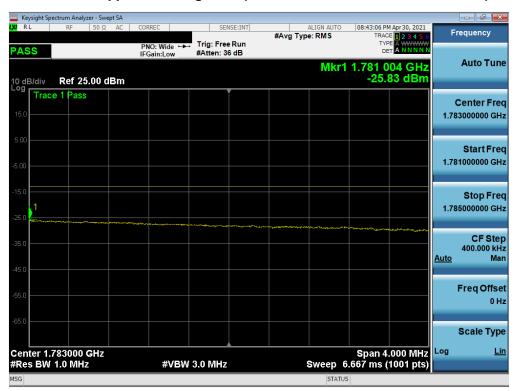




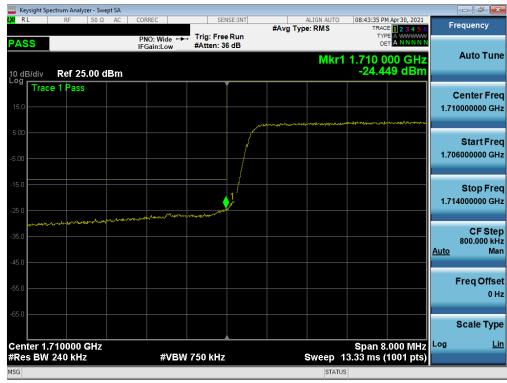
Plot 7-101. Upper Band Edge Plot (LTE Band 66 - 15MHz QPSK - Full RB)



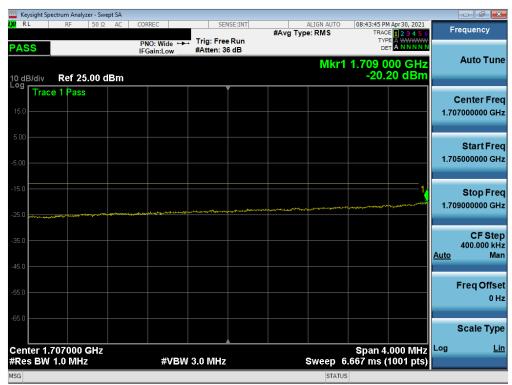
Plot 7-102. Upper Extended Band Edge Plot (LTE Band 66 - 15MHz QPSK - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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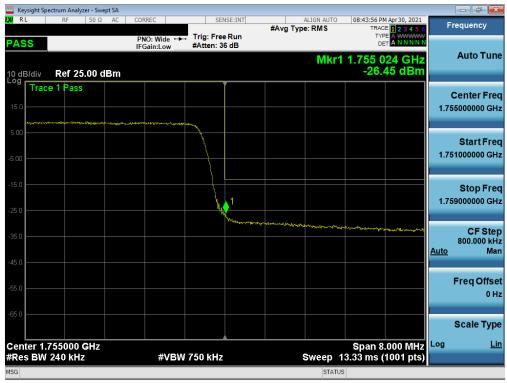
Plot 7-103. Lower Band Edge Plot (LTE Band 66/4 - 10MHz QPSK - Full RB)



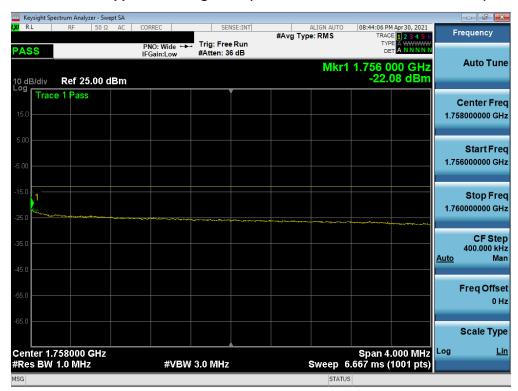
Plot 7-104. Lower Extended Band Edge Plot (LTE Band 66/4 - 10MHz QPSK - Full RB)

FCC ID: A3LSMF926B	Proceed to be part of the element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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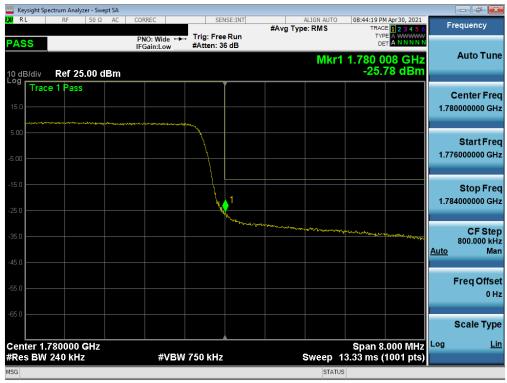
Plot 7-105. Upper Band Edge Plot (LTE Band 4 - 10MHz QPSK - Full RB)



Plot 7-106. Upper Extended Band Edge Plot (LTE Band 4 - 10MHz QPSK – Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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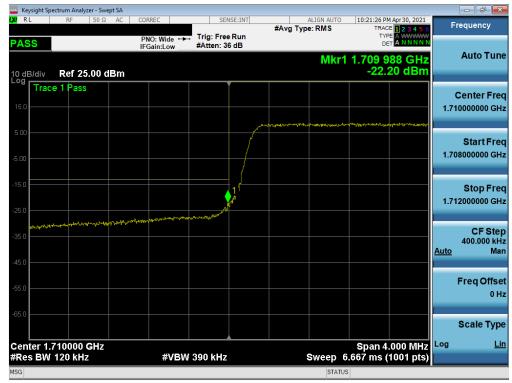
Plot 7-107. Upper Band Edge Plot (LTE Band 66 - 10MHz QPSK - Full RB)



Plot 7-108. Upper Extended Band Edge Plot (LTE Band 66 - 10MHz QPSK - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-109. Lower Band Edge Plot (LTE Band 66/4 - 5MHz QPSK - Full RB)



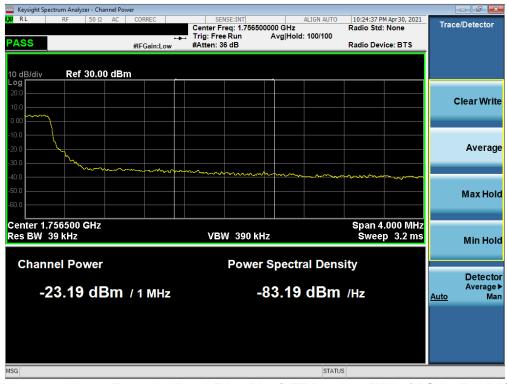
Plot 7-110. Lower Extended Band Edge Plot (LTE Band 66/4 - 5MHz QPSK - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-111. Upper Band Edge Plot (LTE Band 4 - 5MHz QPSK - Full RB)



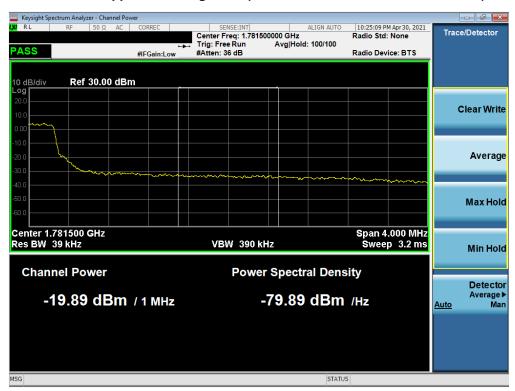
Plot 7-112. Upper Extended Band Edge Plot (LTE Band 4 - 5MHz QPSK - Full RB)

FCC ID: A3LSMF926B	PCTEST* Proud to be part of  element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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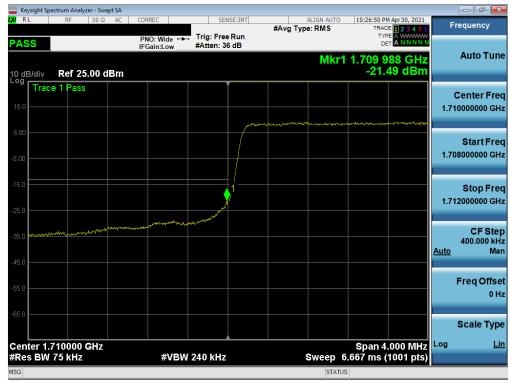
Plot 7-113. Upper Band Edge Plot (LTE Band 66 - 5MHz QPSK - Full RB)



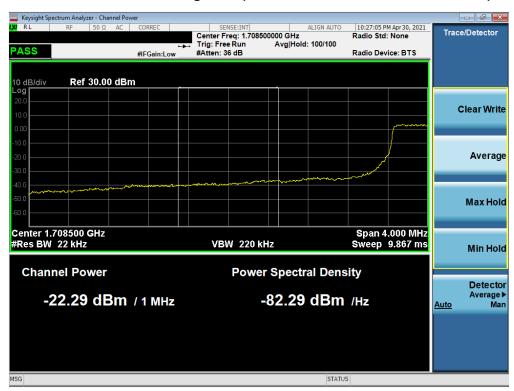
Plot 7-114. Upper Extended Band Edge Plot (LTE Band 66 - 5MHz QPSK - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-115. Lower Band Edge Plot (LTE Band 66/4 - 3MHz QPSK - Full RB)



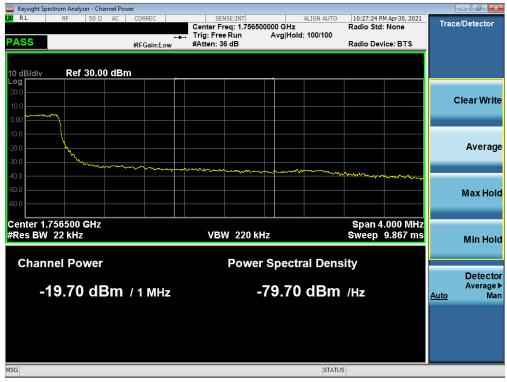
Plot 7-116. Lower Extended Band Edge Plot (LTE Band 66/4 - 3MHz QPSK - Full RB)

FCC ID: A3LSMF926B	PCTEST* Proud to be part of  element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-117. Upper Band Edge Plot (LTE Band 4 - 3MHz QPSK - Full RB)



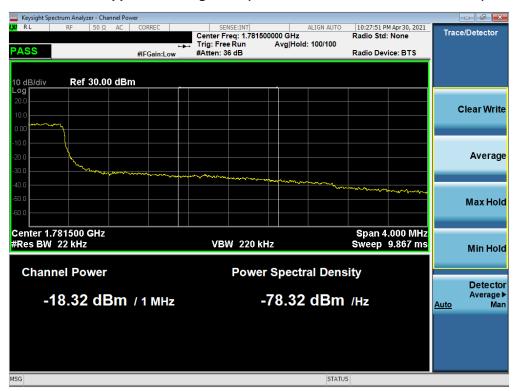
Plot 7-118. Upper Extended Band Edge Plot (LTE Band 4 - 3MHz QPSK - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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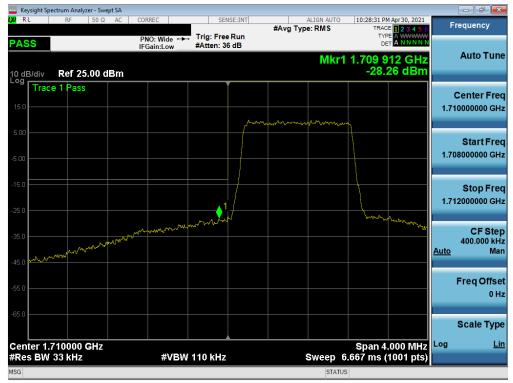
Plot 7-119. Upper Band Edge Plot (LTE Band 66 - 3MHz QPSK - Full RB)



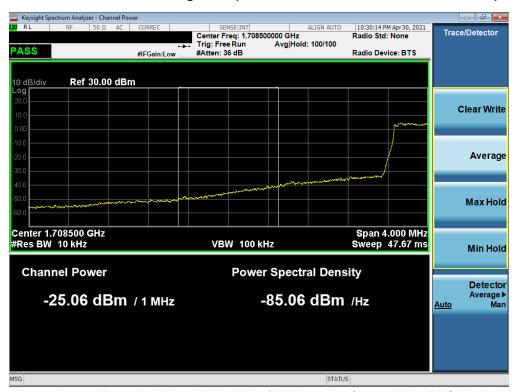
Plot 7-120. Upper Extended Band Edge Plot (LTE Band 66 - 3MHz QPSK - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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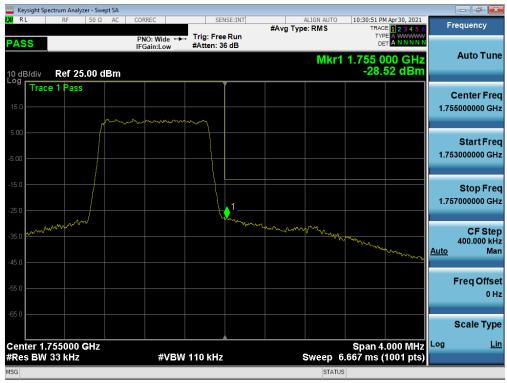
Plot 7-121. Lower Band Edge Plot (LTE Band 66/4 – 1.4MHz QPSK – Full RB)



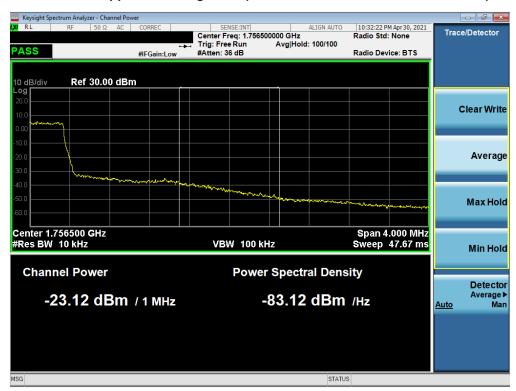
Plot 7-122. Lower Extended Band Edge Plot (LTE Band 66/4 – 1.4MHz QPSK – Full RB)

FCC ID: A3LSMF926B	PCTEST* Proud to be part of @ element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-123. Upper Band Edge Plot (LTE Band 4 – 1.4MHz QPSK – Full RB)



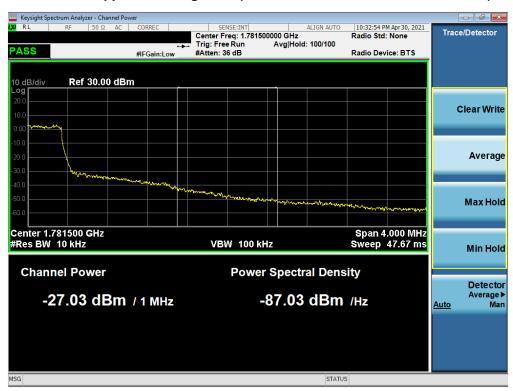
Plot 7-124. Upper Extended Band Edge Plot (LTE Band 4 – 1.4MHz QPSK – Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-125. Upper Band Edge Plot (LTE Band 66 – 1.4MHz QPSK – Full RB)



Plot 7-126. Upper Extended Band Edge Plot (LTE Band 66 – 1.4MHz QPSK – Full RB)

FCC ID: A3LSMF926B	PCTEST Proud to be part of @ element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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### NR Band n66



Plot 7-127. Lower Band Edge Plot (NR Band n66 - 20.0MHz - Full RB)



Plot 7-128. Upper Band Edge Plot (NR Band n66 - 20.0MHz - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-129. Lower Band Edge Plot (NR Band n66 - 15.0MHz - Full RB)



Plot 7-130. Upper Band Edge Plot (NR Band n66 - 15.0MHz - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-131. Lower Band Edge Plot (NR Band n66 - 10.0MHz - Full RB)



Plot 7-132. Upper Band Edge Plot (NR Band n66 - 10.0MHz - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-133. Lower Band Edge Plot (NR Band n66 - 5.0MHz - Full RB)



Plot 7-134. Upper Band Edge Plot (NR Band n66 - 5.0MHz - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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## **WCDMA AWS**



Plot 7-135. Lower Band Edge Plot (WCDMA AWS - Ch. 1312)



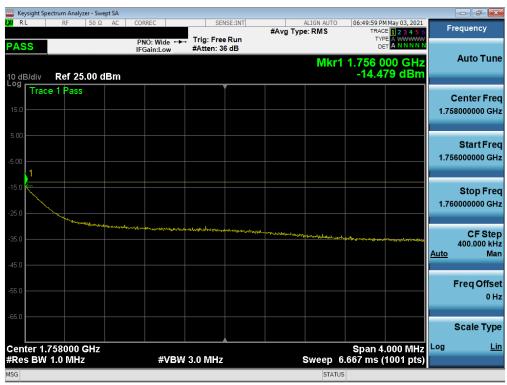
Plot 7-136. Lower Extended Band Edge Plot (WCDMA AWS - Ch. 1312)

FCC ID: A3LSMF926B	Proceed to be part of the element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-137. Upper Band Edge Plot (WCDMA AWS - Ch. 1513)



Plot 7-138. Upper Extended Band Edge Plot (WCDMA AWS - Ch. 1513- Ant1)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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# 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 ≥ 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

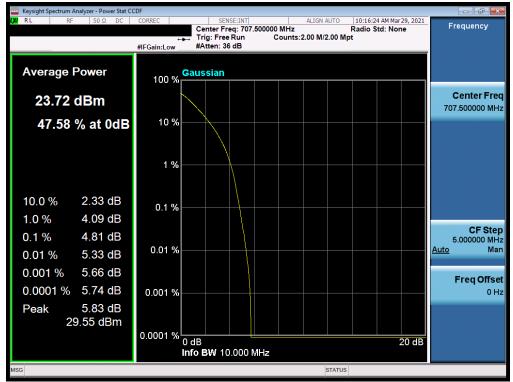
#### **Test Notes**

None.

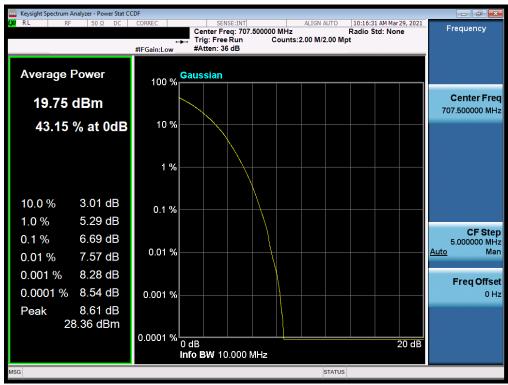
FCC ID: A3LSMF926B	PCTEST* Proud to be part of ® element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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# LTE Band 12/17



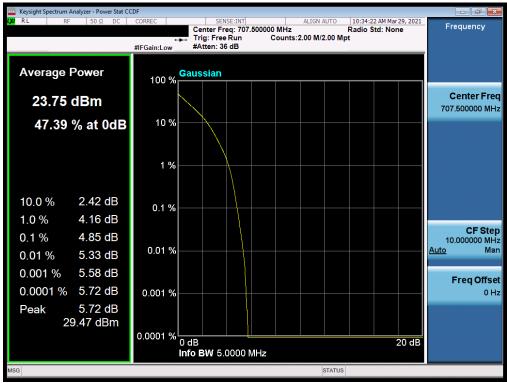
Plot 7-139. PAR Plot (LTE Band 12/17 - 10MHz QPSK - Full RB)



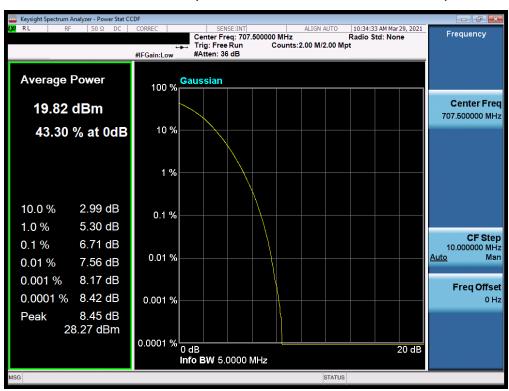
Plot 7-140. PAR Plot (LTE Band 12/17 - 10MHz 256-QAM - Full RB)

FCC ID: A3LSMF926B	Proud to be part of @element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager		
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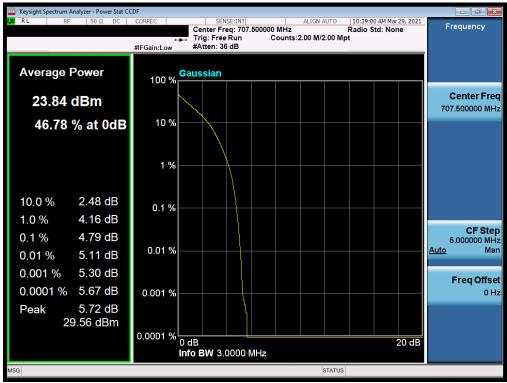
Plot 7-141. PAR Plot (LTE Band 12/17 - 5MHz QPSK - Full RB)



Plot 7-142. PAR Plot (LTE Band 12/17 - 5MHz 256-QAM - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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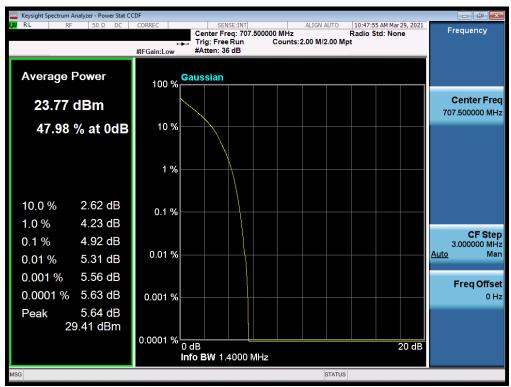
Plot 7-143. PAR Plot (LTE Band 12/17 - 3MHz QPSK - Full RB)



Plot 7-144. PAR Plot (LTE Band 12/17 - 3MHz 256-QAM - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-145. PAR Plot (LTE Band 12/17 - 1.4MHz QPSK - Full RB)

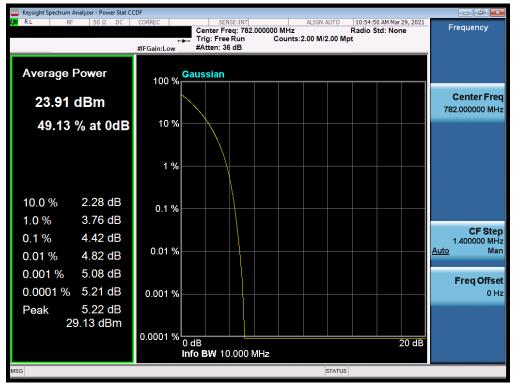


Plot 7-146. PAR Plot (LTE Band 12/17 - 1.4MHz 256-QAM - Full RB)

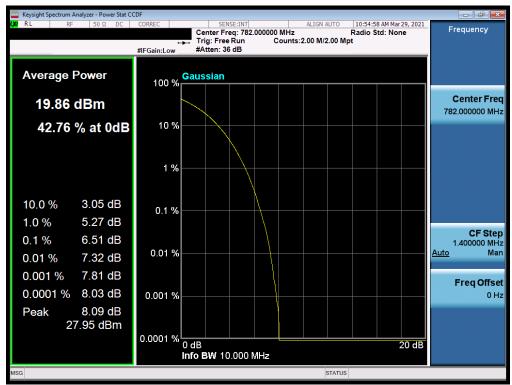
FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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## LTE Band 13



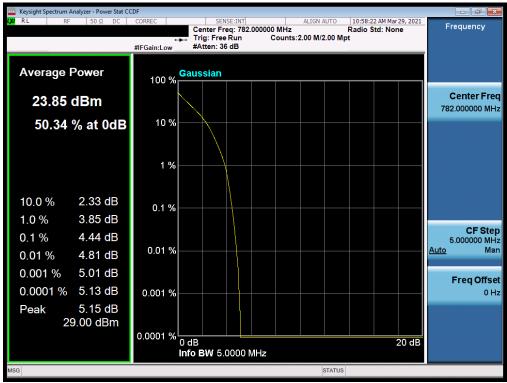
Plot 7-147. PAR Plot (LTE Band 13 - 10MHz QPSK - Full RB)



Plot 7-148. PAR Plot (LTE Band 13 - 10MHz 256-QAM - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Plot 7-149. PAR Plot (LTE Band 13 - 5MHz QPSK - Full RB)

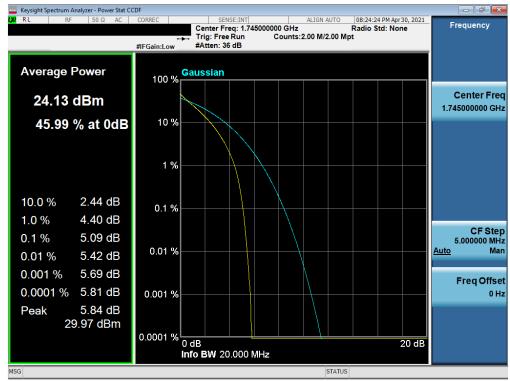


Plot 7-150. PAR Plot (LTE Band 13 - 5MHz 256-QAM - Full RB)

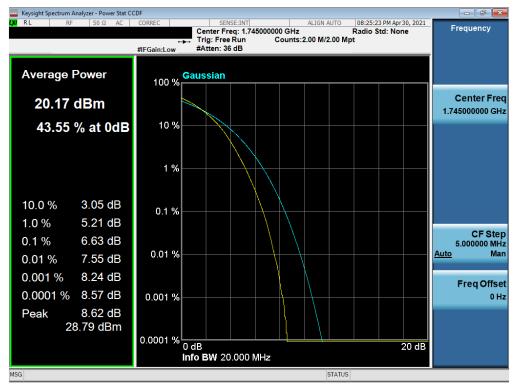
FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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# LTE Band 66/4



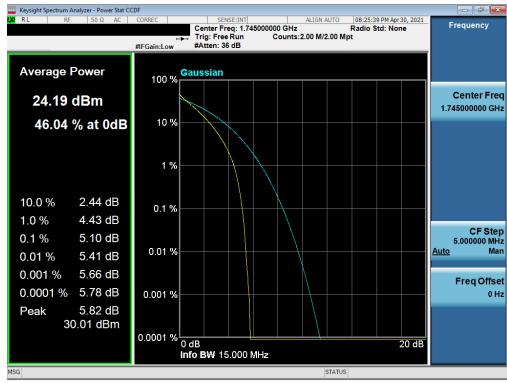
Plot 7-151. PAR Plot (LTE Band 66/4 - 20MHz QPSK - Full RB)



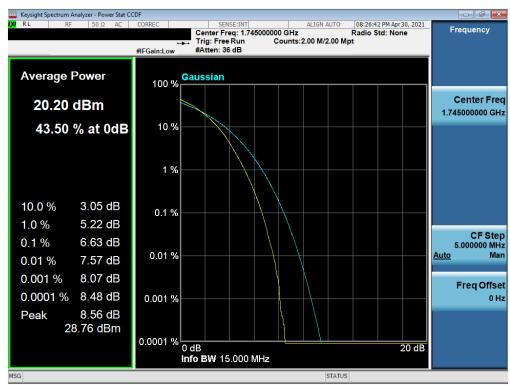
Plot 7-152. PAR Plot (LTE Band 66/4 - 20MHz 256-QAM - Full RB)

FCC ID: A3LSMF926B	Proceed to be part of the element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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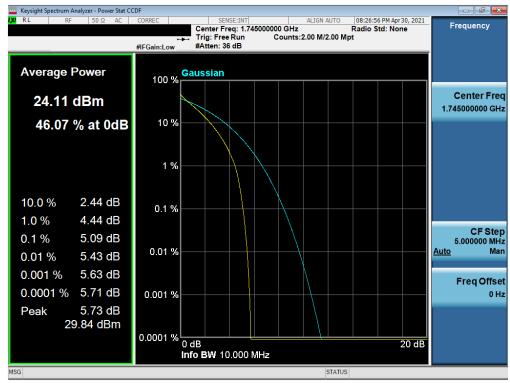
Plot 7-153. PAR Plot (LTE Band 66/4 - 15MHz QPSK - Full RB)



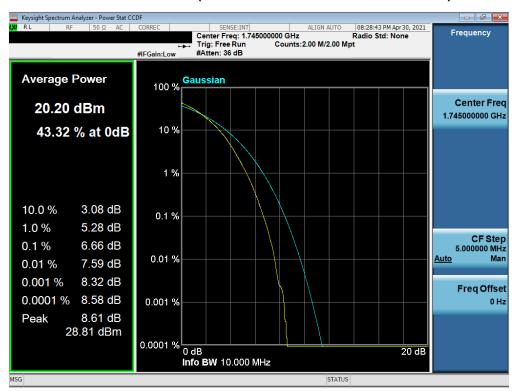
Plot 7-154. PAR Plot (LTE Band 66/4 - 15MHz 256-QAM - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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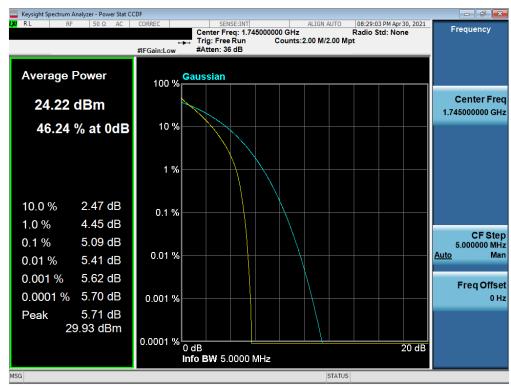
Plot 7-155. PAR Plot (LTE Band 66/4 - 10MHz QPSK - Full RB)



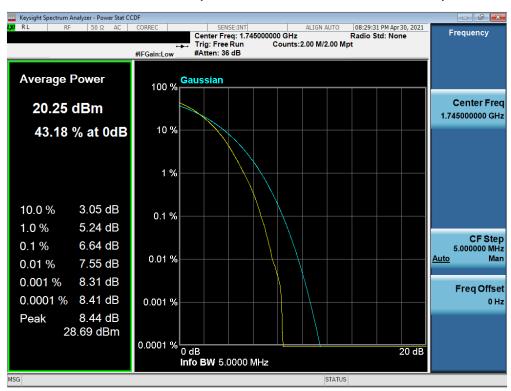
Plot 7-156. PAR Plot (LTE Band 66/4 - 10MHz 256-QAM - Full RB)

FCC ID: A3LSMF926B	PCTEST Proud to be part of @ element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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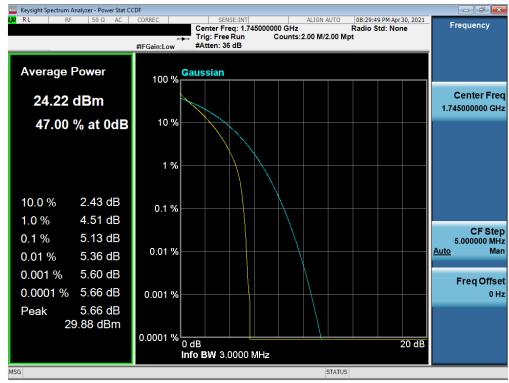
Plot 7-157. PAR Plot (LTE Band 66/4 - 5MHz QPSK - Full RB)



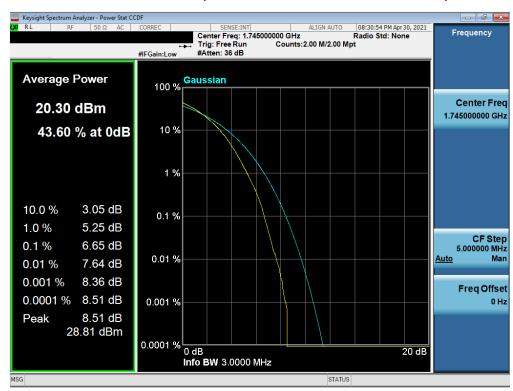
Plot 7-158. PAR Plot (LTE Band 66/4 - 5MHz 256-QAM - Full RB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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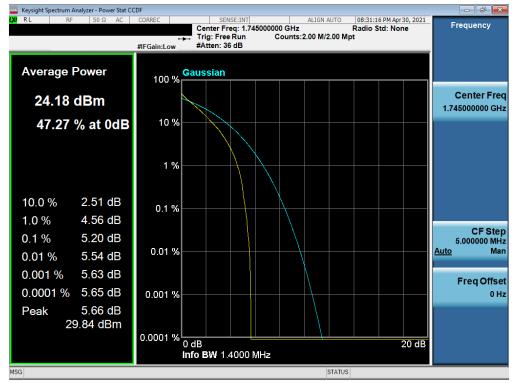
Plot 7-159. PAR Plot (LTE Band 66/4 - 3MHz QPSK - Full RB)



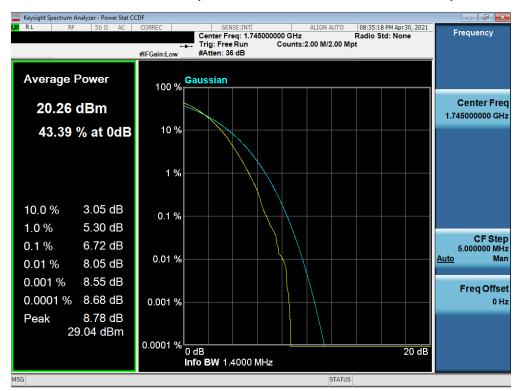
Plot 7-160. PAR Plot (LTE Band 66/4 - 3MHz 256-QAM - Full RB)

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Plot 7-161. PAR Plot (LTE Band 66/4 - 1.4MHz QPSK - Full RB)



Plot 7-162. PAR Plot (LTE Band 66/4 - 1.4MHz 256-QAM - Full RB)

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## NR Band n66



Plot 7-163. PAR Plot (NR Band n66 - 20.0MHz DFT-s-OFDM BPSK - Full RB)



Plot 7-164. PAR Plot (NR Band n66 - 20.0MHz CP-OFDM QPSK - Full RB)

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Plot 7-165. PAR Plot (NR Band n66 - 20.0MHz CP-OFDM 256-QAM - Full RB)



Plot 7-166. PAR Plot (NR Band n66 - 15.0MHz DFT-s-OFDM BPSK - Full RB)

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Plot 7-167. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM QPSK - Full RB)



Plot 7-168. PAR Plot (NR Band n66 - 15.0MHz CP-OFDM 256-QAM - Full RB)

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Plot 7-169. PAR Plot (NR Band n66 - 10.0MHz DFT-s-OFDM BPSK - Full RB)



Plot 7-170. PAR Plot (NR Band n66 - 10.0MHz CP-OFDM QPSK - Full RB)

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Plot 7-171. PAR Plot (NR Band n66 - 10.0MHz CP-OFDM 256-QAM - Full RB)



Plot 7-172. PAR Plot (NR Band n66 - 5.0MHz DFT-s-OFDM BPSK - Full RB)

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Plot 7-173. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM QPSK - Full RB)



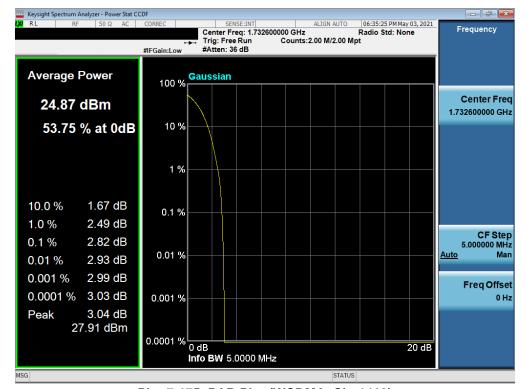
Plot 7-174. PAR Plot (NR Band n66 - 5.0MHz CP-OFDM 256-QAM - Full RB)

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# **WCDMA AWS**



Plot 7-175. PAR Plot (WCDMA, Ch. 1413)

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#### 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 > 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

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#### **Test Setup**

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

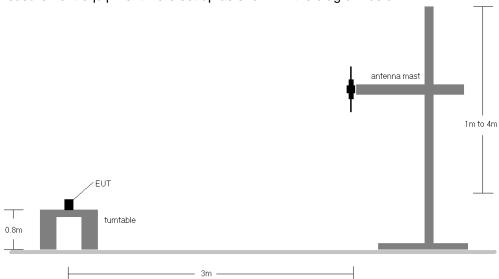


Figure 7-5. Radiated Test Setup <1GHz

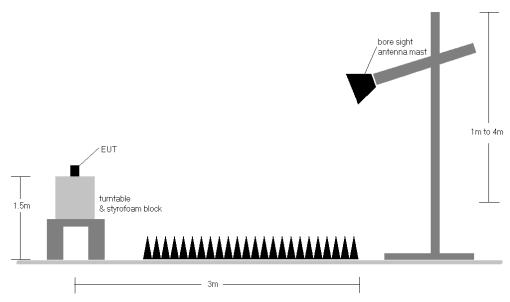


Figure 7-6. Radiated Test Setup >1GHz

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### **Test Notes**

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.
- 4) 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.

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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]
N		704.0	V	198.0	22.0	4.58	1/0	15.70	20.28	0.107	36.99	-16.71	18.13	0.065	34.77	-16.64
MHZ	QPSK	707.5	V	199.0	21.0	4.62	1 / 25	15.87	20.49	0.112	36.99	-16.50	18.34	0.068	34.77	-16.43
6		711.0	V	212.0	192.0	4.67	1/0	15.54	20.21	0.105	36.99	-16.78	18.06	0.064	34.77	-16.71
7	16-QAM	711.0	V	212.0	192.0	4.67	1/0	15.29	19.96	0.099	36.99	-17.03	17.81	0.060	34.77	-16.96
N		701.5	V	198.0	22.0	4.60	1/0	15.62	20.21	0.105	36.99	-16.77	18.06	0.064	34.77	-16.71
MHZ	QPSK	707.5	V	199.0	21.0	4.62	1 / 12	16.04	20.66	0.116	36.99	-16.33	18.51	0.071	34.77	-16.26
2 ≥		713.5	V	212.0	192.0	4.70	1 / 12	15.52	20.22	0.105	36.99	-16.77	18.07	0.064	34.77	-16.70
	16-QAM	713.5	V	212.0	192.0	4.70	1 / 12	15.01	19.71	0.093	36.99	-17.28	17.56	0.057	34.77	-17.21
	Opposite Pol.	707.5	Н	100.0	333.0	4.62	1 / 12	11.89	16.51	0.045	36.99	-20.48	14.36	0.027	34.77	-20.41
5 MHz	Half Open	707.5	Н	123.0	297.0	4.62	1/0	15.56	20.18	0.104	36.99	-16.81	18.03	0.064	34.77	-16.74
	WCP	707.5	V	244.0	11.0	4.62	1 / 12	12.84	17.46	0.056	36.99	-19.53	15.31	0.034	34.77	-19.46

# Table 7-2. ERP Data (LTE Band 12/17 - AntA + AntB)

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]
N.		700.5	V	198.0	22.0	4.59	1/0	15.48	20.06	0.101	36.99	-16.93	17.91	0.062	34.77	-16.86
꿀	QPSK	707.5	V	199.0	21.0	4.62	1 / 14	15.90	20.52	0.113	36.99	-16.47	18.37	0.069	34.77	-16.40
≥ 8		714.5	V	212.0	192.0	4.71	1/7	15.30	20.01	0.100	36.99	-16.98	17.86	0.061	34.77	-16.92
• • •	16-QAM	714.5	V	212.0	192.0	4.71	1/7	15.33	20.04	0.101	36.99	-16.95	17.89	0.062	34.77	-16.88
Z		699.7	V	198.0	22.0	4.56	1/3	15.57	20.12	0.103	36.99	-16.87	17.97	0.063	34.77	-16.80
풀	QPSK	707.5	V	199.0	21.0	4.62	1/5	15.74	20.37	0.109	36.99	-16.62	18.22	0.066	34.77	-16.56
4		715.3	V	212.0	192.0	4.72	1/3	15.38	20.10	0.102	36.99	-16.89	17.95	0.062	34.77	-16.82
←	16-QAM	715.3	V	212.0	192.0	4.72	1/3	15.07	19.78	0.095	36.99	-17.20	17.63	0.058	34.77	-17.14

# Table 7-3. ERP Data (LTE Band 12 – AntA + AntB)

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]
Z		704.0	Н	145.0	321.0	3.58	1/0	14.06	17.64	0.058	36.99	-19.35	15.49	0.035	34.77	-19.28
Ϊ	QPSK	707.5	Н	302.0	327.0	3.72	1/0	13.67	17.39	0.055	36.99	-19.60	15.24	0.033	34.77	-19.53
<u> </u>		711.0	Н	277.0	323.0	3.67	1 / 49	13.80	17.47	0.056	36.99	-19.52	15.32	0.034	34.77	-19.45
-	16-QAM	707.5	Н	302.0	327.0	3.72	1/0	13.44	17.16	0.052	36.99	-19.83	15.01	0.032	34.77	-19.76
N		701.5	Н	145.0	321.0	3.45	1 / 12	14.07	17.52	0.056	36.99	-19.47	15.37	0.034	34.77	-19.40
Ϊ	QPSK	707.5	Н	302.0	327.0	3.72	1/0	13.60	17.33	0.054	36.99	-19.66	15.18	0.033	34.77	-19.59
≥		713.5	Н	277.0	323.0	3.70	1 / 12	13.93	17.63	0.058	36.99	-19.36	15.48	0.035	34.77	-19.29
	16-QAM	701.5	Н	145.0	321.0	3.45	1 / 12	13.34	16.79	0.048	36.99	-20.20	14.64	0.029	34.77	-20.13
	Opposite Pol.	704.0	V	272.0	42.0	3.58	1/0	12.14	15.72	0.037	36.99	-21.27	13.57	0.023	34.77	-21.20
10 MHz	Closed	704.0	Н	199.0	210.0	3.58	1/0	10.79	14.37	0.027	36.99	-22.62	12.22	0.017	34.77	-22.55
	WCP	704.0	Н	159.0	66.0	3.58	1/0	11.20	14.78	0.030	36.99	-22.21	12.63	0.018	34.77	-22.14

# Table 7-4. ERP Data (LTE Band 12/17 - AntA)

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]
N		700.5	Н	145.0	321.0	3.44	1/7	14.33	17.77	0.060	36.99	-19.22	15.62	0.036	34.77	-19.15
MHZ	QPSK	707.5	Н	302.0	327.0	3.72	1/0	13.45	17.18	0.052	36.99	-19.81	15.03	0.032	34.77	-19.75
		714.5	Н	277.0	323.0	3.71	1 / 14	13.79	17.50	0.056	36.99	-19.49	15.35	0.034	34.77	-19.43
.,	16-QAM	714.5	Н	277.0	323.0	3.71	1 / 14	13.02	16.73	0.047	36.99	-20.26	14.58	0.029	34.77	-20.19
N		699.7	Н	145.0	321.0	3.43	1/3	14.14	17.57	0.057	36.99	-19.42	15.42	0.035	34.77	-19.35
MHz	QPSK	707.5	Н	302.0	327.0	3.72	1/3	13.51	17.24	0.053	36.99	-19.75	15.09	0.032	34.77	-19.68
4		715.3	Н	277.0	323.0	3.72	1/5	13.62	17.34	0.054	36.99	-19.65	15.19	0.033	34.77	-19.58
<del>-</del> -	16-QAM	707.5	Н	302.0	327.0	3.72	1/5	13.32	17.04	0.051	36.99	-19.95	14.89	0.031	34.77	-19.88

# Table 7-5. ERP Data (LTE Band 12 - AntA)

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]
V 0	QPSK	782.0	Н	104.0	329.0	5.79	1/0	15.49	21.28	0.134	36.99	-15.71	19.13	0.082	34.77	-15.64
=	16-QAM	782.0	Н	104.0	329.0	5.79	1/0	12.74	18.53	0.071	36.99	-18.46	16.38	0.043	34.77	-18.39
N		779.5	Н	104.0	329.0	5.77	1 / 24	15.58	21.35	0.136	36.99	-15.64	19.20	0.083	34.77	-15.57
MHz	QPSK	782.0	Н	104.0	329.0	5.79	1 / 12	15.54	21.33	0.136	36.99	-15.66	19.18	0.083	34.77	-15.59
≥ 2		784.5	Н	104.0	329.0	5.82	1 / 24	15.77	21.59	0.144	36.99	-15.40	19.44	0.088	34.77	-15.33
47	16-QAM	782.0	Н	104.0	329.0	5.79	1 / 12	13.01	18.80	0.076	36.99	-18.19	16.65	0.046	34.77	-18.12
	Opposite Pol.	782.0	V	150.0	179.0	5.79	1/0	12.31	18.10	0.065	36.99	-18.89	15.95	0.039	34.77	-18.82
10 MHz	Closed	782.0	Н	189.0	222.0	5.79	1/0	12.89	18.68	0.074	36.99	-18.31	16.53	0.045	34.77	-18.24
	WCP	782.0	V	111.0	201.0	5.79	1/0	10.62	16.41	0.044	36.99	-20.58	14.26	0.027	34.77	-20.51

# Table 7-6. ERP Data (LTE Band 13 - AntA + AntB)

FCC ID: A3LSMF926B	Proud to be part of ® element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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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	782.0	I	232.0	149.0	6.11	1/0	12.35	18.46	0.070	36.99	-18.53	16.31	0.043	34.77	-18.47
IU WITZ	16-QAM	782.0	Н	232.0	149.0	6.11	1/0	11.76	17.87	0.061	36.99	-19.12	15.72	0.037	34.77	-19.06
N		779.5	Н	232.0	149.0	6.00	1 / 24	12.52	18.52	0.071	36.99	-18.47	16.37	0.043	34.77	-18.40
보	QPSK	782.0	I	232.0	149.0	6.11	1 / 12	12.40	18.51	0.071	36.99	-18.48	16.36	0.043	34.77	-18.42
≥ 2		784.5	I	232.0	149.0	6.23	1 / 24	12.54	18.76	0.075	36.99	-18.23	16.61	0.046	34.77	-18.16
47	16-QAM	782.0	Н	232.0	149.0	6.11	1 / 12	12.03	18.13	0.065	36.99	-18.86	15.98	0.040	34.77	-18.79
	Opposite Pol.	782.0	V	220.0	206.0	6.11	1/0	9.11	15.22	0.033	36.99	-21.77	13.07	0.020	34.77	-21.71
10 MHz	Closed	782.0	V	214.0	222.0	6.11	1/0	8.88	14.99	0.032	36.99	-22.00	12.84	0.019	34.77	-21.94
	WCP	782.0	Н	116.0	278.0	6.11	1/0	8.92	15.03	0.032	36.99	-21.96	12.88	0.019	34.77	-21.90

Table 7-7. ERP Data (LTE Band 13 - AntA)

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]
Z		1720.0	H	175.0	122.0	9.41	1 / 50	15.85	25.26	0.336	30.00	-4.74
Ę	QPSK	1745.0	H	125.0	121.0	9.26	1 / 50	14.69	23.95	0.248	30.00	-6.05
20 MHz		1770.0	Н	169.0	122.0	9.27	1 / 0	15.28	24.55	0.285	30.00	-5.45
7	16-QAM	1720.0	Н	175.0	122.0	9.41	1 / 50	15.32	24.73	0.297	30.00	-5.27
Z		1717.5	Н	175.0	122.0	9.43	1 / 74	15.84	25.27	0.337	30.00	-4.73
MHz	QPSK	1745.0	Н	125.0	121.0	9.26	1 / 37	14.75	24.01	0.252	30.00	-5.99
15		1772.5	Н	169.0	122.0	9.27	1 / 37	15.25	24.52	0.283	30.00	-5.48
-	16-QAM	1717.5	Н	175.0	122.0	9.43	1 / 74	15.32	24.75	0.299	30.00	-5.25
Z		1715.0	Н	175.0	122.0	9.44	1 / 25	15.56	25.00	0.317	30.00	-5.00
¥	QPSK	1745.0	Н	125.0	121.0	9.26	1 / 25	14.67	23.93	0.247	30.00	-6.07
10 MHz		1775.0	Н	169.0	122.0	9.28	1 / 25	15.23	24.51	0.282	30.00	-5.49
	16-QAM	1715.0	Н	175.0	122.0	9.44	1 / 25	14.90	24.34	0.272	30.00	-5.66
N		1712.5	Н	175.0	122.0	9.46	1 / 0	15.59	25.05	0.320	30.00	-4.95
Ī	QPSK	1745.0	Н	125.0	121.0	9.26	1 / 12	14.89	24.15	0.260	30.00	-5.85
5 MHz		1777.5	Н	169.0	122.0	9.28	1 / 12	15.24	24.52	0.283	30.00	-5.48
- "	16-QAM	1777.5	Н	169.0	122.0	9.28	1 / 12	14.66	23.94	0.248	30.00	-6.06
N		1711.5	Н	175.0	122.0	9.47	1 / 0	15.62	25.08	0.322	30.00	-4.92
Ï	QPSK	1745.0	Н	125.0	121.0	9.26	1 / 7	14.80	24.06	0.255	30.00	-5.94
3 MHz		1778.5	Н	169.0	122.0	9.28	1/0	15.22	24.51	0.282	30.00	-5.49
17	16-QAM	1778.5	Н	169.0	122.0	9.28	1/0	14.70	23.99	0.251	30.00	-6.01
Ţ		1710.7	Н	175.0	122.0	9.47	1/0	15.71	25.18	0.330	30.00	-4.82
Ė	QPSK QPSK	1745.0	Н	125.0	121.0	9.26	1/3	14.75	24.01	0.252	30.00	-5.99
4.		1779.3	Н	169.0	122.0	9.29	1/3	15.22	24.51	0.282	30.00	-5.49
	16-QAM	1779.3	Н	169.0	122.0	9.29	1/3	14.67	23.96	0.249	30.00	-6.04
	Opposite Pol.	1720.0	V	210.0	104.0	9.31	1 / 50	13.67	22.98	0.199	30.00	-7.02
20 MHz	Half open	1720.0	Н	150.0	302.0	9.41	1 / 50	11.01	20.42	0.110	30.00	-9.58
	WCP	1720.0	Н	141.0	107.0	9.41	1 / 99	12.43	21.84	0.153	30.00	-8.16

# Table 7-8. EIRP Data (LTE Band 66/4)

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	Н	100	140	14.49	9.46	23.95	0.248	30.00	-6.05
1732.60	WCDMA1700	Н	137	142	14.27	9.34	23.61	0.229	30.00	-6.39
1752.60	WCDMA1700	Н	128	142	13.93	9.24	23.17	0.207	30.00	-6.83
1712.40	WCDMA1700	V	207	75	11.48	9.37	20.85	0.122	30.00	-9.15
1712.40	WCDMA1700	Н	130	243	12.97	9.46	22.43	0.175	30.00	-7.57
1712.40	WCDMA1700 (WCP)	Н	151	191	11.57	9.46	21.03	0.127	30.00	-8.97

Table 7-9. EIRP Data (WCDMA AWS)

FCC ID: A3LSMF926B	Proud to be part of ® element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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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]
		1720.0	Н	178.0	133.0	9.98	1 / 79	14.53	24.51	0.282	30.00	-5.49
	π/2 BPSK	1745.0	Н	175.0	133.0	9.88	1 / 26	14.04	23.92	0.246	30.00	-6.08
20 MHz		1770.0	Н	167.0	129.0	9.67	1 / 79	13.64	23.31	0.214	30.00	-6.69
	QPSK	1720.0	Н	178.0	133.0	9.98	1 / 79	14.46	24.44	0.278	30.00	-5.56
	16-QAM	1720.0	Н	178.0	133.0	9.98	1 / 79	13.48	23.46	0.222	30.00	-6.54
		1717.5	Н	178.0	133.0	9.97	1 / 58	14.69	24.66	0.293	30.00	-5.34
	π/2 BPSK	1745.0	Н	175.0	133.0	9.88	1 / 39	13.91	23.78	0.239	30.00	-6.22
15 MHz		1772.5	Н	167.0	129.0	9.64	1 / 20	13.65	23.29	0.213	30.00	-6.71
	QPSK	1717.5	Н	178.0	133.0	9.97	1 / 20	14.65	24.62	0.290	30.00	-5.38
	16-QAM	1717.5	Н	178.0	133.0	9.97	1 / 58	13.85	23.82	0.241	30.00	-6.18
		1715.0	Н	178.0	133.0	9.97	1 / 26	14.80	24.77	0.300	30.00	-5.23
	π/2 BPSK	1745.0	Н	175.0	133.0	9.88	1 / 13	14.05	23.92	0.247	30.00	-6.08
10 MHz		1775.0	Н	167.0	129.0	9.60	1 / 26	13.41	23.02	0.200	30.00	-6.98
	QPSK	1715.0	Н	178.0	133.0	9.97	1 / 38	14.48	24.45	0.278	30.00	-5.55
	16-QAM	1715.0	Н	178.0	133.0	9.97	1 / 38	13.76	23.73	0.236	30.00	-6.27
		1712.5	Н	178.0	133.0	9.96	1 / 12	14.82	24.78	0.300	30.00	-5.22
	π/2 BPSK	1745.0	Н	175.0	133.0	9.88	1/6	14.00	23.88	0.244	30.00	-6.12
5 MHz		1777.5	Н	167.0	129.0	9.57	1/6	13.47	23.04	0.202	30.00	-6.96
	QPSK	1712.5	Н	178.0	133.0	9.96	1/6	14.60	24.57	0.286	30.00	-5.43
	16-QAM	1712.5	Н	178.0	133.0	9.96	1 / 18	13.68	23.65	0.232	30.00	-6.35
	QPSK (CP-OFDM)	1720.0	Н	178.0	133.0	9.98	1/79	13.12	23.10	0.204	30.00	-6.90
20 MHz	QPSK (Opposite Pol.)	1720.0	V	123.0	270.0	9.53	1/26	11.17	20.70	0.117	30.00	-9.30
	QPSK (WCP)	1720.0	Н	136.0	365.0	9.98	1/79	12.78	22.76	0.189	30.00	-7.24

Table 7-10. EIRP Data (NR Band n66)

FCC ID: A3LSMF926B	Proud to be part of @ element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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O COOL BOTTOT			\ (0.4/E (0.004



#### 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 peak 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 ≥ 3 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points  $\geq 2 \times \text{span} / \text{RBW}$
- Detector = RMS
- 6. Trace mode = Average (Max Hold for pulsed emissions)
- 7. The trace was allowed to stabilize

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#### **Test Setup**

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

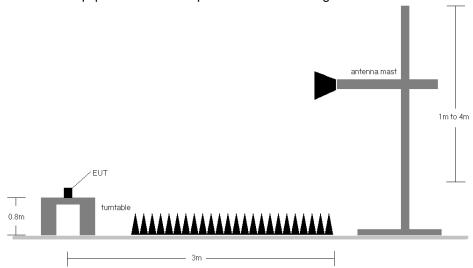


Figure 7-7. Test Instrument & Measurement Setup

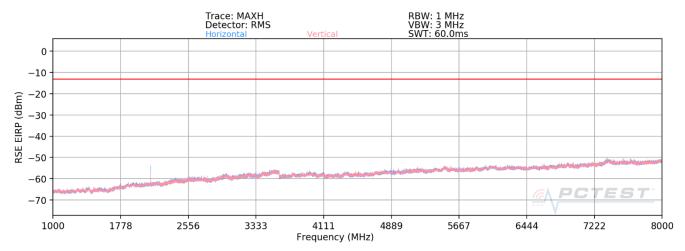
#### **Test Notes**

- 1) Field strengths are calculated using the Measurement quantity conversions in KDB 971168 Section 5.8.4. b) E(dBµV/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)
  - d) EIRP (dBm) =  $E(dB\mu V/m) + 20logD 104.8$ ; 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 EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.
- 5) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 6) 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.
- 7) The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 8) 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.
- 9) 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.

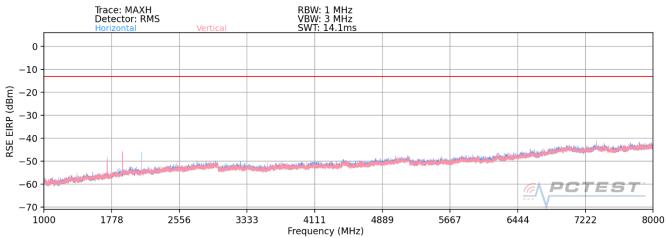
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# LTE Band 12/17 - AntA + AntB



Plot 7-176. Radiated Spurious Plot (LTE Band 12/17 - AntA + AntB) - Open



Plot 7-177. Radiated Spurious Plot (LTE Band 12/17 - AntA + AntB) - Closed

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	282	14	-67.00	-5.28	34.72	-60.53	-13.00	-47.53
2112.0	V	131	35	-57.48	-2.79	46.73	-48.52	-13.00	-35.52
2816.0	V	-	-	-70.13	-1.67	35.20	-60.06	-13.00	-47.06
3520.0	V	-	-	-70.08	1.49	38.41	-56.85	-13.00	-43.85

Table 7-11. Radiated Spurious Data (LTE Band 12 - Low Channel - AntA + AntB)

FCC ID: A3LSMF926B	Pout to be port of ® element	PART 27 MEASUREMENT REPORT	Approved by: Technical Manager
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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	282	21	-67.20	-5.29	34.51	-60.74	-13.00	-47.74
2122.5	V	180	36	-57.83	-2.98	46.19	-49.07	-13.00	-36.07
2830.0	V	-	-	-70.34	-1.25	35.41	-59.85	-13.00	-46.85
3537.5	V	-	-	-70.11	1.57	38.46	-56.80	-13.00	-43.80

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

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

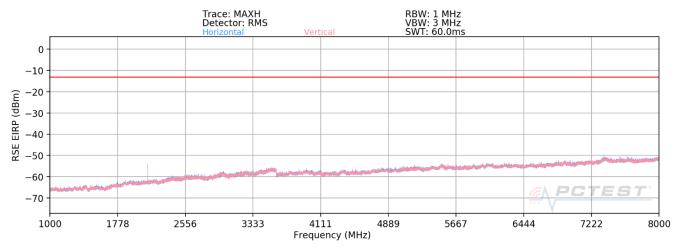
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1422.0	V	359	14	-67.69	-5.66	33.65	-61.61	-13.00	-48.61
2133.0	V	124	33	-59.38	-3.22	44.40	-50.86	-13.00	-37.86
2844.0	V	-	-	-70.29	-1.17	35.54	-59.72	-13.00	-46.72
3555.0	V	393	49	-69.23	1.43	39.20	-56.05	-13.00	-43.05
4266.0	V	-	-	-69.51	2.13	39.62	-55.64	-13.00	-42.64
4977.0	V	-	-	-69.62	3.76	41.14	-54.12	-13.00	-41.12

Table 7-13. Radiated Spurious Data (LTE Band 12/17 – High Channel – AntA + AntB)

FCC ID: A3LSMF926B	Pout to be part of ® element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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# LTE Band 12/17 - AntA



Plot 7-178. Radiated Spurious Plot (LTE Band 12/17 - AntA)

Bandwidth (MHz):	10
Frequency (MHz):	704.0
RB / Offset:	1 / 25
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

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	-	-	-68.01	0.71	39.70	-55.56	-13.00	-42.56
2112.0	V	201	44	-64.44	4.02	46.58	-48.68	-13.00	-35.68
2816.0	V	-	-	-68.11	5.88	44.77	-50.49	-13.00	-37.49
3520.0	V	-	-	-70.10	7.12	44.02	-51.24	-13.00	-38.24

Table 7-14. Radiated Spurious Data (LTE Band 12 - Low Channel - AntA)

Bandwidth (MHz):	10
Frequency (MHz):	707.5
RB / Offset:	1 / 25
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

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	-	-	-67.76	0.70	39.94	-55.32	-13.00	-42.32
2122.5	V	199	34	-63.67	3.94	47.27	-47.98	-13.00	-34.98
2830.0	V	•	-	-68.08	5.99	44.91	-50.35	-13.00	-37.35
3537.5	V	-	-	-69.46	7.65	45.19	-50.07	-13.00	-37.07

Table 7-15. Radiated Spurious Data (LTE Band 12/17 – Mid Channel – AntA)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Bandwidth (MHz):	10
Frequency (MHz):	711.0
RB / Offset:	1 / 25
Detector / Trace Mode:	RMS / Average
RBW/VBW:	1MHz / 3MHz

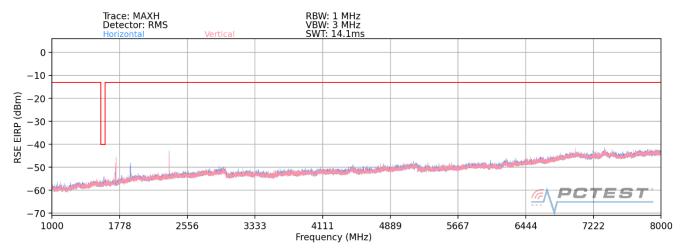
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1422.0	V	-	-	-68.00	0.33	39.33	-55.93	-13.00	-42.93
2133.0	V	199	34	-63.71	3.85	47.14	-48.12	-13.00	-35.12
2844.0	V	-	-	-68.11	6.03	44.92	-50.33	-13.00	-37.33
3555.0	V	-	-	-70.11	8.30	45.19	-50.07	-13.00	-37.07

Table 7-16. Radiated Spurious Data (LTE Band 12/17 - High Channel - AntA)

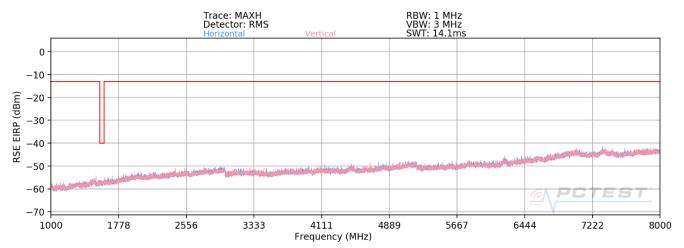
FCC ID: A3LSMF926B	Pout to be part of ® element	PART 27 MEASUREMENT REPORT	IG	Approved by: Technical Manager
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# LTE Band 13 - AntA + AntB



Plot 7-179. Radiated Spurious Plot (LTE Band 13 - AntA + AntB) - Open



Plot 7-180. Radiated Spurious Plot (LTE Band 13 - AntA + AntB) - Closed

Bandwidth (MHz):	10
Frequency (MHz):	782.0
RB / Offset:	1 / 25

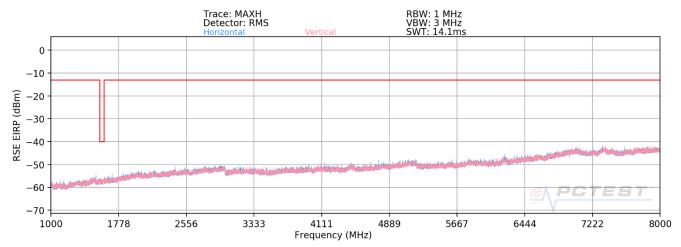
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
1564.0	Н	393	46	-76.77	-0.36	29.87	-65.39	-40.00	-25.39
2346.0	Н	215	162	-64.33	2.89	45.56	-49.70	-13.00	-36.70
3128.0	Н	-	-	-78.05	4.26	33.21	-62.05	-13.00	-49.05
3910.0	Н	-	-	-78.28	5.10	33.82	-61.44	-13.00	-48.44
4692.0	Н	_	_	-79.29	5.79	33.50	-61.76	-13.00	-48.76

Table 7-17. Radiated Spurious Data (LTE Band 13 – Mid Channel – AntA + AntB)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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# LTE Band 13 - AntA



Plot 7-181. Radiated Spurious Plot (LTE Band 13 - AntA)

Bandwidth (MHz):	10
Frequency (MHz):	782.0
RB / Offset:	1 / 25
Detector / Trace Mode:	RMS / Average
RBW / VBW:	1MHz / 3MHz

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]
1564.0	V	-	-	-68.56	-0.36	38.08	-57.18	-40.00	-17.18
2346.0	V	243	335	-57.44	2.89	52.45	-42.81	-13.00	-29.81
3128.0	V	-	-	-68.96	4.26	42.30	-52.96	-13.00	-39.96
3910.0	V	-	-	-66.99	5.10	45.11	-50.15	-13.00	-37.15

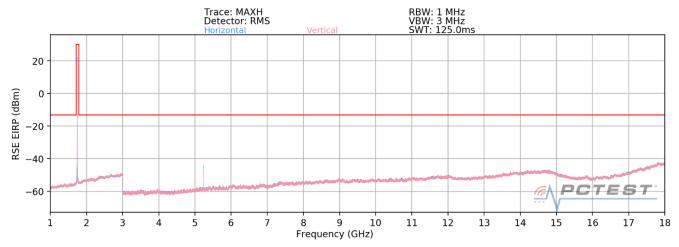
Table 7-18. Radiated Spurious Data (LTE Band 13 - Mid Channel - AntA)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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# LTE Band 66/4



Plot 7-182. 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	Н	139	129	-73.10	1.68	35.58	-59.68	-13.00	-46.68
5160.0	Н	305	49	-59.10	4.96	52.86	-42.40	-13.00	-29.40
6880.0	Н	-	-	-80.14	8.27	35.13	-60.13	-13.00	-47.13
8600.0	Н	-	-	-80.77	11.42	37.65	-57.61	-13.00	-44.61
10320.0	Н	-	-	-80.91	11.40	37.49	-57.77	-13.00	-44.77

Table 7-19. 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	Н	130	129	-69.65	1.27	38.62	-56.63	-13.00	-43.63
5235.0	Н	289	54	-61.18	4.93	50.75	-44.50	-13.00	-31.50
6980.0	Н	-	-	-79.11	6.82	34.71	-60.55	-13.00	-47.55
8725.0	Н	148	26	-79.67	10.67	38.00	-57.26	-13.00	-44.26
10470.0	Н	-	-	-80.89	11.92	38.03	-57.23	-13.00	-44.23
12215.0	Н	117	19	-80.61	13.65	40.04	-55.22	-13.00	-42.22
13960.0	Н	-	-	-81.24	16.16	41.92	-53.34	-13.00	-40.34
15705.0	Н	-	-	-81.78	13.85	39.07	-56.18	-13.00	-43.18

Table 7-20. Radiated Spurious Data (LTE Band 66/4 - Mid Channel)

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

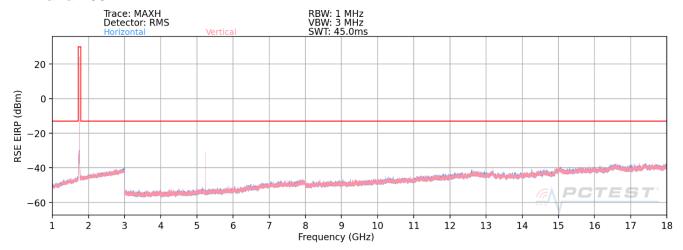
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3540.00	Н	119	132	-71.95	1.35	36.40	-58.85	-13.00	-45.85
5310.00	Н	283	59	-63.74	4.74	48.00	-47.25	-13.00	-34.25
7080.00	Н	-	-	-79.39	7.30	34.91	-60.35	-13.00	-47.35
8850.00	Н	-	-	-80.24	10.77	37.53	-57.73	-13.00	-44.73
10620.00	Н	_	-	-80.79	12.20	38.41	-56.85	-13.00	-43.85

Table 7-21. Radiated Spurious Data (LTE Band 66/4 – High Channel)

FCC ID: A3LSMF926B	Pout to be part of ® element	PART 27 MEASUREMENT REPORT	MSUNG	Approved by: Technical Manager
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# NR Band n66



Plot 7-183. Radiated Spurious Plot (NR Band n66)

Bandwidth (MHz):	20
Frequency (MHz):	1710.0
RB / Offset:	1 / 50
Mode:	SA

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]
3420.0	Н	102	45	-68.35	5.22	43.87	-51.38	-13.00	-38.38
5130.0	Н	102	46	-51.28	7.96	63.68	-31.57	-13.00	-18.57
6840.0	Н	-	-	-70.96	13.08	49.12	-46.14	-13.00	-33.14
8550.0	Н	-	-	-72.16	14.20	49.04	-46.22	-13.00	-33.22

Table 7-22. Radiated Spurious Data (NR Band n66 – Low Channel)

Bandwidth (MHz):	20
Frequency (MHz):	1745.0
RB / Offset:	1 / 50
Mode:	SA

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	Н	-	-	-69.29	6.10	43.81	-51.44	-13.00	-38.44
5235.0	Н	100	46	-46.80	8.18	68.38	-26.87	-13.00	-13.87
6980.0	Н	-	-	-70.52	12.75	49.23	-46.03	-13.00	-33.03
8725.0	Н	-	-	-71.42	15.43	51.01	-44.24	-13.00	-31.24

Table 7-23. Radiated Spurious Data (NR Band n66 - Mid Channel)

FCC ID: A3LSMF926B	Proceed to be part of the element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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Bandwidth (MHz):	20
Frequency (MHz):	1780.0
RB / Offset:	1 / 50
Mode:	SA

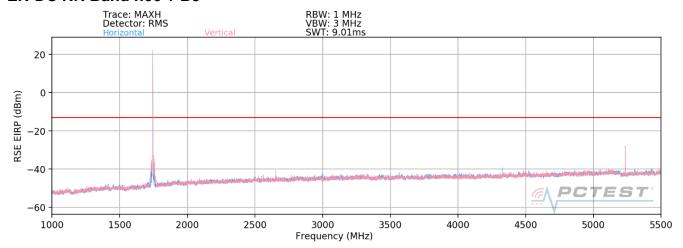
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
3560.0	Н	-	-	-69.72	6.23	43.51	-51.75	-13.00	-38.75
5340.0	Н	107	17	-50.94	7.94	64.00	-31.26	-13.00	-18.26
7120.0	Н	-	-	-70.76	12.93	49.17	-46.09	-13.00	-33.09
8900.0	Н	-	-	-72.03	14.85	49.82	-45.43	-13.00	-32.43

Table 7-24. Radiated Spurious Data (NR Band n66 – High Channel)

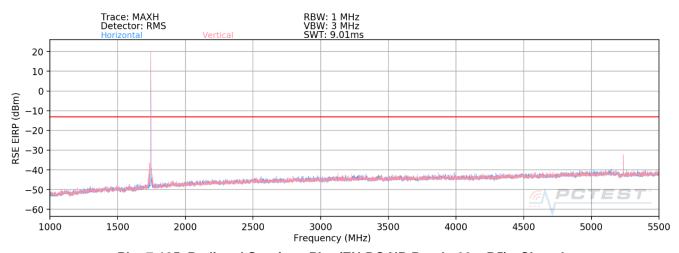
FCC ID: A3LSMF926B	Pout to be part of ® element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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# EN-DC NR Band n66 + B5



Plot 7-184. Radiated Spurious Plot (EN-DC NR Band n66 + B5) - Open



Plot 7-185. Radiated Spurious Plot (EN-DC NR Band n66 + B5) - Closed

Bandwidth (MHz):	20 & 10 MHz
RB / Offset:	1/53 & 1/25
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]
2653.6	Н	195	40	-73.45	12.67	46.22	-49.04	-13.00	-36.04
4326.4	Н	172	133	-74.25	15.37	48.12	-47.14	-13.00	-34.14
5234.8	Н	152	349	-64.91	17.12	59.21	-36.05	-13.00	-23.05
8725.1	Н	104	337	-79.96	13.67	40.71	-54.55	-13.00	-41.55
9013.0	Н	-	-	-83.60	13.94	37.34	-57.92	-13.00	-44.92
9921.5	Н	-	-	-84.71	16.15	38.44	-56.81	-13.00	-43.81
10830.0	Н	-	-	-84.13	16.36	39.23	-56.02	-13.00	-43.02

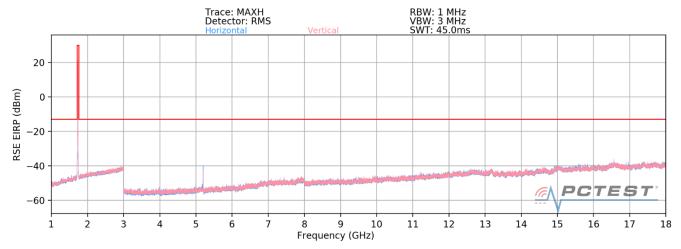
Table 7-25. Radiated Spurious Data (EN-DC NR Band n66 + B5)

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# **WCDMA AWS**



Plot 7-186. 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	V	112	169	-75.93	5.41	36.48	-58.78	-13.00	-45.78
5137.2	V	228	21	-67.58	7.71	47.13	-48.13	-13.00	-35.13
6849.6	V	-	-	-80.27	11.23	37.96	-57.30	-13.00	-44.30
8562.0	V	-	-	-81.01	12.92	38.91	-56.35	-13.00	-43.35
10274.4	V	-	-	-81.36	15.48	41.12	-54.13	-13.00	-41.13

7-26. 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	V	169	166	-77.26	5.59	35.33	-59.92	-13.00	-46.92
5197.8	V	210	327	-62.40	7.09	51.69	-43.56	-13.00	-30.56
6930.4	V	-	-	-80.51	11.25	37.74	-57.51	-13.00	-44.51
8663.0	V	-	-	-80.92	13.37	39.45	-55.81	-13.00	-42.81
10395.6	V	-	-	-81.44	15.72	41.28	-53.98	-13.00	-40.98

Table 7-27. Radiated Spurious Data (WCDMA AWS – Mid Channel)

FCC ID: A3LSMF926B	Proud to be part of & element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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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	V	101	169	-76.64	4.92	35.28	-59.97	-13.00	-46.97
5257.8	V	170	193	-65.76	7.26	48.50	-46.76	-13.00	-33.76
7010.4	V	-	-	-79.66	11.21	38.55	-56.71	-13.00	-43.71
8763.0	V	-	-	-81.11	13.26	39.15	-56.11	-13.00	-43.11
10515.6	V	-	-	-81.97	15.81	40.84	-54.42	-13.00	-41.42

Table 7-28. Radiated Spurious Data (WCDMA AWS - High Channel)

FCC ID: A3LSMF926B	Pout to be part of ® element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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# 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

# Frequency Stability / Temperature Variation

FCC ID: A3LSMF926B	Pout to be part of ® element	PART 27 MEASUREMENT REPORT	SAMSUNG	Approved by: Technical Manager
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