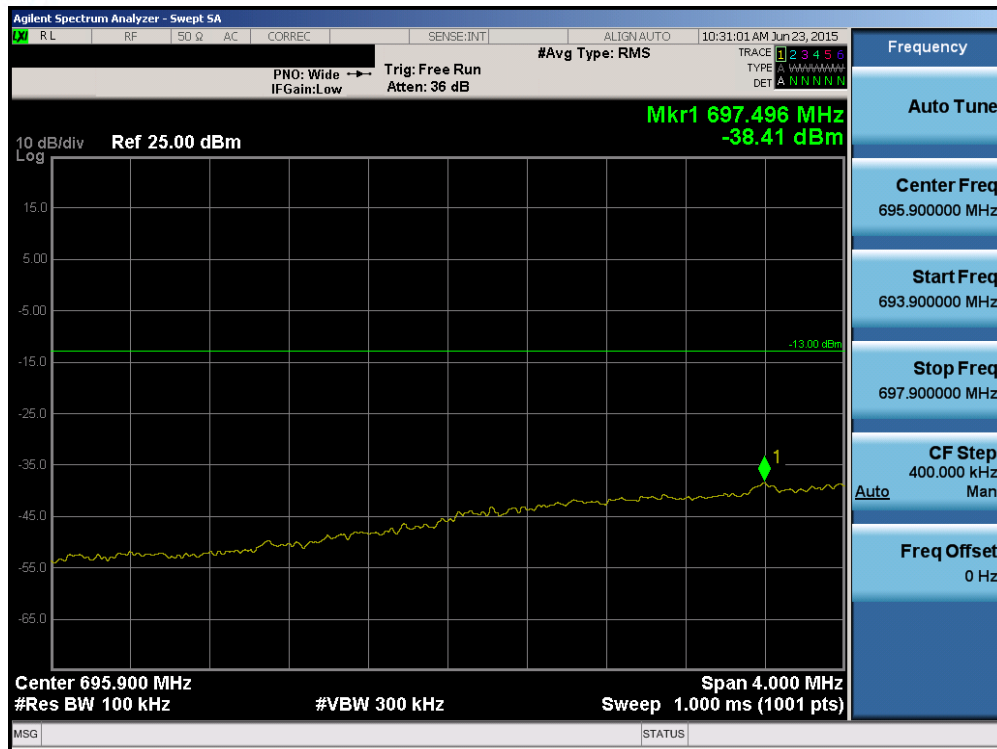
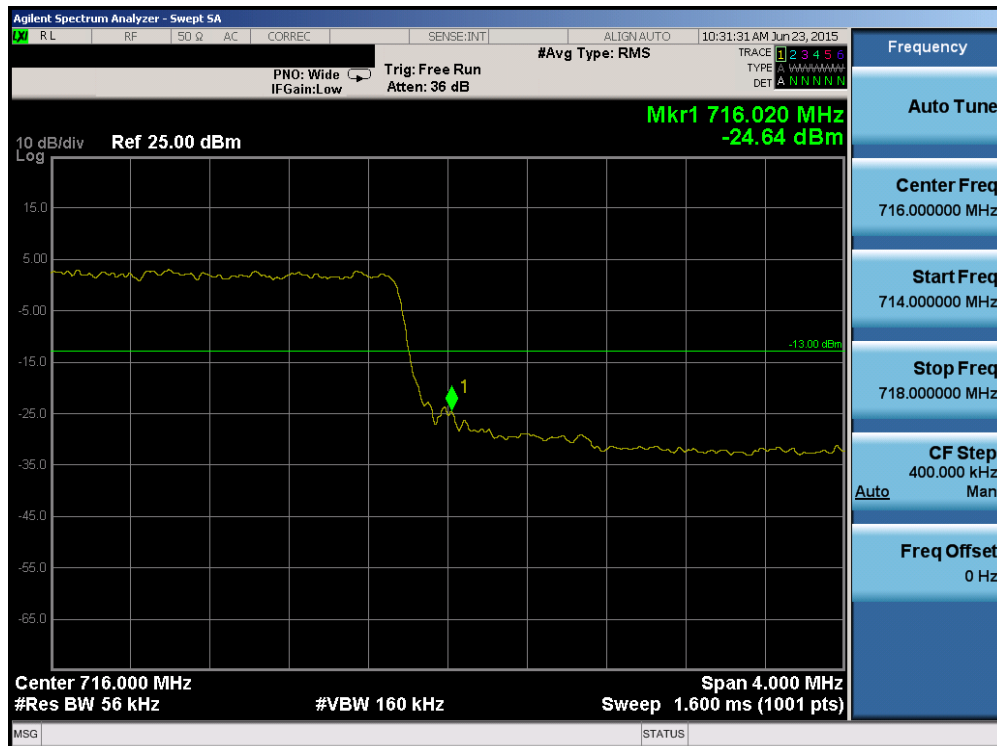




Plot 6-72. Lower Extended Band Edge Plot (Band 17 – 5.0MHz QPSK – RB Size 25)

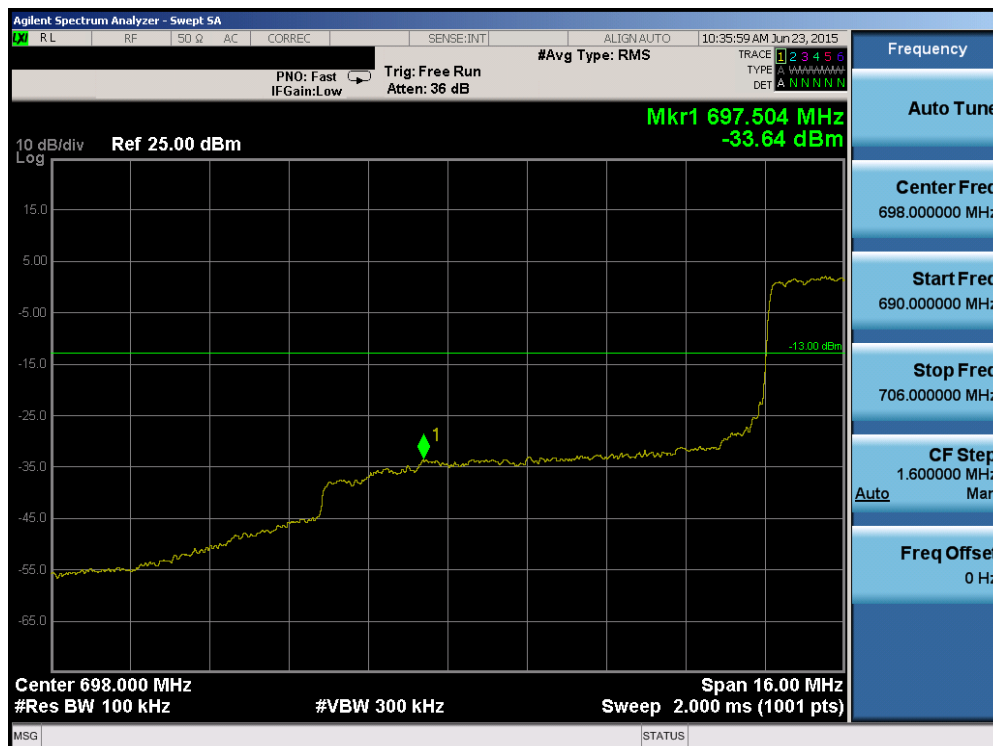


Plot 6-73. Upper Band Edge Plot (Band 17 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 51 of 109



Plot 6-74. Upper Extended Band Edge Plot (Band 17 – 5.0MHz QPSK – RB Size 25)

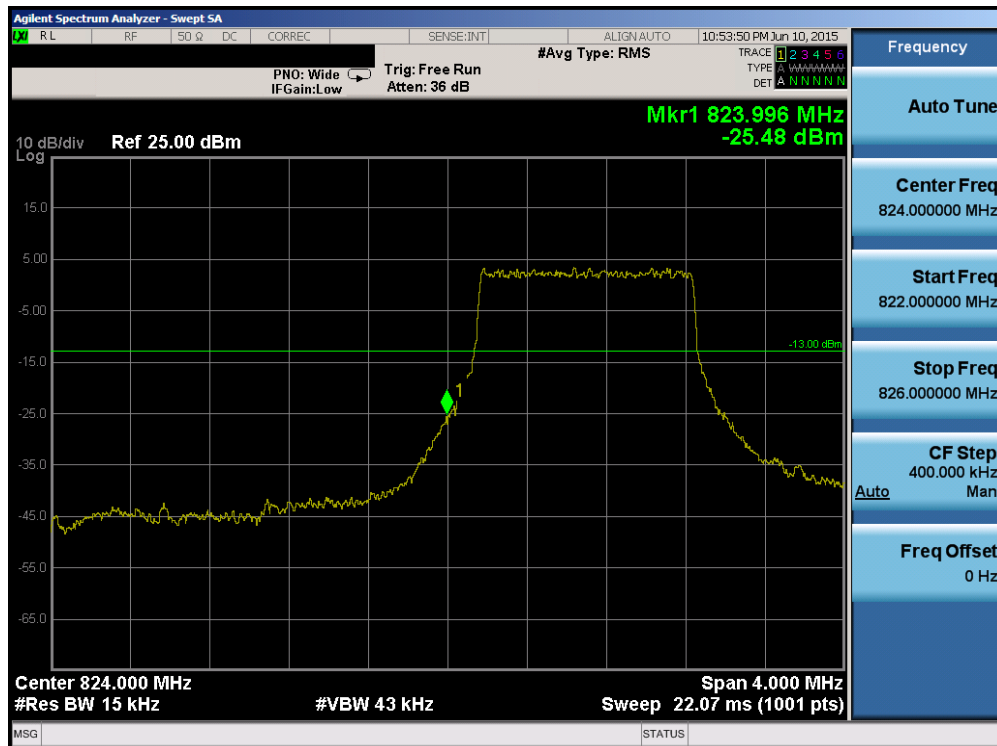


Plot 6-75. Lower Band Edge Plot (Band 17 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 52 of 109



Plot 6-76. Upper Band Edge Plot (Band 17 – 10.0MHz QPSK – RB Size 50)

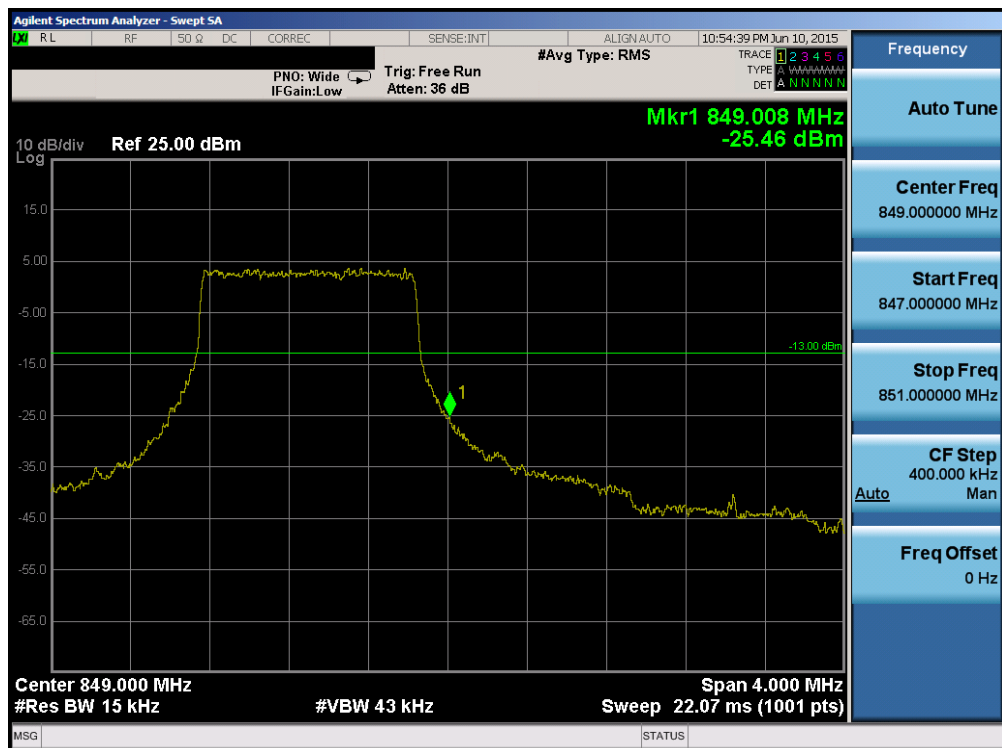


Plot 6-77. Lower Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 6-78. Lower Extended Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

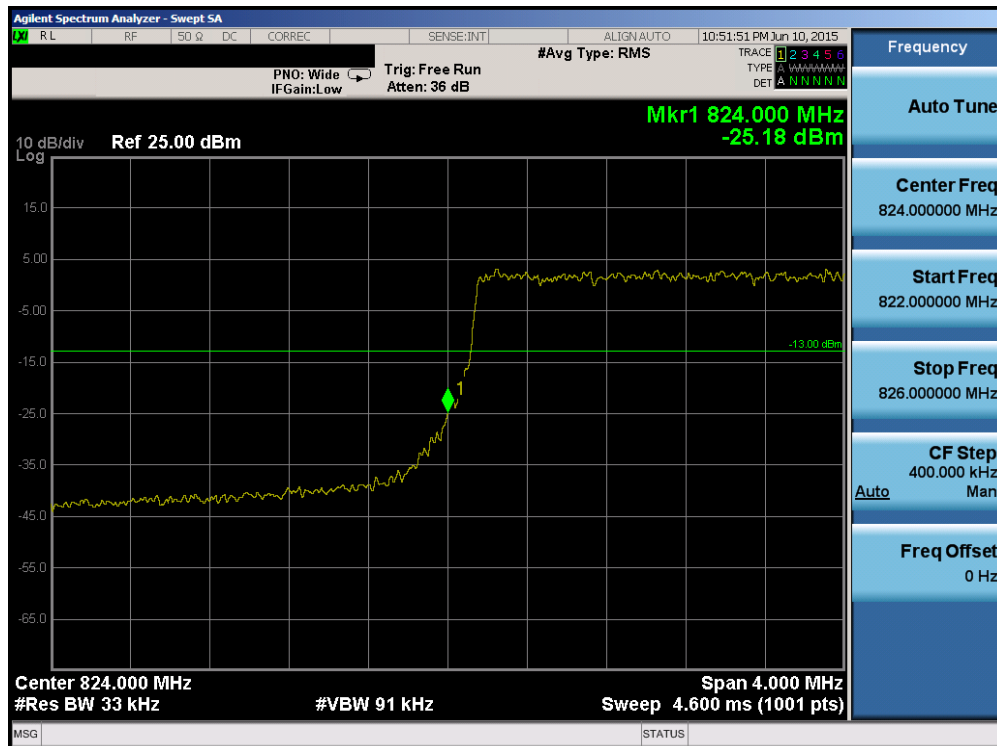


Plot 6-79. Upper Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 54 of 109

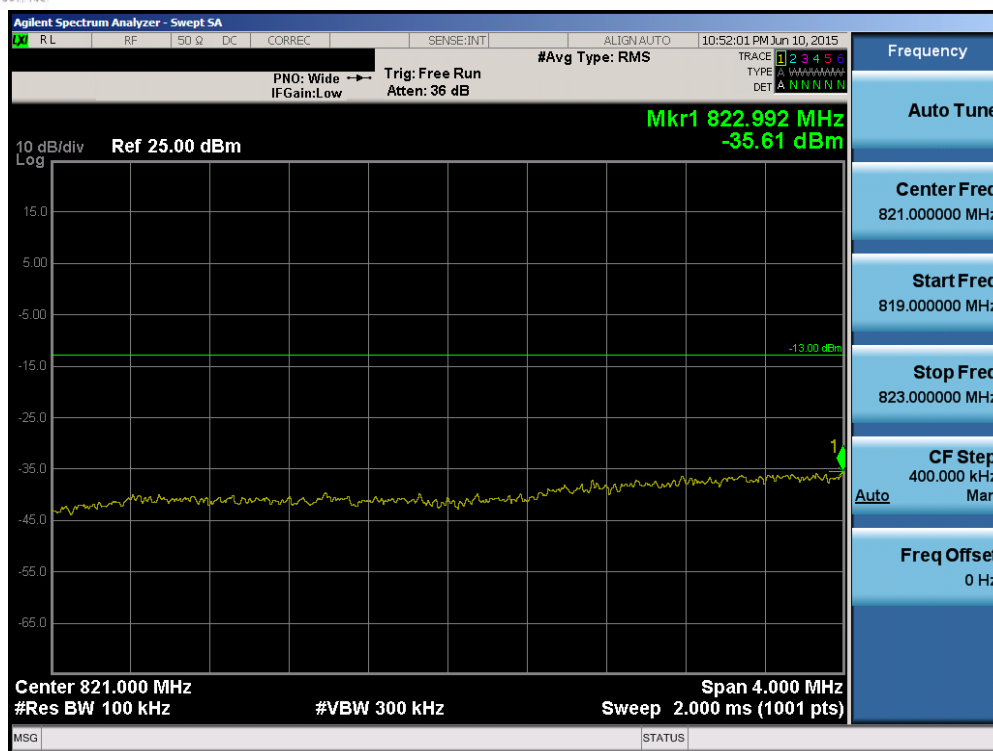


Plot 6-80. Upper Extended Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

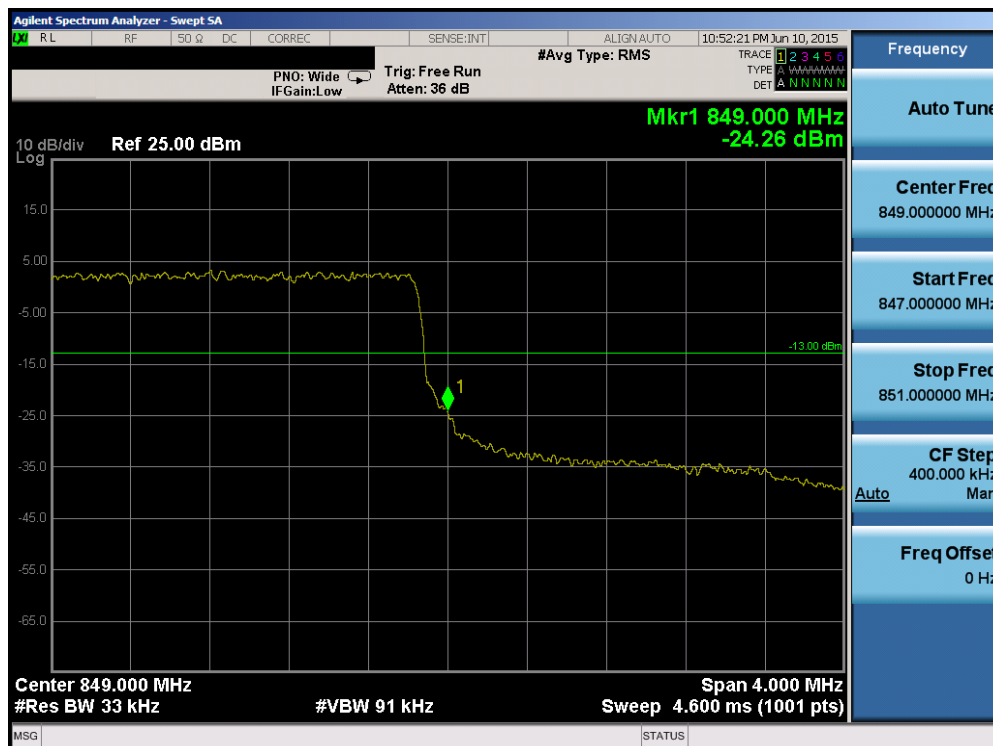


Plot 6-81. Lower Band Edge Plot (Band 5/26 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 55 of 109

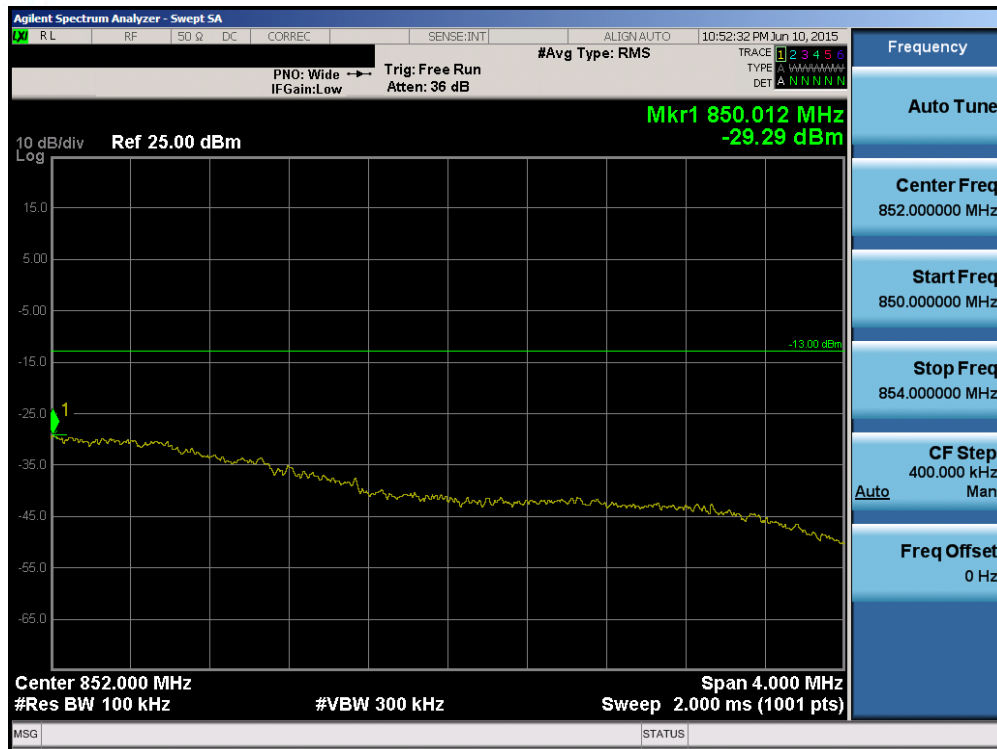


Plot 6-82. Lower Extended Band Edge Plot (Band 5/26 – 3.0MHz QPSK – RB Size 15)

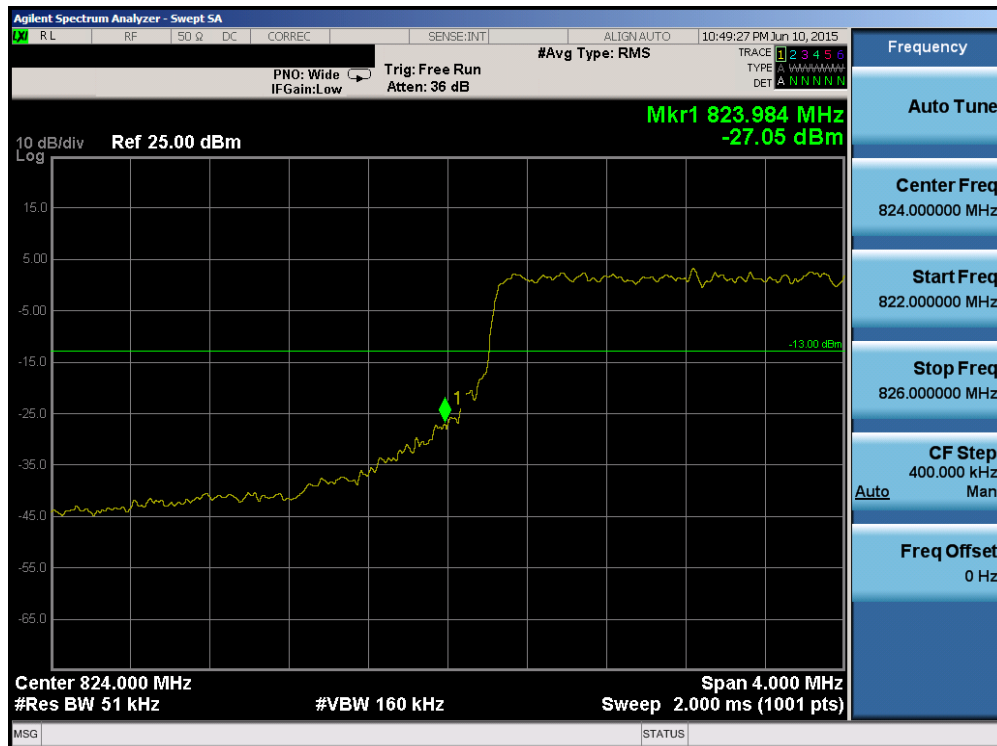


Plot 6-83. Upper Band Edge Plot (Band 5/26 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMN920KOR	 FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION) 		Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset	Page 56 of 109

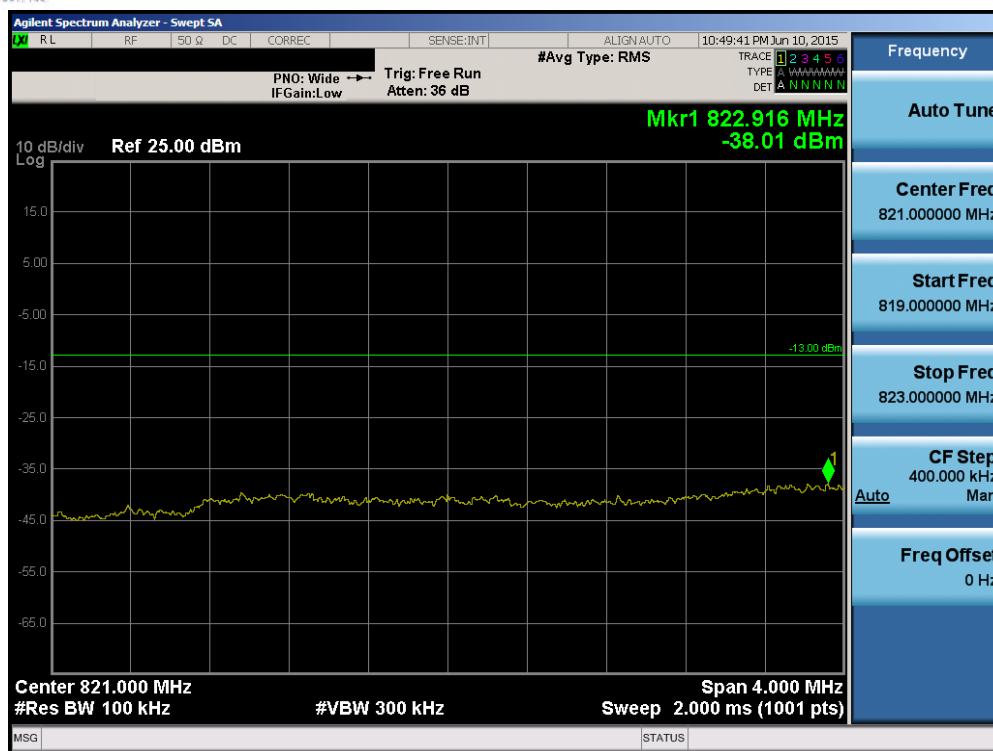


Plot 6-84. Upper Extended Band Edge Plot (Band 5/26 – 3.0MHz QPSK – RB Size 15)

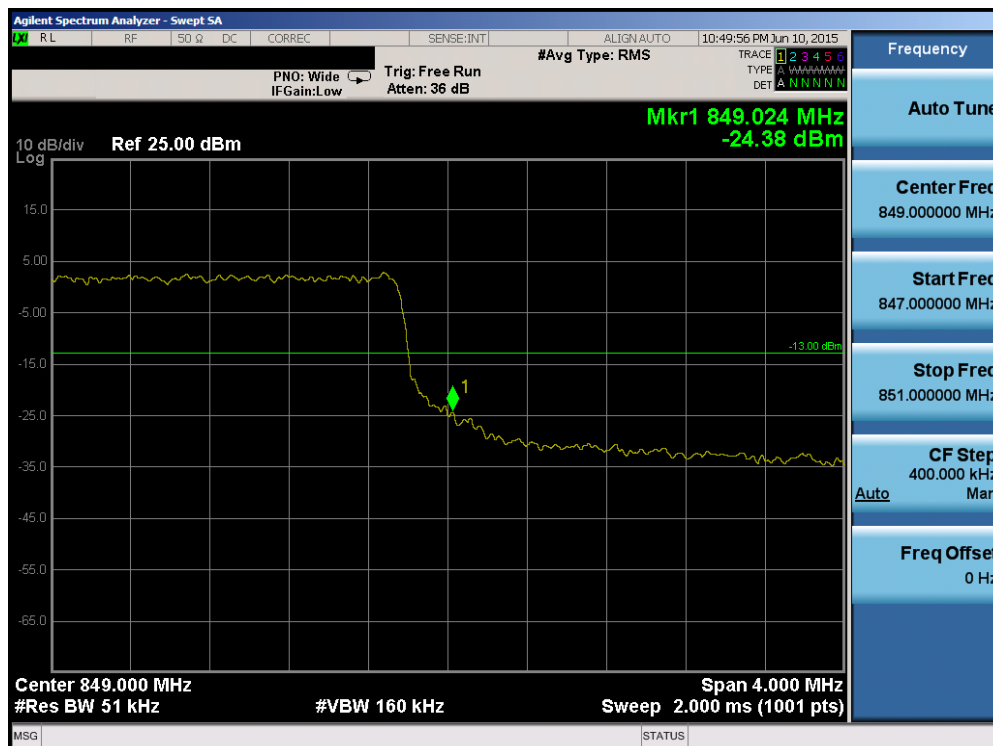


Plot 6-85. Lower Band Edge Plot (Band 5/26 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 6-86. Lower Extended Band Edge Plot (Band 5/26 – 5.0MHz QPSK – RB Size 25)

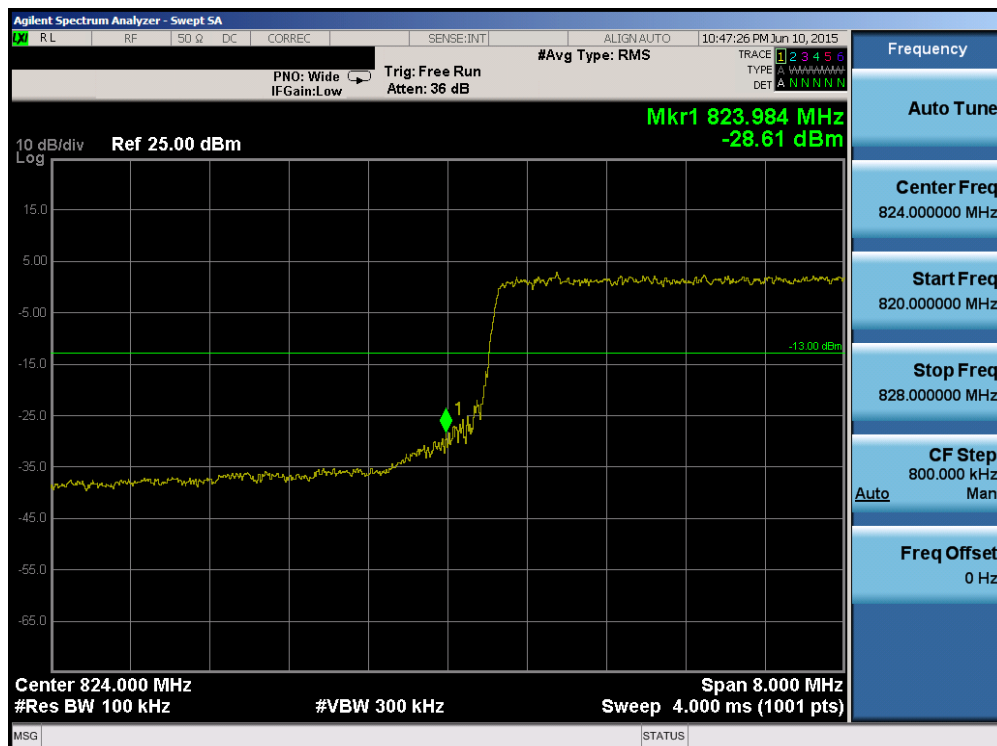


Plot 6-87. Upper Band Edge Plot (Band 5/26 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 58 of 109

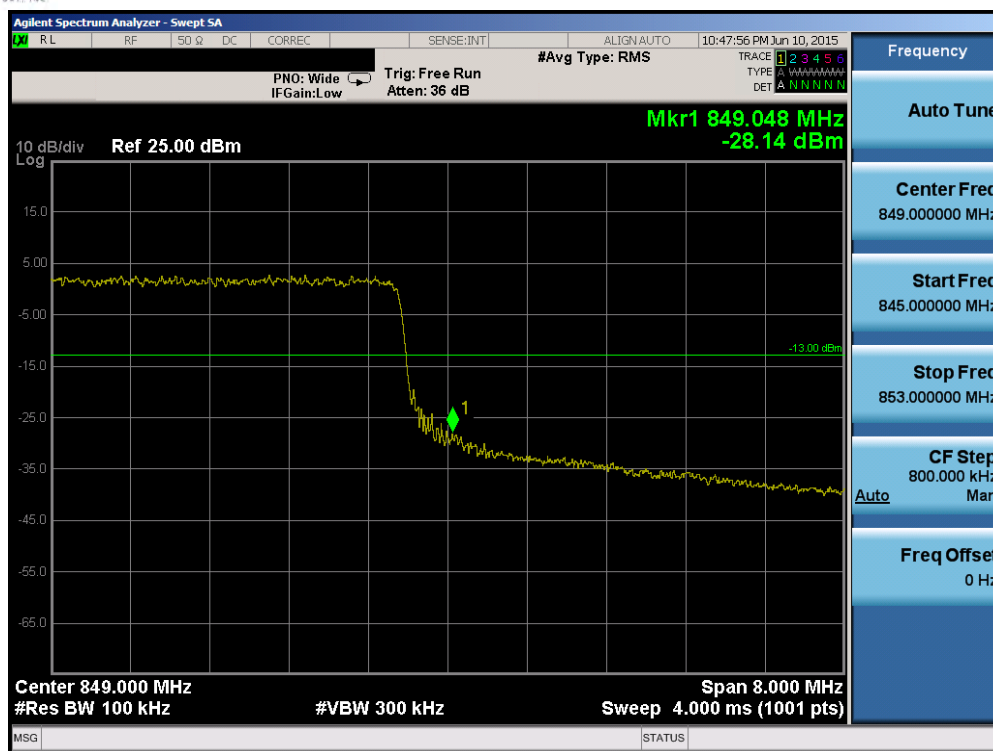


Plot 6-88. Upper Extended Band Edge Plot (Band 5/26 – 5.0MHz QPSK – RB Size 25)

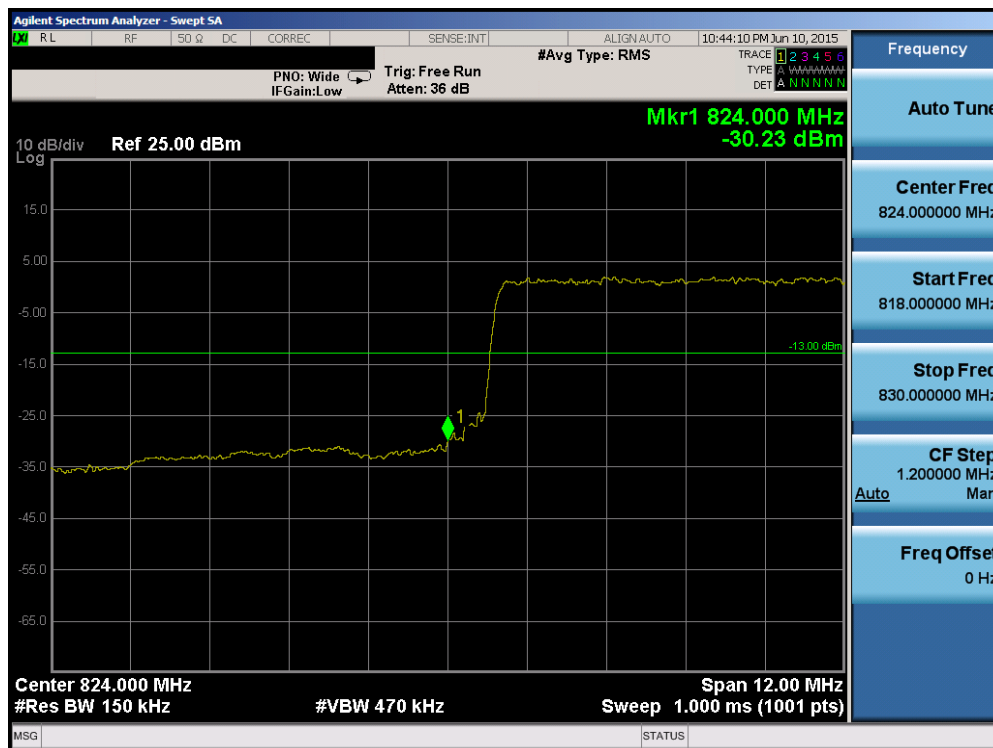


Plot 6-89. Lower Band Edge Plot (Band 5/26 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 6-90. Upper Band Edge Plot (Band 5/26 – 10.0MHz QPSK – RB Size 50)

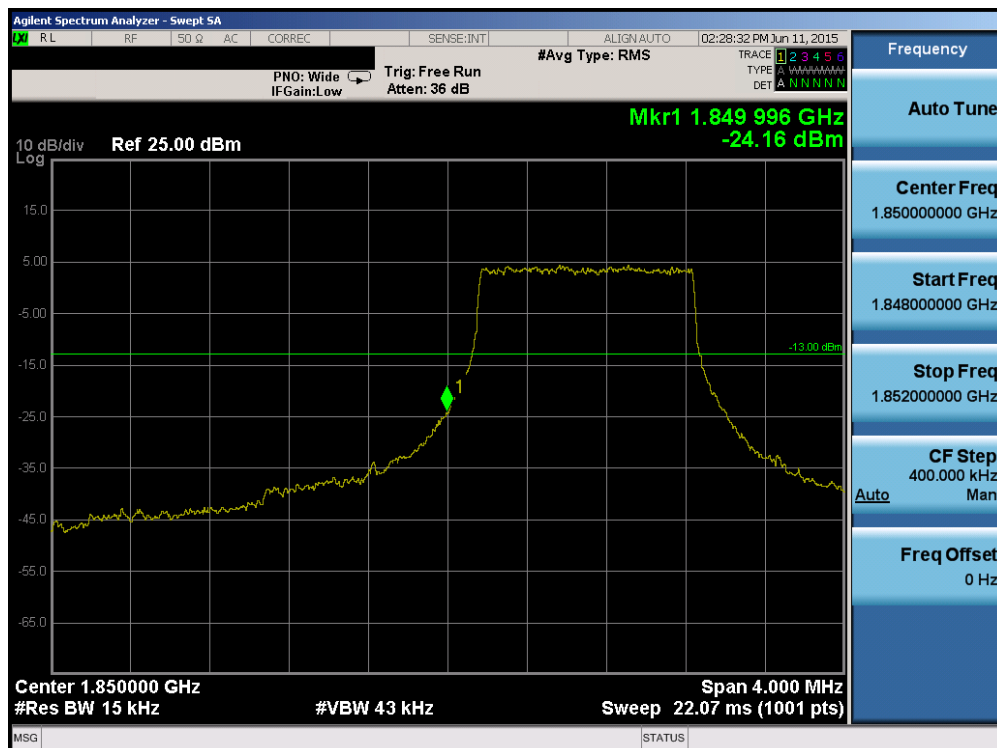


Plot 6-91. Lower Band Edge Plot (Band 26 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 60 of 109

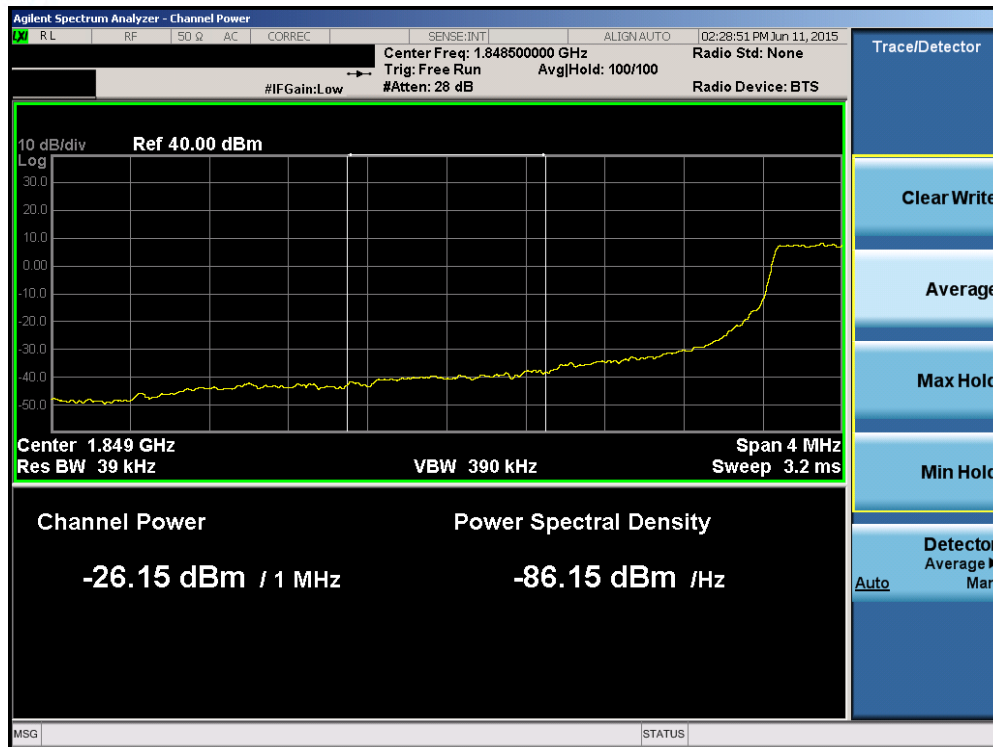


Plot 6-92. Upper Band Edge Plot (Band 26 – 15.0MHz QPSK – RB Size 75)

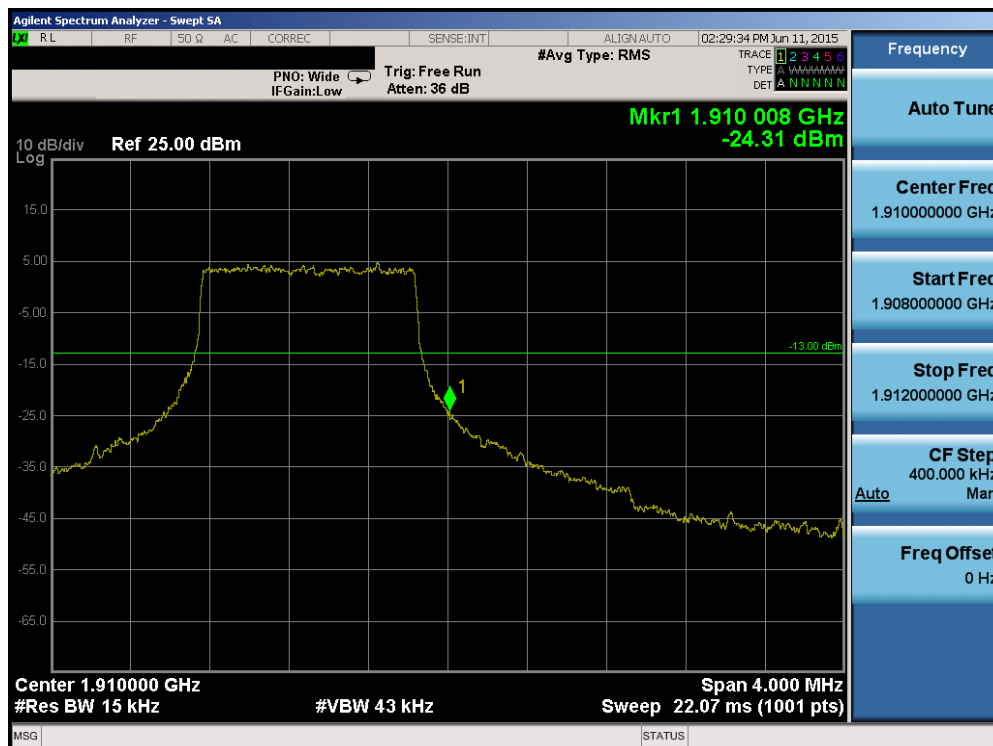


Plot 6-93. Lower Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 61 of 109

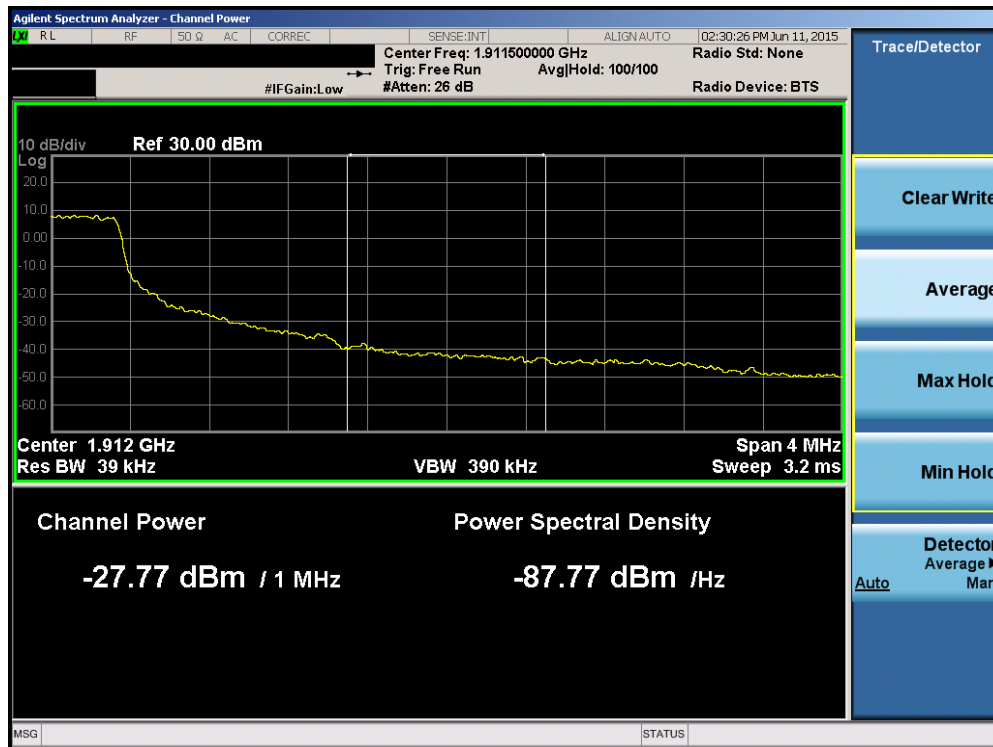


Plot 6-94. Lower Extended Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

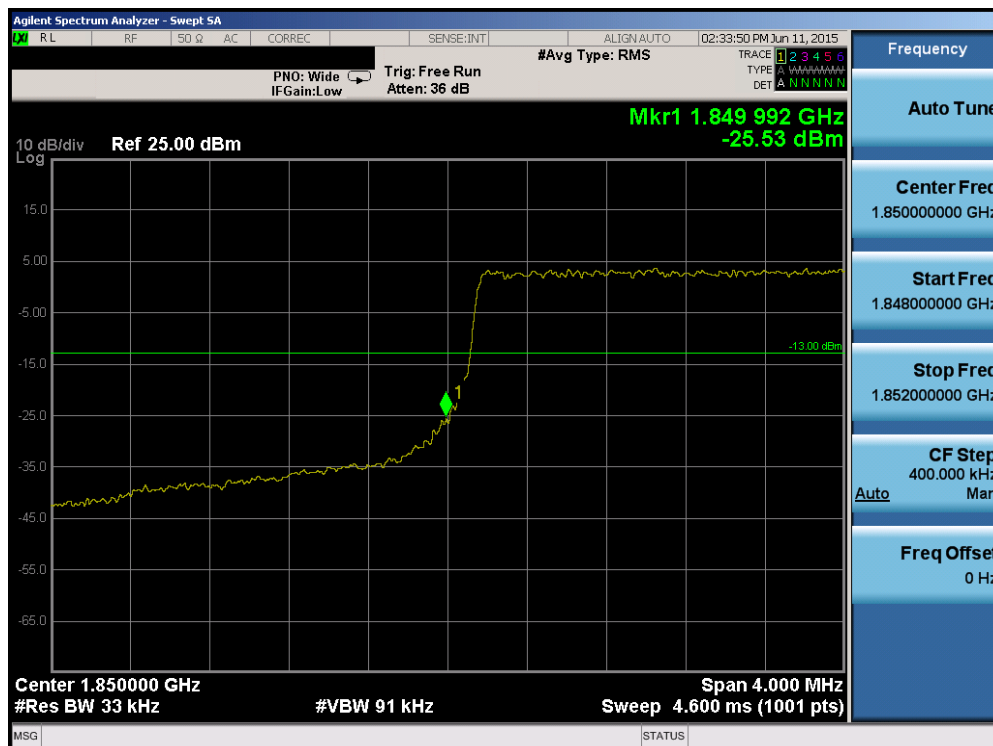


Plot 6-95. Upper Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 62 of 109

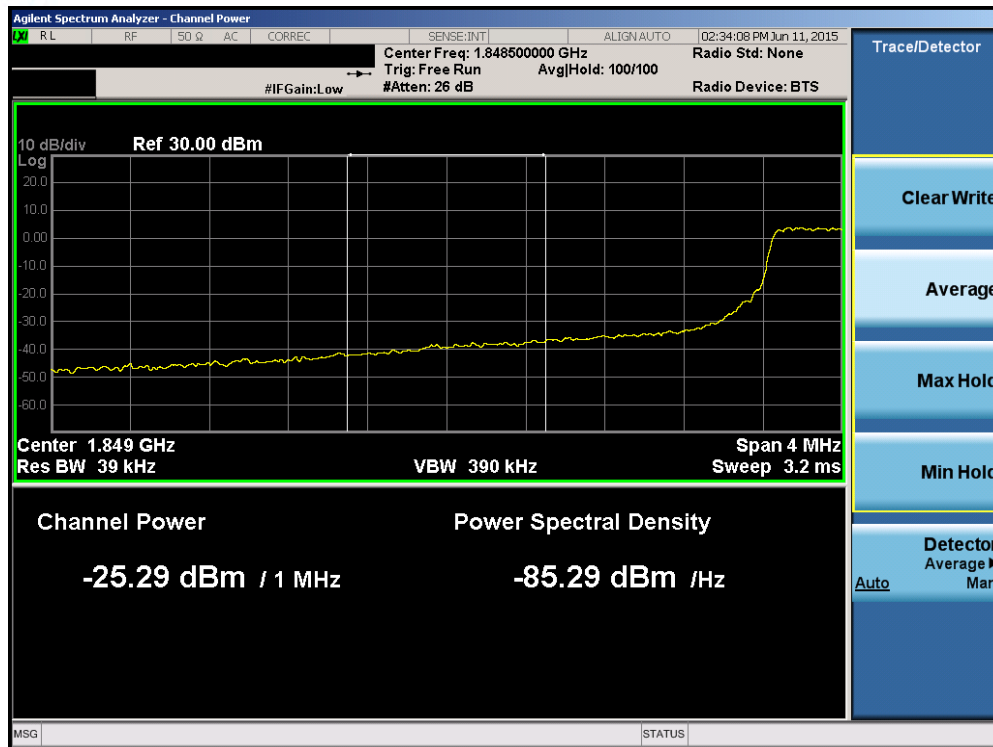


Plot 6-96. Upper Extended Band Edge Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

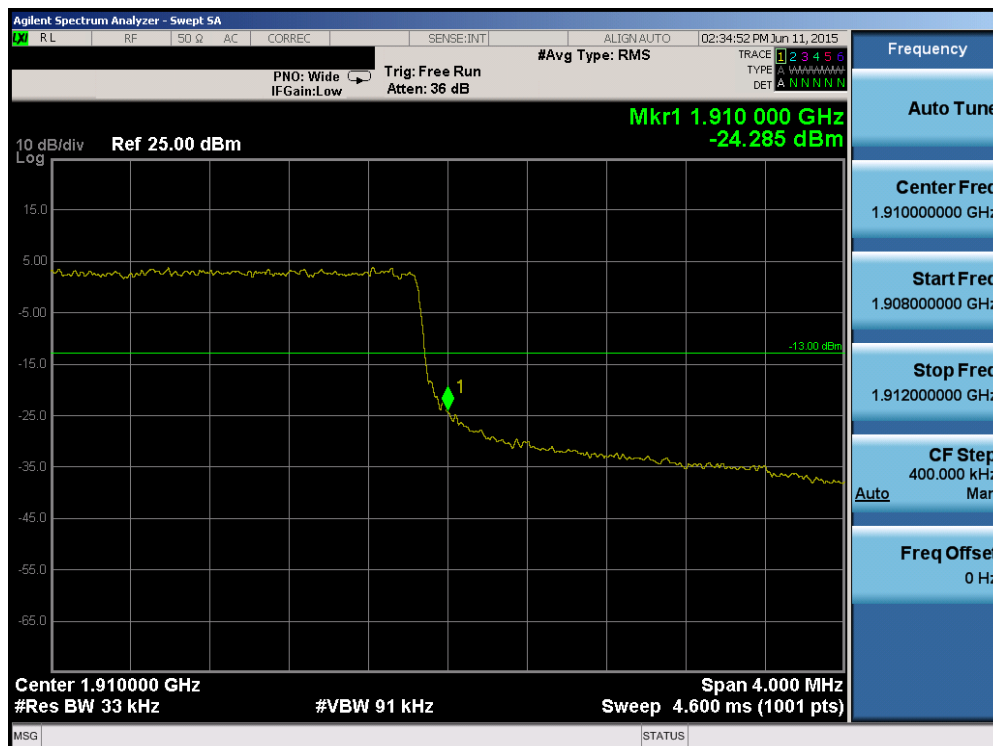


Plot 6-97. Lower Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 63 of 109

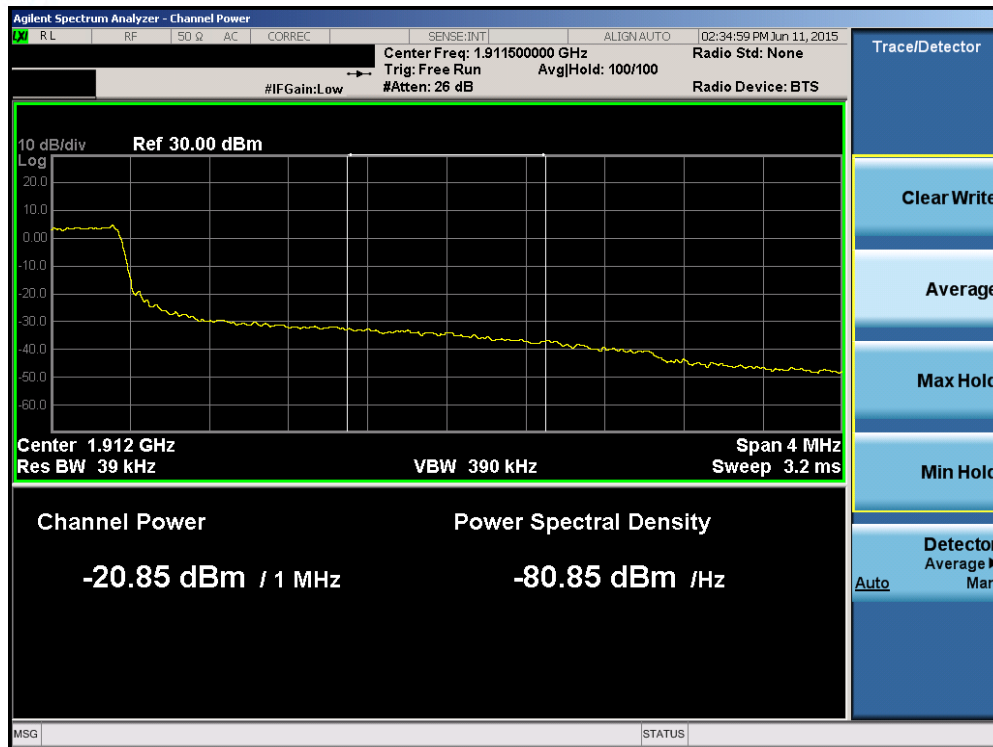


Plot 6-98. Lower Extended Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)

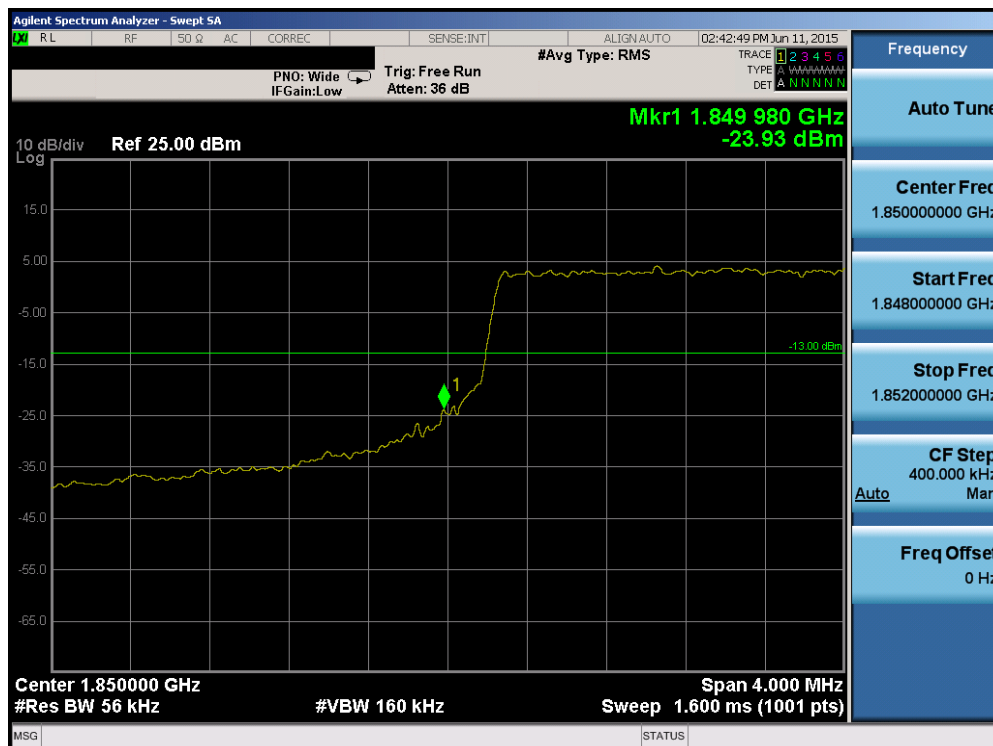


Plot 6-99. Upper Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 64 of 109

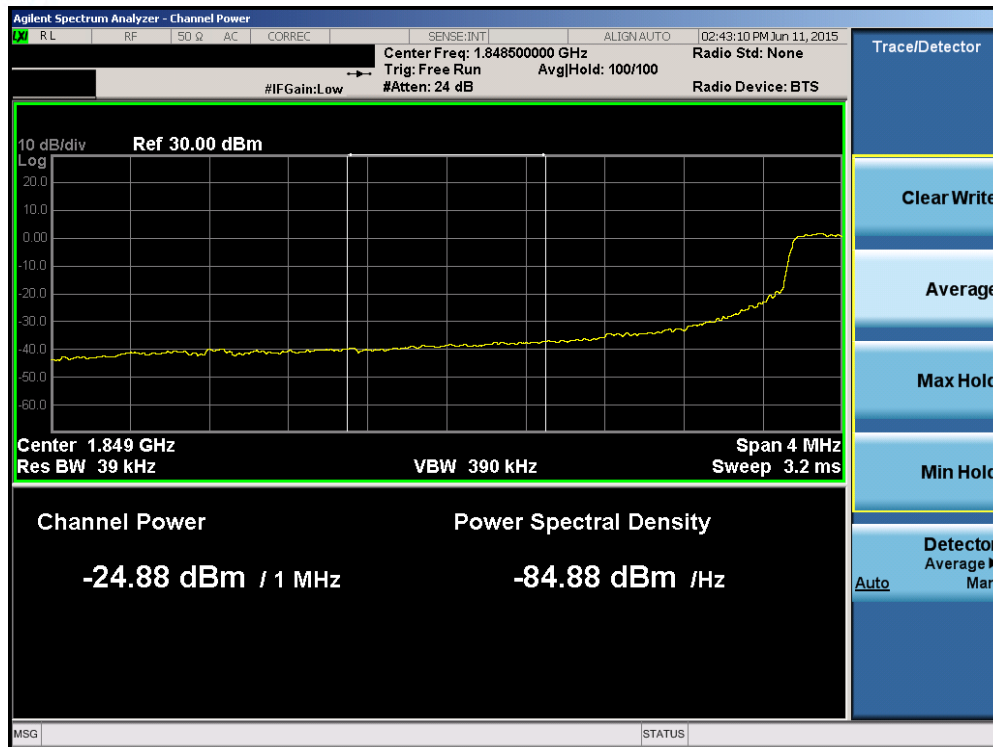


Plot 6-100. Upper Extended Band Edge Plot (Band 2 – 3.0MHz QPSK – RB Size 15)

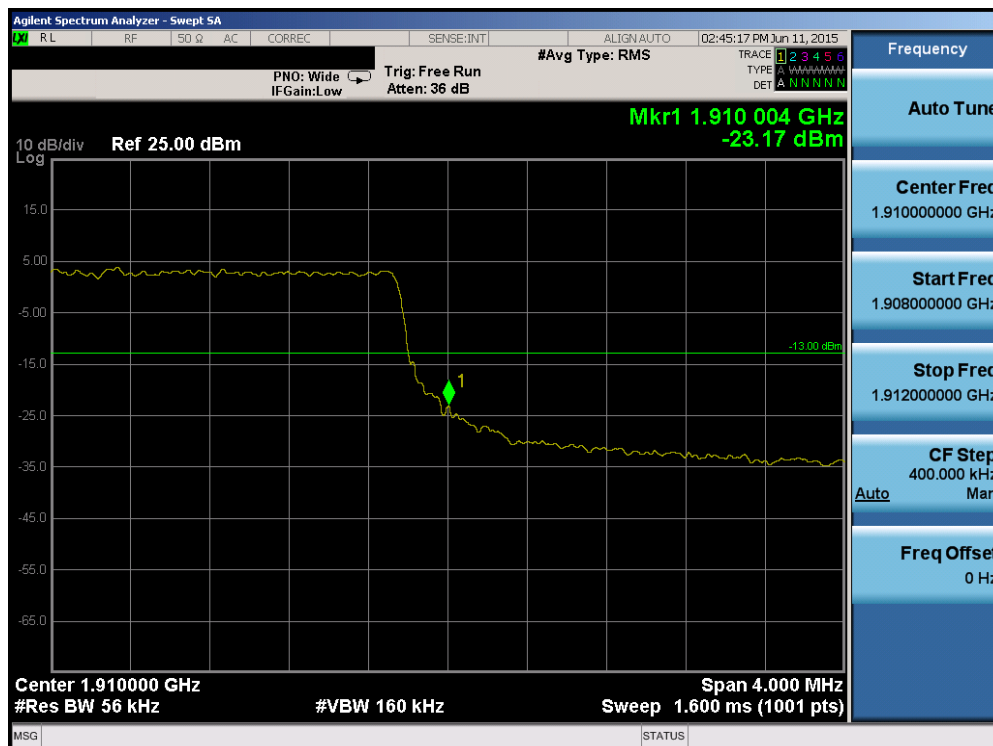


Plot 6-101. Lower Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 65 of 109

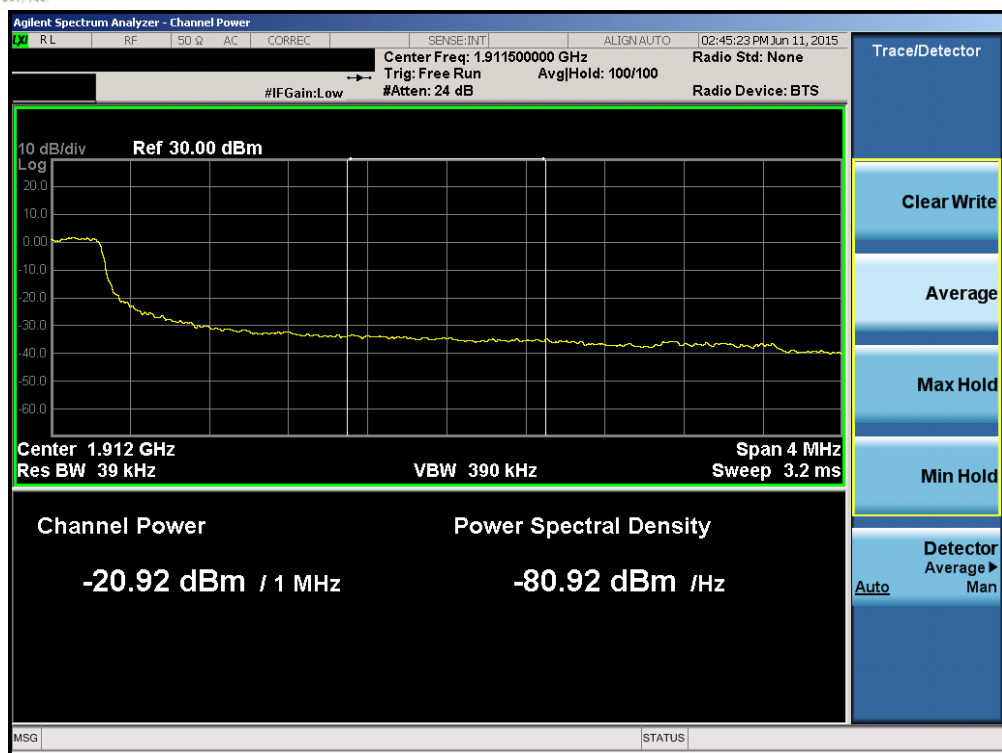


Plot 6-102. Lower Extended Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)

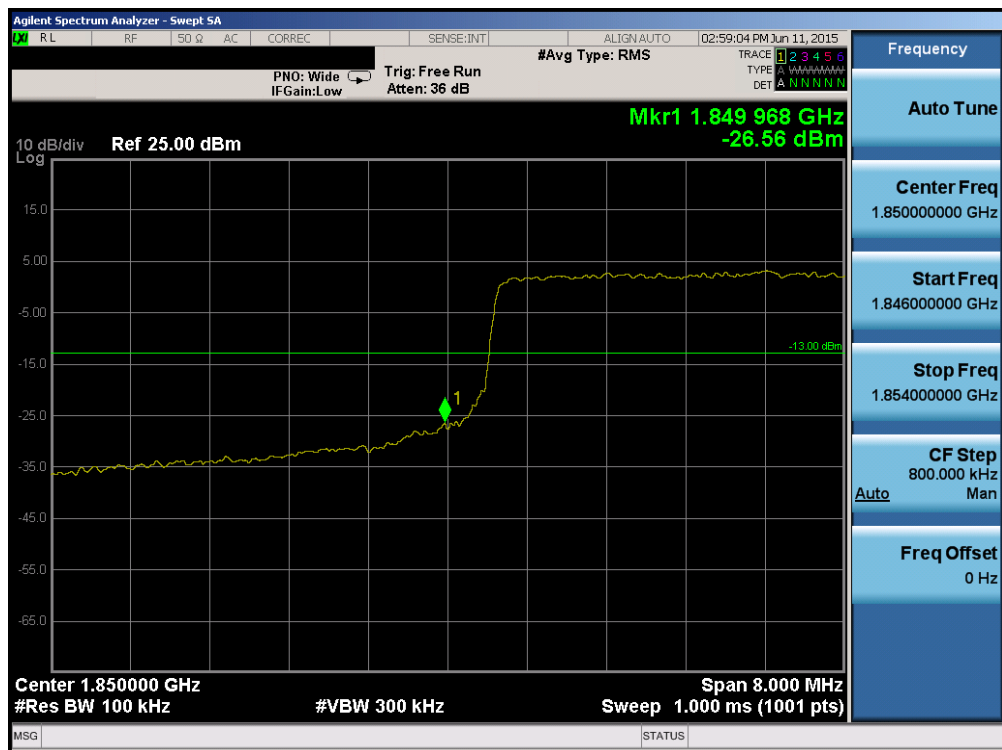


Plot 6-103. Upper Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 66 of 109

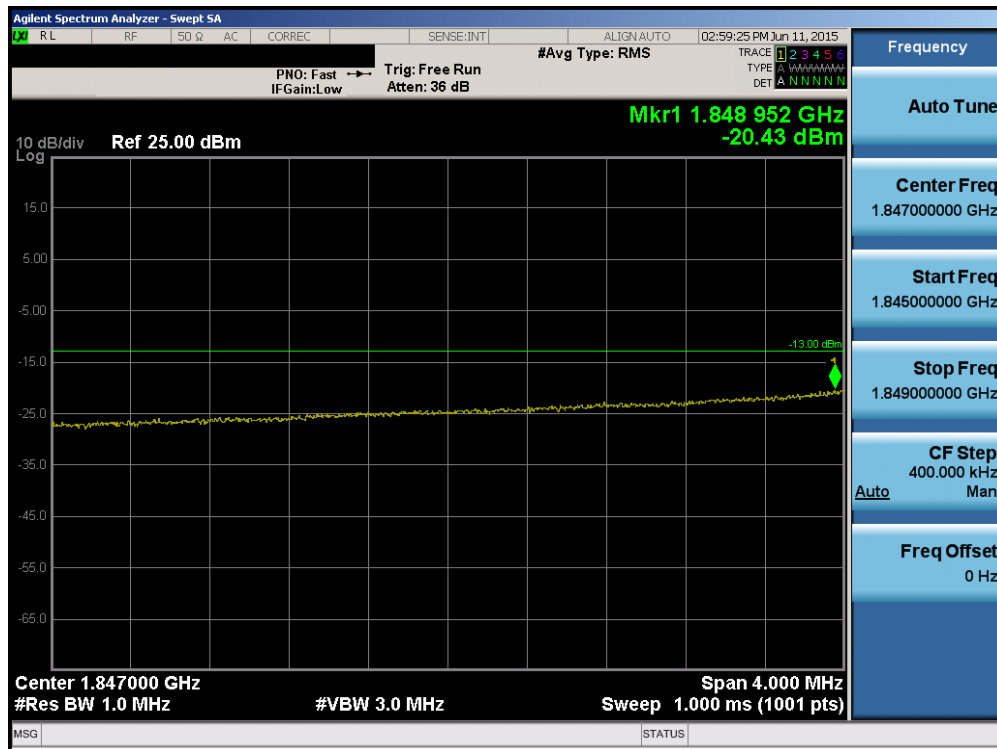


Plot 6-104. Upper Extended Band Edge Plot (Band 2 – 5.0MHz QPSK – RB Size 25)



Plot 6-105. Lower Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 67 of 109

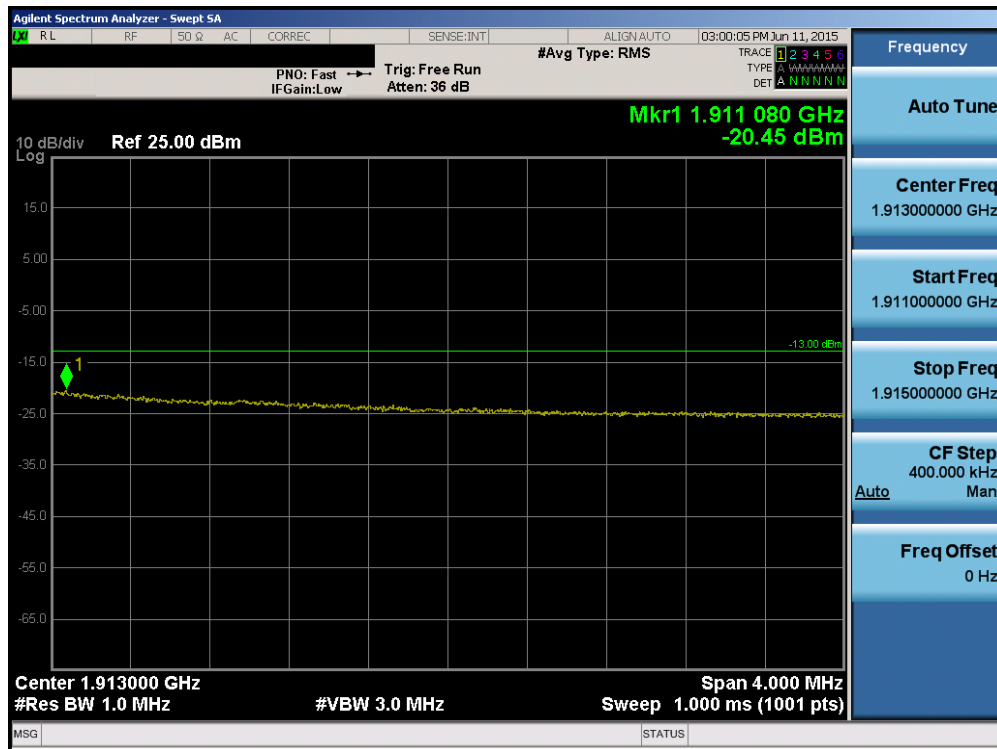


Plot 6-106. Lower Extended Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

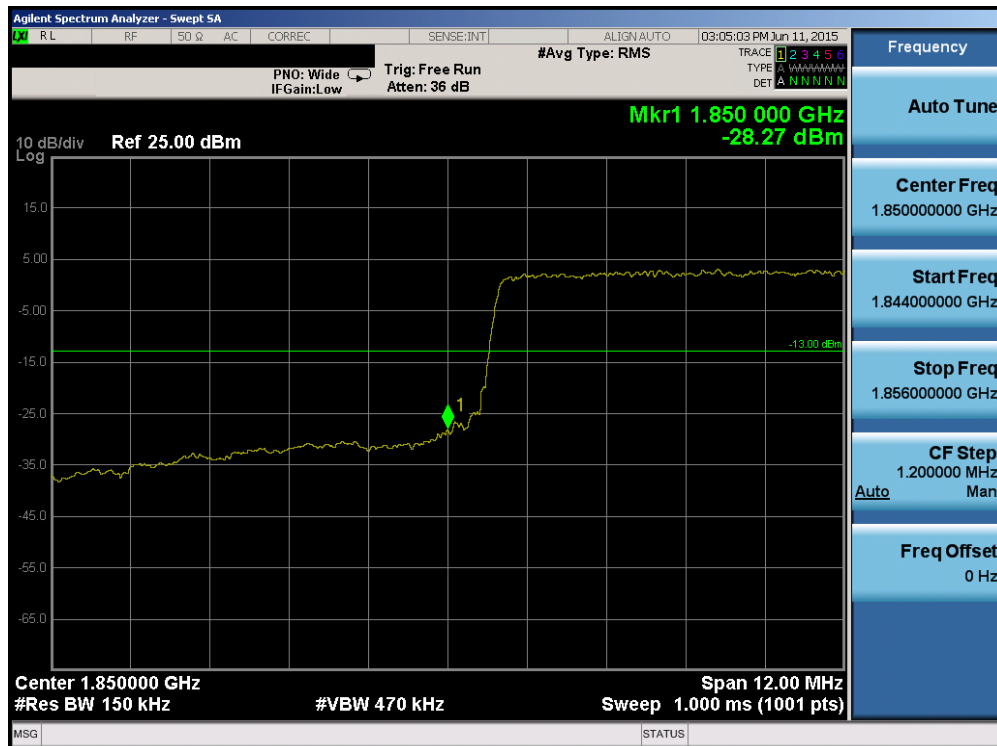


Plot 6-107. Upper Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 68 of 109

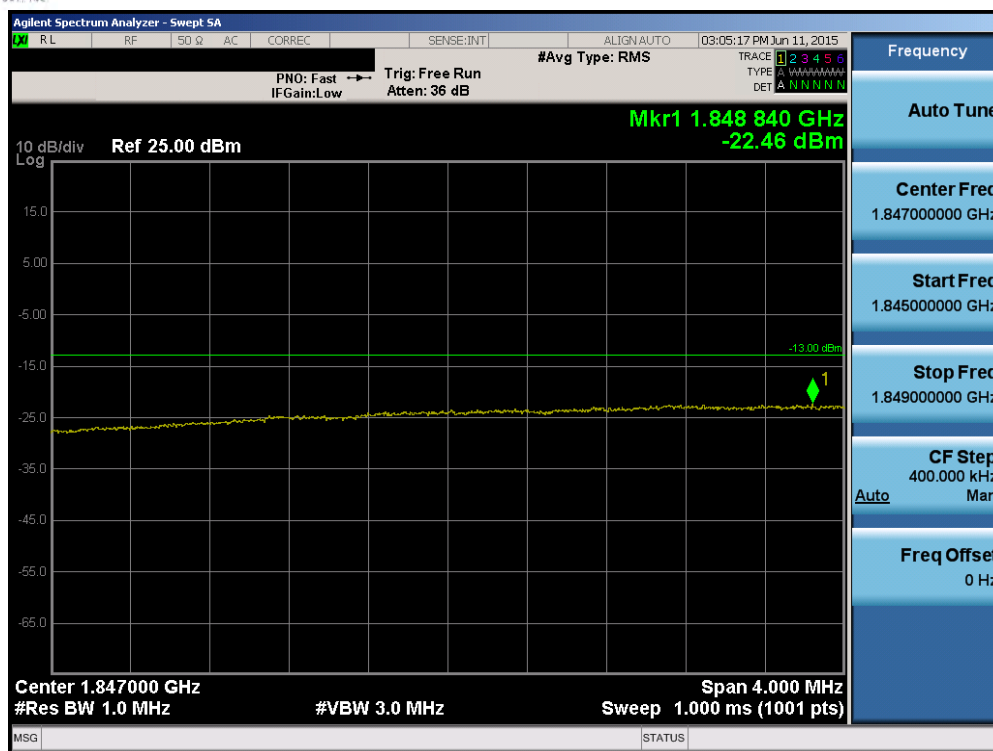


Plot 6-108. Upper Extended Band Edge Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

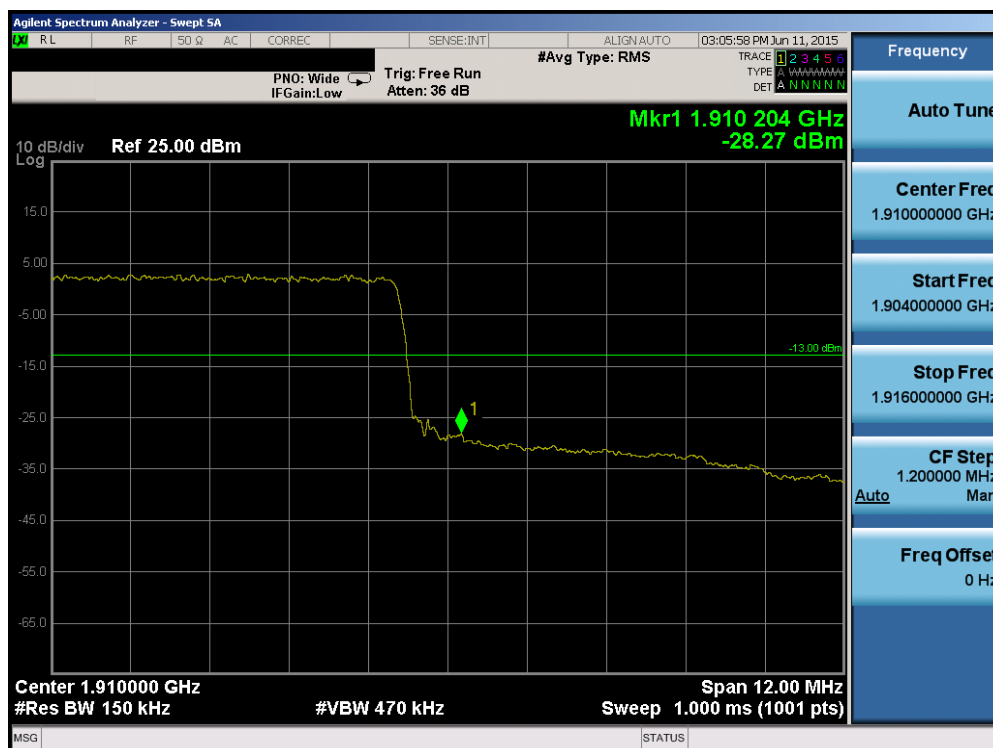


Plot 6-109. Lower Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 69 of 109

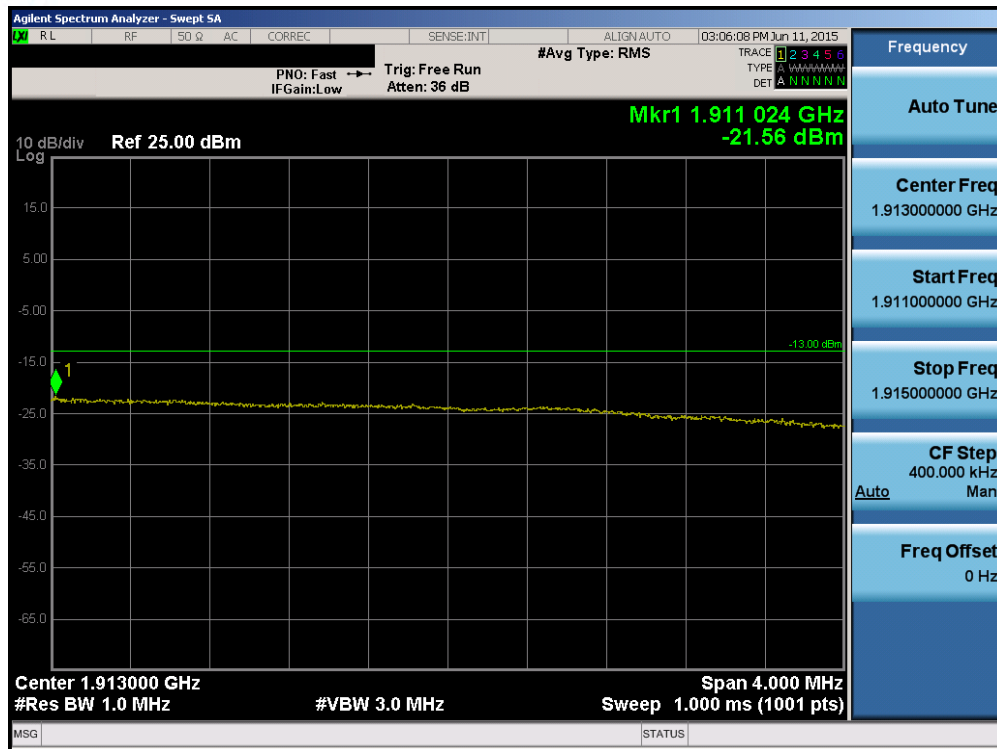


Plot 6-110. Lower Extended Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

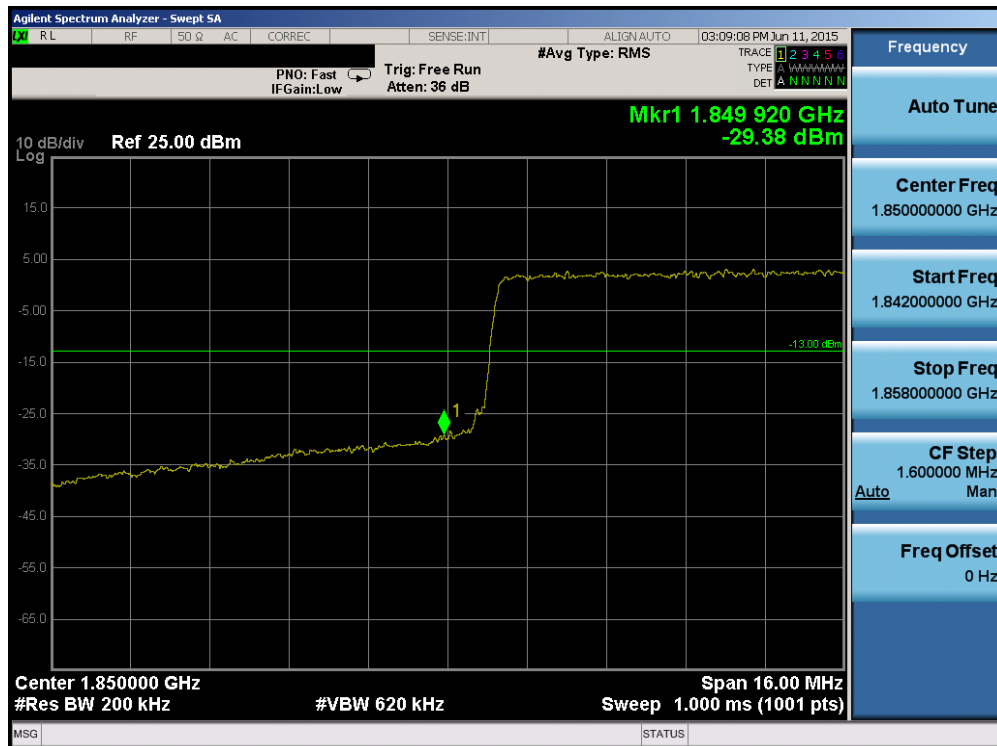


Plot 6-111. Upper Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 6-112. Upper Extended Band Edge Plot (Band 2 – 15.0MHz QPSK – RB Size 75)



Plot 6-113. Lower Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 71 of 109

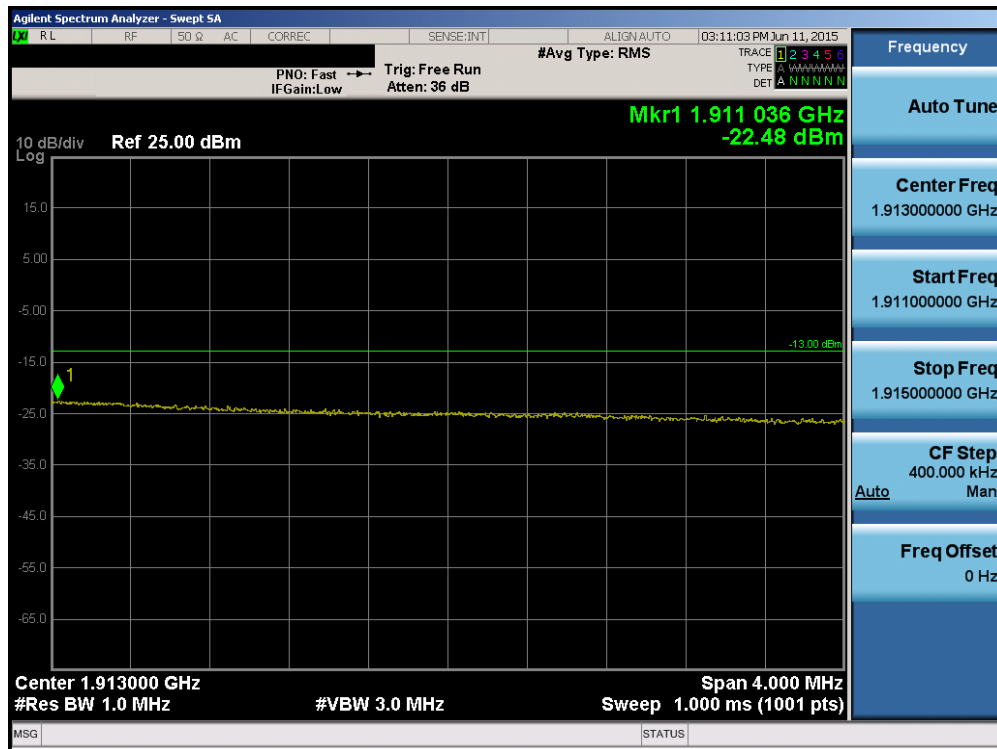


Plot 6-114. Lower Extended Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

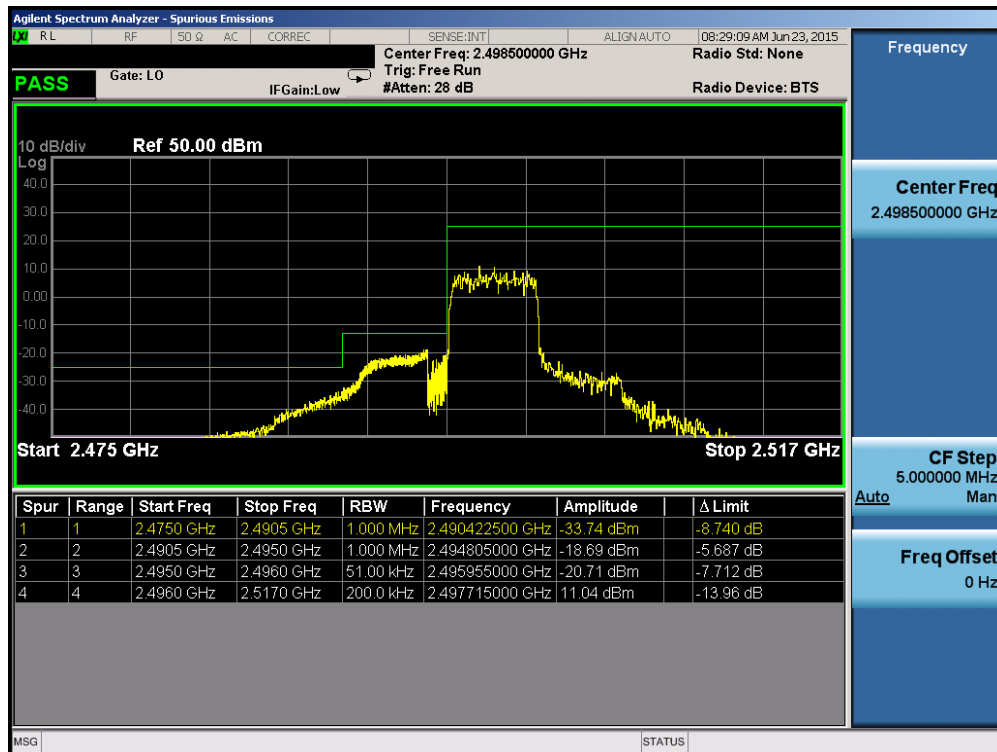


Plot 6-115. Upper Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 72 of 109

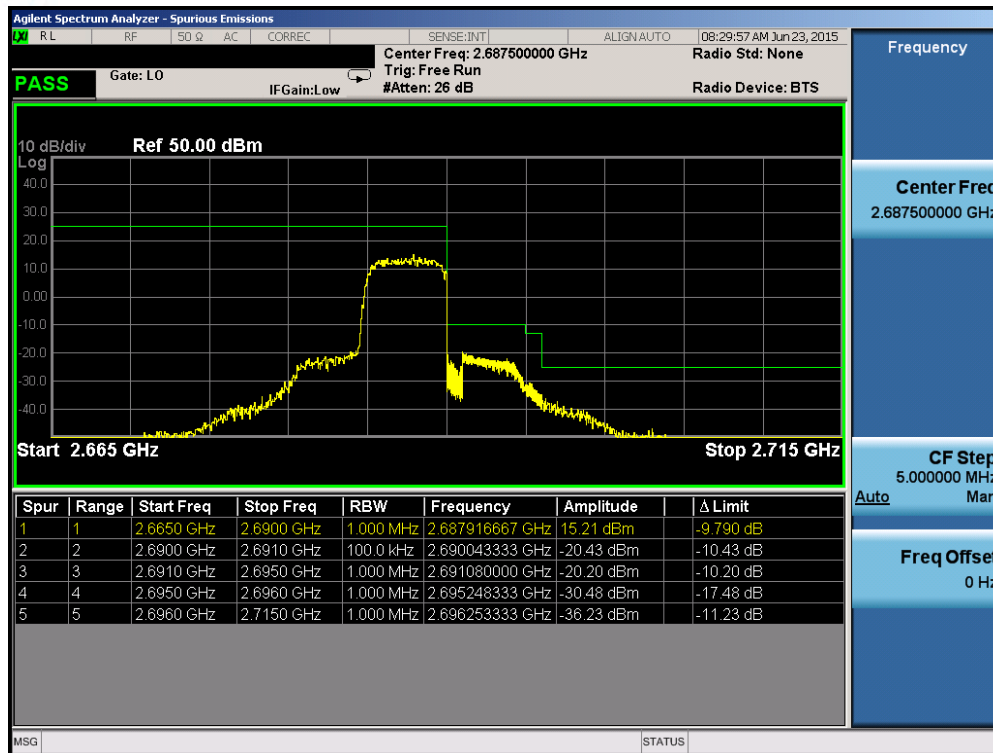


Plot 6-116. Upper Extended Band Edge Plot (Band 2 – 20.0MHz QPSK – RB Size 100)

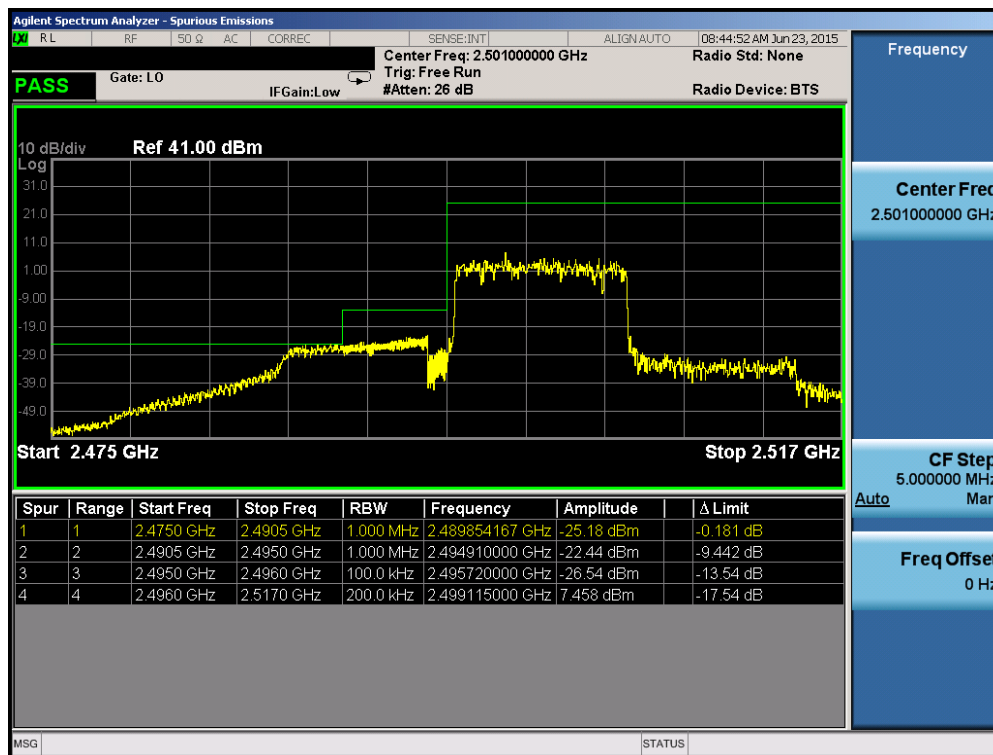


Plot 6-117. Lower ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 73 of 109

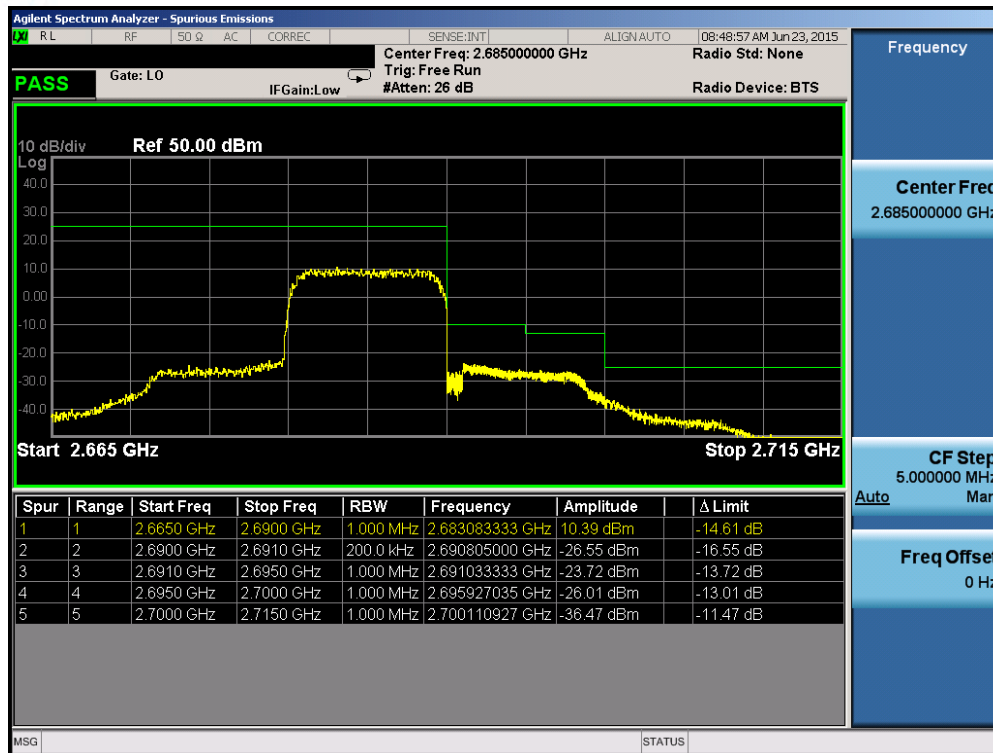


Plot 6-118. Upper ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

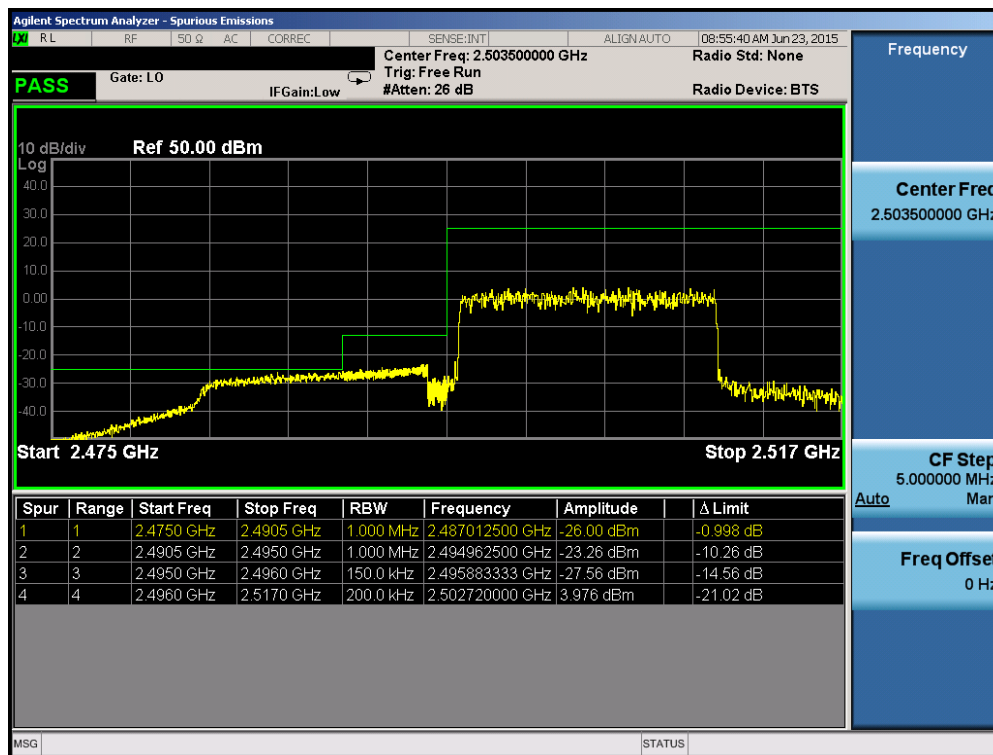


Plot 6-119. Lower ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 74 of 109

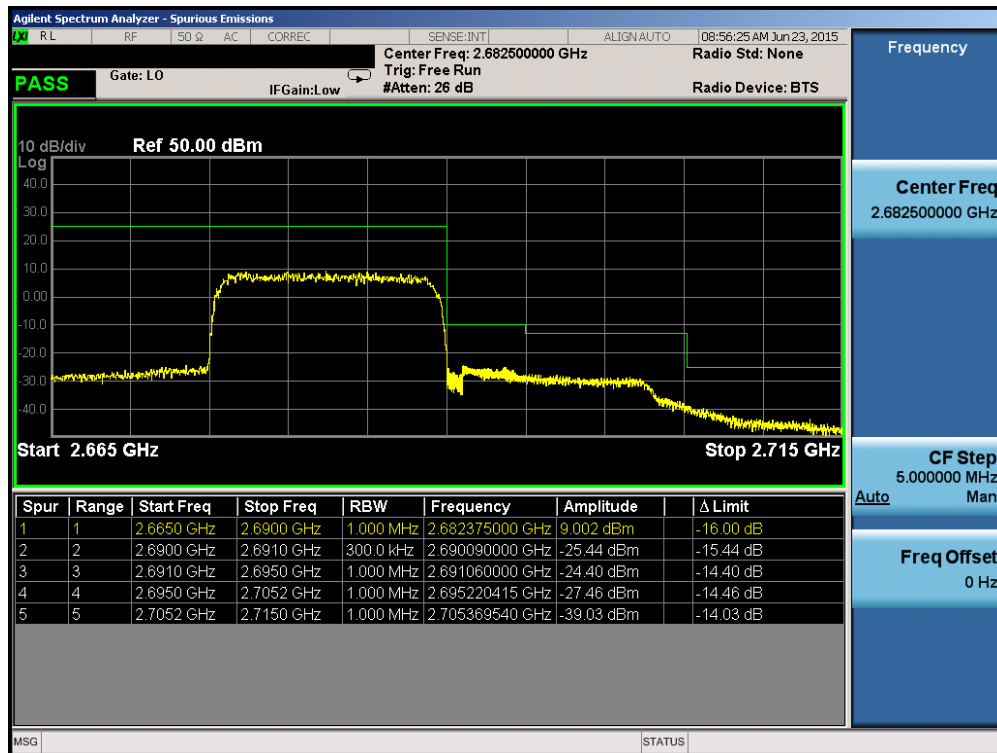


Plot 6-120. Upper ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)

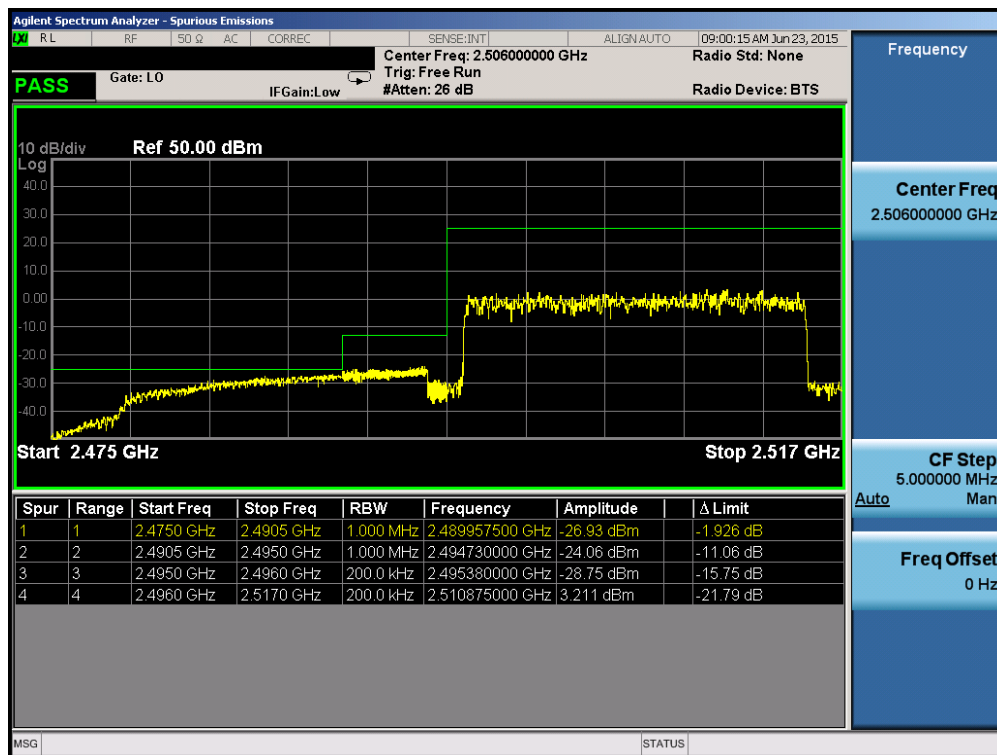


Plot 6-121. Lower ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 6-122. Upper ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)



Plot 6-123. Lower ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 6-124. Upper ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 77 of 109

6.5 Peak-Average Ratio

§24.232(d)

Test Overview

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

Test Procedure Used

KDB 971168 v02r02 – Section 5.7.1

Test Settings

1. The signal analyzer's CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW > Emission bandwidth of signal
4. The signal analyzer was set to collect one million samples to generate the CCDF curve
5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

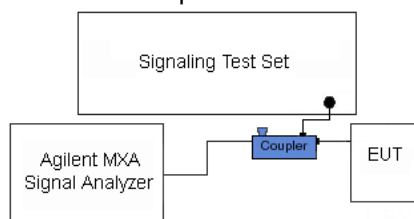
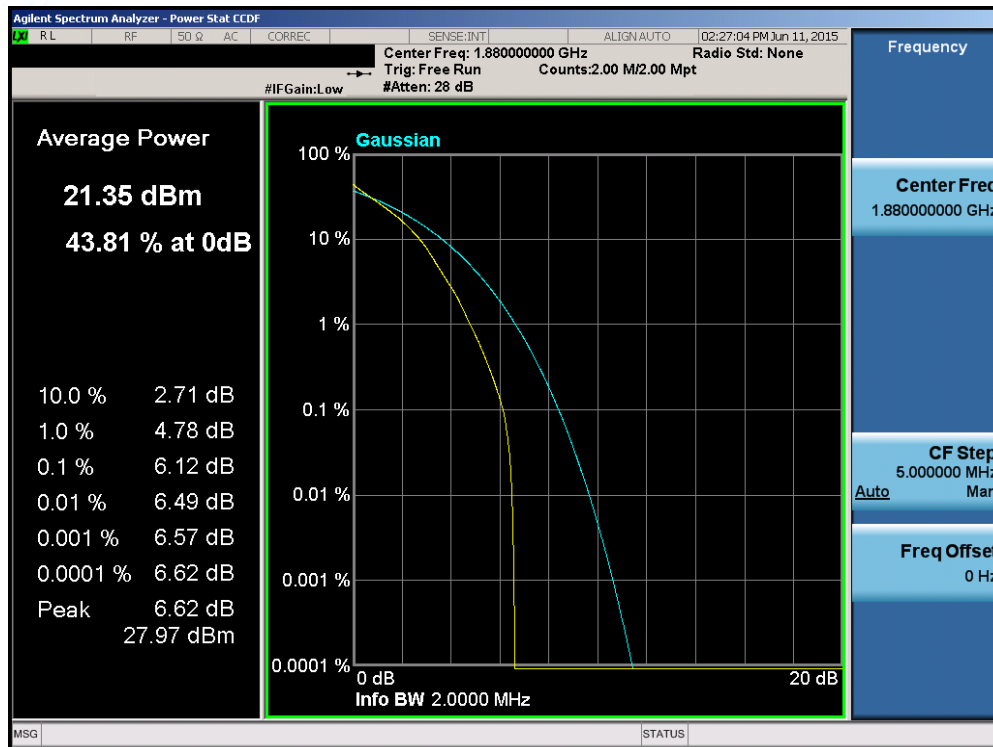


Figure 6-4. Test Instrument & Measurement Setup

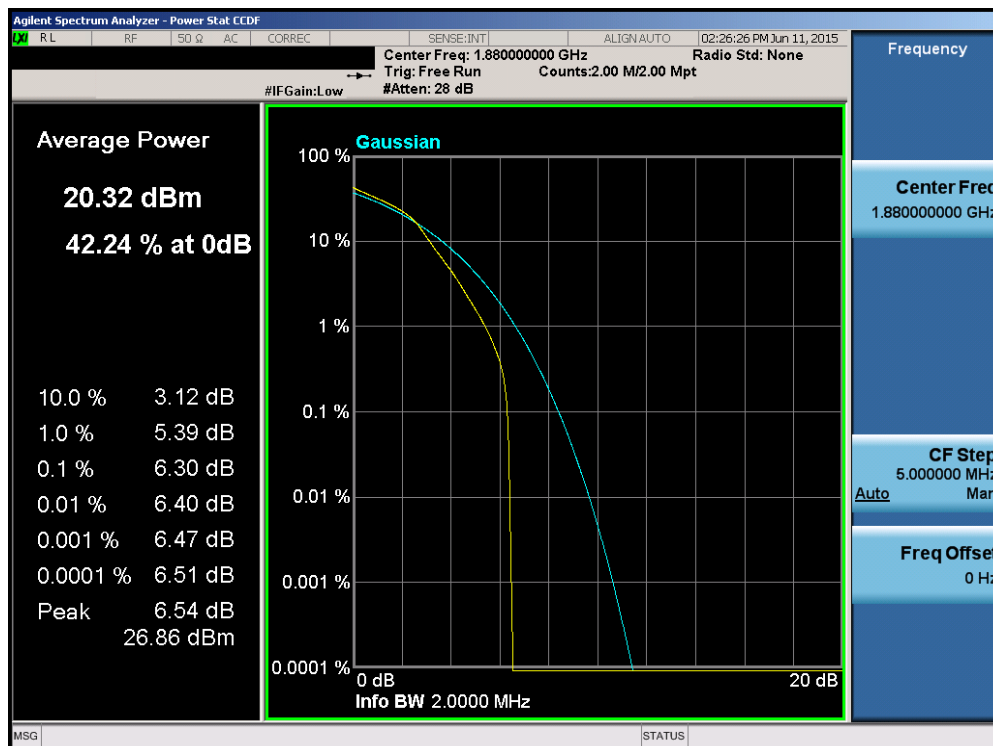
Test Notes

None.

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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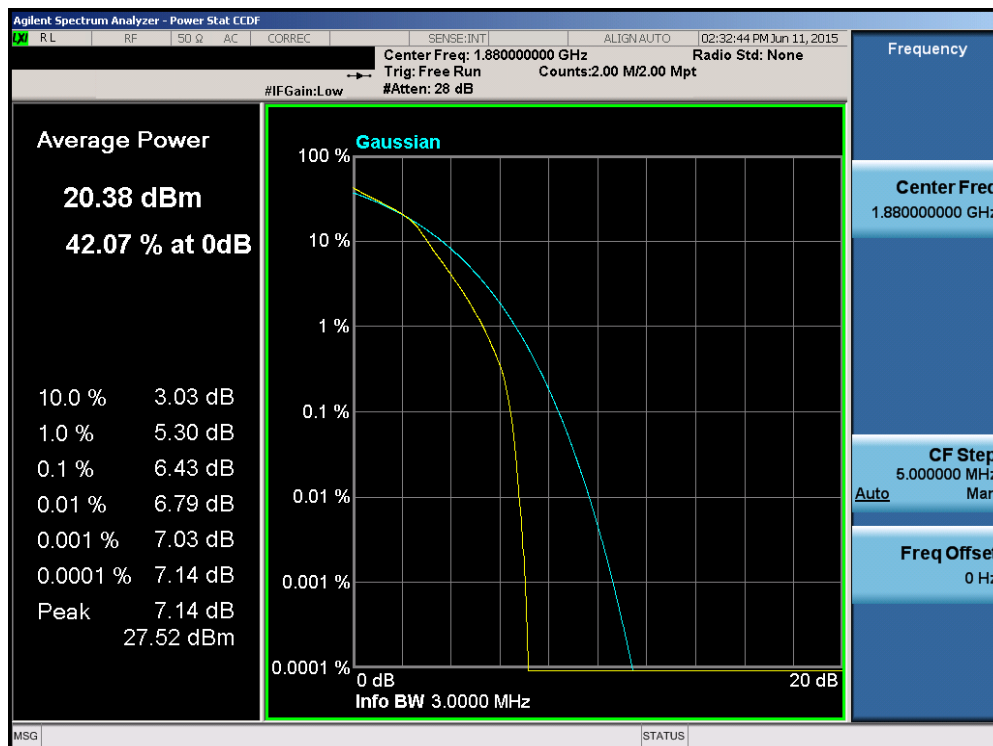
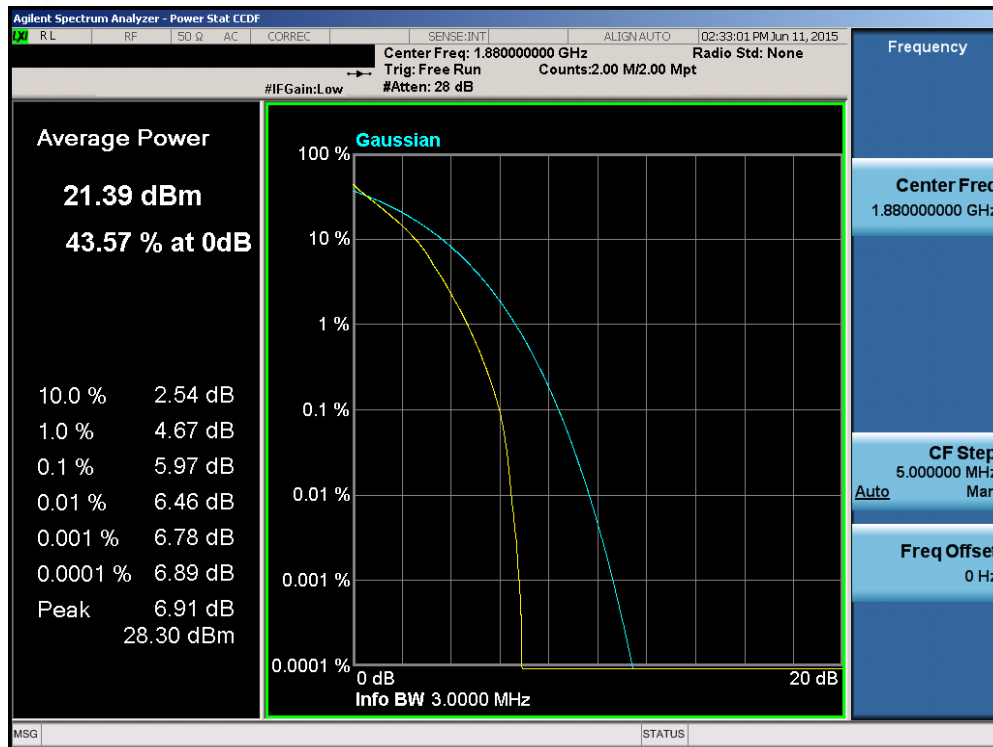


Plot 6-125. PAR Plot (Band 2 – 1.4MHz QPSK – RB Size 6)

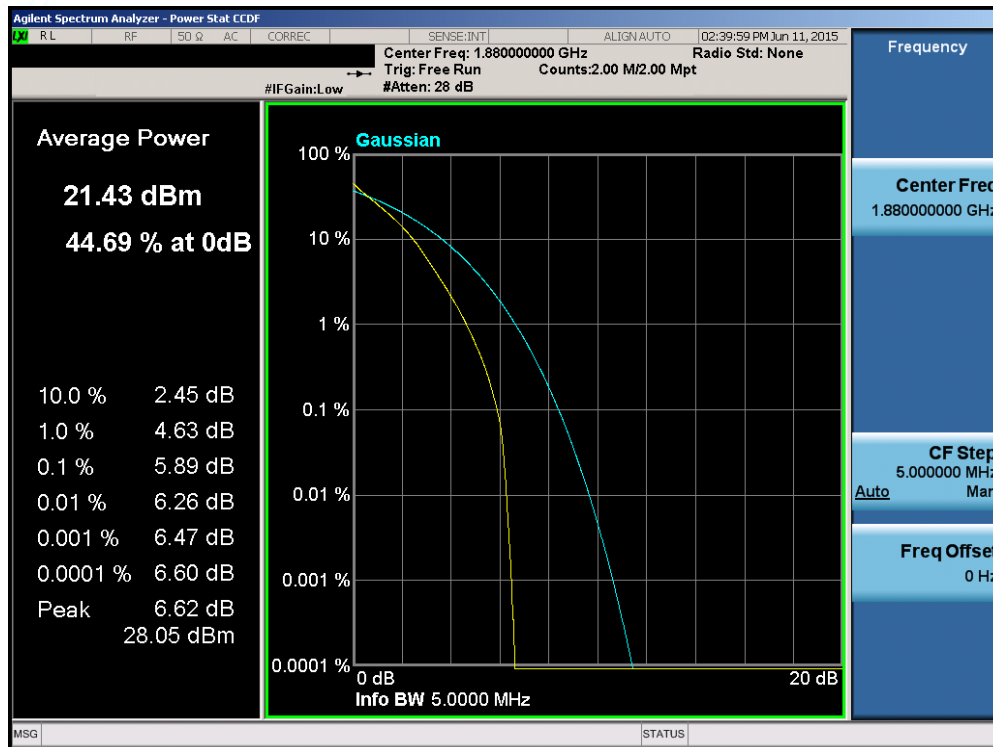


Plot 6-126. PAR Plot (Band 2 – 1.4MHz 16-QAM – RB Size 6)

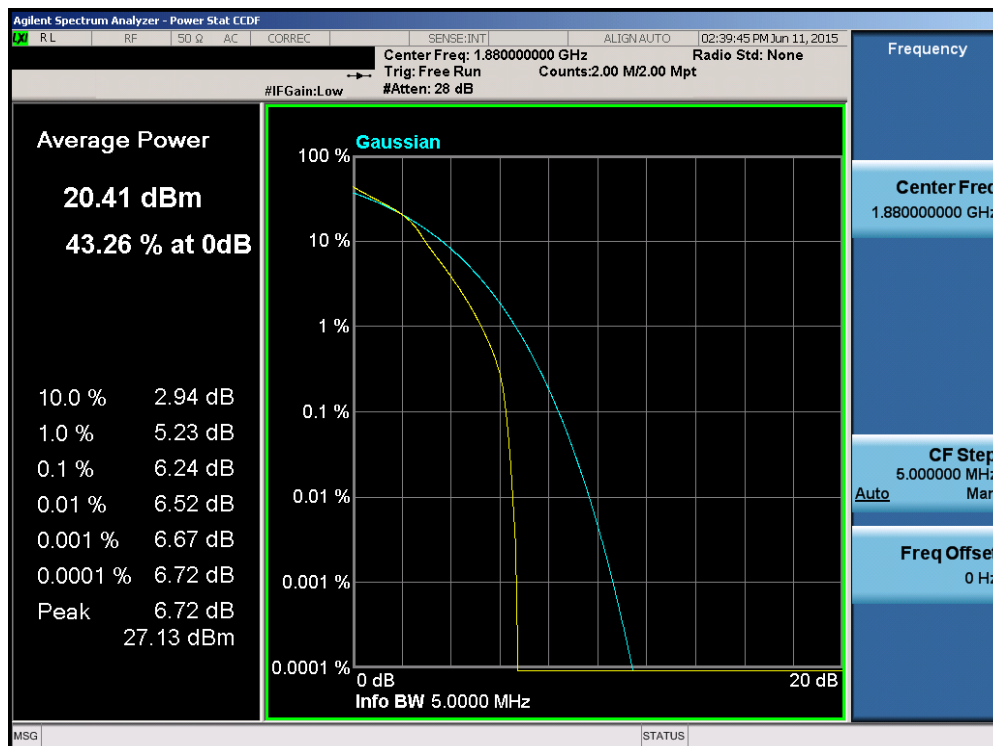
FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 80 of 109

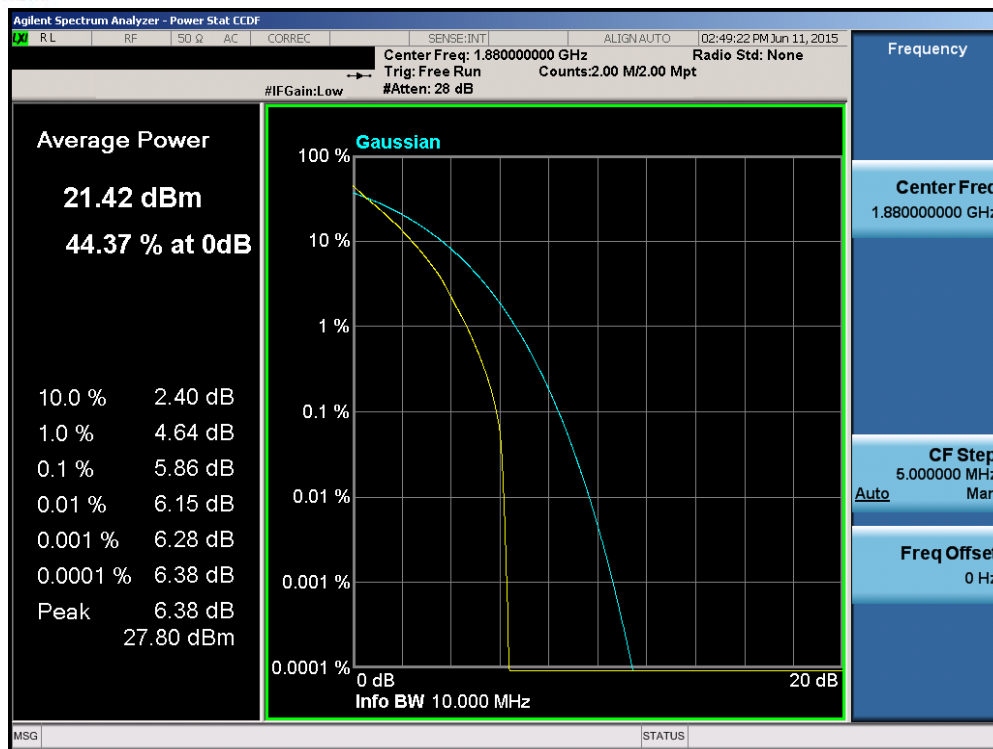


Plot 6-129. PAR Plot (Band 2 – 5.0MHz QPSK – RB Size 25)

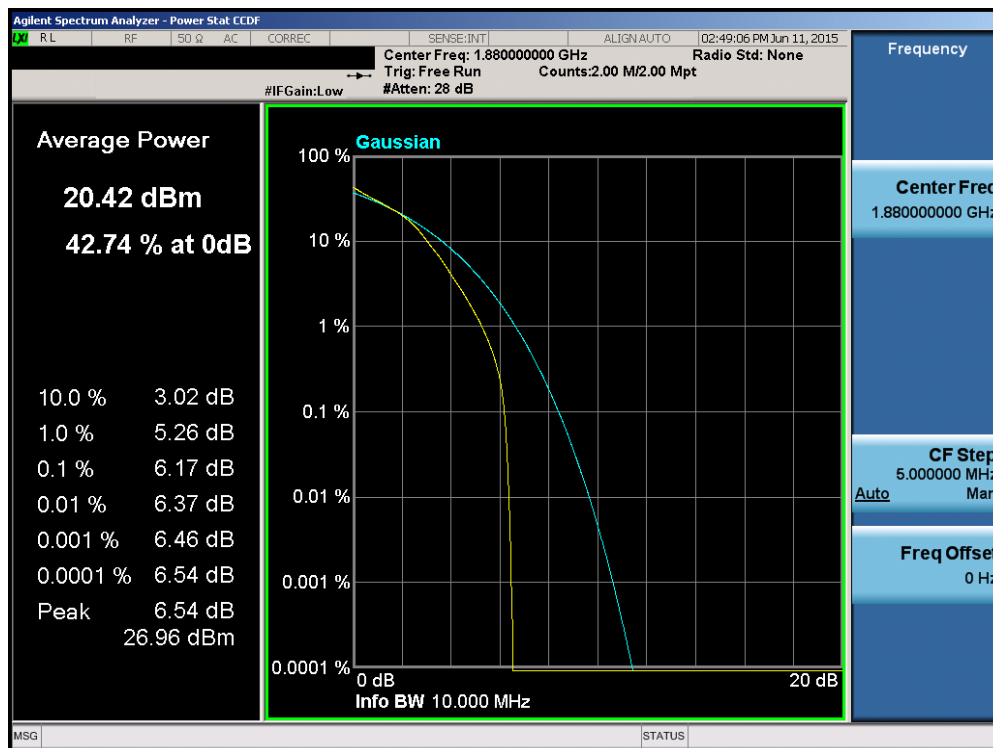


Plot 6-130. PAR Plot (Band 2 – 5.0MHz 16-QAM – RB Size 25)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 81 of 109

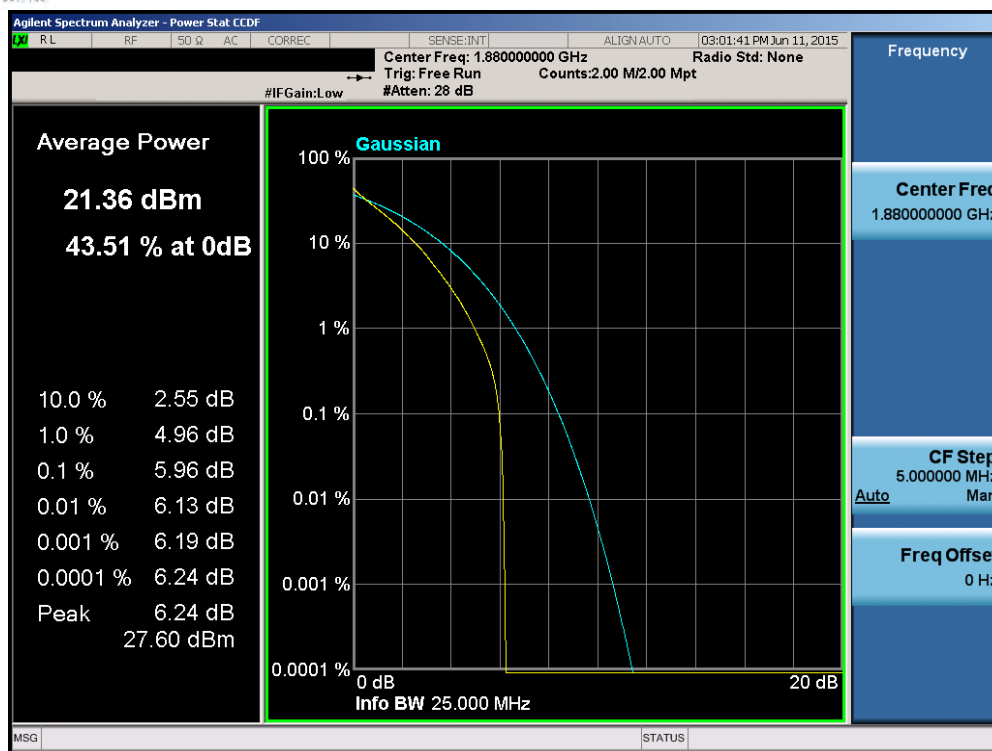


Plot 6-131. PAR Plot (Band 2 – 10.0MHz QPSK – RB Size 50)

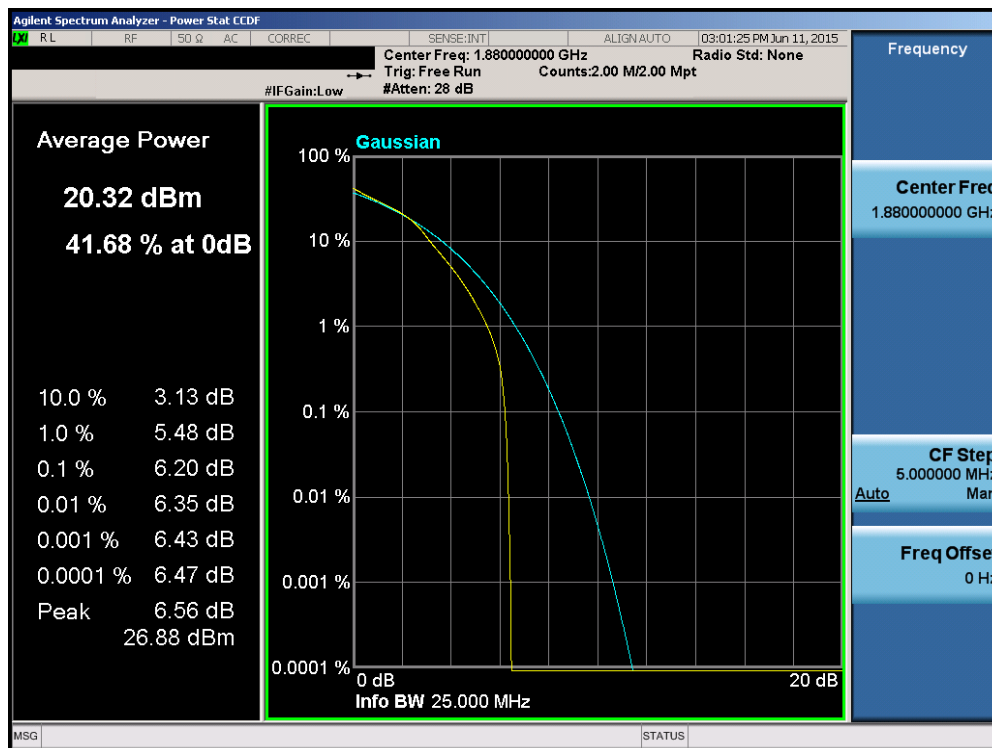


Plot 6-132. PAR Plot (Band 2 – 10.0MHz 16-QAM – RB Size 50)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 82 of 109

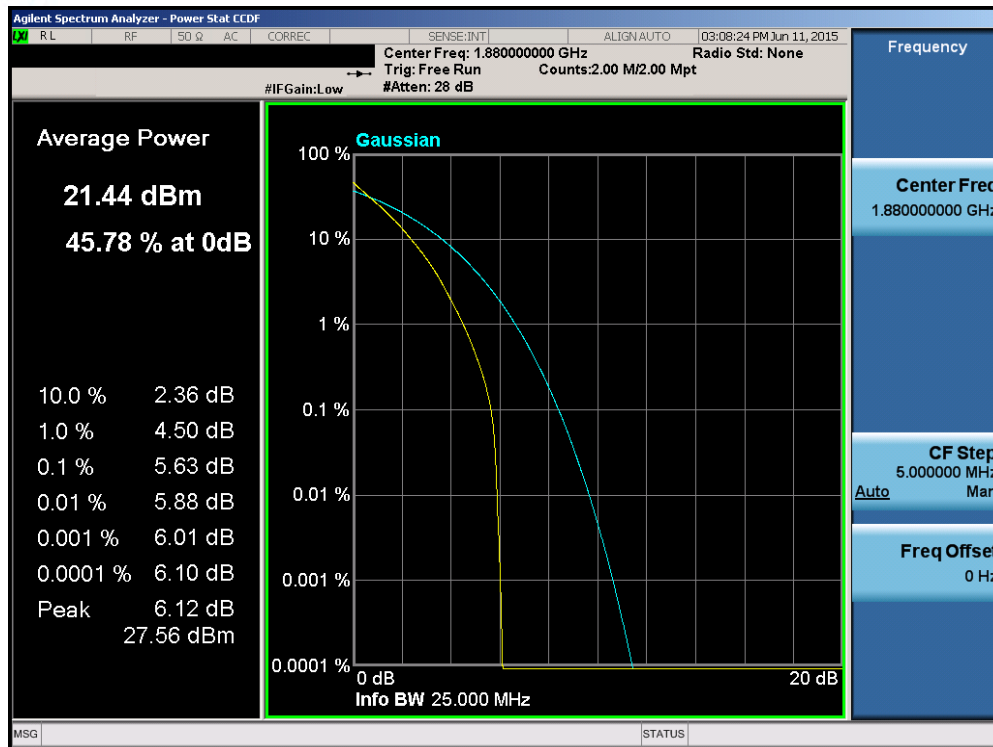


Plot 6-133. PAR Plot (Band 2 – 15.0MHz QPSK – RB Size 75)

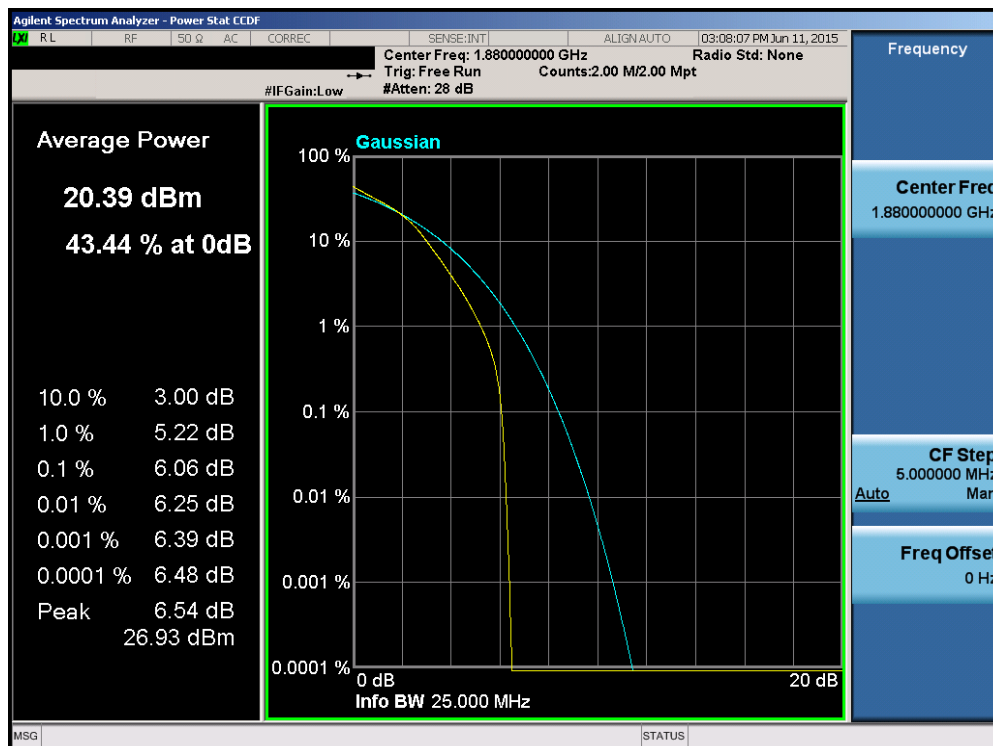


Plot 6-134. PAR Plot (Band 2 – 15.0MHz 16-QAM – RB Size 75)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
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Plot 6-135. PAR Plot (Band 2 – 20.0MHz QPSK – RB Size 100)



Plot 6-136. PAR Plot (Band 2 – 20.0MHz 16-QAM – RB Size 100)

FCC ID: A3LSMN920KOR	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 84 of 109

6.6 Radiated Power (ERP/EIRP)

§22.913(a.2) §24.232(c.2) §27.50(h.2) §27.50(c.10)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-C-2004 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 v02r02 – Section 5.2.1

ANSI/TIA-603-C-2004 – Section 2.2.17

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $\geq 2 \times$ span / RBW
6. Detector = RMS
7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto".
Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

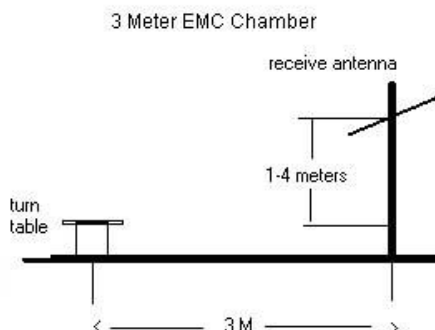


Figure 6-5. Test Instrument & Measurement Setup

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery Cover	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	Ant. Pol. [H/V]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
706.50	5	QPSK	Standard	1 / 24	10.43	1.05	V	11.48	34.77	-23.29
710.00	5	QPSK	Standard	1 / 24	11.20	1.12	V	12.32	34.77	-22.45
713.50	5	QPSK	Standard	1 / 24	11.34	1.19	V	12.53	34.77	-22.24
706.50	5	16-QAM	Standard	1 / 24	9.40	1.05	V	10.45	34.77	-24.32
710.00	5	16-QAM	Standard	1 / 24	10.21	1.12	V	11.33	34.77	-23.44
713.50	5	16-QAM	Standard	1 / 24	10.61	1.19	V	11.80	34.77	-22.97
709.00	10	QPSK	Standard	1 / 49	10.36	1.10	V	11.46	34.77	-23.31
710.00	10	QPSK	Standard	1 / 49	11.07	1.12	V	12.19	34.77	-22.58
711.00	10	QPSK	Standard	1 / 49	11.27	1.14	V	12.41	34.77	-22.36
709.00	10	16-QAM	Standard	1 / 49	9.32	1.10	V	10.42	34.77	-24.35
710.00	10	16-QAM	Standard	1 / 49	10.15	1.12	V	11.27	34.77	-23.50
711.00	10	16-QAM	Standard	1 / 49	10.49	1.14	V	11.63	34.77	-23.14

Table 6-2. ERP Data (Band 17)

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 86 of 109

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery Cover	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	Ant. Pol. [H/V]	ERP [dBm]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	Standard	1 / 0	14.58	2.98	V	17.56	38.45	-20.89
836.50	1.4	QPSK	Standard	1 / 5	13.53	3.04	V	16.57	38.45	-21.88
848.30	1.4	QPSK	Standard	1 / 0	13.29	3.10	V	16.39	38.45	-22.06
824.70	1.4	16-QAM	Standard	1 / 0	13.89	2.98	V	16.87	38.45	-21.58
836.50	1.4	16-QAM	Standard	1 / 5	12.78	3.04	V	15.82	38.45	-22.63
848.30	1.4	16-QAM	Standard	1 / 0	12.97	3.10	V	16.07	38.45	-22.38
825.50	3	QPSK	Standard	1 / 0	14.82	2.98	V	17.80	38.45	-20.65
836.50	3	QPSK	Standard	1 / 0	13.88	3.04	V	16.92	38.45	-21.53
847.50	3	QPSK	Standard	1 / 0	13.65	3.10	V	16.75	38.45	-21.70
825.50	3	16-QAM	Standard	1 / 0	14.13	2.98	V	17.11	38.45	-21.34
836.50	3	16-QAM	Standard	1 / 0	12.80	3.04	V	15.84	38.45	-22.61
847.50	3	16-QAM	Standard	1 / 0	13.23	3.10	V	16.33	38.45	-22.12
826.50	5	QPSK	Standard	1 / 0	14.85	2.99	V	17.84	38.45	-20.61
836.50	5	QPSK	Standard	1 / 24	13.65	3.04	V	16.69	38.45	-21.76
846.50	5	QPSK	Standard	1 / 0	13.85	3.09	V	16.94	38.45	-21.51
826.50	5	16-QAM	Standard	1 / 0	13.68	2.99	V	16.67	38.45	-21.78
836.50	5	16-QAM	Standard	1 / 24	12.43	3.04	V	15.47	38.45	-22.98
846.50	5	16-QAM	Standard	1 / 0	13.02	3.09	V	16.11	38.45	-22.34
829.00	10	QPSK	Standard	1 / 0	14.81	3.00	V	17.81	38.45	-20.64
836.50	10	QPSK	Standard	1 / 0	13.46	3.04	V	16.50	38.45	-21.95
844.00	10	QPSK	Standard	1 / 0	13.65	3.08	V	16.73	38.45	-21.72
829.00	10	16-QAM	Standard	1 / 0	14.19	3.00	V	17.19	38.45	-21.26
836.50	10	16-QAM	Standard	1 / 0	12.26	3.04	V	15.30	38.45	-23.15
844.00	10	16-QAM	Standard	1 / 0	12.62	3.08	V	15.70	38.45	-22.75
831.50	15	QPSK	Standard	1 / 37	14.24	3.01	V	17.25	38.45	-21.20
836.50	15	QPSK	Standard	1 / 37	13.65	3.04	V	16.69	38.45	-21.76
841.50	15	QPSK	Standard	1 / 37	13.33	3.07	V	16.40	38.45	-22.05
831.50	15	16-QAM	Standard	1 / 37	13.33	3.01	V	16.34	38.45	-22.11
836.50	15	16-QAM	Standard	1 / 37	12.75	3.04	V	15.79	38.45	-22.66
841.50	15	16-QAM	Standard	1 / 37	12.44	3.07	V	15.51	38.45	-22.94

Table 6-3. ERP Data (Band 5/26)

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset			Page 87 of 109

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery Cover	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	Ant. Pol. [H/V]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	Standard	1 / 0	11.66	8.34	V	20.00	33.01	-13.01
1880.00	1.4	QPSK	Standard	1 / 0	11.83	8.46	V	20.29	33.01	-12.72
1909.30	1.4	QPSK	Standard	1 / 0	11.52	8.64	V	20.16	33.01	-12.85
1850.70	1.4	16-QAM	Standard	1 / 0	10.37	8.34	V	18.71	33.01	-14.30
1880.00	1.4	16-QAM	Standard	1 / 0	11.72	8.46	V	20.18	33.01	-12.83
1909.30	1.4	16-QAM	Standard	1 / 0	10.31	8.64	V	18.95	33.01	-14.06
1851.50	3	QPSK	Standard	1 / 0	11.77	8.35	V	20.12	33.01	-12.89
1880.00	3	QPSK	Standard	1 / 14	12.05	8.46	V	20.51	33.01	-12.50
1908.50	3	QPSK	Standard	1 / 14	11.80	8.63	V	20.43	33.01	-12.58
1851.50	3	16-QAM	Standard	1 / 0	10.48	8.35	V	18.83	33.01	-14.18
1880.00	3	16-QAM	Standard	1 / 14	10.53	8.46	V	18.99	33.01	-14.02
1908.50	3	16-QAM	Standard	1 / 14	10.59	8.63	V	19.22	33.01	-13.79
1852.50	5	QPSK	Standard	1 / 0	11.79	8.35	V	20.14	33.01	-12.87
1880.00	5	QPSK	Standard	1 / 24	12.17	8.46	V	20.63	33.01	-12.38
1907.50	5	QPSK	Standard	1 / 24	11.94	8.62	V	20.56	33.01	-12.45
1852.50	5	16-QAM	Standard	1 / 0	10.53	8.35	V	18.88	33.01	-14.13
1880.00	5	16-QAM	Standard	1 / 24	10.69	8.46	V	19.15	33.01	-13.86
1907.50	5	16-QAM	Standard	1 / 24	10.52	8.62	V	19.14	33.01	-13.87
1855.00	10	QPSK	Standard	1 / 25	11.94	8.36	V	20.30	33.01	-12.71
1880.00	10	QPSK	Standard	1 / 49	11.89	8.46	V	20.35	33.01	-12.66
1905.00	10	QPSK	Standard	1 / 49	11.99	8.59	V	20.58	33.01	-12.43
1855.00	10	16-QAM	Standard	1 / 25	10.60	8.36	V	18.96	33.01	-14.05
1880.00	10	16-QAM	Standard	1 / 49	10.57	8.46	V	19.03	33.01	-13.98
1905.00	10	16-QAM	Standard	1 / 49	10.65	8.59	V	19.24	33.01	-13.77
1857.50	15	QPSK	Standard	1 / 0	11.95	8.37	V	20.32	33.01	-12.69
1880.00	15	QPSK	Standard	1 / 74	11.93	8.46	V	20.39	33.01	-12.62
1902.50	15	QPSK	Standard	1 / 37	12.03	8.56	V	20.59	33.01	-12.42
1857.50	15	16-QAM	Standard	1 / 0	10.69	8.37	V	19.06	33.01	-13.95
1880.00	15	16-QAM	Standard	1 / 74	10.61	8.46	V	19.07	33.01	-13.94
1902.50	15	16-QAM	Standard	1 / 37	10.77	8.56	V	19.33	33.01	-13.68
1860.00	20	QPSK	Standard	1 / 0	11.92	8.38	V	20.30	33.01	-12.71
1880.00	20	QPSK	Standard	1 / 50	11.31	8.46	V	19.77	33.01	-13.24
1900.00	20	QPSK	Standard	1 / 99	11.40	8.53	V	19.93	33.01	-13.08
1860.00	20	16-QAM	Standard	1 / 0	10.77	8.38	V	19.15	33.01	-13.86
1880.00	20	16-QAM	Standard	1 / 50	10.27	8.46	V	18.73	33.01	-14.28
1900.00	20	16-QAM	Standard	1 / 99	10.32	8.53	V	18.85	33.01	-14.16

Table 6-4. EIRP Data (Band 2)

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 88 of 109

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Battery Cover	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	Ant. Pol. [H/V]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	Standard	25 / 0	13.92	7.09	V	21.01	33.01	-12.00
2593.00	5	QPSK	Standard	25 / 0	14.49	7.55	V	22.04	33.01	-10.97
2687.50	5	QPSK	Standard	25 / 0	14.24	7.82	V	22.06	33.01	-10.95
2498.50	5	16-QAM	Standard	25 / 0	13.00	7.09	V	20.09	33.01	-12.92
2593.00	5	16-QAM	Standard	25 / 0	13.55	7.55	V	21.10	33.01	-11.91
2687.50	5	16-QAM	Standard	25 / 0	13.16	7.82	V	20.98	33.01	-12.03
2501.00	10	QPSK	Standard	50 / 0	13.89	7.08	V	20.97	33.01	-12.04
2593.00	10	QPSK	Standard	50 / 0	14.47	7.55	V	22.02	33.01	-10.99
2685.00	10	QPSK	Standard	50 / 0	14.18	7.81	V	21.99	33.01	-11.02
2501.00	10	16-QAM	Standard	50 / 0	12.94	7.08	V	20.02	33.01	-12.99
2593.00	10	16-QAM	Standard	50 / 0	13.47	7.55	V	21.02	33.01	-11.99
2685.00	10	16-QAM	Standard	50 / 0	13.11	7.81	V	20.92	33.01	-12.09
2503.50	15	QPSK	Standard	75 / 0	13.87	7.10	V	20.97	33.01	-12.04
2593.00	15	QPSK	Standard	75 / 0	14.45	7.55	V	22.00	33.01	-11.01
2682.50	15	QPSK	Standard	75 / 0	14.14	7.81	V	21.95	33.01	-11.06
2503.50	15	16-QAM	Standard	75 / 0	12.87	7.10	V	19.97	33.01	-13.04
2593.00	15	16-QAM	Standard	75 / 0	13.37	7.55	V	20.92	33.01	-12.09
2682.50	15	16-QAM	Standard	75 / 0	13.01	7.81	V	20.82	33.01	-12.19
2506.00	20	QPSK	Standard	100 / 0	13.90	7.11	V	21.01	33.01	-12.00
2593.00	20	QPSK	Standard	100 / 0	14.32	7.55	V	21.87	33.01	-11.14
2680.00	20	QPSK	Standard	100 / 0	14.17	7.80	V	21.97	33.01	-11.04
2506.00	20	16-QAM	Standard	100 / 0	12.92	7.11	V	20.03	33.01	-12.98
2593.00	20	16-QAM	Standard	100 / 0	13.22	7.55	V	20.77	33.01	-12.24
2680.00	20	16-QAM	Standard	100 / 0	13.13	7.80	V	20.93	33.01	-12.08

Table 6-5. EIRP Data (Band 41)

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset	Page 89 of 109	

6.7 Radiated Spurious Emissions Measurements

§2.1053 §22.917(a) §24.238(a) §27.53(g) §27.53(m)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-C-2004 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 v02r02 – Section 5.8

ANSI/TIA-603-C-2004 – Section 2.2.12

Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW $\geq 3 \times$ RBW
3. Span = 1.5 times the OBW
4. No. of sweep points $\geq 2 \times$ span / RBW
5. Detector = Peak
6. Trace mode = max hold
7. The trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

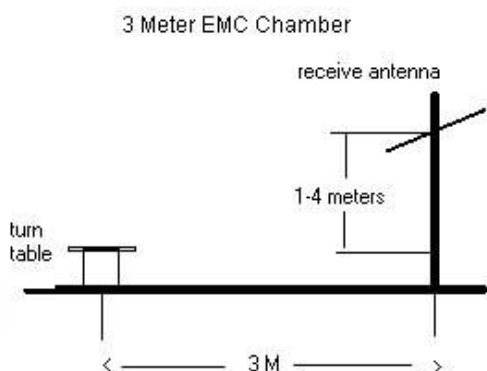


Figure 6-6. Test Instrument & Measurement Setup

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1506121169.A3L	Test Dates: 6/4 - 6/25/2015	EUT Type: Portable Handset		Page 90 of 109

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.

OPERATING FREQUENCY: 706.50 MHz
 CHANNEL: 23755
 MEASURED OUTPUT POWER: 11.48 dBm = 0.014 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 24.48 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1413.00	-65.62	5.72	-59.90	H	71.4
2119.50	-61.46	6.71	-54.75	H	66.2
2826.00	-64.67	7.81	-56.87	H	68.3
3532.50	-61.24	7.59	-53.66	H	65.1

Table 6-6. Radiated Spurious Data (Band 17 – Low Channel)

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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OPERATING FREQUENCY: 710.00 MHz
 CHANNEL: 23790
 MEASURED OUTPUT POWER: 12.32 dBm = 0.017 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 25.32 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1420.00	-66.89	5.76	-61.13	H	73.5
2130.00	-62.22	6.77	-55.45	H	67.8
2840.00	-64.55	7.78	-56.76	H	69.1

Table 6-7. Radiated Spurious Data (Band 17 – Mid Channel)

OPERATING FREQUENCY: 713.50 MHz
 CHANNEL: 23825
 MEASURED OUTPUT POWER: 12.53 dBm = 0.018 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 25.53 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1427.00	-64.58	5.80	-58.78	H	71.3
2140.50	-60.18	6.83	-53.35	H	65.9
2854.00	-64.61	7.76	-56.85	H	69.4
3567.50	-62.29	7.60	-54.69	H	67.2

Table 6-8. Radiated Spurious Data (Band 17 – High Channel)

OPERATING FREQUENCY: 713.50 MHz
 CHANNEL: 23825
 MEASURED OUTPUT POWER: 12.53 dBm = 0.018 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 25.53 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1427.00	-66.40	5.80	-60.60	H	73.1
2140.50	-61.52	6.83	-54.69	H	67.2
2854.00	-64.11	7.76	-56.35	H	68.9
3567.50	-62.44	7.60	-54.84	H	67.4

Table 6-9. Radiated Spurious Data with WCP (Band 17 – High Channel)

OPERATING FREQUENCY: 826.50 MHz
 CHANNEL: 26815
 MEASURED OUTPUT POWER: 17.84 dBm = 0.061 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 30.84 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1653.00	-67.07	6.56	-60.52	H	78.4
2479.50	-60.80	7.31	-53.50	H	71.3
3306.00	-63.18	7.38	-55.80	H	73.6

Table 6-10. Radiated Spurious Data (Band 5/26 – Low Channel)

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 26915
 MEASURED OUTPUT POWER: 16.69 dBm = 0.047 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 29.69 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1673.00	-65.28	6.55	-58.72	H	75.4
2509.50	-57.48	7.34	-50.14	H	66.8
3346.00	-62.80	7.44	-55.36	H	72.1

Table 6-11. Radiated Spurious Data (Band 5/26 – Mid Channel)

OPERATING FREQUENCY: 846.50 MHz
 CHANNEL: 27015
 MEASURED OUTPUT POWER: 16.94 dBm = 0.049 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 29.94 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1693.00	-60.41	6.55	-53.87	H	70.8
2539.50	-59.99	7.36	-52.64	H	69.6
3386.00	-63.26	7.50	-55.76	H	72.7

Table 6-12. Radiated Spurious Data (Band 5/26 – High Channel)

OPERATING FREQUENCY: 846.50 MHz
 CHANNEL: 26815
 MEASURED OUTPUT POWER: 16.94 dBm = 0.049 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 29.94 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1693.00	-64.96	6.56	-58.41	H	75.4
2539.50	-63.24	7.31	-55.94	H	72.9
3386.00	-63.05	7.38	-55.67	H	72.6

Table 6-13. Radiated Spurious Data with WCP (Band 5/26 – High Channel)

OPERATING FREQUENCY: 1852.50 MHz
 CHANNEL: 18625
 MEASURED OUTPUT POWER: 20.14 dBm = 0.103 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.14 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3705.00	-57.15	9.43	-47.72	H	67.9
5557.50	-58.50	10.80	-47.70	H	67.8
7410.00	-55.52	10.71	-44.81	H	65.0

Table 6-14. Radiated Spurious Data (Band 2 – Low Channel)

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 18900
 MEASURED OUTPUT POWER: 20.63 dBm = 0.116 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.63 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3760.00	-56.91	9.28	-47.63	H	68.3
5640.00	-60.34	11.03	-49.31	H	69.9
7520.00	-57.07	10.97	-46.10	H	66.7

Table 6-15. Radiated Spurious Data (Band 2 – Mid Channel)

OPERATING FREQUENCY: 1907.50 MHz
 CHANNEL: 19175
 MEASURED OUTPUT POWER: 20.56 dBm = 0.114 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.56 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3815.00	-57.63	9.19	-48.44	H	69.0
5722.50	-59.88	11.27	-48.60	H	69.2
7630.00	-55.51	11.17	-44.34	H	64.9

Table 6-16. Radiated Spurious Data (Band 2 – High Channel)

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 18900
 MEASURED OUTPUT POWER: 20.63 dBm = 0.116 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.63 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3760.00	-55.59	9.28	-46.31	H	66.9
5640.00	-59.48	11.03	-48.45	H	69.1
7520.00	-57.65	10.97	-46.68	H	67.3

Table 6-17. Radiated Spurious Data with WCP (Band 2 – Mid Channel)

OPERATING FREQUENCY: 2498.50 MHz
 CHANNEL: 39675
 MEASURED OUTPUT POWER: 21.01 dBm = 0.126 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10} (W) =$ 46.01 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
4997.00	-46.04	10.14	-35.91	H	56.9
7495.50	-55.93	12.08	-43.85	H	64.9
9994.00	-55.00	13.25	-41.75	H	62.8

Table 6-18. Radiated Spurious Data (Band 41 – Low Channel)

OPERATING FREQUENCY: 2593.00 MHz
 CHANNEL: 40620
 MEASURED OUTPUT POWER: 22.04 dBm = 0.160 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10} (W) =$ 47.04 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
5186.00	-45.04	10.33	-34.70	H	56.7
7779.00	-56.93	12.32	-44.60	H	66.6
10372.00	-53.84	13.18	-40.65	H	62.7

Table 6-19. Radiated Spurious Data (Band 41 – Mid Channel)

OPERATING FREQUENCY: 2687.50 MHz
 CHANNEL: 41565
 MEASURED OUTPUT POWER: 22.06 dBm = 0.161 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10} (W) =$ 47.06 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
5375.00	-44.52	10.37	-34.15	H	56.2
8062.50	-49.63	12.61	-37.02	H	59.1
10750.00	-53.47	12.95	-40.52	H	62.6

Table 6-20. Radiated Spurious Data (Band 41 – High Channel)

OPERATING FREQUENCY: 2687.50 MHz
 CHANNEL: 41565
 MEASURED OUTPUT POWER: 22.06 dBm = 0.161 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10} (W) =$ 47.06 dBc

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
5375.00	-46.68	10.33	-36.34	H	58.4
8062.50	-56.83	12.32	-44.50	H	66.6
10750.00	-53.85	13.18	-40.66	H	62.7

Table 6-21. Radiated Spurious Data with WCP (Band 41 – High Channel)

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6.8 Frequency Stability / Temperature Variation

\$2.1055 \$22.355 \$24.235 \$27.54

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-C-2004. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24 and Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI/TIA-603-C-2004

Test Settings

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

None

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 17 Frequency Stability Measurements

§2.1055 §27.54

OPERATING FREQUENCY: 710,000,000 Hz
 CHANNEL: 23090
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	709,999,877	-123	-0.0000173
100 %		- 30	710,000,152	152	0.0000214
100 %		- 20	709,999,776	-224	-0.0000315
100 %		- 10	709,999,696	-304	-0.0000428
100 %		0	710,000,017	17	0.0000024
100 %		+ 10	709,999,956	-44	-0.0000062
100 %		+ 20	709,999,744	-256	-0.0000361
100 %		+ 30	710,000,214	214	0.0000301
100 %		+ 40	709,999,909	-91	-0.0000128
100 %		+ 50	710,000,096	96	0.0000135
BATT. ENDPOINT	3.40	+ 20	709,999,814	-186	-0.0000262

Table 6-22. Frequency Stability Data (Band 17)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

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Band 17 Frequency Stability Measurements

§2.1055 §27.54

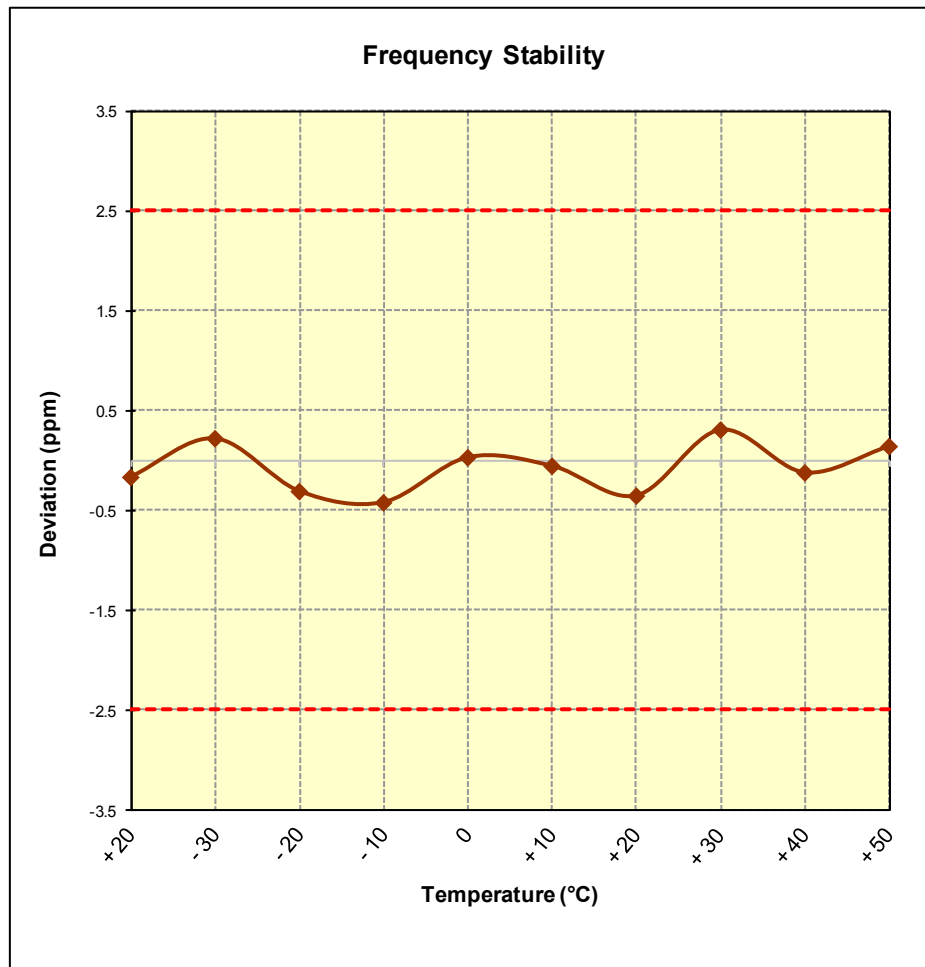


Figure 6-7. Frequency Stability Graph (Band 17)

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 5/26 Frequency Stability Measurements

§2.1055 §22.355

OPERATING FREQUENCY: 831,500,000 Hz

CHANNEL: 26865

REFERENCE VOLTAGE: 3.85 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	831,499,834	-166	-0.0000200
100 %		- 30	831,500,069	69	0.0000083
100 %		- 20	831,499,826	-174	-0.0000209
100 %		- 10	831,500,114	114	0.0000137
100 %		0	831,499,952	-48	-0.0000058
100 %		+ 10	831,499,869	-131	-0.0000158
100 %		+ 20	831,500,091	91	0.0000109
100 %		+ 30	831,500,163	163	0.0000196
100 %		+ 40	831,499,684	-316	-0.0000380
100 %		+ 50	831,499,824	-176	-0.0000212
BATT. ENDPOINT	3.40	+ 20	831,499,910	-90	-0.0000108

Table 6-23. Frequency Stability Data (Band 5/26)

Band 5/26 Frequency Stability Measurements **§2.1055 §22.355**

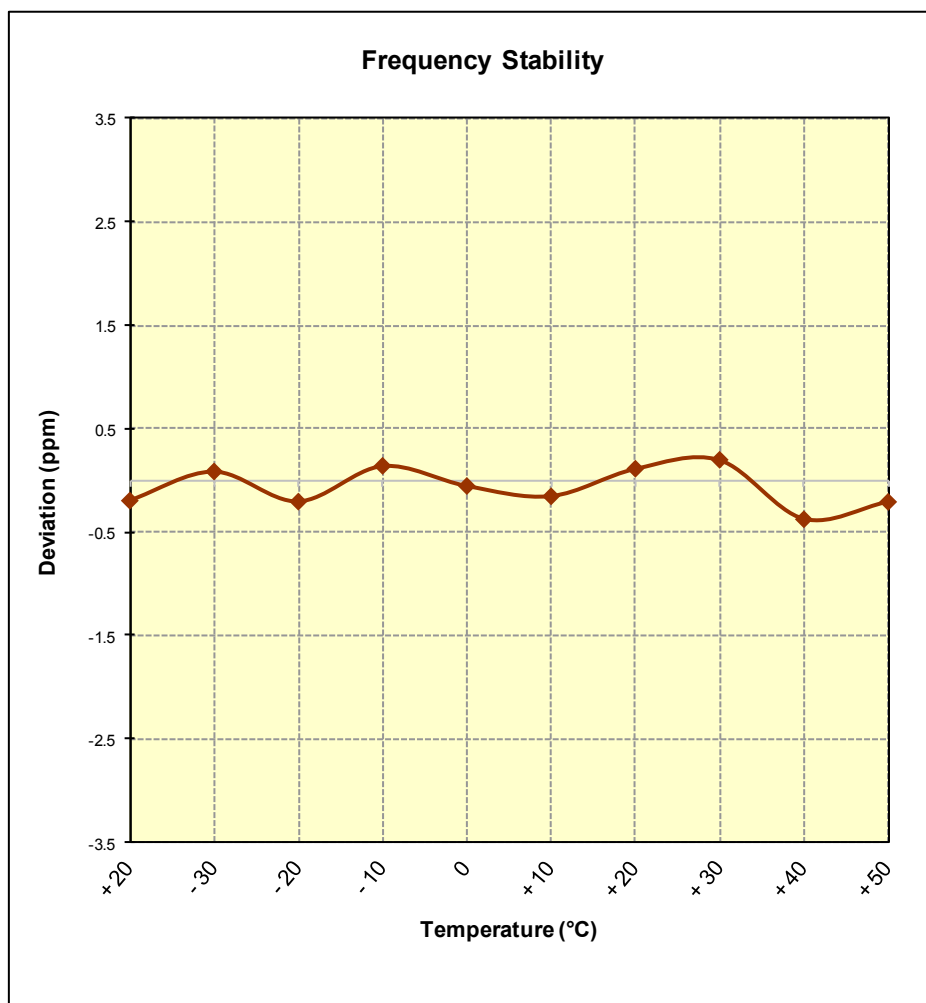


Figure 6-8. Frequency Stability Graph (Band 5/26)

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 2 Frequency Stability Measurements

§2.1055 §24.235

OPERATING FREQUENCY: 1,880,000,000 Hz
 CHANNEL: 18900
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,880,000,303	303	0.0000161
100 %		- 30	1,880,000,248	248	0.0000132
100 %		- 20	1,880,000,073	73	0.0000039
100 %		- 10	1,879,999,948	-52	-0.0000028
100 %		0	1,880,000,134	134	0.0000071
100 %		+ 10	1,880,000,144	144	0.0000077
100 %		+ 20	1,879,999,830	-170	-0.0000090
100 %		+ 30	1,880,000,042	42	0.0000022
100 %		+ 40	1,879,999,627	-373	-0.0000198
100 %		+ 50	1,880,000,138	138	0.0000073
BATT. ENDPOINT	3.40	+ 20	1,880,000,018	18	0.0000010

Table 6-24. Frequency Stability Data (Band 2)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 2 Frequency Stability Measurements

§2.1055 §24.235

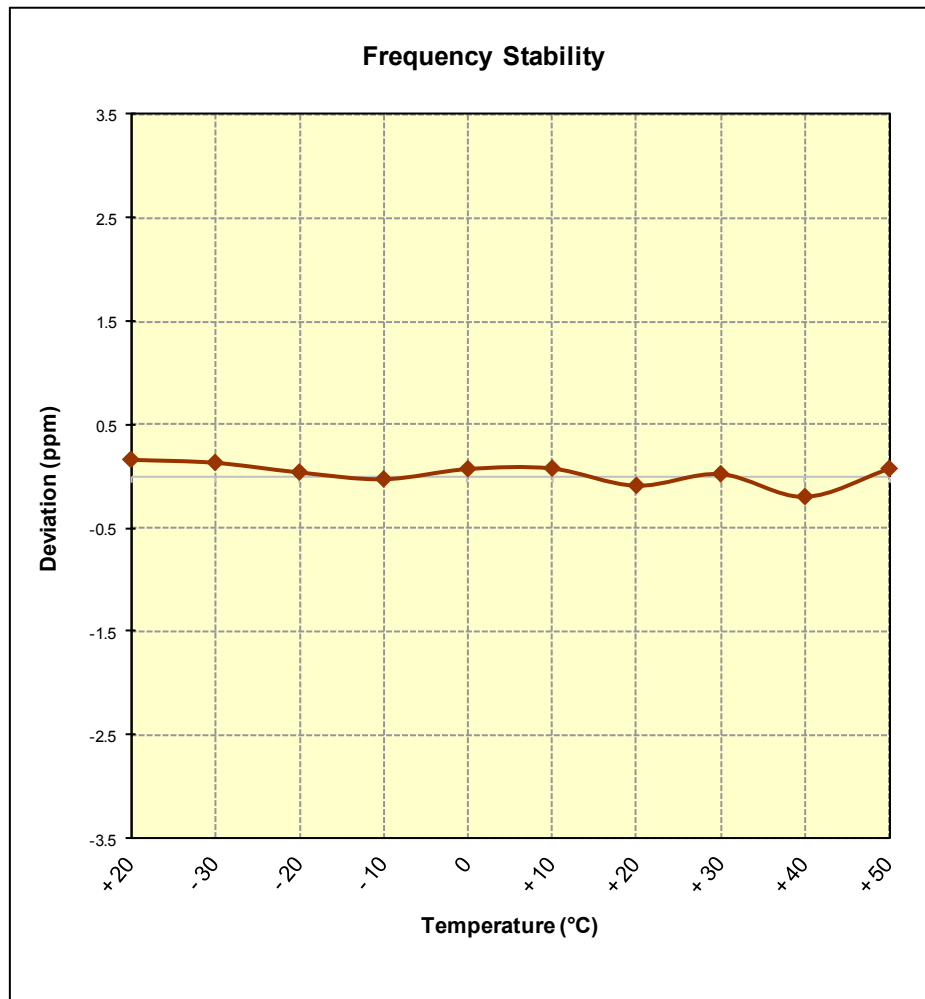


Figure 6-9. Frequency Stability Graph (Band 2)

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 41 Frequency Stability Measurements

§2.1055 §27.54

OPERATING FREQUENCY: 2,593,000,000 Hz
 CHANNEL: 40620
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,592,999,848	-152	-0.0000059
100 %		- 30	2,592,999,857	-143	-0.0000055
100 %		- 20	2,593,000,105	105	0.0000040
100 %		- 10	2,592,999,872	-128	-0.0000049
100 %		0	2,592,999,736	-264	-0.0000102
100 %		+ 10	2,592,999,581	-419	-0.0000162
100 %		+ 20	2,593,000,166	166	0.0000064
100 %		+ 30	2,593,000,319	319	0.0000123
100 %		+ 40	2,593,000,048	48	0.0000019
100 %		+ 50	2,592,999,904	-96	-0.0000037
BATT. ENDPOINT	3.40	+ 20	2,592,999,980	-20	-0.0000008

Table 6-25. Frequency Stability Data (Band 41)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Band 41 Frequency Stability Measurements **§2.1055 §27.54**

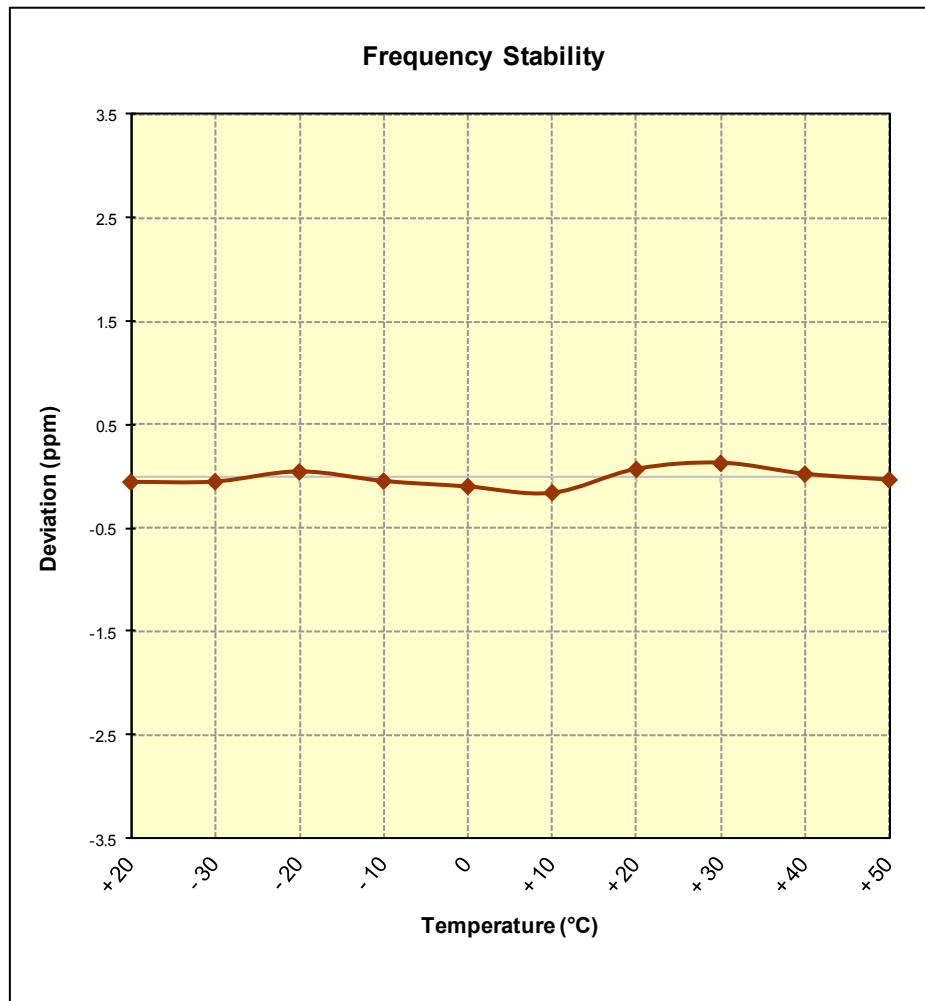


Figure 6-10. Frequency Stability Graph (Band 41)

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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7.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMN920KOR** complies with all the requirements of Parts 22, 24, & 27 of the FCC rules for LTE operation only.

FCC ID: A3LSMN920KOR		FCC Pt. 22, 24, & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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