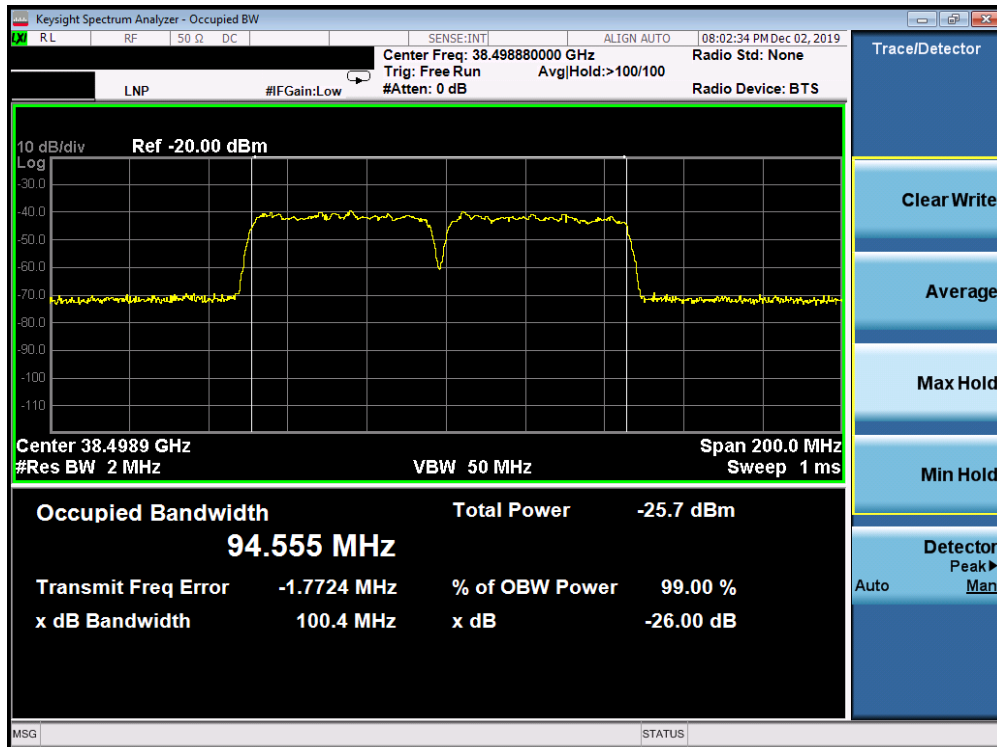
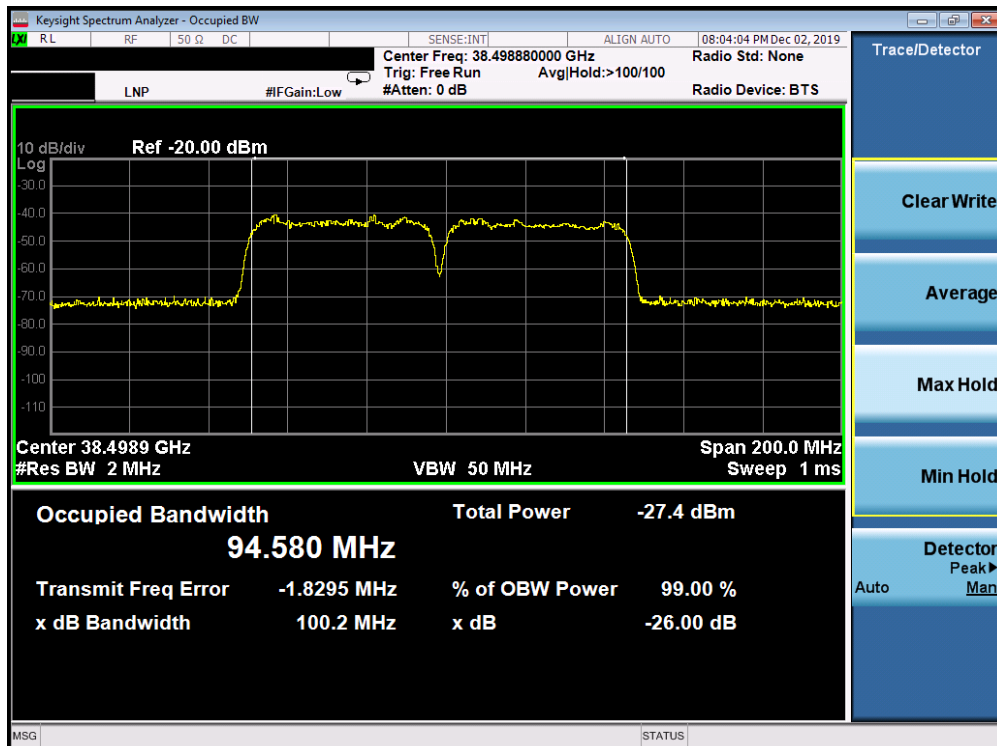


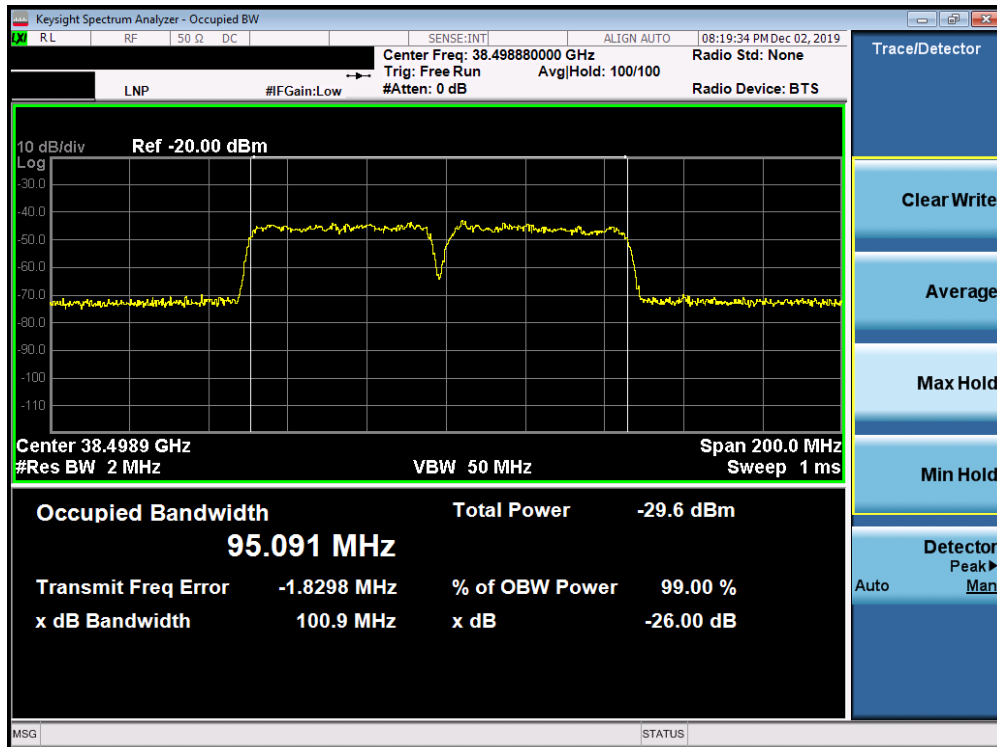


Plot 7-88. Ant4 Occupied Bandwidth Plot (50MHz-2CC – QPSK – Mid Channel)

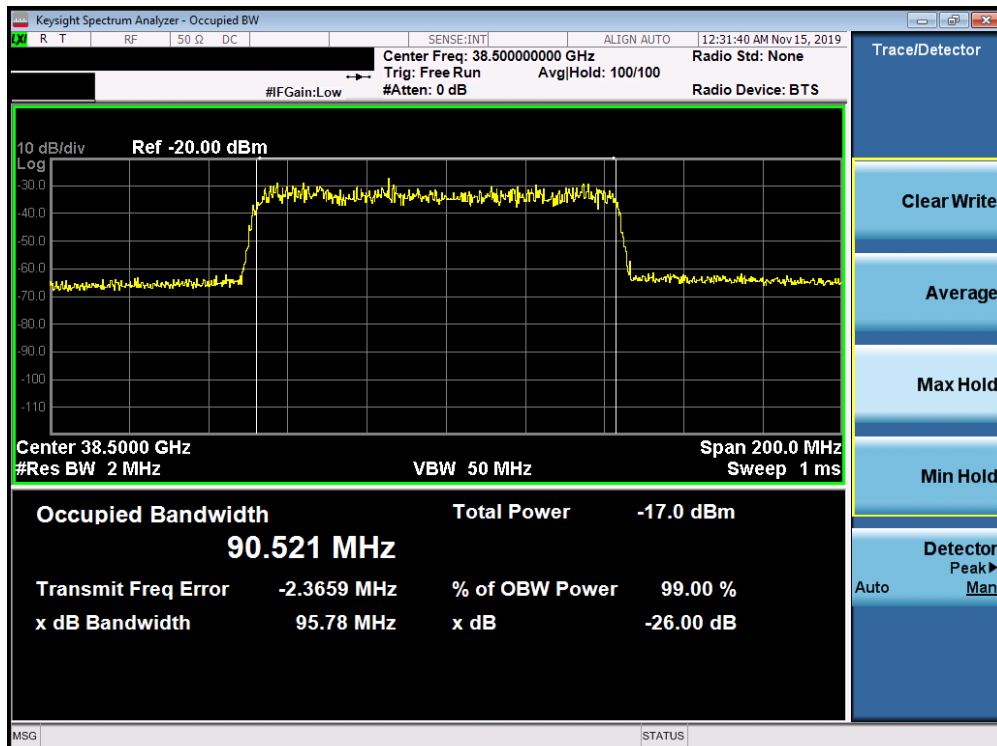


Plot 7-89. Ant4 Occupied Bandwidth Plot (50MHz-2CC – 16QAM – Mid Channel)

FCC ID: A3LSMG986U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 71 of 286

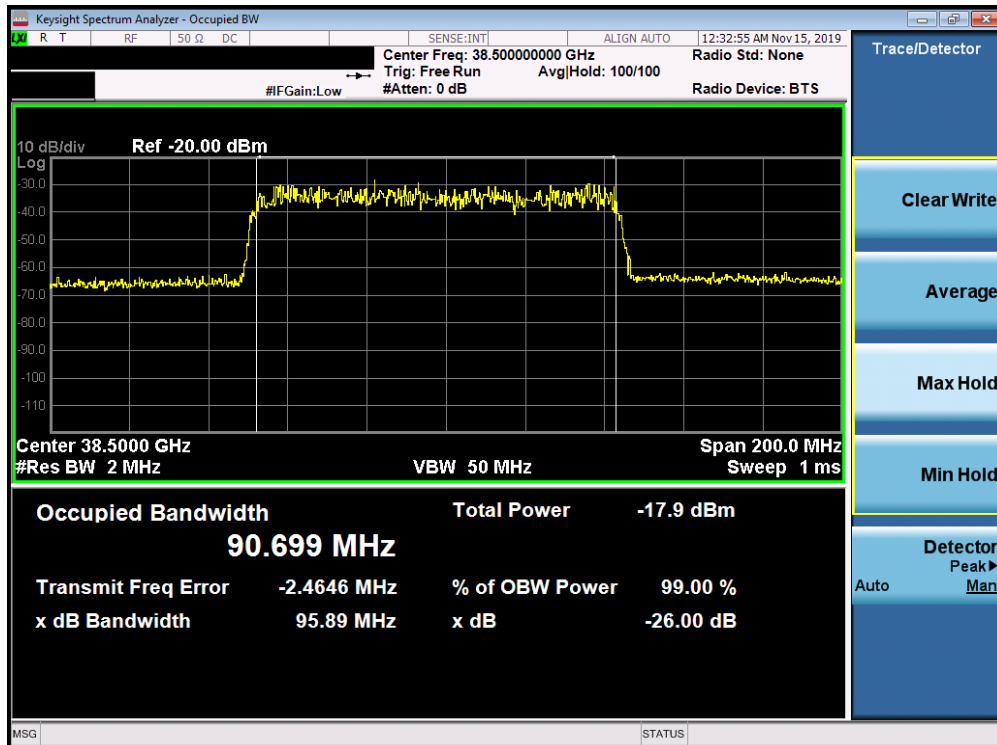


Plot 7-90. Ant4 Occupied Bandwidth Plot (50MHz-2CC – 64QAM – Mid Channel)

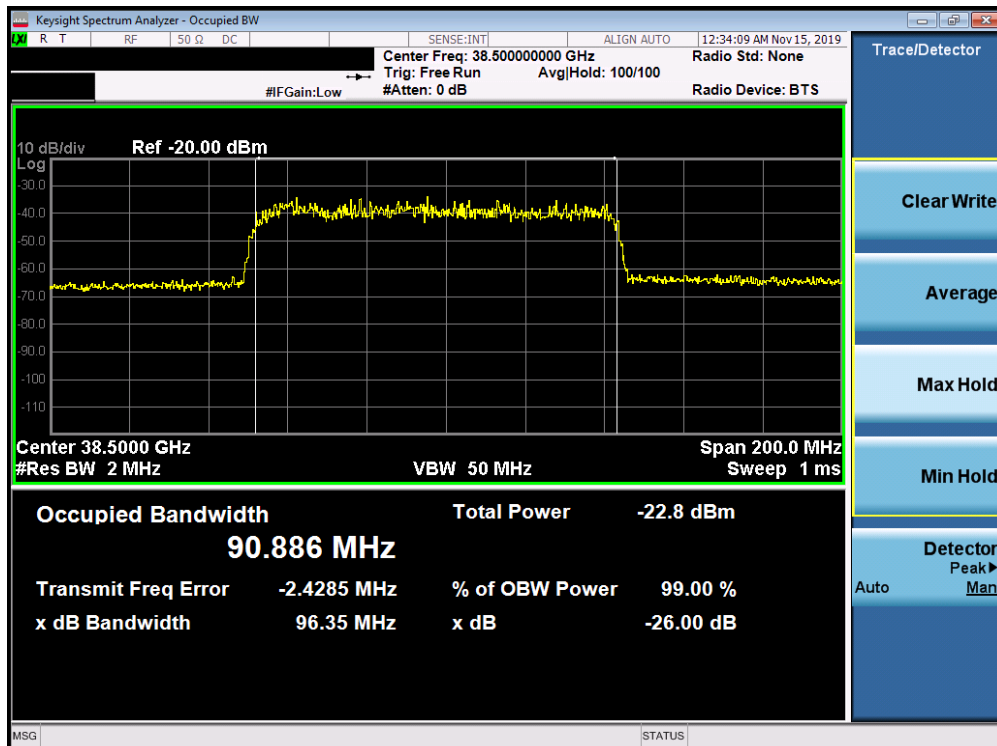


Plot 7-91. Ant4 Occupied Bandwidth Plot (100MHz-1CC – QPSK – Mid Channel)

FCC ID: A3LSMG986U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 72 of 286

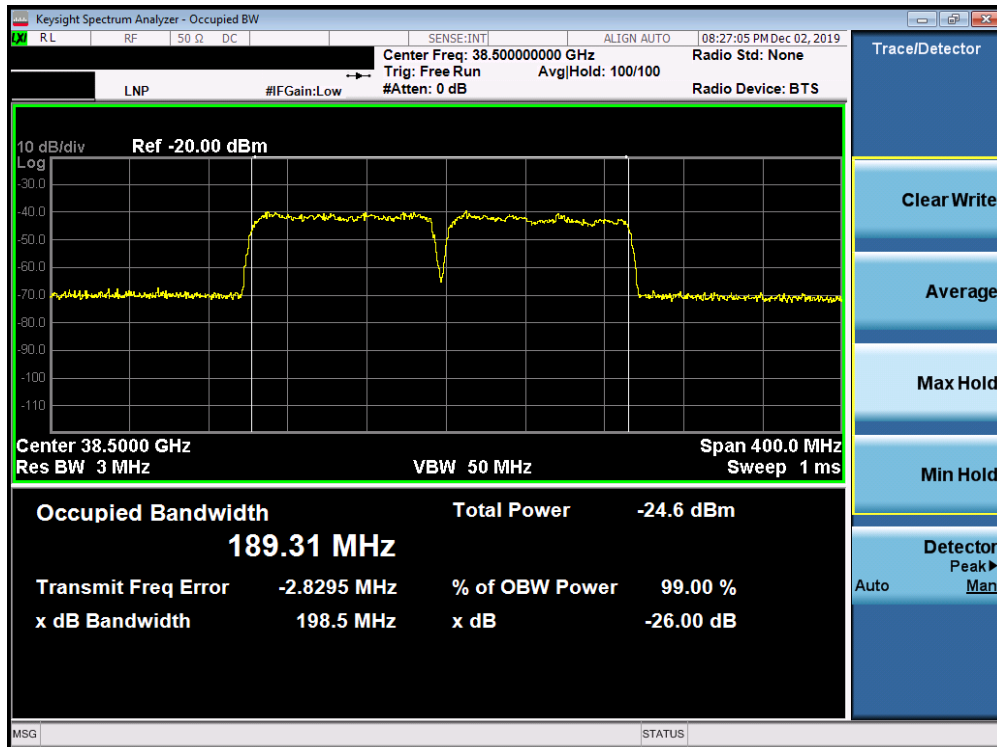


Plot 7-92. Ant4 Occupied Bandwidth Plot (100MHz-1CC – 16QAM – Mid Channel)

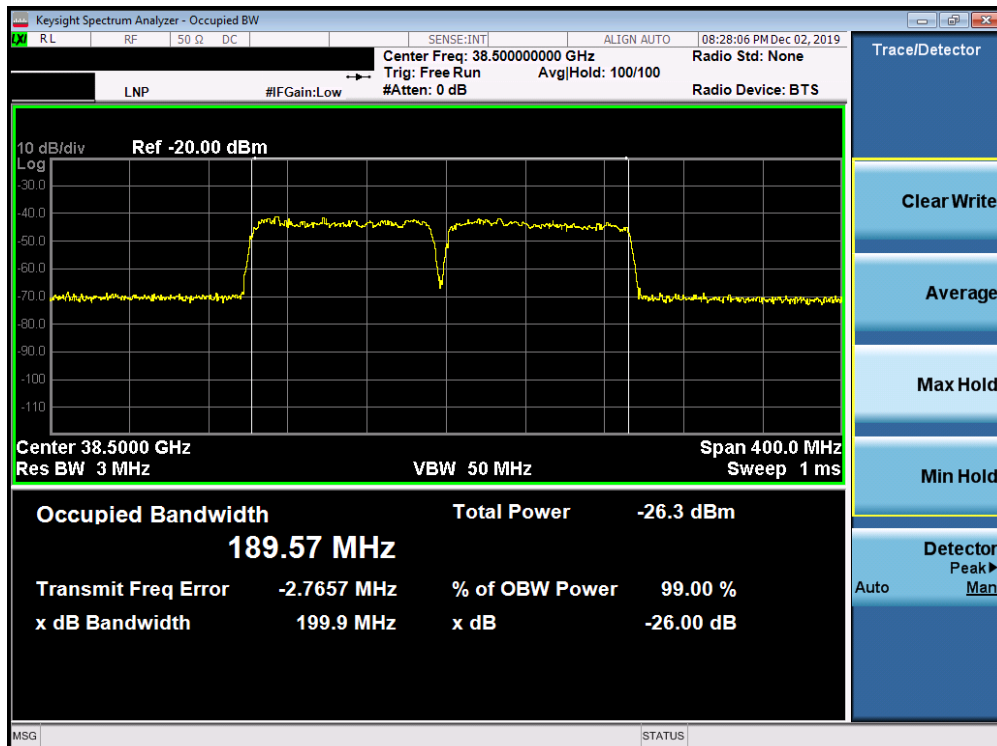


Plot 7-93. Ant4 Occupied Bandwidth Plot (100MHz-1CC – 64QAM – Mid Channel)

FCC ID: A3LSMG986U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 73 of 286

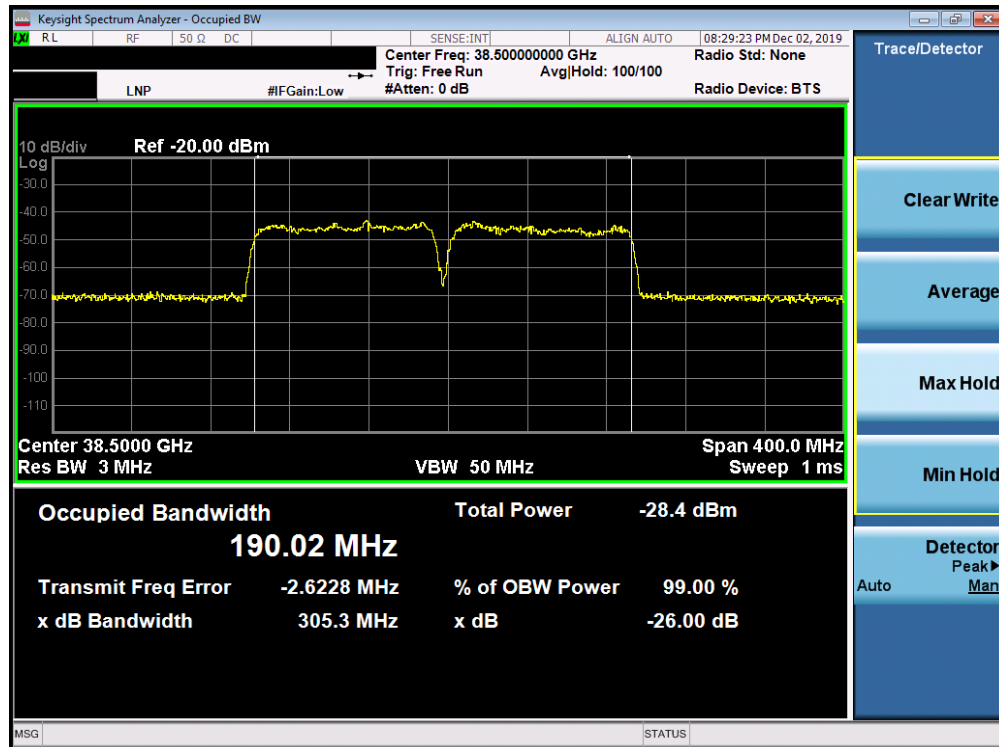


Plot 7-94. Ant4 Occupied Bandwidth Plot (100MHz-2CC – QPSK – Mid Channel)



Plot 7-95. Ant4 Occupied Bandwidth Plot (100MHz-2CC – 16QAM – Mid Channel)

FCC ID: A3LSMG986U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 74 of 286



Plot 7-96. Ant4 Occupied Bandwidth Plot (100MHz-2CC – 64QAM – Mid Channel)

FCC ID: A3LSMG986U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 75 of 286

7.3 Equivalent Isotropic Radiated Power

§2.1046, §30.202

Test Overview

Equivalent Isotropic Radiated Power (EIRP) measurements are performed using 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.

The average power of the sum of all antenna elements is limited to a maximum EIRP of +43 dBm.

Test Procedures Used

ANSI C63.26-2015 Section 5.2.4.4.1
KDB 842590 D01 v01 Section 4.2

Test Settings

1. Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation.
2. RBW = 1 – 5% of the expected OBW, not to exceed 1MHz
3. VBW $\geq 3 \times$ RBW
4. Span = 2x to 3x the OBW
5. No. of sweep points $\geq 2 \times$ span / RBW
6. Detector = RMS
7. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation.
8. Trace mode = trace averaging (RMS) over 100 sweeps
9. The trace was allowed to stabilize

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 76 of 286

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) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.
- 3) EIRP measurements were taken at 1m test distance.
- 4) The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: EIRP (dBm) = E (dBμV/m) + 20log(D) – 104.8; where D is the measurement distance (in the far field region) in m. The field strength E is calculated E (dBμV/m) = Spectrum Analyzer Channel Power Level (dBm) + Antenna Factor (dB/m) + Cable Loss (dB) + 107.
- 5) Radiated power levels are investigated while the receive antenna was rotated through all angles to determine the worst case polarization/positioning. It was determined that H=0 degree and V=90 degree are the worst case positions when the EUT was transmitting horizontally and vertically polarized beams, respectively.

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 77 of 286

Band n261 Beam ID Configurations

Mode	Beam Polarization	Beam ID
SISO	H	168
	V	26
MIMO	H	167
	V	41

Table 7-10. Ant1 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	147
	V	9
MIMO	H	147
	V	18

Table 7-11. Ant2 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	177
	V	36
MIMO	H	176
	V	49

Table 7-12. Ant3 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	172
	V	31
MIMO	H	158
	V	31

Table 7-13. Ant4 Worst Case Beam ID

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 78 of 286

Band n261

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27534.84	Low	H	QPSK	H	93	72	1/16	23.34
	27534.84	Low	V	QPSK	V	83	125	1/16	23.42
	27922.08	Mid	H	QPSK	H	97	73	1/16	21.81
	27922.08	Mid	V	QPSK	V	85	125	1/16	21.54
	28319.52	High	H	QPSK	H	94	83	1/16	22.97
	28319.52	High	V	QPSK	V	88	126	1/16	21.48
	27534.84	Low	H	16QAM	H	93	72	1/16	21.61
	27534.84	Low	H	64QAM	H	93	72	1/16	19.09
MIMO	27534.84	Low	H	QPSK	H	93	72	1/16	22.00
	27534.84	Low	V	QPSK	V	83	125		
	27534.84	Low	H	16QAM	H	93	72	1/16	21.72
	27534.84	Low	V	16QAM	V	83	125		
	27534.84	Low	H	64QAM	H	93	72	1/16	19.07
	27534.84	Low	V	64QAM	V	83	125		

Table 7-14. Ant1 EIRP Data (Band n261 - 50MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27922.08	Mid	H	QPSK	V	99	65	32/0	20.38
	27922.08	Mid	V	QPSK	V	83	126	32/0	21.58
	27922.08	Mid	V	16QAM	V	83	126	1/16	20.20
	27922.08	Mid	V	64QAM	V	83	126	32/0	17.85
MIMO	27922.08	Mid	H	QPSK	V	99	65	32/0	21.50
	27922.08	Mid	V	QPSK	V	83	126		
	27922.08	Mid	H	16QAM	V	99	65	32/0	19.28
	27922.08	Mid	V	16QAM	V	83	126		
	27922.08	Mid	H	64QAM	V	99	65	32/0	17.33
	27922.08	Mid	V	64QAM	V	83	126		

Table 7-15. Ant1 EIRP Data (Band n261 - 50MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 79 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27559.32	Low	H	QPSK	H	94	75	1/32	23.74
	27559.32	Low	V	QPSK	V	81	124	1/32	23.77
	27923.52	Mid	H	QPSK	H	93	74	1/32	22.36
	27923.52	Mid	V	QPSK	V	81	125	1/32	23.44
	28292.16	High	H	QPSK	H	95	83	1/32	21.91
	28292.16	High	V	QPSK	V	84	122	1/32	22.60
	27559.32	Low	V	16QAM	V	81	124	1/32	21.91
	27923.52	Mid	V	64QAM	V	81	125	1/32	19.06
MIMO	27559.32	Low	H	QPSK	H	94	75	1/16	23.65
	27559.32	Low	V	QPSK	V	81	124		
	27559.32	Low	H	16QAM	H	94	75	1/16	20.73
	27559.32	Low	V	16QAM	V	81	124		
	27559.32	Low	H	64QAM	H	94	75	1/16	18.00
	27559.32	Low	V	64QAM	V	81	124		

Table 7-16. Ant1 EIRP Data (Band n261 - 100MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27923.52	Mid	H	QPSK	V	100	64	64/0	20.12
	27923.52	Mid	V	QPSK	V	82	126	64/0	23.51
	27923.52	Mid	V	16QAM	V	82	126	1/32	22.24
	27923.52	Mid	V	64QAM	V	82	126	1/32	20.25
MIMO	27923.52	Mid	H	QPSK	V	100	64	32/0	21.03
	27923.52	Mid	V	QPSK	V	82	126		
	27923.52	Mid	H	16QAM	V	100	64	32/0	19.57
	27923.52	Mid	V	16QAM	V	82	126		
	27923.52	Mid	H	64QAM	V	100	64	32/0	18.19
	27923.52	Mid	V	64QAM	V	82	126		

Table 7-17. Ant1 EIRP Data (Band n261 - 100MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 80 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27534.84	Low	H	QPSK	H	119	49	1/16	17.45
	27534.84	Low	V	QPSK	V	66	121	1/16	15.84
	27922.08	Mid	H	QPSK	H	148	33	1/16	15.21
	27922.08	Mid	V	QPSK	V	50	123	1/16	17.51
	28319.52	High	H	QPSK	H	116	49	1/16	18.23
	28319.52	High	V	QPSK	V	53	118	1/16	17.93
	28319.52	High	H	16QAM	H	116	49	1/16	16.09
	27534.84	Low	V	64QAM	V	66	121	1/16	14.95
MIMO	28319.52	High	H	QPSK	H	116	49	1/16	18.03
	28319.52	High	V	QPSK	V	53	118		
	28319.52	High	H	16QAM	H	116	49	1/16	15.26
	28319.52	High	V	16QAM	V	53	118		
	28319.52	High	H	64QAM	H	116	49	1/16	13.70
	28319.52	High	V	64QAM	V	53	118		

Table 7-18. Ant2 EIRP Data (Band n261 - 50MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27922.08	Mid	H	QPSK	H	150	36	1/16	17.56
	27922.08	Mid	V	QPSK	V	50	117	32/0	14.87
	27922.08	Mid	H	16QAM	H	150	36	32/0	15.72
	27922.08	Mid	H	64QAM	H	150	36	32/0	13.77
MIMO	27922.08	Mid	H	QPSK	H	150	36	1/16	17.25
	27922.08	Mid	V	QPSK	V	50	117		
	27922.08	Mid	H	16QAM	H	150	36	1/16	14.34
	27922.08	Mid	V	16QAM	V	50	117		
	27922.08	Mid	H	64QAM	H	150	36	1/16	13.02
	27922.08	Mid	V	64QAM	V	50	117		

Table 7-19. Ant2 EIRP Data (Band n261 - 50MHz-2CC)

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset			Page 81 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27559.32	Low	H	QPSK	H	118	48	1/32	18.32
	27559.32	Low	V	QPSK	V	60	121	1/32	18.17
	27923.52	Mid	H	QPSK	H	148	33	1/32	17.07
	27923.52	Mid	V	QPSK	V	51	124	1/32	18.95
	28292.16	High	H	QPSK	H	117	49	1/32	18.50
	28292.16	High	V	QPSK	V	54	119	1/32	17.80
	27559.32	Low	H	16QAM	H	118	48	1/32	17.22
	27559.32	Low	H	64QAM	H	118	48	1/32	16.55
MIMO	27923.52	Mid	H	QPSK	H	148	33	1/16	18.11
	27923.52	Mid	V	QPSK	V	51	124		
	27923.52	Mid	H	16QAM	H	148	33	1/16	15.20
	27923.52	Mid	V	16QAM	V	51	124		
	27923.52	Mid	H	64QAM	H	148	33	1/16	12.95
	27923.52	Mid	V	64QAM	V	51	124		

Table 7-20. Ant2 EIRP Data (Band n261 - 100MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27923.52	Mid	H	QPSK	H	151	33	1/0	17.81
	27923.52	Mid	V	QPSK	V	51	119	64/0	16.35
	27923.52	Mid	H	16QAM	H	151	33	64/0	16.05
	27923.52	Mid	H	64QAM	H	151	33	64/0	14.01
MIMO	27923.52	Mid	H	QPSK	H	151	33	1/16	17.76
	27923.52	Mid	V	QPSK	V	51	119		
	27923.52	Mid	H	16QAM	H	151	33	32/0	14.86
	27923.52	Mid	V	16QAM	V	51	119		
	27923.52	Mid	H	64QAM	H	151	33	32/0	12.51
	27923.52	Mid	V	64QAM	V	51	119		

Table 7-21. Ant2 EIRP Data (Band n261 - 100MHz-2CC)

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset			Page 82 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27534.84	Low	H	QPSK	H	256	322	1/16	20.51
	27534.84	Low	V	QPSK	V	170	129	1/16	21.02
	27922.08	Mid	H	QPSK	H	255	323	1/16	19.60
	27922.08	Mid	V	QPSK	V	165	133	1/16	19.15
	28319.52	High	H	QPSK	H	251	322	1/16	20.85
	28319.52	High	V	QPSK	V	160	130	1/16	21.11
	27534.84	Low	H	16QAM	H	256	322	1/16	19.74
	27534.84	Low	V	64QAM	V	170	129	1/16	17.45
MIMO	28319.52	High	H	QPSK	H	251	322	1/16	20.87
	28319.52	High	V	QPSK	V	160	130		
	28319.52	High	H	16QAM	H	251	322	1/16	18.85
	28319.52	High	V	16QAM	V	160	130		
	28319.52	High	H	64QAM	H	251	322	1/16	16.00
	28319.52	High	V	64QAM	V	160	130		

Table 7-22. Ant3 EIRP Data (Band n261 - 50MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27922.08	Mid	H	QPSK	H	76	37	32/0	19.02
	27922.08	Mid	V	QPSK	H	165	134	1/16	18.50
	27922.08	Mid	H	16QAM	H	76	37	32/0	17.44
	27922.08	Mid	H	64QAM	H	76	37	1/0	15.64
MIMO	27922.08	Mid	H	QPSK	H	76	37	1/16	20.74
	27922.08	Mid	V	QPSK	H	165	134		
	27922.08	Mid	H	16QAM	H	76	37	1/16	18.82
	27922.08	Mid	V	16QAM	H	165	134		
	27922.08	Mid	H	64QAM	H	76	37	1/16	15.78
	27922.08	Mid	V	64QAM	H	165	134		

Table 7-23. Ant3 EIRP Data (Band n261 - 50MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	Page 83 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27559.32	Low	H	QPSK	H	255	322	1/32	21.11
	27559.32	Low	V	QPSK	V	171	130	1/32	21.31
	27923.52	Mid	H	QPSK	H	256	323	1/32	20.32
	27923.52	Mid	V	QPSK	V	166	132	1/32	20.05
	28292.16	High	H	QPSK	H	255	320	1/32	20.70
	28292.16	High	V	QPSK	V	160	131	1/32	21.43
	27559.32	Low	V	16QAM	V	171	130	1/32	19.35
	27559.32	Low	H	64QAM	H	255	322	1/32	17.71
MIMO	27559.32	Low	H	QPSK	H	255	322	1/16	21.14
	27559.32	Low	V	QPSK	V	171	130		
	27559.32	Low	H	16QAM	H	255	322	1/16	18.61
	27559.32	Low	V	16QAM	V	171	130		
	27559.32	Low	H	64QAM	H	255	322	1/16	16.62
	27559.32	Low	V	64QAM	V	171	130		

Table 7-24. Ant3 EIRP Data (Band n261 - 100MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27923.52	Mid	H	QPSK	H	74	36	64/0	19.36
	27923.52	Mid	V	QPSK	H	165	132	1/63	18.79
	27923.52	Mid	H	16QAM	H	74	36	64/0	17.79
	27923.52	Mid	H	64QAM	H	74	36	1/0	16.02
MIMO	27923.52	Mid	H	QPSK	H	74	36	32/0	19.21
	27923.52	Mid	V	QPSK	H	165	132		
	27923.52	Mid	H	16QAM	H	74	36	32/0	18.43
	27923.52	Mid	V	16QAM	H	165	132		
	27923.52	Mid	H	64QAM	H	74	36	32/0	16.81
	27923.52	Mid	V	64QAM	H	165	132		

Table 7-25. Ant3 EIRP Data (Band n261 - 100MHz-2CC)

FCC ID: A3LSMG986U	MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	Page 84 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27534.84	Low	H	QPSK	H	91	30	1/16	20.08
	27534.84	Low	V	QPSK	V	103	32	1/16	21.05
	27922.08	Mid	H	QPSK	H	91	31	1/16	19.49
	27922.08	Mid	V	QPSK	V	102	33	1/16	19.57
	28319.52	High	H	QPSK	H	96	36	1/16	21.68
	28319.52	High	V	QPSK	V	105	33	1/16	20.63
	28319.52	High	H	16QAM	H	96	36	1/16	18.30
	28319.52	High	H	64QAM	H	96	36	1/16	16.98
MIMO	28319.52	High	H	QPSK	H	96	36	1/16	21.07
	28319.52	High	V	QPSK	V	105	33		
	28319.52	High	H	16QAM	H	96	36	1/16	18.62
	28319.52	High	V	16QAM	V	105	33		
	28319.52	High	H	64QAM	H	96	36	1/16	16.60
	28319.52	High	V	64QAM	V	105	33		

Table 7-26. Ant4 EIRP Data (Band n261 - 50MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27922.08	Mid	H	QPSK	V	278	325	32/0	19.11
	27922.08	Mid	V	QPSK	V	47	83	1/16	21.07
	27922.08	Mid	V	16QAM	V	47	83	1/16	19.84
	27922.08	Mid	V	64QAM	V	47	83	32/0	17.31
MIMO	27922.08	Mid	H	QPSK	V	278	325	32/0	20.06
	27922.08	Mid	V	QPSK	V	47	83		
	27922.08	Mid	H	16QAM	V	278	325	32/0	18.04
	27922.08	Mid	V	16QAM	V	47	83		
	27922.08	Mid	H	64QAM	V	278	325	32/0	15.55
	27922.08	Mid	V	64QAM	V	47	83		

Table 7-27. Ant4 EIRP Data (Band n261 - 50MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 85 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27559.32	Low	H	QPSK	H	97	29	1/32	20.50
	27559.32	Low	V	QPSK	V	104	33	1/32	21.10
	27923.52	Mid	H	QPSK	H	90	30	1/32	19.22
	27923.52	Mid	V	QPSK	V	102	32	1/32	20.05
	28292.16	High	H	QPSK	H	96	36	1/32	21.83
	28292.16	High	V	QPSK	V	102	32	1/32	20.09
	28292.16	High	H	16QAM	H	96	36	1/32	19.56
	28292.16	High	H	64QAM	H	96	36	1/32	17.77
MIMO	28292.16	High	H	QPSK	H	96	36	1/16	20.91
	28292.16	High	V	QPSK	V	102	32		
	28292.16	High	H	16QAM	H	96	36	1/16	17.96
	28292.16	High	V	16QAM	V	102	32		
	28292.16	High	H	64QAM	H	96	36	1/16	15.59
	28292.16	High	V	64QAM	V	102	32		

Table 7-28. Ant4 EIRP Data (Band n261 - 100MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	27923.52	Mid	H	QPSK	V	277	325	1/63	19.84
	27923.52	Mid	V	QPSK	V	46	83	1/32	22.04
	27923.52	Mid	V	16QAM	V	46	83	1/63	20.93
	27923.52	Mid	V	64QAM	V	46	83	1/63	18.48
MIMO	27923.52	Mid	H	QPSK	V	277	325	1/0	20.89
	27923.52	Mid	V	QPSK	V	46	83		
	27923.52	Mid	H	16QAM	V	277	325	1/31	19.37
	27923.52	Mid	V	16QAM	V	46	83		
	27923.52	Mid	H	64QAM	V	277	325	1/31	16.50
	27923.52	Mid	V	64QAM	V	46	83		

Table 7-29. Ant4 EIRP Data (Band n261 - 100MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 86 of 286

Band n260 Beam ID Configurations

Mode	Beam Polarization	Beam ID
SISO	H	167
	V	26
MIMO	H	169
	V	41

Table 7-30. Ant1 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	137
	V	8
MIMO	H	146
	V	18

Table 7-31. Ant2 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	164
	V	36
MIMO	H	176
	V	48

Table 7-32. Ant3 Worst Case Beam ID

Mode	Beam Polarization	Beam ID
SISO	H	159
	V	30
MIMO	H	172
	V	44

Table 7-33. Ant4 Worst Case Beam ID

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 87 of 286

Band n260

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	37027.32	Low	H	QPSK	H	118	100	1/16	19.40
	37027.32	Low	V	QPSK	V	89	70	1/16	19.54
	38497.44	Mid	H	QPSK	H	112	54	1/16	20.94
	38497.44	Mid	V	QPSK	V	89	60	1/16	19.44
	39966.24	High	H	QPSK	H	124	100	1/16	18.81
	39966.24	High	V	QPSK	V	90	39	1/16	20.40
	38497.44	Mid	H	16QAM	H	112	54	1/16	18.80
	38497.44	Mid	V	64QAM	V	89	60	1/16	16.94
MIMO	38497.44	Mid	H	QPSK	H	112	54	1/16	20.22
	38497.44	Mid	V	QPSK	V	89	60		
	38497.44	Mid	H	16QAM	H	112	54	1/16	18.27
	38497.44	Mid	V	16QAM	V	89	60		
	38497.44	Mid	H	64QAM	H	112	54	1/16	16.61
	38497.44	Mid	V	64QAM	V	89	60		

Table 7-34. Ant1 EIRP Data (Band n260 - 50MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	38497.44	Mid	H	QPSK	V	112	57	32/0	18.08
	38497.44	Mid	V	QPSK	V	89	52	32/0	18.12
	38497.44	Mid	H	16QAM	V	112	57	1/16	16.53
	38497.44	Mid	V	64QAM	V	89	52	1/31	14.88
MIMO	38497.44	Mid	H	QPSK	V	112	57	32/0	18.06
	38497.44	Mid	V	QPSK	V	89	52		
	38497.44	Mid	H	16QAM	V	112	57	32/0	15.31
	38497.44	Mid	V	16QAM	V	89	52		
	38497.44	Mid	H	64QAM	V	112	57	32/0	13.94
	38497.44	Mid	V	64QAM	V	89	52		

Table 7-35. Ant1 EIRP Data (Band n260 - 50MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 88 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	37051.80	Low	H	QPSK	H	114	93	1/32	20.22
	37051.80	Low	V	QPSK	V	86	69	1/32	19.74
	38498.88	Mid	H	QPSK	H	109	53	1/32	21.21
	38498.88	Mid	V	QPSK	V	89	87	1/0	20.19
	39949.92	High	H	QPSK	H	35	116	64/0	17.33
	39949.92	High	V	QPSK	V	91	36	1/32	20.97
	38498.88	Mid	H	16QAM	H	109	53	1/32	19.37
	38498.88	Mid	H	64QAM	H	109	53	1/32	17.06
MIMO	38498.88	Mid	H	QPSK	H	109	53	1/0	21.34
	38498.88	Mid	V	QPSK	V	89	87		
	38498.88	Mid	H	16QAM	H	109	53	1/0	18.16
	38498.88	Mid	V	16QAM	V	89	87		
	38498.88	Mid	H	64QAM	H	109	53	1/0	15.38
	38498.88	Mid	V	64QAM	V	89	87		

Table 7-36. Ant1 EIRP Data (Band n260 - 100MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	38498.88	Mid	H	QPSK	V	111	56	64/0	17.91
	38498.88	Mid	V	QPSK	V	91	52	64/0	18.43
	38498.88	Mid	V	16QAM	V	91	52	1/32	17.05
	38498.88	Mid	V	64QAM	V	91	52	1/32	15.59
MIMO	38498.88	Mid	H	QPSK	V	111	56	32/0	19.06
	38498.88	Mid	V	QPSK	V	91	52		
	38498.88	Mid	H	16QAM	V	111	56	1/0	16.60
	38498.88	Mid	V	16QAM	V	91	52		
	38498.88	Mid	H	64QAM	V	111	56	1/0	14.34
	38498.88	Mid	V	64QAM	V	91	52		

Table 7-37. Ant1 EIRP Data (Band n260 - 100MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 89 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	37027.32	Low	H	QPSK	H	53	91	1/16	16.51
	37027.32	Low	V	QPSK	V	99	260	1/16	17.27
	38497.44	Mid	H	QPSK	H	51	78	1/16	18.58
	38497.44	Mid	V	QPSK	V	113	266	1/16	16.79
	39966.24	High	H	QPSK	H	51	78	1/16	17.48
	39966.24	High	V	QPSK	V	163	234	1/16	15.86
	38497.44	Mid	H	16QAM	H	51	78	1/16	16.59
	38497.44	Mid	H	64QAM	H	51	78	1/16	13.89
MIMO	38497.44	Mid	H	QPSK	H	51	78	1/16	18.76
	38497.44	Mid	V	QPSK	V	113	266		
	38497.44	Mid	H	16QAM	H	51	78	1/16	15.69
	38497.44	Mid	V	16QAM	V	113	266		
	38497.44	Mid	H	64QAM	H	51	78	1/16	12.45
	38497.44	Mid	V	64QAM	V	113	266		

Table 7-38. Ant2 EIRP Data (Band n260 - 50MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	38497.44	Mid	H	QPSK	H	116	95	1/16	17.29
	38497.44	Mid	V	QPSK	V	108	272	1/16	14.85
	38497.44	Mid	H	16QAM	H	116	95	1/16	15.24
	38497.44	Mid	H	64QAM	H	116	95	1/16	13.53
MIMO	38497.44	Mid	H	QPSK	H	116	95	1/16	17.66
	38497.44	Mid	V	QPSK	V	108	272		
	38497.44	Mid	H	16QAM	H	116	95	1/16	14.36
	38497.44	Mid	V	16QAM	V	108	272		
	38497.44	Mid	H	64QAM	H	116	95	1/16	11.71
	38497.44	Mid	V	64QAM	V	108	272		

Table 7-39. Ant2 EIRP Data (Band n260 - 50MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 90 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	37051.80	Low	H	QPSK	H	51	89	1/32	16.66
	37051.80	Low	V	QPSK	V	102	260	1/32	18.51
	38498.88	Mid	H	QPSK	H	66	90	1/32	17.08
	38498.88	Mid	V	QPSK	V	113	267	1/32	17.31
	39949.92	High	H	QPSK	H	50	79	1/32	17.29
	39949.92	High	V	QPSK	V	161	240	1/32	16.04
	38498.88	Mid	V	16QAM	V	113	267	1/32	16.10
	37051.80	Low	V	64QAM	V	102	260	1/32	13.65
MIMO	37051.80	Low	H	QPSK	H	51	89	1/0	18.57
	37051.80	Low	V	QPSK	V	102	260		
	37051.80	Low	H	16QAM	H	51	89	1/0	15.19
	37051.80	Low	V	16QAM	V	102	260		
	37051.80	Low	H	64QAM	H	51	89	1/0	12.56
	37051.80	Low	V	64QAM	V	102	260		

Table 7-40. Ant2 EIRP Data (Band n260 - 100MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	38498.88	Mid	H	QPSK	H	68	22	1/32	15.64
	38498.88	Mid	V	QPSK	V	102	274	1/0	16.49
	38498.88	Mid	V	16QAM	V	102	274	1/0	15.37
	38498.88	Mid	V	64QAM	V	102	274	1/0	14.36
MIMO	38498.88	Mid	H	QPSK	H	68	22	1/0	17.01
	38498.88	Mid	V	QPSK	V	102	274		
	38498.88	Mid	H	16QAM	H	68	22	32/0	14.89
	38498.88	Mid	V	16QAM	V	102	274		
	38498.88	Mid	H	64QAM	H	68	22	32/0	12.89
	38498.88	Mid	V	64QAM	V	102	274		

Table 7-41. Ant2 EIRP Data (Band n260 - 100MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 91 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	37027.32	Low	H	QPSK	H	342	59	1/16	20.31
	37027.32	Low	V	QPSK	V	35	312	1/31	20.39
	38497.44	Mid	H	QPSK	H	351	56	1/0	21.74
	38497.44	Mid	V	QPSK	V	29	310	1/0	21.94
	39966.24	High	H	QPSK	H	204	294	1/16	21.08
	39966.24	High	V	QPSK	V	28	329	1/0	19.35
	38497.44	Mid	H	16QAM	H	351	56	1/16	20.42
	38497.44	Mid	H	64QAM	H	351	56	1/16	18.21
MIMO	38497.44	Mid	H	QPSK	H	351	56	1/16	21.79
	38497.44	Mid	V	QPSK	V	29	310		
	38497.44	Mid	H	16QAM	H	351	56	1/16	21.12
	38497.44	Mid	V	16QAM	V	29	310		
	38497.44	Mid	H	64QAM	H	351	56	1/16	19.22
	38497.44	Mid	V	64QAM	V	29	310		

Table 7-42. Ant3 EIRP Data (Band n260 - 50MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	38497.44	Mid	H	QPSK	V	353	51	1/31	21.88
	38497.44	Mid	V	QPSK	V	32	323	32/0	21.00
	38497.44	Mid	H	16QAM	V	353	51	1/31	20.20
	38497.44	Mid	H	64QAM	V	353	51	1/31	18.36
MIMO	38497.44	Mid	H	QPSK	V	353	51	1/31	22.71
	38497.44	Mid	V	QPSK	V	32	323		
	38497.44	Mid	H	16QAM	V	353	51	1/31	20.61
	38497.44	Mid	V	16QAM	V	32	323		
	38497.44	Mid	H	64QAM	V	353	51	1/31	17.48
	38497.44	Mid	V	64QAM	V	32	323		

Table 7-43. Ant3 EIRP Data (Band n260 - 50MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 92 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	37051.80	Low	H	QPSK	H	206	50	1/32	21.03
	37051.80	Low	V	QPSK	V	35	312	1/32	22.07
	38498.88	Mid	H	QPSK	H	195	302	1/32	22.32
	38498.88	Mid	V	QPSK	V	34	312	1/32	21.93
	39949.92	High	H	QPSK	H	195	297	1/32	21.03
	39949.92	High	V	QPSK	V	27	333	1/32	21.43
	38498.88	Mid	V	16QAM	V	34	312	1/32	20.81
	38498.88	Mid	V	64QAM	V	34	312	1/32	18.73
MIMO	38498.88	Mid	H	QPSK	H	195	302	1/31	22.27
	38498.88	Mid	V	QPSK	V	34	312		
	38498.88	Mid	H	16QAM	H	195	302	1/31	19.87
	38498.88	Mid	V	16QAM	V	34	312		
	38498.88	Mid	H	64QAM	H	195	302	1/31	17.54
	38498.88	Mid	V	64QAM	V	34	312		

Table 7-44. Ant3 EIRP Data (Band n260 - 100MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	38498.88	Mid	H	QPSK	V	351	54	1/32	23.17
	38498.88	Mid	V	QPSK	V	32	320	1/32	21.30
	38498.88	Mid	H	16QAM	V	351	54	1/32	21.85
	38498.88	Mid	H	64QAM	V	351	54	64/0	19.66
MIMO	38498.88	Mid	H	QPSK	V	351	54	1/16	23.49
	38498.88	Mid	V	QPSK	V	32	320		
	38498.88	Mid	H	16QAM	V	351	54	32/0	20.66
	38498.88	Mid	V	16QAM	V	32	320		
	38498.88	Mid	H	64QAM	V	351	54	32/0	18.02
	38498.88	Mid	V	64QAM	V	32	320		

Table 7-45. Ant3 EIRP Data (Band n260 - 100MHz-2CC)

FCC ID: A3LSMG986U	MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	Page 93 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	37027.32	Low	H	QPSK	H	35	50	1/16	22.74
	37027.32	Low	V	QPSK	V	69	40	1/16	21.48
	38497.44	Mid	H	QPSK	H	35	75	1/16	23.24
	38497.44	Mid	V	QPSK	V	102	35	1/16	23.99
	39966.24	High	H	QPSK	H	38	77	1/16	21.16
	39966.24	High	V	QPSK	V	102	21	1/16	21.14
	38497.44	Mid	V	16QAM	V	102	35	1/0	21.70
	38497.44	Mid	V	64QAM	V	102	35	1/0	19.67
MIMO	38497.44	Mid	H	QPSK	H	35	75	1/16	24.55
	38497.44	Mid	V	QPSK	V	102	35		
	38497.44	Mid	H	16QAM	H	35	75	1/0	21.57
	38497.44	Mid	V	16QAM	V	102	35		
	38497.44	Mid	H	64QAM	H	35	75	1/0	18.54
	38497.44	Mid	V	64QAM	V	102	35		

Table 7-46. Ant4 EIRP Data (Band n260 - 50MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	38497.44	Mid	H	QPSK	V	29	78	32/0	23.15
	38497.44	Mid	V	QPSK	H	279	320	32/0	21.57
	38497.44	Mid	H	16QAM	V	29	78	1/31	21.79
	38497.44	Mid	H	64QAM	V	29	78	1/31	19.69
MIMO	38497.44	Mid	H	QPSK	V	29	78	1/16	23.53
	38497.44	Mid	V	QPSK	H	279	320		
	38497.44	Mid	H	16QAM	V	29	78	1/31	20.82
	38497.44	Mid	V	16QAM	H	279	320		
	38497.44	Mid	H	64QAM	V	29	78	32/0	18.00
	38497.44	Mid	V	64QAM	H	279	320		

Table 7-47. Ant4 EIRP Data (Band n260 - 50MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 94 of 286

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	37051.80	Low	H	QPSK	V	36	48	1/32	23.34
	37051.80	Low	V	QPSK	H	69	37	1/32	21.99
	38498.88	Mid	H	QPSK	V	30	71	1/32	23.63
	38498.88	Mid	V	QPSK	H	102	32	1/32	24.24
	39949.92	High	H	QPSK	V	39	75	1/32	20.93
	39949.92	High	V	QPSK	H	102	19	1/32	21.08
	38498.88	Mid	V	16QAM	H	102	32	1/32	21.99
	38498.88	Mid	V	64QAM	H	102	32	1/32	19.87
MIMO	38498.88	Mid	H	QPSK	V	30	71	1/0	24.90
	38498.88	Mid	V	QPSK	H	102	32		
	38498.88	Mid	H	16QAM	V	30	71	1/0	21.75
	38498.88	Mid	V	16QAM	H	102	32		
	38498.88	Mid	H	64QAM	V	30	71	1/0	18.91
	38498.88	Mid	V	64QAM	H	102	32		

Table 7-48. Ant4 EIRP Data (Band n260 - 100MHz-1CC)

Mode	Frequency [MHz]	Channel	Beam Pol	Modulation	Ant. Pol. [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	RB Size/Offset	EIRP [dBm]
SISO	38498.88	Mid	H	QPSK	V	29	75	64/0	23.39
	38498.88	Mid	V	QPSK	H	279	328	1/63	22.28
	38498.88	Mid	H	16QAM	V	29	75	1/32	21.94
	38498.88	Mid	H	64QAM	V	29	75	64/0	19.85
MIMO	38498.88	Mid	H	QPSK	V	29	75	1/16	24.24
	38498.88	Mid	V	QPSK	H	279	328		
	38498.88	Mid	H	16QAM	V	29	75	32/0	21.06
	38498.88	Mid	V	16QAM	H	279	328		
	38498.88	Mid	H	64QAM	V	29	75	32/0	18.41
	38498.88	Mid	V	64QAM	H	279	328		

Table 7-49. Ant4 EIRP Data (Band n260 - 100MHz-2CC)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 95 of 286

7.4 Radiated Spurious and Harmonic Emissions

§2.1051, §30.203

Test Overview

The spectrum is scanned from 30MHz to 100GHz for n261 and from 30MHz to 200GHz for n260. All out of band emissions are measured in a radiated test setup while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All modulations 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.

The conductive power or total radiated power of any emissions outside a licensee's frequency block shall be -13dBm/1MHz.

Test Procedure Used

ANSI C63.26-2015 Section 5.7.4

KDB 842590 D01 v01 Section 4.4.2 and Section 4.4.3

Test Settings

1. Start frequency was set to 30MHz and stop frequency was set to 100 GHz for n261 and 200GHz for n260. Several plots are used to show investigations in this entire span.
2. Detector = RMS
3. Trace mode = trace average
4. Sweep time = auto couple
5. Number of sweep points $\geq 2 \times \text{Span/RBW}$
6. The trace was allowed to stabilize
7. RBW = 1MHz, VBW = 3MHz

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) All radiated spurious emissions were measured as EIRP to compare with the §30.203 TRP limits.
- 3) Elements within the same antenna array are correlated to produce beamforming array gain. Antenna arrays cannot be correlated with another antenna array. During testing, only one antenna array was active.
- 4) The plots from 1-200GHz show corrected average EIRP levels. Plots below 1GHz are corrected field strength levels. The average EIRP reported below is calculated per section 5.2.7 of ANSI C63.26-2015 which states: $\text{EIRP (dBm)} = E \text{ (dB}\mu\text{V/m)} + 20\log(D) - 104.8$; where D is the measurement distance (in the far field region) in m. The field strength E is calculated $E \text{ (dB}\mu\text{V/m)} = \text{Spectrum Analyzer Level (dBm)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} + \text{Harmonic Mixer Conversion Loss (dB)} + 107$. All appropriate Antenna Factor and Cable Loss have been applied in the spectrum analyzer for each measurement. For measurements $> 40\text{GHz}$, Harmonic Mixer Conversion Loss was also applied to the spectrum analyzer.
- 5) Emissions below 18GHz were measured at a 3 meter test distance, while emissions above 18GHz were measured at the appropriate far field distance. The far field of the mmWave signal is based on formula: $R > 2D^2/\text{wavelength}$, where D is the larger between the dimension of the measurement antenna and the transmitting antenna of the EUT. In this case, D is the largest dimension of the measurement antenna.

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 96 of 286

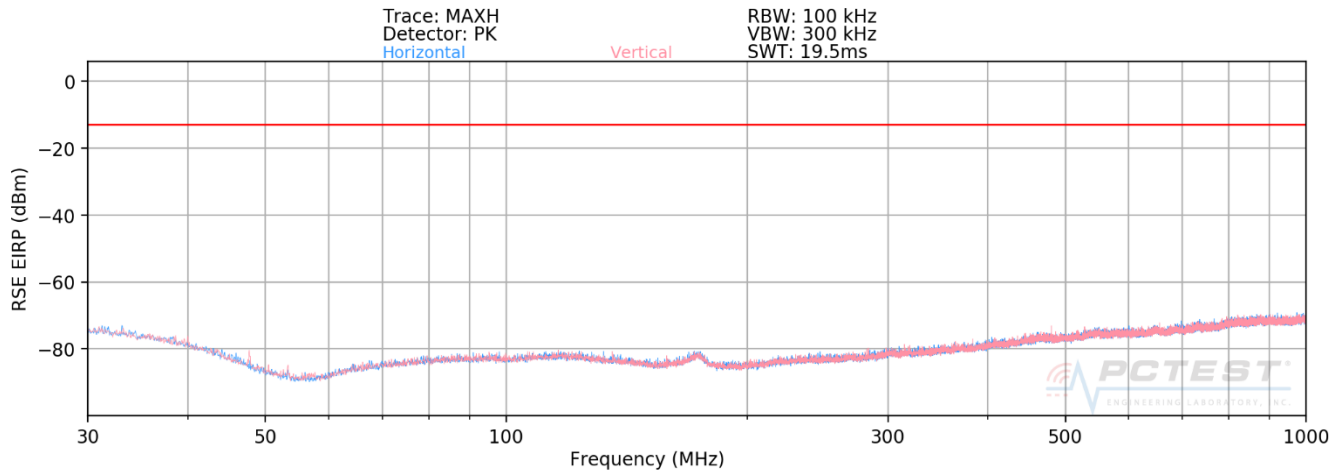
Frequency Range (GHz)	Wavelength(cm)	Far Field Distance (m)	Measurement Distance (m)
18-40	0.749	0.54	1.00
40-60	0.500	1.39	1.50
60-90	0.333	0.91	1.00
90-140	0.214	0.58	1.00
140-200	0.150	0.39	1.00

Table 7-50. Far-Field Distance & Measurement Distance per Frequency Range

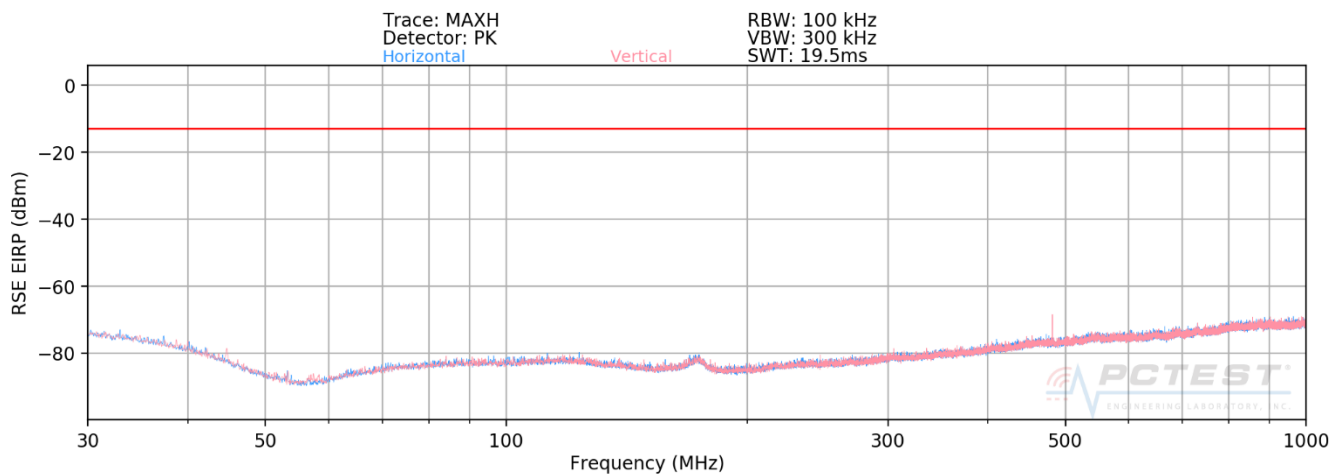
- 6) All emissions from 30MHz - 60GHz were measured using a spectrum analyzer with an internal preamplifier. Emissions >60GHz were measured using a harmonic mixer with the spectrum analyzer.
- 7) All RSE's were measured with 1CC. It was determined that adding more CC's causes the overall amplitude of just 1CC to decrease, therefore, 1CC is the worst case for the purposes of spurious emissions measurements.
- 8) The "-" shown in the following RSE tables are used to denote a noise floor measurement.
- 9) All RSE's were investigated in EN-DC mode and with 802.11 chipset active. It was determined that there is no new emission introduced by EN-DC mode, or the 802.11 chipset. For EN-DC mode, n261 uses LTE B13, B5, B4, B66 and B2, and n260 uses LTE B12, B13, B5, B4, B66, B2 and B30.
- 10) There was no discernible difference in the spurious emission levels when using different LTE anchor bands. Thus, LTE Band 2 was used as a representative anchor band for EN-DC investigations.
- 11) For the n261 band spurious emission measurements, the spectrum directly below the fundamental frequency is investigated from 18 - 27.375GHz and the spectrum directly above the fundamental frequency is investigated from 28.475 - 40GHz. The portion of spectrum from 27.375 – 27.5GHz and 28.35 - 28.475GHz is shown Section 7.5 which covers band edge emissions.
- 12) For the n260 band spurious emission measurements, the spectrum directly below the fundamental frequency is investigated from 18 - 36.85GHz and the spectrum directly above the fundamental frequency is investigated from 40.15 - 60GHz. The portion of spectrum from 36.85 - 40GHz and 40 - 40.15GHz is shown Section 7.5 which covers band edge emissions.

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 97 of 286

**Band n261 – Ant1
30MHz - 1GHz**



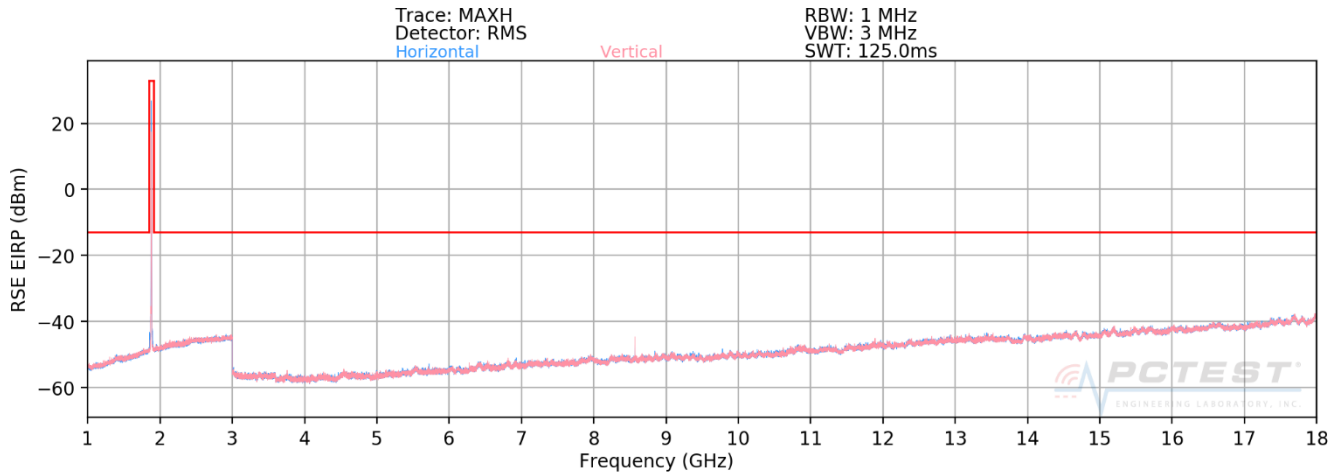
Plot 7-97. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam)



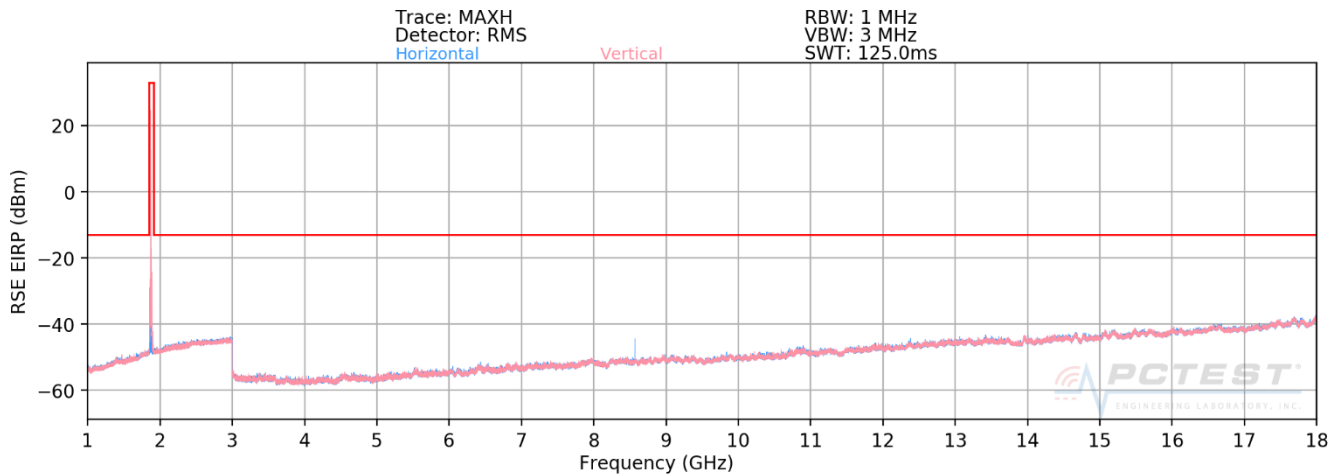
Plot 7-98. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 98 of 286

1GHz - 18GHz



Plot 7-99. Ant1-n261 Radiated Spurious Plot 1GHz - 18GHz (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-100. Ant1-n261 Radiated Spurious Plot 1GHz - 18GHz (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

FCC ID: A3LSMG986U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	Page 99 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Antenna Height [cm]	Turntable Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8821.85	Low	50	H	QPSK	H	272	5	-41.24	-13.00	-28.24
8821.85	Low	50	V	QPSK	H	288	9	-42.74	-13.00	-29.74
8569.16	Mid	50	H	QPSK	H	285	23	-43.36	-13.00	-30.36
8569.16	Mid	50	V	QPSK	H	284	14	-43.34	-13.00	-30.34
8966.56	High	50	H	QPSK	H	289	9	-42.48	-13.00	-29.48
8966.56	High	50	V	QPSK	H	290	359	-43.62	-13.00	-30.62

Table 7-51. Ant1 - SISO -Spurious Emissions Table (1GHz - 18GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-38.92	-13.00	-25.92
Mid	50	QPSK	-40.34	-13.00	-27.34
High	50	QPSK	-40.00	-13.00	-27.00

Table 7-52. Ant1 - MIMO -Spurious Emissions Table (1GHz - 18GHz)

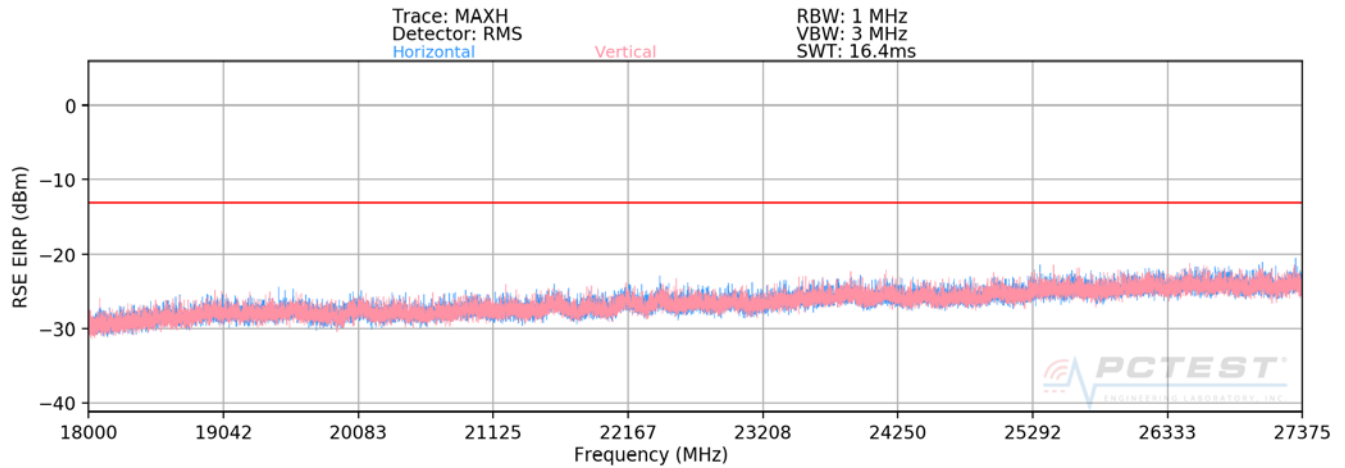
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

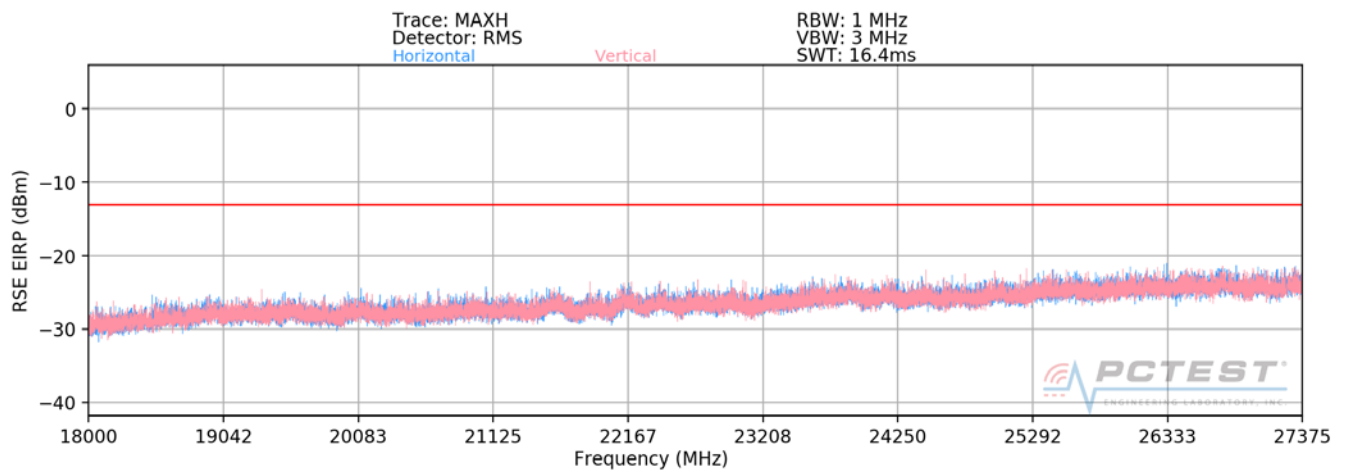
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 100 of 286

18GHz - 27.375GHz



Plot 7-101. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor B2)



Plot 7-102. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor B2)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	Page 101 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
27228.39	Low	50	H	QPSK	V	89	79	-27.51	-13.00	-14.51
27381.83	Low	50	V	QPSK	V	88	74	-33.10	-13.00	-20.10
27307.85	Mid	50	H	QPSK	V	97	80	-35.46	-13.00	-22.46
27385.32	Mid	50	V	QPSK	V	91	74	-34.67	-13.00	-21.67
26477.22	High	50	H	QPSK	V	94	74	-35.49	-13.00	-22.49
25584.11	High	50	V	QPSK	V	90	62	-36.00	-13.00	-23.00

Table 7-53. Ant1 - SISO -Spurious Emissions Table (18GHz - 27.375GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-26.45	-13.00	-13.45
Mid	50	QPSK	-32.04	-13.00	-19.04
High	50	QPSK	-32.73	-13.00	-19.73

Table 7-54. Ant1 - MIMO -Spurious Emissions Table (18GHz - 27.375GHz)

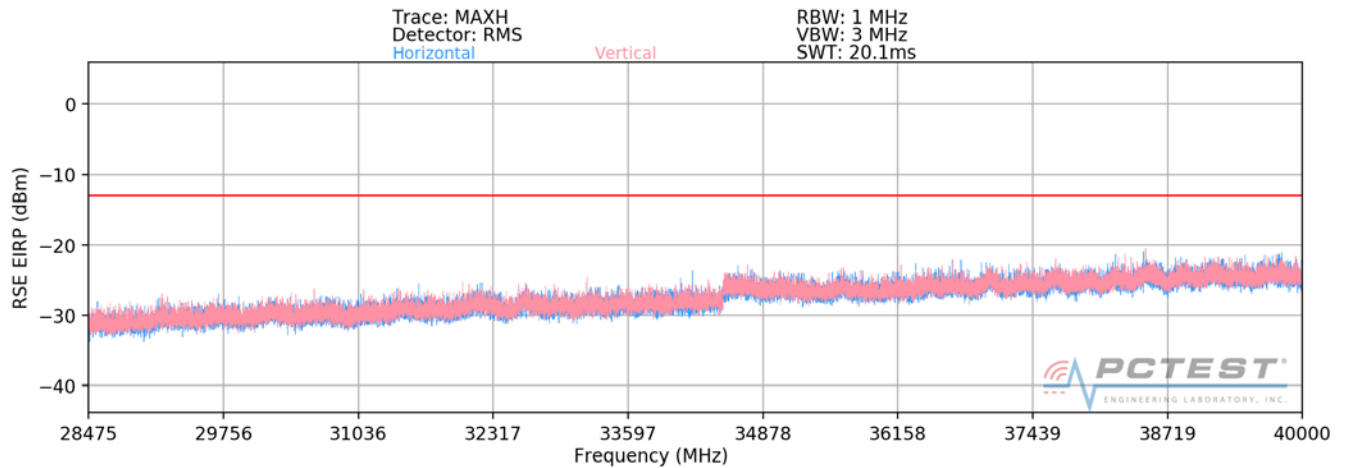
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

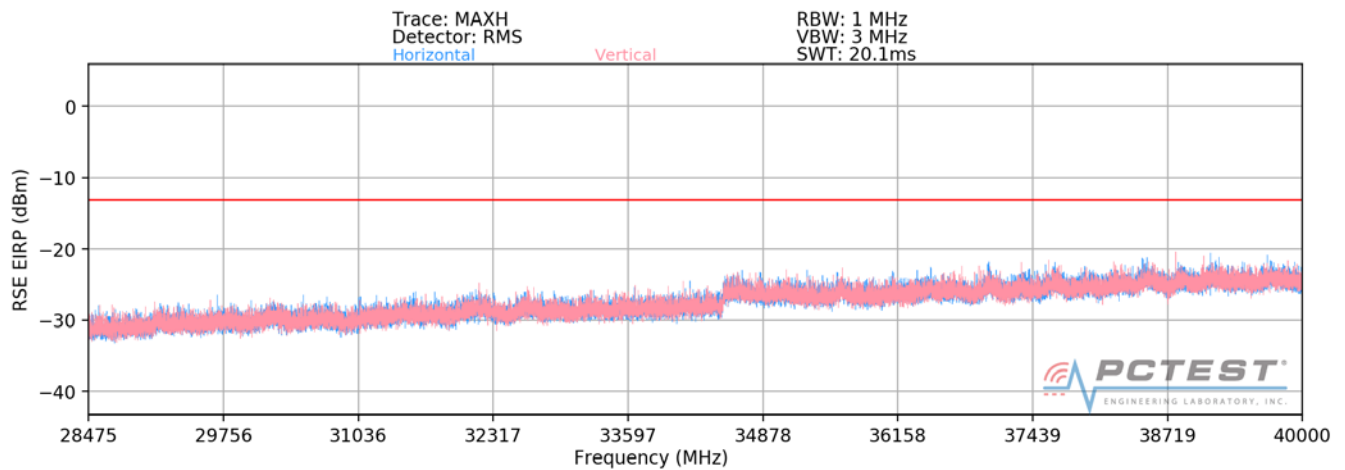
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 102 of 286

28.475GHz - 40GHz



Plot 7-103. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor B2)



Plot 7-104. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor B2)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	Page 103 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
28605.69	Low	50	H	QPSK	V	104	65	-23.53	-13.00	-10.53
28605.34	Low	50	V	QPSK	V	129	68	-25.70	-13.00	-12.70
30138.10	Mid	50	H	QPSK	V	109	68	-30.10	-13.00	-17.10
30137.75	Mid	50	V	QPSK	V	132	61	-30.09	-13.00	-17.09
29740.61	High	50	H	QPSK	V	104	74	-26.58	-13.00	-13.58
29740.61	High	50	V	QPSK	V	131	60	-27.82	-13.00	-14.82

Table 7-55. Ant1 - SISO -Spurious Emissions Table (28.475GHz - 40GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-21.47	-13.00	-8.47
Mid	50	QPSK	-27.08	-13.00	-14.08
High	50	QPSK	-24.14	-13.00	-11.14

Table 7-56. Ant1 - MIMO -Spurious Emissions Table (28.475GHz - 40GHz)

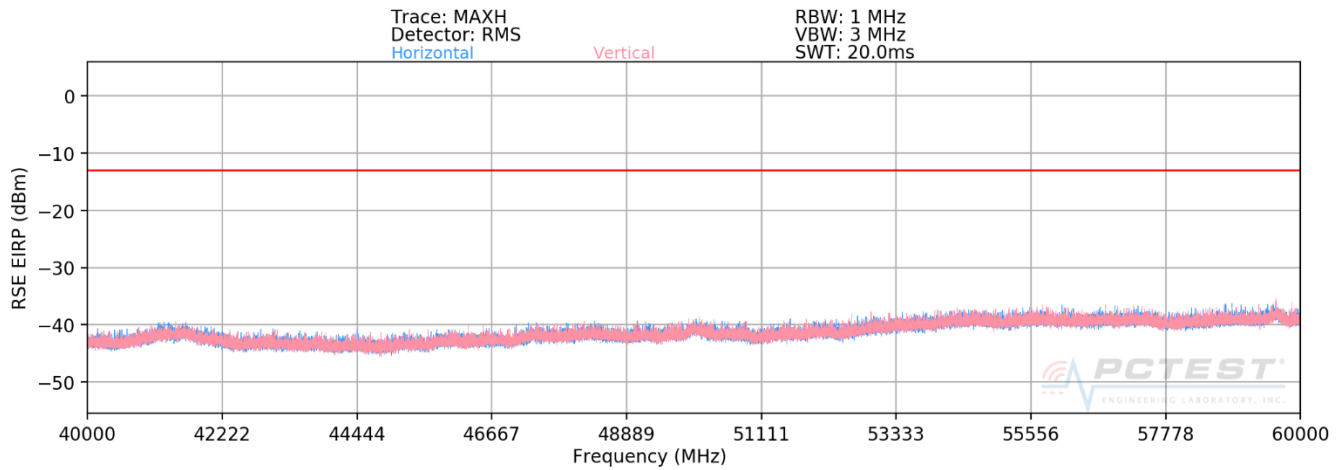
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

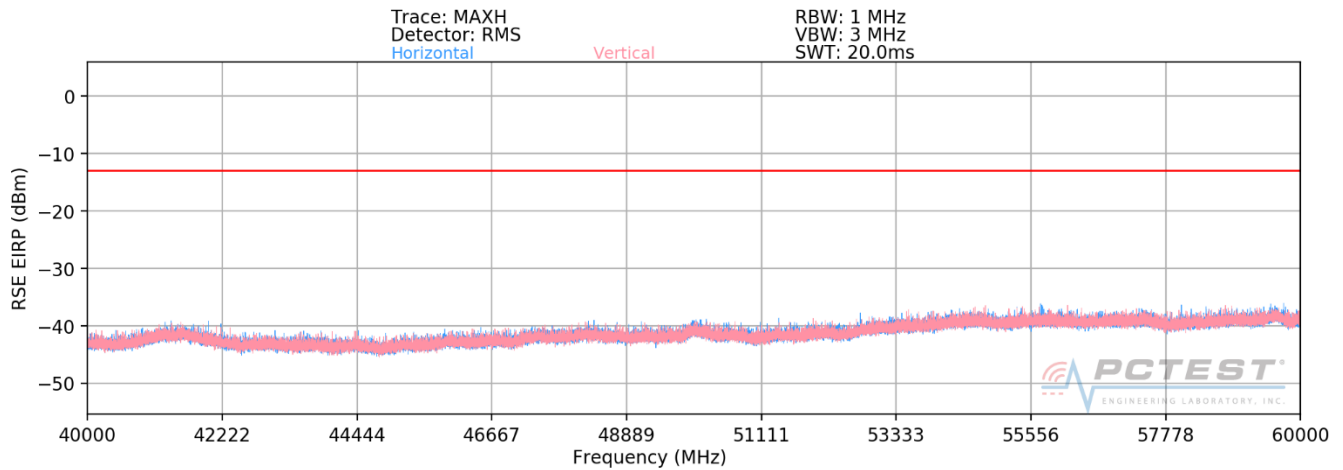
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 104 of 286

40GHz - 60GHz



Plot 7-105. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor B2)



Plot 7-106. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor B2)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	Page 105 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55070.82	Low	50	H	QPSK	V	78	281	-53.71	-13.00	-40.71
55070.83	Low	50	V	QPSK	V	23	255	-50.18	-13.00	-37.18
55845.18	Mid	50	H	QPSK	V	85	322	-50.49	-13.00	-37.49
55845.50	Mid	50	V	QPSK	V	15	239	-52.22	-13.00	-39.22
56640.44	High	50	H	QPSK	V	250	108	-54.19	-13.00	-41.19
56640.24	High	50	V	QPSK	V	76	327	-52.71	-13.00	-39.71

Table 7-57. Ant1 - SISO -Spurious Emissions Table (40GHz - 60GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-48.58	-13.00	-35.58
Mid	50	QPSK	-48.26	-13.00	-35.26
High	50	QPSK	-50.38	-13.00	-37.38

Table 7-58. Ant1 - MIMO -Spurious Emissions Table (40GHz - 60GHz)

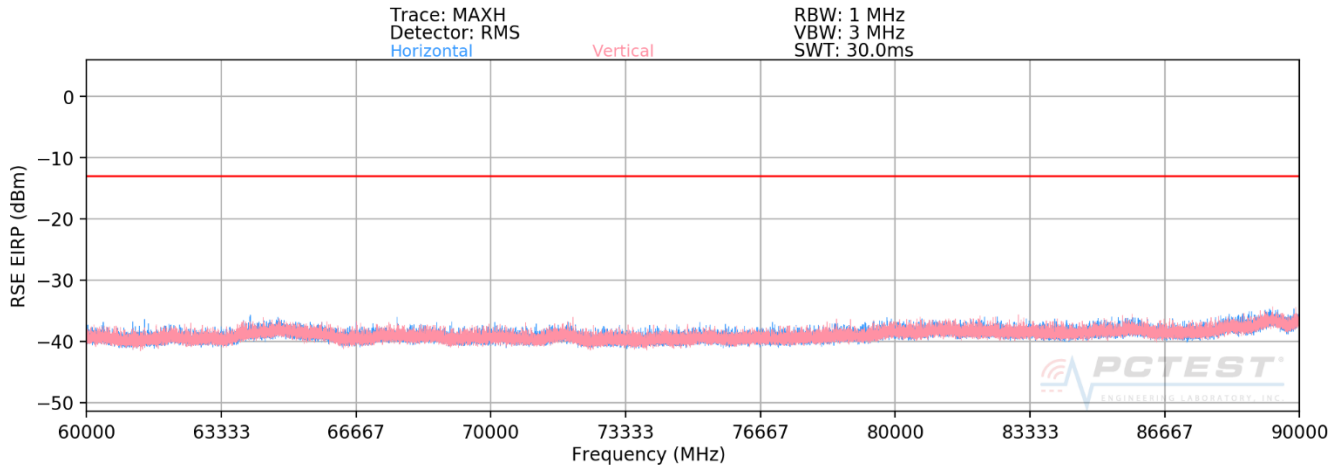
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

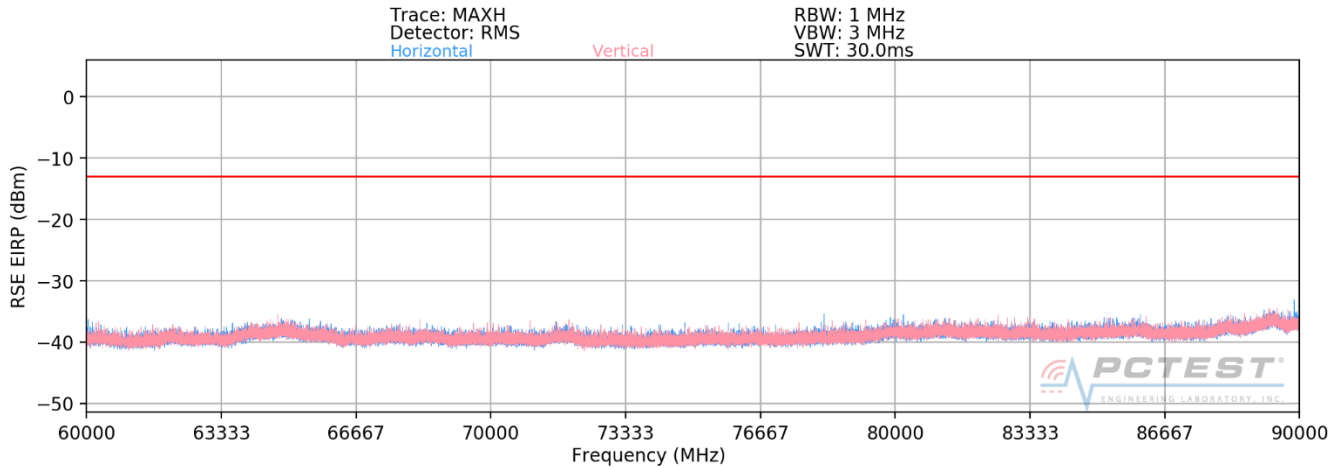
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 106 of 286

60GHz - 90GHz



Plot 7-107. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor B2)



Plot 7-108. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor B2)

FCC ID: A3LSMG986U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 107 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
82600.92	Low	50	H	QPSK	H	-	-	-51.57	-13.00	-38.57
82606.68	Low	50	V	QPSK	H	24	209	-50.61	-13.00	-37.61
83768.01	Mid	50	H	QPSK	H	257	120	-51.05	-13.00	-38.05
83768.70	Mid	50	V	QPSK	H	94	302	-51.09	-13.00	-38.09
84952.62	High	50	H	QPSK	H	-	-	-51.35	-13.00	-38.35
84961.26	High	50	V	QPSK	H	37	16	-51.06	-13.00	-38.06

Table 7-59. Ant1 - SISO -Spurious Emissions Table (60GHz - 90GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-48.05	-13.00	-35.05
Mid	50	QPSK	-48.06	-13.00	-35.06
High	50	QPSK	-48.19	-13.00	-35.19

Table 7-60. Ant1 - MIMO -Spurious Emissions Table (60GHz - 90GHz)

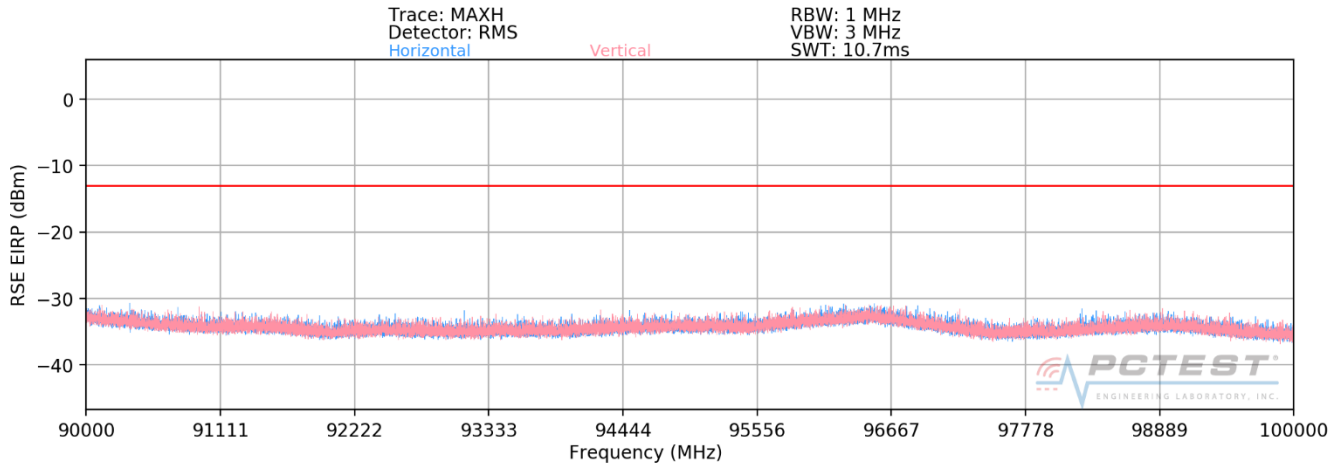
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

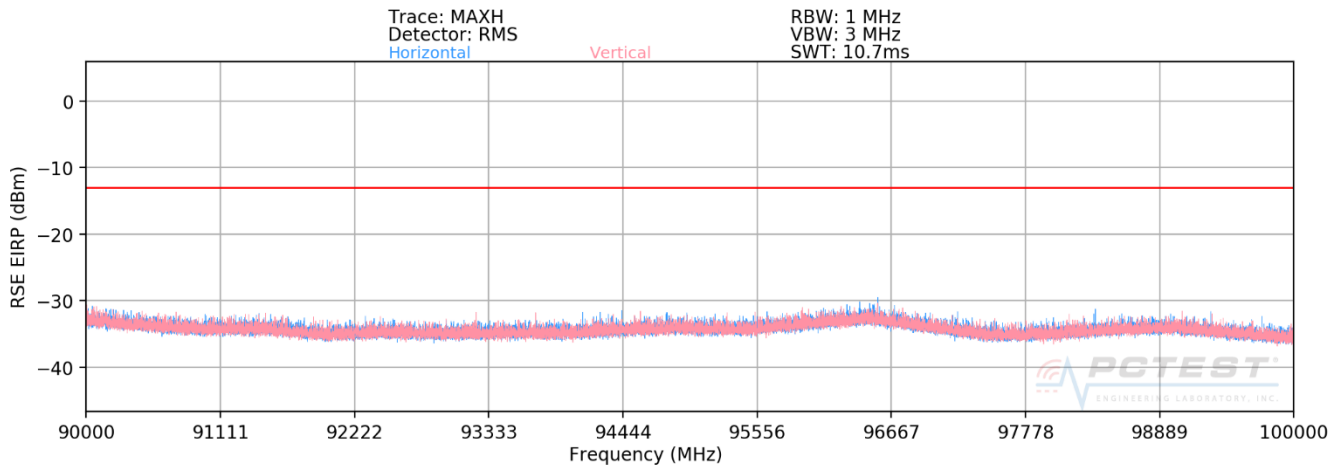
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 108 of 286

90GHz - 100GHz



Plot 7-109. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor B2)



Plot 7-110. Ant1-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor B2)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	
			Page 109 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
96546.35	Low	50	H	QPSK	V	189	270	-39.14	-13.00	-26.14
96456.35	Low	50	V	QPSK	V	13	352	-40.04	-13.00	-27.04
96470.10	Mid	50	H	QPSK	V	-	-	-39.95	-13.00	-26.95
96472.15	Mid	50	V	QPSK	V	31	80	-39.46	-13.00	-26.46
96491.40	High	50	H	QPSK	V	-	-	-40.01	-13.00	-27.01
96493.50	High	50	V	QPSK	V	-	-	-39.58	-13.00	-26.58

Table 7-61. Ant1 - SISO -Spurious Emissions Table (90GHz - 100GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-36.56	-13.00	-23.56
Mid	50	QPSK	-36.69	-13.00	-23.69
High	50	QPSK	-36.78	-13.00	-23.78

Table 7-62. Ant1 - MIMO -Spurious Emissions Table (90GHz - 100GHz)

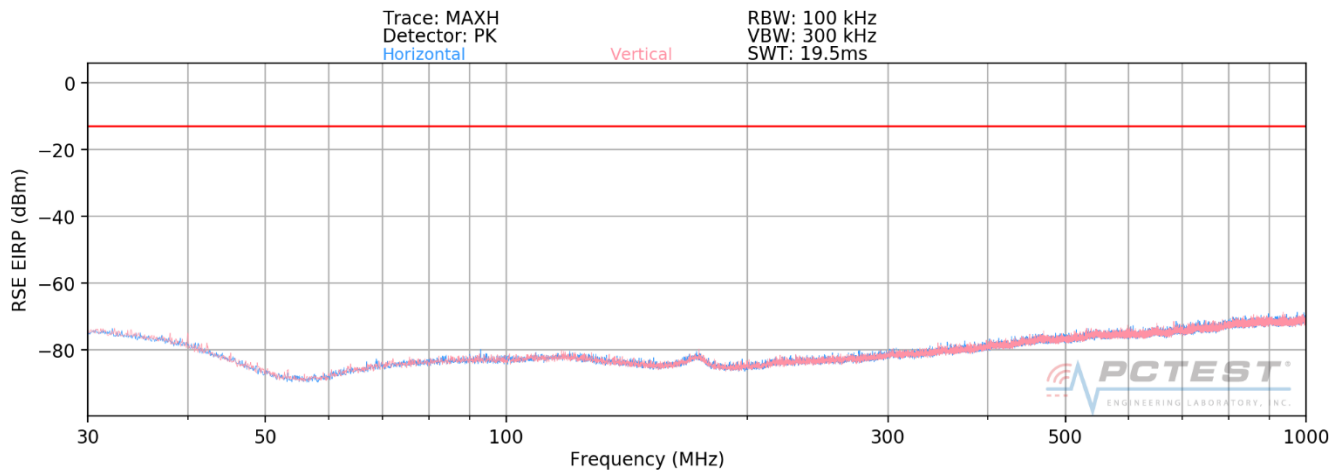
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

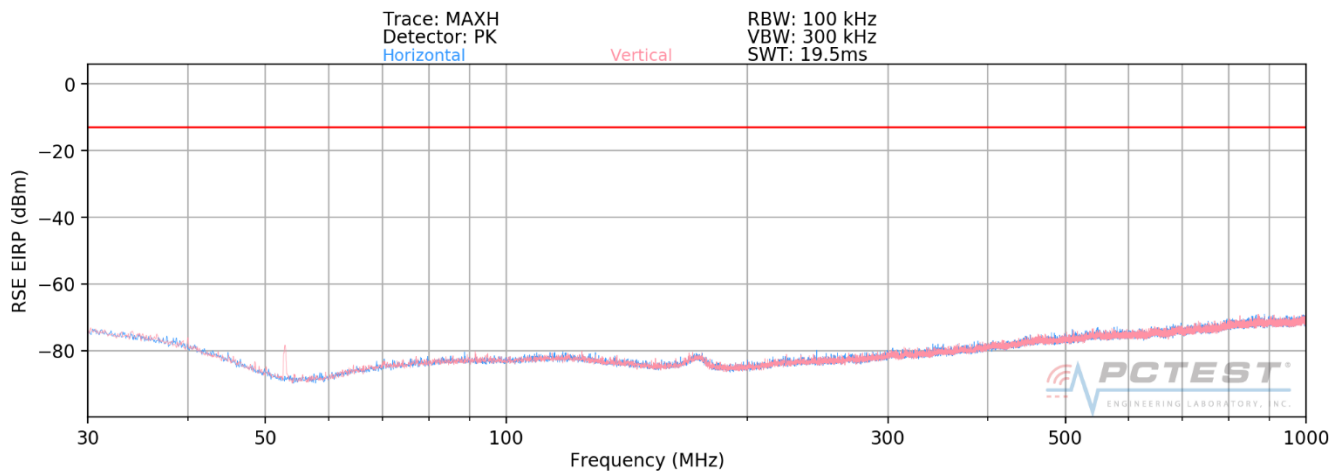
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 110 of 286

**Band n261 – Ant2
30MHz - 1GHz**



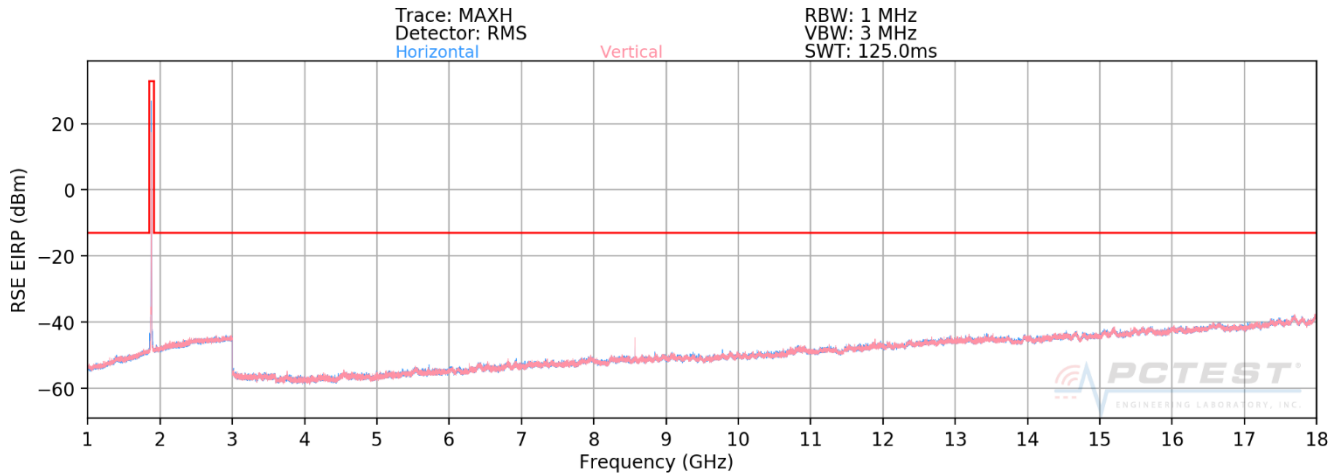
Plot 7-111. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam)



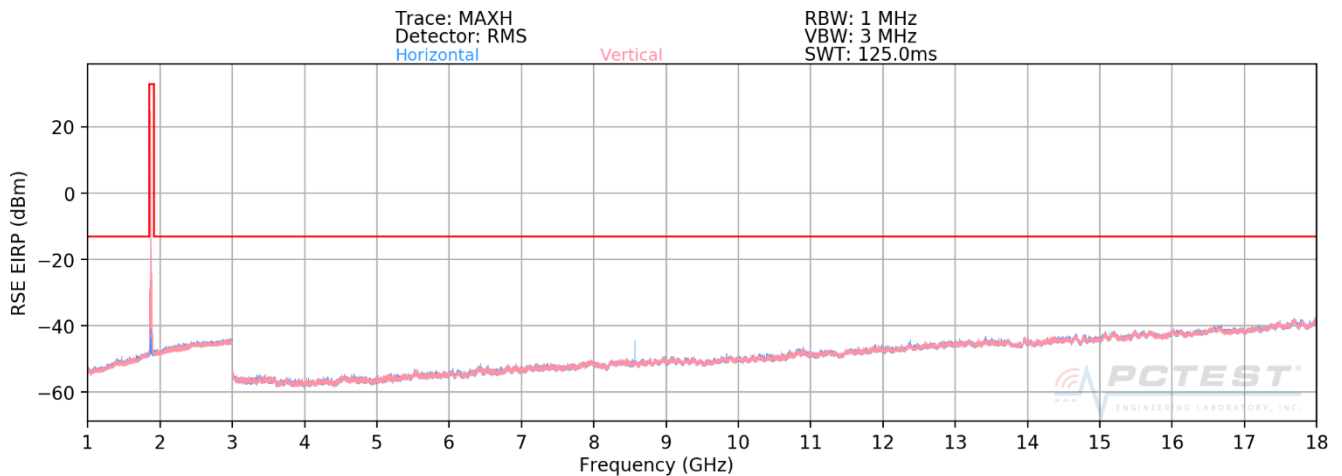
Plot 7-112. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam)

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 111 of 286

1GHz - 18GHz



Plot 7-113. Ant2-n261 Radiated Spurious Plot 1GHz - 18GHz (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-114. Ant2-n261 Radiated Spurious Plot 1GHz - 18GHz (1CC QPSK Mid Channel V Beam – ENDC Anchor Band 2)

FCC ID: A3LSMG986U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 112 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8821.85	Low	50	H	QPSK	V	142	346	-40.09	-13.00	-27.09
8821.85	Low	50	V	QPSK	H	286	10	-42.46	-13.00	-29.46
8569.16	Mid	50	H	QPSK	V	155	326	-42.89	-13.00	-29.89
8569.16	Mid	50	V	QPSK	H	284	21	-43.67	-13.00	-30.67
8966.56	High	50	H	QPSK	V	136	349	-38.28	-13.00	-25.28
8966.56	High	50	V	QPSK	H	290	10	-40.56	-13.00	-27.56

Table 7-63. Ant2 - SISO -Spurious Emissions Table (1GHz - 18GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-38.10	-13.00	-25.10
Mid	50	QPSK	-40.25	-13.00	-27.25
High	50	QPSK	-36.26	-13.00	-23.26

Table 7-64. Ant2 - MIMO -Spurious Emissions Table (1GHz - 18GHz)

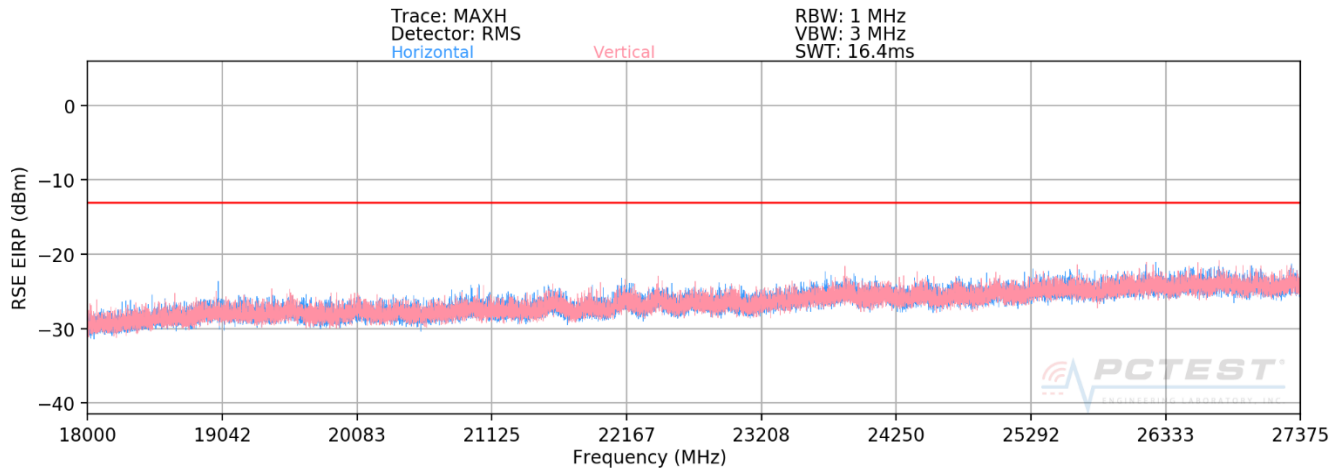
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

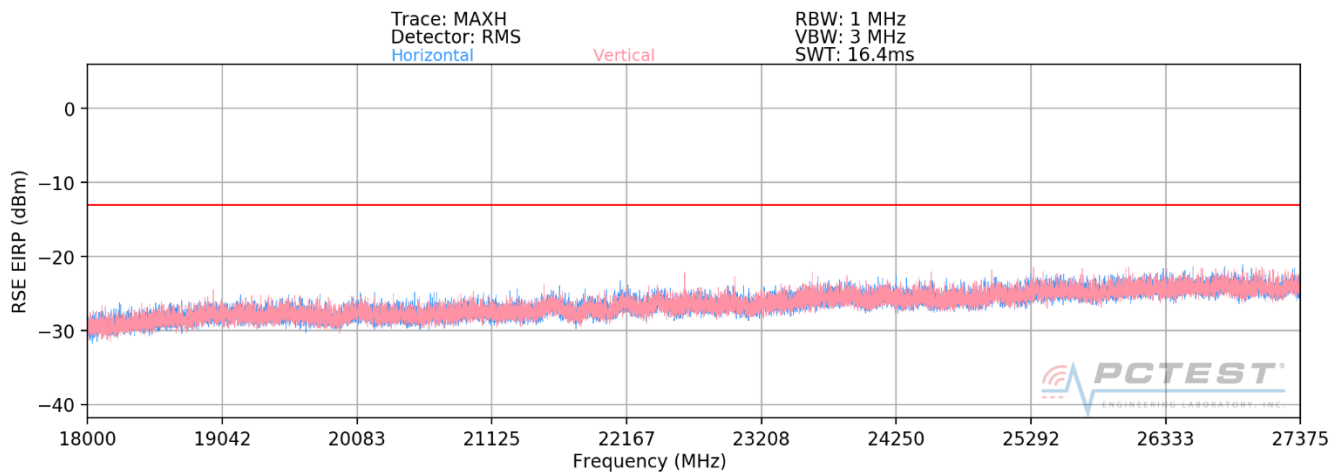
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 113 of 286

18GHz - 27.375GHz



Plot 7-115. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor B2)



Plot 7-116. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor B2)

FCC ID: A3LSMG986U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	Page 114 of 286	

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
27228.14	Low	50	H	QPSK	H	121	47	-27.91	-13.00	-14.91
27381.83	Low	50	V	QPSK	V	57	120	-33.44	-13.00	-20.44
27307.66	Mid	50	H	QPSK	H	121	50	-35.61	-13.00	-22.61
27384.47	Mid	50	V	QPSK	V	57	119	-34.76	-13.00	-21.76
25571.95	High	50	H	QPSK	H	-	-	-36.34	-13.00	-23.34
25610.03	High	50	V	QPSK	V	-	-	-36.59	-13.00	-23.59

Table 7-65. Ant2 - SISO -Spurious Emissions Table (18GHz - 27.375GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-26.84	-13.00	-13.84
Mid	50	QPSK	-32.15	-13.00	-19.15
High	50	QPSK	-33.45	-13.00	-20.45

Table 7-66. Ant2 - MIMO -Spurious Emissions Table (18GHz - 27.375GHz)

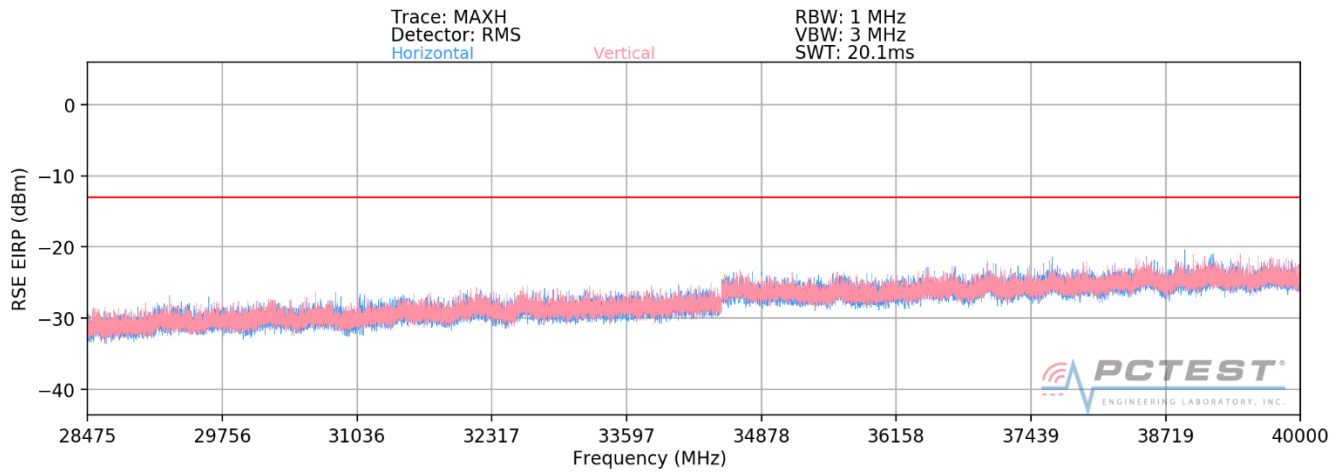
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

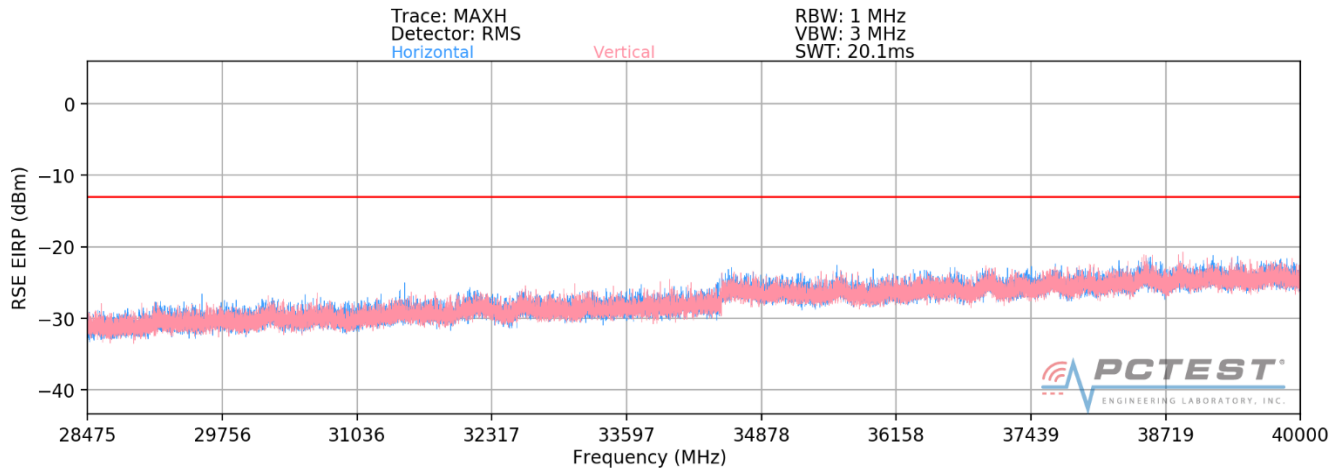
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 115 of 286

28.475GHz - 40GHz



Plot 7-117. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor B2)



Plot 7-118. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor B2)

FCC ID: A3LSMG986U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 116 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
28604.99	Low	50	H	QPSK	H	116	32	-33.20	-13.00	-20.20
28605.11	Low	50	V	QPSK	V	45	118	-32.78	-13.00	-19.78
30138.22	Mid	50	H	QPSK	H	120	26	-32.13	-13.00	-19.13
30138.10	Mid	50	V	QPSK	V	55	117	-34.14	-13.00	-21.14
28627.22	High	50	H	QPSK	H	123	37	-29.63	-13.00	-16.63
29740.27	High	50	V	QPSK	V	52	117	-33.09	-13.00	-20.09

Table 7-67. Ant2 - SISO -Spurious Emissions Table (28.475GHz - 40GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-29.98	-13.00	-16.98
Mid	50	QPSK	-30.01	-13.00	-17.01
High	50	QPSK	-28.01	-13.00	-15.01

Table 7-68. Ant2 - MIMO -Spurious Emissions Table (28.475GHz - 40GHz)

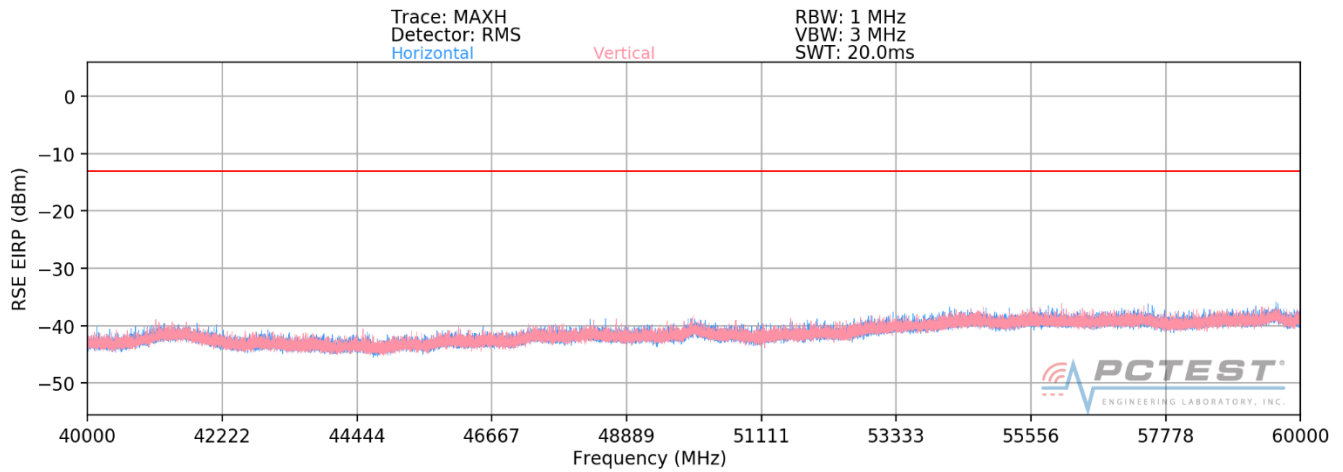
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

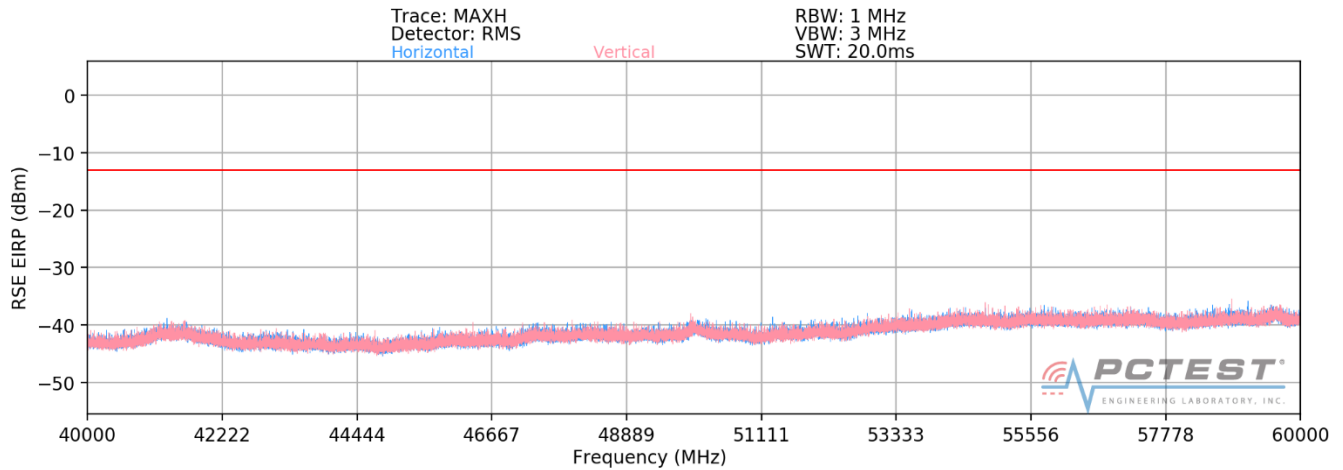
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 117 of 286

40GHz - 60GHz



Plot 7-119. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor B2)



Plot 7-120. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor B2)

FCC ID: A3LSMG986U	MEASUREMENT REPORT (CERTIFICATION)			Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 118 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1.5 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
55070.68	Low	50	H	QPSK	H	48	337	-52.74	-13.00	-39.74
55070.78	Low	50	V	QPSK	H	228	24	-54.60	-13.00	-41.60
55845.06	Mid	50	H	QPSK	H	166	267	-46.86	-13.00	-33.86
55845.46	Mid	50	V	QPSK	H	235	58	-52.20	-13.00	-39.20
56640.33	High	50	H	QPSK	H	288	169	-46.88	-13.00	-33.88
56640.51	High	50	V	QPSK	H	31	345	-54.83	-13.00	-41.83

Table 7-69. Ant2 - SISO -Spurious Emissions Table (40GHz - 60GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-50.56	-13.00	-37.56
Mid	50	QPSK	-45.74	-13.00	-32.74
High	50	QPSK	-46.23	-13.00	-33.23

Table 7-70. Ant2 - MIMO -Spurious Emissions Table (40GHz - 60GHz)

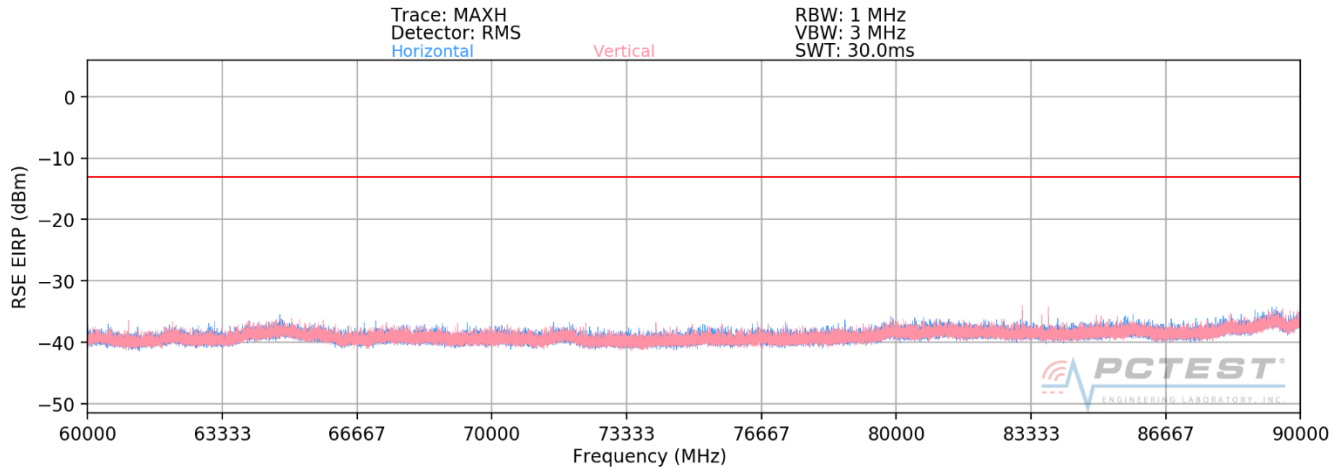
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

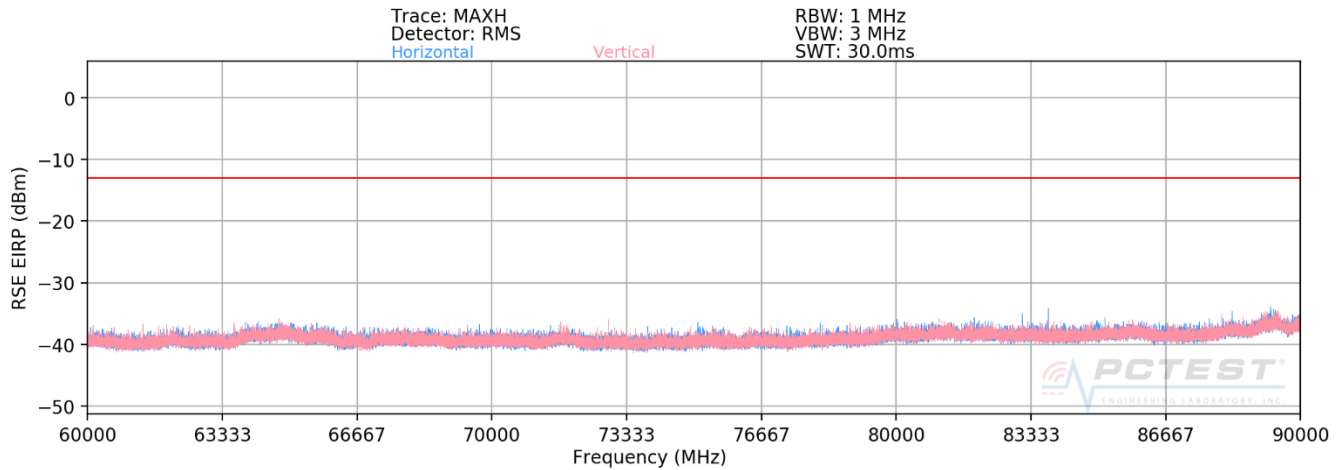
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 119 of 286

60GHz - 90GHz



Plot 7-121. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor B2)



Plot 7-122. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor B2)

FCC ID: A3LSMG986U	 MEASUREMENT REPORT (CERTIFICATION) 		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset	Page 120 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
82601.45	Low	50	H	QPSK	H	290	110	-46.54	-13.00	-33.54
82606.48	Low	50	V	QPSK	V	207	35	-46.55	-13.00	-33.55
83768.15	Mid	50	H	QPSK	H	221	80	-47.31	-13.00	-34.31
83768.94	Mid	50	V	QPSK	V	215	70	-46.75	-13.00	-33.75
84962.51	High	50	H	QPSK	H	300	17	-46.43	-13.00	-33.43
84961.47	High	50	V	QPSK	V	140	255	-51.30	-13.00	-38.30

Table 7-71. Ant2 - SISO -Spurious Emissions Table (60GHz - 90GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-43.54	-13.00	-30.54
Mid	50	QPSK	-44.01	-13.00	-31.01
High	50	QPSK	-45.20	-13.00	-32.20

Table 7-72. Ant2 - MIMO -Spurious Emissions Table (60GHz - 90GHz)

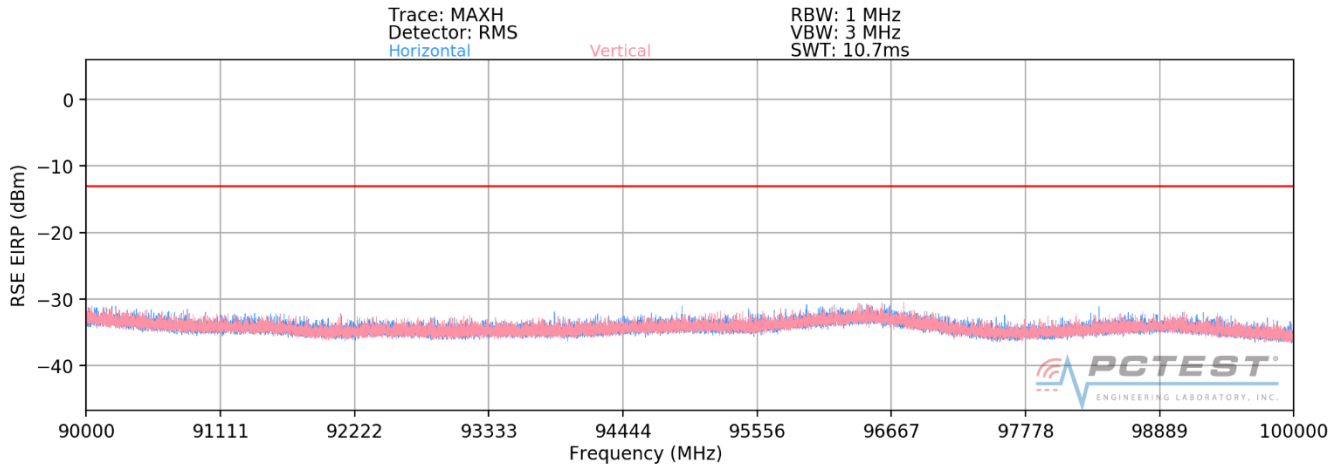
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

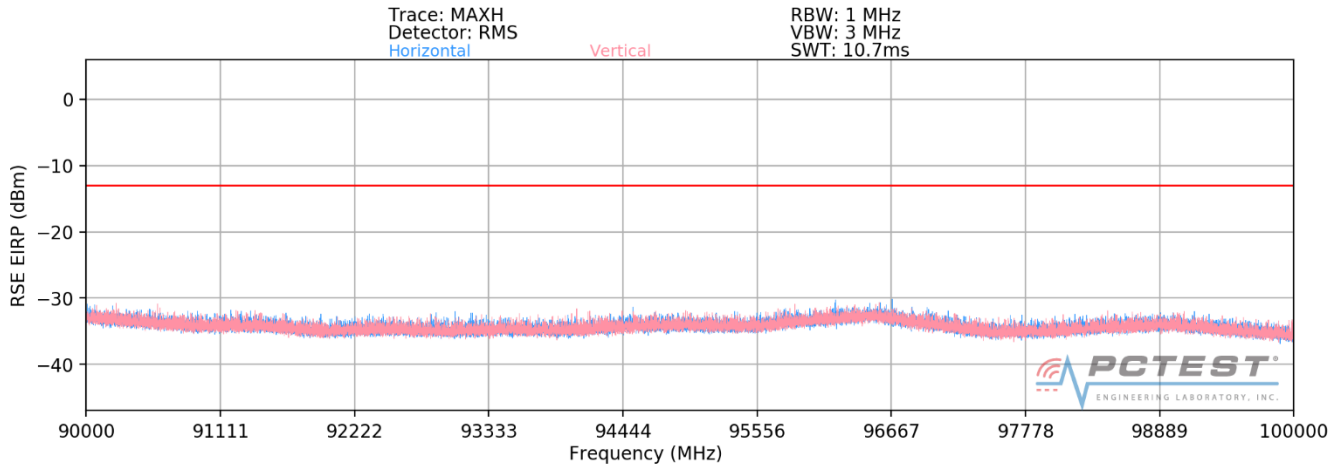
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 121 of 286

90GHz - 100GHz



Plot 7-123. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor B2)



Plot 7-124. Ant2-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor B2)

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 122 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

RSE EIRP (dBm) = Analyzer Level (dBm) + 107 + AFCL (dB/m) + 20Log(Dm) – 104.8 + Harmonic Mixer Conversion Loss [dB]

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
96476.10	Low	50	H	QPSK	V	-	-	-40.01	-13.00	-27.01
96476.12	Low	50	V	QPSK	V	-	-	-41.12	-13.00	-28.12
96470.85	Mid	50	H	QPSK	V	-	-	-39.59	-13.00	-26.59
96464.15	Mid	50	V	QPSK	V	-	-	-40.14	-13.00	-27.14
96471.11	High	50	H	QPSK	V	-	-	-39.49	-13.00	-26.49
96473.65	High	50	V	QPSK	V	-	-	-39.93	-13.00	-26.93

Table 7-73. Ant2 - SISO -Spurious Emissions Table (90GHz - 100GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-37.52	-13.00	-24.52
Mid	50	QPSK	-36.84	-13.00	-23.84
High	50	QPSK	-36.69	-13.00	-23.69

Table 7-74. Ant2 - MIMO -Spurious Emissions Table (90GHz - 100GHz)

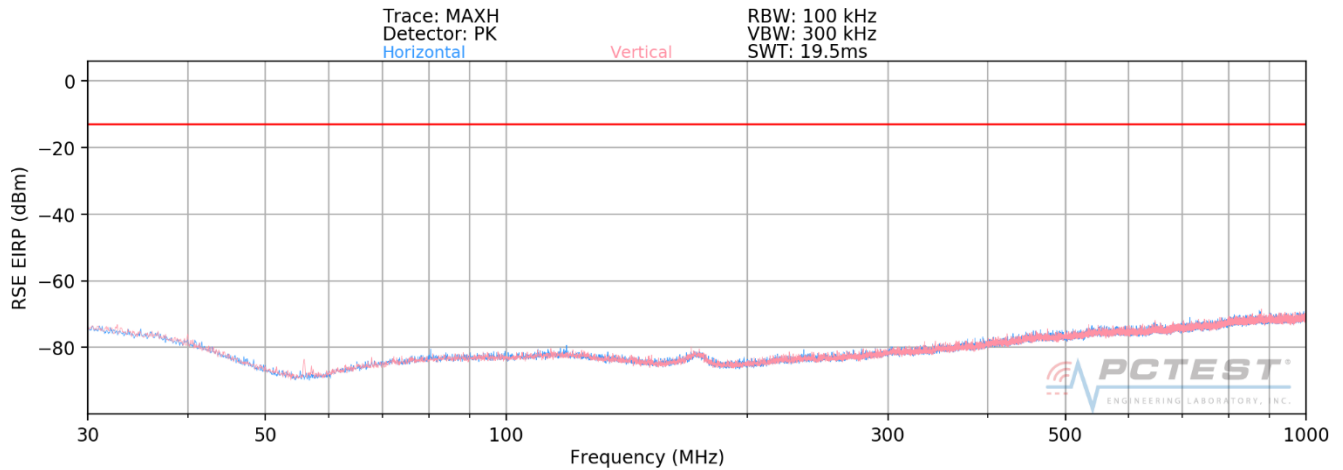
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

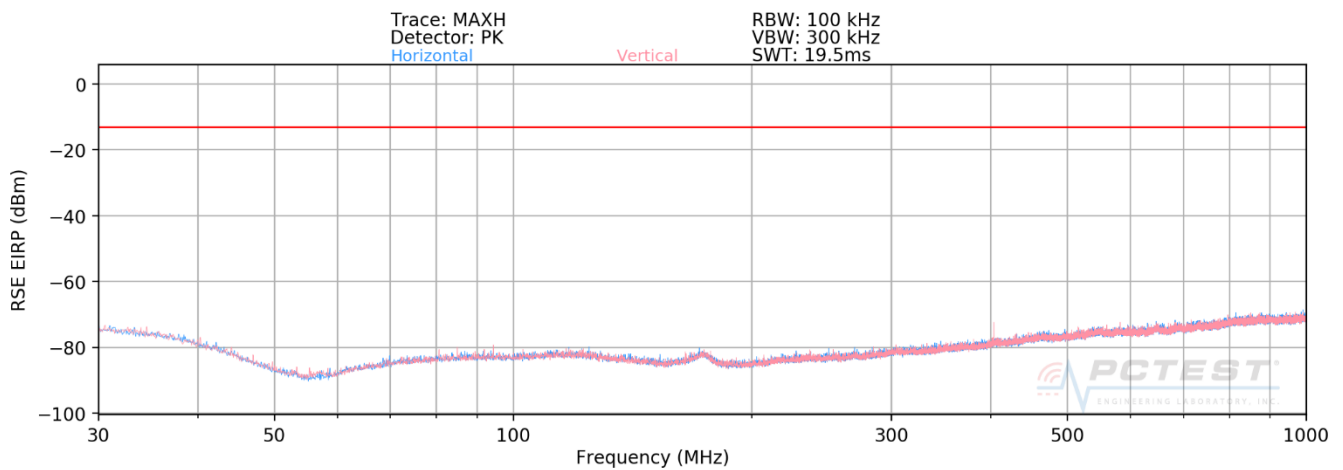
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 123 of 286

**Band n261 – Ant3
30MHz - 1GHz**



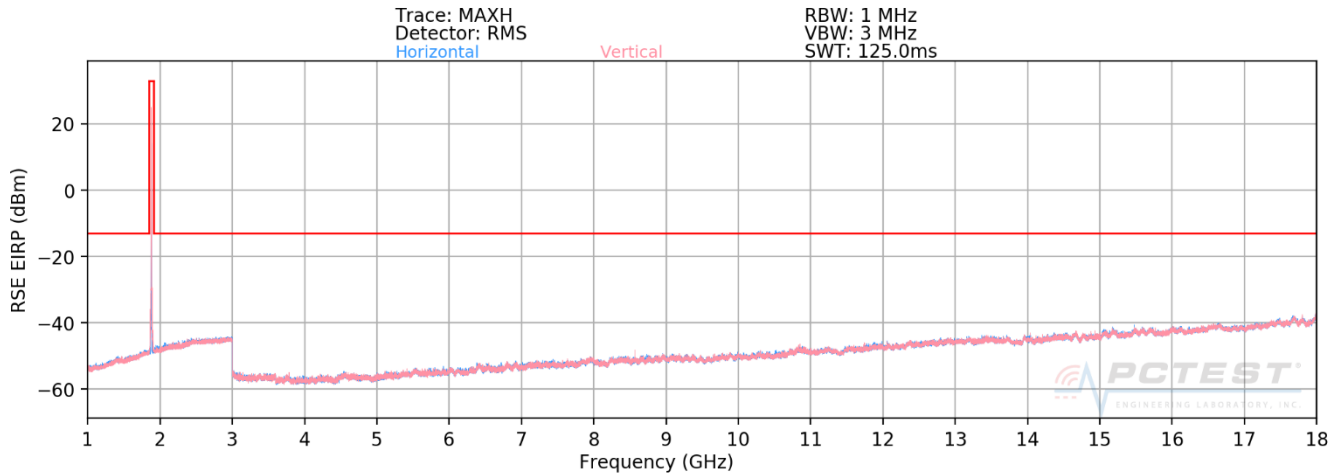
Plot 7-125. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam)



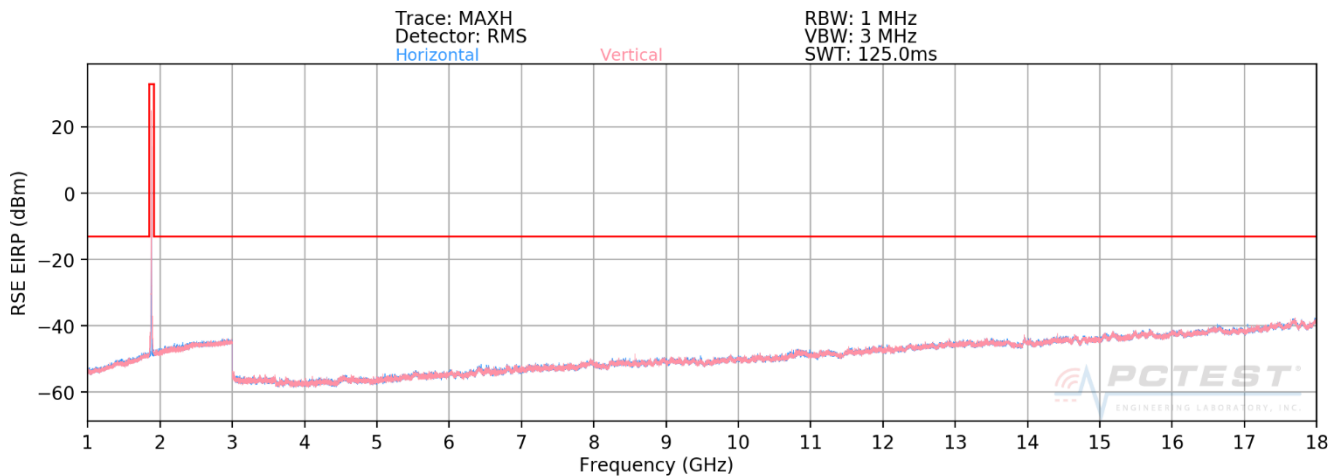
Plot 7-126. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam)

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 124 of 286

1GHz - 18GHz



Plot 7-127. Ant3-n261 Radiated Spurious Plot 1GHz - 18GHz (1CC QPSK Mid Channel H Beam – ENDC Anchor Band 2)



Plot 7-128. Ant3-n261 Radiated Spurious Plot 1GHz - 18GHz (1CC QPSK Mid Channel V Beam - – ENDC Anchor Band 2)

FCC ID: A3LSMG986U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 125 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Antenna Height [cm]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
8821.85	Low	50	H	QPSK	V	101	28	-46.63	-13.00	-33.63
8821.85	Low	50	V	QPSK	V	102	351	-43.82	-13.00	-30.82
8569.16	Mid	50	H	QPSK	V	112	15	-48.46	-13.00	-35.46
8569.16	Mid	50	V	QPSK	V	100	4	-45.24	-13.00	-32.24
8966.56	High	50	H	QPSK	V	102	25	-45.11	-13.00	-32.11
8966.56	High	50	V	QPSK	V	100	354	-44.25	-13.00	-31.25

Table 7-75. Ant3 - SISO -Spurious Emissions Table (1GHz - 18GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-41.99	-13.00	-28.99
Mid	50	QPSK	-43.55	-13.00	-30.55
High	50	QPSK	-41.65	-13.00	-28.65

Table 7-76. Ant3 - MIMO -Spurious Emissions Table (1GHz - 18GHz)

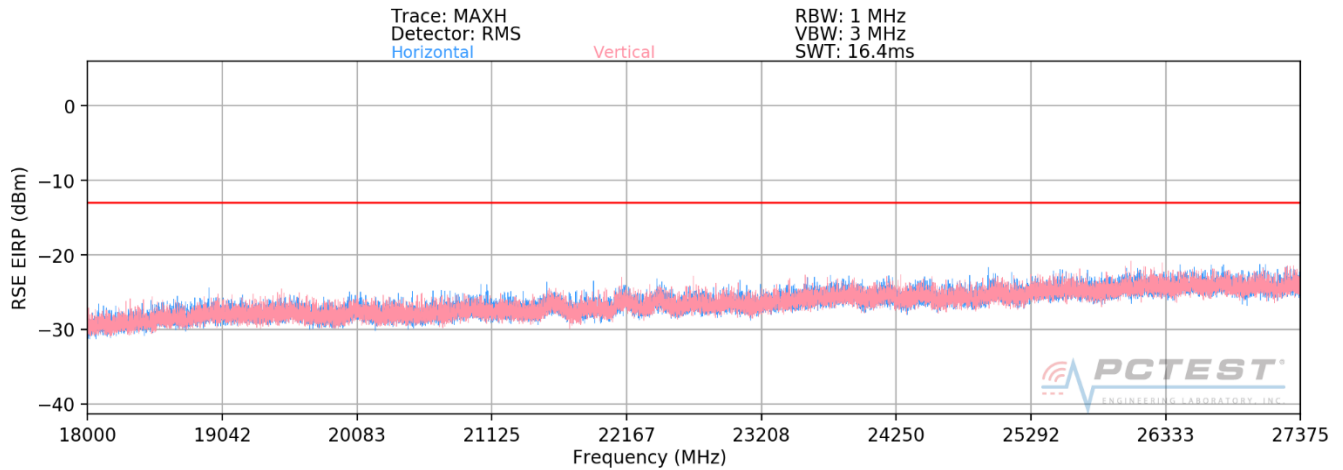
Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

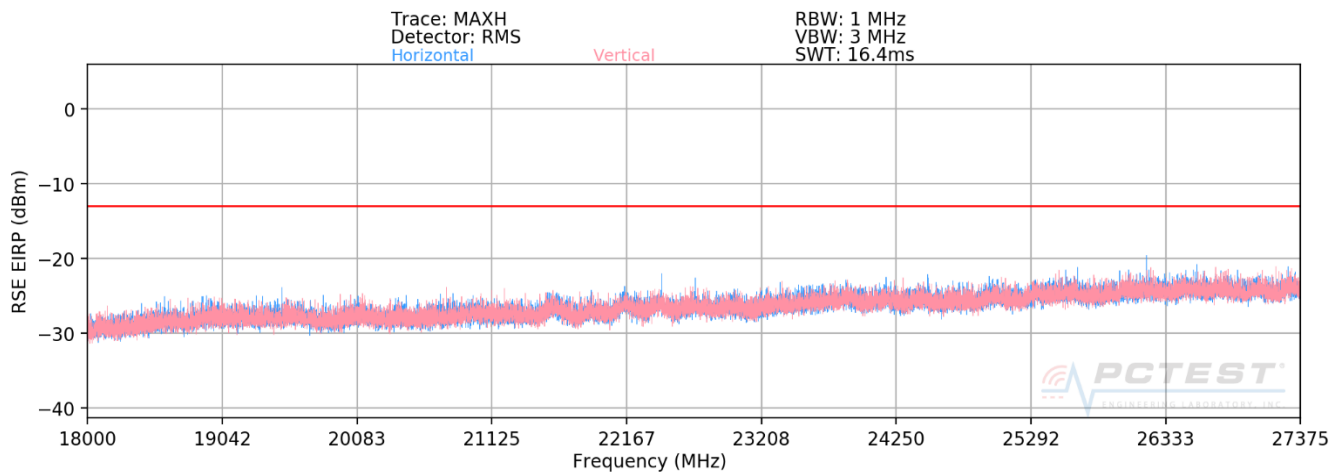
$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 126 of 286

18GHz - 27.375GHz



Plot 7-129. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel H Beam – ENDC Anchor B2)



Plot 7-130. Ant3-n261 Radiated Spurious Plot (1CC QPSK Mid Channel V Beam – ENDC Anchor B2)

FCC ID: A3LSMG986U	PCTEST ENGINEERING LABORATORY, INC.	MEASUREMENT REPORT (CERTIFICATION)	SAMSUNG	Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 127 of 286

Spurious Emissions EIRP Sample Calculation (n261)

The raw radiated spurious level is converted to field strength in dBuV/m. Then, the RSE EIRP level is calculated by applying the additional factors shown below for a test distance of 1 meter.

$$\text{RSE EIRP (dBm)} = \text{Analyzer Level (dBm)} + 107 + \text{AFCL (dB/m)} + 20\text{Log(Dm)} - 104.8$$

Frequency [MHz]	Channel	Bandwidth (MHz)	EUT Beam Pol.	Modulation	Antenna Polarization [H/V]	Turntable Azimuth [degrees]	Positioner Azimuth [degrees]	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
27228.21	Low	50	H	QPSK	H	75	52	-26.02	-13.00	-13.02
27381.17	Low	50	V	QPSK	H	178	138	-30.74	-13.00	-17.74
27384.94	Mid	50	H	QPSK	H	72	42	-35.11	-13.00	-22.11
27385.04	Mid	50	V	QPSK	H	174	135	-33.61	-13.00	-20.61
27398.61	High	50	H	QPSK	H	75	51	-34.81	-13.00	-21.81
26199.75	High	50	V	QPSK	H	-	-	-35.75	-13.00	-22.75

Table 7-77. Ant3 - SISO -Spurious Emissions Table (18GHz - 27.375GHz)

Channel	Bandwidth (MHz)	Modulation	Spurious Emission Level [dBm]	Limit [dBm]	Margin [dB]
Low	50	QPSK	-24.76	-13.00	-11.76
Mid	50	QPSK	-31.29	-13.00	-18.29
High	50	QPSK	-32.24	-13.00	-19.24

Table 7-78. Ant3 - MIMO -Spurious Emissions Table (18GHz - 27.375GHz)

Notes

1. The RSE EIRP level is taken directly from the spectrum analyzer which includes the appropriate antenna factors, cable losses, and harmonic mixer conversion losses. Measurements were performed at a distance of 1 meter.
2. To address compliance of MIMO RSE per KDB 662911 D01, the MIMO RSE EIRP is calculated by summing the worst case H Beam EIRP and V Beam EIRP in linear powers units then converted back to dBm:

$$\text{EIRP(H Beam)} + \text{EIRP(V Beam)} = \text{EIRP(MIMO)}$$

FCC ID: A3LSMG986U		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M1910220166-06.A3L	Test Dates: 10/11 - 12/06/2019	EUT Type: Portable Handset		Page 128 of 286