	1	23.7	22.5
			4233	846.6	1	23.7	22.5
		Subtest 4	4132	826.4	2	22.8	21.5
			4183	836.6	2	22.7	21.5
			4233	846.6	2	22.7	21.5
		Subtest 5	4132	826.4	0	24.3	23.1
			4183	836.6	0	24.3	23.0
			4233	846.6	0	24.3	23.0
	DC-HSDPA	Subtest 1	4132	826.4	0	24.7	23.5
			4183	836.6	0	24.7	23.5
			4233	846.6	0	24.7	23.4
		Subtest 2	4132	826.4	0	24.7	23.5
			4183	836.6	0	24.7	23.5
			4233	846.6	0	24.7	23.4
		Subtest 3	4132	826.4	0.5	24.2	23.0
			4183	836.6	0.5	24.2	23.0
			4233	846.6	0.5	24.2	22.9
		Subtest 4	4132	826.4	0.5	24.2	23.0
			4183	836.6	0.5	24.2	23.0
			4233	846.6	0.5	24.2	23.0

WCDMA BAND 2

Test Engineer ID:	19467	Test Date:	5/12/2020
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Band	Mode		UL Ch No.	Freq. (MHz)	MPR (dB)	Conducted Average Power (dBm)			
						ANT 1	ANT 2	ANT 3	ANT 4
W-CDMA Band 2 (1900MHz)	Rel 99	RMC, 12.2 kbps	9262	1852.4	N/A	25.6	23.1	24.7	22.6
			9400	1880.0	N/A	25.7	23.0	24.5	22.7
			9538	1907.6	N/A	25.7	23.0	24.5	22.7
	HSDPA	Subtest 1	9262	1852.4	0	24.6	22.2	24.2	21.9
			9400	1880.0	0	24.7	22.1	24.1	22.0
			9538	1907.6	0	24.7	22.1	24.1	21.9
		Subtest 2	9262	1852.4	0	24.6	22.2	24.1	21.9
			9400	1880.0	0	24.6	22.1	24.1	22.0
			9538	1907.6	0	24.6	22.0	24.1	21.9
		Subtest 3	9262	1852.4	0.5	24.1	21.7	23.6	21.4
			9400	1880.0	0.5	24.1	21.6	23.6	21.5
			9538	1907.6	0.5	24.1	21.5	23.6	21.4
		Subtest 4	9262	1852.4	0.5	24.1	21.7	23.6	21.4
			9400	1880.0	0.5	24.2	21.6	23.6	21.5
			9538	1907.6	0.5	24.1	21.5	23.6	21.4
	HSPA (HSDPA & HSUPA)	Subtest 1	9262	1852.4	0	24.7	22.2	24.1	21.9
			9400	1880.0	0	24.7	22.0	24.1	22.0
			9538	1907.6	0	24.6	22.0	23.3	21.8
		Subtest 2	9262	1852.4	2	22.6	20.2	22.1	19.9
			9400	1880.0	2	22.7	20.1	22.1	20.1
			9538	1907.6	2	22.6	20.0	22.1	19.9
		Subtest 3	9262	1852.4	1	23.6	21.1	23.2	20.9
			9400	1880.0	1	23.6	21.0	23.1	21.0
			9538	1907.6	1	23.6	21.0	23.1	20.9
		Subtest 4	9262	1852.4	2	22.6	20.2	22.1	19.9
			9400	1880.0	2	22.7	20.1	22.1	20.1
			9538	1907.6	2	22.6	20.0	22.1	20.0
		Subtest 5	9262	1852.4	0	24.6	22.1	24.1	21.8
			9400	1880.0	0	24.7	22.0	24.1	22.0
			9538	1907.6	0	24.6	22.0	24.1	21.9
	DC-HSDPA	Subtest 1	9262	1852.4	0	24.6	22.2	24.2	21.9
			9400	1880.0	0	24.7	22.1	24.2	22.1
			9538	1907.6	0	24.7	22.1	24.2	22.0
		Subtest 2	9262	1852.4	0	24.6	22.2	24.2	21.9
			9400	1880.0	0	24.7	22.1	24.2	22.0
			9538	1907.6	0	24.6	22.1	24.1	21.9
		Subtest 3	9262	1852.4	0.5	24.1	21.7	23.6	21.4
			9400	1880.0	0.5	24.2	21.6	23.7	21.5
			9538	1907.6	0.5	24.1	21.6	23.6	21.5
		Subtest 4	9262	1852.4	0.5	24.1	21.7	23.7	21.4
			9400	1880.0	0.5	24.2	21.6	23.7	21.6
			9538	1907.6	0.5	24.2	21.6	23.7	21.5

WCDMA BAND 4

Test Engineer ID:	19467	Test Date:	5/12/2020
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Band	Mode		Cell ID	(MHz)	(dB)	ANT 1	ANT 2	ANT 3	ANT 4
W-CDMA Band 4 (1700MHz)	Rel 99	RMC, 12.2 kbps	1312	1712.4	N/A	25.7	23.1	24.7	22.7
			1413	1732.6	N/A	25.7	23.0	24.7	22.6
			1513	1752.6	N/A	25.7	23.0	24.6	22.6
	HSDPA	Subtest 1	1312	1712.4	0	24.7	22.4	23.7	21.7
			1413	1732.6	0	24.7	22.3	23.7	21.6
			1513	1752.6	0	24.7	22.2	23.6	21.6
		Subtest 2	1312	1712.4	0	24.7	22.3	23.7	21.7
			1413	1732.6	0	24.6	22.2	23.7	21.5
			1513	1752.6	0	24.6	22.2	23.6	21.6
		Subtest 3	1312	1712.4	0.5	24.2	21.8	23.2	21.2
			1413	1732.6	0.5	24.1	21.7	23.2	21.0
			1513	1752.6	0.5	24.1	21.7	23.1	21.1
		Subtest 4	1312	1712.4	0.5	24.1	21.8	23.2	21.2
			1413	1732.6	0.5	24.1	21.7	23.2	21.0
			1513	1752.6	0.5	24.1	21.7	23.1	21.1
	HSPA (HSDPA & HSUPA)	Subtest 1	1312	1712.4	0	24.5	22.3	23.3	21.6
			1413	1732.6	0	24.6	22.4	23.7	21.6
			1513	1752.6	0	24.7	22.4	23.7	21.6
		Subtest 2	1312	1712.4	2	22.6	20.4	21.8	19.8
			1413	1732.6	2	22.5	20.2	21.7	19.6
			1513	1752.6	2	22.6	20.2	21.6	19.6
		Subtest 3	1312	1712.4	1	23.6	21.3	22.8	20.7
			1413	1732.6	1	23.6	21.2	22.7	20.6
			1513	1752.6	1	23.6	21.2	22.6	20.6
		Subtest 4	1312	1712.4	2	22.6	20.3	21.8	19.8
			1413	1732.6	2	22.5	20.3	21.8	19.6
			1513	1752.6	2	22.6	20.2	21.6	19.6
		Subtest 5	1312	1712.4	0	24.7	22.4	23.7	21.7
			1413	1732.6	0	24.7	22.3	23.7	21.6
			1513	1752.6	0	24.7	22.3	23.6	21.6
	DC-HSDPA	Subtest 1	1312	1712.4	0	24.7	22.4	23.8	21.8
			1413	1732.6	0	24.7	22.3	23.8	21.6
			1513	1752.6	0	24.6	22.2	23.7	21.6
		Subtest 2	1312	1712.4	0	24.7	22.3	23.8	21.8
			1413	1732.6	0	24.6	22.2	23.8	21.6
			1513	1752.6	0	24.6	22.2	23.7	21.6
		Subtest 3	1312	1712.4	0.5	24.2	21.8	23.3	21.2
			1413	1732.6	0.5	24.1	21.8	23.3	21.0
			1513	1752.6	0.5	24.1	21.7	23.2	21.1
		Subtest 4	1312	1712.4	0.5	24.2	21.8	23.3	21.2
			1413	1732.6	0.5	24.1	21.8	23.3	21.1
			1513	1752.6	0.5	24.0	21.7	23.2	21.1

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	247.9002	314.854
	EGPRS			250.5844	310.396
1900	GPRS	661	1880.0	247.8373	318.849
	EGPRS			251.1881	314.526

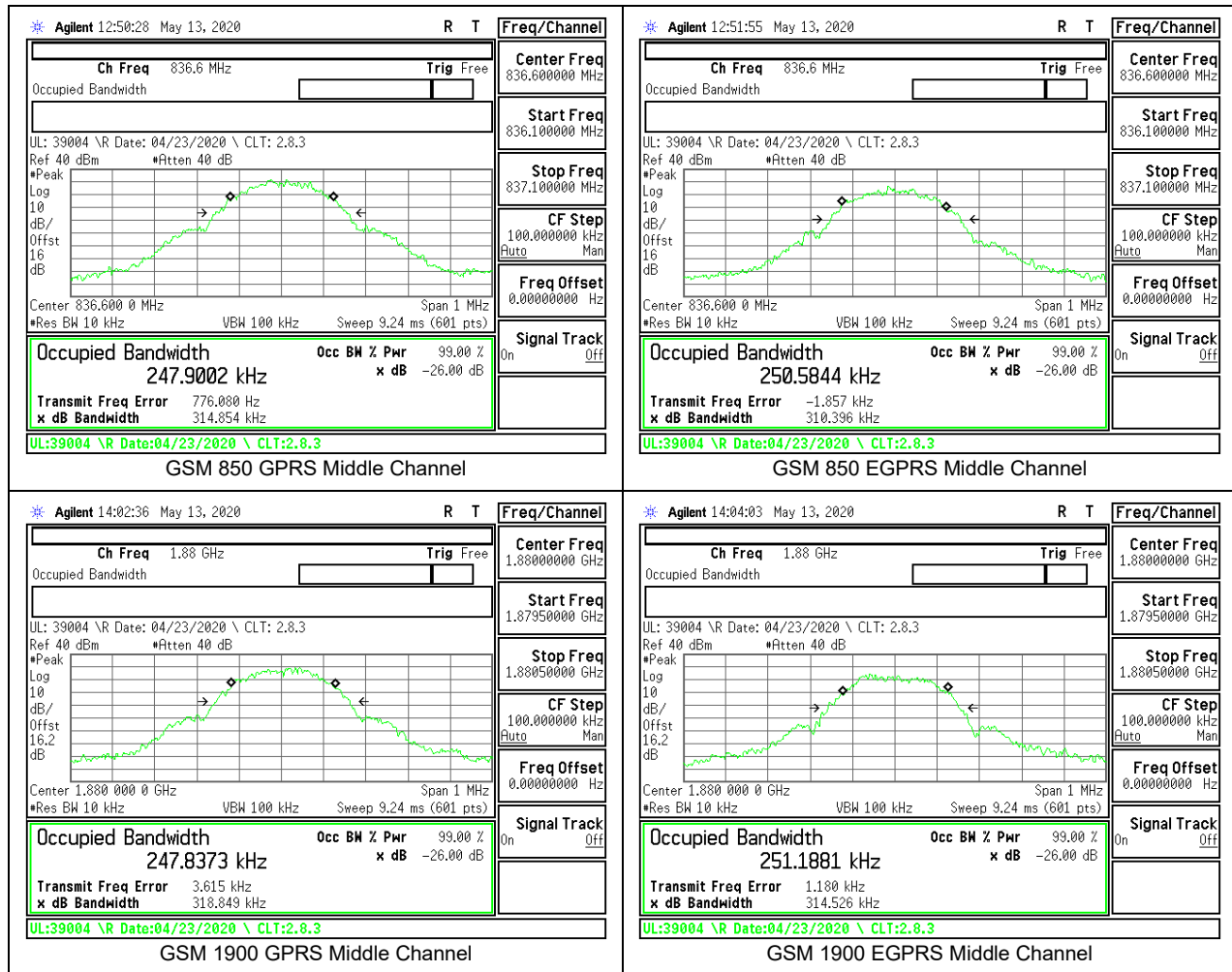
CDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BC10	1xRTT	560	820.0	1.2780	1.430
	1xEV-DO Rev A			1.2748	1.434
BC0	1xRTT	384	836.5	1.2770	1.426
	1xEV-DO Rev A			1.2819	1.437
BC1	1xRTT	600	1880.0	1.2765	1.435
	1xEV-DO Rev A			1.2747	1.434

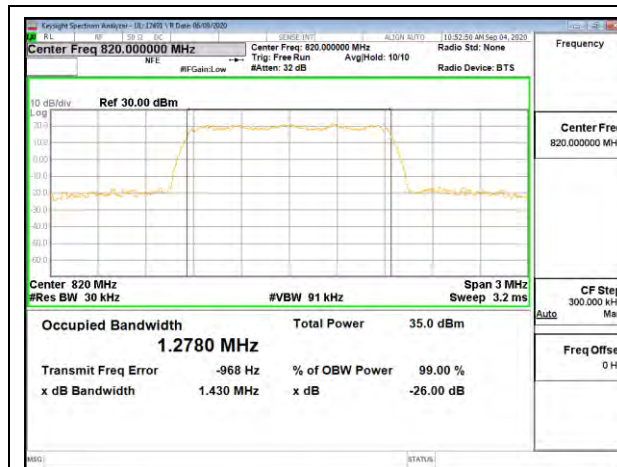
WCDMA

Band	Modulation	Channel	f(MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	REL 99	4408	836.6	4.1751	4.724
	HSDPA			4.1365	4.684
BAND 2	REL 99	9800	1880.0	4.1432	4.675
	HSDPA			4.1535	4.700
BAND 4	REL 99	1638	1732.6	4.1396	4.674
	HSDPA			4.1408	4.696

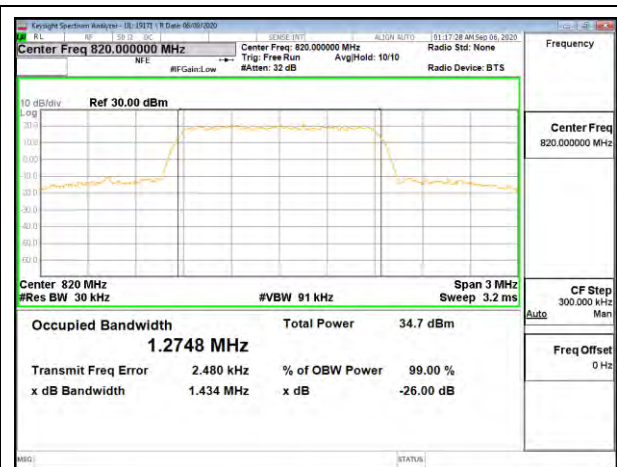
8.1.1. GSM



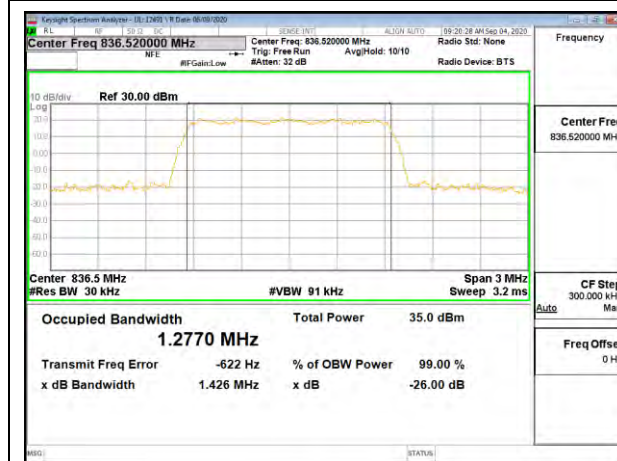
8.1.2. CDMA



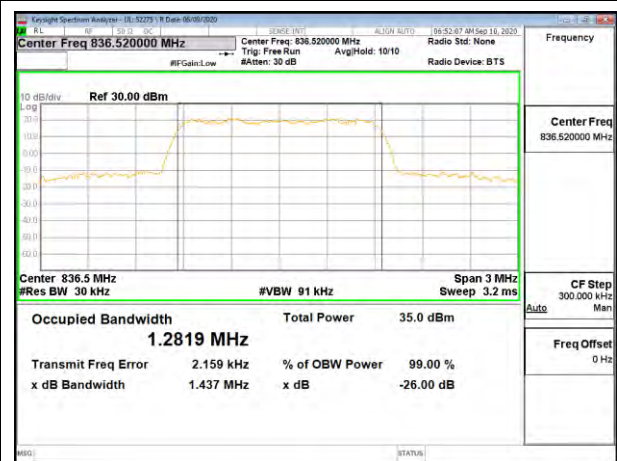
CDMA BC10 1xRTT Middle Channel



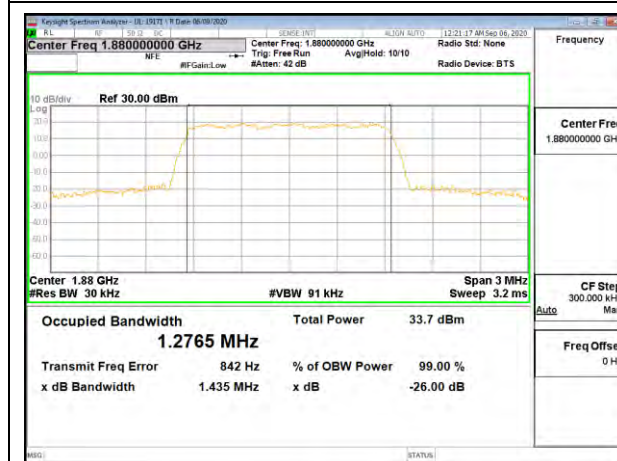
CDMA BC10 1xEV-DO Rev A Middle Channel



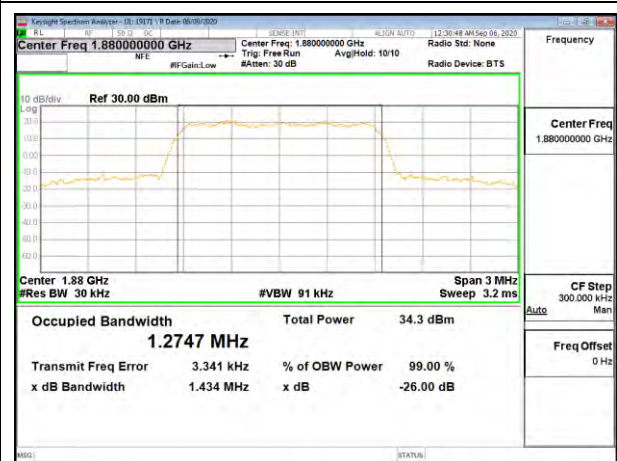
CDMA BC0 1xRTT Middle Channel



CDMA BC0 1xEV-DO Rev A Middle Channel

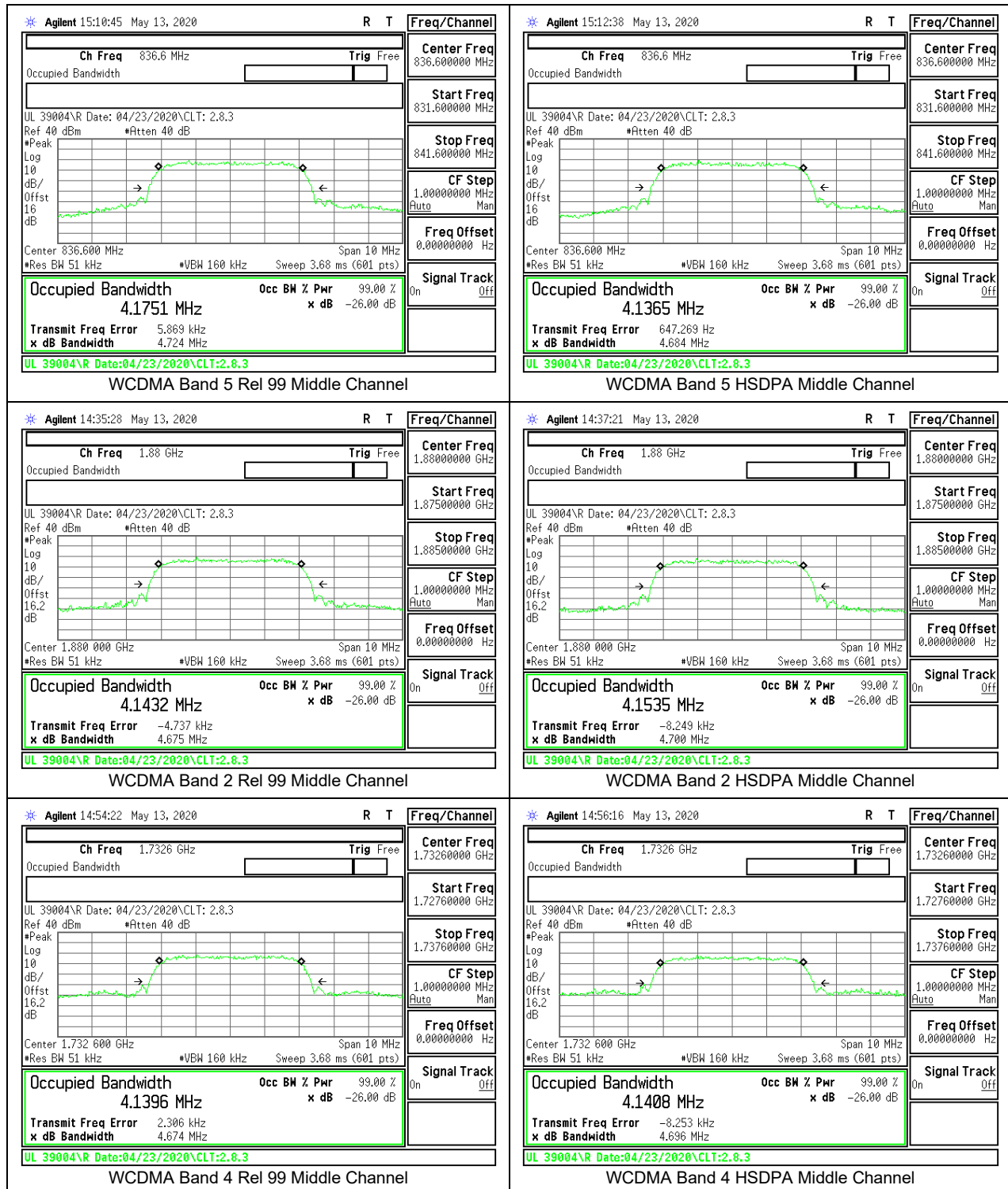


CDMA BC1 1xRTT Middle Channel



CDMA BC1 1xEV-DO Rev A Middle Channel

8.1.3. WCDMA



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 $116 \log_{10}(f/6.1)$ decibels or $50 + 10 \log_{10}(P)$ decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

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

RSS132§5.5

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

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

RSS133§6.5

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

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

RSS139§6.6

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

TEST PROCEDURE

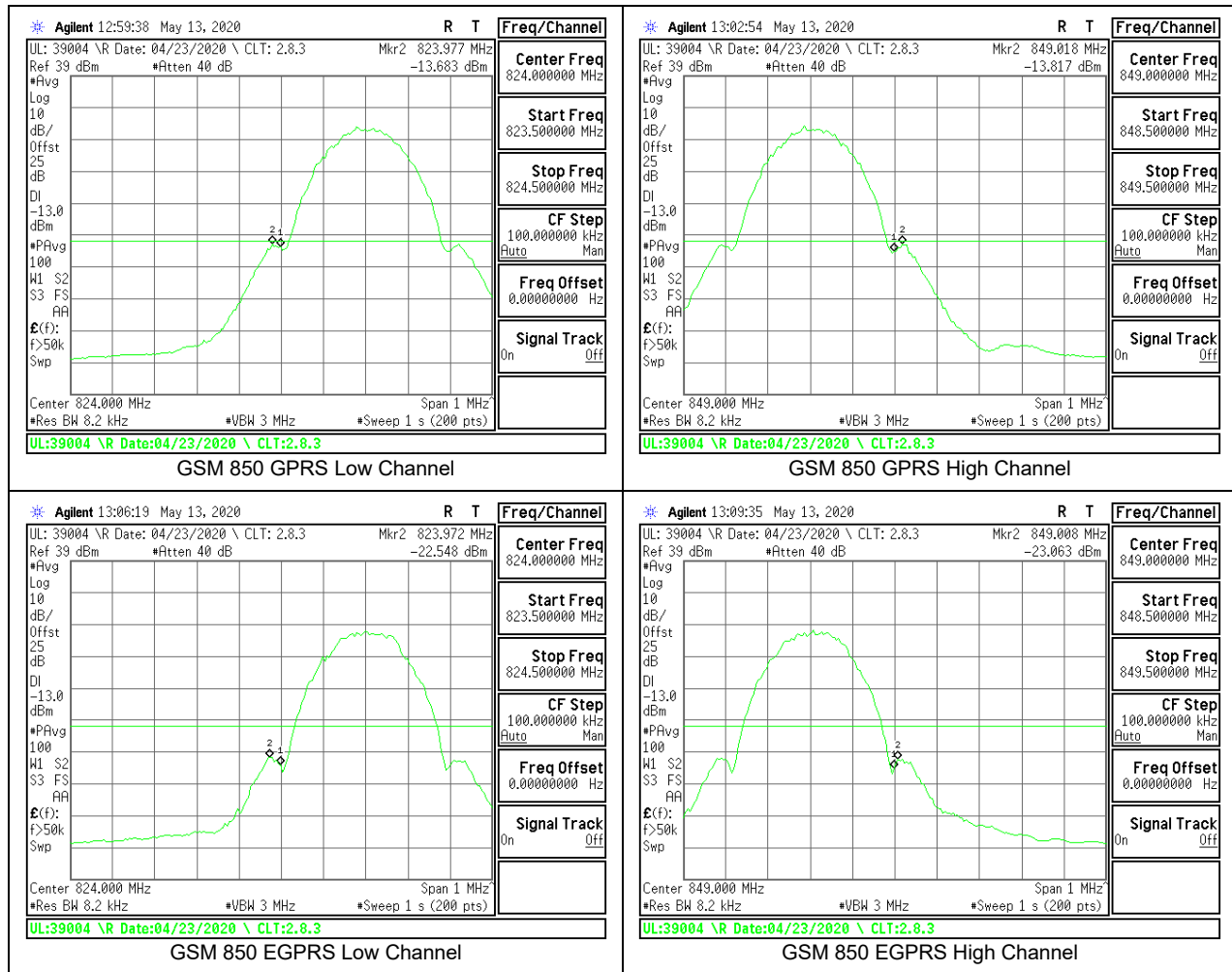
The transmitter output was connected to a R&S CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

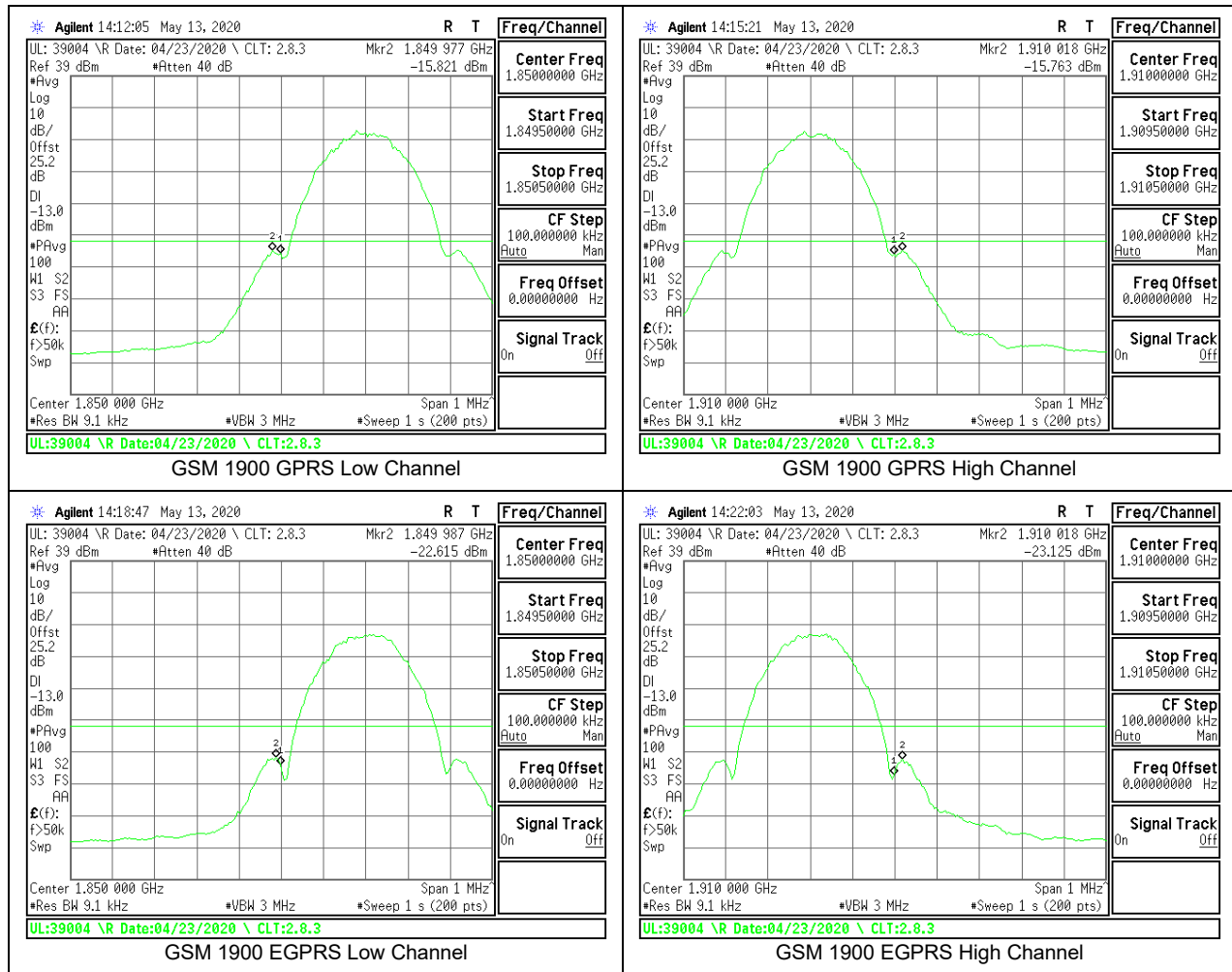
- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

RESULTS

8.2.1. GSM 850



8.2.2. GSM 1900



8.2.3. CDMA BC10



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



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



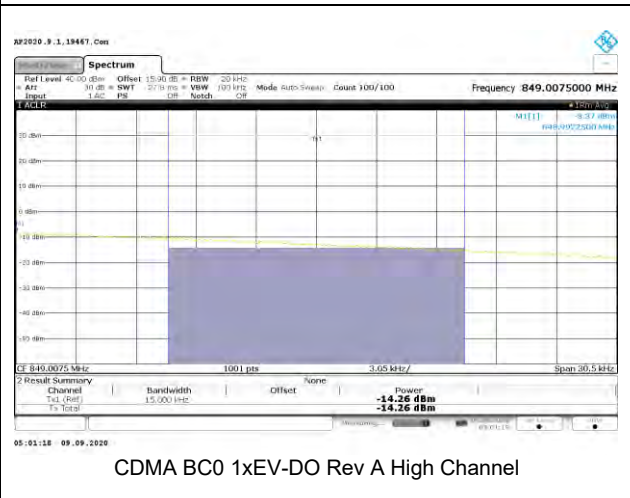
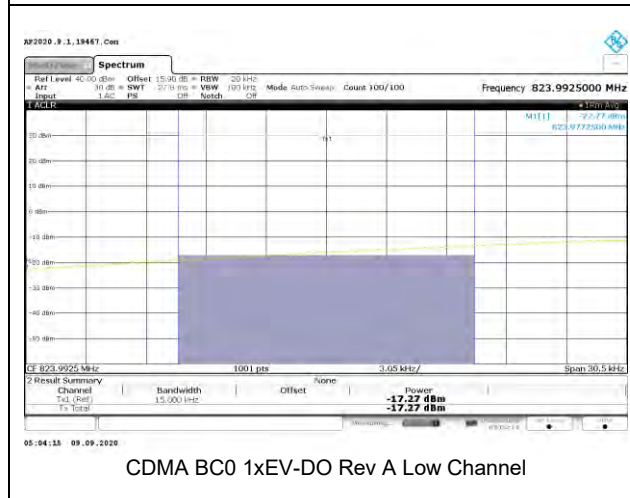
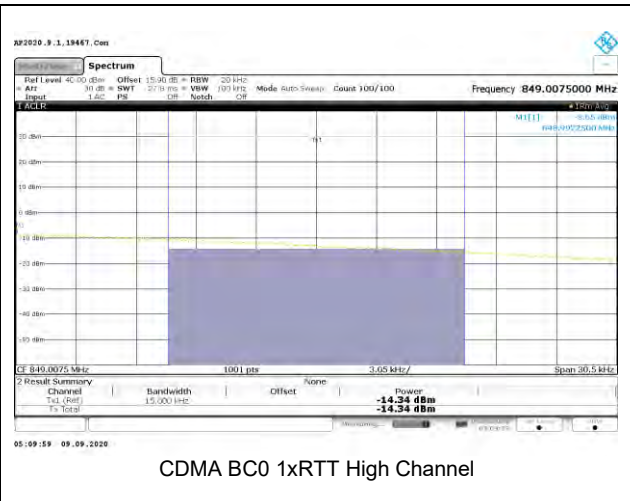
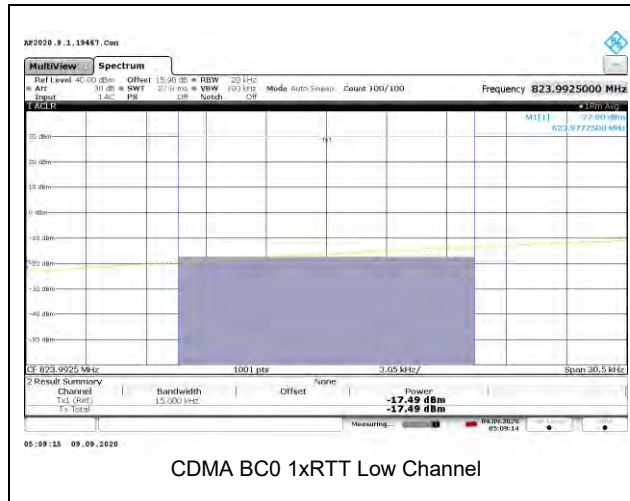
CDMA BC10 1xEV-DO Rev A Low Channel, RBW=1% of EBW



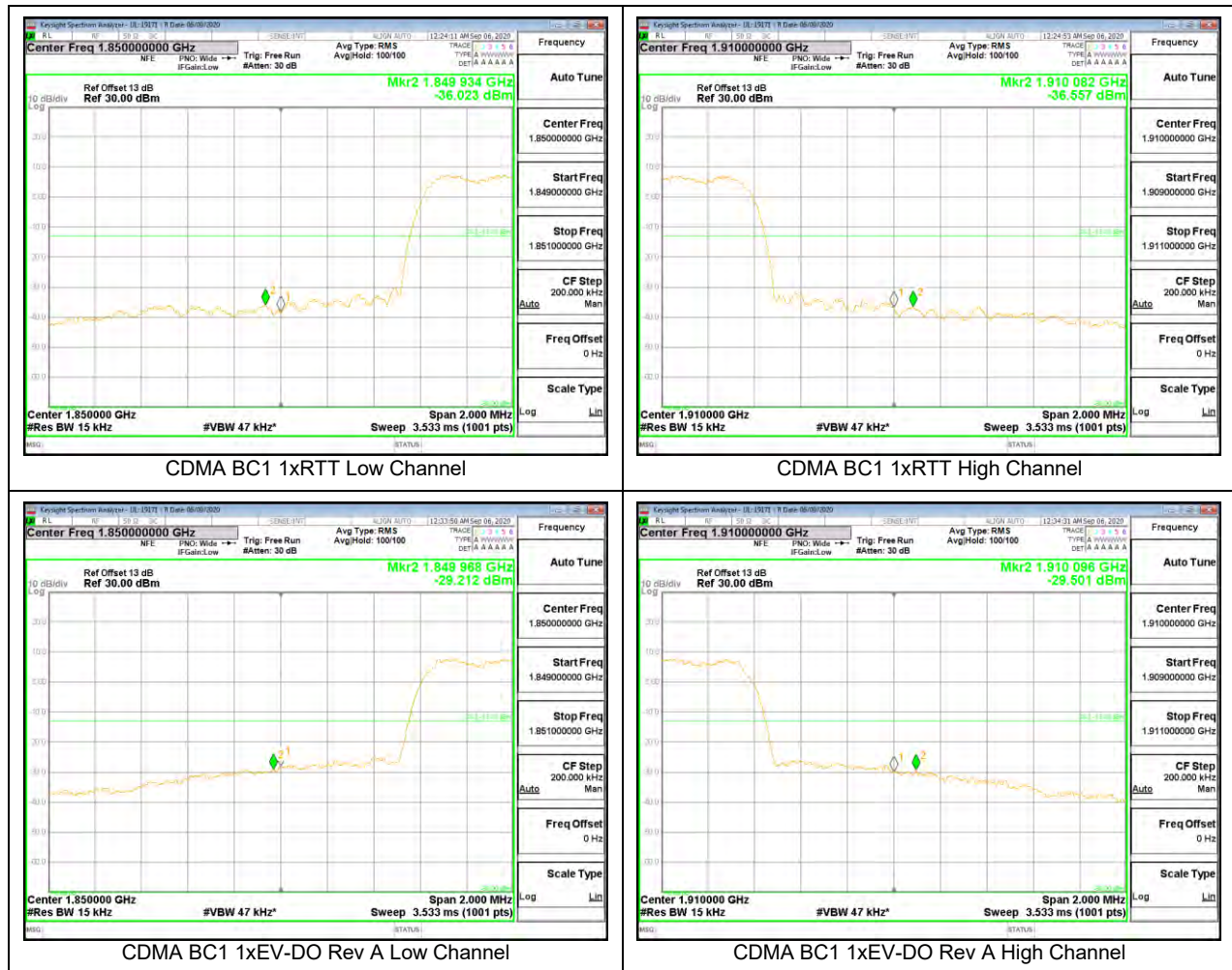
CDMA BC10 1xEV-DO Rev A High Channel, RBW=1% of EBW

8.2.4. CDMA BC0

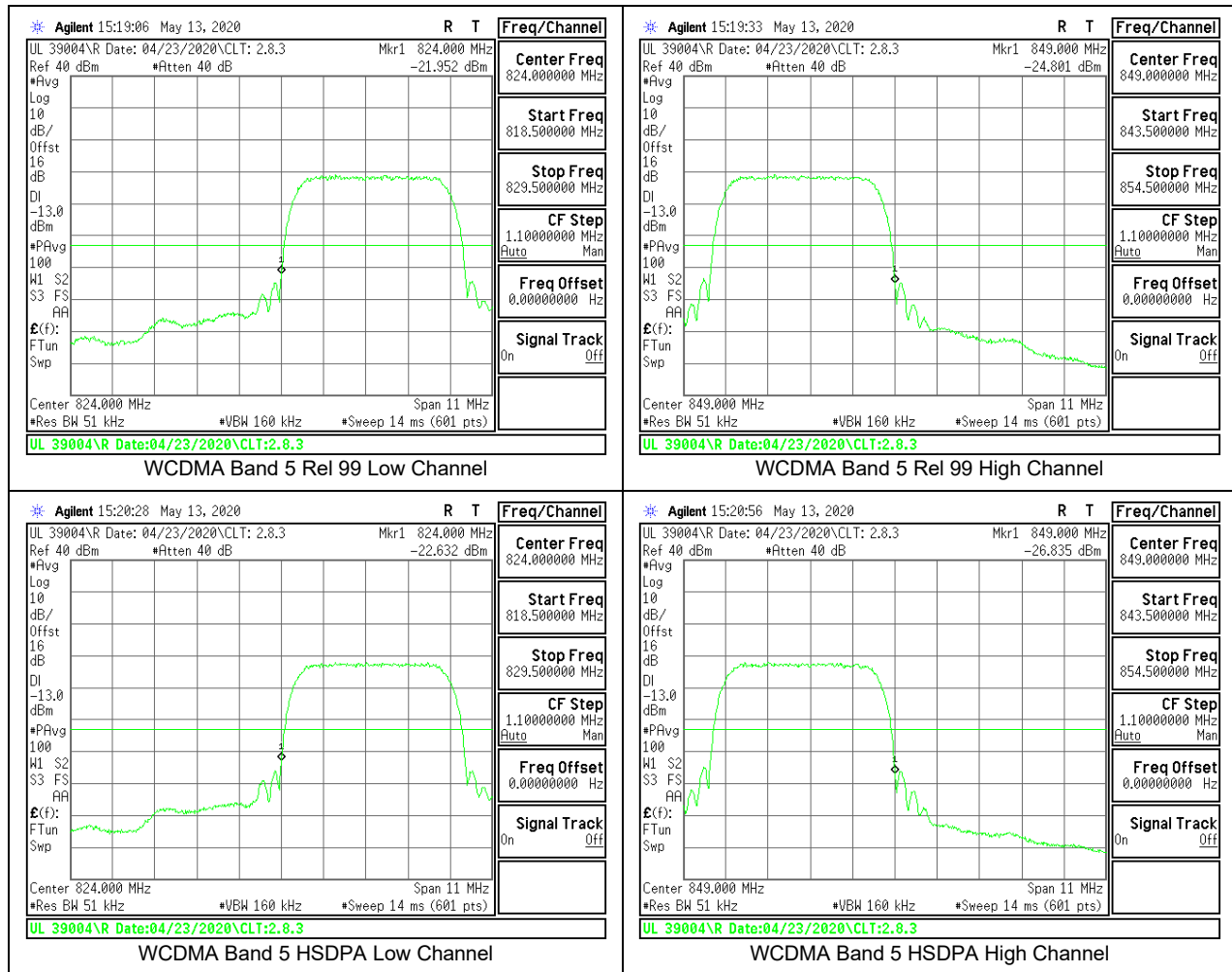
Band	Mode	Channel	Band Power (dBm)	Limit
BC0	1xRTT	Low	-17.49	-13
		High	-14.34	
	1xEV-DO	Low	-17.27	
		High	-14.26	



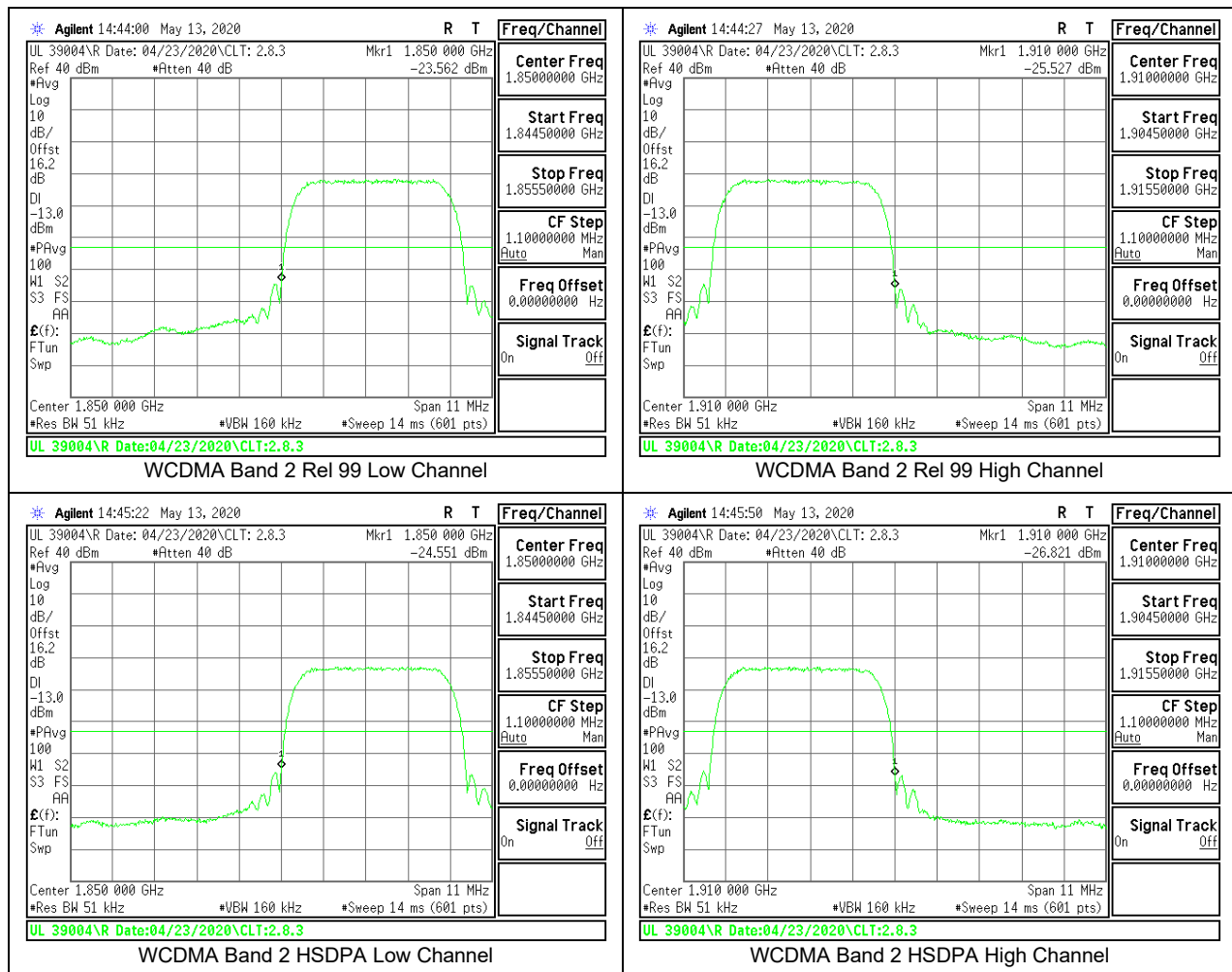
8.2.5. CDMA BC1



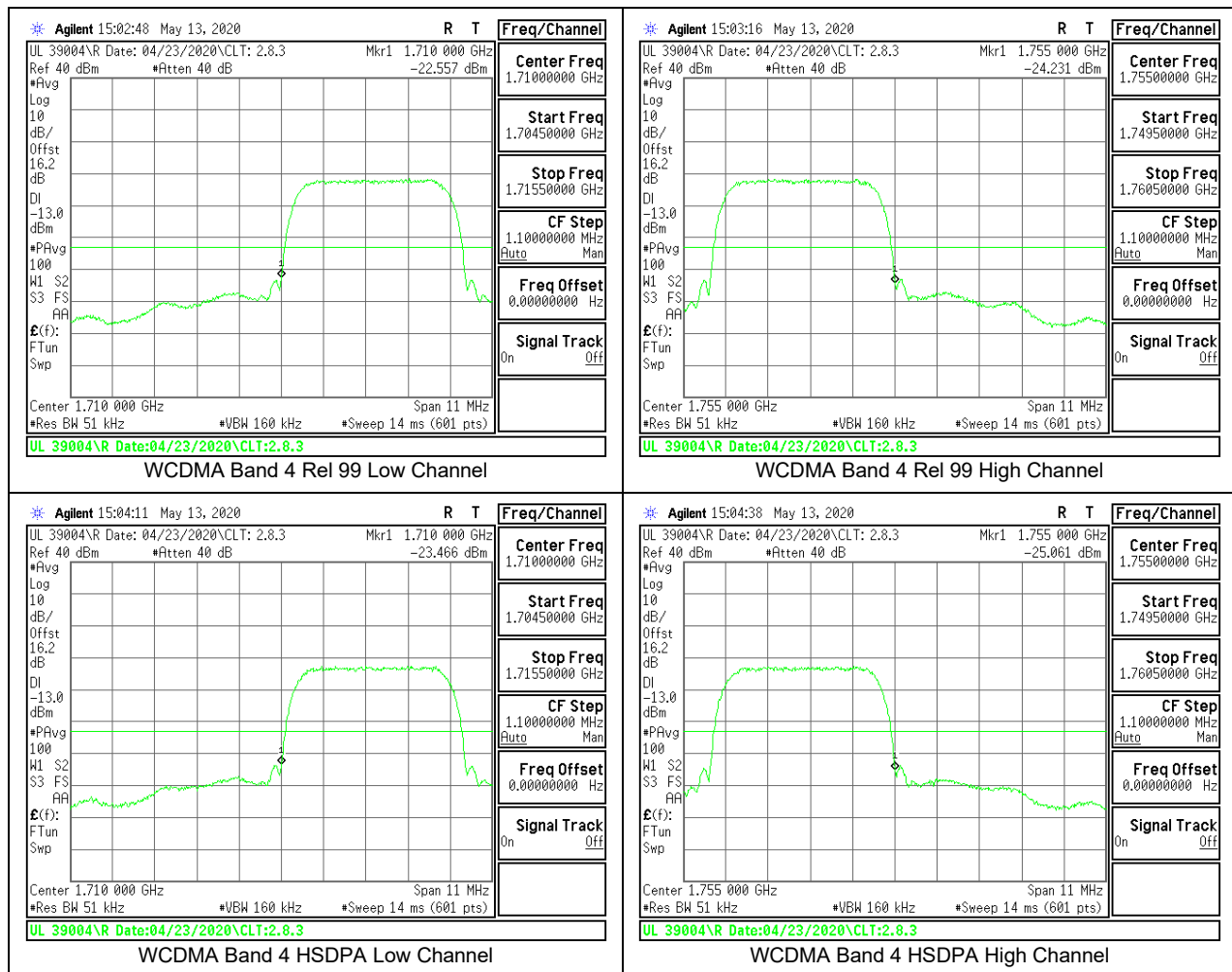
8.2.6. WCDMA BAND 5



8.2.7. WCDMA BAND 2



8.2.8. WCDMA BAND 4



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

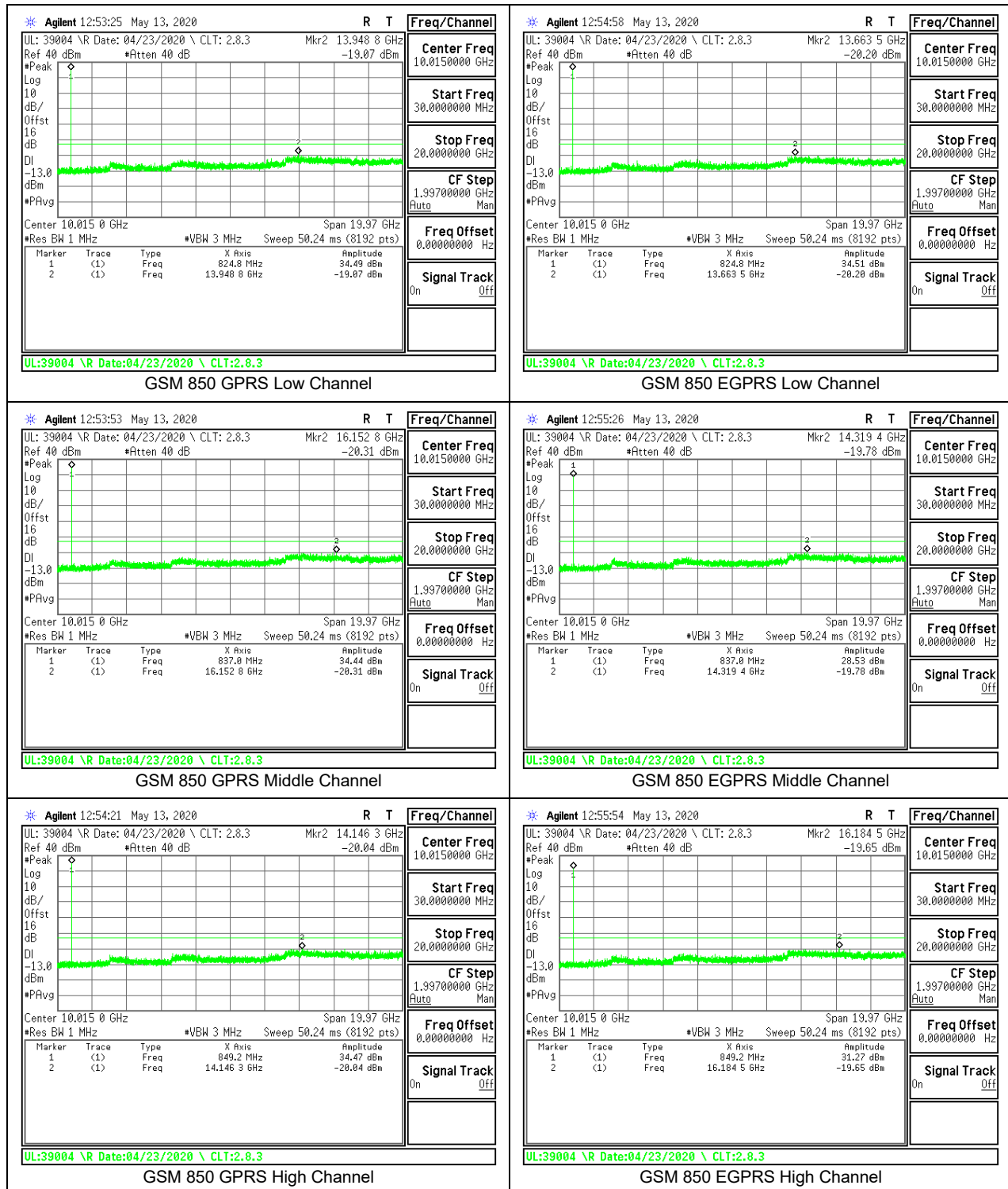
The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case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

For each out of band emissions measurement:

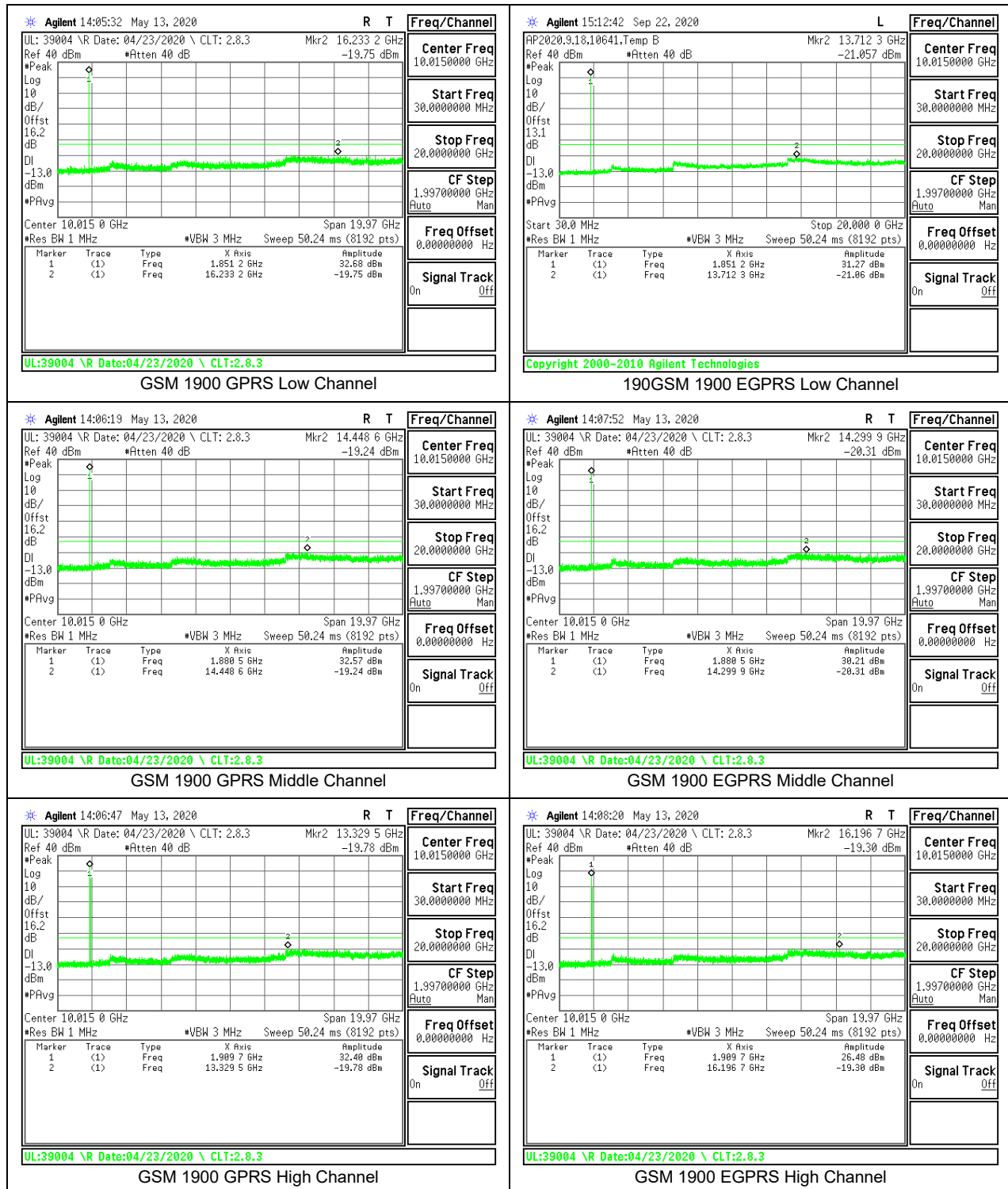
- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.
(NOTE: Worst case set RBW/VBW to 1MHz/3MHz)

RESULTS

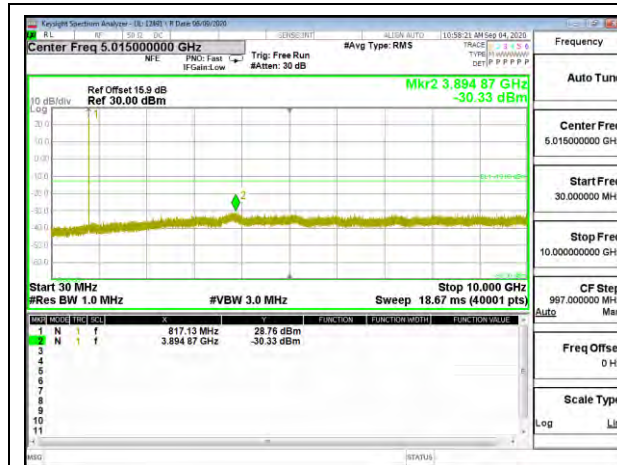
8.3.1. GSM 850



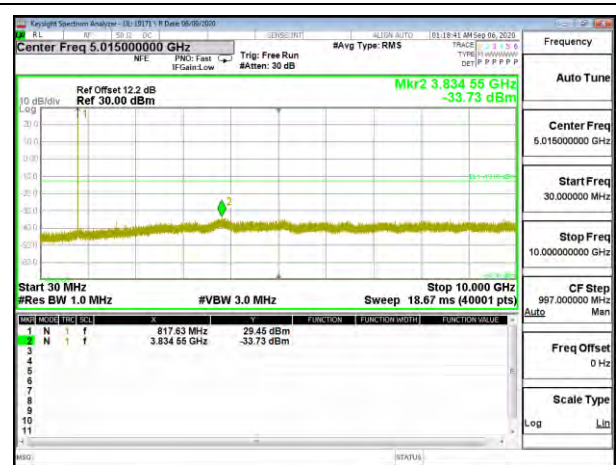
8.3.2. GSM 1900



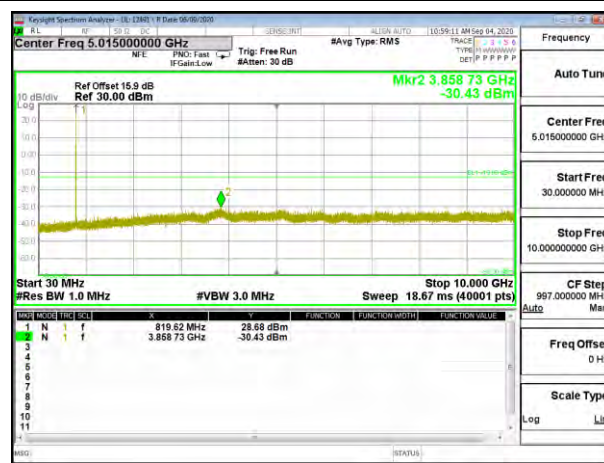
8.3.3. CDMA BC10



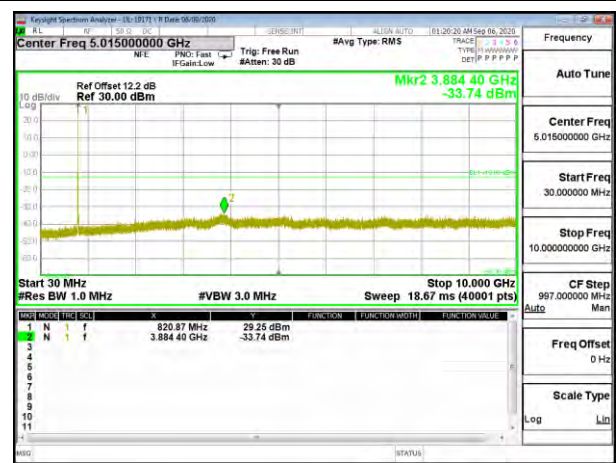
CDMA BC10 1xRTT Low Channel



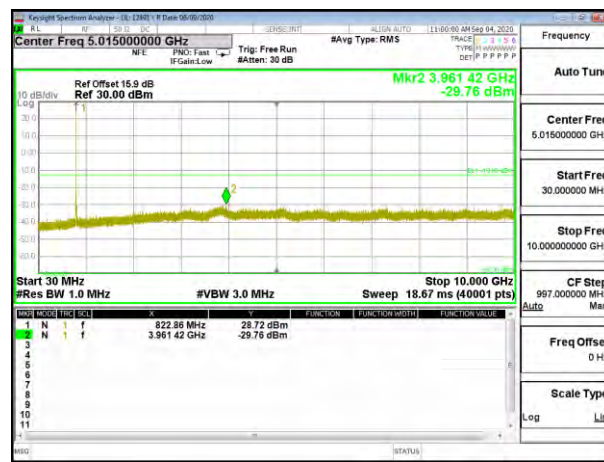
CDMA BC10 1xEV-DO Rev A Low Channel



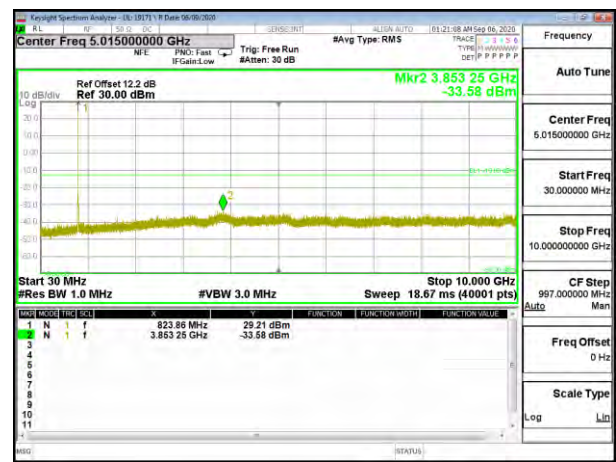
CDMA BC10 1xRTT Middle Channel



CDMA BC10 1xEV-DO Rev A Middle Channel



CDMA BC10 1xRTT High Channel



CDMA BC10 1xEV-DO Rev A High Channel

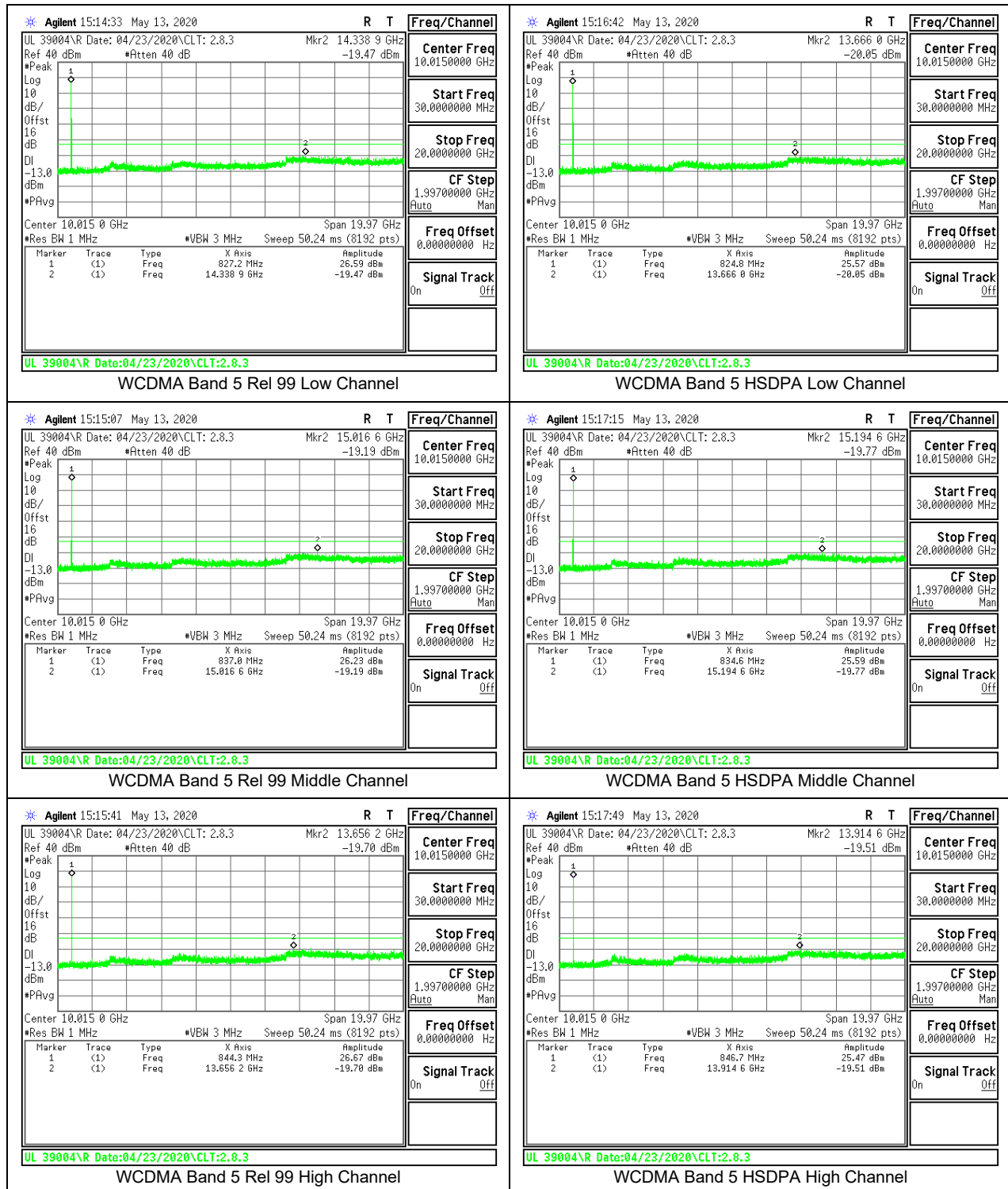
8.3.4. CDMA BC0



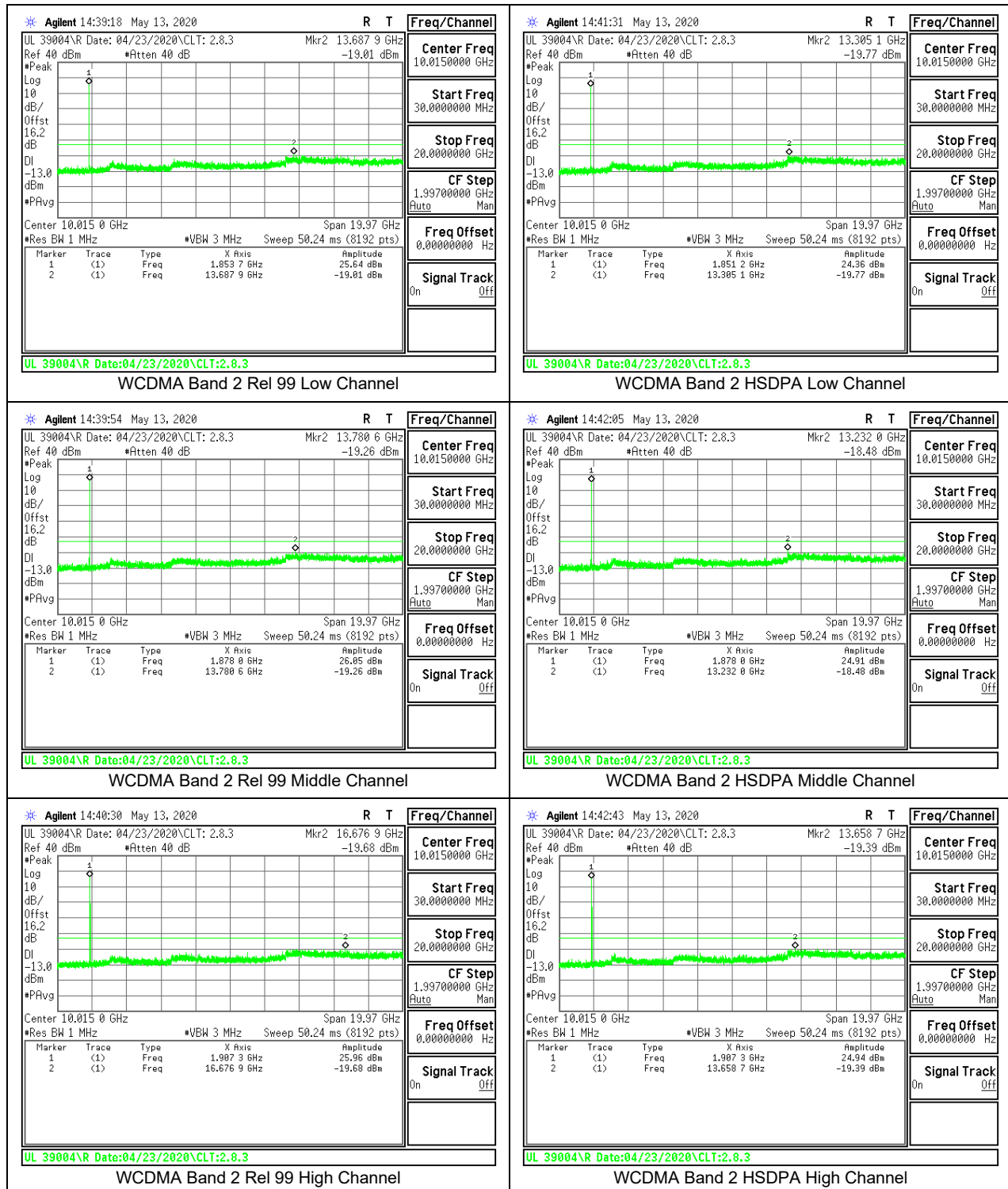
8.3.5. CDMA BC1



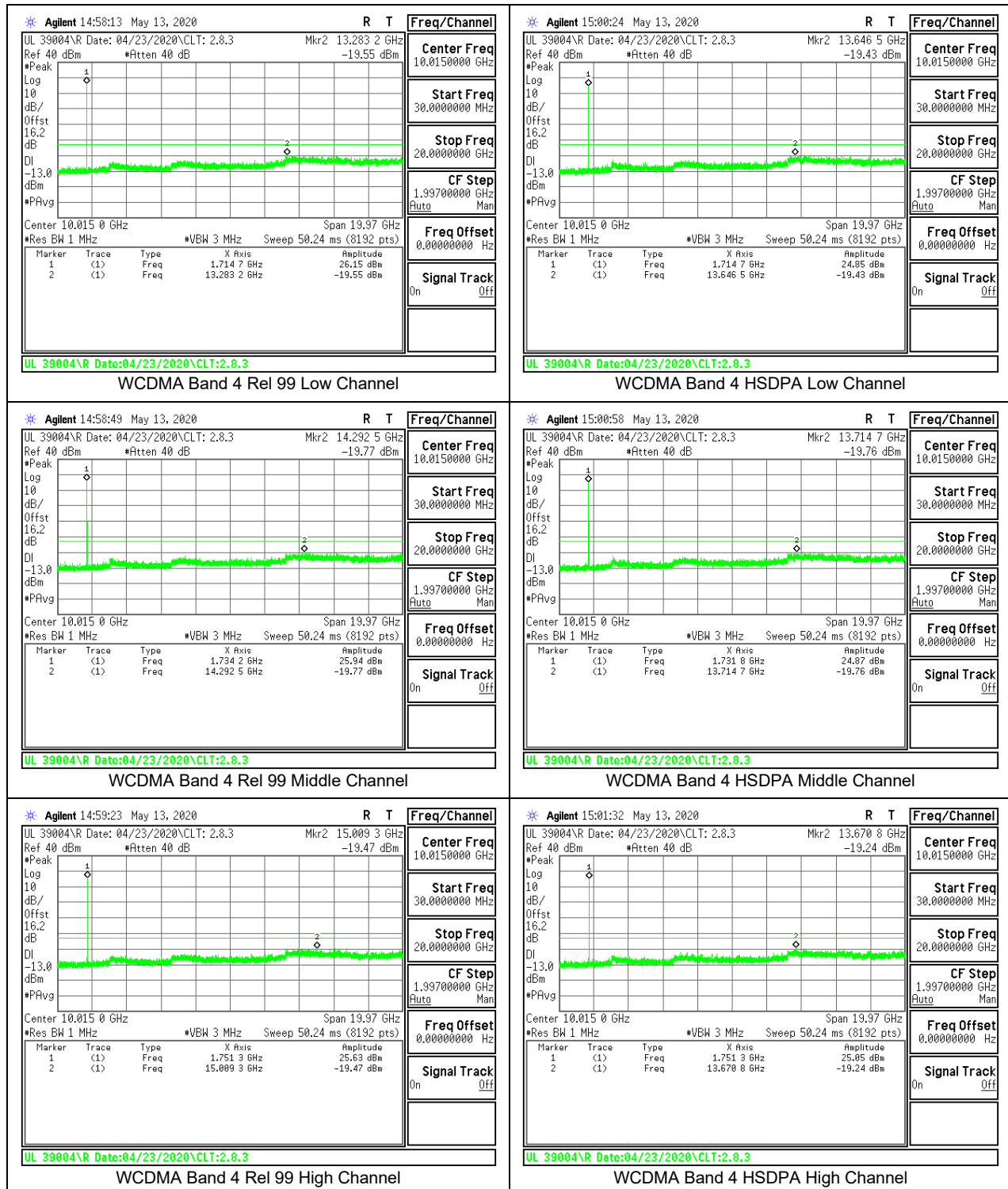
8.3.6. WCDMA BAND 5



8.3.7. WCDMA BAND 2



8.3.8. WCDMA BAND 4



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

Frequency Stability vs Voltage:

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

RESULTS

See the following pages.

8.4.1. GSM

Test Engineer ID:	19179	Test Date:	7/22/2020
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GPRS 850

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.0284000	848.9673000		
Extreme (50C)		824.0284164	848.9673164	16.4	0.020
Extreme (40C)		824.0284202	848.9673202	20.2	0.024
Extreme (30C)		824.0284141	848.9673141	14.1	0.017
Extreme (10C)		824.0284157	848.9673157	15.7	0.019
Extreme (0C)		824.0284206	848.9673206	20.6	0.025
Extreme (-10C)		824.0284192	848.9673192	19.2	0.023
Extreme (-20C)		824.0284199	848.9673199	19.9	0.024
Extreme (-30C)		824.0284192	848.9673192	19.2	0.023
20C	15%	824.0284191	848.9673191	19.1	0.023
	-15%	824.0284172	848.9673172	17.2	0.021
	End Point	824.0284172	848.9673172	17.2	0.021

GPRS 1900

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	1850.0420000	1909.9563000		
Extreme (50C)		1850.0420264	1909.9563264	26.4	0.014
Extreme (40C)		1850.0420267	1909.9563267	26.7	0.014
Extreme (30C)		1850.0420267	1909.9563267	26.7	0.014
Extreme (10C)		1850.0420282	1909.9563282	28.2	0.015
Extreme (0C)		1850.0420277	1909.9563277	27.7	0.015
Extreme (-10C)		1850.0420217	1909.9563217	21.7	0.012
Extreme (-20C)		1850.0420284	1909.9563284	28.4	0.015
Extreme (-30C)		1850.0420272	1909.9563272	27.2	0.014
20C	15%	1850.0420271	1909.9563271	27.1	0.014
	-15%	1850.0420288	1909.9563288	28.8	0.015
	End Point	1850.0420288	1909.9563288	28.8	0.015

8.4.2. CDMA

Test Engineer ID:	38602	Test Date:	7/16/2020
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CDMA 1xRTT BC10

Limit		816	824	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	816.5726000	823.4272000		
Extreme (50C)		816.5725952	823.4271952	-4.8	-0.006
Extreme (40C)		816.5725974	823.4271974	-2.6	-0.003
Extreme (30C)		816.5725987	823.4271987	-1.3	-0.002
Extreme (10C)		816.5725981	823.4271981	-1.9	-0.002
Extreme (0C)		816.5726043	823.4272043	4.3	0.005
Extreme (-10C)		816.5726115	823.4272115	11.5	0.014
Extreme (-20C)		816.5726032	823.4272032	3.2	0.004
Extreme (-30C)		816.5725956	823.4271956	-4.4	-0.005
20C	15%	816.5725975	823.4271975	-2.5	-0.003
	-15%	816.5725966	823.4271966	-3.4	-0.004
	End Point	816.5725984	823.4271984	-1.6	-0.002

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	824.0237000	848.9856000		
Extreme (50C)		824.0237027	848.9856027	2.7	0.003
Extreme (40C)		824.0236959	848.9855959	-4.1	-0.005
Extreme (30C)		824.0236945	848.9855945	-5.5	-0.007
Extreme (10C)		824.0237019	848.9856019	1.9	0.002
Extreme (0C)		824.0237036	848.9856036	3.6	0.004
Extreme (-10C)		824.0237044	848.9856044	4.4	0.005
Extreme (-20C)		824.0237023	848.9856023	2.3	0.003
Extreme (-30C)		824.0237005	848.9856005	0.5	0.001
20C	15%	824.0237046	848.9856046	4.6	0.005
	-15%	824.0237053	848.9856053	5.3	0.006
	End Point	824.0237029	848.9856029	2.9	0.003

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	1850.5756000	1909.4284000		
Extreme (50C)		1850.5756074	1909.4284074	7.4	0.004
Extreme (40C)		1850.5756082	1909.4284082	8.2	0.004
Extreme (30C)		1850.5756111	1909.4284111	11.1	0.006
Extreme (10C)		1850.5756139	1909.4284139	13.9	0.007
Extreme (0C)		1850.5756155	1909.4284155	15.5	0.008
Extreme (-10C)		1850.5756147	1909.4284147	14.7	0.008
Extreme (-20C)		1850.5756128	1909.4284128	12.8	0.007
Extreme (-30C)		1850.5756115	1909.4284115	11.5	0.006
20C	15%	1850.5756127	1909.4284127	12.7	0.007
	-15%	1850.5756136	1909.4284136	13.6	0.007
	End Point	1850.5756112	1909.4284112	11.2	0.006

8.4.3. WCDMA

Test Engineer ID:	19179	Test Date:	7/22/2020
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WCDMA REL 99 BAND 5

Limit		824	849	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	824.0851000	848.9086000		
Extreme (50C)		824.0850986	848.9085986	-1.4	-0.002
Extreme (40C)		824.0850983	848.9085983	-1.7	-0.002
Extreme (30C)		824.0850987	848.9085987	-1.3	-0.002
Extreme (10C)		824.0850985	848.9085985	-1.5	-0.002
Extreme (0C)		824.0850988	848.9085988	-1.2	-0.001
Extreme (-10C)		824.0850982	848.9085982	-1.8	-0.002
Extreme (-20C)		824.0850987	848.9085987	-1.3	-0.002
Extreme (-30C)		824.0850996	848.9085996	-0.4	0.000
20C	15%	824.0850978	848.9085978	-2.2	-0.003
	-15%	824.0850985	848.9085985	-1.5	-0.002
	End Point	824.0850996	848.9085996	-0.5	-0.001

WCDMA REL 99 BAND 2

Limit		1850	1910	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm (MHz)	F high @ -13dBm (MHz)		
Temperature	Voltage				
Normal (20C)	Normal	1850.1112000	1909.9002000		
Extreme (50C)		1850.1112024	1909.9002024	2.4	0.001
Extreme (40C)		1850.1112026	1909.9002026	2.6	0.001
Extreme (30C)		1850.1112042	1909.9002042	4.2	0.002
Extreme (10C)		1850.1112050	1909.9002050	5.0	0.003
Extreme (0C)		1850.1112054	1909.9002054	5.4	0.003
Extreme (-10C)		1850.1112047	1909.9002047	4.7	0.003
Extreme (-20C)		1850.1112051	1909.9002051	5.1	0.003
Extreme (-30C)		1850.1112038	1909.9002038	3.8	0.002
20C	15%	1850.1112052	1909.9002052	5.2	0.003
	-15%	1850.1112044	1909.9002044	4.4	0.002
	End Point	1850.1112055	1909.9002055	5.5	0.003

WCDMA REL 99 BAND 4

Limit		1710	1755	Delta (Hz)	Frequency Stability (ppm)
Condition		F low @ -13dBm	F high @ -13dBm		
Temperature	Voltage	(MHz)	(MHz)		
Normal (20C)	Normal	1710.1082000	1754.8896000		
Extreme (50C)		1710.1082052	1754.8896052	5.2	0.003
Extreme (40C)		1710.1082049	1754.8896049	4.9	0.003
Extreme (30C)		1710.1082045	1754.8896045	4.5	0.003
Extreme (10C)		1710.1082052	1754.8896052	5.2	0.003
Extreme (0C)		1710.1082043	1754.8896043	4.3	0.002
Extreme (-10C)		1710.1082057	1754.8896057	5.7	0.003
Extreme (-20C)		1710.1082045	1754.8896045	4.5	0.003
Extreme (-30C)		1710.1082041	1754.8896041	4.1	0.002
20C	15%	1710.1082051	1754.8896051	5.1	0.003
	-15%	1710.1082048	1754.8896048	4.8	0.003
	End Point	1710.1082042	1754.8896042	4.2	0.002

8.5. PEAK-TO-AVERAGE POWER RATIO

LIMIT

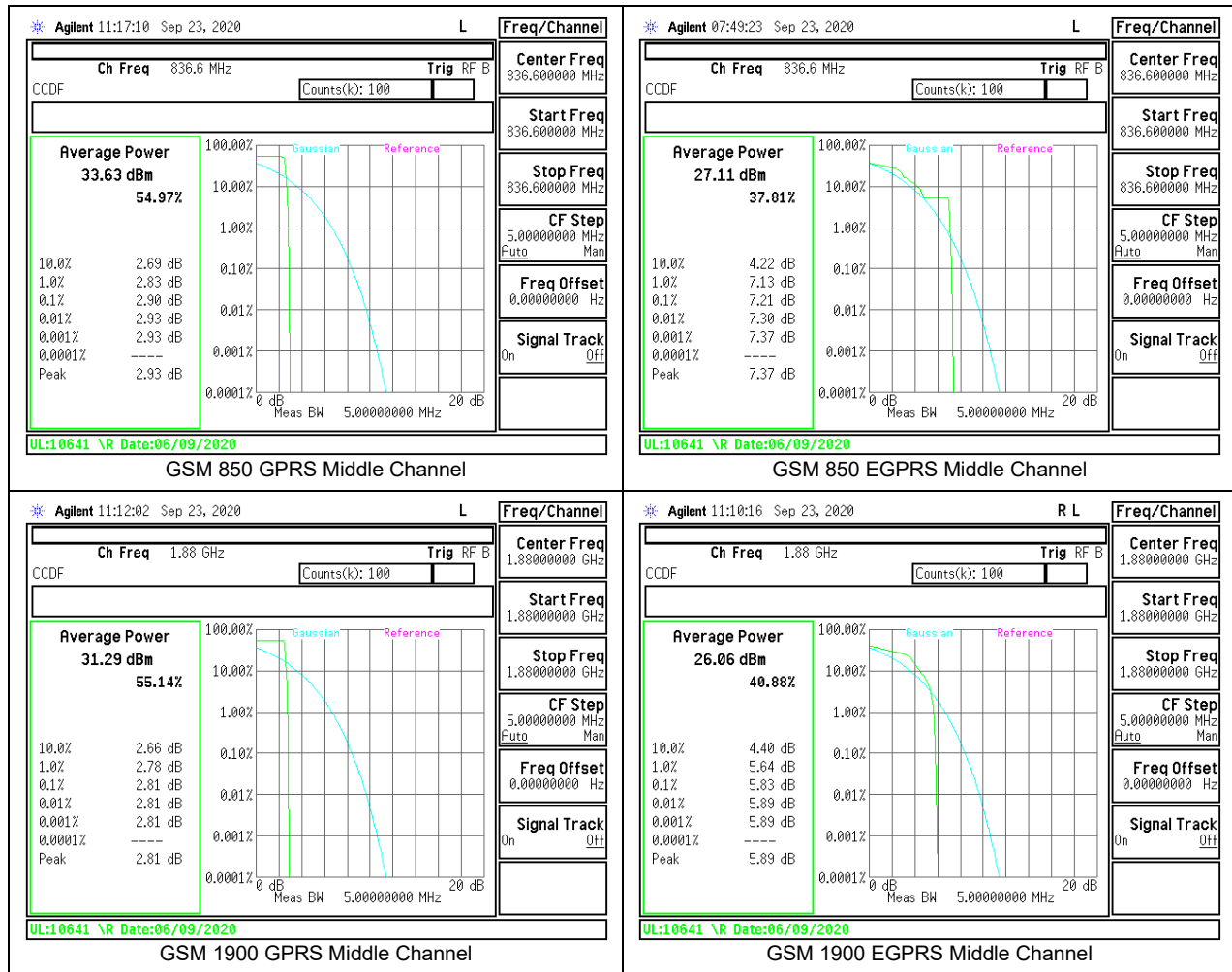
In addition, the peak-to-average power ratio (PAPR) of the transmitter shall not exceed 13 dB for more than 0.1% of the time and shall use a signal corresponding to the highest PAPR during periods of continuous transmission.

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.

Test Engineer ID:	12491	Test Date:	4/23/2020
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8.5.1. GSM



8.5.2. CDMA



CDMA BC10 1xRTT Middle Channel



CDMA BC10 1xEV-DO Rev A Middle Channel



CDMA BC0 1xRTT Middle Channel



CDMA BC0 1xEV-DO Rev A Middle Channel



CDMA BC1 1xRTT Middle Channel



CDMA BC1 1xEV-DO Rev A Middle Channel

8.5.3. WCDMA



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.

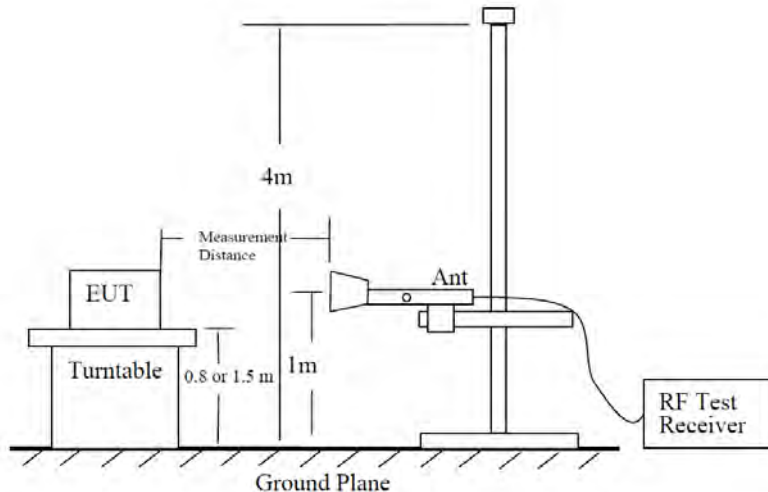


Figure 6—Test site-up for radiated ERP and/or EIRP measurements

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

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

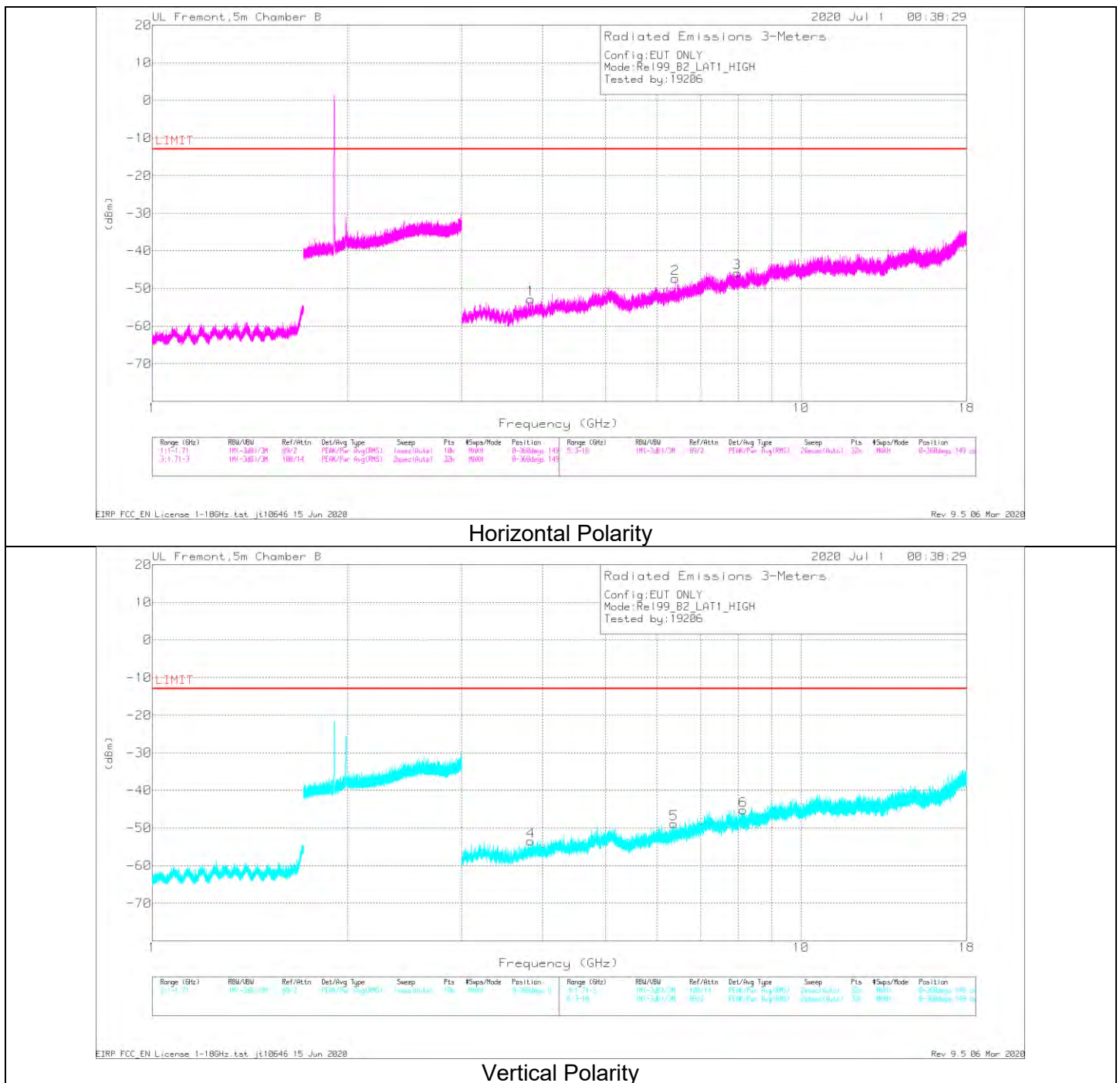
So, from d)

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

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

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

9.1. Example Plot



Trace Markers

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	3.8325	38.71	Pk	31	-27.3	-95.2	-52.79	-13	-39.79	0-360	149	H
4	3.8325	38.01	Pk	31	-27.3	-95.2	-53.49	-13	-40.49	0-360	149	V
5	6.36844	36.18	Pk	34.6	-24.4	-95.2	-48.82	-13	-35.82	0-360	149	V
2	6.40125	37.66	Pk	34.7	-24.5	-95.2	-47.34	-13	-34.34	0-360	149	H
3	7.97438	34.89	Pk	37.2	-22.7	-95.2	-45.81	-13	-32.81	0-360	149	H
6	8.14453	35.06	Pk	37.3	-22.4	-95.2	-45.24	-13	-32.24	0-360	149	V

Pk - Peak detector

Radiated Emissions

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl/Filtr/Pad (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	LIMIT	Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
3.83679	39.08	Pk	31	-27.2	1	-95.2	-51.32	-13	-38.32	0	149	H
6.40356	36.64	Pk	34.7	-24.5	1	-95.2	-47.36	-13	-34.36	0	149	H
7.979	35.68	Pk	37.1	-22.6	1	-95.2	-44.02	-13	-31.02	0	149	H
3.8328	38.81	Pk	31	-27.3	1	-95.2	-51.69	-13	-38.69	0	149	V
6.36566	36.53	Pk	34.6	-24.4	1	-95.2	-47.47	-13	-34.47	0	149	V
8.14461	36.04	Pk	37.3	-22.4	1	-95.2	-43.26	-13	-30.26	0	149	V

Pk - Peak detector

EIRP FCC_EN License 1-18GHz.tst jt10646 15 Jun 2020
Rev 9.5 07 Jul 2020

9.2. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 1

RULE PART(S)

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

LIMIT

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

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

RSS132§5.5

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

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

RSS133§6.5

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

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

RSS139§6.6

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

TEST PROCEDURE

KDB 971168 D01

RESULTS

9.2.1. GSM 850

GPRS MODE

Project #:	13179110
Date:	6/5/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	GSM850 GPRS
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, 824.2 MHz										
1.64146	39.83	Pk	25	-30.4	.7	-95.2	-60.07	-13	-47.07	H
2.45503	39.25	Pk	28.8	-29.4	.5	-95.2	-56.05	-13	-43.05	H
3.29962	38.44	Pk	31.1	-27.9	.8	-95.2	-52.76	-13	-39.76	H
1.64196	40.32	Pk	25	-30.4	.7	-95.2	-59.58	-13	-46.58	V
2.45487	39.53	Pk	28.8	-29.4	.5	-95.2	-55.77	-13	-42.77	V
3.30188	38.69	Pk	31.1	-27.9	.8	-95.2	-52.51	-13	-39.51	V
Mid Channel, 836.6 MHz										
1.68076	39.61	Pk	24.9	-30.4	.7	-95.2	-60.39	-13	-47.39	H
2.52164	39.08	Pk	29.2	-29.4	.7	-95.2	-55.62	-13	-42.62	H
3.35292	38.5	Pk	31	-28.1	.6	-95.2	-53.2	-13	-40.2	H
1.68026	40.4	Pk	24.9	-30.4	.7	-95.2	-59.6	-13	-46.6	V
2.52234	39.65	Pk	29.2	-29.4	.7	-95.2	-55.05	-13	-42.05	V
3.36563	37.96	Pk	31	-28	.6	-95.2	-53.64	-13	-40.64	V
High Channel, 848.8 MHz										
1.7074	40.88	Pk	25.1	-30.3	.7	-95.2	-58.82	-13	-45.82	H
2.5622	39.41	Pk	29.3	-29.2	.5	-95.2	-55.19	-13	-42.19	H
3.39351	38.07	Pk	30.7	-28.2	.6	-95.2	-54.03	-13	-41.03	H
1.7098	40.1	Pk	25.1	-30.4	.7	-95.2	-59.7	-13	-46.7	V
2.57548	39.58	Pk	29.3	-29.1	.5	-95.2	-54.92	-13	-41.92	V
3.39571	38.58	Pk	30.8	-28.2	.6	-95.2	-53.42	-13	-40.42	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179110
Date:	6/5/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	GSM850 EGPRS
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, 824.2 MHz										
1.65608	40.09	Pk	25	-30.5	.7	-95.2	-59.91	-13	-46.91	H
2.47076	39.5	Pk	29	-29.3	.5	-95.2	-55.5	-13	-42.5	H
3.28745	38.91	Pk	31.2	-28	.8	-95.2	-52.29	-13	-39.29	H
1.64802	40.52	Pk	24.9	-30.4	.7	-95.2	-59.48	-13	-46.48	V
2.45966	39.93	Pk	28.9	-29.3	.5	-95.2	-55.17	-13	-42.17	V
3.29244	38.46	Pk	31.2	-28	.8	-95.2	-52.74	-13	-39.74	V
Mid Channel, 836.6 MHz										
1.66464	39.91	Pk	25	-30.4	.7	-95.2	-59.99	-13	-46.99	H
2.52253	39.64	Pk	29.2	-29.4	.7	-95.2	-55.06	-13	-42.06	H
3.35165	38.65	Pk	31	-28.1	.6	-95.2	-53.05	-13	-40.05	H
1.65616	39.59	Pk	25	-30.5	.7	-95.2	-60.41	-13	-47.41	V
2.51113	39.62	Pk	29.1	-29.3	.7	-95.2	-55.08	-13	-42.08	V
3.3542	38.69	Pk	31	-28.1	.6	-95.2	-53.01	-13	-40.01	V
High Channel, 848.8 MHz										
1.69155	39.35	Pk	25	-30.4	.7	-95.2	-60.55	-13	-47.55	H
2.56249	39.16	Pk	29.3	-29.2	.5	-95.2	-55.44	-13	-42.44	H
3.41476	38.62	Pk	30.6	-28.1	.6	-95.2	-53.48	-13	-40.48	H
1.68794	39.66	Pk	25	-30.4	.7	-95.2	-60.24	-13	-47.24	V
2.56415	39.74	Pk	29.3	-29.2	.5	-95.2	-54.86	-13	-41.86	V
3.41304	38.69	Pk	30.6	-28.1	.6	-95.2	-53.41	-13	-40.41	V

Pk – Peak Detector

9.2.2. GSM 1900

GPRS MODE

Project #:	13179110
Date:	6/29/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	GSM1900 GPRS
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.70002	38.73	Pk	30.3	-27.3	1	-95.2	-52.47	-13	-39.47	H
5.58357	36.74	Pk	33.2	-25.5	1	-95.2	-49.76	-13	-36.76	H
7.27386	36.65	Pk	37.1	-23.2	1	-95.2	-43.65	-13	-30.65	H
3.7345	39.29	Pk	30.5	-27.4	1	-95.2	-51.81	-13	-38.81	V
5.54602	37.58	Pk	33.2	-26	1	-95.2	-49.42	-13	-36.42	V
7.21328	35.75	Pk	37.2	-22.6	1	-95.2	-43.85	-13	-30.85	V
Mid Channel, 1880MHz										
3.78053	38.7	Pk	30.8	-27.4	1	-95.2	-52.1	-13	-39.1	H
5.64009	39.07	Pk	33.1	-24.8	1	-95.2	-46.83	-13	-33.83	H
7.5642	36.91	Pk	36.8	-23.3	1	-95.2	-43.79	-13	-30.79	H
3.7346	39.45	Pk	30.5	-27.4	1	-95.2	-51.65	-13	-38.65	V
5.64437	37.61	Pk	33.2	-24.8	1	-95.2	-48.19	-13	-35.19	V
7.57346	36.24	Pk	36.9	-23.2	1	-95.2	-44.26	-13	-31.26	V
High Channel, 1909.8MHz										
3.90861	38.51	Pk	31.4	-26.8	1	-95.2	-51.09	-13	-38.09	H
5.72969	40.93	Pk	33.1	-24.5	1	-95.2	-44.67	-13	-31.67	H
7.62844	36.42	Pk	36.9	-23.5	1	-95.2	-44.38	-13	-31.38	H
3.95077	37.91	Pk	31.6	-26.7	1	-95.2	-51.39	-13	-38.39	V
5.72949	44.28	Pk	33.1	-24.5	1	-95.2	-41.32	-13	-28.32	V
7.7498	35.86	Pk	37.1	-21.7	1	-95.2	-42.94	-13	-29.94	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179110
Date:	6/29/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	GSM1900 EGPRS
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.68137	38.54	Pk	30.2	-27.1	1	-95.2	-52.56	-13	-39.56	H
5.55059	41.5	Pk	33.3	-26	1	-95.2	-45.4	-13	-32.4	H
7.22073	36.36	Pk	37.1	-22.6	1	-95.2	-43.34	-13	-30.34	H
3.69286	38.32	Pk	30.3	-27.2	1	-95.2	-52.78	-13	-39.78	V
5.55052	43.32	Pk	33.3	-26	1	-95.2	-43.58	-13	-30.58	V
7.22544	35.9	Pk	37.1	-22.6	1	-95.2	-43.8	-13	-30.8	V
Mid Channel, 1880MHz										
3.75687	39.04	Pk	30.6	-27.5	1	-95.2	-52.06	-13	-39.06	H
5.69642	35.86	Pk	33	-24.1	1	-95.2	-49.44	-13	-36.44	H
7.80692	35.19	Pk	37.3	-22	1	-95.2	-43.71	-13	-30.71	H
3.75073	39.41	Pk	30.6	-27.5	1	-95.2	-51.69	-13	-38.69	V
5.64002	42.9	Pk	33.1	-24.8	1	-95.2	-43	-13	-30	V
7.73735	35.9	Pk	37.1	-21.7	1	-95.2	-42.9	-13	-29.9	V
High Channel, 1909.8MHz										
3.91272	38.23	Pk	31.5	-26.8	1	-95.2	-51.27	-13	-38.27	H
5.7762	37.22	Pk	33.3	-25	1	-95.2	-48.68	-13	-35.68	H
8.03617	35.09	Pk	37.1	-21.9	1	-95.2	-43.91	-13	-30.91	H
3.92498	38.09	Pk	31.4	-26.7	1	-95.2	-51.41	-13	-38.41	V
5.68615	36.11	Pk	33.1	-24.2	1	-95.2	-49.19	-13	-36.19	V
8.07825	35.31	Pk	37.1	-21.9	1	-95.2	-43.69	-13	-30.69	V

Pk – Peak Detector

9.2.3. CDMA BC10

1xRTT MODE

Project #:	13179110
Date:	7/12/2020
Test Engineer:	19480
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										
1.63499	52.83	Pk	25	-30.5	.7	-95.2	-47.17	-13	-34.17	H
2.45261	46.02	Pk	28.8	-29.4	.5	-95.2	-49.28	-13	-36.28	H
3.26744	40.76	Pk	31.4	-28.2	.6	-95.2	-50.64	-13	-37.64	H
1.63523	47.81	Pk	25	-30.5	.7	-95.2	-52.19	-13	-39.19	V
2.45202	45.26	Pk	28.8	-29.4	.5	-95.2	-50.04	-13	-37.04	V
3.26712	39.54	Pk	31.4	-28.2	.6	-95.2	-51.86	-13	-38.86	V
Mid Channel, 820MHz										
1.63959	55.75	Pk	25	-30.5	.7	-95.2	-44.25	-13	-31.25	H
2.45911	47.45	Pk	28.9	-29.4	.5	-95.2	-47.75	-13	-34.75	H
3.27856	38.37	Pk	31.4	-28.1	.8	-95.2	-52.73	-13	-39.73	H
1.63953	50.7	Pk	25	-30.5	.7	-95.2	-49.3	-13	-36.3	V
2.46039	42.59	Pk	28.9	-29.3	.5	-95.2	-52.51	-13	-39.51	V
3.27937	38.69	Pk	31.4	-28.1	.8	-95.2	-52.41	-13	-39.41	V
High Channel, 822.75MHz										
1.64501	44.22	Pk	25	-30.5	.7	-95.2	-55.78	-13	-42.78	H
2.4674	55.91	Pk	28.9	-29.4	.5	-95.2	-39.29	-13	-26.29	H
3.29227	37.73	Pk	31.2	-28	.8	-95.2	-53.47	-13	-40.47	H
1.64535	42.78	Pk	24.9	-30.5	.7	-95.2	-57.32	-13	-44.32	V
2.4688	47.2	Pk	28.9	-29.3	.5	-95.2	-47.9	-13	-34.9	V
3.29012	37.29	Pk	31.2	-28	.8	-95.2	-53.91	-13	-40.91	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179110
Date:	7/15/2020
Test Engineer:	19206
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										
1.6218	41.69	Pk	25	-30.5	.7	-95.2	-58.31	-13	-45.31	H
2.45263	54.33	Pk	28.8	-29.4	.5	-95.2	-40.97	-13	-27.97	H
3.25819	38.83	Pk	31.3	-28.2	.5	-95.2	-52.77	-13	-39.77	H
1.63837	40.6	Pk	25	-30.5	.7	-95.2	-59.4	-13	-46.4	V
2.45267	47.33	Pk	28.8	-29.4	.5	-95.2	-47.97	-13	-34.97	V
3.32168	39.08	Pk	31.2	-28.1	.6	-95.2	-52.42	-13	-39.42	V
Mid Channel, 820MHz										
1.6421	41.09	Pk	25	-30.4	.7	-95.2	-58.81	-13	-45.81	H
2.45895	52.97	Pk	28.9	-29.4	.5	-95.2	-42.23	-13	-29.23	H
3.26587	39.38	Pk	31.4	-28.2	.6	-95.2	-52.02	-13	-39.02	H
1.63799	40.4	Pk	25	-30.5	.7	-95.2	-59.6	-13	-46.6	V
2.45923	49.42	Pk	28.9	-29.4	.5	-95.2	-45.78	-13	-32.78	V
3.26192	38.76	Pk	31.4	-28.3	.5	-95.2	-52.84	-13	-39.84	V
High Channel, 822.75MHz										
1.67398	40	Pk	25	-30.4	.7	-95.2	-59.9	-13	-46.9	H
2.46735	47.61	Pk	28.9	-29.4	.5	-95.2	-47.59	-13	-34.59	H
3.2903	37.74	Pk	31.2	-28	.8	-95.2	-53.46	-13	-40.46	H
1.64386	40.94	Pk	25	-30.4	.7	-95.2	-58.96	-13	-45.96	V
2.46852	42.27	Pk	28.9	-29.3	.5	-95.2	-52.83	-13	-39.83	V
3.31666	39.38	Pk	31.1	-28.1	.6	-95.2	-52.22	-13	-39.22	V

Pk – Peak Detector

9.2.4. CDMA BC0

1xRTT MODE

Project #:	13179110
Date:	7/12/2020
Test Engineer:	19480
Configuration:	EUT Only
Mode:	1xRTT 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										
1.64868	51.07	Pk	24.9	-30.4	.8	-95.2	-48.83	-13	-35.83	H
2.47333	44.79	Pk	29	-29.3	.5	-95.2	-50.21	-13	-37.21	H
3.30055	38.05	Pk	31.1	-27.9	.8	-95.2	-53.15	-13	-40.15	H
1.6486	49.39	Pk	24.9	-30.4	.8	-95.2	-50.51	-13	-37.51	V
2.47465	39.16	Pk	29	-29.3	.5	-95.2	-55.84	-13	-42.84	V
3.29984	38.05	Pk	31.1	-27.9	.8	-95.2	-53.15	-13	-40.15	V
Mid Channel, 836.52MHz										
1.67366	48.81	Pk	25	-30.4	.7	-95.2	-51.09	-13	-38.09	H
2.50875	43.93	Pk	29.1	-29.3	.7	-95.2	-50.77	-13	-37.77	H
3.30058	38.12	Pk	31.1	-27.9	.8	-95.2	-53.08	-13	-40.08	H
1.67259	48.56	Pk	25	-30.4	.7	-95.2	-51.34	-13	-38.34	V
2.50898	43.13	Pk	29.1	-29.3	.7	-95.2	-51.57	-13	-38.57	V
3.29888	37.9	Pk	31.2	-27.9	.8	-95.2	-53.2	-13	-40.2	V
High Channel, 848.31MHz										
1.69594	49.95	Pk	25	-30.3	.7	-95.2	-49.85	-13	-36.85	H
2.54497	42.46	Pk	29.2	-29.2	.7	-95.2	-52.04	-13	-39.04	H
3.39458	39.28	Pk	30.7	-28.2	.6	-95.2	-52.82	-13	-39.82	H
1.69602	48.45	Pk	25	-30.3	.7	-95.2	-51.35	-13	-38.35	V
2.54425	42.84	Pk	29.2	-29.2	.7	-95.2	-51.66	-13	-38.66	V
3.392	39.07	Pk	30.7	-28.2	.6	-95.2	-53.03	-13	-40.03	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179110
Date:	7/13/2020
Test Engineer:	19206
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										
1.5858	40.71	Pk	24.9	-30.5	.8	-95.2	-59.29	-13	-46.29	H
2.47312	62	Pk	29	-29.3	.5	-95.2	-33	-13	-20	H
4.1245	38.57	Pk	31.8	-27.3	.6	-95.2	-51.53	-13	-38.53	H
1.58461	41.11	Pk	24.9	-30.5	.8	-95.2	-58.89	-13	-45.89	V
2.47308	59.06	Pk	29	-29.3	.5	-95.2	-35.94	-13	-22.94	V
4.12536	40.56	Pk	31.8	-27.3	.6	-95.2	-49.54	-13	-36.54	V
Mid Channel, 836.52MHz										
1.67158	39.97	Pk	25	-30.4	.7	-95.2	-59.93	-13	-46.93	H
2.5106	63.21	Pk	29.1	-29.3	.7	-95.2	-31.49	-13	-18.49	H
3.3989	38.94	Pk	30.8	-28.3	.6	-95.2	-53.16	-13	-40.16	H
1.64121	40.76	Pk	25	-30.4	.7	-95.2	-59.14	-13	-46.14	V
2.50847	56.88	Pk	29.1	-29.3	.7	-95.2	-37.82	-13	-24.82	V
3.33891	39.01	Pk	31.1	-28.2	.6	-95.2	-52.69	-13	-39.69	V
High Channel, 848.31MHz										
1.69721	45.26	Pk	25	-30.4	.7	-95.2	-54.64	-13	-41.64	H
2.544	59.52	Pk	29.2	-29.2	.7	-95.2	-34.98	-13	-21.98	H
3.29239	40.09	Pk	31.2	-28	.8	-95.2	-51.11	-13	-38.11	H
1.6938	40.67	Pk	25	-30.3	.7	-95.2	-59.13	-13	-46.13	V
2.54368	48.46	Pk	29.2	-29.2	.7	-95.2	-46.04	-13	-33.04	V
3.28987	38.47	Pk	31.2	-28	.8	-95.2	-52.73	-13	-39.73	V

Pk – Peak Detector

9.2.5. CDMA BC1

1xRTT MODE

Project #:	13179110
Date:	7/12/2020
Test Engineer:	50820
Configuration:	EUT Only
Mode:	1xRTT BC1
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.7009	38.8	Pk	30.3	-27.3	1	-95.2	-52.4	-13	-39.4	H
5.555	37.43	Pk	33.3	-25.8	1	-95.2	-49.27	-13	-36.27	H
7.40598	35.96	Pk	36.9	-23.1	1	-95.2	-44.44	-13	-31.44	H
3.70313	39.65	Pk	30.3	-27.4	1	-95.2	-51.65	-13	-38.65	V
5.55436	38.16	Pk	33.3	-25.8	1	-95.2	-48.54	-13	-35.54	V
7.40342	35.89	Pk	36.9	-23.1	1	-95.2	-44.51	-13	-31.51	V
Mid Channel, 1880MHz										
3.76043	43.01	Pk	30.7	-27.5	1	-95.2	-47.99	-13	-34.99	H
5.63937	41.51	Pk	33.1	-24.8	1	-95.2	-44.39	-13	-31.39	H
7.5189	35.74	Pk	36.7	-23.1	1	-95.2	-44.86	-13	-31.86	H
3.75999	40.27	Pk	30.6	-27.5	1	-95.2	-50.83	-13	-37.83	V
5.63903	43.02	Pk	33.1	-24.8	1	-95.2	-42.88	-13	-29.88	V
7.51942	35.34	Pk	36.7	-23.1	1	-95.2	-45.26	-13	-32.26	V
High Channel, 1908.75MHz										
3.81696	43.61	Pk	31	-27.3	1	-95.2	-46.89	-13	-33.89	H
5.7256	37.92	Pk	33	-24.4	1	-95.2	-47.68	-13	-34.68	H
7.63314	35.99	Pk	36.9	-23.5	1	-95.2	-44.81	-13	-31.81	H
3.81709	42.74	Pk	31	-27.3	1	-95.2	-47.76	-13	-34.76	V
5.72628	41.18	Pk	33	-24.4	1	-95.2	-44.42	-13	-31.42	V
7.63378	36.02	Pk	36.9	-23.5	1	-95.2	-44.78	-13	-31.78	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179110
Date:	7/14/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC1
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.96521	38.16	Pk	31.6	-26.8	1	-95.2	-51.24	-13	-38.24	H
5.55459	45.82	Pk	33.3	-25.8	1	-95.2	-40.88	-13	-27.88	H
7.24005	35.54	Pk	37.1	-22.8	1	-95.2	-44.36	-13	-31.36	H
3.97076	38.17	Pk	31.6	-26.9	1	-95.2	-51.33	-13	-38.33	V
5.5529	49.92	Pk	33.3	-25.9	1	-95.2	-36.88	-13	-23.88	V
7.27852	37	Pk	37.1	-23.1	1	-95.2	-43.2	-13	-30.2	V
Mid Channel, 1880MHz										
3.75957	40.07	Pk	30.6	-27.5	1	-95.2	-51.03	-13	-38.03	H
5.64115	49.66	Pk	33.1	-24.8	1	-95.2	-36.24	-13	-23.24	H
7.16033	36.56	Pk	37	-22.7	1	-95.2	-43.34	-13	-30.34	H
3.75945	38.96	Pk	30.6	-27.5	1	-95.2	-52.14	-13	-39.14	V
5.63919	45.9	Pk	33.1	-24.8	1	-95.2	-40	-13	-27	V
7.11064	35.35	Pk	36.7	-22.8	1	-95.2	-44.95	-13	-31.95	V
High Channel, 1908.75MHz										
3.82128	38.8	Pk	31	-27.4	1	-95.2	-51.8	-13	-38.8	H
5.72727	43.37	Pk	33	-24.4	1	-95.2	-42.23	-13	-29.23	H
7.76275	35.03	Pk	37.1	-21.8	1	-95.2	-43.87	-13	-30.87	H
3.80342	38.97	Pk	30.9	-27.4	1	-95.2	-51.73	-13	-38.73	V
5.7254	41.22	Pk	33	-24.4	1	-95.2	-44.38	-13	-31.38	V
7.74765	35.31	Pk	37.1	-21.6	1	-95.2	-43.39	-13	-30.39	V

Pk – Peak Detector

9.2.6. WCDMA BAND 5

REL 99 MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 5
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, 826.4MHz										
1.65069	42.56	Pk	24.9	-30.4	.8	-95.2	-57.34	-13	-44.34	H
2.48076	38.87	Pk	29	-29.3	.5	-95.2	-56.13	-13	-43.13	H
3.30702	38.16	Pk	31.1	-28	.7	-95.2	-53.24	-13	-40.24	H
1.64989	41.59	Pk	24.9	-30.4	.8	-95.2	-58.31	-13	-45.31	V
2.47924	39.06	Pk	29	-29.3	.5	-95.2	-55.94	-13	-42.94	V
3.30512	38	Pk	31.1	-27.9	.7	-95.2	-53.3	-13	-40.3	V
Mid Channel, 836.6MHz										
1.6748	43.65	Pk	25	-30.4	.7	-95.2	-56.25	-13	-43.25	H
2.50954	41.11	Pk	29.1	-29.3	.7	-95.2	-53.59	-13	-40.59	H
3.34613	39.18	Pk	30.9	-28.2	.6	-95.2	-52.72	-13	-39.72	H
1.6748	44.82	Pk	25	-30.4	.7	-95.2	-55.08	-13	-42.08	V
2.51068	40.15	Pk	29.1	-29.3	.7	-95.2	-54.55	-13	-41.55	V
3.34548	37.58	Pk	30.9	-28.2	.6	-95.2	-54.32	-13	-41.32	V
High Channel, 846.6MHz										
1.69448	40.8	Pk	25	-30.3	.7	-95.2	-59	-13	-46	H
2.54013	38.68	Pk	29.3	-29.3	.7	-95.2	-55.82	-13	-42.82	H
3.38625	39.46	Pk	30.8	-28.1	.6	-95.2	-52.44	-13	-39.44	H
1.6954	43.62	Pk	25	-30.3	.7	-95.2	-56.18	-13	-43.18	V
2.53775	39.48	Pk	29.3	-29.3	.8	-95.2	-54.92	-13	-41.92	V
3.38488	38.57	Pk	30.9	-28.1	.6	-95.2	-53.23	-13	-40.23	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 5
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, 826.4MHz										
1.6548	44.65	Pk	25	-30.4	.8	-95.2	-55.15	-13	-42.15	H
2.47615	44.6	Pk	29	-29.3	.5	-95.2	-50.4	-13	-37.4	H
3.30511	38.8	Pk	31.1	-27.9	.7	-95.2	-52.5	-13	-39.5	H
1.65489	43.54	Pk	25	-30.4	.8	-95.2	-56.26	-13	-43.26	V
2.47625	39.07	Pk	29	-29.3	.5	-95.2	-55.93	-13	-42.93	V
3.30477	36.96	Pk	31.1	-27.9	.7	-95.2	-54.34	-13	-41.34	V
Mid Channel, 836.6MHz										
1.67128	47.79	Pk	25	-30.4	.7	-95.2	-52.11	-13	-39.11	H
2.50673	46.97	Pk	29.1	-29.3	.7	-95.2	-47.73	-13	-34.73	H
3.345	37.84	Pk	30.9	-28.2	.6	-95.2	-54.06	-13	-41.06	H
1.67113	46.2	Pk	25	-30.4	.7	-95.2	-53.7	-13	-40.7	V
2.5068	42.63	Pk	29.1	-29.3	.7	-95.2	-52.07	-13	-39.07	V
3.34757	38.36	Pk	31	-28.2	.6	-95.2	-53.44	-13	-40.44	V
High Channel, 846.6MHz										
1.69508	44.59	Pk	25	-30.3	.7	-95.2	-55.21	-13	-42.21	H
2.5425	43.97	Pk	29.2	-29.2	.7	-95.2	-50.53	-13	-37.53	H
3.38633	39.64	Pk	30.8	-28.1	.6	-95.2	-52.26	-13	-39.26	H
1.69442	42.13	Pk	25	-30.3	.7	-95.2	-57.67	-13	-44.67	V
2.54317	39.75	Pk	29.2	-29.2	.7	-95.2	-54.75	-13	-41.75	V
3.38662	39.32	Pk	30.8	-28.1	.6	-95.2	-52.58	-13	-39.58	V

Pk – Peak Detector

9.2.7. WCDMA BAND 2

REL 99 MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.75186	39.93	Pk	30.6	-27.5	1	-95.2	-51.17	-13	-38.17	H
5.74958	36.69	Pk	33.1	-24.5	1	-95.2	-48.91	-13	-35.91	H
7.22928	35.86	Pk	37.2	-22.6	1	-95.2	-43.74	-13	-30.74	H
3.74468	38.89	Pk	30.6	-27.5	1	-95.2	-52.21	-13	-39.21	V
5.71676	36.26	Pk	33	-24.3	1	-95.2	-49.24	-13	-36.24	V
7.16197	35.98	Pk	36.9	-22.7	1	-95.2	-44.02	-13	-31.02	V
Mid Channel, 1880MHz										
3.70018	39.03	Pk	30.3	-27.3	1	-95.2	-52.17	-13	-39.17	H
5.50987	38.24	Pk	33.2	-26	1	-95.2	-48.76	-13	-35.76	H
7.49712	36.24	Pk	36.7	-23.2	1	-95.2	-44.46	-13	-31.46	H
3.70718	38.96	Pk	30.3	-27.4	1	-95.2	-52.34	-13	-39.34	V
5.52228	37.9	Pk	33.2	-26.1	1	-95.2	-49.2	-13	-36.2	V
7.44316	35.65	Pk	36.8	-22.9	1	-95.2	-44.65	-13	-31.65	V
High Channel, 1907.6MHz										
3.83679	39.08	Pk	31	-27.2	1	-95.2	-51.32	-13	-38.32	H
6.40356	36.64	Pk	34.7	-24.5	1	-95.2	-47.36	-13	-34.36	H
7.979	35.68	Pk	37.1	-22.6	1	-95.2	-44.02	-13	-31.02	H
3.8328	38.81	Pk	31	-27.3	1	-95.2	-51.69	-13	-38.69	V
6.36566	36.53	Pk	34.6	-24.4	1	-95.2	-47.47	-13	-34.47	V
8.14461	36.04	Pk	37.3	-22.4	1	-95.2	-43.26	-13	-30.26	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.62549	38.33	Pk	30.1	-27.2	1	-95.2	-52.97	-13	-39.97	H
5.51096	37.5	Pk	33.2	-26	1	-95.2	-49.5	-13	-36.5	H
7.22886	35.75	Pk	37.2	-22.6	1	-95.2	-43.85	-13	-30.85	H
3.67197	38.24	Pk	30.2	-27	1	-95.2	-52.76	-13	-39.76	V
5.50583	37.43	Pk	33.2	-26.1	1	-95.2	-49.67	-13	-36.67	V
7.21523	35.88	Pk	37.2	-22.6	1	-95.2	-43.72	-13	-30.72	V
Mid Channel, 1880MHz										
3.87182	38.37	Pk	31.2	-27	1	-95.2	-51.63	-13	-38.63	H
5.99949	37.25	Pk	34.5	-24.8	1	-95.2	-47.25	-13	-34.25	H
7.71818	35.47	Pk	37.1	-22.1	1	-95.2	-43.73	-13	-30.73	H
3.92349	39.35	Pk	31.4	-26.8	1	-95.2	-50.25	-13	-37.25	V
5.94651	37.34	Pk	34.3	-24.9	1	-95.2	-47.46	-13	-34.46	V
7.69846	35.23	Pk	37.1	-22.4	1	-95.2	-44.27	-13	-31.27	V
High Channel, 1907.6MHz										
3.8826	38.5	Pk	31.3	-27	1	-95.2	-51.4	-13	-38.4	H
5.81591	38.34	Pk	33.4	-25.5	1	-95.2	-47.96	-13	-34.96	H
7.77361	34.46	Pk	37.2	-21.8	1	-95.2	-44.34	-13	-31.34	H
3.92756	38.62	Pk	31.5	-26.7	1	-95.2	-50.78	-13	-37.78	V
5.92905	37.52	Pk	34.2	-24.9	1	-95.2	-47.38	-13	-34.38	V
7.71276	35.25	Pk	37	-22.2	1	-95.2	-44.15	-13	-31.15	V

Pk – Peak Detector

9.2.8. WCDMA BAND 4

REL 99 MODE

Project #:	13179116
Date:	7/7/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.42031	38.47	Pk	30.6	-27.5	1	-95.2	-52.63	-13	-39.63	H
5.0322	37.44	Pk	33.7	-25.1	1	-95.2	-48.16	-13	-35.16	H
6.80482	36.77	Pk	36.1	-24	1	-95.2	-45.33	-13	-32.33	H
3.43947	37.76	Pk	30.5	-27.3	1	-95.2	-53.24	-13	-40.24	V
5.04349	37.11	Pk	33.7	-24.9	1	-95.2	-48.29	-13	-35.29	V
6.93833	35.67	Pk	36.3	-23.5	1	-95.2	-45.73	-13	-32.73	V
Mid Channel, 1732.6MHz										
3.4649	38.45	Pk	30.3	-27.3	1	-95.2	-52.75	-13	-39.75	H
5.16066	37.54	Pk	33.8	-25.3	1	-95.2	-48.16	-13	-35.16	H
7.25049	35.49	Pk	37.2	-23	1	-95.2	-44.51	-13	-31.51	H
3.47773	37.99	Pk	30.2	-27.3	1	-95.2	-53.31	-13	-40.31	V
5.12408	37.26	Pk	33.9	-24.8	1	-95.2	-47.84	-13	-34.84	V
7.16959	35.74	Pk	36.9	-22.7	1	-95.2	-44.26	-13	-31.26	V
High Channel, 1752.6MHz										
3.87121	38.63	Pk	31.2	-27	1	-95.2	-51.37	-13	-38.37	H
5.0955	36.52	Pk	33.9	-24.7	1	-95.2	-48.48	-13	-35.48	H
7.21144	36.21	Pk	37.1	-22.6	1	-95.2	-43.49	-13	-30.49	H
3.85717	38.74	Pk	31.2	-27.2	1	-95.2	-51.46	-13	-38.46	V
5.08636	37.17	Pk	33.8	-24.8	1	-95.2	-48.03	-13	-35.03	V
7.27991	35.53	Pk	37.1	-23.1	1	-95.2	-44.67	-13	-31.67	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.46232	39.04	Pk	30.3	-27.3	1	-95.2	-52.16	-13	-39.16	H
5.12374	37.56	Pk	33.9	-24.8	1	-95.2	-47.54	-13	-34.54	H
6.63432	35.97	Pk	35.7	-23.8	1	-95.2	-46.33	-13	-33.33	H
3.4149	38.63	Pk	30.6	-27.6	1	-95.2	-52.57	-13	-39.57	V
5.11597	36.99	Pk	33.9	-24.6	1	-95.2	-47.91	-13	-34.91	V
6.61537	35.47	Pk	35.6	-23.9	1	-95.2	-47.03	-13	-34.03	V
Mid Channel, 1732.6MHz										
3.464	39	Pk	30.3	-27.4	1	-95.2	-52.3	-13	-39.3	H
5.1977	37.77	Pk	33.7	-26	1	-95.2	-48.73	-13	-35.73	H
6.93049	36.18	Pk	36.3	-23.4	1	-95.2	-45.12	-13	-32.12	H
3.4655	38.71	Pk	30.3	-27.3	1	-95.2	-52.49	-13	-39.49	V
5.19796	37.85	Pk	33.7	-25.8	1	-95.2	-48.45	-13	-35.45	V
6.92993	36.39	Pk	36.2	-23.3	1	-95.2	-44.91	-13	-31.91	V
High Channel, 1752.6MHz										
3.62083	38.77	Pk	30.1	-27.1	1	-95.2	-52.43	-13	-39.43	H
5.11046	37.95	Pk	33.9	-24.6	1	-95.2	-46.95	-13	-33.95	H
7.14168	36.2	Pk	36.9	-22.8	1	-95.2	-43.9	-13	-30.9	H
3.57328	38.48	Pk	30.1	-27.5	1	-95.2	-53.12	-13	-40.12	V
4.86287	37.67	Pk	33.3	-26.1	1	-95.2	-49.33	-13	-36.33	V
7.07851	35.89	Pk	36.6	-23.3	1	-95.2	-45.01	-13	-32.01	V

Pk – Peak Detector

9.3. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 2

9.3.1. GSM 850

GPRS MODE

Project #:	13179110
Date:	6/5/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	GSM850 GPRS
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, 824.2 MHz										
1.65035	39.79	Pk	24.9	-30.4	.8	-95.2	-60.11	-13	-47.11	H
2.46856	39.25	Pk	28.9	-29.3	.5	-95.2	-55.85	-13	-42.85	H
3.29965	38.23	Pk	31.1	-27.9	.8	-95.2	-52.97	-13	-39.97	H
1.64872	40.18	Pk	24.9	-30.4	.8	-95.2	-59.72	-13	-46.72	V
2.46298	39.43	Pk	28.9	-29.4	.5	-95.2	-55.77	-13	-42.77	V
3.28922	38.84	Pk	31.2	-28	.8	-95.2	-52.36	-13	-39.36	V
Mid Channel, 836.6 MHz										
1.66806	39.46	Pk	25	-30.4	.8	-95.2	-60.34	-13	-47.34	H
2.51899	39.36	Pk	29.2	-29.3	.7	-95.2	-55.24	-13	-42.24	H
3.35083	38.02	Pk	31	-28.1	.6	-95.2	-53.68	-13	-40.68	H
1.65105	40.13	Pk	24.9	-30.4	.8	-95.2	-59.77	-13	-46.77	V
2.51586	39.56	Pk	29.2	-29.2	.7	-95.2	-54.94	-13	-41.94	V
3.36181	37.86	Pk	30.9	-28.1	.6	-95.2	-53.94	-13	-40.94	V
High Channel, 848.8 MHz										
1.69634	39.88	Pk	25	-30.3	.7	-95.2	-59.92	-13	-46.92	H
2.55971	39.74	Pk	29.2	-29.2	.7	-95.2	-54.76	-13	-41.76	H
3.4073	38.53	Pk	30.6	-28.2	.6	-95.2	-53.67	-13	-40.67	H
1.69206	40.2	Pk	25	-30.4	.7	-95.2	-59.7	-13	-46.7	V
2.5632	38.94	Pk	29.3	-29.2	.7	-95.2	-55.46	-13	-42.46	V
3.45371	37.78	Pk	30.4	-27.9	.6	-95.2	-54.32	-13	-41.32	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179110
Date:	6/5/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	GSM850 EGPRS
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, 824.2 MHz										
1.64615	40.28	Pk	24.9	-30.5	.8	-95.2	-59.72	-13	-46.72	H
2.4682	38.86	Pk	28.9	-29.4	.5	-95.2	-56.34	-13	-43.34	H
3.29204	38.57	Pk	31.2	-28	.8	-95.2	-52.63	-13	-39.63	H
1.64479	40.31	Pk	25	-30.5	.8	-95.2	-59.59	-13	-46.59	V
2.49733	39.96	Pk	29	-29.2	.5	-95.2	-54.94	-13	-41.94	V
3.35944	38.41	Pk	30.9	-28.1	.6	-95.2	-53.39	-13	-40.39	V
Mid Channel, 836.6 MHz										
1.67308	39.85	Pk	25	-30.4	.8	-95.2	-59.95	-13	-46.95	H
2.5204	39.12	Pk	29.2	-29.3	.7	-95.2	-55.48	-13	-42.48	H
3.34993	38.78	Pk	31	-28.2	.8	-95.2	-52.82	-13	-39.82	H
1.68114	39.73	Pk	24.9	-30.4	.7	-95.2	-60.27	-13	-47.27	V
2.51571	39.6	Pk	29.2	-29.2	.7	-95.2	-54.9	-13	-41.9	V
3.35546	38.35	Pk	31	-28	.6	-95.2	-53.25	-13	-40.25	V
High Channel, 848.8 MHz										
1.69412	40.59	Pk	25	-30.3	.7	-95.2	-59.21	-13	-46.21	H
2.56522	39.75	Pk	29.3	-29.2	.6	-95.2	-54.75	-13	-41.75	H
3.40245	38.84	Pk	30.7	-28.2	.6	-95.2	-53.26	-13	-40.26	H
1.68914	40.28	Pk	25	-30.4	.7	-95.2	-59.62	-13	-46.62	V
2.56977	39.83	Pk	29.4	-29.2	.5	-95.2	-54.67	-13	-41.67	V
3.40917	38.72	Pk	30.6	-28.2	.6	-95.2	-53.48	-13	-40.48	V

Pk – Peak Detector

9.3.2. GSM 1900

GPRS MODE

Project #:	13179110
Date:	6/29/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	GSM1900 GPRS
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.70002	38.73	Pk	30.3	-27.3	1	-95.2	-52.47	-13	-39.47	H
5.58357	36.74	Pk	33.2	-25.5	1	-95.2	-49.76	-13	-36.76	H
7.27386	36.65	Pk	37.1	-23.2	1	-95.2	-43.65	-13	-30.65	H
3.7345	39.29	Pk	30.5	-27.4	1	-95.2	-51.81	-13	-38.81	V
5.54602	37.58	Pk	33.2	-26	1	-95.2	-49.42	-13	-36.42	V
7.21328	35.75	Pk	37.2	-22.6	1	-95.2	-43.85	-13	-30.85	V
Mid Channel, 1880MHz										
3.78053	38.7	Pk	30.8	-27.4	1	-95.2	-52.1	-13	-39.1	H
5.64009	39.07	Pk	33.1	-24.8	1	-95.2	-46.83	-13	-33.83	H
7.5642	36.91	Pk	36.8	-23.3	1	-95.2	-43.79	-13	-30.79	H
3.7346	39.45	Pk	30.5	-27.4	1	-95.2	-51.65	-13	-38.65	V
5.64437	37.61	Pk	33.2	-24.8	1	-95.2	-48.19	-13	-35.19	V
7.57346	36.24	Pk	36.9	-23.2	1	-95.2	-44.26	-13	-31.26	V
High Channel, 1909.8MHz										
3.90861	38.51	Pk	31.4	-26.8	1	-95.2	-51.09	-13	-38.09	H
5.72949	44.28	Pk	33.1	-24.5	1	-95.2	-41.32	-13	-28.32	H
7.62844	36.42	Pk	36.9	-23.5	1	-95.2	-44.38	-13	-31.38	H
3.95077	37.91	Pk	31.6	-26.7	1	-95.2	-51.39	-13	-38.39	V
5.72969	40.93	Pk	33.1	-24.5	1	-95.2	-44.67	-13	-31.67	V
7.7498	35.86	Pk	37.1	-21.7	1	-95.2	-42.94	-13	-29.94	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	GSM1900 EGPRS
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.68137	38.54	Pk	30.2	-27.1	1	-95.2	-52.56	-13	-39.56	H
5.55059	41.5	Pk	33.3	-26	1	-95.2	-45.4	-13	-32.4	H
7.22073	36.36	Pk	37.1	-22.6	1	-95.2	-43.34	-13	-30.34	H
3.69286	38.32	Pk	30.3	-27.2	1	-95.2	-52.78	-13	-39.78	V
5.55052	43.32	Pk	33.3	-26	1	-95.2	-43.58	-13	-30.58	V
7.22544	35.9	Pk	37.1	-22.6	1	-95.2	-43.8	-13	-30.8	V
Mid Channel, 1880MHz										
3.75687	39.04	Pk	30.6	-27.5	1	-95.2	-52.06	-13	-39.06	H
5.69642	35.86	Pk	33	-24.1	1	-95.2	-49.44	-13	-36.44	H
7.80692	35.19	Pk	37.3	-22	1	-95.2	-43.71	-13	-30.71	H
3.75073	39.41	Pk	30.6	-27.5	1	-95.2	-51.69	-13	-38.69	V
5.64002	42.9	Pk	33.1	-24.8	1	-95.2	-43	-13	-30	V
7.73735	35.9	Pk	37.1	-21.7	1	-95.2	-42.9	-13	-29.9	V
High Channel, 1909.8MHz										
3.91272	38.23	Pk	31.5	-26.8	1	-95.2	-51.27	-13	-38.27	H
5.7762	37.22	Pk	33.3	-25	1	-95.2	-48.68	-13	-35.68	H
8.03617	35.09	Pk	37.1	-21.9	1	-95.2	-43.91	-13	-30.91	H
3.92498	38.09	Pk	31.4	-26.7	1	-95.2	-51.41	-13	-38.41	V
5.68615	36.11	Pk	33.1	-24.2	1	-95.2	-49.19	-13	-36.19	V
8.07825	35.31	Pk	37.1	-21.9	1	-95.2	-43.69	-13	-30.69	V

Pk – Peak Detector

9.3.3. CDMA BC10

1xRTT MODE

Project #:	13179110
Date:	7/12/2020
Test Engineer:	19206
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										
1.70195	40.11	Pk	25.2	-30.4	.6	-95.2	-59.69	-13	-46.69	H
2.45087	42.65	Pk	28.8	-29.4	.5	-95.2	-52.65	-13	-39.65	H
3.29583	38.68	Pk	31.2	-27.9	.8	-95.2	-52.42	-13	-39.42	H
1.7064	40.65	Pk	25.1	-30.3	.6	-95.2	-59.15	-13	-46.15	V
2.45231	45.77	Pk	28.8	-29.4	.5	-95.2	-49.53	-13	-36.53	V
3.28544	38.8	Pk	31.3	-28	.8	-95.2	-52.3	-13	-39.3	V
Mid Channel, 820MHz										
1.72104	40.61	Pk	25.3	-30.3	.7	-95.2	-58.89	-13	-45.89	H
2.46002	42.95	Pk	28.9	-29.3	.5	-95.2	-52.15	-13	-39.15	H
3.23464	39.25	Pk	31.4	-28.3	.4	-95.2	-52.45	-13	-39.45	H
1.70685	40.7	Pk	25.1	-30.3	.6	-95.2	-59.1	-13	-46.1	V
2.45921	48.41	Pk	28.9	-29.4	.5	-95.2	-46.79	-13	-33.79	V
3.2455	38.81	Pk	31.4	-28.3	.4	-95.2	-52.89	-13	-39.89	V
High Channel, 822.75MHz										
1.69707	40.45	Pk	25	-30.4	.7	-95.2	-59.45	-13	-46.45	H
2.46755	42.29	Pk	28.9	-29.4	.5	-95.2	-52.91	-13	-39.91	H
3.33895	38.43	Pk	31.1	-28.2	.6	-95.2	-53.27	-13	-40.27	H
1.71475	40.22	Pk	25.2	-30.4	.6	-95.2	-59.58	-13	-46.58	V
2.46756	48.24	Pk	28.9	-29.4	.5	-95.2	-46.96	-13	-33.96	V
3.34804	38.85	Pk	31	-28.2	.6	-95.2	-52.95	-13	-39.95	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179110
Date:	7/15/2020
Test Engineer:	19206
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										
1.63991	40.21	Pk	25	-30.5	.7	-95.2	-59.79	-13	-46.79	H
2.45081	44.49	Pk	28.8	-29.4	.5	-95.2	-50.81	-13	-37.81	H
3.32216	38.94	Pk	31.2	-28.1	.6	-95.2	-52.56	-13	-39.56	H
1.63391	40.68	Pk	25	-30.5	.7	-95.2	-59.32	-13	-46.32	V
2.45274	45.39	Pk	28.8	-29.4	.5	-95.2	-49.91	-13	-36.91	V
3.26651	38.81	Pk	31.4	-28.2	.6	-95.2	-52.59	-13	-39.59	V
Mid Channel, 820MHz										
1.63039	40.84	Pk	25	-30.5	.7	-95.2	-59.16	-13	-46.16	H
2.45881	52.11	Pk	28.9	-29.4	.5	-95.2	-43.09	-13	-30.09	H
3.26633	39.42	Pk	31.4	-28.2	.6	-95.2	-51.98	-13	-38.98	H
1.63812	41.38	Pk	25	-30.5	.7	-95.2	-58.62	-13	-45.62	V
2.46107	44.14	Pk	28.9	-29.3	.5	-95.2	-50.96	-13	-37.96	V
3.26493	39.13	Pk	31.4	-28.3	.6	-95.2	-52.37	-13	-39.37	V
High Channel, 822.75MHz										
1.63378	40.65	Pk	25	-30.5	.7	-95.2	-59.35	-13	-46.35	H
2.46928	48.47	Pk	28.9	-29.3	.5	-95.2	-46.63	-13	-33.63	H
3.31231	38.44	Pk	31.1	-28	.6	-95.2	-53.06	-13	-40.06	H
1.64485	41	Pk	25	-30.5	.7	-95.2	-59	-13	-46	V
2.46723	46.73	Pk	28.9	-29.4	.5	-95.2	-48.47	-13	-35.47	V
3.27288	39.25	Pk	31.3	-28.2	.7	-95.2	-52.15	-13	-39.15	V

Pk – Peak Detector

9.3.4. CDMA BC0

1xRTT MODE

Project #:	13179110
Date:	7/12/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	1xRTT 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										
1.64012	40.94	Pk	25	-30.5	.7	-95.2	-59.06	-13	-46.06	H
2.47499	53.23	Pk	29	-29.3	.5	-95.2	-41.77	-13	-28.77	H
3.28932	38.91	Pk	31.2	-28	.8	-95.2	-52.29	-13	-39.29	H
1.64828	41.22	Pk	24.9	-30.4	.8	-95.2	-58.68	-13	-45.68	V
2.47329	53.54	Pk	29	-29.3	.5	-95.2	-41.46	-13	-28.46	V
3.28435	40.34	Pk	31.3	-28.1	.8	-95.2	-50.86	-13	-37.86	V
Mid Channel, 836.52MHz										
1.64993	41.24	Pk	24.9	-30.4	.8	-95.2	-58.66	-13	-45.66	H
2.51027	46.47	Pk	29.1	-29.3	.7	-95.2	-48.23	-13	-35.23	H
3.28685	38.76	Pk	31.2	-28	.8	-95.2	-52.44	-13	-39.44	H
1.65763	40.03	Pk	25	-30.5	.8	-95.2	-59.87	-13	-46.87	V
2.51049	50.95	Pk	29.1	-29.3	.7	-95.2	-43.75	-13	-30.75	V
3.29422	38.72	Pk	31.2	-27.9	.8	-95.2	-52.38	-13	-39.38	V
High Channel, 848.31MHz										
1.69936	40.42	Pk	25.1	-30.4	.7	-95.2	-59.38	-13	-46.38	H
2.54423	48.98	Pk	29.2	-29.2	.7	-95.2	-45.52	-13	-32.52	H
3.28858	38.91	Pk	31.2	-28	.8	-95.2	-52.29	-13	-39.29	H
1.70573	40.57	Pk	25.1	-30.3	.6	-95.2	-59.23	-13	-46.23	V
2.54425	49.98	Pk	29.2	-29.2	.7	-95.2	-44.52	-13	-31.52	V
3.28285	38.82	Pk	31.3	-28.1	.8	-95.2	-52.38	-13	-39.38	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179110
Date:	7/15/2020
Test Engineer:	19206
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										
1.62851	40.98	Pk	25	-30.5	.7	-95.2	-59.02	-13	-46.02	H
2.47302	48.57	Pk	29	-29.3	.5	-95.2	-46.43	-13	-33.43	H
3.2602	39.71	Pk	31.3	-28.3	.5	-95.2	-51.99	-13	-38.99	H
1.63323	40.38	Pk	25	-30.5	.7	-95.2	-59.62	-13	-46.62	V
2.47531	52.29	Pk	29	-29.3	.5	-95.2	-42.71	-13	-29.71	V
3.25675	39.34	Pk	31.3	-28.3	.5	-95.2	-52.36	-13	-39.36	V
Mid Channel, 836.52MHz										
1.672	40.85	Pk	25	-30.4	.7	-95.2	-59.05	-13	-46.05	H
2.50855	45.64	Pk	29.1	-29.3	.7	-95.2	-49.06	-13	-36.06	H
3.34706	37.45	Pk	31	-28.2	.6	-95.2	-54.35	-13	-41.35	H
1.67354	42.34	Pk	25	-30.4	.7	-95.2	-57.56	-13	-44.56	V
2.51001	42.61	Pk	29.1	-29.3	.7	-95.2	-52.09	-13	-39.09	V
3.34567	37.35	Pk	30.9	-28.2	.6	-95.2	-54.55	-13	-41.55	V
High Channel, 848.31MHz										
1.6813	40.45	Pk	24.9	-30.4	.7	-95.2	-59.55	-13	-46.55	H
2.54572	46.73	Pk	29.2	-29.2	.7	-95.2	-47.77	-13	-34.77	H
3.31575	38.96	Pk	31.1	-28	.6	-95.2	-52.54	-13	-39.54	H
1.69714	42.79	Pk	25	-30.4	.7	-95.2	-57.11	-13	-44.11	V
2.54491	52.01	Pk	29.2	-29.2	.7	-95.2	-42.49	-13	-29.49	V
3.26194	38.6	Pk	31.4	-28.3	.5	-95.2	-53	-13	-40	V

Pk – Peak Detector

9.3.5. CDMA BC1

1xRTT MODE

Project #:	13179110
Date:	7/12/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	1xRTT BC1
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.81991	39.19	Pk	30.9	-27.4	1	-95.2	-51.51	-13	-38.51	H
5.5544	45.94	Pk	33.3	-25.8	1	-95.2	-40.76	-13	-27.76	H
7.14318	36.01	Pk	36.9	-22.8	1	-95.2	-44.09	-13	-31.09	H
3.87195	39.05	Pk	31.2	-27	1	-95.2	-50.95	-13	-37.95	V
5.55452	48.3	Pk	33.3	-25.8	1	-95.2	-38.4	-13	-25.4	V
7.27207	35.57	Pk	37.2	-23.2	1	-95.2	-44.63	-13	-31.63	V
Mid Channel, 1880MHz										
3.901	38.39	Pk	31.4	-26.7	1	-95.2	-51.11	-13	-38.11	H
5.64068	43.55	Pk	33.1	-24.8	1	-95.2	-42.35	-13	-29.35	H
7.78463	34.83	Pk	37.2	-21.9	1	-95.2	-44.07	-13	-31.07	H
3.91183	38.34	Pk	31.4	-26.8	1	-95.2	-51.26	-13	-38.26	V
5.63942	46.58	Pk	33.1	-24.8	1	-95.2	-39.32	-13	-26.32	V
7.74859	36.16	Pk	37.1	-21.7	1	-95.2	-42.64	-13	-29.64	V
High Channel, 1908.75MHz										
3.81829	40.39	Pk	30.9	-27.4	1	-95.2	-50.31	-13	-37.31	H
5.7255	42.16	Pk	33	-24.4	1	-95.2	-43.44	-13	-30.44	H
7.80272	34.86	Pk	37.2	-21.9	1	-95.2	-44.04	-13	-31.04	H
3.81779	40.22	Pk	30.9	-27.3	1	-95.2	-50.38	-13	-37.38	V
5.72556	45.88	Pk	33	-24.4	1	-95.2	-39.72	-13	-26.72	V
7.78035	34.33	Pk	37.2	-21.9	1	-95.2	-44.57	-13	-31.57	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179110
Date:	7/14/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC1
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.86252	38.81	Pk	31.3	-27.1	1	-95.2	-51.19	-13	-38.19	H
5.54629	37.81	Pk	33.2	-26	1	-95.2	-49.19	-13	-36.19	H
7.27539	35.71	Pk	37.1	-23.1	1	-95.2	-44.49	-13	-31.49	H
3.89775	38.33	Pk	31.4	-26.7	1	-95.2	-51.17	-13	-38.17	V
5.56249	37.63	Pk	33.2	-25.8	1	-95.2	-49.17	-13	-36.17	V
7.22063	35.53	Pk	37.1	-22.6	1	-95.2	-44.17	-13	-31.17	V
Mid Channel, 1880MHz										
3.89797	39.41	Pk	31.4	-26.7	1	-95.2	-50.09	-13	-37.09	H
5.88357	38.08	Pk	33.8	-25.4	1	-95.2	-47.72	-13	-34.72	H
7.75619	35.34	Pk	37.1	-21.7	1	-95.2	-43.46	-13	-30.46	H
3.86296	39.23	Pk	31.3	-27.1	1	-95.2	-50.77	-13	-37.77	V
5.92006	37.27	Pk	34.2	-25	1	-95.2	-47.73	-13	-34.73	V
7.79842	35.46	Pk	37.2	-21.8	1	-95.2	-43.34	-13	-30.34	V
High Channel, 1908.75MHz										
3.91877	38.75	Pk	31.5	-26.8	1	-95.2	-50.75	-13	-37.75	H
5.93866	36.87	Pk	34.3	-25	1	-95.2	-48.03	-13	-35.03	H
7.68899	35.77	Pk	37	-22.6	1	-95.2	-44.03	-13	-31.03	H
3.91227	38.09	Pk	31.5	-26.8	1	-95.2	-51.41	-13	-38.41	V
5.94222	37	Pk	34.3	-25	1	-95.2	-47.9	-13	-34.9	V
7.7723	34.79	Pk	37.2	-21.8	1	-95.2	-44.01	-13	-31.01	V

Pk – Peak Detector

9.3.6. WCDMA BAND 5

REL 99 MODE

Project #:	13179110
Date:	7/5/2020
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 5
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, 826.4MHz										
1.65128	40.9	Pk	24.9	-30.4	.8	-95.2	-59	-13	-46	H
2.47902	39.44	Pk	29	-29.3	.5	-95.2	-55.56	-13	-42.56	H
3.30656	38.18	Pk	31.1	-28	.7	-95.2	-53.22	-13	-40.22	H
1.65281	41.5	Pk	24.9	-30.4	.8	-95.2	-58.4	-13	-45.4	V
2.47966	38.81	Pk	29	-29.3	.5	-95.2	-56.19	-13	-43.19	V
3.30385	38.51	Pk	31.1	-27.9	.7	-95.2	-52.79	-13	-39.79	V
Mid Channel, 836.6MHz										
1.67411	41.77	Pk	25	-30.4	.7	-95.2	-58.13	-13	-45.13	H
2.51051	42.36	Pk	29.1	-29.3	.7	-95.2	-52.34	-13	-39.34	H
3.34801	37.5	Pk	31	-28.2	.6	-95.2	-54.3	-13	-41.3	H
1.67076	43.84	Pk	25	-30.4	.7	-95.2	-56.06	-13	-43.06	V
2.50827	40.46	Pk	29.1	-29.3	.7	-95.2	-54.24	-13	-41.24	V
3.34762	37.98	Pk	31	-28.2	.6	-95.2	-53.82	-13	-40.82	V
High Channel, 846.6MHz										
1.69502	43.93	Pk	25	-30.3	.7	-95.2	-55.87	-13	-42.87	H
2.54002	39.27	Pk	29.3	-29.3	.7	-95.2	-55.23	-13	-42.23	H
3.38589	39.42	Pk	30.8	-28.1	.6	-95.2	-52.48	-13	-39.48	H
1.695	47.9	Pk	25	-30.3	.7	-95.2	-51.9	-13	-38.9	V
2.53948	39.53	Pk	29.3	-29.3	.8	-95.2	-54.87	-13	-41.87	V
3.38454	38.37	Pk	30.9	-28.1	.6	-95.2	-53.43	-13	-40.43	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179110
Date:	7/5/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	HSDPA Band 5
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, 826.4MHz										
1.71716	40.33	Pk	25.2	-30.4	.6	-95.2	-59.47	-13	-46.47	H
2.51933	40.43	Pk	29.2	-29.3	.8	-95.2	-54.07	-13	-41.07	H
3.28006	38.75	Pk	31.4	-28.1	.8	-95.2	-52.35	-13	-39.35	H
1.69571	40.69	Pk	25	-30.3	.7	-95.2	-59.11	-13	-46.11	V
2.51419	39.62	Pk	29.2	-29.3	.7	-95.2	-54.98	-13	-41.98	V
3.29389	39.55	Pk	31.2	-27.9	.8	-95.2	-51.55	-13	-38.55	V
Mid Channel, 836.6MHz										
1.70456	40.35	Pk	25.2	-30.3	.6	-95.2	-59.35	-13	-46.35	H
2.51525	40.42	Pk	29.2	-29.3	.7	-95.2	-54.18	-13	-41.18	H
3.33836	38.65	Pk	31.1	-28.2	.6	-95.2	-53.05	-13	-40.05	H
1.7253	39.72	Pk	25.3	-30.3	.7	-95.2	-59.78	-13	-46.78	V
2.52072	39.4	Pk	29.2	-29.3	.8	-95.2	-55.1	-13	-42.1	V
3.40513	38.57	Pk	30.6	-28.2	.6	-95.2	-53.63	-13	-40.63	V
High Channel, 846.6MHz										
1.72713	39.49	Pk	25.3	-30.4	.7	-95.2	-60.11	-13	-47.11	H
2.51231	40.49	Pk	29.1	-29.3	.7	-95.2	-54.21	-13	-41.21	H
3.77175	38.91	Pk	30.7	-27.8	.5	-95.2	-52.89	-13	-39.89	H
1.73802	40.24	Pk	25.4	-30.4	.7	-95.2	-59.26	-13	-46.26	V
2.54015	38.53	Pk	29.3	-29.3	.7	-95.2	-55.97	-13	-42.97	V
3.7861	38.41	Pk	30.8	-27.8	.6	-95.2	-53.19	-13	-40.19	V

Pk – Peak Detector

9.3.7. WCDMA BAND 2

REL 99 MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	95258
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70467	39.29	Pk	30.3	-27.4	1	-95.2	-52.01	-13	-39.01	H
5.55605	38.11	Pk	33.2	-25.9	1	-95.2	-48.79	-13	-35.79	H
7.4092	35.41	Pk	36.8	-23.1	1	-95.2	-45.09	-13	-32.09	H
3.70398	41.12	Pk	30.3	-27.4	1	-95.2	-50.18	-13	-37.18	V
5.55591	38.16	Pk	33.2	-25.9	1	-95.2	-48.74	-13	-35.74	V
7.41049	35.85	Pk	36.8	-23.1	1	-95.2	-44.65	-13	-31.65	V
Mid Channel, 1880MHz										
3.75997	38.96	Pk	30.6	-27.5	1	-95.2	-52.14	-13	-39.14	H
5.63827	36.73	Pk	33.1	-24.8	1	-95.2	-49.17	-13	-36.17	H
7.51818	35.91	Pk	36.7	-23.1	1	-95.2	-44.69	-13	-31.69	H
3.75904	39.14	Pk	30.6	-27.5	1	-95.2	-51.96	-13	-38.96	V
5.63899	36.96	Pk	33.1	-24.8	1	-95.2	-48.94	-13	-35.94	V
7.52211	36.14	Pk	36.7	-23.1	1	-95.2	-44.46	-13	-31.46	V
High Channel, 1907.6MHz										
3.81398	39.24	Pk	31	-27.4	1	-95.2	-51.36	-13	-38.36	H
5.72245	35.98	Pk	33	-24.4	1	-95.2	-49.62	-13	-36.62	H
7.631	36.08	Pk	36.9	-23.5	1	-95.2	-44.72	-13	-31.72	H
3.81387	40.04	Pk	31	-27.4	1	-95.2	-50.56	-13	-37.56	V
5.72384	37.64	Pk	33	-24.4	1	-95.2	-47.96	-13	-34.96	V
7.63079	36	Pk	36.9	-23.5	1	-95.2	-44.8	-13	-31.8	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	19212
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70346	38.9	Pk	30.3	-27.4	1	-95.2	-52.4	-13	-39.4	H
5.55854	37.75	Pk	33.2	-25.9	1	-95.2	-49.15	-13	-36.15	H
7.41002	35.86	Pk	36.8	-23.1	1	-95.2	-44.64	-13	-31.64	H
3.70352	38.75	Pk	30.3	-27.4	1	-95.2	-52.55	-13	-39.55	V
5.55848	37.87	Pk	33.2	-25.9	1	-95.2	-49.03	-13	-36.03	V
7.40874	34.83	Pk	36.8	-23.1	1	-95.2	-45.67	-13	-32.67	V
Mid Channel, 1880MHz										
3.76213	39.12	Pk	30.7	-27.5	1	-95.2	-51.88	-13	-38.88	H
5.63984	36.45	Pk	33.1	-24.8	1	-95.2	-49.45	-13	-36.45	H
7.52118	35.62	Pk	36.7	-23.1	1	-95.2	-44.98	-13	-31.98	H
3.76105	39.63	Pk	30.7	-27.5	1	-95.2	-51.37	-13	-38.37	V
5.63944	37.05	Pk	33.1	-24.8	1	-95.2	-48.85	-13	-35.85	V
7.51968	35.68	Pk	36.7	-23.1	1	-95.2	-44.92	-13	-31.92	V
High Channel, 1907.6MHz										
3.73712	38.55	Pk	30.5	-27.4	1	-95.2	-52.55	-13	-39.55	H
5.9935	37.13	Pk	34.4	-24.8	1	-95.2	-47.47	-13	-34.47	H
7.85929	35.09	Pk	37.3	-22.5	1	-95.2	-44.31	-13	-31.31	H
3.76106	38.97	Pk	30.7	-27.5	1	-95.2	-52.03	-13	-39.03	V
5.95297	37.99	Pk	34.3	-24.9	1	-95.2	-46.81	-13	-33.81	V
7.78931	35.63	Pk	37.2	-21.9	1	-95.2	-43.27	-13	-30.27	V

Pk – Peak Detector

9.3.8. WCDMA BAND 4

REL 99 MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	45258
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.42659	39.1	Pk	30.5	-27.5	1	-95.2	-52.1	-13	-39.1	H
5.13896	37.12	Pk	33.8	-25.1	1	-95.2	-48.38	-13	-35.38	H
6.85184	35.73	Pk	36.1	-23.7	1	-95.2	-46.07	-13	-33.07	H
3.42567	38.84	Pk	30.5	-27.5	1	-95.2	-52.36	-13	-39.36	V
5.13569	37.48	Pk	33.9	-25	1	-95.2	-47.82	-13	-34.82	V
6.85154	35.93	Pk	36.1	-23.7	1	-95.2	-45.87	-13	-32.87	V
Mid Channel, 1732.6MHz										
3.46558	38.85	Pk	30.3	-27.3	1	-95.2	-52.35	-13	-39.35	H
5.19723	39.31	Pk	33.7	-25.9	1	-95.2	-47.09	-13	-34.09	H
6.93014	36.23	Pk	36.3	-23.4	1	-95.2	-45.07	-13	-32.07	H
3.46677	39.47	Pk	30.3	-27.3	1	-95.2	-51.73	-13	-38.73	V
5.19741	37.62	Pk	33.7	-25.9	1	-95.2	-48.78	-13	-35.78	V
6.92859	36.23	Pk	36.3	-23.4	1	-95.2	-45.07	-13	-32.07	V
High Channel, 1752.6MHz										
3.50337	39.18	Pk	30.2	-27.1	1	-95.2	-51.92	-13	-38.92	H
5.35718	37.25	Pk	33	-25.2	1	-95.2	-49.15	-13	-36.15	H
7.00906	36.13	Pk	36.6	-24.2	1	-95.2	-45.67	-13	-32.67	H
3.50672	38.99	Pk	30.3	-27.2	1	-95.2	-52.11	-13	-39.11	V
5.3572	37.27	Pk	33	-25.2	1	-95.2	-49.13	-13	-36.13	V
7.0099	36.25	Pk	36.6	-24.2	1	-95.2	-45.55	-13	-32.55	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	45258
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.5864	38.31	Pk	30.1	-27.5	1	-95.2	-53.29	-13	-40.29	H
5.05077	37.01	Pk	33.8	-24.7	1	-95.2	-48.09	-13	-35.09	H
7.331	35.92	Pk	37	-23.8	1	-95.2	-45.08	-13	-32.08	H
3.62774	39.16	Pk	30.1	-27.2	1	-95.2	-52.14	-13	-39.14	V
5.06604	36.94	Pk	33.8	-24.9	1	-95.2	-48.36	-13	-35.36	V
7.21972	35.83	Pk	37.1	-22.6	1	-95.2	-43.87	-13	-30.87	V
Mid Channel, 1732.6MHz										
3.40878	39.03	Pk	30.6	-27.6	1	-95.2	-52.17	-13	-39.17	H
4.97785	37.53	Pk	33.6	-25.8	1	-95.2	-48.87	-13	-35.87	H
7.24656	35.36	Pk	37.2	-23	1	-95.2	-44.64	-13	-31.64	H
3.38612	37.98	Pk	30.8	-27.3	1	-95.2	-52.72	-13	-39.72	V
5.05615	37.18	Pk	33.8	-24.8	1	-95.2	-48.02	-13	-35.02	V
7.21307	35.49	Pk	37.2	-22.6	1	-95.2	-44.11	-13	-31.11	V
High Channel, 1752.6MHz										
3.58222	39.19	Pk	30.1	-27.5	1	-95.2	-52.41	-13	-39.41	H
5.0968	37.44	Pk	33.9	-24.7	1	-95.2	-47.56	-13	-34.56	H
7.09816	36.34	Pk	36.6	-22.8	1	-95.2	-44.06	-13	-31.06	H
3.56717	39.59	Pk	30.2	-27.5	1	-95.2	-51.91	-13	-38.91	V
5.1215	37.2	Pk	33.9	-24.7	1	-95.2	-47.8	-13	-34.8	V
7.12184	35.63	Pk	36.8	-22.9	1	-95.2	-44.67	-13	-31.67	V

Pk – Peak Detector

9.4. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 3

9.4.1. GSM 1900

GPRS MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	GSM1900 GPRS
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.76734	37.68	Pk	30.8	-27.5	1	-95.2	-53.22	-13	-40.22	H
5.62453	36.17	Pk	33.2	-25	1	-95.2	-49.83	-13	-36.83	H
7.37391	34.32	Pk	36.8	-23.4	1	-95.2	-46.48	-13	-33.48	H
3.73406	37.65	Pk	30.5	-27.4	1	-95.2	-53.45	-13	-40.45	V
5.56266	36.37	Pk	33.2	-25.8	1	-95.2	-50.43	-13	-37.43	V
7.33031	36.28	Pk	37	-23.8	1	-95.2	-44.72	-13	-31.72	V
Mid Channel, 1880MHz										
3.62672	39.63	Pk	30.1	-27.2	1	-95.2	-51.67	-13	-38.67	H
5.04599	37.13	Pk	33.8	-24.9	1	-95.2	-48.17	-13	-35.17	H
6.92422	35.95	Pk	36.2	-23.4	1	-95.2	-45.45	-13	-32.45	H
3.62005	38.15	Pk	30.1	-27.1	1	-95.2	-53.05	-13	-40.05	V
5.05403	38.6	Pk	33.8	-24.8	1	-95.2	-46.6	-13	-33.6	V
6.91997	36.19	Pk	36.3	-23.3	1	-95.2	-45.01	-13	-32.01	V
High Channel, 1909.8MHz										
3.86072	39.6	Pk	31.3	-27.1	1	-95.2	-50.4	-13	-37.4	H
5.51736	37.74	Pk	33.2	-26.1	1	-95.2	-49.36	-13	-36.36	H
7.91937	35.07	Pk	37.3	-22.7	1	-95.2	-44.53	-13	-31.53	H
3.84052	38.69	Pk	31.1	-27.2	1	-95.2	-51.61	-13	-38.61	V
5.52753	37.58	Pk	33.2	-26	1	-95.2	-49.42	-13	-36.42	V
7.94755	35.71	Pk	37.2	-22.9	1	-95.2	-44.19	-13	-31.19	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	GSM1900 EGPRS
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.7312	39.6	Pk	30.5	-27.4	1	-95.2	-51.5	-13	-38.5	H
5.63815	36.83	Pk	33.1	-24.8	1	-95.2	-49.07	-13	-36.07	H
7.20937	36.23	Pk	37.1	-22.7	1	-95.2	-43.57	-13	-30.57	H
3.57016	38.91	Pk	30.1	-27.5	1	-95.2	-52.69	-13	-39.69	V
4.99879	38.1	Pk	33.6	-25.7	1	-95.2	-48.2	-13	-35.2	V
7.10322	36.7	Pk	36.7	-22.7	1	-95.2	-43.5	-13	-30.5	V
Mid Channel, 1880MHz										
3.69778	38.63	Pk	30.3	-27.3	1	-95.2	-52.57	-13	-39.57	H
5.73964	36.52	Pk	33.1	-24.5	1	-95.2	-49.08	-13	-36.08	H
7.25389	35.49	Pk	37.2	-23.1	1	-95.2	-44.61	-13	-31.61	H
3.73853	38.72	Pk	30.5	-27.4	1	-95.2	-52.38	-13	-39.38	V
5.91694	36.87	Pk	34.2	-25	1	-95.2	-48.13	-13	-35.13	V
6.86	35.92	Pk	36.2	-23.5	1	-95.2	-45.58	-13	-32.58	V
High Channel, 1909.8MHz										
3.91613	38.39	Pk	31.5	-26.8	1	-95.2	-51.11	-13	-38.11	H
5.74833	37.95	Pk	33	-24.5	1	-95.2	-47.75	-13	-34.75	H
7.77417	35.15	Pk	37.2	-21.8	1	-95.2	-43.65	-13	-30.65	H
3.89005	39.11	Pk	31.4	-26.8	1	-95.2	-50.49	-13	-37.49	V
5.67178	36.14	Pk	33	-24.4	1	-95.2	-49.46	-13	-36.46	V
7.74533	35.19	Pk	37.1	-21.6	1	-95.2	-43.51	-13	-30.51	V

Pk – Peak Detector

9.4.2. CDMA BC1

1xRTT MODE

Project #:	13179110
Date:	7/13/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	1xRTT BC1
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.70153	38.14	Pk	30.3	-27.3	1	-95.2	-53.06	-13	-40.06	H
5.55452	47.64	Pk	33.3	-25.8	1	-95.2	-39.06	-13	-26.06	H
7.81224	34.79	Pk	37.3	-22	1	-95.2	-44.11	-13	-31.11	H
3.74063	38.74	Pk	30.5	-27.5	1	-95.2	-52.46	-13	-39.46	V
5.55449	49.42	Pk	33.3	-25.8	1	-95.2	-37.28	-13	-24.28	V
7.79509	35.36	Pk	37.2	-21.9	1	-95.2	-43.54	-13	-30.54	V
Mid Channel, 1880MHz										
3.7578	38.79	Pk	30.6	-27.5	1	-95.2	-52.31	-13	-39.31	H
5.63919	47.03	Pk	33.1	-24.8	1	-95.2	-38.87	-13	-25.87	H
7.76709	34.52	Pk	37.2	-21.8	1	-95.2	-44.28	-13	-31.28	H
3.75884	38.89	Pk	30.6	-27.5	1	-95.2	-52.21	-13	-39.21	V
5.64053	44.9	Pk	33.1	-24.8	1	-95.2	-41	-13	-28	V
7.69292	35.52	Pk	37.1	-22.6	1	-95.2	-44.18	-13	-31.18	V
High Channel, 1908.75MHz										
3.92234	37.96	Pk	31.5	-26.8	1	-95.2	-51.54	-13	-38.54	H
5.72557	41.26	Pk	33	-24.4	1	-95.2	-44.34	-13	-31.34	H
7.74698	35.64	Pk	37.1	-21.6	1	-95.2	-43.06	-13	-30.06	H
3.92458	38.85	Pk	31.4	-26.7	1	-95.2	-50.65	-13	-37.65	V
5.72698	43.38	Pk	33	-24.4	1	-95.2	-42.22	-13	-29.22	V
7.77696	36.6	Pk	37.2	-21.9	1	-95.2	-42.3	-13	-29.3	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179110
Date:	7/13/2020
Test Engineer:	19410
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC1
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.92438	38.38	Pk	31.4	-26.7	1	-95.2	-51.12	-13	-38.12	H
5.65753	36.17	Pk	33.1	-24.6	1	-95.2	-49.53	-13	-36.53	H
7.31411	36.05	Pk	37	-23.7	1	-95.2	-44.85	-13	-31.85	H
3.90851	38.56	Pk	31.4	-26.8	1	-95.2	-51.04	-13	-38.04	V
5.61463	36.76	Pk	33.2	-25.2	1	-95.2	-49.44	-13	-36.44	V
7.21895	36.42	Pk	37.2	-22.6	1	-95.2	-43.18	-13	-30.18	V
Mid Channel, 1880MHz										
3.98066	38.05	Pk	31.6	-27	1	-95.2	-51.55	-13	-38.55	H
5.27066	37.28	Pk	33.4	-26.3	1	-95.2	-49.82	-13	-36.82	H
7.28307	36.79	Pk	37.1	-23.2	1	-95.2	-43.51	-13	-30.51	H
3.96372	38.38	Pk	31.6	-26.8	1	-95.2	-51.02	-13	-38.02	V
5.10669	37.02	Pk	34	-24.5	1	-95.2	-47.68	-13	-34.68	V
7.29494	35.97	Pk	37.1	-23.3	1	-95.2	-44.43	-13	-31.43	V
High Channel, 1908.75MHz										
3.81922	39.29	Pk	30.9	-27.4	1	-95.2	-51.41	-13	-38.41	H
5.7262	37.03	Pk	33	-24.4	1	-95.2	-48.57	-13	-35.57	H
7.63672	36.13	Pk	36.9	-23.6	1	-95.2	-44.77	-13	-31.77	H
3.81753	39.7	Pk	30.9	-27.3	1	-95.2	-50.9	-13	-37.9	V
5.7254	36.8	Pk	33	-24.4	1	-95.2	-48.8	-13	-35.8	V
7.634	36.24	Pk	36.9	-23.5	1	-95.2	-44.56	-13	-31.56	V

Pk – Peak Detector

9.4.3. WCDMA BAND 2

REL 99 MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.90433	39.25	Pk	31.4	-26.8	1	-95.2	-50.35	-13	-37.35	H
5.48262	37.65	Pk	32.9	-26.1	1	-95.2	-49.75	-13	-36.75	H
7.15822	36.03	Pk	37	-22.7	1	-95.2	-43.87	-13	-30.87	H
3.86896	38.87	Pk	31.2	-27.1	1	-95.2	-51.23	-13	-38.23	V
5.27255	37.27	Pk	33.4	-26.3	1	-95.2	-49.83	-13	-36.83	V
7.19911	35.92	Pk	37.1	-22.8	1	-95.2	-43.98	-13	-30.98	V
Mid Channel, 1880MHz										
3.56864	38.57	Pk	30.2	-27.5	1	-95.2	-52.93	-13	-39.93	H
5.73435	36.39	Pk	33.1	-24.5	1	-95.2	-49.21	-13	-36.21	H
7.74359	35.78	Pk	37.1	-21.6	1	-95.2	-42.92	-13	-29.92	H
3.57399	39.02	Pk	30.1	-27.5	1	-95.2	-52.58	-13	-39.58	V
5.57978	36.82	Pk	33.2	-25.5	1	-95.2	-49.68	-13	-36.68	V
7.73502	35.68	Pk	37.2	-21.7	1	-95.2	-43.02	-13	-30.02	V
High Channel, 1907.6MHz										
3.86594	38.25	Pk	31.2	-27.2	1	-95.2	-51.95	-13	-38.95	H
5.83247	37.48	Pk	33.5	-25.5	1	-95.2	-48.72	-13	-35.72	H
7.79433	35.65	Pk	37.2	-21.9	1	-95.2	-43.25	-13	-30.25	H
3.85108	38.81	Pk	31.1	-27.1	1	-95.2	-51.39	-13	-38.39	V
5.89451	37.84	Pk	34	-25.3	1	-95.2	-47.66	-13	-34.66	V
7.7999	35.32	Pk	37.2	-21.9	1	-95.2	-43.58	-13	-30.58	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179110
Date:	7/8/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.68011	38.81	Pk	30.2	-27.1	1	-95.2	-52.29	-13	-39.29	H
5.4335	37.04	Pk	32.8	-25.8	1	-95.2	-50.16	-13	-37.16	H
7.26358	36.2	Pk	37.1	-23.1	1	-95.2	-44	-13	-31	H
3.62538	38.46	Pk	30.1	-27.2	1	-95.2	-52.84	-13	-39.84	V
5.53101	37.76	Pk	33.2	-26.1	1	-95.2	-49.34	-13	-36.34	V
7.29331	35.72	Pk	37.1	-23.3	1	-95.2	-44.68	-13	-31.68	V
Mid Channel, 1880MHz										
3.76506	39.47	Pk	30.7	-27.5	1	-95.2	-51.53	-13	-38.53	H
5.69671	36.36	Pk	33	-24.1	1	-95.2	-48.94	-13	-35.94	H
7.67224	36.09	Pk	37	-23	1	-95.2	-44.11	-13	-31.11	H
3.70451	38.69	Pk	30.3	-27.4	1	-95.2	-52.61	-13	-39.61	V
5.69105	36.18	Pk	33.1	-24.1	1	-95.2	-49.02	-13	-36.02	V
7.74846	35.25	Pk	37.1	-21.7	1	-95.2	-43.55	-13	-30.55	V
High Channel, 1907.6MHz										
3.85464	39.77	Pk	31.1	-27.1	1	-95.2	-50.43	-13	-37.43	H
5.75829	36.45	Pk	33.1	-24.7	1	-95.2	-49.35	-13	-36.35	H
7.75137	34.9	Pk	37.1	-21.6	1	-95.2	-43.8	-13	-30.8	H
3.85783	38.57	Pk	31.3	-27.2	1	-95.2	-51.53	-13	-38.53	V
5.79683	37.88	Pk	33.3	-25.4	1	-95.2	-48.42	-13	-35.42	V
7.71623	35.26	Pk	37.1	-22.2	1	-95.2	-44.04	-13	-31.04	V

Pk – Peak Detector

9.4.4. WCDMA BAND 4

REL 99 MODE

Project #:	13179110
Date:	7/8/20
Test Engineer:	19206
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.29648	39.37	Pk	31.2	-27.6	1	-95.2	-51.23	-13	-38.23	H
5.06441	37.88	Pk	33.9	-24.9	1	-95.2	-47.32	-13	-34.32	H
7.16353	36.12	Pk	36.9	-22.7	1	-95.2	-43.88	-13	-30.88	H
3.2641	38.98	Pk	31.4	-27.6	1	-95.2	-51.42	-13	-38.42	V
5.06756	37.64	Pk	33.8	-24.9	1	-95.2	-47.66	-13	-34.66	V
7.27385	36.1	Pk	37.1	-23.2	1	-95.2	-44.2	-13	-31.2	V
Mid Channel, 1732.6MHz										
3.66257	38.8	Pk	30.1	-27.1	1	-95.2	-52.4	-13	-39.4	H
5.04027	37.64	Pk	33.7	-25	1	-95.2	-47.86	-13	-34.86	H
7.14788	35.88	Pk	36.8	-22.8	1	-95.2	-44.32	-13	-31.32	H
3.6738	38.8	Pk	30.2	-27.1	1	-95.2	-52.3	-13	-39.3	V
5.10467	37.22	Pk	34	-24.6	1	-95.2	-47.58	-13	-34.58	V
7.20865	35.76	Pk	37.1	-22.7	1	-95.2	-44.04	-13	-31.04	V
High Channel, 1752.6MHz										
3.56655	38.96	Pk	30.1	-27.5	1	-95.2	-52.64	-13	-39.64	H
5.05955	37.69	Pk	33.8	-24.7	1	-95.2	-47.41	-13	-34.41	H
7.1612	36.07	Pk	36.9	-22.7	1	-95.2	-43.93	-13	-30.93	H
3.61021	38.7	Pk	30	-27.1	1	-95.2	-52.6	-13	-39.6	V
5.0567	37.35	Pk	33.8	-24.8	1	-95.2	-47.85	-13	-34.85	V
7.15293	36.34	Pk	36.8	-22.7	1	-95.2	-43.76	-13	-30.76	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179110
Date:	7/8/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.35947	38.58	Pk	30.9	-27.5	1	-95.2	-52.22	-13	-39.22	H
5.0435	37.93	Pk	33.7	-24.9	1	-95.2	-47.47	-13	-34.47	H
7.14717	37.29	Pk	36.8	-22.8	1	-95.2	-42.91	-13	-29.91	H
3.30006	38.83	Pk	31.1	-27.7	1	-95.2	-51.97	-13	-38.97	V
5.11583	36.74	Pk	33.9	-24.6	1	-95.2	-48.16	-13	-35.16	V
7.2779	35.84	Pk	37.1	-23.1	1	-95.2	-44.36	-13	-31.36	V
Mid Channel, 1732.6MHz										
3.60227	38.49	Pk	30.1	-27.3	1	-95.2	-52.91	-13	-39.91	H
5.10445	37.49	Pk	34	-24.6	1	-95.2	-47.31	-13	-34.31	H
7.23126	35.78	Pk	37.2	-22.7	1	-95.2	-43.92	-13	-30.92	H
3.63705	38.37	Pk	30.1	-27.3	1	-95.2	-53.03	-13	-40.03	V
5.07212	37.66	Pk	33.8	-24.9	1	-95.2	-47.64	-13	-34.64	V
7.22538	35.19	Pk	37.1	-22.6	1	-95.2	-44.51	-13	-31.51	V
High Channel, 1752.6MHz										
3.66622	38.5	Pk	30.1	-27.1	1	-95.2	-52.7	-13	-39.7	H
5.22393	37.95	Pk	33.5	-26.3	1	-95.2	-49.05	-13	-36.05	H
7.27513	35.96	Pk	37.1	-23.1	1	-95.2	-44.24	-13	-31.24	H
3.69989	38.79	Pk	30.3	-27.3	1	-95.2	-52.41	-13	-39.41	V
5.18725	38.46	Pk	33.6	-25.7	1	-95.2	-47.84	-13	-34.84	V
7.20656	35.92	Pk	37	-22.7	1	-95.2	-43.98	-13	-30.98	V

Pk – Peak Detector

9.5. FIELD STRENGTH OF SPURIOUS RADIATION, ANT 4

9.5.1. GSM 1900

GPRS MODE

Project #:	13179100
Date:	6/30/2020
Test Engineer:	50822
Configuration:	EUT Only
Mode:	GPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.74816	39.42	Pk	30.6	-27.5	1	-95.2	-51.68	-13	-38.68	H
5.6839	36.72	Pk	33.1	-24.2	1	-95.2	-48.58	-13	-35.58	H
7.28987	36.36	Pk	37.2	-23.3	1	-95.2	-43.94	-13	-30.94	H
3.7398	39.67	Pk	30.5	-27.5	1	-95.2	-51.53	-13	-38.53	V
5.10911	37.42	Pk	33.9	-24.6	1	-95.2	-47.48	-13	-34.48	V
6.9199	35.86	Pk	36.3	-23.3	1	-95.2	-45.34	-13	-32.34	V
Mid Channel, 1880MHz										
3.72365	38.25	Pk	30.4	-27.4	1	-95.2	-52.95	-13	-39.95	H
5.67444	36.58	Pk	33	-24.3	1	-95.2	-48.92	-13	-35.92	H
7.56879	35.59	Pk	36.9	-23.3	1	-95.2	-45.01	-13	-32.01	H
3.69104	39.08	Pk	30.3	-27.2	1	-95.2	-52.02	-13	-39.02	V
5.5159	37.6	Pk	33.2	-26.1	1	-95.2	-49.5	-13	-36.5	V
7.7276	35.37	Pk	37.1	-21.8	1	-95.2	-43.53	-13	-30.53	V
High Channel, 1909.8MHz										
3.76667	39.1	Pk	30.8	-27.5	1	-95.2	-51.8	-13	-38.8	H
5.83297	37.86	Pk	33.5	-25.5	1	-95.2	-48.34	-13	-35.34	H
7.27259	36.44	Pk	37.2	-23.2	1	-95.2	-43.76	-13	-30.76	H
3.86115	38.5	Pk	31.3	-27.1	1	-95.2	-51.5	-13	-38.5	V
5.63202	36.49	Pk	33.1	-24.9	1	-95.2	-49.51	-13	-36.51	V
7.16121	36.39	Pk	36.9	-22.7	1	-95.2	-43.61	-13	-30.61	V

Pk – Peak Detector

EGPRS MODE

Project #:	13179110
Date:	6/30/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	EGPRS 1900
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1850.2MHz										
3.8654	38.66	Pk	31.2	-27.1	1	-95.2	-51.44	-13	-38.44	H
5.52196	38.2	Pk	33.2	-26.1	1	-95.2	-48.9	-13	-35.9	H
7.23398	35.44	Pk	37.2	-22.7	1	-95.2	-44.26	-13	-31.26	H
3.90692	38.42	Pk	31.4	-26.8	1	-95.2	-51.18	-13	-38.18	V
5.51815	38.24	Pk	33.2	-26	1	-95.2	-48.76	-13	-35.76	V
7.28445	36.31	Pk	37.1	-23.2	1	-95.2	-43.99	-13	-30.99	V
Mid Channel, 1880MHz										
3.85192	38.91	Pk	31.1	-27.1	1	-95.2	-51.29	-13	-38.29	H
5.80884	37.67	Pk	33.4	-25.4	1	-95.2	-48.53	-13	-35.53	H
7.19705	35.75	Pk	37.1	-22.8	1	-95.2	-44.15	-13	-31.15	H
3.87464	38.67	Pk	31.3	-27.1	1	-95.2	-51.33	-13	-38.33	V
5.83042	37.53	Pk	33.5	-25.6	1	-95.2	-48.77	-13	-35.77	V
7.14725	36.64	Pk	36.8	-22.8	1	-95.2	-43.56	-13	-30.56	V
High Channel, 1909.8MHz										
3.97386	38.76	Pk	31.5	-26.9	1	-95.2	-50.84	-13	-37.84	H
5.68964	36.78	Pk	33.1	-24.1	1	-95.2	-48.42	-13	-35.42	H
7.73825	36.43	Pk	37.1	-21.6	1	-95.2	-42.27	-13	-29.27	H
3.89645	38.77	Pk	31.4	-26.8	1	-95.2	-50.83	-13	-37.83	V
5.68627	36.39	Pk	33.1	-24.2	1	-95.2	-48.91	-13	-35.91	V
7.74117	36.05	Pk	37.1	-21.6	1	-95.2	-42.65	-13	-29.65	V

Pk – Peak Detector

9.5.2. CDMA BC1

1xRTT MODE

Project #:	13179110
Date:	7/15/2020
Test Engineer:	19410
Configuration:	EUT Only
Mode:	1xRTT BC1
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.70274	40.98	Pk	30.3	-27.4	1	-95.2	-50.32	-13	-37.32	H
5.55246	37.54	Pk	33.3	-25.9	1	-95.2	-49.26	-13	-36.26	H
7.40302	35.12	Pk	36.9	-23.1	1	-95.2	-45.28	-13	-32.28	H
3.70243	38.45	Pk	30.3	-27.4	1	-95.2	-52.85	-13	-39.85	V
5.55402	37.39	Pk	33.3	-25.8	1	-95.2	-49.31	-13	-36.31	V
7.40364	35.12	Pk	36.9	-23.1	1	-95.2	-45.28	-13	-32.28	V
Mid Channel, 1880MHz										
3.76061	42.96	Pk	30.7	-27.5	1	-95.2	-48.04	-13	-35.04	H
5.63979	37.91	Pk	33.1	-24.8	1	-95.2	-47.99	-13	-34.99	H
7.51889	35.98	Pk	36.7	-23.1	1	-95.2	-44.62	-13	-31.62	H
3.76135	39.9	Pk	30.7	-27.5	1	-95.2	-51.1	-13	-38.1	V
5.64002	37.59	Pk	33.1	-24.8	1	-95.2	-48.31	-13	-35.31	V
7.52201	35.37	Pk	36.7	-23.1	1	-95.2	-45.23	-13	-32.23	V
High Channel, 1908.75MHz										
3.81716	42.87	Pk	31	-27.3	1	-95.2	-47.63	-13	-34.63	H
5.7275	36.94	Pk	33	-24.4	1	-95.2	-48.66	-13	-35.66	H
7.63386	35.95	Pk	36.9	-23.5	1	-95.2	-44.85	-13	-31.85	H
3.81781	41.47	Pk	30.9	-27.3	1	-95.2	-49.13	-13	-36.13	V
5.72697	36.53	Pk	33	-24.4	1	-95.2	-49.07	-13	-36.07	V
7.63447	35.88	Pk	36.9	-23.6	1	-95.2	-45.02	-13	-32.02	V

Pk – Peak Detector

1xEV-DO REV A MODE

Project #:	13179110
Date:	7/13/2020
Test Engineer:	19410
Configuration:	EUT Only
Mode:	1xEV-DO REV A BC1
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1851.25MHz										
3.70198	39.32	Pk	30.3	-27.3	1	-95.2	-51.88	-13	-38.88	H
5.55305	38.94	Pk	33.3	-25.9	1	-95.2	-47.86	-13	-34.86	H
7.4038	35.23	Pk	36.9	-23.1	1	-95.2	-45.17	-13	-32.17	H
3.70375	38.59	Pk	30.3	-27.4	1	-95.2	-52.71	-13	-39.71	V
5.55331	42.39	Pk	33.3	-25.9	1	-95.2	-44.41	-13	-31.41	V
7.4038	35.15	Pk	36.9	-23.1	1	-95.2	-45.25	-13	-32.25	V
Mid Channel, 1880MHz										
3.76115	39.1	Pk	30.7	-27.5	1	-95.2	-51.9	-13	-38.9	H
5.6388	37.43	Pk	33.1	-24.8	1	-95.2	-48.47	-13	-35.47	H
7.52048	35.92	Pk	36.7	-23.1	1	-95.2	-44.68	-13	-31.68	H
3.75987	39.04	Pk	30.6	-27.5	1	-95.2	-52.06	-13	-39.06	V
5.64125	37.02	Pk	33.1	-24.8	1	-95.2	-48.88	-13	-35.88	V
7.51925	35.32	Pk	36.7	-23.1	1	-95.2	-45.28	-13	-32.28	V
High Channel, 1908.75MHz										
3.81637	38.98	Pk	31	-27.3	1	-95.2	-51.52	-13	-38.52	H
5.72604	36.17	Pk	33	-24.4	1	-95.2	-49.43	-13	-36.43	H
7.63404	35.95	Pk	36.9	-23.5	1	-95.2	-44.85	-13	-31.85	H
3.817	38.6	Pk	31	-27.3	1	-95.2	-51.9	-13	-38.9	V
5.72835	36.71	Pk	33	-24.5	1	-95.2	-48.99	-13	-35.99	V
7.63444	35.66	Pk	36.9	-23.6	1	-95.2	-45.24	-13	-32.24	V

Pk – Peak Detector

9.5.3. WCDMA BAND 2

REL 99 MODE

Project #:	13179110
Date:	6/30/2020
Test Engineer:	19410
Configuration:	EUT Only
Mode:	REL 99 Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.70605	38.31	Pk	30.3	-27.4	1	-95.2	-52.99	-13	-39.99	H
5.55534	37.91	Pk	33.3	-25.8	1	-95.2	-48.79	-13	-35.79	H
7.4091	35.28	Pk	36.8	-23.1	1	-95.2	-45.22	-13	-32.22	H
3.70592	38.88	Pk	30.3	-27.4	1	-95.2	-52.42	-13	-39.42	V
5.55557	37.78	Pk	33.3	-25.8	1	-95.2	-48.92	-13	-35.92	V
7.40904	35.23	Pk	36.8	-23.1	1	-95.2	-45.27	-13	-32.27	V
Mid Channel, 1880MHz										
3.76164	38.26	Pk	30.7	-27.5	1	-95.2	-52.74	-13	-39.74	H
5.63927	37.17	Pk	33.1	-24.8	1	-95.2	-48.73	-13	-35.73	H
7.51931	34.87	Pk	36.7	-23.1	1	-95.2	-45.73	-13	-32.73	H
3.76204	39.19	Pk	30.7	-27.5	1	-95.2	-51.81	-13	-38.81	V
5.6412	37.32	Pk	33.1	-24.8	1	-95.2	-48.58	-13	-35.58	V
7.51928	34.81	Pk	36.7	-23.1	1	-95.2	-45.79	-13	-32.79	V
High Channel, 1907.6MHz										
3.81664	39.35	Pk	31	-27.3	1	-95.2	-51.15	-13	-38.15	H
5.72314	35.81	Pk	33	-24.4	1	-95.2	-49.79	-13	-36.79	H
7.62935	36.67	Pk	36.9	-23.5	1	-95.2	-44.13	-13	-31.13	H
3.81466	40.09	Pk	31	-27.4	1	-95.2	-50.51	-13	-37.51	V
5.7226	36.99	Pk	33	-24.4	1	-95.2	-48.61	-13	-35.61	V
7.62892	36.72	Pk	36.9	-23.5	1	-95.2	-44.08	-13	-31.08	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179110
Date:	7/7/2020
Test Engineer:	19206
Configuration:	EUT Only
Mode:	HSDPA Band 2
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1852.4MHz										
3.91545	38.74	Pk	31.5	-26.8	1	-95.2	-50.76	-13	-37.76	H
5.54251	37.31	Pk	33.2	-26.1	1	-95.2	-49.79	-13	-36.79	H
7.37547	35.85	Pk	36.8	-23.4	1	-95.2	-44.95	-13	-31.95	H
3.91949	38.81	Pk	31.5	-26.8	1	-95.2	-50.69	-13	-37.69	V
5.55805	37.86	Pk	33.2	-25.9	1	-95.2	-49.04	-13	-36.04	V
7.39998	36.17	Pk	36.9	-23.1	1	-95.2	-44.23	-13	-31.23	V
Mid Channel, 1880MHz										
3.81931	39.12	Pk	30.9	-27.4	1	-95.2	-51.58	-13	-38.58	H
5.74642	36.37	Pk	33.1	-24.6	1	-95.2	-49.33	-13	-36.33	H
7.24987	35.65	Pk	37.2	-23	1	-95.2	-44.35	-13	-31.35	H
3.79846	39.14	Pk	30.9	-27.3	1	-95.2	-51.46	-13	-38.46	V
5.69974	35.76	Pk	33.1	-24.1	1	-95.2	-49.44	-13	-36.44	V
7.20955	36.37	Pk	37.1	-22.7	1	-95.2	-43.43	-13	-30.43	V
High Channel, 1907.6MHz										
3.91521	38.43	Pk	31.5	-26.8	1	-95.2	-51.07	-13	-38.07	H
5.95155	36.7	Pk	34.3	-24.9	1	-95.2	-48.1	-13	-35.1	H
7.69475	35.83	Pk	37.1	-22.6	1	-95.2	-43.87	-13	-30.87	H
3.93934	38.89	Pk	31.5	-26.7	1	-95.2	-50.51	-13	-37.51	V
5.97052	36.77	Pk	34.4	-24.7	1	-95.2	-47.73	-13	-34.73	V
7.74139	35.06	Pk	37.1	-21.6	1	-95.2	-43.64	-13	-30.64	V

Pk – Peak Detector

9.5.4. WCDMA BAND 4

REL 99 MODE

Project #:	13179110
Date:	8/24/2020
Test Engineer:	19410
Configuration:	EUT Only
Mode:	REL 99 Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (dB/m)	Amp/Cbl (dB)	HPF 2.7GHz T772 1-18GHz	EIRP CF	Corrected Reading (dBm)	Limit	Margin (dB)	Polarity
Low Channel, 1712.4MHz										
3.42598	38.36	Pk	30.5	-27.5	1	-95.2	-52.84	-13	-39.84	H
5.13609	37.37	Pk	33.9	-25	1	-95.2	-47.93	-13	-34.93	H
6.85084	36.26	Pk	36.1	-23.7	1	-95.2	-45.54	-13	-32.54	H
3.42602	38.06	Pk	30.5	-27.5	1	-95.2	-53.14	-13	-40.14	V
5.13598	38.05	Pk	33.9	-25	1	-95.2	-47.25	-13	-34.25	V
6.84923	36.05	Pk	36.1	-23.7	1	-95.2	-45.75	-13	-32.75	V
Mid Channel, 1732.6MHz										
3.5653	39.17	Pk	30.1	-27.5	1	-95.2	-52.43	-13	-39.43	H
5.19744	38.33	Pk	33.7	-25.9	1	-95.2	-48.07	-13	-35.07	H
6.92855	36.02	Pk	36.3	-23.4	1	-95.2	-45.28	-13	-32.28	H
3.56639	39.52	Pk	30.1	-27.5	1	-95.2	-52.08	-13	-39.08	V
5.19719	37.73	Pk	33.7	-25.9	1	-95.2	-48.67	-13	-35.67	V
6.92952	36.45	Pk	36.3	-23.4	1	-95.2	-44.85	-13	-31.85	V
High Channel, 1752.6MHz										
3.50449	39.04	Pk	30.2	-27.1	1	-95.2	-52.06	-13	-39.06	H
5.25809	38.64	Pk	33.4	-26.2	1	-95.2	-48.36	-13	-35.36	H
7.01251	36.05	Pk	36.5	-24.1	1	-95.2	-45.75	-13	-32.75	H
3.50603	39.28	Pk	30.3	-27.1	1	-95.2	-51.72	-13	-38.72	V
5.25641	38.69	Pk	33.5	-26.3	1	-95.2	-48.31	-13	-35.31	V
7.0122	37.29	Pk	36.5	-24.1	1	-95.2	-44.51	-13	-31.51	V

Pk – Peak Detector

HSDPA MODE

Project #:	13179110
Date:	7/6/2020
Test Engineer:	19410
Configuration:	EUT Only
Mode:	HSDPA Band 4
Chamber #:	Chamber B

Frequency (GHz)	Meter Reading (dBuV)	Det	AF T962 (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	38.32	Pk	30.5	-27.5	1	-95.2	-52.88	-13	-39.88	H
5.13881	37.29	Pk	33.8	-25.1	1	-95.2	-48.21	-13	-35.21	H
6.84817	36.11	Pk	36.1	-23.8	1	-95.2	-45.79	-13	-32.79	H
3.42578	38.21	Pk	30.5	-27.5	1	-95.2	-52.99	-13	-39.99	V
5.13516	36.67	Pk	33.8	-25	1	-95.2	-48.73	-13	-35.73	V
6.84855	36.19	Pk	36.1	-23.8	1	-95.2	-45.71	-13	-32.71	V
Mid Channel, 1732.6MHz										
3.46591	38.86	Pk	30.3	-27.3	1	-95.2	-52.34	-13	-39.34	H
5.19954	37.46	Pk	33.7	-26	1	-95.2	-49.04	-13	-36.04	H
6.93221	35.39	Pk	36.3	-23.4	1	-95.2	-45.91	-13	-32.91	H
3.46418	39.53	Pk	30.3	-27.3	1	-95.2	-51.67	-13	-38.67	V
5.19883	38.11	Pk	33.7	-26	1	-95.2	-48.39	-13	-35.39	V
6.92932	35.75	Pk	36.3	-23.4	1	-95.2	-45.55	-13	-32.55	V
High Channel, 1752.6MHz										
3.50383	38.4	Pk	30.2	-27.1	1	-95.2	-52.7	-13	-39.7	H
5.26063	38.25	Pk	33.4	-26.3	1	-95.2	-48.85	-13	-35.85	H
7.01149	37.22	Pk	36.5	-24.1	1	-95.2	-44.58	-13	-31.58	H
3.50475	51.65	Pk	30.2	-27.1	1	-95.2	-39.45	-13	-26.45	V
5.26285	37.51	Pk	33.4	-26.4	1	-95.2	-49.69	-13	-36.69	V
7.01091	37.27	Pk	36.5	-24.1	1	-95.2	-44.53	-13	-31.53	V

Pk – Peak Detector

10. SETUP PHOTOS

Please refer to 13179110-EP1V1 for setup photos.

END OF TEST REPORT