



Appendix A: 20dB Emission Bandwidth (EBW)



1 Result Table

EUT Conf.	EBW [MHz]	Verdict
TM1_DH5_Ch0	0.94	Pass
TM1_DH5_Ch39	1	Pass
TM1_DH5_Ch78	0.95	Pass
TM2_2DH5_Ch0	1.28	Pass
TM2_2DH5_Ch39	1.29	Pass
TM2_2DH5_Ch78	1.28	Pass
TM3_3DH5_Ch0	1.28	Pass
TM3_3DH5_Ch39	1.29	Pass
TM3_3DH5_Ch78	1.28	Pass



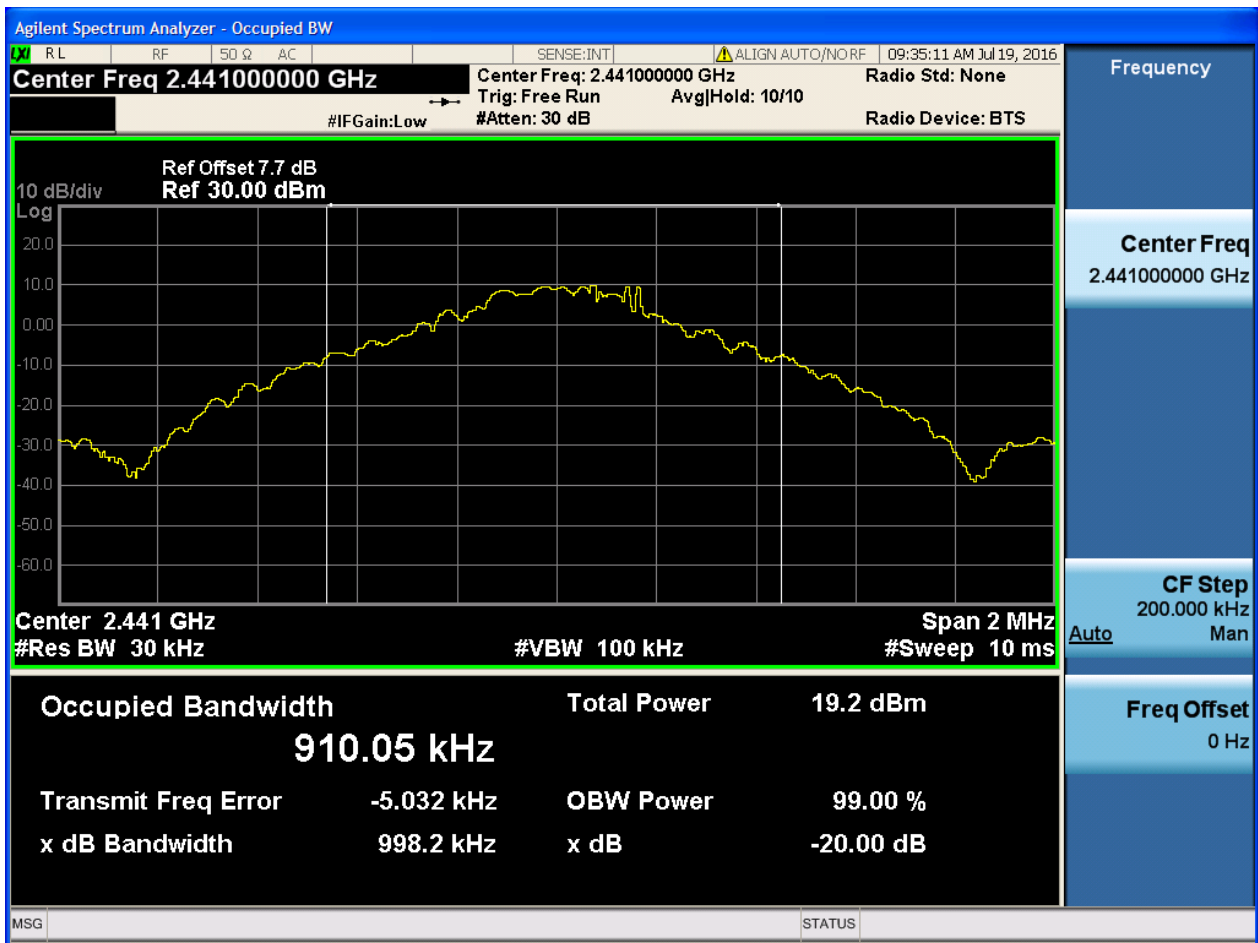
2 Test Plot

2.1 TM1_DH5_Ch0

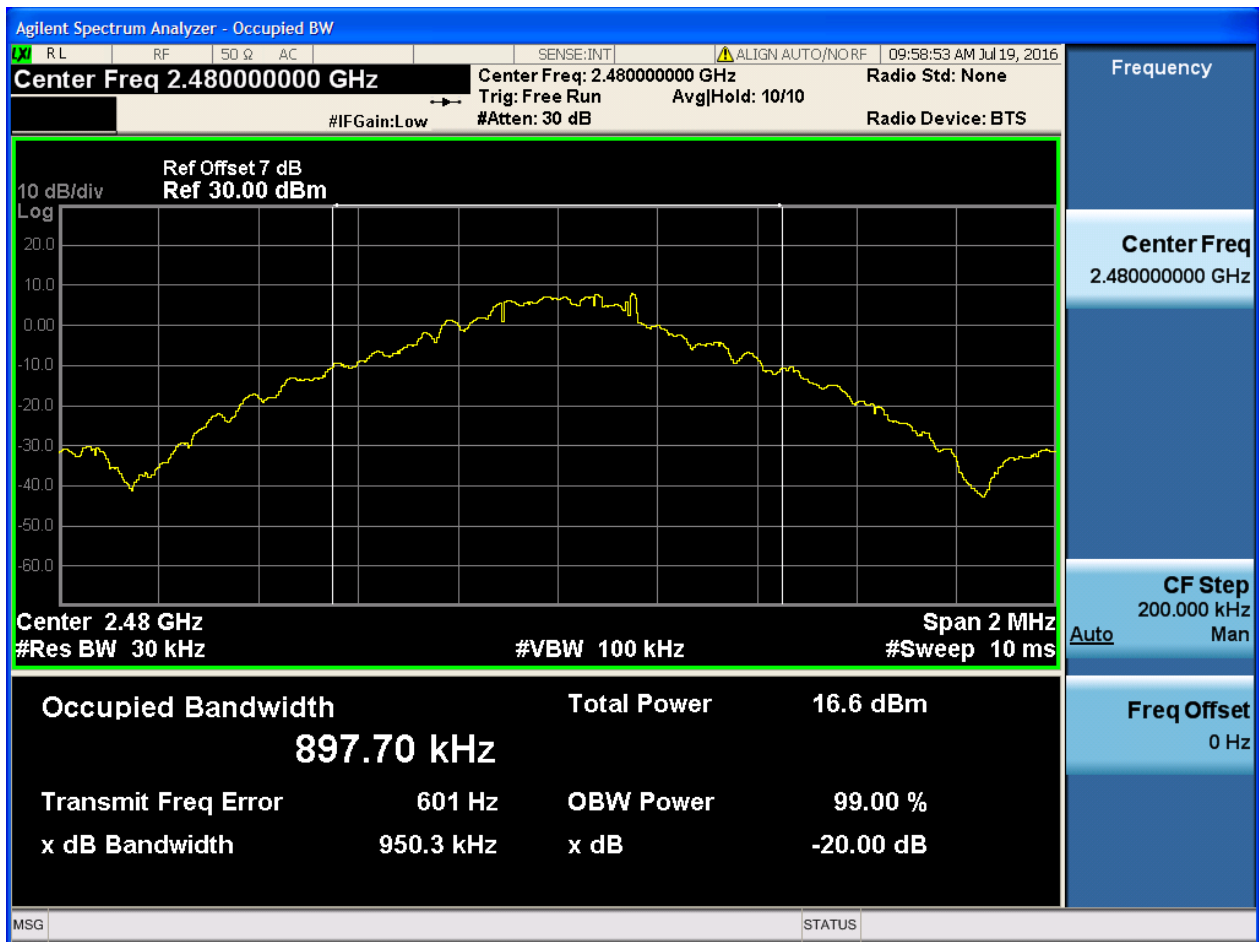




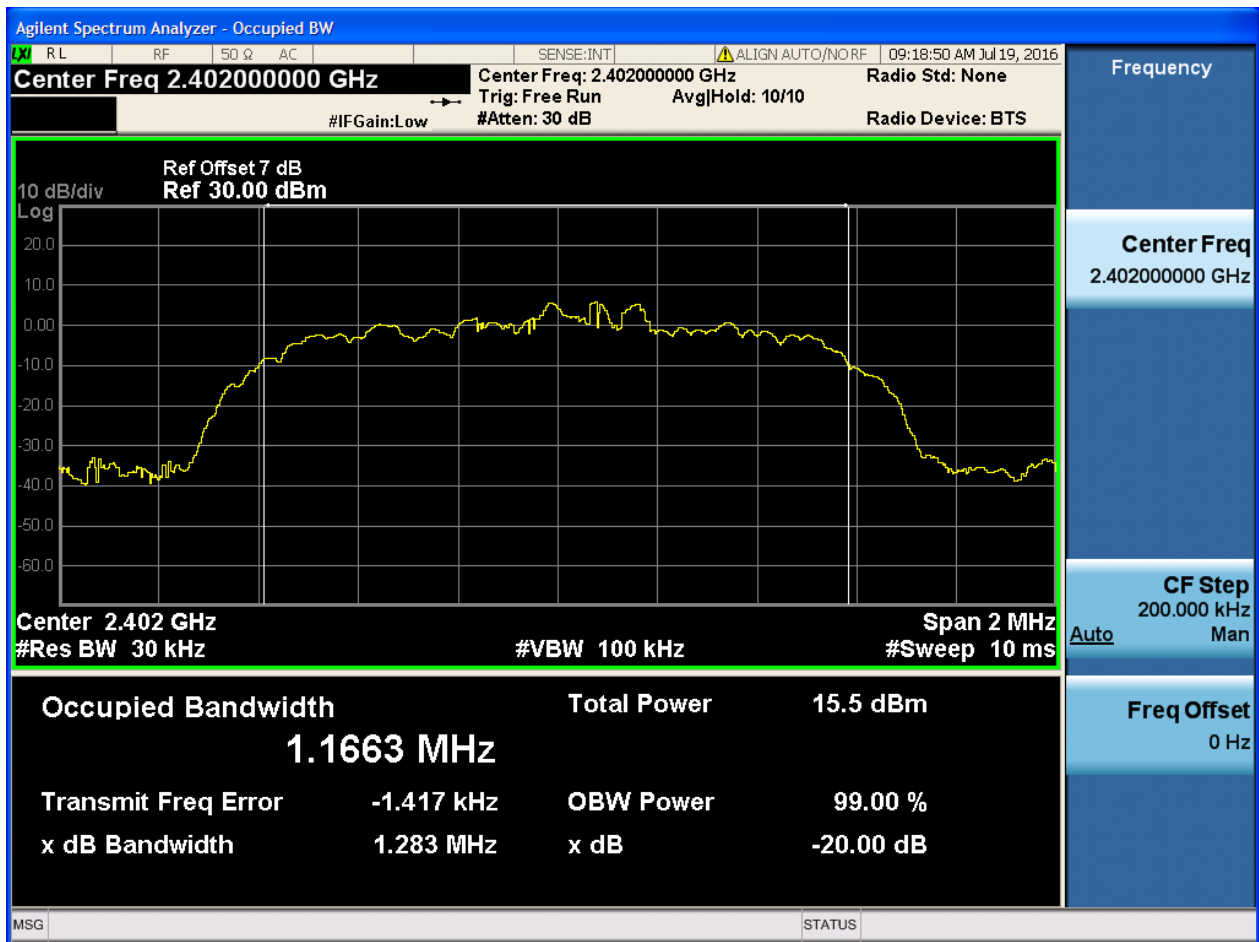
2.2 TM1_DH5_Ch39



2.3 TM1_DH5_Ch78

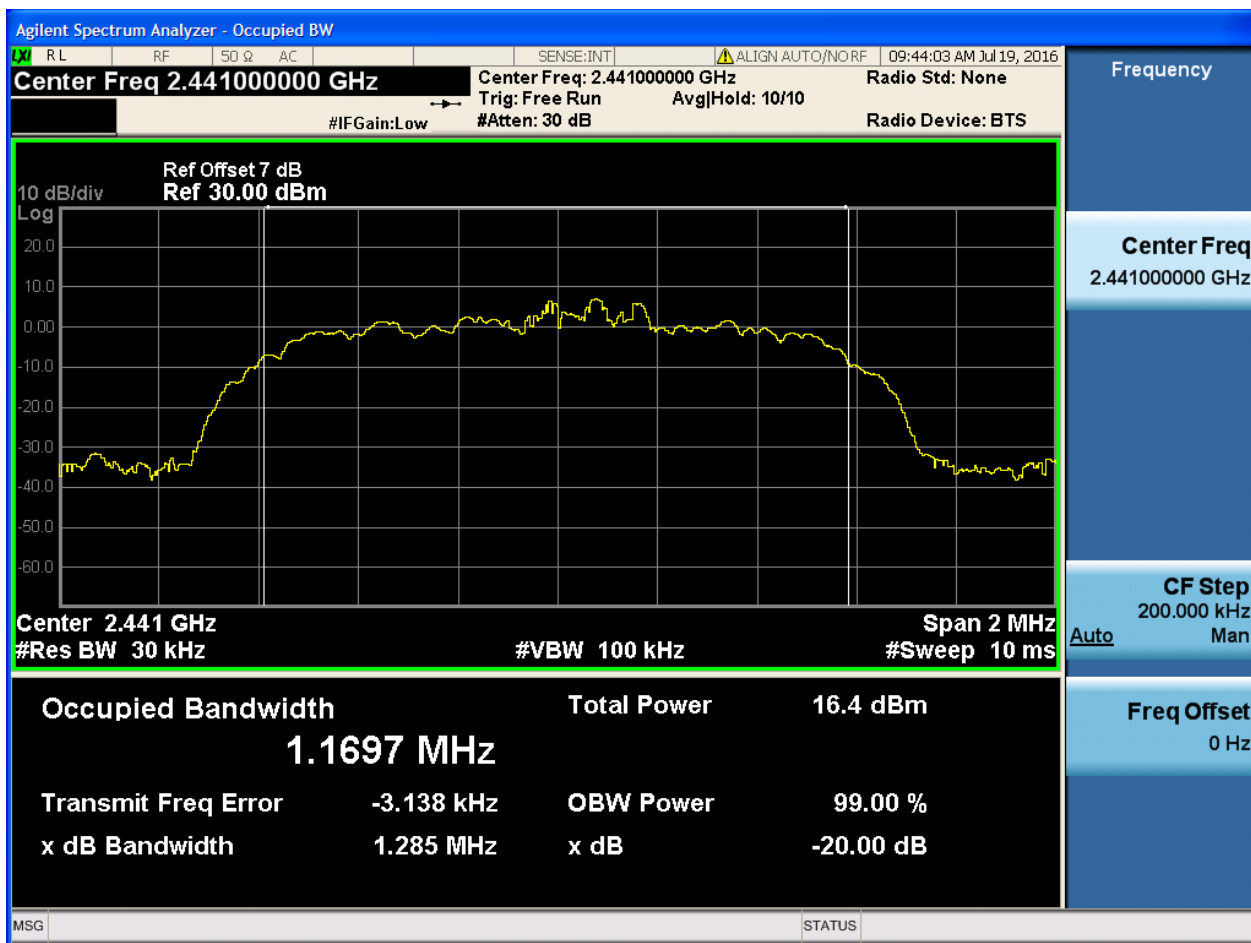


2.4 TM2_2DH5_Ch0



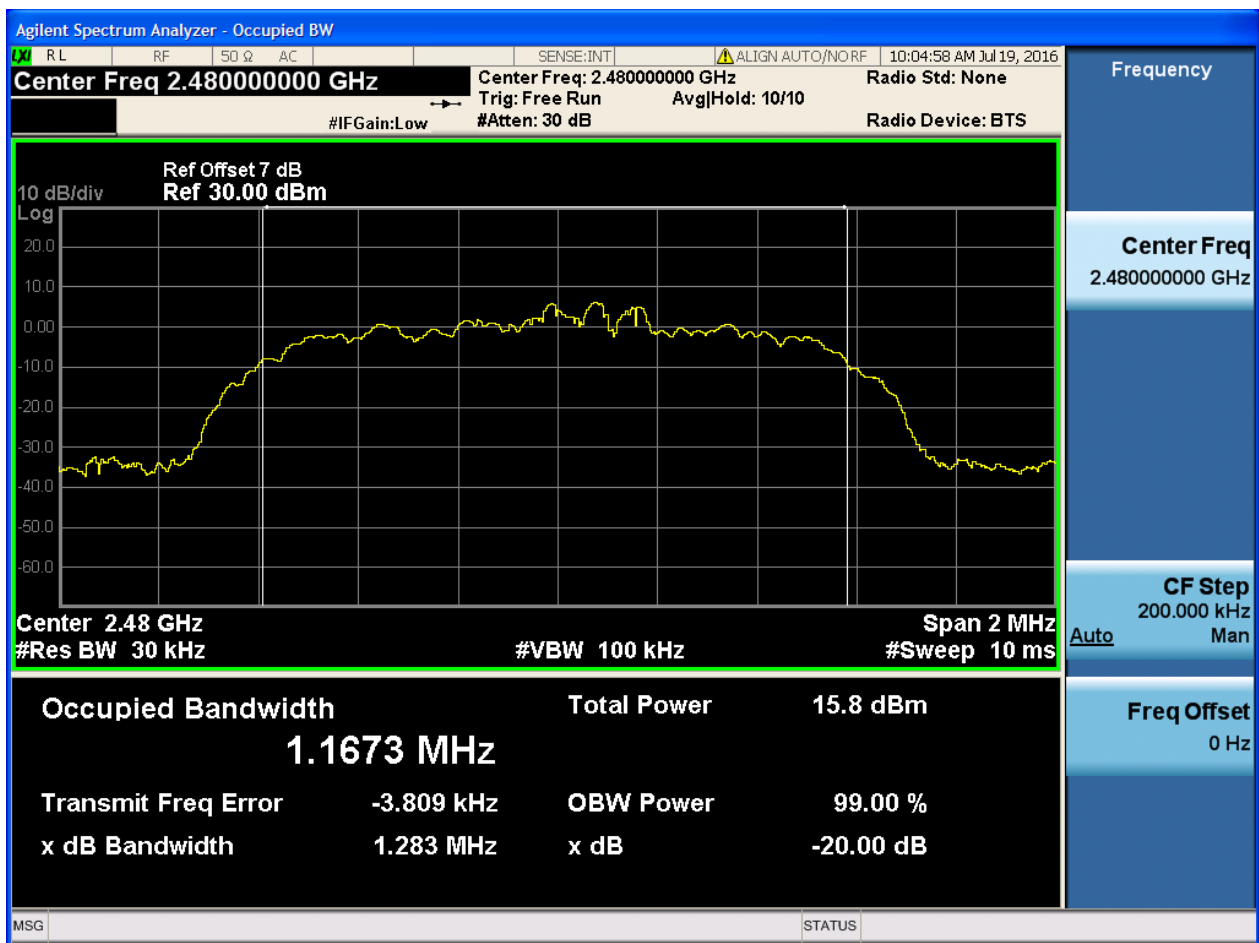


2.5 TM2_2DH5_Ch39



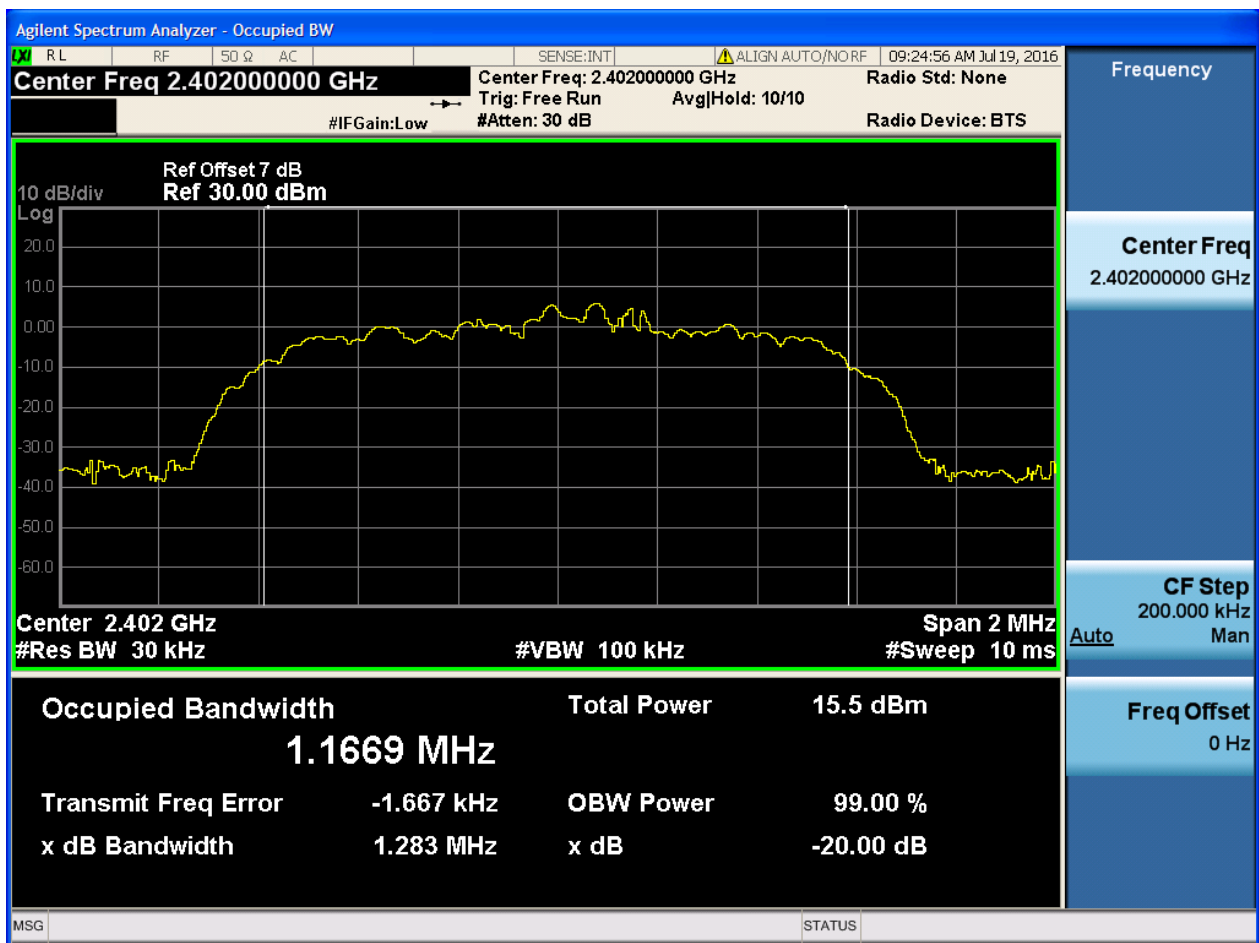


2.6 TM2_2DH5_Ch78



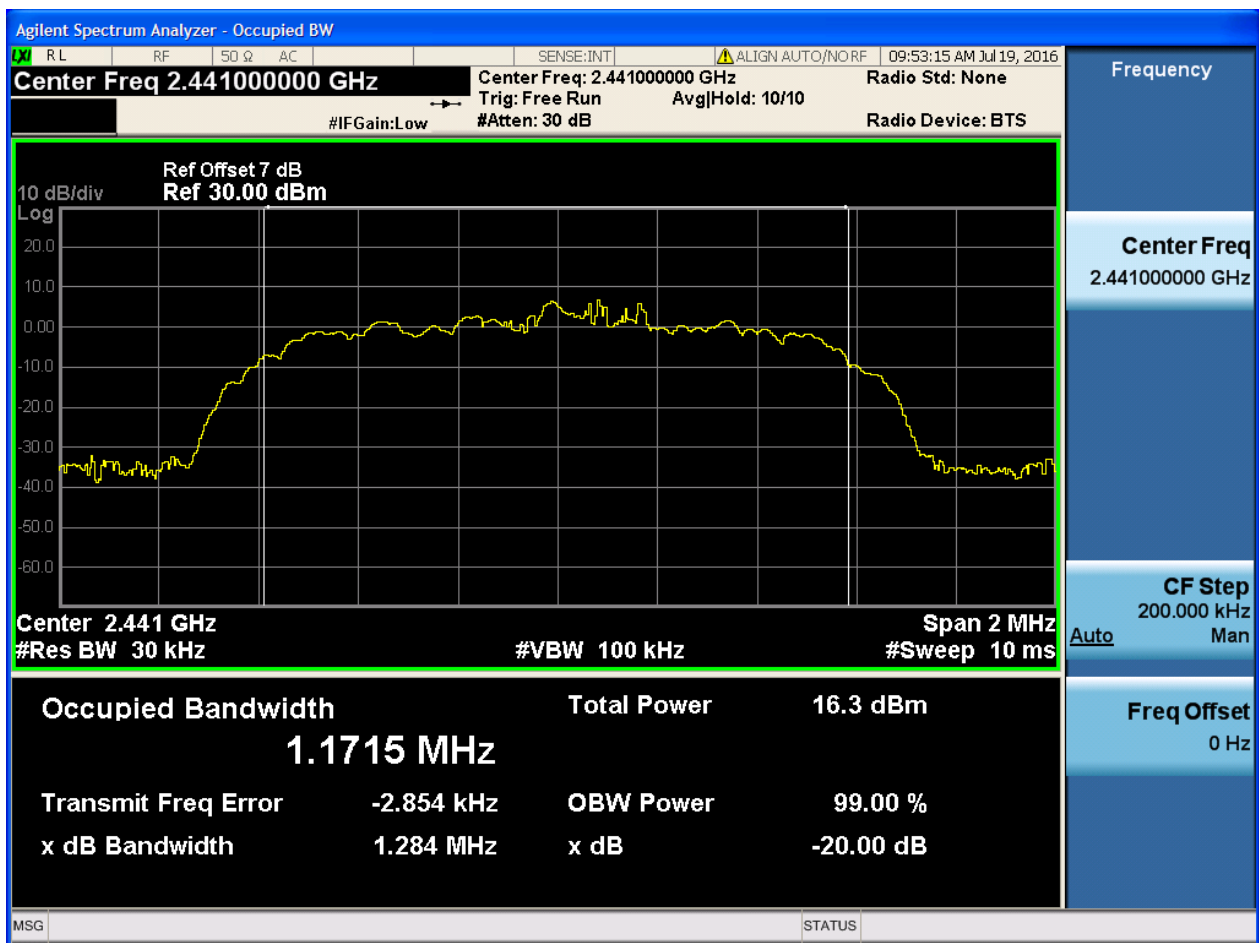


2.7 TM3_3DH5_Ch0



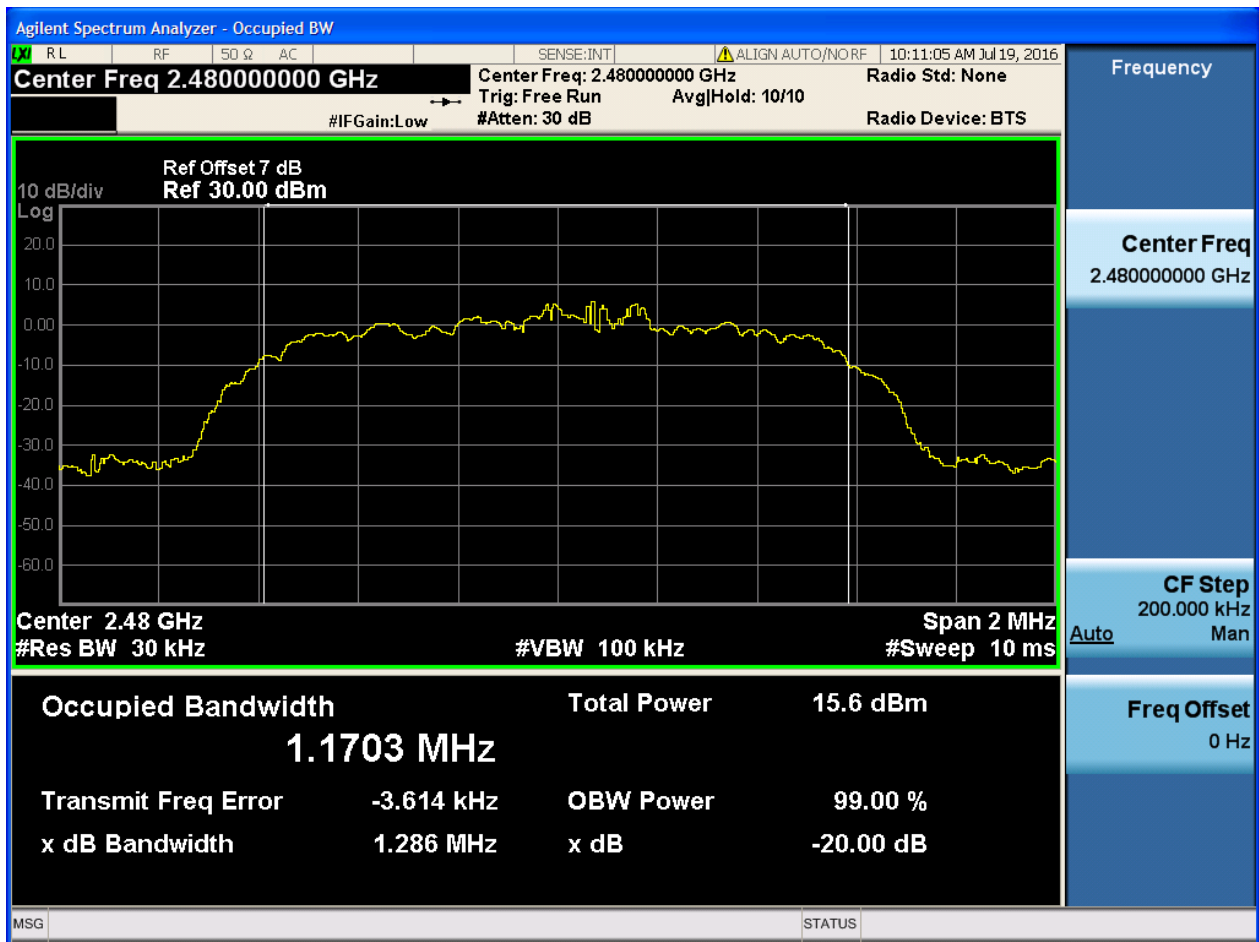


2.8 TM3_3DH5_Ch39





2.9 TM3_3DH5_Ch78



Appendix B: Carrier Frequency Separation



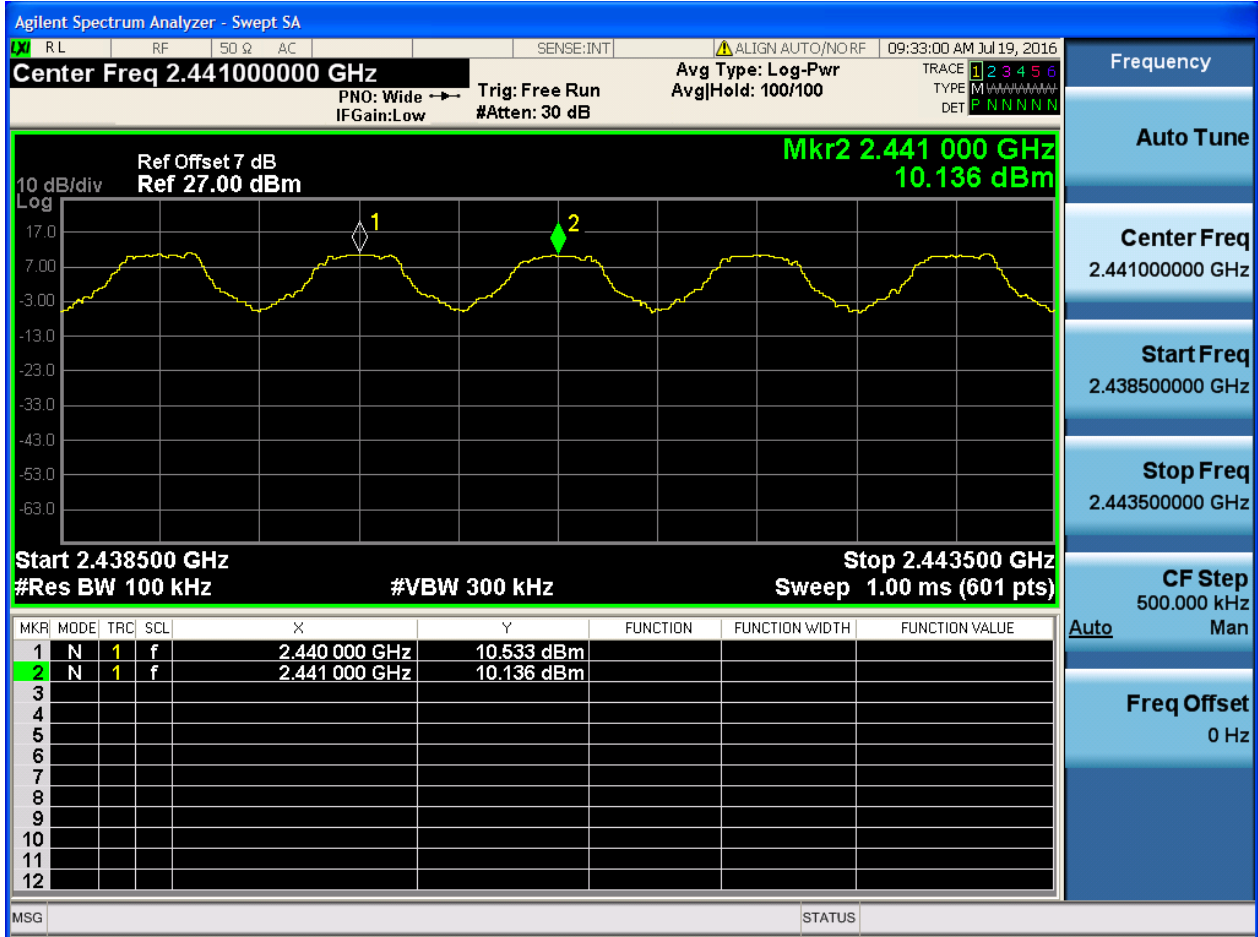
1 Result Table

EUT Conf.	Carrier Frequency Separation [MHz]	Verdict
TM1_DH5_Hop	1	Pass
TM2_2DH5_Hop	1.05	Pass
TM3_3DH5_Hop	1	Pass



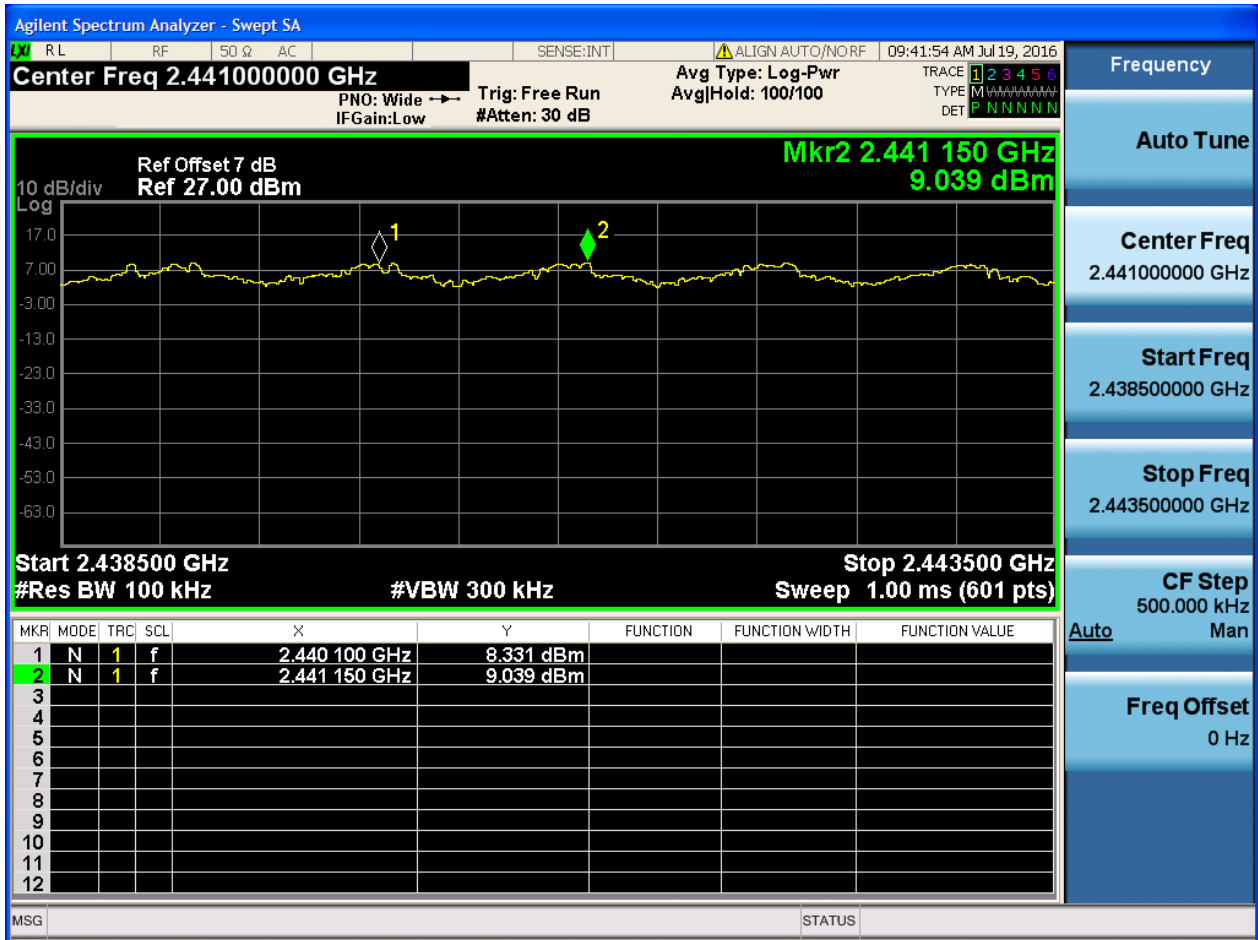
2 Test Plot

2.1 TM1_DH5_Hop



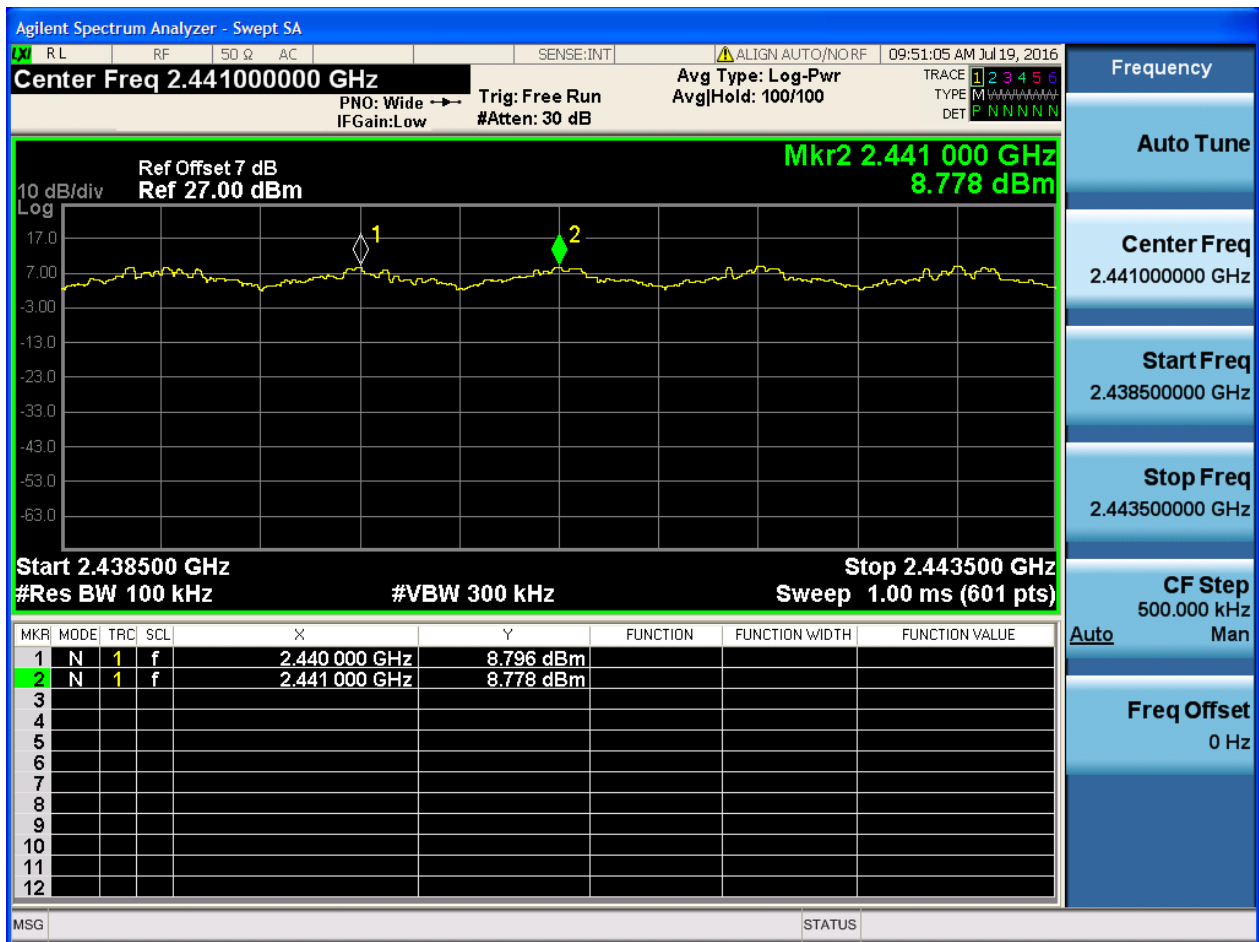


2.2 TM2_2DH5_Hop





2.3 TM3_3DH5_Hop

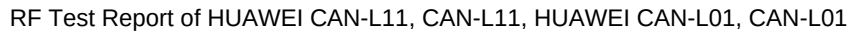


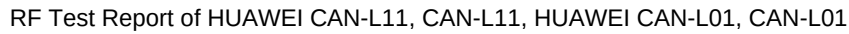
Appendix C: Number of Hopping Channel



1 Result Table

EUT Conf.	Number of Hopping Channel	Verdict
TM1_DH5_Hop	79	Pass
TM2_2DH5_Hop	79	Pass
TM3_3DH5_Hop	79	Pass





Agilent Spectrum Analyzer - Swept SA

Center Freq 2.44100000 GHz

Ref Offset 7 dB
Ref 20.00 dBm

10 dB/div
Log

Center 2.44100 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 9.60 ms (1001 pts)

Span 100.0 MHz

Mkr1 2.480 0 GHz
6.012 dBm

Auto Tune

Center Freq
2.44100000 GHz

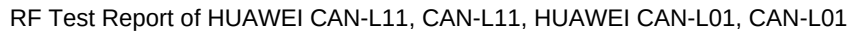
Start Freq
2.39100000 GHz

Stop Freq
2.49100000 GHz

CF Step
10.000000 MHz
Man

Freq Offset
0 Hz

The screenshot displays a swept spectrum on a grid. The vertical axis represents power in dBm, ranging from -70.0 to 10.0, with a 10 dB/div scale. The horizontal axis represents frequency in GHz, ranging from 2.391 to 2.491. The spectrum shows a noisy signal between approximately -45 dBm and -35 dBm. A marker labeled '1' is positioned at 2.480 GHz with a power level of 6.012 dBm. The interface includes various control parameters such as Center Freq (2.441 GHz), Span (100 MHz), Res BW (100 kHz), and VBW (300 kHz). The right sidebar contains settings for Auto Tune, Center Freq, Start Freq, Stop Freq, CF Step, and Freq Offset.



Agilent Spectrum Analyzer - Swept SA

Center Freq 2.441000000 GHz

Ref Offset 7 dB
Ref 20.00 dBm

10 dB/div
Log

Center 2.44100 GHz
#Res BW 100 kHz

Span 100.0 MHz
Sweep 9.60 ms (1001 pts)

Auto Tune

Center Freq
2.441000000 GHz

Start Freq
2.391000000 GHz

Stop Freq
2.491000000 GHz

CF Step
10.000000 MHz
Man

Freq Offset
0 Hz

Mkr1 2.480 0 GHz
5.059 dBm

Trig: Free Run
#Atten: 30 dB

PNO: Fast
IFGain: Low

Avg Type: Log-Pwr
Avg/Hold: 100/100

TRACE 1 2 3 4 5 6
TYPE M W W W W W W W
DET P N N N N N N

Appendix D: Time of Occupancy (Dwell Time)

1 Result Table

The Dwell Time = Burst Width * Total Hops. The detailed calculations are showed as follows:

- The duration for dwell time calculation: $0.4 \text{ [s]} * \text{hopping number} = 0.4 \text{ [s]} * 79 \text{ [ch]} = 31.6 \text{ [s*ch]}$;
- The burst width [ms/hop/ch], which is directly measured, refers to the duration on one channel hop.
- The hops per second for all channels: The selected EUT Conf uses a slot type of 5-Tx&1-Rx and a hopping rate of 1600 [ch*hop/s] for all channels. So the final hopping rate for all channels is $1600 / 6 = 266.67 \text{ [ch*hop/s]}$;
- The hops per second on one channel: $266.67 \text{ [ch*hop/s]} / 79 \text{ [ch]} = 3.38 \text{ [hop/s]}$;
- The total hops for all channels within the dwell time calculation duration: $3.38 \text{ [hop/s]} * 31.6 \text{ [s*ch]} = 106.67 \text{ [hop*ch]}$;
- The dwell time for all channels hopping: $106.67 \text{ [hop*ch]} * \text{Burst Width [ms/hop/ch]}$.

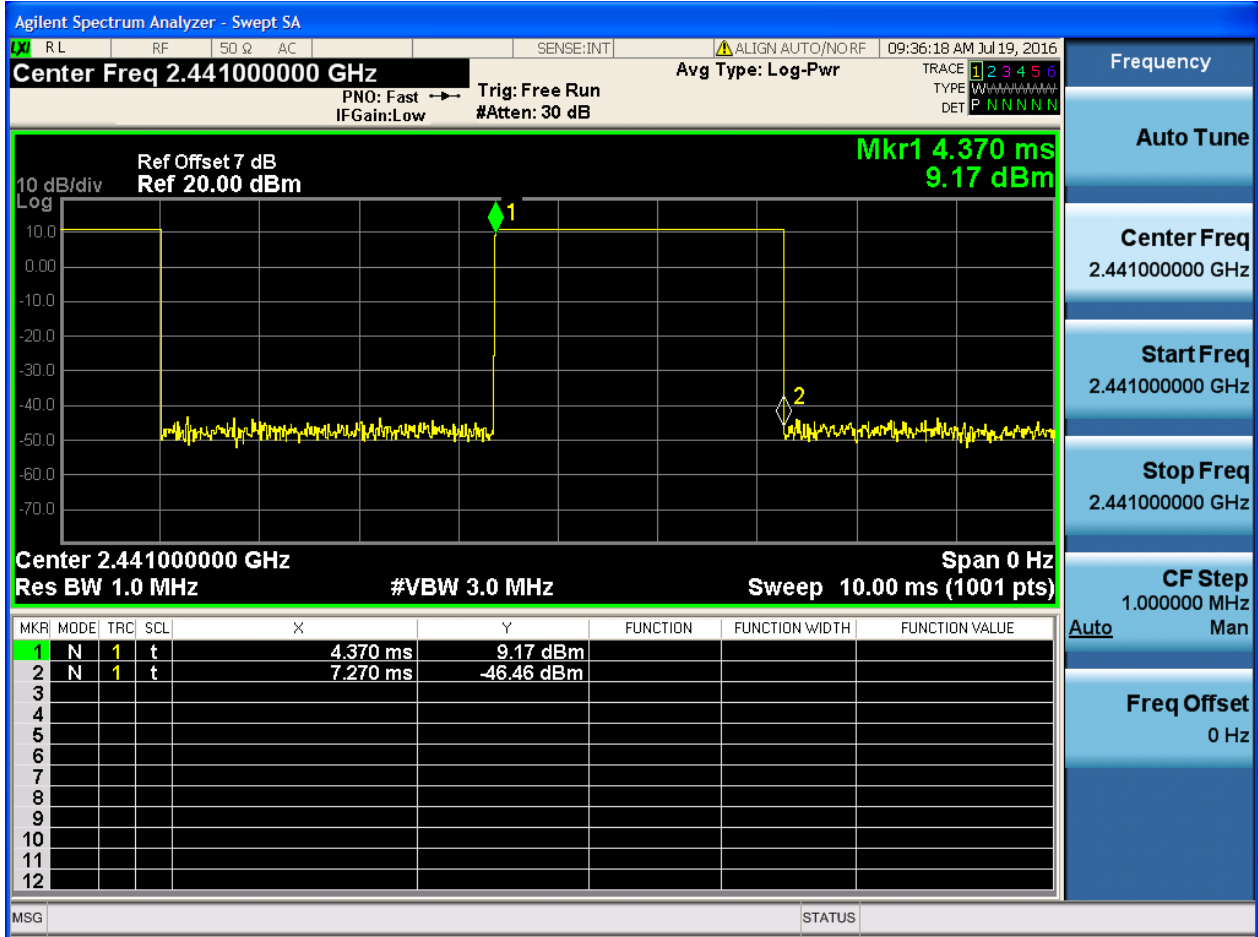
EUT Conf.	Burst Width [s/hop/ch]	Total Hops [hop*ch]	Dwell Time [ms]	Verdict
TM1_DH5_Ch39	0.0029	106.67	0.309	Pass
TM2_2DH5_Ch39	0.0029	106.67	0.309	Pass
TM3_3DH5_Ch39	0.0029	106.67	0.309	Pass



2 Test Plot

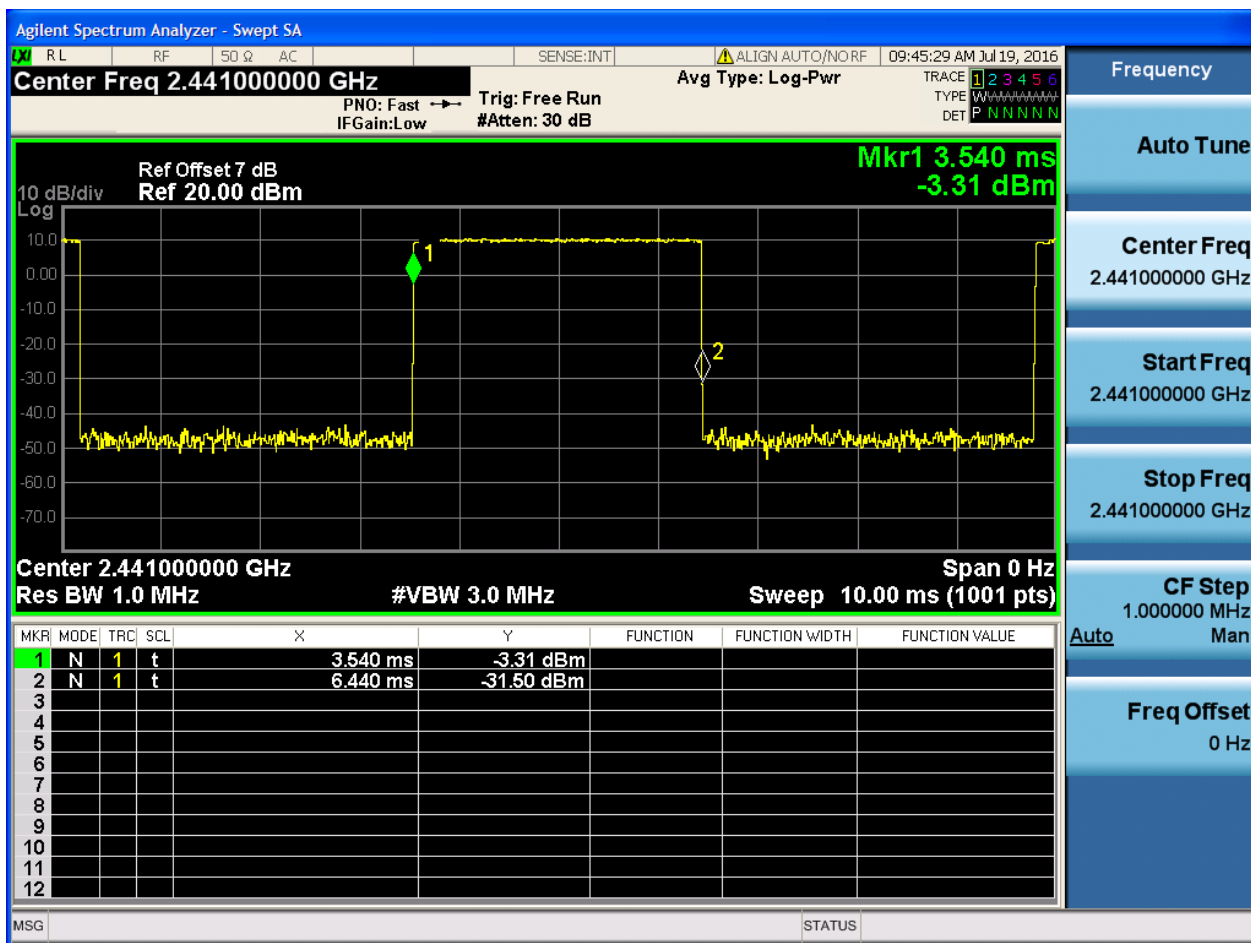
NOTE: The test plots are only for Burst Width measurements.

2.1 TM1_DH5_Ch39



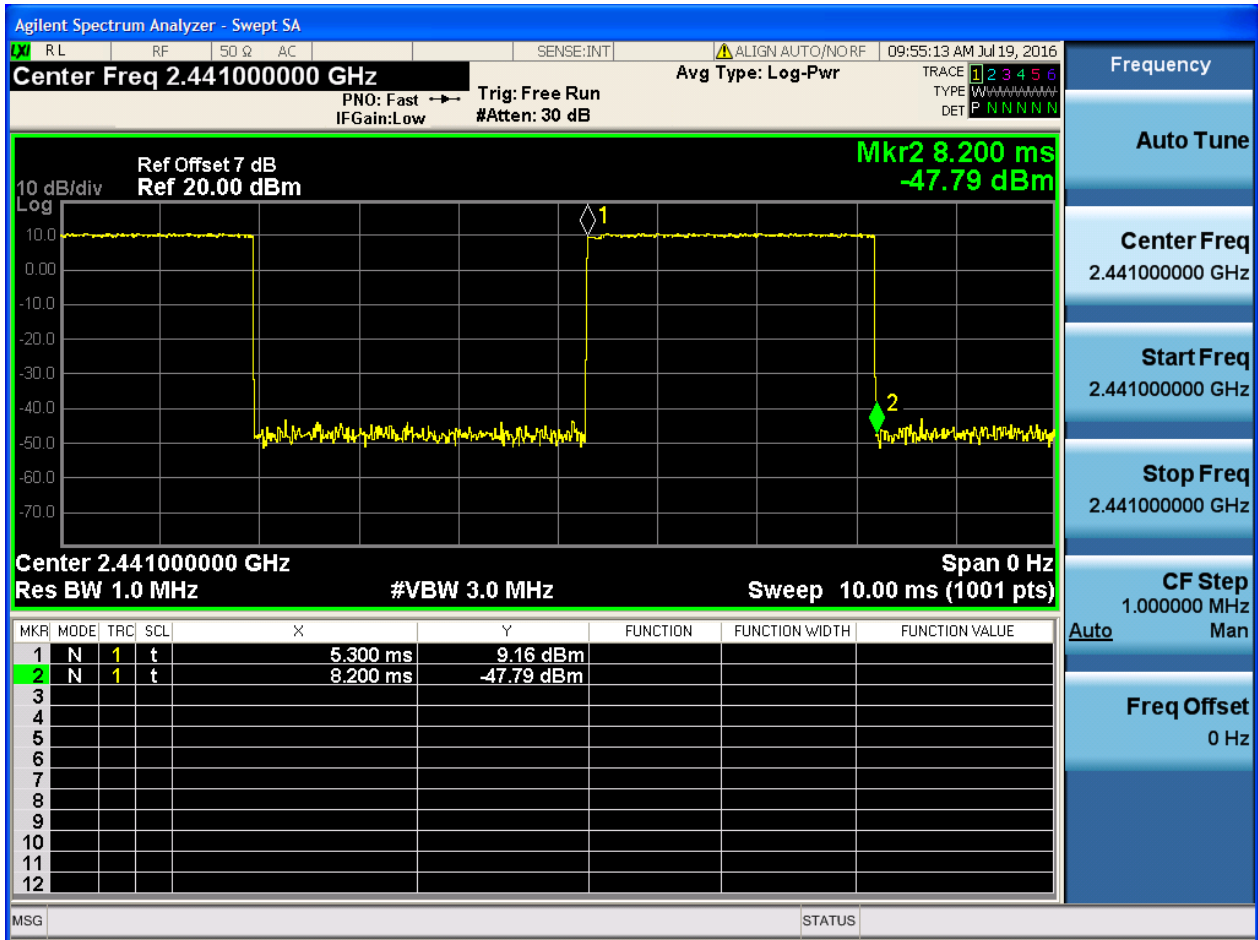


2.2 TM2_2DH5_Ch39





2.3 TM3_3DH5_Ch39

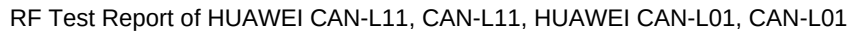


Appendix E: Maximum Peak Conducted Output Power



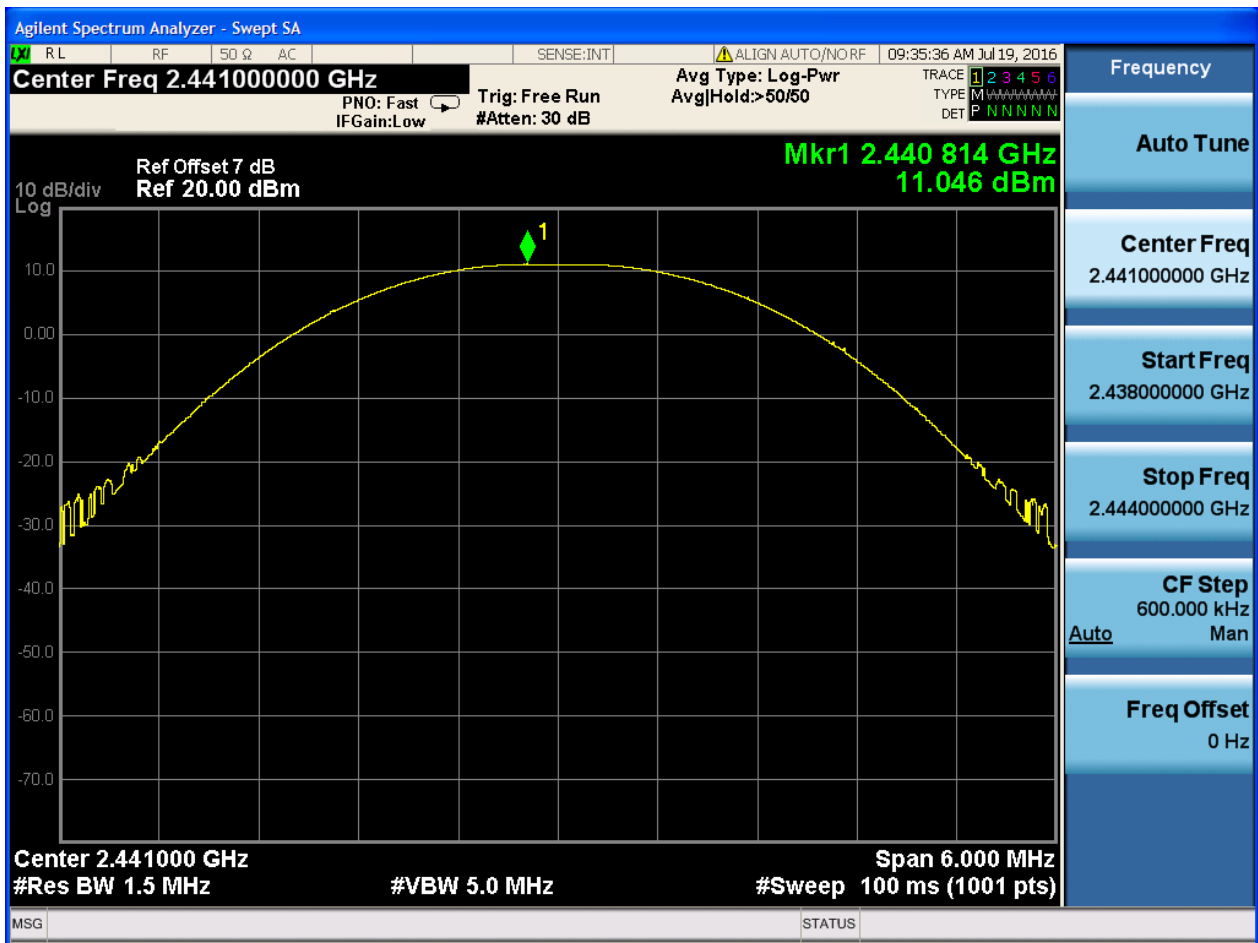
1 Result Table

EUT Conf.	Max. Peak Power [dBm]	Verdict
TM1_DH5_Ch0	9.971	Pass
TM1_DH5_Ch39	11.046	Pass
TM1_DH5_Ch78	10.059	Pass
TM2_2DH5_Ch0	9.927	Pass
TM2_2DH5_Ch39	10.988	Pass
TM2_2DH5_Ch78	9.995	Pass
TM3_3DH5_Ch0	9.93	Pass
TM3_3DH5_Ch39	10.993	Pass
TM3_3DH5_Ch78	9.986	Pass



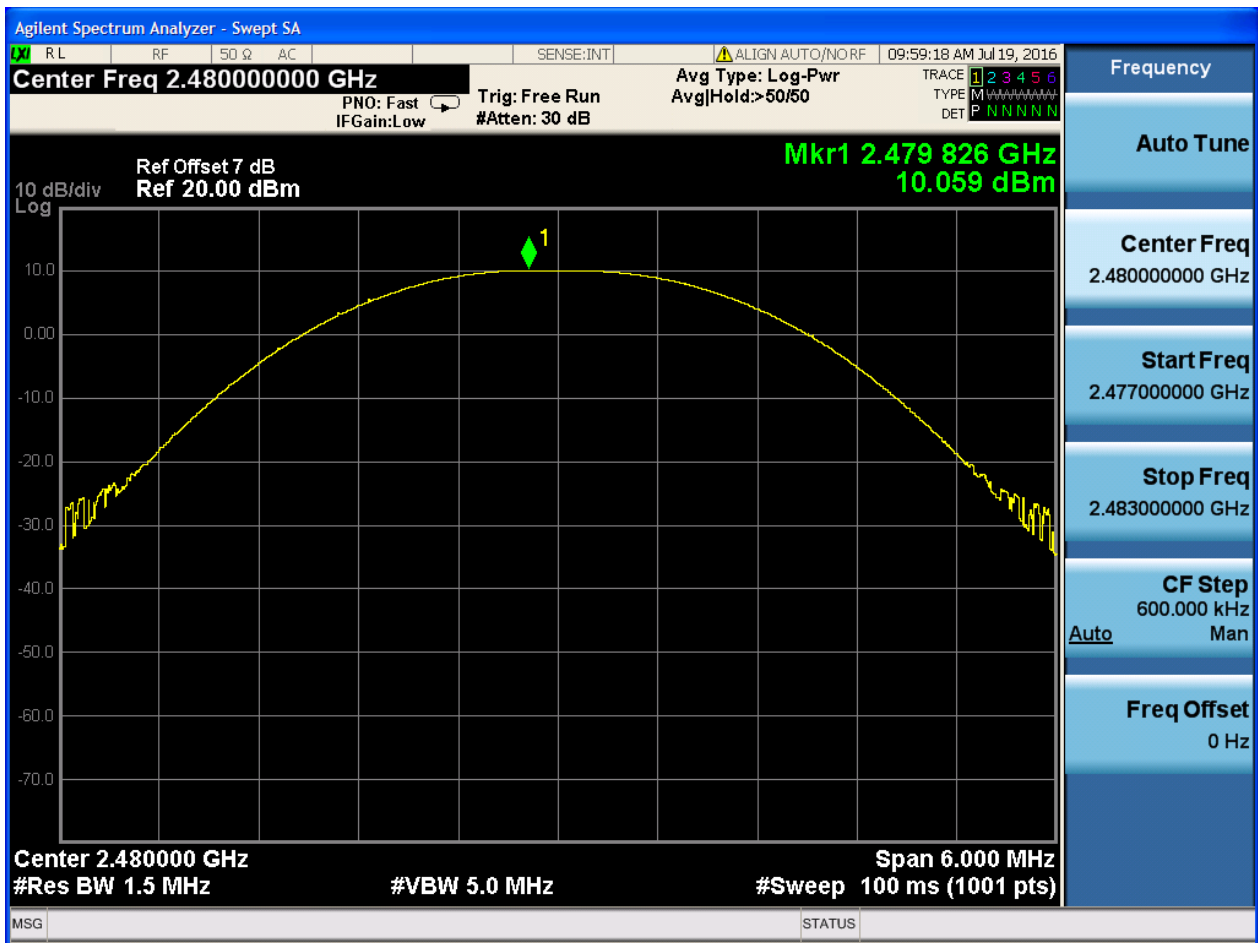


2.2 TM1_DH5_Ch39



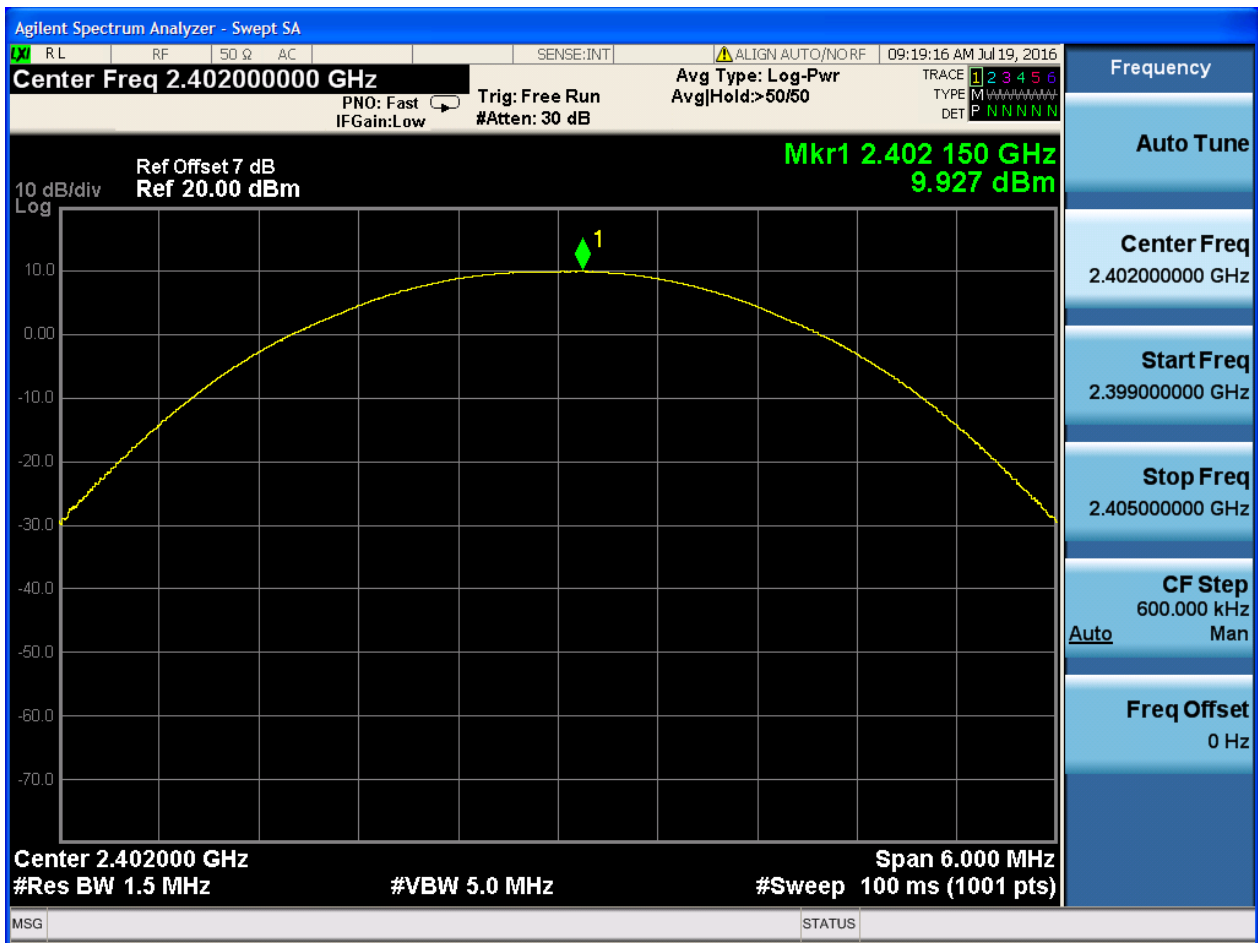


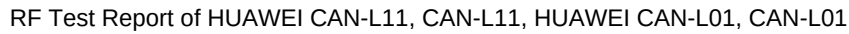
2.3 TM1_DH5_Ch78





2.4 TM2_2DH5_Ch0





Agilent Spectrum Analyzer - Swept SA

Center Freq 2.441000000 GHz

Ref Offset 7 dB
Ref 20.00 dBm

Mkr1 2.441 126 GHz
10.988 dBm

10 dB/div
Log

Center 2.441000 GHz
#Res BW 1.5 MHz
#VBW 5.0 MHz
Span 6.000 MHz
#Sweep 100 ms (1001 pts)

Frequency

Auto Tune

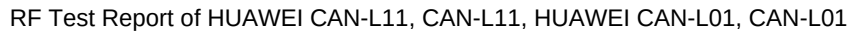
Center Freq
2.441000000 GHz

Start Freq
2.438000000 GHz

Stop Freq
2.444000000 GHz

CF Step
600.000 kHz
Man

Freq Offset
0 Hz



Agilent Spectrum Analyzer - Swept SA

Center Freq 2.48000000 GHz

Ref Offset 7 dB
Ref 20.00 dBm

10 dB/div
Log

Mkr1 2.480 072 GHz
9.995 dBm

Center 2.480000 GHz
#Res BW 1.5 MHz
#VBW 5.0 MHz
Span 6.000 MHz
#Sweep 100 ms (1001 pts)

Trig: Free Run
#Atten: 30 dB

Avg Type: Log-Pwr
Avg|Hold:>50/50

TRACE 1 2 3 4 5 6
TYPE M W W W W W W W
DET P N N N N N N

Frequency

Auto Tune

Center Freq
2.480000000 GHz

Start Freq
2.477000000 GHz

Stop Freq
2.483000000 GHz

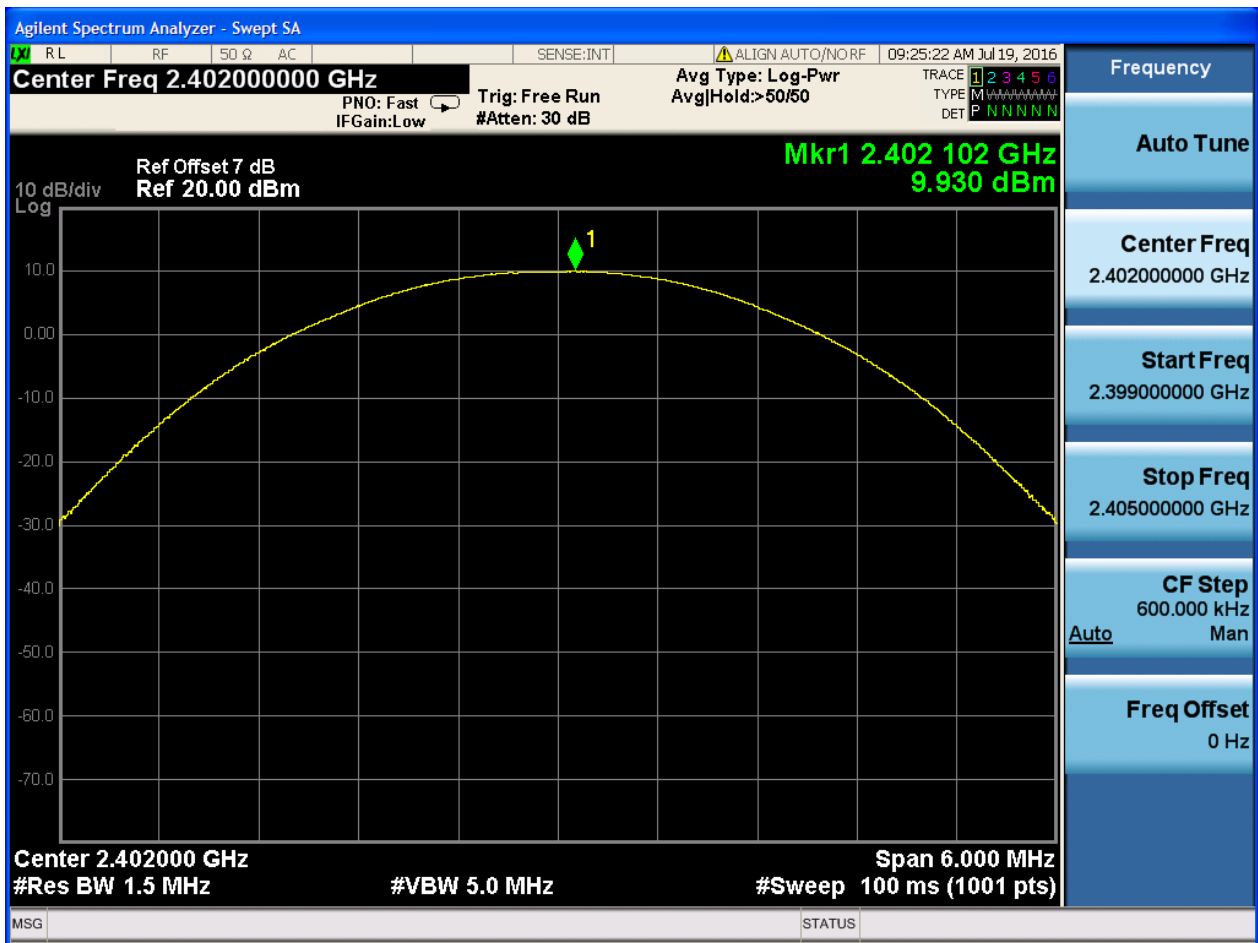
CF Step
600.000 kHz
Man

Auto

Freq Offset
0 Hz

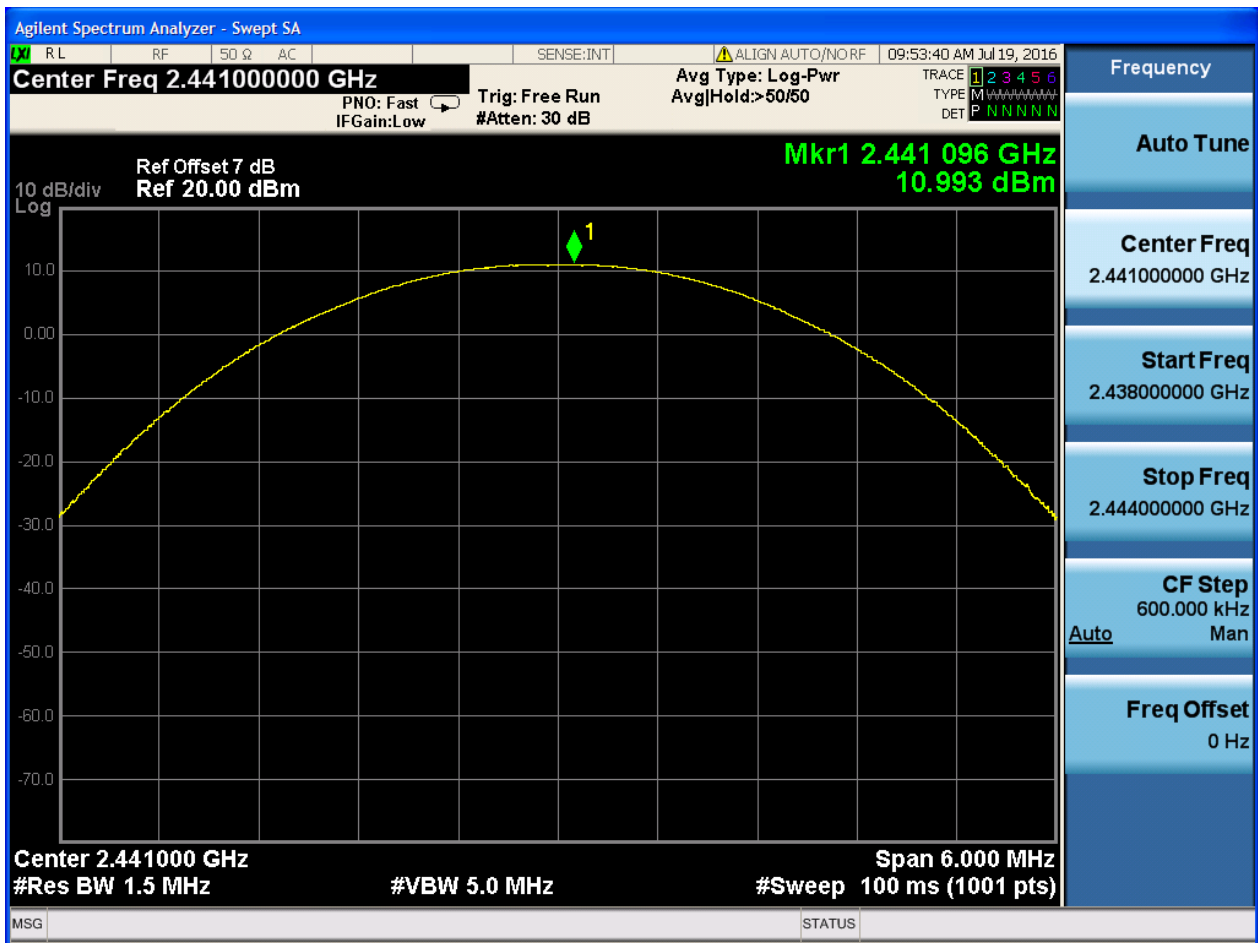


2.7 TM3_3DH5_Ch0



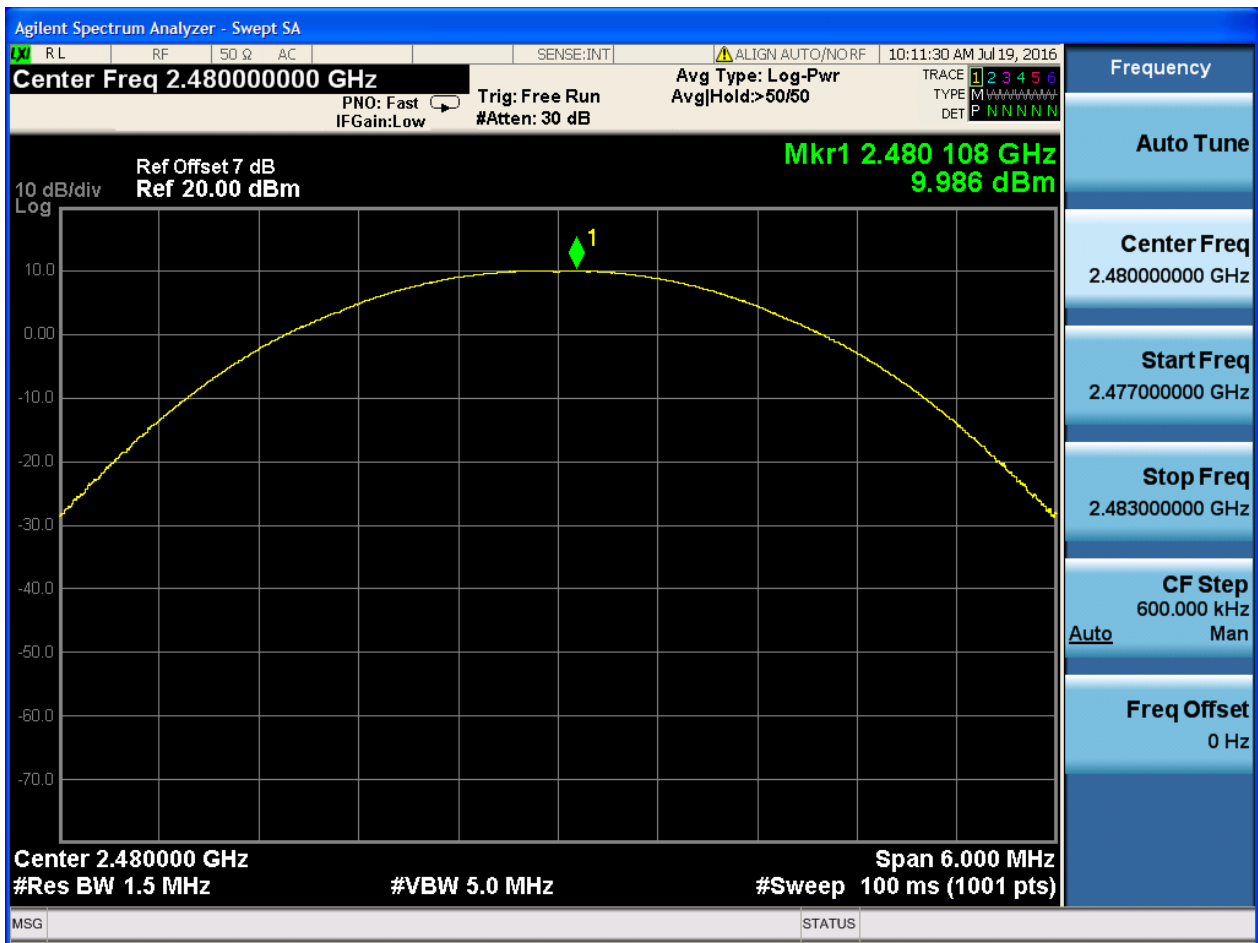


2.8 TM3_3DH5_Ch39





2.9 TM3_3DH5_Ch78



Appendix F: Band edge spurious emission

1 Result Table

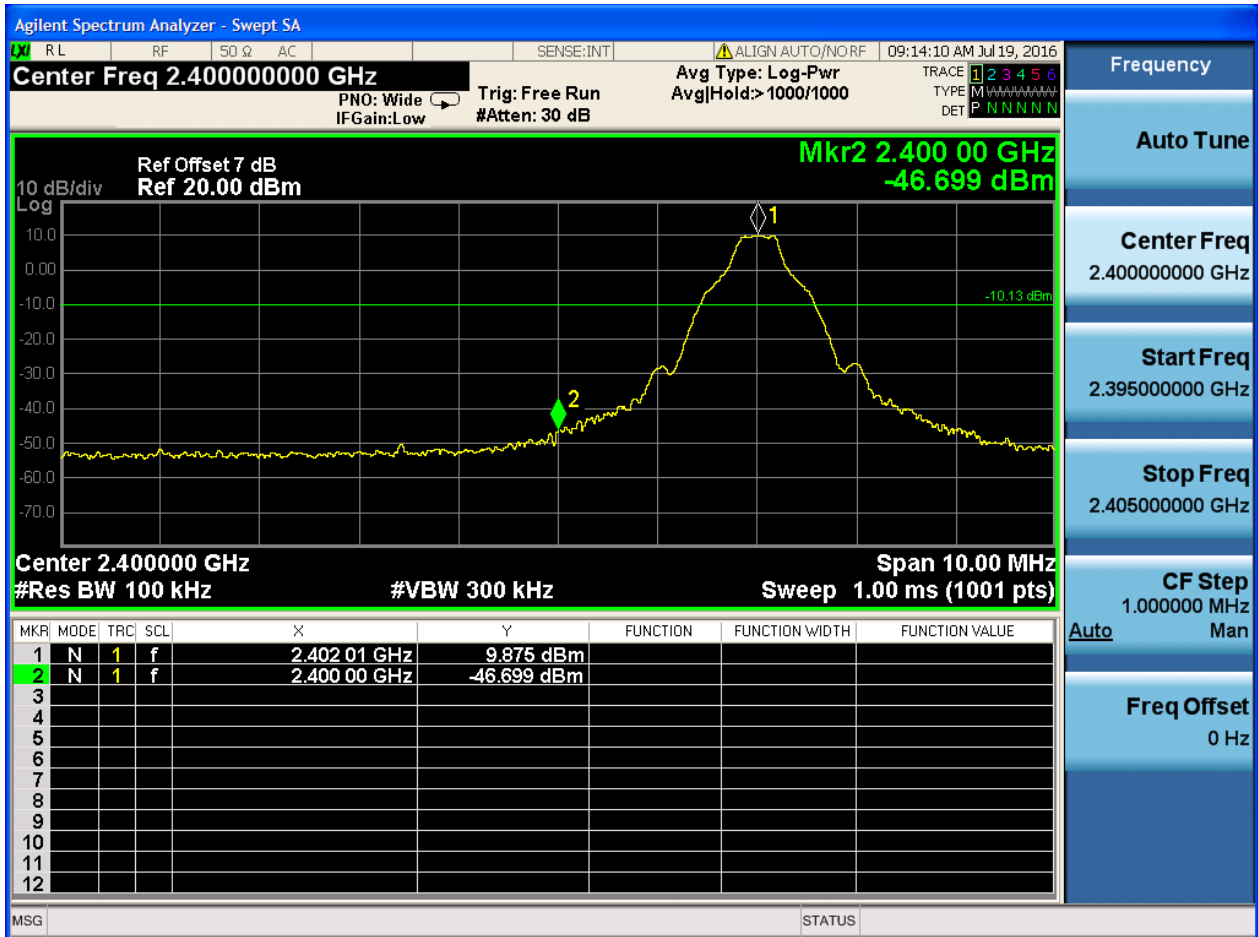
EUT Conf.	Channel No.	Carrier Frequency [MHz]	Max. Spurious Level [dBm]	Frequency Hopping	Carrier Power [dBm]	Limit [dBm]	Result
TM1_DH5_Ch0	0	2402	-46.699	Off	9.875	-10.125	Pass
	-	-	-52.891	On	10.076	-9.924	Pass
TM1_DH5_Ch78	78	2480	-52.712	Off	10.01	-9.99	Pass
	-	-	-53.908	On	9.74	-10.26	Pass
TM2_2DH5_Ch0	0	2402	-48.499	Off	8.316	-11.684	Pass
	-	-	-52.223	On	6.43	-13.57	Pass
TM2_2DH5_Ch78	78	2480	-51.332	Off	8.444	-11.556	Pass
	-	-	-53.863	On	6.637	-13.363	Pass
TM3_3DH5_Ch0	0	2402	-48.228	Off	8.289	-11.711	Pass
	-	-	-51.808	On	8.479	-11.521	Pass
TM3_3DH5_Ch78	78	2480	-52.83	Off	8.672	-11.328	Pass
	-	-	-53.301	On	8.524	-11.476	Pass



2 Test Plot

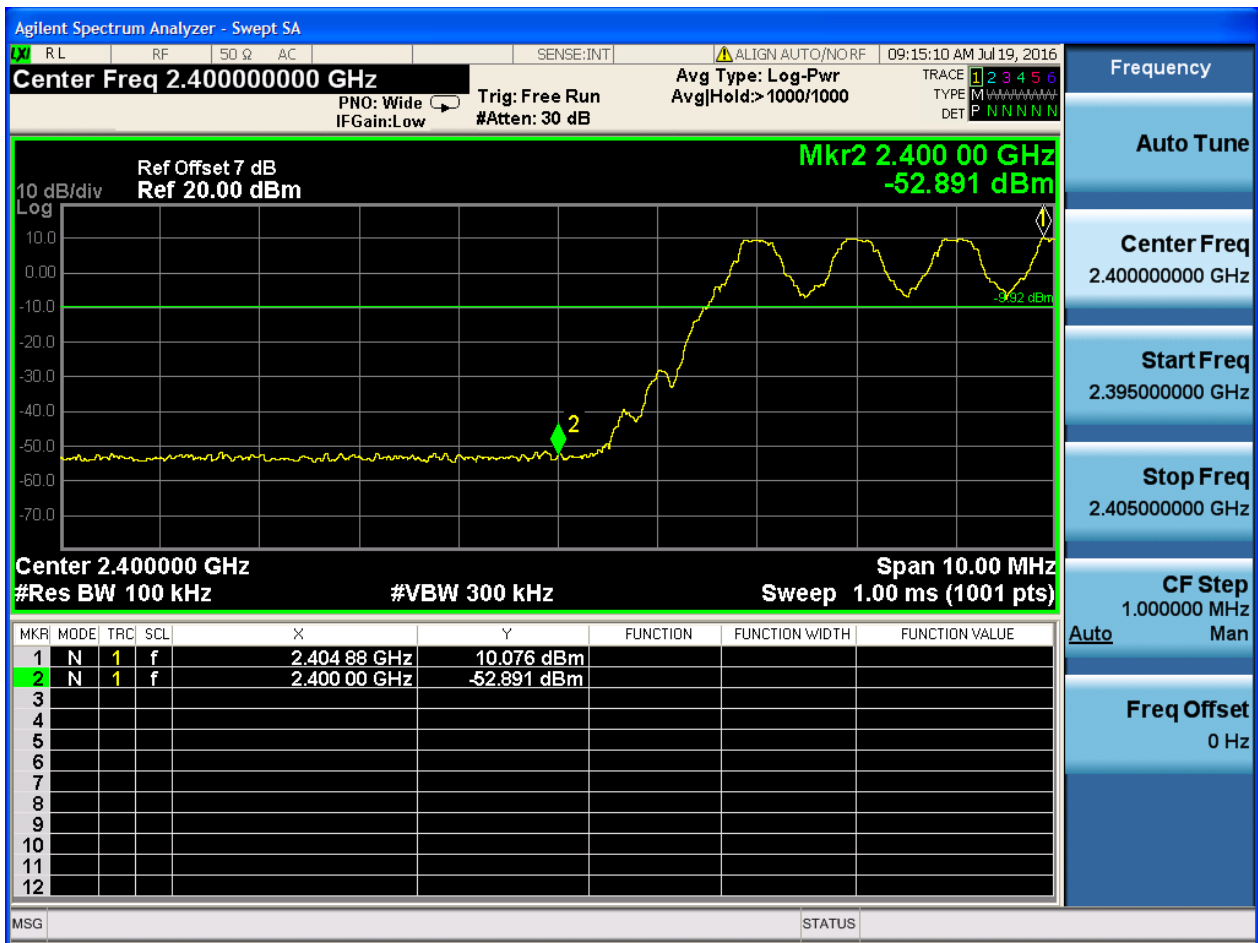
2.1 TM1_DH5_Ch0

No hopping





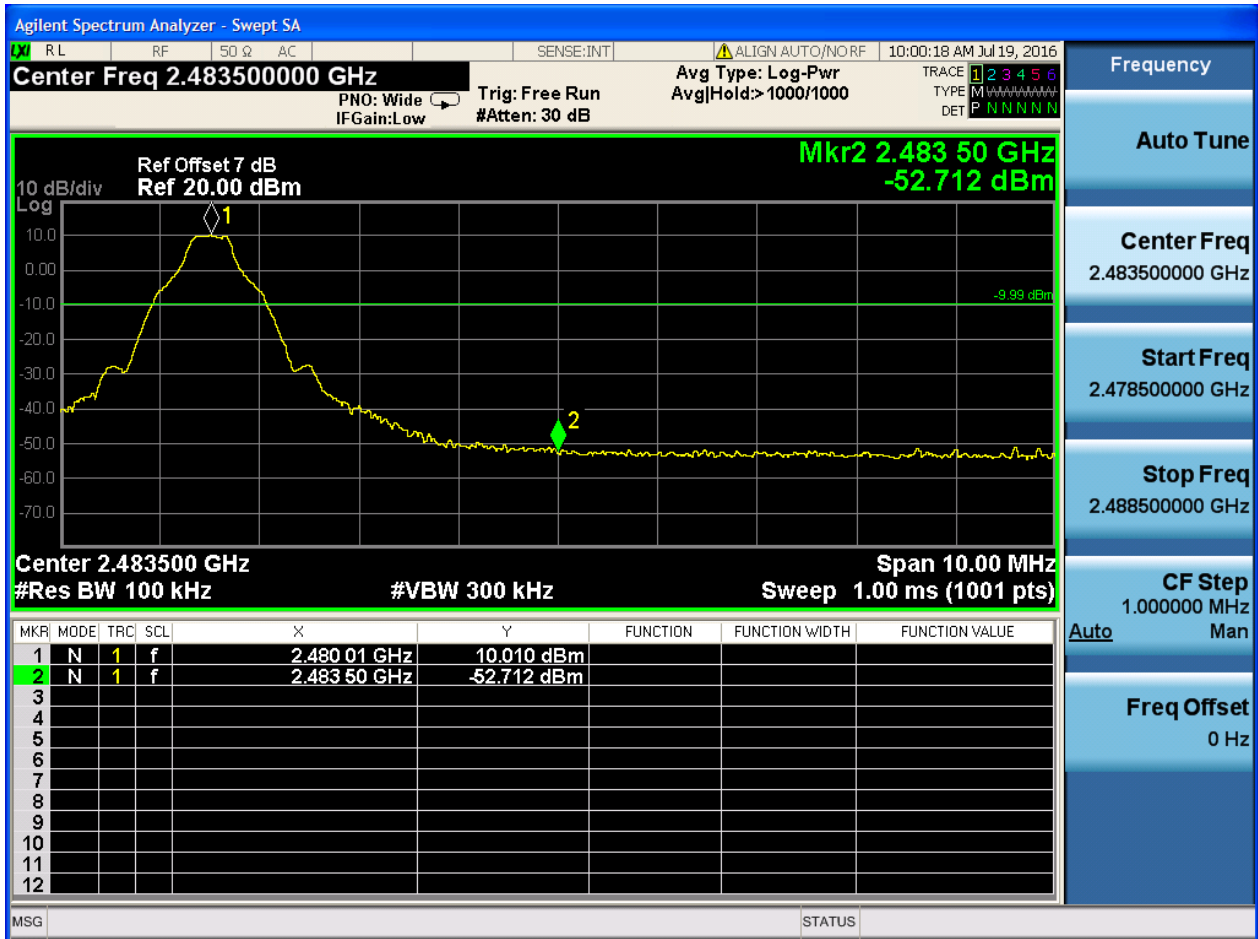
With hopping





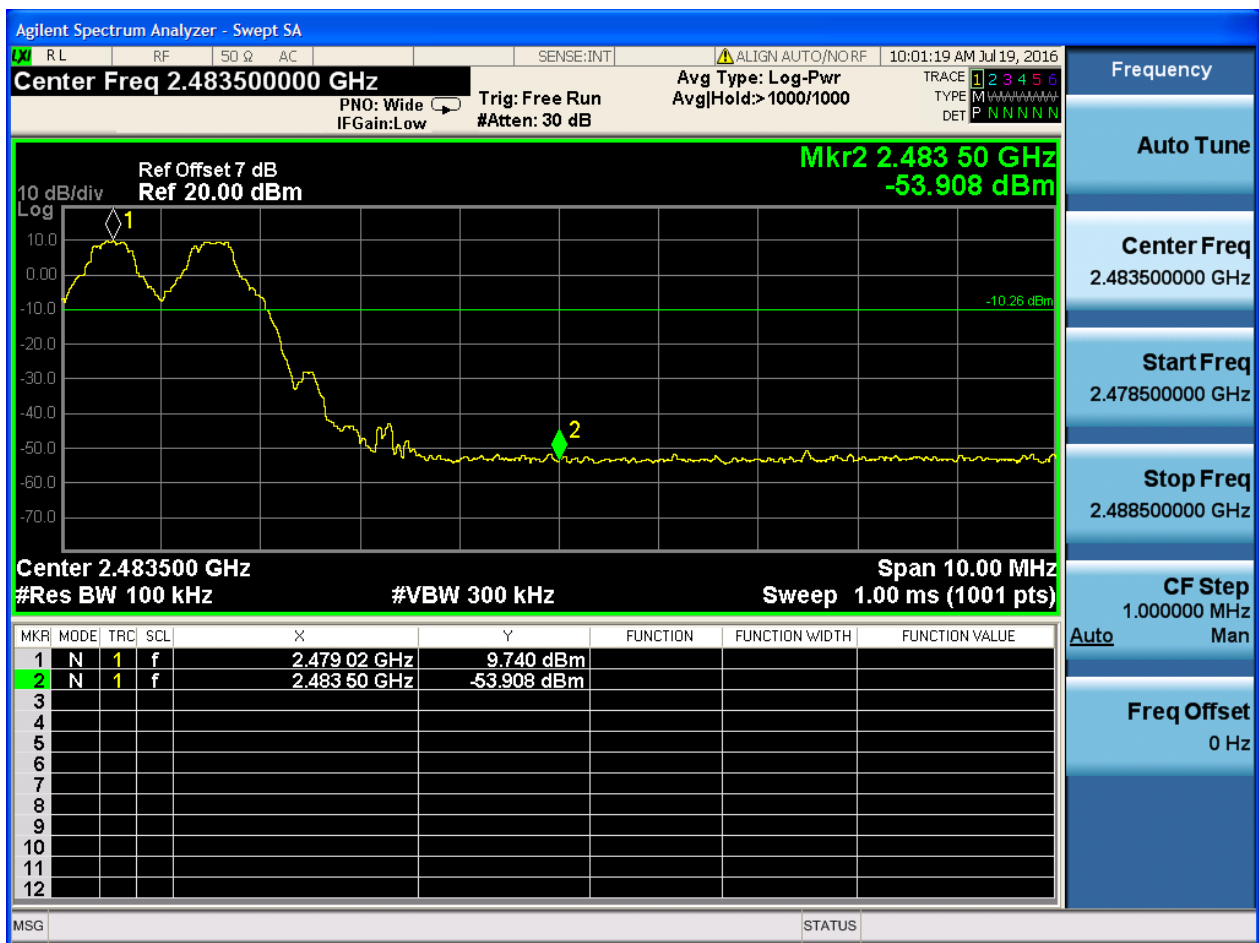
2.2 TM1_DH5_Ch78

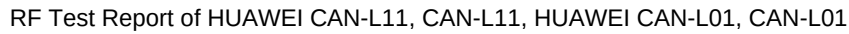
No hopping



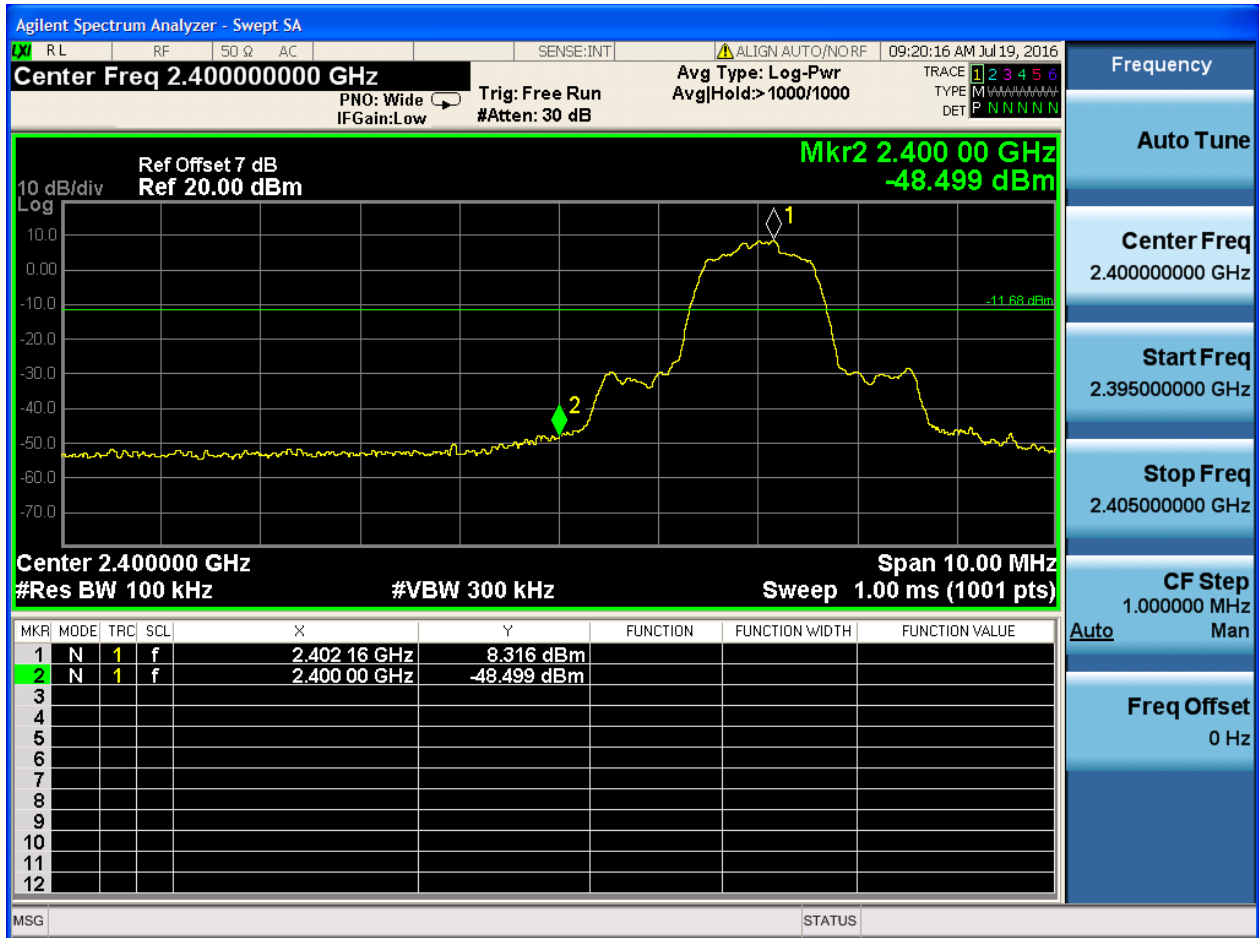


With hopping



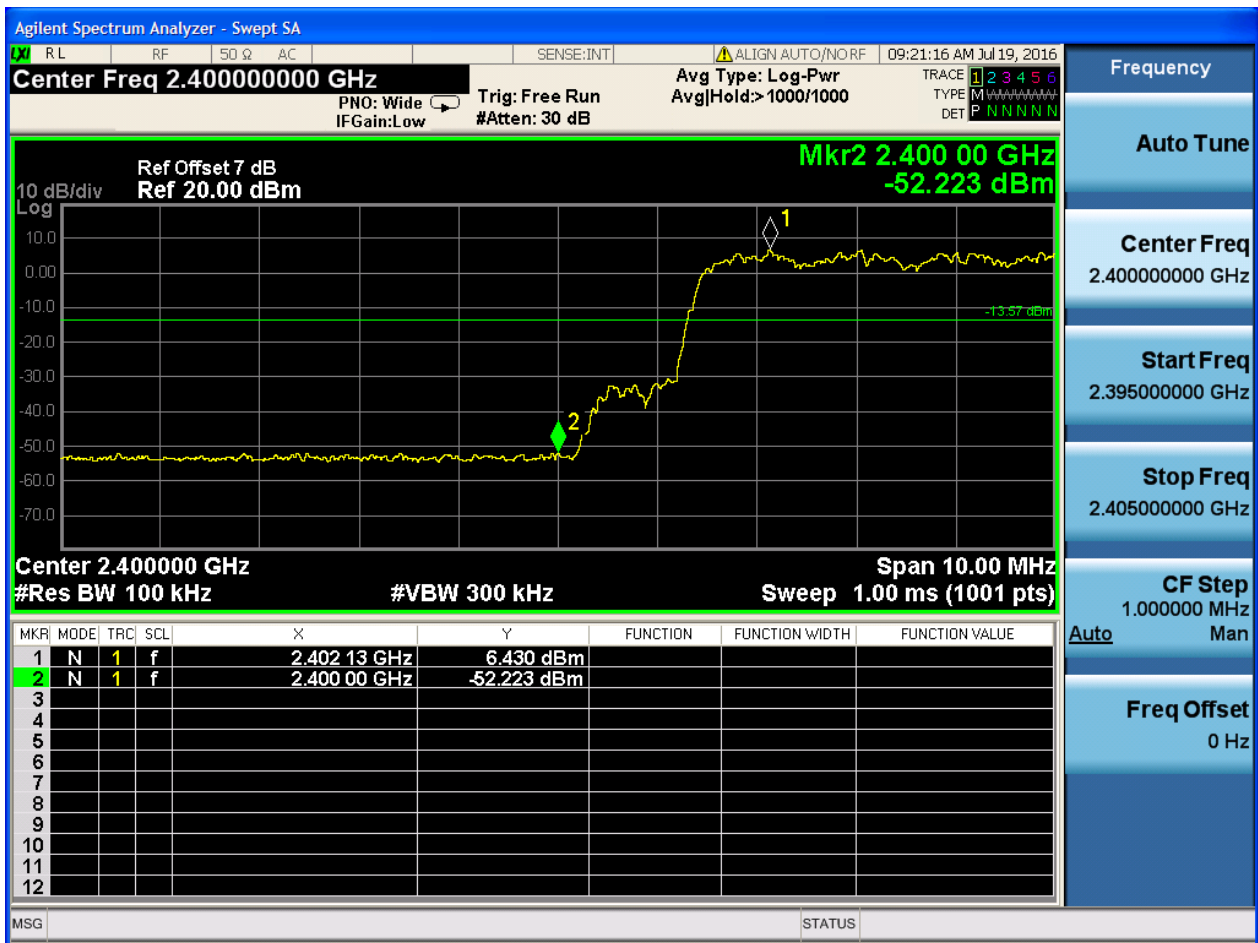


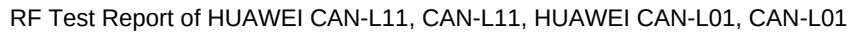
No hopping



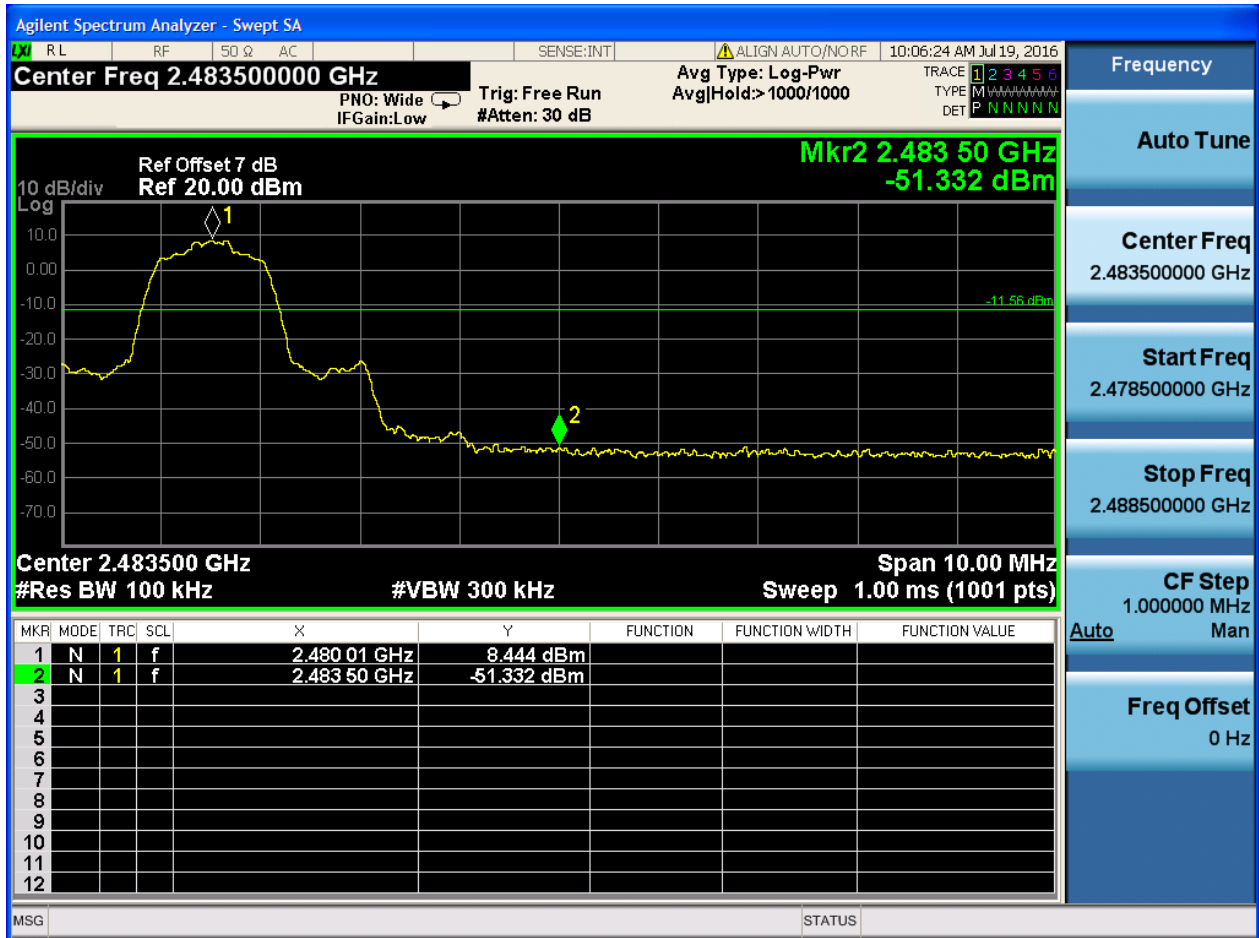


With hopping



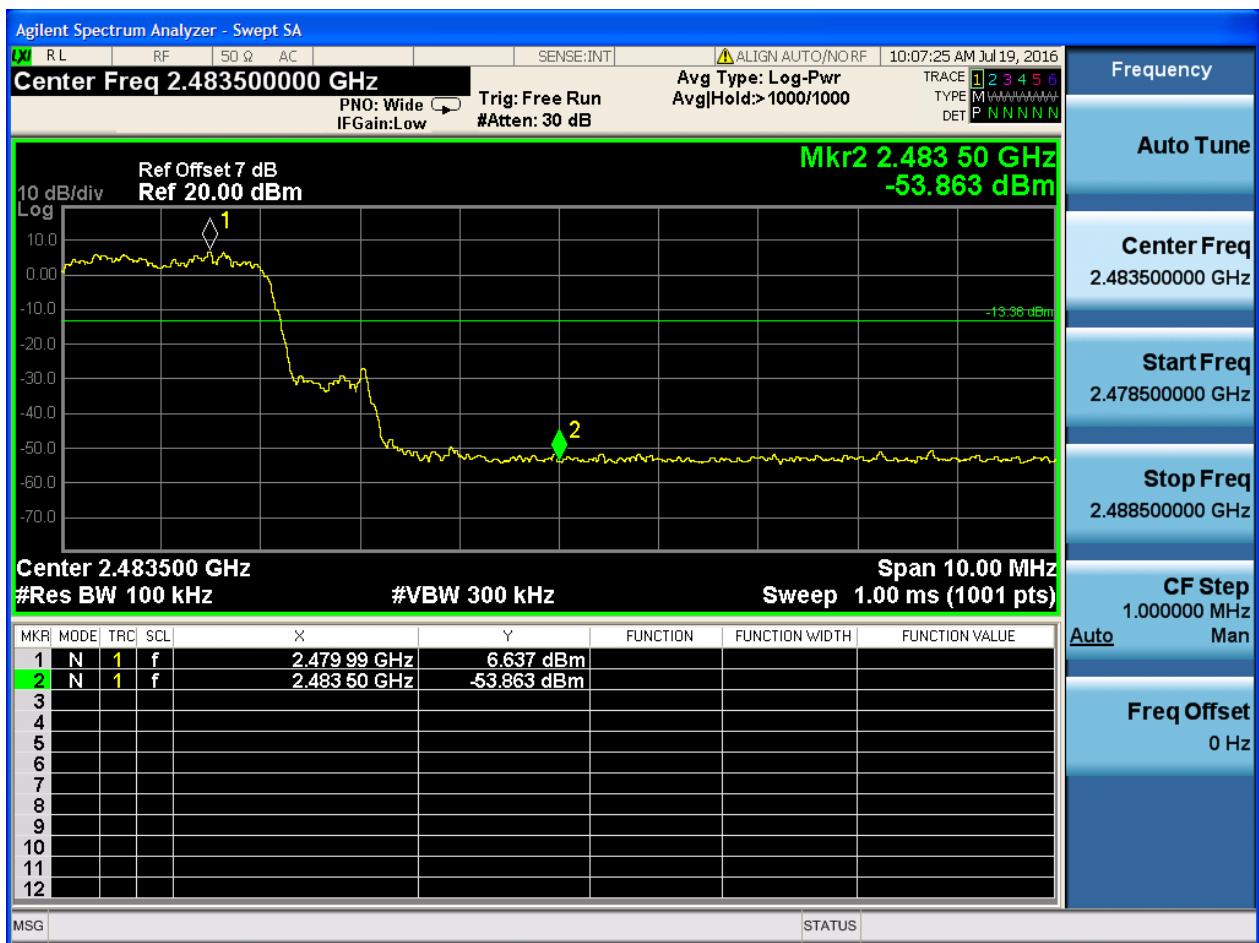


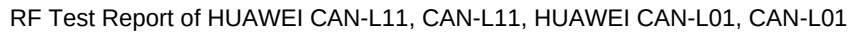
No hopping



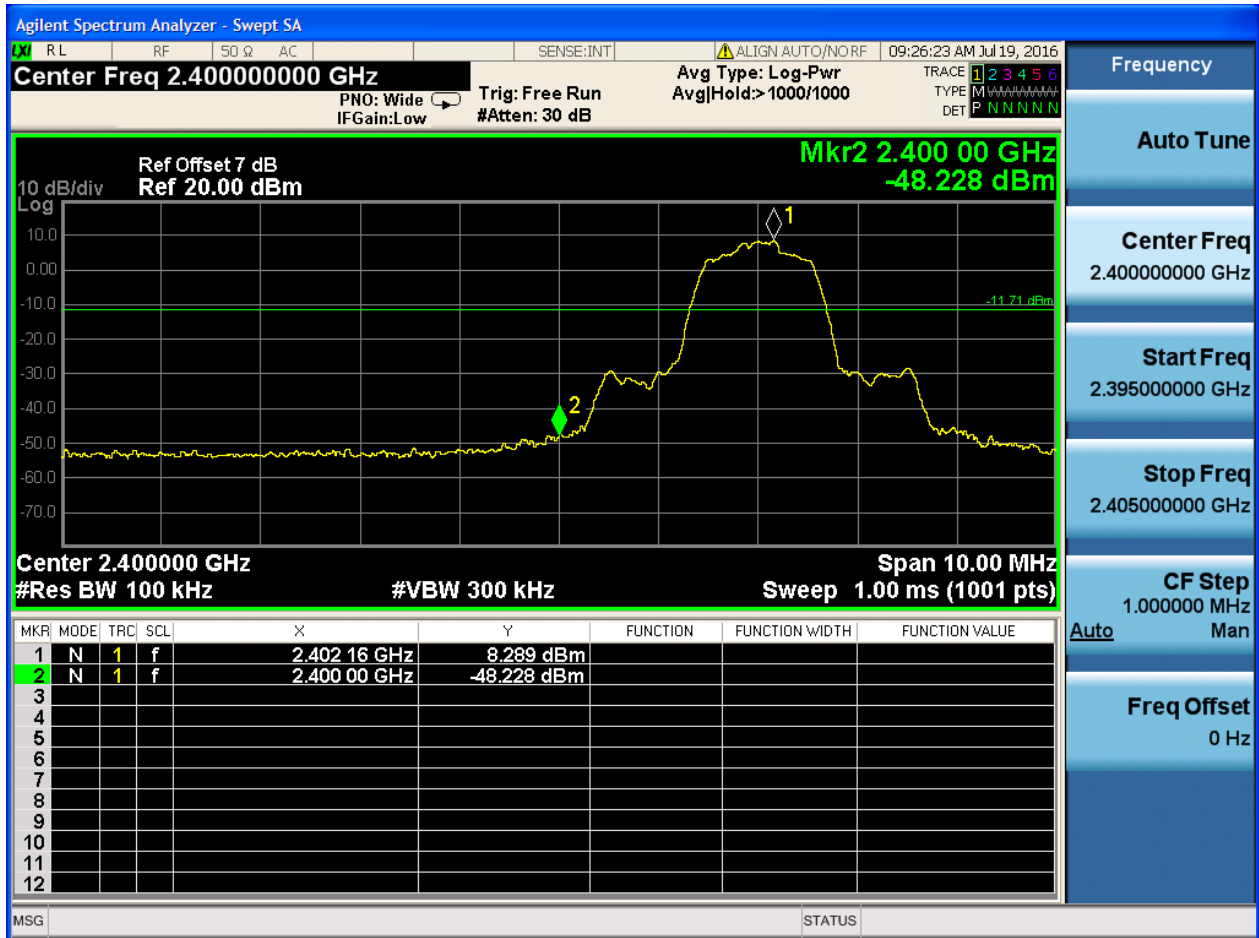


With hopping



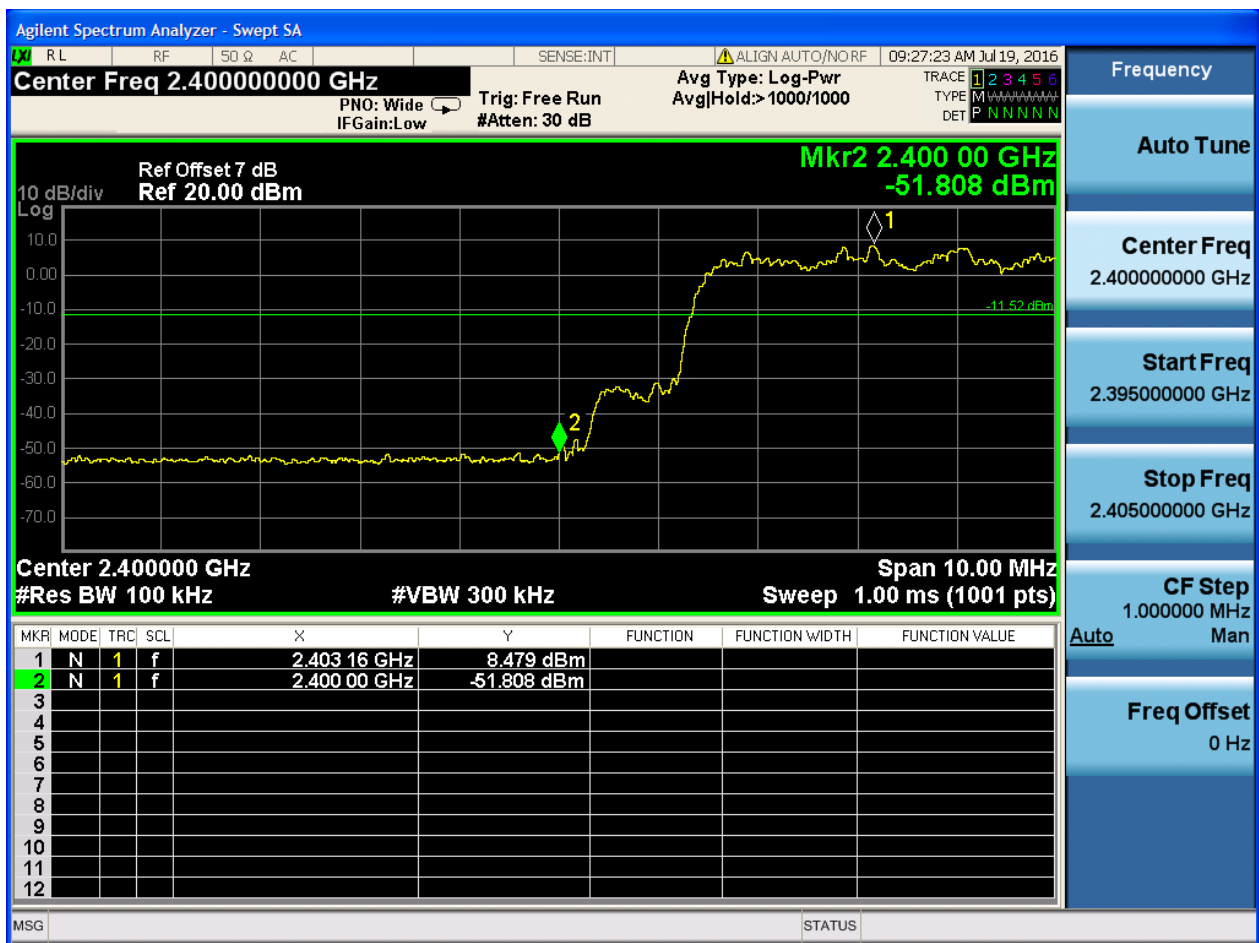


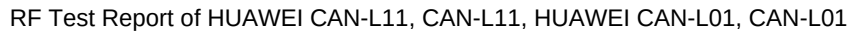
No hopping





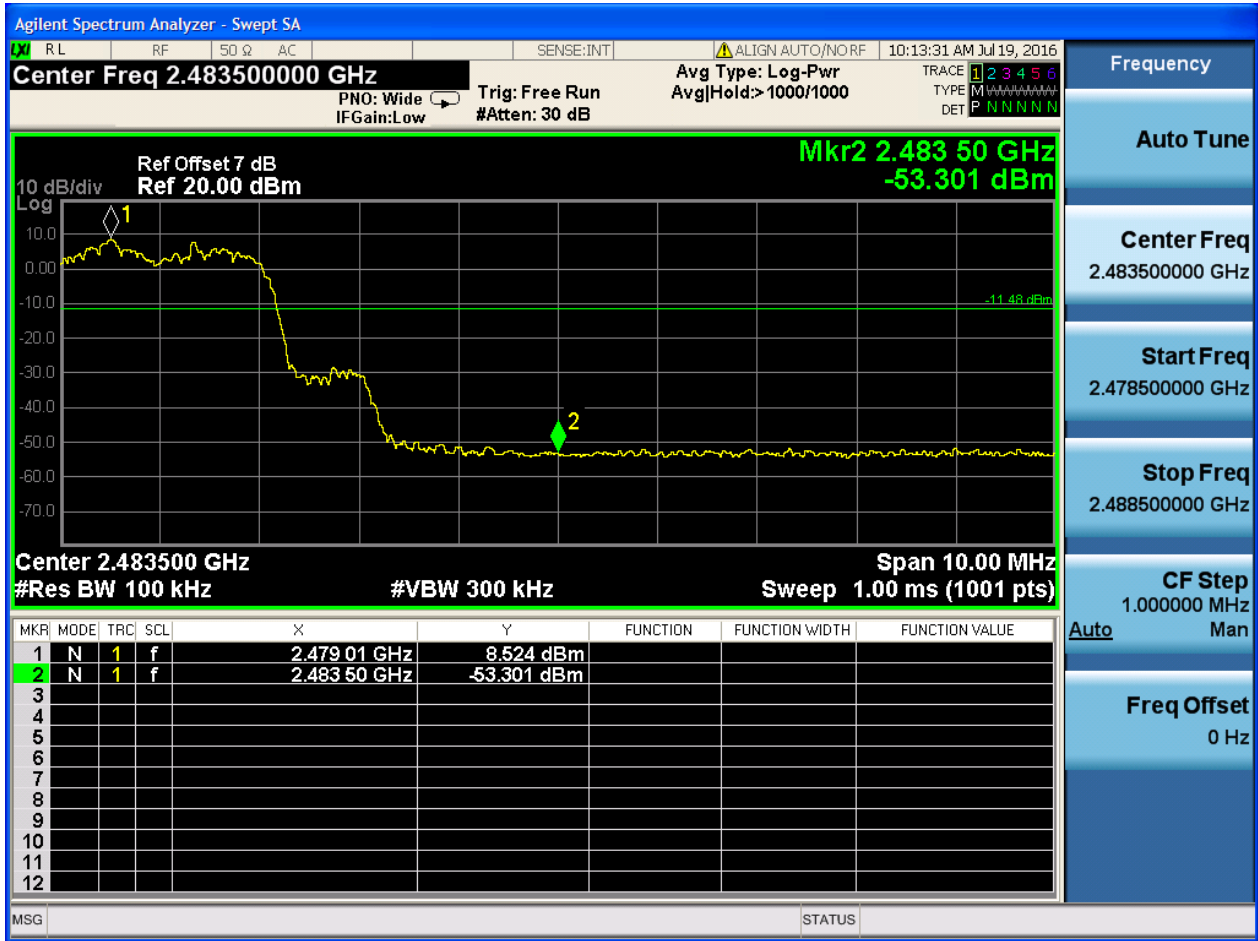
With hopping







With hopping



Appendix G: Conducted RF Spurious Emission

1 Result Table

In this Appendix, the “Pref” refers to the peak power level in any 100 kHz bandwidth within the fundamental emission which is used as the reference level, 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.

In the result table, the “< Limit” denotes that “The Puw [dBm] is less than Pref [dBm] - 20 [dB], see test plots for detailed”.

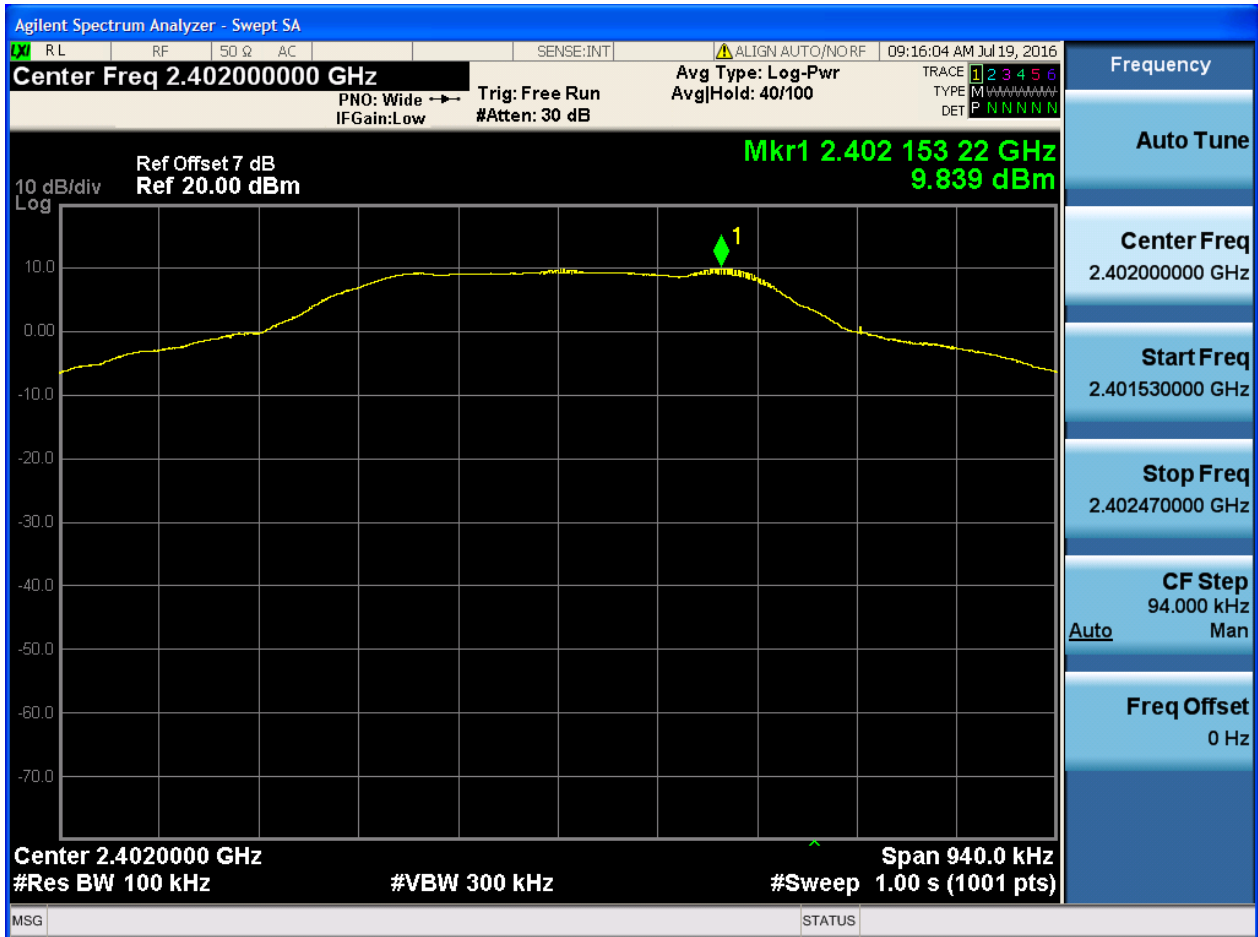
EUT Conf.	Pref [dBm/100 kHz]	Puw [dBm/100 kHz]	Verdict
TM1_DH5_Ch0	9.839	< Limit	Pass
TM1_DH5_Ch39	10.858	< Limit	Pass
TM1_DH5_Ch78	9.889	< Limit	Pass
TM2_2DH5_Ch0	8.259	< Limit	Pass
TM2_2DH5_Ch39	9.234	< Limit	Pass
TM2_2DH5_Ch78	8.43	< Limit	Pass
TM3_3DH5_Ch0	8.268	< Limit	Pass
TM3_3DH5_Ch39	9.228	< Limit	Pass
TM3_3DH5_Ch78	8.429	< Limit	Pass



2 Test Plot

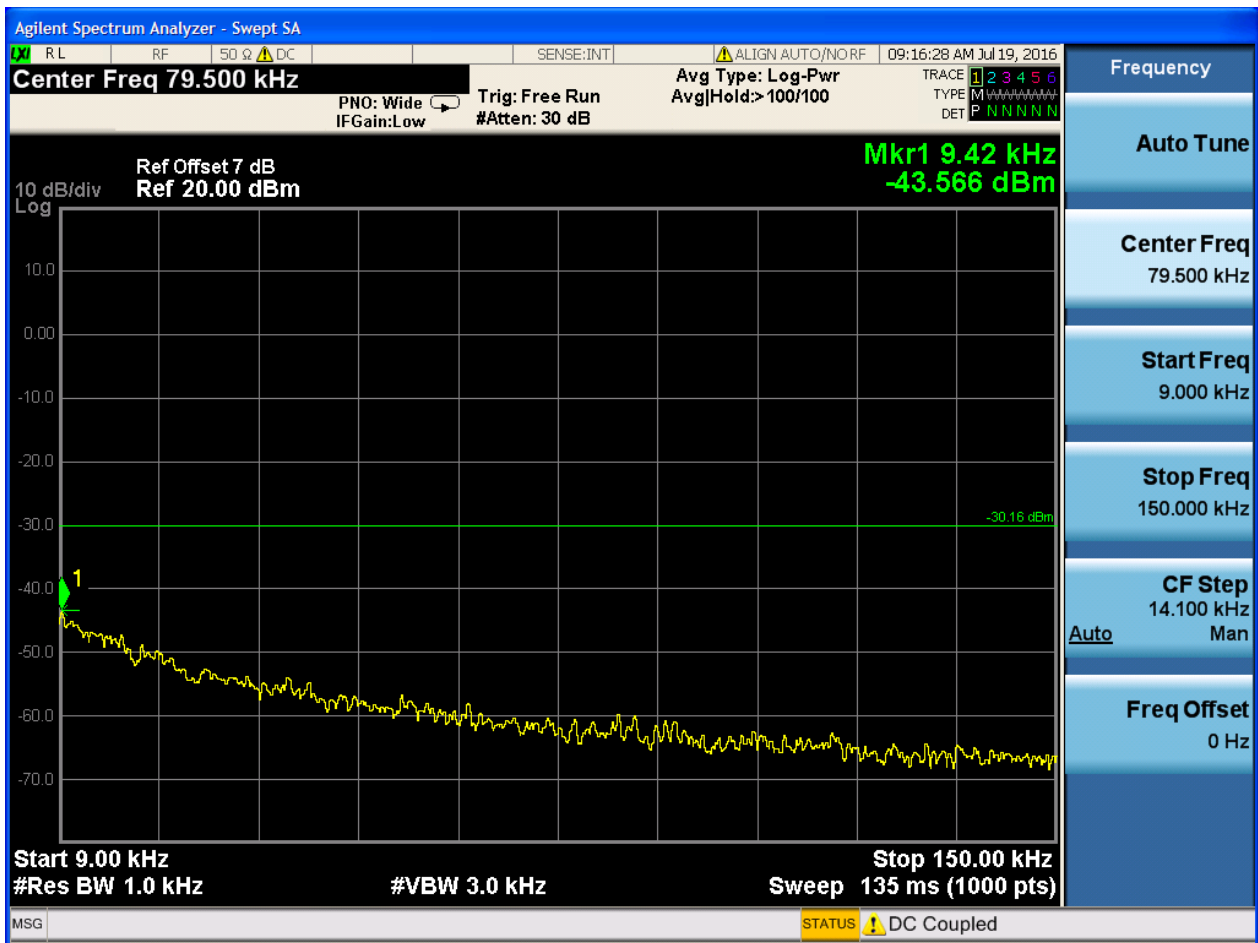
2.1 TM1_DH5_Ch0

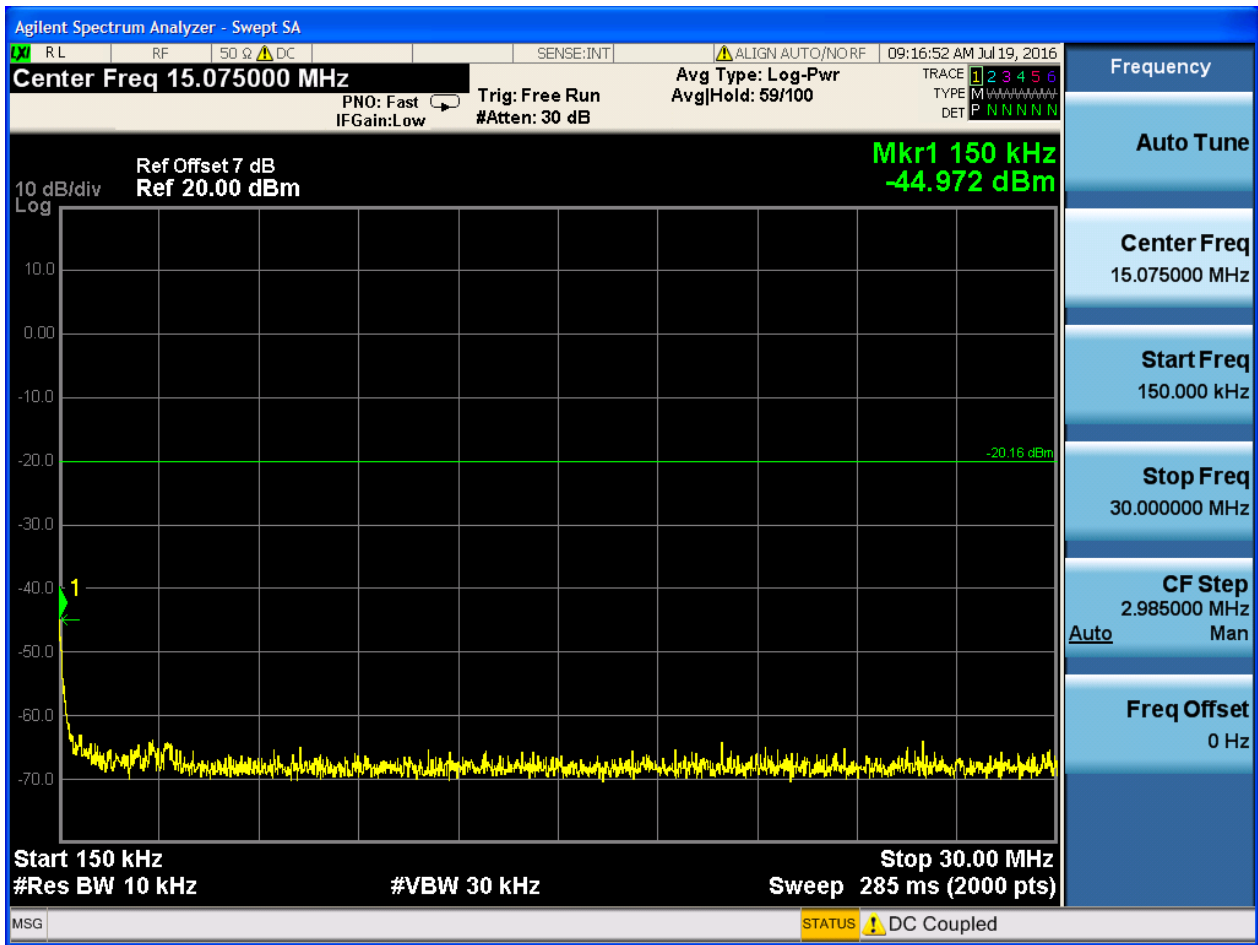
2.1.1 Pref

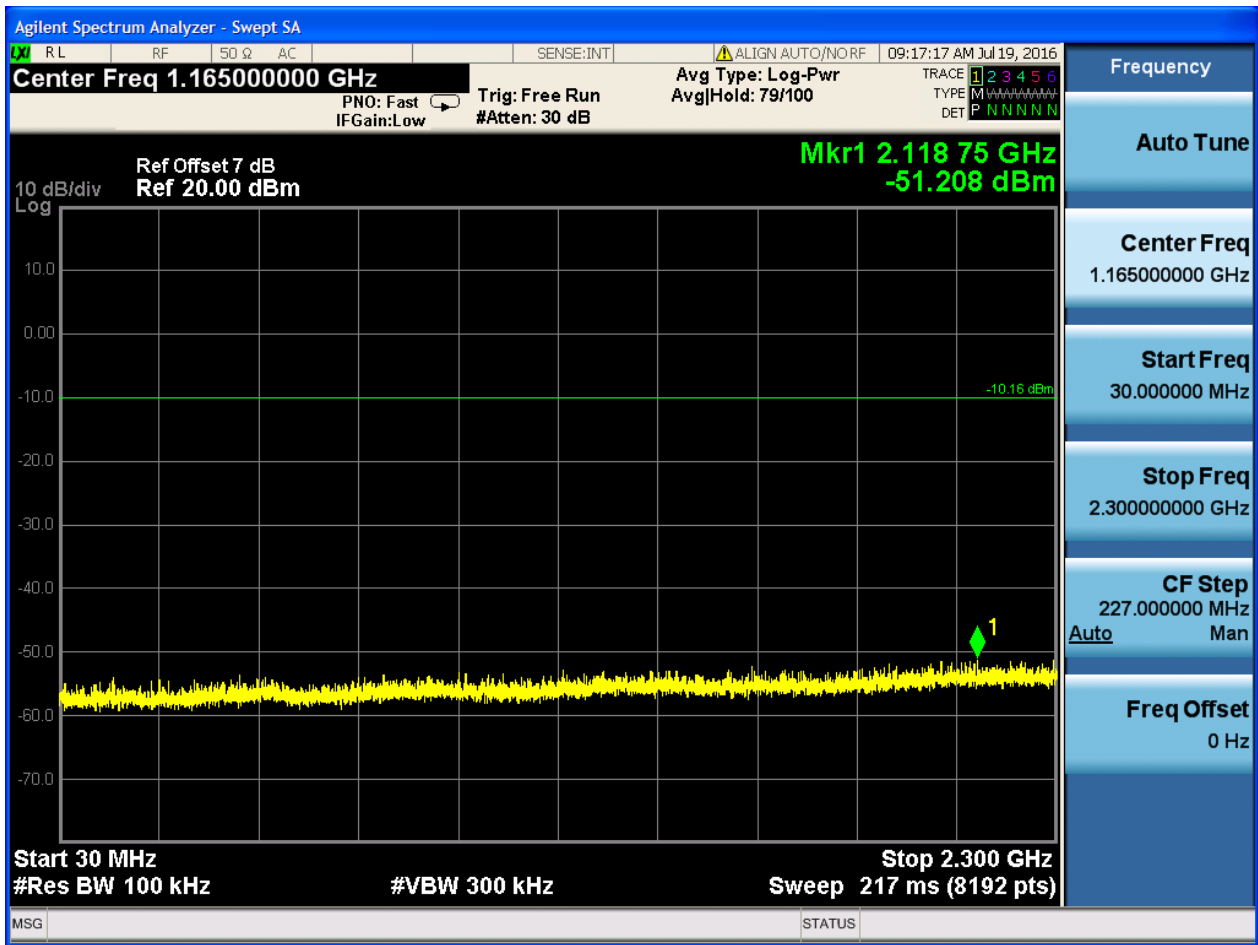


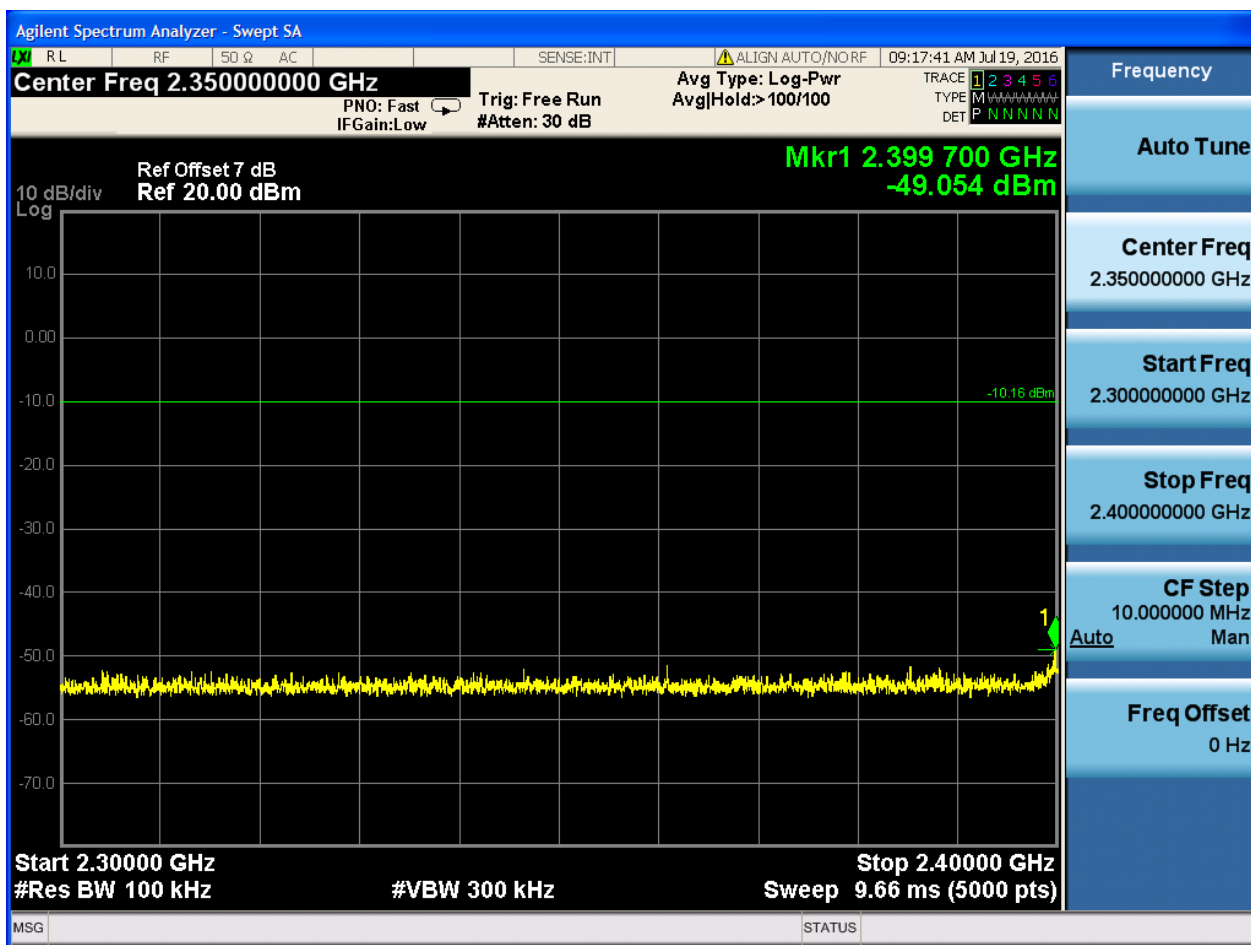


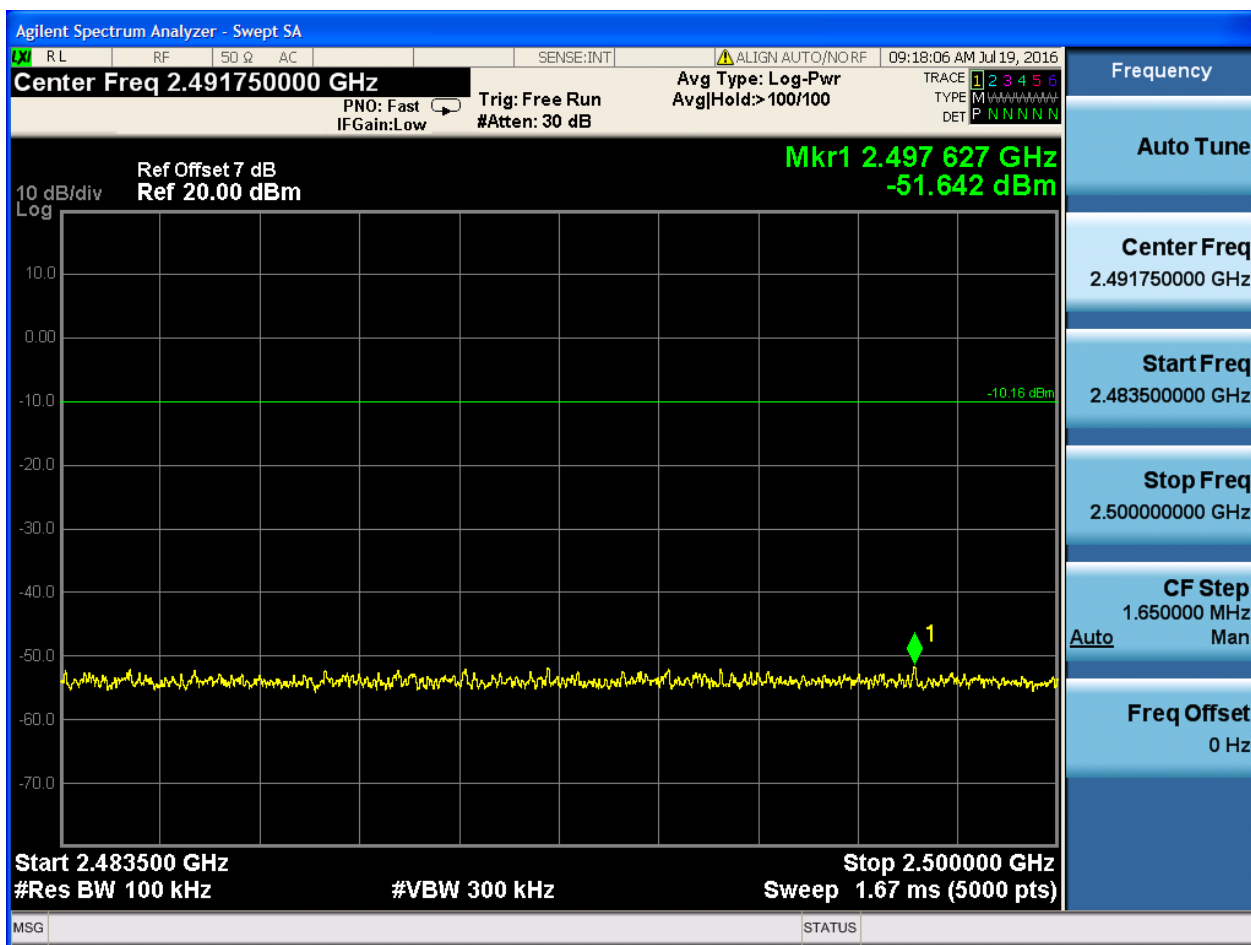
2.1.2 Puw









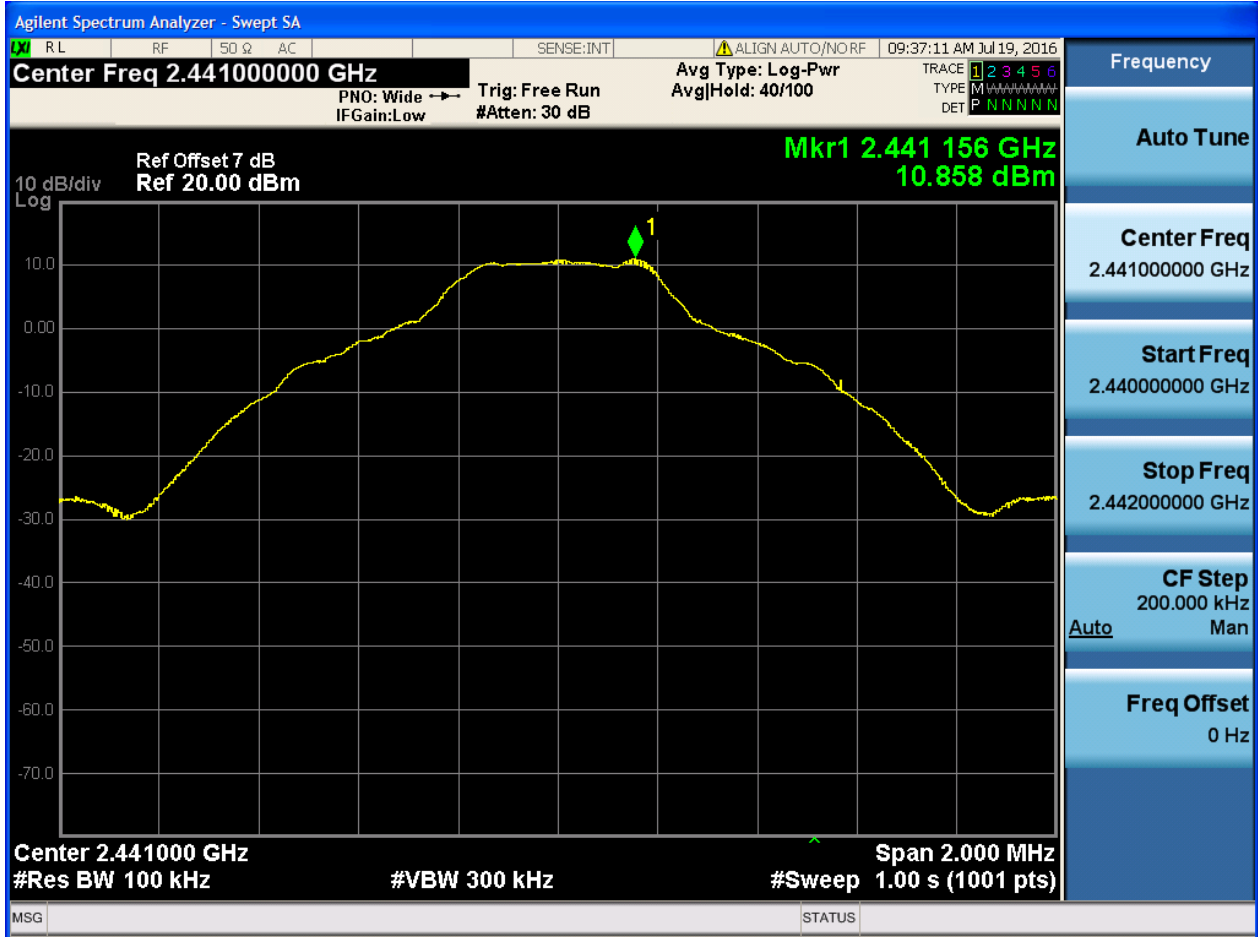






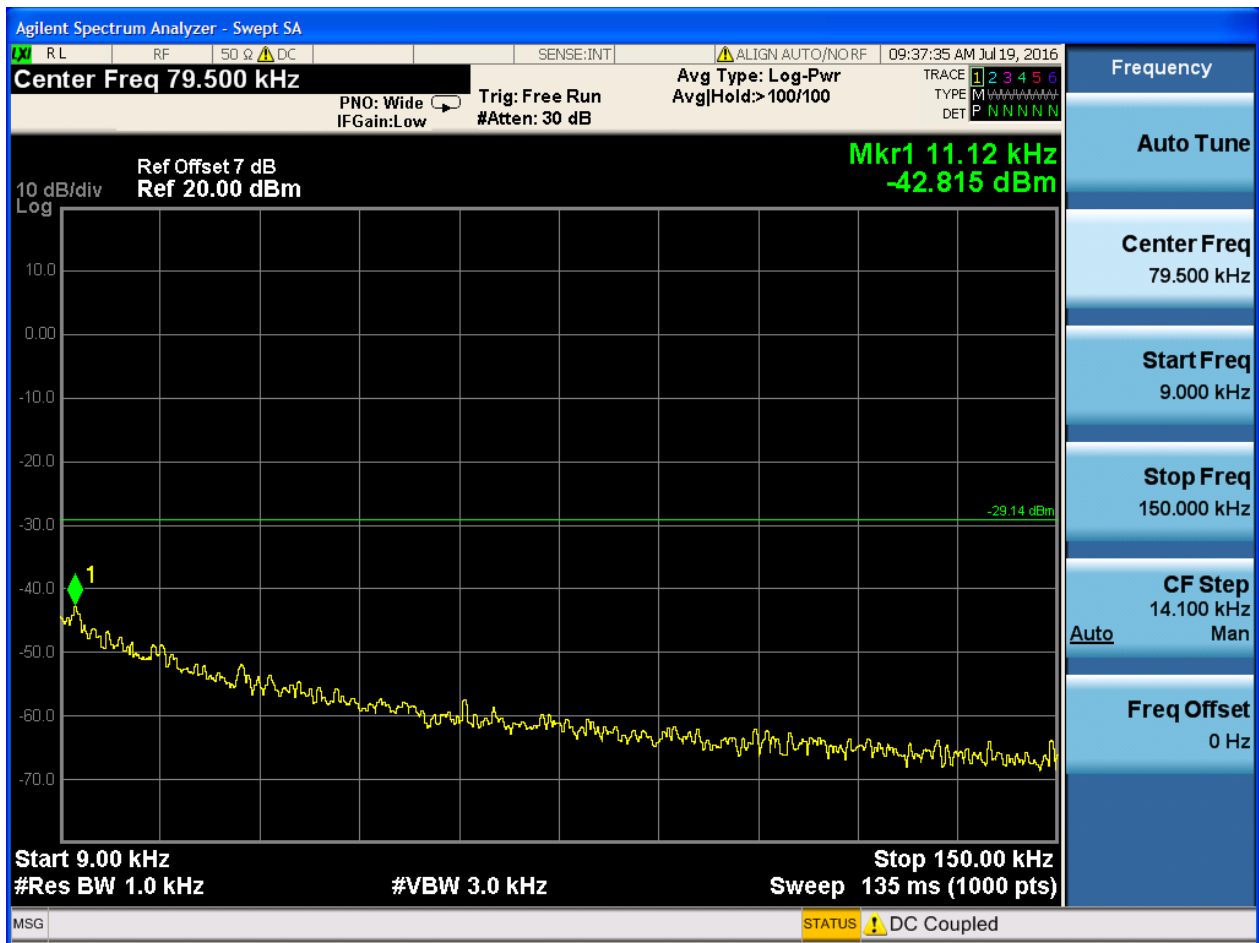
2.2 TM1_DH5_Ch39

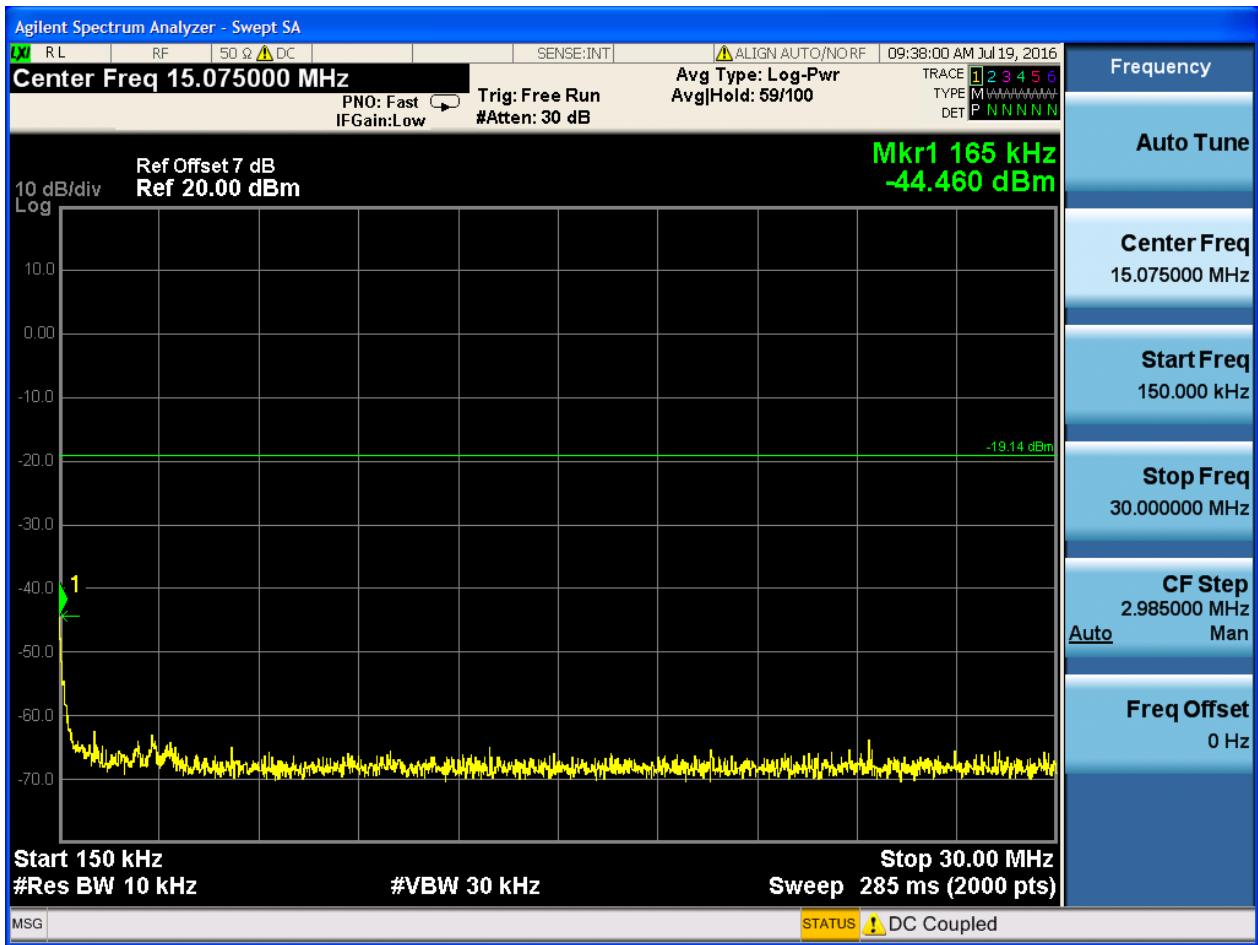
2.2.1 Pref

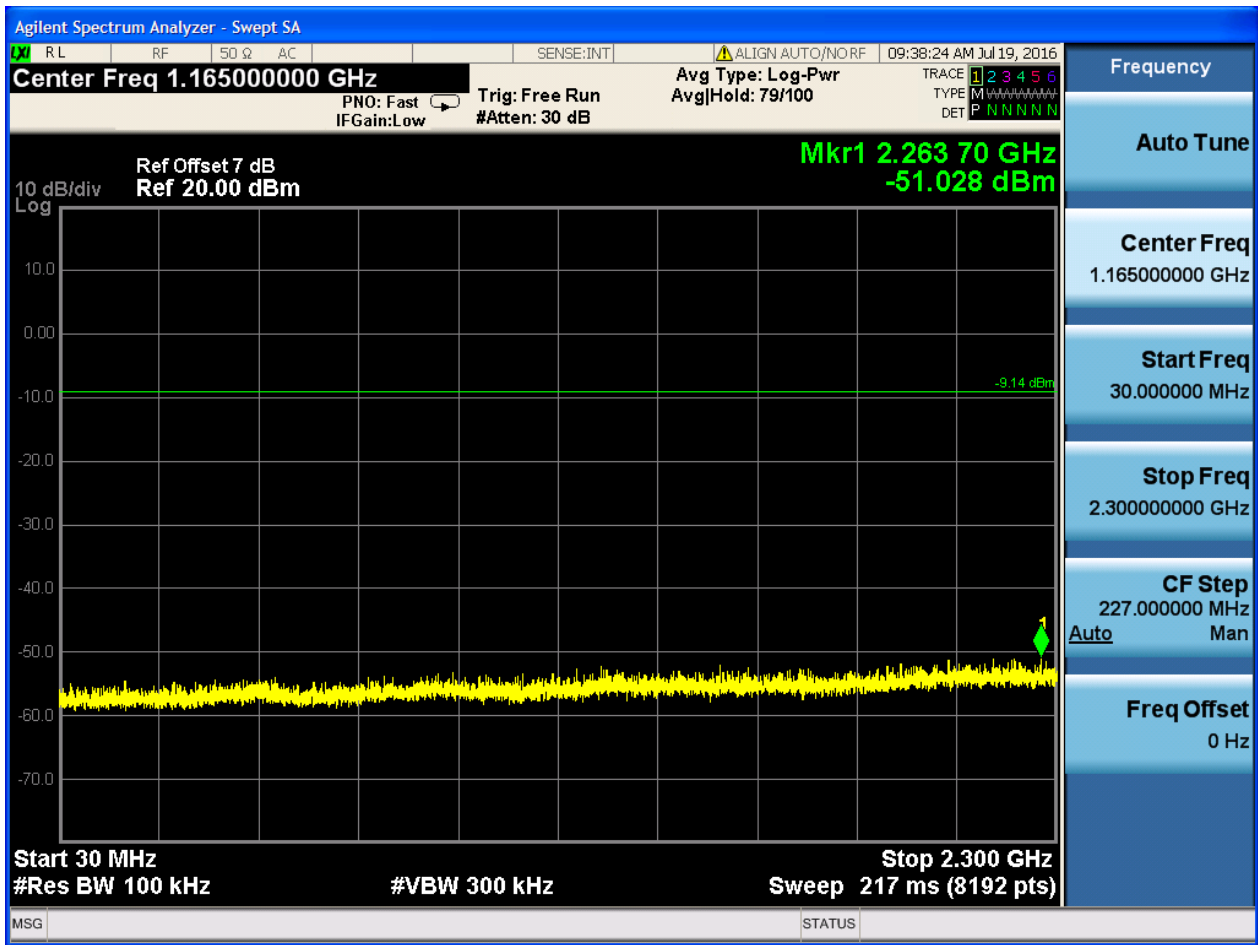


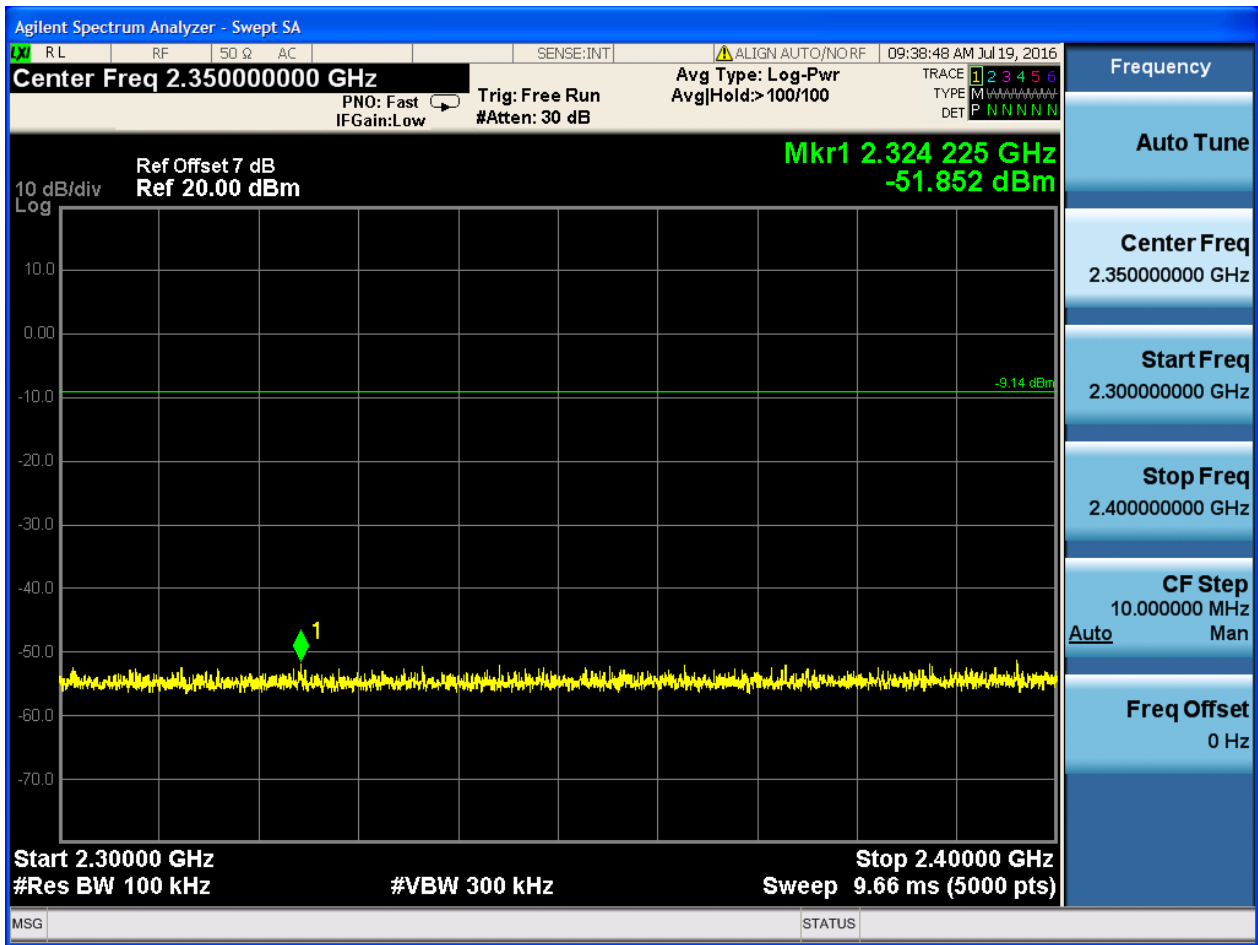


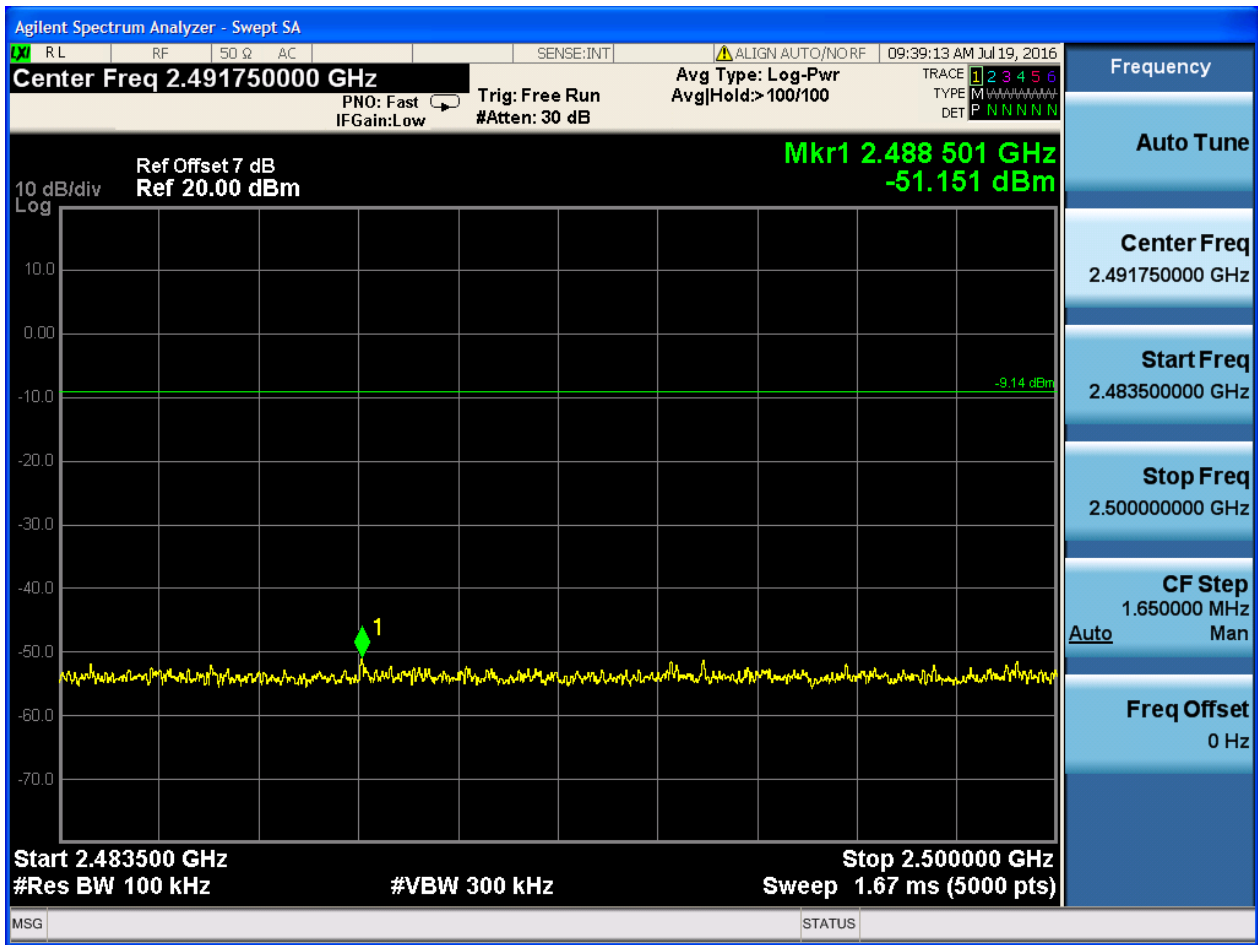
2.2.2 Puw









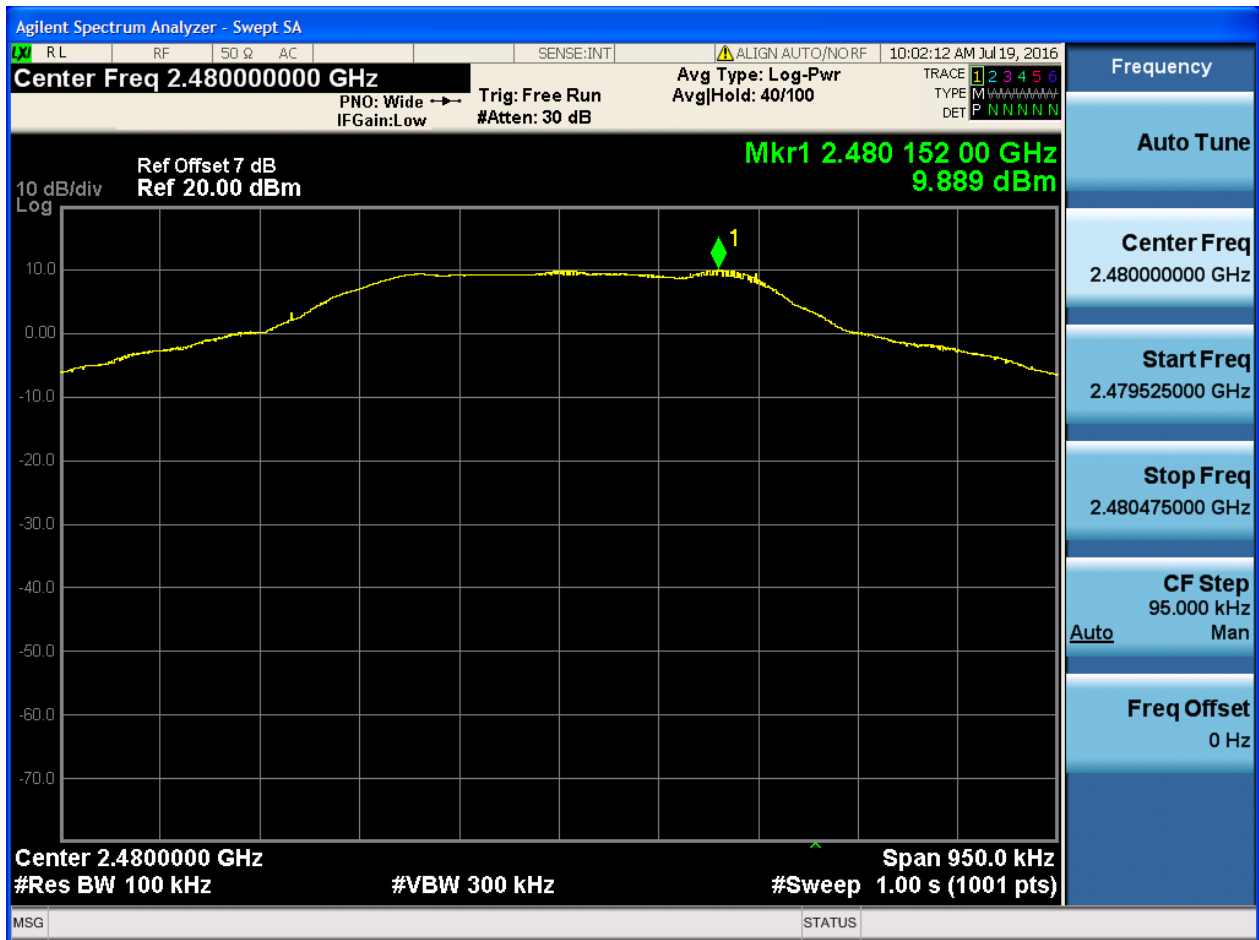






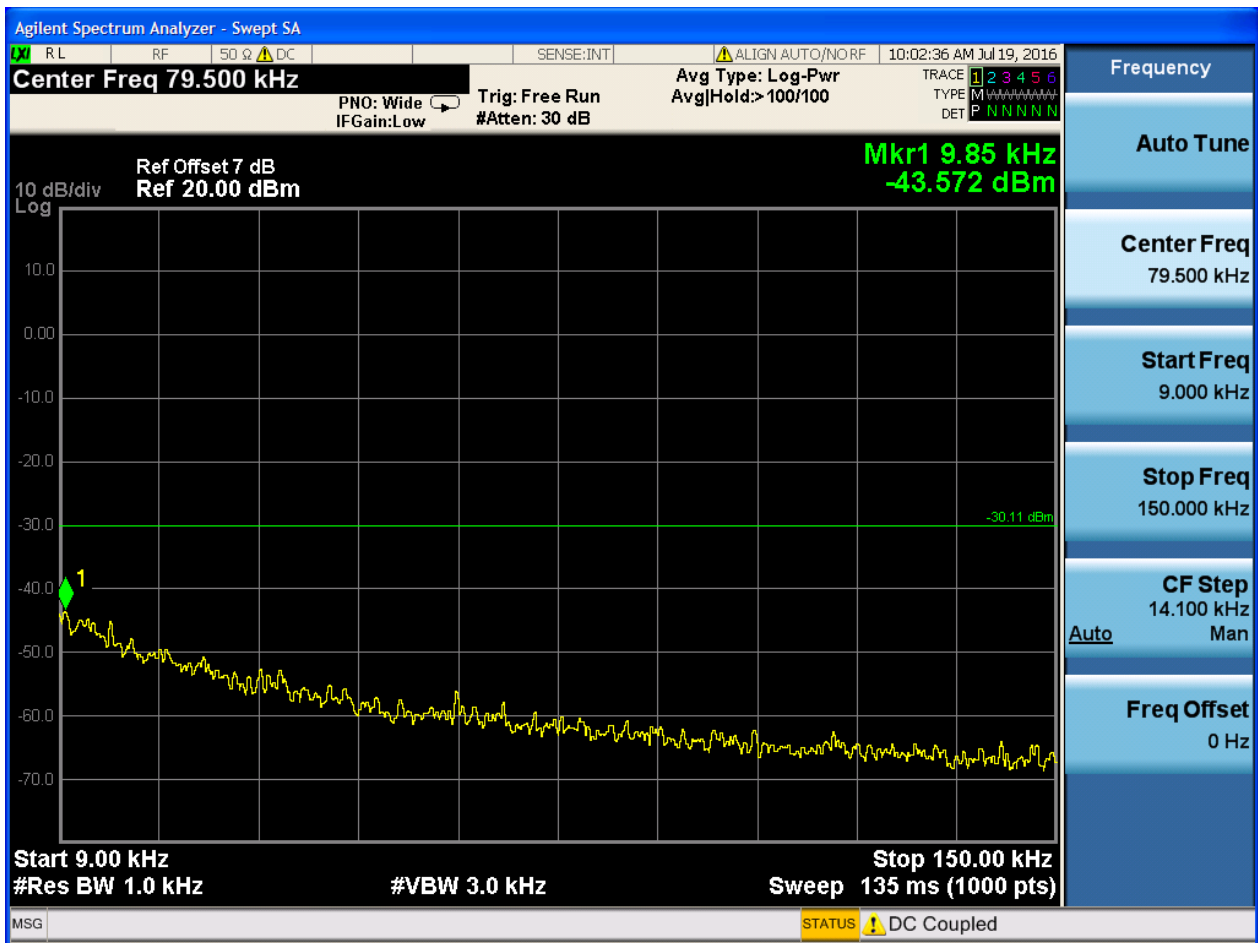
2.3 TM1_DH5_Ch78

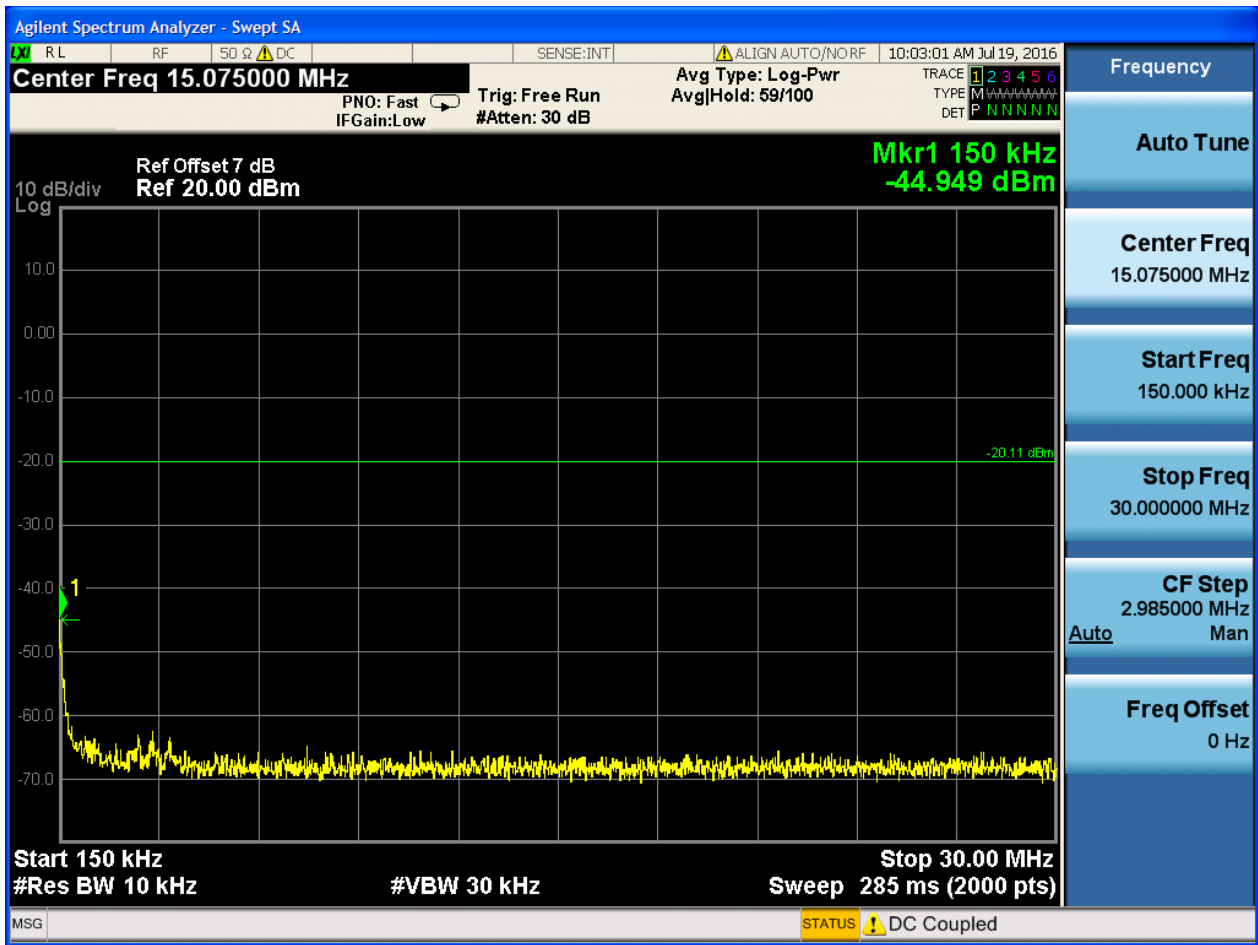
2.3.1 Pref

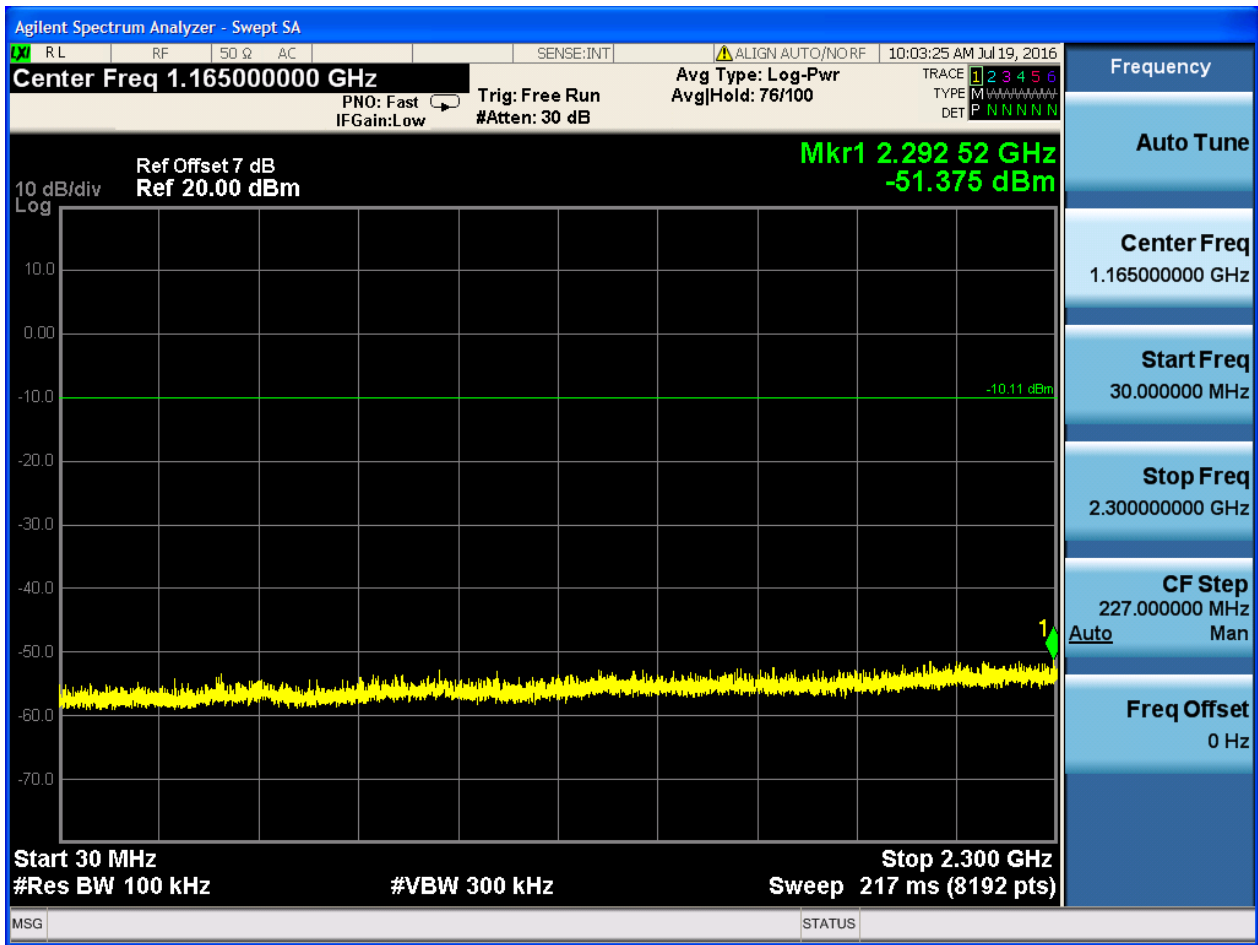


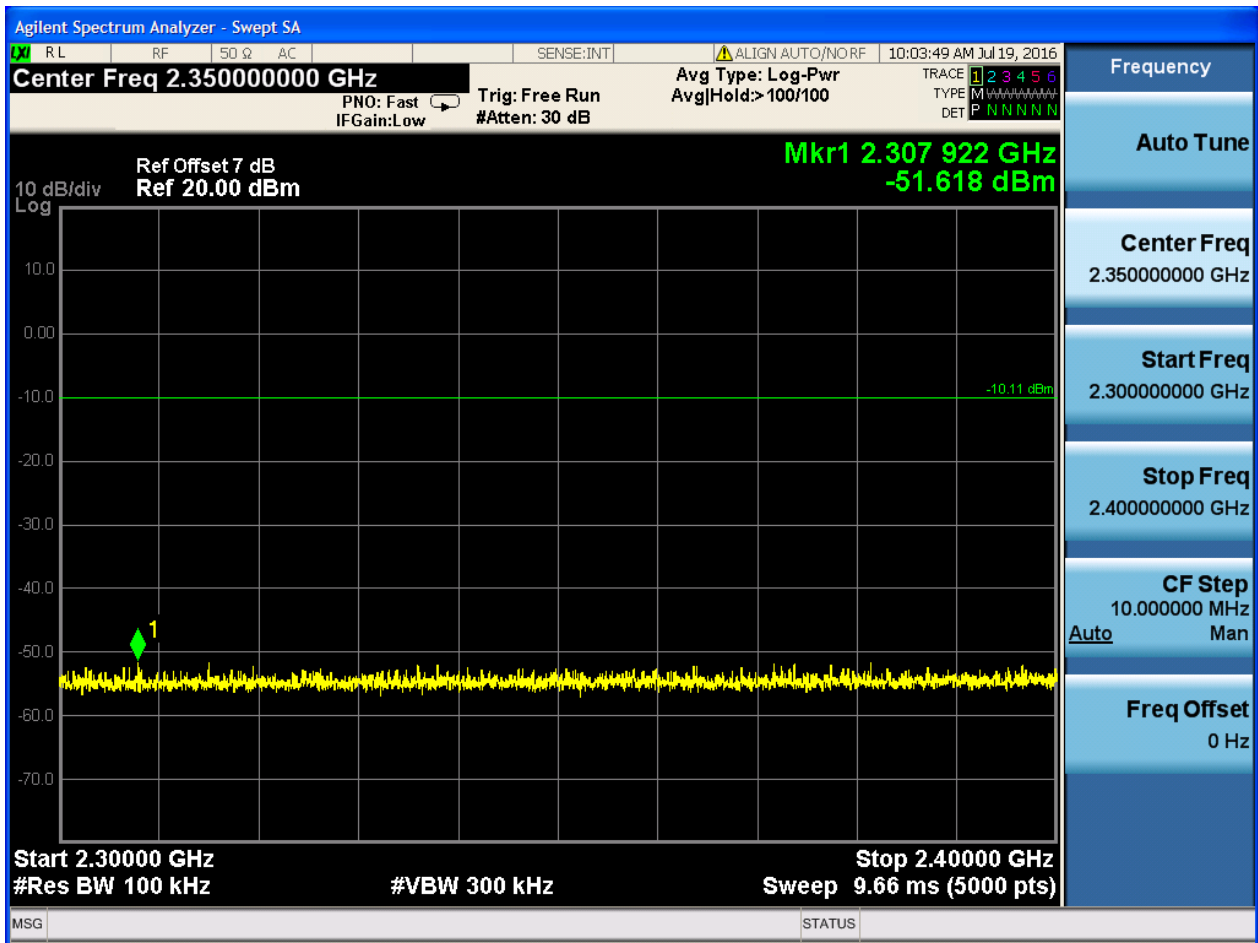


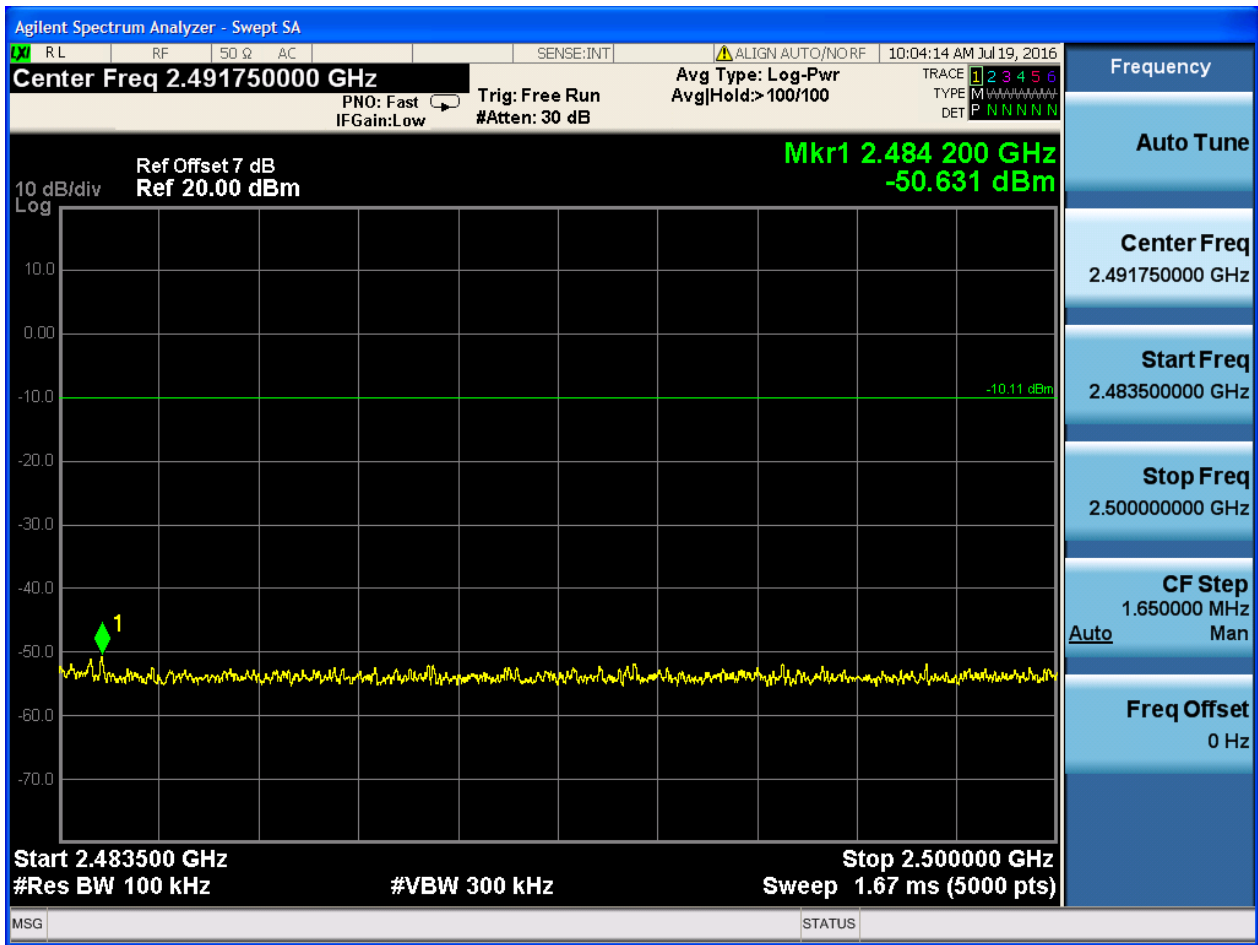
2.3.2 Puw

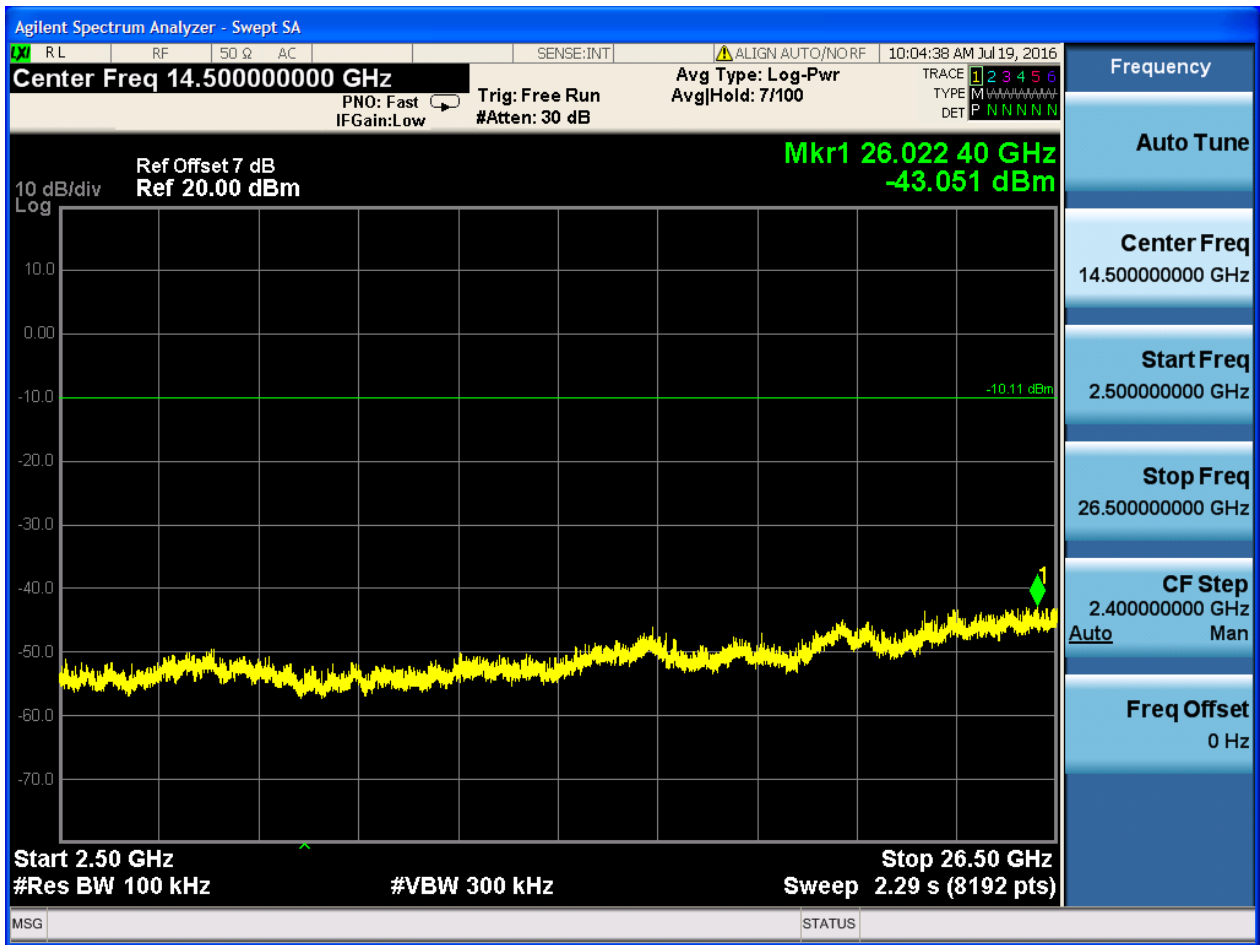












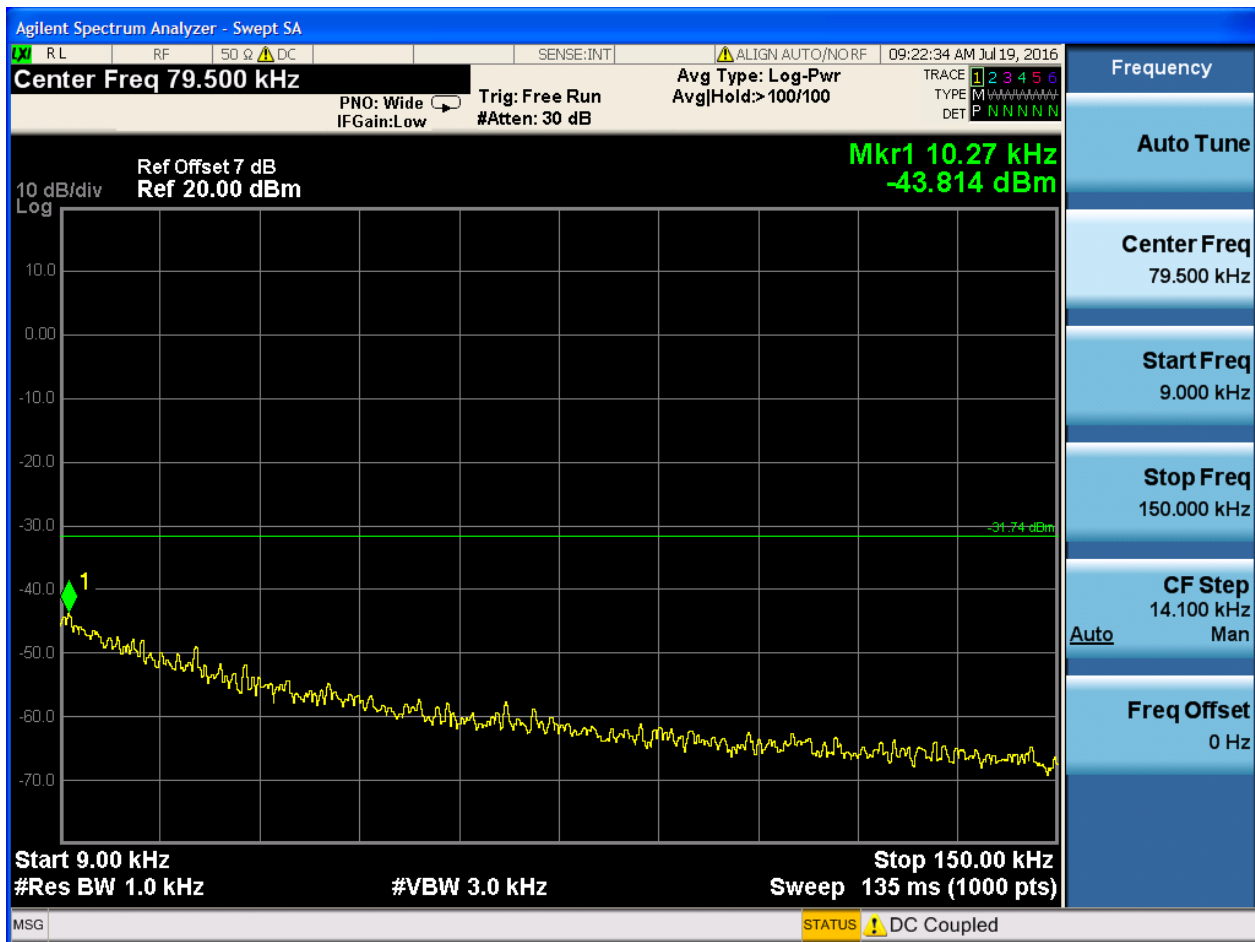
2.4 TM2_2DH5_Ch0

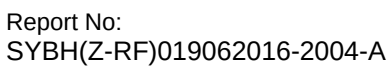
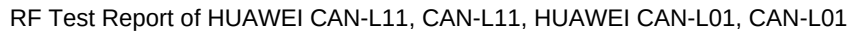
2.4.1 Pref

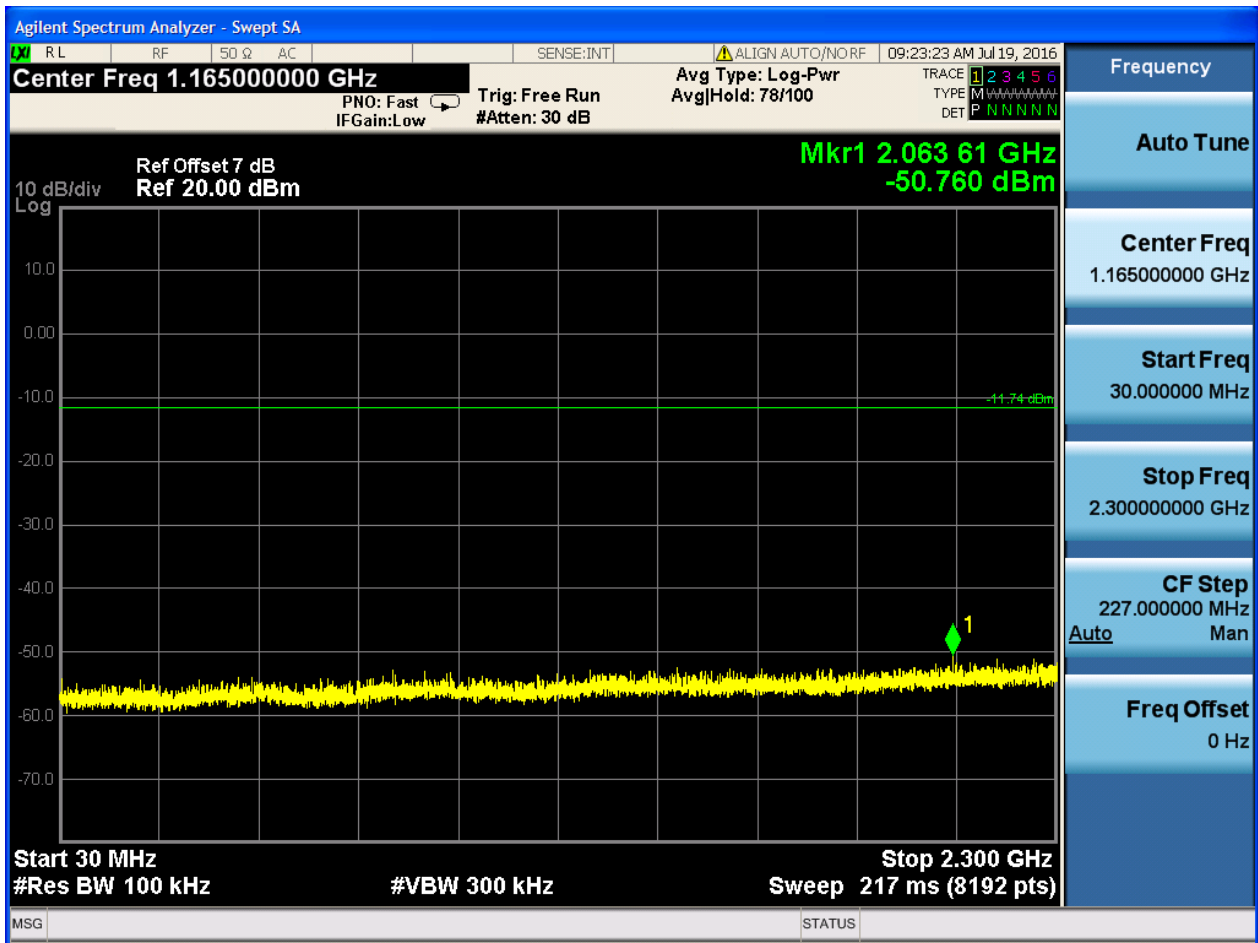


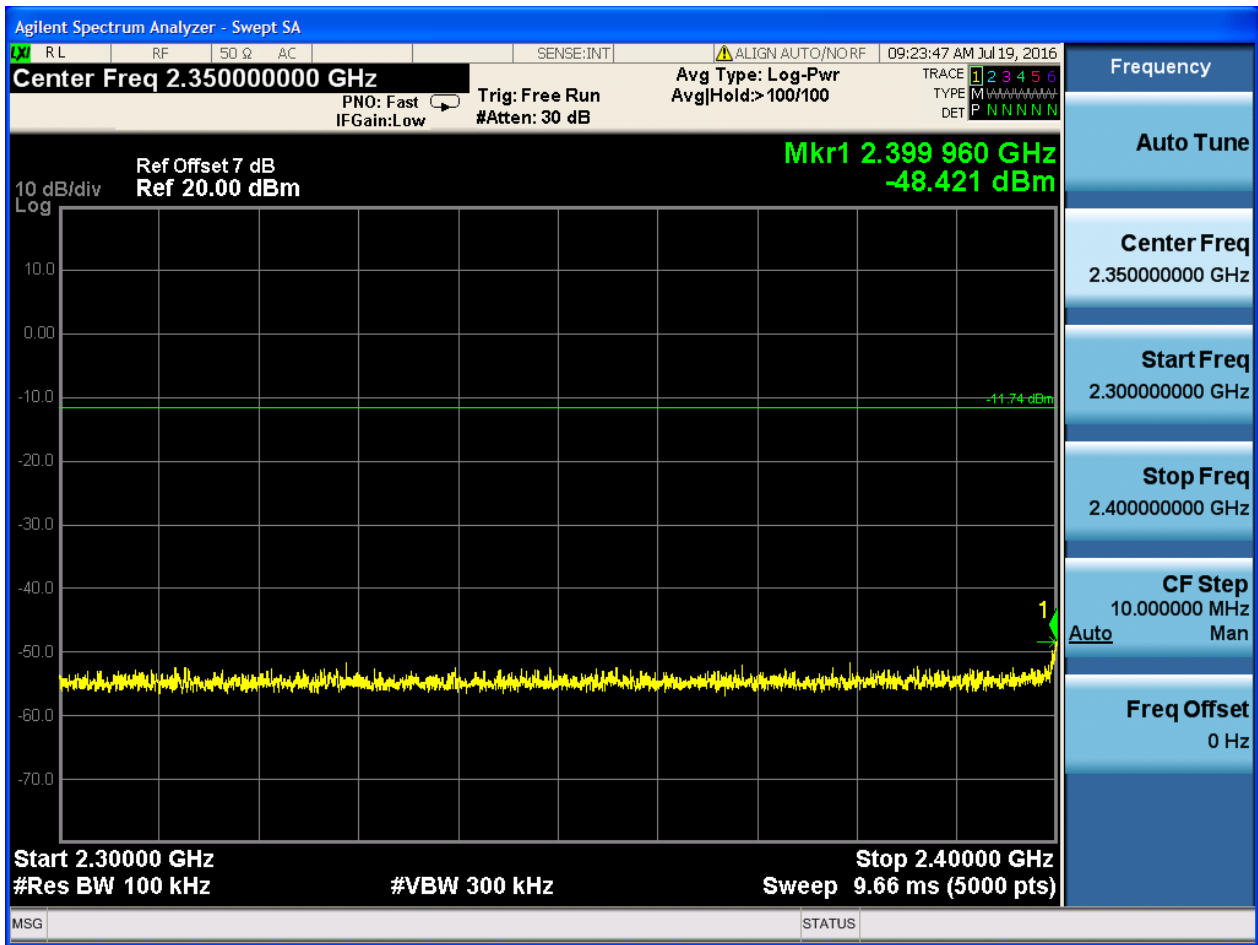


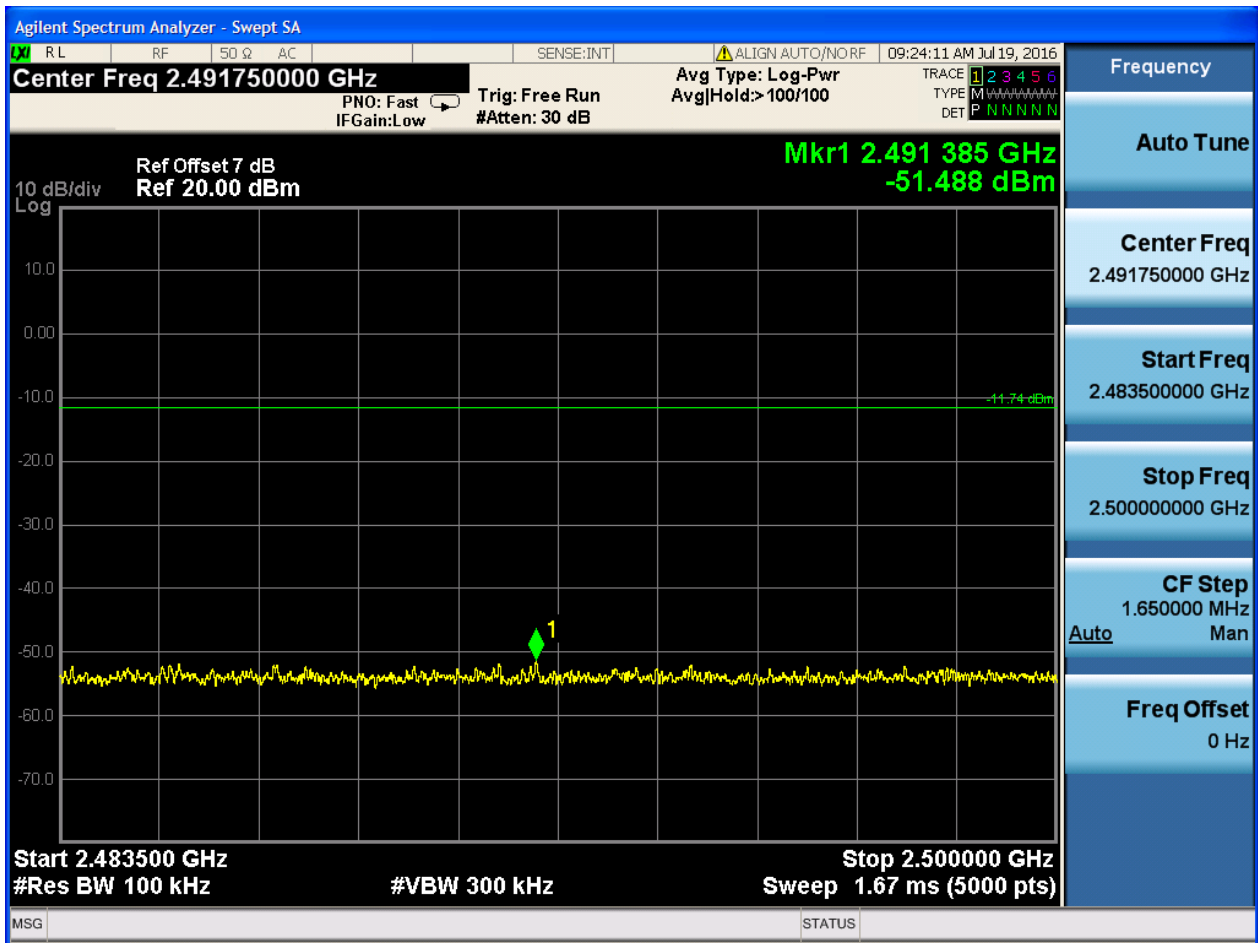
2.4.2 Puw

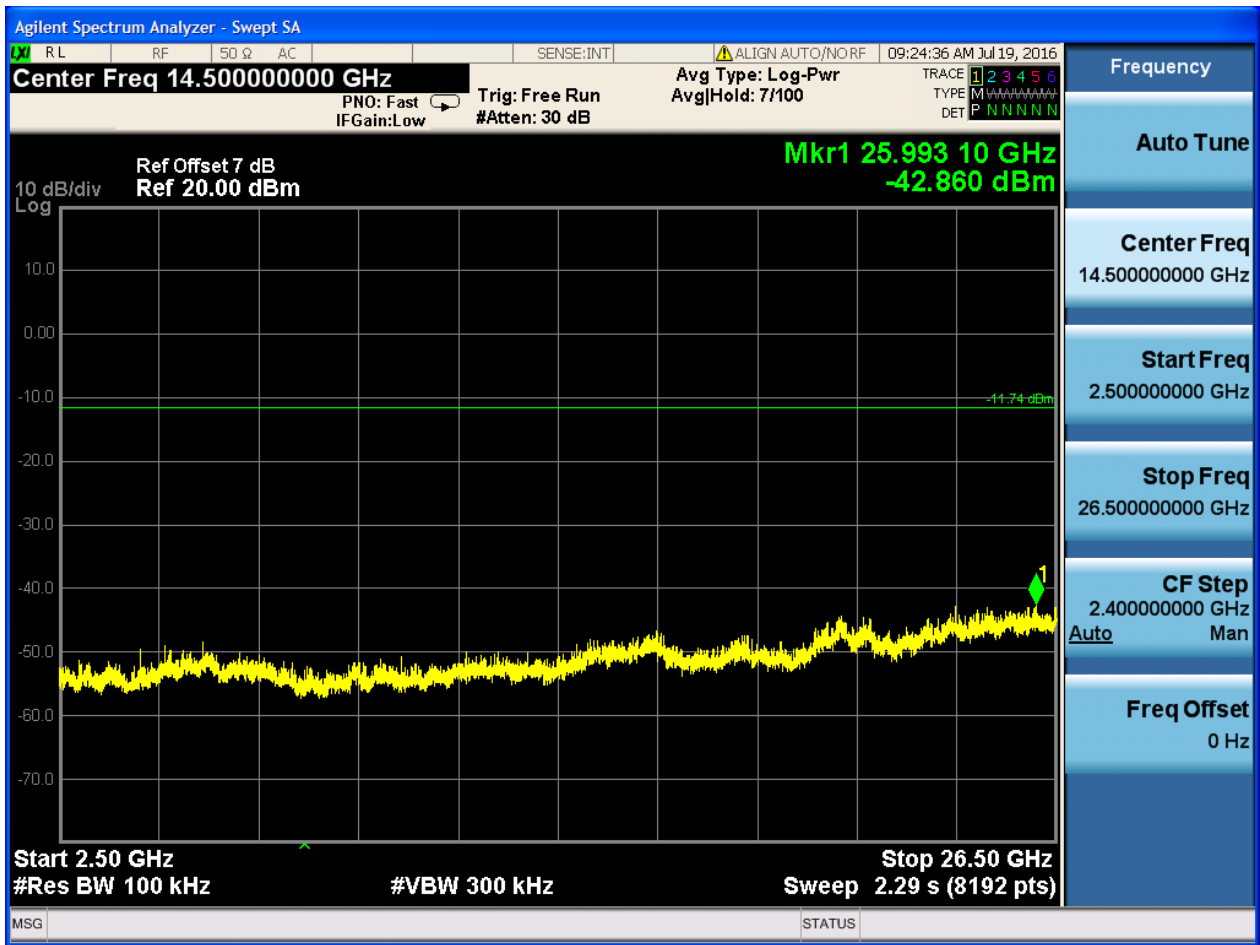








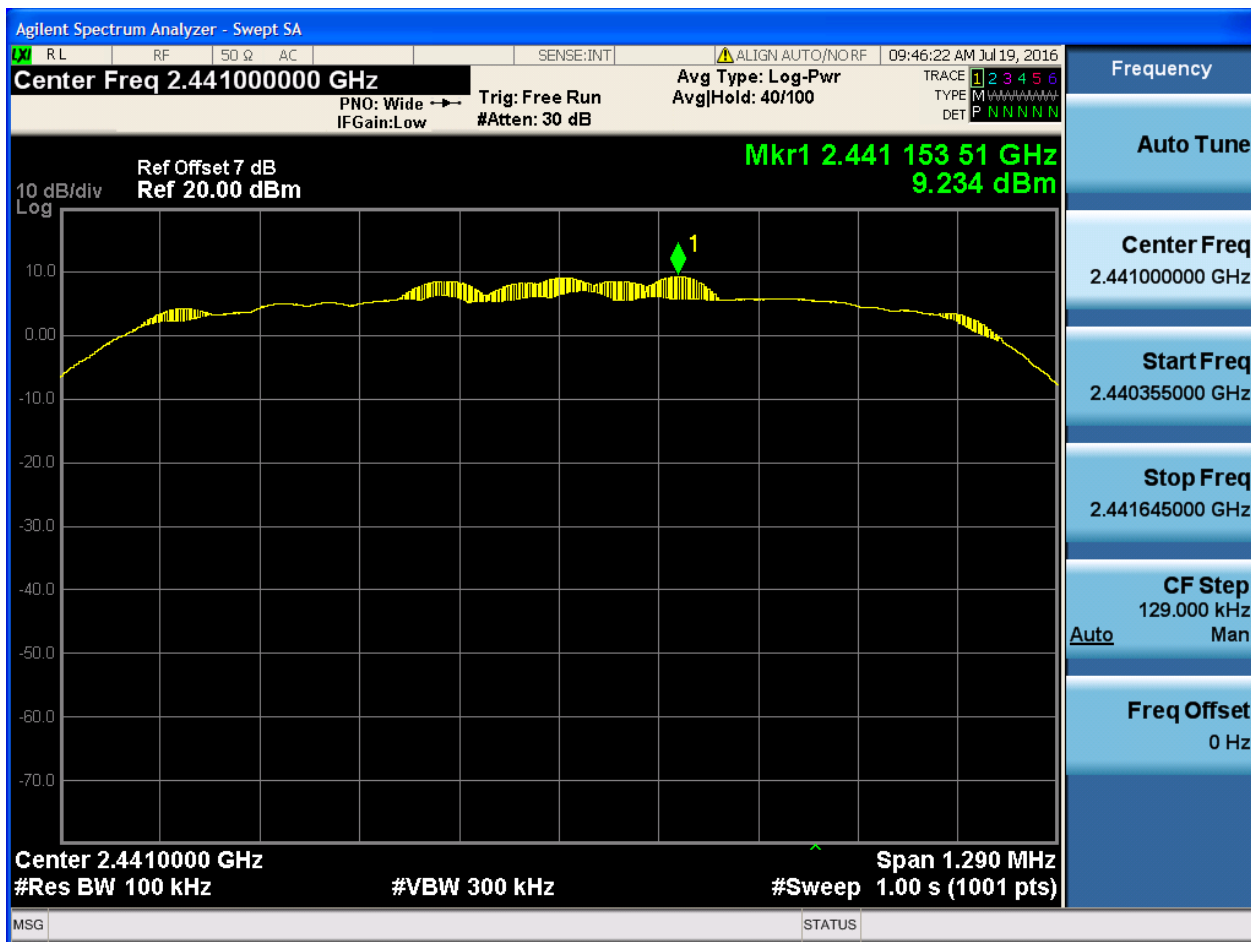






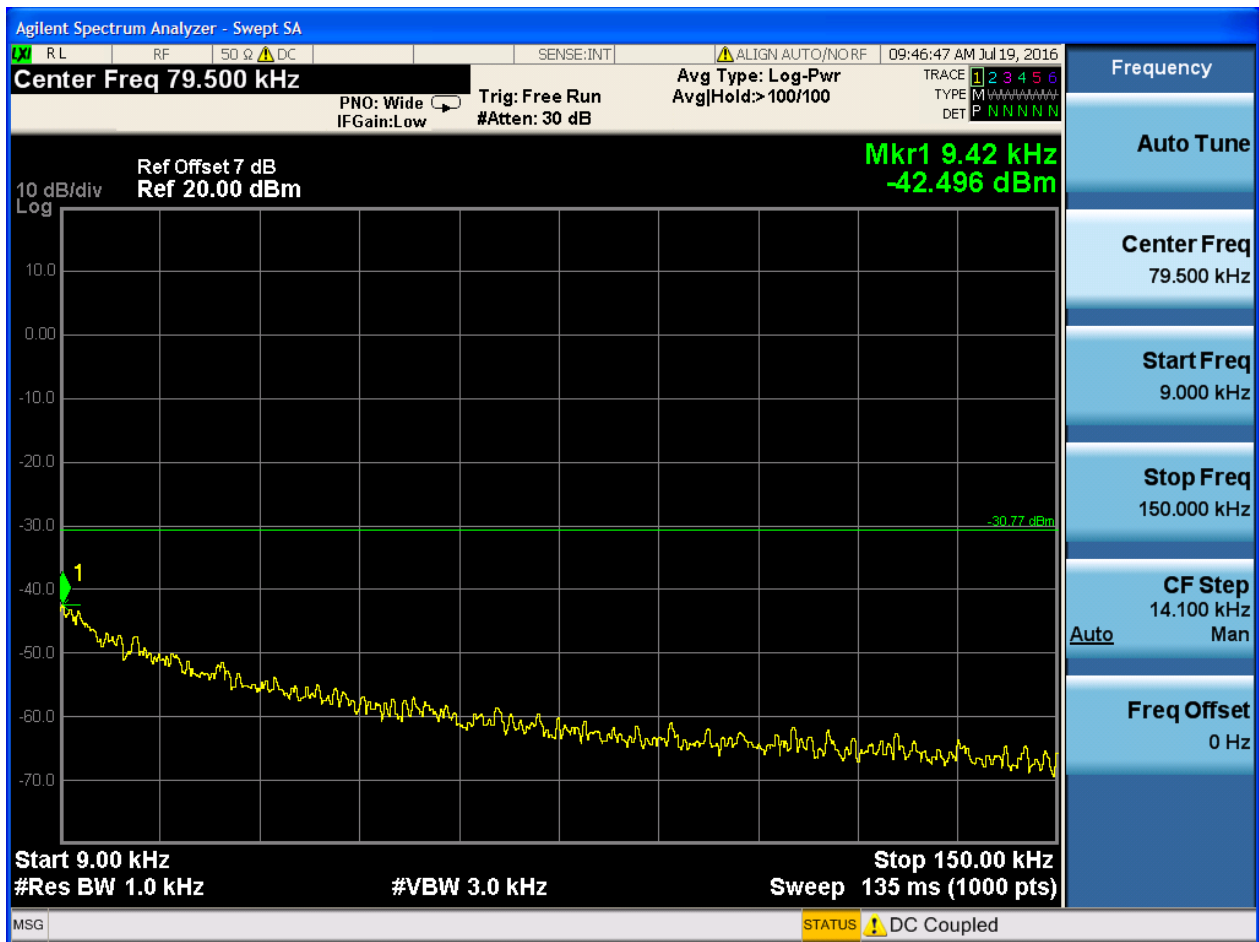
2.5 TM2_2DH5_Ch39

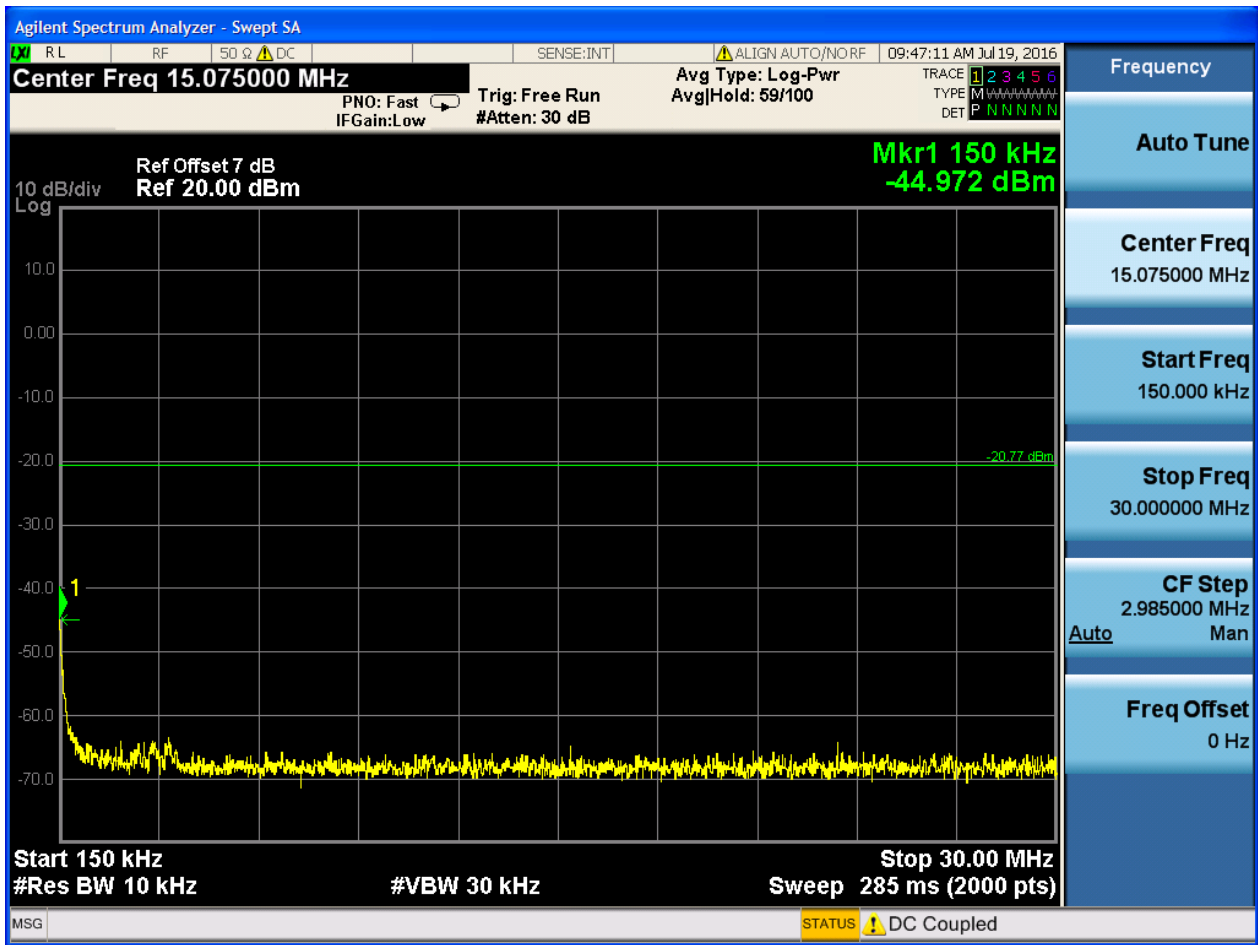
2.5.1 Pref

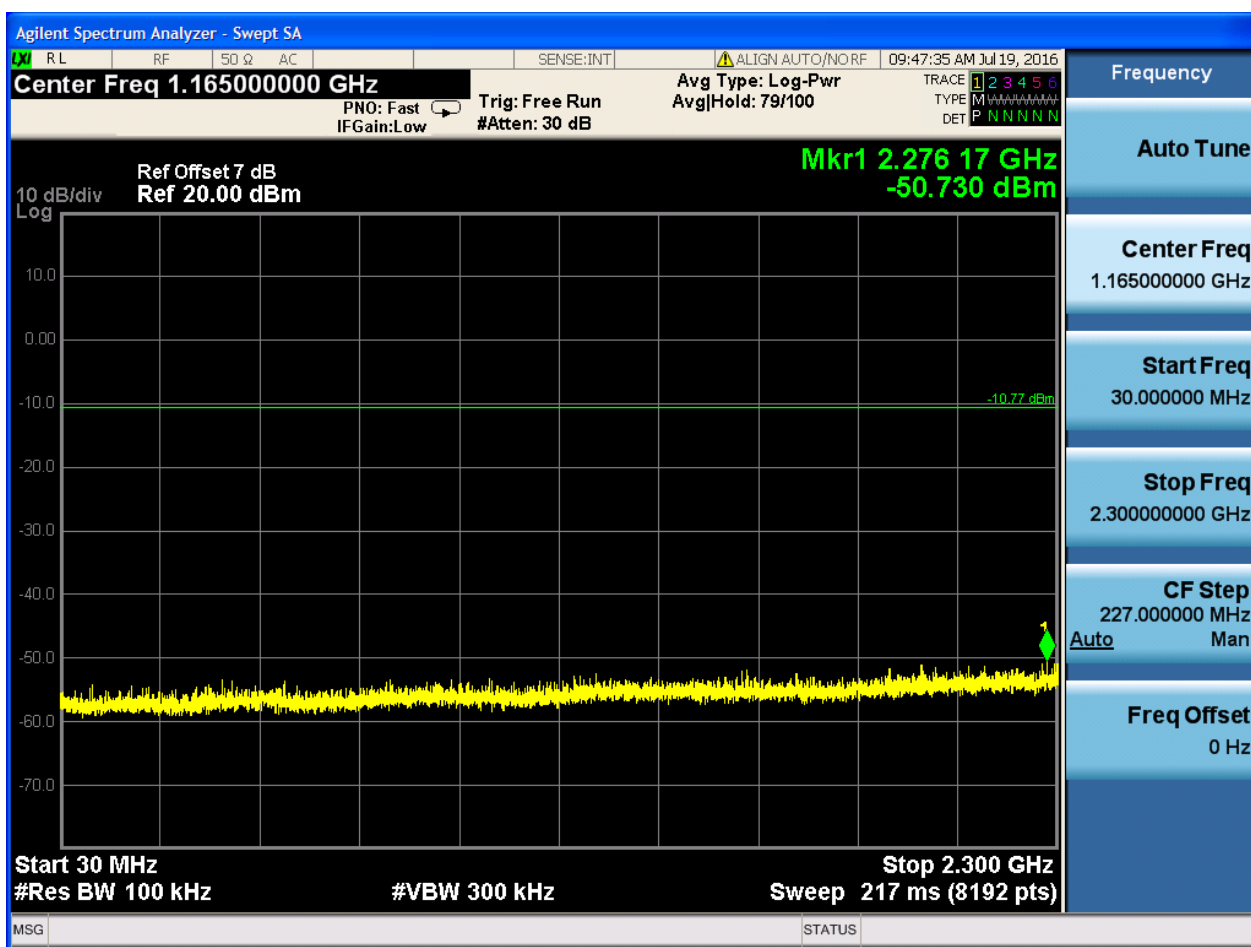


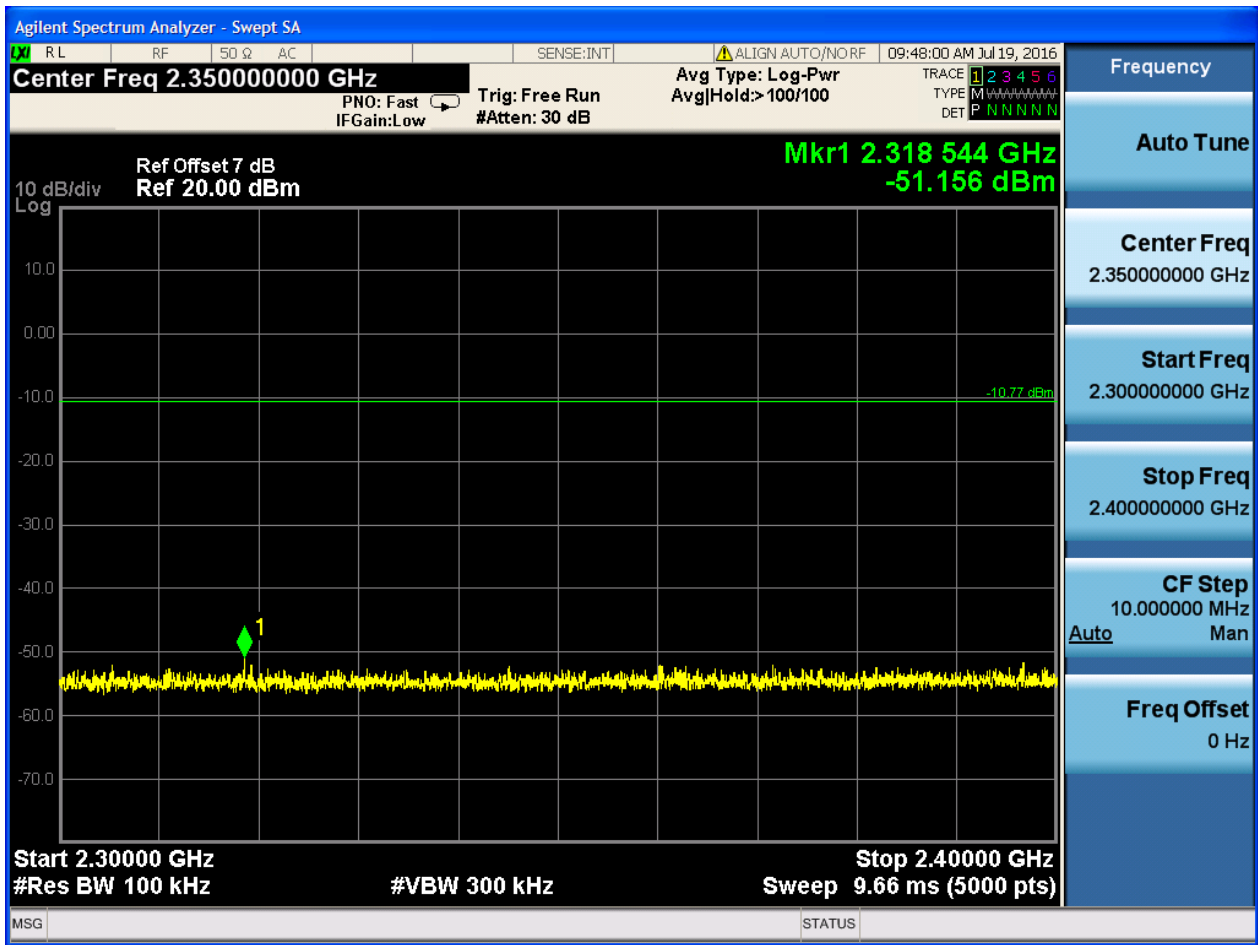


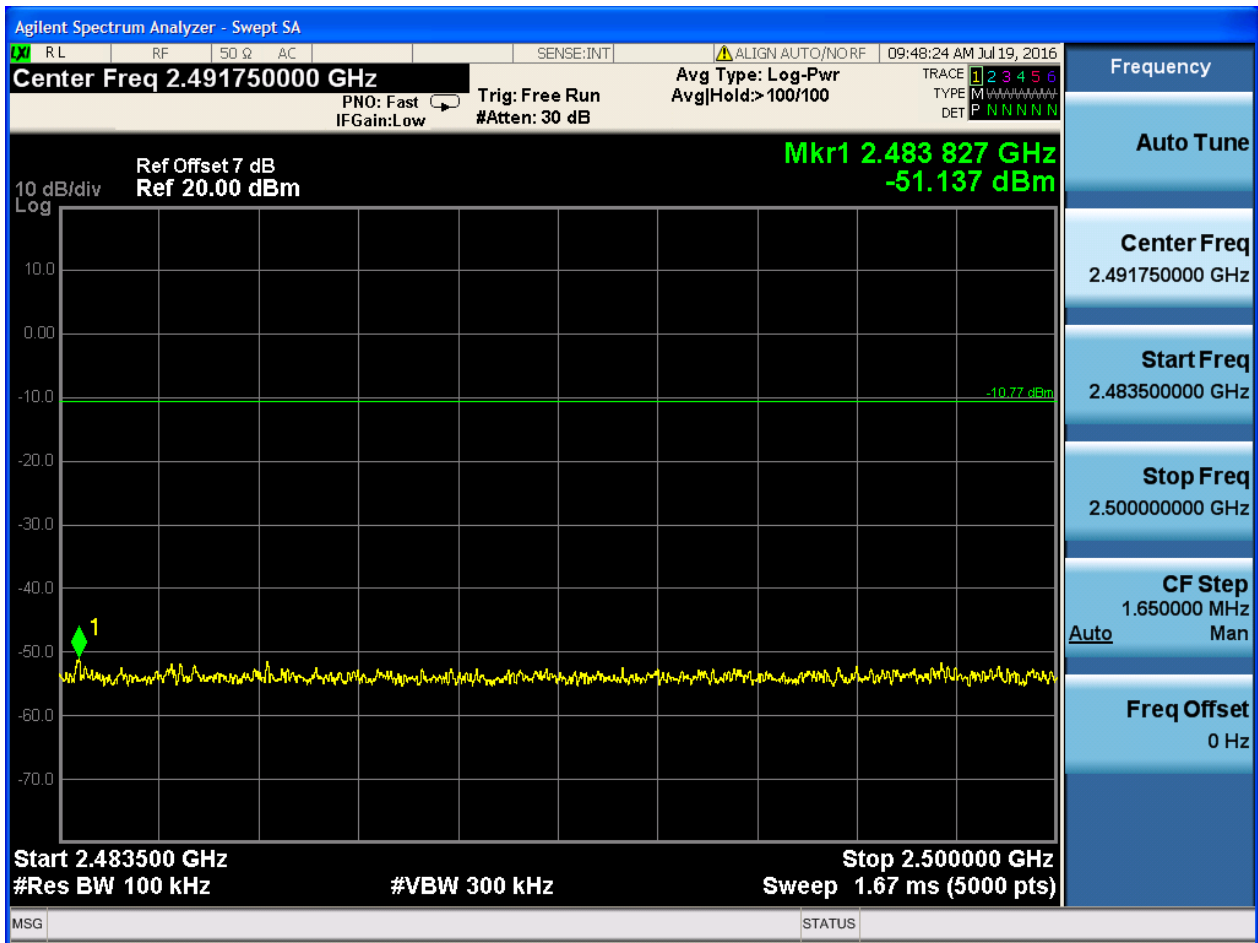
2.5.2 Puw

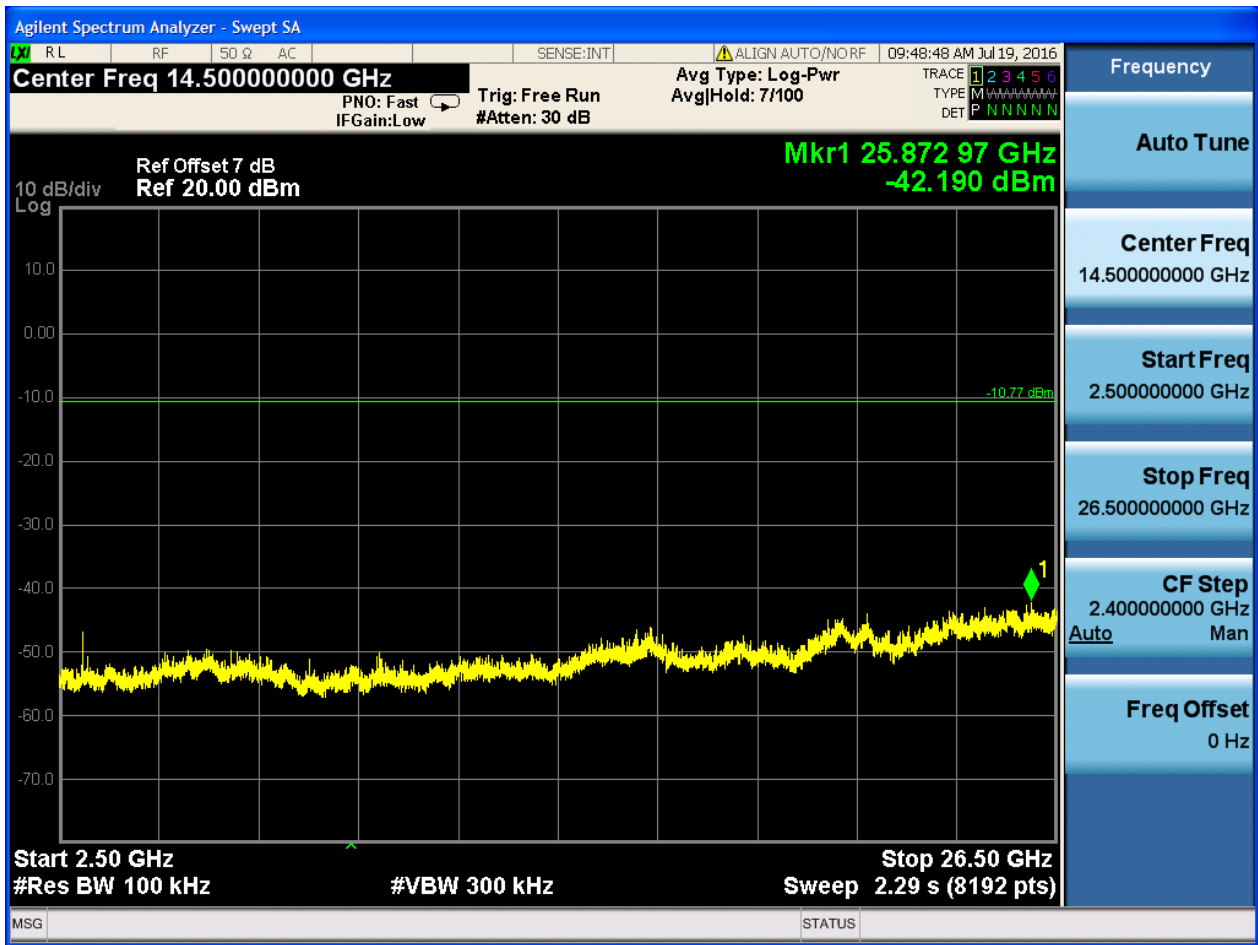










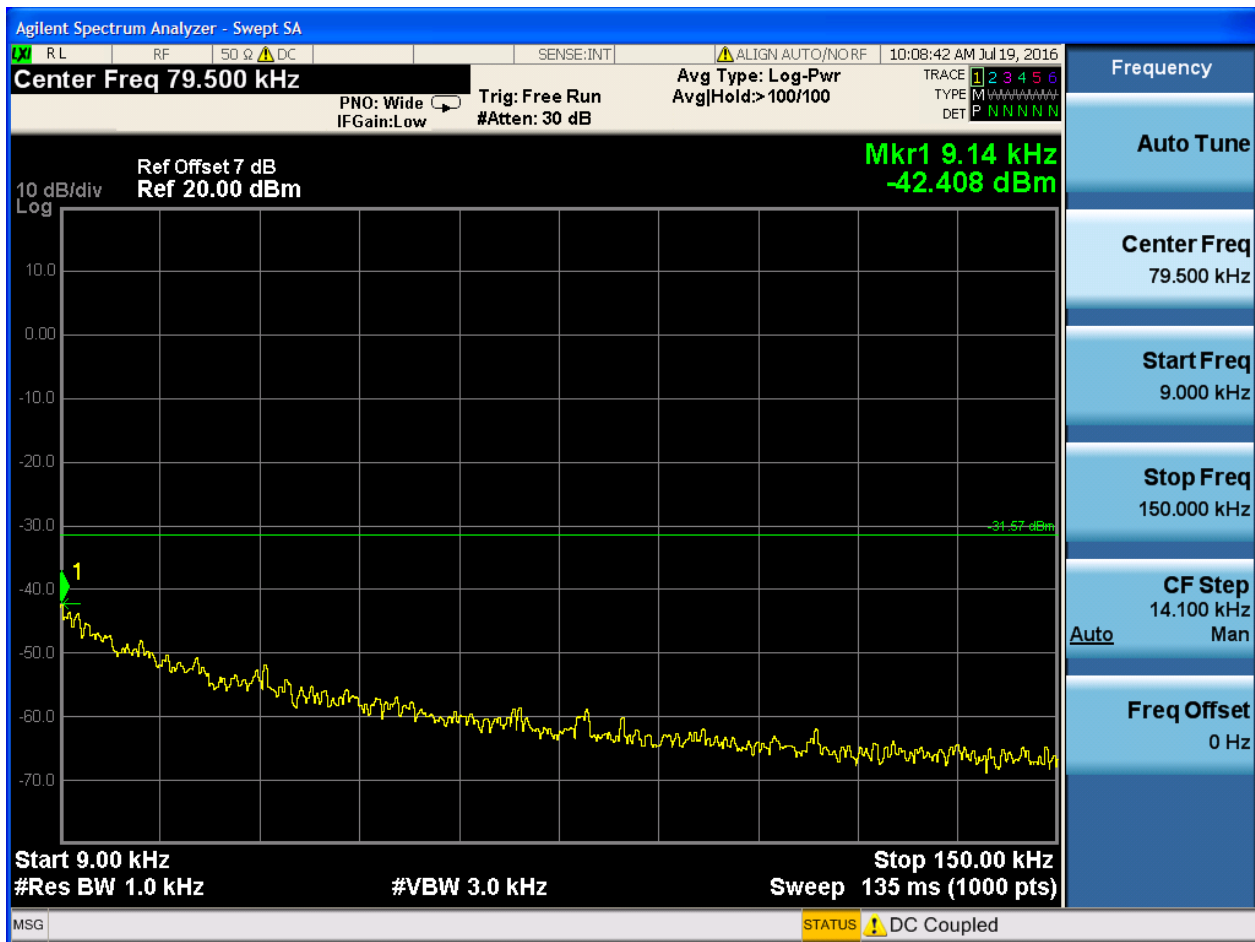


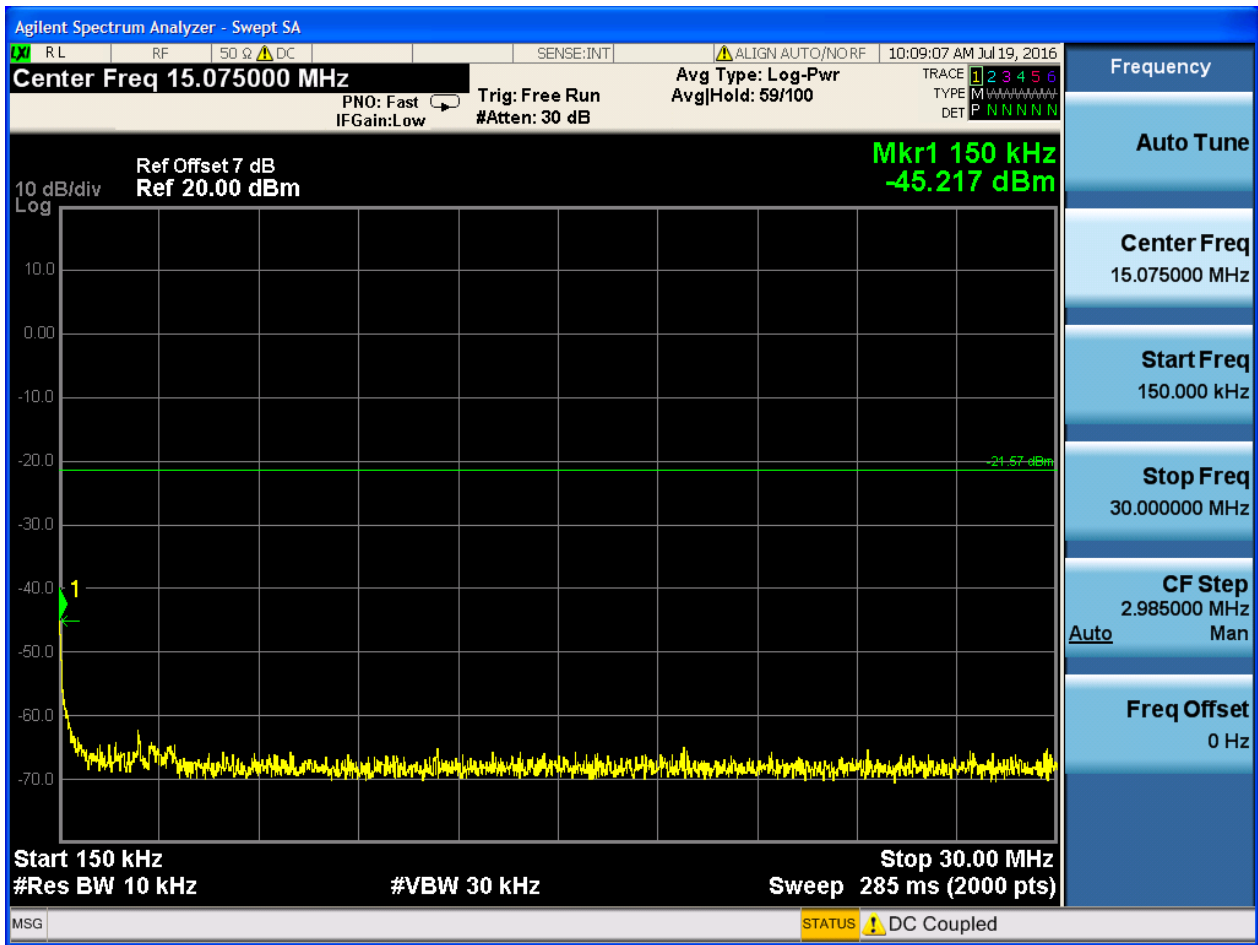
2.6 TM2_2DH5_Ch78

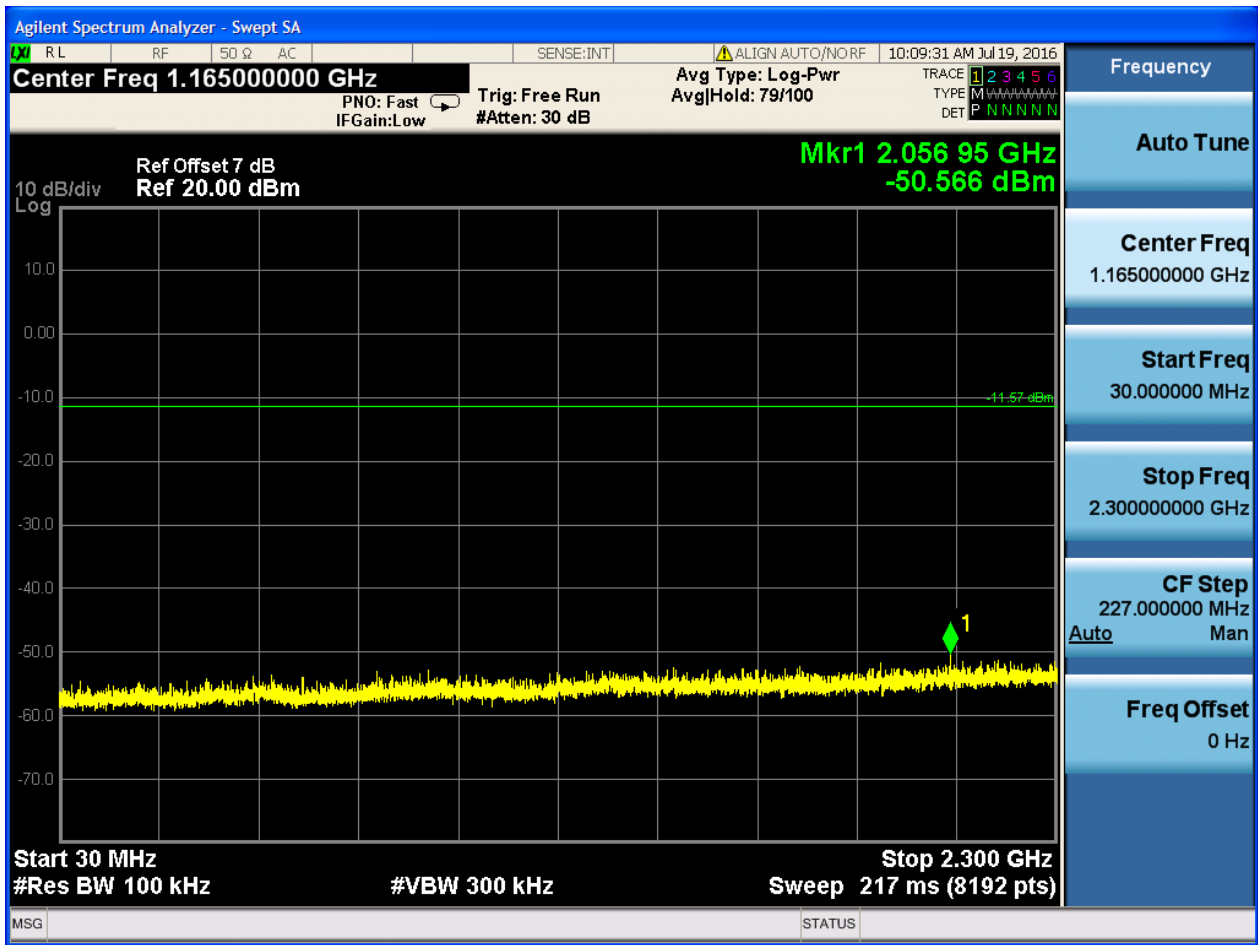
2.6.1 Pref

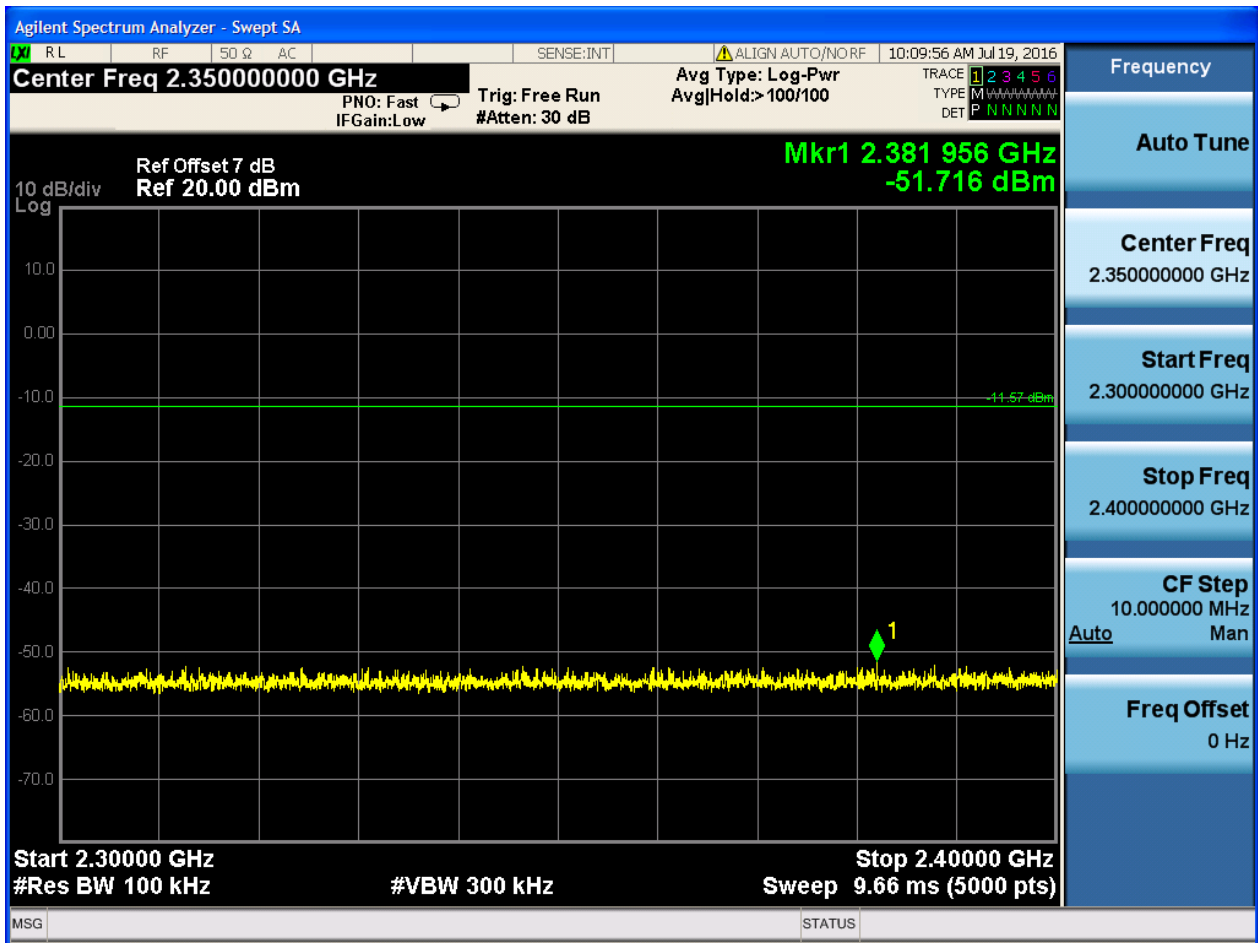


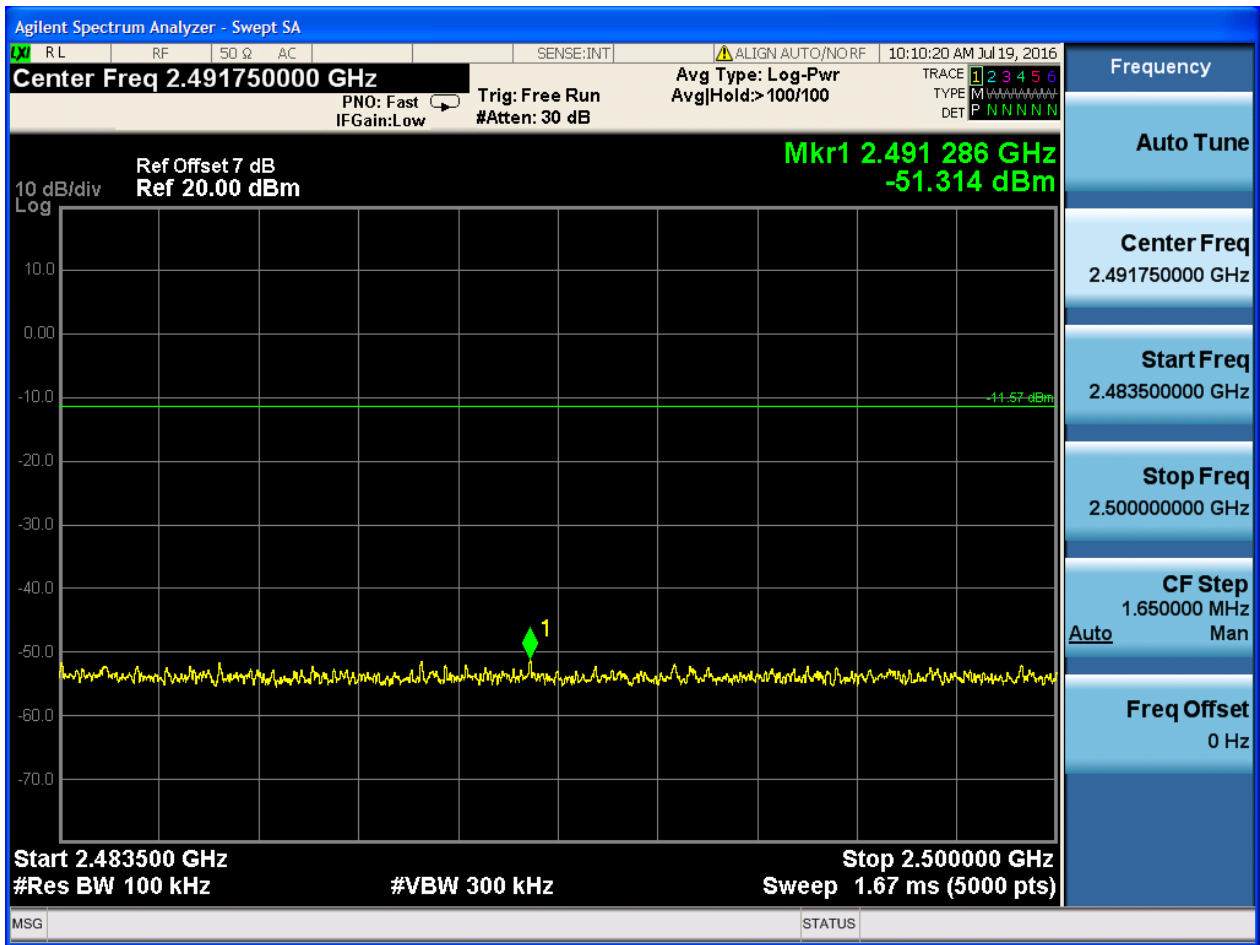
2.6.2 Puw













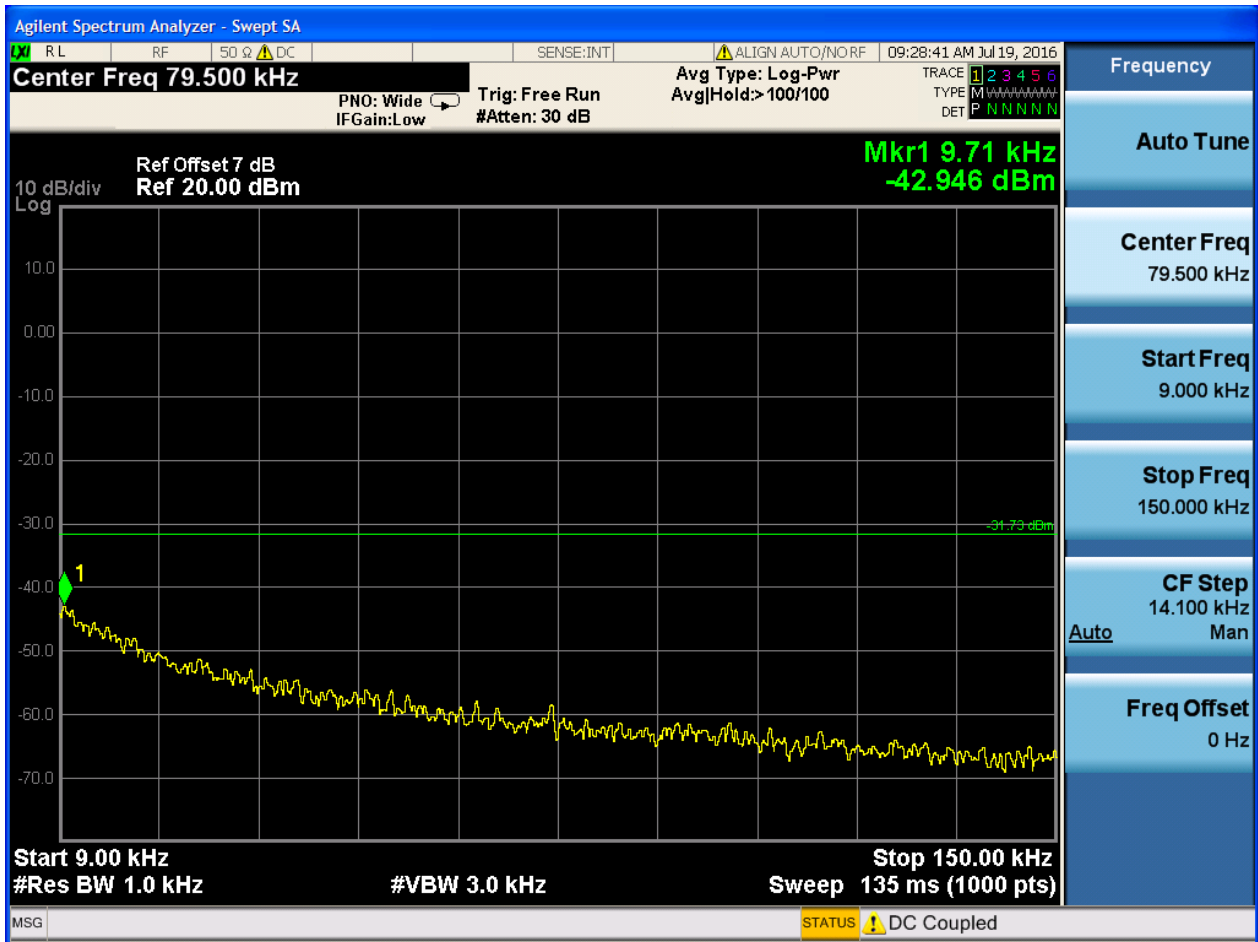
2.7 TM3_3DH5_Ch0

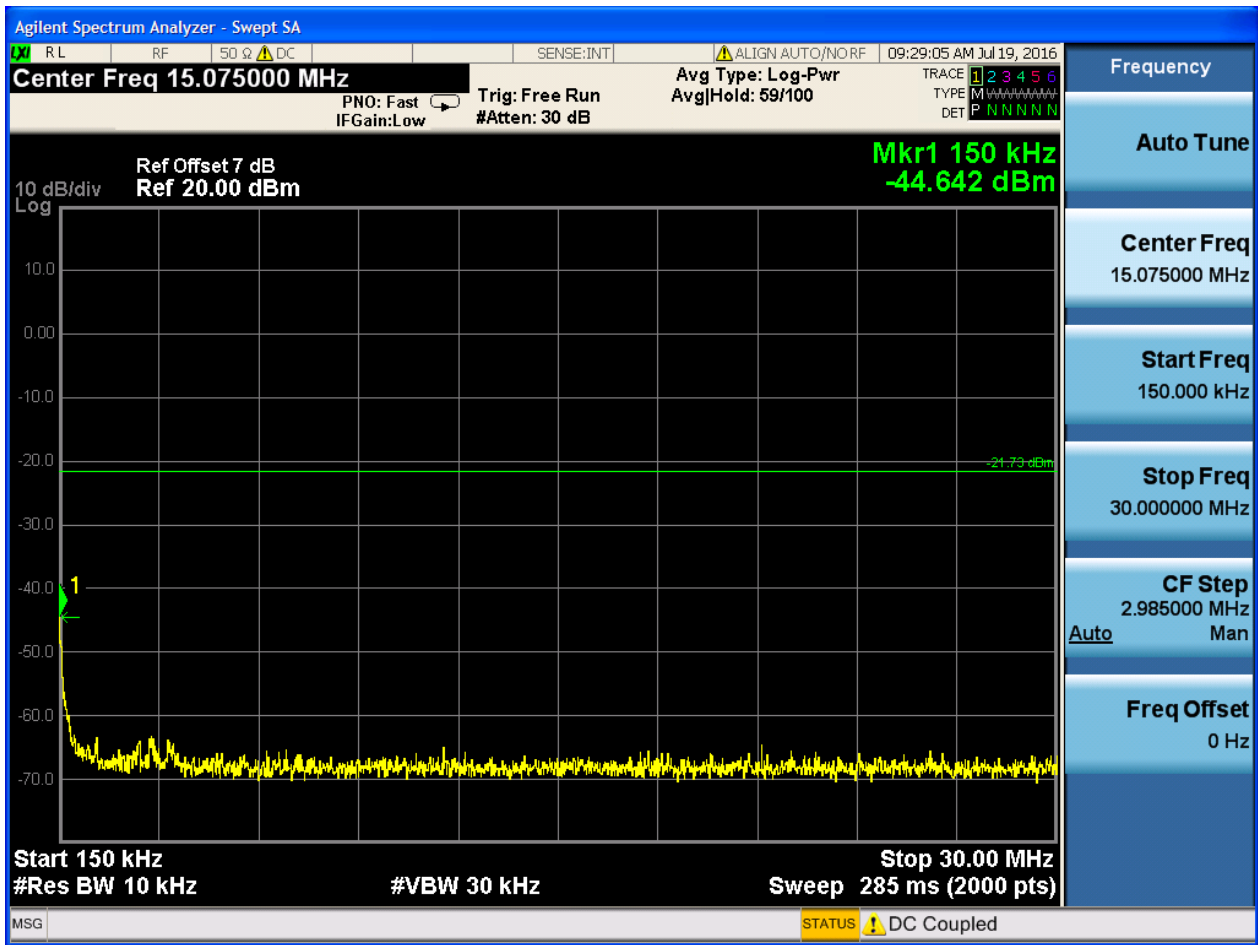
2.7.1 Pref

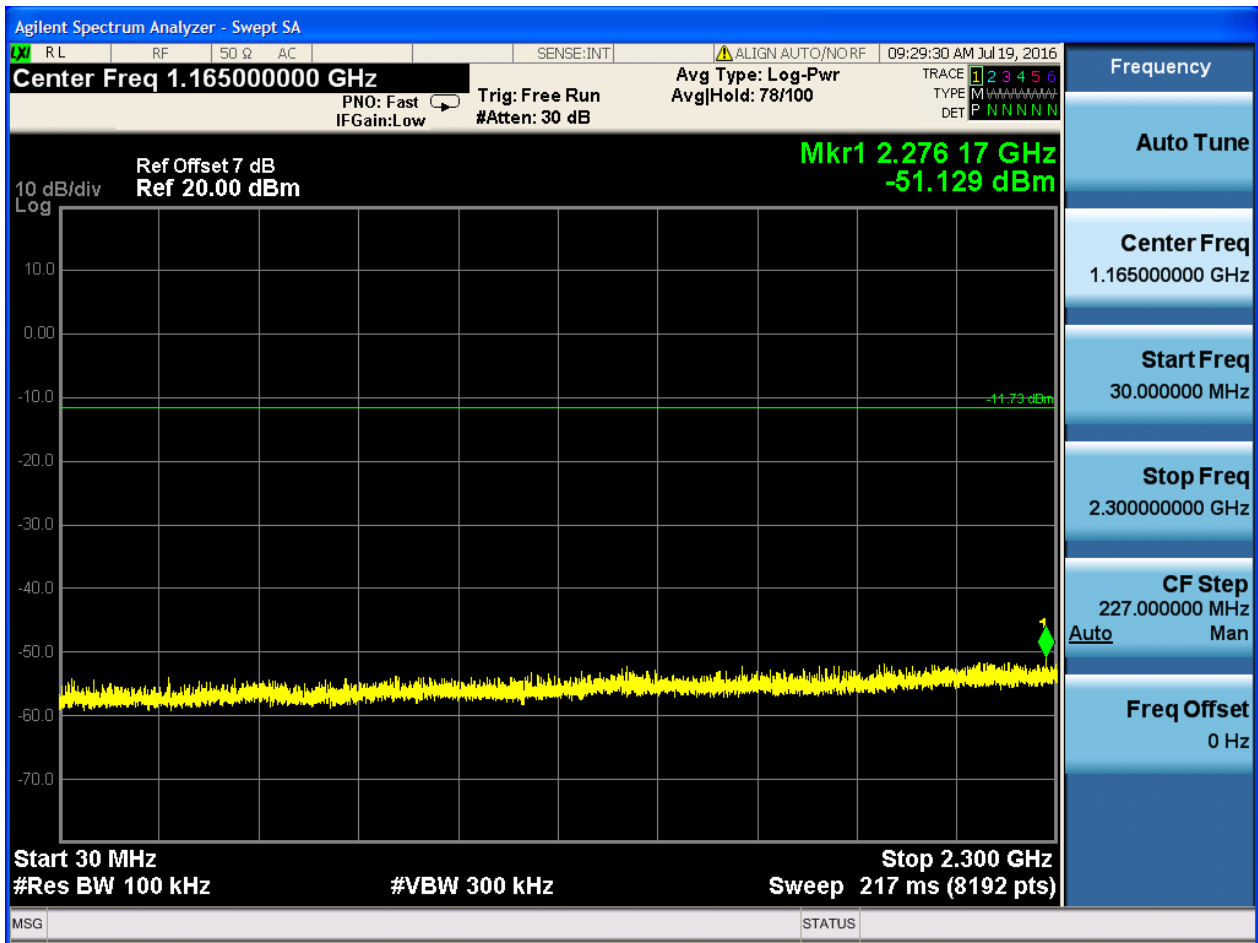


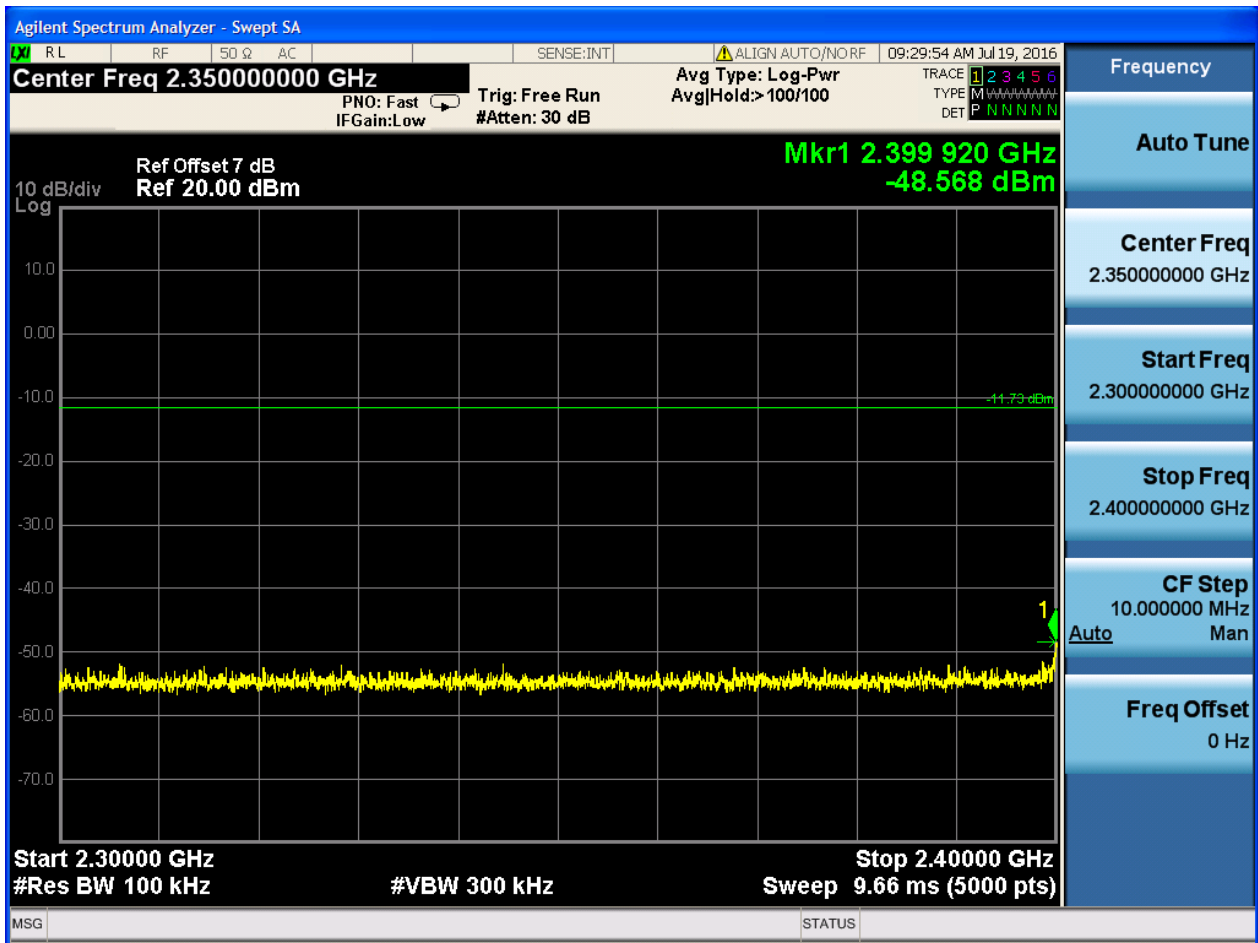


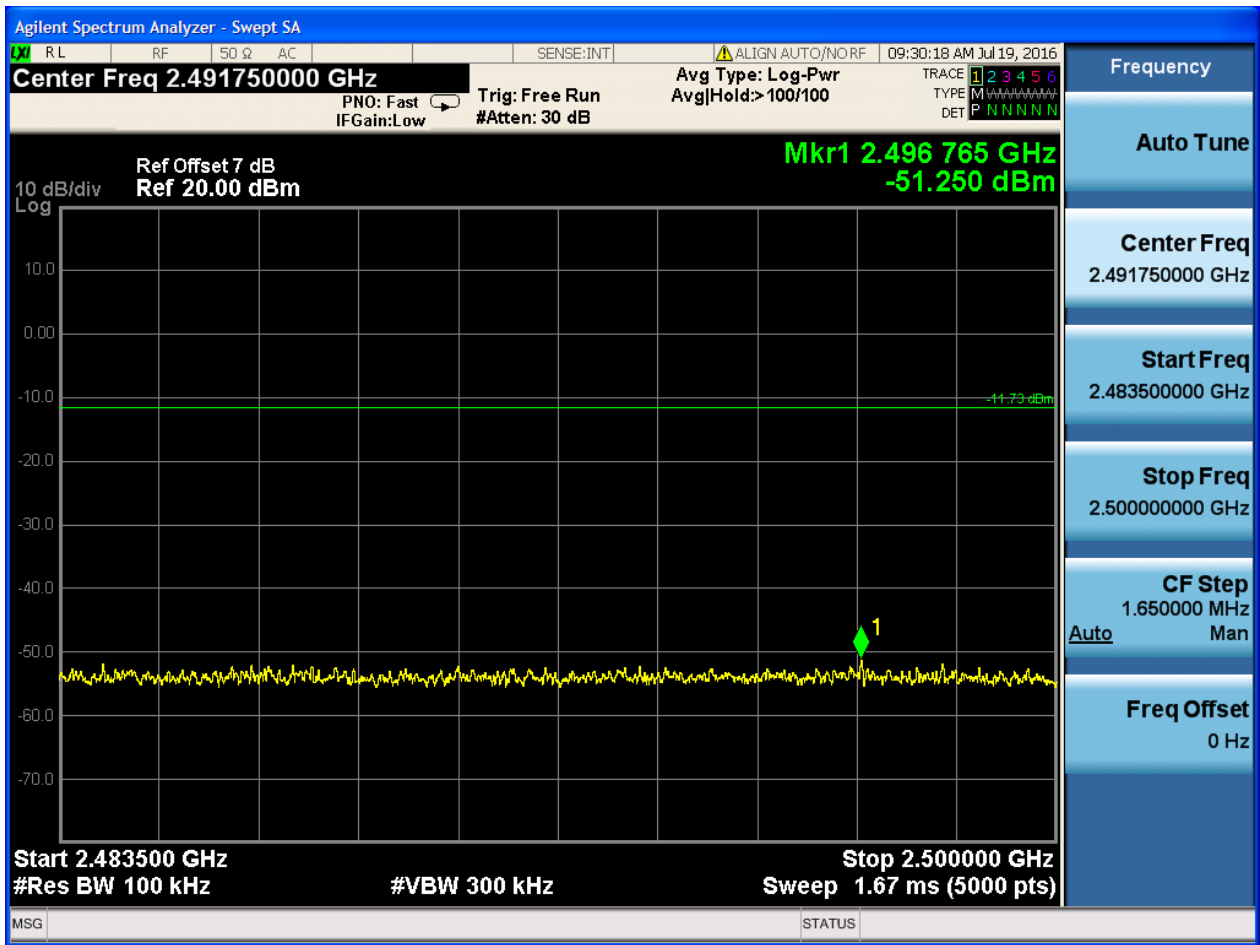
2.7.2 Puw

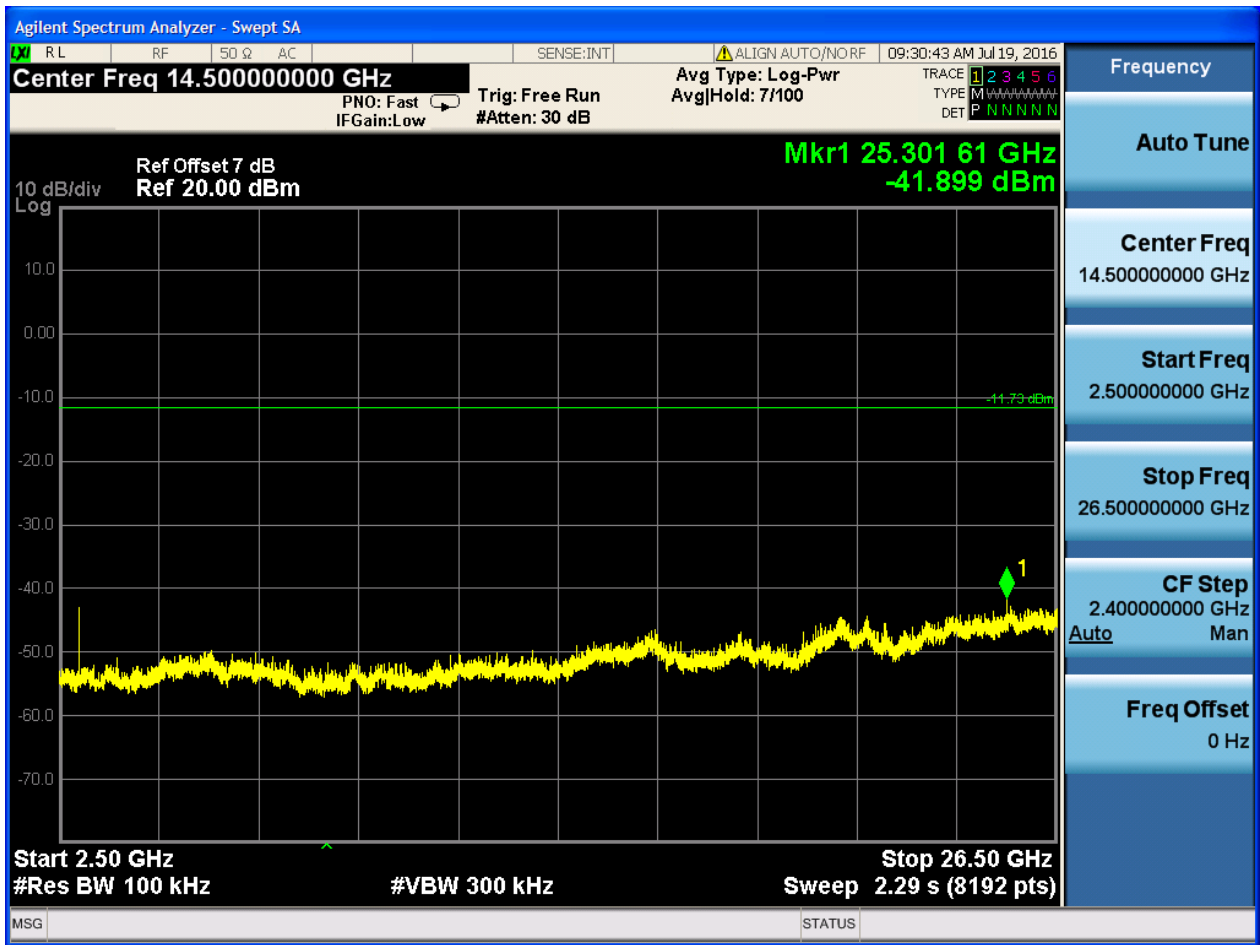








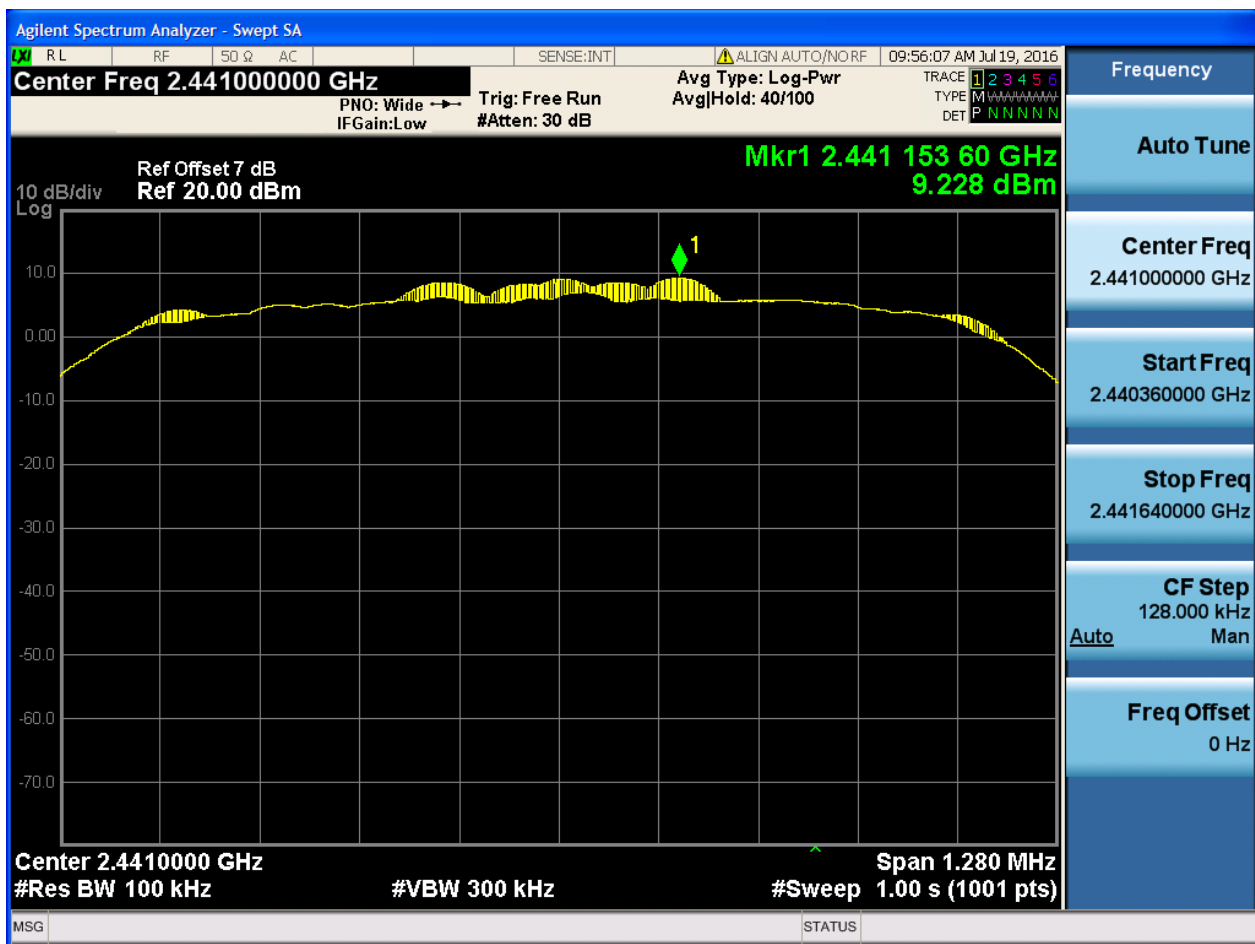






2.8 TM3_3DH5_Ch39

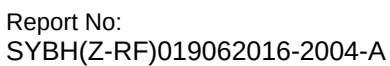
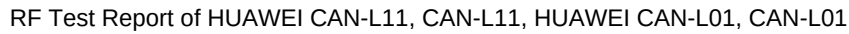
2.8.1 Pref

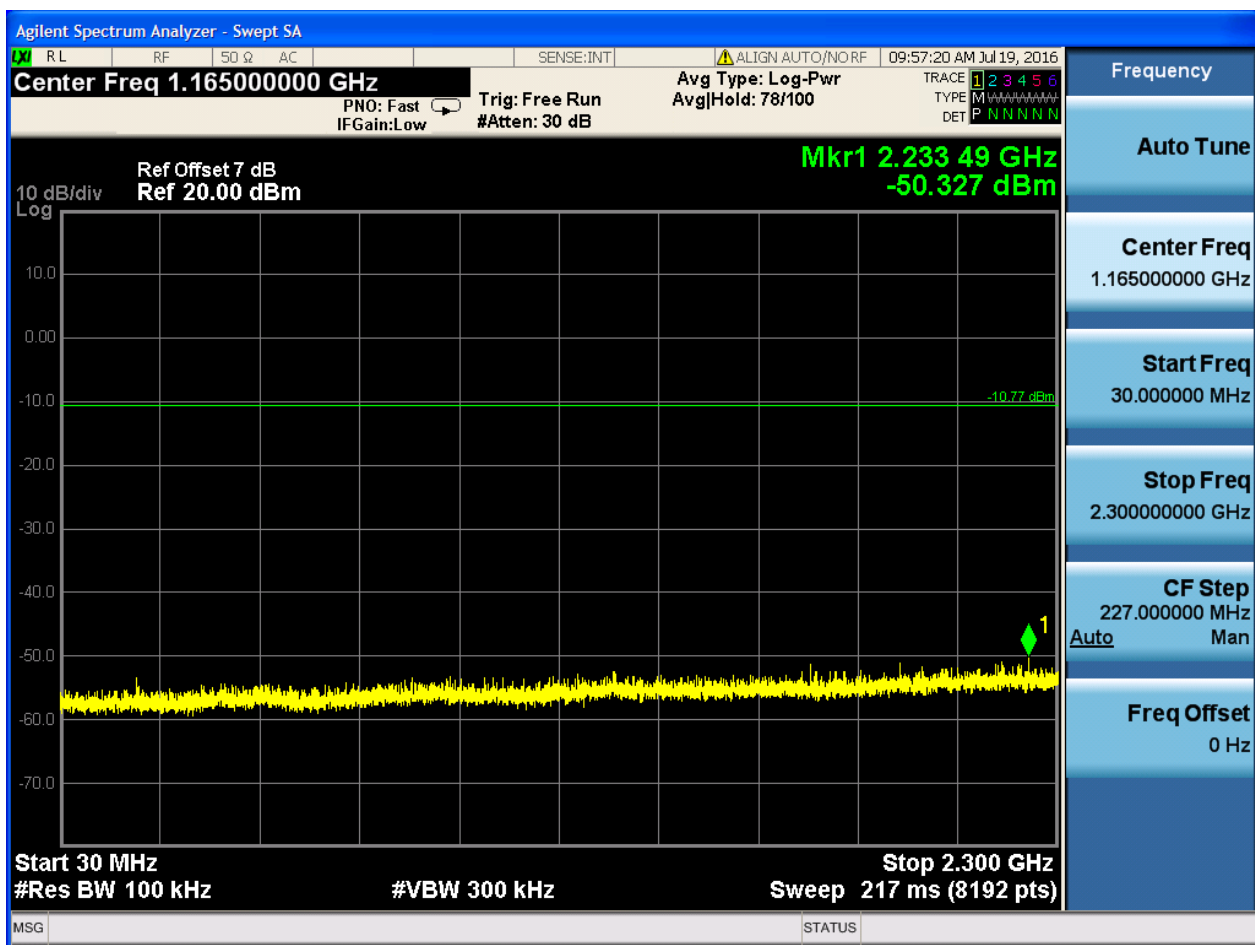


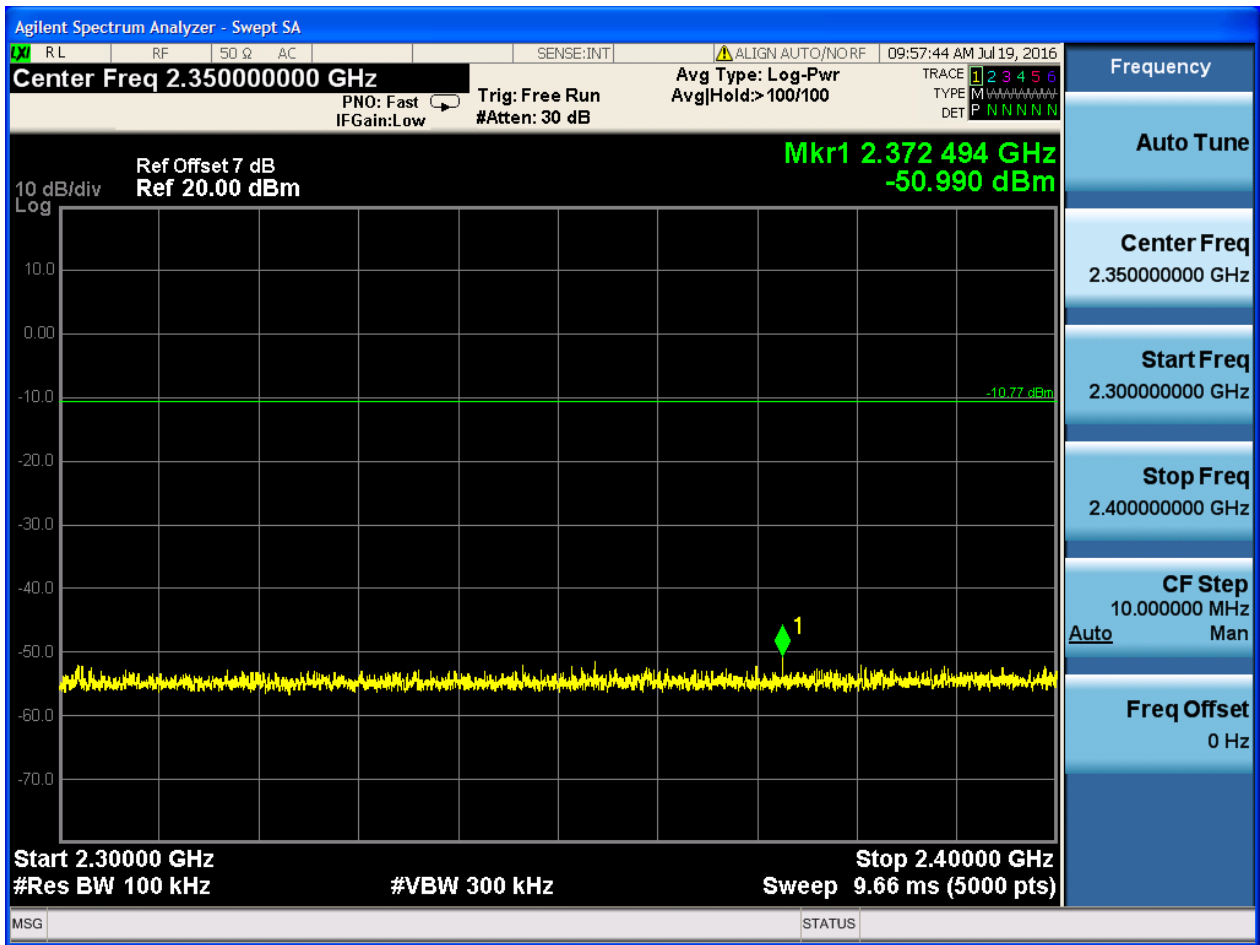


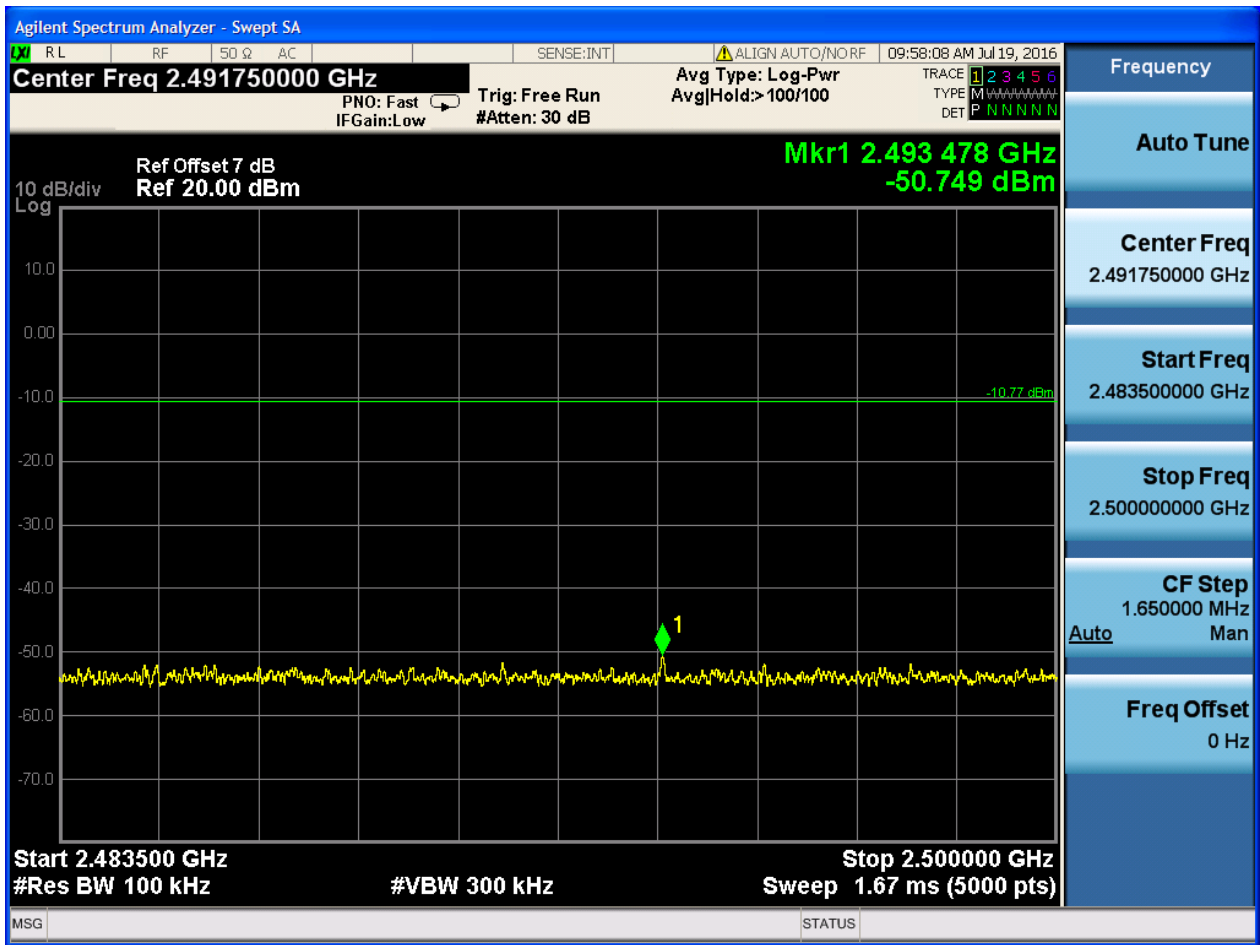
2.8.2 Puw











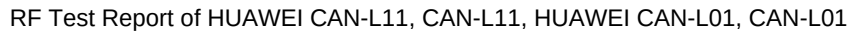




2.9 TM3_3DH5_Ch78

2.9.1 Pref





Agilent Spectrum Analyzer - Swept SA

Center Freq 79.500 kHz

Ref Offset 7 dB
Ref 20.00 dBm

Mkr1 9.71 kHz
-43.552 dBm

Start 9.00 kHz
#Res BW 1.0 kHz

Stop 150.00 kHz
Sweep 135 ms (1000 pts)

#VBW 3.0 kHz

10 dB/div
Log

1

-31.57 dBm

Frequency

Auto Tune

Center Freq
79.500 kHz

Start Freq
9.000 kHz

Stop Freq
150.00 kHz

CF Step
14.100 kHz
Man

Auto

Freq Offset
0 Hz

MSG

STATUS

DC Coupled

