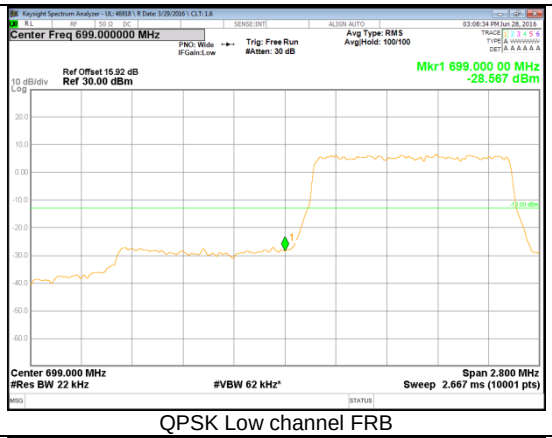
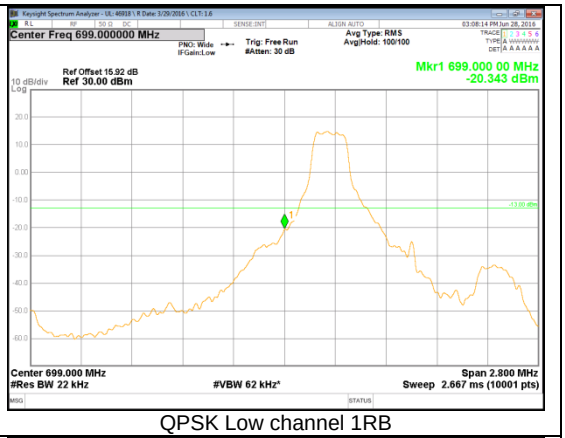
Band 12

1.4MHz



QPSK Low channel FRB



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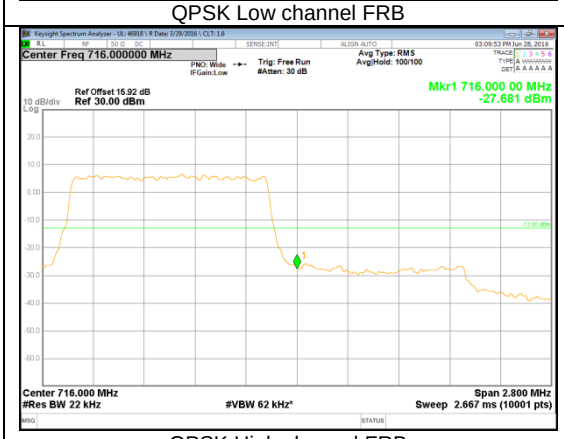

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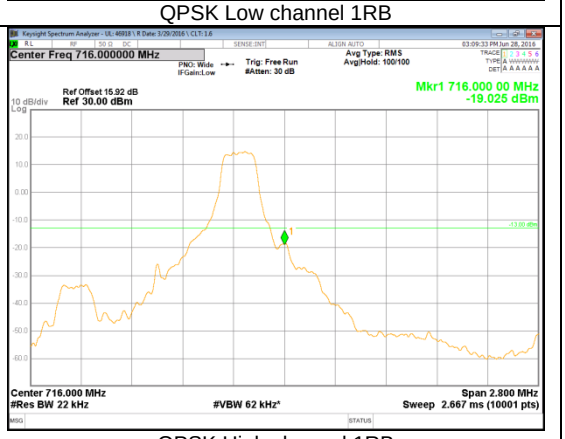

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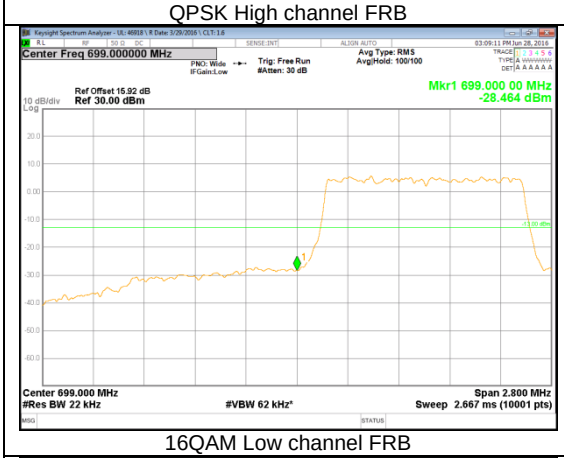
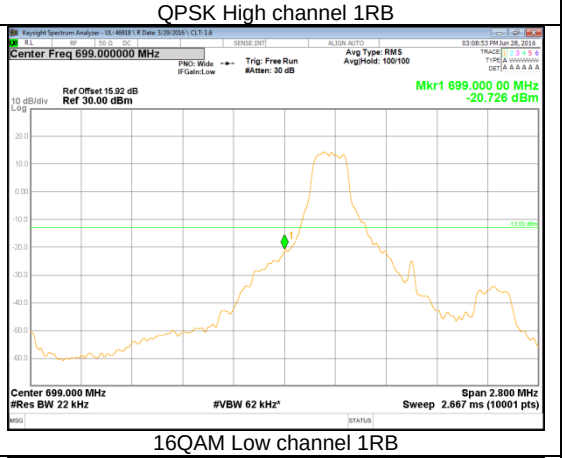


16QAM Low channel FRB



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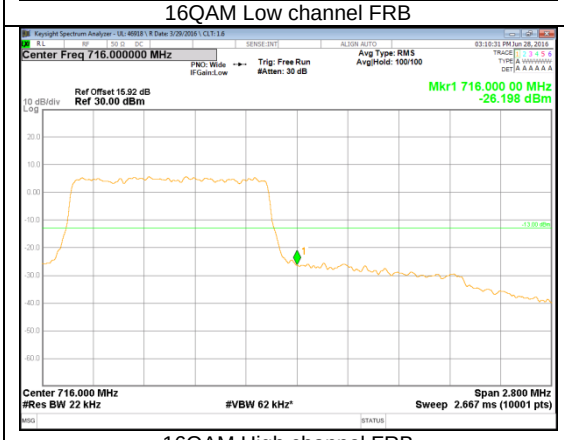
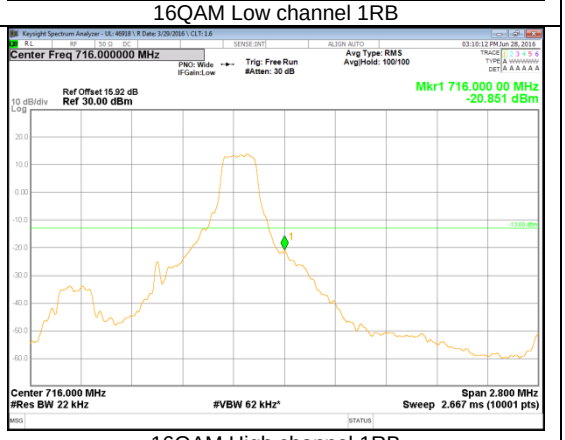


16QAM High channel FRB



16QAM High channel 1RB

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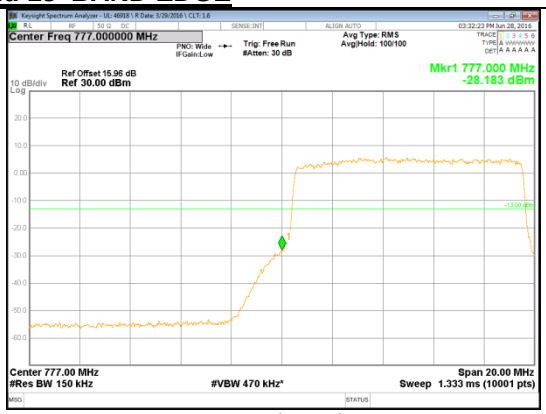
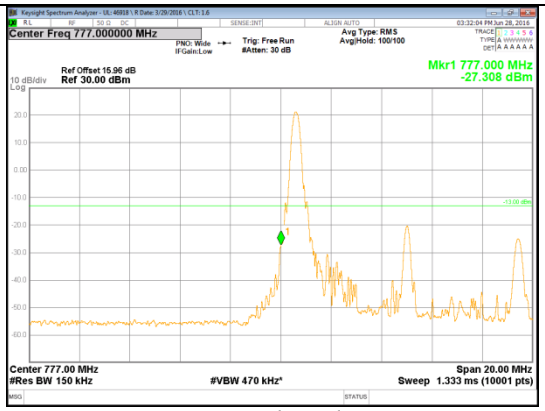
LTE Band 13 BAND EDGE

Band 13

10MHz



QPSK Low channel FRB



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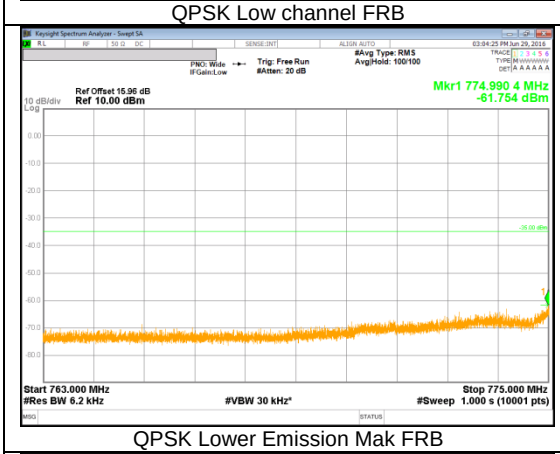
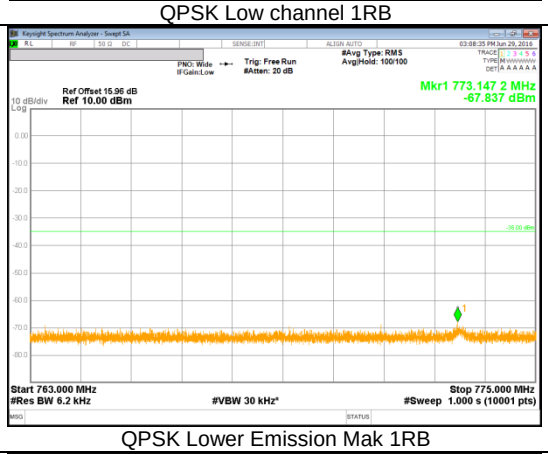


QPSK Lower Emission Mak FRB



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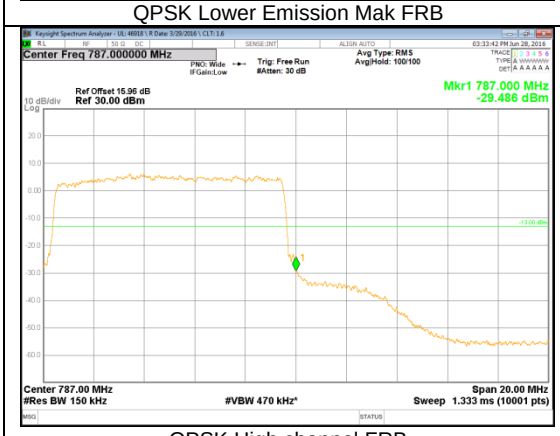
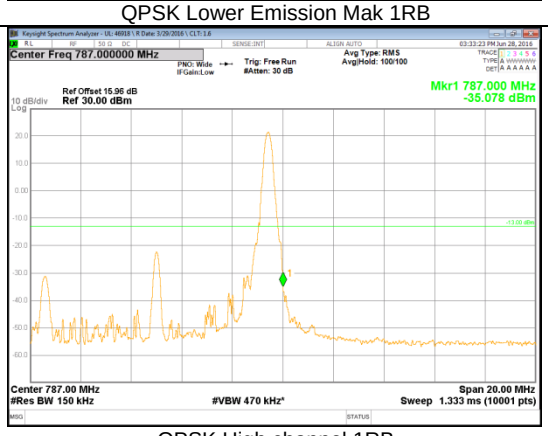


QPSK High channel FRB



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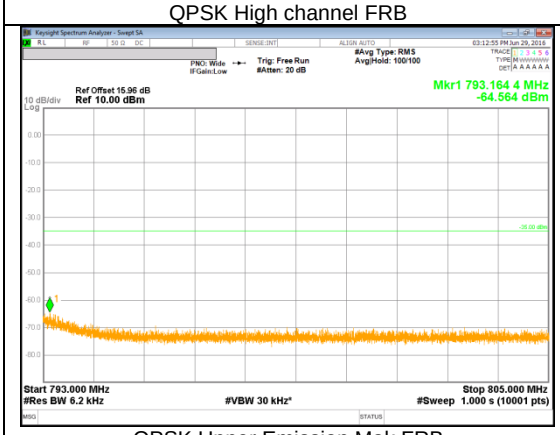
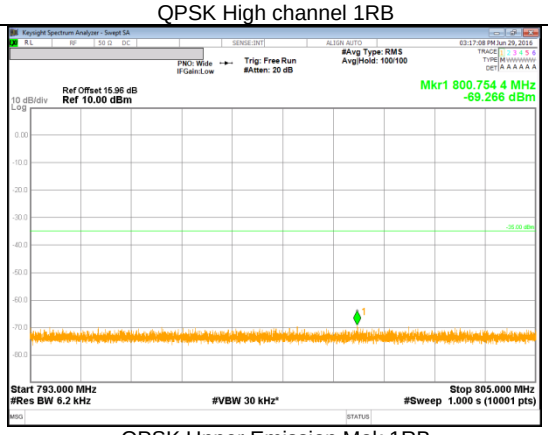


QPSK Upper Emission Mak FRB



QPSK Upper Emission Mak 1RB

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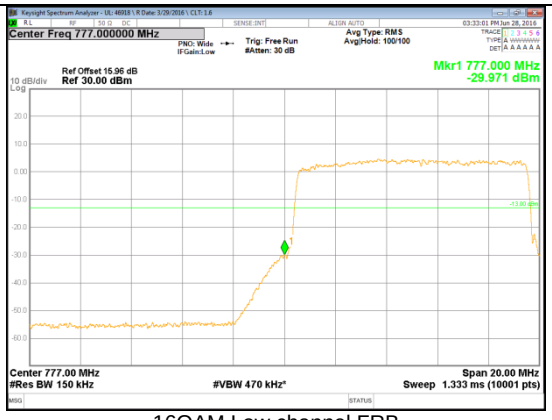
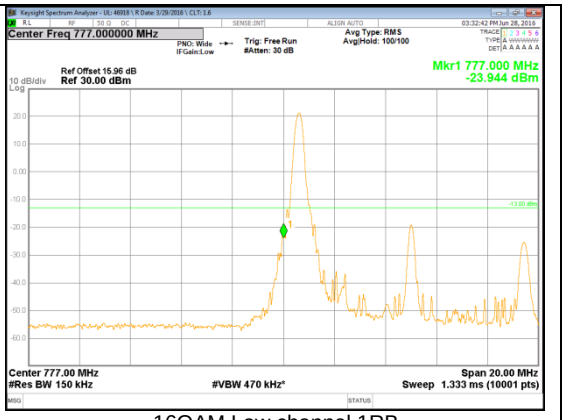
Band 13

10MHz



16QAM Low channel FRB



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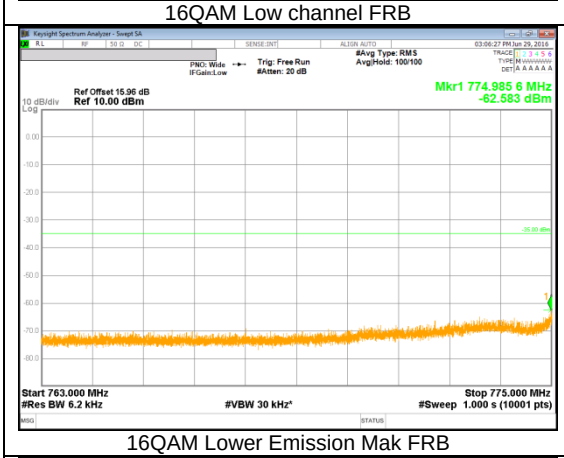

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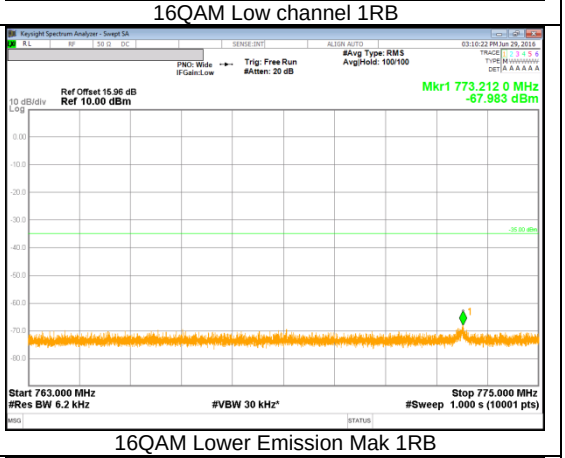

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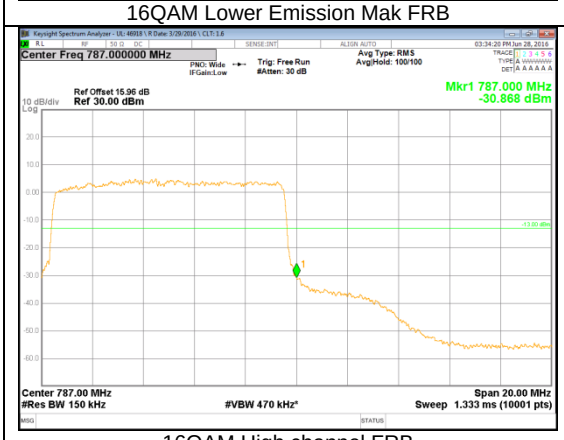

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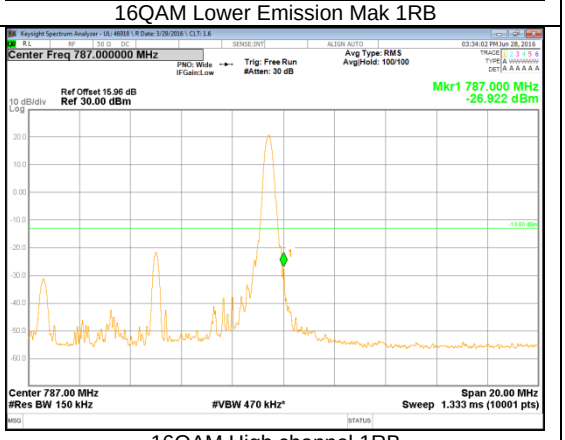

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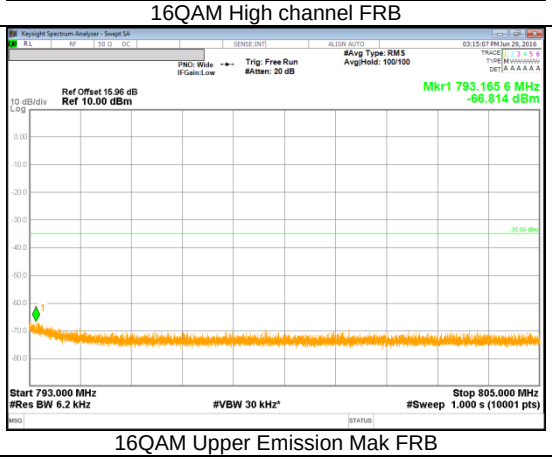
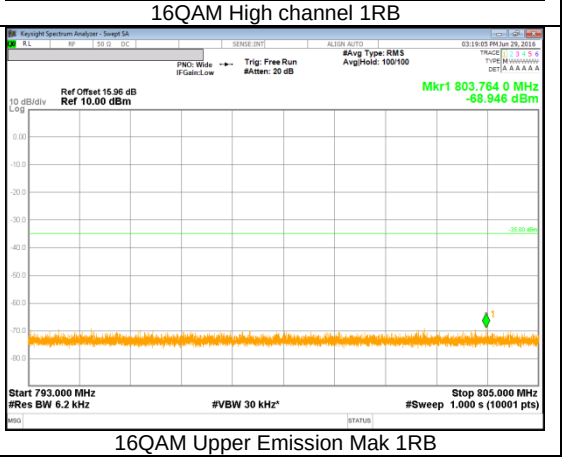


16QAM Upper Emission Mak FRB



16QAM Upper Emission Mak 1RB

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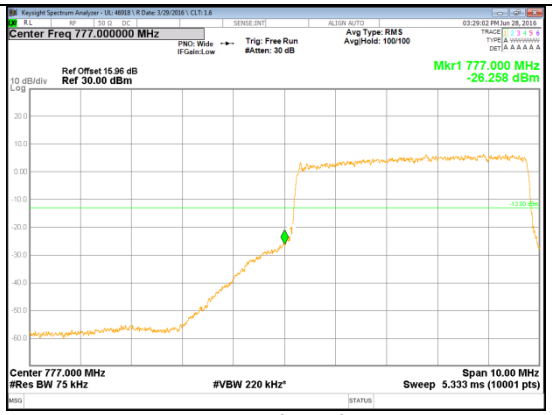
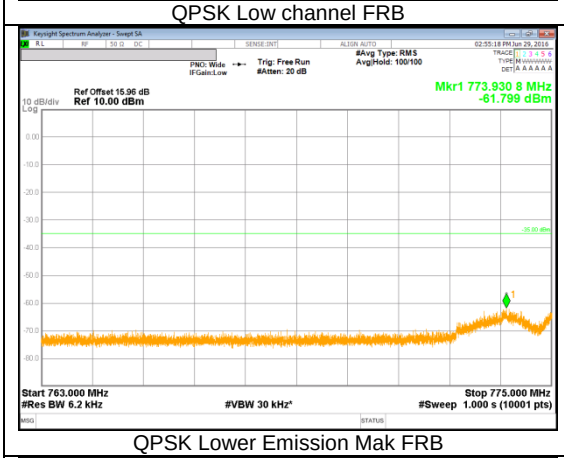
Band 13

5MHz

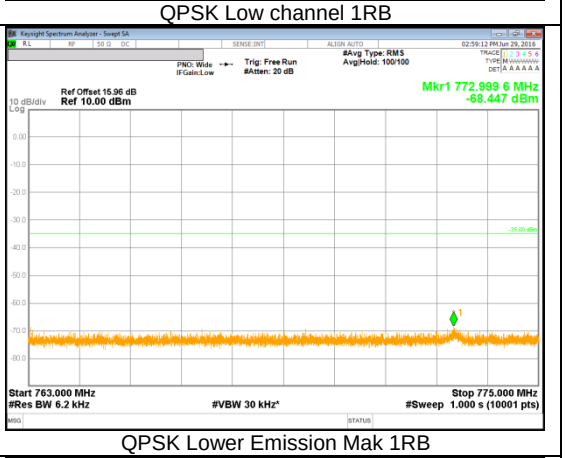


QPSK Low channel FRB

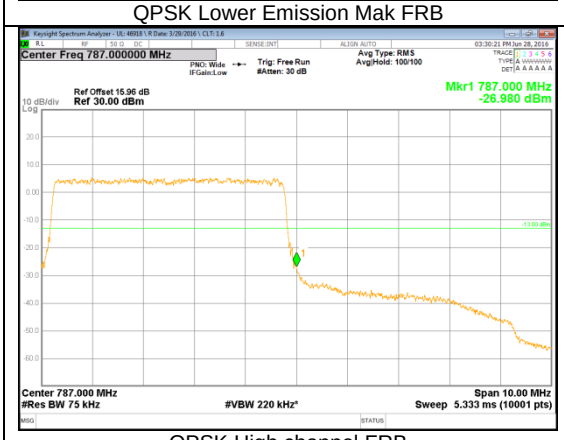
QPSK Low channel 1RB



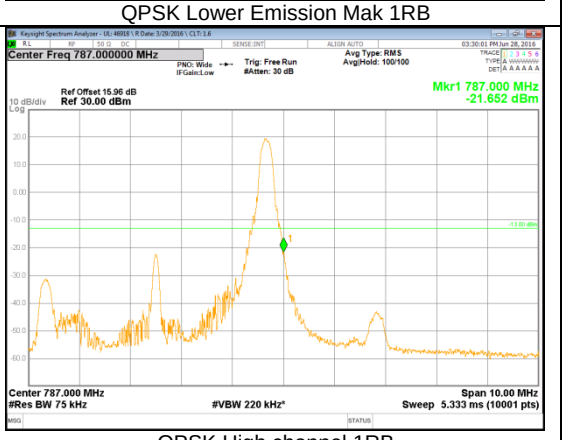
QPSK Lower Emission Mak FRB



QPSK Lower Emission Mak 1RB



QPSK High channel FRB



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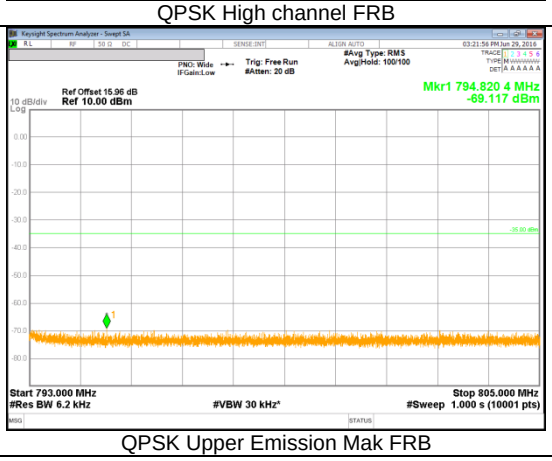
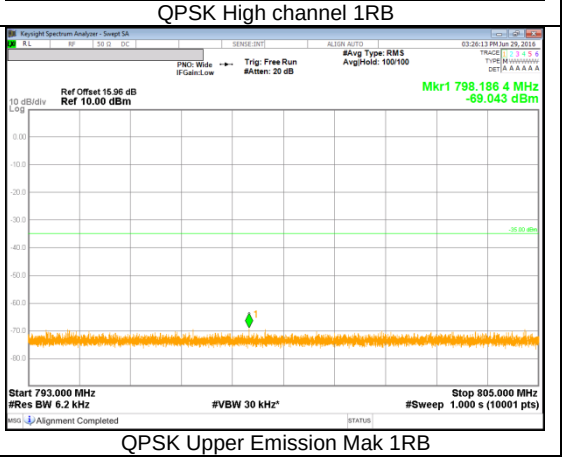


QPSK Upper Emission Mak FRB



QPSK Upper Emission Mak 1RB

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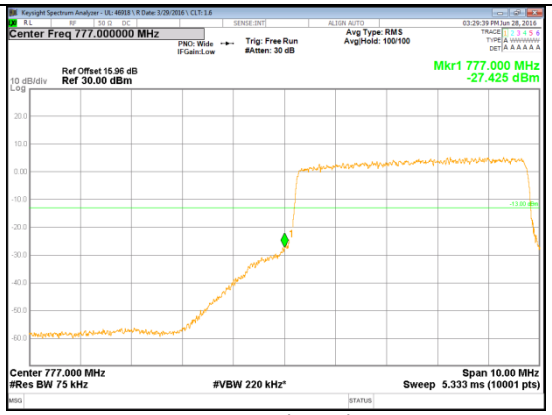
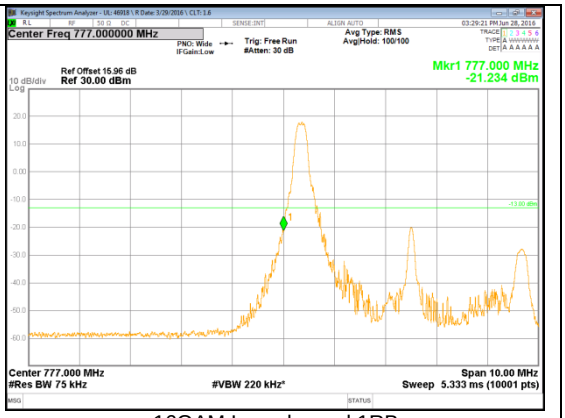
Band 13

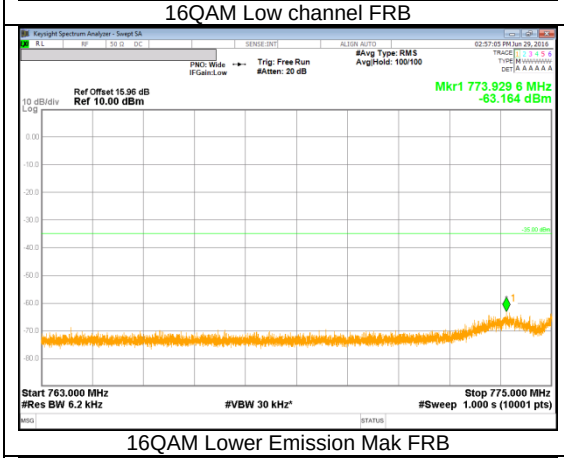
5MHz



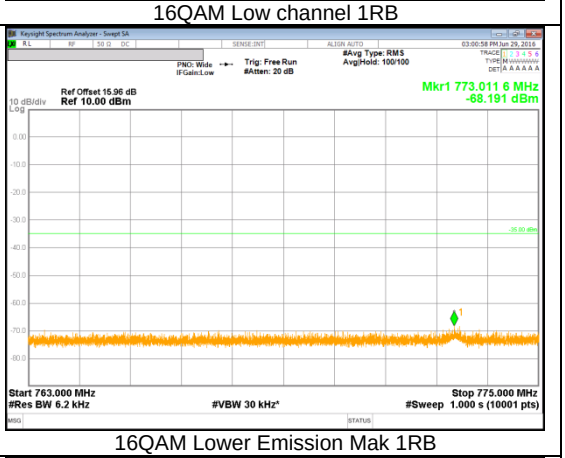
16QAM Low channel FRB



16QAM Low channel 1RB



16QAM Lower Emission Mak FRB



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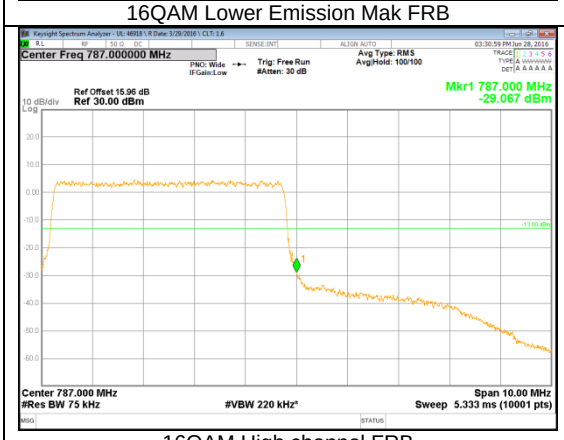
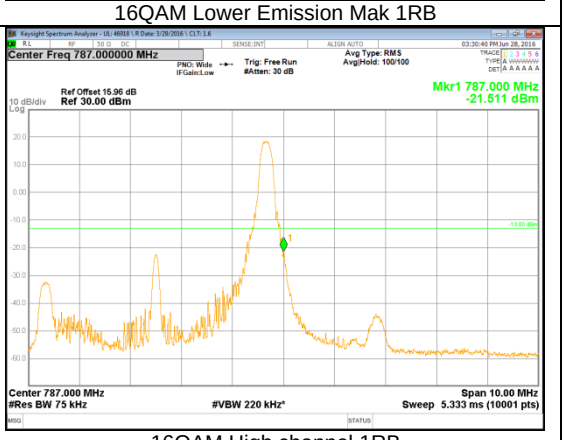


16QAM High channel FRB



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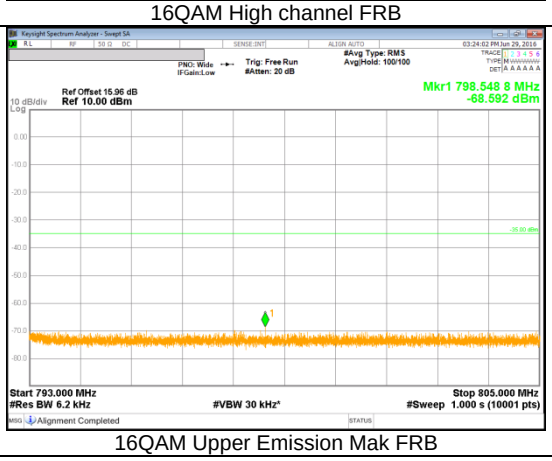
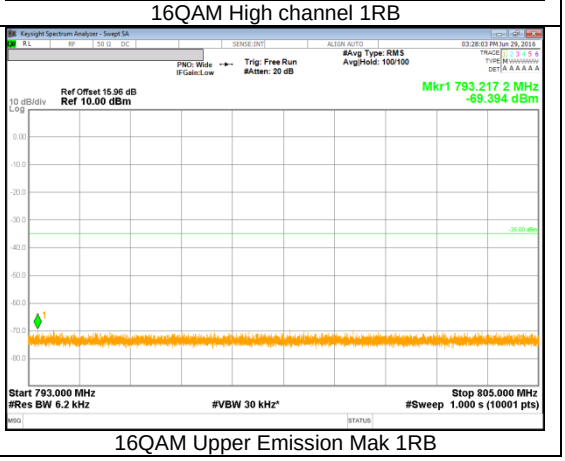


16QAM Upper Emission Mak FRB



16QAM Upper Emission Mak 1RB

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8. RADIATED TEST RESULTS

8.1. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238 and §27. 53

LIMIT

Part 22.917(a) & Part 24.238(a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

Part 27.53(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

Part 27.53(h) *AWS emission limits*—(1) *General protection levels.* Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 $\log_{10}$ (P) dB.

TEST PROCEDURE

KDB 971168 D01 v02r02 - Section 5.8

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at 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. 100 kHz 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.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at 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.

RESULTS

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8.1.1. SPURIOUS RADIATION PLOTS

GSM1900

GSM

GSM1900
GMSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-03-16
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone, Z Position
Mode: GSM 1900

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1850.2MHz									
3.7004	-13.1	V	3.0	40.5	1.0	-52.6	-13.0	-39.6	
5.5506	-12.4	V	3.0	40.8	1.0	-52.3	-13.0	-39.3	
7.4008	-10.8	V	3.0	40.8	1.0	-50.6	-13.0	-37.6	
3.7000	-8.9	H	3.0	40.5	1.0	-48.4	-13.0	-35.4	
5.5506	-12.6	H	3.0	40.8	1.0	-52.4	-13.0	-39.4	
7.4008	-10.4	H	3.0	40.8	1.0	-50.2	-13.0	-37.2	
Mid Ch, 1880.0MHz									
3.7600	-10.8	V	3.0	40.5	1.0	-50.3	-13.0	-37.3	
5.6400	-12.8	V	3.0	40.8	1.0	-52.6	-13.0	-39.6	
7.5200	-10.2	V	3.0	40.7	1.0	-49.9	-13.0	-36.9	
3.7600	-5.6	H	3.0	40.5	1.0	-45.1	-13.0	-32.1	
5.6400	-12.7	H	3.0	40.8	1.0	-52.5	-13.0	-39.5	
7.5200	-10.0	H	3.0	40.7	1.0	-49.7	-13.0	-36.7	
High Ch, 1909.8 MHz									
3.8196	-11.5	V	3.0	40.6	1.0	-51.1	-13.0	-38.1	
5.7294	-12.6	V	3.0	40.8	1.0	-52.4	-13.0	-39.4	
7.6392	-10.1	V	3.0	40.7	1.0	-49.8	-13.0	-36.8	
3.8196	-8.4	H	3.0	40.6	1.0	-48.0	-13.0	-35.0	
5.7294	-12.4	H	3.0	40.8	1.0	-52.2	-13.0	-39.2	
7.6392	-9.9	H	3.0	40.7	1.0	-49.6	-13.0	-36.6	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

GSM850

GSM

GSM850
GMSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-03-16
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone, Z Position
Mode: GSM 850

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.2MHz									
1.6484	-13.6	V	3.0	39.1	1.0	-51.7	-13.0	-38.7	
2.4726	-19.6	V	3.0	39.5	1.0	-58.1	-13.0	-45.1	
3.2968	-18.3	V	3.0	40.1	1.0	-57.4	-13.0	-44.4	
1.6484	-7.1	H	3.0	39.1	1.0	-45.2	-13.0	-32.2	
2.4726	-18.1	H	3.0	39.5	1.0	-56.7	-13.0	-43.7	
3.2968	-17.7	H	3.0	40.1	1.0	-56.8	-13.0	-43.8	
Mid Ch, 836.6MHz									
1.6730	-15.2	V	3.0	39.1	1.0	-53.3	-13.0	-40.3	
2.5098	-18.7	V	3.0	39.5	1.0	-57.3	-13.0	-44.3	
3.3464	-17.5	V	3.0	40.1	1.0	-56.6	-13.0	-43.6	
1.6730	-10.1	H	3.0	39.1	1.0	-48.2	-13.0	-35.2	
2.5098	-19.1	H	3.0	39.5	1.0	-57.7	-13.0	-44.7	
3.3464	-17.6	H	3.0	40.1	1.0	-56.8	-13.0	-43.8	
High Ch, 848.8MHz									
1.6976	-8.6	V	3.0	39.1	1.0	-46.8	-13.0	-33.8	
2.5466	-18.9	V	3.0	39.6	1.0	-57.5	-13.0	-44.5	
3.3952	-16.9	V	3.0	40.2	1.0	-56.1	-13.0	-43.1	
1.6976	-10.0	H	3.0	39.1	1.0	-48.2	-13.0	-35.2	
2.5466	-19.0	H	3.0	39.6	1.0	-57.6	-13.0	-44.6	
3.3952	-17.2	H	3.0	40.2	1.0	-56.4	-13.0	-43.4	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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WCDMA Band 5

WCDMA

Band 2
HSUPA

Above 1GHz High Frequency Substitution Measurement

Date: 06-03-16
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone / Z Position
Mode: Tx, HSUPA,1900MHz

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3.7048	-15.3	V	3.0	40.5	1.0	-54.8	-13.0	-41.8	
5.5572	-10.7	V	3.0	40.8	1.0	-50.6	-13.0	-37.6	
7.4096	-9.9	V	3.0	40.8	1.0	-49.7	-13.0	-36.7	
3.7048	-14.6	H	3.0	40.5	1.0	-54.1	-13.0	-41.1	
5.5572	-10.4	H	3.0	40.8	1.0	-50.2	-13.0	-37.2	
7.4096	-9.7	H	3.0	40.8	1.0	-49.5	-13.0	-36.5	
Mid Ch, 1880MHz									
3.7600	-14.7	V	3.0	40.5	1.0	-54.2	-13.0	-41.2	
5.6400	-11.8	V	3.0	40.8	1.0	-51.6	-13.0	-38.6	
7.5200	-9.4	V	3.0	40.7	1.0	-49.2	-13.0	-36.2	
3.7600	-12.2	H	3.0	40.5	1.0	-51.7	-13.0	-38.7	
5.6400	-10.2	H	3.0	40.8	1.0	-50.0	-13.0	-37.0	
7.5200	-9.2	H	3.0	40.7	1.0	-49.0	-13.0	-36.0	
High Ch, 1907.6MHz									
3.8152	-13.9	V	3.0	40.6	1.0	-53.5	-13.0	-40.5	
5.7228	-9.8	V	3.0	40.8	1.0	-49.6	-13.0	-36.6	
7.6304	-9.2	V	3.0	40.7	1.0	-48.8	-13.0	-35.8	
3.8152	-11.7	H	3.0	40.6	1.0	-51.3	-13.0	-38.3	
5.7228	-10.7	H	3.0	40.8	1.0	-50.5	-13.0	-37.5	
7.6304	-8.9	H	3.0	40.7	1.0	-48.6	-13.0	-35.6	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

WCDMA Band 4

WCDMA

Band 4
HSUPA

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-07-16
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone / Z Position
Mode: Tx, HSUPA,1700MHz

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1712.4MHz									
3.4248	-14.4	V	3.0	40.2	1.0	-53.6	-13.0	-40.6	
5.1372	-11.9	V	3.0	40.9	1.0	-51.8	-13.0	-38.8	
6.8496	-10.3	V	3.0	41.0	1.0	-50.3	-13.0	-37.3	
3.4248	-14.5	H	3.0	40.2	1.0	-53.7	-13.0	-40.7	
5.1372	-10.9	H	3.0	40.9	1.0	-50.8	-13.0	-37.8	
6.8496	-10.3	H	3.0	41.0	1.0	-50.3	-13.0	-37.3	
Mid Ch, 1732.6MHz									
3.4652	-14.5	V	3.0	40.3	1.0	-53.7	-13.0	-40.7	
5.1978	-12.7	V	3.0	40.9	1.0	-52.6	-13.0	-39.6	
6.9304	-9.6	V	3.0	41.0	1.0	-49.6	-13.0	-36.6	
3.4652	-15.2	H	3.0	40.3	1.0	-54.4	-13.0	-41.4	
5.1978	-10.8	H	3.0	40.9	1.0	-50.7	-13.0	-37.7	
6.9304	-10.3	H	3.0	41.0	1.0	-50.3	-13.0	-37.3	
High Ch, 1752.6MHz									
3.5052	-14.5	V	3.0	40.3	1.0	-53.7	-13.0	-40.7	
5.2578	-12.5	V	3.0	40.9	1.0	-52.4	-13.0	-39.4	
7.0104	-10.8	V	3.0	41.0	1.0	-50.8	-13.0	-37.8	
3.5052	-14.4	H	3.0	40.3	1.0	-53.7	-13.0	-40.7	
5.2578	-10.3	H	3.0	40.9	1.0	-50.2	-13.0	-37.2	
7.0104	-10.5	H	3.0	41.0	1.0	-50.6	-13.0	-37.6	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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WCDMA Band 5

WCDMA

Band 5
HSUPA

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-03-16
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone / Z Position
Mode: Tx, HSUPA,850MHz

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 826.40MHz									
1.6520	-19.8	V	3.0	39.1	1.0	-57.9	-13.0	-44.9	
2.4790	-18.1	V	3.0	39.5	1.0	-56.6	-13.0	-43.6	
3.3056	-16.2	V	3.0	40.1	1.0	-55.3	-13.0	-42.3	
1.6520	-20.7	H	3.0	39.1	1.0	-58.8	-13.0	-45.8	
2.4790	-18.6	H	3.0	39.5	1.0	-57.1	-13.0	-44.1	
3.3056	-17.2	H	3.0	40.1	1.0	-56.3	-13.0	-43.3	
Mid Ch, 836.6MHz									
1.6732	-17.4	V	3.0	39.1	1.0	-55.5	-13.0	-42.5	
2.5098	-17.9	V	3.0	39.5	1.0	-56.5	-13.0	-43.5	
3.3464	-16.1	V	3.0	40.1	1.0	-55.2	-13.0	-42.2	
1.6732	-18.8	H	3.0	39.1	1.0	-56.9	-13.0	-43.9	
2.5098	-18.4	H	3.0	39.5	1.0	-56.9	-13.0	-43.9	
3.3464	-16.4	H	3.0	40.1	1.0	-55.5	-13.0	-42.5	
High Ch, 846.6MHz									
1.6932	-17.2	V	3.0	39.1	1.0	-55.4	-13.0	-42.4	
2.5390	-18.0	V	3.0	39.6	1.0	-56.5	-13.0	-43.5	
3.3860	-15.8	V	3.0	40.2	1.0	-55.0	-13.0	-42.0	
1.6932	-16.8	H	3.0	39.1	1.0	-55.0	-13.0	-42.0	
2.5390	-18.4	H	3.0	39.6	1.0	-56.9	-13.0	-43.9	
3.3860	-16.2	H	3.0	40.2	1.0	-55.4	-13.0	-42.4	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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LTE Band 5

LTE Band 5 1.4MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 05-31-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Earphone, Z Position
Mode: TX, LTE BAND 5, 1.4MHz BW,QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (824.7MHz)									
1.6494	-14.5	V	3.0	39.1	1.0	-52.6	-13.0	-39.6	
2.4741	-16.5	V	3.0	39.5	1.0	-55.1	-13.0	-42.1	
3.2988	-16.7	V	3.0	40.1	1.0	-55.8	-13.0	-42.8	
1.6494	-13.2	H	3.0	39.1	1.0	-51.3	-13.0	-38.3	
2.4741	-15.3	H	3.0	39.5	1.0	-53.8	-13.0	-40.8	
3.2988	-16.1	H	3.0	40.1	1.0	-55.2	-13.0	-42.2	
Mid Channel (836.5MHz)									
1.6730	-11.2	V	3.0	39.1	1.0	-49.3	-13.0	-36.3	
2.5090	-18.9	V	3.0	39.5	1.0	-57.4	-13.0	-44.4	
3.3460	-16.4	V	3.0	40.1	1.0	-55.5	-13.0	-42.5	
1.6730	-11.7	H	3.0	39.1	1.0	-49.8	-13.0	-36.8	
2.5090	-19.0	H	3.0	39.5	1.0	-57.5	-13.0	-44.5	
3.3460	-16.9	H	3.0	40.1	1.0	-56.0	-13.0	-43.0	
High Channel (848.3MHz)									
1.6966	-13.4	V	3.0	39.1	1.0	-51.6	-13.0	-38.6	
2.5449	-15.7	V	3.0	39.6	1.0	-54.3	-13.0	-41.3	
3.3932	-14.8	V	3.0	40.2	1.0	-54.0	-13.0	-41.0	
1.6966	-14.0	H	3.0	39.1	1.0	-52.1	-13.0	-39.1	
2.5449	-15.6	H	3.0	39.6	1.0	-54.1	-13.0	-41.1	
3.3932	-14.8	H	3.0	40.2	1.0	-54.0	-13.0	-41.0	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 5 10MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-02-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Earphone, Z Position
Mode: TX, LTE BAND 5, 10MHz BW,QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (829MHz)									
1.6580	-14.6	V	3.0	39.1	1.0	-52.7	-13.0	-39.7	
2.4870	-17.3	V	3.0	39.5	1.0	-55.8	-13.0	-42.8	
3.3160	-15.7	V	3.0	40.1	1.0	-54.8	-13.0	-41.8	
1.6580	-13.3	H	3.0	39.1	1.0	-51.4	-13.0	-38.4	
2.4870	-15.5	H	3.0	39.5	1.0	-54.0	-13.0	-41.0	
3.3160	-16.0	H	3.0	40.1	1.0	-55.1	-13.0	-42.1	
Mid Channel (836.5MHz)									
1.6730	-11.3	V	3.0	39.1	1.0	-49.4	-13.0	-36.4	
2.5090	-18.8	V	3.0	39.5	1.0	-57.3	-13.0	-44.3	
3.3460	-15.5	V	3.0	40.1	1.0	-54.6	-13.0	-41.6	
1.6730	-10.1	H	3.0	39.1	1.0	-48.2	-13.0	-35.2	
2.5090	-18.7	H	3.0	39.5	1.0	-57.2	-13.0	-44.2	
3.3460	-15.3	H	3.0	40.1	1.0	-54.5	-13.0	-41.5	
High Channel (844MHz)									
1.6880	-11.1	V	3.0	39.1	1.0	-49.2	-13.0	-36.2	
2.5320	-16.0	V	3.0	39.5	1.0	-54.5	-13.0	-41.5	
3.3760	-16.2	V	3.0	40.2	1.0	-55.4	-13.0	-42.4	
1.6880	-11.2	H	3.0	39.1	1.0	-49.3	-13.0	-36.3	
2.5320	-14.6	H	3.0	39.5	1.0	-53.1	-13.0	-40.1	
3.3760	-15.8	H	3.0	40.2	1.0	-55.0	-13.0	-42.0	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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LTE Band 2

LTE

Band 2

15MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 05-27-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 15MHz BW, QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	FCC Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (1857.5MHz)									
3.7150	-17.5	V	3.0	40.5	1.0	-57.0	-13.0	-44.0	
5.5725	-13.2	V	3.0	40.8	1.0	-53.1	-13.0	-40.1	
7.4300	-12.6	V	3.0	40.8	1.0	-52.4	-13.0	-39.4	
3.7150	-15.1	H	3.0	40.5	1.0	-54.6	-13.0	-41.6	
5.5725	-8.4	H	3.0	40.8	1.0	-48.2	-13.0	-35.2	
7.4300	-12.5	H	3.0	40.8	1.0	-52.3	-13.0	-39.3	
Mid Channel (1880MHz)									
3.7600	-13.3	V	3.0	40.5	1.0	-52.8	-13.0	-39.8	
5.6400	-13.8	V	3.0	40.8	1.0	-53.6	-13.0	-40.6	
7.5200	-12.1	V	3.0	40.7	1.0	-51.8	-13.0	-38.8	
3.7600	-8.9	H	3.0	40.5	1.0	-48.4	-13.0	-35.4	
5.6400	-11.4	H	3.0	40.8	1.0	-51.2	-13.0	-38.2	
7.5200	-11.9	H	3.0	40.7	1.0	-51.6	-13.0	-38.6	
High Channel (1902.5MHz)									
3.8050	-11.0	V	3.0	40.6	1.0	-50.6	-13.0	-37.6	
5.7075	-14.4	V	3.0	40.8	1.0	-54.2	-13.0	-41.2	
7.6100	-12.0	V	3.0	40.7	1.0	-51.7	-13.0	-38.7	
3.8050	-6.8	H	3.0	40.6	1.0	-46.4	-13.0	-33.4	
5.7075	-10.3	H	3.0	40.8	1.0	-50.1	-13.0	-37.1	
7.6100	-11.4	H	3.0	40.7	1.0	-51.1	-13.0	-38.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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LTE Band 25

LTE Band 25 20MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 05-31-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX LTE BAND 25, 20MHz BW, QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AF S42	Filter 1	FCC Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (1860MHz)									
3.7200	-9.8	V	3.0	40.5	1.0	-49.3	-13.0	-36.3	
5.5800	-13.6	V	3.0	40.8	1.0	-53.4	-13.0	-40.4	
7.4400	-13.8	V	3.0	40.8	1.0	-53.5	-13.0	-40.5	
3.7200	-4.7	H	3.0	40.5	1.0	-44.2	-13.0	-31.2	
5.5800	-8.5	H	3.0	40.8	1.0	-48.3	-13.0	-35.3	
7.4400	-23.0	H	3.0	40.8	1.0	-62.8	-13.0	-49.8	
Mid Channel (1882.5MHz)									
3.7650	-10.2	V	3.0	40.5	1.0	-49.8	-13.0	-36.8	
5.6475	-12.1	V	3.0	40.8	1.0	-51.9	-13.0	-38.9	
7.5300	-13.3	V	3.0	40.7	1.0	-53.0	-13.0	-40.0	
3.7650	-4.3	H	3.0	40.5	1.0	-43.9	-13.0	-30.9	
5.6475	-9.1	H	3.0	40.8	1.0	-48.9	-13.0	-35.9	
7.5300	-12.7	H	3.0	40.7	1.0	-52.4	-13.0	-39.4	
High Channel (1905MHz)									
3.8100	-5.8	V	3.0	40.6	1.0	-45.3	-13.0	-32.3	
5.7150	-13.2	V	3.0	40.8	1.0	-53.0	-13.0	-40.0	
7.6200	-13.2	V	3.0	40.7	1.0	-52.9	-13.0	-39.9	
3.8100	0.7	H	3.0	40.6	1.0	-38.9	-13.0	-25.9	
5.7150	-5.7	H	3.0	40.8	1.0	-45.4	-13.0	-32.4	
7.6200	-13.3	H	3.0	40.7	1.0	-53.0	-13.0	-40.0	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 25 20MHz 16QAM

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 05-31-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX LTE BAND 25, 20MHz BW,16QAM

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AF S42	Filter 1	FCC Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (1860MHz)									
3.7200	-9.8	V	3.0	40.5	1.0	-49.3	-13.0	-36.3	
5.5800	-14.9	V	3.0	40.8	1.0	-54.7	-13.0	-41.7	
7.4400	-13.8	V	3.0	40.8	1.0	-53.5	-13.0	-40.5	
3.7200	-3.7	H	3.0	40.5	1.0	-43.2	-13.0	-30.2	
5.5800	-7.3	H	3.0	40.8	1.0	-47.1	-13.0	-34.1	
7.4400	-13.2	H	3.0	40.8	1.0	-53.0	-13.0	-40.0	
Mid Channel (1882.5MHz)									
3.7650	-10.8	V	3.0	40.5	1.0	-50.3	-13.0	-37.3	
5.6475	-13.8	V	3.0	40.8	1.0	-53.6	-13.0	-40.6	
7.5300	-13.3	V	3.0	40.7	1.0	-53.0	-13.0	-40.0	
3.7650	-3.0	H	3.0	40.5	1.0	-42.5	-13.0	-29.5	
5.6475	-7.2	H	3.0	40.8	1.0	-47.1	-13.0	-34.1	
7.5300	-13.1	H	3.0	40.7	1.0	-52.8	-13.0	-39.8	
High Channel (1905MHz)									
3.8100	-6.4	V	3.0	40.6	1.0	-46.0	-13.0	-33.0	
5.7150	-11.4	V	3.0	40.8	1.0	-51.2	-13.0	-38.2	
7.6200	-13.2	V	3.0	40.7	1.0	-52.8	-13.0	-39.8	
3.8100	-1.5	H	3.0	40.6	1.0	-41.1	-13.0	-28.1	
5.7150	-5.7	H	3.0	40.8	1.0	-45.5	-13.0	-32.5	
7.6200	-13.3	H	3.0	40.7	1.0	-52.9	-13.0	-39.9	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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LTE Band 26

LTE Band 26 5MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-02-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Earphone, Z Position
Mode: TX, LTE BAND 26, 5MHz BW,QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (816.5MHz)									
1.6330	-13.0	V	3.0	39.1	1.0	-51.1	-13.0	-38.1	
2.4495	-17.3	V	3.0	39.5	1.0	-55.8	-13.0	-42.8	
3.2660	-15.0	V	3.0	40.1	1.0	-54.1	-13.0	-41.1	
1.6330	-9.7	H	3.0	39.1	1.0	-47.8	-13.0	-34.8	
2.4495	-15.5	H	3.0	39.5	1.0	-54.0	-13.0	-41.0	
3.2660	-15.1	H	3.0	40.1	1.0	-54.2	-13.0	-41.2	
Mid Channel (831.5MHz)									
1.6630	-10.2	V	3.0	39.1	1.0	-48.4	-13.0	-35.4	
2.4945	-16.0	V	3.0	39.5	1.0	-54.6	-13.0	-41.6	
3.3260	-15.1	V	3.0	40.1	1.0	-54.2	-13.0	-41.2	
1.6630	-10.4	H	3.0	39.1	1.0	-48.5	-13.0	-35.5	
2.4945	-17.2	H	3.0	39.5	1.0	-55.7	-13.0	-42.7	
3.3260	-16.0	H	3.0	40.1	1.0	-55.1	-13.0	-42.1	
High Channel (846.5MHz)									
1.6930	-12.1	V	3.0	39.1	1.0	-50.2	-13.0	-37.2	
2.5390	-16.7	V	3.0	39.6	1.0	-55.2	-13.0	-42.2	
3.3860	-14.9	V	3.0	40.2	1.0	-54.0	-13.0	-41.0	
1.6930	-10.2	H	3.0	39.1	1.0	-48.4	-13.0	-35.4	
2.5390	-17.3	H	3.0	39.6	1.0	-55.8	-13.0	-42.8	
3.3860	-15.4	H	3.0	40.2	1.0	-54.6	-13.0	-41.6	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE Band 26 15MHz QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 07-01-16
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone, Z Position
Mode: TX, LTE BAND 26, 15MHz BW, QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	FCC Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (821.5MHz)									
1.6430	-28.3	V	3.0	39.1	1.0	-66.4	-13.0	-53.4	
2.4645	-17.8	V	3.0	39.5	1.0	-56.3	-13.0	-43.3	
3.2860	-27.6	V	3.0	40.1	1.0	-66.7	-13.0	-53.7	
1.6430	-25.2	H	3.0	39.1	1.0	-63.3	-13.0	-50.3	
2.4645	-19.3	H	3.0	39.5	1.0	-57.8	-13.0	-44.8	
3.2860	-28.0	H	3.0	40.1	1.0	-67.1	-13.0	-54.1	
Mid Channel (831.5MHz)									
1.6630	-26.4	V	3.0	39.1	1.0	-64.6	-13.0	-51.6	
2.4945	-15.1	V	3.0	39.5	1.0	-53.6	-13.0	-40.6	
3.3260	-27.5	V	3.0	40.1	1.0	-66.6	-13.0	-53.6	
1.6630	-22.5	H	3.0	39.1	1.0	-60.6	-13.0	-47.6	
2.4945	-17.0	H	3.0	39.5	1.0	-55.6	-13.0	-42.6	
3.3260	-28.0	H	3.0	40.1	1.0	-67.1	-13.0	-54.1	
High Channel (841.5MHz)									
1.6830	-29.0	V	3.0	39.1	1.0	-67.1	-13.0	-54.1	
2.5245	-15.2	V	3.0	39.5	1.0	-53.7	-13.0	-40.7	
3.3660	-27.8	V	3.0	40.2	1.0	-67.0	-13.0	-54.0	
1.6830	-17.5	H	3.0	39.1	1.0	-55.7	-13.0	-42.7	
2.5245	-13.3	H	3.0	39.5	1.0	-51.9	-13.0	-38.9	
3.3660	-28.1	H	3.0	40.2	1.0	-67.2	-13.0	-54.2	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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LTE Band 17

LTE

Band 2

15MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-01-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 17, 10MHz BW, QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	FCC Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (709MHz)									
1.4180	-18.4	V	3.0	39.0	1.0	-56.4	-13.0	-43.4	
2.1270	-11.9	V	3.0	39.3	1.0	-50.3	-13.0	-37.3	
2.8360	-17.3	V	3.0	39.7	1.0	-56.0	-13.0	-43.0	
1.4180	-21.0	H	3.0	39.0	1.0	-59.0	-13.0	-46.0	
2.1270	-8.9	H	3.0	39.3	1.0	-47.2	-13.0	-34.2	
2.8360	-16.5	H	3.0	39.7	1.0	-55.2	-13.0	-42.2	
Mid_Channel (710MHz)									
1.4200	-20.4	V	3.0	39.0	1.0	-58.4	-13.0	-45.4	
2.1300	-10.9	V	3.0	39.3	1.0	-49.2	-13.0	-36.2	
2.8400	-16.7	V	3.0	39.7	1.0	-55.4	-13.0	-42.4	
1.4200	-21.1	H	3.0	39.0	1.0	-59.1	-13.0	-46.1	
2.1300	-7.5	H	3.0	39.3	1.0	-45.8	-13.0	-32.8	
2.8400	-16.0	H	3.0	39.7	1.0	-54.8	-13.0	-41.8	
High Channel (711MHz)									
1.4220	-20.5	V	3.0	39.0	1.0	-58.5	-13.0	-45.5	
2.1330	-10.7	V	3.0	39.3	1.0	-49.0	-13.0	-36.0	
2.8440	-17.1	V	3.0	39.7	1.0	-55.8	-13.0	-42.8	
1.4220	-20.3	H	3.0	39.0	1.0	-58.3	-13.0	-45.3	
2.1330	-6.8	H	3.0	39.3	1.0	-45.1	-13.0	-32.1	
2.8440	-15.9	H	3.0	39.7	1.0	-54.6	-13.0	-41.6	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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LTE Band 4

LTE

Band 4

15MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Freqency Substitution Measurement

Date: 05-27-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 15MHz BW,QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	FCC Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (1717.5MHz)									
3.4350	0.4	V	3.0	40.2	1.0	-38.9	-13.0	-25.9	
5.1525	-11.2	V	3.0	40.9	1.0	-51.1	-13.0	-38.1	
6.8700	-12.8	V	3.0	41.0	1.0	-52.8	-13.0	-39.8	
3.4350	-3.0	H	3.0	40.2	1.0	-42.3	-13.0	-29.3	
5.1525	-4.9	H	3.0	40.9	1.0	-44.8	-13.0	-31.8	
6.8700	-12.3	H	3.0	41.0	1.0	-52.2	-13.0	-39.2	
Mid Channel (1732.5MHz)									
3.4650	-0.7	V	3.0	40.3	1.0	-39.9	-13.0	-26.9	
5.1975	-10.3	V	3.0	40.9	1.0	-50.2	-13.0	-37.2	
6.9300	-12.9	V	3.0	41.0	1.0	-52.9	-13.0	-39.9	
3.4650	-3.2	H	3.0	40.3	1.0	-42.5	-13.0	-29.5	
5.1975	-4.3	H	3.0	40.9	1.0	-44.2	-13.0	-31.2	
6.9300	-13.0	H	3.0	41.0	1.0	-53.0	-13.0	-40.0	
High Channel (1747.5MHz)									
3.4950	-1.0	V	3.0	40.3	1.0	-40.3	-13.0	-27.3	
5.2425	-9.1	V	3.0	40.9	1.0	-48.9	-13.0	-35.9	
6.9900	-13.0	V	3.0	41.0	1.0	-53.0	-13.0	-40.0	
3.4950	-1.3	H	3.0	40.3	1.0	-40.6	-13.0	-27.6	
5.2425	-2.3	H	3.0	40.9	1.0	-42.1	-13.0	-29.1	
6.9900	-13.1	H	3.0	41.0	1.0	-53.1	-13.0	-40.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE

Band 26

20MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 05-31-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 20MHz BW, QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	FCC Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (1720MHz)									
3.4400	1.6	V	3.0	40.2	1.0	-37.6	-13.0	-24.6	
5.1600	-12.2	V	3.0	40.9	1.0	-52.1	-13.0	-39.1	
6.8800	-13.9	V	3.0	41.0	1.0	-53.9	-13.0	-40.9	
3.4400	0.8	H	3.0	40.2	1.0	-38.4	-13.0	-25.4	
5.1600	-3.0	H	3.0	40.9	1.0	-42.9	-13.0	-29.9	
6.8800	-13.3	H	3.0	41.0	1.0	-53.3	-13.0	-40.3	
Mid Channel (1732.5MHz)									
3.4650	0.6	V	3.0	40.3	1.0	-38.6	-13.0	-25.6	
5.1975	-10.0	V	3.0	40.9	1.0	-49.9	-13.0	-36.9	
6.9300	-13.6	V	3.0	41.0	1.0	-53.6	-13.0	-40.6	
3.4650	0.3	H	3.0	40.3	1.0	-38.9	-13.0	-25.9	
5.1975	-3.6	H	3.0	40.9	1.0	-43.5	-13.0	-30.5	
6.9300	-13.4	H	3.0	41.0	1.0	-53.4	-13.0	-40.4	
High Channel (1745MHz)									
3.4900	0.5	V	3.0	40.3	1.0	-38.8	-13.0	-25.8	
5.2350	-9.9	V	3.0	40.9	1.0	-49.8	-13.0	-36.8	
6.9800	-14.1	V	3.0	41.0	1.0	-54.1	-13.0	-41.1	
3.4900	-2.8	H	3.0	40.3	1.0	-42.1	-13.0	-29.1	
5.2350	-1.4	H	3.0	40.9	1.0	-41.3	-13.0	-28.3	
6.9800	-13.7	H	3.0	41.0	1.0	-53.7	-13.0	-40.7	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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LTE Band 7

LTE

Band 7

20MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-02-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 7, 20MHz BW, QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	FCC Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (2510 MHz)									
5.0200	-10.1	V	3.0	40.9	1.0	-50.1	-25.0	-25.1	
7.5300	-10.8	V	3.0	40.7	1.0	-50.6	-25.0	-25.6	
10.0400	-9.7	V	3.0	39.7	1.0	-48.4	-25.0	-23.4	
5.0200	-9.2	H	3.0	40.9	1.0	-49.1	-25.0	-24.1	
7.5300	-7.7	H	3.0	40.7	1.0	-47.5	-25.0	-22.5	
10.0400	-13.8	H	3.0	39.7	1.0	-52.4	-25.0	-27.4	
Mid Ch, (2535 MHz)									
5.0700	-5.0	V	3.0	40.9	1.0	-44.9	-25.0	-19.9	
7.6050	-11.8	V	3.0	40.7	1.0	-51.5	-25.0	-26.5	
10.1400	-10.8	V	3.0	39.6	1.0	-49.4	-25.0	-24.4	
5.0700	1.2	H	3.0	40.9	1.0	-38.7	-25.0	-13.7	
7.6050	-9.2	H	3.0	40.7	1.0	-48.8	-25.0	-23.8	
10.1400	-11.2	H	3.0	39.6	1.0	-49.8	-25.0	-24.8	
High Ch, (2560 MHz)									
5.1200	-5.5	V	3.0	40.9	1.0	-45.4	-25.0	-20.4	
7.6800	-9.8	V	3.0	40.6	1.0	-49.4	-25.0	-24.4	
10.2400	-9.9	V	3.0	39.5	1.0	-48.4	-25.0	-23.4	
5.1200	0.5	H	3.0	40.9	1.0	-39.4	-25.0	-14.4	
7.6800	-6.3	H	3.0	40.6	1.0	-45.9	-25.0	-20.9	
10.2400	-6.2	H	3.0	39.5	1.0	-44.7	-25.0	-19.7	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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LTE Band 30

LTE

Band 30

5MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-07-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 30, 5MHz BW, QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	FCC Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (2307.5 MHz)									
4.6150	-11.9	V	3.0	40.9	1.0	-51.8	-40.0	-11.8	
6.9225	-8.2	V	3.0	41.0	1.0	-48.2	-40.0	-8.2	
9.2300	-10.2	V	3.0	39.6	1.0	-48.8	-40.0	-8.8	
4.6150	-10.0	H	3.0	40.9	1.0	-49.8	-40.0	-9.8	
6.9225	-5.5	H	3.0	41.0	1.0	-45.5	-40.0	-5.5	
9.2300	-10.2	H	3.0	39.6	1.0	-48.9	-40.0	-8.9	
Mid Ch, (2310 MHz)									
4.6200	-10.9	V	3.0	40.9	1.0	-50.8	-40.0	-10.8	
6.9300	-5.5	V	3.0	41.0	1.0	-45.5	-40.0	-5.5	
9.2400	-9.3	V	3.0	39.6	1.0	-48.0	-40.0	-8.0	
4.6200	-11.3	H	3.0	40.9	1.0	-51.2	-40.0	-11.2	
6.9300	-1.2	H	3.0	41.0	1.0	-41.2	-40.0	-1.2	
9.2400	-10.5	H	3.0	39.6	1.0	-49.2	-40.0	-9.2	
High Ch, (2312.5 MHz)									
4.6250	-11.3	V	3.0	40.9	1.0	-51.2	-40.0	-11.2	
6.9375	-1.5	V	3.0	41.0	1.0	-41.5	-40.0	-1.5	
9.2500	-9.0	V	3.0	39.6	1.0	-47.7	-40.0	-7.7	
4.6250	-10.6	H	3.0	40.9	1.0	-50.5	-40.0	-10.5	
6.9375	-2.2	H	3.0	41.0	1.0	-42.3	-40.0	-2.3	
9.2500	-11.0	H	3.0	39.6	1.0	-49.7	-40.0	-9.7	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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LTE Band 41

LTE

Band 41

15MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-02-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 41, 15MHz BW,QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	FCC Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (2503.5 MHz)									
5.0070	-8.6	V	3.0	40.9	1.0	-48.5	-25.0	-23.5	
7.5100	-8.0	V	3.0	40.7	1.0	-47.7	-25.0	-22.7	
10.0140	-10.1	V	3.0	39.7	1.0	-48.8	-25.0	-23.8	
5.0070	-6.8	H	3.0	40.9	1.0	-46.8	-25.0	-21.8	
7.5100	-3.7	H	3.0	40.7	1.0	-43.5	-25.0	-18.5	
10.0140	-10.6	H	3.0	39.7	1.0	-49.3	-25.0	-24.3	
Mid Ch, (2593 MHz)									
5.1860	-5.1	V	3.0	40.9	1.0	-44.9	-25.0	-19.9	
7.7790	-7.6	V	3.0	40.6	1.0	-47.2	-25.0	-22.2	
10.3720	-8.4	V	3.0	39.4	1.0	-46.9	-25.0	-21.9	
5.1860	1.0	H	3.0	40.9	1.0	-38.9	-25.0	-13.9	
7.7790	-3.8	H	3.0	40.6	1.0	-43.4	-25.0	-18.4	
10.3720	-11.9	H	3.0	39.4	1.0	-50.3	-25.0	-25.3	
High Ch, (2682.5 MHz)									
5.3650	-3.5	V	3.0	40.9	1.0	-43.4	-25.0	-18.4	
8.0470	-4.0	V	3.0	40.4	1.0	-43.4	-25.0	-18.4	
10.7300	-6.3	V	3.0	39.2	1.0	-44.5	-25.0	-19.5	
5.3650	0.5	H	3.0	40.9	1.0	-39.4	-25.0	-14.4	
8.0470	0.0	H	3.0	40.4	1.0	-39.4	-25.0	-14.4	
10.7300	-6.2	H	3.0	39.2	1.0	-44.3	-25.0	-19.3	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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LTE Band 12

LTE

Band 12

10MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-01-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Earphone, Z Position
Mode: TX, LTE BAND 12, 10MHz BW,QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (704MHz)									
1.4080	-19.7	V	3.0	39.0	1.0	-57.7	-13.0	-44.7	
2.1120	-11.2	V	3.0	39.3	1.0	-49.5	-13.0	-36.5	
2.8160	-17.1	V	3.0	39.7	1.0	-55.8	-13.0	-42.8	
1.4080	-17.2	H	3.0	39.0	1.0	-55.3	-13.0	-42.3	
2.1120	-7.5	H	3.0	39.3	1.0	-45.9	-13.0	-32.9	
2.8160	-17.0	H	3.0	39.7	1.0	-55.7	-13.0	-42.7	
Mid Channel (707.5MHz)									
1.4150	-18.7	V	3.0	39.0	1.0	-56.8	-13.0	-43.8	
2.1225	-14.6	V	3.0	39.3	1.0	-53.0	-13.0	-40.0	
2.8300	-17.5	V	3.0	39.7	1.0	-56.2	-13.0	-43.2	
1.4150	-13.5	H	3.0	39.0	1.0	-51.5	-13.0	-38.5	
2.1225	-8.9	H	3.0	39.3	1.0	-47.3	-13.0	-34.3	
2.8300	-16.7	H	3.0	39.7	1.0	-55.4	-13.0	-42.4	
High Channel (711MHz)									
1.4220	-19.9	V	3.0	39.0	1.0	-57.9	-13.0	-44.9	
2.1330	-12.2	V	3.0	39.3	1.0	-50.5	-13.0	-37.5	
2.8440	-17.2	V	3.0	39.7	1.0	-56.0	-13.0	-43.0	
1.4220	-19.4	H	3.0	39.0	1.0	-57.4	-13.0	-44.4	
2.1330	-6.8	H	3.0	39.3	1.0	-45.1	-13.0	-32.1	
2.8440	-16.0	H	3.0	39.7	1.0	-54.7	-13.0	-41.7	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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LTE Band 13

LTE

Band 13

5MHz

QPSK

UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Date: 06-01-16
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Earphone, Z Position
Mode: TX, LTE BAND 13, 5MHz BW,QPSK

Chamber	Pre-amplifer	Filter	Limit
Chamber 2	AFS42	Filter 1	Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (779.5MHz)									
1.5590	-16.3	V	3.0	39.1	1.0	-54.4	-40.0	-14.4	1559-1610MHz
2.3385	-17.8	V	3.0	39.4	1.0	-56.3	-13.0	-43.3	
3.1180	-16.6	V	3.0	39.9	1.0	-55.5	-13.0	-42.5	
1.5590	-15.6	H	3.0	39.1	1.0	-53.7	-40.0	-13.7	1559-1610MHz
2.3385	-15.2	H	3.0	39.4	1.0	-53.6	-13.0	-40.6	
3.1180	-16.5	H	3.0	39.9	1.0	-55.5	-13.0	-42.5	
Mid Channel (782MHz)									
1.5640	-19.2	V	3.0	39.1	1.0	-57.2	-40.0	-17.2	1559-1610MHz
2.3460	-16.1	V	3.0	39.4	1.0	-54.5	-13.0	-41.5	
3.1280	-16.9	V	3.0	39.9	1.0	-55.8	-13.0	-42.8	
1.5640	-18.5	H	3.0	39.1	1.0	-56.6	-40.0	-16.6	1559-1610MHz
2.3460	-14.6	H	3.0	39.4	1.0	-53.0	-13.0	-40.0	
3.1280	-16.7	H	3.0	39.9	1.0	-55.6	-13.0	-42.6	
High Channel (784.5MHz)									
1.5690	-15.4	V	3.0	39.1	1.0	-53.5	-40.0	-13.5	1559-1610MHz
2.3535	-16.4	V	3.0	39.4	1.0	-54.9	-13.0	-41.9	
3.1380	-16.4	V	3.0	39.9	1.0	-55.4	-13.0	-42.4	
1.5690	-15.7	H	3.0	39.1	1.0	-53.8	-40.0	-13.8	1559-1610MHz
2.3535	-15.7	H	3.0	39.4	1.0	-54.1	-13.0	-41.1	
3.1380	-16.8	H	3.0	39.9	1.0	-55.7	-13.0	-42.7	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

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