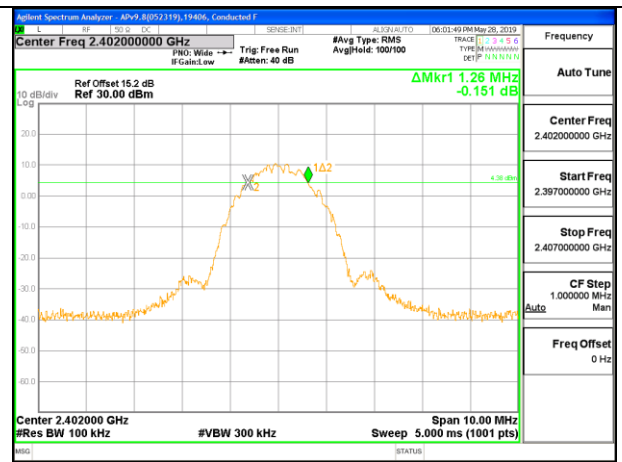
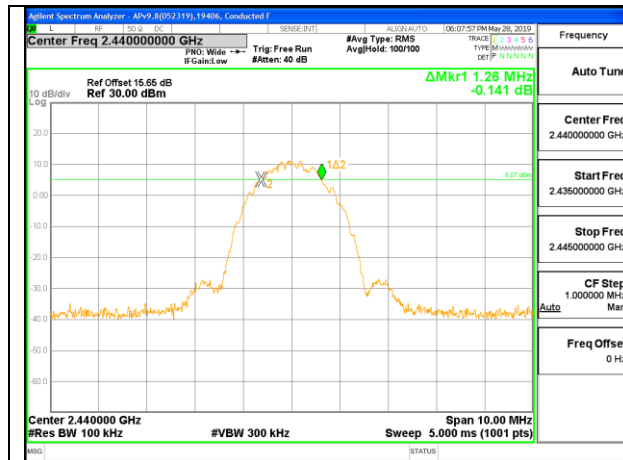


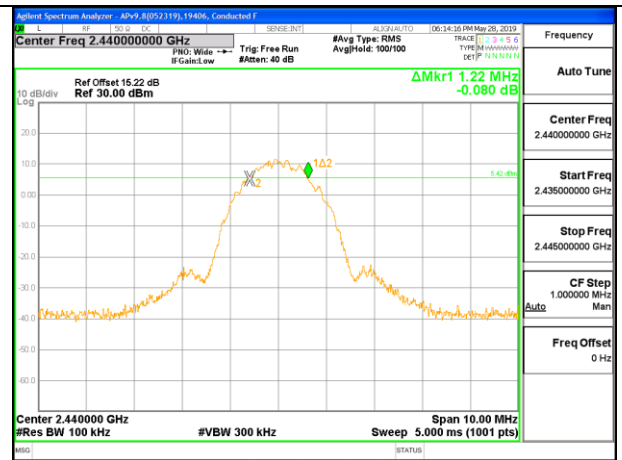
LOW CHANNEL , ANT 2



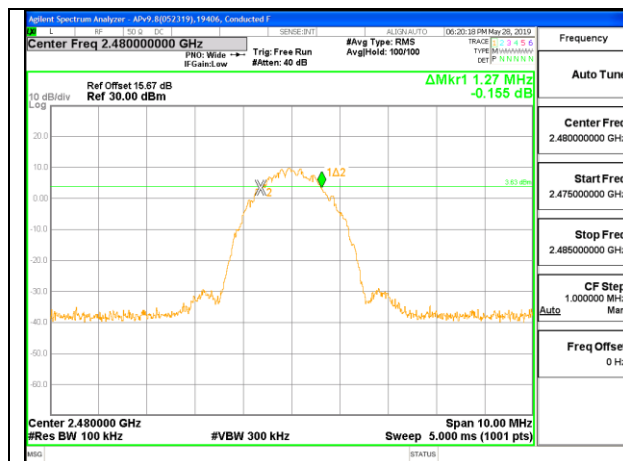
LOW CHANNEL ANT 5



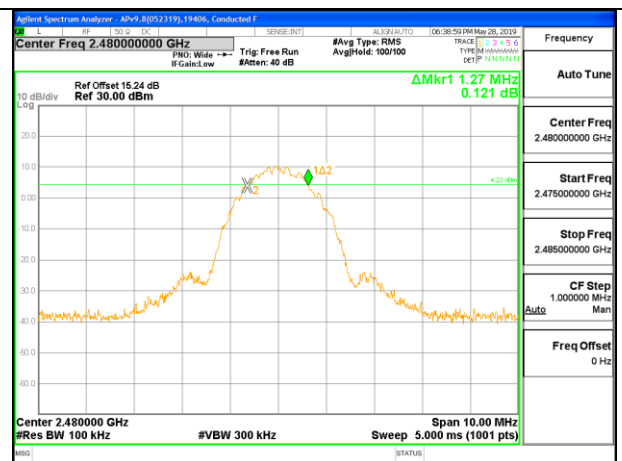
MID CHANNEL ANT 2



MID CHANNEL ANT 5



HIGH CHANNEL ANT 2



HIGH CHANNEL ANT 5

**8.10. BEAMFORMING OUTPUT POWER**

**8.10.1. HIGH POWER BLE (1Mbps)**

**2TX Antenna 2 + Antenna 5, TxBF Mode**

Tested By:	39313
Date:	6/25/2019

Channel	Frequency (MHz)	Output Power Antenna 2 (dBm)	Output Power Antenna 5 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	17.28	17.38	20.34	30	-9.66
Middle	2440	17.35	17.47	20.42	30	-9.58
High	2480	17.25	17.35	20.31	30	-9.69

**8.10.2. HIGH POWER BLE (2Mbps)**

**2TX Antenna 2 + Antenna 5, TxBF Mode**

Tested By:	39313
Date:	6/25/2019

Channel	Frequency (MHz)	Output Power Antenna 2 (dBm)	Output Power Antenna 5 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	17.35	17.45	20.41	30	-9.59
Middle	2440	17.41	17.48	20.46	30	-9.54
High	2480	17.32	17.42	20.38	30	-9.62

Note: Test procedures and setting on beamforming are same as BLE normal mode

**8.10.3. LOW POWER BLE (1Mbps)**

**2TX Antenna 2 + Antenna 5, TxBF Mode**

Tested By:	39313
Date:	6/25/2019

Channel	Frequency (MHz)	Output Power Antenna 2 (dBm)	Output Power Antenna 5 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	12.42	12.43	15.44	30	-14.56
Middle	2440	12.55	12.60	15.59	30	-14.41
High	2480	12.40	12.42	15.42	30	-14.58

**8.10.4. LOW POWER BLE (2Mbps)**

**2TX Antenna 2 + Antenna 5, TxBF Mode**

Tested By:	39316
Date:	6/25/2019

Channel	Frequency (MHz)	Output Power Antenna 2 (dBm)	Output Power Antenna 5 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	12.58	12.62	15.61	30	-14.39
Middle	2440	12.61	12.65	15.64	30	-14.36
High	2480	12.53	12.57	15.56	30	-14.44

**8.11. BEAMFORMING AVERAGE POWER**

**8.11.1. HIGH POWER BLE (1Mbps)**

**2TX Antenna 2 + Antenna 5, TxBF Mode**

Tested By:	39313
Date:	6/25/2019

Channel	Frequency (MHz)	Average Power Antenna 2 (dBm)	Average Power Antenna 5 (dBm)	Total Power (dBm)
Low	2402	16.66	16.71	19.70
Middle	2440	16.72	16.75	19.75
High	2480	16.63	16.67	19.66

**8.11.2. HIGH POWER BLE (2Mbps)**

**2TX Antenna 2 + Antenna 5, TxBF Mode**

Tested By:	39313
Date:	6/25/2019

Channel	Frequency (MHz)	Average Power Antenna 2 (dBm)	Average Power Antenna 5 (dBm)	Total Power (dBm)
Low	2402	16.65	16.72	19.70
Middle	2440	16.73	16.77	19.76
High	2480	16.61	16.68	19.66

Note: Test procedures and setting on beamforming are same as BLE normal mode

**8.11.3. LOW POWER BLE (1Mbps)**

**2TX Antenna 2 + Antenna 5, TxBF Mode**

Tested By:	39313
Date:	6/25/2019

Channel	Frequency (MHz)	Average Power Antenna 2 (dBm)	Average Power Antenna 5 (dBm)	Total Power (dBm)
Low	2402	12.14	12.13	15.15
Middle	2440	12.23	12.25	15.25
High	2480	12.12	12.12	15.13

**8.11.4. LOW POWER BLE (2Mbps)**

**2TX Antenna 2 + Antenna 5 TxBF Mode**

Tested By:	39316
Date:	6/25/2019

Channel	Frequency (MHz)	Average Power Antenna 2 (dBm)	Average Power Antenna 5 (dBm)	Total Power (dBm)
Low	2402	12.19	12.23	15.22
Middle	2440	12.23	12.25	15.25
High	2480	12.13	12.18	15.17

**8.12. BEAMFORMING, POWER SPECTRAL DENSITY**

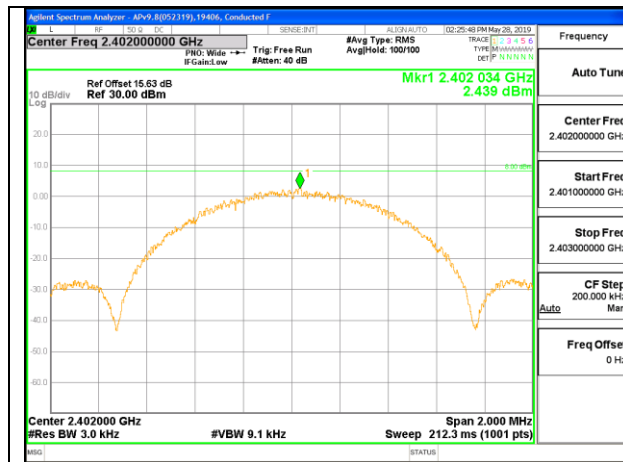
**8.12.1. HIGH POWER BLE (1Mbps)**

Duty Cycle CF (dB)		Included in Calculations of Corr'd PSD
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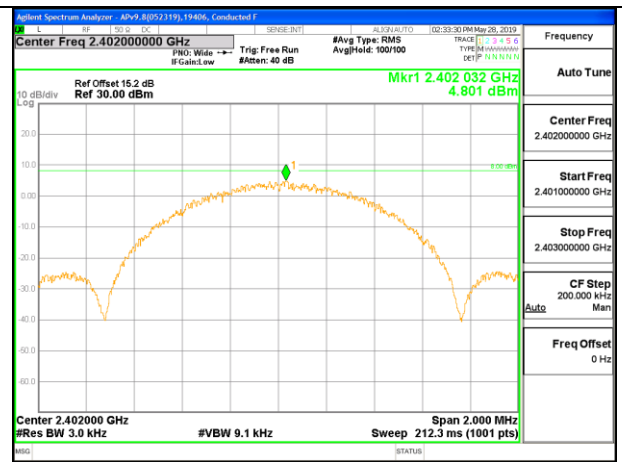
PSD Results

Channel	Frequency (MHz)	ANT 2 Meas (dBm/ 3kHz)	ANT 5 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2402	2.439	4.801	6.789	8.0	-1.211
Mid	2440	3.604	3.772	6.699	8.0	-1.301
High	2480	2.025	3.288	5.713	8.0	-2.287

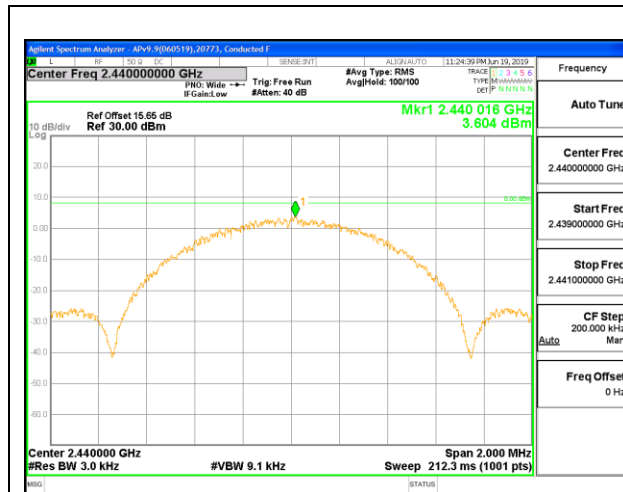
Note: Test procedures and setting on beamforming are same as BLE normal mode



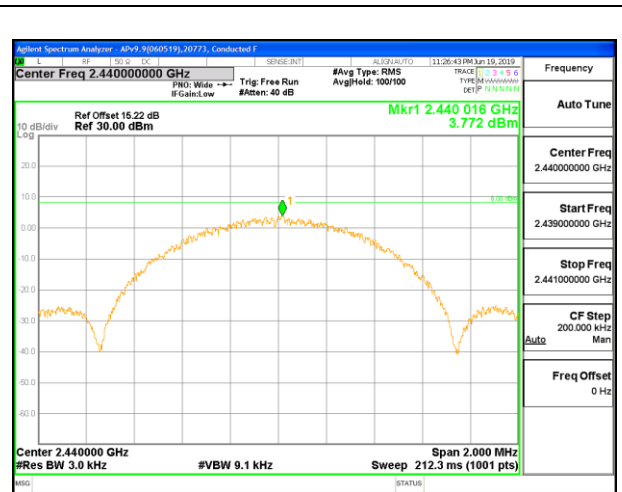
LOW CHANNEL ANT 2



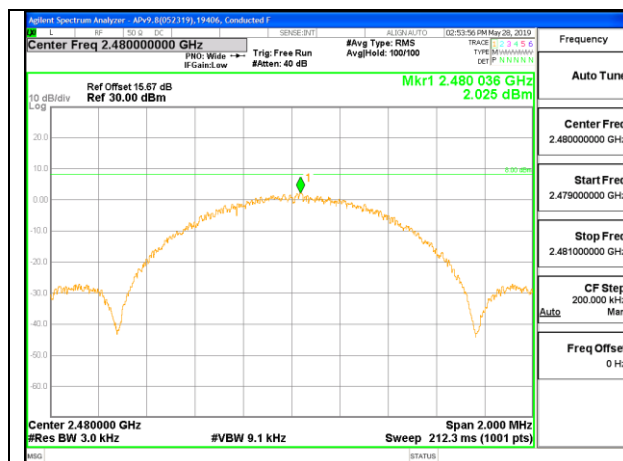
LOW CHANNEL ANT 5



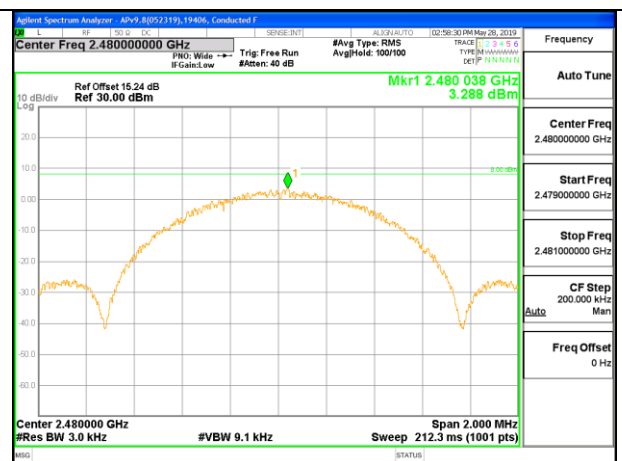
MID CHANNEL ANT 2



MID CHANNEL ANT 5



HIGH CHANNEL ANT 2



HIGH CHANNEL ANT 5

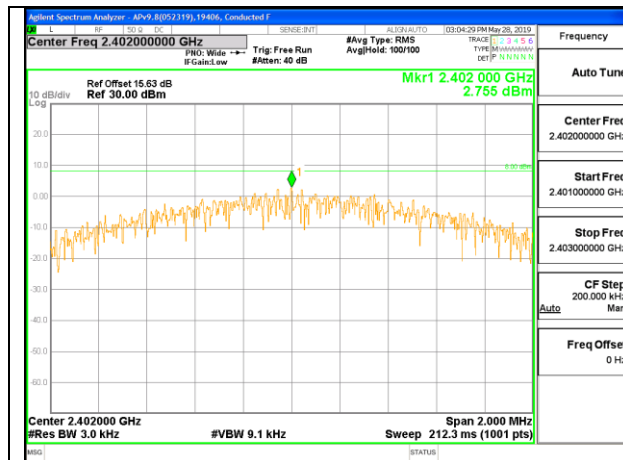
**8.12.2. HIGH POWER BLE (2Mbps)**

Duty Cycle CF (dB)		Included in Calculations of Corr'd PSD
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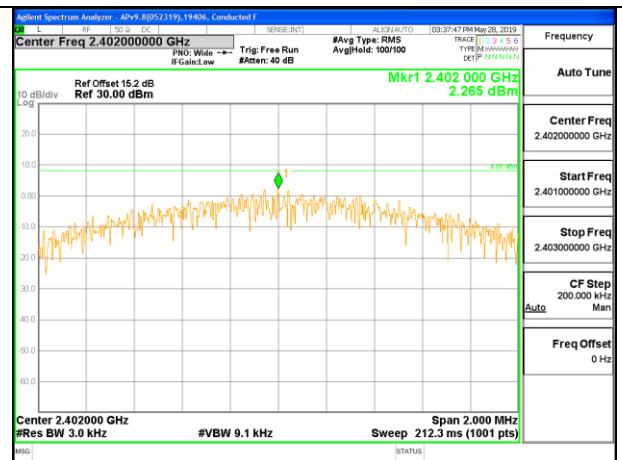
PSD Results

Channel	Frequency (MHz)	ANT 2 Meas (dBm/ 3kHz)	ANT 5 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2402	2.755	2.265	5.527	8.0	-2.473
Mid	2440	4.083	3.018	6.593	8.0	-1.407
High	2480	2.359	0.804	4.661	8.0	-3.339

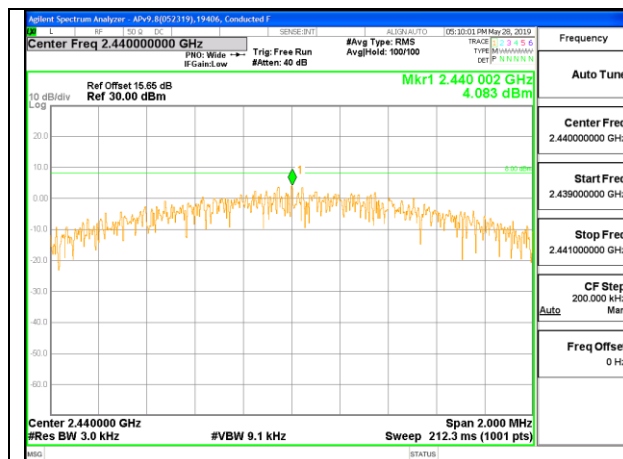




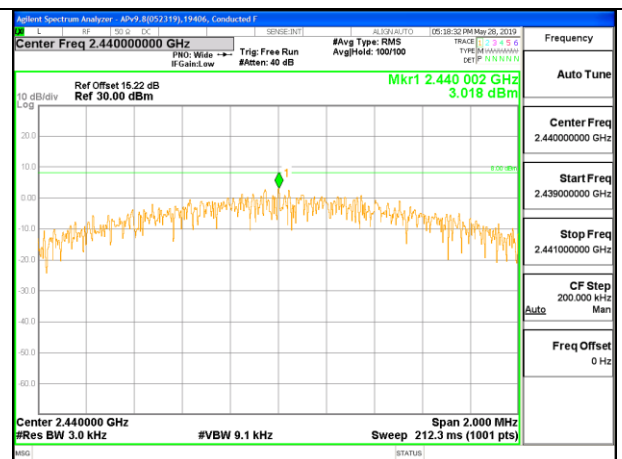
LOW CHANNEL , ANT 2



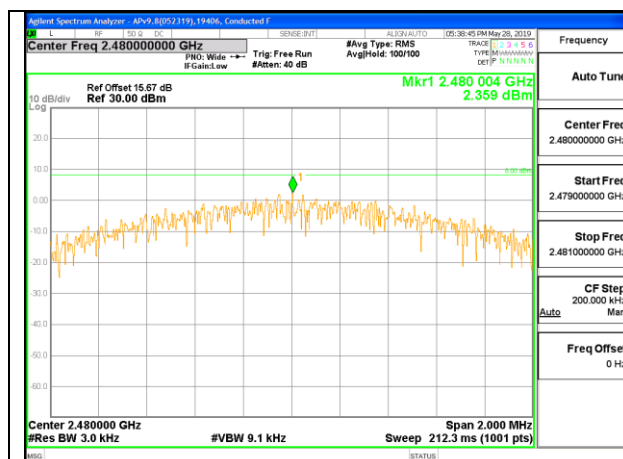
LOW CHANNEL ANT 5



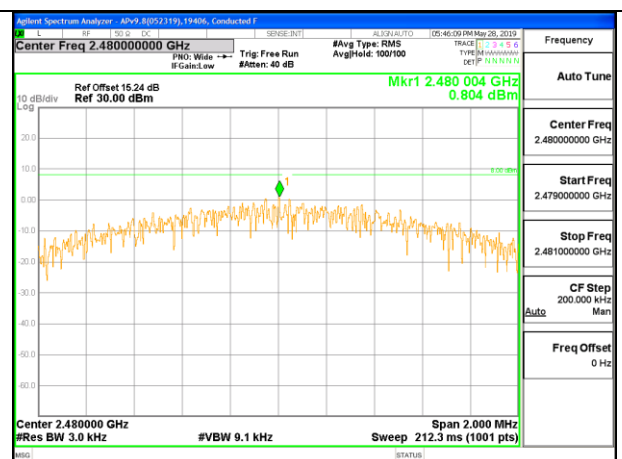
MID CHANNEL ANT 2



MID CHANNEL ANT 5



HIGH CHANNEL ANT 2



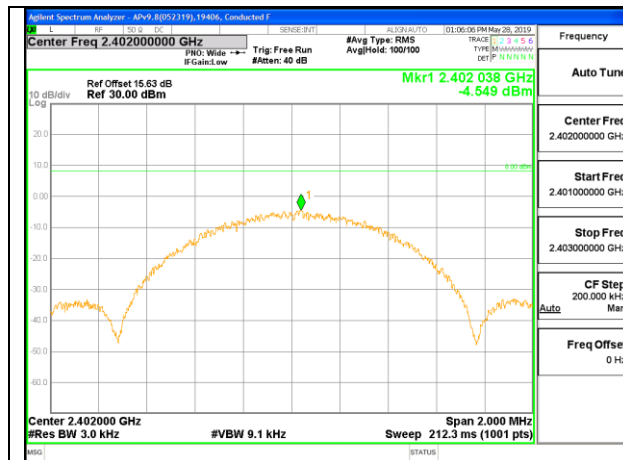
HIGH CHANNEL ANT 5

**8.12.3. LOW POWER BLE (1Mbps)**

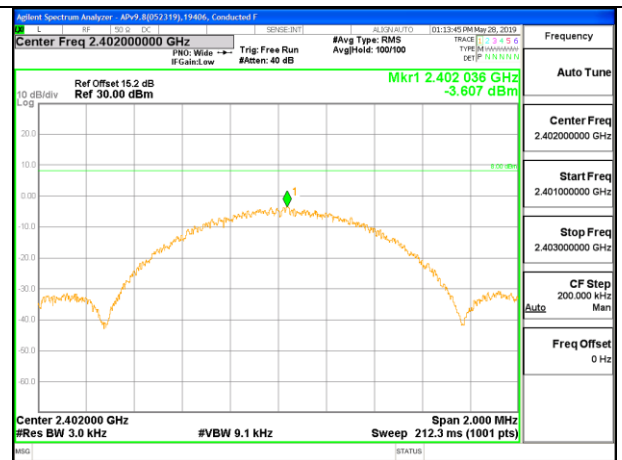
Duty Cycle CF (dB)		Included in Calculations of Corr'd PSD
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PSD Results

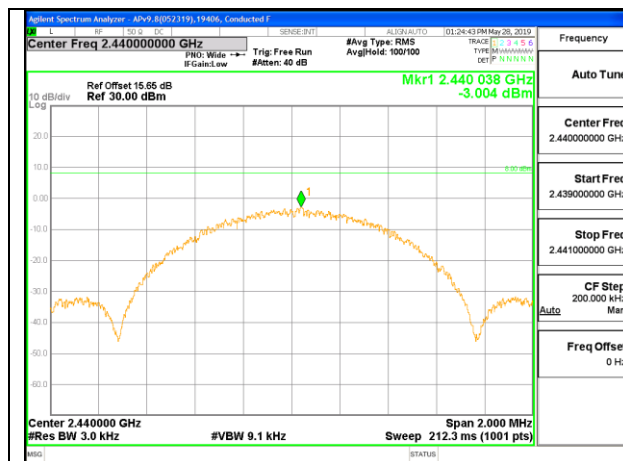
Channel	Frequency (MHz)	ANT 2 Meas (dBm/ 3kHz)	ANT 5 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2402	-4.549	-3.607	-1.042	8.0	-9.042
Mid	2440	-3.004	-2.577	0.225	8.0	-7.775
High	2480	-4.362	-3.757	-1.039	8.0	-9.039



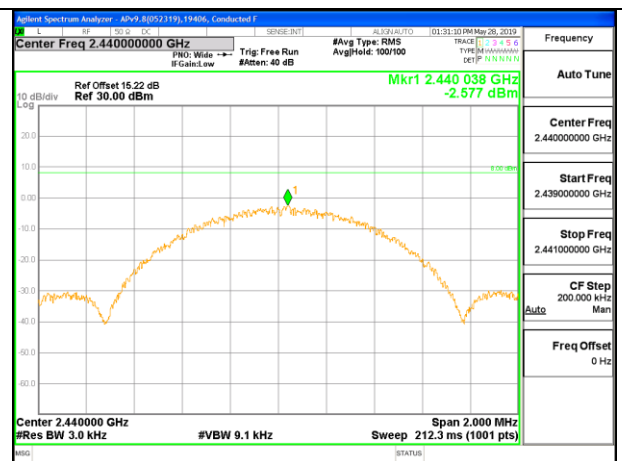
**LOW CHANNEL ANT 2**



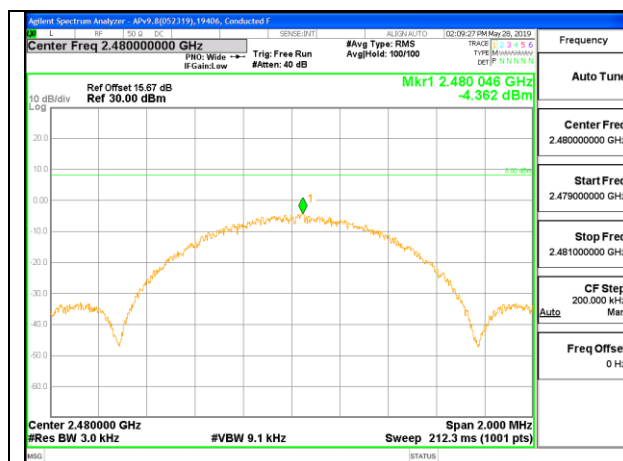
**LOW CHANNEL ANT 5**



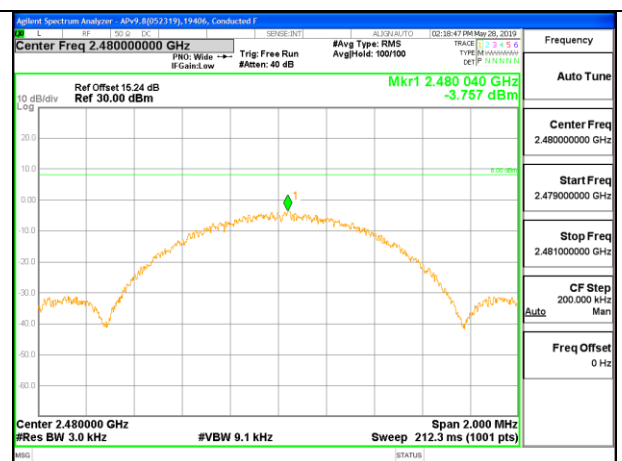
**MID CHANNEL ANT 2**



**MID CHANNEL ANT 5**



**HIGH CHANNEL ANT 2**



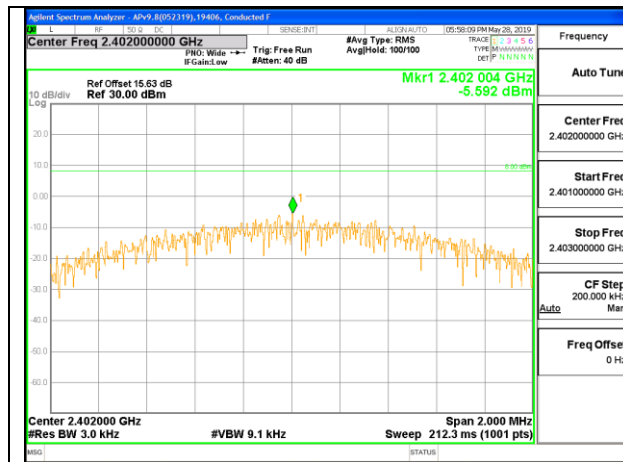
**HIGH CHANNEL ANT 5**

**8.12.4. LOW POWER BLE (2Mbps)**

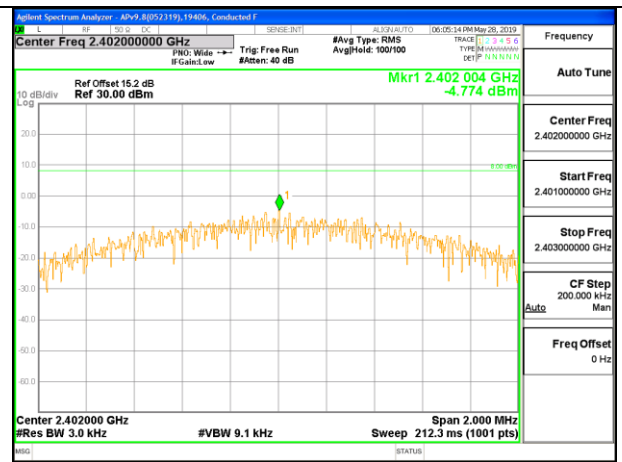
Duty Cycle CF (dB)		Included in Calculations of Corr'd PSD
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PSD Results

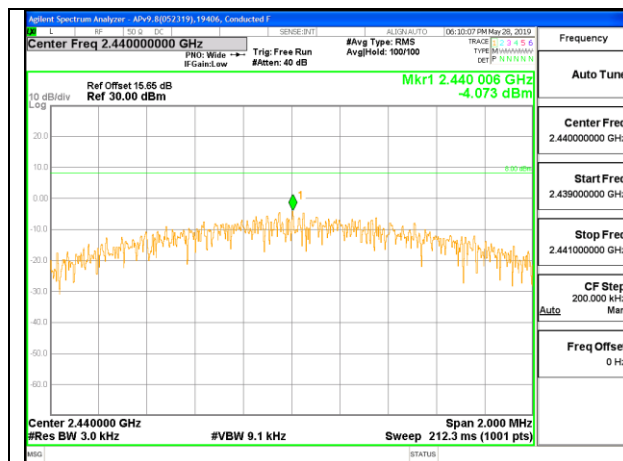
Channel	Frequency (MHz)	ANT 2 Meas (dBm/ 3kHz)	ANT 5 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2402	-5.59	-4.77	-2.15	8.0	-10.2
Mid	2440	-4.07	-3.75	-0.90	8.0	-8.9
Hjigh	2480	-5.48	-4.95	-2.20	8.0	-10.2



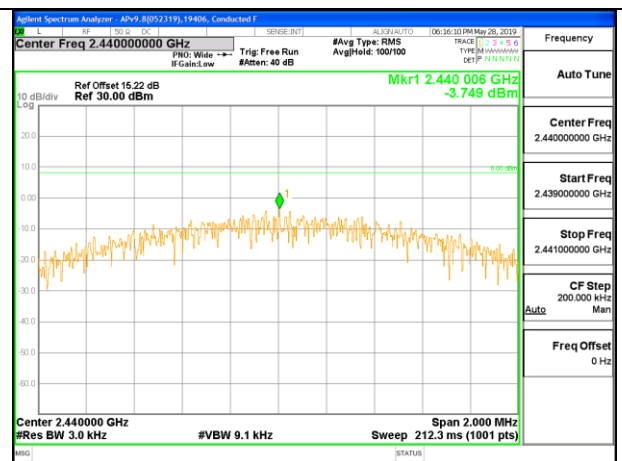
**LOW CHANNEL ANT 2**



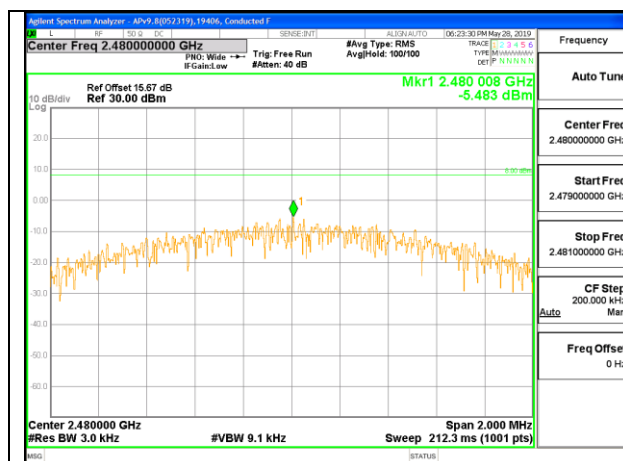
**LOW CHANNEL ANT 5**



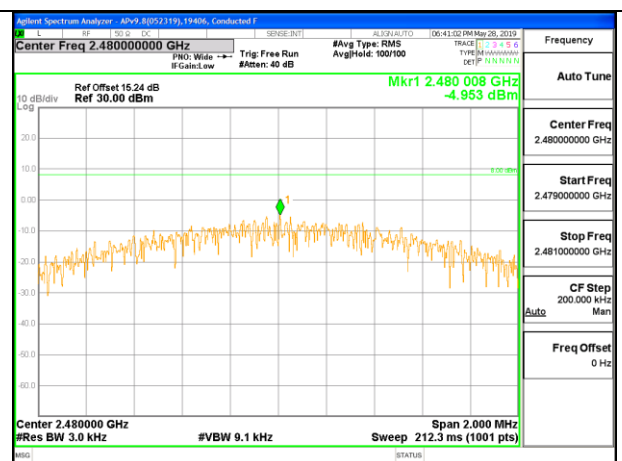
**MID CHANNEL ANT 2**



**MID CHANNEL ANT 5**



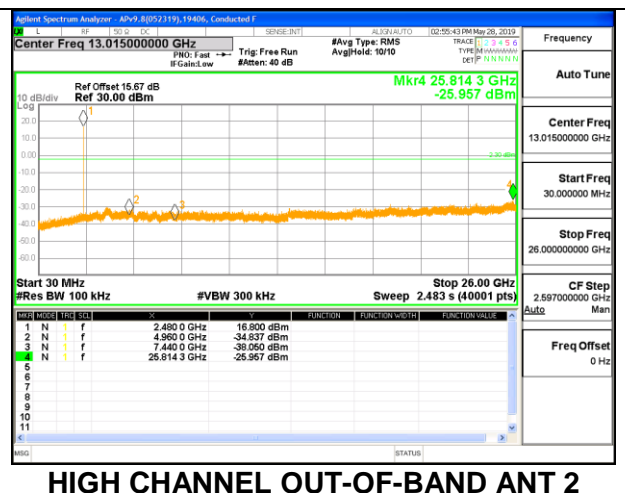
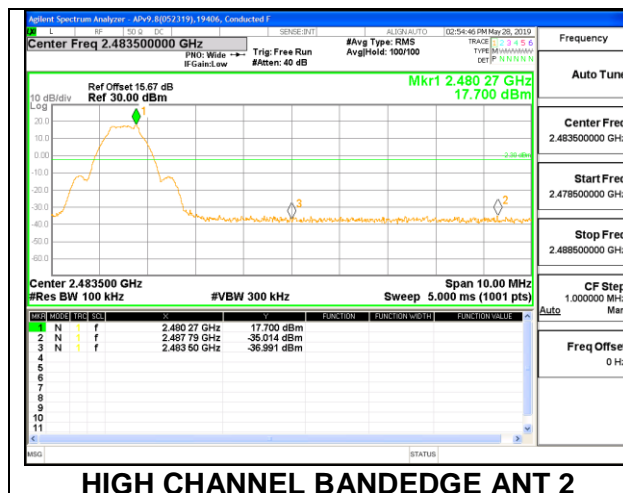
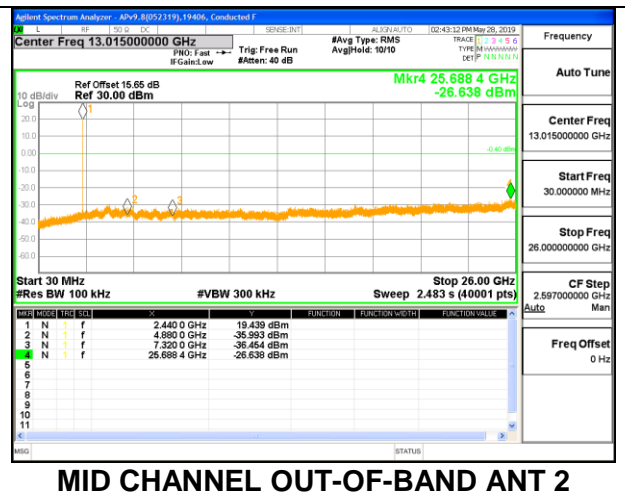
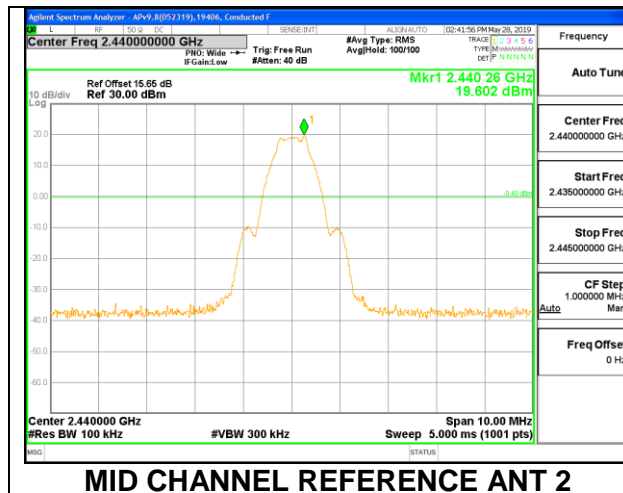
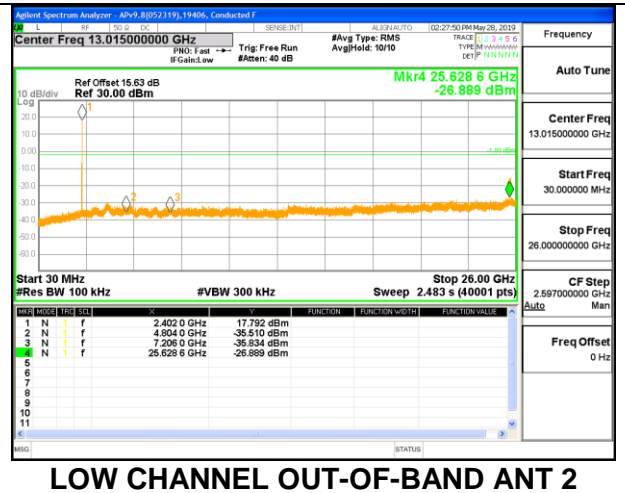
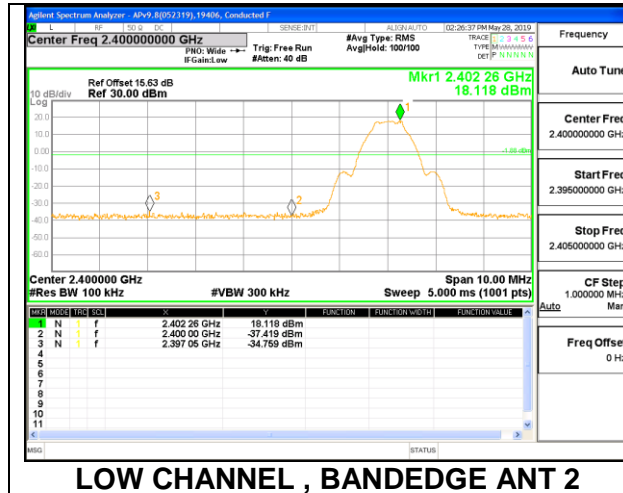
**HIGH CHANNEL ANT 2**



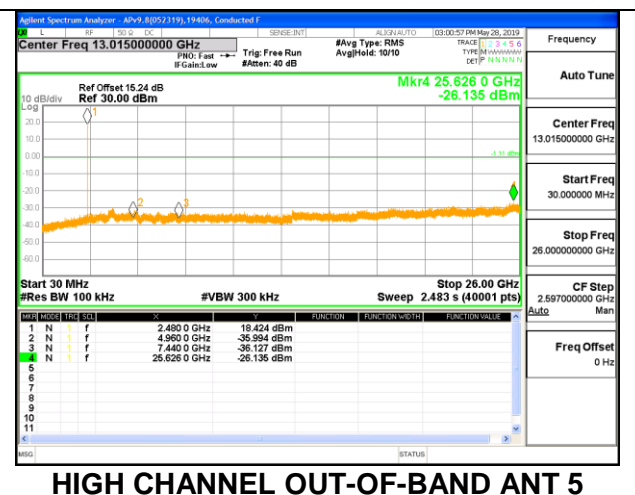
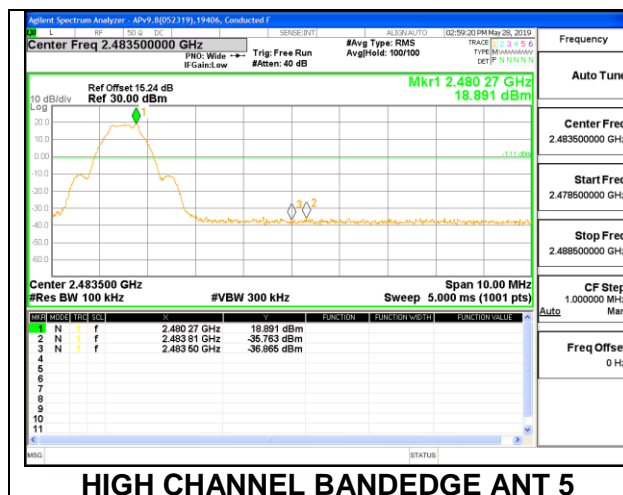
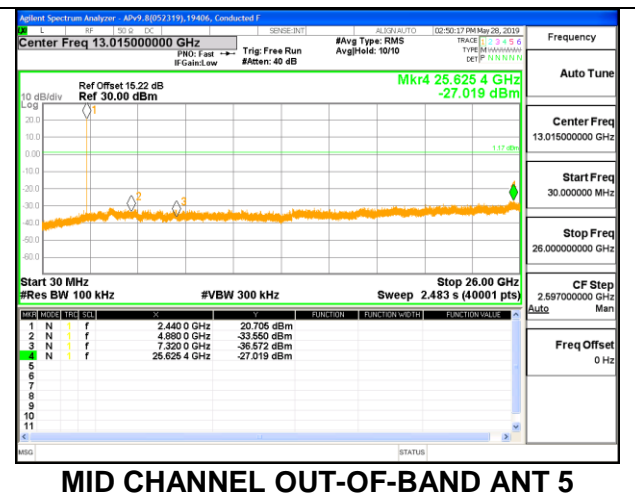
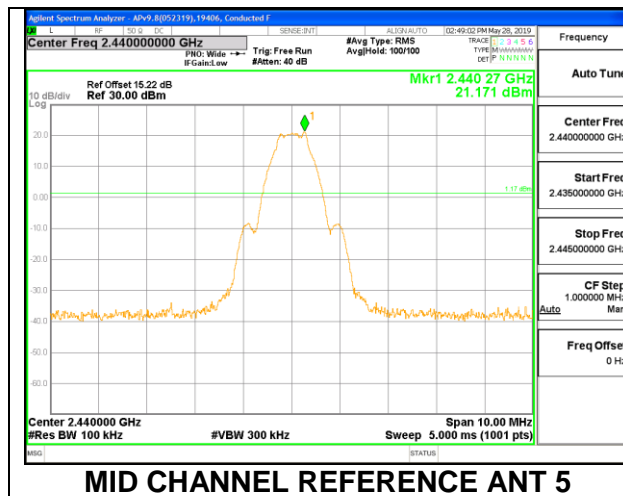
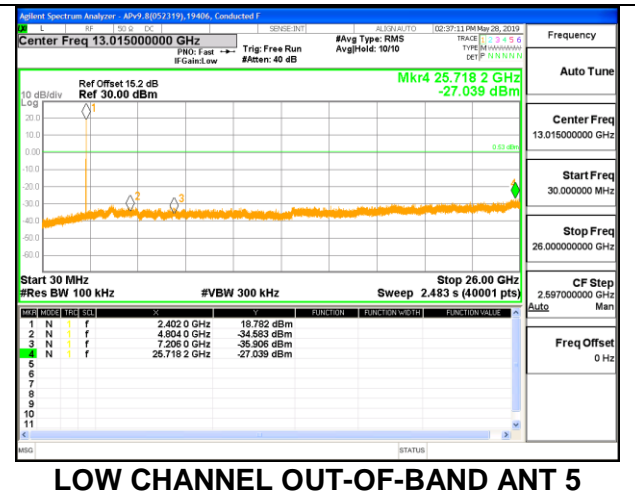
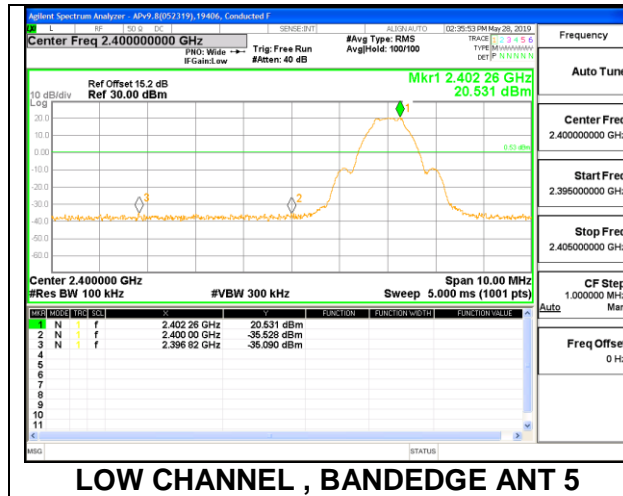
**HIGH CHANNEL ANT 5**

### 8.13. BEAMFORMING, CONDUCTED SPURIOUS

#### 8.13.1. HIGH POWER BLE (1Mbps)

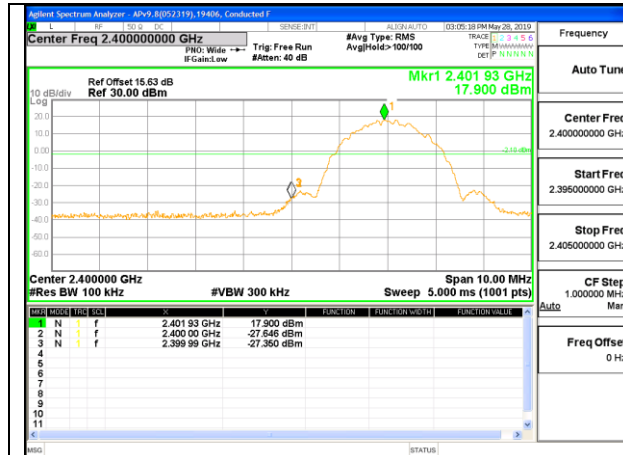


HIGH POWER, 1Mbps,

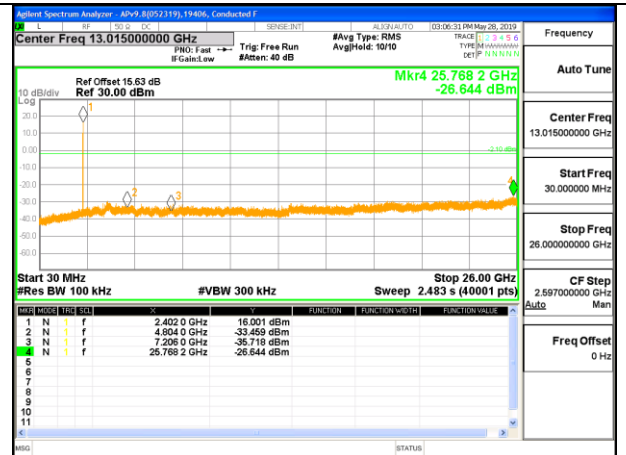




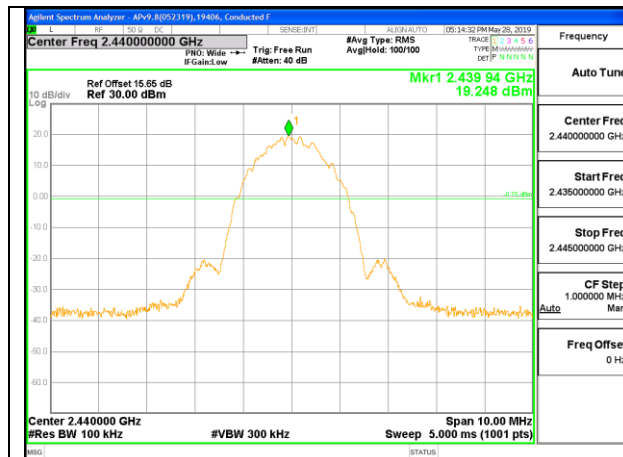
**8.13.2. HIGH POWER BLE (2Mbps)**



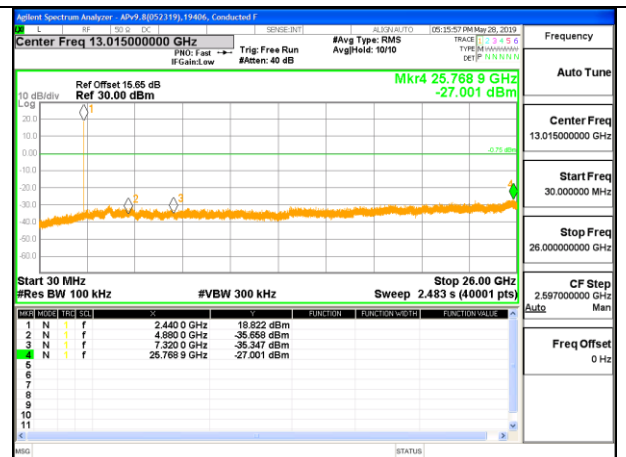
**LOW CHANNEL , BANDEDGE ANT 2**



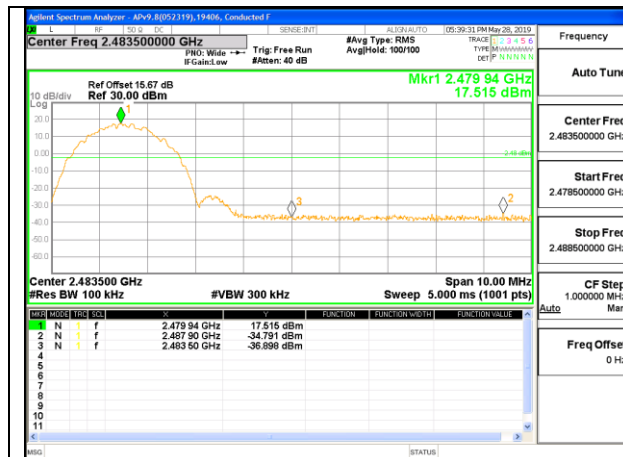
**LOW CHANNEL OUT-OF-BAND ANT 2**



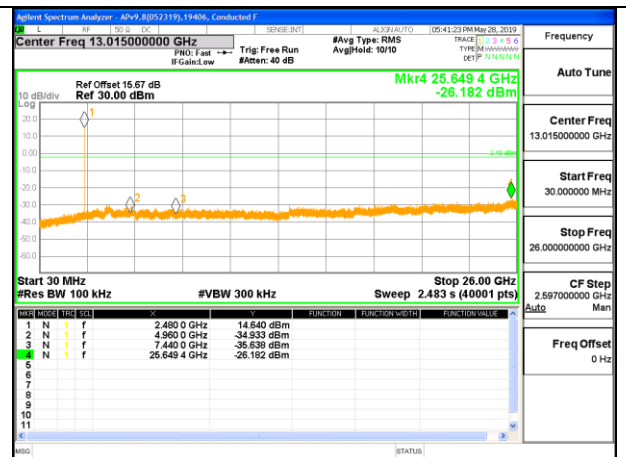
**MID CHANNEL REFERENCE ANT 2**



**MID CHANNEL OUT-OF-BAND ANT 2**



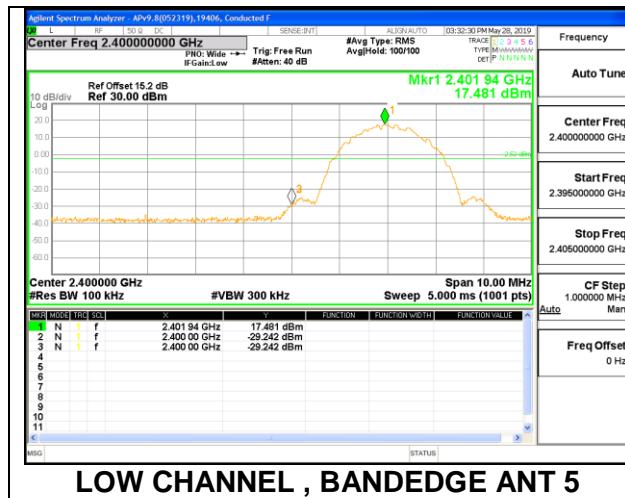
**HIGH CHANNEL BANDEDGE ANT 2**



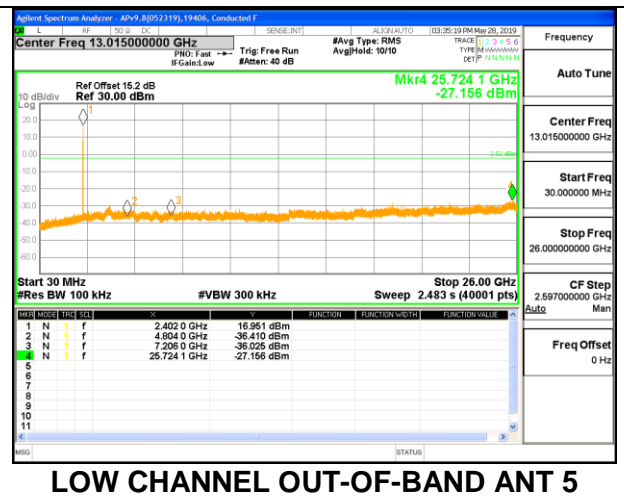
**HIGH CHANNEL OUT-OF-BAND ANT 2**



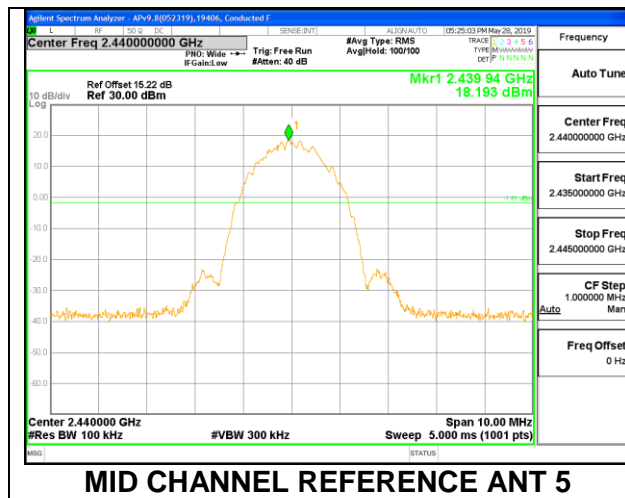
HIGH POWER, 2Mbps



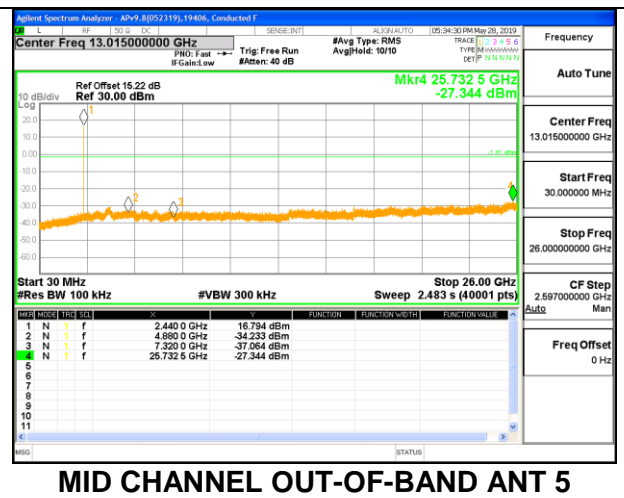
LOW CHANNEL , BANDEGE ANT 5



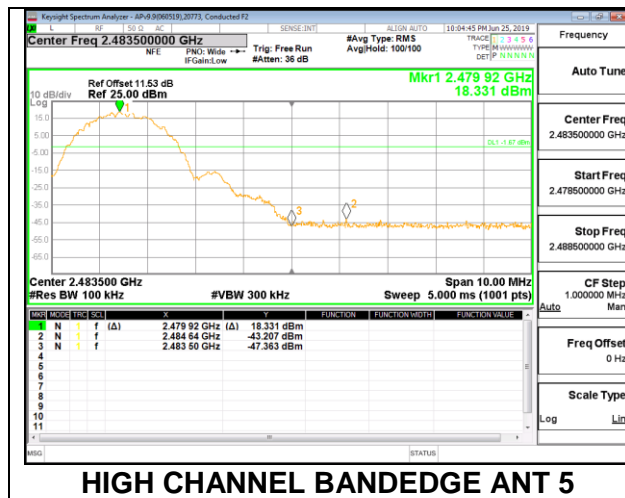
LOW CHANNEL OUT-OF-BAND ANT 5



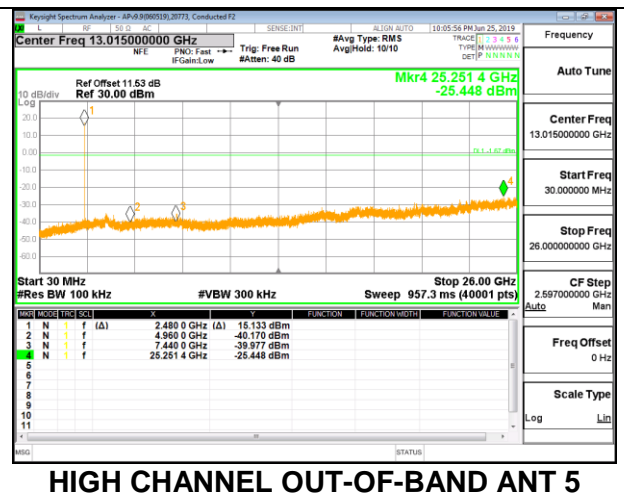
MID CHANNEL REFERENCE ANT 5



MID CHANNEL OUT-OF-BAND ANT 5

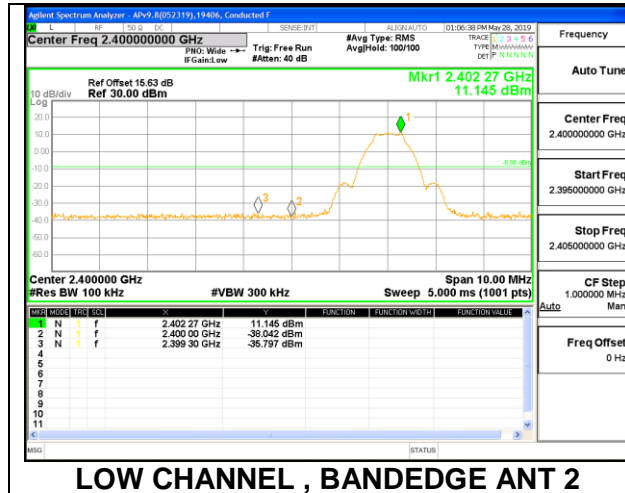


HIGH CHANNEL BANDEGE ANT 5

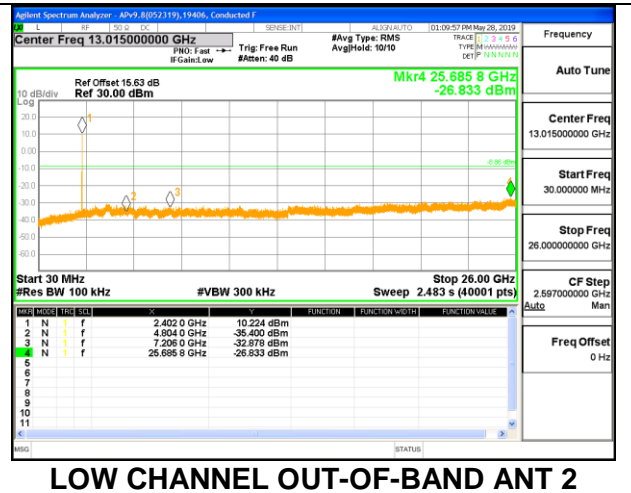


HIGH CHANNEL OUT-OF-BAND ANT 5

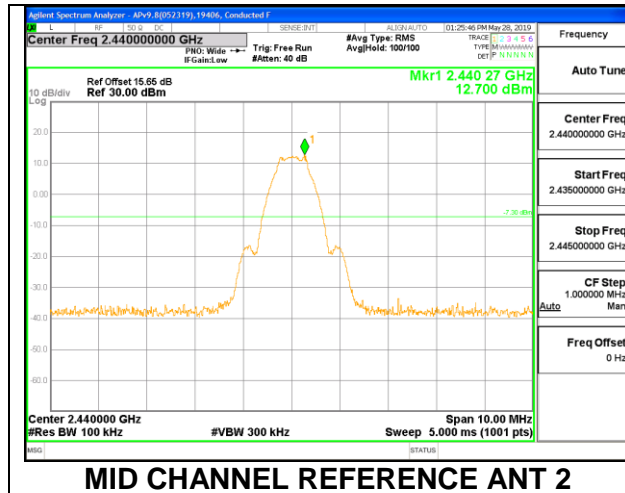
**8.13.3. LOW POWER BLE (1Mbps)**



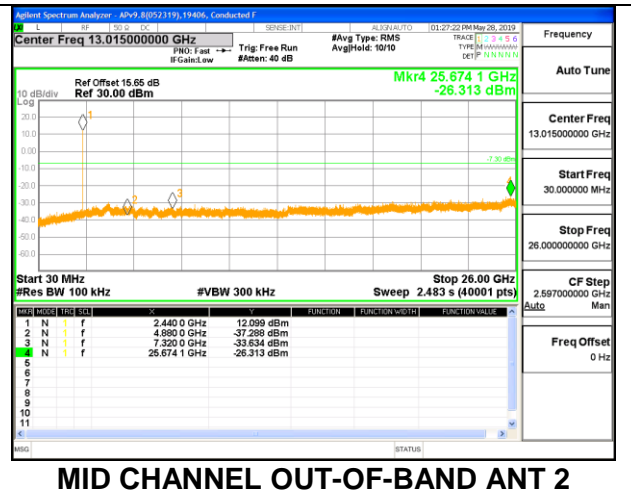
**LOW CHANNEL , BANDEGE ANT 2**



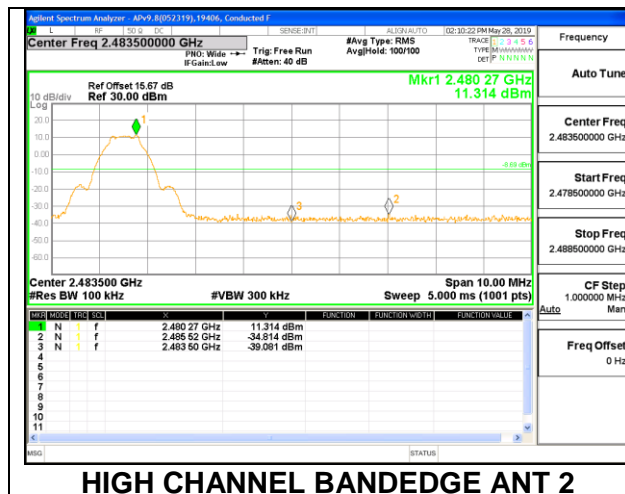
**LOW CHANNEL OUT-OF-BAND ANT 2**



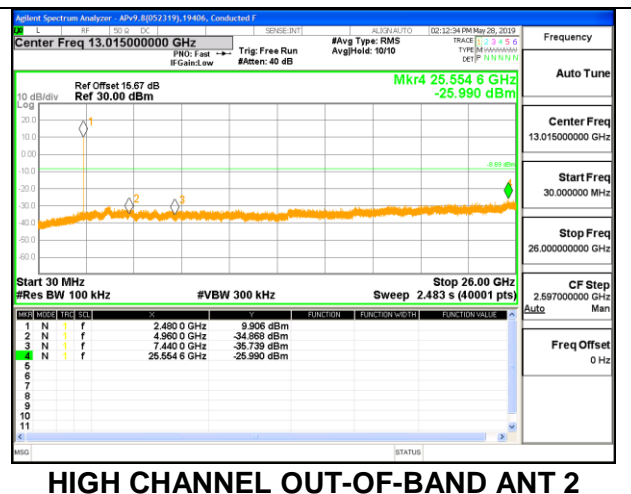
**MID CHANNEL REFERENCE ANT 2**



**MID CHANNEL OUT-OF-BAND ANT 2**

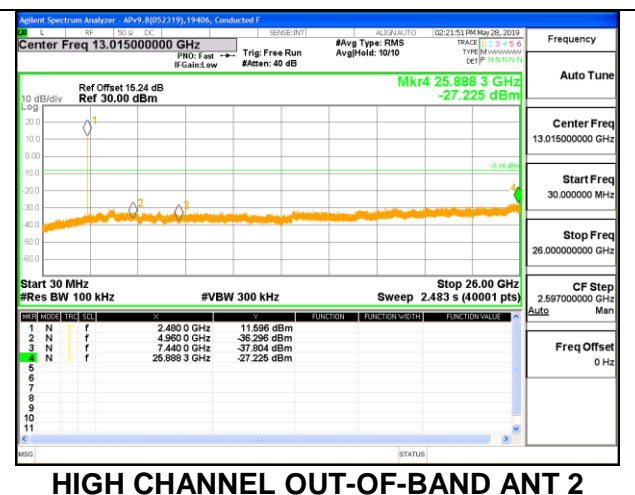
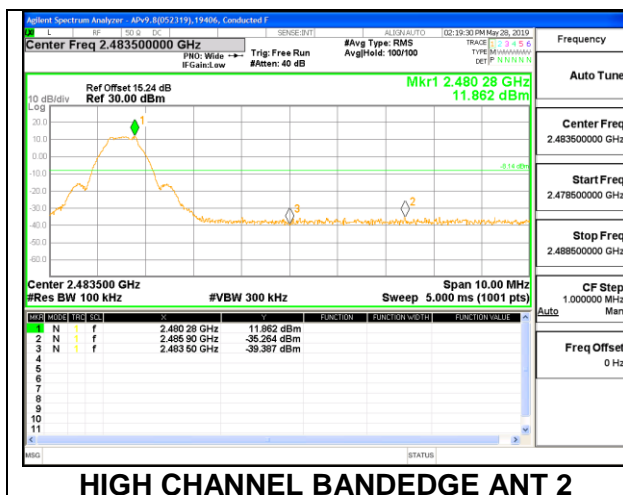
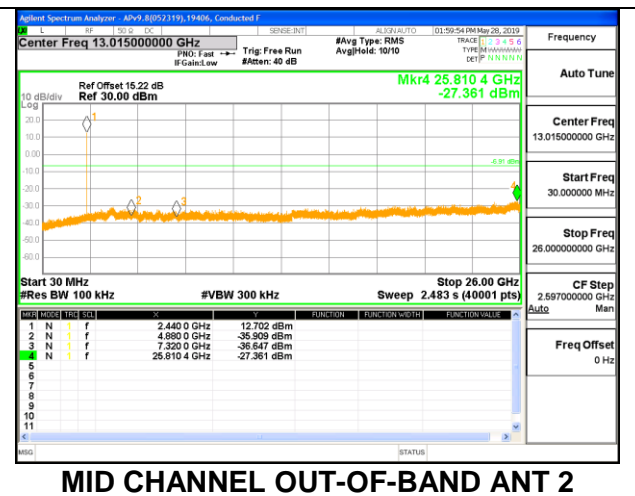
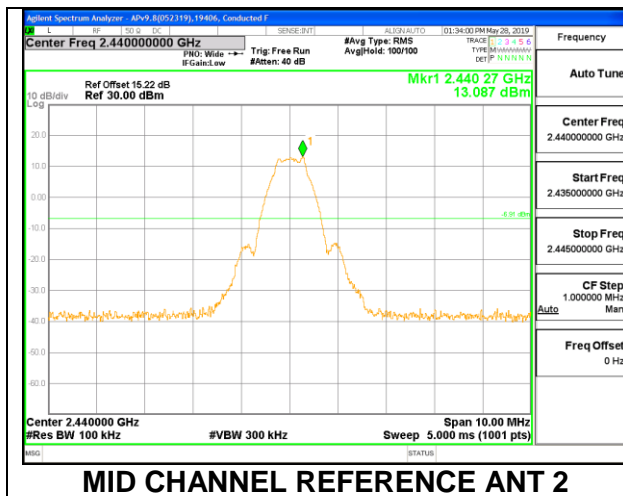
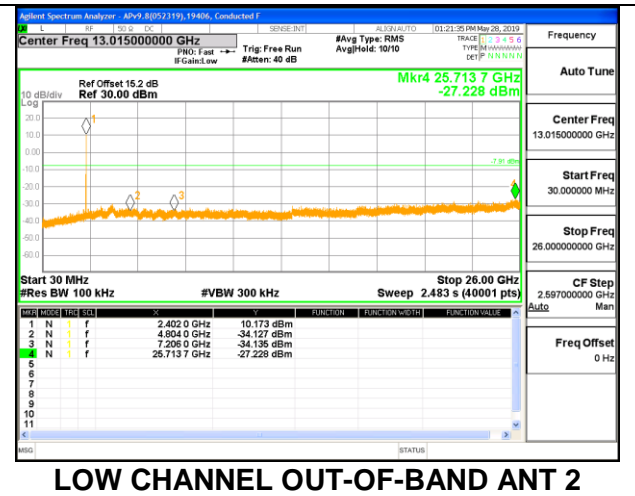
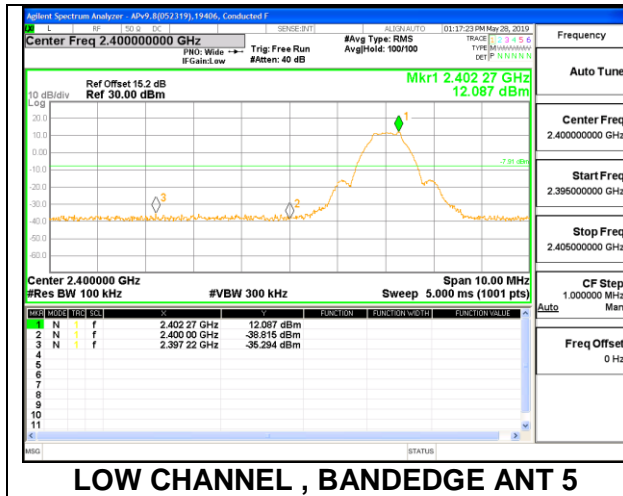


**HIGH CHANNEL BANDEGE ANT 2**

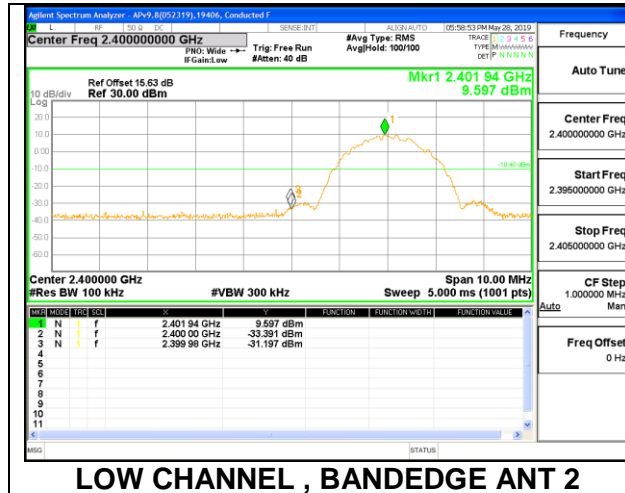


**HIGH CHANNEL OUT-OF-BAND ANT 2**

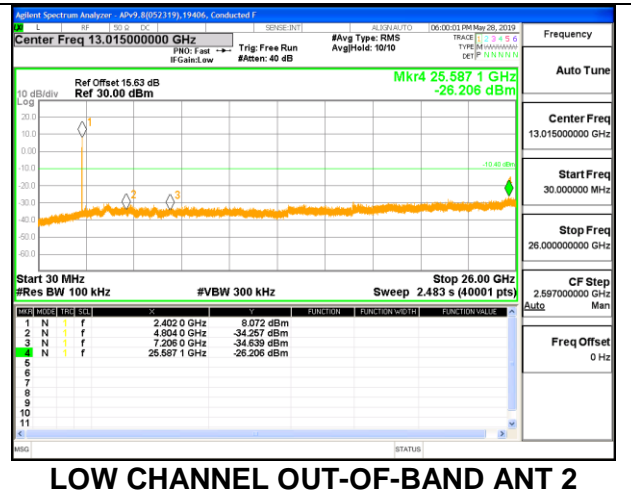
LOW POWER, 1Mbps,



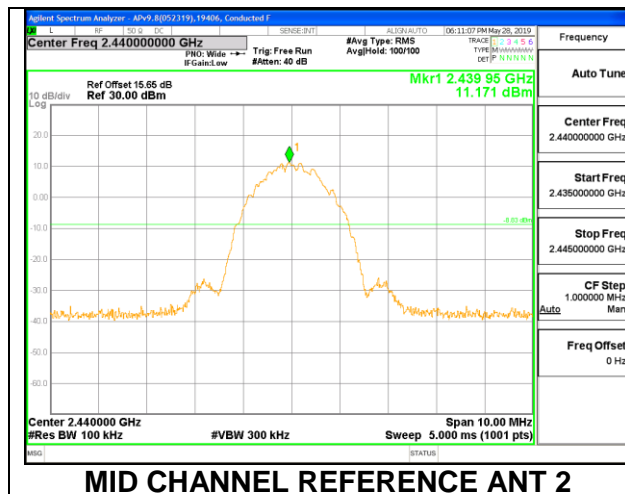
**8.13.4. LOW POWER BLE (2Mbps)**



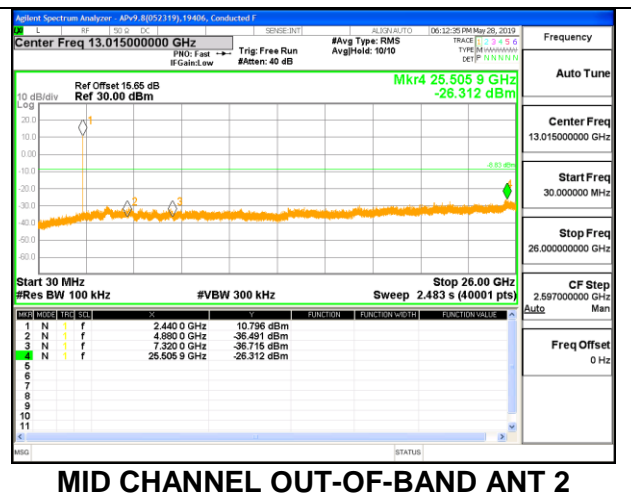
**LOW CHANNEL , BANDEGE ANT 2**



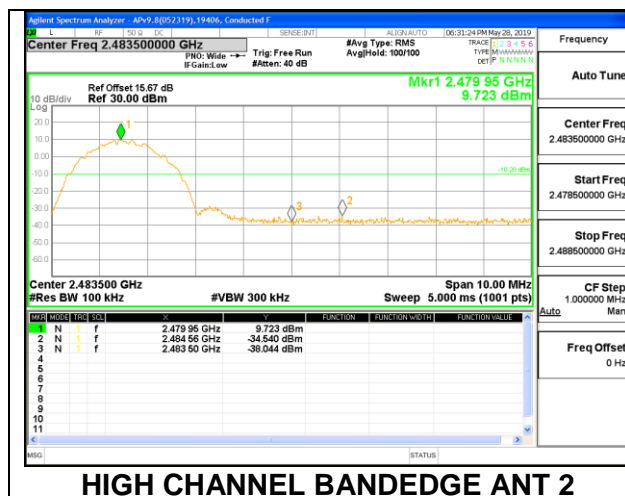
**LOW CHANNEL OUT-OF-BAND ANT 2**



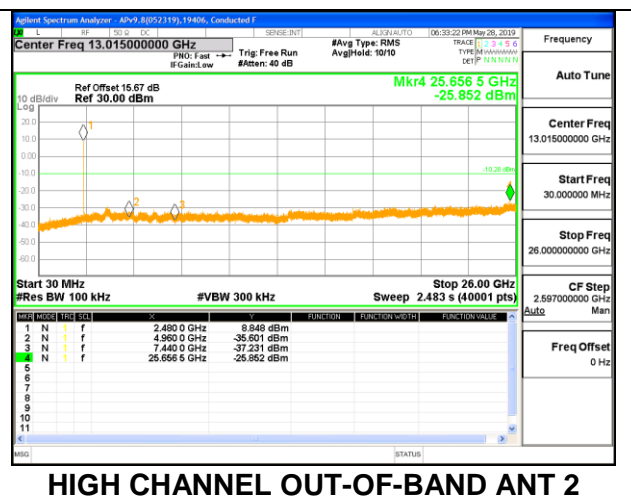
**MID CHANNEL REFERENCE ANT 2**



**MID CHANNEL OUT-OF-BAND ANT 2**



**HIGH CHANNEL BANDEGE ANT 2**



**HIGH CHANNEL OUT-OF-BAND ANT 2**