

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. Guarnero
Configuration: EUT Only
Mode: EGPRS 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 (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	

Rev. 03.19.15

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	

Rev. 03.19.15

CDMA2000 1xRTT, 1900MHz BC1

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

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

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

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)										
1.64	-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	

Rev. 03.19.15

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	

Rev. 03.19.15

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. Guarnero
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	

Rev. 03.19.15

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	

Rev. 03.19.15

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	

Rev. 03.19.15

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	
Rev. 03.19.15										

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
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 (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	

Rev. 03.19.15

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	
Rev. 03.19.15										

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	

Rev. 03.19.15

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
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 (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	

Rev. 03.19.15

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
3m Chamber G

Pre-amplifier
3m Chamber G

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	-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
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 (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		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)										
1.60	-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. 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
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	

Rev. 03.19.15

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		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)											
1.69	-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		
Rev. 03.19.15											

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	

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
UAT

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

Chamber
3m Chamber G

Pre-amplifier
3m Chamber G

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	-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	

Rev. 03.19.15

UMTS REL 99, 1700MHz BAND 4

High Frequency Substitution Measurement
UL Fremont Radiated Chamber

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

Rev. 03.19.15

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 3m Chamber G Pre-amplifier 3m Chamber G 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 (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	
Rev. 03.19.15										

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 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 (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		
Rev. 03.19.15											

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	
Rev. 03.19.15										

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	
Rev. 03.19.15										

EGPRS, 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: 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
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 (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	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	-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	

Rev. 03.19.15

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	

Rev. 03.19.15

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	

Rev. 03.19.15

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	

Rev. 03.19.15

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	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 (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	

Rev. 03.19.15

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		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 (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	
Rev. 03.19.15										

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	
Rev. 03.19.15										

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
3m Chamber D

Pre-amplifier
3m Chamber D

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 (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

3m Chamber D

Pre-amplifier

3m Chamber D

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 (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: 15U20165
Project #: 06/06/15
Date: T. Pham
Test Engineer: EUT Only
Configuration: 1xRTT 1900MHz
Mode: 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)										
3.67	-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	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)										
3.65	-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		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	-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	

Rev. 03.19.15

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
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 (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	

Rev. 03.19.15

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
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 (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	

Rev. 03.19.15