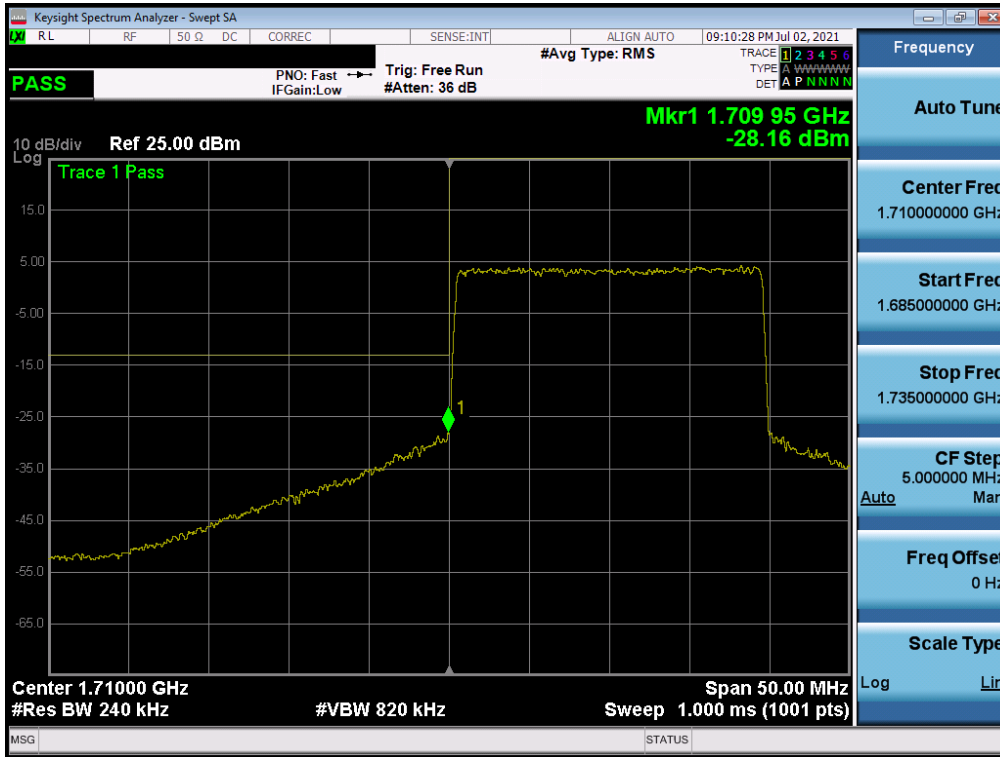
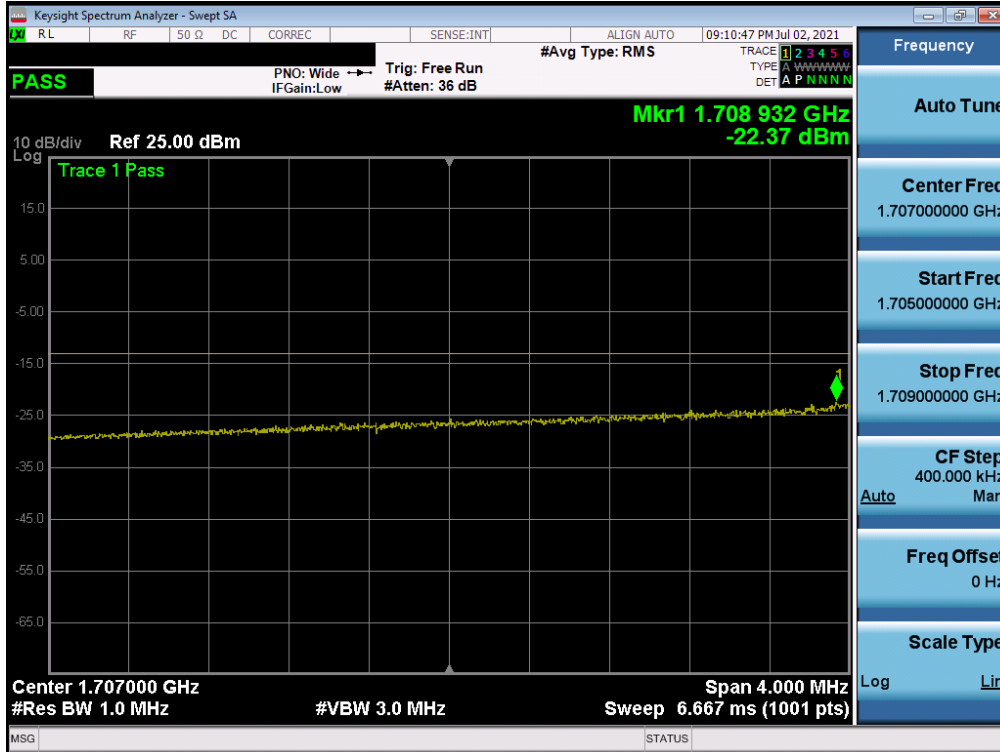


NR Band n66



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

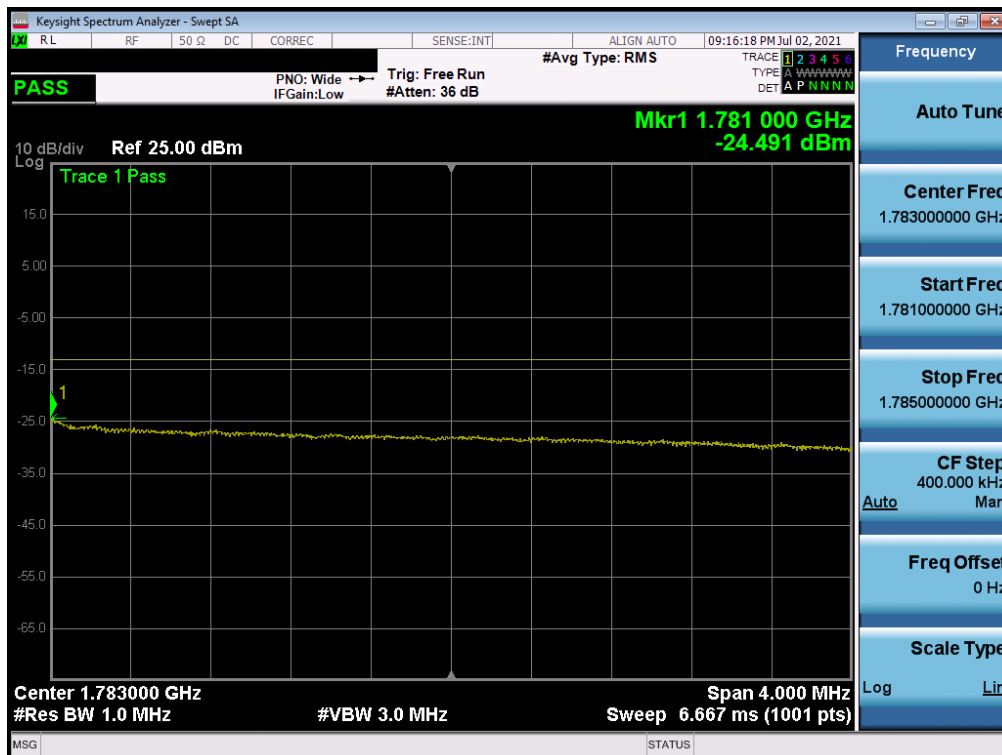


Plot 7-117. Lower Extended Band Edge Plot (NR Band n66 – 20.0MHz - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 77 of 122

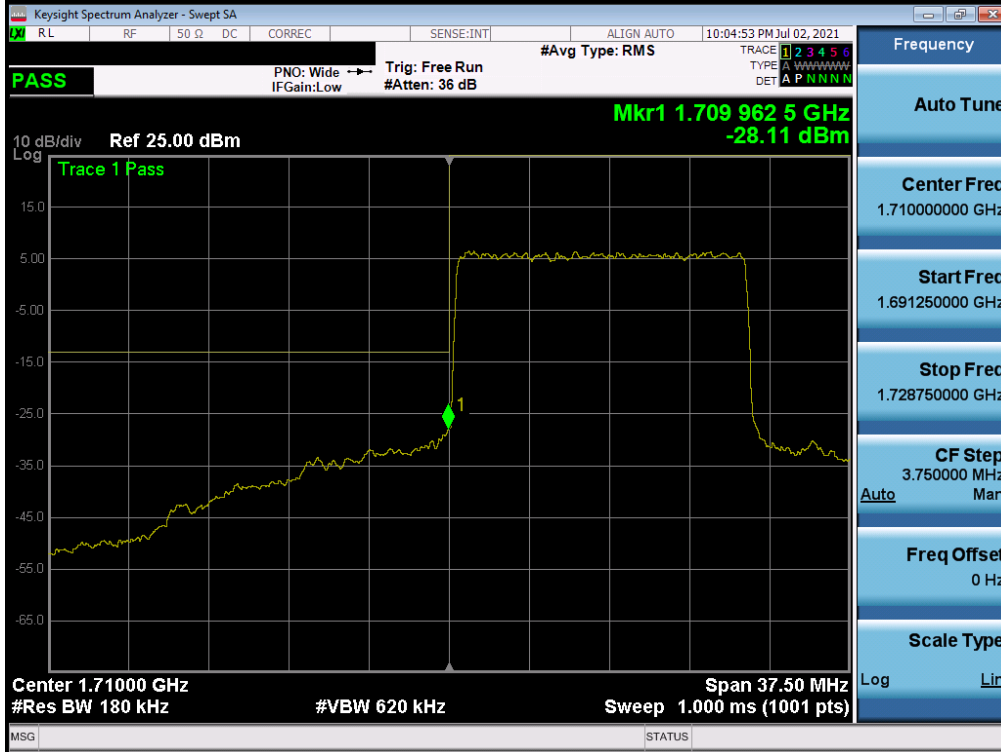


Plot 7-118. Upper Band Edge Plot (NR Band n66 – 20.0MHz - Full RB)

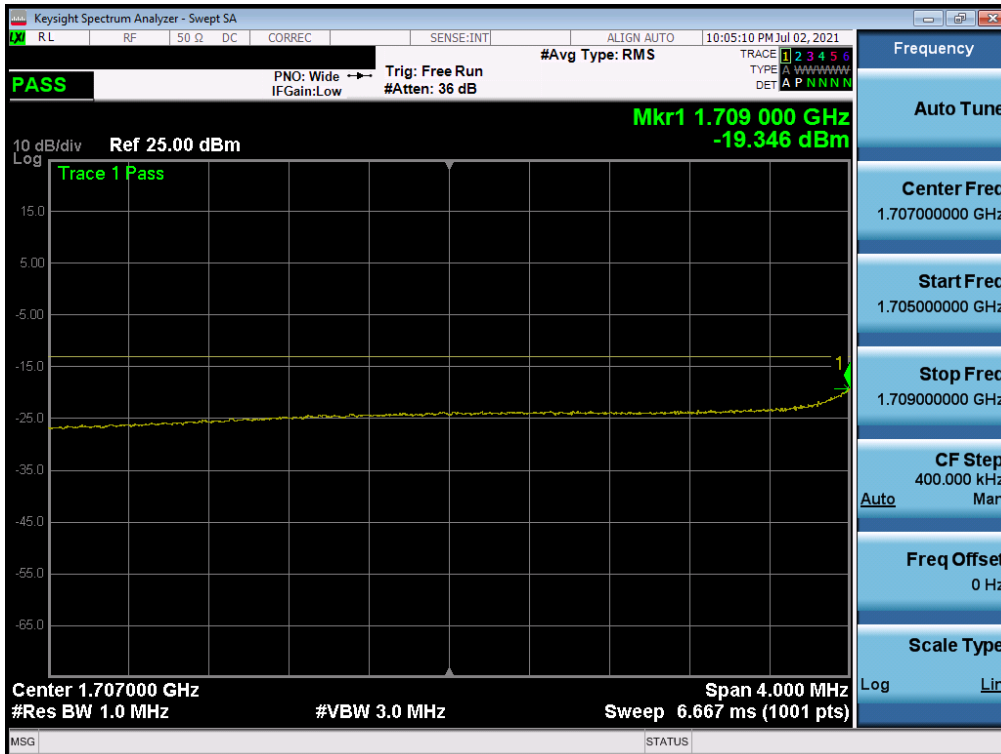


Plot 7-119. Upper Extended Band Edge Plot (NR Band n66 – 20.0MHz - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 78 of 122



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: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 79 of 122

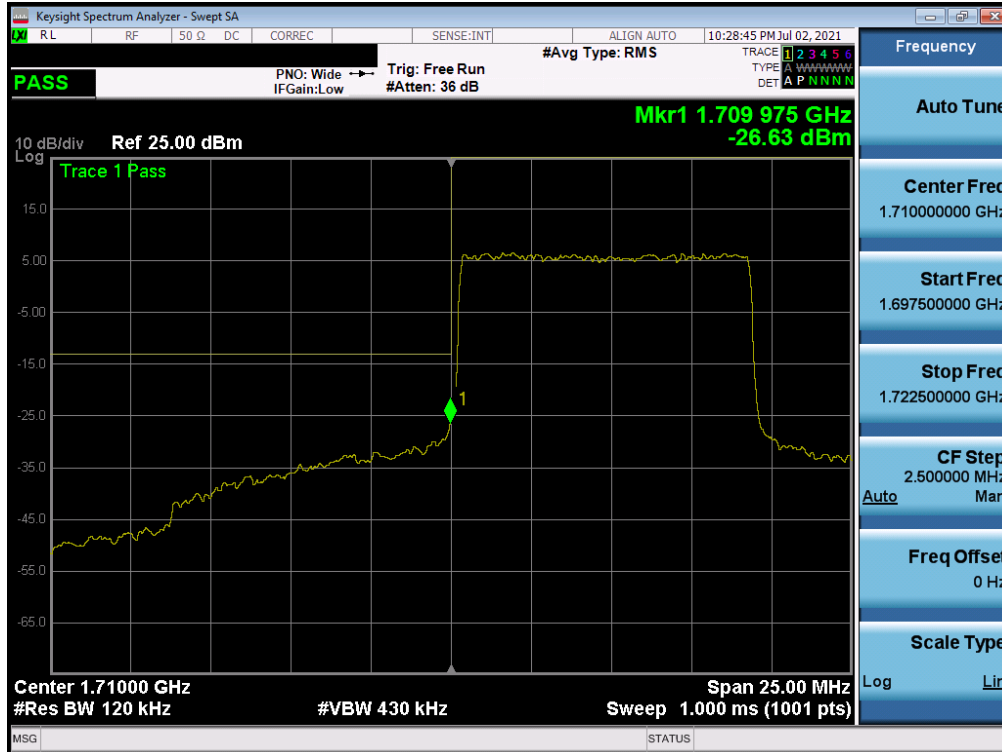


Plot 7-122. Upper Band Edge Plot (NR Band n66 – 15.0MHz - Full RB)

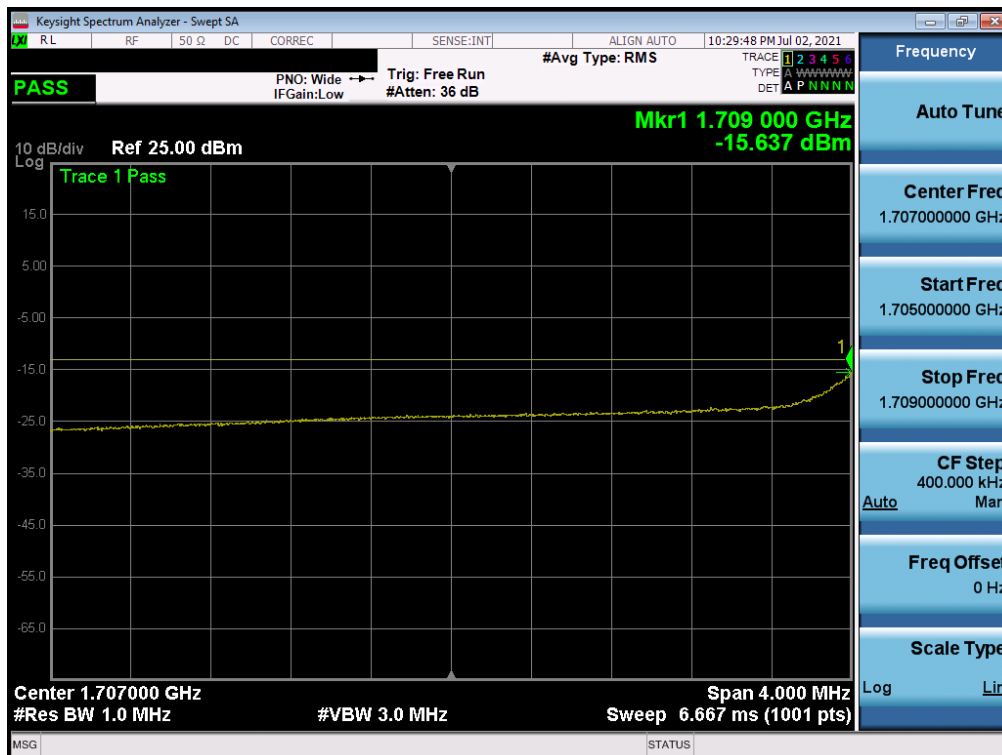


Plot 7-123. Upper Extended Band Edge Plot (NR Band n66 – 15.0MHz - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 80 of 122



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: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 81 of 122

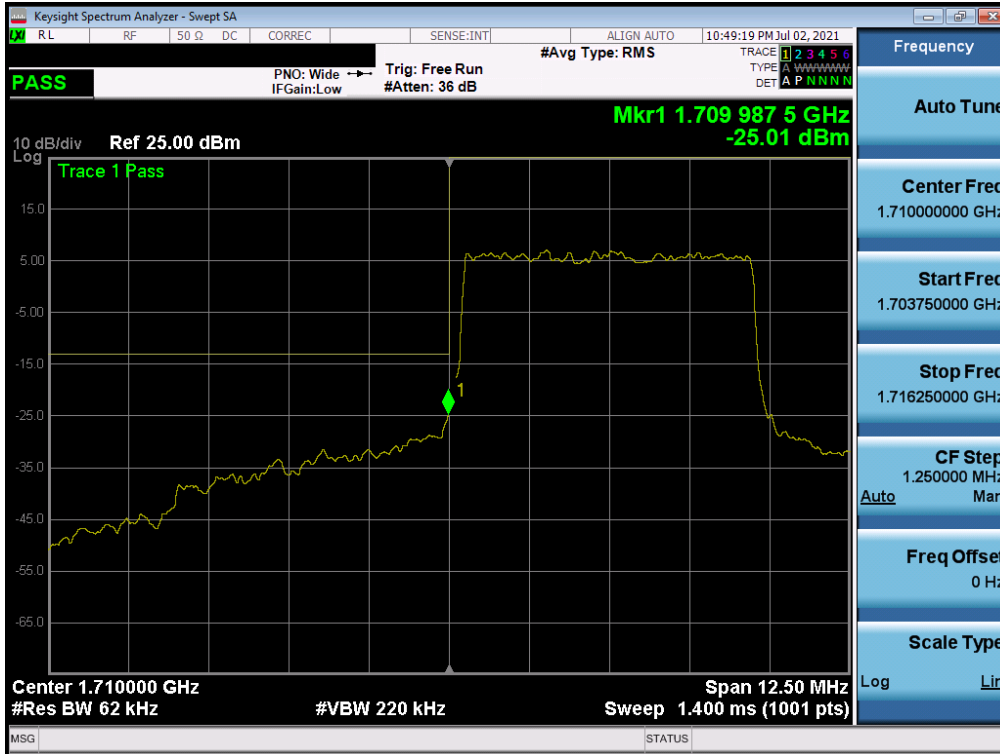


Plot 7-126. Upper Band Edge Plot (NR Band n66 – 10.0MHz - Full RB)

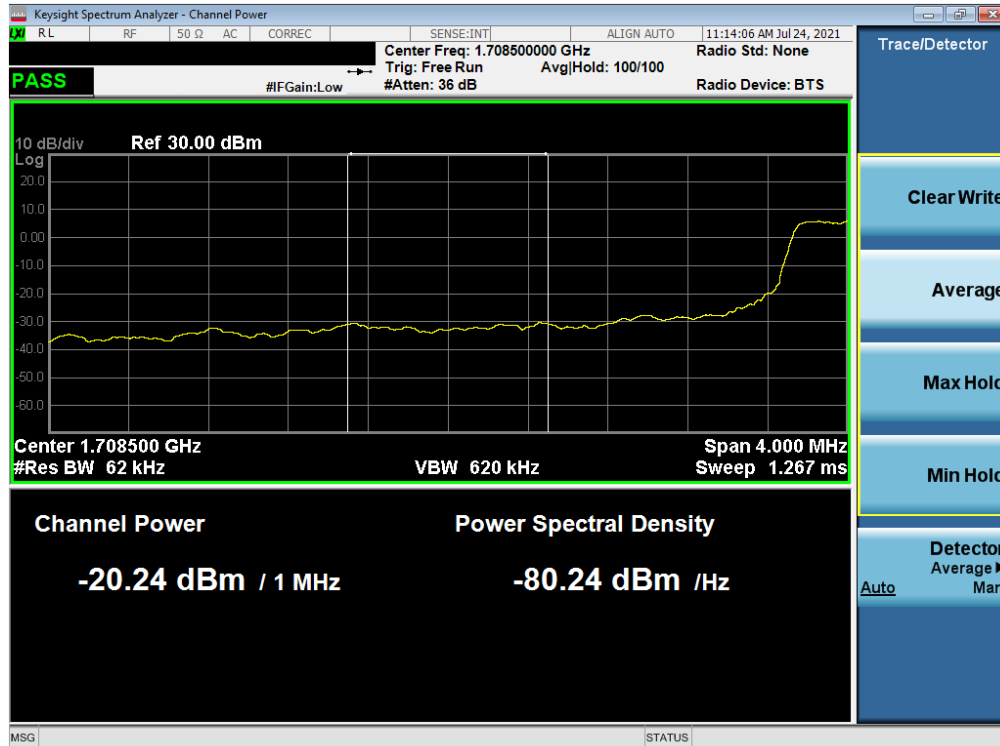


Plot 7-127. Upper Extended Band Edge Plot (NR Band n66 – 10.0MHz - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 82 of 122



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

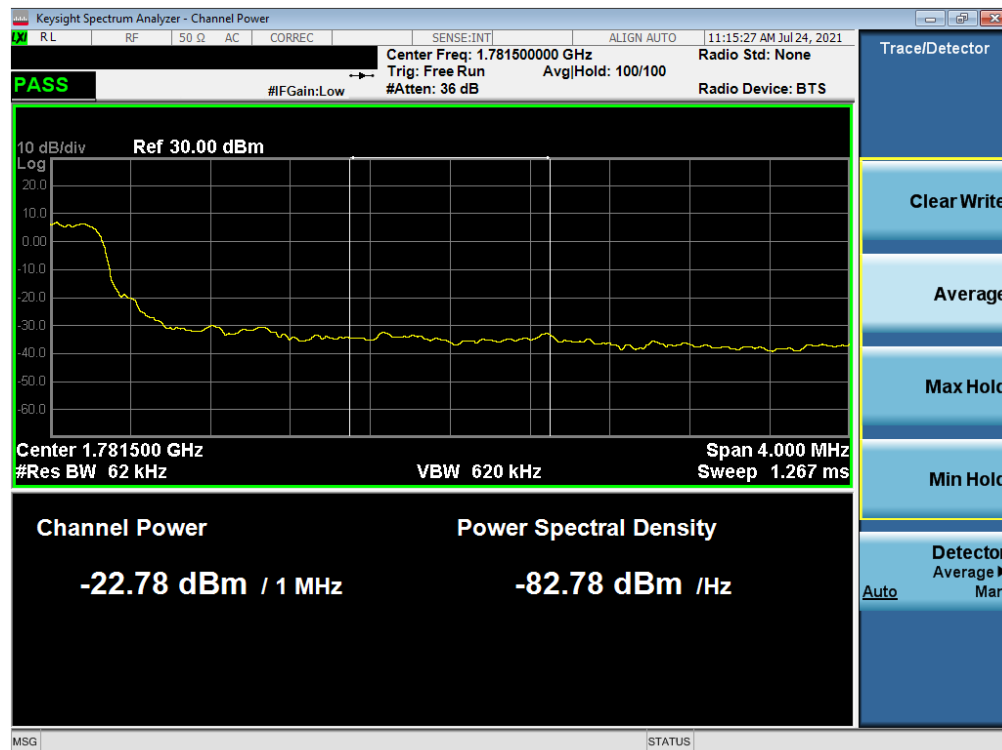


Plot 7-129. Lower Extended Band Edge Plot (NR Band n66 – 5.0MHz - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 83 of 122



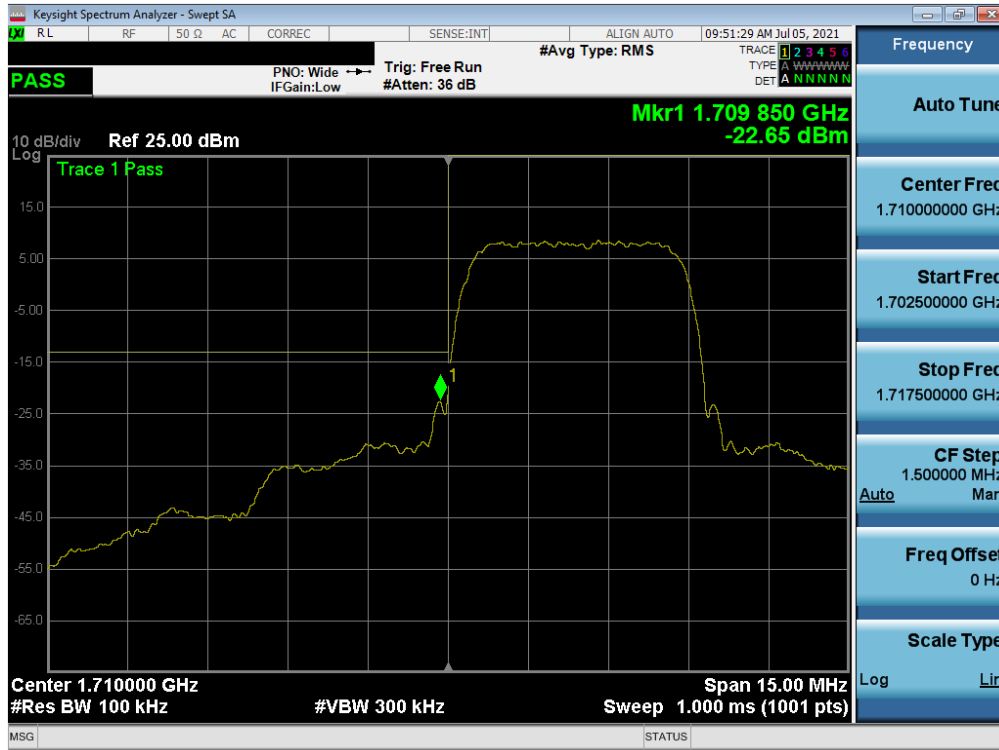
Plot 7-130. Upper Band Edge Plot (NR Band n66 – 5.0MHz - Full RB)



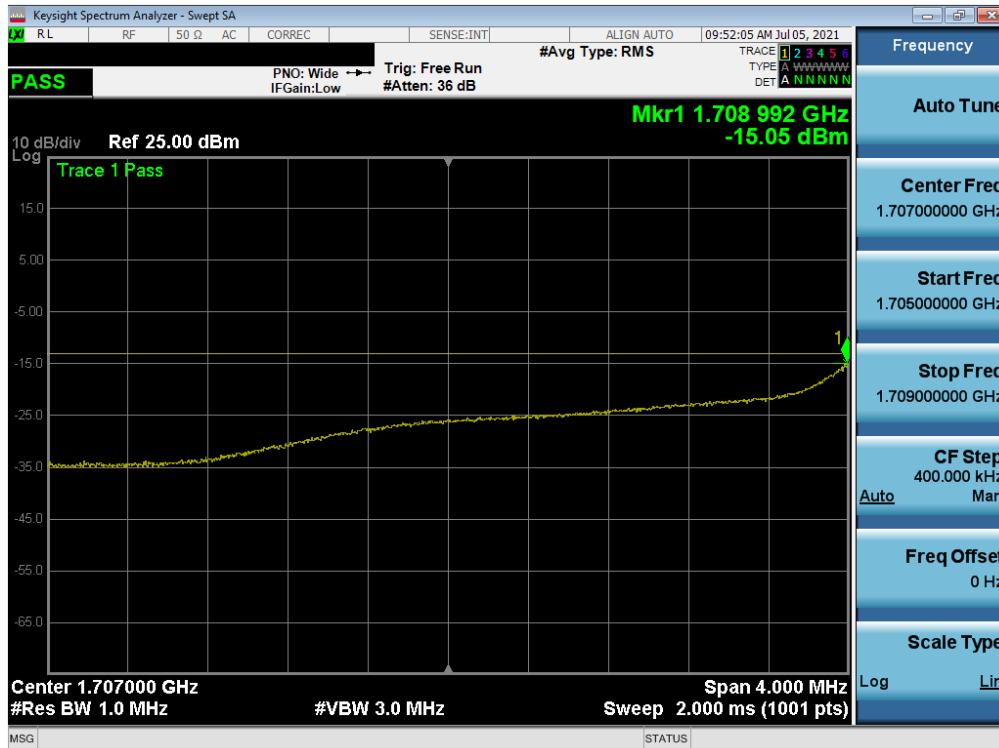
Plot 7-131. Upper Extended Band Edge Plot (NR Band n66 – 5.0MHz - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 84 of 122

WCDMA AWS



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

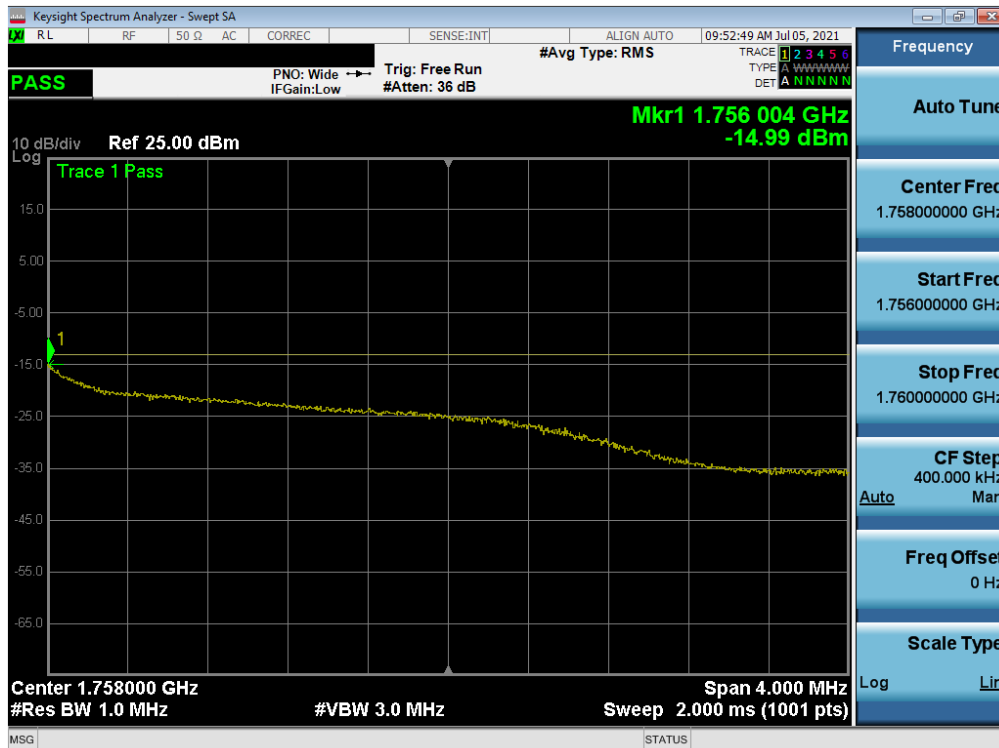


Plot 7-133. Lower Extended Band Edge Plot (WCDMA AWS – Ch. 1312)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 85 of 122



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: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 86 of 122

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.

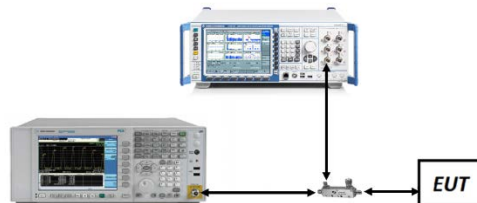




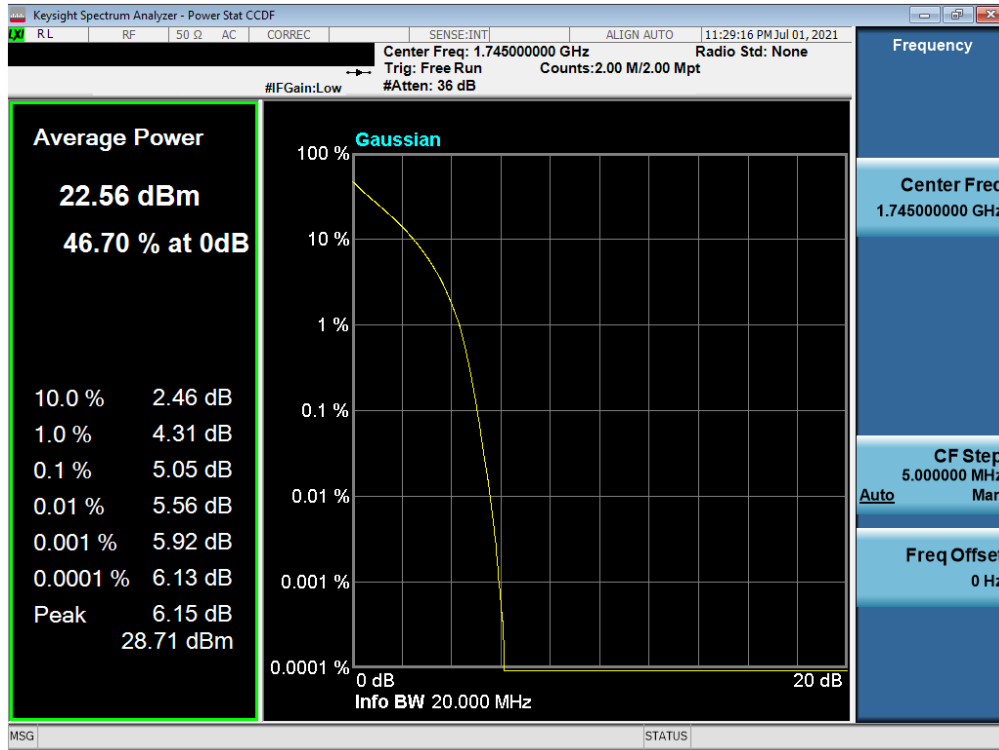
Figure 7-4. Test Instrument & Measurement Setup

Test Notes

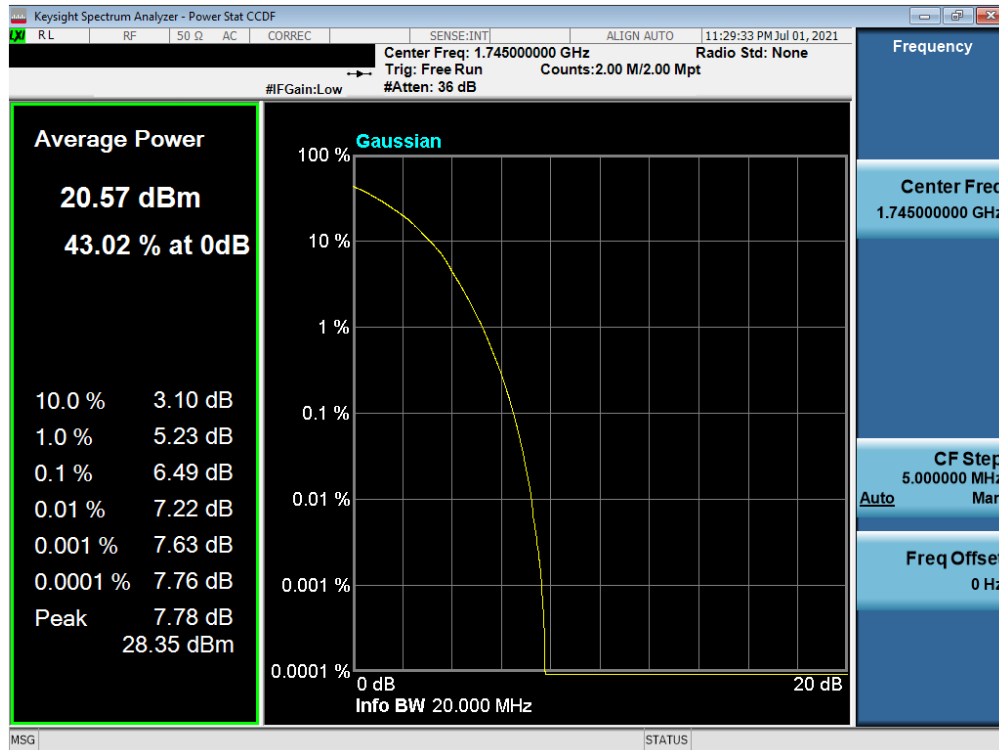
None.

FCC ID: A3LSMA528B	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 87 of 122

LTE Band 66/4

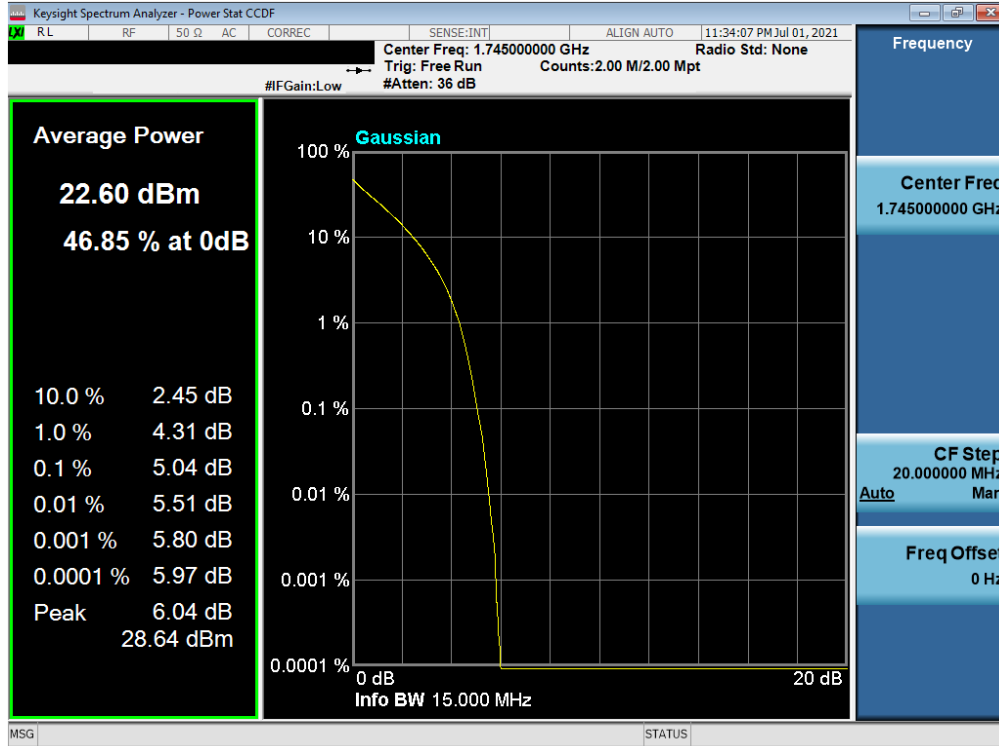


Plot 7-136. PAR Plot (LTE Band 66/4 - 20MHz QPSK - Full RB)

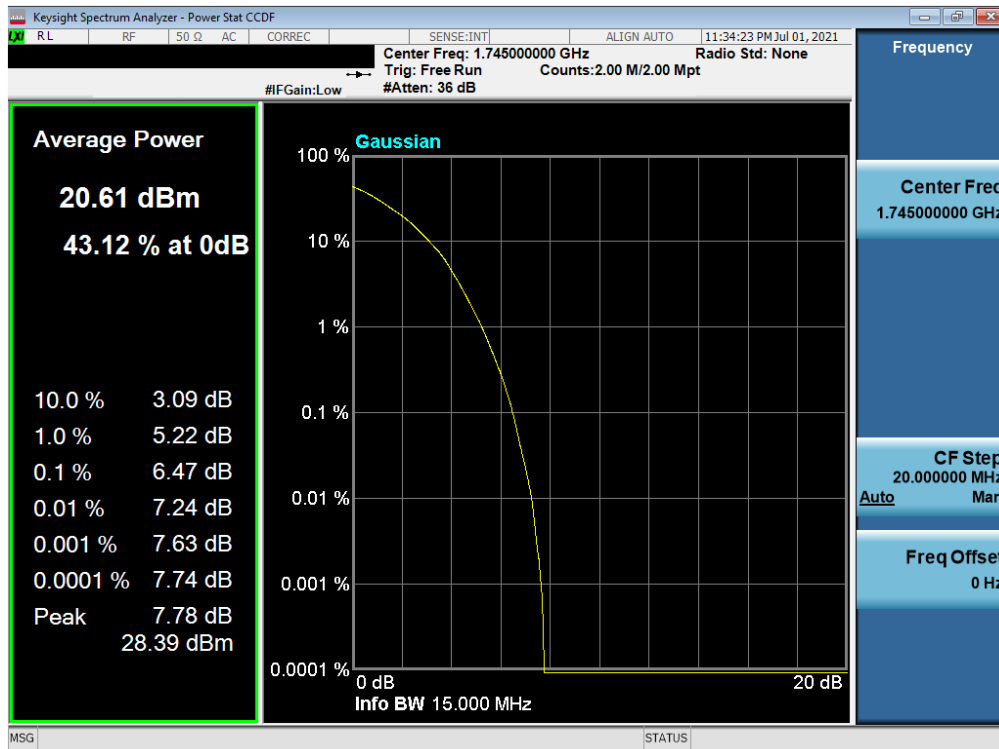


Plot 7-137. PAR Plot (LTE Band 66/4 - 20MHz 64-QAM - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 88 of 122

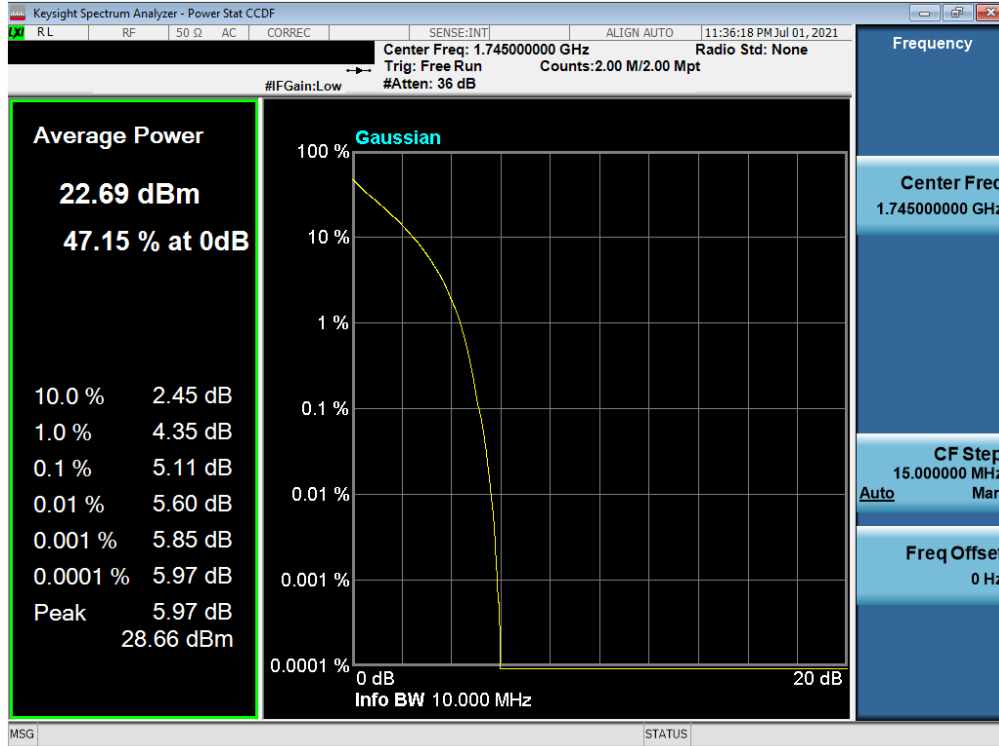


Plot 7-138. PAR Plot (LTE Band 66/4 - 15MHz QPSK - Full RB)

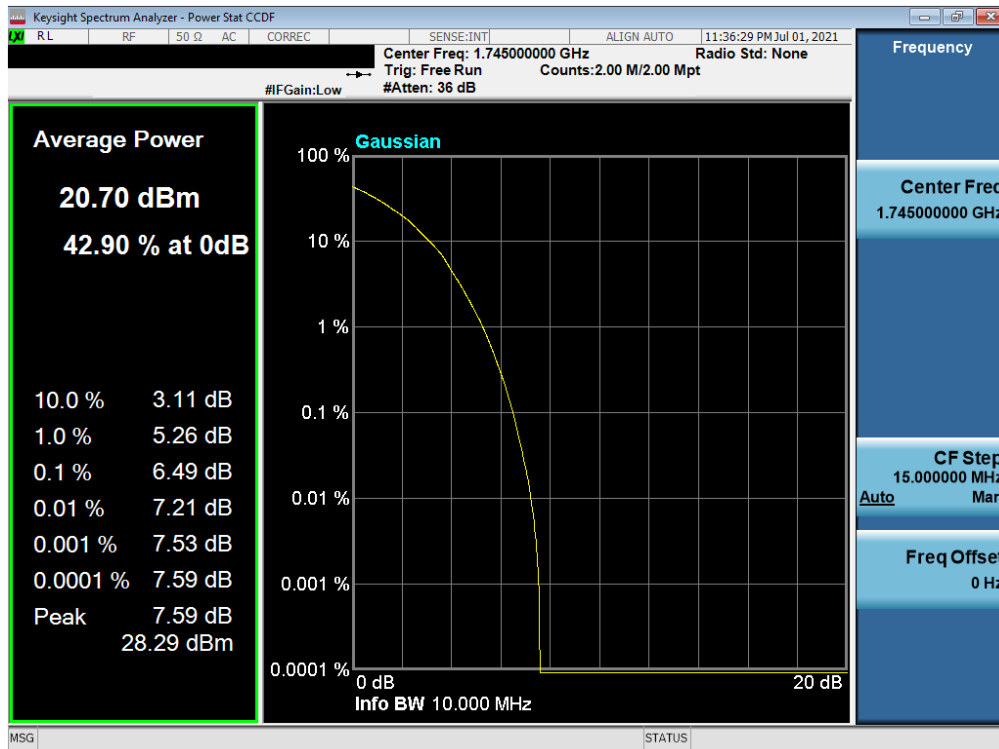


Plot 7-139. PAR Plot (LTE Band 66/4 - 15MHz 64-QAM - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 89 of 122

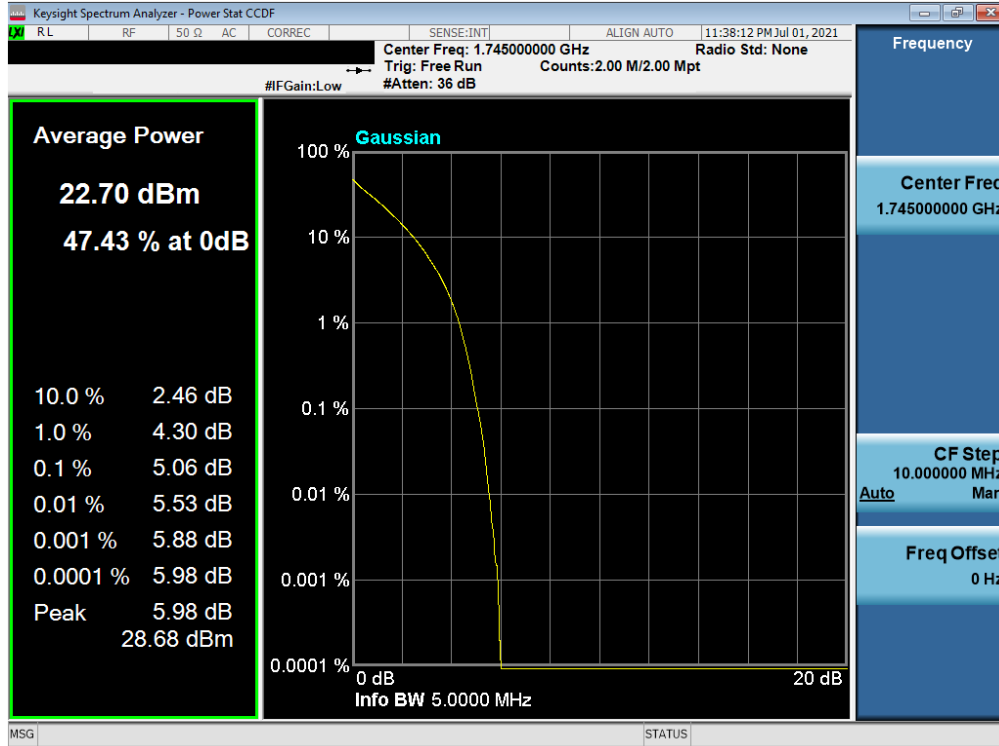


Plot 7-140. PAR Plot (LTE Band 66/4 - 10MHz QPSK - Full RB)

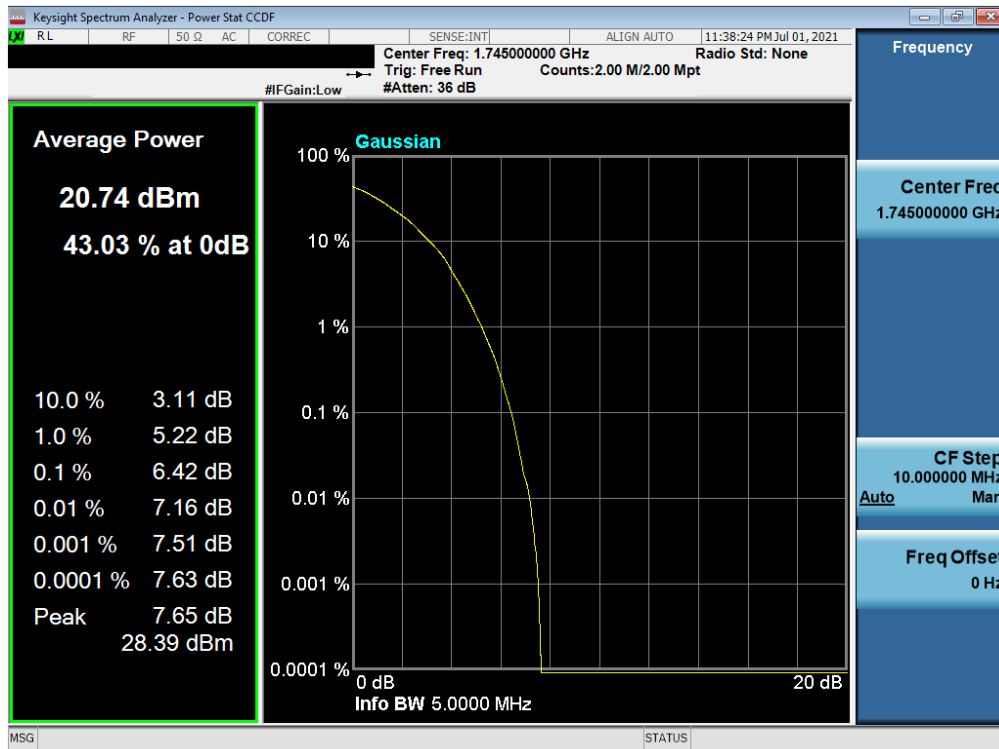


Plot 7-141. PAR Plot (LTE Band 66/4 - 10MHz 64-QAM - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 90 of 122

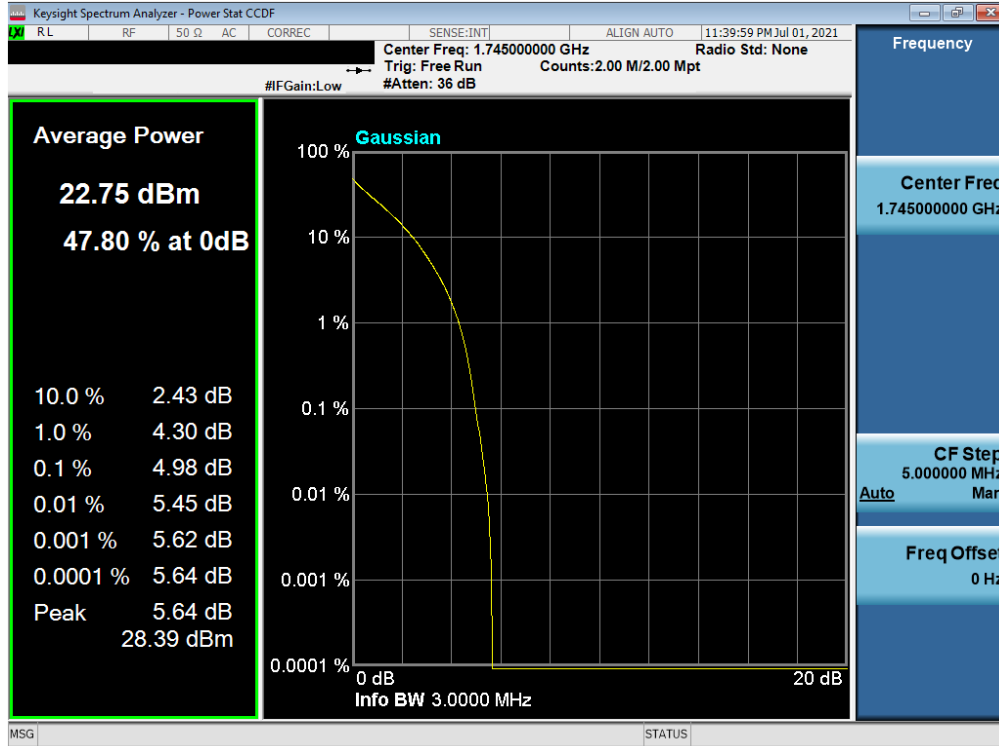


Plot 7-142. PAR Plot (LTE Band 66/4 - 5MHz QPSK - Full RB)

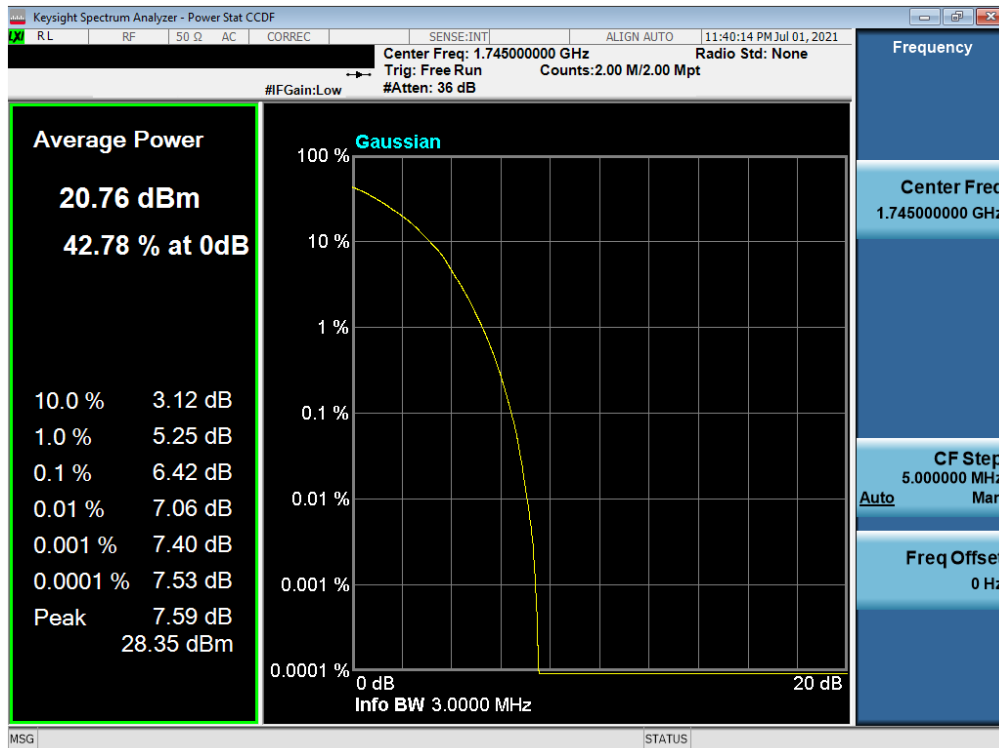


Plot 7-143. PAR Plot (LTE Band 66/4 - 5MHz 64-QAM - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 91 of 122

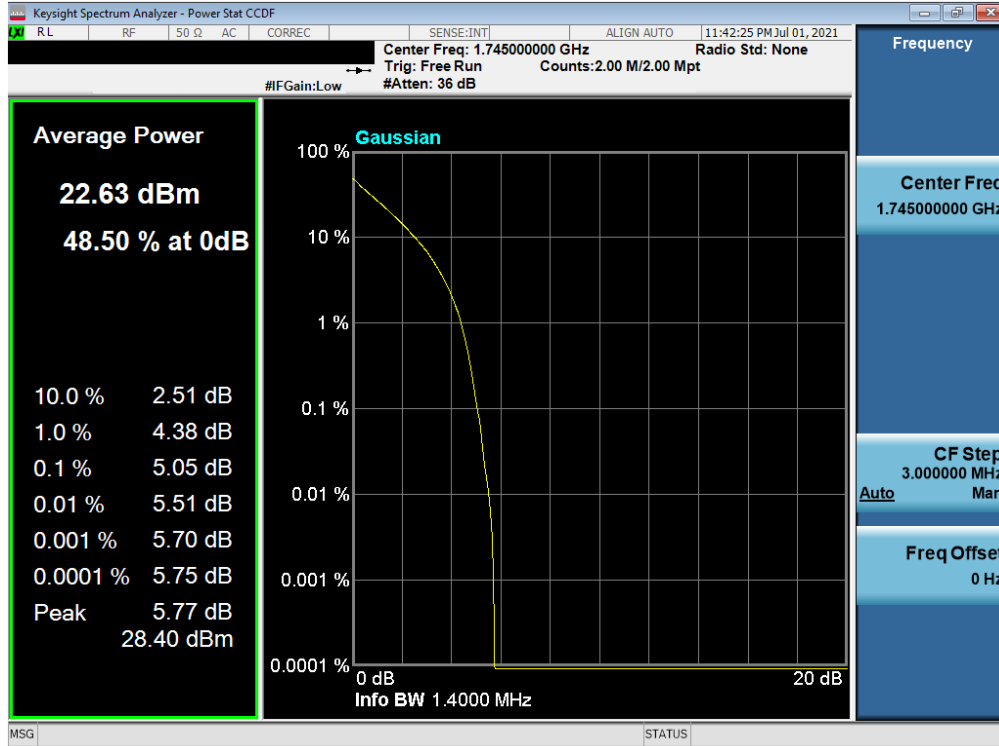


Plot 7-144. PAR Plot (LTE Band 66/4 - 3MHz QPSK - Full RB)

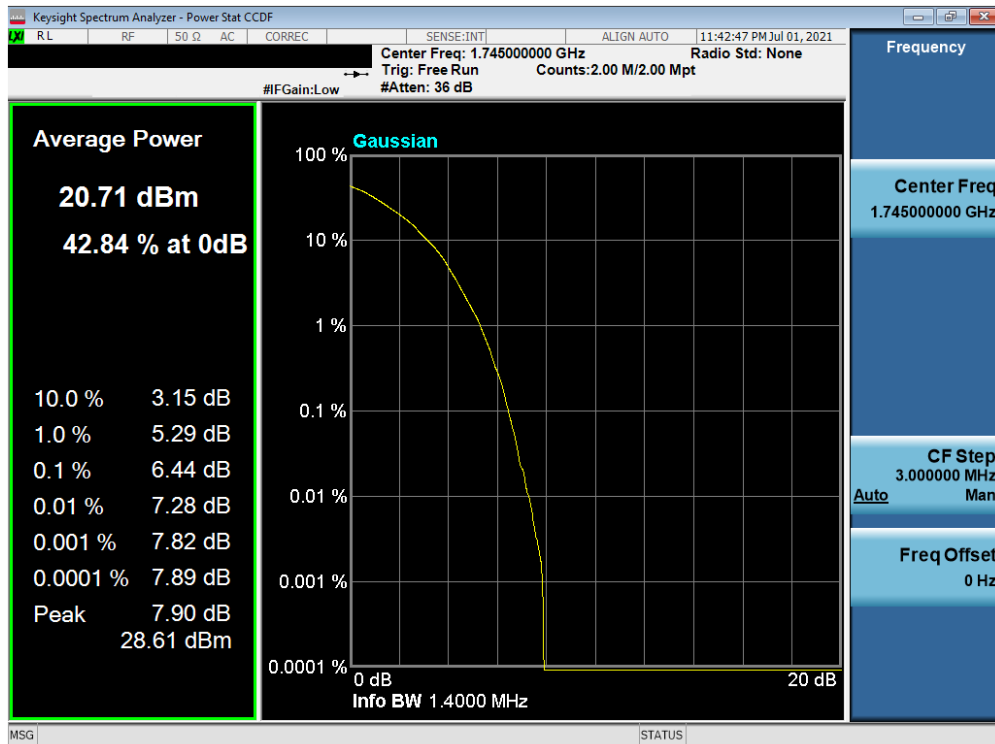


Plot 7-145. PAR Plot (LTE Band 66/4 - 3MHz 64-QAM - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 92 of 122



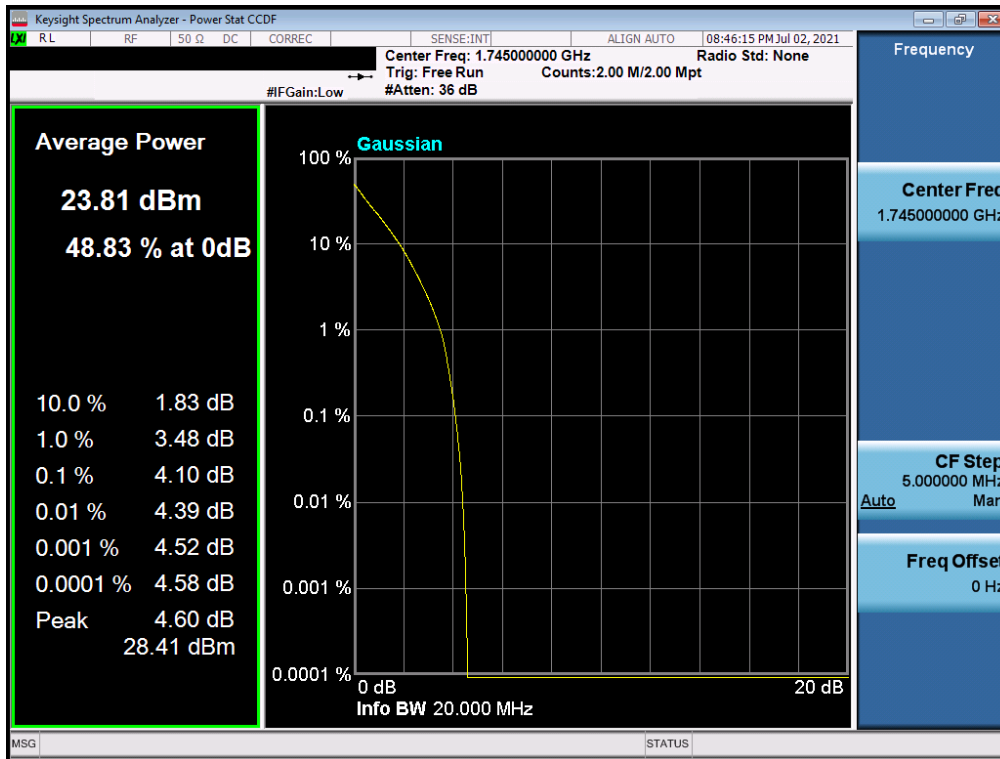
Plot 7-146. PAR Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB)



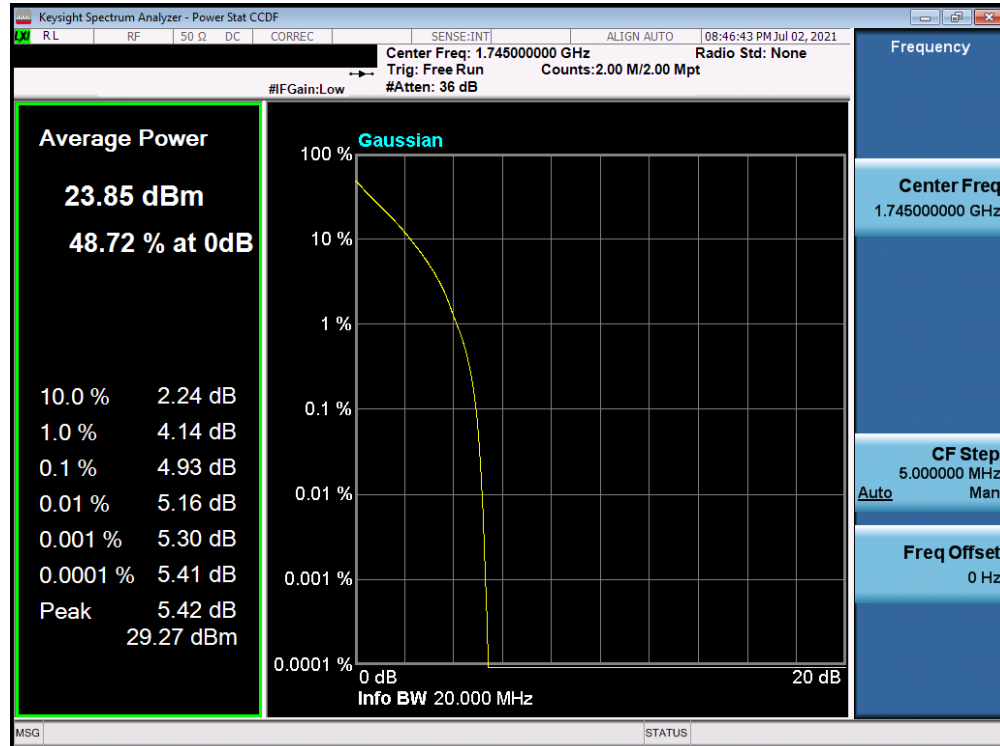
Plot 7-147. PAR Plot (LTE Band 66/4 - 1.4MHz 64-QAM - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 93 of 122

NR Band n66

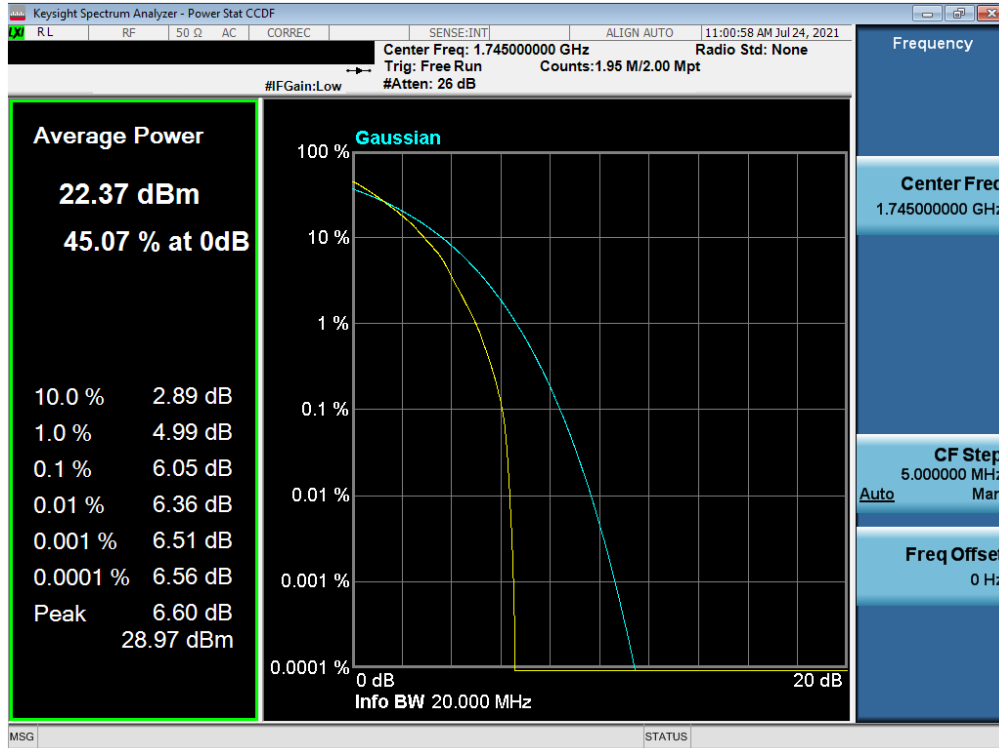


Plot 7-148. PAR Plot (NR Band n66 - 20.0MHz DFT-s-OFDM BPSK - Full RB)

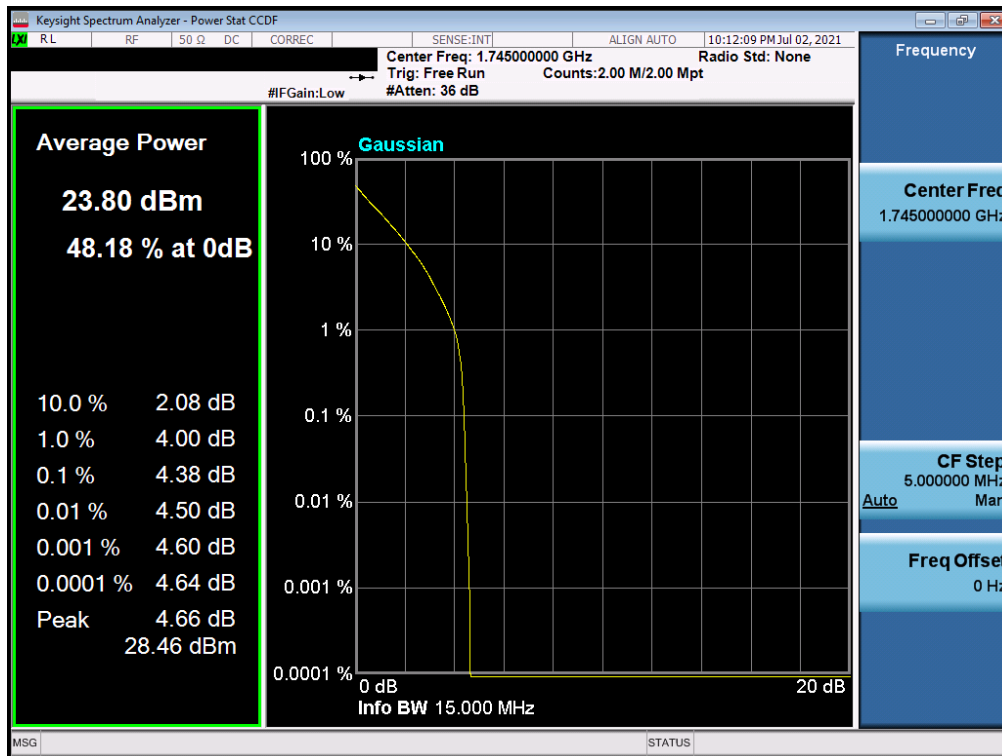


Plot 7-149. PAR Plot (NR Band n66 - 20.0MHz CP-OFDM QPSK - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 94 of 122

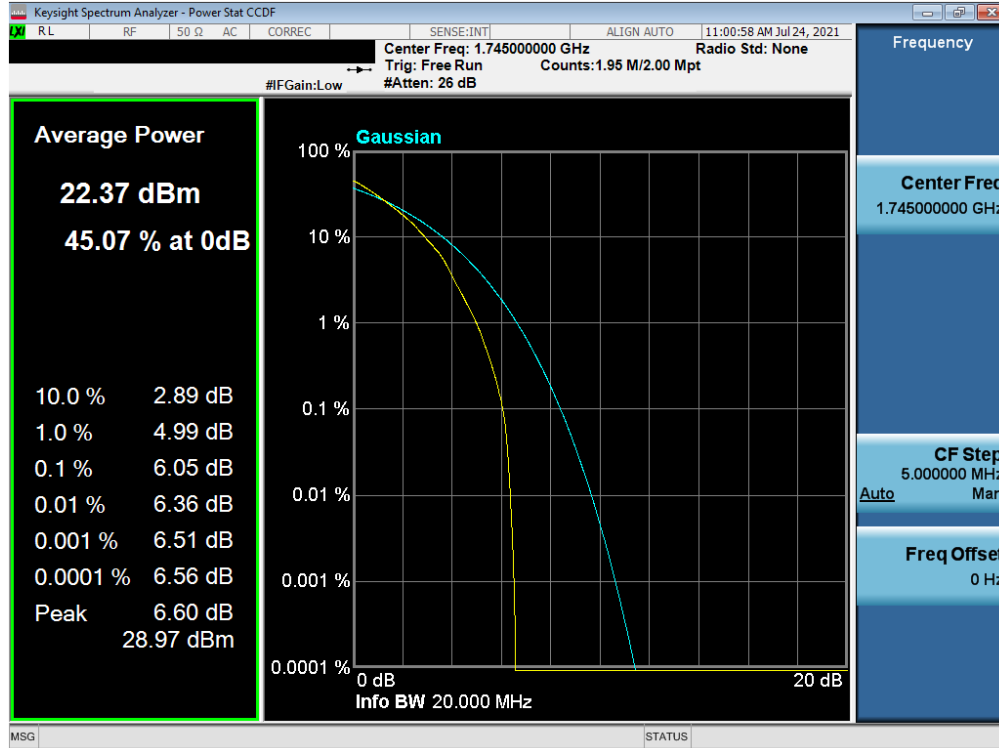


Plot 7-150. PAR Plot (NR Band n66 - 20.0MHz CP-OFDM 64-QAM - Full RB)

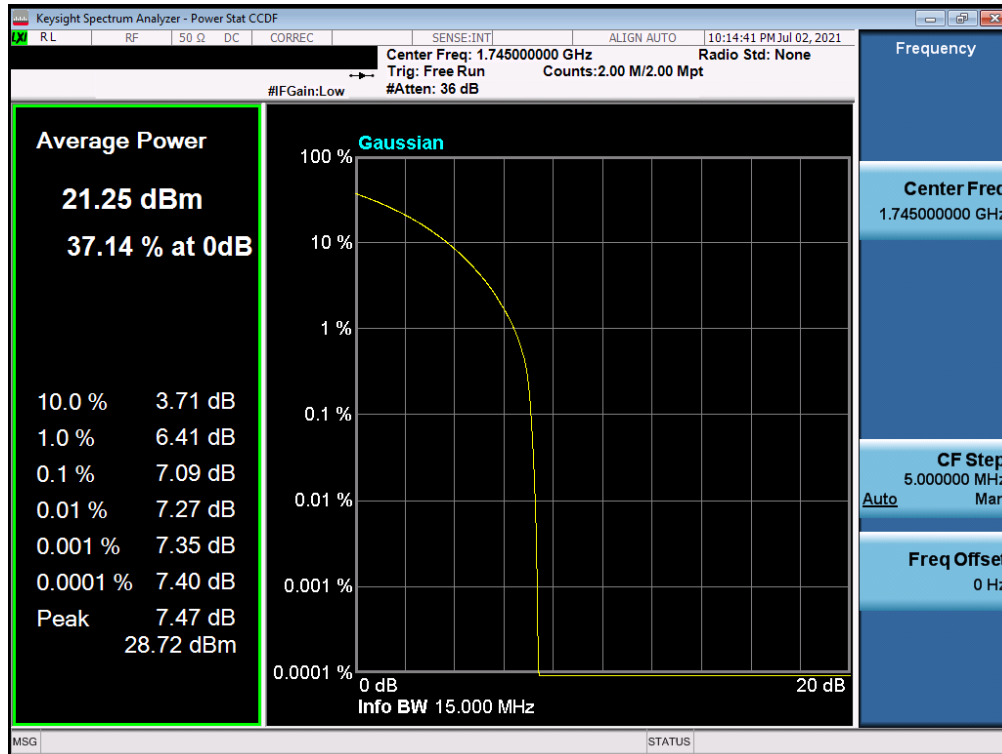


Plot 7-151. PAR Plot (NR Band n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 95 of 122

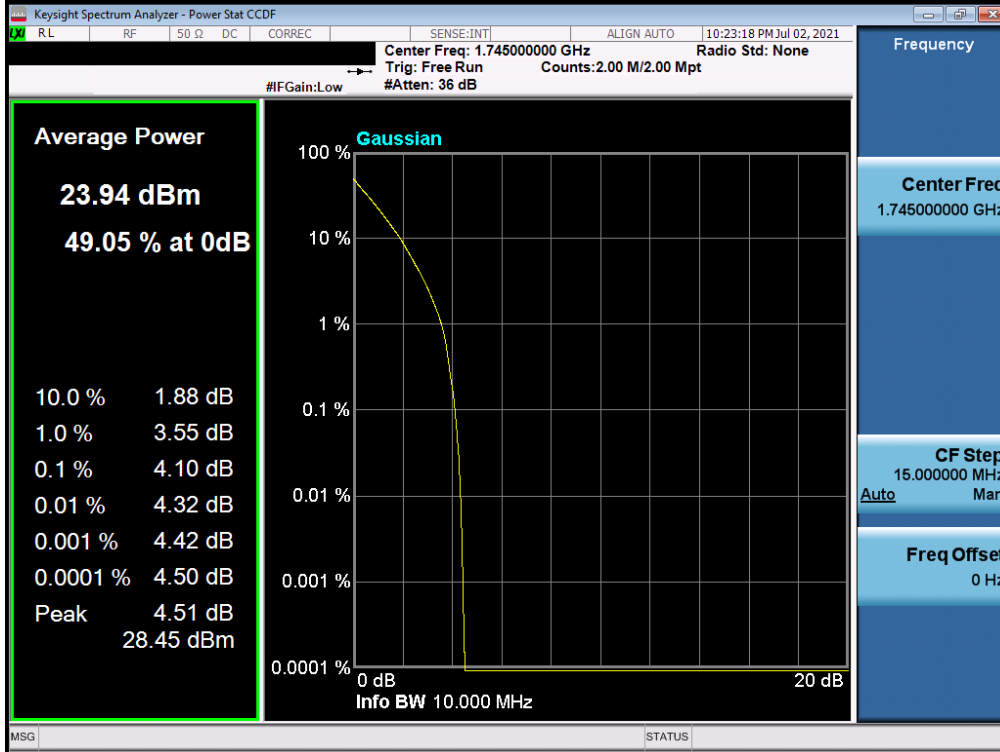


Plot 7-152. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB)

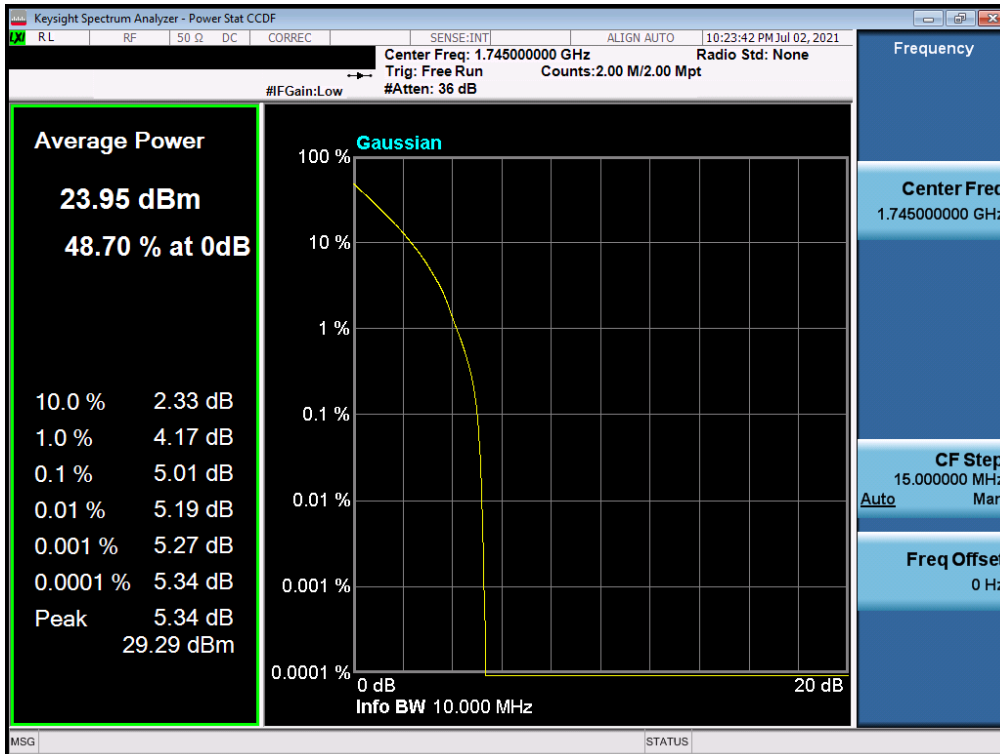


Plot 7-153. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM 64-QAM - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 96 of 122

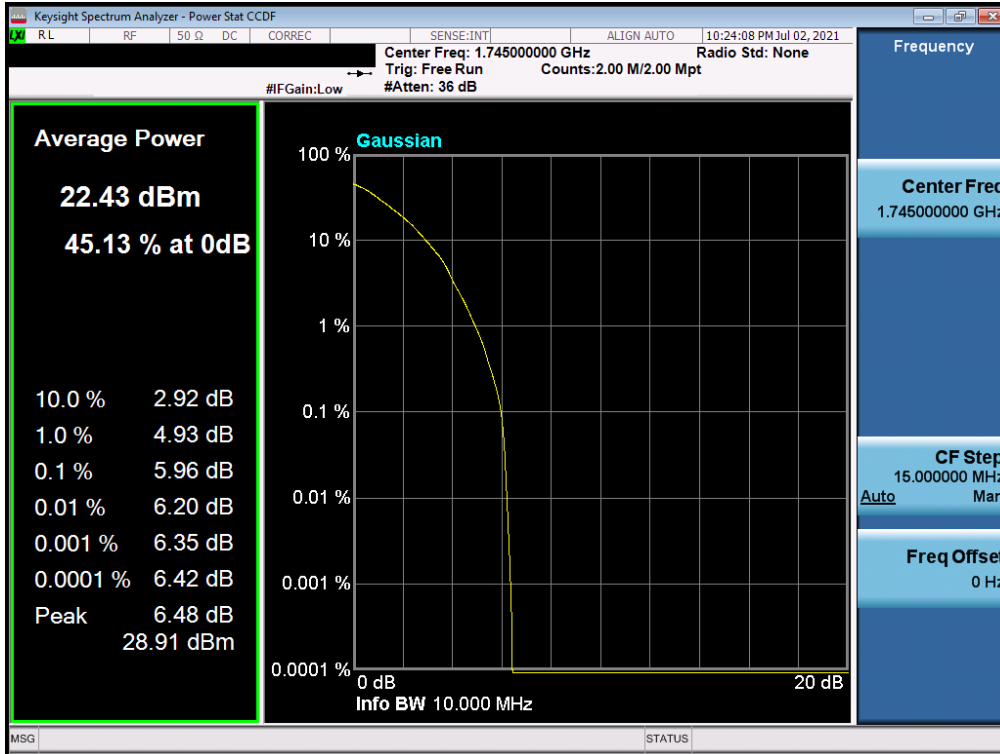


Plot 7-154. PAR Plot (NR Band n66 - 10.0MHz DFT-s-OFDM BPSK - Full RB)

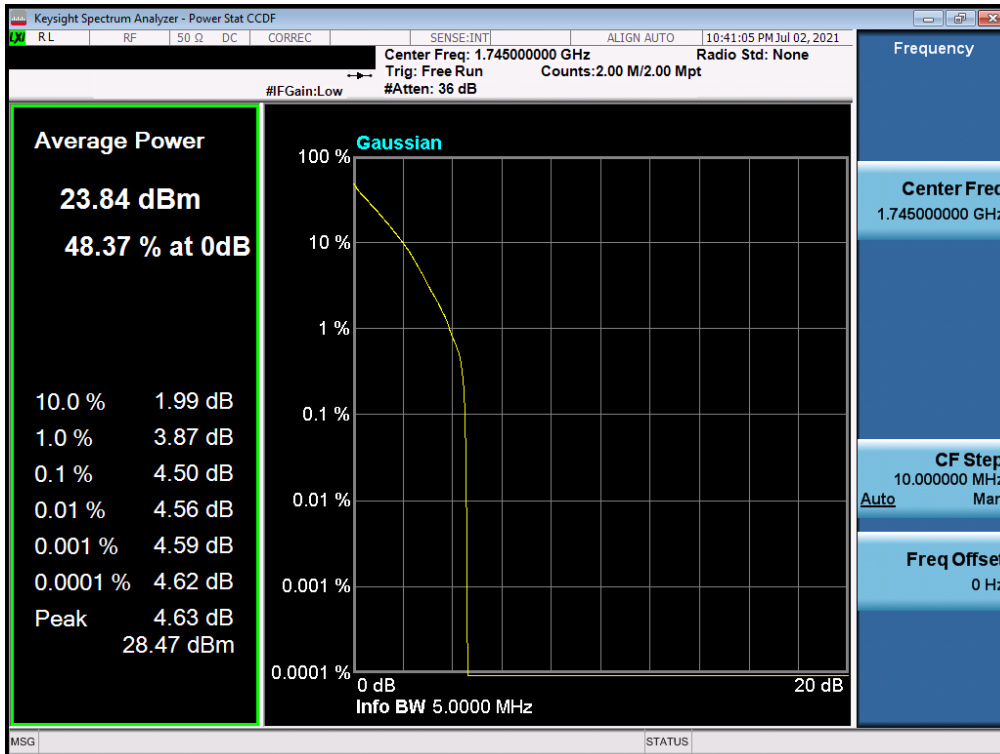


Plot 7-155. PAR Plot (NR Band n66 - 10.0MHz CP-OFDM QPSK - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 97 of 122

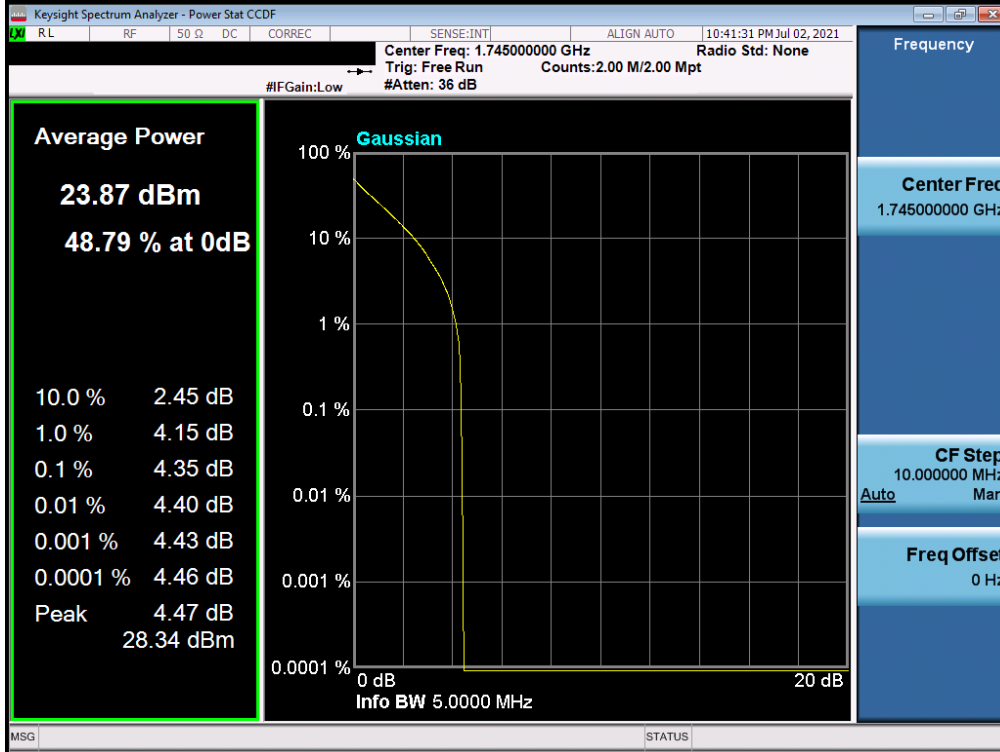


Plot 7-156. PAR Plot (NR Band n66 - 10.0MHz CP-OFDM 64-QAM - Full RB)

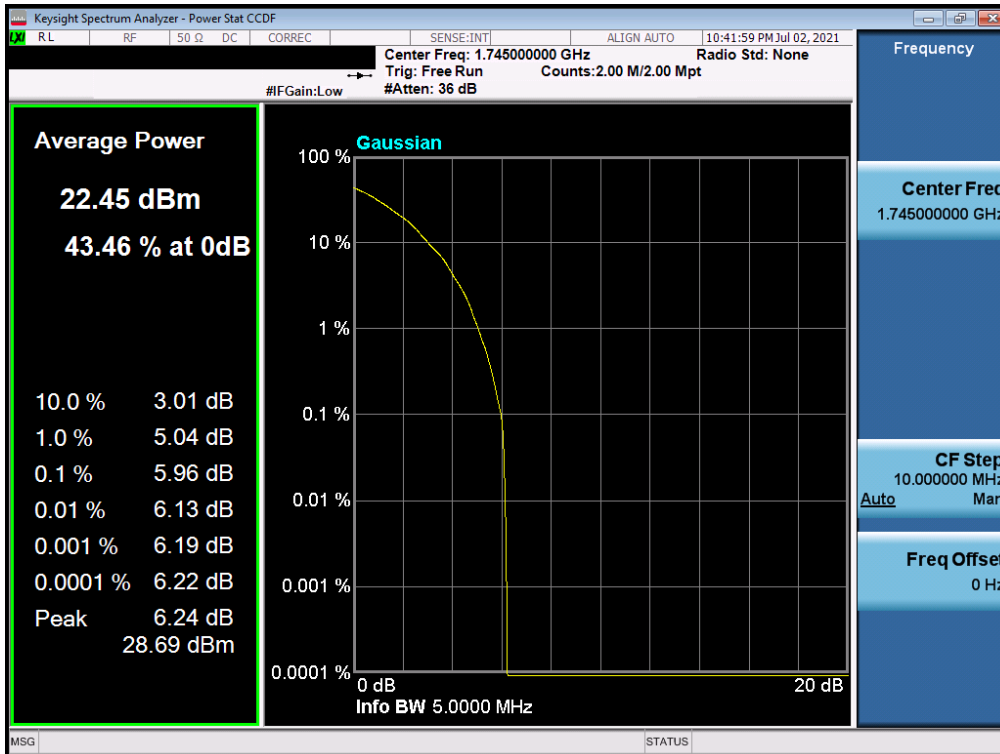


Plot 7-157. PAR Plot (NR Band n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 98 of 122



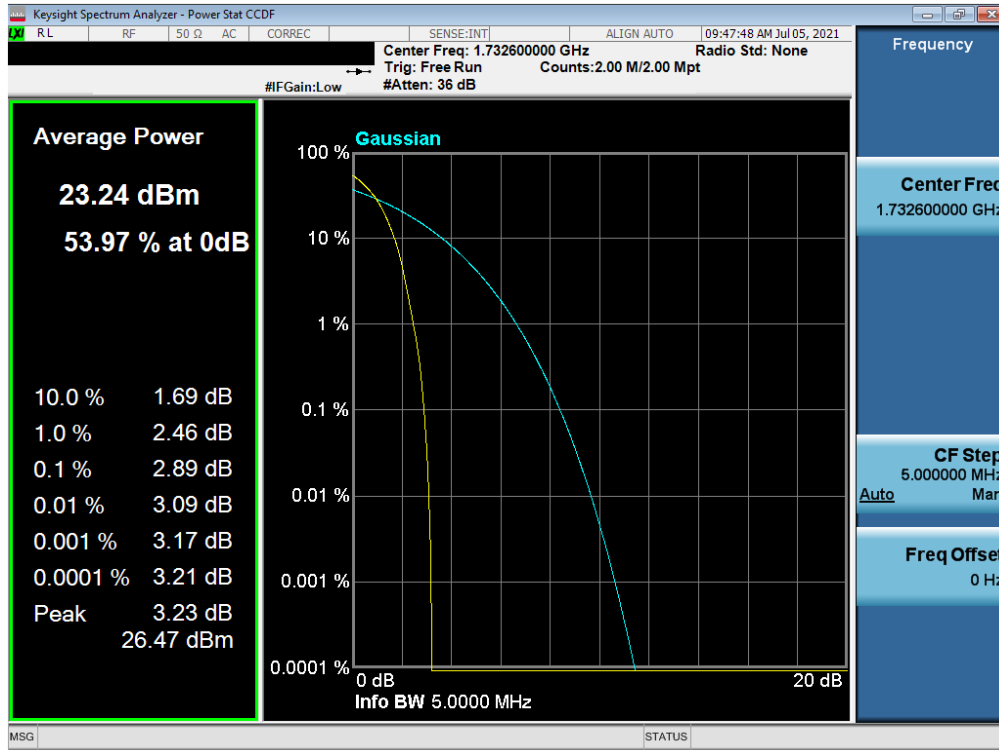
Plot 7-158. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB)



Plot 7-159. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM 64-QAM - Full RB)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 99 of 122

WCDMA AWS



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

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 100 of 122

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: A3LSMA528B	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 101 of 122

Test Setup

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

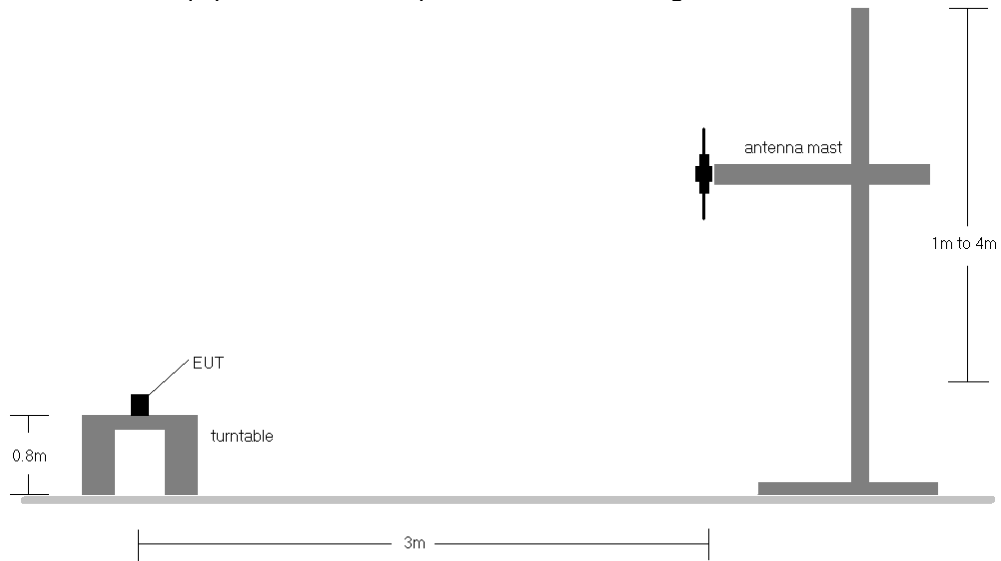


Figure 7-5. Radiated Test Setup <1GHz

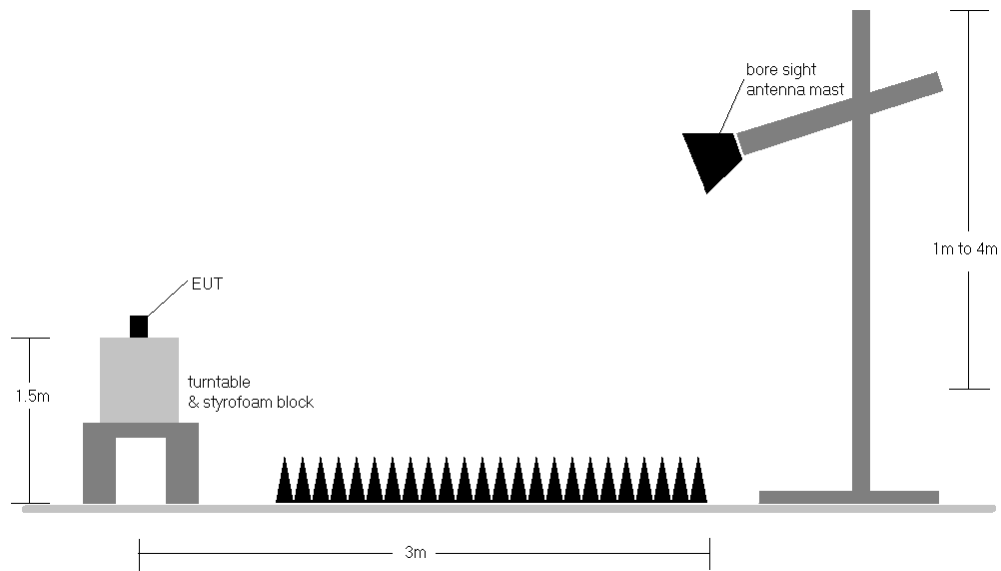




Figure 7-6. Radiated Test Setup >1GHz

<p>FCC ID: A3LSMA528B</p>	<p>PCTEST Proud to be part of element</p>	<p>PART 27 MEASUREMENT REPORT</p>	<p>Approved by: Technical Manager</p>
<p>Test Report S/N: 1M2106280072-04.A3L</p>	<p>Test Dates: 06/30/2021 - 07/24/2021</p>	<p>EUT Type: Portable Handset</p>	<p>Page 102 of 122</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.

FCC ID: A3LSMA528B	 PART 27 MEASUREMENT REPORT 		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset	Page 103 of 122

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	H	258	182	3.48	1 / 49	16.19	19.67	0.093	36.99	-17.32	17.52	0.057	34.77	-17.25
		707.5	H	255	184	3.52	1 / 49	16.65	20.17	0.104	36.99	-16.82	18.02	0.063	34.77	-16.75
		711.0	H	258	181	3.57	1 / 49	17.27	20.84	0.121	36.99	-16.15	18.69	0.074	34.77	-16.08
	16-QAM	711.0	H	258	181	3.57	1 / 49	16.31	19.88	0.097	36.99	-17.11	17.73	0.059	34.77	-17.04
5 MHz	QPSK	701.5	H	258	182	3.45	1 / 12	16.32	19.77	0.095	36.99	-17.22	17.62	0.058	34.77	-17.16
		707.5	H	255	184	3.52	1 / 12	16.90	20.43	0.110	36.99	-16.56	18.28	0.067	34.77	-16.49
		713.5	H	258	181	3.70	1 / 12	17.11	20.81	0.121	36.99	-16.18	18.66	0.073	34.77	-16.11
	16-QAM	713.5	H	258	181	3.70	1 / 12	16.19	19.89	0.098	36.99	-17.10	17.74	0.059	34.77	-17.03
3 MHz	QPSK	700.5	H	258	182	3.39	1 / 7	16.28	19.67	0.093	36.99	-17.32	17.52	0.057	34.77	-17.25
		707.5	H	255	184	3.52	1 / 7	16.85	20.38	0.109	36.99	-16.61	18.23	0.066	34.77	-16.55
		714.5	H	258	181	3.71	1 / 7	17.09	20.80	0.120	36.99	-16.19	18.65	0.073	34.77	-16.12
	16-QAM	714.5	H	258	181	3.71	1 / 7	16.16	19.86	0.097	36.99	-17.12	17.71	0.059	34.77	-17.06
1.4 MHz	QPSK	699.7	H	258	182	3.33	1 / 3	16.18	19.50	0.089	36.99	-17.49	17.35	0.054	34.77	-17.42
		707.5	H	255	184	3.52	1 / 3	16.63	20.16	0.104	36.99	-16.83	18.01	0.063	34.77	-16.76
		715.3	H	258	181	3.72	1 / 3	17.01	20.73	0.118	36.99	-16.26	18.58	0.072	34.77	-16.19
	16-QAM	715.3	H	258	181	3.72	1 / 3	16.18	19.89	0.098	36.99	-17.10	17.74	0.059	34.77	-17.03
10 MHz	Opposite Pol.	711.0	V	186	183	3.67	1 / 0	14.73	18.40	0.069	36.99	-18.59	16.25	0.042	34.77	-18.52



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

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	146	26	12.49	9.54	22.03	0.160	30.00	-7.97
1732.60	WCDMA1700	H	184	22	13.18	9.49	22.67	0.185	30.00	-7.33
1752.60	WCDMA1700	H	237	26	13.63	9.46	23.09	0.204	30.00	-6.91
1752.60	WCDMA1700	V	111	71	11.97	9.05	21.02	0.126	30.00	-8.98

Table 7-3. EIRP Data (WCDMA AWS)



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	H	184	24	9.47	1 / 99	13.09	22.56	0.180	30.00	-7.44
		1745.0	H	234	21	9.48	1 / 50	13.31	22.79	0.190	30.00	-7.21
		1770.0	H	128	22	9.39	1 / 50	10.87	20.26	0.106	30.00	-9.74
	16-QAM	1745.0	H	234	21	9.48	1 / 50	12.48	21.96	0.157	30.00	-8.04
15 MHz	QPSK	1717.5	H	184	24	9.49	1 / 37	13.02	22.51	0.178	30.00	-7.49
		1745.0	H	234	21	9.48	1 / 37	13.41	22.89	0.195	30.00	-7.11
		1772.5	H	128	22	9.36	1 / 37	10.94	20.30	0.107	30.00	-9.70
	16-QAM	1745.0	H	234	21	9.48	1 / 37	12.55	22.03	0.160	30.00	-7.97
10 MHz	QPSK	1715.0	H	184	24	9.52	1 / 25	13.03	22.55	0.180	30.00	-7.45
		1745.0	H	234	21	9.48	1 / 25	13.46	22.94	0.197	30.00	-7.06
		1775.0	H	128	22	9.34	1 / 25	10.97	20.31	0.107	30.00	-9.69
	16-QAM	1745.0	H	234	21	9.48	1 / 25	12.56	22.04	0.160	30.00	-7.96
5 MHz	QPSK	1712.5	H	184	24	9.54	1 / 12	13.05	22.60	0.182	30.00	-7.40
		1745.0	H	234	21	9.48	1 / 12	13.51	22.99	0.199	30.00	-7.01
		1777.5	H	128	22	9.31	1 / 12	11.25	20.57	0.114	30.00	-9.43
	16-QAM	1745.0	H	234	21	9.48	1 / 12	12.59	22.08	0.161	30.00	-7.92
3 MHz	QPSK	1711.5	H	184	24	9.55	1 / 7	12.99	22.54	0.180	30.00	-7.46
		1745.0	H	234	21	9.48	1 / 7	13.32	22.80	0.191	30.00	-7.20
		1778.5	H	128	22	9.30	1 / 7	11.17	20.48	0.112	30.00	-9.52
	16-QAM	1745.0	H	234	21	9.48	1 / 7	12.53	22.01	0.159	30.00	-7.99
1.4 MHz	QPSK	1710.7	H	184	24	9.56	1 / 3	13.17	22.73	0.188	30.00	-7.27
		1745.0	H	234	21	9.48	1 / 3	13.45	22.93	0.196	30.00	-7.07
		1779.3	H	128	22	9.29	1 / 3	11.14	20.44	0.111	30.00	-9.56
	16-QAM	1745.0	H	234	21	9.48	1 / 3	12.69	22.17	0.165	30.00	-7.83
20 MHz	Opposite Pol.	1745.0	V	106	123	9.03	1 / 50	12.64	21.67	0.147	30.00	-8.33

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

FCC ID: A3LSMA528B	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset	Page 104 of 122

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	π/2 BPSK	1720.0	H	243	329	9.47	1 / 26	10.27	19.74	0.094	30.00	-10.26
		1745.0	H	245	344	9.48	1 / 26	11.68	21.16	0.131	30.00	-8.84
		1770.0	H	274	297	9.39	1 / 26	11.45	20.84	0.121	30.00	-9.16
	QPSK	1745.0	H	245	344	9.48	1 / 26	11.49	20.97	0.125	30.00	-9.03
	16-QAM	1745.0	H	245	344	9.48	1 / 26	10.56	20.04	0.101	30.00	-9.96
15 MHz	π/2 BPSK	1717.5	H	243	329	9.49	1 / 58	10.31	19.80	0.095	30.00	-10.20
		1745.0	H	245	344	9.48	1 / 20	11.81	21.29	0.134	30.00	-8.71
		1772.5	H	274	297	9.36	1 / 20	11.43	20.79	0.120	30.00	-9.21
	QPSK	1745.0	H	245	344	9.48	1 / 20	11.41	20.89	0.123	30.00	-9.11
	16-QAM	1772.5	H	274	297	9.36	1 / 20	10.36	19.73	0.094	30.00	-10.27
10 MHz	π/2 BPSK	1715.0	H	243	329	9.52	1 / 38	10.00	19.52	0.090	30.00	-10.48
		1745.0	H	245	344	9.48	1 / 13	11.81	21.29	0.135	30.00	-8.71
		1775.0	H	274	297	9.34	1 / 13	11.51	20.85	0.122	30.00	-9.15
	QPSK	1745.0	H	245	344	9.48	1 / 13	11.38	20.86	0.122	30.00	-9.14
	16-QAM	1775.0	H	274	297	9.34	1 / 13	10.45	19.79	0.095	30.00	-10.21
5 MHz	π/2 BPSK	1712.5	H	243	329	9.54	1 / 18	10.08	19.62	0.092	30.00	-10.38
		1745.0	H	245	344	9.48	1 / 6	11.80	21.28	0.134	30.00	-8.72
		1777.5	H	274	297	9.31	1 / 6	11.36	20.68	0.117	30.00	-9.32
	QPSK	1745.0	H	245	344	9.48	1 / 6	11.27	20.75	0.119	30.00	-9.25
	16-QAM	1777.5	H	274	297	9.31	1 / 6	10.33	19.64	0.092	30.00	-10.36
20 MHz	QPSK (CP-OFDM)	1745.0	H	283	11	9.48	1 / 26	11.77	21.25	0.133	30.00	-8.75
	QPSK (Opposite Pol.)	1745.0	V	322	63	9.03	1 / 26	10.28	19.31	0.085	30.00	-10.69

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

FCC ID: A3LSMA528B	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset	Page 105 of 122

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: A3LSMA528B	 PART 27 MEASUREMENT REPORT 		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset	Page 106 of 122

Test Setup

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

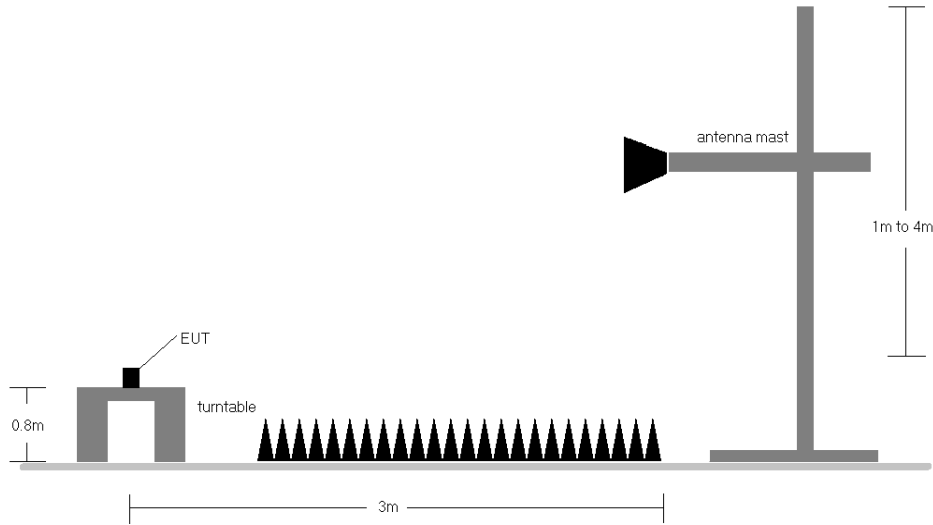


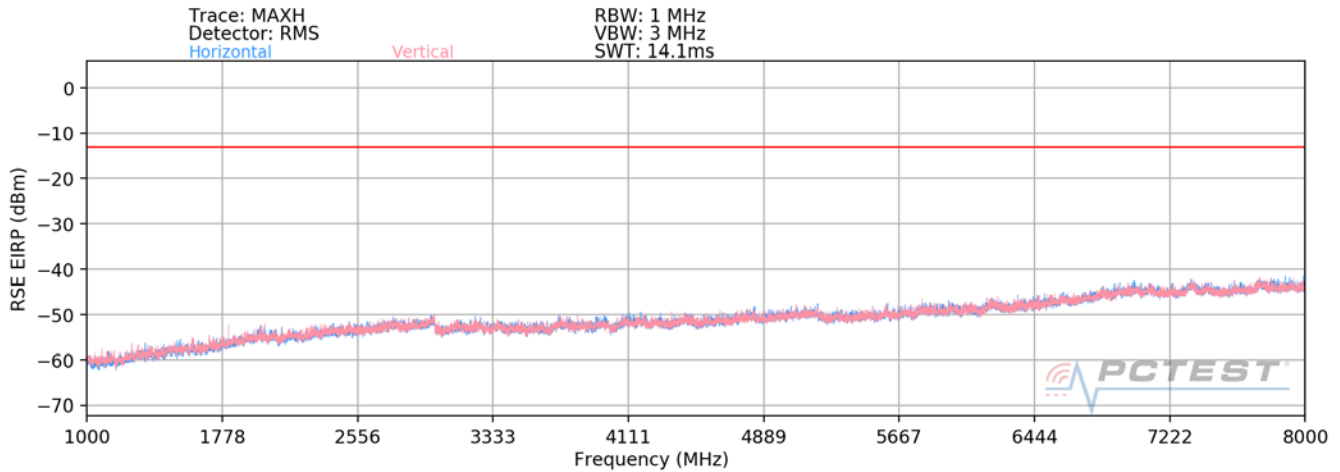
Figure 7-7. Test Instrument & Measurement Setup

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: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 107 of 122

LTE Band 12/17



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

Bandwidth (MHz):	10
Frequency (MHz):	704.0
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]
1408.0	V	-	-	-76.80	-1.40	28.80	-66.46	-13.00	-53.46
2112.0	V	158	359	-72.48	2.12	36.64	-58.62	-13.00	-45.62
2816.0	V	-	-	-77.83	4.03	33.20	-62.05	-13.00	-49.05
3520.0	V	-	-	-77.65	4.43	33.78	-61.48	-13.00	-48.48
4224.0	V	-	-	-78.79	5.49	33.70	-61.56	-13.00	-48.56

Table 7-6. 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]
1415.0	V	-	-	-76.81	-1.38	28.81	-66.45	-13.00	-53.45
2122.5	V	158	361	-71.43	2.16	37.73	-57.53	-13.00	-44.53
2830.0	V	-	-	-77.96	4.10	33.14	-62.11	-13.00	-49.11
3537.5	V	-	-	-77.99	4.74	33.75	-61.51	-13.00	-48.51
4245.0	V	-	-	-78.77	5.43	33.66	-61.60	-13.00	-48.60



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

FCC ID: A3LSMA528B	 PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset	Page 108 of 122

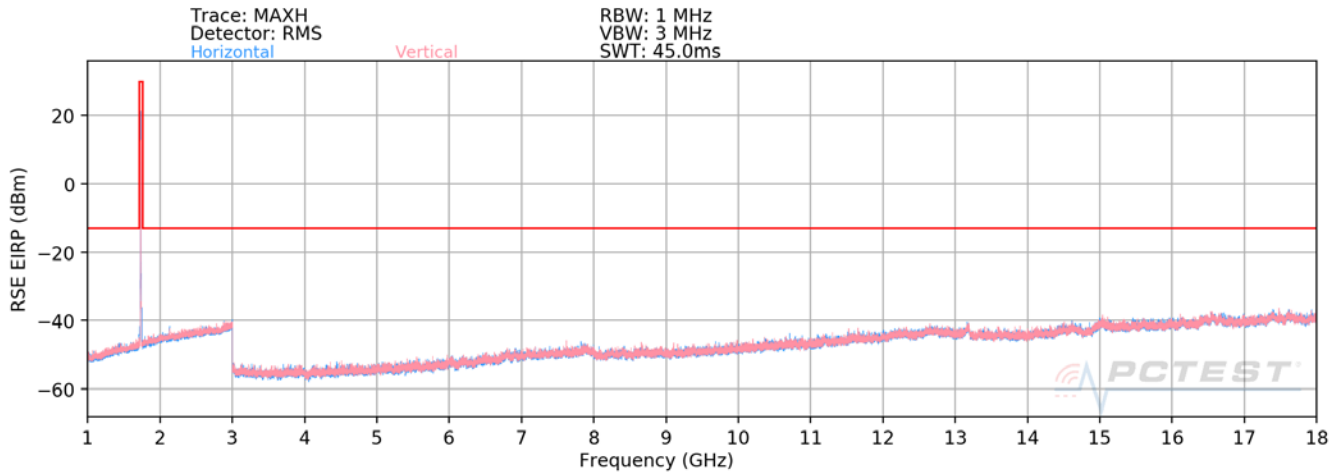
Bandwidth (MHz):	10
Frequency (MHz):	711.0
RB / Offset:	1 / 25

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]
1422.0	V	-	-	-76.63	-1.40	28.97	-66.29	-13.00	-53.29
2133.0	V	155	345	-71.38	2.19	37.81	-57.44	-13.00	-44.44
2844.0	V	-	-	-77.82	4.09	33.27	-61.99	-13.00	-48.99
3555.0	V	-	-	-78.18	5.09	33.91	-61.34	-13.00	-48.34
4266.0	V	-	-	-78.07	5.58	34.51	-60.75	-13.00	-47.75

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

FCC ID: A3LSMA528B	 PART 27 MEASUREMENT REPORT 		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset	Page 109 of 122

WCDMA AWS



Plot 7-162. 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]
3424.8	H	-	-	-78.36	5.25	33.89	-61.37	-13.00	-48.37
5137.2	H	-	-	-79.50	7.41	34.91	-60.35	-13.00	-47.35
6849.6	H	-	-	-79.82	11.03	38.21	-57.04	-13.00	-44.04

7-9. 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]
3465.2	H	-	-	-78.48	5.99	34.51	-60.75	-13.00	-47.75
5197.8	H	-	-	-78.69	7.26	35.57	-59.69	-13.00	-46.69
6930.4	H	-	-	-79.92	11.30	38.38	-56.87	-13.00	-43.87



Table 7-10. Radiated Spurious Data (WCDMA AWS – Mid Channel)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset	Page 110 of 122	

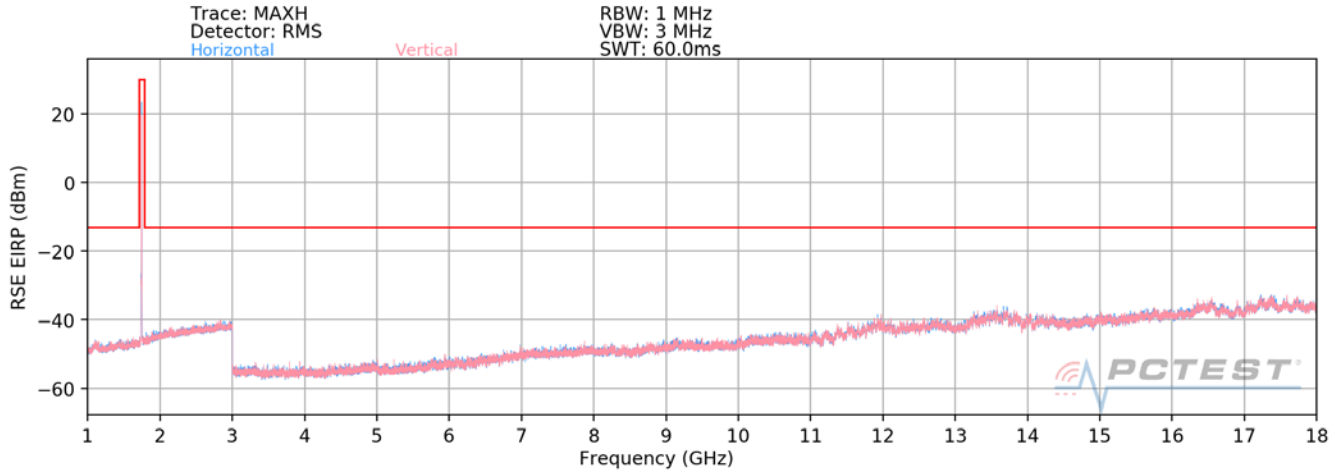
Mode:	WCDMA RMC
Channel:	1513
Frequency (MHz):	1752.6

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]
3505.2	H	110	135	-76.95	5.30	35.35	-59.90	-13.00	-46.90
5257.8	H	-	-	-79.37	7.85	35.48	-59.77	-13.00	-46.77
7010.4	H	-	-	-79.40	10.89	38.49	-56.77	-13.00	-43.77
8763.0	H	-	-	-80.45	13.36	39.91	-55.35	-13.00	-42.35

Table 7-11. Radiated Spurious Data (WCDMA AWS – High Channel)

FCC ID: A3LSMA528B	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset	Page 111 of 122	

LTE Band 66/4



Plot 7-163. Radiated Spurious Plot (LTE Band 66/4)

Bandwidth (MHz):	20
Frequency (MHz):	1720.0
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]
3440.0	V	163	311	-75.50	5.61	37.11	-58.15	-13.00	-45.15
5160.0	V	211	28	-79.26	7.60	35.34	-59.91	-13.00	-46.91
6880.0	V	109	45	-79.29	11.28	38.99	-56.27	-13.00	-43.27
8600.0	V	185	9	-79.88	13.27	40.39	-54.87	-13.00	-41.87
10320.0	V	-	-	-83.55	15.88	39.33	-55.93	-13.00	-42.93
12040.0	V	-	-	-83.76	18.81	42.05	-53.21	-13.00	-40.21

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

Bandwidth (MHz):	20
Frequency (MHz):	1745.0
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]
3490.0	V	163	309	-76.70	5.74	36.04	-59.22	-13.00	-46.22
5235.0	V	191	29	-79.34	7.25	34.91	-60.34	-13.00	-47.34
6980.0	V	134	355	-79.94	11.23	38.29	-56.96	-13.00	-43.96
8725.0	V	115	14	-82.76	13.65	37.89	-57.37	-13.00	-44.37
10470.0	V	-	-	-83.59	16.62	40.03	-55.23	-13.00	-42.23
12215.0	V	-	-	-84.24	19.53	42.29	-52.96	-13.00	-39.96



Table 7-13. Radiated Spurious Data (LTE Band 66/4 – Mid Channel)

FCC ID: A3LSMA528B			PART 27 MEASUREMENT REPORT			Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 112 of 122		

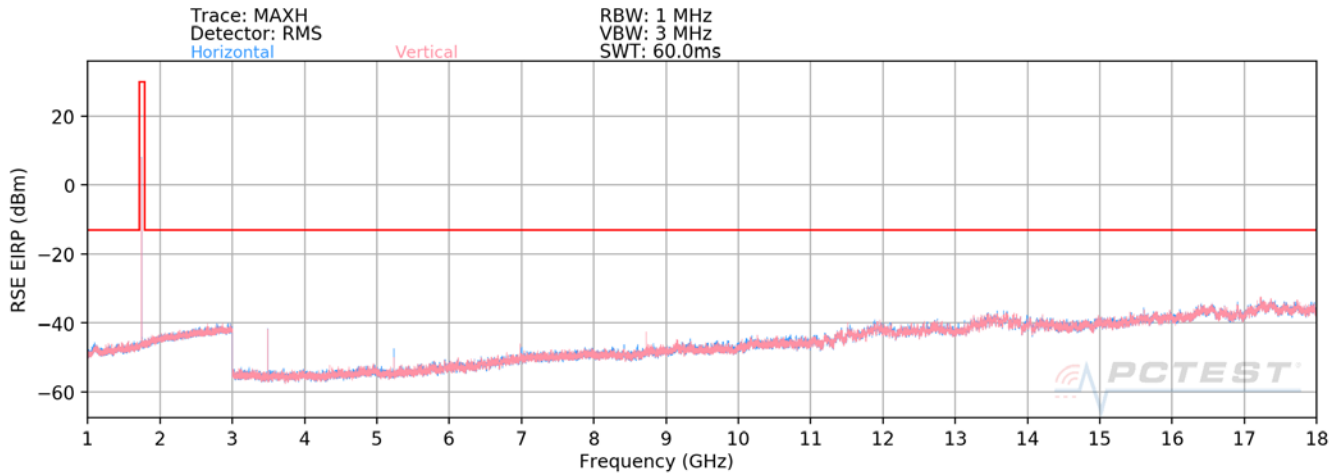
Bandwidth (MHz):	20
Frequency (MHz):	1770.0
RB / Offset:	1 / 50

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]
3540.00	V	221	29	-78.29	5.83	34.54	-60.72	-13.00	-47.72
5310.00	V	168	23	-79.43	7.67	35.24	-60.02	-13.00	-47.02
7080.00	V	156	358	-79.82	12.22	39.40	-55.86	-13.00	-42.86
8850.00	V	101	325	-82.74	13.68	37.94	-57.31	-13.00	-44.31
10620.00	V	-	-	-83.61	16.44	39.83	-55.43	-13.00	-42.43
12390.00	V	-	-	-84.22	19.46	42.24	-53.02	-13.00	-40.02

Table 7-14. Radiated Spurious Data (LTE Band 66/4 – High Channel)

FCC ID: A3LSMA528B	 PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset
		Page 113 of 122

NR Band n66



Plot 7-164. Radiated Spurious Plot (NR Band n66)

Bandwidth (MHz):	20
Frequency (MHz):	1720.0
RB / Offset:	1 / 53
Mode:	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]
3440.0	H	121	16	-62.88	7.19	51.31	-43.94	-13.00	-30.94
5160.0	H	105	138	-77.69	10.11	39.42	-55.84	-13.00	-42.84
6880.0	H	101	359	-79.72	14.02	41.30	-53.96	-13.00	-40.96
8600.0	H	101	338	-79.78	18.64	45.86	-49.40	-13.00	-36.40
10320.0	H	-	-	-83.57	19.91	43.34	-51.91	-13.00	-38.91
12040.0	H	-	-	-83.49	23.48	46.99	-48.27	-13.00	-35.27

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

Bandwidth (MHz):	20
Frequency (MHz):	1745.0
RB / Offset:	1 / 53
Mode:	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]
3490.0	H	102	7	-64.81	7.50	49.69	-45.57	-13.00	-32.57
5235.0	H	117	9	-75.64	9.93	41.29	-53.96	-13.00	-40.96
6980.0	H	130	227	-79.48	14.52	42.04	-53.22	-13.00	-40.22
8725.0	H	101	311	-79.78	17.87	45.09	-50.17	-13.00	-37.17
10470.0	H	-	-	-83.05	20.03	43.98	-51.28	-13.00	-38.28
12215.0	H	-	-	-84.04	23.29	46.25	-49.01	-13.00	-36.01



Table 7-16. Radiated Spurious Data (NR Band n66 – Mid Channel)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 114 of 122

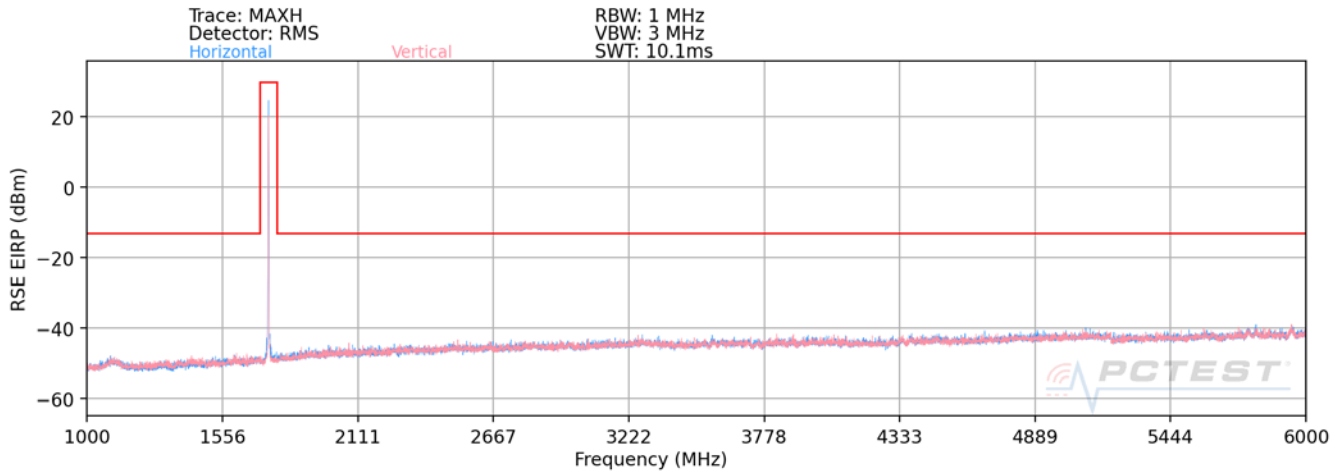
Bandwidth (MHz):	20
Frequency (MHz):	1770.0
RB / Offset:	1 / 53
Mode:	Stand Alone

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]
3540.0	H	116	1	-65.71	7.91	49.20	-46.06	-13.00	-33.06
5310.0	H	104	73	-75.91	10.82	41.91	-53.34	-13.00	-40.34
7080.0	H	102	360	-76.44	15.17	45.73	-49.53	-13.00	-36.53
8850.0	H	101	154	-80.90	17.12	43.22	-52.03	-13.00	-39.03
10620.0	H	-	-	-83.60	20.13	43.53	-51.73	-13.00	-38.73
12390.0	H	-	-	-84.16	25.05	47.89	-47.37	-13.00	-34.37

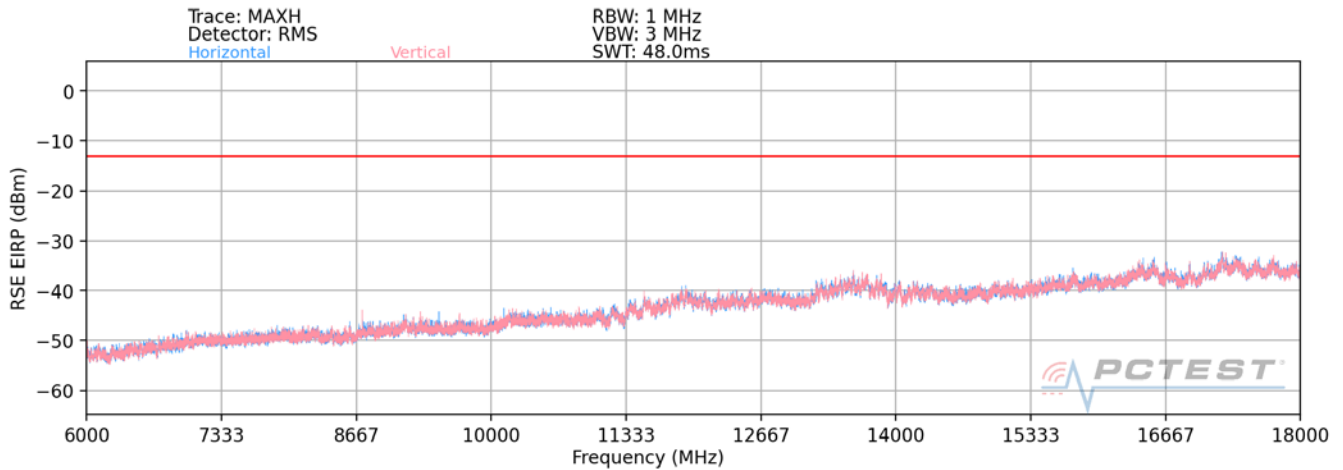
Table 7-17. Radiated Spurious Data (NR Band n66 – High Channel)

FCC ID: A3LSMA528B	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset	Page 115 of 122	

EN-DC – n66 + LTE Band 5



Plot 7-165. Radiated Spurious Plot (n66 + Anchor B5 – EN-DC)



Plot 7-166. Radiated Spurious Plot (n66 + Anchor B5 – EN-DC)

Bandwidth (MHz):	20
Frequency (MHz):	1745.0
RB / Offset:	1 / 53
Mode:	EN-DC
Anchor Band:	B5

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]
1889.0	H	-	-	-78.57	12.13	40.56	-54.69	-13.00	-41.69
2653.5	H	-	-	-79.29	14.65	42.36	-52.90	-13.00	-39.90
2797.5	H	-	-	-79.47	15.52	43.05	-52.21	-13.00	-39.21

Table 7-18. Radiated Spurious Data (n66 + Anchor B5 – EN-DC)

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 116 of 122

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.

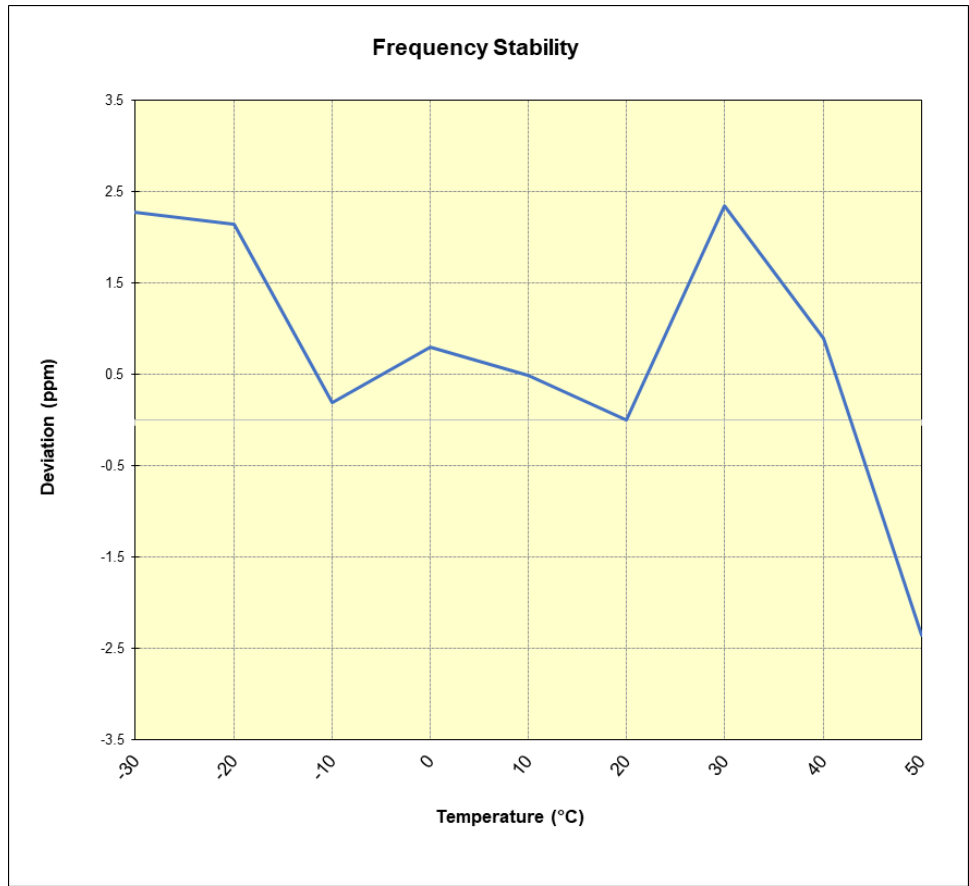
Test Notes

None

FCC ID: A3LSMA528B	 PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset	Page 117 of 122	

LTE Band 12/17					
		Operating Frequency (Hz):		707,500,000	
		Ref. Voltage (VDC):		4.31	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	702,992,008	1,606	0.0002285
		- 20	702,991,909	1,508	0.0002145
		- 10	702,990,540	139	0.0000197
		0	702,990,964	563	0.0000800
		+ 10	702,990,751	349	0.0000497
		+ 20 (Ref)	702,990,402	0	0.0000000
		+ 30	702,992,051	1,650	0.0002347
		+ 40	702,991,030	629	0.0000895
Battery Endpoint	3.42	+ 20	702,991,095	693	0.0000986

Table 7-19. LTE Band 12/17 Frequency Stability Data

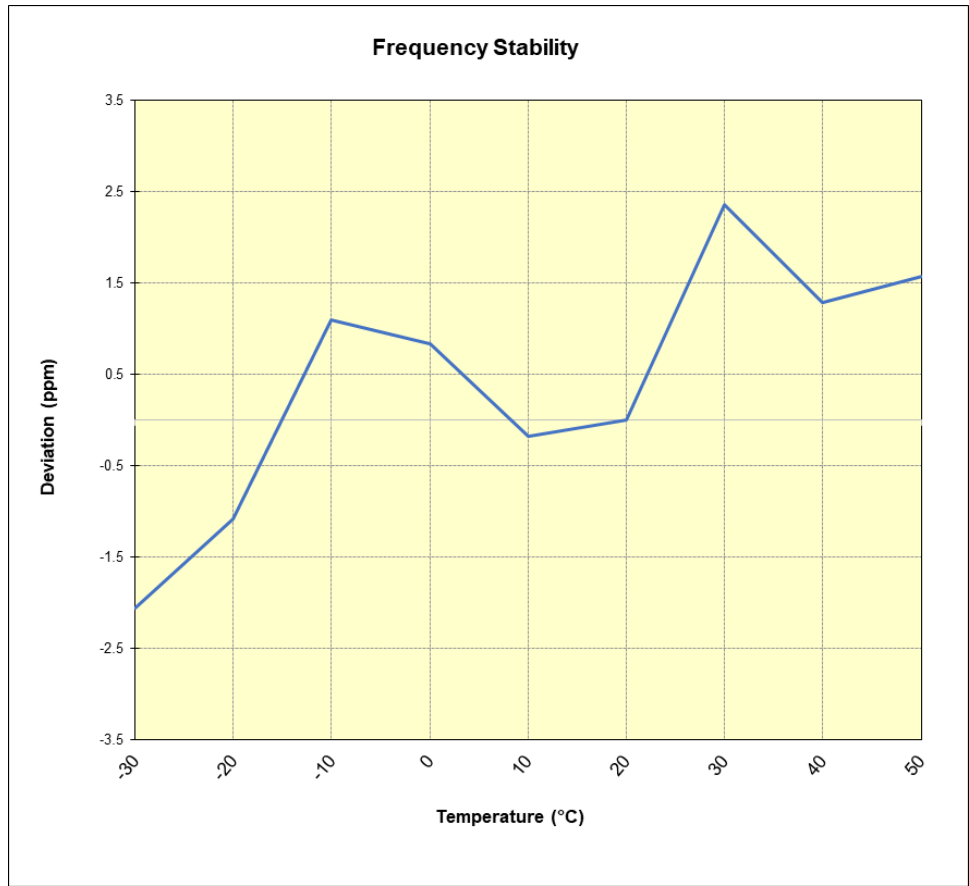


Plot 7-167. LTE Band 12/17 Frequency Stability Chart

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 118 of 122

WCDMA AWS					
		Operating Frequency (Hz):		1,732,600,000	
		Ref. Voltage (VDC):		4.31	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	1,732,391,242	-3,565	-0.0002058
		- 20	1,732,392,941	-1,866	-0.0001077
		- 10	1,732,396,716	1,910	0.0001102
		0	1,732,396,256	1,449	0.0000836
		+ 10	1,732,394,503	-304	-0.0000176
		+ 20 (Ref)	1,732,394,807	0	0.0000000
		+ 30	1,732,398,892	4,085	0.0002358
		+ 40	1,732,397,051	2,245	0.0001296
Battery Endpoint	3.42	+ 20	1,732,394,654	-153	-0.0000088

Table 7-20. WCDMA AWS Frequency Stability Data

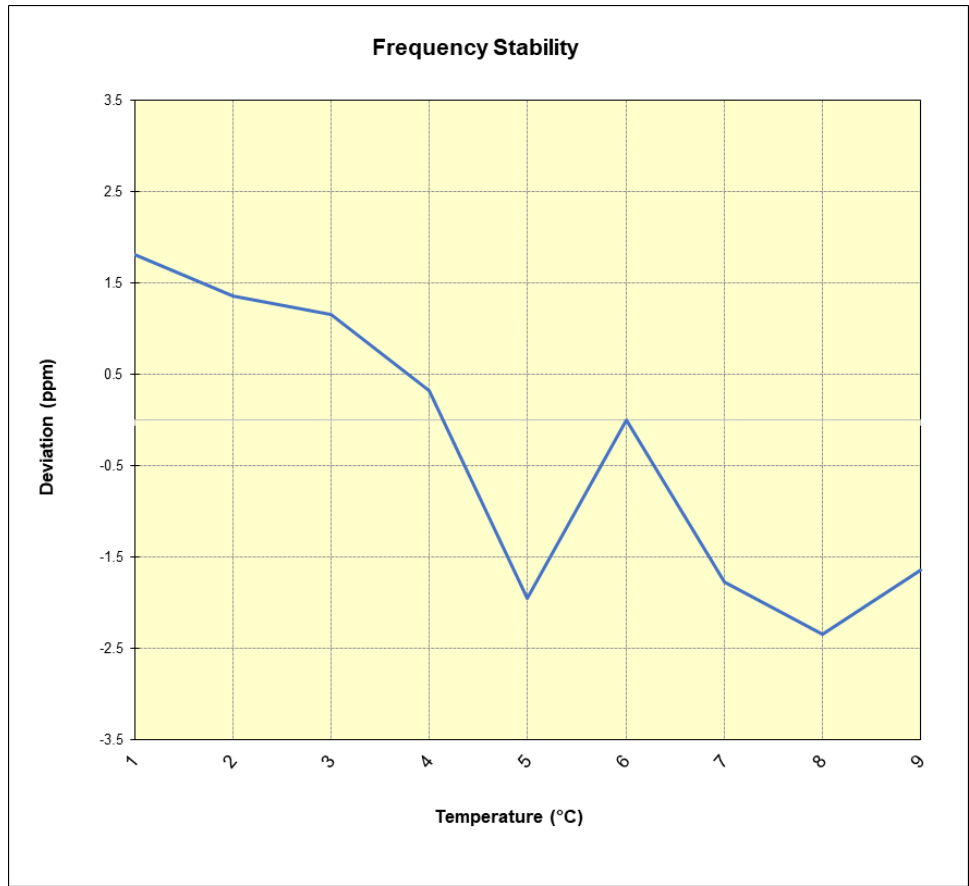


Plot 7-168. WCDMA AWS Frequency Stability Chart

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 119 of 122

LTE Band 66/4					
		Operating Frequency (Hz):		1,745,000,000	
		Ref. Voltage (VDC):		4.31	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	1,736,094,825	3,145	0.0001812
		- 20	1,736,094,046	2,367	0.0001363
		- 10	1,736,093,689	2,009	0.0001157
		0	1,736,092,243	563	0.0000325
		+ 10	1,736,088,306	-3,374	-0.0001943
		+ 20 (Ref)	1,736,091,680	0	0.0000000
		+ 30	1,736,088,603	-3,077	-0.0001772
		+ 40	1,736,087,612	-4,068	-0.0002343
Battery Endpoint	3.42	+ 20	1,736,091,157	-523	-0.0000301

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

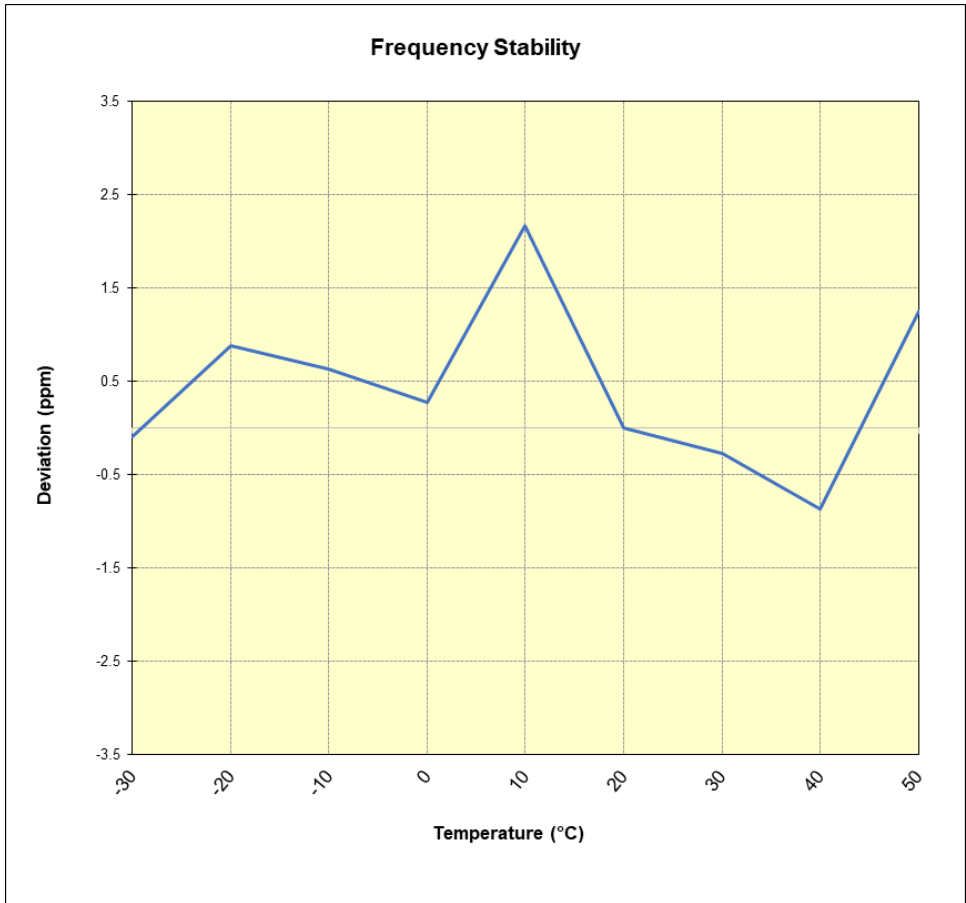


Plot 7-169. LTE Band 66/4 Frequency Stability Chart

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 120 of 122

NR Band n66					
Operating Frequency (Hz):		1,745,000,000			
Ref. Voltage (VDC):		4.31			
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.31	- 30	1,745,500,383	-157	-0.0000090
		- 20	1,745,502,082	1,543	0.0000884
		- 10	1,745,501,654	1,115	0.0000639
		0	1,745,501,035	496	0.0000284
		+ 10	1,745,504,335	3,795	0.0002174
		+ 20 (Ref)	1,745,500,540	0	0.0000000
		+ 30	1,745,500,065	-474	-0.0000272
		+ 40	1,745,499,024	-1,516	-0.0000869
Battery Endpoint	3.42	+ 20	1,745,501,674	1,134	0.0000650

Table 7-22. NR Band n66 Frequency Stability Data





Plot 7-170. NR Band n66 Frequency Stability Chart

FCC ID: A3LSMA528B	PCTEST Proud to be part of element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset		Page 121 of 122

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMA528B** complies with all the requirements of Part 27 of the FCC rules.

FCC ID: A3LSMA528B		PART 27 MEASUREMENT REPORT 	Approved by: Technical Manager
Test Report S/N: 1M2106280072-04.A3L	Test Dates: 06/30/2021 - 07/24/2021	EUT Type: Portable Handset	Page 122 of 122