

LTE Band 5 5MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2 Company: Samsung Project #: 16K23304 Date: 05-25-16 Test Engineer: Chan Park Configuration: EUT ONLY, X Position Mode: LTE5 5MHz FUND QPSK Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	826.50	8.42	V	1.1	-1.5	5.82	38.5	-32.6	
	826.50	14.04	H	1.1	-1.5	11.44	38.5	-27.0	
	Mid Ch								
	836.50	7.93	V	1.1	-1.4	5.44	38.5	-33.0	
	836.50	13.99	H	1.1	-1.4	11.50	38.5	-27.0	
	High Ch								
	846.50	7.81	V	1.6	-1.3	4.93	38.5	-33.5	
	846.50	15.41	H	1.6	-1.3	12.53	38.5	-25.9	
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									
LTE Band 5 5MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2 Company: Samsung Project #: 16K23304 Date: 05-25-16 Test Engineer: Chan Park Configuration: EUT ONLY, X Position Mode: LTE5 5MHz FUND 16QAM Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	826.50	8.52	V	1.1	-1.5	5.92	38.5	-32.5	
	826.50	14.06	H	1.1	-1.5	11.46	38.5	-27.0	
	Mid Ch								
	836.50	8.15	V	1.1	-1.4	5.65	38.5	-32.8	
	836.50	14.15	H	1.1	-1.4	11.66	38.5	-26.8	
	High Ch								
	846.50	7.89	V	1.1	-1.3	5.51	38.5	-32.9	
	846.50	15.62	H	1.1	-1.3	13.24	38.5	-25.2	
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									

LTE Band 5 3MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 16K23304 Date: 05-25-16 Test Engineer: Chan Park Configuration: EUT ONLY, X Position Mode: LTE5 3MHz FUND QPSK								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	825.50	9.25	V	1.1	-1.5	6.65	38.5	-31.8	
	825.50	14.34	H	1.1	-1.5	11.74	38.5	-26.7	
	Mid Ch								
	836.50	8.50	V	1.1	-1.4	6.01	38.5	-32.4	
	836.50	14.12	H	1.1	-1.4	11.63	38.5	-26.8	
	High Ch								
	847.50	8.31	V	1.6	-1.3	5.43	38.5	-33.0	
	847.50	15.82	H	1.6	-1.3	12.94	38.5	-25.5	
	Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm								
LTE Band 5 3MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 16K23304 Date: 05-25-16 Test Engineer: Chan Park Configuration: EUT ONLY, X Position Mode: LTE5 3MHz FUND 16QAM								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	825.50	9.30	V	1.1	-1.5	6.70	38.5	-31.8	
	825.50	14.50	H	1.1	-1.5	11.90	38.5	-26.6	
	Mid Ch								
	836.50	8.63	V	1.1	-1.4	6.14	38.5	-32.3	
	836.50	14.31	H	1.1	-1.4	11.82	38.5	-26.6	
	High Ch								
	847.50	8.58	V	1.1	-1.3	6.20	38.5	-32.3	
	847.50	15.62	H	1.1	-1.3	13.24	38.5	-25.2	
	Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm								

LTE Band 5 1.4MHz QPSK	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 16K23304 Date: 05-25-16 Test Engineer: Chan Park Configuration: EUT ONLY, X Position Mode: LTE5 1.4MHz FUND QPSK								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	824.70	6.98	V	1.1	-1.5	4.38	38.5	-34.1	
	824.70	12.36	H	1.1	-1.5	9.76	38.5	-28.7	
	Mid Ch								
	836.50	6.68	V	1.1	-1.4	4.19	38.5	-34.3	
	836.50	12.61	H	1.1	-1.4	10.12	38.5	-28.3	
	High Ch								
	848.30	5.90	V	1.6	-1.3	3.02	38.5	-35.4	
	848.30	13.72	H	1.6	-1.3	10.84	38.5	-27.6	
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									
LTE Band 5 1.4MHz 16QAM	High Frequency Substitution Measurement UL Korea, Ltd. Suwon Laboratory Chamber 2								
	Company: Samsung Project #: 16K23304 Date: 05-25-16 Test Engineer: Chan Park Configuration: EUT ONLY, X Position Mode: LTE5 1.4MHz FUND 16QAM								
	Test Equipment: Receiving: VULB9163-749, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.								
	f	SG reading	Ant. Pol.	Cable Loss	Antenna Gain	ERP	Limit	Margin	Notes
	MHz	(dBm)	(H/V)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
	Low Ch								
	824.70	6.93	V	1.1	-1.5	4.33	38.5	-34.1	
	824.70	12.41	H	1.1	-1.5	9.81	38.5	-28.6	
	Mid Ch								
	836.50	6.81	V	1.1	-1.4	4.32	38.5	-34.1	
	836.50	12.46	H	1.1	-1.4	9.97	38.5	-28.5	
	High Ch								
	848.30	6.02	V	1.1	-1.3	3.64	38.5	-34.8	
	848.30	13.60	H	1.1	-1.3	11.22	38.5	-27.2	
Rev. 3.17.11 Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm									

11.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238

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.

TEST PROCEDURE

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

11.2.1. SPURIOUS RADIATION PLOTS

GSM 850

GSM

GSM850
GPRS

UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement												
Company:		Samsung										
Project #:		16K23304										
Date:		04-27-16										
Test Engineer:		YH Lim										
Configuration:		EUT / AC Adapter / Earphone, XPosition										
Mode:		GPRS 850 MHz										
Chamber		Pre-amplifier			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	-5.8	V	3.0	39.1	1.0	-43.9	-13.0	-30.9				
2.4726	0.7	V	3.0	39.5	1.0	-37.8	-13.0	-24.8				
3.2968	-18.0	V	3.0	40.1	1.0	-57.1	-13.0	-44.1				
1.6484	-4.9	H	3.0	39.1	1.0	-43.0	-13.0	-30.0				
2.4726	7.5	H	3.0	39.5	1.0	-31.0	-13.0	-18.0				
3.2968	-18.3	H	3.0	40.1	1.0	-57.4	-13.0	-44.4				
Mid Ch, 836.6MHz												
1.6730	-1.6	V	3.0	39.1	1.0	-39.7	-13.0	-26.7				
2.5098	-0.9	V	3.0	39.5	1.0	-39.4	-13.0	-26.4				
3.3464	-16.4	V	3.0	40.1	1.0	-55.6	-13.0	-42.6				
1.6730	-2.7	H	3.0	39.1	1.0	-40.8	-13.0	-27.8				
2.5098	5.1	H	3.0	39.5	1.0	-33.5	-13.0	-20.5				
3.3464	-16.6	H	3.0	40.1	1.0	-55.8	-13.0	-42.8				
High Ch, 848.8MHz												
1.6976	-4.8	V	3.0	39.1	1.0	-42.9	-13.0	-29.9				
2.5466	-4.3	V	3.0	39.6	1.0	-42.9	-13.0	-29.9				
3.3952	-17.3	V	3.0	40.2	1.0	-56.5	-13.0	-43.5				
1.6976	-5.1	H	3.0	39.1	1.0	-43.2	-13.0	-30.2				
2.5466	0.2	H	3.0	39.6	1.0	-38.4	-13.0	-25.4				
3.3952	-17.7	H	3.0	40.2	1.0	-56.8	-13.0	-43.8				
Rev. 03.03.09												
Note: No other emissions were detected above the system noise floor.												

GSM

GSM850
EGPRS

UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement												
Company:		Samsung										
Project #:		16K23304										
Date:		04-26-16										
Test Engineer:		YH Lim										
Configuration:		EUT / AC Adapter / Earphone, XPosition										
Mode:		EGPRS 850 MHz										
Chamber		Pre-amplifier			Filter		Limit					
Chamber 1		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	-14.8	V	3.0	39.1	1.0	-52.9	-13.0	-39.9				
2.4726	-11.5	V	3.0	39.5	1.0	-50.0	-13.0	-37.0				
3.2968	-18.0	V	3.0	40.1	1.0	-57.1	-13.0	-44.1				
1.6484	-15.3	H	3.0	39.1	1.0	-53.4	-13.0	-40.4				
2.4726	-4.6	H	3.0	39.5	1.0	-43.1	-13.0	-30.1				
3.2968	-18.2	H	3.0	40.1	1.0	-57.3	-13.0	-44.3				
Mid Ch, 836.6MHz												
1.6730	-10.3	V	3.0	39.1	1.0	-48.4	-13.0	-35.4				
2.5098	-12.5	V	3.0	39.5	1.0	-51.1	-13.0	-38.1				
3.3464	-16.4	V	3.0	40.1	1.0	-55.5	-13.0	-42.5				
1.6730	-13.2	H	3.0	39.1	1.0	-51.3	-13.0	-38.3				
2.5098	-6.9	H	3.0	39.5	1.0	-45.4	-13.0	-32.4				
3.3464	-16.7	H	3.0	40.1	1.0	-55.9	-13.0	-42.9				
High Ch, 848.8MHz												
1.6976	-15.7	V	3.0	39.1	1.0	-53.9	-13.0	-40.9				
2.5466	-16.7	V	3.0	39.6	1.0	-55.2	-13.0	-42.2				
3.3952	-17.5	V	3.0	40.2	1.0	-56.7	-13.0	-43.7				
1.6976	-17.0	H	3.0	39.1	1.0	-55.1	-13.0	-42.1				
2.5466	-14.8	H	3.0	39.6	1.0	-53.4	-13.0	-40.4				
3.3952	-17.7	H	3.0	40.2	1.0	-56.9	-13.0	-43.9				
Rev. 03.03.09												
Note: No other emissions were detected above the system noise floor.												

GSM 1900

GSM
GSM1900
GPRS

UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement												
Company:		Samsung										
Project #:		16K23304										
Date:		04-26-16										
Test Engineer:		YH Lim										
Configuration:		EUT / AC Adapter / Earphone, X Position										
Mode:		GPRS 1900										
Chamber		Pre-amplifier			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	-6.0	V	3.0	40.5	1.0	-45.4	-13.0	-32.4				
5.5506	-7.9	V	3.0	40.8	1.0	-47.7	-13.0	-34.7				
7.4008	-11.6	V	3.0	40.8	1.0	-51.4	-13.0	-38.4				
3.7000	-2.3	H	3.0	40.5	1.0	-41.8	-13.0	-28.8				
5.5506	-5.6	H	3.0	40.8	1.0	-45.4	-13.0	-32.4				
7.4008	-12.0	H	3.0	40.8	1.0	-51.8	-13.0	-38.8				
Mid Ch, 1880.0MHz												
3.7600	-7.1	V	3.0	40.5	1.0	-46.6	-13.0	-33.6				
5.6400	-6.9	V	3.0	40.8	1.0	-46.7	-13.0	-33.7				
7.5200	-10.9	V	3.0	40.7	1.0	-50.6	-13.0	-37.6				
3.7600	-3.7	H	3.0	40.5	1.0	-43.2	-13.0	-30.2				
5.6400	-4.6	H	3.0	40.8	1.0	-44.4	-13.0	-31.4				
7.5200	-11.3	H	3.0	40.7	1.0	-51.0	-13.0	-38.0				
High Ch, 1909.8 MHz												
3.8196	-5.5	V	3.0	40.6	1.0	-45.1	-13.0	-32.1				
5.7294	-4.2	V	3.0	40.8	1.0	-44.0	-13.0	-31.0				
7.6392	-9.9	V	3.0	40.7	1.0	-49.5	-13.0	-36.5				
3.8196	-5.2	H	3.0	40.6	1.0	-44.8	-13.0	-31.8				
5.7294	-1.6	H	3.0	40.8	1.0	-41.4	-13.0	-28.4				
7.6392	-10.4	H	3.0	40.7	1.0	-50.1	-13.0	-37.1				
Rev. 03.03.09												
Note: No other emissions were detected above the system noise floor.												

GSM
GSM1900
EGPRS

UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement												
Company:		Samsung										
Project #:		16K23304										
Date:		04-26-16										
Test Engineer:		YH Lim										
Configuration:		EUT / AC Adapter / Earphone, X Position										
Mode:		EGPRS 1900 MHz										
Chamber		Pre-amplifier			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	-15.1	V	3.0	40.5	1.0	-54.6	-13.0	-41.6				
5.5506	-13.5	V	3.0	40.8	1.0	-53.3	-13.0	-40.3				
7.4008	-11.9	V	3.0	40.8	1.0	-51.7	-13.0	-38.7				
3.7000	-13.9	H	3.0	40.5	1.0	-53.4	-13.0	-40.4				
5.5500	-11.5	H	3.0	40.8	1.0	-51.3	-13.0	-38.3				
7.4000	-11.8	H	3.0	40.8	1.0	-51.6	-13.0	-38.6				
Mid Ch, 1880.0MHz												
3.7600	-15.6	V	3.0	40.5	1.0	-55.2	-13.0	-42.2				
5.6400	-13.8	V	3.0	40.8	1.0	-53.6	-13.0	-40.6				
7.5200	-11.6	V	3.0	40.7	1.0	-51.3	-13.0	-38.3				
3.7600	-15.6	H	3.0	40.5	1.0	-55.1	-13.0	-42.1				
5.6400	-11.8	H	3.0	40.8	1.0	-51.6	-13.0	-38.6				
7.5200	-11.4	H	3.0	40.7	1.0	-51.1	-13.0	-38.1				
High Ch, 1909.8 MHz												
3.8196	-14.0	V	3.0	40.6	1.0	-53.6	-13.0	-40.6				
5.7294	-13.2	V	3.0	40.8	1.0	-53.0	-13.0	-40.0				
7.6392	-11.3	V	3.0	40.7	1.0	-50.9	-13.0	-37.9				
3.8196	-13.1	H	3.0	40.6	1.0	-52.7	-13.0	-39.7				
5.7294	-11.1	H	3.0	40.8	1.0	-50.9	-13.0	-37.9				
7.6392	-10.8	H	3.0	40.7	1.0	-50.4	-13.0	-37.4				
Rev. 03.03.09												
Note: No other emissions were detected above the system noise floor.												

WCDMA Band 5

WCDMA
Band 5
REL99

UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		16K23304							
Date:		04-27-16							
Test Engineer:		YH Lim							
Configuration:		EUT / AC Adapter / Earphone / X Position							
Mode:		Tx, REL99,850MHz							
Chamber		Pre-amplifier		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	-14.8	V	3.0	39.1	1.0	-52.9	-13.0	-39.9	
2.4790	-18.0	V	3.0	39.5	1.0	-56.5	-13.0	-43.5	
3.3056	-16.0	V	3.0	40.1	1.0	-55.1	-13.0	-42.1	
1.6520	-16.7	H	3.0	39.1	1.0	-54.8	-13.0	-41.8	
2.4790	-18.5	H	3.0	39.5	1.0	-57.0	-13.0	-44.0	
3.3056	-16.2	H	3.0	40.1	1.0	-55.3	-13.0	-42.3	
Mid Ch, 836.6MHz									
1.6732	-14.7	V	3.0	39.1	1.0	-52.8	-13.0	-39.8	
2.5098	-17.8	V	3.0	39.5	1.0	-56.4	-13.0	-43.4	
3.3464	-16.0	V	3.0	40.1	1.0	-55.1	-13.0	-42.1	
1.6732	-16.5	H	3.0	39.1	1.0	-54.6	-13.0	-41.6	
2.5098	-18.3	H	3.0	39.5	1.0	-56.9	-13.0	-43.9	
3.3464	-16.3	H	3.0	40.1	1.0	-55.4	-13.0	-42.4	
High Ch, 846.6MHz									
1.6932	-13.9	V	3.0	39.1	1.0	-52.0	-13.0	-39.0	
2.5390	-17.9	V	3.0	39.6	1.0	-56.4	-13.0	-43.4	
3.3860	-15.9	V	3.0	40.2	1.0	-55.0	-13.0	-42.0	
1.6932	-17.2	H	3.0	39.1	1.0	-55.3	-13.0	-42.3	
2.5390	-18.2	H	3.0	39.6	1.0	-56.8	-13.0	-43.8	
3.3860	-16.1	H	3.0	40.2	1.0	-55.3	-13.0	-42.3	
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.									

WCDMA
Band 5
HSDPA

UL Korea, Ltd Suwon Laboratory Above 1GHz High Frequency Substitution Measurement									
Company:		Samsung							
Project #:		16K23304							
Date:		04-27-16							
Test Engineer:		YH Lim							
Configuration:		EUT / AC Adapter / Earphone / X Position							
Mode:		Tx, HSDPA,850MHz							
Chamber		Pre-amplifier		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	-13.6	V	3.0	39.1	1.0	-51.7	-13.0	-38.7	
2.4790	-18.0	V	3.0	39.5	1.0	-56.5	-13.0	-43.5	
3.3056	-16.0	V	3.0	40.1	1.0	-55.1	-13.0	-42.1	
1.6520	-16.5	H	3.0	39.1	1.0	-54.6	-13.0	-41.6	
2.4790	-18.3	H	3.0	39.5	1.0	-56.9	-13.0	-43.9	
3.3056	-16.2	H	3.0	40.1	1.0	-55.3	-13.0	-42.3	
Mid Ch, 836.6MHz									
1.6732	-14.4	V	3.0	39.1	1.0	-52.5	-13.0	-39.5	
2.5098	-17.7	V	3.0	39.5	1.0	-56.3	-13.0	-43.3	
3.3464	-16.0	V	3.0	40.1	1.0	-55.2	-13.0	-42.2	
1.6732	-15.6	H	3.0	39.1	1.0	-53.7	-13.0	-40.7	
2.5098	-18.2	H	3.0	39.5	1.0	-56.8	-13.0	-43.8	
3.3464	-16.3	H	3.0	40.1	1.0	-55.4	-13.0	-42.4	
High Ch, 846.6MHz									
1.6932	-16.2	V	3.0	39.1	1.0	-54.3	-13.0	-41.3	
2.5390	-17.9	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	-18.6	H	3.0	39.1	1.0	-56.7	-13.0	-43.7	
2.5390	-18.3	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.									

WCDMA Band 2

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

Company: Samsung
Project #: 16K23304
Date: 04-27-16
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Earphone / X Position
Mode: Tx, REL99, 1900MHz

Chamber	Pre-amplifier	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	-11.5	V	3.0	40.5	1.0	-51.0	-13.0	-38.0	
5.5572	-10.5	V	3.0	40.8	1.0	-50.3	-13.0	-37.3	
7.4096	-9.1	V	3.0	40.8	1.0	-48.9	-13.0	-35.9	
3.7048	-12.4	H	3.0	40.5	1.0	-51.9	-13.0	-38.9	
5.5572	-9.9	H	3.0	40.8	1.0	-49.7	-13.0	-36.7	
7.4096	-9.0	H	3.0	40.8	1.0	-48.8	-13.0	-35.8	
Mid Ch, 1880MHz									
3.7600	-13.2	V	3.0	40.5	1.0	-52.8	-13.0	-39.8	
5.6400	-10.3	V	3.0	40.8	1.0	-50.1	-13.0	-37.1	
7.5200	-8.2	V	3.0	40.7	1.0	-47.9	-13.0	-34.9	
3.7600	-13.5	H	3.0	40.5	1.0	-53.1	-13.0	-40.1	
5.6400	-10.4	H	3.0	40.8	1.0	-50.2	-13.0	-37.2	
7.5200	-8.3	H	3.0	40.7	1.0	-48.0	-13.0	-35.0	
High Ch, 1907.6MHz									
3.8152	-12.4	V	3.0	40.6	1.0	-52.0	-13.0	-39.0	
5.7228	-9.8	V	3.0	40.8	1.0	-49.6	-13.0	-36.6	
7.6304	-8.4	V	3.0	40.7	1.0	-48.1	-13.0	-35.1	
3.8152	-13.6	H	3.0	40.6	1.0	-53.2	-13.0	-40.2	
5.7228	-9.9	H	3.0	40.8	1.0	-49.7	-13.0	-36.7	
7.6304	-8.3	H	3.0	40.7	1.0	-48.0	-13.0	-35.0	

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 #: 16K23304
Date: 04-27-16
Test Engineer: Chan Park
Configuration: EUT / AC Adapter / Earphone / X Position
Mode: Tx, HSDPA, 1900MHz

Chamber	Pre-amplifier	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	-12.0	V	3.0	40.5	1.0	-51.5	-13.0	-38.5	
5.5572	-10.4	V	3.0	40.8	1.0	-50.3	-13.0	-37.3	
7.4096	-9.2	V	3.0	40.8	1.0	-49.0	-13.0	-36.0	
3.7048	-12.9	H	3.0	40.5	1.0	-52.4	-13.0	-39.4	
5.5572	-9.9	H	3.0	40.8	1.0	-49.7	-13.0	-36.7	
7.4096	-9.0	H	3.0	40.8	1.0	-48.8	-13.0	-35.8	
Mid Ch, 1880MHz									
3.7600	-13.5	V	3.0	40.5	1.0	-53.0	-13.0	-40.0	
5.6400	-10.6	V	3.0	40.8	1.0	-50.4	-13.0	-37.4	
7.5200	-8.4	V	3.0	40.7	1.0	-48.2	-13.0	-35.2	
3.7600	-13.8	H	3.0	40.5	1.0	-53.4	-13.0	-40.4	
5.6400	-10.5	H	3.0	40.8	1.0	-50.3	-13.0	-37.3	
7.5200	-8.3	H	3.0	40.7	1.0	-48.0	-13.0	-35.0	
High Ch, 1907.6MHz									
3.8152	-12.7	V	3.0	40.6	1.0	-52.2	-13.0	-39.2	
5.7228	-10.1	V	3.0	40.8	1.0	-49.9	-13.0	-36.9	
7.6304	-8.4	V	3.0	40.7	1.0	-48.1	-13.0	-35.1	
3.8152	-13.7	H	3.0	40.6	1.0	-53.3	-13.0	-40.3	
5.7228	-9.9	H	3.0	40.8	1.0	-49.7	-13.0	-36.7	
7.6304	-8.3	H	3.0	40.7	1.0	-47.9	-13.0	-34.9	

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

LTE Band 5

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

Company: Samsung
Project #: 16K23304
Date: 05-25-16
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone, X Position
Mode: TX, LTE BAND 5, 10MHz BW, QPSK

Chamber	Pre-amplifier	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	-18.7	V	3.0	39.1	1.0	-56.8	-13.0	-43.8	
2.4870	-22.8	V	3.0	39.5	1.0	-61.4	-13.0	-48.4	
3.3160	-22.4	V	3.0	40.1	1.0	-61.5	-13.0	-48.5	
1.6580	-16.8	H	3.0	39.1	1.0	-54.9	-13.0	-41.9	
2.4870	-22.6	H	3.0	39.5	1.0	-61.1	-13.0	-48.1	
3.3160	-22.2	H	3.0	40.1	1.0	-61.3	-13.0	-48.3	
Mid Channel (836.5MHz)									
1.6730	-14.2	V	3.0	39.1	1.0	-52.3	-13.0	-39.3	
2.5090	-19.8	V	3.0	39.5	1.0	-58.4	-13.0	-45.4	
3.3460	-22.7	V	3.0	40.1	1.0	-61.8	-13.0	-48.8	
1.6730	-7.7	H	3.0	39.1	1.0	-45.8	-13.0	-32.8	
2.5090	-17.2	H	3.0	39.5	1.0	-55.8	-13.0	-42.8	
3.3460	-22.1	H	3.0	40.1	1.0	-61.2	-13.0	-48.2	
High Channel (844MHz)									
1.6880	-17.2	V	3.0	39.1	1.0	-55.3	-13.0	-42.3	
2.5320	-21.4	V	3.0	39.5	1.0	-59.9	-13.0	-46.9	
3.3760	-23.1	V	3.0	40.2	1.0	-62.3	-13.0	-49.3	
1.6880	-14.6	H	3.0	39.1	1.0	-52.7	-13.0	-39.7	
2.5320	-18.0	H	3.0	39.5	1.0	-56.6	-13.0	-43.6	
3.3760	-22.5	H	3.0	40.2	1.0	-61.6	-13.0	-48.6	

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 #: 16K23304
Date: 05-25-16
Test Engineer: YH Lim
Configuration: EUT / AC Adapter / Earphone, X Position
Mode: TX, LTE BAND 5, 10MHz BW, 16QAM

Chamber	Pre-amplifier	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	-18.5	V	3.0	39.1	1.0	-56.6	-13.0	-43.6	
2.4870	-23.9	V	3.0	39.5	1.0	-62.4	-13.0	-49.4	
3.3160	-22.4	V	3.0	40.1	1.0	-61.5	-13.0	-48.5	
1.6580	-16.8	H	3.0	39.1	1.0	-54.9	-13.0	-41.9	
2.4870	-22.7	H	3.0	39.5	1.0	-61.2	-13.0	-48.2	
3.3160	-22.3	H	3.0	40.1	1.0	-61.5	-13.0	-48.5	
Mid Channel (836.5MHz)									
1.6730	-15.7	V	3.0	39.1	1.0	-53.8	-13.0	-40.8	
2.5090	-20.6	V	3.0	39.5	1.0	-59.1	-13.0	-46.1	
3.3460	-22.7	V	3.0	40.1	1.0	-61.9	-13.0	-48.9	
1.6730	-10.2	H	3.0	39.1	1.0	-48.3	-13.0	-35.3	
2.5090	-18.3	H	3.0	39.5	1.0	-56.8	-13.0	-43.8	
3.3460	-22.4	H	3.0	40.1	1.0	-61.5	-13.0	-48.5	
High Channel (844MHz)									
1.6880	-17.2	V	3.0	39.1	1.0	-55.3	-13.0	-42.3	
2.5320	-21.4	V	3.0	39.5	1.0	-59.9	-13.0	-46.9	
3.3760	-23.1	V	3.0	40.2	1.0	-62.3	-13.0	-49.3	
1.6880	-14.9	H	3.0	39.1	1.0	-53.0	-13.0	-40.0	
2.5320	-18.1	H	3.0	39.5	1.0	-56.6	-13.0	-43.6	
3.3760	-22.5	H	3.0	40.2	1.0	-61.7	-13.0	-48.7	

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

