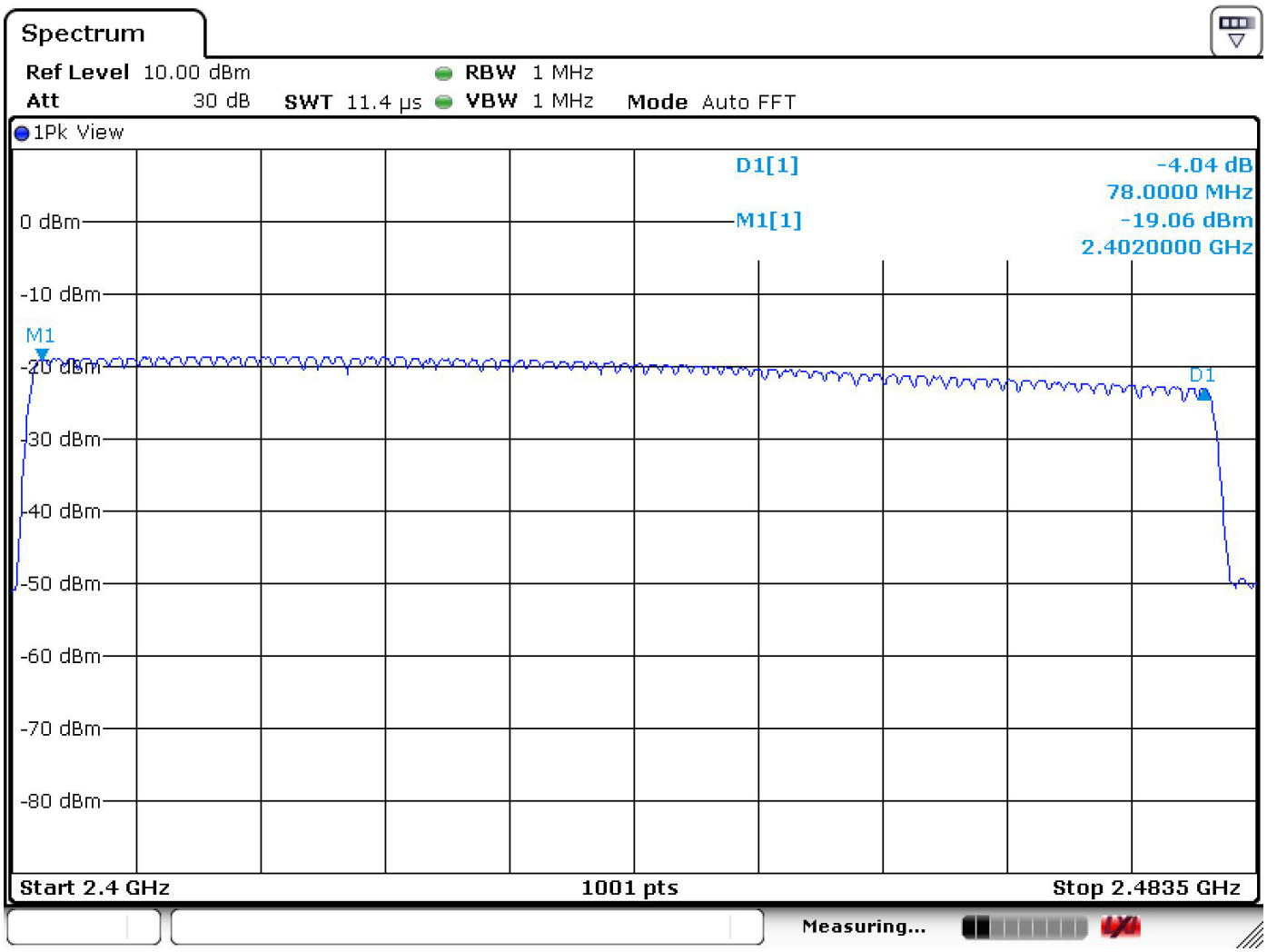
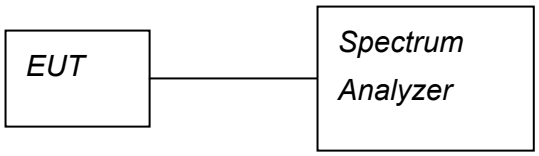

Spectrum
Ref Level 10.00 dBm
RBW 1 MHz
Att 30 dB
SWT 11.4 µs
VBW 1 MHz
Mode Auto FFT
1Pk View
D1[1]
-4.04 dB
78.0000 MHz
M1[1]
-19.06 dBm
2.4020000 GHz
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
-80 dBm
M1
D1
Start 2.4 GHz
1001 pts
Stop 2.4835 GHz
Measuring...

7 Average Time of Occupancy

7.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

7.2 Test Arrangement and Procedure



1. *The transmitter output was connected to a sp ectrum analyzer (through an atten uator, if it' s necessary).*
2. *First, measure the number of pulses per 5 second, the RBW is set to 100 kHz and VBW is set to 100 kHz. Sweep is set to 5 sec. Span 0 Hz.*
3. *Second, measure the Pulse wid th, the RBW is set to 1MHz and VBW i s set to 1MHz. Sweep i s adjusted to appropriate time to show a complete pulse. Span 0 Hz.*

7.3 Limit (§ 15.247(a)(1)(iii))

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

7.4 Test Result

Compliance.

The final test data are shown on the following page(s).

Bluetooth (1 Mbps) Channel 00					
DH Packet	Number of Hopping channels	Number of Pulses per 5 sec	Pulse Width (sec)	AV time of Occupancy (sec)	Limit (sec)
DH1	79	50	0.00043188	0.136474	0.4
DH3	79	26	0.0017	0.279344	0.4
DH5	79	17	0.00294638	0.316559	0.4

Bluetooth (1 Mbps) Channel 39					
DH Packet	Number of Hopping channels	Number of Pulses per 5 sec	Pulse Width (sec)	AV time of Occupancy (sec)	Limit (sec)
DH1	79	49	0.00043478	0.134642	0.4
DH3	79	23	0.0017	0.247112	0.4
DH5	79	19	0.00294348	0.353453	0.4

Bluetooth (1 Mbps) Channel 78					
DH Packet	Number of Hopping channels	Number of Pulses per 5 sec	Pulse Width (sec)	AV time of Occupancy (sec)	Limit (sec)
DH1	79	49	0.00043188	0.133745	0.4
DH3	79	27	0.00170725	0.291325	0.4
DH5	79	17	0.00294348	0.316247	0.4

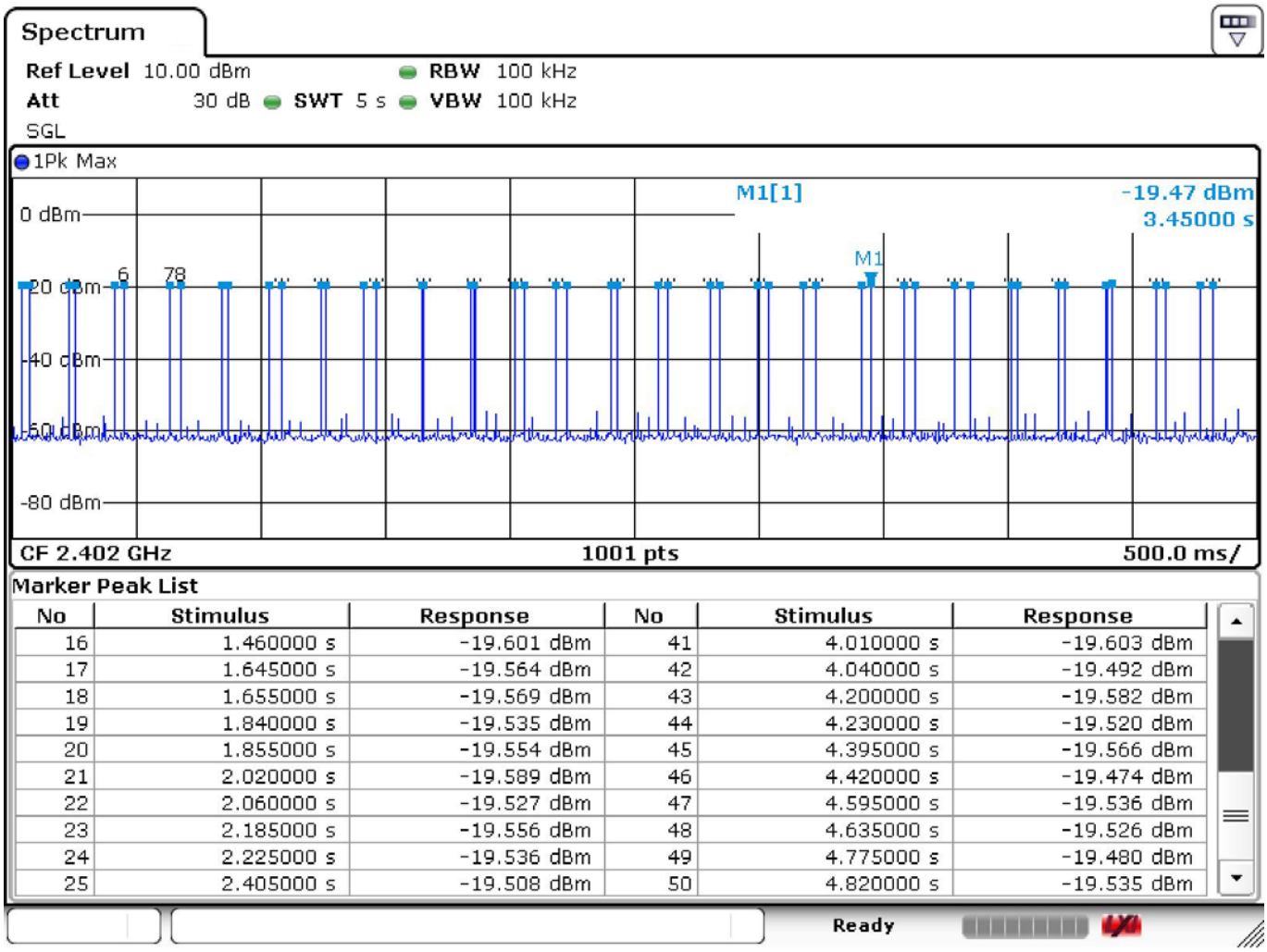
Remark:

*AV time of Occupancy (sec) = 79 (number of hopping channels) * 0.4 (sec) * Number of Pulses per 5 sec/ 5 * Pulse Width (sec)*

Note : 1. The EUT does not support AFH mode.

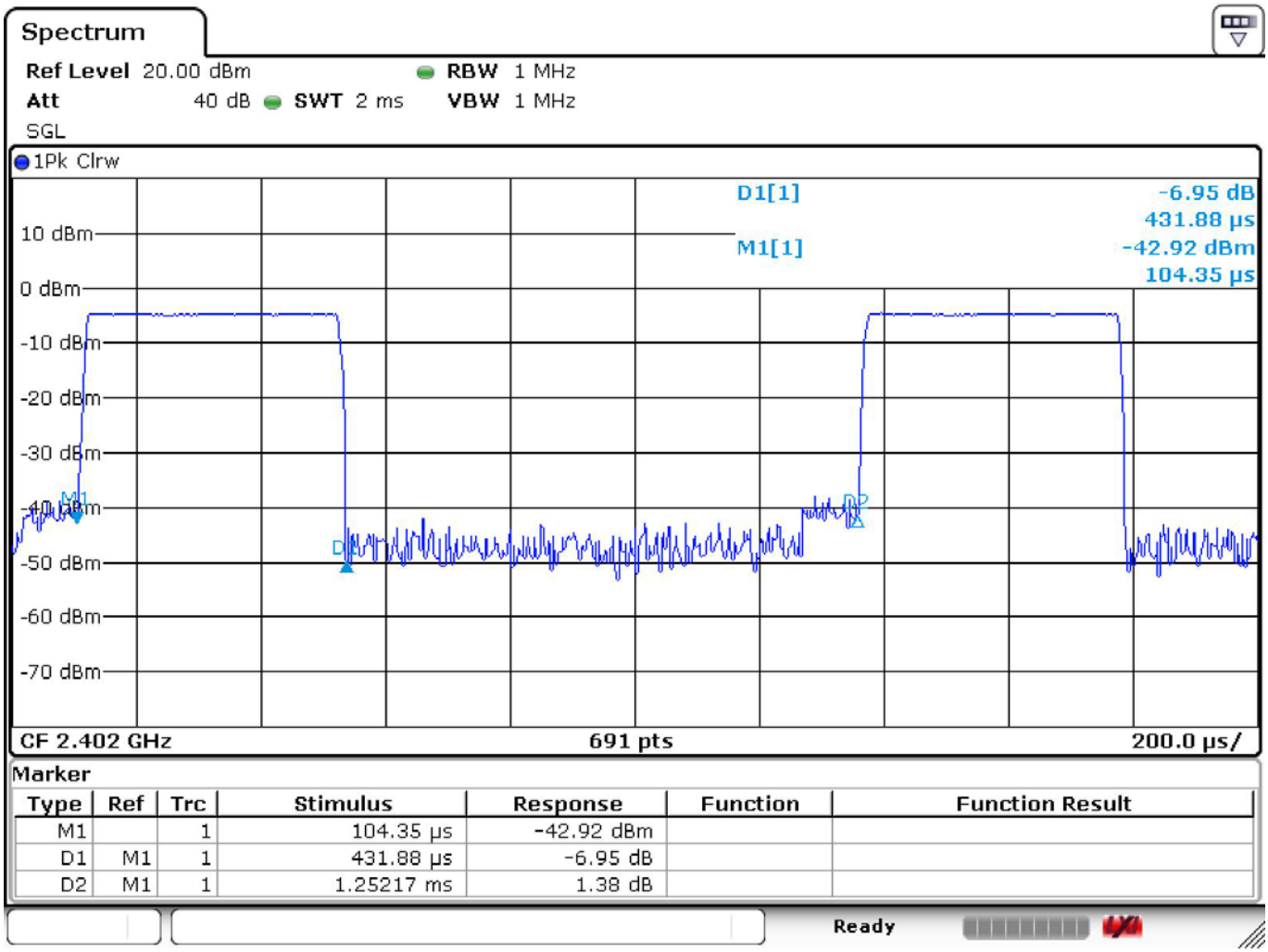
Temperature	:	25.4℃	Humidity	:	40%
Test Date	:	25-May-2015	Tested by	:	Eason Hsieh
Test Mode	:	BT (1 Mbps) DH1	Channel	:	00

Number of Pulses Per 5 sec



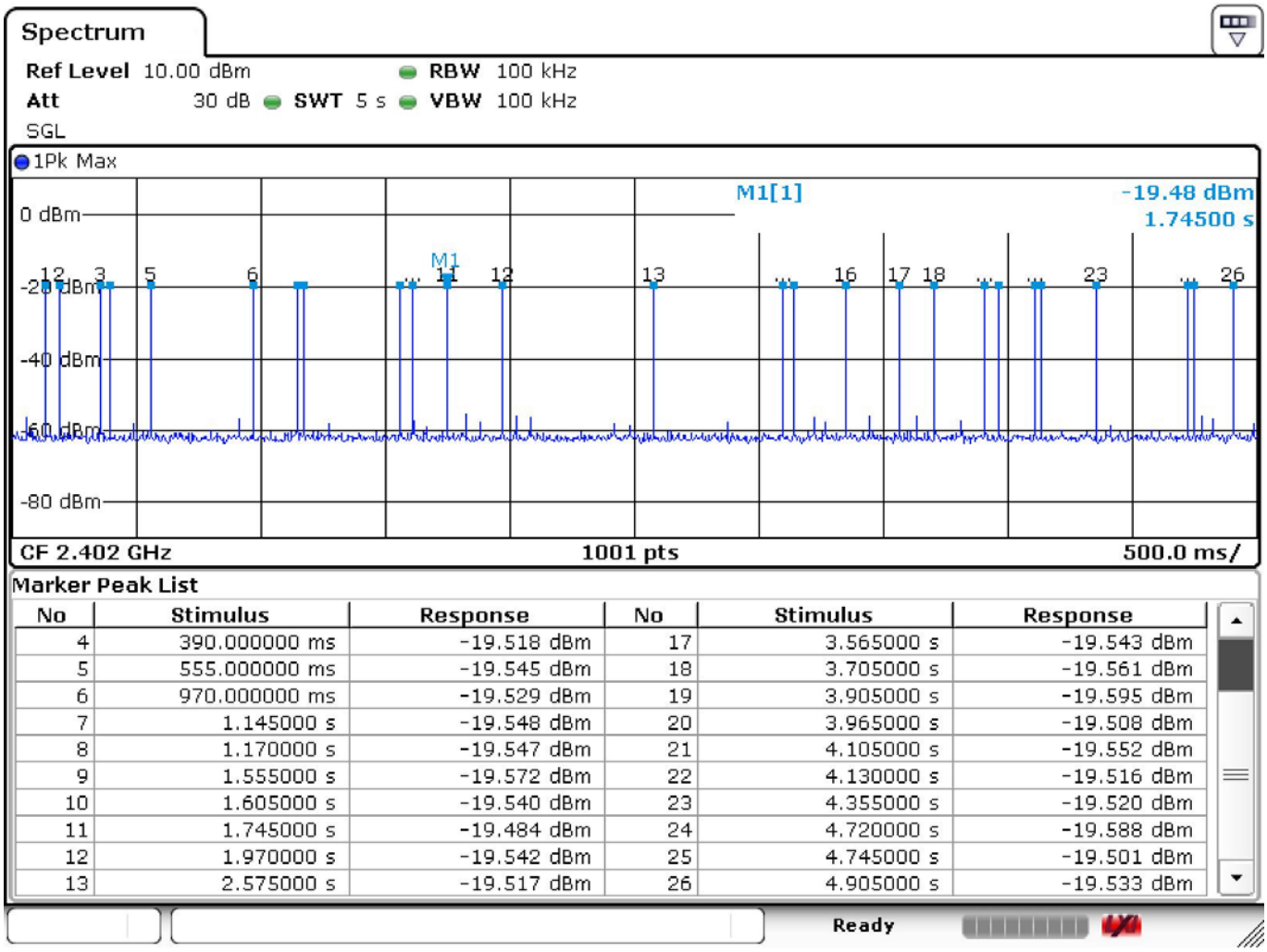
No	Stimulus	Response	No	Stimulus	Response
16	1.460000 s	-19.601 dBm	41	4.010000 s	-19.603 dBm
17	1.645000 s	-19.564 dBm	42	4.040000 s	-19.492 dBm
18	1.655000 s	-19.569 dBm	43	4.200000 s	-19.582 dBm
19	1.840000 s	-19.535 dBm	44	4.230000 s	-19.520 dBm
20	1.855000 s	-19.554 dBm	45	4.395000 s	-19.566 dBm
21	2.020000 s	-19.589 dBm	46	4.420000 s	-19.474 dBm
22	2.060000 s	-19.527 dBm	47	4.595000 s	-19.536 dBm
23	2.185000 s	-19.556 dBm	48	4.635000 s	-19.526 dBm
24	2.225000 s	-19.536 dBm	49	4.775000 s	-19.480 dBm
25	2.405000 s	-19.508 dBm	50	4.820000 s	-19.535 dBm

Pulse Width (sec)


Spectrum
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 2 ms
VBW 1 MHz
SGL
1Pk Clrw
D1[1]
-6.95 dB
431.88 µs
M1[1]
-42.92 dBm
104.35 µs
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
CF 2.402 GHz
691 pts
200.0 µs/
Marker
Type Ref Trc Stimulus Response Function Function Result
M1 1 104.35 µs -42.92 dBm
D1 M1 1 431.88 µs -6.95 dB
D2 M1 1 1.25217 ms 1.38 dB
Ready

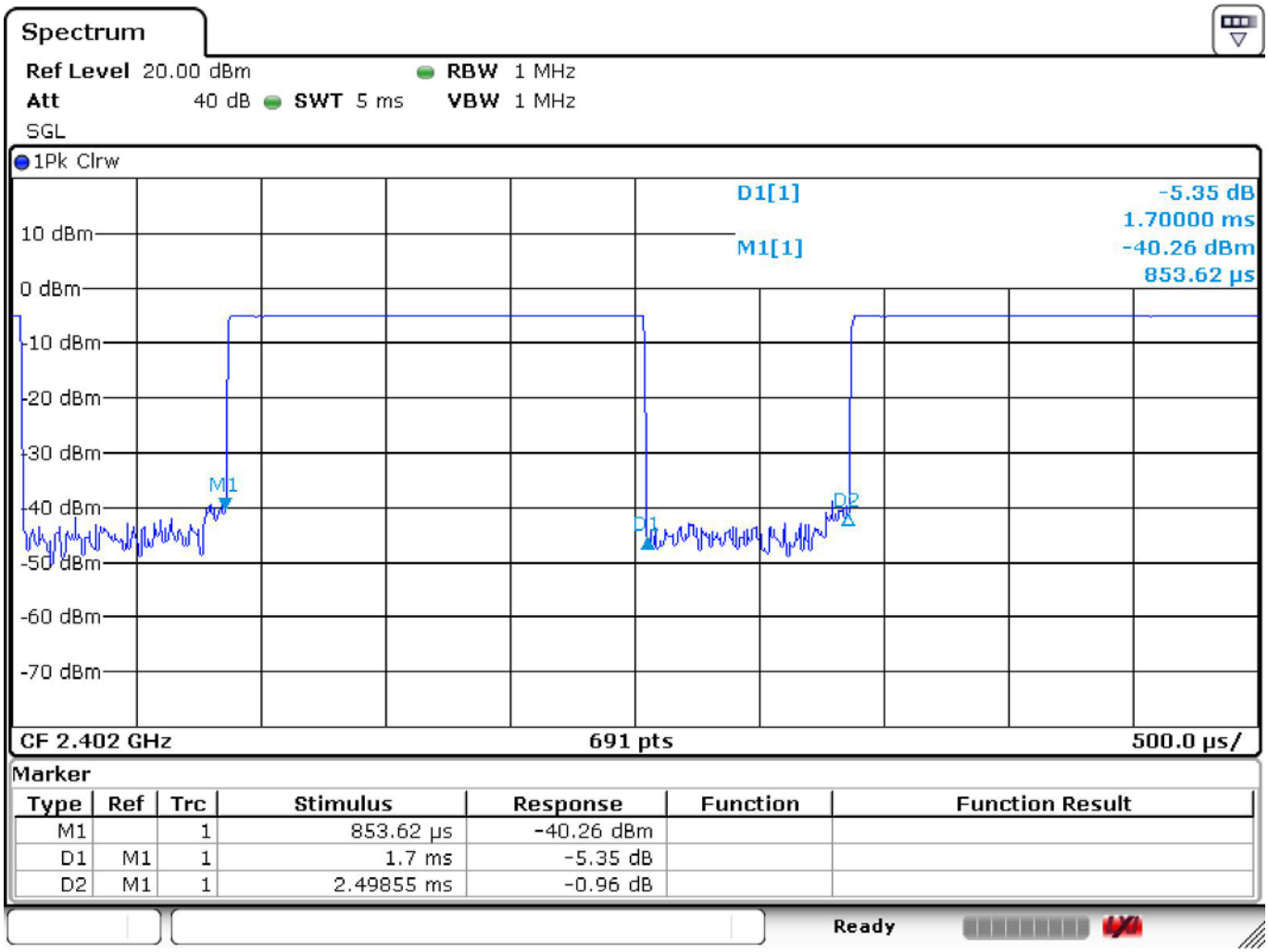
Test Mode : BT (1 Mbps) DH3 Channel : 00

Number of Pulses Per 5 sec



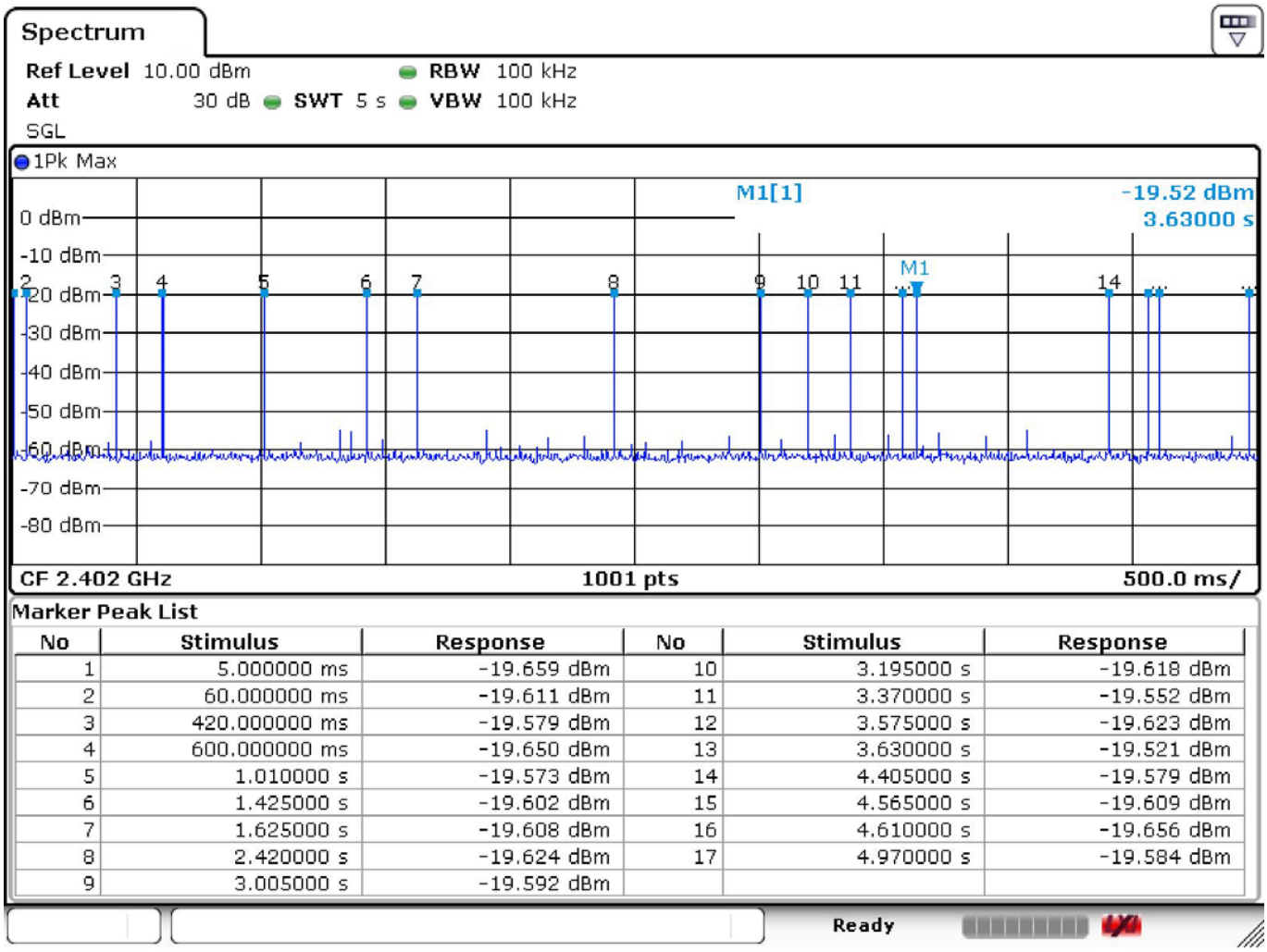
No	Stimulus	Response	No	Stimulus	Response
4	390.000000 ms	-19.518 dBm	17	3.565000 s	-19.543 dBm
5	555.000000 ms	-19.545 dBm	18	3.705000 s	-19.561 dBm
6	970.000000 ms	-19.529 dBm	19	3.905000 s	-19.595 dBm
7	1.145000 s	-19.548 dBm	20	3.965000 s	-19.508 dBm
8	1.170000 s	-19.547 dBm	21	4.105000 s	-19.552 dBm
9	1.555000 s	-19.572 dBm	22	4.130000 s	-19.516 dBm
10	1.605000 s	-19.540 dBm	23	4.355000 s	-19.520 dBm
11	1.745000 s	-19.484 dBm	24	4.720000 s	-19.588 dBm
12	1.970000 s	-19.542 dBm	25	4.745000 s	-19.501 dBm
13	2.575000 s	-19.517 dBm	26	4.905000 s	-19.533 dBm

Pulse Width (sec)


Spectrum
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 5 ms
VBW 1 MHz
SGL
1Pk Clrw
D1[1] -5.35 dB
1.70000 ms
M1[1] -40.26 dBm
853.62 µs
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
CF 2.402 GHz
691 pts
500.0 µs/
Marker
Type Ref Trc Stimulus Response Function Function Result
M1 1 853.62 µs -40.26 dBm
D1 M1 1 1.7 ms -5.35 dB
D2 M1 1 2.49855 ms -0.96 dB
Ready

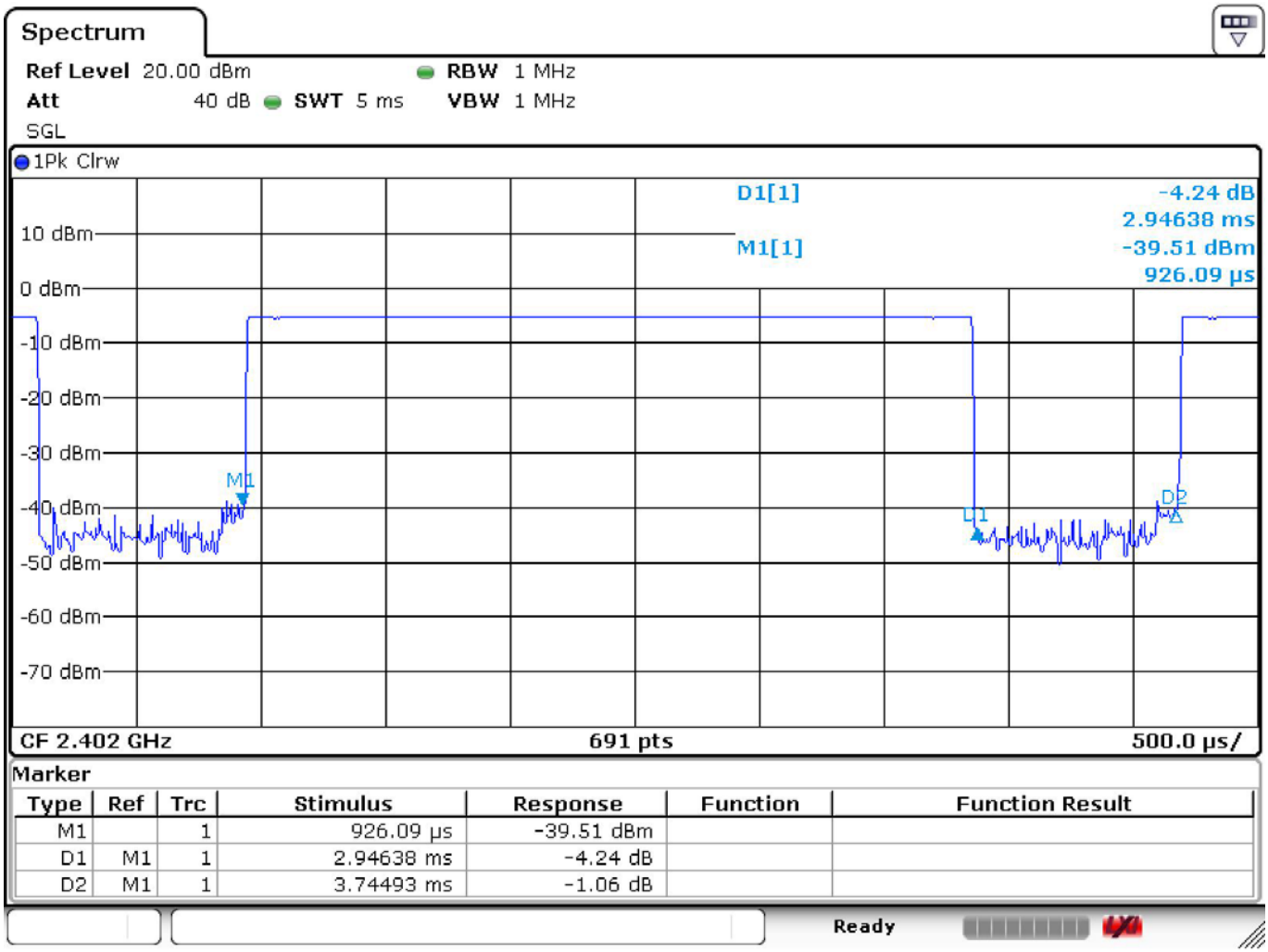
Test Mode : BT (1 Mbps) DH5 Channel : 00

Number of Pulses Per 5 sec



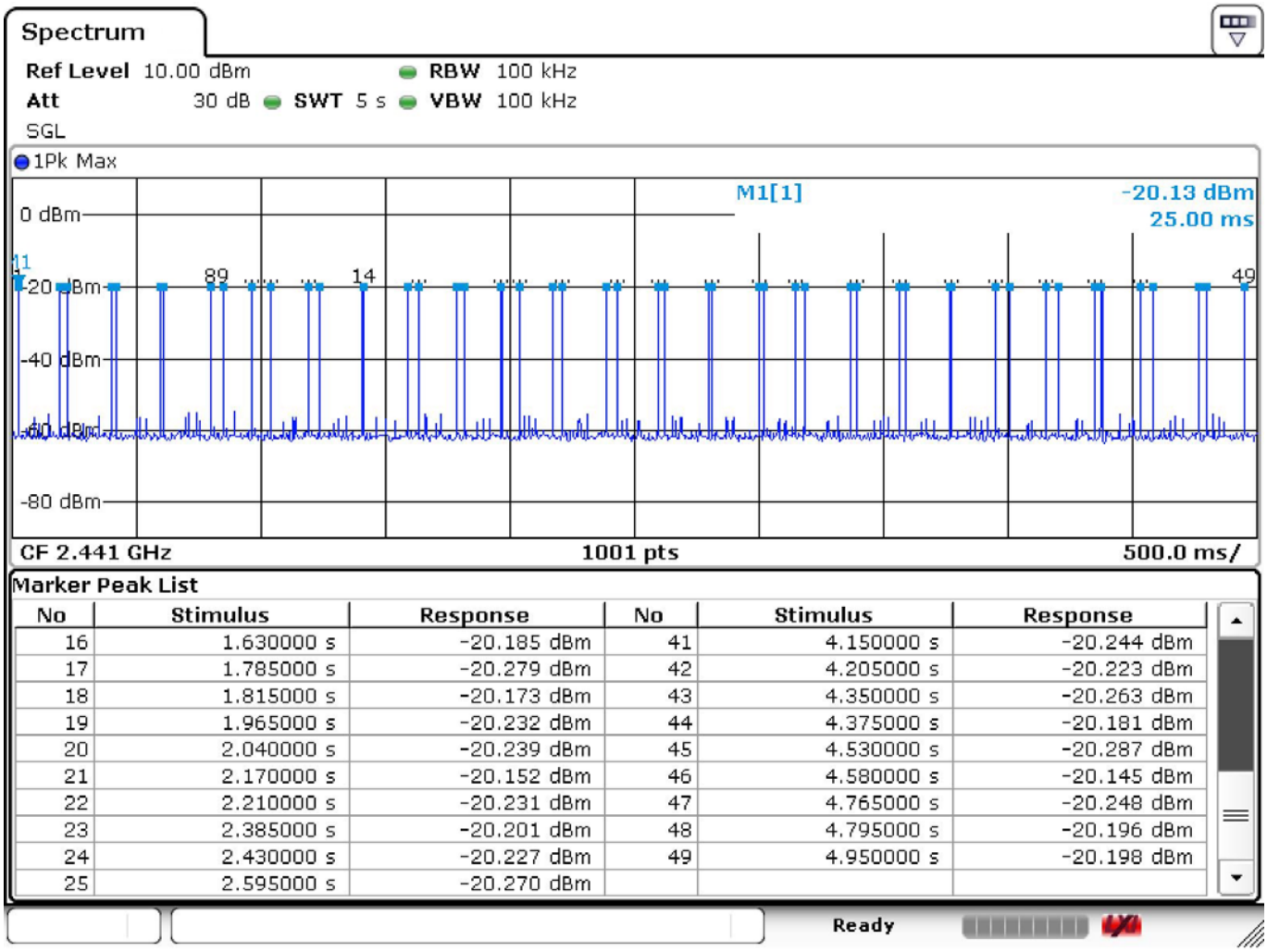
No	Stimulus	Response	No	Stimulus	Response
1	5.000000 ms	-19.659 dBm	10	3.195000 s	-19.618 dBm
2	60.000000 ms	-19.611 dBm	11	3.370000 s	-19.552 dBm
3	420.000000 ms	-19.579 dBm	12	3.575000 s	-19.623 dBm
4	600.000000 ms	-19.650 dBm	13	3.630000 s	-19.521 dBm
5	1.010000 s	-19.573 dBm	14	4.405000 s	-19.579 dBm
6	1.425000 s	-19.602 dBm	15	4.565000 s	-19.609 dBm
7	1.625000 s	-19.608 dBm	16	4.610000 s	-19.656 dBm
8	2.420000 s	-19.624 dBm	17	4.970000 s	-19.584 dBm
9	3.005000 s	-19.592 dBm			

Pulse Width (sec)


Spectrum
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 5 ms
VBW 1 MHz
SGL
1Pk Clrw
D1[1] -4.24 dB
2.94638 ms
M1[1] -39.51 dBm
926.09 µs
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D2
CF 2.402 GHz
691 pts
500.0 µs/
Marker
Type Ref Trc Stimulus Response Function Function Result
M1 1 926.09 µs -39.51 dBm
D1 M1 1 2.94638 ms -4.24 dB
D2 M1 1 3.74493 ms -1.06 dB
Ready

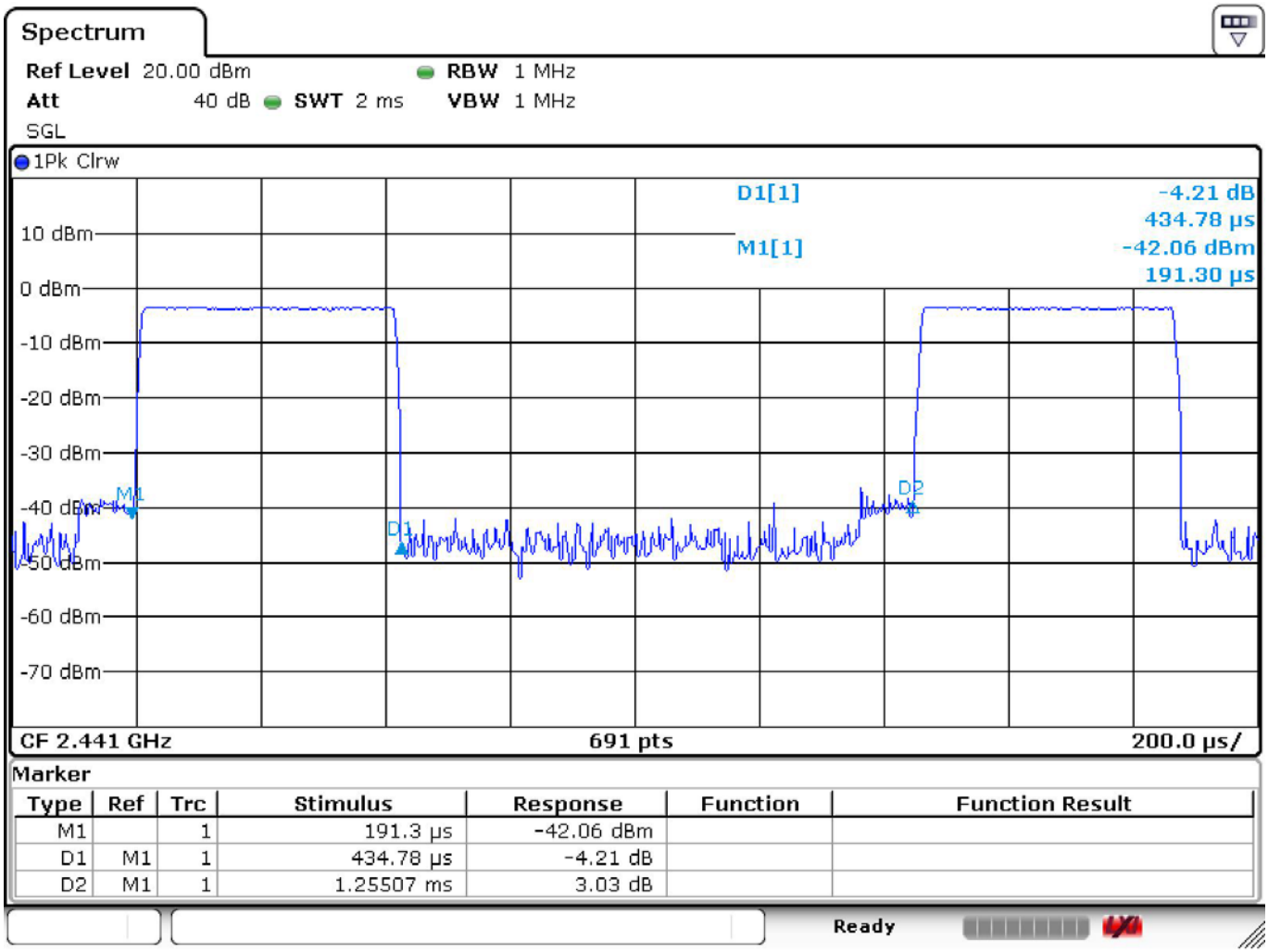
Test Mode : BT (1 Mbps) DH1 Channel : 39

Number of Pulses Per 5 sec



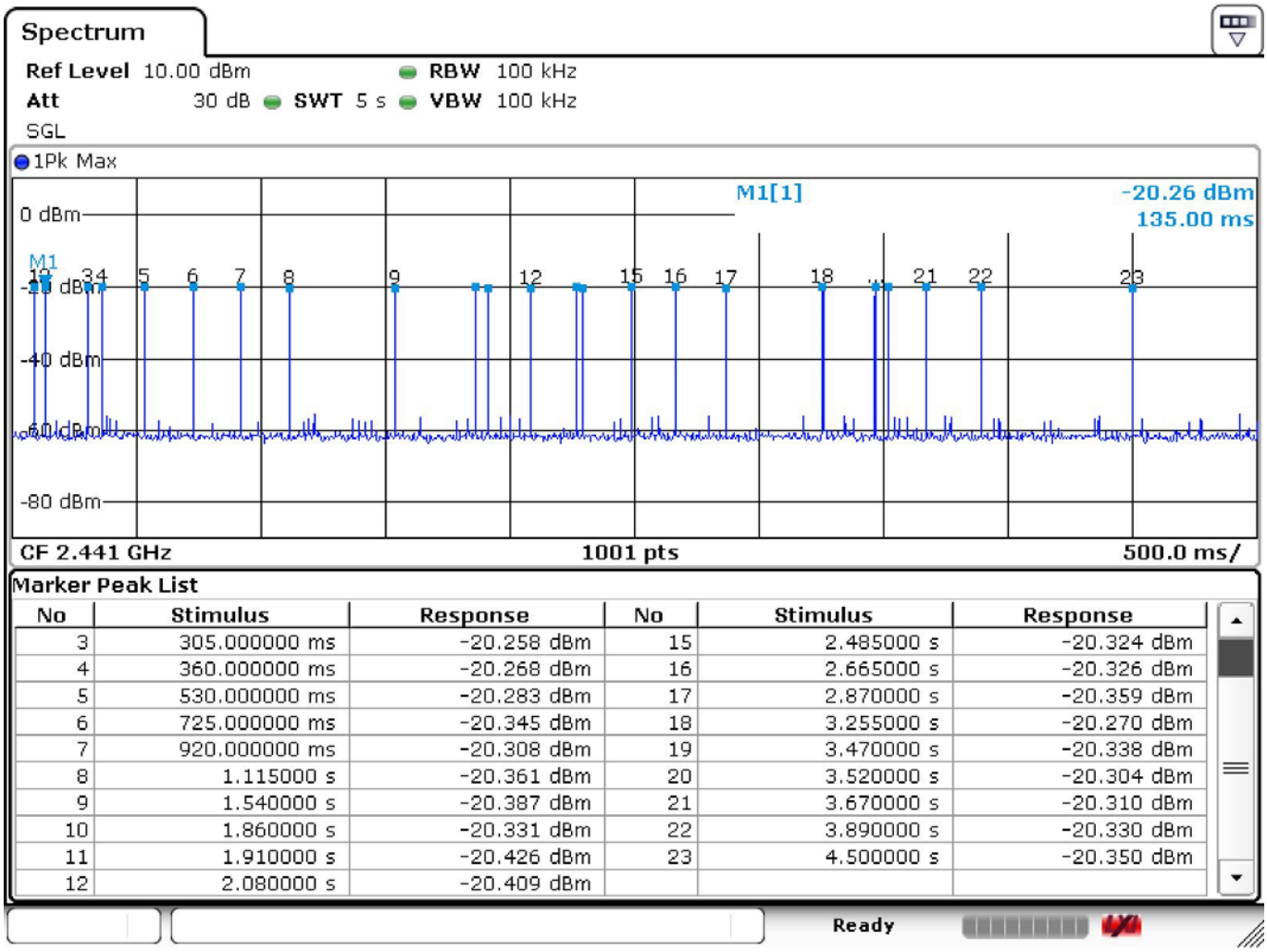
No	Stimulus	Response	No	Stimulus	Response
16	1.630000 s	-20.185 dBm	41	4.150000 s	-20.244 dBm
17	1.785000 s	-20.279 dBm	42	4.205000 s	-20.223 dBm
18	1.815000 s	-20.173 dBm	43	4.350000 s	-20.263 dBm
19	1.965000 s	-20.232 dBm	44	4.375000 s	-20.181 dBm
20	2.040000 s	-20.239 dBm	45	4.530000 s	-20.287 dBm
21	2.170000 s	-20.152 dBm	46	4.580000 s	-20.145 dBm
22	2.210000 s	-20.231 dBm	47	4.765000 s	-20.248 dBm
23	2.385000 s	-20.201 dBm	48	4.795000 s	-20.196 dBm
24	2.430000 s	-20.227 dBm	49	4.950000 s	-20.198 dBm
25	2.595000 s	-20.270 dBm			

Pulse Width (sec)


Spectrum
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 2 ms
VBW 1 MHz
SGL
1Pk Clrw
D1[1] -4.21 dB
434.78 µs
M1[1] -42.06 dBm
191.30 µs
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
CF 2.441 GHz
691 pts
200.0 µs/
Marker
Type Ref Trc Stimulus Response Function Function Result
M1 1 191.3 µs -42.06 dBm
D1 M1 1 434.78 µs -4.21 dB
D2 M1 1 1.25507 ms 3.03 dB
Ready

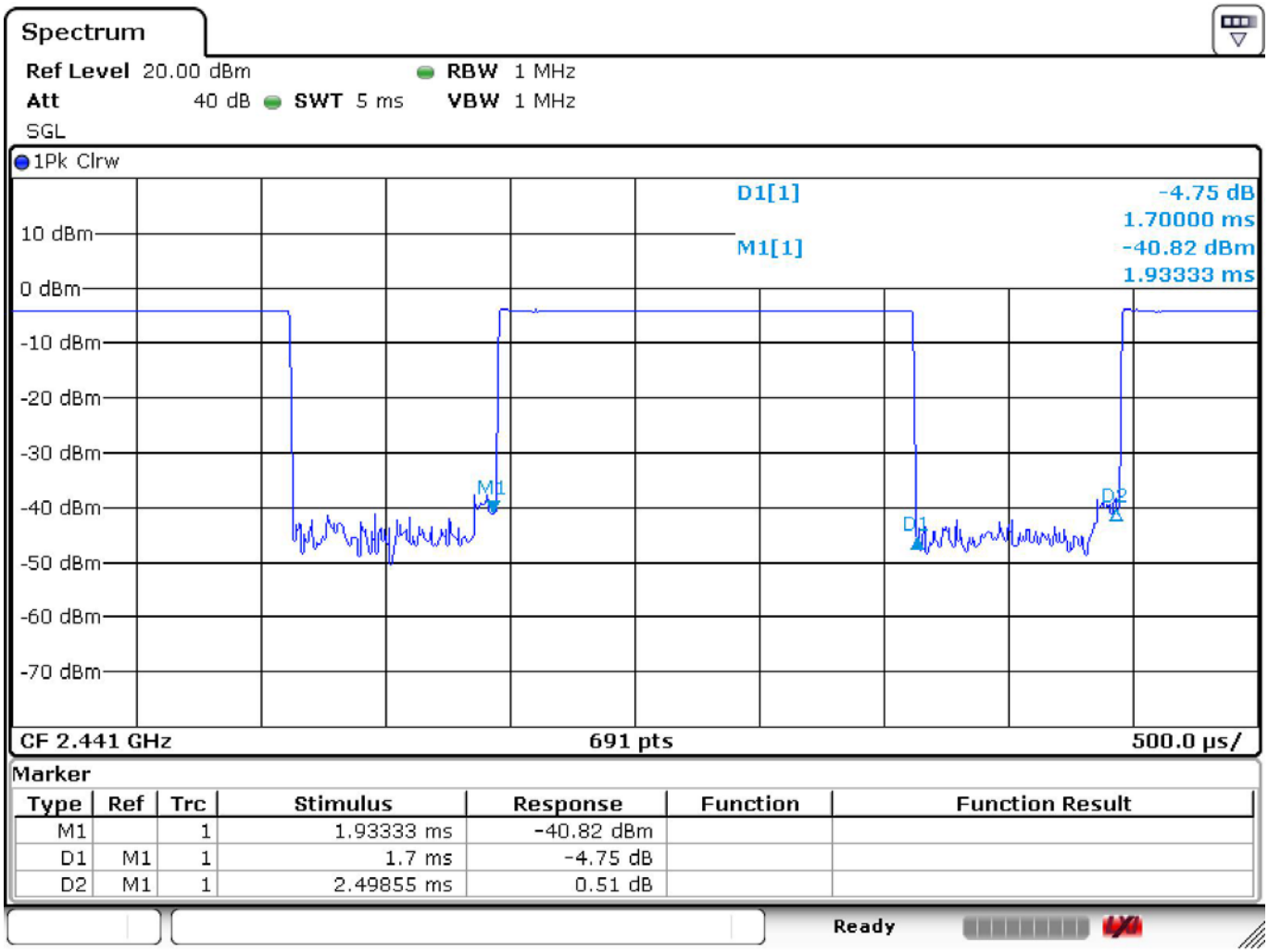
Test Mode : BT (1 Mbps) DH3 Channel : 39

Number of Pulses Per 5 sec



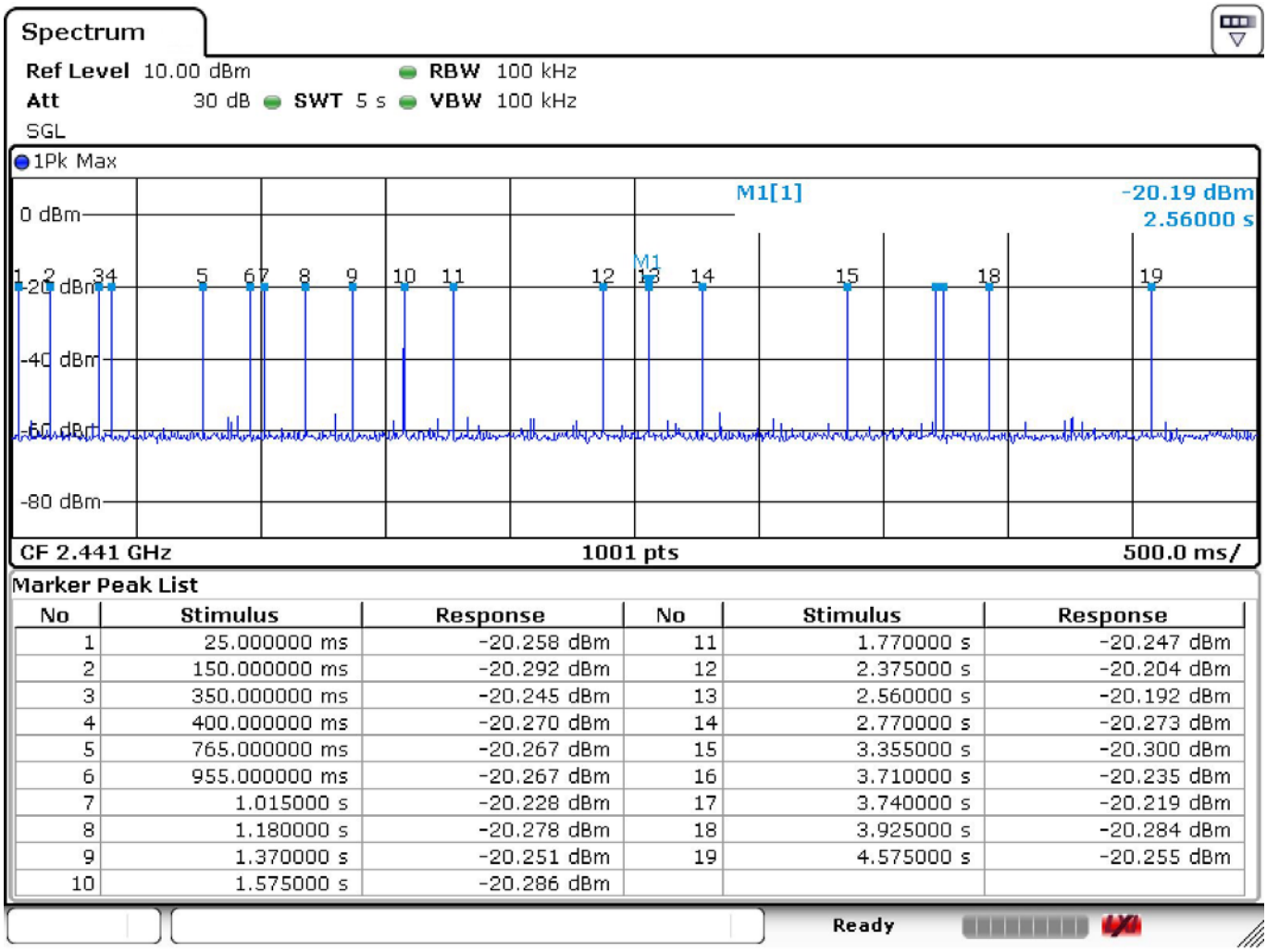
No	Stimulus	Response	No	Stimulus	Response
3	305.000000 ms	-20.258 dBm	15	2.485000 s	-20.324 dBm
4	360.000000 ms	-20.268 dBm	16	2.665000 s	-20.326 dBm
5	530.000000 ms	-20.283 dBm	17	2.870000 s	-20.359 dBm
6	725.000000 ms	-20.345 dBm	18	3.255000 s	-20.270 dBm
7	920.000000 ms	-20.308 dBm	19	3.470000 s	-20.338 dBm
8	1.115000 s	-20.361 dBm	20	3.520000 s	-20.304 dBm
9	1.540000 s	-20.387 dBm	21	3.670000 s	-20.310 dBm
10	1.860000 s	-20.331 dBm	22	3.890000 s	-20.330 dBm
11	1.910000 s	-20.426 dBm	23	4.500000 s	-20.350 dBm
12	2.080000 s	-20.409 dBm			

Pulse Width (sec)


Spectrum
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 5 ms
VBW 1 MHz
SGL
1Pk Clrw
D1[1]
-4.75 dB
1.70000 ms
M1[1]
-40.82 dBm
1.93333 ms
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
CF 2.441 GHz
691 pts
500.0 µs/
Marker
Type Ref Trc Stimulus Response Function Function Result
M1 1 1.93333 ms -40.82 dBm
D1 M1 1 1.7 ms -4.75 dB
D2 M1 1 2.49855 ms 0.51 dB
Ready

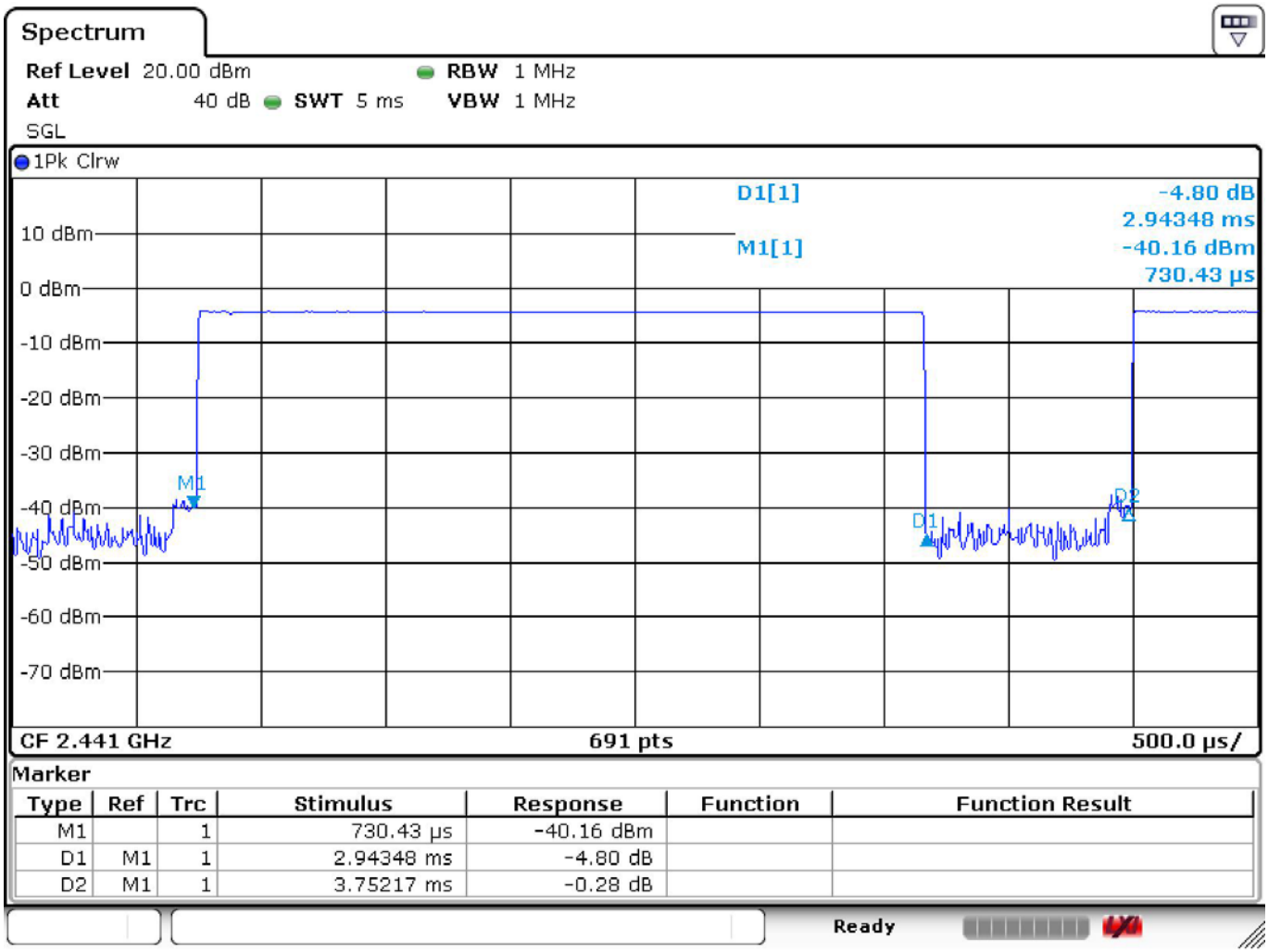
Test Mode : BT (1 Mbps) DH5 Channel : 39

Number of Pulses Per 5 sec



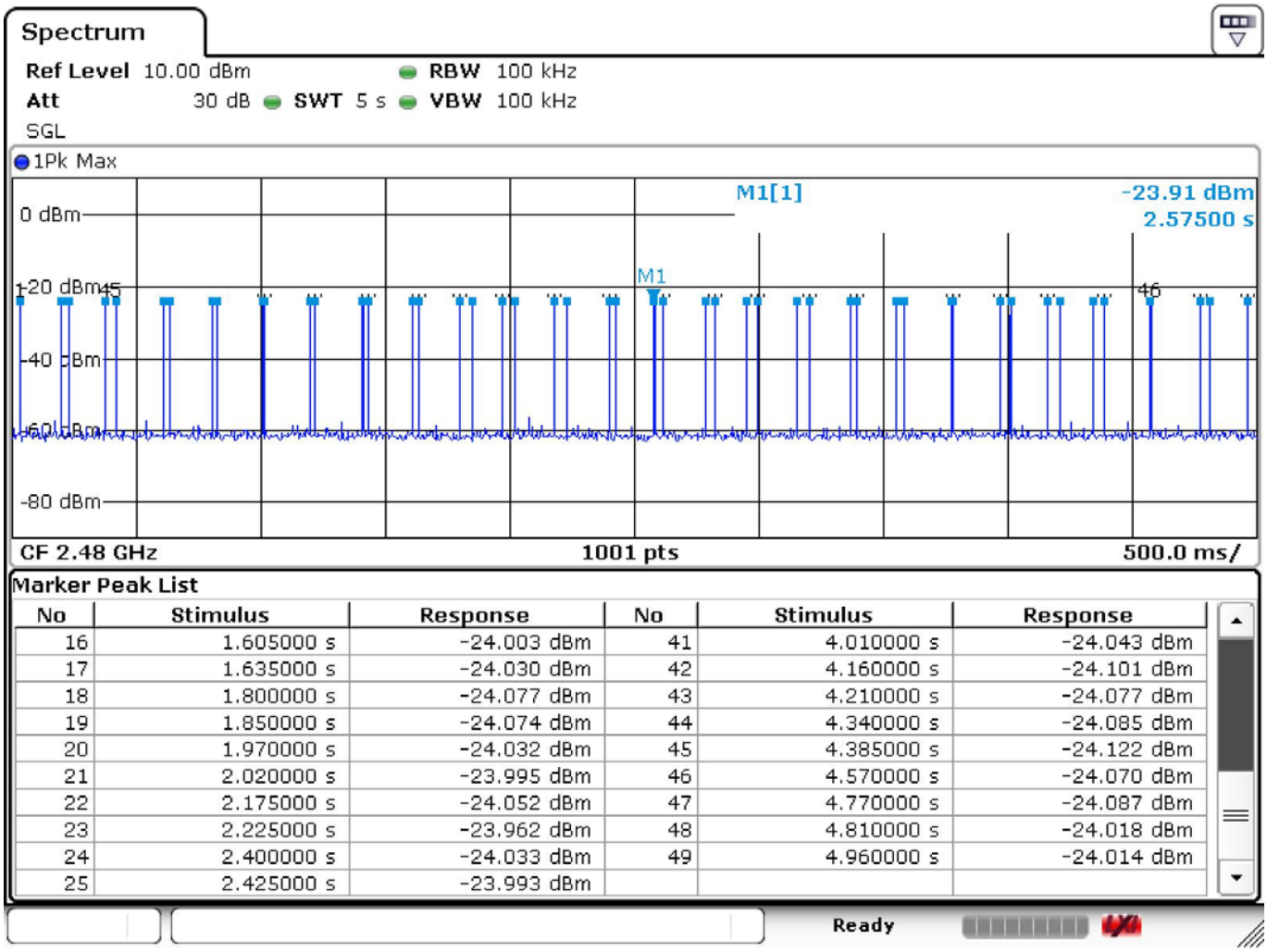
No	Stimulus	Response	No	Stimulus	Response
1	25.000000 ms	-20.258 dBm	11	1.770000 s	-20.247 dBm
2	150.000000 ms	-20.292 dBm	12	2.375000 s	-20.204 dBm
3	350.000000 ms	-20.245 dBm	13	2.560000 s	-20.192 dBm
4	400.000000 ms	-20.270 dBm	14	2.770000 s	-20.273 dBm
5	765.000000 ms	-20.267 dBm	15	3.355000 s	-20.300 dBm
6	955.000000 ms	-20.267 dBm	16	3.710000 s	-20.235 dBm
7	1.015000 s	-20.228 dBm	17	3.740000 s	-20.219 dBm
8	1.180000 s	-20.278 dBm	18	3.925000 s	-20.284 dBm
9	1.370000 s	-20.251 dBm	19	4.575000 s	-20.255 dBm
10	1.575000 s	-20.286 dBm			

Pulse Width (sec)


Spectrum
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 5 ms
VBW 1 MHz
SGL
1Pk Clrw
D1[1]
-4.80 dB
2.94348 ms
M1[1]
-40.16 dBm
730.43 µs
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
CF 2.441 GHz
691 pts
500.0 µs/
Marker
Type Ref Trc Stimulus Response Function Function Result
M1 1 730.43 µs -40.16 dBm
D1 M1 1 2.94348 ms -4.80 dB
D2 M1 1 3.75217 ms -0.28 dB
Ready

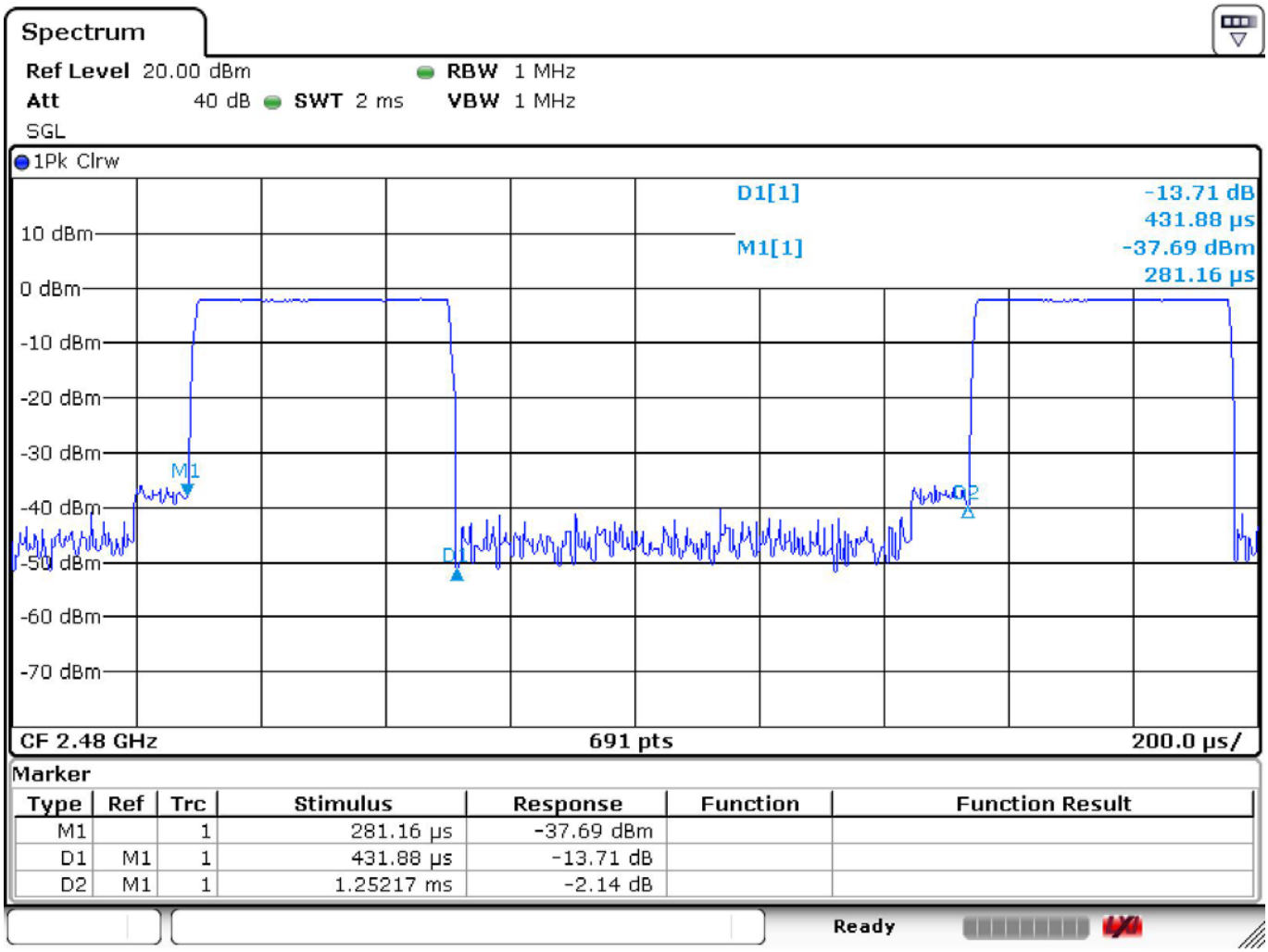
Test Mode : BT (1 Mbps) DH1 Channel : 78

Number of Pulses Per 5 sec



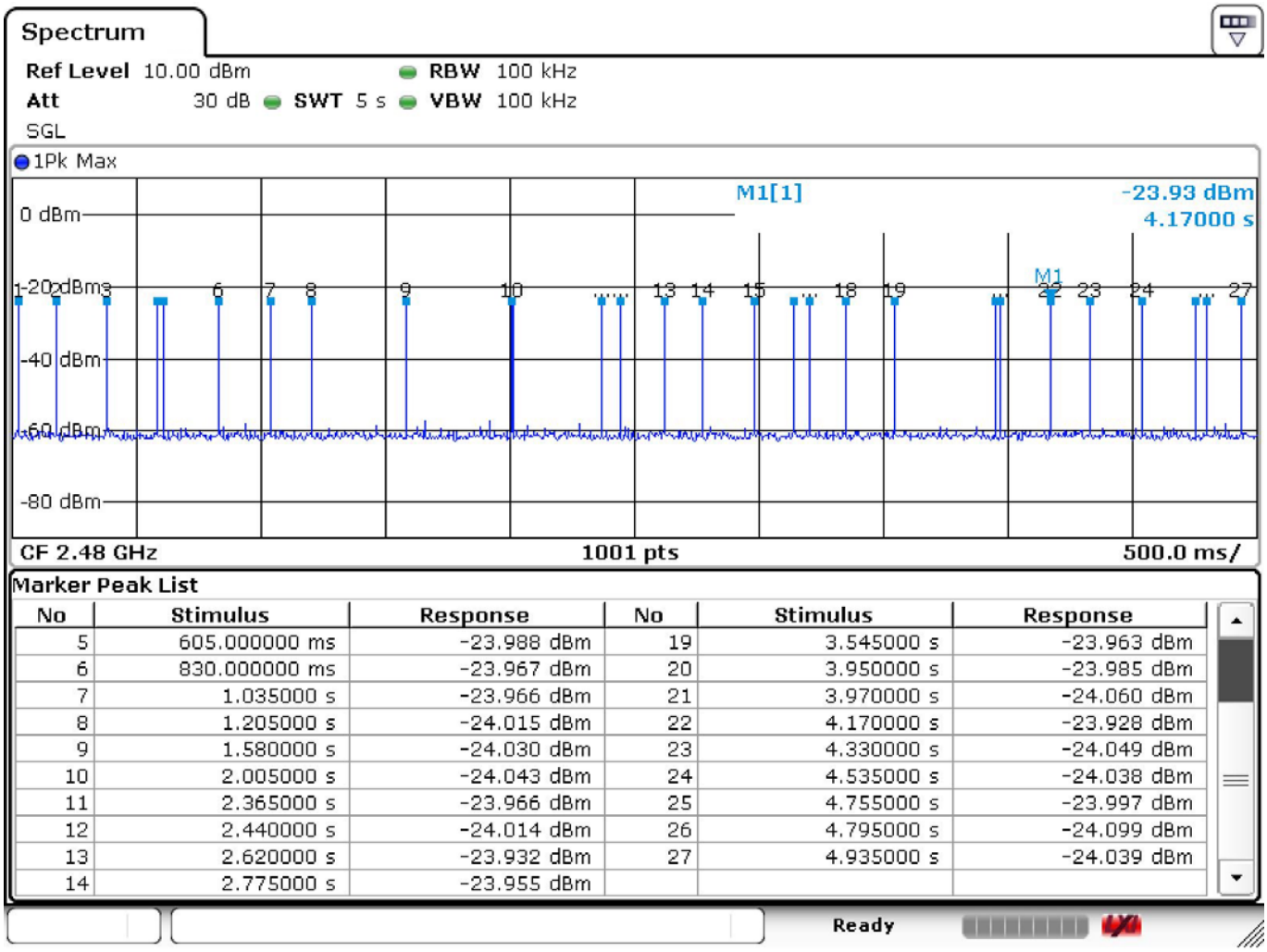
No	Stimulus	Response	No	Stimulus	Response
16	1.605000 s	-24.003 dBm	41	4.010000 s	-24.043 dBm
17	1.635000 s	-24.030 dBm	42	4.160000 s	-24.101 dBm
18	1.800000 s	-24.077 dBm	43	4.210000 s	-24.077 dBm
19	1.850000 s	-24.074 dBm	44	4.340000 s	-24.085 dBm
20	1.970000 s	-24.032 dBm	45	4.385000 s	-24.122 dBm
21	2.020000 s	-23.995 dBm	46	4.570000 s	-24.070 dBm
22	2.175000 s	-24.052 dBm	47	4.770000 s	-24.087 dBm
23	2.225000 s	-23.962 dBm	48	4.810000 s	-24.018 dBm
24	2.400000 s	-24.033 dBm	49	4.960000 s	-24.014 dBm
25	2.425000 s	-23.993 dBm			

Pulse Width (sec)


Spectrum
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 2 ms
VBW 1 MHz
SGL
1Pk Clrw
D1[1]
-13.71 dB
431.88 µs
M1[1]
-37.69 dBm
281.16 µs
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
CF 2.48 GHz
691 pts
200.0 µs/
Marker
Type Ref Trc Stimulus Response Function Function Result
M1 1 281.16 µs -37.69 dBm
D1 M1 1 431.88 µs -13.71 dB
D2 M1 1 1.25217 ms -2.14 dB
Ready

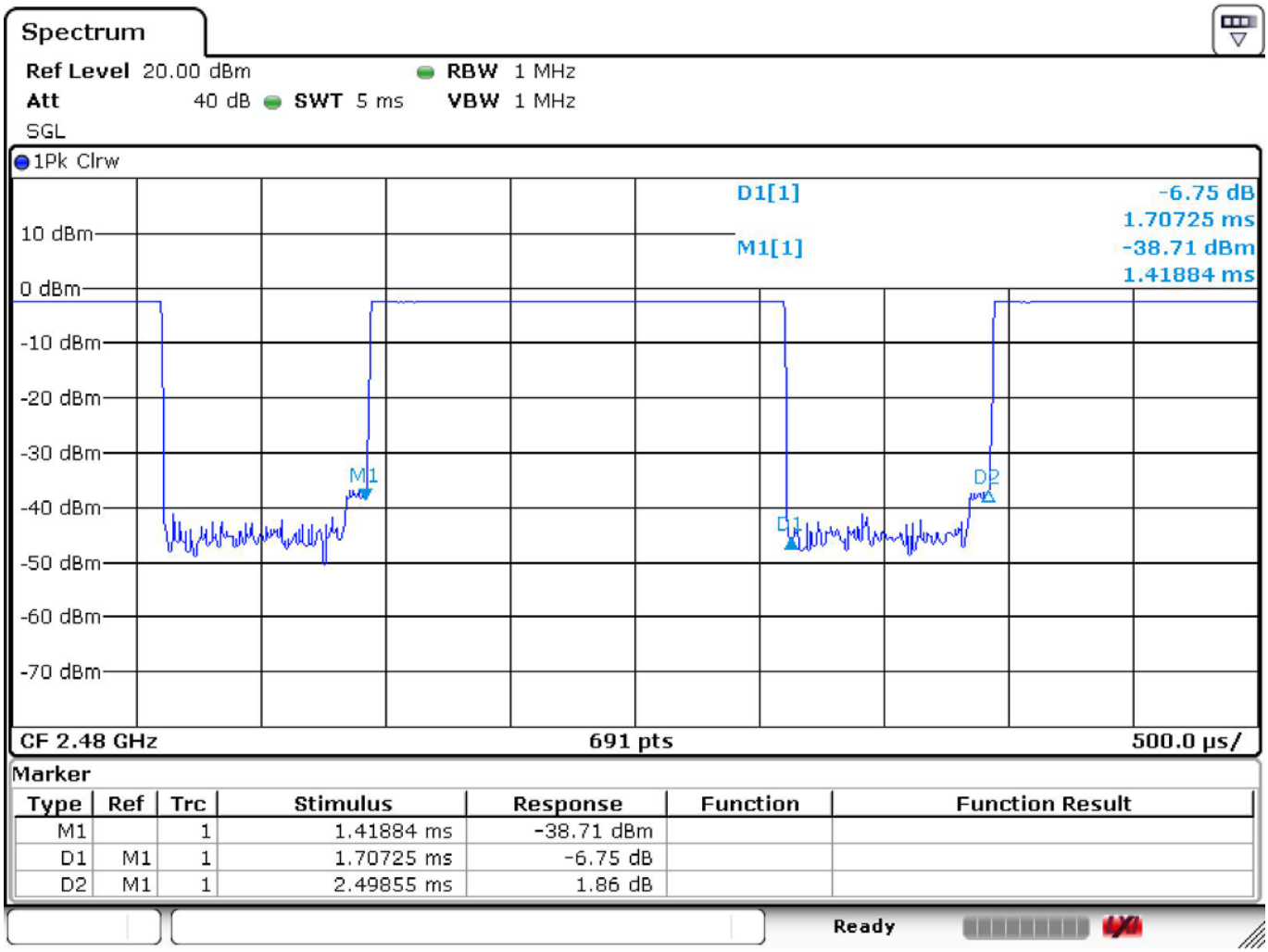
Test Mode : BT (1 Mbps) DH3 Channel : 78

Number of Pulses Per 5 sec



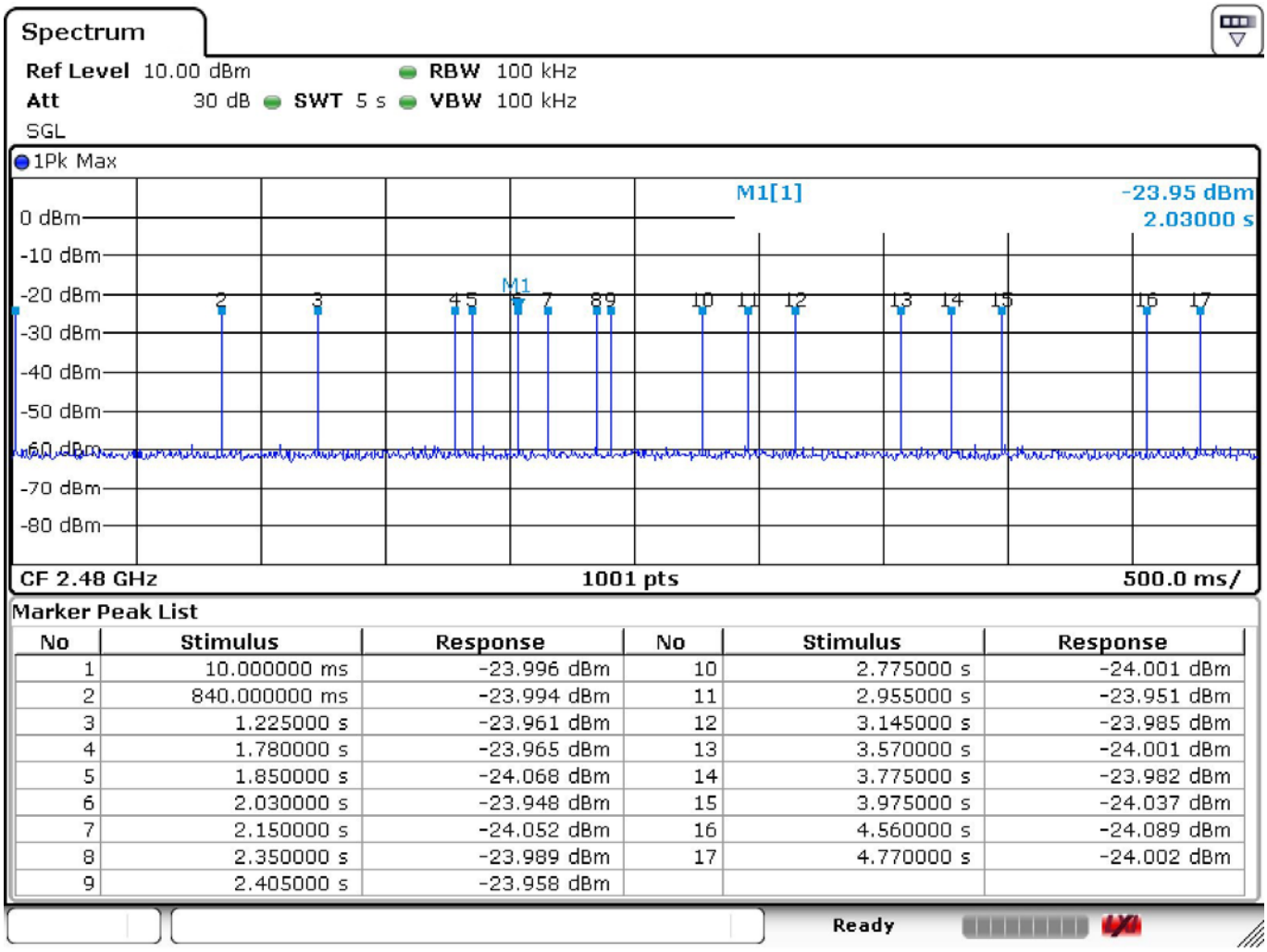
No	Stimulus	Response	No	Stimulus	Response
5	605.000000 ms	-23.988 dBm	19	3.545000 s	-23.963 dBm
6	830.000000 ms	-23.967 dBm	20	3.950000 s	-23.985 dBm
7	1.035000 s	-23.966 dBm	21	3.970000 s	-24.060 dBm
8	1.205000 s	-24.015 dBm	22	4.170000 s	-23.928 dBm
9	1.580000 s	-24.030 dBm	23	4.330000 s	-24.049 dBm
10	2.005000 s	-24.043 dBm	24	4.535000 s	-24.038 dBm
11	2.365000 s	-23.966 dBm	25	4.755000 s	-23.997 dBm
12	2.440000 s	-24.014 dBm	26	4.795000 s	-24.099 dBm
13	2.620000 s	-23.932 dBm	27	4.935000 s	-24.039 dBm
14	2.775000 s	-23.955 dBm			

Pulse Width (sec)


Spectrum
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 5 ms
VBW 1 MHz
SGL
1Pk Clrw
D1[1]
-6.75 dB
1.70725 ms
M1[1]
-38.71 dBm
1.41884 ms
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D2
D1
CF 2.48 GHz
691 pts
500.0 µs/
Marker
Type Ref Trc Stimulus Response Function Function Result
M1 1 1.41884 ms -38.71 dBm
D1 M1 1 1.70725 ms -6.75 dB
D2 M1 1 2.49855 ms 1.86 dB
Ready

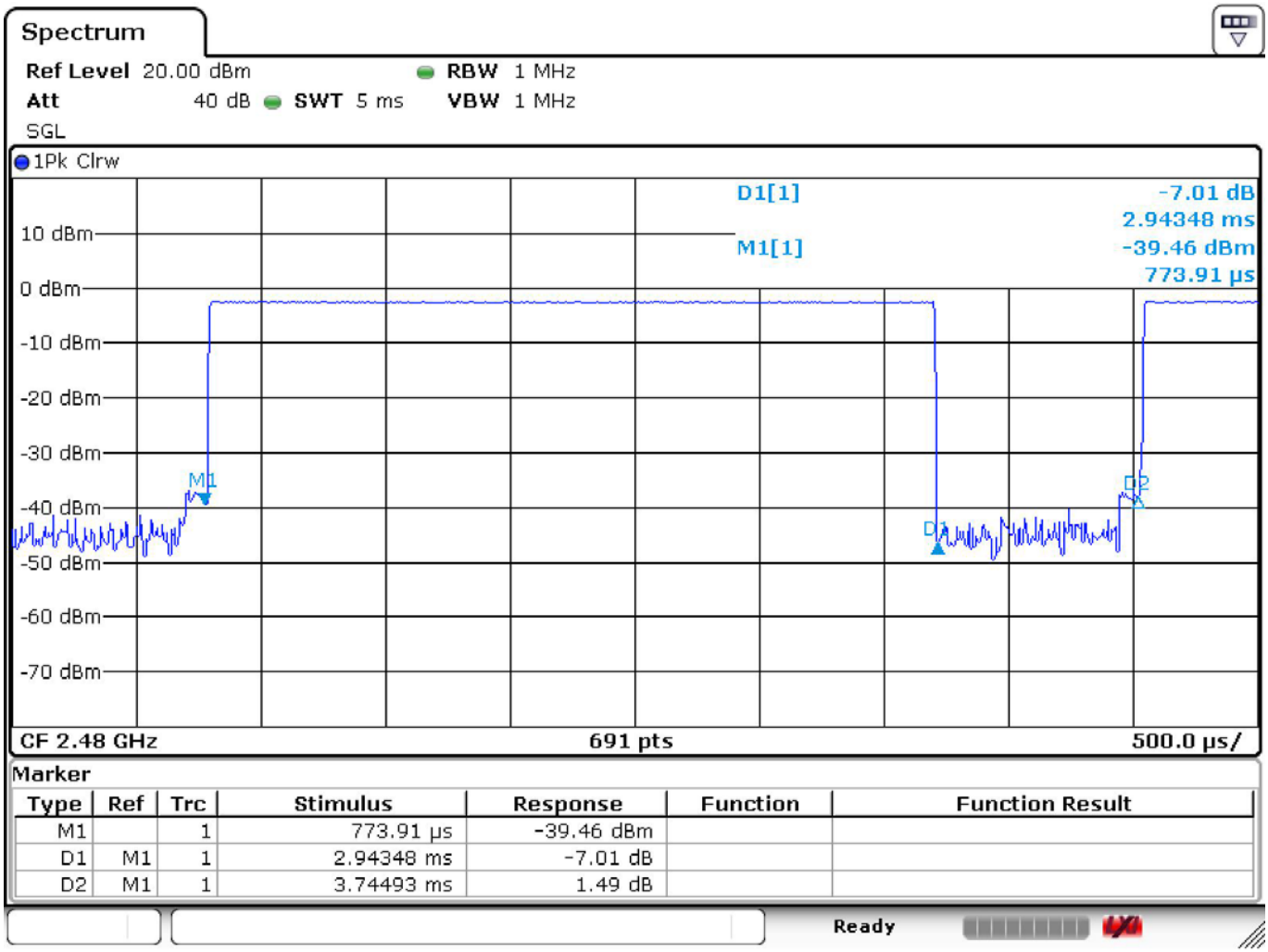
Test Mode : BT (1 Mbps) DH5 Channel : 78

Number of Pulses Per 5 sec



No	Stimulus	Response	No	Stimulus	Response
1	10.000000 ms	-23.996 dBm	10	2.775000 s	-24.001 dBm
2	840.000000 ms	-23.994 dBm	11	2.955000 s	-23.951 dBm
3	1.225000 s	-23.961 dBm	12	3.145000 s	-23.985 dBm
4	1.780000 s	-23.965 dBm	13	3.570000 s	-24.001 dBm
5	1.850000 s	-24.068 dBm	14	3.775000 s	-23.982 dBm
6	2.030000 s	-23.948 dBm	15	3.975000 s	-24.037 dBm
7	2.150000 s	-24.052 dBm	16	4.560000 s	-24.089 dBm
8	2.350000 s	-23.989 dBm	17	4.770000 s	-24.002 dBm
9	2.405000 s	-23.958 dBm			

Pulse Width (sec)

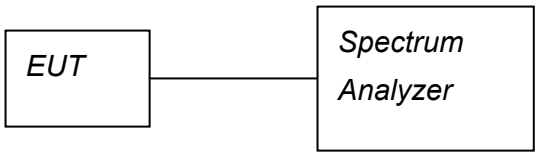

Spectrum
Ref Level 20.00 dBm
RBW 1 MHz
Att 40 dB
SWT 5 ms
VBW 1 MHz
SGL
1Pk Clrw
D1[1] -7.01 dB
2.94348 ms
M1[1] -39.46 dBm
773.91 µs
10 dBm
0 dBm
-10 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
D1
D2
CF 2.48 GHz
691 pts
500.0 µs/
Marker
Type Ref Trc Stimulus Response Function Function Result
M1 1 773.91 µs -39.46 dBm
D1 M1 1 2.94348 ms -7.01 dB
D2 M1 1 3.74493 ms 1.49 dB
Ready

8 Peak Output Power

8.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

8.2 Test Arrangement and Procedure



1. *The transmitter output was connected to a spectrum analyzer (through an attenuator, if it's necessary).*
2. *The RBW is set to 3MHz and VBW is set to 3MHz. Span set to 5MHz.*
3. *Max Hold..*

8.3 Limit (§ 15.247(b))

15.247(b) - The maximum peak conducted output power of the intentional radiator shall not exceed the following:

15.247(b)(1) - For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

15.247(b)(4) - The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The maximum antenna gain is 3 dBi, therefore, the limit is 30 dBm.

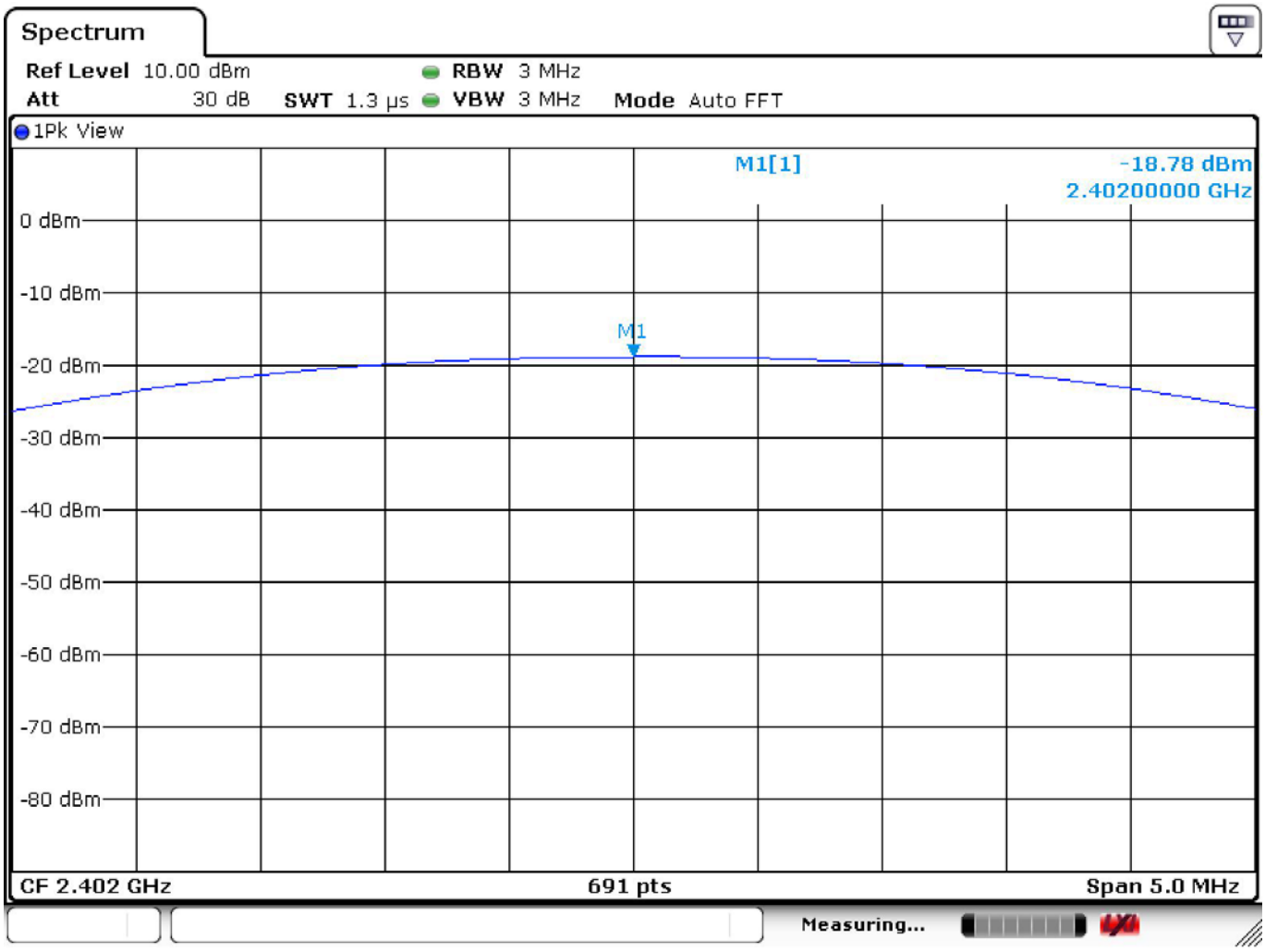
8.4 Test Result

Compliance.

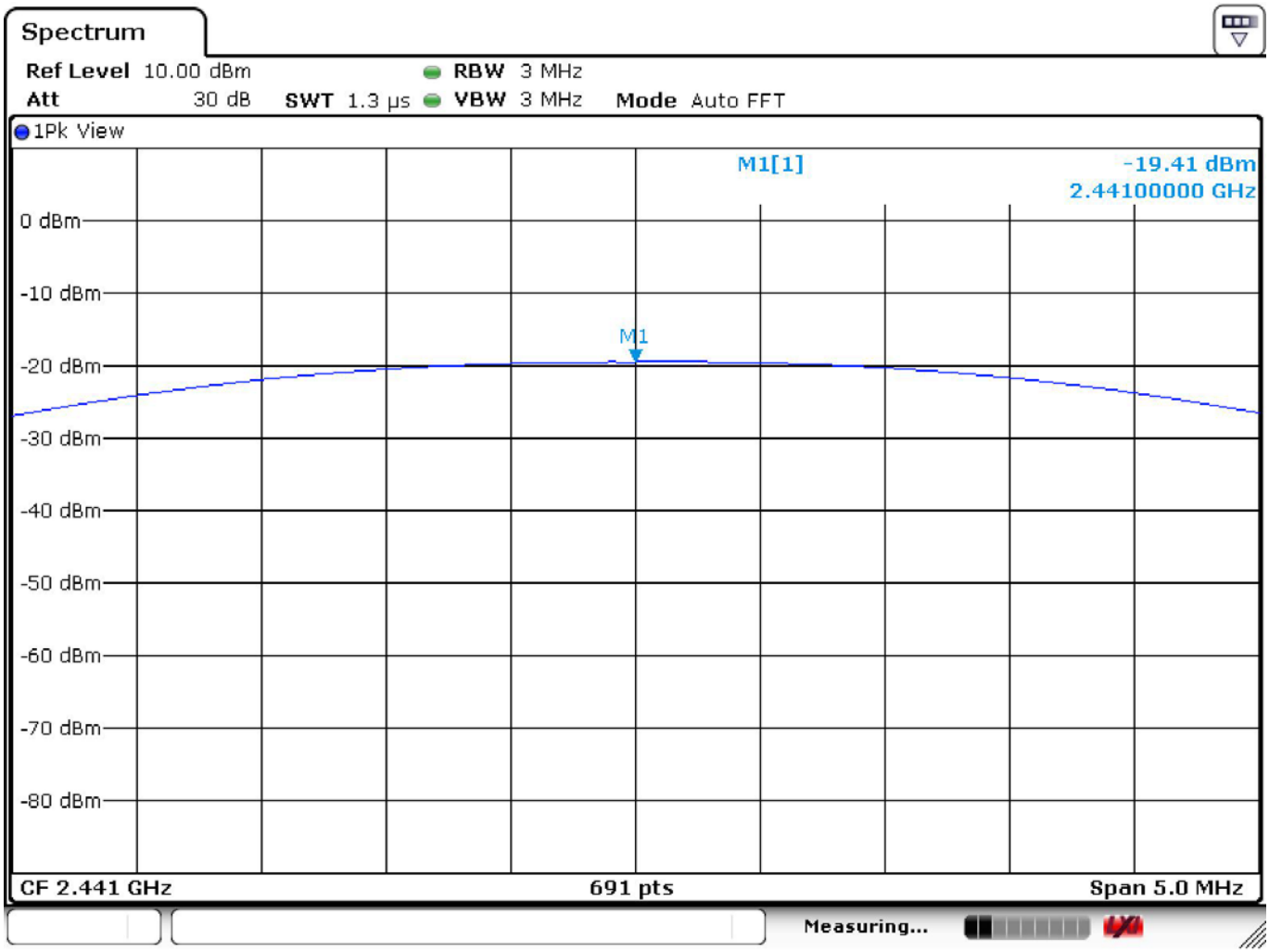
The final test data are shown on the following page(s).

Bluetooth 1 Mbps (DH5)			
Channel	**Frequency (MHz)**	**Result (dBm)**	**Limit (dBm)**
00	*2402*	*-18.78*	*30*
39	*2441*	*-19.41*	*30*
78	*2480*	*-22.77*	*30*

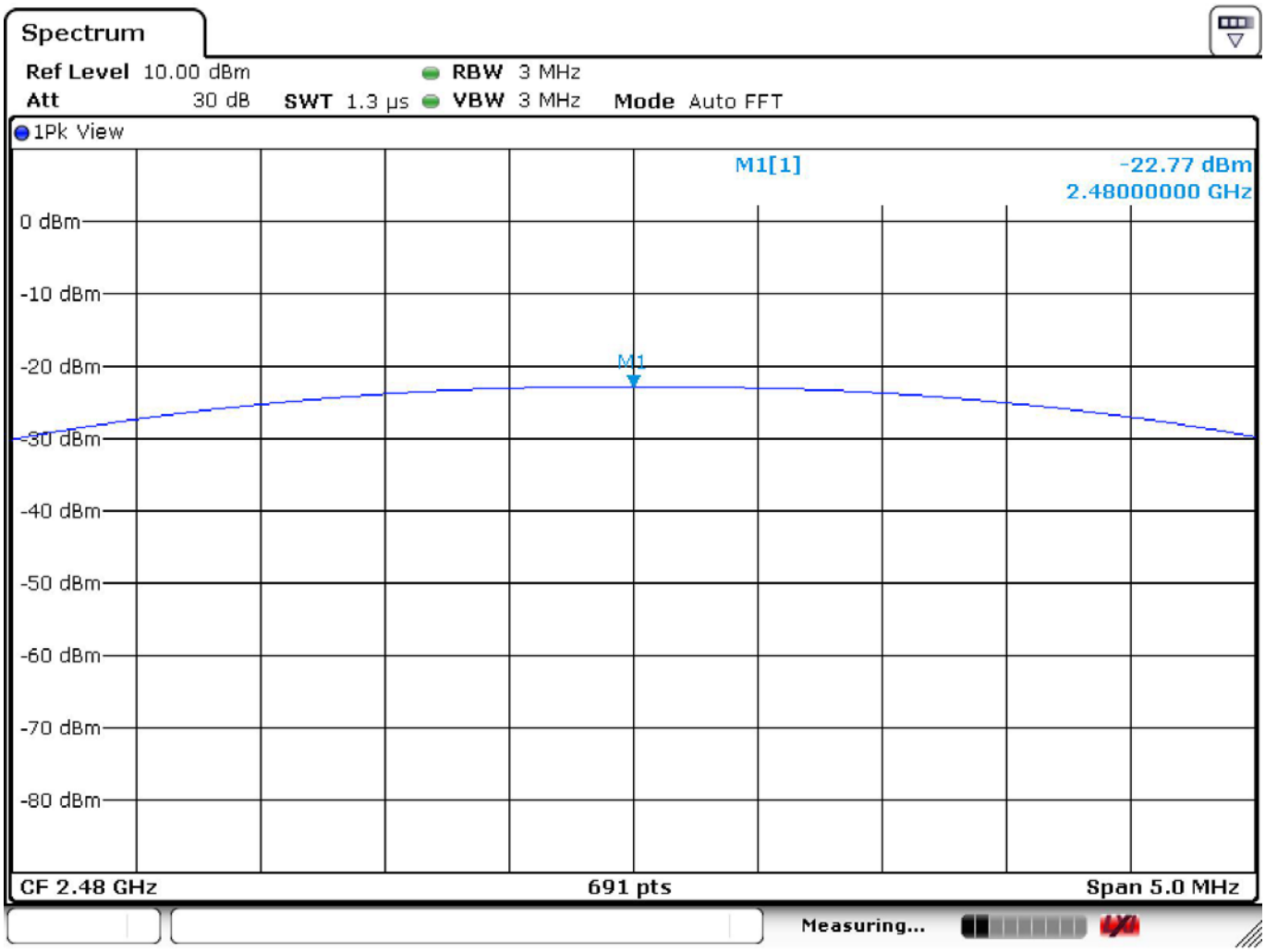
Temperature	:	25.4℃	Humidity	:	40%
Test Date	:	25-May-2015	Tested by	:	Eason Hsieh
Test Mode	:	BT (1Mbps) DH5	Channel	:	00



Test Mode : BT (1Mbps) DH5 Channel : 39



Test Mode : BT (1 Mbps) DH5 Channel : 78

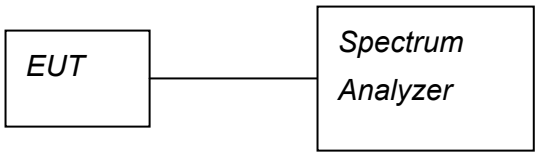


9 100kHz Bandwidth of Band Edges

9.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

9.2 Test Arrangement and Procedure



1. *Remove the antenna from the transmitter and connected it to a spectrum analyzer through a low loss RF cable (connect an attenuator, if it's necessary).*
2. *The RBW is set to 100 kHz and VBW is set to 100 kHz. Sweep set to Auto. Span set to 100MHz.*
3. *Max Hold. Mark Peak and record max level.*
4. *Keep the same instrument setting, perform the hopping function.*
5. *Max Hold. Mark Peak and record max level.*

9.3 Limit (§ 15.247(d))

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

9.4 Test Result

Compliance.

The final test data are shown on the following page(s).

Since the fix channel mode is the worst case, data of the hopping mode were not recorded in this report.

Bluetooth (1Mbps) Channel: 00 non-Hopping mode					
Measured Result				Result (dB)	Limit (dB)
Lower Channel (MHz)	Max Peak Power (dBm)	Highest Freq. at Lower Band edge (MHz)	Max Peak Power at Lower Band edge (dBm)		
2402.06	-18.97	2400	-59.41	40.44	20

Remark: Result (dB) = Max Peak Power – Max Peak power at lower band edge. When Result > Limit, it's a pass.

Bluetooth (1Mbps) Channel: 00 Hopping mode					
Measured Result				Result (dB)	Limit (dB)
Lower Channel (MHz)	Max Peak Power (dBm)	Highest Freq. at Lower Band edge (MHz)	Max Peak Power at Lower Band edge (dBm)		
2408.05	-18.8	2326.13	-56.96	38.16	20

Remark: Result (dB) = Max Peak Power – Max Peak power at lower band edge. When Result > Limit, it's a pass.

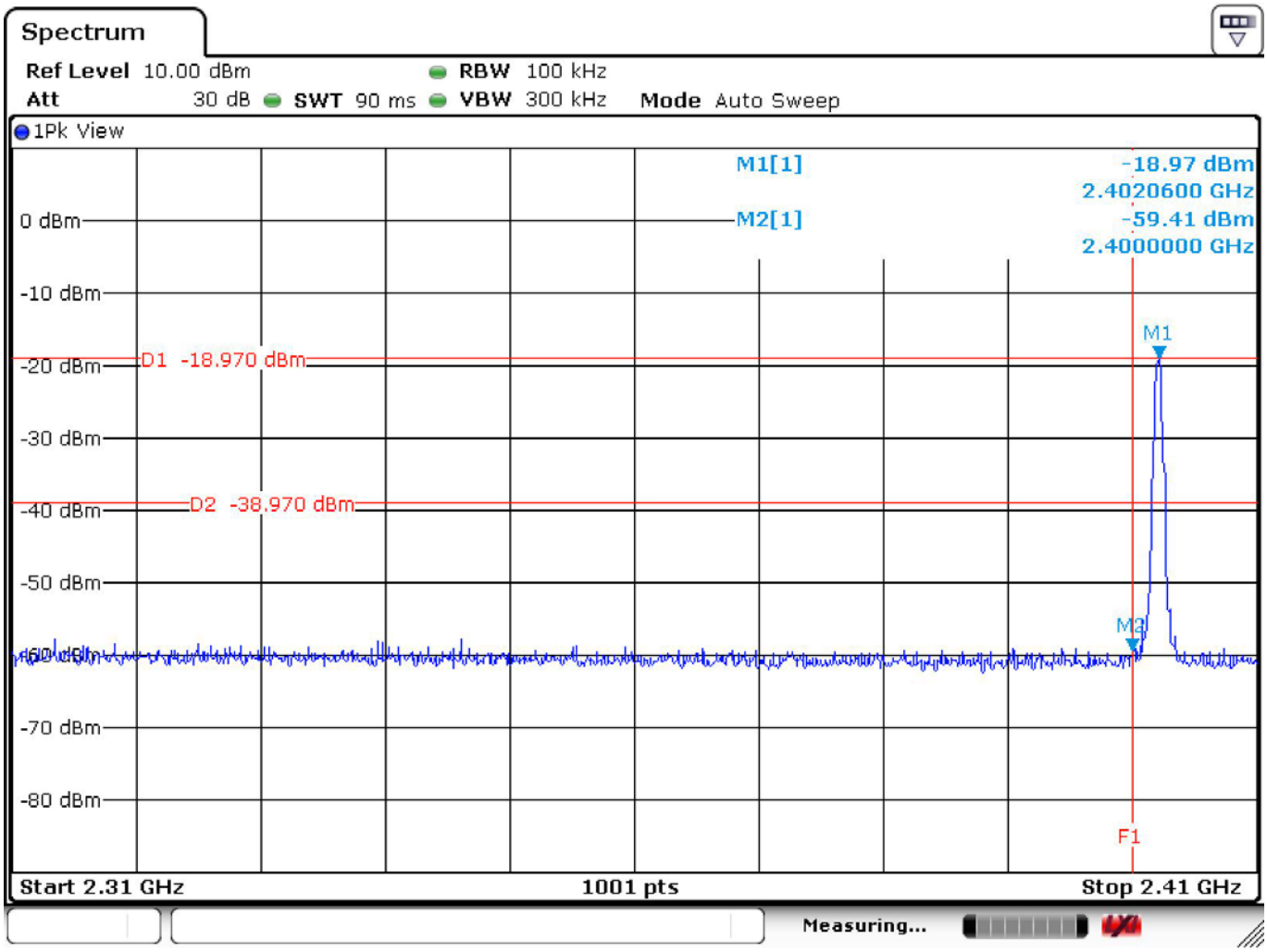
Bluetooth (1Mbps) Channel: 78 non-Hopping mode					
Measured Result				Result (dB)	Limit (dB)
Upper Channel (MHz)	Max Peak Power (dBm)	Highest Freq. at Upper Band edge (MHz)	Max Peak Power at Upper Band edge (dBm)		
2480	-23.12	2578.6	-58.47	35.35	20

Remark: Result (dB) = Max Peak Power – Max Peak power at upper band edge. When Result > Limit, it's a pass.

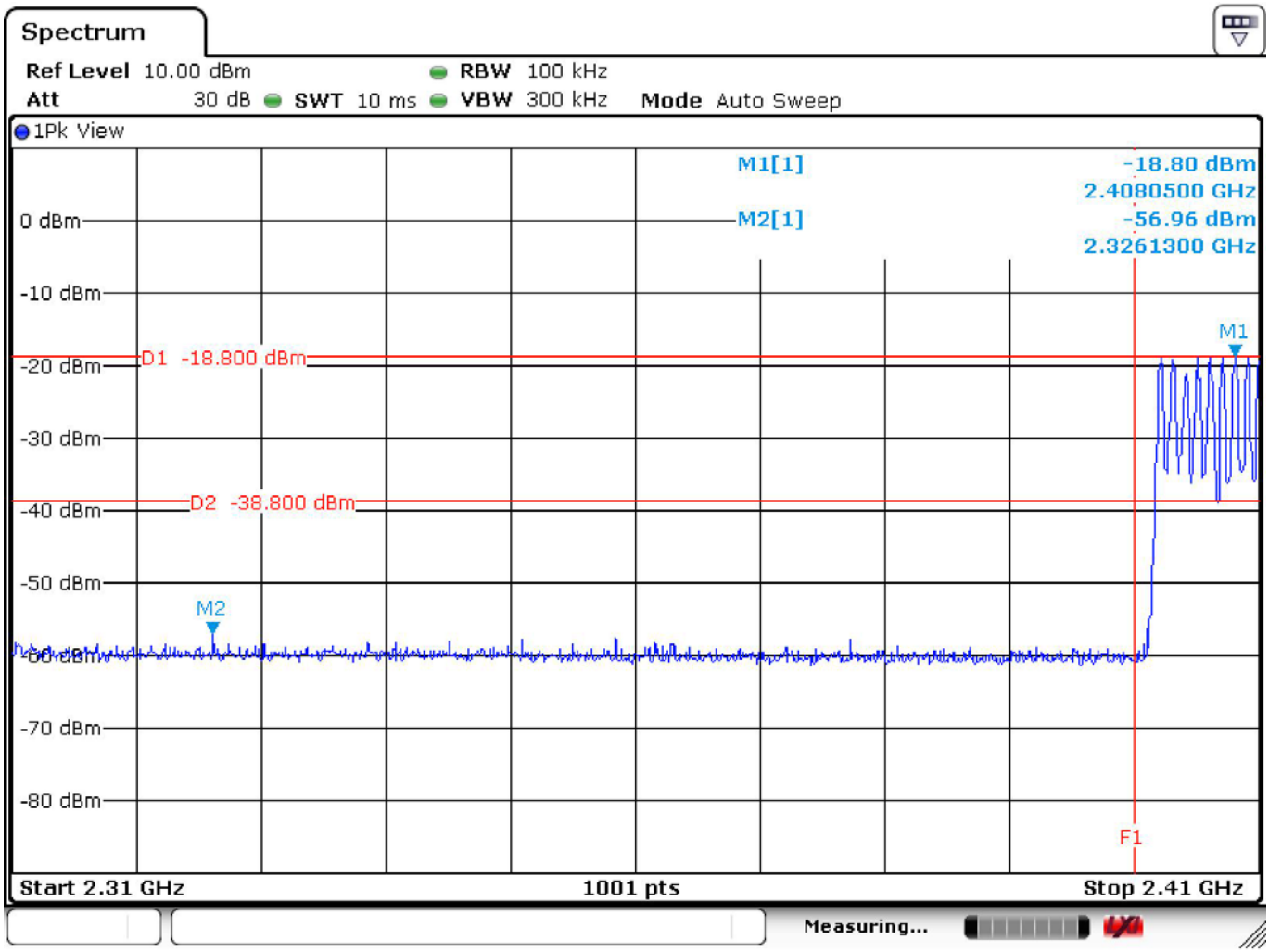
Bluetooth (1Mbps) Channel: 78 Hopping mode					
Measured Result				Result (dB)	Limit (dB)
Upper Channel (MHz)	Max Peak Power (dBm)	Highest Freq. at Upper Band edge (MHz)	Max Peak Power at Upper Band edge (dBm)		
2472.09	-22.45	2505.93	-57.01	34.56	20

Remark: Result (dB) = Max Peak Power – Max Peak power at Upper band edge. When Result > Limit, it's a pass.

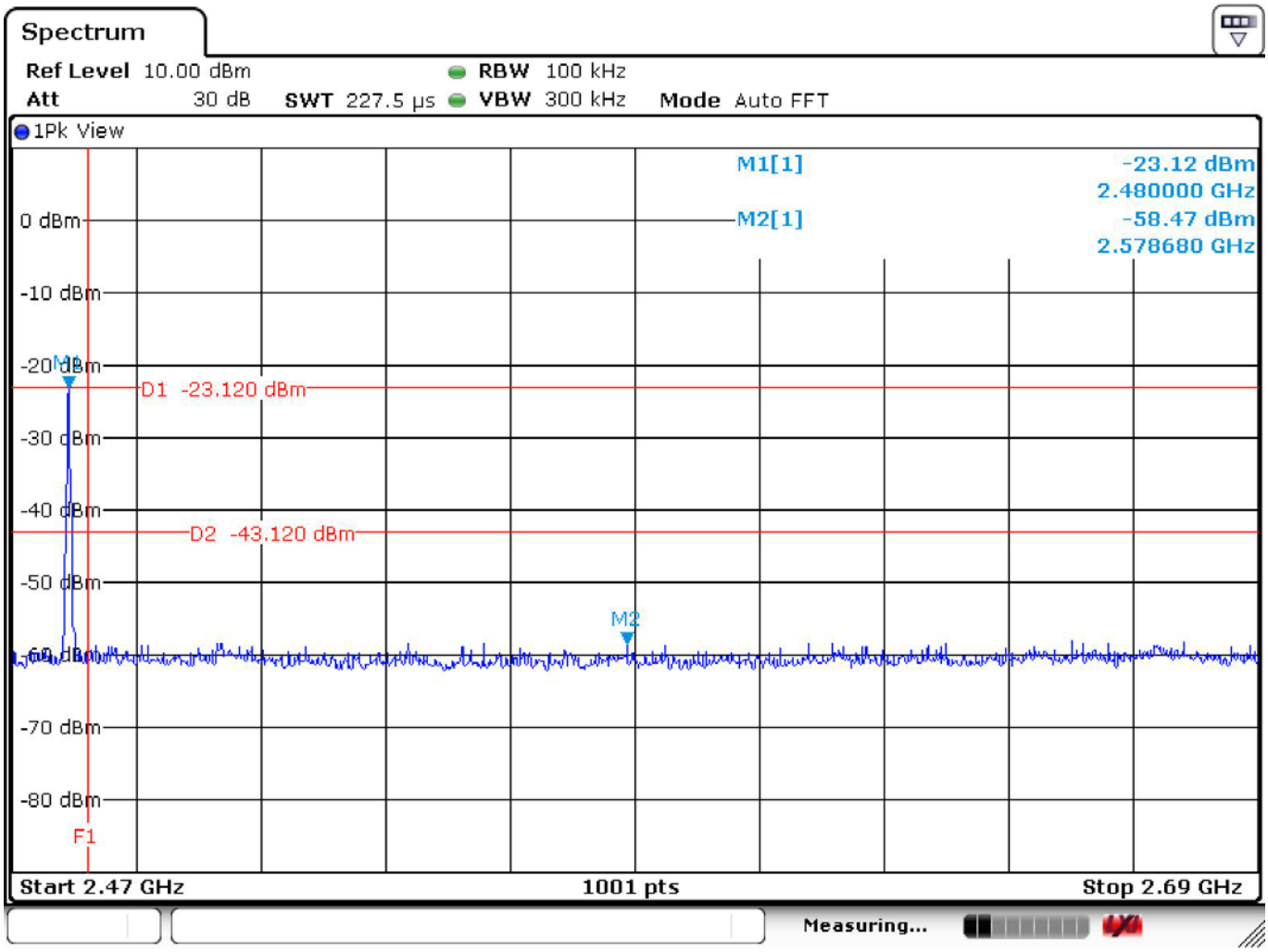
Temperature	:	25.4℃	Humidity	:	40%
Test Date	:	25-May-2015	Tested by	:	Eason Hsieh
Test Mode	:	BT (1Mbps) non-hopping mode	Channel	:	2402



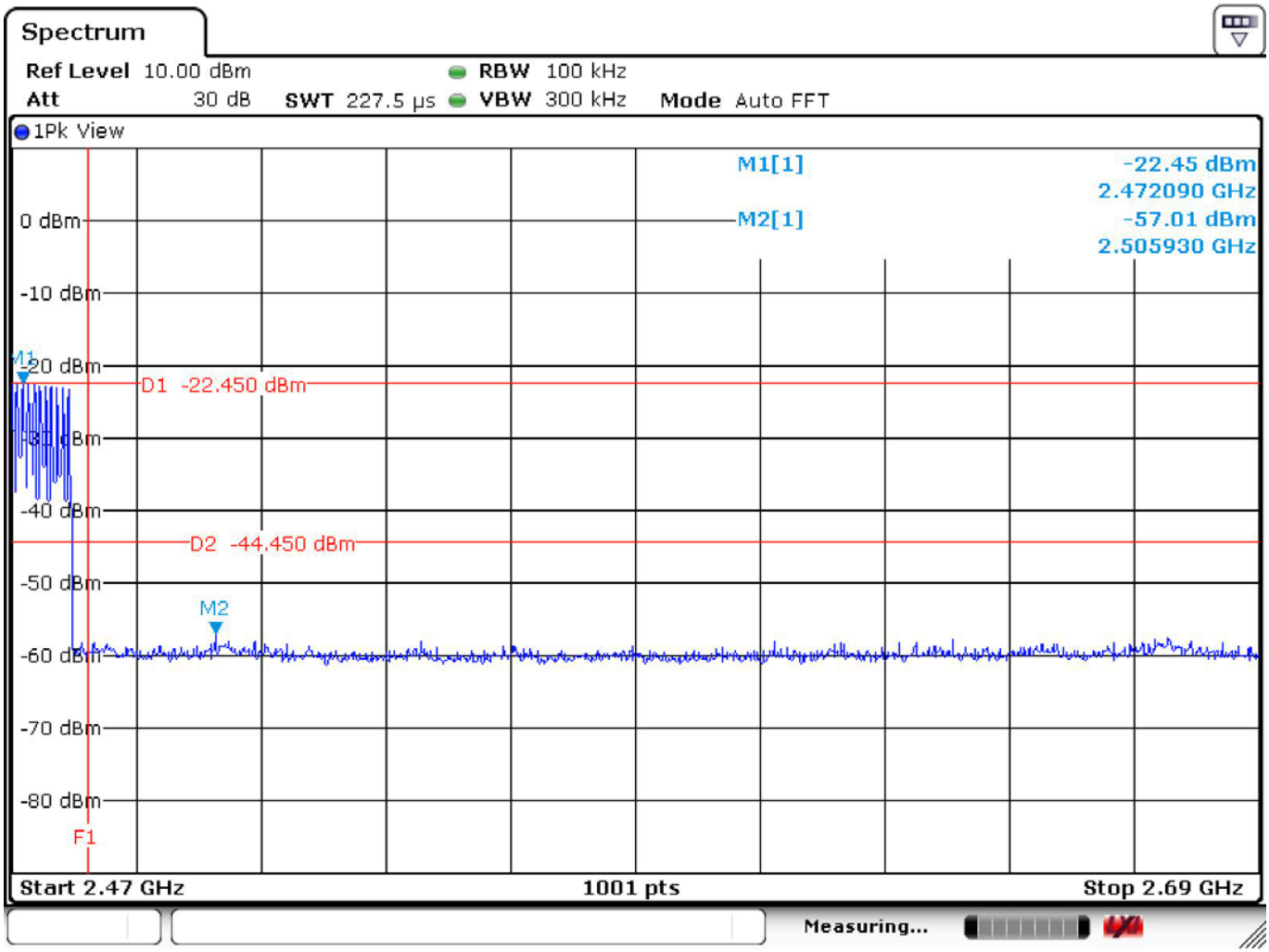
Test Mode : BT (1 Mbps) Hopping mode Channel : 2402



Test Mode	:	BT (1 Mbps) non-hopping mode	Channel	:	2480



Test Mode : BT (1 Mbps) Hopping mode Channel : 2480

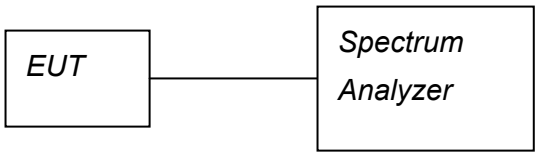


10 Spurious RF Conducted Emissions

10.1 Test Instruments

Refer to Sec. 1.2 Test Instruments.

10.2 Test Arrangement and Procedure



1. Remove the antenna from the transmitter and connected it to a spectrum analyzer through a low loss RF cable (connect an attenuator, if it's necessary).
2. Use the following spectrum analyzer settings:
Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic.
3. Typically, several plots are required to cover this entire span.
4. RBW = 100 kHz ; VBW ≧ RBW ; Sweep = auto
5. Detector function = peak ; Trace = max hold ; Allow the trace to stabilize.
6. Set the marker on the peak of any spurious emission recorded.
7. The level displayed must comply with the limit specified in this Section.
8. Submit these plots.

10.3 Limit (§ 15.247(d))

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

10.4 Test Result

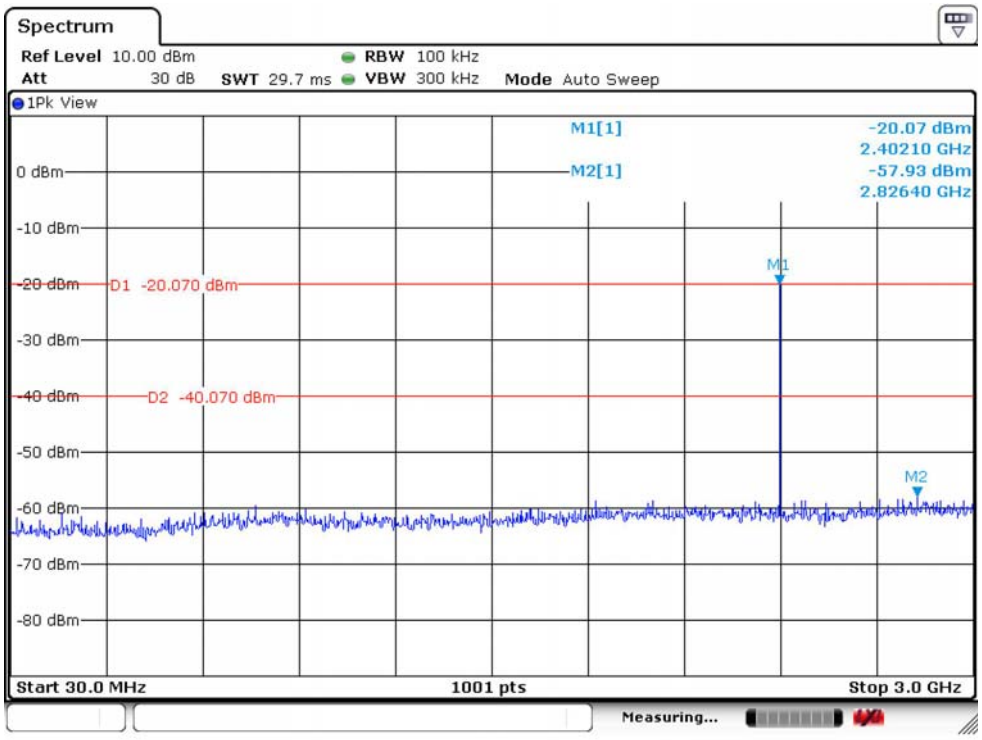
Compliance.

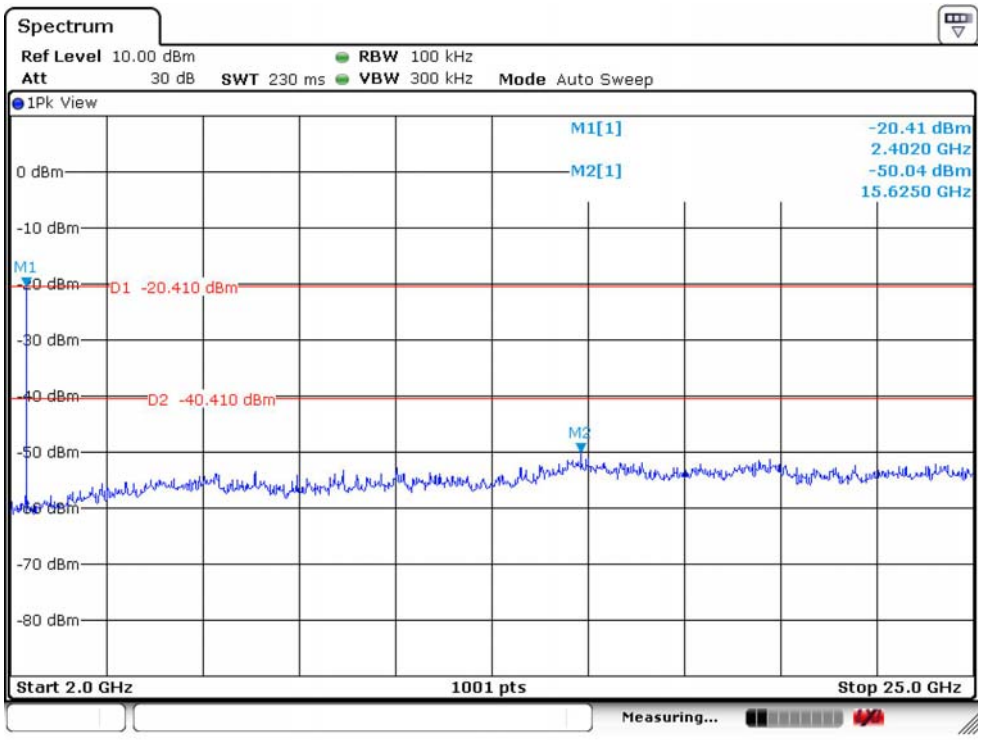
The final test data are shown on the following page(s).
Since the fix channel mode is the worst case, data of the hopping mode were not recorded in this report.

Bluetooth (1Mbps) Channel: 00					
Measured Result				Result (dB)	Limit (dB)
(GHz)	Max Peak Power (dBm)	Highest Freq. at spurious emissions (GHz)	Max Peak Power at spurious emissions (dBm)		
2.40210	-20.07	2.82640	-57.93	37.86	20
2.4020	-20.41	15.6250	-50.04	29.63	20

Remark: Result (dB) = Max Peak Power – Max Peak power at spurious emissions.

When Result > Limit, it's a pass.

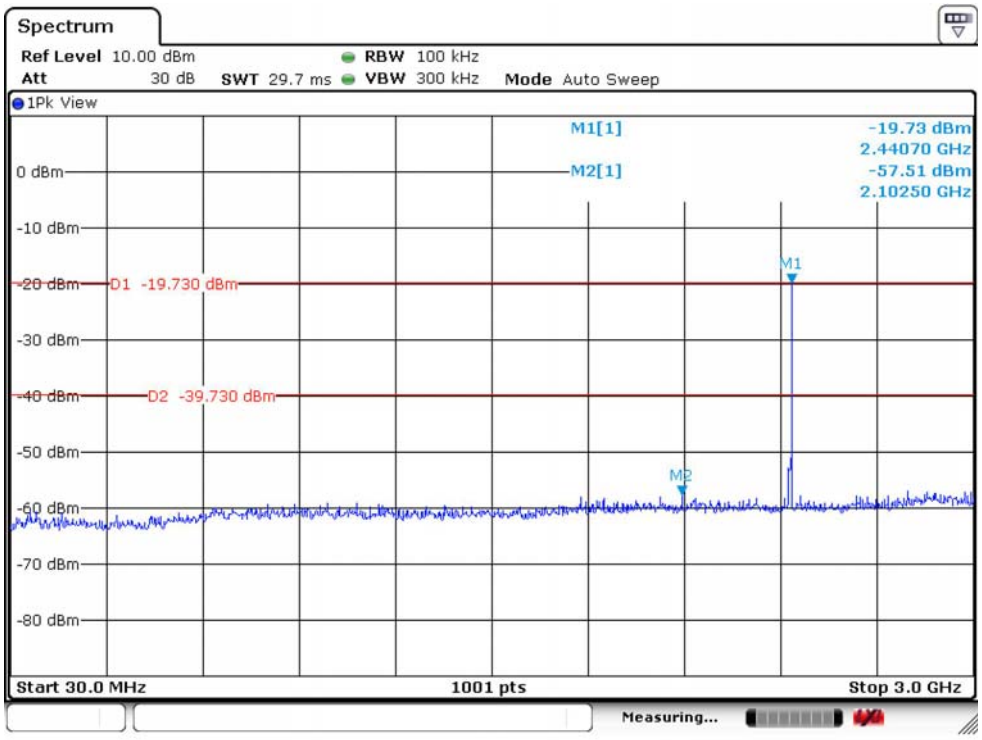


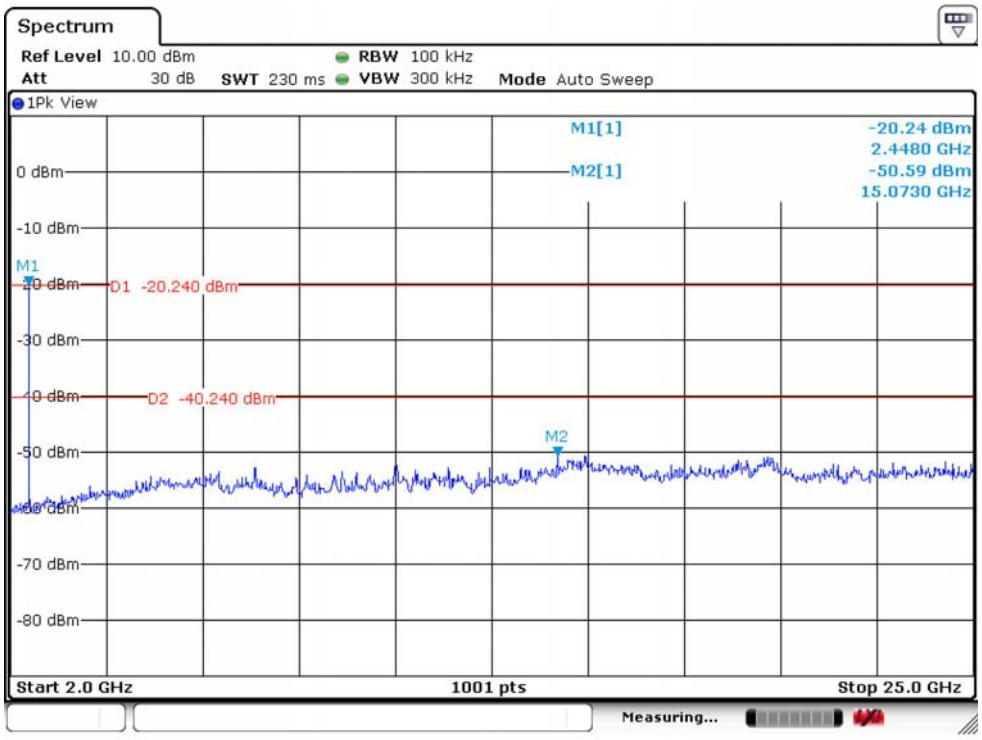


Bluetooth (1Mbps) Channel: 39					
Measured Result				Result (dB)	Limit (dB)
(GHz)	Max Peak Power (dBm)	Highest Freq. at spurious emissions (GHz)	Max Peak Power at spurious emissions (dBm)		
2.4407	-19.73	2.10250	-57.51	37.78	20
2.4480	-20.24	15.0730	-50.59	30.35	20

Remark: Result (dB) = Max Peak Power – Max Peak power at spurious emissions.

When Result > Limit, it's a pass.

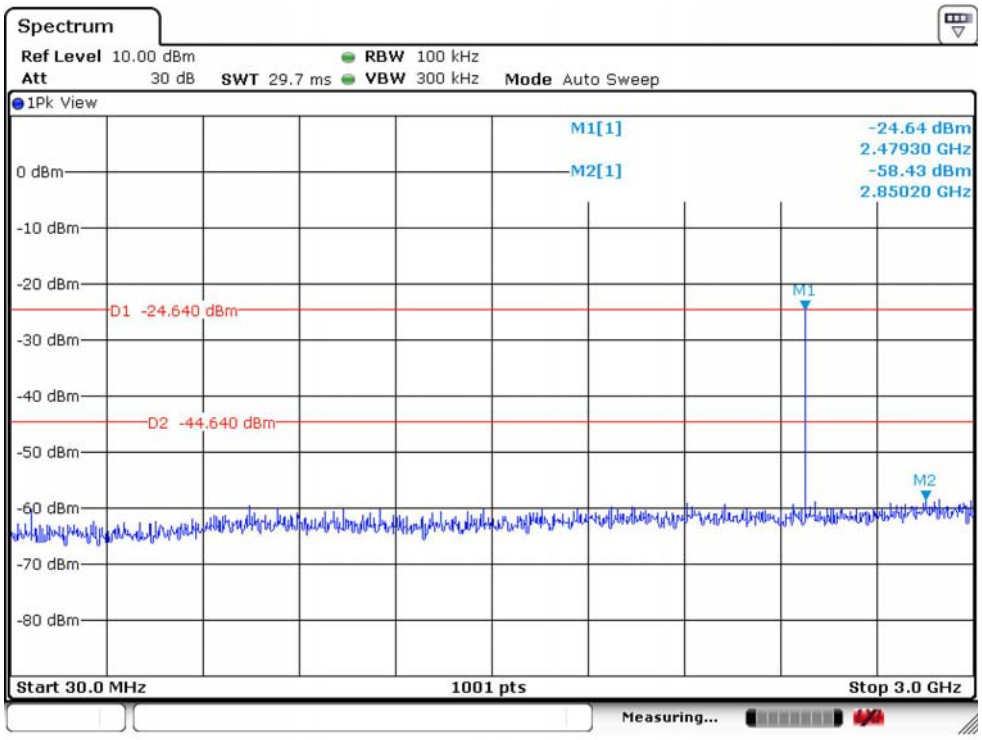


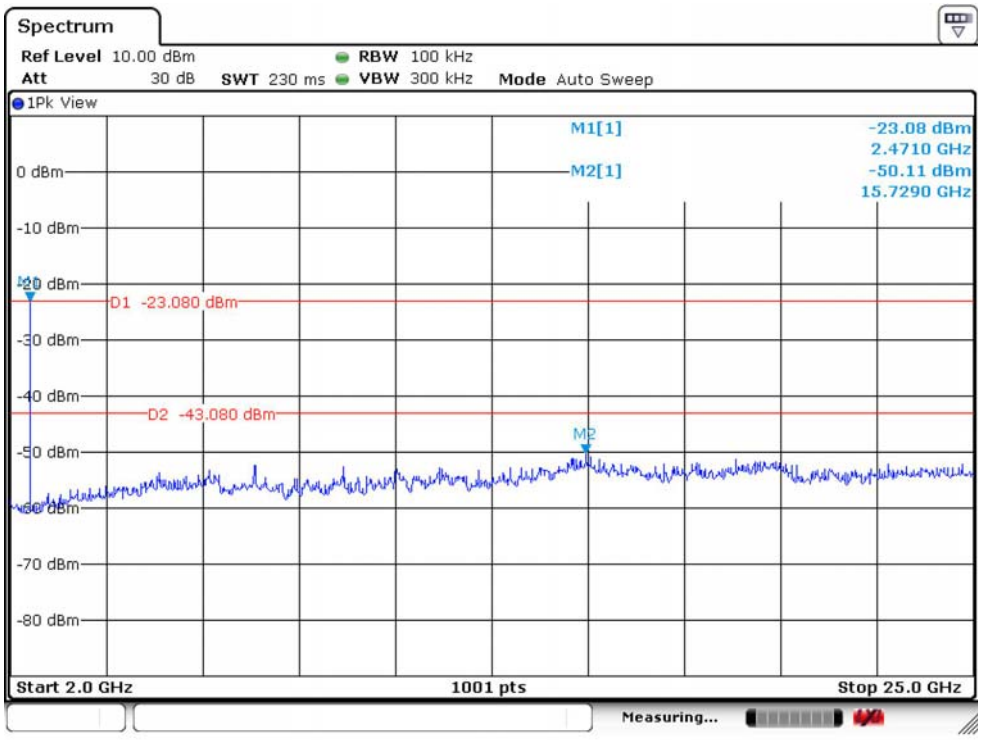


Bluetooth (1Mbps) Channel: 78					
Measured Result				Result (dB)	Limit (dB)
(GHz)	Max Peak Power (dBm)	Highest Freq. at spurious emissions (GHz)	Max Peak Power at spurious emissions (dBm)		
2.47930	-24.64	2.85020	-58.43	33.79	20
2.4710	-23.08	15.7290	-50.11	27.03	20

Remark: Result (dB) = Max Peak Power – Max Peak power at spurious emissions.

When Result > Limit, it's a pass.





11 Antenna requirement

11.1 Limit (§ 15.203)

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a uniue coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of § 15.211, § 15.213, § 15.217, § 15.219, or § 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with § 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

11.2 Test Result

Compliance.

The EUT applies a PCB antenna.

12 Information about the FHSS characteristics

12.1 Pseudorandom Frequency Hopping Sequence

The channel is represented by a pseudo-random hopping sequence hopping through the 79 RF channels.

The hopping sequence is unique for the piconet and is determined by the Bluetooth device address of the master; the phase in the hopping sequence is determined by the Bluetooth clock of the master.

The channel is divided into time slots where each slot corresponds to an RF hop frequency. Consecutive hops correspond to different RF hop frequencies. The nominal hop rate is 1600 hops/s.

12.2 Example of a 79 hopping sequence in data mode:

02, 05, 31 , 24, 20, 10,43, 36, 30, 23, 40, 06, 21, 50, 44, 09, 71 , 78, 01, 13, 73, 07, 70, 72, 35, 62, 42, 11, 41, 08, 16, 29, 60, 15, 34, 61, 58, 04, 67, 12, 22, 53, 57, 18, 27, 76, 39, 32, 17, 77, 52, 33, 56, 46, 37, 47, 64, 49, 45, 38, 69, 14, 51, 26, 79, 19, 28, 65, 75, 54, 48, 03, 25, 66, 05, 16, 68, 74, 59, 63, 55

12.3 Equal Hopping Frequency Use

Due to each the GFSK of modulation of hopping frequency will be transmitted in accordance to the frequency tables described above, there is no any frequency will be able to hop more times than other. Therefore each frequency will be used equally.