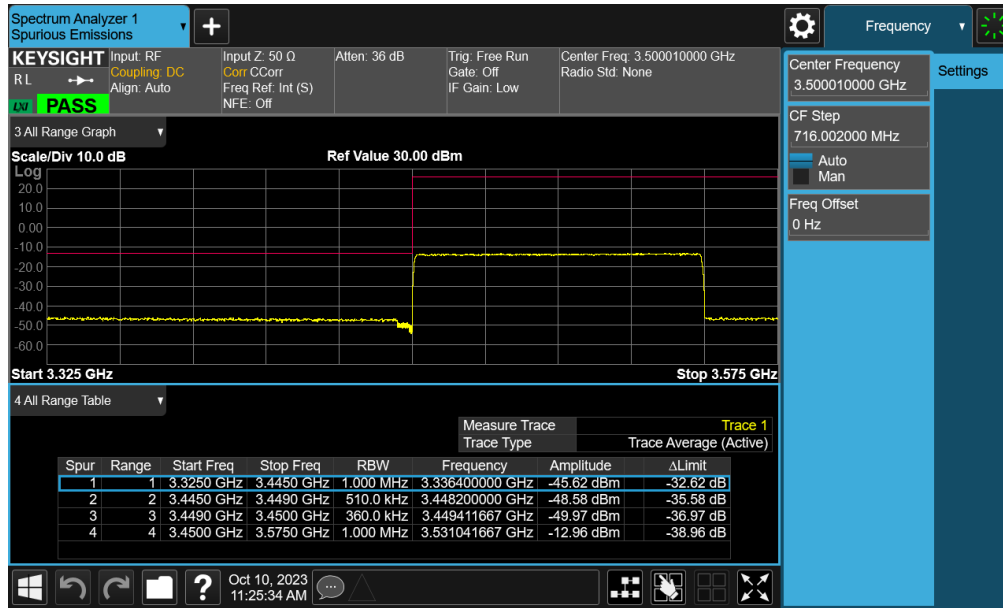
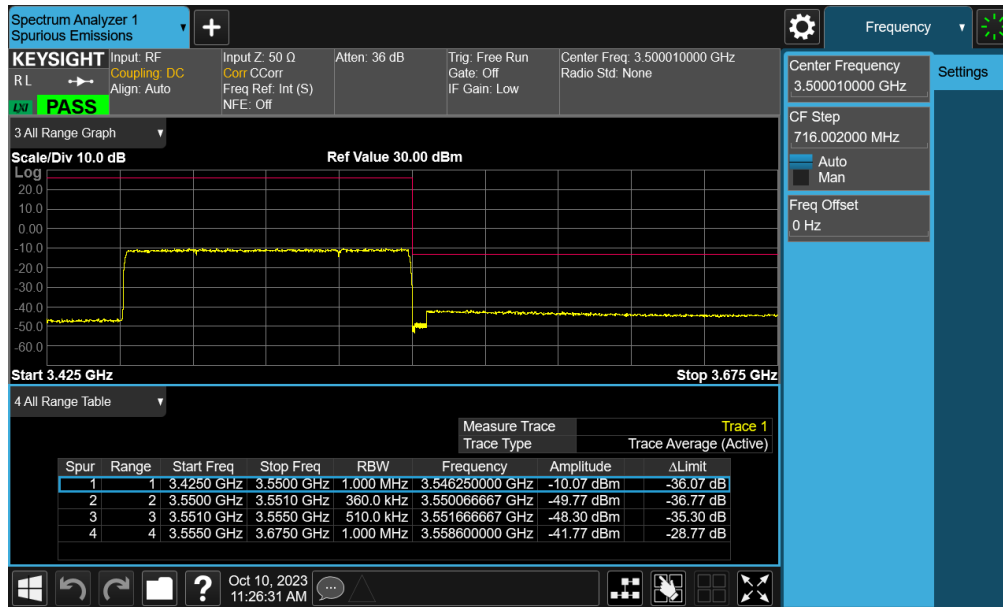


NR Band n77 (DoD Band) – Ant3



Plot 7-112. Lower ACP Plot (NR Band n77 (DoD) - 100MHz CP-OFDM-QPSK – Full RB - Ant3)



Plot 7-113. Upper ACP Plot (NR Band n77 (DoD) - 100MHz CP-OFDM-QPSK – Full RB - Ant3)

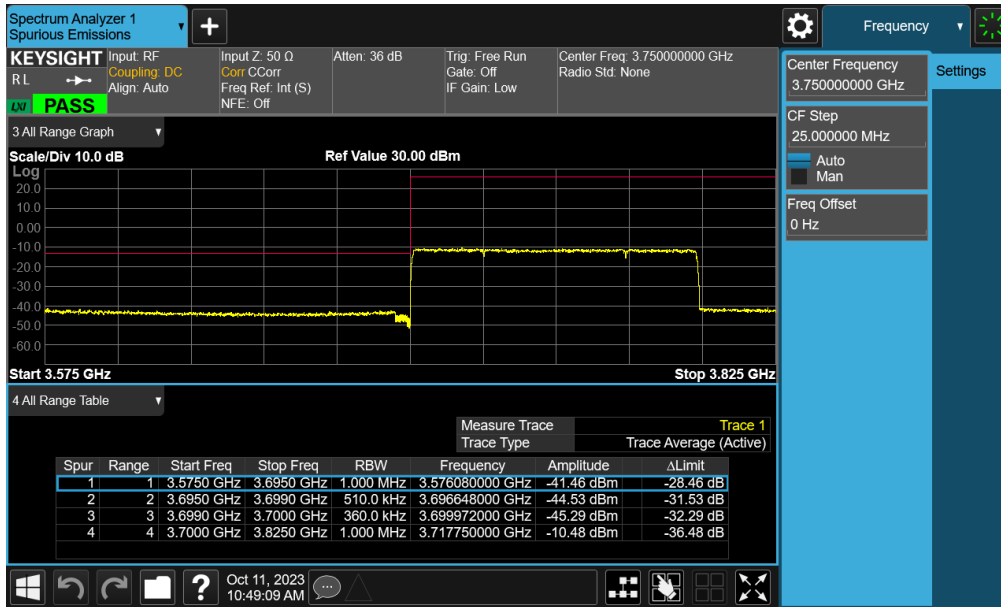
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-05.A3L	Test Dates: 9/21/2023 - 10/23/2023	EUT Type: Portable Handset	Page 95 of 146

Mode	Bandwidth	Channel	Test Case	Level [dBm]	Limit [dBm]	Margin [dB]
NR-n77/78 PC2 DoD Band	100MHz	Low	Band Edge	-41.46	-13	-28.46
		High	Band Edge	-40.73	-13	-27.73
NR-n77/78 PC2 C Band	100MHz	Low	Band Edge	-45.47	-13	-32.47
		High	Band Edge	-41.63	-13	-28.63

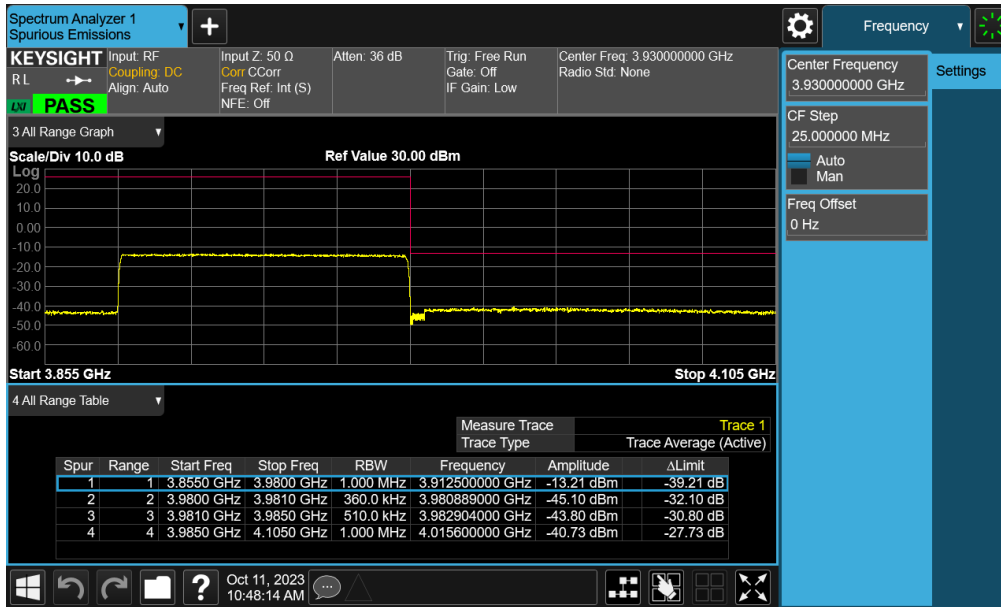
Table 7-22. Conducted Band Edge Test Results – Ant4

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-05.A3L	Test Dates: 9/21/2023 - 10/23/2023	EUT Type: Portable Handset	Page 96 of 146

NR Band n77 – Ant4



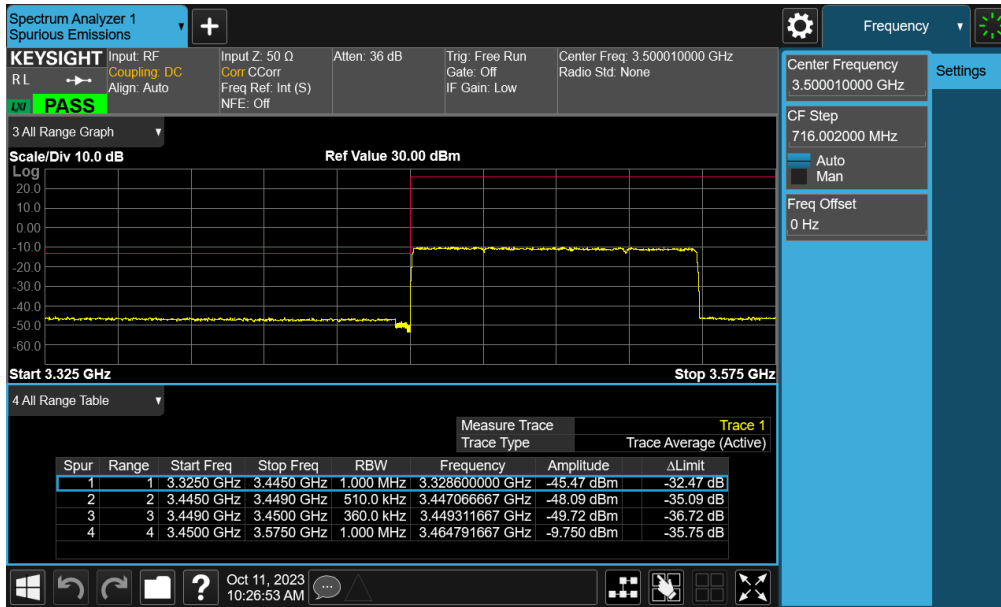
Plot 7-114. Lower ACP Plot (NR Band n77 - 100MHz CP-OFDM-QPSK – Full RB - Ant4)



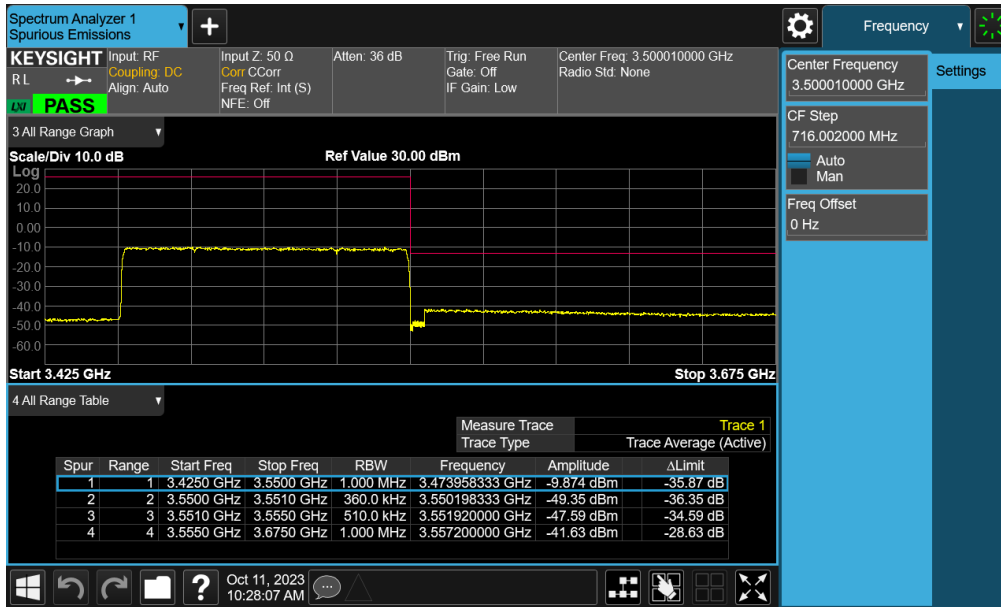
Plot 7-115. Upper ACP Plot (NR Band n77 - 100MHz CP-OFDM-QPSK – Full RB - Ant4)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n77 (DoD Band) – Ant4



Plot 7-116. Lower ACP Plot (NR Band n77 (DoD) - 100MHz CP-OFDM-QPSK – Full RB - Ant4)



Plot 7-117. Upper ACP Plot (NR Band n77 (DoD) - 100MHz CP-OFDM-QPSK – Full RB - Ant4)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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7.6 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.

The peak-to-average power ratio (PAPR) of the transmitter output power must not exceed 13 dB.

Test Procedure Used

ANSI C63.26-2015 – Section 5.2.3.4

Test Settings

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

Test Setup

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

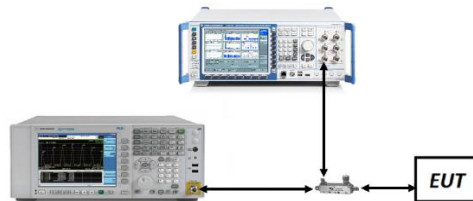


Figure 7-5. Test Instrument & Measurement Setup

Test Notes

For the QAM modulations, 256QAM was found to have the worst-case peak-to-average ratio so it is the only QAM measurement included in this section.

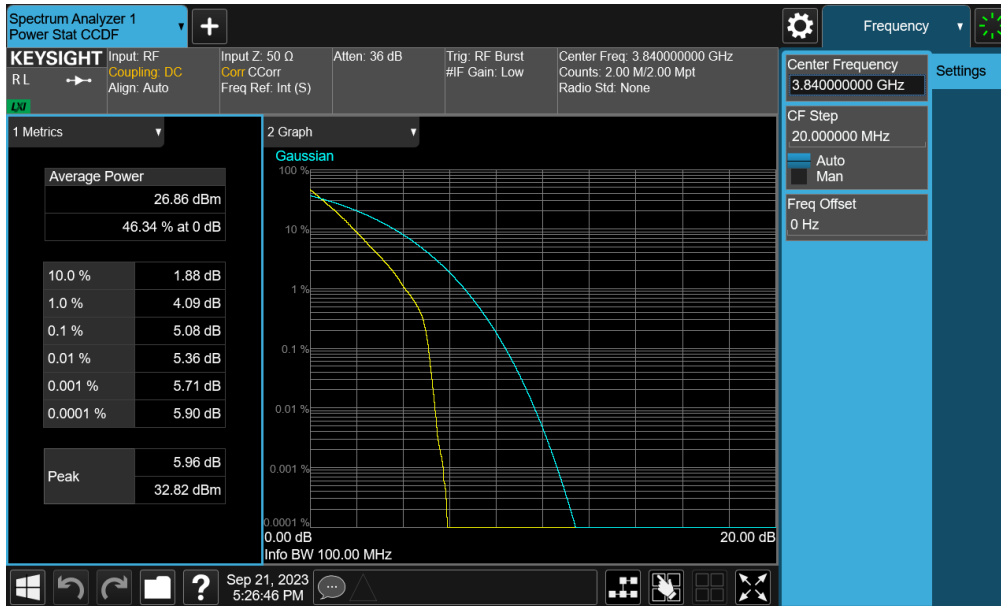
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-05.A3L	Test Dates: 9/21/2023 - 10/23/2023	EUT Type: Portable Handset	Page 99 of 146

Mode	Bandwidth	Modulation	Average Power [dBm]	PAR at 0.1% [dB]	PAR Limit [dB]	Margin [dB]
NR-n77/78 PC2 C-Band	100MHz	$\pi/2$ BPSK	26.86	5.08	13.0	-7.92
		QPSK	24.39	8.39	13.0	-4.61
		256QAM	21.09	8.47	13.0	-4.53
	90MHz	$\pi/2$ BPSK	26.90	4.52	13.0	-8.48
		QPSK	24.43	8.38	13.0	-4.62
		256QAM	21.09	8.41	13.0	-4.59
	80MHz	$\pi/2$ BPSK	26.87	5.04	13.0	-7.96
		QPSK	24.42	8.37	13.0	-4.63
		256QAM	21.11	8.38	13.0	-4.62
	70MHz	$\pi/2$ BPSK	26.89	4.63	13.0	-8.37
		QPSK	24.48	8.33	13.0	-4.67
		256QAM	21.15	8.43	13.0	-4.57
	60MHz	$\pi/2$ BPSK	26.84	4.44	13.0	-8.56
		QPSK	24.38	8.44	13.0	-4.56
		256QAM	21.05	8.36	13.0	-4.64
	50MHz	$\pi/2$ BPSK	26.90	4.85	13.0	-8.15
		QPSK	24.43	8.34	13.0	-4.66
		256QAM	21.08	8.51	13.0	-4.49
	40MHz	$\pi/2$ BPSK	26.90	4.59	13.0	-8.41
		QPSK	24.41	8.35	13.0	-4.65
		256QAM	21.08	8.27	13.0	-4.73
	30MHz	$\pi/2$ BPSK	26.92	4.59	13.0	-8.41
		QPSK	24.40	8.28	13.0	-4.72
		256QAM	21.08	8.30	13.0	-4.70
	25MHz	$\pi/2$ BPSK	26.78	4.69	13.0	-8.31
		QPSK	24.27	8.40	13.0	-4.60
		256QAM	20.98	8.52	13.0	-4.48
	20MHz	$\pi/2$ BPSK	26.72	4.71	13.0	-8.29
		QPSK	24.22	8.32	13.0	-4.68
		256QAM	21.02	8.75	13.0	-4.25
15MHz	$\pi/2$ BPSK	26.74	4.59	13.0	-8.41	
	QPSK	24.21	8.32	13.0	-4.68	
	256QAM	21.01	8.48	13.0	-4.52	
10MHz	$\pi/2$ BPSK	26.75	4.59	13.0	-8.41	
	QPSK	24.25	8.32	13.0	-4.68	
	256QAM	20.96	8.35	13.0	-4.65	

Table 7-23. PAR Test Results – Ant1

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n77 – Ant1



Plot 7-118. PAR Plot (NR Band n77 - 100MHz DFT-s-OFDM BPSK - Full RB - Ant1)



Plot 7-119. PAR Plot (NR Band n77 - 100MHz CP-OFDM QPSK - Full RB - Ant1)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-120. PAR Plot (NR Band n77 - 100MHz CP-OFDM 256-QAM - Full RB - Ant1)

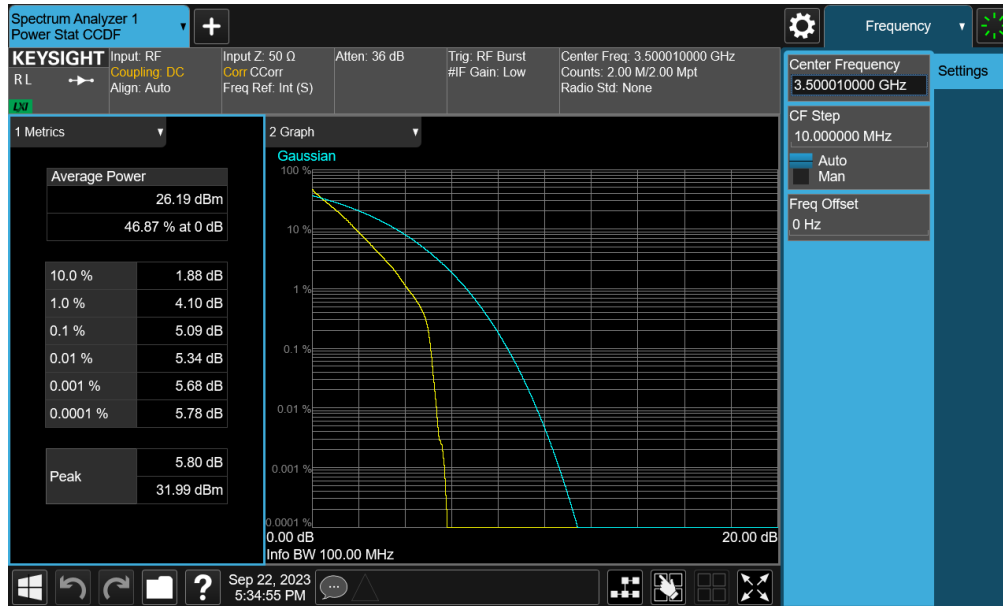
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-05.A3L	Test Dates: 9/21/2023 - 10/23/2023	EUT Type: Portable Handset	Page 102 of 146

Mode	Bandwidth	Modulation	Average Power [dBm]	PAR at 0.1% [dB]	PAR Limit [dB]	Margin [dB]
NR-n77/78 PC2 DoD Band	100MHz	$\pi/2$ BPSK	26.19	5.09	13.0	-7.91
		QPSK	23.77	8.32	13.0	-4.68
		256QAM	20.33	8.55	13.0	-4.45
	90MHz	$\pi/2$ BPSK	26.17	4.47	13.0	-8.53
		QPSK	23.73	8.32	13.0	-4.68
		256QAM	20.33	8.49	13.0	-4.51
	80MHz	$\pi/2$ BPSK	26.17	5.04	13.0	-7.96
		QPSK	23.72	8.32	13.0	-4.68
		256QAM	20.29	8.56	13.0	-4.44
	70MHz	$\pi/2$ BPSK	26.10	4.61	13.0	-8.39
		QPSK	23.67	8.29	13.0	-4.71
		256QAM	20.26	8.54	13.0	-4.46
	60MHz	$\pi/2$ BPSK	26.06	4.42	13.0	-8.58
		QPSK	23.59	8.35	13.0	-4.65
		256QAM	20.13	8.45	13.0	-4.55
	50MHz	$\pi/2$ BPSK	26.04	4.80	13.0	-8.20
		QPSK	23.63	8.30	13.0	-4.70
		256QAM	20.15	8.54	13.0	-4.46
	40MHz	$\pi/2$ BPSK	26.07	4.55	13.0	-8.45
		QPSK	23.55	8.34	13.0	-4.66
		256QAM	20.13	8.40	13.0	-4.60
	30MHz	$\pi/2$ BPSK	26.05	4.65	13.0	-8.35
		QPSK	23.55	8.47	13.0	-4.53
		256QAM	20.07	8.45	13.0	-4.55
	25MHz	$\pi/2$ BPSK	25.95	4.65	13.0	-8.35
		QPSK	23.44	8.44	13.0	-4.56
		256QAM	20.05	8.55	13.0	-4.45
	20MHz	$\pi/2$ BPSK	25.98	4.56	13.0	-8.44
		QPSK	23.46	8.15	13.0	-4.85
		256QAM	20.00	8.67	13.0	-4.33
15MHz	$\pi/2$ BPSK	25.96	4.53	13.0	-8.47	
	QPSK	23.39	8.18	13.0	-4.82	
	256QAM	20.04	8.64	13.0	-4.36	
10MHz	$\pi/2$ BPSK	26.00	4.61	13.0	-8.39	
	QPSK	23.49	8.42	13.0	-4.58	
	256QAM	20.02	8.48	13.0	-4.52	

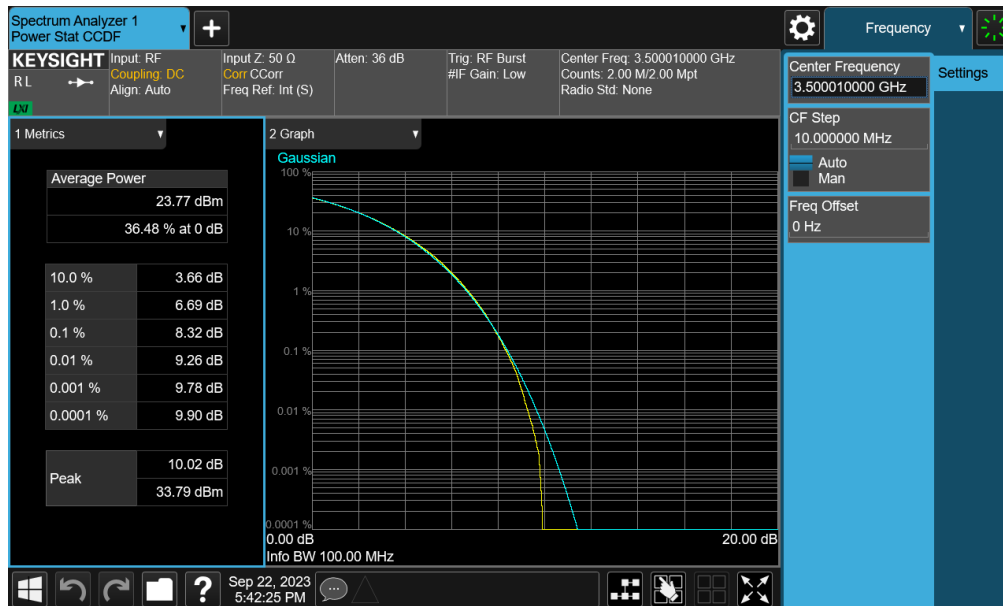
Table 7-24. PAR Test Results – Ant1

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n77 (DoD Band) – Ant1



Plot 7-121. PAR Plot (NR Band n77 (DoD) - 100MHz DFT-s-OFDM BPSK - Full RB - Ant1)



Plot 7-122. PAR Plot (NR Band n77 (DoD) - 100MHz CP-OFDM QPSK - Full RB - Ant1)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-123. PAR Plot (NR Band n77 (DoD) - 100MHz CP-OFDM 256-QAM - Full RB - Ant1)

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7.7 Radiated Power (EIRP)

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements 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

ANSI C63.26-2015 – Section 5.2.4.4

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.

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Test Setup

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

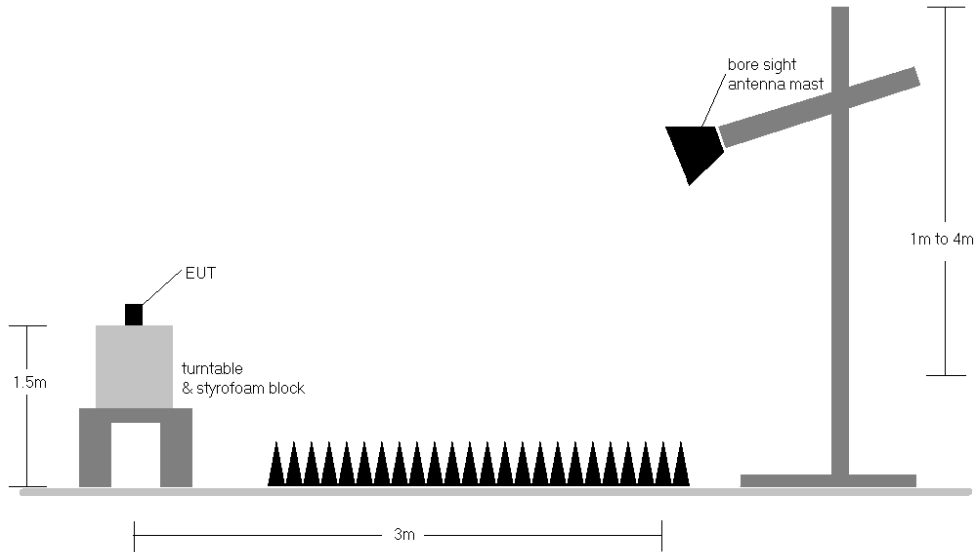


Figure 7-6. Radiated Test Setup >1GHz

Test Notes

- 1) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst-case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 2) This unit was tested with its standard battery.
- 3) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

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Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	π/2 BPSK	3750.00	H	143	298	7.01	1 / 136	17.80	24.81	0.303	30.00	-5.19
	π/2 BPSK	3840.00	H	146	296	7.15	1 / 136	17.71	24.86	0.306	30.00	-5.14
	π/2 BPSK	3930.00	H	135	301	7.39	1 / 136	18.06	25.45	0.351	30.00	-4.55
	QPSK	3750.00	H	143	298	7.01	1 / 136	18.20	25.21	0.332	30.00	-4.79
	QPSK	3840.00	H	146	296	7.15	1 / 136	17.54	24.69	0.295	30.00	-5.31
	QPSK	3930.00	H	135	301	7.39	1 / 136	18.32	25.71	0.373	30.00	-4.29
90 MHz	16-QAM	3930.00	H	135	301	7.39	1 / 136	17.07	24.46	0.279	30.00	-5.54
	π/2 BPSK	3745.02	H	143	298	7.00	1 / 243	17.79	24.79	0.302	30.00	-5.21
	π/2 BPSK	3840.00	H	146	296	7.15	1 / 1	17.67	24.82	0.304	30.00	-5.18
	π/2 BPSK	3934.98	H	135	301	7.40	1 / 122	18.16	25.56	0.360	30.00	-4.44
	QPSK	3745.02	H	143	298	7.00	1 / 243	18.24	25.24	0.335	30.00	-4.76
	QPSK	3840.00	H	146	296	7.15	1 / 1	17.56	24.71	0.296	30.00	-5.29
80 MHz	QPSK	3934.98	H	135	301	7.40	1 / 122	18.39	25.79	0.379	30.00	-4.21
	16-QAM	3934.98	H	135	301	7.40	1 / 122	17.08	24.48	0.281	30.00	-5.52
	π/2 BPSK	3740.01	H	143	298	6.99	1 / 215	17.81	24.79	0.302	30.00	-5.21
	π/2 BPSK	3840.00	H	146	296	7.15	1 / 1	17.72	24.87	0.307	30.00	-5.13
	π/2 BPSK	3939.99	H	135	301	7.41	1 / 215	18.09	25.50	0.355	30.00	-4.50
	QPSK	3740.01	H	143	298	6.99	1 / 215	18.27	25.25	0.335	30.00	-4.75
70 MHz	QPSK	3840.00	H	146	296	7.15	1 / 1	17.52	24.67	0.293	30.00	-5.33
	QPSK	3939.99	H	135	301	7.41	1 / 215	18.36	25.77	0.378	30.00	-4.23
	16-QAM	3939.99	H	135	301	7.41	1 / 215	17.12	24.53	0.284	30.00	-5.47
	π/2 BPSK	3735.00	H	143	298	6.97	1 / 187	17.72	24.69	0.295	30.00	-5.31
	π/2 BPSK	3840.00	H	146	296	7.15	1 / 94	17.64	24.79	0.302	30.00	-5.21
	π/2 BPSK	3945.00	H	135	301	7.42	1 / 94	18.11	25.53	0.357	30.00	-4.47
60 MHz	QPSK	3735.00	H	143	298	6.97	1 / 187	18.14	25.11	0.325	30.00	-4.89
	QPSK	3840.00	H	146	296	7.15	1 / 94	17.70	24.85	0.306	30.00	-5.15
	QPSK	3945.00	H	135	301	7.42	1 / 94	18.41	25.83	0.383	30.00	-4.17
	16-QAM	3945.00	H	135	301	7.42	1 / 94	17.01	24.43	0.277	30.00	-5.57
	π/2 BPSK	3730.02	H	143	298	6.96	1 / 160	17.65	24.60	0.289	30.00	-5.40
	π/2 BPSK	3840.00	H	146	296	7.15	1 / 1	17.84	24.99	0.316	30.00	-5.01
50 MHz	π/2 BPSK	3949.98	H	135	301	7.43	1 / 81	18.00	25.42	0.348	30.00	-4.58
	QPSK	3730.02	H	143	298	6.96	1 / 160	18.07	25.02	0.318	30.00	-4.98
	QPSK	3840.00	H	146	296	7.15	1 / 1	17.36	24.51	0.283	30.00	-5.49
	QPSK	3949.98	H	135	301	7.43	1 / 81	18.27	25.69	0.371	30.00	-4.31
	16-QAM	3949.98	H	135	301	7.43	1 / 81	17.00	24.42	0.277	30.00	-5.58
	π/2 BPSK	3725.01	H	143	298	6.94	1 / 131	17.54	24.48	0.281	30.00	-5.52
40 MHz	π/2 BPSK	3840.00	H	146	296	7.15	1 / 1	17.60	24.75	0.299	30.00	-5.25
	π/2 BPSK	3954.99	H	135	301	7.43	1 / 66	18.24	25.67	0.369	30.00	-4.33
	QPSK	3725.01	H	143	298	6.94	1 / 131	17.96	24.90	0.309	30.00	-5.10
	QPSK	3840.00	H	146	296	7.15	1 / 1	17.40	24.55	0.285	30.00	-5.45
	QPSK	3954.99	H	135	301	7.43	1 / 66	18.32	25.75	0.376	30.00	-4.25
	16-QAM	3954.99	H	135	301	7.43	1 / 66	17.23	24.66	0.293	30.00	-5.34
30 MHz	π/2 BPSK	3720.00	H	143	298	6.93	1 / 104	17.46	24.38	0.274	30.00	-5.62
	π/2 BPSK	3840.00	H	146	296	7.15	1 / 1	17.59	24.74	0.298	30.00	-5.26
	π/2 BPSK	3960.00	H	135	301	7.44	1 / 53	18.14	25.58	0.362	30.00	-4.42
	QPSK	3720.00	H	143	298	6.93	1 / 104	17.88	24.80	0.302	30.00	-5.20
	QPSK	3840.00	H	146	296	7.15	1 / 1	17.43	24.58	0.287	30.00	-5.42
	16-QAM	3960.00	H	135	301	7.44	1 / 53	17.15	24.59	0.288	30.00	-5.41
25 MHz	π/2 BPSK	3715.02	H	143	298	6.91	1 / 76	17.23	24.14	0.260	30.00	-5.86
	π/2 BPSK	3840.00	H	146	296	7.15	1 / 1	17.58	24.73	0.297	30.00	-5.27
	π/2 BPSK	3964.98	H	135	301	7.45	1 / 39	18.24	25.69	0.371	30.00	-4.31
	QPSK	3715.02	H	143	298	6.91	1 / 76	17.72	24.63	0.291	30.00	-5.37
	QPSK	3840.00	H	146	296	7.15	1 / 1	17.39	24.54	0.285	30.00	-5.46
	QPSK	3964.98	H	135	301	7.45	1 / 39	18.40	25.85	0.385	30.00	-4.15
20 MHz	16-QAM	3964.98	H	135	301	7.45	1 / 39	17.13	24.58	0.287	30.00	-5.42
	π/2 BPSK	3712.50	H	113	298	6.91	1 / 63	17.30	24.20	0.263	30.00	-5.80
	π/2 BPSK	3840.00	H	113	298	7.15	1 / 32	17.61	24.76	0.299	30.00	-5.24
	π/2 BPSK	3967.50	H	113	298	7.46	1 / 63	17.98	25.43	0.349	30.00	-4.57
	QPSK	3712.50	H	113	298	6.91	1 / 63	17.71	24.61	0.289	30.00	-5.39
	QPSK	3840.00	H	113	298	7.15	1 / 32	17.54	24.69	0.295	30.00	-5.31
15 MHz	QPSK	3967.50	H	113	298	7.46	1 / 63	18.30	25.75	0.376	30.00	-4.25
	16-QAM	3967.50	H	113	298	7.46	1 / 63	16.99	24.44	0.278	30.00	-5.56
	π/2 BPSK	3710.01	H	143	298	6.90	1 / 25	17.25	24.15	0.260	30.00	-5.85
	π/2 BPSK	3840.00	H	146	296	7.15	1 / 1	17.57	24.72	0.297	30.00	-5.28
	π/2 BPSK	3969.99	H	135	301	7.46	1 / 49	18.09	25.55	0.359	30.00	-4.45
	QPSK	3710.01	H	143	298	6.90	1 / 25	17.94	24.84	0.305	30.00	-5.16
10 MHz	QPSK	3840.00	H	146	296	7.15	1 / 1	17.36	24.51	0.283	30.00	-5.49
	QPSK	3969.99	H	135	301	7.46	1 / 49	18.32	25.78	0.379	30.00	-4.22
	16-QAM	3969.99	H	135	301	7.46	1 / 49	17.12	24.58	0.287	30.00	-5.42
	π/2 BPSK	3707.52	H	143	298	6.89	1 / 36	17.04	23.93	0.247	30.00	-6.07
	π/2 BPSK	3840.00	H	146	296	7.15	1 / 19	17.67	24.82	0.304	30.00	-5.18
	π/2 BPSK	3972.48	H	135	301	7.46	1 / 19	18.00	25.46	0.352	30.00	-4.54
100 MHz	QPSK	3707.52	H	143	298	6.89	1 / 36	17.44	24.33	0.271	30.00	-5.67
	QPSK	3840.00	H	146	296	7.15	1 / 19	17.62	24.77	0.300	30.00	-5.23
	QPSK	3972.48	H	135	301	7.46	1 / 19	18.28	25.74	0.375	30.00	-4.26
	16-QAM	3972.48	H	135	301	7.46	1 / 19	17.10	24.56	0.286	30.00	-5.44
	π/2 BPSK	3705.00	H	143	298	6.89	1 / 22	16.93	23.81	0.241	30.00	-6.19
	π/2 BPSK	3840.00	H	146	296	7.15	1 / 1	17.56	24.71	0.296	30.00	-5.29
10 MHz	π/2 BPSK	3975.00	H	135	301	7.47	1 / 22	18.00	25.47	0.352	30.00	-4.53
	QPSK	3705.00	H	143	298	6.89	1 / 22	17.42	24.30	0.269	30.00	-5.70
	QPSK	3840.00	H	146	296	7.15	1 / 1	17.36	24.51	0.283	30.00	-5.49
	QPSK	3975.00	H	135	301	7.47	1 / 22	18.28	25.75	0.376	30.00	-4.25
	16-QAM	3975.00	H	135	301	7.47	1 / 22	17.00	24.47	0.280	30.00	-5.53
	100 MHz	QPSK (CP-OFDM)	3930.00	H	137	298	7.15	1 / 271	16.64	23.79	0.240	30.00

Table 7-25. EIRP Data (NR Band n77 – Ant1)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-05.A3L	Test Dates: 9/21/2023 - 10/23/2023	EUT Type: Portable Handset	Page 108 of 146

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	$\pi/2$ BPSK	3750.00	H	107	146	7.01	1 / 136	7.92	14.93	0.031	30.00	-15.07
	$\pi/2$ BPSK	3840.00	H	103	144	7.15	1 / 136	7.32	14.47	0.028	30.00	-15.53
	$\pi/2$ BPSK	3930.00	H	103	153	7.39	1 / 68	7.29	14.68	0.029	30.00	-15.32
	QPSK	3750.00	H	107	146	7.01	1 / 136	7.96	14.97	0.031	30.00	-15.03
	QPSK	3840.00	H	103	144	7.15	1 / 136	7.26	14.41	0.028	30.00	-15.59
	QPSK	3930.00	H	103	153	7.39	1 / 68	7.20	14.59	0.029	30.00	-15.41
	16-QAM	3750.00	H	107	146	7.01	1 / 136	6.84	13.85	0.024	30.00	-16.15

Table 7-26. EIRP Data (NR Band n77 – Ant2)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	$\pi/2$ BPSK	3750.00	H	153	303	7.01	1 / 136	-0.14	6.87	0.005	30.00	-23.13
	$\pi/2$ BPSK	3840.00	H	131	323	7.15	1 / 136	0.53	7.68	0.006	30.00	-22.32
	$\pi/2$ BPSK	3930.00	H	139	302	7.39	1 / 68	0.29	7.68	0.006	30.00	-22.32
	QPSK	3750.00	H	153	303	7.01	1 / 136	-0.11	6.90	0.005	30.00	-23.10
	QPSK	3840.00	H	131	323	7.15	1 / 136	0.52	7.67	0.006	30.00	-22.33
	QPSK	3930.00	H	139	302	7.39	1 / 68	0.37	7.76	0.006	30.00	-22.24
	16-QAM	3930.00	H	139	302	7.39	1 / 68	-0.76	6.63	0.005	30.00	-23.37

Table 7-27. EIRP Data (NR Band n77 – Ant3)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	$\pi/2$ BPSK	3750.00	H	134	253	7.01	1 / 204	1.28	8.29	0.007	30.00	-21.71
	$\pi/2$ BPSK	3840.00	H	114	250	7.15	1 / 136	2.68	9.83	0.010	30.00	-20.17
	$\pi/2$ BPSK	3930.00	H	113	248	7.39	1 / 68	2.85	10.24	0.011	30.00	-19.76
	QPSK	3750.00	H	134	253	7.01	1 / 204	1.36	8.37	0.007	30.00	-21.63
	QPSK	3840.00	H	114	250	7.15	1 / 136	2.65	9.80	0.010	30.00	-20.20
	QPSK	3930.00	H	113	248	7.39	1 / 68	2.87	10.26	0.011	30.00	-19.74
	16-QAM	3930.00	H	113	248	7.39	1 / 68	1.73	9.12	0.008	30.00	-20.88

Table 7-28. EIRP Data (NR Band n77 – Ant4)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-05.A3L	Test Dates: 9/21/2023 - 10/23/2023	EUT Type: Portable Handset	Page 109 of 146



Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	π/2 BPSK	3500.01	H	113	298	6.46	1 / 136	19.02	25.48	0.354	30.00	-4.52
	QPSK	3500.01	H	113	298	6.46	1 / 136	18.94	25.40	0.347	30.00	-4.60
	16-QAM	3500.01	H	113	298	6.46	1 / 136	18.66	25.12	0.325	30.00	-4.88
90 MHz	π/2 BPSK	3495.00	H	113	298	6.46	1 / 243	18.77	25.22	0.333	30.00	-4.78
	π/2 BPSK	3500.01	H	113	298	6.46	1 / 243	18.91	25.37	0.345	30.00	-4.63
	π/2 BPSK	3504.99	H	113	298	6.47	1 / 243	19.09	25.55	0.359	30.00	-4.45
	QPSK	3495.00	H	113	298	6.46	1 / 243	18.72	25.17	0.329	30.00	-4.83
	QPSK	3500.01	H	113	298	6.46	1 / 243	18.82	25.28	0.338	30.00	-4.72
	QPSK	3504.99	H	113	298	6.47	1 / 243	19.01	25.47	0.353	30.00	-4.53
80 MHz	16-QAM	3504.99	H	113	298	6.47	1 / 243	18.73	25.19	0.331	30.00	-4.81
	π/2 BPSK	3490.02	H	113	298	6.45	1 / 215	18.72	25.17	0.329	30.00	-4.83
	π/2 BPSK	3500.01	H	113	298	6.46	1 / 215	18.89	25.35	0.343	30.00	-4.65
	π/2 BPSK	3510.00	H	113	298	6.47	1 / 215	19.04	25.51	0.356	30.00	-4.49
	QPSK	3490.02	H	113	298	6.45	1 / 215	18.65	25.10	0.324	30.00	-4.90
	QPSK	3500.01	H	113	298	6.46	1 / 215	18.78	25.24	0.335	30.00	-4.76
70 MHz	QPSK	3510.00	H	113	298	6.47	1 / 215	18.95	25.42	0.349	30.00	-4.58
	16-QAM	3510.00	H	113	298	6.47	1 / 215	18.65	25.12	0.325	30.00	-4.88
	π/2 BPSK	3485.01	H	113	298	6.45	1 / 1	18.60	25.04	0.319	30.00	-4.96
	π/2 BPSK	3500.01	H	113	298	6.46	1 / 187	18.75	25.21	0.332	30.00	-4.79
	π/2 BPSK	3514.98	H	113	298	6.47	1 / 187	18.94	25.41	0.348	30.00	-4.59
	QPSK	3485.01	H	113	298	6.45	1 / 1	18.52	24.96	0.314	30.00	-5.04
60 MHz	QPSK	3500.01	H	113	298	6.46	1 / 187	18.66	25.12	0.325	30.00	-4.88
	QPSK	3514.98	H	113	298	6.47	1 / 187	18.87	25.34	0.342	30.00	-4.66
	16-QAM	3514.98	H	113	298	6.47	1 / 187	18.60	25.07	0.322	30.00	-4.93
	π/2 BPSK	3480.00	H	113	298	6.44	1 / 1	18.47	24.91	0.310	30.00	-5.09
	π/2 BPSK	3500.01	H	113	298	6.46	1 / 160	18.64	25.10	0.324	30.00	-4.90
	π/2 BPSK	3519.99	H	113	298	6.48	1 / 160	18.94	25.41	0.348	30.00	-4.59
50 MHz	QPSK	3480.00	H	113	298	6.44	1 / 1	18.39	24.83	0.304	30.00	-5.17
	QPSK	3500.01	H	113	298	6.46	1 / 160	18.55	25.01	0.317	30.00	-4.99
	QPSK	3519.99	H	113	298	6.48	1 / 160	18.87	25.34	0.342	30.00	-4.66
	16-QAM	3519.99	H	113	298	6.48	1 / 160	18.55	25.02	0.318	30.00	-4.98
	π/2 BPSK	3475.02	H	113	298	6.43	1 / 1	18.50	24.93	0.312	30.00	-5.07
	π/2 BPSK	3500.01	H	113	298	6.46	1 / 131	18.61	25.07	0.322	30.00	-4.93
40 MHz	π/2 BPSK	3525.00	H	113	298	6.48	1 / 131	18.83	25.30	0.339	30.00	-4.70
	QPSK	3475.02	H	113	298	6.43	1 / 1	18.44	24.87	0.307	30.00	-5.13
	QPSK	3500.01	H	113	298	6.46	1 / 131	18.47	24.93	0.312	30.00	-5.07
	QPSK	3525.00	H	113	298	6.48	1 / 131	18.76	25.23	0.334	30.00	-4.77
	16-QAM	3525.00	H	113	298	6.48	1 / 131	18.44	24.91	0.310	30.00	-5.09
	π/2 BPSK	3470.01	H	113	298	6.43	1 / 1	18.55	24.97	0.314	30.00	-5.03
30 MHz	π/2 BPSK	3500.01	H	113	298	6.46	1 / 104	18.52	24.98	0.315	30.00	-5.02
	π/2 BPSK	3529.98	H	113	298	6.48	1 / 104	18.93	25.41	0.348	30.00	-4.59
	QPSK	3470.01	H	113	298	6.43	1 / 1	18.44	24.86	0.307	30.00	-5.14
	QPSK	3500.01	H	113	298	6.46	1 / 104	18.48	24.94	0.312	30.00	-5.06
	QPSK	3529.98	H	113	298	6.48	1 / 104	18.86	25.34	0.342	30.00	-4.66
	16-QAM	3529.98	H	113	298	6.48	1 / 104	18.53	25.01	0.317	30.00	-4.99
25 MHz	π/2 BPSK	3465.00	H	113	298	6.42	1 / 1	18.58	25.00	0.317	30.00	-5.00
	π/2 BPSK	3500.01	H	113	298	6.46	1 / 76	18.45	24.91	0.310	30.00	-5.09
	π/2 BPSK	3534.99	H	113	298	6.48	1 / 76	19.06	25.54	0.358	30.00	-4.46
	QPSK	3465.00	H	113	298	6.42	1 / 1	18.44	24.86	0.307	30.00	-5.14
	QPSK	3500.01	H	113	298	6.46	1 / 76	18.42	24.88	0.308	30.00	-5.12
	QPSK	3534.99	H	113	298	6.48	1 / 76	19.03	25.51	0.356	30.00	-4.49
20 MHz	16-QAM	3534.99	H	113	298	6.48	1 / 76	18.67	25.15	0.328	30.00	-4.85
	π/2 BPSK	3462.51	H	113	298	6.42	1 / 32	18.56	24.97	0.314	30.00	-5.03
	π/2 BPSK	3500.01	H	113	298	6.46	1 / 63	18.46	24.92	0.311	30.00	-5.08
	π/2 BPSK	3537.48	H	113	298	6.48	1 / 63	18.97	25.45	0.351	30.00	-4.55
	QPSK	3462.51	H	113	298	6.42	1 / 32	18.86	25.27	0.337	30.00	-4.73
	QPSK	3500.01	H	113	298	6.46	1 / 63	18.34	24.80	0.302	30.00	-5.20
15 MHz	QPSK	3537.48	H	113	298	6.48	1 / 63	18.84	25.32	0.341	30.00	-4.68
	16-QAM	3537.48	H	113	298	6.48	1 / 63	18.53	25.01	0.317	30.00	-4.99
	π/2 BPSK	3460.02	H	113	298	6.42	1 / 1	18.67	25.08	0.322	30.00	-4.92
	π/2 BPSK	3500.01	H	113	298	6.46	1 / 25	18.44	24.90	0.309	30.00	-5.10
	π/2 BPSK	3540.00	H	113	298	6.49	1 / 25	19.05	25.53	0.358	30.00	-4.47
	QPSK	3460.02	H	113	298	6.42	1 / 1	18.57	24.98	0.315	30.00	-5.02
10 MHz	QPSK	3500.01	H	113	298	6.46	1 / 25	18.61	25.07	0.322	30.00	-4.93
	QPSK	3540.00	H	113	298	6.49	1 / 25	19.03	25.51	0.356	30.00	-4.49
	16-QAM	3540.00	H	113	298	6.49	1 / 25	18.47	24.95	0.313	30.00	-5.05
	π/2 BPSK	3457.50	H	113	298	6.41	1 / 1	18.63	25.04	0.319	30.00	-4.96
	π/2 BPSK	3500.01	H	113	298	6.46	1 / 36	18.39	24.85	0.306	30.00	-5.15
	π/2 BPSK	3542.49	H	113	298	6.49	1 / 36	19.05	25.53	0.358	30.00	-4.47
100 MHz	QPSK	3457.50	H	113	298	6.41	1 / 1	18.55	24.96	0.314	30.00	-5.04
	QPSK	3500.01	H	113	298	6.46	1 / 36	18.29	24.75	0.299	30.00	-5.25
	QPSK	3542.49	H	113	298	6.49	1 / 36	18.93	25.41	0.348	30.00	-4.59
	16-QAM	3542.49	H	113	298	6.49	1 / 36	18.62	25.10	0.324	30.00	-4.90
	π/2 BPSK	3455.01	H	113	298	6.41	1 / 1	18.62	25.02	0.318	30.00	-4.98
	π/2 BPSK	3500.01	H	113	298	6.46	1 / 22	18.37	24.83	0.304	30.00	-5.17
100 MHz	π/2 BPSK	3544.98	H	113	298	6.49	1 / 22	19.07	25.55	0.359	30.00	-4.45
	QPSK	3455.01	H	113	298	6.41	1 / 1	18.57	24.97	0.314	30.00	-5.03
	QPSK	3500.01	H	113	298	6.46	1 / 22	18.36	24.82	0.304	30.00	-5.18
	QPSK	3544.98	H	113	298	6.49	1 / 22	19.04	25.52	0.357	30.00	-4.48
	16-QAM	3544.98	H	113	298	6.49	1 / 22	18.58	25.06	0.321	30.00	-4.94
	100 MHz	QPSK (CP-OFDM)	3500.0	H	153	262	6.46	1 / 12	17.01	23.47	0.223	30.00

Table 7-29. EIRP Data (NR Band n77 (DoD) – Ant1)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-05.A3L	Test Dates: 9/21/2023 - 10/23/2023	EUT Type: Portable Handset	Page 110 of 146



Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	$\pi/2$ BPSK	3500.01	H	118	141	6.46	1 / 136	6.83	13.29	0.021	30.00	-16.71
	QPSK	3500.01	H	118	141	6.46	1 / 136	6.71	13.17	0.021	30.00	-16.83
	16-QAM	3500.01	H	118	141	6.46	1 / 136	5.56	12.02	0.016	30.00	-17.98

Table 7-30. EIRP Data (NR Band n77 (DoD) – Ant2)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	$\pi/2$ BPSK	3500.01	H	100	307	6.46	1 / 68	1.08	7.54	0.006	30.00	-22.46
	QPSK	3500.01	H	100	307	6.46	1 / 68	1.07	7.53	0.006	30.00	-22.47
	16-QAM	3500.01	H	100	307	6.46	1 / 68	-0.18	6.28	0.004	30.00	-23.72

Table 7-31. EIRP Data (NR Band n77 (DoD) – Ant3)

Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
100 MHz	$\pi/2$ BPSK	3500.01	H	100	219	6.46	1 / 136	1.78	8.24	0.007	30.00	-21.76
	QPSK	3500.01	H	100	219	6.46	1 / 136	1.77	8.23	0.007	30.00	-21.77
	16-QAM	3500.01	H	100	219	6.46	1 / 136	0.78	7.24	0.005	30.00	-22.76

Table 7-32. EIRP Data (NR Band n77 (DoD) – Ant4)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth	Mod.	Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Ant. Gain [dBi]	RB Size/Offset	Substitute Level [dBm]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm/10MHz]	Margin [dB]
100 MHz	11/2 BPSK	3500.01	H	112	298	6.46	1 / 136	17.84	24.30	0.269	30.00	-5.70
	11/2 BPSK	3549.99	H	153	307	6.49	1 / 136	17.18	23.67	0.233	30.00	-6.33
	11/2 BPSK	3600.00	H	147	297	6.60	1 / 136	17.47	24.07	0.255	30.00	-5.93
	QPSK	3500.01	H	112	298	6.46	1 / 136	17.72	24.18	0.262	30.00	-5.82
	QPSK	3549.99	H	153	307	6.49	1 / 136	17.06	23.55	0.227	30.00	-6.45
	QPSK	3600.00	H	147	297	6.60	1 / 136	17.33	23.93	0.247	30.00	-6.07
	16-QAM	3500.01	H	112	298	6.46	1 / 136	17.47	23.93	0.247	30.00	-6.07
90 MHz	11/2 BPSK	3495.00	H	112	298	6.46	1 / 1	17.82	24.27	0.268	30.00	-5.73
	11/2 BPSK	3549.99	H	153	307	6.49	1 / 243	17.05	23.54	0.226	30.00	-6.46
	11/2 BPSK	3604.98	H	147	297	6.62	1 / 122	17.48	24.10	0.257	30.00	-5.90
	QPSK	3495.00	H	112	298	6.46	1 / 1	17.72	24.17	0.261	30.00	-5.83
	QPSK	3549.99	H	153	307	6.49	1 / 243	17.05	23.54	0.226	30.00	-6.46
	QPSK	3604.98	H	147	297	6.62	1 / 122	17.12	23.74	0.236	30.00	-6.26
	16-QAM	3495.00	H	112	298	6.46	1 / 1	17.50	23.95	0.249	30.00	-6.05
80 MHz	11/2 BPSK	3490.02	H	112	298	6.45	1 / 1	17.84	24.29	0.269	30.00	-5.71
	11/2 BPSK	3549.99	H	153	307	6.49	1 / 215	17.21	23.70	0.234	30.00	-6.30
	11/2 BPSK	3609.99	H	147	297	6.64	1 / 108	17.43	24.07	0.255	30.00	-5.93
	QPSK	3490.02	H	112	298	6.45	1 / 1	17.74	24.19	0.263	30.00	-5.81
	QPSK	3549.99	H	153	307	6.49	1 / 215	17.11	23.60	0.229	30.00	-6.40
	QPSK	3609.99	H	147	297	6.64	1 / 108	17.00	23.64	0.231	30.00	-6.36
	16-QAM	3490.02	H	112	298	6.45	1 / 1	17.49	23.94	0.248	30.00	-6.06
70 MHz	11/2 BPSK	3485.01	H	112	298	6.45	1 / 1	17.80	24.24	0.266	30.00	-5.76
	11/2 BPSK	3549.99	H	153	307	6.49	1 / 187	17.06	23.55	0.227	30.00	-6.45
	11/2 BPSK	3615.00	H	147	297	6.66	1 / 94	17.24	23.90	0.245	30.00	-6.10
	QPSK	3485.01	H	112	298	6.45	1 / 1	17.65	24.09	0.257	30.00	-5.91
	QPSK	3549.99	H	153	307	6.49	1 / 187	17.04	23.53	0.225	30.00	-6.47
	QPSK	3615.00	H	147	297	6.66	1 / 94	16.76	23.42	0.220	30.00	-6.58
	16-QAM	3485.01	H	112	298	6.45	1 / 1	17.46	23.90	0.246	30.00	-6.10
60 MHz	11/2 BPSK	3480.00	H	112	298	6.44	1 / 1	17.94	24.38	0.274	30.00	-5.62
	11/2 BPSK	3549.99	H	153	307	6.49	1 / 160	17.09	23.58	0.228	30.00	-6.42
	11/2 BPSK	3619.98	H	147	297	6.68	1 / 1	17.32	24.00	0.251	30.00	-6.00
	QPSK	3480.00	H	112	298	6.44	1 / 1	17.82	24.26	0.267	30.00	-5.74
	QPSK	3549.99	H	153	307	6.49	1 / 160	17.04	23.53	0.225	30.00	-6.47
	QPSK	3619.98	H	147	297	6.68	1 / 1	16.91	23.59	0.228	30.00	-6.41
	16-QAM	3480.00	H	112	298	6.44	1 / 1	17.63	24.07	0.256	30.00	-5.93
50 MHz	11/2 BPSK	3475.02	H	112	298	6.43	1 / 1	17.83	24.26	0.267	30.00	-5.74
	11/2 BPSK	3549.99	H	153	307	6.49	1 / 131	16.98	23.47	0.222	30.00	-6.53
	11/2 BPSK	3624.99	H	147	297	6.70	1 / 66	17.53	24.23	0.265	30.00	-5.77
	QPSK	3475.02	H	112	298	6.43	1 / 1	17.69	24.12	0.259	30.00	-5.88
	QPSK	3549.99	H	153	307	6.49	1 / 131	16.92	23.41	0.219	30.00	-6.59
	QPSK	3624.99	H	147	297	6.70	1 / 66	16.99	23.69	0.234	30.00	-6.31
	16-QAM	3475.02	H	112	298	6.43	1 / 1	17.56	23.99	0.251	30.00	-6.01
40 MHz	11/2 BPSK	3470.01	H	112	298	6.43	1 / 1	18.06	24.48	0.281	30.00	-5.52
	11/2 BPSK	3549.99	H	153	307	6.49	1 / 104	16.99	23.48	0.223	30.00	-6.52
	11/2 BPSK	3630.00	H	147	297	6.72	1 / 1	17.34	24.06	0.254	30.00	-5.94
	QPSK	3470.01	H	112	298	6.43	1 / 1	17.87	24.29	0.269	30.00	-5.71
	QPSK	3549.99	H	153	307	6.49	1 / 104	16.89	23.38	0.218	30.00	-6.62
	QPSK	3630.00	H	147	297	6.72	1 / 1	16.89	23.61	0.229	30.00	-6.39
	16-QAM	3470.01	H	112	298	6.43	1 / 1	17.68	24.10	0.257	30.00	-5.90
30 MHz	11/2 BPSK	3465.00	H	112	298	6.42	1 / 1	17.93	24.35	0.273	30.00	-5.65
	11/2 BPSK	3549.99	H	153	307	6.49	1 / 76	16.83	23.32	0.215	30.00	-6.68
	11/2 BPSK	3634.98	H	147	297	6.74	1 / 1	17.40	24.14	0.259	30.00	-5.86
	QPSK	3465.00	H	112	298	6.42	1 / 1	17.81	24.23	0.265	30.00	-5.77
	QPSK	3549.99	H	153	307	6.49	1 / 76	16.79	23.28	0.213	30.00	-6.72
	QPSK	3634.98	H	147	297	6.74	1 / 1	17.01	23.75	0.237	30.00	-6.25
	16-QAM	3465.00	H	112	298	6.42	1 / 1	17.62	24.04	0.254	30.00	-5.96
25 MHz	11/2 BPSK	3462.51	H	113	298	6.42	1 / 1	18.12	24.53	0.284	30.00	-5.47
	11/2 BPSK	3549.99	H	113	298	6.49	1 / 63	16.79	23.28	0.213	30.00	-6.72
	11/2 BPSK	3637.50	H	113	298	6.75	1 / 1	17.20	23.95	0.248	30.00	-6.05
	QPSK	3462.51	H	113	298	6.42	1 / 1	18.00	24.41	0.276	30.00	-5.59
	QPSK	3549.99	H	113	298	6.49	1 / 63	16.72	23.21	0.209	30.00	-6.79
	QPSK	3637.50	H	113	298	6.75	1 / 1	16.80	23.55	0.226	30.00	-6.45
	16-QAM	3462.51	H	113	298	6.42	1 / 1	17.80	24.21	0.264	30.00	-5.79
20 MHz	11/2 BPSK	3460.02	H	112	298	6.42	1 / 1	17.99	24.40	0.276	30.00	-5.60
	11/2 BPSK	3549.99	H	153	307	6.49	1 / 49	16.67	23.16	0.207	30.00	-6.84
	11/2 BPSK	3639.99	H	147	297	6.76	1 / 25	17.22	23.98	0.250	30.00	-6.02
	QPSK	3460.02	H	112	298	6.42	1 / 25	17.94	24.35	0.273	30.00	-5.65
	QPSK	3549.99	H	153	307	6.49	1 / 25	16.81	23.30	0.214	30.00	-6.70
	QPSK	3639.99	H	147	297	6.76	1 / 1	16.71	23.47	0.222	30.00	-6.53
	16-QAM	3460.02	H	112	298	6.42	1 / 25	17.83	24.24	0.266	30.00	-5.76
15 MHz	11/2 BPSK	3457.50	H	112	298	6.41	1 / 1	17.92	24.33	0.271	30.00	-5.67
	11/2 BPSK	3549.99	H	153	307	6.49	1 / 36	16.62	23.11	0.205	30.00	-6.89
	11/2 BPSK	3642.50	H	147	297	6.77	1 / 19	17.21	23.98	0.250	30.00	-6.02
	QPSK	3457.50	H	112	298	6.41	1 / 1	17.81	24.22	0.265	30.00	-5.78
	QPSK	3549.99	H	153	307	6.49	1 / 36	16.50	22.99	0.199	30.00	-7.01
	QPSK	3642.50	H	147	297	6.77	1 / 19	16.75	23.52	0.225	30.00	-6.48
	16-QAM	3457.50	H	112	298	6.41	1 / 1	17.56	23.97	0.250	30.00	-6.03
10 MHz	11/2 BPSK	3455.04	H	112	298	6.41	1 / 1	17.92	24.32	0.271	30.00	-5.68
	11/2 BPSK	3549.99	H	153	307	6.49	1 / 22	16.60	23.09	0.204	30.00	-6.91
	11/2 BPSK	3645.00	H	147	297	6.78	1 / 1	16.95	23.73	0.236	30.00	-6.27
	QPSK	3455.04	H	112	298	6.41	1 / 1	17.81	24.21	0.264	30.00	-5.79
	QPSK	3549.99	H	153	307	6.49	1 / 22	16.58	23.07	0.203	30.00	-6.93
	QPSK	3645.00	H	147	297	6.78	1 / 1	16.98	23.36	0.217	30.00	-6.64
	16-QAM	3455.04	H	112	298	6.41	1 / 1	17.51	23.91	0.246	30.00	-6.09
100 MHz	QPSK (CP-OFDM)	3500.01	H	126	304	6.49	1 / 1	15.68	22.17	0.165	30.00	-7.83

Table 7-33. EIRP Data (NR Band n78- Ant1)

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7.8 Radiated Spurious Emissions Measurements

Test Overview

Radiated spurious emissions measurements are performed using the field strength conversion method described in ANSI C63.26-2015 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using hybrid (biconical/log) antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as RMS measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

ANSI C63.26-2015 – Section 5.5.4

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.

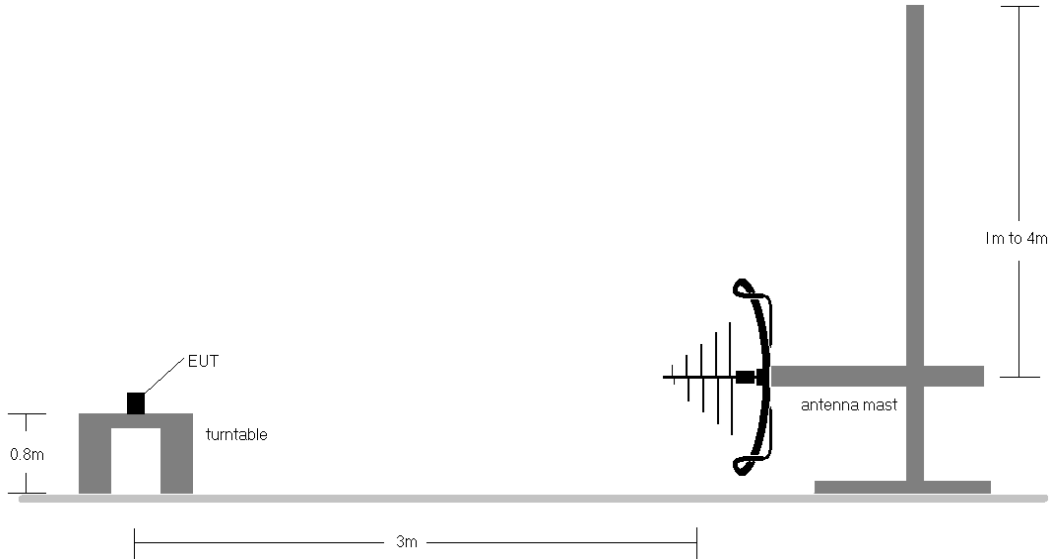


Figure 7-7. Test Instrument & Measurement Setup < 1GHz

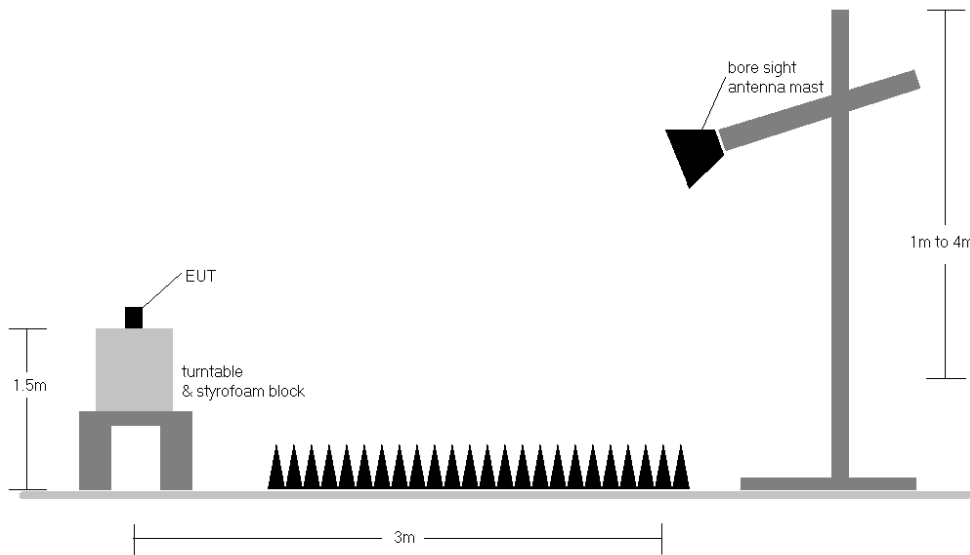


Figure 7-8. Test Instrument & Measurement Setup >1 GHz

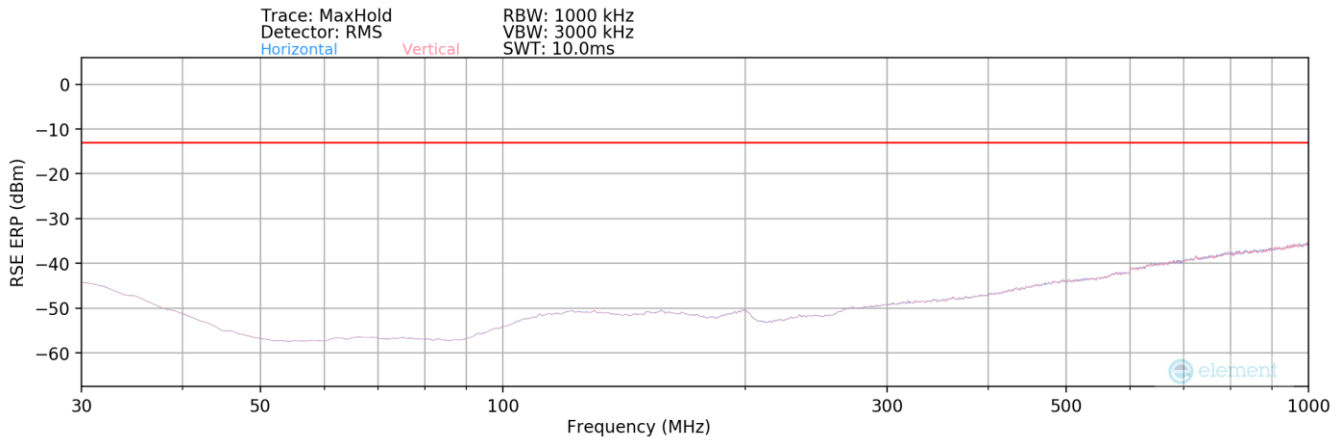
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Test Notes

- 1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
 - b) $E(\text{dB}\mu\text{V}/\text{m}) = \text{Measured amplitude level (dBm)} + 107 + \text{Cable Loss (dB)} + \text{Antenna Factor (dB/m)}$
 - d) $\text{EIRP (dBm)} = E(\text{dB}\mu\text{V}/\text{m}) + 20\log D - 104.8$; where D is the measurement distance in meters.
- 2) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case emissions are reported with the EUT positioning, modulations, RB sizes and offsets, and channel bandwidth configurations shown in the tables below.
- 3) This unit was tested with its standard battery.
- 4) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 5) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 6) The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 7) For NR operation, all subcarrier spacings (SCS) and transmission schemes (e.g. CP-OFDM and DFT-s-OFDM) were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.
- 8) Spurious emission in EN-DC Operating mode with Sub 6GHz NR carrier as well as an LTE carrier (anchor) has been checked and was found to not to be the worst case. Spurious emissions from the NR carrier device are subject to the rules under which the NR carrier operates. Spurious emissions caused by the LTE carrier must meet the requirements of the rules under which the LTE carrier operates.

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NR Band n77 – Ant1



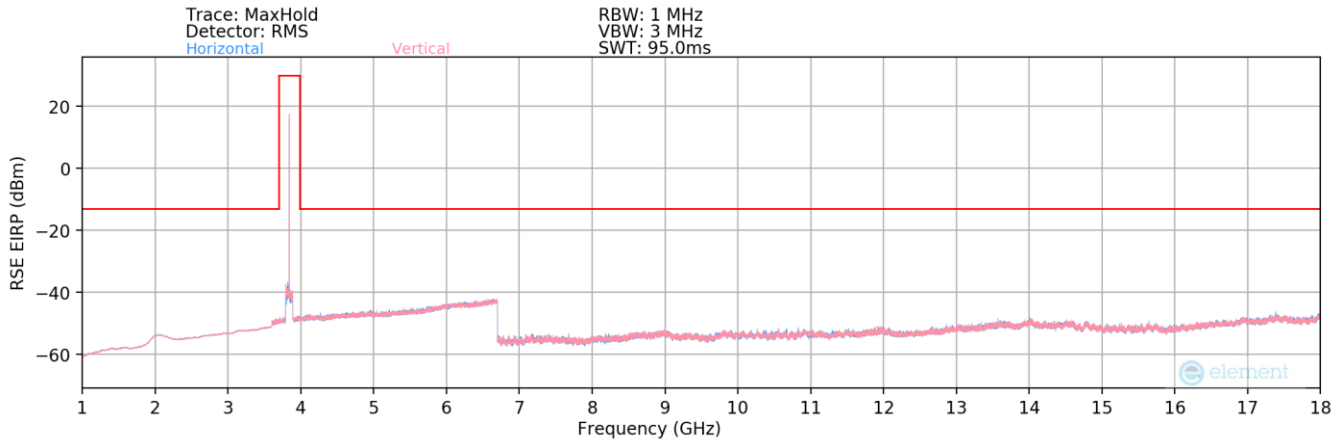
Plot 7-124. Radiated Spurious Plot – Below 1GHz (NR Band n77 – Ant1)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 136
Mode:	Stand Alone

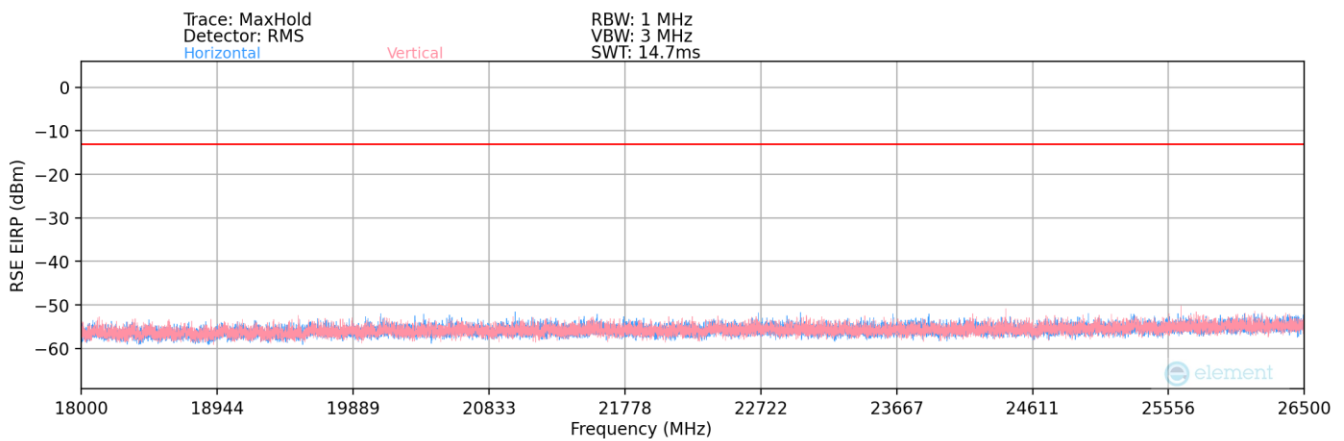
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
167.00	H	-	-	-80.86	19.75	45.89	-51.52	-13.00	-38.52
225.00	H	-	-	-80.56	18.14	44.58	-52.83	-13.00	-39.83
493.00	H	-	-	-80.72	25.80	52.08	-45.32	-13.00	-32.32

Table 7-34. Radiated Spurious Data – Below 1GHz (NR Band n77 – Ant1)

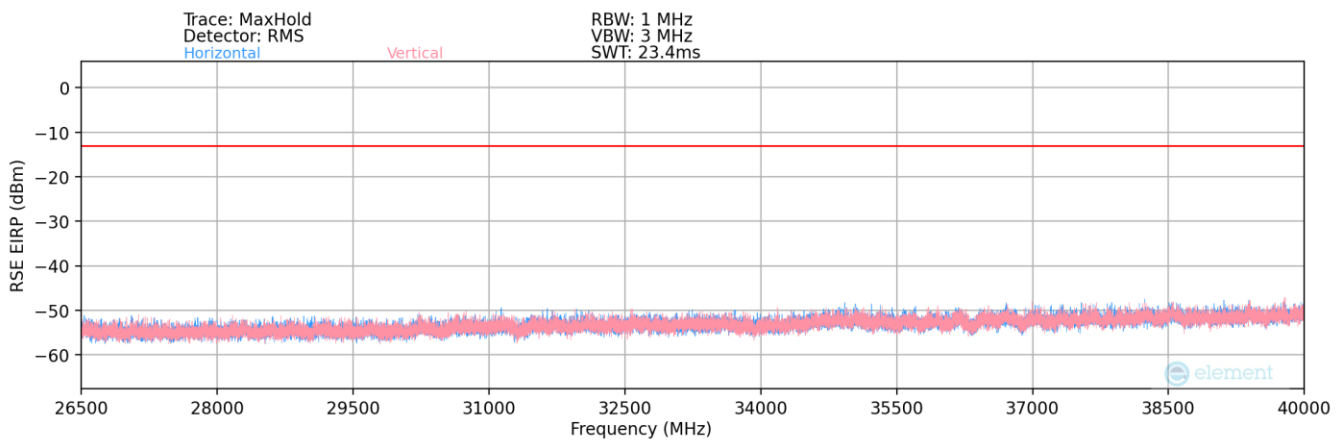
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Plot 7-125. Radiated Spurious Plot - 1GHz - 18GHz (NR Band n77 - Ant1)



Plot 7-126. Radiated Spurious Plot - 18GHz - 25.5GHz (NR Band n77 - Ant1)



Plot 7-127. Radiated Spurious Plot - 26.5GHz - 40GHz (NR Band n77 - Ant1)

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Bandwidth (MHz):	100
Frequency (MHz):	3750.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7500.00	H	168	61	-74.53	9.72	42.19	-53.07	-13.00	-40.07
11250.00	H	158	62	-76.69	12.07	42.38	-52.88	-13.00	-39.88
15000.00	H	182	18	-76.45	14.86	45.41	-49.84	-13.00	-36.84
18750.00	H	-	-	-57.33	1.87	51.54	-53.26	-13.00	-40.26
22500.00	H	-	-	-57.76	3.97	53.22	-51.58	-13.00	-38.58
26250.00	H	-	-	-58.15	4.35	53.19	-51.61	-13.00	-38.61

Table 7-35. Radiated Spurious Data (NR Band n77 – Low Channel – Ant1)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7680.00	H	333	56	-70.94	8.49	44.55	-50.71	-13.00	-37.71
11520.00	H	150	43	-73.14	12.59	46.45	-48.81	-13.00	-35.81
15360.00	H	132	48	-76.60	14.87	45.27	-49.99	-13.00	-36.99
19200.00	H	-	-	-56.89	2.25	52.37	-52.43	-13.00	-39.43
23040.00	H	-	-	-56.27	3.99	54.72	-50.08	-13.00	-37.08
26880.00	H	-	-	-57.59	4.75	54.16	-50.64	-13.00	-37.64

Table 7-36. Radiated Spurious Data (NR Band n77 – Mid Channel – Ant1)

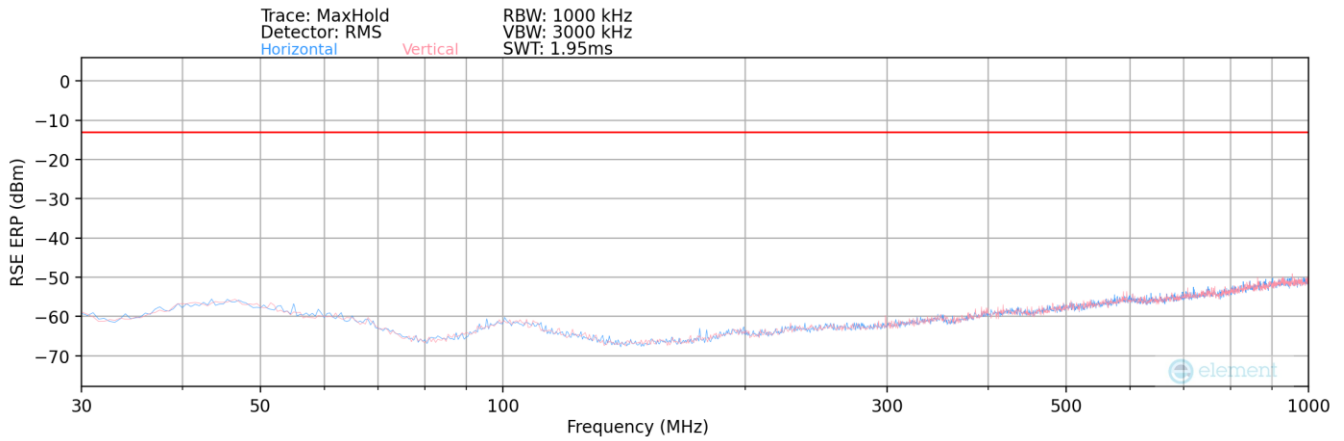
Bandwidth (MHz):	100
Frequency (MHz):	3930.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7860.00	H	243	322	-72.97	8.96	42.99	-52.27	-13.00	-39.27
11790.00	H	211	34	-77.52	13.13	42.61	-52.65	-13.00	-39.65
15720.00	H	265	35	-78.10	15.19	44.09	-51.17	-13.00	-38.17
19650.00	H	-	-	-57.74	2.78	52.04	-52.76	-13.00	-39.76
23580.00	H	-	-	-58.83	4.00	52.17	-52.63	-13.00	-39.63
27510.00	H	-	-	-57.72	4.62	53.90	-50.90	-13.00	-37.90

Table 7-37. Radiated Spurious Data (NR Band n77 – High Channel – Ant1)

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NR Band n77 – Ant2



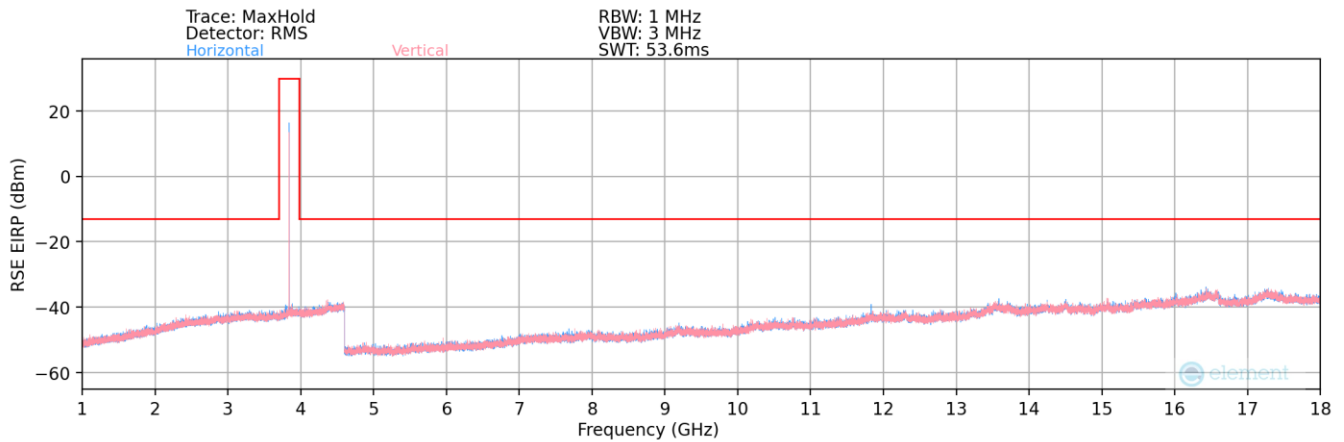
Plot 7-128. Radiated Spurious Plot – Below 1GHz (NR Band n77 – Ant2)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 136
Mode:	Stand Alone

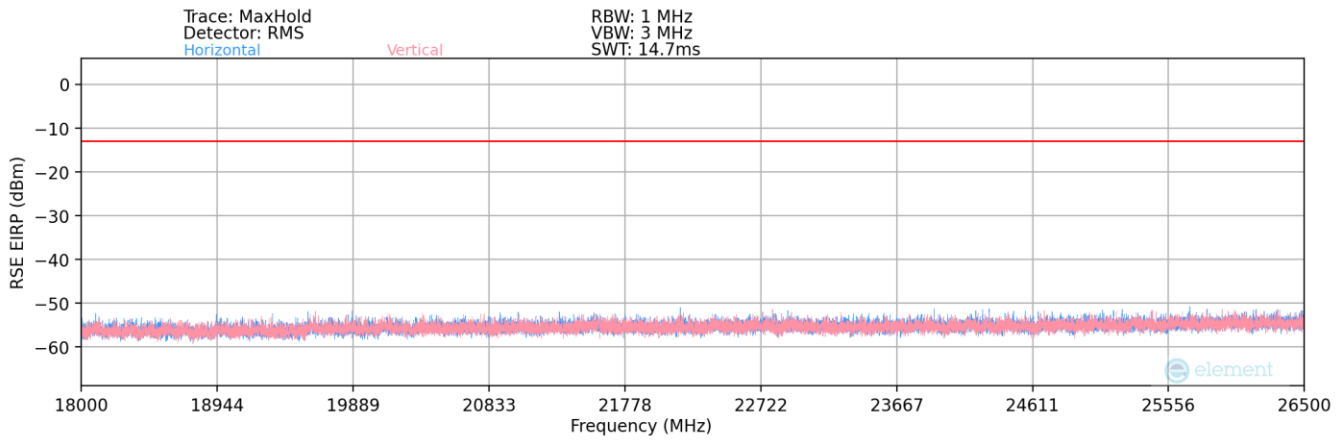
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
699.00	H	-	-	-66.68	-0.92	39.40	-58.01	-13.00	-45.01

Table 7-38. Radiated Spurious Data – Below 1GHz (NR Band n77 – Ant2)

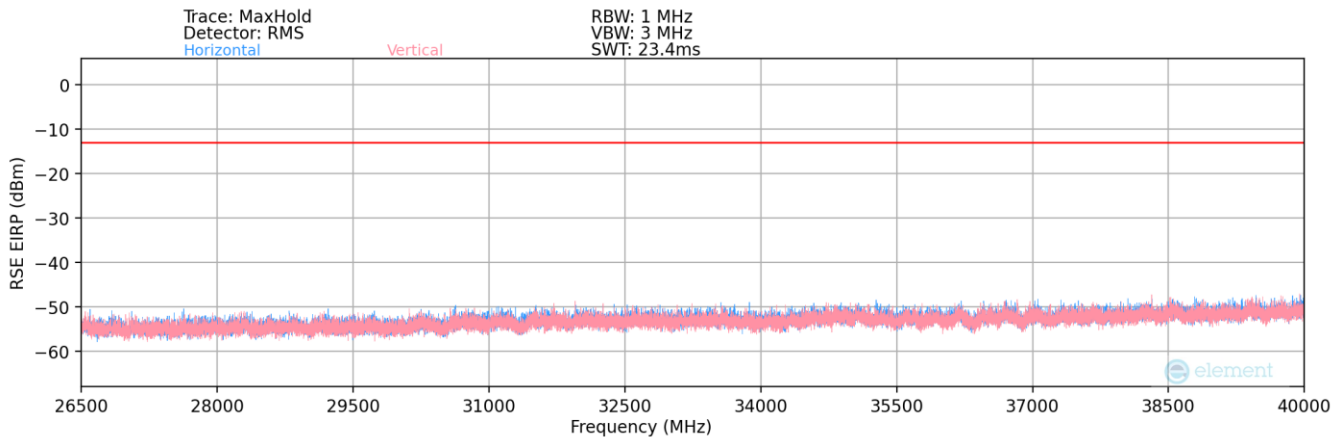
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-129. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n77 – Ant2)



Plot 7-130. Radiated Spurious Plot – 18GHz – 25.5GHz (NR Band n77 – Ant2)



Plot 7-131. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n77 – Ant2)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth (MHz):	100
Frequency (MHz):	3750.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7500.00	H	-	-	-73.58	15.93	49.35	-45.91	-13.00	-32.91
11250.00	H	-	-	-74.89	21.35	53.46	-41.79	-13.00	-28.79
15000.00	H	-	-	-75.68	26.20	57.52	-37.74	-13.00	-24.74

Table 7-39. Radiated Spurious Data (NR Band n77 – Low Channel – Ant2)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7680.00	H	-	-	-73.39	15.91	49.52	-45.74	-13.00	-32.74
11520.00	H	-	-	-74.89	22.28	54.39	-40.87	-13.00	-27.87
15360.00	H	-	-	-74.92	27.28	59.36	-35.89	-13.00	-22.89

Table 7-40. Radiated Spurious Data (NR Band n77 – Mid Channel – Ant2)

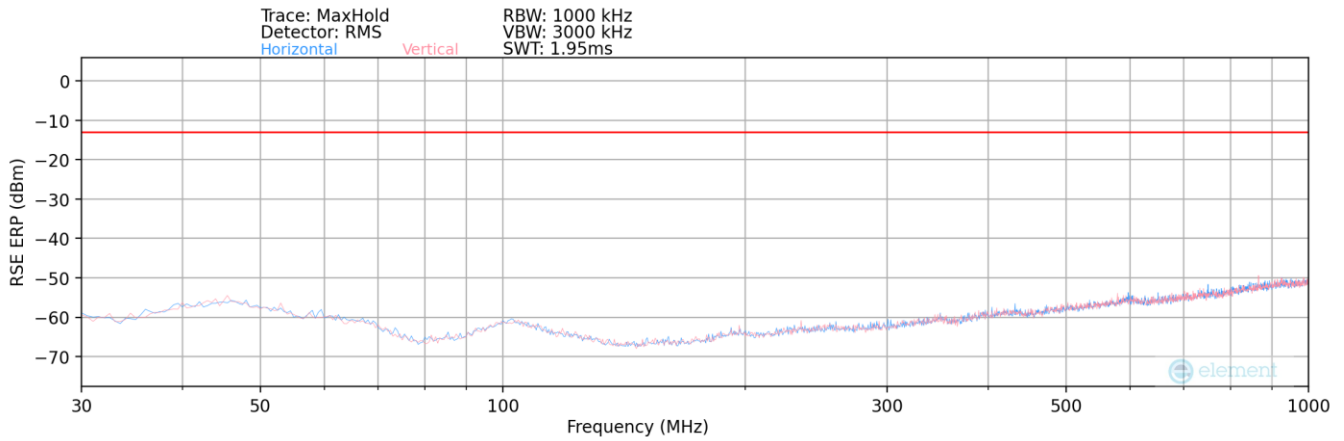
Bandwidth (MHz):	100
Frequency (MHz):	3930.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7860.00	H	-	-	-73.44	15.90	49.46	-45.80	-13.00	-32.80
11790.00	H	-	-	-74.78	21.45	53.67	-41.59	-13.00	-28.59
15720.00	H	-	-	-76.38	28.22	58.84	-36.41	-13.00	-23.41

Table 7-41. Radiated Spurious Data (NR Band n77 – High Channel – Ant2)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n77 – Ant3



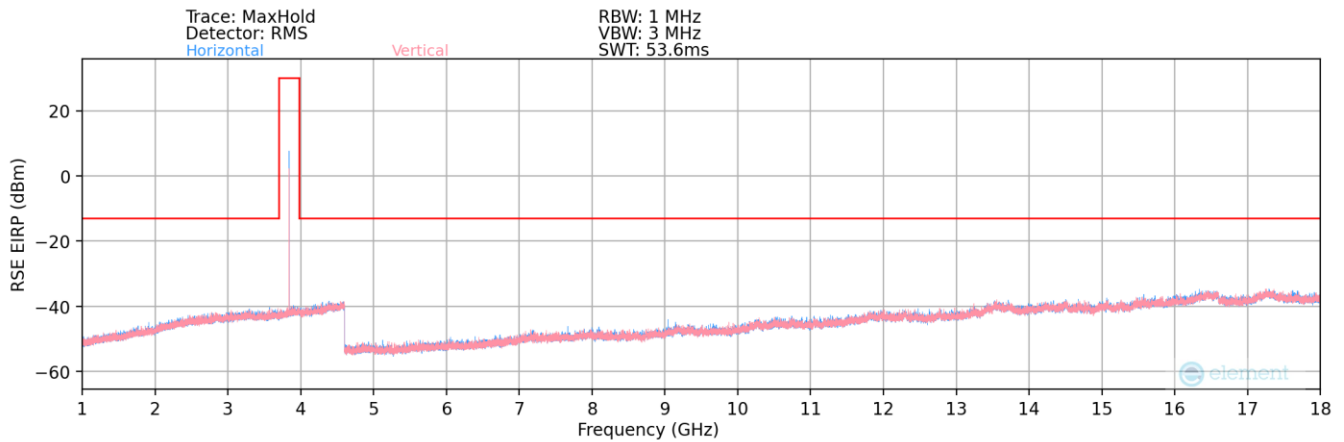
Plot 7-132. Radiated Spurious Plot – Below 1GHz (NR Band n77 – Ant3)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 136
Mode:	Stand Alone

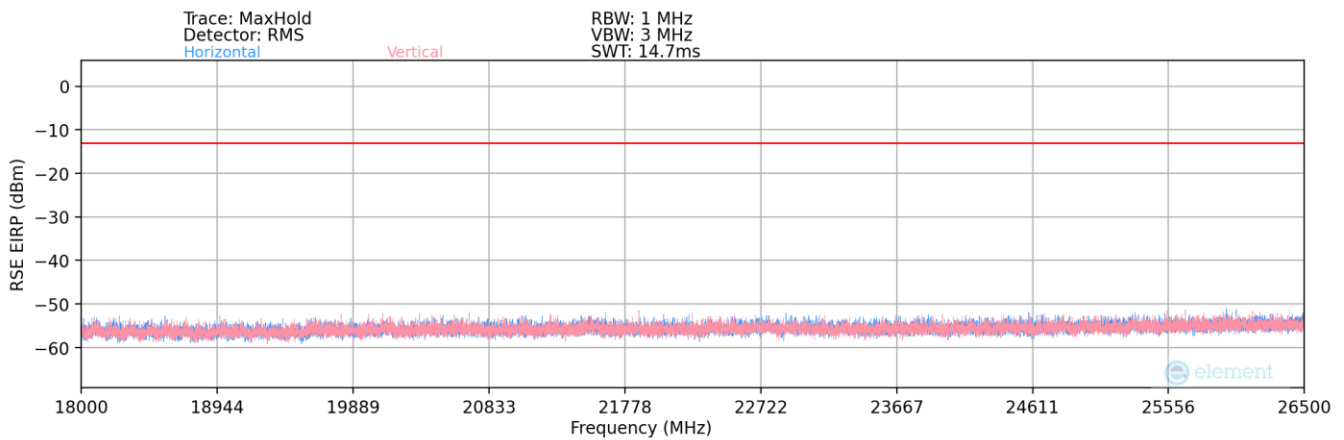
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
720.00	H	-	-	-66.38	-0.70	39.92	-57.48	-13.00	-44.48

Table 7-42. Radiated Spurious Data – Below 1GHz (NR Band n77 – Ant3)

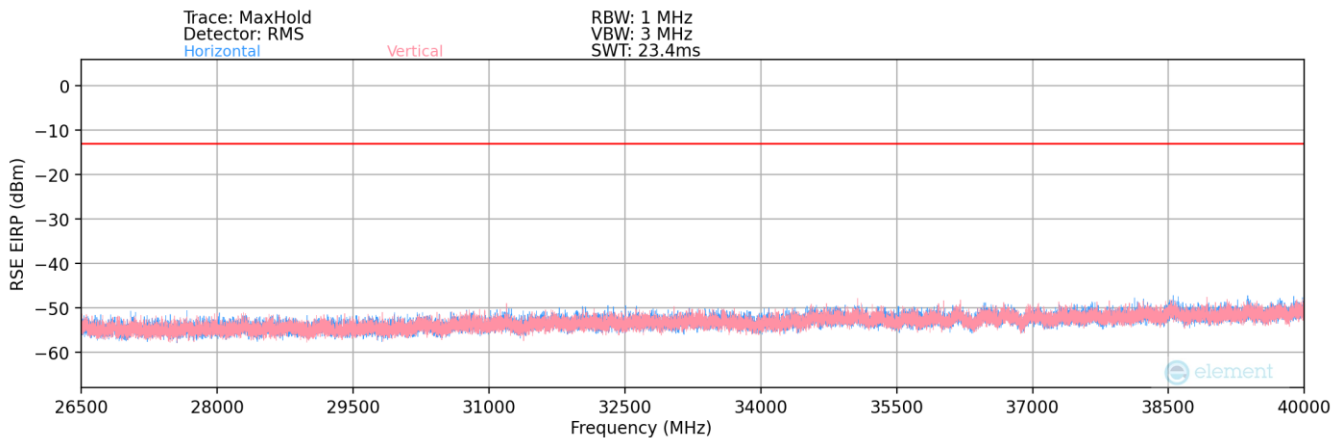
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-05.A3L	Test Dates: 9/21/2023 - 10/23/2023	EUT Type: Portable Handset	Page 122 of 146



Plot 7-133. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n77 – Ant3)



Plot 7-134. Radiated Spurious Plot – 18GHz – 25.5GHz (NR Band n77 – Ant3)



Plot 7-135. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n77 – Ant3)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth (MHz):	100
Frequency (MHz):	3750.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7500.00	H	-	-	-73.27	15.93	49.66	-45.60	-13.00	-32.60
11250.00	H	-	-	-75.07	21.35	53.28	-41.97	-13.00	-28.97
15000.00	H	-	-	-76.10	26.20	57.10	-38.16	-13.00	-25.16

Table 7-43. Radiated Spurious Data (NR Band n77 – Low Channel – Ant3)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7680.00	H	-	-	-73.72	15.91	49.19	-46.07	-13.00	-33.07
11520.00	H	-	-	-75.42	22.28	53.86	-41.40	-13.00	-28.40
15360.00	H	-	-	-76.04	27.28	58.24	-37.01	-13.00	-24.01

Table 7-44. Radiated Spurious Data (NR Band n77 – Mid Channel – Ant3)

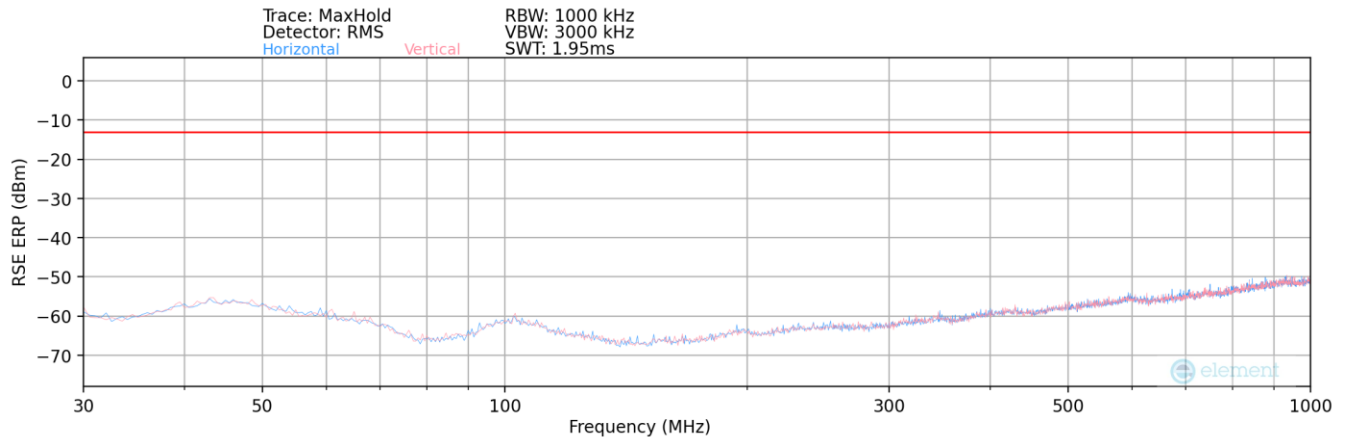
Bandwidth (MHz):	100
Frequency (MHz):	3930.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7860.00	H	-	-	-72.84	15.90	50.06	-45.20	-13.00	-32.20
11790.00	H	-	-	-74.36	21.45	54.09	-41.17	-13.00	-28.17
15720.00	H	-	-	-76.67	28.22	58.55	-36.70	-13.00	-23.70

Table 7-45. Radiated Spurious Data (NR Band n77 – High Channel – Ant3)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n77 – Ant4



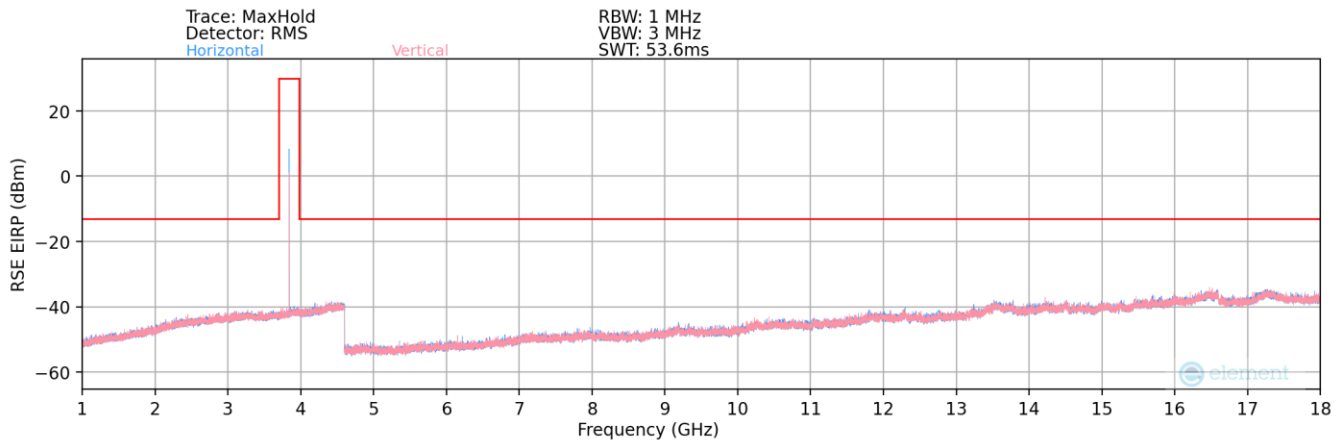
Plot 7-136. Radiated Spurious Plot – Below 1GHz (NR Band n77 – Ant4)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 136
Mode:	Stand Alone

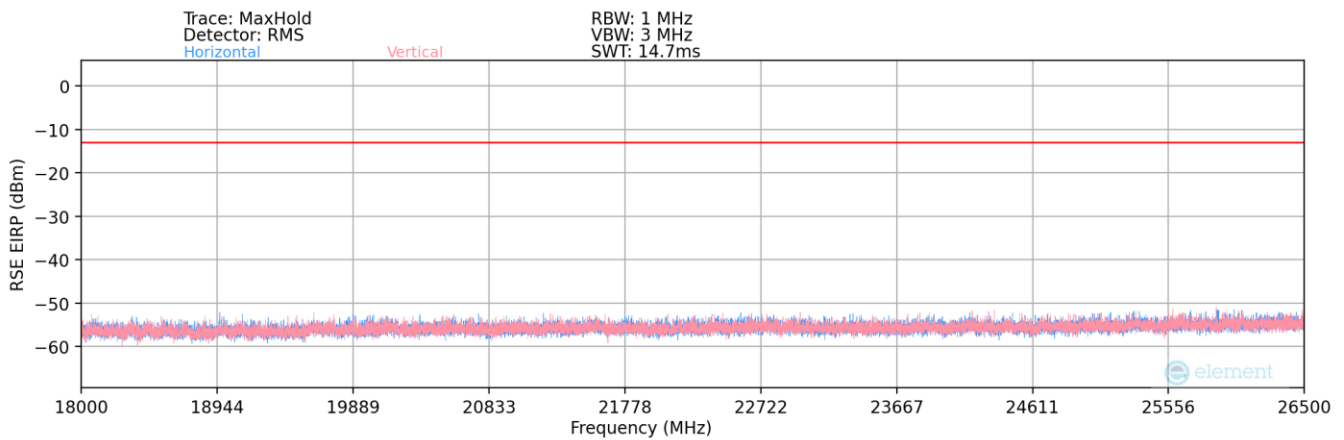
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
821.00	H	-	-	-66.23	0.68	41.45	-55.96	-13.00	-42.96

Table 7-46. Radiated Spurious Data – Below 1GHz (NR Band n77 – Ant4)

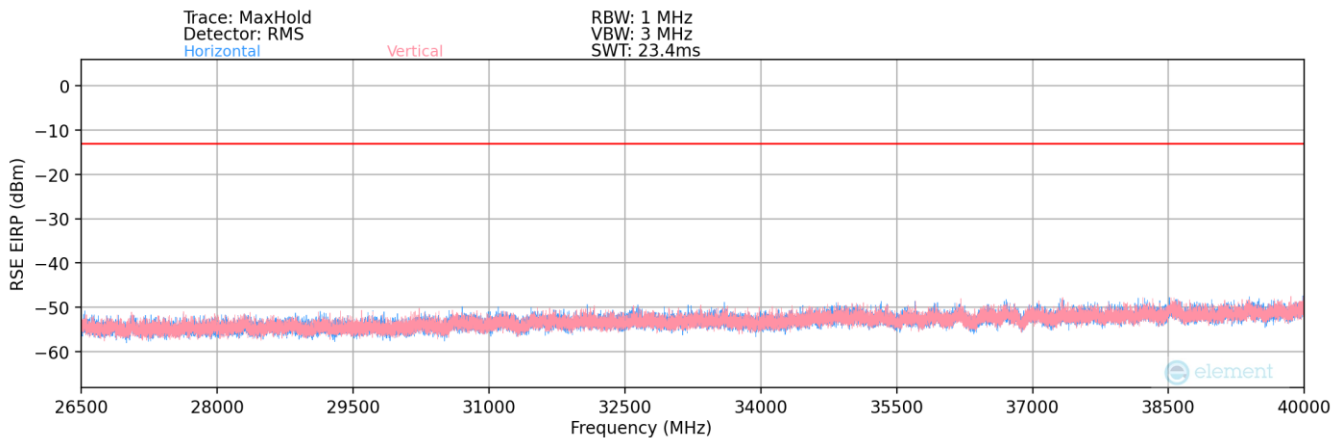
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-137. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n77 – Ant4)



Plot 7-138. Radiated Spurious Plot – 18GHz – 25.5GHz (NR Band n77 – Ant4)



Plot 7-139. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n77 – Ant4)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Bandwidth (MHz):	100
Frequency (MHz):	3750.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7500.00	H	-	-	-73.46	15.93	49.47	-45.79	-13.00	-32.79
11250.00	H	-	-	-74.93	21.35	53.42	-41.83	-13.00	-28.83
15000.00	H	-	-	-75.46	26.20	57.74	-37.52	-13.00	-24.52

Table 7-47. Radiated Spurious Data (NR Band n77 – Low Channel – Ant4)

Bandwidth (MHz):	100
Frequency (MHz):	3840.00
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7680.00	H	-	-	-73.57	15.91	49.34	-45.92	-13.00	-32.92
11520.00	H	-	-	-74.71	22.28	54.57	-40.69	-13.00	-27.69
15360.00	H	-	-	-76.25	27.28	58.03	-37.22	-13.00	-24.22

Table 7-48. Radiated Spurious Data (NR Band n77 – Mid Channel – Ant4)

Bandwidth (MHz):	100
Frequency (MHz):	3930.00
RB / Offset:	1 / 136
Mode:	Stand Alone

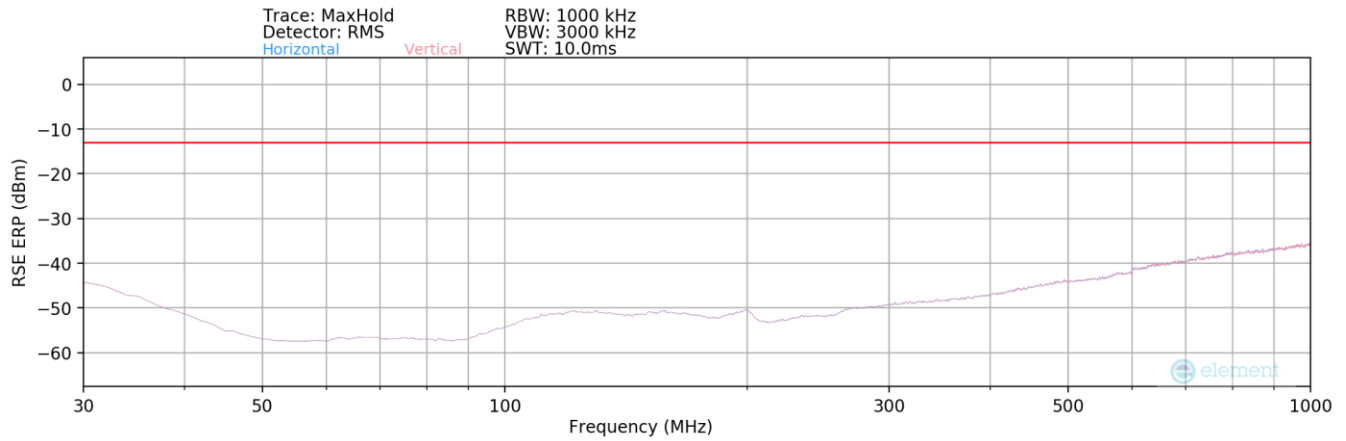
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7860.00	H	-	-	-72.97	15.90	49.93	-45.33	-13.00	-32.33
11790.00	H	-	-	-74.95	21.45	53.50	-41.76	-13.00	-28.76
15720.00	H	-	-	-75.70	28.22	59.52	-35.73	-13.00	-22.73

Table 7-49. Radiated Spurious Data (NR Band n77 – High Channel – Ant4)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n77 (DoD Band) – Ant1



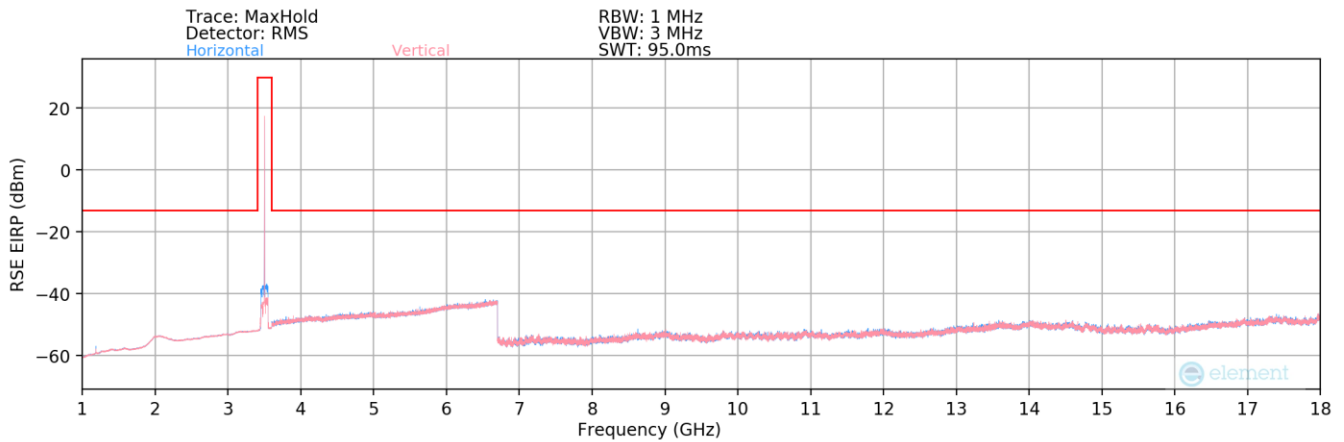
Plot 7-140. Radiated Spurious Plot – Below 1GHz (NR Band n77 (DoD) – Ant1)

Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 136
Mode:	Stand Alone

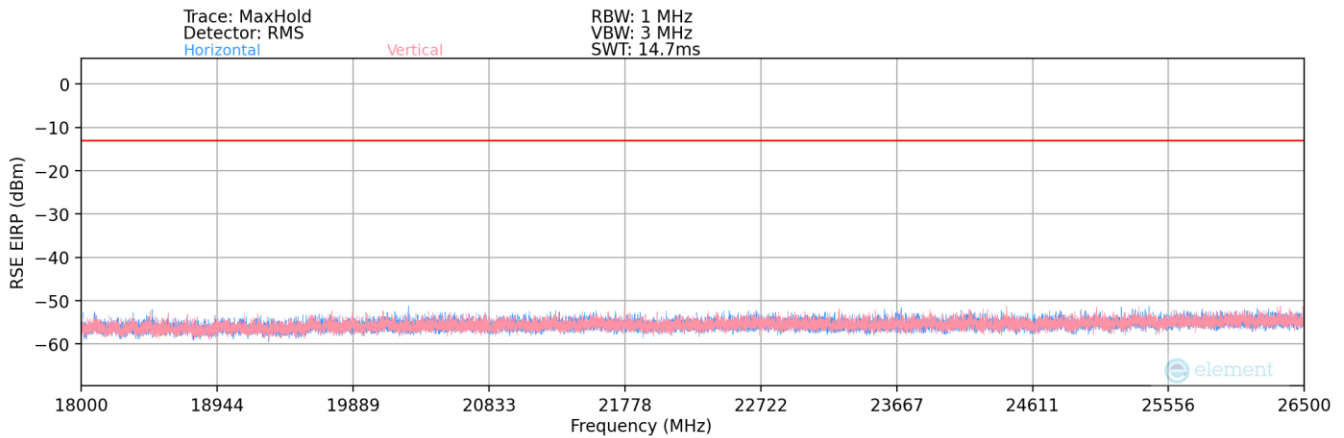
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
143.00	V	-	-	-80.93	19.56	45.63	-51.78	-13.00	-38.78
353.00	V	-	-	-80.76	22.11	48.35	-49.06	-13.00	-36.06
493.00	V	-	-	-80.77	25.80	52.03	-45.37	-13.00	-32.37

Table 7-50. Radiated Spurious Data with WCP (NR Band n77 (DoD) – Ant1)

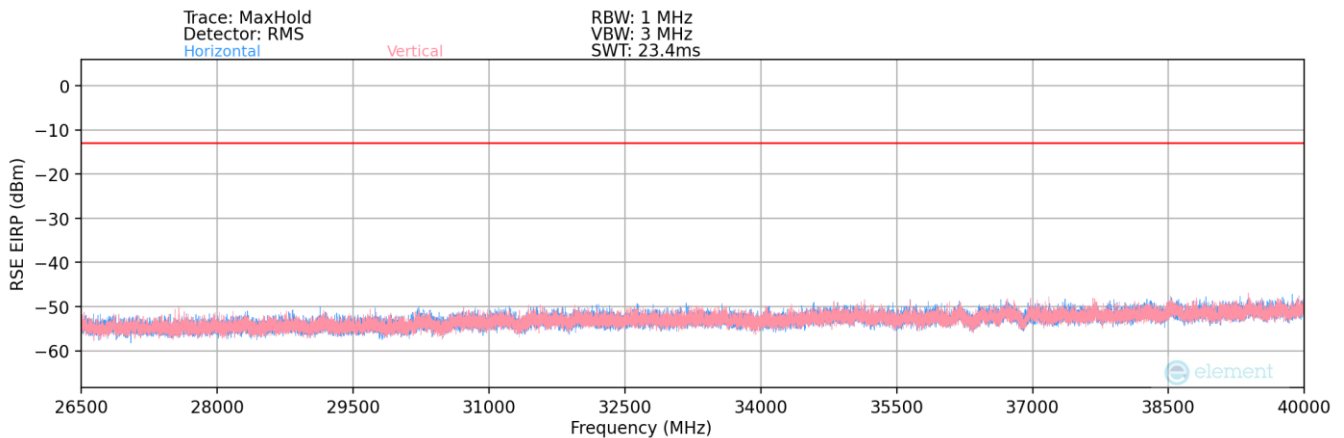
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-141. Radiated Spurious Plot - 1GHz - 18GHz (NR Band n77 (DoD) - Ant1)



Plot 7-142. Radiated Spurious Plot - 18GHz - 25.5GHz (NR Band n77 (DoD) - Ant1)



Plot 7-143. Radiated Spurious Plot - 26.5GHz - 40GHz (NR Band n77 (DoD) - Ant1)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-05.A3L	Test Dates: 9/21/2023 - 10/23/2023	EUT Type: Portable Handset	Page 129 of 146



Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 136
Mode:	Stand Alone

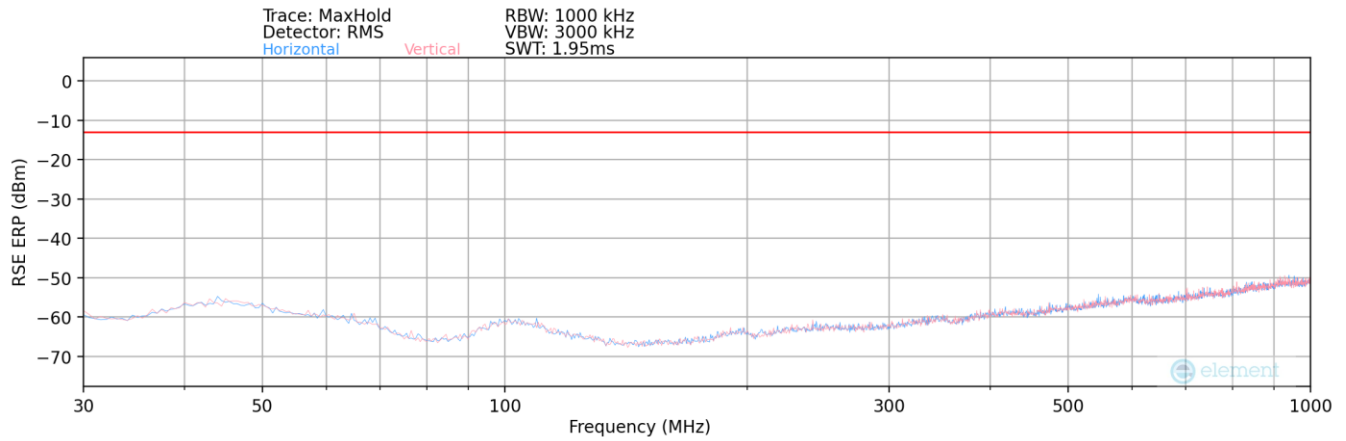
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7000.02	V	153	27	-75.00	8.71	40.71	-54.55	-13.00	-41.55
10500.03	V	-	-	-78.76	11.97	40.21	-55.05	-13.00	-42.05
14000.04	V	-	-	-78.78	15.96	44.18	-51.08	-13.00	-38.08
17500.05	V	-	-	-78.40	17.31	45.91	-49.35	-13.00	-36.35

Table 7-51. Radiated Spurious Data (NR Band n77 (DoD) – Mid Channel – Ant1)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n77 (DoD Band) – Ant2



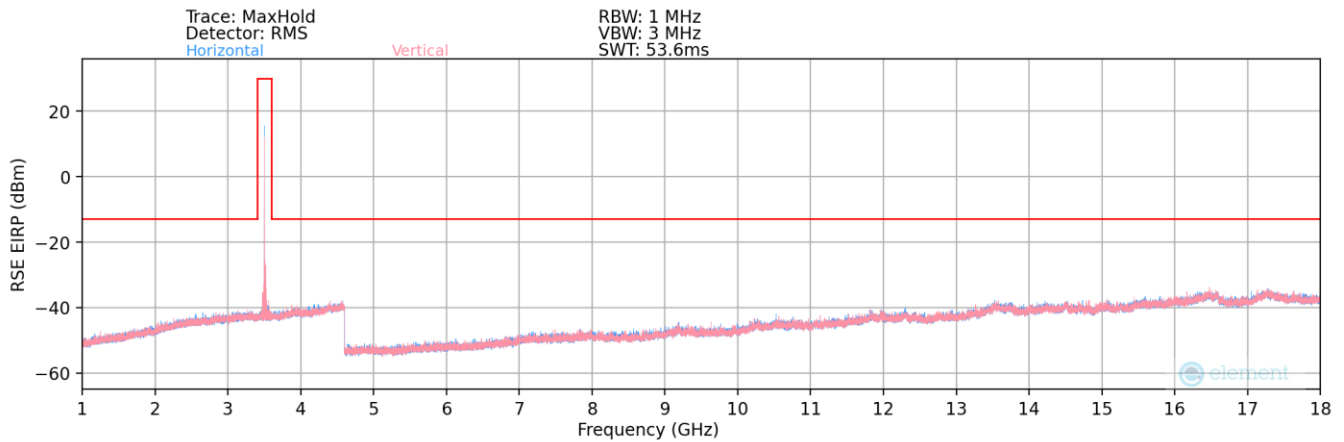
Plot 7-144. Radiated Spurious Plot – Below 1GHz (NR Band n77 (DoD) – Ant2)

Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 136
Mode:	Stand Alone

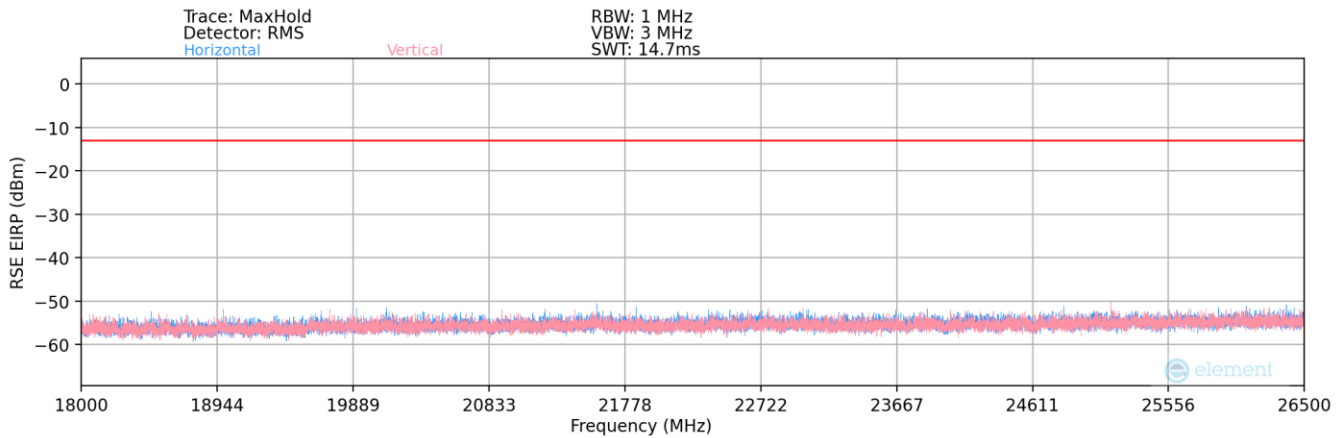
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
550.00	H	-	-	-66.50	-3.64	36.86	-60.55	-13.00	-47.55

Table 7-52. Radiated Spurious Data – Below 1GHz (NR Band n77 (DoD) – Ant2)

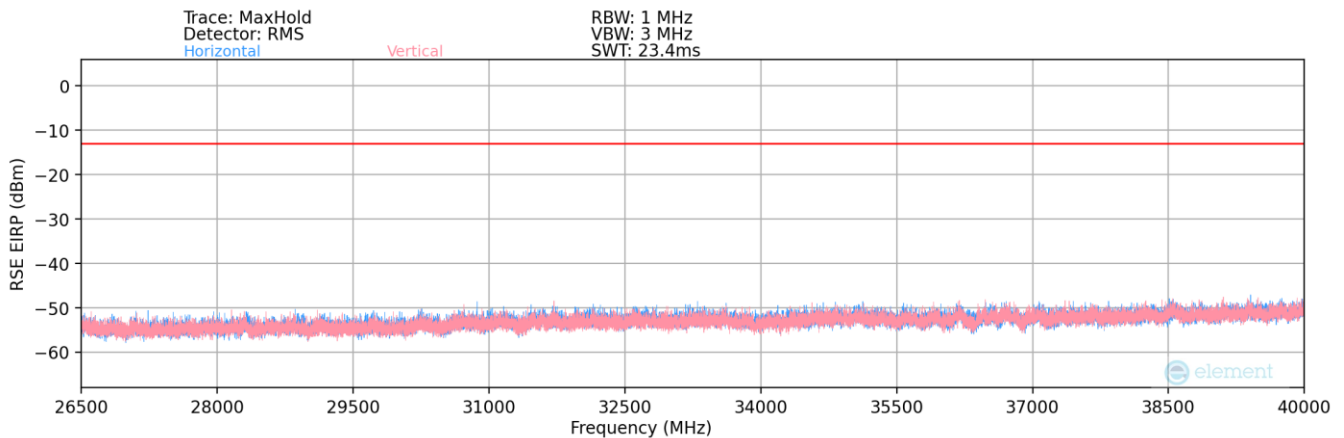
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-145. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n77 (DoD) – Ant2)



Plot 7-146. Radiated Spurious Plot – 18GHz – 25.5GHz (NR Band n77 (DoD) – Ant2)



Plot 7-147. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n77 (DoD) – Ant2)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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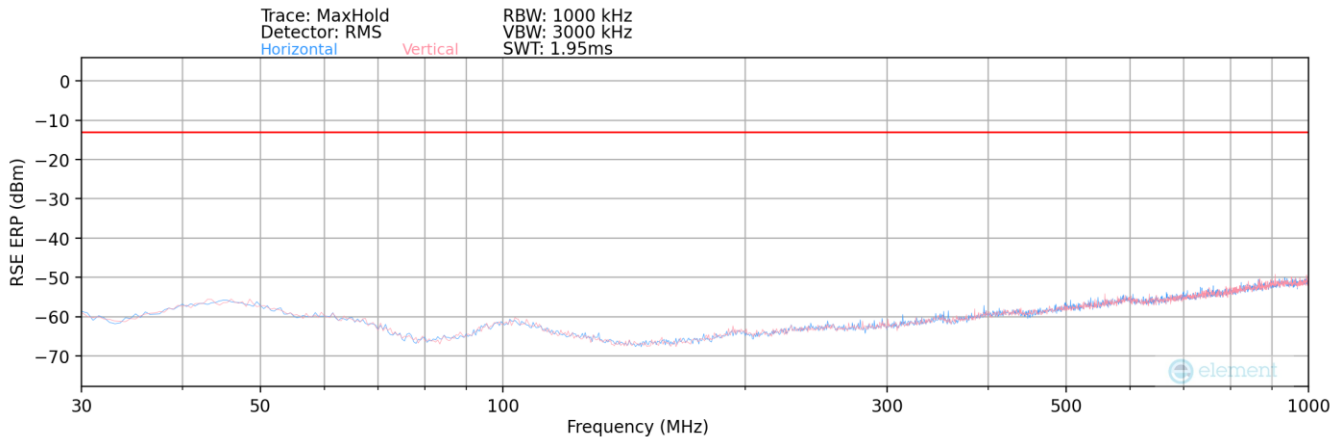
Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7000.02	H	-	-	-72.82	14.74	48.92	-46.33	-13.00	-33.33
10500.03	H	-	-	-74.67	20.06	52.39	-42.87	-13.00	-29.87
14000.04	H	-	-	-75.38	25.58	57.20	-38.06	-13.00	-25.06

Table 7-53. Radiated Spurious Data (NR Band n77 (DoD) – Mid Channel – Ant2)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n77 (DoD Band) – Ant3



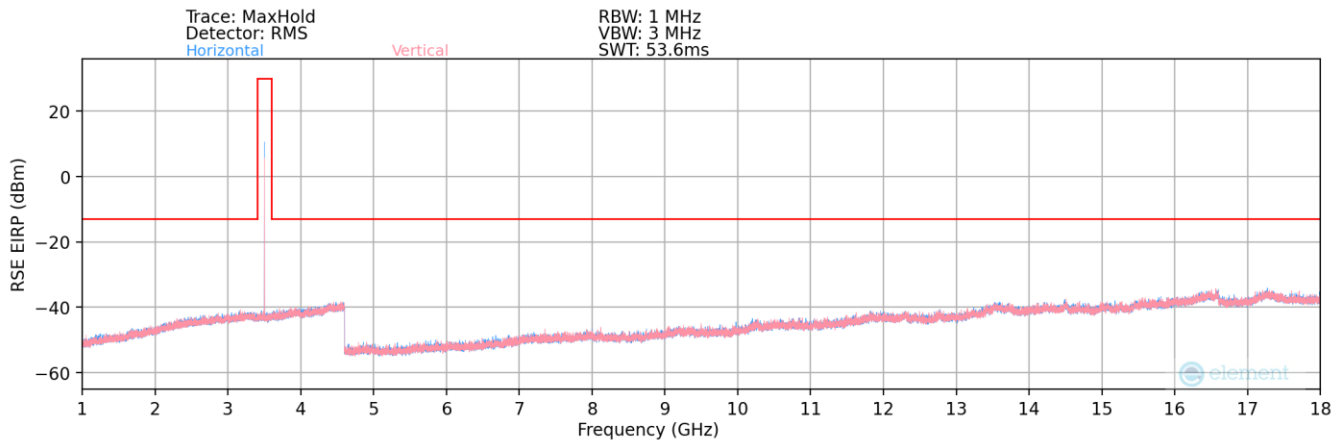
Plot 7-148. Radiated Spurious Plot – Below 1GHz (NR Band n77 (DoD) – Ant3)

Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 136
Mode:	Stand Alone

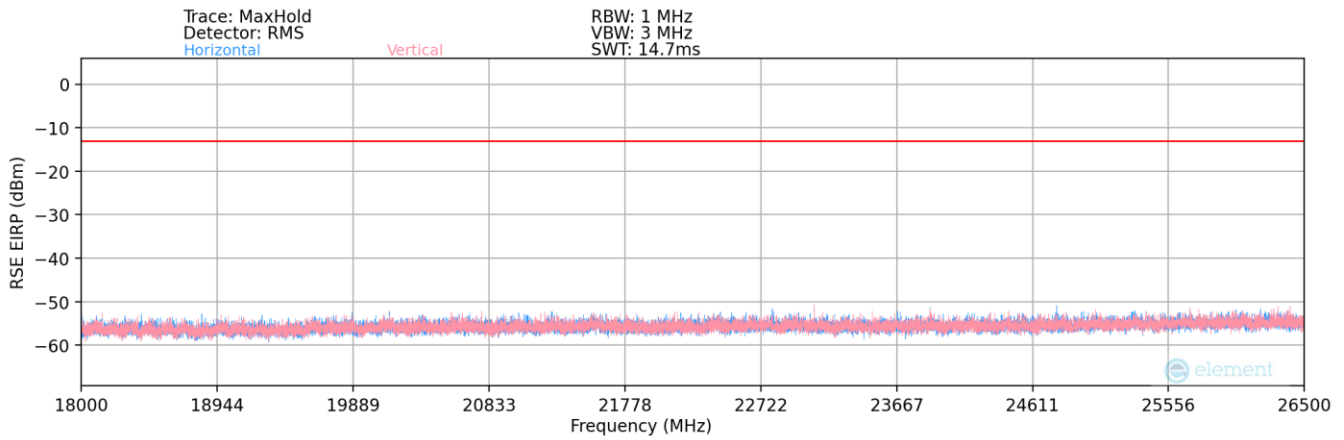
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
750.00	H	-	-	-66.62	-0.24	40.14	-57.26	-13.00	-44.26

Table 7-54. Radiated Spurious Data – Below 1GHz (NR Band n77 (DoD) – Ant3)

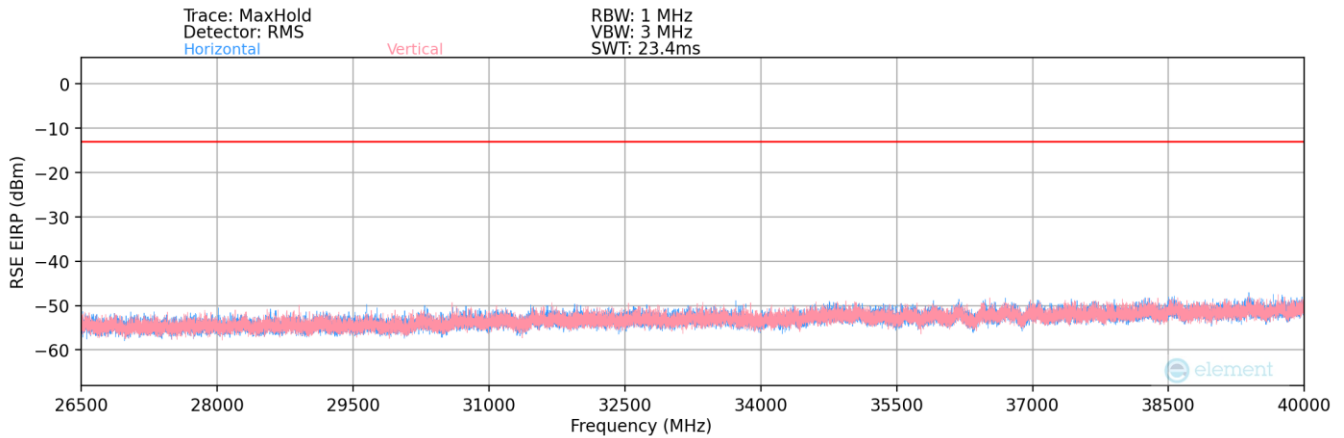
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-05.A3L	Test Dates: 9/21/2023 - 10/23/2023	EUT Type: Portable Handset	Page 134 of 146



Plot 7-149. Radiated Spurious Plot - 1GHz - 18GHz (NR Band n77 (DoD) - Ant3)



Plot 7-150. Radiated Spurious Plot - 18GHz - 25.5GHz (NR Band n77 (DoD) - Ant3)



Plot 7-151. Radiated Spurious Plot - 26.5GHz - 40GHz (NR Band n77 (DoD) - Ant3)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
Test Report S/N: 1M2309070100-05.A3L	Test Dates: 9/21/2023 - 10/23/2023	EUT Type: Portable Handset	Page 135 of 146



Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 136
Mode:	Stand Alone

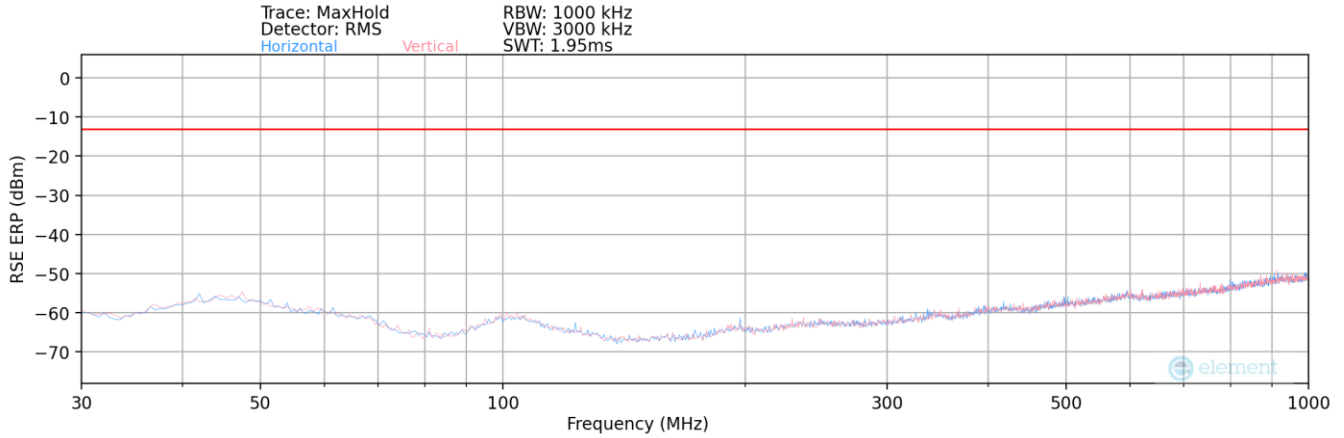
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7000.02	H	-	-	-72.65	14.74	49.09	-46.16	-13.00	-33.16
10500.03	H	-	-	-74.13	20.06	52.93	-42.33	-13.00	-29.33
14000.04	H	-	-	-75.45	25.58	57.13	-38.13	-13.00	-25.13

Table 7-55. Radiated Spurious Data (NR Band n77 (DoD) – Mid Channel – Ant3)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n77 (DoD Band) – Ant4



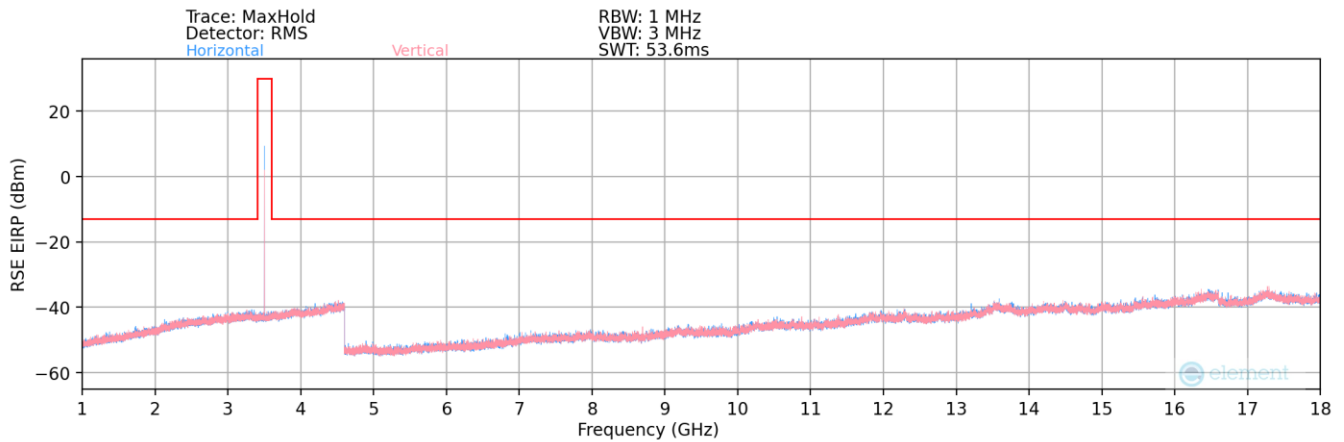
Plot 7-152. Radiated Spurious Plot – Below 1GHz (NR Band n77 (DoD) – Ant4)

Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 136
Mode:	Stand Alone

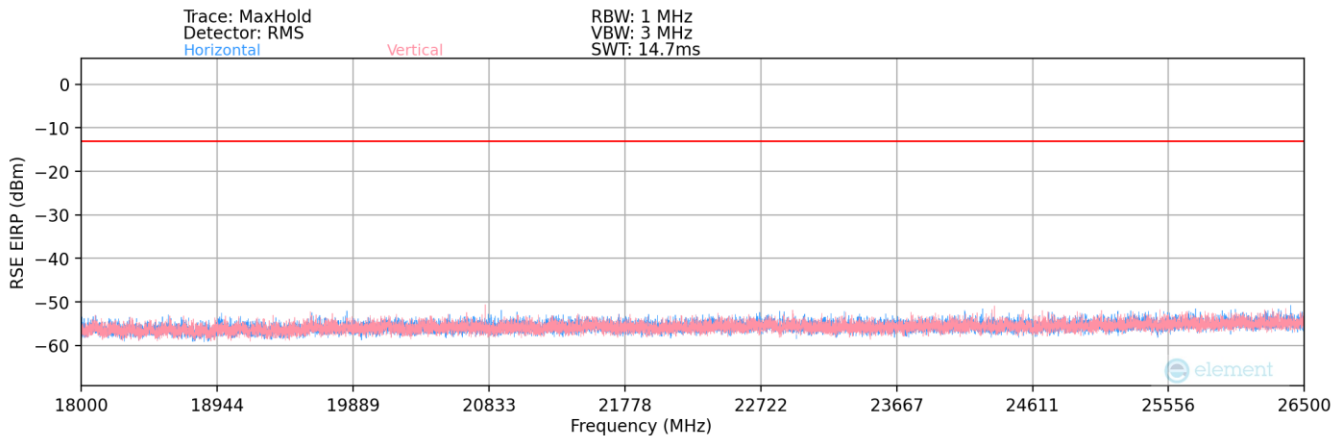
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
763.00	H	-	-	-66.52	0.13	40.61	-56.80	-13.00	-43.80

Table 7-56. Radiated Spurious Data – Below 1GHz (NR Band n77 (DoD) – Ant4)

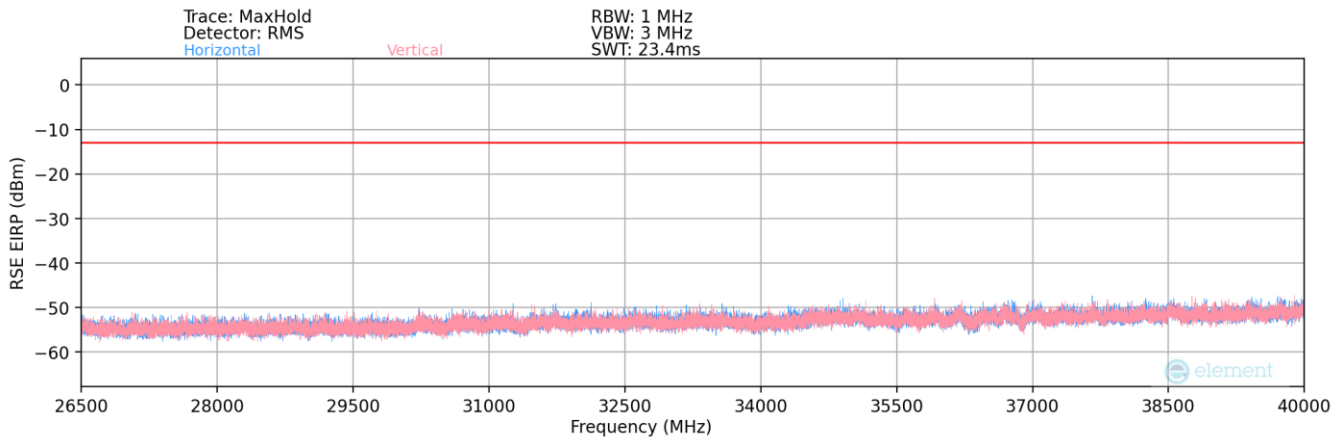
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-153. Radiated Spurious Plot - 1GHz - 18GHz (NR Band n77 (DoD) - Ant4)



Plot 7-154. Radiated Spurious Plot - 18GHz - 25.5GHz (NR Band n77 (DoD) - Ant4)



Plot 7-155. Radiated Spurious Plot - 26.5GHz - 40GHz (NR Band n77 (DoD) - Ant4)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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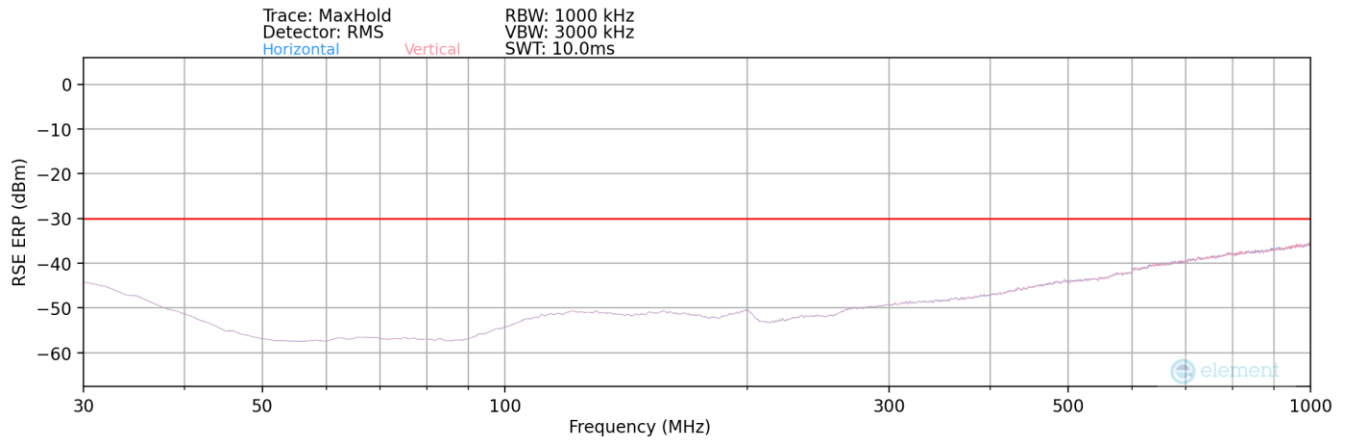
Bandwidth (MHz):	100
Frequency (MHz):	3500.01
RB / Offset:	1 / 136
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBµV/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7000.02	H	-	-	-72.62	14.74	49.12	-46.13	-13.00	-33.13
10500.03	H	-	-	-75.38	20.06	51.68	-43.58	-13.00	-30.58
14000.04	H	-	-	-75.04	25.58	57.54	-37.72	-13.00	-24.72

Table 7-57. Radiated Spurious Data (NR Band n77 (DoD) – Mid Channel – Ant4)

FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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NR Band n78 – Ant1



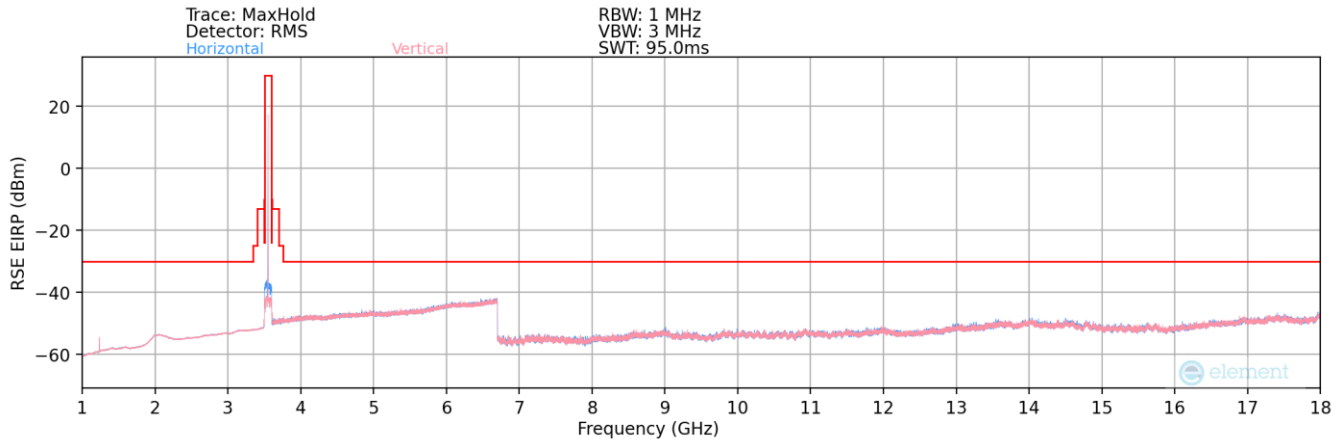
Plot 7-156. Radiated Spurious Plot – Below 1GHz (NR Band n78 – Ant1)

Bandwidth (MHz):	100
Frequency (MHz):	3550.00
RB / Offset:	1 / 138
Mode:	Stand Alone

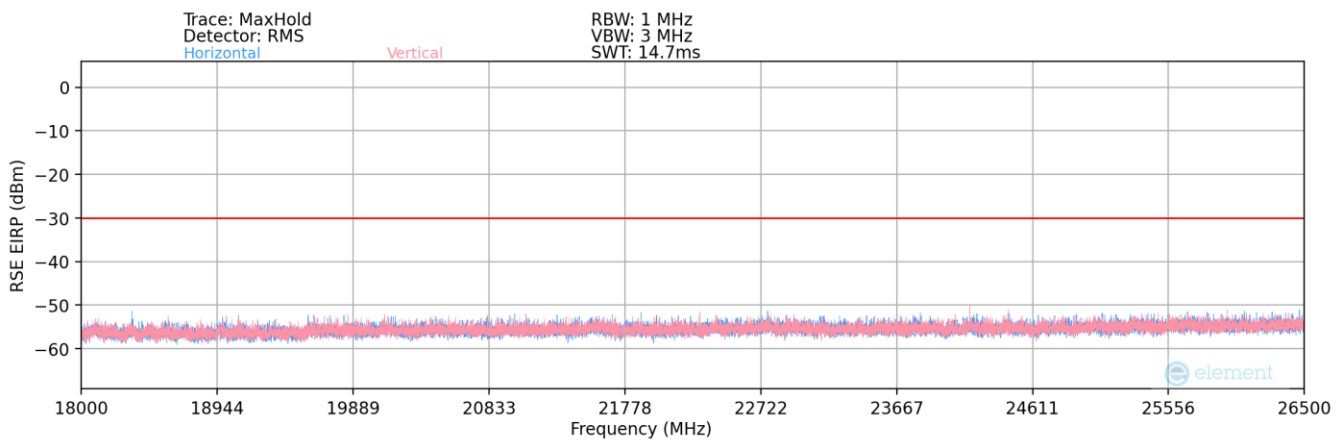
Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dBμV/m]	ERP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
96.00	H	-	-	-81.03	16.26	42.23	-55.18	-30.00	-25.18
244.00	H	-	-	-80.69	19.10	45.41	-52.00	-30.00	-22.00
432.00	H	-	-	-80.56	24.58	51.02	-46.39	-30.00	-16.39

Table 7-58. Radiated Spurious Data – Below 1GHz (NR Band n77 (DoD) – Ant4)

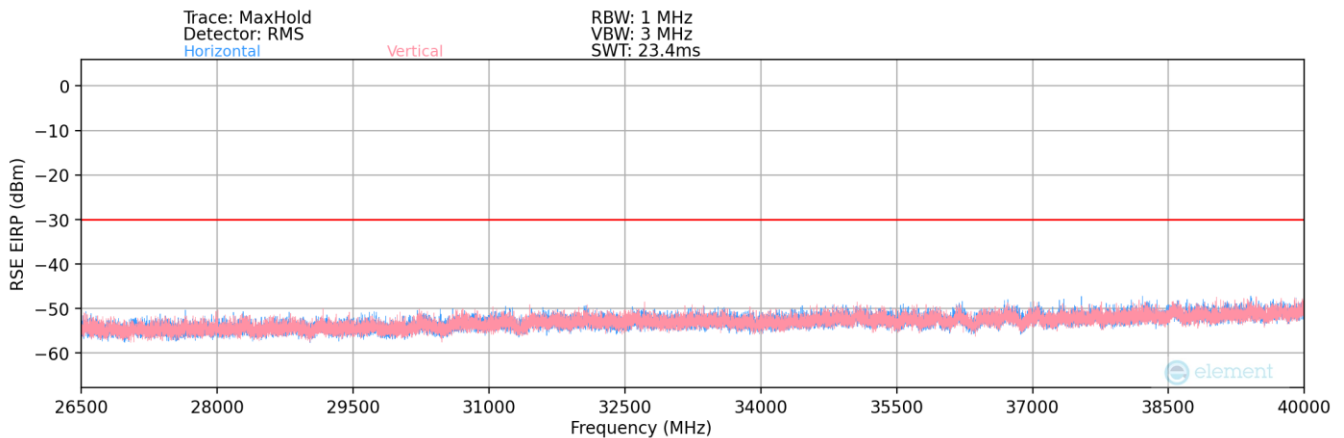
FCC ID: A3LSMA156U	PART 27 MEASUREMENT REPORT		Approved by: Technical Manager
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Plot 7-157. Radiated Spurious Plot – 1GHz – 18GHz (NR Band n78 – Ant1)



Plot 7-158. Radiated Spurious Plot – 18GHz – 25.5GHz (NR Band n78– Ant1)



Plot 7-159. Radiated Spurious Plot – 26.5GHz – 40GHz (NR Band n78– Ant1)

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Bandwidth (MHz):	100
Frequency (MHz):	3500.00
RB / Offset:	1 / 138
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7000.00	H	156	317	-75.82	8.71	39.89	-55.37	-30.00	-25.37
10500.00	H	245	51	-76.37	11.97	42.60	-52.66	-30.00	-22.66
14000.00	H	-	-	-75.41	15.96	47.55	-47.71	-30.00	-17.71
17500.00	H	-	-	-78.31	17.31	46.00	-49.26	-30.00	-19.26
21000.00	H	-	-	-59.79	3.66	50.87	-53.93	-30.00	-23.93

Table 7-59. Radiated Spurious Data (NR Band n78 – Low Channel – Ant1)

Bandwidth (MHz):	100
Frequency (MHz):	3550.00
RB / Offset:	1 / 138
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7100.00	H	134	75	-75.57	8.78	40.21	-55.05	-30.00	-25.05
10650.00	H	162	338	-77.07	12.85	42.78	-52.48	-30.00	-22.48
14200.00	H	-	-	-78.41	15.69	44.28	-50.97	-30.00	-20.97
17750.00	H	-	-	-79.09	17.20	45.11	-50.14	-30.00	-20.14
21300.00	H	-	-	-58.68	3.96	52.28	-52.52	-30.00	-22.52

Table 7-60. Radiated Spurious Data (NR Band n78 – Mid Channel – Ant1)

Bandwidth (MHz):	100
Frequency (MHz):	3600.00
RB / Offset:	1 / 138
Mode:	Stand Alone

Frequency [MHz]	Ant. Pol. [H/V]	Antenna Height [cm]	Turntable Azimuth [degree]	Analyzer Level [dBm]	AFCL [dB/m]	Field Strength [dB μ V/m]	EIRP Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
7200.00	H	-	-	-76.86	9.56	39.70	-55.56	-30.00	-25.56
10800.00	H	239	25	-76.83	11.90	42.07	-53.19	-30.00	-23.19
14400.00	H	-	-	-78.31	15.51	44.20	-51.06	-30.00	-21.06
18000.00	H	-	-	-58.11	1.50	50.40	-44.86	-30.00	-14.86
21600.00	H	-	-	-57.84	4.02	53.18	-51.62	-30.00	-21.62

Table 7-61. Radiated Spurious Data (NR Band n78 – High Channel – Ant1)

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7.9 Frequency Stability / Temperature Variation

Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI C63.26-2015. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 27, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI C63.26-2015 – Section 5.6

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

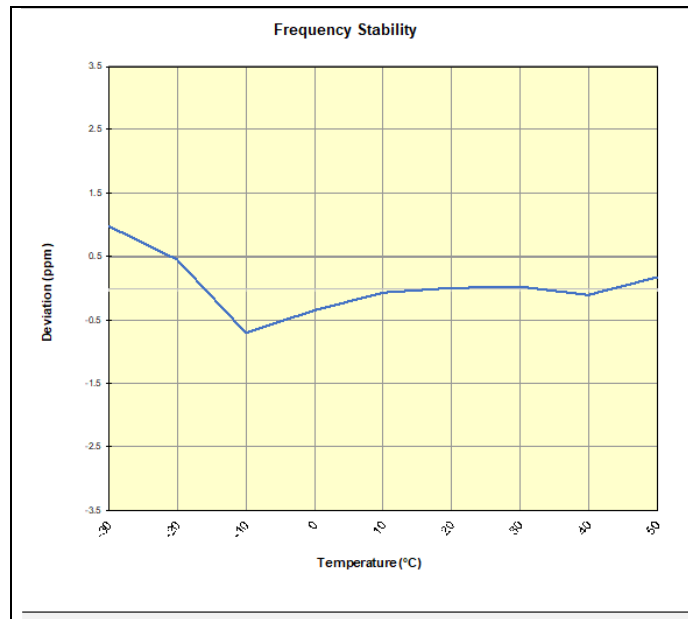
None

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NR Band n77

NR Band n77					
		Operating Frequency (Hz):		3,840,000,000	
		Ref. Voltage (VDC):		4.358	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.358	- 30	3,840,167,565	3,756	0.0000978
		- 20	3,840,165,543	1,734	0.0000451
		- 10	3,840,161,097	-2,713	-0.0000706
		0	3,840,162,495	-1,314	-0.0000342
		+ 10	3,840,163,506	-303	-0.0000079
		+ 20 (Ref)	3,840,163,810	0	0.0000000
		+ 30	3,840,163,901	92	0.0000024
		+ 40	3,840,163,408	-402	-0.0000105
		+ 50	3,840,164,470	661	0.0000172
Battery Endpoint	3.372	+ 20	3,840,164,064	255	0.0000066

Table 7-62. NR Band n77 Frequency Stability Data



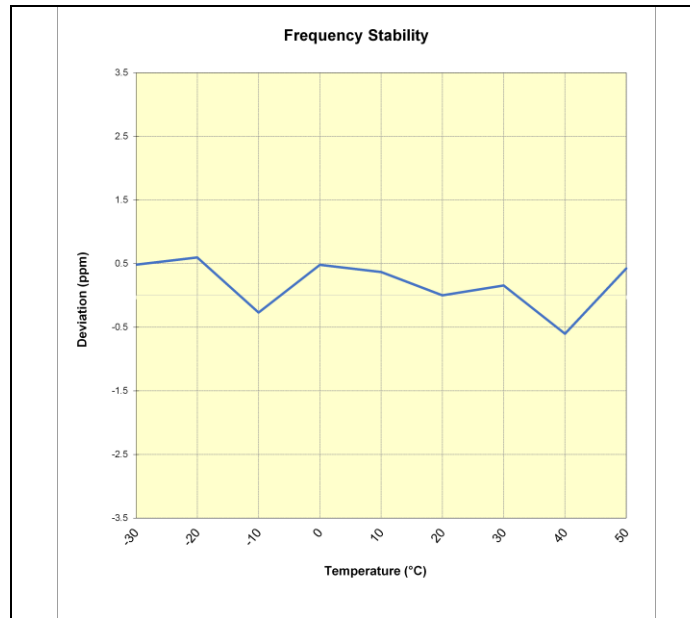
Plot 7-160. NR Band n77 Frequency Stability Chart

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NR Band n78

NR Band n78					
		Operating Frequency (Hz):		3,550,000,000	
		Ref. Voltage (VDC):		4.358	
Voltage (%)	Power (VDC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	4.358	- 30	3,550,154,979	1,713	0.0000482
		- 20	3,550,155,380	2,114	0.0000595
		- 10	3,550,152,306	-960	-0.0000271
		0	3,550,154,969	1,703	0.0000480
		+ 10	3,550,154,568	1,302	0.0000367
		+ 20 (Ref)	3,550,153,266	0	0.0000000
		+ 30	3,550,153,818	552	0.0000155
		+ 40	3,550,151,125	-2,141	-0.0000603
attery Endpoi	3.372	+ 20	3,550,156,497	3,231	0.0000910

Table 7-63. NR Band n78 Frequency Stability Data



Plot 7-161. NR Band n78 Frequency Stability Chart

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8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Samsung Portable Handset FCC ID: A3LSMA156U** complies with all the requirements of Part 27 of the FCC rules.

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