

7.4 Band Edge Emissions at Antenna Terminal

§2.1051 §22.917(a) §27.53(c) §27.53(g) §27.53(m)

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level for Band 7, 38, and 41 is as noted in the Test Notes on the following page.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 D01 v02r02 – Section 6.0

Test Settings

1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
2. Span was set large enough so as to capture all out of band emissions near the band edge
3. RBW $\geq 1\%$ of the emission bandwidth
4. VBW $\geq 3 \times$ RBW
5. Detector = RMS
6. Number of sweep points $\geq 2 \times$ Span/RBW
7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
8. Sweep time = auto couple
9. The trace was allowed to stabilize

Test Setup

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

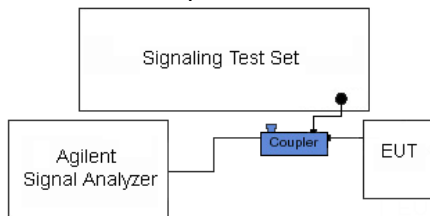


Figure 7-3. Test Instrument & Measurement Setup

Test Notes

Per 22.917(b) in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

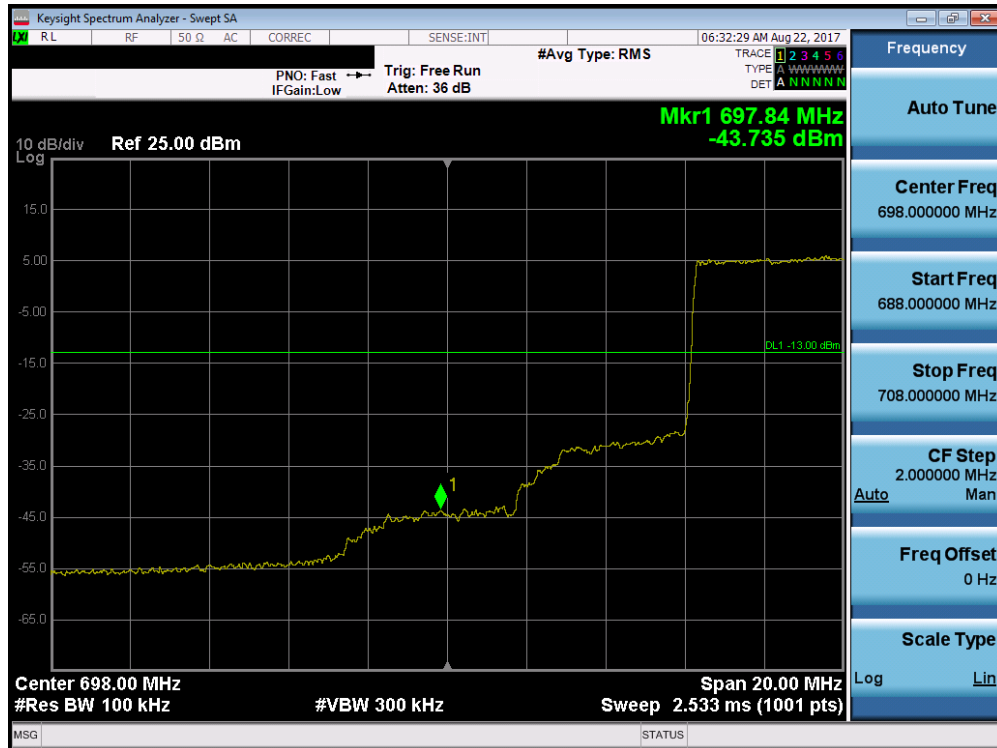
FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset		Page 65 of 134

Per 27.53(g) for operations in the 698-746 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

Per 27.53(c.5) for operations in the 776-788 MHz band, in the 100 kHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least 30 kHz may be employed to demonstrate compliance with the out-of-band emissions limit.

For all plots showing emissions in the 763 – 775MHz and 793 – 805MHz band, the FCC limit per 27.53(c.4) is $65 + 10\log_{10}(P) = -35\text{dBm}$ in a 6.25kHz bandwidth.

Per 27.53(m) for operations in the BRS/EBS bands, the attenuation factor shall be not less than $40 + 10 \log (P)$ dB on all frequencies between the channel edge and 5 megahertz from the channel edge, $43 + 10 \log (P)$ dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and $55 + 10 \log (P)$ dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth. In addition, the attenuation factor shall not be less that $43 + 10 \log (P)$ dB on all frequencies between 2490.5 MHz and 2496 MHz and $55 + 10 \log (P)$ dB at or below 2490.5 MHz.

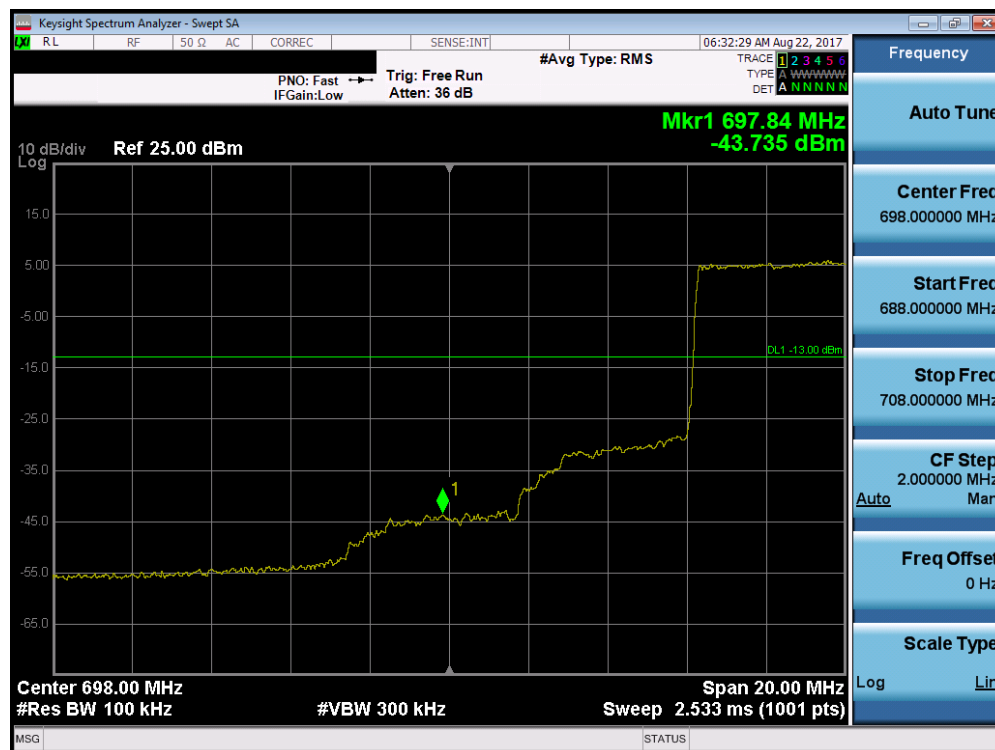


Plot 7-97. Lower Band Edge Plot (Band 17 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-98. Upper Band Edge Plot (Band 17 – 5.0MHz QPSK – RB Size 50)

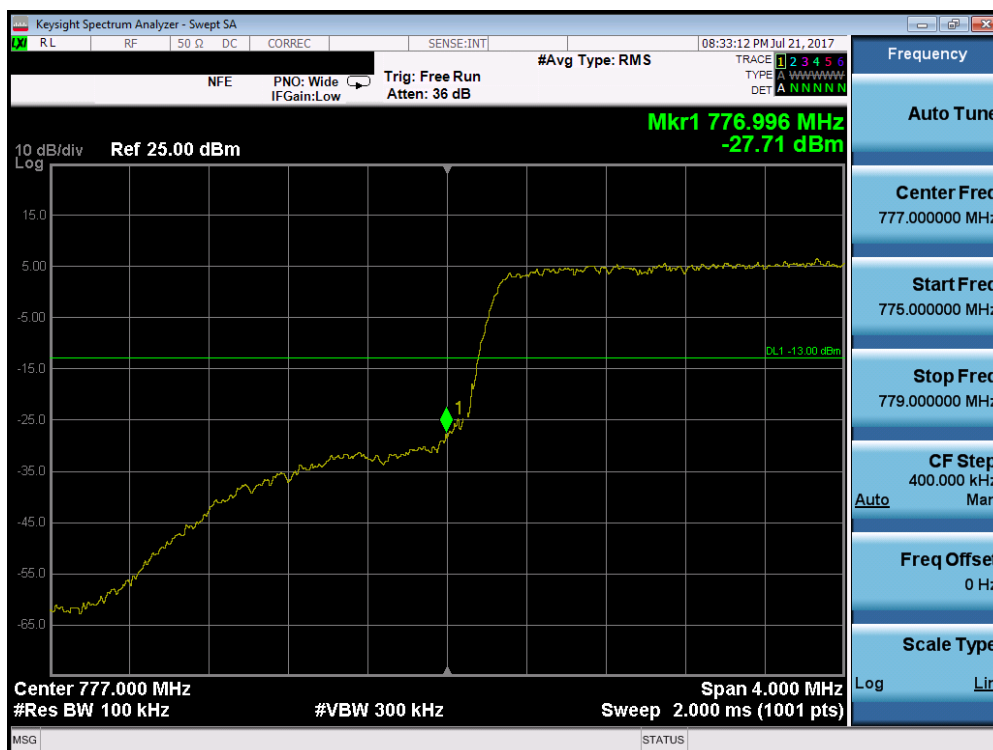


Plot 7-99. Lower Band Edge Plot (Band 17 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset		Page 67 of 134

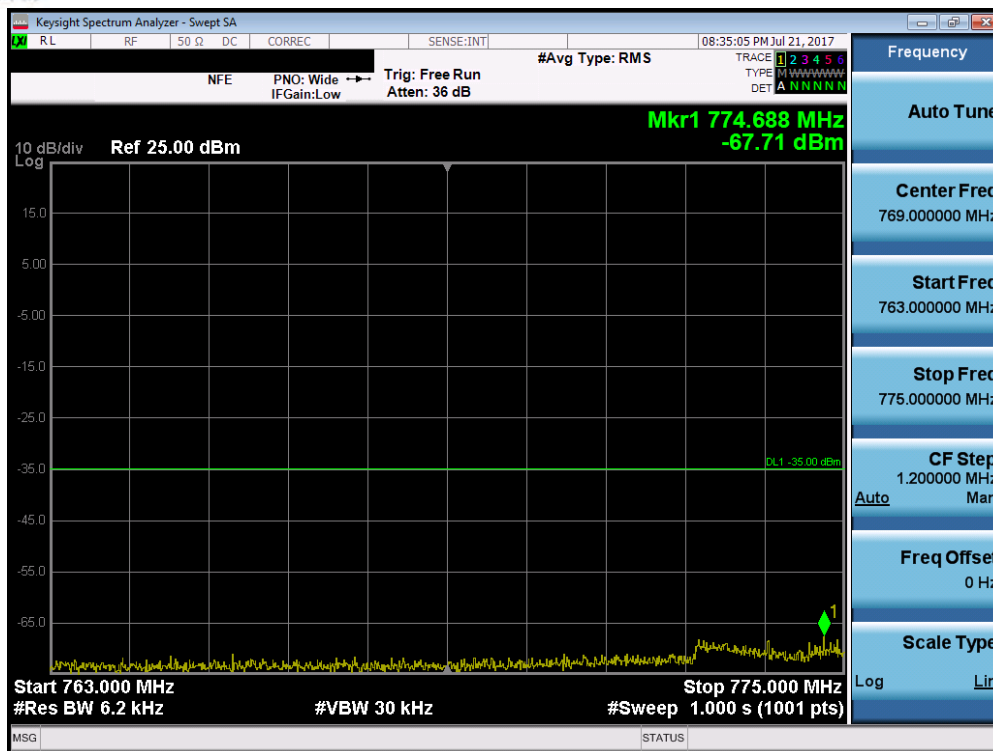


Plot 7-100. Upper Band Edge Plot (Band 17 – 10.0MHz QPSK – RB Size 50)

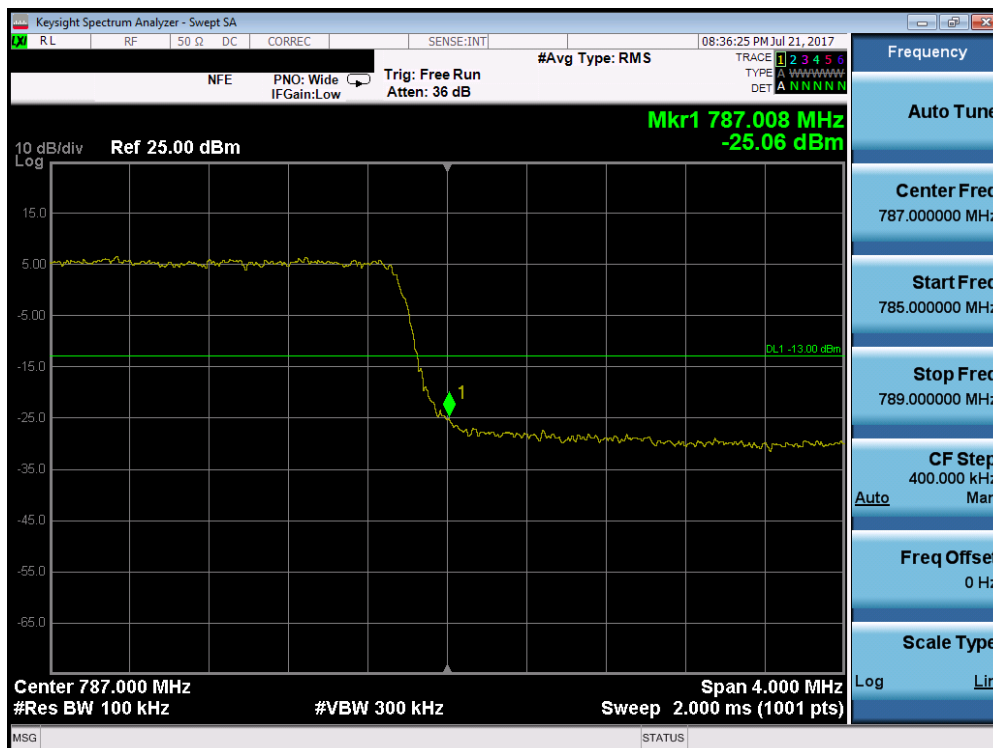


Plot 7-101. Lower Band Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-102. Lower Emission Mask Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

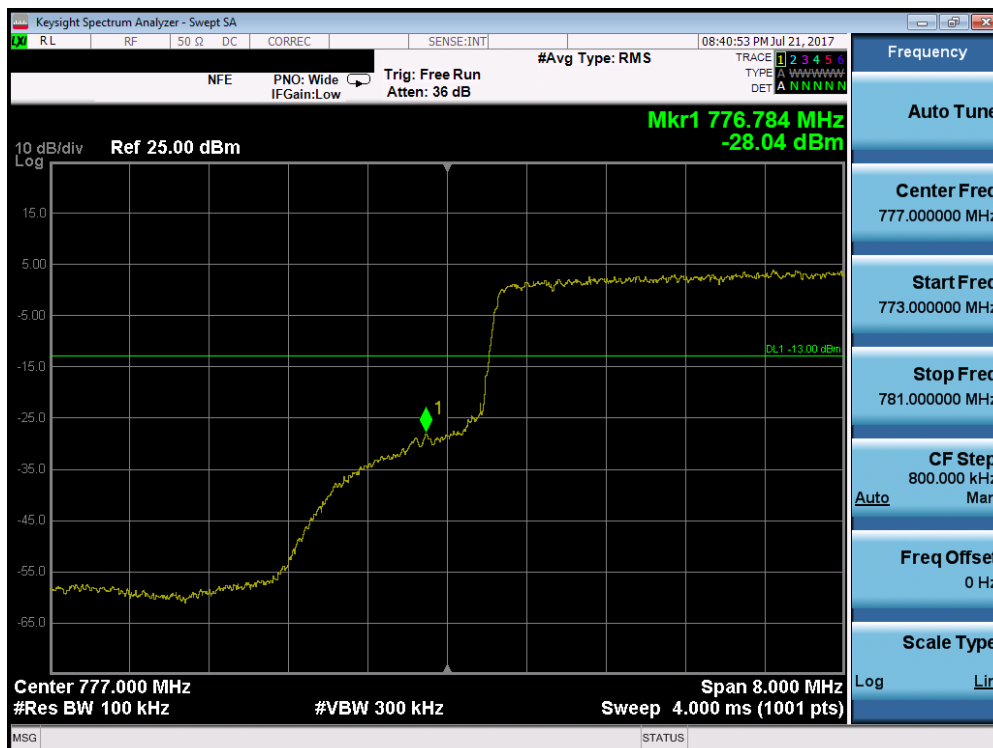


Plot 7-103. Upper Band Edge Plot (Band 13 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-104. Upper Emission Mask Edge Plot (Band 13 - 5.0MHz QPSK - RB Size 25)

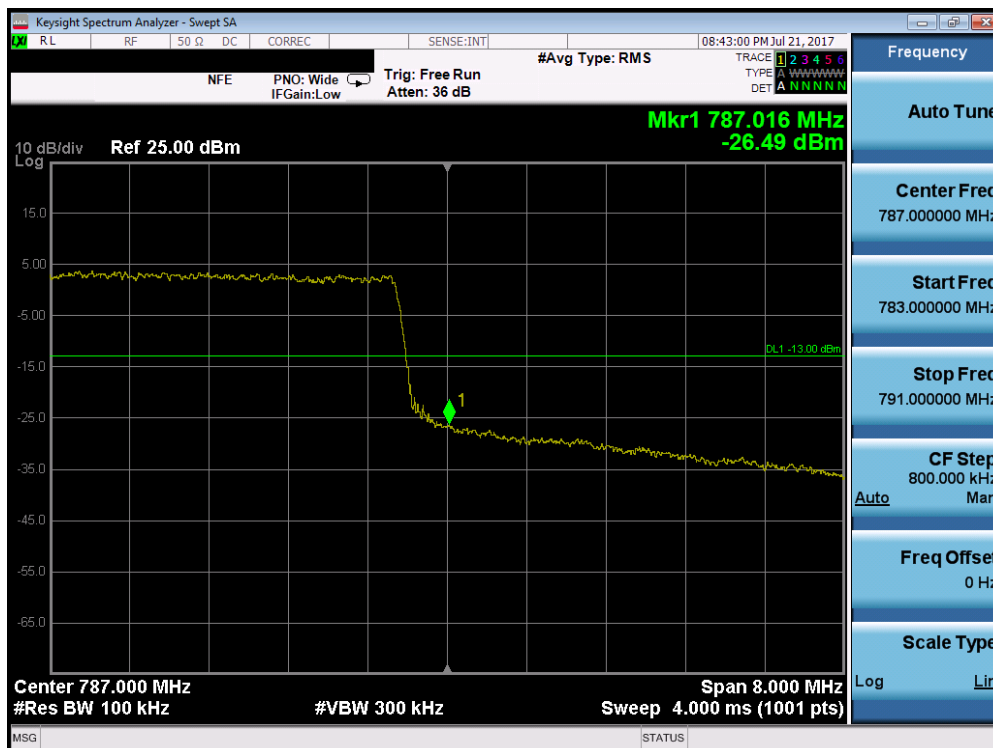


Plot 7-105. Lower Band Edge Plot (Band 13 - 10.0MHz QPSK - RB Size 50)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-106. Lower Emission Mask Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)

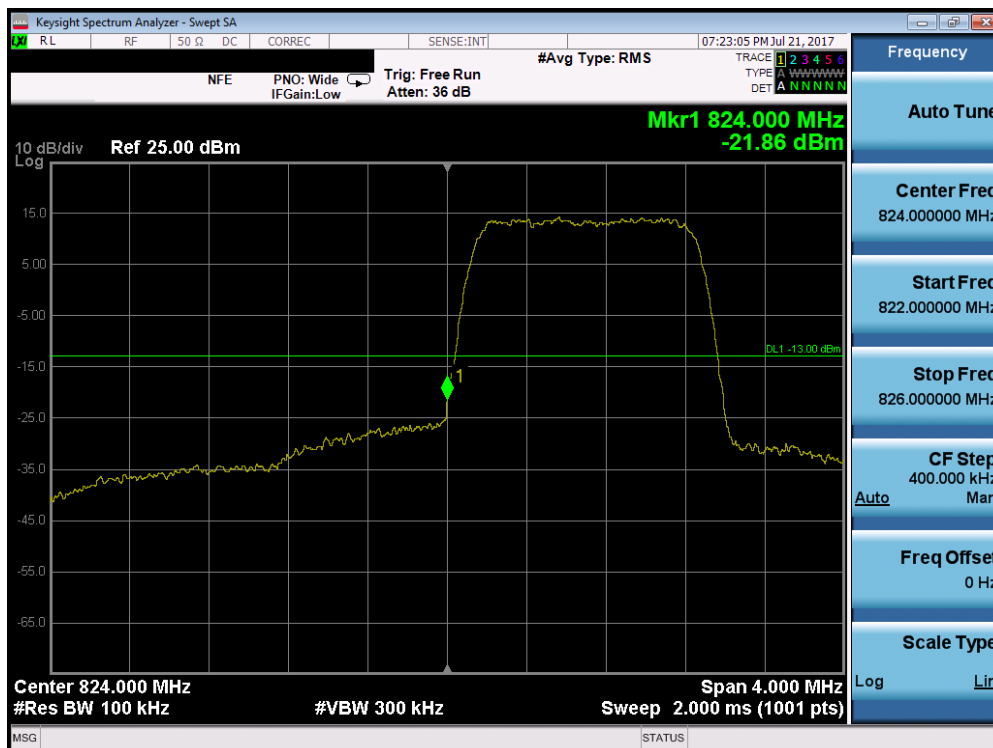


Plot 7-107. Upper Band Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset		Page 71 of 134

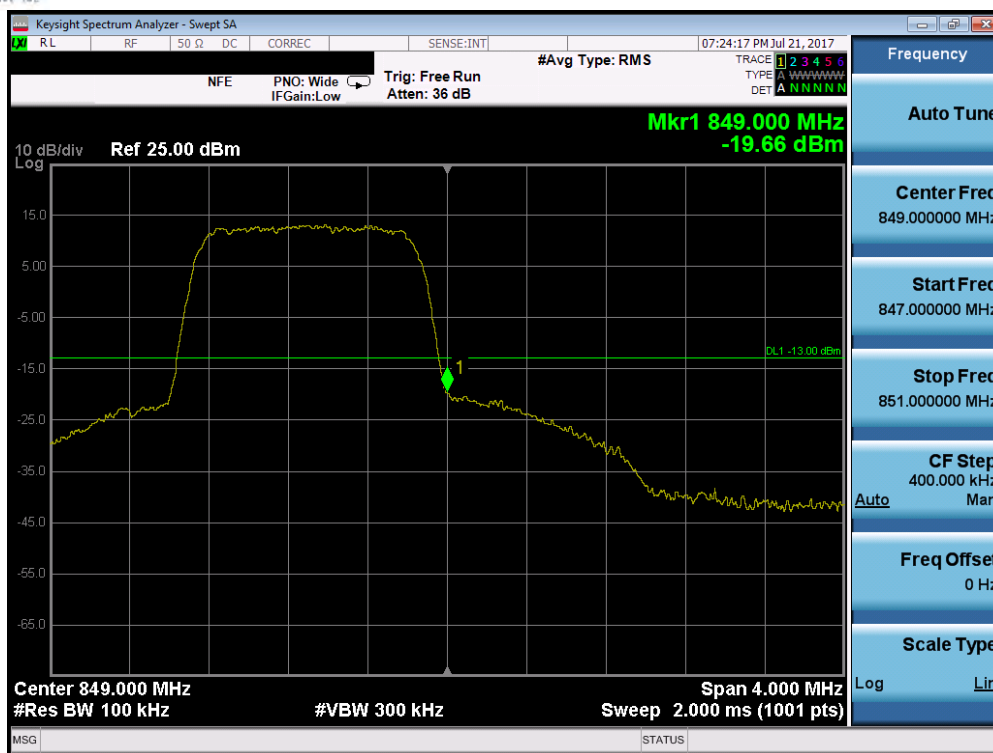


Plot 7-108. Upper Emission Mask Edge Plot (Band 13 – 10.0MHz QPSK – RB Size 50)

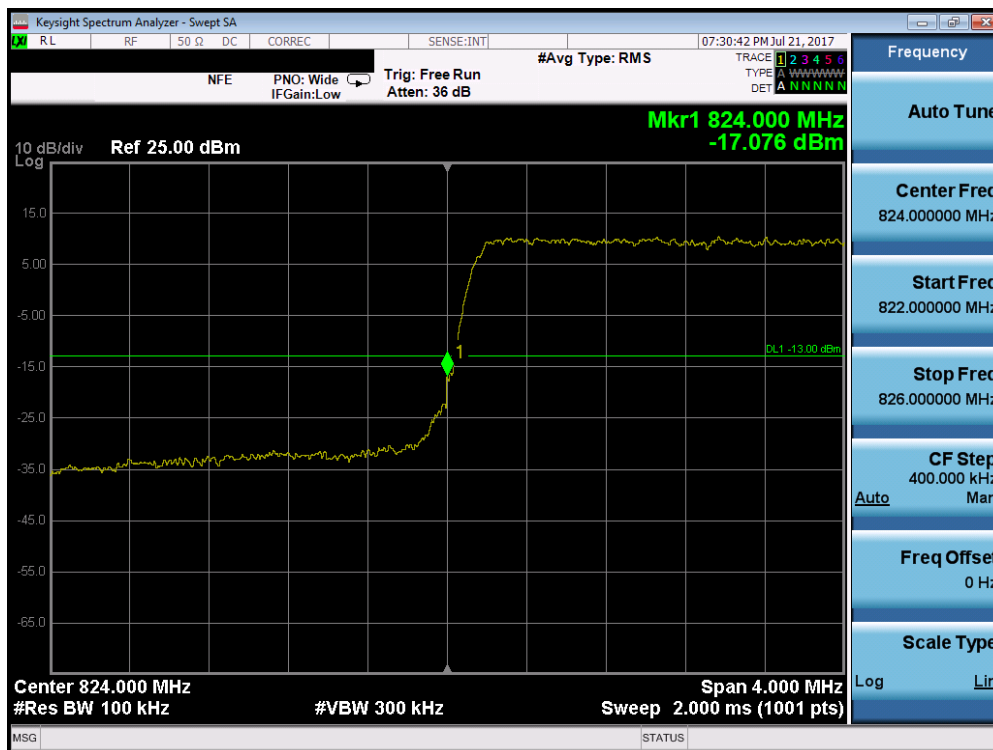


Plot 7-109. Lower Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-110. Upper Band Edge Plot (Band 5/26 – 1.4MHz QPSK – RB Size 6)

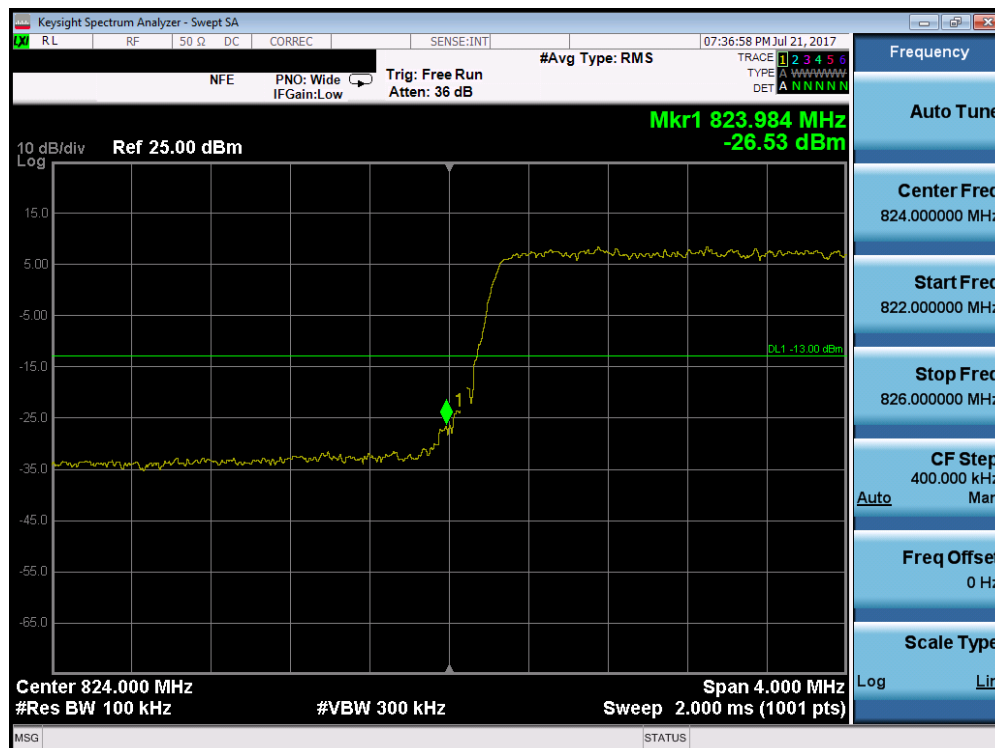


Plot 7-111. Lower Band Edge Plot (Band 5/26 – 3.0MHz QPSK – RB Size 15)

FCC ID: A3LSCV37	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-112. Upper Band Edge Plot (Band 5/26 – 3.0MHz QPSK – RB Size 15)

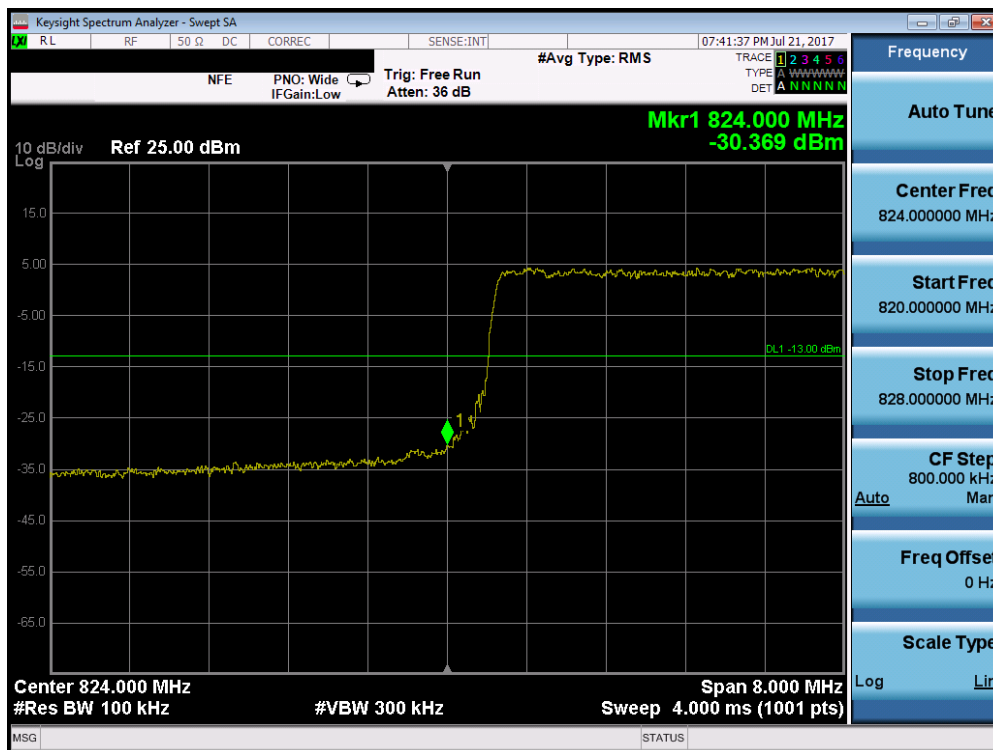


Plot 7-113. Lower Band Edge Plot (Band 5/26 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset		Page 74 of 134

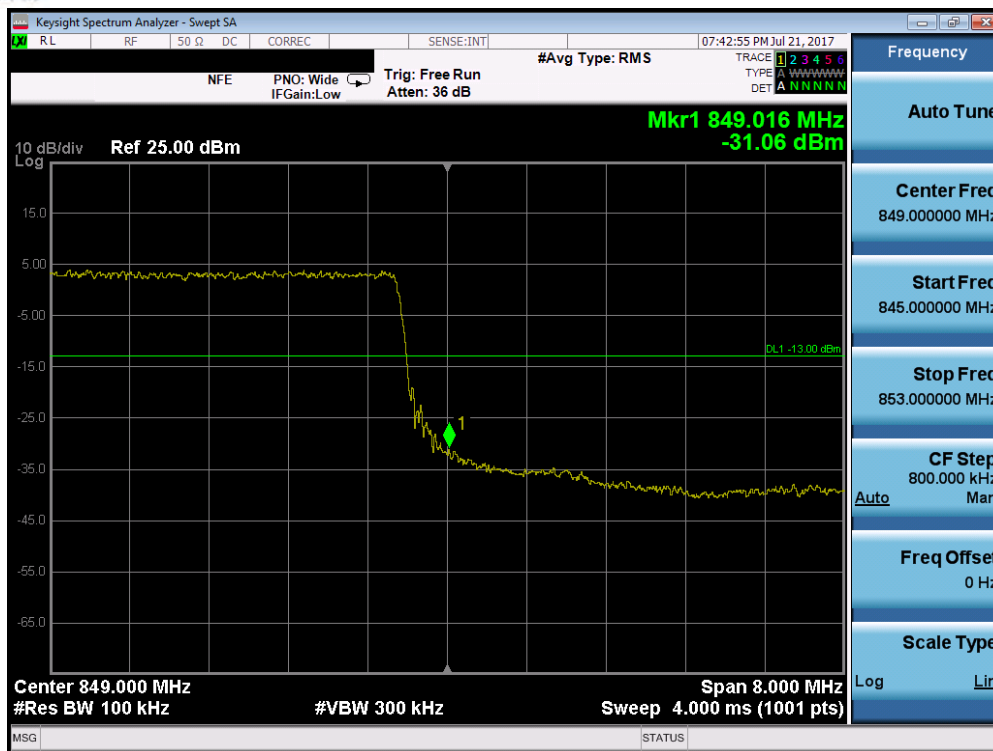


Plot 7-114. Upper Band Edge Plot (Band 5/26 – 5.0MHz QPSK – RB Size 25)

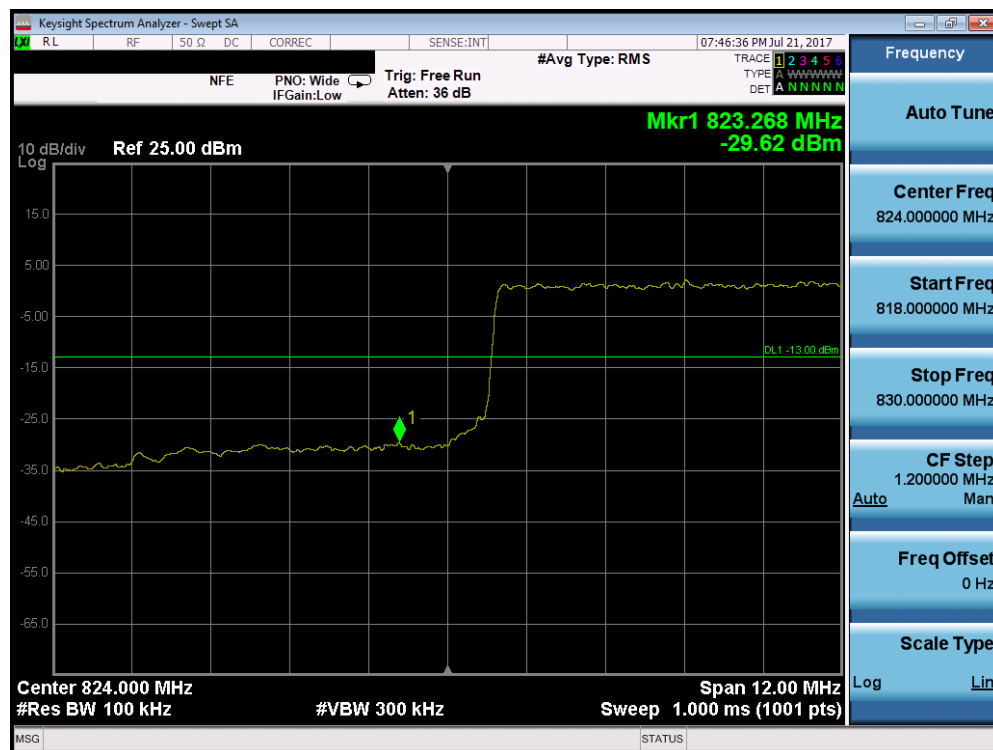


Plot 7-115. Lower Band Edge Plot (Band 5/26 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-116. Upper Band Edge Plot (Band 5/26 - 10.0MHz QPSK - RB Size 50)

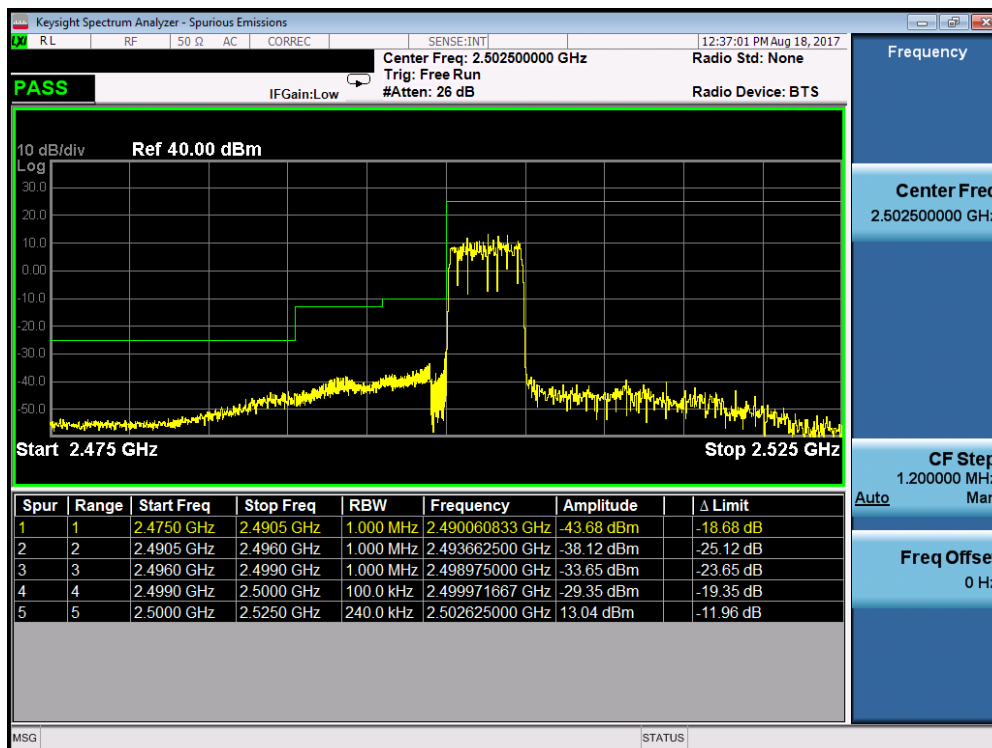


Plot 7-117. Lower Band Edge Plot (Band 26 - 15.0MHz QPSK - RB Size 75)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset		Page 76 of 134

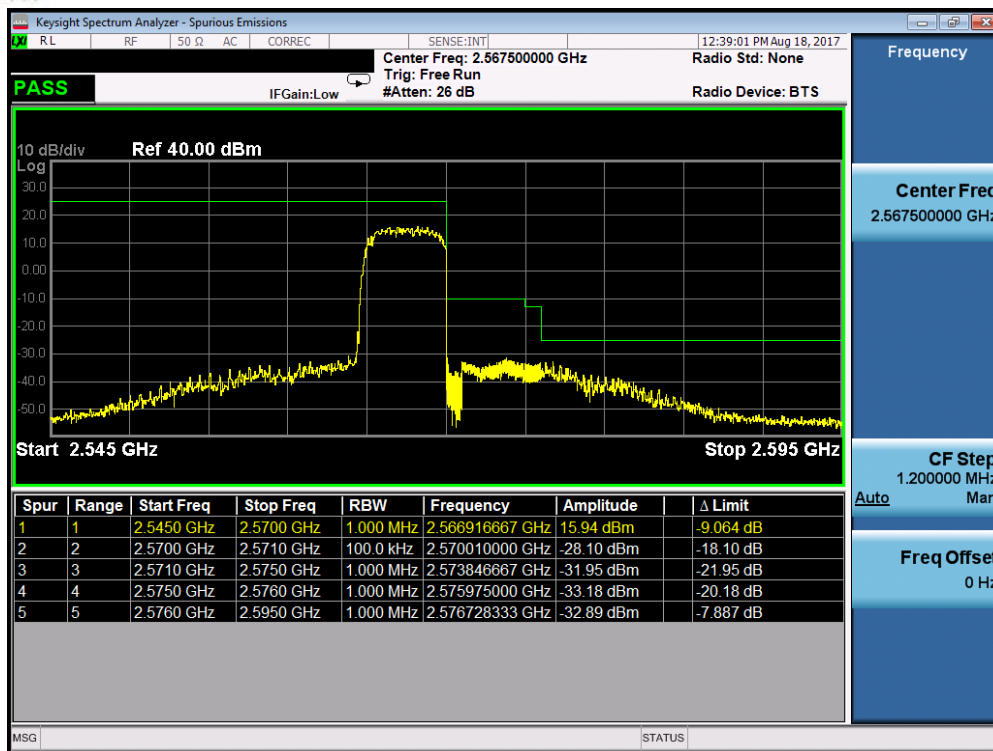


Plot 7-118. Upper Band Edge Plot (Band 26 – 15.0MHz QPSK – RB Size 75)

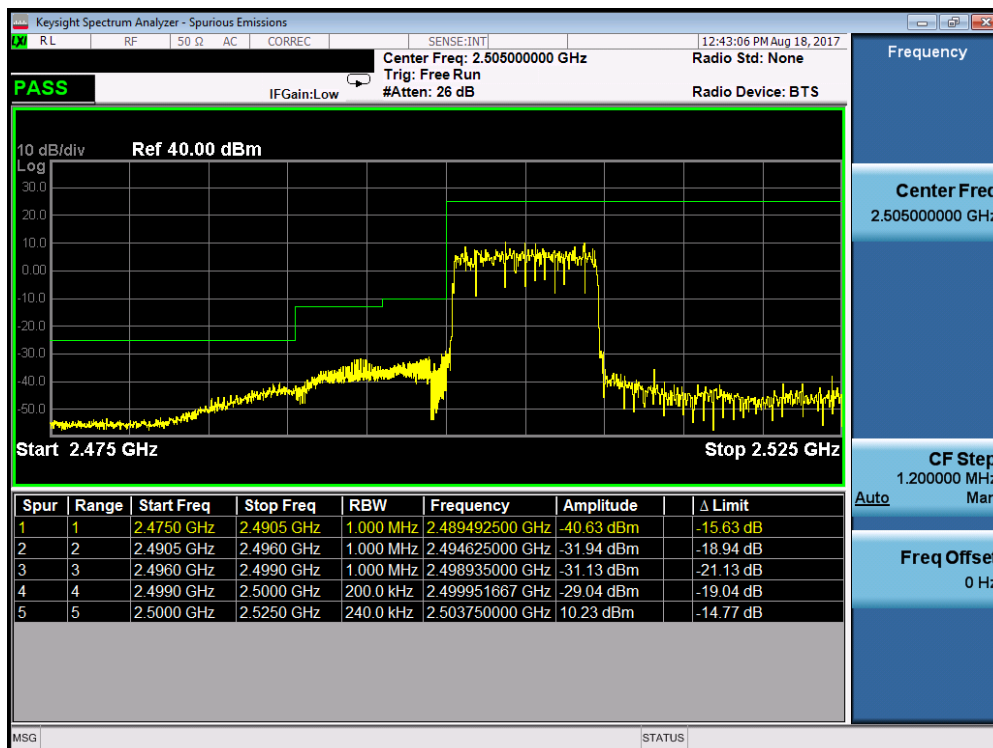


Plot 7-119. Lower ACP Plot (Band 7 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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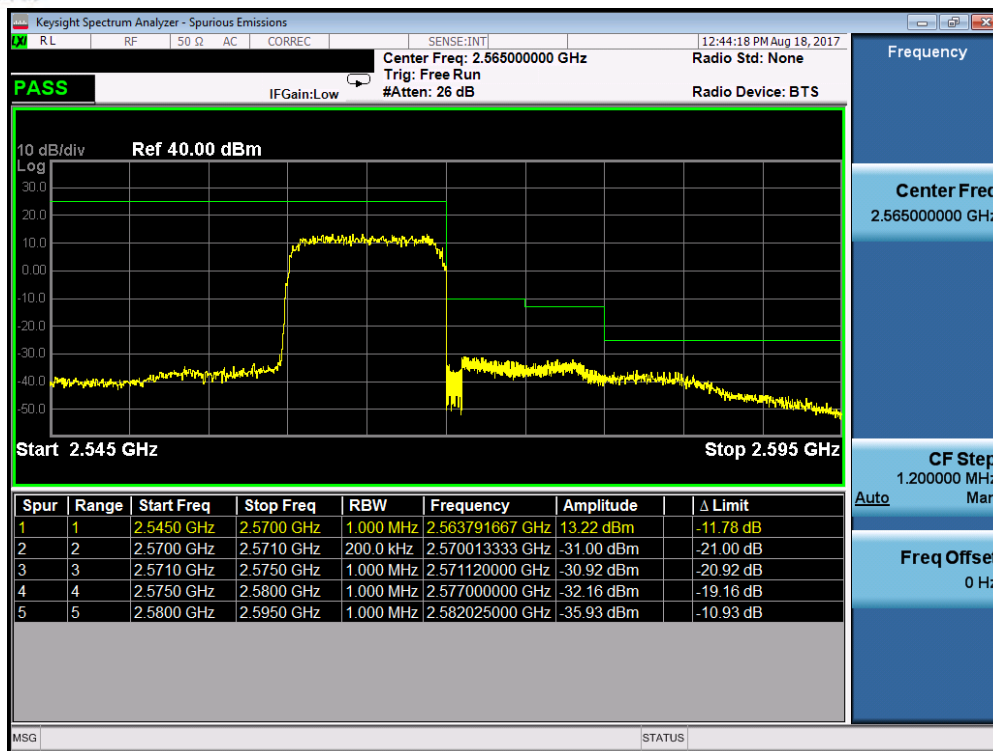


Plot 7-120. Upper ACP Plot (Band 7 – 5.0MHz QPSK – RB Size 25)

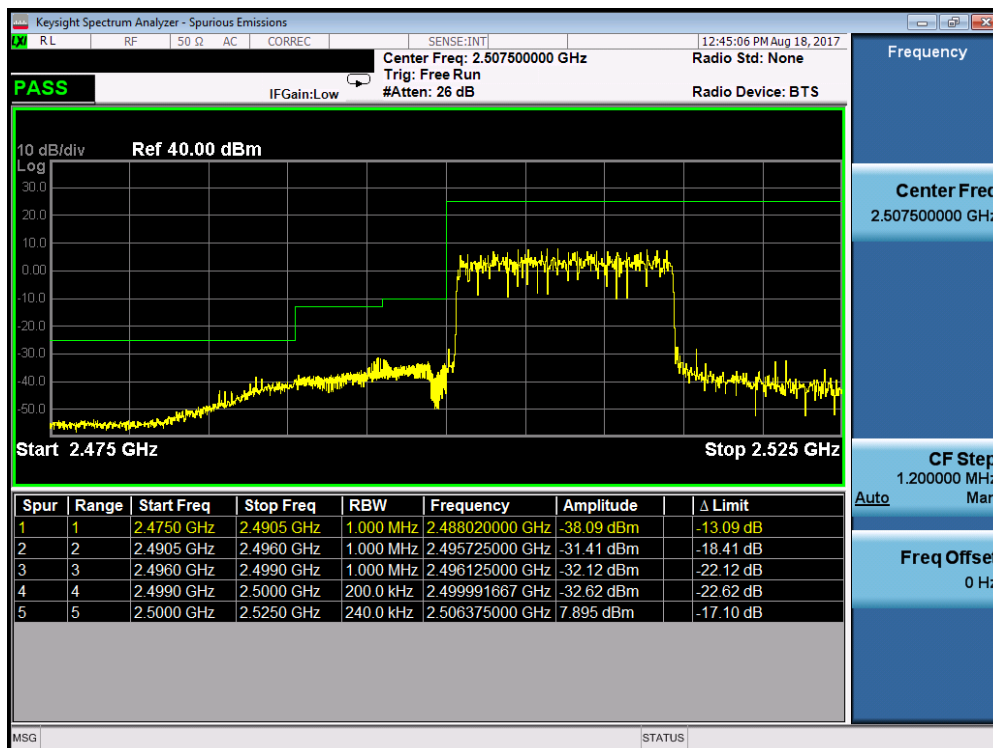


Plot 7-121. Lower ACP Plot (Band 7 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset		Page 78 of 134	

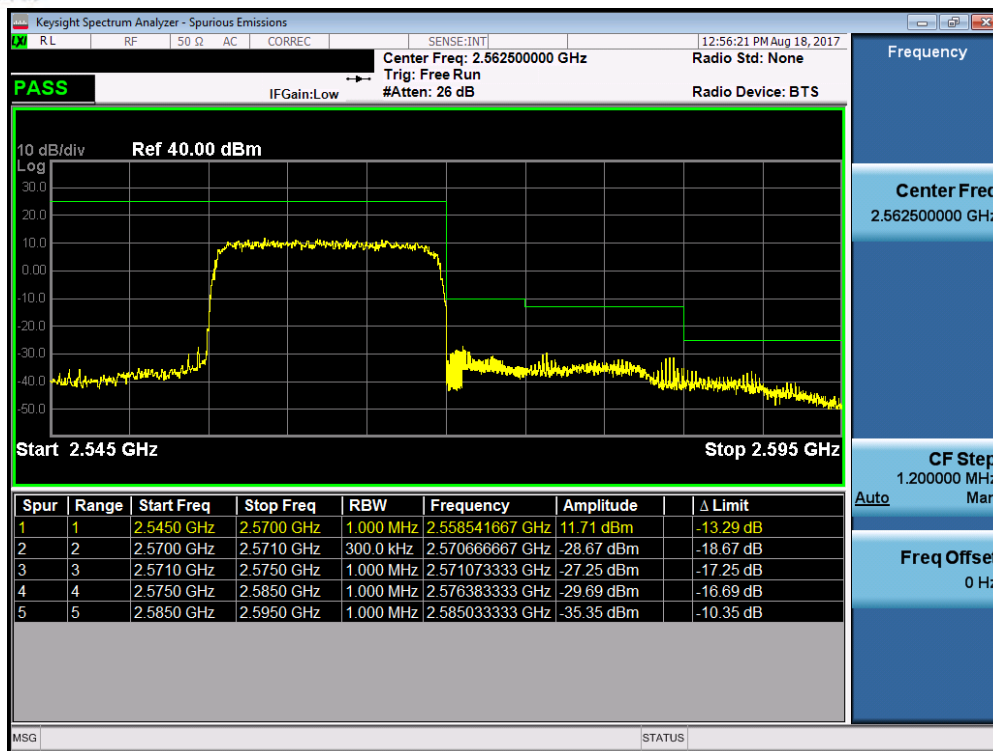


Plot 7-122. Upper ACP Plot (Band 7 – 10.0MHz QPSK – RB Size 50)

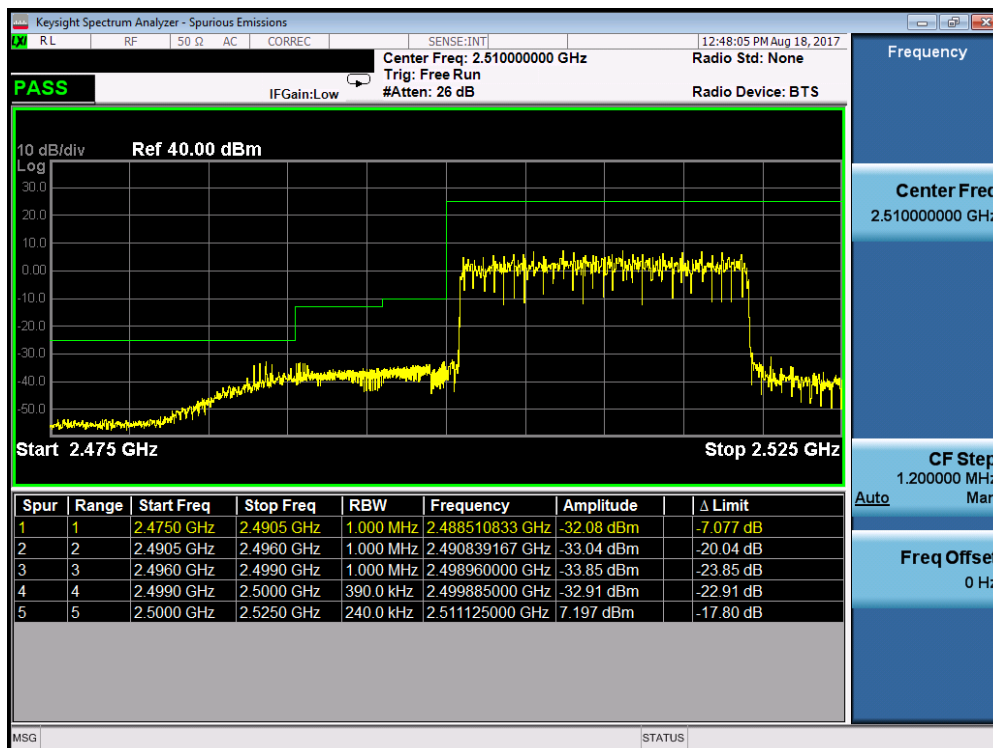


Plot 7-123. Lower ACP Plot (Band 7 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset		Page 79 of 134	

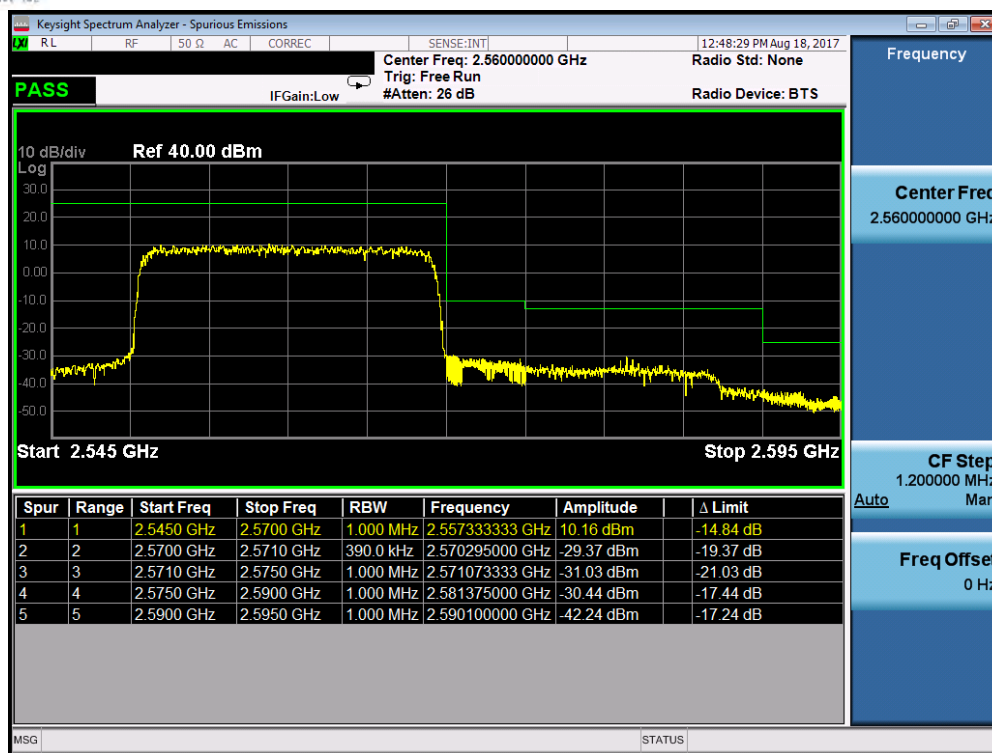


Plot 7-124. Upper ACP Plot (Band 7 – 15.0MHz QPSK – RB Size 75)

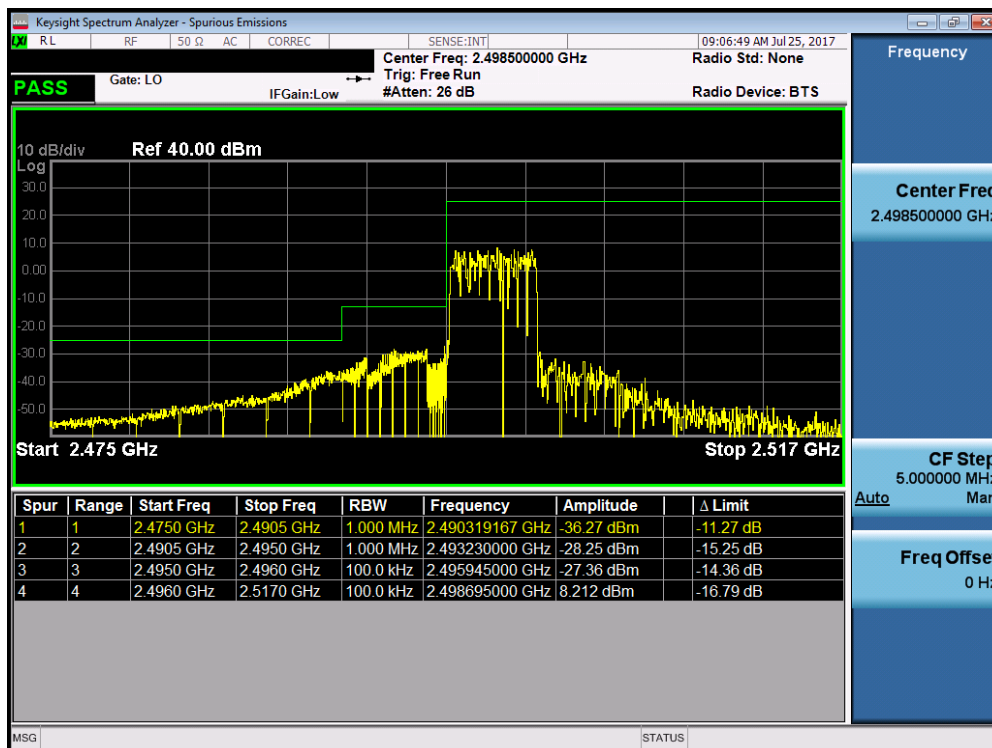


Plot 7-125. Lower ACP Plot (Band 7 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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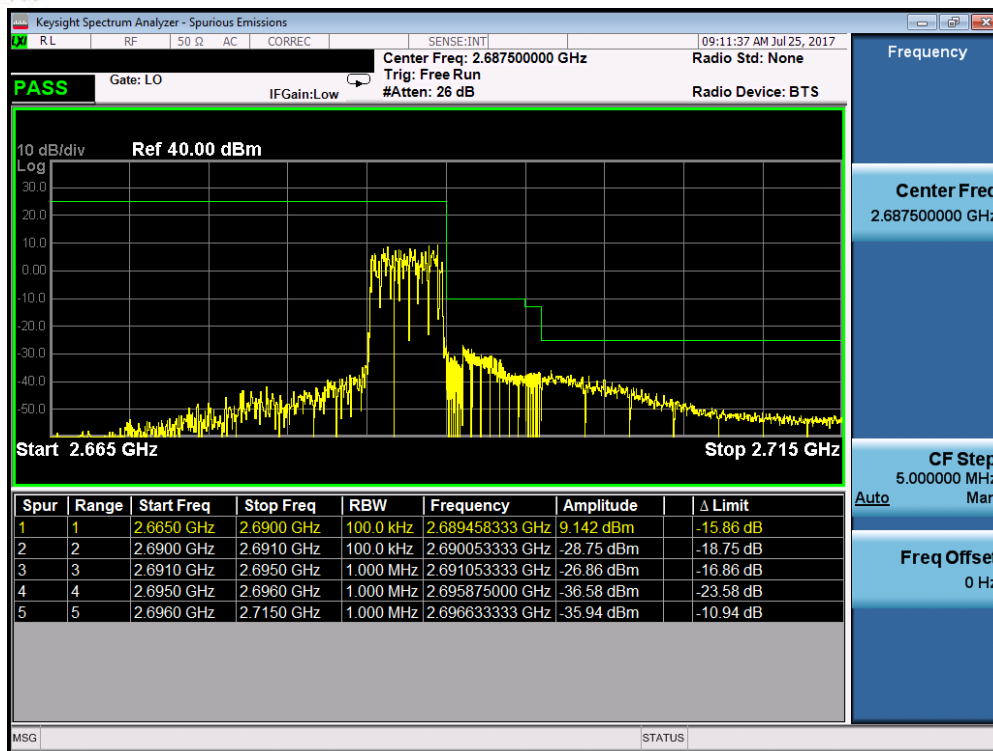


Plot 7-126. Upper ACP Plot (Band 7 – 20.0MHz QPSK – RB Size 100)

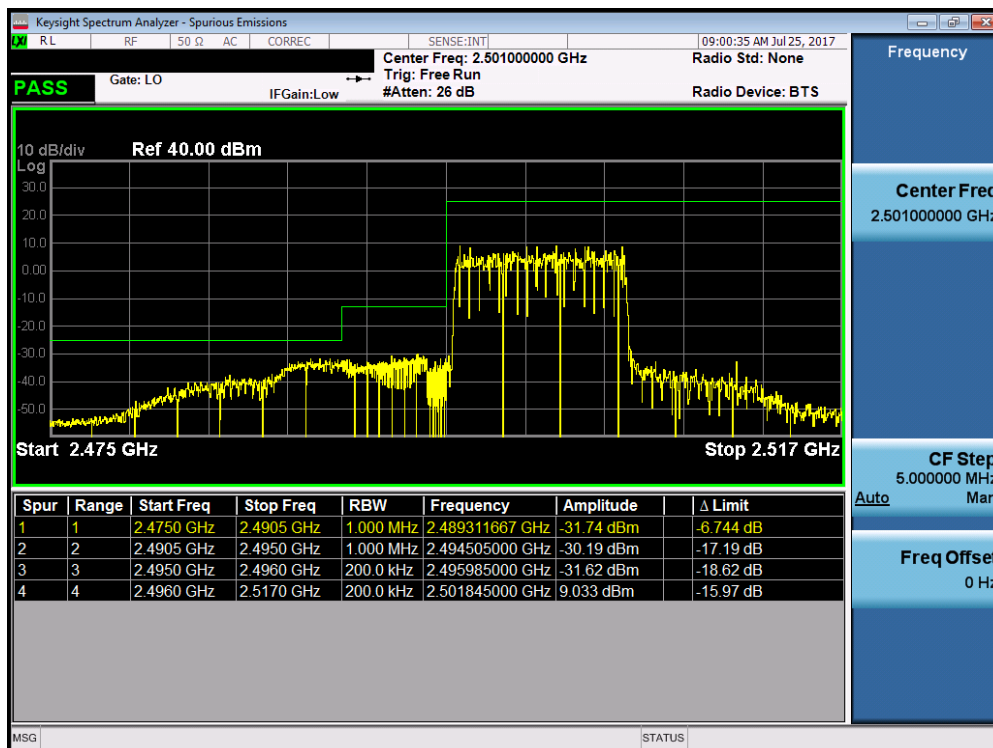


Plot 7-127. Lower ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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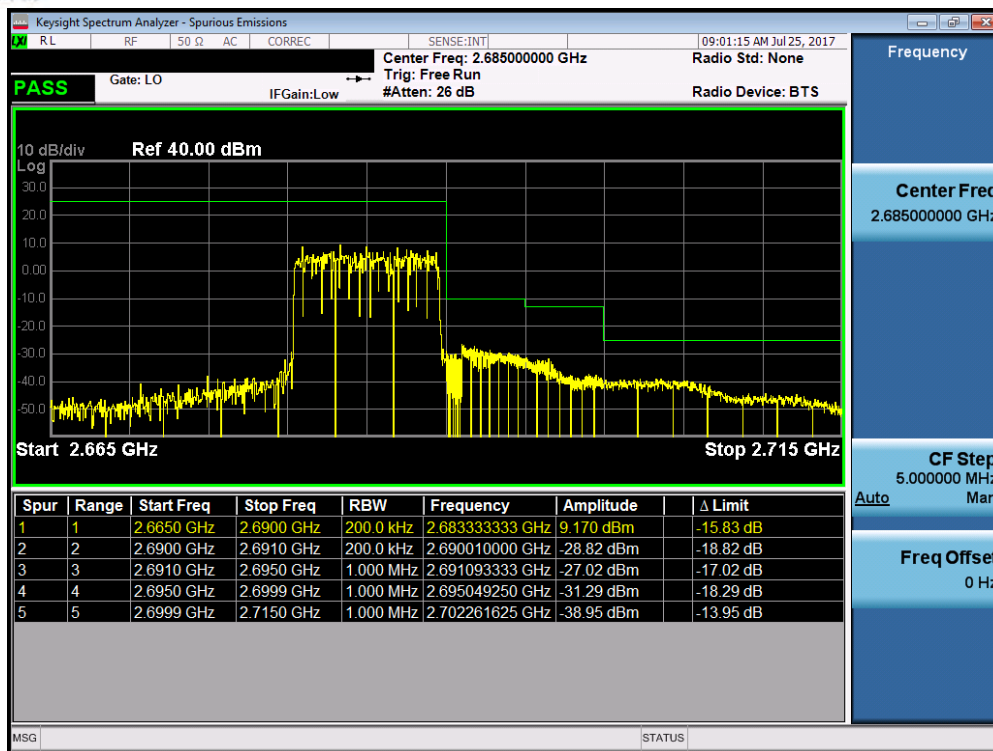


Plot 7-128. Upper ACP Plot (Band 41 – 5.0MHz QPSK – RB Size 25)

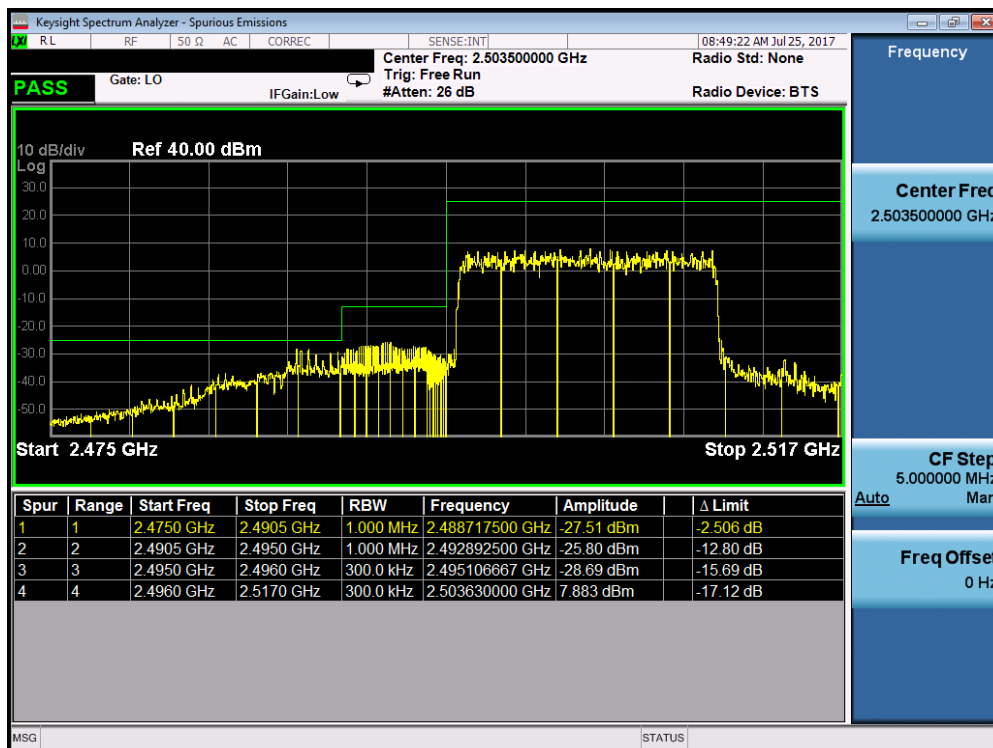


Plot 7-129. Lower ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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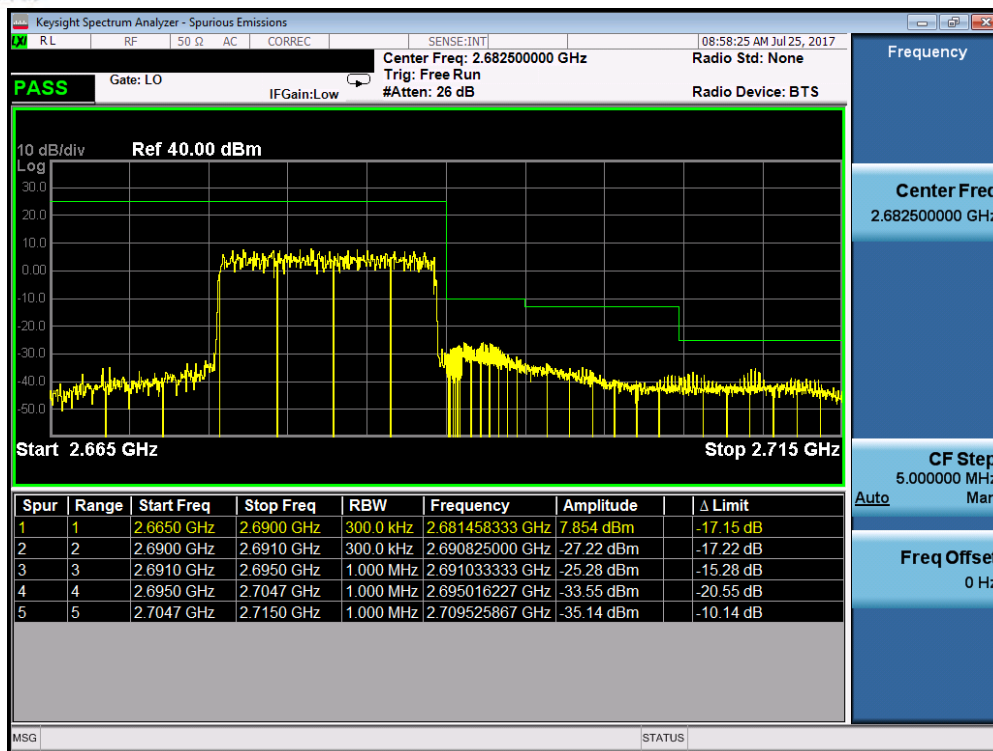


Plot 7-130. Upper ACP Plot (Band 41 – 10.0MHz QPSK – RB Size 50)

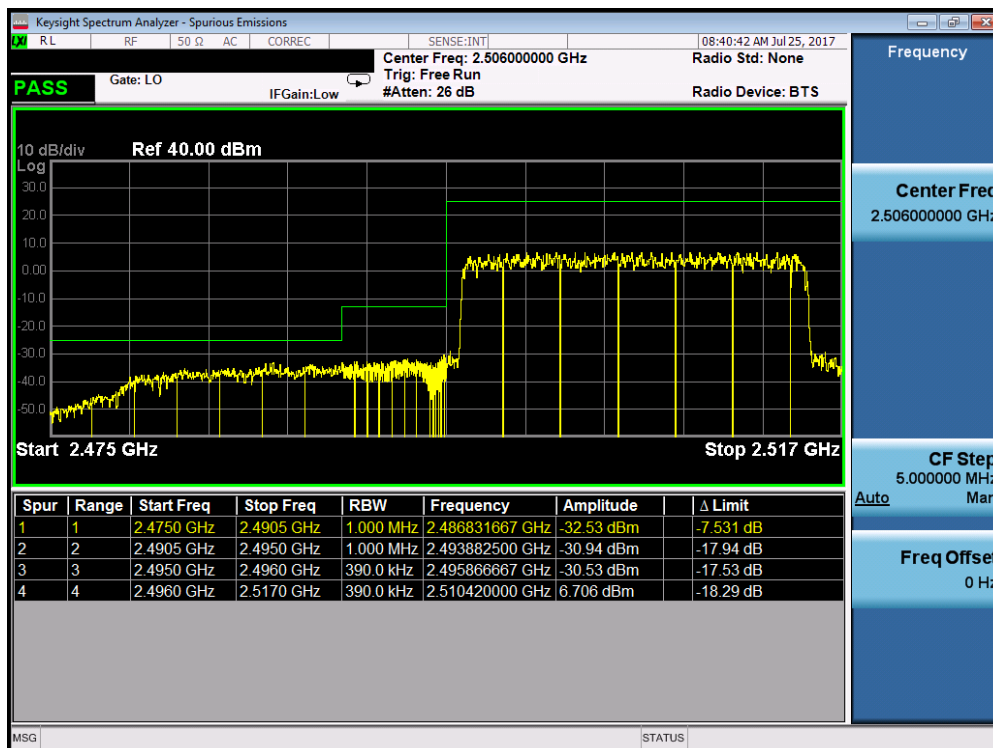


Plot 7-131. Lower ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset		Page 83 of 134	

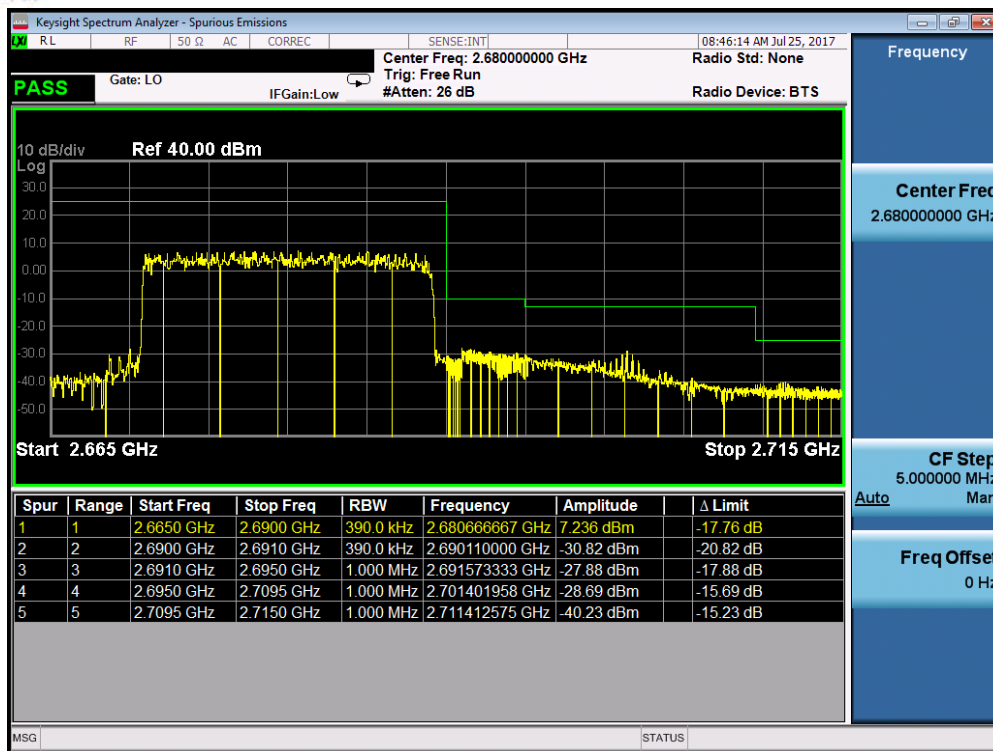


Plot 7-132. Upper ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 75)

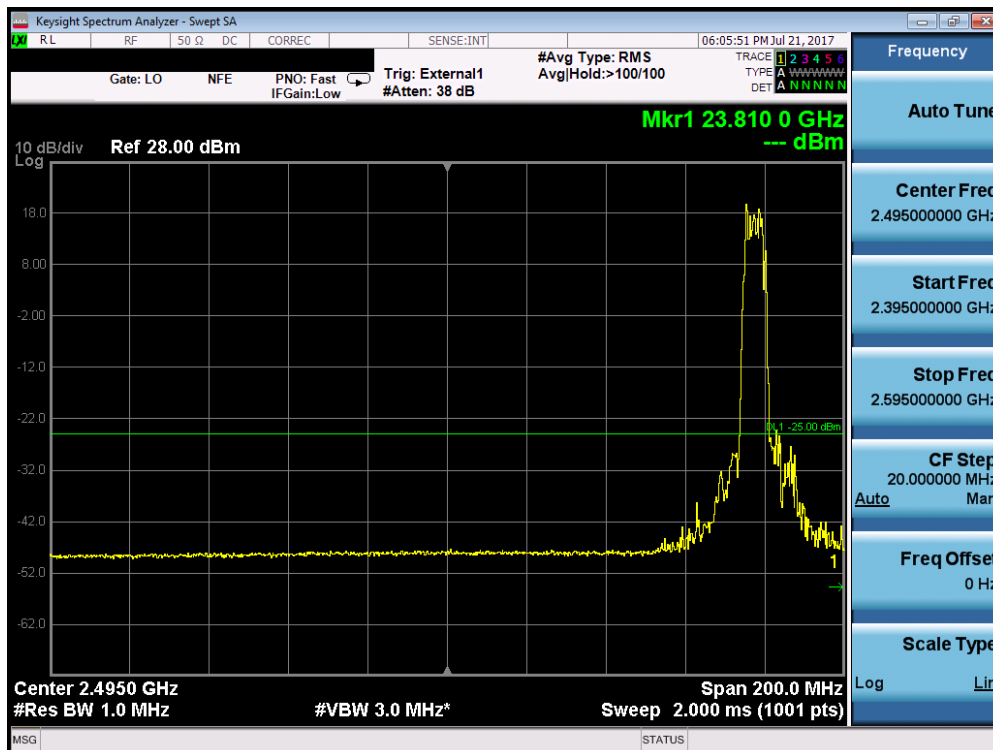


Plot 7-133. Lower ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset			Page 84 of 134

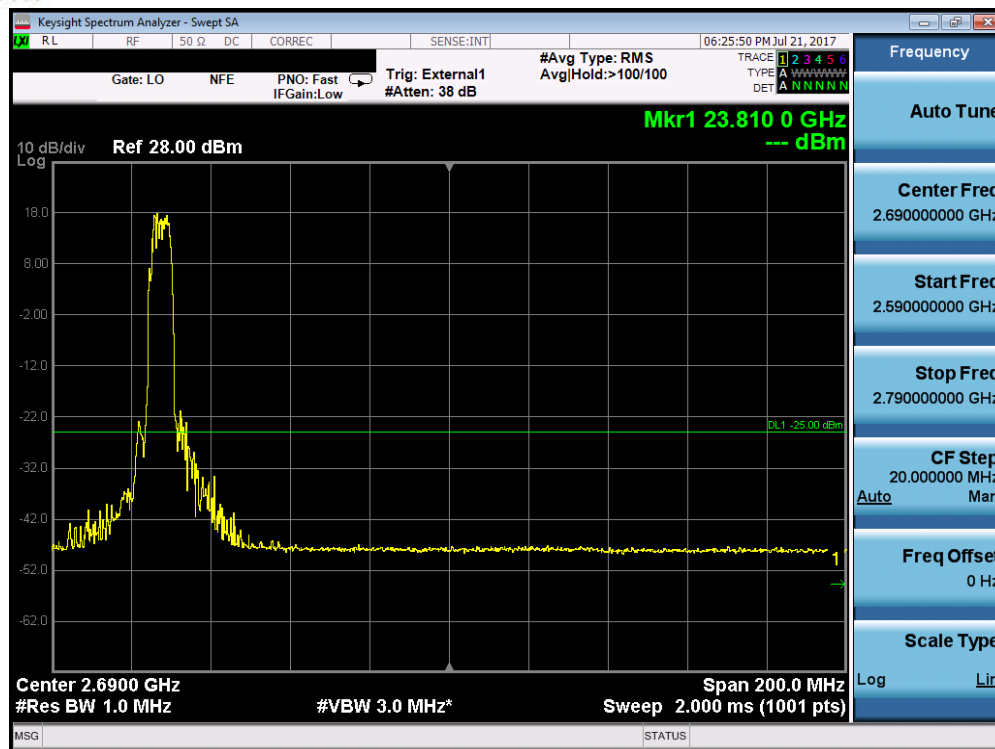


Plot 7-134. Upper ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 100)

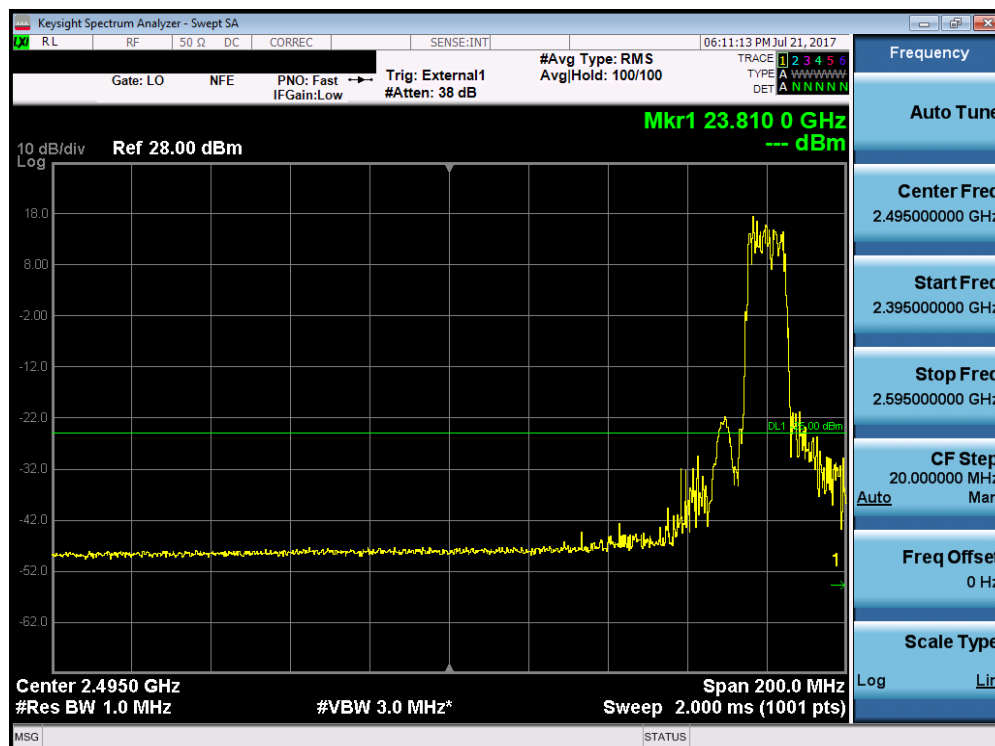


Plot 7-285. PC2 Lower ACP Plot (Band 38 – 5.0MHz QPSK – RB Size 25)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset	Page 85 of 134		



Plot 7-285. PC2 Upper ACP Plot (Band 38 – 5.0MHz QPSK – RB Size 25)

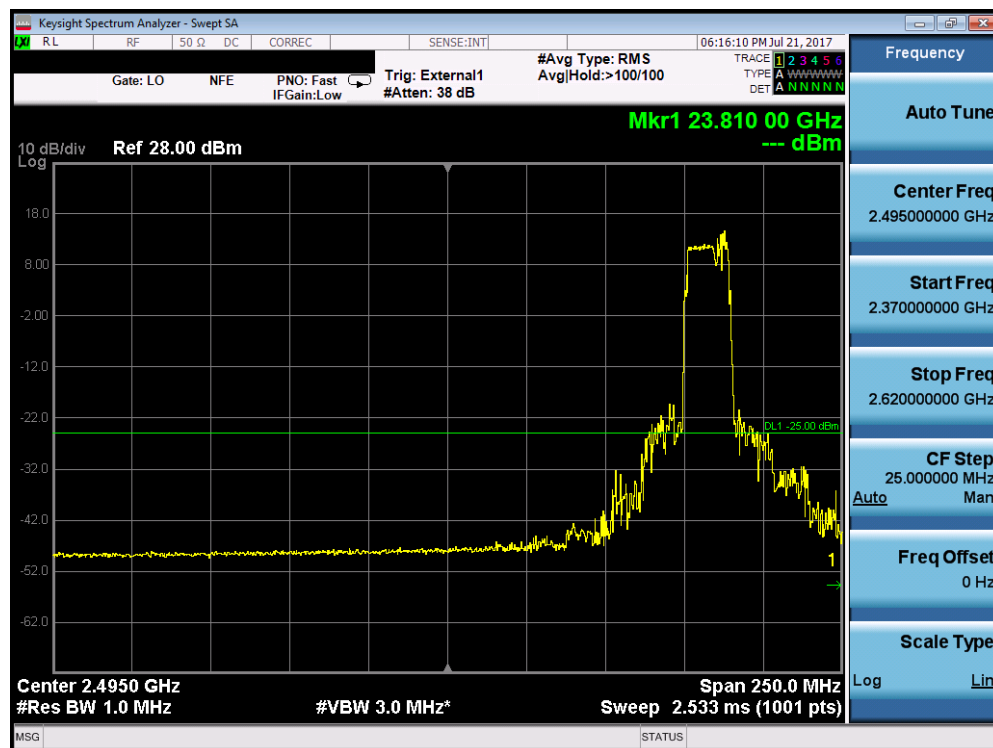


Plot 7-285. PC2 Lower ACP Plot (Band 38 – 10.0MHz QPSK – RB Size 50)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Plot 7-285. PC2 Upper ACP Plot (Band 38 – 10.0MHz QPSK – RB Size 50)



Plot 7-285. PC2 Lower ACP Plot (Band 38 – 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset		Page 87 of 134

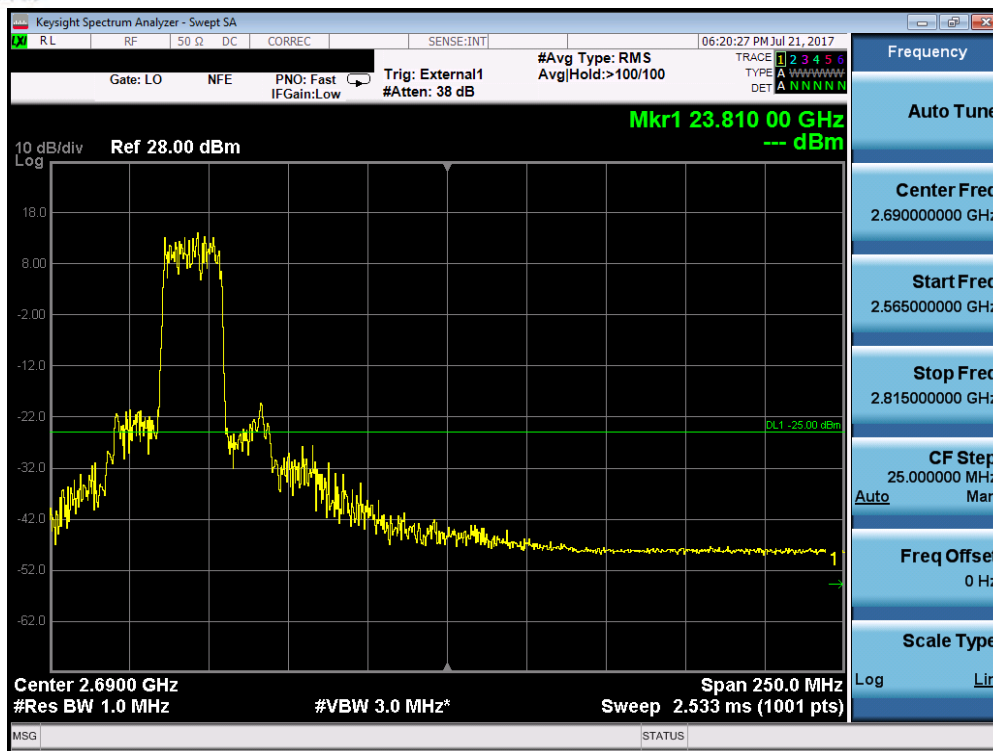


Plot 7-285. PC2 Upper ACP Plot (Band 38 – 15.0MHz QPSK – RB Size 75)



Plot 7-285. PC2 Lower ACP Plot (Band 38 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSCV37	 FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		 Approved by: Quality Manager
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Plot 7-285. PC2 Upper ACP Plot (Band 38 – 20.0MHz QPSK – RB Size 100)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset		Page 89 of 134

7.5 Uplink Carrier Aggregation

§27.53(m)

Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

For Band 41, the minimum permissible attenuation level of any spurious emission is $55 + \log_{10}(P_{\text{Watts}})$.

Test Procedure Used

KDB 971168 D01 v02r02 – Section 6.0

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10 * the fundamental frequency (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

Test Setup

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

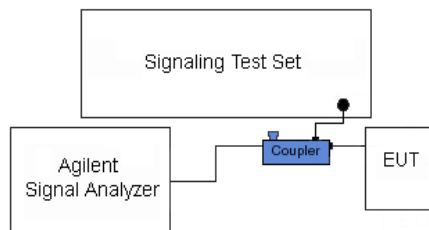


Figure 7-4. Test Instrument & Measurement Setup

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset		Page 90 of 134

Test Notes

1. Uplink carrier aggregation is only supported in this EUT while operating in Power Class 3.
2. Conducted power and spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device. The worst case (highest) powers were found while operating with QPSK modulation, as shown in Table 7-3 below, with both carriers set to transmit using 1RB.
3. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

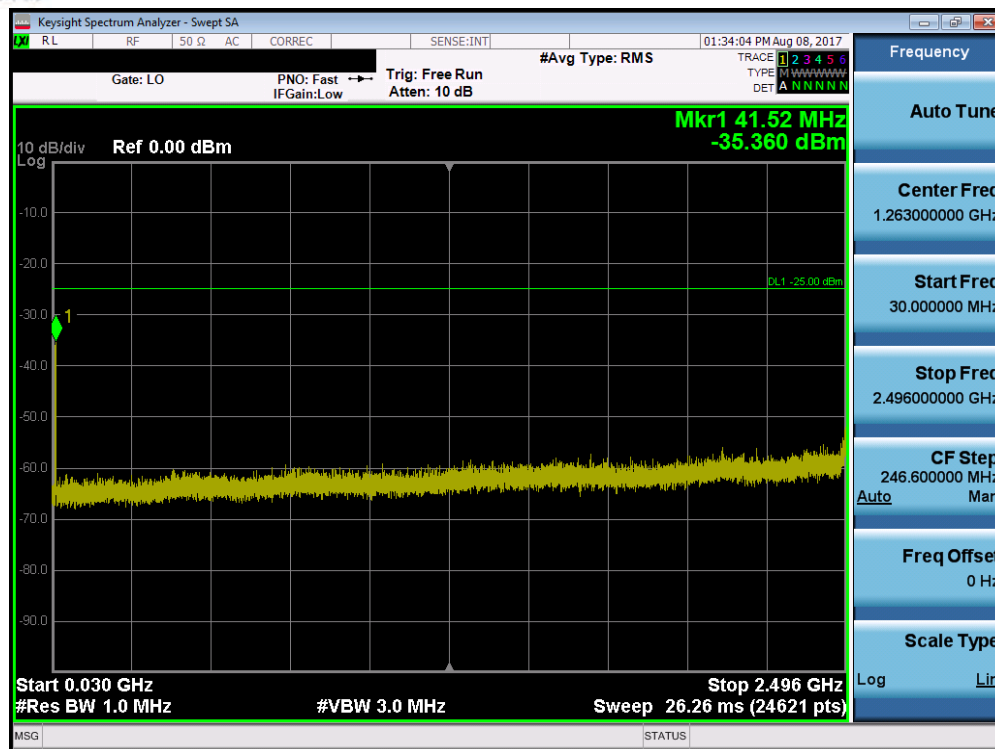
Power State	PCC							SCC							Power ULCA Tx.Power (dBm)
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	
Max	LTE B41	10	40620	2593	QPSK	1	49	LTE B41	15	40740	2605	QPSK	1	0	22.91
Max	LTE B41	10	40620	2593	QPSK	1	49	LTE B41	20	40764	2607.4	QPSK	1	0	22.95
Max	LTE B41	15	40620	2593	QPSK	1	74	LTE B41	10	40743	2605.3	QPSK	1	0	22.36
Max	LTE B41	15	40620	2593	QPSK	1	74	LTE B41	15	40770	2608	QPSK	1	0	22.87
Max	LTE B41	15	40620	2593	QPSK	1	74	LTE B41	20	40791	2610.1	QPSK	1	0	22.82
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	5	40743	2605.3	QPSK	1	0	22.57
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	10	40764	2607.4	QPSK	1	0	22.76
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	15	40791	2610.1	QPSK	1	0	22.78
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	20	40818	2612.8	QPSK	1	0	23.04

Table 7-2. Conducted Powers (B41 – PCC: RB Size 1, Offset Max and SCC: RB Size 1, Offset 0)

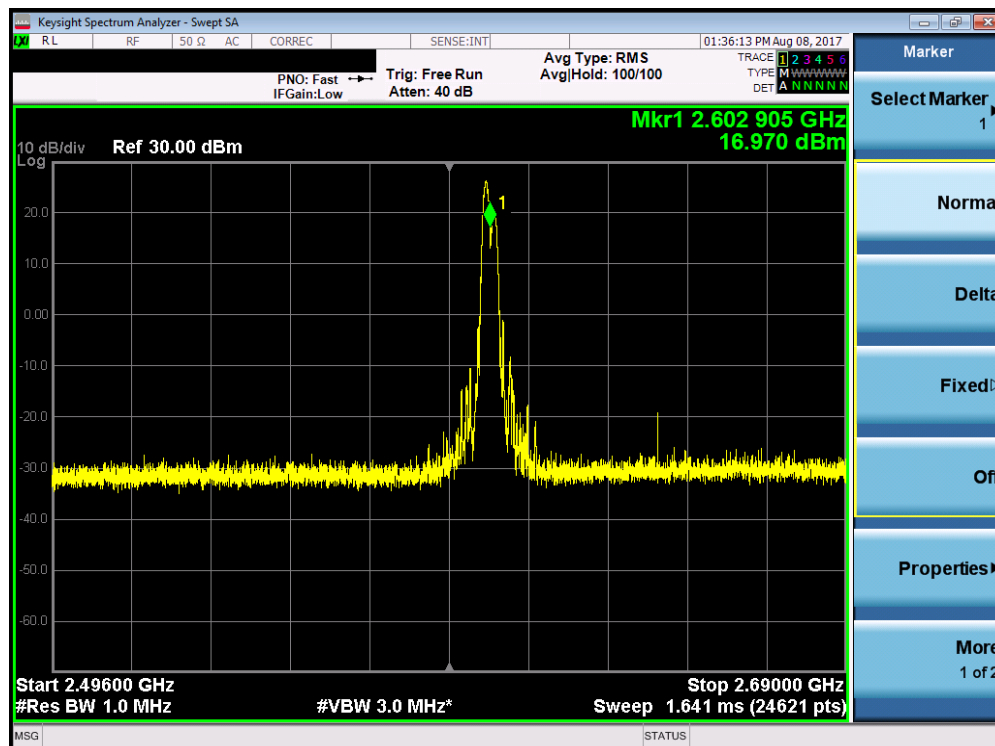
Power State	PCC							SCC							Power ULCA Tx.Power (dBm)
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	
Max	LTE B41	20	39750	2506	QPSK	1	0	LTE B41	20	39948	2525.8	QPSK	1	0	18.92
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	99	17.85
Max	LTE B41	20	39750	2506	QPSK	1	0	LTE B41	20	39948	2525.8	QPSK	1	99	14.57
Max	LTE B41	20	39750	2506	QPSK	1	50	LTE B41	20	39948	2525.8	QPSK	1	50	18.78
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	22.97
Max	LTE B41	20	39750	2506	QPSK	100	0	LTE B41	20	39948	2525.8	QPSK	100	0	20.94
Max	LTE B41	20	39750	2506	16-QAM	100	0	LTE B41	20	39948	2525.8	16-QAM	100	0	19.93
Max	LTE B41	20	39750	2506	64-QAM	100	0	LTE B41	20	39948	2525.8	64-QAM	100	0	18.96

Table 7-3. Conducted Powers (B41 with Various Combinations for 20MHz Channel Bandwidth)

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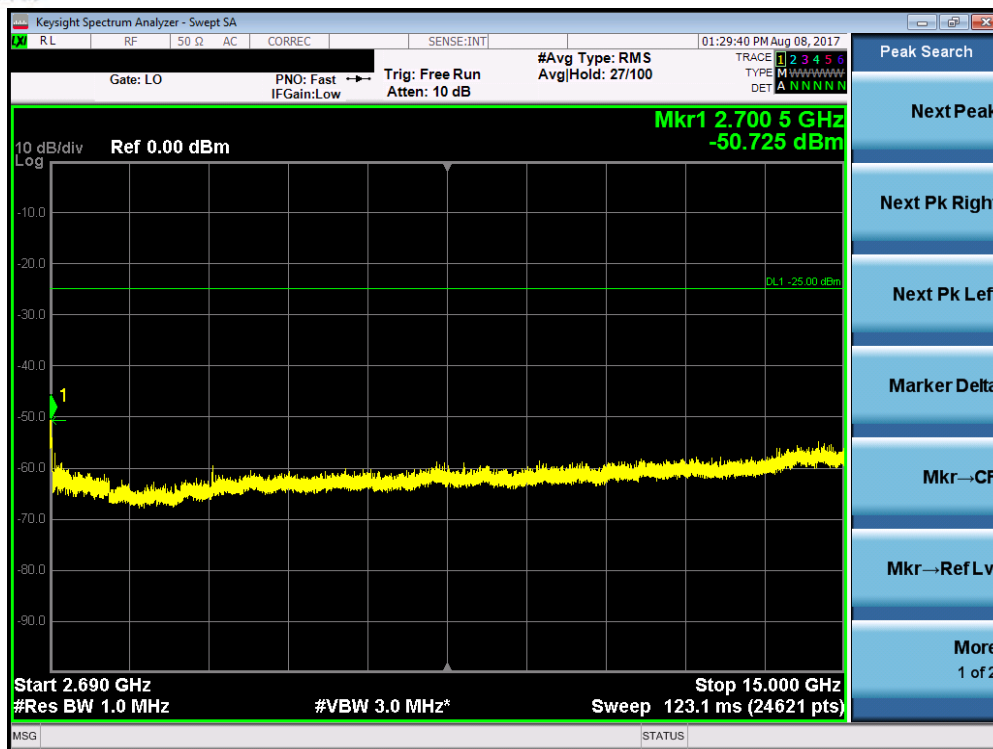


Plot 7-135. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

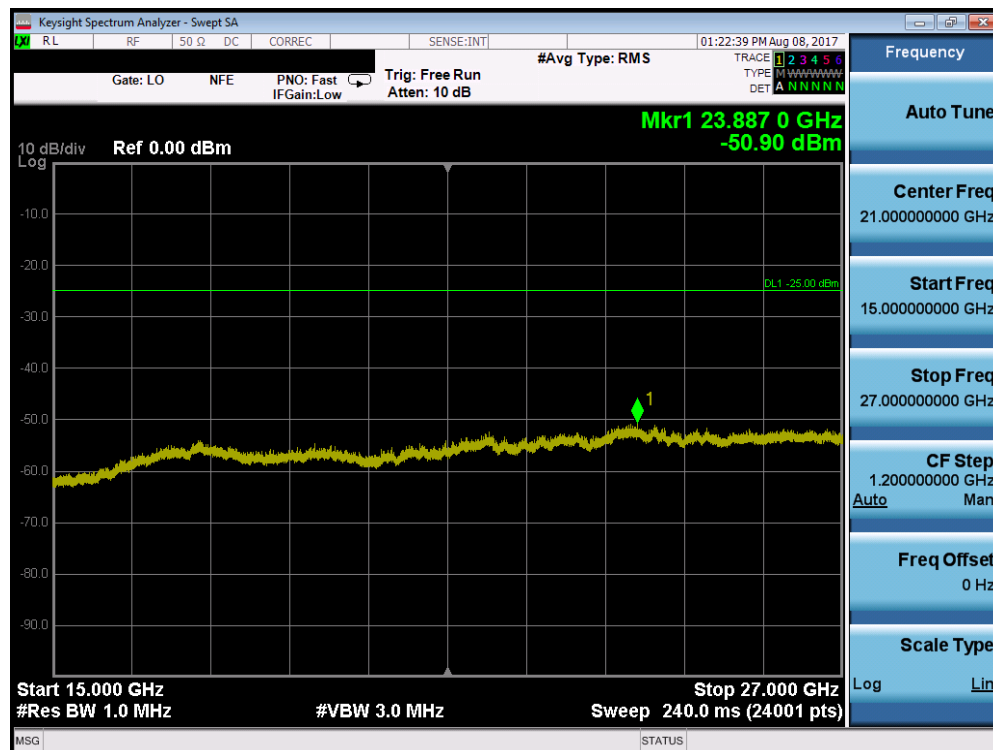


Plot 7-136. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

FCC ID: A3LSCV37	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset	Page 92 of 134

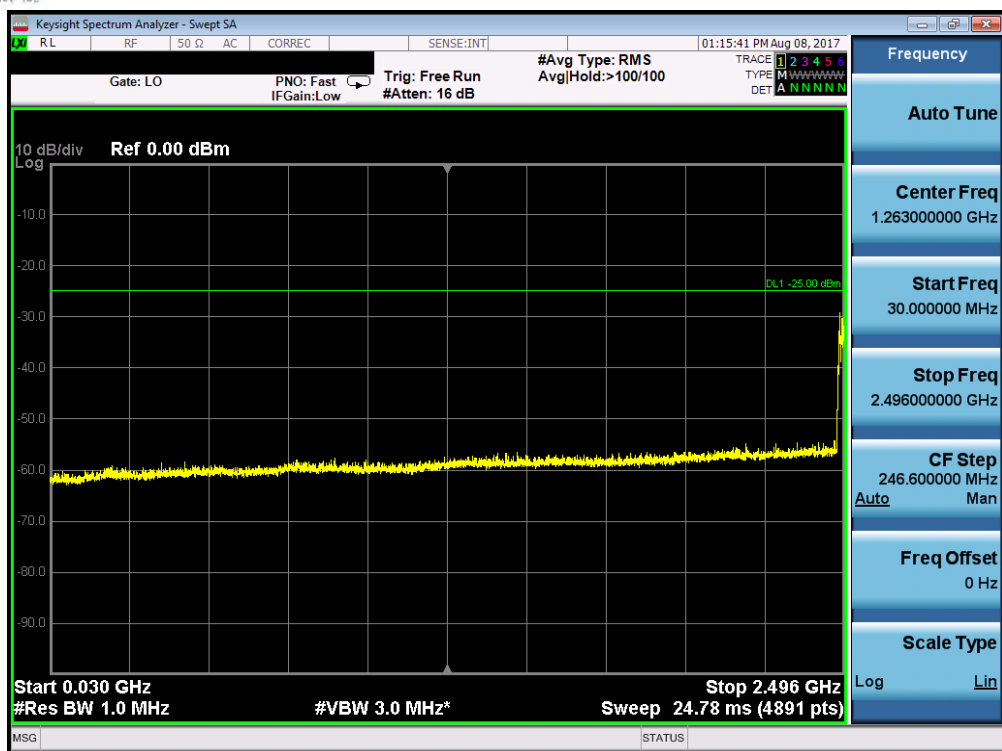


Plot 7-137. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 ,SCC 1/0 – Mid Channel)

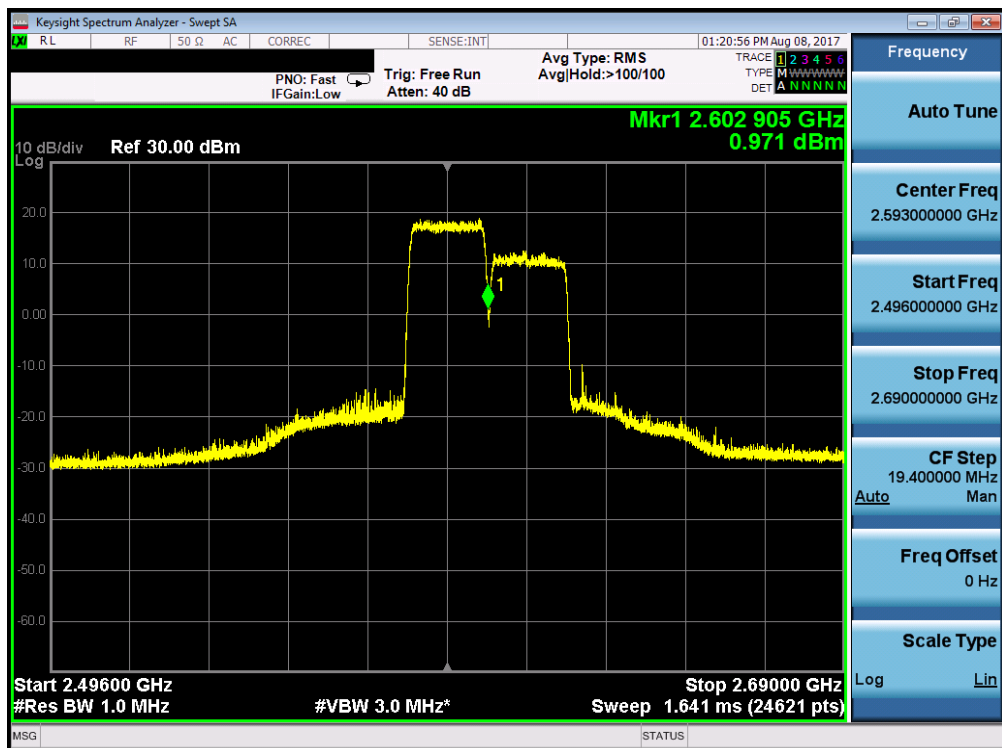


Plot 7-138. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 1/99 ,SCC 1/0 – Mid Channel)

FCC ID: A3LSCV37	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset	Page 93 of 134

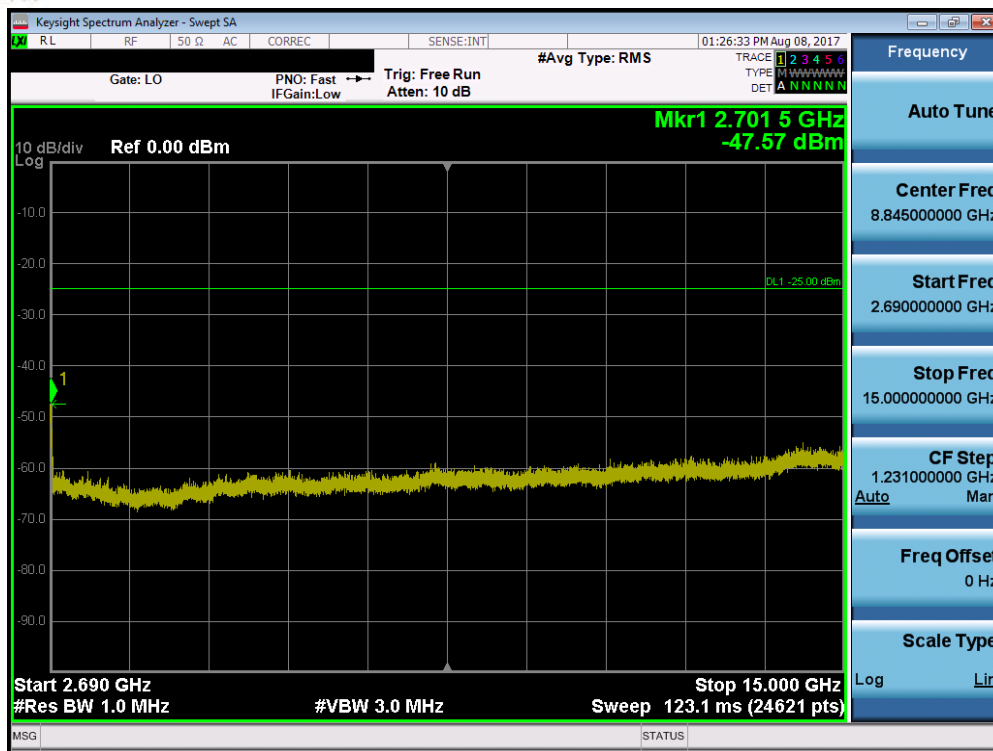


Plot 7-139. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0, SCC 100/0 – Mid Channel)

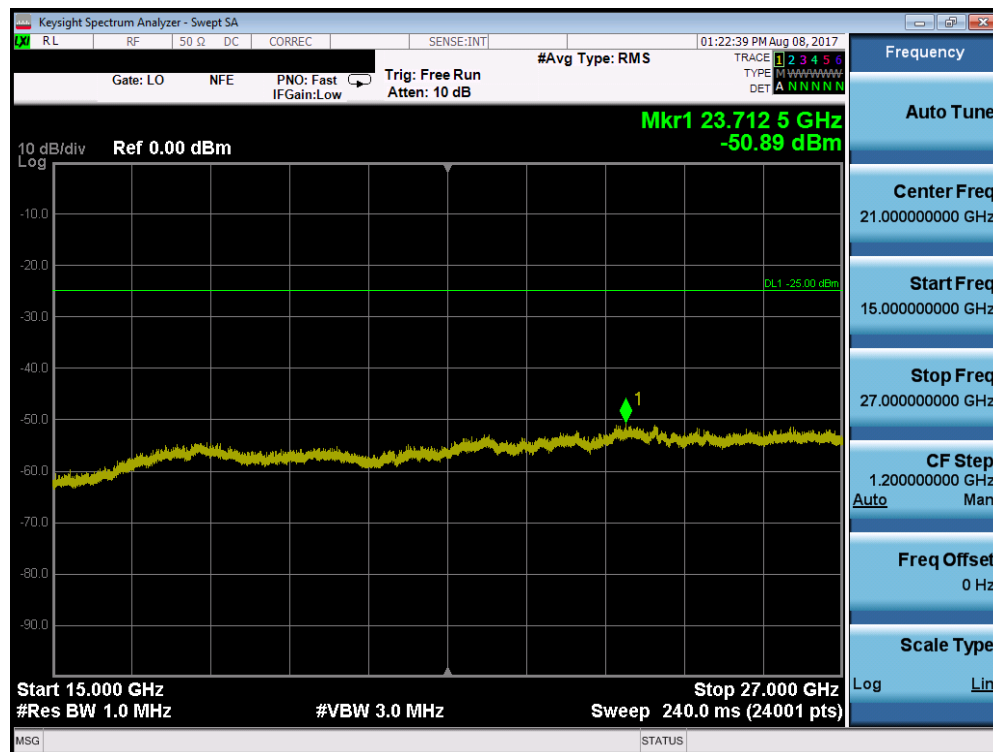


Plot 7-140. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0, SCC 100/0 – Mid Channel)

FCC ID: A3LSCV37	FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1707170220-03-R1.A3L	Test Dates: 7/21-8/25/2017	EUT Type: Portable Handset	Page 94 of 134

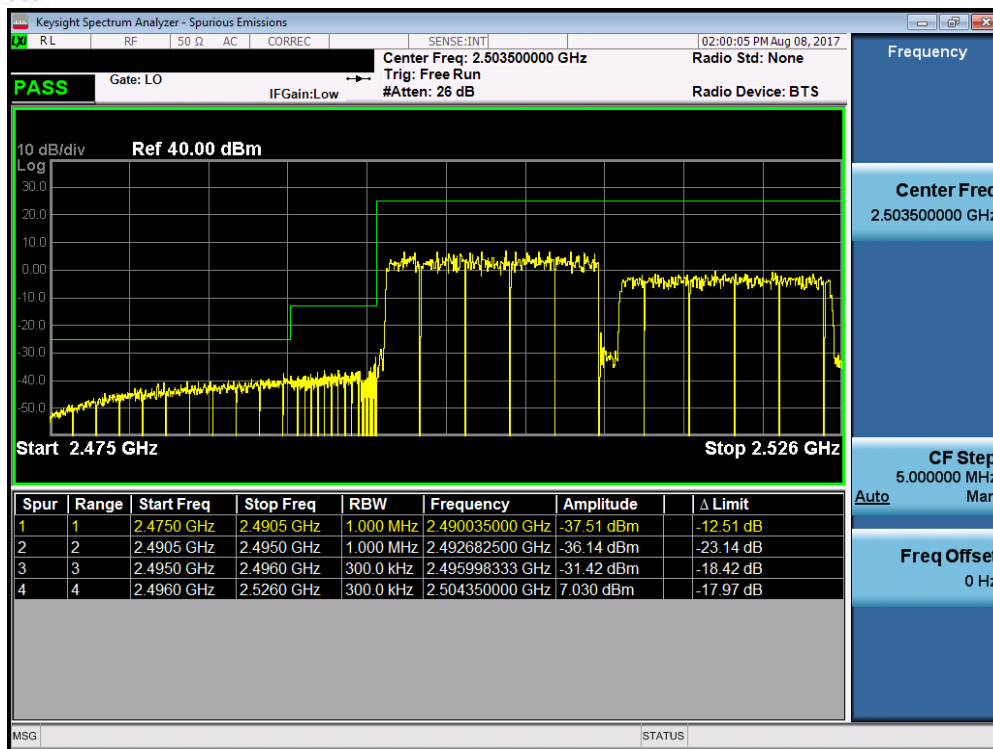


Plot 7-141. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0, SCC 100/0 – Mid Channel)

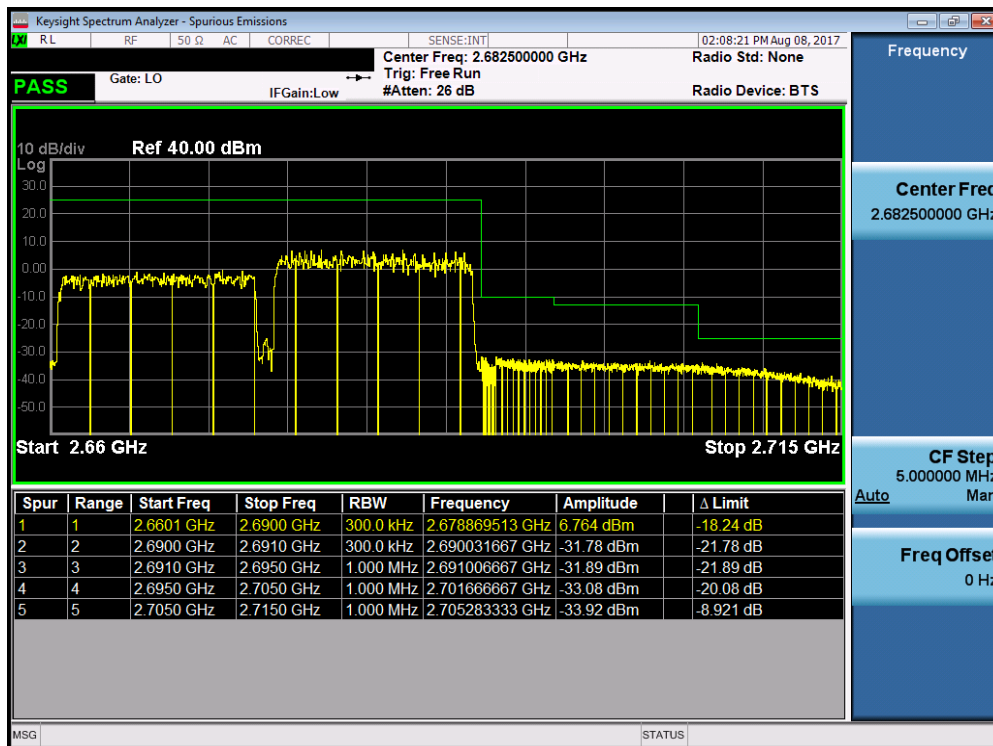


Plot 7-142. Conducted Spurious Plot (Band 41 – 20.0MHz QPSK – PCC 100/0, SCC 100/0 – Mid Channel)

FCC ID: A3LSCV37	 FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		 Approved by: Quality Manager
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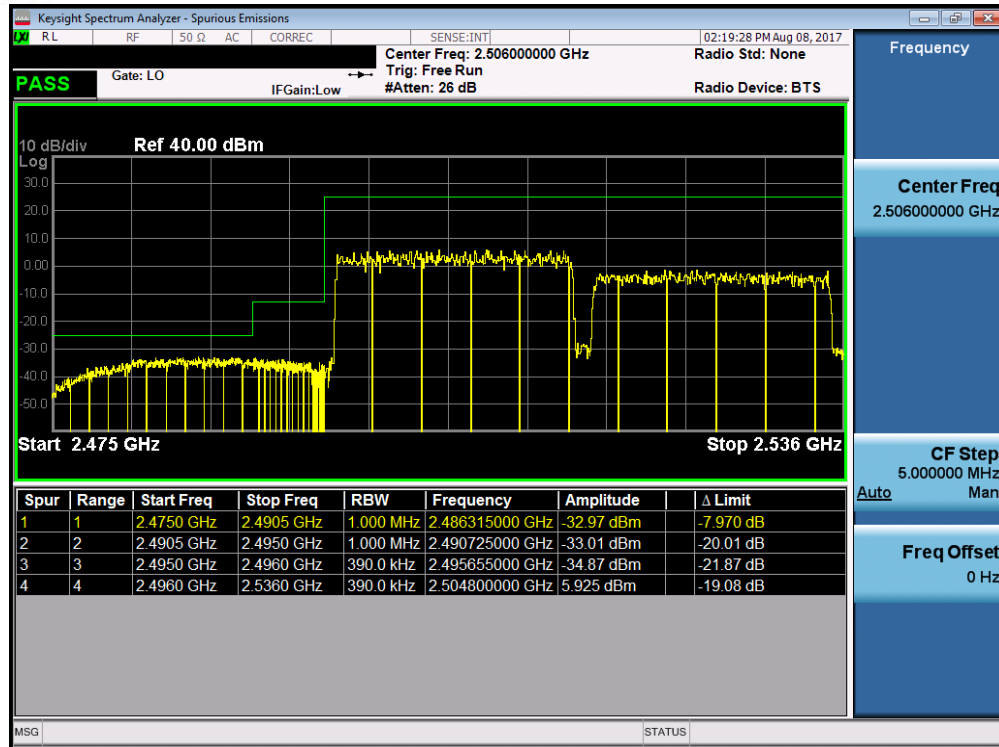


Plot 7-143. Lower ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 25)

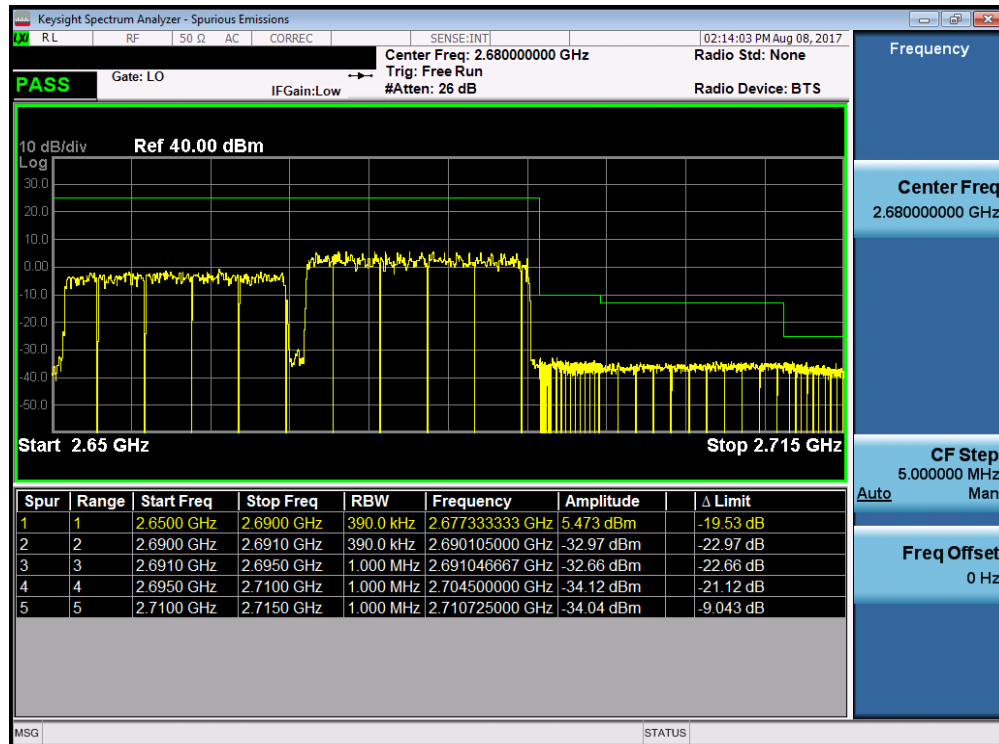


Plot 7-144. Upper ACP Plot (Band 41 – 15.0MHz QPSK – RB Size 25)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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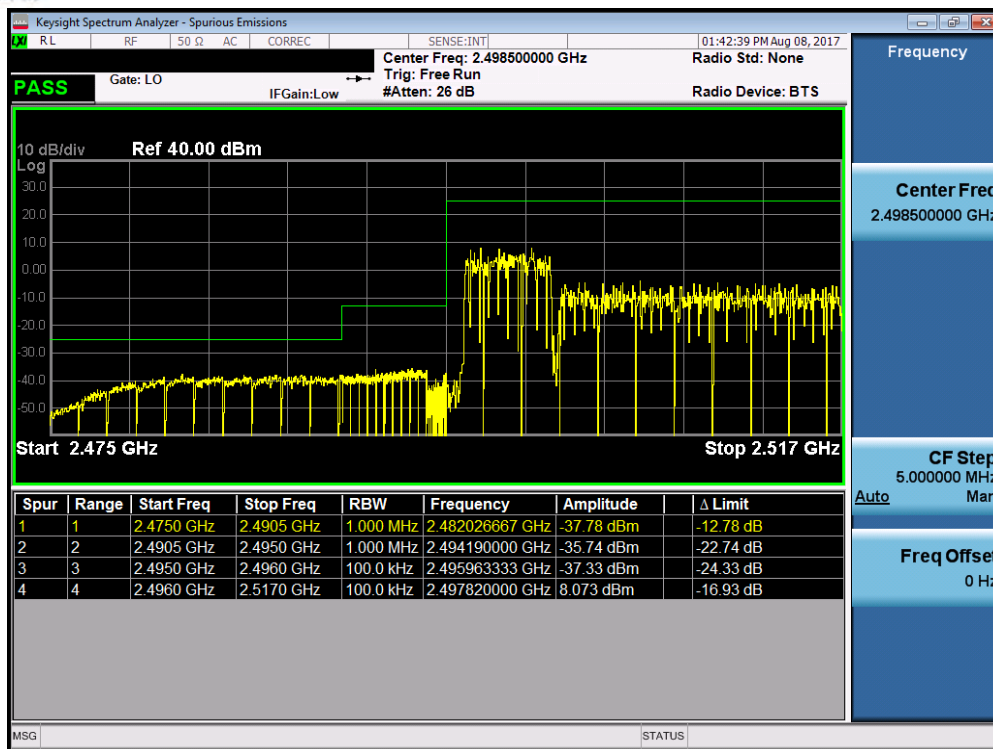


Plot 7-145. Lower ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 50)

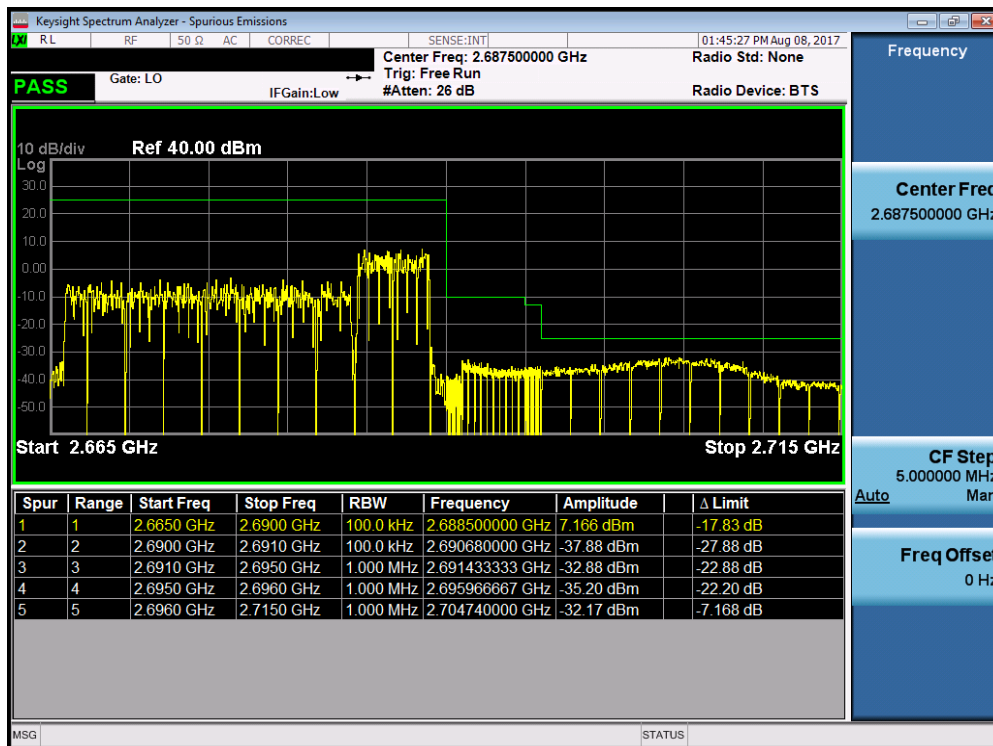


Plot 7-146. Upper ACP Plot (Band 41 – 20.0MHz QPSK – RB Size 50)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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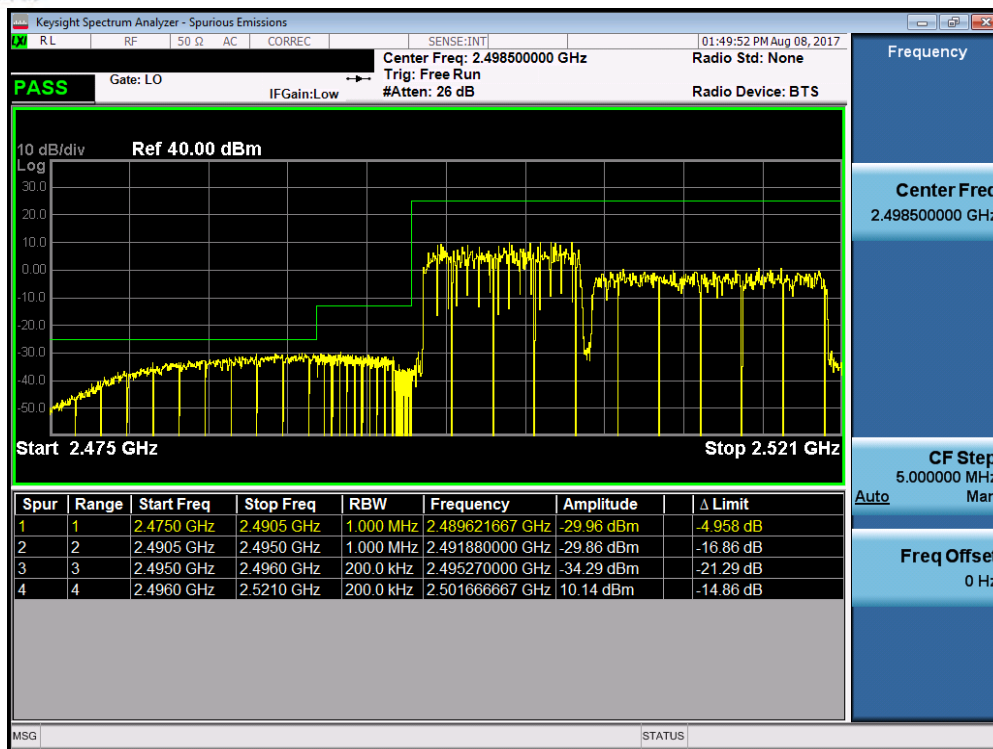


Plot 7-147. Lower ACP Plot (Band 41 – 5.0MHz + 20.0MHz QPSK – RB Size 75)

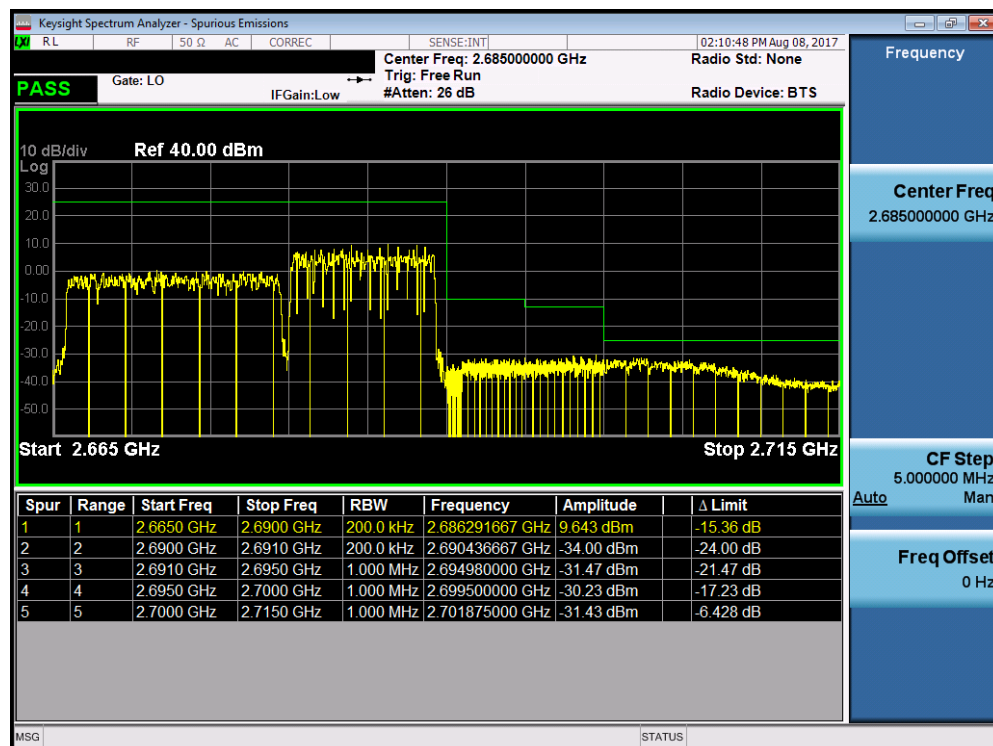


Plot 7-148. Upper ACP Plot (Band 41 – 5.0MHz + 20.0MHz QPSK – RB Size 75)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-149. Lower ACP Plot (Band 41 – 10.0MHz + 15.0MHz QPSK – RB Size 75)



Plot 7-150. Upper ACP Plot (Band 41 – 10.0MHz + 15.0MHz QPSK – RB Size 75)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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7.6 Radiated Power (ERP/EIRP)

§22.913(a.2) §24.232(c.2) §27.50(h.2) §27.50(b.10) §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-D-2010 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 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 D01 v02r02 – Section 5.2.1

ANSI/TIA-603-D-2010 – 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

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Test Setup

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

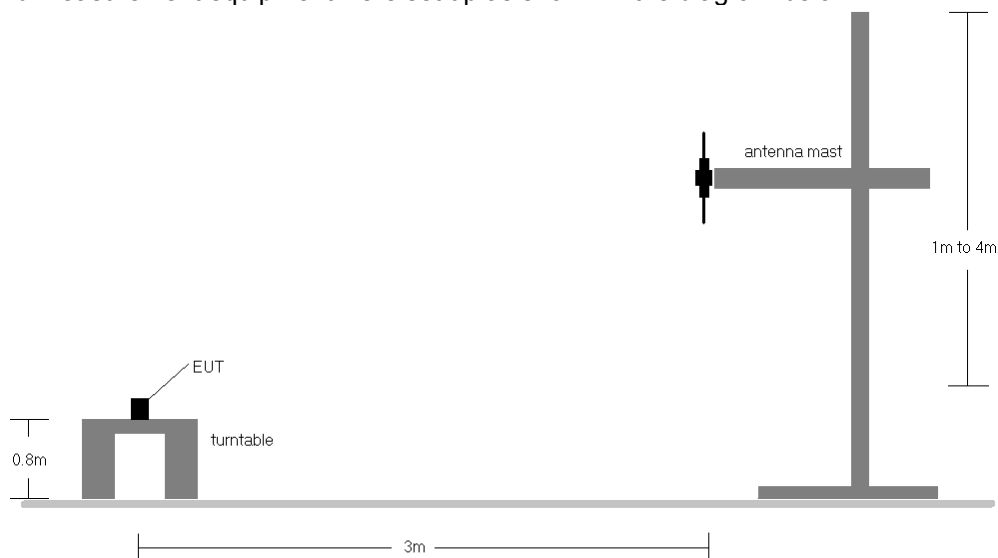


Figure 7-5. Radiated Test Setup <1GHz

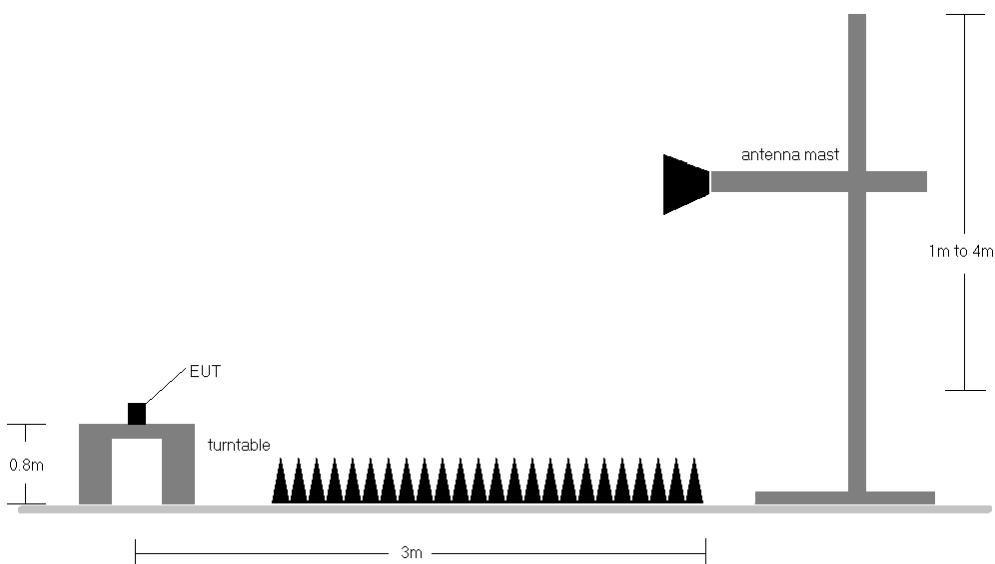


Figure 7-6. Radiated Test Setup >1GHz

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.

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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
701.50	5	QPSK	V	160	101	1 / 0	13.58	2.88	16.46	34.77	-18.32
707.50	5	QPSK	V	164	119	1 / 0	14.69	2.99	17.68	34.77	-17.09
713.50	5	QPSK	V	171	119	1 / 0	14.79	3.04	17.83	34.77	-16.94
713.50	5	16-QAM	V	171	119	1 / 0	14.07	3.04	17.11	34.77	-17.66
713.50	5	64-QAM	V	171	119	1 / 0	13.02	3.04	16.06	34.77	-18.71
704.00	10	QPSK	V	162	125	1 / 0	13.40	2.94	16.34	34.77	-18.44
707.50	10	QPSK	V	152	132	50 / 0	13.28	2.99	16.27	34.77	-18.50
711.00	10	QPSK	V	162	123	1 / 0	14.49	3.02	17.51	34.77	-17.26
711.00	10	16-QAM	V	162	123	1 / 0	13.74	3.02	16.76	34.77	-18.01
711.00	10	64-QAM	V	162	123	1 / 0	12.78	3.02	15.80	34.77	-18.97
713.50	5	QPSK	H	259	358	1 / 74	12.34	2.60	14.94	34.77	-19.83
713.50	5 (WCP)	QPSK	H	150	0	1 / 74	13.76	2.60	16.36	34.77	-18.41

Table 7-4. ERP Data (Band 17)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
779.50	5	QPSK	V	151	289	1 / 0	12.20	3.85	16.05	34.77	-18.72
782.00	5	QPSK	V	152	262	1 / 0	12.21	3.92	16.13	34.77	-18.64
784.50	5	QPSK	V	153	263	1 / 0	11.86	4.02	15.88	34.77	-18.89
782.00	5	16-QAM	V	152	262	1 / 0	11.30	3.92	15.22	34.77	-19.55
782.00	5	64-QAM	V	152	262	1 / 0	10.30	3.92	14.22	34.77	-20.55
782.00	10	QPSK	V	152	294	1 / 0	11.93	3.92	15.85	34.77	-18.92
782.00	10	16-QAM	V	152	294	1 / 0	11.04	3.92	14.96	34.77	-19.81
782.00	10	64-QAM	V	152	294	1 / 0	10.07	3.92	13.99	34.77	-20.78
782.00	5	QPSK	H	150	302	1 / 0	12.80	2.54	15.34	34.77	-19.43
782.00	5 (WCP)	QPSK	H	230	10	1 / 0	12.77	2.54	15.31	34.77	-19.46

Table 7-5. ERP Data (Band 13)

FCC ID: A3LSCV37	 FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION) 				Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	V	148	286	1 / 0	14.19	5.36	19.55	38.45	-18.90
836.50	1.4	QPSK	V	148	286	1 / 0	11.90	5.15	17.05	38.45	-21.40
848.30	1.4	QPSK	V	145	278	1 / 0	12.49	5.16	17.65	38.45	-20.80
824.70	1.4	16-QAM	V	148	286	1 / 0	13.32	5.36	18.68	38.45	-19.77
824.70	1.4	64-QAM	V	148	286	1 / 0	12.27	5.36	17.63	38.45	-20.82
825.50	3	QPSK	V	145	253	1 / 0	14.25	5.35	19.60	38.45	-18.85
836.50	3	QPSK	V	153	272	1 / 0	12.45	5.15	17.60	38.45	-20.85
847.50	3	QPSK	V	139	284	1 / 0	12.55	5.14	17.69	38.45	-20.76
825.50	3	16-QAM	V	145	253	1 / 0	13.49	5.35	18.84	38.45	-19.61
825.50	3	64-QAM	V	145	253	1 / 0	12.45	5.35	17.80	38.45	-20.65
826.50	5	QPSK	V	139	265	1 / 0	14.19	5.34	19.53	38.45	-18.92
836.50	5	QPSK	V	132	265	1 / 0	12.75	5.15	17.90	38.45	-20.55
846.50	5	QPSK	V	139	265	1 / 24	12.80	5.13	17.93	38.45	-20.52
826.50	5	16-QAM	V	139	265	1 / 0	13.41	5.34	18.75	38.45	-19.70
826.50	5	64-QAM	V	139	265	1 / 0	12.37	5.34	17.71	38.45	-20.74
829.00	10	QPSK	V	151	267	1 / 0	13.62	5.30	18.92	38.45	-19.53
836.50	10	QPSK	V	147	267	1 / 0	12.94	5.15	18.09	38.45	-20.36
844.00	10	QPSK	V	143	265	1 / 49	12.45	5.11	17.56	38.45	-20.89
829.00	10	16-QAM	V	151	267	1 / 0	12.85	5.30	18.15	38.45	-20.30
829.00	10	64-QAM	V	151	267	1 / 0	11.82	5.30	17.12	38.45	-21.33
825.50	3	QPSK	H	145	268	1 / 0	11.29	5.14	16.43	38.45	-22.02
825.50	3 (WCP)	QPSK	V	150	0	1 / 99	17.28	-1.00	16.28	38.45	-22.17

Table 7-6. ERP Data (Band 5/26)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBd]	ERP [dBm]	ERP Limit [dBm]	Margin [dB]
831.50	15	QPSK	V	149	256	1 / 0	13.16	5.25	18.41	38.45	-20.05
836.50	15	QPSK	V	149	257	1 / 0	12.88	5.15	18.03	38.45	-20.42
841.50	15	QPSK	V	132	164	1 / 74	11.97	5.11	17.08	38.45	-21.37
831.50	15	16-QAM	V	149	256	1 / 0	12.40	5.25	17.65	38.45	-20.81
831.50	15	64-QAM	V	149	256	1 / 0	11.73	5.25	16.98	38.45	-21.48

Table 7-7. ERP Data (Band 26)

FCC ID: A3LSCV37	 FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION) 				Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
2502.50	5	QPSK	H	100	310	1 / 24	12.05	8.42	20.47	33.01	-12.54
2535.00	5	QPSK	H	100	318	1 / 24	11.07	8.50	19.57	33.01	-13.44
2567.50	5	QPSK	H	122	312	1 / 24	11.22	8.59	19.81	33.01	-13.20
2502.50	5	16-QAM	H	100	310	1 / 24	11.09	8.42	19.51	33.01	-13.50
2502.50	5	64-QAM	H	100	310	1 / 24	10.23	8.42	18.65	33.01	-14.36
2505.00	10	QPSK	H	100	308	1 / 0	11.71	8.42	20.13	33.01	-12.88
2535.00	10	QPSK	H	100	318	1 / 0	10.73	8.50	19.23	33.01	-13.78
2565.00	10	QPSK	H	118	307	1 / 0	11.16	8.58	19.74	33.01	-13.27
2505.00	10	16-QAM	H	100	308	1 / 0	10.79	8.42	19.21	33.01	-13.80
2505.00	10	64-QAM	H	100	308	1 / 0	9.84	8.42	18.26	33.01	-14.75
2507.50	15	QPSK	H	100	310	1 / 0	11.72	8.43	20.15	33.01	-12.86
2535.00	15	QPSK	H	119	307	1 / 0	10.79	8.50	19.29	33.01	-13.72
2562.50	15	QPSK	H	119	307	1 / 0	10.88	8.57	19.45	33.01	-13.56
2507.50	15	16-QAM	H	100	310	1 / 0	10.84	8.43	19.27	33.01	-13.74
2507.50	15	64-QAM	H	100	310	1 / 0	9.92	8.43	18.35	33.01	-14.66
2510.00	20	QPSK	H	100	315	1 / 0	11.45	8.44	19.89	33.01	-13.12
2535.00	20	QPSK	H	119	310	1 / 0	10.82	8.50	19.32	33.01	-13.69
2560.00	20	QPSK	H	120	312	1 / 0	10.60	8.57	19.17	33.01	-13.84
2510.00	20	16-QAM	H	100	315	1 / 0	10.53	8.44	18.97	33.01	-14.04
2510.00	20	64-QAM	H	100	315	1 / 0	9.61	8.44	18.05	33.01	-14.96
2502.50	5	QPSK	V	100	300	1 / 0	9.72	8.52	18.24	33.01	-14.77
2502.50	5 (WCP)	QPSK	H	241	275	1 / 0	11.26	8.42	19.68	33.01	-13.33

Table 7-8. EIRP Data (Band 7)

FCC ID: A3LSCV37	PCTEST ENGINEERING LABORATORY, INC. FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION) 			Approved by: Quality Manager
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Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	100	309	1 / 0	12.42	8.42	20.84	33.01	-12.17
2593.00	5	QPSK	H	112	313	1 / 0	11.71	8.65	20.36	33.01	-12.65
2687.50	5	QPSK	H	108	310	1 / 0	11.61	8.44	20.05	33.01	-12.96
2498.50	5	16-QAM	H	100	309	1 / 0	10.91	8.42	19.33	33.01	-13.68
2498.50	5	64-QAM	H	100	309	1 / 0	9.80	8.42	18.22	33.01	-14.79
2501.00	10	QPSK	H	100	308	1 / 0	12.93	8.41	21.34	33.01	-11.67
2593.00	10	QPSK	H	100	302	1 / 49	12.12	8.65	20.77	33.01	-12.24
2685.00	10	QPSK	H	111	318	1 / 0	11.44	8.45	19.89	33.01	-13.12
2501.00	10	16-QAM	H	100	308	1 / 0	10.40	8.41	18.81	33.01	-14.20
2501.00	10	64-QAM	H	100	308	1 / 0	9.88	8.41	18.29	33.01	-14.72
2503.50	15	QPSK	H	100	319	1 / 0	10.98	8.42	19.40	33.01	-13.61
2593.00	15	QPSK	H	115	309	1 / 0	11.48	8.65	20.13	33.01	-12.88
2682.50	15	QPSK	H	113	305	1 / 0	11.20	8.46	19.66	33.01	-13.35
2682.50	15	16-QAM	H	113	305	1 / 0	9.86	8.46	18.32	33.01	-14.69
2682.50	15	64-QAM	H	113	305	1 / 0	8.63	8.46	17.09	33.01	-15.92
2506.00	20	QPSK	H	100	304	1 / 0	13.08	8.42	21.50	33.01	-11.51
2593.00	20	QPSK	H	100	311	1 / 0	11.71	8.65	20.36	33.01	-12.65
2680.00	20	QPSK	H	116	318	1 / 0	11.05	8.46	19.51	33.01	-13.50
2506.00	20	16-QAM	H	100	304	1 / 0	10.64	8.42	19.06	33.01	-13.95
2506.00	20	64-QAM	H	100	304	1 / 0	9.85	8.42	18.27	33.01	-14.74
2506.00	20	QPSK	V	114	333	1 / 0	8.45	8.74	17.19	33.01	-15.82
2506.00	20 (WCP)	QPSK	H	110	216	1 / 0	12.96	8.42	21.38	33.01	-11.63

Table 7-9. EIRP Data (Band 38/41)

FCC ID: A3LSCV37	PCTEST[®] ENGINEERING LABORATORY, INC. FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)  Approved by: Quality Manager			
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7.7 Radiated Spurious Emissions Measurements

§2.1053 §22.917(a) §27.53(c) §27.53(f) §27.53(g) §27.53(m)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 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.

Test Procedures Used

KDB 971168 D01 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – 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 = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

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Test Setup

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

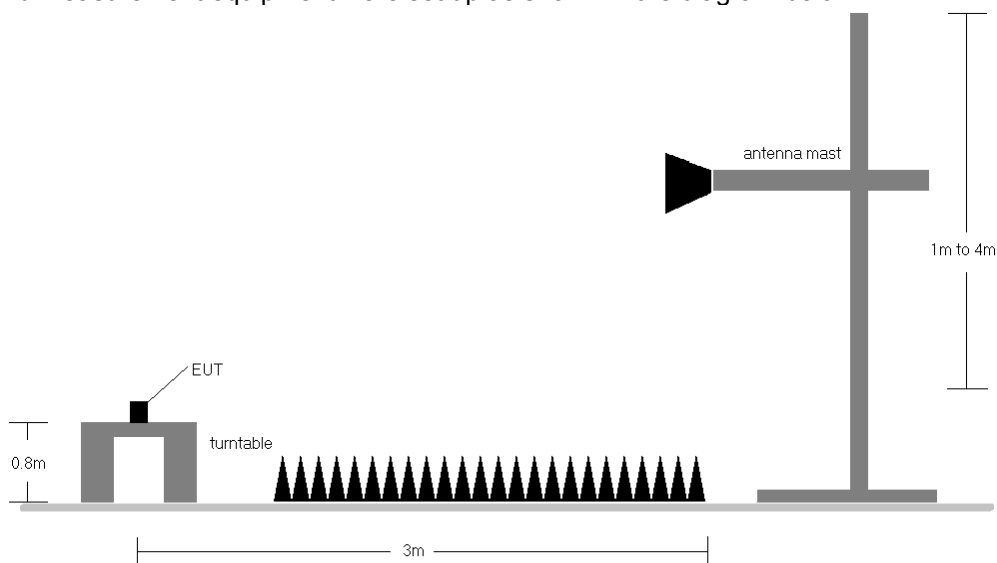


Figure 7-7. Test Instrument & Measurement Setup

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.
- 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.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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OPERATING FREQUENCY: 701.50 MHz
 CHANNEL: 23035
 MEASURED OUTPUT POWER: 16.46 dBm = 0.044 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 29.46 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1403.00	H	-	-	-79.08	5.65	-73.44	89.9
2104.50	H	-	-	-75.61	6.04	-69.57	86.0

Table 7-10. Radiated Spurious Data (Band 17 – Low Channel)

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23095
 MEASURED OUTPUT POWER: 17.68 dBm = 0.059 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 30.68 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1415.00	H	-	-	-79.00	5.70	-73.30	91.0
2122.50	H	-	-	-77.20	6.16	-71.05	88.7

Table 7-11. Radiated Spurious Data (Band 17 – Mid Channel)

FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 713.50 MHz
 CHANNEL: 23155
 MEASURED OUTPUT POWER: 17.83 dBm = 0.061 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 30.83 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1427.00	H	150	336	-76.65	5.75	-70.91	88.7
2140.50	H	-	-	-76.48	6.27	-70.21	88.0

Table 7-12. Radiated Spurious Data (Band 17 – High Channel)

OPERATING FREQUENCY: 713.50 MHz
 CHANNEL: 23155
 MEASURED OUTPUT POWER: 16.36 dBm = 0.043 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 29.36 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1427.00	H	150	113	-80.77	5.75	-75.03	91.4
2140.50	H	-	-	-78.34	6.27	-72.07	88.4

Table 7-13. Radiated Spurious Data with WCP (Band 17 – High Channel)

FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 779.50 MHz
 CHANNEL: 23205
 MEASURED OUTPUT POWER: 16.05 dBm = 0.040 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 29.05 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
2338.50	V	-	-	-73.65	7.01	-66.64	82.7

Table 7-14. Radiated Spurious Data (Band 13 – Low Channel)

OPERATING FREQUENCY: 782.00 MHz
 CHANNEL: 23230
 MEASURED OUTPUT POWER: 16.13 dBm = 0.041 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 29.13 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
2346.00	V	-	-	-72.62	7.00	-65.61	81.7

Table 7-15. Radiated Spurious Data (Band 13 – Mid Channel)

FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 784.50 MHz
 CHANNEL: 23255
 MEASURED OUTPUT POWER: 15.88 dBm = 0.039 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 28.88 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
2353.50	V	-	-	-72.07	6.99	-65.07	81.0

Table 7-16. Radiated Spurious Data (Band 13 – High Channel)

MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.00 MHz
 DISTANCE: 3 meters
 NARROWBAND EMISSION LIMIT: -50 dBm
 WIDEBAND EMISSION LIMIT: -40 dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Margin [dB]
1559.00	V	-	-	-75.16	6.36	-68.81	-28.8
1564.00	V	-	-	-75.22	6.37	-68.85	-28.9
1569.00	V	-	-	-75.68	6.38	-69.31	-29.3

Table 7-17. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 782.00 MHz
 CHANNEL: 23230
 MEASURED OUTPUT POWER: 15.31 dBm = 0.034 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 28.31 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
2346.00	H	-	-	-71.91	7.00	-64.90	80.2

Table 7-18. Radiated Spurious Data with WCP (Band 13 – Mid Channel)

MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.00 MHz
 DISTANCE: 3 meters
 NARROWBAND EMISSION LIMIT: -50 dBm
 WIDEBAND EMISSION LIMIT: -40 dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	-	-	-75.32	6.37	-68.95	-29.0

Table 7-19. Radiated Spurious Data with WCP (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 825.50 MHz
 CHANNEL: 20415
 MEASURED OUTPUT POWER: 19.60 dBm = 0.091 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 32.60 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1651.00	H	-	-	-79.58	6.80	-72.79	92.4
2476.50	H	-	-	-79.12	7.86	-71.26	90.9

Table 7-20. Radiated Spurious Data (Band 5/26 – Low Channel)

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 MEASURED OUTPUT POWER: 17.60 dBm = 0.058 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 30.60 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1673.00	H	-	-	-80.02	6.90	-73.12	90.7
2509.50	H	-	-	-77.82	7.95	-69.87	87.5

Table 7-21. Radiated Spurious Data (Band 5/26 – Mid Channel)

FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 847.50 MHz
 CHANNEL: 20635
 MEASURED OUTPUT POWER: 17.69 dBm = 0.059 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 30.69 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1695.00	H	-	-	-79.92	7.00	-72.92	90.6
2542.50	H	-	-	-77.67	7.93	-69.74	87.4

Table 7-22. Radiated Spurious Data (Band 5/26 – High Channel)

OPERATING FREQUENCY: 825.50 MHz
 CHANNEL: 20415
 MEASURED OUTPUT POWER: 16.28 dBm = 0.043 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3.0 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 29.28 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	[dBc]
1651.00	H	150	82	-79.17	6.80	-72.37	88.7
2476.50	H	-	-	-78.22	7.86	-70.36	86.6

Table 7-23. Radiated Spurious Data with WCP (Band 5/26 – Low Channel)

FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 2502.50 MHz
 CHANNEL: 20775
 MEASURED OUTPUT POWER: 20.47 dBm = 0.111 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 45.47 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5005.00	H	106	322	-66.92	11.18	-55.75	76.2
7507.50	H	-	-	-59.18	11.18	-48.00	68.5

Table 7-24. Radiated Spurious Data (Band 7 – Low Channel)

OPERATING FREQUENCY: 2535.00 MHz
 CHANNEL: 21100
 MEASURED OUTPUT POWER: 19.57 dBm = 0.091 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 44.57 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5070.00	H	143	156	-66.44	11.04	-55.40	75.0
7605.00	H	-	-	-59.56	11.47	-48.09	67.7

Table 7-25. Radiated Spurious Data (Band 7 – Mid Channel)

FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 2567.50 MHz
 CHANNEL: 21425
 MEASURED OUTPUT POWER: 19.81 dBm = 0.096 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 44.81 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5135.00	H	184	8	-66.33	10.92	-55.41	75.2
7702.50	H	-	-	-59.16	11.56	-47.60	67.4

Table 7-26. Radiated Spurious Data (Band 7 – High Channel)

OPERATING FREQUENCY: 2502.50 MHz
 CHANNEL: 20775
 MEASURED OUTPUT POWER: 19.68 dBm = 0.093 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 44.68 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5005.00	H	241	275	-66.82	11.18	-55.65	75.3
7507.50	H	-	-	-59.22	11.18	-48.04	67.7

Table 7-27. Radiated Spurious Data with WCP (Band 7 – Low Channel)

FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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OPERATING FREQUENCY: 2506.00 MHz
 CHANNEL: 39750
 MEASURED OUTPUT POWER: 21.50 dBm = 0.141 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 46.50 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5012.00	H	174	298	-65.16	11.16	-54.00	75.5
7518.00	H	-	-	-57.36	11.21	-46.15	67.7
10024.00	H	-	-	-56.85	12.57	-44.27	65.8

Table 7-28. Radiated Spurious Data (Band 38/41 – Low Channel)

OPERATING FREQUENCY: 2593.00 MHz
 CHANNEL: 40620
 MEASURED OUTPUT POWER: 20.36 dBm = 0.109 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 45.36 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5186.00	H	137	291	-61.82	10.83	-50.99	71.4
7779.00	H	-	-	-57.69	11.60	-46.09	66.4
10372.00	H	-	-	-56.76	12.74	-44.02	64.4

Table 7-29. Radiated Spurious Data (Band 38/41 – Mid Channel)

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OPERATING FREQUENCY: 2680.00 MHz
 CHANNEL: 41490
 MEASURED OUTPUT POWER: 19.51 dBm = 0.089 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 44.51 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5360.00	H	-	-	-56.76	11.08	-45.68	65.2
8040.00	H	-	-	-56.54	11.54	-45.00	64.5
10720.00	H	-	-	-56.41	12.97	-43.44	63.0

Table 7-30. Radiated Spurious Data (Band 38/41 – High Channel)

OPERATING FREQUENCY: 2506.00 MHz
 CHANNEL: 39750
 MEASURED OUTPUT POWER: 21.38 dBm = 0.138 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10}(W)$ 46.38 dBc

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	[dBc]
5012.00	H	168	301	-65.59	11.16	-54.43	75.8
7518.00	H	-	-	-57.36	11.21	-46.15	67.5
10024.00	H	-	-	-56.85	12.57	-44.27	65.7

Table 7-31. Radiated Spurious Data with WCP (Band 3/841 – Low Channel)

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7.8 Uplink Carrier Aggregation Radiated Measurements

§2.1053, §27.53(m)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 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 D01 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – 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 = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

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Test Setup

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

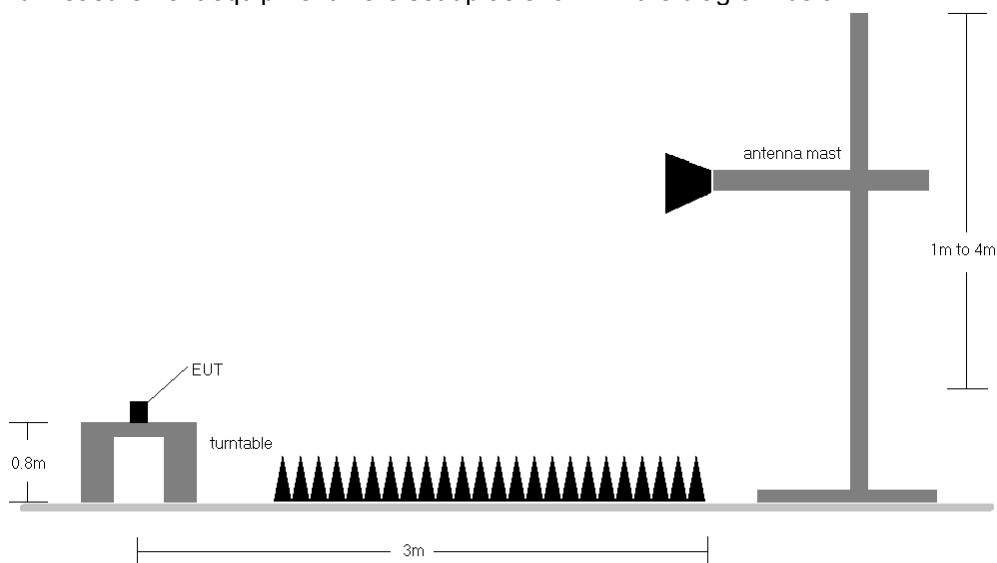
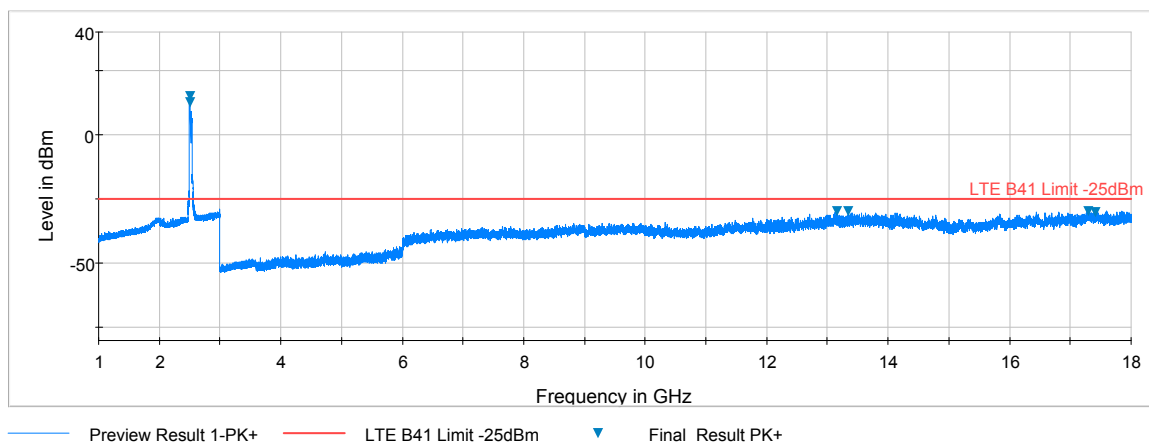


Figure 7-8. Test Instrument & Measurement Setup

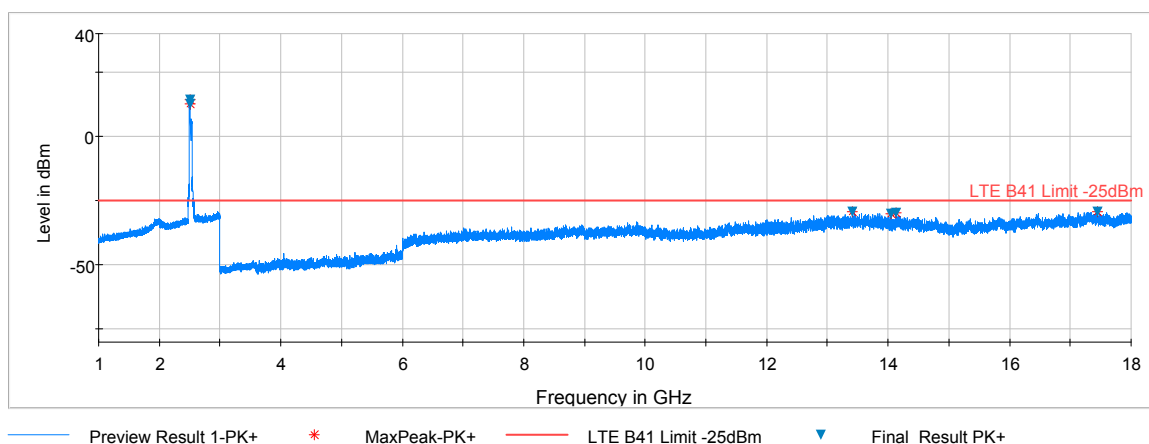
Test Notes

- 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.
- 3) Radiated spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. The worst case (highest) emissions were found while operating with QPSK modulation with both carriers set to transmit using 1RB.
- 4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 5) 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.
- 6) No significant emissions were found as a result of two uplink carriers operating contiguously.

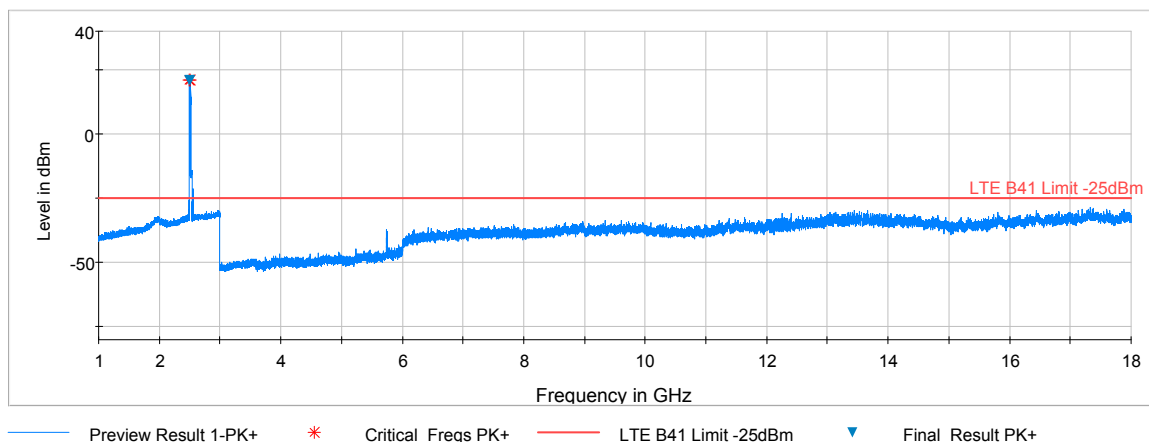
FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Plot 7-32. Radiated Spurious Plot (ULCA B41 PCC: RB 100 Offset 0, SCC: RB 100 Offset 0, Ant. Pol. H)

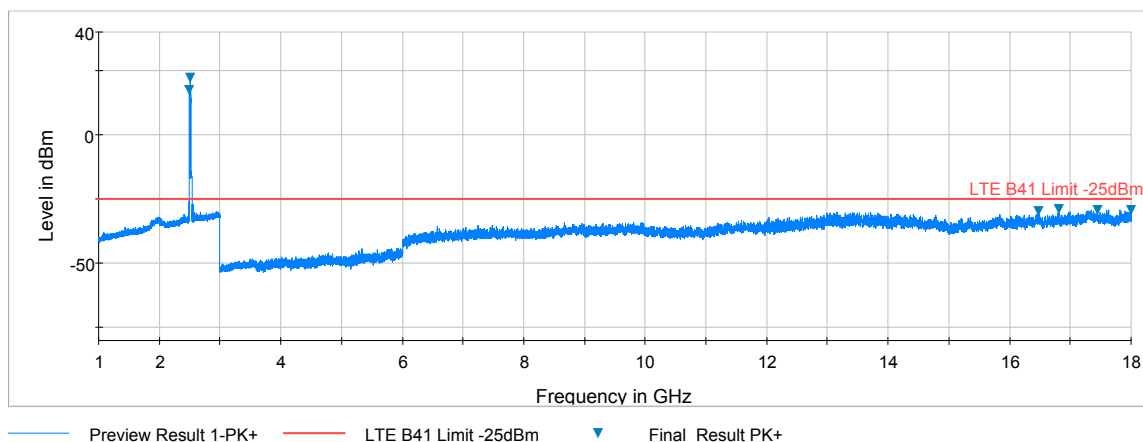


Plot 7-33. Radiated Spurious Plot (ULCA B41 PCC: RB 100 Offset 0, SCC: RB 100 Offset 0, Ant. Pol. V)



Plot 7-34. Radiated Spurious Plot (ULCA B41 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0, Ant. Pol. H)

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Plot 7-35. Radiated Spurious Plot (ULCA B41 PCC: RB 1 Offset 99, SCC: RB 1 Offset 0, Ant. Pol. V)

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7.9 Frequency Stability / Temperature Variation

§2.1055 §22.355 §27.54

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-D-2010. 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 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-D-2010

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

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Band 17 Frequency Stability Measurements

\$2.1055 \$27.54

OPERATING FREQUENCY: 707,500,000 Hz

CHANNEL: 23790

REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	707,500,051	51	0.0000072
100 %		- 30	707,500,328	328	0.0000464
100 %		- 20	707,499,796	-204	-0.0000288
100 %		- 10	707,499,894	-106	-0.0000150
100 %		0	707,499,935	-65	-0.0000092
100 %		+ 10	707,500,238	238	0.0000336
100 %		+ 20	707,499,935	-65	-0.0000092
100 %		+ 30	707,500,246	246	0.0000348
100 %		+ 40	707,500,023	23	0.0000033
100 %		+ 50	707,499,968	-32	-0.0000045
BATT. ENDPOINT	3.45	+ 20	707,500,306	306	0.0000433

Table 7-36. 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

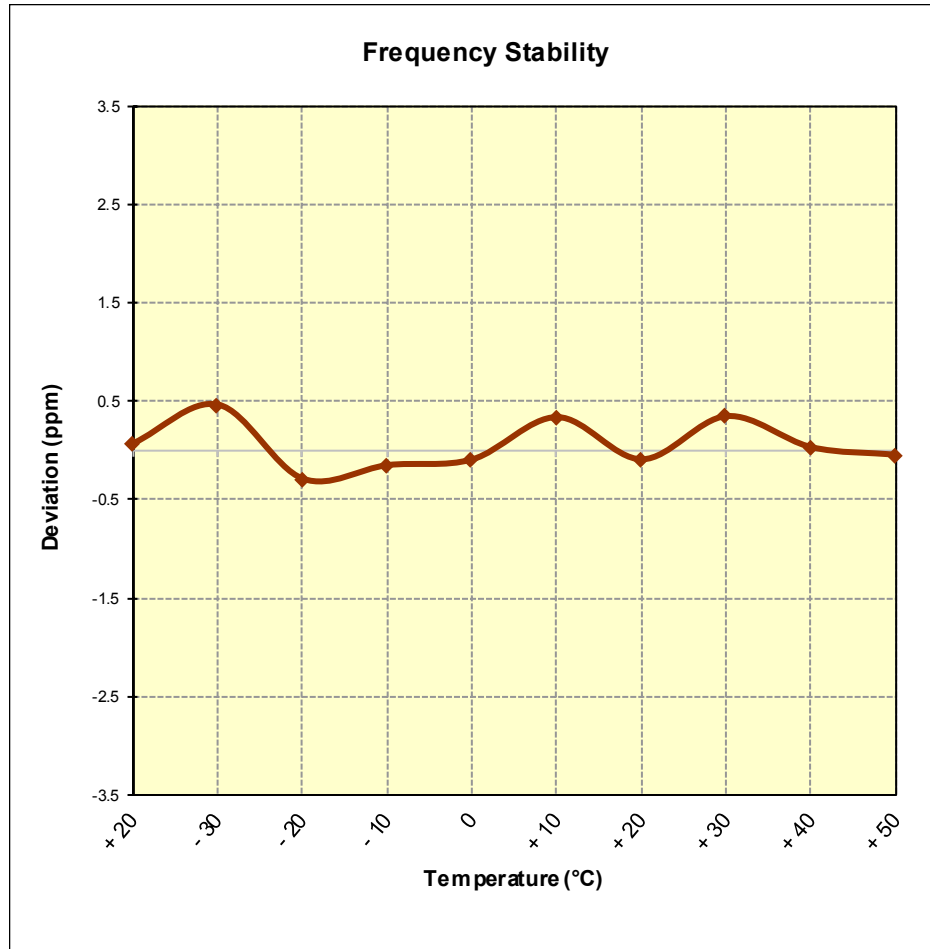


Figure 7-9. Frequency Stability Graph (Band 17)

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Band 13 Frequency Stability Measurements

\$2.1055 \$27.54

OPERATING FREQUENCY: 782,000,000 Hz

CHANNEL: 23230

REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	782,000,311	311	0.0000398
100 %		- 30	781,999,846	-154	-0.0000197
100 %		- 20	782,000,097	97	0.0000124
100 %		- 10	782,000,011	11	0.0000014
100 %		0	781,999,908	-92	-0.0000118
100 %		+ 10	782,000,176	176	0.0000225
100 %		+ 20	782,000,096	96	0.0000123
100 %		+ 30	781,999,755	-245	-0.0000313
100 %		+ 40	782,000,207	207	0.0000265
100 %		+ 50	782,000,117	117	0.0000150
BATT. ENDPOINT	3.45	+ 20	782,000,155	155	0.0000198

Table 7-37. Frequency Stability Data (Band 13)

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 13 Frequency Stability Measurements

§2.1055 §27.54

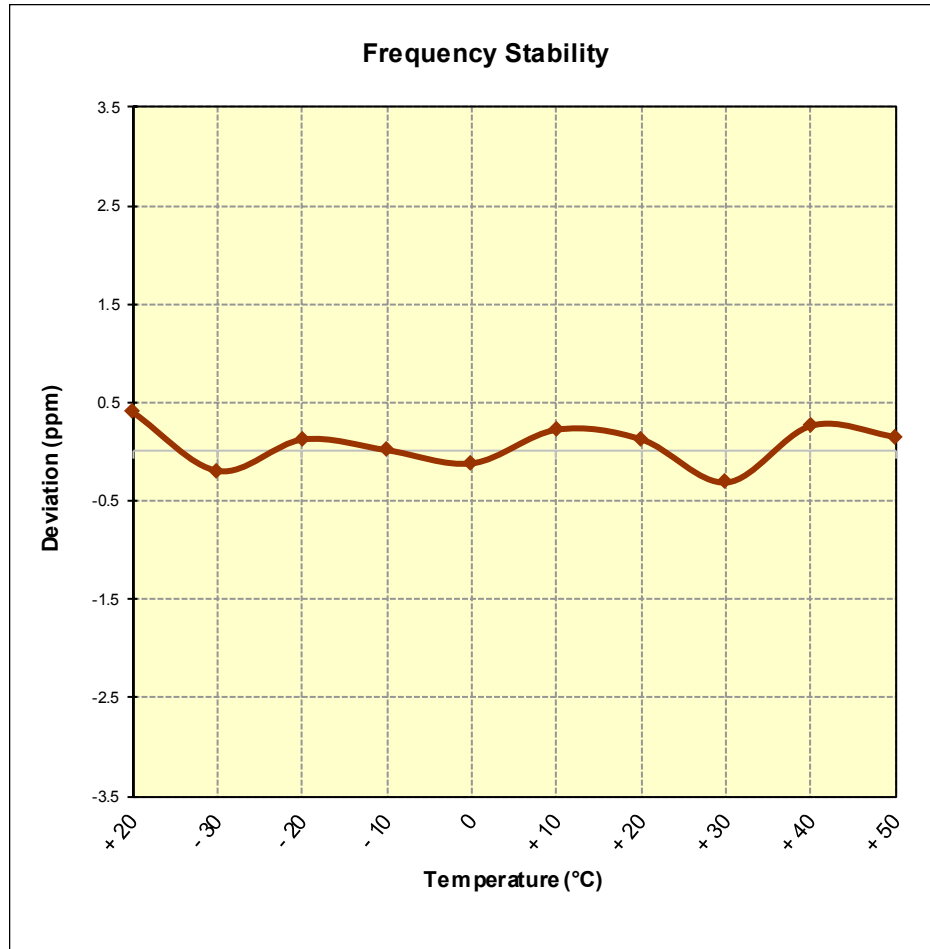


Figure 7-10. Frequency Stability Graph (Band 13)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION) 	Approved by: Quality Manager
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Band 5/26 Frequency Stability Measurements

\$2.1055 \$22.355

OPERATING FREQUENCY: 836,500,000 Hz

CHANNEL: 20525

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)	836,500,121	121	0.0000145
100 %		- 30	836,499,763	-237	-0.0000283
100 %		- 20	836,500,078	78	0.0000093
100 %		- 10	836,499,824	-176	-0.0000210
100 %		0	836,499,868	-132	-0.0000158
100 %		+ 10	836,500,226	226	0.0000270
100 %		+ 20	836,500,203	203	0.0000243
100 %		+ 30	836,499,937	-63	-0.0000075
100 %		+ 40	836,499,842	-158	-0.0000189
100 %		+ 50	836,500,201	201	0.0000240
BATT. ENDPOINT		+ 20	836,500,404	404	0.0000483

Table 7-38. Frequency Stability Data (Band 5/26)

FCC ID: A3LSCV37		FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 5/26 Frequency Stability Measurements
§2.1055 §22.355

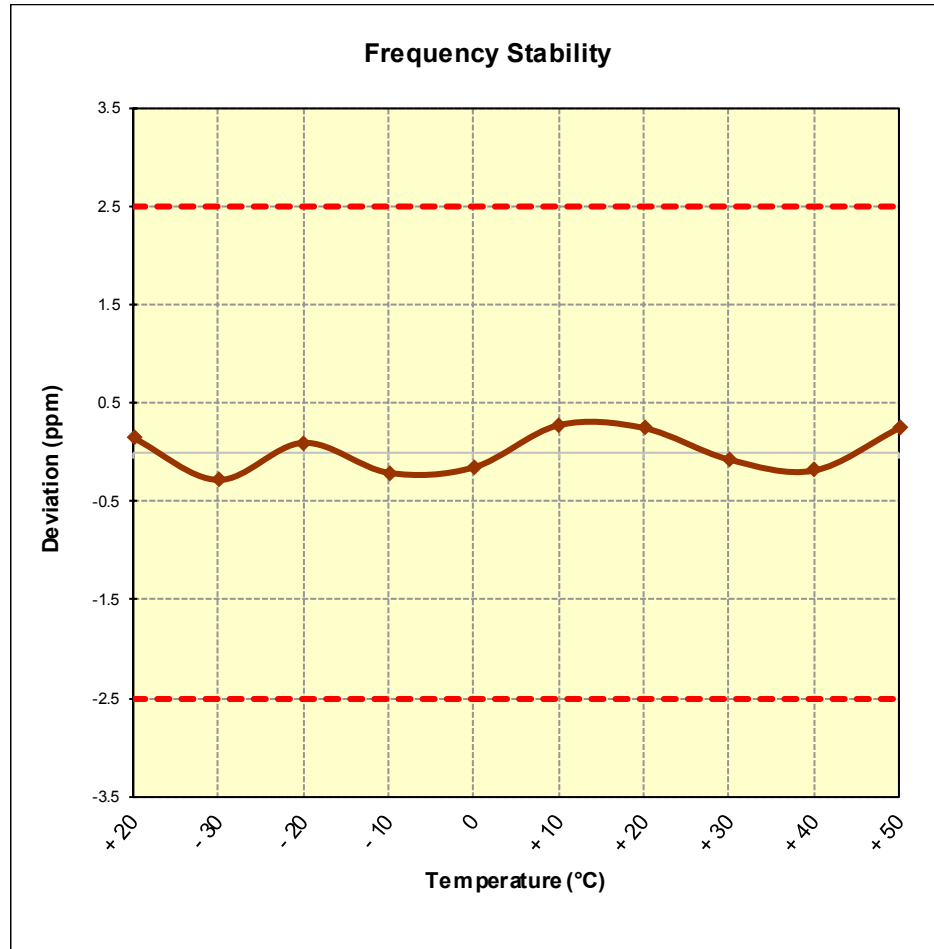


Figure 7-11. Frequency Stability Graph (Band 5/26)

FCC ID: A3LSCV37			FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 7 Frequency Stability Measurements

§2.1055 §27.54

OPERATING FREQUENCY: 2,535,000,000 Hz

CHANNEL: 21100

REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,534,999,538	-462	-0.0000182
100 %		- 30	2,534,999,916	-84	-0.0000033
100 %		- 20	2,534,999,750	-250	-0.0000099
100 %		- 10	2,535,000,161	161	0.0000064
100 %		0	2,534,999,777	-223	-0.0000088
100 %		+ 10	2,534,999,934	-66	-0.0000026
100 %		+ 20	2,535,000,005	5	0.0000002
100 %		+ 30	2,535,000,060	60	0.0000024
100 %		+ 40	2,535,000,051	51	0.0000020
100 %		+ 50	2,535,000,012	12	0.0000005
BATT. ENDPOINT	3.45	+ 20	2,534,999,827	-173	-0.0000068

Table 7-39. Frequency Stability Data (Band 7)

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 7 Frequency Stability Measurements

§2.1055 §27.54

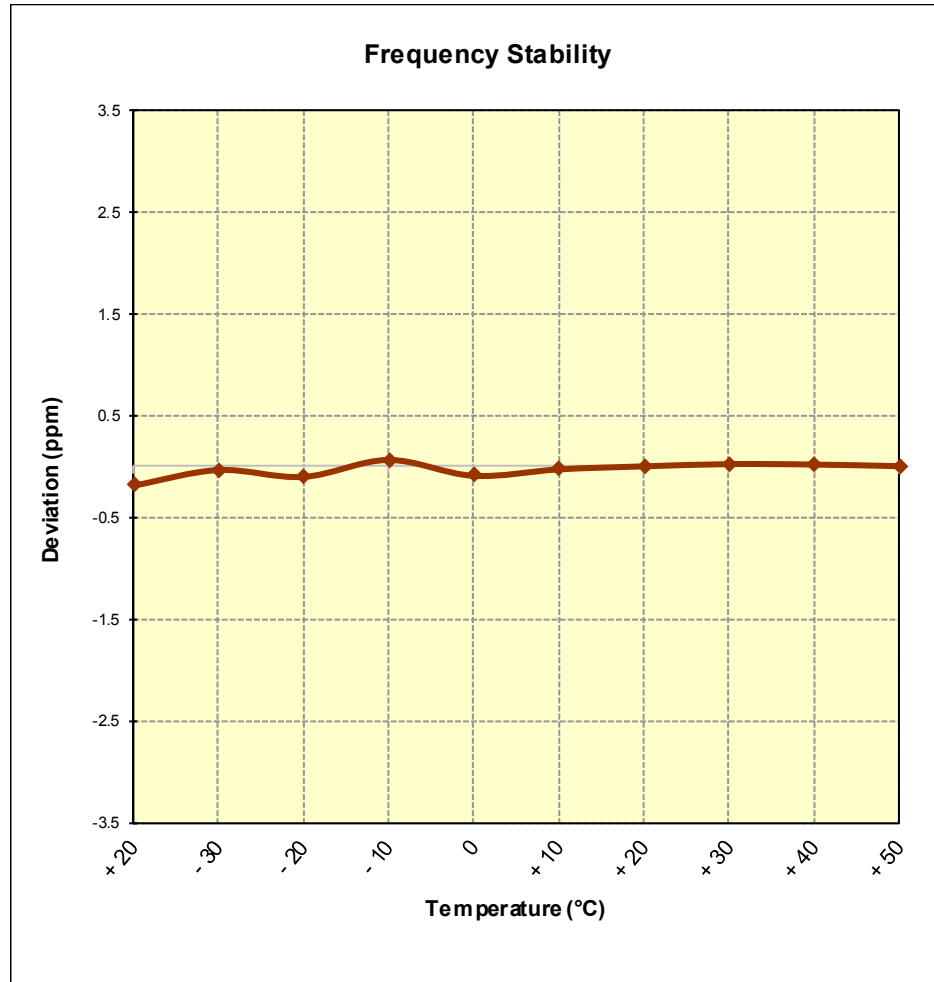


Figure 7-12. Frequency Stability Graph (Band 7)

FCC ID: A3LSCV37	 FCC Pt. 22 & 27 LTE MEASUREMENT REPORT (CERTIFICATION)		 Approved by: Quality Manager
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Band 38/41 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)	2,592,999,860	-140	-0.0000054
100 %		- 30	2,593,000,020	20	0.0000008
100 %		- 20	2,593,000,117	117	0.0000045
100 %		- 10	2,592,999,979	-21	-0.0000008
100 %		0	2,593,000,279	279	0.0000108
100 %		+ 10	2,593,000,296	296	0.0000114
100 %		+ 20	2,593,000,336	336	0.0000130
100 %		+ 30	2,592,999,975	-25	-0.0000010
100 %		+ 40	2,592,999,900	-100	-0.0000039
100 %		+ 50	2,593,000,079	79	0.0000030
BATT. ENDPOINT	3.45	+ 20	2,592,999,901	-99	-0.0000038

Table 7-40. Frequency Stability Data (Band 38/41)

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.

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Band 38/41 Frequency Stability Measurements

\$2.1055 \$27.54

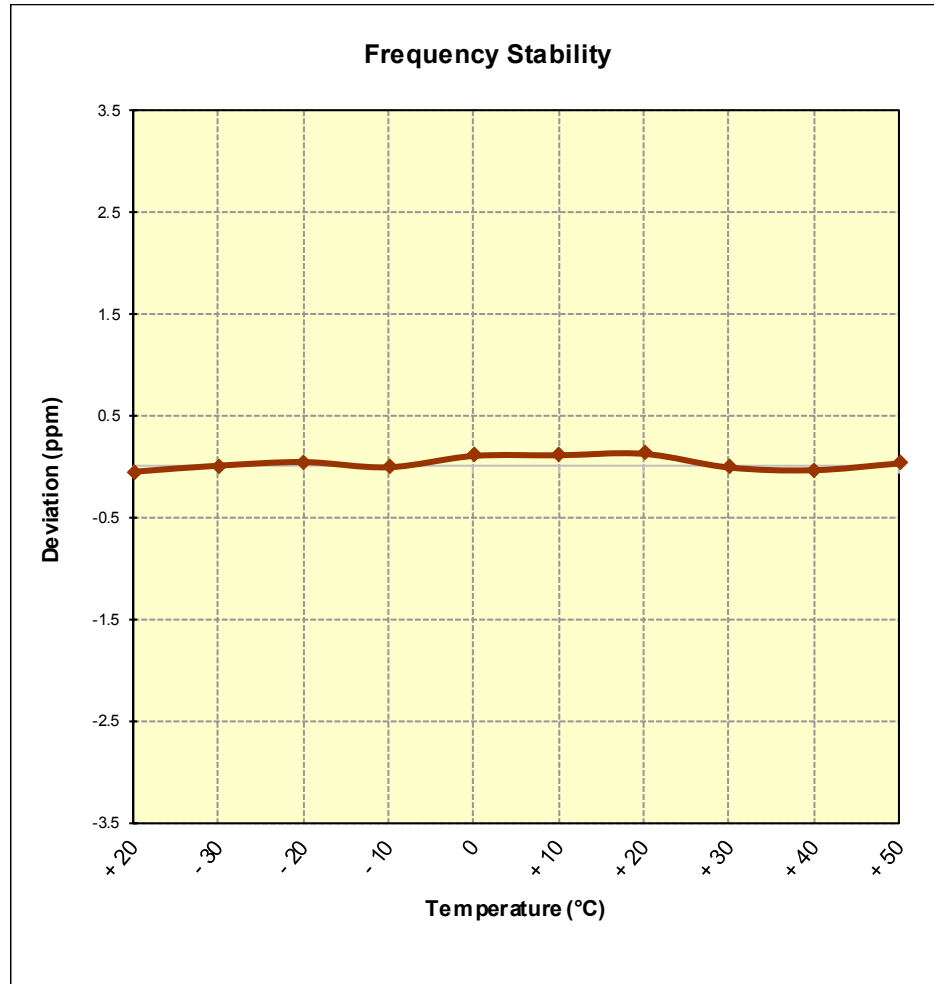


Figure 7-13. Frequency Stability Graph (Band 38/41)

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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSCV37** complies with all the requirements of Parts 22 & 27 of the FCC rules for LTE operation only.

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