Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788103295
Date:	08-22-17
Test Engineer:	Chan Park
Configuration:	EUT / AC Adapter / Earphone, X Position
Mode:	TX, LTE BAND 5, 5MHz BW,QPSK

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

LTE
Band 5
5MHz
QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (826.5MHz)									
1.6530	-16.9	V	3.0	38.2	1.0	-54.1	-13.0	-41.1	
2.4790	-5.9	V	3.0	38.8	1.0	-43.7	-13.0	-30.7	
3.3060	-10.7	V	3.0	39.4	1.0	-49.1	-13.0	-36.1	
4.1325	-12.3	V	3.0	39.8	1.0	-51.1	-13.0	-38.1	
1.6530	-16.2	H	3.0	38.2	1.0	-53.4	-13.0	-40.4	
2.4790	-5.5	H	3.0	38.8	1.0	-43.3	-13.0	-30.3	
3.3060	-9.4	H	3.0	39.4	1.0	-47.8	-13.0	-34.8	
4.1325	-10.5	H	3.0	39.8	1.0	-49.3	-13.0	-36.3	
Mid Channel (836.5MHz)									
1.6730	-13.7	V	3.0	38.2	1.0	-50.9	-13.0	-37.9	
2.5090	-2.1	V	3.0	38.8	1.0	-39.9	-13.0	-26.9	
3.3460	-11.1	V	3.0	39.5	1.0	-49.5	-13.0	-36.5	
4.1825	-9.4	V	3.0	39.8	1.0	-48.2	-13.0	-35.2	
1.6730	-13.5	H	3.0	38.2	1.0	-50.8	-13.0	-37.8	
2.5090	-4.8	H	3.0	38.8	1.0	-42.6	-13.0	-29.6	
3.3460	-7.9	H	3.0	39.5	1.0	-46.3	-13.0	-33.3	
4.1825	-9.3	H	3.0	39.8	1.0	-48.1	-13.0	-35.1	
High Channel (846.5MHz)									
1.6930	-13.9	V	3.0	38.2	1.0	-51.2	-13.0	-38.2	
2.5390	-8.2	V	3.0	38.9	1.0	-46.0	-13.0	-33.0	
3.3860	-10.2	V	3.0	39.5	1.0	-48.6	-13.0	-35.6	
4.2325	-9.4	V	4.0	39.8	2.0	-44.7	-13.0	-31.7	
1.6930	-12.7	H	3.0	38.2	1.0	-49.9	-13.0	-36.9	
2.5390	-7.8	H	3.0	38.9	1.0	-45.7	-13.0	-32.7	
3.3860	-7.1	H	3.0	39.5	1.0	-45.6	-13.0	-32.6	
4.2325	-10.2	H	3.0	39.8	1.0	-49.0	-13.0	-36.0	

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

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_22/24/27
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UL Korea, Ltd Suwon Laboratory
Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788103295
Date:	08-22-17
Test Engineer:	Chan Park
Configuration:	EUT / AC Adapter / Earphone, X Position
Mode:	TX, LTE BAND 5, 5MHz BW,16QAM

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

LTE
Band 5
5MHz
16QAM

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (826.5MHz)									
1.6530	-16.8	V	3.0	38.2	1.0	-54.0	-13.0	-41.0	
2.4790	-6.3	V	3.0	38.8	1.0	-44.1	-13.0	-31.1	
3.3060	-11.1	V	3.0	39.4	1.0	-49.6	-13.0	-36.6	
4.1325	-13.1	V	3.0	39.8	1.0	-51.9	-13.0	-38.9	
1.6530	-16.2	H	3.0	38.2	1.0	-53.4	-13.0	-40.4	
2.4790	-6.0	H	3.0	38.8	1.0	-43.8	-13.0	-30.8	
3.3060	-9.8	H	3.0	39.4	1.0	-48.3	-13.0	-35.3	
4.1325	-10.8	H	3.0	39.8	1.0	-49.6	-13.0	-36.6	
Mid Channel (836.5MHz)									
1.6730	-14.2	V	3.0	38.2	1.0	-51.5	-13.0	-38.5	
2.5090	-3.0	V	3.0	38.8	1.0	-40.9	-13.0	-27.9	
3.3460	-11.5	V	3.0	39.5	1.0	-50.0	-13.0	-37.0	
4.1825	-10.5	V	3.0	39.8	1.0	-49.3	-13.0	-36.3	
1.6730	-13.6	H	3.0	38.2	1.0	-50.8	-13.0	-37.8	
2.5090	-5.4	H	3.0	38.8	1.0	-43.3	-13.0	-30.3	
3.3460	-8.6	H	3.0	39.5	1.0	-47.1	-13.0	-34.1	
4.1825	-9.9	H	3.0	39.8	1.0	-48.7	-13.0	-35.7	
High Channel (846.5MHz)									
1.6930	-14.1	V	3.0	38.2	1.0	-51.4	-13.0	-38.4	
2.5390	-8.3	V	3.0	38.9	1.0	-46.1	-13.0	-33.1	
3.3860	-10.1	V	3.0	39.5	1.0	-48.6	-13.0	-35.6	
4.2325	-9.5	V	4.0	39.8	2.0	-44.8	-13.0	-31.8	
1.6930	-13.1	H	3.0	38.2	1.0	-50.4	-13.0	-37.4	
2.5390	-8.3	H	3.0	38.9	1.0	-46.2	-13.0	-33.2	
3.3860	-7.6	H	3.0	39.5	1.0	-46.1	-13.0	-33.1	
4.2325	-10.6	H	3.0	39.8	1.0	-49.4	-13.0	-36.4	

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

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

Company: Samsung
Project #: 4788103295
Date: 08-21-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone, X Position
Mode: TX, LTE BAND 5, 3MHz BW,QPSK

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

LTE
Band 5
3MHz
QPSK

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (825.5MHz)									
1.6510	-16.8	V	3.0	38.2	1.0	-54.1	-13.0	-41.1	
2.4765	-5.7	V	3.0	38.8	1.0	-43.5	-13.0	-30.5	
3.3020	-10.3	V	3.0	39.4	1.0	-48.8	-13.0	-35.8	
4.1275	-11.4	V	3.0	39.8	1.0	-50.2	-13.0	-37.2	
1.6510	-16.3	H	3.0	38.2	1.0	-53.5	-13.0	-40.5	
2.4765	-5.7	H	3.0	38.8	1.0	-43.5	-13.0	-30.5	
3.3020	-9.3	H	3.0	39.4	1.0	-47.7	-13.0	-34.7	
4.1275	-10.2	H	3.0	39.8	1.0	-49.0	-13.0	-36.0	
Mid Channel (836.5MHz)									
1.6730	-14.0	V	3.0	38.2	1.0	-51.3	-13.0	-38.3	
2.5090	-1.6	V	3.0	38.8	1.0	-39.5	-13.0	-26.5	
3.3460	-10.8	V	3.0	39.5	1.0	-49.2	-13.0	-36.2	
4.1825	-9.8	V	3.0	39.8	1.0	-48.6	-13.0	-35.6	
1.6730	-13.8	H	3.0	38.2	1.0	-51.0	-13.0	-38.0	
2.5090	-4.2	H	3.0	38.8	1.0	-42.1	-13.0	-29.1	
3.3460	-8.7	H	3.0	39.5	1.0	-47.1	-13.0	-34.1	
4.1825	-9.4	H	3.0	39.8	1.0	-48.2	-13.0	-35.2	
High Channel (847.5MHz)									
1.6950	-13.8	V	3.0	38.2	1.0	-51.0	-13.0	-38.0	
2.5425	-8.6	V	3.0	38.9	1.0	-46.5	-13.0	-33.5	
3.3900	-10.0	V	3.0	39.5	1.0	-48.5	-13.0	-35.5	
4.2375	-9.1	V	4.0	39.8	2.0	-44.4	-13.0	-31.4	
1.6950	-12.8	H	3.0	38.2	1.0	-50.0	-13.0	-37.0	
2.5425	-7.9	H	3.0	38.9	1.0	-45.8	-13.0	-32.8	
3.3900	-6.9	H	3.0	39.5	1.0	-45.4	-13.0	-32.4	
4.2375	-10.3	H	3.0	39.8	1.0	-49.2	-13.0	-36.2	

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

LTE

Band 5

3MHz

16QAM

UL Korea, Ltd Suwon Laboratory

Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788103295
Date: 08-21-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone, X Position
Mode: TX, LTE BAND 5, 3MHz BW,16QAM

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 (825.5MHz)									
1.6510	-16.8	V	3.0	38.2	1.0	-54.0	-13.0	-41.0	
2.4765	-5.2	V	3.0	38.8	1.0	-43.0	-13.0	-30.0	
3.3020	-10.6	V	3.0	39.4	1.0	-49.0	-13.0	-36.0	
4.1275	-12.1	V	3.0	39.8	1.0	-50.9	-13.0	-37.9	
1.6510	-16.5	H	3.0	38.2	1.0	-53.7	-13.0	-40.7	
2.4765	-6.7	H	3.0	38.8	1.0	-44.5	-13.0	-31.5	
3.3020	-8.6	H	3.0	39.4	1.0	-47.0	-13.0	-34.0	
4.1275	-10.3	H	3.0	39.8	1.0	-49.1	-13.0	-36.1	
Mid Channel (836.5MHz)									
1.6730	-14.5	V	3.0	38.2	1.0	-51.8	-13.0	-38.8	
2.5090	-1.9	V	3.0	38.8	1.0	-39.7	-13.0	-26.7	
3.3460	-11.9	V	3.0	39.5	1.0	-50.3	-13.0	-37.3	
4.1825	-9.8	V	3.0	39.8	1.0	-48.6	-13.0	-35.6	
1.6730	-14.0	H	3.0	38.2	1.0	-51.2	-13.0	-38.2	
2.5090	-3.5	H	3.0	38.8	1.0	-41.4	-13.0	-28.4	
3.3460	-8.9	H	3.0	39.5	1.0	-47.3	-13.0	-34.3	
4.1825	-9.6	H	3.0	39.8	1.0	-48.4	-13.0	-35.4	
High Channel (847.5MHz)									
1.6950	-13.7	V	3.0	38.2	1.0	-51.0	-13.0	-38.0	
2.5425	-10.7	V	3.0	38.9	1.0	-48.5	-13.0	-35.5	
3.3900	-10.5	V	3.0	39.5	1.0	-49.0	-13.0	-36.0	
4.2375	-9.8	V	4.0	39.8	2.0	-45.2	-13.0	-32.2	
1.6950	-12.7	H	3.0	38.2	1.0	-50.0	-13.0	-37.0	
2.5425	-8.3	H	3.0	38.9	1.0	-46.2	-13.0	-33.2	
3.3900	-7.5	H	3.0	39.5	1.0	-46.0	-13.0	-33.0	
4.2375	-10.5	H	3.0	39.8	1.0	-49.3	-13.0	-36.3	

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

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

Company: Samsung
Project #: 4788103295
Date: 08-21-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone, X Position
Mode: TX, LTE BAND 5, 1.4MHz BW,QPSK

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

LTE
Band 5
1.4MHz
QPSK

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	-15.7	V	3.0	38.2	1.0	-52.9	-13.0	-39.9	
2.4741	-4.7	V	3.0	38.8	1.0	-42.5	-13.0	-29.5	
3.2988	-9.4	V	3.0	39.4	1.0	-47.8	-13.0	-34.8	
4.1235	-11.7	V	3.0	39.8	1.0	-50.6	-13.0	-37.6	
1.6494	-14.9	H	3.0	38.2	1.0	-52.2	-13.0	-39.2	
2.4741	-5.9	H	3.0	38.8	1.0	-43.7	-13.0	-30.7	
3.2988	-8.9	H	3.0	39.4	1.0	-47.3	-13.0	-34.3	
4.1235	-10.4	H	3.0	39.8	1.0	-49.2	-13.0	-36.2	
Mid Channel (836.5MHz)									
1.6730	-14.1	V	3.0	38.2	1.0	-51.4	-13.0	-38.4	
2.5090	-0.9	V	3.0	38.8	1.0	-38.8	-13.0	-25.8	
3.3460	-11.2	V	3.0	39.5	1.0	-49.7	-13.0	-36.7	
4.1825	-9.4	V	3.0	39.8	1.0	-48.2	-13.0	-35.2	
1.6730	-12.1	H	3.0	38.2	1.0	-49.4	-13.0	-36.4	
2.5090	-4.3	H	3.0	38.8	1.0	-42.1	-13.0	-29.1	
3.3460	-8.4	H	3.0	39.5	1.0	-46.8	-13.0	-33.8	
4.1825	-8.1	H	3.0	39.8	1.0	-46.9	-13.0	-33.9	
High Channel (848.3MHz)									
1.6966	-15.2	V	3.0	38.2	1.0	-52.4	-13.0	-39.4	
2.5449	-8.4	V	3.0	38.9	1.0	-46.3	-13.0	-33.3	
3.3932	-10.2	V	3.0	39.5	1.0	-48.7	-13.0	-35.7	
4.2415	-9.4	V	4.0	39.8	2.0	-44.7	-13.0	-31.7	
1.6966	-13.7	H	3.0	38.2	1.0	-50.9	-13.0	-37.9	
2.5449	-8.4	H	3.0	38.9	1.0	-46.3	-13.0	-33.3	
3.3932	-7.2	H	3.0	39.5	1.0	-45.7	-13.0	-32.7	
4.2415	-10.1	H	3.0	39.8	1.0	-48.9	-13.0	-35.9	

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

LTE

Band 5

1.4MHz

16QAM

UL Korea, Ltd Suwon Laboratory

Above 1GHz High Frequency Substitution Measurement

Company: Samsung
Project #: 4788103295
Date: 08-21-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone, X Position
Mode: TX, LTE BAND 5, 1.4MHz BW, 16QAM

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	-16.0	V	3.0	38.2	1.0	-53.2	-13.0	-40.2	
2.4741	-5.4	V	3.0	38.8	1.0	-43.2	-13.0	-30.2	
3.2988	-9.3	V	3.0	39.4	1.0	-47.8	-13.0	-34.8	
4.1235	-11.9	V	3.0	39.8	1.0	-50.7	-13.0	-37.7	
1.6494	-16.0	H	3.0	38.2	1.0	-53.3	-13.0	-40.3	
2.4741	-6.1	H	3.0	38.8	1.0	-43.9	-13.0	-30.9	
3.2988	-9.8	H	3.0	39.4	1.0	-48.3	-13.0	-35.3	
4.1235	-10.4	H	3.0	39.8	1.0	-49.2	-13.0	-36.2	
Mid Channel (836.5MHz)									
1.6730	-13.8	V	3.0	38.2	1.0	-51.0	-13.0	-38.0	
2.5090	-1.1	V	3.0	38.8	1.0	-38.9	-13.0	-25.9	
3.3460	-11.7	V	3.0	39.5	1.0	-50.1	-13.0	-37.1	
4.1825	-9.4	V	3.0	39.8	1.0	-48.2	-13.0	-35.2	
1.6730	-12.5	H	3.0	38.2	1.0	-49.8	-13.0	-36.8	
2.5090	-4.1	H	3.0	38.8	1.0	-41.9	-13.0	-28.9	
3.3460	-8.7	H	3.0	39.5	1.0	-47.2	-13.0	-34.2	
4.1825	-8.2	H	3.0	39.8	1.0	-47.0	-13.0	-34.0	
High Channel (848.3MHz)									
1.6966	-14.9	V	3.0	38.2	1.0	-52.2	-13.0	-39.2	
2.5449	-9.5	V	3.0	38.9	1.0	-47.4	-13.0	-34.4	
3.3932	-10.7	V	3.0	39.5	1.0	-49.2	-13.0	-36.2	
4.2415	-10.7	V	4.0	39.8	2.0	-46.0	-13.0	-33.0	
1.6966	-12.9	H	3.0	38.2	1.0	-50.1	-13.0	-37.1	
2.5449	-9.2	H	3.0	38.9	1.0	-47.1	-13.0	-34.1	
3.3932	-6.8	H	3.0	39.5	1.0	-45.3	-13.0	-32.3	
4.2415	-10.8	H	3.0	39.8	1.0	-49.6	-13.0	-36.6	

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

LTE Band 4

LTE Band 4 20MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 09-01-17
Test Engineer: Chan 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	-1.7	V	3.0	39.5	1.0	-40.2	-13.0	-27.2	
5.1600	1.3	V	3.0	39.8	1.0	-37.5	-13.0	-24.5	
6.8800	-0.6	V	3.0	39.7	1.0	-39.3	-13.0	-26.3	
3.4400	-1.8	H	3.0	39.5	1.0	-40.3	-13.0	-27.3	
5.1600	-2.9	H	3.0	39.8	1.0	-41.7	-13.0	-28.7	
6.8800	-5.2	H	3.0	39.7	1.0	-43.9	-13.0	-30.9	
Mid Channel (1732.5MHz)									
3.4650	-0.9	V	3.0	39.5	1.0	-39.4	-13.0	-26.4	
5.1975	1.8	V	3.0	39.8	1.0	-37.0	-13.0	-24.0	
6.9300	0.5	V	3.0	39.7	1.0	-38.1	-13.0	-25.1	
3.4650	1.7	H	3.0	39.5	1.0	-36.8	-13.0	-23.8	
5.1975	-2.2	H	3.0	39.8	1.0	-41.0	-13.0	-28.0	
6.9300	-6.3	H	3.0	39.7	1.0	-45.0	-13.0	-32.0	
High Channel (1745MHz)									
3.4900	-1.1	V	3.0	39.5	1.0	-39.7	-13.0	-26.7	
5.2350	-2.0	V	3.0	39.8	1.0	-40.9	-13.0	-27.9	
6.9800	-2.3	V	3.0	39.6	1.0	-40.9	-13.0	-27.9	
3.4900	2.1	H	3.0	39.5	1.0	-36.4	-13.0	-23.4	
5.2350	-4.6	H	3.0	39.8	1.0	-43.4	-13.0	-30.4	
6.9800	-6.2	H	3.0	39.6	1.0	-44.8	-13.0	-31.8	

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

LTE Band 4 20MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 09-01-17
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 20MHz BW,16QAM

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	-1.8	V	3.0	39.5	1.0	-40.3	-13.0	-27.3	
5.1600	1.3	V	3.0	39.8	1.0	-37.5	-13.0	-24.5	
6.8800	-0.5	V	3.0	39.7	1.0	-39.2	-13.0	-26.2	
3.4400	-1.7	H	3.0	39.5	1.0	-40.2	-13.0	-27.2	
5.1600	-3.0	H	3.0	39.8	1.0	-41.8	-13.0	-28.8	
6.8800	-5.1	H	3.0	39.7	1.0	-43.8	-13.0	-30.8	
Mid Channel (1732.5MHz)									
3.4650	-1.0	V	3.0	39.5	1.0	-39.5	-13.0	-26.5	
5.1975	1.9	V	3.0	39.8	1.0	-36.9	-13.0	-23.9	
6.9300	0.4	V	3.0	39.7	1.0	-38.3	-13.0	-25.3	
3.4650	2.1	H	3.0	39.5	1.0	-36.5	-13.0	-23.5	
5.1975	-2.4	H	3.0	39.8	1.0	-41.2	-13.0	-28.2	
6.9300	-6.5	H	3.0	39.7	1.0	-45.2	-13.0	-32.2	
High Channel (1745MHz)									
3.4900	-1.2	V	3.0	39.5	1.0	-39.8	-13.0	-26.8	
5.2350	-2.3	V	3.0	39.8	1.0	-41.2	-13.0	-28.2	
6.9800	-2.5	V	3.0	39.6	1.0	-41.2	-13.0	-28.2	
3.4900	2.3	H	3.0	39.5	1.0	-36.3	-13.0	-23.3	
5.2350	-4.8	H	3.0	39.8	1.0	-43.6	-13.0	-30.6	
6.9800	-6.3	H	3.0	39.6	1.0	-44.9	-13.0	-31.9	

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

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_22/24/27
218 Maeyeong-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16675, Korea TEL: (031) 337-9902 FAX: (031) 213-5433

LTE Band 4 15MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 09-01-17
Test Engineer: Chan 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	-2.9	V	3.0	39.5	1.0	-41.4	-13.0	-28.4	
5.1525	-1.4	V	3.0	39.8	1.0	-40.2	-13.0	-27.2	
6.8700	0.0	V	3.0	39.7	1.0	-38.6	-13.0	-25.6	
3.4350	1.9	H	3.0	39.5	1.0	-36.6	-13.0	-23.6	
5.1525	-3.1	H	3.0	39.8	1.0	-41.9	-13.0	-28.9	
6.8700	-6.7	H	3.0	39.7	1.0	-45.3	-13.0	-32.3	
Mid Channel (1732.5MHz)									
3.4650	-1.7	V	3.0	39.5	1.0	-40.2	-13.0	-27.2	
5.1975	1.5	V	3.0	39.8	1.0	-37.3	-13.0	-24.3	
6.9300	0.5	V	3.0	39.7	1.0	-38.1	-13.0	-25.1	
3.4650	1.7	H	3.0	39.5	1.0	-36.8	-13.0	-23.8	
5.1975	-3.0	H	3.0	39.8	1.0	-41.8	-13.0	-28.8	
6.9300	-6.0	H	3.0	39.7	1.0	-44.6	-13.0	-31.6	
High Channel (1747.5MHz)									
3.4950	-1.6	V	3.0	39.5	1.0	-40.2	-13.0	-27.2	
5.2425	0.2	V	3.0	39.8	1.0	-38.6	-13.0	-25.6	
6.9900	-0.6	V	3.0	39.6	1.0	-39.2	-13.0	-26.2	
3.4950	1.1	H	3.0	39.5	1.0	-37.4	-13.0	-24.4	
5.2425	-4.1	H	3.0	39.8	1.0	-43.0	-13.0	-30.0	
6.9900	-6.1	H	3.0	39.6	1.0	-44.7	-13.0	-31.7	

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

LTE Band 4 15MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 09-01-17
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 15MHz BW,16QAM

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	-2.5	V	3.0	39.5	1.0	-41.0	-13.0	-28.0	
5.1525	-1.6	V	3.0	39.8	1.0	-40.4	-13.0	-27.4	
6.8700	0.0	V	3.0	39.7	1.0	-38.7	-13.0	-25.7	
3.4350	1.8	H	3.0	39.5	1.0	-36.7	-13.0	-23.7	
5.1525	-3.0	H	3.0	39.8	1.0	-41.8	-13.0	-28.8	
6.8700	-6.9	H	3.0	39.7	1.0	-45.6	-13.0	-32.6	
Mid Channel (1732.5MHz)									
3.4650	-1.8	V	3.0	39.5	1.0	-40.3	-13.0	-27.3	
5.1975	1.4	V	3.0	39.8	1.0	-37.4	-13.0	-24.4	
6.9300	0.5	V	3.0	39.7	1.0	-38.2	-13.0	-25.2	
3.4650	1.5	H	3.0	39.5	1.0	-37.0	-13.0	-24.0	
5.1975	-2.9	H	3.0	39.8	1.0	-41.8	-13.0	-28.8	
6.9300	-6.1	H	3.0	39.7	1.0	-44.7	-13.0	-31.7	
High Channel (1747.5MHz)									
3.4950	-1.6	V	3.0	39.5	1.0	-40.2	-13.0	-27.2	
5.2425	0.2	V	3.0	39.8	1.0	-38.6	-13.0	-25.6	
6.9900	-0.5	V	3.0	39.6	1.0	-39.1	-13.0	-26.1	
3.4950	1.0	H	3.0	39.5	1.0	-37.5	-13.0	-24.5	
5.2425	-4.1	H	3.0	39.8	1.0	-42.9	-13.0	-29.9	
6.9900	-6.3	H	3.0	39.6	1.0	-44.9	-13.0	-31.9	

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

LTE

Band 4

10MHz

QPSK

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

Company: Samsung
Project #: 4788103295
Date: 09-01-17
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 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 (1715MHz)									
3.4300	-1.4	V	3.0	39.5	1.0	-39.9	-13.0	-26.9	
5.1450	0.6	V	3.0	39.8	1.0	-38.2	-13.0	-25.2	
6.8600	0.9	V	3.0	39.7	1.0	-37.8	-13.0	-24.8	
3.4300	2.1	H	3.0	39.5	1.0	-36.4	-13.0	-23.4	
5.1450	-4.2	H	3.0	39.8	1.0	-43.0	-13.0	-30.0	
6.8600	-6.5	H	3.0	39.7	1.0	-45.2	-13.0	-32.2	
Mid Channel (1732.5MHz)									
3.4650	-1.2	V	3.0	39.5	1.0	-39.7	-13.0	-26.7	
5.1975	0.9	V	3.0	39.8	1.0	-37.9	-13.0	-24.9	
6.9300	0.8	V	3.0	39.7	1.0	-37.9	-13.0	-24.9	
3.4650	1.9	H	3.0	39.5	1.0	-36.6	-13.0	-23.6	
5.1975	-2.9	H	3.0	39.8	1.0	-41.7	-13.0	-28.7	
6.9300	-7.4	H	3.0	39.7	1.0	-46.1	-13.0	-33.1	
High Channel (1750MHz)									
3.5000	-0.8	V	3.0	39.5	1.0	-39.3	-13.0	-26.3	
5.2500	0.6	V	3.0	39.8	1.0	-38.3	-13.0	-25.3	
7.0000	1.7	V	3.0	39.6	1.0	-36.9	-13.0	-23.9	
3.5000	1.6	H	3.0	39.5	1.0	-36.9	-13.0	-23.9	
5.2500	-3.9	H	3.0	39.8	1.0	-42.8	-13.0	-29.8	
7.0000	1.1	H	3.0	39.6	1.0	-37.5	-13.0	-24.5	

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

LTE

Band 4

10MHz

16QAM

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

Company: Samsung
Project #: 4788103295
Date: 09-01-17
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 10MHz BW,16QAM

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 (1715MHz)									
3.4300	-1.6	V	3.0	39.5	1.0	-40.1	-13.0	-27.1	
5.1450	0.6	V	3.0	39.8	1.0	-38.2	-13.0	-25.2	
6.8600	1.1	V	3.0	39.7	1.0	-37.6	-13.0	-24.6	
3.4300	2.0	H	3.0	39.5	1.0	-36.5	-13.0	-23.5	
5.1450	-4.2	H	3.0	39.8	1.0	-43.0	-13.0	-30.0	
6.8600	-6.7	H	3.0	39.7	1.0	-45.4	-13.0	-32.4	
Mid Channel (1732.5MHz)									
3.4650	-1.2	V	3.0	39.5	1.0	-39.7	-13.0	-26.7	
5.1975	0.6	V	3.0	39.8	1.0	-38.3	-13.0	-25.3	
6.9300	0.8	V	3.0	39.7	1.0	-37.9	-13.0	-24.9	
3.4650	1.8	H	3.0	39.5	1.0	-36.7	-13.0	-23.7	
5.1975	-2.4	H	3.0	39.8	1.0	-41.3	-13.0	-28.3	
6.9300	-7.3	H	3.0	39.7	1.0	-46.0	-13.0	-33.0	
High Channel (1750MHz)									
3.5000	-0.6	V	3.0	39.5	1.0	-39.1	-13.0	-26.1	
5.2500	0.5	V	3.0	39.8	1.0	-38.4	-13.0	-25.4	
7.0000	2.0	V	3.0	39.6	1.0	-36.6	-13.0	-23.6	
3.5000	1.4	H	3.0	39.5	1.0	-37.1	-13.0	-24.1	
5.2500	-3.9	H	3.0	39.8	1.0	-42.7	-13.0	-29.7	
7.0000	1.0	H	3.0	39.6	1.0	-37.7	-13.0	-24.7	

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

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_22/24/27
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LTE Band 4 5MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 09-01-17
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 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 Channel (1712.5MHz)									
3.4250	-1.4	V	3.0	39.5	1.0	-39.9	-13.0	-26.9	
5.1375	1.2	V	3.0	39.8	1.0	-37.6	-13.0	-24.6	
6.8500	-0.3	V	3.0	39.7	1.0	-38.9	-13.0	-25.9	
3.4250	1.6	H	3.0	39.5	1.0	-36.9	-13.0	-23.9	
5.1375	-3.1	H	3.0	39.8	1.0	-41.9	-13.0	-28.9	
6.8500	-6.9	H	3.0	39.7	1.0	-45.6	-13.0	-32.6	
Mid Channel (1732.5MHz)									
3.4650	-1.9	V	3.0	39.5	1.0	-40.4	-13.0	-27.4	
5.1975	1.2	V	3.0	39.8	1.0	-37.7	-13.0	-24.7	
6.9300	0.9	V	3.0	39.7	1.0	-37.7	-13.0	-24.7	
3.4650	2.7	H	3.0	39.5	1.0	-35.8	-13.0	-22.8	
5.1975	-2.1	H	3.0	39.8	1.0	-40.9	-13.0	-27.9	
6.9300	-6.4	H	3.0	39.7	1.0	-45.0	-13.0	-32.0	
High Channel (1752.5MHz)									
3.5050	-5.2	V	3.0	39.5	1.0	-43.7	-13.0	-30.7	
5.2575	-1.0	V	3.0	39.8	1.0	-39.8	-13.0	-26.8	
7.0100	-1.4	V	3.0	39.6	1.0	-40.0	-13.0	-27.0	
3.5050	-3.6	H	3.0	39.5	1.0	-42.1	-13.0	-29.1	
5.2575	-3.6	H	3.0	39.8	1.0	-42.4	-13.0	-29.4	
7.0100	-6.9	H	3.0	39.6	1.0	-45.5	-13.0	-32.5	

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

LTE Band 4 5MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 09-01-17
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 7, 5MHz BW,16QAM

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 (1712.5MHz)									
3.4250	-1.6	V	3.0	39.5	1.0	-40.1	-13.0	-27.1	
5.1375	1.0	V	3.0	39.8	1.0	-37.8	-13.0	-24.8	
6.8500	-0.3	V	3.0	39.7	1.0	-39.0	-13.0	-26.0	
3.4250	1.5	H	3.0	39.5	1.0	-37.0	-13.0	-24.0	
5.1375	-3.0	H	3.0	39.8	1.0	-41.8	-13.0	-28.8	
6.8500	-7.3	H	3.0	39.7	1.0	-46.0	-13.0	-33.0	
Mid Channel (1732.5MHz)									
3.4650	-2.1	V	3.0	39.5	1.0	-40.6	-13.0	-27.6	
5.1975	1.0	V	3.0	39.8	1.0	-37.8	-13.0	-24.8	
6.9300	-0.9	V	3.0	39.7	1.0	-39.5	-13.0	-26.5	
3.4650	2.7	H	3.0	39.5	1.0	-35.9	-13.0	-22.9	
5.1975	-2.7	H	3.0	39.8	1.0	-41.5	-13.0	-28.5	
6.9300	-6.1	H	3.0	39.7	1.0	-44.8	-13.0	-31.8	
High Channel (1752.5MHz)									
3.5050	-5.3	V	3.0	39.5	1.0	-43.8	-13.0	-30.8	
5.2575	-1.1	V	3.0	39.8	1.0	-40.0	-13.0	-27.0	
7.0100	-1.3	V	3.0	39.6	1.0	-39.9	-13.0	-26.9	
3.5050	-3.6	H	3.0	39.5	1.0	-42.2	-13.0	-29.2	
5.2575	-3.8	H	3.0	39.8	1.0	-42.7	-13.0	-29.7	
7.0100	-7.1	H	3.0	39.6	1.0	-45.7	-13.0	-32.7	

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

LTE Band 4 3MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 08-29-17
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 3MHz 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 (1711.5MHz)									
3.4230	-0.1	V	3.0	39.5	1.0	-38.5	-13.0	-25.5	
5.1345	-9.4	V	3.0	39.8	1.0	-48.2	-13.0	-35.2	
6.8460	-7.5	V	3.0	39.7	1.0	-46.2	-13.0	-33.2	
3.4230	-4.1	H	3.0	39.5	1.0	-42.6	-13.0	-29.6	
5.1345	-12.3	H	3.0	39.8	1.0	-51.2	-13.0	-38.2	
6.8460	-10.2	H	3.0	39.7	1.0	-48.9	-13.0	-35.9	
Mid Channel (1732.5MHz)									
3.4650	-4.3	V	3.0	39.5	1.0	-42.8	-13.0	-29.8	
5.1975	-6.1	V	3.0	39.8	1.0	-44.9	-13.0	-31.9	
6.9300	-7.6	V	3.0	39.7	1.0	-46.3	-13.0	-33.3	
3.4650	-0.3	H	3.0	39.5	1.0	-38.9	-13.0	-25.9	
5.1975	-6.2	H	3.0	39.8	1.0	-45.0	-13.0	-32.0	
6.9300	-10.5	H	3.0	39.7	1.0	-49.1	-13.0	-36.1	
High Channel (1753.5MHz)									
3.5070	-2.7	V	3.0	39.5	1.0	-41.3	-13.0	-28.3	
5.2605	-7.7	V	3.0	39.8	1.0	-46.5	-13.0	-33.5	
7.0140	-11.3	V	3.0	39.6	1.0	-50.0	-13.0	-37.0	
3.5070	-2.1	H	3.0	39.5	1.0	-40.7	-13.0	-27.7	
5.2605	-9.1	H	3.0	39.8	1.0	-48.0	-13.0	-35.0	
7.0140	-11.5	H	3.0	39.6	1.0	-50.1	-13.0	-37.1	

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

LTE Band 4 3MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 08-29-17
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 3MHz BW,16QAM

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 (1711.5MHz)									
3.4230	0.0	V	3.0	39.5	1.0	-38.5	-13.0	-25.5	
5.1345	-9.2	V	3.0	39.8	1.0	-48.0	-13.0	-35.0	
6.8460	-8.2	V	3.0	39.7	1.0	-46.9	-13.0	-33.9	
3.4230	-4.1	H	3.0	39.5	1.0	-42.6	-13.0	-29.6	
5.1345	-11.7	H	3.0	39.8	1.0	-50.6	-13.0	-37.6	
6.8460	-10.8	H	3.0	39.7	1.0	-49.5	-13.0	-36.5	
Mid Channel (1732.5MHz)									
3.4650	-4.3	V	3.0	39.5	1.0	-42.8	-13.0	-29.8	
5.1975	-5.0	V	3.0	39.8	1.0	-43.9	-13.0	-30.9	
6.9300	-7.4	V	3.0	39.7	1.0	-46.1	-13.0	-33.1	
3.4650	-0.5	H	3.0	39.5	1.0	-39.1	-13.0	-26.1	
5.1975	-5.9	H	3.0	39.8	1.0	-44.7	-13.0	-31.7	
6.9300	-10.9	H	3.0	39.7	1.0	-49.6	-13.0	-36.6	
High Channel (1752.5MHz)									
3.5050	-2.8	V	3.0	39.5	1.0	-41.3	-13.0	-28.3	
5.2575	-7.3	V	3.0	39.8	1.0	-46.2	-13.0	-33.2	
7.0100	-10.7	V	3.0	39.6	1.0	-49.3	-13.0	-36.3	
3.5050	-2.3	H	3.0	39.5	1.0	-40.8	-13.0	-27.8	
5.2575	-9.6	H	3.0	39.8	1.0	-48.4	-13.0	-35.4	
7.0100	-10.9	H	3.0	39.6	1.0	-49.5	-13.0	-36.5	

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

LTE Band 4 1.4MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 08-29-17
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 1.4MHz 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 (1710.7MHz)									
3.4214	-1.6	V	3.0	39.5	1.0	-40.1	-13.0	-27.1	
5.1321	-9.4	V	3.0	39.8	1.0	-48.2	-13.0	-35.2	
6.8428	-7.8	V	3.0	39.7	1.0	-46.5	-13.0	-33.5	
3.4214	-0.5	H	3.0	39.5	1.0	-39.0	-13.0	-26.0	
5.1321	-11.7	H	3.0	39.8	1.0	-50.5	-13.0	-37.5	
6.8428	-10.6	H	3.0	39.7	1.0	-49.3	-13.0	-36.3	
Mid Channel (1732.5MHz)									
3.4650	-4.3	V	3.0	39.5	1.0	-42.8	-13.0	-29.8	
5.1975	-6.1	V	3.0	39.8	1.0	-45.0	-13.0	-32.0	
6.9300	-8.3	V	3.0	39.7	1.0	-47.0	-13.0	-34.0	
3.4650	-3.2	H	3.0	39.5	1.0	-41.7	-13.0	-28.7	
5.1975	-6.5	H	3.0	39.8	1.0	-45.3	-13.0	-32.3	
6.9300	-10.2	H	3.0	39.7	1.0	-48.9	-13.0	-35.9	
High Channel (1754.3MHz)									
3.5086	-5.3	V	3.0	39.5	1.0	-43.8	-13.0	-30.8	
5.2629	-7.6	V	3.0	39.8	1.0	-46.4	-13.0	-33.4	
7.0172	-8.7	V	3.0	39.6	1.0	-47.3	-13.0	-34.3	
3.5086	-1.1	H	3.0	39.5	1.0	-39.6	-13.0	-26.6	
5.2629	-9.0	H	3.0	39.8	1.0	-47.8	-13.0	-34.8	
7.0172	-11.4	H	3.0	39.6	1.0	-50.0	-13.0	-37.0	

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

LTE Band 4 1.4MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 08-29-17
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 4, 1.4MHz BW,16QAM

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 (1710.7MHz)									
3.4214	-1.6	V	3.0	39.5	1.0	-40.1	-13.0	-27.1	
5.1321	-9.5	V	3.0	39.8	1.0	-48.3	-13.0	-35.3	
6.8428	-8.6	V	3.0	39.7	1.0	-47.3	-13.0	-34.3	
3.4214	-0.4	H	3.0	39.5	1.0	-38.9	-13.0	-25.9	
5.1321	-11.3	H	3.0	39.8	1.0	-50.1	-13.0	-37.1	
6.8428	-10.6	H	3.0	39.7	1.0	-49.3	-13.0	-36.3	
Mid Channel (1732.5MHz)									
3.4650	-4.2	V	3.0	39.5	1.0	-42.7	-13.0	-29.7	
5.1975	-7.1	V	3.0	39.8	1.0	-45.9	-13.0	-32.9	
6.9300	-9.6	V	3.0	39.7	1.0	-48.2	-13.0	-35.2	
3.4650	-3.5	H	3.0	39.5	1.0	-42.0	-13.0	-29.0	
5.1975	-6.1	H	3.0	39.8	1.0	-44.9	-13.0	-31.9	
6.9300	-10.7	H	3.0	39.7	1.0	-49.3	-13.0	-36.3	
High Channel (1754.3MHz)									
3.5086	-5.5	V	3.0	39.5	1.0	-44.1	-13.0	-31.1	
5.2629	-8.7	V	3.0	39.8	1.0	-47.5	-13.0	-34.5	
7.0172	-9.2	V	3.0	39.6	1.0	-47.8	-13.0	-34.8	
3.5086	-1.3	H	3.0	39.5	1.0	-39.8	-13.0	-26.8	
5.2629	-9.1	H	3.0	39.8	1.0	-48.0	-13.0	-35.0	
7.0172	-11.7	H	3.0	39.6	1.0	-50.3	-13.0	-37.3	

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

LTE Band 2

LTE Band 2 20MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 08-17-17
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 20MHz 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 (1860MHz)									
3.7200	-4.5	V	3.0	39.7	1.0	-43.2	-13.0	-30.2	
5.5800	-3.7	V	3.0	39.9	1.0	-42.6	-13.0	-29.6	
7.4400	-1.3	V	3.0	39.4	1.0	-39.7	-13.0	-26.7	
3.7200	-6.4	H	3.0	39.7	1.0	-45.0	-13.0	-32.0	
5.5800	-9.4	H	3.0	39.9	1.0	-48.3	-13.0	-35.3	
7.4400	-3.8	H	3.0	39.4	1.0	-42.2	-13.0	-29.2	
Mid Channel (1880MHz)									
3.7600	-3.2	V	3.0	39.7	1.0	-41.9	-13.0	-28.9	
5.6400	-6.0	V	3.0	40.0	1.0	-44.9	-13.0	-31.9	
7.5200	1.4	V	3.0	39.4	1.0	-37.0	-13.0	-24.0	
3.7600	-1.3	H	3.0	39.7	1.0	-40.0	-13.0	-27.0	
5.6400	-8.3	H	3.0	40.0	1.0	-47.2	-13.0	-34.2	
7.520	-1.6	H	3.0	39.4	1.0	-40.0	-13.0	-27.0	
High Channel (1900MHz)									
3.8000	-0.5	V	3.0	39.7	1.0	-39.2	-13.0	-26.2	
5.7000	-6.6	V	3.0	40.0	1.0	-45.6	-13.0	-32.6	
7.6000	0.1	V	3.0	39.4	1.0	-38.2	-13.0	-25.2	
3.8000	3.5	H	3.0	39.7	1.0	-35.2	-13.0	-22.2	
5.7000	-12.2	H	3.0	40.0	1.0	-51.2	-13.0	-38.2	
7.6000	-3.4	H	3.0	39.4	1.0	-41.8	-13.0	-28.8	

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

LTE Band 2 20MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 08-17-17
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 20MHz BW,16QAM

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 (1860MHz)									
3.7200	-4.4	V	3.0	39.7	1.0	-43.1	-13.0	-30.1	
5.5800	-4.7	V	3.0	39.9	1.0	-43.7	-13.0	-30.7	
7.4400	-3.0	V	3.0	39.4	1.0	-41.5	-13.0	-28.5	
3.7200	-6.6	H	3.0	39.7	1.0	-45.3	-13.0	-32.3	
5.5800	-9.3	H	3.0	39.9	1.0	-48.3	-13.0	-35.3	
7.4400	-4.2	H	3.0	39.4	1.0	-42.6	-13.0	-29.6	
Mid Channel (1880MHz)									
3.7600	-3.7	V	3.0	39.7	1.0	-42.4	-13.0	-29.4	
5.6400	-5.1	V	3.0	40.0	1.0	-44.1	-13.0	-31.1	
7.5200	0.3	V	3.0	39.4	1.0	-38.1	-13.0	-25.1	
3.7600	-1.8	H	3.0	39.7	1.0	-40.5	-13.0	-27.5	
5.6400	-9.6	H	3.0	40.0	1.0	-48.5	-13.0	-35.5	
7.5200	-2.4	H	3.0	39.4	1.0	-40.8	-13.0	-27.8	
High Channel (1900MHz)									
3.8000		V	3.0	39.7	1.0	-38.7	-13.0	-25.7	
5.7000	-6.8	V	3.0	40.0	1.0	-45.8	-13.0	-32.8	
7.6000	-0.7	V	3.0	39.4	1.0	-39.0	-13.0	-26.0	
3.8000	3.3	H	3.0	39.7	1.0	-35.4	-13.0	-22.4	
5.7000	-12.0	H	3.0	40.0	1.0	-51.0	-13.0	-38.0	
7.6000	-3.2	H	3.0	39.4	1.0	-41.6	-13.0	-28.6	

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

LTE Band 2 15MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 08-17-17
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	-7.4	V	3.0	39.7	1.0	-46.1	-13.0	-33.1	
5.5725	-2.6	V	3.0	39.9	1.0	-41.6	-13.0	-28.6	
7.4300	1.5	V	3.0	39.4	1.0	-37.0	-13.0	-24.0	
3.7150	-8.7	H	3.0	39.7	1.0	-47.3	-13.0	-34.3	
5.5725	-8.5	H	3.0	39.9	1.0	-47.5	-13.0	-34.5	
7.4300	-1.8	H	3.0	39.4	1.0	-40.3	-13.0	-27.3	
Mid Channel (1880MHz)									
3.7600	-2.9	V	3.0	39.7	1.0	-41.5	-13.0	-28.5	
5.6400	-2.0	V	3.0	40.0	1.0	-41.0	-13.0	-28.0	
7.5200	2.8	V	3.0	39.4	1.0	-35.5	-13.0	-22.5	
3.7600	-1.7	H	3.0	39.7	1.0	-40.4	-13.0	-27.4	
5.6400	-5.8	H	3.0	40.0	1.0	-44.7	-13.0	-31.7	
7.5200	-0.4	H	3.0	39.4	1.0	-38.8	-13.0	-25.8	
High Channel (1902.5MHz)									
3.8050	0.1	V	3.0	39.7	1.0	-38.6	-13.0	-25.6	
5.7075	-5.5	V	3.0	40.0	1.0	-44.4	-13.0	-31.4	
7.6100	1.5	V	3.0	39.3	1.0	-36.9	-13.0	-23.9	
3.8050	3.3	H	3.0	39.7	1.0	-35.4	-13.0	-22.4	
5.7075	-8.1	H	3.0	40.0	1.0	-47.1	-13.0	-34.1	
7.6100	-2.0	H	3.0	39.3	1.0	-40.4	-13.0	-27.4	

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

LTE Band 2 15MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 08-17-17
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 15MHz BW,16QAM

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	-7.4	V	3.0	39.7	1.0	-46.0	-13.0	-33.0	
5.5725	-2.1	V	3.0	39.9	1.0	-41.1	-13.0	-28.1	
7.4300	1.5	V	3.0	39.4	1.0	-36.9	-13.0	-23.9	
3.7150	-9.3	H	3.0	39.7	1.0	-47.9	-13.0	-34.9	
5.5725	-8.1	H	3.0	39.9	1.0	-47.1	-13.0	-34.1	
7.4300	-2.4	H	3.0	39.4	1.0	-40.8	-13.0	-27.8	
Mid Channel (1880MHz)									
3.7600	-3.2	V	3.0	39.7	1.0	-41.9	-13.0	-28.9	
5.6400	-2.7	V	3.0	40.0	1.0	-41.7	-13.0	-28.7	
7.5200	3.1	V	3.0	39.4	1.0	-35.3	-13.0	-22.3	
3.7600	-1.9	H	3.0	39.7	1.0	-40.6	-13.0	-27.6	
5.6400	-5.8	H	3.0	40.0	1.0	-44.7	-13.0	-31.7	
7.5200	-0.8	H	3.0	39.4	1.0	-39.1	-13.0	-26.1	
High Channel (1902.5MHz)									
3.8050	-0.5	V	3.0	39.7	1.0	-39.3	-13.0	-26.3	
5.7075	-5.1	V	3.0	40.0	1.0	-44.0	-13.0	-31.0	
7.6100	1.6	V	3.0	39.3	1.0	-36.8	-13.0	-23.8	
3.8050	3.4	H	3.0	39.7	1.0	-35.3	-13.0	-22.3	
5.7075	-8.2	H	3.0	40.0	1.0	-47.2	-13.0	-34.2	
7.6100	-1.7	H	3.0	39.3	1.0	-40.1	-13.0	-27.1	

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

LTE

Band 2

10MHz

QPSK

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

Company: Samsung
Project #: 4788103295
Date: 08-16-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 10MHz 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 (1855MHz)									
3.7100	-4.0	V	3.0	39.7	1.0	-42.7	-13.0	-29.7	
5.5650	-0.7	V	3.0	39.9	1.0	-39.6	-13.0	-26.6	
7.4200	2.5	V	3.0	39.4	1.0	-35.9	-13.0	-22.9	
3.7100	-12.5	H	3.0	39.7	1.0	-51.2	-13.0	-38.2	
5.5650	-8.0	H	3.0	39.9	1.0	-47.0	-13.0	-34.0	
7.4200	0.4	H	3.0	39.4	1.0	-38.0	-13.0	-25.0	
Mid Channel (1880MHz)									
3.7600	0.3	V	3.0	39.7	1.0	-38.3	-13.0	-25.3	
5.6400	-2.2	V	3.0	40.0	1.0	-41.2	-13.0	-28.2	
7.5200	3.7	V	3.0	39.4	1.0	-34.7	-13.0	-21.7	
3.7600	-2.8	H	3.0	39.7	1.0	-41.5	-13.0	-28.5	
5.6400	-7.5	H	3.0	40.0	1.0	-46.5	-13.0	-33.5	
7.5200	0.2	H	3.0	39.4	1.0	-38.2	-13.0	-25.2	
High Channel (1905MHz)									
3.8100	6.4	V	3.0	39.7	1.0	-32.3	-13.0	-19.3	
5.7150	-1.7	V	3.0	40.0	1.0	-40.7	-13.0	-27.7	
7.6200	4.4	V	3.0	39.3	1.0	-33.9	-13.0	-20.9	
3.8100	4.3	H	3.0	39.7	1.0	-34.4	-13.0	-21.4	
5.7150	-7.0	H	3.0	40.0	1.0	-45.9	-13.0	-32.9	
7.620	0.4	H	3.0	39.3	1.0	-37.9	-13.0	-24.9	

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

LTE

Band 2

10MHz

16QAM

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

Company: Samsung
Project #: 4788103295
Date: 08-16-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 10MHz BW,16QAM

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 (1855MHz)									
3.7100	-4.9	V	3.0	39.7	1.0	-43.5	-13.0	-30.5	
5.5650	-1.5	V	3.0	39.9	1.0	-40.5	-13.0	-27.5	
7.4200	1.9	V	3.0	39.4	1.0	-36.5	-13.0	-23.5	
3.7100	-12.1	H	3.0	39.7	1.0	-50.8	-13.0	-37.8	
5.5650	-7.9	H	3.0	39.9	1.0	-46.9	-13.0	-33.9	
7.4200	-0.2	H	3.0	39.4	1.0	-38.6	-13.0	-25.6	
Mid Channel (1880MHz)									
3.7600	-0.1	V	3.0	39.7	1.0	-38.8	-13.0	-25.8	
5.6400	-2.4	V	3.0	40.0	1.0	-41.3	-13.0	-28.3	
7.5200	3.8	V	3.0	39.4	1.0	-34.6	-13.0	-21.6	
3.7600	-1.9	H	3.0	39.7	1.0	-40.6	-13.0	-27.6	
5.6400	-7.9	H	3.0	40.0	1.0	-46.9	-13.0	-33.9	
7.5200	0.2	H	3.0	39.4	1.0	-38.2	-13.0	-25.2	
High Channel (1905MHz)									
3.8100	6.7	V	3.0	39.7	1.0	-32.0	-13.0	-19.0	
5.7150	-1.7	V	3.0	40.0	1.0	-40.7	-13.0	-27.7	
7.6200	3.6	V	3.0	39.3	1.0	-34.7	-13.0	-21.7	
3.8100	3.9	H	3.0	39.7	1.0	-34.8	-13.0	-21.8	
5.7150	-7.7	H	3.0	40.0	1.0	-46.7	-13.0	-33.7	
7.6200	0.3	H	3.0	39.3	1.0	-38.0	-13.0	-25.0	

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

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_22/24/27
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LTE Band 2 5MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 08-16-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 5MHz 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 (1852.5MHz)									
3.7050	-7.3	V	3.0	39.7	1.0	-45.9	-13.0	-32.9	
5.5575	-1.7	V	3.0	39.9	1.0	-40.6	-13.0	-27.6	
7.4100	4.2	V	3.0	39.4	1.0	-34.3	-13.0	-21.3	
3.7050	-8.9	H	3.0	39.7	1.0	-47.6	-13.0	-34.6	
5.5575	-6.7	H	3.0	39.9	1.0	-45.6	-13.0	-32.6	
7.4100	-0.4	H	3.0	39.4	1.0	-38.8	-13.0	-25.8	
Mid Channel (1880MHz)									
3.7600	0.3	V	3.0	39.7	1.0	-38.4	-13.0	-25.4	
5.6400	-1.9	V	3.0	40.0	1.0	-40.9	-13.0	-27.9	
7.5200	0.3	V	3.0	39.4	1.0	-38.1	-13.0	-25.1	
3.7600	-2.6	H	3.0	39.7	1.0	-41.3	-13.0	-28.3	
5.6400	-7.6	H	3.0	40.0	1.0	-46.5	-13.0	-33.5	
7.5200	-0.4	H	3.0	39.4	1.0	-38.8	-13.0	-25.8	
High Channel (1907.5MHz)									
3.8150	-1.2	V	3.0	39.7	1.0	-39.9	-13.0	-26.9	
5.7225	-3.0	V	3.0	40.0	1.0	-42.0	-13.0	-29.0	
7.6300	4.3	V	3.0	39.3	1.0	-34.0	-13.0	-21.0	
3.8150	-2.7	H	3.0	39.7	1.0	-41.4	-13.0	-28.4	
5.7225	-8.2	H	3.0	40.0	1.0	-47.2	-13.0	-34.2	
7.6300	0.3	H	3.0	39.3	1.0	-38.1	-13.0	-25.1	

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

LTE Band 2 5MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 08-16-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 5MHz BW,16QAM

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 (1852.5MHz)									
3.7050	-7.5	V	3.0	39.7	1.0	-46.2	-13.0	-33.2	
5.5575	-2.1	V	3.0	39.9	1.0	-41.1	-13.0	-28.1	
7.4100	2.6	V	3.0	39.4	1.0	-35.8	-13.0	-22.8	
3.7050	-10.3	H	3.0	39.7	1.0	-49.0	-13.0	-36.0	
5.5575	-8.2	H	3.0	39.9	1.0	-47.1	-13.0	-34.1	
7.4100	-1.5	H	3.0	39.4	1.0	-40.0	-13.0	-27.0	
Mid Channel (1880MHz)									
3.7600	0.2	V	3.0	39.7	1.0	-38.5	-13.0	-25.5	
5.6400	-1.4	V	3.0	40.0	1.0	-40.4	-13.0	-27.4	
7.5200	2.1	V	3.0	39.4	1.0	-36.3	-13.0	-23.3	
3.7600	-3.8	H	3.0	39.7	1.0	-42.5	-13.0	-29.5	
5.6400	-8.6	H	3.0	40.0	1.0	-47.5	-13.0	-34.5	
7.5200	-0.8	H	3.0	39.4	1.0	-39.2	-13.0	-26.2	
High Channel (1907.5MHz)									
3.8150	-1.4	V	3.0	39.7	1.0	-40.1	-13.0	-27.1	
5.7225	-3.0	V	3.0	40.0	1.0	-41.9	-13.0	-28.9	
7.6300	4.4	V	3.0	39.3	1.0	-33.9	-13.0	-20.9	
3.8150	-3.8	H	3.0	39.7	1.0	-42.5	-13.0	-29.5	
5.7225	-8.5	H	3.0	40.0	1.0	-47.5	-13.0	-34.5	
7.6300	0.2	H	3.0	39.3	1.0	-38.2	-13.0	-25.2	

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

LTE Band 2 3MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 08-16-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 3MHz 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 (1851.5MHz)									
3.7030	-7.8	V	3.0	39.7	1.0	-46.4	-13.0	-33.4	
5.5545	-0.8	V	3.0	39.9	1.0	-39.7	-13.0	-26.7	
7.4060	1.0	V	3.0	39.4	1.0	-37.4	-13.0	-24.4	
3.7030	-10.2	H	3.0	39.7	1.0	-48.9	-13.0	-35.9	
5.5545	-6.9	H	3.0	39.9	1.0	-45.9	-13.0	-32.9	
7.4060	-3.0	H	3.0	39.4	1.0	-41.4	-13.0	-28.4	
Mid Channel (1880MHz)									
3.7600	1.6	V	3.0	39.7	1.0	-37.1	-13.0	-24.1	
5.6400	-3.8	V	3.0	40.0	1.0	-42.8	-13.0	-29.8	
7.5200	-1.5	V	3.0	39.4	1.0	-39.9	-13.0	-26.9	
3.7600	-1.2	H	3.0	39.7	1.0	-39.9	-13.0	-26.9	
5.6400	-7.7	H	3.0	40.0	1.0	-46.7	-13.0	-33.7	
7.5200	-2.5	H	3.0	39.4	1.0	-40.9	-13.0	-27.9	
High Channel (1908.5MHz)									
3.8170	-4.1	V	3.0	39.7	1.0	-42.8	-13.0	-29.8	
5.7255	-4.8	V	3.0	40.0	1.0	-43.8	-13.0	-30.8	
7.6340	1.8	V	3.0	39.3	1.0	-36.6	-13.0	-23.6	
3.8170	-8.2	H	3.0	39.7	1.0	-47.0	-13.0	-34.0	
5.7255	-7.9	H	3.0	40.0	1.0	-46.9	-13.0	-33.9	
7.6340	-1.8	H	3.0	39.3	1.0	-40.2	-13.0	-27.2	

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

LTE Band 2 3MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 08-16-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 3MHz BW,16QAM

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 (1851.5MHz)									
3.7030	-7.7	V	3.0	39.7	1.0	-46.3	-13.0	-33.3	
5.5545	-1.0	V	3.0	39.9	1.0	-39.9	-13.0	-26.9	
7.4060	-0.7	V	3.0	39.4	1.0	-39.1	-13.0	-26.1	
3.7030	-9.8	H	3.0	39.7	1.0	-48.5	-13.0	-35.5	
5.5545	-6.8	H	3.0	39.9	1.0	-45.7	-13.0	-32.7	
7.4060	-3.6	H	3.0	39.4	1.0	-42.0	-13.0	-29.0	
Mid Channel (1880MHz)									
3.7600	1.1	V	3.0	39.7	1.0	-37.6	-13.0	-24.6	
5.6400	-3.9	V	3.0	40.0	1.0	-42.9	-13.0	-29.9	
7.5200	-1.5	V	3.0	39.4	1.0	-39.9	-13.0	-26.9	
3.7600	-1.8	H	3.0	39.7	1.0	-40.5	-13.0	-27.5	
5.6400	-7.9	H	3.0	40.0	1.0	-46.8	-13.0	-33.8	
7.5200	-2.3	H	3.0	39.4	1.0	-40.7	-13.0	-27.7	
High Channel (1908.5MHz)									
3.8170	-4.2	V	3.0	39.7	1.0	-42.9	-13.0	-29.9	
5.7255	-4.1	V	3.0	40.0	1.0	-43.1	-13.0	-30.1	
7.6340	2.2	V	3.0	39.3	1.0	-36.2	-13.0	-23.2	
3.8170	-8.3	H	3.0	39.7	1.0	-47.0	-13.0	-34.0	
5.7255	-7.8	H	3.0	40.0	1.0	-46.8	-13.0	-33.8	
7.6340	-2.2	H	3.0	39.3	1.0	-40.6	-13.0	-27.6	

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

UL Korea, Ltd. Suwon Laboratory FORM ID: FCC_22/24/27
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LTE Band 2 1.4MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 08-16-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 1.4MHz 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 (1850.7MHz)									
3.7014	-6.6	V	3.0	39.7	1.0	-45.2	-13.0	-32.2	
5.5521	-0.6	V	3.0	39.9	1.0	-39.5	-13.0	-26.5	
7.4028	-1.7	V	3.0	39.4	1.0	-40.1	-13.0	-27.1	
3.7014	-8.9	H	3.0	39.7	1.0	-47.5	-13.0	-34.5	
5.5521	-6.5	H	3.0	39.9	1.0	-45.5	-13.0	-32.5	
7.4028	-3.0	H	3.0	39.4	1.0	-41.4	-13.0	-28.4	
Mid Channel (1880MHz)									
3.7600	1.5	V	3.0	39.7	1.0	-37.1	-13.0	-24.1	
5.6400	-5.8	V	3.0	40.0	1.0	-44.8	-13.0	-31.8	
7.5200	-0.8	V	3.0	39.4	1.0	-39.1	-13.0	-26.1	
3.7600	-1.9	H	3.0	39.7	1.0	-40.6	-13.0	-27.6	
5.6400	-8.6	H	3.0	40.0	1.0	-47.6	-13.0	-34.6	
7.5200	-1.6	H	3.0	39.4	1.0	-40.0	-13.0	-27.0	
High Channel (1909.3MHz)									
3.8186	-4.3	V	3.0	39.7	1.0	-43.0	-13.0	-30.0	
5.7279	-7.8	V	3.0	40.0	1.0	-46.8	-13.0	-33.8	
7.6372	-2.2	V	3.0	39.3	1.0	-40.5	-13.0	-27.5	
3.8186	-5.4	H	3.0	39.7	1.0	-44.1	-13.0	-31.1	
5.7279	-8.4	H	3.0	40.0	1.0	-47.4	-13.0	-34.4	
7.6372	-4.4	H	3.0	39.3	1.0	-42.8	-13.0	-29.8	

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

LTE Band 2 1.4MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 08-16-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / Z-Position
Mode: TX, LTE BAND 2, 1.4MHz BW,16QAM

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 (1850.7MHz)									
3.7014	-6.7	V	3.0	39.7	1.0	-45.3	-13.0	-32.3	
5.5521	-0.7	V	3.0	39.9	1.0	-39.6	-13.0	-26.6	
7.4028	-2.9	V	3.0	39.4	1.0	-41.3	-13.0	-28.3	
3.7014	-8.7	H	3.0	39.7	1.0	-47.3	-13.0	-34.3	
5.5521	-6.5	H	3.0	39.9	1.0	-45.5	-13.0	-32.5	
7.4028	-3.2	H	3.0	39.4	1.0	-41.7	-13.0	-28.7	
Mid Channel (1880MHz)									
3.7600	1.0	V	3.0	39.7	1.0	-37.6	-13.0	-24.6	
5.6400	-5.3	V	3.0	40.0	1.0	-44.2	-13.0	-31.2	
7.5200	-0.6	V	3.0	39.4	1.0	-39.0	-13.0	-26.0	
3.7600	-2.3	H	3.0	39.7	1.0	-40.9	-13.0	-27.9	
5.6400	-9.1	H	3.0	40.0	1.0	-48.1	-13.0	-35.1	
7.5200	-1.8	H	3.0	39.4	1.0	-40.1	-13.0	-27.1	
High Channel (1909.3MHz)									
3.8186	-4.4	V	3.0	39.7	1.0	-43.1	-13.0	-30.1	
5.7279	-7.8	V	3.0	40.0	1.0	-46.8	-13.0	-33.8	
7.6372	-2.6	V	3.0	39.3	1.0	-40.9	-13.0	-27.9	
3.8186	-5.9	H	3.0	39.7	1.0	-44.7	-13.0	-31.7	
5.7279	-8.6	H	3.0	40.0	1.0	-47.5	-13.0	-34.5	
7.6372	-4.6	H	3.0	39.3	1.0	-42.9	-13.0	-29.9	

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

LTE Band 13

LTE Band 13 10MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 08-31-17
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Earphone, X Position
Mode: TX, LTE BAND 13, 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
Mid Channel (782MHz)									
1.5640	-16.1	V	3.0	38.2	1.0	-53.3	-40.0	-13.3	
2.3460	-13.7	V	3.0	38.7	1.0	-51.4	-13.0	-38.4	
3.1280	-12.7	V	3.0	39.3	1.0	-51.0	-13.0	-38.0	
1.5640	-15.7	H	3.0	38.2	1.0	-52.9	-40.0	-12.9	
2.3460	-12.5	H	3.0	38.7	1.0	-50.2	-13.0	-37.2	
3.1280	-11.8	H	3.0	39.3	1.0	-50.2	-13.0	-37.2	

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

LTE Band 13 10MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 08-31-17
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Earphone, X Position
Mode: TX, LTE BAND 13, 10MHz BW,16QAM

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
Mid Channel (782MHz)									
1.5640	-16.6	V	3.0	38.2	1.0	-53.8	-40.0	-13.8	
2.3460	-13.4	V	3.0	38.7	1.0	-51.1	-13.0	-38.1	
3.1280	-13.0	V	3.0	39.3	1.0	-51.3	-13.0	-38.3	
1.5640	-16.0	H	3.0	38.2	1.0	-53.1	-40.0	-13.1	
2.3460	-13.0	H	3.0	38.7	1.0	-50.7	-13.0	-37.7	
3.1280	-12.3	H	3.0	39.3	1.0	-50.6	-13.0	-37.6	

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

LTE

Band 13

5MHz

QPSK

UL Korea, Ltd Suwon Laboratory

Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788103295
Date:	08-31-17
Test Engineer:	Chan Park
Configuration:	EUT / AC Adapter / Earphone, X Position
Mode:	TX, LTE BAND 13, 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 (779.5MHz)									
1.5590	-17.0	V	3.0	38.2	1.0	-54.1	-40.0	-14.1	
2.3385	-14.4	V	3.0	38.7	1.0	-52.1	-13.0	-39.1	
3.1180	-12.8	V	3.0	39.3	1.0	-51.2	-13.0	-38.2	
1.5590	-15.2	H	3.0	38.2	1.0	-52.4	-40.0	-12.4	
2.3385	-13.9	H	3.0	38.7	1.0	-51.6	-13.0	-38.6	
3.1180	-11.9	H	3.0	39.3	1.0	-50.3	-13.0	-37.3	
Mid Channel (782MHz)									
1.5640	-16.6	V	3.0	38.2	1.0	-53.8	-40.0	-13.8	
2.3460	-13.4	V	3.0	38.7	1.0	-51.1	-13.0	-38.1	
3.1280	-12.0	V	3.0	39.3	1.0	-50.3	-13.0	-37.3	
1.5640	-14.0	H	3.0	38.2	1.0	-51.2	-40.0	-11.2	
2.3460	-12.7	H	3.0	38.7	1.0	-50.4	-13.0	-37.4	
3.1280	-11.4	H	3.0	39.3	1.0	-49.7	-13.0	-36.7	
High Channel (784.5MHz)									
1.5690	-17.1	V	3.0	38.2	1.0	-54.3	-40.0	-14.3	
2.3535	-14.0	V	3.0	38.7	1.0	-51.7	-13.0	-38.7	
3.1380	-12.6	V	3.0	39.3	1.0	-51.0	-13.0	-38.0	
1.5690	-16.1	H	3.0	38.2	1.0	-53.3	-40.0	-13.3	
2.3535	-13.7	H	3.0	38.7	1.0	-51.4	-13.0	-38.4	
3.1380	-12.2	H	3.0	39.3	1.0	-50.5	-13.0	-37.5	

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

LTE

Band 13

5MHz

16QAM

UL Korea, Ltd Suwon Laboratory

Above 1GHz High Frequency Substitution Measurement

Company:	Samsung
Project #:	4788103295
Date:	08-31-17
Test Engineer:	Chan Park
Configuration:	EUT / AC Adapter / Earphone, X Position
Mode:	TX, LTE BAND 13, 5MHz BW,16QAM

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 (779.5MHz)									
1.5590	-16.8	V	3.0	38.2	1.0	-53.9	-40.0	-13.9	
2.3385	-14.1	V	3.0	38.7	1.0	-51.8	-13.0	-38.8	
3.1180	-12.4	V	3.0	39.3	1.0	-50.8	-13.0	-37.8	
1.5590	-15.6	H	3.0	38.2	1.0	-52.8	-40.0	-12.8	
2.3385	-13.7	H	3.0	38.7	1.0	-51.4	-13.0	-38.4	
3.1180	-11.8	H	3.0	39.3	1.0	-50.1	-13.0	-37.1	
Mid Channel (782MHz)									
1.5640	-16.9	V	3.0	38.2	1.0	-54.1	-40.0	-14.1	
2.3460	-13.5	V	3.0	38.7	1.0	-51.2	-13.0	-38.2	
3.1280	-12.1	V	3.0	39.3	1.0	-50.5	-13.0	-37.5	
1.5640	-14.2	H	3.0	38.2	1.0	-51.4	-40.0	-11.4	
2.3460	-13.2	H	3.0	38.7	1.0	-50.9	-13.0	-37.9	
3.1280	-11.6	H	3.0	39.3	1.0	-49.9	-13.0	-36.9	
High Channel (784.5MHz)									
1.5690	-17.3	V	3.0	38.2	1.0	-54.5	-40.0	-14.5	
2.3535	-14.3	V	3.0	38.7	1.0	-52.0	-13.0	-39.0	
3.1380	-12.8	V	3.0	39.3	1.0	-51.2	-13.0	-38.2	
1.5690	-16.5	H	3.0	38.2	1.0	-53.7	-40.0	-13.7	
2.3535	-14.1	H	3.0	38.7	1.0	-51.8	-13.0	-38.8	
3.1380	-12.6	H	3.0	39.3	1.0	-51.0	-13.0	-38.0	

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

Company: Samsung
Project #: 4788103295
Date: 09-07-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / X-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	-5.3	V	3.0	39.8	1.0	-44.1	-25.0	-19.1	
7.5300	-7.9	V	3.0	39.4	1.0	-46.3	-25.0	-21.3	
10.0400	-9.1	V	3.0	38.6	1.0	-46.7	-25.0	-21.7	
5.0200	-7.5	H	3.0	39.8	1.0	-46.2	-25.0	-21.2	
7.5300	-7.9	H	3.0	39.4	1.0	-46.3	-25.0	-21.3	
10.0400	-8.7	H	3.0	38.6	1.0	-46.3	-25.0	-21.3	
Mid Ch, (2535 MHz)									
5.0700	-1.7	V	3.0	39.8	1.0	-40.5	-25.0	-15.5	
7.6050	-7.6	V	3.0	39.3	1.0	-45.9	-25.0	-20.9	
10.1400	-9.3	V	3.0	38.6	1.0	-46.8	-25.0	-21.8	
5.0700	-3.6	H	3.0	39.8	1.0	-42.4	-25.0	-17.4	
7.6050	-7.9	H	3.0	39.3	1.0	-46.3	-25.0	-21.3	
10.1400	-9.5	H	3.0	38.6	1.0	-47.0	-25.0	-22.0	
High Ch, (2560 MHz)									
5.1200	-1.0	V	3.0	39.8	1.0	-39.8	-25.0	-14.8	
7.6800	-8.7	V	3.0	39.3	1.0	-47.0	-25.0	-22.0	
10.2400	-9.3	V	3.0	38.6	1.0	-46.8	-25.0	-21.8	
5.1200	-3.1	H	3.0	39.8	1.0	-41.9	-25.0	-16.9	
7.6800	-7.2	H	3.0	39.3	1.0	-45.5	-25.0	-20.5	
10.2400	-9.2	H	3.0	38.6	1.0	-46.7	-25.0	-21.7	

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

LTE Band 7 20MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 09-07-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / X-Position
Mode: TX, LTE BAND 7, 20MHz BW,16QAM

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	-5.5	V	3.0	39.8	1.0	-44.3	-25.0	-19.3	
7.5300	-7.4	V	3.0	39.4	1.0	-45.8	-25.0	-20.8	
10.0400	-9.4	V	3.0	38.6	1.0	-47.0	-25.0	-22.0	
5.0200	-8.2	H	3.0	39.8	1.0	-47.0	-25.0	-22.0	
7.5300	-9.0	H	3.0	39.4	1.0	-47.4	-25.0	-22.4	
10.0400	-9.1	H	3.0	38.6	1.0	-46.7	-25.0	-21.7	
Mid Ch, (2535 MHz)									
5.0700	-2.2	V	3.0	39.8	1.0	-41.0	-25.0	-16.0	
7.6050	-7.1	V	3.0	39.3	1.0	-45.5	-25.0	-20.5	
10.1400	-9.7	V	3.0	38.6	1.0	-47.3	-25.0	-22.3	
5.0700	-3.3	H	3.0	39.8	1.0	-42.1	-25.0	-17.1	
7.6050	-7.3	H	3.0	39.3	1.0	-45.6	-25.0	-20.6	
10.1400	-9.6	H	3.0	38.6	1.0	-47.1	-25.0	-22.1	
High Ch, (2560 MHz)									
5.1200	-1.1	V	3.0	39.8	1.0	-39.9	-25.0	-14.9	
7.6800	-8.1	V	3.0	39.3	1.0	-46.4	-25.0	-21.4	
10.2400	-9.5	V	3.0	38.6	1.0	-47.1	-25.0	-22.1	
5.1200	-3.7	H	3.0	39.8	1.0	-42.5	-25.0	-17.5	
7.6800	-7.2	H	3.0	39.3	1.0	-45.6	-25.0	-20.6	
10.2400	-9.5	H	3.0	38.6	1.0	-47.0	-25.0	-22.0	

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

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LTE

Band 7

15MHz

QPSK

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

Company: Samsung
Project #: 4788103295
Date: 09-07-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / X-Position
Mode: TX, LTE BAND 7, 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, (2507.5 MHz)									
5.0150	-5.7	V	3.0	39.8	1.0	-44.5	-25.0	-19.5	
7.5225	-6.7	V	3.0	39.4	1.0	-45.1	-25.0	-20.1	
10.0300	-8.4	V	3.0	38.6	1.0	-46.0	-25.0	-21.0	
5.0150	-8.6	H	3.0	39.8	1.0	-47.3	-25.0	-22.3	
7.5225	-8.8	H	3.0	39.4	1.0	-47.1	-25.0	-22.1	
10.0300	-8.4	H	3.0	38.6	1.0	-46.0	-25.0	-21.0	
Mid Ch, (2535 MHz)									
5.0700	-1.3	V	3.0	39.8	1.0	-40.1	-25.0	-15.1	
7.6050	-6.5	V	3.0	39.3	1.0	-44.8	-25.0	-19.8	
10.1400	-8.8	V	3.0	38.6	1.0	-46.3	-25.0	-21.3	
5.0700	-3.4	H	3.0	39.8	1.0	-42.1	-25.0	-17.1	
7.6050	-7.9	H	3.0	39.3	1.0	-46.2	-25.0	-21.2	
10.1400	-9.4	H	3.0	38.6	1.0	-46.9	-25.0	-21.9	
High Ch, (2562.5 MHz)									
5.1250	-1.2	V	3.0	39.8	1.0	-40.1	-25.0	-15.1	
7.6875	-6.3	V	3.0	39.3	1.0	-44.6	-25.0	-19.6	
10.2500	-9.2	V	3.0	38.6	1.0	-46.7	-25.0	-21.7	
5.1250	-3.2	H	3.0	39.8	1.0	-42.0	-25.0	-17.0	
7.6875	-5.2	H	3.0	39.3	1.0	-43.5	-25.0	-18.5	
10.2500	-8.0	H	3.0	38.6	1.0	-45.6	-25.0	-20.6	

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

LTE

Band 7

15MHz

16QAM

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

Company: Samsung
Project #: 4788103295
Date: 09-07-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / X-Position
Mode: TX, LTE BAND 7, 15MHz BW,16QAM

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, (2507.5 MHz)									
5.0150	-5.5	V	3.0	39.8	1.0	-44.3	-25.0	-19.3	
7.5225	-7.9	V	3.0	39.4	1.0	-46.3	-25.0	-21.3	
10.0300	-7.8	V	3.0	38.6	1.0	-45.4	-25.0	-20.4	
5.0150	-7.7	H	3.0	39.8	1.0	-46.5	-25.0	-21.5	
7.5225	-9.3	H	3.0	39.4	1.0	-47.7	-25.0	-22.7	
10.0300	-9.3	H	3.0	38.6	1.0	-46.9	-25.0	-21.9	
Mid Ch, (2535 MHz)									
5.0700	-1.5	V	3.0	39.8	1.0	-40.3	-25.0	-15.3	
7.6050	-6.8	V	3.0	39.3	1.0	-45.2	-25.0	-20.2	
10.1400	-9.6	V	3.0	38.6	1.0	-47.1	-25.0	-22.1	
5.0700	-3.1	H	3.0	39.8	1.0	-41.9	-25.0	-16.9	
7.6050	-8.2	H	3.0	39.3	1.0	-46.6	-25.0	-21.6	
10.1400	-9.3	H	3.0	38.6	1.0	-46.9	-25.0	-21.9	
High Ch, (2562.5 MHz)									
5.1250	-1.0	V	3.0	39.8	1.0	-39.9	-25.0	-14.9	
7.6875	-7.4	V	3.0	39.3	1.0	-45.7	-25.0	-20.7	
10.2500	-9.7	V	3.0	38.6	1.0	-47.2	-25.0	-22.2	
5.1250	-3.5	H	3.0	39.8	1.0	-42.3	-25.0	-17.3	
7.6875	-5.4	H	3.0	39.3	1.0	-43.7	-25.0	-18.7	
10.2500	-8.9	H	3.0	38.6	1.0	-46.5	-25.0	-21.5	

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

LTE Band 7 10MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 09-04-17
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / X-Position
Mode: TX, LTE BAND 7, 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 Ch, (2505 MHz)									
5.0100	-6.2	V	3.0	39.8	1.0	-45.0	-25.0	-20.0	
7.5150	-8.1	V	3.0	39.4	1.0	-46.5	-25.0	-21.5	
10.0200	-9.3	V	3.0	38.6	1.0	-46.8	-25.0	-21.8	
5.0100	-7.6	H	3.0	39.8	1.0	-46.3	-25.0	-21.3	
7.5150	-11.2	H	3.0	39.4	1.0	-49.6	-25.0	-24.6	
10.0200	-9.8	H	3.0	38.6	1.0	-47.3	-25.0	-22.3	
Mid Ch, (2535 MHz)									
5.0700	-1.5	V	3.0	39.8	1.0	-40.3	-25.0	-15.3	
7.6050	-6.7	V	3.0	39.3	1.0	-45.0	-25.0	-20.0	
10.1400	-9.6	V	3.0	38.6	1.0	-47.2	-25.0	-22.2	
5.0700	-3.4	H	3.0	39.8	1.0	-42.2	-25.0	-17.2	
7.6050	-7.5	H	3.0	39.3	1.0	-45.9	-25.0	-20.9	
10.1400	-9.8	H	3.0	38.6	1.0	-47.4	-25.0	-22.4	
High Ch, (2565 MHz)									
5.1300	-2.0	V	3.0	39.8	1.0	-40.8	-25.0	-15.8	
7.6950	-5.8	V	3.0	39.3	1.0	-44.1	-25.0	-19.1	
10.2600	-9.0	V	3.0	38.6	1.0	-46.5	-25.0	-21.5	
5.1300	-3.5	H	3.0	39.8	1.0	-42.4	-25.0	-17.4	
7.6950	-5.4	H	3.0	39.3	1.0	-43.7	-25.0	-18.7	
10.2600	-9.1	H	3.0	38.6	1.0	-46.7	-25.0	-21.7	

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

LTE Band 7 10MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 09-04-17
Test Engineer: JH Park
Configuration: EUT / AC Adapter / Ear Phone / X-Position
Mode: TX, LTE BAND 7, 10MHz BW,16QAM

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, (2505 MHz)									
5.0100	-6.0	V	3.0	39.8	1.0	-44.7	-25.0	-19.7	
7.5150	-8.2	V	3.0	39.4	1.0	-46.6	-25.0	-21.6	
10.0200	-9.4	V	3.0	38.6	1.0	-47.0	-25.0	-22.0	
5.0100	-7.2	H	3.0	39.8	1.0	-45.9	-25.0	-20.9	
7.5150	-11.5	H	3.0	39.4	1.0	-49.8	-25.0	-24.8	
10.0200	-9.2	H	3.0	38.6	1.0	-46.8	-25.0	-21.8	
Mid Ch, (2535 MHz)									
5.0700	-1.7	V	3.0	39.8	1.0	-40.5	-25.0	-15.5	
7.6050	-7.0	V	3.0	39.3	1.0	-45.3	-25.0	-20.3	
10.1400	-9.1	V	3.0	38.6	1.0	-46.7	-25.0	-21.7	
5.0700	-3.5	H	3.0	39.8	1.0	-42.2	-25.0	-17.2	
7.6050	-7.1	H	3.0	39.3	1.0	-45.4	-25.0	-20.4	
10.1400	-9.8	H	3.0	38.6	1.0	-47.4	-25.0	-22.4	
High Ch, (2565 MHz)									
5.1300	-1.9	V	3.0	39.8	1.0	-40.7	-25.0	-15.7	
7.6950	-6.3	V	3.0	39.3	1.0	-44.6	-25.0	-19.6	
10.2600	-9.3	V	3.0	38.6	1.0	-46.9	-25.0	-21.9	
5.1300	-3.5	H	3.0	39.8	1.0	-42.3	-25.0	-17.3	
7.6950	-5.8	H	3.0	39.3	1.0	-44.1	-25.0	-19.1	
10.2600	-8.0	H	3.0	38.6	1.0	-45.6	-25.0	-20.6	

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

LTE Band 7 5MHz QPSK

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

Company: Samsung
Project #: 4788103295
Date: 09-04-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / X-Position
Mode: TX, LTE BAND 7, 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, (2502.5 MHz)									
5.0050	-4.5	V	3.0	39.8	1.0	-43.3	-25.0	-18.3	
7.5075	-7.7	V	3.0	39.4	1.0	-46.1	-25.0	-21.1	
10.0100	-9.5	V	3.0	38.6	1.0	-47.1	-25.0	-22.1	
5.0050	-5.8	H	3.0	39.8	1.0	-44.6	-25.0	-19.6	
7.5075	-7.5	H	3.0	39.4	1.0	-45.9	-25.0	-20.9	
10.0100	-9.6	H	3.0	38.6	1.0	-47.2	-25.0	-22.2	
Mid Ch, (2535 MHz)									
5.0700	-1.1	V	3.0	39.8	1.0	-39.9	-25.0	-14.9	
7.6050	-7.9	V	3.0	39.3	1.0	-46.3	-25.0	-21.3	
10.1400	-9.3	V	3.0	38.6	1.0	-46.8	-25.0	-21.8	
5.0700	-3.5	H	3.0	39.8	1.0	-42.2	-25.0	-17.2	
7.6050	-7.1	H	3.0	39.3	1.0	-45.5	-25.0	-20.5	
10.1400	-9.8	H	3.0	38.6	1.0	-47.4	-25.0	-22.4	
High Ch, (2567.5 MHz)									
5.1350	-3.7	V	3.0	39.8	1.0	-42.5	-25.0	-17.5	
7.7025	-4.5	V	3.0	39.3	1.0	-42.9	-25.0	-17.9	
10.2700	-9.2	V	3.0	38.6	1.0	-46.8	-25.0	-21.8	
5.1350	-4.3	H	3.0	39.8	1.0	-43.1	-25.0	-18.1	
7.7025	-4.0	H	3.0	39.3	1.0	-42.3	-25.0	-17.3	
10.2700	-9.8	H	3.0	38.6	1.0	-47.3	-25.0	-22.3	

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

LTE Band 7 5MHz 16QAM

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

Company: Samsung
Project #: 4788103295
Date: 09-04-17
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Ear Phone / X-Position
Mode: TX, LTE BAND 7, 5MHz BW,16QAM

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, (2502.5 MHz)									
5.0050	-4.5	V	3.0	39.8	1.0	-43.3	-25.0	-18.3	
7.5075	-8.3	V	3.0	39.4	1.0	-46.7	-25.0	-21.7	
10.0100	-10.1	V	3.0	38.6	1.0	-47.7	-25.0	-22.7	
5.0050	-6.1	H	3.0	39.8	1.0	-44.8	-25.0	-19.8	
7.5075	-6.0	H	3.0	39.4	1.0	-44.4	-25.0	-19.4	
10.0100	-9.8	H	3.0	38.6	1.0	-47.4	-25.0	-22.4	
Mid Ch, (2535 MHz)									
5.0700	-1.0	V	3.0	39.8	1.0	-39.8	-25.0	-14.8	
7.6050	-8.4	V	3.0	39.3	1.0	-46.7	-25.0	-21.7	
10.1400	-10.0	V	3.0	38.6	1.0	-47.5	-25.0	-22.5	
5.0700	-3.3	H	3.0	39.8	1.0	-42.1	-25.0	-17.1	
7.6050	-7.4	H	3.0	39.3	1.0	-45.8	-25.0	-20.8	
10.1400	-10.0	H	3.0	38.6	1.0	-47.6	-25.0	-22.6	
High Ch, (2567.5 MHz)									
5.1350	-3.6	V	3.0	39.8	1.0	-42.4	-25.0	-17.4	
7.7025	-4.2	V	3.0	39.3	1.0	-42.5	-25.0	-17.5	
10.2700	-9.4	V	3.0	38.6	1.0	-47.0	-25.0	-22.0	
5.1350	-4.6	H	3.0	39.8	1.0	-43.4	-25.0	-18.4	
7.7025	-3.9	H	3.0	39.3	1.0	-42.2	-25.0	-17.2	
10.2700	-9.0	H	3.0	38.6	1.0	-46.6	-25.0	-21.6	

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