Appendix for Test report

Appendix A: 20dB Emission Bandwidth (EBW)

1 Result Table

EUT Conf.	EBW [MHz]	Limit[MHz]	Verdict
TM1_DH5_Ch0	0.95	---	Pass
TM1_DH5_Ch39	0.95	---	Pass
TM1_DH5_Ch78	0.96	---	Pass
TM2_2DH5_Ch0	1.29	---	Pass
TM2_2DH5_Ch39	1.29	---	Pass
TM2_2DH5_Ch78	1.31	---	Pass
TM3_3DH5_Ch0	1.29	---	Pass
TM3_3DH5_Ch39	1.29	---	Pass
TM3_3DH5_Ch78	1.31	---	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

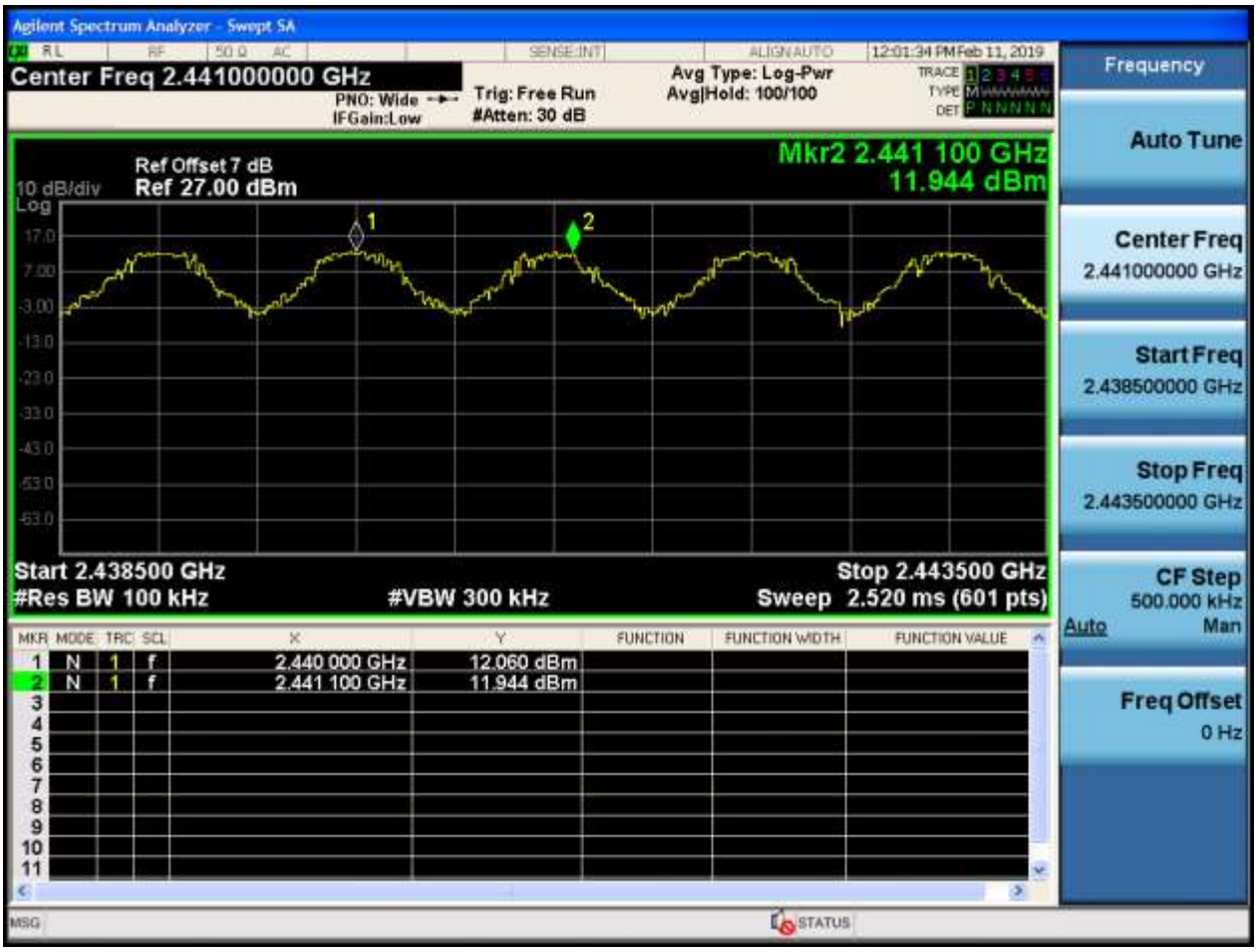
Appendix B: Carrier Frequency Separation

3 Result Table

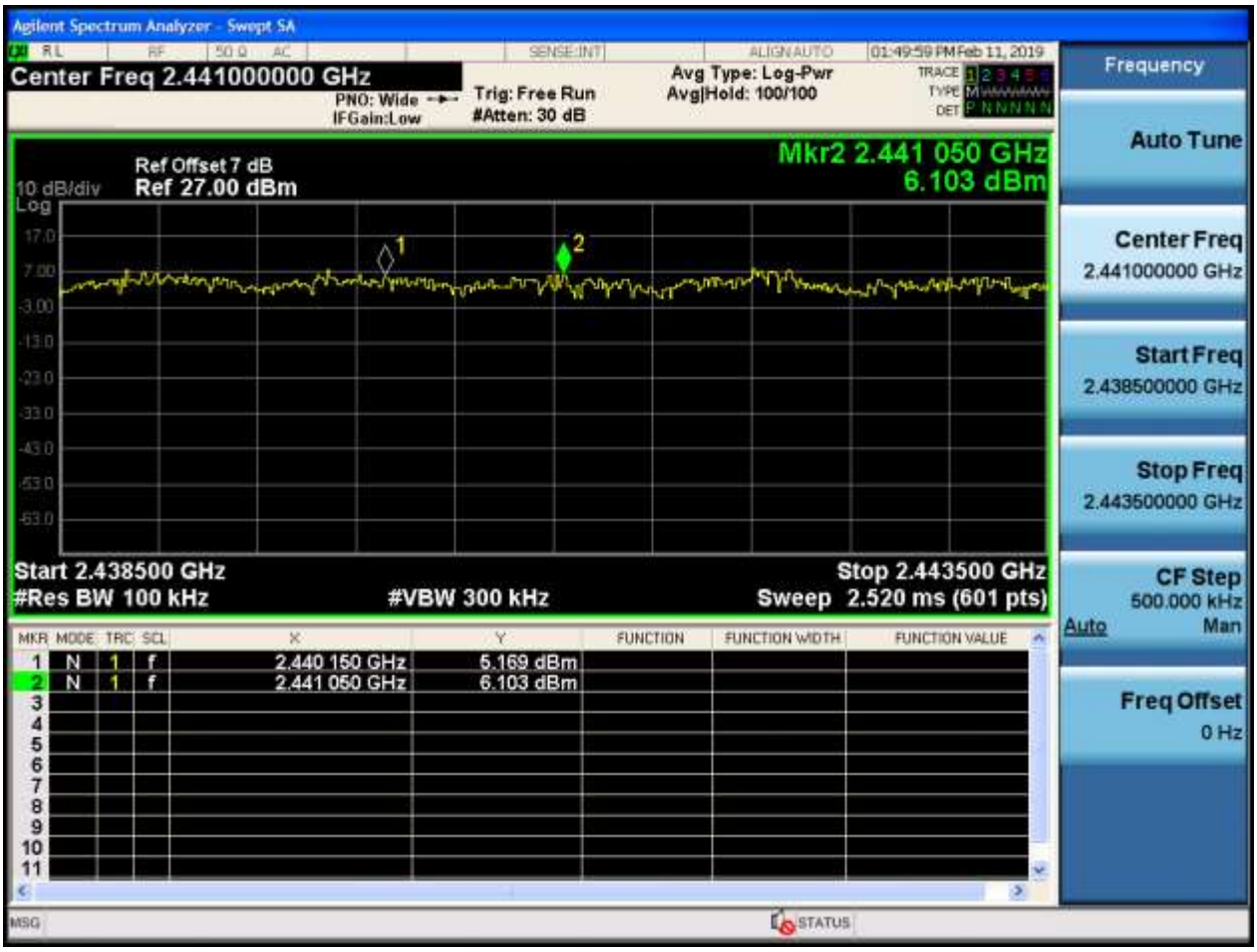
EUT Conf.	Carrier Frequency Separation [MHz]	Limit[MHz]	Verdict
TM1_DH5_Hop	1.1	≥0.64	Pass
TM2_2DH5_Hop	0.9	≥0.873	Pass
TM3_3DH5_Hop	1	≥0.873	Pass

4 Test Plot

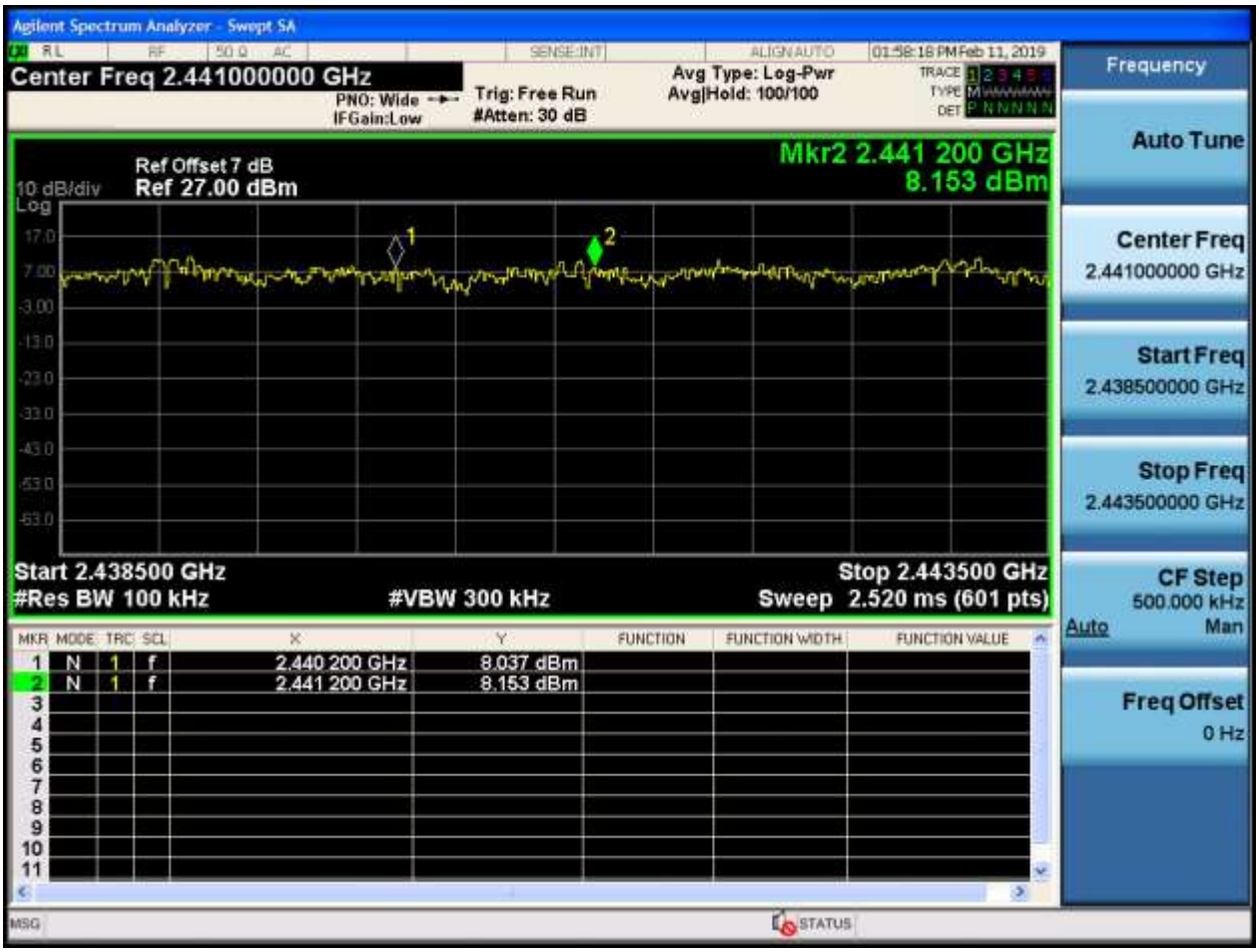
4.1 TM1_DH5_Hop



4.2 TM2_2DH5_Hop



4.3 TM3_3DH5_Hop



Appendix C: Number of Hopping Channel

5 Result Table

EUT Conf.	Number of Hopping Channel	Limit	Verdict
TM1_DH5_Hop	79	≥15	Pass
TM2_2DH5_Hop	79	≥15	Pass
TM3_3DH5_Hop	79	≥15	Pass

6 Test Plot

6.1 TM1_DH5_Hop

6.2 TM2_2DH5_Hop

6.3 TM3_3DH5_Hop

Appendix D: Time of Occupancy (Dwell Time)

7 Result Table

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

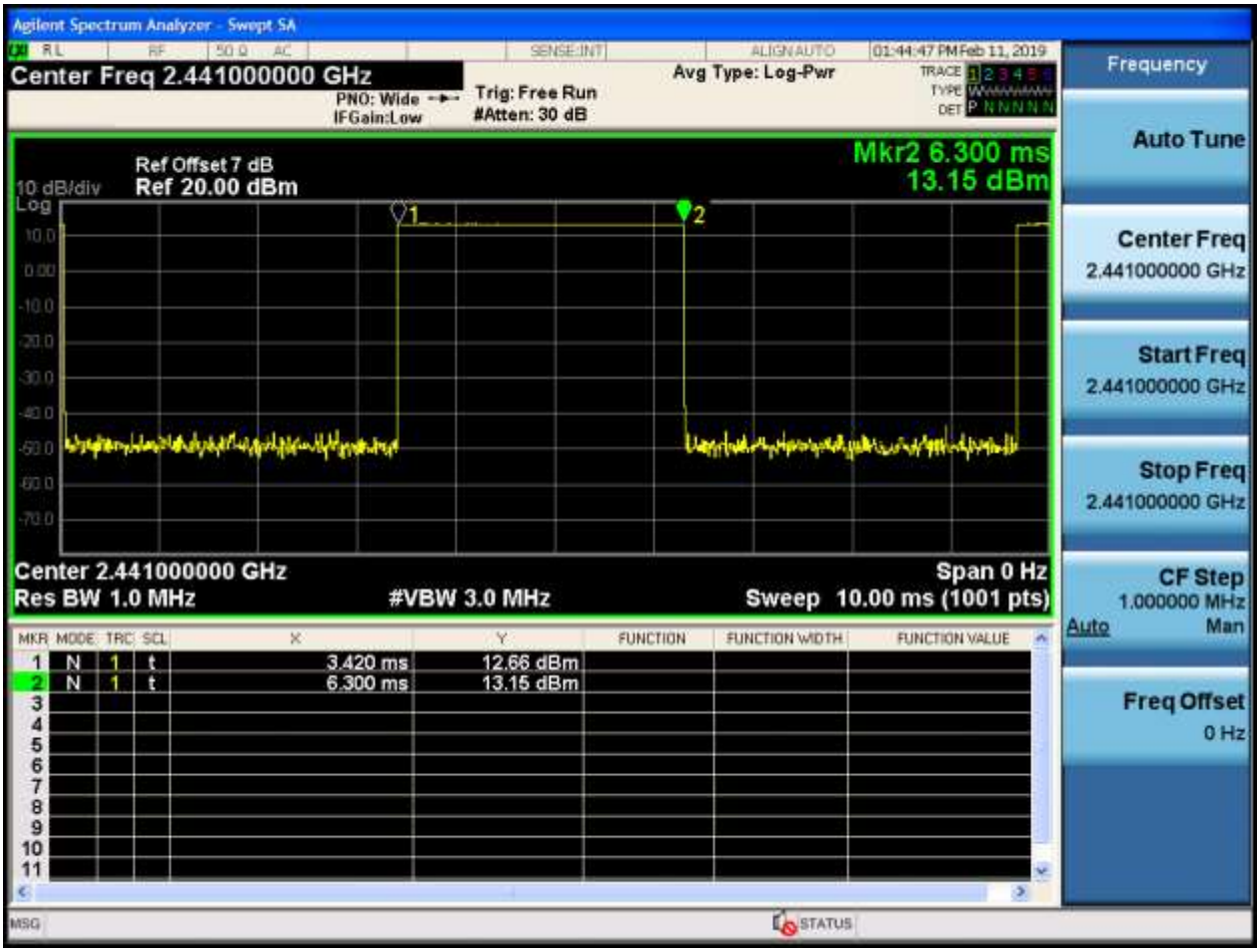
- The duration for dwell time calculation: 0.4 [s] * hopping number = 0.4 [s] * 79 [ch] = 31.6 [s*ch];
- The burst width [ms/hop/ch], which is directly measured, refers to the duration on one channel hop.
- The hops per second for all channels: The selected EUT Conf uses a slot type of 5-Tx&1-Rx and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

EUT Conf.	Burst Width [s/hop/ch]	Total Hops [hop*ch]	Dwell Time [ms]	Verdict
TM1_DH5_Ch39	0.00288	106.67	0.309	Pass
TM2_2DH5_Ch39	0.00288	106.67	0.309	Pass
TM3_3DH5_Ch39	0.00288	106.67	0.309	Pass

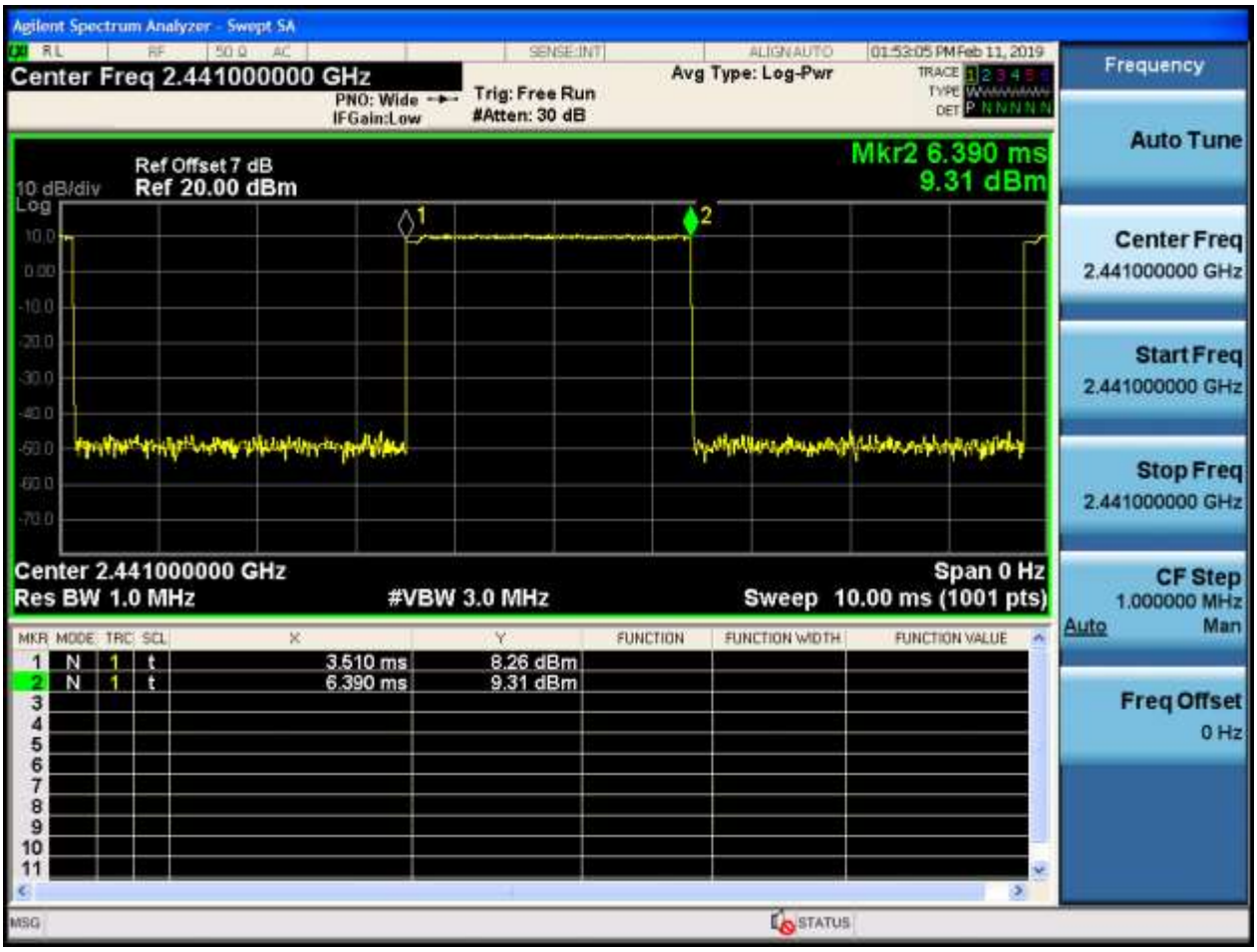
8 Test Plot

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

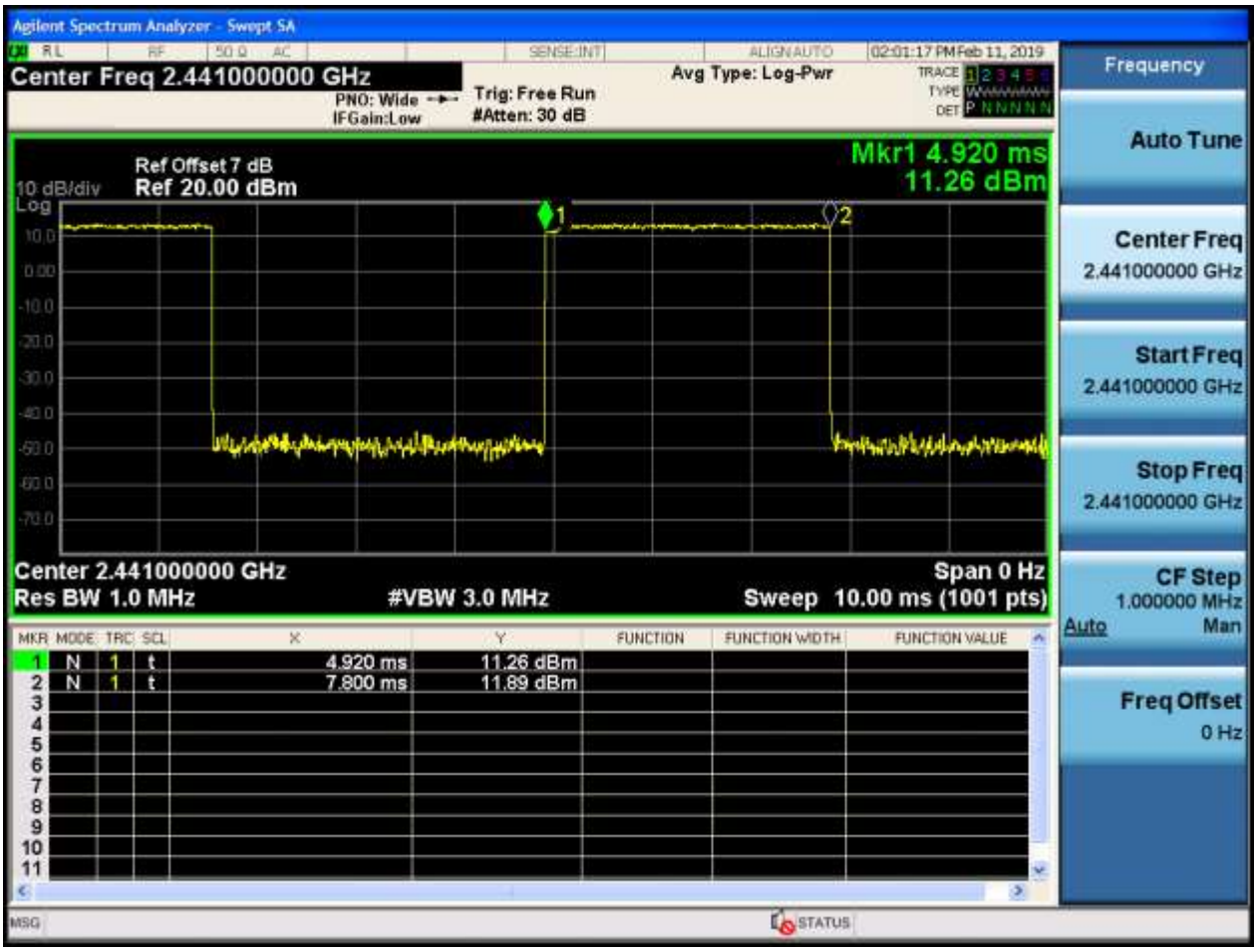
8.1 TM1_DH5_Ch39



8.2 TM2_2DH5_Ch39



8.3 TM3_3DH5_Ch39



Appendix E: Maximum Peak Conducted Output Power

9 Result Table

EUT Conf.	Max. Peak Power [dBm]	Limit[dBm]	Verdict
TM1_DH5_Ch0	14.194	20.97	Pass
TM1_DH5_Ch39	13.403	20.97	Pass
TM1_DH5_Ch78	11.512	20.97	Pass
TM2_2DH5_Ch0	14.603	20.97	Pass
TM2_2DH5_Ch39	10.902	20.97	Pass
TM2_2DH5_Ch78	12.078	20.97	Pass
TM3_3DH5_Ch0	14.552	20.97	Pass
TM3_3DH5_Ch39	13.991	20.97	Pass
TM3_3DH5_Ch78	12.04	20.97	Pass

10 Test Plot

10.1 TM1_DH5_Ch0

10.2 TM1_DH5_Ch39

10.3 TM1_DH5_Ch78

10.4 TM2_2DH5_Ch0

10.5 TM2_2DH5_Ch39

10.6 TM2_2DH5_Ch78

10.7 TM3_3DH5_Ch0

10.8 TM3_3DH5_Ch39

10.9 TM3_3DH5_Ch78

Appendix F: Band edge spurious emission

11 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	-45.288	Off	13.969	-6.031	Pass
	-	-	-53.487	On	13.455	-6.545	Pass
TM1_DH5_Ch78	78	2480	-54.092	Off	8.18	-11.82	Pass
	-	-	-55.554	On	7.956	-12.044	Pass
TM2_2DH5_Ch0	0	2402	-45.773	Off	11.887	-8.113	Pass
	-	-	-47.803	On	11.324	-8.676	Pass
TM2_2DH5_Ch78	78	2480	-52.372	Off	9.359	-10.641	Pass
	-	-	-56.224	On	6.397	-13.603	Pass
TM3_3DH5_Ch0	0	2402	-47.662	Off	11.82	-8.18	Pass
	-	-	-48.785	On	10.071	-9.929	Pass
TM3_3DH5_Ch78	78	2480	-54.978	Off	9.3	-10.7	Pass
	-	-	-53.879	On	6.693	-13.307	Pass

12 Test Plot

12.1 TM1_DH5_Ch0

No hopping

With hopping

12.2 TM1_DH5_Ch78

No hopping

With hopping

12.3 TM2_2DH5_Ch0

No hopping

With hopping

12.4 TM2_2DH5_Ch78

No hopping

With hopping

12.5 TM3_3DH5_Ch0

No hopping

With hopping

12.6 TM3_3DH5_Ch78

No hopping

With hopping

Appendix G: Conducted RF Spurious Emission

13 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” referrers 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 x lg(100 [kHz]/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”.

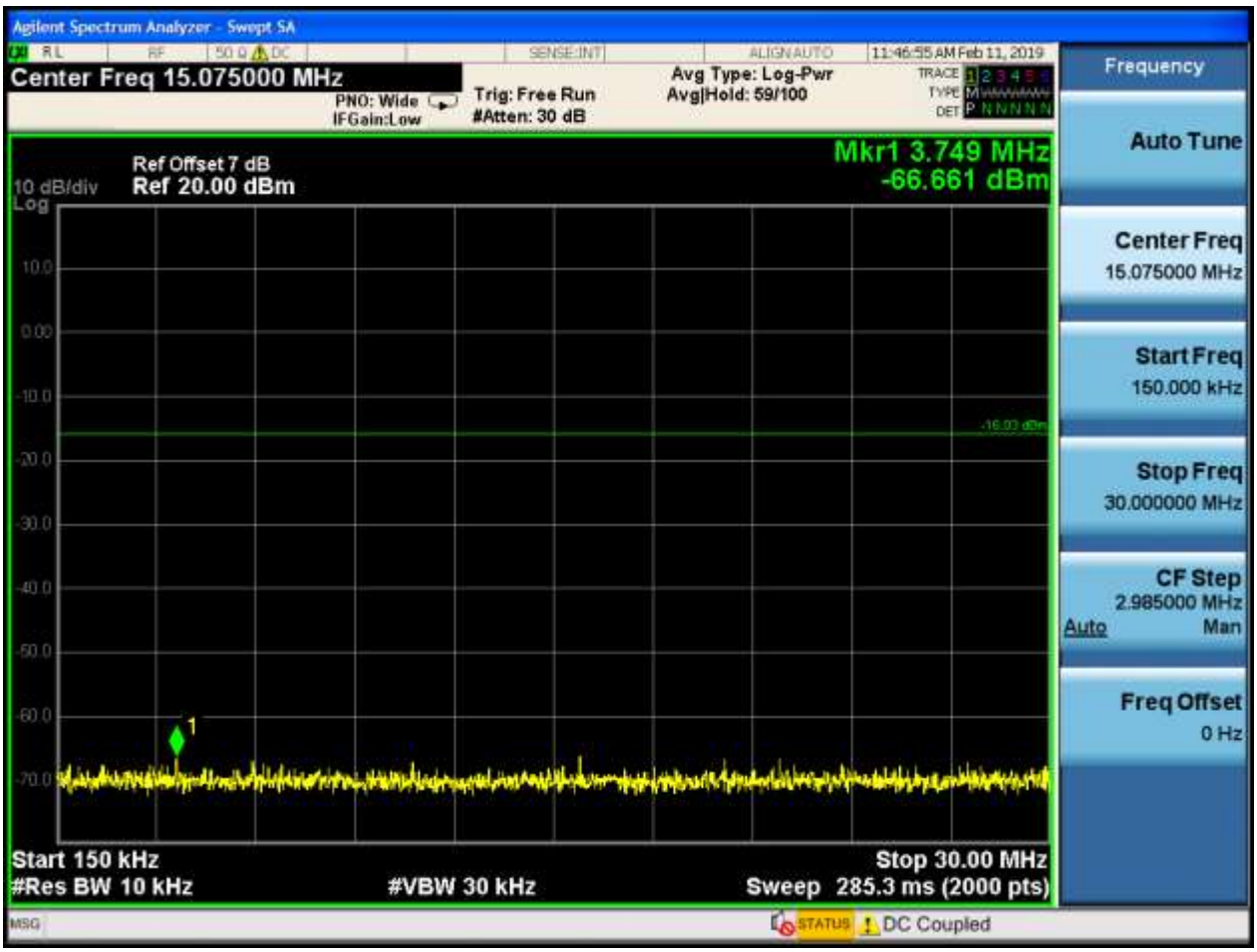
EUT Conf.	Pref [dBm/100 kHz]	Puw [dBm/100 kHz]	Verdict
TM1_DH5_Ch0	13.972	< Limit	Pass
TM1_DH5_Ch39	13.338	< Limit	Pass
TM1_DH5_Ch78	8.354	< Limit	Pass
TM2_2DH5_Ch0	11.879	< Limit	Pass
TM2_2DH5_Ch39	8.319	< Limit	Pass
TM2_2DH5_Ch78	9.353	< Limit	Pass
TM3_3DH5_Ch0	11.851	< Limit	Pass
TM3_3DH5_Ch39	11.305	< Limit	Pass
TM3_3DH5_Ch78	9.326	< Limit	Pass

14 Test Plot

14.1 TM1_DH5_Ch0

14.1.1 Pref

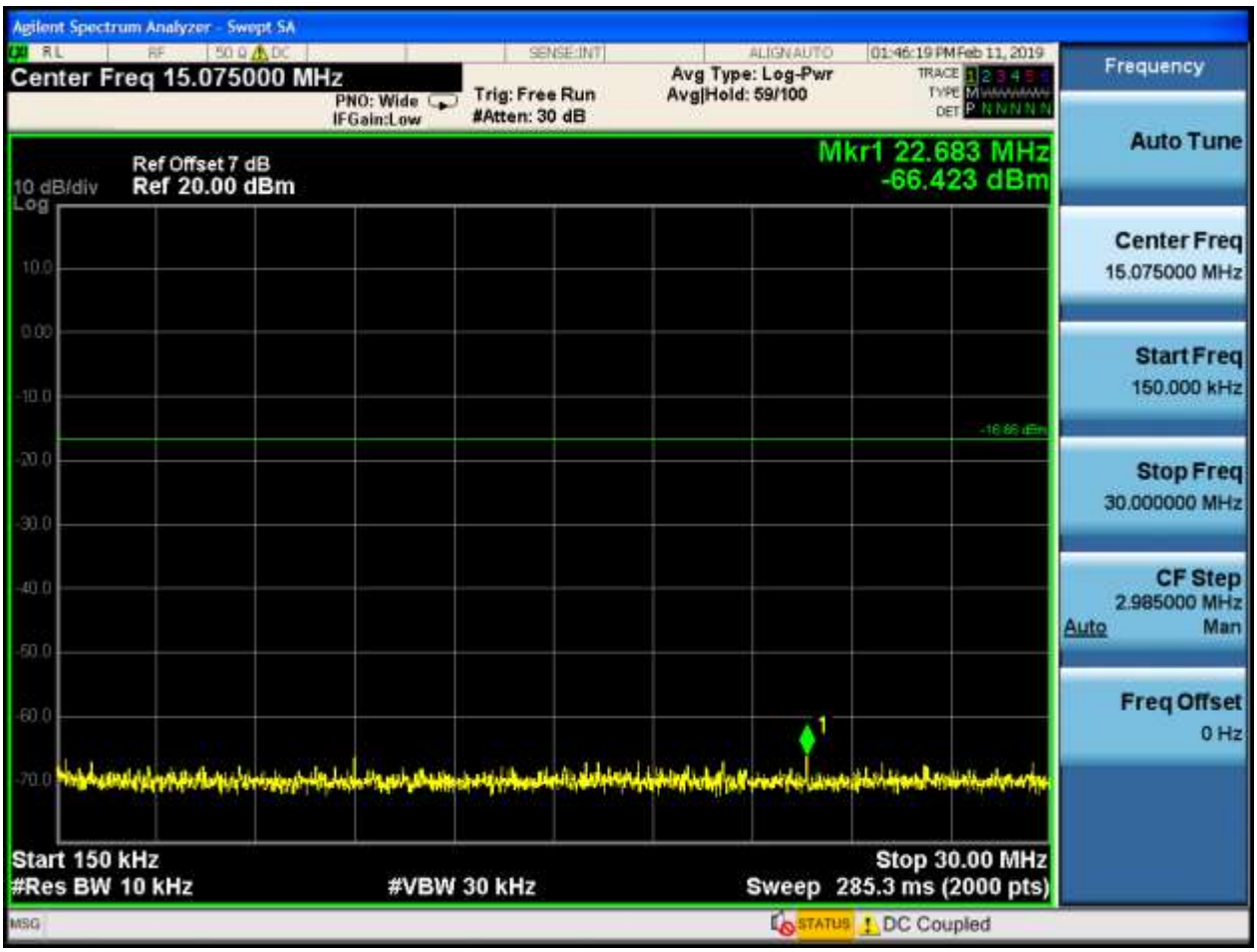
14.1.2 Puw

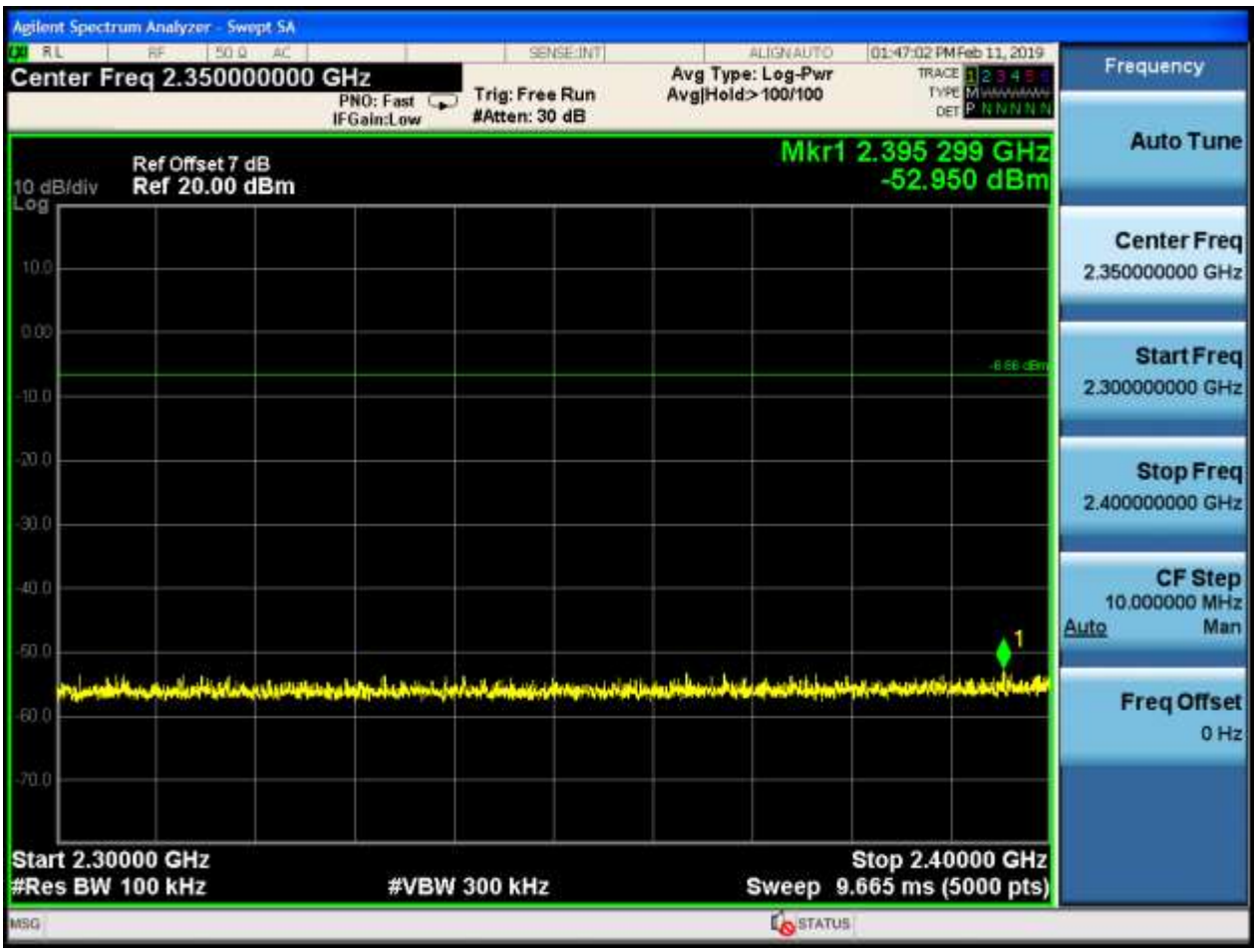


14.2 TM1_DH5_Ch39

14.2.1 Pref

14.2.2 Puw





14.3 TM1_DH5_Ch78

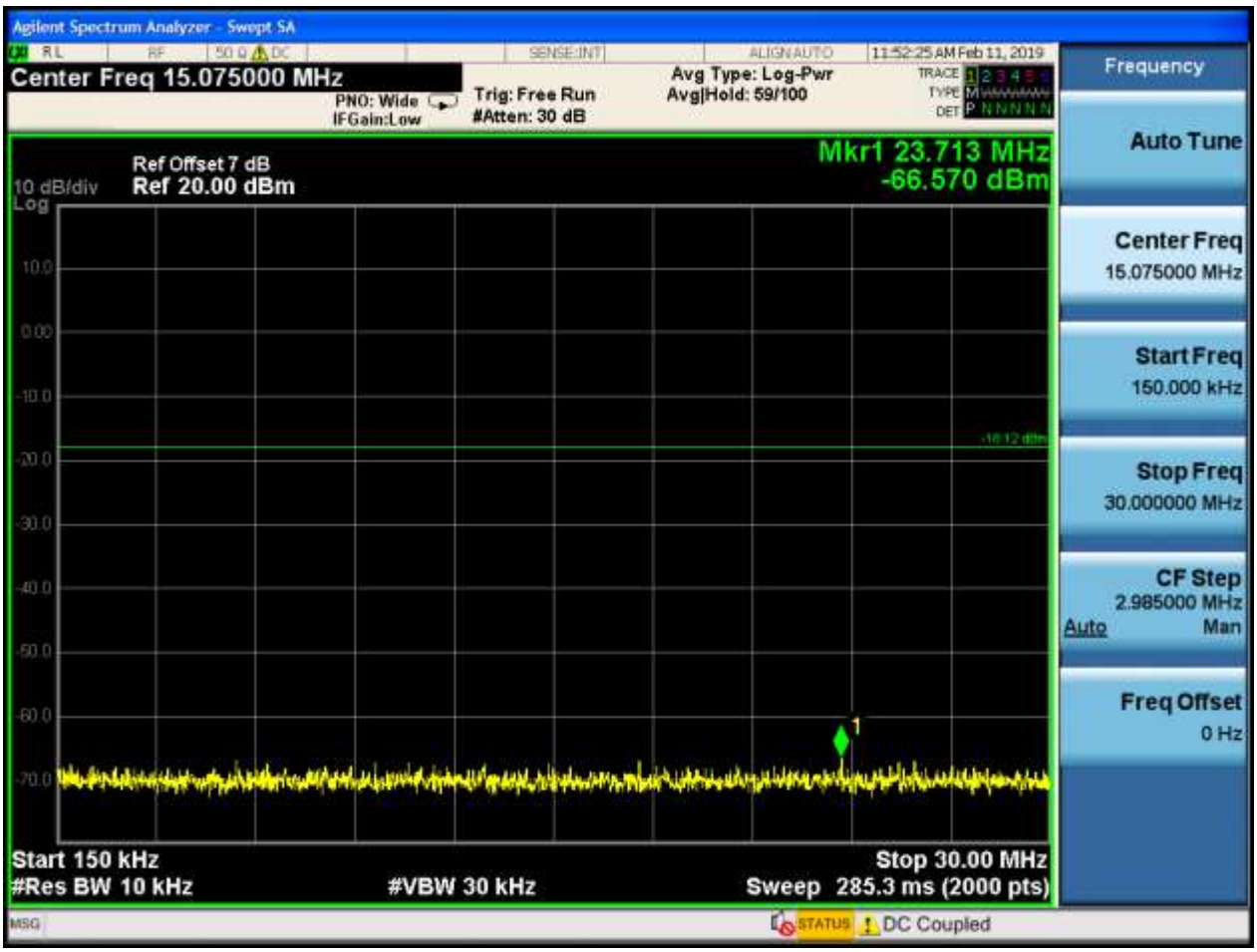
14.3.1 Pref

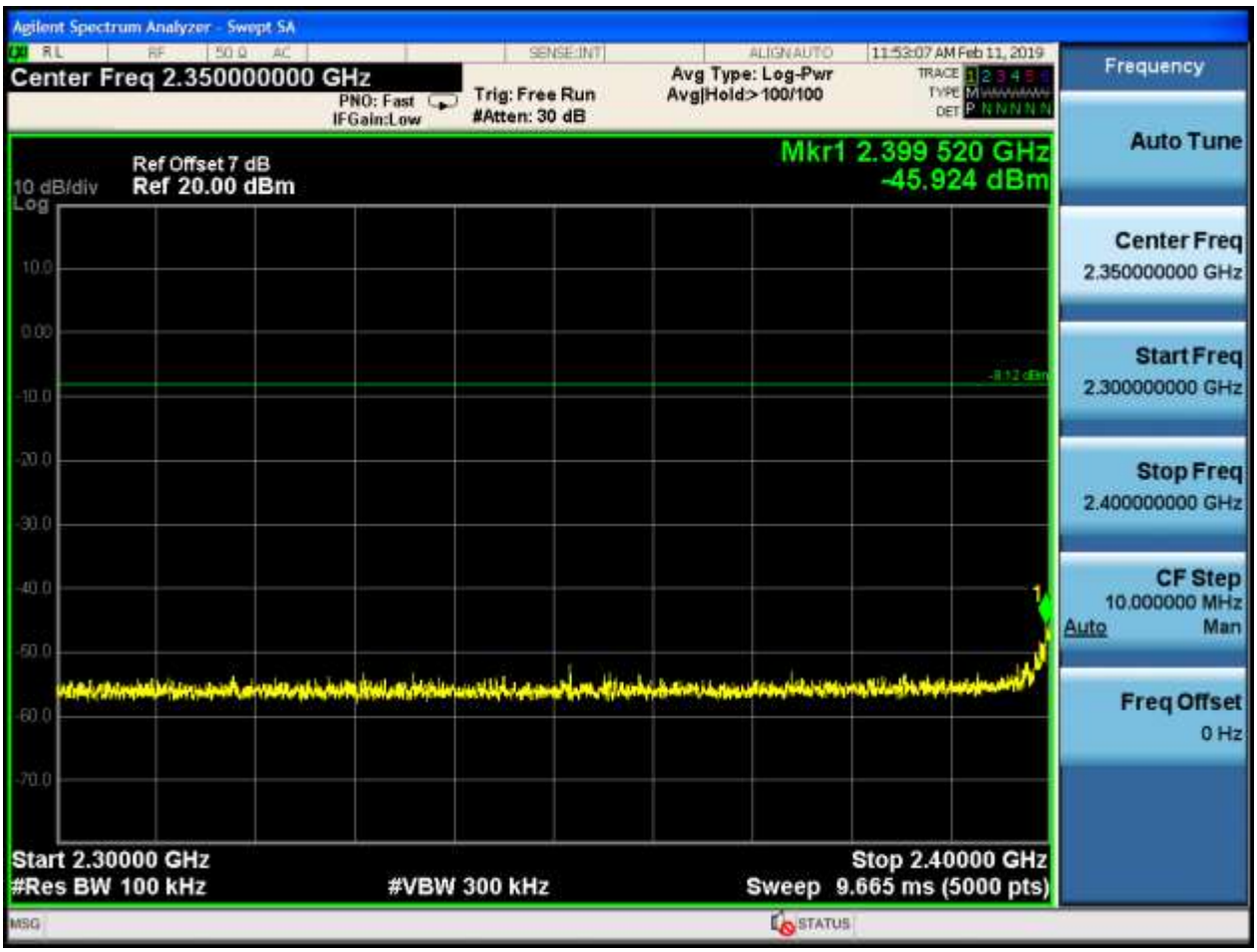
14.3.2 Puw

14.4 TM2_2DH5_Ch0

14.4.1 Pref

14.4.2 Puw

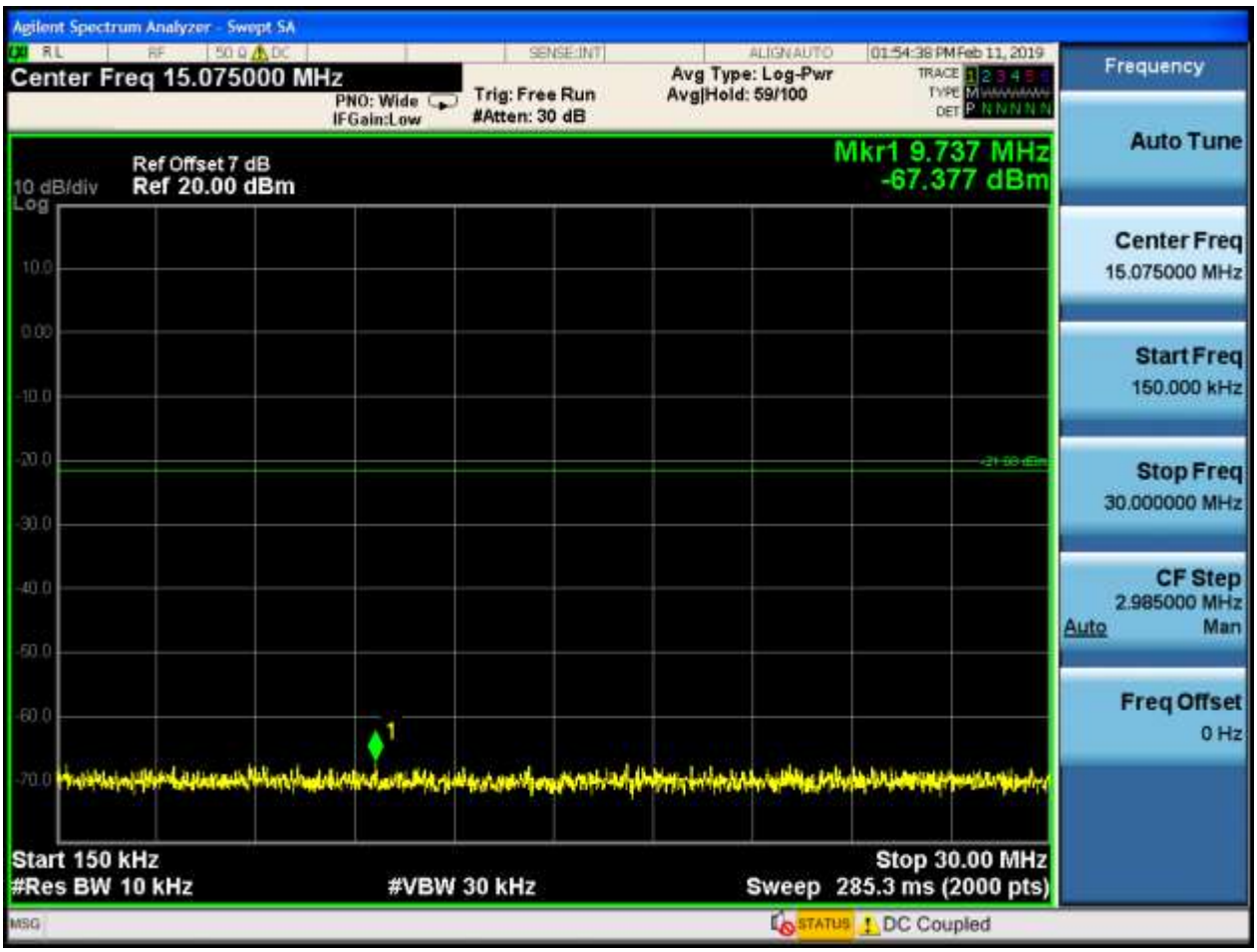




14.5 TM2_2DH5_Ch39

14.5.1 Pref

14.5.2 Puw



14.6 TM2_2DH5_Ch78

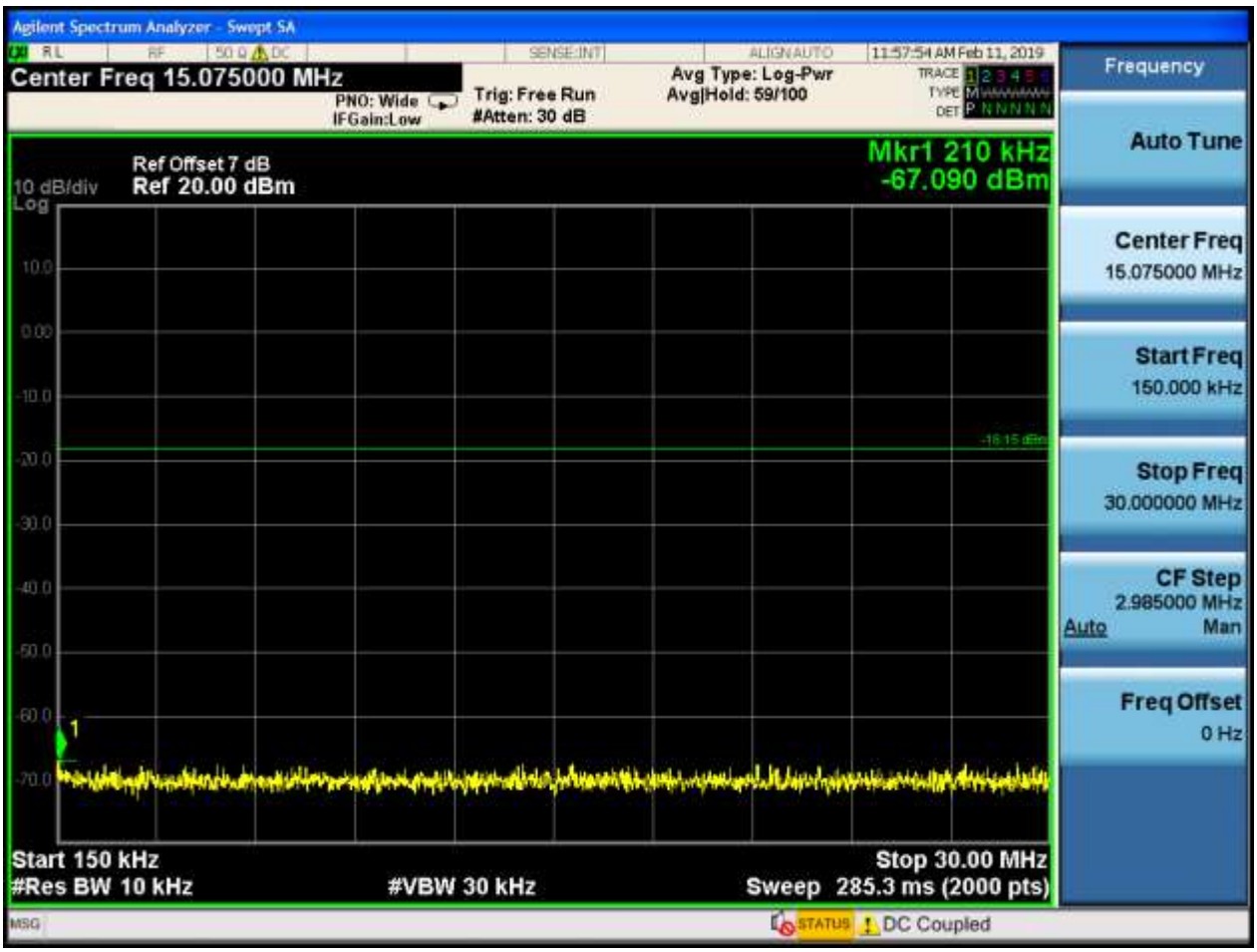
14.6.1 Pref

14.6.2 Puw

14.7 TM3_3DH5_Ch0

14.7.1 Pref

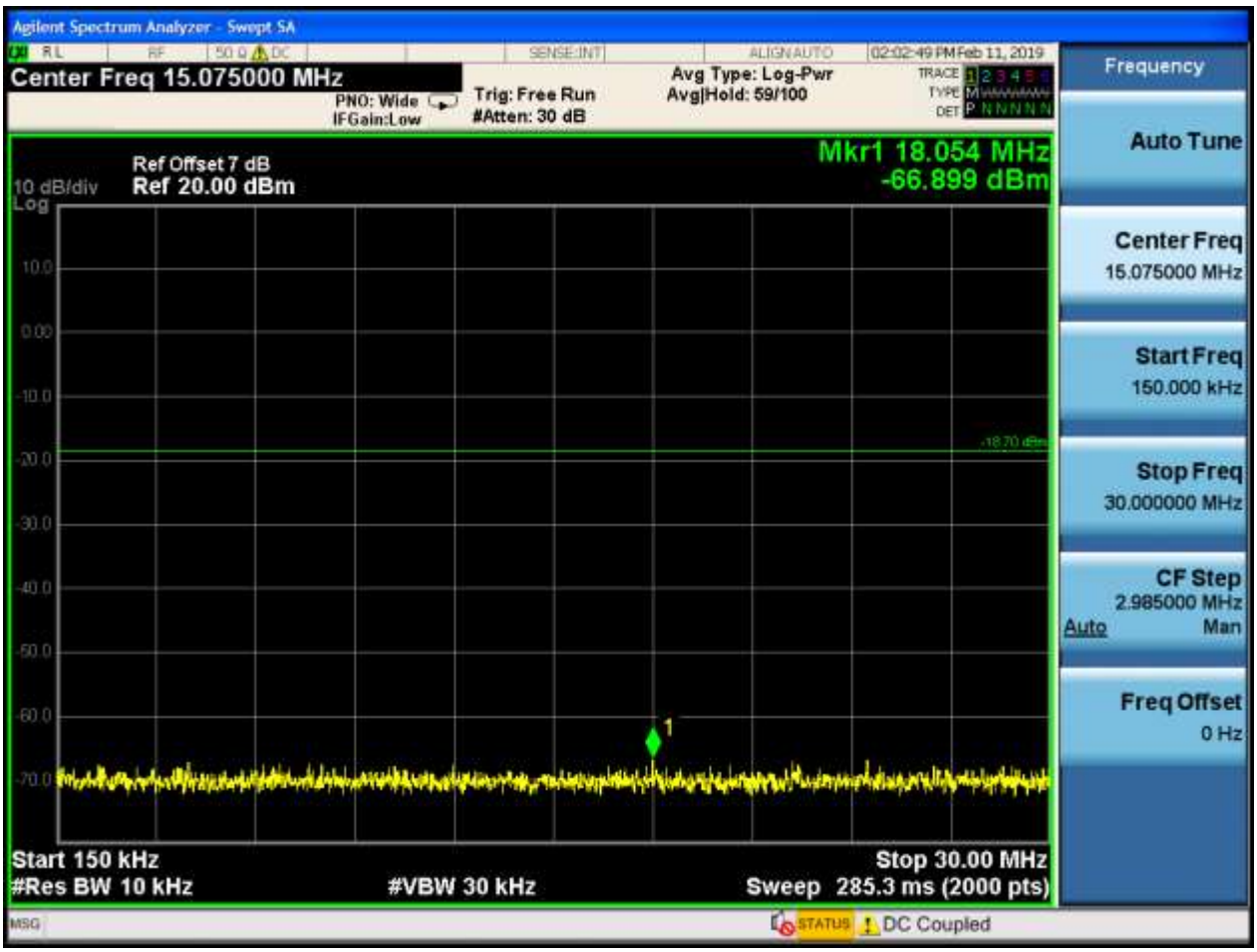
14.7.2 Puw



14.8 TM3_3DH5_Ch39

14.8.1 Pref

14.8.2 Puw



14.9 TM3_3DH5_Ch78

14.9.1 Pref

14.9.2 Puw

Appendix H: Radiated Emissions in the Restricted Bands

1 Result Table

The whole testing range is from “30 MHz to 26.5 GHz (10th harmonics)” is divided into 5 parts according to the test site settings, which are:

- (Part 1): Test range of “9 KHz to 30 MHz”,
- (Part 2): Test range of “30 Mhz to 1GHz
- (Part 3): Test range of “1 GHz to 3 GHz”.
- (Part 4): Test range of “3 GHz to 18 GHz”,
- (Part 5): Test range of “18 GHz to 26.5 GHz”.

In this Appendix, only the test results and plots under the worst case can be reported. In the result table, the “< Limit” denotes that “Not found obvious spikes or see marked spikes on plots and listed emissions records”.

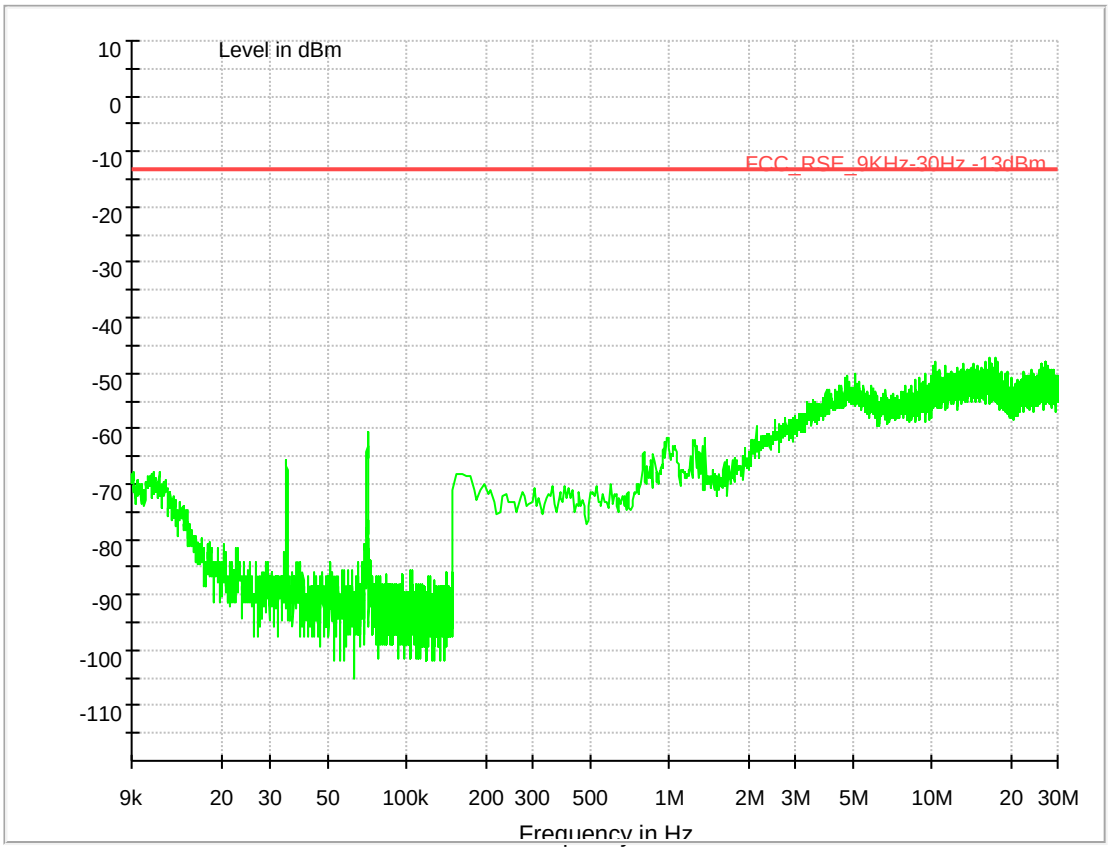
Test Range	EUT Conf.	Emissions	Verdict
30 MHz to 1 GHz	TM1_DH5_Ch0 (Worst Conf.)	< Limit	Pass
1 GHz to 3 GHz	TM1_DH5_Ch0 (Worst Conf.)	< Limit	Pass
	TM1_DH5_Ch78 (Worst Conf.)	< Limit	Pass
3 GHz to 18 GHz	TM1_DH5_Ch0 (Worse Conf.)	< Limit	Pass
18 GHz to 26.5 GHz	TM1_DH5_Ch0 (Worst Conf.)	< Limit	Pass

Note: We tested all modes, but the data presented below is the worst case.

2 Result Plot

Part 1: Testing Range of "9 kHz to 30MHz"

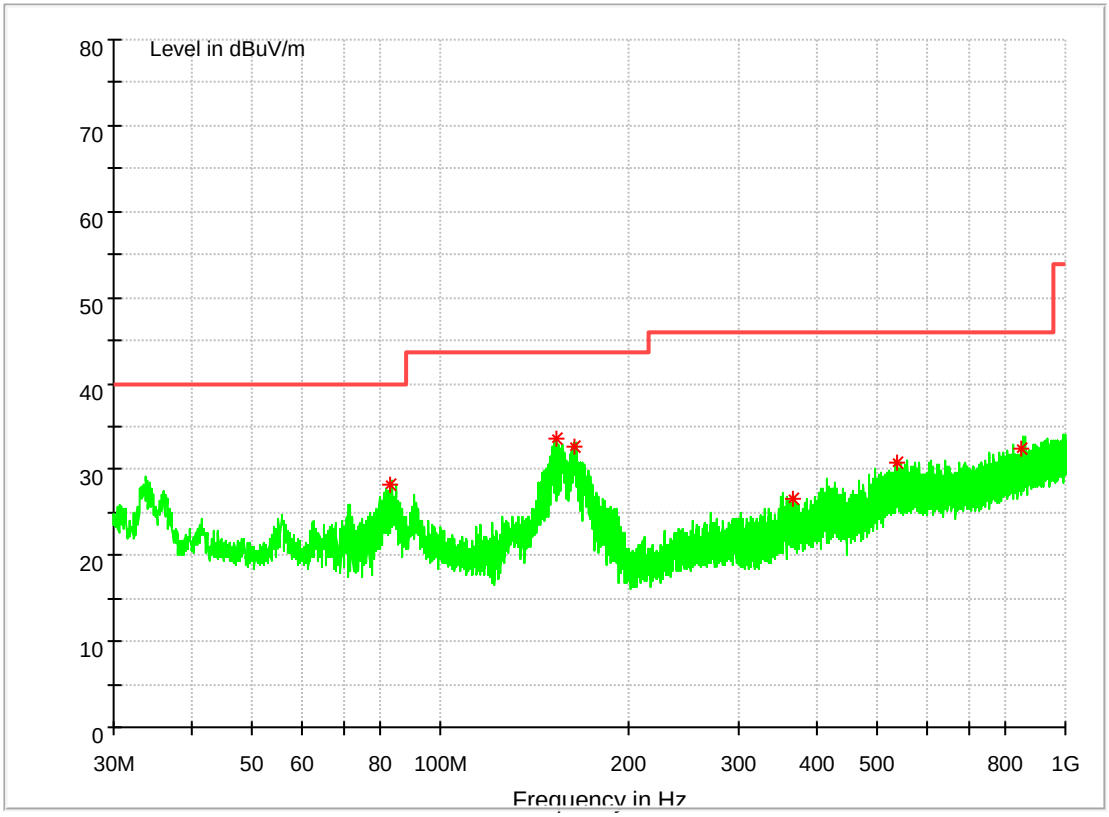
Note 1: The test results and plot for testing range of "9 kHz to 30 MHz" showed as below is the WORST case for all Test Modes and Channels. This range will not be presented for each Test Mode and each Channel.



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).



Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Transd. (dB)
83.010500	28.25	40.00	11.75	100.0	V	268.0	14.2
153.238500	33.66	40.00	9.84	100.0	V	185.0	9.5
163.617500	32.69	40.00	10.81	100.0	V	243.0	12.0
365.183500	32.69	43.50	19.38	100.0	V	169.0	9.9
538.280000	30.83	46.00	15.17	100.0	V	71.0	15.1
851.929500	32.52	46.00	13.48	100.0	H	152.0	20.0

Note:

1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

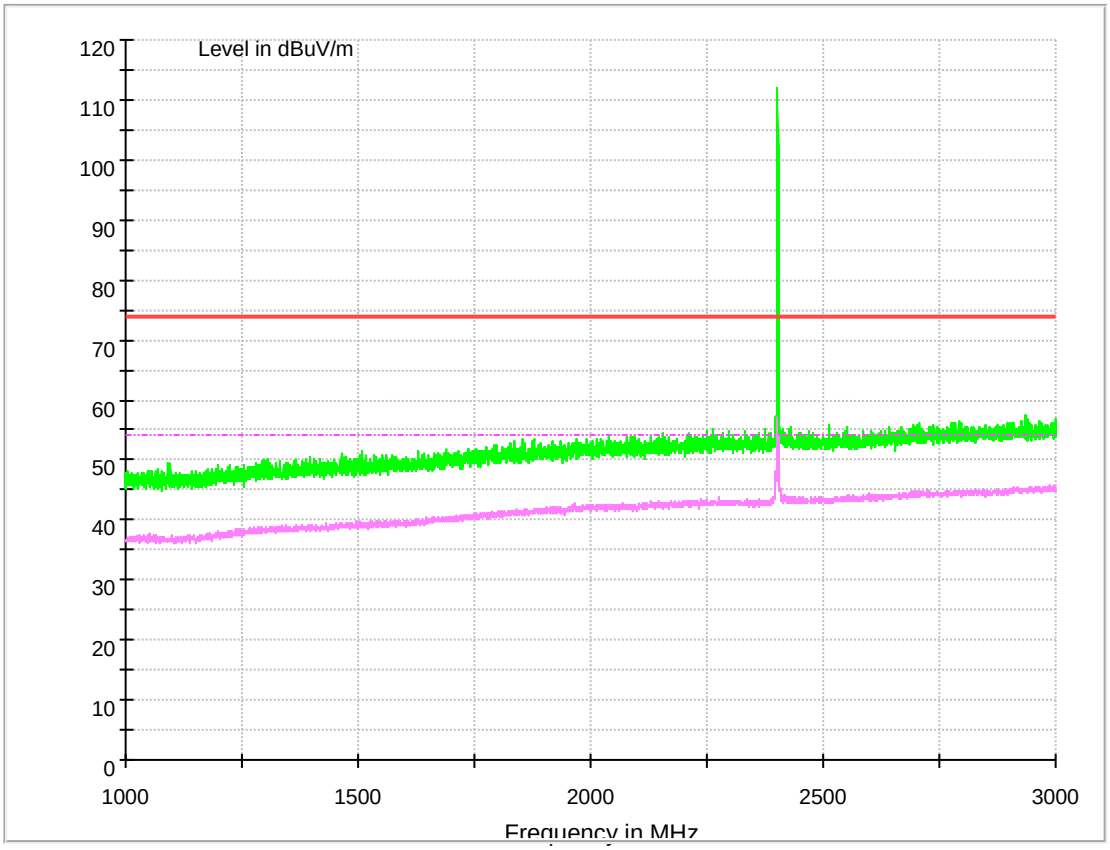
2, Margin=Limit - Level

Part 3: Testing Range of "1GHz to 3GHz"

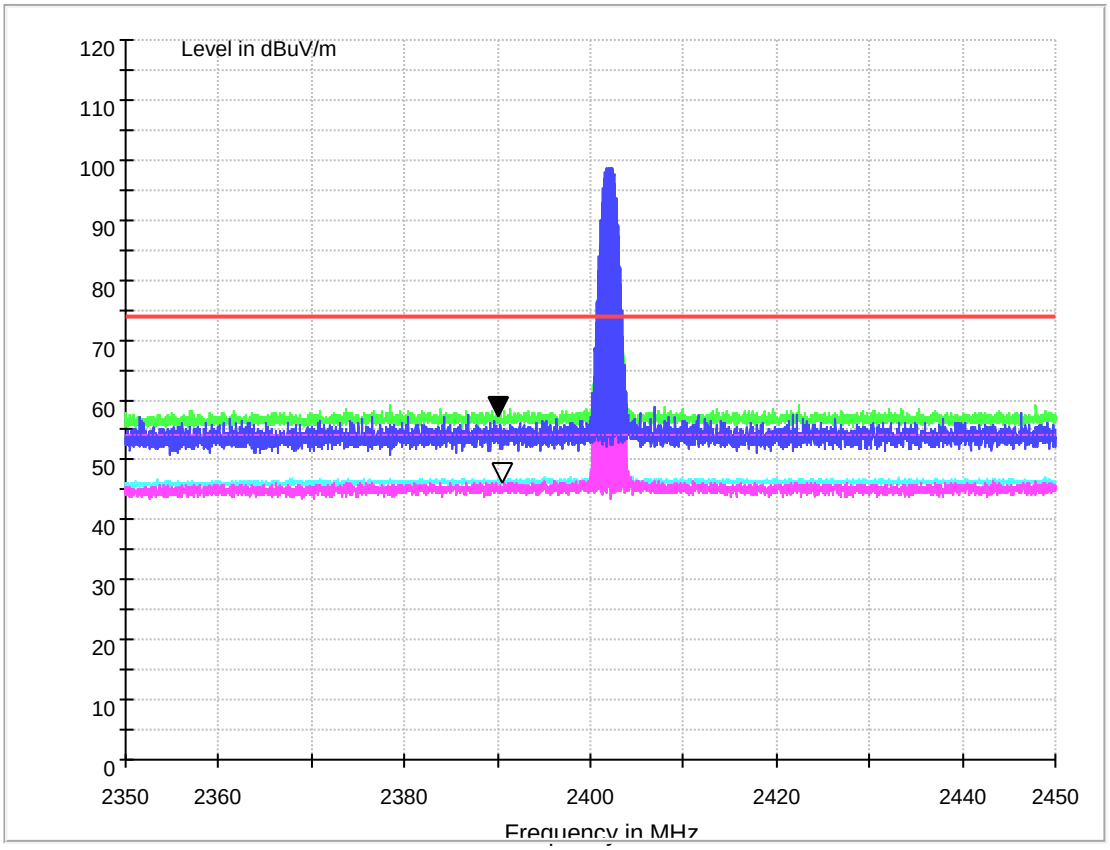
Note 1: The testing range of "1 GHz to 3 GHz" is for checking radiated emissions located in restricted bands near the EUT operating bands.

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

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



2.1.1.1.1 Channel 0



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth	Transd. (dB)
2390	46.477	54.00	7.523	150.0	H	57.0	-6.8

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Transd. (dB)
2390	57.604	74.00	16.396	150.0	H	45.0	-6.8

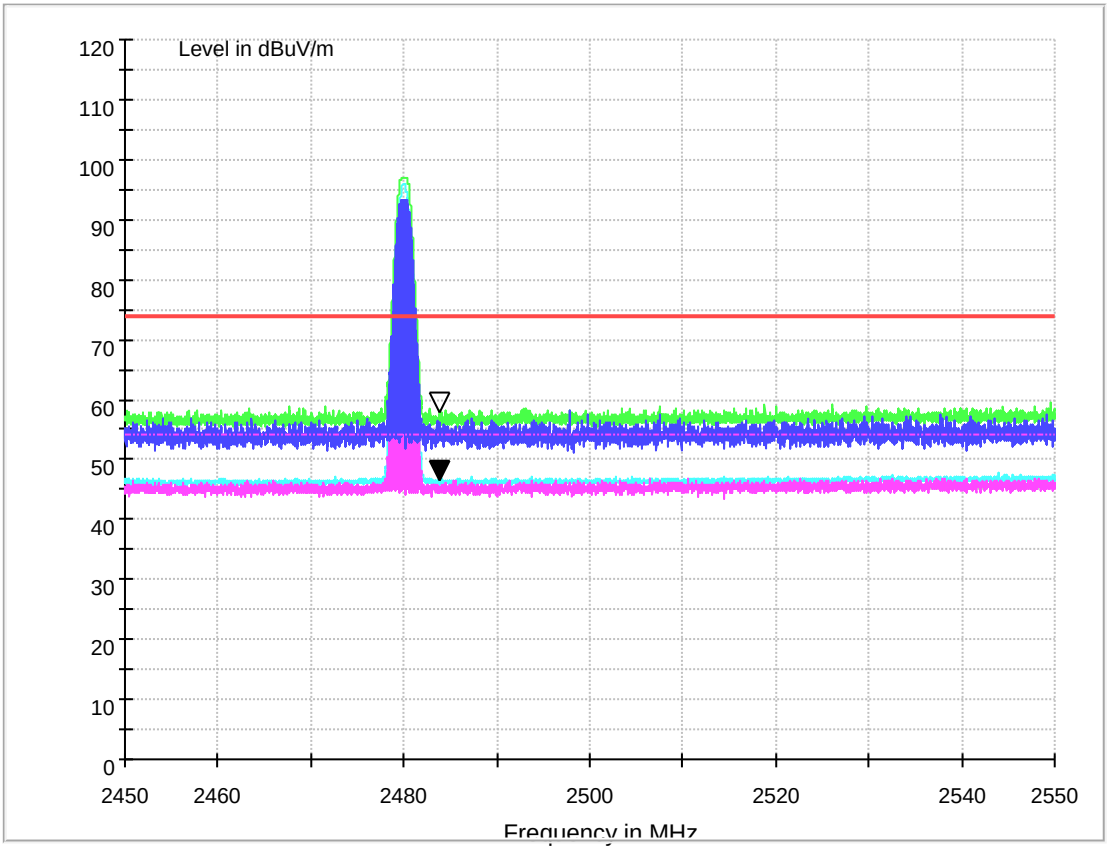
Note:

1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

2, Margin=Limit – Level

2.1.1.1.2 Channel 78



MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth	Transd. (dB)
2483.5	46.833	54.00	7.167	150.0	H	57.0	-10.2

MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Height (cm)	Pol	Azimuth (deg)	Transd. (dB)
2483.5	58.126	74.00	15.874	150.0	H	-8.0	-10.2

Note:

1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

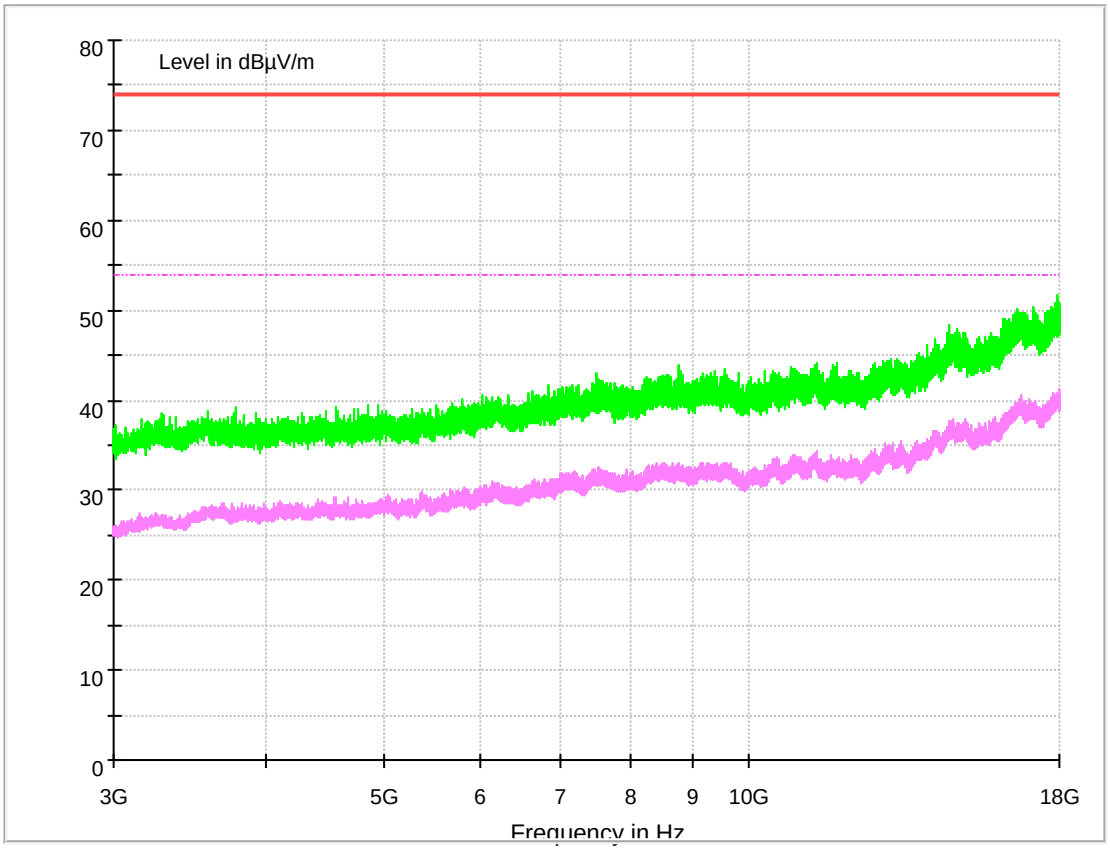
2, Margin=Limit - Level

Part 4: 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 dBμV/m) and Average Limit (54 dBμV/m).

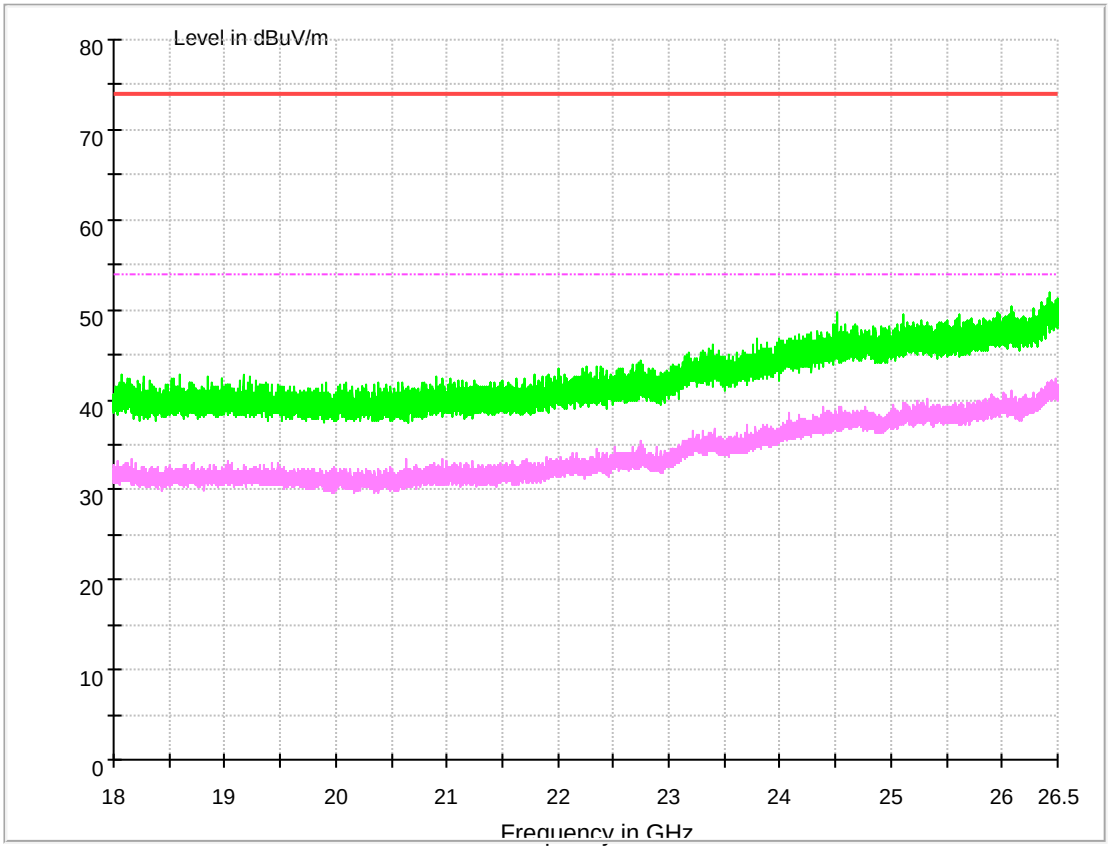


Part 5: Testing Range of "18 GHz to 26.5 GHz"

Note 1: The test results and plot for testing range of "18 GHz to 26.5 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 "18 GHz to 26.5 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 dBμV/m) and Average Limit (54 dBμV/m).



Appendix I: Conducted Emission at Power Port

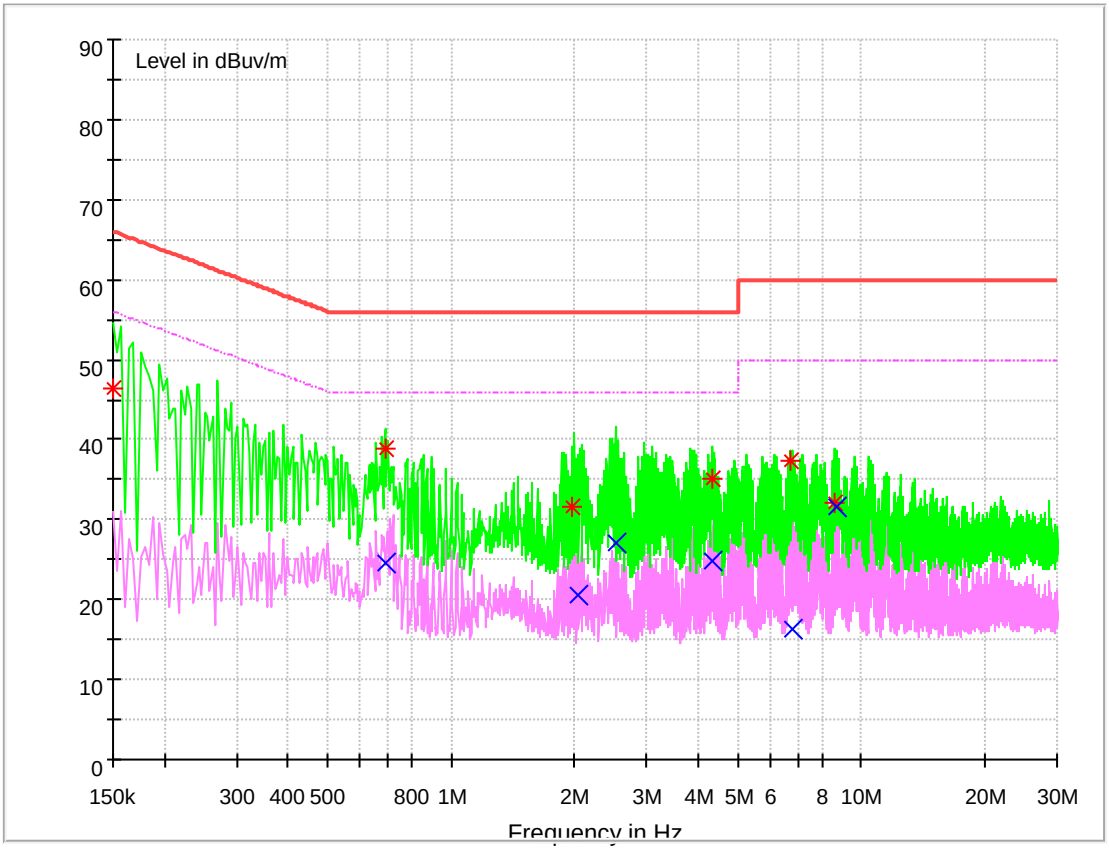
1 Result Table

In this Appendix, only the test results and plots under the worst case can be reported.

EUT Conf.	Maximum Emissions	Verdict
TM1_DH5_Ch78	Not found obvious spikes or see marked spikes on plots and listed emissions records.	Pass

2 Result Plot

Channel 78



MEASUREMENT RESULT: PK Detector

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.150276	46.34	65.99	9.7	19.65	L1	FLO
0.690977	38.82	56.00	9.7	17.18	L1	FLO
1.978822	31.52	56.00	9.7	24.48	N	FLO
4.356771	35.02	56.00	9.7	20.98	L1	FLO
6.714473	37.32	60.00	9.7	22.68	L1	FLO
8.562630	32.19	60.00	9.7	27.81	N	FLO

MEASUREMENT RESULT: AV Detector

Frequency (MHz)	Level (dB μ V)	Limit (dB μ V)	Transd. (dB)	Margin (dB)	Line	PE
0.696190	24.52	46.00	9.7	21.48	N	FLO
2.036438	20.52	46.00	9.7	25.48	L1	FLO
2.539225	26.99	46.00	9.7	19.01	L1	FLO
4.325289	24.90	46.00	9.7	21.10	N	FLO

6.767324	16.39	50.00	9.7	33.61	L1	FLO
8.680272	31.70	50.00	9.7	18.30	L1	FLO

Note:

1, Level =Reading level by receiver + Transd (Antenna factor + cable loss – preamplifier gain)

The reading level is calculated by software which is not shown in the sheet.

2, Margin=Limit – Level

END