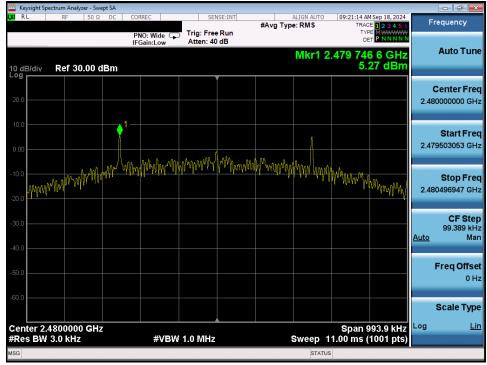


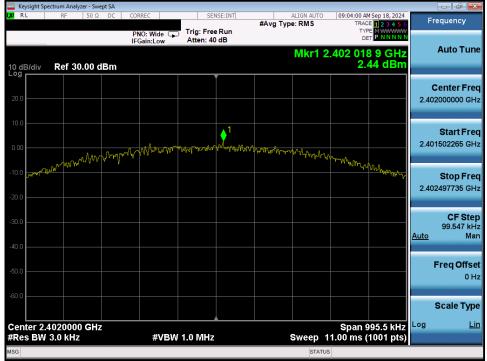
Plot 7-79. Power Spectral Density Plot (Bluetooth (LE), 500kbps - Ch. 17) - Ant 1



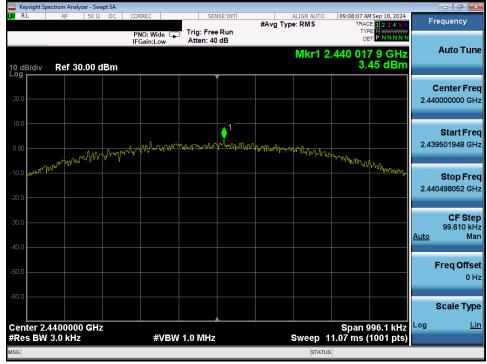
Plot 7-80. Power Spectral Density Plot (Bluetooth (LE), 500kbps - Ch. 39) - Ant 1

FCC ID: A3LSMS938B	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 62 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 63 of 132
© 2022 ELEMENT V1			





Plot 7-81. Power Spectral Density Plot (Bluetooth (LE), 1Mbps - Ch. 37) - Ant 1



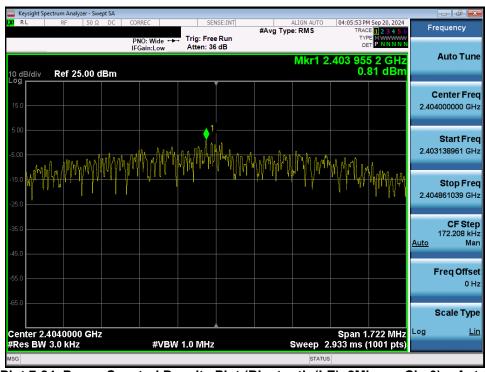
Plot 7-82. Power Spectral Density Plot (Bluetooth (LE), 1Mbps - Ch. 17) - Ant 1

FCC ID: A3LSMS938B	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 64 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 64 of 132
© 2022 ELEMENT	•		V11.1 08/28/2023



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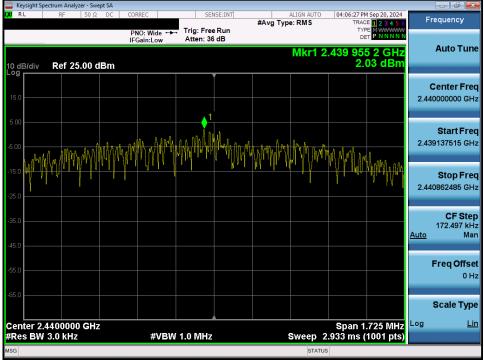
Plot 7-83. Power Spectral Density Plot (Bluetooth (LE), 1Mbps - Ch. 39) - Ant 1



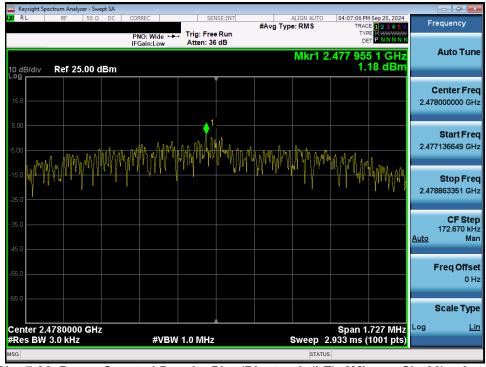
Plot 7-84. Power Spectral Density Plot (Bluetooth (LE), 2Mbps - Ch. 0) - Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	
Test Report S/N:	Test Dates:	EUT Type:	Dege 65 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 65 of 132
© 2022 ELEMENT	·		V11.1 08/28/2023





Plot 7-85. Power Spectral Density Plot (Bluetooth (LE), 2Mbps - Ch. 17) - Ant 1



Plot 7-86. Power Spectral Density Plot (Bluetooth (LE), 2Mbps - Ch. 36) - Ant 1

FCC ID: A3LSMS938B	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dama 60 af 400
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 66 of 132
© 2022 ELEMENT	V11.1 08/28/2023		



Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Measured Power Spectral Density [dBm]	Maximum Permissible Power Density [dBm / 3kHz]	Margin [dB]
2402	125 kbps	37	LE	3.46	8.0	-4.54
2440	125 kbps	17	LE	3.87	8.0	-4.13
2480	125 kbps	39	LE	3.16	8.0	-4.84
2402	500 kbps	37	LE	3.14	8.0	-4.86
2440	500 kbps	17	LE	3.83	8.0	-4.17
2480	500 kbps	39	LE	3.18	8.0	-4.82
2402	1 Mbps	37	LE	2.02	8.0	-5.98
2440	1 Mbps	17	LE	2.53	8.0	-5.47
2480	1 Mbps	39	LE	1.22	8.0	-6.78
2404	2 Mbps	0	LE	0.39	8.0	-7.61
2440	2 Mbps	17	LE	0.97	8.0	-7.03
2478	2 Mbps	36	LE	0.47	8.0	-7.53

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dage 67 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 67 of 132	
© 2022 ELEMENT	V11.1 08/28/2023			





Plot 7-87. Power Spectral Density Plot (Bluetooth (LE), 125kbps - Ch. 37) - Ant 2



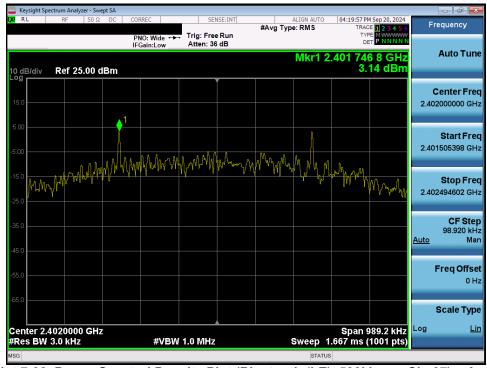
Plot 7-88. Power Spectral Density Plot (Bluetooth (LE), 125kbps - Ch. 17) - Ant 2

FCC ID: A3LSMS938B	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 69 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 68 of 132
© 2022 ELEMENT			





Plot 7-89. Power Spectral Density Plot (Bluetooth (LE), 125kbps - Ch. 39) - Ant 2

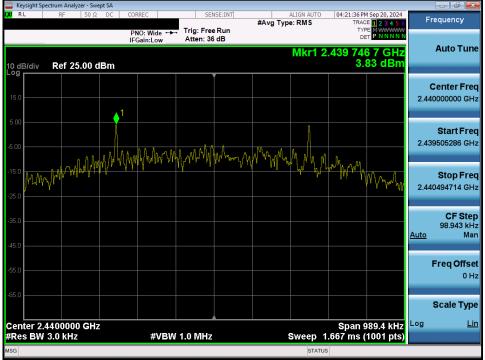


Plot 7-90. Power Spectral Density Plot (Bluetooth (LE), 500kbps - Ch. 37) - Ant 2

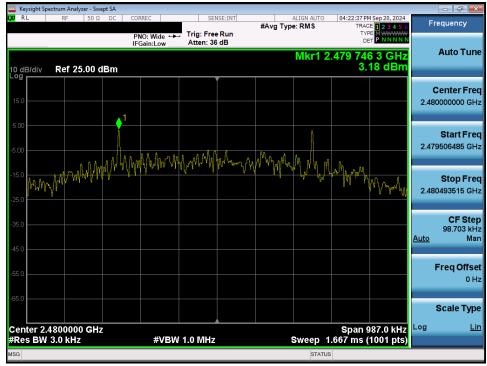
FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dage 60 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 69 of 132	
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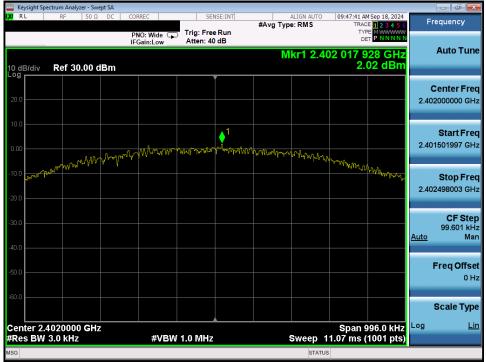
Plot 7-91. Power Spectral Density Plot (Bluetooth (LE), 500kbps - Ch. 17) - Ant 2



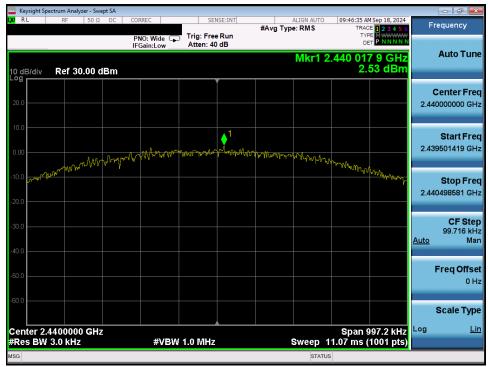
Plot 7-92. Power Spectral Density Plot (Bluetooth (LE), 500kbps - Ch. 39) - Ant 2

FCC ID: A3LSMS938B	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 70 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 70 of 132
© 2022 ELEMENT			





Plot 7-93. Power Spectral Density Plot (Bluetooth (LE), 1Mbps – Ch. 37) – Ant 2



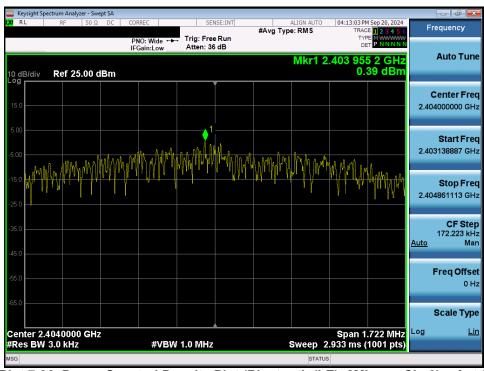
Plot 7-94. Power Spectral Density Plot (Bluetooth (LE), 1Mbps - Ch. 17) - Ant 2

FCC ID: A3LSMS938B	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 71 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 71 of 132
© 2022 ELEMENT	V11.1 08/28/2023		



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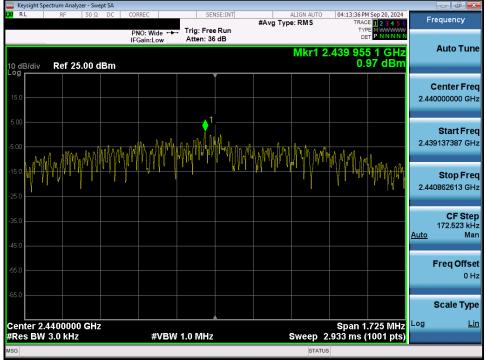
Plot 7-95. Power Spectral Density Plot (Bluetooth (LE), 1Mbps - Ch. 39) - Ant 2



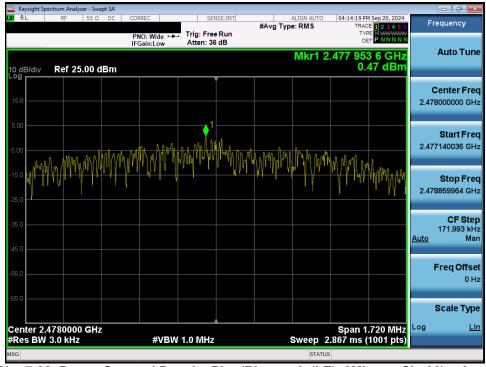
Plot 7-96. Power Spectral Density Plot (Bluetooth (LE), 2Mbps - Ch. 0) - Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 70 of 100	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 72 of 132	
© 2022 ELEMENT	·	·	V11.1 08/28/2023	





Plot 7-97. Power Spectral Density Plot (Bluetooth (LE), 2Mbps – Ch. 17) – Ant 2



Plot 7-98. Power Spectral Density Plot (Bluetooth (LE), 2Mbps - Ch. 36) - Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 72 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 73 of 132	
© 2022 ELEMENT V11.1 08/28/2023				



Frequency [MHz]	Data Rate [Mbps]	Channel No.	Bluetooth Mode	Ant1 Measured Power Spectral Density [dBm]	Ant2 Measured Power Spectral Density [dBm]	Dual Measured Power Spectral Density [dBm]	Maximum Permissible Power Density [dBm / 3kHz]	Margin [dB]
2402	1 Mbps	37	LE	-0.85	-1.75	1.73	8.0	-6.27
2440	1 Mbps	17	LE	-0.40	-1.73	2.00	8.0	-6.00
2480	1 Mbps	39	LE	-0.61	-2.02	1.75	8.0	-6.25
2404	2 Mbps	0	LE	-2.93	-3.72	-0.29	8.0	-8.29
2440	2 Mbps	17	LE	-2.47	-3.82	-0.08	8.0	-8.08
2478	2 Mbps	36	LE	-2.41	-4.04	-0.14	8.0	-8.14

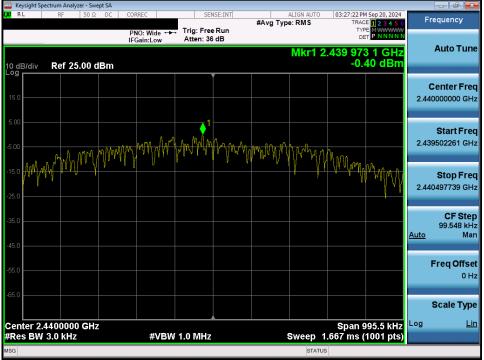
Table 7-14. Conducted Power Density Measurements – Dual



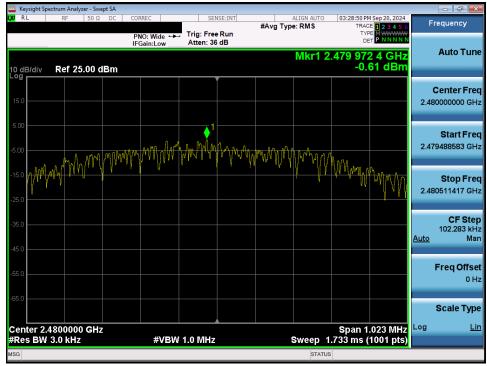
Plot 7-99. Power Spectral Density Plot (Bluetooth (LE), 1Mbps - Ch. 37) - Dual Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dama 74 af 100	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 74 of 132	
© 2022 ELEMENT V11.1 08/28/2023				





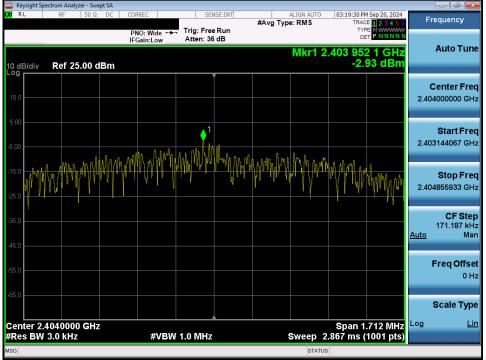
Plot 7-100. Power Spectral Density Plot (Bluetooth (LE), 1Mbps – Ch. 17) – Dual Ant 1



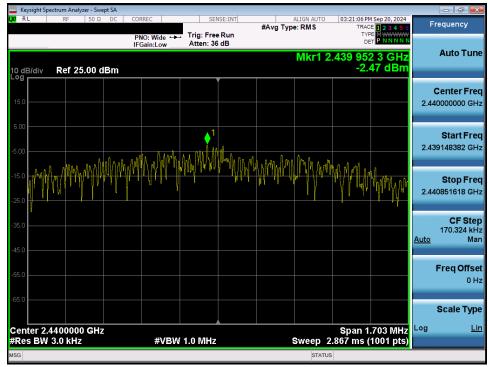
Plot 7-101. Power Spectral Density Plot (Bluetooth (LE), 1Mbps – Ch. 39) – Dual Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dego 75 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 75 of 132	
© 2022 ELEMENT	•		V11.1 08/28/2023	





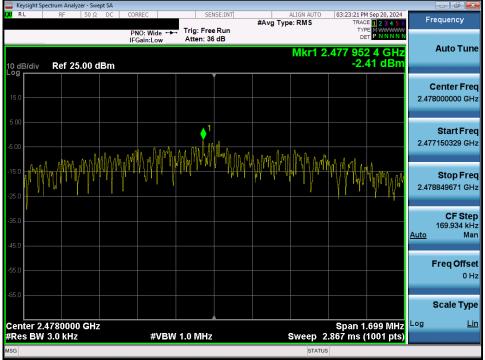
Plot 7-102. Power Spectral Density Plot (Bluetooth (LE), 2Mbps – Ch. 0) – Dual Ant 1



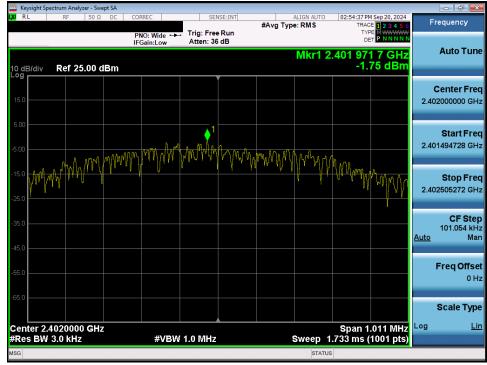
Plot 7-103. Power Spectral Density Plot (Bluetooth (LE), 2Mbps – Ch. 17) – Dual Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 76 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 76 of 132	
© 2022 ELEMENT V11.1 08/28/2023				





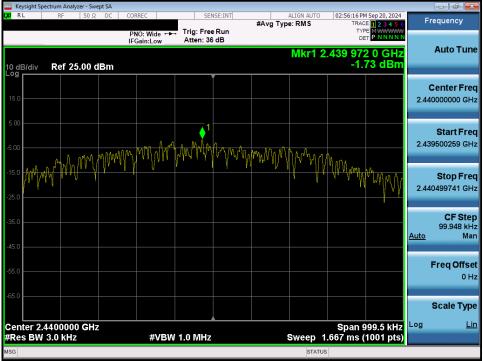
Plot 7-104. Power Spectral Density Plot (Bluetooth (LE), 2Mbps – Ch. 36) – Dual Ant 1



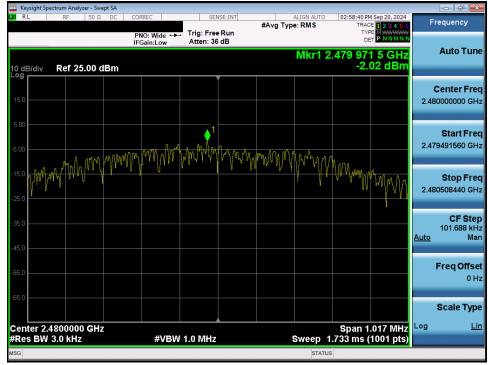
Plot 7-105. Power Spectral Density Plot (Bluetooth (LE), 1Mbps – Ch. 37) – Dual Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dage 77 of 122		
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 77 of 132		
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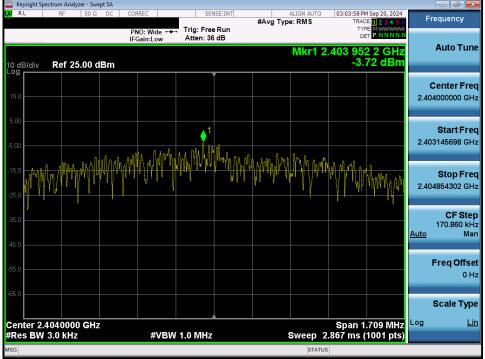
Plot 7-106. Power Spectral Density Plot (Bluetooth (LE), 1Mbps – Ch. 17) – Dual Ant 2



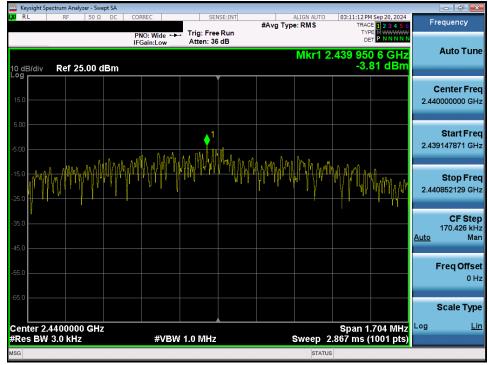
Plot 7-107. Power Spectral Density Plot (Bluetooth (LE), 1Mbps – Ch. 39) – Dual Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 70 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 78 of 132	
© 2022 ELEMENT V11.1 08/28/2023				





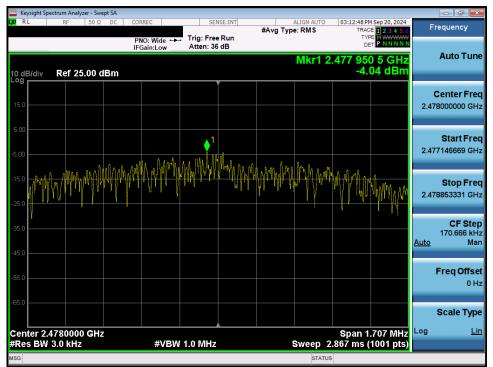
Plot 7-108. Power Spectral Density Plot (Bluetooth (LE), 2Mbps – Ch. 0) – Dual Ant 2



Plot 7-109. Power Spectral Density Plot (Bluetooth (LE), 2Mbps – Ch. 17) – Dual Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager		
Test Report S/N:	Test Dates:	EUT Type:	Dage 70 of 122		
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 79 of 132		
© 2022 ELEMENT V11.1 08/28/2023					





Plot 7-110. Power Spectral Density Plot (Bluetooth (LE), 2Mbps – Ch. 36) – Dual Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dega 80 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 80 of 132	
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# 7.5 Conducted Emissions at the Band Edge

<u>§15.247(d); RSS-247 [5.5]</u>

### **Test Overview and Limit**

For the following out of band conducted spurious emissions plots at the band edge, the EUT was set to transmit at maximum power with the largest packet size available. These settings produced the worst-case emissions.

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth.

#### **Test Procedure Used**

ANSI C63.10-2013 – Section 11.11.3 KDB 558074 D01 v05r02 – Section 8.7.2

#### 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 = 100kHz
- 4. VBW = 300kHz
- 5. Detector = Peak
- 6. Number of sweep points  $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = max hold
- 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.





#### Test Notes

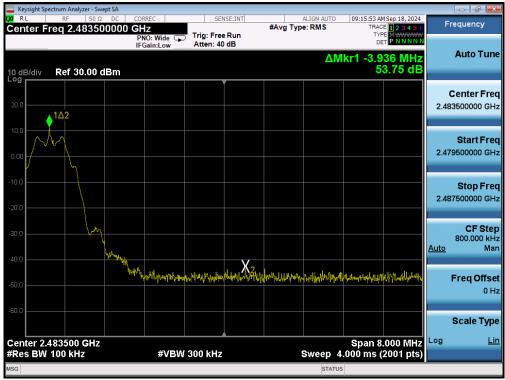
None

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 01 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 81 of 132
© 2022 ELEMENT	•		V11.1 08/28/2023



			_							STATUS				
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Plot 7-111. Band Edge Plot (Bluetooth (LE), 125kbps - Ch. 37) - Ant 1



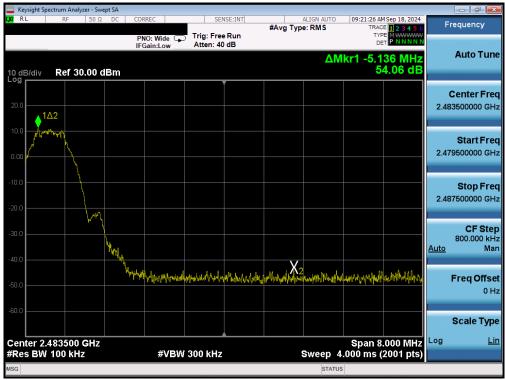
Plot 7-112. Band Edge Plot (Bluetooth (LE), 125kbps - Ch. 39) - Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 92 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 82 of 132
© 2022 ELEMENT	·		V11.1 08/28/2023



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.00											2.39	6000000 G
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J.O												Scale Ty
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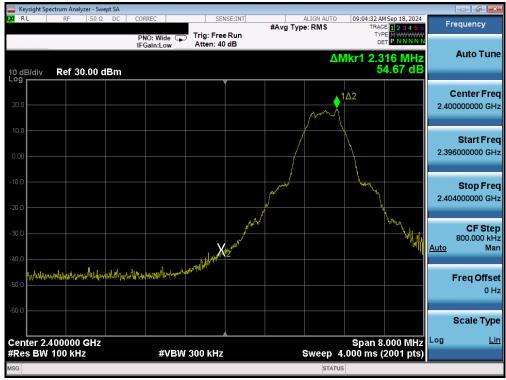




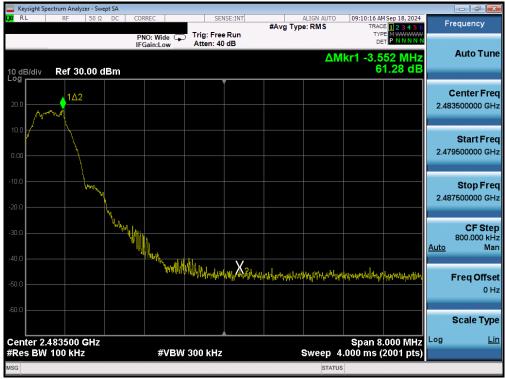
Plot 7-114. Band Edge Plot (Bluetooth (LE), 500kbps - Ch. 39) - Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 92 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 83 of 132
© 2022 ELEMENT			V11.1 08/28/2023









Plot 7-116. Band Edge Plot (Bluetooth (LE), 1Mbps - Ch. 39) - Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dega 94 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 84 of 132
© 2022 ELEMENT	•		V11.1 08/28/2023





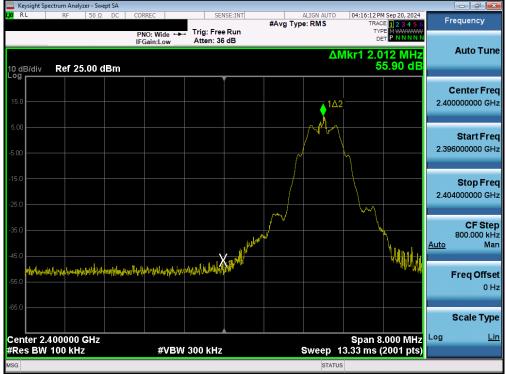
Plot 7-117. Band Edge Plot (Bluetooth (LE), 2Mbps - Ch. 0) - Ant 1



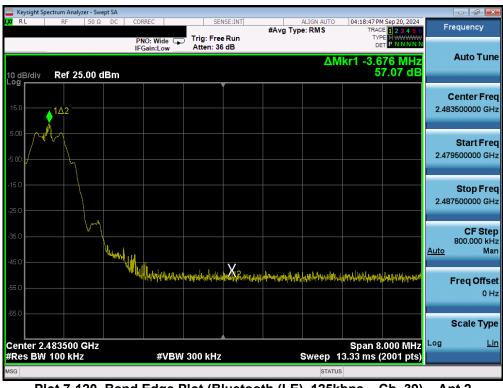
Plot 7-118. Band Edge Plot (Bluetooth (LE), 2Mbps - Ch. 36) - Ant 1

FCC ID: A3LSMS938B		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 05 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 85 of 132
© 2022 ELEMENT	•		V11.1 08/28/2023





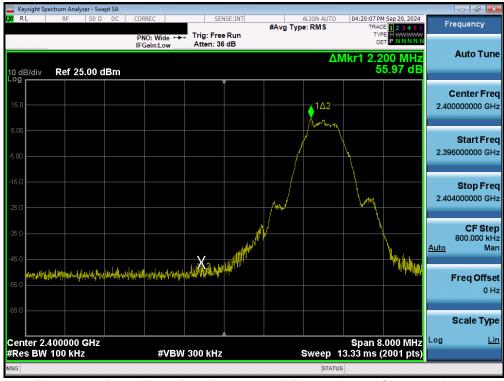
Plot 7-119. Band Edge Plot (Bluetooth (LE), 125kbps - Ch. 37) - Ant 2



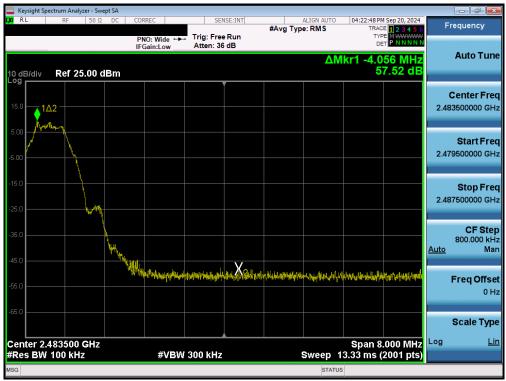
Plot 7-120. Band Edge Plot (Bluetooth (LE), 125kbps - Ch. 39) - Ant 2

FCC ID: A3LSMS938B		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 96 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 86 of 132
© 2022 ELEMENT			V11.1 08/28/2023





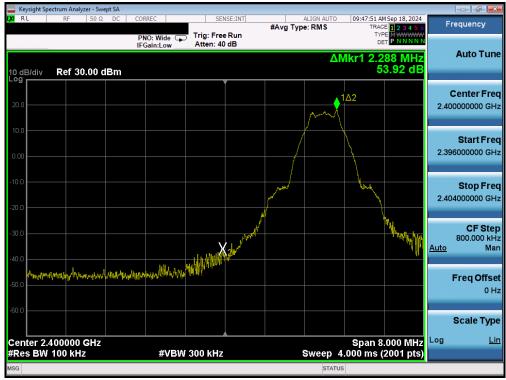




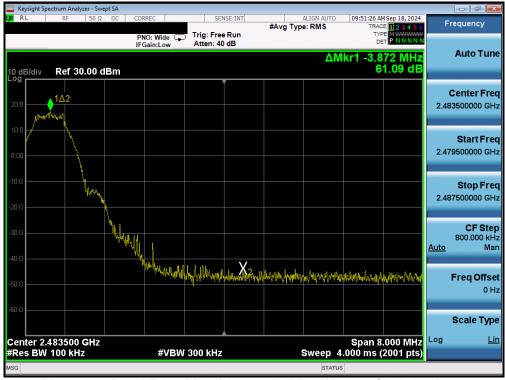
Plot 7-122. Band Edge Plot (Bluetooth (LE), 500kbps - Ch. 39) - Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dege 97 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 87 of 132
© 2022 ELEMENT			V11.1 08/28/2023









Plot 7-124. Band Edge Plot (Bluetooth (LE), 1Mbps – Ch. 39) – Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 99 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 88 of 132
© 2022 ELEMENT	•		V11.1 08/28/2023





Plot 7-125. Band Edge Plot (Bluetooth (LE), 2Mbps - Ch. 0) - Ant 2



Plot 7-126. Band Edge Plot (Bluetooth (LE), 2Mbps - Ch. 36) - Ant 2

FCC ID: A3LSMS938B		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 90 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 89 of 132
© 2022 ELEMENT	•		V11.1 08/28/2023





Plot 7-127. Band Edge Plot (Bluetooth (LE), 1Mbps – Ch. 37) – Dual Ant 1



Plot 7-128. Band Edge Plot (Bluetooth (LE), 1Mbps - Ch. 39) - Dual Ant 1

FCC ID: A3LSMS938B		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 00 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 90 of 132
© 2022 ELEMENT	•		V11.1 08/28/2023





Plot 7-129. Band Edge Plot (Bluetooth (LE), 2Mbps - Ch. 0) - Dual Ant 1



Plot 7-130. Band Edge Plot (Bluetooth (LE), 2Mbps - Ch. 36) - Dual Ant 1

FCC ID: A3LSMS938B		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 01 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 91 of 132
© 2022 ELEMENT	•		V11.1 08/28/2023





Plot 7-131. Band Edge Plot (Bluetooth (LE), 1Mbps – Ch. 37) – Dual Ant 2



Plot 7-132. Band Edge Plot (Bluetooth (LE), 1Mbps - Ch. 39) - Dual Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dama 02 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 92 of 132	
© 2022 ELEMENT	•		V11.1 08/28/2023	





Plot 7-133. Band Edge Plot (Bluetooth (LE), 2Mbps - Ch. 0) - Dual Ant 2



Plot 7-134. Band Edge Plot (Bluetooth (LE), 2Mbps - Ch. 36) - Dual Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 02 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 93 of 132	
© 2022 ELEMENT	•		V11.1 08/28/2023	



# 7.6 Conducted Spurious Emissions

#### §15.247(d); RSS-247 [5.5]

#### **Test Overview and Limit**

For the following out of band conducted spurious emissions plots, the EUT was set to transmit at maximum power with the largest packet size available. The worst case spurious emissions were found in this configuration.

The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the procedure in Section 8.5 of KDB 558074 D01 v05r02 and Section 11.11.3 of ANSI C63.10-2013.

#### **Test Procedure Used**

ANSI C63.10-2013 – Section 11.11.3 KDB 558074 D01 v05r02 – Section 8.5

#### **Test Settings**

- 1. Start frequency was set to 30MHz and stop frequency was set to 25GHz (separated into two plots per channel)
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep time = auto couple
- 7. The trace was allowed to stabilize

#### Test Setup

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



Figure 7-5. Test Instrument & Measurement Setup

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dama 04 af 400	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 94 of 132	
© 2022 ELEMENT	-		V11.1 08/28/2023	



## Test Notes

- 1. RBW was set to 1MHz rather than 100kHz in order to increase the measurement speed.
- 2. The display line shown in the following plots denotes the limit at 20dB below the fundamental emission level measured in a 100kHz bandwidth. However, since the traces in the following plots are measured with a 1MHz RBW, the display line may not necessarily appear to be 20dB below the level of the fundamental in a 1MHz bandwidth.
- 3. For plots showing conducted spurious emissions near the limit, the frequencies were investigated with a reduced RBW to ensure that no emissions were present.

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)					
Test Report S/N:	Test Dates:	EUT Type:	Dego 05 of 122				
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 95 of 132				
© 2022 ELEMENT							



	sight Spectru	m Analyzer -	Swept SA	<b>\</b>								
🗶 RL		RF 5	0Ω D0	COR	REC	SE	NSE:INT		ALIGN AUTO		l Sep 18, 2024	Frequency
					O:Fast ⊂ ain:Low	Trig: Free Atten: 40		#Avg Typ	e:RMS	TYF	E 1 2 3 4 5 6 E MWWWW T P N N N N N	
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10.0 0.00											-DL1 -1.50 dDm	Start Free 30.000000 MH
-10.0 -												<b>Stop Fre</b> 10.000000000 GH
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-40.0 -50.0 -												Freq Offse 0 H
-60.0												Scale Type
	t 30 MH: 5 BW 1.0				#VBI	№ 3.0 MHz		ş	weep 18	Stop 10 00 ms (3	.000 GHz 0001 pts)	Log <u>Lir</u>
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🔤 Keysight S	pectrum Analyz	zer - Swept SA								
XI RL	RF	50 Ω DC	CORREC		SENSE:IN		ALIGN AUTO	09:05:34 AM S TRACE	1 2 3 4 5 6	Frequency
	_		PNO: Fa IFGain:L		ig: Free Run tten: 10 dB			DET	MWWWWW PNNNNN	
10 dB/div Log	Ref 0.0	00 dBm					Mkr		2 dBm	Auto Tun
-10.0									2L1 1.58 dBm	<b>Center Fre</b> 17.500000000 GH
30.0										<b>Start Fre</b> 10.000000000 GH
-40.0									1 Webbing (septim	<b>Stop Fre</b> 25.000000000 GH
60.0 <mark>(**********</mark> 70.0			ngalan Managan di Kanaga Katalan Matalan di Kanaga	n million da la tradición nangena general da tradición nangena general da tradición	Hone of Constants of Constants Apple-of Addition of Constants	filmes for the second of the second	la na fila sa fila			<b>CF Ste</b> 1.500000000 GH <u>Auto</u> Ma
80.0										Freq Offso 0 ⊦
-90.0										Scale Typ
	000 GHz / 1.0 MHz		#	VBW 3.0	MHz	I	Sweep 26	Stop 25.0 6.00 ms (30	00 GHz 001 pts)	Log <u>Li</u>
ISG							STATU	5		

Plot 7-136. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 37) - Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dawa 00 of 100	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 96 of 132	
© 2022 ELEMENT		·	V11.1 08/28/2023	



	Spectrum Analyzer - Swe									_	- 6 🗙
LXI RL	RF 50 Ω	DC CO	RREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS		M Sep 18, 2024	Fred	quency
10 dB/div	Ref 30.00 d	IF	PNO: Fast 😱 Gain:Low	Trig: Free Atten: 40			М	۲۹ ام kr1 8.38		٨	uto Tune
20.0											e <b>nter Freq</b> 00000 GHz
0.00											Start Freq 00000 MHz
-10.0								1			<b>Stop Freq</b> 00000 GHz
-30.0	and the second states in the	and the level distance		la later					H) had search an an director Search and the search	997.0 <u>Auto</u>	<b>CF Step</b> 00000 MHz Man
-50.0										Fr	r <b>eq Offset</b> 0 Hz
-60.0 Start 30								Stop 10		S	c <b>ale Type</b> <u>Lin</u>
	V 1.0 MHz		#VBW	3.0 MHz		s	weep 1	8.00 ms (3	.000 GHz 0001 pts)		
MSG							STATU	JS			

Plot 7-137. Conducted Spurious Plot (Bluetooth (LE), 1Mbps – Ch. 17) – Ant 1

Keysight Spe R L	ectrum Analyzer - Sv RF 50 S		RREC		105 MIT			00.00.00.00	Sep 18, 2024	_	
KL	KF   50 S	P	NO:Fast Gain:Low			#Avg Typ	ALIGN AUTO e: RMS	TRACE	1 2 3 4 5 6 MWWWW P N N N N N	Fr	equency
dB/div	Ref 0.00 d	Bm					Mkr	1 23.833 -50.6	5 GHz 55 dBm		Auto Tui
									DL1 -1.23 dDm		enter Fr 0000000 G
).0										10.000	<b>Start Fr</b> 0000000 G
I.O								n 1. der in dar durch	1 المار و الم المالية الم	25.000	<b>Stop Fr</b> 0000000 G
.0 <mark>44</mark>	de la collección de la companya de la collección Relativa y la companya de la collección	n al al a cara a far a	an <sup>da</sup> n Usepen Adama S <sup>ala</sup> n parting kikumika	ak Aluqaq Laseb 2010-101-2010	Man Allance .	al Deptore <mark>a completante de la completante de</mark>	lykysersen Lesygenesesiene		a di di tina di su	1.500 <u>Auto</u>	CF St 0000000 G M
										F	Freq Offs 0
art 10.0	000 GHz							Stop 25.	000 GHz	: Log	Scale Ty
Res BW	1.0 MHz		#VBW	3.0 MHz		s		.00 ms (30	0001 pts)		
à							STATUS				

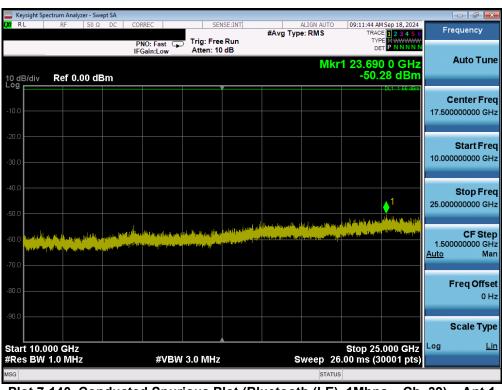
Plot 7-138. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 17) - Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)	Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 07 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 97 of 132	
© 2022 ELEMENT	•		V11.1 08/28/2023	



🤤 Keysight Spectrum Analyzer - Swept SA 👘					
XV RL RF 50Ω DC	CORREC	SENSE:INT #Ava	ALIGN AUTO	09:11:29 AM Sep 18, 2024 TRACE 1 2 3 4 5 6	Frequency
10 dB/div Ref 30.00 dBm	PNO: Fast  Trig: Fi IFGain:Low Atten:	ree Run 40 dB	Mk	TYPE MWWWW DET PNNNN r1 8.382 9 GHz -27.48 dBm	Auto Tune
20.0					Center Freq 5.015000000 GHz
0.00				DL1 -1-86 dBm	Start Freq 30.000000 MHz
-10.0					<b>Stop Freq</b> 10.000000000 GHz
-30.0					CF Step 997.000000 MHz <u>Auto</u> Man
-50.0					<b>Freq Offset</b> 0 Hz
-60.0					Scale Type
Start 30 MHz #Res BW 1.0 MHz	#VBW 3.0 MF	Iz	Sweep 18	Stop 10.000 GHz .00 ms (30001 pts)	
мsg 🧼 Points changed; all traces o	cleared		STATUS		

Plot 7-139. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 39) - Ant 1

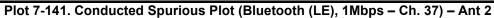


Plot 7-140. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 39) - Ant 1

FCC ID: A3LSMS938B	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 98 of 132
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	
© 2022 ELEMENT V11			V11.1 08/28/2023



	pectrum Analyzer - Sw	ept SA								
X/RL	RF 50 Ω		RREC		SE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Sep 18, 2024	Frequency
10 dB/div	Ref 30.00 (	IF	PNO: Fast 😱 Gain:Low	Atten: 40			Mk	r1 9.95	8 8 GHz 18 dBm	Auto Tun
20.0										Center Fre 5.015000000 G⊦
0.00									DL1 -2.24 dBm	Start Fre 30.000000 M⊦
20.0										<b>Stop Fr</b> 10.000000000 GI
30.0	neskan has sin familakan ministri	a ta bar bar ta a			and the second second	an a				CF Ste 997.000000 Mi <u>Auto</u> Mi
40.0 (1990) 50.0	ng dan berda berda berda berda ber									Freq Offs 0 H
60.0	MHz							Stop 10	.000 GHz	Scale Typ
#Res BW	/ 1.0 MHz			3.0 MHz		s	weep 18	.00 ms (3	0001 pts)	
sg 🎝 Poi	nts changed; all	traces clea	red				STATUS	5		



	pectrum Analyzer - Sw	/ept SA									
KN RL	RF 50 Ω	DC CC	DRREC	SEI	ISE:INT	#Avg Typ	ALIGN AUTO		I Sep 18, 2024	Freque	ncy
			NO: Fast 🖵	Trig: Free Atten: 10				TYP			
	_	Ił	Gain:Low	Atten: 10	ав		Mice	1 23.359		Aut	o Tune
10 dB/div	Ref 0.00 d	Bm					WIKI		89 dBm		
									DL1 52,24 GBm	Cont	er Frec
-10.0										17.5000000	
										17.5000000	500 GH
20.0											
											rt Fred
-30.0										10.000000	000 GHz
-40.0											op Fred
-50.0								▲	1	25.000000	000 GH2
-30.0						Lattercal car il di	al da na constantificar e	States and back	odko-staatifattaa		
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										From	Offset
-80.0										Fieu	0 Hz
											• • •
-90.0										Sca	е Туре
										Scal	ie Type
	000 GHz							Stop 25	.000 GHz	Log	Lin
#Res BW	/ 1.0 MHz		#VBW	/ 3.0 MHz		s	weep 26	.00 ms (3	0001 pts)		
//SG							STATUS	5			

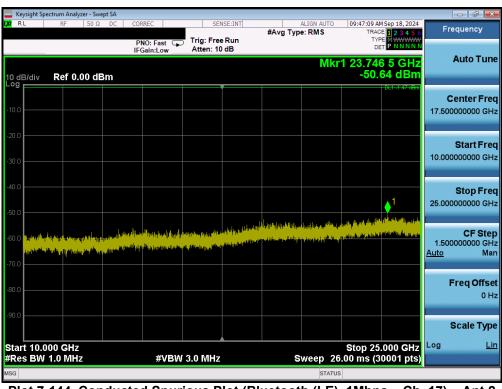
Plot 7-142. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 37) - Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Dage 00 of 122			
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 99 of 132			
© 2022 ELEMENT	·	·	V11.1 08/28/2023			



	trum Analyzer - Swept									_	
L <mark>XI</mark> RL	RF 50 Ω	DC COF	REC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	4 Sep 18, 2024	Fr	equency
10 dB/div	Ref 30.00 dE	IFO	NO: Fast 🖵 Gain:Low	Trig: Free Atten: 40			М	DE kr1 9.77	<sup>™</sup> P NN NN N 6 7 GHz 94 dBm		Auto Tune
20.0											<b>enter Freq</b> 5000000 GHz
0.00									DL11.47 dBm	30	Start Freq .000000 MHz
-10.0										10.000	Stop Freq
-30.0		an a	inter and a state of the state				a filia a fili Na filia a fili		adeles and a strang	997 <u>Auto</u>	<b>CF Step</b> .000000 MHz Man
-50.0										<b>_</b>	F <b>req Offset</b> 0 Hz
-60.0 Start 30 MI	Hz							Stop <u>10</u>	.000 GHz	Log	Scale Type <u>Lin</u>
#Res BW 1			#VBW	3.0 MHz		s	weep 1	8.00 ms (3	0001 pts)		
MSG							STATU	JS			

Plot 7-143. Conducted Spurious Plot (Bluetooth (LE), 1Mbps – Ch. 17) – Ant 2



Plot 7-144. Conducted Spurious Plot (Bluetooth (LE), 1Mbps – Ch. 17) – Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 122			
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 100 of 132			
© 2022 ELEMENT	•		V11.1 08/28/2023			



🚾 Keysight Spectrum Analyzer - Swept SA 👘					
X RL RF 50Ω DC	CORREC SEN	NSE:INT #Avg Type		M Sep 18, 2024 CE 1 2 3 4 5 6	Frequency
	PNO: Fast Trig: Free IFGain:Low Atten: 40		۲۷ ام Mkr1 9.21		Auto Tune
10 dB/div Ref 30.00 dBm			-28.	01 dBm	
20.0					Center Freq 5.015000000 GHz
0.00				DL1 -2.42 dBm	Start Freq 30.000000 MHz
-10.0					<b>Stop Freq</b> 10.00000000 GHz
-30.0	March In March 200 (1997) - All and the stand of the stand	an di su gana yang saka yang da kang si sang da saka di s Sang tang saka saka saka saka saka saka saka sak	ng Propping ang pang pang pang ang pang bang pang b	1 Apple of produced and produced on the produc	CF Step 997.000000 MHz uto Man
-40.0 Republic to an inclusion of the second statement		na lla dana in composition			inter inter
-50.0					Freq Offset 0 Hz
-60.0					Scale Type
Start 30 MHz #Res BW 1.0 MHz	#VBW 3.0 MHz	s	Stop 10 weep 18.00 ms (3		og <u>Lin</u>
MSG			STATUS		

Plot 7-145. Conducted Spurious Plot (Bluetooth (LE), 1Mbps – Ch. 39) – Ant 2



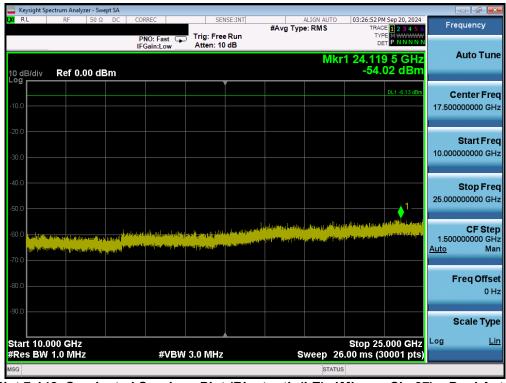
Plot 7-146. Conducted Spurious Plot (Bluetooth (LE), 1Mbps – Ch. 39) – Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Page 101 of 132			
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset				
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	ight Spectru	ım Analyzer											
L <mark>XI</mark> RL		RF 5	50Ω DC	COR	REC	SEI	NSE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	4 Sep 20, 2024	Fr	equency
10 dB/ Log r	/div	Ref 25.0	0 dBm	IFC	NO: Fast ⊂ Gain:Low	Atten: 36			М	bi kr1 9.81	0 9 GHz 72 dBm		Auto Tune
15.0 -													<b>Center Freq</b> 5000000 GHz
5.00 - -5.00 -											DL1-6.13 dBm	30	Start Fred
-15.0 -25.0												10.00	Stop Fred
-35.0	a particular	n da ganegi kinak Na da ganegi kinak	Harly nated	i Paperna palina P	and the second	New York Contraction of the second se		l The Property of	, and a state of the second	• In the straight second s	i per te final de la populación de Tractición de la forma Million	997 <u>Auto</u>	CF Step 000000 MH Mar
-55.0	tal attal di												F <b>req Offse</b> 0 H:
-65.0	30 MH	7								Stop 10	.000 GHz	Log	Scale Type <u>Lir</u>
	BW 1.				#VBW	3.0 MHz		S	weep 1	8.00 ms (3	0001 pts)		
MSG 🤳	Points of	hanged;	all trace	es clear	ed				STATU	JS			

Plot 7-147. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 37) - Dual Ant 1



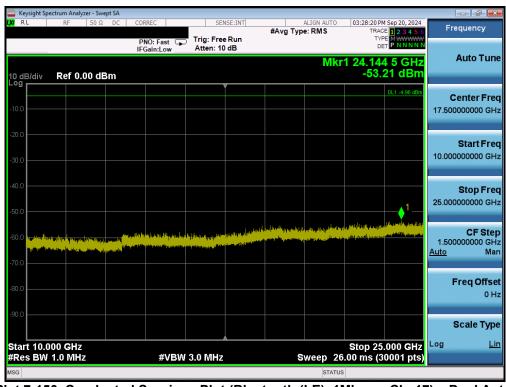
Plot 7-148. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 37) - Dual Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Page 102 of 132			
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	24 - 10/25/2024 Portable Handset				
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Keysight Spectrum Analyzer - Swept SA				
XV RL RF 50Ω DC	CORREC SENSE:	INT ALIGN AUTO #Avg Type: RMS	03:27:43 PM Sep 20, 2024 TRACE 1 2 3 4 5 6	Frequency
10 dB/div Ref 25.00 dBm	PNO: Fast Trig: Free Ru IFGain:Low Atten: 36 dE	3	TYPE MWWWW DET NNNNN Ikr1 8.929 6 GHz -32.78 dBm	Auto Tune
15.0				Center Freq 5.015000000 GHz
-5.00			DL1 -4.96 dBm	Start Freq 30.000000 MHz
-15.0				<b>Stop Freq</b> 10.000000000 GHz
-35.0 -45.0			a yana mang Mang dina yang matang talakan Man. Mang matang dina yang dina yang matang talakan si kang dina matang dina matang talakan si kang dina matang dina	CF Step 997.000000 MHz <u>Auto</u> Man
-45.0				Freq Offset 0 Hz
-65.0			Stop 10 000 Olla	Scale Type
start 30 MHz #Res BW 1.0 MHz	#VBW 3.0 MHz	Sweep	Stop 10.000 GHz 18.00 ms (30001 pts)	
мsg iPoints changed; all traces c	leared	STAT	rus	

Plot 7-149. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 17) - Dual Ant 1



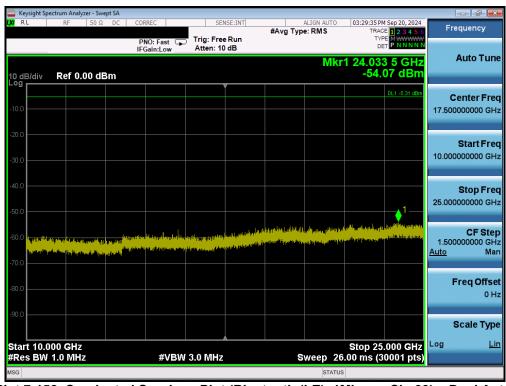
Plot 7-150. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 17) - Dual Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)				
Test Report S/N:	Test Dates:	EUT Type:	Page 103 of 132			
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset				
© 2022 ELEMENT	•		V11.1 08/28/2023			



🔤 Keysight Spectrum Analyzer - Swept SA 👘					
XV RL RF 50Ω DC	CORREC SEI	NSE:INT #Avg Tvp		M Sep 20, 2024 CE 1 2 3 4 5 6	Frequency
10 dB/div Ref 25.00 dBm	PNO: Fast Trig: Free IFGain:Low Atten: 36		™ □ Mkr1 9.15		Auto Tune
15.0					Center Freq 5.015000000 GHz
-5.00				DL1 -5.31 dBm	Start Freq 30.000000 MHz
-15.0					<b>Stop Freq</b> 10.00000000 GHz
-35.0	en fan het fan de fan fan de fan d Reference fan de fan Reference fan de fan		ing a support of the second	alaalea,aalaa,aalaa haalaa,aalaa	CF Step 997.000000 MHz Luto Man
-45.0 (1997)					Freq Offset 0 Hz
-65.0					Scale Type
Start 30 MHz #Res BW 1.0 MHz	#VBW 3.0 MHz	s	Stop 10 weep 18.00 ms (3		
мsg iPoints changed; all traces c	leared		STATUS		

Plot 7-151. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 39) - Dual Ant 1



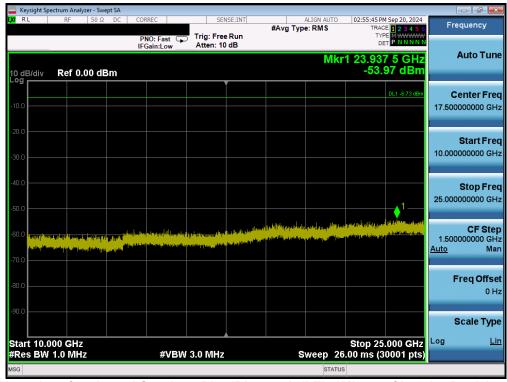
Plot 7-152. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 39) - Dual Ant 1

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dega 104 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 104 of 132	
© 2022 ELEMENT	•		V11.1 08/28/2023	



		um Analyzer - S											- 🖻 🗙
L <mark>XI</mark> R	L	RF 50	Ω DC	CORR	EC		ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Sep 20, 2024 CE <b>1 2 3 4 5 6</b>	Fr	equency
10 dl Log	B/div	Ref 25.00	) dBm		D: Fast ↔ ain:Low	. Trig: Free Atten: 36			N	DI 1kr1 8.04	1 6 GHz 07 dBm		Auto Tune
													Center Frec
											- DL1 -8:73 dBm	30	Start Fred
-15.0 -25.0										.1		10.000	Stop Free
-35.0 -45.0	a film for the film of the fil	ta ju <sub>pa d</sub> a julia julia na je	ere la compilitation rectationer Balance	an day karaya <sup>141</sup> Ang Salayan <sup>141</sup>				n Maria Dagaya yapiti Maria Maria Maria	n a tha an	an participant transfer di terrati (12 militari di terrati terrati terrati	<mark>, and essentials Markets</mark> Pe <sup>rfo</sup> rganistic Mark	997 <u>Auto</u>	CF Step .000000 MH Mar
	alean tible did											· ·	F <b>req Offse</b> 0 H
-65.0 Star	t 30 MH	-								Stop 40		Log	Scale Type
	s BW 1.				#VBW	3.0 MHz		s	weep 1	18.00 ms (3	.000 GHz 0001 pts)	9	
MSG									STAT	US			

Plot 7-153. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 37) - Dual Ant 2



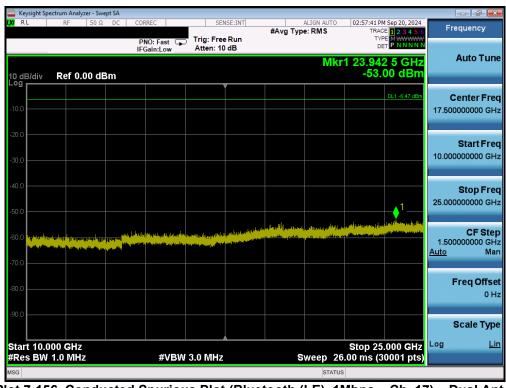
Plot 7-154. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 37) - Dual Ant 2

FCC ID: A3LSMS938B		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dega 105 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 105 of 132
© 2022 ELEMENT			V11.1 08/28/2023



Keysight Spectrum Analyzer - Swept SA					
X RL RF 50Ω DC	CORREC SEN	NSE:INT #Avg Type	e: RMS TRAC	M Sep 20, 2024 DE <b>1 2 3 4 5 6</b>	Frequency
10 dB/div Ref 25.00 dBm	PNO: Fast Trig: Free IFGain:Low Atten: 36		Mkr1 3.81	8 3 GHz 96 dBm	Auto Tune
15.0					Center Freq 5.01500000 GHz
-5.00					Start Freq 30.000000 MHz
-15.0					<b>Stop Freq</b> 10.000000000 GHz
-35.0			ng <sup>195</sup> <mark>yang sebagai pang sebagai kang sebahan sebagai kang sebagai pang sebagai kang s</mark>		CF Step 997.000000 MHz <u>uuto</u> Man
-55.0					Freq Offset 0 Hz
					Scale Type
Start 30 MHz #Res BW 1.0 MHz	#VBW 3.0 MHz	S	03 stop weep 18.00 ms		
мsg 🗼 Points changed; all traces c	leared		STATUS		

Plot 7-155. Conducted Spurious Plot (Bluetooth (LE), 1Mbps – Ch. 17) – Dual Ant 2



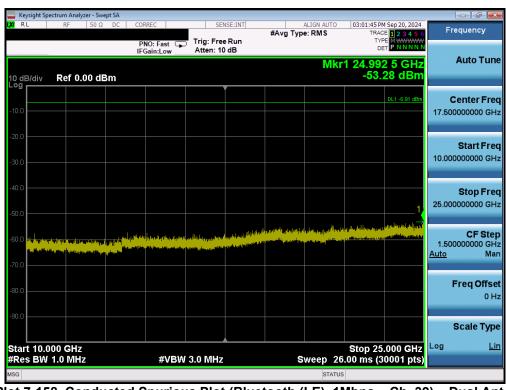
Plot 7-156. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 17) - Dual Ant 2

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dega 106 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 106 of 132	
© 2022 ELEMENT			V11.1 08/28/2023	



Keysight Spectrum Analyzer - Swept SA					
XIRL RF 50Ω DC	CORREC SEN	ASE:INT #Avg Type		M Sep 20, 2024 E 1 2 3 4 5 6	Frequency
10 dB/div Ref 25.00 dBm	PNO: Fast Trig: Free IFGain:Low Atten: 36		Mkr1 5.22		Auto Tune
15.0				5	<b>Center Freq</b> .015000000 GHz
-5.00				DL -6.91 dBm	Start Freq 30.000000 MHz
-15.0				10	<b>Stop Freq</b> .000000000 GHz
-35.0				antinumlation Antinantinum Aut	CF Step 997.000000 MHz o Man
-55.0					<b>Freq Offse</b> 0 Hz
-65.0			Stop 10	.000 GHz Log	Scale Type
#Res BW 1.0 MHz	#VBW 3.0 MHz	S	weep 18.00 ms (3	2116 000	, <u> </u>
MSG 🗼 Points changed; all traces c	leared		STATUS		

Plot 7-157. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 39) - Dual Ant 1



Plot 7-158. Conducted Spurious Plot (Bluetooth (LE), 1Mbps - Ch. 39) - Dual Ant 2

FCC ID: A3LSMS938B		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Degs 107 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 107 of 132
© 2022 ELEMENT			V11.1 08/28/2023



# 7.7 Radiated Spurious Emission Measurements

### §15.205 §15.209 §15.247(d); RSS-Gen [8.9]

### Test Overview and Limit

All out of band radiated spurious emissions are measured with a spectrum analyzer connected to a receive antenna while the EUT is operating at maximum power and at the appropriate frequencies. Only the radiated emissions of the configuration that produced the worst case emissions are reported in this section.

All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR and Table 6 of RSS-Gen (8.10) must not exceed the limits shown in Table 7-12 per Section 15.209 and RSS-Gen (8.9).

Frequency	Field Strength [μV/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table 7-15. Radiated Limits

### Test Procedures Used

ANSI C63.10-2013 - Section 6.6.4.3

KDB 558074 D01 v05r02 - Section 8.6, 8.7

### **Test Settings**

### Average Field Strength Measurements

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW = 3kHz > 1/T
- 4. Averaging type was set to RMS to ensure that video filtering was applied in the power domain
- 5. Detector = peak
- 6. Sweep time = auto
- 7. Trace mode = max hold
- 8. Trace was allowed to run for at least 50 times (1/duty cycle) traces

FCC ID: A3LSMS938B		Approved by: Technical Manager	
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 108 of 132
© 2022 ELEMENT			V11.1 08/28/2023



# Peak Field Strength Measurements

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW is set depending on measurement frequency, as specified in Table 7-13 below
- 3. VBW = 3MHz
- 4. Detector = peak
- 5. Sweep time = auto couple
- 6. Trace mode = max hold
- 7. Trace was allowed to stabilize

RBW
200 – 300Hz
9 – 10kHz
100 – 120kHz
1MHz

Table 7-16. RBW as a Function of Frequency

## Test Setup

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

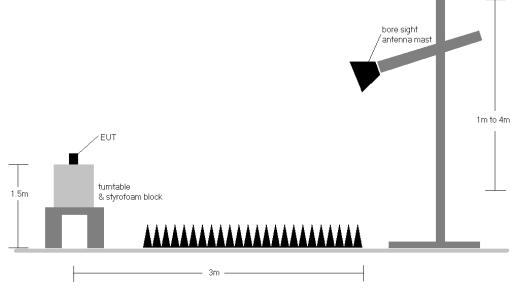


Figure 7-6. Radiated Test Setup >1GHz

FCC ID: A3LSMS938B		MEASUREMENT REPORT (CERTIFICATION)		
Test Report S/N:	Test Dates:	EUT Type:	Dage 100 of 122	
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 109 of 132	
© 2022 ELEMENT V11.1 0				



### Test Notes

- The optional test procedures for antenna port conducted measurements of unwanted emissions per the guidance of KDB 558074 D01 v05r02 were not used to evaluate this device for compliance to radiated limits. All radiated spurious emissions levels were measured in a radiated test setup.
- 2. All emissions lying in restricted bands specified in §15.205 and Section 8.10 of RSS-Gen are below the limit shown in Table 7-12.
- 3. The antenna is manipulated through typical positions, polarity and length during the tests. The EUT is manipulated through three orthogonal planes.
- 4. This unit was tested with its standard battery.
- 5. The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHz. Above 1 GHz, average and peak measurements were taken using linearly polarized horn antennas. The worst-case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.
- Average measurements were recorded using a VBW of 3kHz, per Section 4.1.4.2.3 of ANSI C63.10-2013, since 1/T is equal to just under 3kHz. This method was used because the EUT could not be configured to operate with a duty cycle > 98%. Both average and peak measurements were made using a peak detector
- 7. Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.
- 8. No significant radiated band edge emissions were found in the 2310 2390MHz restricted band.
- 9. The "-" shown in the following RSE tables are used to denote a noise floor measurement.

### **Sample Calculations**

### **Determining Spurious Emissions Levels**

- Field Strength Level [dBµV/m] = Analyzer Level [dBm] + 107 + AFCL [dB/m]
- AFCL [dB/m] = Antenna Factor [dB/m] + Cable Loss [dB]
- $\circ \quad \text{Margin}_{[dB]} = \text{Field Strength Level}_{[dB\mu V/m]} \text{Limit}_{[dB\mu V/m]}$

### Radiated Band Edge Measurement Offset

• The amplitude offset shown in the radiated restricted band edge plots in Section 7.8 was calculated using the formula:

Offset (dB) = (Antenna Factor + Cable Loss + Attenuator) – Preamplifier Gain

FCC ID: A3LSMS938B	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Technical Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 110 of 122
1M2408260069-12.A3L	09/03/2024 - 10/25/2024	Portable Handset	Page 110 of 132
© 2022 ELEMENT			V11.1 08/28/2023

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