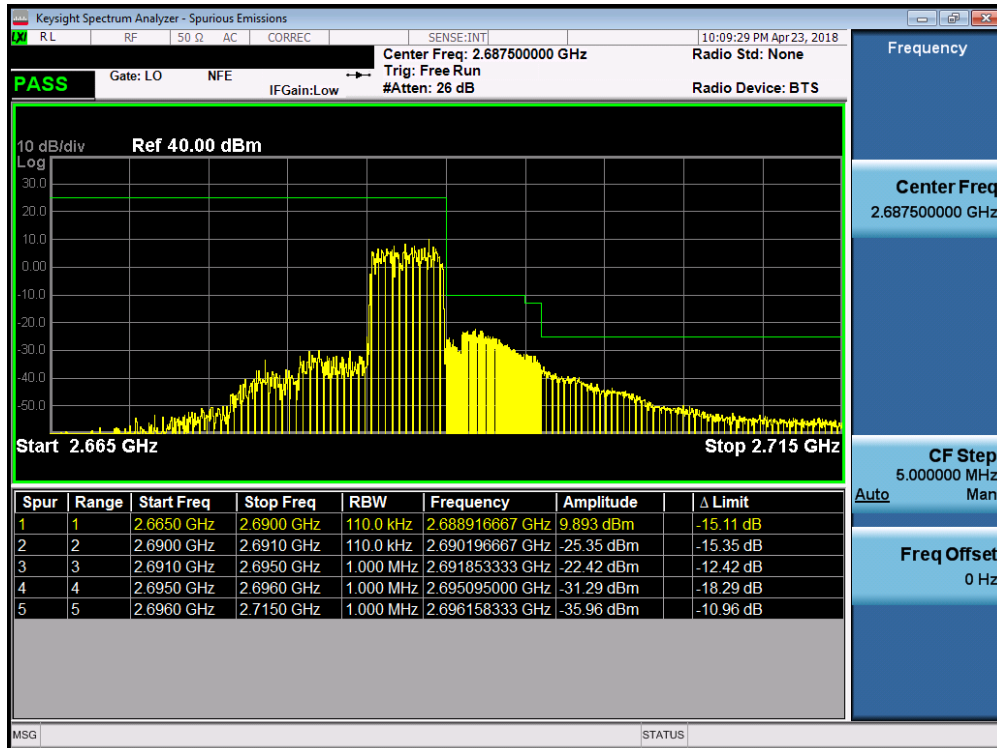
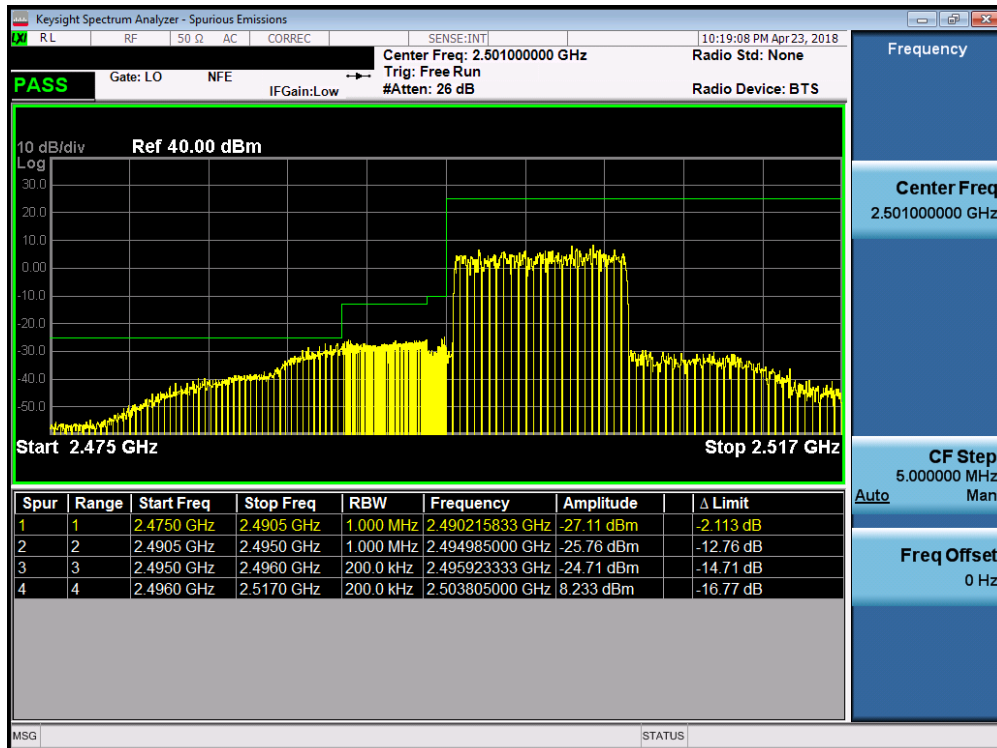


Plot 7-240. Lower ACP Plot at 2496 MHz (Band 41 - 5.0MHz QPSK - RB Size 25)

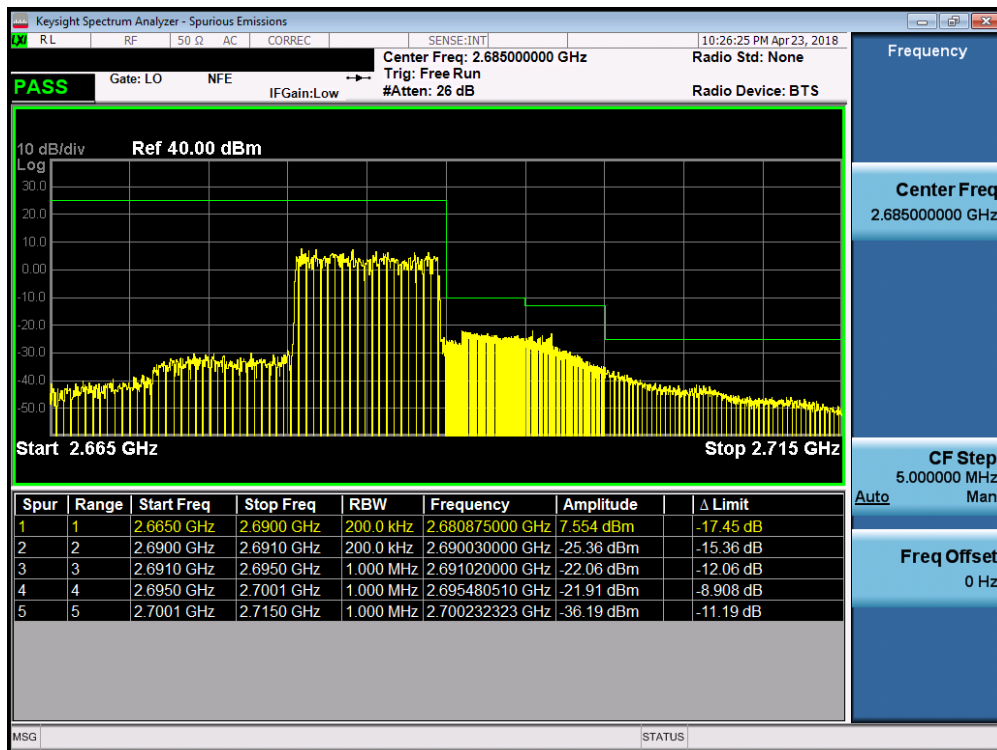


Plot 7-241. Upper ACP Plot (Band 41 - 5.0MHz QPSK - RB Size 25)

FCC ID: A3LSMN960KOR	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset		Page 144 of 198

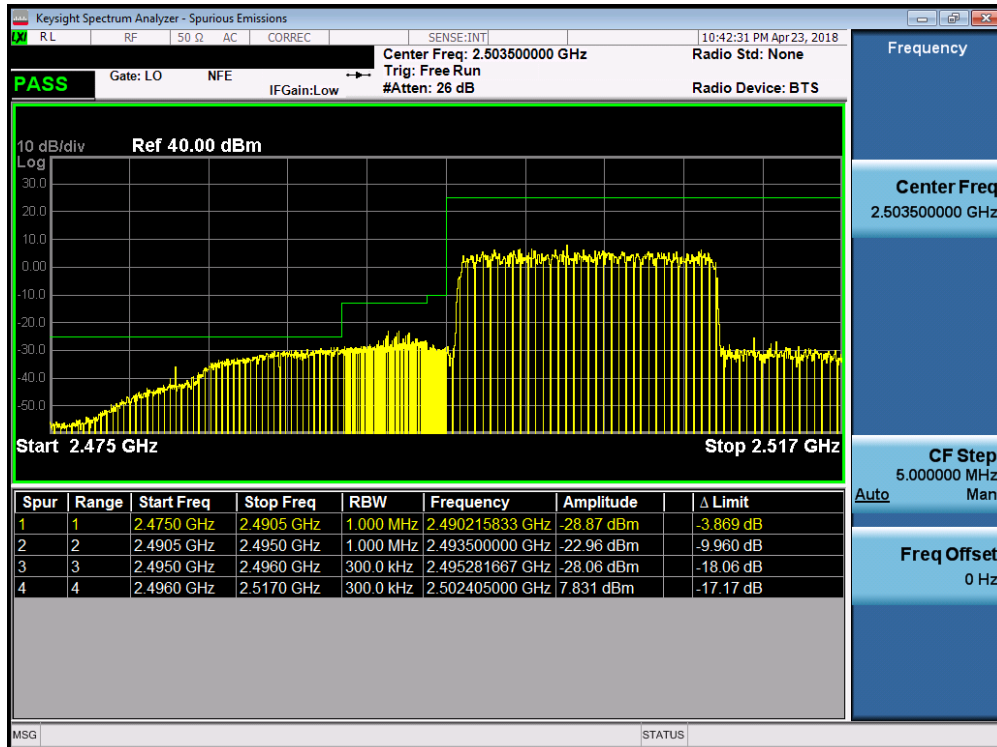


Plot 7-242. Lower ACP Plot at 2496 MHz (Band 41 - 10.0MHz QPSK - RB Size 25)

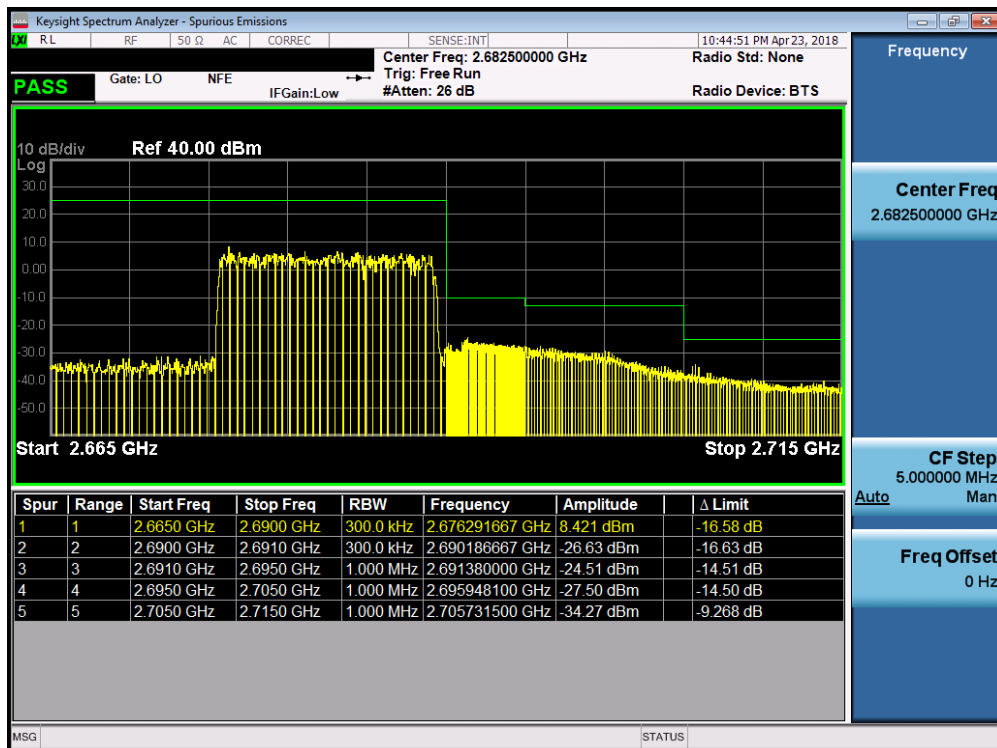


Plot 7-243. Upper ACP Plot (Band 41 - 10.0MHz QPSK - RB Size 25)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset		Page 145 of 198

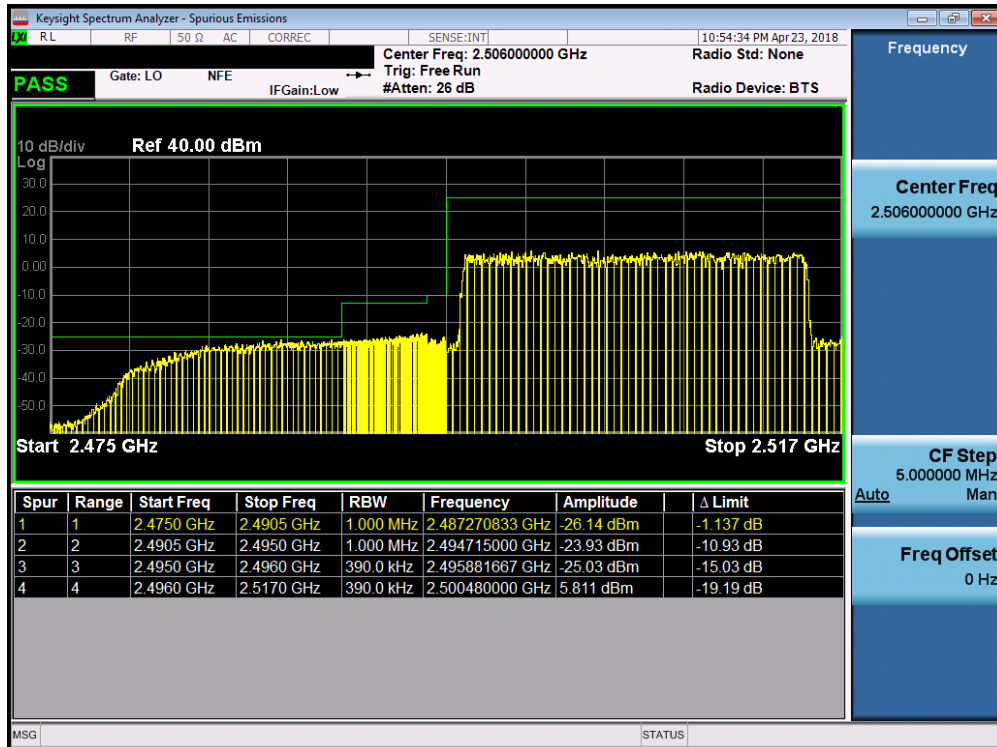


Plot 7-244. Lower ACP Plot at 2496 MHz (Band 41 - 15.0MHz QPSK - RB Size 25)

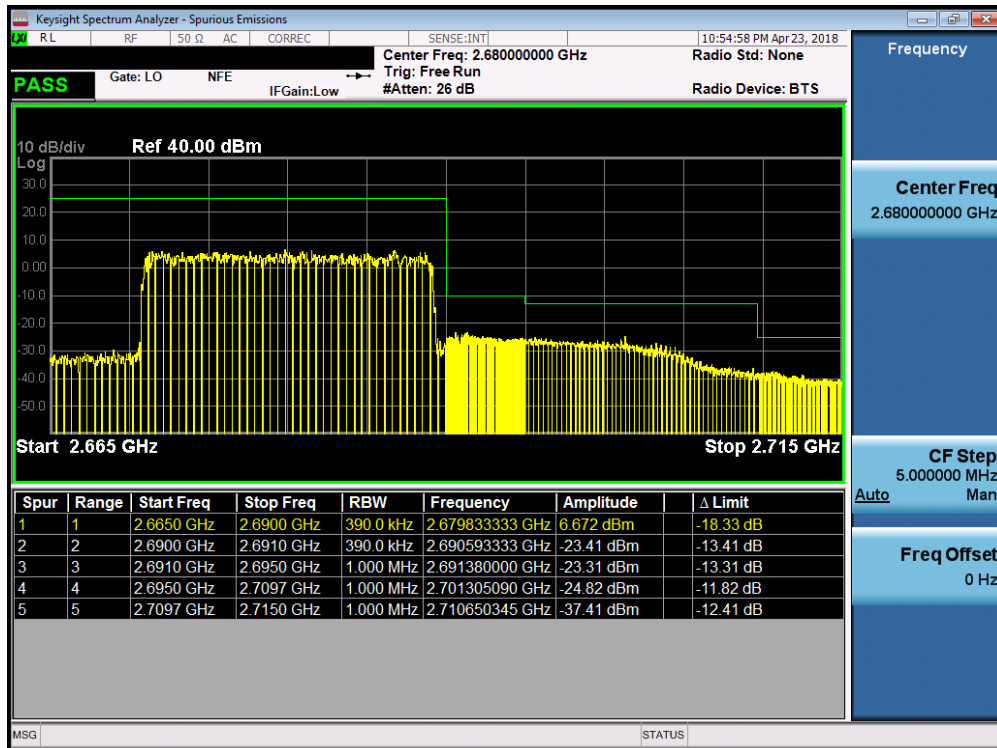


Plot 7-245. Upper ACP Plot (Band 41 - 15.0MHz QPSK - RB Size 25)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset		Page 146 of 198



Plot 7-246. Lower ACP Plot at 2496 MHz (Band 41 - 20.0MHz QPSK - RB Size 25)



Plot 7-247. Upper ACP Plot (Band 41 - 20.0MHz QPSK - RB Size 25)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset		Page 147 of 198

## 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

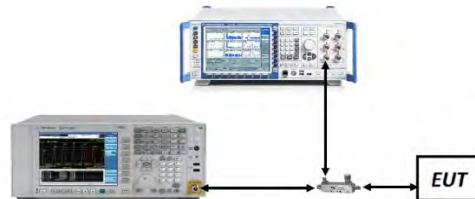
KDB 971168 D01 v03r01 – Section 5.7.1

### Test Settings

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

### Test Setup

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

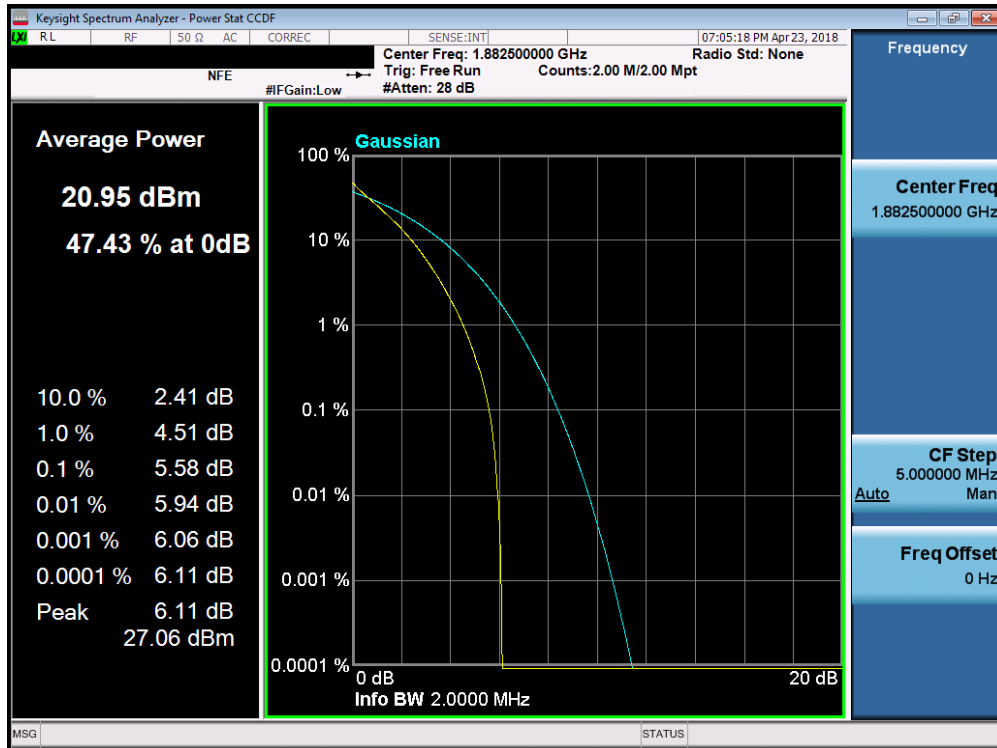


**Figure 7-4. Test Instrument & Measurement Setup**

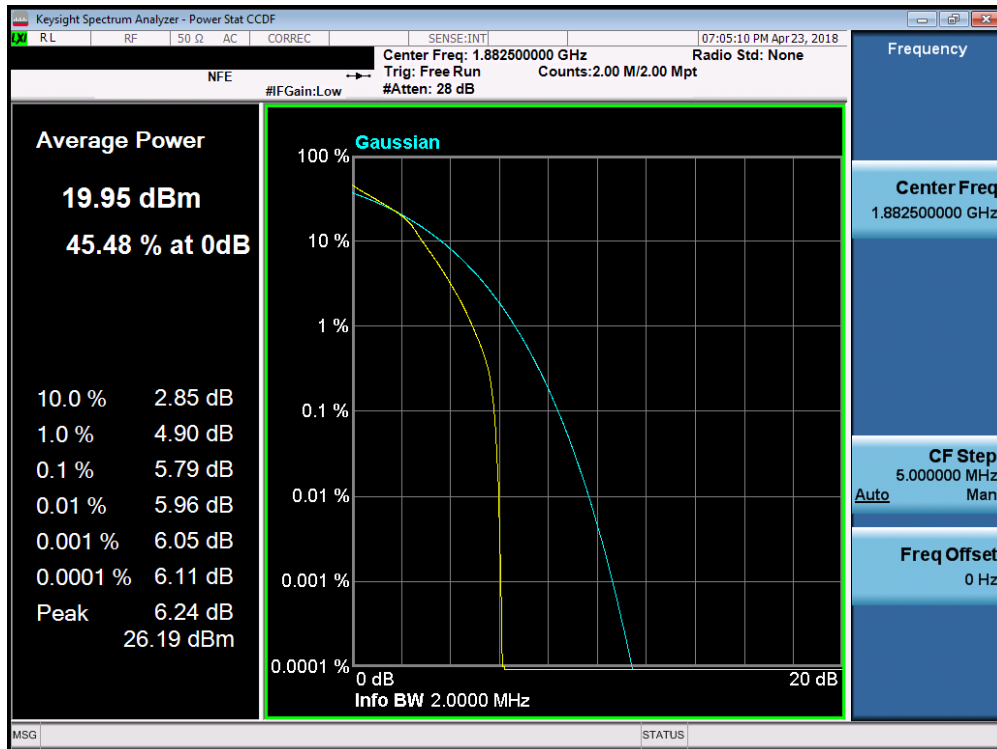
### Test Notes

None.

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 148 of 198	

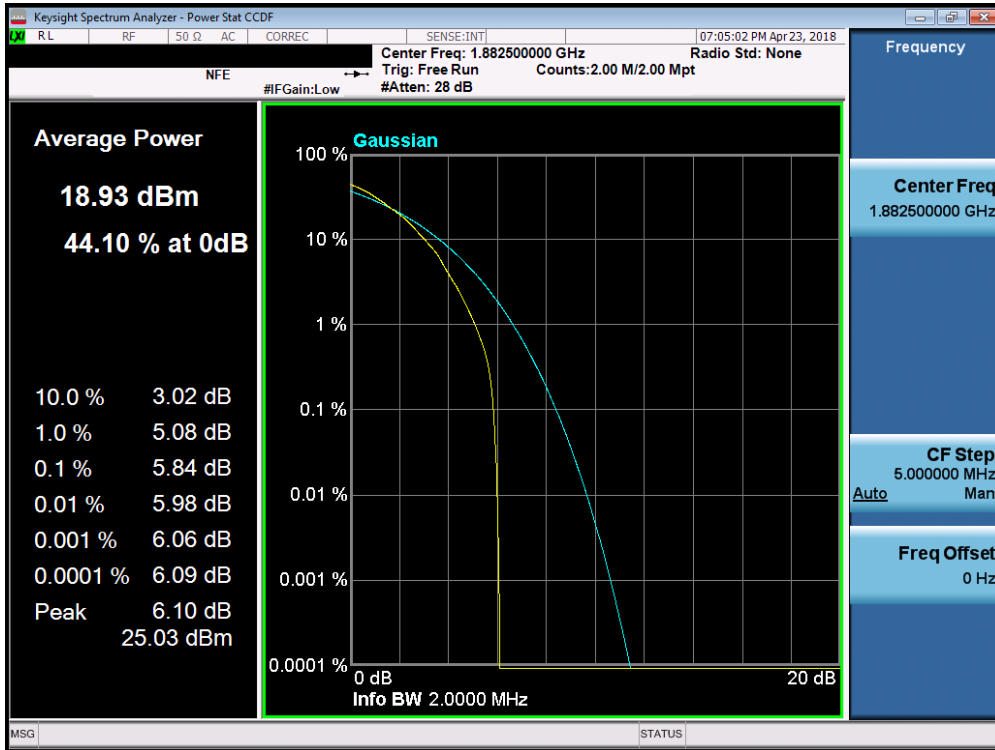


**Plot 7-248. PAR Plot (Band 25/2 - 1.4MHz QPSK - Full RB Configuration)**

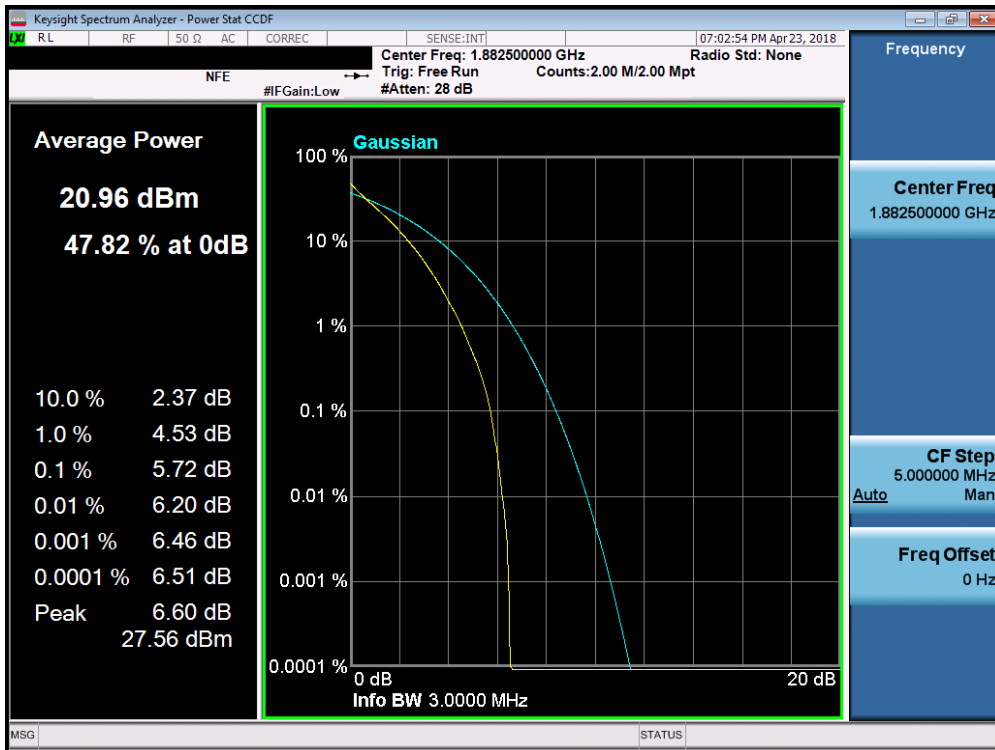


**Plot 7-249. PAR Plot (Band 25/2 - 1.4MHz 16-QAM - Full RB Configuration)**

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset		Page 149 of 198

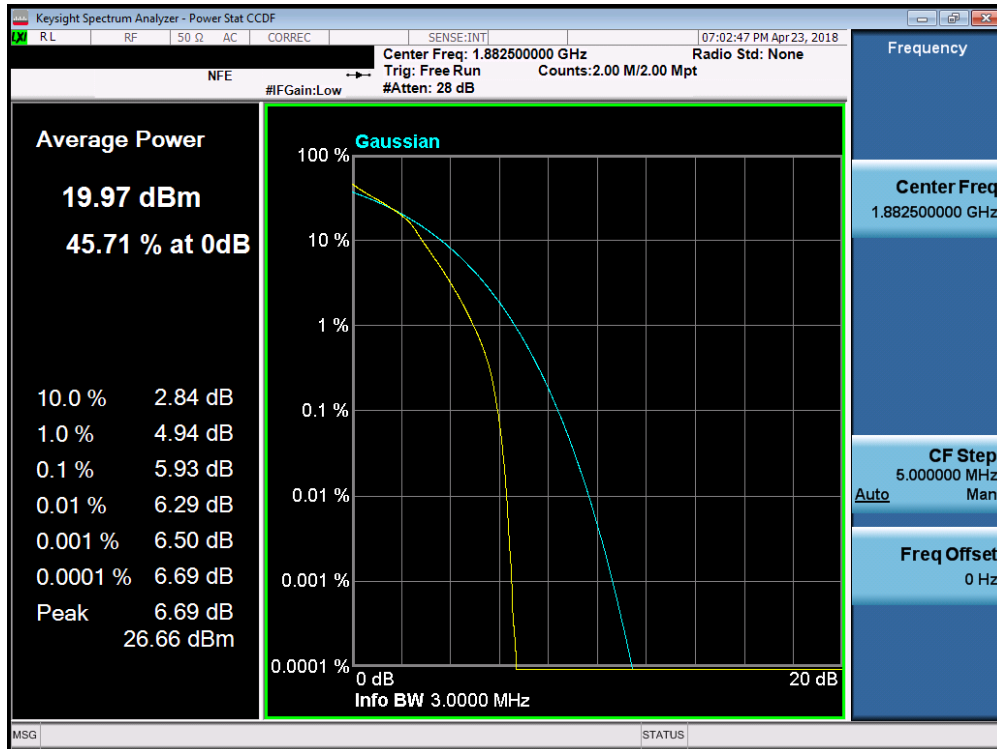


Plot 7-250. PAR Plot (Band 25/2 - 1.4MHz 64-QAM - Full RB Configuration)

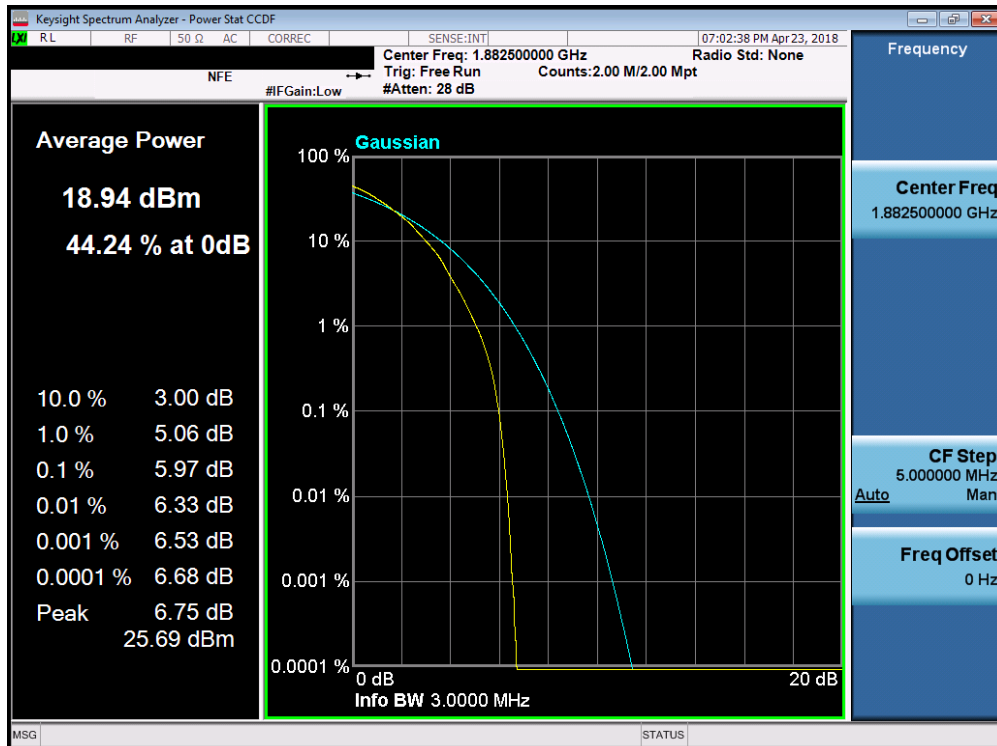


Plot 7-251. PAR Plot (Band 25/2 - 3.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset		Page 150 of 198



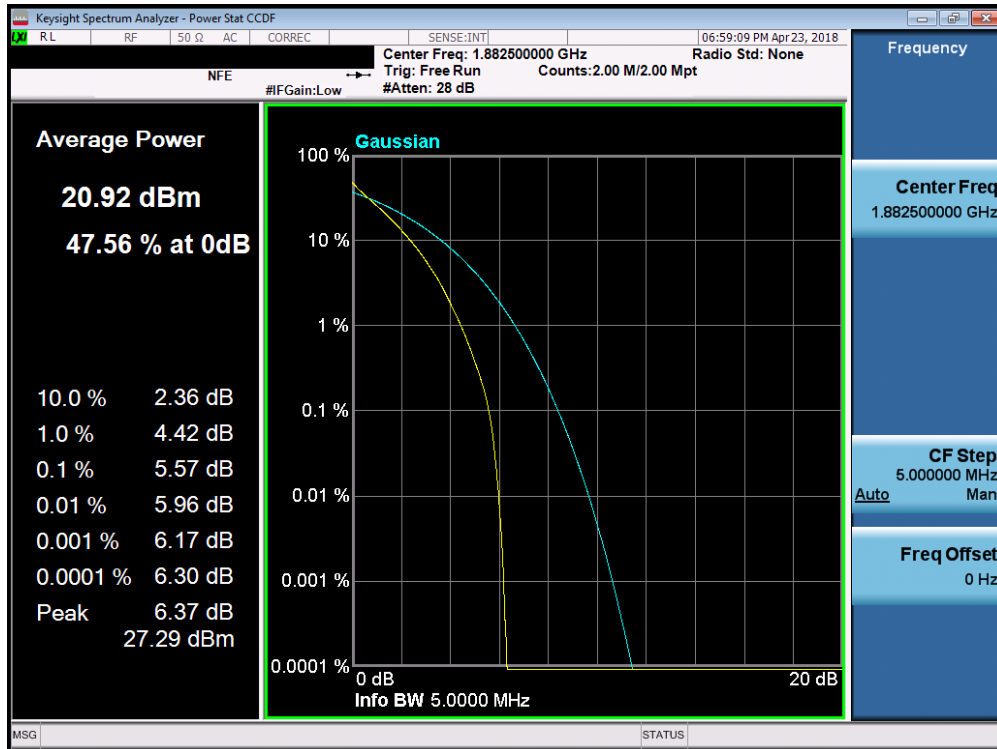
Plot 7-252. PAR Plot (Band 25/2 - 3.0MHz 16-QAM - Full RB Configuration)



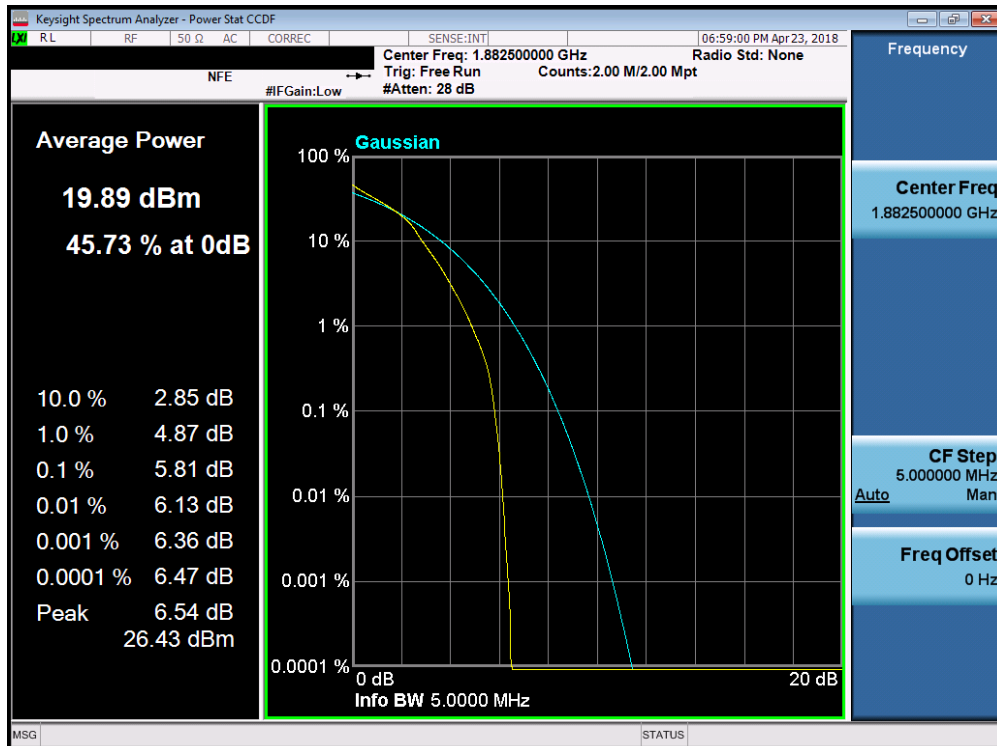
Plot 7-253. PAR Plot (Band 25/2 - 3.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMN960KOR	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 151 of 198



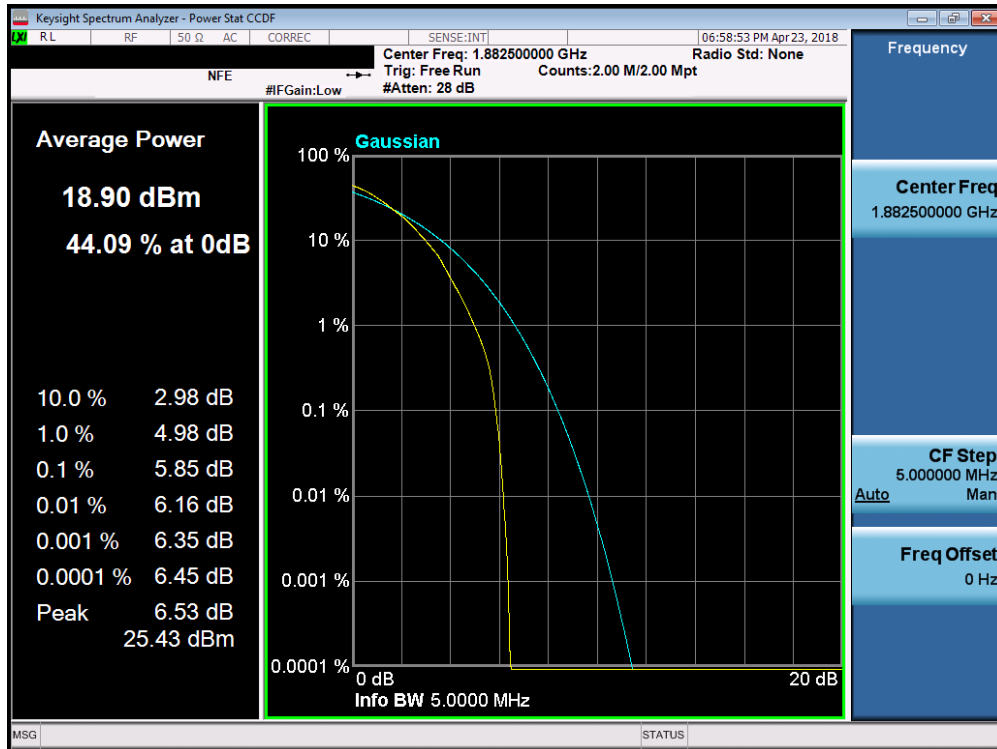


Plot 7-254. PAR Plot (Band 25/2 - 5.0MHz QPSK - Full RB Configuration)

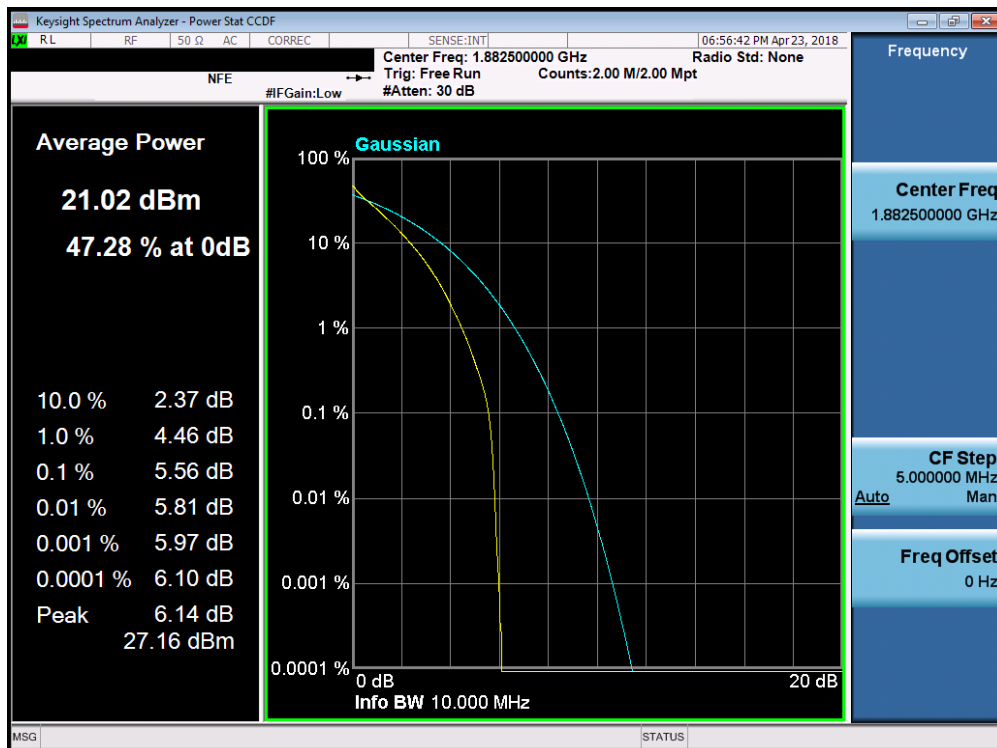


Plot 7-255. PAR Plot (Band 25/2 - 5.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN960KOR	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 152 of 198

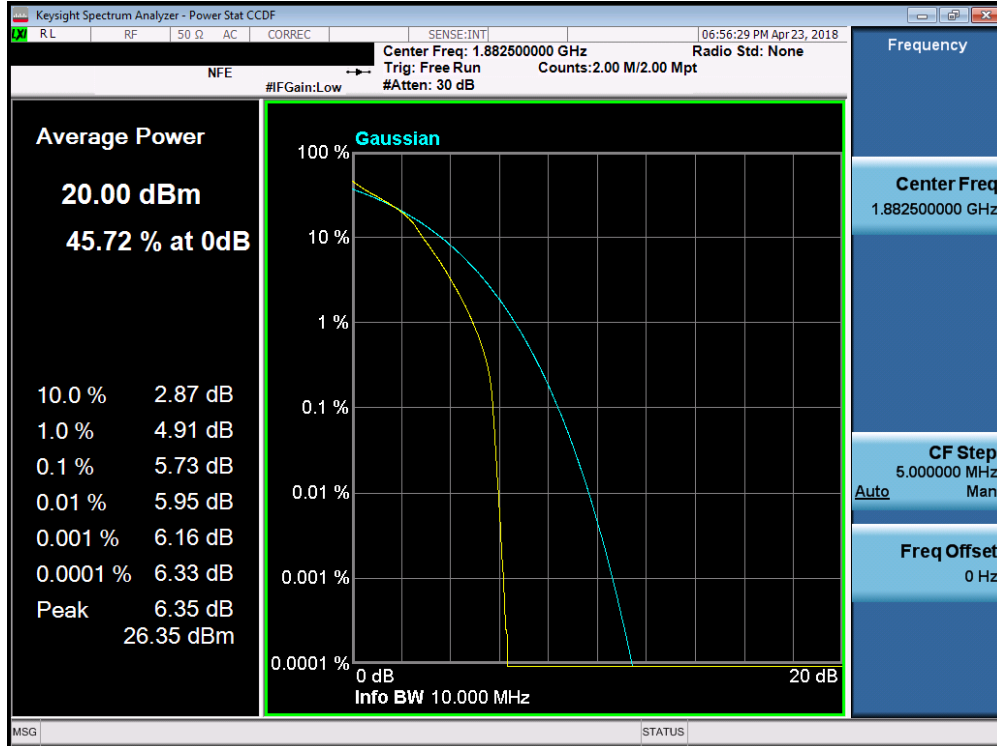


Plot 7-256. PAR Plot (Band 25/2 - 5.0MHz 64-QAM - Full RB Configuration)

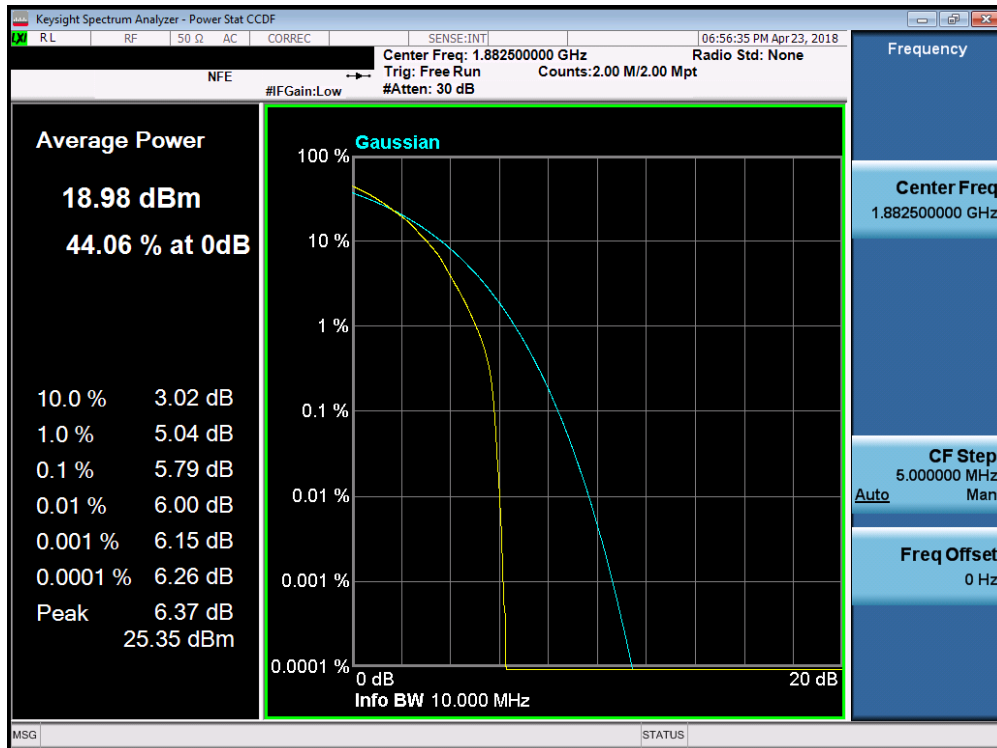


Plot 7-257. PAR Plot (Band 25/2 - 10.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMN960KOR	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 153 of 198

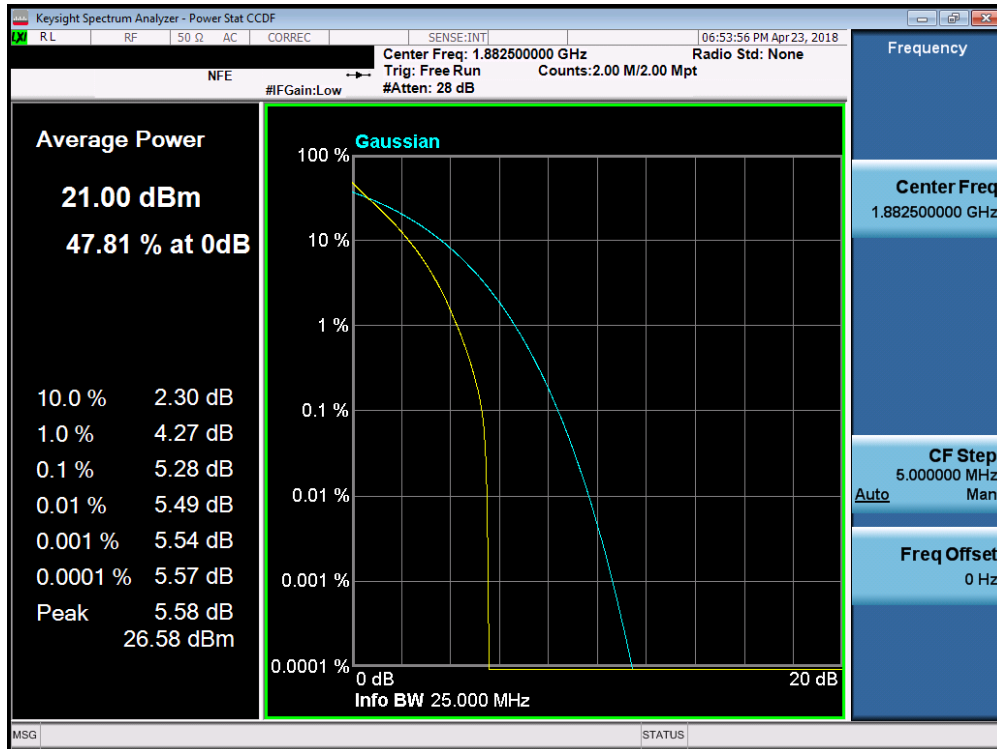


Plot 7-258. PAR Plot (Band 25/2 - 10.0MHz 16-QAM - Full RB Configuration)

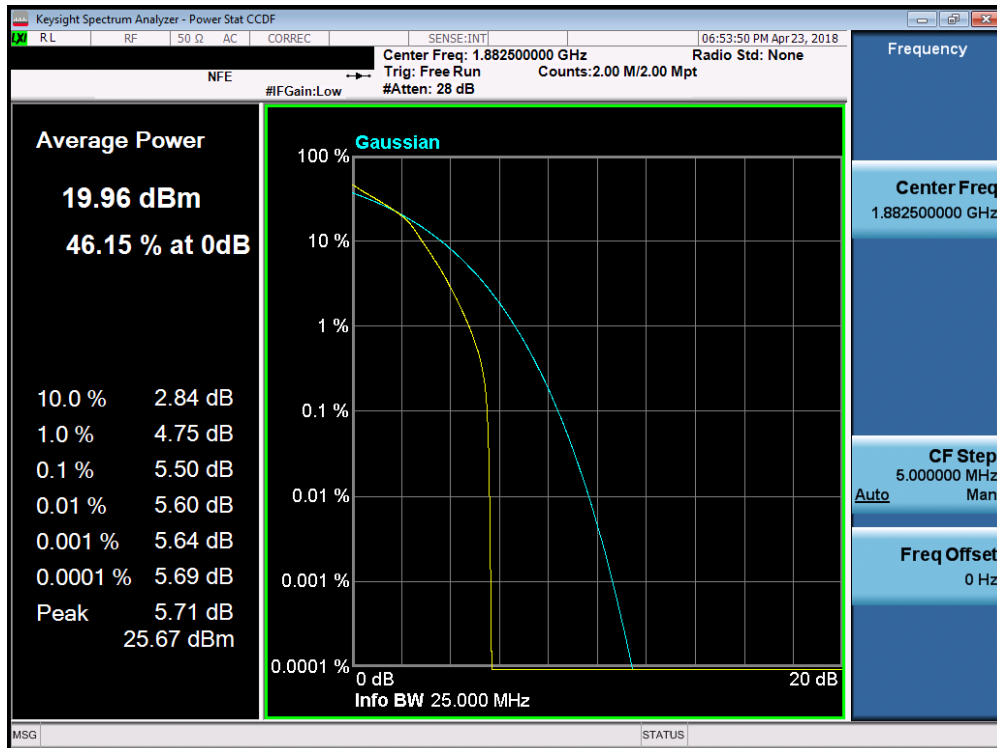


Plot 7-259. PAR Plot (Band 25/2 - 10.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMN960KOR	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 154 of 198

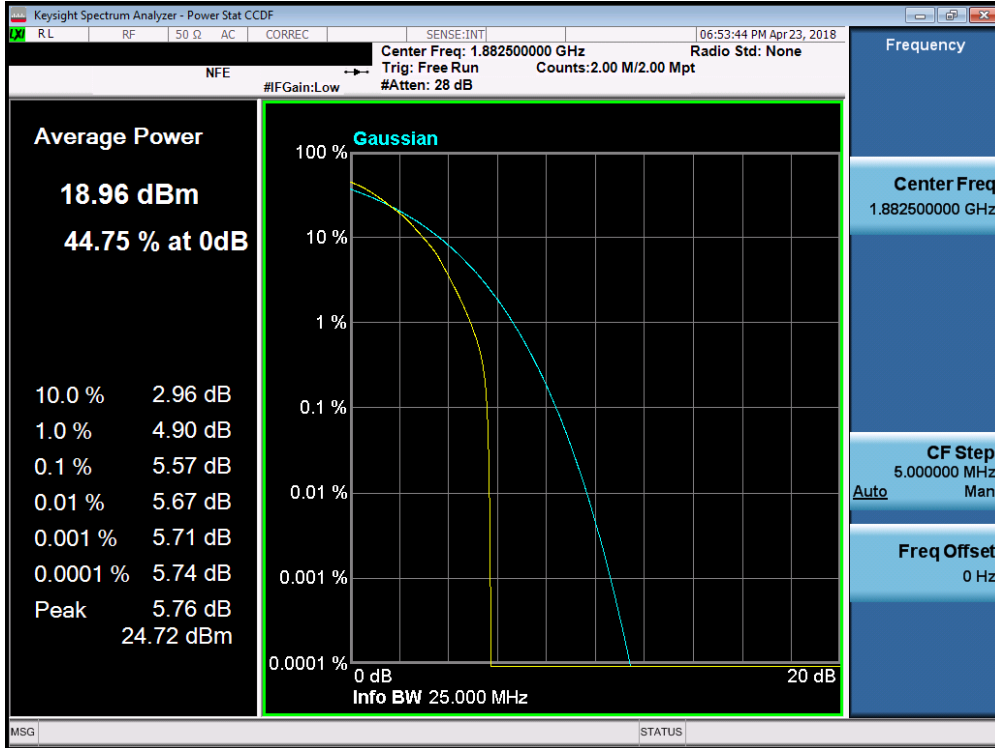


Plot 7-260. PAR Plot (Band 25/2 - 15.0MHz QPSK - Full RB Configuration)

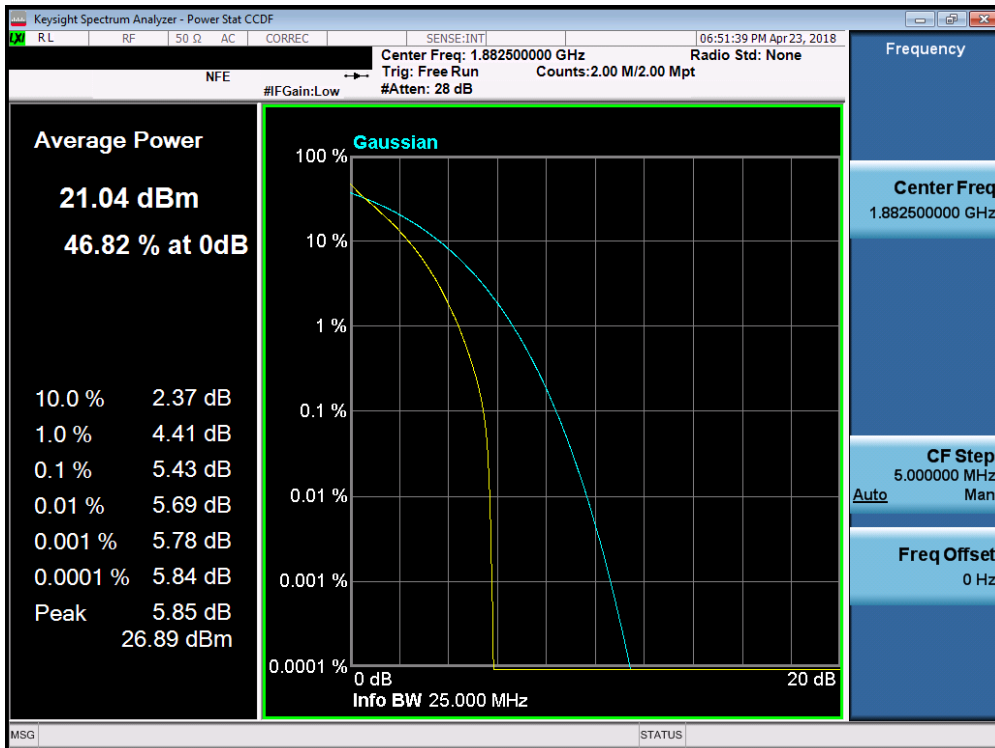


Plot 7-261. PAR Plot (Band 25/2 - 15.0MHz 16-QAM - Full RB Configuration)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset		Page 155 of 198

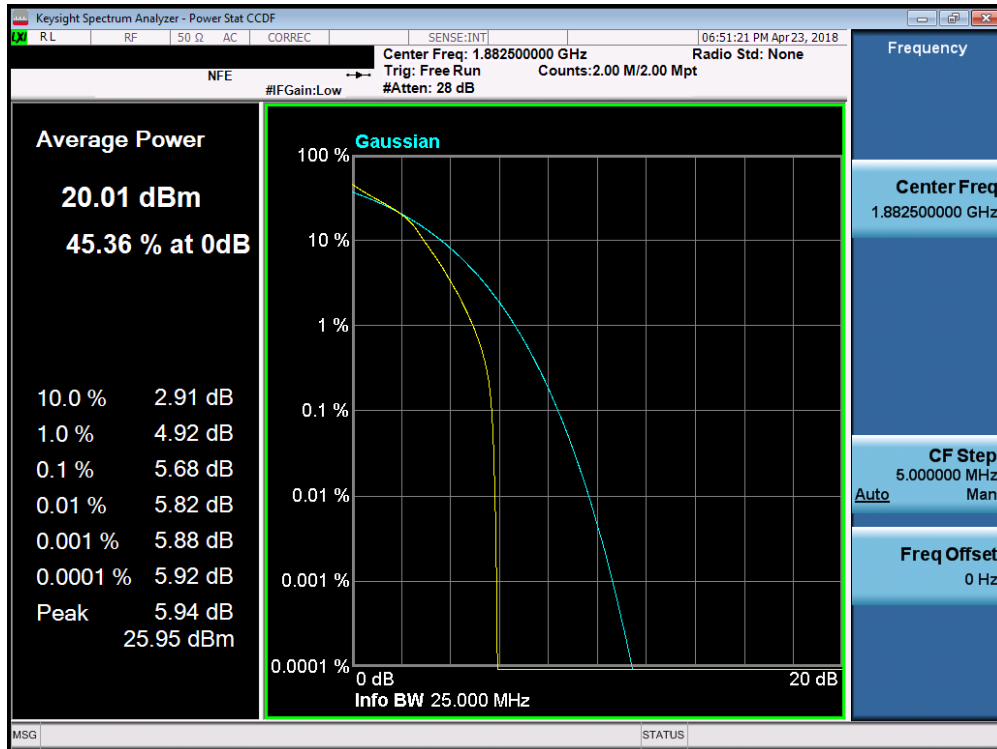


Plot 7-262. PAR Plot (Band 25/2 - 15.0MHz 64-QAM - Full RB Configuration)

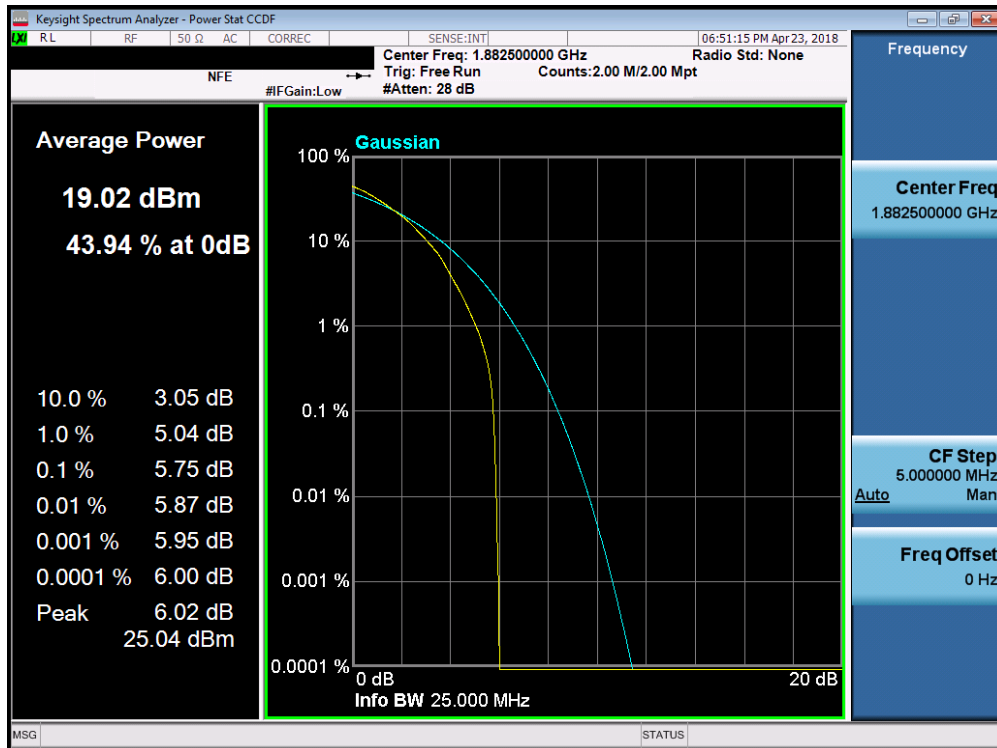


Plot 7-263. PAR Plot (Band 25/2 - 20.0MHz QPSK - Full RB Configuration)

FCC ID: A3LSMN960KOR	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 156 of 198



Plot 7-264. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-265. PAR Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)

FCC ID: A3LSMN960KOR	 <b>MEASUREMENT REPORT (CERTIFICATION)</b> 		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 157 of 198

## 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 its maximum duty cycle, 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

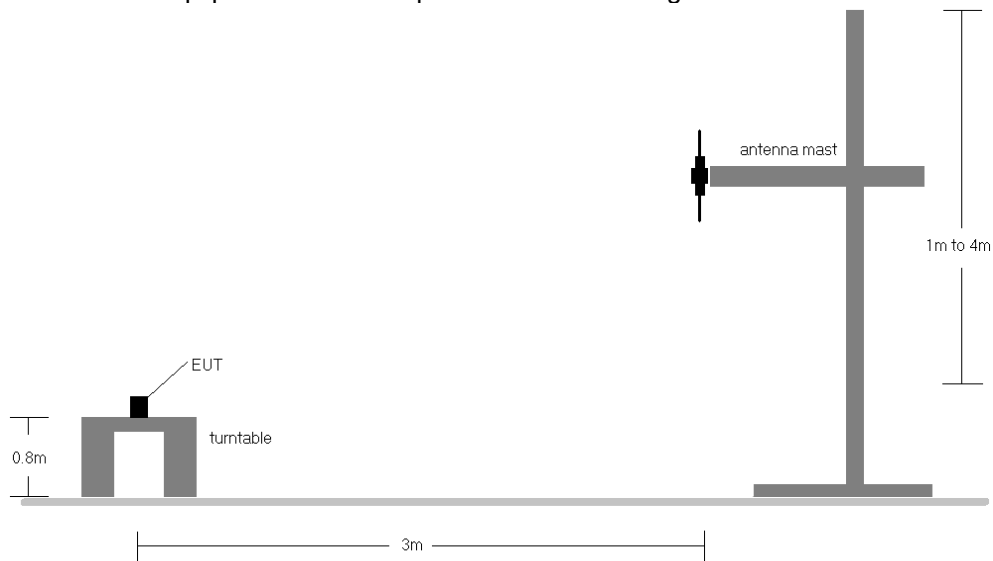
### Test Settings

1. Radiated power measurements are performed using the signal analyzer’s “channel power” measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer’s “time domain power” measurement capability is used
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW  $\geq$  3 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”. Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the “gating” function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
9. Trace mode = trace averaging (RMS) over 100 sweeps
10. The trace was allowed to stabilize

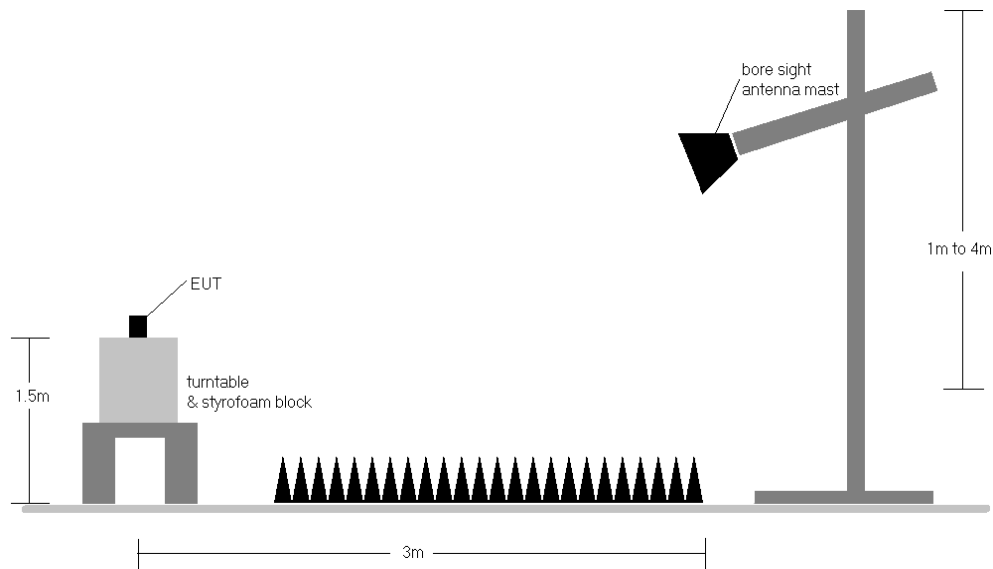
FCC ID: A3LSMN960KOR		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1804130071-03.A3L	<b>Test Dates:</b> 4/6/2018-6/19/2018	<b>EUT Type:</b> Portable Handset	Page 158 of 198	

**Test Setup**

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



**Figure 7-5. Radiated Test Setup <1GHz**



**Figure 7-6. Radiated Test Setup >1GHz**

**Test Notes**

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 159 of 198	



Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
699.70	1.4	QPSK	V	150	76	1 / 5	18.11	1.10	17.06	0.051	34.77	-17.71	19.21	0.083	36.99	-17.78
707.50	1.4	QPSK	V	150	89	1 / 5	18.43	1.13	17.41	0.055	34.77	-17.36	19.56	0.090	36.99	-17.43
715.30	1.4	QPSK	V	150	73	1 / 5	18.40	1.16	<b>17.41</b>	0.055	34.77	-17.36	<b>19.56</b>	0.090	36.99	-17.43
715.30	1.4	16-QAM	V	150	73	1 / 5	17.80	1.16	<b>16.81</b>	0.048	34.77	-17.96	<b>18.96</b>	0.079	36.99	-18.03
715.30	1.4	64-QAM	V	150	73	1 / 5	16.87	1.16	<b>15.88</b>	0.039	34.77	-18.89	<b>18.03</b>	0.064	36.99	-18.96
700.50	3	QPSK	V	150	89	1 / 14	18.31	1.10	17.26	0.053	34.77	-17.51	19.41	0.087	36.99	-17.58
707.50	3	QPSK	V	150	78	1 / 0	18.66	1.13	<b>17.64</b>	0.058	34.77	-17.13	<b>19.79</b>	0.095	36.99	-17.20
714.50	3	QPSK	V	150	65	1 / 14	18.31	1.16	17.32	0.054	34.77	-17.45	19.47	0.088	36.99	-17.52
700.50	3	16-QAM	V	150	89	1 / 14	17.82	1.10	<b>16.77</b>	0.048	34.77	-18.00	<b>18.92</b>	0.078	36.99	-18.07
707.50	3	64-QAM	V	150	78	1 / 14	16.43	1.13	<b>15.41</b>	0.035	34.77	-19.36	<b>17.56</b>	0.057	36.99	-19.43

Table 7-3. ERP Data (Band 12)

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
701.50	5	QPSK	V	150	76	1 / 0	17.51	1.11	16.47	0.044	34.77	-18.31	18.62	0.073	36.99	-18.37
707.50	5	QPSK	V	150	83	1 / 0	18.40	1.13	<b>17.38</b>	0.055	34.77	-17.39	<b>19.53</b>	0.090	36.99	-17.46
713.50	5	QPSK	V	150	58	1 / 0	18.31	1.15	17.31	0.054	34.77	-17.46	19.46	0.088	36.99	-17.53
713.50	5	16-QAM	V	150	58	1 / 0	17.40	1.15	<b>16.40</b>	0.044	34.77	-18.37	<b>18.55</b>	0.072	36.99	-18.44
707.50	5	64-QAM	V	150	83	1 / 0	16.70	1.13	<b>15.68</b>	0.037	34.77	-19.09	<b>17.83</b>	0.061	36.99	-19.16
704.00	10	QPSK	V	150	89	1 / 0	18.06	1.12	17.03	0.050	34.77	-17.74	19.18	0.083	36.99	-17.81
707.50	10	QPSK	V	150	83	1 / 0	18.69	1.13	<b>17.67</b>	<b>0.058</b>	34.77	-17.10	<b>19.82</b>	<b>0.096</b>	36.99	-17.17
711.00	10	QPSK	V	150	102	1 / 0	18.50	1.14	17.49	0.056	34.77	-17.28	19.64	0.092	36.99	-17.35
711.00	10	16-QAM	V	150	102	1 / 0	17.67	1.14	<b>16.66</b>	0.046	34.77	-18.11	<b>18.81</b>	0.076	36.99	-18.18
711.00	10	64-QAM	V	150	102	1 / 0	16.21	1.14	<b>15.20</b>	0.033	34.77	-19.57	<b>17.35</b>	0.054	36.99	-19.64
707.50	10	QPSK	H	150	238	1 / 0	15.66	1.13	14.64	0.029	34.77	-20.13	16.79	0.048	36.99	-20.20
707.50	10 (WCP)	QPSK	V	150	319	1 / 0	12.36	1.13	11.34	0.014	34.77	-23.43	13.49	0.022	36.99	-23.50

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

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
779.50	5	QPSK	H	150	95	1 / 0	15.15	1.32	14.32	0.027	34.77	-20.45	16.47	0.044	36.99	-20.52
782.00	5	QPSK	H	150	14	1 / 0	15.26	1.33	<b>14.44</b>	0.028	34.77	-20.33	<b>16.59</b>	0.046	36.99	-20.40
784.50	5	QPSK	H	150	85	1 / 24	15.20	1.34	14.39	0.027	34.77	-20.38	16.54	0.045	36.99	-20.45
784.50	5	16-QAM	H	150	85	1 / 0	14.34	1.34	<b>13.53</b>	0.023	34.77	-21.24	<b>15.68</b>	0.037	36.99	-21.31
784.50	5	64-QAM	H	150	85	1 / 0	13.57	1.34	<b>12.76</b>	0.019	34.77	-22.01	<b>14.91</b>	0.031	36.99	-22.08
782.00	10	QPSK	H	150	82	1 / 0	15.35	1.33	<b>14.53</b>	<b>0.028</b>	34.77	-20.24	<b>16.68</b>	<b>0.047</b>	36.99	-20.31
782.00	10	16-QAM	H	150	82	1 / 49	14.35	1.33	<b>13.53</b>	0.023	34.77	-21.24	<b>15.68</b>	0.037	36.99	-21.31
782.00	10	64-QAM	H	150	82	1 / 49	12.94	1.33	<b>12.12</b>	0.016	34.77	-22.65	<b>14.27</b>	0.027	36.99	-22.72
782.00	10	QPSK	V	150	183	1 / 0	13.82	1.33	13.00	0.020	34.77	-21.77	15.15	0.033	36.99	-21.84
782.00	10 (WCP)	QPSK	H	150	346	1 / 0	14.84	1.33	14.02	0.025	34.77	-20.75	16.17	0.041	36.99	-20.82

Table 7-5. ERP Data (Band 13)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset		Page 160 of 198	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turtable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	150	328	1 / 0	16.32	1.50	<b>15.67</b>	0.037	38.45	-22.78	<b>17.82</b>	0.061	40.61	-22.79
836.50	1.4	QPSK	H	150	321	1 / 0	16.22	1.50	15.57	0.036	38.45	-22.88	17.72	0.059	40.61	-22.89
848.30	1.4	QPSK	H	150	301	1 / 0	15.88	1.50	15.23	0.033	38.45	-23.22	17.38	0.055	40.61	-23.23
824.70	1.4	16-QAM	H	150	328	1 / 0	15.27	1.50	<b>14.62</b>	0.029	38.45	-23.83	<b>16.77</b>	0.048	40.61	-23.84
824.70	1.4	64-QAM	H	150	328	1 / 0	14.35	1.50	<b>13.70</b>	0.023	38.45	-24.75	<b>15.85</b>	0.038	40.61	-24.76
825.50	3	QPSK	H	150	347	1 / 0	16.50	1.50	<b>15.85</b>	0.038	38.45	-22.60	<b>18.00</b>	0.063	40.61	-22.61
836.50	3	QPSK	H	150	285	1 / 0	16.31	1.50	15.66	0.037	38.45	-22.79	17.81	0.060	40.61	-22.80
847.50	3	QPSK	H	150	328	1 / 0	15.75	1.50	15.10	0.032	38.45	-23.35	17.25	0.053	40.61	-23.36
825.50	3	16-QAM	H	150	347	1 / 0	15.57	1.50	<b>14.92</b>	0.031	38.45	-23.53	<b>17.07</b>	0.051	40.61	-23.54
825.50	3	64-QAM	H	150	347	1 / 0	14.46	1.50	<b>13.81</b>	0.024	38.45	-24.64	<b>15.96</b>	0.039	40.61	-24.65
826.50	5	QPSK	H	150	285	1 / 0	16.25	1.50	<b>15.60</b>	0.036	38.45	-22.85	<b>17.75</b>	0.060	40.61	-22.85
836.50	5	QPSK	H	150	267	1 / 0	16.16	1.50	15.51	0.036	38.45	-22.94	17.66	0.058	40.61	-22.95
846.50	5	QPSK	H	150	327	1 / 0	15.99	1.50	15.34	0.034	38.45	-23.11	17.49	0.056	40.61	-23.12
826.50	5	16-QAM	H	150	285	1 / 0	15.62	1.50	<b>14.97</b>	0.031	38.45	-23.48	<b>17.12</b>	0.052	40.61	-23.49
846.50	5	64-QAM	H	150	327	1 / 0	14.44	1.50	<b>13.79</b>	0.024	38.45	-24.66	<b>15.94</b>	0.039	40.61	-24.67
829.00	10	QPSK	H	150	352	1 / 0	16.47	1.50	15.82	0.038	38.45	-22.63	17.97	0.063	40.61	-22.64
836.50	10	QPSK	H	150	15	1 / 0	16.33	1.50	15.68	0.037	38.45	-22.77	17.83	0.061	40.61	-22.78
844.00	10	QPSK	H	150	328	1 / 0	17.08	1.50	<b>16.43</b>	<b>0.044</b>	38.45	-22.02	<b>18.58</b>	<b>0.072</b>	40.61	-22.03
844.00	10	16-QAM	H	150	328	1 / 0	15.71	1.50	<b>15.06</b>	0.032	38.45	-23.39	<b>17.21</b>	0.053	40.61	-23.40
844.00	10	64-QAM	H	150	328	1 / 0	15.00	1.50	<b>14.35</b>	0.027	38.45	-24.10	<b>16.50</b>	0.045	40.61	-24.11
844.00	10	QPSK	V	150	128	1 / 0	14.55	1.50	13.90	0.025	38.45	-24.55	16.05	0.040	40.61	-24.56
844.00	10 (WCP)	QPSK	H	150	308	1 / 0	13.70	1.50	13.05	0.020	38.45	-25.40	15.20	0.033	40.61	-25.41

**Table 7-6. ERP Data (Band 5 Antenna B)**

FCC ID: A3LSMN960KOR		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1804130071-03.A3L	<b>Test Dates:</b> 4/6/2018-6/19/2018	<b>EUT Type:</b> Portable Handset	Page 161 of 198	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
824.70	1.4	QPSK	H	150	93	1 / 5	17.50	1.50	16.85	0.048	38.45	-21.60	19.00	0.079	40.61	-21.61
836.50	1.4	QPSK	H	150	98	1 / 5	17.67	1.50	17.02	0.050	38.45	-21.43	19.17	0.083	40.61	-21.44
848.30	1.4	QPSK	H	150	106	1 / 5	18.36	1.50	<b>17.71</b>	0.059	38.45	-20.74	<b>19.86</b>	0.097	40.61	-20.75
848.30	1.4	16-QAM	H	150	106	1 / 5	17.42	1.50	<b>16.77</b>	0.048	38.45	-21.68	<b>18.92</b>	0.078	40.61	-21.69
836.50	1.4	64-QAM	H	150	98	1 / 5	15.61	1.50	<b>14.96</b>	0.031	38.45	-23.49	<b>17.11</b>	0.051	40.61	-23.50
825.50	3	QPSK	H	150	88	1 / 14	17.50	1.50	16.85	0.048	38.45	-21.60	19.00	0.079	40.61	-21.61
836.50	3	QPSK	H	150	106	1 / 14	17.72	1.50	17.07	0.051	38.45	-21.38	19.22	0.084	40.61	-21.39
847.50	3	QPSK	H	150	113	1 / 14	18.52	1.50	<b>17.87</b>	0.061	38.45	-20.58	<b>20.02</b>	0.100	40.61	-20.59
847.50	3	16-QAM	H	150	113	1 / 14	17.64	1.50	<b>16.99</b>	0.050	38.45	-21.46	<b>19.14</b>	0.082	40.61	-21.47
836.50	3	64-QAM	H	150	106	1 / 14	15.71	1.50	<b>15.06</b>	0.032	38.45	-23.39	<b>17.21</b>	0.053	40.61	-23.40
826.50	5	QPSK	H	150	102	1 / 24	17.03	1.50	16.38	0.043	38.45	-22.07	18.53	0.071	40.61	-22.08
836.50	5	QPSK	H	150	100	1 / 24	17.65	1.50	17.00	0.050	38.45	-21.45	19.15	0.082	40.61	-21.46
846.50	5	QPSK	H	150	106	1 / 24	18.60	1.50	<b>17.95</b>	<b>0.062</b>	38.45	-20.50	<b>20.10</b>	<b>0.102</b>	40.61	-20.51
846.50	5	16-QAM	H	150	106	1 / 24	17.77	1.50	<b>17.12</b>	0.052	38.45	-21.33	<b>19.27</b>	0.085	40.61	-21.34
836.50	5	64-QAM	H	150	100	1 / 24	15.97	1.50	<b>15.32</b>	0.034	38.45	-23.13	<b>17.47</b>	0.056	40.61	-23.14
829.00	10	QPSK	H	150	89	1 / 49	17.21	1.50	16.56	0.045	38.45	-21.89	18.71	0.074	40.61	-21.90
836.50	10	QPSK	H	150	99	1 / 49	17.93	1.50	17.28	0.053	38.45	-21.17	19.43	0.088	40.61	-21.18
844.00	10	QPSK	H	150	105	1 / 0	18.07	1.50	<b>17.42</b>	0.055	38.45	-21.03	<b>19.57</b>	0.091	40.61	-21.04
844.00	10	16-QAM	H	150	105	1 / 49	17.45	1.50	<b>16.80</b>	0.048	38.45	-21.65	<b>18.95</b>	0.079	40.61	-21.66
836.50	10	64-QAM	H	150	99	1 / 49	16.08	1.50	<b>15.43</b>	0.035	38.45	-23.02	<b>17.58</b>	0.057	40.61	-23.03
846.50	5	QPSK	V	150	238	1 / 24	14.92	1.50	14.27	0.027	38.45	-24.18	16.42	0.044	40.61	-24.19
846.50	5 (WCP)	QPSK	H	150	28	1 / 24	14.31	1.50	13.66	0.023	38.45	-24.79	15.81	0.038	40.61	-24.80

**Table 7-7. ERP Data (Band 5/26 Antenna A)**

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
831.50	15	QPSK	H	150	102	1 / 74	17.83	1.50	17.18	0.052	38.45	-21.27	19.33	0.086	40.61	-21.28
836.50	15	QPSK	H	150	110	1 / 74	18.18	1.50	<b>17.53</b>	0.057	38.45	-20.92	<b>19.68</b>	0.093	40.61	-20.93
841.50	15	QPSK	H	150	91	1 / 74	17.54	1.50	16.89	0.049	38.45	-21.56	19.04	0.080	40.61	-21.57
836.50	15	16-QAM	H	150	110	1 / 74	17.26	1.50	<b>16.61</b>	0.046	38.45	-21.84	<b>18.76</b>	0.075	40.61	-21.85
836.50	15	64-QAM	H	150	110	1 / 74	16.20	1.50	<b>15.55</b>	0.036	38.45	-22.90	<b>17.70</b>	0.059	40.61	-22.91

**Table 7-8. ERP Data (Band 26 Antenna A)**

FCC ID: A3LSMN960KOR			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset			Page 162 of 198

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1710.70	1.4	QPSK	H	150	348	3 / 2	16.30	5.56	21.86	0.153	30.00	-8.14
1745.00	1.4	QPSK	H	150	354	3 / 2	16.67	5.32	21.99	0.158	30.00	-8.01
1779.30	1.4	QPSK	H	150	320	3 / 2	18.53	5.09	<b>23.62</b>	0.230	30.00	-6.38
1779.30	1.4	16-QAM	H	150	320	3 / 2	17.53	5.09	<b>22.62</b>	0.183	30.00	-7.38
1779.30	1.4	64-QAM	H	150	320	3 / 2	16.59	5.09	<b>21.68</b>	0.147	30.00	-8.32
1711.50	3	QPSK	H	150	306	1 / 14	16.36	5.55	21.91	0.155	30.00	-8.09
1745.00	3	QPSK	H	150	356	1 / 0	16.58	5.32	21.90	0.155	30.00	-8.10
1778.50	3	QPSK	H	150	324	1 / 14	18.81	5.10	<b>23.91</b>	<b>0.246</b>	30.00	-6.09
1778.50	3	16-QAM	H	150	324	1 / 14	18.04	5.10	<b>23.14</b>	0.206	30.00	-6.86
1778.50	3	64-QAM	H	150	324	1 / 14	17.03	5.10	<b>22.13</b>	0.163	30.00	-7.87
1712.50	5	QPSK	H	150	5	1 / 24	16.63	5.55	22.18	0.165	30.00	-7.82
1745.00	5	QPSK	H	150	351	1 / 24	16.51	5.32	21.83	0.152	30.00	-8.17
1777.50	5	QPSK	H	150	238	1 / 24	18.65	5.10	<b>23.75</b>	0.237	30.00	-6.25
1777.50	5	16-QAM	H	150	238	1 / 24	17.84	5.10	<b>22.94</b>	0.197	30.00	-7.06
1777.50	5	64-QAM	H	150	238	1 / 24	16.78	5.10	<b>21.88</b>	0.154	30.00	-8.12
1715.00	10	QPSK	H	150	20	1 / 49	16.52	5.53	22.05	0.160	30.00	-7.95
1745.00	10	QPSK	H	150	16	1 / 49	16.66	5.32	21.98	0.158	30.00	-8.02
1775.00	10	QPSK	H	150	348	1 / 49	18.76	5.12	<b>23.88</b>	0.244	30.00	-6.12
1775.00	10	16-QAM	H	150	348	1 / 49	17.92	5.12	<b>23.04</b>	0.201	30.00	-6.96
1775.00	10	64-QAM	H	150	348	1 / 49	16.99	5.12	<b>22.11</b>	0.163	30.00	-7.89
1717.50	15	QPSK	H	150	349	1 / 74	16.86	5.51	22.37	0.173	30.00	-7.63
1745.00	15	QPSK	H	150	355	1 / 74	16.81	5.32	22.13	0.163	30.00	-7.87
1772.50	15	QPSK	H	150	1	1 / 74	18.71	5.14	<b>23.85</b>	0.243	30.00	-6.15
1772.50	15	16-QAM	H	150	1	1 / 74	17.96	5.14	<b>23.10</b>	0.204	30.00	-6.90
1772.50	15	64-QAM	H	150	1	1 / 74	16.89	5.14	<b>22.03</b>	0.159	30.00	-7.97
1720.00	20	QPSK	H	150	339	1 / 99	16.76	5.49	22.25	0.168	30.00	-7.75
1745.00	20	QPSK	H	150	353	1 / 99	16.85	5.32	22.17	0.165	30.00	-7.83
1770.00	20	QPSK	H	150	5	1 / 99	18.55	5.15	<b>23.70</b>	0.235	30.00	-6.30
1770.00	20	16-QAM	H	150	5	1 / 99	17.66	5.15	<b>22.81</b>	0.191	30.00	-7.19
1770.00	20	64-QAM	H	150	5	1 / 99	16.63	5.15	<b>21.78</b>	0.151	30.00	-8.22
1778.50	3	QPSK	V	150	279	1 / 14	12.63	5.32	17.95	0.062	30.00	-12.05
1778.50	3 (WCP)	QPSK	H	150	278	1 / 14	16.20	5.32	21.52	0.142	30.00	-8.48

Table 7-9. EIRP Data (Band 4/66)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 163 of 198	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.70	1.4	QPSK	H	150	328	3 / 2	18.05	4.82	<b>22.87</b>	<b>0.194</b>	33.01	-10.14
1882.50	1.4	QPSK	H	150	351	3 / 2	16.29	4.73	21.02	0.127	33.01	-11.99
1914.30	1.4	QPSK	H	150	308	3 / 2	16.48	4.68	21.16	0.131	33.01	-11.85
1850.70	1.4	16-QAM	H	150	328	3 / 2	16.46	4.82	<b>21.28</b>	0.134	33.01	-11.73
1850.70	1.4	64-QAM	H	150	328	3 / 2	15.56	4.82	<b>20.38</b>	0.109	33.01	-12.63
1851.50	3	QPSK	H	150	29	1 / 0	17.94	4.82	<b>22.76</b>	0.189	33.01	-10.25
1882.50	3	QPSK	H	150	18	1 / 0	17.35	4.73	22.08	0.162	33.01	-10.93
1913.50	3	QPSK	H	150	37	1 / 0	16.27	4.68	20.95	0.124	33.01	-12.06
1851.50	3	16-QAM	H	150	29	1 / 0	17.09	4.82	<b>21.91</b>	0.155	33.01	-11.10
1851.50	3	64-QAM	H	150	29	1 / 0	16.16	4.82	<b>20.98</b>	0.125	33.01	-12.03
1852.50	5	QPSK	H	150	38	1 / 0	17.52	4.81	<b>22.33</b>	0.171	33.01	-10.68
1882.50	5	QPSK	H	150	23	1 / 0	17.17	4.73	21.90	0.155	33.01	-11.11
1912.50	5	QPSK	H	150	8	1 / 0	16.04	4.68	20.72	0.118	33.01	-12.29
1852.50	5	16-QAM	H	150	38	1 / 0	16.66	4.81	<b>21.47</b>	0.140	33.01	-11.54
1852.50	5	64-QAM	H	150	38	1 / 0	15.75	4.81	<b>20.56</b>	0.114	33.01	-12.45
1855.00	10	QPSK	H	150	67	1 / 49	17.95	4.81	<b>22.76</b>	0.189	33.01	-10.25
1882.50	10	QPSK	H	150	20	1 / 0	17.44	4.73	22.17	0.165	33.01	-10.84
1910.00	10	QPSK	H	150	31	1 / 0	16.43	4.68	21.11	0.129	33.01	-11.90
1855.00	10	16-QAM	H	150	67	1 / 0	16.96	4.81	<b>21.77</b>	0.150	33.01	-11.24
1855.00	10	64-QAM	H	150	67	1 / 0	15.97	4.81	<b>20.78</b>	0.120	33.01	-12.23
1857.50	15	QPSK	H	150	30	1 / 0	17.72	4.80	<b>22.52</b>	0.179	33.01	-10.49
1882.50	15	QPSK	H	150	17	1 / 0	17.22	4.73	21.95	0.157	33.01	-11.06
1907.50	15	QPSK	H	150	27	1 / 0	16.35	4.68	21.03	0.127	33.01	-11.98
1857.50	15	16-QAM	H	150	30	1 / 0	16.90	4.80	<b>21.70</b>	0.148	33.01	-11.31
1857.50	15	64-QAM	H	150	30	1 / 0	15.83	4.80	<b>20.63</b>	0.116	33.01	-12.38
1860.00	20	QPSK	H	150	54	1 / 0	17.65	4.79	<b>22.44</b>	0.176	33.01	-10.57
1882.50	20	QPSK	H	150	22	1 / 0	17.36	4.73	22.09	0.162	33.01	-10.92
1905.00	20	QPSK	H	150	23	1 / 0	16.42	4.68	21.10	0.129	33.01	-11.91
1860.00	20	16-QAM	H	150	54	1 / 0	16.72	4.79	<b>21.51</b>	0.142	33.01	-11.50
1860.00	20	64-QAM	H	150	54	1 / 0	15.75	4.79	<b>20.54</b>	0.113	33.01	-12.47
1850.70	1.4	QPSK	V	150	277	3 / 2	15.56	4.73	20.29	0.107	33.01	-12.72
1850.70	1.4 (WCP)	QPSK	H	150	357	3 / 2	16.71	4.73	21.44	0.139	33.01	-11.57

**Table 7-10. EIRP Data (Band 2/25)**

FCC ID: A3LSMN960KOR		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1804130071-03.A3L	<b>Test Dates:</b> 4/6/2018-6/19/2018	<b>EUT Type:</b> Portable Handset	Page 164 of 198	

Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	RB Size/Offset	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
2498.50	5	QPSK	H	150	32	1 / 0	16.98	5.73	<b>22.71</b>	0.187	33.01	-10.30
2593.00	5	QPSK	H	150	13	1 / 0	15.53	6.07	21.60	0.145	33.01	-11.41
2687.50	5	QPSK	H	150	32	1 / 0	15.65	6.48	22.13	0.163	33.01	-10.88
2498.50	5	16-QAM	H	150	32	1 / 0	16.03	5.73	<b>21.76</b>	0.150	33.01	-11.25
2687.50	5	64-QAM	H	150	32	1 / 0	14.09	6.48	<b>20.57</b>	0.114	33.01	-12.44
2501.00	10	QPSK	H	150	16	1 / 0	16.62	5.73	<b>22.35</b>	0.172	33.01	-10.66
2593.00	10	QPSK	H	150	10	1 / 0	16.13	6.07	22.20	0.166	33.01	-10.81
2685.00	10	QPSK	H	150	15	1 / 0	15.45	6.47	21.92	0.156	33.01	-11.09
2685.00	10	16-QAM	H	150	15	1 / 0	14.77	6.47	<b>21.24</b>	0.133	33.01	-11.77
2593.00	10	64-QAM	H	150	10	1 / 0	14.21	6.07	<b>20.28</b>	0.107	33.01	-12.73
2503.50	15	QPSK	H	150	320	1 / 0	18.19	5.74	<b>23.93</b>	<b>0.247</b>	33.01	-9.08
2593.00	15	QPSK	H	150	23	1 / 0	16.40	6.07	22.47	0.177	33.01	-10.54
2682.50	15	QPSK	H	150	29	1 / 0	16.51	6.46	22.97	0.198	33.01	-10.04
2503.50	15	16-QAM	H	150	320	1 / 0	17.19	5.74	<b>22.93</b>	0.196	33.01	-10.08
2503.50	15	64-QAM	H	150	320	1 / 0	16.21	5.74	<b>21.95</b>	0.157	33.01	-11.06
2506.00	20	QPSK	H	150	358	1 / 0	18.03	5.75	<b>23.78</b>	0.239	33.01	-9.23
2593.00	20	QPSK	H	150	9	1 / 0	16.06	6.07	22.13	0.163	33.01	-10.88
2680.00	20	QPSK	H	150	12	1 / 0	16.35	6.45	22.80	0.191	33.01	-10.21
2506.00	20	16-QAM	H	150	358	1 / 0	17.44	5.75	<b>23.19</b>	0.209	33.01	-9.82
2506.00	20	64-QAM	H	150	358	1 / 0	16.91	5.75	<b>22.66</b>	0.185	33.01	-10.35
2503.50	15	QPSK	V	150	32	1 / 0	14.71	5.74	20.46	0.111	33.01	-12.55
2503.50	15 (WCP)	QPSK	H	150	358	1 / 0	17.20	5.74	22.94	0.197	33.01	-10.07

**Table 7-11. EIRP Data (Band 41)**

FCC ID: A3LSMN960KOR		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
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## 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 vertically and horizontally polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas.

### Test Procedures Used

KDB 971168 D01 v03r01 – Section 5.8

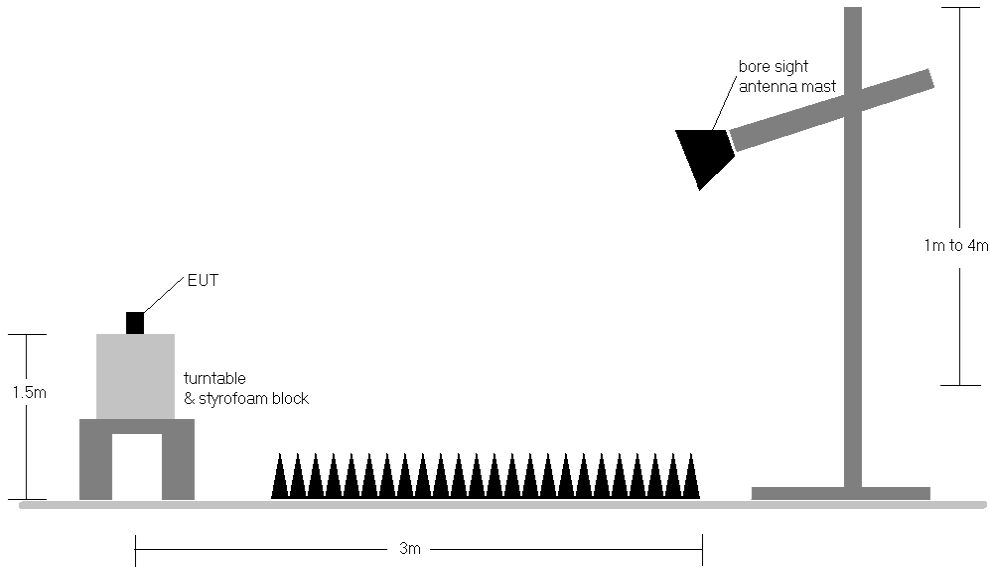
ANSI/TIA-603-E-2016 – Section 2.2.12

### 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

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



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

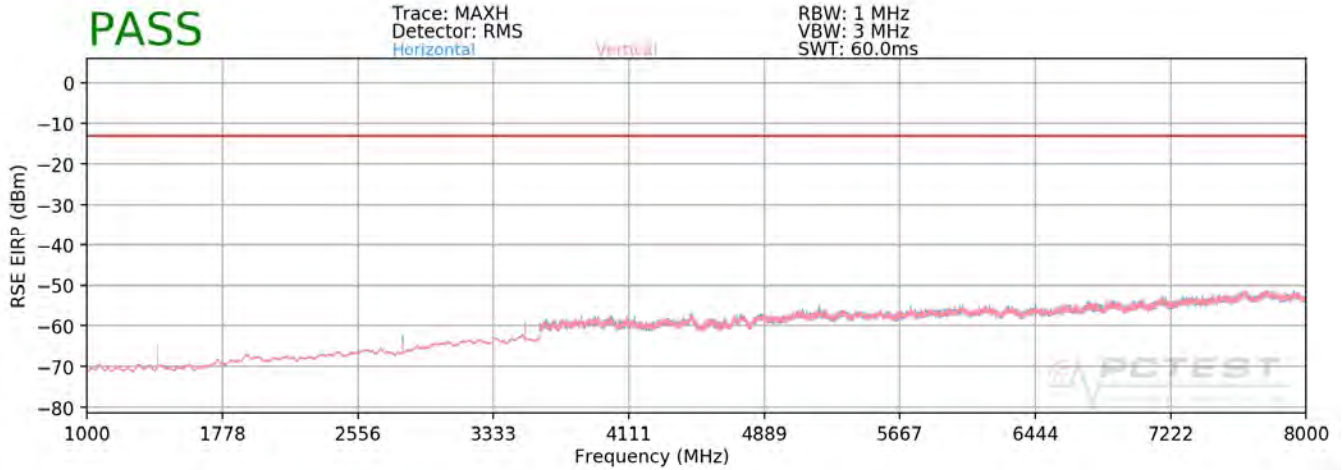
**Test Notes**

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

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**Band 12/17**



**Plot 7-266. Radiated Spurious Plot above 1GHz (Band 12/17)**

OPERATING FREQUENCY: 704.00 MHz  
 CHANNEL: 23060  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1408.00	H	154	255	-70.93	8.53	-62.40	-49.4
2112.00	H	100	228	-78.09	9.03	-69.06	-56.1
2816.00	H	122	202	-67.96	8.59	-59.37	-46.4
3520.00	H	100	227	-68.63	9.11	-59.53	-46.5
4224.00	H	-	-	-74.25	9.27	-64.98	-52.0

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset			Page 168 of 198

OPERATING FREQUENCY: 707.50 MHz  
 CHANNEL: 23095  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	155	297	-76.64	8.48	-68.15	-55.2
2122.50	H	122	230	-76.14	8.94	-67.21	-54.2
2830.00	H	116	195	-70.89	8.32	-62.57	-49.6
3537.50	H	163	231	-73.43	8.89	-64.53	-51.5
4245.00	H	-	-	-72.97	8.97	-64.00	-51.0

**Table 7-13. Radiated Spurious Data (Band 12/17 – Mid Channel)**

OPERATING FREQUENCY: 711.00 MHz  
 CHANNEL: 23130  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1422.00	H	213	294	-75.06	8.44	-66.62	-53.6
2133.00	H	213	253	-78.77	8.84	-69.93	-56.9
2844.00	H	100	198	-71.69	8.10	-63.59	-50.6
3555.00	H	-	-	-74.36	8.60	-65.76	-52.8

**Table 7-14. Radiated Spurious Data (Band 12/17 – High Channel)**

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 169 of 198	

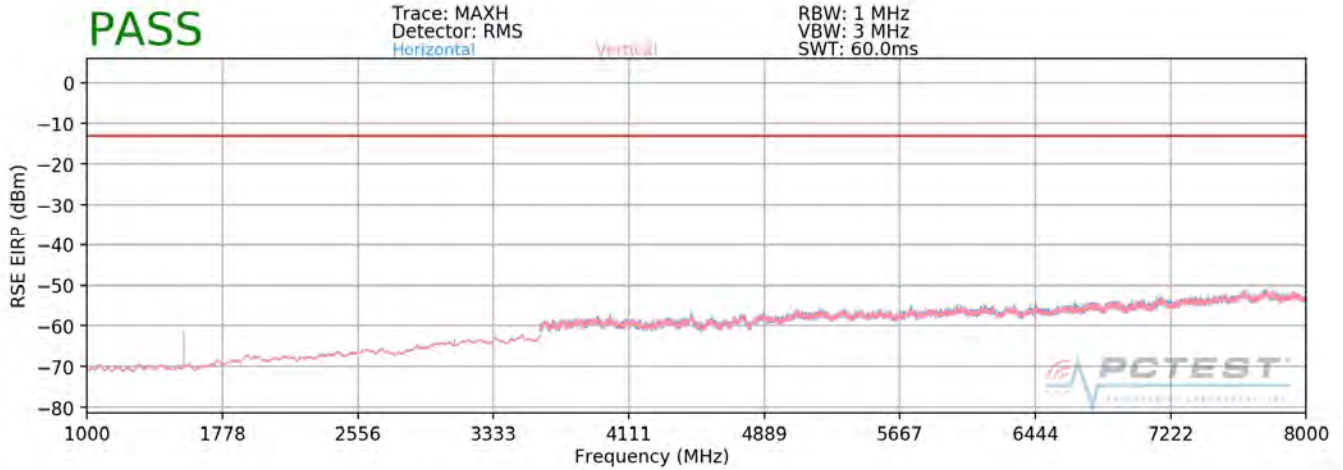
OPERATING FREQUENCY: 707.50 MHz  
 CHANNEL: 23095  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1415.00	H	128	308	-75.64	8.48	-67.15	-54.2
2122.50	H	-	-	-79.28	8.94	-70.35	-57.3

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 170 of 198	

**Band 13**



**Plot 7-267. Radiated Spurious Plot above 1GHz (Band 13)**

OPERATING FREQUENCY: 782.00 MHz  
 CHANNEL: 23230  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	H	-	-	-79.60	9.04	-70.56	-57.6
3128.00	H	121	299	-72.36	8.56	-63.81	-50.8
3910.00	H	-	-	-73.94	9.13	-64.80	-51.8

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset		Page 171 of 198	

MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.00 MHz  
 DISTANCE: 3 meters  
 NARROWBAND EMISSION LIMIT: -50 dBm  
 WIDEBAND EMISSION LIMIT: -40 dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	130	324	-68.01	8.77	-59.24	-19.2

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

OPERATING FREQUENCY: 782.00 MHz  
 CHANNEL: 23230  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
2346.00	H	-	-	-79.30	9.04	-70.26	-57.3
3128.00	H	-	-	-75.62	8.56	-67.07	-54.1

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

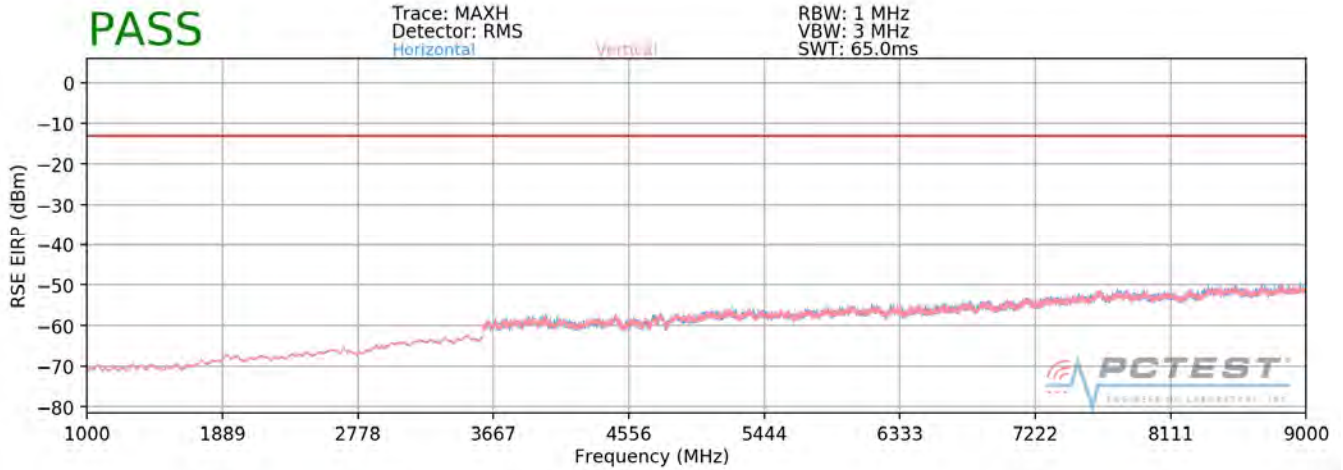
MODULATION SIGNAL: QPSK  
 BANDWIDTH: 10.00 MHz  
 DISTANCE: 3 meters  
 NARROWBAND EMISSION LIMIT: -50 dBm  
 WIDEBAND EMISSION LIMIT: -40 dBm/MHz

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1564.00	H	120	239	-69.19	8.77	-60.42	-20.4

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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**Band 5/26**



**Plot 7-268. Radiated Spurious Plot above 1GHz (Band 5/26)**

OPERATING FREQUENCY: 826.50 MHz  
 CHANNEL: 26815  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1653.00	V	163	50	-80.64	9.32	-71.32	-58.3
2479.50	V	-	-	-76.36	8.61	-67.74	-54.7

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset		Page 173 of 198	

OPERATING FREQUENCY: 836.50 MHz  
 CHANNEL: 26915  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1673.00	V	172	78	-81.47	9.45	-72.02	-59.0
2509.50	V	-	-	-77.85	8.50	-69.35	-56.4

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

OPERATING FREQUENCY: 846.50 MHz  
 CHANNEL: 27015  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1693.00	V	237	346	-80.88	9.57	-71.31	-58.3
2539.50	V	-	-	-77.48	8.44	-69.05	-56.0

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 174 of 198	

OPERATING FREQUENCY: 846.50 MHz  
 CHANNEL: 27015  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 5.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

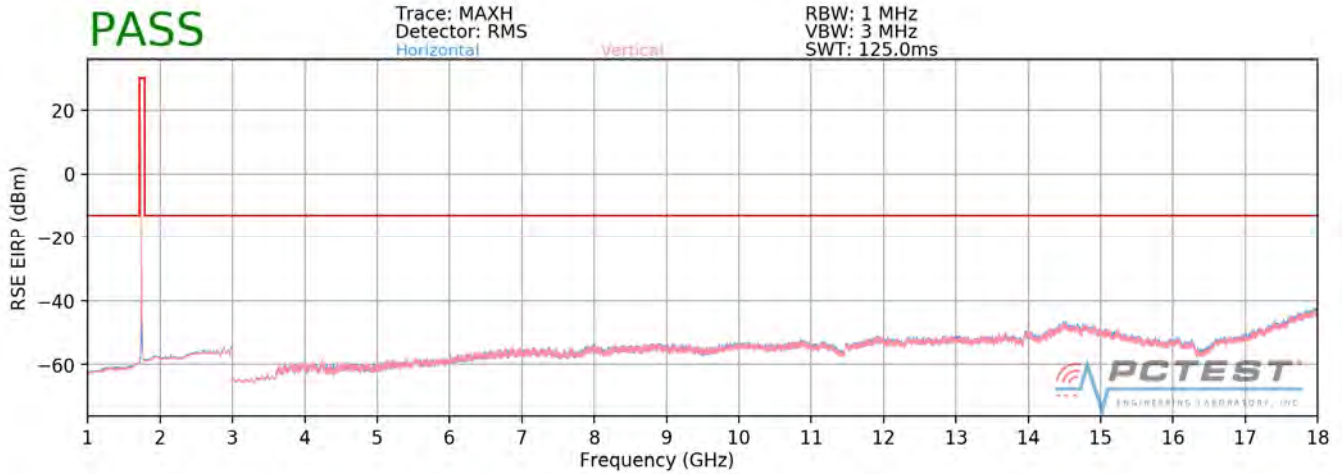
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
1693.00	V	103	28	-80.25	9.57	-70.68	-57.7
2539.50	V	-	-	-77.36	8.44	-68.93	-55.9

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset			Page 175 of 198



**Band 4/66**



**Plot 7-269. Radiated Spurious Plot above 1GHz (Band 4/66)**

OPERATING FREQUENCY: 1711.50 MHz  
 CHANNEL: 131987  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3423.00	H	400	351	-72.18	9.21	-62.97	-50.0
5134.50	H	112	345	-72.77	11.99	-60.78	-47.8
6846.00	H	-	-	-68.14	10.48	-57.66	-44.7

**Table 7-24. Radiated Spurious Data (Band 4/66 – Low Channel)**

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset		Page 176 of 198	

OPERATING FREQUENCY: 1745.00 MHz  
 CHANNEL: 132322  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3490.00	H	361	92	-73.70	9.17	-64.53	-51.5
5235.00	H	113	344	-73.69	12.49	-61.20	-48.2
6980.00	H	-	-	-69.13	10.26	-58.87	-45.9

Table 7-25. Radiated Spurious Data (Band 4/66 – Mid Channel)

OPERATING FREQUENCY: 1778.50 MHz  
 CHANNEL: 132657  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3557.00	H	344	353	-71.88	8.75	-63.14	-50.1
5335.50	H	104	341	-73.72	12.57	-61.15	-48.2
7114.00	H	-	-	-68.45	10.17	-58.28	-45.3

Table 7-26. Radiated Spurious Data (Band 4/66 – High Channel)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 177 of 198	

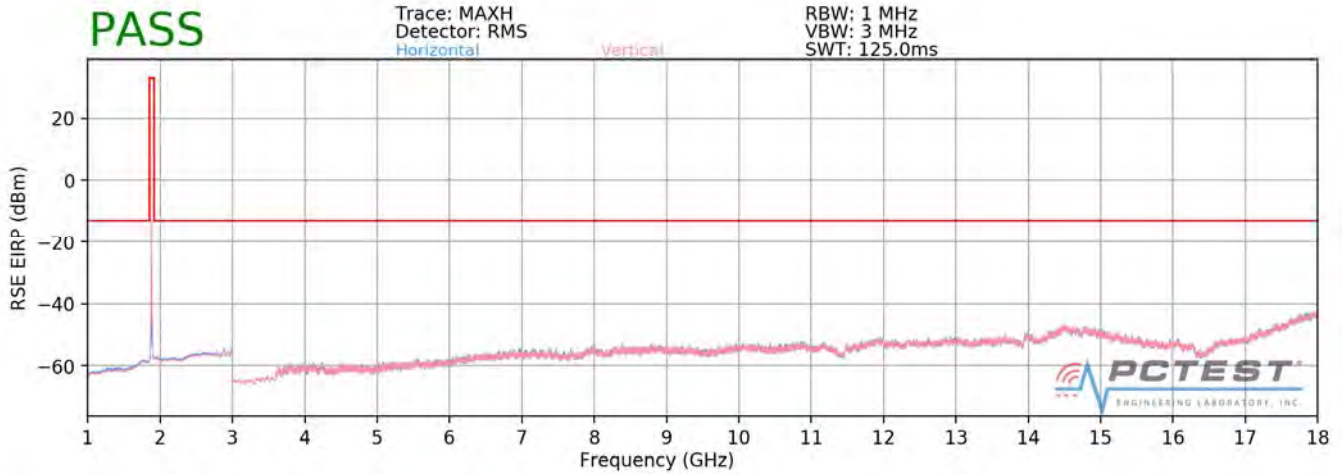
OPERATING FREQUENCY: 1778.50 MHz  
 CHANNEL: 132657  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 3.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3557.00	H	-	-	-74.33	8.75	-65.59	-52.6
5335.50	H	148	208	-73.50	12.57	-60.93	-47.9
7114.00	H	-	-	-68.19	10.17	-58.02	-45.0

Table 7-27. Radiated Spurious Data with WCP (Band 4/66 -- High Channel)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 178 of 198	

**Band 2/25**



**Plot 7-270. Radiated Spurious Plot above 1GHz (Band 2/25)**

OPERATING FREQUENCY: 1850.70 MHz  
 CHANNEL: 26047  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 1.4 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3701.40	H	380	48	-67.62	8.92	-58.70	-45.7
5552.10	H	100	352	-73.54	12.68	-60.86	-47.9
7402.80	H	-	-	-68.72	10.22	-58.50	-45.5

**Table 7-28. Radiated Spurious Data (Band 2/25 – Low Channel)**

FCC ID: A3LSMN960KOR			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset			Page 179 of 198

OPERATING FREQUENCY: 1882.50 MHz  
 CHANNEL: 26365  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 1.4 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3765.00	H	163	40	-73.73	9.37	-64.36	-51.4
5647.50	H	-	-	-75.34	12.97	-62.37	-49.4

Table 7-29. Radiated Spurious Data (Band 2/25 – Mid Channel)

OPERATING FREQUENCY: 1914.30 MHz  
 CHANNEL: 26683  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 1.4 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3828.60	H	116	38	-71.83	9.50	-62.33	-49.3
5742.90	H	-	-	-75.57	12.97	-62.60	-49.6

Table 7-30. Radiated Spurious Data (Band 2/25 – High Channel)

FCC ID: A3LSMN960KOR			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset			Page 180 of 198

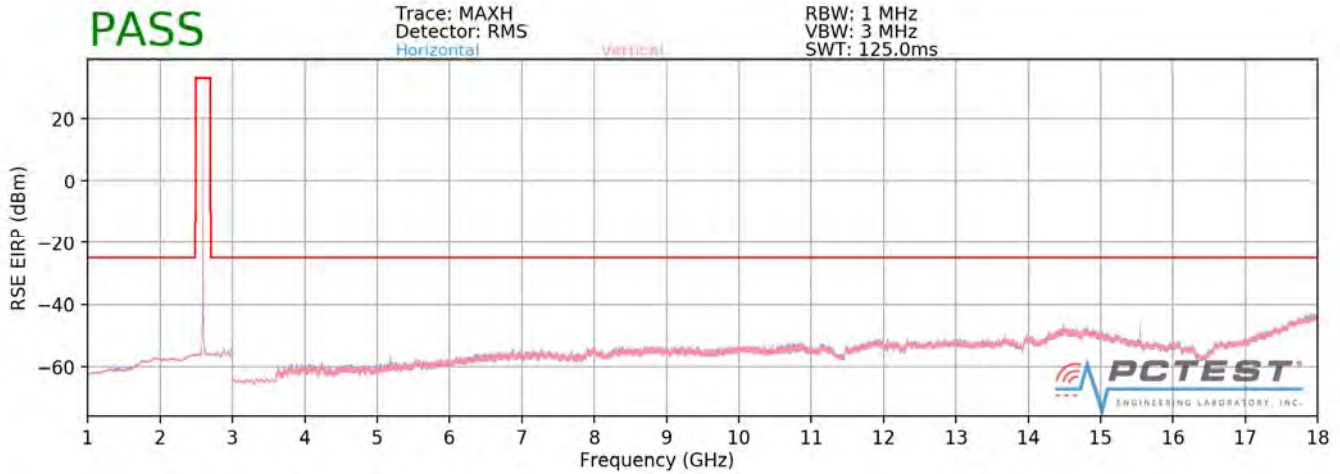
OPERATING FREQUENCY: 1850.70 MHz  
 CHANNEL: 26047  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 1.4 MHz  
 DISTANCE: 3 meters  
 LIMIT: -13 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3701.40	H	189	238	-72.29	8.92	-63.37	-50.4
5552.10	H	-	-	-74.27	12.68	-61.59	-48.6

Table 7-31. Radiated Spurious Data with WCP (Band 25 – Low Channel)

FCC ID: A3LSMN960KOR			<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1804130071-03.A3L	<b>Test Dates:</b> 4/6/2018-6/19/2018	<b>EUT Type:</b> Portable Handset			Page 181 of 198

**Band 41**



**Plot 7-271. Radiated Spurious Plot 1GHz - 18GHz (Band 41)**

OPERATING FREQUENCY: 2507.50 MHz  
 CHANNEL: 39765  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 15.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5015.00	H	150	317	-56.59	11.12	-45.47	-20.5
7522.50	H	150	328	-39.36	11.04	-28.33	-3.3
10030.00	H	-	-	-57.61	12.17	-45.44	-20.4

**Table 7-32. Radiated Spurious Data (Band 41 – Low Channel)**

FCC ID: A3LSMN960KOR	<b>MEASUREMENT REPORT (CERTIFICATION)</b>		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 182 of 198

OPERATING FREQUENCY: 2593.00 MHz  
 CHANNEL: 40620  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 15.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5186.00	H	-	-	-58.03	10.82	-47.20	-22.2
7779.00	H	150	70	-42.07	11.45	-30.61	-5.6
10372.00	H	-	-	-50.92	12.53	-38.39	-13.4

Table 7-33. Radiated Spurious Data (Band 41 – Mid Channel)

OPERATING FREQUENCY: 2682.50 MHz  
 CHANNEL: 41515  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 15.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5365.00	H	150	337	-58.99	11.03	-47.96	-23.0
8047.50	H	150	67	-45.18	11.39	-33.79	-8.8
10730.00	H	-	-	-52.58	12.83	-39.75	-14.7

Table 7-34. Radiated Spurious Data (Band 41 – High Channel)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 183 of 198	



OPERATING FREQUENCY: 2503.50 MHz  
 CHANNEL: 39725  
 MODULATION SIGNAL: QPSK  
 BANDWIDTH: 15.0 MHz  
 DISTANCE: 3 meters  
 LIMIT: -25 dBm

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
5007.00	H	-	-	-57.32	11.16	-46.16	-21.2
7510.50	H	150	148	-46.99	11.01	-35.98	-11.0
10014.00	H	-	-	-52.57	12.15	-40.42	-15.4

**Table 7-35. Radiated Spurious Data with WCP (Band 41 – Low Channel)**

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 184 of 198	

## 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 22, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency. For Part 24, 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: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 185 of 198	

## Band 12/17 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz  
 CHANNEL: 23790  
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	707,500,327	327	0.0000462
100 %		- 30	707,499,692	-308	-0.0000435
100 %		- 20	707,499,812	-188	-0.0000266
100 %		- 10	707,499,621	-379	-0.0000536
100 %		0	707,499,979	-21	-0.0000030
100 %		+ 10	707,500,039	39	0.0000055
100 %		+ 20	707,500,132	132	0.0000187
100 %		+ 30	707,500,167	167	0.0000236
100 %		+ 40	707,499,807	-193	-0.0000273
100 %		+ 50	707,500,009	9	0.0000013
BATT. ENDPOINT	3.45	+ 20	707,499,945	-55	-0.0000078

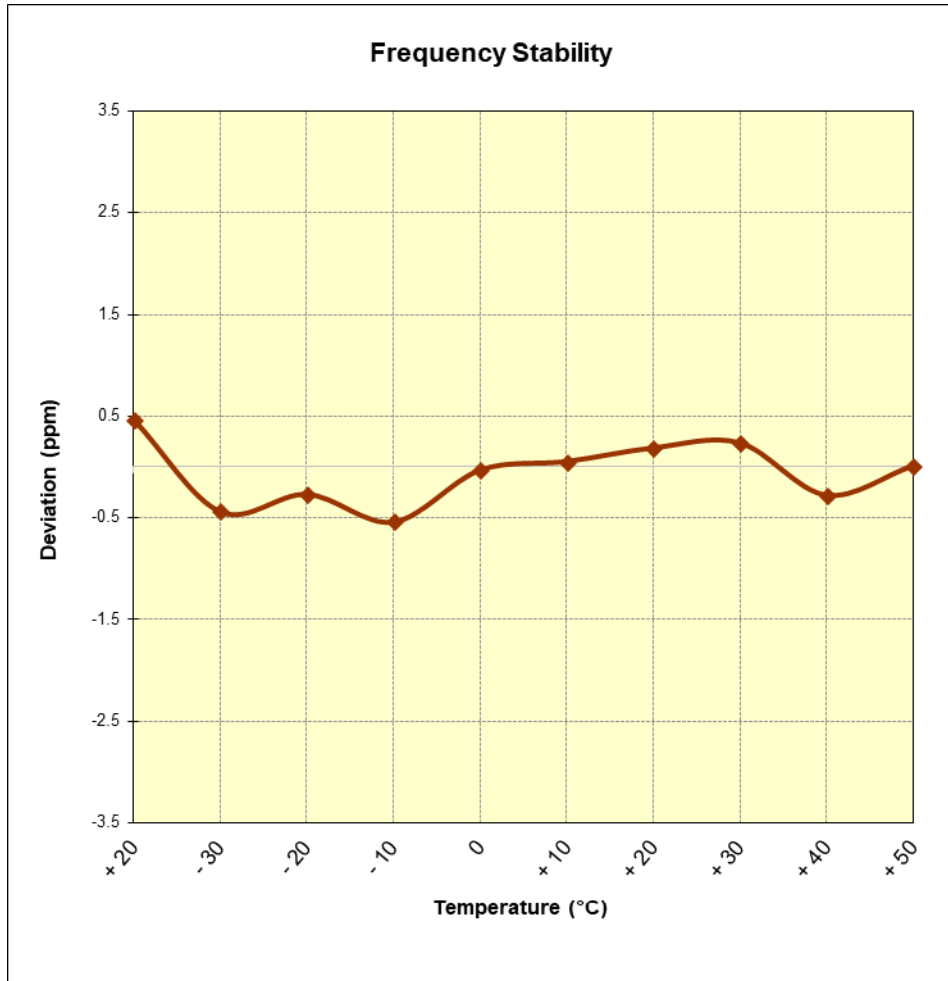
Table 7-36. Frequency Stability Data (Band 12/17)

**Note:**

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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**Band 12/17 Frequency Stability Measurements**



**Figure 7-8. Frequency Stability Graph (Band 12/17)**

FCC ID: A3LSMN960KOR		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
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## Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz  
 CHANNEL: 23230  
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	782,000,026	26	0.0000033
100 %		- 30	782,000,027	27	0.0000035
100 %		- 20	781,999,977	-23	-0.0000029
100 %		- 10	781,999,964	-36	-0.0000046
100 %		0	782,000,409	409	0.0000523
100 %		+ 10	781,999,657	-343	-0.0000439
100 %		+ 20	782,000,134	134	0.0000171
100 %		+ 30	782,000,377	377	0.0000482
100 %		+ 40	781,999,798	-202	-0.0000258
100 %		+ 50	782,000,354	354	0.0000453
BATT. ENDPOINT		3.45	+ 20	781,999,849	-151

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

**Note:**

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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## Band 13 Frequency Stability Measurements

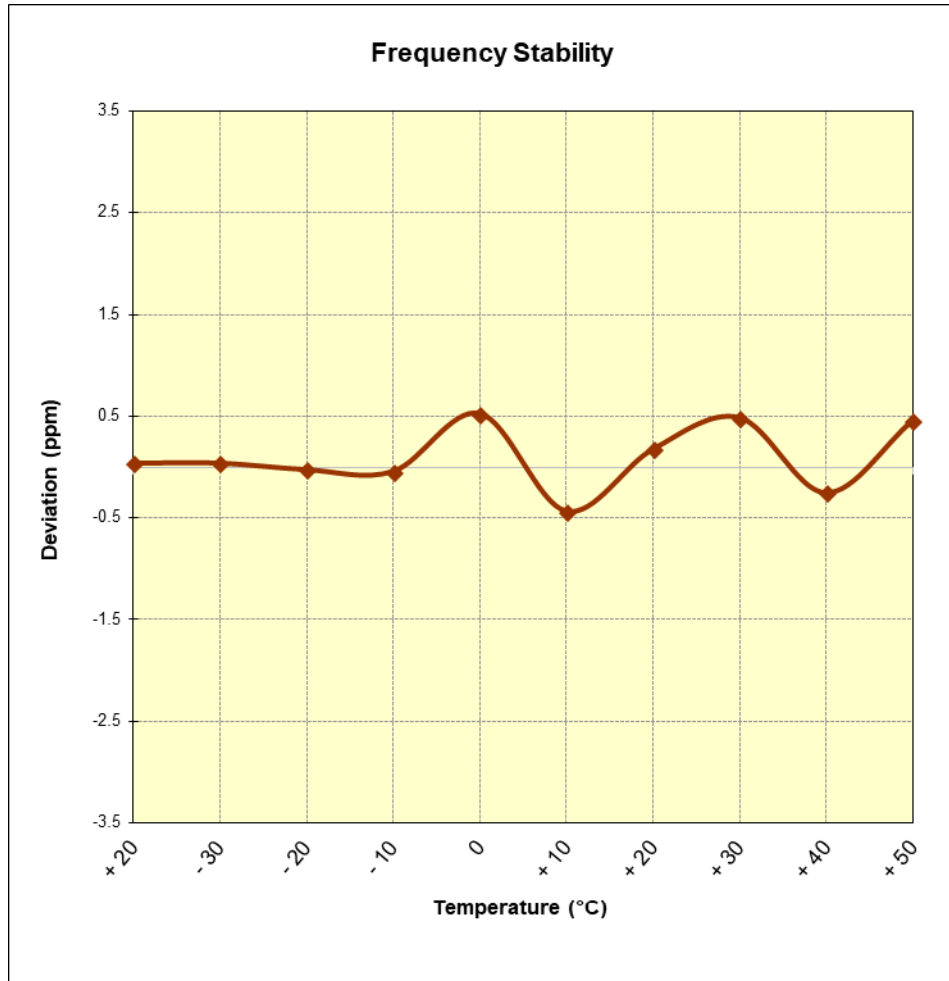


Figure 7-9. Frequency Stability Graph (Band 13)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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## Band 5/26 Frequency Stability Measurements

OPERATING FREQUENCY: 836,500,000 Hz  
 CHANNEL: 20525  
 REFERENCE VOLTAGE: 3.85 VDC  
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	836,499,873	-127	-0.0000152
100 %		- 30	836,500,011	11	0.0000013
100 %		- 20	836,499,806	-194	-0.0000232
100 %		- 10	836,500,064	64	0.0000077
100 %		0	836,499,969	-31	-0.0000037
100 %		+ 10	836,499,821	-179	-0.0000214
100 %		+ 20	836,499,571	-429	-0.0000513
100 %		+ 30	836,500,064	64	0.0000077
100 %		+ 40	836,499,703	-297	-0.0000355
100 %		+ 50	836,500,122	122	0.0000146
BATT. ENDPOINT	3.45	+ 20	836,500,060	60	0.0000072

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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### Band 5/26 Frequency Stability Measurements

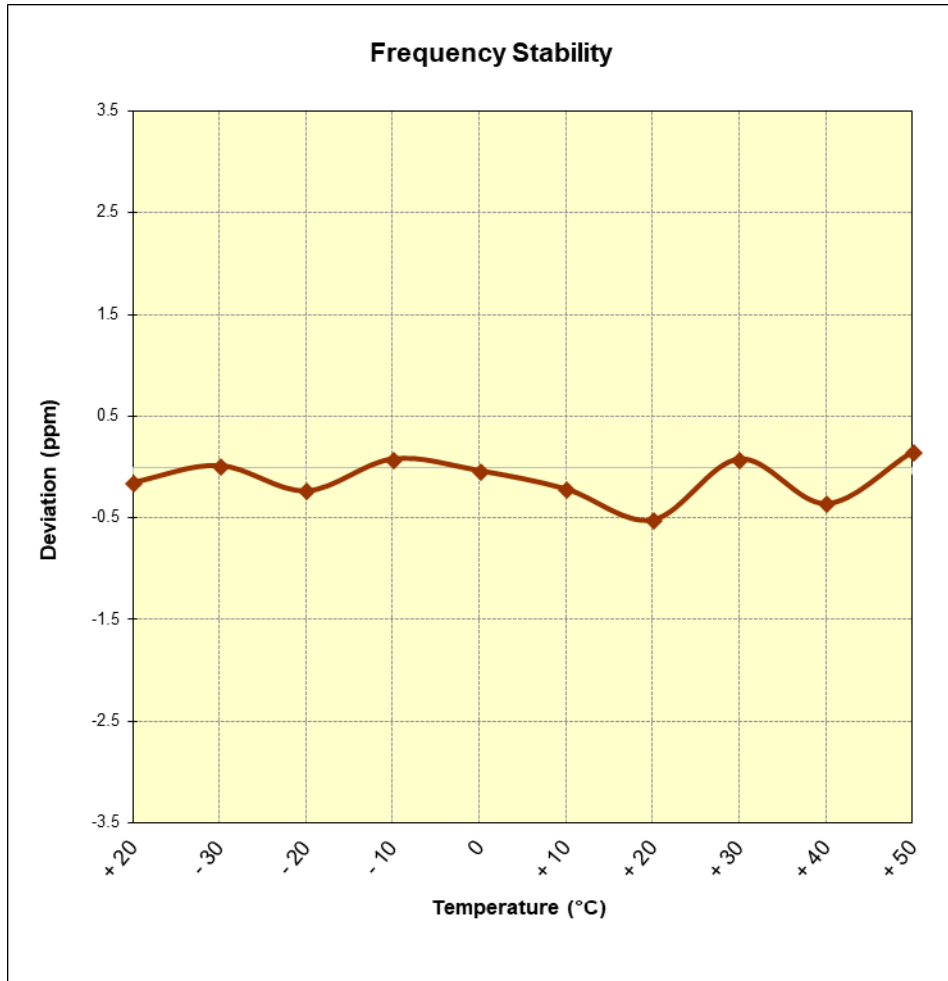


Figure 7-10. Frequency Stability Graph (Band 5/26)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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## Band 4/66 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz  
 CHANNEL: 132322  
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,745,000,080	80	0.0000046
100 %		- 30	1,745,000,001	1	0.0000001
100 %		- 20	1,744,999,893	-107	-0.0000061
100 %		- 10	1,745,000,086	86	0.0000049
100 %		0	1,745,000,038	38	0.0000022
100 %		+ 10	1,745,000,141	141	0.0000081
100 %		+ 20	1,745,000,103	103	0.0000059
100 %		+ 30	1,744,999,868	-132	-0.0000076
100 %		+ 40	1,744,999,914	-86	-0.0000049
100 %		+ 50	1,744,999,892	-108	-0.0000062
BATT. ENDPOINT		3.45	+ 20	1,745,000,007	7

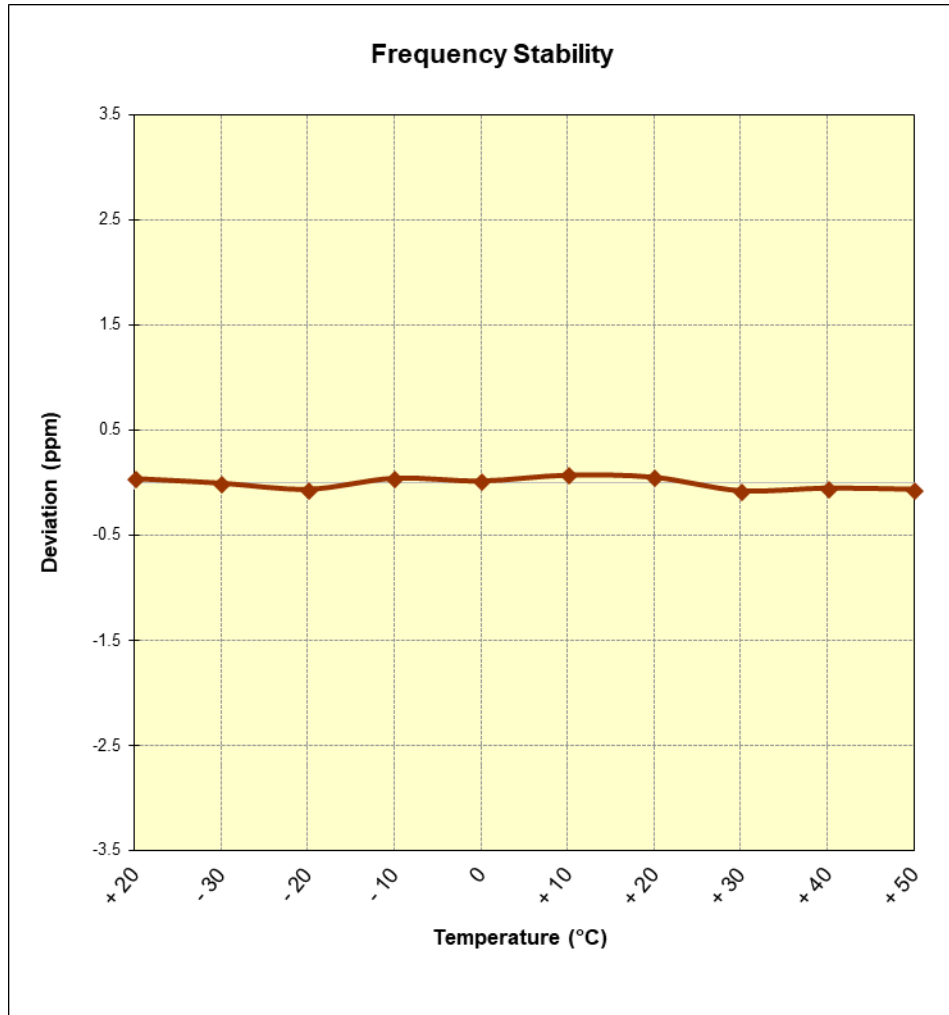
Table 7-39. Frequency Stability Data (Band 4/66)

**Note:**

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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**Band 4/66 Frequency Stability Measurements**



**Figure 7-11. Frequency Stability Graph (Band 4/66)**

FCC ID: A3LSMN960KOR		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1804130071-03.A3L	<b>Test Dates:</b> 4/6/2018-6/19/2018	<b>EUT Type:</b> Portable Handset	Page 193 of 198	

## Band 2/25 Frequency Stability Measurements

OPERATING FREQUENCY: 1,882,500,000 Hz  
 CHANNEL: 26365  
 REFERENCE VOLTAGE: 3.85 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	1,882,499,694	-306	-0.0000163
100 %		- 30	1,882,500,112	112	0.0000059
100 %		- 20	1,882,500,111	111	0.0000059
100 %		- 10	1,882,499,926	-74	-0.0000039
100 %		0	1,882,500,075	75	0.0000040
100 %		+ 10	1,882,500,145	145	0.0000077
100 %		+ 20	1,882,500,117	117	0.0000062
100 %		+ 30	1,882,499,710	-290	-0.0000154
100 %		+ 40	1,882,500,070	70	0.0000037
100 %		+ 50	1,882,500,002	2	0.0000001
BATT. ENDPOINT		3.45	+ 20	1,882,499,520	-480

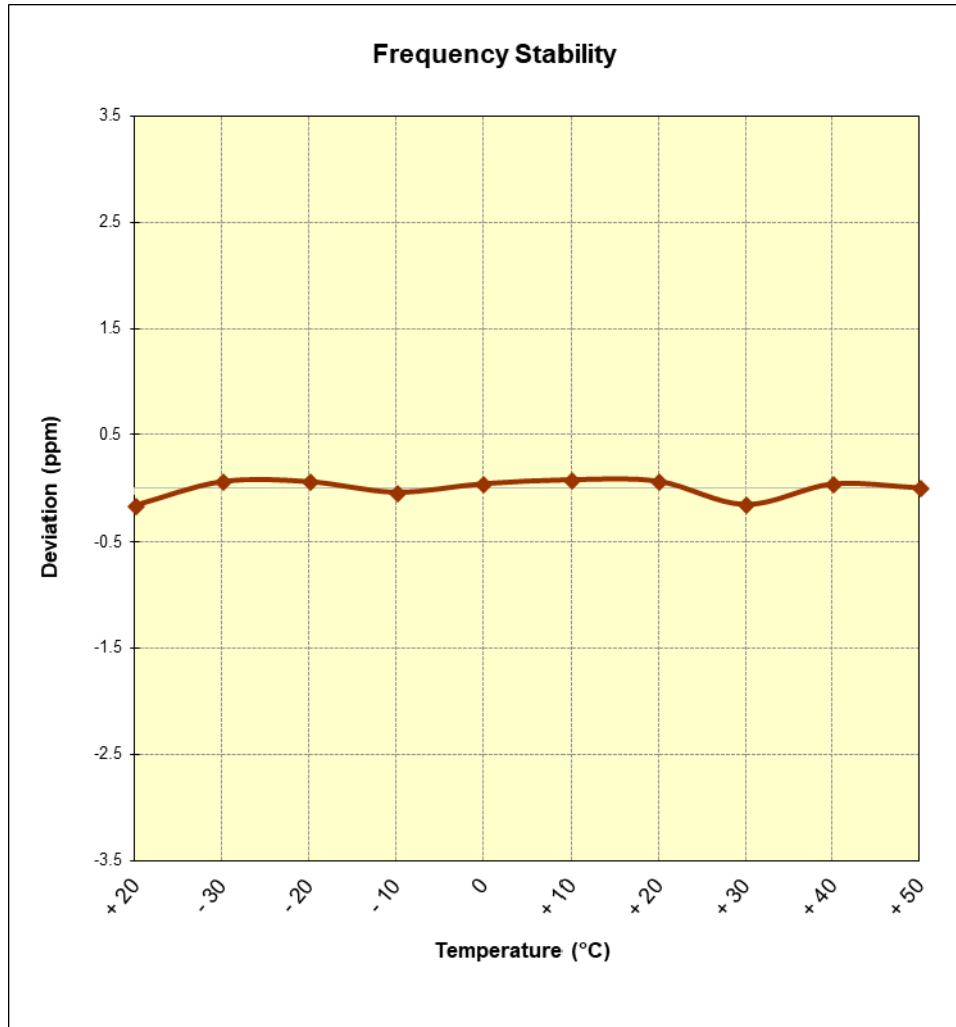
**Table 7-40. Frequency Stability Data (Band 2/25)**

**Note:**

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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**Band 2/25 Frequency Stability Measurements**



**Figure 7-12. Frequency Stability Graph (Band 2/25)**

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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## Band 41 Frequency Stability Measurements

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

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.85	+ 20 (Ref)	2,592,999,839	-161	-0.0000062
100 %		- 30	2,593,000,119	119	0.0000046
100 %		- 20	2,593,000,355	355	0.0000137
100 %		- 10	2,593,000,084	84	0.0000032
100 %		0	2,593,000,392	392	0.0000151
100 %		+ 10	2,593,000,127	127	0.0000049
100 %		+ 20	2,593,000,224	224	0.0000086
100 %		+ 30	2,592,999,828	-172	-0.0000066
100 %		+ 40	2,592,999,807	-193	-0.0000074
100 %		+ 50	2,592,999,971	-29	-0.0000011
BATT. ENDPOINT		3.45	+ 20	2,593,000,244	244

**Table 7-41. Frequency Stability Data (Band 41)**

**Note:**

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

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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### Band 41 Frequency Stability Measurements

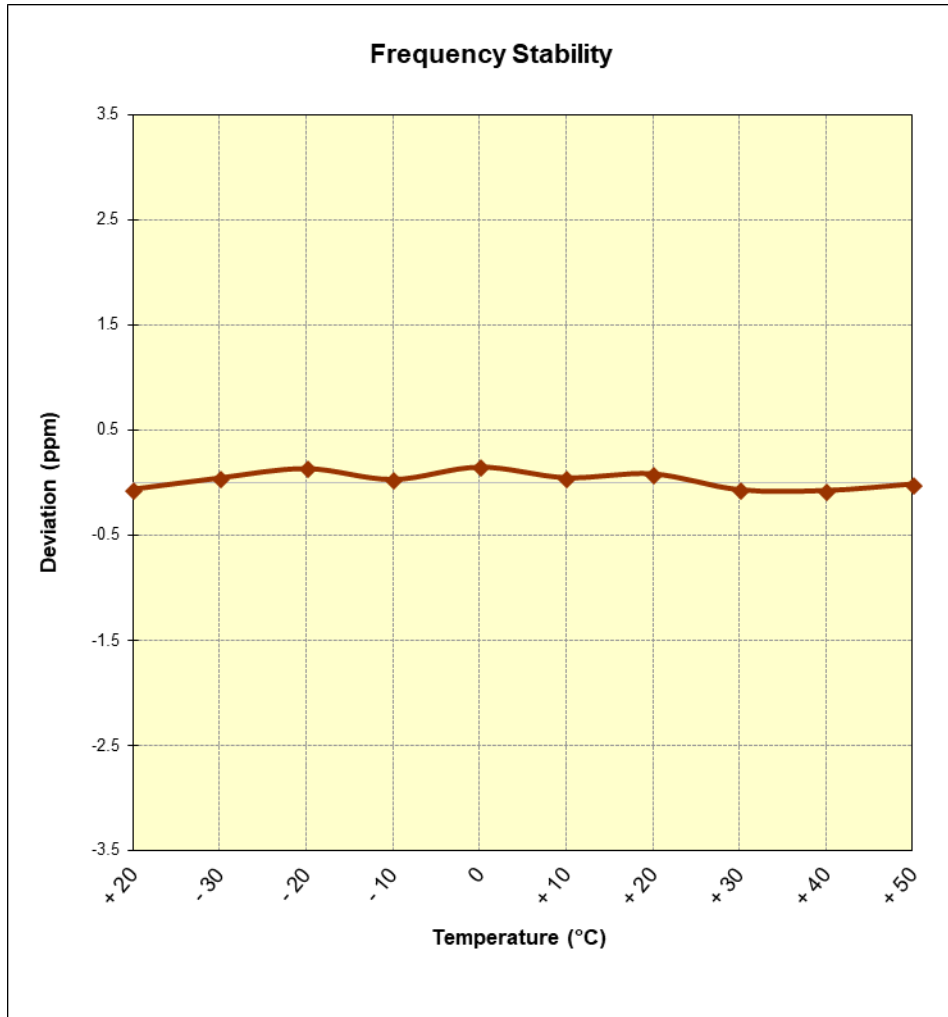


Figure 7-13. Frequency Stability Graph (Band 41)

FCC ID: A3LSMN960KOR		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1804130071-03.A3L	Test Dates: 4/6/2018-6/19/2018	EUT Type: Portable Handset	Page 197 of 198	

## 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMN960KOR** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

FCC ID: A3LSMN960KOR		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M1804130071-03.A3L	<b>Test Dates:</b> 4/6/2018-6/19/2018	<b>EUT Type:</b> Portable Handset		Page 198 of 198