GSM 1900

GSM

GSM1900
GPRS

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 12-24-15
Test Engineer: Steven Kim
Configuration: EUT ONLY, X Position
Mode: GPRS 1900MHz

Test Equipment:
Receiving: 3117[00168724] and Chamber 1 SMA Cables
Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.20	19.1	V	1.60	8.80	26.28	33.0	-6.7	
1850.20	22.2	H	1.60	8.80	29.41	33.0	-3.6	
Mid Ch								
1880.00	20.7	V	1.62	8.62	27.70	33.0	-5.3	
1880.00	22.7	H	1.62	8.62	29.68	33.0	-3.3	
High Ch								
1909.80	20.5	V	1.63	8.44	27.28	33.0	-5.7	
1909.80	22.1	H	1.63	8.44	28.86	33.0	-4.1	

Rev. 3.17.11

GSM

GSM1900
EGPRS

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 12-24-15
Test Engineer: Steven Kim
Configuration: EUT ONLY, X Position
Mode: EGPRS 1900MHz

Test Equipment:
Receiving: 3117[00168724] and Chamber 1 SMA Cables
Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.20	15.9	V	1.60	8.80	23.12	33.0	-9.9	
1850.20	18.9	H	1.60	8.80	26.10	33.0	-6.9	
Mid Ch								
1880.00	18.2	V	1.62	8.62	25.18	33.0	-7.8	
1880.00	20.6	H	1.62	8.62	27.58	33.0	-5.4	
High Ch								
1909.80	17.4	V	1.63	8.44	24.16	33.0	-8.8	
1909.80	19.4	H	1.63	8.44	26.18	33.0	-6.8	

Rev. 3.17.11

WCDMA Band 5

WCDMA

Band 5
REL99

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 12-30-15
Test Engineer: Steven Kim
Configuration: EUT ONLY, Z Position
Mode: Rel 99_850 MHz

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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.40	21.14	V	1.1	-1.5	18.53	38.5	-19.9	
826.40	6.97	H	1.1	-1.5	4.36	38.5	-34.1	
Mid Ch								
836.60	20.23	V	1.1	-1.4	17.74	38.5	-20.7	
836.60	9.02	H	1.1	-1.4	6.53	38.5	-31.9	
High Ch								
846.60	19.98	V	1.1	-1.3	17.60	38.5	-20.9	
846.60	11.39	H	1.1	-1.3	9.01	38.5	-29.4	

Rev. 3.17.11

WCDMA

Band 5
HSDPA

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 12-30-15
Test Engineer: Steven Kim
Configuration: EUT ONLY, Z Position
Mode: HSDPA_850 MHz

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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.40	20.08	V	1.1	-1.5	17.47	38.5	-21.0	
826.40	7.24	H	1.1	-1.5	4.63	38.5	-33.8	
Mid Ch								
836.60	18.47	V	1.1	-1.4	15.98	38.5	-22.5	
836.60	6.15	H	1.1	-1.4	3.66	38.5	-34.8	
High Ch								
846.60	20.00	V	1.1	-1.3	17.62	38.5	-20.8	
846.60	9.59	H	1.1	-1.3	7.21	38.5	-31.2	

Rev. 3.17.11

WCDMA Band 4

WCDMA

Band 4
REL99

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 12-29-15
Test Engineer: Steven Kim
Configuration: EUT ONLY, X Position
Mode: Rel 99_1700 MHz

Test Equipment:
Receiving: 3117[00168724] and Chamber 1 SMA Cables
Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1712.40	2.87	V	1.54	9.20	10.53	33.0	-22.5	
1712.40	14.60	H	1.54	9.20	22.26	33.0	-10.7	
Mid Ch								
1732.60	2.27	V	1.55	9.31	10.03	33.0	-23.0	
1732.60	13.92	H	1.55	9.31	21.68	33.0	-11.3	
High Ch								
1752.60	3.75	V	1.56	9.38	11.57	33.0	-21.4	
1752.60	13.62	H	1.56	9.38	21.44	33.0	-11.6	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

WCDMA

Band 4
HSDPA

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 12-29-15
Test Engineer: Steven Kim
Configuration: EUT ONLY, X Position
Mode: HSDPA_1700 MHz

Test Equipment:
Receiving: 3117[00168724] and Chamber 1 SMA Cables
Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1712.40	3.12	V	1.54	9.20	10.78	33.0	-22.2	
1712.40	14.35	H	1.54	9.20	22.01	33.0	-11.0	
Mid Ch								
1732.60	0.57	V	1.55	9.31	8.33	33.0	-24.7	
1732.60	12.69	H	1.55	9.31	20.45	33.0	-12.6	
High Ch								
1752.60	3.05	V	1.56	9.38	10.87	33.0	-22.1	
1752.60	13.66	H	1.56	9.38	21.48	33.0	-11.5	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

WCDMA Band 2

WCDMA

Band 2
REL99

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 12-28-15
Test Engineer: Steven.Kim
Configuration: EUT ONLY, X Position
Mode: REL99_1900 MHz

Test Equipment:
Receiving: 3117[00168724] and Chamber 1 SMA Cables
Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	9.88	V	1.60	8.79	17.07	33.0	-15.9	
1852.40	14.75	H	1.60	8.79	21.94	33.0	-11.1	
Mid Ch								
1880.00	9.63	V	1.62	8.62	16.63	33.0	-16.4	
1880.00	15.24	H	1.62	8.62	22.24	33.0	-10.8	
High Ch								
1907.60	7.16	V	1.63	8.45	13.98	33.0	-19.0	
1907.60	14.89	H	1.63	8.45	21.71	33.0	-11.3	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

WCDMA

Band 2
HSDPA

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 12-28-15
Test Engineer: Steven.Kim
Configuration: EUT ONLY, X Position
Mode: HSDPA_1900 MHz

Test Equipment:
Receiving: 3117[00168724] and Chamber 1 SMA Cables
Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1852.40	7.78	V	1.60	8.79	14.97	33.0	-18.0	
1852.40	12.67	H	1.60	8.79	19.86	33.0	-13.1	
Mid Ch								
1880.00	3.88	V	1.62	8.62	10.88	33.0	-22.1	
1880.00	14.14	H	1.62	8.62	21.14	33.0	-11.9	
High Ch								
1907.60	5.86	V	1.63	8.45	12.68	33.0	-20.3	
1907.60	13.51	H	1.63	8.45	20.33	33.0	-12.7	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

LTE Band 17

LTE Band 17 10MHz QPSK

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 01-12-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z Position
Mode: LTE Band 17, QPSK, 10MHz

Test Equipment:
Receiving: VULB9163-750, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
709.00	14.28	V	1.0	-1.6	11.68	34.8	-23.1	
709.00	-1.31	H	1.0	-1.6	-3.91	34.8	-38.7	
Mid Ch								
710.00	14.19	V	1.0	-1.6	11.59	34.8	-23.2	
710.00	-1.35	H	1.0	-1.6	-3.95	34.8	-38.7	
High Ch								
711.00	14.15	V	1.0	-1.6	11.55	34.8	-23.2	
711.00	-1.12	H	1.0	-1.6	-3.72	34.8	-38.5	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE Band 17 10MHz 16QAM

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 01-12-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z Position
Mode: LTE Band 17 16QAM, 10MHz

Test Equipment:
Receiving: VULB9163-750, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
709.00	13.34	V	1.0	-1.6	10.74	34.8	-24.0	
709.00	-2.27	H	1.0	-1.6	-4.87	34.8	-39.6	
Mid Ch								
710.00	13.26	V	1.0	-1.6	10.66	34.8	-24.1	
710.00	-2.22	H	1.0	-1.6	-4.82	34.8	-39.6	
High Ch								
711.00	13.26	V	1.0	-1.6	10.66	34.8	-24.1	
711.00	-2.03	H	1.0	-1.6	-4.63	34.8	-39.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE
Band 17
5MHz
QPSK

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 01-12-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z Position
Mode: LTE Band 17, QPSK , 5MHz

Test Equipment:
Receiving: VULB9163-750, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
706.50	13.85	V	1.0	-1.6	11.25	34.8	-23.5	
706.50	-2.24	H	1.0	-1.6	-4.84	34.8	-39.6	
Mid Ch								
710.00	13.78	V	1.0	-1.6	11.18	34.8	-23.6	
710.00	-1.11	H	1.0	-1.6	-3.71	34.8	-38.5	
High Ch								
713.50	13.98	V	1.0	-1.6	11.38	34.8	-23.4	
713.50	-1.03	H	1.0	-1.6	-3.63	34.8	-38.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE
Band 17
5MHz
16QAM

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 01-12-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z Position
Mode: LTE Band 17 16QAM, 5MHz

Test Equipment:
Receiving: VULB9163-750, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00164753, 3m SMA Cable Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
706.50	13.02	V	1.0	-1.6	10.42	34.8	-24.4	
706.50	-3.19	H	1.0	-1.6	-5.79	34.8	-40.6	
Mid Ch								
710.00	12.93	V	1.0	-1.6	10.33	34.8	-24.4	
710.00	-1.95	H	1.0	-1.6	-4.55	34.8	-39.3	
High Ch								
713.50	13.04	V	1.0	-1.6	10.44	34.8	-24.3	
713.50	-1.77	H	1.0	-1.6	-4.37	34.8	-39.1	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE Band 5

LTE Band 5 10MHz QPSK

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 01-12-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z Position
Mode: TX, LTE BAND 5, 10MHz BW,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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
829.00	18.05	V	1.1	-1.5	15.47	38.5	-23.0	
829.00	4.63	H	1.1	-1.5	2.05	38.5	-36.4	
Mid Ch								
836.50	17.97	V	1.1	-1.4	15.48	38.5	-23.0	
836.50	2.79	H	1.1	-1.4	0.29	38.5	-38.2	
High Ch								
844.00	17.95	V	1.1	-1.3	15.56	38.5	-22.9	
844.00	5.46	H	1.1	-1.3	3.04	38.5	-35.4	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE Band 5 10MHz 16QAM

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 01-12-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z Position
Mode: LTE5 10MHz 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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
829.00	17.79	V	1.1	-1.5	15.21	38.5	-23.2	
829.00	3.54	H	1.1	-1.5	0.96	38.5	-37.5	
Mid Ch								
836.50	17.30	V	1.1	-1.4	14.79	38.5	-23.7	
836.50	1.79	H	1.1	-1.4	-0.72	38.5	-39.2	
High Ch								
844.00	16.48	V	1.1	-1.3	14.06	38.5	-24.4	
844.00	4.79	H	1.1	-1.3	2.37	38.5	-36.1	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE Band 5 5MHz QPSK

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 01-12-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z 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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.50	18.21	V	1.1	-1.5	15.61	38.5	-22.8	
826.50	4.52	H	1.1	-1.5	1.92	38.5	-36.5	
Mid Ch								
836.50	18.18	V	1.1	-1.4	15.69	38.5	-22.8	
836.50	2.57	H	1.1	-1.4	0.08	38.5	-38.4	
High Ch								
846.50	17.78	V	1.6	-1.3	14.90	38.5	-23.5	
846.50	6.05	H	1.6	-1.3	3.17	38.5	-35.3	

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 #: 15K22555
Date: 01-12-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z 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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
826.50	17.77	V	1.1	-1.5	15.17	38.5	-23.3	
826.50	3.35	H	1.1	-1.5	0.75	38.5	-37.7	
Mid Ch								
836.50	17.21	V	1.1	-1.4	14.72	38.5	-23.7	
836.50	1.68	H	1.1	-1.4	-0.82	38.5	-39.3	
High Ch								
846.50	16.37	V	1.1	-1.3	13.99	38.5	-24.5	
846.50	4.64	H	1.1	-1.3	2.26	38.5	-36.2	

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 #: 15K22555
Date: 01-11-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z 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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
825.50	18.34	V	1.1	-1.5	15.74	38.5	-22.7	
825.50	4.05	H	1.1	-1.5	1.45	38.5	-37.0	
Mid Ch								
836.50	17.90	V	1.1	-1.4	15.41	38.5	-23.0	
836.50	2.24	H	1.1	-1.4	-0.26	38.5	-38.7	
High Ch								
847.50	17.40	V	1.6	-1.3	14.52	38.5	-23.9	
847.50	5.85	H	1.6	-1.3	2.97	38.5	-35.5	

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 #: 15K22555
Date: 01-11-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z 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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
825.50	17.63	V	1.1	-1.5	15.03	38.5	-23.4	
825.50	3.31	H	1.1	-1.5	0.71	38.5	-37.7	
Mid Ch								
836.50	17.05	V	1.1	-1.4	14.56	38.5	-23.9	
836.50	1.42	H	1.1	-1.4	-1.08	38.5	-39.5	
High Ch								
847.50	16.64	V	1.1	-1.3	14.26	38.5	-24.2	
847.50	5.16	H	1.1	-1.3	2.78	38.5	-35.7	

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 #: 15K22555
Date: 01-11-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z 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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	16.30	V	1.1	-1.5	13.70	38.5	-24.8	
824.70	1.82	H	1.1	-1.5	-0.78	38.5	-39.2	
Mid Ch								
836.50	15.84	V	1.1	-1.4	13.35	38.5	-25.1	
836.50	1.95	H	1.1	-1.4	-0.55	38.5	-39.0	
High Ch								
848.30	15.46	V	1.6	-1.3	12.58	38.5	-25.9	
848.30	4.23	H	1.6	-1.3	1.35	38.5	-37.1	

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 #: 15K22555
Date: 01-11-16
Test Engineer: Steven.Kim
Configuration: EUT ONLY, Z 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 MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	15.39	V	1.1	-1.5	12.79	38.5	-25.7	
824.70	0.97	H	1.1	-1.5	-1.63	38.5	-40.1	
Mid Ch								
836.50	14.89	V	1.1	-1.4	12.40	38.5	-26.1	
836.50	1.14	H	1.1	-1.4	-1.36	38.5	-39.8	
High Ch								
848.30	14.55	V	1.1	-1.3	12.17	38.5	-26.3	
848.30	3.36	H	1.1	-1.3	0.97	38.5	-37.5	

Rev. 3.17.11
Note: For Band 13/17 ERP limit is 34.77dBm; For Band 26 limit is 50dBm

LTE Band 4

LTE Band 4 20MHz QPSK

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 01-11-16
Test Engineer: Steven Kim
Configuration: EUT / X-Position
Mode: LTE Band 4, QPSK, 20MHz

Test Equipment:
Receiving: 3117[00168724] and Chamber 1 SMA Cables
Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1720.00	7.07	V	1.54	9.12	14.65	30.0	-15.4	
1720.00	10.21	H	1.54	9.12	17.79	30.0	-12.2	
Mid Ch								
1732.50	0.96	V	1.55	9.31	8.72	30.0	-21.3	
1732.50	11.19	H	1.55	9.31	18.95	30.0	-11.1	
High Ch								
1745.00	2.69	V	1.56	9.37	10.50	30.0	-19.5	
1745.00	10.10	H	1.56	9.37	17.91	30.0	-12.1	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm

LTE Band 4 20MHz 16QAM

High Frequency Substitution Measurement
UL Korea, Ltd. Suwon Laboratory Chamber 2

Company: Samsung
Project #: 15K22555
Date: 01-11-16
Test Engineer: Steven Kim
Configuration: EUT / X-Position
Mode: LTE Band 4, 16QAM, 20MHz

Test Equipment:
Receiving: 3117[00168724] and Chamber 1 SMA Cables
Substitution: 3115[00161451] Substitution, 3m SMA Cable Warehouse

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
1720.00	6.66	V	1.54	9.12	14.24	30.0	-15.8	
1720.00	9.87	H	1.54	9.12	17.45	30.0	-12.6	
Mid Ch								
1732.50	0.59	V	1.55	9.31	8.35	30.0	-21.7	
1732.50	10.82	H	1.55	9.31	18.58	30.0	-11.4	
High Ch								
1745.00	2.37	V	1.56	9.37	10.18	30.0	-19.8	
1745.00	9.75	H	1.56	9.37	17.56	30.0	-12.4	

Rev. 3.17.11
Note: For Band 4 EIRP limit is 30dBm