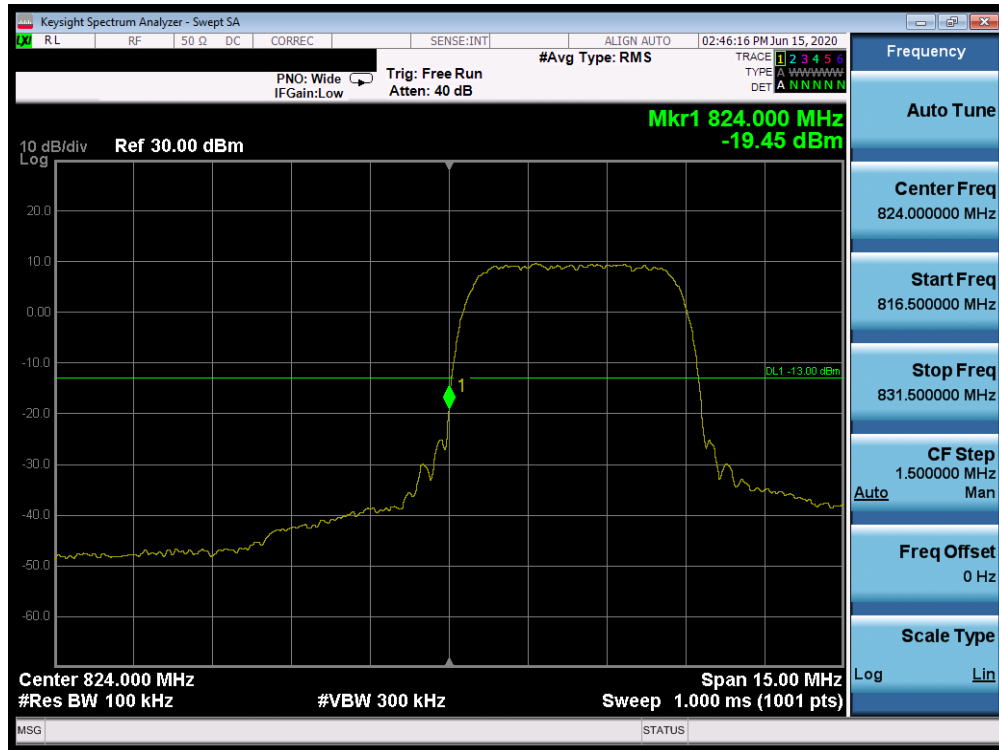


Cellular WCDMA Mode



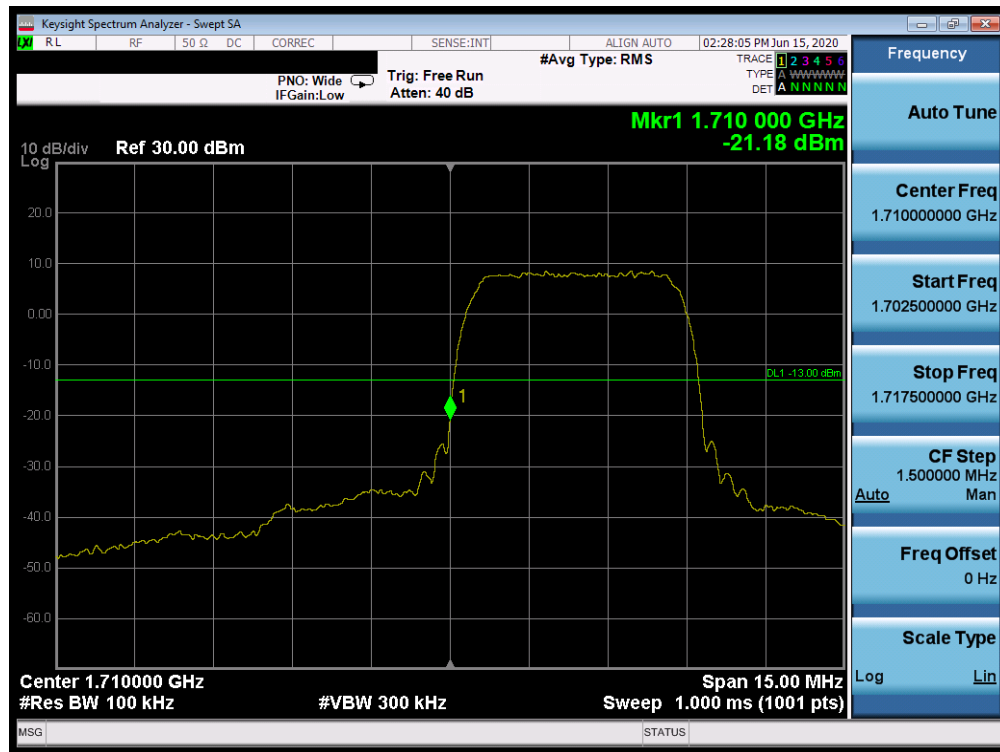
Plot 7-85. Band Edge Plot (Cellular WCDMA Mode - Low Channel)



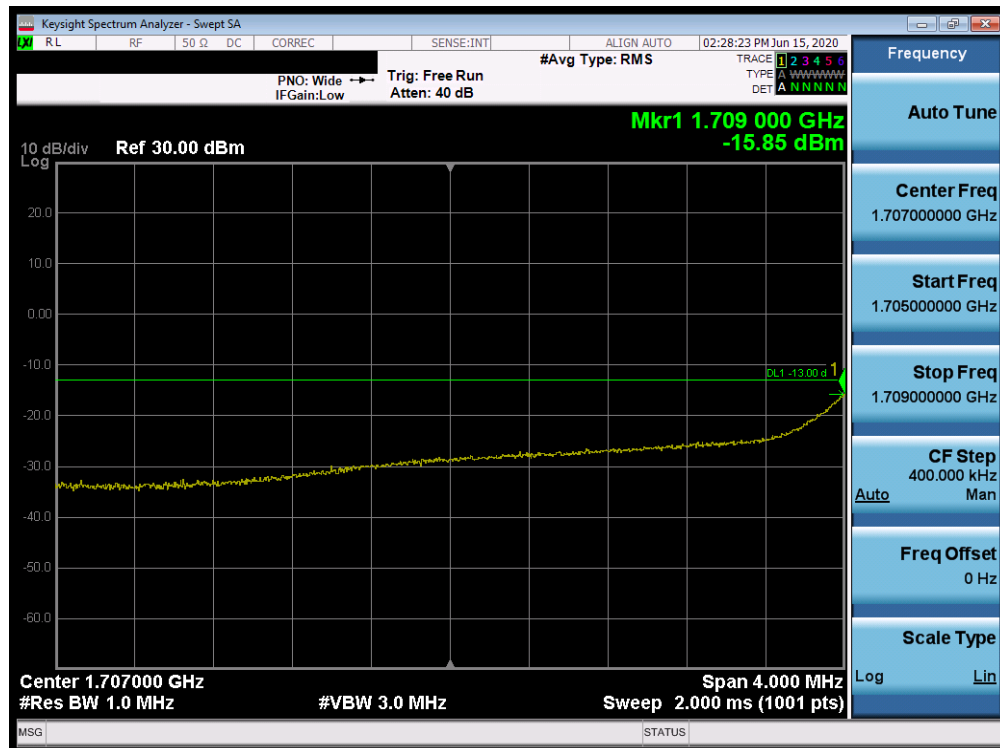
Plot 7-86. Band Edge Plot (Cellular WCDMA Mode - High Channel)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 60 of 113

AWS WCDMA Mode



Plot 7-87. Band Edge Plot (AWS WCDMA Mode - Low Channel)

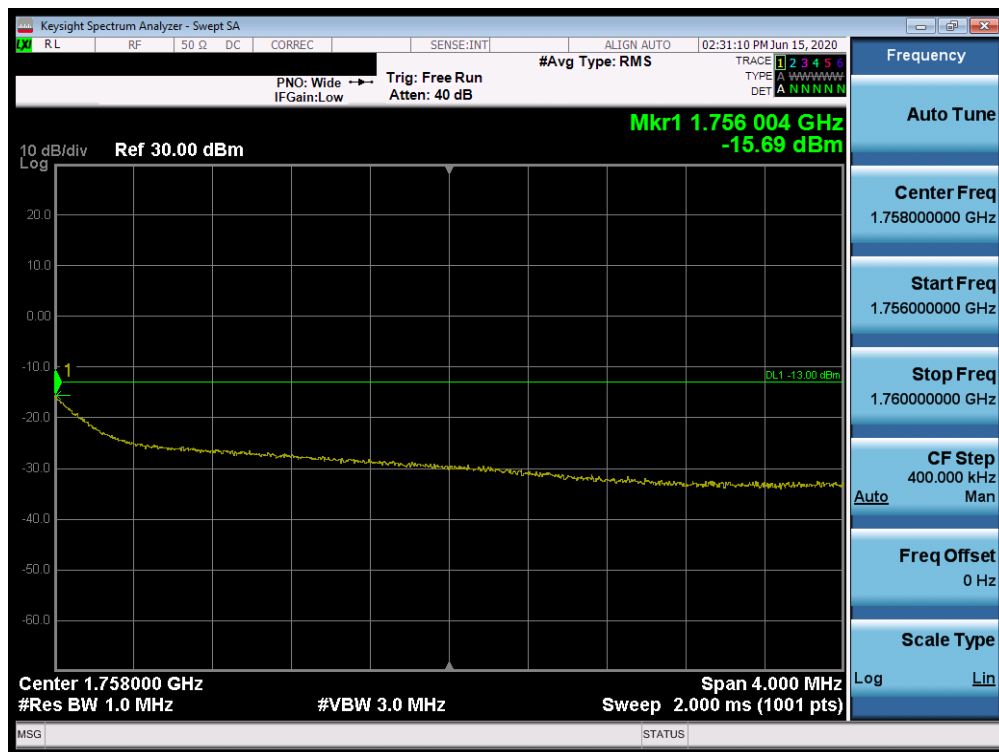


Plot 7-88. 4MHz Span Plot (AWS WCDMA Mode - Low Channel)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 61 of 113



Plot 7-89. Band Edge Plot (AWS WCDMA Mode - High Channel)



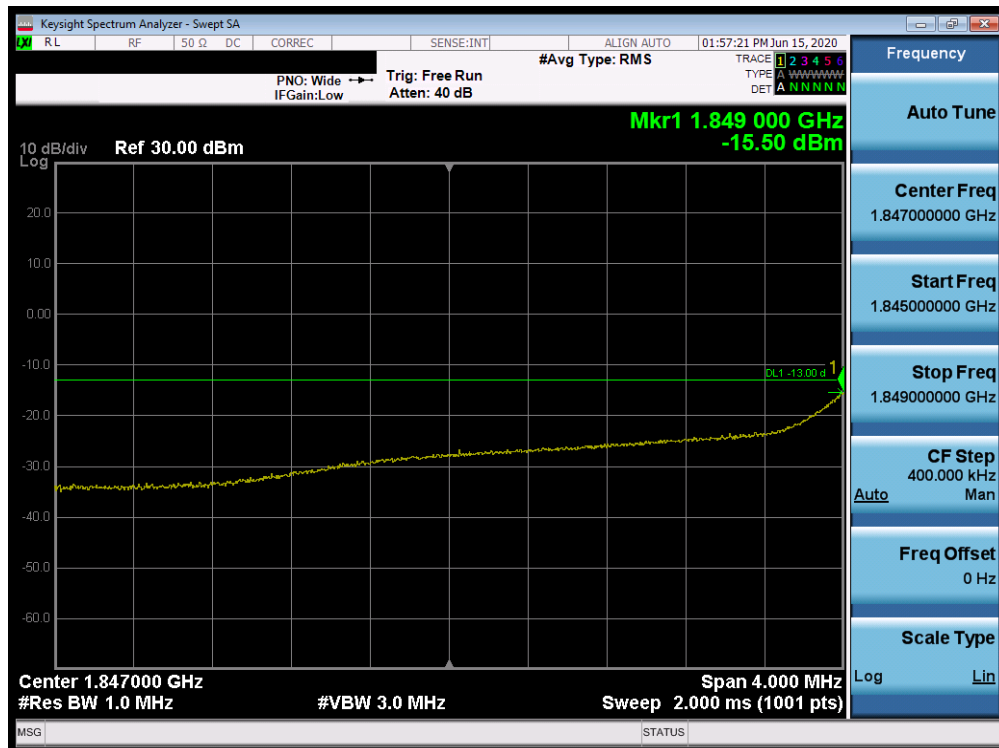
Plot 7-90. 4MHz Span Plot (AWS WCDMA Mode - High Channel)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 62 of 113

PCS WCDMA Mode



Plot 7-91. Band Edge Plot (PCS WCDMA Mode - Low Channel)

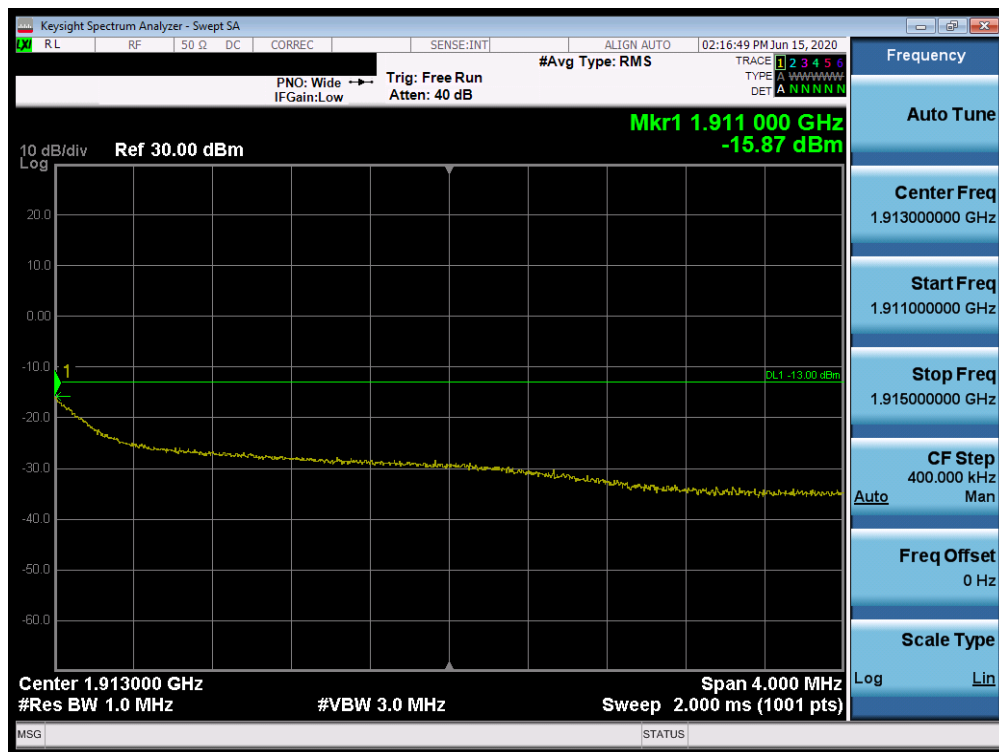


Plot 7-92. 4MHz Span Plot (PCS WCDMA Mode - Low Channel)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 63 of 113



Plot 7-93. Band Edge Plot (PCS WCDMA Mode - High Channel)



Plot 7-94. 4MHz Span Plot (PCS WCDMA Mode - High Channel)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 64 of 113

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.

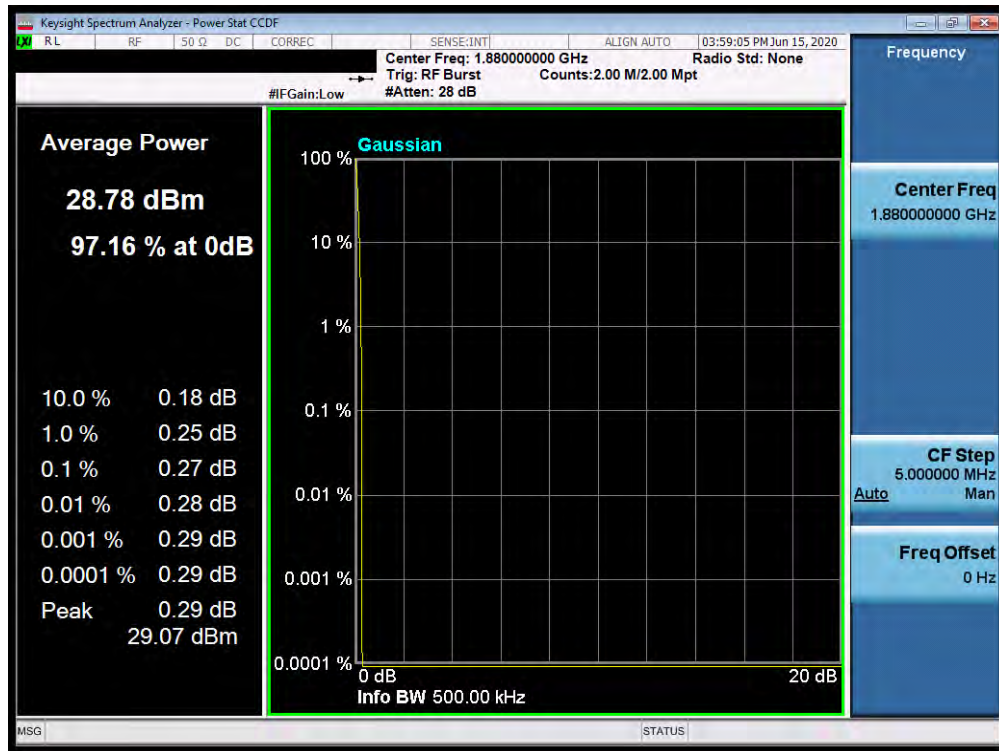


Figure 7-4. Test Instrument & Measurement Setup

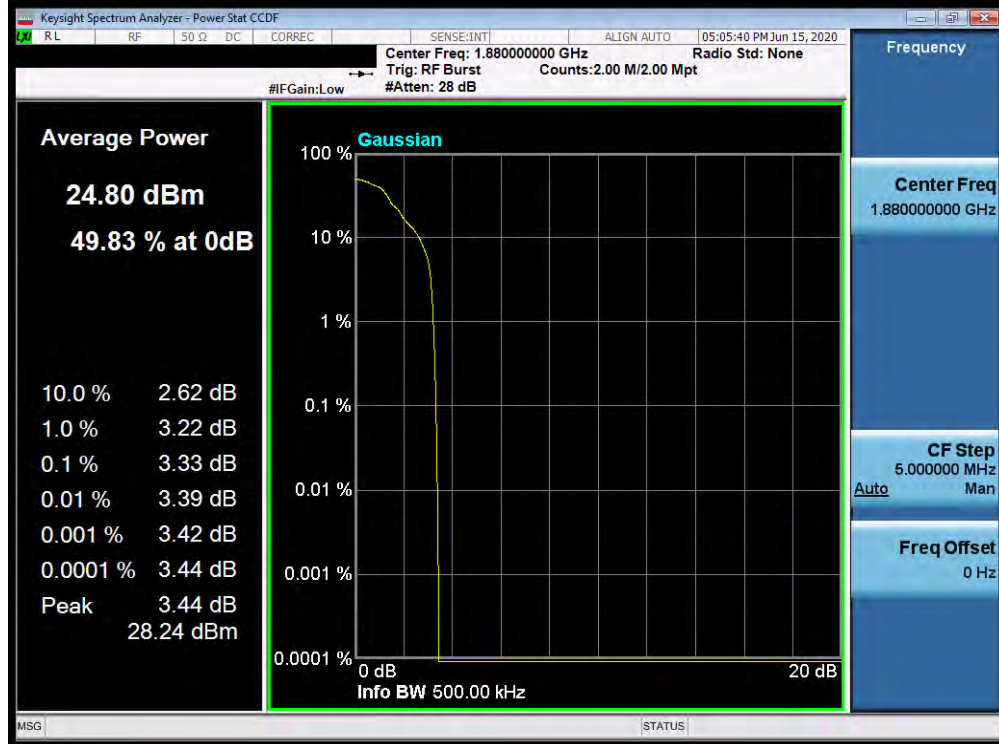
Test Notes

None

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 65 of 113

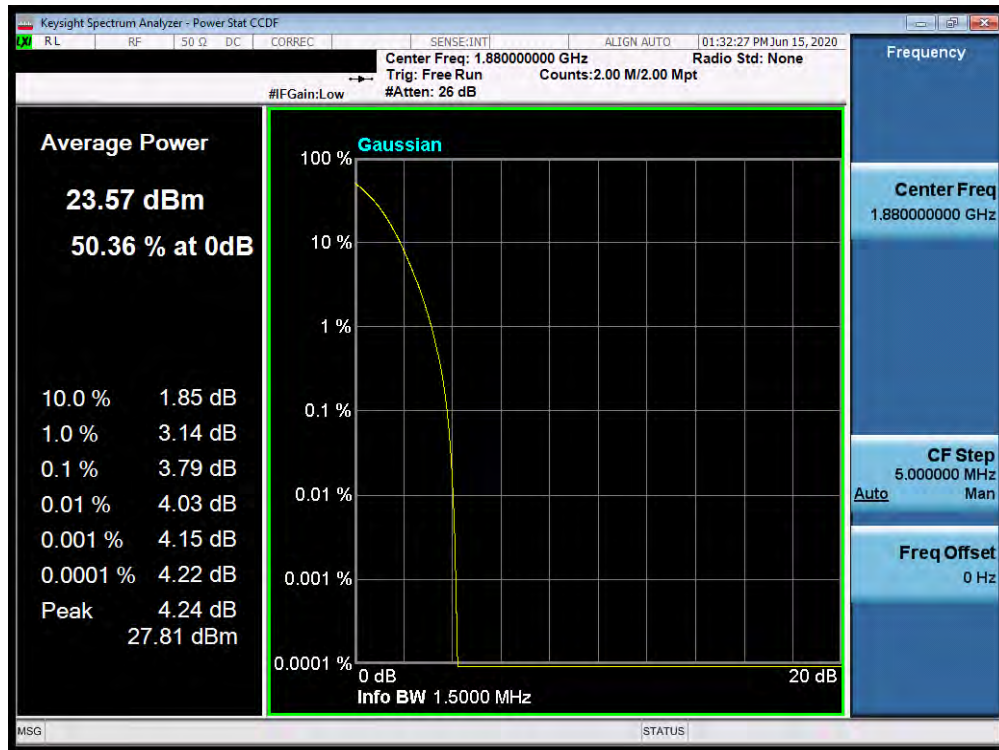


Plot 7-95. Peak-Average Ratio Plot (PCS GSM Mode)

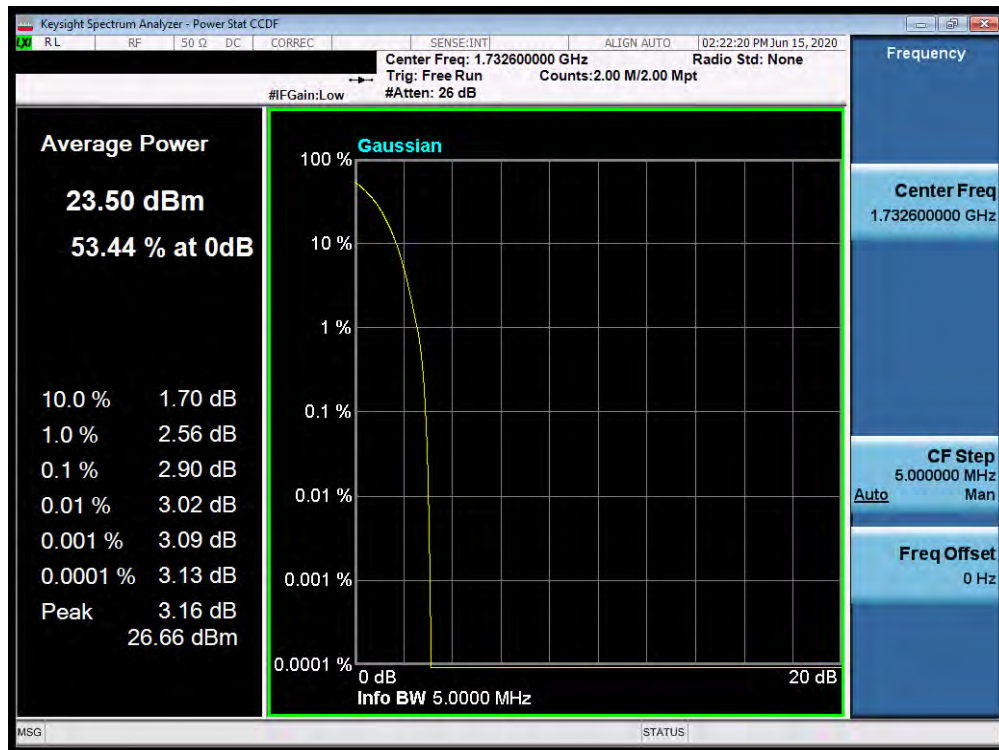


Plot 7-96. Peak-Average Ratio Plot (EDGE1900 Mode)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 66 of 113

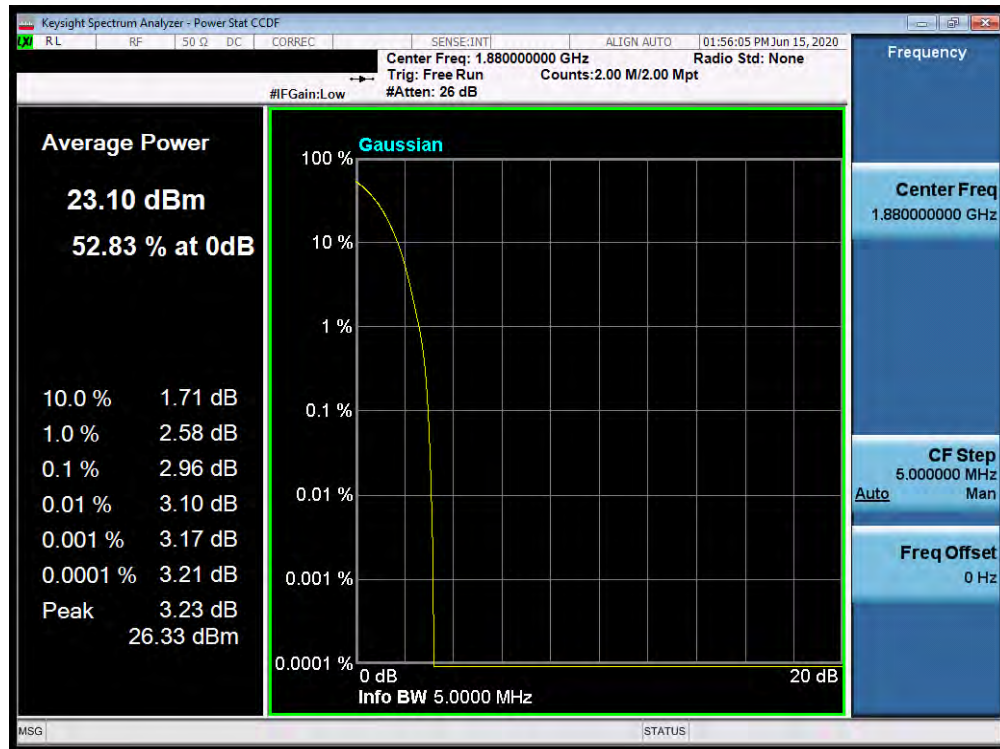


Plot 7-97. Peak-Average Ratio Plot (PCS CDMA Mode)



Plot 7-98. Peak-Average Ratio Plot (AWS WCDMA Mode)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 67 of 113



Plot 7-99. Peak-Average Ratio Plot (PCS WCDMA Mode)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 68 of 113

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. 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: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 69 of 113

Test Setup

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

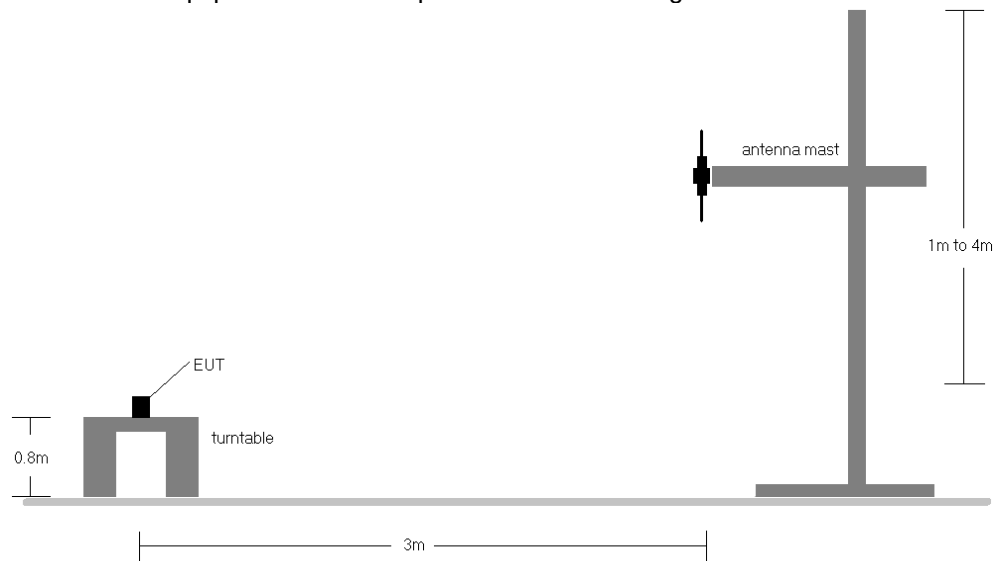


Figure 7-5. Radiated Test Setup <1GHz

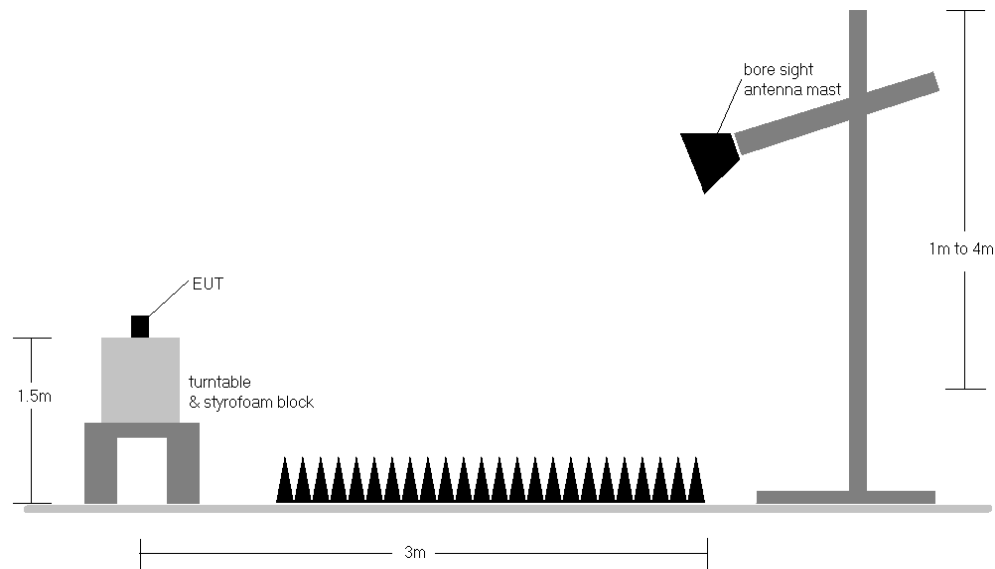


Figure 7-6. Radiated Test Setup >1GHz

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 70 of 113

Test Notes

- 1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, and HSUPA capabilities. For WCDMA and HSUPA transmission, all configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2kbps with HSDPA inactive and TPC bits all set to "1."
- 3) This device employs CDMA mode. The EUT was tested under all RC and SO combinations and the worst case is reported with RC3/SO55 with "All Up" power control bits.
- 4) This unit was tested with its standard battery.
- 5) 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.

FCC ID: A3LSMF916U	 Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 71 of 113

7.6.1 Antenna-A Radiated Power (ERP/EIRP)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.20	GPRS850	V	135	76	20.82	6.35	25.02	0.318	38.45	-13.43
836.60	GPRS850	V	137	141	20.73	6.38	24.96	0.313	38.45	-13.49
848.80	GPRS850	V	120	62	18.45	6.51	22.81	0.191	38.45	-15.65
824.20	GPRS850	H	115	347	19.07	6.38	23.30	0.214	38.45	-15.15
824.20	EDGE850	V	135	76	16.53	6.38	20.76	0.119	38.45	-17.69
824.20	GPRS850 (WCP)	H	140	164	18.24	6.35	22.44	0.175	38.45	-16.01

Table 7-2. ERP/EIRP (Cellular GPRS)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.70	CDMA850	V	144	97	15.35	6.76	19.96	0.099	38.45	-18.50
836.52	CDMA850	V	138	98	14.76	6.68	19.29	0.085	38.45	-19.16
848.31	CDMA850	V	129	103	13.88	6.70	18.43	0.070	38.45	-20.02
824.70	CDMA850	H	149	340	13.94	6.76	18.55	0.072	38.45	-19.91
824.70	CDMA850 (WCP)	H	131	222	13.22	6.76	17.83	0.061	38.45	-20.63

Table 7-3. ERP/EIRP (Cellular CDMA)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
826.40	WCDMA850	V	142	41	11.75	6.77	16.37	0.043	38.45	-22.08
836.60	WCDMA850	V	140	29	12.51	6.68	17.04	0.051	38.45	-21.41
846.60	WCDMA850	V	144	26	12.28	6.68	16.81	0.048	38.45	-21.64
836.60	WCDMA850	H	136	343	12.01	6.68	16.54	0.045	38.45	-21.91
836.60	WCDMA850 (WCP)	H	156	79	11.80	6.68	16.33	0.043	38.45	-22.12

Table 7-4. ERP/EIRP (Cellular WCDMA)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1712.40	WCDMA1700	H	149	146	12.05	9.46	21.51	0.142	30.00	-8.49
1732.60	WCDMA1700	H	144	147	13.60	9.34	22.94	0.197	30.00	-7.06
1752.60	WCDMA1700	H	146	142	12.67	9.24	21.91	0.155	30.00	-8.09
1732.60	WCDMA1700	V	163	292	10.63	9.34	19.97	0.099	30.00	-10.03
1732.60	WCDMA1700 (WCP)	H	210	156	11.99	9.34	21.33	0.136	30.00	-8.67

Table 7-5. EIRP (AWS WCDMA)

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]
1850.20	GPRS1900	H	158	313	18.78	9.51	28.29	0.674	33.01	-4.72
1880.00	GPRS1900	H	209	153	18.11	9.93	28.04	0.636	33.01	-4.97
1909.80	GPRS1900	H	188	114	16.78	10.28	27.06	0.508	33.01	-5.95
1850.20	GPRS1900	V	109	278	15.81	9.51	25.32	0.340	33.01	-7.69
1850.20	EDGE1900	H	158	313	14.14	9.51	23.65	0.232	33.01	-9.36
1850.20	GPRS1900 (WCP)	H	164	201	15.71	9.51	25.22	0.332	33.01	-7.79

Table 7-6. EIRP (PCS GPRS)

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]
1851.25	CDMA1900	H	159	134	12.74	9.52	22.26	0.168	33.01	-10.75
1880.00	CDMA1900	H	155	119	12.55	9.93	22.48	0.177	33.01	-10.53
1908.75	CDMA1900	H	150	133	11.10	10.27	21.37	0.137	33.01	-11.64
1880.00	CDMA1900	V	114	271	9.43	9.93	19.36	0.086	33.01	-13.65
1880.00	CDMA1900 (WCP)	H	128	211	11.91	9.93	21.84	0.153	33.01	-11.17

Table 7-7. EIRP (PCS CDMA)

FCC ID: A3LSMF916U	 MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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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]
1852.40	WCDMA1900	H	166	137	12.95	9.54	22.49	0.177	33.01	-10.52
1880.00	WCDMA1900	H	155	145	12.60	9.93	22.53	0.179	33.01	-10.48
1907.60	WCDMA1900	H	151	124	10.00	10.26	20.26	0.106	33.01	-12.75
1880.00	WCDMA1900	V	104	267	9.84	9.93	19.77	0.095	33.01	-13.24
1880.00	WCDMA1900 (WCP)	H	144	201	12.12	9.93	22.05	0.160	33.01	-10.96

Table 7-8. EIRP (PCS WCDMA)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 74 of 113

7.6.1 Antenna-B Radiated Power (ERP/EIRP)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.20	GPRS850	V	135	76	19.10	6.35	23.30	0.214	38.45	-15.15
836.60	GPRS850	V	137	141	18.53	6.38	22.76	0.189	38.45	-15.69
848.80	GPRS850	V	120	62	17.63	6.51	21.99	0.158	38.45	-16.47
824.20	GPRS850	H	120	24	17.73	6.35	21.93	0.156	38.45	-16.52
824.20	EDGE850	V	135	76	18.53	6.35	22.73	0.187	38.45	-15.72
824.20	GPRS850 (WCP)	V	211	14	17.88	6.35	22.08	0.161	38.45	-16.37

Table 7-9. ERP/EIRP (Cellular GPRS)

Frequency [MHz]	Mode	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Substitute Level [dBm]	Ant. Gain [dBi]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.70	CDMA850	V	156	175	10.18	6.36	14.39	0.027	38.45	-24.07
836.52	CDMA850	V	240	180	11.36	6.38	15.59	0.036	38.45	-22.86
848.31	CDMA850	V	259	202	10.17	6.50	14.52	0.028	38.45	-23.93
836.52	CDMA850	H	136	187	10.16	6.38	14.39	0.027	38.45	-24.06
836.52	CDMA850 (WCP)	V	206	166	9.22	6.38	13.45	0.022	38.45	-25.00

Table 7-10. ERP/EIRP (Cellular CDMA)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 75 of 113

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

FCC ID: A3LSMF916U	 Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 76 of 113

Test Setup

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

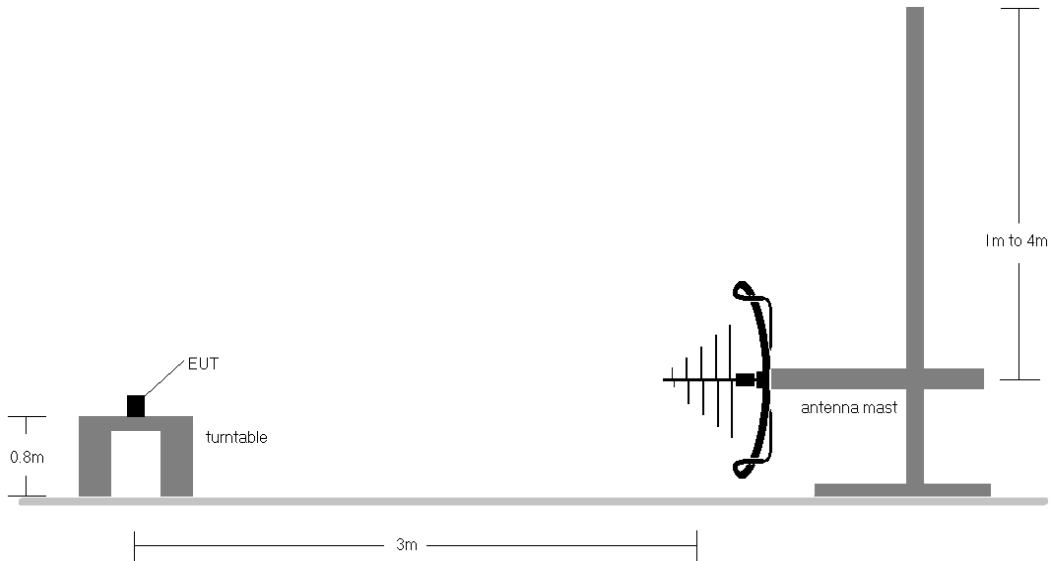


Figure 7-7. Test Instrument & Measurement Setup < 1GHz

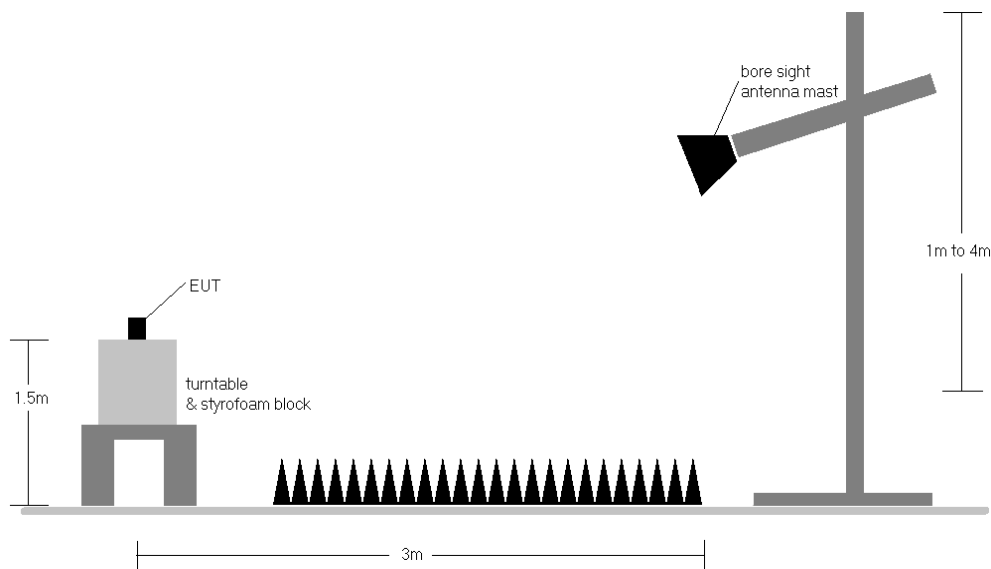


Figure 7-8. Test Instrument & Measurement Setup > 1 GHz

Test Notes

- 1) This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest power is reported in GPRS mode while transmitting with one slot active.
- 2) This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, and HSUPA capabilities. For WCDMA and HSUPA transmission, all configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2kbps with HSDPA inactive and TPC bits all set to "1."

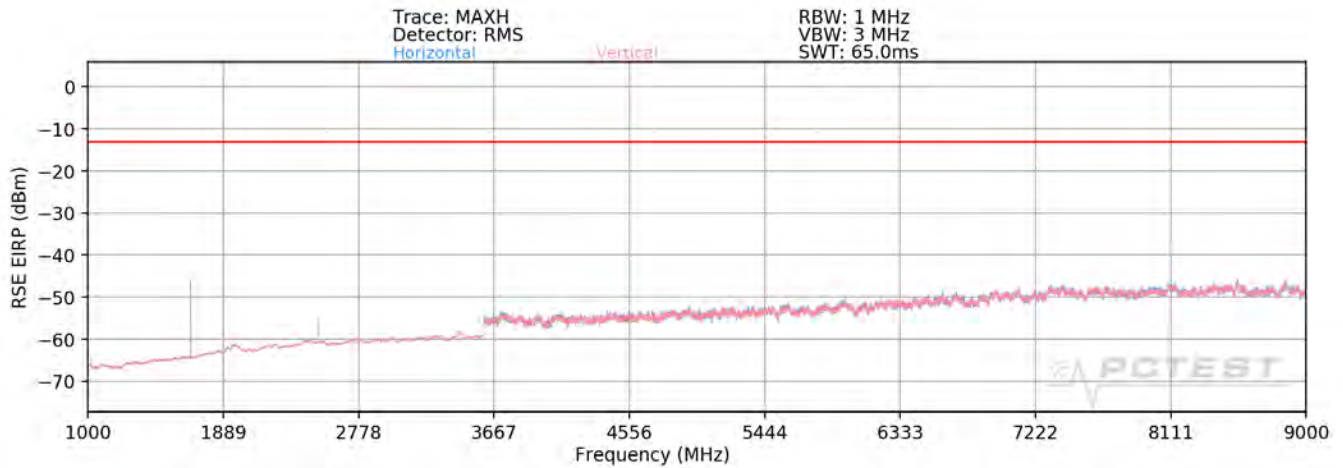
FCC ID: A3LSMF916U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 77 of 113

- 3) This device employs CDMA mode. The EUT was tested under all RC and SO combinations and the worst case is reported with RC3/SO55 with "All Up" power control bits.
- 4) This unit was tested with its standard battery.
- 5) 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.
- 6) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 7) 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.
- 8) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

FCC ID: A3LSMF916U	 Proud to be part of 	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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7.7.1 Antenna-A Radiated Spurious Emissions Measurements

Cellular GPRS Mode



Plot 7-100. Radiated Spurious Plot above 1GHz (Cellular GPRS Mode)

OPERATING FREQUENCY: 824.20 MHz
 MODULATION SIGNAL: GPRS (GMSK)
 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]
1648.40	H	215	308	-46.59	9.48	-37.11	-24.1
2472.60	H	201	297	-64.91	8.36	-56.55	-43.5
3296.80	H	-	-	-63.67	8.21	-55.46	-42.5
4121.00	H	-	-	-67.39	9.87	-57.52	-44.5

Table 7-11. Radiated Spurious Data (Cellular GPRS Mode – Ch. 128)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 79 of 113

OPERATING FREQUENCY: 836.60 MHz
 MODULATION SIGNAL: GPRS (GMSK)
 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]
1673.20	H	201	289	-53.68	9.57	-44.10	-31.1
2509.80	H	216	304	-66.90	8.40	-58.50	-45.5
3346.40	H	-	-	-65.25	8.71	-56.54	-43.5
4183.00	H	-	-	-67.23	9.62	-57.61	-44.6

Table 7-12. Radiated Spurious Data (Cellular GPRS Mode – Ch. 190)

OPERATING FREQUENCY: 848.80 MHz
 MODULATION SIGNAL: GPRS (GMSK)
 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]
1697.60	H	193	306	-55.85	9.66	-46.20	-33.2
2546.40	H	-	-	-65.77	8.38	-57.39	-44.4
3395.20	H	-	-	-64.40	9.05	-55.34	-42.3
4244.00	H	-	-	-66.73	9.27	-57.46	-44.5

Table 7-13. Radiated Spurious Data (Cellular GPRS Mode – Ch. 251)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 80 of 113

OPERATING FREQUENCY: 848.80 MHz

MODULATION SIGNAL: GPRS (GMSK)

DISTANCE: 3 meters

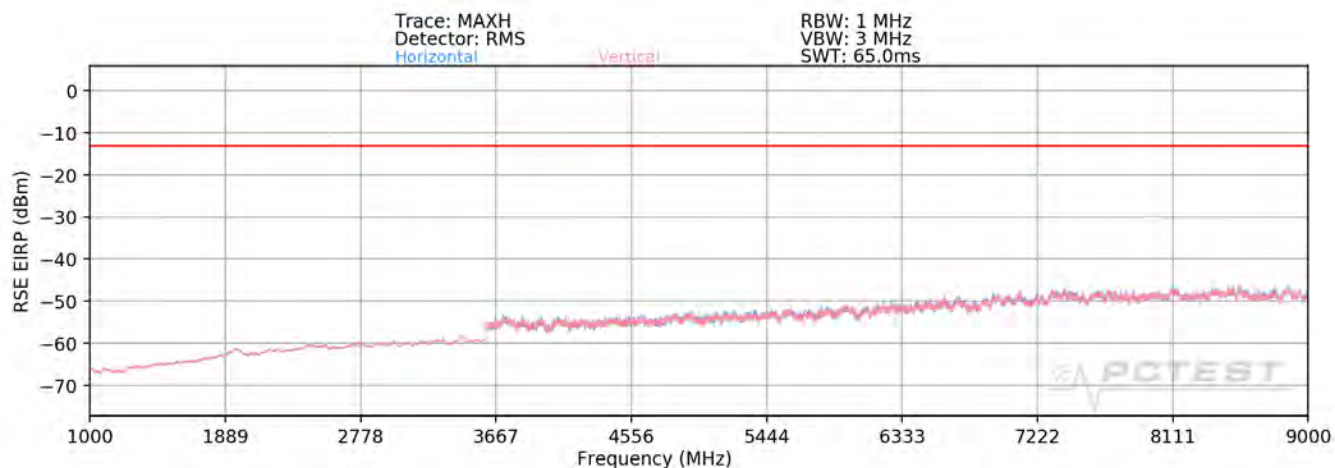
LIMIT: -13 dBm

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]
1697.60	H	-	-	-54.07	3.63	-50.44	-37.4
2546.40	H	-	-	-62.51	4.56	-57.96	-45.0
3395.20	H	-	-	-61.78	6.14	-55.64	-42.6
4244.00	H	-	-	-65.21	7.80	-57.41	-44.4

Table 7-14. Radiated Spurious Data with WCP (Cellular GPRS Mode – Ch. 128)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 81 of 113

Cellular CDMA Mode



Plot 7-101. Radiated Spurious Plot above 1GHz (Cellular CDMA Mode)

OPERATING FREQUENCY: 824.70 MHz

MODULATION SIGNAL: CDMA

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]
1649.40	V	-	-	-56.04	3.61	-52.43	-39.4
2474.10	V	-	-	-54.00	4.23	-49.77	-36.8
3298.80	V	-	-	-52.58	5.80	-46.79	-33.8

Table 7-15. Radiated Spurious Data (Cellular CDMA Mode – Ch. 1013)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 82 of 113

OPERATING FREQUENCY: 836.52 MHz
 MODULATION SIGNAL: CDMA
 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]
1673.04	V	-	-	-56.30	3.62	-52.68	-39.7
2509.56	V	-	-	-52.92	4.34	-48.58	-35.6
3346.08	V	-	-	-52.21	5.92	-46.30	-33.3

Table 7-16. Radiated Spurious Data (Cellular CDMA Mode – Ch. 384)

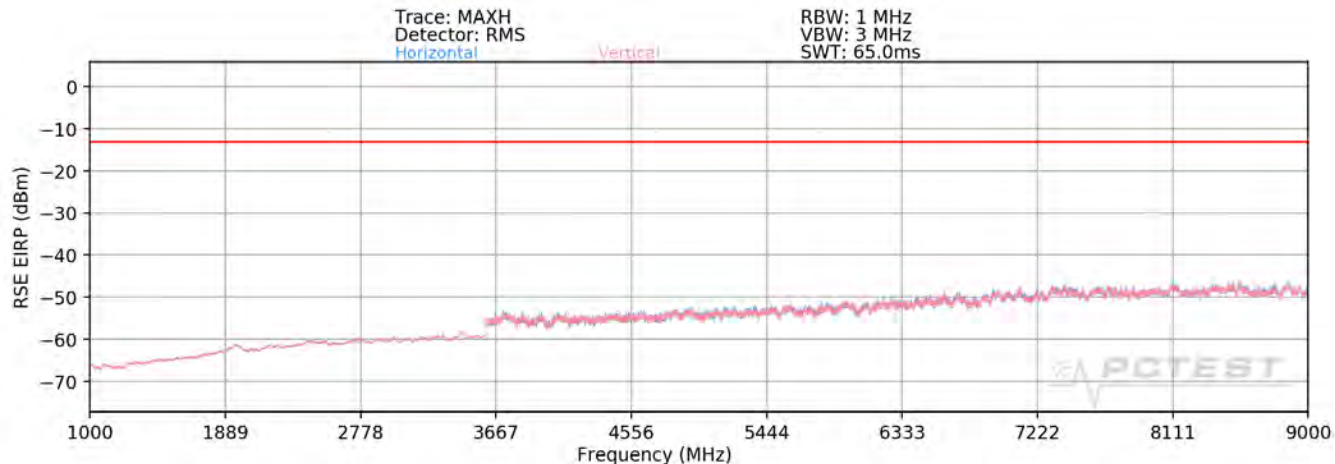
OPERATING FREQUENCY: 848.31 MHz
 MODULATION SIGNAL: CDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1696.62	V	-	-	-56.87	3.63	-53.24	-40.2
2544.93	V	-	-	-52.84	4.52	-48.33	-35.3
3393.24	V	-	-	-52.79	6.10	-46.70	-33.7

Table 7-17. Radiated Spurious Data (Cellular CDMA Mode – Ch. 777)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 83 of 113

Cellular WCDMA Mode



Plot 7-102. Radiated Spurious Plot above 1GHz (Cellular WCDMA Mode)

OPERATING FREQUENCY: 826.40 MHz

MODULATION SIGNAL: WCDMA

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]
1652.80	H	-	-	-63.58	3.61	-59.97	-47.0
2479.20	H	-	-	-60.08	4.23	-55.85	-42.9
3305.60	H	-	-	-60.69	5.80	-54.89	-41.9

Table 7-18. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4132)

FCC ID: A3LSMF916U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 84 of 113

OPERATING FREQUENCY: 836.60 MHz
 MODULATION SIGNAL: WCDMA
 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]
1673.20	H	-	-	-62.85	3.62	-59.23	-46.2
2509.80	H	-	-	-59.99	4.34	-55.65	-42.7
3346.40	H	-	-	-61.33	5.92	-55.41	-42.4

Table 7-19. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4183)

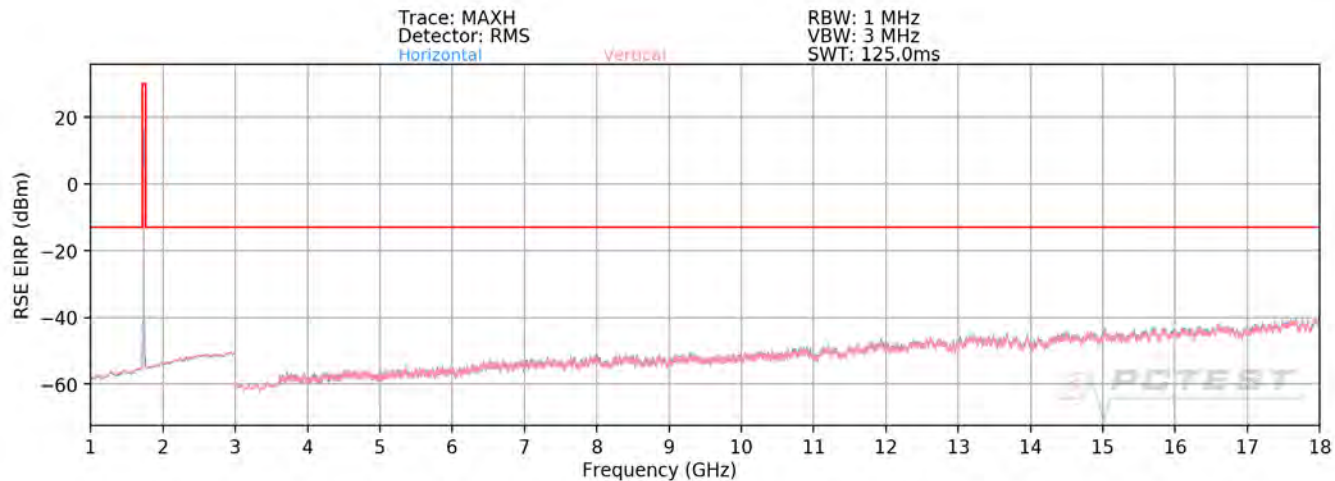
OPERATING FREQUENCY: 846.60 MHz
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1693.20	H	-	-	-63.23	3.63	-59.61	-46.6
2539.80	H	-	-	-60.14	4.52	-55.63	-42.6
3386.40	H	-	-	-60.55	6.10	-54.45	-41.5

Table 7-20. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4233)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 85 of 113

AWS WCDMA Mode



Plot 7-103. Radiated Spurious Plot above 1GHz (AWS WCDMA Mode)

OPERATING FREQUENCY: 1712.40 MHz

MODULATION SIGNAL: WCDMA

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]
3424.80	H	-	-	-59.24	6.20	-53.05	-40.0
5137.20	H	-	-	-60.60	8.66	-51.94	-38.9
6849.60	H	-	-	-56.35	8.77	-47.58	-34.6

Table 7-21. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1312)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 86 of 113

OPERATING FREQUENCY: 1732.60 MHz
 MODULATION SIGNAL: WCDMA
 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]
3465.20	H	-	-	-60.41	6.27	-54.14	-41.1
5197.80	H	-	-	-61.78	8.71	-53.07	-40.1
6930.40	H	-	-	-54.85	8.72	-46.13	-33.1

Table 7-22. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1413)

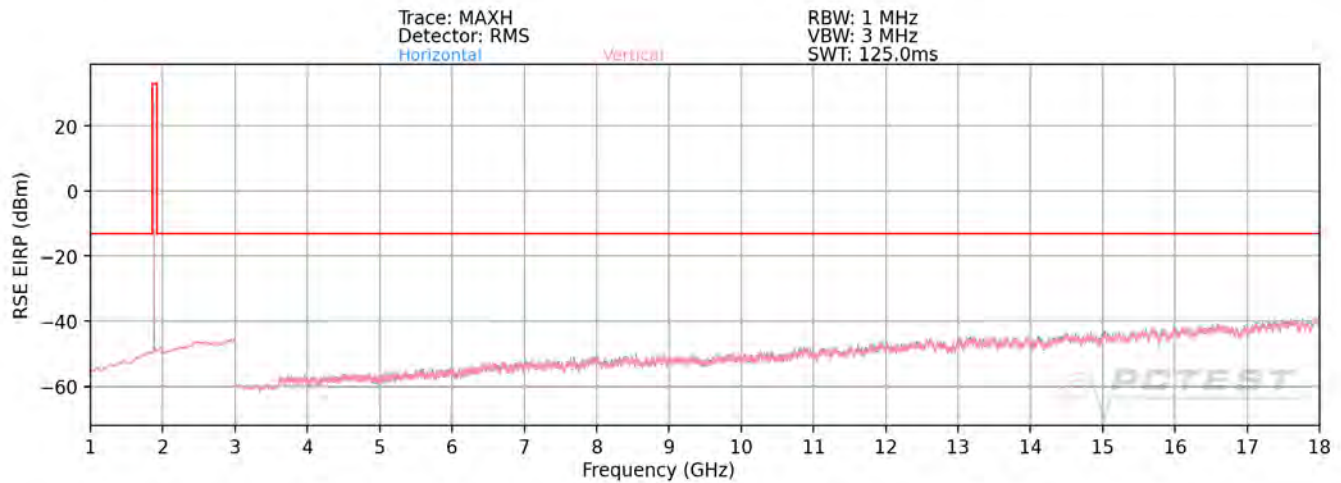
OPERATING FREQUENCY: 1752.60 MHz
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
3505.20	H	-	-	-60.90	6.34	-54.56	-41.6
5257.80	H	-	-	-60.35	8.72	-51.63	-38.6
7010.40	H	-	-	-56.42	8.75	-47.67	-34.7

Table 7-23. Radiated Spurious Data (AWS WCDMA Mode – Ch. 1513)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 87 of 113

PCS GPRS Mode



Plot 7-104. Radiated Spurious Plot above 1GHz (PCS GPRS Mode)

OPERATING FREQUENCY: 1850.20 MHz
 MODULATION SIGNAL: GPRS (GMSK)
 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]
3700.40	V	128	18	-64.43	6.56	-57.87	-44.9
5550.60	V	138	201	-60.05	8.72	-51.33	-38.3
7400.80	V	-	-	-58.76	8.41	-50.35	-37.4
9251.00	V	-	-	-59.57	9.47	-50.11	-37.1
11101.20	V	-	-	-56.49	9.31	-47.18	-34.2

Table 7-24. Radiated Spurious Data (PCS GPRS Mode – Ch. 512)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 88 of 113

OPERATING FREQUENCY: 1880.00 MHz
 MODULATION SIGNAL: GPRS (GMSK)
 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]
3760.00	V	180	32	-63.40	6.67	-56.73	-43.7
5640.00	V	188	15	-57.60	8.81	-48.78	-35.8
7520.00	V	-	-	-59.34	8.48	-50.86	-37.9
9400.00	V	-	-	-58.90	9.32	-49.58	-36.6
11280.00	V	-	-	-56.26	9.24	-47.03	-34.0

Table 7-25. Radiated Spurious Data (PCS GPRS Mode – Ch. 661)

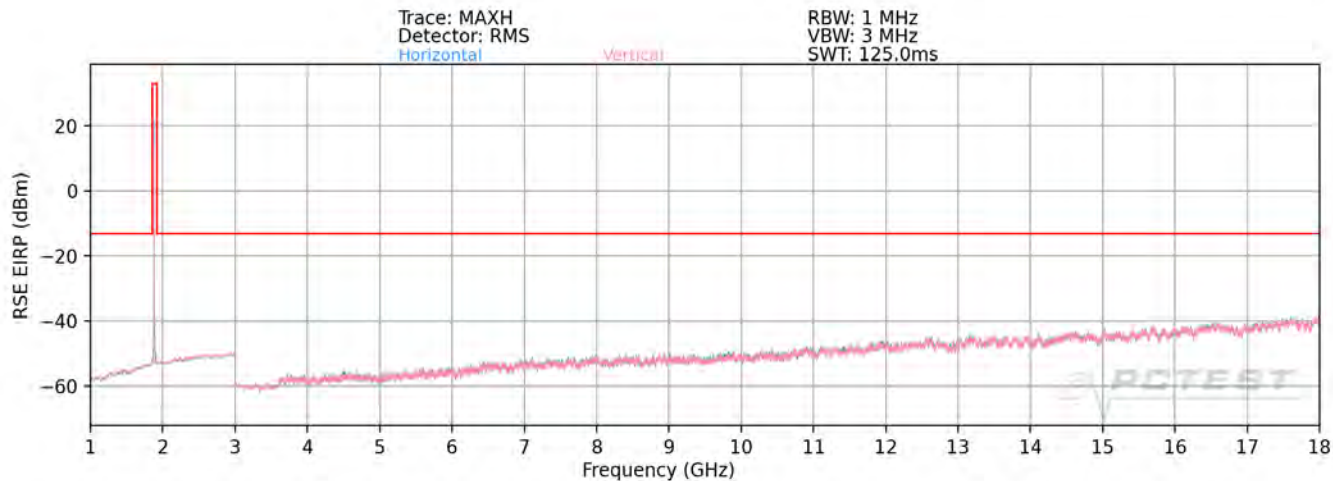
OPERATING FREQUENCY: 1909.80 MHz
 MODULATION SIGNAL: GPRS (GMSK)
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
3819.60	V	142	172	-61.88	7.00	-54.89	-41.9
5729.40	V	229	15	-54.76	8.77	-45.99	-33.0
7639.20	V	-	-	-59.40	8.54	-50.86	-37.9
9549.00	V	-	-	-59.49	9.43	-50.06	-37.1
11458.80	V	-	-	-54.71	9.17	-45.54	-32.5

Table 7-26. Radiated Spurious Data (PCS GPRS Mode – Ch. 810)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 89 of 113

PCS CDMA Mode



Plot 7-105. Radiated Spurious Plot above 1GHz (PCS CDMA Mode)

OPERATING FREQUENCY: 1851.25 MHz
MODULATION SIGNAL: CDMA
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]
3702.50	H	-	-	-68.99	9.06	-59.93	-46.9
5553.75	H	-	-	-70.45	13.28	-57.17	-44.2
7405.00	H	-	-	-64.18	11.09	-53.09	-40.1

Table 7-27. Radiated Spurious Data (PCS CDMA Mode – Ch. 25)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 90 of 113

OPERATING FREQUENCY: 1880.00 MHz
 MODULATION SIGNAL: CDMA
 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]
3760.00	H	-	-	-69.14	9.64	-59.50	-46.5
5640.00	H	-	-	-70.70	13.52	-57.18	-44.2
7520.00	H	-	-	-64.65	11.30	-53.35	-40.4

Table 7-28. Radiated Spurious Data (PCS CDMA Mode – Ch. 600)

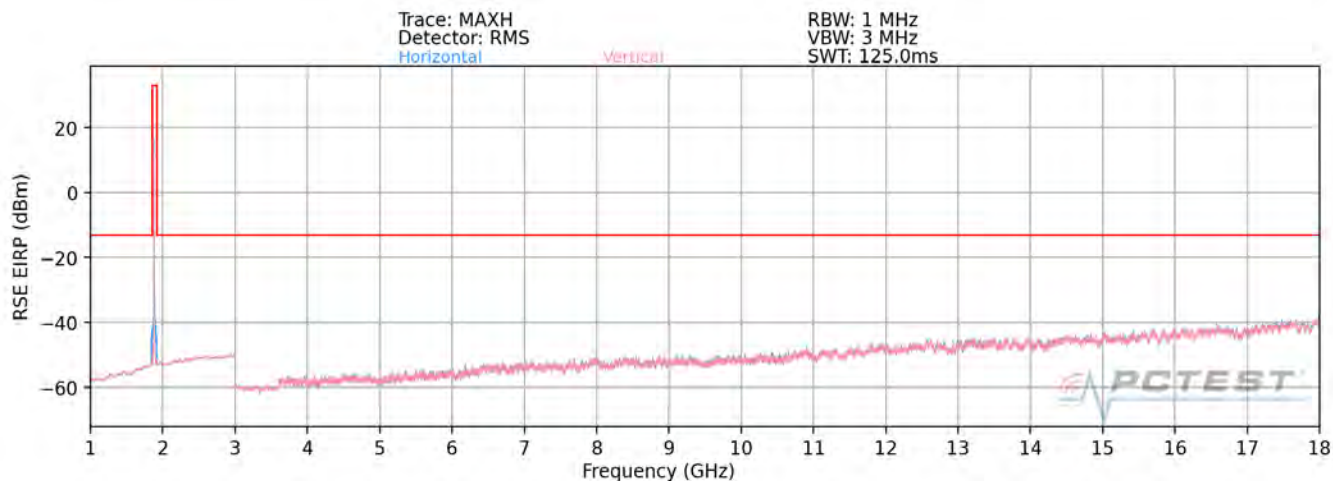
OPERATING FREQUENCY: 1908.75 MHz
 MODULATION SIGNAL: CDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
3817.50	H	-	-	-68.66	9.69	-58.97	-46.0
5726.25	H	-	-	-70.94	13.57	-57.36	-44.4
7635.00	H	-	-	-64.83	11.42	-53.41	-40.4

Table 7-29. Radiated Spurious Data (PCS CDMA Mode – Ch. 1175)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 91 of 113

PCS WCDMA Mode



Plot 7-106. Radiated Spurious Plot above 1GHz (PCS WCDMA Mode)

OPERATING FREQUENCY: 1852.40 MHz

MODULATION SIGNAL: WCDMA

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]
3704.80	V	-	-	-64.37	6.57	-57.80	-44.8
5557.20	V	-	-	-63.67	8.72	-54.95	-41.9
7409.60	V	-	-	-58.96	8.41	-50.55	-37.6

Table 7-30. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9262)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 92 of 113

OPERATING FREQUENCY: 1880.00 MHz
 MODULATION SIGNAL: WCDMA
 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]
3760.00	V	-	-	-63.87	6.67	-57.20	-44.2
5640.00	V	-	-	-63.85	8.81	-55.03	-42.0
7520.00	V	-	-	-59.09	8.48	-50.61	-37.6

Table 7-31. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9400)

OPERATING FREQUENCY: 1907.60 MHz
 MODULATION SIGNAL: WCDMA
 DISTANCE: 3 meters
 LIMIT: -13 dBm

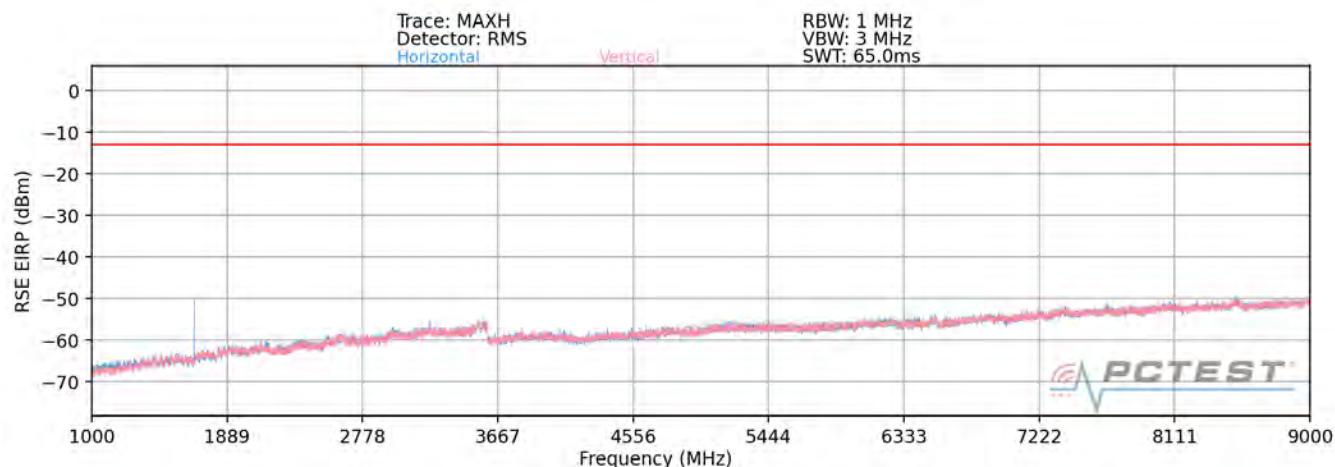
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Margin [dB]
3815.20	V	-	-	-64.54	6.97	-57.58	-44.6
5722.80	V	-	-	-63.36	8.77	-54.60	-41.6
7630.40	V	-	-	-58.88	8.52	-50.35	-37.4

Table 7-32. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9538)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 93 of 113

7.7.2 Antenna-B Radiated Spurious Emissions Measurements

Cellular GPRS Mode



Plot 7-107. Radiated Spurious Plot above 1GHz (Cellular GPRS Mode)

OPERATING FREQUENCY: 824.20 MHz
 MODULATION SIGNAL: GPRS (GMSK)
 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]
1648.40	H	-	-	-69.27	9.48	-59.79	-46.8
2472.60	H	-	-	-65.84	8.36	-57.48	-44.5
3296.80	H	-	-	-61.91	8.21	-53.70	-40.7

Table 7-33. Radiated Spurious Data (Cellular GPRS Mode – Ch. 128)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 94 of 113

OPERATING FREQUENCY: 836.60 MHz
 MODULATION SIGNAL: GPRS (GMSK)
 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]
1673.20	H	-	-	-68.62	9.57	-59.04	-46.0
2509.80	H	-	-	-67.52	8.40	-59.12	-46.1
3346.40	H	-	-	-62.10	8.71	-53.39	-40.4

Table 7-34. Radiated Spurious Data (Cellular GPRS Mode – Ch. 190)

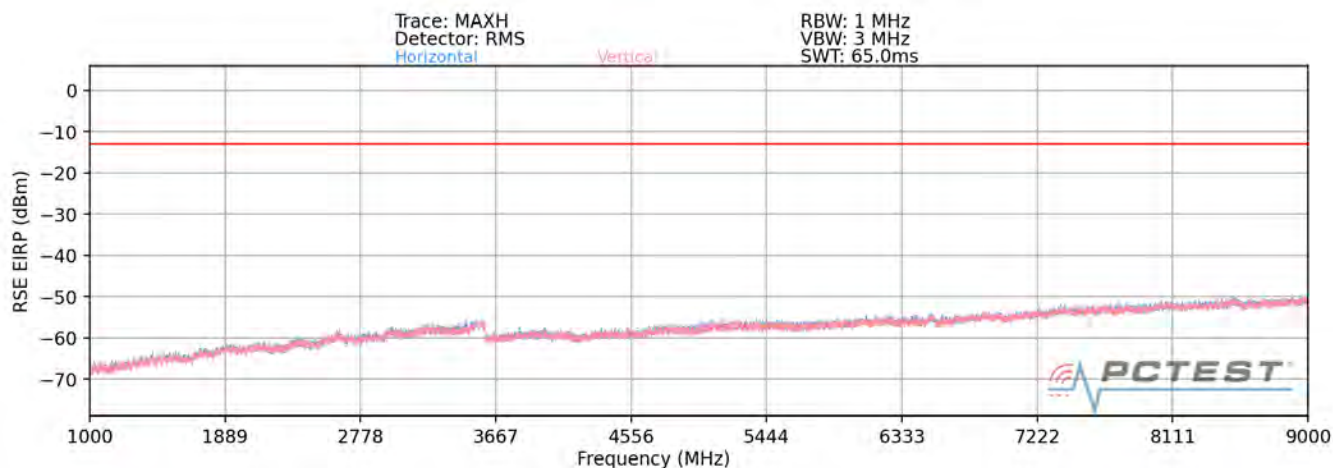
OPERATING FREQUENCY: 848.80 MHz
 MODULATION SIGNAL: GPRS (GMSK)
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1697.60	H	-	-	-68.92	9.66	-59.27	-46.3
2546.40	H	-	-	-66.22	8.38	-57.84	-44.8
3395.20	H	-	-	-62.75	9.05	-53.69	-40.7

Table 7-35. Radiated Spurious Data (Cellular GPRS Mode – Ch. 251)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 95 of 113

Cellular CDMA Mode



Plot 7-108. Radiated Spurious Plot above 1GHz (Cellular CDMA Mode)

OPERATING FREQUENCY: 824.70 MHz
 MODULATION SIGNAL: CDMA
 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]
1649.40	V	-	-	-61.36	9.49	-51.87	-38.9
2474.10	V	-	-	-59.02	8.37	-50.65	-37.7
3298.80	V	-	-	-54.33	8.23	-46.10	-33.1

Table 7-36. Radiated Spurious Data (Cellular CDMA Mode – Ch. 1013)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 96 of 113

OPERATING FREQUENCY: 836.52 MHz
 MODULATION SIGNAL: CDMA
 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]
1673.04	V	-	-	-61.63	9.57	-52.06	-39.1
2509.56	V	-	-	-58.12	8.40	-49.72	-36.7
3346.08	V	-	-	-54.23	8.71	-45.52	-32.5

Table 7-37. Radiated Spurious Data (Cellular CDMA Mode – Ch. 384)

OPERATING FREQUENCY: 848.31 MHz
 MODULATION SIGNAL: CDMA
 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]
1696.62	V	-	-	-61.45	9.66	-51.79	-38.8
2544.93	V	-	-	-58.20	8.39	-49.82	-36.8
3393.24	V	-	-	-54.54	9.04	-45.50	-32.5

Table 7-38. Radiated Spurious Data (Cellular CDMA Mode – Ch. 777)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 97 of 113

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, RSS-132, and RSS-133, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24, Part 27, and RSS-139, 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: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 98 of 113

Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 836,600,000 Hz
 CHANNEL: 190
 REFERENCE VOLTAGE: 4.36 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	- 30	836,599,817	-183	-0.0000219
100 %		- 20	836,599,675	-325	-0.0000388
100 %		- 10	836,599,960	-40	-0.0000048
100 %		0	836,599,822	-178	-0.0000213
100 %		+ 10	836,599,961	-39	-0.0000047
100 %		+ 20	836,599,855	-145	-0.0000173
100 %		+ 30	836,599,959	-41	-0.0000049
100 %		+ 40	836,600,052	52	0.0000062
100 %		+ 50	836,600,104	104	0.0000124
BATT. ENDPOINT	2.87	+ 20	836,600,039	39	0.0000047

Table 7-39. Frequency Stability Data (Cellular GPRS Mode – Ch. 190)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 99 of 113

Frequency Stability / Temperature Variation

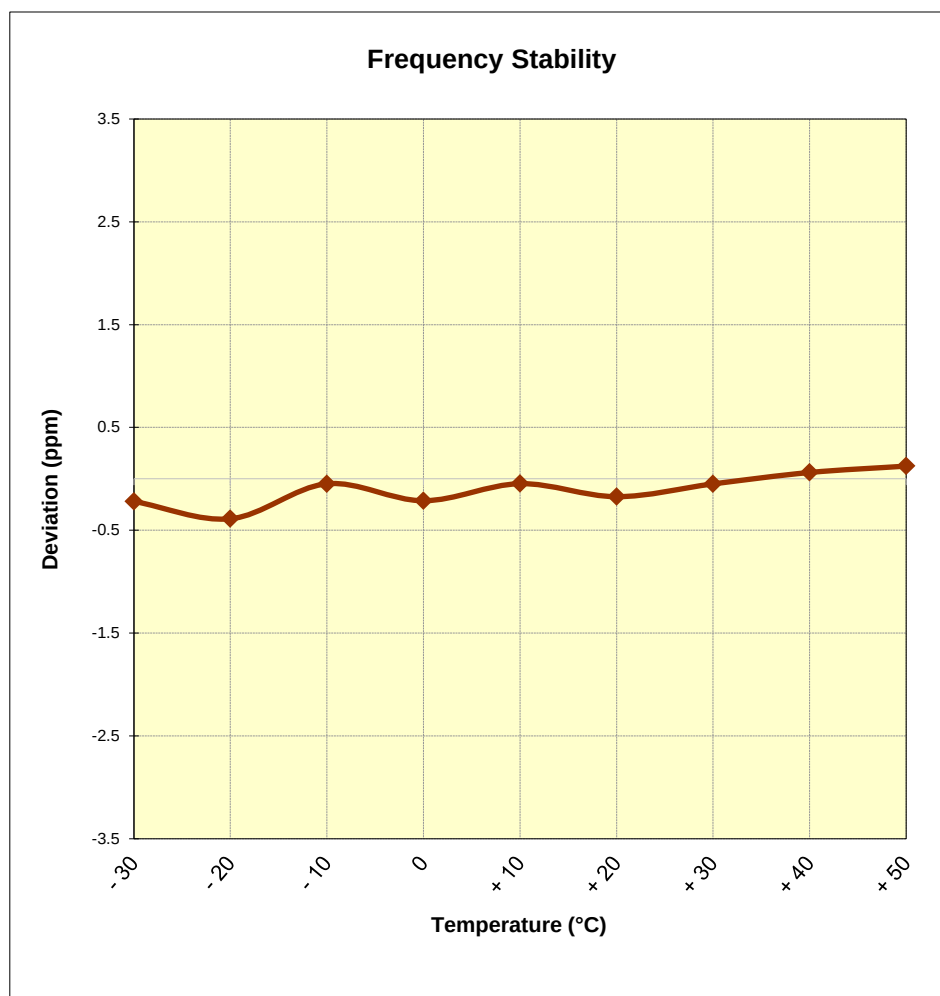


Figure 7-9. Frequency Stability Graph (Cellular GPRS Mode – Ch. 190)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 100 of 113

Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 836,520,000 Hz

CHANNEL: 384

REFERENCE VOLTAGE: 4.36 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	- 30	836,519,956	-44	-0.0000053
100 %		- 20	836,519,984	-16	-0.0000019
100 %		- 10	836,519,939	-61	-0.0000073
100 %		0	836,519,999	-1	-0.0000001
100 %		+ 10	836,520,005	5	0.0000006
100 %		+ 20	836,520,011	11	0.0000013
100 %		+ 30	836,520,295	295	0.0000353
100 %		+ 40	836,520,409	409	0.0000489
100 %		+ 50	836,519,871	-129	-0.0000154
BATT. ENDPOINT	2.87	+ 20	836,520,050	50	0.0000060

Table 7-40. Frequency Stability Data (Cellular CDMA Mode – Ch. 384)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 101 of 113

Frequency Stability / Temperature Variation

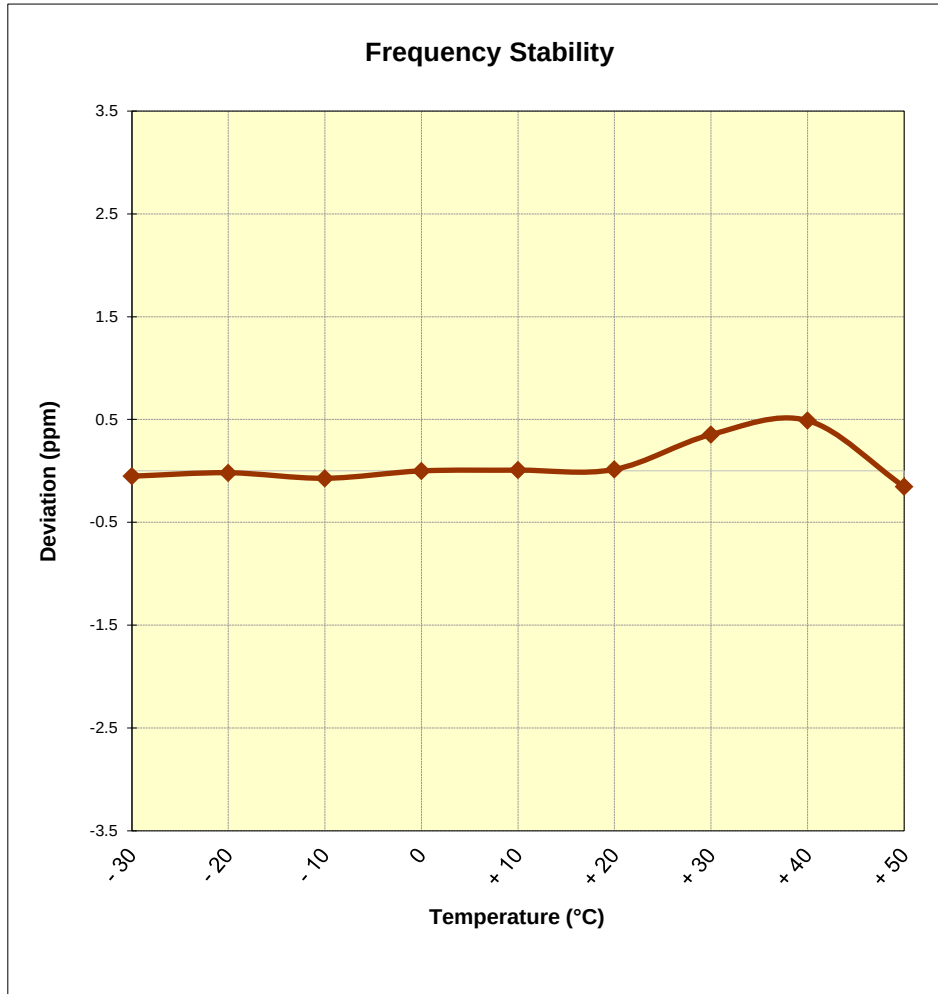


Figure 7-10. Frequency Stability Graph (Cellular CDMA Mode – Ch. 384)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 102 of 113

Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 836,600,000 Hz
 CHANNEL: 4183
 REFERENCE VOLTAGE: 4.36 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	- 30	836,599,877	-123	-0.0000147
100 %		- 20	836,600,005	5	0.0000006
100 %		- 10	836,600,066	66	0.0000079
100 %		0	836,600,079	79	0.0000094
100 %		+ 10	836,600,135	135	0.0000161
100 %		+ 20	836,599,832	-168	-0.0000201
100 %		+ 30	836,599,680	-320	-0.0000383
100 %		+ 40	836,599,923	-77	-0.0000092
100 %		+ 50	836,599,889	-111	-0.0000133
BATT. ENDPOINT	2.87	+ 20	836,600,171	171	0.0000204

Table 7-41. Frequency Stability Data (Cellular WCDMA Mode – Ch. 4183)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 103 of 113

Frequency Stability / Temperature Variation

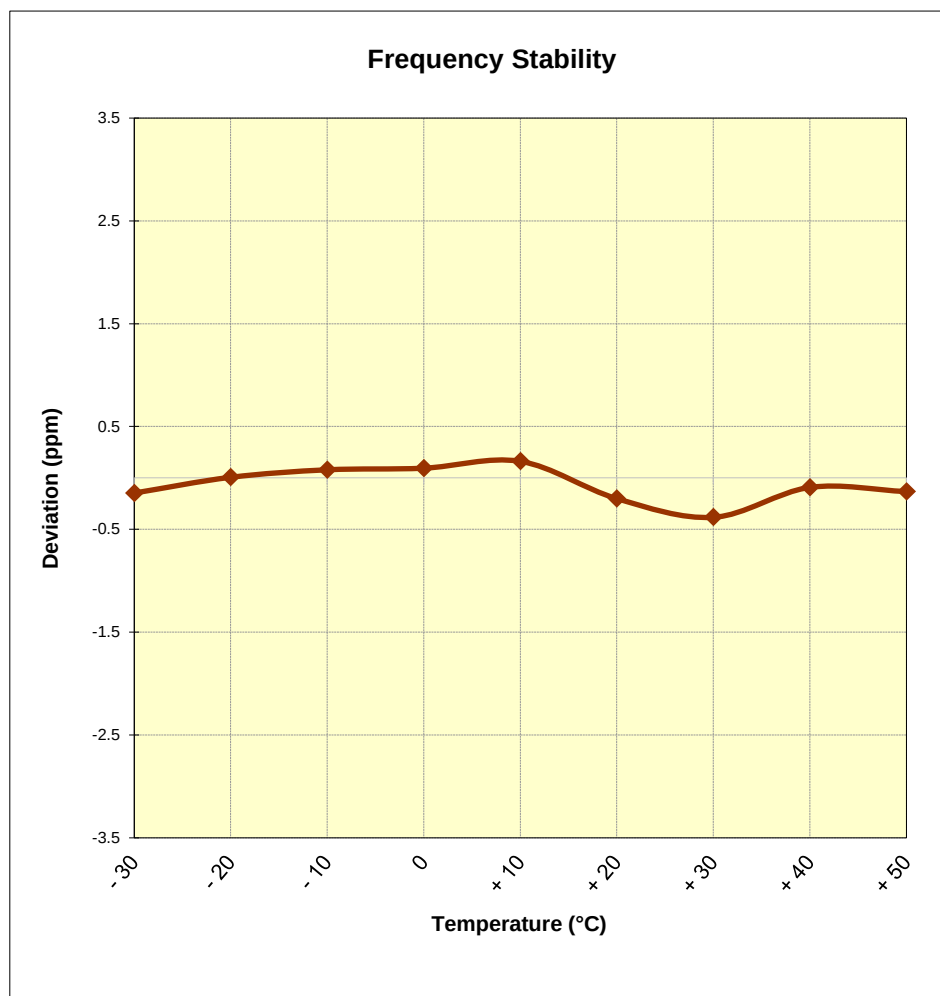


Figure 7-11. Frequency Stability Graph (Cellular WCDMA Mode – Ch. 4183)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 104 of 113

Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 1,732,600,000 Hz
CHANNEL: 1413
REFERENCE VOLTAGE: 4.36 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	- 30	1,732,599,685	-315	-0.0000182
100 %		- 20	1,732,600,025	25	0.0000014
100 %		- 10	1,732,599,864	-136	-0.0000078
100 %		0	1,732,600,093	93	0.0000054
100 %		+ 10	1,732,599,700	-300	-0.0000173
100 %		+ 20	1,732,599,914	-86	-0.0000050
100 %		+ 30	1,732,600,017	17	0.0000010
100 %		+ 40	1,732,600,188	188	0.0000109
100 %		+ 50	1,732,600,006	6	0.0000003
BATT. ENDPOINT	2.87	+ 20	1,732,599,996	-4	-0.0000002

Table 7-42. Frequency Stability Data (AWS WCDMA Mode – Ch. 1413)

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: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 105 of 113

Frequency Stability / Temperature Variation

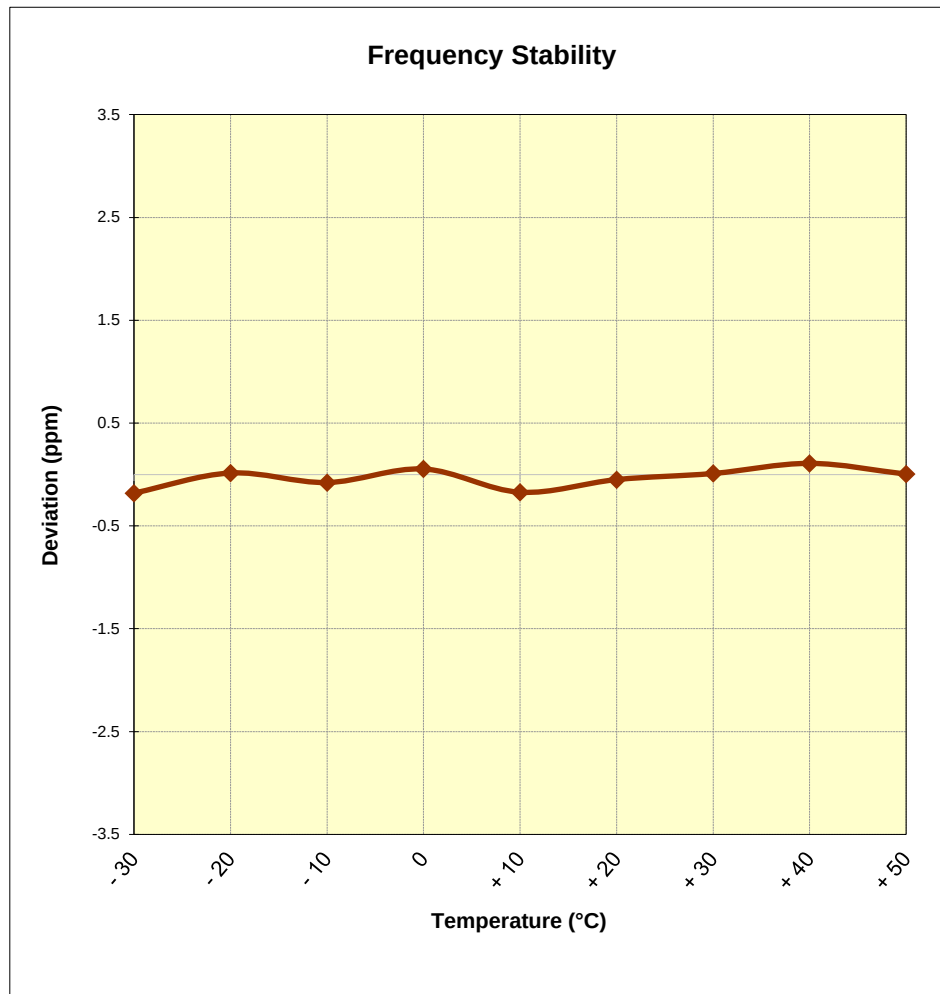


Figure 7-12. Frequency Stability Graph (AWS WCDMA Mode – Ch. 1413)

FCC ID: A3LSMF916U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 106 of 113

Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 661

REFERENCE VOLTAGE: 4.36 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	- 30	1,879,999,996	-4	-0.0000002
100 %		- 20	1,879,999,820	-180	-0.0000096
100 %		- 10	1,880,000,283	283	0.0000151
100 %		0	1,880,000,023	23	0.0000012
100 %		+ 10	1,879,999,555	-445	-0.0000237
100 %		+ 20	1,879,999,988	-12	-0.0000006
100 %		+ 30	1,880,000,076	76	0.0000040
100 %		+ 40	1,880,000,367	367	0.0000195
100 %		+ 50	1,880,000,187	187	0.0000099
BATT. ENDPOINT	2.87	+ 20	1,880,000,116	116	0.0000062

Table 7-43. Frequency Stability Data (PCS GPRS Mode – Ch. 661)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 107 of 113

Frequency Stability / Temperature Variation

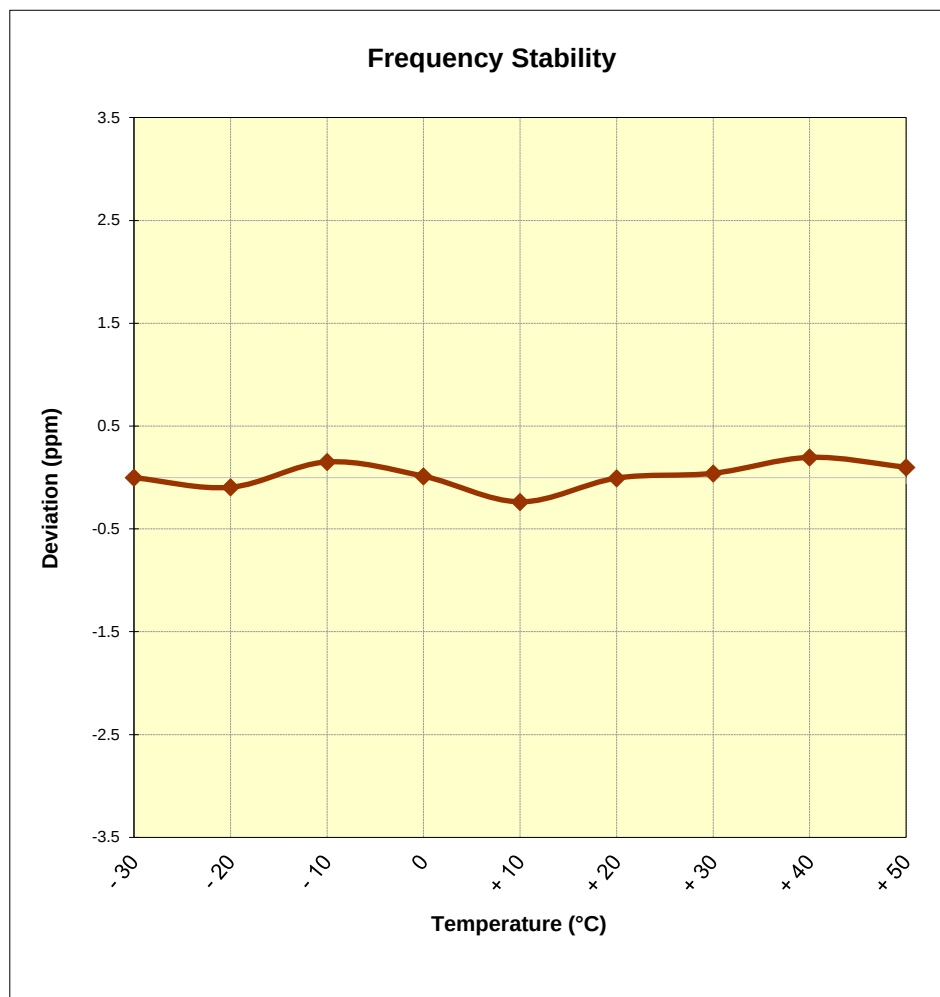


Figure 7-13. Frequency Stability Graph (PCS GPRS Mode – Ch. 661)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 108 of 113

Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 600

REFERENCE VOLTAGE: 4.36 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	- 30	1,880,000,000	0	0.0000000
100 %		- 20	1,880,000,315	315	0.0000168
100 %		- 10	1,880,000,001	1	0.0000001
100 %		0	1,880,000,234	234	0.0000124
100 %		+ 10	1,879,999,965	-35	-0.0000019
100 %		+ 20	1,880,000,011	11	0.0000006
100 %		+ 30	1,879,999,948	-52	-0.0000028
100 %		+ 40	1,879,999,742	-258	-0.0000137
100 %		+ 50	1,879,999,891	-109	-0.0000058
BATT. ENDPOINT	2.87	+ 20	1,880,000,146	146	0.0000078

Table 7-44. Frequency Stability Data (PCS CDMA Mode – Ch. 600)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 109 of 113

Frequency Stability / Temperature Variation

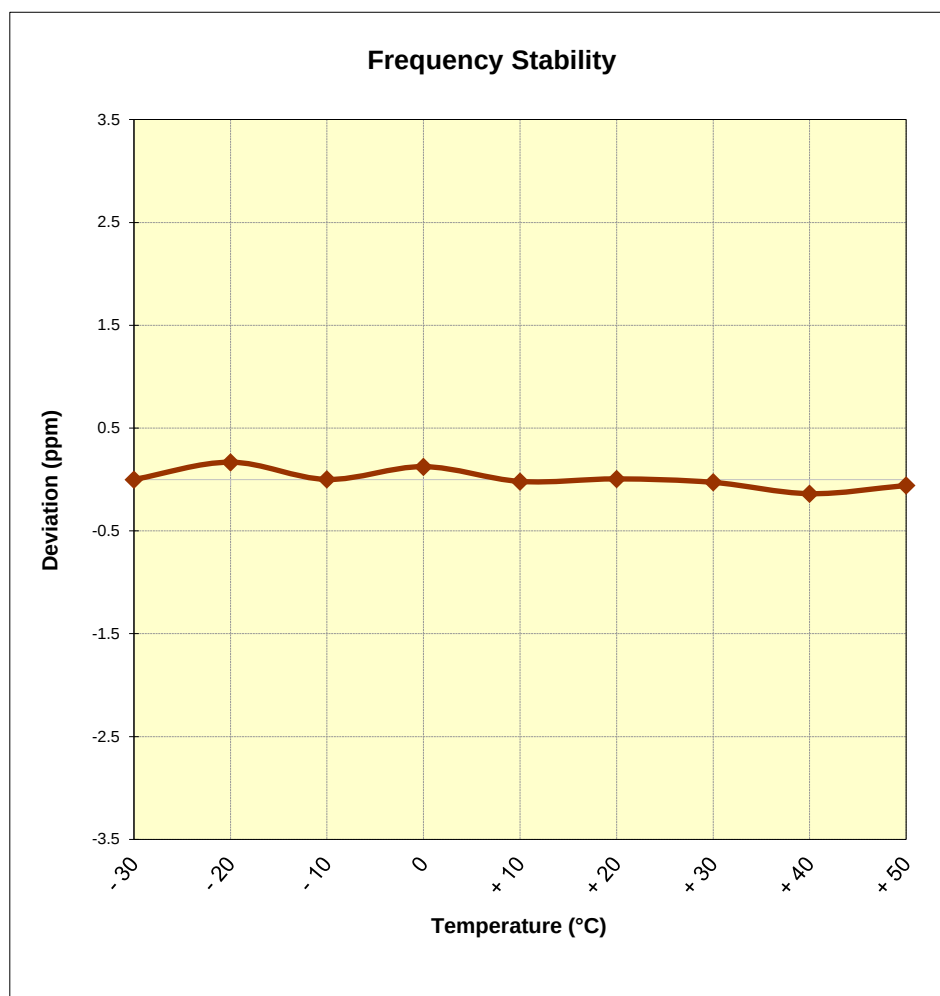


Figure 7-14. Frequency Stability Graph (PCS CDMA Mode – Ch. 600)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 110 of 113

Frequency Stability / Temperature Variation

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 9400

REFERENCE VOLTAGE: 4.36 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.36	- 30	1,879,999,948	-52	-0.0000028
100 %		- 20	1,879,999,864	-136	-0.0000072
100 %		- 10	1,879,999,771	-229	-0.0000122
100 %		0	1,879,999,944	-56	-0.0000030
100 %		+ 10	1,879,999,620	-380	-0.0000202
100 %		+ 20	1,880,000,159	159	0.0000085
100 %		+ 30	1,880,000,155	155	0.0000082
100 %		+ 40	1,879,999,699	-301	-0.0000160
100 %		+ 50	1,880,000,000	0	0.0000000
BATT. ENDPOINT	2.87	+ 20	1,880,000,396	396	0.0000211

Table 7-45. Frequency Stability Data (PCS WCDMA Mode – Ch. 9400)

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 111 of 113

Frequency Stability / Temperature Variation

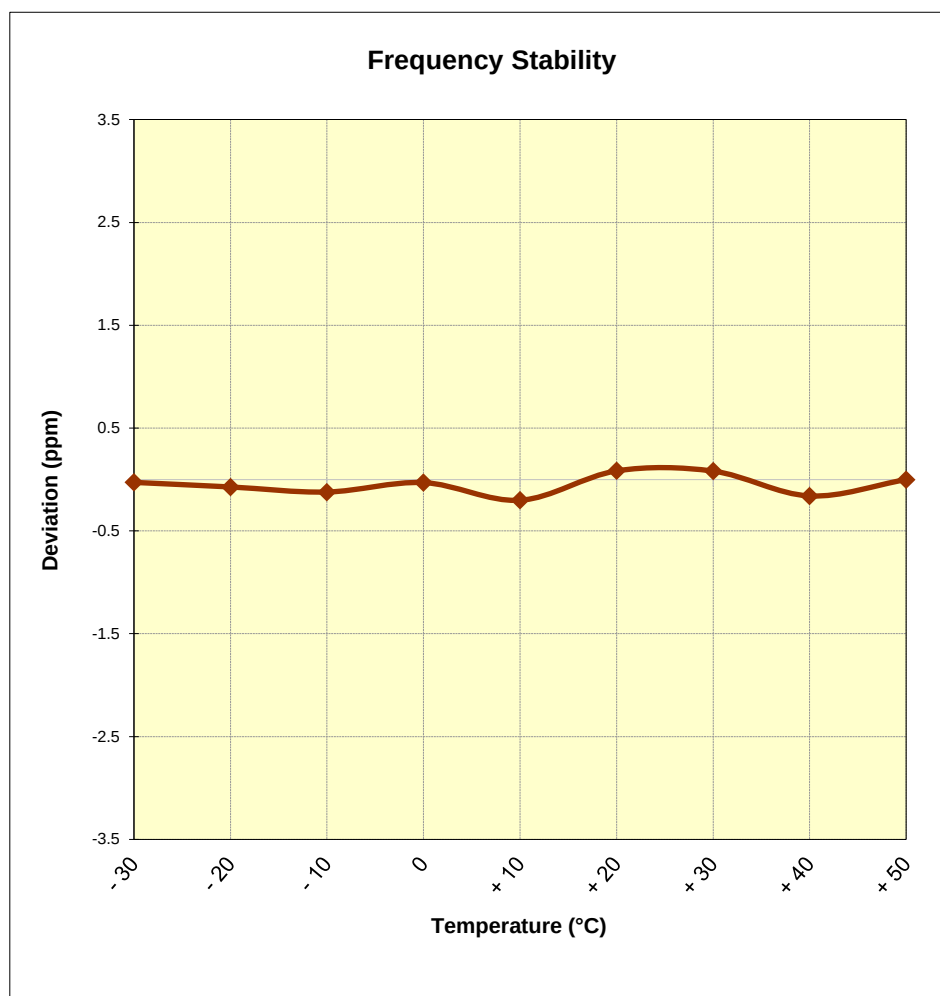


Figure 7-15. Frequency Stability Graph (PCS WCDMA Mode – Ch. 9400)

FCC ID: A3LSMF916U	PCTEST Proud to be part of element	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 112 of 113

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMF916U** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules.

FCC ID: A3LSMF916U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2005200087-02.A3L	Test Dates: 6/11 - 8/07/2020	EUT Type: Portable Handset		Page 113 of 113