

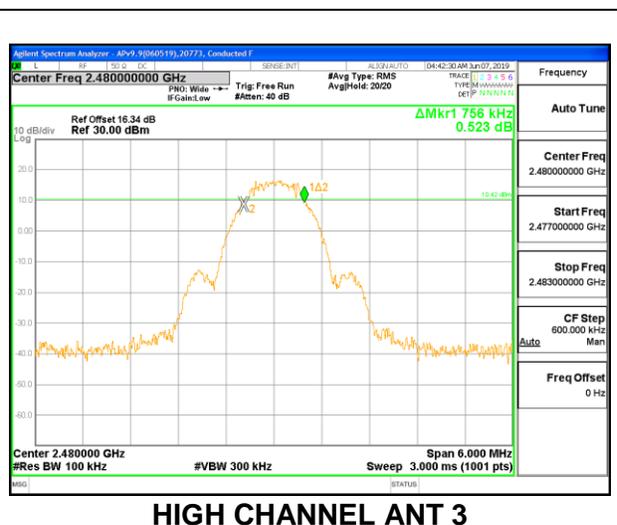
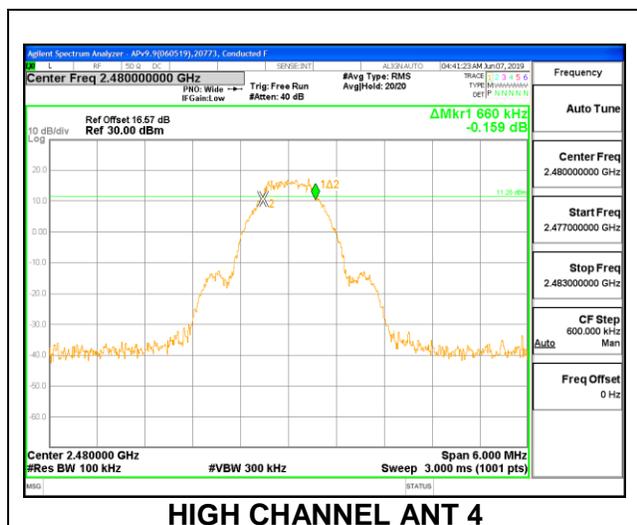
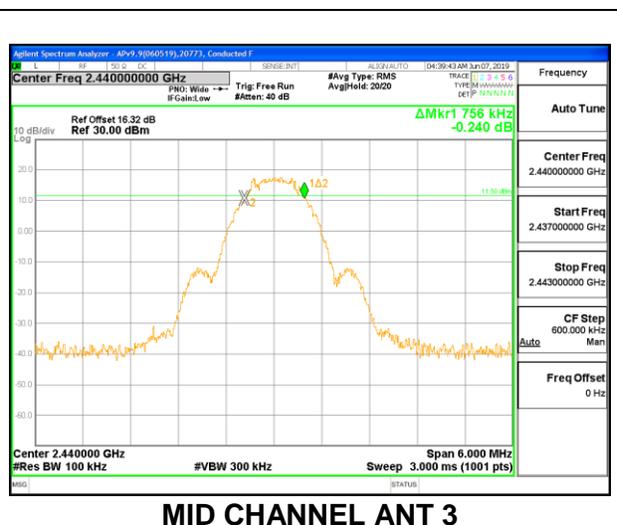
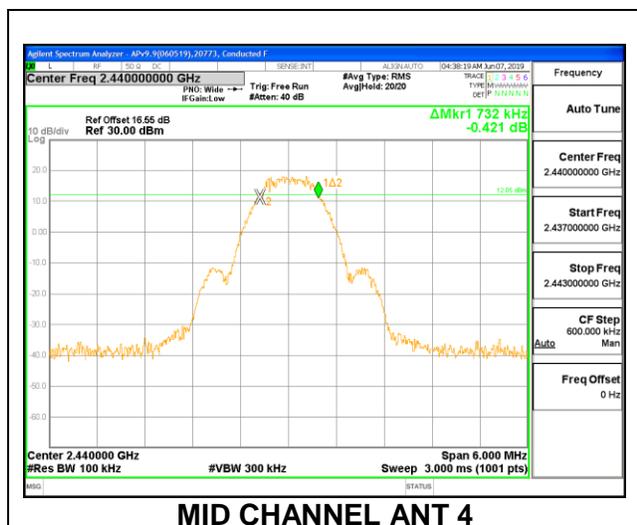
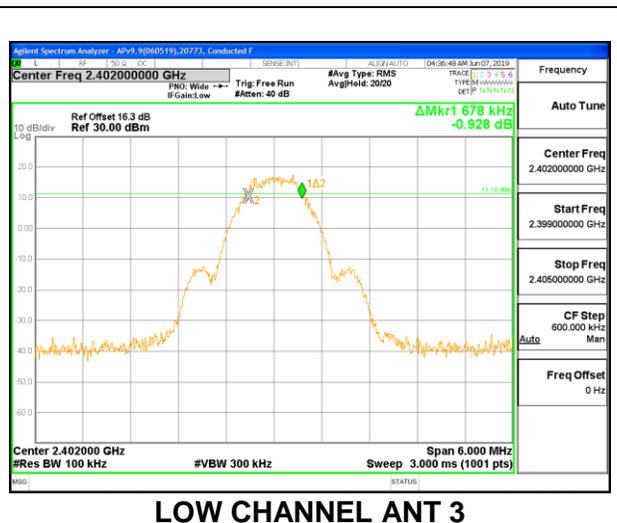
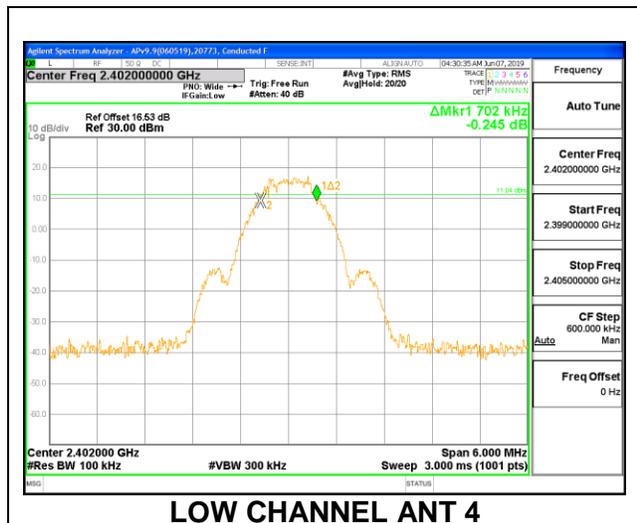
## 8.8 BEAMFORMING, 6dB BANDWIDTH

### 8.8.1 HIGH POWER BLE (1Mbps)

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

#### 2TX Antenna 4 + Antenna 3 TxBF MODE

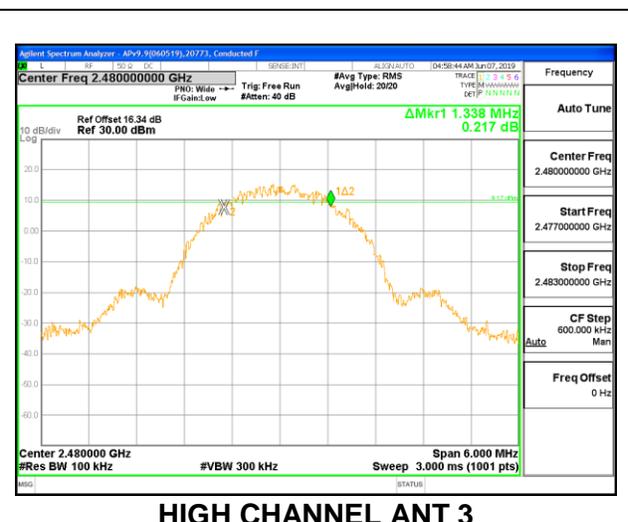
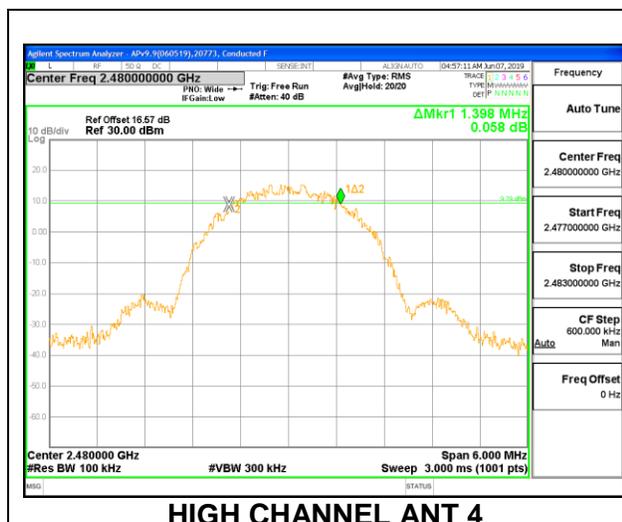
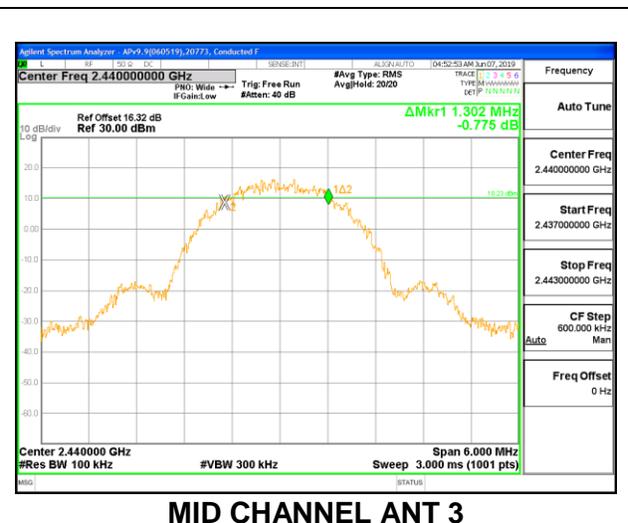
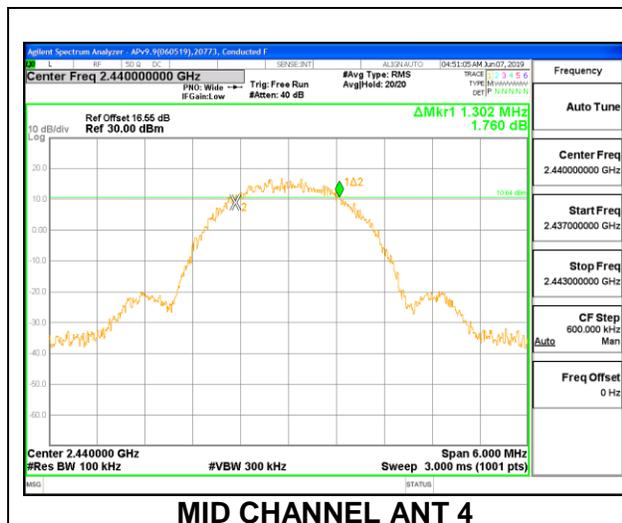
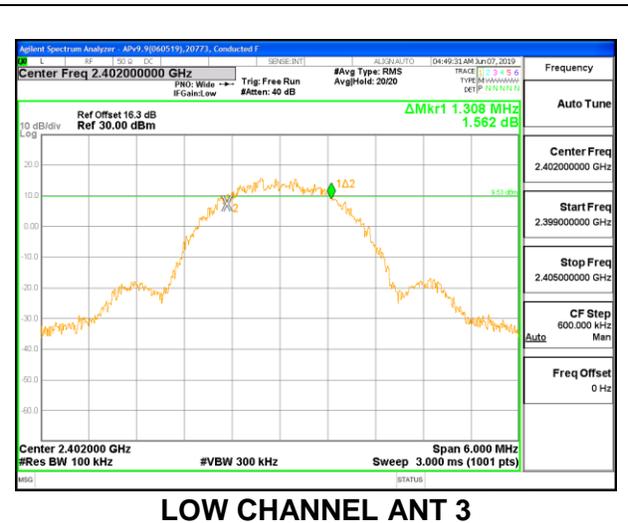
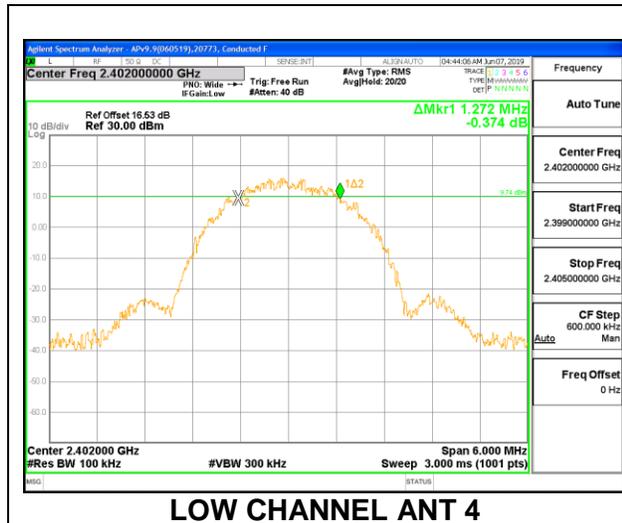
Channel	Frequency (MHz)	6dB Bandwidth ANT 4 (MHz)	6dB Bandwidth ANT 3 (MHz)	Minimum Limit (MHz)
Low	2402	0.702	0.678	0.500
Mid	2440	0.732	0.756	0.500
High	2480	0.660	0.756	0.500



**8.8.2 HIGH POWER BLE (2Mbps)**

**2TX Antenna 4 + Antenna 3 TxBF MODE**

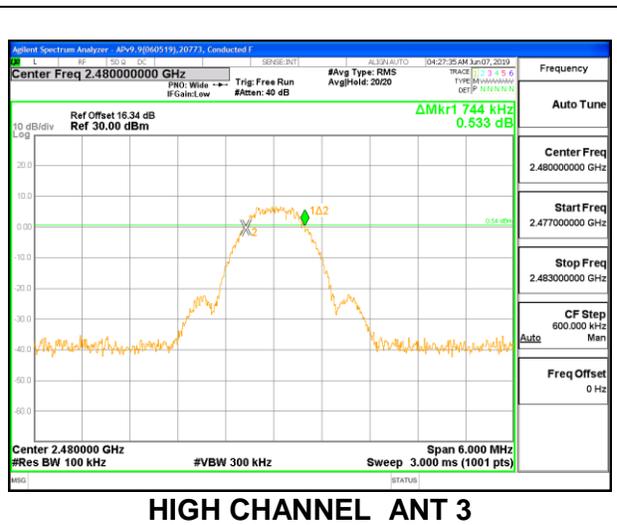
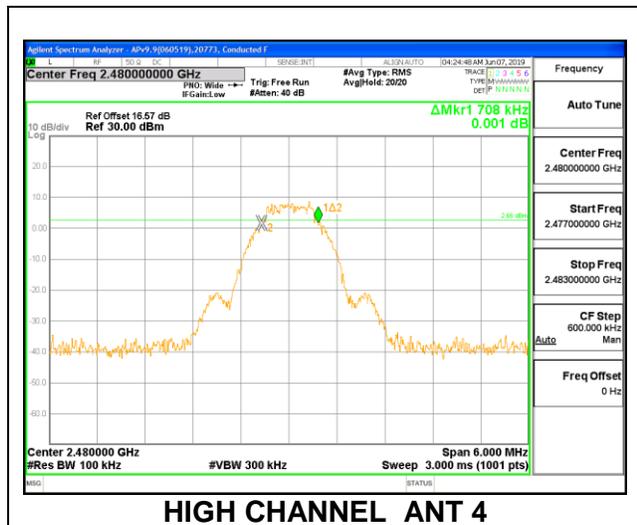
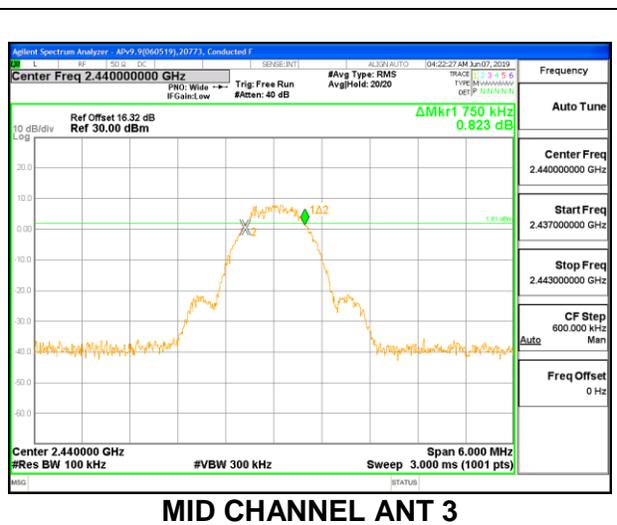
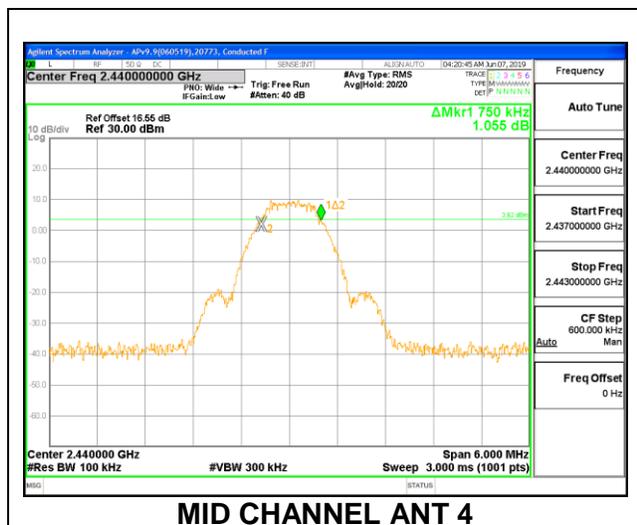
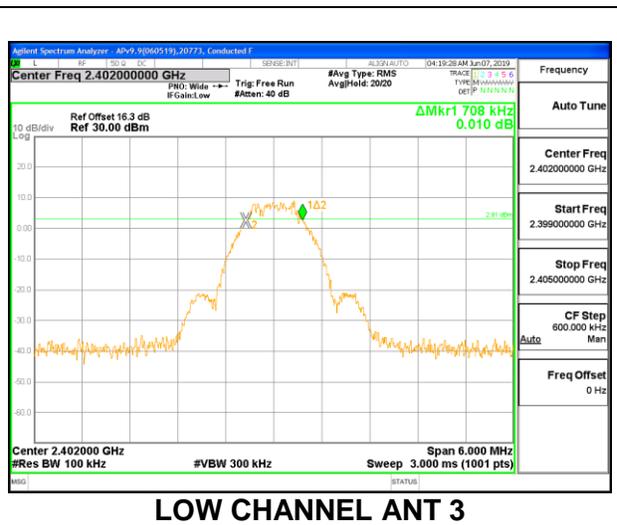
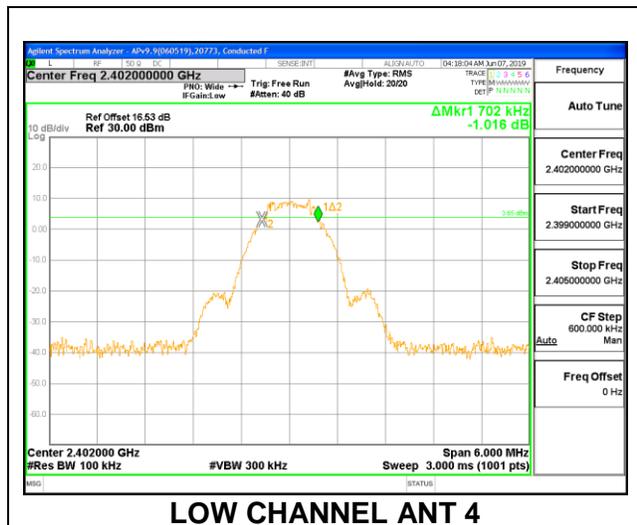
Channel	Frequency (MHz)	6dB Bandwidth ANT 4 (MHz)	6dB Bandwidth ANT 3 (MHz)	Minimum Limit (MHz)
Low	2402	1.272	1.308	0.500
Mid	2440	1.302	1.302	0.500
High	2480	1.398	1.338	0.500



### 8.8.3 LOW POWER BLE (1Mbps)

#### 2TX Antenna 4 + Antenna 3 TxBF MODE

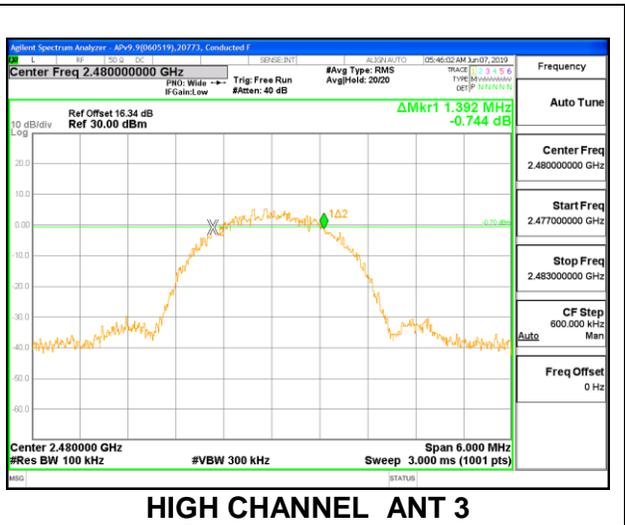
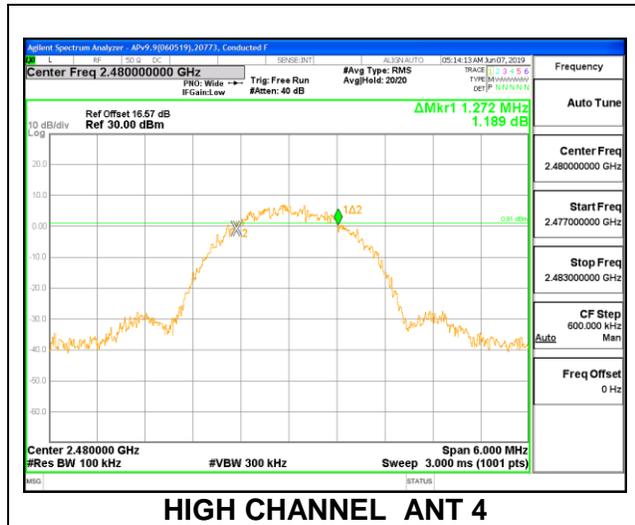
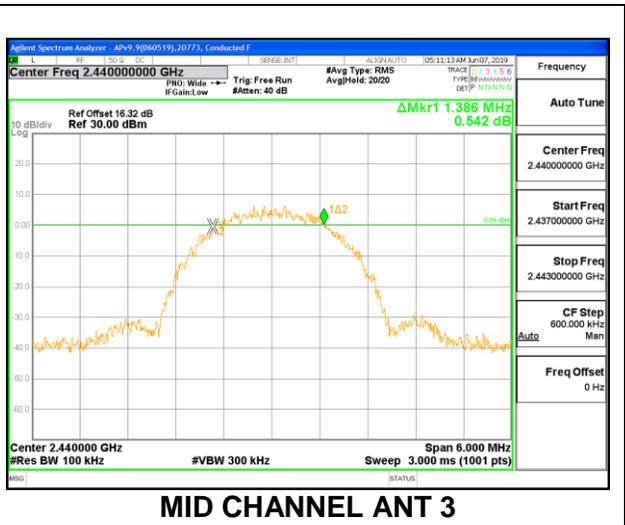
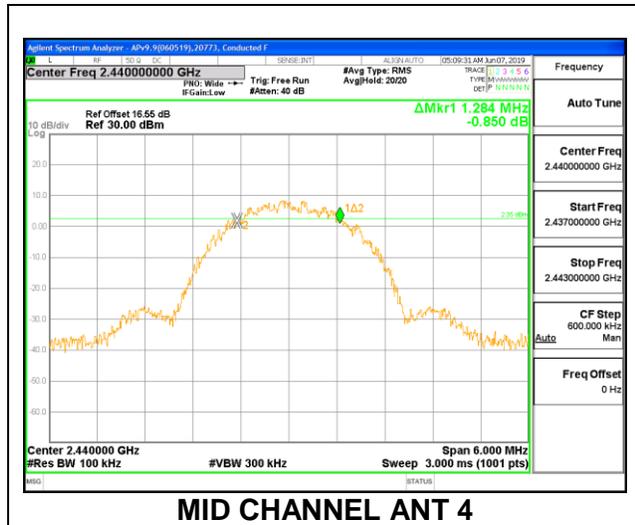
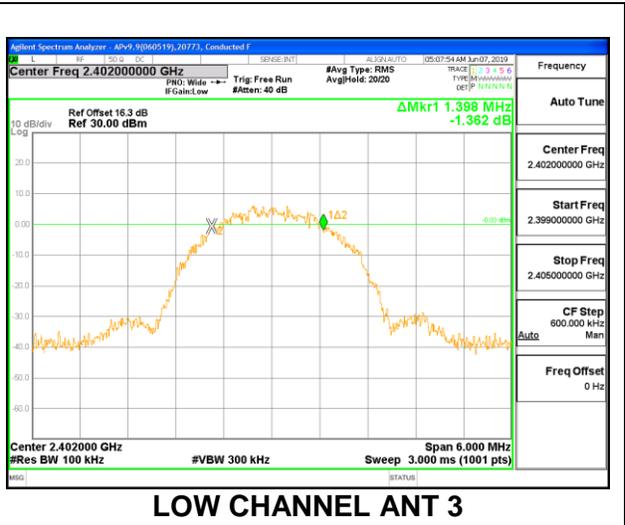
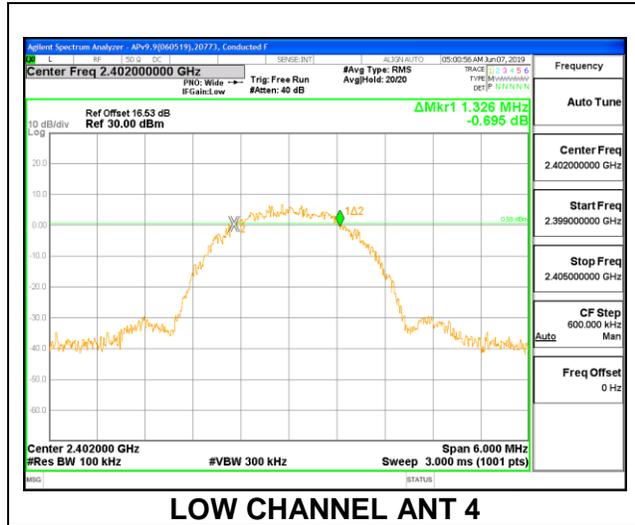
Channel	Frequency (MHz)	6dB Bandwidth ANT 4 (MHz)	6dB Bandwidth ANT 3 (MHz)	Minimum Limit (MHz)
Low	2402	0.702	0.708	0.500
Mid	2440	0.750	0.750	0.500
High	2480	0.708	0.744	0.500



### 8.8.4 LOW POWER BLE (2Mbps)

#### 2TX Antenna 4 + Antenna 3 TxBF MODE

Channel	Frequency (MHz)	6dB Bandwidth ANT 4 (MHz)	6dB Bandwidth ANT 3 (MHz)	Minimum Limit (MHz)
Low	2402	1.326	1.398	0.500
Mid	2440	1.284	1.386	0.500
High	2480	1.272	1.392	0.500



## 8.9 BEAMFORMING OUTPUT POWER

### 8.9.1 HIGH POWER BLE (1Mbps)

#### 2TX Antenna 4 + Antenna 3, TxBF Mode

Tested By:	12492
Date:	7/24/2019

Channel	Frequency (MHz)	Output Power Antenna 4 (dBm)	Output Power Antenna 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	17.19	17.18	20.20	30	-9.80
Middle	2440	17.23	17.29	20.27	30	-9.73
High	2480	17.15	17.23	20.20	30	-9.80

### 8.9.2 HIGH POWER BLE (2Mbps)

#### 2TX Antenna 4 + Antenna 3, TxBF Mode

Tested By:	12492
Date:	7/24/2019

Channel	Frequency (MHz)	Output Power Antenna 4 (dBm)	Output Power Antenna 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	17.24	17.21	20.24	30	-9.76
Middle	2440	17.21	17.24	20.24	30	-9.76
High	2480	17.19	17.26	20.24	30	-9.76

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

### 8.9.3 LOW POWER BLE (1Mbps)

#### 2TX Antenna 4 + Antenna 3, TxBF Mode

Tested By:	12492
Date:	7/24/2019

Channel	Frequency (MHz)	Output Power Antenna 4 (dBm)	Output Power Antenna 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	12.68	12.63	15.67	30	-14.33
Middle	2440	12.74	12.70	15.73	30	-14.27
High	2480	12.75	12.66	15.72	30	-14.28

### 8.9.4 LOW POWER BLE (2Mbps)

#### 2TX Antenna 4 + Antenna 3, TxBF Mode

Tested By:	12492
Date:	7/24/2019

Channel	Frequency (MHz)	Output Power Antenna 4 (dBm)	Output Power Antenna 3 (dBm)	Total Power (dBm)	Limit (dBm)	Margin (dB)
Low	2402	12.67	12.70	15.70	30	-14.30
Middle	2440	12.68	12.74	15.72	30	-14.28
High	2480	12.72	12.76	15.75	30	-14.25

## 8.10 BEAMFORMING AVERAGE POWER

### 8.10.1 HIGH POWER BLE (1Mbps)

#### 2TX Antenna 4 + Antenna 3, TxBF Mode

Tested By:	12492
Date:	7/24/2019

Channel	Frequency (MHz)	Average Power Antenna 4 (dBm)	Average Power Antenna 3 (dBm)	Total Power (dBm)
Low	2402	16.93	16.90	19.93
Middle	2440	16.97	16.95	19.97
High	2480	16.89	16.92	19.92

### 8.10.2 HIGH POWER BLE (2Mbps)

#### 2TX Antenna 4 + Antenna 3, TxBF Mode

Tested By:	12492
Date:	7/24/2019

Channel	Frequency (MHz)	Average Power Antenna 4 (dBm)	Average Power Antenna 3 (dBm)	Total Power (dBm)
Low	2402	16.95	16.89	19.93
Middle	2440	16.91	16.92	19.93
High	2480	16.88	16.94	19.92

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

### 8.10.3 LOW POWER BLE (1Mbps)

#### 2TX Antenna 4 + Antenna 3, TxBF Mode

Tested By:	12492
Date:	7/24/2019

Channel	Frequency (MHz)	Average Power Antenna 4 (dBm)	Average Power Antenna 3 (dBm)	Total Power (dBm)
Low	2402	12.43	12.40	15.43
Middle	2440	12.44	12.48	15.47
High	2480	12.47	12.44	15.47

### 8.10.4 LOW POWER BLE (2Mbps)

#### 2TX Antenna 4 + Antenna 3 TxBF Mode

Tested By:	12492
Date:	7/24/2019

Channel	Frequency (MHz)	Average Power Antenna 4 (dBm)	Average Power Antenna 3 (dBm)	Total Power (dBm)
Low	2402	12.40	12.39	15.41
Middle	2440	12.42	12.41	15.43
High	2480	12.47	12.46	15.48

## 8.11 BEAMFORMING, POWER SPECTRAL DENSITY

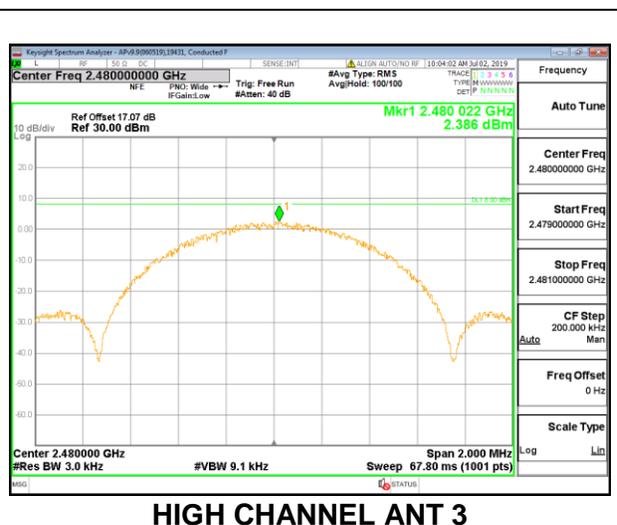
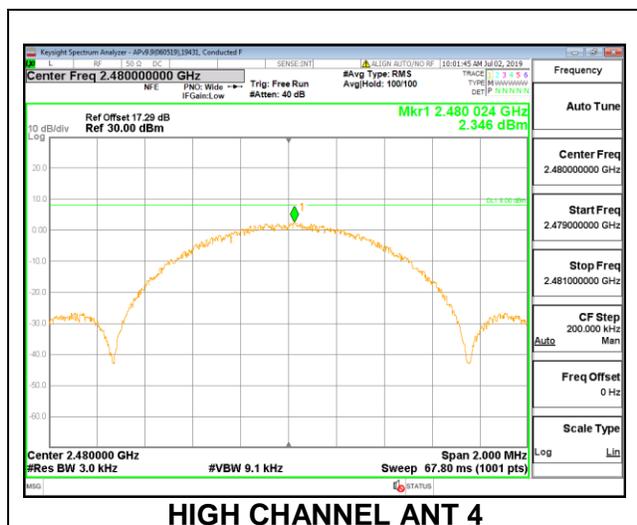
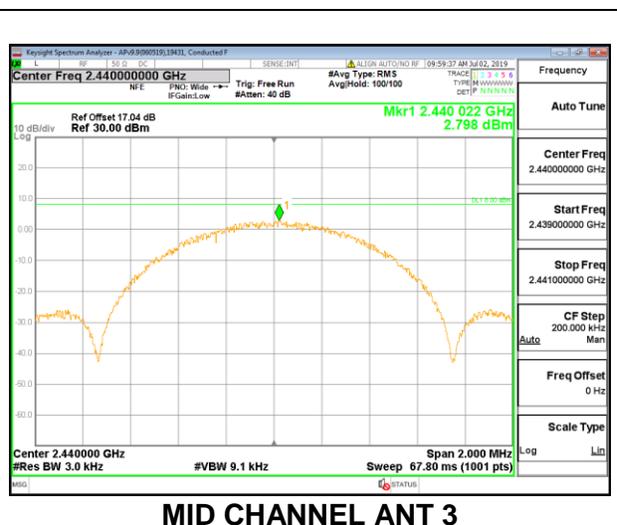
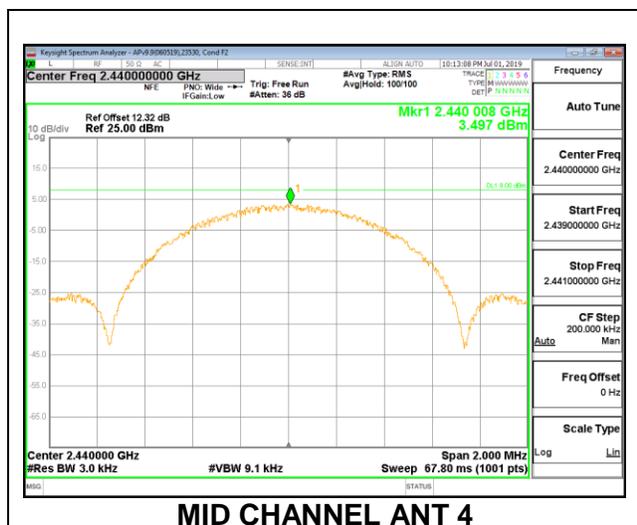
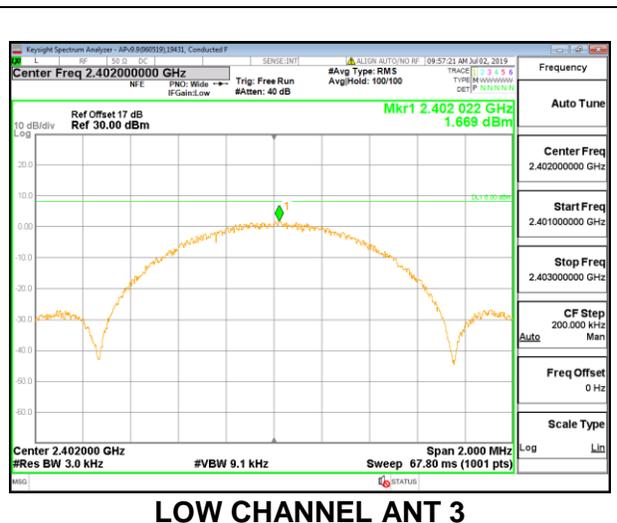
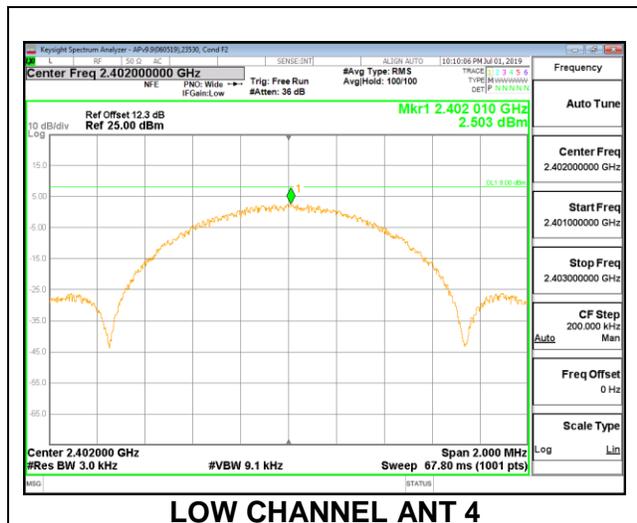
### 8.11.1 HIGH POWER BLE (1Mbps)

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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PSD Results

Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2402	2.503	1.669	5.116	8.0	-2.884
Mid	2440	3.497	2.798	6.172	8.0	-1.828
High	2480	2.346	2.386	5.376	8.0	-2.624

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

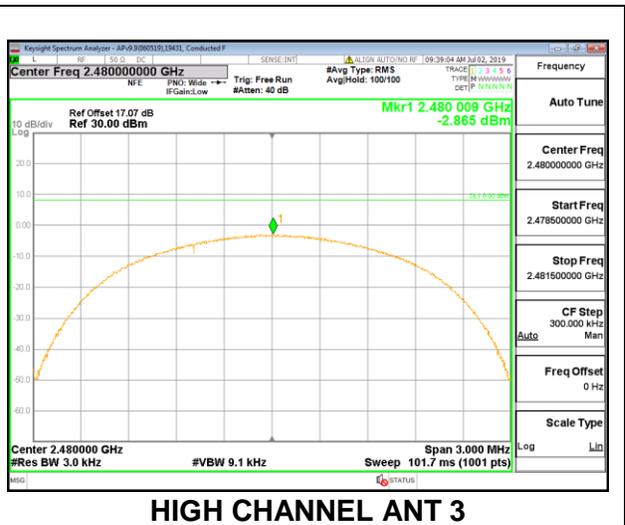
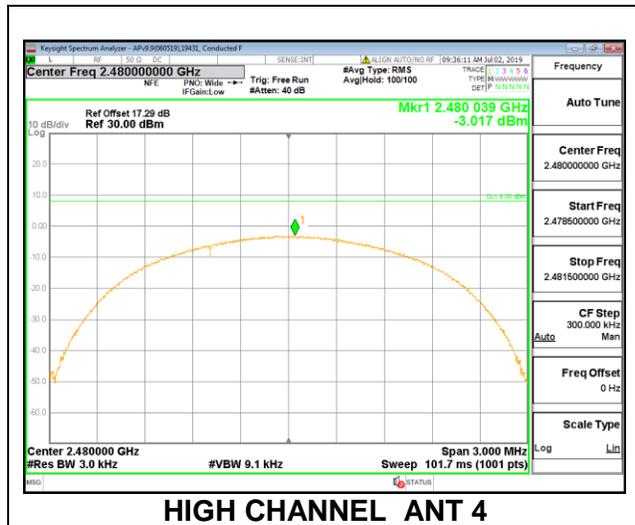
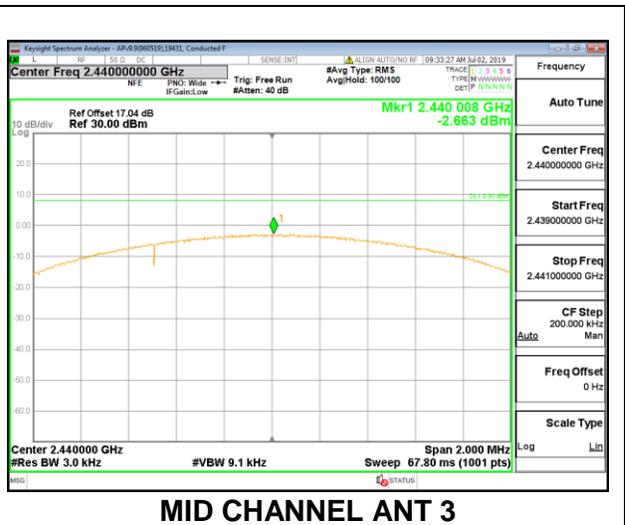
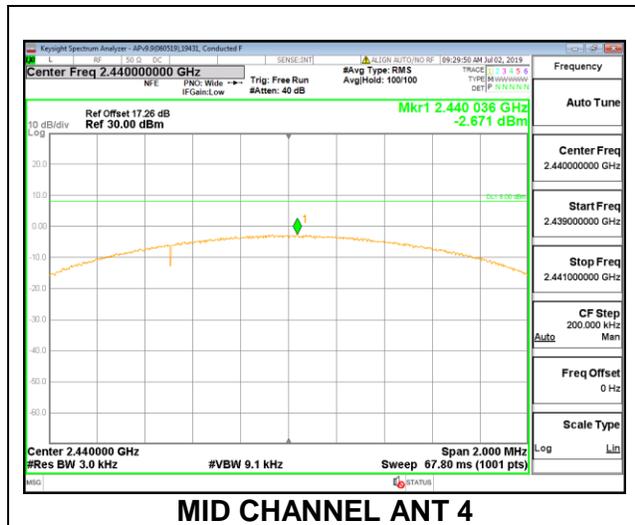
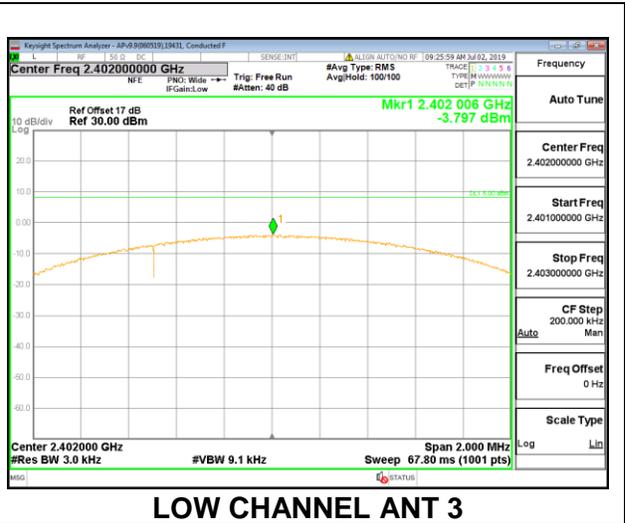
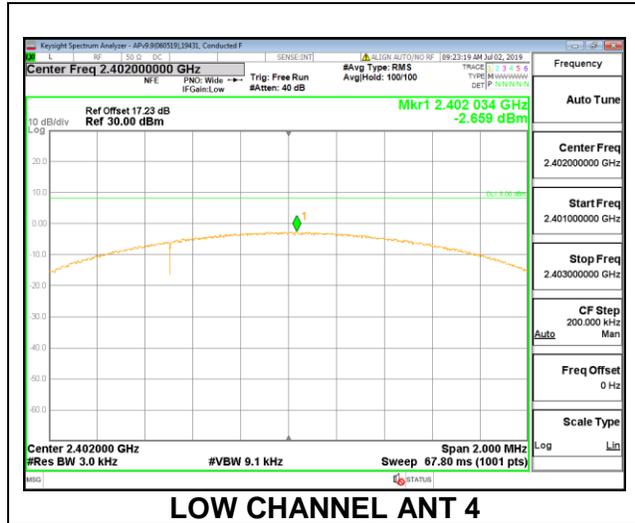


**8.11.2 HIGH POWER BLE (2Mbps)**

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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PSD Results

Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2402	-2.659	-3.797	-0.181	8.0	-8.181
Mid	2440	-2.671	-2.663	0.343	8.0	-7.657
High	2480	-3.017	-2.865	0.070	8.0	-7.930



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

Duty Cycle CF (dB)	0.00	Included in Calculations of Corr'd PSD
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PSD Results

Channel	Frequency (MHz)	ANT 4 Meas (dBm/ 3kHz)	ANT 3 Meas (dBm/ 3kHz)	Total Corr'd PSD (dBm/ 3kHz)	Limit (dBm/ 3kHz)	Margin (dB)
Low	2402	-5.166	-4.858	-1.999	8.0	-9.999
Mid	2440	-5.140	-4.245	-1.659	8.0	-9.659
High	2480	-3.794	-4.809	-1.262	8.0	-9.262