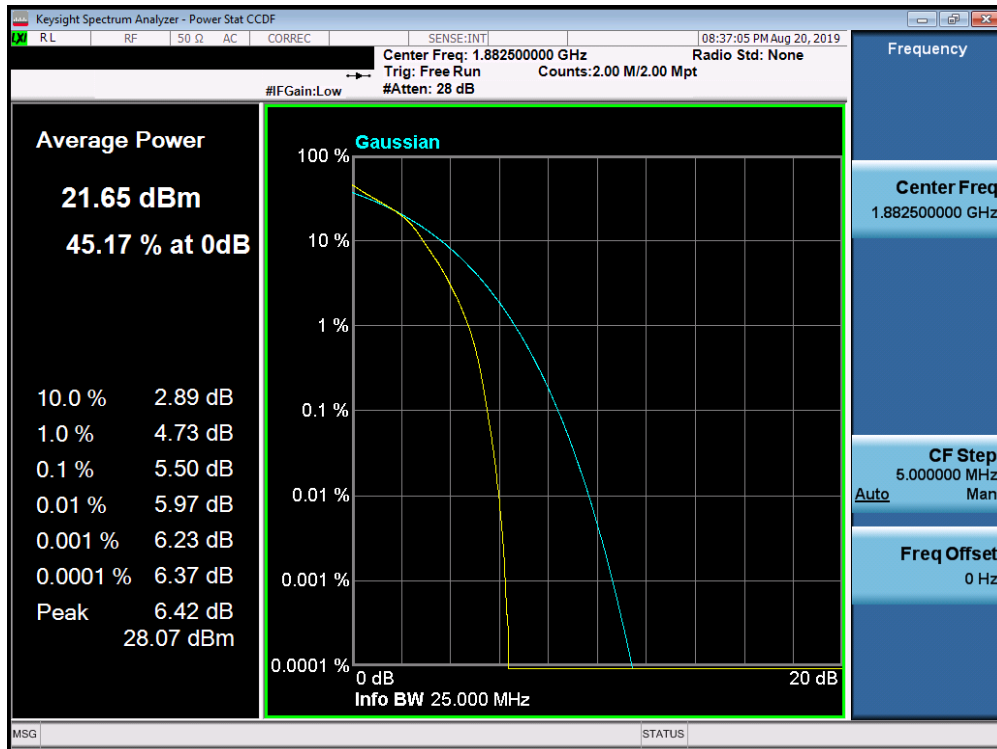
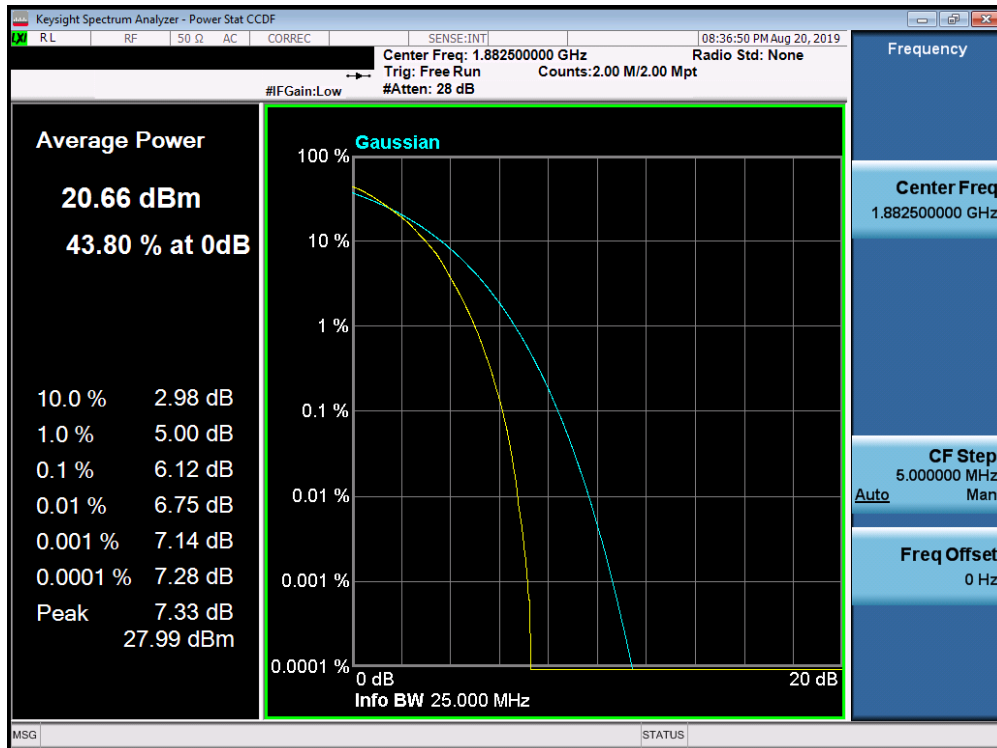




Plot 7-330. PAR Plot (Band 25/2 - 20.0MHz 16-QAM - Full RB Configuration)



Plot 7-331. PAR Plot (Band 25/2 - 20.0MHz 64-QAM - Full RB Configuration)

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7.6 Uplink Carrier Aggregation

§27.53(m)

Test Overview

The EUT is set up to transmit two contiguous LTE channels. The power level of both carriers and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

For Band 41, the minimum permissible attenuation level of any spurious emission is $55 + 10 \log_{10}(P_{\text{Watts}})$.

Test Procedure Used

KDB 971168 D01 v03r01 – Section 6.0

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to at least 10 * the fundamental frequency (separated into at least two plots per channel)
2. Detector = RMS
3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
4. Sweep time = auto couple
5. The trace was allowed to stabilize
6. Please see test notes below for RBW and VBW settings

Test Setup

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

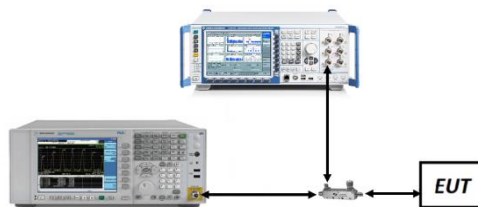


Figure 7-5. Test Instrument & Measurement Setup

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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Test Notes

1. Uplink carrier aggregation is only supported in this EUT while operating in Power Class 3.
2. Conducted power and spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. Channel bandwidth data is shown in the tables below based only on the channel bandwidths that were supported in this device. The worst case (highest) powers were found while operating with QPSK modulation, as shown in Table 7-503 and 7-504 below, with both carriers set to transmit using 1RB.
3. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for frequencies less than 1 GHz and 1 MHz or greater for frequencies greater than 1 GHz. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Uplink CA Configuration (PC3)

Power State	PCC							SCC							Power ULCA Tx.Power (dBm)
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	
Max	LTE B41	20	39750	2506	QPSK	1	99	LTE B41	20	39948	2525.8	QPSK	1	0	22.76
Max	LTE B41	20	40620	2593	QPSK	1	99	LTE B41	20	40818	2612.8	QPSK	1	0	22.70
Max	LTE B41	20	41490	2680	QPSK	1	0	LTE B41	20	41292	2660.2	QPSK	1	99	23.08

Table 7-3. Conducted Powers (B41 PC3 – 20MHz + 20MHz Channel Bandwidth – PCC/SCC: 1RB)

Power State	PCC							SCC							Power ULCA Tx.Power (dBm)
	PCC Band	PCC Bandwidth [MHz]	PCC (UL) Channel	PCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	SCC Band	SCC Bandwidth [MHz]	SCC (UL) Channel	SCC (UL) Frequency [MHz]	Modulation	PCC UL# RB	PCC UL RB Offset	
Max	LTE B41	20	41490	2680	QPSK	100	0	LTE B41	20	41292	2660.2	QPSK	100	0	21.72
Max	LTE B41	20	41490	2680	16-QAM	100	0	LTE B41	20	41292	2660.2	16-QAM	100	0	20.51
Max	LTE B41	20	41490	2680	64-QAM	100	0	LTE B41	20	41292	2660.2	64-QAM	100	0	20.72

Table 7-4. Conducted Powers (B41 PC3 with Various Combinations for 20MHz + 20MHz Channel Bandwidth)

FCC ID: A3LSMT547U			MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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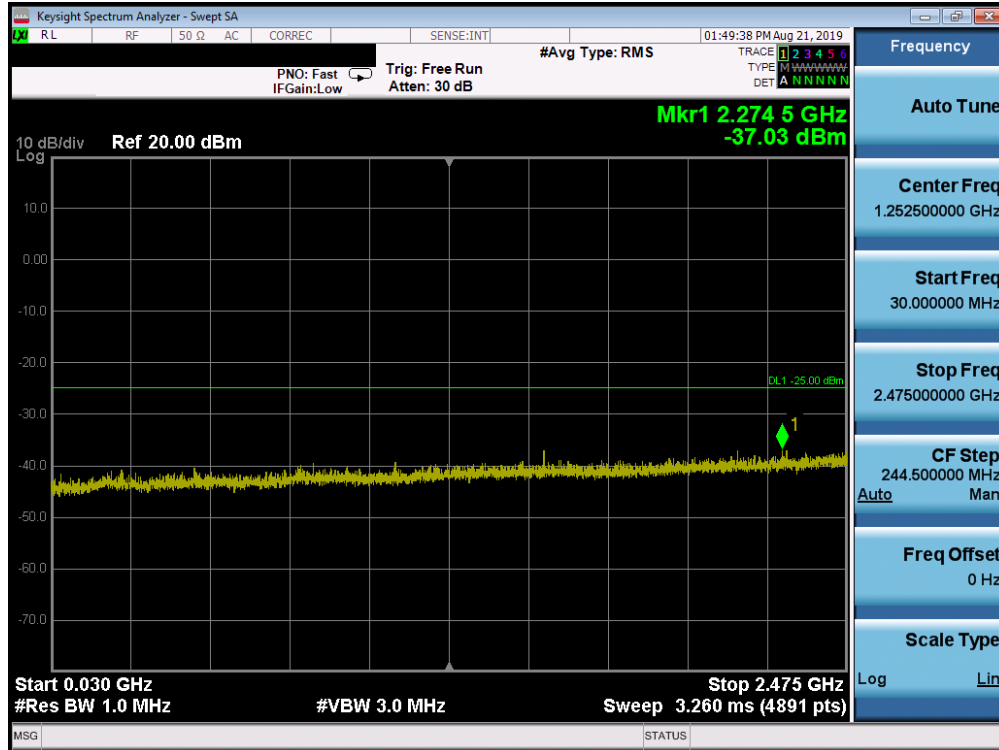


Table 7-332. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

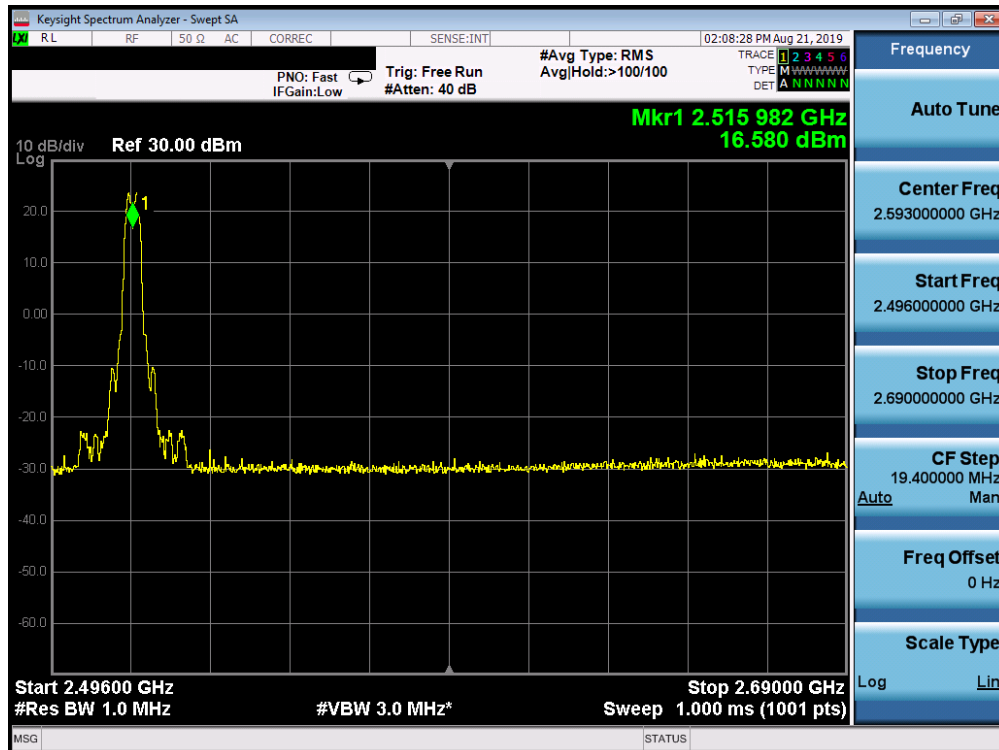


Table 7-333. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 192 of 252

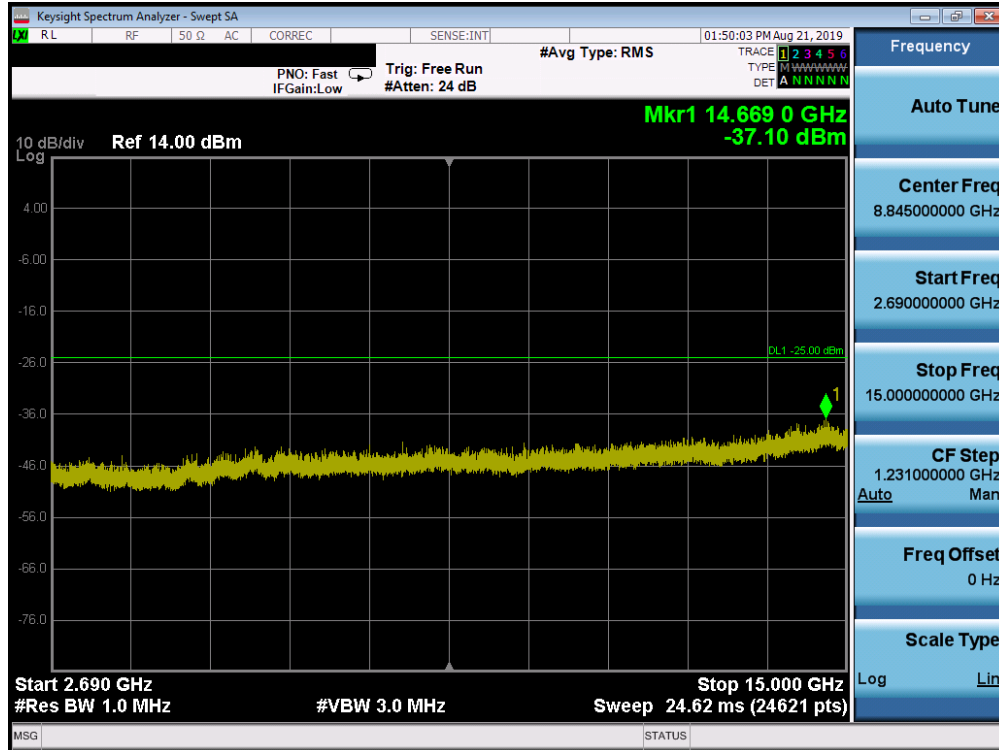


Table 7-334. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

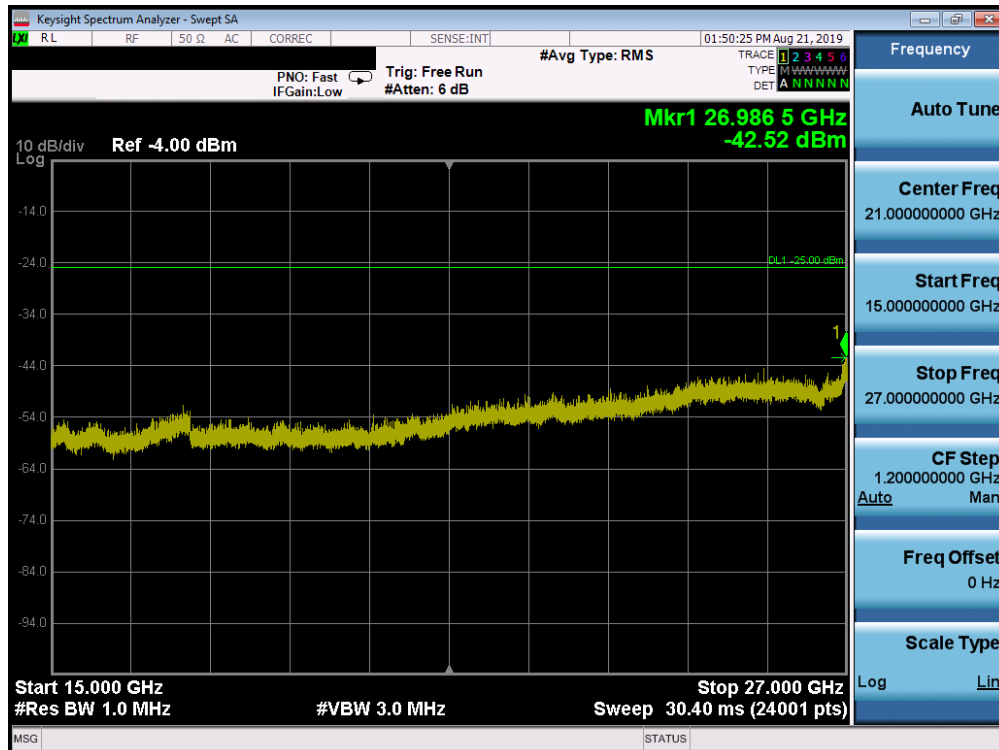


Table 7-335. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Low Channel)

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 193 of 252

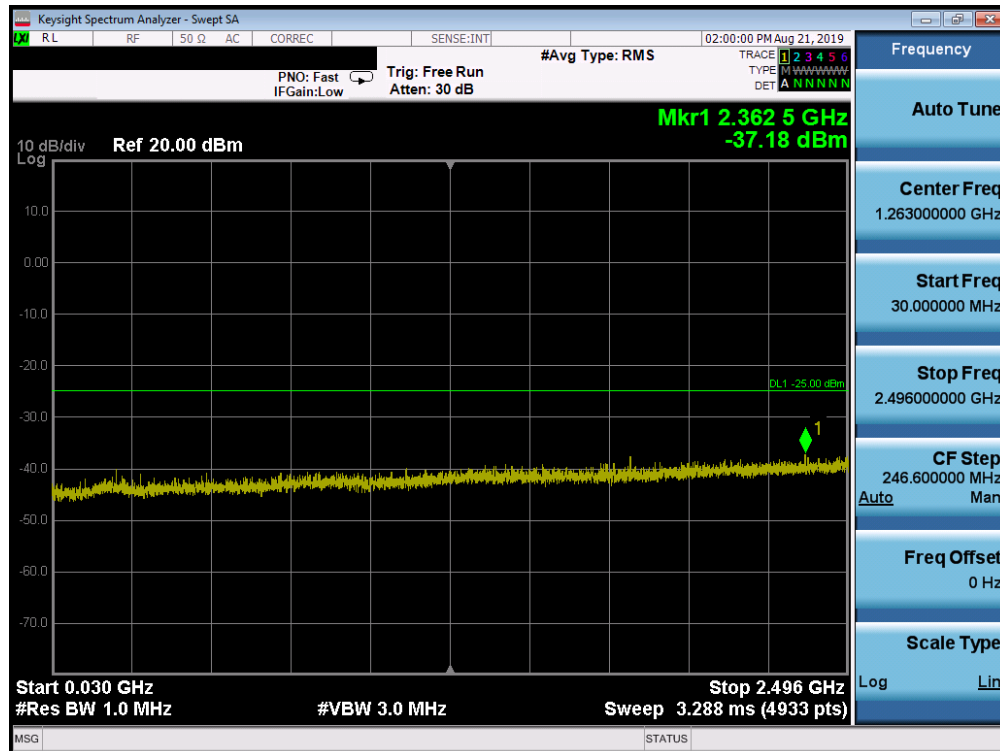


Table 7-336. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

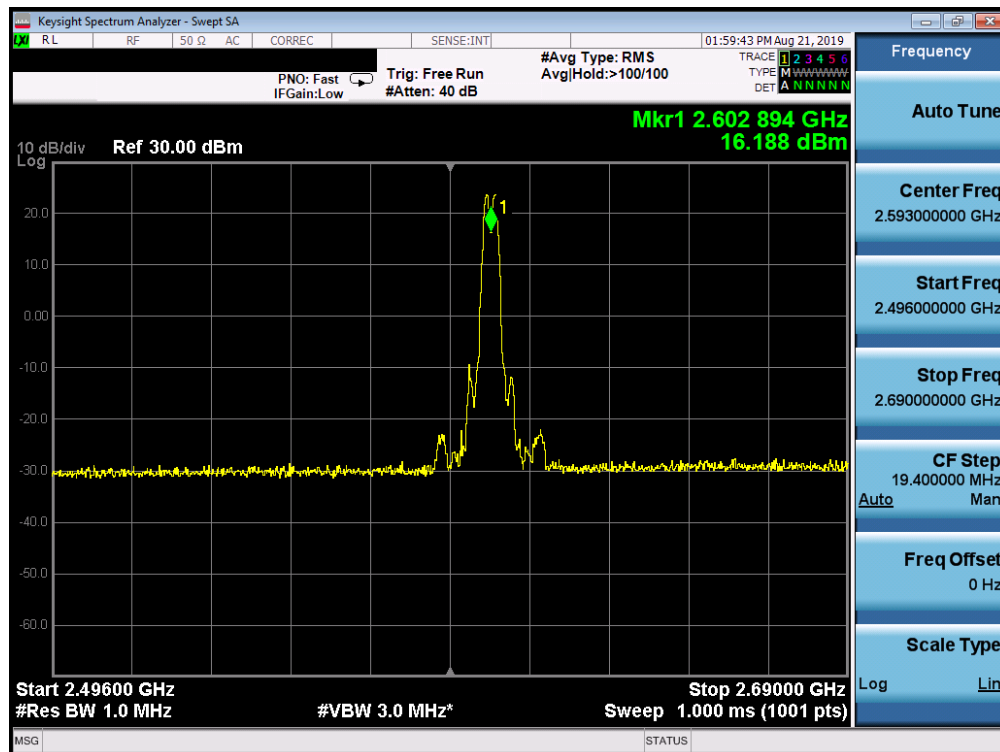


Table 7-337. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet	Page 194 of 252

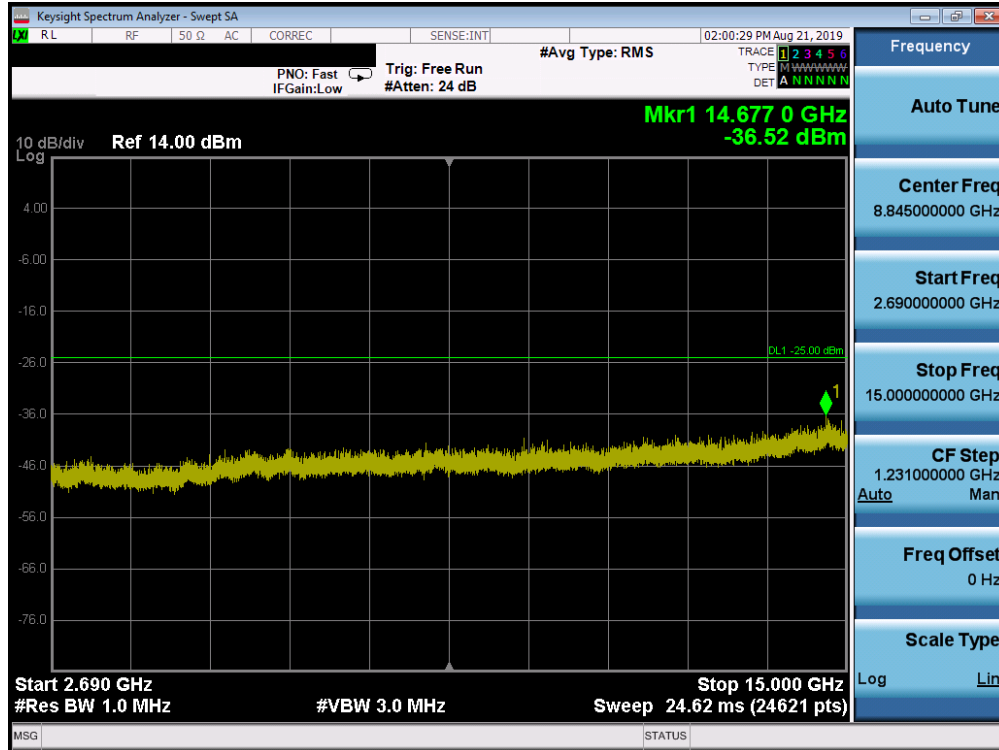


Table 7-338. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

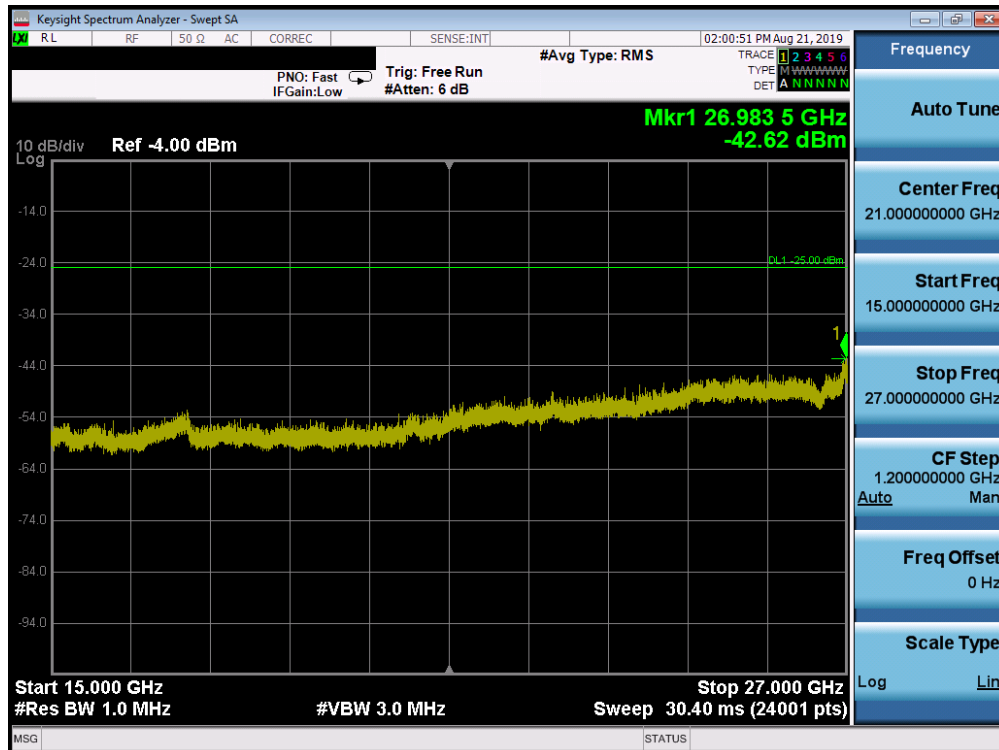


Table 7-339. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – Mid Channel)

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 195 of 252

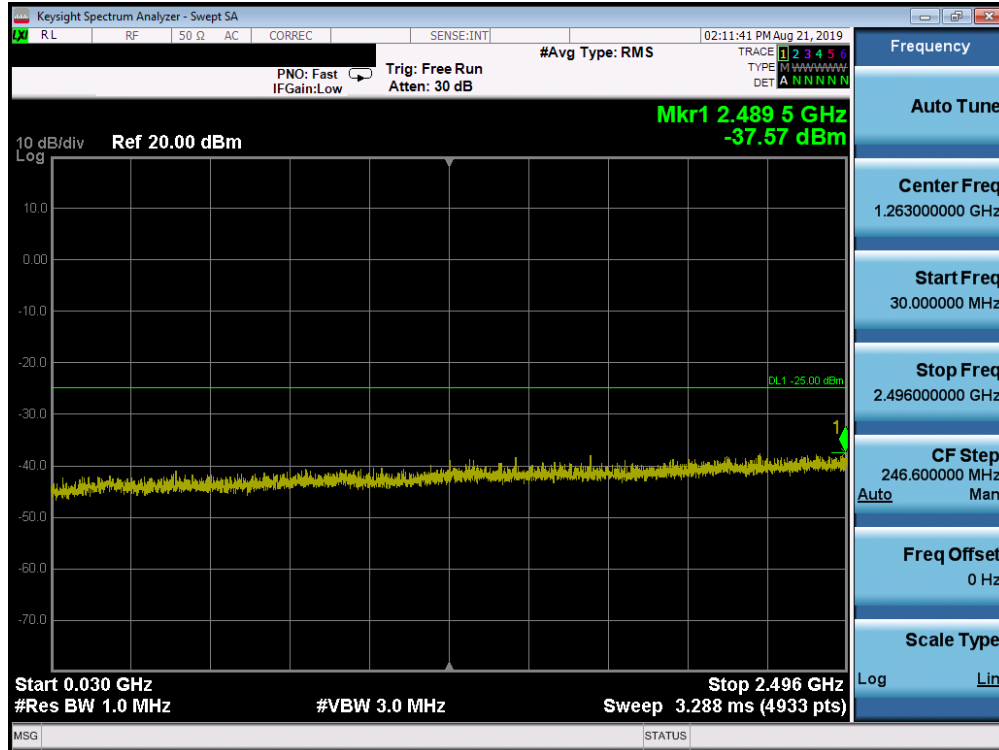


Table 7-340. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – High Channel)

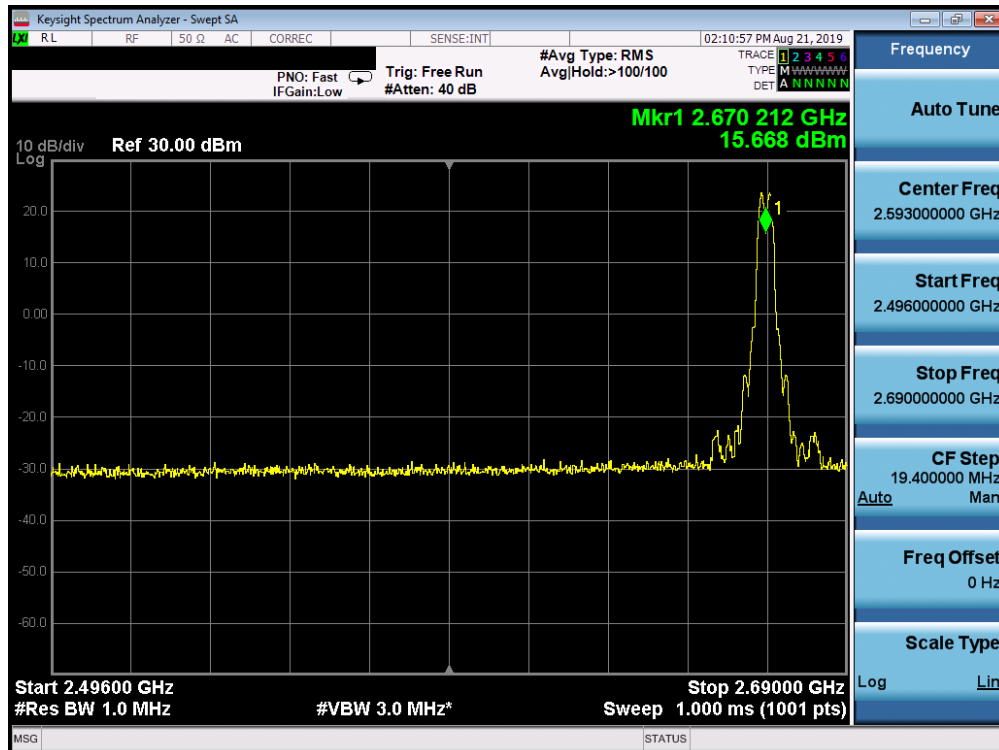


Table 7-341. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – High Channel)

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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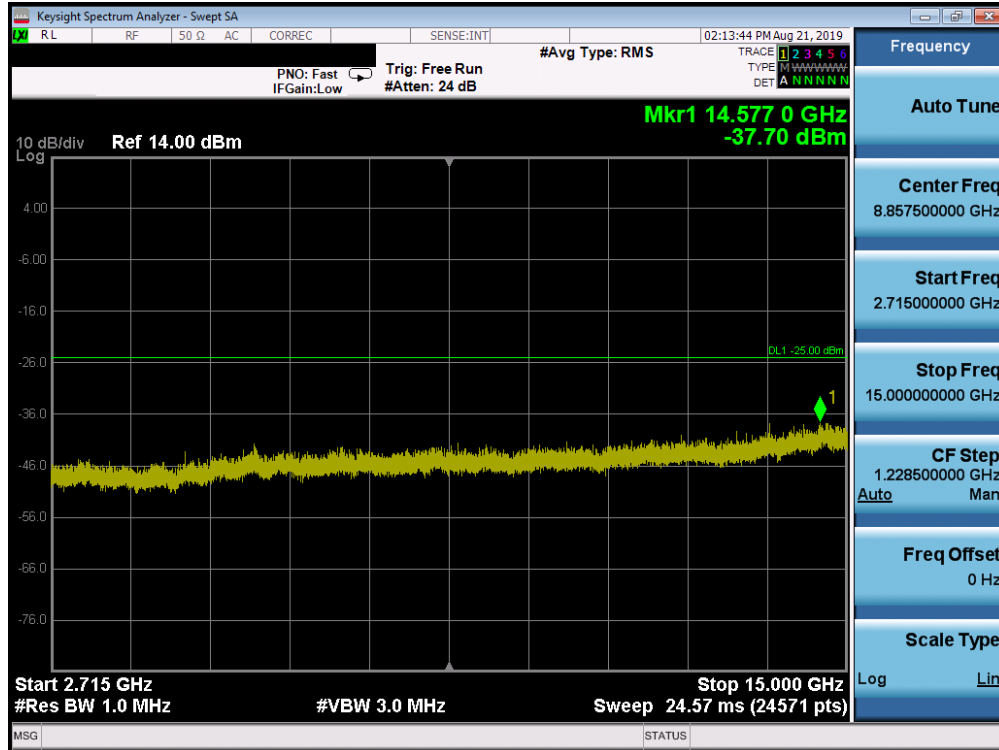


Table 7-342. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – High Channel)

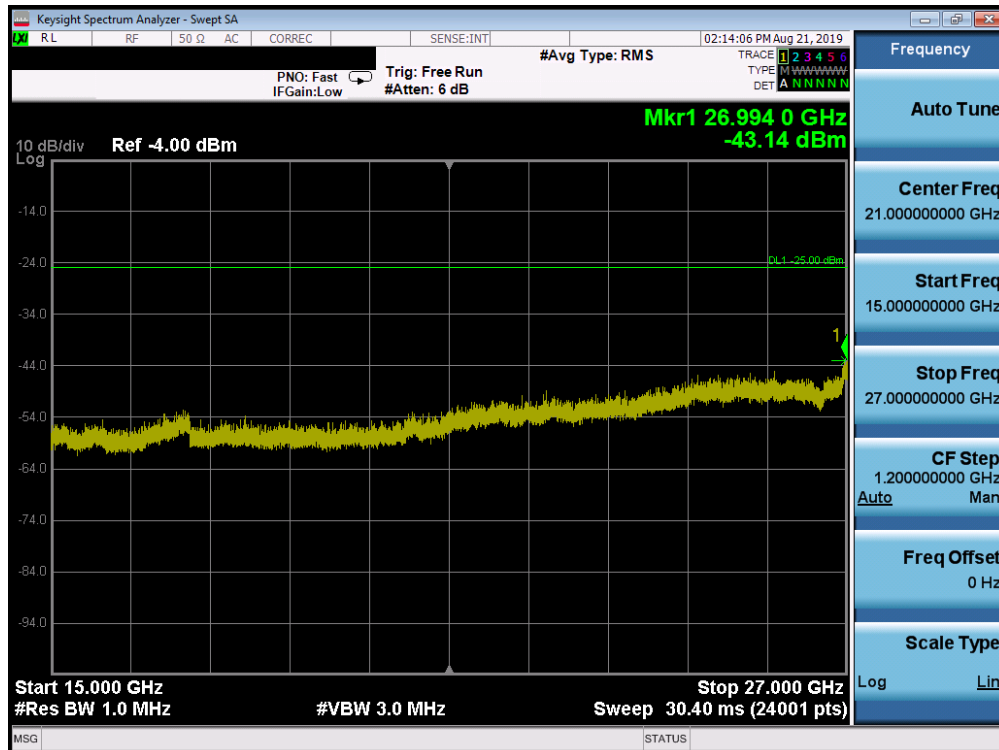


Table 7-343. Conducted Spurious Plot (Band 41 (PC3) – 20.0MHz QPSK – PCC 1/99 SCC 1/0 – High Channel)

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 197 of 252

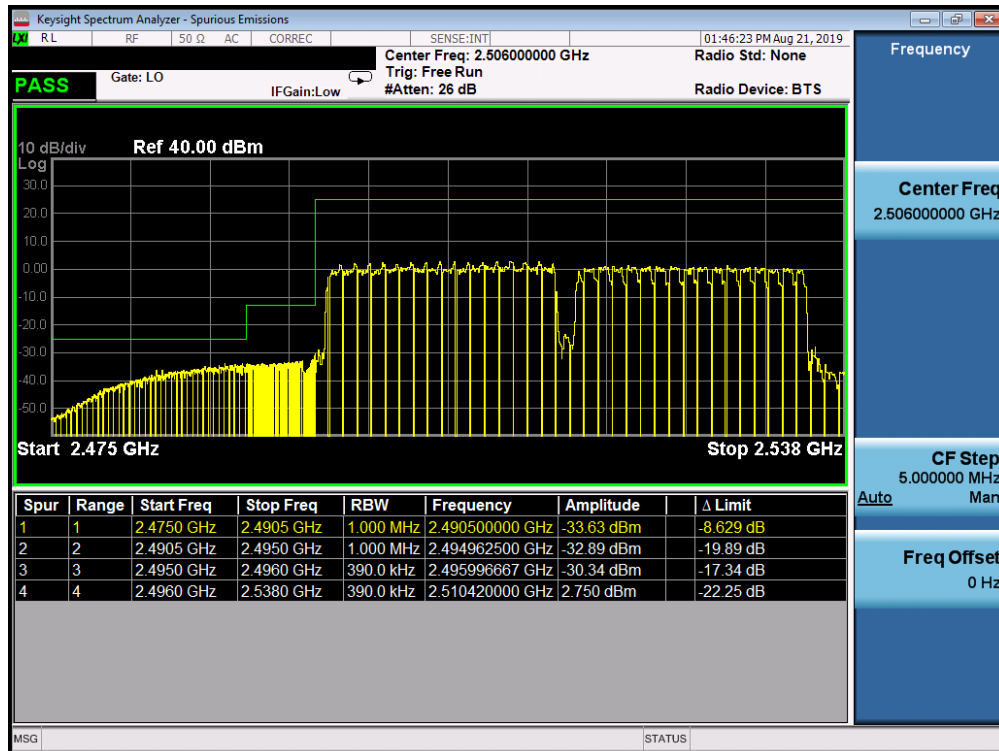


Table 7-344. Lower ACP Plot (Band 41 (PC3) – QPSK – PCC: 20 MHz SCC:20 MHz – Full RB)

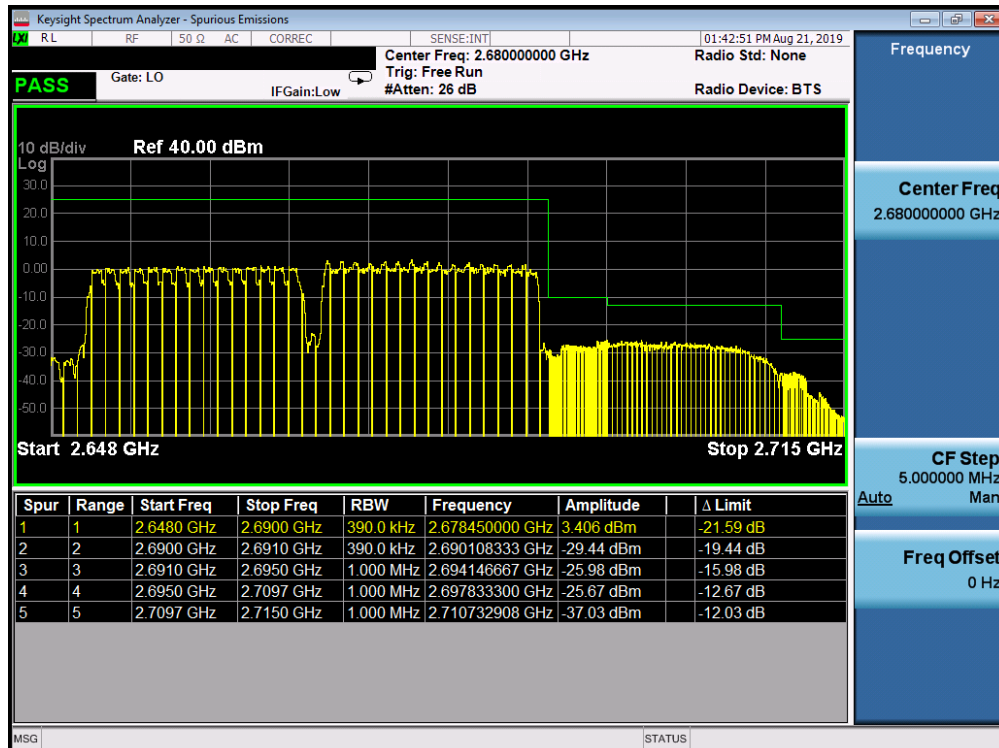


Table 7-345. Upper ACP Plot (Band 41 (PC3) – QPSK – PCC: 20 MHz SCC:20 MHz – Full RB)

FCC ID: A3LSMT547U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
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7.7 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 $\geq 3 \times$ RBW
4. Span = 1.5 times the OBW
5. No. of sweep points $\geq 2 \times$ 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: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Test Setup

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

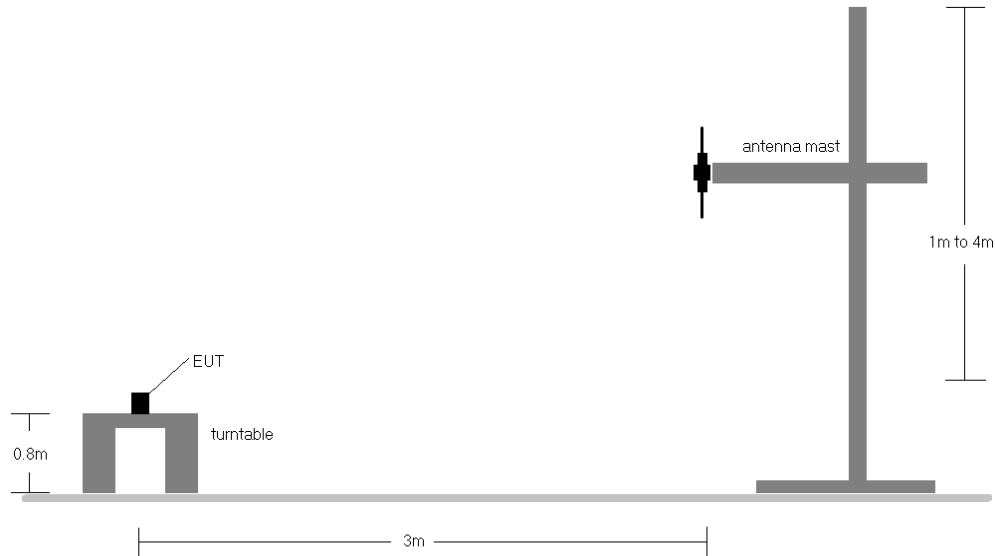


Figure 7-6. Radiated Test Setup <1GHz

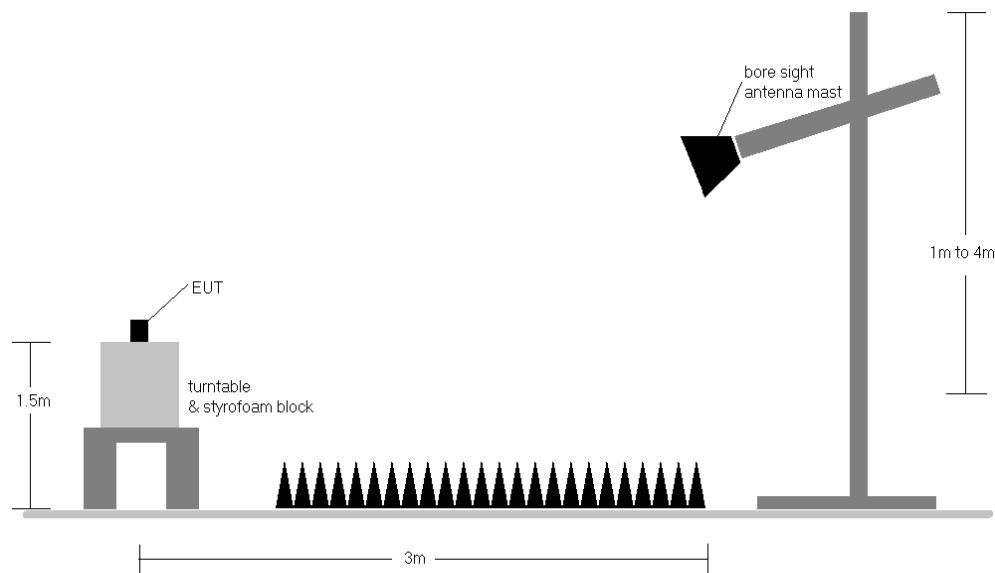


Figure 7-7. Radiated Test Setup >1GHz

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: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
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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]
665.50	5	QPSK	H	182	340	1 / 24	17.60	2.90	18.35	0.068	34.77	-16.42
680.50	5	QPSK	H	180	341	1 / 24	17.41	3.20	18.46	0.070	34.77	-16.31
695.50	5	QPSK	H	184	340	1 / 0	17.36	3.30	18.51	0.071	34.77	-16.26
695.50	5	16-QAM	H	184	340	1 / 0	16.21	3.30	17.36	0.054	34.77	-17.41
695.50	5	64-QAM	H	184	340	1 / 0	15.76	3.30	16.91	0.049	34.77	-17.86
668.00	10	QPSK	H	184	344	1 / 49	17.74	2.90	18.49	0.071	34.77	-16.28
680.50	10	QPSK	H	179	340	1 / 49	17.38	3.20	18.43	0.070	34.77	-16.34
693.00	10	QPSK	H	177	348	1 / 0	17.25	3.30	18.40	0.069	34.77	-16.37
668.00	10	16-QAM	H	184	344	1 / 49	16.62	2.90	17.37	0.055	34.77	-17.40
668.00	10	64-QAM	H	184	344	1 / 49	16.05	2.90	16.80	0.048	34.77	-17.97
670.50	15	QPSK	H	180	340	1 / 74	17.01	3.00	17.86	0.061	34.77	-16.91
680.50	15	QPSK	H	178	338	1 / 74	17.28	3.20	18.33	0.068	34.77	-16.44
690.50	15	QPSK	H	181	351	1 / 0	16.98	3.30	18.13	0.065	34.77	-16.64
680.50	15	16-QAM	H	178	338	1 / 74	16.27	3.20	17.32	0.054	34.77	-17.45
680.50	15	64-QAM	H	178	338	1 / 74	15.38	3.20	16.43	0.044	34.77	-18.34
673.00	20	QPSK	H	183	342	1 / 99	17.25	3.10	18.20	0.066	34.77	-16.57
680.50	20	QPSK	H	182	346	1 / 99	17.52	3.20	18.57	0.072	34.77	-16.20
688.00	20	QPSK	H	178	347	1 / 0	17.22	3.30	18.37	0.069	34.77	-16.40
680.50	20	16-QAM	H	182	346	1 / 99	16.72	3.20	17.77	0.060	34.77	-17.00
680.50	20	64-QAM	H	182	346	1 / 99	15.83	3.20	16.88	0.049	34.77	-17.89
680.50	20	QPSK	V	132	105	1 / 99	14.24	4.20	16.29	0.043	34.77	-18.48

Table 7-5. ERP Data (Band 71)

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet	Page 201 of 252

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]
699.70	1.4	QPSK	H	150	349	1 / 5	16.80	3.40	18.05	0.064	34.77	-16.72
707.50	1.4	QPSK	H	158	349	1 / 5	16.52	3.65	18.02	0.063	34.77	-16.75
715.30	1.4	QPSK	H	158	358	1 / 0	16.30	3.70	17.85	0.061	34.77	-16.92
699.70	1.4	16-QAM	H	150	349	1 / 5	16.52	3.40	17.77	0.060	34.77	-17.00
699.70	1.4	64-QAM	H	150	349	1 / 5	15.67	3.40	16.92	0.049	34.77	-17.85
700.50	3	QPSK	H	155	350	1 / 14	16.89	3.40	18.14	0.065	34.77	-16.63
707.50	3	QPSK	H	155	345	1 / 14	16.46	3.65	17.96	0.063	34.77	-16.81
714.50	3	QPSK	H	160	355	1 / 0	16.29	3.70	17.84	0.061	34.77	-16.93
700.50	3	16-QAM	H	155	350	1 / 14	16.50	3.40	17.75	0.060	34.77	-17.02
700.50	3	64-QAM	H	155	350	1 / 14	15.58	3.40	16.83	0.048	34.77	-17.94

Table 7-6. 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]
706.50	5	QPSK	H	303	363	1 / 24	17.04	3.60	18.49	0.071	34.77	-16.28
710.00	5	QPSK	H	313	359	1 / 24	17.62	3.70	19.17	0.083	34.77	-15.60
713.50	5	QPSK	H	306	357	1 / 24	17.44	3.70	18.99	0.079	34.77	-15.78
710.00	5	16-QAM	H	313	359	1 / 24	16.91	3.70	18.46	0.070	34.77	-16.31
710.00	5	64-QAM	H	313	359	1 / 24	15.81	3.70	17.36	0.054	34.77	-17.41
709.00	10	QPSK	H	158	361	1 / 49	16.65	3.70	18.20	0.066	34.77	-16.57
710.00	10	QPSK	H	160	359	1 / 0	16.84	3.70	18.39	0.069	34.77	-16.38
711.00	10	QPSK	H	161	350	1 / 49	16.86	3.70	18.41	0.069	34.77	-16.36
710.00	10	16-QAM	H	160	359	1 / 0	16.09	3.70	17.64	0.058	34.77	-17.13
710.00	10	64-QAM	H	160	359	1 / 0	15.20	3.70	16.75	0.047	34.77	-18.02
710.00	5	QPSK	V	144	120	1 / 24	15.92	4.60	18.37	0.069	34.77	-16.40

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

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet	Page 202 of 252

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	V	157	125	1 / 0	14.01	5.70	17.56	0.057	34.77	-17.21	19.71	0.094	36.99	-17.28
782.00	5	QPSK	V	167	126	1 / 0	13.88	5.80	17.53	0.057	34.77	-17.24	19.68	0.093	36.99	-17.31
784.50	5	QPSK	V	142	135	1 / 0	13.93	5.80	17.58	0.057	34.77	-17.19	19.73	0.094	36.99	-17.26
784.50	5	16-QAM	V	142	135	1 / 0	13.33	5.80	16.98	0.050	34.77	-17.79	19.13	0.082	36.99	-17.86
784.50	5	64-QAM	V	142	135	1 / 0	12.28	5.80	15.93	0.039	34.77	-18.84	18.08	0.064	36.99	-18.91
782.00	10	QPSK	V	180	126	1 / 0	13.96	5.80	17.61	0.058	34.77	-17.16	19.76	0.095	36.99	-17.23
782.00	10	16-QAM	V	180	126	1 / 0	12.93	5.80	16.58	0.045	34.77	-18.19	18.73	0.075	36.99	-18.26
782.00	10	64-QAM	V	180	126	1 / 0	12.22	5.80	15.87	0.039	34.77	-18.90	18.02	0.063	36.99	-18.97
782.00	10	QPSK	H	146	343	1 / 0	13.85	5.80	17.50	0.056	34.77	-17.27	19.65	0.092	36.99	-17.34

Table 7-8. ERP Data (Band 13)

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet	Page 203 of 252

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	100	354	1 / 0	16.94	6.70	21.49	0.141	38.45	-16.96	23.64	0.231	40.61	-16.97
836.50	1.4	QPSK	H	107	7	1 / 0	16.96	6.70	21.51	0.142	38.45	-16.94	23.66	0.232	40.61	-16.95
848.30	1.4	QPSK	H	102	11	1 / 0	17.21	6.70	21.76	0.150	38.45	-16.69	23.91	0.246	40.61	-16.70
848.30	1.4	16-QAM	H	102	11	1 / 0	15.62	6.70	20.17	0.104	38.45	-18.28	22.32	0.171	40.61	-18.29
848.30	1.4	64-QAM	H	102	11	1 / 0	14.83	6.70	19.38	0.087	38.45	-19.07	21.53	0.142	40.61	-19.08
825.50	3	QPSK	H	101	360	1 / 0	17.00	6.70	21.55	0.143	38.45	-16.90	23.70	0.234	40.61	-16.91
836.50	3	QPSK	H	100	2	1 / 0	17.07	6.70	21.62	0.145	38.45	-16.83	23.77	0.238	40.61	-16.84
847.50	3	QPSK	H	103	4	1 / 0	17.13	6.65	21.63	0.146	38.45	-16.82	23.78	0.239	40.61	-16.83
847.50	3	16-QAM	H	103	4	1 / 0	15.81	6.65	20.31	0.107	38.45	-18.14	22.46	0.176	40.61	-18.15
847.50	3	64-QAM	H	103	4	1 / 0	15.14	6.65	19.64	0.092	38.45	-18.81	21.79	0.151	40.61	-18.82
826.50	5	QPSK	H	108	357	1 / 0	17.12	6.70	21.67	0.147	38.45	-16.78	23.82	0.241	40.61	-16.79
836.50	5	QPSK	H	102	1	1 / 0	17.20	6.70	21.75	0.150	38.45	-16.70	23.90	0.245	40.61	-16.71
846.50	5	QPSK	H	101	2	1 / 0	17.12	6.60	21.57	0.144	38.45	-16.88	23.72	0.236	40.61	-16.89
836.50	5	16-QAM	H	102	1	1 / 0	15.87	6.70	20.42	0.110	38.45	-18.03	22.57	0.181	40.61	-18.04
836.50	5	64-QAM	H	102	1	1 / 0	14.94	6.70	19.49	0.089	38.45	-18.96	21.64	0.146	40.61	-18.97
829.00	10	QPSK	H	101	360	1 / 0	17.10	6.70	21.65	0.146	38.45	-16.80	23.80	0.240	40.61	-16.81
836.50	10	QPSK	H	100	361	1 / 0	17.18	6.70	21.73	0.149	38.45	-16.72	23.88	0.244	40.61	-16.73
844.00	10	QPSK	H	100	360	1 / 0	17.30	6.60	21.75	0.150	38.45	-16.70	23.90	0.245	40.61	-16.71
844.00	10	16-QAM	H	100	360	1 / 0	16.17	6.60	20.62	0.115	38.45	-17.83	22.77	0.189	40.61	-17.84
844.00	10	64-QAM	H	100	360	1 / 0	15.24	6.60	19.69	0.093	38.45	-18.76	21.84	0.153	40.61	-18.77
848.30	1.4	QPSK	V	117	65	1 / 0	16.00	6.40	20.25	0.106	38.45	-18.20	22.40	0.174	40.61	-18.21

Table 7-9. ERP Data (Band 26/5)

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	100	360	1 / 0	16.95	6.70	21.50	0.141	38.45	-16.95	23.65	0.232	40.61	-16.96
836.50	15	QPSK	H	101	360	1 / 0	17.09	6.70	21.64	0.146	38.45	-16.81	23.79	0.239	40.61	-16.82
841.50	15	QPSK	H	107	360	1 / 0	16.36	6.60	20.81	0.121	38.45	-17.64	22.96	0.198	40.61	-17.65
836.50	15	16-QAM	H	101	360	1 / 0	16.09	6.70	20.64	0.116	38.45	-17.81	22.79	0.190	40.61	-17.82
836.50	15	64-QAM	H	101	360	1 / 0	15.20	6.70	19.75	0.094	38.45	-18.70	21.90	0.155	40.61	-18.71

Table 7-10. ERP Data (Band 26)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 204 of 252

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	141	310	1 / 5	16.98	9.44	26.42	0.439	30.00	-3.58
1745.00	1.4	QPSK	H	145	307	1 / 5	16.95	9.31	26.26	0.423	30.00	-3.74
1779.30	1.4	QPSK	H	130	315	1 / 5	17.37	9.21	26.58	0.455	30.00	-3.42
1779.30	1.4	16-QAM	H	130	315	1 / 5	16.50	9.21	25.71	0.372	30.00	-4.29
1779.30	1.4	64-QAM	H	130	315	1 / 5	16.02	9.21	25.23	0.333	30.00	-4.77
1711.50	3	QPSK	H	140	312	1 / 14	17.04	9.44	26.48	0.444	30.00	-3.52
1745.00	3	QPSK	H	141	311	1 / 14	17.07	9.31	26.38	0.435	30.00	-3.62
1778.50	3	QPSK	H	135	308	1 / 14	17.28	9.21	26.49	0.446	30.00	-3.51
1778.50	3	16-QAM	H	135	308	1 / 14	16.69	9.21	25.90	0.389	30.00	-4.10
1778.50	3	64-QAM	H	135	308	1 / 14	16.26	9.21	25.47	0.352	30.00	-4.53
1712.50	5	QPSK	H	142	313	1 / 24	17.18	9.43	26.61	0.458	30.00	-3.39
1745.00	5	QPSK	H	138	315	1 / 24	17.17	9.31	26.48	0.445	30.00	-3.52
1777.50	5	QPSK	H	132	310	1 / 24	17.27	9.21	26.48	0.444	30.00	-3.52
1712.50	5	16-QAM	H	142	313	1 / 24	15.96	9.43	25.39	0.346	30.00	-4.61
1712.50	5	64-QAM	H	142	313	1 / 24	14.92	9.43	24.35	0.272	30.00	-5.65
1715.00	10	QPSK	H	141	311	1 / 49	16.99	9.42	26.40	0.437	30.00	-3.60
1745.00	10	QPSK	H	140	318	1 / 49	17.12	9.31	26.43	0.440	30.00	-3.57
1775.00	10	QPSK	H	130	312	1 / 49	17.39	9.20	26.59	0.456	30.00	-3.41
1775.00	10	16-QAM	H	130	312	1 / 49	16.80	9.20	26.00	0.398	30.00	-4.00
1775.00	10	64-QAM	H	130	312	1 / 49	16.33	9.20	25.53	0.357	30.00	-4.47
1717.50	15	QPSK	H	140	310	1 / 74	16.88	9.40	26.28	0.424	30.00	-3.72
1745.00	15	QPSK	H	138	321	1 / 74	17.34	9.31	26.65	0.463	30.00	-3.35
1772.50	15	QPSK	H	130	318	1 / 74	17.35	9.22	26.57	0.454	30.00	-3.43
1745.00	15	16-QAM	H	138	321	1 / 74	16.26	9.31	25.57	0.361	30.00	-4.43
1745.00	15	64-QAM	H	138	321	1 / 74	15.93	9.31	25.24	0.334	30.00	-4.76
1720.00	20	QPSK	H	138	313	1 / 99	16.61	9.38	25.99	0.398	30.00	-4.01
1745.00	20	QPSK	H	121	323	1 / 99	17.91	9.31	27.22	0.527	30.00	-2.78
1770.00	20	QPSK	H	133	320	1 / 99	17.98	9.23	27.21	0.526	30.00	-2.79
1745.00	20	16-QAM	H	121	323	1 / 99	17.27	9.31	26.58	0.455	30.00	-3.42
1745.00	20	64-QAM	H	121	323	1 / 99	16.30	9.31	25.61	0.364	30.00	-4.39
1745.00	20	QPSK	V	155	86	1 / 99	15.58	9.43	25.01	0.317	30.00	-4.99

Table 7-11. EIRP Data (Band 66/4)

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet	Page 205 of 252

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	154	322	1 / 0	16.87	9.48	26.35	0.432	33.01	-6.66
1882.50	1.4	QPSK	H	166	322	1 / 0	17.03	9.94	26.97	0.497	33.01	-6.05
1914.30	1.4	QPSK	H	159	315	1 / 0	18.00	10.29	28.29	0.675	33.01	-4.72
1914.30	1.4	16-QAM	H	159	315	1 / 0	16.43	10.29	26.72	0.470	33.01	-6.29
1914.30	1.4	64-QAM	H	159	315	1 / 0	15.89	10.29	26.18	0.415	33.01	-6.83
1851.50	3	QPSK	H	157	318	1 / 0	15.68	9.50	25.18	0.329	33.01	-7.83
1882.50	3	QPSK	H	159	319	1 / 0	16.92	9.94	26.86	0.485	33.01	-6.16
1913.50	3	QPSK	H	155	322	1 / 0	17.66	10.29	27.95	0.623	33.01	-5.07
1913.50	3	16-QAM	H	155	322	1 / 0	16.77	10.29	27.06	0.508	33.01	-5.96
1913.50	3	64-QAM	H	155	322	1 / 0	16.17	10.29	26.46	0.442	33.01	-6.56
1852.50	5	QPSK	H	161	324	1 / 0	16.89	9.51	26.40	0.436	33.01	-6.61
1882.50	5	QPSK	H	162	321	1 / 0	17.04	9.94	26.98	0.498	33.01	-6.04
1912.50	5	QPSK	H	152	318	1 / 0	17.64	10.28	27.92	0.619	33.01	-5.09
1912.50	5	16-QAM	H	152	318	1 / 0	16.75	10.28	27.03	0.504	33.01	-5.98
1912.50	5	64-QAM	H	152	318	1 / 0	15.95	10.28	26.23	0.420	33.01	-6.78
1855.00	10	QPSK	H	162	321	1 / 0	16.94	9.55	26.49	0.445	33.01	-6.52
1882.50	10	QPSK	H	159	318	1 / 0	17.16	9.94	27.10	0.512	33.01	-5.92
1910.00	10	QPSK	H	148	322	1 / 0	17.88	10.26	28.14	0.651	33.01	-4.87
1910.00	10	16-QAM	H	148	322	1 / 0	16.70	10.26	26.96	0.496	33.01	-6.05
1910.00	10	64-QAM	H	148	322	1 / 0	16.27	10.26	26.53	0.450	33.01	-6.48
1857.50	15	QPSK	H	160	320	1 / 0	16.97	9.58	26.55	0.452	33.01	-6.46
1882.50	15	QPSK	H	158	322	1 / 0	17.06	9.94	27.00	0.501	33.01	-6.02
1907.50	15	QPSK	H	152	324	1 / 0	17.91	10.24	28.15	0.653	33.01	-4.86
1907.50	15	16-QAM	H	152	324	1 / 0	16.98	10.24	27.22	0.527	33.01	-5.79
1907.50	15	64-QAM	H	152	324	1 / 0	16.05	10.24	26.29	0.425	33.01	-6.72
1860.00	20	QPSK	H	162	322	1 / 0	17.13	9.62	26.75	0.473	33.01	-6.26
1882.50	20	QPSK	H	161	324	1 / 0	17.13	9.94	27.07	0.509	33.01	-5.95
1905.00	20	QPSK	H	149	327	1 / 0	17.98	10.22	28.20	0.661	33.01	-4.81
1905.00	20	16-QAM	H	149	327	1 / 0	17.11	10.22	27.33	0.541	33.01	-5.68
1905.00	20	64-QAM	H	149	327	1 / 0	16.11	10.22	26.33	0.429	33.01	-6.68
1914.30	1.4	QPSK	V	381	95	1 / 0	14.24	10.12	24.36	0.273	33.01	-8.65

Table 7-12. EIRP Data (Band 25/2)

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet	Page 206 of 252

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]
2502.50	5	QPSK	H	182	279	1 / 24	12.23	9.43	21.66	0.146	33.01	-11.35
2535.00	5	QPSK	H	183	241	1 / 0	12.55	9.39	21.94	0.156	33.01	-11.07
2567.50	5	QPSK	H	179	235	1 / 24	12.86	9.45	22.31	0.170	33.01	-10.70
2567.50	5	16-QAM	H	179	235	1 / 24	11.77	9.45	21.22	0.132	33.01	-11.79
2567.50	5	64-QAM	H	179	235	1 / 24	11.11	9.45	20.56	0.114	33.01	-12.45
2505.00	10	QPSK	H	180	276	1 / 49	12.13	9.43	21.56	0.143	33.01	-11.45
2535.00	10	QPSK	H	179	238	1 / 0	12.70	9.39	22.09	0.162	33.01	-10.92
2565.00	10	QPSK	H	175	232	1 / 49	12.72	9.44	22.16	0.164	33.01	-10.85
2565.00	10	16-QAM	H	175	232	1 / 49	11.52	9.44	20.96	0.125	33.01	-12.05
2565.00	10	64-QAM	H	175	232	1 / 49	10.82	9.44	20.26	0.106	33.01	-12.75
2507.50	15	QPSK	H	185	230	1 / 74	12.12	9.42	21.54	0.143	33.01	-11.47
2535.00	15	QPSK	H	175	235	1 / 0	12.70	9.39	22.09	0.162	33.01	-10.92
2562.50	15	QPSK	H	171	228	1 / 74	12.61	9.43	22.04	0.160	33.01	-10.97
2535.00	15	16-QAM	H	175	235	1 / 0	11.61	9.39	21.00	0.126	33.01	-12.01
2535.00	15	64-QAM	H	175	235	1 / 0	10.97	9.39	20.36	0.109	33.01	-12.65
2510.00	20	QPSK	H	183	229	1 / 99	12.14	9.42	21.56	0.143	33.01	-11.45
2535.00	20	QPSK	H	177	230	1 / 0	12.72	9.39	22.11	0.163	33.01	-10.90
2560.00	20	QPSK	H	173	231	1 / 99	12.82	9.42	22.24	0.167	33.01	-10.77
2560.00	20	16-QAM	H	173	231	1 / 99	11.98	9.42	21.40	0.138	33.01	-11.61
2560.00	20	64-QAM	H	173	231	1 / 99	11.01	9.42	20.43	0.110	33.01	-12.58
2567.50	5	QPSK	V	211	242	1 / 24	10.29	9.39	19.68	0.093	33.01	-13.33

Table 7-13. EIRP Data (Band 7)

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet	Page 207 of 252

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	180	227	1 / 0	15.30	9.43	24.73	0.297	33.01	-8.28
2593.00	5	QPSK	H	172	232	1 / 0	16.73	9.55	26.28	0.425	33.01	-6.73
2687.50	5	QPSK	H	150	221	1 / 0	17.25	9.82	27.07	0.509	33.01	-5.94
2687.50	5	16-QAM	H	150	221	1 / 0	16.61	9.82	26.43	0.439	33.01	-6.58
2687.50	5	64-QAM	H	150	221	1 / 0	16.78	9.82	26.60	0.457	33.01	-6.41
2501.00	10	QPSK	H	179	225	1 / 0	15.41	9.43	24.84	0.305	33.01	-8.17
2593.00	10	QPSK	H	174	230	1 / 0	16.75	9.55	26.30	0.427	33.01	-6.71
2685.00	10	QPSK	H	152	222	1 / 0	17.31	9.82	27.13	0.517	33.01	-5.88
2685.00	10	16-QAM	H	152	222	1 / 0	16.59	9.82	26.41	0.438	33.01	-6.60
2685.00	10	64-QAM	H	152	222	1 / 0	16.98	9.82	26.80	0.479	33.01	-6.21
2503.50	15	QPSK	H	172	228	1 / 0	15.49	9.43	24.92	0.310	33.01	-8.09
2593.00	15	QPSK	H	170	235	1 / 0	16.70	9.55	26.25	0.422	33.01	-6.76
2682.50	15	QPSK	H	148	224	1 / 0	17.40	9.83	27.23	0.528	33.01	-5.78
2682.50	15	16-QAM	H	148	224	1 / 0	16.41	9.83	26.24	0.421	33.01	-6.77
2682.50	15	64-QAM	H	148	224	1 / 0	15.57	9.83	25.40	0.347	33.01	-7.61
2506.00	20	QPSK	H	170	230	1 / 0	14.81	9.42	24.23	0.265	33.01	-8.78
2593.00	20	QPSK	H	168	232	1 / 0	16.55	9.55	26.10	0.408	33.01	-6.91
2680.00	20	QPSK	H	152	228	1 / 0	17.19	9.83	27.02	0.504	33.01	-5.99
2680.00	20	16-QAM	H	152	228	1 / 0	16.59	9.83	26.42	0.439	33.01	-6.59
2680.00	20	64-QAM	H	152	228	1 / 0	16.01	9.83	25.84	0.384	33.01	-7.17
2682.50	15	QPSK	V	315	272	1 / 0	13.91	9.68	23.59	0.229	33.01	-9.42

Table 7-14. EIRP Data (Band 41 – PC2)

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet	Page 208 of 252

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	215	221	1 / 24	12.43	9.43	21.86	0.154	33.01	-11.15
2593.00	5	QPSK	H	204	219	1 / 24	13.54	9.55	23.09	0.204	33.01	-9.92
2687.50	5	QPSK	H	208	226	1 / 24	14.42	9.82	24.24	0.265	33.01	-8.77
2687.50	5	16-QAM	H	208	226	1 / 24	12.98	9.82	22.80	0.190	33.01	-10.21
2687.50	5	64-QAM	H	208	226	1 / 24	12.86	9.82	22.68	0.185	33.01	-10.33
2501.00	10	QPSK	H	218	222	1 / 49	12.46	9.43	21.89	0.155	33.01	-11.12
2593.00	10	QPSK	H	207	221	1 / 49	13.51	9.55	23.06	0.202	33.01	-9.95
2685.00	10	QPSK	H	211	218	1 / 49	14.43	9.82	24.25	0.266	33.01	-8.76
2685.00	10	16-QAM	H	211	218	1 / 49	12.99	9.82	22.81	0.191	33.01	-10.20
2685.00	10	64-QAM	H	211	218	1 / 49	12.53	9.82	22.35	0.172	33.01	-10.66
2503.50	15	QPSK	H	215	225	1 / 74	12.39	9.43	21.82	0.152	33.01	-11.19
2593.00	15	QPSK	H	204	225	1 / 74	13.45	9.55	23.00	0.200	33.01	-10.01
2682.50	15	QPSK	H	214	221	1 / 74	14.23	9.83	24.06	0.255	33.01	-8.95
2682.50	15	16-QAM	H	214	221	1 / 74	12.90	9.83	22.73	0.187	33.01	-10.28
2682.50	15	64-QAM	H	215	223	1 / 74	12.48	9.83	22.31	0.170	33.01	-10.70
2506.00	20	QPSK	H	211	225	1 / 99	12.28	9.42	21.70	0.148	33.01	-11.31
2593.00	20	QPSK	H	204	227	1 / 99	13.41	9.55	22.96	0.198	33.01	-10.05
2680.00	20	QPSK	H	217	226	1 / 99	14.26	9.83	24.09	0.257	33.01	-8.92
2680.00	20	16-QAM	H	217	226	1 / 99	13.11	9.83	22.94	0.197	33.01	-10.07
2680.00	20	64-QAM	H	217	226	1 / 99	12.54	9.83	22.37	0.173	33.01	-10.64
2685.00	10	QPSK	V	315	272	1 / 49	13.87	9.68	23.55	0.226	33.01	-9.46

Table 7-15. EIRP Data (Band 41 – PC3)

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7.8 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 $\geq 3 \times$ 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

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Test Setup

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

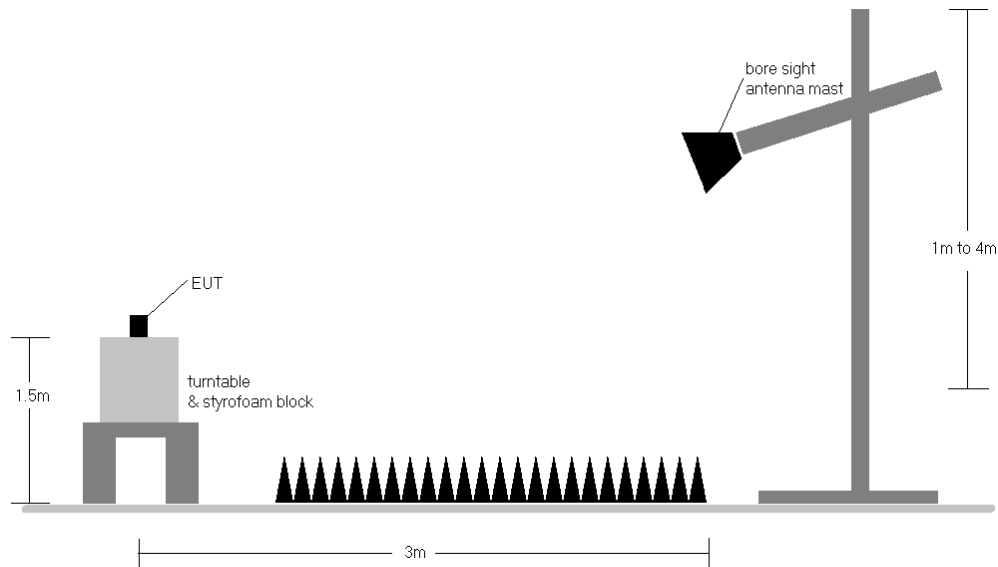


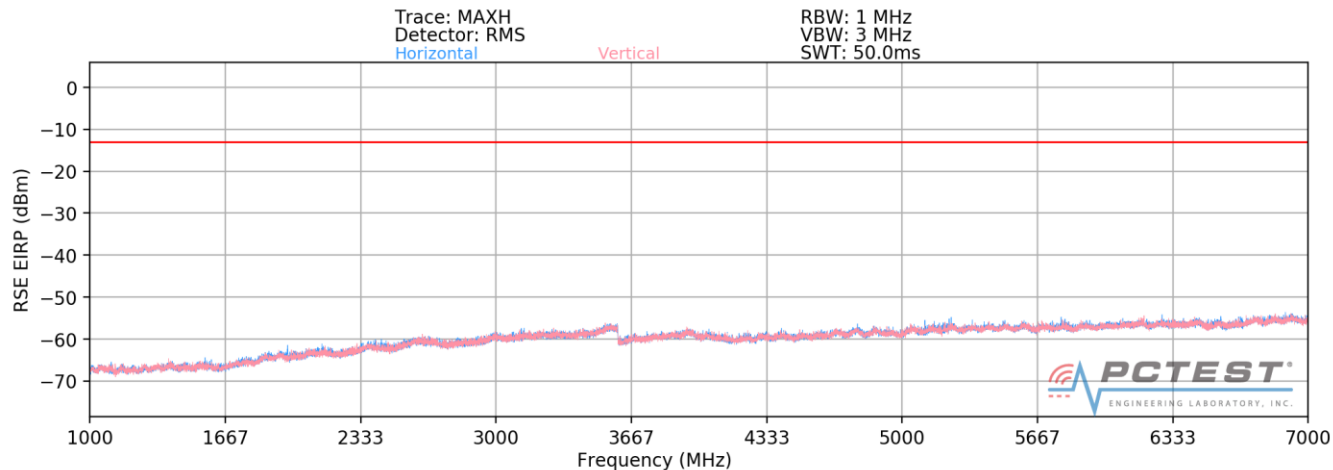
Figure 7-8. Test Instrument & Measurement Setup

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 71



Plot 7-346. Radiated Spurious Plot above 1GHz (Band 71)

OPERATING FREQUENCY: 673.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 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]
1346.00	V	145	43	-65.63	3.15	-62.47	-49.5
2019.00	V	152	31	-62.63	3.52	-59.10	-46.1
2692.00	V	105	59	-63.49	4.77	-58.72	-45.7
3365.00	V	102	55	-63.28	6.00	-57.28	-44.3
4038.00	V	108	99	-65.49	7.43	-58.06	-45.1

Table 7-16. Radiated Spurious Data (Band 71 – Low Channel)

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet			Page 212 of 252

OPERATING FREQUENCY: 680.50 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 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]
1361.00	V	105	29	-49.80	3.04	-46.76	-33.8
2041.50	V	188	30	-62.88	3.49	-59.40	-46.4
2722.00	V	146	43	-62.89	4.83	-58.06	-45.1
3402.50	V	122	68	-61.25	6.16	-55.09	-42.1
4083.00	V	100	40	-63.17	7.51	-55.65	-42.7
4763.50	V	135	121	-66.13	8.48	-57.65	-44.7

Table 7-17. Radiated Spurious Data (Band 71 – Mid Channel)

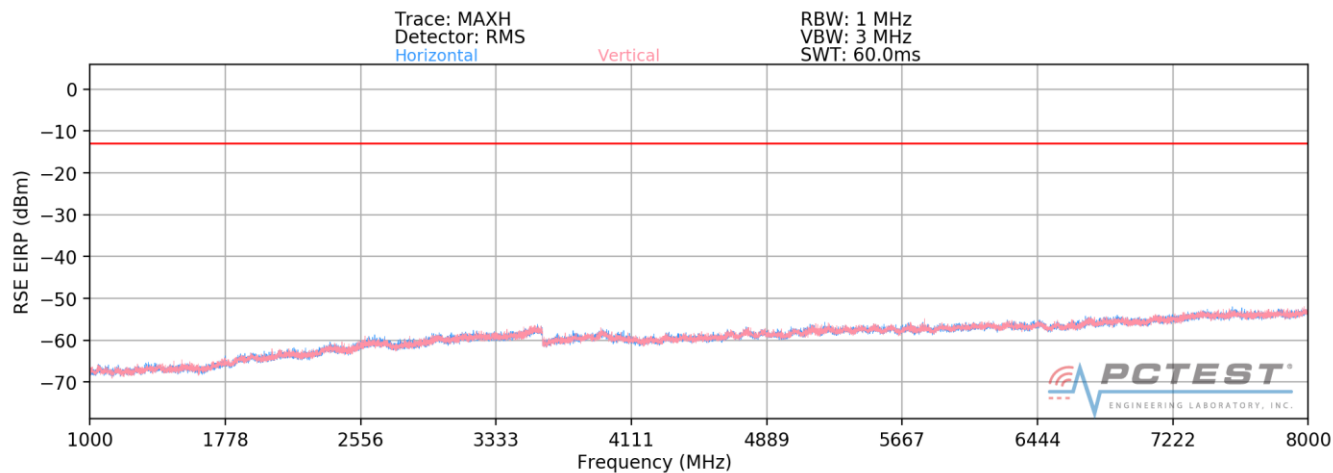
OPERATING FREQUENCY: 688.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1376.00	V	102	26	-50.46	2.88	-47.58	-34.6
2064.00	V	171	36	-63.93	3.50	-60.43	-47.4
2752.00	V	110	77	-62.87	4.88	-57.99	-45.0
3440.00	V	119	59	-63.28	6.22	-57.07	-44.1
4128.00	V	108	44	-65.28	7.61	-57.66	-44.7

Table 7-18. Radiated Spurious Data (Band 71 – High Channel)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 213 of 252

Band 12/17



Plot 7-347. Radiated Spurious Plot above 1GHz (Band 12/17)

OPERATING FREQUENCY: 704.00 MHz
 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]
1408.00	H	186	41	-44.56	7.61	-36.96	-24.0
2112.00	H	310	53	-65.36	8.86	-56.50	-43.5
2816.00	H	112	316	-63.86	10.10	-53.76	-40.8
3520.00	H	123	25	-66.63	9.90	-56.73	-43.7
4224.00	H	178	299	-65.55	10.56	-54.99	-42.0
4928.00	H	117	289	-72.79	10.90	-61.89	-48.9
5632.00	H	126	290	-71.58	11.21	-60.37	-47.4
6336.00	H	-	-	-72.54	11.79	-60.75	-47.8

Table 7-19. Radiated Spurious Data (Band 12/17 – Low Channel)

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 214 of 252

OPERATING FREQUENCY: 707.50 MHz
 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]
1415.00	H	331	40	-45.23	7.70	-37.54	-24.5
2122.50	H	143	47	-65.28	8.87	-56.41	-43.4
2830.00	H	124	321	-65.20	10.08	-55.12	-42.1
3537.50	H	136	23	-68.36	9.89	-58.47	-45.5
4245.00	H	161	291	-68.57	10.63	-57.94	-44.9
4952.50	H	111	318	-73.24	10.92	-62.31	-49.3
5660.00	H	116	293	-72.03	11.27	-60.76	-47.8
6367.50	H	-	-	-72.95	11.87	-61.08	-48.1

Table 7-20. Radiated Spurious Data (Band 12/17 – Mid Channel)

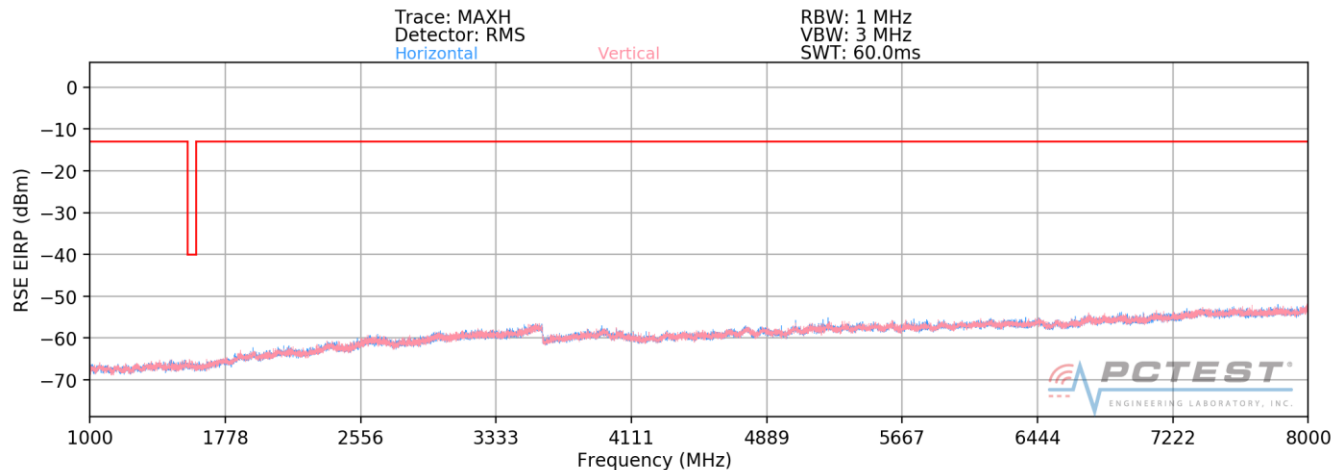
OPERATING FREQUENCY: 711.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1422.00	H	333	38	-43.21	7.79	-35.42	-22.4
2133.00	H	117	58	-63.26	8.88	-54.38	-41.4
2844.00	H	119	328	-61.70	10.05	-51.65	-38.6
3555.00	H	123	22	-64.93	9.92	-55.01	-42.0
4266.00	H	182	296	-64.59	10.69	-53.90	-40.9
4977.00	H	136	318	-71.93	10.93	-60.99	-48.0
5688.00	H	112	302	-71.38	11.33	-60.05	-47.0
6399.00	H	-	-	-72.62	11.97	-60.65	-47.6

Table 7-21. Radiated Spurious Data (Band 12/17 – High Channel)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 13



Plot 7-348. Radiated Spurious Plot above 1GHz (Band 13)

OPERATING FREQUENCY: 782.00 MHz
 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	269	61	-61.51	4.00	-57.50	-44.5
3128.00	H	-	-	-70.41	5.38	-65.03	-52.0
3910.00	H	-	-	-72.41	7.09	-65.32	-52.3

Table 7-22. Radiated Spurious Data (Band 13 – Mid Channel)

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 216 of 252

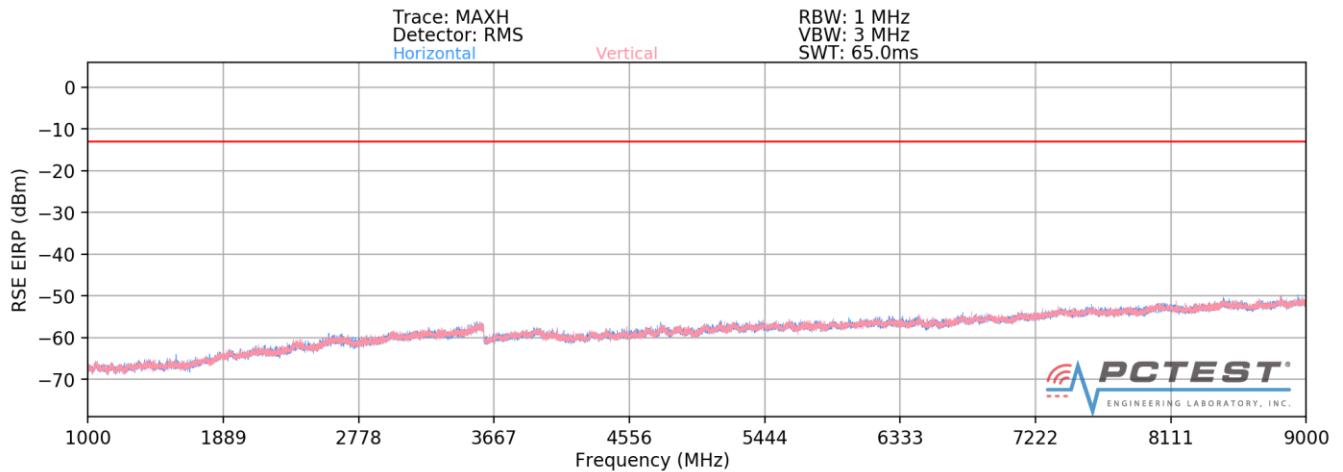
MODULATION SIGNAL:	QPSK	
BANDWIDTH:	10.00	MHz
DISTANCE:	3	meters
NARROWBAND EMISSION LIMIT:	-50	dBm
WIDEBAND EMISSION LIMIT:	-40	dBm/MHz

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	285	344	-69.68	3.53	-66.15	-26.2

Table 7-23. Radiated Spurious Data (Band 13 – 1559-1610MHz Band)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 217 of 252

Band 26/5



Plot 7-349. Radiated Spurious Plot above 1GHz (Band 26/5)

OPERATING FREQUENCY: 824.70 MHz
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]
1649.40	V	384	262	-68.77	3.61	-65.16	-52.2
2474.10	V	338	340	-59.47	4.26	-55.20	-42.2
3298.80	V	-	-	-67.75	5.86	-61.89	-48.9
4123.50	V	-	-	-69.72	7.68	-62.04	-49.0

Table 7-24. Radiated Spurious Data (Band 26/5 – Low Channel)

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 218 of 252

OPERATING FREQUENCY: 836.50 MHz
 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]
1673.00	V	387	272	-67.98	3.62	-64.36	-51.4
2509.50	V	340	341	-60.12	4.33	-55.79	-42.8
3346.00	V	-	-	-67.97	5.92	-62.05	-49.0
4182.50	V	-	-	-69.50	7.69	-61.81	-48.8

Table 7-25. Radiated Spurious Data (Band 26/5 – Mid Channel)

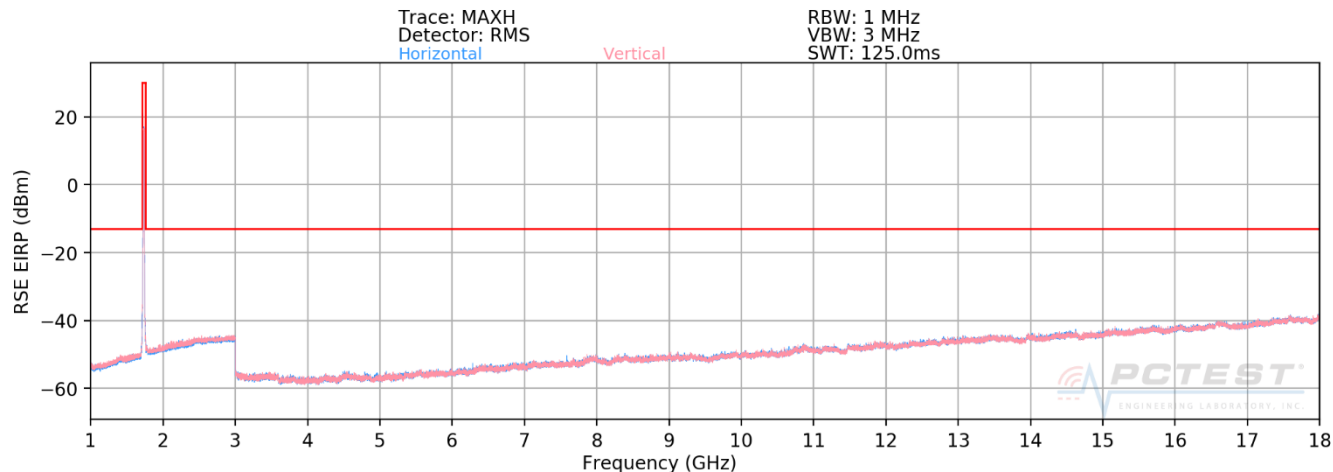
OPERATING FREQUENCY: 848.30 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 1.4 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
1696.60	V	147	301	-64.85	3.62	-61.23	-48.2
2544.90	V	333	339	-59.05	4.42	-54.63	-41.6
3393.20	V	-	-	-67.83	6.00	-61.82	-48.8
4241.50	V	-	-	-69.49	7.72	-61.77	-48.8

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

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 219 of 252

Band 66/4



Plot 7-350. Radiated Spurious Plot above 1GHz (Band 66/4)

OPERATING FREQUENCY: 1720.00 MHz
MODULATION SIGNAL: QPSK
BANDWIDTH: 20.0 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]
3440.00	V	231	174	-65.66	6.22	-59.44	-46.4
5160.00	V	100	113	-55.75	8.68	-47.07	-34.1
6880.00	V	105	102	-61.22	8.76	-52.47	-39.5
8600.00	V	100	64	-51.09	9.17	-41.92	-28.9
10320.00	V	-	-	-61.61	9.64	-51.97	-39.0
12040.00	V	-	-	-57.42	9.23	-48.18	-35.2

Table 7-27. Radiated Spurious Data (Band 66/4 – Low Channel)

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet			Page 220 of 252

OPERATING FREQUENCY: 1745.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 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	V	395	86	-65.53	6.27	-59.27	-46.3
5235.00	V	100	106	-55.60	8.71	-46.89	-33.9
6980.00	V	102	108	-61.44	8.72	-52.72	-39.7
8725.00	V	102	64	-55.05	9.27	-45.78	-32.8
10470.00	V	-	-	-61.17	9.61	-51.56	-38.6
12215.00	V	-	-	-56.63	9.16	-47.46	-34.5

Table 7-28. Radiated Spurious Data (Band 66/4 – Mid Channel)

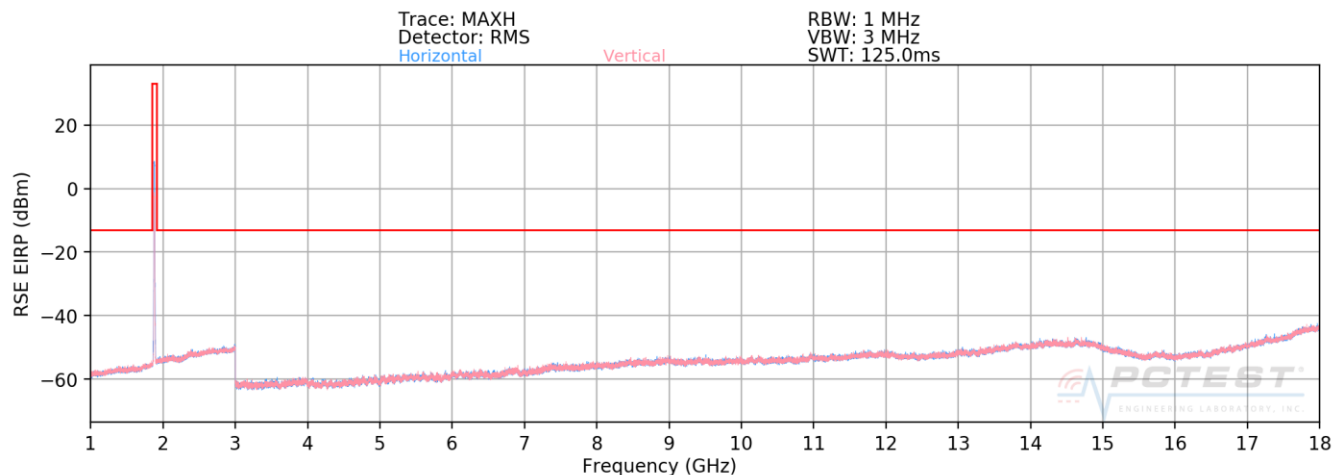
OPERATING FREQUENCY: 1770.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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]
3540.00	V	-	-	-65.27	6.32	-58.95	-45.9
5310.00	V	325	46	-66.00	8.71	-57.28	-44.3
7080.00	V	116	105	-61.42	8.74	-52.68	-39.7
8850.00	V	105	67	-55.62	9.42	-46.21	-33.2
10620.00	V	-	-	-61.24	9.62	-51.62	-38.6
12390.00	V	-	-	-57.33	9.09	-48.25	-35.2

Table 7-29. Radiated Spurious Data (Band 66/4 – High Channel)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 221 of 252

Band 25/2



Plot 7-351. Radiated Spurious Plot above 1GHz (Band 25/2)

OPERATING FREQUENCY: 1850.70 MHz
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	V	-	-	-68.60	6.58	-62.02	-49.0
5552.10	V	133	98	-64.44	8.74	-55.71	-42.7
7402.80	V	102	97	-64.08	8.41	-55.67	-42.7
9253.50	V	-	-	-63.91	9.33	-54.58	-41.6
11104.20	V	-	-	-62.69	9.32	-53.37	-40.4

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

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet			Page 222 of 252

OPERATING FREQUENCY: 1882.50 MHz
 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	V	-	-	-68.73	6.70	-62.03	-49.0
5647.50	V	102	18	-62.12	8.83	-53.30	-40.3
7530.00	V	-	-	-63.82	8.46	-55.36	-42.4
9412.50	V	-	-	-63.83	9.32	-54.51	-41.5

Table 7-31. Radiated Spurious Data (Band 25/2 – Mid Channel)

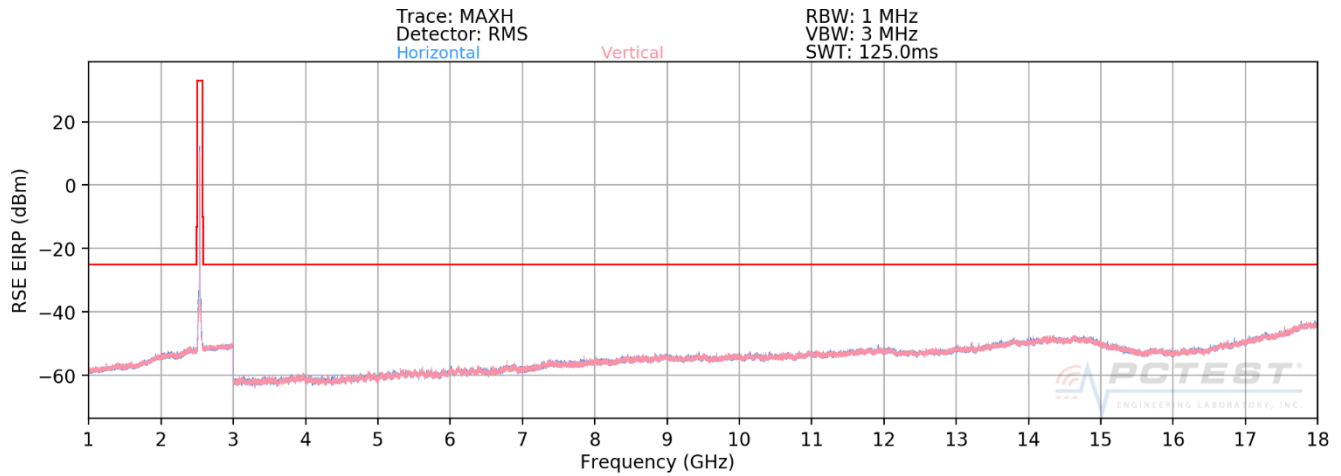
OPERATING FREQUENCY: 1914.30 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 1.4 MHz
 DISTANCE: 3 meters
 LIMIT: -13 dBm

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	V	-	-	-68.27	6.94	-61.33	-48.3
5742.90	V	105	12	-57.40	8.77	-48.64	-35.6
7657.20	V	-	-	-65.34	8.51	-56.84	-43.8
9571.50	V	-	-	-65.57	9.40	-56.17	-43.2

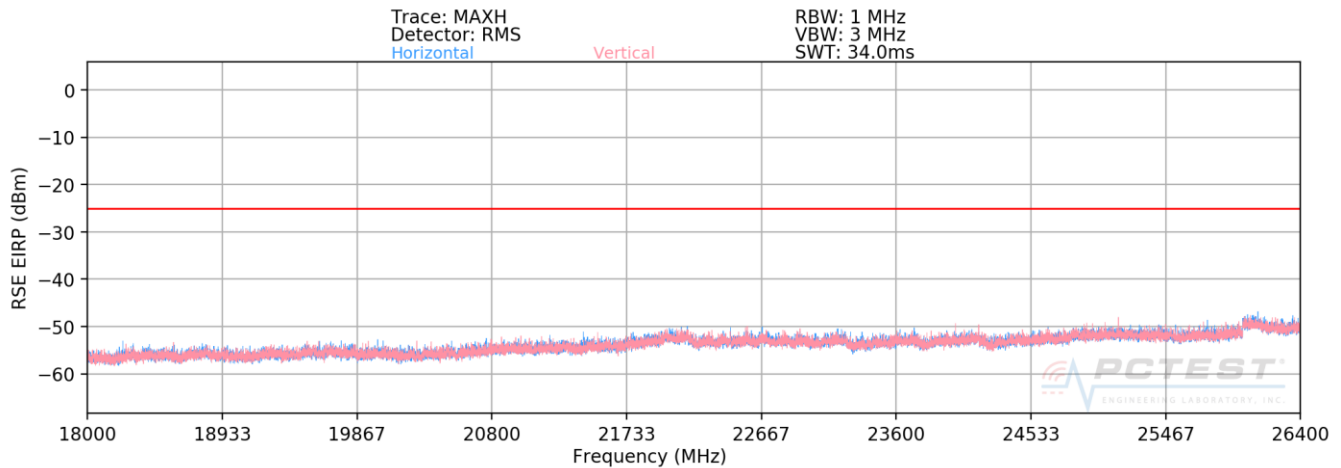
Table 7-32. Radiated Spurious Data (Band 25/2 – High Channel)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 223 of 252

Band 7



Plot 7-352. Radiated Spurious Plot 1GHz - 18GHz (Band 7)



Plot 7-353. Radiated Spurious Plot 18GHz - 26.5GHz (Band 7)

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 - 9/14/2019	EUT Type: Portable Tablet		Page 224 of 252

OPERATING FREQUENCY: 2510.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 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]
5020.00	V	128	93	-71.46	10.88	-60.57	-35.6
7530.00	V	112	40	-62.69	11.13	-51.56	-26.6
10040.00	V	117	276	-52.28	11.99	-40.29	-15.3
12550.00	V	112	267	-51.31	13.56	-37.75	-12.7
15060.00	V	137	257	-64.09	13.58	-50.51	-25.5
17570.00	V	-	-	-59.15	11.59	-47.56	-22.6

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

OPERATING FREQUENCY: 2535.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 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]
5070.00	V	397	94	-71.13	10.75	-60.38	-35.4
7605.00	V	386	270	-66.82	11.25	-55.57	-30.6
10140.00	V	112	279	-58.96	12.07	-46.89	-21.9
12675.00	V	317	292	-60.19	13.66	-46.53	-21.5
15210.00	V	-	-	-67.01	14.71	-52.30	-27.3

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

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 225 of 252

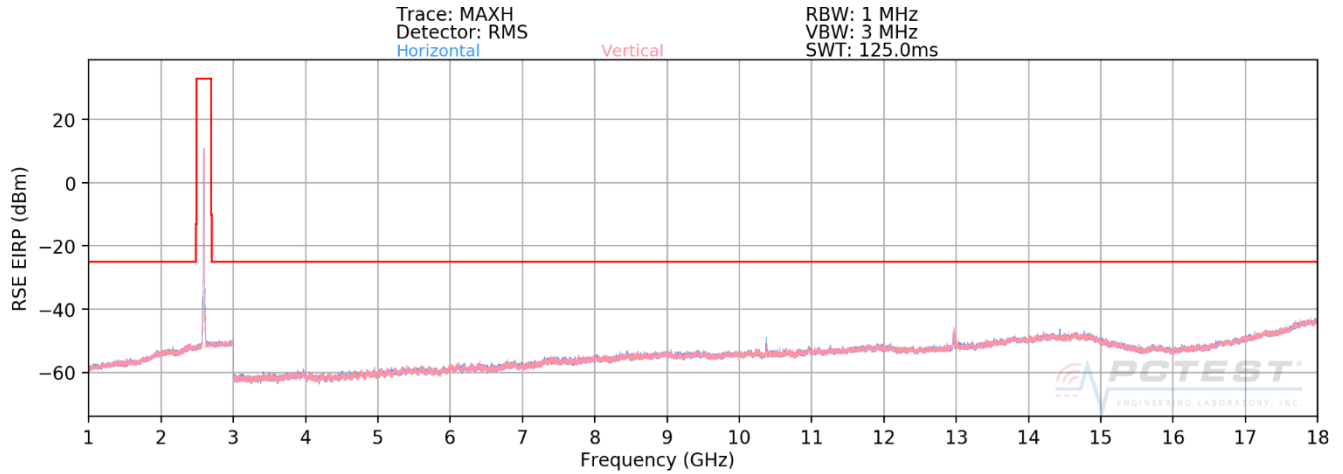
OPERATING FREQUENCY: 2560.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 MHz
 DISTANCE: 3 meters
 LIMIT: -25 dBm

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]
5120.00	V	188	26	-63.70	10.68	-53.01	-28.0
7680.00	V	117	38	-63.05	11.39	-51.66	-26.7
10240.00	V	112	207	-56.72	12.18	-44.54	-19.5
12800.00	V	111	161	-55.52	13.50	-42.02	-17.0
15360.00	V	-	-	-68.34	15.29	-53.05	-28.1

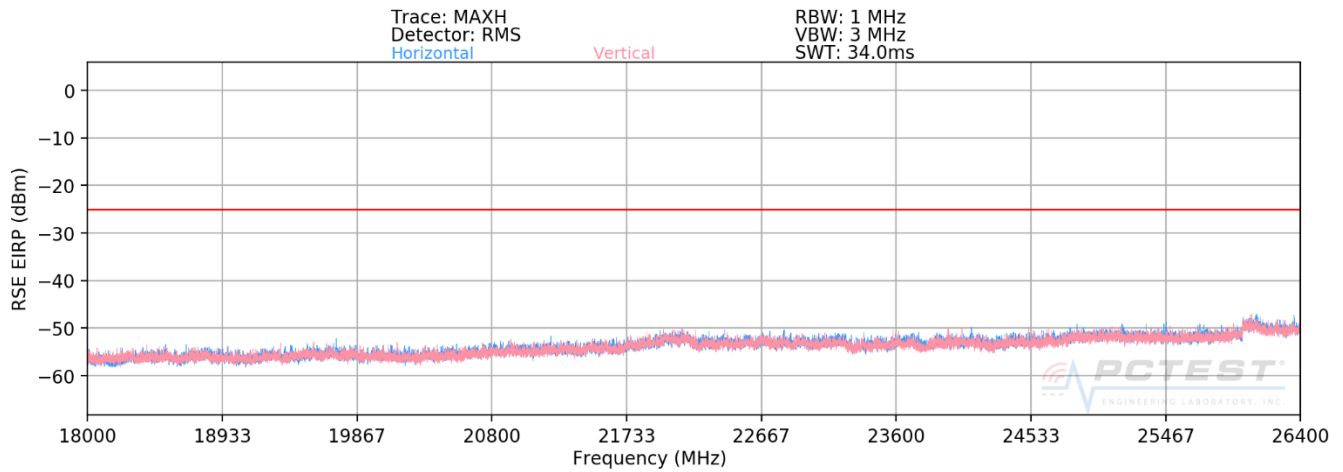
Table 7-35. Radiated Spurious Data (Band 7 – High Channel)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 226 of 252

Band 41 (PC2)



Plot 7-354. Radiated Spurious Plot 1GHz - 18GHz (Band 41 (PC2))



Plot 7-355. Radiated Spurious Plot 18GHz – 26.5GHz (Band 41 (PC2))

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 227 of 252

OPERATING FREQUENCY: 2510.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 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]
5020.00	H	305	18	-60.28	10.88	-49.39	-24.4
7530.00	H	113	85	-53.24	11.13	-42.11	-17.1
10040.00	H	238	29	-40.63	11.99	-28.64	-3.6
12550.00	H	214	358	-42.90	13.56	-29.34	-4.3
15060.00	H	292	29	-53.41	13.58	-39.83	-14.8
17570.00	H	-	-	-57.86	11.59	-46.27	-21.3

Table 7-36. Radiated Spurious Data (Band 41 – Low Channel)

OPERATING FREQUENCY: 2593.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 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	105	222	-58.25	10.74	-47.51	-22.5
7779.00	H	153	294	-51.89	11.44	-40.45	-15.4
10372.00	H	215	4	-41.64	12.42	-29.21	-4.2
12965.00	H	193	1	-42.22	13.29	-28.92	-3.9
15558.00	H	126	297	-66.17	16.33	-49.84	-24.8

Table 7-37. Radiated Spurious Data (Band 41 – Mid Channel)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 228 of 252

OPERATING FREQUENCY: 2680.00 MHz
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 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]
5360.00	H	124	325	-62.27	10.70	-51.57	-26.6
8040.00	H	191	312	-45.99	11.16	-34.83	-9.8
10720.00	H	220	17	-42.96	12.59	-30.37	-5.4
13400.00	H	175	353	-43.31	12.59	-30.71	-5.7
16080.00	H	167	331	-67.73	16.68	-51.05	-26.0

Table 7-38. Radiated Spurious Data (Band 41 – High Channel)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 229 of 252

7.9 Uplink Carrier Aggregation Radiated Measurements

§2.1053, §27.53(m)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 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 peak 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 v02r02 – Section 5.8

ANSI/TIA-603-D-2010 – 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. No. of sweep points $\geq 2 \times$ span / RBW
4. Detector = RMS
5. Trace mode = trace average for continuous emissions, max hold for pulse emissions
6. The trace was allowed to stabilize

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 230 of 252

Test Setup

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

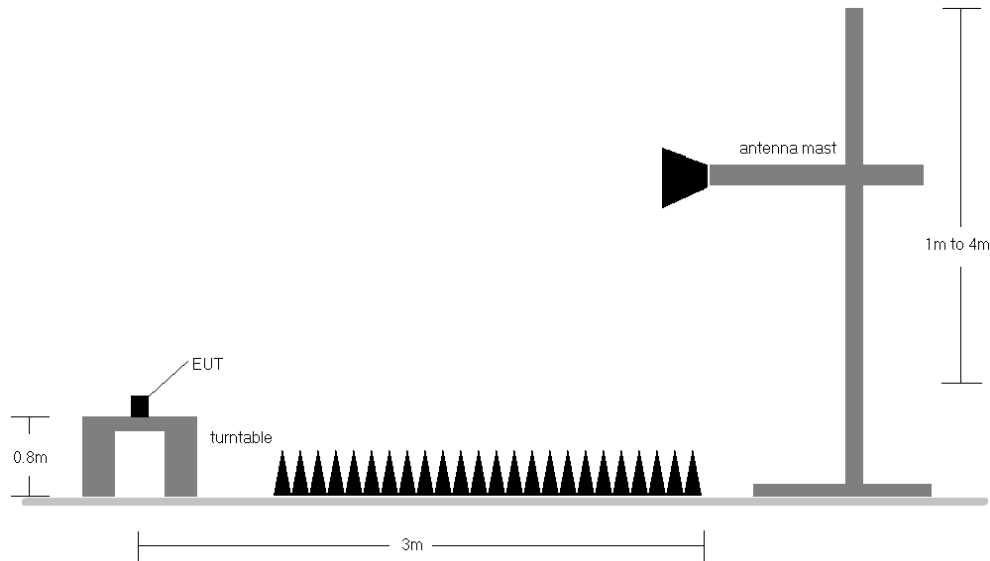


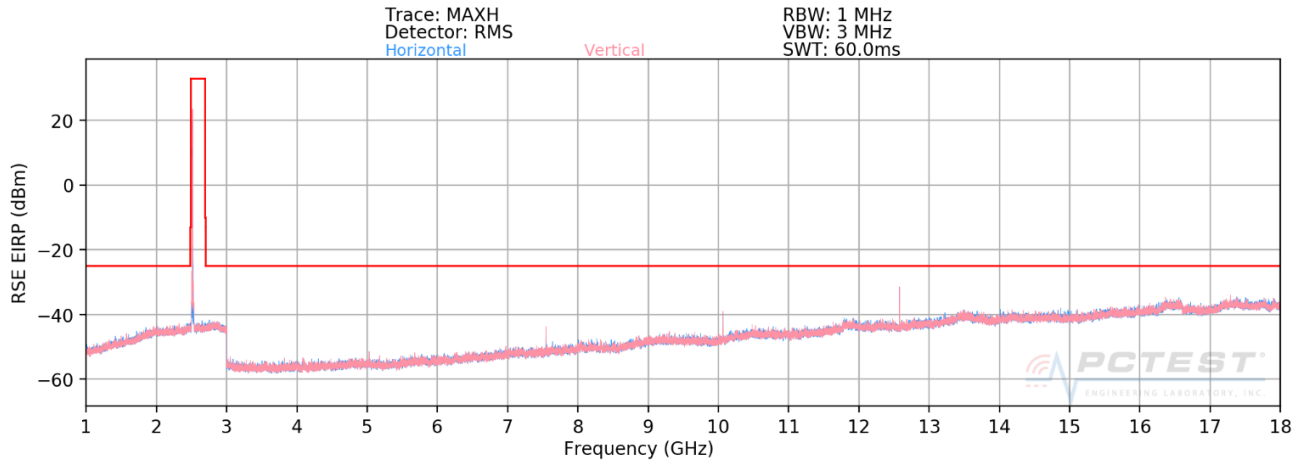
Figure 7-9. Test Instrument & Measurement Setup

Test Notes

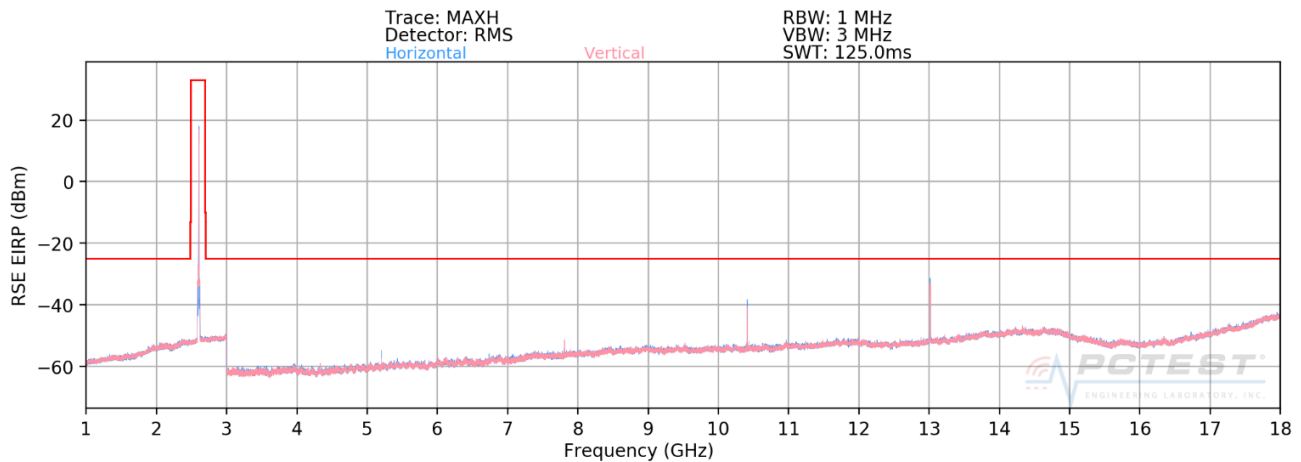
- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) Radiated spurious emissions measurements were evaluated for the two contiguous channels using various combinations of RB size, RB offset, modulation, and channel bandwidth. The worst case (highest) emissions were found while operating with QPSK modulation with both carriers set to transmit using 1RB.
- 4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 5) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 6) No significant emissions were found as a result of two uplink carriers operating contiguously.

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 231 of 252

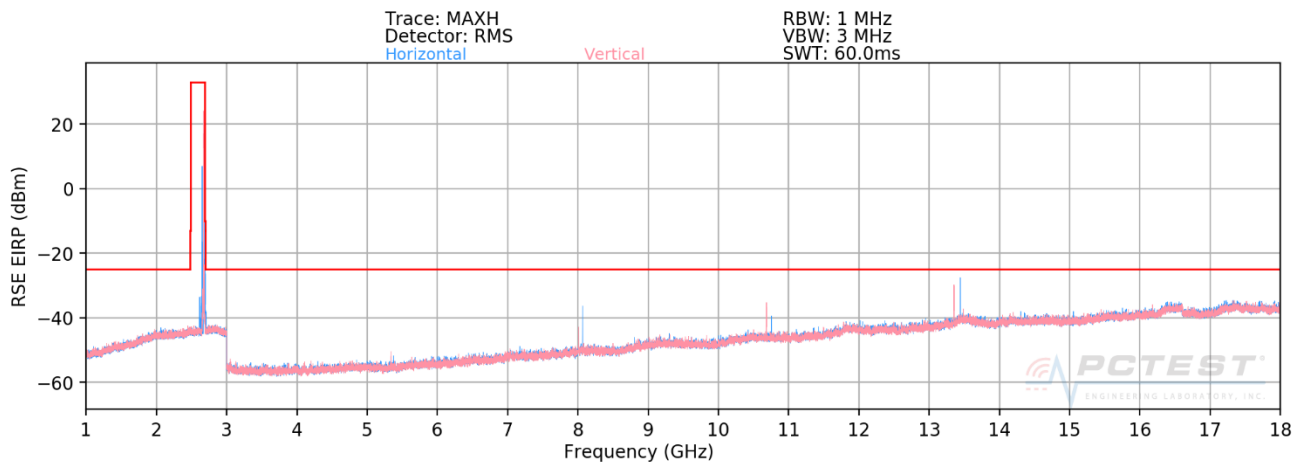
ULCA Band 41 (PC3)



Plot 7-356. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 (PC3) Low Channel – PCC/SCC: 1RB)

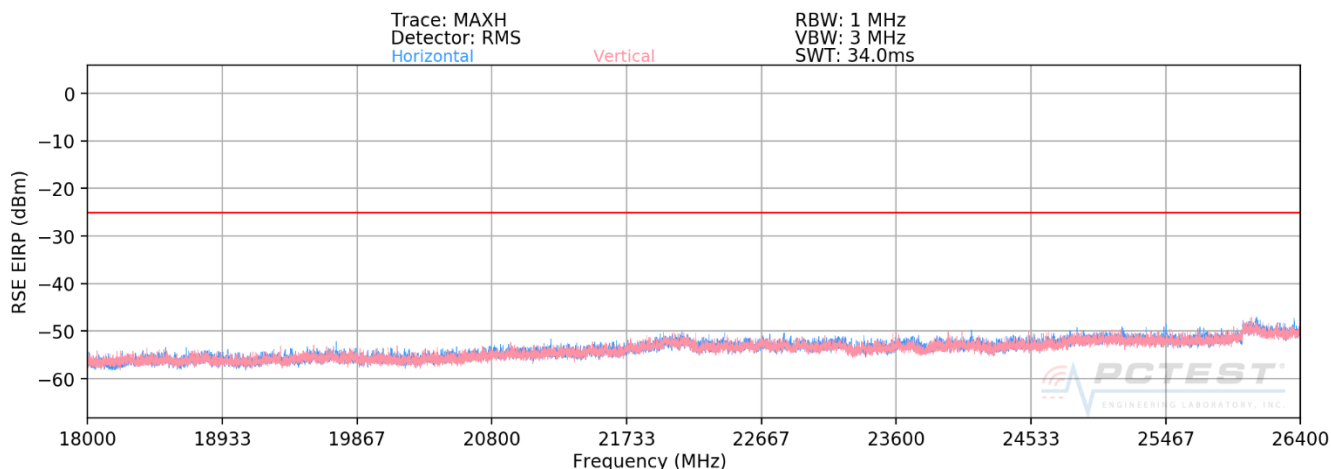


Plot 7-357. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 (PC3) Mid Channel – PCC/SCC: 1RB)



Plot 7-358. Radiated Spurious Plot 1GHz - 18GHz (ULCA Band 41 (PC3) High Channel – PCC/SCC: 1RB)

FCC ID: A3LSMT547U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)		SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet			Page 232 of 252



Plot 7-359. Radiated Spurious Plot 18GHz – 26.5GHz (ULCA Band 41 (PC2))

OPERATING FREQUENCY (PCC): 2506.00 MHz
 OPERATING FREQUENCY (SCC): 2525.80 MHz
 CHANNEL (PCC): 39750
 CHANNEL (SCC): 39948
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 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]
5012.00	H	200	334	-65.23	10.90	-54.32	-29.3
7518.00	H	393	355	-63.16	11.11	-52.06	-27.1
10024.00	H	148	31	-56.74	11.99	-44.74	-19.7
12530.00	H	271	294	-52.33	13.56	-38.77	-13.8
15036.00	H	202	321	-62.06	13.51	-48.55	-23.5
17542.00	H	-	-	-57.97	11.69	-46.29	-21.3

Table 7-39. Radiated Spurious Data (ULCA B41 (PC2) PCC:RB 1 Offset 99, SCC:RB 1 Offset 0 – Low Channel)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 233 of 252

OPERATING FREQUENCY (PCC): 2593.00 MHz
 OPERATING FREQUENCY (SCC): 2612.80 MHz
 CHANNEL (PCC): 40620
 CHANNEL (SCC): 40818
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 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	274	317	-62.76	10.74	-52.02	-27.0
7779.00	H	166	108	-65.01	11.44	-53.57	-28.6
10372.00	H	143	19	-48.38	12.42	-35.95	-11.0
12965.00	H	189	292	-45.42	13.29	-32.12	-7.1
15558.00	H	-	-	-68.56	16.33	-52.23	-27.2

Table 7-40. Radiated Spurious Data (ULCA B41 (PC2) PCC:RB 1 Offset 99, SCC:RB 1 Offset 0 – Mid Channel)

OPERATING FREQUENCY (PCC): 2680.00 MHz
 OPERATING FREQUENCY (SCC): 2660.20 MHz
 CHANNEL (PCC): 41490
 CHANNEL (SCC): 41292
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 20.0 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]
5360.00	H	178	330	-60.48	10.70	-49.78	-24.8
8040.00	H	137	39	-58.68	11.16	-47.52	-22.5
10720.00	H	125	328	-50.40	12.59	-37.81	-12.8
13400.00	H	215	33	-42.56	12.59	-29.96	-5.0
16080.00	H	-	-	-68.70	16.68	-52.02	-27.0

Table 7-41. Radiated Spurious Data (ULCA B41 (PC2) PCC:RB 1 Offset 99, SCC:RB 1 Offset 0 – High Channel)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 234 of 252

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 $\pm 0.00025\%$ (± 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: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 235 of 252

Band 71 Frequency Stability Measurements

OPERATING FREQUENCY: 680,500,000 Hz
 CHANNEL: 133372
 REFERENCE VOLTAGE: 4.12 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.12	- 30	680,499,935	-65	-0.0000096
100 %		- 20	680,499,859	-141	-0.0000207
100 %		- 10	680,499,530	-470	-0.0000691
100 %		0	680,500,205	205	0.0000301
100 %		+ 10	680,500,158	158	0.0000232
100 %		+ 20	680,499,956	-44	-0.0000065
100 %		+ 30	680,499,963	-37	-0.0000054
100 %		+ 40	680,499,671	-329	-0.0000483
100 %		+ 50	680,500,234	234	0.0000344
BATT. ENDPOINT	3.80	+ 20	680,499,906	-94	-0.0000138

Table 7-42. Frequency Stability Data (Band 71)

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: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet	Page 236 of 252

Band 71 Frequency Stability Measurements

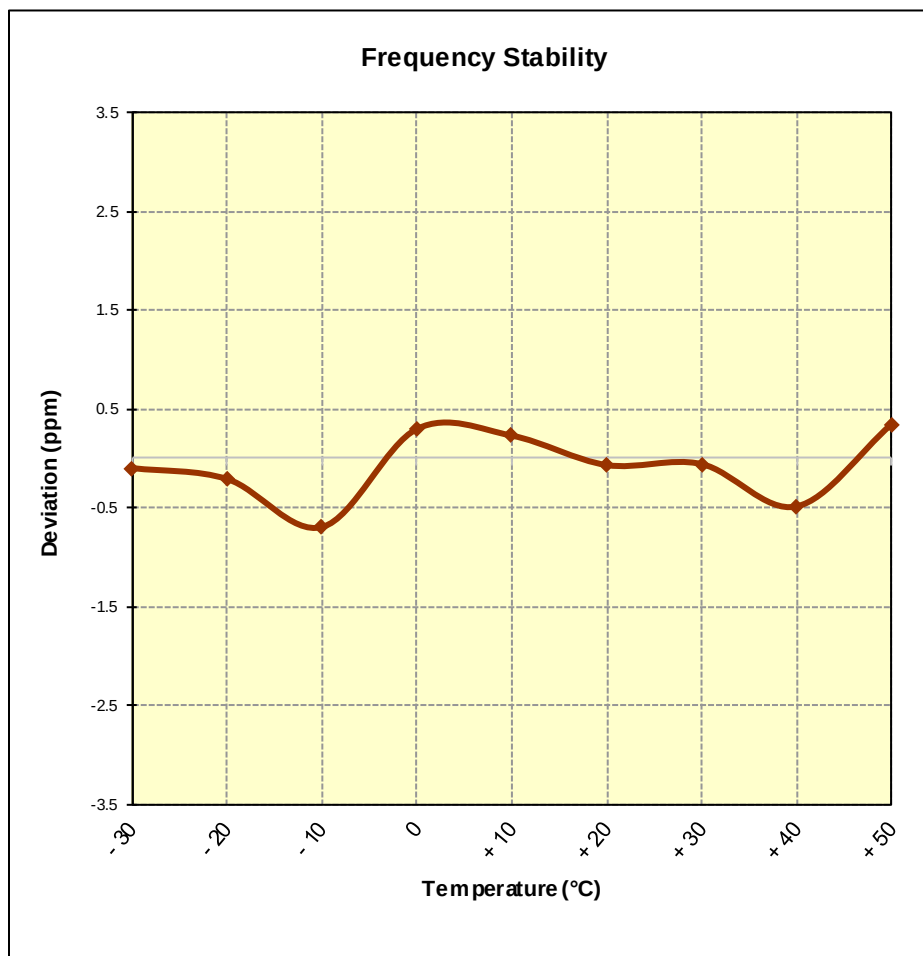


Figure 7-10. Frequency Stability Graph (Band 71)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 237 of 252

Band 12/17 Frequency Stability Measurements

OPERATING FREQUENCY: 707,500,000 Hz
 CHANNEL: 23790
 REFERENCE VOLTAGE: 4.12 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.12	- 30	707,500,402	402	0.0000568
100 %		- 20	707,500,034	34	0.0000048
100 %		- 10	707,499,942	-58	-0.0000082
100 %		0	707,499,896	-104	-0.0000147
100 %		+ 10	707,499,854	-146	-0.0000206
100 %		+ 20	707,499,575	-425	-0.0000601
100 %		+ 30	707,499,749	-251	-0.0000355
100 %		+ 40	707,499,994	-6	-0.0000008
100 %		+ 50	707,500,248	248	0.0000351
BATT. ENDPOINT	3.80	+ 20	707,500,089	89	0.0000126

Table 7-43. 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: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet	Page 238 of 252

Band 12/17 Frequency Stability Measurements

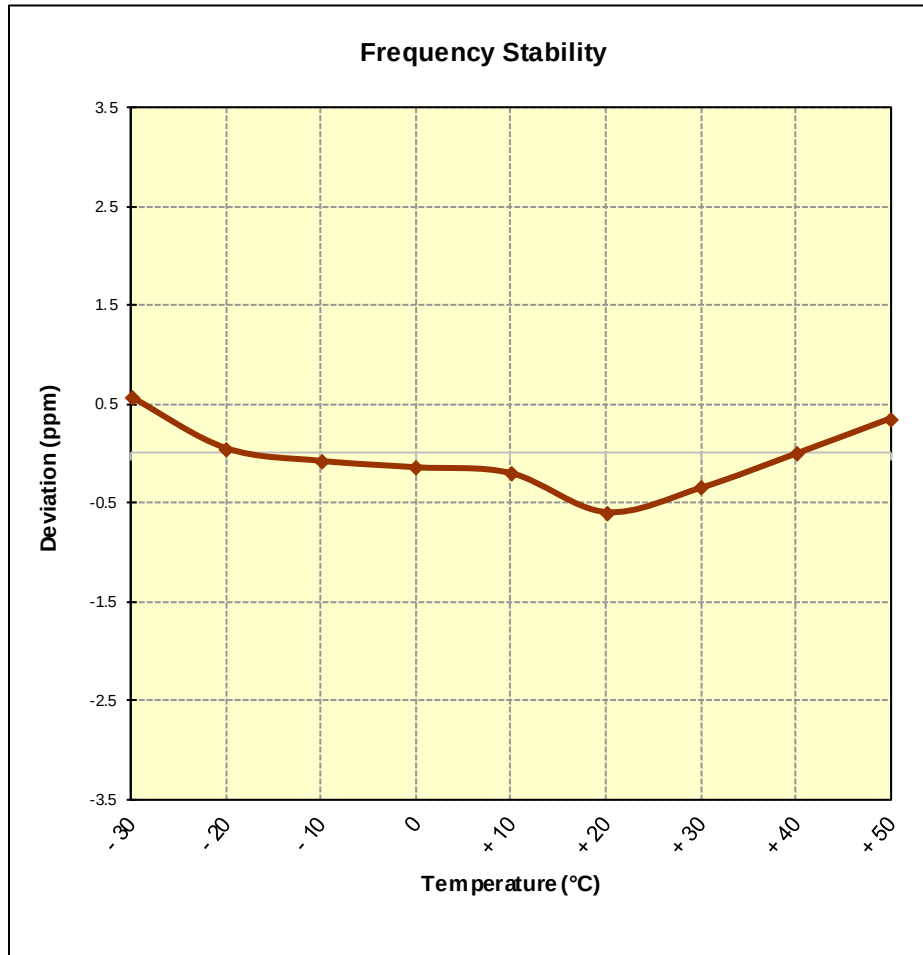


Figure 7-11. Frequency Stability Graph (Band 12/17)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1908150142-03.A3L	Test Dates: 8/15 – 9/14/2019	EUT Type: Portable Tablet		Page 239 of 252

Band 13 Frequency Stability Measurements

OPERATING FREQUENCY: 782,000,000 Hz
 CHANNEL: 23230
 REFERENCE VOLTAGE: 4.12 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.12	- 30	782,000,106	106	0.0000136
100 %		- 20	781,999,956	-44	-0.0000056
100 %		- 10	781,999,789	-211	-0.0000270
100 %		0	781,999,878	-122	-0.0000156
100 %		+ 10	781,999,980	-20	-0.0000026
100 %		+ 20	782,000,077	77	0.0000098
100 %		+ 30	781,999,951	-49	-0.0000063
100 %		+ 40	781,999,909	-91	-0.0000116
100 %		+ 50	782,000,052	52	0.0000066
BATT. ENDPOINT	3.80	+ 20	782,000,287	287	0.0000367

Table 7-44. 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: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 13 Frequency Stability Measurements

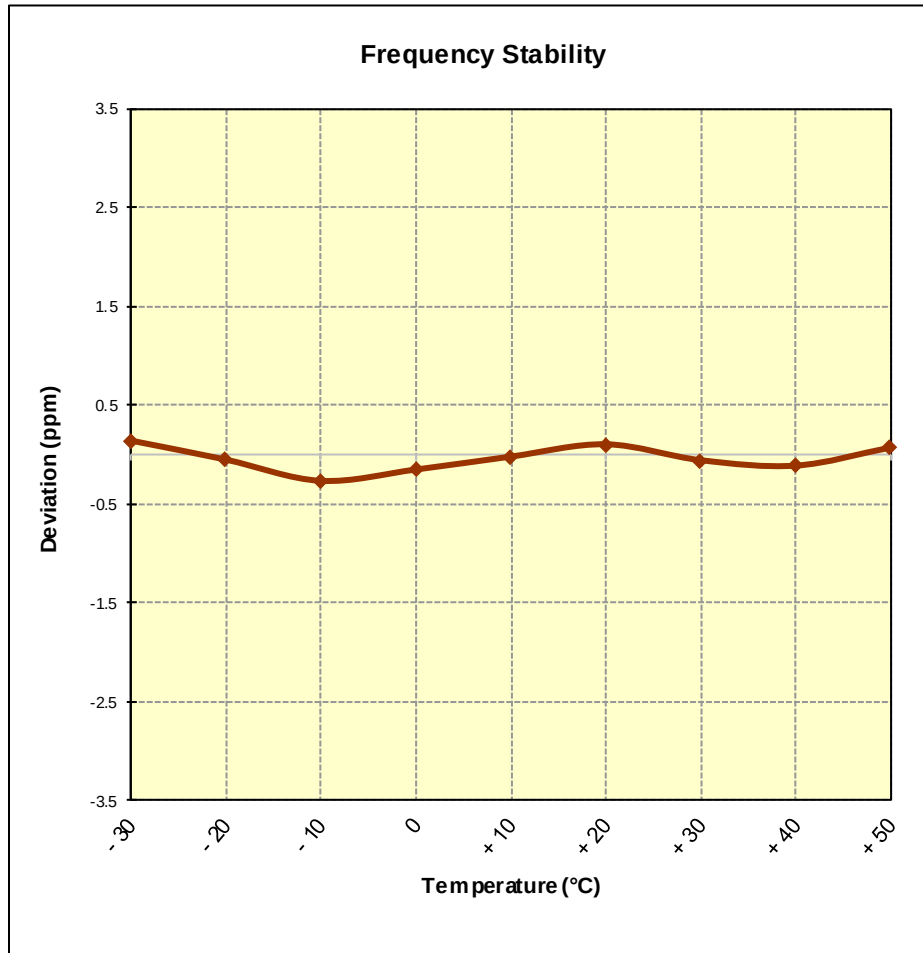


Figure 7-12. Frequency Stability Graph (Band 13)

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 26/5 Frequency Stability Measurements

OPERATING FREQUENCY: 831,500,000 Hz
 CHANNEL: 26865
 REFERENCE VOLTAGE: 4.12 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.12	- 30	831,499,907	-93	-0.0000112
100 %		- 20	831,500,207	207	0.0000249
100 %		- 10	831,500,089	89	0.0000107
100 %		0	831,499,766	-234	-0.0000281
100 %		+ 10	831,500,004	4	0.0000005
100 %		+ 20	831,500,115	115	0.0000138
100 %		+ 30	831,499,985	-15	-0.0000018
100 %		+ 40	831,500,016	16	0.0000019
100 %		+ 50	831,499,699	-301	-0.0000362
BATT. ENDPOINT		+ 20	831,500,114	114	0.0000137

Table 7-45. Frequency Stability Data (Band 26/5)

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 26/5 Frequency Stability Measurements

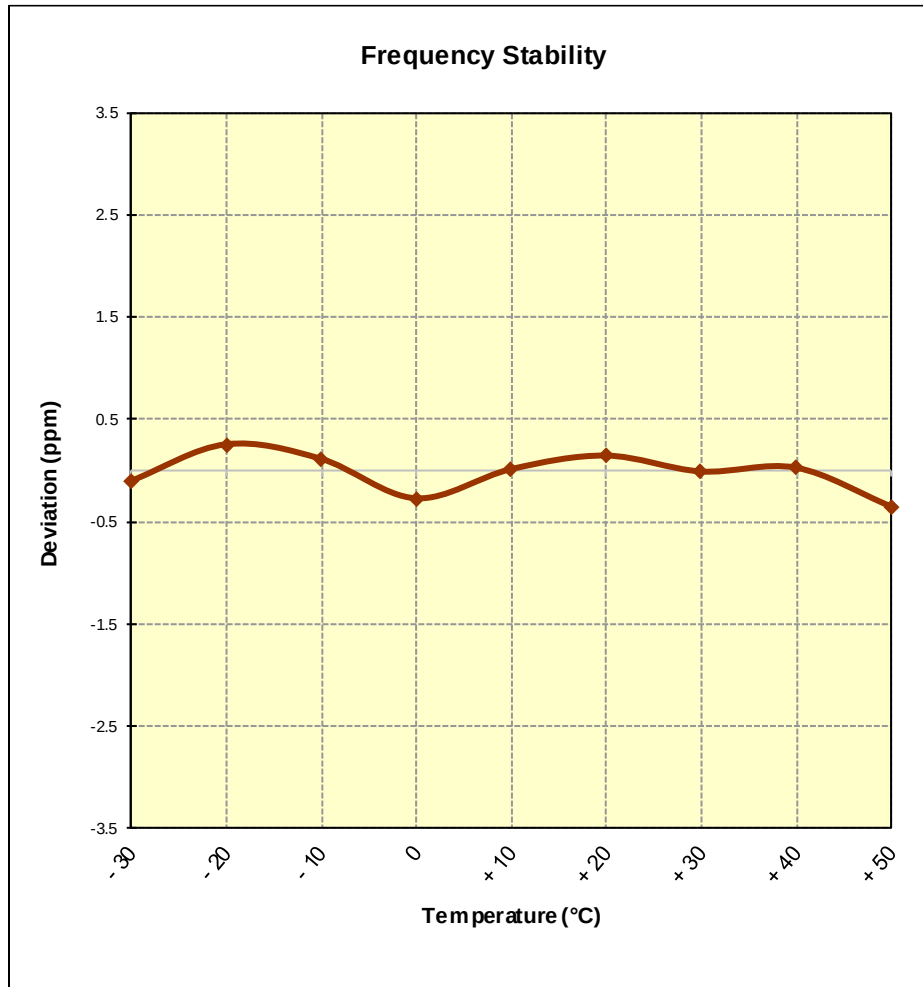


Figure 7-13. Frequency Stability Graph (Band 26/5)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 66/4 Frequency Stability Measurements

OPERATING FREQUENCY: 1,745,000,000 Hz
 CHANNEL: 132322
 REFERENCE VOLTAGE: 4.12 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.12	- 30	1,745,000,053	53	0.0000030
100 %		- 20	1,745,000,038	38	0.0000022
100 %		- 10	1,745,000,055	55	0.0000032
100 %		0	1,744,999,755	-245	-0.0000140
100 %		+ 10	1,744,999,595	-405	-0.0000232
100 %		+ 20	1,744,999,847	-153	-0.0000088
100 %		+ 30	1,745,000,023	23	0.0000013
100 %		+ 40	1,745,000,191	191	0.0000109
100 %		+ 50	1,745,000,091	91	0.0000052
BATT. ENDPOINT		+ 20	1,744,999,920	-80	-0.0000046

Table 7-46. Frequency Stability Data (Band 66/4)

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: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 66/4 Frequency Stability Measurements

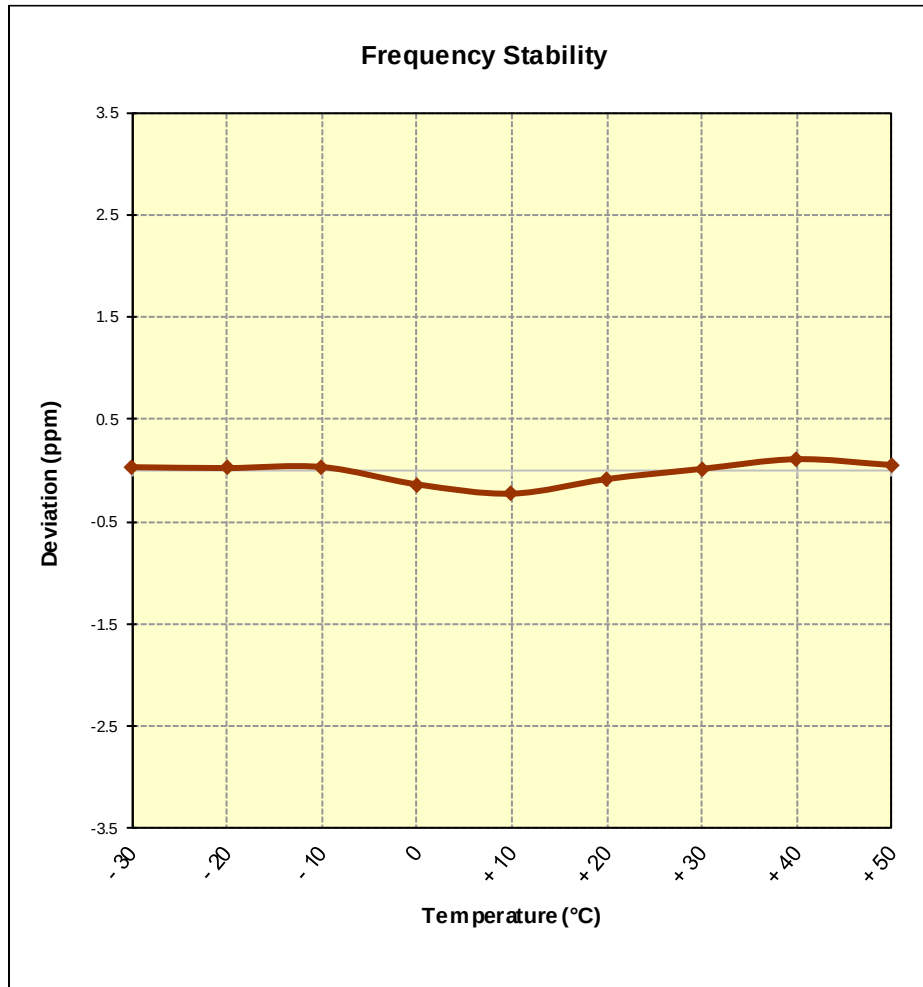


Figure 7-14. Frequency Stability Graph (Band 66/4)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 25/2 Frequency Stability Measurements

OPERATING FREQUENCY: 1,882,500,000 Hz
 CHANNEL: 26365
 REFERENCE VOLTAGE: 4.12 VDC
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.12	- 30	1,882,500,111	111	0.0000059
100 %		- 20	1,882,500,214	214	0.0000114
100 %		- 10	1,882,500,123	123	0.0000065
100 %		0	1,882,500,024	24	0.0000013
100 %		+ 10	1,882,500,110	110	0.0000058
100 %		+ 20	1,882,500,256	256	0.0000136
100 %		+ 30	1,882,500,211	211	0.0000112
100 %		+ 40	1,882,500,146	146	0.0000078
100 %		+ 50	1,882,499,715	-285	-0.0000151
BATT. ENDPOINT	3.80	+ 20	1,882,500,238	238	0.0000126

Table 7-47. Frequency Stability Data (Band 25/2)

FCC ID: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 25/2 Frequency Stability Measurements

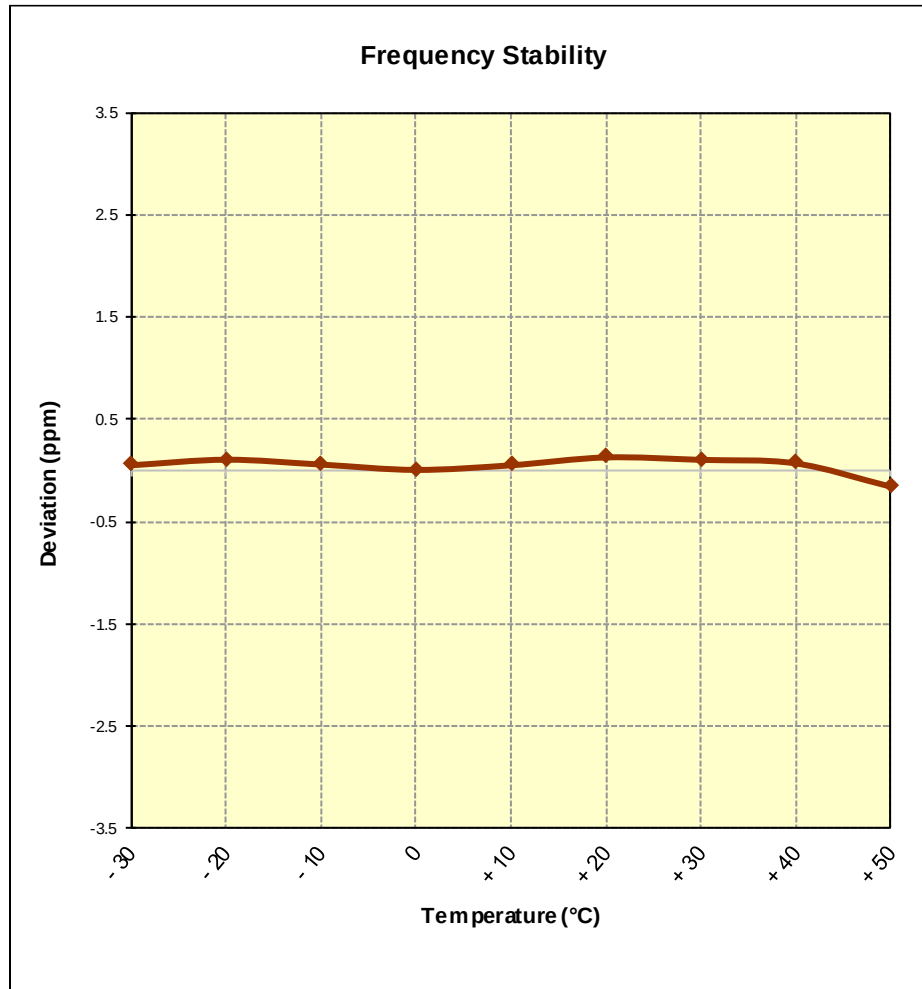


Figure 7-15. Frequency Stability Graph (Band 25/2)

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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Band 7 Frequency Stability Measurements

OPERATING FREQUENCY: 2,535,000,000 Hz
 CHANNEL: 21100
 REFERENCE VOLTAGE: 4.12 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.12	- 30	2,534,999,754	-246	-0.0000097
100 %		- 20	2,535,000,369	369	0.0000146
100 %		- 10	2,535,000,027	27	0.0000011
100 %		0	2,535,000,282	282	0.0000111
100 %		+ 10	2,535,000,092	92	0.0000036
100 %		+ 20	2,534,999,803	-197	-0.0000078
100 %		+ 30	2,535,000,054	54	0.0000021
100 %		+ 40	2,535,000,018	18	0.0000007
100 %		+ 50	2,535,000,394	394	0.0000155
BATT. ENDPOINT	3.80	+ 20	2,535,000,181	181	0.0000071

Table 7-48. Frequency Stability Data (Band 7)

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: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 7 Frequency Stability Measurements

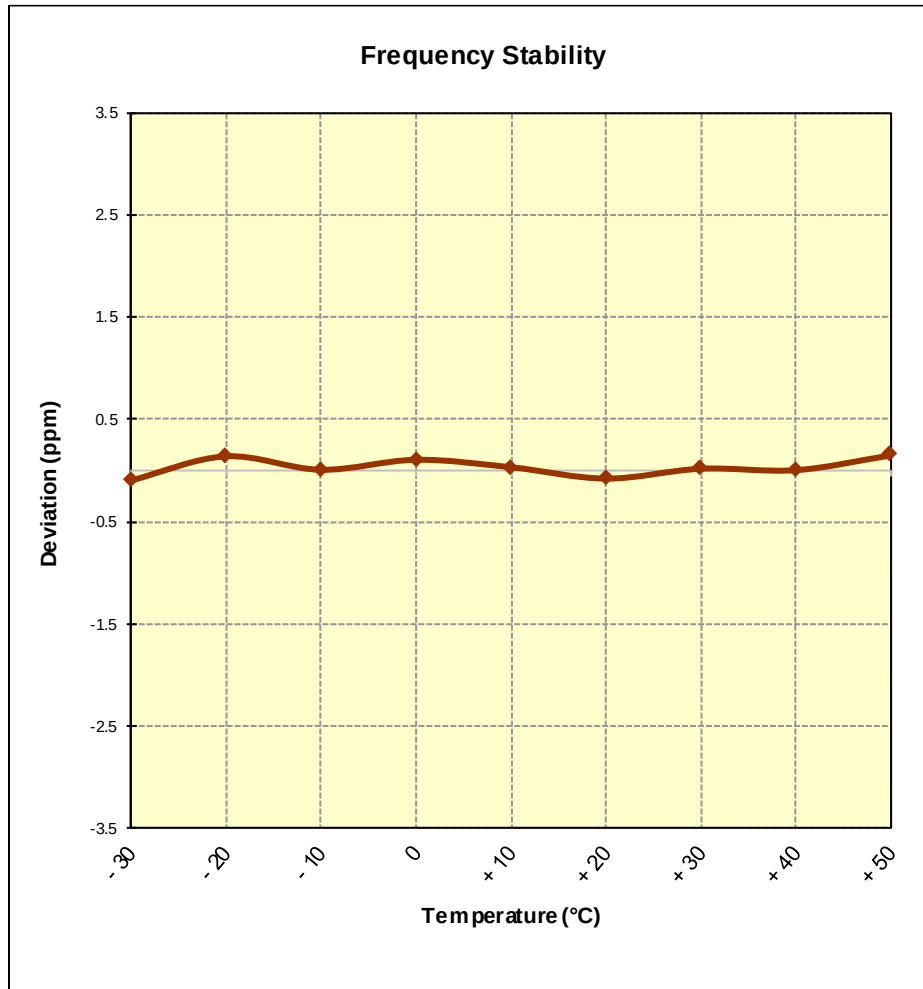


Figure 7-16. Frequency Stability Graph (Band 7)

FCC ID: A3LSMT547U		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: 4.12 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.12	- 30	2,593,000,215	215	0.0000083
100 %		- 20	2,592,999,796	-204	-0.0000079
100 %		- 10	2,592,999,841	-159	-0.0000061
100 %		0	2,593,000,055	55	0.0000021
100 %		+ 10	2,593,000,056	56	0.0000022
100 %		+ 20	2,593,000,042	42	0.0000016
100 %		+ 30	2,593,000,071	71	0.0000027
100 %		+ 40	2,593,000,056	56	0.0000022
100 %		+ 50	2,593,000,136	136	0.0000052
BATT. ENDPOINT	3.80	+ 20	2,593,000,128	128	0.0000049

Table 7-49. 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: A3LSMT547U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
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Band 41 Frequency Stability Measurements

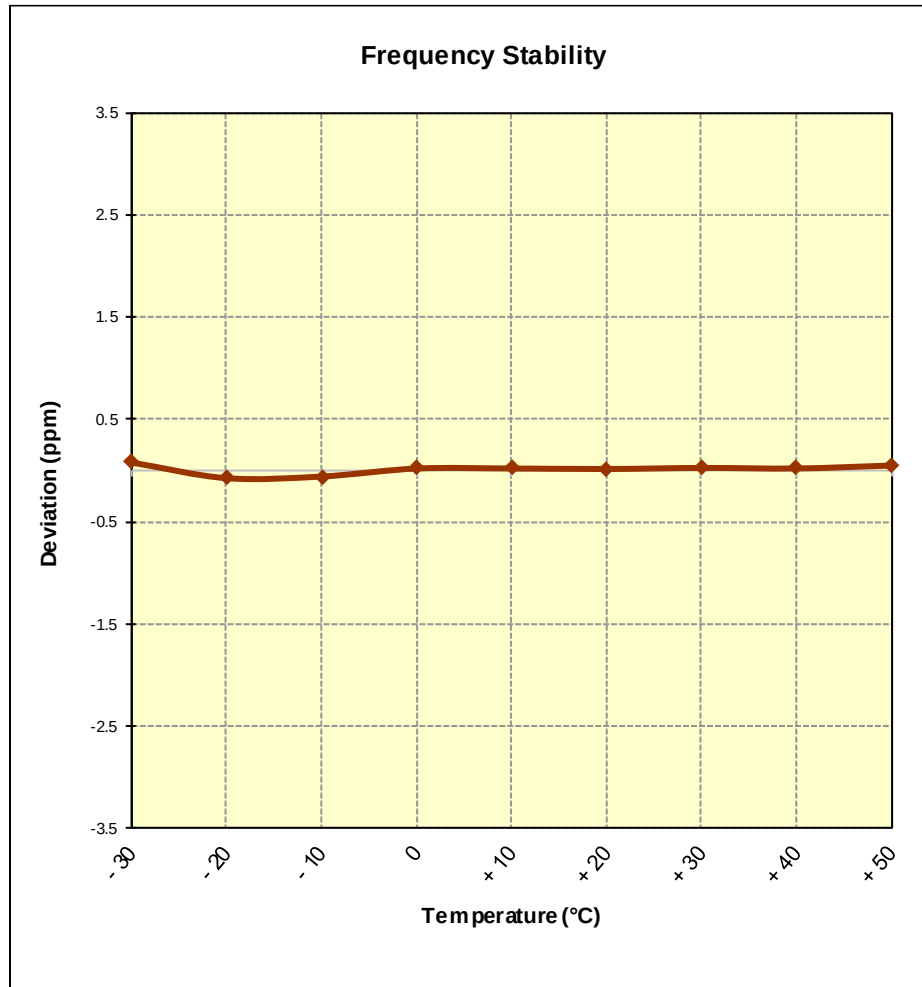


Figure 7-17. Frequency Stability Graph (Band 41)

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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Tablet FCC ID: A3LSMT547U** complies with all the requirements of Part 22, 24, & 27 of the FCC Rules for LTE operation only.

FCC ID: A3LSMT547U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
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