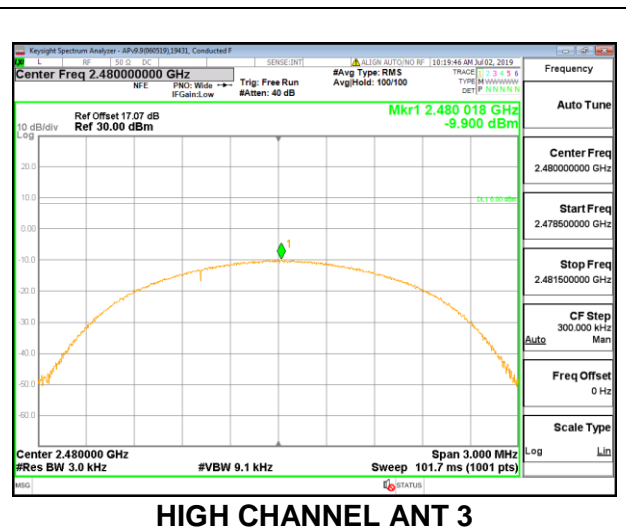
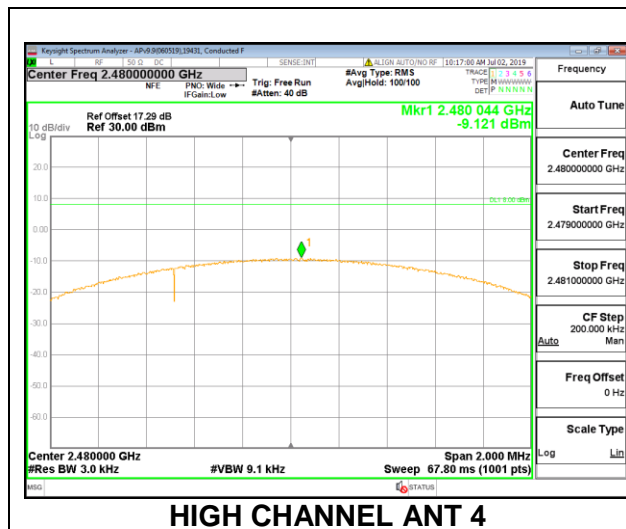
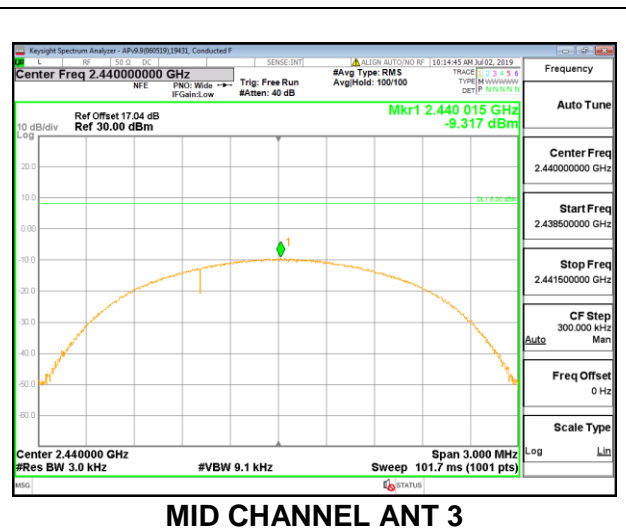
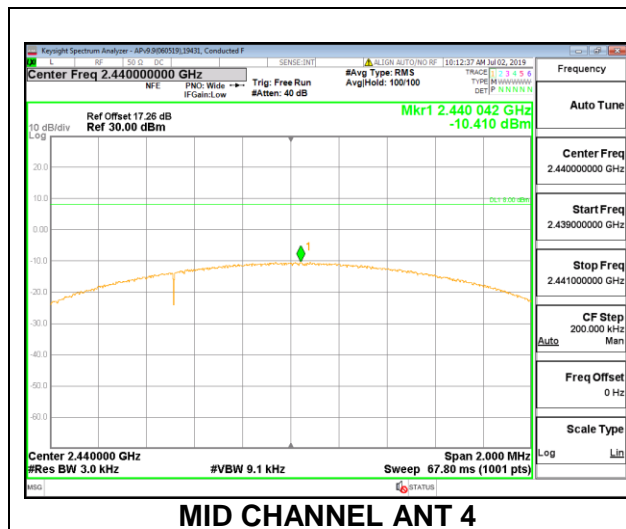
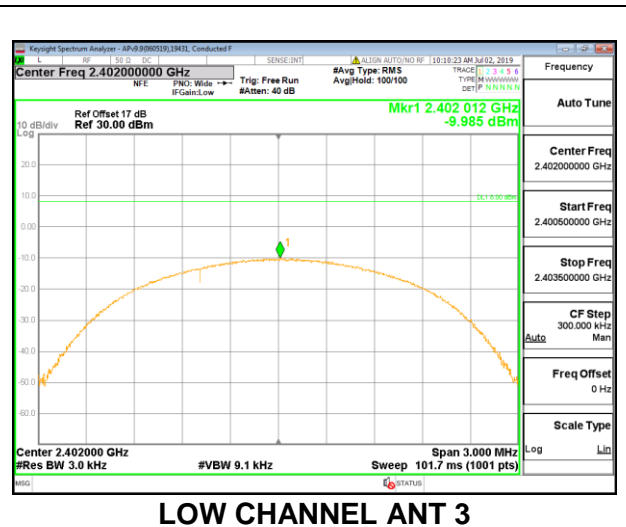
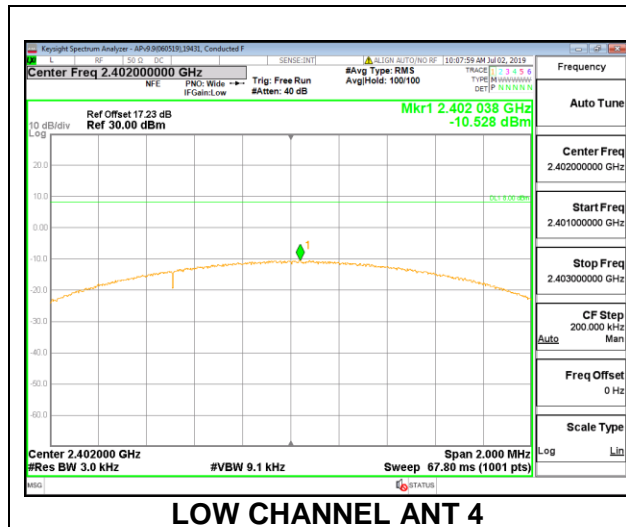


### 8.11.4 LOW POWER BLE (2Mbps)

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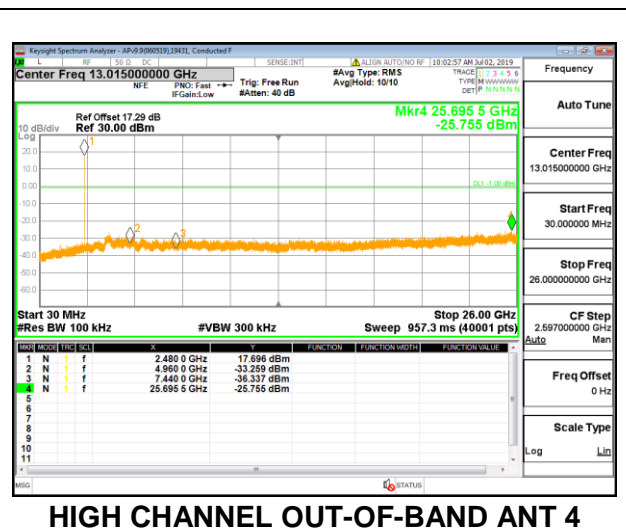
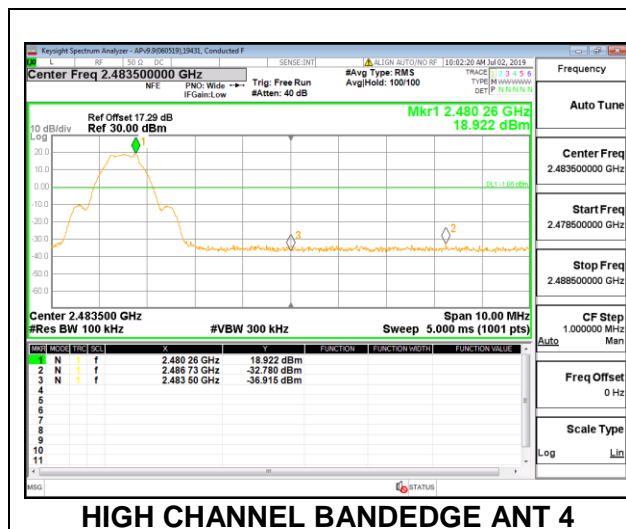
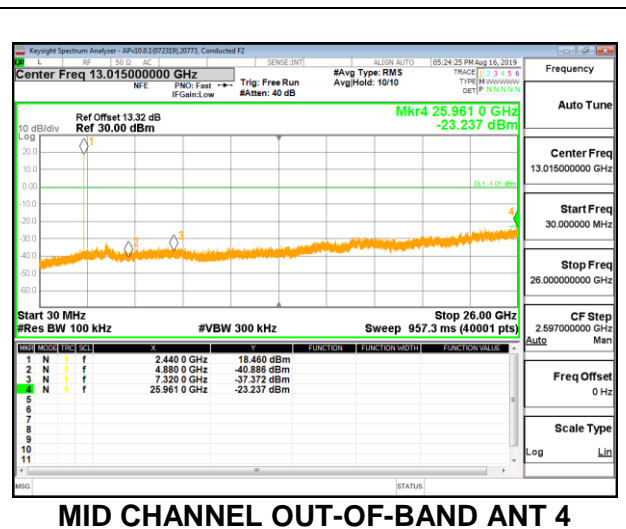
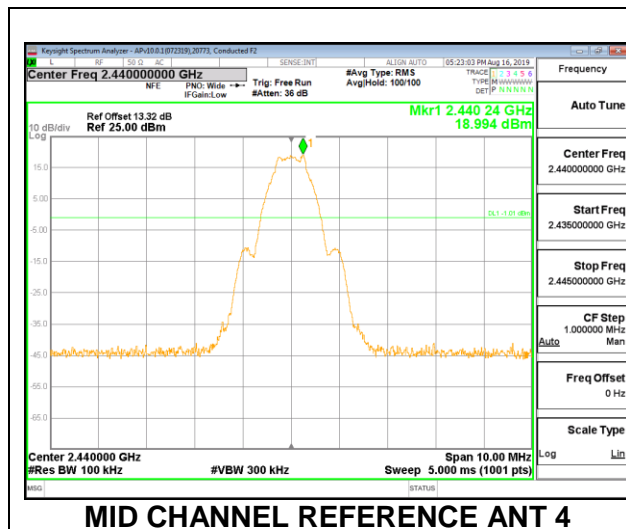
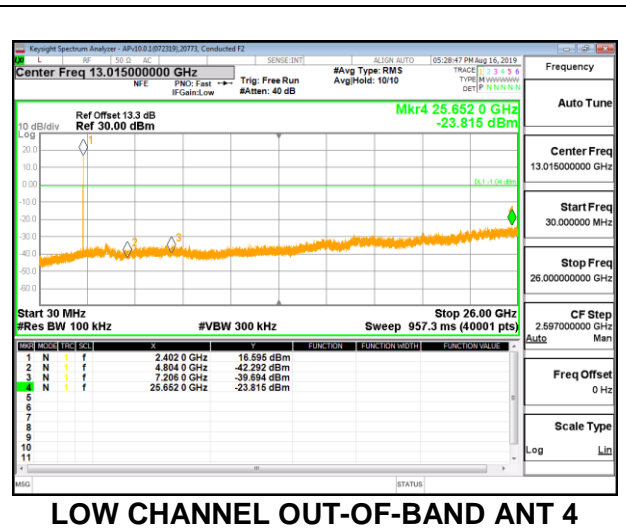
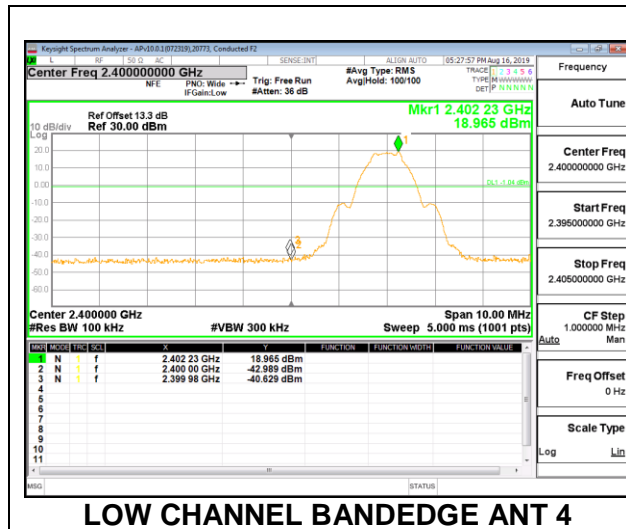
#### PSD Results

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	-10.528	-9.985	-7.238	8.0	-15.24
Mid	2440	-10.410	-9.317	-6.819	8.0	-14.82
Hjigh	2480	-9.121	-9.900	-6.483	8.0	-14.48

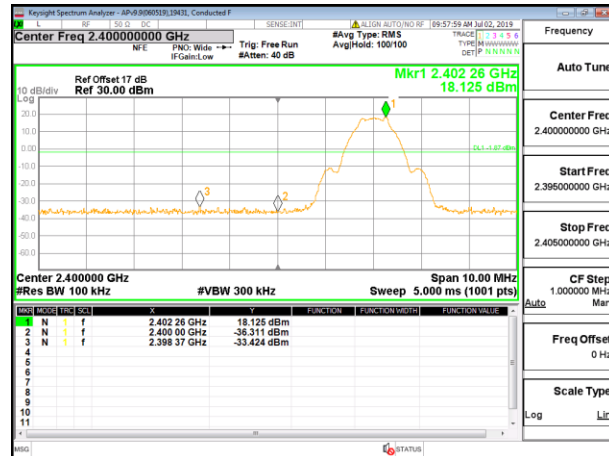


## 8.12 BEAMFORMING, CONDUCTED SPURIOUS

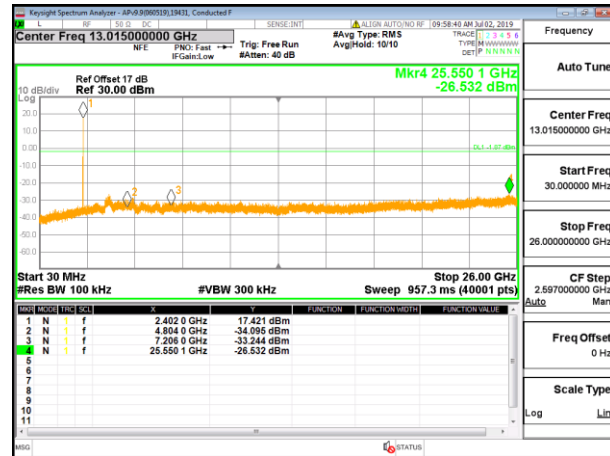
### 8.12.1 HIGH POWER BLE (1Mbps)



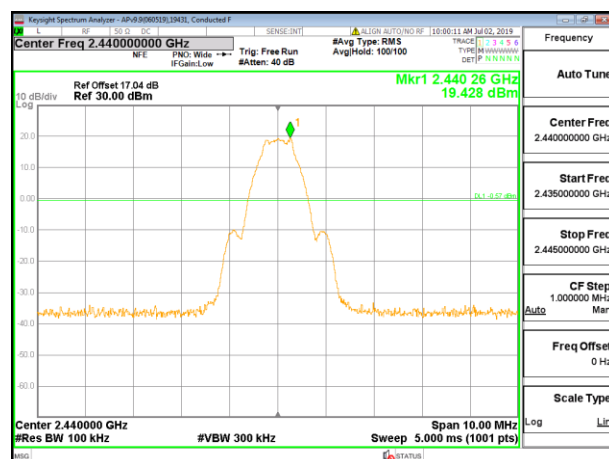
# **HIGH POWER 1Mbps**



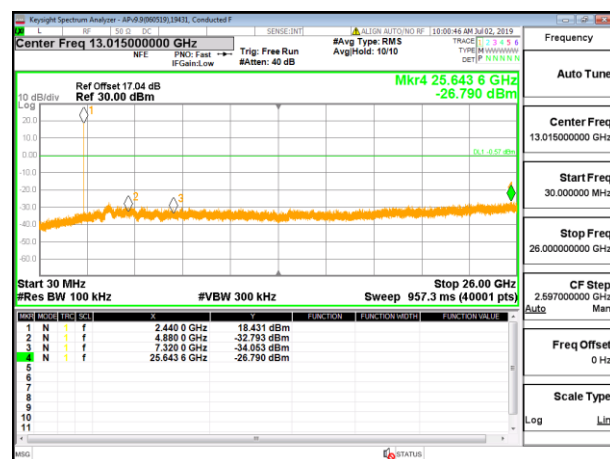
**LOW CHANNEL BANDEDGE ANT 3**



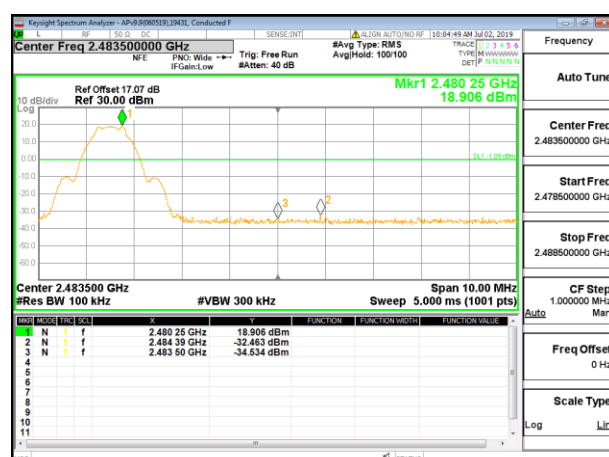
**LOW CHANNEL OUT-OF-BAND ANT 3**



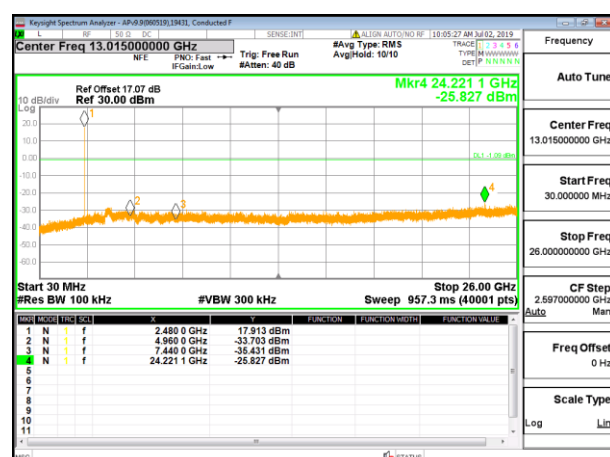
**MID CHANNEL REFERENCE ANT 3**



**MID CHANNEL OUT-OF-BAND ANT 3**

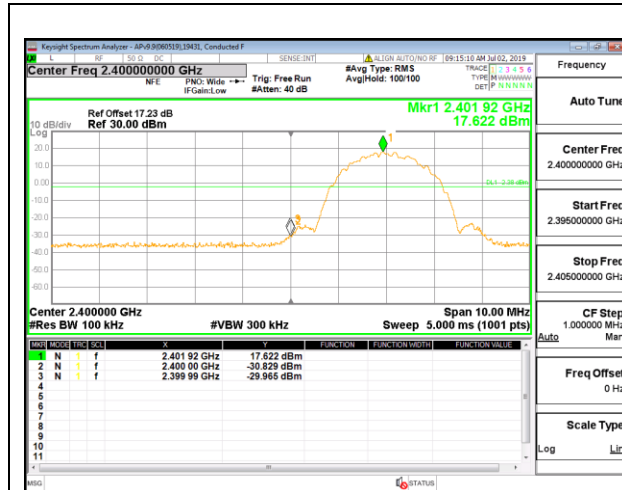


**HIGH CHANNEL BANDEDGE ANT 3**

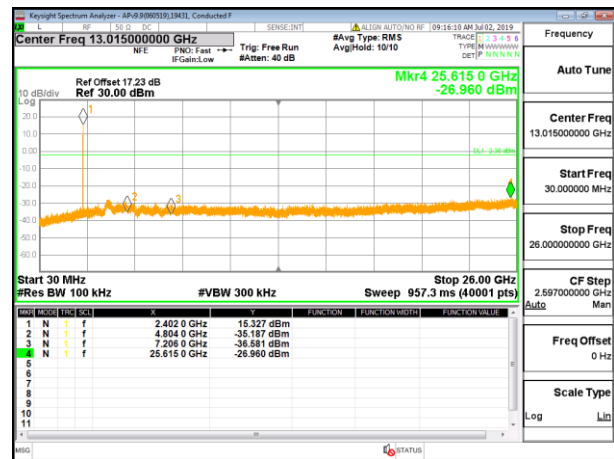


**HIGH CHANNEL OUT-OF-BAND ANT 3**

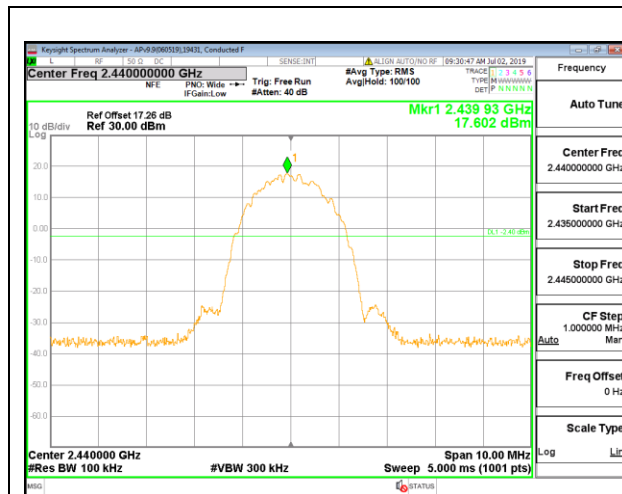
## 8.12.2 HIGH POWER BLE (2Mbps)



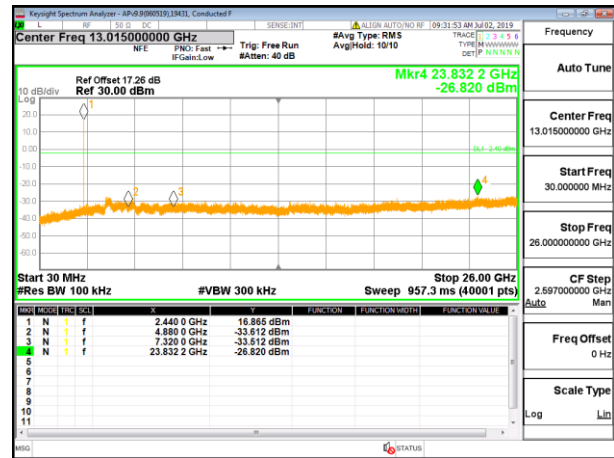
LOW CHANNEL BANDEDGE ANT 4



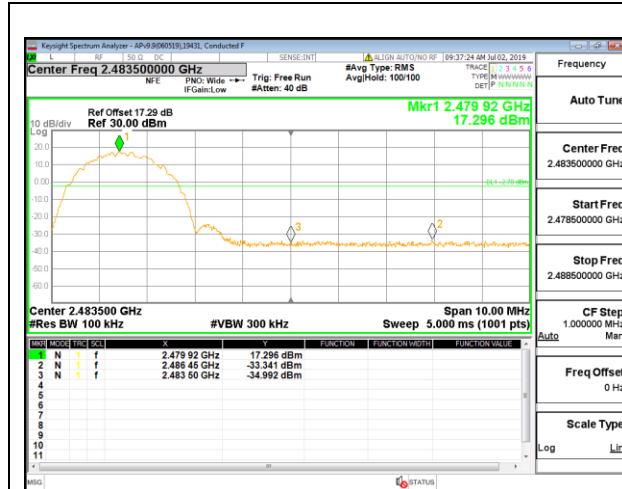
LOW CHANNEL OUT-OF-BAND ANT 4



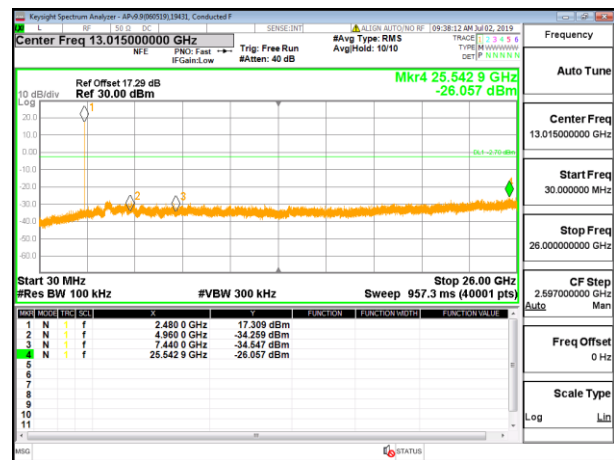
MID CHANNEL REFERENCE ANT 4



MID CHANNEL OUT-OF-BAND ANT 4



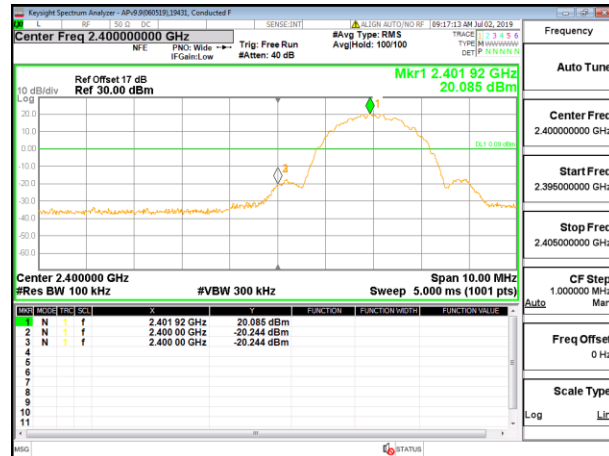
HIGH CHANNEL BANDEDGE ANT 4



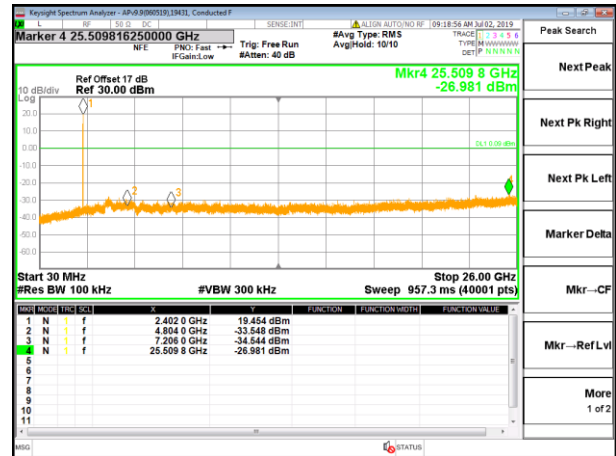
HIGH CHANNEL OUT-OF-BAND ANT 4



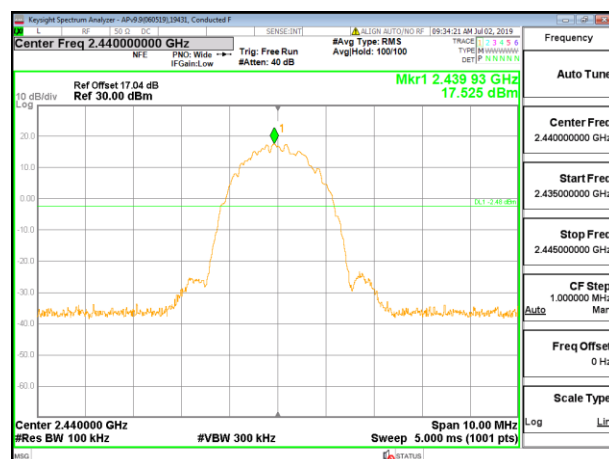
# **HIGH POWER 2Mbps**



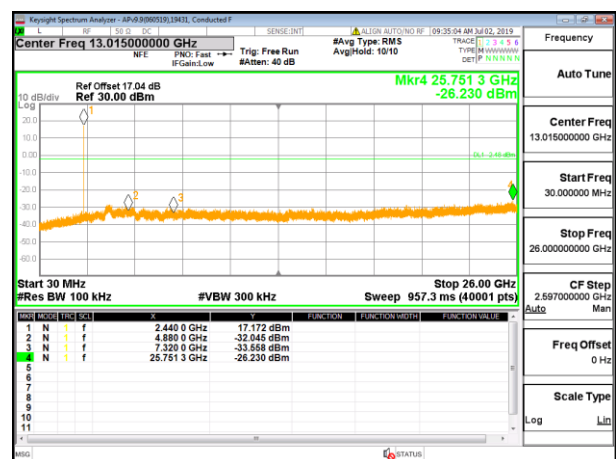
**LOW CHANNEL BANDEDGE ANT 3**



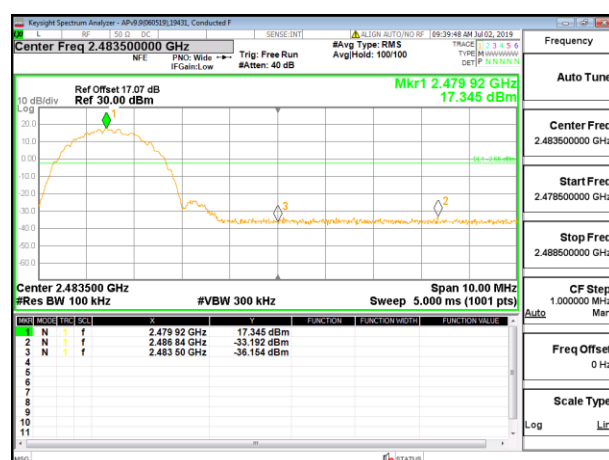
**LOW CHANNEL OUT-OF-BAND ANT 3**



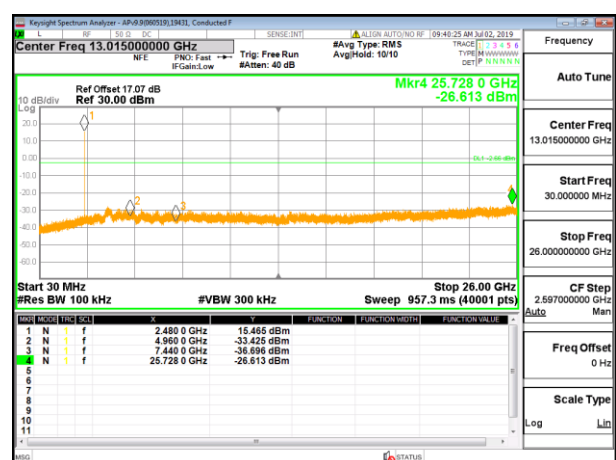
**MID CHANNEL REFERENCE ANT 3**



**MID CHANNEL OUT-OF-BAND ANT 3**

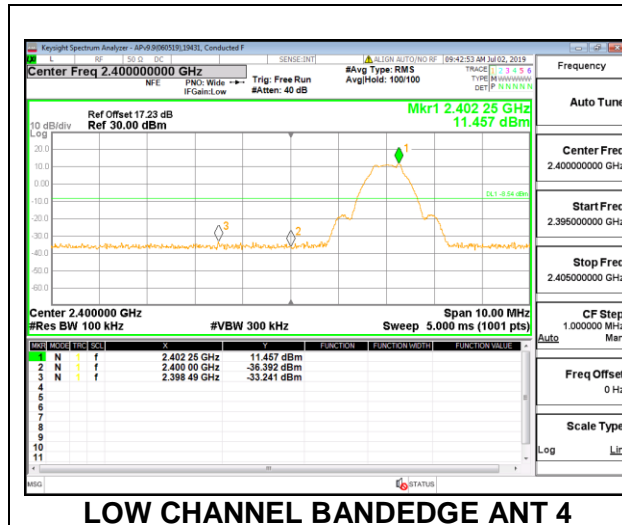


**HIGH CHANNEL BANDEDGE ANT 3**

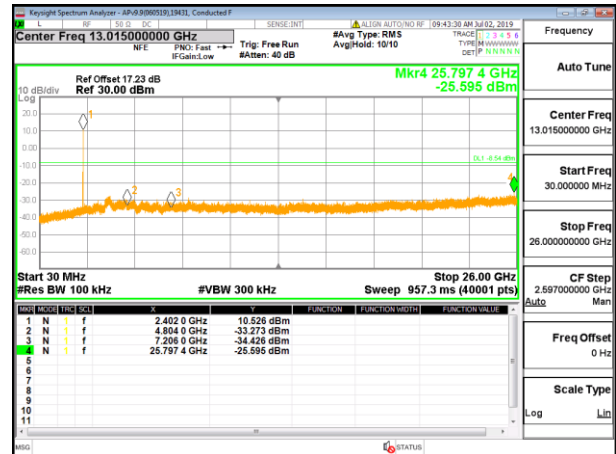


**HIGH CHANNEL OUT-OF-BAND ANT 3**

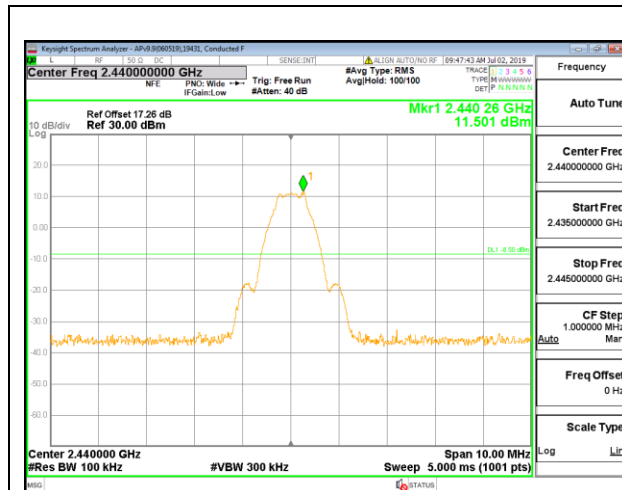
### 8.12.3 LOW POWER BLE (1Mbps)



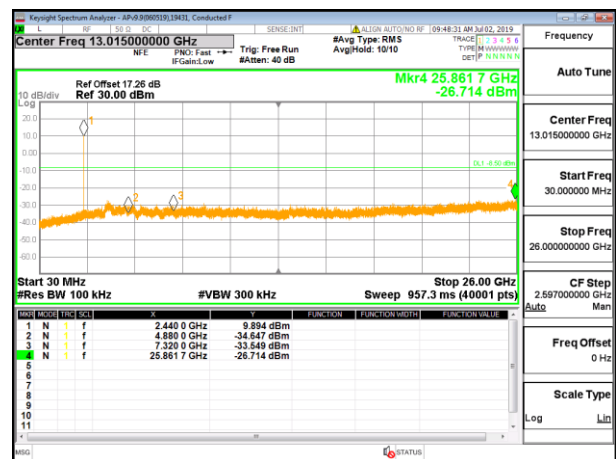
LOW CHANNEL BANDEDGE ANT 4



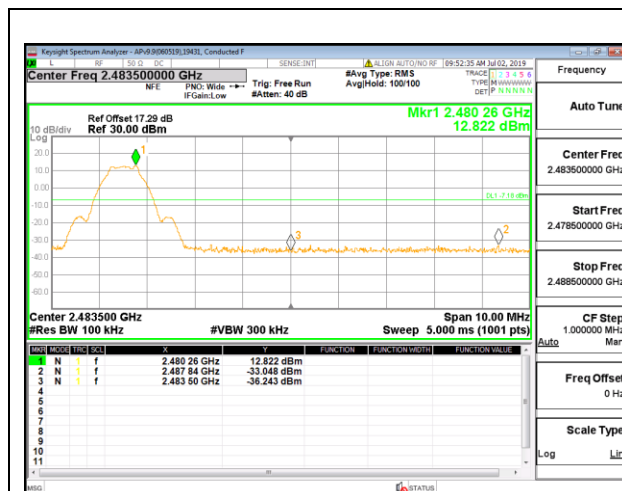
LOW CHANNEL OUT-OF-BAND ANT 4



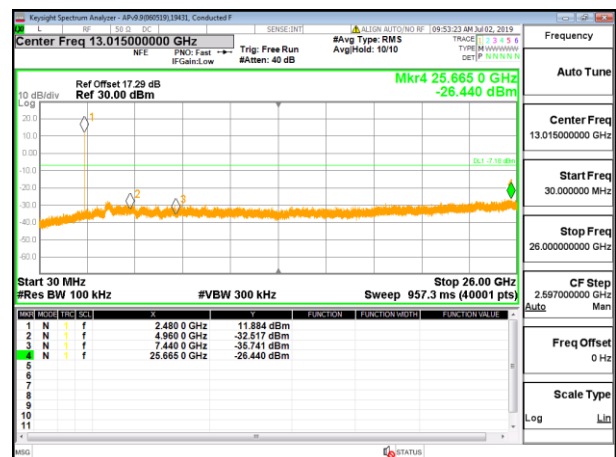
MID CHANNEL REFERENCE ANT 4



MID CHANNEL OUT-OF-BAND ANT 4



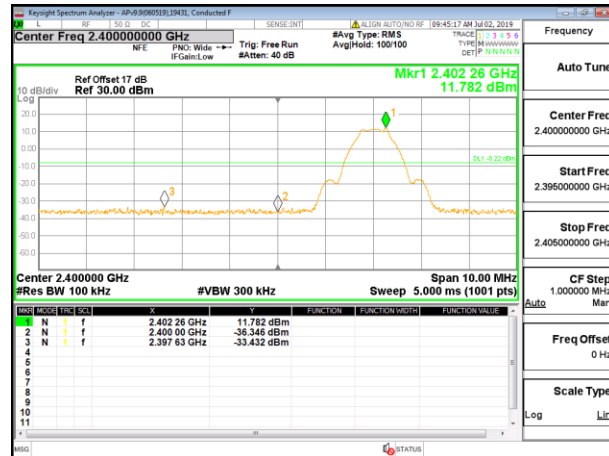
HIGH CHANNEL BANDEDGE ANT 4



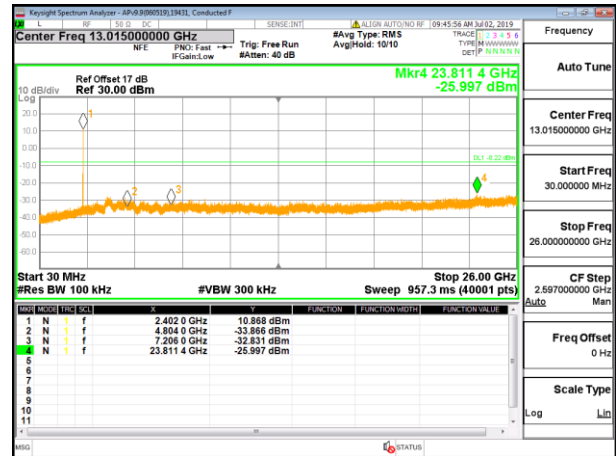
HIGH CHANNEL OUT-OF-BAND ANT 4



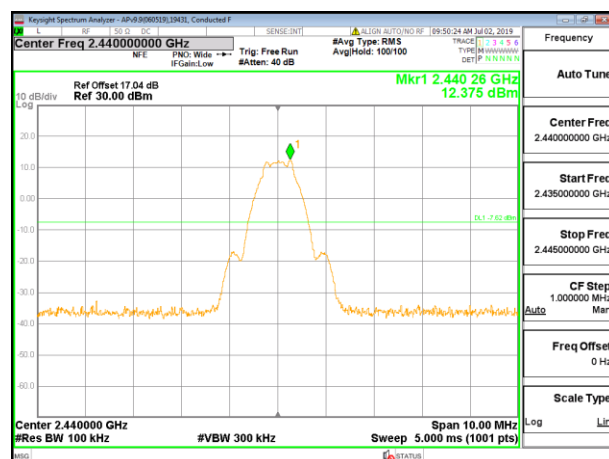
# **LOW POWER 1Mbps**



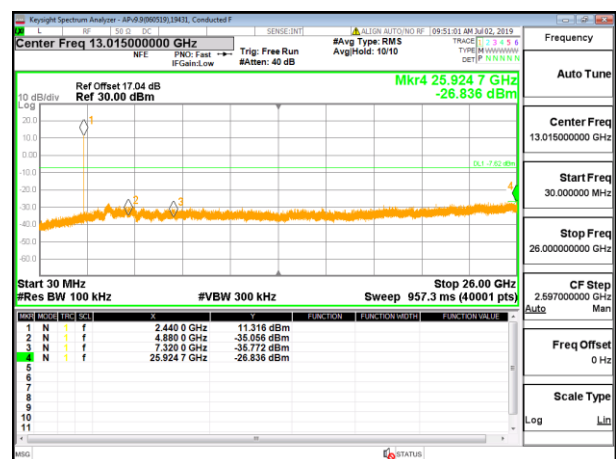
**LOW CHANNEL BANDEDGE ANT 3**



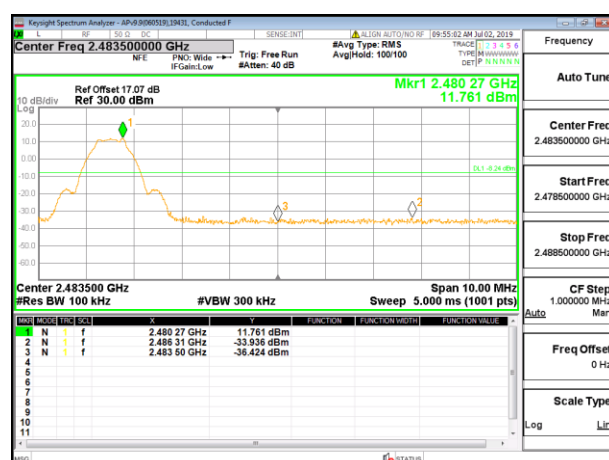
**LOW CHANNEL OUT-OF-BAND ANT 3**



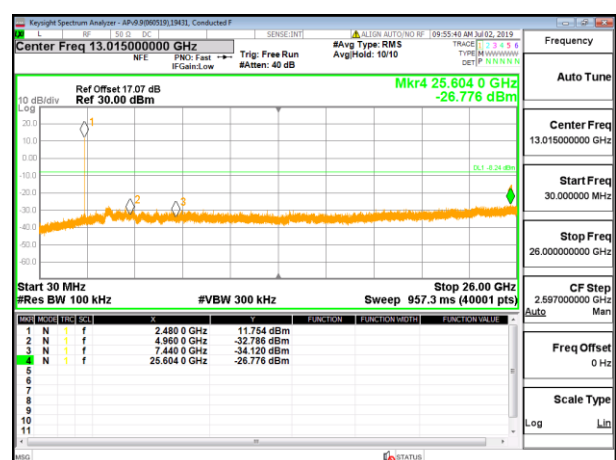
**MID CHANNEL REFERENCE ANT 3**



**MID CHANNEL OUT-OF-BAND ANT 3**

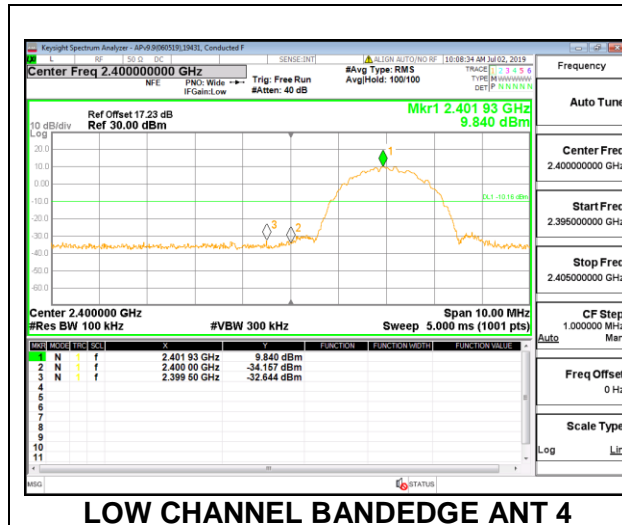


**HIGH CHANNEL BANDEDGE ANT 3**

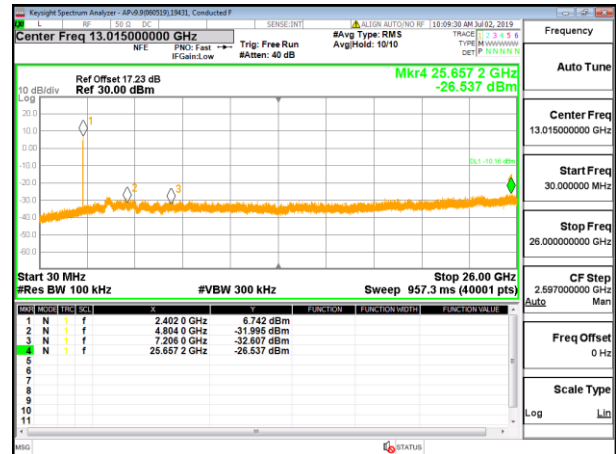


**HIGH CHANNEL OUT-OF-BAND ANT 3**

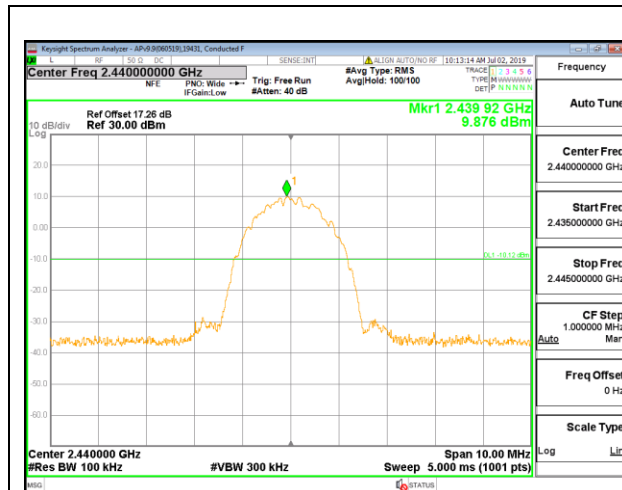
## 8.12.4 LOW POWER BLE (2Mbps)



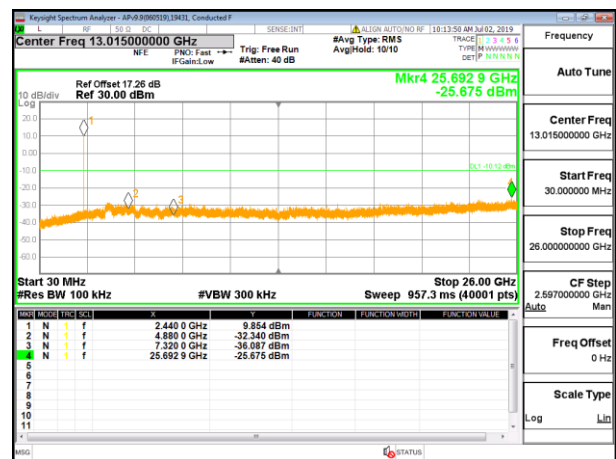
LOW CHANNEL BANDEDGE ANT 4



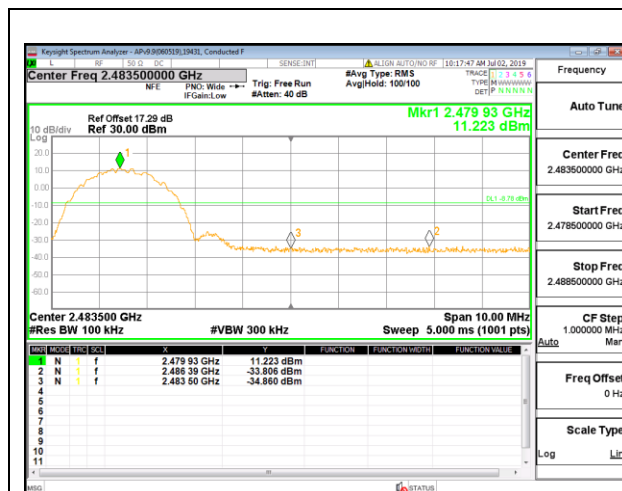
LOW CHANNEL OUT-OF-BAND ANT 4



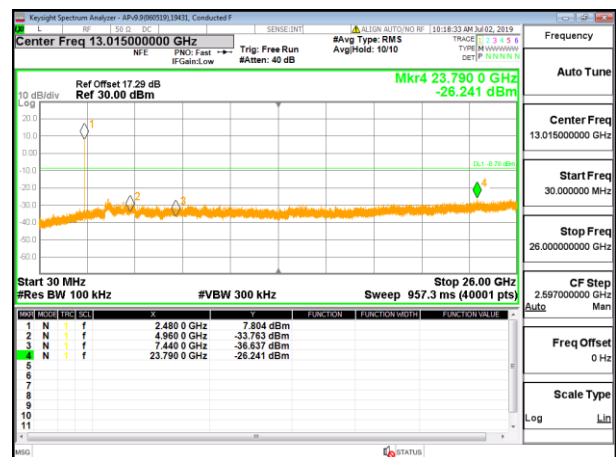
MID CHANNEL REFERENCE ANT 4



MID CHANNEL OUT-OF-BAND ANT 4

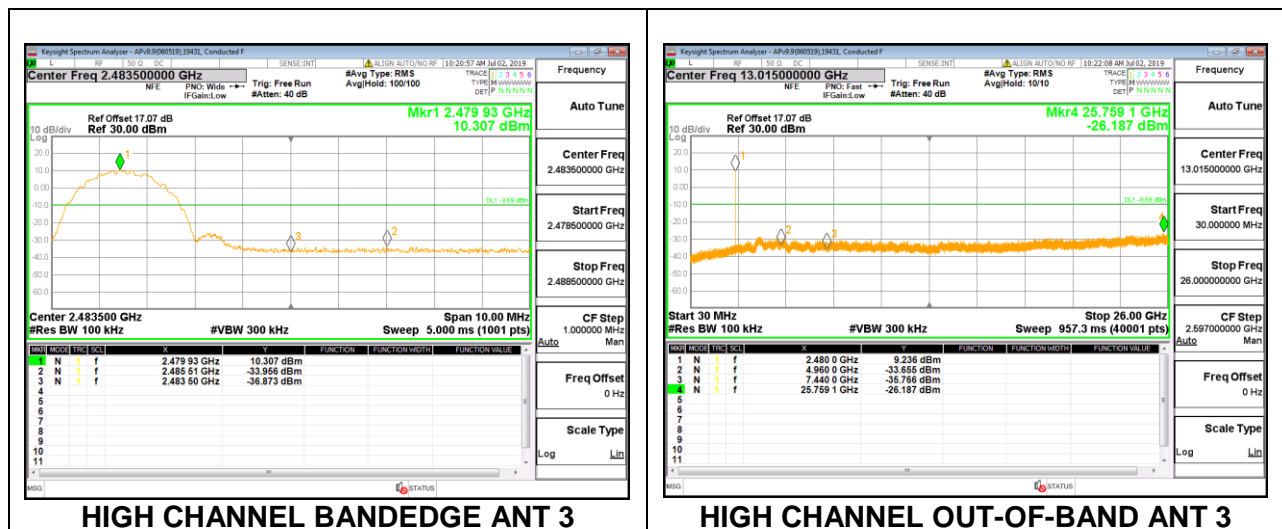
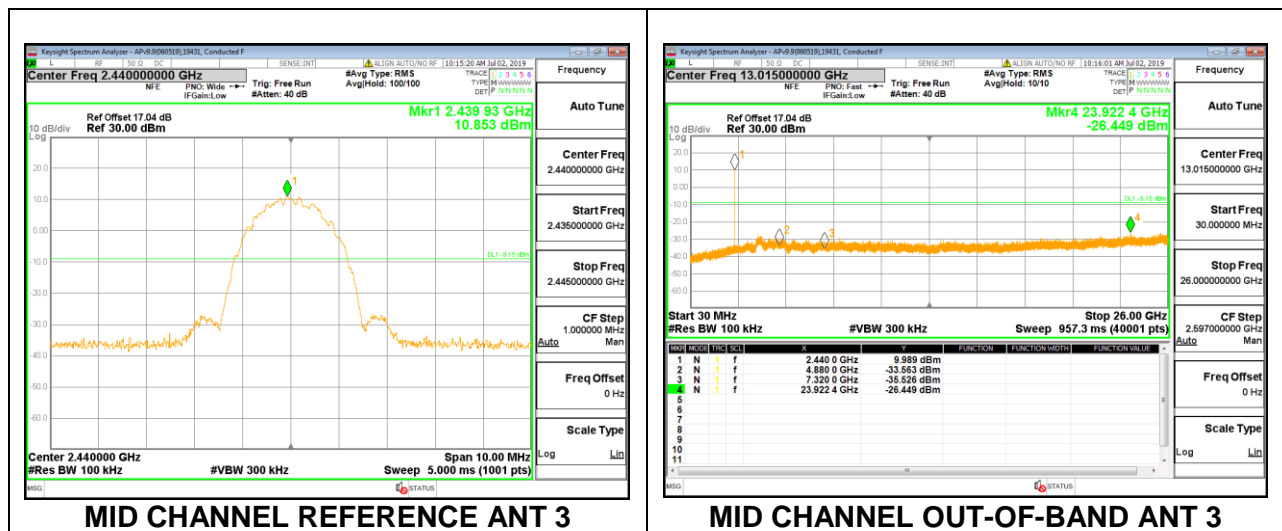
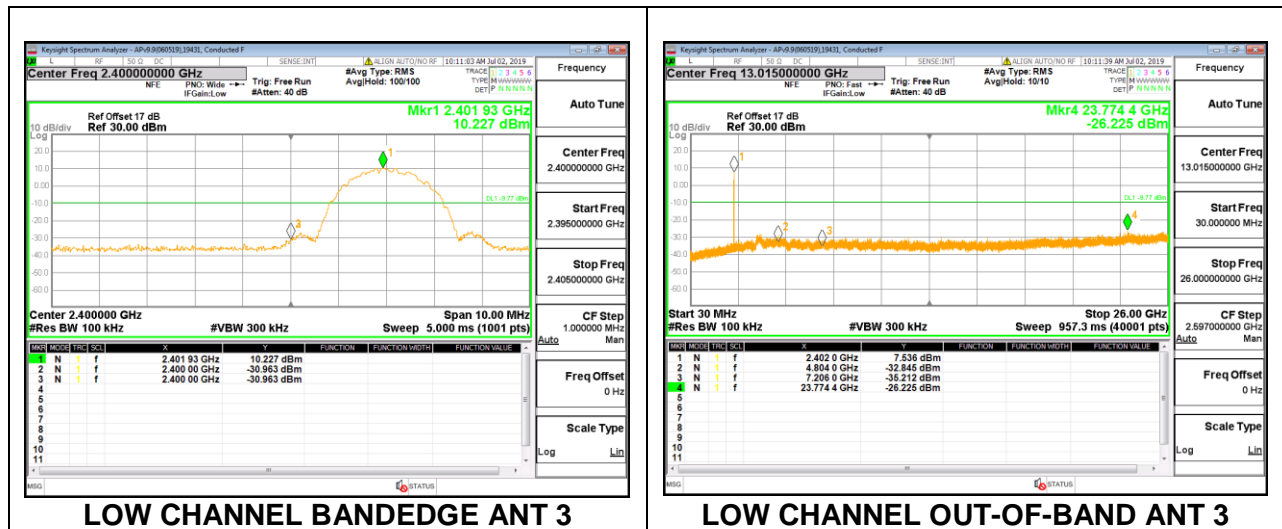


HIGH CHANNEL BANDEDGE ANT 4



HIGH CHANNEL OUT-OF-BAND ANT 4

# **LOW POWER 2Mbps**



## 9 RADIATED TEST RESULTS

### 9.1 LIMITS AND PROCEDURE

#### LIMITS

FCC §15.205 and §15.209

RSS-GEN, Section 8.9 and 8.10.

Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Strength Limit (dBuV/m) at 3 m
0.009-0.490	2400/F(kHz) @ 300 m	-
0.490-1.705	24000/F(kHz) @ 30 m	-
1.705 - 30	30 @ 30m	-
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

#### TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane for measurement below 1GHz; 1.5 m above the ground plane for measurement above 1GHz. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.10. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For pre-scans above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 30 KHz for peak measurements.

For final measurements above 1 GHz the resolution bandwidth is set to 1 MHz; the video bandwidth is set to 3 MHz for peak measurements and as applicable for average measurements.

The spectrum from 1 GHz to 18 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band. Below 1GHz and above 18GHz emissions, the channel with the highest output power was tested.

The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

For below 30MHz testing, investigation was done on three antenna orientations (parallel, perpendicular, and ground-parallel), parallel and perpendicular are the worst orientations, therefore testing was performed on these two orientations only.

**KDB 414788 Open Field Site(OFS) and Chamber Correlation Justification**

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.



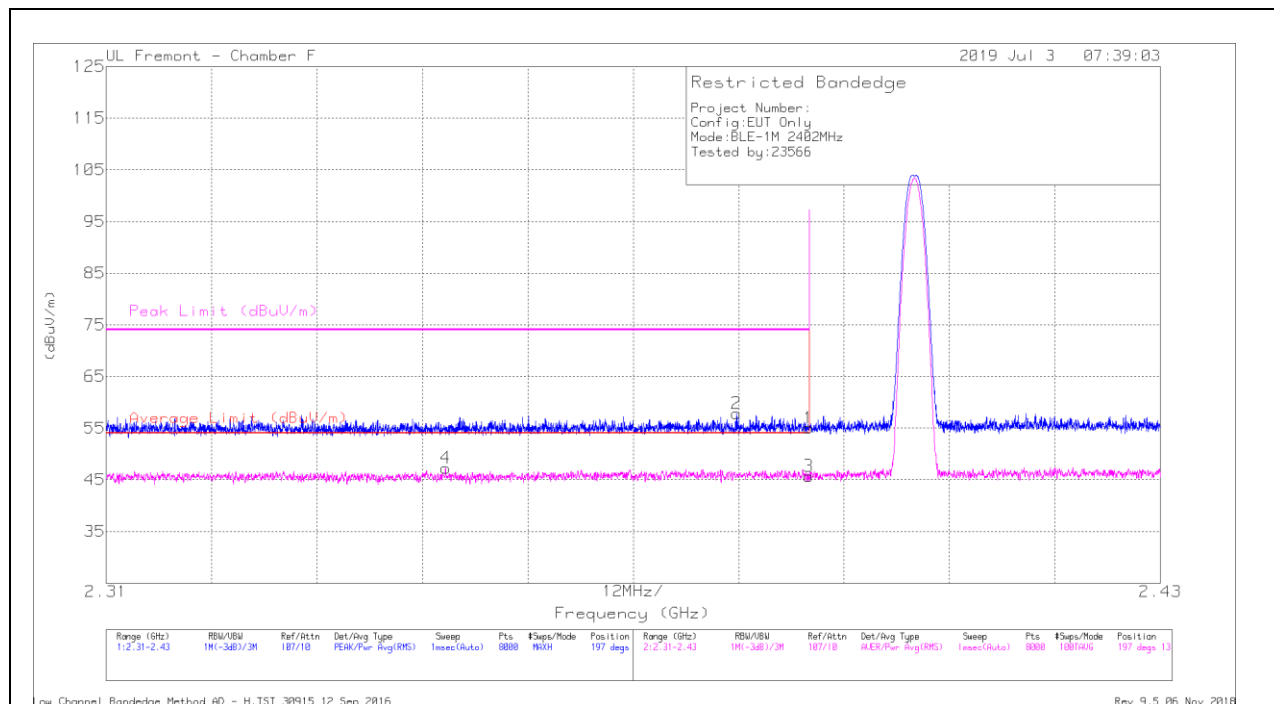
## 9.2 TRANSMITTER ABOVE 1 GHz

### 9.2.1 High Power BLE (1Mbps)

#### Antenna 4

#### BANDEDGE (LOW CHANNEL)

#### HORIZONTAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cb/Fitr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.390	37.50	Pk	32	-14.5	55	-	-	74	-19.00	197	131	H
2	* 2.382	40.45	Pk	31.9	-14.5	57.85	-	-	74	-16.15	197	131	H
3	* 2.390	28.17	RMS	32	-14.5	45.67	54	-8.33	-	-	197	131	H
4	* 2.349	30.07	RMS	31.6	-14.4	47.27	54	-6.73	-	-	197	131	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

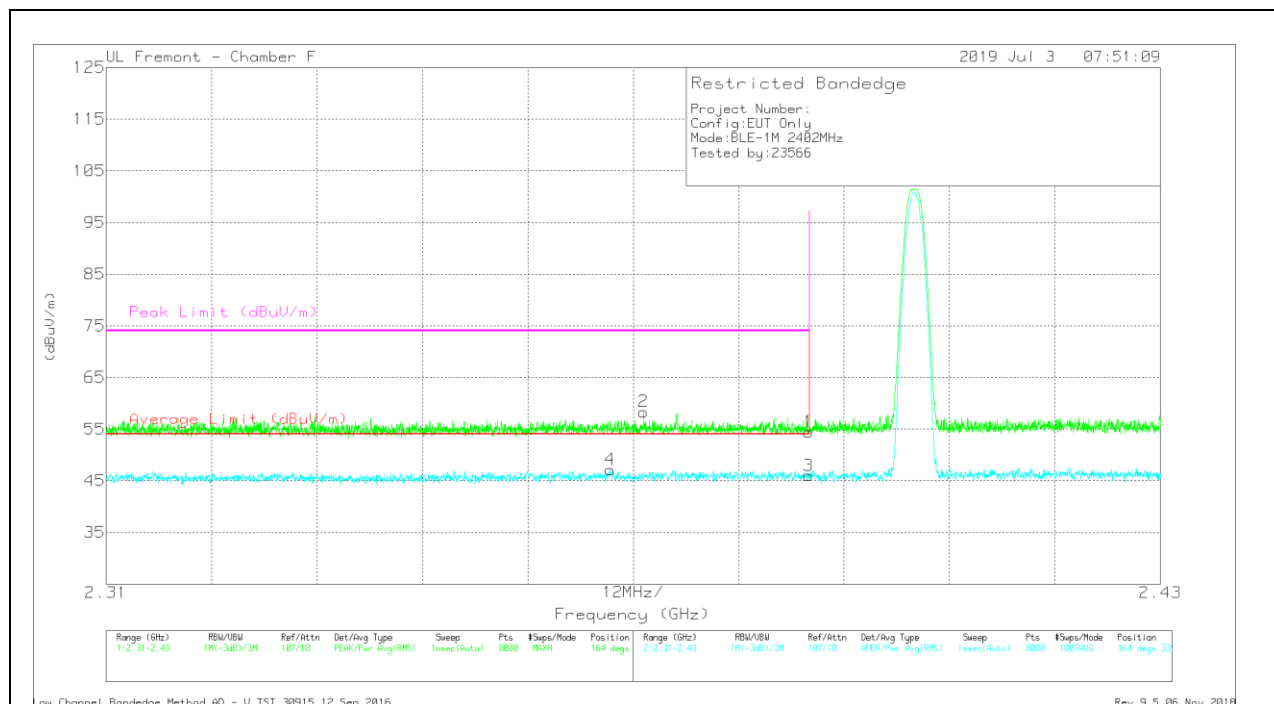
Pk - Peak detector

RMS - RMS detection

Low Channel Bandedge Method AD - H.TST 30915 12 Sep 2016

Rev 9.5 06 Nov 2018

## VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.3900	36.94	Pk	32	-14.5	54.44	-	-	74	-19.56	164	339	V
2	* 2.371	40.96	Pk	31.9	-14.5	58.36	-	-	74	-15.64	164	339	V
3	* 2.390	28.49	RMS	32	-14.5	45.99	54	-8.01	-	-	164	339	V
4	* 2.367	29.76	RMS	31.8	-14.4	47.16	54	-6.84	-	-	164	339	V

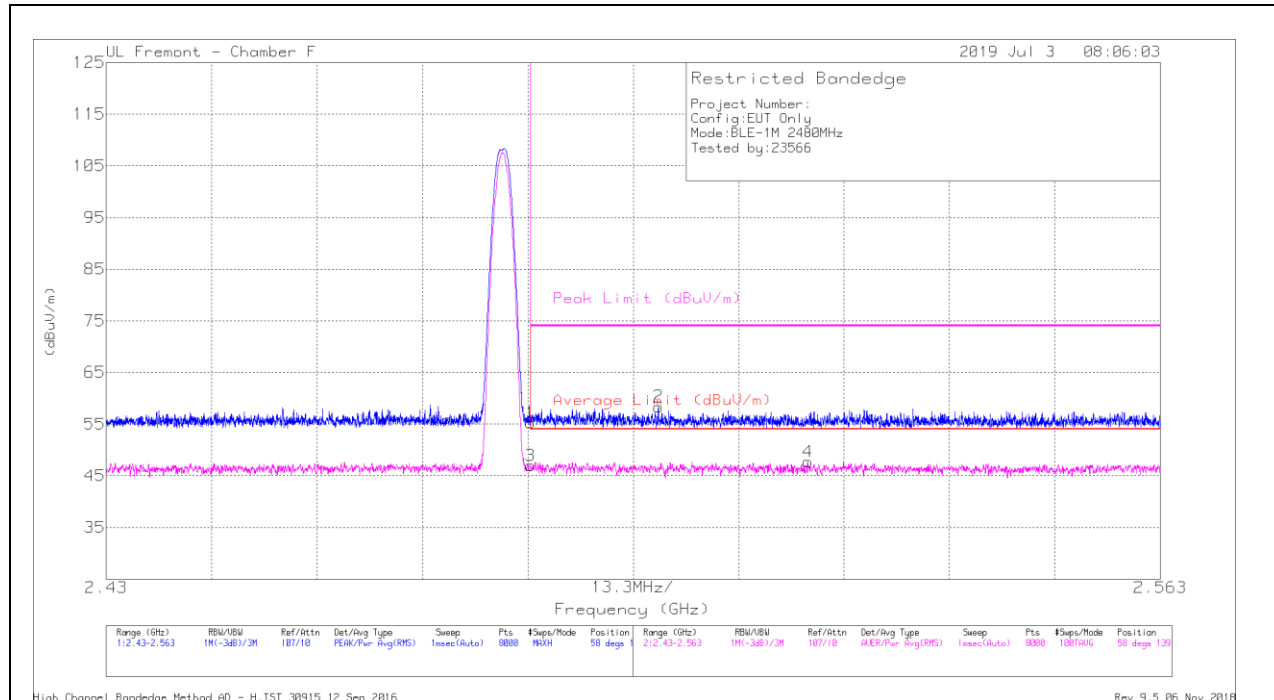
\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

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Rev 9.5 06 Nov 2018

**BANDEDGE (HIGH CHANNEL)****HORIZONTAL RESULT**

Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Fitr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	37.54	Pk	32.4	-14.7	55.24	-	-	74	-18.76	58	139	H
2	* 2.500	40.65	Pk	32.4	-14.7	58.35	-	-	74	-15.65	58	139	H
3	* 2.484	29.26	RMS	32.4	-14.7	46.96	54	-7.04	-	-	58	139	H
4	2.519	30.00	RMS	32.4	-14.7	47.70	54	-6.30	-	-	58	139	H

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

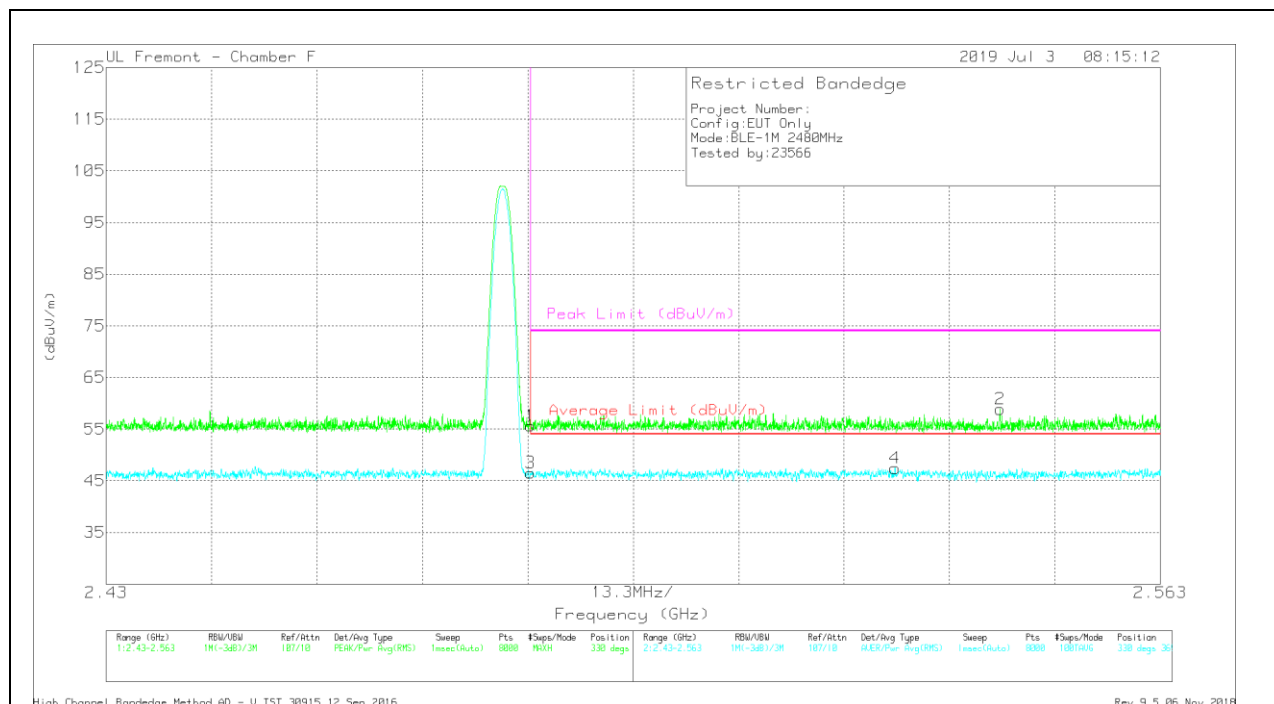
Pk - Peak detector

RMS - RMS detection

High Channel Bandedge Method AD - H.TST 30915 12 Sep 2016

Rev 9.5 06 Nov 2018

## VERTICAL RESULT



Marker	Frequency (GHz)	Meter Reading (dBuV)	Det	AF T345 (dB/m)	Amp/Cbl/Ftr /Pad (dB)	Corrected Reading (dBuV/m)	Average Limit (dBuV/m)	Margin (dB)	Peak Limit (dBuV/m)	PK Margin (dB)	Azimuth (Degs)	Height (cm)	Polarity
1	* 2.484	37.91	Pk	32.4	-14.7	55.61	-	-	74	-18.39	330	369	V
2	2.543	41.28	Pk	32.3	-14.7	58.88	-	-	74	-15.12	330	369	V
3	* 2.484	28.81	RMS	32.4	-14.7	46.51	54	-7.49	-	-	330	369	V
4	2.530	29.84	RMS	32.4	-14.8	47.44	54	-6.56	-	-	330	369	V

\* - indicates frequency in CFR47 Pt 15 / IC RSS-Restricted Band

Pk - Peak detector

RMS - RMS detection

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