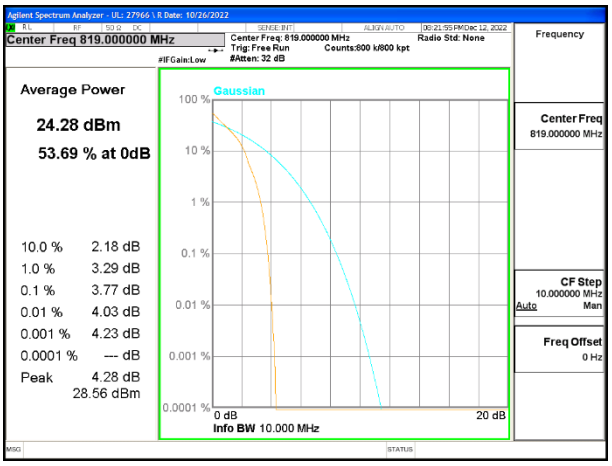
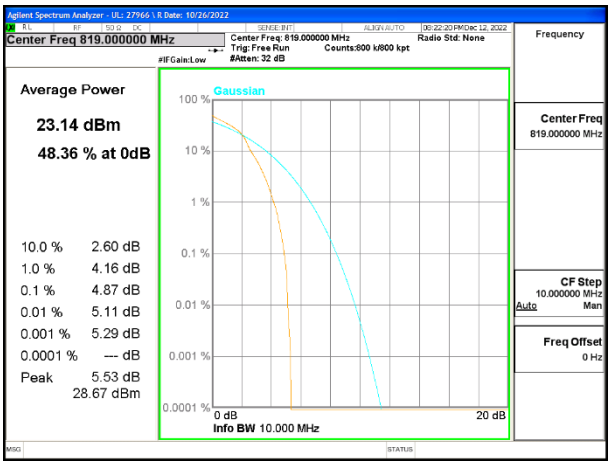
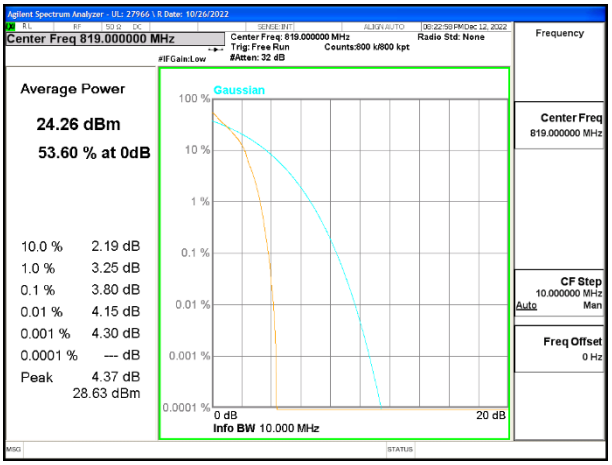
9.5.7. LTE BAND 26 (FCC PART 90S)



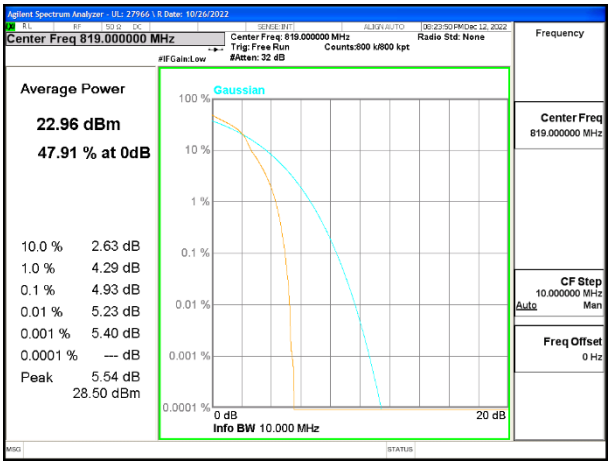
LTE B26 1.4MHz QPSK Middle Channel



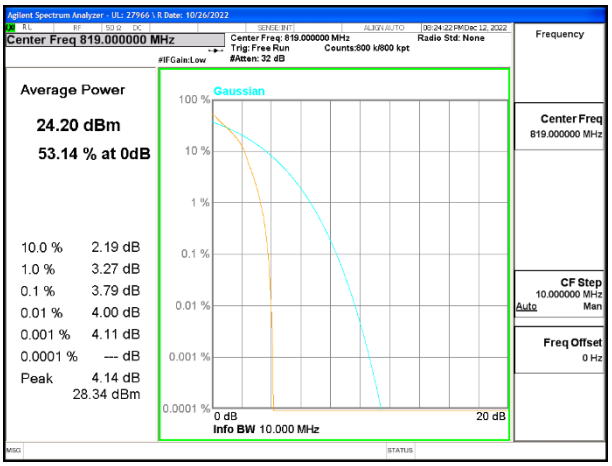
LTE B26 1.4MHz 16QAM Middle Channel



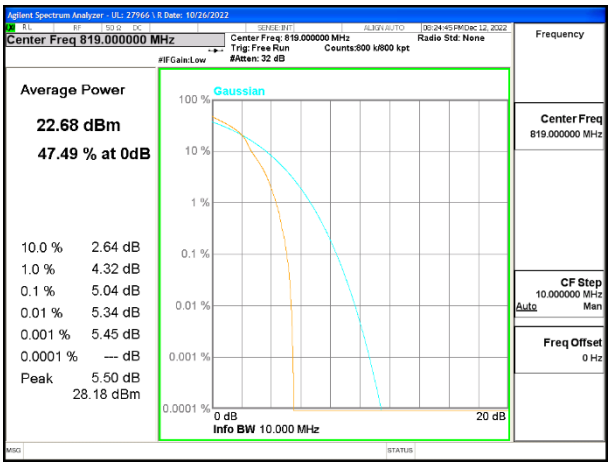
LTE B26 3MHz QPSK Middle Channel



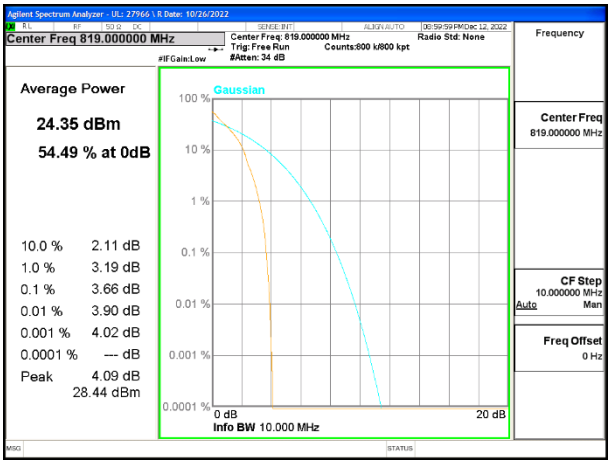
LTE B26 3MHz 16QAM Middle Channel



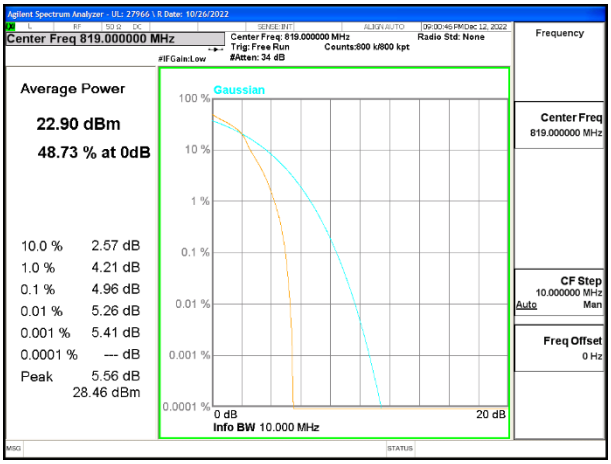
LTE B26 5MHz QPSK Middle Channel



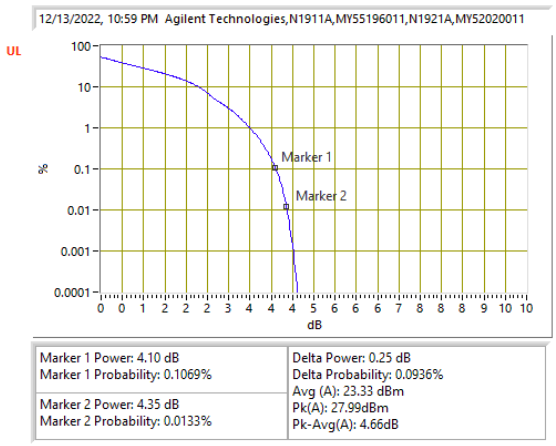
LTE B26 5MHz 16QAM Middle Channel



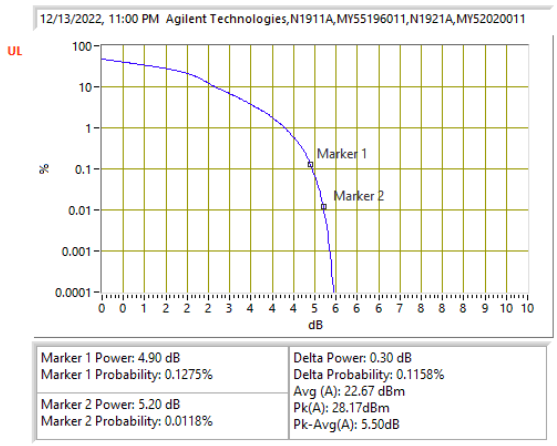
LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel

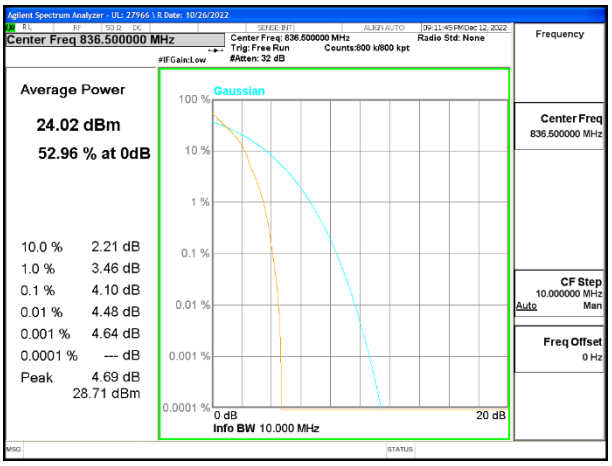


LTE B26 15MHz QPSK Middle Channel

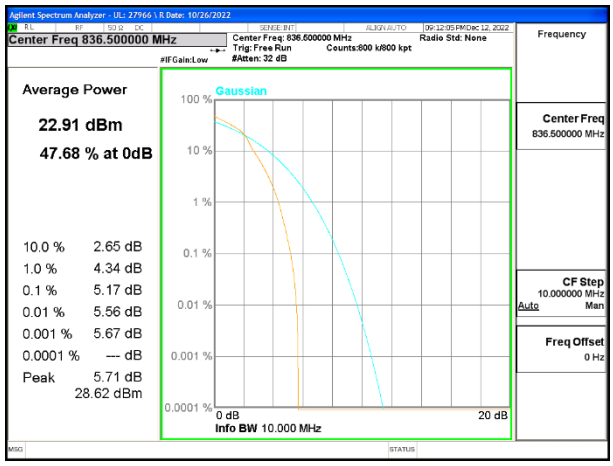


LTE B26 15MHz 16QAM Middle Channel

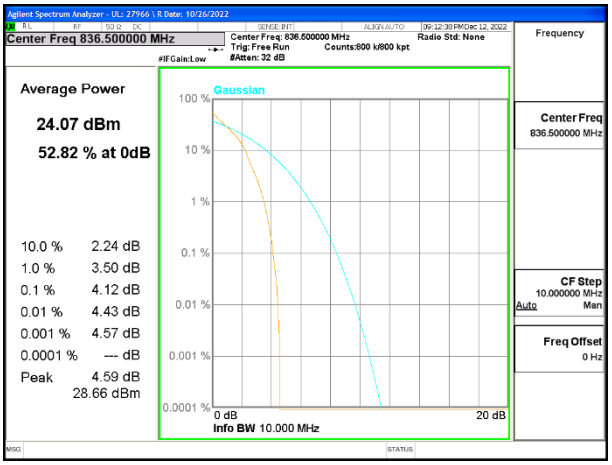
9.5.8. LTE BAND 26 (FCC PART 22)



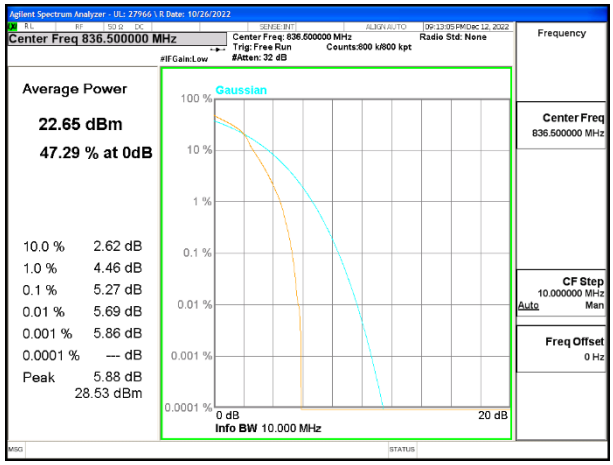
LTE B26 1.4MHz QPSK Middle Channel



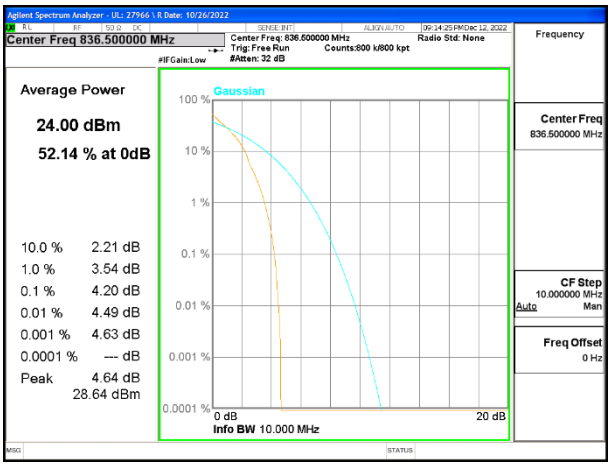
LTE B26 1.4MHz 16QAM Middle Channel



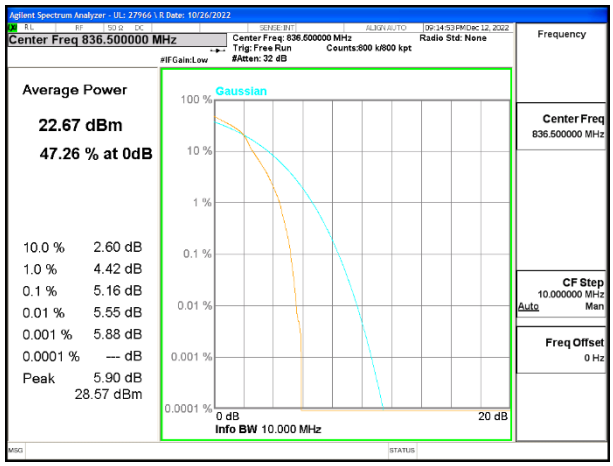
LTE B26 3MHz QPSK Middle Channel



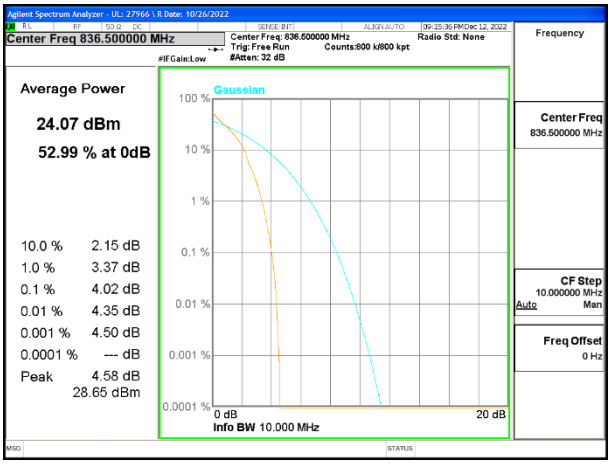
LTE B26 3MHz 16QAM Middle Channel



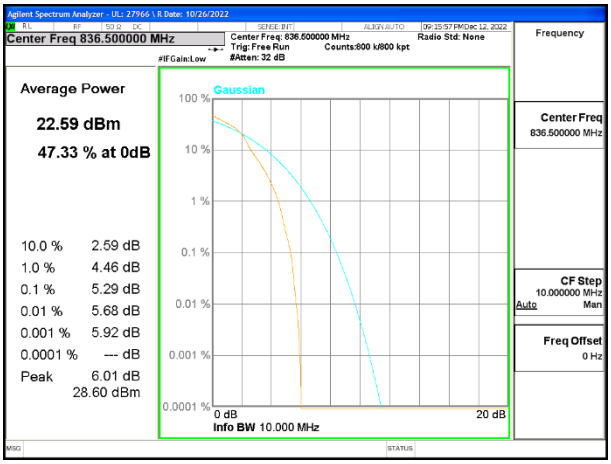
LTE B26 5MHz QPSK Middle Channel



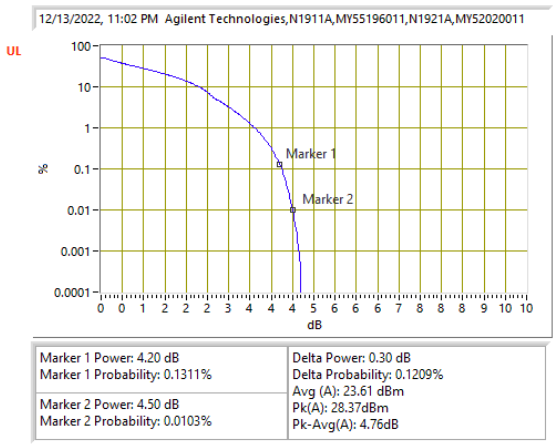
LTE B26 5MHz 16QAM Middle Channel



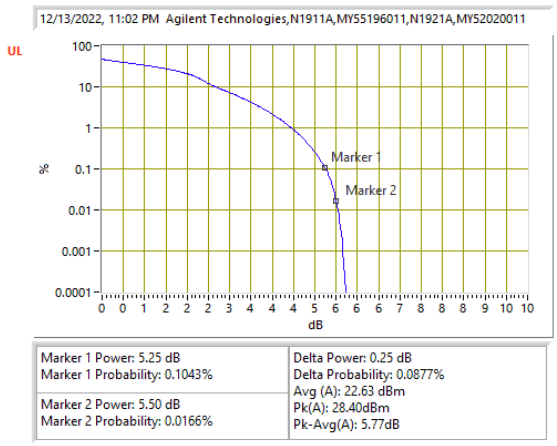
LTE B26 10MHz QPSK Middle Channel



LTE B26 10MHz 16QAM Middle Channel

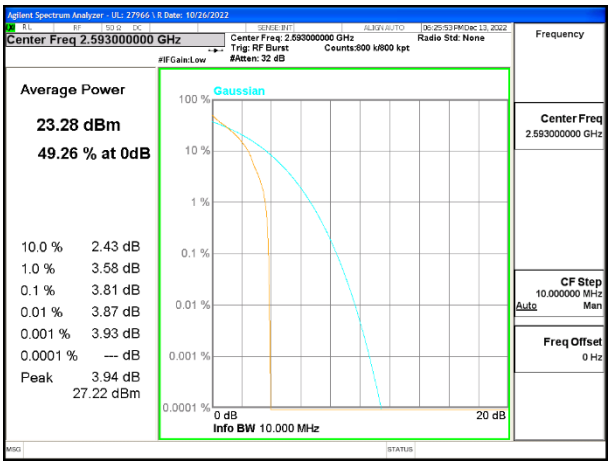


LTE B26 15MHz QPSK Middle Channel

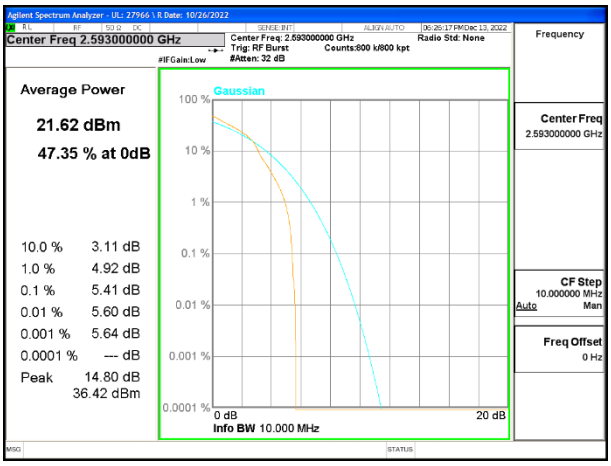


LTE B26 15MHz 16QAM Middle Channel

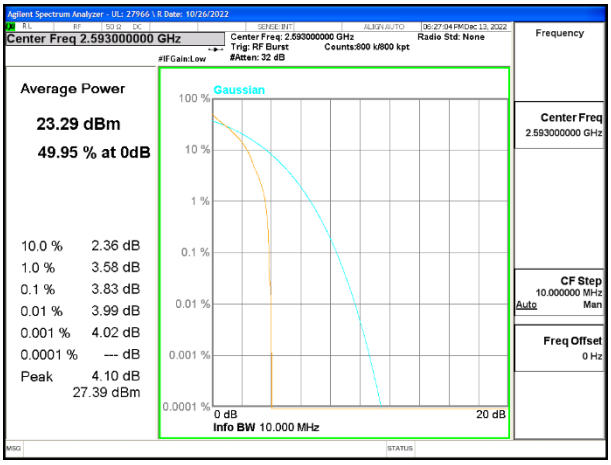
9.5.9. LTE BAND 41



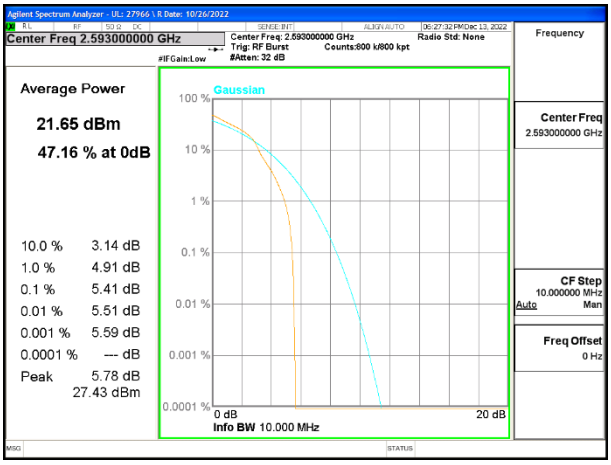
LTE B41 5MHz QPSK Middle Channel



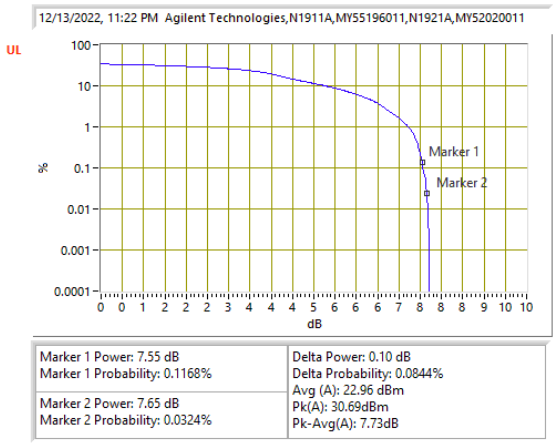
LTE B41 5MHz 16QAM Middle Channel



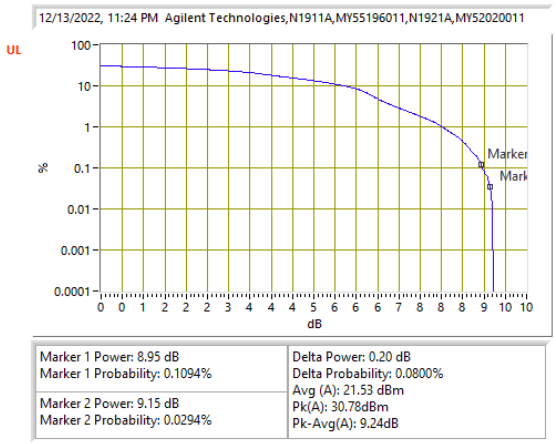
LTE B41 10MHz QPSK Middle Channel



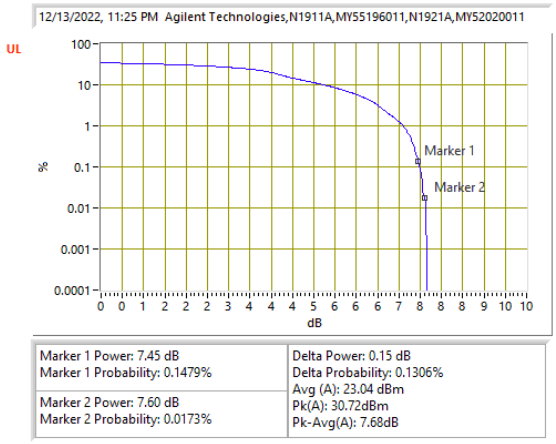
LTE B41 10MHz 16QAM Middle Channel



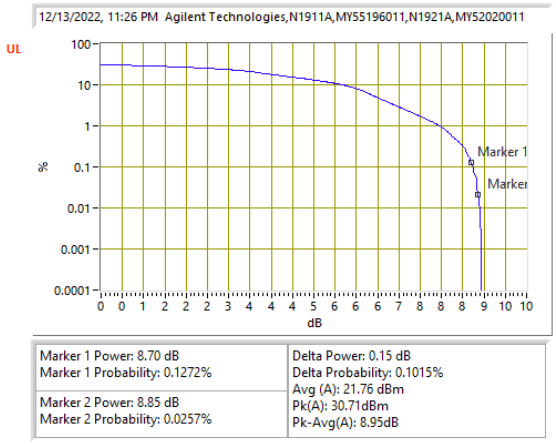
LTE B41 15MHz QPSK Middle Channel



LTE B41 15MHz 16QAM Middle Channel

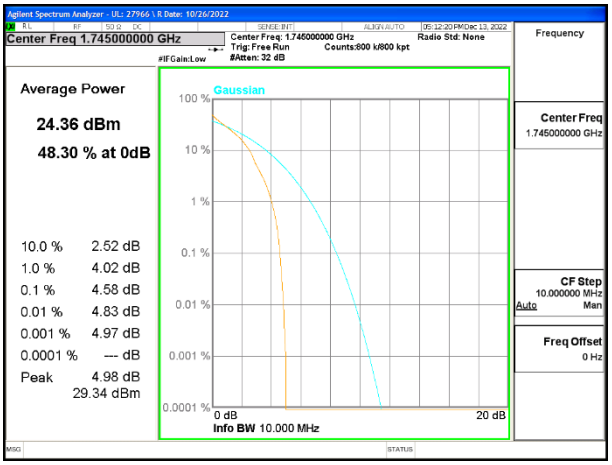


LTE B41 20MHz QPSK Middle Channel

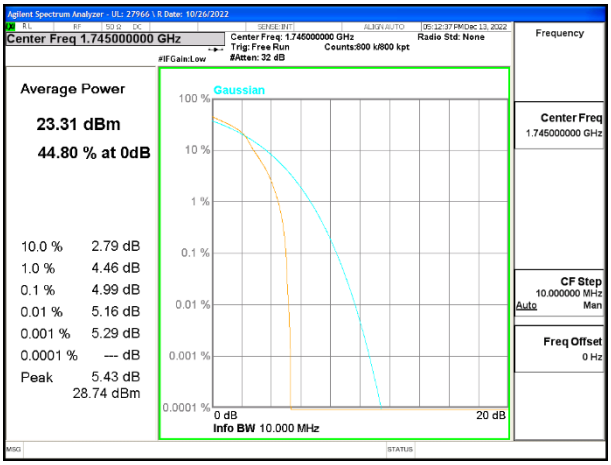


LTE B41 20MHz 16QAM Middle Channel

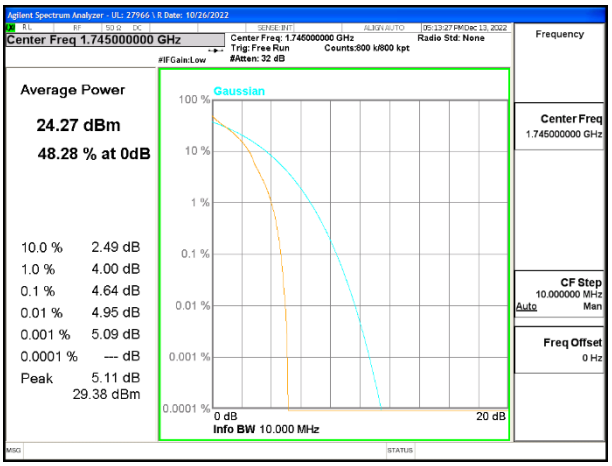
9.5.10. LTE BAND 66



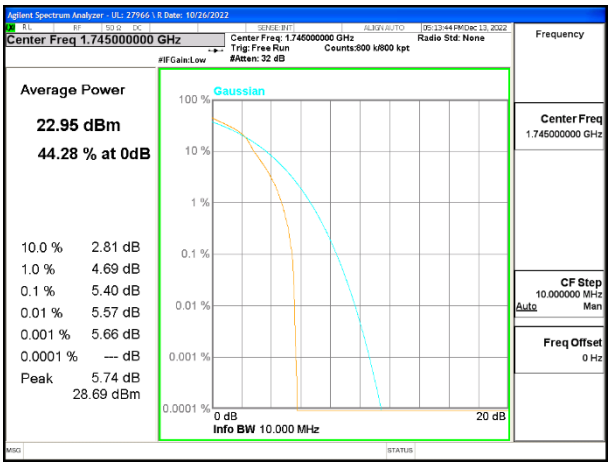
LTE B66 1.4MHz QPSK Middle Channel



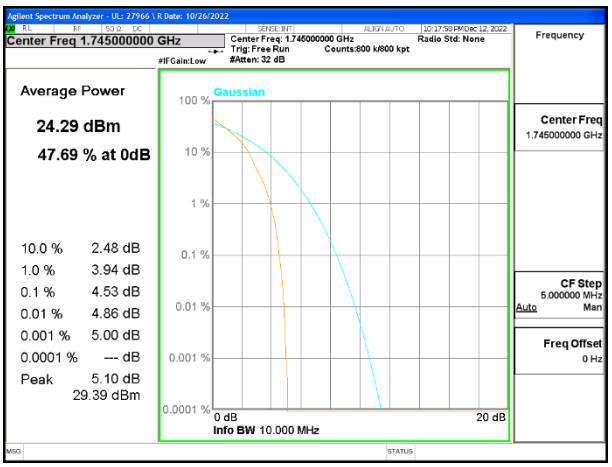
LTE B66 1.4MHz 16QAM Middle Channel



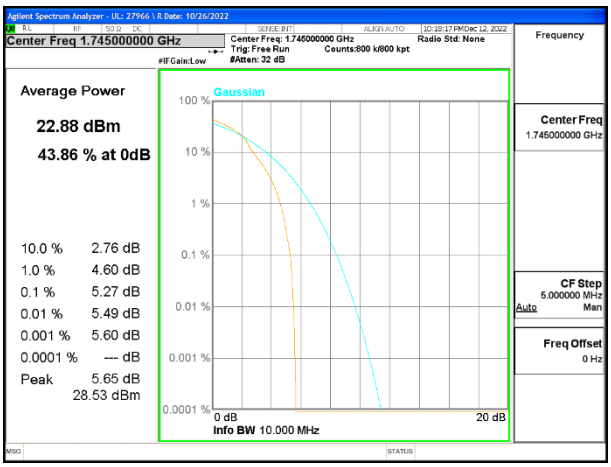
LTE B66 3MHz QPSK Middle Channel



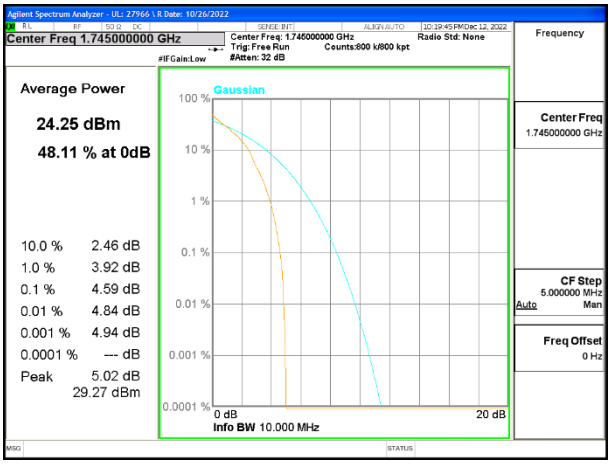
LTE B66 3MHz 16QAM Middle Channel



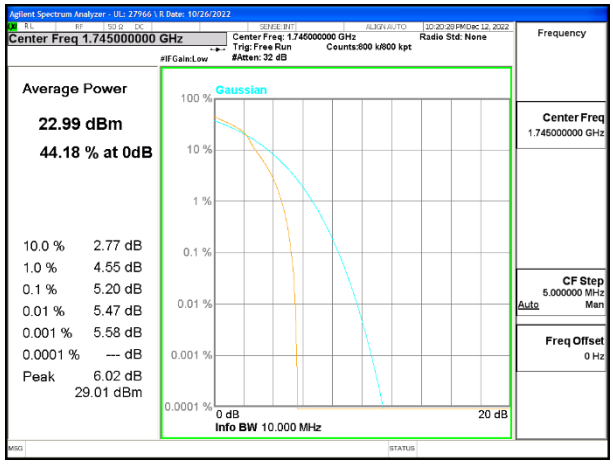
LTE B66 5MHz QPSK Middle Channel



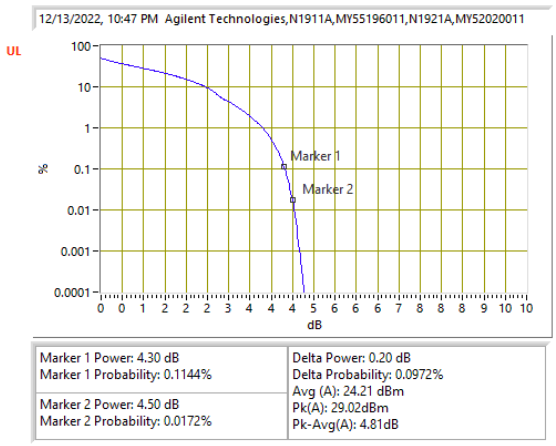
LTE B66 5MHz 16QAM Middle Channel



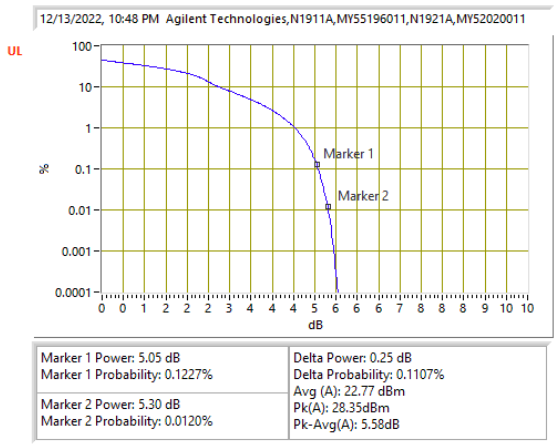
LTE B66 10MHz QPSK Middle Channel



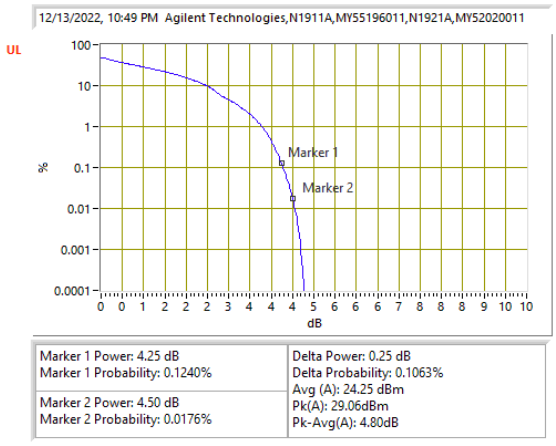
LTE B66 10MHz 16QAM Middle Channel



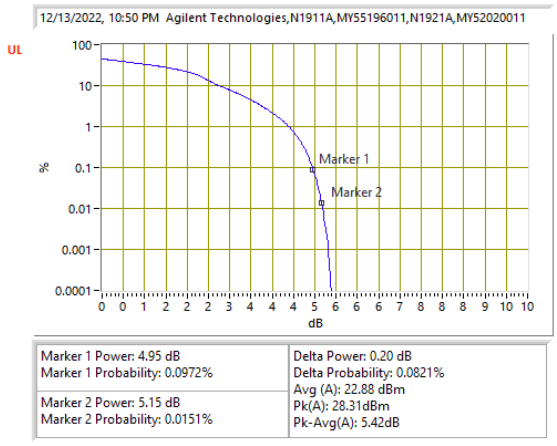
LTE B66 15MHz QPSK Middle Channel



LTE B66 15MHz 16QAM Middle Channel



LTE B66 20MHz QPSK Middle Channel



LTE B66 20MHz 16QAM Middle Channel

10. RADIATED TEST RESULTS

10.1. EFFECTIVE RADIATED POWER ERP/EIRP

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §27.50, §90.691

LIMITS

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

27.50(c) - (10) Portable stations (hand-held devices) are limited to 3 watts ERP; (LTE B12)

27.50(d) - (4) Fixed, mobile, and portable (hand-held) stations operating in the 1710-1755 MHz band and mobile and portable stations operating in the 1695-1710 MHz and 1755-1780 MHz bands are limited to 1 watt EIRP.(Band 66)

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13dB.

TEST PROCEDURE

ANSI / TIA / EIA 603-E (2016), Clause 2.2.17; PSA setting reference to 971168 D01 v03r01

For peak power measurement with a PSA:

a) Set the RBW ≥ OBW; b) Set VBW ≥ 3 × RBW; c) Set span ≥ 2 x RBW; d) Sweep time = auto couple; e) Detector = peak; f) Ensure that the number of measurement points ≥ span/RBW; g) Trace mode = max hold;

For average power measurement with a PSA:

a) Set span to at least 1.5 times the OBW; b) Set RBW = 1-5% of the OBW, not to exceed 1 MHz; c) Set VBW ≥ 3 x RBW; d) Set number of points in sweep ≥ 2 × span / RBW; e) Sweep time = auto-couple; f) Detector = RMS (power averaging); g) Use free run trigger If burst duty cycle ≥ 98; h) Use trigger to capture bursts If burst duty cycle < 98; i) Trace average at least 100 traces in power averaging (i.e., RMS) mode. j) Compute the power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function.

TEST RESULTS

GSM

Band	Mode	Channel	f(MHz)	ERP/EIRP	
				dBm	W
GSM 850	GPRS	128	824.2	29.95	0.9886
		190	836.6	28.62	0.7278
		251	848.8	28.22	0.6637
	EGPRS	128	824.2	26.01	0.3990
		190	836.6	24.76	0.2992
		251	848.8	23.95	0.2489
GSM 1900	GPRS	512	1850.2	29.77	0.9484
		661	1880.0	28.10	0.6457
		810	1909.8	29.16	0.8241
	EGPRS	512	1850.2	26.20	0.4169
		661	1880.0	26.05	0.4027
		810	1909.8	26.10	0.4074

WCDMA

Band	Mode	Channel	f(MHz)	ERP/EIRP	
				dBm	W
Band 2	REL99	9262	1852.4	21.14	0.1300
		9400	1880	20.12	0.1028
		9538	1907.6	21.94	0.1563
	HSDPA	9262	1852.4	20.67	0.1167
		9400	1880.0	20.01	0.1002
		9538	1907.6	21.03	0.1268
Band 5	REL99	4132	826.4	20.16	0.1038
		4183	836.6	21.12	0.1294
		4233	846.6	21.10	0.1288
	HSDPA	4132	826.4	19.80	0.0955
		4183	836.6	20.36	0.1086
		4233	846.6	20.61	0.1151
Band 4	REL99	1312	1712.4	20.90	0.1230
		1413	1732.6	20.65	0.1161
		1513	1752.6	21.04	0.1271
	HSDPA	1312	1712.4	20.39	0.1094
		1413	1732.6	20.18	0.1042
		1513	1752.6	20.69	0.1172

LTE Band 2

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	W
20	QPSK	1/0	1860	20.41	0.1099
		1/0	1880	20.25	0.1059
		1/0	1900	21.27	0.1340
	16QAM	1/0	1860	19.27	0.0845
		1/0	1880	19.58	0.0908
		1/0	1900	20.22	0.1052
15	QPSK	1/0	1857.5	20.35	0.1084
		1/0	1880	20.15	0.1035
		1/0	1902.5	21.36	0.1368
	16QAM	1/0	1857.5	19.24	0.0839
		1/0	1880	19.52	0.0895
		1/0	1902.5	20.09	0.1021
10	QPSK	1/0	1855	20.38	0.1091
		1/0	1880	20.06	0.1014
		1/0	1905	21.11	0.1291
	16QAM	1/0	1855	19.17	0.0826
		1/0	1880	19.03	0.0800
		1/0	1905	19.93	0.0984
5	QPSK	1/0	1852.5	20.34	0.1081
		1/0	1880	20.35	0.1084
		1/0	1907.5	21.26	0.1337
	16QAM	1/0	1852.5	19.42	0.0875
		1/0	1880	19.29	0.0849
		1/0	1907.5	20.26	0.1062
3	QPSK	1/0	1851.5	20.45	0.1109
		1/0	1880	20.40	0.1096
		1/0	1908.5	21.23	0.1327
	16QAM	1/0	1851.5	19.19	0.0830
		1/0	1880	19.21	0.0834
		1/0	1908.5	20.08	0.1019
1.4	QPSK	1/0	1850.7	20.34	0.1081
		1/0	1880	20.46	0.1112
		1/0	1909.3	21.15	0.1303
	16QAM	1/0	1850.7	19.23	0.0838
		1/0	1880	19.36	0.0863
		1/0	1909.3	20.00	0.1000

LTE Band 5

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	W
10	QPSK	1/0	829	20.22	0.1052
		1/0	836.5	21.34	0.1361
		1/0	844	21.39	0.1377
	16QAM	1/0	829	18.84	0.0766
		1/0	836.5	19.93	0.0984
		1/0	844	19.75	0.0944
5	QPSK	1/0	826.5	20.62	0.1153
		1/0	836.5	21.26	0.1337
		1/0	846.5	21.50	0.1413
	16QAM	1/0	826.5	19.07	0.0807
		1/0	836.5	19.56	0.0904
		1/0	846.5	19.65	0.0923
3	QPSK	1/0	825.5	20.23	0.1054
		1/0	836.5	21.16	0.1306
		1/0	847.5	21.20	0.1318
	16QAM	1/0	825.5	18.70	0.0741
		1/0	836.5	19.44	0.0879
		1/0	847.5	19.48	0.0887
1.4	QPSK	1/0	824.7	20.41	0.1099
		1/0	836.5	21.52	0.1419
		1/0	848.3	21.54	0.1426
	16QAM	1/0	824.7	19.08	0.0809
		1/0	836.5	20.10	0.1023
		1/0	848.3	20.27	0.1064

LTE Band 12

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	W
10	QPSK	1/0	704	18.48	0.0705
		1/0	707.5	18.84	0.0766
		1/0	711	18.84	0.0766
	16QAM	1/0	704	17.14	0.0518
		1/0	707.5	17.62	0.0578
		1/0	711	17.82	0.0605
5	QPSK	1/0	701.5	17.79	0.0601
		1/0	707.5	19.07	0.0807
		1/0	713.5	18.92	0.0780
	16QAM	1/0	701.5	16.71	0.0469
		1/0	707.5	18.05	0.0638
		1/0	713.5	18.05	0.0638
3	QPSK	1/0	700.5	18.35	0.0684
		1/0	707.5	19.12	0.0817
		1/0	714.5	19.54	0.0899
	16QAM	1/0	700.5	17.19	0.0524
		1/0	707.5	18.10	0.0646
		1/0	714.5	18.21	0.0662
1.4	QPSK	1/0	699.7	18.20	0.0661
		1/0	707.5	18.88	0.0773
		1/0	715.3	19.49	0.0889
	16QAM	1/0	699.7	17.19	0.0524
		1/0	707.5	17.75	0.0596
		1/0	715.3	18.16	0.0655

LTE Band 13

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	W
10	QPSK				
		1/0	782	18.57	0.0719
	16QAM				
		1/0	782	17.00	0.0555
5	QPSK	1/0	779.5	19.02	0.0798
		1/0	782	18.89	0.0774
		1/0	784.5	18.79	0.0757
	16QAM	1/0	779.5	18.08	0.0643
		1/0	782	17.48	0.0560
		1/0	784.5	17.57	0.0571

LTE Band 26 (FCC PART 90S)

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	W
15	QPSK	1/0	819	20.28	0.1067
	16QAM	1/0	819	18.48	0.0705
10	QPSK	1/0	819	20.55	0.1135
	16QAM	1/0	819	18.97	0.0789
5	QPSK	1/0	816.5	19.55	0.0902
		1/0	819	20.60	0.1148
		1/0	821.5	20.37	0.1089
	16QAM	1/0	816.5	18.02	0.0634
		1/0	819	19.13	0.0818
		1/0	821.5	19.04	0.0802
3	QPSK	1/0	815.5	19.35	0.0861
		1/0	819	20.34	0.1081
		1/0	822.5	20.49	0.1119
	16QAM	1/0	815.5	17.85	0.0610
		1/0	819	18.50	0.0708
		1/0	822.5	18.85	0.0767
1.4	QPSK	1/0	814.7	19.45	0.0881
		1/0	819	20.29	0.1069
		1/0	823.3	20.44	0.1107
	16QAM	1/0	814.7	17.78	0.0600
		1/0	819	18.81	0.0760
		1/0	823.3	19.24	0.0839

LTE Band 26 (FCC PART 22)

BW (MHz)	Mode	RB/RB Size	f(MHz)	ERP	
				dBm	W
15	QPSK	1/0	831.5	19.63	0.0918
		1/0	836.5	20.56	0.1138
		1/0	841.5	20.93	0.1239
	16QAM	1/0	831.5	17.94	0.0622
		1/0	836.5	19.10	0.0813
		1/0	841.5	19.11	0.0815
10	QPSK	1/0	829.0	19.62	0.0916
		1/0	836.5	20.68	0.1169
		1/0	844.0	20.91	0.1233
	16QAM	1/0	829.0	17.99	0.0630
		1/0	836.5	19.21	0.0834
		1/0	844.0	19.17	0.0826
5	QPSK	1/0	826.5	19.46	0.0883
		1/0	836.5	20.65	0.1161
		1/0	846.5	20.74	0.1186
	16QAM	1/0	826.5	17.89	0.0615
		1/0	836.5	19.14	0.0820
		1/0	846.5	18.96	0.0787
3	QPSK	1/0	825.5	19.56	0.0904
		1/0	836.5	20.36	0.1086
		1/0	847.5	20.83	0.1211
	16QAM	1/0	825.5	18.04	0.0637
		1/0	836.5	18.82	0.0762
		1/0	847.5	19.22	0.0836
1.4	QPSK	1/0	824.7	19.45	0.0881
		1/0	836.5	20.32	0.1076
		1/0	848.3	20.81	0.1205
	16QAM	1/0	824.7	18.00	0.0631
		1/0	836.5	18.86	0.0769
		1/0	848.3	19.15	0.0822

LTE Band 41

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	W
20	QPSK	1/0	2506	18.40	0.0692
		1/0	2593	17.73	0.0593
		1/0	2680	17.39	0.0548
	16QAM	1/0	2506	17.77	0.0598
		1/0	2593	16.85	0.0484
		1/0	2680	16.87	0.0486
15	QPSK	1/0	2503.5	18.31	0.0678
		1/0	2593	17.40	0.0550
		1/0	2682.5	17.71	0.0590
	16QAM	1/0	2503.5	17.46	0.0557
		1/0	2593	16.69	0.0467
		1/0	2682.5	16.65	0.0462
10	QPSK	1/0	2501	19.25	0.0841
		1/0	2593	17.82	0.0605
		1/0	2685	18.40	0.0692
	16QAM	1/0	2501	18.31	0.0678
		1/0	2593	16.60	0.0457
		1/0	2685	17.20	0.0525
5	QPSK	1/0	2498.5	19.24	0.0839
		1/0	2593	17.89	0.0615
		1/0	2687.5	18.65	0.0733
	16QAM	1/0	2498.5	18.31	0.0678
		1/0	2593	16.61	0.0458
		1/0	2687.5	17.38	0.0547

LTE Band 66

BW (MHz)	Mode	RB/RB Size	f(MHz)	EIRP	
				dBm	W
20	QPSK	1/0	1720	20.59	0.1146
		1/0	1745	20.97	0.1250
		1/0	1770	21.54	0.1426
	16QAM	1/0	1720	18.95	0.0785
		1/0	1745	19.48	0.0887
		1/0	1770	20.08	0.1019
15	QPSK	1/0	1717.5	20.40	0.1096
		1/0	1745	20.99	0.1256
		1/0	1772.5	21.35	0.1365
	16QAM	1/0	1717.5	19.01	0.0796
		1/0	1745	19.46	0.0883
		1/0	1772.5	19.95	0.0989
10	QPSK	1/0	1715	20.34	0.1081
		1/0	1745	20.61	0.1151
		1/0	1775	21.08	0.1282
	16QAM	1/0	1715	18.93	0.0782
		1/0	1745	19.09	0.0811
		1/0	1775	19.72	0.0938
5	QPSK	1/0	1712.5	20.05	0.1012
		1/0	1745	20.67	0.1167
		1/0	1777.5	21.26	0.1337
	16QAM	1/0	1712.5	18.59	0.0723
		1/0	1745	19.26	0.0843
		1/0	1777.5	19.81	0.0957
3	QPSK	1/0	1711.5	20.42	0.1102
		1/0	1745	20.56	0.1138
		1/0	1778.5	21.10	0.1288
	16QAM	1/0	1711.5	18.89	0.0774
		1/0	1745	19.22	0.0836
		1/0	1778.5	19.67	0.0927
1.4	QPSK	1/0	1710.7	20.34	0.1081
		1/0	1745	20.63	0.1156
		1/0	1779.3	21.06	0.1276
	16QAM	1/0	1710.7	18.86	0.0769
		1/0	1745	19.21	0.0834
		1/0	1779.3	19.66	0.0925

10.1.1. GSM

GPRS 850

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/3/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: GPRS 850 MHz Fundamentals

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.20	21.12	V	0.9	0.7	20.89	38.5	-17.6	
824.20	29.78	H	0.9	1.1	29.95	38.5	-8.5	
Mid Ch								
836.60	18.68	V	0.9	0.6	18.35	38.5	-20.2	
836.60	28.46	H	0.9	1.1	28.62	38.5	-9.9	
High Ch								
848.80	20.15	V	1.0	0.5	19.68	38.5	-18.8	
848.80	28.10	H	1.0	1.1	28.22	38.5	-10.3	

EGPRS 850

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/3/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: EGPRS 850 MHz Fundamentals

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.20	17.22	V	0.9	0.7	16.99	38.5	-21.5	
824.20	25.84	H	0.9	1.1	26.01	38.5	-12.5	
Mid Ch								
836.60	14.75	V	0.9	0.6	14.42	38.5	-24.1	
836.60	24.60	H	0.9	1.1	24.76	38.5	-13.7	
High Ch								
848.80	15.88	V	1.0	0.5	15.41	38.5	-23.1	
848.80	23.83	H	1.0	1.1	23.95	38.5	-14.6	

GPRS 1900

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 12/30/2022
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: GPRS 1900 MHz Fundamentals

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, Chamber K Passthrough Cables

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.20	11.04	V	1.1	9.1	19.07	33.0	-13.9	
1850.20	21.67	H	1.1	9.2	29.77	33.0	-3.2	
Mid Ch								
1880.00	12.77	V	1.2	9.2	20.69	33.0	-12.3	
1880.00	20.13	H	1.2	9.2	28.10	33.0	-4.9	
High Ch								
1909.80	17.58	V	1.1	9.2	25.61	33.0	-7.4	
1909.80	21.08	H	1.1	9.2	29.16	33.0	-3.8	

EGPRS 1900

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 12/30/2022
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: EGPRS 1900 MHz Fundamentals

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, Chamber K Passthrough Cables

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.20	7.65	V	1.1	9.1	15.68	33.0	-17.3	
1850.20	18.10	H	1.1	9.2	26.20	33.0	-6.8	
Mid Ch								
1880.00	10.81	V	1.2	9.2	18.73	33.0	-14.3	
1880.00	18.08	H	1.2	9.2	26.05	33.0	-7.0	
High Ch								
1909.80	15.45	V	1.1	9.2	23.48	33.0	-9.5	
1909.80	18.02	H	1.1	9.2	26.10	33.0	-6.9	

10.1.2. WCDMA

B2 REL99

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 12/28/2022
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: Rel99 Band 2 Fundamentals

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, Chamber K Passthrough Cables

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.40	1.48	V	1.1	9.2	9.58	33.0	-23.4	
1852.40	13.04	H	1.1	9.2	21.14	33.0	-11.9	
Mid Ch								
1880.00	2.21	V	1.2	9.2	10.17	33.0	-22.8	
1880.00	12.16	H	1.2	9.2	20.12	33.0	-12.9	
High Ch								
1907.60	-0.32	V	1.1	9.2	7.76	33.0	-25.2	
1907.60	13.86	H	1.1	9.2	21.94	33.0	-11.1	

B2 HSDPA

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 12/29/2022
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: HSDPA Band 2 Fundamentals

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, Chamber K Passthrough Cables

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.40	1.23	V	1.1	9.2	9.30	33.0	-23.7	
1852.40	12.60	H	1.1	9.2	20.67	33.0	-12.3	
Mid Ch								
1880.00	1.66	V	1.2	9.2	9.71	33.0	-23.3	
1880.00	11.96	H	1.2	9.2	20.01	33.0	-13.0	
High Ch								
1907.60	-0.73	V	1.1	9.2	7.36	33.0	-25.6	
1907.60	12.94	H	1.1	9.2	21.03	33.0	-12.0	

B5 REL99

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/3/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: Rel99 Band 5 Fundamentals

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.40	14.04	V	0.9	0.7	13.80	38.5	-24.7	
826.40	19.99	H	0.9	1.1	20.16	38.5	-18.3	
Mid Ch								
836.60	14.87	V	0.9	0.6	14.54	38.5	-24.0	
836.60	20.96	H	0.9	1.1	21.12	38.5	-17.4	
High Ch								
846.60	14.98	V	1.0	0.5	14.53	38.5	-24.0	
846.60	20.98	H	1.0	1.1	21.10	38.5	-17.4	

B5 HSDPA

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/3/2023
Test Engineer: 39005
Configuration: EUT Only
Location: Chamber K
Mode: HSDPA Band 5 Fundamentals

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.40	13.57	V	0.9	0.7	13.32	38.5	-25.2	
826.40	19.64	H	0.9	1.1	19.80	38.5	-18.7	
Mid Ch								
836.60	14.33	V	0.9	0.6	13.99	38.5	-24.5	
836.60	20.21	H	0.9	1.1	20.36	38.5	-18.1	
High Ch								
846.60	14.22	V	1.0	0.5	13.79	38.5	-24.7	
846.60	20.46	H	1.0	1.1	20.61	38.5	-17.9	

B4 REL99

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 12/29/2022
Test Engineer: 27966 PV
Configuration: EUT only
Location: Chamber K
Mode: Rel99 Band 4 Fundamentals

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, Chamber K Passthrough Cables

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.40	0.33	V	1.1	8.9	8.11	30.0	-21.9	
1712.40	13.12	H	1.1	8.9	20.90	30.0	-9.1	
Mid Ch								
1732.60	1.75	V	1.1	8.9	9.59	30.0	-20.4	
1732.60	12.81	H	1.1	8.9	20.65	30.0	-9.3	
High Ch								
1752.60	0.45	V	1.0	9.0	8.39	30.0	-21.6	
1752.60	13.10	H	1.0	9.0	21.04	30.0	-9.0	

B4 HSDPA

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 12/29/2022
Test Engineer: 39005
Configuration: EUT only
Location: Chamber K
Mode: HSDPA Band 4 Fundamentals

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, Chamber K Passthrough Cables

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1712.40	-0.94	V	1.1	8.9	6.84	30.0	-23.2	
1712.40	12.61	H	1.1	8.9	20.39	30.0	-9.6	
Mid Ch								
1732.60	0.57	V	1.1	8.9	8.41	30.0	-21.6	
1732.60	12.34	H	1.1	8.9	20.18	30.0	-9.8	
High Ch								
1752.60	-0.64	V	1.0	9.0	7.30	30.0	-22.7	
1752.60	12.75	H	1.0	9.0	20.69	30.0	-9.3	

10.1.3. LTE Band 2

20MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 2 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	5.42	V	1.1	9.1	13.41	33.0	-19.6	
1860.00	12.36	H	1.1	9.2	20.41	33.0	-12.6	
Mid Ch								
1880.00	3.90	V	1.2	9.2	11.82	33.0	-21.2	
1880.00	12.28	H	1.2	9.2	20.25	33.0	-12.8	
High Ch								
1900.00	6.65	V	1.2	9.2	14.65	33.0	-18.4	
1900.00	13.22	H	1.2	9.2	21.27	33.0	-11.7	

20MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 2 Fundamentals, 20MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1860.00	4.69	V	1.1	9.1	12.68	33.0	-20.3	
1860.00	11.22	H	1.1	9.2	19.27	33.0	-13.7	
Mid Ch								
1880.00	3.00	V	1.2	9.2	10.92	33.0	-22.1	
1880.00	11.61	H	1.2	9.2	19.58	33.0	-13.4	
High Ch								
1900.00	5.87	V	1.2	9.2	13.87	33.0	-19.1	
1900.00	12.17	H	1.2	9.2	20.22	33.0	-12.8	

15MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 2 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1857.50	5.36	V	1.1	9.1	13.37	33.0	-19.6	
1857.50	12.28	H	1.1	9.2	20.35	33.0	-12.7	
Mid Ch								
1880.00	4.28	V	1.2	9.2	12.20	33.0	-20.8	
1880.00	12.18	H	1.2	9.2	20.15	33.0	-12.9	
High Ch								
1902.50	7.30	V	1.2	9.2	15.31	33.0	-17.7	
1902.50	13.30	H	1.2	9.2	21.36	33.0	-11.6	

15MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 2 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1857.50	4.86	V	1.1	9.1	12.87	33.0	-20.1	
1857.50	11.17	H	1.1	9.2	19.24	33.0	-13.8	
Mid Ch								
1880.00	3.30	V	1.2	9.2	11.22	33.0	-21.8	
1880.00	11.55	H	1.2	9.2	19.52	33.0	-13.5	
High Ch								
1902.50	6.47	V	1.2	9.2	14.48	33.0	-18.5	
1902.50	12.03	H	1.2	9.2	20.09	33.0	-12.9	

10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 2 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1855.00	5.28	V	1.1	9.1	13.29	33.0	-19.7	
1855.00	12.30	H	1.1	9.2	20.38	33.0	-12.6	
Mid Ch								
1880.00	4.28	V	1.2	9.2	12.20	33.0	-20.8	
1880.00	12.09	H	1.2	9.2	20.06	33.0	-12.9	
High Ch								
1905.00	6.82	V	1.2	9.2	14.83	33.0	-18.2	
1905.00	13.05	H	1.2	9.2	21.11	33.0	-11.9	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 2 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1855.00	4.35	V	1.1	9.1	12.36	33.0	-20.6	
1855.00	11.09	H	1.1	9.2	19.17	33.0	-13.8	
Mid Ch								
1880.00	3.38	V	1.2	9.2	11.30	33.0	-21.7	
1880.00	11.06	H	1.2	9.2	19.03	33.0	-14.0	
High Ch								
1905.00	5.96	V	1.2	9.2	13.97	33.0	-19.0	
1905.00	11.87	H	1.2	9.2	19.93	33.0	-13.1	

5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 2 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	5.28	V	1.1	9.1	13.31	33.0	-19.7	
1852.50	12.25	H	1.1	9.2	20.34	33.0	-12.7	
Mid Ch								
1880.00	4.16	V	1.2	9.2	12.08	33.0	-20.9	
1880.00	12.38	H	1.2	9.2	20.35	33.0	-12.7	
High Ch								
1907.50	6.77	V	1.1	9.2	14.79	33.0	-18.2	
1907.50	13.19	H	1.1	9.2	21.26	33.0	-11.7	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 2 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1852.50	4.56	V	1.1	9.1	12.59	33.0	-20.4	
1852.50	11.33	H	1.1	9.2	19.42	33.0	-13.6	
Mid Ch								
1880.00	3.31	V	1.2	9.2	11.23	33.0	-21.8	
1880.00	11.32	H	1.2	9.2	19.29	33.0	-13.7	
High Ch								
1907.50	5.95	V	1.1	9.2	13.97	33.0	-19.0	
1907.50	12.19	H	1.1	9.2	20.26	33.0	-12.7	

3MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 2 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	5.20	V	1.1	9.1	13.23	33.0	-19.8	
1851.50	12.36	H	1.1	9.2	20.45	33.0	-12.5	
Mid Ch								
1880.00	4.01	V	1.2	9.2	11.93	33.0	-21.1	
1880.00	12.43	H	1.2	9.2	20.40	33.0	-12.6	
High Ch								
1908.50	6.93	V	1.1	9.2	14.96	33.0	-18.0	
1908.50	13.15	H	1.1	9.2	21.23	33.0	-11.8	

3MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 2 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1851.50	4.46	V	1.1	9.1	12.49	33.0	-20.5	
1851.50	11.10	H	1.1	9.2	19.19	33.0	-13.8	
Mid Ch								
1880.00	3.01	V	1.2	9.2	10.93	33.0	-22.1	
1880.00	11.24	H	1.2	9.2	19.21	33.0	-13.8	
High Ch								
1908.50	5.51	V	1.1	9.2	13.54	33.0	-19.5	
1908.50	12.00	H	1.1	9.2	20.08	33.0	-12.9	

1.4MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 2 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.70	5.13	V	1.1	9.1	13.16	33.0	-19.8	
1850.70	12.24	H	1.1	9.2	20.34	33.0	-12.7	
Mid Ch								
1880.00	4.36	V	1.2	9.2	12.28	33.0	-20.7	
1880.00	12.49	H	1.2	9.2	20.46	33.0	-12.5	
High Ch								
1909.30	6.52	V	1.1	9.2	14.55	33.0	-18.5	
1909.30	13.07	H	1.1	9.2	21.15	33.0	-11.9	

1.4MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 2 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Horn 223083, and Chamber K SMA Cables
Substitution: PRE0181256, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1850.70	4.22	V	1.1	9.1	12.25	33.0	-20.8	
1850.70	11.13	H	1.1	9.2	19.23	33.0	-13.8	
Mid Ch								
1880.00	3.54	V	1.2	9.2	11.46	33.0	-21.5	
1880.00	11.39	H	1.2	9.2	19.36	33.0	-13.6	
High Ch								
1909.30	5.99	V	1.1	9.2	14.02	33.0	-19.0	
1909.30	11.92	H	1.1	9.2	20.00	33.0	-13.0	

10.1.4. LTE Band 5

10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	14.33	V	0.9	0.7	14.07	38.5	-24.4	
829.00	20.05	H	0.9	1.1	20.22	38.5	-18.3	
Mid Ch								
836.50	14.51	V	0.9	0.6	14.18	38.5	-24.3	
836.50	21.18	H	0.9	1.1	21.34	38.5	-17.2	
High Ch								
844.00	14.48	V	1.0	0.5	14.06	38.5	-24.4	
844.00	21.26	H	1.0	1.1	21.39	38.5	-17.1	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 5 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
829.00	12.61	V	0.9	0.7	12.35	38.5	-26.2	
829.00	18.67	H	0.9	1.1	18.84	38.5	-19.7	
Mid Ch								
836.50	12.48	V	0.9	0.6	12.15	38.5	-26.4	
836.50	19.77	H	0.9	1.1	19.93	38.5	-18.6	
High Ch								
844.00	12.81	V	1.0	0.5	12.39	38.5	-26.1	
844.00	19.62	H	1.0	1.1	19.75	38.5	-18.7	

5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 5 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	14.52	V	0.9	0.7	14.28	38.5	-24.2	
826.50	20.45	H	0.9	1.1	20.62	38.5	-17.9	
Mid Ch								
836.50	15.17	V	0.9	0.6	14.84	38.5	-23.7	
836.50	21.10	H	0.9	1.1	21.26	38.5	-17.2	
High Ch								
846.50	14.72	V	1.0	0.5	14.27	38.5	-24.2	
846.50	21.38	H	1.0	1.1	21.50	38.5	-17.0	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 5 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
826.50	12.95	V	0.9	0.7	12.71	38.5	-25.8	
826.50	18.90	H	0.9	1.1	19.07	38.5	-19.4	
Mid Ch								
836.50	13.40	V	0.9	0.6	13.07	38.5	-25.4	
836.50	19.40	H	0.9	1.1	19.56	38.5	-18.9	
High Ch								
846.50	12.85	V	1.0	0.5	12.40	38.5	-26.1	
846.50	19.53	H	1.0	1.1	19.65	38.5	-18.8	

3MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 5 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	14.10	V	0.9	0.7	13.87	38.5	-24.6	
825.50	20.06	H	0.9	1.1	20.23	38.5	-18.3	
Mid Ch								
836.50	14.64	V	0.9	0.6	14.31	38.5	-24.2	
836.50	21.00	H	0.9	1.1	21.16	38.5	-17.3	
High Ch								
847.50	14.20	V	1.0	0.5	13.74	38.5	-24.8	
847.50	21.08	H	1.0	1.1	21.20	38.5	-17.3	

3MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 5 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
825.50	12.46	V	0.9	0.7	12.23	38.5	-26.3	
825.50	18.53	H	0.9	1.1	18.70	38.5	-19.8	
Mid Ch								
836.50	12.81	V	0.9	0.6	12.48	38.5	-26.0	
836.50	19.28	H	0.9	1.1	19.44	38.5	-19.1	
High Ch								
847.50	12.12	V	1.0	0.5	11.66	38.5	-26.8	
847.50	19.36	H	1.0	1.1	19.48	38.5	-19.0	

1.4MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	14.09	V	0.9	0.7	13.86	38.5	-24.6	
824.70	20.24	H	0.9	1.1	20.41	38.5	-18.1	
Mid Ch								
836.50	14.60	V	0.9	0.6	14.27	38.5	-24.2	
836.50	21.36	H	0.9	1.1	21.52	38.5	-17.0	
High Ch								
848.30	14.27	V	1.0	0.5	13.80	38.5	-24.7	
848.30	21.42	H	1.0	1.1	21.54	38.5	-17.0	

1.4MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 5 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
824.70	12.70	V	0.9	0.7	12.47	38.5	-26.0	
824.70	18.91	H	0.9	1.1	19.08	38.5	-19.4	
Mid Ch								
836.50	13.02	V	0.9	0.6	12.69	38.5	-25.8	
836.50	19.94	H	0.9	1.1	20.10	38.5	-18.4	
High Ch								
848.30	13.00	V	1.0	0.5	12.53	38.5	-26.0	
848.30	20.15	H	1.0	1.1	20.27	38.5	-18.2	

10.1.5. LTE Band 12

10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/4/2022
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 12 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
704.00	9.60	V	0.9	1.6	10.29	34.8	-24.5	
704.00	18.06	H	0.9	1.3	18.48	34.8	-16.3	
Mid Ch								
707.50	9.88	V	0.9	1.5	10.54	34.8	-24.3	
707.50	18.42	H	0.9	1.3	18.84	34.8	-16.0	
High Ch								
711.00	9.42	V	0.9	1.5	10.05	34.8	-24.8	
711.00	18.42	H	0.9	1.3	18.84	34.8	-16.0	

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/4/2022
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 12 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
704.00	8.88	V	0.9	1.6	9.57	34.8	-25.2	
704.00	16.72	H	0.9	1.3	17.14	34.8	-17.7	
Mid Ch								
707.50	8.34	V	0.9	1.5	9.00	34.8	-25.8	
707.50	17.20	H	0.9	1.3	17.62	34.8	-17.2	
High Ch								
711.00	8.12	V	0.9	1.5	8.75	34.8	-26.1	
711.00	17.40	H	0.9	1.3	17.82	34.8	-17.0	

5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/4/2022
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 12 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
701.50	9.72	V	0.9	1.6	10.44	34.8	-24.4	
701.50	17.36	H	0.9	1.3	17.79	34.8	-17.0	
Mid Ch								
707.50	10.06	V	0.9	1.5	10.72	34.8	-24.1	
707.50	18.65	H	0.9	1.3	19.07	34.8	-15.7	
High Ch								
713.50	8.02	V	0.9	1.5	8.62	34.8	-26.2	
713.50	18.51	H	0.9	1.3	18.92	34.8	-15.9	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/4/2022
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 12 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
701.50	9.06	V	0.9	1.6	9.78	34.8	-25.0	
701.50	16.28	H	0.9	1.3	16.71	34.8	-18.1	
Mid Ch								
707.50	8.32	V	0.9	1.5	8.98	34.8	-25.8	
707.50	17.63	H	0.9	1.3	18.05	34.8	-16.8	
High Ch								
713.50	7.22	V	0.9	1.5	7.82	34.8	-27.0	
713.50	17.64	H	0.9	1.3	18.05	34.8	-16.7	

3MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/4/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 12 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
700.50	10.16	V	0.9	1.6	10.88	34.8	-23.9	
700.50	17.92	H	0.9	1.3	18.35	34.8	-16.5	
Mid Ch								
707.50	11.00	V	0.9	1.5	11.66	34.8	-23.1	
707.50	18.70	H	0.9	1.3	19.12	34.8	-15.7	
High Ch								
714.50	10.94	V	0.9	1.5	11.54	34.8	-23.3	
714.50	19.13	H	0.9	1.3	19.54	34.8	-15.3	

3MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/4/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 12 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
700.50	8.79	V	0.9	1.6	9.51	34.8	-25.3	
700.50	16.76	H	0.9	1.3	17.19	34.8	-17.6	
Mid Ch								
707.50	9.51	V	0.9	1.5	10.17	34.8	-24.6	
707.50	17.68	H	0.9	1.3	18.10	34.8	-16.7	
High Ch								
714.50	9.54	V	0.9	1.5	10.14	34.8	-24.7	
714.50	17.80	H	0.9	1.3	18.21	34.8	-16.6	

1.4MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/4/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 12 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
699.70	10.80	V	0.9	1.6	11.53	34.8	-23.3	
699.70	17.77	H	0.9	1.3	18.20	34.8	-16.6	
Mid Ch								
707.50	10.31	V	0.9	1.5	10.97	34.8	-23.8	
707.50	18.46	H	0.9	1.3	18.88	34.8	-15.9	
High Ch								
715.30	10.31	V	0.9	1.5	10.90	34.8	-23.9	
715.30	19.08	H	0.9	1.3	19.49	34.8	-15.3	

1.4MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/4/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 12 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
699.70	9.49	V	0.9	1.6	10.22	34.8	-24.6	
699.70	16.76	H	0.9	1.3	17.19	34.8	-17.6	
Mid Ch								
707.50	9.36	V	0.9	1.5	10.02	34.8	-24.8	
707.50	17.33	H	0.9	1.3	17.75	34.8	-17.1	
High Ch								
715.30	9.61	V	0.9	1.5	10.20	34.8	-24.6	
715.30	17.75	H	0.9	1.3	18.16	34.8	-16.6	

10.1.6. LTE Band 13

10MHz QPSK

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 39005 RA
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 13 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
Mid Ch								
782.00	11.43	V	0.9	0.9	11.46	34.8	-23.3	
782.00	18.31	H	0.9	1.2	18.57	34.8	-16.2	
High Ch								

10MHz 16QAM

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 39005 RA
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 13 Fundamentals, 10MHz Bandwidth

Test Equpment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
Mid Ch								
782.00	9.74	V	0.9	0.9	9.77	34.8	-25.0	
782.00	16.74	H	0.9	1.2	17.00	34.8	-17.8	
High Ch								

5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 39005 RA
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 13 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
779.50	11.43	V	0.9	1.0	11.48	34.8	-23.3	
779.50	18.75	H	0.9	1.2	19.02	34.8	-15.8	
Mid Ch								
782.00	11.63	V	0.9	0.9	11.66	34.8	-23.1	
782.00	18.63	H	0.9	1.2	18.89	34.8	-15.9	
High Ch								
784.50	11.41	V	0.9	0.9	11.42	34.8	-23.4	
784.50	18.54	H	0.9	1.2	18.79	34.8	-16.0	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/5/2023
Test Engineer: 39005 RA
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 13 Fundamentals, 5MHz Bandwidth

Test Equpment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
779.50	10.15	V	0.9	1.0	10.20	34.8	-24.6	
779.50	17.81	H	0.9	1.2	18.08	34.8	-16.7	
Mid Ch								
782.00	9.98	V	0.9	0.9	10.01	34.8	-24.8	
782.00	17.22	H	0.9	1.2	17.48	34.8	-17.3	
High Ch								
784.50	9.97	V	0.9	0.9	9.98	34.8	-24.8	
784.50	17.32	H	0.9	1.2	17.57	34.8	-17.2	

10.1.7. LTE Band 26 (FCC PART 90S)

15MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 26 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
Mid Ch								
821.50	13.18	V	0.9	0.6	12.88	38.5	-25.6	90S
821.50	20.08	H	0.9	1.1	20.28	38.5	-18.2	90S
High Ch								

15MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 26 Fundamentals, 15MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
Mid Ch								
821.50	11.38	V	0.9	0.6	11.08	38.5	-27.4	90S
821.50	18.28	H	0.9	1.1	18.48	38.5	-20.0	90S
High Ch								

10MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 26 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
Mid Ch								
819.00	13.26	V	0.9	0.6	12.96	38.5	-25.5	90S
819.00	20.35	H	0.9	1.1	20.55	38.5	-18.0	90S
High Ch								

10MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 26 Fundamentals, 10MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
Mid Ch								
819.00	11.51	V	0.9	0.6	11.21	38.5	-27.3	90S
819.00	18.77	H	0.9	1.1	18.97	38.5	-19.5	90S
High Ch								

5MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 26 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
816.50	12.45	V	0.9	0.7	12.25	38.5	-26.3	90S
816.50	19.35	H	0.9	1.1	19.55	38.5	-19.0	90S
Mid Ch								
819.00	13.35	V	0.9	0.6	13.05	38.5	-25.5	
819.00	20.40	H	0.9	1.1	20.60	38.5	-17.9	
High Ch								
821.50	13.05	V	1.0	0.5	12.55	38.5	-26.0	
821.50	20.27	H	1.0	1.1	20.37	38.5	-18.1	

5MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 26 Fundamentals, 5MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
816.50	11.03	V	0.9	0.7	10.83	38.5	-27.7	90S
816.50	17.82	H	0.9	1.1	18.02	38.5	-20.5	90S
Mid Ch								
819.00	11.88	V	0.9	0.6	11.58	38.5	-26.9	
819.00	18.93	H	0.9	1.1	19.13	38.5	-19.4	
High Ch								
821.50	11.65	V	1.0	0.5	11.15	38.5	-27.4	
821.50	18.94	H	1.0	1.1	19.04	38.5	-19.5	

3MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 26 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
815.50	12.25	V	0.9	0.7	12.05	38.5	-26.5	90S
815.50	19.15	H	0.9	1.1	19.35	38.5	-19.2	90S
Mid Ch								
819.00	13.44	V	0.9	0.6	13.14	38.5	-25.4	
819.00	20.14	H	0.9	1.1	20.34	38.5	-18.2	
High Ch								
822.50	13.42	V	1.0	0.5	12.92	38.5	-25.6	
822.50	20.39	H	1.0	1.1	20.49	38.5	-18.0	

3MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 26 Fundamentals, 3MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
815.50	11.22	V	0.9	0.7	11.02	38.5	-27.5	90S
815.50	17.65	H	0.9	1.1	17.85	38.5	-20.7	90S
Mid Ch								
819.00	11.80	V	0.9	0.6	11.50	38.5	-27.0	
819.00	18.30	H	0.9	1.1	18.50	38.5	-20.0	
High Ch								
822.50	11.86	V	1.0	0.5	11.36	38.5	-27.1	
822.50	18.75	H	1.0	1.1	18.85	38.5	-19.7	

1.4MHz QPSK

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_QPSK Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
814.70	12.58	V	0.9	0.7	12.38	38.5	-26.1	90S
814.70	19.25	H	0.9	1.1	19.45	38.5	-19.1	90S
Mid Ch								
819.00	13.46	V	0.9	0.6	13.16	38.5	-25.3	
819.00	20.09	H	0.9	1.1	20.29	38.5	-18.2	
High Ch								
823.30	13.49	V	1.0	0.5	12.99	38.5	-25.5	
823.30	20.34	H	1.0	1.1	20.44	38.5	-18.1	

1.4MHz 16QAM

UL Verification Services, Inc.
High Frequency Substitution Measurement

Company: Samsung
Project #: 14586572
Date: 1/10/2023
Test Engineer: 27966 PV
Configuration: EUT Only
Location: Chamber K
Mode: LTE_16QAM Band 26 Fundamentals, 1.4MHz Bandwidth

Test Equipment:
Receiving: Hybrid 80813, and Chamber K SMA Cables
Substitution: Dipole T273 89477, N-Type Coax Cable PRE0195604

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
814.70	11.35	V	0.9	0.7	11.15	38.5	-27.4	90S
814.70	17.58	H	0.9	1.1	17.78	38.5	-20.7	90S
Mid Ch								
819.00	12.27	V	0.9	0.6	11.97	38.5	-26.5	
819.00	18.61	H	0.9	1.1	18.81	38.5	-19.7	
High Ch								
823.30	12.15	V	1.0	0.5	11.65	38.5	-26.9	
823.30	19.14	H	1.0	1.1	19.24	38.5	-19.3	