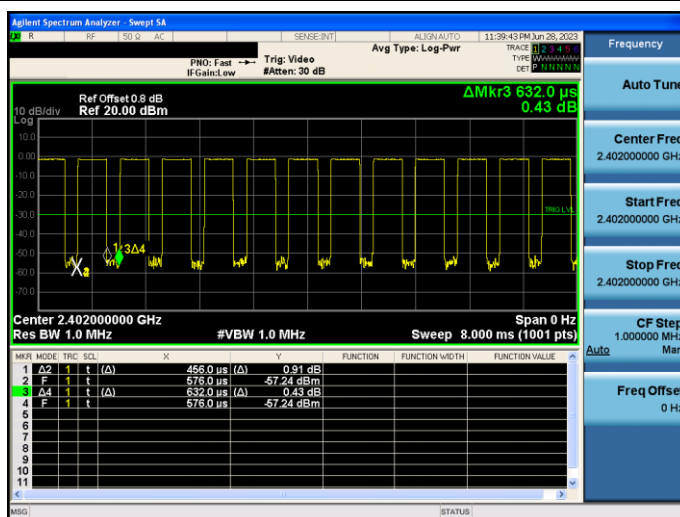


Appendix B. Test Plots

Duty cycle

BLE 1M

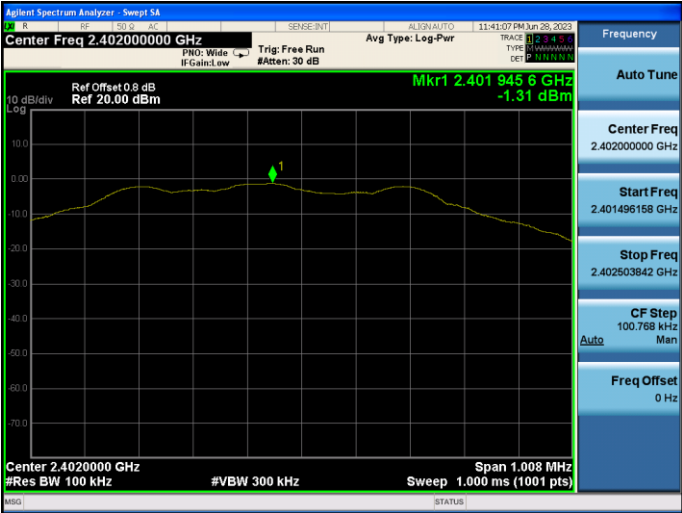
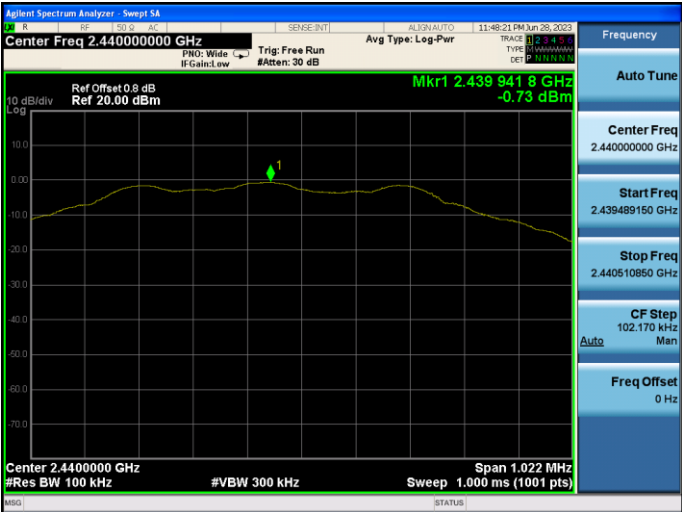
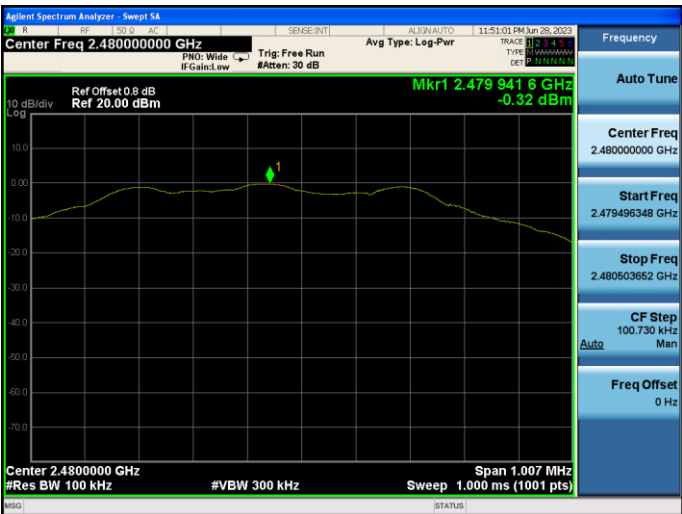
On+off time



Out of Band Conducted Spurious Emission

BLE 1M																																																																																																				
Low ch	Agilent Spectrum Analyzer - Swept SA Center Freq 12.515000000 GHz Ref Offset 0.8 dB Ref 20.00 dBm Mkr2 4.803 6 GHz -46.70 dBm Start 30 MHz Stop 25.00 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.387 s (40001 pts) <table><tr><th>Mkr</th><th>Mode</th><th>TRG</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.402 2 GHz</td><td>-1.30 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>4.803 6 GHz</td><td>-46.70 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> Frequency Auto Tune Center Freq 12.515000000 GHz Start Freq 30.0000000 MHz Stop Freq 25.000000000 GHz CF Step 2.497000000 GHz Auto Man Freq Offset 0 Hz	Mkr	Mode	TRG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.402 2 GHz	-1.30 dBm				2	N	1	f	4.803 6 GHz	-46.70 dBm				3									4									6									7									8									9									10									11								
Mkr	Mode	TRG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																																																																																												
1	N	1	f	2.402 2 GHz	-1.30 dBm																																																																																															
2	N	1	f	4.803 6 GHz	-46.70 dBm																																																																																															
3																																																																																																				
4																																																																																																				
6																																																																																																				
7																																																																																																				
8																																																																																																				
9																																																																																																				
10																																																																																																				
11																																																																																																				
Mid ch	Agilent Spectrum Analyzer - Swept SA Center Freq 12.515000000 GHz Ref Offset 0.8 dB Ref 20.00 dBm Mkr2 4.879 8 GHz -45.66 dBm Start 30 MHz Stop 25.00 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.387 s (40001 pts) <table><tr><th>Mkr</th><th>Mode</th><th>TRG</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.440 2 GHz</td><td>-1.32 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>4.879 8 GHz</td><td>-45.66 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> Frequency Auto Tune Center Freq 12.515000000 GHz Start Freq 30.0000000 MHz Stop Freq 25.000000000 GHz CF Step 2.497000000 GHz Auto Man Freq Offset 0 Hz	Mkr	Mode	TRG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.440 2 GHz	-1.32 dBm				2	N	1	f	4.879 8 GHz	-45.66 dBm				3									4									6									7									8									9									10									11								
Mkr	Mode	TRG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																																																																																												
1	N	1	f	2.440 2 GHz	-1.32 dBm																																																																																															
2	N	1	f	4.879 8 GHz	-45.66 dBm																																																																																															
3																																																																																																				
4																																																																																																				
6																																																																																																				
7																																																																																																				
8																																																																																																				
9																																																																																																				
10																																																																																																				
11																																																																																																				
High ch	Agilent Spectrum Analyzer - Swept SA Center Freq 12.515000000 GHz Ref Offset 0.8 dB Ref 20.00 dBm Mkr2 4.959 7 GHz -46.59 dBm Start 30 MHz Stop 25.00 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 2.387 s (40001 pts) <table><tr><th>Mkr</th><th>Mode</th><th>TRG</th><th>SCL</th><th>X</th><th>Y</th><th>FUNCTION</th><th>FUNCTION WIDTH</th><th>FUNCTION VALUE</th></tr><tr><td>1</td><td>N</td><td>1</td><td>f</td><td>2.480 2 GHz</td><td>-0.08 dBm</td><td></td><td></td><td></td></tr><tr><td>2</td><td>N</td><td>1</td><td>f</td><td>4.959 7 GHz</td><td>-46.59 dBm</td><td></td><td></td><td></td></tr><tr><td>3</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>6</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>8</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>9</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>10</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>11</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> Frequency Auto Tune Center Freq 12.515000000 GHz Start Freq 30.0000000 MHz Stop Freq 25.000000000 GHz CF Step 2.497000000 GHz Auto Man Freq Offset 0 Hz	Mkr	Mode	TRG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	1	N	1	f	2.480 2 GHz	-0.08 dBm				2	N	1	f	4.959 7 GHz	-46.59 dBm				3									4									6									7									8									9									10									11								
Mkr	Mode	TRG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE																																																																																												
1	N	1	f	2.480 2 GHz	-0.08 dBm																																																																																															
2	N	1	f	4.959 7 GHz	-46.59 dBm																																																																																															
3																																																																																																				
4																																																																																																				
6																																																																																																				
7																																																																																																				
8																																																																																																				
9																																																																																																				
10																																																																																																				
11																																																																																																				

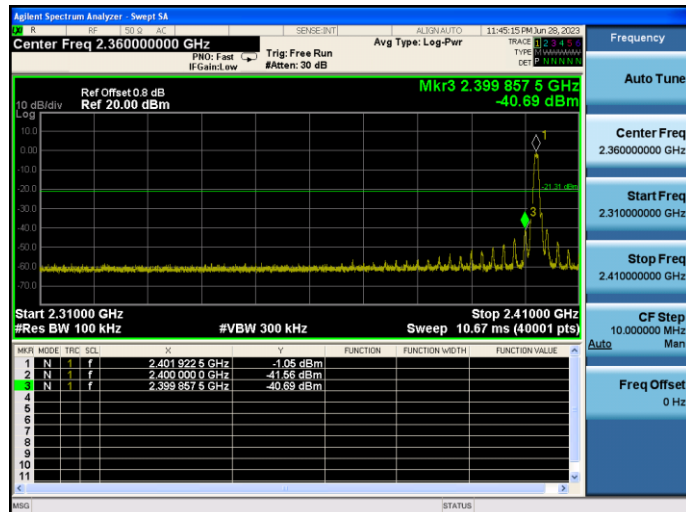
Reference level

BLE 1M Low ch	
Mid ch	
High ch	

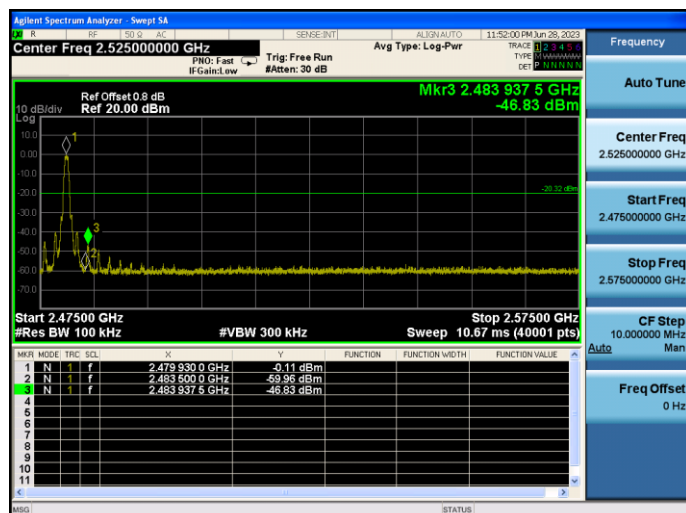
Conducted Band Edge

BLE 1M

Low ch



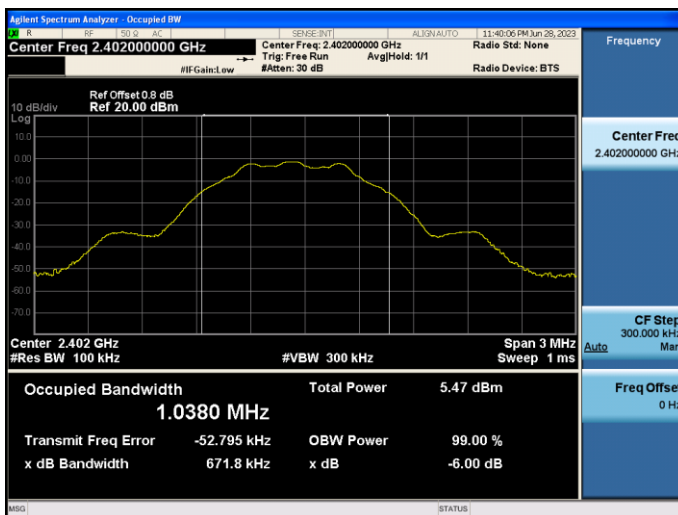
High ch



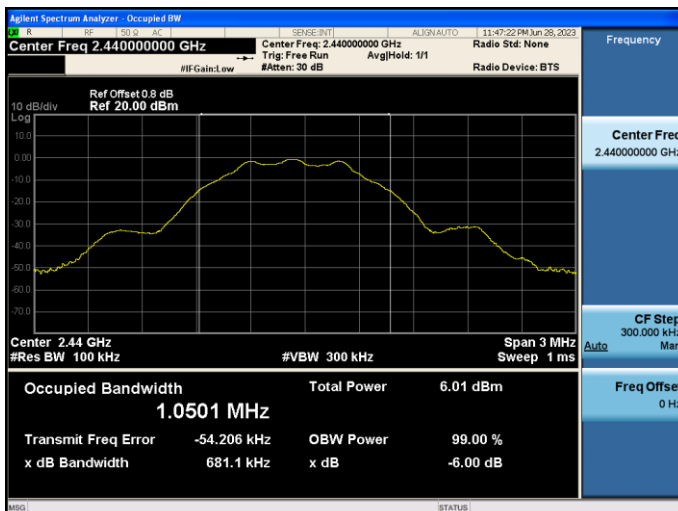
6 dB Bandwidth

BLE 1M

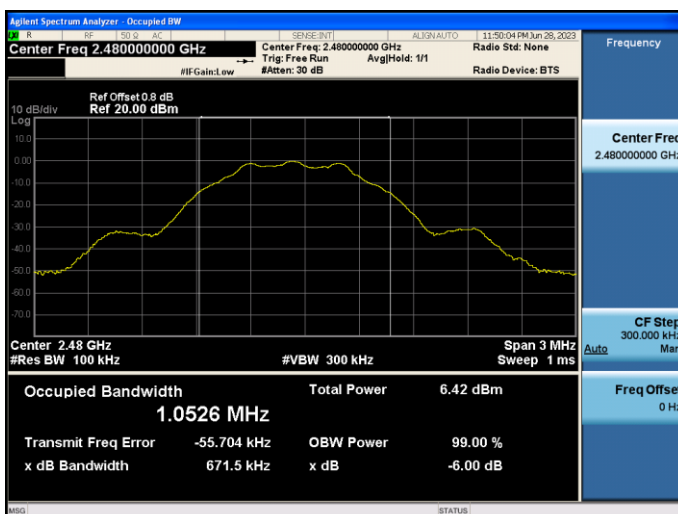
Low ch



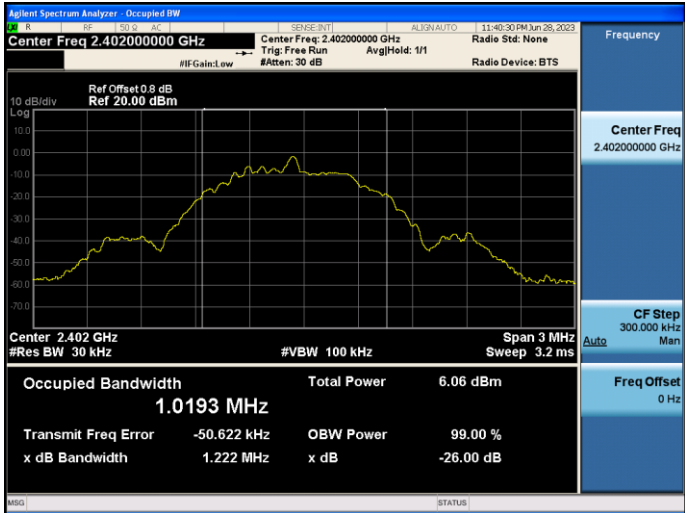
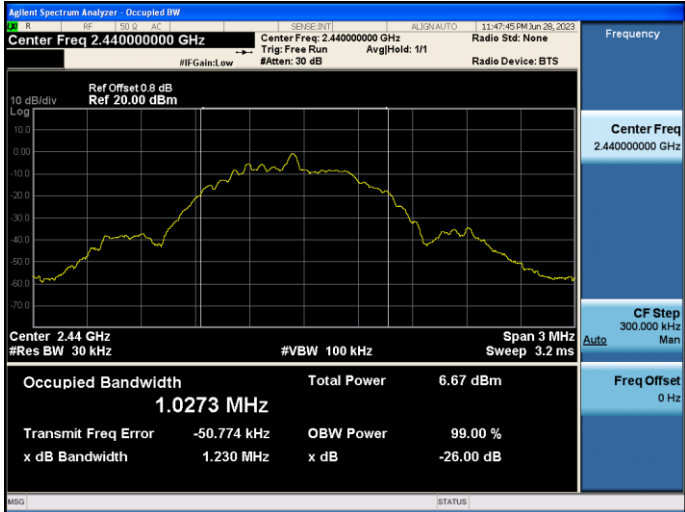
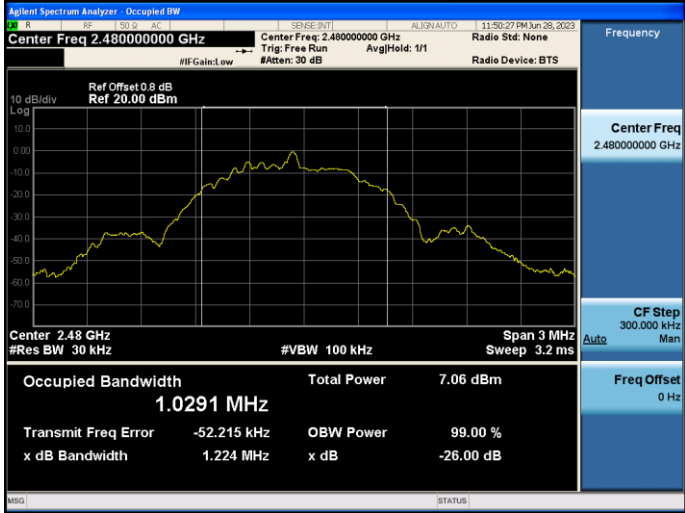
Mid ch



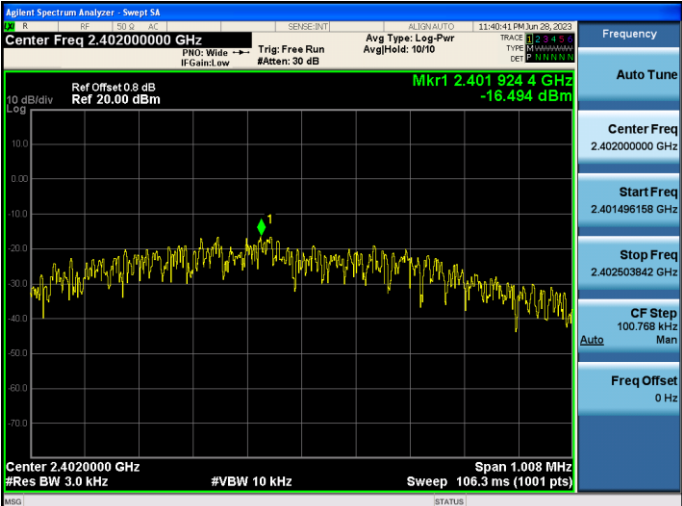
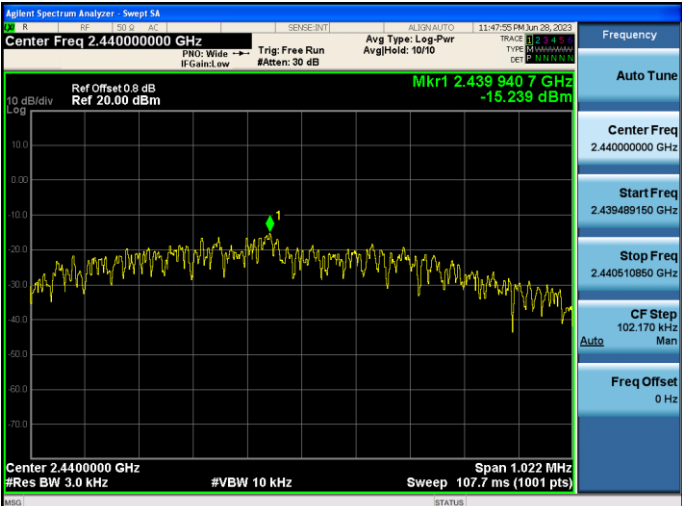
High ch



99 % Occupied Bandwidth

BLE 1M	
Low ch	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.402000000 GHz Ref Offset: 0.8 dB Ref: 20.00 dBm Occupied Bandwidth: 1.0193 MHz Total Power: 6.06 dBm OBW Power: 99.00 % Transmit Freq Error: -50.622 kHz x dB Bandwidth: 1.222 MHz x dB: -26.00 dB
Mid ch	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.440000000 GHz Ref Offset: 0.8 dB Ref: 20.00 dBm Occupied Bandwidth: 1.0273 MHz Total Power: 6.67 dBm OBW Power: 99.00 % Transmit Freq Error: -50.774 kHz x dB Bandwidth: 1.230 MHz x dB: -26.00 dB
High ch	 Agilent Spectrum Analyzer - Occupied BW Center Freq: 2.480000000 GHz Ref Offset: 0.8 dB Ref: 20.00 dBm Occupied Bandwidth: 1.0291 MHz Total Power: 7.06 dBm OBW Power: 99.00 % Transmit Freq Error: -52.215 kHz x dB Bandwidth: 1.224 MHz x dB: -26.00 dB

Power Density

BLE 1M Low ch	
Mid ch	
High ch	