



# Appendix for Test report



## Appendix A: DTS (6 dB) Bandwidth

In this document, the "DTS6dBBW" refers to the measured "DTS (6 dB) Bandwidth" value. In this Appendix, the "fc(DTS6dBBW)" refers to the centre of the measured "DTS6dBBW". The introduction of the "fc(DTS6dBBW)" is due to that other measurements use it as the spectrum analyzer setting.

For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

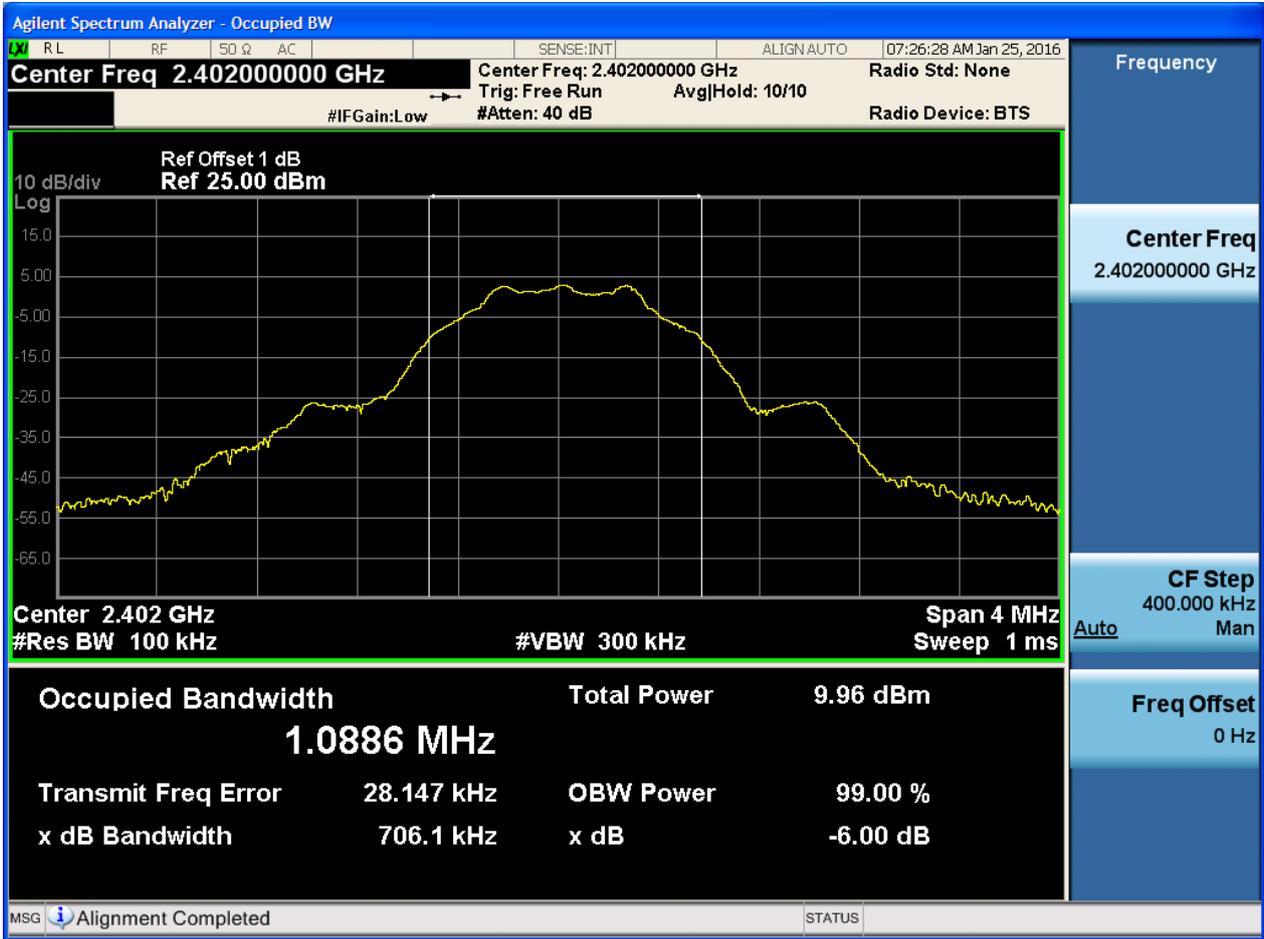
### Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	DTS6dBBW[MHz]	Verdict
BLE	L	2402	Ant 1	0.71	pass
	M	2440	Ant 1	0.71	pass
	H	2480	Ant 1	0.72	pass



Part II - Test Plots

2.1 BLE\_L@Ant 1



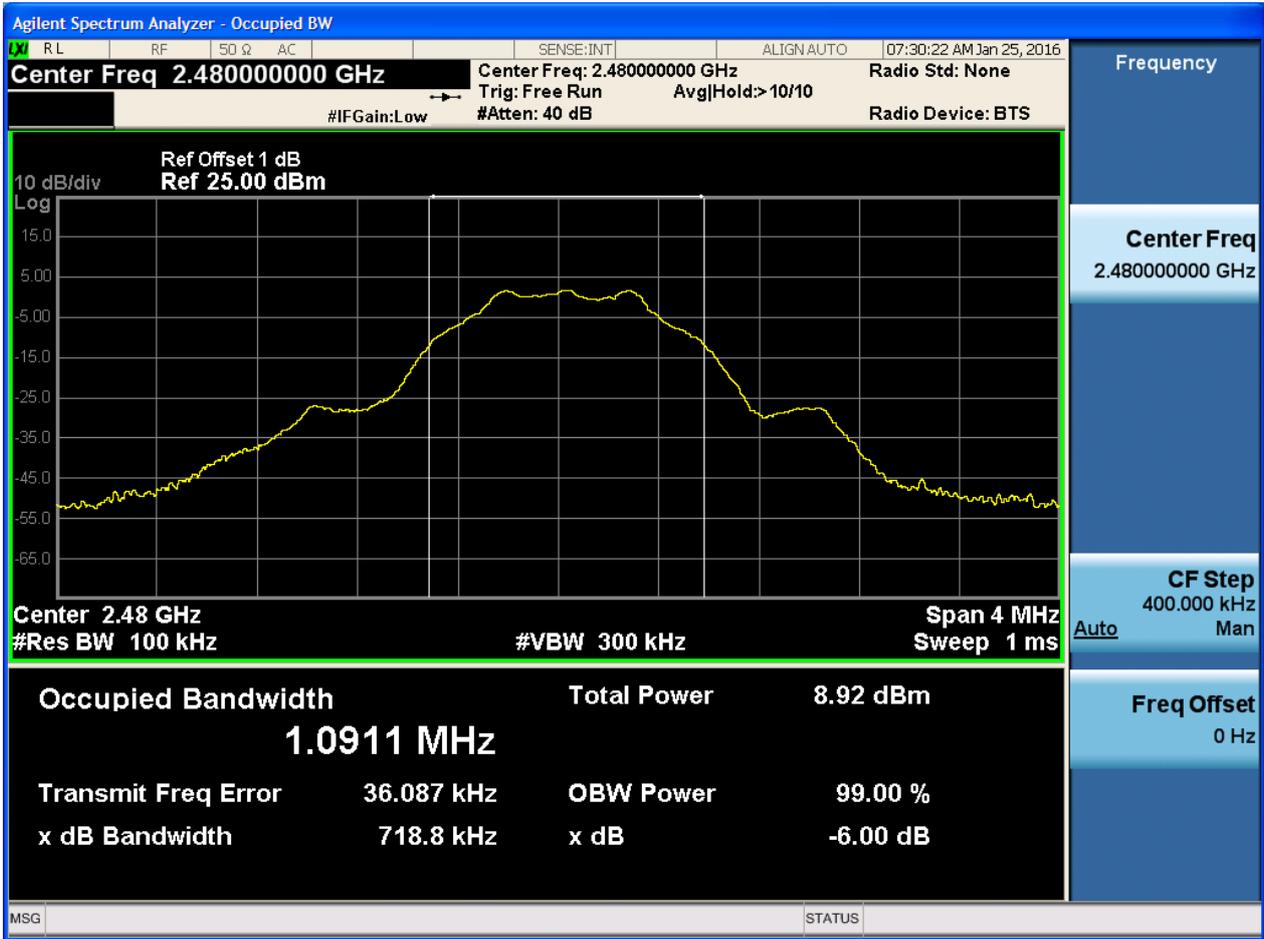


2.2 BLE\_M@Ant 1





2.3 BLE\_H@Ant 1





## Appendix B: Occupied Bandwidth

For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain, and used as respective results for each chain.

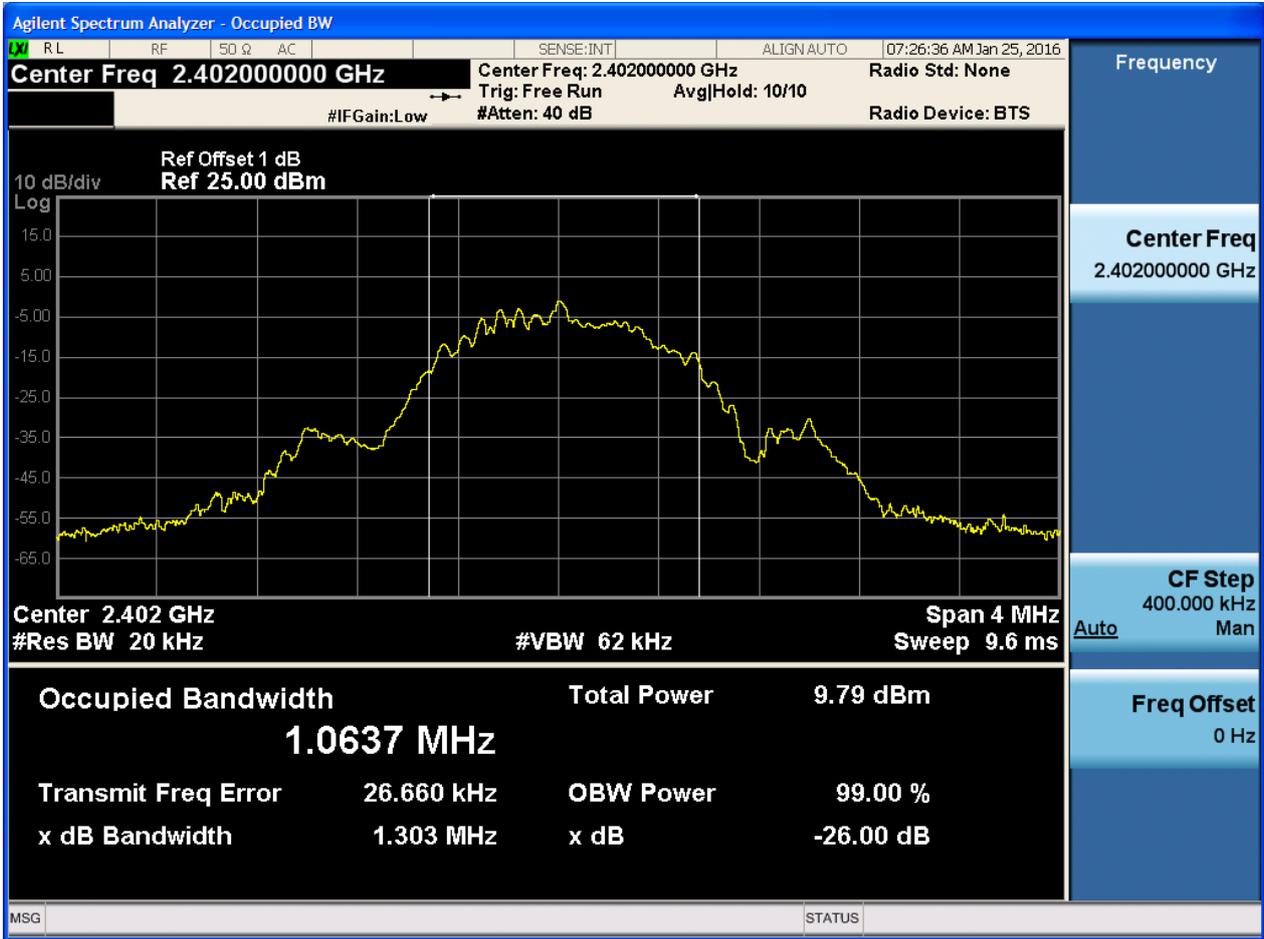
### Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Occupied Bandwidth [MHz]	Verdict
BLE	L	2402	Ant 1	1.06	pass
	M	2440	Ant 1	1.07	pass
	H	2480	Ant 1	1.07	pass



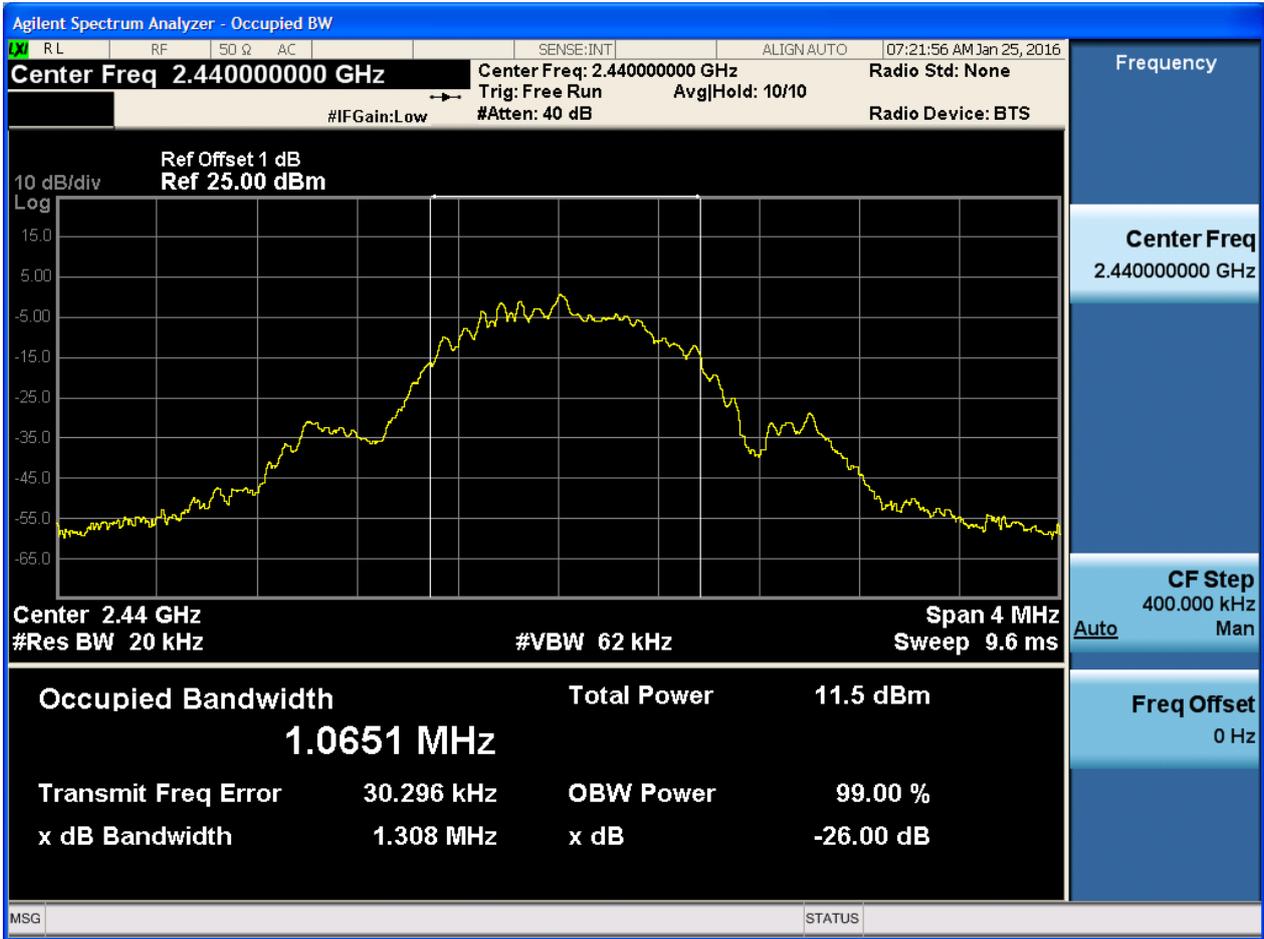
Part II - Test Plots

2.1 BLE\_L@Ant 1



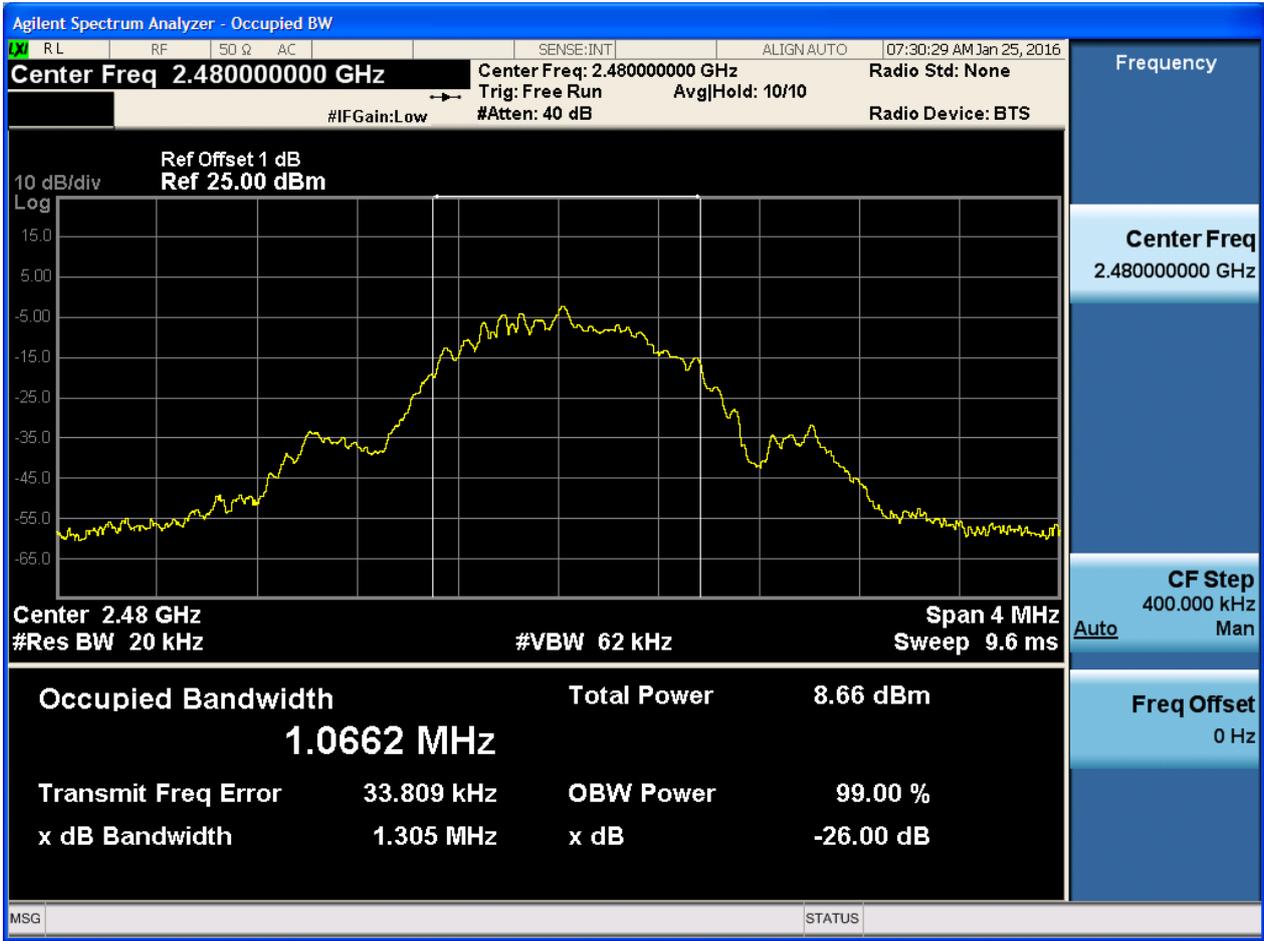


2.2 BLE\_M@Ant 1





2.3 BLE\_H@Ant 1





## Appendix C: Duty cycle

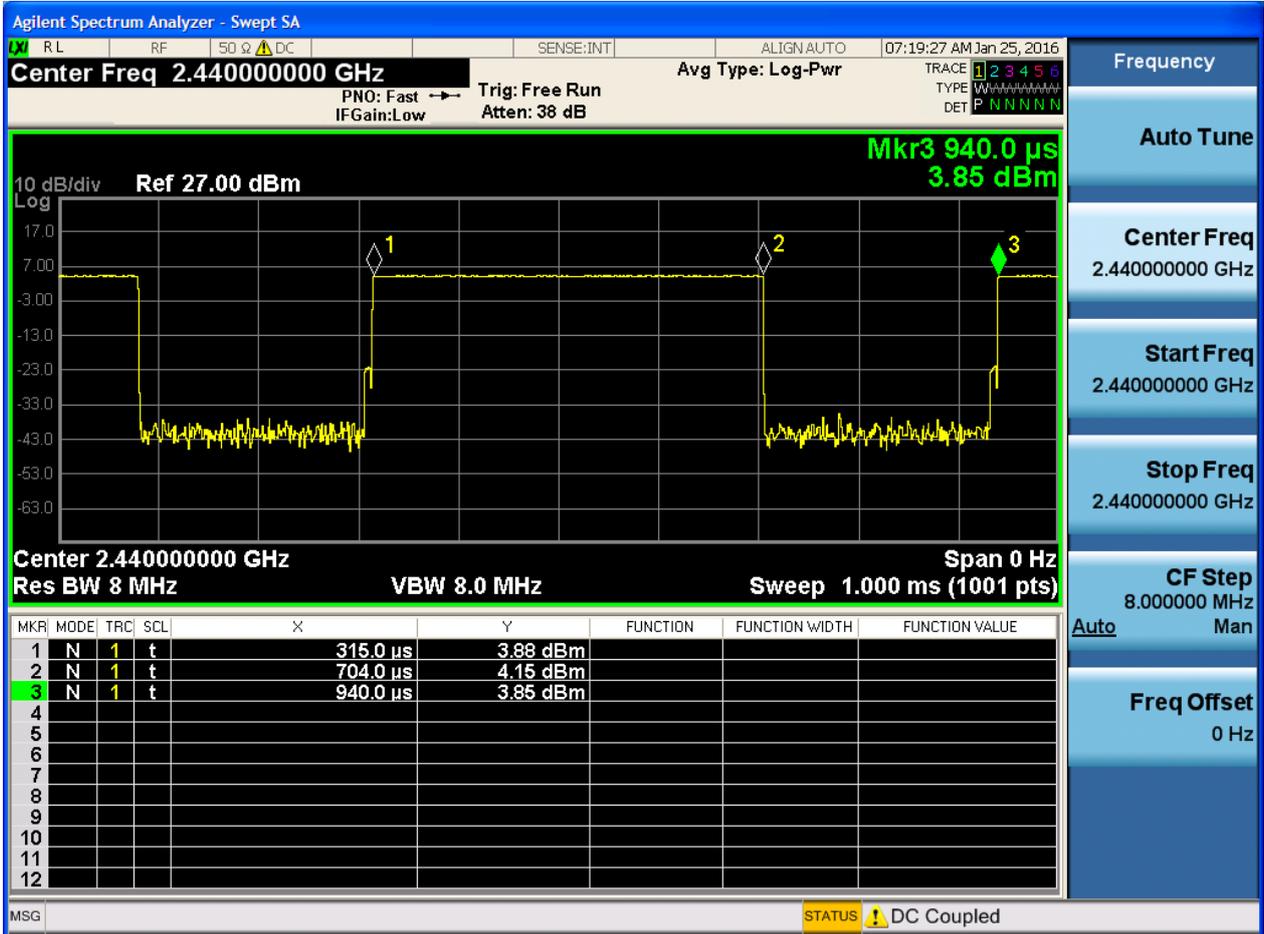
### Part I - Test Results

Test Mode	TX Freq. [MHz]	Ant	Duty cycle [%]
BLE	2440	Ant 1	62.2



Part II - Test Plots

2.1 BLE\_M@Ant 1





## Appendix D: Maximum Conducted Average Output Power

### Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Power[dBm]	Verdict
BLE	L	2402	Ant 1	3.32	pass
	M	2440	Ant 1	5.10	pass
	H	2480	Ant 1	2.22	pass



### Part II - Test Plots

#### 2.1 BLE\_L@Ant 1





2.2 BLE\_M@Ant 1





2.3 BLE\_H@Ant 1





## Appendix E: Maximum Power Spectral Density Level

### Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	PD[MHz]	Verdict
BLE	L	2402	Ant 1	-10.93	pass
	M	2440	Ant 1	-9.01	pass
	H	2480	Ant 1	-12.14	pass



## Part II - Test Plots

### 2.1 BLE\_L@Ant 1



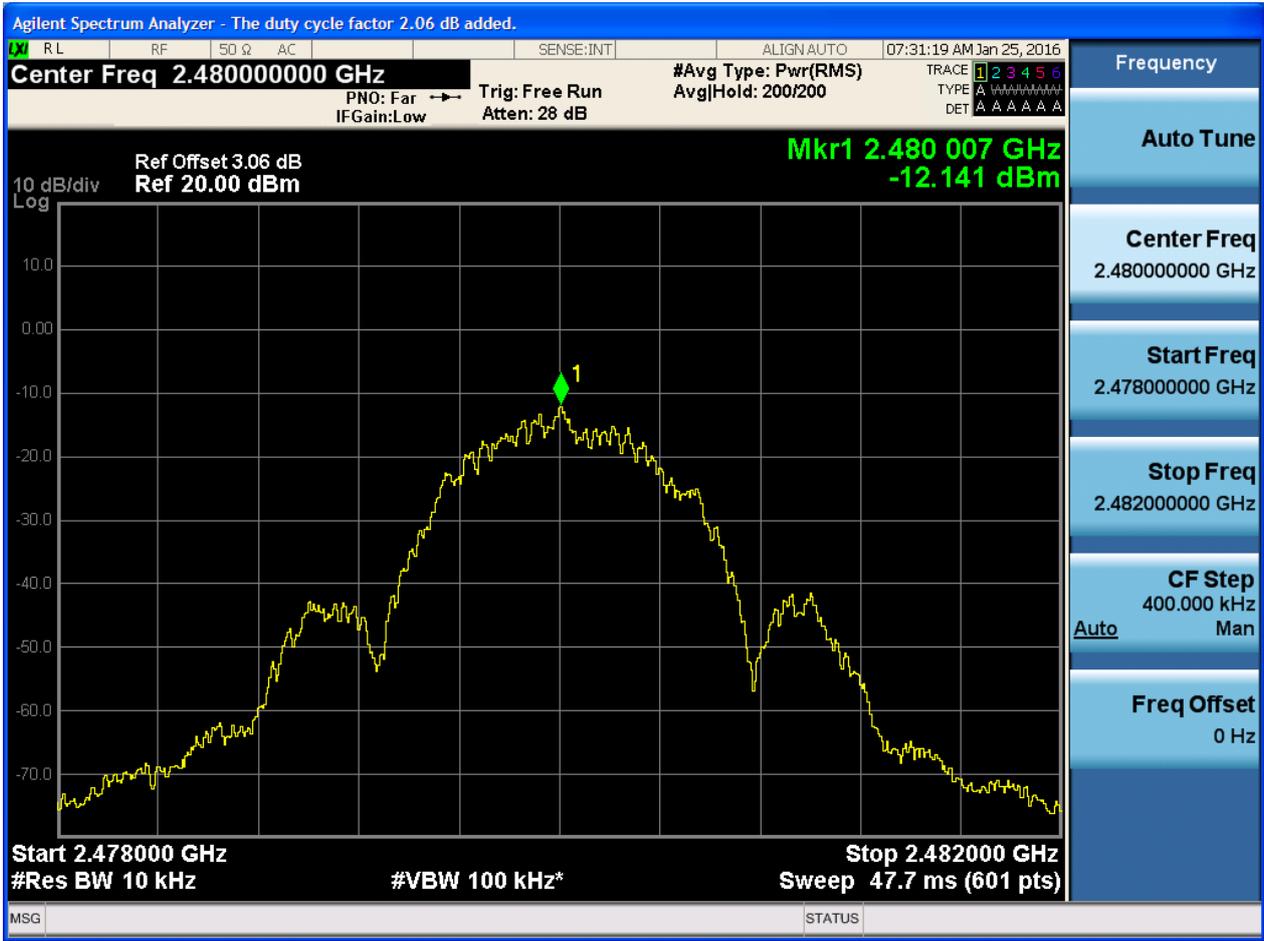


2.2 BLE\_M@Ant 1





### 2.3 BLE\_H@Ant 1





## Appendix F: Band Edges Compliance

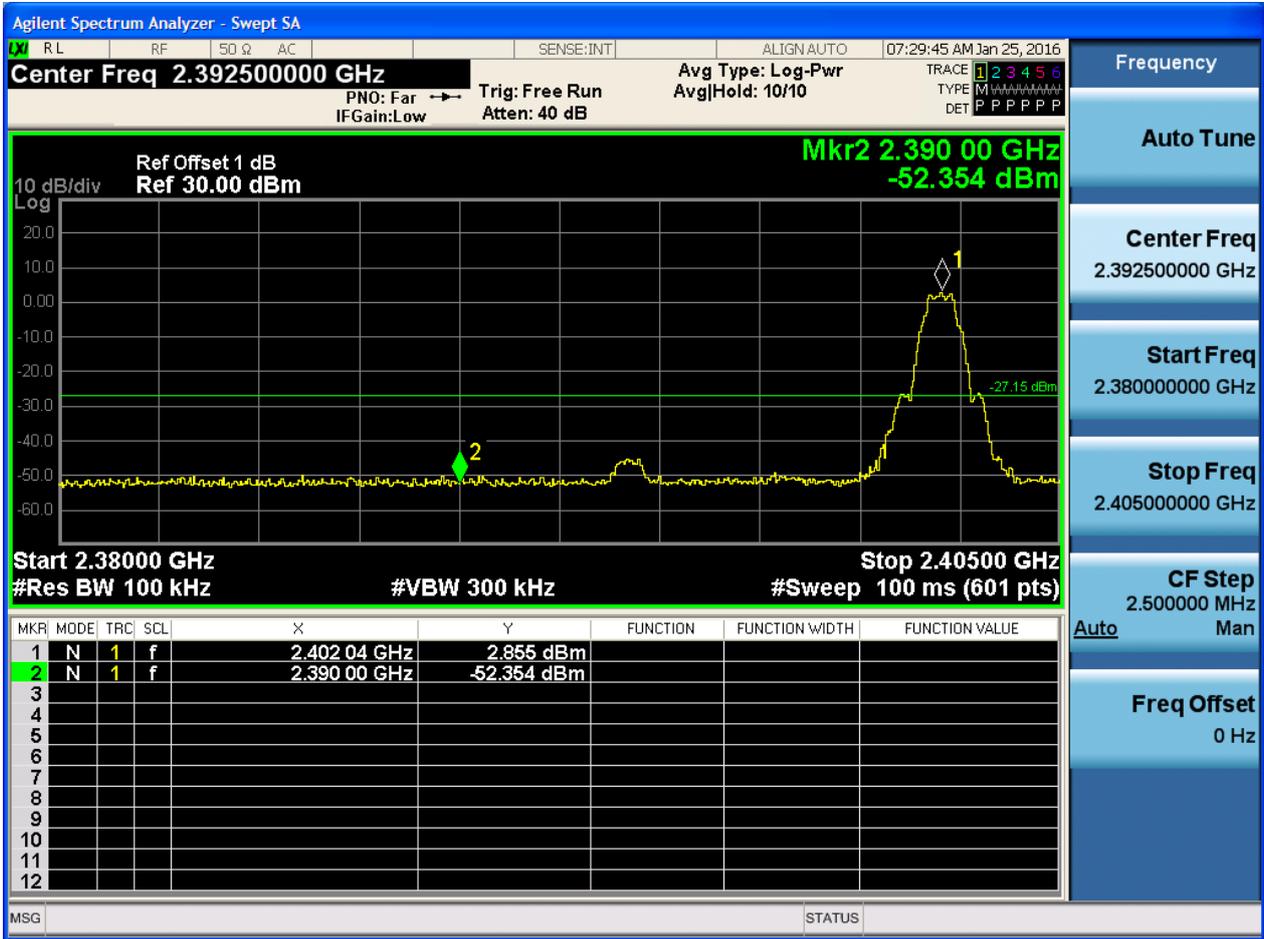
### Part I - Test Results

Test Mode	Test Channel	Frequency[MHz]	Ant	Carrier Power[dBm]	Max.Spurious Level[dBm]	Verdict
BLE	L	2402	Ant 1	2.86	-52.35	pass
	H	2480	Ant 1	1.70	-51.51	pass



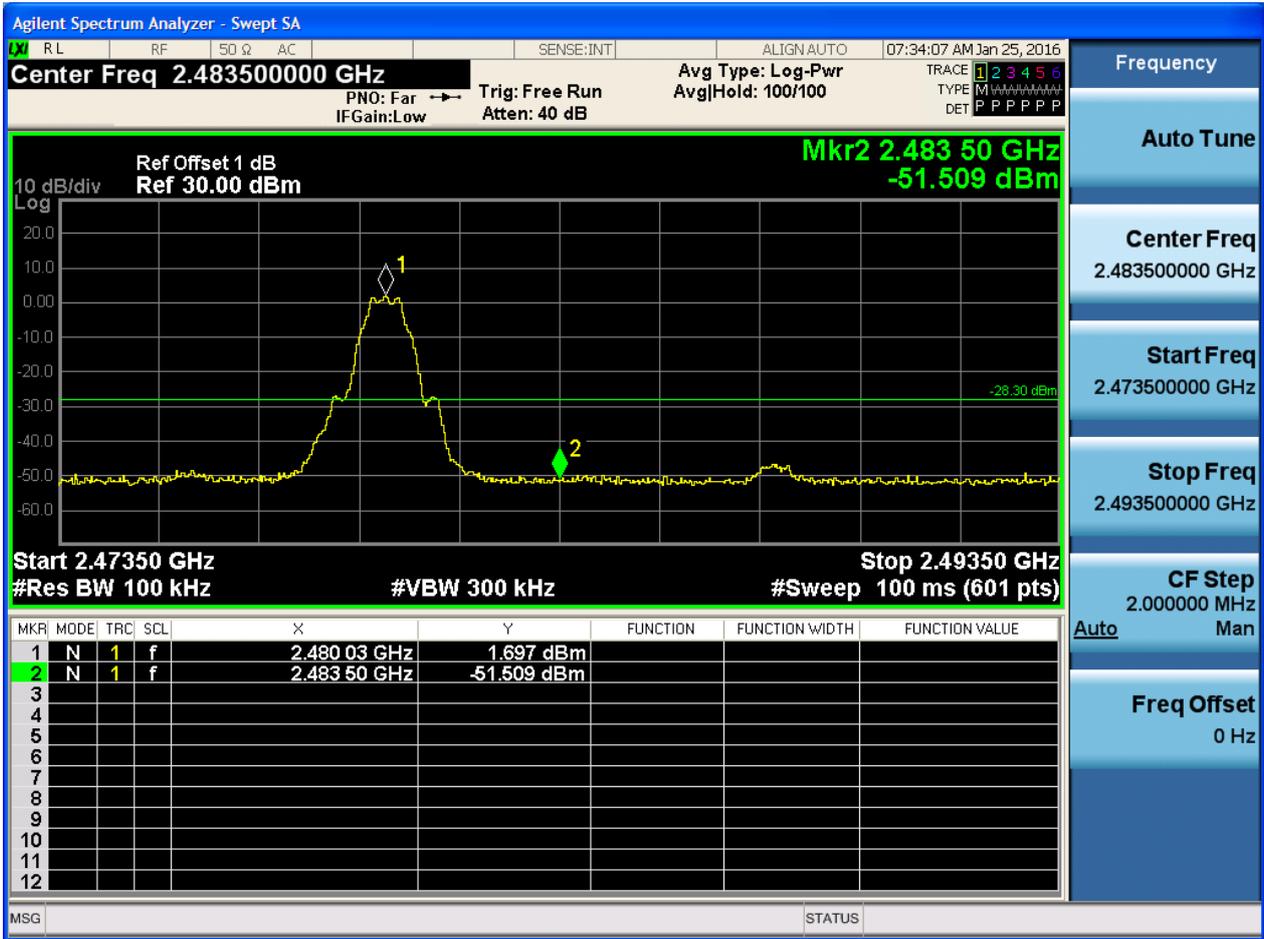
Part II - Test Plots

2.1 BLE\_L@Ant 1





2.2 BLE\_H@Ant 1



## Appendix G: Unwanted Emissions into Non-Restricted Frequency

### Bands

In this Appendix, the "Pref", which is used as the reference level, refers to the peak power level in any 100 kHz bandwidth within the fundamental emission, the "Puw" refers to the maximum emission power in 100 kHz band segments outside of the authorized frequency band.

Considering that the higher ratio of RBW to the span for the frequency ranges below 30 MHz makes the results determination be complicated, a narrower RBW other than 100 kHz is used for these ranges. The measured value should add a RBW correction factor (RBWCF) where  $RBWCF [dB] = 10 \times \lg(100 [kHz]/\text{narrower RBW [kHz]})$ . As to this Appendix, the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

For measurements on smart antenna systems (devices with multiple transmit chains), the test is performed at each chain and used as respective results for each chain, due to the relative-limit requirement.

In the result table, the "< Limit" denotes that "The Puw [dBm] is less than Pref[dBm]-30[dBm], see test plots for detailed".

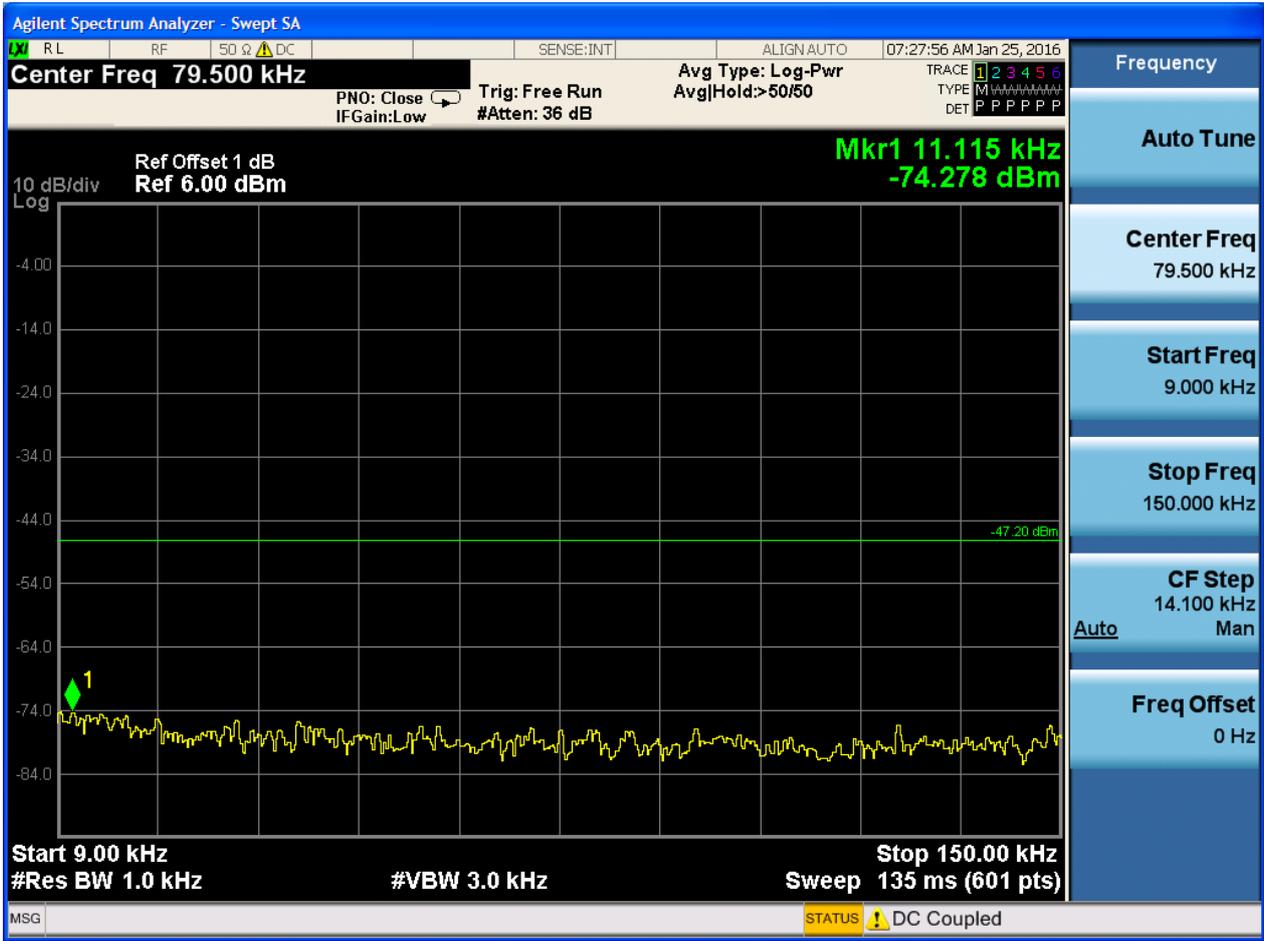
#### Part I - Test Results

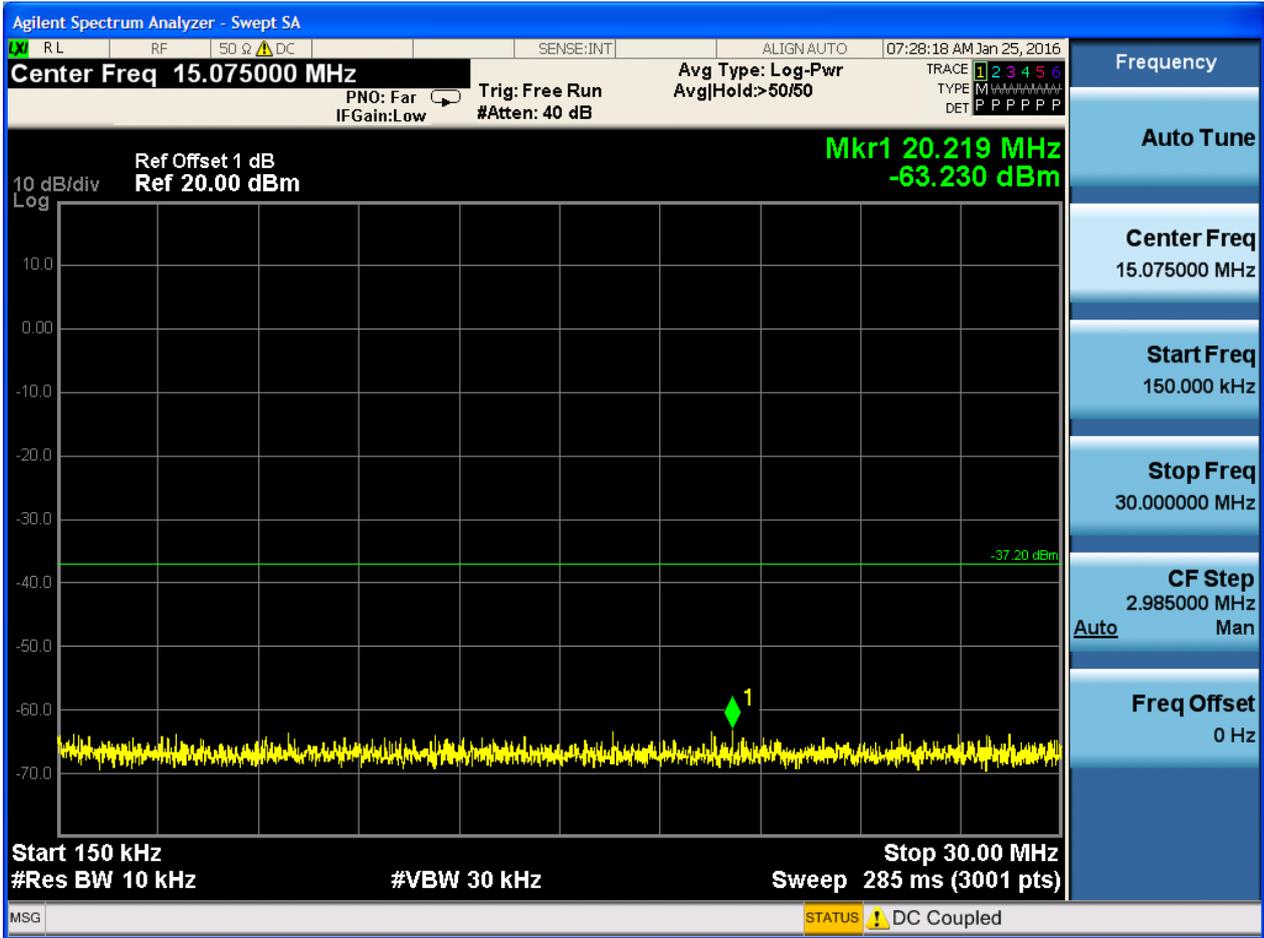
Test Mode	Test Channel	Frequency[MHz]	Ant	Pref[dBm]	Puw[dBm]	Verdict
BLE	L	2402	Ant 1	2.80	<limit	pass
	M	2440	Ant 1	4.58	<limit	pass
	H	2480	Ant 1	1.72	<limit	pass

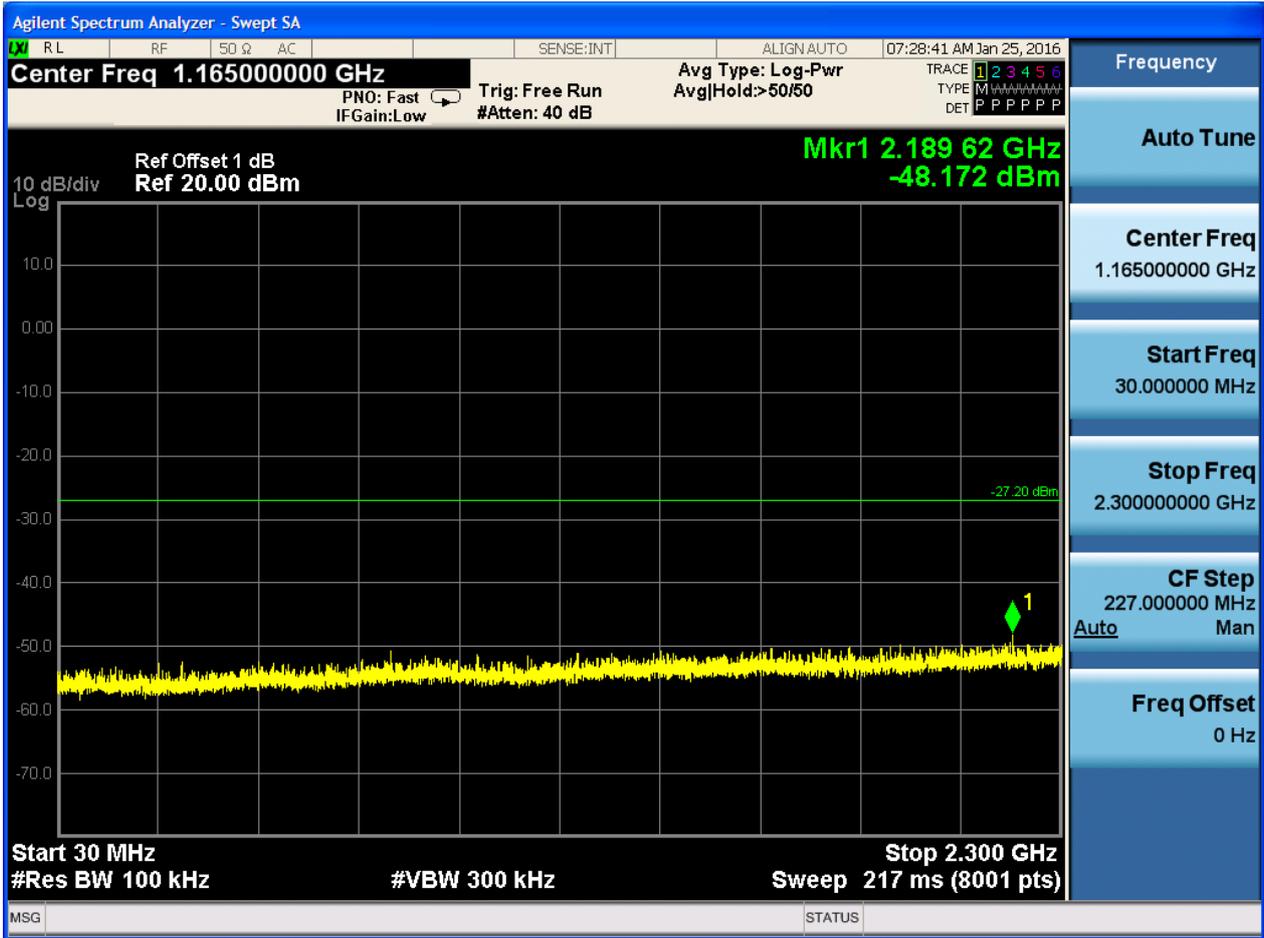


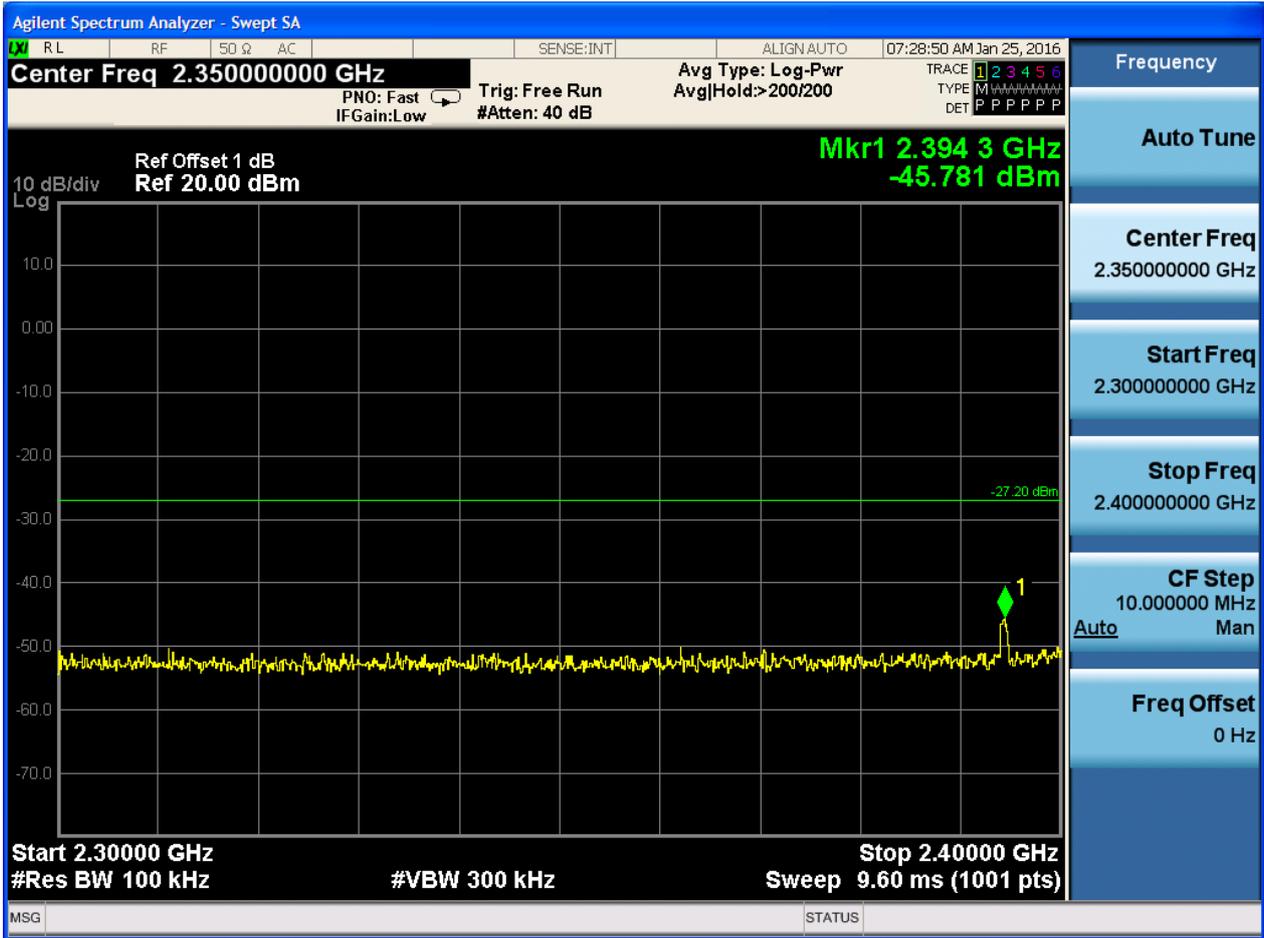


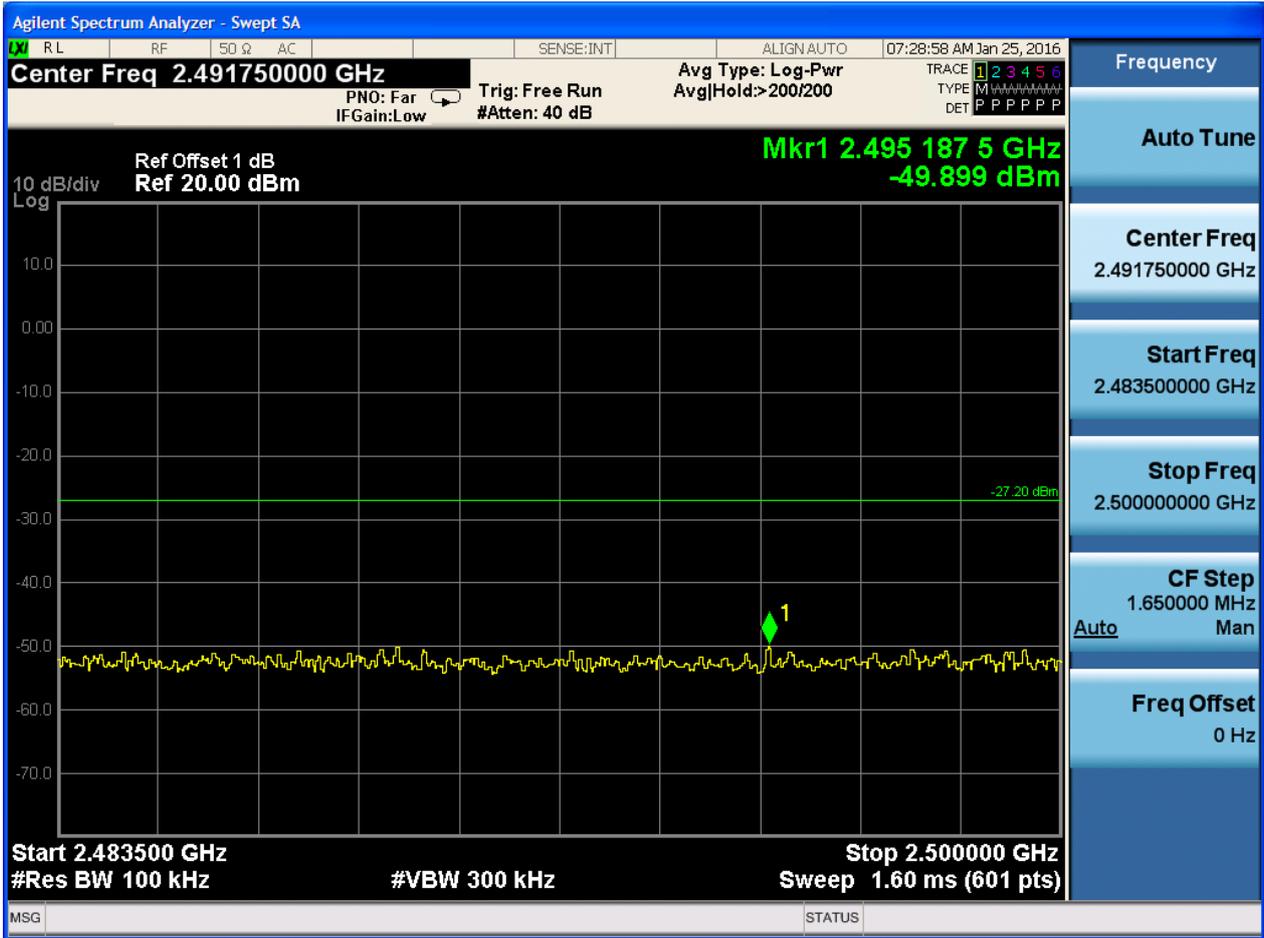
Puw:















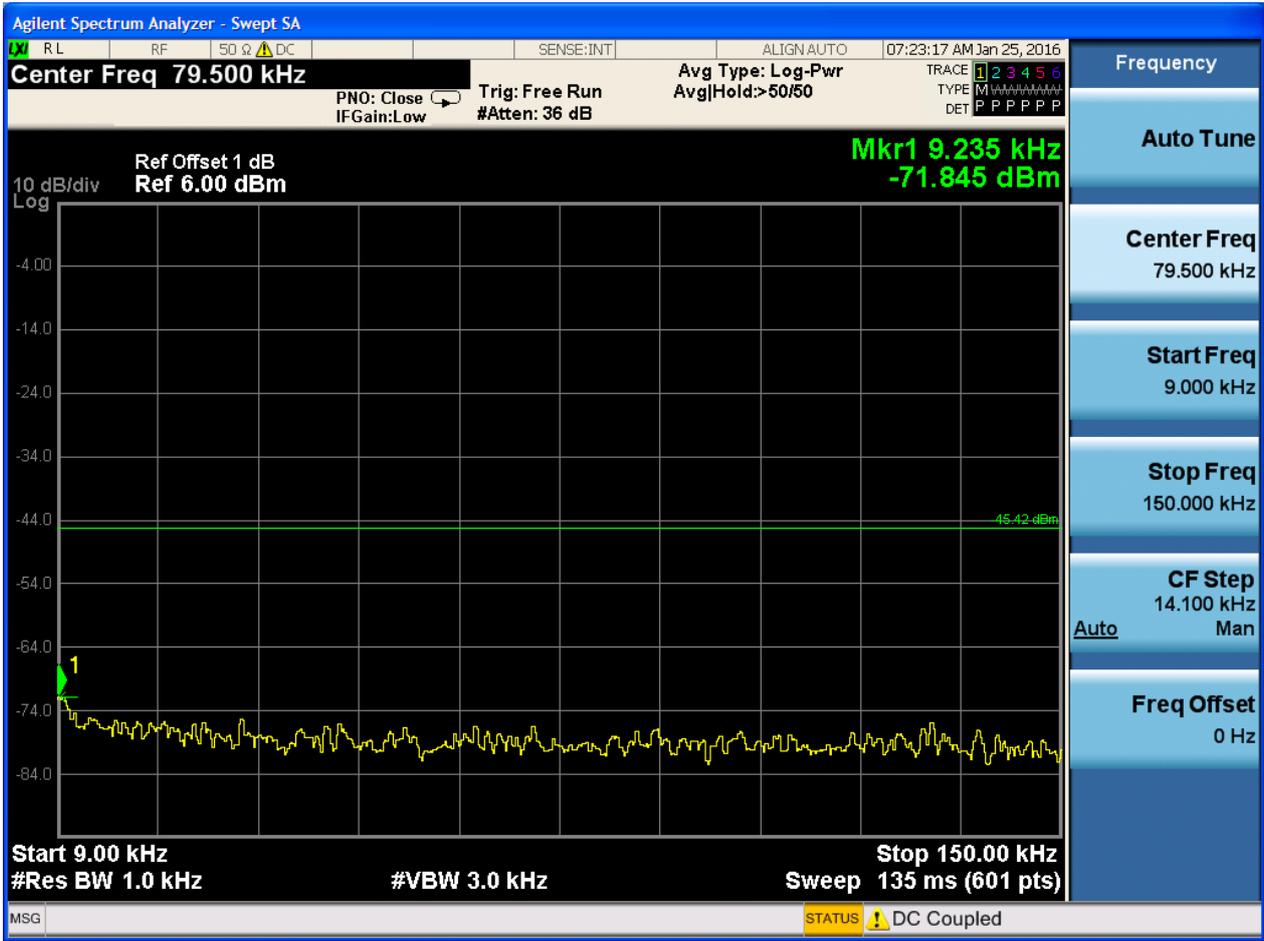
## 2.2 BLE\_M@Ant 1

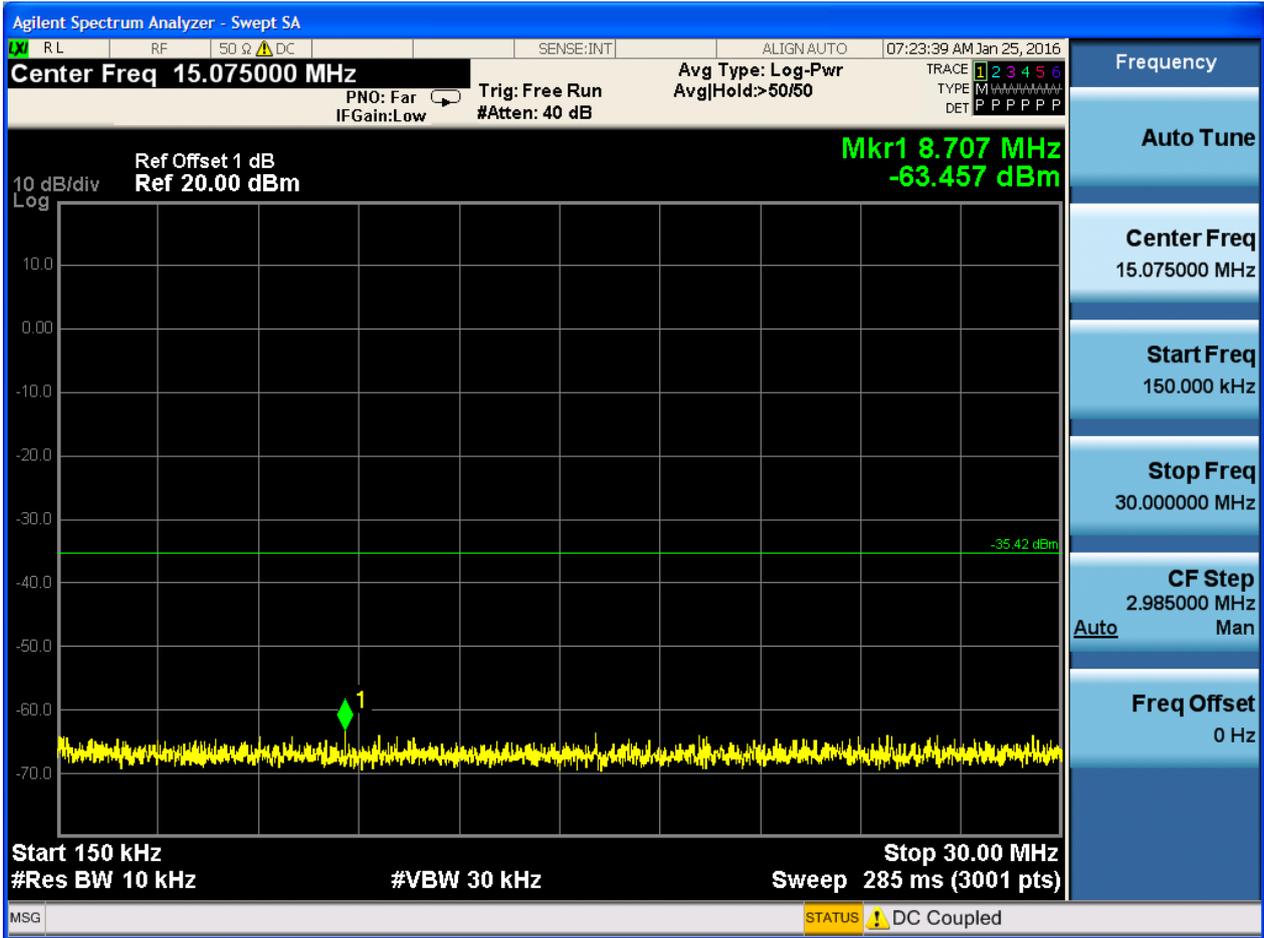
Pref:

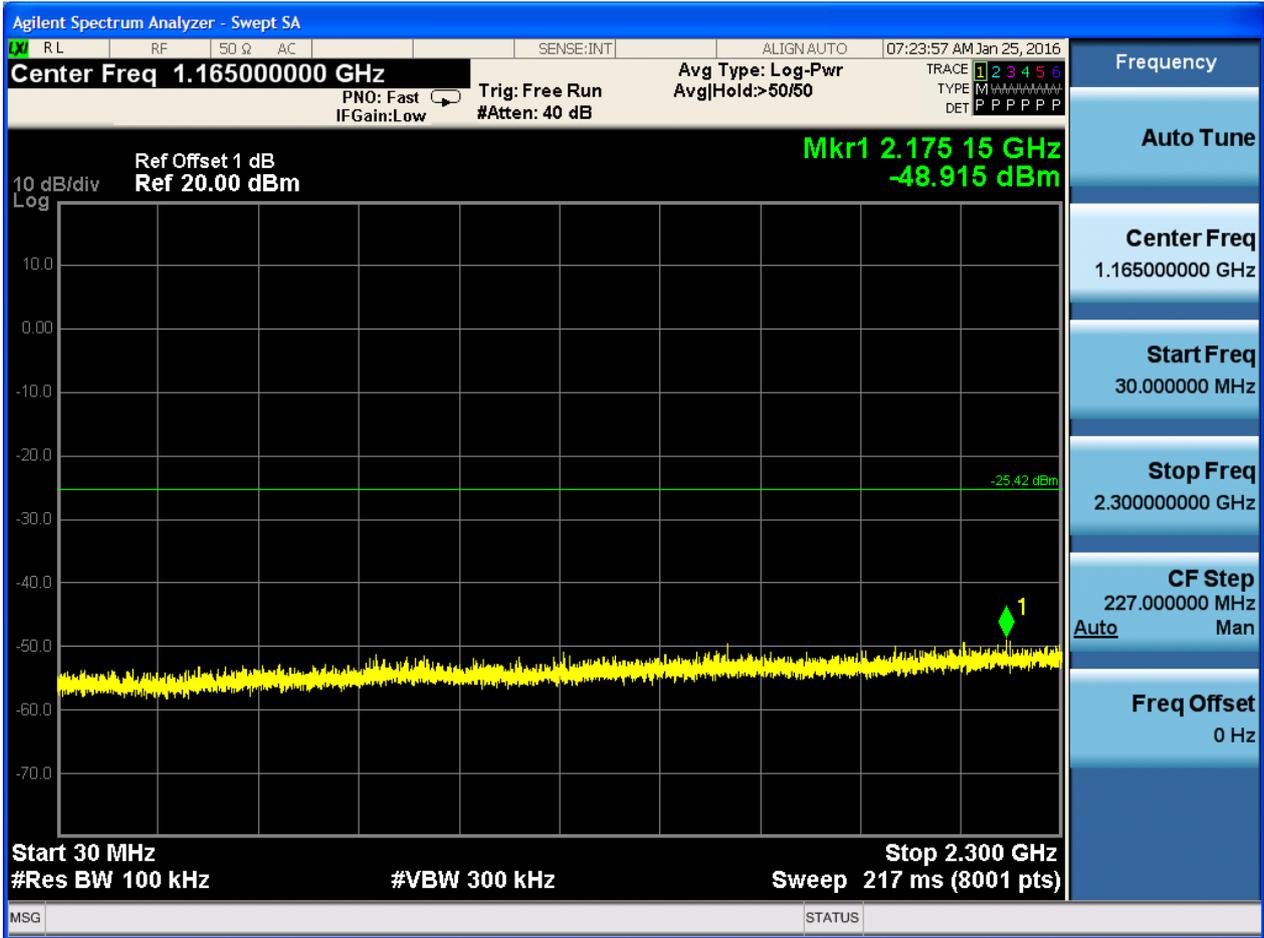


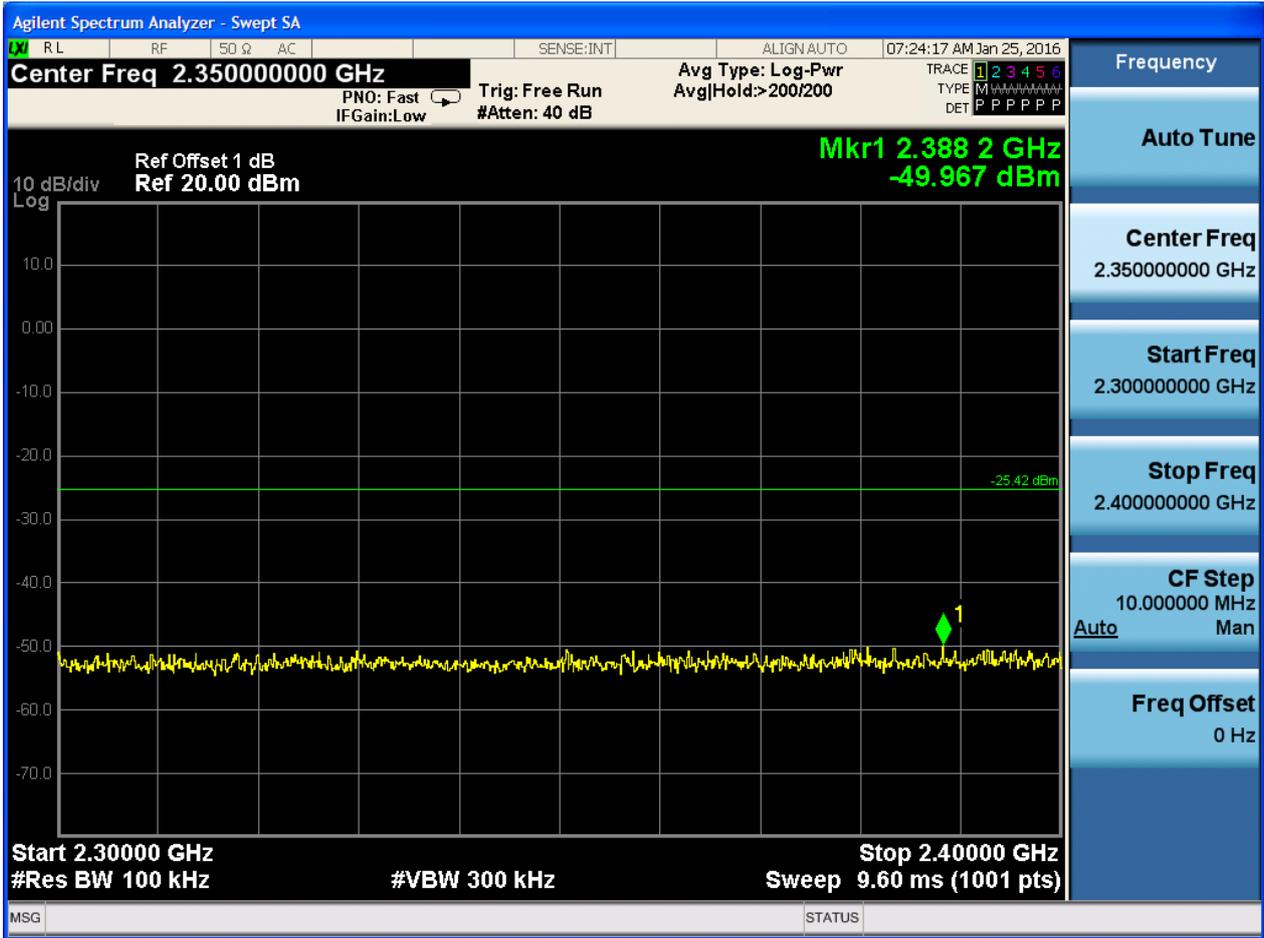


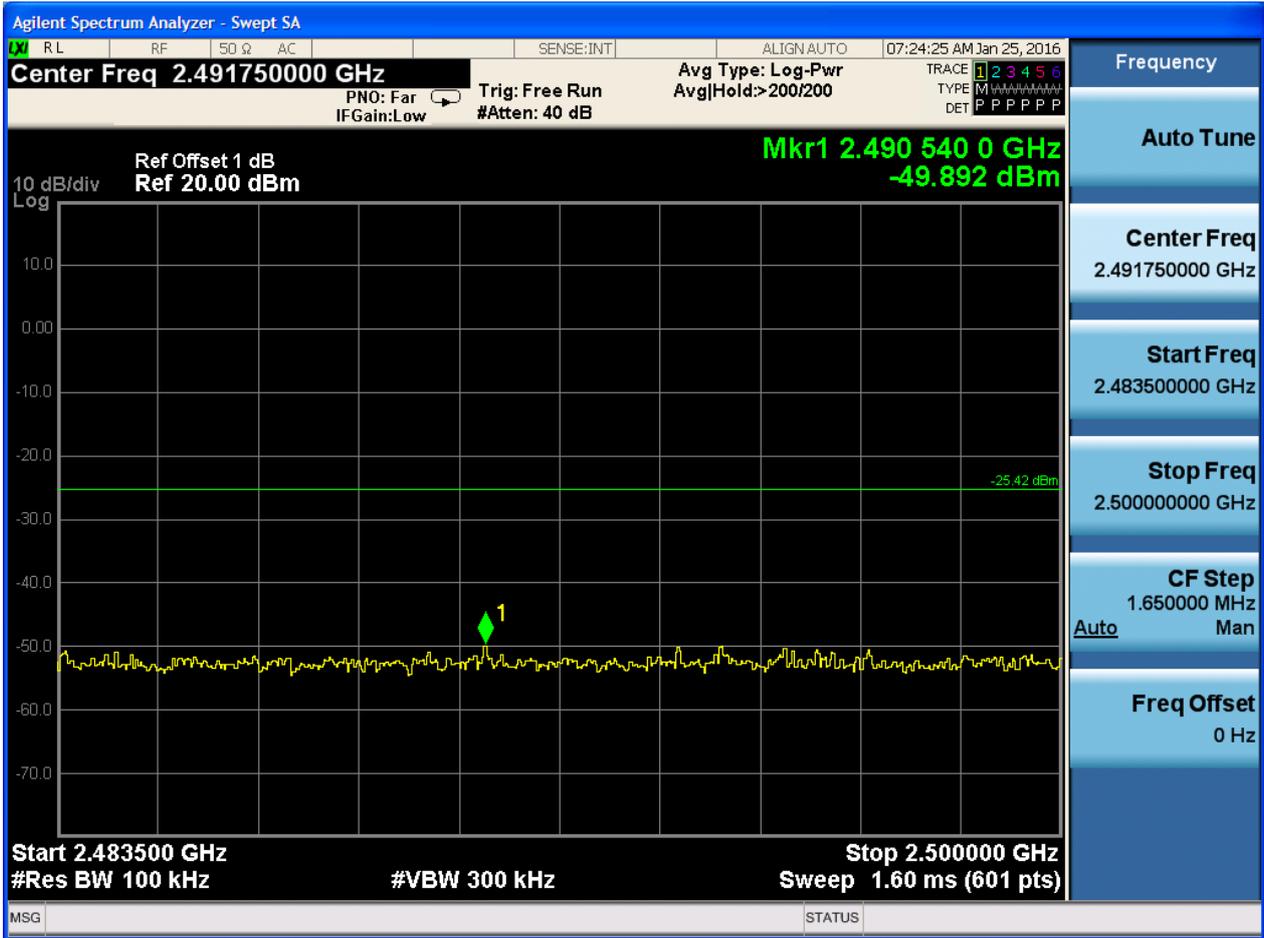
Puw:















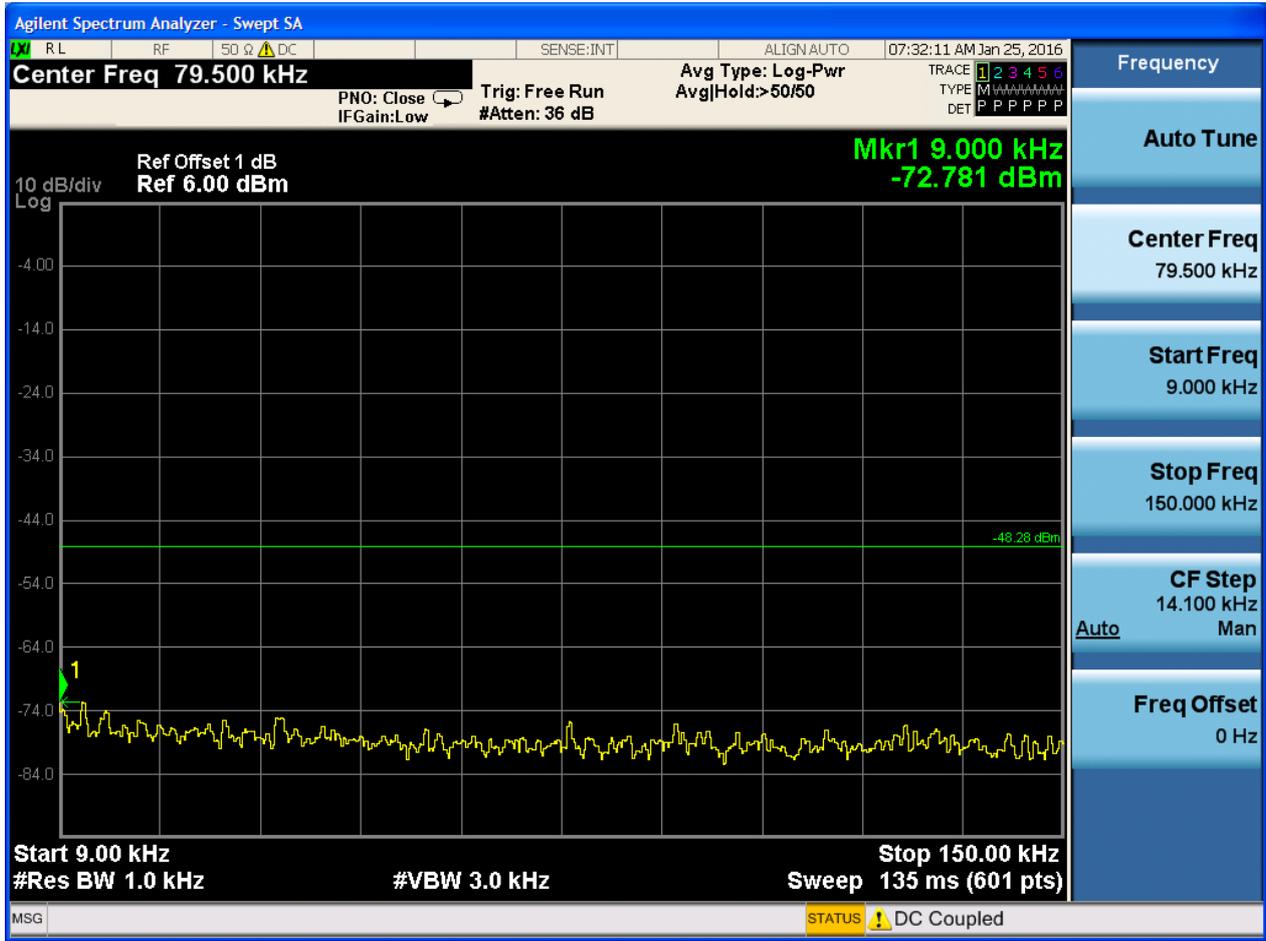
### 2.3 BLE\_H@Ant 1

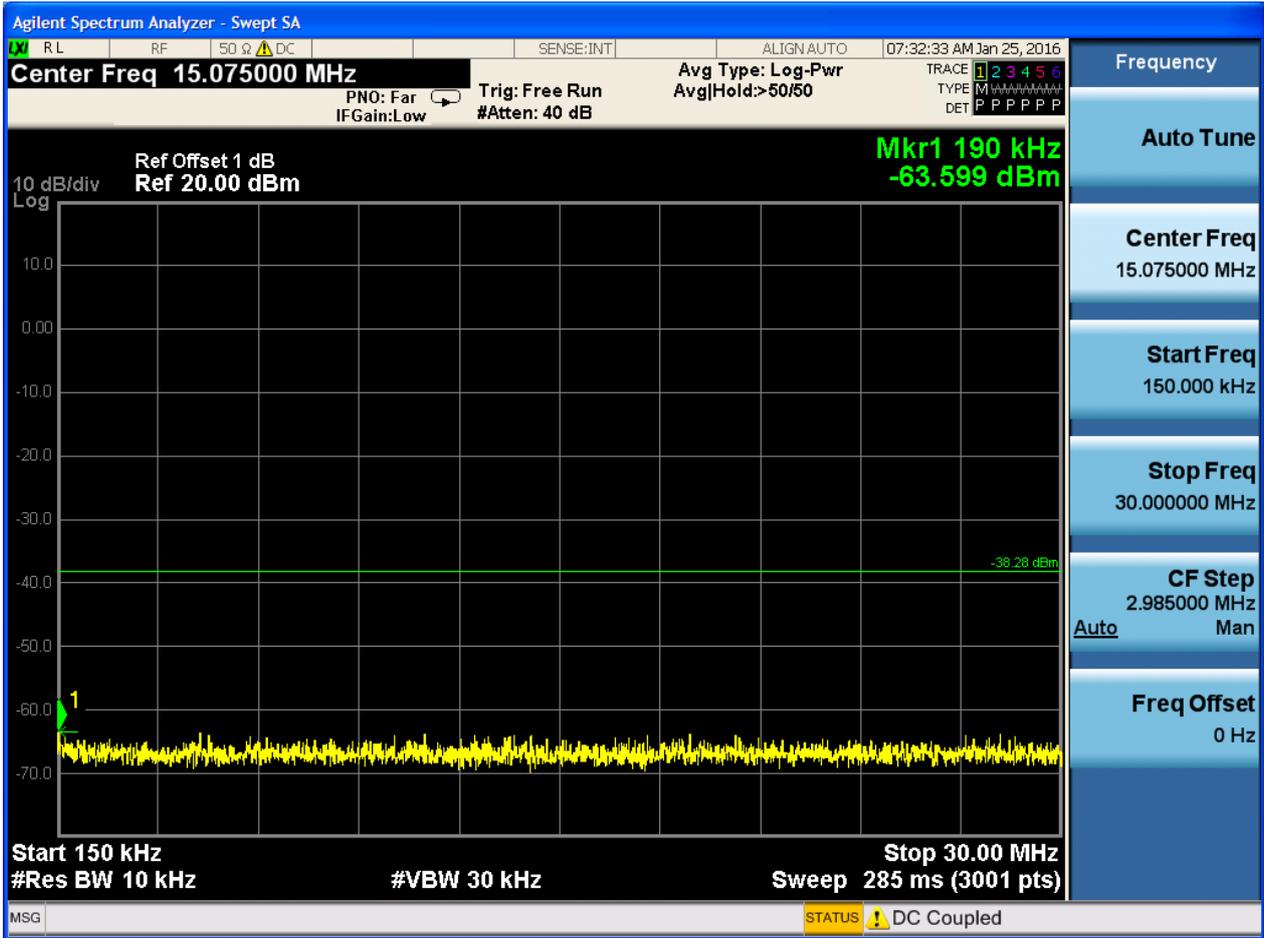
Pref:

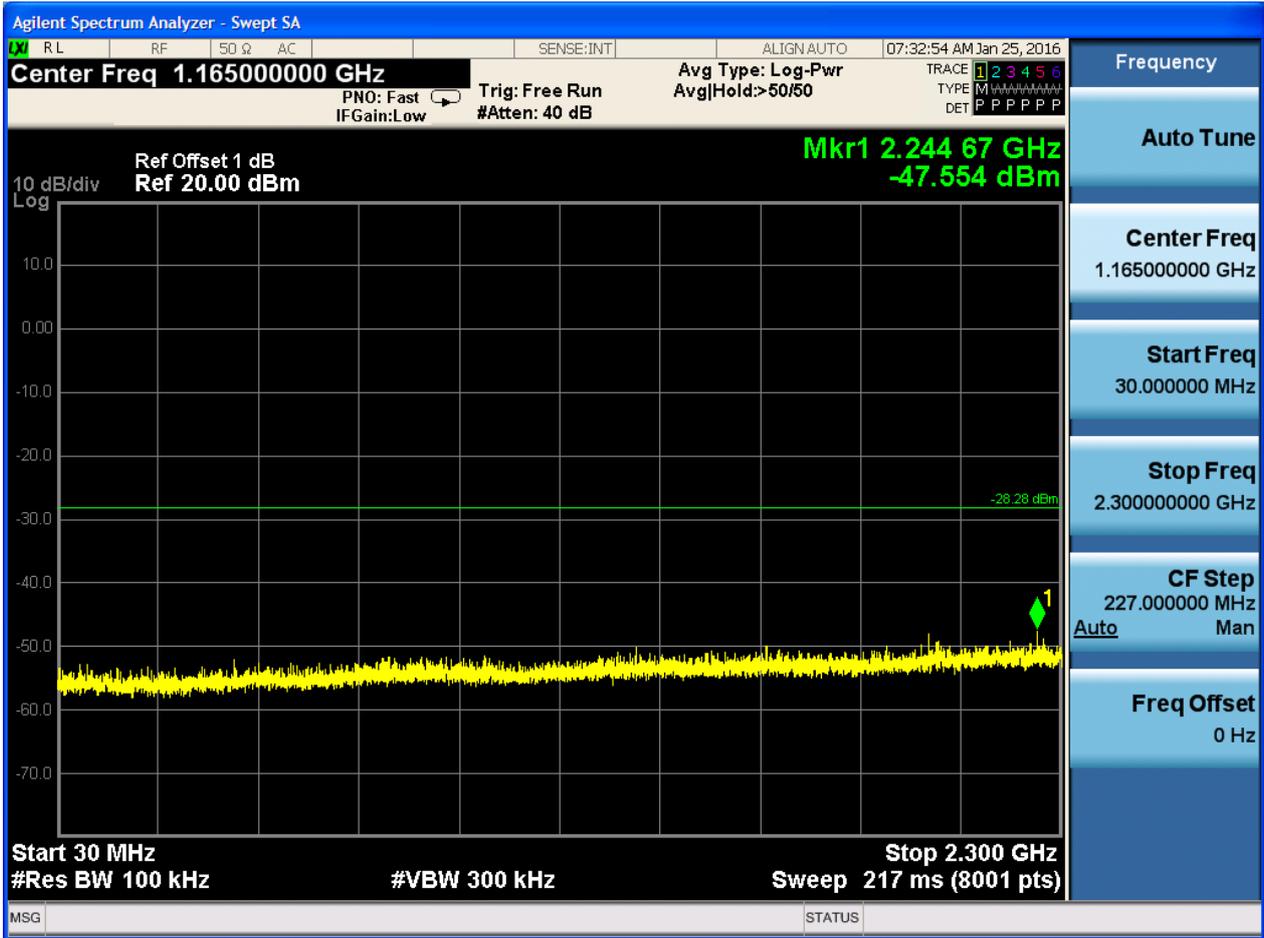


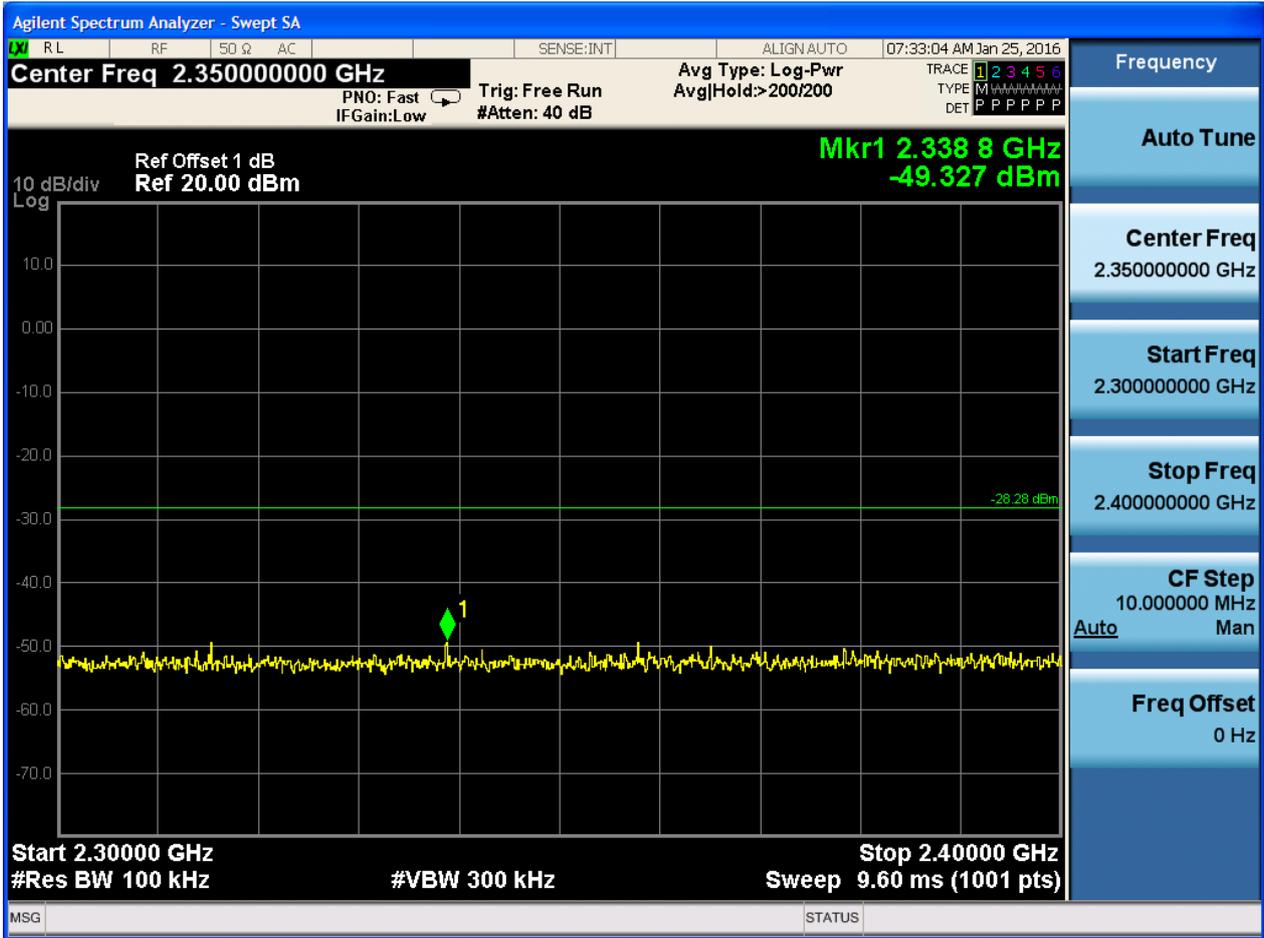


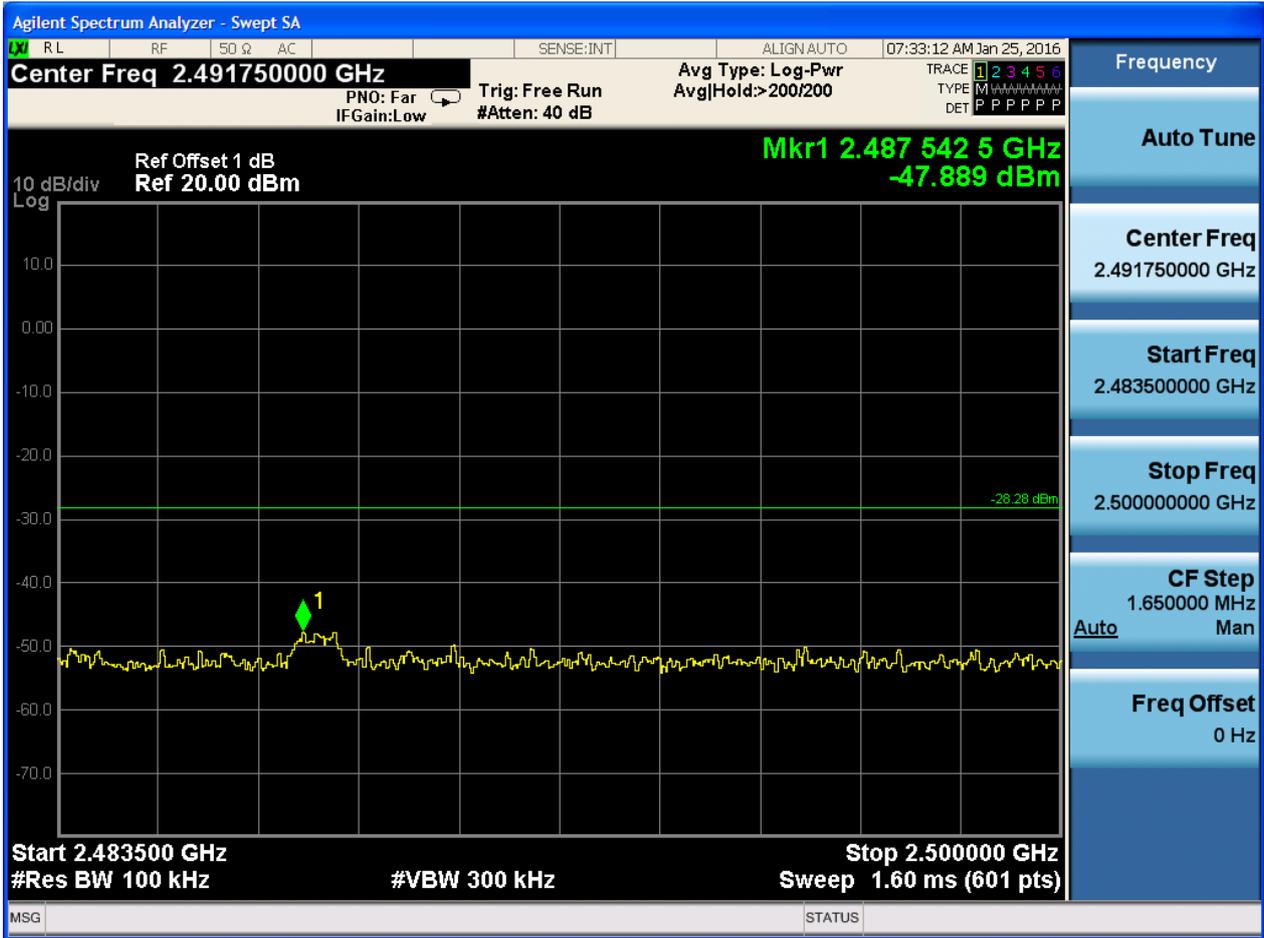
Puw:















## Appendix H: Radiated Spurious Emission & Spurious in Restricted Band

Note: We tested all modes, but the data presented below is the worst case. Below 1GHz, RBW = 100 kHz, VBW = 300 kHz.

Above 1GHz, RBW = 1 MHz, VBW = 3 MHz.

The simultaneous transmission has been considered

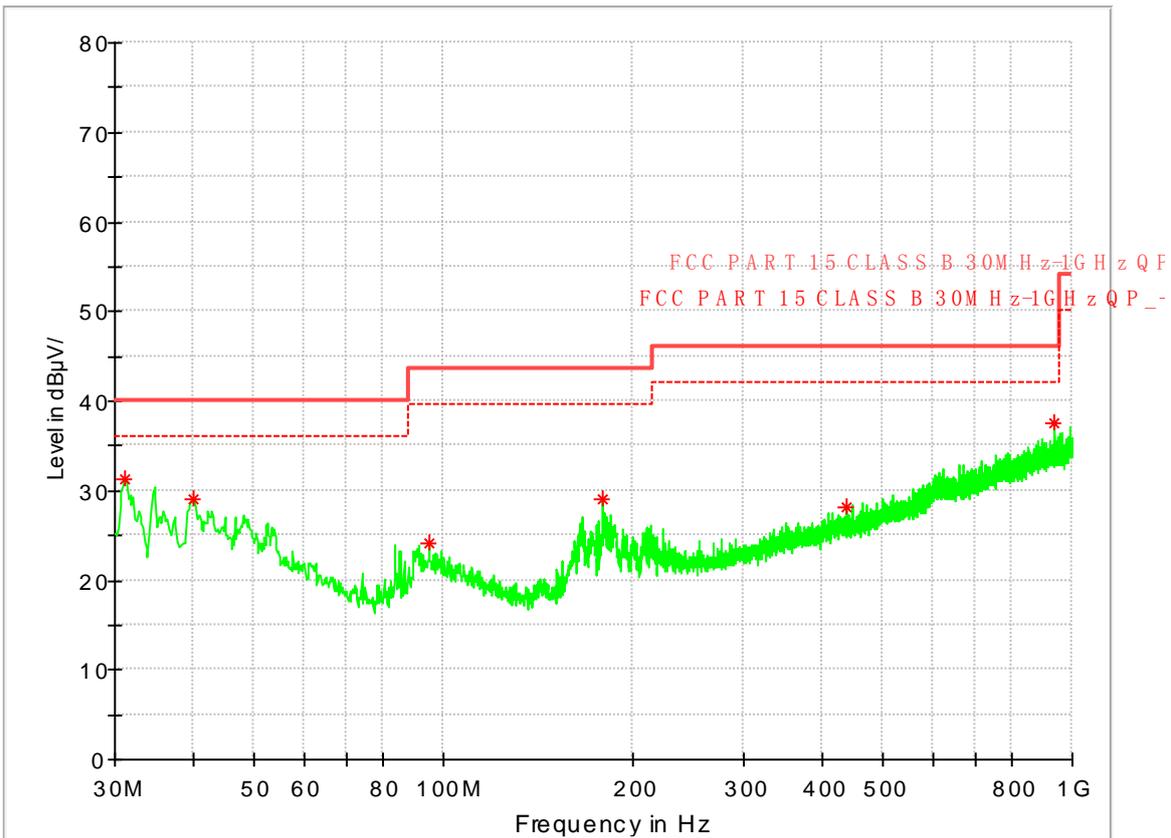
### 7.1 Part 1: Testing Range of “9 kHz to 30MHz”

NOTE1: No peak found in the Test Range of “9 kHz to 30MHz”

### 7.2 Part 2: Testing Range of “30 MHz to 1 GHz”

Note 1: The test results and plot for testing range of “30 MHz to 1 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.

Note 2: The emissions in this range are mainly from the Platform Device (Notepad PC and its ancillary components).





## Final Result 1

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth	Corr. (dB)
31.164000	31.28	40.00	-8.72	100.0	V	240.	14.6
40.088000	29.03	40.00	-10.97	100.0	V	221.	15.4
94.990000	24.07	43.50	-19.43	100.0	V	0.0	13.1
178.992000	29.02	43.50	-14.48	100.0	V	288.	11.5
437.012000	28.21	46.00	-17.79	100.0	V	142.	18.7
939.084000	37.46	46.00	-8.54	100.0	H	2.0	25.9

**7.3Part 3: Testing Range of “18 GHz to 26.5 GHz”**

NOTE: No peak found in the Test Range of “18 GHz to 26.5GHz”

#### 7.4Part 4: Testing Range of “1GHz to 3GHz”

Note 1: The testing range of “1 GHz to 3 GHz” is for checking radiated emissions located in restricted bands near the EUT operating bands.

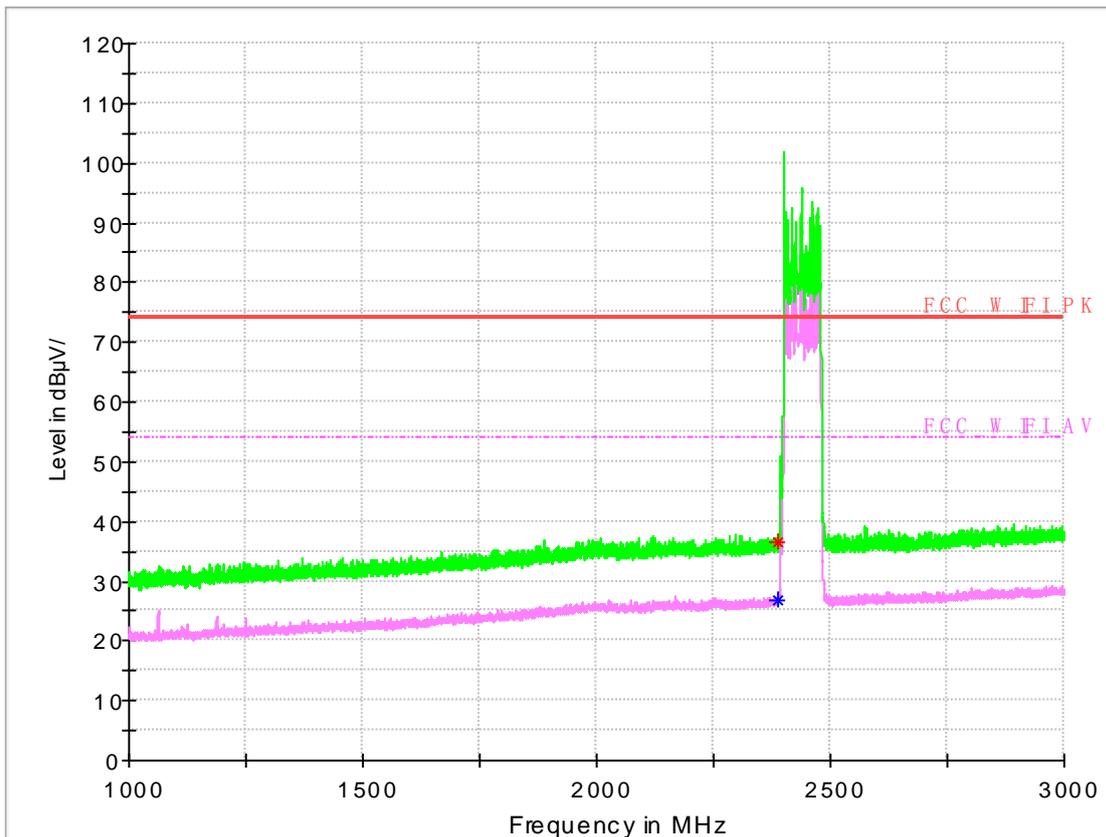
Note 2: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB $\mu$ V/m) and Average Limit (54 dB $\mu$ V/m).

Note 3: The peak spike exceeds the limit line is EUT’s operating frequency.

Test Mode:

#### 7.4.1Test Mode: BLE

##### 7.4.1.1Channel 0

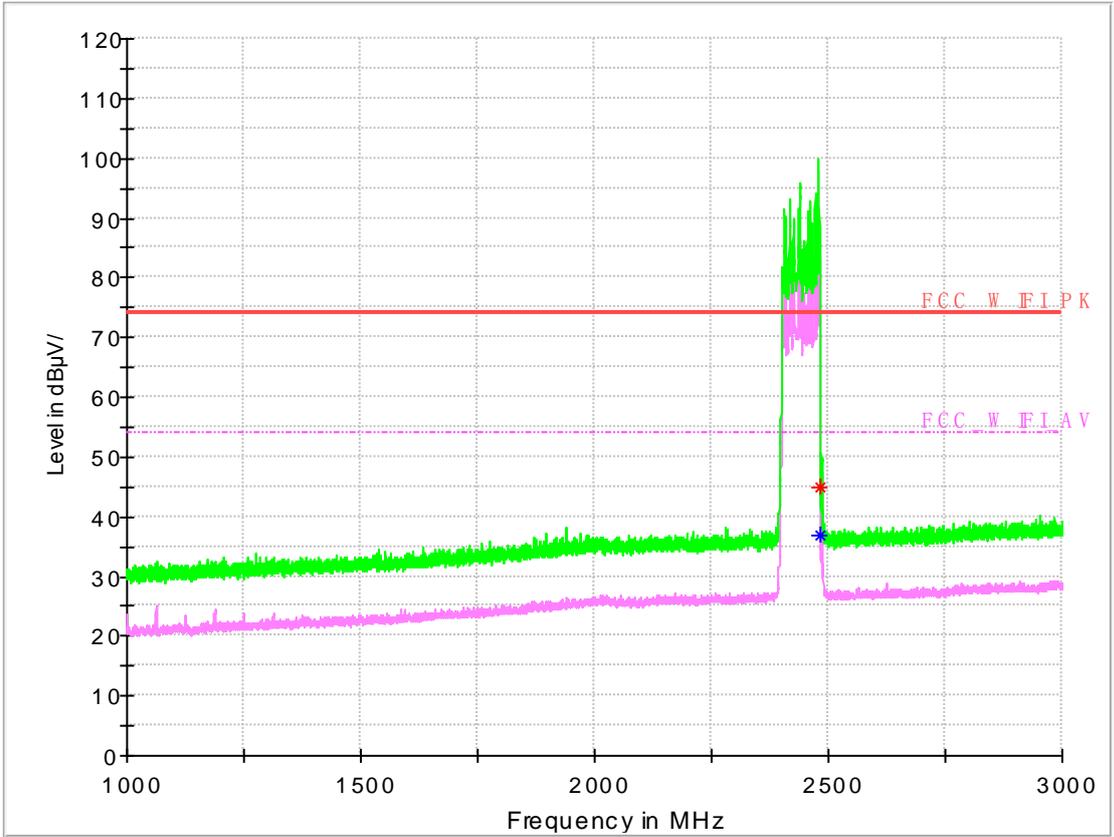




Note: The peak exceeds the limit line is carrier frequency.

Frequency (MHz)	MaxPeak	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth	Corr.
2390.000000	---	26.91	54.00	-27.09	100.0	H	213.0	-7.8
2390.000000	36.64	---	74.00	-37.36	100.0	H	213.0	-7.8

7.4.1.2 Channel 39

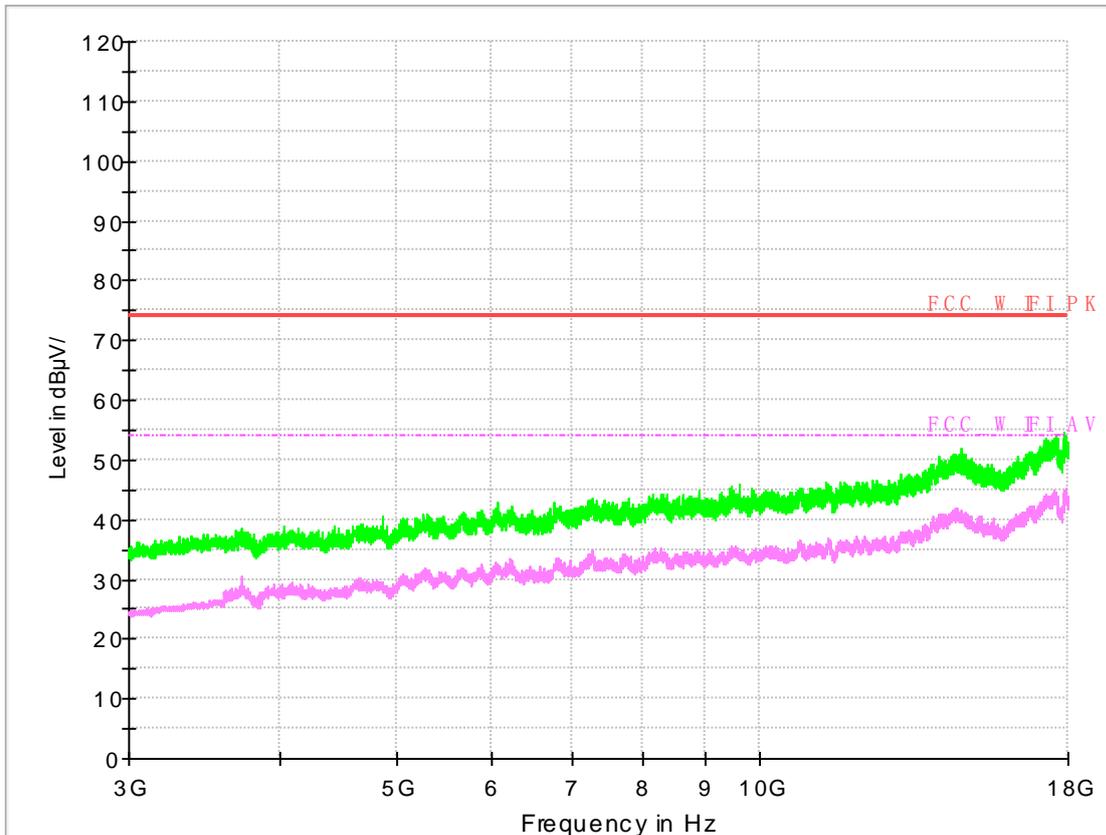


Note: The peak exceeds the limit line is carrier frequency.

Frequency (MHz)	MaxPeak	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Height (cm)	Pol	Azimuth	Corr
2483.500000	---	36.97	54.00	-17.03	100.0	H	201.0	-0.4
2483.500000	44.99	---	74.00	-29.01	100.0	H	201.0	-0.4

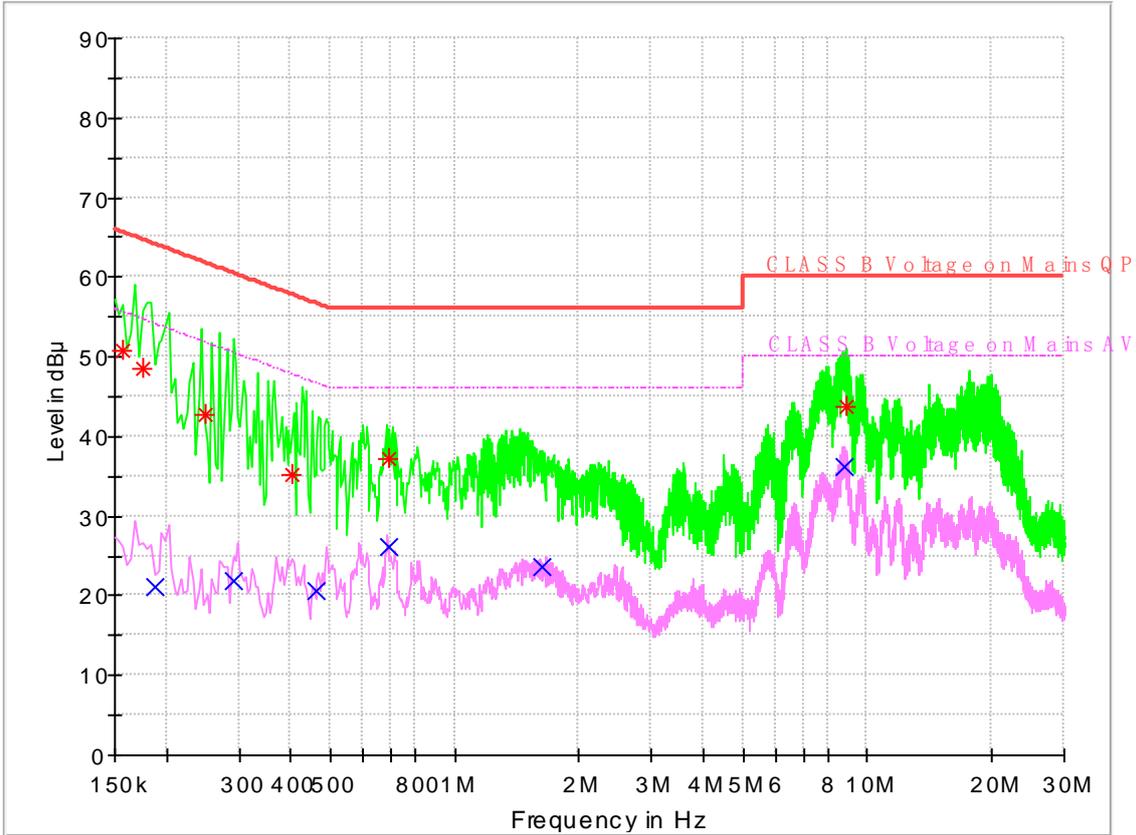
### 7.5Part 5: Testing Range of “3 GHz to 18 GHz”

- Note 1: The test results and plot for testing range of “3 GHz to 18 GHz” showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.
- Note 2: The testing range of “3 GHz to 18 GHz” is for checking radiated emissions located in restricted bands faraway from the EUT operating bands.
- Note 3: Two limits are required in the testing range above 1 GHz, that is Peak limit (74 dB $\mu$ V/m) and Average Limit (54 dB $\mu$ V/m).



## Appendix I: Conducted Emission at Power Port

Note: RBW =9 kHz, VBW = 30 kHz





## Final Result 1

Frequency	QuasiPeak	Average	Limit	Margin	Meas. Time	Bandwidth	Line	Corr.
0.156848	50.69	---	65.63	-14.93	15000.0	9.000	N	9.7
0.176088	48.57	---	64.67	-16.10	15000.0	9.000	N	9.7
0.188785	---	21.04	54.09	-33.05	15000.0	9.000	N	9.7
0.250162	42.65	---	61.75	-19.11	15000.0	9.000	N	9.7
0.292838	---	21.95	50.44	-28.49	15000.0	9.000	L1	9.7
0.401718	35.18	---	57.82	-22.64	15000.0	9.000	N	9.7
0.464508	---	20.73	46.61	-25.88	15000.0	9.000	N	9.7
0.690256	---	26.21	46.00	-19.79	15000.0	9.000	N	9.7
0.692148	37.20	---	56.00	-18.80	15000.0	9.000	L1	9.7
1.634710	---	23.70	46.00	-22.30	15000.0	9.000	N	9.7
8.754622	---	36.22	50.00	-13.78	15000.0	9.000	N	10.0
8.893462	43.74	---	60.00	-16.26	15000.0	9.000	N	10.0

END