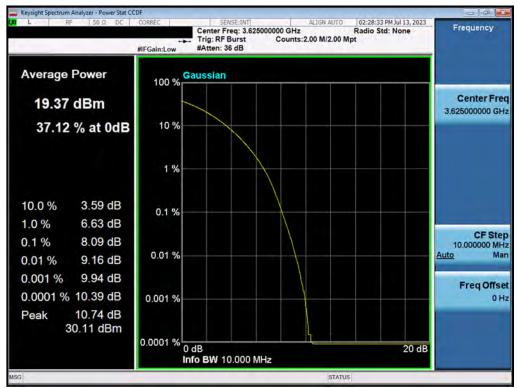


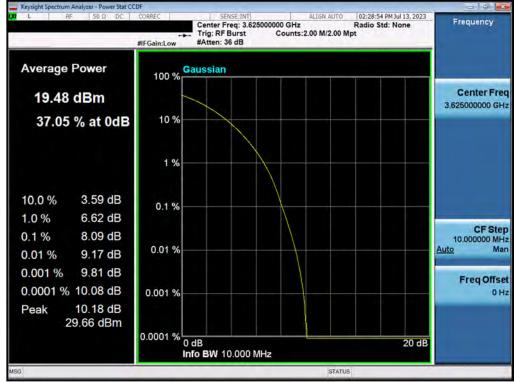
Plot 7.157. Peak to Average Power Ratio Plot (10MHz, QPSK – Mid Channel) – Ch.B



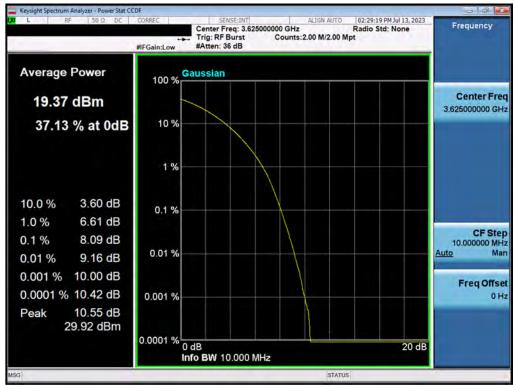
Plot 7.158. Peak to Average Power Ratio Plot (10MHz, 16QAM – Mid Channel) – Ch.B

FCC ID: 2AS22-LUMACH2		Approved by: Technical Manager	
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Plot 7.159. Peak to Average Power Ratio Plot (10MHz, 64QAM - Mid Channel) - Ch.B



Plot 7.160. Peak to Average Power Ratio Plot (10MHz, 256QAM - Mid Channel) - Ch.B

FCC ID: 2AS22-LUMACH2		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 111
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### 7.7 Spurious and Harmonic Emissions at Antenna Terminal

### **Test Overview**

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

# The conducted power of any emissions below 3530 MHz or above 3720 MHz shall not exceed -40 dBm/Mhz.

### **Test Procedure Used**

ANSI C63.26-2015 - Section 5.7.4

### Test Settings

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

### Test Setup

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

Property lines			
TERAN	merce -		
(11) 021 FFE		r.	
THIS WAR AN			
10 TA BOA		2	

Figure 7-6. Test Instrument & Measurement Setup

### Test Notes

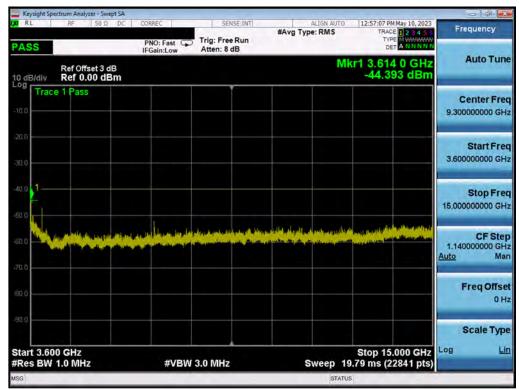
- 1. Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz.
- 2. The Plots in this section have a 3dB correction applied to the individual plots to address the MIMO requirements in ANSI C63.26
- 3. Unwanted emissions between 3510MHz and 3530MHz, as well as between 3720 MHz and 3740 MHz, are observed and reported in section 7.8.

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RL RF	50 Q DC C	ORREC	SENSE;INT	ALIGN AUTO #Avg Type: RMS	01:12:50 PM May 10, 2023 TRACE 1 2 3 4 5 6	Frequency
ASS		PNO: Fast +++ FGain:Low	Trig: Free Run #Atten: 16 dB	#Avg Type. Rms	TYPE M WANNAWA	
0 dB/div Ref	ffset 3 dB ).00 dBm			М	kr1 3.494 6 GHz -40.915 dBm	Auto Tun
og Trace 1 Pas	S					Center Fre 1.770000000 GH
20,0 30.0						Start Fre 30.000000 MF
40.0						Stop Fre 3.51000000 GH
	nelles et the London b			and induced a statistical design of the stat		CF Ste 348.000000 MH Auto Ma
30.0						Freq Offs 0 I
90.0						Scale Typ
tart 30 MHz Res BW 1.0 MI	łz	#VBW	3.0 MHz	Sweep	Stop 3.510 GHz 4.667 ms (7001 pts)	

Plot 7.161. Conducted Spurious Plot (10MHz QPSK, Low Channel - Ch.A)



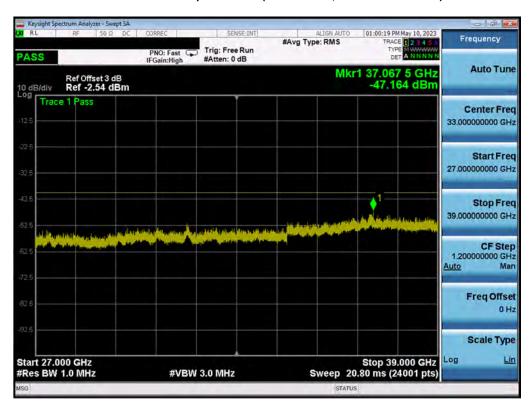
Plot 7.162. Conducted Spurious Plot (10MHz QPSK, Low Channel - Ch.A)

FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 111		
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Frequency	12:57:48 PM May 10, 2023 TRACE 1 2 3 4 5 6	ALIGN AUTO	NSE:INT	SE	ORREC	Ω DC 0	RF 50	RL
		g Type. RMS		Trig: Free Atten: 8	PNO: Fast 😱 FGain:Low			ASS
Auto Tur	1 26.604 0 GHz -46.760 dBm	Mkr					Ref Offset 3 Ref 0.00 c	dB/div
Center Fre 21.00000000 GF							1 Pass	Trace
Start Fre 15.000000000 GH								0
Stop Fre 27.00000000 GF	1 Newsford Water I and the Allington of the Allington		الأفر ورالاطن	namar da s e n	ali - salukik sa ka			0
CF Ste 1.200000000 GH Auto Ma								o <mark>and set of the set </mark>
Freq Offs 0 F								1.ġ
Scale Typ	Stop 27.000 GHz 0.80 ms (24001 pts)	Sween -20		3 0 MH <del>.</del>	#VBW 3			art 15.0 Res BW
		Sweep 20		5.0 WIT12	WARAA .		No IVITI2	3

Plot 7.163. Conducted Spurious Plot (10MHz QPSK, Low Channel - Ch.A)



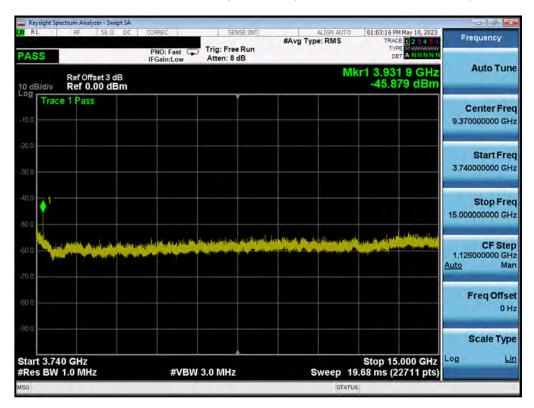
Plot 7.164. Conducted Spurious Plot (10MHz QPSK, Low Channel - Ch.A)

FCC ID: 2AS22-LUMACH2		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 109 of 144
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		#Avg Type: RMS	01:19:24 PMMay 10, 2023 TRACE 2 3 4 5 6 TYPE M	Frequency
		M	kr1 3.495 9 GHz -44.566 dBm	Auto Tune
				Center Fre 1.770000000 GH
				Start Fre 30.000000 MH
		an an an an shall da da da da sa		Stop Fre 3,51000000 GH
ar na sa din di kasha a da ba	dia na kata ya kata kata ya ka Na kata ya kata			CF Ste 348.000000 MH Auto Ma
				Freq Offs 0 F
#VBW 3	0 MHz	Sweep	Stop 3.510 GHz	Scale Typ
	PNO: Fast	PNO: Fast IFGain:Low #Atten: 16 dB	PNO: Fast IFGain:Low #Atten: 16 dB  MI	PNO: Fast Trig: Free Run IFGain:Low #Atten: 16 dB Mkr1 3.495 9 GHz -44.566 dBm 10 10 10 10 10 10 10 10 10 10 10 10 10 1

Plot 7.165. Conducted Spurious Plot (10MHz QPSK, Mid Channel - Ch.A)



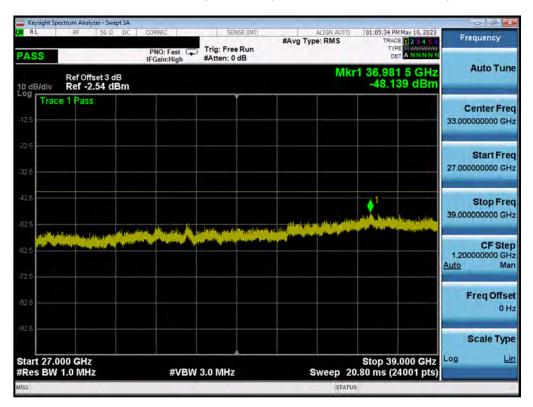
Plot 7.166. Conducted Spurious Plot (10MHz QPSK, Mid Channel – Ch.A)

FCC ID: 2AS22-LUMACH2		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dogo 110 of 144
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Frequency	01:04:32 PM May 10, 2023 TRACE 1 2 3 4 5 6 TYPE M	#Avg Type: RMS	SENSE:INT Trig: Free Run Atten: 8 dB	PNO: Fast		PASS
Auto Tun	1 26.144 5 GHz -46.765 dBm	Mkr			Ref Offs	0 dB/
Center Fre 21.00000000 GH					race 1 Pass	10.0
Start Fre 15.000000000 GH						20,0 30,0 -
Stop Fre 27.00000000 GH			ed. And all 10 Distance	- Independent		10.0
<b>CF Ste</b> 1.200000000 GH <u>Auto</u> Ma						50.0 Å
Freq Offs 0 F						30. Q
Scale Typ	Stop 27.000 GHz 0.80 ms (24001 pts)	Sweep 20	3.0 MHz	#VBW 3	15.000 GHz 3W 1.0 MHz	
		STATUS				SG

Plot 7.167. Conducted Spurious Plot (10MHz QPSK, Mid Channel - Ch.A)



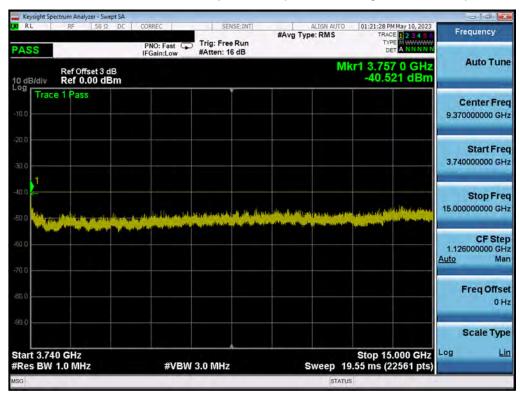
Plot 7.168. Conducted Spurious Plot (10MHz QPSK, Mid Channel - Ch.A)

FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT			
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DC CORREC	SENSE;INT	ALIGN AUTO	01:20:14 PM May 10, 2023	Frequency
PNO: Fast G	Trig: Free Run #Atten: 16 dB	#Avg Type. Km3	TYPE MUMUUW DET A NNNNN	
n		M	41.615 dBm	Auto Tun
				Center Fre 1.840000000 GH
				Start Fre 30.000000 MH
		و م الماليون الماليون الماليون		Stop Fre 3,65000000 GH
al the discourse part and a state of the second				CF Ste 362.000000 MH <u>Auto</u> Ma
				Freq Offs 0 F
#VBW	3.0 MHz	Sweep	Stop 3.650 GHz	Scale Typ
	PNO: Fast C	PNO: Fast IFGain:Low #Atten: 16 dB	PNO: Fast IFGain:Low #Avg Type: RMS #Atten: 16 dB  M	PNO: Fast Trig: Free Run IFGain:Low Trig: Free Run #Atten: 16 dB Mkr1 3.631 1 GHz -41.615 dBm -41.615 dB

Plot 7.169. Conducted Spurious Plot (10MHz QPSK, High Channel - Ch.A)



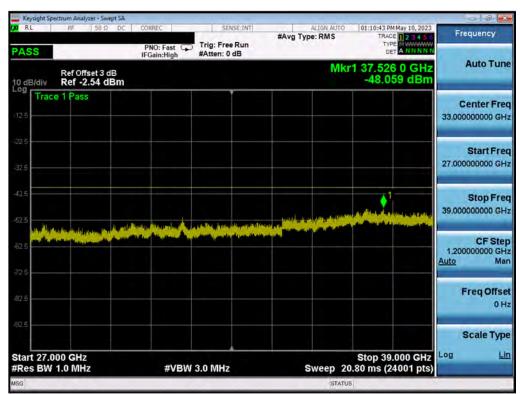
Plot 7.170. Conducted Spurious Plot (10MHz QPSK, High Channel - Ch.A)

FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT		
Test Report S/N:	Test Dates:	EUT Type:	Daga 112 of 111	
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RL	RF 50 Ω D0	CORREC	SENSE;INT	ALIGN AUTO	01:09:11 PM May 10, 2023	Frequency
ASS		PNO: Fast 😱 IFGain:Low	Trig: Free Run Atten: 8 dB	#Avg Type: RMS	TRACE 2 3 4 5 6 TYPE MUNICIPAL OF A NNNNN	requeries
	Ref Offset 3 dB Ref 0.00 dBm	II GUILEON		Mk	1 26.245 5 GHz -46.252 dBm	Auto Tun
	1 Pass					Center Fre 21.00000000 GH
x0,0 x0,0						Start Fre 15.000000000 GH
10 0 50 0		1922-04-30	and the second second		1 1	Stop Fre 27.00000000 Gi
	n de la citarra antar provinsi da de					CF Ste 1.20000000 GI <u>Auto</u> Mi
a.j.						Freq Offs 01
tart 15.00 Res BW 1		#VBW	3.0 MHz	Sweep 2	Stop 27.000 GHz 0.80 ms (24001 pts)	Scale Typ
SG	1.0 10112		5.0 14112	STATU		-

Plot 7.171. Conducted Spurious Plot (10MHz QPSK, High Channel - Ch.A)



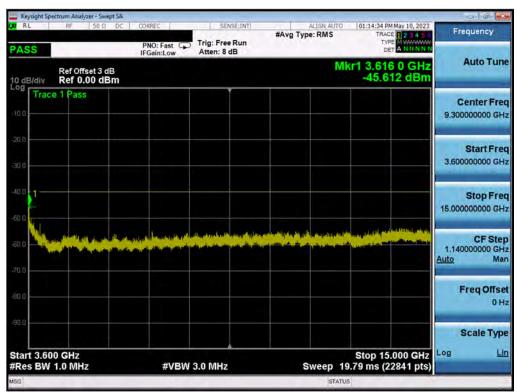
Plot 7.172. Conducted Spurious Plot (10MHz QPSK, High Channel - Ch.A)

FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT			
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Keysight Spectrum Analyzer - Sw RL RF 50 Ω		SENSE;INT	ALIGN AUTO #Avg Type: RMS	01:14:04 PM May 10, 2023 TRACE 1 2 3 4 5 0	Frequency
PASS	PNO: Fast G	Trig: Free Run #Atten: 16 dB	mild the time		
Ref Offset 3 0 dB/div Ref 0.00 d			M	44.665 dBm	Auto Tun
Trace 1 Pass					Center Fre 1.770000000 GH
80.0					Start Fre 30.000000 MH
40 D			an an an an an tai tai an t		Stop Fre 3.51000000 GH
a a <mark>hilling a harring har</mark>					CF Ste 348.000000 MH Auto Ma
xa ç					Freq Offs 01
start 30 MHz Res BW 1.0 MHz	#\/BW	3.0 MHz	Sweep	Stop 3.510 GHz .667 ms (7001 pts)	Scale Typ Log <u>L</u>
SG	#**D**	5.0 10112	STATUS		

Plot 7.173. Conducted Spurious Plot (10MHz QPSK, Low Channel - Ch.B)



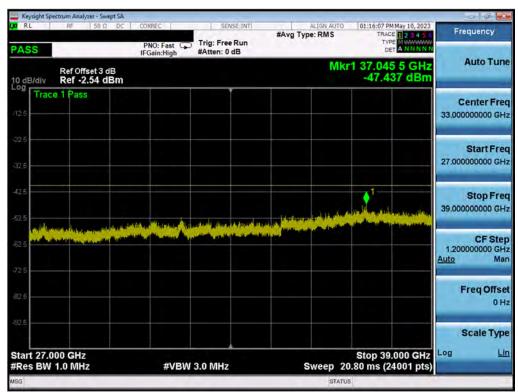
Plot 7.174. Conducted Spurious Plot (10MHz QPSK, Low Channel - Ch.B)

FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT			
Test Report S/N:	Test Dates:	EUT Type:	Page 114 of 144		
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	<u>.</u>		V3.0 1/6/2022		



RL R	Analyzer - Swept SA F 50 Ω DC	CORREC	SENSE;INT	ALIGN		
ASS		PNO: Fast 😱	Trig: Free Run Atten: 8 dB	#Avg Type: RM	S TRACE 2 3 TYPE OF A N	
	f Offset 3 dB f 0.00 dBm				Mkr1 26.564 5 0 -47.168 d	Auto Tun Bm
Trace 1 F	Pass					Center Fre 21.000000000 GH
0.0						Start Fre 15.000000000 G
0.0		deat leave a	ting to date a subscription for the second by		وروال والمعرفة والمعرفة والمعرفة والمعرفة والمعرفة	Stop Fr 27.000000000 G
	and a strain of the second	a deletation in a solution				CF Ste 1.20000000 GI <u>Auto</u> M
a.o.						Freq Offs 0
tart 15.000 C		#VBW	3.0 MHz	Swee	Stop 27.000 ( p. 20.80 ms (24001	GHz Log L pts)
G					STATUS	

Plot 7.175. Conducted Spurious Plot (10MHz QPSK, Low Channel - Ch.B)



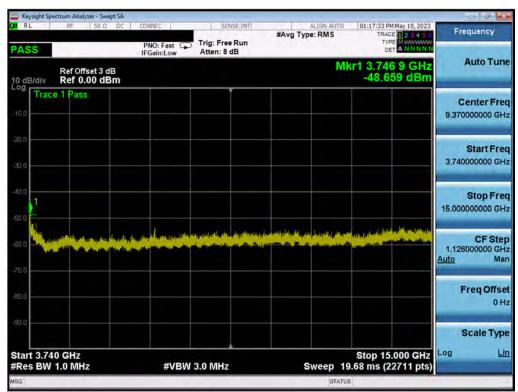
Plot 7.176. Conducted Spurious Plot (10MHz QPSK, Low Channel - Ch.B)

FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT			
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DC CORREC	SENSE:INT	ALIGN AUTO	01:16:59 PM May 10, 2023	Frequency
PNO: Fast G	Trig: Free Run #Atten: 16 dB	#Avg Type: RMS	TYPE MULTANN N DET ANNNNN	
dB Bm		M	43.668 dBm	Auto Tune
				Center Fre 1.770000000 GH
				Start Fre 30.000000 MH
		and a star strategy of the starting starting start	1 militari	Stop Fre 3.510000000 GH
and an in the state of the stat				CF Ste 348.000000 MH Auto Ma
				Freq Offs 0 F
#VBW :	3.0 MHz	Sweep 4	Stop 3.510 GHz .767 ms (7151 pts)	Scale Typ
	PNO: Fast C	PNO: Fast IFGoin:Low #Atten: 16 dB Bm	PNO: Fast IFGain:Low #Atten: 16 dB	PNO: Fast IFGain:Low Trig: Free Run #Atten: 16 dB Trig: Atten: 16 dB Trig: Free Run #Atten: 16 dB Mkr1 3.503 7 GHz -43.668 dBm

Plot 7.177. Conducted Spurious Plot (10MHz QPSK, Mid Channel – Ch.B)



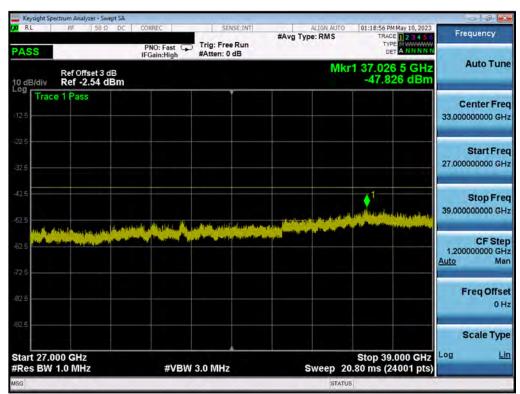
Plot 7.178. Conducted Spurious Plot (10MHz QPSK, Mid Channel - Ch.B)

FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT			
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RL RF 50 Ω	DC CORREC	SENSE;INT	ALIGN AUTO	01:18:07 PM May 10, 2023	Frequency
ASS	PNO: Fast 😱 IFGain:Low	Trig: Free Run Atten: 8 dB	#Avg Type: RMS	TYPE ANNNN	requeries
Ref Offset 3 dB dB/div Ref 0.00 dBn			Mkr	1 26.664 5 GHz -46.079 dBm	Auto Tun
Trace 1 Pass					Center Fre 21.000000000 GH
a,b a.o					Start Fre 15.000000000 GF
	المرجب المرجب	ada daya a yang sangarang		1	Stop Fre 27.00000000 GP
	State of the state				CF Ste 1.200000000 GH Auto Ma
α φ					Freq Offs 0 F
tart 15.000 GHz Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 20	Stop 27.000 GHz 0.80 ms (24001 pts)	Scale Typ

Plot 7.179. Conducted Spurious Plot (10MHz QPSK, Mid Channel - Ch.B)



Plot 7.180. Conducted Spurious Plot (10MHz QPSK, Mid Channel - Ch.B)

FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT			
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Keysight Spectrum Analyzer - Swep RL RF 50 Ω	DC CORREC	SENSE:INT	ALIGN AUTO	01:22:09 PM May 10, 2023	
NC 10 30 52		Trig: Free Run	#Avg Type: RMS	TRACE 2 3 4 5 6 TYPE M 10,2023	Frequency
PASS	PNO: Fast 😱 IFGain:Low	#Atten: 16 dB		DET A NNNNN	· · · · · · · · · · ·
Ref Offset 3 dE			M	41.714 dBm	Auto Tun
Trace 1 Pass					Center Fre
10.0					1.84000000 GH
20,0					Start Fre
30.0					30.000000 MH
40.0				1	Stop Fre
50.0				A STATE OF STATE OF STATE	3,65000000 GH
an in the strength of the state of the	and the total and the balling	states the state and states and			CF Ste
	anding the local distribution of period in the local distribution of				362.000000 Mi Auto Mi
					Freq Offs
20.0					01
90.0					Scale Typ
Start 30 MHz				Stop 3.650 GHz	Log L
Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 6	.309 ms (7281 pts)	
ISG			STATU	5	

Plot 7.181. Conducted Spurious Plot (10MHz QPSK, High Channel - Ch.B)

Frequency	01:22:41 PM May 10, 2023 TRACE 1 2 3 4 5 6 TYPE 000000000000000000000000000000000000	ALIGN AUTO		SEN Trig: Free #Atten: 16	RREC NO: Fast	P	RF 50 S	RL SS
Auto Tun	41.506 dBm	M				dB Bm	Ref Offset 3 Ref 0.00 d	dB/div
Center Fre 9.370000000 GH							1 Pass	Trace
Start Fre 3.740000000 GH								o
Stop Fre 15.00000000 GH	i dista and this is a line below your bin (bin	(self-self-self-self-self)self	. Marka Law	(, <sub>n</sub> ga kantika	a la sura		a Vine and the second	
CF Ste 1.126000000 GH Auto Ma								0
Freq Offs 0 F								¢
Scale Typ							GHz	a

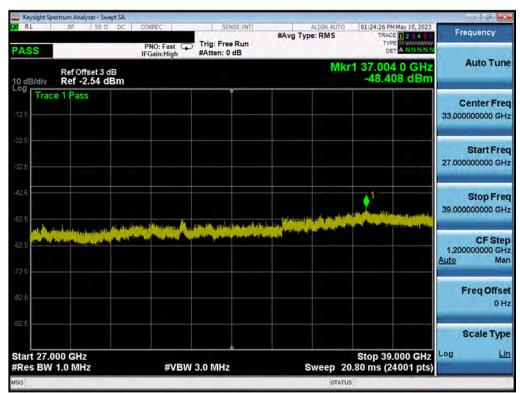
Plot 7.182. Conducted Spurious Plot (10MHz QPSK, High Channel – Ch.B)

FCC ID: 2AS22-LUMACH2		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 118 of 144
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RL RF 50 Ω	DC CORREC	SENSE;INT	ALIGN AUTO	01:23:35 PM May 10, 2023	Frequency
ASS	PNO: Fast 😱 IFGain:Low	Trig: Free Run Atten: 8 dB	#Avg Type: RMS	TRACE 1 2 3 4 5 6 TYPE M TYPE A NNNNN	
Ref Offset 3 dB dB/div Ref 0.00 dBr			Mk	r1 24.306 0 GHz -46.794 dBm	Auto Tun
Trace 1 Pass					Center Fre 21.00000000 GH
0.0					Start Fre 15.000000000 Gi
		1965 Long	Al parameter de la Provincia		Stop Fr 27.00000000 G
					CF Sto 1.20000000 G <u>Auto</u> M
a ģ					Freq Offs 0
tart 15.000 GHz Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep 2	Stop 27.000 GHz 0.80 ms (24001 pts)	Scale Typ Log <u>L</u>
G			STATU		L

Plot 7.183. Conducted Spurious Plot (10MHz QPSK, High Channel - Ch.B)



Plot 7.184. Conducted Spurious Plot (10MHz QPSK, High Channel - Ch.B)

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### 7.8 Band Edge Emissions at Antenna Terminal

### **Test Overview**

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at its maximum duty cycle, at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst-case configuration. All modes of operation were investigated and the worst-case configuration results are reported in this section.

For an End User Device, the conducted power of any emission outside the fundamental emission (whether in or outside of the authorized band) shall not exceed -13 dBm/MHz within 0 to B MHz (where B is the bandwidth in MHz of the assigned channel or multiple contiguous channels of the End User Device) above the upper CBSD-assigned channel edge and within 0 to B MHz below the lower CBSD-assigned channel edge. At all frequencies greater than B MHz above the upper CBSD assigned channel edge and less than B MHz below the lower CBSD-assigned channel edge, the conducted power of any end user device emission shall not exceed -25 dBm/MHz. The conducted power of emissions below 3530 MHz or above 3720 MHz shall not exceed -40dBm/MHz.

### **Test Procedure Used**

ANSI C63.26-2015 - Section 5.7.3

### **Test Settings**

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW > 1% of the emission bandwidth
- 4. VBW <u>></u> 3 x RBW
- 5. Detector = RMS
- 6. Number of sweep points  $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = trace average
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize

### Test Setup

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



Figure 7-7. Test Instrument & Measurement Setup

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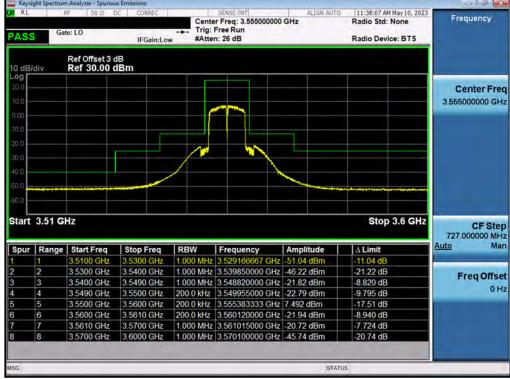
### Test Notes

- 1. Per 96.41(e)(3)(i), compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 megahertz bands immediately outside and adjacent to the licensee's authorized frequency channel, a resolution bandwidth of no less than one percent of the fundamental emission bandwidth may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full reference bandwidth (i.e., 1 MHz or 1 percent of emission bandwidth, as specified). The fundamental emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.
- 2. The Plots in this section have a 3dB correction applied to the individual plots to address the MIMO requirements in ANSI C63.26

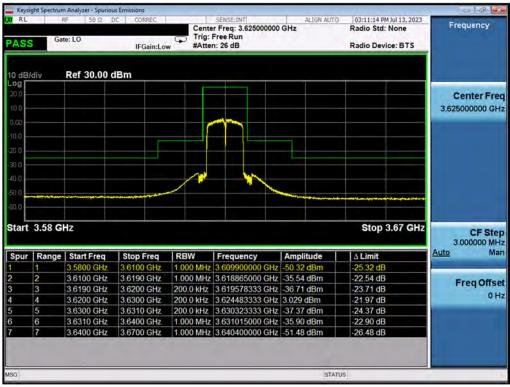
FCC ID: 2AS22-LUMACH2		Approved by: Technical Manager	
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### Channel A Band Edge Measurements



Plot 7.185. Conducted Band Edge Plot (10MHz, QPSK, Low Channel, Ch.A)



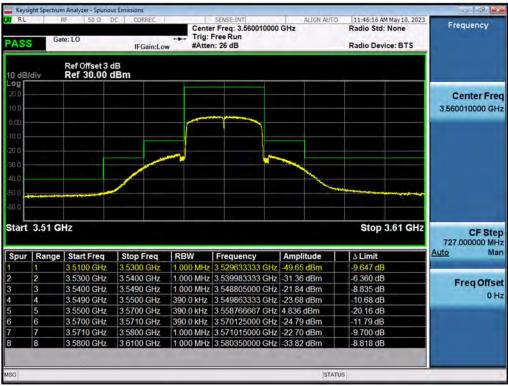
Plot 7.186. Conducted Band Edge Plot (10MHz, QPSK, Mid Channel, Ch.A

FCC ID: 2AS22-LUMACH2		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Page 122 of 144
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	11:44:25 AM May 10, 2023 Radio Std: None Radio Device: BTS	ALIGN AUTO			Trig	FGain:Lov		F 50Ω C	Gat	AS
								Ref Offset 3 c Ref 40.00 c		0 dB
Center Fre 3.694980000 GH										20.0 - 20.0 - 10.0 -
				ſ						0,00 10,0 20 0
			Late							30,0
						-	-	-		40,0 50,0
CF Ste 727.00000 MH	Stop 3.74 GHz							łz	3.65 GI	50.0
		litude	equency		RBW	o Freq	Stop			50.0
727.000000 MH			equency 80000000 GHz			p Freq 00 GHz		Iz Start Freg 3.6500 GHz	Range	50.0 Start
727.000000 MH <u>Auto</u> Ma	∆ Limit	9 dBm		Hz 3	1.000 MH		3.680	Start Freq	Range	50.0 Start
727.000000 MH Auto Ma Freq Offs	Δ Limit -23.39 dB	9 dBm 4 dBm	80000000 GHz	Hz 3 Hz 3	1.000 MH	00 GHz	3.6800 3.6890	Start Freq 3.6500 GHz	Range	Start
727.000000 MH <u>Auto</u> Ma	Δ Limit -23.39 dB -19.24 dB	9 dBm 4 dBm 0 dBm	80000000 GHz 88775000 GHz	Hz 3 Hz 3 Hz 3	1.000 MH 1.000 MH 200.0 kHz	00 GHz 90 GHz	3.680 3.689 3.690	Start Freq 3.6500 GHz 3.6800 GHz	Range	Start
727.000000 MH Auto Ma Freq Offs	Δ Limit -23.39 dB -19.24 dB -19.10 dB	9 dBm 4 dBm 0 dBm I dBm	80000000 GHz 88775000 GHz 89860000 GHz	Hz 3 Hz 3 Hz 3 Hz 3	1.000 MH 1.000 MH 200.0 kHz 200.0 kHz	00 GHz 90 GHz 00 GHz	3.6800 3.6890 3.6900 3.7000	Start Freq 3.6500 GHz 3.6800 GHz 3.6890 GHz	Range 1 2 3 4	Start
727.000000 MH Auto Ma Freq Offs	Δ Limit -23.39 dB -19.24 dB -19.10 dB -19.32 dB	9 dBm 4 dBm 0 dBm 1 dBm 1 dBm	80000000 GHz 88775000 GHz 89860000 GHz 94516667 GHz	Hz 3 Hz 3 Hz 3 Hz 3 Hz 3 Hz 3	1.000 MH 1.000 MH 200.0 kHz 200.0 kHz 200.0 kHz	00 GHz 90 GHz 00 GHz 00 GHz	3.6800 3.6890 3.6900 3.7000 3.7010	<b>Start Freq</b> <b>3.6500 GHz</b> <b>3.6800 GHz</b> <b>3.6890 GHz</b> <b>3.6900 GHz</b>	Range 1 2 3 4 5	Start
727.000000 MH Auto Ma Freq Offs	Δ Limit -23.39 dB -19.24 dB -19.10 dB -19.32 dB -20.11 dB	9 dBm 4 dBm 0 dBm 1 dBm 1 dBm 4 dBm	80000000 GHz 88775000 GHz 89860000 GHz 94516667 GHz 00078333 GHz	Hz 3 Hz 3 Hz 3 Hz 3 Hz 3 Hz 3 Hz 3	1.000 MH 1.000 MH 200.0 kHz 200.0 kHz 200.0 kHz 1.000 MH	00 GHz 90 GHz 00 GHz 00 GHz 10 GHz	3.6800 3.6890 3.6900 3.7000 3.7010 3.7010	<b>Start Freq</b> <b>3.6500 GHz</b> <b>3.6800 GHz</b> <b>3.6890 GHz</b> <b>3.6900 GHz</b> <b>3.7000 GHz</b>	Range 1 2 3 4 5 6	Start

Plot 7.187. Conducted Band Edge Plot (10MHz, QPSK, High Channel, Ch.A)



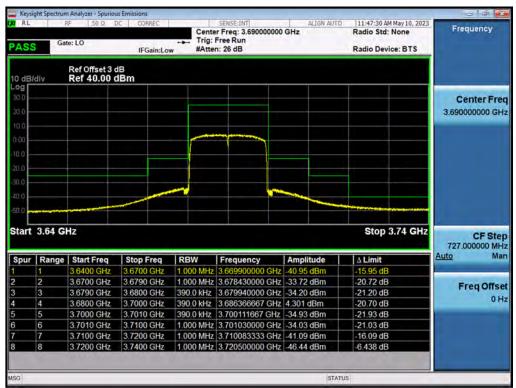
Plot 7.188. Conducted Band Edge Plot (20MHz, QPSK, Low Channel, Ch.A)

FCC ID: 2AS22-LUMACH2		Approved by: Technical Manager		
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PAS	- Cat	∛≓ 50Ω t te:LO	DC CORREC	Trig:	SENSE:INT Freq: 3.6250000 Free Run n: 26 dB	00 GHz	0 03:10:48 PM Jul 13, 2023 Radio Std: None Radio Device: BTS	Frequency
10 dB	//div	Ref 30.00 (	dBm					
20.0 10.0								Center Free 3.625000000 GH
0.00					-			
20.0 30.0								
40.0 50.0								
50.0 0.03	94-91-19,919-1 <sub>9</sub> -9						****	
Start	3.575 0	GHz					Stop 3.675 GHz	CF Step 3.000000 MH
_	Range	Start Freg	Stop Freq	RBW	Frequency	Amplitude	∆ Limit	Auto Mar
Spur	1	3.5750 GHz	3.6050 GHz	1.000 MHz	3.604750000 GH	tz -45.54 dBm	-20.54 dB	10 10 10 10
Spur 1		0.0050.011	3.6140 GHz	1.000 MHz	3.613535000 GH	tz -39.05 dBm	-26.05 dB	Freq Offse
Spur 1 2	2	3.6050 GHz	3.0140 GHZ					
1	2	3,6140 GHz	3.6150 GHz		3.614988333 GH		-26.45 dB	
1 2 3 4	2 3 4	3.6140 GHz 3.6150 GHz	3.6150 GHz 3.6350 GHz	390.0 kHz	3.624266667 GH	Iz -0.718 dBm	-25.72 dB	
1 2 3 4 5	2 3 4 5	3.6140 GHz 3.6150 GHz 3.6350 GHz	3.6150 GHz 3.6350 GHz 3.6360 GHz	390.0 kHz 390.0 kHz	3.624266667 GH 3.635005000 GH	tz -0.718 dBm tz -39.95 dBm	-25.72 dB -26.95 dB	
1 2 3 4	2 3 4 5 6	3.6140 GHz 3.6150 GHz 3.6350 GHz 3.6360 GHz	3.6150 GHz 3.6350 GHz 3.6360 GHz 3.6450 GHz	390.0 kHz 390.0 kHz 1.000 MHz	3.624266667 GH 3.635005000 GH 3.636135000 GH	tz -0.718 dBm tz -39.95 dBm tz -39.07 dBm	-25.72 dB -26.95 dB -26.07 dB	
	2 3 4 5	3.6140 GHz 3.6150 GHz 3.6350 GHz	3.6150 GHz 3.6350 GHz 3.6360 GHz	390.0 kHz 390.0 kHz 1.000 MHz	3.624266667 GH 3.635005000 GH	tz -0.718 dBm tz -39.95 dBm tz -39.07 dBm	-25.72 dB -26.95 dB	0 Hz
pur	2 3 4 5 6	3.6140 GHz 3.6150 GHz 3.6350 GHz 3.6360 GHz	3.6150 GHz 3.6350 GHz 3.6360 GHz 3.6450 GHz	390.0 kHz 390.0 kHz 1.000 MHz	3.624266667 GH 3.635005000 GH 3.636135000 GH	tz -0.718 dBm tz -39.95 dBm tz -39.07 dBm	-25.72 dB -26.95 dB -26.07 dB	

Plot 7.189. Conducted Band Edge Plot (20MHz, QPSK, Mid Channel, Ch.A)



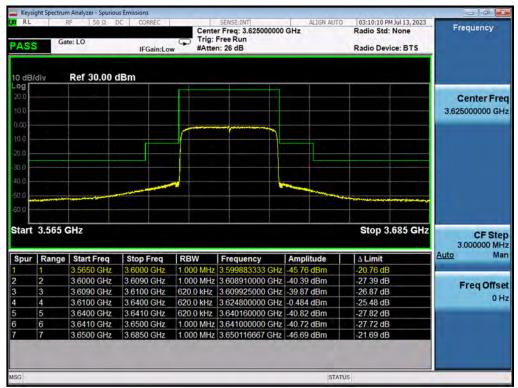
Plot 7.190. Conducted Band Edge Plot (20MHz, QPSK, High Channel, Ch.A)

FCC ID: 2AS22-LUMACH2		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Daga 124 of 144
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	Radio Std: None Radio Device: BTS	GHz	SENSE:INT r Freq: 3.560010000 Free Run h: 26 dB	++ Trig: F	IFGain:Lov	F 50Ω 0	_	ASS
						Ref Offset 3 c Ref 30.00 c		0 dB
Center Fre 3.560010000 GH				V				- <b>0</b> g 20.0 10.0 0.00 10.0 20.0 30.0
	· ····································	anna an						40.0 50.0
362.000000 MH	Stop 3.625 GHz						3.525 G	
CF Ste	∆ Limit	Amplitude	Frequency	RBW	Stop Freq	Start Freq	Range	Start Spur
362.000000 MH Auto Ma		-47.28 dBm		1.000 MHz	<b>Stop Freq</b> <b>3.5300 GHz</b> 3.5400 GHz		Range	
362.000000 MH Auto Ma	Δ Limit -7.282 dB	-47.28 dBm	3.529608333 GHz 3.539950000 GHz	1.000 MHz 1.000 MHz	3.5300 GHz	Start Freq 3.5250 GHz	Range	Spur
362.000000 MH Auto Ma	Δ Limit -7.282 dB -18.21 dB	-47.28 dBm -43.21 dBm	3.529608333 GHz 3.539950000 GHz 3.548910000 GHz	1.000 MHz 1.000 MHz 1.000 MHz	3.5300 GHz 3.5400 GHz	<b>Start Freq</b> 3.5250 GHz 3.5300 GHz	Range	Spur
362.000000 MH Auto Ma	Δ Limit -7.282 dB -18.21 dB -25.03 dB	-47.28 dBm -43.21 dBm -38.03 dBm -36.80 dBm	3.529608333 GHz 3.539950000 GHz 3.548910000 GHz	1.000 MHz 1.000 MHz 1.000 MHz 620.0 kHz	3.5300 GHz 3.5400 GHz 3.5490 GHz	<b>Start Freq</b> 3.5250 GHz 3.5300 GHz 3.5400 GHz	Range	Spur
362.000000 MH Auto Ma	△ Limit -7.282 dB -18.21 dB -25.03 dB -23.80 dB	-47.28 dBm -43.21 dBm -38.03 dBm -36.80 dBm 1.411 dBm	3.529608333 GHz 3.539950000 GHz 3.548910000 GHz 3.549963333 GHz	1.000 MHz 1.000 MHz 1.000 MHz 620.0 kHz 620.0 kHz	3.5300 GHz 3.5400 GHz 3.5490 GHz 3.5500 GHz	<b>Start Freq</b> <b>3.5250 GHz</b> 3.5300 GHz 3.5400 GHz 3.5490 GHz	Range 1 2 3 4 5	Spur
362.000000 MH Auto Ma	△ Limit -7.282 dB -18.21 dB -25.03 dB -23.80 dB -23.59 dB	-47.28 dBm -43.21 dBm -38.03 dBm -36.80 dBm 1.411 dBm -37.86 dBm	3.529608333 GHz 3.539950000 GHz 3.548910000 GHz 3.549963333 GHz 3.561600000 GHz	1.000 MHz 1.000 MHz 1.000 MHz 620.0 kHz 620.0 kHz 620.0 kHz	3.5300 GHz 3.5400 GHz 3.5490 GHz 3.5500 GHz 3.5800 GHz	<b>Start Freq</b> 3.5250 GHz 3.5300 GHz 3.5400 GHz 3.5490 GHz 3.5500 GHz	Range 1 2 3 4 5	<b>Spur</b> 2 3

Plot 7.191. Conducted Band Edge Plot (30MHz, QPSK, Low Channel, Ch.A)



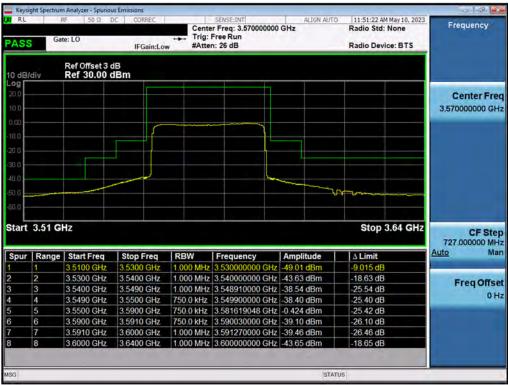
Plot 7.192. Conducted Band Edge Plot (30MHz, QPSK, Mid Channel, Ch.A)

FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 105 of 111
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ASS	6	8F 50 Ω 1 te: LO	DC CORREC	Trig:	SENSE:INT Freq: 3.69000000 Free Run n: 26 dB	ALIGN AUTO	11:50:03 AM May 10, 2023 Radio Std: None Radio Device: BTS	Frequency
10 dB/	div	Ref Offset 3 ( Ref 40.00 (						
-09 - 30.0 - 20.0 - 10.0 - 10.0 - 20.0 -								Center Free 3.690000000 GH:
30.0 40.0 50.0	3.655 (	GHz					Stop 3.745 GHz	CF Step 727.000000 MH;
Spur	Range	Start Freg	Stop Freq	RBW	Frequency	Amplitude	Δ Limit	Auto Mar
1	1	3.6550 GHz	3.6600 GHz	1.000 MHz	3.659466667 GH		-17.40 dB	
2	2	3.6600 GHz	3.6690 GHz	1.000 MHz	3.668850000 GH	z -37.60 dBm	-24.60 dB	Freq Offse
3	3	3.6690 GHz	3.6700 GHz	620.0 kHz	3.669750000 GH	z -36.57 dBm	-23.57 dB	0 H
4	4	3.6700 GHz	3.7000 GHz		3.693100000 GH		-20.49 dB	0 H
5	5	3.7000 GHz	3.7010 GHz		3.700130000 GH		-22.51 dB	
6	6	3.7010 GHz	3.7100 GHz		3.701000000 GH		-23.40 dB	
7	7	3.7100 GHz	3.7200 GHz	1.000 MHz	3.711150000 GH	z -39.33 dBm	-14.33 dB	
8	8	3.7200 GHz	3.7450 GHz	1.000 MHz	3.720166667 GH	z -42.84 dBm	-2.840 dB	

Plot 7.193. Conducted Band Edge Plot (30MHz, QPSK, High Channel, Ch.A)



Plot 7.194. Conducted Band Edge Plot (40MHz, QPSK, Low Channel, Ch.A)

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Center Freq 3.625000000 GHz	Frequency	03:09:37 PM Jul 13, 2023 Radio Std: None Radio Device: BTS	ALIGN AUTO	0 GHz			ow G	FGain:Lo		50 Ω 1	Gate	ASS
3.625000000 GH:									dBm	ef 30.00 (	div	0 dB/
	and the second second			-								og 10.0
							ſ					0.0
												0.0 0.0
Stop 3.7 GHz												0,0 0.0
3.00000 MH		Stop 3.7 GHz									3.55 GH	tart
Stop Freq RBW Frequency Amplitude ALimit Auto Mar	Auto M	∆ Limit	itude	Am	requency	W	RE	Freq	Sto	Start Freg	Range	Spur
1.5950 GHz 1.000 MHz 3.595000000 GHz -38.03 dBm -13.03 dB		-13.03 dB	dBm	z -38.	595000000 GI	0 MHz	1.0	50 GHz	3.59	5500 GHz		
6040 GHz 1.000 MHz 3.603730000 GHz -36.39 dBm -23.39 dB Freg Offse	Freq Offs									5950 GHz		-
.6050 GHz 750.0 kHz 3.604890000 GHz -36.91 dBm -23.91 dB				_			_			6040 GHz		
6450 GHz 750.0 kHz 3.613000000 GHz 2.120 dBm -22.88 dB	0						_			6050 GHz		
.6460 GHz 750.0 kHz 3.645190000 GHz -43.54 dBm -30.54 dB	1			_			_			6450 GHz		
.6550 GHz 1.000 MHz 3.646270000 GHz -43.47 dBm -30.47 dB										6460 GHz		
7000 GHz 1.000 MHz 3.655000000 GHz -47.37 dBm -22.37 dB		-22.37 dB	dBm	z -47.	655000000 GI	0 MHz	1.0	00 GHz	3.70	6550 GHz	7	

Plot 7.195. Conducted Band Edge Plot (40MHz, QPSK, Mid Channel, Ch.A)

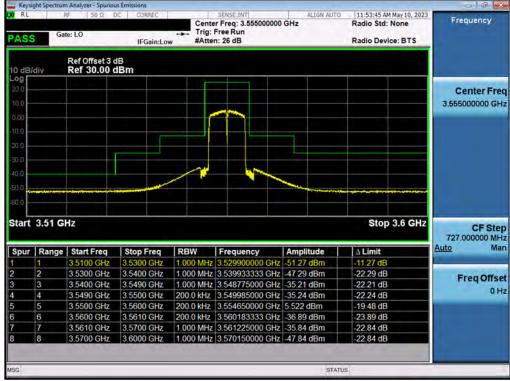


Plot 7.196. Conducted Band Edge Plot (40MHz, QPSK, High Channel, Ch.A)

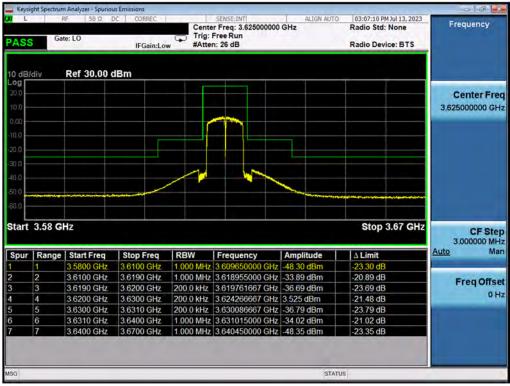
FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 107 of 144
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### Channel B Band Edge Measurements



Plot 7.197. Conducted Band Edge Plot (10MHz, QPSK, Low Channel, Ch.B)



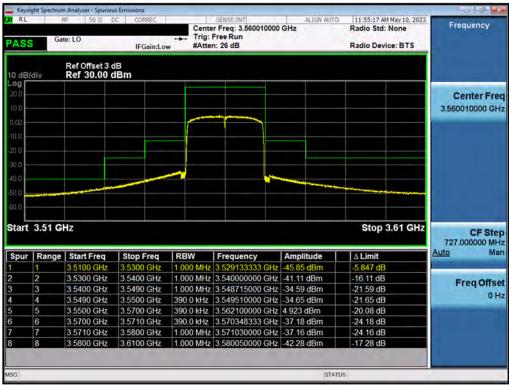
Plot 7.198. Conducted Band Edge Plot (10MHz, QPSK, Mid Channel, Ch.B)

FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 114
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PASS	RF 50 Ω 1 Gate: LO	IFGain:Lov	Trig: I	SENSE:INT r Freq: 3.694980000 Free Run h: 26 dB	GHz	11:54:33 AM May 10, 2023 Radio Std: None Radio Device: BTS	Frequency
10 dB/div	Ref Offset 3 o Ref 40.00 o						
Log 30.0 20.0 10.0 .0.000 .0.000 .0.00 .0.00 .0.00 .0.00 .0.00 .0.00 .0.00 .0.00 .0.00 .0.00 .0.00 .0.00 .0.00 .0.0000 .0.0000 .0.0000 .0.0000 .0.0000 .0.0000 .0.0000 .0.0000 .0.0000 .0.0000 .0.0000 .0.0000 .0.0000 .0.0000 .0.0000 .0							Center Free 3.694980000 GH
40,0							
50.0 Start 3.65	GHz ge Start Freq 3.6500 GHz	<b>Stop Freq</b> 3.6800 GHz	RBW	Frequency 3.679950000 GHz	Amplitude	Stop 3.74 GHz ∆ Limit -17.71 dB	CF Step 727.000000 MH Auto Mar

Plot 7.199. Conducted Band Edge Plot (10MHz, QPSK, High Channel, Ch.B)



Plot 7.200. Conducted Band Edge Plot (20MHz, QPSK, Low Channel, Ch.B)

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	03:07:46 PM Jul 13, 2023 Radio Std: None Radio Device: BTS	ALIGN AUTO	SENSE:INT r Freq: 3.625000000 Free Run h: 26 dB	Trig:	IFGain:Lov	e:LO	6	AS
					IBm	Ref 30.00 c	ldiv	0 dB
Center Free 3.625000000 GH				_				.og 20.0 - 10.0 -
				_				10.0 20.0
								30.0 40.0 50.0
							0.575.0	60.0
	Stop 3.675 GHz					SHz	3.575 G	start
CF Step 3.000000 MH: <u>Auto</u> Mar		nplitude	Frequency	RBW	Stop Freg			
3.000000 MH	Stop 3.675 GHz △ Limit -13.76 dB	nplitude	Frequency 3.604750000 GHz		Stop Freq	Start Freq 3.5750 GHz	Range	Spur
3.000000 MH <u>Auto</u> Mar	∆ Limit	76 dBm		1.000 MHz		Start Freq	Range	
3.000000 MH Auto Mar Freq Offse	Δ Limit -13.76 dB	76 dBm 62 dBm	3.604750000 GHz	1.000 MHz 1.000 MHz	3.6050 GHz	Start Freq 3.5750 GHz	Range	Spur
3.000000 MH <u>Auto</u> Mar	Δ Limit -13.76 dB -21.62 dB	76 dBm 62 dBm 04 dBm	3.604750000 GHz 3.613430000 GHz	1.000 MHz 1.000 MHz 390.0 kHz	3.6050 GHz 3.6140 GHz	Start Freq 3.5750 GHz 3.6050 GHz	Range 1 2 3	Spur 2
3.000000 MH Auto Mar Freq Offse	Δ Limit -13.76 dB -21.62 dB -22.04 dB	76 dBm 62 dBm 04 dBm 84 dBm	3.604750000 GHz 3.613430000 GHz 3.614983333 GHz	1.000 MHz 1.000 MHz 390.0 kHz 390.0 kHz	3.6050 GHz 3.6140 GHz 3.6150 GHz	<b>Start Freg</b> 3.5750 GHz 3.6050 GHz 3.6140 GHz	Range 1 2 3 4	Spur 2 3
3.000000 MH Auto Mar Freq Offse	Δ Limit -13.76 dB -21.62 dB -22.04 dB -22.32 dB	76 dBm 62 dBm .04 dBm 84 dBm 54 dBm	3.604750000 GHz 3.613430000 GHz 3.614983333 GHz 3.621200000 GHz	1.000 MHz 1.000 MHz 390.0 kHz 390.0 kHz 390.0 kHz	3.6050 GHz 3.6140 GHz 3.6150 GHz 3.6350 GHz	<b>Start Freq</b> 3.5750 GHz 3.6050 GHz 3.6140 GHz 3.6150 GHz	Range 1 2 3 4	Spur

Plot 7.201. Conducted Band Edge Plot (20MHz, QPSK, Mid Channel, Ch.B)



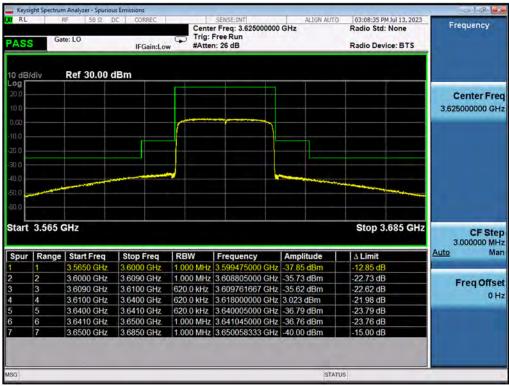
Plot 7.202. Conducted Band Edge Plot (20MHz, QPSK, High Channel, Ch.B)

FCC ID: 2AS22-LUMACH2		PART 96 MEASUREMENT REPORT	Approved by: Technical Manager
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AS	6	νε:LO	IFGain:Lov	Trig:	SENSE:INT r Freq: 3.560010000 Free Run n: 26 dB	ALIGN AUTO	11:59:09 AM May 10, 2023 Radio Std: None Radio Device: BTS	Frequency
10 dB	div	Ref Offset 3 c Ref 30.00 c						
-og 20.0 - 10.0 - 0.00 - 10.0 - 20.0 - 30.0 - 40.0 -								Center Free 3.560010000 GH
50,0 60.0 Start Spur		Start Freq	Stop Freq	RBW	Frequency	Amplitude	Stop 3.625 GHz	CF Step 727.000000 MH2 <u>Auto</u> Mar
sa.a Start			<b>Stop Freq</b> 3.5300 GHz 3.5400 GHz 3.5500 GHz 3.5500 GHz 3.5800 GHz 3.5810 GHz	1.000 MHz 1.000 MHz 1.000 MHz 620.0 kHz 620.0 kHz 620.0 kHz	Frequency 3.529791667 GHz 3.538983333 GHz 3.548805000 GHz 3.549831667 GHz 3.58150000 GHz 3.580196667 GHz 3.58103000 GHz	2 -42.63 dBm - 37.71 dBm - 33.70 dBm 2 -33.88 dBm 2 -33.88 dBm 2 4.505 dBm 2 -37.80 dBm		727.000000 MH

Plot 7.203. Conducted Band Edge Plot (30MHz, QPSK, Low Channel, Ch.B)



Plot 7.204. Conducted Band Edge Plot (30MHz, QPSK, Mid Channel, Ch.B)

FCC ID: 2AS22-LUMACH2		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	st Dates: EUT Type:	
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	11:58:19 AM May 10, 2023 Radio Std: None Radio Device: BTS	ALIGN AUTO	SENSE:INT r Freq: 3.690000000 Free Run h: 26 dB	Trig: I	IFGain:Lov	F   50 Ω D e:LO	6	ASS
						Ref Offset 3 d Ref 40.00 d		0 dB
Center Fre 3.690000000 GH								.og 30.0 - 20.0 -
								0.00 10.0 20 0
								30,0 40,0
			Contractor of the local division of the loca					50.0
CF Ste	Stop 3.745 GHz					Hz	3.655 0	
		mplitude	Frequency	IRBW	Stop Freg			Start
727.000000 MH		mplitude	Frequency 3 659258333 GHz	RBW	Stop Freq	Hz Start Freq 3 6550 GHz	Range	
727.000000 MH <u>Auto</u> Ma	∆ Limit	5.27 dBm	Frequency 3 659258333 GHz 3 668625000 GHz	1.000 MHz		Start Freq	Range	Start
727.000000 MH <u>Auto</u> Ma Freq Offse	Δ Limit -20.27 dB	5.27 dBm 1.38 dBm	3.659258333 GHz	1.000 MHz 1.000 MHz	3.6600 GHz	Start Freg 3.6550 GHz	Range	Start
727.000000 MH <u>Auto</u> Ma	Δ Limit -20.27 dB -28.38 dB	5.27 dBm 1.38 dBm 9.81 dBm	3.659258333 GHz 3.668625000 GHz	1.000 MHz 1.000 MHz 620.0 kHz	3.6600 GHz 3.6690 GHz	Start Freq 3.6550 GHz 3.6600 GHz	Range	Start
727.000000 MH <u>Auto</u> Ma Freq Offse	Δ Limit -20.27 dB -28.38 dB -26.81 dB	5.27 dBm 1.38 dBm 9.81 dBm 269 dBm	3.659258333 GHz 3.668625000 GHz 3.669951667 GHz	1.000 MHz 1.000 MHz 620.0 kHz 620.0 kHz	3.6600 GHz 3.6690 GHz 3.6700 GHz	Start Freq 3.6550 GHz 3.6600 GHz 3.6690 GHz	Range 1 2 3 4	Start
727.000000 MH <u>Auto</u> Ma Freq Offse	Δ Limit -20.27 dB -28.38 dB -26.81 dB -22.73 dB	5.27 dBm 1.38 dBm 9.81 dBm 269 dBm 0.73 dBm	3.659258333 GHz 3.668625000 GHz 3.669951667 GHz 3.679650000 GHz	1.000 MHz 1.000 MHz 620.0 kHz 620.0 kHz 620.0 kHz	3.6600 GHz 3.6690 GHz 3.6700 GHz 3.7000 GHz	<b>Start Freq</b> <b>3.6550 GHz</b> <b>3.6600 GHz</b> <b>3.6690 GHz</b> <b>3.6700 GHz</b>	Range 1 2 3 4 5	Start
727.000000 MH <u>Auto</u> Ma Freq Offse	△ Limit -20.27 dB -28.38 dB -26.81 dB -22.73 dB -27.73 dB	5.27 dBm 1.38 dBm 9.81 dBm 269 dBm 0.73 dBm 1.53 dBm	3.659258333 GHz 3.668625000 GHz 3.669951667 GHz 3.679650000 GHz 3.700071667 GHz	1.000 MHz 1.000 MHz 620.0 kHz 620.0 kHz 620.0 kHz 1.000 MHz	3.6600 GHz 3.6690 GHz 3.6700 GHz 3.7000 GHz 3.7010 GHz	<b>Start Freq</b> 3.6550 GHz 3.6600 GHz 3.6690 GHz 3.6700 GHz 3.7000 GHz	Range 1 2 3 4 5 6	Start

Plot 7.205. Conducted Band Edge Plot (30MHz, QPSK, High Channel, Ch.B)

Keysi RL	1	n Analyzer - Spurio Φ 50 Ω 1			SENSE:INT r Freq: 3.5700000 Free Run		ALIGN AUTO	12:00:21 PM Radio Std:	May 10, 2023 None	Frequency
PASS	Gar	te: LO	IFGain:Lov		n: 26 dB			Radio Devi	ce: BTS	
10 dB/	div	Ref Offset 3 ( Ref 30.00 (								
20.0						1				Center Free
10,0										3.57000000 GH
0.00			5							
-10,0										
-20.0										
-30.0										
-40.0										
50.0								- nor		
-60,0										
Start	3.51 G	Hz						Stop 3	3.64 GHz	CF Step 727.000000 MH
Spur	Range	Start Freg	Stop Freq	RBW	Frequency	Ampli	itude	∆ Limit		Auto Mai
1	1	3.5100 GHz	3.5300 GHz	1.000 MHz	3.530000000 G	Hz -45.69	dBm	-5.687 dB		
2	2	3.5300 GHz	3.5400 GHz		3.54000000 G			-18.67 dB		Freq Offse
3	3	3.5400 GHz	3.5490 GHz		3.548460000 G			-27.80 dB		0 H
4	4	3.5490 GHz	3.5500 GHz	_	3.549700000 G			-27.37 dB		UH
5	5	3.5500 GHz	3.5900 GHz		3.560285714 G			-23.27 dB		
6	6	3.5900 GHz	3.5910 GHz		3.590180000 G			-28.08 dB		
7	7	3.5910 GHz	3.6000 GHz		3.591000000 G			-28.48 dB		
8	8	3.6000 GHz	3.6400 GHz	1.000 MHz	3.600400000 G	Hz -44.32	dBm	-19.32 dB		
ISG							STATU			

Plot 7.206. Conducted Band Edge Plot (40MHz, QPSK, Low Channel, Ch.B)

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Frequency	03:09:16 PM Jul 13, 2023 Radio Std: None Radio Device: BTS	R	ALIGN AUTO	10 GHz			Tri	FGain:Lov		50Ω t	Gate	ASS
								_	dBm	ef 30.00 d	v F	dB/dB/
Center Free 3.625000000 GH												og 0.0 0.0
												0.00
												0,0 0,0
		-					~					0.0
												g.ġ
CF Step 3.000000 MH	Stop 3.7 GHz										.55 GH	tart
	∆ Limit	1	litude	Amp	equency		RBW	Freq	Stop	tart Freg	Range	spur
Auto Mai	-13.01 dB	-1	dBm	z -38.0	94100000 GHz	MHz	1.000 M	50 GHz	3.595	5500 GHz		
Auto Mai	-13.01 00			- 202	03730000 GHz	MHz	1.000 M	40 GHz		5950 GHz		
-	-23.33 dB								0.001	6040 GHz		
FreqOffse	-23.33 dB -23.68 dB	-2	8 dBm	z -36.6	04890000 GHz			50 GHz				
-	-23.33 dB -23.68 dB -22.90 dB	-2	B dBm dBm	z -36.6 z 2.102	04890000 GHz 13761905 GHz	kHz 🗄	750.0 kł	50 GHz	3.645	6050 GHz		
FreqOffse	-23.33 dB -23.68 dB -22.90 dB -25.61 dB	12 12	8 dBm dBm 1 dBm	z -36.6 z 2.102 z -38.6	04890000 GHz 13761905 GHz 45130000 GHz	kHz kHz	750.0 kH	50 GHz 60 GHz	3.645 3.646	6050 GHz 6450 GHz		
FreqOffse	-23.33 dB -23.68 dB -22.90 dB -25.61 dB -25.37 dB	12 12 12 12 12 12 12 12 12 12 12 12 12 1	B dBm dBm 1 dBm 7 dBm	z -36.6 z 2.102 z -38.6 z -38.3	04890000 GHz 13761905 GHz 45130000 GHz 46090000 GHz	kHz kHz MHz	750.0 kH 750.0 kH 1.000 M	50 GHz 60 GHz 50 GHz	3.645 3.646 3.655	6050 GHz 6450 GHz 6460 GHz		
FreqOffse	-23.33 dB -23.68 dB -22.90 dB -25.61 dB	12 12 12 12 12 12 12 12 12 12 12 12 12 1	B dBm dBm 1 dBm 7 dBm	z -36.6 z 2.102 z -38.6 z -38.3	04890000 GHz 13761905 GHz 45130000 GHz	kHz kHz MHz	750.0 kH 750.0 kH 1.000 M	50 GHz 60 GHz	3.645 3.646 3.655	6050 GHz 6450 GHz		

Plot 7.207. Conducted Band Edge Plot (40MHz, QPSK, Mid Channel, Ch.B)



Plot 7.208. Conducted Band Edge Plot (40MHz, QPSK, High Channel, Ch.B)

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### 7.9 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 a 50 ohm load. 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 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points  $\geq 2 \times \text{span} / \text{RBW}$
- 5. Detector = RMS
- 6. Trace mode = Max Hold (In cases where the level is within 2dB of the limit, the final measurement

is taken using triggering/gating and trace averaging.)

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.

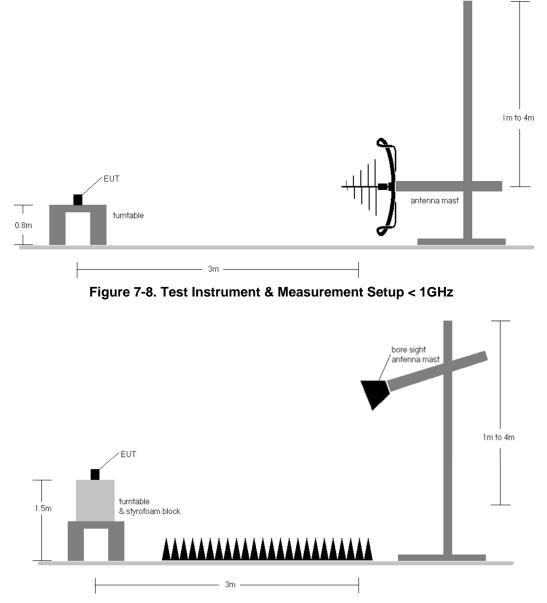


Figure 7-9. Test Instrument & Measurement Setup >1 GHz

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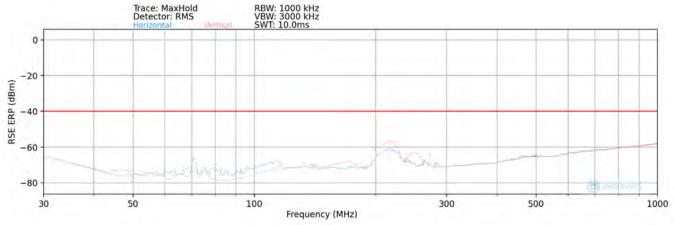


### Test Notes

- 1) Field strengths are calculated using the Measurement quantity conversions in ANSI C63.26-2015 Section 5.2.7:
  - a)  $E(dB\mu V/m) = Measured amplitude level (dBm) + 107 + Cable Loss (dB) + Antenna Factor (dB/m)$  $b) EIRP (dBm) = <math>E(dB\mu V/m) + 20logD - 104.8$ ; where D is the measurement distance in meters.
- 2) The worst case emissions are reported with the EUT modulations and channel bandwidth configurations shown in the tables below.
- 3) The spectrum is measured from 30MHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 4) Emissions below 18GHz were measured at a 3-meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 5) The "-" shown in the following RSE tables are used to denote a noise floor measurement.

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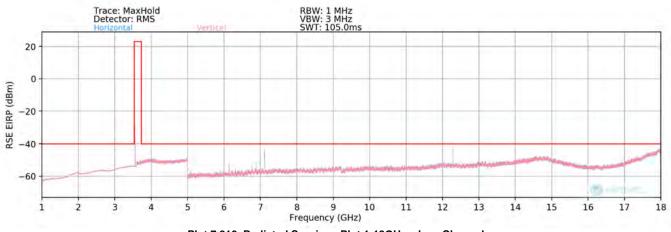


Plot 7.209. Radiated Spurious Plot 30MHz-1GHz

Bandwidth (MHz):	10
Frequency (MHz):	3625.0
Modulation Signal:	QPSK
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz/3MHz

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]
51.10	Н	101	251	-95.65	14.34	25.69	-69.57	-40.00	-29.57
59.20	Н	100	169	-96.46	13.93	24.47	-70.78	-40.00	-30.78
71.00	Н	101	309	-91.33	14.45	30.12	-65.14	-40.00	-25.14
75.60	Н	110	12	-93.92	14.38	27.46	-67.80	-40.00	-27.80
93.20	Н	112	222	-96.20	15.44	26.24	-69.01	-40.00	-29.01
109.60	н	100	290	-97.07	19.33	29.26	-66.00	-40.00	-26.00
139.50	V	158	288	-99.52	20.05	27.53	-67.73	-40.00	-27.73
173.00	V	139	273	-95.44	18.99	30.55	-64.71	-40.00	-24.71
218.00	V	129	91	-80.73	17.82	44.09	-51.16	-40.00	-11.16
253.80	V	101	82	-81.01	18.74	44.73	-50.53	-40.00	-10.53
265.40	V	129	84	-86.11	20.13	41.02	-54.24	-40.00	-14.24

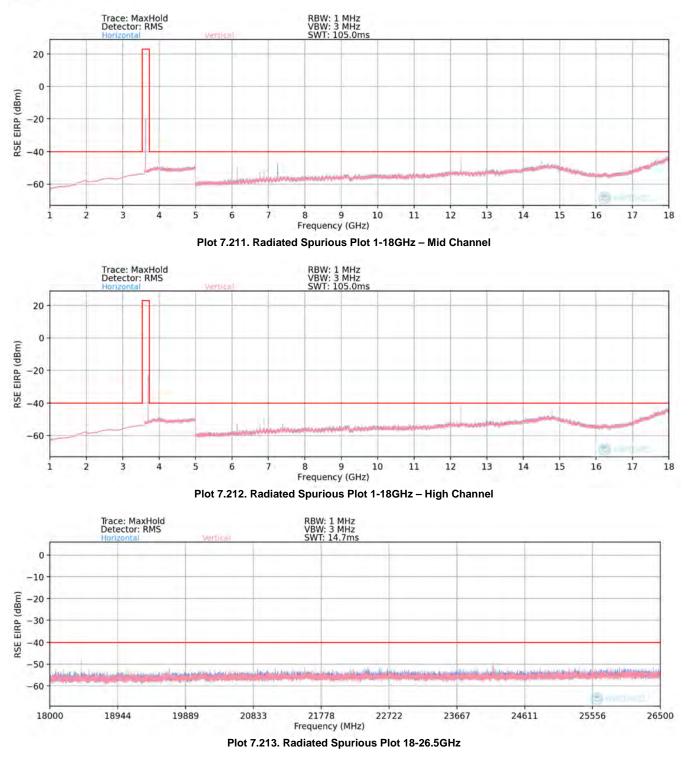
Table 7-9. Radiated Spurious Data 30MHz-1GHz - Mid Channel



Plot 7.210. Radiated Spurious Plot 1-18GHz – Low Channel

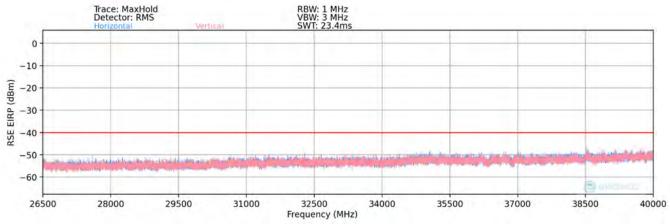
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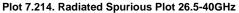




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Bandwidth (MHz):	10
Frequency (MHz):	3555.0
Modulation Signal:	QPSK
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz/3MHz

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]
6144.00	Н	136	196	-57.02	1.34	51.32	-43.94	-40.00	-3.94
6758.50	Н	122	180	-67.81	3.20	42.39	-52.87	-40.00	-12.87
6811.00	Н	-	-	-75.60	2.98	34.38	-60.88	-40.00	-20.88
7110.00	Н	155	239	-56.07	3.80	54.73	-40.53	-40.00	-0.53
10665.00	Н	137	258	-78.42	7.81	36.39	-58.87	-40.00	-18.87
12288.00	V	167	191	-65.97	9.47	50.50	-44.76	-40.00	-4.76
14220.00	Н	187	179	-73.26	12.22	45.96	-49.30	-40.00	-9.30
17775.00	Н	-	-	-77.26	15.47	45.21	-50.05	-40.00	-10.05
21330.00	Н	-	-	-57.89	4.04	53.15	-51.65	-40.00	-11.65
24885.00	Н	-	-	-58.07	4.19	53.13	-51.67	-40.00	-11.67
28440.00	H	-	•	-58.04	5.26	54.21	-50.59	-40.00	-10.59

Table 7-10. Radiated Spurious Data – Low Channel

Bandwidth (MHz):	10
Frequency (MHz):	3625.0
Modulation Signal:	QPSK
Detector / Trace Mode:	RMS / Max Hold
RBW / VBW:	1MHz/3MHz

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]
6144.00	V	185	196	-62.69	1.34	45.65	-49.61	-40.00	-9.61
6758.50	н	250	240	-64.81	2.98	45.17	-50.09	-40.00	-10.09
6811.00	н	131	235	-65.24	3.20	44.96	-50.30	-40.00	-10.30
7250.00	Н	176	224	-58.25	3.66	52.41	-42.85	-40.00	-2.85
10875.00	Н	-	-	-78.22	8.05	36.83	-58.43	-40.00	-18.43
12288.00	V	210	216	-61.23	9.47	55.24	-40.02	-40.00	-0.02
14500.00	н	122	232	-75.94	13.04	44.10	-51.16	-40.00	-11.16
18125.00	н	-	-	-55.39	1.60	53.21	-51.59	-40.00	-11.59
18432.00	Н	150	193	-52.44	1.66	56.22	-48.58	-40.00	-8.58
21750.00	Н	-	-	-55.59	3.86	55.27	-49.53	-40.00	-9.53
24162.00	V	150	63	-54.17	4.27	57.10	-47.70	-40.00	-7.70
25375.00	Н	-	-	-58.12	4.26	53.15	-51.66	-40.00	-11.66
29000.00	н	-	-	-58.32	5.40	54.08	-50.72	-40.00	-10.72
32625.00	н	-	-	-57.67	7.10	56.43	-48.37	-40.00	-8.37

Table 7-11. Radiated Spurious Data - Mid Channel

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Frequency (MHz):     3695.0       Modulation Signal:     QPSK       Detector / Trace Mode:     RMS / Max Hold       RBW / VBW:     1MHz/ 3MHz	Bandwidth (MHz):	10
Detector / Trace Mode: RMS / Max Hold	Frequency (MHz):	3695.0
	Modulation Signal:	QPSK
RBW / VBW: 1MHz/3MHz	Detector / Trace Mode:	RMS / Max Hold
	RBW / VBW:	1MHz/3MHz

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]
6144.00	V	157	210	-57.89	1.34	50.45	-44.81	-40.00	-4.81
6758.50	V	110	182	-67.83	2.98	42.15	-53.11	-40.00	-13.11
6811.00	Н	-	-	-75.67	3.20	34.53	-60.73	-40.00	-20.73
7390.00	Н	197	243	-59.73	4.26	51.53	-43.73	-40.00	-3.73
11085.00	V	-	-	-78.69	8.18	36.49	-58.77	-40.00	-18.77
12288.00	V	179	191	-66.22	9.47	50.25	-45.01	-40.00	-5.01
14780.00	V	199	167	-71.10	13.43	49.33	-45.93	-40.00	-5.93
18475.00	V	-	-	-57.54	1.86	51.32	-53.48	-40.00	-13.48
22170.00	V	-	-	-58.54	3.80	52.27	-52.54	-40.00	-12.54
25865.00	V	-	-	-56.80	4.65	54.85	-49.95	-40.00	-9.95

Table 7-12. Radiated Spurious Data – High Channel

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### 7.10 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 96, 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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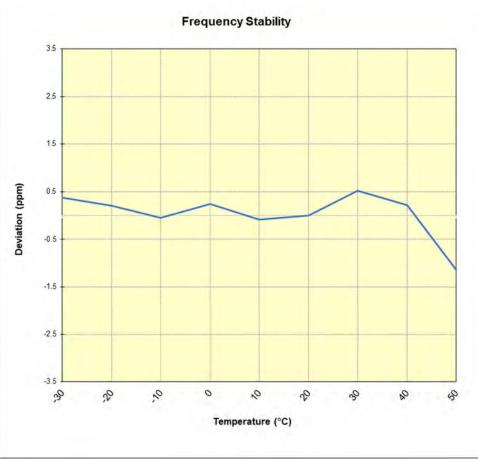


Band 48					
	Operating Fre	equency (Hz):	3,625,00	00,000	
Voltage (%)	Power (VAC)	Temp (°C)	Frequency (Hz)	Freq. Dev. (Hz)	Deviation (%)
		- 30	3,625,051,798	1,362	0.0000376
		- 20	3,625,051,185	749	0.0000207
		- 10	3,625,050,261	-175	-0.0000048
		0	3,625,051,332	896	0.0000247
100 %	120.00	+ 10	3,625,050,150	-286	-0.0000079
		+ 20 (Ref)	3,625,050,436	0	0.0000000
		+ 30	3,625,052,313	1,878	0.0000518
		+ 40	3,625,051,221	785	0.0000217
		+ 50	3,625,046,301	-4,135	-0.0001141
85 %	102.00	+ 20	3,625,053,657	3,221	0.0000889
115 %	138.00	+ 20	3,625,049,397	-1,039	-0.0000287

Table 7-13. Frequency Stability Data

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Plot 7.215. Frequency Stability Chart

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## 8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Skylark Wireless**, **LLC CBRS Radio Module FCC ID: 2AS22-LUMACH2** complies with all of the End User Device requirements of Part 96 of the FCC Rules for Band operation only.

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