



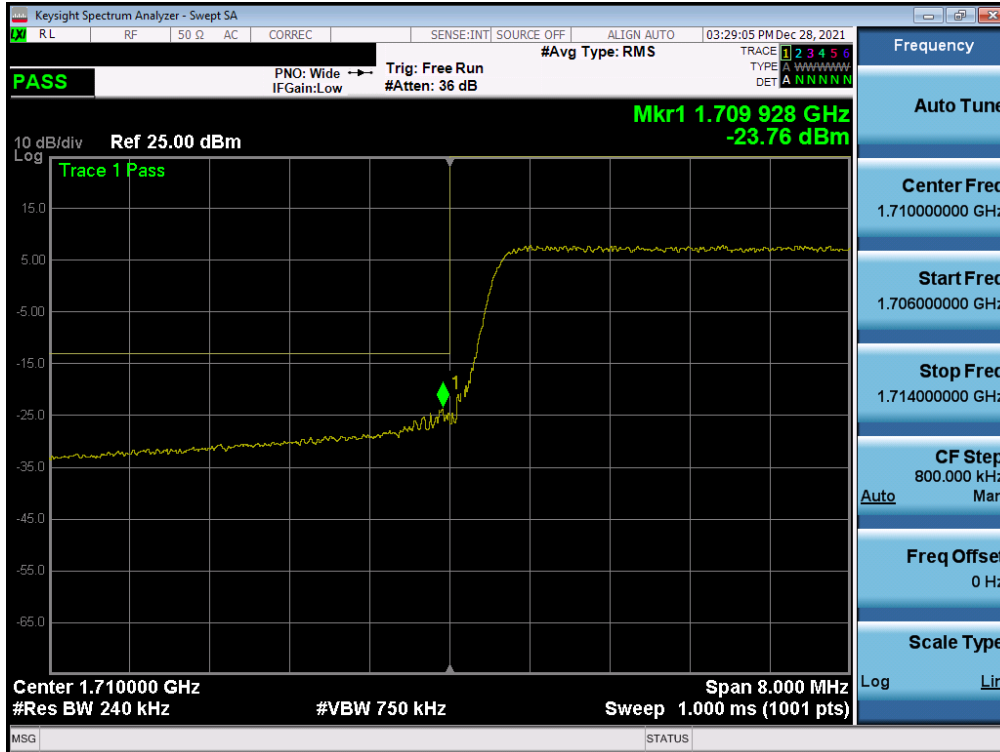


Plot 7-90. Upper Band Edge Plot (LTE Band 66 - 15MHz QPSK – Full RB)

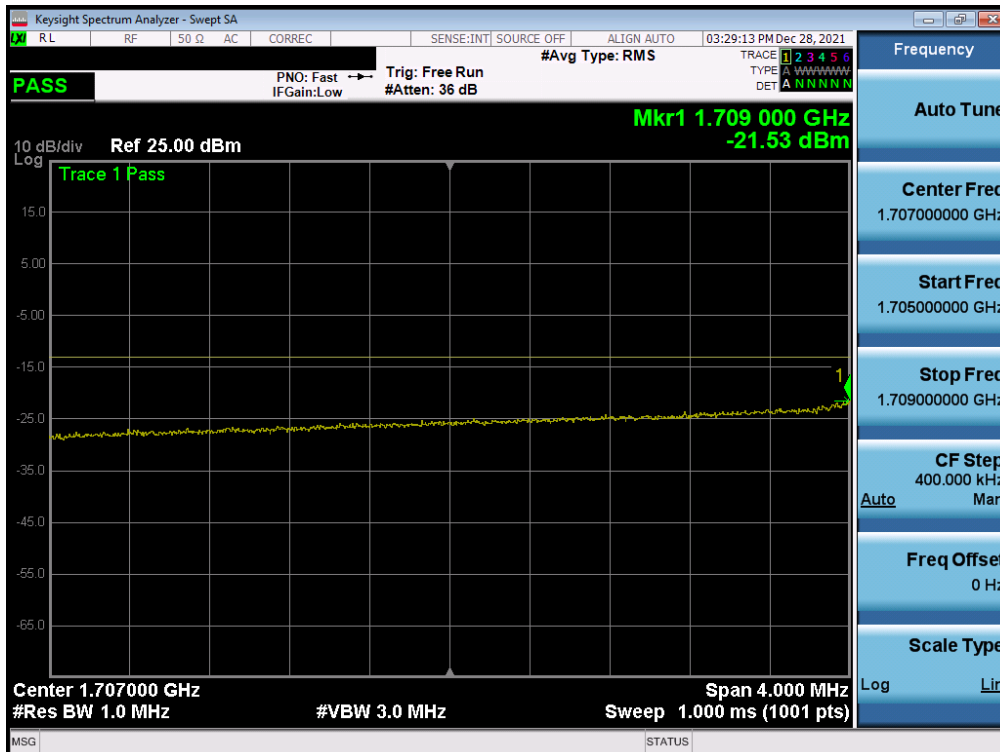


Plot 7-91. Upper Extended Band Edge Plot (LTE Band 66 - 15MHz QPSK – Full RB)




FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 63 of 120



Plot 7-92. Lower Band Edge Plot (LTE Band 66/4 - 10MHz QPSK – Full RB)

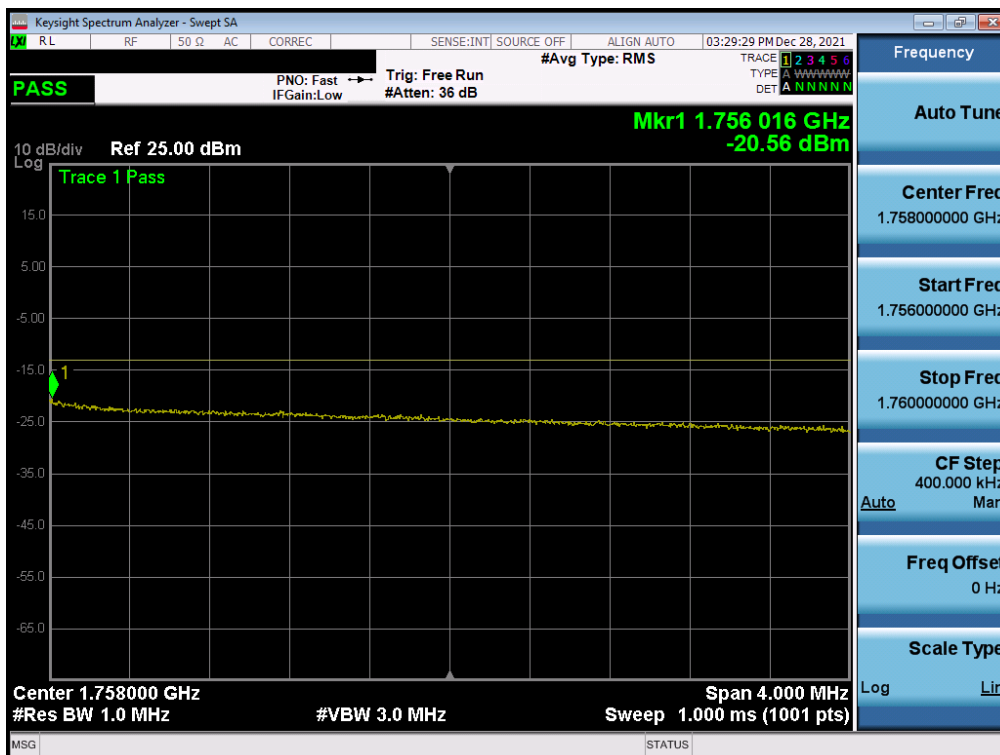


Plot 7-93. Lower Extended Band Edge Plot (LTE Band 66/4 - 10MHz QPSK – Full RB)




FCC ID: A3LSMM336B	 <b>PCTEST</b> Proud to be part of 	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 64 of 120

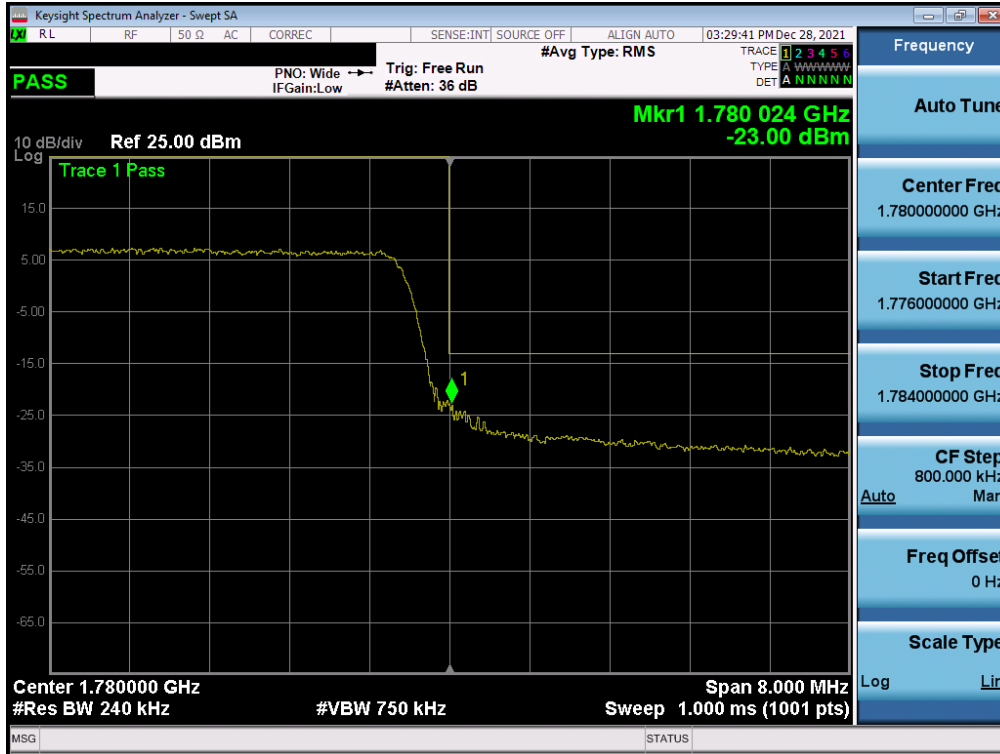


Plot 7-94. Upper Band Edge Plot (LTE Band 4 - 10MHz QPSK – Full RB)

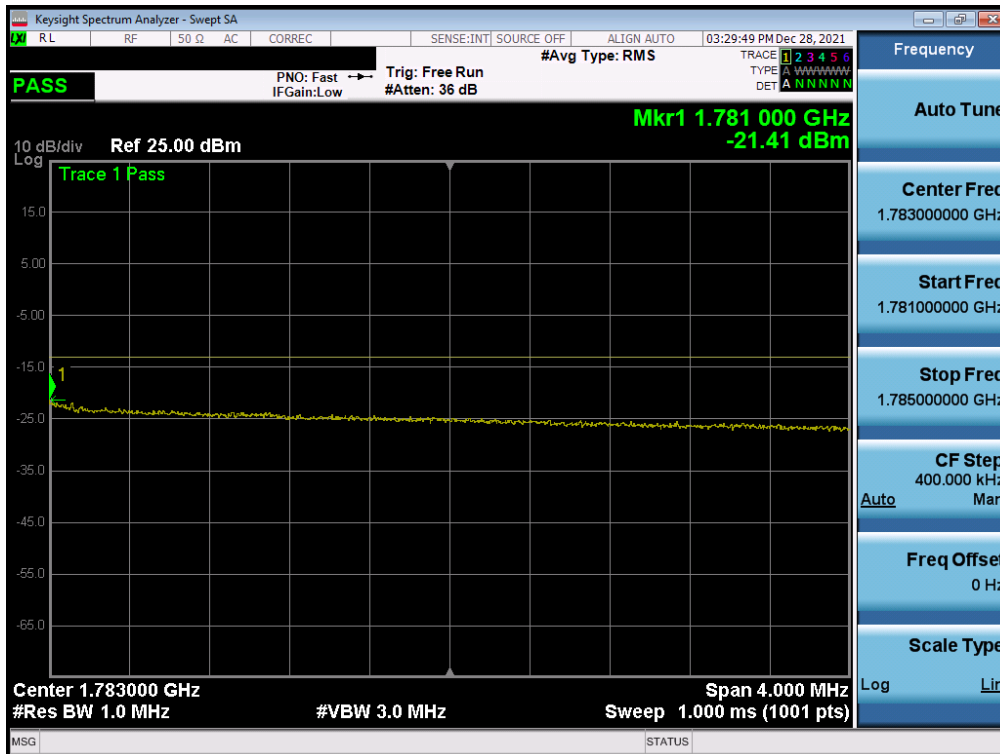


Plot 7-95. Upper Extended Band Edge Plot (LTE Band 4 - 10MHz QPSK – Full RB)



FCC ID: A3LSMM336B	 <b>PCTEST</b> Proud to be part of 	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 65 of 120

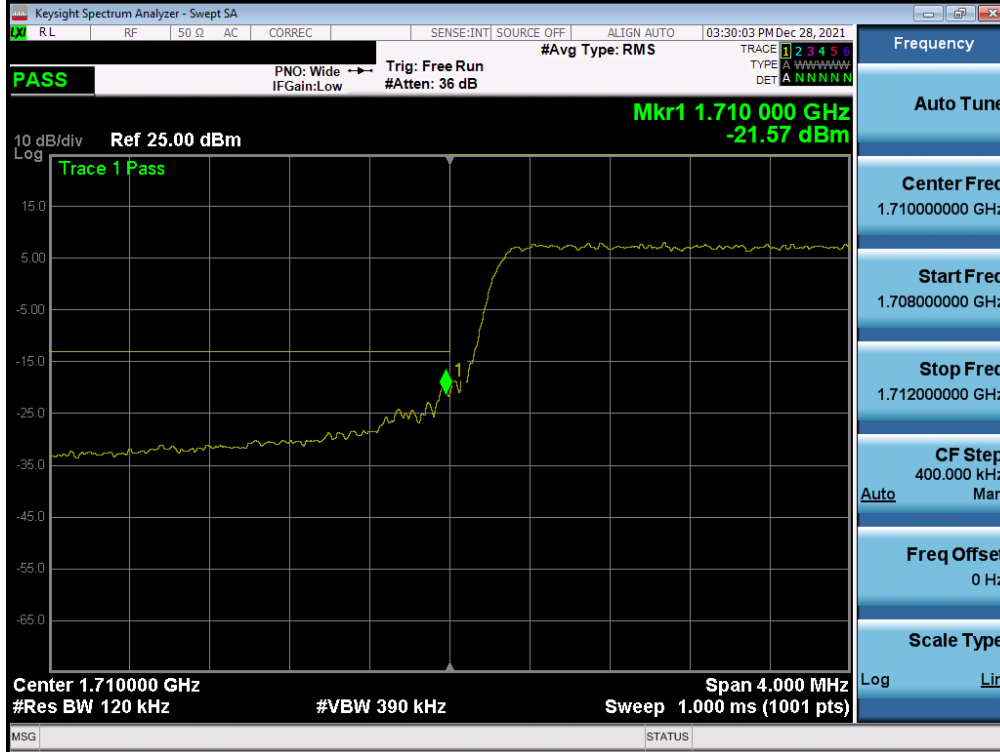


Plot 7-96. Upper Band Edge Plot (LTE Band 66 - 10MHz QPSK – Full RB)

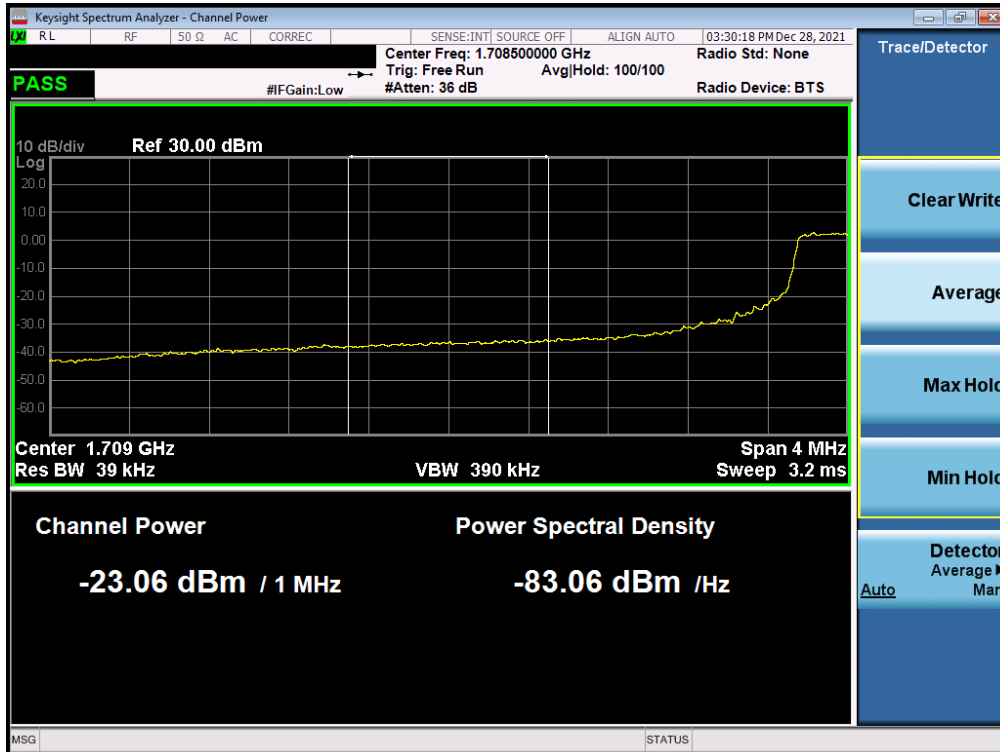


Plot 7-97. Upper Extended Band Edge Plot (LTE Band 66 - 10MHz QPSK – Full RB)




FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 66 of 120



Plot 7-98. Lower Band Edge Plot (LTE Band 66/4 - 5MHz QPSK – Full RB)

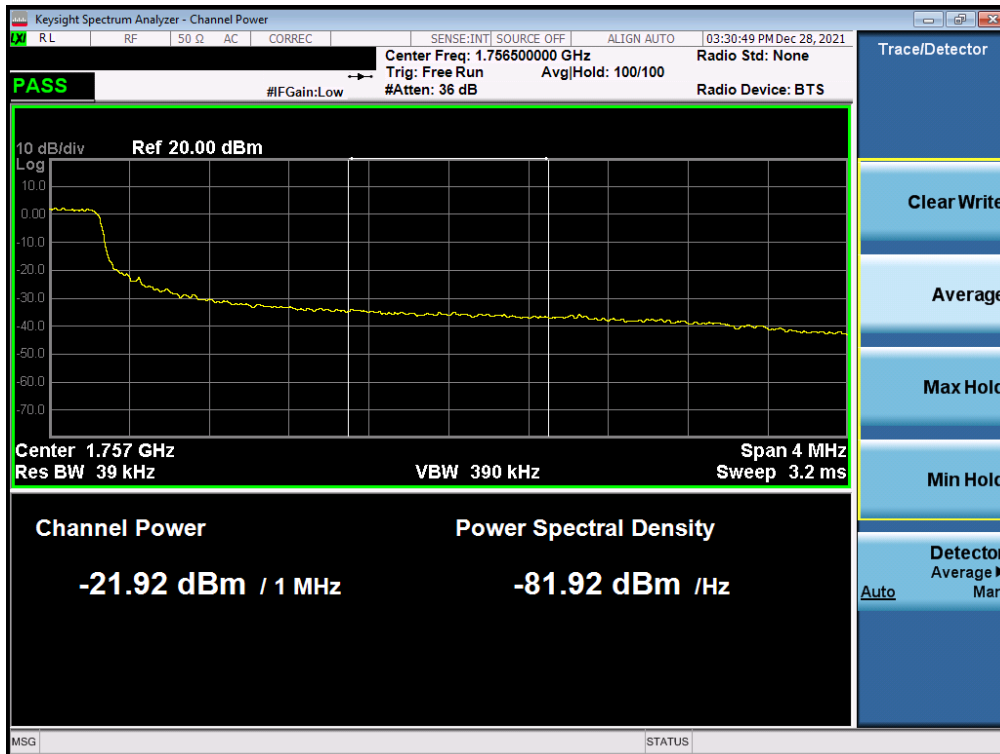


Plot 7-99. Lower Extended Band Edge Plot (LTE Band 66/4 - 5MHz QPSK – Full RB)



FCC ID: A3LSMM336B	 <b>PCTEST</b> Proud to be part of 	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 67 of 120



Plot 7-100. Upper Band Edge Plot (LTE Band 4 - 5MHz QPSK – Full RB)

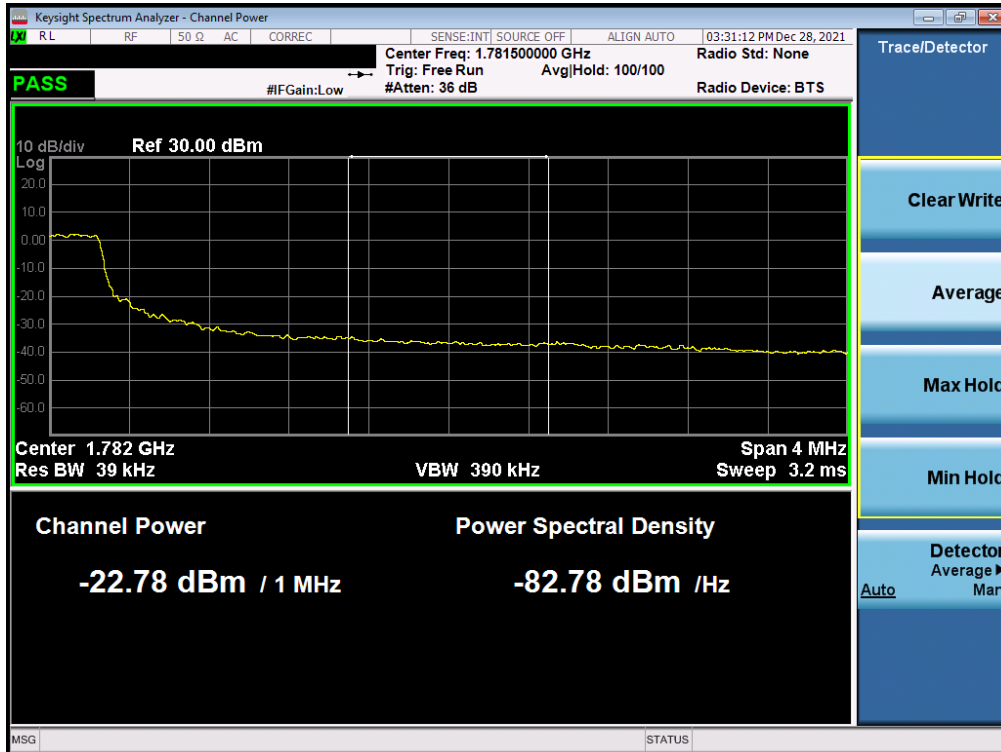


Plot 7-101. Upper Extended Band Edge Plot (LTE Band 4 - 5MHz QPSK – Full RB)

FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 68 of 120

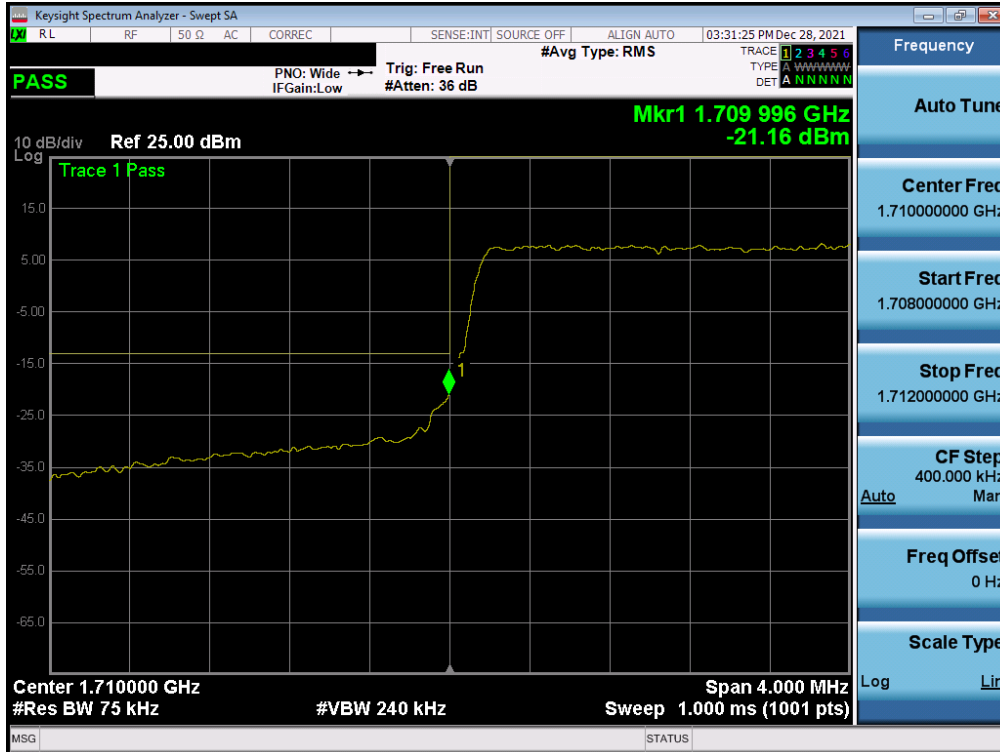


Plot 7-102. Upper Band Edge Plot (LTE Band 66 - 5MHz QPSK – Full RB)

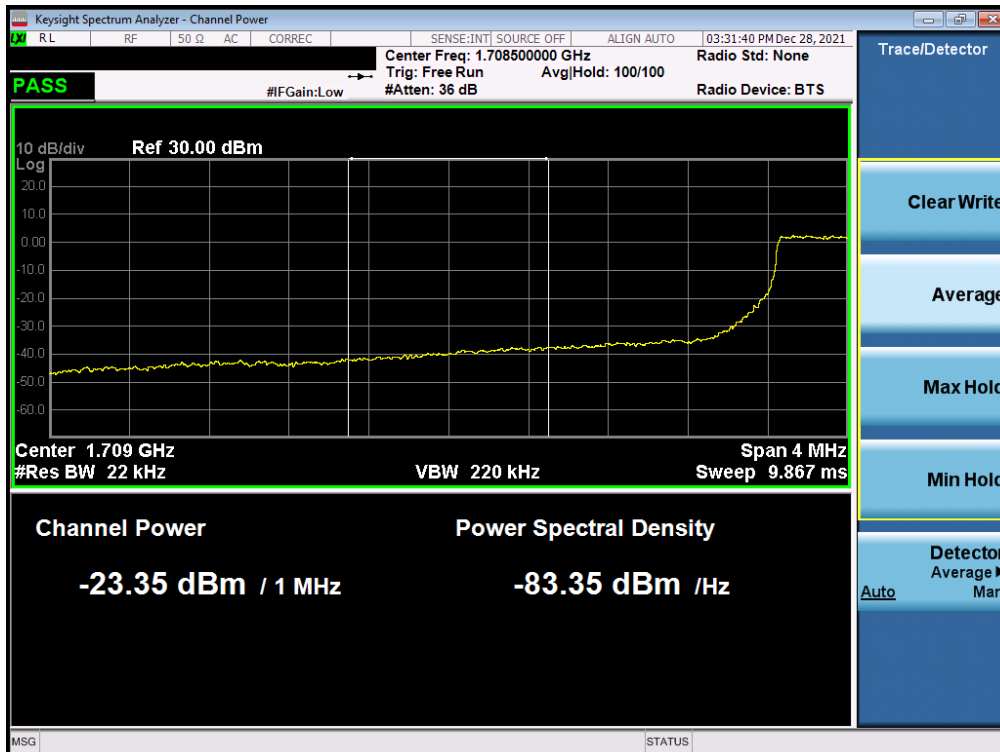


Plot 7-103. Upper Extended Band Edge Plot (LTE Band 66 - 5MHz QPSK – Full RB)



FCC ID: A3LSMM336B	PCTEST Proud to be part of  element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 69 of 120



Plot 7-104. Lower Band Edge Plot (LTE Band 66/4 - 3MHz QPSK – Full RB)



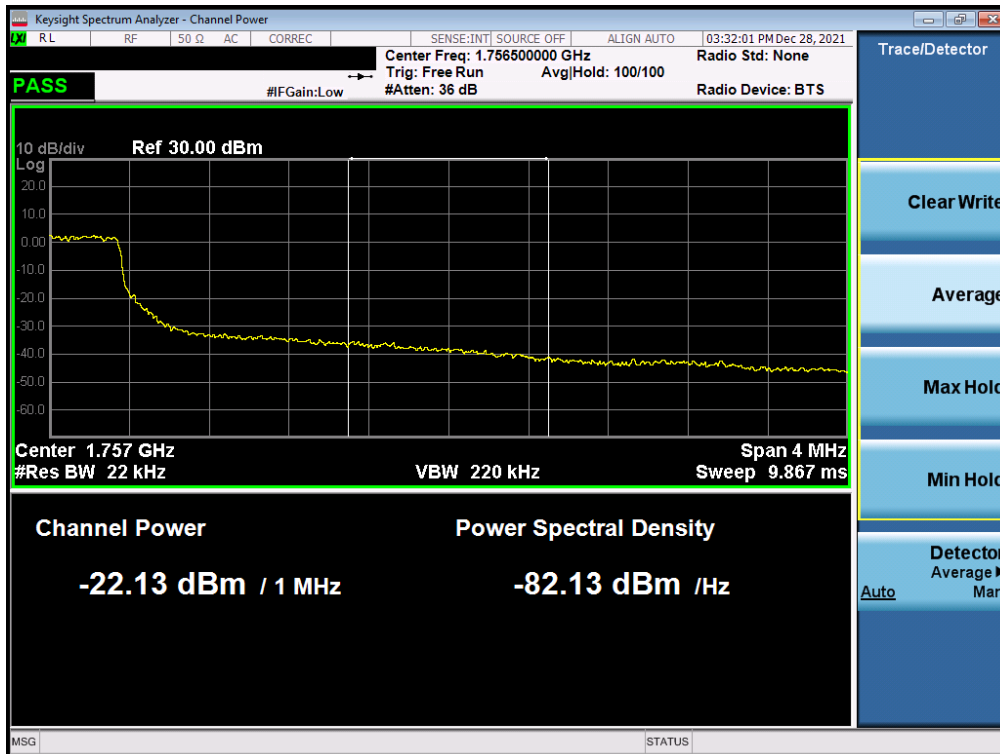
Plot 7-105. Lower Extended Band Edge Plot (LTE Band 66/4 - 3MHz QPSK – Full RB)

FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 70 of 120







Plot 7-106. Upper Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB)

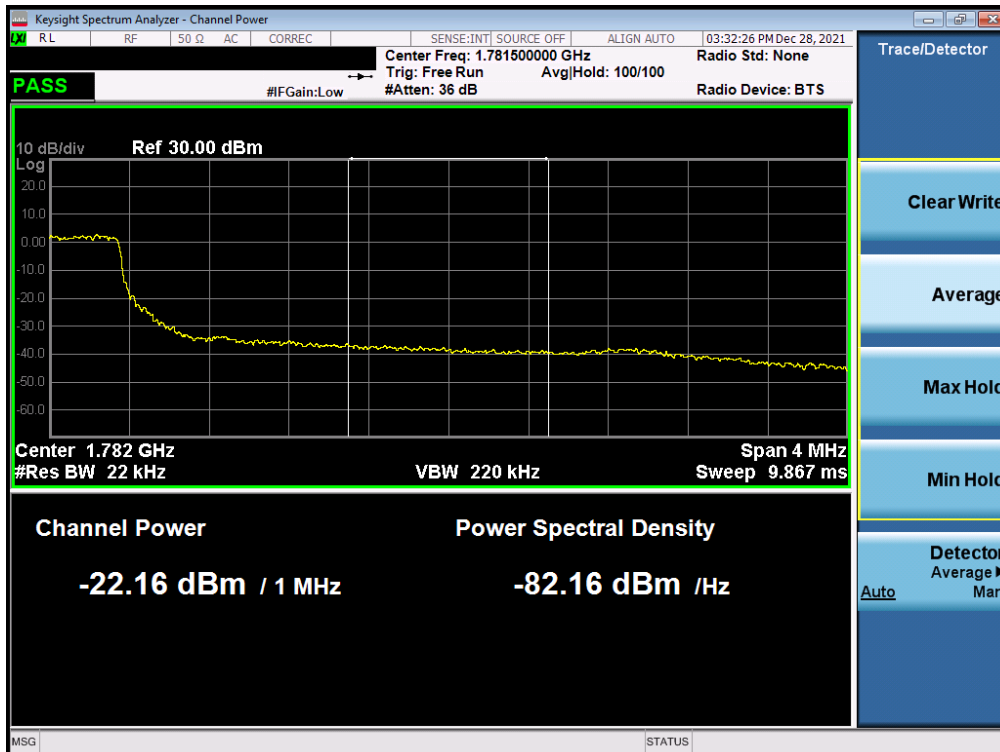


Plot 7-107. Upper Extended Band Edge Plot (LTE Band 4 - 3MHz QPSK – Full RB)



FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 71 of 120

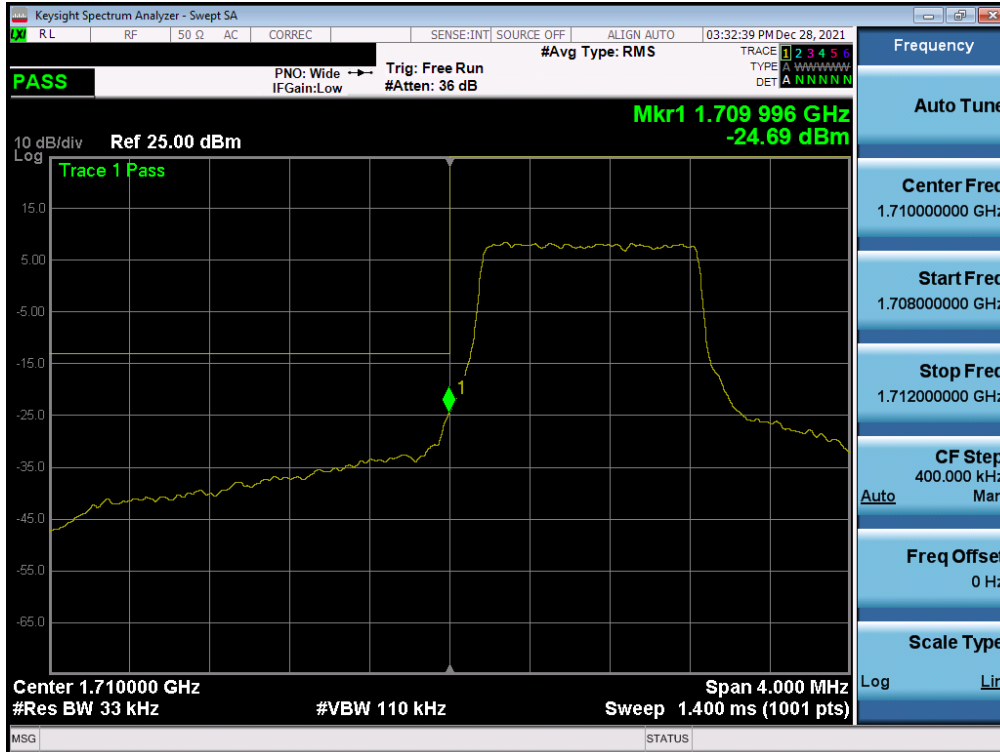


Plot 7-108. Upper Band Edge Plot (LTE Band 66 - 3MHz QPSK – Full RB)

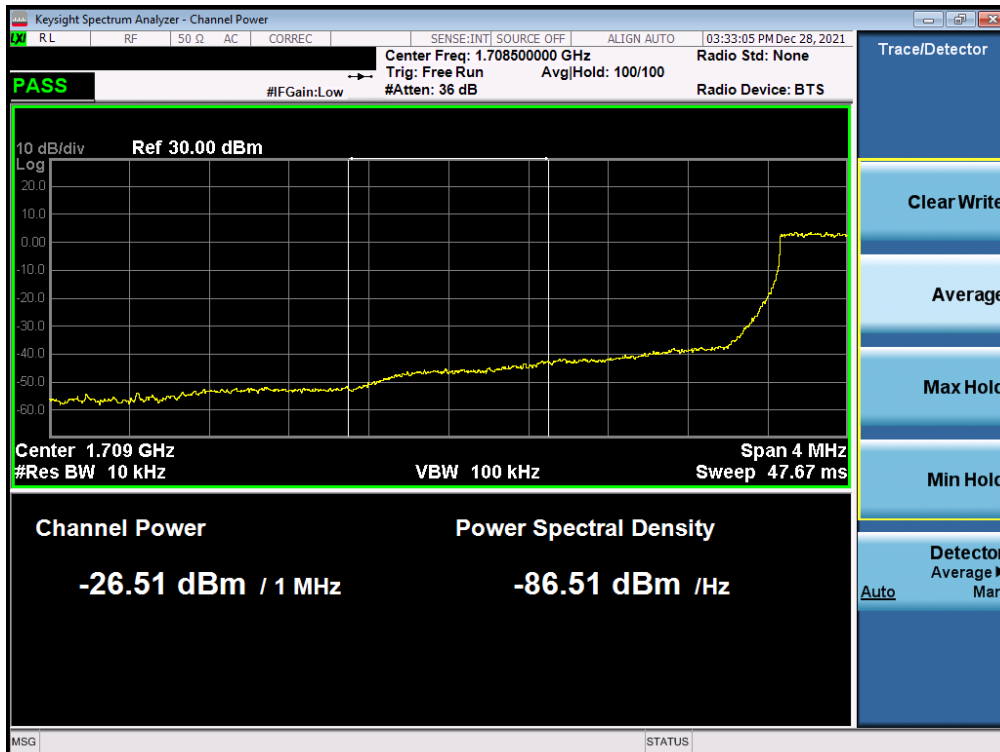


Plot 7-109. Upper Extended Band Edge Plot (LTE Band 66 - 3MHz QPSK – Full RB)



FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 72 of 120



Plot 7-110. Lower Band Edge Plot (LTE Band 66/4 – 1.4MHz QPSK – Full RB)

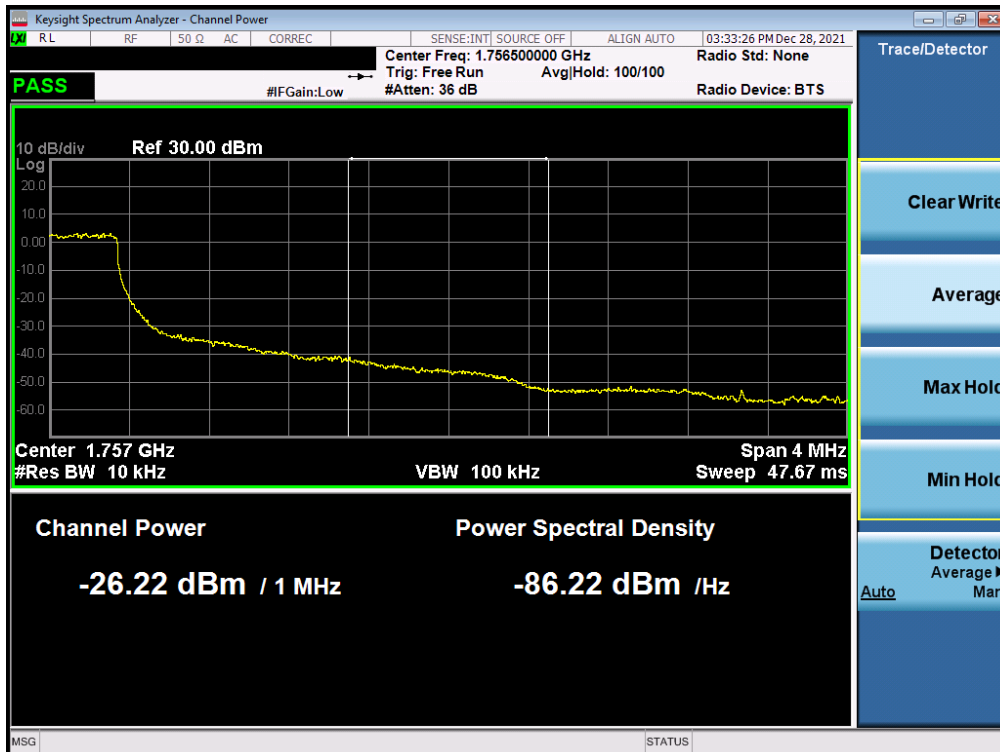


Plot 7-111. Lower Extended Band Edge Plot (LTE Band 66/4 – 1.4MHz QPSK – Full RB)



FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 73 of 120



Plot 7-112. Upper Band Edge Plot (LTE Band 4 – 1.4MHz QPSK – Full RB)

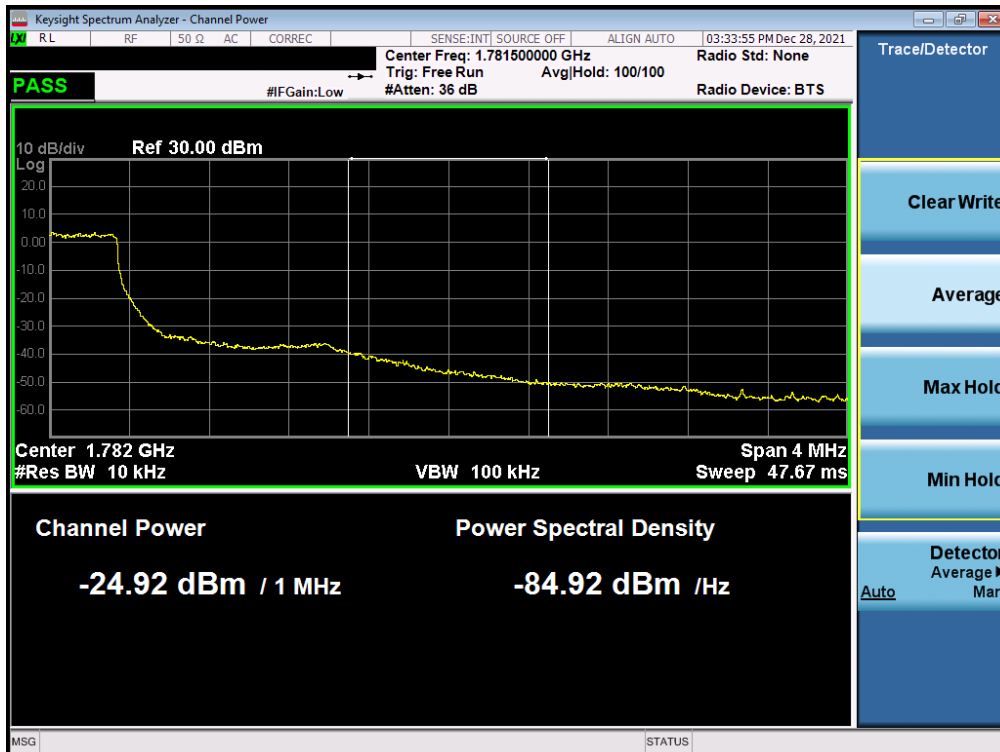


Plot 7-113. Upper Extended Band Edge Plot (LTE Band 4 – 1.4MHz QPSK – Full RB)



FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 74 of 120



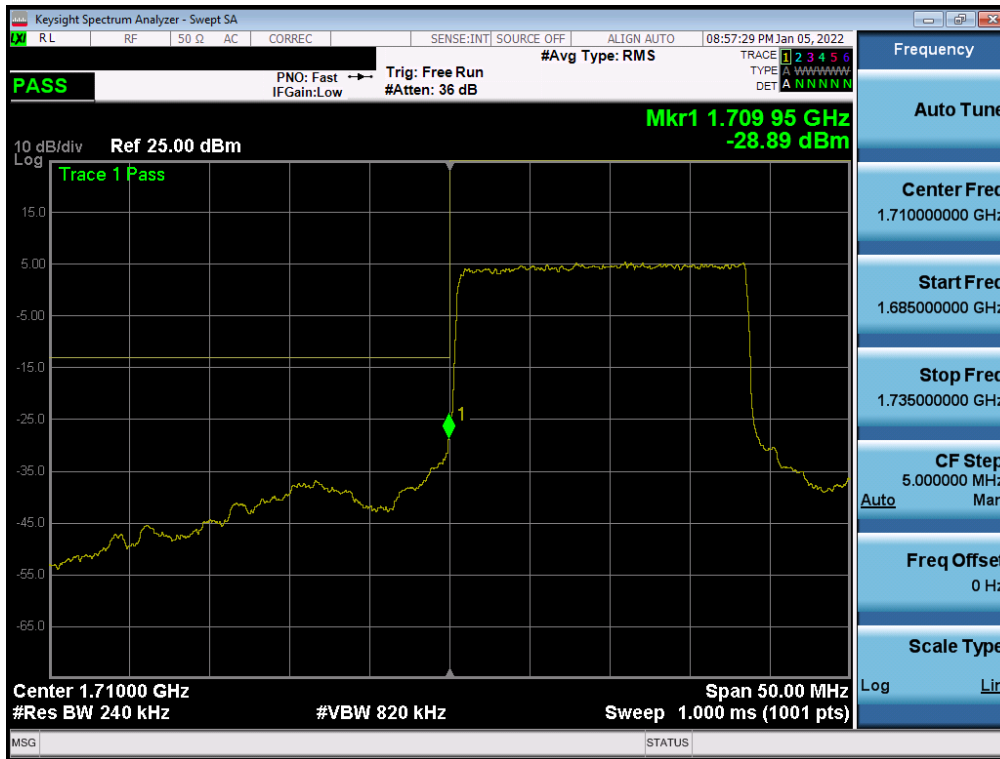
Plot 7-114. Upper Band Edge Plot (LTE Band 66 – 1.4MHz QPSK – Full RB)



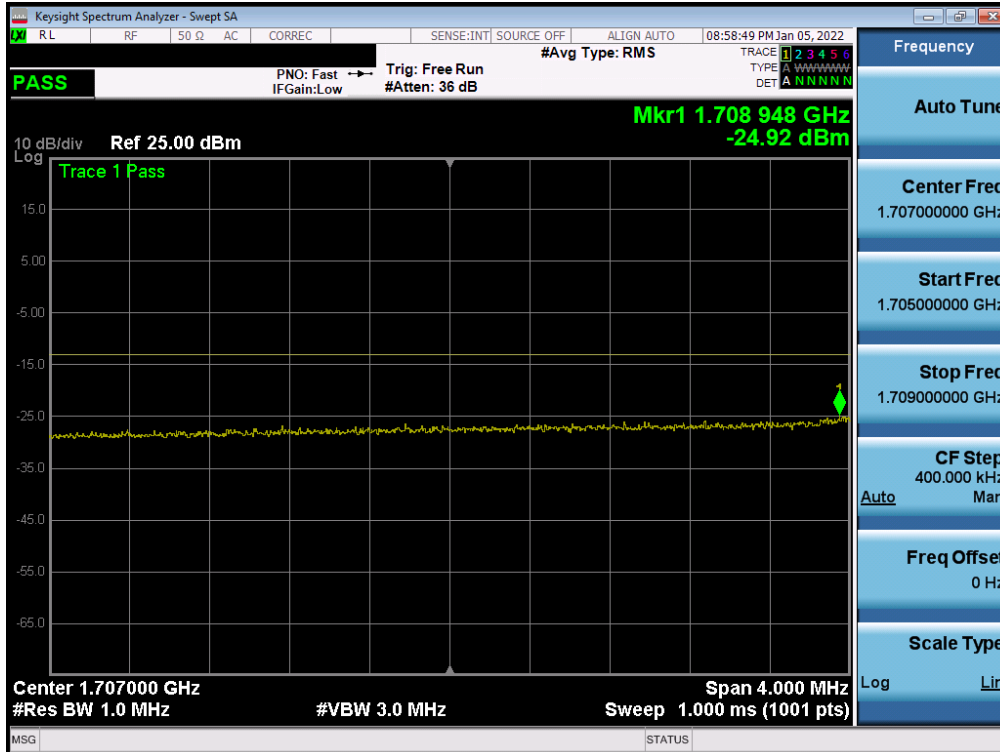
Plot 7-115. Upper Extended Band Edge Plot (LTE Band 66 – 1.4MHz QPSK – Full RB)

FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 75 of 120




## NR Band n66



Plot 7-116. Lower Band Edge Plot (NR Band n66 – 20.0MHz - Full RB)

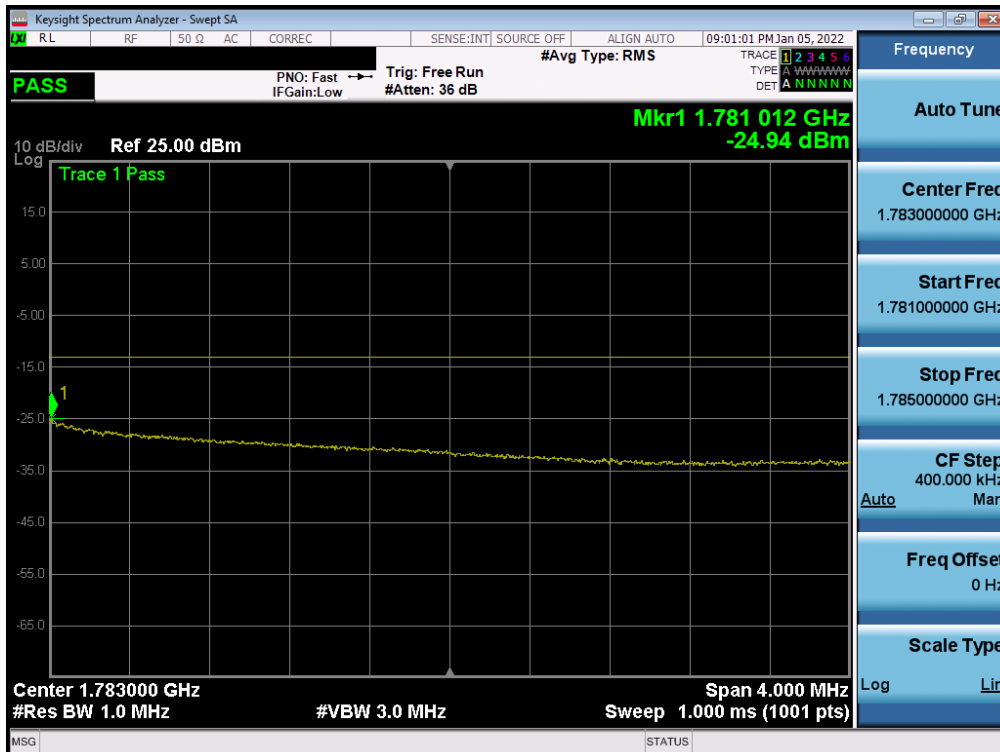


Plot 7-117. Lower Extended Band Edge Plot (NR Band n66 – 20.0MHz - Full RB)



FCC ID: A3LSMM336B	 <b>PCTEST</b> Proud to be part of 	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 76 of 120



Plot 7-118. Upper Band Edge Plot (NR Band n66 – 20.0MHz - Full RB)

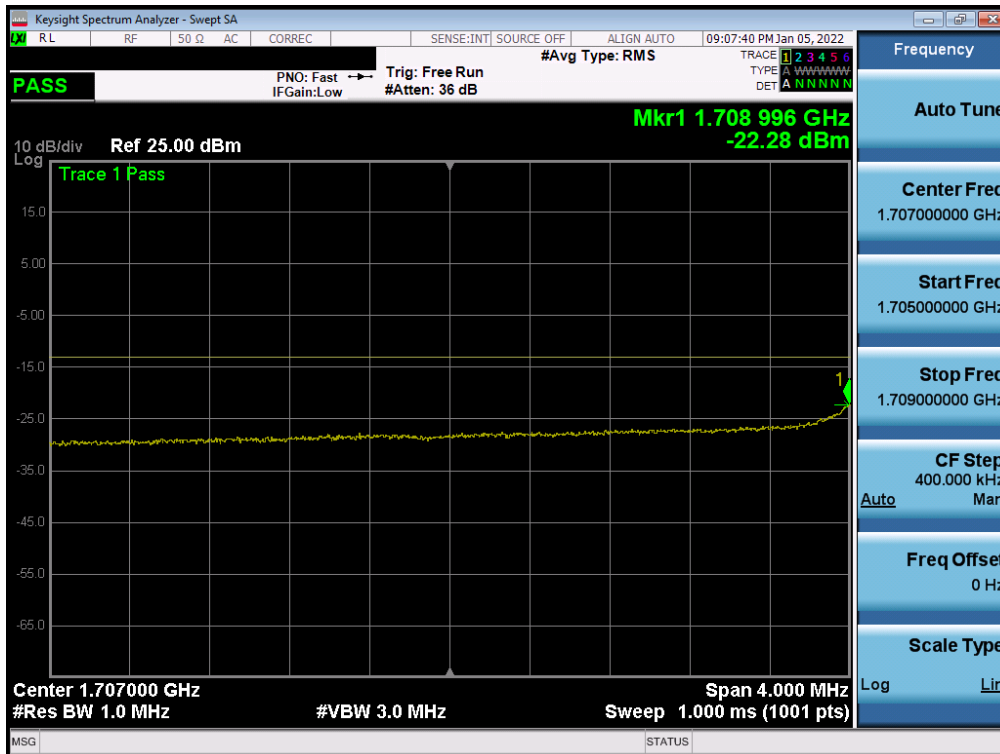


Plot 7-119. Upper Extended Band Edge Plot (NR Band n66 – 20.0MHz - Full RB)




FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 77 of 120



Plot 7-120. Lower Band Edge Plot (NR Band n66 – 15.0MHz - Full RB)



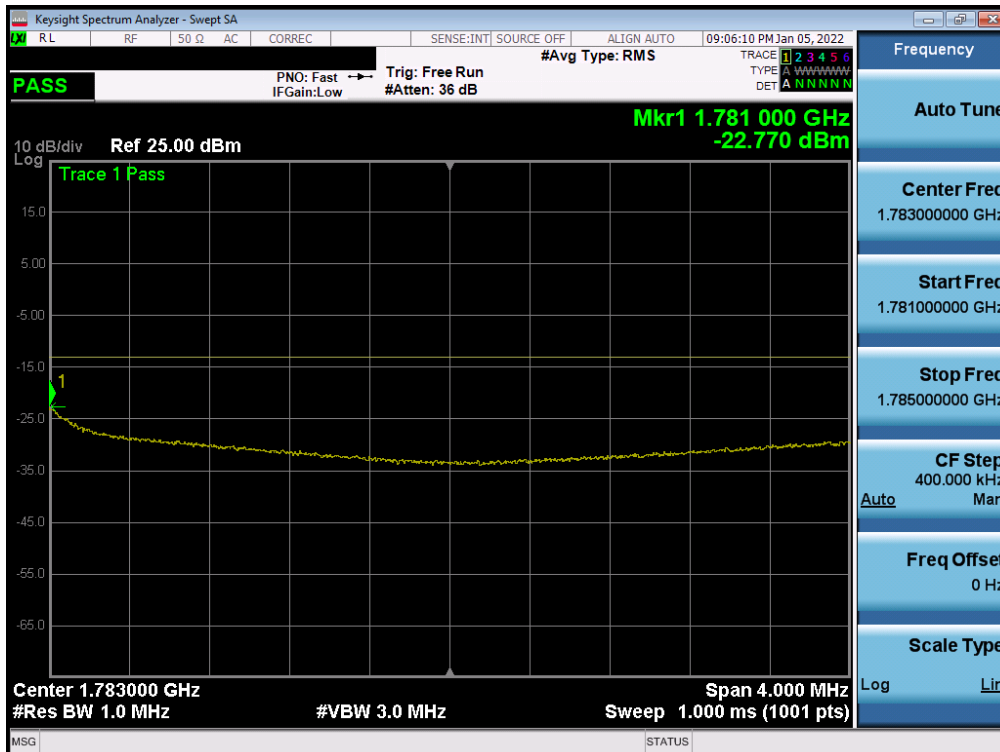
Plot 7-121. Lower Extended Band Edge Plot (NR Band n66 – 15.0MHz - Full RB)

FCC ID: A3LSMM336B	 <b>PCTEST</b> Proud to be part of 	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 78 of 120






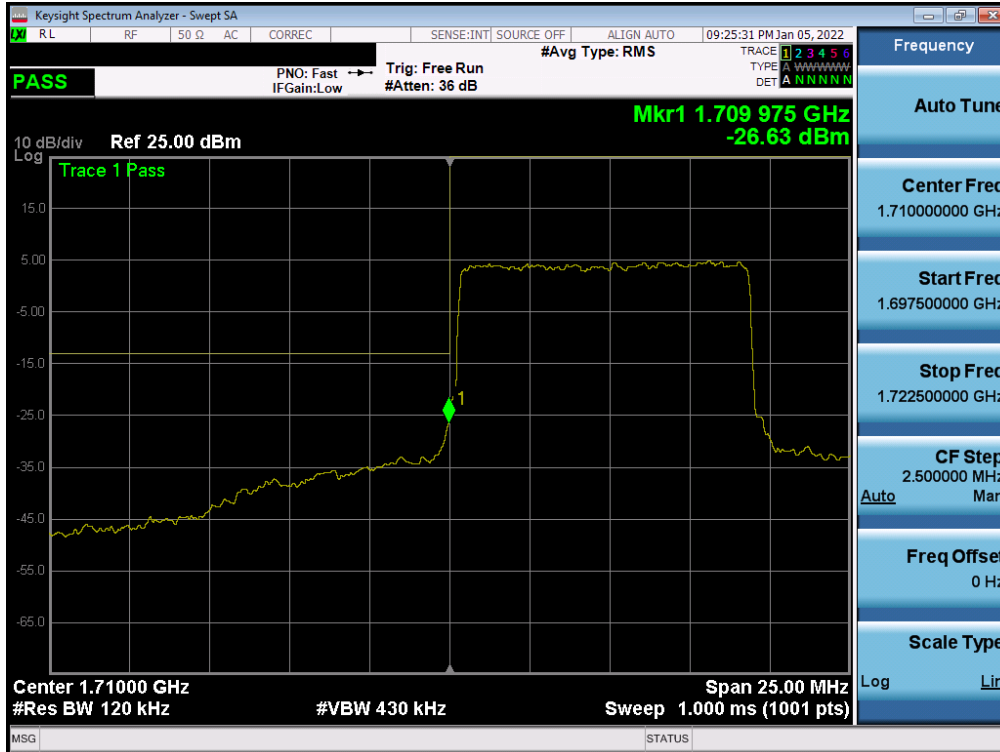


Plot 7-122. Upper Band Edge Plot (NR Band n66 – 15.0MHz - Full RB)

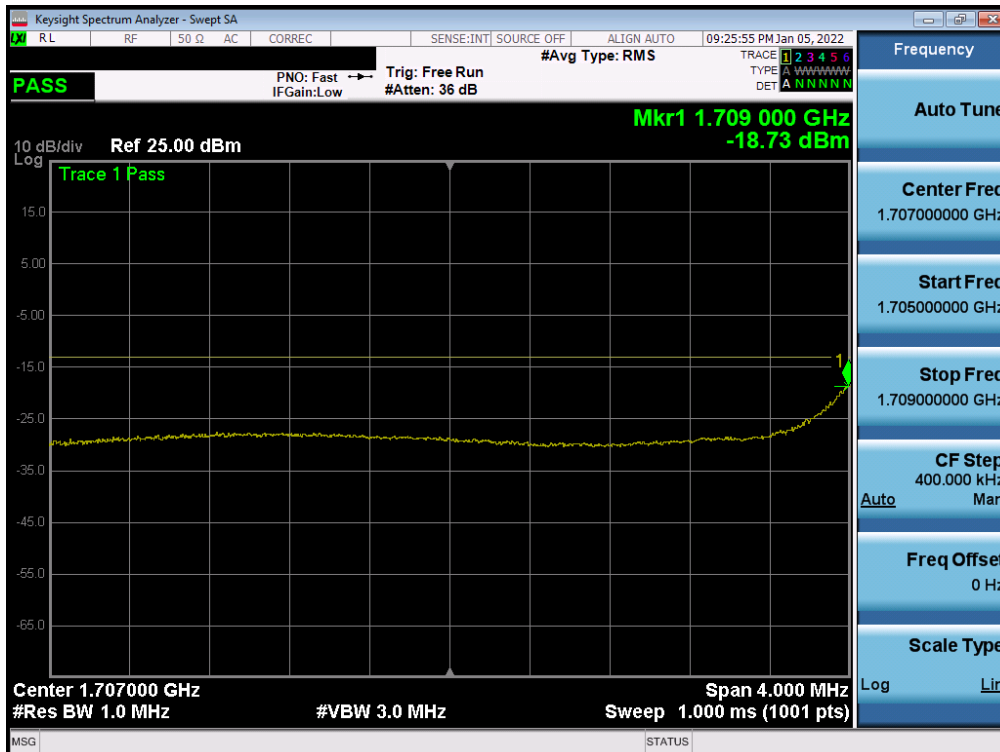


Plot 7-123. Upper Extended Band Edge Plot (NR Band n66 – 15.0MHz - Full RB)



FCC ID: A3LSMM336B	 <b>PCTEST</b> Proud to be part of 	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 79 of 120



Plot 7-124. Lower Band Edge Plot (NR Band n66 – 10.0MHz - Full RB)



Plot 7-125. Lower Extended Band Edge Plot (NR Band n66 – 10.0MHz - Full RB)




FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 80 of 120

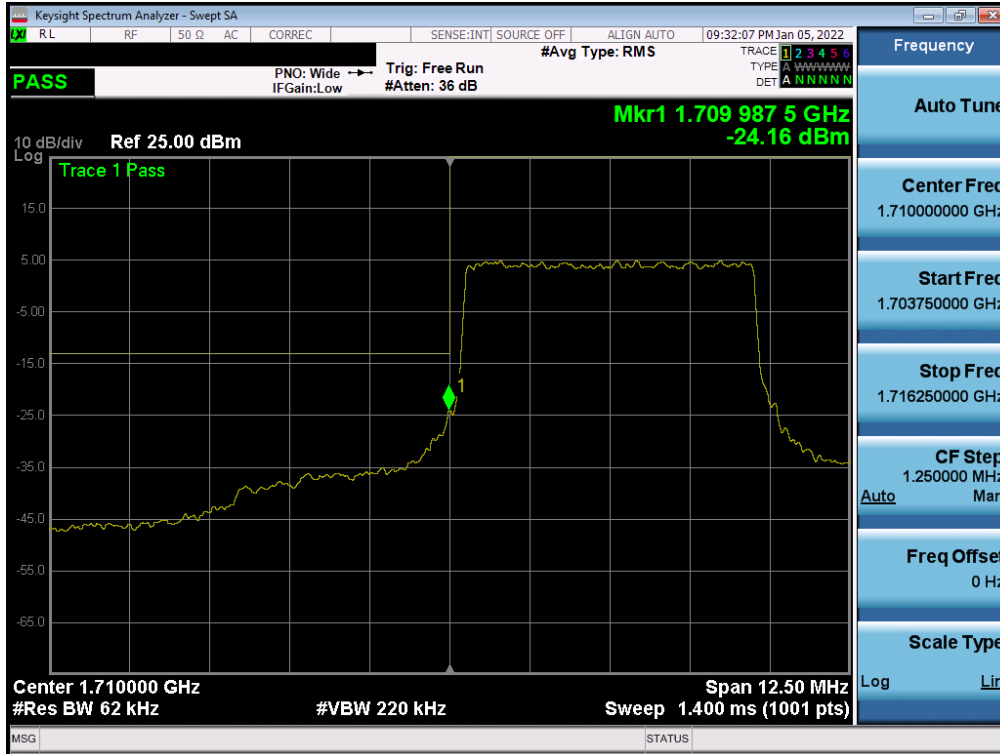


Plot 7-126. Upper Band Edge Plot (NR Band n66 – 10.0MHz - Full RB)

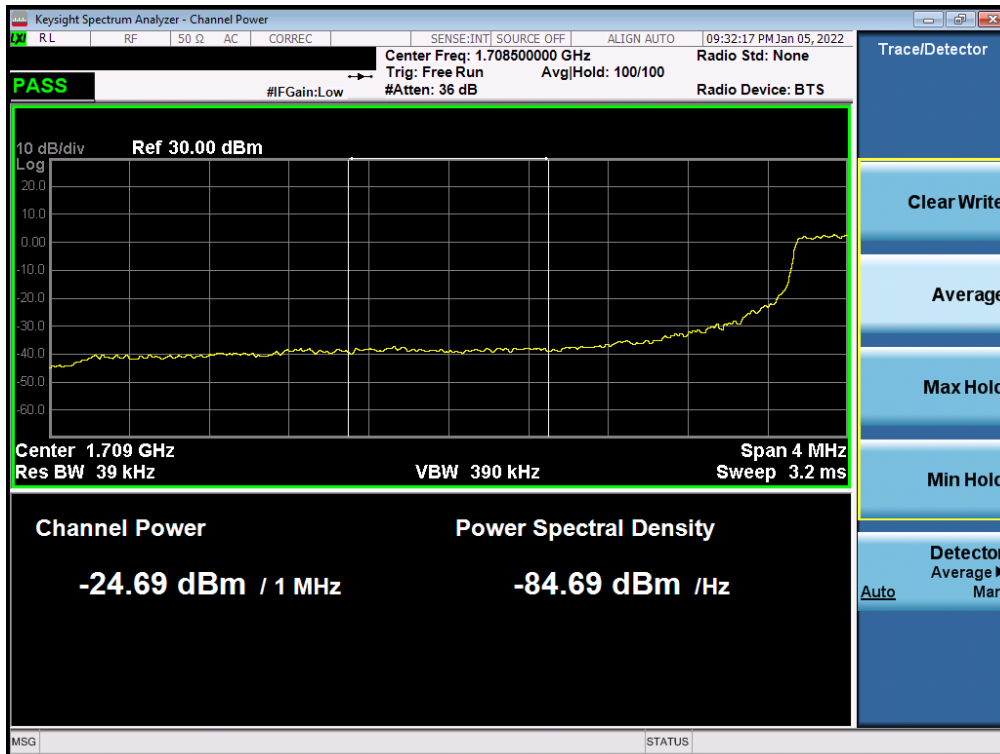


Plot 7-127. Upper Extended Band Edge Plot (NR Band n66 – 10.0MHz - Full RB)




FCC ID: A3LSMM336B	 <b>PCTEST</b> Proud to be part of 	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 81 of 120



Plot 7-128. Lower Band Edge Plot (NR Band n66 – 5.0MHz - Full RB)

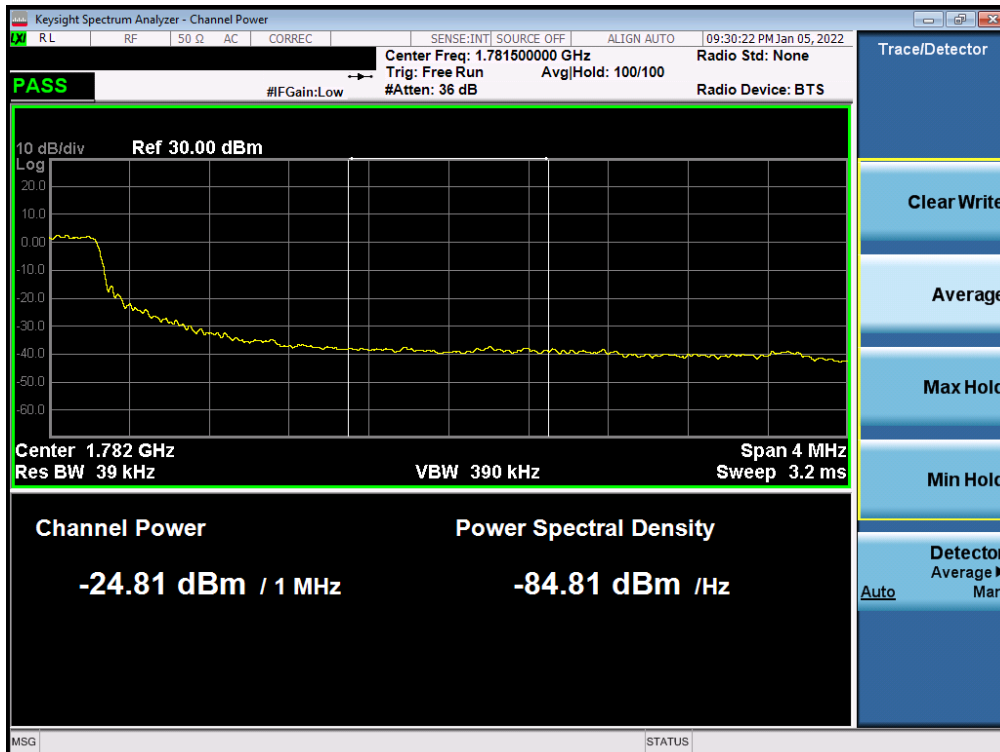


Plot 7-129. Lower Extended Band Edge Plot (NR Band n66 – 5.0MHz - Full RB)



FCC ID: A3LSMM336B	 <b>PCTEST</b> Proud to be part of 	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 82 of 120



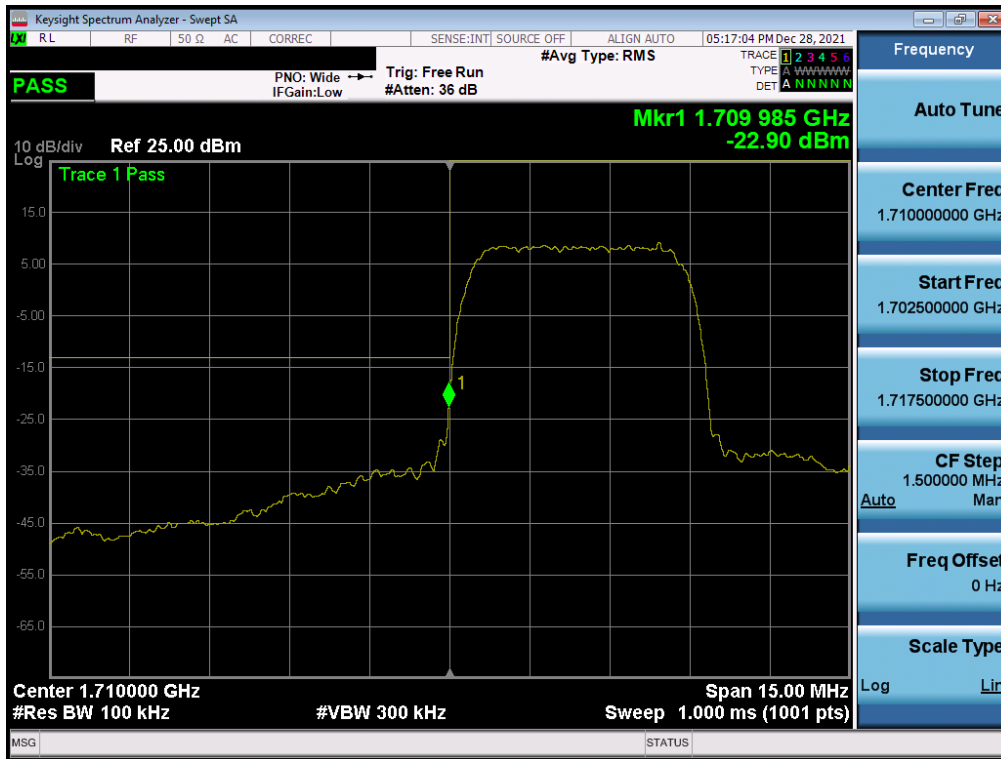
Plot 7-130. Upper Band Edge Plot (NR Band n66 – 5.0MHz - Full RB)



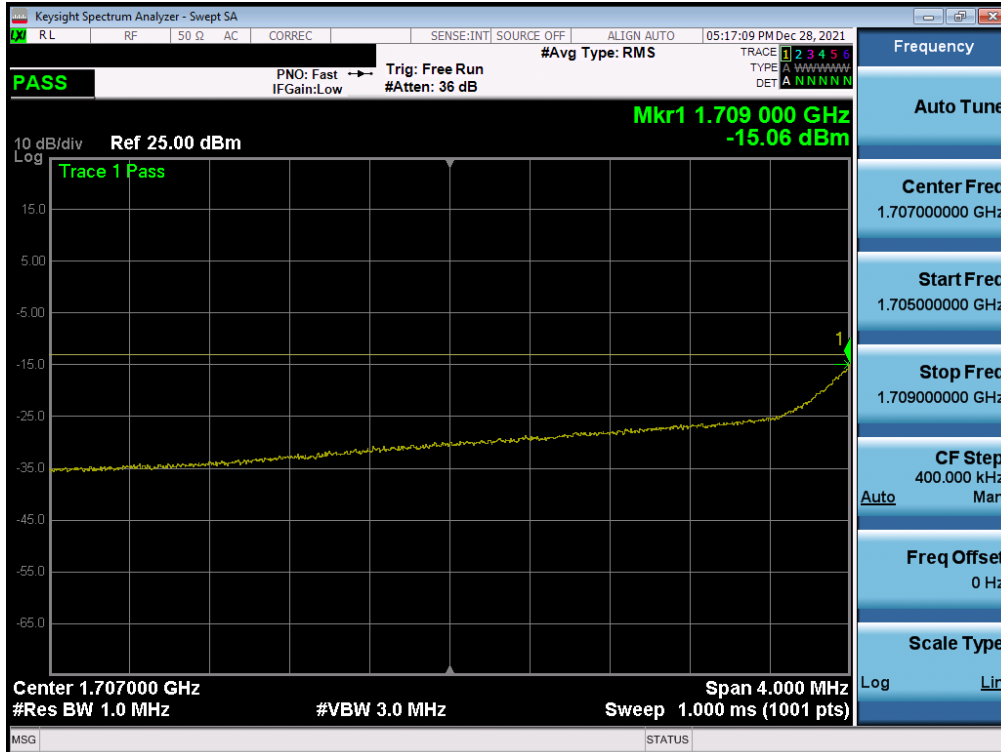
Plot 7-131. Upper Extended Band Edge Plot (NR Band n66 – 5.0MHz - Full RB)

FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 83 of 120




**WCDMA AWS**



Plot 7-132. Lower Band Edge Plot (WCDMA AWS – Ch. 1312)



Plot 7-133. Lower Extended Band Edge Plot (WCDMA AWS – Ch. 1312)

FCC ID: A3LSMM336B	 <b>PCTEST</b> Proud to be part of 	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 84 of 120



Plot 7-134. Upper Band Edge Plot (WCDMA AWS – Ch. 1513)



Plot 7-135. Upper Extended Band Edge Plot (WCDMA AWS – Ch. 1513)

FCC ID: A3LSMM336B	<b>PCTEST</b> Proud to be part of element	PART 27 MEASUREMENT REPORT	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 85 of 120

## 7.5 Peak-Average Ratio

### 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

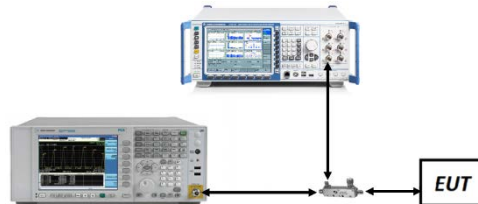
KDB 971168 D01 v03r01 – Section 5.7.1

### Test Settings

1. The signal analyzer’s CCDF measurement profile is enabled
2. Frequency = carrier center frequency
3. Measurement BW  $\geq$  OBW or specified reference bandwidth
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 7-4. Test Instrument & Measurement Setup**

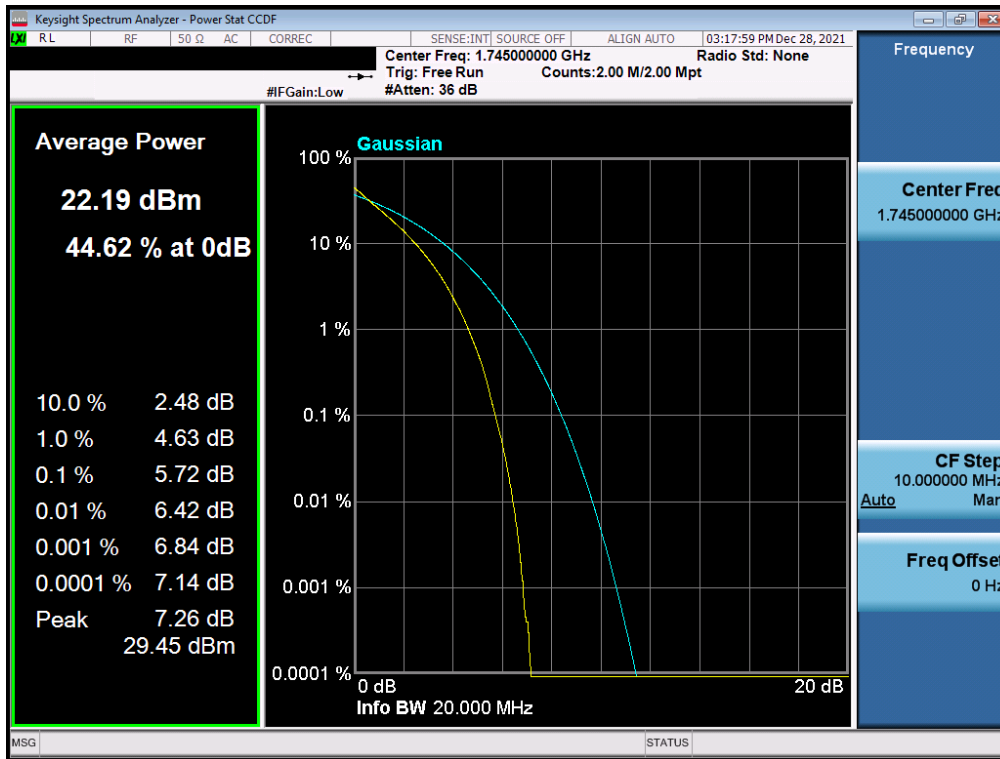
### Test Notes

None.

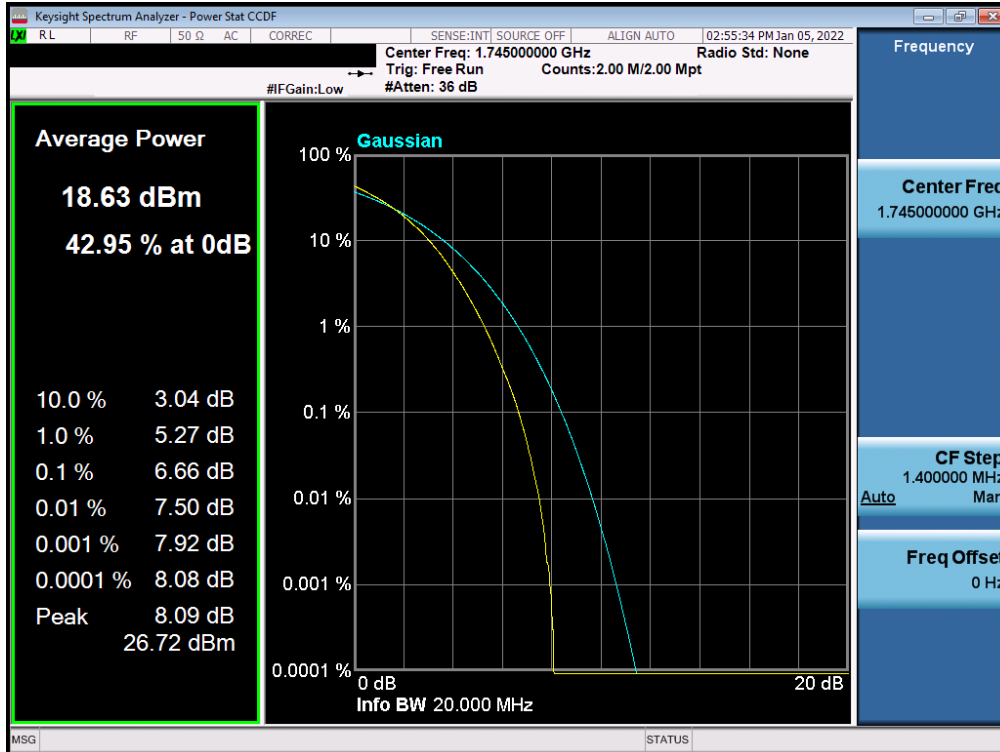
FCC ID: A3LSMM336B	 <b>PART 27 MEASUREMENT REPORT</b> 	Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset
Page 86 of 120		



**LTE Band 66/4**

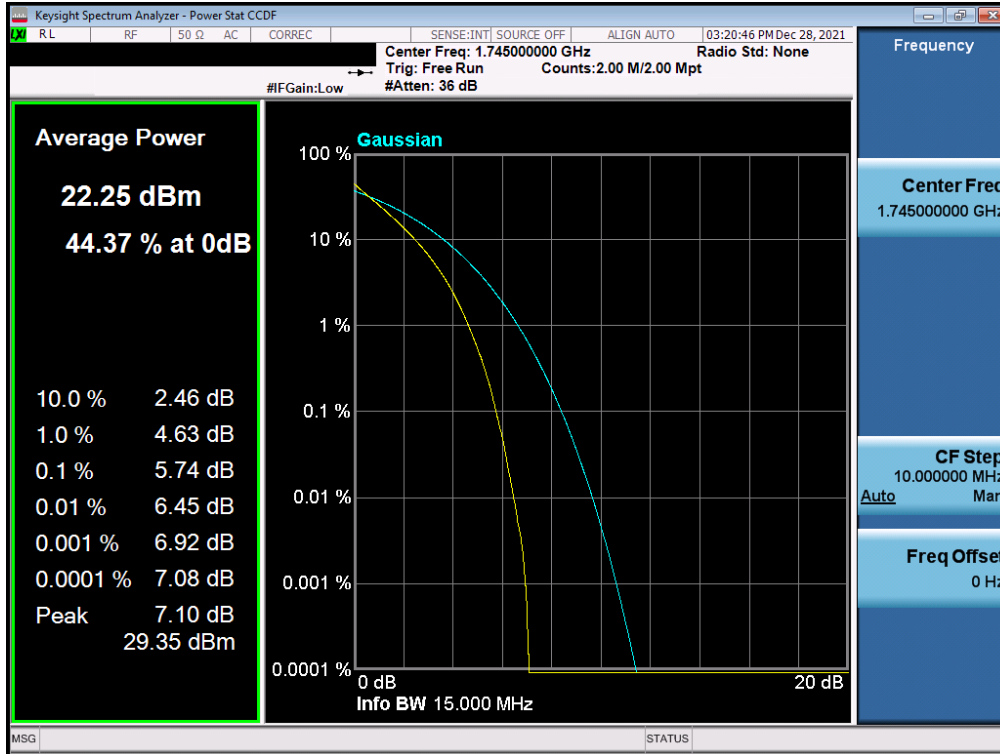


Plot 7-136. PAR Plot (LTE Band 66/4 - 20MHz QPSK - Full RB)

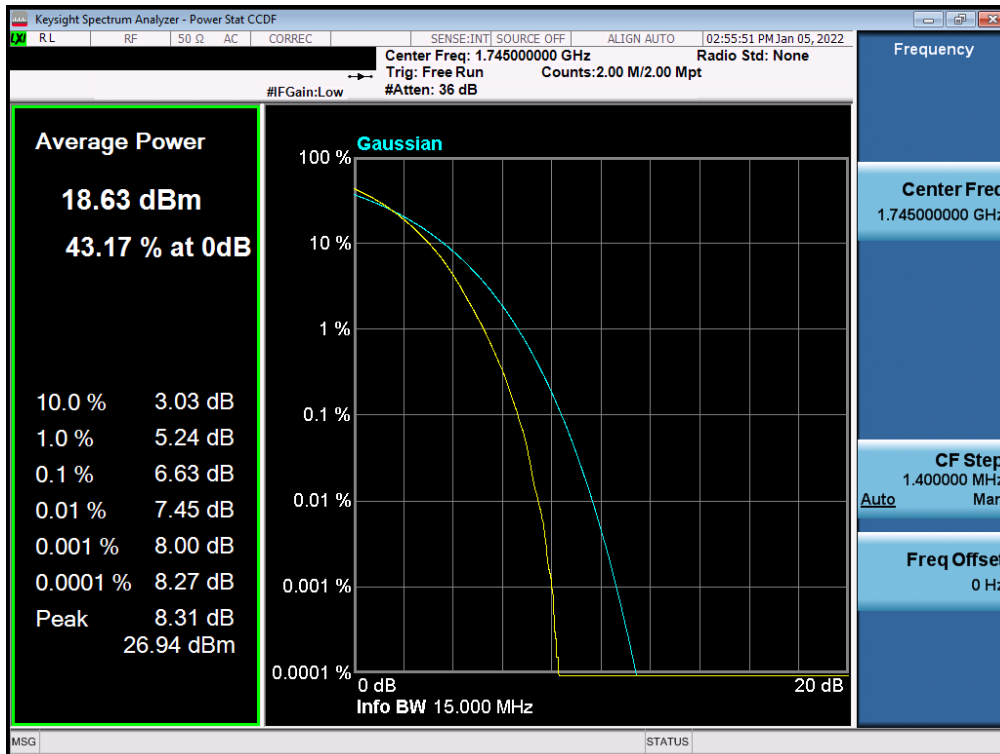


Plot 7-137. PAR Plot (LTE Band 66/4 - 20MHz 256-QAM - Full RB)



FCC ID: A3LSMM336B	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 87 of 120

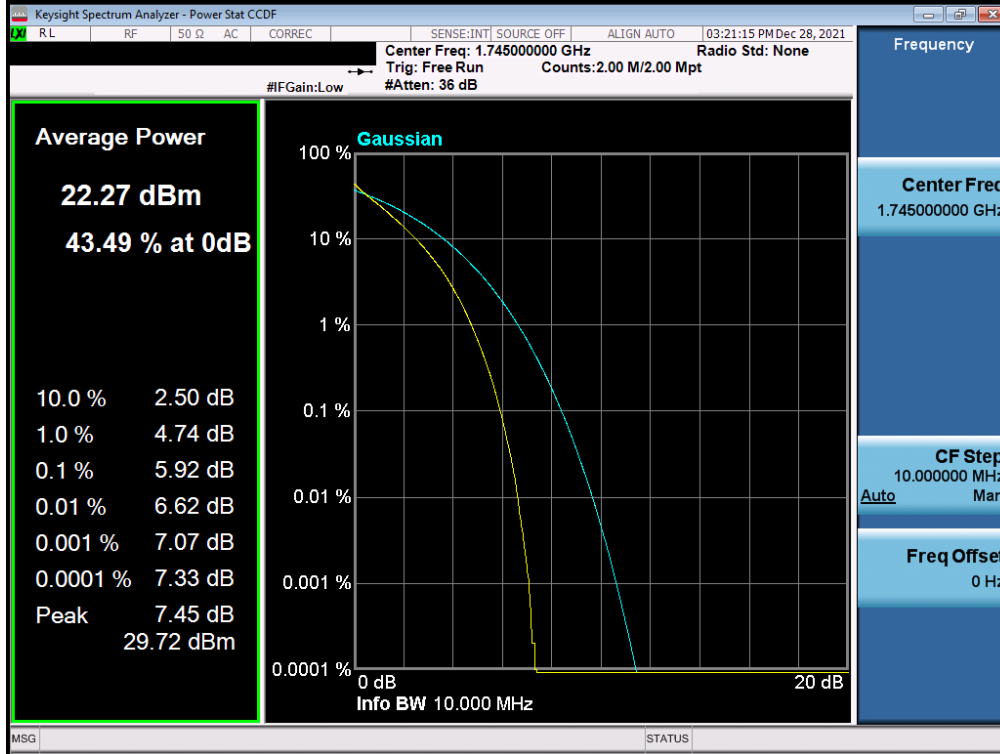


Plot 7-138. PAR Plot (LTE Band 66/4 - 15MHz QPSK - Full RB)

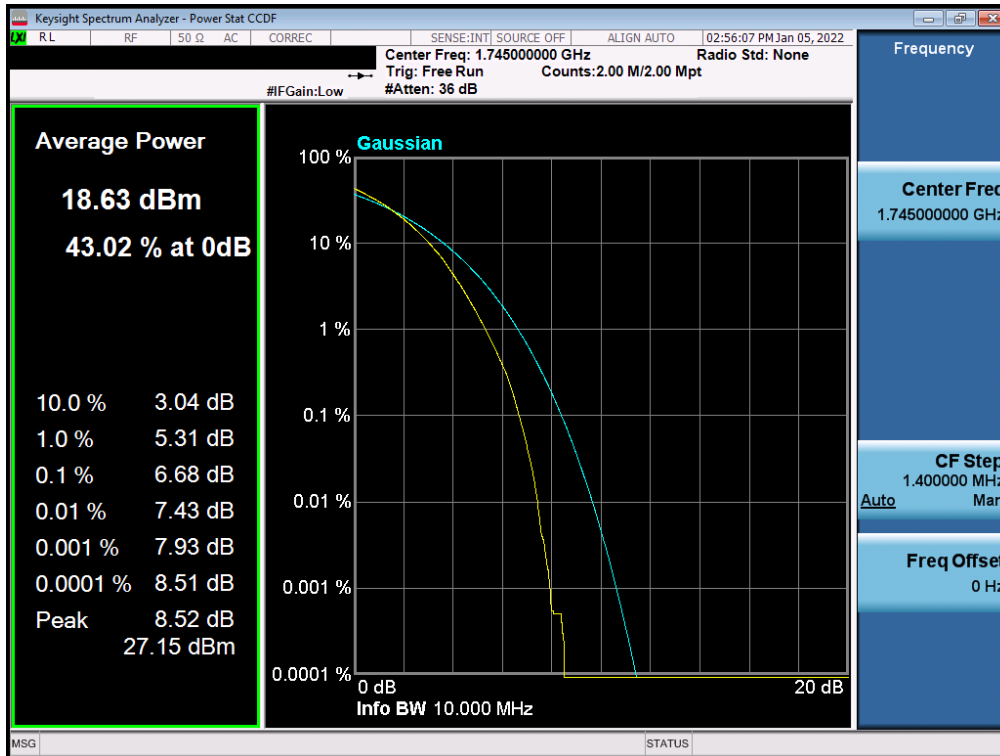


Plot 7-139. PAR Plot (LTE Band 66/4 - 15MHz 256-QAM - Full RB)



FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 88 of 120

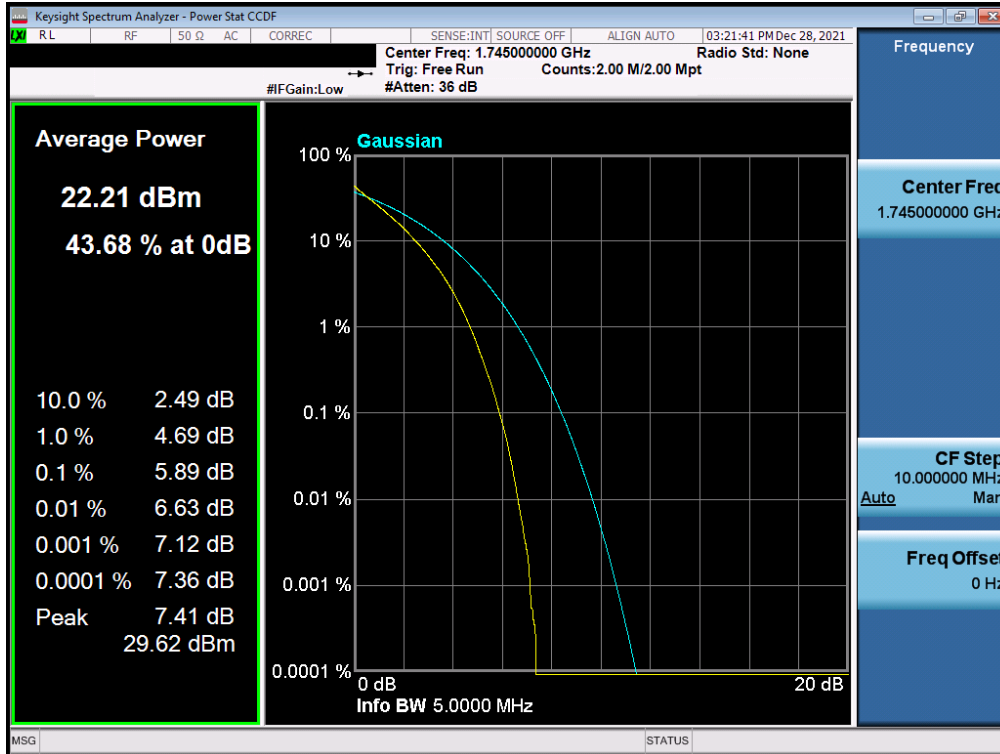


Plot 7-140. PAR Plot (LTE Band 66/4 - 10MHz QPSK - Full RB)

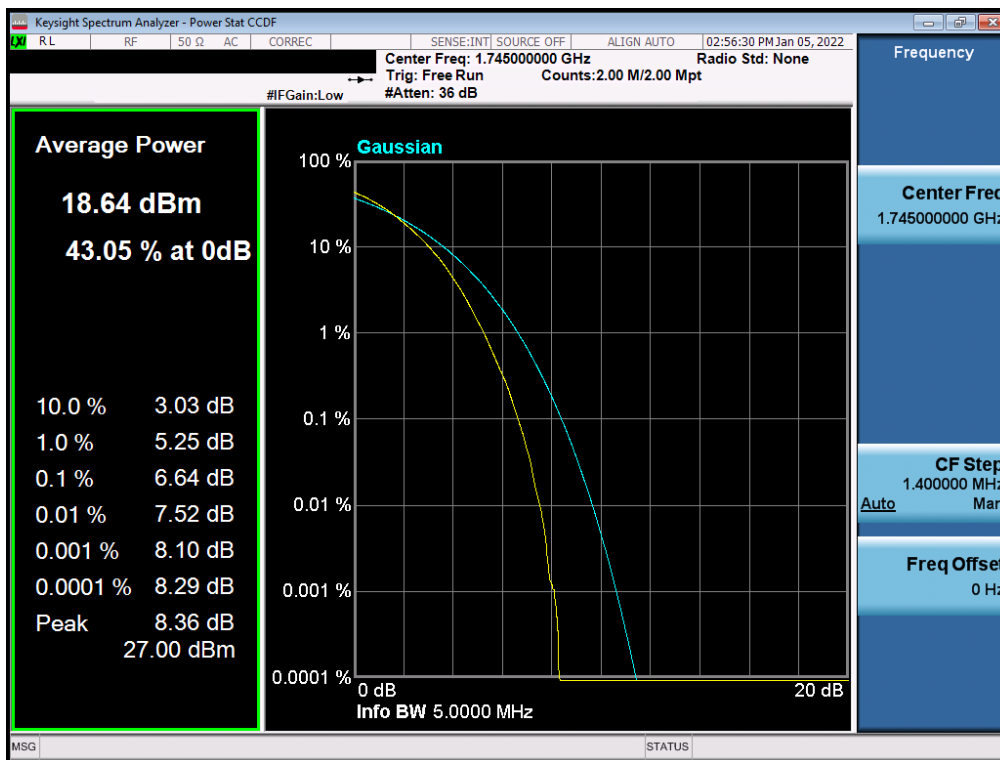


Plot 7-141. PAR Plot (LTE Band 66/4 - 10MHz 256-QAM - Full RB)



FCC ID: A3LSMM336B		<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 89 of 120

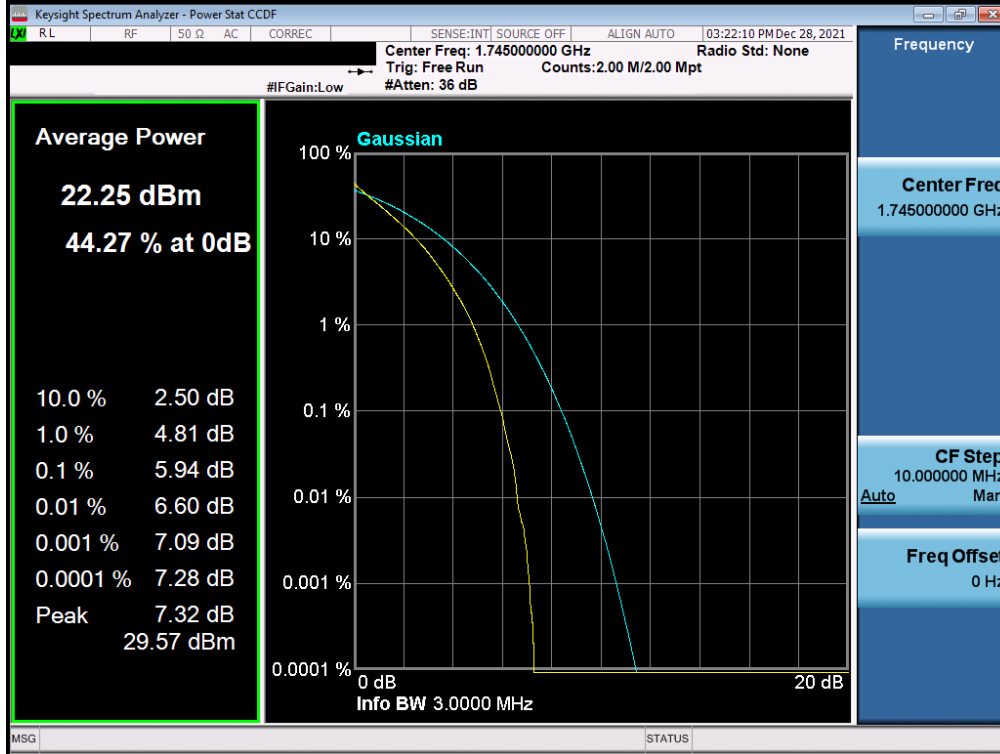


Plot 7-142. PAR Plot (LTE Band 66/4 - 5MHz QPSK - Full RB)

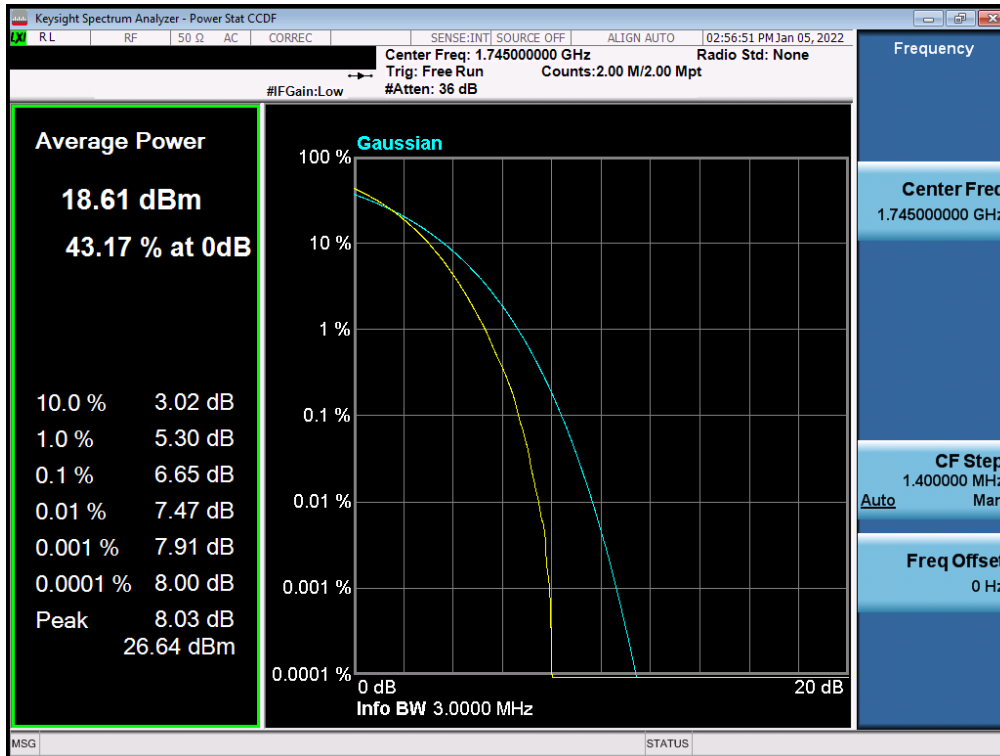


Plot 7-143. PAR Plot (LTE Band 66/4 - 5MHz 256-QAM - Full RB)



FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 90 of 120

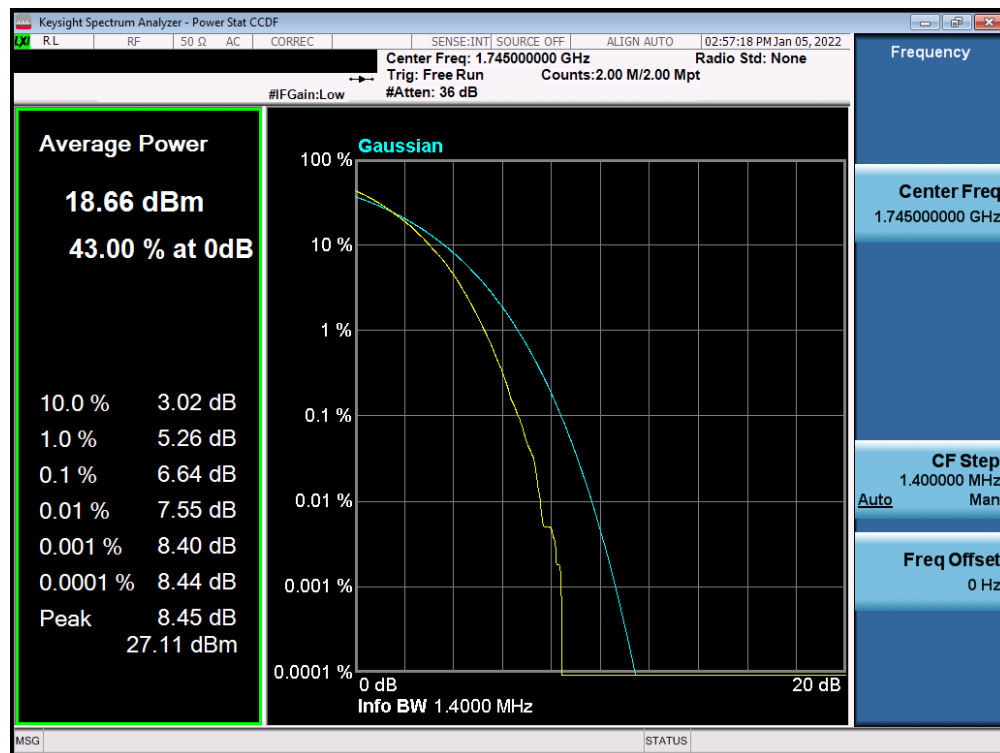
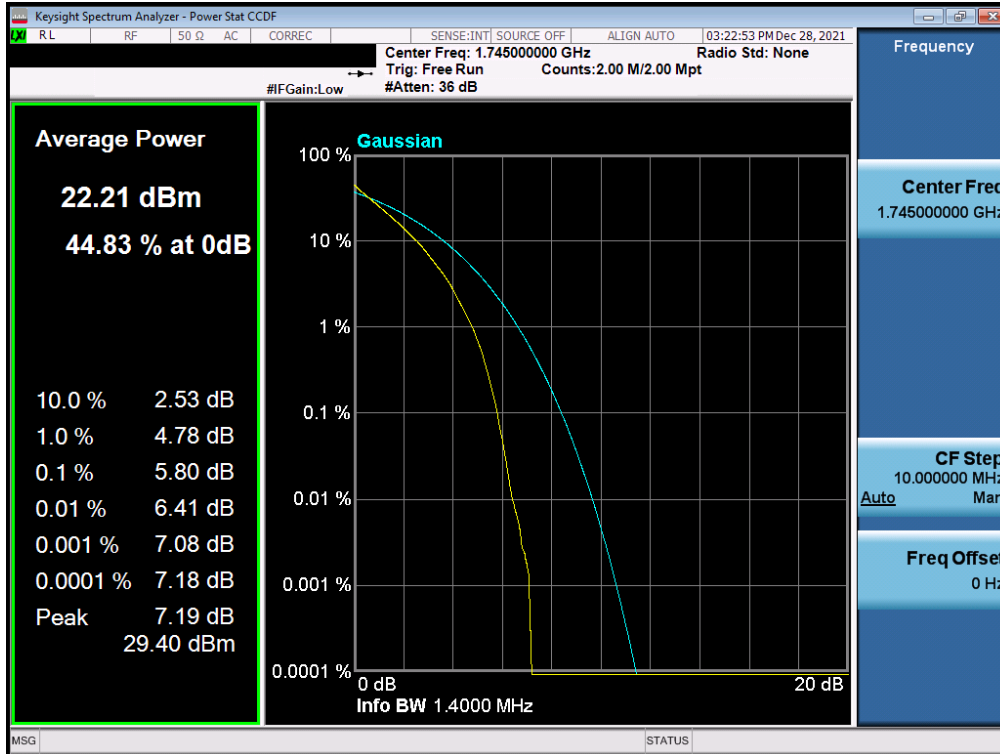




Plot 7-144. PAR Plot (LTE Band 66/4 - 3MHz QPSK - Full RB)



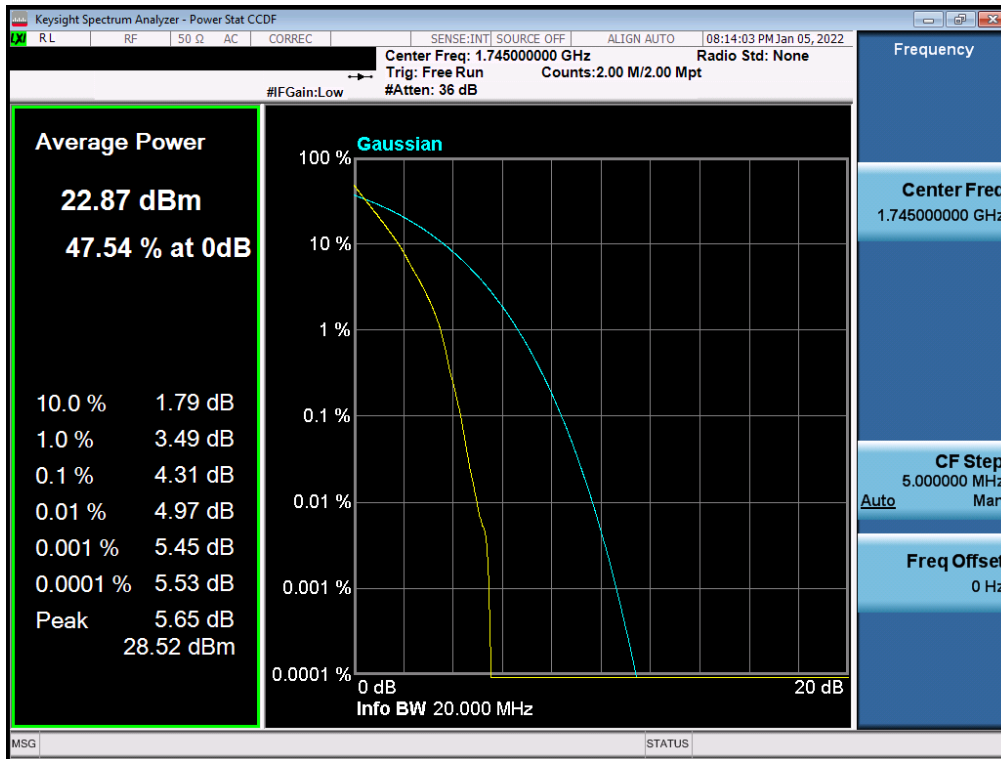
Plot 7-145. PAR Plot (LTE Band 66/4 - 3MHz 256-QAM - Full RB)

FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 91 of 120

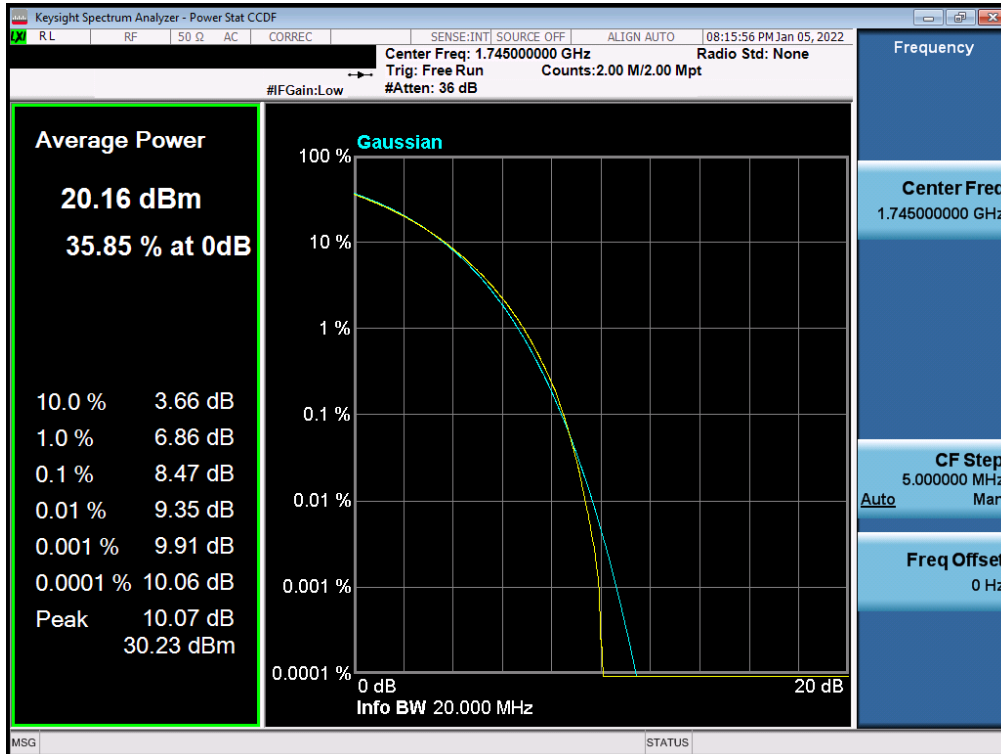


FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 92 of 120

**NR Band n66**

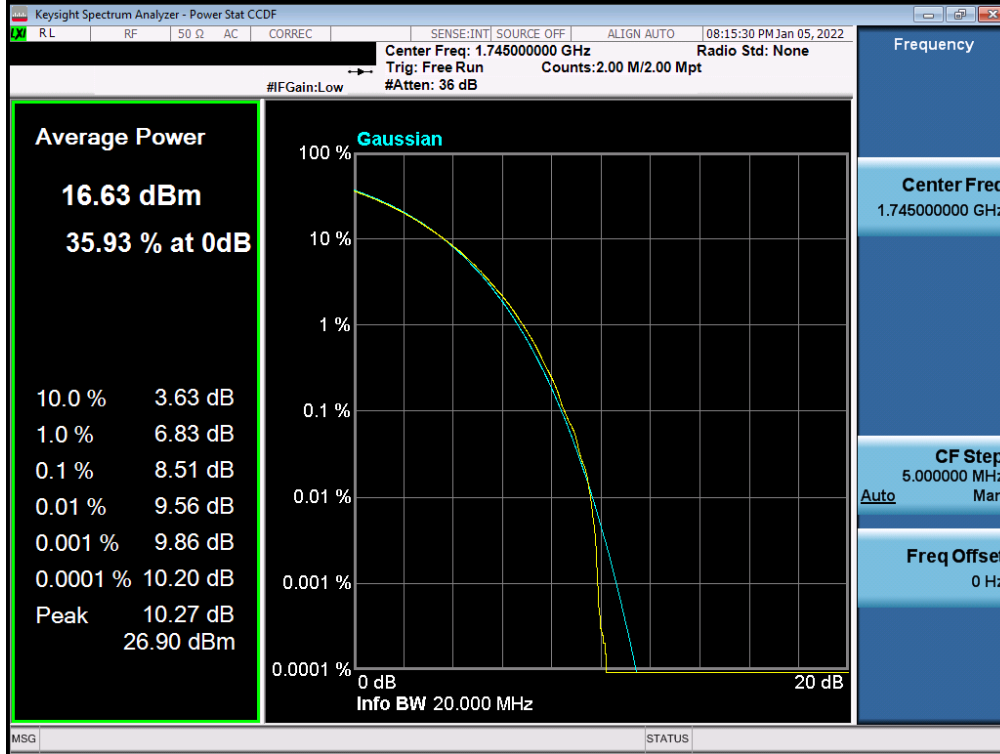


Plot 7-148. PAR Plot (NR Band n66 - 20.0MHz DFT-s-OFDM BPSK - Full RB)

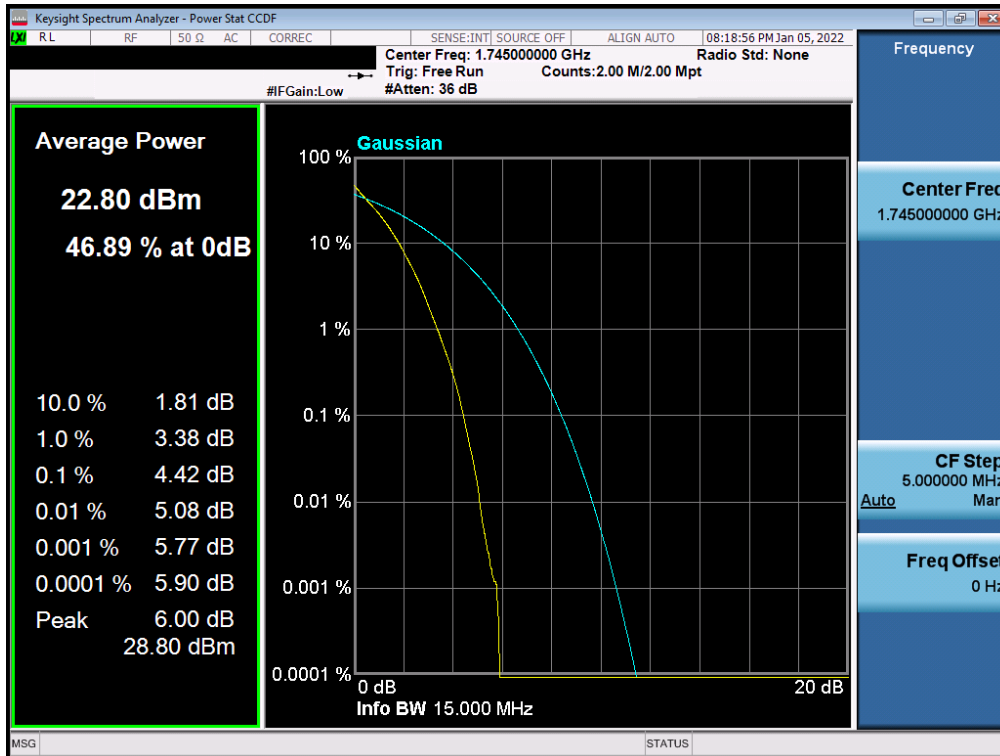


Plot 7-149. PAR Plot (NR Band n66 - 20.0MHz CP-OFDM QPSK - Full RB)



FCC ID: A3LSMM336B	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 93 of 120



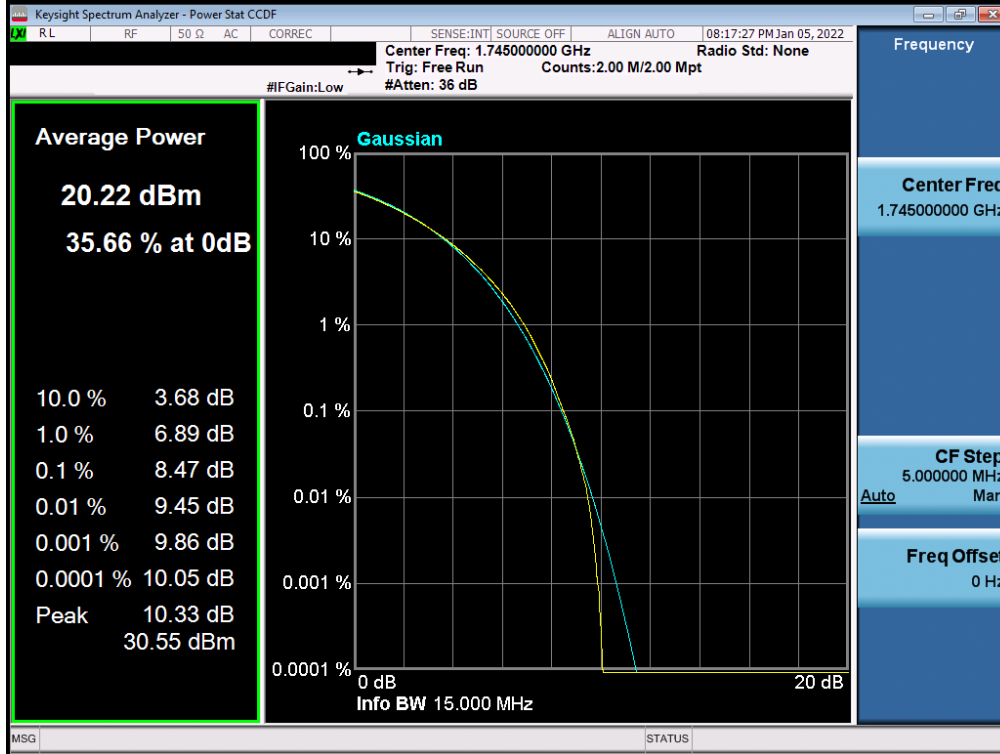
Plot 7-150. PAR Plot (NR Band n66 - 20.0MHz CP-OFDM 256-QAM - Full RB)



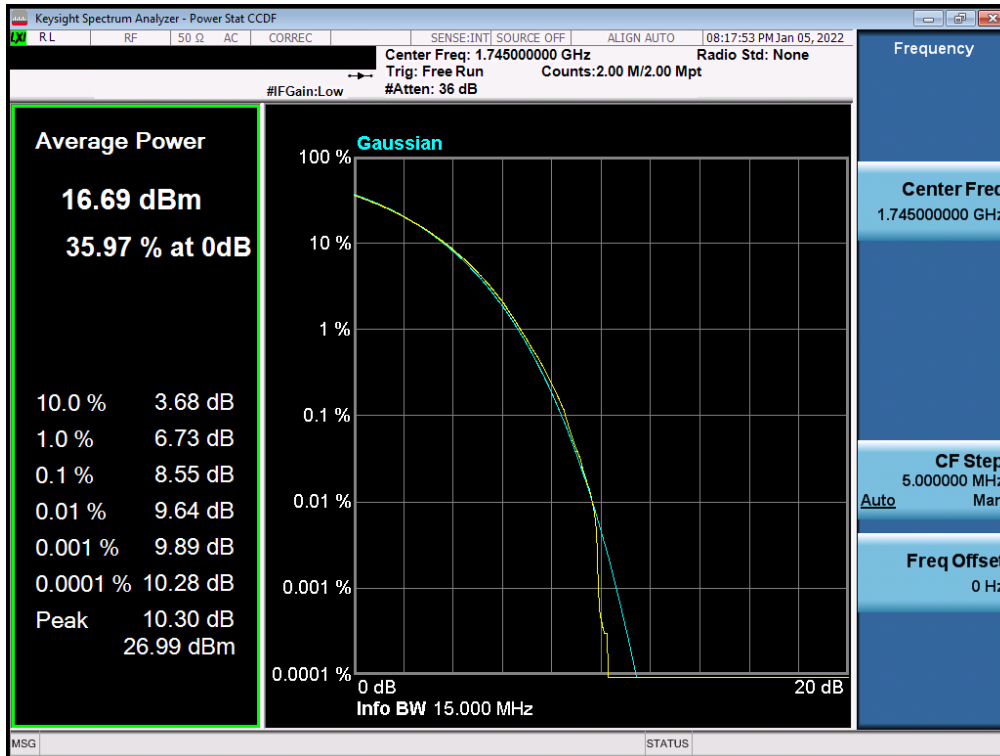
Plot 7-151. PAR Plot (NR Band n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 94 of 120





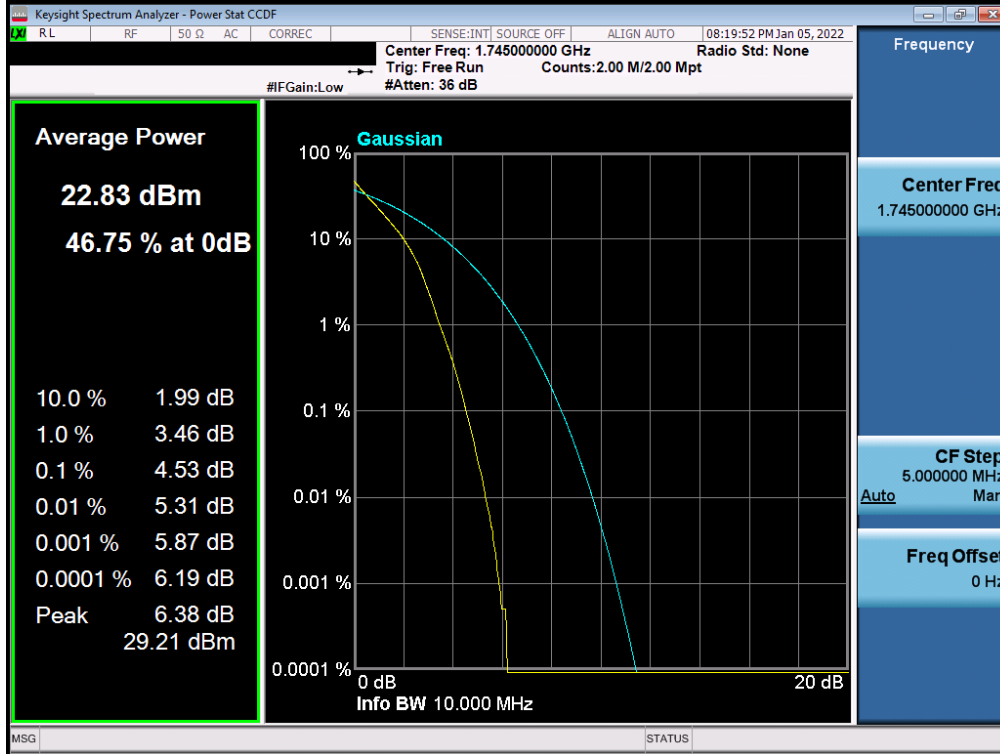


Plot 7-152. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB)

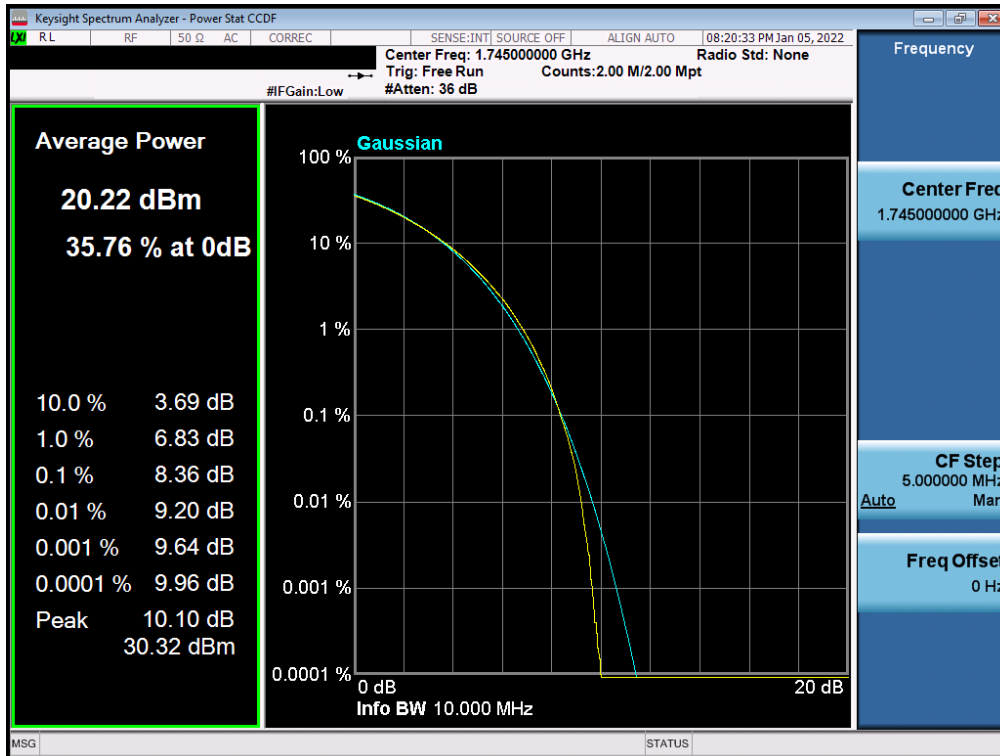


Plot 7-153. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM 256-QAM - Full RB)



FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 95 of 120

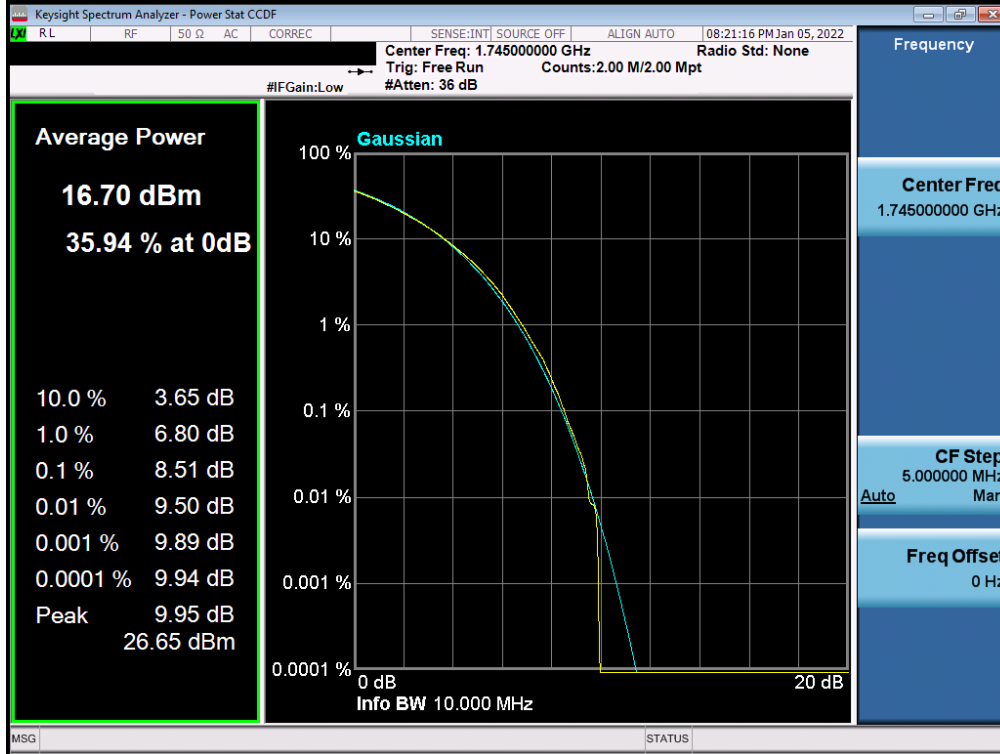


Plot 7-154. PAR Plot (NR Band n66 - 10.0MHz DFT-s-OFDM BPSK - Full RB)

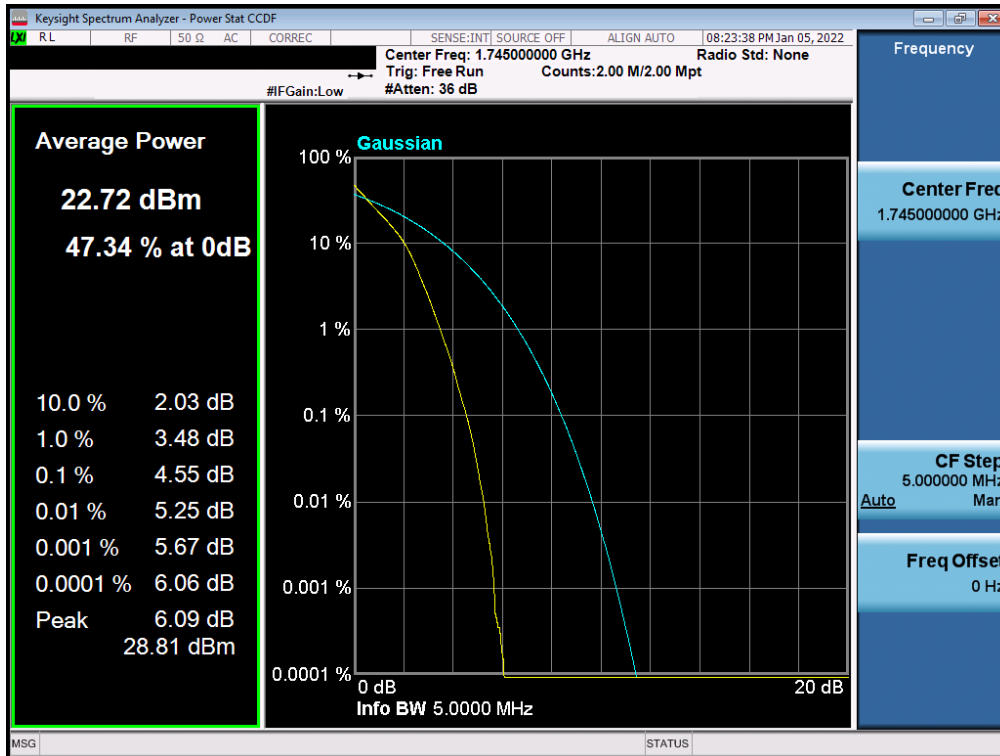


Plot 7-155. PAR Plot (NR Band n66 - 10.0MHz CP-OFDM QPSK - Full RB)



FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 96 of 120

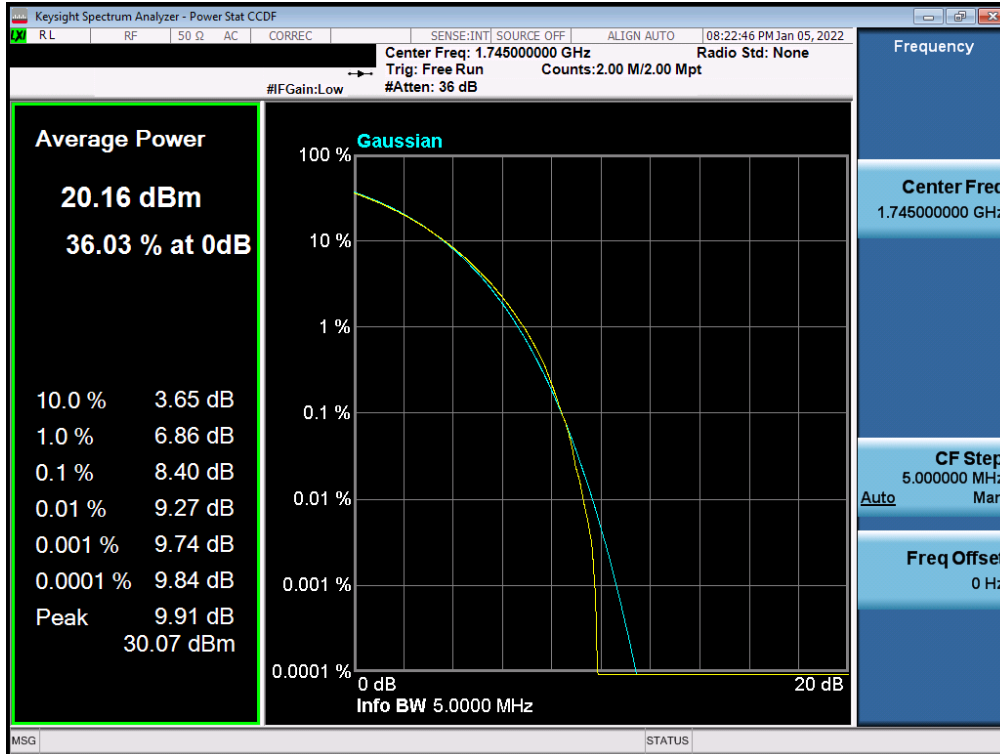


Plot 7-156. PAR Plot (NR Band n66 - 10.0MHz CP-OFDM 256-QAM - Full RB)

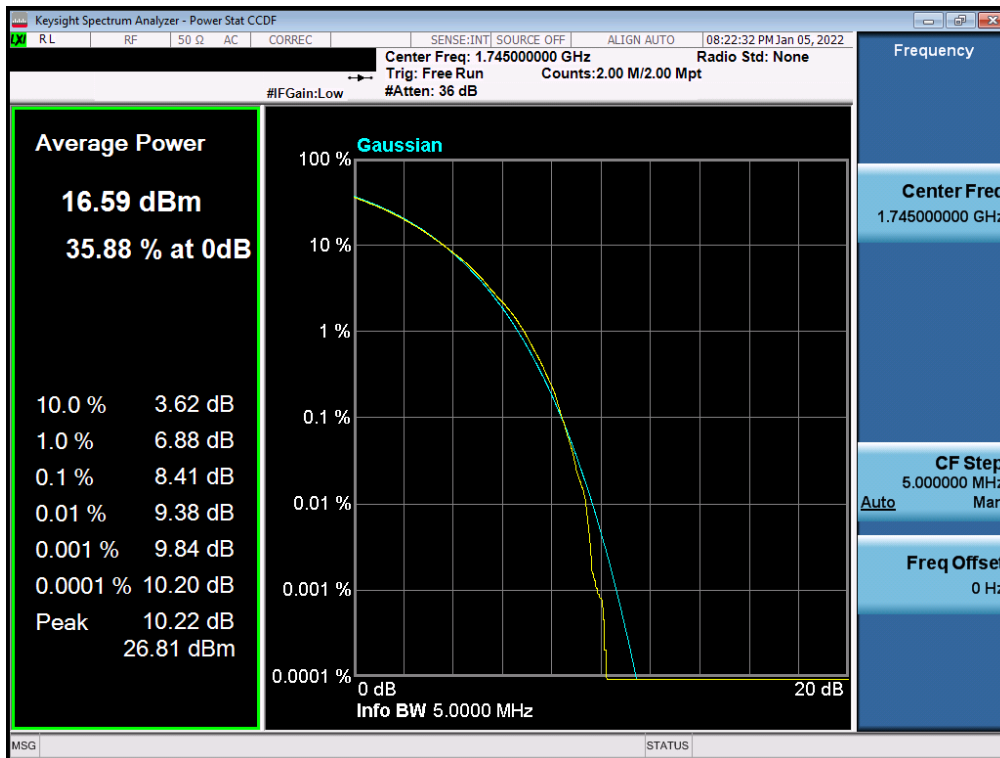


Plot 7-157. PAR Plot (NR Band n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB)



FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 97 of 120



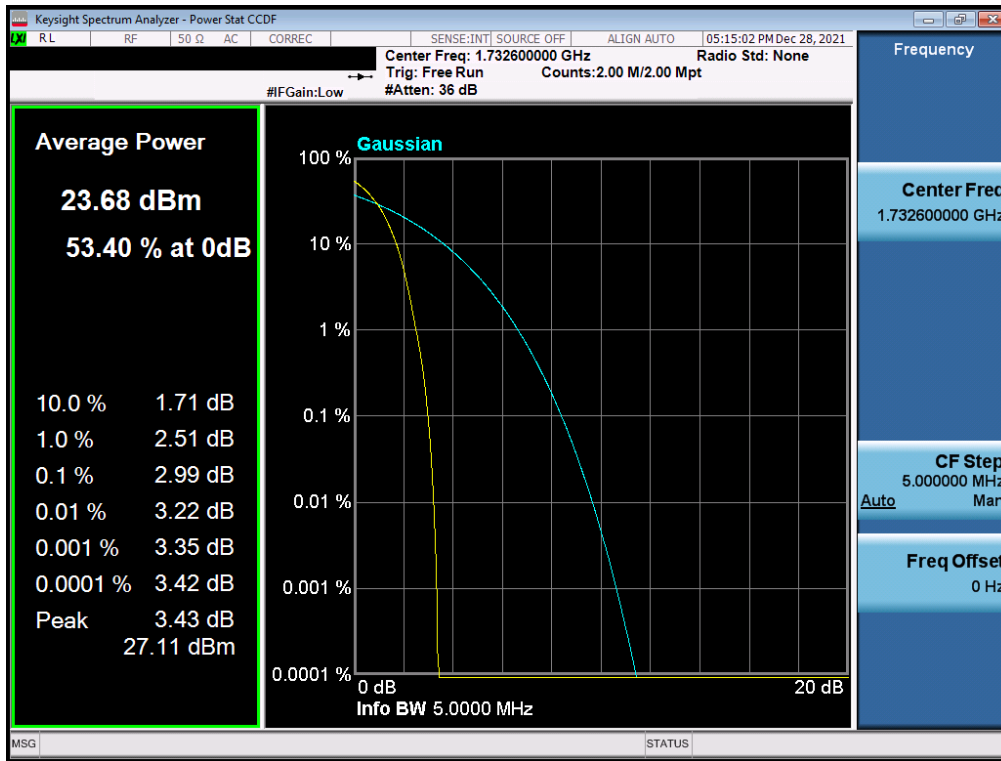
Plot 7-158. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB)





Plot 7-159. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM 256-QAM - Full RB)

FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 98 of 120

**WCDMA AWS**



Plot 7-160. PAR Plot (WCDMA, Ch. 1413)

FCC ID: A3LSMM336B	 <b>PART 27 MEASUREMENT REPORT</b> 	Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset
		Page 99 of 120

## 7.6 Radiated Power (ERP/EIRP)

### Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 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 maximum power, and at the appropriate frequencies.



### Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.2.1

ANSI/TIA-603-E-2016 – Section 2.2.17

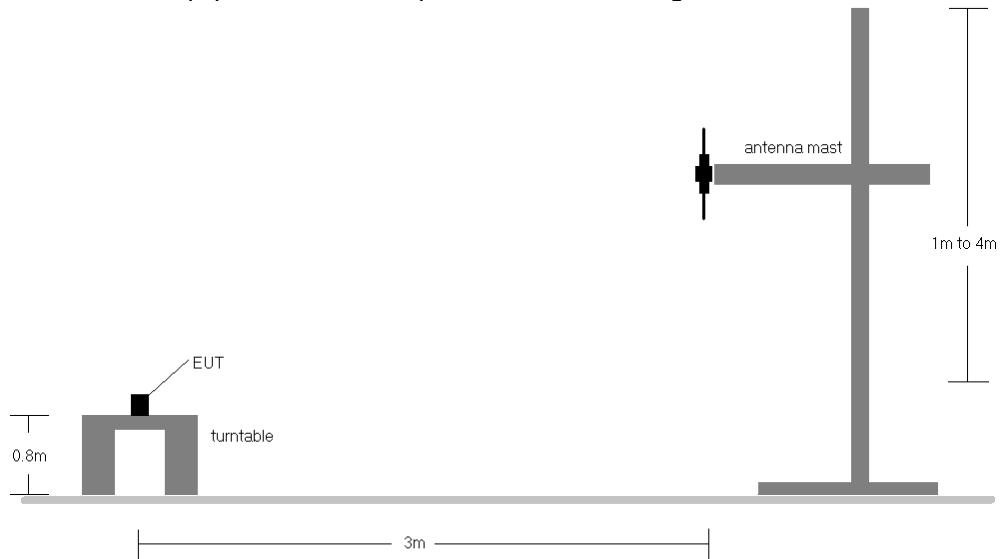
### Test Settings

1. Radiated power measurements are performed using the signal analyzer’s “channel power” measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW  $\geq$  3 x RBW
4. Span = 1.5 times the OBW
5. No. of sweep points  $\geq$  2 x span / RBW
6. Detector = RMS
7. Trigger is set to “free run” for signals with continuous operation with the sweep times set to “auto”.
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

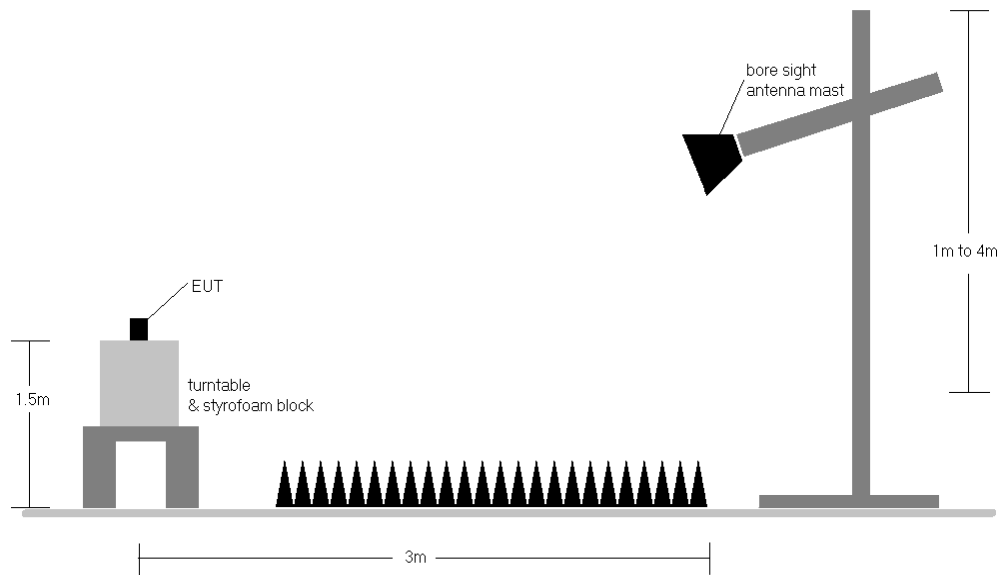
FCC ID: A3LSMM336B	 <b>PART 27 MEASUREMENT REPORT</b> 	Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset
Page 100 of 120		

**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**

<p>FCC ID: A3LSMM336B</p>		<p>PART 27 MEASUREMENT REPORT</p>	<p>Approved by: Technical Manager</p>
<p>Test Report S/N: 1M2112200163-04.A3L</p>	<p>Test Dates: 12/20/2021 - 1/28/2022</p>	<p>EUT Type: Portable Handset</p>	<p>Page 101 of 120</p>

**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) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) 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.

<b>FCC ID:</b> A3LSMM336B	 <b>PART 27 MEASUREMENT REPORT</b> 		<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2112200163-04.A3L	<b>Test Dates:</b> 12/20/2021 - 1/28/2022	<b>EUT Type:</b> Portable Handset	Page 102 of 120



Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
10 MHz	QPSK	704.0	V	162	313	3.58	1 / 49	14.07	17.65	0.058	36.99	-19.34	15.50	0.035	34.77	-19.27
	QPSK	707.5	V	148	315	3.62	1 / 49	14.75	<b>18.37</b>	0.069	36.99	-18.62	<b>16.22</b>	0.042	34.77	-18.55
	QPSK	711.0	V	167	225	3.67	1 / 49	14.16	17.83	0.061	36.99	-19.16	15.68	0.037	34.77	-19.09
	16-QAM	707.5	V	148	315	3.62	1 / 49	13.71	17.33	0.054	36.99	-19.66	15.18	0.033	34.77	-19.59
5 MHz	QPSK	701.5	V	162	313	3.55	1 / 0	13.83	17.38	0.055	36.99	-19.61	15.23	0.033	34.77	-19.54
	QPSK	707.5	V	148	315	3.62	1 / 0	14.86	<b>18.48</b>	0.070	36.99	-18.51	<b>16.33</b>	0.043	34.77	-18.44
	QPSK	713.5	V	167	225	3.80	1 / 24	13.76	17.56	0.057	36.99	-19.43	15.41	0.035	34.77	-19.37
	16-QAM	707.5	V	148	315	3.62	1 / 0	13.58	17.21	0.053	36.99	-19.78	15.06	0.032	34.77	-19.71
10 MHz	Opposite Pol.	707.5	H	258	192	3.52	1 / 14	14.49	18.01	0.063	36.99	-18.98	15.86	0.039	34.77	-18.91



Table 7-2. ERP Data (LTE Band 12/17)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
3 MHz	QPSK	700.5	V	162	313	3.54	1 / 0	13.95	17.49	0.056	36.99	-19.50	15.34	0.034	34.77	-19.44
	QPSK	707.5	V	148	315	3.62	1 / 14	14.55	<b>18.18</b>	0.066	36.99	-18.81	<b>16.03</b>	0.040	34.77	-18.75
	QPSK	714.5	V	167	225	3.81	1 / 0	13.90	17.71	0.059	36.99	-19.28	15.56	0.036	34.77	-19.22
	16-QAM	707.5	V	148	315	3.62	1 / 14	13.34	16.97	0.050	36.99	-20.02	14.82	0.030	34.77	-19.96
1.4 MHz	QPSK	699.7	V	162	313	3.53	1 / 5	14.05	17.58	0.057	36.99	-19.41	15.43	0.035	34.77	-19.35
	QPSK	707.5	V	148	315	3.62	1 / 5	14.77	<b>18.39</b>	0.069	36.99	-18.60	<b>16.24</b>	0.042	34.77	-18.53
	QPSK	715.3	V	167	225	3.85	1 / 5	14.06	17.90	0.062	36.99	-19.09	15.75	0.038	34.77	-19.02
	16-QAM	707.5	V	148	315	3.62	1 / 5	13.46	17.08	0.051	36.99	-19.91	14.93	0.031	34.77	-19.84

Table 7-3. ERP Data (LTE Band 12)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	QPSK	1720.0	V	121	112	9.33	1 / 99	14.35	23.68	0.233	30.00	-6.32
	QPSK	1745.0	V	108	45	9.03	1 / 50	14.49	23.52	0.225	30.00	-6.48
	QPSK	1770.0	V	108	113	9.10	1 / 50	15.20	<b>24.30</b>	0.269	30.00	-5.70
	16-QAM	1770.0	V	108	113	9.10	1 / 50	14.17	23.27	0.212	30.00	-6.73
15 MHz	QPSK	1717.5	V	121	112	9.38	1 / 0	14.35	23.73	0.236	30.00	-6.27
	QPSK	1745.0	V	108	45	9.03	1 / 37	14.57	23.60	0.229	30.00	-6.40
	QPSK	1772.5	V	108	113	9.11	1 / 74	15.18	<b>24.29</b>	0.269	30.00	-5.71
	16-QAM	1772.5	V	108	113	9.11	1 / 74	13.97	23.09	0.204	30.00	-6.91
10 MHz	QPSK	1715.0	V	121	112	9.42	1 / 49	14.42	23.84	0.242	30.00	-6.16
	QPSK	1745.0	V	108	45	9.03	1 / 49	14.62	23.66	0.232	30.00	-6.34
	QPSK	1775.0	V	108	113	9.13	1 / 0	15.13	<b>24.26</b>	0.267	30.00	-5.74
	16-QAM	1775.0	V	108	113	9.13	1 / 0	14.09	23.23	0.210	30.00	-6.77
5 MHz	QPSK	1712.5	V	121	112	9.47	1 / 24	14.47	23.94	0.247	30.00	-6.06
	QPSK	1745.0	V	108	45	9.03	1 / 24	14.68	23.72	0.235	30.00	-6.28
	QPSK	1777.5	V	108	113	9.15	1 / 24	15.07	<b>24.22</b>	0.264	30.00	-5.78
	16-QAM	1712.5	V	121	112	9.47	1 / 24	13.57	23.04	0.201	30.00	-6.96
3 MHz	QPSK	1711.5	V	121	112	9.49	1 / 0	14.49	23.98	0.250	30.00	-6.02
	QPSK	1745.0	V	108	45	9.03	1 / 14	14.67	23.70	0.235	30.00	-6.30
	QPSK	1778.5	V	108	113	9.15	1 / 0	15.22	<b>24.38</b>	0.274	30.00	-5.62
	16-QAM	1711.5	V	121	112	9.49	1 / 0	13.86	23.35	0.216	30.00	-6.65
1.4 MHz	QPSK	1710.7	V	121	112	9.50	1 / 5	14.37	23.88	0.244	30.00	-6.12
	QPSK	1745.0	V	108	45	9.03	1 / 5	14.67	23.70	0.235	30.00	-6.30
	QPSK	1779.3	V	108	113	9.16	1 / 5	15.09	<b>24.25</b>	0.266	30.00	-5.75
	16-QAM	1710.7	V	121	112	9.50	1 / 5	13.79	23.29	0.213	30.00	-6.71
20 MHz	Opposite Pol.	1770.0	H	172	4	9.39	1 / 50	14.29	23.68	0.233	30.00	-6.32

Table 7-4. EIRP Data (LTE Band 66/4)



FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 103 of 120

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
20 MHz	$\pi/2$ BPSK	1720.0	V	121	117	9.33	1 / 53	14.02	<b>23.35</b>	0.216	30.00	-6.65
	$\pi/2$ BPSK	1745.0	V	114	63	9.03	1 / 53	13.05	22.08	0.162	30.00	-7.92
	$\pi/2$ BPSK	1770.0	V	111	118	9.10	1 / 53	14.16	23.26	0.212	30.00	-6.74
	QPSK	1720.0	V	121	117	9.33	1 / 53	13.95	23.28	0.213	30.00	-6.72
15 MHz	16-QAM	1720.0	V	121	117	9.33	1 / 53	12.91	22.24	0.168	30.00	-7.76
	$\pi/2$ BPSK	1717.5	V	121	117	9.38	1 / 39	13.70	23.07	0.203	30.00	-6.93
	$\pi/2$ BPSK	1745.0	V	114	63	9.03	1 / 39	12.82	21.86	0.153	30.00	-8.14
	$\pi/2$ BPSK	1772.5	V	111	118	9.11	1 / 39	13.85	22.96	0.198	30.00	-7.04
	QPSK	1717.5	V	121	117	9.38	1 / 39	13.83	<b>23.21</b>	0.209	30.00	-6.79
10 MHz	16-QAM	1717.5	V	121	117	9.38	1 / 39	12.70	22.08	0.161	30.00	-7.92
	$\pi/2$ BPSK	1715.0	V	121	117	9.42	1 / 26	13.82	23.25	0.211	30.00	-6.75
	$\pi/2$ BPSK	1745.0	V	114	63	9.03	1 / 26	13.25	22.29	0.169	30.00	-7.71
	$\pi/2$ BPSK	1775.0	V	111	118	9.13	1 / 26	14.19	<b>23.32</b>	0.215	30.00	-6.68
5 MHz	QPSK	1715.0	V	121	117	9.42	1 / 26	13.85	23.27	0.212	30.00	-6.73
	16-QAM	1715.0	V	121	117	9.42	1 / 26	12.81	22.23	0.167	30.00	-7.77
	$\pi/2$ BPSK	1712.5	V	121	117	9.47	1 / 18	14.04	<b>23.51</b>	0.224	30.00	-6.49
	$\pi/2$ BPSK	1745.0	V	114	63	9.03	1 / 12	13.05	22.09	0.162	30.00	-7.91
20 MHz	$\pi/2$ BPSK	1777.5	V	111	118	9.15	1 / 12	14.01	23.16	0.207	30.00	-6.84
	QPSK	1712.5	V	121	117	9.47	1 / 18	13.91	23.38	0.218	30.00	-6.62
	16-QAM	1712.5	V	121	117	9.47	1 / 18	12.73	22.20	0.166	30.00	-7.80
	QPSK (CP-OFDM)	1720.0	V	127	113	9.39	1 / 53	12.22	21.61	0.145	30.00	-8.39
QPSK (Opposite Pol.)	1720.0	H	129	192	9.47	1 / 53	12.70	22.17	0.165	30.00	-7.83	

Table 7-5. EIRP Data (NR Band n66)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1712.40	WCDMA1700	H	225	12	14.09	9.54	23.63	0.231	30.00	-6.37
1732.60	WCDMA1700	H	244	19	14.05	9.49	23.54	0.226	30.00	-6.46
1752.60	WCDMA1700	H	178	7	14.72	9.46	<b>24.18</b>	<b>0.262</b>	30.00	-5.82
1752.60	WCDMA1700	V	140	57	14.39	9.05	23.44	0.221	30.00	-6.56

Table 7-6. EIRP Data (WCDMA AWS)

FCC ID: A3LSMM336B	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset	Page 104 of 120

## 7.7 Radiated Spurious Emissions Measurements

### Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-E-2016 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically 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 measurements while the EUT is operating at maximum power, and at the appropriate frequencies.



### Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

ANSI/TIA-603-E-2016 – Section 2.2.12

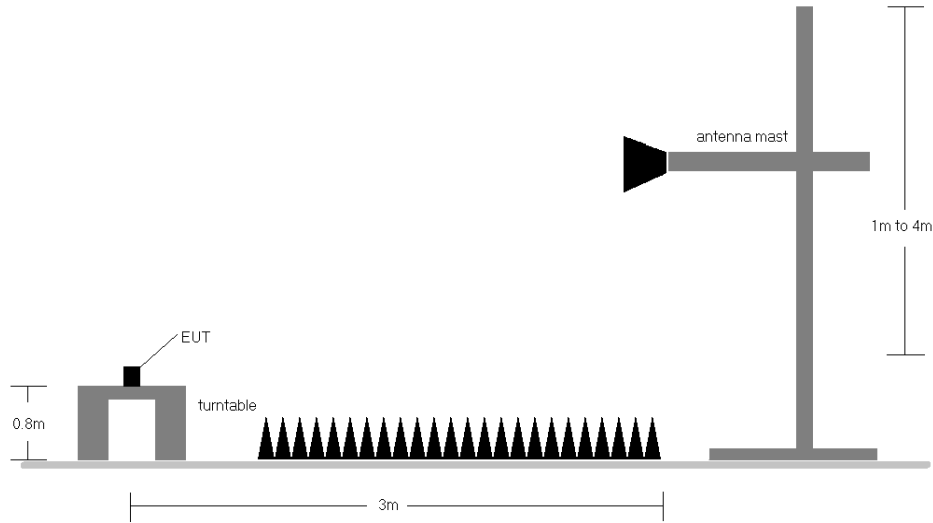
### Test Settings

1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
2. VBW  $\geq$  3 x RBW
3. Span = 1.5 times the OBW
4. No. of sweep points  $\geq$  2 x span / RBW
5. Detector = RMS
6. Trace mode = Average (Max Hold for pulsed emissions)
7. The trace was allowed to stabilize

FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 105 of 120

## Test Setup



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



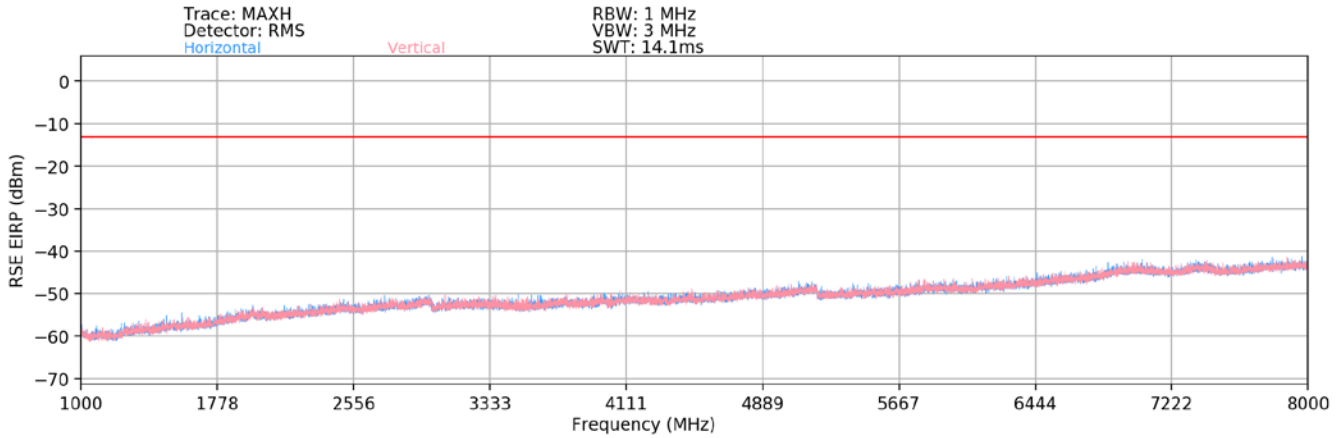
**Figure 7-7. Test Instrument & Measurement Setup**

## Test Notes

- 1) Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4.
  - a)  $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
  - b)  $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$ ; where D is the measurement distance in meters.
- 2) 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.
- 3) This unit was tested with its standard battery.
- 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) The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 7) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) 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.
- 8) Spurious emissions shown in this section are measured while operating in EN-DC mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor). Spurious emissions from the NR carrier device, is subject to the rules under which the NR carrier operates. Spurious emission caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

FCC ID: A3LSMM336B	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 106 of 120

# LTE Band 12/17



**Plot 7-161. Radiated Spurious Plot (LTE Band 12/17)**

Bandwidth (MHz):	10
Frequency (MHz):	704
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1408.00	H	-	-	-76.65	-2.28	28.07	-67.19	-13.00	-54.19
2112.00	H	-	-	-77.21	1.71	31.50	-63.76	-13.00	-50.76
2816.00	H	-	-	-77.67	3.85	33.18	-62.08	-13.00	-49.08
3520.00	H	-	-	-78.68	4.74	33.06	-62.20	-13.00	-49.20

**Table 7-7. Radiated Spurious Data (LTE Band 12/17 – Low Channel)**

Bandwidth (MHz):	10
Frequency (MHz):	707.5
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1415.00	H	-	-	-76.09	-2.26	28.65	-66.60	-13.00	-53.60
2122.50	H	-	-	-77.28	1.84	31.56	-63.70	-13.00	-50.70
2830.00	H	-	-	-78.08	3.64	32.56	-62.69	-13.00	-49.69
3537.50	H	-	-	-77.89	4.80	33.91	-61.35	-13.00	-48.35



**Table 7-8. Radiated Spurious Data (LTE Band 12/17 – Mid Channel)**

FCC ID: A3LSMM336B		<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 107 of 120

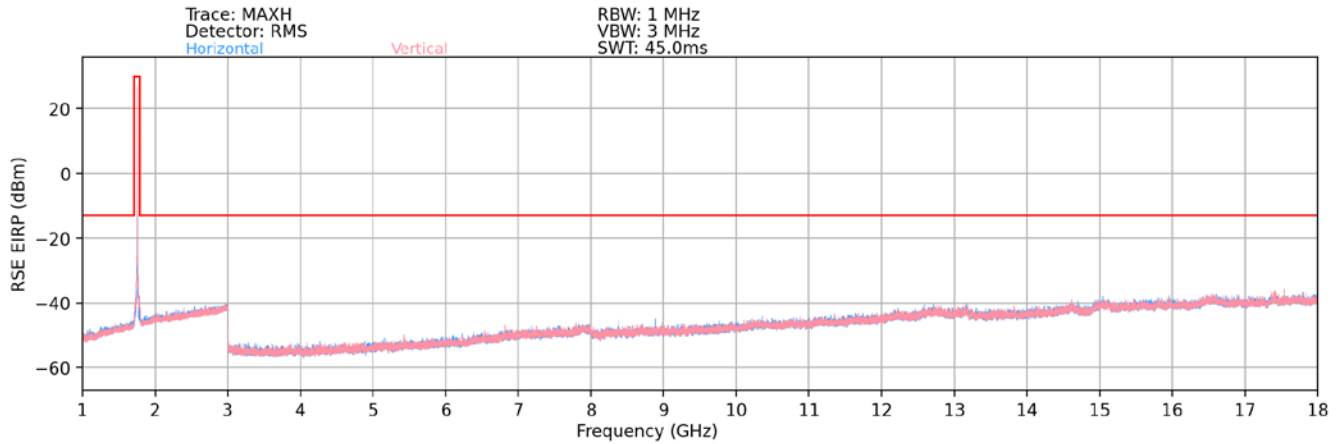
Bandwidth (MHz):	10
Frequency (MHz):	711
RB / Offset:	1 / 25

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1422.00	H	-	-	-76.40	-2.15	28.45	-66.81	-13.00	-53.81
2133.00	H	-	-	-77.42	1.94	31.52	-63.74	-13.00	-50.74
2844.00	H	-	-	-78.20	3.48	32.28	-62.97	-13.00	-49.97
3555.00	H	-	-	-78.61	4.82	33.21	-62.05	-13.00	-49.05

Table 7-9. Radiated Spurious Data (LTE Band 12/17 – High Channel)

FCC ID: A3LSMM336B	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 108 of 120

## LTE Band 66/4



**Plot 7-162. Radiated Spurious Plot (LTE Band 66/4)**

Bandwidth (MHz):	20
Frequency (MHz):	1720
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3440.00	H	221	298	-74.72	5.72	38.00	-57.26	-13.00	-44.26
5160.00	H	218	297	-72.15	7.89	42.74	-52.52	-13.00	-39.52
6880.00	H	-	-	-79.70	11.99	39.29	-55.97	-13.00	-42.97
8600.00	H	-	-	-80.58	13.51	39.93	-55.32	-13.00	-42.32
10320.00	H	-	-	-80.82	16.13	42.31	-52.95	-13.00	-39.95

**Table 7-10. Radiated Spurious Data (LTE Band 66/4 – Low Channel)**

Bandwidth (MHz):	20
Frequency (MHz):	1745
RB / Offset:	1 / 50

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.00	H	229	12	-76.46	5.58	36.12	-59.14	-13.00	-46.14
5235.00	H	100	33	-74.92	7.82	39.90	-55.36	-13.00	-42.36
6980.00	H	-	-	-79.40	11.51	39.11	-56.15	-13.00	-43.15
8725.00	H	-	-	-80.33	13.79	40.46	-54.80	-13.00	-41.80
10470.00	H	-	-	-81.58	16.64	42.06	-53.20	-13.00	-40.20



**Table 7-11. Radiated Spurious Data (LTE Band 66/4 – Mid Channel)**

FCC ID: A3LSMM336B	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 109 of 120

Bandwidth (MHz):	20
Frequency (MHz):	1770
RB / Offset:	1 / 50

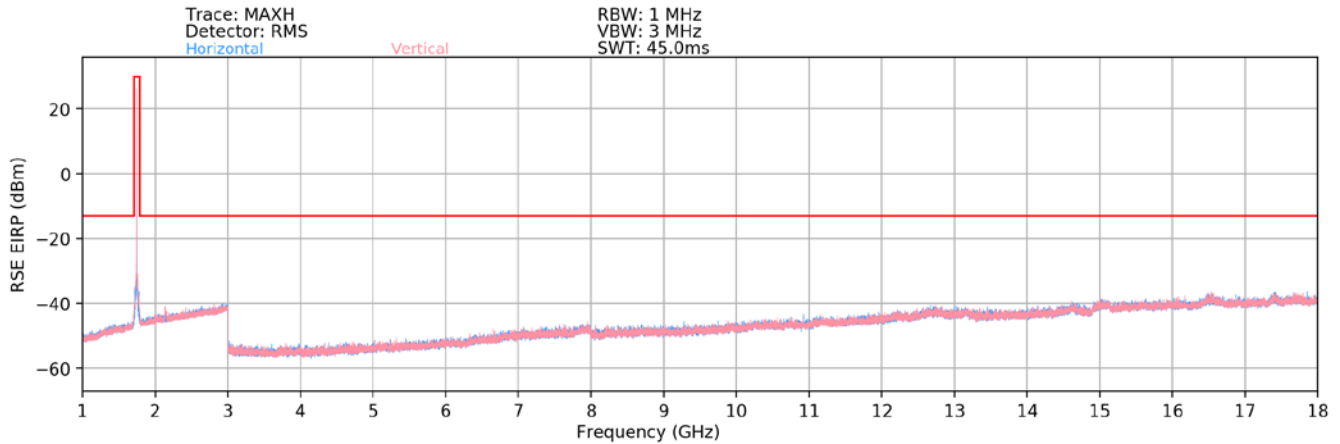
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB $\mu$ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3540.00	H	194	177	-74.16	5.57	38.41	-56.85	-13.00	-43.85
5310.00	H	100	14	-75.53	8.05	39.52	-55.74	-13.00	-42.74
7080.00	H	-	-	-79.50	12.00	39.50	-55.75	-13.00	-42.75
8850.00	H	-	-	-80.93	14.06	40.13	-55.12	-13.00	-42.12
10620.00	H	-	-	-81.64	16.57	41.93	-53.33	-13.00	-40.33

Table 7-12. Radiated Spurious Data (LTE Band 66/4 – High Channel)

FCC ID: A3LSMM336B	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset	Page 110 of 120



**NR Band n66**



**Plot 7-163. Radiated Spurious Plot (NR Band n66)**

<b>Bandwidth (MHz):</b>	20
<b>Frequency (MHz):</b>	1720
<b>RB / Offset:</b>	1 / 53
<b>Mode:</b>	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3440.00	V	137	20	-77.42	5.72	35.30	-59.96	-13.00	-46.96
5160.00	V	108	84	-73.30	7.89	41.59	-53.67	-13.00	-40.67
6880.00	V	-	-	-80.57	11.99	38.42	-56.84	-13.00	-43.84
8600.00	V	100	38	-79.87	13.51	40.64	-54.61	-13.00	-41.61
10320.00	V	-	-	-81.46	16.13	41.67	-53.59	-13.00	-40.59
12040.00	V	-	-	-82.24	18.41	43.17	-52.08	-13.00	-39.08
13760.00	V	-	-	-82.96	21.49	45.53	-49.73	-13.00	-36.73

**Table 7-13. Radiated Spurious Data (NR Band n66 – Low Channel)**

<b>Bandwidth (MHz):</b>	20
<b>Frequency (MHz):</b>	1745
<b>RB / Offset:</b>	1 / 53
<b>Mode:</b>	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3490.00	V	150	315	-77.59	5.58	34.99	-60.27	-13.00	-47.27
5235.00	V	106	79	-75.61	7.82	39.21	-56.05	-13.00	-43.05
6980.00	V	260	10	-80.07	11.51	38.44	-56.82	-13.00	-43.82
8725.00	V	100	343	-80.30	13.79	40.49	-54.77	-13.00	-41.77
10470.00	V	-	-	-81.79	16.64	41.85	-53.41	-13.00	-40.41
12215.00	V	-	-	-81.81	19.05	44.24	-51.02	-13.00	-38.02
13960.00	V	-	-	-82.81	20.99	45.18	-50.08	-13.00	-37.08



**Table 7-14. Radiated Spurious Data (NR Band n66 – Mid Channel)**

<b>FCC ID:</b> A3LSMM336B	<b>PART 27 MEASUREMENT REPORT</b>	<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2112200163-04.A3L	<b>Test Dates:</b> 12/20/2021 - 1/28/2022	<b>EUT Type:</b> Portable Handset
		Page 111 of 120

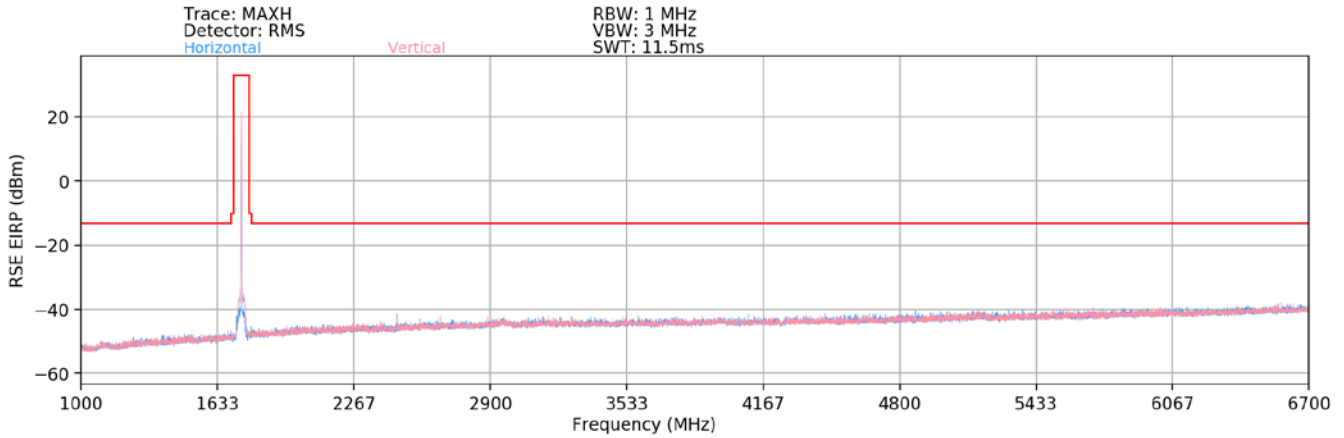
<b>Bandwidth (MHz):</b>	20
<b>Frequency (MHz):</b>	1770
<b>RB / Offset:</b>	1 / 53
<b>Mode:</b>	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3540.00	V	103	321	-73.65	5.57	38.92	-56.34	-13.00	-43.34
5310.00	V	117	84	-77.90	8.05	37.15	-58.11	-13.00	-45.11
7080.00	V	-	-	-80.23	12.00	38.77	-56.48	-13.00	-43.48
8850.00	V	-	-	-81.23	14.06	39.83	-55.42	-13.00	-42.42
10620.00	V	-	-	-82.04	16.57	41.53	-53.73	-13.00	-40.73

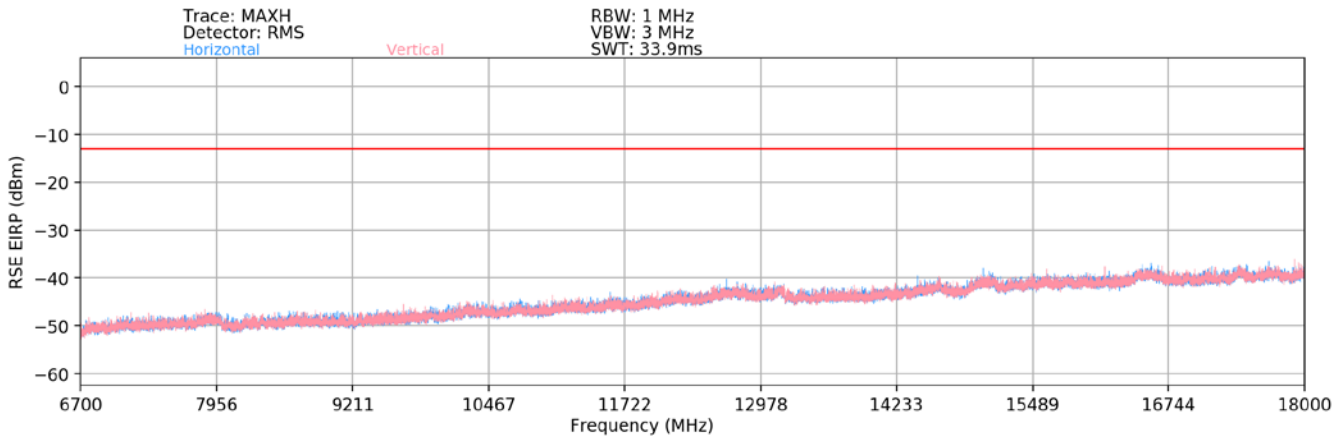
**Table 7-15. Radiated Spurious Data (NR Band n66 – High Channel)**

<b>FCC ID:</b> A3LSMM336B	 <b>PART 27 MEASUREMENT REPORT</b> 	<b>Approved by:</b> Technical Manager
<b>Test Report S/N:</b> 1M2112200163-04.A3L	<b>Test Dates:</b> 12/20/2021 - 1/28/2022	<b>EUT Type:</b> Portable Handset
		Page 112 of 120

## EN-DC: NR n66 – LTE Band 5



Plot 7-164. Radiated Spurious Plot (EN-DC: n66 + Band 5, 1 - 6.7GHz)





Plot 7-165. Radiated Spurious Plot (EN-DC: n66 + Band 5, 6.7 - 18GHz)

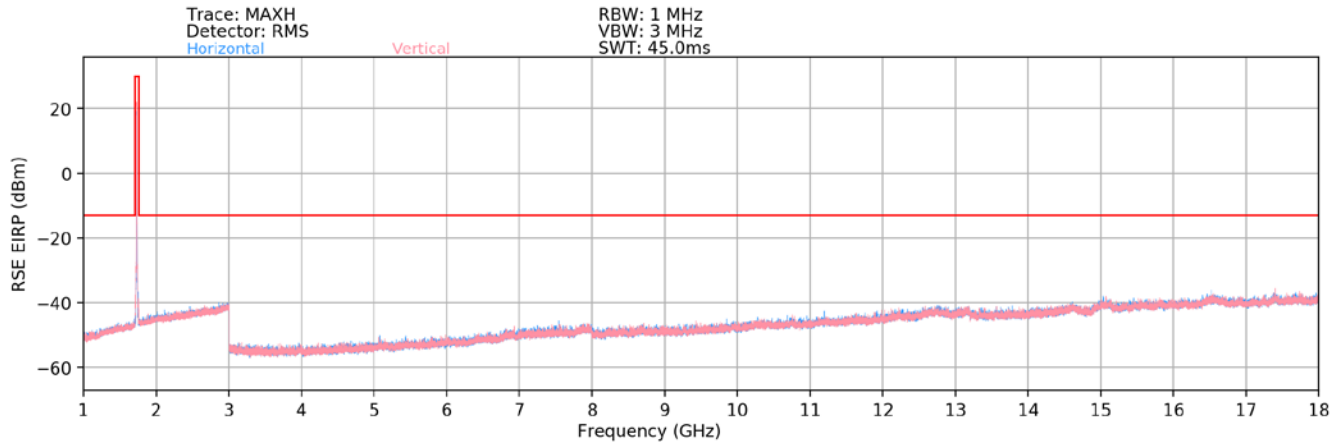
Bandwidth (MHz):	20 / 20
Frequency (MHz):	1745 / 836.5
RB / Offset:	1/53 / 1/50
Mode:	EN-DC
Anchor Band:	LTE Band 5

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1601.00	H	-	-	-77.28	8.76	38.48	-56.78	-13.00	-43.78
2465.00	H	-	-	-78.05	13.40	42.35	-52.91	-13.00	-39.91
2581.50	H	-	-	-78.12	13.87	42.75	-52.51	-13.00	-39.51
2653.50	H	-	-	-78.21	13.70	42.49	-52.76	-13.00	-39.76
3418.00	H	-	-	-78.79	15.54	43.75	-51.51	-13.00	-38.51
4254.50	H	-	-	-79.21	16.26	44.05	-51.21	-13.00	-38.21
4326.50	H	-	-	-79.58	16.68	44.10	-51.16	-13.00	-38.16

Table 7-16. Radiated Spurious Data (EN-DC: n66 + Band 5)

FCC ID: A3LSMM336B	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset	Page 113 of 120

# WCDMA AWS



**Plot 7-166. Radiated Spurious Plot (WCDMA AWS)**

Mode:	WCDMA RMC
Channel:	1312
Frequency (MHz):	1712.4

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3424.80	V	-	-	-78.33	5.70	34.37	-60.89	-13.00	-47.89
5137.20	V	-	-	-77.04	7.88	37.84	-57.42	-13.00	-44.42
6849.60	V	-	-	-80.03	11.95	38.92	-56.34	-13.00	-43.34

**7-17. Radiated Spurious Data (WCDMA AWS – Low Channel)**

Mode:	WCDMA RMC
Channel:	1413
Frequency (MHz):	1732.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3465.20	V	-	-	-77.69	5.58	34.89	-60.37	-13.00	-47.37
5197.80	V	-	-	-78.83	7.76	35.93	-59.33	-13.00	-46.33
6930.40	V	-	-	-79.89	11.63	38.74	-56.51	-13.00	-43.51

**Table 7-18. Radiated Spurious Data (WCDMA AWS – Mid Channel)**

Mode:	WCDMA RMC
Channel:	1513
Frequency (MHz):	1752.6

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3505.20	V	118	20	-74.24	5.66	38.42	-56.84	-13.00	-43.84
5257.80	V	-	-	-78.85	7.68	35.83	-59.43	-13.00	-46.43
7010.40	V	-	-	-79.36	11.50	39.14	-56.11	-13.00	-43.11
8763.00	V	-	-	-80.42	13.88	40.46	-54.80	-13.00	-41.80

**Table 7-19. Radiated Spurious Data (WCDMA AWS – High Channel)**

FCC ID: A3LSMM336B		<b>PART 27 MEASUREMENT REPORT</b>		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 114 of 120

## 7.8 Frequency Stability / Temperature Variation

### Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-E-2016. 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 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-E-2016

### 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

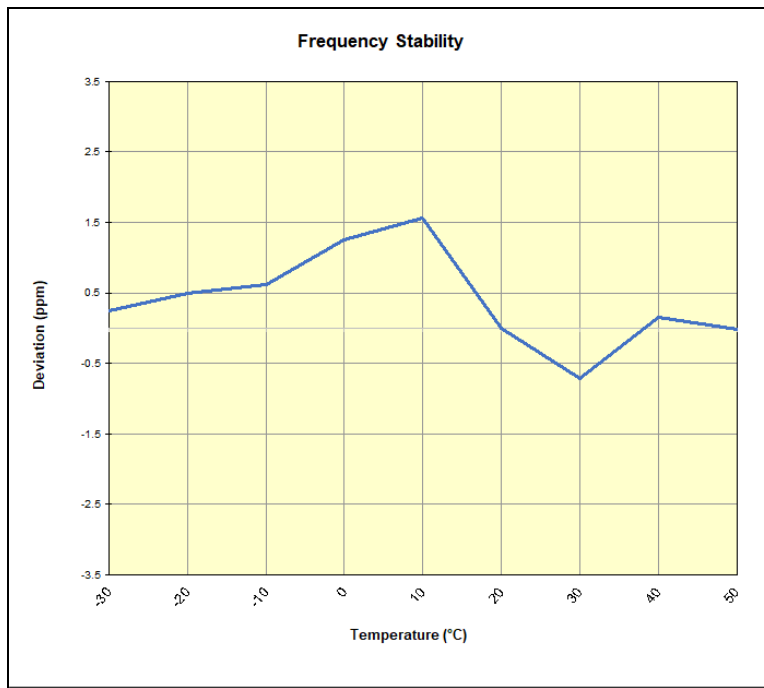
None

FCC ID: A3LSMM336B	 <b>PART 27 MEASUREMENT REPORT</b> 	Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset
Page 115 of 120		

## Frequency Stability / Temperature Variation

LTE Band 12/17					
Operating Frequency (Hz):		707,500,000			
Ref. Voltage (VDC):		4.38			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.38	- 30	707,679,883	179	0.0000254
		- 20	707,680,057	354	0.0000500
		- 10	707,680,144	441	0.0000623
		0	707,680,592	889	0.0001256
		+ 10	707,680,811	1,108	0.0001565
		+ 20 (Ref)	707,679,703	0	0.0000000
		+ 30	707,679,203	-501	-0.0000707
		+ 40	707,679,813	110	0.0000155
		+ 50	707,679,693	-10	-0.0000014
Battery Endpoint	3.44	+ 20	707,679,248	-455	-0.0000643

**Table 7-20. LTE Band 12/17 Frequency Stability Data**



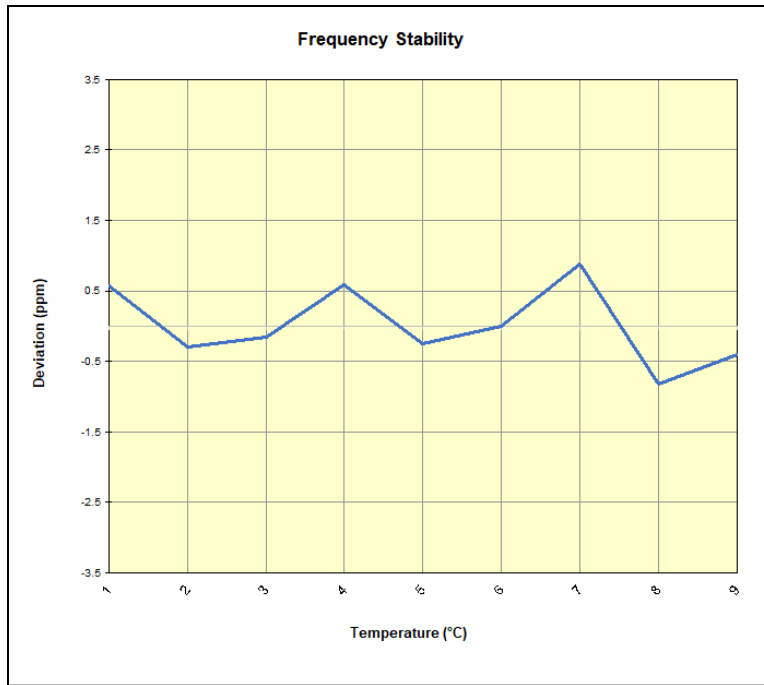
**Plot 7-167. LTE Band 12/17 Frequency Stability Chart**

FCC ID: A3LSMM336B	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 116 of 120

## Frequency Stability / Temperature Variation

LTE Band 66/4					
Operating Frequency (Hz):		1,745,000,000			
Ref. Voltage (VDC):		4.38			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.38	- 30	1,745,181,605	1,009	0.0000578
		- 20	1,745,180,084	-512	-0.0000293
		- 10	1,745,180,325	-271	-0.0000155
		0	1,745,181,620	1,023	0.0000586
		+ 10	1,745,180,176	-421	-0.0000241
		+ 20 (Ref)	1,745,180,596	0	0.0000000
		+ 30	1,745,182,144	1,548	0.0000887
		+ 40	1,745,179,153	-1,443	-0.0000827
Battery Endpoint	3.44	+ 20	1,745,181,723	1,127	0.0000646

**Table 7-21. LTE Band 66/4 Frequency Stability Data**



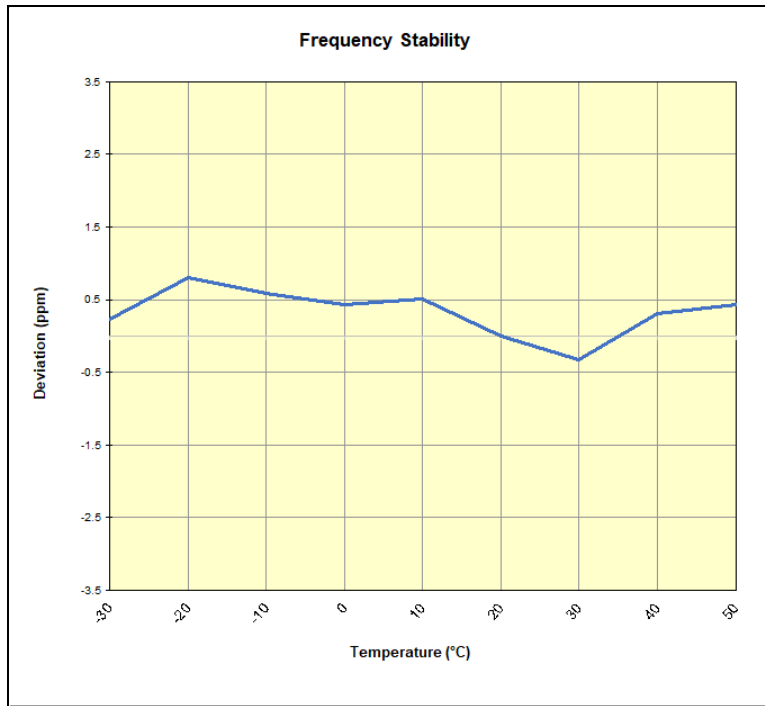
**Plot 7-168. LTE Band 66/4 Frequency Stability Chart**

FCC ID: A3LSMM336B	<b>PCTEST</b> Proud to be part of element	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 117 of 120



## Frequency Stability / Temperature Variation

NR Band n66					
Operating Frequency (Hz):		1,745,000,000			
Ref. Voltage (VDC):		4.38			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.38	- 30	1,745,080,320	396	0.0000227
		- 20	1,745,081,325	1,401	0.0000803
		- 10	1,745,080,948	1,025	0.0000587
		0	1,745,080,687	764	0.0000438
		+ 10	1,745,080,820	896	0.0000514
		+ 20 (Ref)	1,745,079,924	0	0.0000000
		+ 30	1,745,079,361	-562	-0.0000322
		+ 40	1,745,080,469	545	0.0000312
		+ 50	1,745,080,674	750	0.0000430
Battery Endpoint	3.44	+ 20	1,745,080,071	147	0.0000085

Table 7-22. NR Band n66 Frequency Stability Data



Plot 7-169. NR Band n66 Frequency Stability Chart

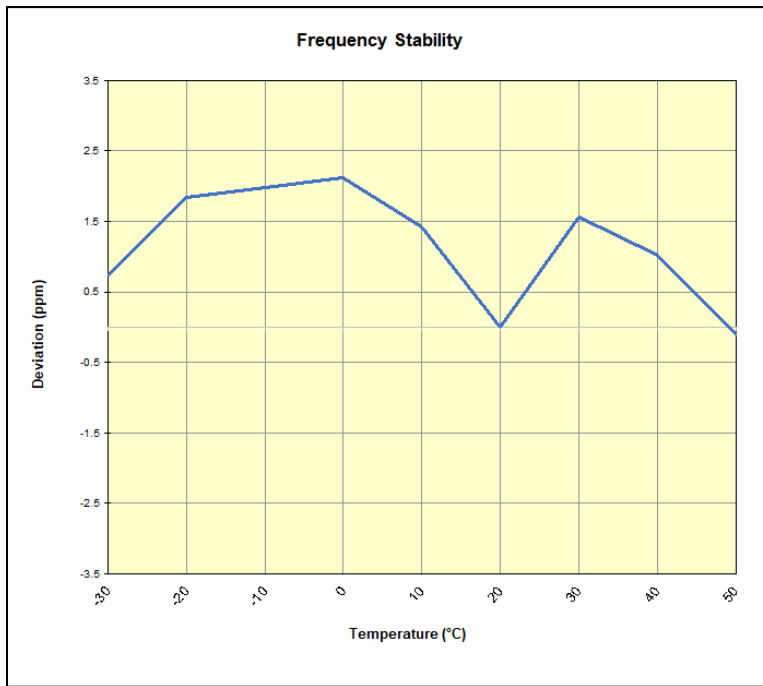
FCC ID: A3LSMM336B	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset	Page 118 of 120



## Frequency Stability / Temperature Variation

WCDMA AWS					
Operating Frequency (Hz):		1,732,600,000			
Ref. Voltage (VDC):		4.38			
Deviation Limit:		± 0.00025% or 2.5 ppm			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.38	- 30	1,732,572,334	1,296	0.0000748
		- 20	1,732,574,230	3,192	0.0001843
		- 10	1,732,574,471	3,433	0.0001981
		0	1,732,574,720	3,682	0.0002125
		+ 10	1,732,573,500	2,462	0.0001421
		+ 20 (Ref)	1,732,571,038	0	0.0000000
		+ 30	1,732,573,737	2,699	0.0001558
		+ 40	1,732,572,795	1,757	0.0001014
		+ 50	1,732,570,844	-194	-0.0000112
Battery Endpoint	3.44	+ 20	1,732,574,703	3,665	0.0002115

**Table 7-23. WCDMA AWS Frequency Stability Data**





**Plot 7-170. WCDMA AWS Frequency Stability Chart**

FCC ID: A3LSMM336B	<b>PCTEST</b> Proud to be part of Samsung	<b>PART 27 MEASUREMENT REPORT</b>	<b>SAMSUNG</b>	Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 119 of 120

## 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMM336B** complies with all the requirements of Part 27 of the FCC rules.

FCC ID: A3LSMM336B		PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2112200163-04.A3L	Test Dates: 12/20/2021 - 1/28/2022	EUT Type: Portable Handset		Page 120 of 120