

least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

MODES TESTED

- GPRS/EGPRS
- UMTS, REL 99 and HSDPA
- CDMA2000, 1xRTT and EVDO Rev A

RESULTS

10.7.1. GSM

GPRS, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20164
 Date: 05/09/15
 Test Engineer: F. Guarnero
 Configuration: EUT Only
 Mode: GPRS 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber E

3m Chamber E

Filter

ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.2MHz)										
1.65	-48.7	H	3.0	-6.2	37.8	1.0	-43.1	-13.0	-30.1	
2.47	-50.6	H	3.0	-5.6	38.5	1.0	-43.1	-13.0	-30.1	
3.30	-66.7	H	3.0	-17.8	38.5	1.0	-55.2	-13.0	-42.2	
1.65	-47.4	V	3.0	-5.3	37.8	1.0	-42.2	-13.0	-29.2	
2.47	-53.2	V	3.0	-8.0	38.5	1.0	-45.5	-13.0	-32.5	
3.30	-66.8	V	3.0	-18.2	38.5	1.0	-55.6	-13.0	-42.6	
Mid Channel (836.6MHz)										
1.67	-48.9	H	3.0	-6.4	37.8	1.0	-43.2	-13.0	-30.2	
2.51	-49.7	H	3.0	-4.5	38.6	1.0	-42.1	-13.0	-29.1	
3.35	-66.4	H	3.0	-17.4	38.5	1.0	-54.9	-13.0	-41.9	
1.67	-45.4	V	3.0	-3.1	37.8	1.0	-40.0	-13.0	-27.0	
2.51	-50.2	V	3.0	-4.8	38.6	1.0	-42.4	-13.0	-29.4	
3.35	-66.8	V	3.0	-18.0	38.5	1.0	-55.5	-13.0	-42.5	
High Channel (848.8MHz)										
1.70	-48.4	H	3.0	-5.8	37.9	1.0	-42.6	-13.0	-29.6	
2.55	-50.3	H	3.0	-4.9	38.6	1.0	-42.5	-13.0	-29.5	
3.40	-67.0	H	3.0	-17.8	38.5	1.0	-55.3	-13.0	-42.3	
1.70	-47.8	V	3.0	-5.4	37.9	1.0	-42.3	-13.0	-29.3	
2.55	-52.3	V	3.0	-6.7	38.6	1.0	-44.3	-13.0	-31.3	
3.40	-66.0	V	3.0	-17.0	38.5	1.0	-54.5	-13.0	-41.5	

Rev. 03.19.15

EGPRS, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/09/15
Test Engineer: F. Guamero
Configuration: EUT Only
Mode: EGPRS 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber E

3m Chamber E

Filter

ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.2MHz)										
1.65	-49.9	H	3.0	-7.4	37.8	1.0	-44.3	-13.0	-31.3	
2.47	-53.0	H	3.0	-8.0	38.5	1.0	-45.5	-13.0	-32.5	
3.30	-66.5	H	3.0	-17.6	38.5	1.0	-55.1	-13.0	-42.1	
1.65	-43.2	V	3.0	-1.1	37.8	1.0	-37.9	-13.0	-24.9	
2.47	-51.6	V	3.0	-6.4	38.5	1.0	-43.9	-13.0	-30.9	
3.30	-66.5	V	3.0	-17.8	38.5	1.0	-55.3	-13.0	-42.3	
Mid Channel (836.6MHz)										
1.67	-49.7	H	3.0	-7.2	37.8	1.0	-44.0	-13.0	-31.0	
2.51	-50.7	H	3.0	-5.5	38.6	1.0	-43.1	-13.0	-30.1	
3.35	-66.9	H	3.0	-17.8	38.5	1.0	-55.3	-13.0	-42.3	
1.67	-49.0	V	3.0	-6.8	37.8	1.0	-43.6	-13.0	-30.6	
2.51	-50.8	V	3.0	-5.4	38.6	1.0	-43.0	-13.0	-30.0	
3.35	-66.8	V	3.0	-18.0	38.5	1.0	-55.5	-13.0	-42.5	
High Channel (848.8MHz)										
1.70	-50.7	H	3.0	-8.1	37.9	1.0	-45.0	-13.0	-32.0	
2.55	-51.2	H	3.0	-5.8	38.6	1.0	-43.3	-13.0	-30.3	
3.40	-67.2	H	3.0	-18.0	38.5	1.0	-55.5	-13.0	-42.5	
1.70	-50.1	V	3.0	-7.7	37.9	1.0	-44.5	-13.0	-31.5	
2.55	-49.4	V	3.0	-3.9	38.6	1.0	-41.4	-13.0	-28.4	
3.40	-66.7	V	3.0	-17.7	38.5	1.0	-55.2	-13.0	-42.2	

Rev. 03.19.15

GPRS, 1900MHz BAND 2

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/09/15
Test Engineer: F. Guarnero
Configuration: EUT Only
Mode: GPRS 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1850.2MHz)										
3.70	-65.7	H	3.0	-15.7	38.6	1.0	-53.3	-13.0	-40.3	
5.55	-67.0	H	3.0	-12.9	38.6	1.0	-50.5	-13.0	-37.5	
7.40	-68.6	H	3.0	-11.0	37.8	1.0	-47.8	-13.0	-34.8	
3.70	-66.6	V	3.0	-16.7	38.6	1.0	-54.4	-13.0	-41.4	
5.55	-67.2	V	3.0	-13.5	38.6	1.0	-51.0	-13.0	-38.0	
7.40	-67.7	V	3.0	-10.2	37.8	1.0	-47.0	-13.0	-34.0	
Mid Channel (1880.0)										
3.76	-66.2	H	3.0	-16.0	38.6	1.0	-53.7	-13.0	-40.7	
5.64	-68.3	H	3.0	-14.1	38.5	1.0	-51.6	-13.0	-38.6	
7.52	-69.2	H	3.0	-11.4	37.7	1.0	-48.2	-13.0	-35.2	
3.76	-66.0	V	3.0	-15.9	38.6	1.0	-53.6	-13.0	-40.6	
5.64	-68.6	V	3.0	-14.6	38.5	1.0	-52.2	-13.0	-39.2	
7.52	-68.8	V	3.0	-11.2	37.7	1.0	-47.9	-13.0	-34.9	
High Channel (1909.8MHz)										
3.82	-65.9	H	3.0	-15.7	38.7	1.0	-53.3	-13.0	-40.3	
5.73	-66.8	H	3.0	-12.4	38.5	1.0	-49.9	-13.0	-36.9	
7.64	-68.9	H	3.0	-10.9	37.7	1.0	-47.6	-13.0	-34.6	
3.82	-65.9	V	3.0	-15.7	38.7	1.0	-53.3	-13.0	-40.3	
5.73	-66.4	V	3.0	-12.2	38.5	1.0	-49.7	-13.0	-36.7	
7.64	-70.1	V	3.0	-12.3	37.7	1.0	-49.0	-13.0	-36.0	

Rev. 03.19.15

EGPRS, 1900MHz BAND 2

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/09/15
Test Engineer: F. Guarnero
Configuration: EUT Only
Mode: EGPRS 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber E

3m Chamber E

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1850.2MHz)										
3.70	-66.6	H	3.0	-16.7	38.6	1.0	-54.3	-13.0	-41.3	
5.55	-67.0	H	3.0	-13.0	38.6	1.0	-50.6	-13.0	-37.6	
7.40	-68.1	H	3.0	-10.5	37.8	1.0	-47.3	-13.0	-34.3	
3.70	-66.6	V	3.0	-16.7	38.6	1.0	-54.3	-13.0	-41.3	
5.55	-67.1	V	3.0	-13.4	38.6	1.0	-50.9	-13.0	-37.9	
7.40	-68.3	V	3.0	-10.8	37.8	1.0	-47.6	-13.0	-34.6	
Mid Channel (1880.0)										
3.76	-66.6	H	3.0	-16.5	38.6	1.0	-54.2	-13.0	-41.2	
5.64	-67.9	H	3.0	-13.6	38.5	1.0	-51.2	-13.0	-38.2	
7.52	-68.5	H	3.0	-10.7	37.7	1.0	-47.5	-13.0	-34.5	
3.76	-65.6	V	3.0	-15.5	38.6	1.0	-53.2	-13.0	-40.2	
5.64	-68.2	V	3.0	-14.3	38.5	1.0	-51.8	-13.0	-38.8	
7.52	-69.5	V	3.0	-11.9	37.7	1.0	-48.6	-13.0	-35.6	
High Channel (1909.8MHz)										
3.82	-65.6	H	3.0	-15.4	38.7	1.0	-53.0	-13.0	-40.0	
5.73	-66.3	H	3.0	-11.9	38.5	1.0	-49.4	-13.0	-36.4	
7.64	-69.7	H	3.0	-11.8	37.7	1.0	-48.5	-13.0	-35.5	
3.82	-65.1	V	3.0	-14.8	38.7	1.0	-52.5	-13.0	-39.5	
5.73	-67.6	V	3.0	-13.5	38.5	1.0	-51.0	-13.0	-38.0	
7.64	-69.4	V	3.0	-11.6	37.7	1.0	-48.3	-13.0	-35.3	

Rev. 03.19.15

10.7.2. CDMA2000

CDMA2000 1xRTT, 850MHz BC0

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20164
 Date: 05/09/15
 Test Engineer: J. Vang
 Configuration: EUT Only
 Mode: 1xRTT 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
3m Chamber E

Pre-amplifier
3m Chamber E

Filter
Filter

Limit
Part 22

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.7MHz)										
1.65	-60.6	H	3.0	-18.2	37.8	1.0	-55.0	-13.0	-42.0	
2.87	-64.4	H	3.0	-16.9	38.4	1.0	-54.4	-13.0	-41.4	
3.81	-64.4	H	3.0	-14.1	38.6	1.0	-51.8	-13.0	-38.8	
1.65	-58.0	V	3.0	-15.9	37.8	1.0	-52.7	-13.0	-39.7	
2.48	-58.3	V	3.0	-13.1	38.5	1.0	-50.6	-13.0	-37.6	
3.29	-65.5	V	3.0	-16.9	38.5	1.0	-54.3	-13.0	-41.3	
Mid Channel (836.52MHz)										
1.67	-63.5	H	3.0	-21.0	37.8	1.0	-57.9	-13.0	-44.9	
2.45	-64.6	H	3.0	-19.7	38.4	1.0	-57.1	-13.0	-44.1	
5.20	-64.9	H	3.0	-11.6	38.7	1.0	-49.3	-13.0	-36.3	
1.67	-60.0	V	3.0	-17.7	37.8	1.0	-54.6	-13.0	-41.6	
2.51	-60.7	V	3.0	-15.3	38.6	1.0	-52.9	-13.0	-39.9	
3.82	-65.0	V	3.0	-14.8	38.7	1.0	-52.5	-13.0	-39.5	
High Channel (848.31MHz)										
1.70	-63.5	H	3.0	-20.9	37.9	1.0	-57.8	-13.0	-44.8	
2.61	-64.8	H	3.0	-19.0	38.5	1.0	-56.6	-13.0	-43.6	
3.52	-65.0	H	3.0	-15.5	38.5	1.0	-53.1	-13.0	-40.1	
1.70	-58.2	V	3.0	-15.8	37.9	1.0	-52.7	-13.0	-39.7	
2.55	-60.3	V	3.0	-14.7	38.6	1.0	-52.3	-13.0	-39.3	
3.40	-64.8	V	3.0	-15.9	38.5	1.0	-53.4	-13.0	-40.4	

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EVDO-Rev A, 850MHz BC0

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/11/15
Test Engineer: J. Vang
Configuration: EUT Only
Mode: Rev A 850MHz

Test Equipment:

Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber E	3m Chamber E	Filter	ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.7MHz)										
1.29	-57.1	H	3.0	-16.1	38.4	1.0	-53.5	-13.0	-40.5	
2.47	-60.0	H	3.0	-15.0	38.4	1.0	-52.4	-13.0	-39.4	
3.29	-61.9	H	3.0	-13.0	38.5	1.0	-50.5	-13.0	-37.5	
1.45	-57.7	V	3.0	-16.5	37.9	1.0	-53.4	-13.0	-40.4	
2.47	-57.9	V	3.0	-12.7	38.5	1.0	-50.2	-13.0	-37.2	
3.27	-61.6	V	3.0	-13.0	38.5	1.0	-50.5	-13.0	-37.5	
Mid Channel (836.52MHz)										
1.66	-59.0	H	3.0	-16.5	37.8	1.0	-53.4	-13.0	-40.4	
2.50	-59.9	H	3.0	-14.8	38.6	1.0	-52.4	-13.0	-39.4	
3.33	-62.1	H	3.0	-13.1	38.5	1.0	-50.6	-13.0	-37.6	
1.68	-59.4	V	3.0	-17.1	37.9	1.0	-54.0	-13.0	-41.0	
2.51	-60.9	V	3.0	-15.6	38.6	1.0	-53.1	-13.0	-40.1	
3.37	-62.1	V	3.0	-13.2	38.5	1.0	-50.7	-13.0	-37.7	
High Channel (848.31MHz)										
1.21	-57.2	H	3.0	-16.7	38.6	1.0	-54.3	-13.0	-41.3	
2.54	-60.3	H	3.0	-14.9	38.6	1.0	-52.4	-13.0	-39.4	
3.31	-60.9	H	3.0	-11.9	38.5	1.0	-49.4	-13.0	-36.4	
1.29	-57.6	V	3.0	-17.2	38.4	1.0	-54.6	-13.0	-41.6	
2.54	-59.1	V	3.0	-13.6	38.6	1.0	-51.1	-13.0	-38.1	
3.41	-62.1	V	3.0	-13.0	38.5	1.0	-50.6	-13.0	-37.6	

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CDMA2000 1xRTT, 1900MHz BC1

High Frequency Substitution Measurement

UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/09/15
Test Engineer: J. Vang
Configuration: EUT Only
Mode: 1xRTT 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber E

Pre-amplifier
 3m Chamber E

Filter
 Filter

Limit
 EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1851.25MHz)										
3.77	-65.2	H	3.0	-15.0	38.6	1.0	-52.7	-13.0	-39.7	
5.55	-65.8	H	3.0	-11.7	38.6	1.0	-49.3	-13.0	-36.3	
7.41	-68.6	H	3.0	-10.9	37.8	1.0	-47.8	-13.0	-34.8	
3.68	-66.2	V	3.0	-16.4	38.6	1.0	-54.0	-13.0	-41.0	
5.58	-67.0	V	3.0	-13.2	38.6	1.0	-50.7	-13.0	-37.7	
7.36	-67.8	V	3.0	-10.4	37.8	1.0	-47.2	-13.0	-34.2	
Mid Channel (1880MHz)										
3.83	-62.0	H	3.0	-11.7	38.7	1.0	-49.4	-13.0	-36.4	
5.77	-65.9	H	3.0	-11.4	38.5	1.0	-48.9	-13.0	-35.9	
8.02	-67.1	H	3.0	-8.6	37.4	1.0	-45.0	-13.0	-32.0	
3.78	-65.0	V	3.0	-14.9	38.6	1.0	-52.5	-13.0	-39.5	
5.60	-67.1	V	3.0	-13.2	38.5	1.0	-50.8	-13.0	-37.8	
7.51	-68.4	V	3.0	-10.8	37.8	1.0	-47.6	-13.0	-34.6	
High Channel (1908.75MHz)										
3.80	-64.9	H	3.0	-14.7	38.6	1.0	-52.3	-13.0	-39.3	
5.74	-66.8	H	3.0	-12.4	38.5	1.0	-49.9	-13.0	-36.9	
7.66	-60.7	H	3.0	-2.7	37.7	1.0	-39.4	-13.0	-26.4	
3.78	-65.2	H	3.0	-15.0	38.6	1.0	-52.7	-13.0	-39.7	
5.72	-64.0	H	3.0	-9.6	38.5	1.0	-47.1	-13.0	-34.1	
7.64	-69.1	V	3.0	-11.3	37.7	1.0	-48.0	-13.0	-35.0	

Rev. 03.19.15

EVDO-Rev A, 1900MHz BC1

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
 Project #: 15U20164
 Date: 05/11/15
 Test Engineer: J. Vang
 Configuration: EUT Only
 Mode: Rev 0/A 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber E	3m Chamber E	Filter	Part 24

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1851.25MHz)										
3.70	-61.7	H	3.0	-11.7	38.6	1.0	-49.3	-13.0	-36.3	
5.55	-62.0	H	3.0	-7.9	38.6	1.0	-45.5	-13.0	-32.5	
7.39	-63.2	H	3.0	-5.5	37.8	1.0	-42.3	-13.0	-29.3	
3.68	-61.8	V	3.0	-11.9	38.6	1.0	-49.5	-13.0	-36.5	
5.55	-61.9	V	3.0	-8.1	38.6	1.0	-45.7	-13.0	-32.7	
7.41	-63.6	V	3.0	-6.1	37.8	1.0	-43.0	-13.0	-30.0	
Mid Channel (1880MHz)										
3.76	-61.9	H	3.0	-11.8	38.6	1.0	-49.4	-13.0	-36.4	
5.56	-60.3	H	3.0	-6.3	38.6	1.0	-43.9	-13.0	-30.9	
7.50	-63.4	H	3.0	-5.6	37.8	1.0	-42.4	-13.0	-29.4	
3.78	-60.4	V	3.0	-10.3	38.6	1.0	-47.9	-13.0	-34.9	
5.51	-60.4	V	3.0	-6.8	38.6	1.0	-44.4	-13.0	-31.4	
7.41	-63.7	V	3.0	-6.3	37.8	1.0	-43.1	-13.0	-30.1	
High Channel (1908.75MHz)										
3.81	-60.9	H	3.0	-10.6	38.6	1.0	-48.3	-13.0	-35.3	
5.77	-61.3	H	3.0	-6.8	38.5	1.0	-44.3	-13.0	-31.3	
7.63	-64.1	H	3.0	-6.2	37.7	1.0	-42.8	-13.0	-29.8	
3.82	-60.7	V	3.0	-10.5	38.7	1.0	-48.1	-13.0	-35.1	
5.73	-62.6	V	3.0	-8.5	38.5	1.0	-46.0	-13.0	-33.0	
7.63	-64.0	V	3.0	-6.2	37.7	1.0	-42.9	-13.0	-29.9	

Rev. 03.19.15

CDMA2000 1xRTT, 1700MHz BC15

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
 Project #: 15U20164
 Date: 05/09/15
 Test Engineer: J. Vang
 Configuration: EUT Only
 Mode: 1xRTT 1700MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1711.25MHz)										
3.42	-52.2	H	3.0	-2.9	38.5	1.0	-40.5	-13.0	-27.5	
5.13	-65.1	H	3.0	-11.9	38.7	1.0	-49.6	-13.0	-36.6	
6.85	-67.8	H	3.0	-11.0	38.1	1.0	-48.1	-13.0	-35.1	
3.42	-52.6	V	3.0	-3.5	38.5	1.0	-41.1	-13.0	-28.1	
5.13	-64.5	V	3.0	-11.6	38.7	1.0	-49.3	-13.0	-36.3	
6.83	-67.5	V	3.0	-11.0	38.1	1.0	-48.1	-13.0	-35.1	
Mid Channel (1732.5MHz)										
3.46	-53.2	H	3.0	-3.8	38.5	1.0	-41.4	-13.0	-28.4	
5.20	-66.4	H	3.0	-13.1	38.7	1.0	-50.8	-13.0	-37.8	
6.88	-67.2	H	3.0	-10.3	38.1	1.0	-47.4	-13.0	-34.4	
3.46	-52.6	V	3.0	-3.4	38.5	1.0	-41.0	-13.0	-28.0	
5.20	-65.6	V	3.0	-12.6	38.7	1.0	-50.3	-13.0	-37.3	
6.87	-67.4	V	3.0	-10.7	38.1	1.0	-47.8	-13.0	-34.8	
High Channel (1753.75MHz)										
3.51	-61.6	H	3.0	-12.1	38.5	1.0	-49.6	-13.0	-36.6	
5.29	-67.2	H	3.0	-13.7	38.7	1.0	-51.4	-13.0	-38.4	
7.17	-66.6	H	3.0	-9.3	38.0	1.0	-46.2	-13.0	-33.2	
3.51	-61.9	V	3.0	-12.5	38.5	1.0	-50.1	-13.0	-37.1	
5.21	-65.6	V	3.0	-12.6	38.7	1.0	-50.3	-13.0	-37.3	
6.90	-67.6	V	3.0	-10.9	38.1	1.0	-48.0	-13.0	-35.0	

Rev. 03.19.15

EVDO-Rev A, 1700MHz BC15

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/11/15
Test Engineer: J. Vang
Configuration: EUT Only
Mode: Rev A 1700MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber E	3m Chamber E	Filter	Part 27

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1711.25MHz)										
3.42	-62.2	H	3.0	-12.9	38.5	1.0	-50.4	-13.0	-37.4	
5.15	-62.3	H	3.0	-9.1	38.7	1.0	-46.8	-13.0	-33.8	
6.86	-63.0	H	3.0	-6.1	38.1	1.0	-43.3	-13.0	-30.3	
3.42	-60.5	V	3.0	-11.5	38.5	1.0	-49.0	-13.0	-36.0	
5.12	-62.1	V	3.0	-9.3	38.7	1.0	-47.0	-13.0	-34.0	
6.84	-63.2	V	3.0	-6.6	38.1	1.0	-43.7	-13.0	-30.7	
Mid Channel (1732.5MHz)										
3.47	-62.4	H	3.0	-13.0	38.5	1.0	-50.5	-13.0	-37.5	
5.21	-61.7	H	3.0	-8.4	38.7	1.0	-46.1	-13.0	-33.1	
6.93	-63.5	H	3.0	-6.5	38.1	1.0	-43.6	-13.0	-30.6	
3.49	-62.5	V	3.0	-13.3	38.5	1.0	-50.8	-13.0	-37.8	
5.16	-61.0	V	3.0	-8.2	38.7	1.0	-45.9	-13.0	-32.9	
6.92	-62.6	V	3.0	-5.8	38.1	1.0	-43.0	-13.0	-30.0	
High Channel (1753.75MHz)										
3.51	-62.8	H	3.0	-13.3	38.5	1.0	-50.8	-13.0	-37.8	
5.25	-62.0	H	3.0	-8.6	38.7	1.0	-46.3	-13.0	-33.3	
7.02	-64.0	H	3.0	-6.8	38.1	1.0	-43.9	-13.0	-30.9	
3.50	-61.7	V	3.0	-12.4	38.5	1.0	-50.0	-13.0	-37.0	
5.26	-62.8	V	3.0	-9.7	38.7	1.0	-47.3	-13.0	-34.3	
7.01	-64.7	V	3.0	-7.7	38.1	1.0	-44.8	-13.0	-31.8	

Rev. 03.19.15

CDMA2000 1xRTT, 800MHz BC10

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/09/15
Test Engineer: J. Vang
Configuration: EUT Only
Mode: 1xRTT 800MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber E

3m Chamber E

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (817.25MHz)										
1.64	-63.5	H	3.0	-21.1	37.8	1.0	-57.9	-13.0	-44.9	
2.49	-64.8	H	3.0	-19.7	38.5	1.0	-57.3	-13.0	-44.3	
3.26	-66.4	H	3.0	-17.5	38.5	1.0	-55.0	-13.0	-42.0	
1.64	-59.3	V	3.0	-17.2	37.8	1.0	-54.1	-13.0	-41.1	
2.45	-60.6	V	3.0	-15.5	38.4	1.0	-52.9	-13.0	-39.9	
3.27	-60.0	V	3.0	-11.4	38.5	1.0	-48.8	-13.0	-35.8	
Mid Channel (820.00MHz)										
1.64	-62.9	H	3.0	-20.5	37.8	1.0	-57.3	-13.0	-44.3	
2.61	-63.6	H	3.0	-17.8	38.5	1.0	-55.3	-13.0	-42.3	
3.31	-66.3	H	3.0	-17.3	38.5	1.0	-54.8	-13.0	-41.8	
1.64	-59.5	V	3.0	-17.4	37.8	1.0	-54.3	-13.0	-41.3	
2.45	-60.2	V	3.0	-15.1	38.4	1.0	-52.5	-13.0	-39.5	
3.28	-61.1	V	3.0	-12.4	38.5	1.0	-49.9	-13.0	-36.9	
High Channel (822.75MHz)										
1.63	-63.8	H	3.0	-21.4	37.8	1.0	-58.2	-13.0	-45.2	
2.47	-64.8	H	3.0	-19.9	38.5	1.0	-57.3	-13.0	-44.3	
3.28	-65.9	H	3.0	-17.0	38.5	1.0	-54.5	-13.0	-41.5	
1.65	-60.1	V	3.0	-18.0	37.8	1.0	-54.8	-13.0	-41.8	
2.46	-60.2	V	3.0	-15.1	38.4	1.0	-52.5	-13.0	-39.5	
3.29	-63.9	V	3.0	-15.2	38.5	1.0	-52.7	-13.0	-39.7	

Rev. 03.19.15

EVDO-Rev A, 800MHz BC10

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
 Project #: 15U20164
 Date: 05/11/15
 Test Engineer: J. Vang
 Configuration: EUT Only
 Mode: Rev A 800MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (817.25MHz)										
1.64	-59.8	H	3.0	-17.4	37.8	1.0	-54.2	-13.0	-41.2	
2.44	-60.2	H	3.0	-15.3	38.4	1.0	-52.7	-13.0	-39.7	
3.27	-61.2	H	3.0	-12.3	38.5	1.0	-49.8	-13.0	-36.8	
1.63	-59.9	V	3.0	-17.8	37.8	1.0	-54.7	-13.0	-41.7	
2.45	-60.7	V	3.0	-15.7	38.4	1.0	-53.1	-13.0	-40.1	
3.27	-62.1	V	3.0	-13.5	38.5	1.0	-51.0	-13.0	-38.0	
Mid Channel (820.00MHz)										
1.63	-59.0	H	3.0	-16.6	37.8	1.0	-53.4	-13.0	-40.4	
2.46	-60.6	H	3.0	-15.7	38.4	1.0	-53.1	-13.0	-40.1	
3.28	-61.8	H	3.0	-12.9	38.5	1.0	-50.4	-13.0	-37.4	
1.64	-59.6	V	3.0	-17.5	37.8	1.0	-54.4	-13.0	-41.4	
2.45	-60.2	V	3.0	-15.1	38.4	1.0	-52.5	-13.0	-39.5	
3.27	-61.3	V	3.0	-12.7	38.5	1.0	-50.2	-13.0	-37.2	
High Channel (822.75MHz)										
1.65	-59.3	H	3.0	-16.9	37.8	1.0	-53.7	-13.0	-40.7	
2.47	-60.5	H	3.0	-15.5	38.4	1.0	-53.0	-13.0	-40.0	
3.29	-62.5	H	3.0	-13.5	38.5	1.0	-51.0	-13.0	-38.0	
1.66	-60.0	V	3.0	-17.8	37.8	1.0	-54.7	-13.0	-41.7	
2.47	-60.8	V	3.0	-15.6	38.5	1.0	-53.0	-13.0	-40.0	
3.29	-61.7	V	3.0	-13.1	38.5	1.0	-50.6	-13.0	-37.6	

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10.7.3. UMTS

UMTS REL 99, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20164
 Date: 05/11/15
 Test Engineer: F. Guarnero
 Configuration: EUT Only
 Mode: REL 99, 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber E

Pre-amplifier

3m Chamber E

Filter

Filter

Limit

ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (826.4MHz)										
1.65	-46.2	H	3.0	-3.8	37.8	1.0	-40.6	-13.0	-27.6	
2.48	-61.4	H	3.0	-16.3	38.5	1.0	-53.8	-13.0	-40.8	
3.31	-66.4	H	3.0	-17.5	38.5	1.0	-55.0	-13.0	-42.0	
1.65	-37.0	V	3.0	5.1	37.8	1.0	-31.7	-13.0	-18.7	
2.48	-53.0	V	3.0	-7.8	38.5	1.0	-45.3	-13.0	-32.3	
3.31	-65.5	V	3.0	-16.8	38.5	1.0	-54.2	-13.0	-41.2	
Mid Channel (836.6MHz)										
1.67	-44.5	H	3.0	-2.0	37.8	1.0	-38.9	-13.0	-25.9	
2.51	-60.2	H	3.0	-15.0	38.6	1.0	-52.6	-13.0	-39.6	
3.34	-66.3	H	3.0	-17.3	38.5	1.0	-54.7	-13.0	-41.7	
1.67	-35.5	V	3.0	6.8	37.8	1.0	-30.1	-13.0	-17.1	
2.58	-49.7	V	3.0	-3.9	38.5	1.0	-41.5	-13.0	-28.5	
3.34	-65.3	V	3.0	-16.5	38.5	1.0	-54.0	-13.0	-41.0	
High Channel (846.6MHz)										
1.69	-45.3	H	3.0	-2.7	37.9	1.0	-39.6	-13.0	-26.6	
2.54	-58.2	H	3.0	-12.9	38.6	1.0	-50.4	-13.0	-37.4	
3.39	-66.1	H	3.0	-17.0	38.5	1.0	-54.5	-13.0	-41.5	
1.69	-35.4	V	3.0	7.0	37.9	1.0	-29.9	-13.0	-16.9	
2.54	-49.7	V	3.0	-4.2	38.6	1.0	-41.7	-13.0	-28.7	
3.39	-65.0	V	3.0	-16.0	38.5	1.0	-53.5	-13.0	-40.5	

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UMTS HSDPA, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20164
 Date: 05/20/15
 Test Engineer: R.Z
 Configuration: EUT only
 Mode: HSDPA 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber G

3m Chamber G

Filter

ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (826.4MHz)										
1.65	-60.8	H	3.0	-19.3	37.8	1.0	-56.2	-13.0	-43.2	
2.48	-65.2	H	3.0	-22.1	36.5	1.0	-57.6	-13.0	-44.6	
3.30	-66.0	H	3.0	-20.0	36.5	1.0	-55.6	-13.0	-42.6	
1.65	-56.1	V	3.0	-14.3	37.8	1.0	-51.2	-13.0	-38.2	
2.48	-65.9	V	3.0	-21.8	36.5	1.0	-57.3	-13.0	-44.3	
3.30	-65.6	V	3.0	-19.7	36.5	1.0	-55.2	-13.0	-42.2	
Mid Channel (836.6MHz)										
1.67	-60.5	H	3.0	-19.0	37.8	1.0	-55.8	-13.0	-42.8	
2.50	-65.7	H	3.0	-22.5	36.4	1.0	-57.9	-13.0	-44.9	
3.26	-66.4	H	3.0	-20.5	36.5	1.0	-56.1	-13.0	-43.1	
1.67	-56.2	V	3.0	-14.4	37.8	1.0	-51.2	-13.0	-38.2	
2.51	-64.6	V	3.0	-20.3	36.4	1.0	-55.7	-13.0	-42.7	
3.30	-65.6	V	3.0	-19.7	36.5	1.0	-55.2	-13.0	-42.2	
High Channel (846.6MHz)										
1.70	-60.9	H	3.0	-19.4	37.8	1.0	-56.2	-13.0	-43.2	
2.54	-66.0	H	3.0	-22.7	36.4	1.0	-58.1	-13.0	-45.1	
3.30	-65.5	H	3.0	-19.6	36.5	1.0	-55.1	-13.0	-42.1	
1.70	-52.1	V	3.0	-10.3	37.8	1.0	-47.1	-13.0	-34.1	
2.54	-64.7	V	3.0	-20.4	36.4	1.0	-55.8	-13.0	-42.8	
3.30	-67.0	V	3.0	-21.1	36.5	1.0	-56.6	-13.0	-43.6	

Rev. 03.19.15

UMTS REL 99, 1900MHz BAND 2

High Frequency Substitution Measurement

UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/09/15
Test Engineer: F. Guamero
Configuration: EUT Only
Mode: REL 99, 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber E

Pre-amplifier

3m Chamber E

Filter

Filter

Limit

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1852.4MHz)										
3.70	-65.9	H	3.0	-15.9	38.6	1.0	-53.6	-13.0	-40.6	
5.56	-59.7	H	3.0	-5.6	38.6	1.0	-43.2	-13.0	-30.2	
7.41	-68.9	H	3.0	-11.3	37.8	1.0	-48.1	-13.0	-35.1	
3.70	-65.0	V	3.0	-15.1	38.6	1.0	-52.8	-13.0	-39.8	
5.56	-55.3	V	3.0	-1.6	38.6	1.0	-39.1	-13.0	-26.1	
7.41	-68.8	V	3.0	-11.3	37.8	1.0	-48.2	-13.0	-35.2	
Mid Channel (1880MHz)										
3.76	-64.0	H	3.0	-13.9	38.6	1.0	-51.5	-13.0	-38.5	
5.64	-68.1	H	3.0	-13.9	38.5	1.0	-51.4	-13.0	-38.4	
7.52	-69.0	H	3.0	-11.2	37.7	1.0	-47.9	-13.0	-34.9	
3.76	-67.4	V	3.0	-17.4	38.6	1.0	-55.0	-13.0	-42.0	
5.64	-67.7	V	3.0	-13.8	38.5	1.0	-51.3	-13.0	-38.3	
7.52	-69.5	V	3.0	-11.9	37.7	1.0	-48.6	-13.0	-35.6	
High Channel (1907.6MHz)										
3.82	-64.8	H	3.0	-14.6	38.7	1.0	-52.2	-13.0	-39.2	
5.72	-67.2	H	3.0	-12.8	38.5	1.0	-50.3	-13.0	-37.3	
7.63	-70.1	H	3.0	-12.2	37.7	1.0	-48.8	-13.0	-35.8	
3.82	-66.8	V	3.0	-16.5	38.7	1.0	-54.2	-13.0	-41.2	
5.72	-67.3	V	3.0	-13.2	38.5	1.0	-50.7	-13.0	-37.7	
7.63	-70.1	V	3.0	-12.4	37.7	1.0	-49.0	-13.0	-36.0	

Rev. 03.19.15

UMTS HSDPA, 1900MHz BAND 2

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/20/15
Test Engineer: R.Z
Configuration: EUT only
Mode: HSDPA 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber G

Pre-amplifier

3m Chamber G

Filter

Filter

Limit

Part 24

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1852.4MHz)										
3.85	-65.3	H	3.0	-18.2	36.1	1.0	-53.4	-13.0	-40.4	
5.69	-67.6	H	3.0	-17.0	36.1	1.0	-52.1	-13.0	-39.1	
7.38	-68.2	H	3.0	-15.1	35.2	1.0	-49.4	-13.0	-36.4	
3.80	-66.2	V	3.0	-18.8	36.2	1.0	-53.9	-13.0	-40.9	
5.54	-67.0	V	3.0	-16.9	36.1	1.0	-52.0	-13.0	-39.0	
7.31	-67.4	V	3.0	-14.4	35.3	1.0	-48.7	-13.0	-35.7	
Mid Channel (1880MHz)										
3.87	-65.7	H	3.0	-18.6	36.1	1.0	-53.7	-13.0	-40.7	
5.86	-65.2	H	3.0	-14.4	36.0	1.0	-49.4	-13.0	-36.4	
7.42	-68.4	H	3.0	-15.3	35.2	1.0	-49.5	-13.0	-36.5	
3.88	-64.7	V	3.0	-17.0	36.1	1.0	-52.1	-13.0	-39.1	
5.53	-66.4	V	3.0	-16.3	36.1	1.0	-51.5	-13.0	-38.5	
7.58	-67.1	V	3.0	-13.9	35.1	1.0	-48.0	-13.0	-35.0	
High Channel (1907.6MHz)										
4.13	-65.2	H	3.0	-17.6	36.0	1.0	-52.6	-13.0	-39.6	
5.85	-65.5	H	3.0	-14.7	36.0	1.0	-49.7	-13.0	-36.7	
7.30	-67.1	H	3.0	-14.1	35.3	1.0	-48.4	-13.0	-35.4	
3.97	-66.4	V	3.0	-18.4	36.0	1.0	-53.5	-13.0	-40.5	
5.84	-65.2	V	3.0	-14.6	36.0	1.0	-49.6	-13.0	-36.6	
7.33	-66.3	V	3.0	-13.3	35.3	1.0	-47.6	-13.0	-34.6	

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UMTS REL 99, 1700MHz BAND 4

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/11/15
Test Engineer: F. Guarnero
Configuration: EUT Only
Mode: REL 99, 1700MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.4MHz)										
3.42	-54.6	H	3.0	-5.4	38.5	1.0	-42.9	-13.0	-29.9	
5.14	-67.2	H	3.0	-14.1	38.7	1.0	-51.7	-13.0	-38.7	
6.85	-67.8	H	3.0	-11.0	38.1	1.0	-48.1	-13.0	-35.1	
3.42	-51.8	V	3.0	-2.7	38.5	1.0	-40.3	-13.0	-27.3	
5.14	-65.8	V	3.0	-13.0	38.7	1.0	-50.7	-13.0	-37.7	
6.85	-67.7	V	3.0	-11.0	38.1	1.0	-48.2	-13.0	-35.2	
Mid Channel (1732.6MHz)										
3.47	-55.0	H	3.0	-5.6	38.5	1.0	-43.2	-13.0	-30.2	
5.20	-67.2	H	3.0	-13.9	38.7	1.0	-51.6	-13.0	-38.6	
6.93	-67.9	H	3.0	-10.9	38.1	1.0	-48.0	-13.0	-35.0	
3.47	-55.8	V	3.0	-6.6	38.5	1.0	-44.1	-13.0	-31.1	
5.20	-67.4	V	3.0	-14.4	38.7	1.0	-52.1	-13.0	-39.1	
6.93	-68.7	V	3.0	-11.9	38.1	1.0	-49.0	-13.0	-36.0	
High Channel (1752.6MHz)										
3.51	-53.7	H	3.0	-4.2	38.5	1.0	-41.8	-13.0	-28.8	
5.26	-64.6	H	3.0	-11.2	38.7	1.0	-48.8	-13.0	-35.8	
7.01	-69.5	H	3.0	-12.3	38.1	1.0	-49.4	-13.0	-36.4	
3.51	-63.2	V	3.0	-13.9	38.5	1.0	-51.5	-13.0	-38.5	
5.26	-66.9	V	3.0	-13.9	38.7	1.0	-51.5	-13.0	-38.5	
7.01	-69.3	V	3.0	-12.3	38.1	1.0	-49.4	-13.0	-36.4	

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UMTS HSDPA, 1700MHz BAND 4

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/20/15
Test Engineer: R.Z
Configuration: EUT only
Mode: HSDPA 1700MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber G	3m Chamber G	Filter	Part 27

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.4MHz)										
3.43	-63.4	H	3.0	-17.2	36.4	1.0	-52.6	-13.0	-39.6	
5.22	-66.6	H	3.0	-16.8	36.3	1.0	-52.1	-13.0	-39.1	
7.05	-66.0	H	3.0	-13.3	35.5	1.0	-47.7	-13.0	-34.7	
3.43	-64.3	V	3.0	-18.0	36.4	1.0	-53.4	-13.0	-40.4	
5.17	-67.0	V	3.0	-17.5	36.3	1.0	-52.8	-13.0	-39.8	
6.80	-66.2	V	3.0	-13.9	35.6	1.0	-48.5	-13.0	-35.5	
Mid Channel (1732.6MHz)										
3.47	-64.6	H	3.0	-18.3	36.4	1.0	-53.7	-13.0	-40.7	
5.32	-66.9	H	3.0	-17.0	36.2	1.0	-52.2	-13.0	-39.2	
7.00	-66.8	H	3.0	-14.1	35.5	1.0	-48.6	-13.0	-35.6	
3.47	-65.7	V	3.0	-19.3	36.4	1.0	-54.7	-13.0	-41.7	
5.28	-66.7	V	3.0	-17.1	36.3	1.0	-52.3	-13.0	-39.3	
7.04	-67.5	V	3.0	-14.8	35.5	1.0	-49.3	-13.0	-36.3	
High Channel (1752.6MHz)										
3.98	-66.5	H	3.0	-19.2	36.0	1.0	-54.2	-13.0	-41.2	
5.55	-65.4	H	3.0	-15.1	36.1	1.0	-50.2	-13.0	-37.2	
7.13	-67.3	H	3.0	-14.4	35.4	1.0	-48.9	-13.0	-35.9	
3.95	-65.8	V	3.0	-17.9	36.0	1.0	-52.9	-13.0	-39.9	
5.87	-66.2	V	3.0	-15.5	36.0	1.0	-50.5	-13.0	-37.5	
7.26	-67.7	V	3.0	-14.8	35.3	1.0	-49.1	-13.0	-36.1	

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10.8. FIELD STRENGTH OF SPURIOUS RADIATION, MODEL: A1633 (UAT)

10.8.1. GSM

GPRS, 850MHz BAND 5

**High Frequency Substitution Measurement
UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/11/15
Test Engineer: F. Guarnero
Configuration: EUT Only
Mode: GPRS 850MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber E

3m Chamber E

Filter

ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.2MHz)										
1.65	-50.9	H	3.0	-8.4	37.8	1.0	-45.3	-13.0	-32.3	
2.47	-53.4	H	3.0	-8.4	38.5	1.0	-45.9	-13.0	-32.9	
3.30	-64.8	H	3.0	-15.9	38.5	1.0	-53.3	-13.0	-40.3	
1.65	-50.1	V	3.0	-8.0	37.8	1.0	-44.8	-13.0	-31.8	
2.47	-55.7	V	3.0	-10.5	38.5	1.0	-48.0	-13.0	-35.0	
3.30	-66.5	V	3.0	-17.9	38.5	1.0	-55.3	-13.0	-42.3	
Mid Channel (836.6MHz)										
1.67	-52.7	H	3.0	-10.2	37.8	1.0	-47.0	-13.0	-34.0	
2.51	-62.0	H	3.0	-16.8	38.6	1.0	-54.4	-13.0	-41.4	
3.35	-64.4	H	3.0	-18.0	38.5	1.0	-55.5	-13.0	-42.5	
1.67	-51.0	V	3.0	-8.9	37.8	1.0	-45.7	-13.0	-32.7	
2.51	-58.0	V	3.0	-12.7	38.6	1.0	-50.3	-13.0	-37.3	
3.35	-63.5	V	3.0	-14.8	38.5	1.0	-52.2	-13.0	-39.2	
High Channel (848.8MHz)										
1.70	-54.7	H	3.0	-12.1	37.9	1.0	-49.0	-13.0	-36.0	
2.55	-55.1	H	3.0	-9.6	38.6	1.0	-47.2	-13.0	-34.2	
3.40	-66.3	H	3.0	-17.1	38.5	1.0	-54.6	-13.0	-41.6	
1.70	-52.0	V	3.0	-9.4	37.9	1.0	-46.3	-13.0	-33.3	
2.55	-55.2	V	3.0	-9.7	38.6	1.0	-47.2	-13.0	-34.2	
3.40	-67.0	V	3.0	-18.0	38.5	1.0	-55.5	-13.0	-42.5	

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EGPRS, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/12/15
Test Engineer: F. Guarnero
Configuration: EUT Only
Mode: EGPRS 850MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber E

3m Chamber E

Filter

ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.2MHz)										
1.65	-56.8	H	3.0	-14.3	37.8	1.0	-51.2	-13.0	-38.2	
2.47	-49.5	H	3.0	-4.5	38.5	1.0	-42.0	-13.0	-29.0	
3.69	-67.0	H	3.0	-17.1	38.6	1.0	-54.7	-13.0	-41.7	
1.65	-48.7	V	3.0	-6.6	37.8	1.0	-43.4	-13.0	-30.4	
2.47	-49.8	V	3.0	-4.6	38.5	1.0	-42.1	-13.0	-29.1	
3.30	-66.3	V	3.0	-17.6	38.5	1.0	-55.1	-13.0	-42.1	
Mid Channel (836.6MHz)										
1.67	-56.6	H	3.0	-14.2	37.8	1.0	-51.1	-13.0	-38.1	
2.51	-59.0	H	3.0	-14.1	38.6	1.0	-51.7	-13.0	-38.7	
3.49	-67.2	H	3.0	-16.8	38.5	1.0	-54.3	-13.0	-41.3	
1.67	-48.1	V	3.0	-6.1	37.8	1.0	-43.0	-13.0	-30.0	
2.51	-57.8	V	3.0	-12.7	38.6	1.0	-50.2	-13.0	-37.2	
5.40	-67.0	V	3.0	-13.6	38.6	1.0	-51.2	-13.0	-38.2	
High Channel (848.8MHz)										
1.70	-57.8	H	3.0	-15.2	37.8	1.0	-52.1	-13.0	-39.1	
2.55	-63.4	H	3.0	-18.0	38.6	1.0	-55.5	-13.0	-42.5	
6.46	-65.5	H	3.0	-9.5	38.5	1.0	-47.0	-13.0	-34.0	
1.70	-48.3	H	3.0	-5.7	37.8	1.0	-42.6	-13.0	-29.6	
2.55	-54.0	H	3.0	-8.5	38.6	1.0	-46.1	-13.0	-33.1	
4.24	-65.0	V	3.0	-13.8	38.6	1.0	-51.4	-13.0	-38.4	

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GPRS, 1900MHz BAND 2

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/12/15
Test Engineer: F. Guarnero
Configuration: EUT Only
Mode: GPRS 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1850.2MHz)										
3.70	-66.0	H	3.0	-16.0	38.6	1.0	-53.6	-13.0	-40.6	
5.55	-67.3	H	3.0	-13.3	38.6	1.0	-50.9	-13.0	-37.9	
7.40	-68.3	H	3.0	-10.7	37.8	1.0	-47.5	-13.0	-34.5	
3.70	-66.3	V	3.0	-16.5	38.6	1.0	-54.1	-13.0	-41.1	
5.55	-67.2	V	3.0	-13.4	38.6	1.0	-51.0	-13.0	-38.0	
7.40	-67.8	V	3.0	-10.3	37.8	1.0	-47.2	-13.0	-34.2	
9.25	-70.0	V	3.0	-10.2	36.6	1.0	-45.8	-13.0	-32.8	
Mid Channel (1880.0)										
3.76	-66.3	H	3.0	-16.2	38.6	1.0	-53.8	-13.0	-40.8	
5.64	-67.2	H	3.0	-13.0	38.5	1.0	-50.5	-13.0	-37.5	
7.52	-69.6	H	3.0	-11.8	37.7	1.0	-48.6	-13.0	-35.6	
3.76	-66.6	V	3.0	-16.5	38.6	1.0	-54.2	-13.0	-41.2	
5.64	-67.3	V	3.0	-13.4	38.5	1.0	-50.9	-13.0	-37.9	
7.52	-70.0	V	3.0	-12.4	37.7	1.0	-49.1	-13.0	-36.1	
High Channel (1909.8MHz)										
3.82	-66.0	H	3.0	-15.8	38.7	1.0	-53.4	-13.0	-40.4	
5.73	-66.6	H	3.0	-12.1	38.5	1.0	-49.7	-13.0	-36.7	
7.64	-69.3	H	3.0	-11.4	37.7	1.0	-48.0	-13.0	-35.0	
3.82	-66.1	V	3.0	-15.9	38.7	1.0	-53.6	-13.0	-40.6	
5.73	-66.6	V	3.0	-12.4	38.5	1.0	-49.9	-13.0	-36.9	
7.64	-69.0	V	3.0	-11.3	37.7	1.0	-47.9	-13.0	-34.9	

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EGPRS, 1900MHz BAND 2

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20164
 Date: 05/12/15
 Test Engineer: F. Guarnero
 Configuration: EUT Only
 Mode: EGPRS 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber E

3m Chamber E

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1850.2MHz)										
3.70	-66.9	H	3.0	-16.9	38.6	1.0	-54.5	-13.0	-41.5	
5.55	-67.2	H	3.0	-13.2	38.6	1.0	-50.8	-13.0	-37.8	
7.40	-68.2	H	3.0	-10.5	37.8	1.0	-47.3	-13.0	-34.3	
3.70	-66.1	V	3.0	-16.2	38.6	1.0	-53.8	-13.0	-40.8	
5.49	-62.7	V	3.0	-9.1	38.6	1.0	-46.6	-13.0	-33.6	
7.38	-67.7	V	3.0	-10.3	37.8	1.0	-47.1	-13.0	-34.1	
Mid Channel (1880.0)										
3.79	-66.2	H	3.0	-16.0	38.6	1.0	-53.7	-13.0	-40.7	
5.70	-66.9	H	3.0	-12.5	38.5	1.0	-50.0	-13.0	-37.0	
7.61	-68.5	H	3.0	-10.6	37.7	1.0	-47.3	-13.0	-34.3	
3.79	-65.9	V	3.0	-15.8	38.6	1.0	-53.4	-13.0	-40.4	
5.70	-67.4	V	3.0	-13.3	38.5	1.0	-50.9	-13.0	-37.9	
7.61	-69.7	V	3.0	-12.0	37.7	1.0	-48.7	-13.0	-35.7	
High Channel (1909.8MHz)										
3.82	-66.0	H	3.0	-15.8	38.7	1.0	-53.4	-13.0	-40.4	
5.73	-66.3	H	3.0	-11.9	38.5	1.0	-49.4	-13.0	-36.4	
7.64	-69.4	H	3.0	-11.4	37.7	1.0	-48.1	-13.0	-35.1	
3.82	-64.9	V	3.0	-14.7	38.7	1.0	-52.3	-13.0	-39.3	
5.73	-67.0	V	3.0	-12.9	38.5	1.0	-50.4	-13.0	-37.4	
7.64	-68.8	V	3.0	-11.0	37.7	1.0	-47.7	-13.0	-34.7	

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10.8.2. CDMA2000

CDMA2000 1xRTT, 850MHz BC0

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20164
 Date: 05/12/15
 Test Engineer: J. Vang
 Configuration: EUT Only
 Mode: 1xRTT 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber E

3m Chamber E

Filter

ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.7MHz)										
1.63	-63.5	H	3.0	-21.1	37.8	1.0	-57.9	-13.0	-44.9	
2.50	-65.2	H	3.0	-20.1	38.6	1.0	-57.6	-13.0	-44.6	
3.39	-65.3	H	3.0	-16.1	38.5	1.0	-53.6	-13.0	-40.6	
1.61	-63.7	V	3.0	-21.8	37.8	1.0	-58.6	-13.0	-45.6	
2.45	-64.7	V	3.0	-19.6	38.4	1.0	-57.0	-13.0	-44.0	
3.36	-64.8	V	3.0	-15.9	38.5	1.0	-53.4	-13.0	-40.4	
Mid Channel (836.52MHz)										
1.45	-64.8	H	3.0	-23.0	38.0	1.0	-59.9	-13.0	-46.9	
2.47	-65.2	H	3.0	-20.2	38.5	1.0	-57.7	-13.0	-44.7	
3.30	-66.0	H	3.0	-17.1	38.5	1.0	-54.5	-13.0	-41.5	
1.66	-63.1	V	3.0	-20.9	37.8	1.0	-57.8	-13.0	-44.8	
2.58	-64.6	V	3.0	-18.9	38.5	1.0	-56.4	-13.0	-43.4	
3.25	-65.2	V	3.0	-16.7	38.5	1.0	-54.1	-13.0	-41.1	
High Channel (848.31MHz)										
1.72	-64.0	H	3.0	-21.4	37.9	1.0	-58.2	-13.0	-45.2	
2.59	-65.5	H	3.0	-19.8	38.5	1.0	-57.3	-13.0	-44.3	
3.39	-66.3	H	3.0	-17.1	38.5	1.0	-54.6	-13.0	-41.6	
1.73	-63.8	V	3.0	-21.2	37.9	1.0	-58.1	-13.0	-45.1	
2.54	-64.9	V	3.0	-19.3	38.6	1.0	-56.9	-13.0	-43.9	
3.39	-65.9	V	3.0	-17.0	38.5	1.0	-54.5	-13.0	-41.5	

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EVDO-Rev A, 850MHz BC0

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/20/15
Test Engineer: R.Z
Configuration: EUT only
Mode: Rev A 850MHz
 UAT

Test Equipment:

Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber G	3m Chamber G	Filter	ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.7MHz)										
1.68	-66.0	H	3.0	-24.5	37.8	1.0	-61.3	-13.0	-48.3	
2.48	-62.0	H	3.0	-18.9	36.5	1.0	-54.4	-13.0	-41.4	
3.24	-66.3	H	3.0	-20.5	36.6	1.0	-56.0	-13.0	-43.0	
1.66	-65.1	V	3.0	-23.3	37.8	1.0	-60.2	-13.0	-47.2	
2.48	-58.1	V	3.0	-14.0	36.5	1.0	-49.5	-13.0	-36.5	
3.23	-66.7	V	3.0	-21.0	36.6	1.0	-56.6	-13.0	-43.6	
Mid Channel (836.52MHz)										
1.72	-65.6	H	3.0	-24.0	37.8	1.0	-60.8	-13.0	-47.8	
2.51	-51.0	H	3.0	-7.8	36.4	1.0	-43.2	-13.0	-30.2	
3.30	-66.0	H	3.0	-20.1	36.5	1.0	-55.6	-13.0	-42.6	
1.67	-65.9	V	3.0	-24.1	37.8	1.0	-60.9	-13.0	-47.9	
2.51	-52.2	V	3.0	-8.0	36.4	1.0	-43.3	-13.0	-30.3	
3.29	-65.9	V	3.0	-20.0	36.5	1.0	-55.6	-13.0	-42.6	
High Channel (848.31MHz)										
1.73	-66.2	H	3.0	-24.6	37.8	1.0	-61.4	-13.0	-48.4	
2.55	-49.2	H	3.0	-5.8	36.4	1.0	-41.2	-13.0	-28.2	
3.39	-66.8	H	3.0	-20.7	36.5	1.0	-56.1	-13.0	-43.1	
1.74	-66.1	V	3.0	-24.3	37.8	1.0	-61.1	-13.0	-48.1	
2.55	-53.8	V	3.0	-9.5	36.4	1.0	-44.9	-13.0	-31.9	
3.30	-67.0	V	3.0	-21.1	36.5	1.0	-56.6	-13.0	-43.6	

Rev. 03.19.15

CDMA2000 1xRTT, 1900MHz BC1

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/12/15
Test Engineer: J. Vang
Configuration: EUT Only
Mode: 1xRTT 1900MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber E	3m Chamber E	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1851.25MHz)										
3.67	-65.3	H	3.0	-15.4	38.6	1.0	-53.0	-13.0	-40.0	
5.51	-65.0	H	3.0	-11.0	38.6	1.0	-48.6	-13.0	-35.6	
7.41	-67.4	H	3.0	-9.7	37.8	1.0	-46.6	-13.0	-33.6	
3.65	-65.2	V	3.0	-15.5	38.6	1.0	-53.1	-13.0	-40.1	
5.47	-65.4	V	3.0	-11.9	38.6	1.0	-49.5	-13.0	-36.5	
7.39	-67.5	V	3.0	-10.0	37.8	1.0	-46.9	-13.0	-33.9	
Mid Channel (1880MHz)										
3.86	-65.2	H	3.0	-14.8	38.7	1.0	-52.5	-13.0	-39.5	
5.56	-65.9	H	3.0	-11.9	38.6	1.0	-49.4	-13.0	-36.4	
7.45	-67.9	H	3.0	-10.2	37.8	1.0	-47.0	-13.0	-34.0	
3.83	-65.9	V	3.0	-15.6	38.7	1.0	-53.3	-13.0	-40.3	
5.74	-66.4	V	3.0	-12.2	38.5	1.0	-49.7	-13.0	-36.7	
7.41	-67.2	V	3.0	-9.8	37.8	1.0	-46.6	-13.0	-33.6	
High Channel (1908.75MHz)										
3.82	-65.9	H	3.0	-15.6	38.7	1.0	-53.3	-13.0	-40.3	
5.74	-66.6	H	3.0	-12.1	38.5	1.0	-49.7	-13.0	-36.7	
7.65	-68.9	H	3.0	-11.0	37.7	1.0	-47.6	-13.0	-34.6	
3.82	-65.8	V	3.0	-15.6	38.7	1.0	-53.3	-13.0	-40.3	
5.69	-66.2	V	3.0	-12.1	38.5	1.0	-49.6	-13.0	-36.6	
7.74	-67.3	V	3.0	-9.4	37.6	1.0	-46.0	-13.0	-33.0	

Rev. 03.19.15

EVDO-Rev A, 1900MHz BC1

High Frequency Substitution Measurement UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/20/15
Test Engineer: R.Z
Configuration: EUT only
Mode: Rev 0/A 1900MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber G

3m Chamber G

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1851.25MHz)										
3.65	-66.1	H	3.0	-19.5	36.3	1.0	-54.7	-13.0	-41.7	
5.43	-66.8	H	3.0	-16.7	36.2	1.0	-51.9	-13.0	-38.9	
7.13	-67.3	H	3.0	-14.5	35.4	1.0	-48.9	-13.0	-35.9	
3.73	-67.2	V	3.0	-19.9	36.2	1.0	-55.1	-13.0	-42.1	
5.57	-66.4	V	3.0	-16.3	36.1	1.0	-51.4	-13.0	-38.4	
7.26	-67.8	V	3.0	-14.9	35.3	1.0	-49.2	-13.0	-36.2	
Mid Channel (1880MHz)										
3.79	-66.1	H	3.0	-19.2	36.2	1.0	-54.3	-13.0	-41.3	
5.76	-65.9	H	3.0	-15.2	36.0	1.0	-50.3	-13.0	-37.3	
7.18	-67.0	H	3.0	-14.1	35.4	1.0	-48.5	-13.0	-35.5	
3.75	-67.6	V	3.0	-20.3	36.2	1.0	-55.5	-13.0	-42.5	
5.60	-67.3	V	3.0	-17.1	36.1	1.0	-52.2	-13.0	-39.2	
7.34	-67.4	V	3.0	-14.5	35.3	1.0	-48.7	-13.0	-35.7	
High Channel (1908.75MHz)										
3.80	-66.0	H	3.0	-19.0	36.2	1.0	-54.2	-13.0	-41.2	
5.85	-65.8	H	3.0	-15.0	36.0	1.0	-50.0	-13.0	-37.0	
7.41	-67.5	H	3.0	-14.4	35.2	1.0	-48.6	-13.0	-35.6	
3.85	-66.2	V	3.0	-18.7	36.1	1.0	-53.8	-13.0	-40.8	
5.85	-65.9	V	3.0	-15.3	36.0	1.0	-50.3	-13.0	-37.3	
7.50	-67.5	V	3.0	-14.4	35.1	1.0	-48.5	-13.0	-35.5	

Rev. 03.19.15

CDMA2000 1xRTT, 1700MHz BC15

UL Fremont Radiated Chamber										
Company:										
Project #: 15U20164										
Date: 05/12/15										
Test Engineer: J. Vang										
Configuration: EUT Only										
Mode: 1xRTT 1700MHz UAT										
Test Equipment:										
Substitution: Horn T59 Substitution, and 8ft SMA Cable										
Chamber			Pre-amplifier			Filter		Limit		
3m Chamber E			3m Chamber E			Filter		EIRP		
Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1711.25MHz)										
3.42	-66.2	H	3.0	-16.9	38.5	1.0	-54.5	-13.0	-41.5	
5.18	-66.2	H	3.0	-13.0	38.7	1.0	-50.7	-13.0	-37.7	
6.85	-67.2	H	3.0	-10.3	38.1	1.0	-47.5	-13.0	-34.5	
3.41	-66.1	V	3.0	-17.0	38.5	1.0	-54.5	-13.0	-41.5	
5.17	-65.4	V	3.0	-12.5	38.7	1.0	-50.2	-13.0	-37.2	
6.85	-67.2	V	3.0	-10.6	38.1	1.0	-47.7	-13.0	-34.7	
Mid Channel (1732.5MHz)										
3.44	-66.1	H	3.0	-16.8	38.5	1.0	-54.3	-13.0	-41.3	
5.19	-65.6	H	3.0	-12.4	38.7	1.0	-50.0	-13.0	-37.0	
6.91	-66.8	H	3.0	-9.9	38.1	1.0	-47.0	-13.0	-34.0	
3.42	-66.0	V	3.0	-16.9	38.5	1.0	-54.4	-13.0	-41.4	
5.20	-66.3	V	3.0	-13.4	38.7	1.0	-51.0	-13.0	-38.0	
6.93	-67.4	V	3.0	-10.6	38.1	1.0	-47.7	-13.0	-34.7	
High Channel (1753.75MHz)										
3.42	-65.8	H	3.0	-16.6	38.5	1.0	-54.1	-13.0	-41.1	
5.21	-66.3	H	3.0	-13.0	38.7	1.0	-50.7	-13.0	-37.7	
7.11	-67.5	H	3.0	-10.1	38.0	1.0	-47.2	-13.0	-34.2	
3.57	-66.3	V	3.0	-16.8	38.6	1.0	-54.4	-13.0	-41.4	
5.23	-66.1	V	3.0	-13.1	38.7	1.0	-50.8	-13.0	-37.8	
6.84	-66.9	V	3.0	-10.3	38.1	1.0	-47.4	-13.0	-34.4	
Rev. 03.19.15										

EVDO-Rev A, 1700MHz BC15

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20164
 Date: 05/20/15
 Test Engineer: R.Z
 Configuration: EUT only
 Mode: Rev A, 1700MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber G

3m Chamber G

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1711.25MHz)										
3.54	-66.6	H	3.0	-20.2	36.3	1.0	-55.5	-13.0	-42.5	
5.19	-66.9	H	3.0	-17.2	36.3	1.0	-52.5	-13.0	-39.5	
6.78	-67.2	H	3.0	-14.8	35.6	1.0	-49.4	-13.0	-36.4	
3.57	-66.5	V	3.0	-19.8	36.3	1.0	-55.1	-13.0	-42.1	
5.13	-68.2	V	3.0	-18.8	36.3	1.0	-54.1	-13.0	-41.1	
6.89	-67.8	V	3.0	-15.4	35.5	1.0	-49.9	-13.0	-36.9	
Mid Channel (1732.5MHz)										
3.47	-63.0	H	3.0	-16.7	36.4	1.0	-52.1	-13.0	-39.1	
5.25	-66.9	H	3.0	-17.1	36.3	1.0	-52.3	-13.0	-39.3	
6.98	-68.2	H	3.0	-15.5	35.5	1.0	-50.0	-13.0	-37.0	
3.47	-63.4	V	3.0	-17.0	36.4	1.0	-52.4	-13.0	-39.4	
5.49	-67.1	V	3.0	-17.1	36.2	1.0	-52.3	-13.0	-39.3	
6.80	-66.5	V	3.0	-14.2	35.6	1.0	-48.8	-13.0	-35.8	
High Channel (1753.75MHz)										
3.51	-65.5	H	3.0	-19.2	36.4	1.0	-54.5	-13.0	-41.5	
5.32	-66.8	H	3.0	-16.9	36.2	1.0	-52.1	-13.0	-39.1	
7.10	-67.7	H	3.0	-14.9	35.4	1.0	-49.3	-13.0	-36.3	
3.51	-63.9	V	3.0	-17.3	36.4	1.0	-52.7	-13.0	-39.7	
5.29	-67.1	V	3.0	-17.4	36.2	1.0	-52.7	-13.0	-39.7	
7.10	-68.4	V	3.0	-15.7	35.4	1.0	-50.1	-13.0	-37.1	

Rev. 03.19.15

CDMA2000 1xRTT, 800MHz BC10

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/12/15
Test Engineer: J. Vang
Configuration: EUT Only
Mode: 1xRTT 800MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber E

Pre-amplifier

3m Chamber E

Filter

Filter

Limit

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (817.25MHz)										
1.60	-63.1	H	3.0	-20.7	37.8	1.0	-57.5	-13.0	-44.5	
2.53	-64.9	H	3.0	-19.6	38.6	1.0	-57.1	-13.0	-44.1	
3.36	-65.1	H	3.0	-16.0	38.5	1.0	-53.5	-13.0	-40.5	
1.64	-64.1	V	3.0	-22.0	37.8	1.0	-58.8	-13.0	-45.8	
2.50	-64.8	V	3.0	-19.5	38.6	1.0	-57.0	-13.0	-44.0	
3.34	-65.8	V	3.0	-16.9	38.5	1.0	-54.4	-13.0	-41.4	
Mid Channel (820.00MHz)										
1.64	-63.7	H	3.0	-21.3	37.8	1.0	-58.1	-13.0	-45.1	
2.42	-65.0	H	3.0	-20.3	38.3	1.0	-57.5	-13.0	-44.5	
3.25	-65.5	H	3.0	-16.7	38.5	1.0	-54.1	-13.0	-41.1	
1.65	-63.4	V	3.0	-21.3	37.8	1.0	-58.1	-13.0	-45.1	
2.43	-65.2	V	3.0	-20.3	38.3	1.0	-57.6	-13.0	-44.6	
3.28	-65.0	V	3.0	-16.4	38.5	1.0	-53.9	-13.0	-40.9	
High Channel (822.75MHz)										
1.54	-63.3	H	3.0	-21.1	37.8	1.0	-57.9	-13.0	-44.9	
2.59	-64.5	H	3.0	-18.8	38.5	1.0	-56.3	-13.0	-43.3	
3.40	-65.5	H	3.0	-16.3	38.5	1.0	-53.8	-13.0	-40.8	
1.62	-62.5	V	3.0	-20.5	37.8	1.0	-57.3	-13.0	-44.3	
2.59	-64.9	V	3.0	-19.1	38.5	1.0	-56.7	-13.0	-43.7	
3.33	-66.2	V	3.0	-17.4	38.5	1.0	-54.9	-13.0	-41.9	

Rev. 03.19.15

EVDO-Rev A, 800MHz BC10

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/20/15
Test Engineer: R.Z
Configuration: EUT only
Mode: Rev 0/A, 800MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber G	3m Chamber G	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (817.25MHz)										
1.60	-65.6	H	3.0	-24.2	37.8	1.0	-61.1	-13.0	-48.1	
2.45	-52.6	H	3.0	-9.5	36.7	1.0	-45.2	-13.0	-32.2	
3.25	-66.5	H	3.0	-20.7	36.5	1.0	-56.2	-13.0	-43.2	
1.63	-65.2	V	3.0	-23.4	37.8	1.0	-60.3	-13.0	-47.3	
2.45	-54.0	V	3.0	-10.1	36.7	1.0	-45.8	-13.0	-32.8	
3.16	-65.3	V	3.0	-19.9	36.6	1.0	-55.5	-13.0	-42.5	
Mid Channel (820.00MHz)										
1.67	-64.5	H	3.0	-23.0	37.8	1.0	-59.8	-13.0	-46.8	
2.46	-55.8	H	3.0	-12.7	36.7	1.0	-48.3	-13.0	-35.3	
3.20	-66.2	H	3.0	-20.5	36.6	1.0	-56.1	-13.0	-43.1	
1.64	-64.9	V	3.0	-23.1	37.8	1.0	-60.0	-13.0	-47.0	
2.46	-55.7	V	3.0	-11.8	36.7	1.0	-47.4	-13.0	-34.4	
3.22	-66.0	V	3.0	-20.3	36.6	1.0	-55.9	-13.0	-42.9	
High Channel (822.75MHz)										
1.65	-65.3	H	3.0	-23.8	37.8	1.0	-60.7	-13.0	-47.7	
2.47	-54.6	H	3.0	-11.5	36.6	1.0	-47.0	-13.0	-34.0	
3.31	-67.0	H	3.0	-21.0	36.5	1.0	-56.6	-13.0	-43.6	
1.66	-66.0	V	3.0	-24.2	37.8	1.0	-61.1	-13.0	-48.1	
2.47	-56.0	V	3.0	-12.0	36.6	1.0	-47.6	-13.0	-34.6	
3.30	-66.8	V	3.0	-20.9	36.5	1.0	-56.4	-13.0	-43.4	

Rev. 03.19.15

10.8.3. UMTS

UMTS REL 99, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20164
 Date: 05/12/15
 Test Engineer: F. Guamero
 Configuration: EUT Only
 Mode: REL 99, 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber E

Pre-amplifier

3m Chamber E

Filter

Filter

Limit

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (826.4MHz)										
1.65	-64.6	H	3.0	-22.1	37.8	1.0	-58.9	-13.0	-45.9	
2.48	-65.0	H	3.0	-19.9	38.5	1.0	-57.4	-13.0	-44.4	
3.31	-67.2	H	3.0	-18.2	38.5	1.0	-55.7	-13.0	-42.7	
1.65	-64.8	V	3.0	-22.7	37.8	1.0	-59.5	-13.0	-46.5	
2.48	-65.6	V	3.0	-20.4	38.5	1.0	-57.9	-13.0	-44.9	
3.31	-67.0	V	3.0	-18.3	38.5	1.0	-55.8	-13.0	-42.8	
Mid Channel (836.6MHz)										
1.67	-64.4	H	3.0	-21.9	37.8	1.0	-58.8	-13.0	-45.8	
2.51	-66.4	H	3.0	-21.2	38.6	1.0	-58.8	-13.0	-45.8	
3.35	-66.9	H	3.0	-17.9	38.5	1.0	-55.4	-13.0	-42.4	
1.21	-64.5	H	3.0	-23.9	38.6	1.0	-61.5	-13.0	-48.5	
1.67	-64.5	H	3.0	-22.0	37.8	1.0	-58.8	-13.0	-45.8	
2.05	-63.5	V	3.0	-19.5	37.9	1.0	-56.5	-13.0	-43.5	
2.51	-66.6	V	3.0	-21.2	38.6	1.0	-58.8	-13.0	-45.8	
3.35	-66.4	V	3.0	-17.6	38.5	1.0	-55.1	-13.0	-42.1	
High Channel (846.6MHz)										
1.75	-63.2	H	3.0	-20.5	37.9	1.0	-57.4	-13.0	-44.4	
2.54	-66.2	H	3.0	-20.8	38.6	1.0	-58.3	-13.0	-45.3	
3.39	-66.1	H	3.0	-16.9	38.5	1.0	-54.4	-13.0	-41.4	
1.69	-64.5	V	3.0	-22.1	37.9	1.0	-59.0	-13.0	-46.0	
2.54	-66.1	V	3.0	-20.6	38.6	1.0	-58.1	-13.0	-45.1	
3.39	-66.1	V	3.0	-17.2	38.5	1.0	-54.7	-13.0	-41.7	

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UMTS HSDPA, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/20/15
Test Engineer: R.Z
Configuration: EUT only
Mode: HSDPA 850MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber G

Pre-amplifier

3m Chamber G

Filter

Filter

Limit

ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (826.4MHz)										
1.69	-66.1	H	3.0	-24.6	37.8	1.0	-61.4	-13.0	-48.4	
2.52	-65.9	H	3.0	-22.6	36.4	1.0	-58.0	-13.0	-45.0	
3.28	-65.9	H	3.0	-20.0	36.5	1.0	-55.6	-13.0	-42.6	
1.68	-65.2	V	3.0	-23.4	37.8	1.0	-60.2	-13.0	-47.2	
2.50	-64.7	V	3.0	-20.5	36.4	1.0	-55.9	-13.0	-42.9	
3.28	-64.2	V	3.0	-18.4	36.5	1.0	-53.9	-13.0	-40.9	
Mid Channel (836.6MHz)										
1.67	-66.0	H	3.0	-24.5	37.8	1.0	-61.3	-13.0	-48.3	
2.48	-66.2	H	3.0	-23.1	36.5	1.0	-58.6	-13.0	-45.6	
3.23	-66.1	H	3.0	-20.3	36.6	1.0	-55.9	-13.0	-42.9	
1.67	-65.1	V	3.0	-23.3	37.8	1.0	-60.2	-13.0	-47.2	
2.50	-65.3	V	3.0	-21.1	36.4	1.0	-56.4	-13.0	-43.4	
3.28	-65.6	V	3.0	-19.8	36.5	1.0	-55.3	-13.0	-42.3	
High Channel (846.6MHz)										
1.68	-66.0	H	3.0	-24.5	37.8	1.0	-61.3	-13.0	-48.3	
2.57	-66.5	H	3.0	-23.0	36.4	1.0	-58.4	-13.0	-45.4	
3.39	-65.6	H	3.0	-19.5	36.4	1.0	-54.9	-13.0	-41.9	
1.70	-65.2	V	3.0	-23.4	37.8	1.0	-60.2	-13.0	-47.2	
2.56	-62.2	V	3.0	-17.9	36.4	1.0	-53.3	-13.0	-40.3	
3.35	-65.8	V	3.0	-19.7	36.5	1.0	-55.2	-13.0	-42.2	

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UMTS REL 99, 1900MHz BAND 2

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/12/15
Test Engineer: F. Guarnero
Configuration: EUT Only
Mode: REL 99, 1900MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber E

Pre-amplifier

3m Chamber E

Filter

Filter

Limit

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1852.4MHz)										
3.71	-66.0	H	3.0	-16.0	38.6	1.0	-53.6	-13.0	-40.6	
5.56	-67.0	H	3.0	-12.9	38.6	1.0	-50.5	-13.0	-37.5	
7.41	-69.1	H	3.0	-11.4	37.8	1.0	-48.2	-13.0	-35.2	
3.71	-66.0	V	3.0	-16.1	38.6	1.0	-53.7	-13.0	-40.7	
5.46	-65.3	V	3.0	-11.8	38.6	1.0	-49.4	-13.0	-36.4	
7.19	-67.2	V	3.0	-10.0	38.0	1.0	-47.0	-13.0	-34.0	
Mid Channel (1880MHz)										
3.82	-65.0	H	3.0	-14.7	38.7	1.0	-52.4	-13.0	-39.4	
5.75	-64.6	H	3.0	-10.1	38.5	1.0	-47.6	-13.0	-34.6	
7.50	-68.5	H	3.0	-10.7	37.8	1.0	-47.5	-13.0	-34.5	
3.76	-67.0	V	3.0	-16.9	38.6	1.0	-54.6	-13.0	-41.6	
5.64	-68.5	V	3.0	-14.6	38.5	1.0	-52.1	-13.0	-39.1	
7.12	-66.0	V	3.0	-8.9	38.0	1.0	-45.9	-13.0	-32.9	
8.50	-67.0	V	3.0	-8.1	37.1	1.0	-44.2	-13.0	-31.2	
High Channel (1907.6MHz)										
3.82	-65.0	H	3.0	-14.8	38.7	1.0	-52.4	-13.0	-39.4	
5.72	-66.6	H	3.0	-12.1	38.5	1.0	-49.7	-13.0	-36.7	
7.63	-68.9	H	3.0	-11.0	37.7	1.0	-47.7	-13.0	-34.7	
3.82	-65.1	H	3.0	-14.9	38.7	1.0	-52.5	-13.0	-39.5	
5.72	-67.2	H	3.0	-12.7	38.5	1.0	-50.2	-13.0	-37.2	
7.63	-67.5	V	3.0	-9.7	37.7	1.0	-46.4	-13.0	-33.4	

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UMTS HSDPA, 1900MHz BAND 2

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/20/15
Test Engineer: R.Z
Configuration: EUT only
Mode: HSDPA, 1900MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber G	3m Chamber G	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1852.4MHz)										
3.70	-68.3	H	3.0	-21.5	36.2	1.0	-56.8	-13.0	-43.8	
5.59	-66.4	H	3.0	-16.0	36.1	1.0	-51.1	-13.0	-38.1	
6.90	-67.8	H	3.0	-15.3	35.5	1.0	-49.8	-13.0	-36.8	
3.70	-66.5	V	3.0	-19.4	36.2	1.0	-54.6	-13.0	-41.6	
5.52	-66.8	V	3.0	-16.7	36.1	1.0	-51.9	-13.0	-38.9	
7.10	-66.7	V	3.0	-14.0	35.4	1.0	-48.4	-13.0	-35.4	
Mid Channel (1880MHz)										
3.66	-67.3	H	3.0	-20.6	36.3	1.0	-55.9	-13.0	-42.9	
5.47	-67.3	H	3.0	-17.1	36.2	1.0	-52.3	-13.0	-39.3	
6.77	-66.1	H	3.0	-13.8	35.6	1.0	-48.4	-13.0	-35.4	
3.68	-66.4	V	3.0	-19.3	36.2	1.0	-54.6	-13.0	-41.6	
5.47	-65.4	V	3.0	-15.4	36.2	1.0	-50.6	-13.0	-37.6	
6.80	-66.2	V	3.0	-13.9	35.6	1.0	-48.5	-13.0	-35.5	
High Channel (1907.6MHz)										
4.00	-65.7	H	3.0	-18.3	36.0	1.0	-53.3	-13.0	-40.3	
5.82	-65.4	H	3.0	-14.6	36.0	1.0	-49.7	-13.0	-36.7	
7.68	-67.5	H	3.0	-14.2	35.0	1.0	-48.2	-13.0	-35.2	
3.82	-66.1	V	3.0	-18.6	36.1	1.0	-53.8	-13.0	-40.8	
5.80	-66.0	V	3.0	-15.4	36.0	1.0	-50.4	-13.0	-37.4	
7.60	-68.1	V	3.0	-14.9	35.1	1.0	-49.0	-13.0	-36.0	

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UMTS REL 99, 1700MHz BAND 4

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20164
Date: 05/13/15
Test Engineer: F. Guamero
Configuration: EUT Only
Mode: REL 99, 1700MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber E

3m Chamber E

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.4MHz)										
3.43	-62.2	H	3.0	-12.9	38.5	1.0	-50.4	-13.0	-37.4	
5.14	-65.7	H	3.0	-12.5	38.7	1.0	-50.2	-13.0	-37.2	
6.85	-67.2	H	3.0	-10.3	38.1	1.0	-47.5	-13.0	-34.5	
3.43	-61.4	V	3.0	-12.3	38.5	1.0	-49.8	-13.0	-36.8	
5.15	-64.6	V	3.0	-11.7	38.7	1.0	-49.4	-13.0	-36.4	
6.84	-66.7	V	3.0	-10.1	38.1	1.0	-47.2	-13.0	-34.2	
Mid Channel (1732.6MHz)										
3.47	-62.0	H	3.0	-12.6	38.5	1.0	-50.2	-13.0	-37.2	
5.20	-65.0	H	3.0	-11.7	38.7	1.0	-49.4	-13.0	-36.4	
6.88	-66.8	H	3.0	-9.9	38.1	1.0	-47.0	-13.0	-34.0	
3.47	-61.5	V	3.0	-12.3	38.5	1.0	-49.8	-13.0	-36.8	
5.20	-66.3	V	3.0	-13.4	38.7	1.0	-51.0	-13.0	-38.0	
6.93	-67.9	V	3.0	-11.1	38.1	1.0	-48.3	-13.0	-35.3	
High Channel (1752.6MHz)										
3.51	-63.2	H	3.0	-13.7	38.5	1.0	-51.3	-13.0	-38.3	
5.27	-66.5	H	3.0	-13.1	38.7	1.0	-50.7	-13.0	-37.7	
7.09	-67.9	H	3.0	-10.6	38.0	1.0	-47.6	-13.0	-34.6	
3.54	-66.1	V	3.0	-16.7	38.6	1.0	-54.3	-13.0	-41.3	
5.17	-64.8	V	3.0	-11.8	38.7	1.0	-49.5	-13.0	-36.5	
6.83	-66.5	V	3.0	-10.0	38.1	1.0	-47.1	-13.0	-34.1	

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UMTS HSDPA, 1700MHz BAND 4

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20164
Date: 05/20/15
Test Engineer: R.Z
Configuration: EUT only
Mode: HSDPA, 1700MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber G	3m Chamber G	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.4MHz)										
3.43	-65.0	H	3.0	-18.8	36.4	1.0	-54.2	-13.0	-41.2	
5.20	-67.1	H	3.0	-17.4	36.3	1.0	-52.6	-13.0	-39.6	
7.00	-67.3	H	3.0	-14.6	35.5	1.0	-49.1	-13.0	-36.1	
3.43	-65.0	V	3.0	-18.7	36.4	1.0	-54.1	-13.0	-41.1	
5.23	-66.7	V	3.0	-17.1	36.3	1.0	-52.4	-13.0	-39.4	
6.92	-66.9	V	3.0	-14.4	35.5	1.0	-48.9	-13.0	-35.9	
Mid Channel (1732.6MHz)										
3.47	-65.2	H	3.0	-18.9	36.4	1.0	-54.3	-13.0	-41.3	
5.20	-67.2	H	3.0	-17.5	36.3	1.0	-52.7	-13.0	-39.7	
6.94	-68.0	H	3.0	-15.4	35.5	1.0	-49.9	-13.0	-36.9	
3.47	-64.2	V	3.0	-17.8	36.4	1.0	-53.2	-13.0	-40.2	
5.21	-67.5	V	3.0	-18.0	36.3	1.0	-53.3	-13.0	-40.3	
6.92	-68.1	V	3.0	-15.6	35.5	1.0	-50.1	-13.0	-37.1	
High Channel (1752.6MHz)										
3.55	-66.7	H	3.0	-20.3	36.3	1.0	-55.6	-13.0	-42.6	
5.28	-67.0	H	3.0	-17.1	36.3	1.0	-52.4	-13.0	-39.4	
6.87	-67.4	H	3.0	-14.9	35.6	1.0	-49.5	-13.0	-36.5	
3.70	-66.3	V	3.0	-19.2	36.2	1.0	-54.4	-13.0	-41.4	
5.40	-67.6	V	3.0	-17.8	36.2	1.0	-53.0	-13.0	-40.0	
7.00	-67.2	V	3.0	-14.6	35.5	1.0	-49.1	-13.0	-36.1	

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10.9. FIELD STRENGTH OF SPURIOUS RADIATION, MODEL: A1688 (LAT)

10.9.1. GSM

GPRS, 850MHz BAND 5

**High Frequency Substitution Measurement
UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/05/15
Test Engineer: K. Ros
Configuration: EUT Only
Mode: GPRS 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber D

3m Chamber D

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.2MHz)										
1.65	-51.0	H	3.0	-9.2	35.0	1.0	-43.2	-13.0	-30.2	
2.47	-54.5	H	3.0	-10.4	33.9	1.0	-43.3	-13.0	-30.3	
3.30	-67.1	H	3.0	-20.4	33.2	1.0	-52.6	-13.0	-39.6	
1.65	-52.1	V	3.0	-10.1	35.0	1.0	-44.2	-13.0	-31.2	
2.47	-57.1	V	3.0	-12.8	33.9	1.0	-45.7	-13.0	-32.7	
3.30	-67.5	V	3.0	-20.6	33.2	1.0	-52.8	-13.0	-39.8	
Mid Channel (836.6MHz)										
1.67	-51.2	H	3.0	-9.4	35.0	1.0	-43.4	-13.0	-30.4	
2.51	-53.8	H	3.0	-9.5	33.7	1.0	-42.2	-13.0	-29.2	
3.35	-66.8	H	3.0	-19.9	33.3	1.0	-52.1	-13.0	-39.1	
1.67	-51.1	V	3.0	-9.1	35.0	1.0	-43.1	-13.0	-30.1	
2.51	-54.5	V	3.0	-10.0	33.7	1.0	-42.7	-13.0	-29.7	
3.35	-64.1	V	3.0	-17.1	33.3	1.0	-49.4	-13.0	-36.4	
High Channel (848.8MHz)										
1.70	-50.9	H	3.0	-9.0	35.0	1.0	-43.0	-13.0	-30.0	
2.55	-54.5	H	3.0	-10.1	33.7	1.0	-42.8	-13.0	-29.8	
3.40	-62.1	H	3.0	-15.1	33.3	1.0	-47.4	-13.0	-34.4	
1.70	-50.4	V	3.0	-8.3	35.0	1.0	-42.3	-13.0	-29.3	
2.55	-56.5	V	3.0	-11.9	33.7	1.0	-44.5	-13.0	-31.5	
3.40	-64.5	V	3.0	-17.3	33.3	1.0	-49.6	-13.0	-36.6	

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EGPRS, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20165
Date: 06/05/15
Test Engineer: K. Ros
Configuration: EUT Only
Mode: EGPRS 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber D

3m Chamber D

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.2MHz)										
1.65	-52.1	H	3.0	-10.4	35.0	1.0	-44.4	-13.0	-31.4	
2.47	-56.8	H	3.0	-12.6	33.9	1.0	-45.6	-13.0	-32.6	
3.30	-60.6	H	3.0	-13.8	33.2	1.0	-46.0	-13.0	-33.0	
1.65	-51.9	V	3.0	-9.9	35.0	1.0	-43.9	-13.0	-30.9	
2.47	-56.2	V	3.0	-11.8	33.9	1.0	-44.7	-13.0	-31.7	
3.30	-60.4	V	3.0	-13.6	33.2	1.0	-45.8	-13.0	-32.8	
Mid Channel (836.6MHz)										
1.67	-52.0	H	3.0	-10.1	35.0	1.0	-44.1	-13.0	-31.1	
2.51	-54.7	H	3.0	-10.4	33.7	1.0	-43.2	-13.0	-30.2	
3.35	-60.2	H	3.0	-13.3	33.3	1.0	-45.5	-13.0	-32.5	
1.67	-51.8	V	3.0	-9.8	35.0	1.0	-43.8	-13.0	-30.8	
2.51	-55.1	V	3.0	-10.7	33.7	1.0	-43.4	-13.0	-30.4	
3.35	-69.7	V	3.0	-22.7	33.3	1.0	-55.0	-13.0	-42.0	
High Channel (848.8MHz)										
1.70	-52.9	H	3.0	-10.9	35.0	1.0	-45.0	-13.0	-32.0	
2.55	-55.1	H	3.0	-10.7	33.7	1.0	-43.4	-13.0	-30.4	
3.40	-59.5	H	3.0	-12.4	33.3	1.0	-44.7	-13.0	-31.7	
1.70	-53.1	V	3.0	-11.0	35.0	1.0	-45.0	-13.0	-32.0	
2.55	-53.5	V	3.0	-8.9	33.7	1.0	-41.5	-13.0	-28.5	
3.40	-61.2	V	3.0	-14.0	33.3	1.0	-46.3	-13.0	-33.3	

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GPRS, 1900MHz BAND 2

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20165
Date: 06/05/15
Test Engineer: K. Ros
Configuration: EUT Only
Mode: GPRS 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber D

3m Chamber D

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1850.2MHz)										
3.70	-63.2	H	3.0	-15.2	33.5	1.0	-47.7	-13.0	-34.7	
5.55	-67.1	H	3.0	-15.9	32.5	1.0	-47.3	-13.0	-34.3	
7.40	-68.5	H	3.0	-14.1	30.4	1.0	-43.5	-13.0	-30.5	
3.70	-63.5	V	3.0	-15.5	33.5	1.0	-48.0	-13.0	-35.0	
5.55	-68.1	V	3.0	-17.1	32.5	1.0	-48.6	-13.0	-35.6	
7.40	-67.9	V	3.0	-13.4	30.4	1.0	-42.8	-13.0	-29.8	
Mid Channel (1880.0)										
3.76	-63.8	H	3.0	-15.7	33.5	1.0	-48.2	-13.0	-35.2	
5.64	-67.8	H	3.0	-16.3	32.4	1.0	-47.7	-13.0	-34.7	
7.52	-68.0	H	3.0	-13.5	30.3	1.0	-42.8	-13.0	-29.8	
3.76	-64.1	V	3.0	-16.0	33.5	1.0	-48.5	-13.0	-35.5	
5.64	-67.1	V	3.0	-15.9	32.4	1.0	-47.3	-13.0	-34.3	
7.52	-68.1	V	3.0	-13.5	30.3	1.0	-42.7	-13.0	-29.7	
High Channel (1909.8MHz)										
3.82	-64.3	H	3.0	-16.0	33.6	1.0	-48.6	-13.0	-35.6	
5.73	-67.1	H	3.0	-15.5	32.3	1.0	-46.8	-13.0	-33.8	
7.64	-67.8	H	3.0	-13.1	30.1	1.0	-42.2	-13.0	-29.2	
3.82	-64.1	V	3.0	-15.9	33.6	1.0	-48.5	-13.0	-35.5	
5.73	-67.5	V	3.0	-16.1	32.3	1.0	-47.3	-13.0	-34.3	
7.64	-68.0	V	3.0	-13.2	30.1	1.0	-42.3	-13.0	-29.3	

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EGPRS, 1900MHz BAND 2

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20165
 Date: 06/05/155
 Test Engineer: K. Ros
 Configuration: EUT Only
 Mode: EGPRS 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber D

3m Chamber D

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1850.2MHz)										
3.70	-66.1	H	3.0	-18.2	33.5	1.0	-50.7	-13.0	-37.7	
5.55	-67.2	H	3.0	-15.9	32.5	1.0	-47.4	-13.0	-34.4	
7.40	-68.5	H	3.0	-14.1	30.4	1.0	-43.5	-13.0	-30.5	
3.70	-66.7	V	3.0	-18.8	33.5	1.0	-51.3	-13.0	-38.3	
5.55	-67.5	V	3.0	-16.4	32.5	1.0	-47.9	-13.0	-34.9	
7.40	-67.9	V	3.0	-13.3	30.4	1.0	-42.8	-13.0	-29.8	
Mid Channel (1880.0)										
3.76	-66.0	H	3.0	-17.9	33.5	1.0	-50.4	-13.0	-37.4	
5.64	-67.1	H	3.0	-15.7	32.4	1.0	-47.1	-13.0	-34.1	
7.52	-69.0	H	3.0	-14.5	30.3	1.0	-43.8	-13.0	-30.8	
3.76	-66.7	V	3.0	-18.6	33.5	1.0	-51.2	-13.0	-38.2	
5.64	-67.2	V	3.0	-16.0	32.4	1.0	-47.4	-13.0	-34.4	
7.52	-68.5	V	3.0	-13.8	30.3	1.0	-43.1	-13.0	-30.1	
High Channel (1909.8MHz)										
3.82	-65.7	H	3.0	-17.5	33.6	1.0	-50.0	-13.0	-37.0	
5.73	-66.8	H	3.0	-15.2	32.3	1.0	-46.5	-13.0	-33.5	
7.64	-68.1	H	3.0	-13.5	30.1	1.0	-42.6	-13.0	-29.6	
3.82	-66.1	V	3.0	-17.8	33.6	1.0	-50.4	-13.0	-37.4	
5.73	-67.3	V	3.0	-15.9	32.3	1.0	-47.1	-13.0	-34.1	
7.64	-68.2	V	3.0	-13.5	30.1	1.0	-42.6	-13.0	-29.6	

Rev. 03.19.15

10.9.2. CDMA2000

CDMA2000 1xRTT, 850MHz BC0

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20165
 Date: 06/05/15
 Test Engineer: K. Ros
 Configuration: EUT Only
 Mode: 1xRTT 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifer

Filter

Limit

3m Chamber D

3m Chamber D

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.7MHz)										
1.65	-60.7	H	3.0	-18.9	35.0	1.0	-53.0	-13.0	-40.0	
2.47	-62.2	H	3.0	-18.1	33.9	1.0	-51.0	-13.0	-38.0	
3.30	-64.2	H	3.0	-17.4	33.2	1.0	-49.6	-13.0	-36.6	
1.65	-60.2	V	3.0	-18.2	35.0	1.0	-52.2	-13.0	-39.2	
2.47	-62.5	V	3.0	-18.1	33.9	1.0	-51.0	-13.0	-38.0	
3.30	-64.8	V	3.0	-17.9	33.2	1.0	-50.1	-13.0	-37.1	
Mid Channel (836.52MHz)										
1.67	-63.1	H	3.0	-21.3	35.0	1.0	-55.3	-13.0	-42.3	
2.51	-64.1	H	3.0	-19.9	33.7	1.0	-52.6	-13.0	-39.6	
3.35	-66.1	H	3.0	-19.2	33.3	1.0	-51.5	-13.0	-38.5	
1.67	-62.6	V	3.0	-20.5	35.0	1.0	-54.5	-13.0	-41.5	
2.51	-64.5	V	3.0	-20.0	33.7	1.0	-52.7	-13.0	-39.7	
3.35	-64.5	V	3.0	-17.5	33.3	1.0	-49.7	-13.0	-36.7	
High Channel (848.31MHz)										
1.70	-61.1	H	3.0	-19.2	35.0	1.0	-53.2	-13.0	-40.2	
2.54	-64.1	H	3.0	-19.7	33.7	1.0	-52.4	-13.0	-39.4	
3.39	-65.6	H	3.0	-18.6	33.3	1.0	-50.9	-13.0	-37.9	
1.70	-60.3	V	3.0	-18.2	35.0	1.0	-52.2	-13.0	-39.2	
2.54	-63.0	V	3.0	-18.4	33.7	1.0	-51.1	-13.0	-38.1	
3.39	-65.0	V	3.0	-17.9	33.3	1.0	-50.2	-13.0	-37.2	

Rev. 03.19.15

EVDO-Rev A, 850MHz BC0

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/05/15
Test Engineer: K. Ros
Configuration: EUT Only
Mode: Rev 0/A 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.7MHz)										
1.65	-61.5	H	3.0	-19.8	35.0	1.0	-53.8	-13.0	-40.8	
2.47	-60.2	H	3.0	-16.1	33.9	1.0	-49.0	-13.0	-36.0	
3.30	-62.2	H	3.0	-15.5	33.2	1.0	-47.7	-13.0	-34.7	
1.65	-62.5	V	3.0	-20.5	35.0	1.0	-54.5	-13.0	-41.5	
2.47	-62.6	V	3.0	-18.3	33.9	1.0	-51.2	-13.0	-38.2	
3.30	-66.0	V	3.0	-19.1	33.2	1.0	-51.3	-13.0	-38.3	
Mid Channel (836.52MHz)										
1.67	-62.4	H	3.0	-20.5	35.0	1.0	-54.6	-13.0	-41.6	
2.51	-60.1	H	3.0	-15.8	33.7	1.0	-48.6	-13.0	-35.6	
3.35	-62.1	H	3.0	-15.2	33.3	1.0	-47.5	-13.0	-34.5	
1.67	-61.4	V	3.0	-19.4	35.0	1.0	-53.4	-13.0	-40.4	
2.51	-60.2	V	3.0	-15.8	33.7	1.0	-48.5	-13.0	-35.5	
3.35	-63.4	V	3.0	-16.4	33.3	1.0	-48.7	-13.0	-35.7	
High Channel (848.31MHz)										
1.70	-61.2	H	3.0	-19.2	35.0	1.0	-53.3	-13.0	-40.3	
2.54	-60.2	H	3.0	-15.8	33.7	1.0	-48.5	-13.0	-35.5	
3.39	-61.2	H	3.0	-14.2	33.3	1.0	-46.5	-13.0	-33.5	
1.70	-61.6	V	3.0	-19.5	35.0	1.0	-53.6	-13.0	-40.6	
2.54	-60.7	V	3.0	-16.1	33.7	1.0	-48.8	-13.0	-35.8	
3.39	-61.6	V	3.0	-14.5	33.3	1.0	-46.8	-13.0	-33.8	

Rev. 03.19.15

CDMA2000 1xRTT, 1900MHz BC1

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
 Project #: 15U20165
 Date: 06/05/15
 Test Engineer: K. Ros
 Configuration: EUT Only
 Mode: 1xRTT 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1851.25MHz)										
3.70	-66.5	H	3.0	-18.6	33.5	1.0	-51.1	-13.0	-38.1	
5.55	-66.9	H	3.0	-15.6	32.5	1.0	-47.1	-13.0	-34.1	
7.41	-68.5	H	3.0	-14.1	30.4	1.0	-43.5	-13.0	-30.5	
3.70	-66.2	V	3.0	-18.3	33.5	1.0	-50.8	-13.0	-37.8	
5.55	-67.0	V	3.0	-16.0	32.5	1.0	-47.5	-13.0	-34.5	
7.41	-68.2	V	3.0	-13.6	30.4	1.0	-43.0	-13.0	-30.0	
Mid Channel (1880MHz)										
3.76	-62.3	H	3.0	-14.2	33.5	1.0	-46.7	-13.0	-33.7	
5.64	-63.2	H	3.0	-11.8	32.4	1.0	-43.1	-13.0	-30.1	
7.52	-68.1	H	3.0	-13.6	30.3	1.0	-42.8	-13.0	-29.8	
3.76	-63.4	V	3.0	-15.3	33.5	1.0	-47.9	-13.0	-34.9	
5.64	-64.3	V	3.0	-13.1	32.4	1.0	-44.4	-13.0	-31.4	
7.52	-68.7	V	3.0	-14.1	30.3	1.0	-43.3	-13.0	-30.3	
High Channel (1908.75MHz)										
3.82	-62.1	H	3.0	-13.8	33.6	1.0	-46.4	-13.0	-33.4	
5.73	-63.2	H	3.0	-11.6	32.3	1.0	-42.9	-13.0	-29.9	
7.64	-66.2	H	3.0	-11.6	30.1	1.0	-40.7	-13.0	-27.7	
3.82	-61.0	V	3.0	-12.8	33.6	1.0	-45.3	-13.0	-32.3	
5.73	-62.8	V	3.0	-11.4	32.3	1.0	-42.7	-13.0	-29.7	
7.64	-68.1	V	3.0	-13.3	30.1	1.0	-42.5	-13.0	-29.5	

Rev. 03.19.15

EVDO-Rev A, 1900MHz BC1

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/05/15
Test Engineer: K. Ros
Configuration: EUT Only
Mode: Rev A 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1851.25MHz)										
3.70	-62.0	H	3.0	-14.1	33.5	1.0	-46.6	-13.0	-33.6	
5.55	-63.1	H	3.0	-11.8	32.5	1.0	-43.3	-13.0	-30.3	
7.41	-64.5	H	3.0	-10.1	30.4	1.0	-39.5	-13.0	-26.5	
3.70	-61.8	H	3.0	-13.9	33.5	1.0	-46.4	-13.0	-33.4	
5.55	-63.1	H	3.0	-11.8	32.5	1.0	-43.3	-13.0	-30.3	
7.41	-65.5	V	3.0	-11.0	30.4	1.0	-40.4	-13.0	-27.4	
Mid Channel (1880MHz)										
3.76	-61.8	H	3.0	-13.7	33.5	1.0	-46.3	-13.0	-33.3	
5.64	-62.2	H	3.0	-10.7	32.4	1.0	-42.1	-13.0	-29.1	
7.52	-63.7	H	3.0	-9.2	30.3	1.0	-38.5	-13.0	-25.5	
3.76	-62.9	H	3.0	-14.8	33.5	1.0	-47.4	-13.0	-34.4	
5.64	-64.1	H	3.0	-12.7	32.4	1.0	-44.1	-13.0	-31.1	
7.52	-65.2	V	3.0	-10.6	30.3	1.0	-39.8	-13.0	-26.8	
High Channel (1908.75MHz)										
3.82	-61.7	H	3.0	-13.4	33.6	1.0	-46.0	-13.0	-33.0	
5.73	-63.1	H	3.0	-11.5	32.3	1.0	-42.8	-13.0	-29.8	
7.64	-65.1	H	3.0	-10.5	30.1	1.0	-39.6	-13.0	-26.6	
3.82	-61.3	H	3.0	-13.0	33.6	1.0	-45.6	-13.0	-32.6	
5.73	-63.6	H	3.0	-12.0	32.3	1.0	-43.3	-13.0	-30.3	
7.64	-65.2	V	3.0	-10.4	30.1	1.0	-39.5	-13.0	-26.5	

Rev. 03.19.15

CDMA2000 1xRTT, 1700MHz BC15

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20165
 Date: 06/05/15
 Test Engineer: K. Ros
 Configuration: EUT Only
 Mode: 1xRTT 1700MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber D

Pre-amplifier

3m Chamber D

Filter

Filter

Limit

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1711.25MHz)										
3.42	-55.4	H	3.0	-8.3	33.3	1.0	-40.6	-13.0	-27.6	
5.13	-65.1	H	3.0	-14.5	32.9	1.0	-46.4	-13.0	-33.4	
6.85	-67.7	H	3.0	-14.2	31.1	1.0	-44.2	-13.0	-31.2	
3.42	-56.1	V	3.0	-8.9	33.3	1.0	-41.2	-13.0	-28.2	
5.13	-64.0	V	3.0	-13.8	32.9	1.0	-45.7	-13.0	-32.7	
6.83	-67.8	V	3.0	-14.0	31.1	1.0	-44.1	-13.0	-31.1	
Mid Channel (1732.5MHz)										
3.46	-56.5	H	3.0	-9.2	33.3	1.0	-41.6	-13.0	-28.6	
5.20	-65.1	H	3.0	-14.5	32.9	1.0	-46.3	-13.0	-33.3	
6.88	-68.0	H	3.0	-14.4	31.0	1.0	-44.4	-13.0	-31.4	
3.46	-56.2	V	3.0	-8.9	33.3	1.0	-41.2	-13.0	-28.2	
5.20	-64.8	V	3.0	-14.6	32.9	1.0	-46.4	-13.0	-33.4	
6.87	-67.2	V	3.0	-13.3	31.0	1.0	-43.3	-13.0	-30.3	
High Channel (1753.75MHz)										
3.51	-60.2	H	3.0	-12.8	33.4	1.0	-45.2	-13.0	-32.2	
5.29	-64.6	H	3.0	-13.8	32.8	1.0	-45.5	-13.0	-32.5	
7.17	-68.5	H	3.0	-14.4	30.7	1.0	-44.1	-13.0	-31.1	
3.51	-68.9	V	3.0	-21.4	33.4	1.0	-53.8	-13.0	-40.8	
5.21	-62.1	V	3.0	-11.9	32.8	1.0	-43.7	-13.0	-30.7	
6.90	-65.7	V	3.0	-11.7	31.0	1.0	-41.7	-13.0	-28.7	

Rev. 03.19.15

EVDO-Rev A, 1700MHz BC15

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/05/15
Test Engineer: K. Ros
Configuration: EUT Only
Mode: Rev 0/A, 1700MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1711.25MHz)										
3.42	-61.2	H	3.0	-14.1	33.3	1.0	46.4	-13.0	-33.4	
5.15	-62.3	H	3.0	-11.7	32.9	1.0	43.6	-13.0	-30.6	
6.86	-63.1	H	3.0	-9.5	31.0	1.0	39.5	-13.0	-26.5	
3.42	-60.9	V	3.0	-13.7	33.3	1.0	46.1	-13.0	-33.1	
5.12	-62.0	V	3.0	-11.8	32.9	1.0	43.8	-13.0	-30.8	
6.84	-63.8	V	3.0	-10.0	31.1	1.0	40.0	-13.0	-27.0	
Mid Channel (1732.5MHz)										
3.47	-62.3	H	3.0	-15.1	33.3	1.0	47.4	-13.0	-34.4	
5.21	-63.2	H	3.0	-12.5	32.9	1.0	44.3	-13.0	-31.3	
6.93	-65.1	H	3.0	-11.4	31.0	1.0	41.4	-13.0	-28.4	
3.49	-62.1	V	3.0	-14.8	33.4	1.0	47.1	-13.0	-34.1	
5.16	-63.5	V	3.0	-13.3	32.9	1.0	45.2	-13.0	-32.2	
6.92	-66.3	V	3.0	-12.3	31.0	1.0	42.3	-13.0	-29.3	
High Channel (1753.75MHz)										
3.51	-63.0	H	3.0	-15.6	33.4	1.0	48.0	-13.0	-35.0	
5.25	-63.2	H	3.0	-12.4	32.8	1.0	44.2	-13.0	-31.2	
7.02	-65.1	H	3.0	-11.2	30.9	1.0	41.0	-13.0	-28.0	
3.50	-62.8	V	3.0	-15.4	33.4	1.0	47.8	-13.0	-34.8	
5.26	-64.7	V	3.0	-14.4	32.8	1.0	46.1	-13.0	-33.1	
7.01	-66.6	V	3.0	-12.5	30.9	1.0	42.3	-13.0	-29.3	

Rev. 03.19.15

CDMA2000 1xRTT, 800MHz BC10

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20165
Date: 06/05/15
Test Engineer: K. Ros
Configuration: EUT Only
Mode: 1xRTT 800MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
3m Chamber D

Pre-amplifier
3m Chamber D

Filter
Filter

Limit
EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (817.25MHz)										
1.64	-63.2	H	3.0	-21.4	35.0	1.0	-55.5	-13.0	-42.5	
2.49	-64.2	H	3.0	-20.0	33.8	1.0	-52.8	-13.0	-39.8	
3.26	-66.3	H	3.0	-19.7	33.2	1.0	-51.9	-13.0	-38.9	
1.64	-63.1	V	3.0	-21.1	35.0	1.0	-55.2	-13.0	-42.2	
2.45	-64.6	V	3.0	-20.3	34.1	1.0	-53.4	-13.0	-40.4	
3.27	-66.6	V	3.0	-19.8	33.2	1.0	-52.0	-13.0	-39.0	
Mid Channel (820.00MHz)										
1.64	-62.9	H	3.0	-21.1	35.0	1.0	-55.2	-13.0	-42.2	
2.61	-64.0	H	3.0	-19.4	33.6	1.0	-52.0	-13.0	-39.0	
3.31	-65.1	H	3.0	-18.3	33.2	1.0	-50.6	-13.0	-37.6	
1.64	-63.1	V	3.0	-21.1	35.0	1.0	-55.2	-13.0	-42.2	
2.45	-64.3	V	3.0	-20.1	34.1	1.0	-53.1	-13.0	-40.1	
3.28	-65.2	V	3.0	-18.4	33.2	1.0	-50.6	-13.0	-37.6	
High Channel (822.75MHz)										
1.63	-61.4	H	3.0	-19.6	35.0	1.0	-53.7	-13.0	-40.7	
2.47	-63.0	H	3.0	-18.9	33.9	1.0	-51.9	-13.0	-38.9	
3.28	-66.0	H	3.0	-19.3	33.2	1.0	-51.5	-13.0	-38.5	
1.65	-62.0	V	3.0	-20.0	35.0	1.0	-54.1	-13.0	-41.1	
2.46	-64.3	V	3.0	-20.0	34.0	1.0	-53.0	-13.0	-40.0	
3.29	-66.1	V	3.0	-19.3	33.2	1.0	-51.5	-13.0	-38.5	

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EVDO-Rev A, 800MHz BC10

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
 Project #: 15U20165
 Date: 06/05/15
 Test Engineer: K. Ros
 Configuration: EUT Only
 Mode: Rev A, 800MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (817.25MHz)										
1.64	-62.5	H	3.0	-20.7	35.0	1.0	-54.7	-13.0	-41.7	
2.44	-60.2	H	3.0	-16.2	34.1	1.0	-49.4	-13.0	-36.4	
3.27	-62.1	H	3.0	-15.4	33.2	1.0	-47.6	-13.0	-34.6	
1.63	-60.2	V	3.0	-18.2	35.0	1.0	-52.2	-13.0	-39.2	
2.45	-61.0	V	3.0	-16.7	34.1	1.0	-49.8	-13.0	-36.8	
3.27	-61.2	V	3.0	-14.5	33.2	1.0	-46.7	-13.0	-33.7	
Mid Channel (820.00MHz)										
1.63	-61.1	H	3.0	-19.4	35.0	1.0	-53.4	-13.0	-40.4	
2.46	-60.2	H	3.0	-16.2	34.0	1.0	-49.2	-13.0	-36.2	
3.28	-62.0	H	3.0	-15.2	33.2	1.0	-47.5	-13.0	-34.5	
1.64	-60.2	V	3.0	-18.3	35.0	1.0	-52.3	-13.0	-39.3	
2.45	-61.3	V	3.0	-17.1	34.1	1.0	-50.1	-13.0	-37.1	
3.27	-63.5	V	3.0	-16.7	33.2	1.0	-48.9	-13.0	-35.9	
High Channel (822.75MHz)										
1.65	-61.6	H	3.0	-19.8	35.0	1.0	-53.8	-13.0	-40.8	
2.47	-60.4	H	3.0	-16.3	34.0	1.0	-49.3	-13.0	-36.3	
3.29	-62.2	H	3.0	-15.4	33.2	1.0	-47.6	-13.0	-34.6	
1.66	-62.8	V	3.0	-20.8	35.0	1.0	-54.8	-13.0	-41.8	
2.47	-60.9	V	3.0	-16.5	34.0	1.0	-49.5	-13.0	-36.5	
3.29	-63.2	V	3.0	-16.3	33.2	1.0	-48.6	-13.0	-35.6	

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10.9.3. UMTS

UMTS REL 99, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20165
 Date: 06/06/15
 Test Engineer: K. Ros
 Configuration: EUT Only
 Mode: REL 99, 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber D

Pre-amplifier

3m Chamber D

Filter

Filter

Limit

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (826.4MHz)										
1.65	-55.3	H	3.0	-13.5	35.0	1.0	-47.5	-13.0	-34.5	
2.48	-62.2	H	3.0	-18.1	33.9	1.0	-51.0	-13.0	-38.0	
3.31	-66.1	H	3.0	-19.4	33.2	1.0	-51.6	-13.0	-38.6	
1.65	-55.4	V	3.0	-13.4	35.0	1.0	-47.4	-13.0	-34.4	
2.48	-59.7	V	3.0	-15.3	33.9	1.0	-48.2	-13.0	-35.2	
3.31	-65.0	V	3.0	-18.1	33.2	1.0	-50.3	-13.0	-37.3	
Mid Channel (836.6MHz)										
1.67	-56.5	H	3.0	-14.7	35.0	1.0	-48.7	-13.0	-35.7	
2.51	-60.2	H	3.0	-15.9	33.7	1.0	-48.6	-13.0	-35.6	
3.34	-66.3	H	3.0	-19.4	33.3	1.0	-51.7	-13.0	-38.7	
1.67	-55.5	V	3.0	-13.4	35.0	1.0	-47.4	-13.0	-34.4	
2.58	-60.7	V	3.0	-15.9	33.6	1.0	-48.6	-13.0	-35.6	
3.34	-65.3	V	3.0	-18.3	33.3	1.0	-50.6	-13.0	-37.6	
High Channel (846.6MHz)										
1.69	-54.5	H	3.0	-12.6	35.0	1.0	-46.6	-13.0	-33.6	
2.54	-60.2	H	3.0	-15.8	33.7	1.0	-48.5	-13.0	-35.5	
3.39	-66.3	H	3.0	-19.3	33.3	1.0	-51.6	-13.0	-38.6	
1.69	-55.5	V	3.0	-13.4	35.0	1.0	-47.4	-13.0	-34.4	
2.54	-59.7	V	3.0	-15.1	33.7	1.0	-47.8	-13.0	-34.8	
3.39	-65.3	V	3.0	-18.2	33.3	1.0	-50.5	-13.0	-37.5	

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UMTS HSDPA, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20165
 Date: 06/06/15
 Test Engineer: K. Ros
 Configuration: EUT Only
 Mode: HSDPA, 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber D

3m Chamber D

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (826.4MHz)										
1.65	-60.2	H	3.0	-18.4	35.0	1.0	-52.4	-13.0	-39.4	
2.48	-65.2	H	3.0	-21.0	33.9	1.0	-53.9	-13.0	-40.9	
3.30	-64.5	H	3.0	-17.8	33.2	1.0	-50.0	-13.0	-37.0	
1.65	-59.6	V	3.0	-17.6	35.0	1.0	-51.6	-13.0	-38.6	
2.48	-64.1	V	3.0	-19.7	33.9	1.0	-52.6	-13.0	-39.6	
3.30	-65.3	V	3.0	-18.4	33.2	1.0	-50.6	-13.0	-37.6	
Mid Channel (836.6MHz)										
1.67	-61.1	H	3.0	-19.2	35.0	1.0	-53.2	-13.0	-40.2	
2.50	-64.6	H	3.0	-20.3	33.7	1.0	-53.1	-13.0	-40.1	
3.26	-65.3	H	3.0	-18.6	33.2	1.0	-50.8	-13.0	-37.8	
1.67	-59.7	V	3.0	-17.6	35.0	1.0	-51.6	-13.0	-38.6	
2.51	-64.2	V	3.0	-19.7	33.7	1.0	-52.5	-13.0	-39.5	
3.30	-65.2	V	3.0	-18.3	33.2	1.0	-50.5	-13.0	-37.5	
High Channel (846.6MHz)										
1.70	-60.9	H	3.0	-18.9	35.0	1.0	-52.9	-13.0	-39.9	
2.54	-66.1	H	3.0	-21.7	33.7	1.0	-54.4	-13.0	-41.4	
3.30	-64.5	H	3.0	-17.7	33.2	1.0	-50.0	-13.0	-37.0	
1.70	-55.3	V	3.0	-13.2	35.0	1.0	-47.2	-13.0	-34.2	
2.54	-64.5	V	3.0	-19.9	33.7	1.0	-52.6	-13.0	-39.6	
3.30	-66.3	V	3.0	-19.4	33.2	1.0	-51.6	-13.0	-38.6	

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UMTS REL 99, 1900MHz BAND 2

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20165
Date: 06/06/15
Test Engineer: K. Ros
Configuration: EUT Only
Mode: REL 99, 850MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber D

Pre-amplifier

3m Chamber D

Filter

Filter

Limit

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1852.4MHz)										
3.70	-64.3	H	3.0	-16.3	33.5	1.0	-48.8	-13.0	-35.8	
5.56	-66.9	H	3.0	-15.6	32.5	1.0	-47.0	-13.0	-34.0	
7.41	-67.4	H	3.0	-13.1	30.4	1.0	-42.5	-13.0	-29.5	
3.70	-69.7	V	3.0	-21.8	33.5	1.0	-54.3	-13.0	-41.3	
5.56	-68.1	V	3.0	-17.0	32.5	1.0	-48.5	-13.0	-35.5	
7.41	-68.2	V	3.0	-13.7	30.4	1.0	-43.1	-13.0	-30.1	
Mid Channel (1880MHz)										
3.76	-64.5	H	3.0	-16.4	33.5	1.0	-48.9	-13.0	-35.9	
5.64	-67.0	H	3.0	-15.5	32.4	1.0	-46.9	-13.0	-33.9	
7.52	-68.4	H	3.0	-13.9	30.3	1.0	-43.2	-13.0	-30.2	
3.76	-64.5	V	3.0	-16.4	33.5	1.0	-49.0	-13.0	-36.0	
5.64	-67.3	V	3.0	-16.1	32.4	1.0	-47.5	-13.0	-34.5	
7.52	-67.8	V	3.0	-13.1	30.3	1.0	-42.4	-13.0	-29.4	
High Channel (1907.6MHz)										
3.82	-65.0	H	3.0	-16.7	33.6	1.0	-49.3	-13.0	-36.3	
5.72	-67.6	H	3.0	-16.1	32.3	1.0	-47.3	-13.0	-34.3	
7.63	-67.9	H	3.0	-13.3	30.1	1.0	-42.4	-13.0	-29.4	
3.82	-65.4	V	3.0	-17.1	33.6	1.0	-49.7	-13.0	-36.7	
5.72	-67.2	V	3.0	-15.8	32.3	1.0	-47.1	-13.0	-34.1	
7.63	-67.7	V	3.0	-12.9	30.1	1.0	-42.0	-13.0	-29.0	

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UMTS HSDPA, 1900MHz BAND 2

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 14U30165
Date: 06/06/15
Test Engineer: K. Ros
Configuration: EUT Only
Mode: HSPA 1900MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber D

Pre-amplifier

3m Chamber D

Filter

Filter

Limit

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1852.4MHz)										
3.70	-65.2	H	3.0	-17.3	33.5	1.0	-49.8	-13.0	-36.8	
5.56	-67.3	H	3.0	-16.0	32.5	1.0	-47.4	-13.0	-34.4	
7.41	-68.2	H	3.0	-13.8	30.4	1.0	-43.2	-13.0	-30.2	
3.70	-66.4	V	3.0	-18.4	33.5	1.0	-50.9	-13.0	-37.9	
5.56	-67.1	V	3.0	-16.0	32.5	1.0	-47.5	-13.0	-34.5	
7.41	-67.8	V	3.0	-13.2	30.4	1.0	-42.6	-13.0	-29.6	
Mid Channel (1880MHz)										
3.76	-65.5	H	3.0	-17.3	33.5	1.0	-49.9	-13.0	-36.9	
5.64	-65.7	H	3.0	-14.3	32.4	1.0	-45.6	-13.0	-32.6	
7.52	-68.2	H	3.0	-13.7	30.3	1.0	-42.9	-13.0	-29.9	
3.76	-64.9	V	3.0	-16.8	33.5	1.0	-49.3	-13.0	-36.3	
5.64	-65.5	V	3.0	-14.3	32.4	1.0	-45.7	-13.0	-32.7	
7.52	-67.2	V	3.0	-12.6	30.3	1.0	-41.8	-13.0	-28.8	
High Channel (1907.6MHz)										
3.82	-65.2	H	3.0	-16.9	33.6	1.0	-49.5	-13.0	-36.5	
5.72	-65.8	H	3.0	-14.2	32.3	1.0	-45.5	-13.0	-32.5	
7.63	-67.8	H	3.0	-13.1	30.1	1.0	-42.3	-13.0	-29.3	
3.82	-66.4	V	3.0	-18.2	33.6	1.0	-50.8	-13.0	-37.8	
5.72	-65.2	V	3.0	-13.8	32.3	1.0	-45.1	-13.0	-32.1	
7.63	-67.1	V	3.0	-12.4	30.1	1.0	-41.5	-13.0	-28.5	

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UMTS REL 99, 1700MHz BAND 4

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U201665
Date: 06/06/15
Test Engineer: K. Ros
Configuration: EUT Only
Mode: REL 99, 1700MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.4MHz)										
3.42	-57.9	H	3.0	-10.8	33.3	1.0	-43.1	-13.0	-30.1	
5.14	-67.6	H	3.0	-17.1	32.9	1.0	-49.0	-13.0	-36.0	
6.85	-67.9	H	3.0	-14.4	31.1	1.0	-44.4	-13.0	-31.4	
3.42	-55.4	V	3.0	-8.2	33.3	1.0	-40.5	-13.0	-27.5	
5.14	-65.8	V	3.0	-15.6	32.9	1.0	-47.5	-13.0	-34.5	
6.85	-67.4	V	3.0	-13.6	31.1	1.0	-43.6	-13.0	-30.6	
Mid Channel (1732.6MHz)										
3.47	-58.1	H	3.0	-10.9	33.3	1.0	-43.2	-13.0	-30.2	
5.20	-69.6	H	3.0	-19.0	32.9	1.0	-50.8	-13.0	-37.8	
6.93	-69.2	H	3.0	-15.4	31.0	1.0	-45.4	-13.0	-32.4	
3.47	-59.2	V	3.0	-11.9	33.3	1.0	-44.2	-13.0	-31.2	
5.20	-67.8	V	3.0	-17.6	32.9	1.0	-49.4	-13.0	-36.4	
6.93	-69.7	V	3.0	-15.7	31.0	1.0	-45.6	-13.0	-32.6	
High Channel (1752.6MHz)										
3.51	-56.9	H	3.0	-9.6	33.4	1.0	-41.9	-13.0	-28.9	
5.26	-64.7	H	3.0	-13.9	32.8	1.0	-45.7	-13.0	-32.7	
7.01	-69.4	H	3.0	-15.5	30.9	1.0	-45.4	-13.0	-32.4	
3.51	-61.8	V	3.0	-14.3	33.4	1.0	-46.7	-13.0	-33.7	
5.26	-66.7	V	3.0	-16.3	32.8	1.0	-48.1	-13.0	-35.1	
7.01	-69.5	V	3.0	-15.3	30.9	1.0	-45.2	-13.0	-32.2	

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UMTS HSDPA, 1700MHz BAND 4

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20165
Date: 06/05/15
Test Engineer: K. Ros
Configuration: EUT Only
Mode: HSDPA 1700MHz

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber D

Pre-amplifier

3m Chamber D

Filter

Filter

Limit

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	EIRP @ TX Ant End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.4MHz)										
3.70	-63.5	H	3.0	-15.5	33.5	1.0	-48.0	-13.0	-35.0	
5.56	-66.4	H	3.0	-15.1	32.5	1.0	-46.6	-13.0	-33.6	
7.41	-66.7	H	3.0	-12.3	30.4	1.0	-41.7	-13.0	-28.7	
3.70	-65.0	V	3.0	-17.0	33.5	1.0	-49.6	-13.0	-36.6	
5.56	-67.0	V	3.0	-16.0	32.5	1.0	-47.4	-13.0	-34.4	
7.41	-66.8	V	3.0	-12.2	30.4	1.0	-41.6	-13.0	-28.6	
Mid Channel (1732.6MHz)										
3.76	-64.8	H	3.0	-16.7	33.5	1.0	-49.2	-13.0	-36.2	
5.64	-66.9	H	3.0	-15.4	32.4	1.0	-46.8	-13.0	-33.8	
7.52	-64.0	H	3.0	-9.5	30.3	1.0	-38.8	-13.0	-25.8	
3.76	-66.7	V	3.0	-18.6	33.5	1.0	-51.1	-13.0	-38.1	
5.64	-66.0	V	3.0	-14.8	32.4	1.0	-46.2	-13.0	-33.2	
7.52	-67.7	V	3.0	-13.0	30.3	1.0	-42.3	-13.0	-29.3	
High Channel (1752.6MHz)										
3.82	-66.6	H	3.0	-18.3	33.6	1.0	-50.9	-13.0	-37.9	
5.72	-65.5	H	3.0	-13.9	32.3	1.0	-45.2	-13.0	-32.2	
7.63	-68.5	H	3.0	-13.9	30.1	1.0	-43.0	-13.0	-30.0	
3.82	-65.9	V	3.0	-17.7	33.6	1.0	-50.2	-13.0	-37.2	
5.72	-66.7	V	3.0	-15.3	32.3	1.0	-46.6	-13.0	-33.6	
7.63	-67.9	V	3.0	-13.1	30.1	1.0	-42.3	-13.0	-29.3	

Rev. 03.19.15

10.10. FIELD STRENGTH OF SPURIOUS RADIATION, MODEL: A1688 (UAT)

10.10.1. GSM

GPRS, 850MHz BAND 5

**High Frequency Substitution Measurement
UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/06/15
Test Engineer: T. Pham
Configuration: EUT Only
Mode: GPRS 850MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber D

3m Chamber D

Filter

ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.2MHz)										
1.65	-53.2	H	3.0	-11.4	35.0	1.0	45.4	-13.0	-32.4	
2.47	-57.1	H	3.0	-13.0	33.9	1.0	45.9	-13.0	-32.9	
3.30	-64.2	H	3.0	-17.5	33.2	1.0	49.7	-13.0	-36.7	
1.65	-50.2	V	3.0	-8.2	37.8	1.0	45.1	-13.0	-32.1	
2.47	-56.2	V	3.0	-11.8	38.5	1.0	49.3	-13.0	-36.3	
3.30	-64.3	V	3.0	-17.4	38.5	1.0	54.9	-13.0	-41.9	
Mid Channel (836.6MHz)										
1.67	-52.2	H	3.0	-10.3	37.8	1.0	47.1	-13.0	-34.1	
2.51	-64.5	H	3.0	-20.2	38.6	1.0	57.8	-13.0	-44.8	
3.35	-65.3	H	3.0	-18.8	38.5	1.0	56.3	-13.0	-43.3	
1.67	-52.3	V	3.0	-10.1	37.8	1.0	47.0	-13.0	-34.0	
2.51	-59.3	V	3.0	-14.9	38.6	1.0	52.4	-13.0	-39.4	
3.35	-64.3	V	3.0	-17.3	38.5	1.0	54.8	-13.0	-41.8	
High Channel (848.8MHz)										
1.70	-54.3	H	3.0	-12.3	37.9	1.0	49.2	-13.0	-36.2	
2.55	-56.0	H	3.0	-11.6	38.6	1.0	49.1	-13.0	-36.1	
3.40	-64.7	H	3.0	-17.6	38.5	1.0	55.1	-13.0	-42.1	
1.70	-54.6	V	3.0	-12.0	37.9	1.0	48.9	-13.0	-35.9	
2.55	-59.3	V	3.0	-14.7	38.6	1.0	52.2	-13.0	-39.2	
3.40	-66.0	V	3.0	-18.9	38.5	1.0	56.4	-13.0	-43.4	

Rev. 03.19.15

EGPRS, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20165
Date: 06/06/15
Test Engineer: T. Pham
Configuration: EUT Only
Mode: EGPRS 850MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber D

3m Chamber D

Filter

ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.2MHz)										
1.65	-59.2	H	3.0	-17.4	35.0	1.0	-51.4	-13.0	-38.4	
2.47	-53.5	H	3.0	-9.3	33.9	1.0	-42.3	-13.0	-29.3	
3.69	-66.3	H	3.0	-18.3	33.5	1.0	-50.8	-13.0	-37.8	
1.65	-51.5	V	3.0	-9.5	35.0	1.0	-43.5	-13.0	-30.5	
2.47	-53.8	V	3.0	-9.5	33.9	1.0	-42.4	-13.0	-29.4	
3.30	-65.6	V	3.0	-18.7	33.2	1.0	-50.9	-13.0	-37.9	
Mid Channel (836.6MHz)										
1.67	-56.3	H	3.0	-14.6	37.8	1.0	-51.4	-13.0	-38.4	
2.51	-58.5	H	3.0	-14.6	38.6	1.0	-52.1	-13.0	-39.1	
3.49	-66.7	H	3.0	-16.2	38.5	1.0	-53.8	-13.0	-40.8	
1.67	-48.3	V	3.0	-6.3	37.8	1.0	-43.1	-13.0	-30.1	
2.51	-57.3	V	3.0	-13.0	38.6	1.0	-50.6	-13.0	-37.6	
5.40	-66.2	V	3.0	-15.5	38.6	1.0	-53.1	-13.0	-40.1	
High Channel (848.8MHz)										
1.70	-57.9	H	3.0	-15.9	37.8	1.0	-52.8	-13.0	-39.8	
2.55	-65.3	H	3.0	-20.9	38.6	1.0	-58.5	-13.0	-45.5	
6.46	-64.3	H	3.0	-11.4	38.5	1.0	-48.9	-13.0	-35.9	
1.70	-51.3	H	3.0	-9.3	37.8	1.0	-46.2	-13.0	-33.2	
2.55	-56.6	H	3.0	-12.2	38.6	1.0	-49.8	-13.0	-36.8	
4.24	-66.2	V	3.0	-17.2	38.6	1.0	-54.8	-13.0	-41.8	

Rev. 03.19.15

GPRS, 1900MHz BAND 2

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/06/15
Test Engineer: T. Pham
Configuration: EUT Only
Mode: GPRS 1900MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1850.2MHz)										
3.70	-66.2	H	3.0	-18.3	33.5	1.0	-50.8	-13.0	-37.8	
5.55	-65.6	H	3.0	-14.3	32.5	1.0	-45.8	-13.0	-32.8	
7.40	-66.3	H	3.0	-11.9	30.4	1.0	-41.3	-13.0	-28.3	
3.70	-64.3	V	3.0	-16.3	33.5	1.0	-48.8	-13.0	-35.8	
5.55	-67.2	V	3.0	-16.1	32.5	1.0	-47.6	-13.0	-34.6	
7.40	-65.2	V	3.0	-10.6	30.4	1.0	-40.0	-13.0	-27.0	
9.25	-67.3	V	3.0	-11.0	28.1	1.0	-38.1	-13.0	-25.1	
Mid Channel (1880.0)										
3.76	-66.3	H	3.0	-18.2	33.5	1.0	-50.7	-13.0	-37.7	
5.64	-66.3	H	3.0	-14.8	32.4	1.0	-46.2	-13.0	-33.2	
7.52	-69.2	H	3.0	-14.7	30.3	1.0	-43.9	-13.0	-30.9	
3.76	-66.5	V	3.0	-18.4	33.5	1.0	-51.0	-13.0	-38.0	
5.64	-66.3	V	3.0	-15.0	32.4	1.0	-46.4	-13.0	-33.4	
7.52	-69.3	V	3.0	-14.6	30.3	1.0	-43.9	-13.0	-30.9	
High Channel (1909.8MHz)										
3.82	-66.2	H	3.0	-17.9	33.6	1.0	-50.4	-13.0	-37.4	
5.73	-66.2	H	3.0	-14.6	32.3	1.0	-45.9	-13.0	-32.9	
7.64	-68.2	H	3.0	-13.5	30.1	1.0	-42.6	-13.0	-29.6	
3.82	-66.0	V	3.0	-17.7	33.6	1.0	-50.3	-13.0	-37.3	
5.73	-64.3	V	3.0	-12.9	32.3	1.0	-44.2	-13.0	-31.2	
7.64	-68.5	V	3.0	-13.7	30.1	1.0	-42.8	-13.0	-29.8	

Rev. 03.19.15

EGPRS, 1900MHz BAND 2

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20165
Date: 06/06/15
Test Engineer: T. Pham
Configuration: EUT Only
Mode: EGPRS 1900MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber D

3m Chamber D

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1850.2MHz)										
3.70	-66.9	H	3.0	-18.9	33.5	1.0	-51.4	-13.0	-38.4	
5.55	-67.2	H	3.0	-15.9	32.5	1.0	-47.4	-13.0	-34.4	
7.40	-68.3	H	3.0	-13.9	30.4	1.0	-43.3	-13.0	-30.3	
3.70	-66.3	V	3.0	-18.4	33.5	1.0	-50.9	-13.0	-37.9	
5.49	-62.7	V	3.0	-11.8	32.5	1.0	-43.3	-13.0	-30.3	
7.38	-67.6	V	3.0	-13.0	30.4	1.0	-42.5	-13.0	-29.5	
Mid Channel (1880.0)										
3.79	-66.3	H	3.0	-18.1	33.6	1.0	-50.7	-13.0	-37.7	
5.70	-66.8	H	3.0	-15.3	32.3	1.0	-46.6	-13.0	-33.6	
7.61	-68.6	H	3.0	-14.0	30.2	1.0	-43.1	-13.0	-30.1	
3.79	-65.9	V	3.0	-17.8	33.6	1.0	-50.3	-13.0	-37.3	
5.70	-67.5	V	3.0	-16.1	32.3	1.0	-47.4	-13.0	-34.4	
7.61	-69.7	V	3.0	-15.0	30.2	1.0	-44.1	-13.0	-31.1	
High Channel (1909.8MHz)										
3.82	-66.0	H	3.0	-17.7	33.6	1.0	-50.3	-13.0	-37.3	
5.73	-66.5	H	3.0	-14.8	32.3	1.0	-46.1	-13.0	-33.1	
7.64	-69.4	H	3.0	-14.7	30.1	1.0	-43.8	-13.0	-30.8	
3.82	-65.9	V	3.0	-17.6	33.6	1.0	-50.2	-13.0	-37.2	
5.73	-67.1	V	3.0	-15.7	32.3	1.0	-47.0	-13.0	-34.0	
7.64	-68.8	V	3.0	-14.0	30.1	1.0	-43.1	-13.0	-30.1	

Rev. 03.19.15

10.10.2. CDMA2000

CDMA2000 1xRTT, 850MHz BC0

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20165
 Date: 06/06/15
 Test Engineer: T. Pham
 Configuration: EUT Only
 Mode: 1xRTT 850MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifer

Filter

Limit

3m Chamber D

3m Chamber D

Filter

ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.7MHz)										
1.63	-64.6	H	3.0	-22.8	35.0	1.0	-56.9	-13.0	-43.9	
2.50	-66.6	H	3.0	-22.3	33.8	1.0	-55.1	-13.0	-42.1	
3.39	-64.6	H	3.0	-17.5	33.3	1.0	-49.8	-13.0	-36.8	
1.61	-65.7	V	3.0	-23.8	35.0	1.0	-57.8	-13.0	-44.8	
2.45	-65.2	V	3.0	-20.9	34.1	1.0	-54.0	-13.0	-41.0	
3.36	-65.2	V	3.0	-18.2	33.3	1.0	-50.5	-13.0	-37.5	
Mid Channel (836.52MHz)										
1.45	-65.1	H	3.0	-24.1	34.9	1.0	-58.0	-13.0	-45.0	
2.47	-64.3	H	3.0	-20.2	33.9	1.0	-53.1	-13.0	-40.1	
3.30	-66.1	H	3.0	-19.4	33.2	1.0	-51.6	-13.0	-38.6	
1.66	-64.9	V	3.0	-22.9	35.0	1.0	-56.9	-13.0	-43.9	
2.58	-65.3	V	3.0	-20.6	33.6	1.0	-53.2	-13.0	-40.2	
3.25	-65.9	V	3.0	-19.1	33.2	1.0	-51.3	-13.0	-38.3	
High Channel (848.31MHz)										
1.72	-65.2	H	3.0	-23.2	35.0	1.0	-57.2	-13.0	-44.2	
2.59	-65.0	H	3.0	-20.4	33.6	1.0	-53.0	-13.0	-40.0	
3.39	-66.0	H	3.0	-18.9	33.3	1.0	-51.2	-13.0	-38.2	
1.73	-64.3	V	3.0	-22.1	35.0	1.0	-56.1	-13.0	-43.1	
2.54	-65.1	V	3.0	-20.5	33.7	1.0	-53.2	-13.0	-40.2	
3.39	-65.1	V	3.0	-18.0	33.3	1.0	-50.3	-13.0	-37.3	

Rev. 03.19.15

EVDO-Rev A, 850MHz BC0

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/06/15
Test Engineer: T. Pham
Configuration: EUT only
Mode: Rev A 850MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	ERP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (824.7MHz)										
1.68	-65.2	H	3.0	-23.3	35.0	1.0	-57.3	-13.0	-44.3	
2.48	-63.1	H	3.0	-18.9	33.9	1.0	-51.8	-13.0	-38.8	
3.24	-65.3	H	3.0	-18.7	33.2	1.0	-50.9	-13.0	-37.9	
1.66	-64.3	V	3.0	-22.3	35.0	1.0	-56.3	-13.0	-43.3	
2.48	-61.0	V	3.0	-16.7	33.9	1.0	-49.6	-13.0	-36.6	
3.23	-65.9	V	3.0	-19.2	33.2	1.0	-51.4	-13.0	-38.4	
Mid Channel (836.52MHz)										
1.72	-64.3	H	3.0	-22.3	35.0	1.0	-56.3	-13.0	-43.3	
2.51	-55.3	H	3.0	-11.0	33.7	1.0	-43.7	-13.0	-30.7	
3.30	-64.2	H	3.0	-17.4	33.2	1.0	-49.6	-13.0	-36.6	
1.67	-66.3	V	3.0	-24.2	35.0	1.0	-58.3	-13.0	-45.3	
2.51	-55.3	V	3.0	-10.8	33.7	1.0	-43.5	-13.0	-30.5	
3.29	-65.9	V	3.0	-19.1	33.2	1.0	-51.3	-13.0	-38.3	
High Channel (848.31MHz)										
1.73	-65.3	H	3.0	-23.2	35.0	1.0	-57.3	-13.0	-44.3	
2.55	-53.3	H	3.0	-8.9	33.7	1.0	-41.5	-13.0	-28.5	
3.39	-65.2	H	3.0	-18.2	33.3	1.0	-50.5	-13.0	-37.5	
1.74	-66.9	V	3.0	-24.7	35.0	1.0	-58.7	-13.0	-45.7	
2.55	-56.8	V	3.0	-12.2	33.7	1.0	-44.9	-13.0	-31.9	
3.30	-64.3	V	3.0	-17.4	33.2	1.0	-49.6	-13.0	-36.6	

Rev. 03.19.15

CDMA2000 1xRTT, 1900MHz BC1

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/06/15
Test Engineer: T. Pham
Configuration: EUT Only
Mode: 1xRTT 1900MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1851.25MHz)										
3.67	-66.3	H	3.0	-18.4	33.5	1.0	-50.9	-13.0	-37.9	
5.51	-64.2	H	3.0	-13.0	32.5	1.0	-44.5	-13.0	-31.5	
7.41	-66.3	H	3.0	-11.9	30.4	1.0	-41.3	-13.0	-28.3	
3.65	-64.6	V	3.0	-16.8	33.5	1.0	-49.2	-13.0	-36.2	
5.47	-64.6	V	3.0	-13.7	32.6	1.0	-45.3	-13.0	-32.3	
7.39	-66.1	V	3.0	-11.6	30.4	1.0	-41.0	-13.0	-28.0	
Mid Channel (1880MHz)										
3.86	-65.9	H	3.0	-17.5	33.6	1.0	-50.1	-13.0	-37.1	
5.56	-64.6	H	3.0	-13.3	32.5	1.0	-44.8	-13.0	-31.8	
7.45	-66.3	H	3.0	-11.9	30.3	1.0	-41.2	-13.0	-28.2	
3.83	-66.7	V	3.0	-18.4	33.6	1.0	-51.0	-13.0	-38.0	
5.74	-65.2	V	3.0	-13.7	32.3	1.0	-45.0	-13.0	-32.0	
7.41	-66.5	V	3.0	-12.0	30.4	1.0	-41.4	-13.0	-28.4	
High Channel (1908.75MHz)										
3.82	-64.3	H	3.0	-16.0	33.6	1.0	-48.6	-13.0	-35.6	
5.74	-65.3	H	3.0	-13.7	32.3	1.0	-44.9	-13.0	-31.9	
7.65	-66.2	H	3.0	-11.5	30.1	1.0	-40.6	-13.0	-27.6	
3.82	-64.9	V	3.0	-16.6	33.6	1.0	-49.2	-13.0	-36.2	
5.69	-65.9	V	3.0	-14.6	32.3	1.0	-45.9	-13.0	-32.9	
7.74	-66.3	V	3.0	-11.4	30.0	1.0	-40.4	-13.0	-27.4	

Rev. 03.19.15

EVDO-Rev A, 1900MHz BC1

High Frequency Substitution Measurement UL Fremont Radiated Chamber

Company:
Project #: 15U20165
Date: 06/06/15
Test Engineer: T. Pham
Configuration: EUT only
Mode: Rev 0/A 1900MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber
 3m Chamber D

Pre-amplifier
 3m Chamber D

Filter
 Filter

Limit
 EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1851.25MHz)										
3.65	-65.8	H	3.0	-18.0	33.5	1.0	-50.5	-13.0	-37.5	
5.43	-65.1	H	3.0	-14.1	32.6	1.0	-45.7	-13.0	-32.7	
7.13	-66.9	H	3.0	-12.8	30.7	1.0	-42.6	-13.0	-29.6	
3.73	-66.6	V	3.0	-18.6	33.5	1.0	-51.1	-13.0	-38.1	
5.57	-65.1	V	3.0	-14.0	32.5	1.0	-45.5	-13.0	-32.5	
7.26	-64.9	V	3.0	-10.5	30.6	1.0	-40.0	-13.0	-27.0	
Mid Channel (1880MHz)										
3.79	-65.9	H	3.0	-17.7	33.6	1.0	-50.2	-13.0	-37.2	
5.76	-64.9	H	3.0	-13.2	32.3	1.0	-44.4	-13.0	-31.4	
7.18	-66.2	H	3.0	-12.1	30.7	1.0	-41.8	-13.0	-28.8	
3.75	-66.3	V	3.0	-18.2	33.5	1.0	-50.7	-13.0	-37.7	
5.60	-66.8	V	3.0	-15.7	32.4	1.0	-47.1	-13.0	-34.1	
7.34	-65.2	V	3.0	-10.7	30.5	1.0	-40.2	-13.0	-27.2	
High Channel (1908.75MHz)										
3.80	-65.8	H	3.0	-17.6	33.6	1.0	-50.2	-13.0	-37.2	
5.85	-64.8	H	3.0	-13.0	32.2	1.0	-44.2	-13.0	-31.2	
7.41	-66.6	H	3.0	-12.2	30.4	1.0	-41.6	-13.0	-28.6	
3.85	-65.9	V	3.0	-17.6	33.6	1.0	-50.2	-13.0	-37.2	
5.85	-64.2	V	3.0	-12.6	32.2	1.0	-43.7	-13.0	-30.7	
7.50	-66.1	V	3.0	-11.4	30.3	1.0	-40.7	-13.0	-27.7	

Rev. 03.19.15

CDMA2000 1xRTT, 1700MHz BC15

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/06/15
Test Engineer: T. Pham
Configuration: EUT Only
Mode: 1xRTT 1700MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1711.25MHz)										
3.42	-65.2	H	3.0	-18.1	33.3	1.0	-50.4	-13.0	-37.4	
5.18	-65.6	H	3.0	-14.9	32.9	1.0	-46.8	-13.0	-33.8	
6.85	-66.3	H	3.0	-12.7	31.1	1.0	-42.8	-13.0	-29.8	
3.41	-65.2	V	3.0	-18.0	33.3	1.0	-50.3	-13.0	-37.3	
5.17	-64.9	V	3.0	-14.7	32.9	1.0	-46.5	-13.0	-33.5	
6.85	-66.4	V	3.0	-12.5	31.1	1.0	-42.6	-13.0	-29.6	
Mid Channel (1732.5MHz)										
3.44	-66.2	H	3.0	-19.0	33.3	1.0	-51.3	-13.0	-38.3	
5.19	-65.9	H	3.0	-15.2	32.9	1.0	-47.1	-13.0	-34.1	
6.91	-65.2	H	3.0	-11.5	31.0	1.0	-41.5	-13.0	-28.5	
3.42	-65.8	V	3.0	-18.6	33.3	1.0	-50.9	-13.0	-37.9	
5.20	-65.7	V	3.0	-15.4	32.9	1.0	-47.2	-13.0	-34.2	
6.93	-65.8	V	3.0	-11.8	31.0	1.0	-41.7	-13.0	-28.7	
High Channel (1753.75MHz)										
3.42	-66.3	H	3.0	-19.1	33.3	1.0	-51.5	-13.0	-38.5	
5.21	-65.2	H	3.0	-14.5	32.8	1.0	-46.3	-13.0	-33.3	
7.11	-65.8	H	3.0	-11.8	30.8	1.0	-41.6	-13.0	-28.6	
3.57	-65.2	V	3.0	-17.6	33.4	1.0	-50.0	-13.0	-37.0	
5.23	-65.3	V	3.0	-15.0	32.8	1.0	-46.8	-13.0	-33.8	
6.84	-65.6	V	3.0	-11.8	31.1	1.0	-41.8	-13.0	-28.8	

Rev. 03.19.15

EVDO-Rev A, 1700MHz BC15

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/06/15
Test Engineer: T. Pham
Configuration: EUT only
Mode: Rev A, 1700MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1711.25MHz)										
3.54	-65.3	H	3.0	-17.8	33.4	1.0	-50.2	-13.0	-37.2	
5.19	-65.9	H	3.0	-15.2	32.9	1.0	-47.1	-13.0	-34.1	
6.78	-65.9	H	3.0	-12.4	31.1	1.0	-42.6	-13.0	-29.6	
3.57	-65.9	V	3.0	-18.3	33.4	1.0	-50.7	-13.0	-37.7	
5.13	-67.3	V	3.0	-17.1	32.9	1.0	-49.0	-13.0	-36.0	
6.89	-65.3	V	3.0	-11.4	31.0	1.0	-41.4	-13.0	-28.4	
Mid Channel (1732.5MHz)										
3.47	-63.9	H	3.0	-16.6	33.3	1.0	-48.9	-13.0	-35.9	
5.25	-65.5	H	3.0	-14.7	32.8	1.0	-46.5	-13.0	-33.5	
6.98	-67.1	H	3.0	-13.3	30.9	1.0	-43.2	-13.0	-30.2	
3.47	-64.6	V	3.0	-17.3	33.3	1.0	-49.6	-13.0	-36.6	
5.49	-66.4	V	3.0	-15.5	32.5	1.0	-47.1	-13.0	-34.1	
6.80	-66.8	V	3.0	-13.1	31.1	1.0	-43.2	-13.0	-30.2	
High Channel (1753.75MHz)										
3.51	-66.3	H	3.0	-18.9	33.4	1.0	-51.2	-13.0	-38.2	
5.32	-65.8	H	3.0	-14.9	32.7	1.0	-46.7	-13.0	-33.7	
7.10	-66.6	H	3.0	-12.6	30.8	1.0	-42.4	-13.0	-29.4	
3.51	-64.8	V	3.0	-17.4	33.4	1.0	-49.8	-13.0	-36.8	
5.29	-66.9	V	3.0	-16.4	32.8	1.0	-48.2	-13.0	-35.2	
7.10	-67.2	V	3.0	-13.0	30.8	1.0	-42.7	-13.0	-29.7	

Rev. 03.19.15

CDMA2000 1xRTT, 800MHz BC10

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20165
Date: 06/06/15
Test Engineer: T. Pham
Configuration: EUT Only
Mode: 1xRTT 800MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber D

Pre-amplifier

3m Chamber D

Filter

Filter

Limit

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (817.25MHz)										
1.60	-64.3	H	3.0	-22.7	35.0	1.0	-56.7	-13.0	-43.7	
2.53	-64.1	H	3.0	-19.8	33.7	1.0	-52.5	-13.0	-39.5	
3.36	-65.9	H	3.0	-18.9	33.3	1.0	-51.2	-13.0	-38.2	
1.64	-64.3	V	3.0	-22.3	35.0	1.0	-56.3	-13.0	-43.3	
2.50	-64.8	V	3.0	-20.4	33.7	1.0	-53.1	-13.0	-40.1	
3.34	-65.1	V	3.0	-18.1	33.3	1.0	-50.4	-13.0	-37.4	
Mid Channel (820.00MHz)										
1.64	-64.1	H	3.0	-22.4	35.0	1.0	-56.4	-13.0	-43.4	
2.42	-64.6	H	3.0	-20.7	34.3	1.0	-54.0	-13.0	-41.0	
3.25	-65.3	H	3.0	-18.6	33.2	1.0	-50.8	-13.0	-37.8	
1.65	-64.2	V	3.0	-22.2	35.0	1.0	-56.2	-13.0	-43.2	
2.43	-65.9	V	3.0	-21.7	34.2	1.0	-54.9	-13.0	-41.9	
3.28	-65.2	V	3.0	-18.4	33.2	1.0	-50.6	-13.0	-37.6	
High Channel (822.75MHz)										
1.54	-64.5	H	3.0	-23.1	35.0	1.0	-57.1	-13.0	-44.1	
2.59	-64.8	H	3.0	-20.3	33.6	1.0	-52.9	-13.0	-39.9	
3.40	-66.5	H	3.0	-19.4	33.3	1.0	-51.7	-13.0	-38.7	
1.62	-63.6	V	3.0	-21.6	35.0	1.0	-55.7	-13.0	-42.7	
2.59	-65.6	V	3.0	-20.8	33.6	1.0	-53.4	-13.0	-40.4	
3.33	-65.1	V	3.0	-18.1	33.2	1.0	-50.4	-13.0	-37.4	

Rev. 03.19.15

EVDO-Rev A, 800MHz BC10

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
 Project #: 15U20165
 Date: 06/06/15
 Test Engineer: T. Pham
 Configuration: EUT only
 Mode: Rev A, 800MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (817.25MHz)										
1.60	-65.2	H	3.0	-23.6	35.0	1.0	-57.6	-13.0	-44.6	
2.45	-56.2	H	3.0	-12.2	34.1	1.0	-45.3	-13.0	-32.3	
3.25	-66.1	H	3.0	-19.5	33.2	1.0	-51.7	-13.0	-38.7	
1.63	-64.8	V	3.0	-22.9	35.0	1.0	-56.9	-13.0	-43.9	
2.45	-57.3	V	3.0	-13.0	34.1	1.0	-46.1	-13.0	-33.1	
3.16	-66.8	V	3.0	-20.3	33.1	1.0	-52.5	-13.0	-39.5	
Mid Channel (820.00MHz)										
1.67	-63.9	H	3.0	-22.0	35.0	1.0	-56.1	-13.0	-43.1	
2.46	-59.8	H	3.0	-15.8	34.0	1.0	-48.8	-13.0	-35.8	
3.20	-66.1	H	3.0	-19.6	33.2	1.0	-51.8	-13.0	-38.8	
1.64	-66.3	V	3.0	-24.3	35.0	1.0	-58.3	-13.0	-45.3	
2.46	-58.8	V	3.0	-14.5	34.0	1.0	-47.5	-13.0	-34.5	
3.22	-65.8	V	3.0	-19.2	33.2	1.0	-51.4	-13.0	-38.4	
High Channel (822.75MHz)										
1.65	-64.6	H	3.0	-22.8	35.0	1.0	-56.8	-13.0	-43.8	
2.47	-58.3	H	3.0	-14.2	33.9	1.0	-47.1	-13.0	-34.1	
3.31	-65.6	H	3.0	-18.8	33.2	1.0	-51.0	-13.0	-38.0	
1.66	-65.9	V	3.0	-23.9	35.0	1.0	-57.9	-13.0	-44.9	
2.47	-59.3	V	3.0	-14.9	33.9	1.0	-47.9	-13.0	-34.9	
3.30	-65.2	V	3.0	-18.3	33.2	1.0	-50.5	-13.0	-37.5	

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10.10.3. UMTS

UMTS REL 99, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20165
 Date: 06/07/15
 Test Engineer: T. Pham
 Configuration: EUT Only
 Mode: REL 99, 850MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber D

3m Chamber D

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (826.4MHz)										
1.65	-65.3	H	3.0	-23.5	35.0	1.0	-57.5	-13.0	-44.5	
2.48	-64.8	H	3.0	-20.6	33.9	1.0	-53.5	-13.0	-40.5	
3.31	-66.8	H	3.0	-20.0	33.2	1.0	-52.2	-13.0	-39.2	
1.65	-65.4	V	3.0	-23.4	35.0	1.0	-57.4	-13.0	-44.4	
2.48	-64.7	V	3.0	-20.3	33.9	1.0	-53.2	-13.0	-40.2	
3.31	-67.0	V	3.0	-20.1	33.2	1.0	-52.3	-13.0	-39.3	
Mid Channel (836.6MHz)										
1.67	-64.5	H	3.0	-22.6	35.0	1.0	-56.7	-13.0	-43.7	
2.51	-65.2	H	3.0	-20.9	33.7	1.0	-53.6	-13.0	-40.6	
3.34	-66.3	H	3.0	-19.4	33.3	1.0	-51.7	-13.0	-38.7	
1.67	-65.5	V	3.0	-23.4	35.0	1.0	-57.4	-13.0	-44.4	
2.58	-64.7	V	3.0	-20.0	33.6	1.0	-52.6	-13.0	-39.6	
3.34	-65.3	V	3.0	-18.3	33.3	1.0	-50.6	-13.0	-37.6	
High Channel (846.6MHz)										
1.69	-64.5	H	3.0	-22.6	35.0	1.0	-56.6	-13.0	-43.6	
2.54	-66.2	H	3.0	-21.8	33.7	1.0	-54.5	-13.0	-41.5	
3.39	-66.3	H	3.0	-19.3	33.3	1.0	-51.6	-13.0	-38.6	
1.69	-65.5	V	3.0	-23.4	37.9	1.0	-60.3	-13.0	-47.3	
2.54	-65.7	V	3.0	-21.1	33.7	1.0	-53.8	-13.0	-40.8	
3.39	-65.3	V	3.0	-18.2	33.3	1.0	-50.5	-13.0	-37.5	

Rev. 03.19.15

UMTS HSDPA, 850MHz BAND 5

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
 Project #: 15U20165
 Date: 06/07/15
 Test Engineer: T. Pham
 Configuration: EUT only
 Mode: HSDPA, 850MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

Pre-amplifier

Filter

Limit

3m Chamber D

3m Chamber D

Filter

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (826.4MHz)										
1.65	-65.3	H	3.0	-23.5	35.0	1.0	-57.5	-13.0	-44.5	
2.48	-64.8	H	3.0	-20.6	33.9	1.0	-53.5	-13.0	-40.5	
3.31	-66.8	H	3.0	-20.0	33.2	1.0	-52.2	-13.0	-39.2	
1.65	-65.4	V	3.0	-23.4	35.0	1.0	-57.4	-13.0	-44.4	
2.48	-64.7	V	3.0	-20.3	33.9	1.0	-53.2	-13.0	-40.2	
3.31	-67.0	V	3.0	-20.1	33.2	1.0	-52.3	-13.0	-39.3	
Mid Channel (836.6MHz)										
1.67	-64.5	H	3.0	-22.7	35.0	1.0	-56.7	-13.0	-43.7	
2.51	-65.2	H	3.0	-20.9	33.7	1.0	-53.6	-13.0	-40.6	
3.34	-66.3	H	3.0	-19.4	33.3	1.0	-51.7	-13.0	-38.7	
1.67	-65.5	V	3.0	-23.4	35.0	1.0	-57.4	-13.0	-44.4	
2.58	-64.7	V	3.0	-20.0	33.6	1.0	-52.6	-13.0	-39.6	
3.34	-65.3	V	3.0	-18.3	33.3	1.0	-50.6	-13.0	-37.6	
High Channel (846.6MHz)										
1.69	-64.5	H	3.0	-22.6	35.0	1.0	-56.6	-13.0	-43.6	
2.54	-66.2	H	3.0	-21.8	33.7	1.0	-54.5	-13.0	-41.5	
3.39	-66.3	H	3.0	-19.3	33.3	1.0	-51.6	-13.0	-38.6	
1.69	-65.5	V	3.0	-23.4	37.9	1.0	-60.3	-13.0	-47.3	
2.54	-65.7	V	3.0	-21.1	33.7	1.0	-53.8	-13.0	-40.8	
3.39	-65.3	V	3.0	-18.2	33.3	1.0	-50.5	-13.0	-37.5	

Rev. 03.19.15

UMTS REL 99, 1900MHz BAND 2

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/07/15
Test Engineer: T. Pham
Configuration: EUT Only
Mode: REL 99, 1900MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1852.4MHz)										
3.71	-65.3	H	3.0	-17.3	33.5	1.0	-49.8	-13.0	-36.8	
5.56	-66.2	H	3.0	-14.9	32.5	1.0	-46.4	-13.0	-33.4	
7.41	-69.2	H	3.0	-14.8	30.4	1.0	-44.2	-13.0	-31.2	
3.71	-65.9	V	3.0	-17.9	33.5	1.0	-50.4	-13.0	-37.4	
5.46	-66.2	V	3.0	-15.3	32.6	1.0	-46.9	-13.0	-33.9	
7.19	-68.2	V	3.0	-13.8	30.7	1.0	-43.5	-13.0	-30.5	
Mid Channel (1880MHz)										
3.82	-65.2	H	3.0	-16.9	33.6	1.0	-49.5	-13.0	-36.5	
5.75	-65.6	H	3.0	-13.9	32.3	1.0	-45.2	-13.0	-32.2	
7.50	-68.0	H	3.0	-13.5	30.3	1.0	-42.8	-13.0	-29.8	
3.76	-65.6	V	3.0	-17.5	33.5	1.0	-50.0	-13.0	-37.0	
5.64	-67.5	V	3.0	-16.3	32.4	1.0	-47.7	-13.0	-34.7	
7.12	-66.9	V	3.0	-12.6	30.7	1.0	-42.3	-13.0	-29.3	
8.50	-65.3	V	3.0	-9.7	29.1	1.0	-37.8	-13.0	-24.8	
High Channel (1907.6MHz)										
3.82	-66.3	H	3.0	-18.0	33.6	1.0	-50.6	-13.0	-37.6	
5.72	-65.9	H	3.0	-14.3	32.3	1.0	-45.6	-13.0	-32.6	
7.63	-67.3	H	3.0	-12.7	30.1	1.0	-41.8	-13.0	-28.8	
3.82	-66.9	H	3.0	-18.6	33.6	1.0	-51.2	-13.0	-38.2	
5.72	-66.6	H	3.0	-15.0	32.3	1.0	-46.3	-13.0	-33.3	
7.63	-66.2	V	3.0	-11.4	30.1	1.0	-40.6	-13.0	-27.6	

Rev. 03.19.15

UMTS HSDPA, 1900MHz BAND 2

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

Company:
Project #: 15U20165
Date: 06/07/15
Test Engineer: T. Pham
Configuration: EUT only
Mode: HSDPA, 1900MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber

3m Chamber D

Pre-amplifier

3m Chamber D

Filter

Filter

Limit

EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1852.4MHz)										
3.70	-67.3	H	3.0	-19.3	33.5	1.0	-51.8	-13.0	-38.8	
5.59	-65.7	H	3.0	-14.3	32.4	1.0	-45.8	-13.0	-32.8	
6.90	-67.2	H	3.0	-13.5	31.0	1.0	-43.5	-13.0	-30.5	
3.70	-65.6	V	3.0	-17.7	33.5	1.0	-50.2	-13.0	-37.2	
5.52	-66.0	V	3.0	-15.0	32.5	1.0	-46.5	-13.0	-33.5	
7.10	-65.2	V	3.0	-10.9	30.8	1.0	-40.7	-13.0	-27.7	
Mid Channel (1880MHz)										
3.66	-66.3	H	3.0	-18.5	33.5	1.0	-50.9	-13.0	-37.9	
5.47	-66.9	H	3.0	-15.7	32.6	1.0	-47.3	-13.0	-34.3	
6.77	-66.0	H	3.0	-12.5	31.1	1.0	-42.7	-13.0	-29.7	
3.68	-65.5	V	3.0	-17.6	33.5	1.0	-50.1	-13.0	-37.1	
5.47	-66.3	V	3.0	-15.5	32.6	1.0	-47.0	-13.0	-34.0	
6.80	-65.9	V	3.0	-12.2	31.1	1.0	-42.3	-13.0	-29.3	
High Channel (1907.6MHz)										
4.00	-66.8	H	3.0	-18.0	33.7	1.0	-50.7	-13.0	-37.7	
5.82	-65.3	H	3.0	-13.5	32.2	1.0	-44.7	-13.0	-31.7	
7.68	-66.2	H	3.0	-11.5	30.1	1.0	-40.6	-13.0	-27.6	
3.82	-65.9	V	3.0	-17.6	33.6	1.0	-50.2	-13.0	-37.2	
5.80	-65.4	V	3.0	-13.8	32.2	1.0	-45.0	-13.0	-32.0	
7.60	-67.9	V	3.0	-13.1	30.2	1.0	-42.3	-13.0	-29.3	

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UMTS REL 99, 1700MHz BAND 4

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/07/15
Test Engineer: T. Pham
Configuration: EUT Only
Mode: REL 99, 1700MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Chamber	Pre-amplifier	Filter	Limit
3m Chamber D	3m Chamber D	Filter	EIRP

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.4MHz)										
3.43	-63.2	H	3.0	-16.0	33.3	1.0	-48.4	-13.0	-35.4	
5.14	-64.3	H	3.0	-13.7	32.9	1.0	-45.6	-13.0	-32.6	
6.85	-66.3	H	3.0	-12.7	31.1	1.0	-42.8	-13.0	-29.8	
3.43	-62.6	V	3.0	-15.4	33.3	1.0	-47.7	-13.0	-34.7	
5.15	-63.6	V	3.0	-13.4	32.9	1.0	-45.3	-13.0	-32.3	
6.84	-65.8	V	3.0	-12.0	31.1	1.0	-42.0	-13.0	-29.0	
Mid Channel (1732.6MHz)										
3.47	-63.3	H	3.0	-16.0	33.3	1.0	-48.4	-13.0	-35.4	
5.20	-65.9	H	3.0	-15.2	32.9	1.0	-47.1	-13.0	-34.1	
6.88	-65.2	H	3.0	-11.5	31.0	1.0	-41.6	-13.0	-28.6	
3.47	-62.9	V	3.0	-15.5	33.3	1.0	-47.9	-13.0	-34.9	
5.20	-66.5	V	3.0	-16.2	32.9	1.0	-48.1	-13.0	-35.1	
6.93	-67.2	V	3.0	-13.2	31.0	1.0	-43.1	-13.0	-30.1	
High Channel (1752.6MHz)										
3.51	-63.6	H	3.0	-16.2	33.4	1.0	-48.6	-13.0	-35.6	
5.27	-65.2	H	3.0	-14.4	32.8	1.0	-46.2	-13.0	-33.2	
7.09	-67.2	H	3.0	-13.2	30.8	1.0	-43.0	-13.0	-30.0	
3.54	-65.1	V	3.0	-17.6	33.4	1.0	-50.0	-13.0	-37.0	
5.17	-65.7	V	3.0	-15.4	32.9	1.0	-47.3	-13.0	-34.3	
6.83	-66.3	V	3.0	-12.5	31.1	1.0	-42.6	-13.0	-29.6	

Rev. 03.19.15

UMTS HSDPA, 1700MHz BAND 4

**High Frequency Substitution Measurement
 UL Fremont Radiated Chamber**

Company:
Project #: 15U20165
Date: 06/07/15
Test Engineer: T. Pham
Configuration: EUT only
Mode: HSDPA, 1700MHz
 UAT

Test Equipment:
 Substitution: Horn T59 Substitution, and 8ft SMA Cable

Frequency (GHz)	SA reading (dBm)	Ant. Pol. (H/V)	Distance	Path Loss @ SG End (dBm)	Preamp	Attenuator	EIRP	Limit	Delta	Notes
Low Channel (1712.4MHz)										
3.43	-66.3	H	3.0	-19.1	33.3	1.0	-51.5	-13.0	-38.5	
5.20	-65.6	H	3.0	-14.9	32.9	1.0	-46.8	-13.0	-33.8	
7.00	-67.0	H	3.0	-13.1	30.9	1.0	-43.0	-13.0	-30.0	
3.43	-66.1	V	3.0	-18.9	33.3	1.0	-51.2	-13.0	-38.2	
5.23	-65.6	V	3.0	-15.3	32.8	1.0	-47.1	-13.0	-34.1	
6.92	-65.4	V	3.0	-11.4	31.0	1.0	-41.3	-13.0	-28.3	
Mid Channel (1732.6MHz)										
3.47	-66.3	H	3.0	-19.0	33.3	1.0	-51.4	-13.0	-38.4	
5.20	-66.6	H	3.0	-15.9	32.9	1.0	-47.8	-13.0	-34.8	
6.94	-67.2	H	3.0	-13.4	31.0	1.0	-43.4	-13.0	-30.4	
3.47	-65.6	V	3.0	-18.3	33.3	1.0	-50.6	-13.0	-37.6	
5.21	-66.3	V	3.0	-16.0	32.9	1.0	-47.9	-13.0	-34.9	
6.92	-67.6	V	3.0	-13.6	31.0	1.0	-43.6	-13.0	-30.6	
High Channel (1752.6MHz)										
3.55	-65.8	H	3.0	-18.3	33.4	1.0	-50.7	-13.0	-37.7	
5.28	-66.6	H	3.0	-15.8	32.8	1.0	-47.6	-13.0	-34.6	
6.87	-67.3	H	3.0	-13.7	31.0	1.0	-43.7	-13.0	-30.7	
3.70	-65.2	V	3.0	-17.2	33.5	1.0	-49.7	-13.0	-36.7	
5.40	-66.7	V	3.0	-15.9	32.6	1.0	-47.6	-13.0	-34.6	
7.00	-65.3	V	3.0	-11.2	30.9	1.0	-41.1	-13.0	-28.1	

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