

NCC RADIO TEST REPORT

Product name	Creative BT-W3
Applicant	Asia Institute Technology Limited
Manufacture	CREATIVE LABS PTE. LTD.
Rating(s)	DC 5V supplied by PC
Trademark	CREATIVE
Model and/or type reference	SA0160
Standard	LP0002:2018
Test Result	PASS

Date of receipt : 06-01-2020

Date of Issue : 06-12-2020

signature :



NCC RADIO TEST REPORT

Report Reference No...... M200529N2

Compiled by (+ signature) Kevin Bothmann

Approved by (+ signature) Jay Gandhi

Date of issue..... 2020-06-12


Applicant's name Asia Institute Technology Limited

Address 3F., No.446, Sec. 2, Zhongshan Rd., Zhonghe Dist., New Taipei City, 23557, Taiwan.

Manufacture's Name CREATIVE LABS PTE. LTD.

Address 31 International Business Park, #03-01 Singapore 609921.

Test specification:
Standard LP0002: 2018

Test procedure EIA 603、ANSI、FCC/47 CFR/2.1046、2.1047、2.1049、2.1051、2.1053 and 2.1055

Non-standard test method... N/A

Test item description
Product name : CREATIVE BT-W3

Model and/or type reference : SA0160

Rating(s)..... : DC 5V from PC

Testing Laboratory information:
Testing Laboratory Name : Electro Magnetic Test, Inc.

Address : 1547 Plymouth Street, Mountain View, CA 94043

CAB Identifier Number : US0036

Tel : (650) 965-4000

Fax : (650) 965-3000

E-mail..... : jgandhi@emtlabs.com

Testing.....

Date of receipt of test item..... Jun. 01, 2020

Date (s) of performance of tests..... Jun. 01~ Jun. 11, 2020

Date of Issue Jun. 12, 2020

Test Result..... **Pass**

GENERAL REPORT SUMMARY

This electromagnetic emission test report is generated by Electro Magnetic Test, Inc., which is an independent testing and consulting firm. The test report is based on testing performed Electro Magnetic Test, Inc. personnel according to the measurement procedure described in the test specification given below and in the "Test Procedures" section of this report.

The measurement data and conclusions appearing herein relate only to the sample tested and this report may not be reproduced in any form unless done so in full.

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Federal Government.

Electro Magnetic Test, Inc. is recognized by the following agencies for performing EMI/EMC testing:

COUNTRY	AGENCY	IDENTIFYING #
USA	Federal Communications Commission (FCC) (EMT's test site is recognized by the FCC)	Registration Number: 90576
USA, Canada, Taiwan, Australia/New Zealand, European Community	National Voluntary Lab Accreditation Program (NVLAP) (EMT is accredited by NVLAP. A copy of the NVLAP Scope Of Accreditation is available upon request.)	Lab Code: 200147-0
Canada	Industry Canada	File No.: IC 2804
Japan	Voluntary Control Council For Interference (VCCI)	See Below
	Open Field Test Site "A"	R-589
	Mains Conducted Emissions Test Site "A"	C-604
	Telecom Conducted Emissions Test Site "A"	T-1655
	3 Meter Semi-Anechoic Chamber Site "E"	R-3227
	3 Meter Semi-Anechoic Chamber Site "E" (1GHz – 6GHz)	G-219
	Mains Conducted Emissions Test Site "E"	C-35793
	Telecom Conducted Emissions Test Site "E"	T-1715
Korea	Ministry of Information and Communication's Radio Research Laboratory (RRL) under the Asia Pacific Economic Cooperation (APEC) Mutual Recognition Arrangement (A copy of the Scope Of Accreditation is available upon request)	US0036
Taiwan	Bureau Of Standards, Metrology and Inspection (BSMI)	Reference Number: SL2-IN-E-1024
Australia / New Zealand	Australian Communications Authority (AUSTEL)	*

***THESE AGENCIES DO NOT ISSUE AN IDENTIFYING NUMBER TO TEST LABS.**

Table of Contents	Page
GENERAL REPORT SUMMARY	3
1 . SUMMARY OF TEST RESULTS	6
1.1 MEASUREMENT UNCERTAINTY	7
2 . GENERAL INFORMATION	8
2.1 GENERAL DESCRIPTION OF EUT	8
2.2 DESCRIPTION OF TEST MODES	10
2.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING	10
2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	11
2.5 DESCRIPTION OF SUPPORT UNITS(RADIATED MODE)	12
2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS	13
3 . EMC EMISSION TEST	15
3.1 CONDUCTED EMISSION MEASUREMENT	15
3.1.1 POWER LINE CONDUCTED EMISSION LIMITS	15
3.1.2 TEST PROCEDURE	16
3.1.3 DEVIATION FROM TEST STANDARD	16
3.1.4 TEST SETUP	16
3.1.5 TEST RESULTS	17
3.2 RADIATED EMISSION MEASUREMENT	19
3.2.1 RADIATED EMISSION LIMITS	19
3.2.2 TEST PROCEDURE	20
3.2.3 TEST SETUP	21
3.2.4 EUT OPERATING CONDITIONS	21
3.2.5 TEST RESULTS (BELOW 30 MHZ)	22
3.2.6 TEST RESULTS (BETWEEN30 – 1000 MHZ)	22
3.2.7 TEST RESULTS (RESTRICTED BANDS REQUIREMENTS)	53
4 . OCCUPIED BANDWIDTH TEST	63
4.1 APPLIED PROCEDURES / LIMIT	63
4.1.1 TEST PROCEDURE	63
4.1.2 TEST SETUP	63
4.1.3 EUT OPERATION CONDITIONS	63
4.1.4 TEST RESULTS	64
5 . NUMBER OF HOPPING CHANNEL	68
5.1 APPLIED PROCEDURES / LIMIT	68
5.1.1 TEST PROCEDURE	68
5.1.2 TEST SETUP	68
5.1.3 EUT OPERATION CONDITIONS	68

Table of Contents	Page
5.1.4 TEST RESULTS	69
6 . AVERAGE TIME OF OCCUPANCY	71
6.1 APPLIED PROCEDURES / LIMIT	71
6.1.1 TEST PROCEDURE	71
6.1.2 TEST SETUP	72
6.1.3 EUT OPERATION CONDITIONS	72
6.1.4 TEST RESULTS	73
7 . HOPPING CHANNEL SEPARATION MEASUREMENT	77
7.1 APPLIED PROCEDURES / LIMIT	77
7.1.1 TEST PROCEDURE	77
7.1.2 TEST SETUP	77
7.1.3 EUT OPERATION CONDITIONS	77
7.1.4 TEST RESULTS	78
8 . PEAK OUTPUT POWER TEST	82
8.1 APPLIED PROCEDURES / LIMIT	82
8.1.1 TEST PROCEDURE	82
8.1.2 DEVIATION FROM STANDARD	82
8.1.3 TEST SETUP	82
8.1.4 EUT OPERATION CONDITIONS	82
8.1.5 TEST RESULTS	83
9 . ANTENNA CONDUCTED SPURIOUS EMISSION	85
9.1 APPLIED PROCEDURES / LIMIT	85
9.1.1 TEST PROCEDURE	85
9.1.2 TEST SETUP	85
9.1.3 EUT OPERATION CONDITIONS	85
9.1.4 TEST RESULTS	86
10. ANTENNA REQUIREMENT	100
10.1 STANDARD REQUIREMENT	100
10.2 EUT ANTENNA	100
11. EUT TEST PHOTO	101

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

LP0002 : 2018			
Standard Section	Test Item	Judgment	Remark
2.3	Conducted Emission	PASS	None
3.10.1(5)/2.8	Radiated Spurious Emission	PASS	None
3.10.1(2)	Peak Output Power	PASS	None
3.10.1(6.1.1)	Occupied Bandwidth	PASS	None
3.10.1(6.1.1)	Hopping Channel Separation	PASS	None
3.10.1(6.1.2)	Number of Hopping Frequency	PASS	None
3.10.1(6.1.2)	Dwell Time	PASS	None
3.10.1(5)/2.8	Restricted Bands	PASS	None
3.10.1(3)	Antenna Requirement	PASS	None

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report.

1.1 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded uncertainty U is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	Conducted Emission Test	1.38dB
2	Radiated Emission Test	3.17dB
3	RF power,conducted	0.16dB
4	Spurious emissions,conducted	0.21dB
5	All emissions,radiated(<1G)	4.68dB
6	All emissions,radiated(>1G)	4.89dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	CREATIVE BT-W3	
Model Name	SA0160	
Trade mark	CREATIVE	
OEM Brand/Model Name	N/A	
Product Description	The EUT is a CREATIVE BT-W3	
	Operation Frequency:	2402~2480 MHz
	Modulation Type:	GFSK(1Mbps) Π/4 DQPSK(2Mbps) 8DPSK(3Mbps)
	Number Of Channel	79 CH
	Antenna Designation:	Please see Note 3.
	Antenna Gain(Peak)	3.1 dBi
	Output Power:	1Mbps Mode: 4.30dBm (Max.) 3Mbps Mode: 3.79dBm(Max.)
Channel List	Please refer to the Note 2.	
Power Rating	DC 5V supplied by PC	
Adapter Manufacturer /Model No.	N/A	
Connecting I/O Port(s)	Please refer to the User's Manual	
Products Covered	N/A	
EUT Modification(s)	N/A	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		

3. Table for Filed Antenna

No.	Manufacturer	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	WINWAVE	AAN5012 H2R2G45	CHIP Antenna	N/A	3.1dBi	N/A

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	1Mbps
Mode 2	2Mbps
Mode 3	3Mbps

For Conducted Emission	
Final Test Mode	Description
Mode 1	CH00 /CH39 /CH78
Mode 3	CH00 /CH39 /CH78

For Radiated Emission	
Final Test Mode	Description
Mode 1	CH00 /CH39 /CH78
Mode 3	CH00 /CH39 /CH78

Note:

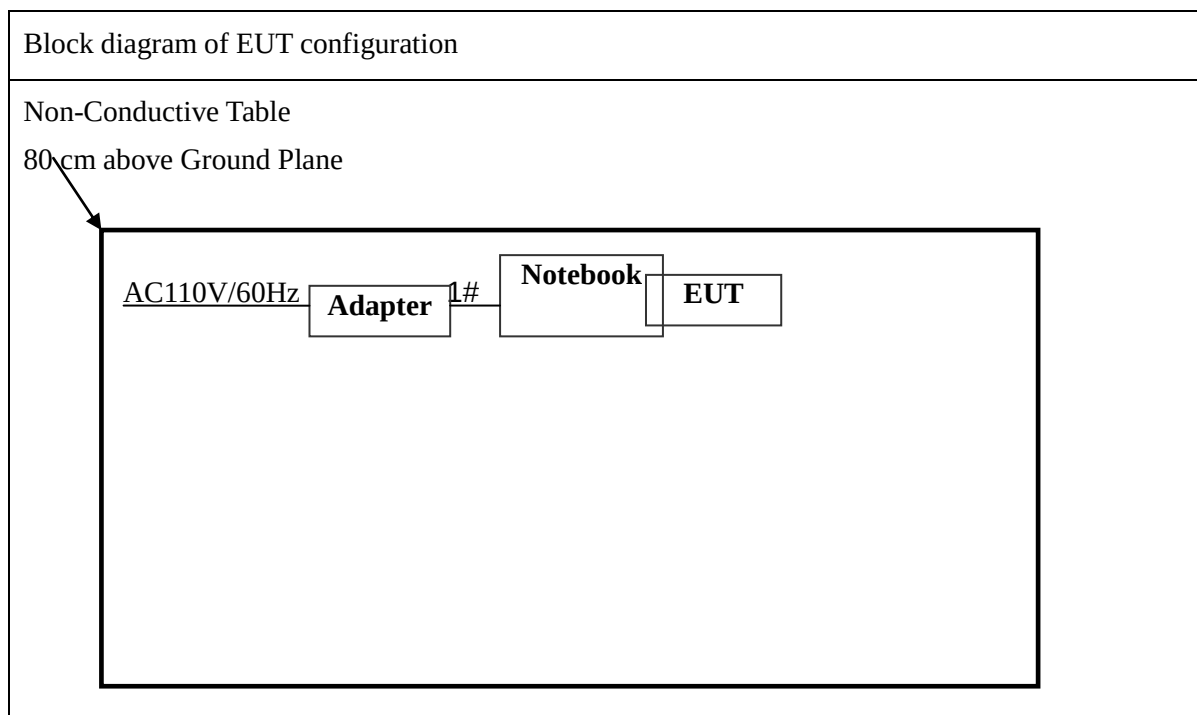
(1) The measurements are performed at the highest, middle, lowest available channels.

2.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS

Test software Version	Test program: BTCert.exe		
Frequency	2402 MHz	2441 MHz	2480 MHz
Parameters(1Mbps)	G	H	I
Parameters(3Mbps)	R	S	T

2.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



2.5 DESCRIPTION OF SUPPORT UNITS(RADIATED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	CREATIVE BT-W3	CREATIVE	SA0160	N/A	N/A	EUT
E-2	Notebook	Lenovo	81J1	N/A	N/A	provided by lab
E-3	Adapter	Lenovo	PA-1450-55LL	N/A	N/A	provided by lab

Item	Shielded Type	Ferrite Core	Length	Note
1#	No	No	1.5m	DC Charging Cable

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.
- (3) “YES” means “shielded” or “with ferrite core”,”NO” means “unshielded” or”without ferrite core”

2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

EQUIPMENT TYPE	MANU-FACT URER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
Spectrum Analyzer	Hewlett Packard	8566B	3013A07296	April 29, 2020	1 Year
RF Preselector	Hewlett Packard	85685A	3010A01157	April 29, 2020	1 Year
Quasi-Peak Adapter	Hewlett Packard	85650	2521A00584	April 29, 2020	1 Year
Preamplifier	Com Power	PA-102	1482	April 29, 2020	1 Year
RF Attenuator	Mini-Circuits	CAT-10	Asset #1000	December 8, 2019	1 Year
LISN	Com Power	LI-200	12012	September 10, 2019	1 Year
LISN	Com Power	LI-200	12214	September 10, 2019	1 Year
LISN	Com Power	LI-200	1767	September 10, 2019	1 Year
LISN	Com Power	LI-200	1768	September 10, 2019	1 Year
Biconical Antenna	Com Power	AB-100	01557	December 29, 2019	1 Year
Log Periodic Antenna	Com Power	AL-100	16037	December 22, 2019	1 Year
Horn Antenna	Com Power	AHA-118	711054	December 22, 2019	1 Year
Antenna Mast	Com Power	AM-400	N/A	N/A	N/A
Turntable	Com Power	TT-100	N/A	N/A	N/A
Computer	Dell, Inc.	DHS	DNSV641	N/A	N/A
Printer	Hewlett Packard	C8124A	CN39B2234T	N/A	N/A
Plotter	Hewlett Packard	7470A	2308A96499	N/A	N/A

EMI Test Equipment (Continued)

EQUIPMENT TYPE	MANU-FACT URER	MODEL NUMBER	SERIAL NUMBER	CAL. DATE	CAL. CYCLE
EMI Receiver	Rohde & Schwarz	ESU40	100127	June 12, 2019	1 Year
BiConiLog Antenna	ETS-Lindgren	3142D	00102183	August 14, 2019	1 Year
Horn Antenna	ETS-Lindgren	3117	00109294	May 6, 2020	1 Year
Preamplifier	Rohde & Schwarz	TS-PR18	100056	June 12, 2019	1 Year
Antenna Mast	ETS-Lindgren	2175	00095727	N/A	N/A
Turntable	ETS-Lindgren	2187-3.0	00118231	N/A	N/A
Computer	Acer	Aspire 8930	85100050123	N/A	N/A
Multi-Function Controller	ETS-Lindgren	2090	00102270	N/A	N/A
Loop Antenna	ARA	PLA-1030/B	1029	May 19, 2020	1 Year

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5			66 - 56 *	56 - 46 *	CISPR
0.50 -5.0			56.00	46.00	CISPR
5.0 -30.0			60.00	50.00	CISPR

0.15 -0.5			66 - 56 *	56 - 46 *	LP0002
0.50 -5.0			56.00	46.00	LP0002
5.0 -30.0			60.00	50.00	LP0002

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

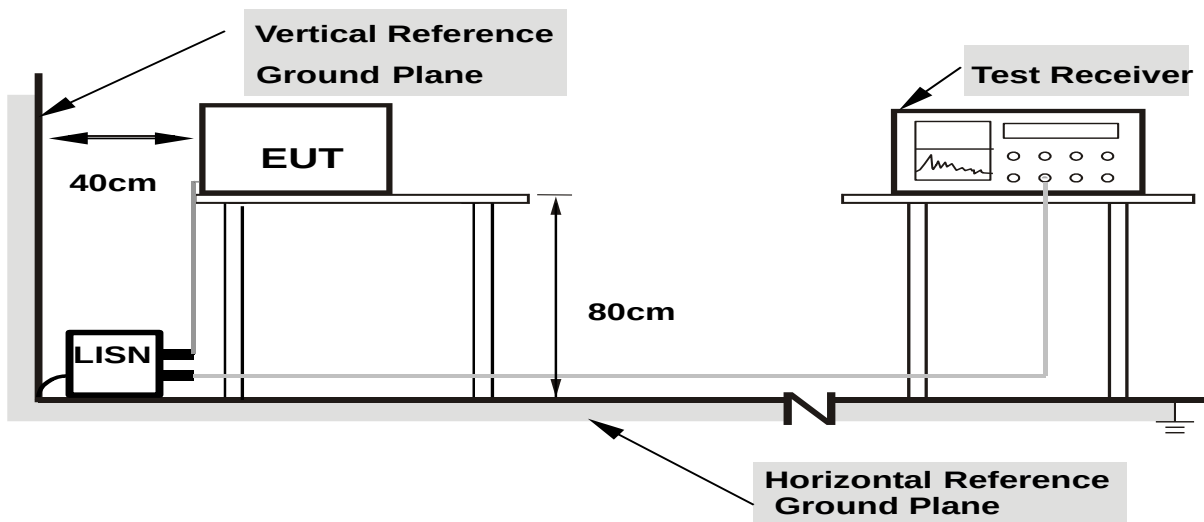
3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.

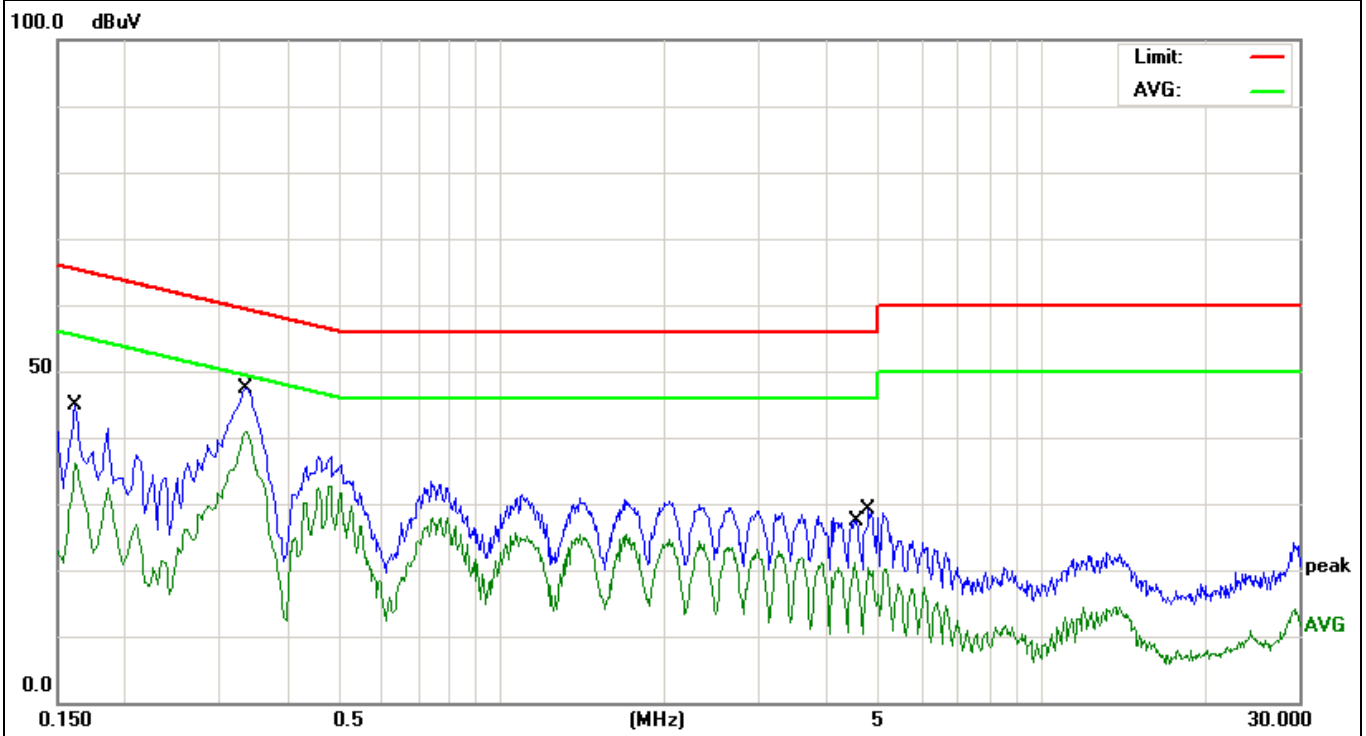
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 TEST RESULTS

EUT :	CREATIVE BT-W3	Model Name. :	SA0160
Temperature :	26 °C	Relative Humidity:	54%
Pressure :	1010hPa	Test Date :	2020-06-03
Test Mode :	TX (1Mbps) CH00 (worst case)	Phase :	Line
Test Voltage :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor(dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector
0.1620	33.21	11.68	44.89	65.36	-20.47	Quasi-Peak
0.1620	24.53	11.68	36.21	55.36	-19.15	Average
0.3339	37.28	10.18	47.46	59.35	-11.89	Quasi-Peak
0.3339	30.79	10.18	40.97	49.35	-8.38	Average
4.7779	19.04	10.10	29.14	56.00	-26.86	Quasi-Peak
4.5099	11.09	10.08	21.17	46.00	-24.83	Average

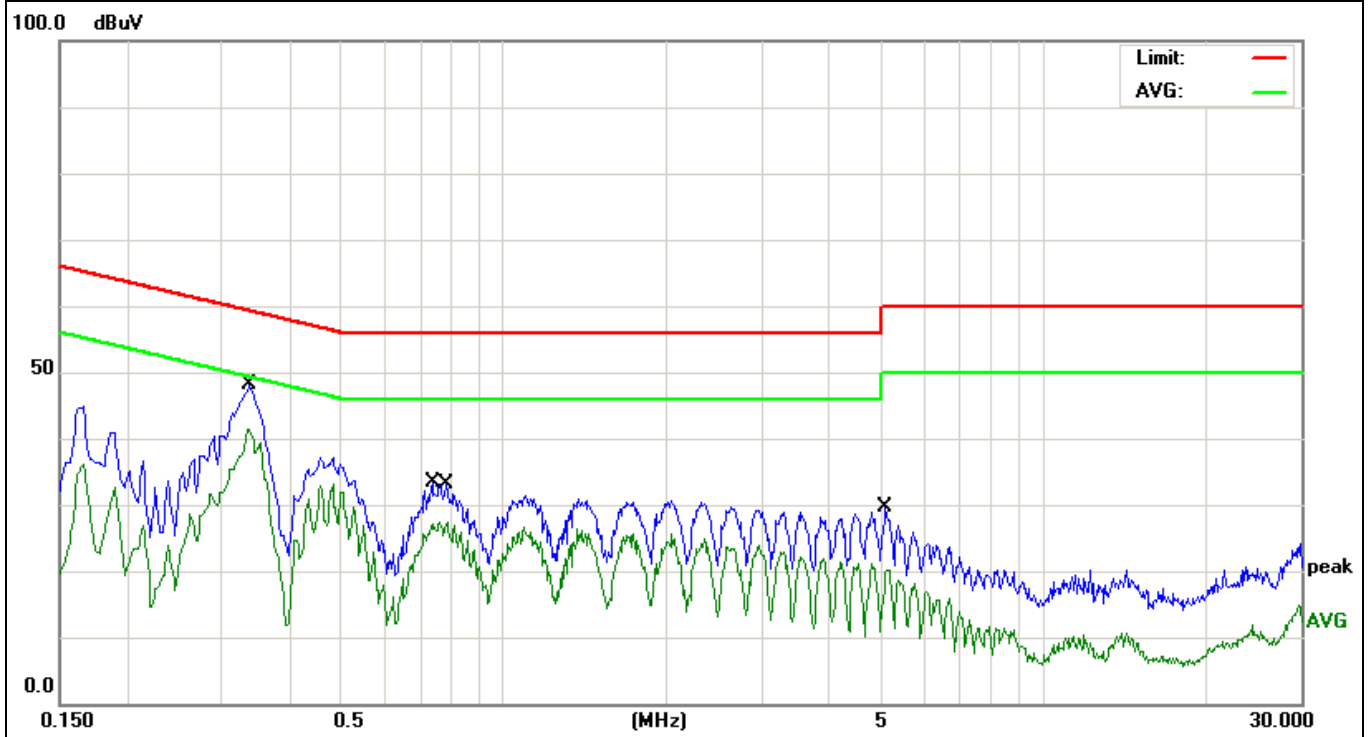
Remark: Factor = LISN factor + Cable Loss + Pulse limiter factor.



EUT :	CREATIVE BT-W3	Model Name. :	SA0160
Temperature :	26 °C	Relative Humidity:	54%
Pressure :	1010hPa	Test Date :	2020-06-03
Test Mode :	TX (1Mbps) CH00 (worst case)	Phase :	Neutral
Test Voltage :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor(dB)	Emission Level (dBμV)	Limits (dBμV)	Margin (dB)	Detector
0.3379	37.91	10.18	48.09	59.25	-11.16	Quasi-Peak
0.3339	31.10	10.18	41.28	49.35	-8.07	Average
0.7380	23.48	9.97	33.45	56.00	-22.55	Quasi-Peak
0.7860	17.54	9.96	27.50	46.00	-18.50	Average
5.1099	19.54	10.11	29.65	60.00	-30.35	Quasi-Peak
5.1459	10.02	10.11	20.13	50.00	-29.87	Average

Remark: Factor = LISN factor + Cable Loss + Pulse limiter factor.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 2.7, then the 2.8 limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3M)		Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

- (1) The limit for radiated test was performed according to LP002.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	10 th harmonic of the highest frequency or 40 GHz, whichever is lower

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

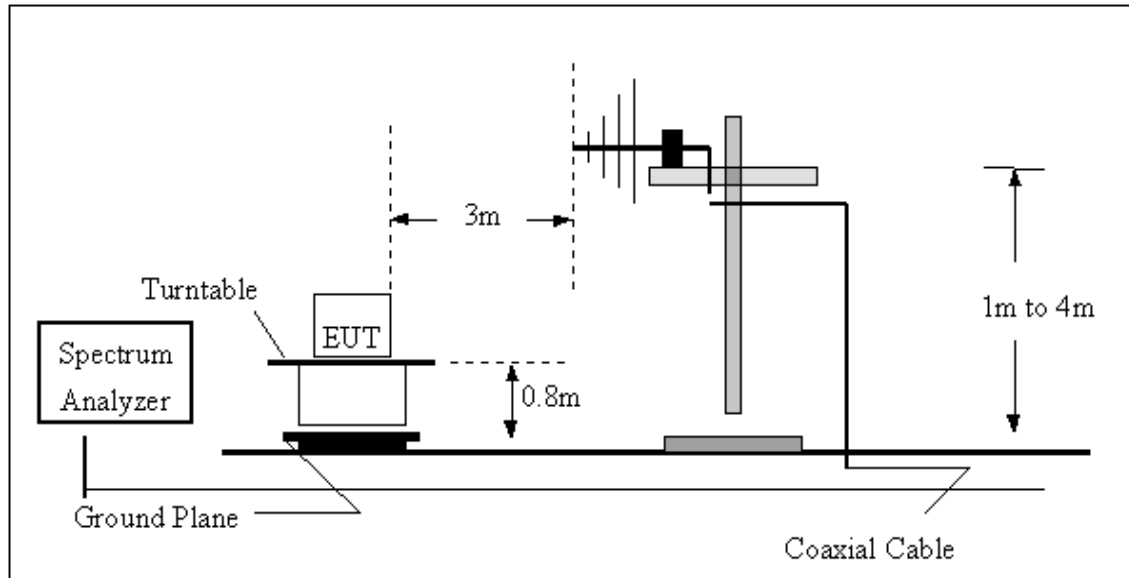
Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

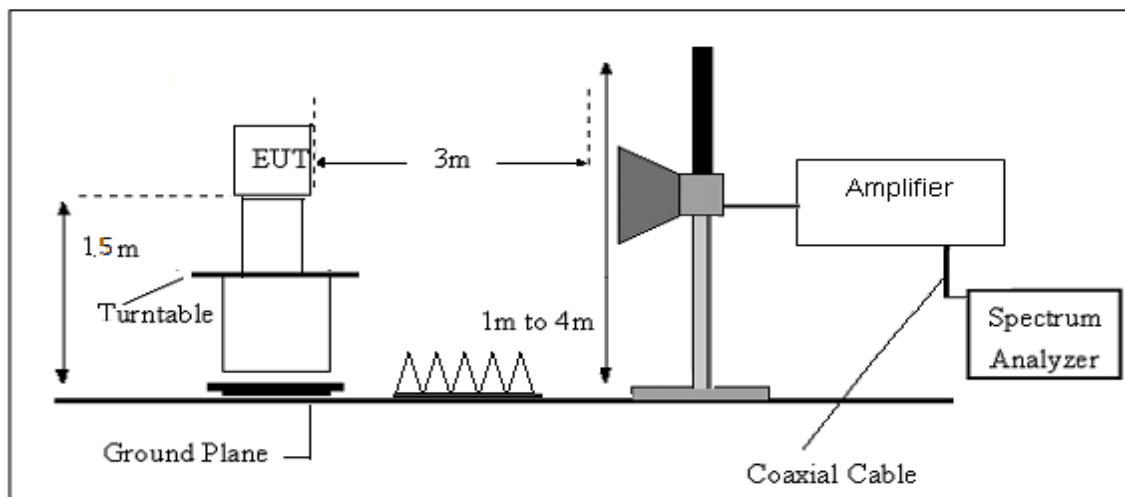
- The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.
- The field strength of spurious radiation emission was measured in the following position: EUT stand-up position (Y mode) and lie-down position (X, Z mode) the following data show only the worst case setup.
The worst case (X axis) was reported.

3.2.3 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.5 TEST RESULTS (BELOW 30 MHZ)

There is no detected BELOW 30MHz

3.2.6 TEST RESULTS (BETWEEN 30 – 1000 MHZ)

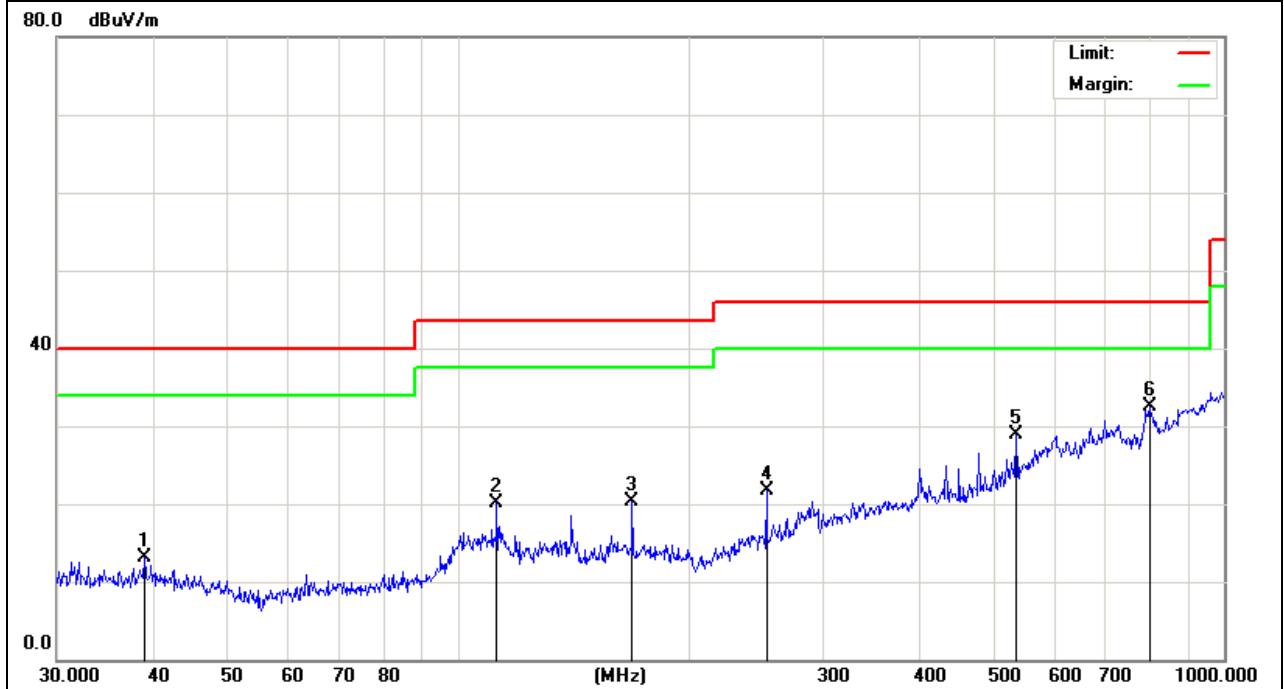
Radiated Emissions Test Data Below 1GHz

EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1010 hPa	Test Date :	2020-06-05
Test Mode :	TX (1Mbps) CH00 (worst case)	Polarization :	Horizontal
Measurement Distance	3 m	Frequency Range	30MHz to 1GHz
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
39.02	29.84	-16.64	13.20	40.00	-26.80	Quasi-Peak
112.52	33.92	-13.77	20.15	43.50	-23.35	Quasi-Peak
169.01	35.63	-15.26	20.37	43.50	-23.13	Quasi-Peak
252.95	35.10	-13.37	21.73	46.00	-24.27	Quasi-Peak
535.71	33.33	-4.39	28.94	46.00	-17.06	Quasi-Peak
798.98	29.05	3.44	32.49	46.00	-13.51	Quasi-Peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

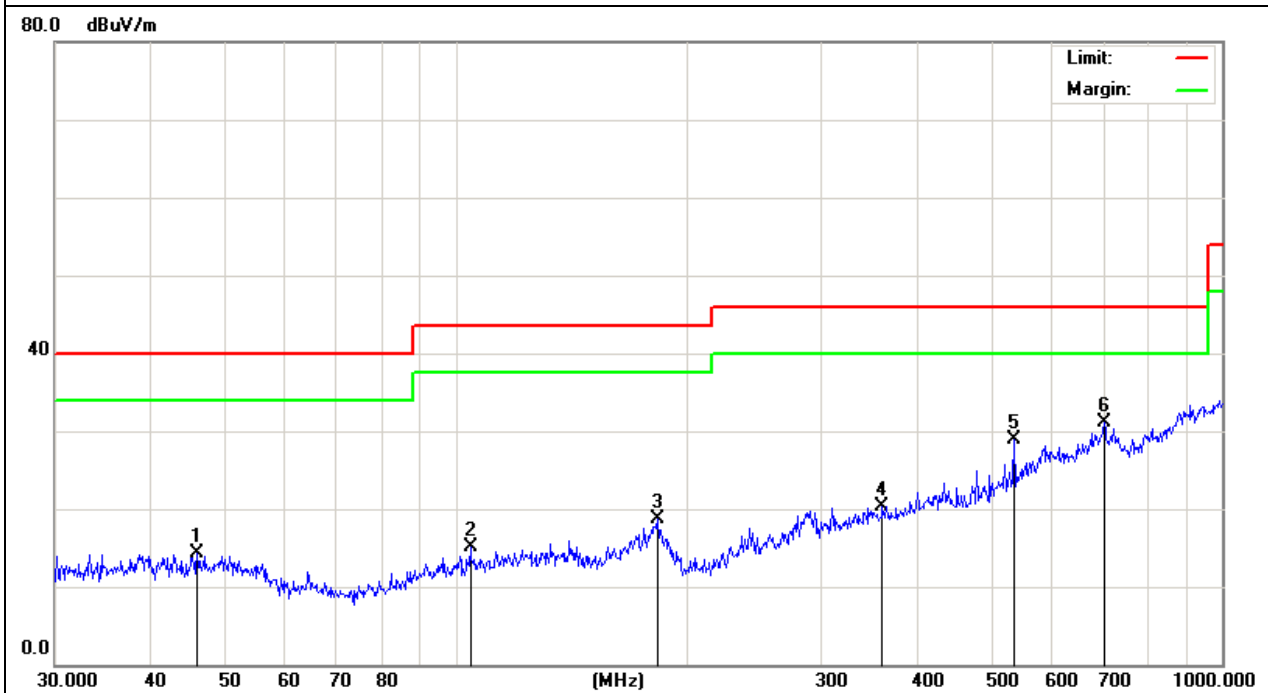


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1010 hPa	Test Date :	2020-06-05
Test Mode :	TX (1Mbps) CH00 (worst case)	Polarization :	Vertical
Measurement Distance	3 m	Frequency Range	30MHz to 1GHz
Test Power :	DC 5V supplied by PC		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
46.02	28.72	-14.34	14.38	40.00	-25.62	Quasi-Peak
104.54	30.63	-15.59	15.04	43.50	-28.46	Quasi-Peak
183.84	30.37	-11.72	18.65	43.50	-24.85	Quasi-Peak
360.45	27.96	-7.59	20.37	46.00	-25.63	Quasi-Peak
535.71	33.20	-4.39	28.81	46.00	-17.19	Quasi-Peak
701.76	30.88	0.32	31.20	46.00	-14.80	Quasi-Peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



Note:

Measurement Level = Reading Level + Factor

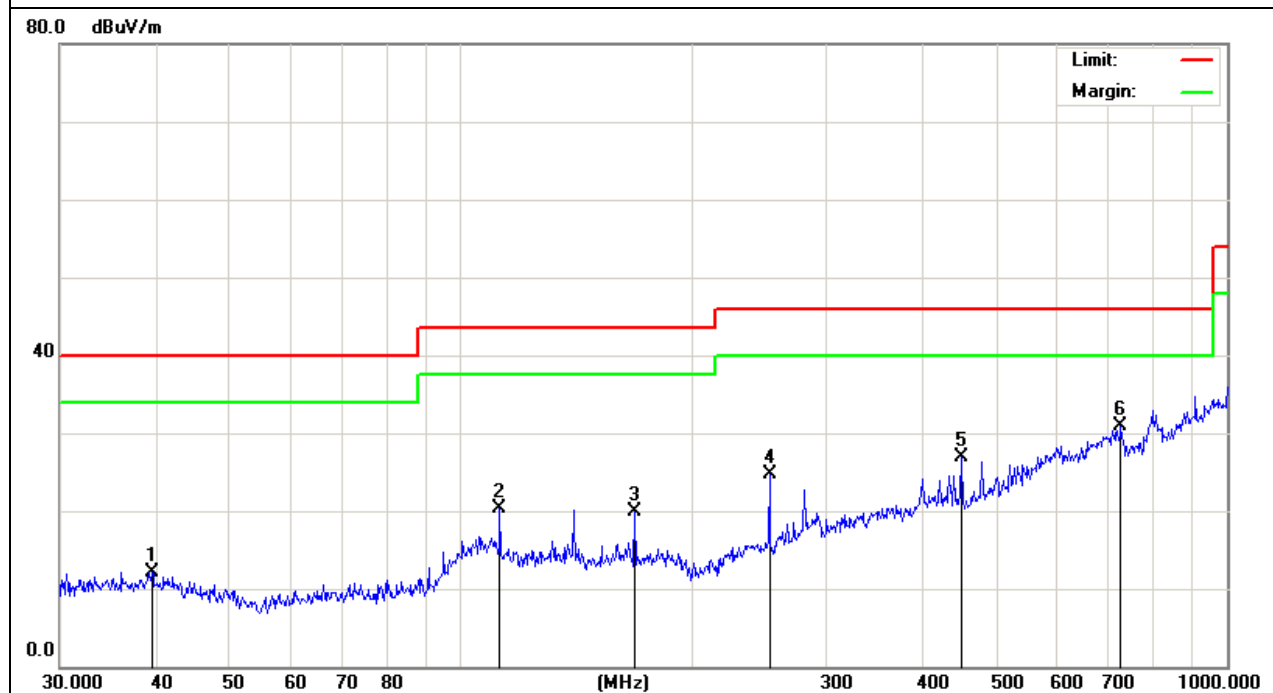
Remark: Factor = Antenna Factor + Cable Loss–Pre-amplifier

EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1010 hPa	Test Date :	2020-06-05
Test Mode :	RX	Polarization :	Horizontal
Measurement Distance	3 m	Frequency Range	30MHz to 1GHz
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
39.58	28.76	-16.62	12.14	40.00	-27.86	Quasi-Peak
112.52	34.15	-13.77	20.38	43.50	-23.12	Quasi-Peak
168.41	35.09	-15.18	19.91	43.50	-23.59	Quasi-Peak
252.95	38.16	-13.37	24.79	46.00	-21.21	Quasi-Peak
449.56	33.87	-6.89	26.98	46.00	-19.02	Quasi-Peak
726.81	31.36	-0.51	30.85	46.00	-15.15	Quasi-Peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

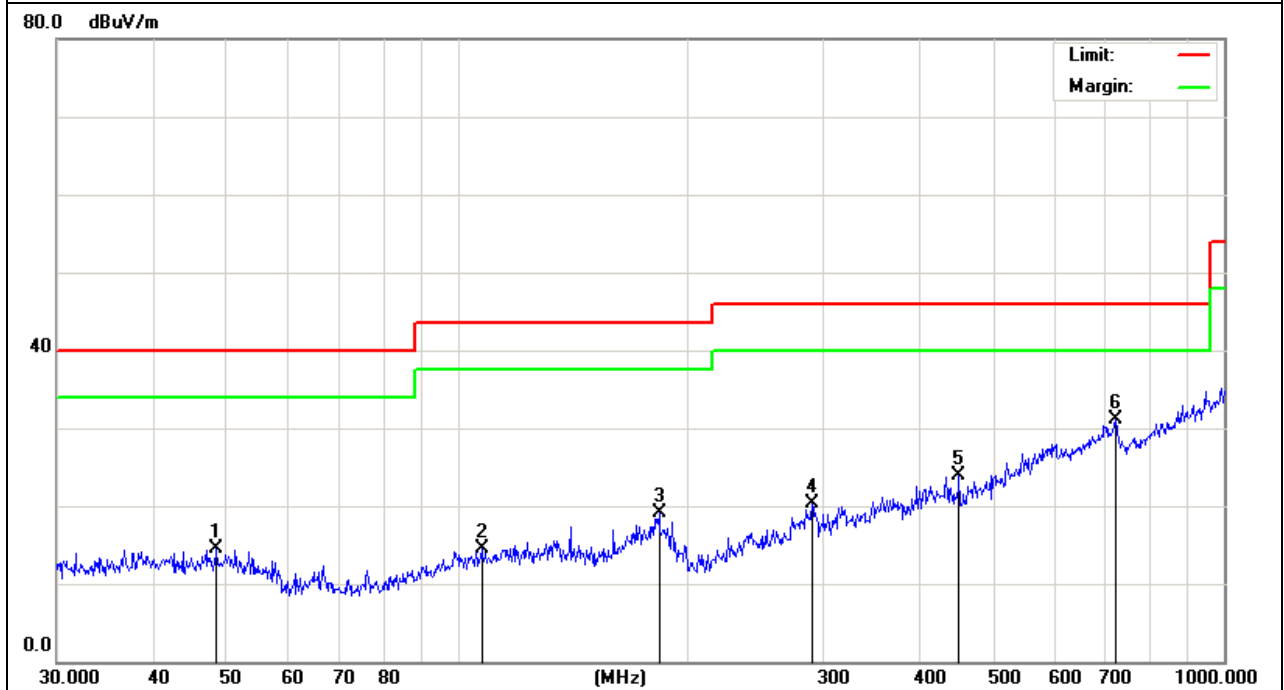


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1010 hPa	Test Date :	2020-06-05
Test Mode :	RX	Polarization :	Vertical
Measurement Distance	3 m	Frequency Range	30MHz to 1GHz
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
48.50	28.82	-14.22	14.60	40.00	-25.40	Quasi-Peak
107.51	29.95	-15.48	14.47	43.50	-29.03	Quasi-Peak
183.20	30.49	-11.34	19.15	43.50	-24.35	Quasi-Peak
290.02	30.46	-10.18	20.28	46.00	-25.72	Quasi-Peak
451.14	30.90	-6.90	24.00	46.00	-22.00	Quasi-Peak
721.73	31.43	-0.41	31.02	46.00	-14.98	Quasi-Peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



Note:

Measurement Level = Reading Level + Factor

Remark: Factor = Antenna Factor + Cable Loss–Pre-amplifier

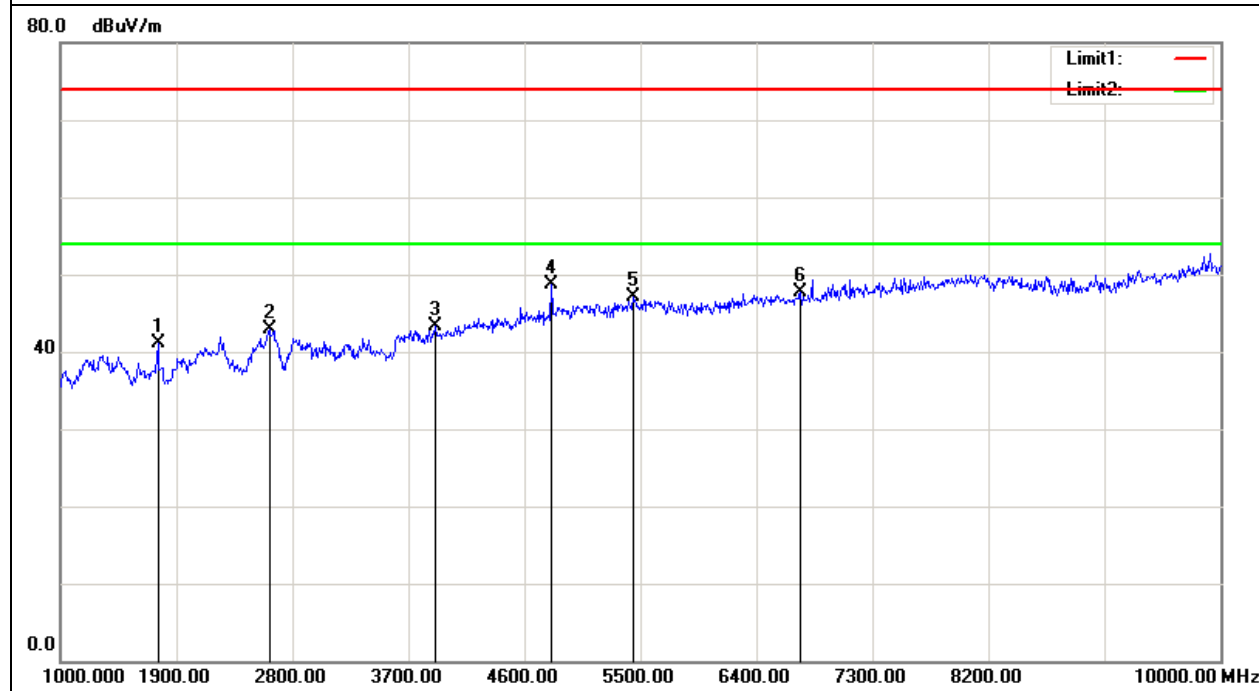
Radiated Emissions Test Data Above 1GHz

EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2402MHz (1Mbps-worst case)	Polarization :	Horizontal
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1756.290	46.90	-6.36	40.54	74.00	-33.46	peak
2622.963	44.57	-2.04	42.53	74.00	-31.47	peak
3907.011	41.44	1.20	42.64	74.00	-31.36	peak
4811.081	43.82	4.35	48.17	74.00	-25.83	peak
5446.085	40.64	5.77	46.41	74.00	-27.59	peak
6745.945	40.12	7.28	47.40	74.00	-26.60	peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

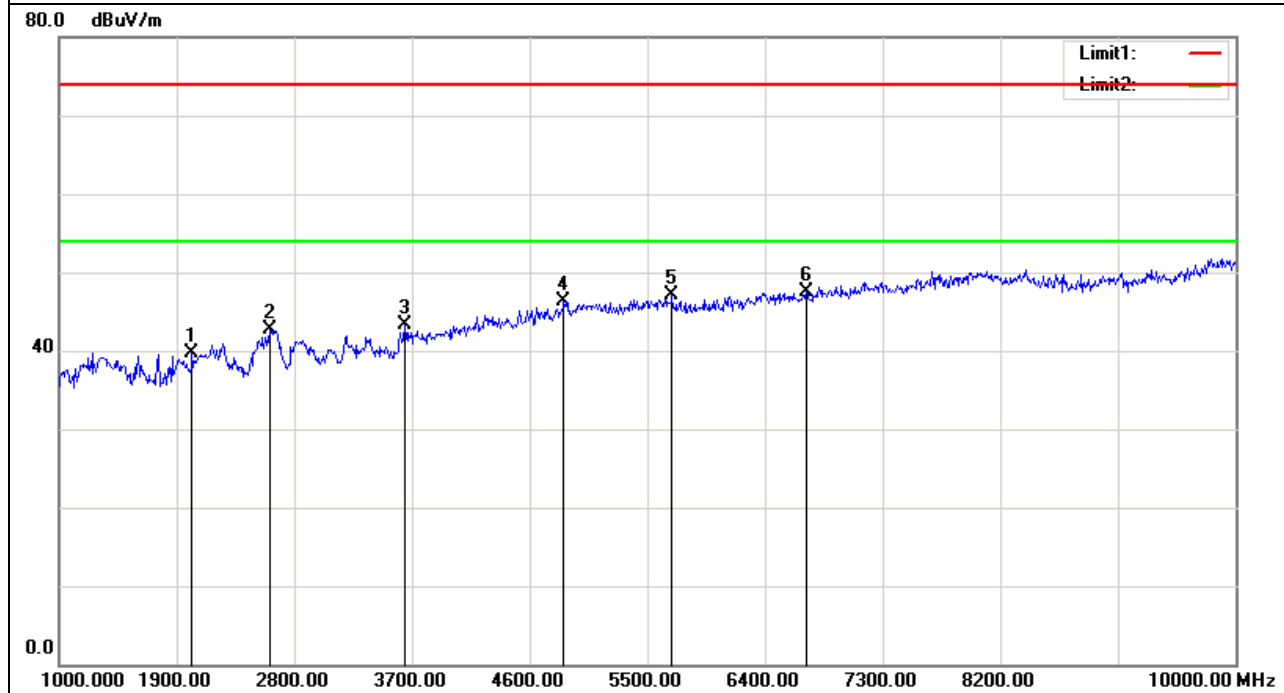


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2402MHz (1Mbps-worst case)	Polarization :	Vertical
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
2018.320	44.33	-4.91	39.42	74.00	-34.58	peak
2614.338	44.57	-2.06	42.51	74.00	-31.49	peak
3650.031	42.90	0.10	43.00	74.00	-31.00	peak
4865.267	41.52	4.53	46.05	74.00	-27.95	peak
5689.121	40.71	5.95	46.66	74.00	-27.34	peak
6715.832	40.24	7.24	47.48	74.00	-26.52	peak

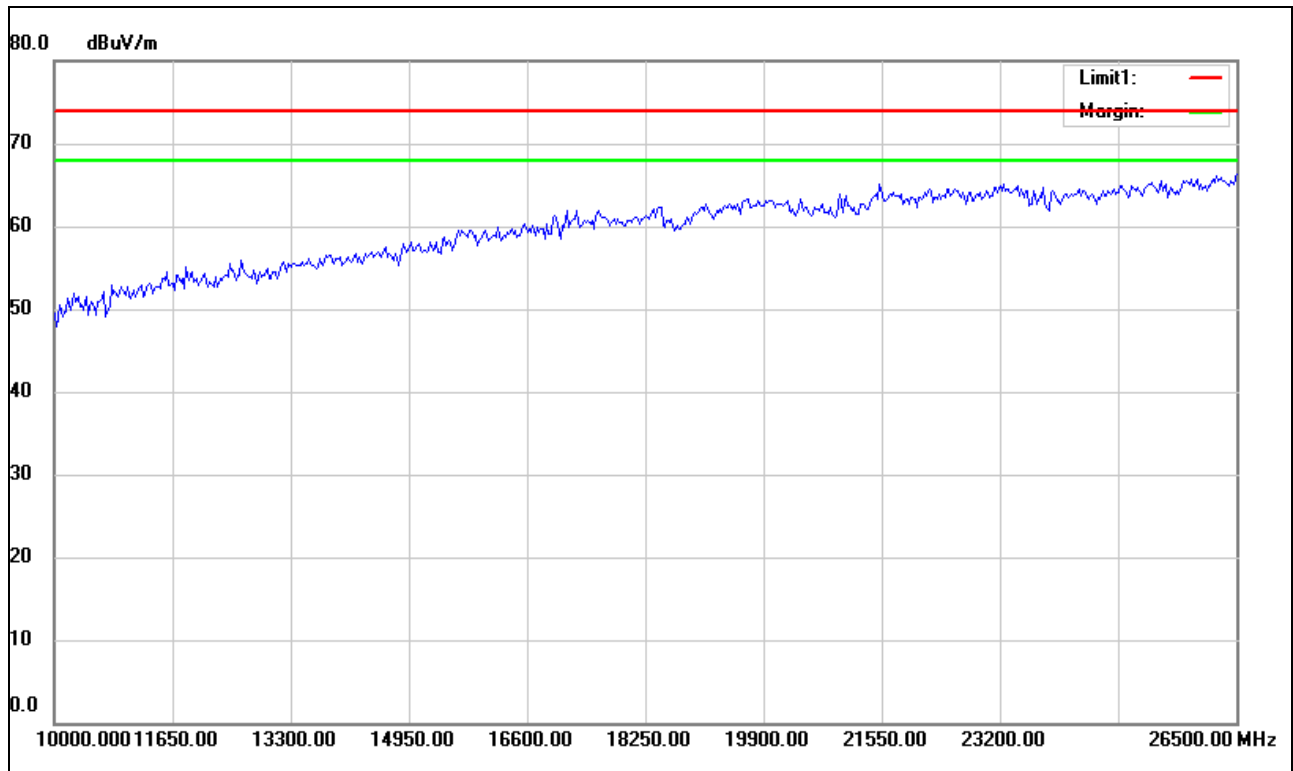
Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



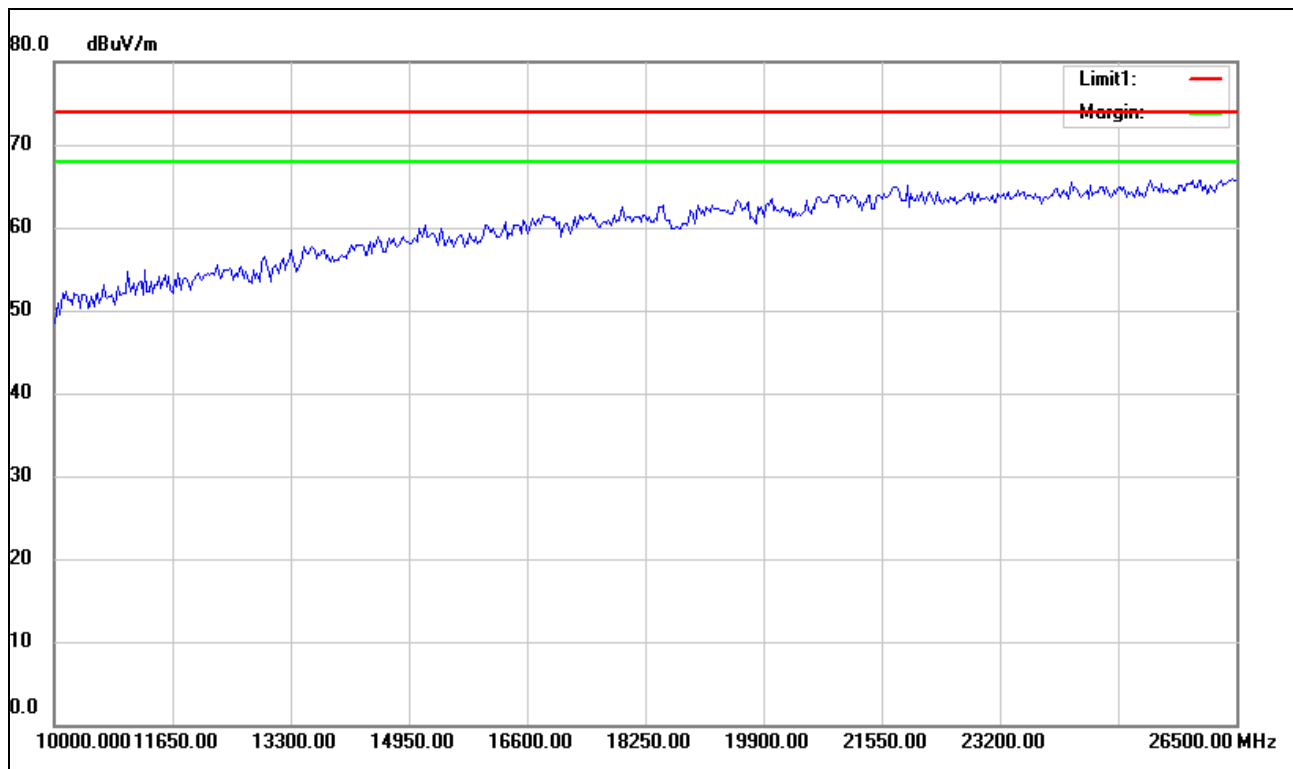
Horizontal

Detect: 10GHz -26.5GHz



Vertical

Detect: 10GHz -26.5GHz

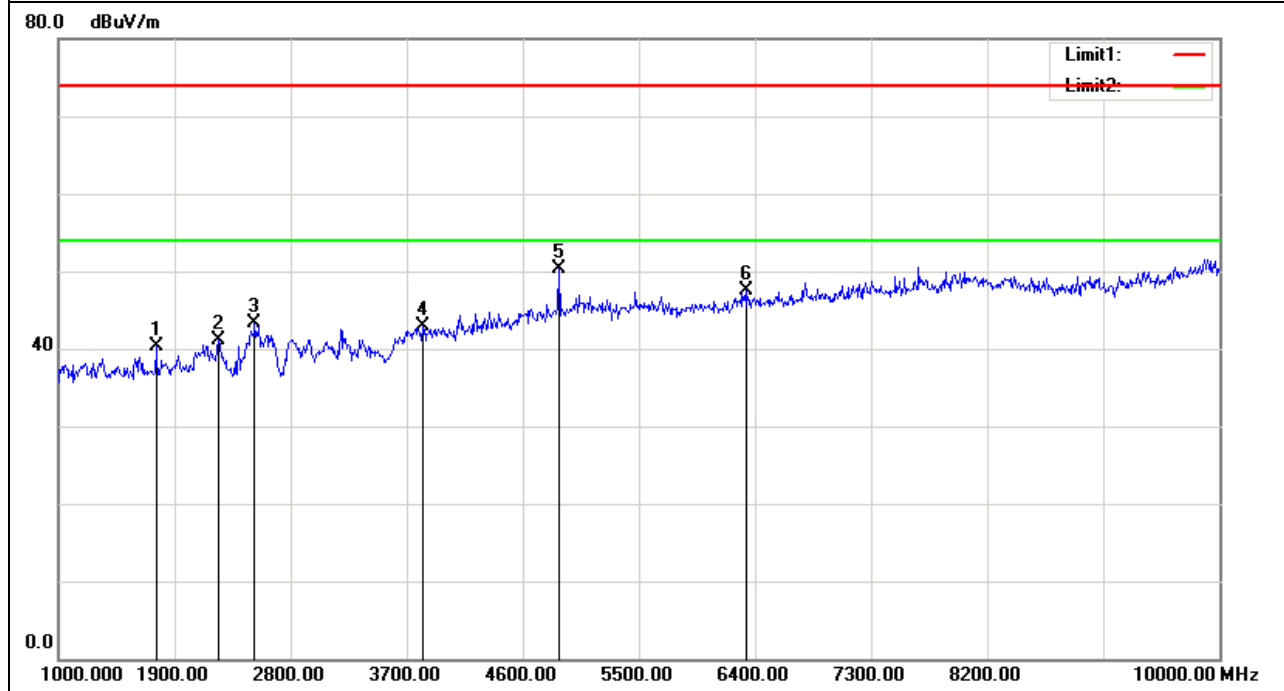


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2441MHz (1Mbps-worst case)	Polarization :	Horizontal
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1756.932	46.82	-6.36	40.46	74.00	-33.54	peak
2242.793	45.10	-3.67	41.43	74.00	-32.57	peak
2521.978	45.73	-2.22	43.51	74.00	-30.49	peak
3826.527	42.16	0.86	43.02	74.00	-30.98	peak
4882.434	46.05	4.59	50.64	74.00	-23.36	peak
6331.691	41.14	6.61	47.75	74.00	-26.25	peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

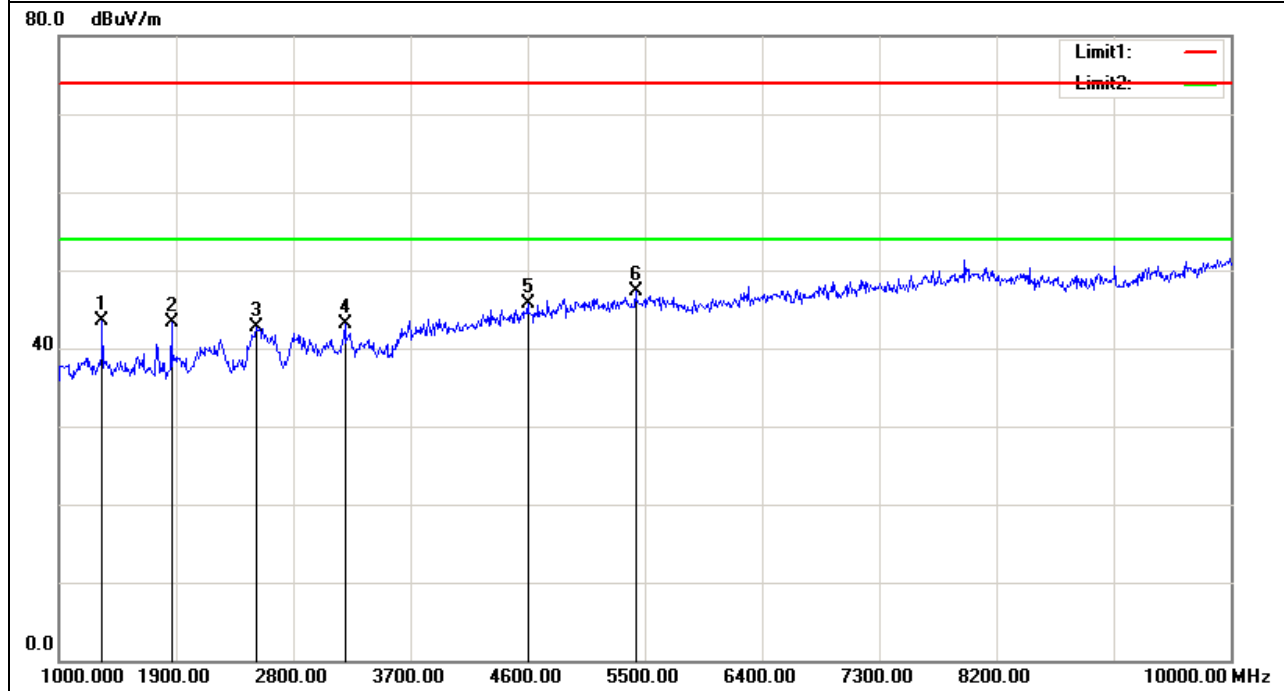


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2441MHz (1Mbps-worst case)	Polarization :	Vertical
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1335.114	50.57	-7.30	43.27	74.00	-30.73	peak
1866.469	48.93	-5.86	43.07	74.00	-30.93	peak
2516.056	44.35	-2.24	42.11	74.00	-31.89	peak
3198.171	43.95	-1.03	42.92	74.00	-31.08	peak
4600.767	41.80	3.68	45.48	74.00	-28.52	peak
5429.905	41.19	5.74	46.93	74.00	-27.07	peak

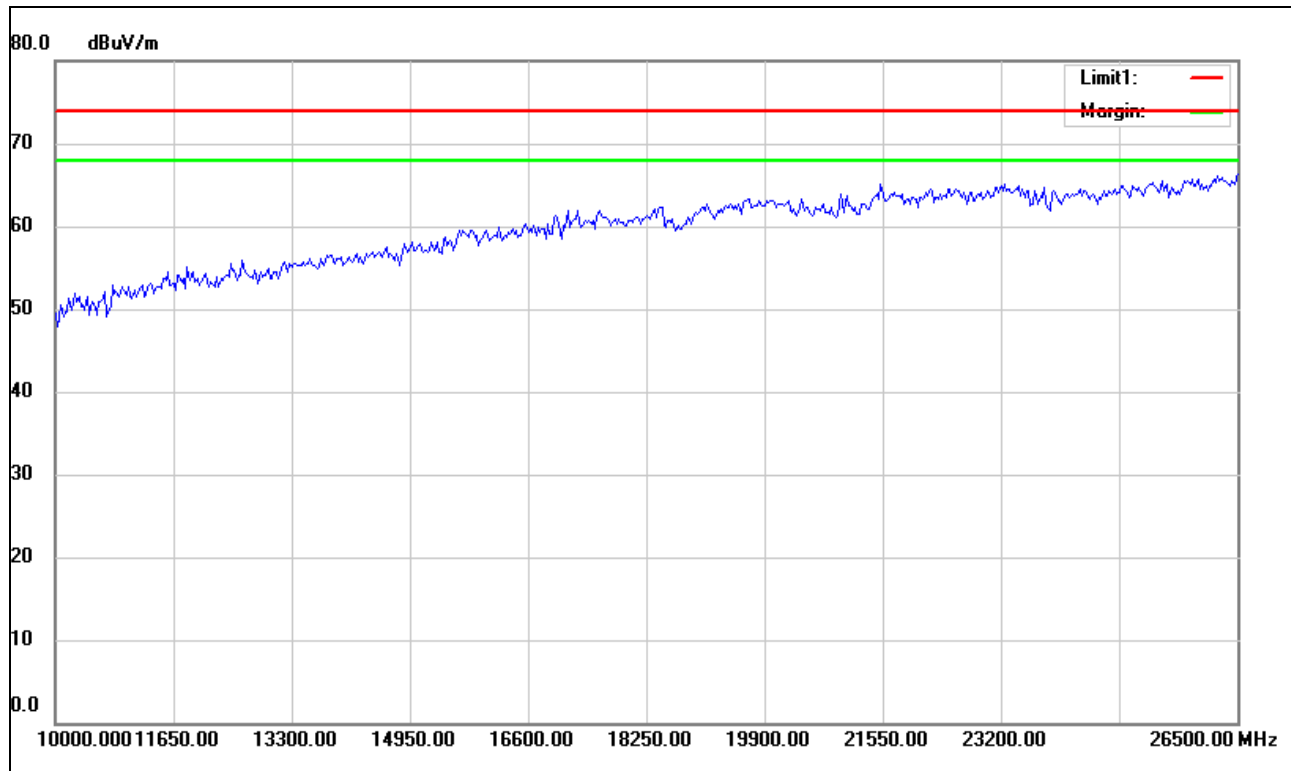
Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



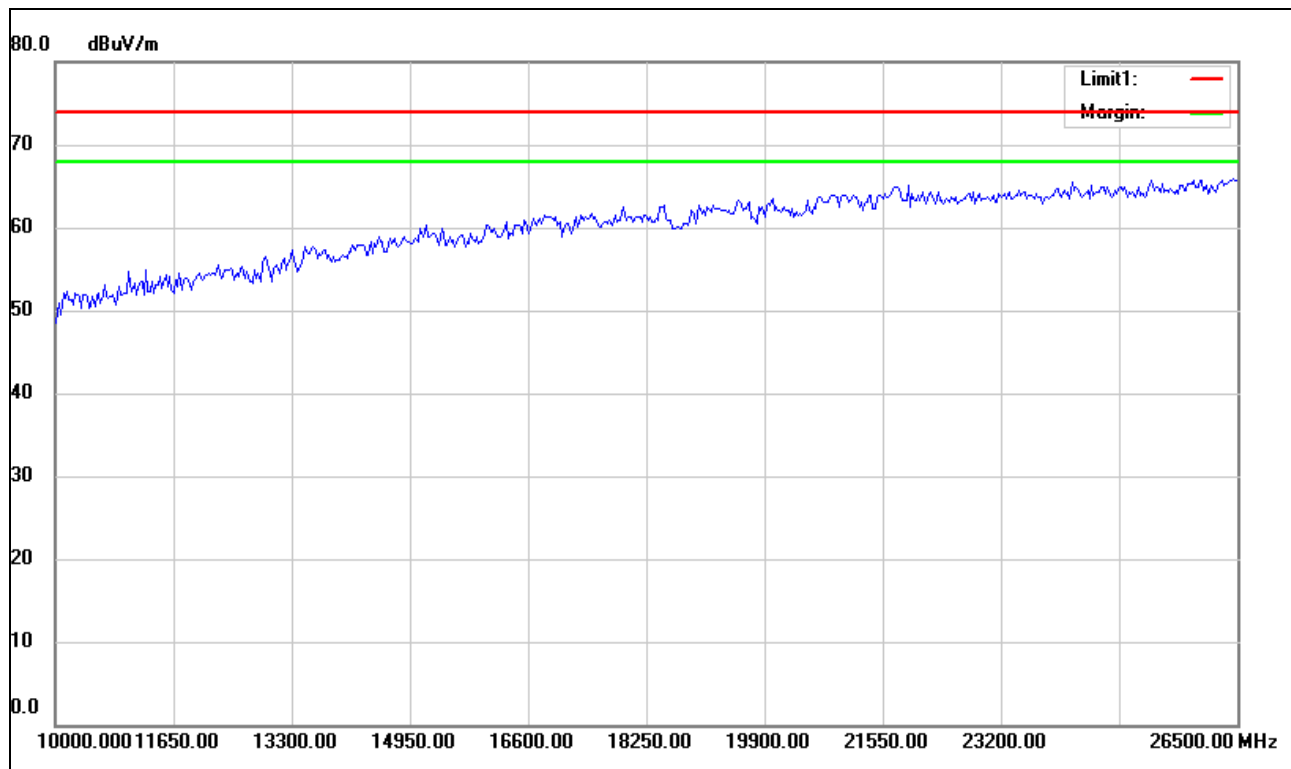
Horizontal

Detect: 10GHz -26.5GHz



Vertical

Detect: 10GHz -26.5GHz

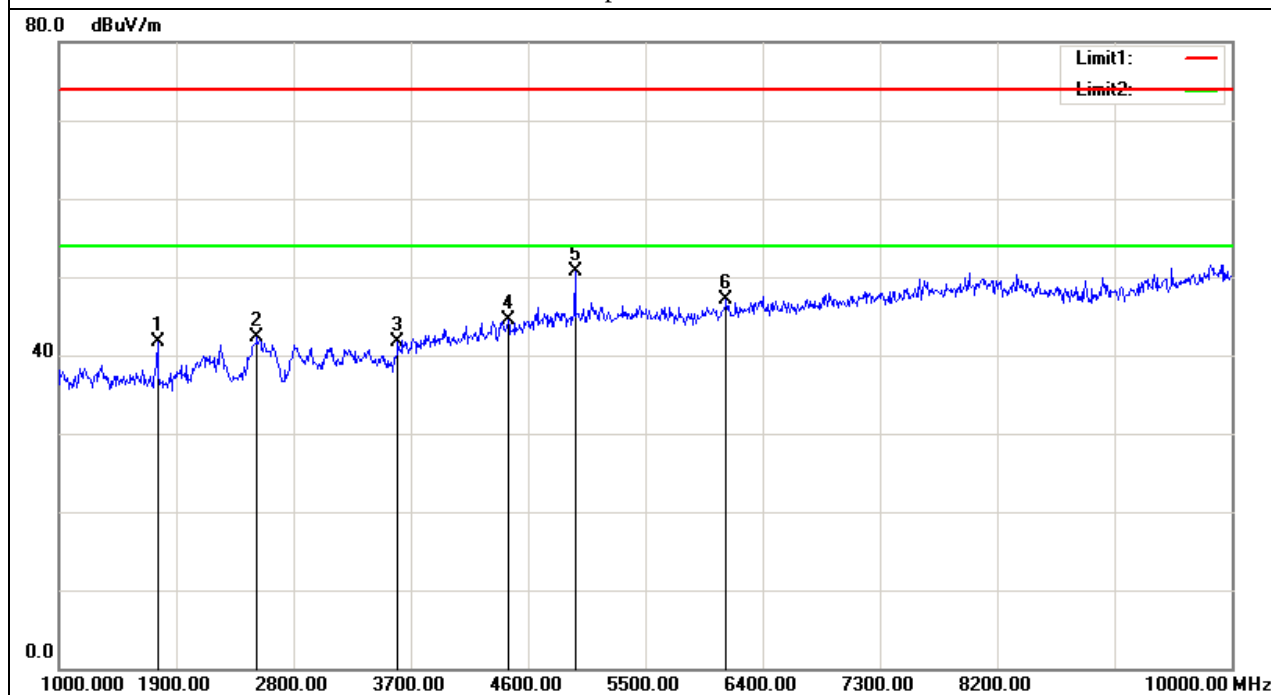


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2480MHz (1Mbps-worst case)	Polarization :	Horizontal
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1759.571	47.86	-6.36	41.50	74.00	-32.50	peak
2524.282	44.26	-2.22	42.04	74.00	-31.96	peak
3602.609	41.48	-0.09	41.39	74.00	-32.61	peak
4451.733	41.01	3.16	44.17	74.00	-29.83	peak
4961.475	45.59	4.85	50.44	74.00	-23.56	peak
6122.040	40.68	6.28	46.96	74.00	-27.04	peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

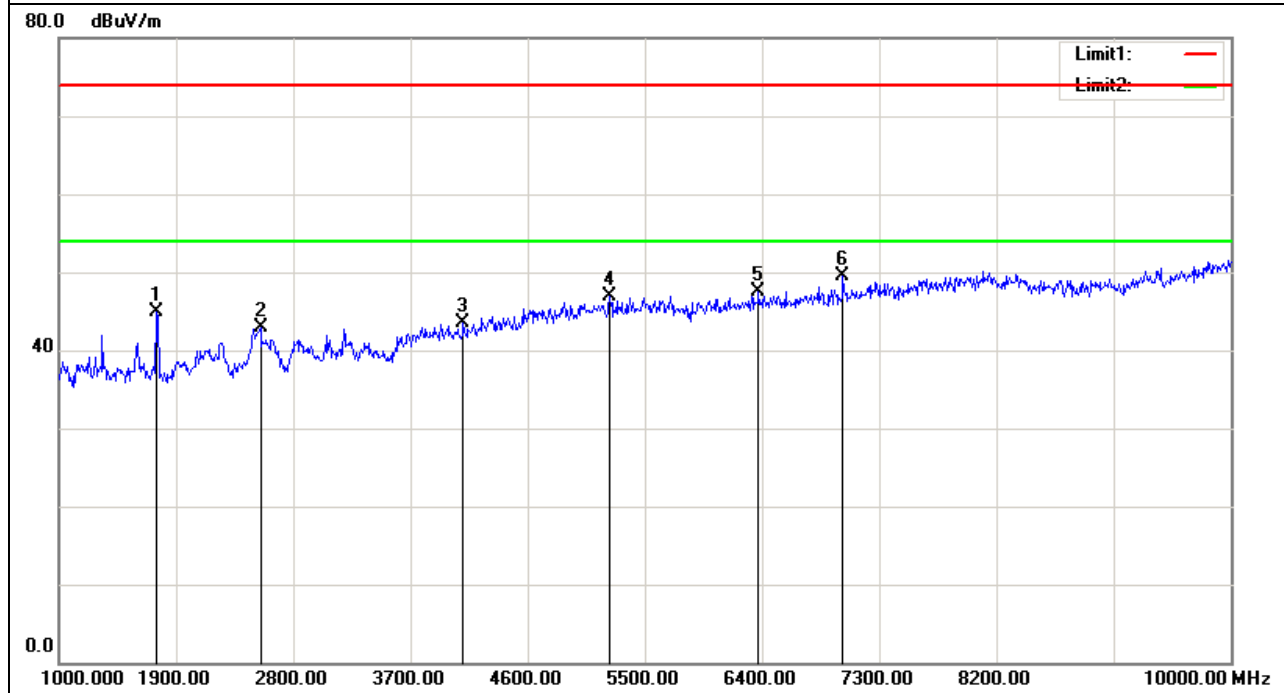


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2480MHz (1Mbps-worst case)	Polarization :	Vertical
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1748.982	51.26	-6.38	44.88	74.00	-29.12	peak
2548.231	45.14	-2.17	42.97	74.00	-31.03	peak
4108.928	41.75	1.96	43.71	74.00	-30.29	peak
5231.337	41.65	5.39	47.04	74.00	-26.96	peak
6375.726	40.86	6.68	47.54	74.00	-26.46	peak
7021.363	41.58	7.74	49.32	74.00	-24.68	peak

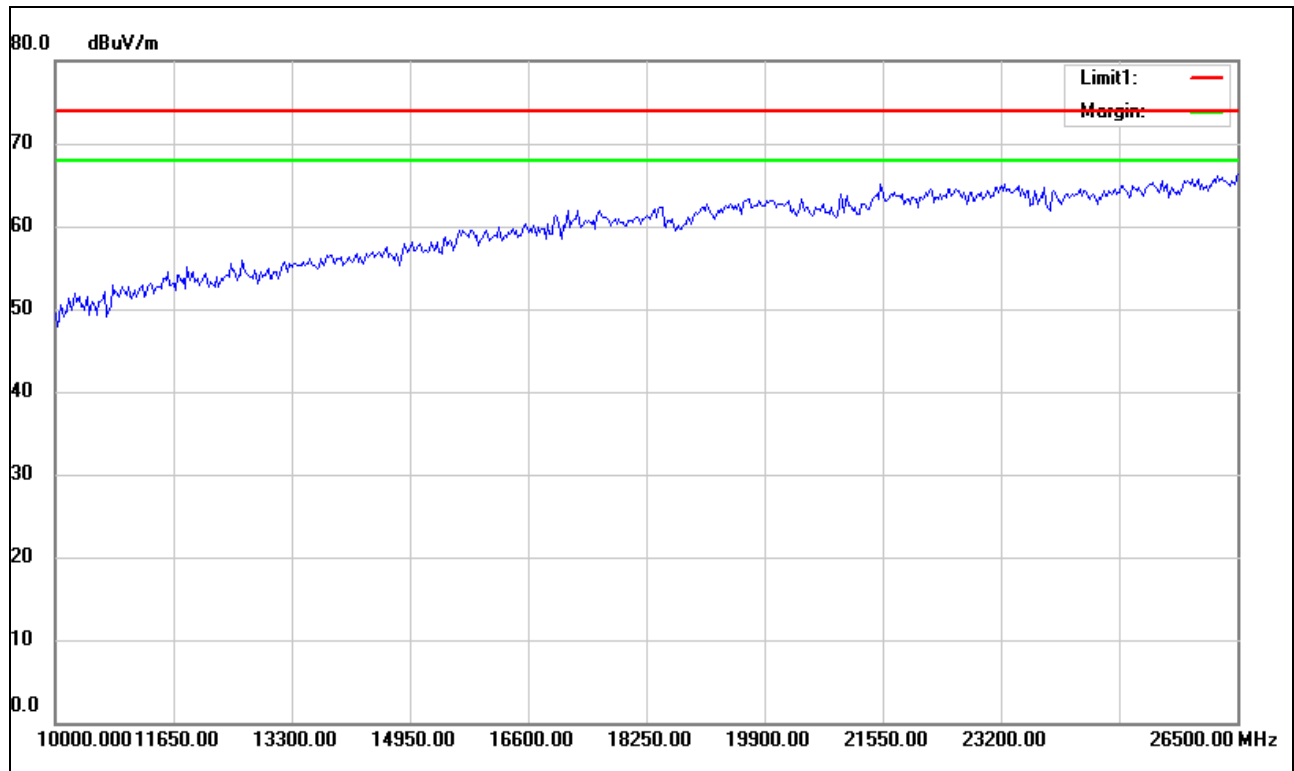
Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



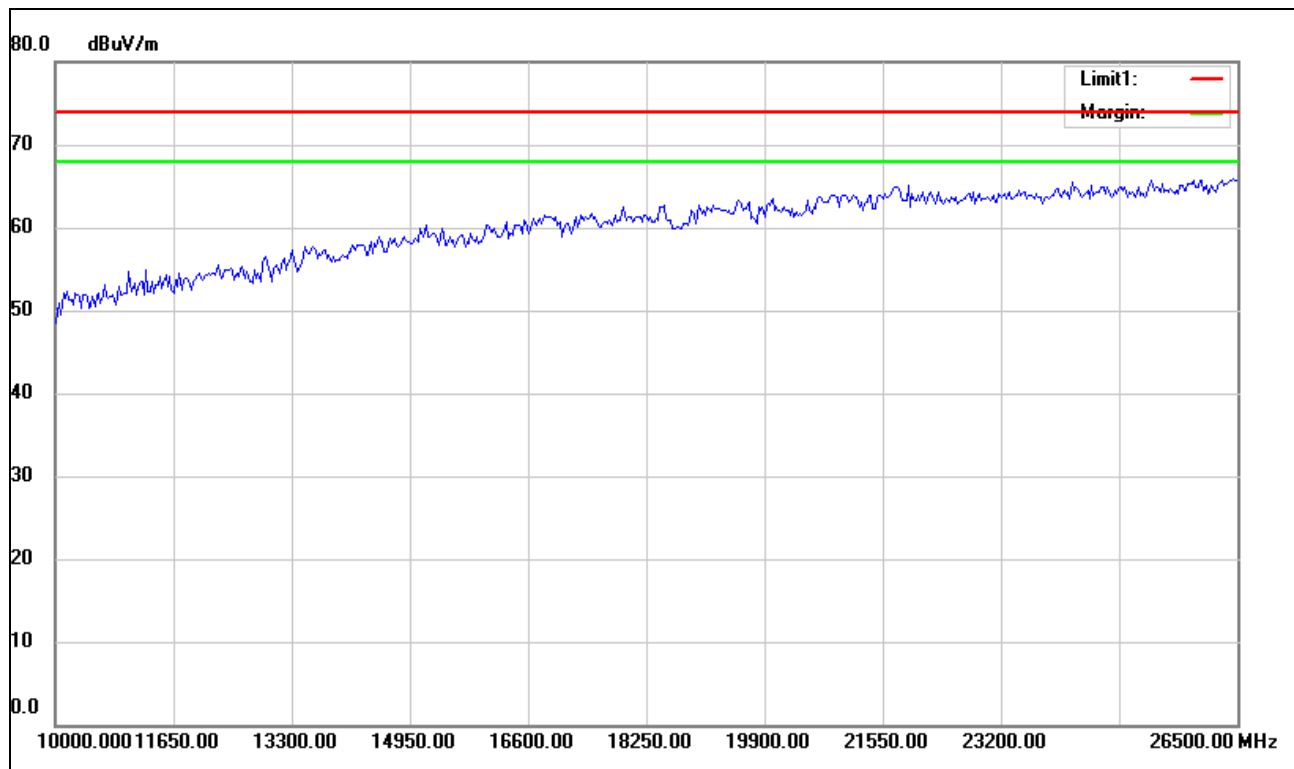
Horizontal

Detect: 10GHz -26.5GHz



Vertical

Detect: 10GHz -26.5GHz

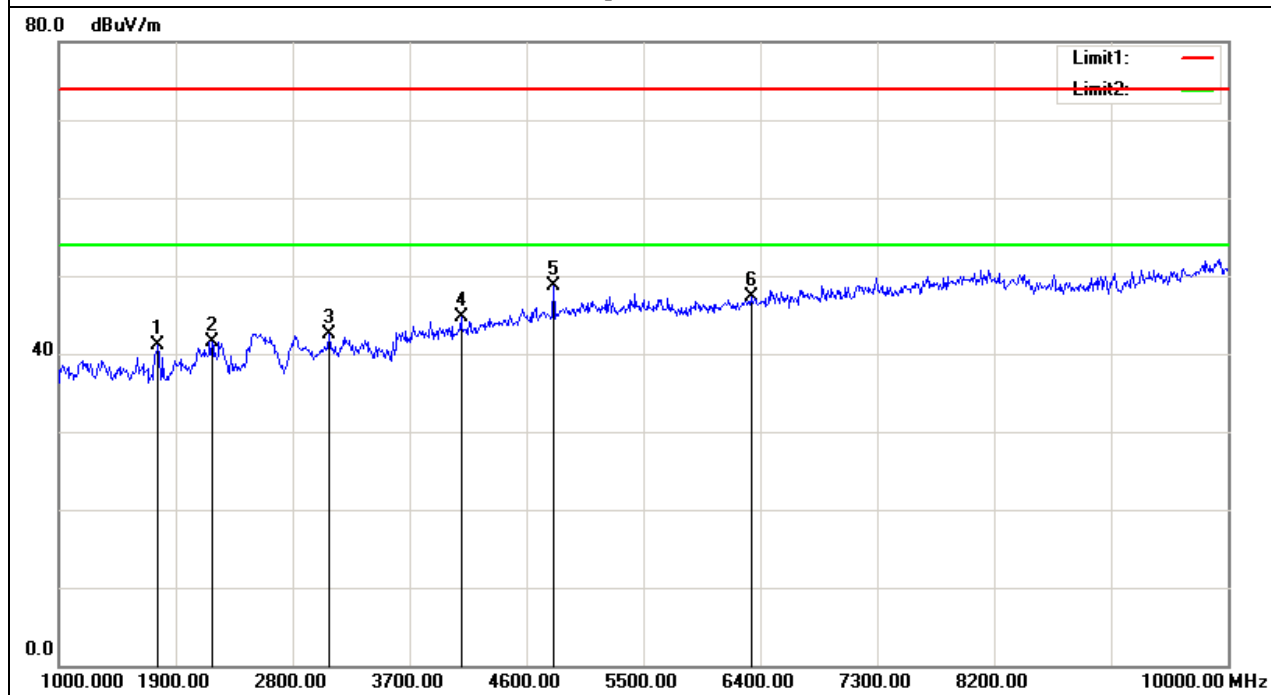


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2402MHz (3Mbps-worst case)	Polarization :	Horizontal
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1767.558	47.25	-6.35	40.90	74.00	-33.10	peak
2179.679	45.44	-4.02	41.42	74.00	-32.58	peak
3079.336	43.19	-1.23	41.96	74.00	-32.04	peak
4096.105	42.44	1.93	44.37	74.00	-29.63	peak
4811.447	44.03	4.35	48.38	74.00	-25.62	peak
6332.814	40.29	6.61	46.90	74.00	-27.10	peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

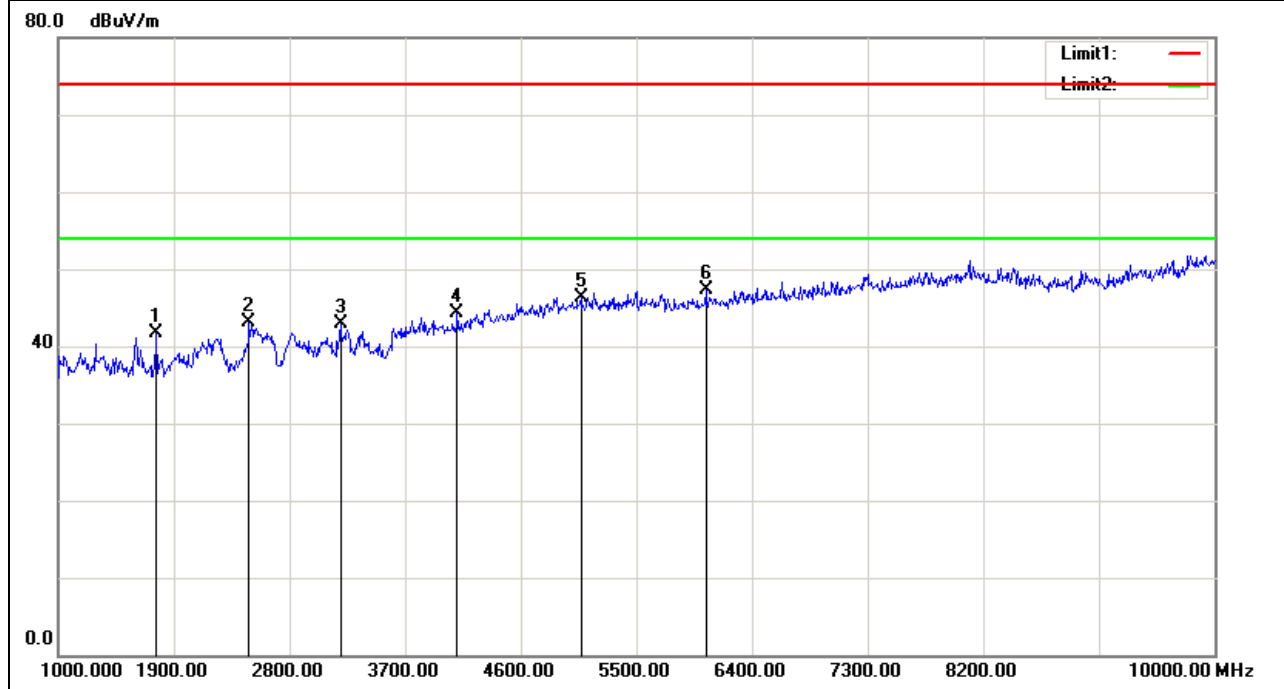


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2402MHz (3Mbps-worst case)	Polarization :	Vertical
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1765.431	47.39	-6.35	41.04	74.00	-32.96	peak
2489.690	45.06	-2.34	42.72	74.00	-31.28	peak
3200.481	43.66	-1.03	42.63	74.00	-31.37	peak
4108.153	41.98	1.96	43.94	74.00	-30.06	peak
5068.884	40.67	5.10	45.77	74.00	-28.23	peak
6042.539	40.88	6.14	47.02	74.00	-26.98	peak

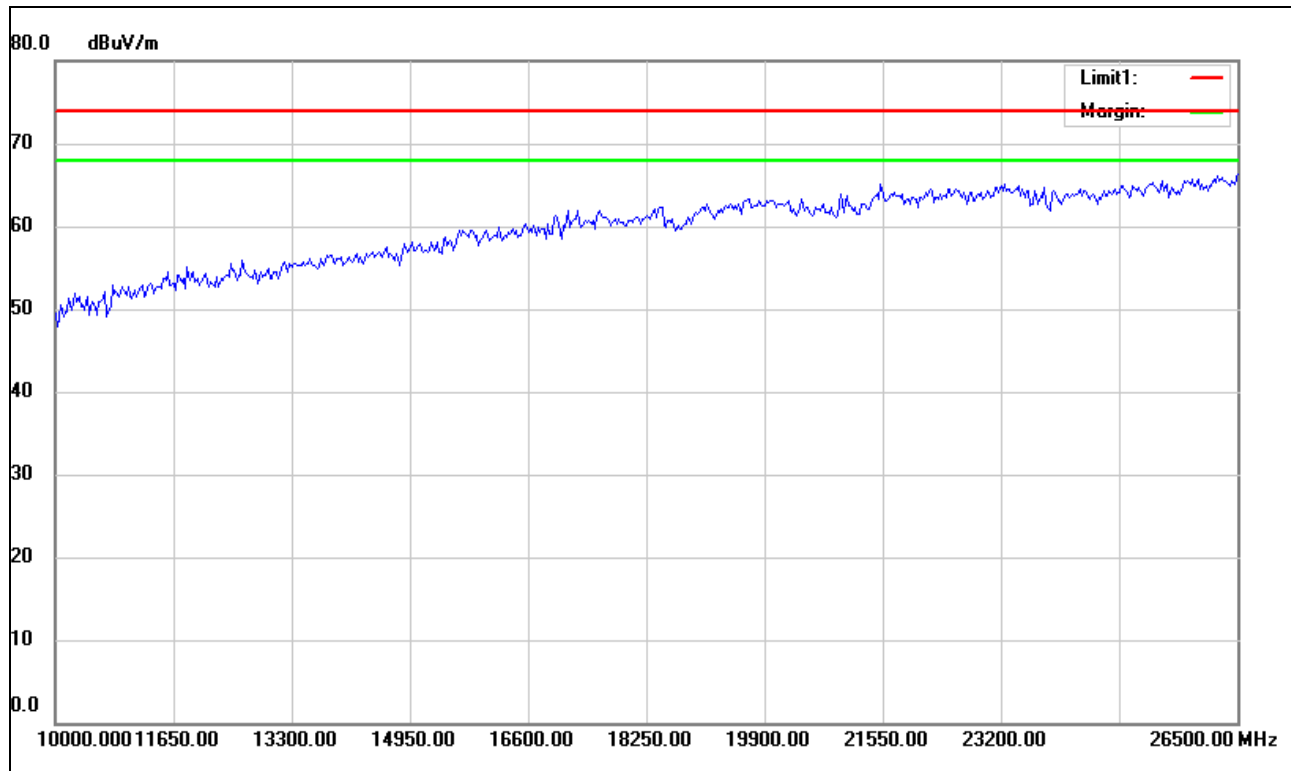
Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



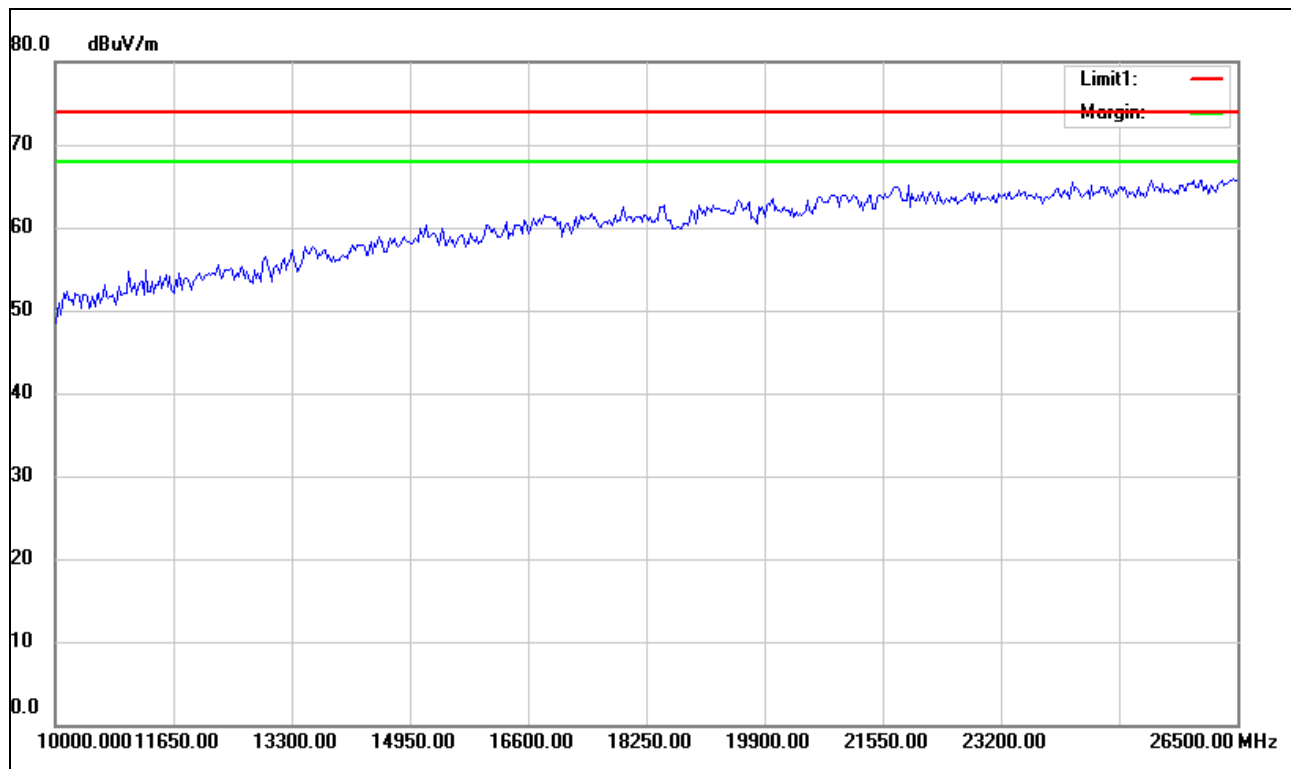
Horizontal

Detect: 10GHz -26.5GHz



Vertical

Detect: 10GHz -26.5GHz

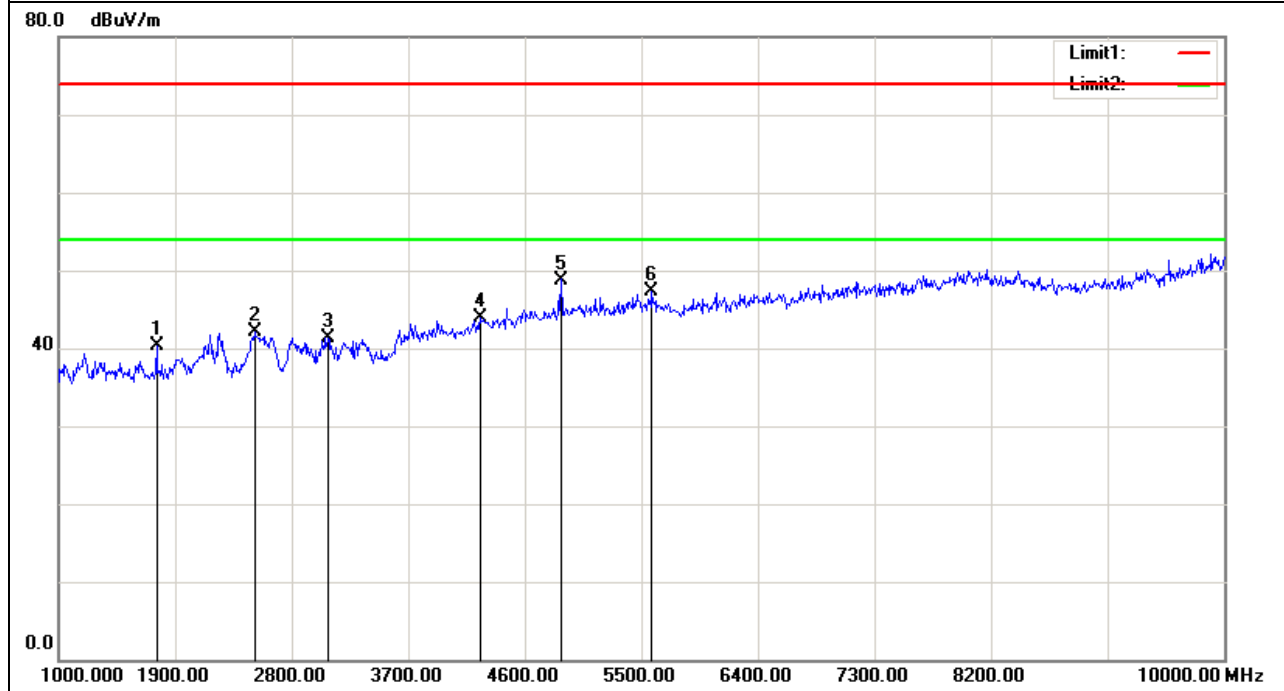


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2441MHz (3Mbps-worst case)	Polarization :	Horizontal
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1760.050	46.55	-6.36	40.19	74.00	-33.81	peak
2514.982	43.91	-2.24	41.67	74.00	-32.33	peak
3080.294	42.11	-1.23	40.88	74.00	-33.12	peak
4261.498	41.10	2.50	43.60	74.00	-30.40	peak
4882.260	43.73	4.59	48.32	74.00	-25.68	peak
5585.687	41.26	5.90	47.16	74.00	-26.84	peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

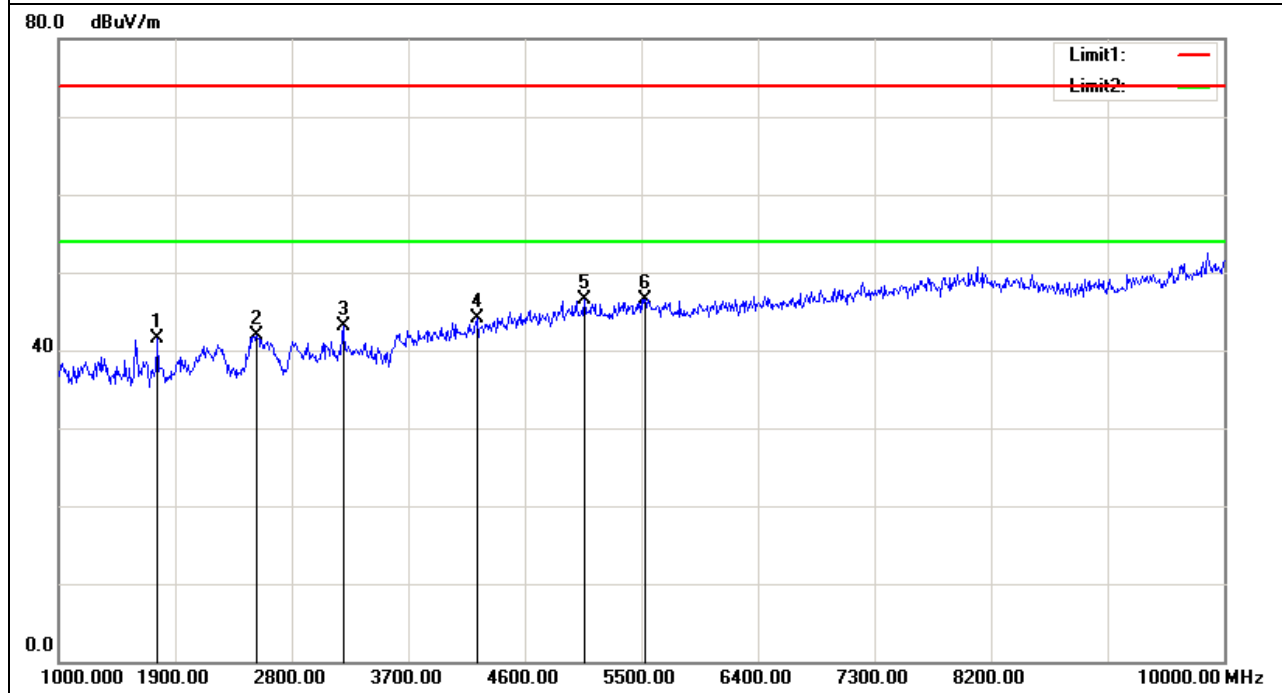


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2441MHz (3Mbps-worst case)	Polarization :	Vertical
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1768.613	47.67	-6.35	41.32	74.00	-32.68	peak
2530.871	43.71	-2.21	41.50	74.00	-32.50	peak
3197.573	44.01	-1.03	42.98	74.00	-31.02	peak
4233.166	41.15	2.40	43.55	74.00	-30.45	peak
5060.093	40.97	5.09	46.06	74.00	-27.94	peak
5530.867	40.50	5.88	46.38	74.00	-27.62	peak

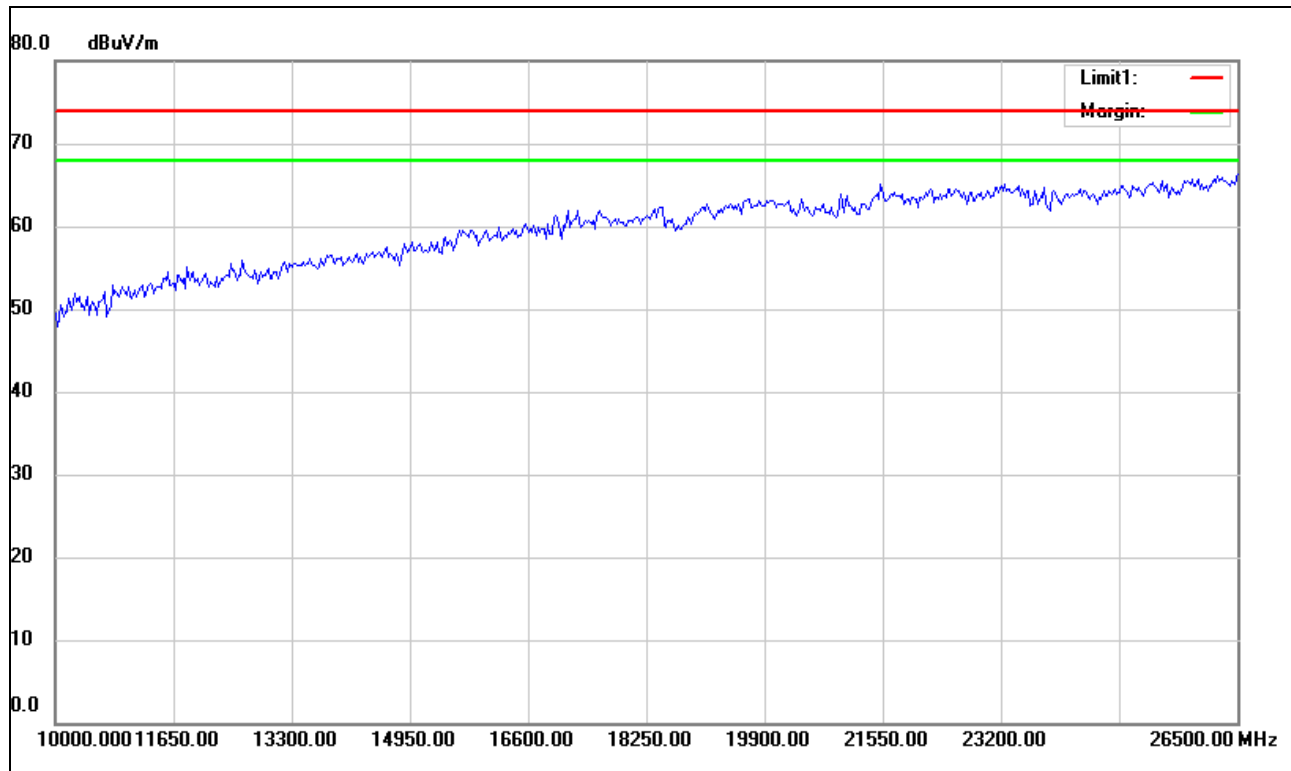
Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



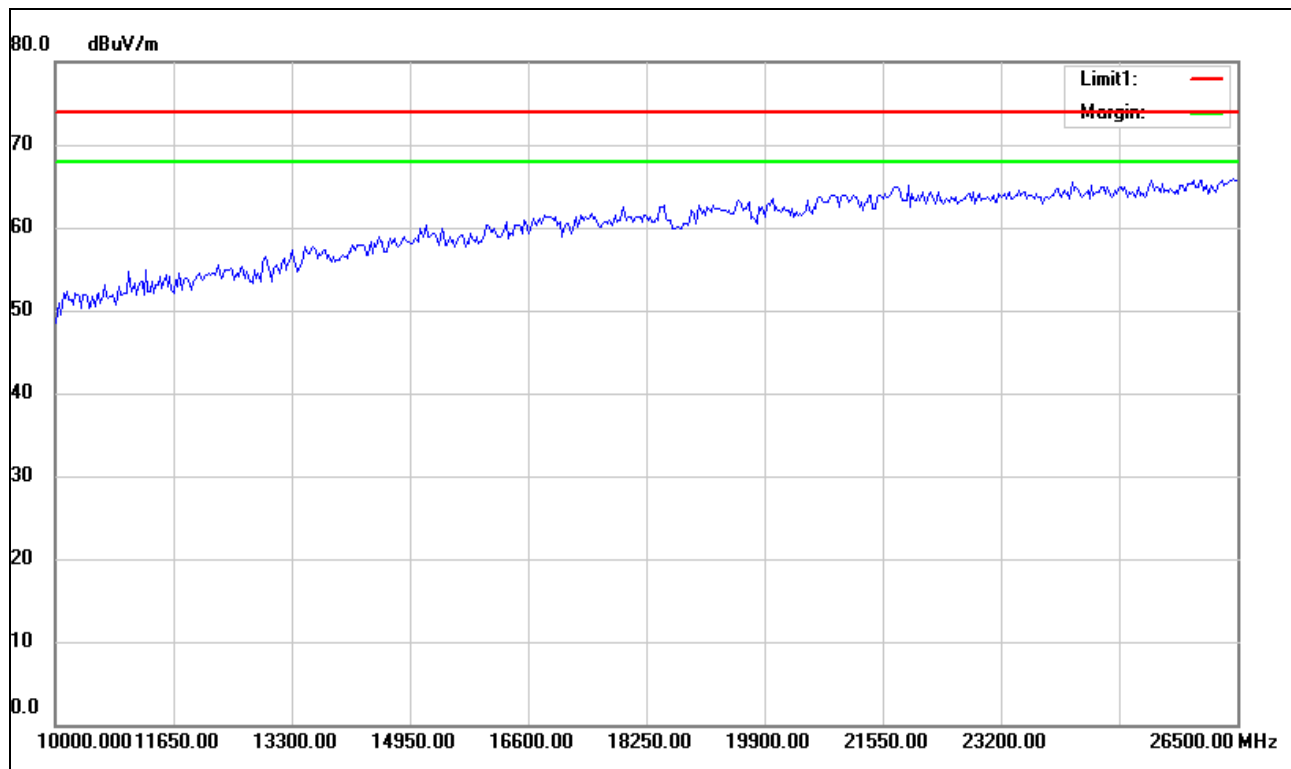
Horizontal

Detect: 10GHz -26.5GHz



Vertical

Detect: 10GHz -26.5GHz

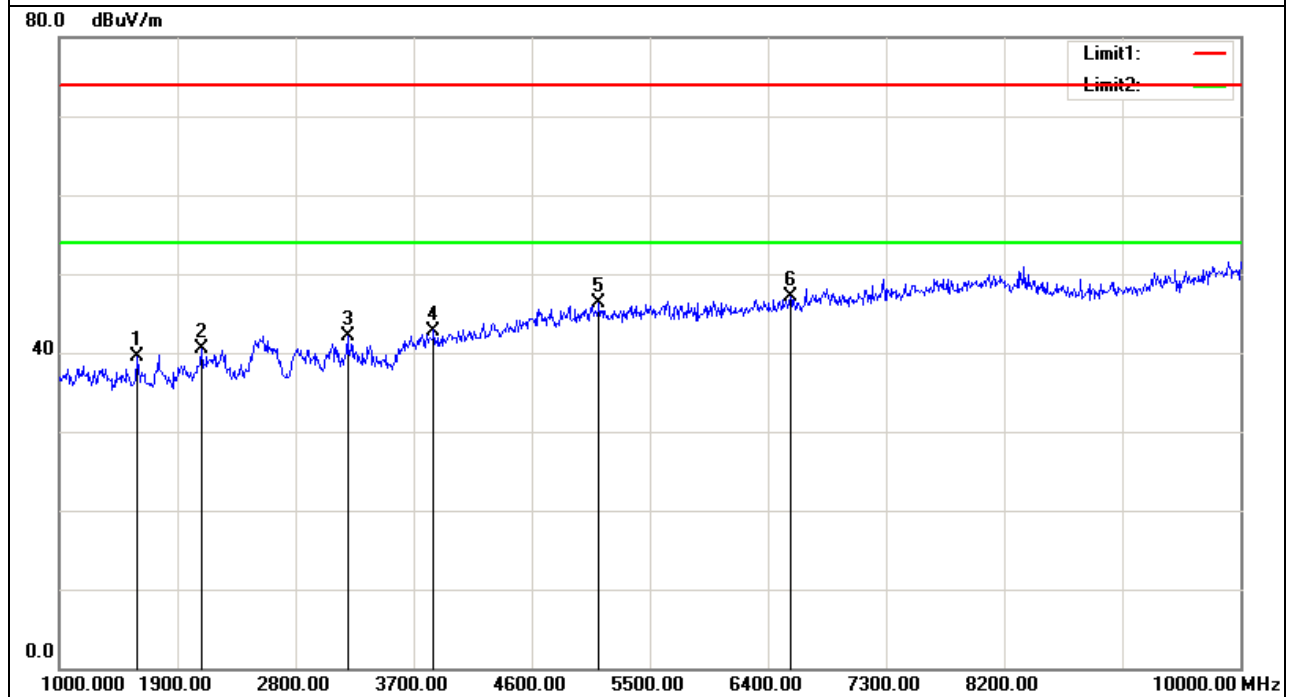


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2480MHz (3Mbps-worst case)	Polarization :	Horizontal
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1596.100	45.84	-6.71	39.13	74.00	-34.87	peak
2082.956	44.69	-4.56	40.13	74.00	-33.87	peak
3198.022	42.66	-1.03	41.63	74.00	-32.37	peak
3855.875	41.24	0.97	42.21	74.00	-31.79	peak
5117.465	40.63	5.18	45.81	74.00	-28.19	peak
6575.425	39.71	7.01	46.72	74.00	-27.28	peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

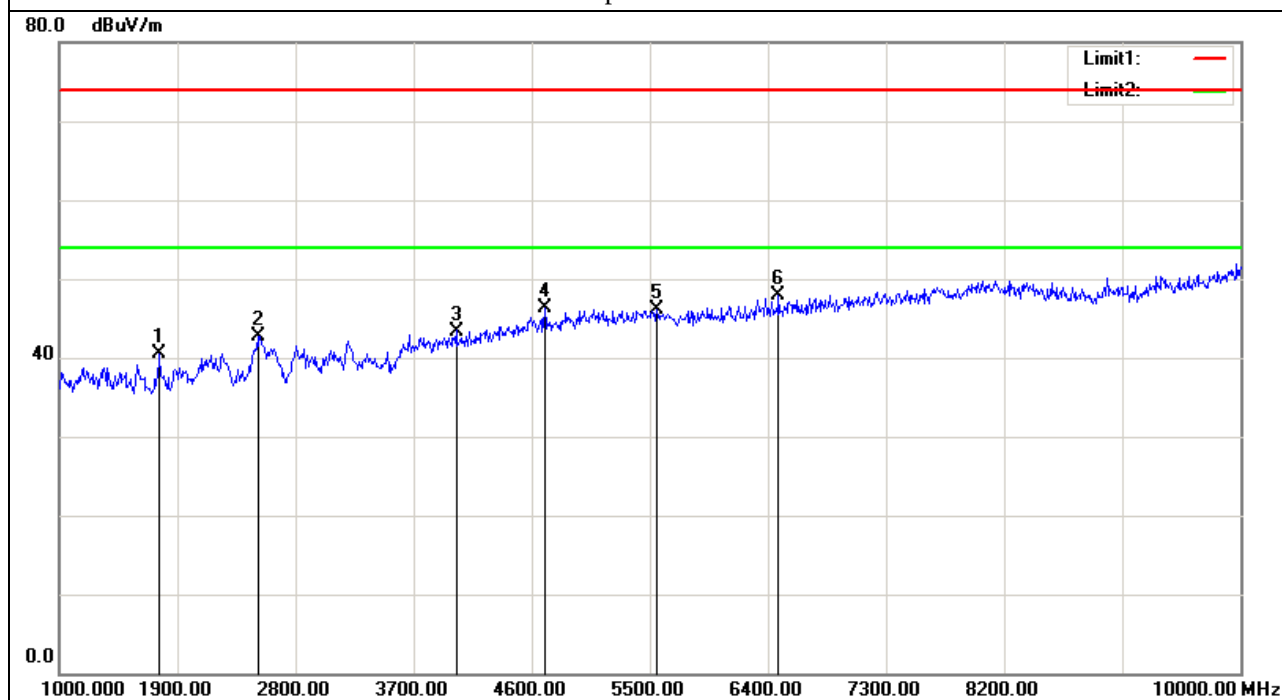


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	TX 2480MHz (3Mbps-worst case)	Polarization :	Vertical
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1769.334	47.06	-6.35	40.71	74.00	-33.29	peak
2516.893	45.01	-2.24	42.77	74.00	-31.23	peak
4027.832	41.83	1.67	43.50	74.00	-30.50	peak
4702.483	42.74	4.00	46.74	74.00	-27.26	peak
5557.575	40.24	5.89	46.13	74.00	-27.87	peak
6482.565	41.39	6.86	48.25	74.00	-25.75	peak

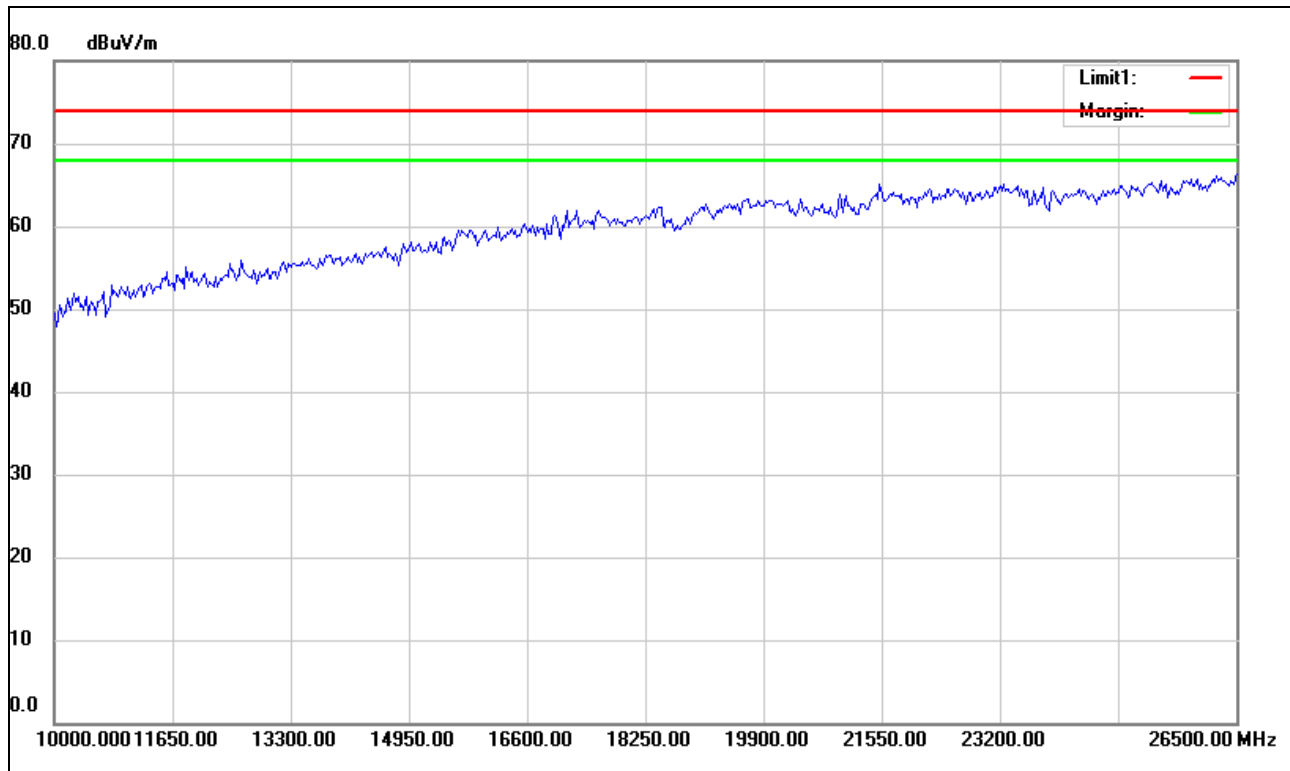
Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



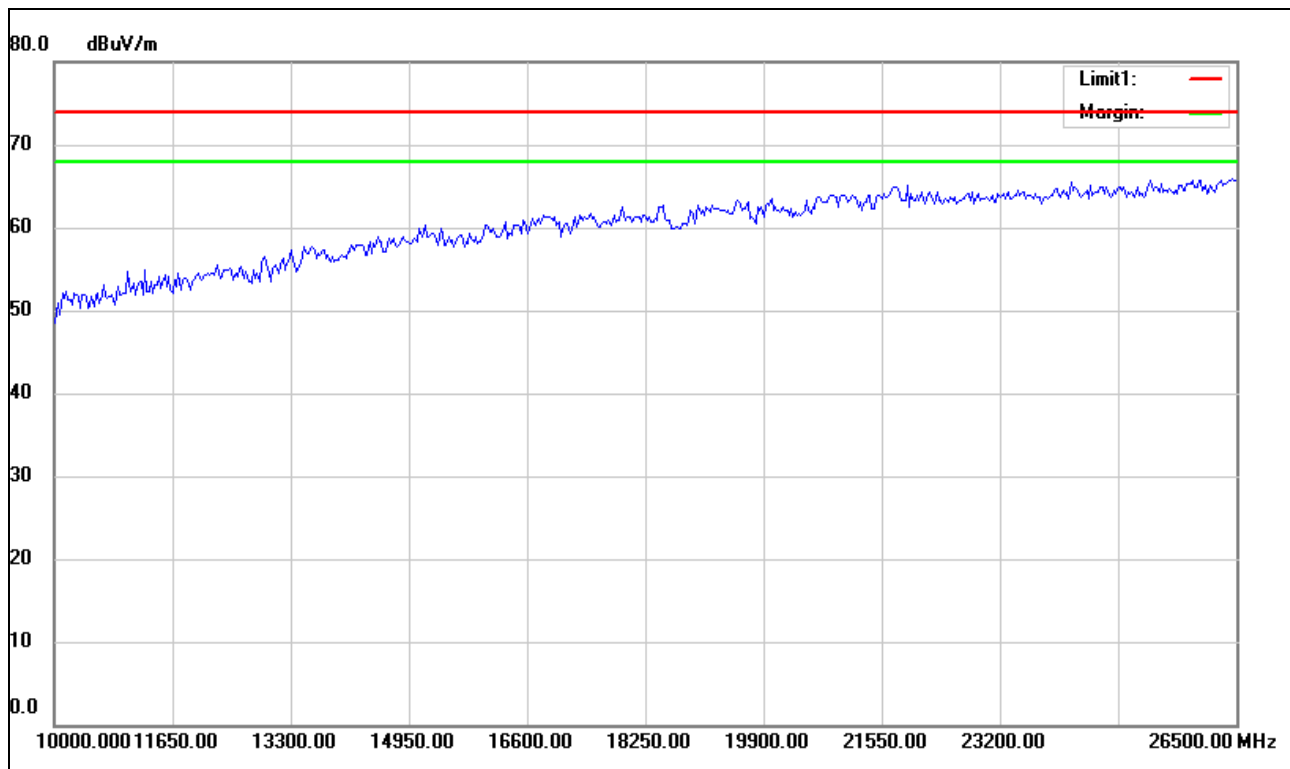
Horizontal

Detect: 10GHz -26.5GHz



Vertical

Detect: 10GHz -26.5GHz

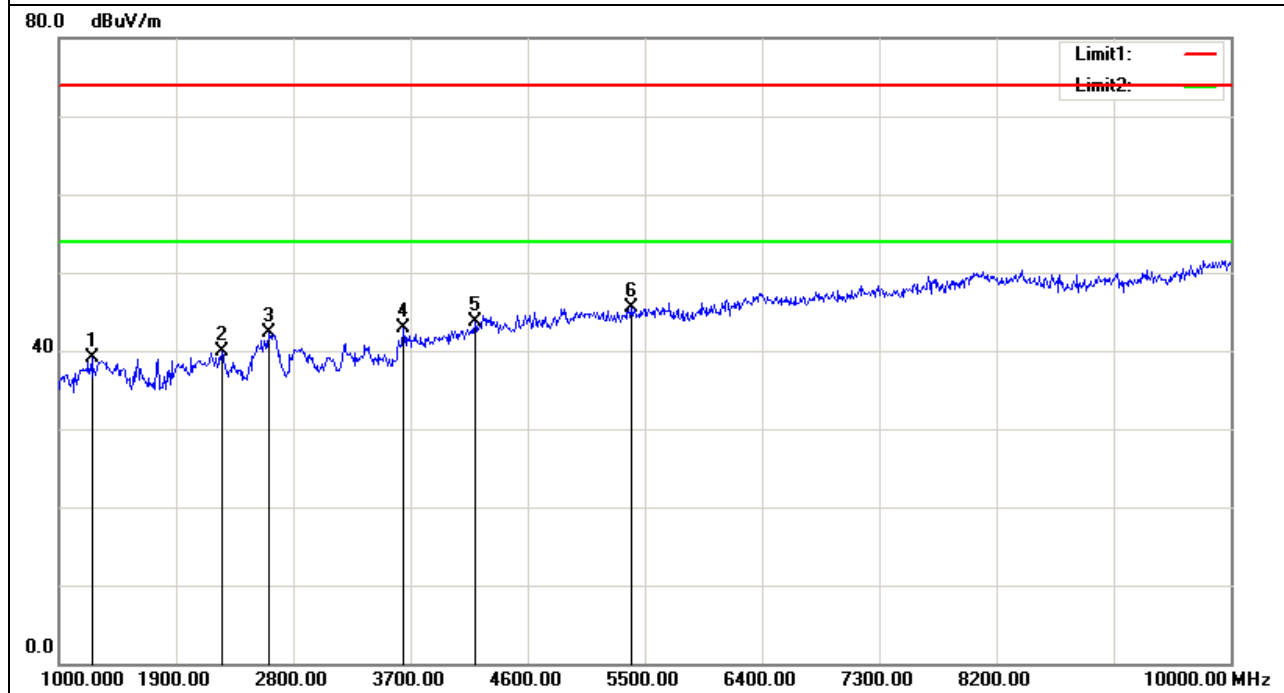


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	RX 2402MHz (1Mbps-worst case)	Polarization :	Horizontal
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1253.576	47.10	-7.60	39.50	74.00	-34.50	peak
2252.758	44.29	-3.62	40.67	74.00	-33.33	peak
2615.367	44.94	-2.06	42.88	74.00	-31.12	peak
3646.552	43.18	0.10	43.28	74.00	-30.72	peak
4195.984	41.83	2.28	44.11	74.00	-29.89	peak
5393.360	40.63	5.68	46.31	74.00	-27.69	peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

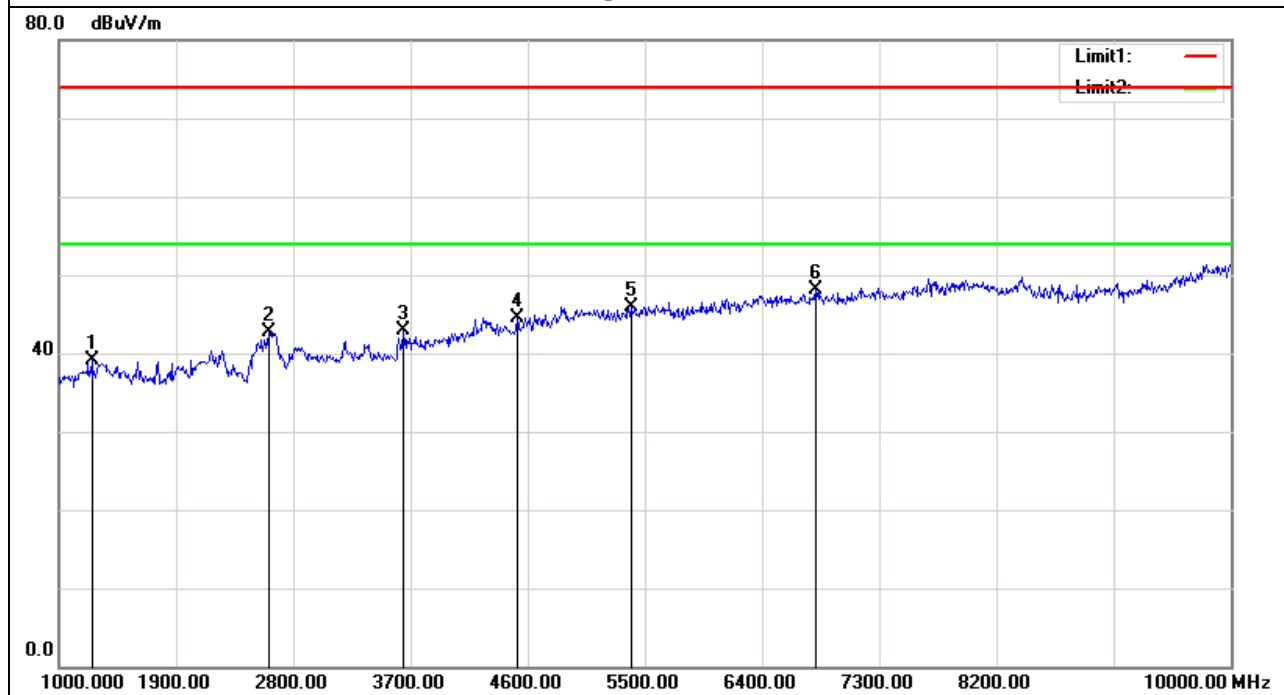


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	RX 2402MHz (1Mbps-worst case)	Polarization :	Vertical
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1256.230	46.86	-7.60	39.26	74.00	-34.74	peak
2611.222	45.35	-2.06	43.29	74.00	-30.71	peak
3650.783	43.30	0.10	43.40	74.00	-30.60	peak
4523.829	41.36	3.41	44.77	74.00	-29.23	peak
5394.523	40.89	5.68	46.57	74.00	-27.43	peak
6817.873	40.76	7.40	48.16	74.00	-25.84	peak

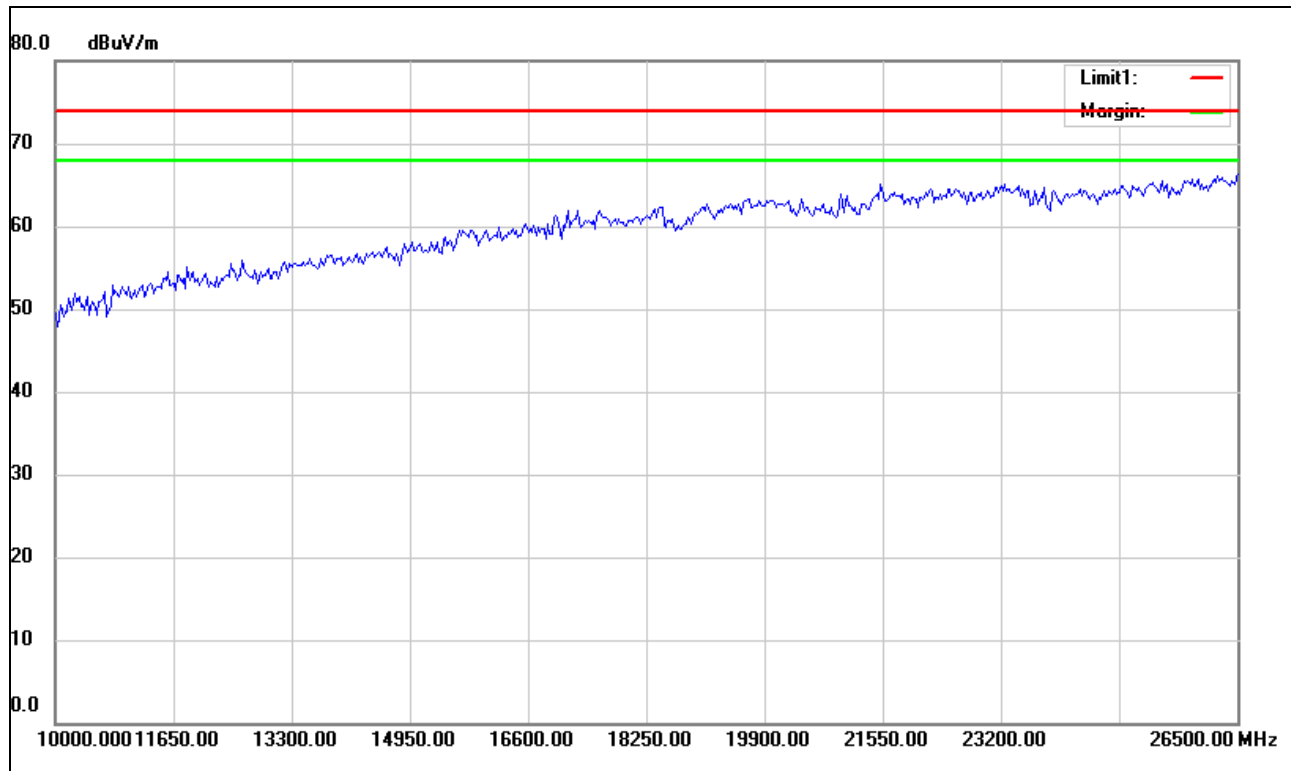
Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



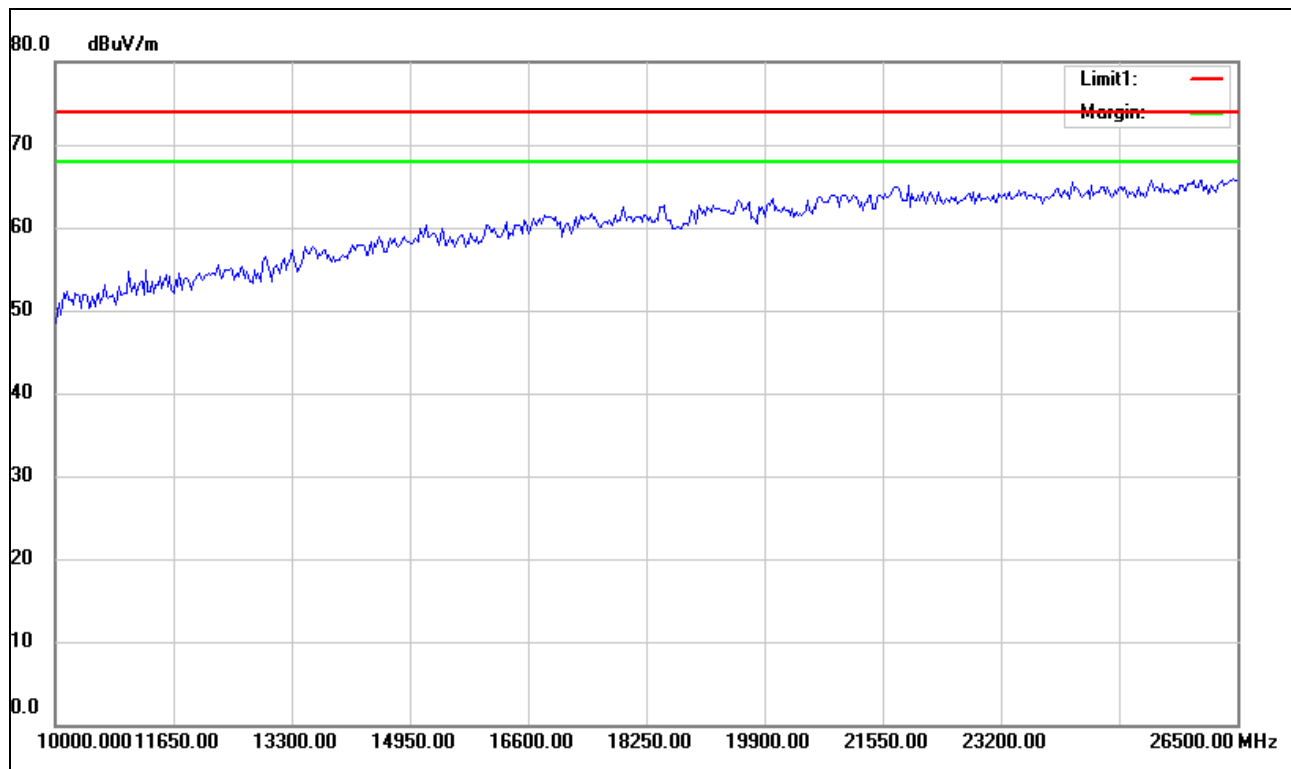
Horizontal

Detect: 10GHz -26.5GHz



Vertical

Detect: 10GHz -26.5GHz

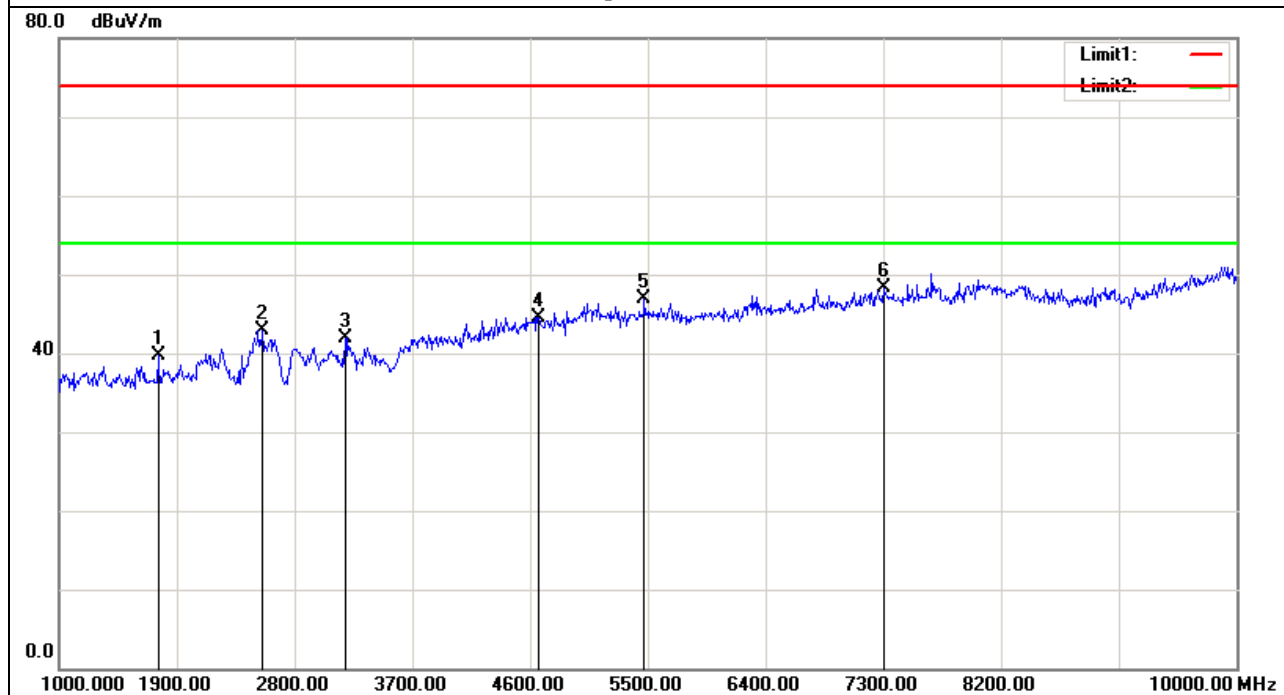


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	RX 2441MHz (1Mbps-worst case)	Polarization :	Horizontal
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1758.260	45.93	-6.36	39.57	74.00	-34.43	peak
2559.590	44.78	-2.16	42.62	74.00	-31.38	peak
3191.141	42.89	-1.05	41.84	74.00	-32.16	peak
4666.436	40.45	3.88	44.33	74.00	-29.67	peak
5476.287	40.99	5.82	46.81	74.00	-27.19	peak
7301.522	39.52	8.29	47.81	74.00	-26.19	peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

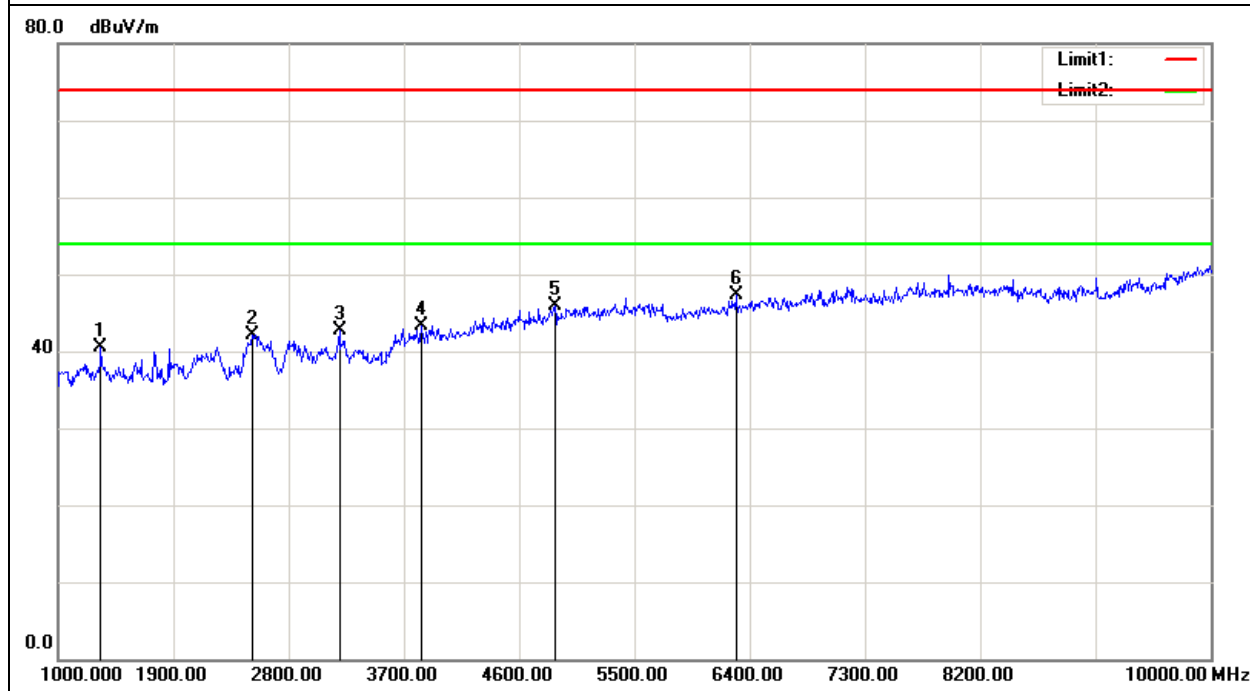


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	RX 2441MHz (1Mbps-worst case)	Polarization :	Vertical
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1334.748	47.24	-7.30	39.94	74.00	-34.06	peak
2513.988	44.15	-2.24	41.91	74.00	-32.09	peak
3196.226	43.08	-1.03	42.05	74.00	-31.95	peak
3838.118	42.12	0.89	43.01	74.00	-30.99	peak
4881.986	40.70	4.59	45.29	74.00	-28.71	peak
6292.604	40.11	6.55	46.66	74.00	-27.34	peak

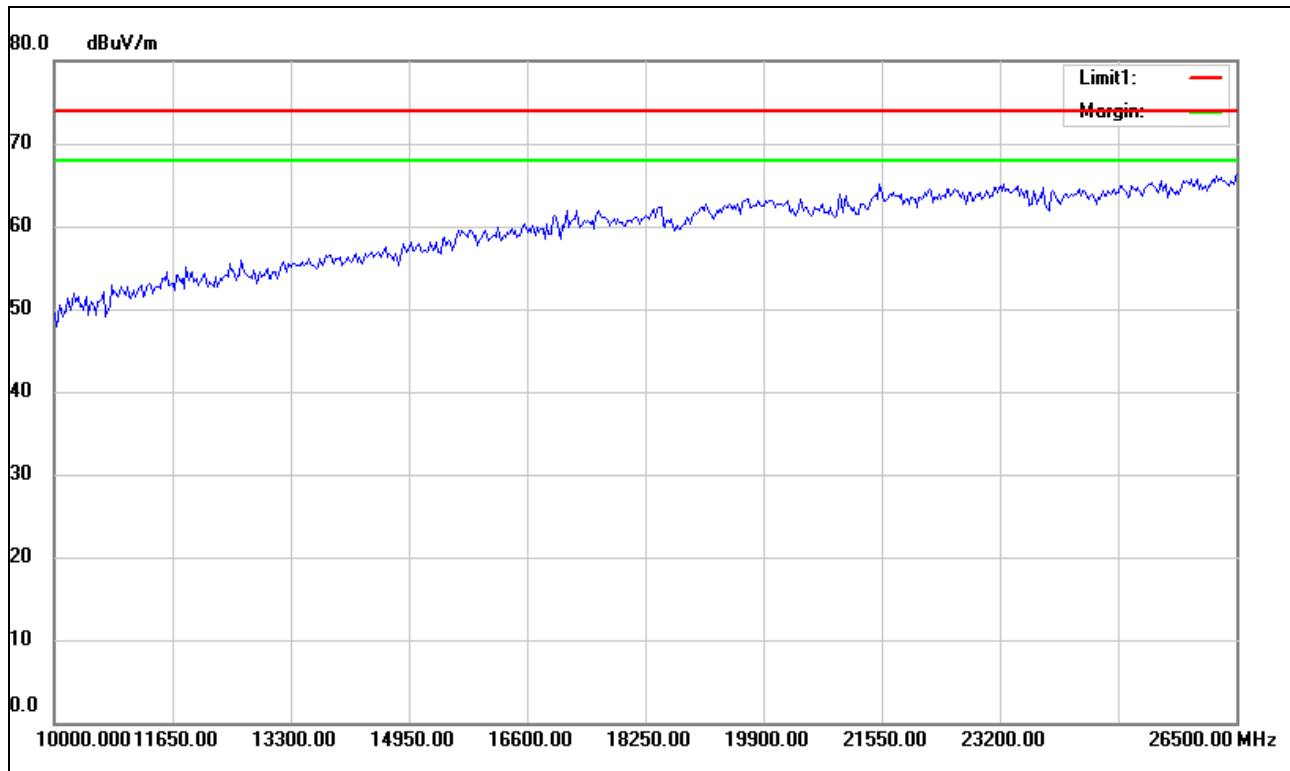
Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



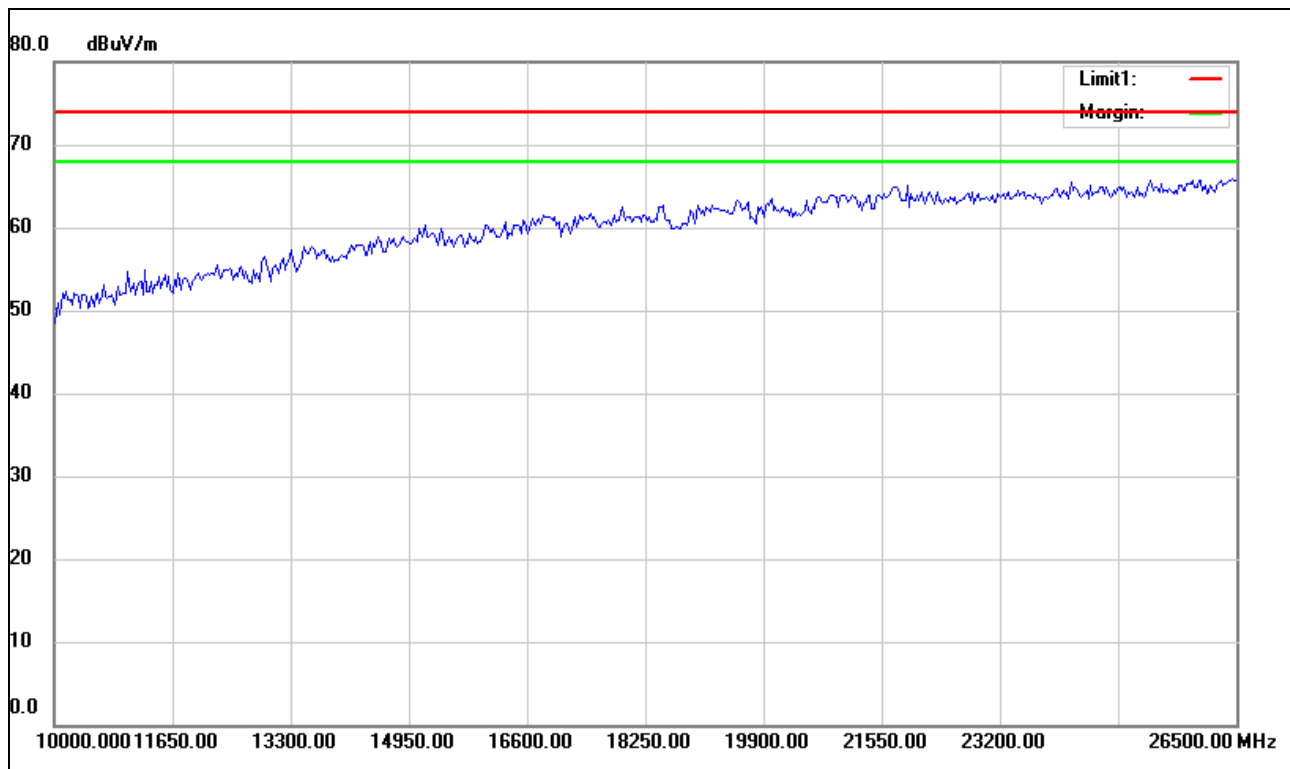
Horizontal

Detect: 10GHz -26.5GHz



Vertical

Detect: 10GHz -26.5GHz

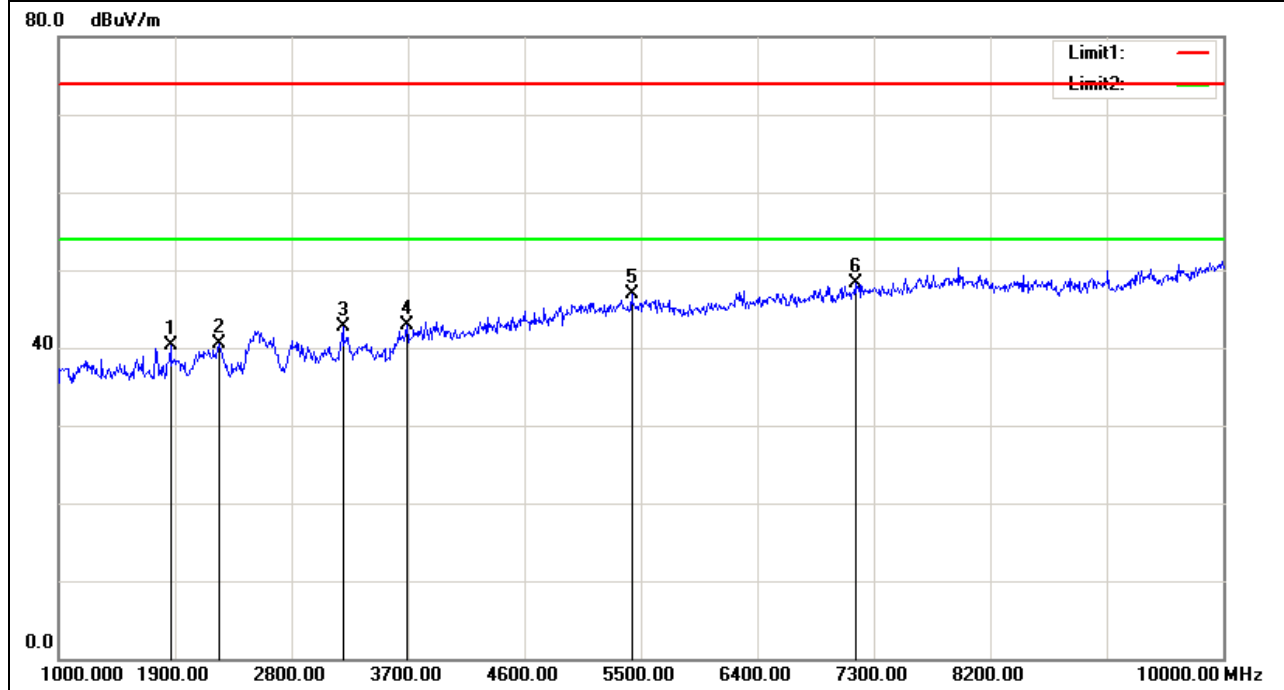


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	RX 2480MHz (1Mbps-worst case)	Polarization :	Horizontal
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1866.089	46.23	-5.86	40.37	74.00	-33.63	peak
2244.439	44.69	-3.67	41.02	74.00	-32.98	peak
3196.232	44.19	-1.03	43.16	74.00	-30.84	peak
3692.842	43.28	0.29	43.57	74.00	-30.43	peak
5429.197	41.25	5.74	46.99	74.00	-27.01	peak
7158.872	40.33	8.00	48.33	74.00	-25.67	peak

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

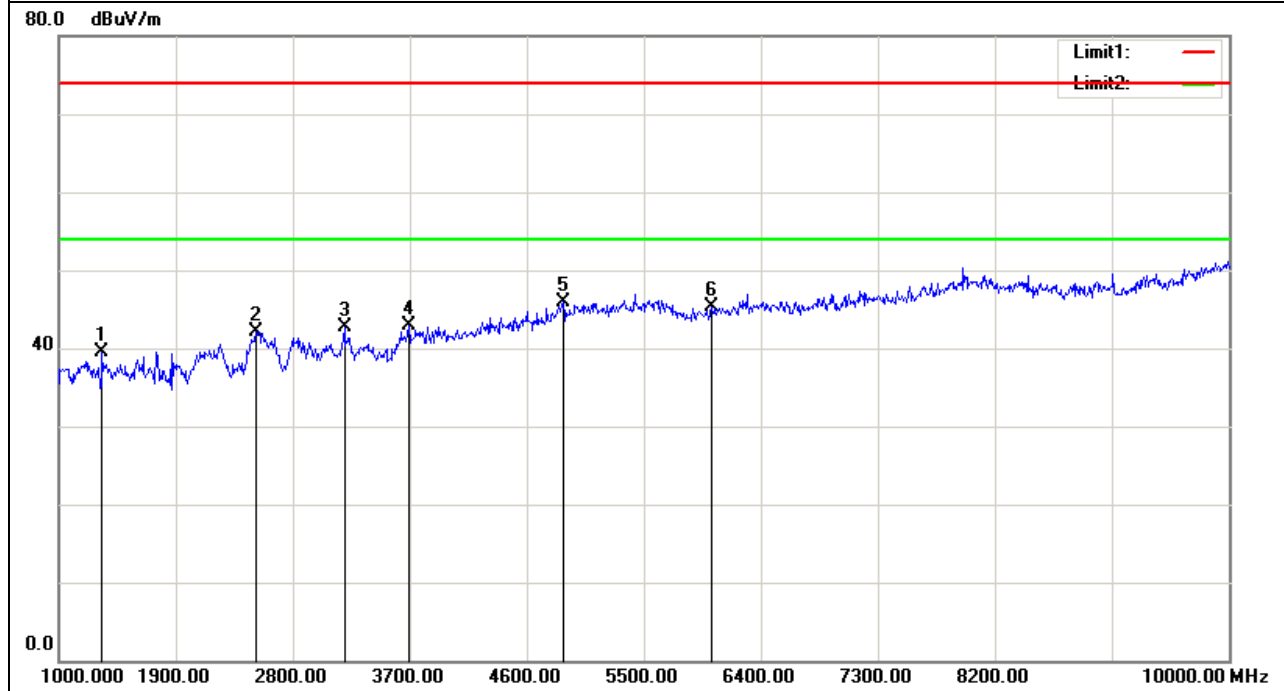


EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	24 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Test Date :	2020-06-08
Test Mode :	RX 2480MHz (1Mbps-worst case)	Polarization :	Vertical
Test Power :	DC 5V supplied by PC		

Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type
1335.991	46.48	-7.30	39.18	74.00	-34.82	peak
2514.855	44.13	-2.24	41.89	74.00	-32.11	peak
3200.413	44.22	-1.03	43.19	74.00	-30.81	peak
3692.932	43.14	0.29	43.43	74.00	-30.57	peak
5430.656	41.31	5.74	47.05	74.00	-26.95	peak
7158.556	40.38	8.00	48.38	74.00	-25.62	peak

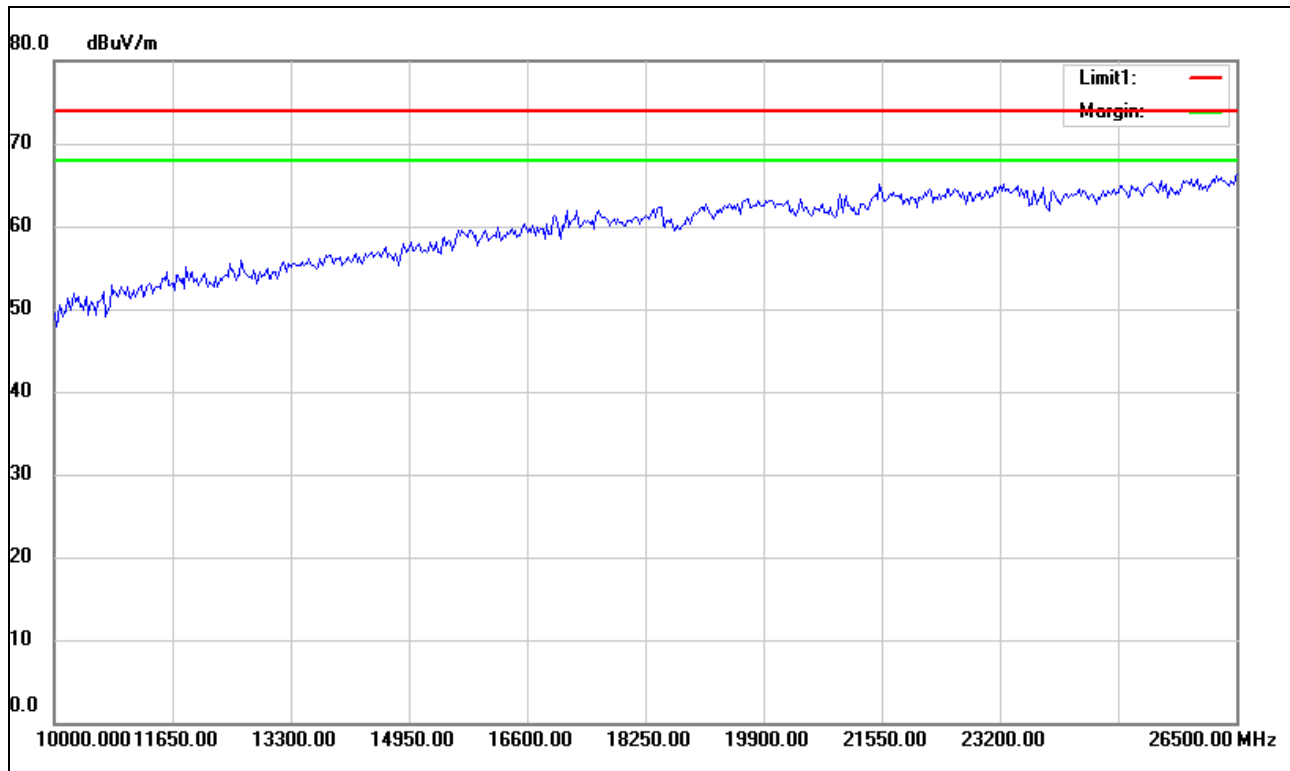
Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



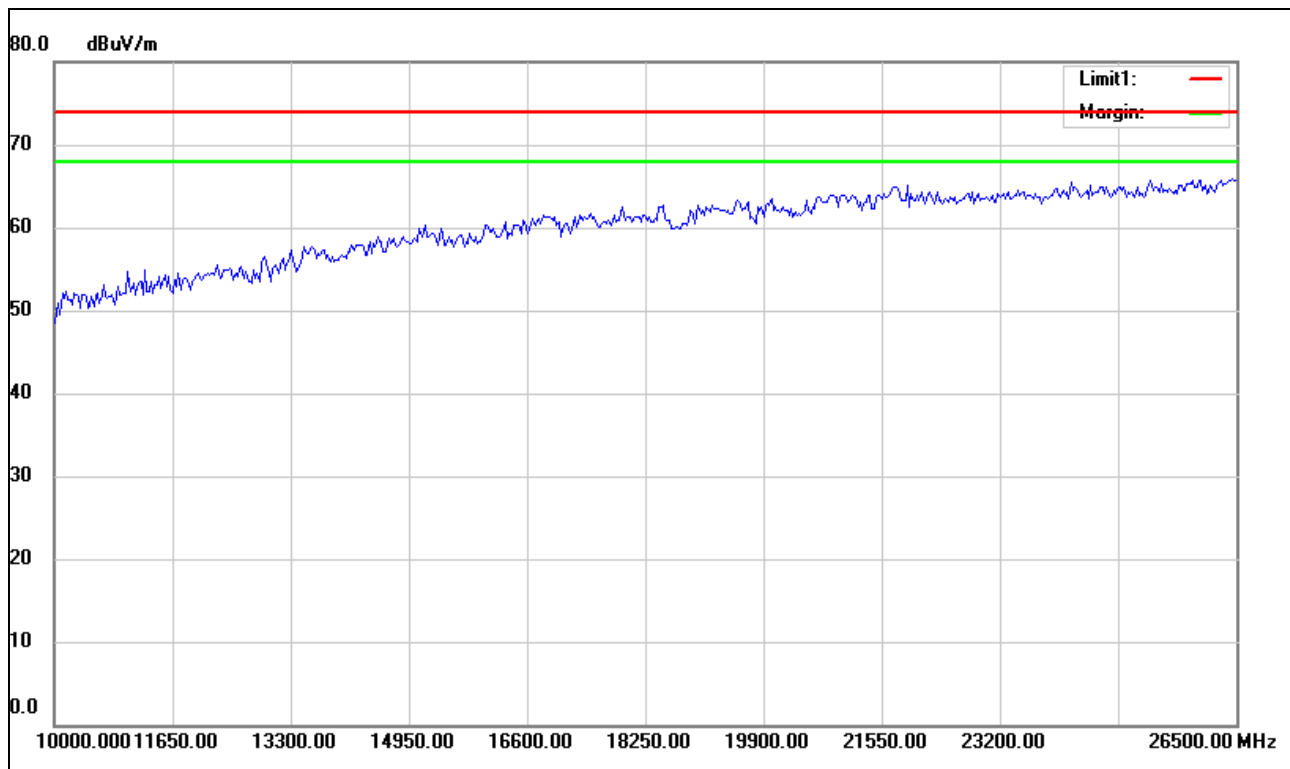
Horizontal

Detect: 10GHz -26.5GHz



Vertical

Detect: 10GHz -26.5GHz



Test result: The unit does meet the NCC requirements.

3.2.7 TEST RESULTS (RESTRICTED BANDS REQUIREMENTS)

EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Test Data	2020-06-08
Pressure :	1010 hPa	Relative Humidity :	60%
Test Mode :	TX 1Mbps	Test Voltage :	DC 5V supplied by PC
Note :	1. The transmitter was setup to transmit at the lowest channel. Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel. Then the field strength was measured at 2483.5-2500 MHz. 3. The data of 2390MHz and 2483.5MHz was the worst.		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant/CF CF(dB)	Act		Limit		Note
		Peak (dBuv)	AV (dBuv)		Peak (dBuv/m)	AV (dBuv/m)	Peak (dBuv/m)	AV (dBuv/m)	
2390.00	V	43.68	32.78	-5.79	37.89	26.99	74.00	54.00	CH00
2390.00	H	42.75	30.66	-5.79	36.96	24.87	74.00	54.00	CH00
2483.50	V	45.91	34.29	-4.98	40.93	29.31	74.00	54.00	CH78
2483.50	H	44.17	31.36	-4.98	39.19	26.38	74.00	54.00	CH78

Remark :

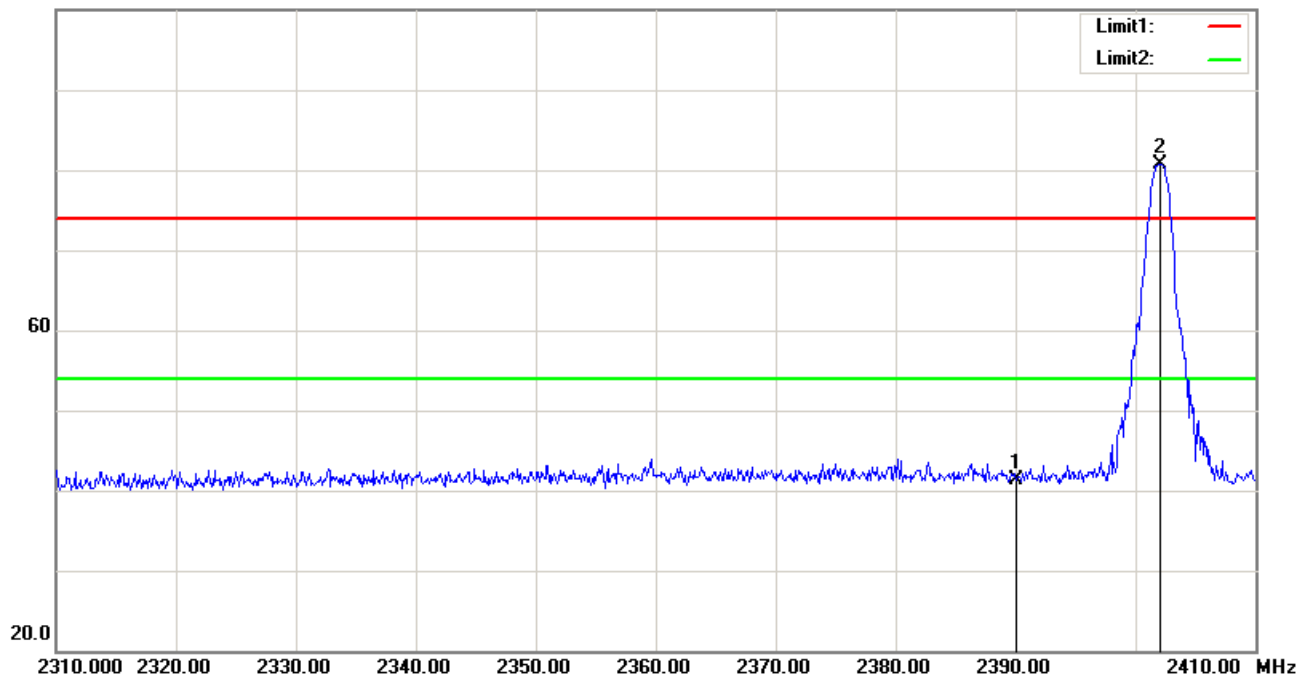
- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode
- (2) EUT Orthogonal Axis :
“X” - denotes Laid on Table ; ”Y” - denotes Vertical Stand ; ”Z” - denotes Side Stand
- (3) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (4) Corr.Factor = Antenna Factor + Cable Loss – Pre-amplifier.

CH-Low (CH00)

Detector mode: Peak

Polarity: Vertical

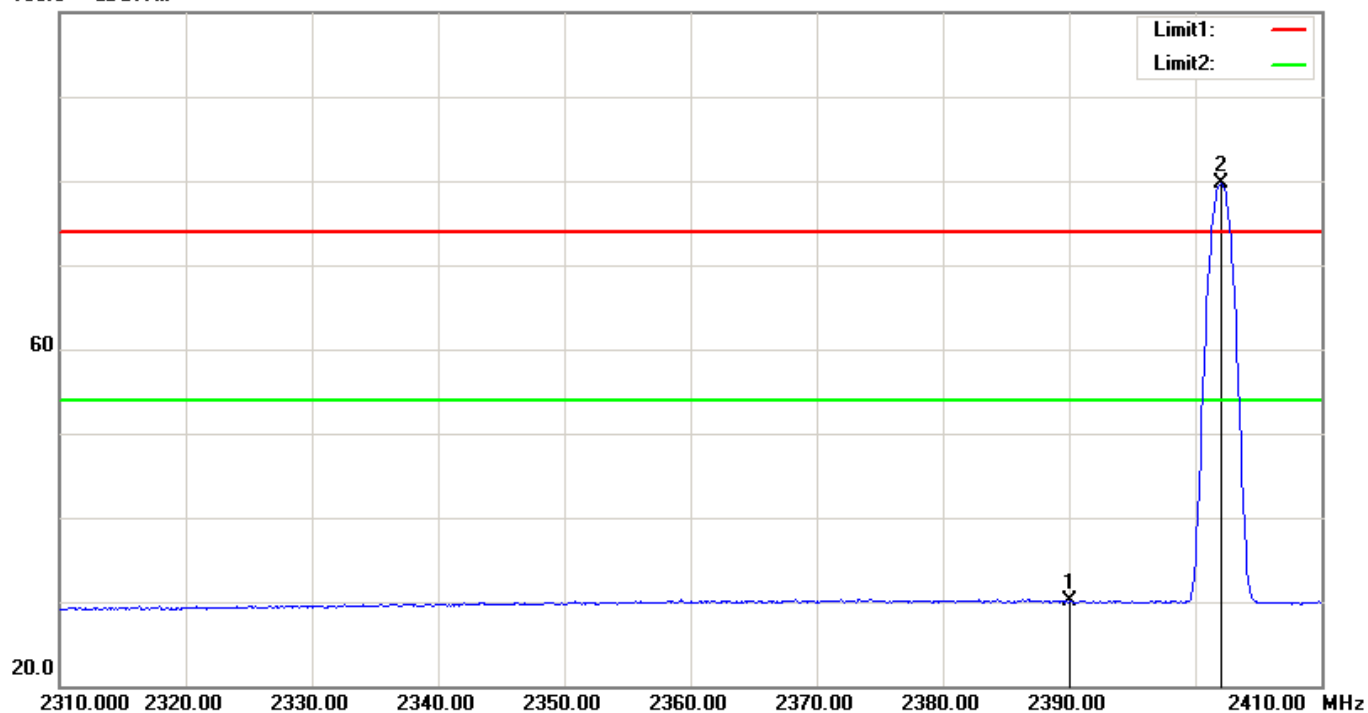
100.0 dBuV/m



Detector mode: Average

Polarity: Vertical

100.0 dBuV/m

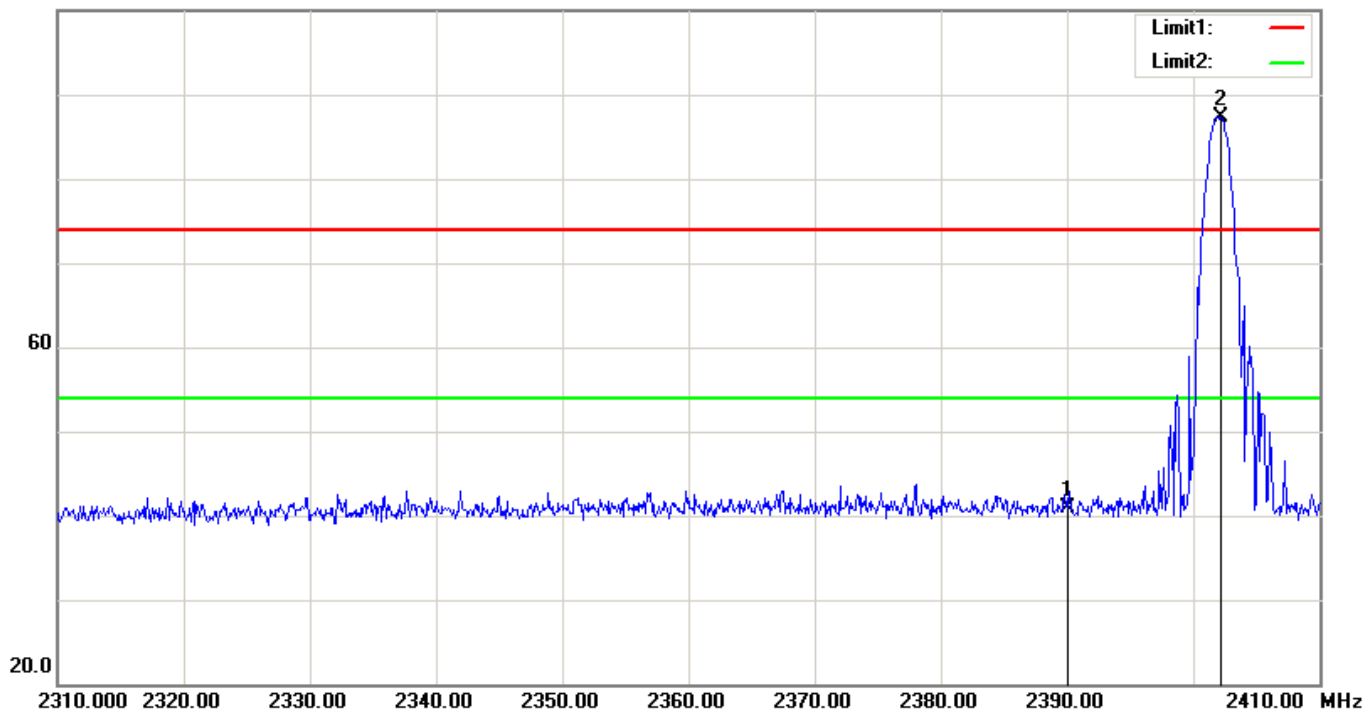


CH-Low (CH00)

Detector mode: Peak

Polarity: Horizontal

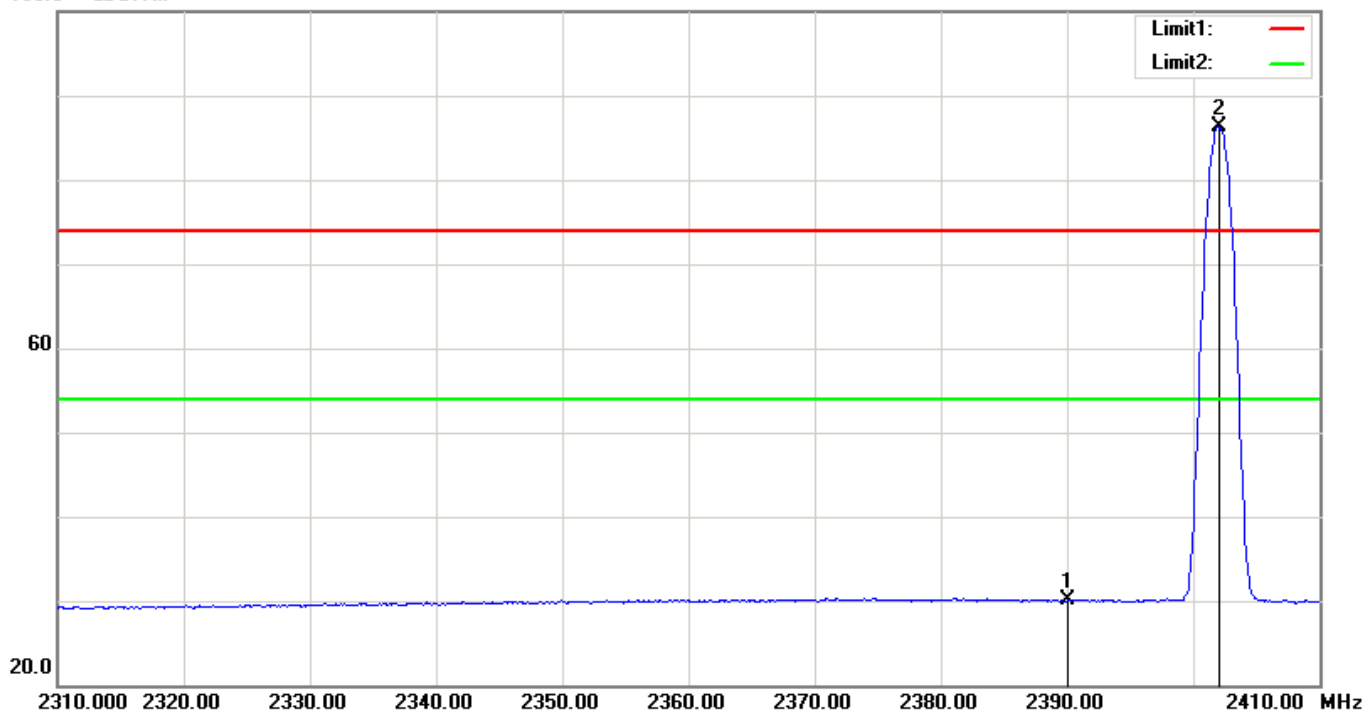
100.0 dBuV/m



Detector mode: Average

Polarity: Horizontal

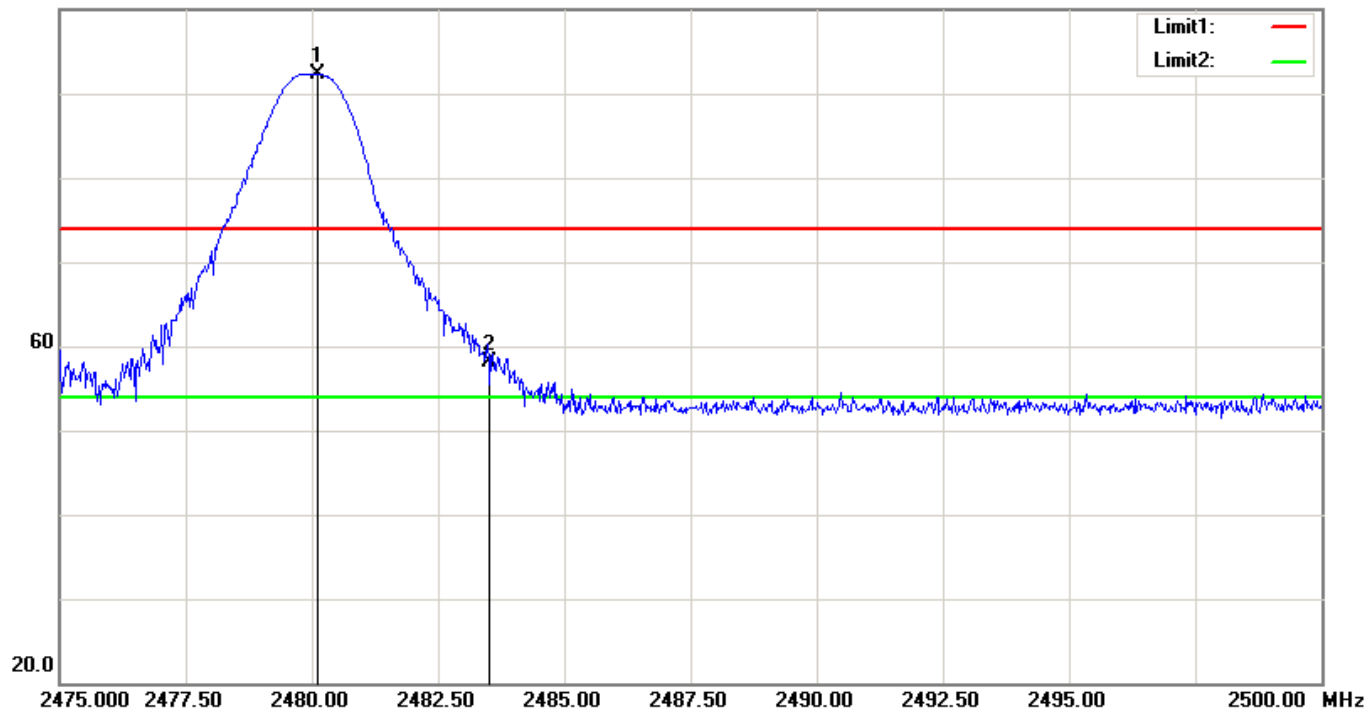
100.0 dBuV/m



CH-High (CH00)

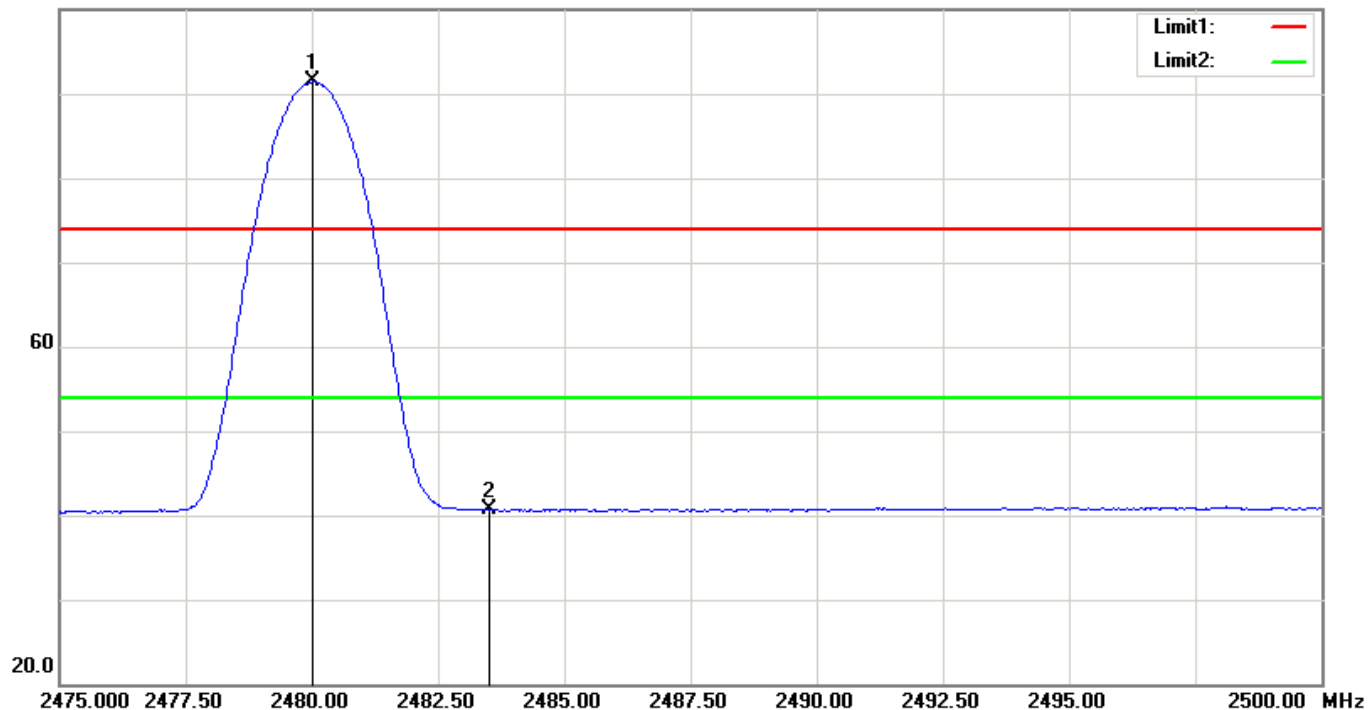
Detector mode: Peak
100.0 dBuV/m

Polarity: Vertical



Detector mode: Average
100.0 dBuV/m

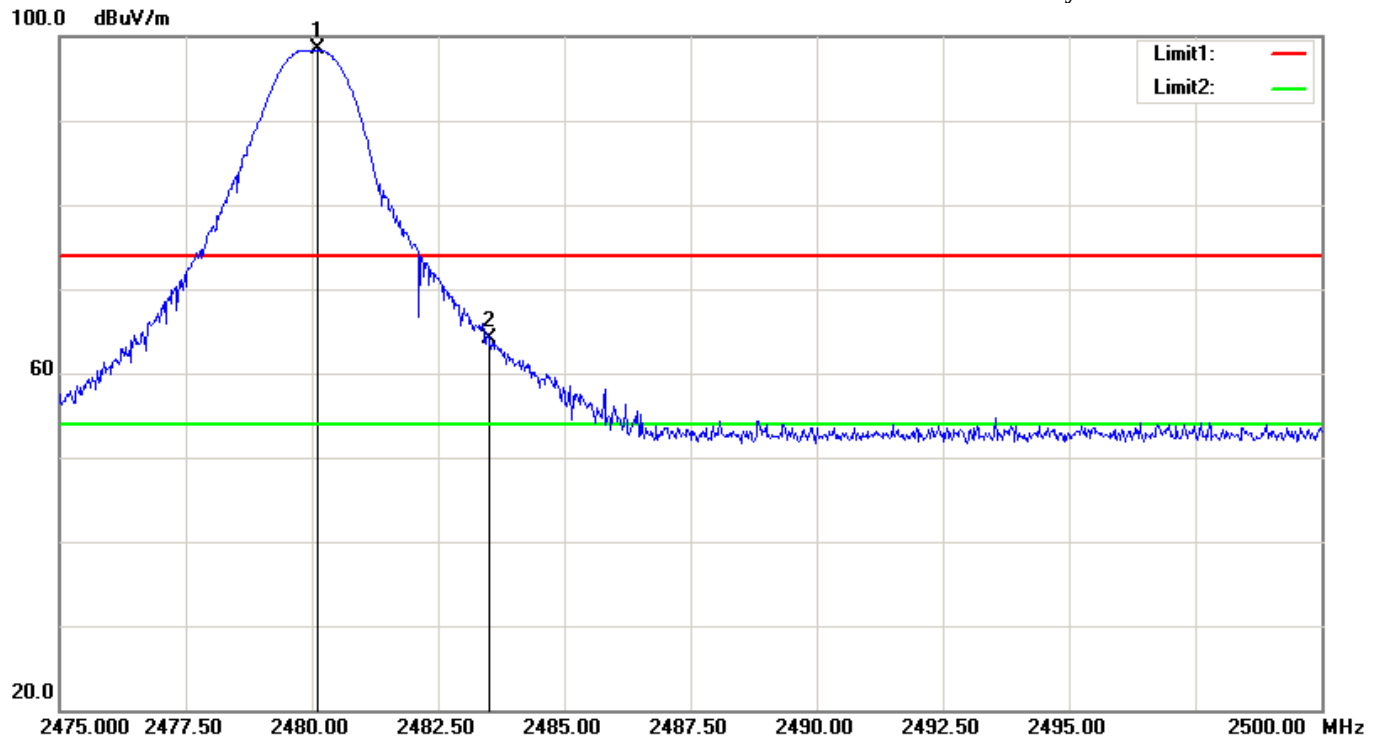
Polarity: Vertical



CH-High (CH00)

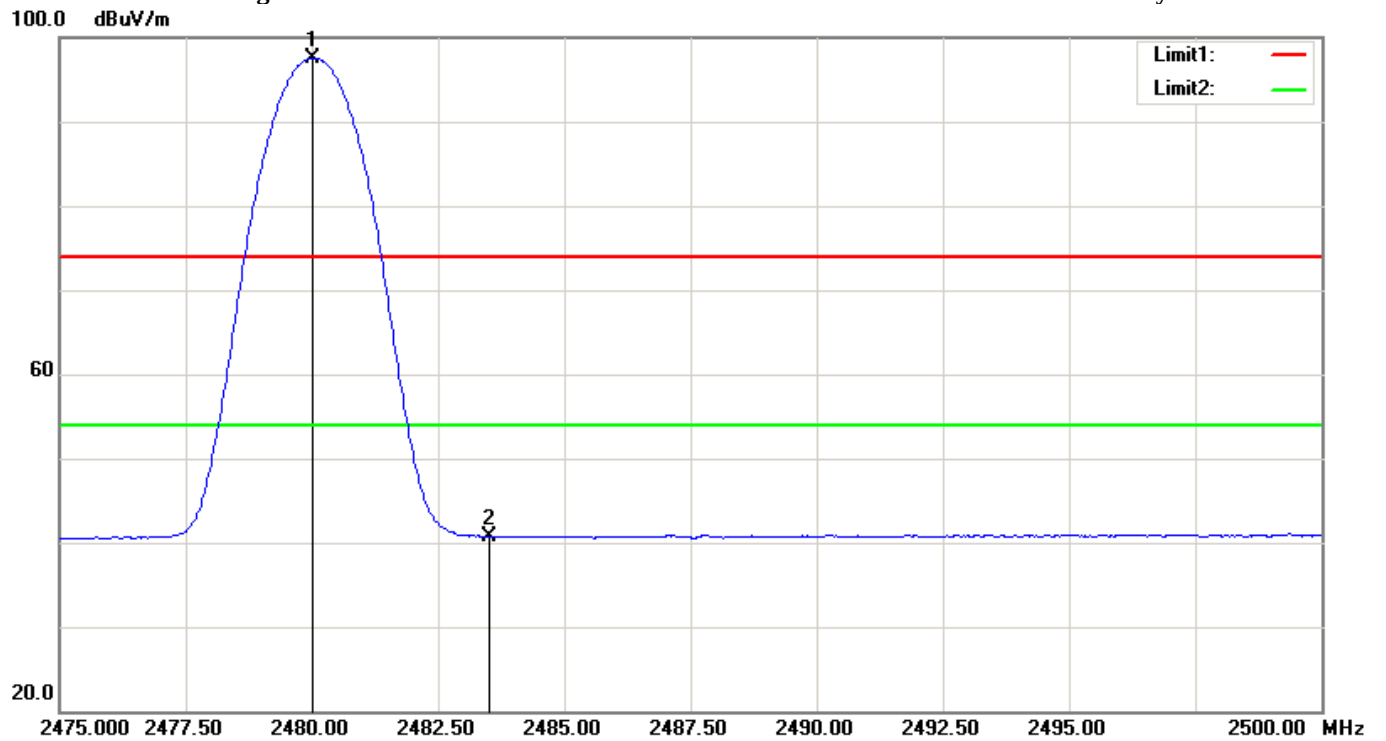
Detector mode: Peak

Polarity: Horizontal



Detector mode: Average

Polarity: Horizontal



EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Test Data	2020-06-08
Pressure :	1010 hPa	Relative Humidity :	60%
Test Mode :	TX 3Mbps	Test Voltage :	DC 5V supplied by PC
Note :	1. The transmitter was setup to transmit at the lowest channel. Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was setup to transmit at the highest channel. Then the field strength was measured at 2483.5-2500 MHz. 3. The data of 2390MHz and 2483.5MHz was the worst.		

Freq. (MHz)	Ant.Pol. H/V	Reading		Ant/CF CF(dB)	Act		Limit		Note
		Peak (dBuv)	AV (dBuv)		Peak (dBuv/m)	AV (dBuv/m)	Peak (dBuv/m)	AV (dBuv/m)	
2390.00	V	45.84	34.52	-5.79	40.05	28.73	74.00	54.00	CH00
2390.00	H	44.37	33.68	-5.79	38.58	27.89	74.00	54.00	CH00
2483.50	V	45.65	33.52	-4.98	40.67	28.54	74.00	54.00	CH78
2483.50	H	44.62	33.94	-4.98	39.64	28.96	74.00	54.00	CH78

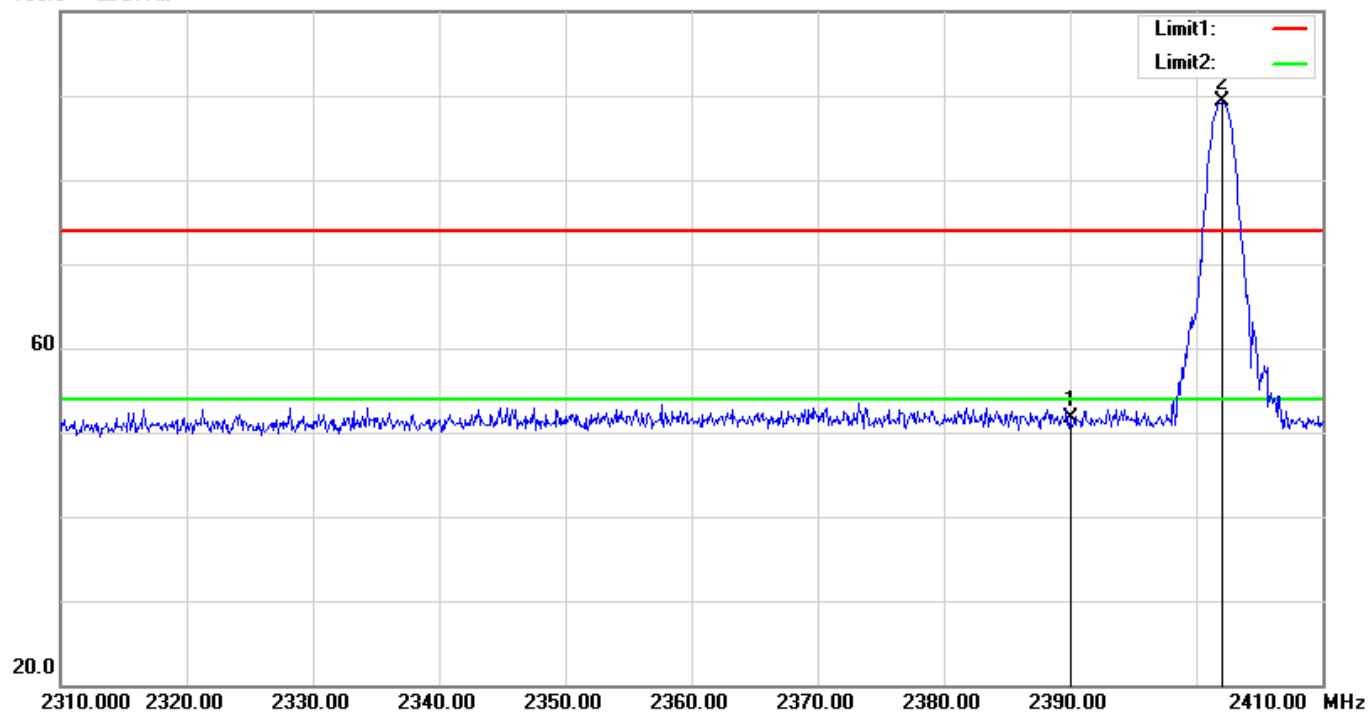
Remark :

- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode
- (2) EUT Orthogonal Axis :
"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand
- (3) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (4) Corr.Factor = Antenna Factor + Cable Loss – Pre-amplifier.

CH-Low (CH00)

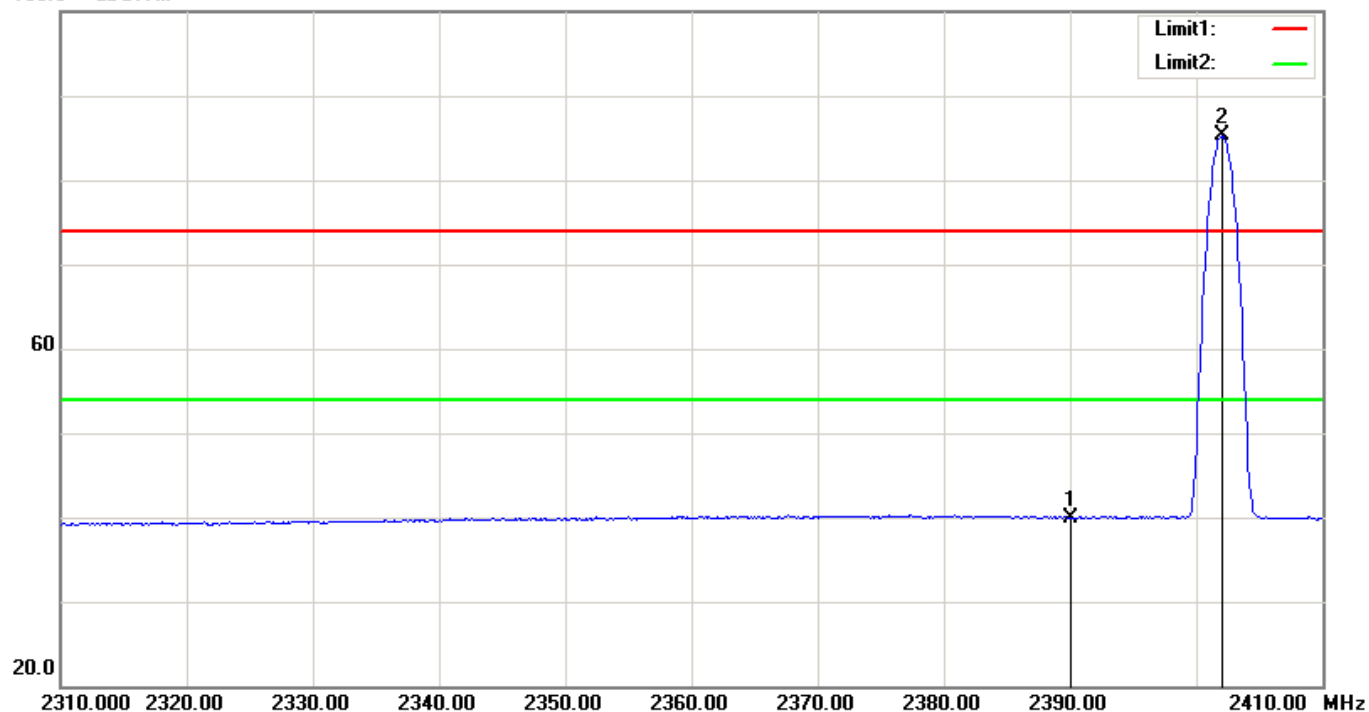
Detector mode: Peak
100.0 dBuV/m

Polarity: Vertical



Detector mode: Average
100.0 dBuV/m

Polarity: Vertical

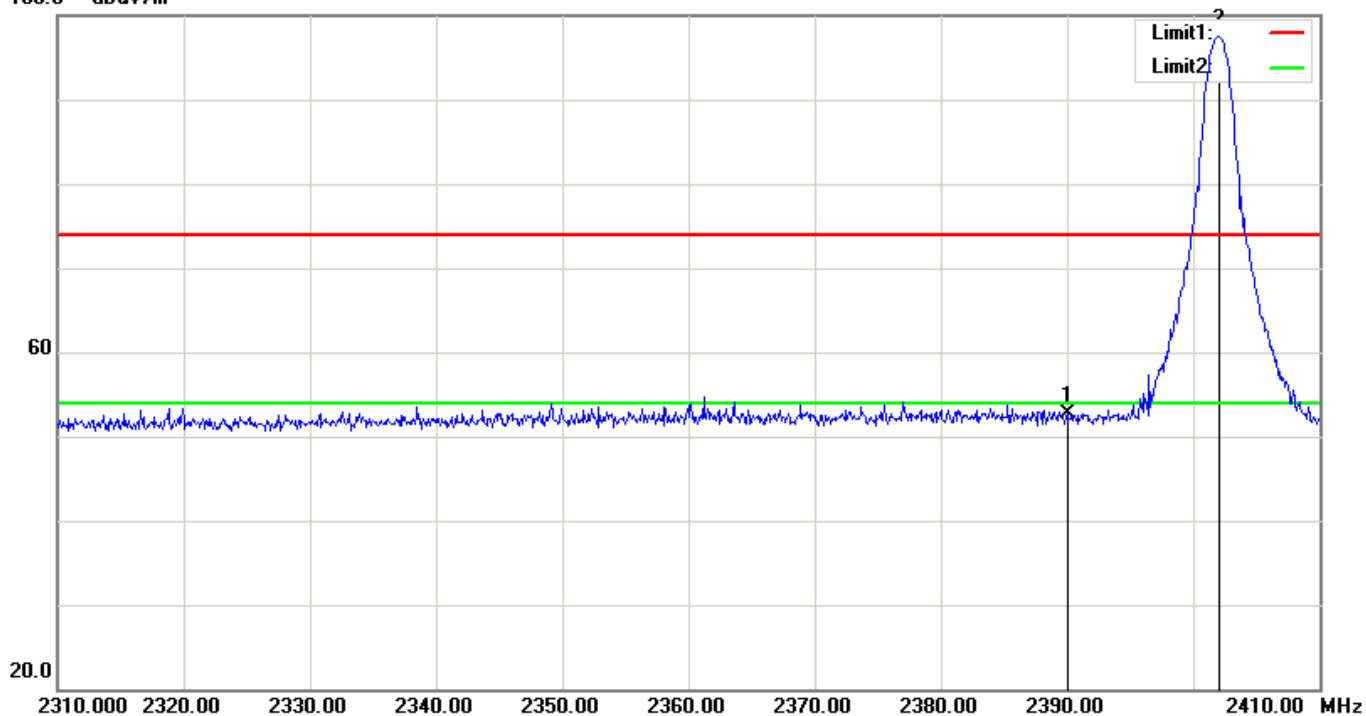


CH-Low (CH00)

Detector mode: Peak

Polarity: Horizontal

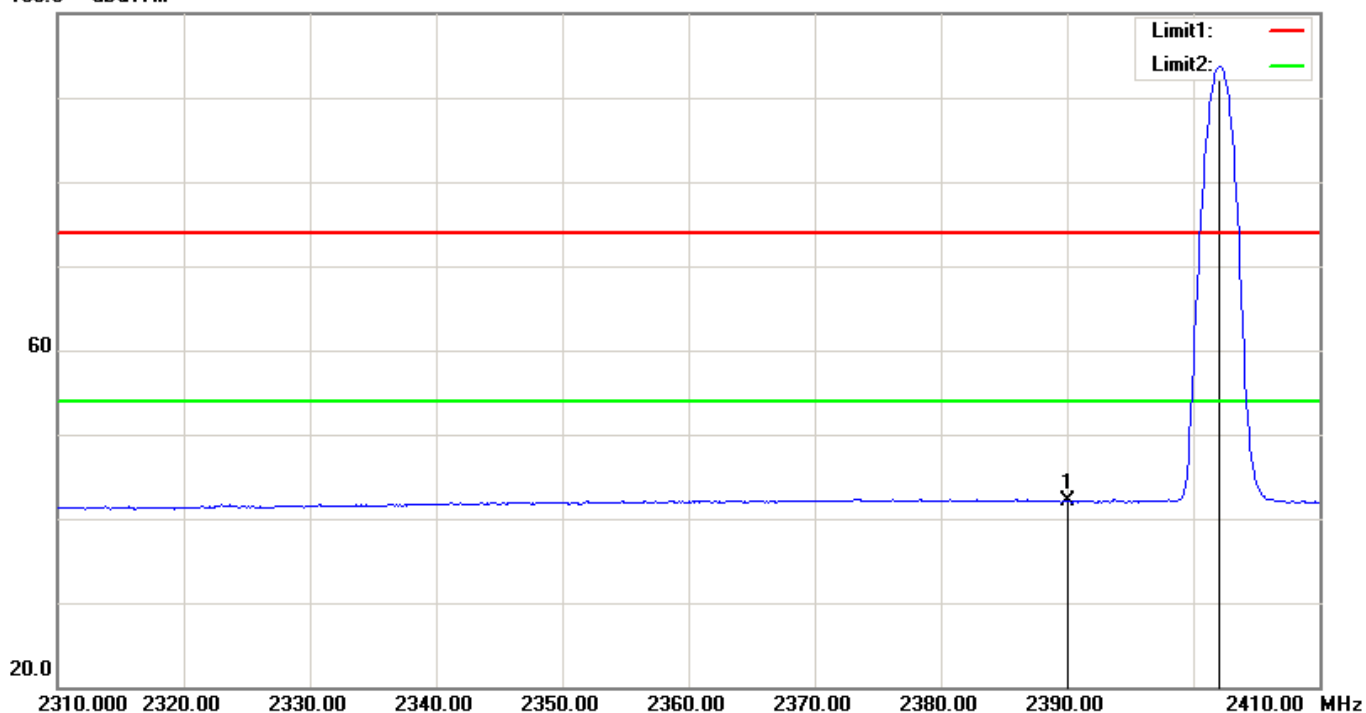
100.0 dBuV/m



Detector mode: Average

Polarity: Horizontal

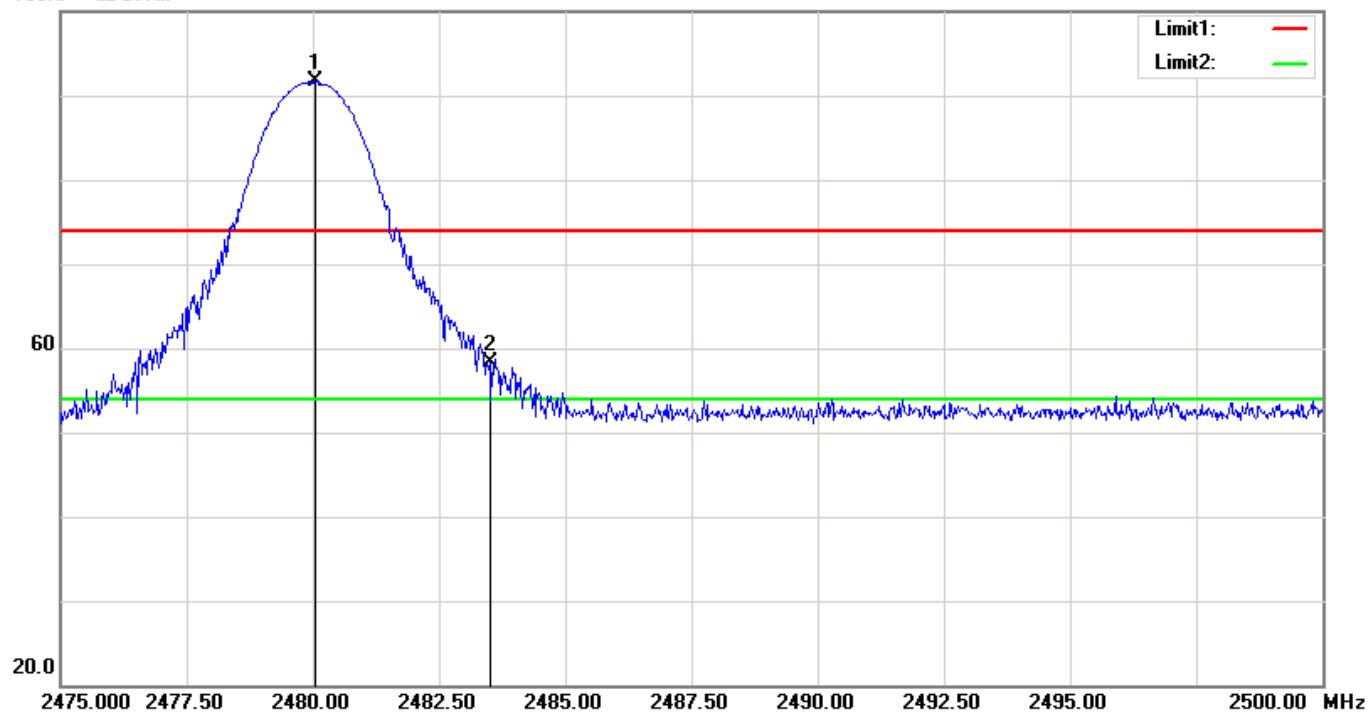
100.0 dBuV/m



CH-High (CH00)

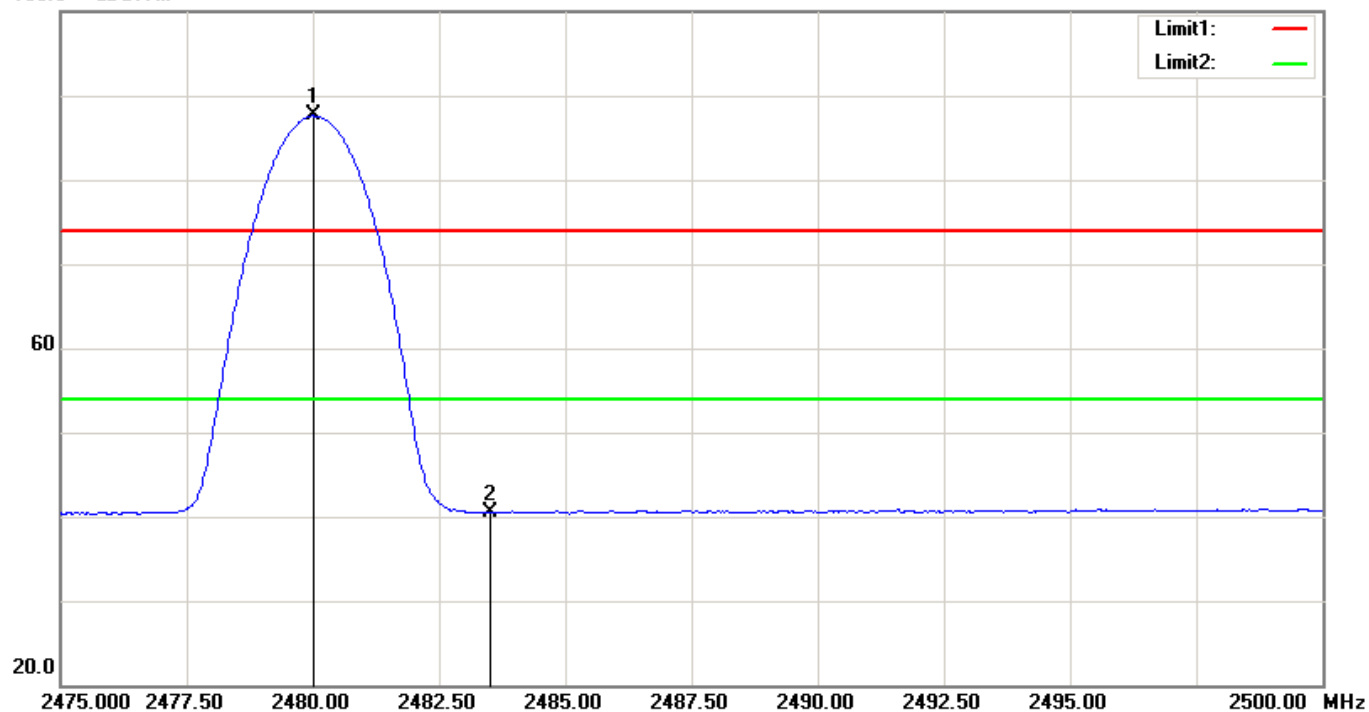
Detector mode: Peak
100.0 dBuV/m

Polarity: Vertical



Detector mode: Average
100.0 dBuV/m

Polarity: Vertical

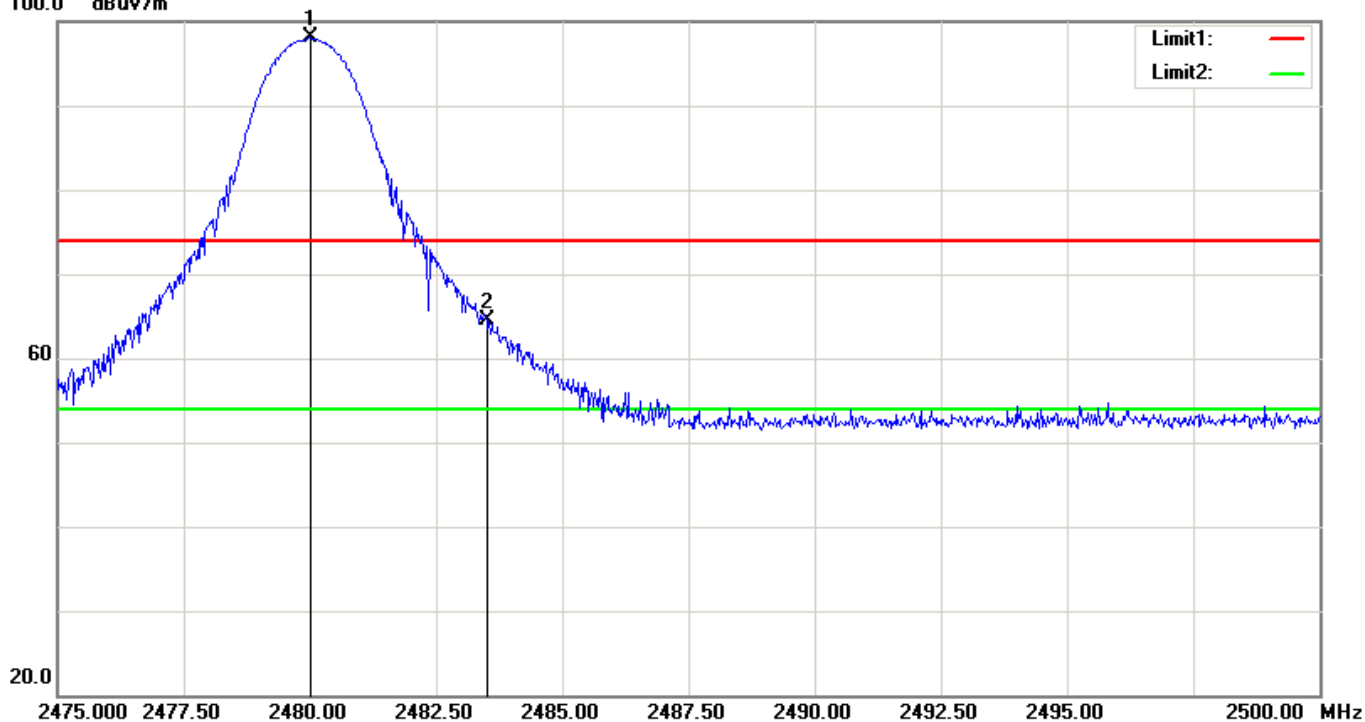


CH-High (CH00)

Detector mode: Peak

Polarity: Horizontal

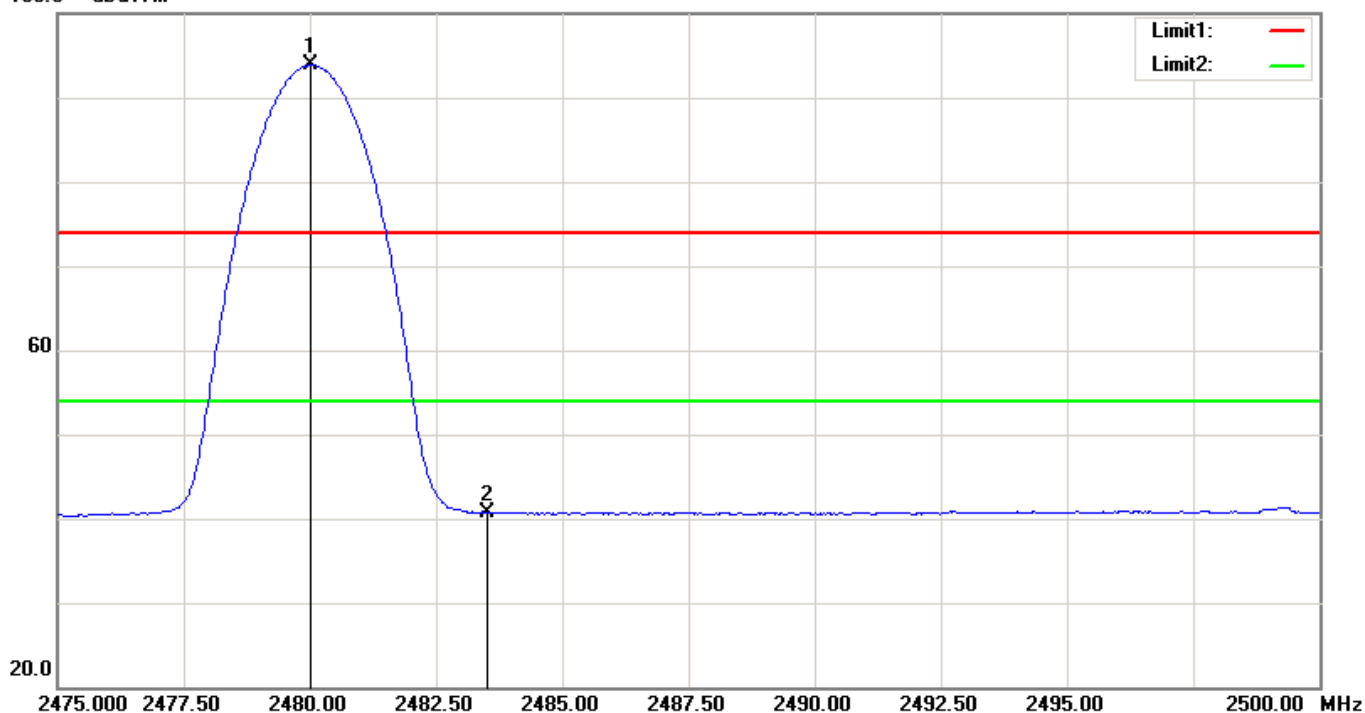
100.0 dBuV/m



Detector mode: Average

Polarity: Horizontal

100.0 dBuV/m



Test result: The unit does meet the NCC requirements.

4. OCCUPIED BANDWIDTH TEST

4.1 APPLIED PROCEDURES / LIMIT

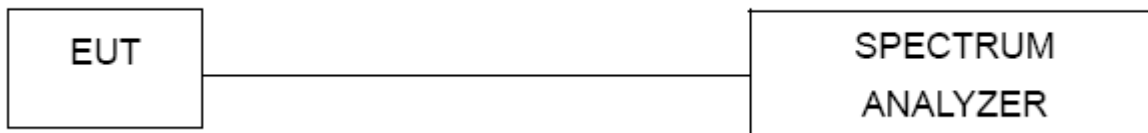
LP0002				
Section	Test Item	Limit	Frequency Range (MHz)	Result
3.10.1(6.1.1)	Bandwidth	N/A	2402-2480	PASS

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 300 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.1.1 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting: RBW= 100KHz, VBW=300KHz, Sweep time = Auto.

4.1.2 TEST SETUP



4.1.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.4 TEST RESULTS

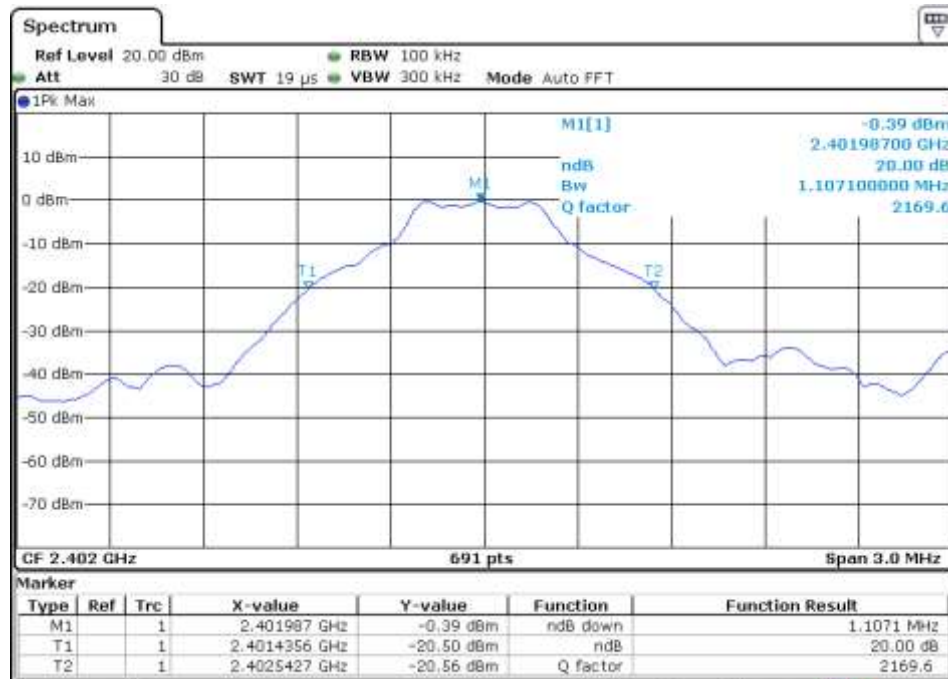
EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V supplied by PC
Test Mode :	CH00 / CH39 /CH78	Test Date :	2020-06-09

Modulation Standard	Channel	Frequency (MHz)	20dB Bandwidth (KHz)
GFSK	0	2402	1107.1
	39	2441	1102.7
	78	2480	1098.4
8- DPSK	0	2402	1345.9
	39	2441	1341.5
	78	2480	1341.5

Result plot as follows:

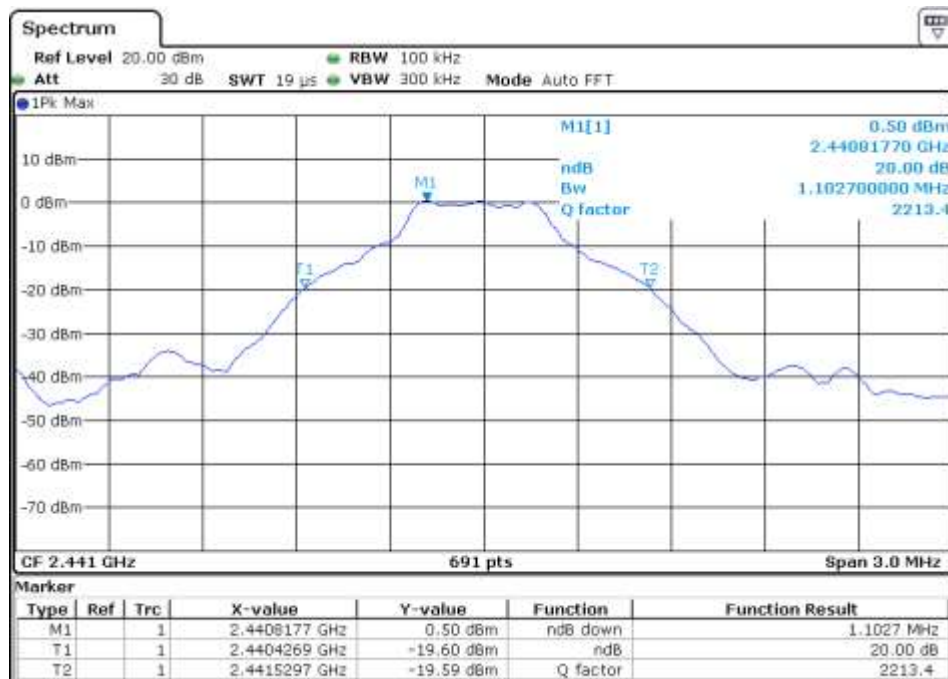
Modulation Standard: GFSK

Channel: 0



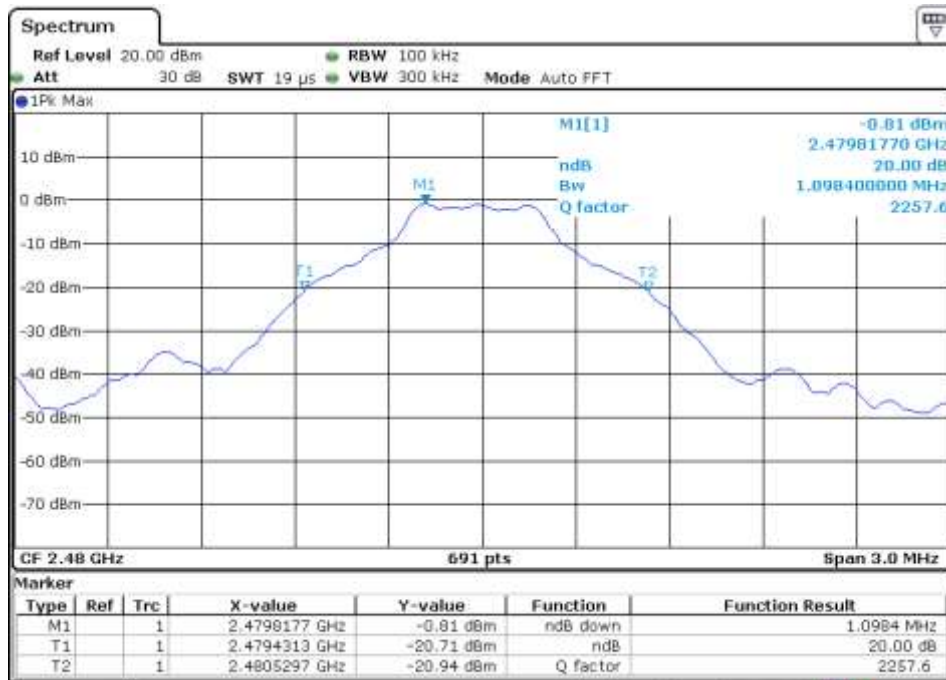
Modulation Standard: GFSK

Channel: 39



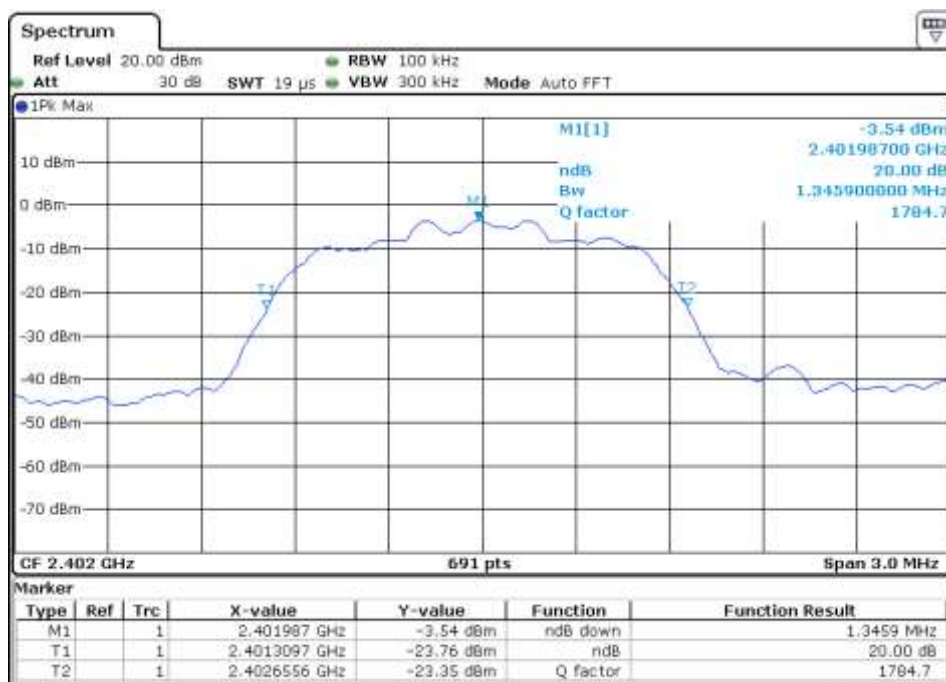
Modulation Standard: GFSK

Channel: 78



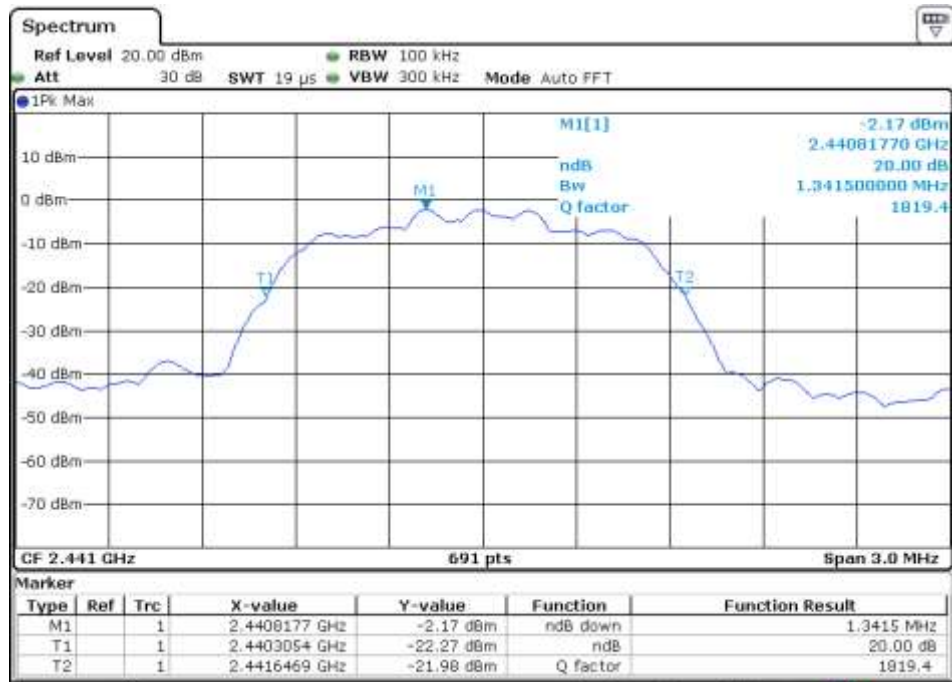
Modulation Standard: 8- DPSK

Channel: 0



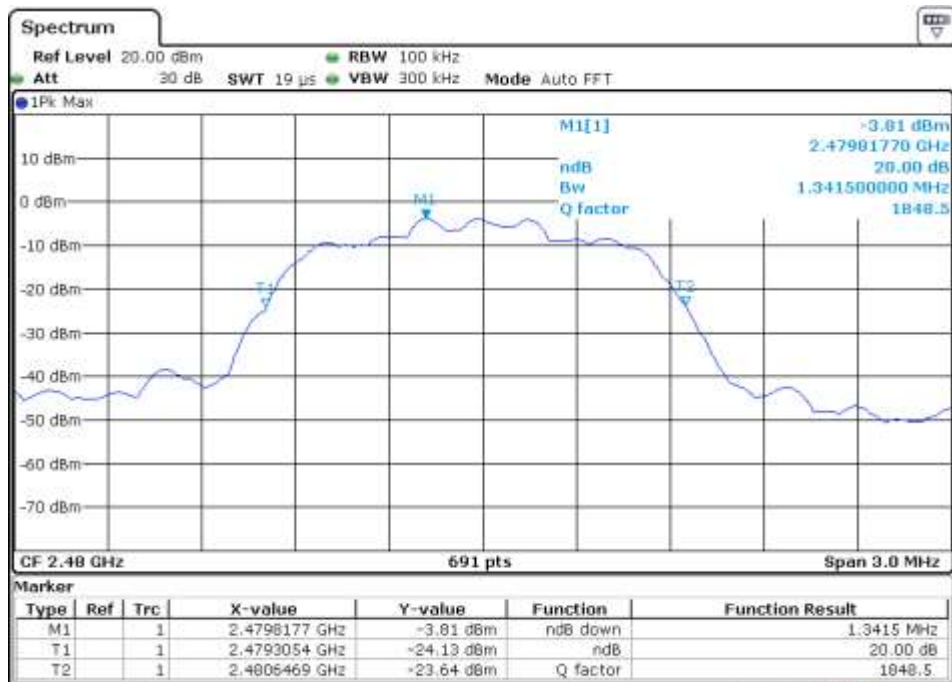
Modulation Standard: 8- DPSK

Channel: 39



Modulation Standard: 8- DPSK

Channel: 78



5. NUMBER OF HOPPING CHANNEL

5.1 APPLIED PROCEDURES / LIMIT

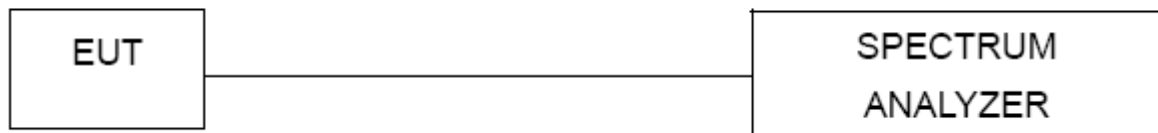
LP0002			
Section	Test Item	Frequency Range (MHz)	Result
3.10.1(6.1.1)	Number of Hopping Channel	2400-2483.5	PASS

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RB	1 MHz
VB	1 MHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.1.1 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting : RBW= 1 MHz, VBW=1 MHz, Sweep time = Auto.

5.1.2 TEST SETUP



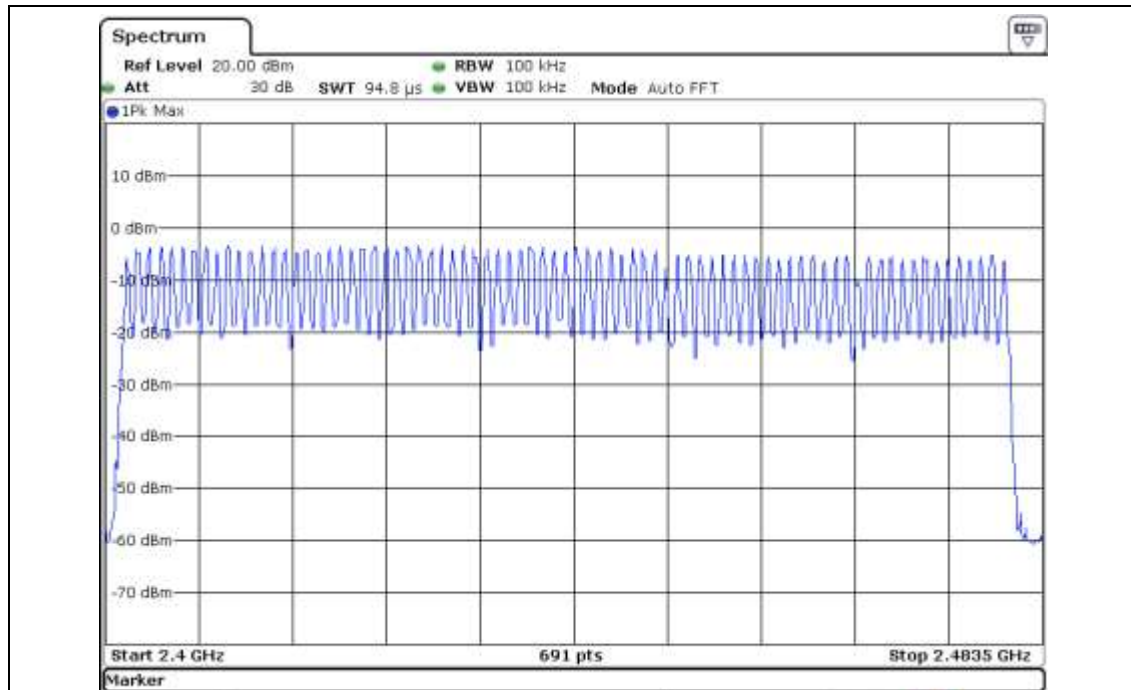
5.1.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.4 TEST RESULTS

EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V supplied by PC
Test Mode :	Hopping Mode -1Mbps mode	Test Date :	2020-06-09

Number of Hopping Channel	79
---------------------------	----



EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V supplied by PC
Test Mode :	Hopping Mode –3Mbps mode	Test Date :	2020-06-09

Number of Hopping Channel	79
---------------------------	----



6. AVERAGE TIME OF OCCUPANCY

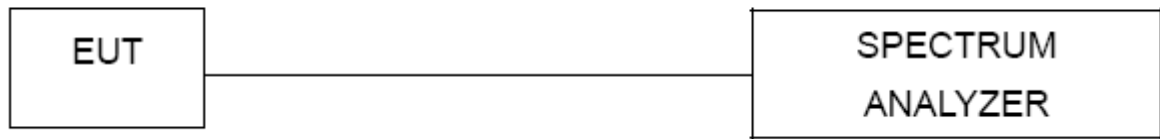
6.1 APPLIED PROCEDURES / LIMIT

LP0002				
Section	Test Item	Limit	Frequency Range (MHz)	Result
3.10.1(6.1.2)	Average Time of Occupancy	0.4sec	2400-2483.5	PASS

6.1.1 TEST PROCEDURE

- a. The transmitter output (antenna port) was connected to the spectrum analyzer
- b. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
- c. Use a video trigger with the trigger level set to enable triggering only on full pulses.
- d. Sweep Time is more than once pulse time.
- e. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- f. Measure the maximum time duration of one single pulse.
- g. Set the EUT for DH5, DH3 and DH1 packet transmitting.
- h. Measure the maximum time duration of one single pulse.
- i. DH5 Packet permit maximum $1600 / 79 / 6 = 3.37$ hops per second in each channel (5 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times $3.37 \times 31.6 = 106.6$ within 31.6 seconds.
- j. DH3 Packet permit maximum $1600 / 79 / 4 = 5.06$ hops per second in each channel (3 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times $5.06 \times 31.6 = 160$ within 31.6 seconds.
- k. DH1 Packet permit maximum $1600 / 79 / 2 = 10.12$ hops per second in each channel (1 time slot RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times $10.12 \times 31.6 = 320$ within 31.6 seconds.

6.1.2 TEST SETUP



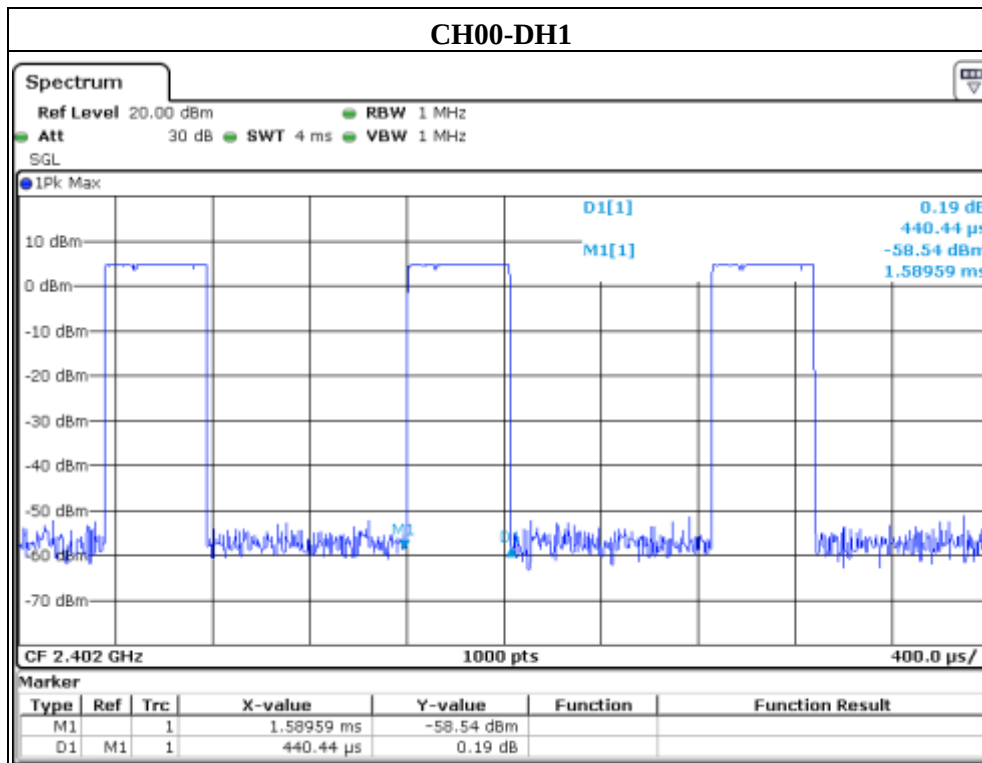
6.1.3 EUT OPERATION CONDITIONS

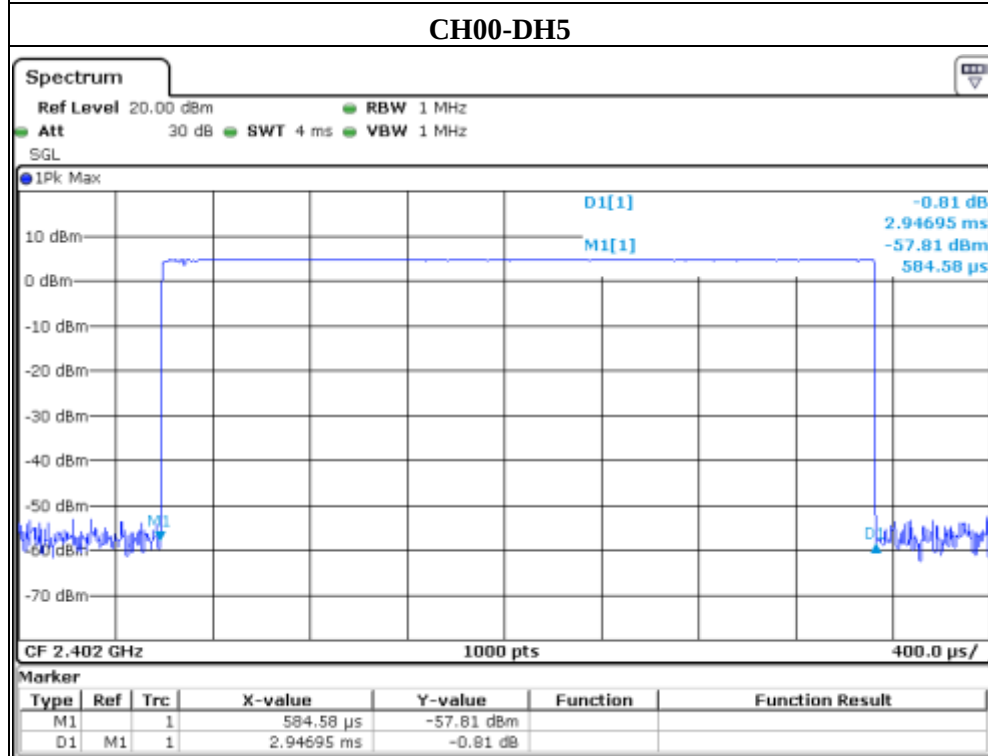
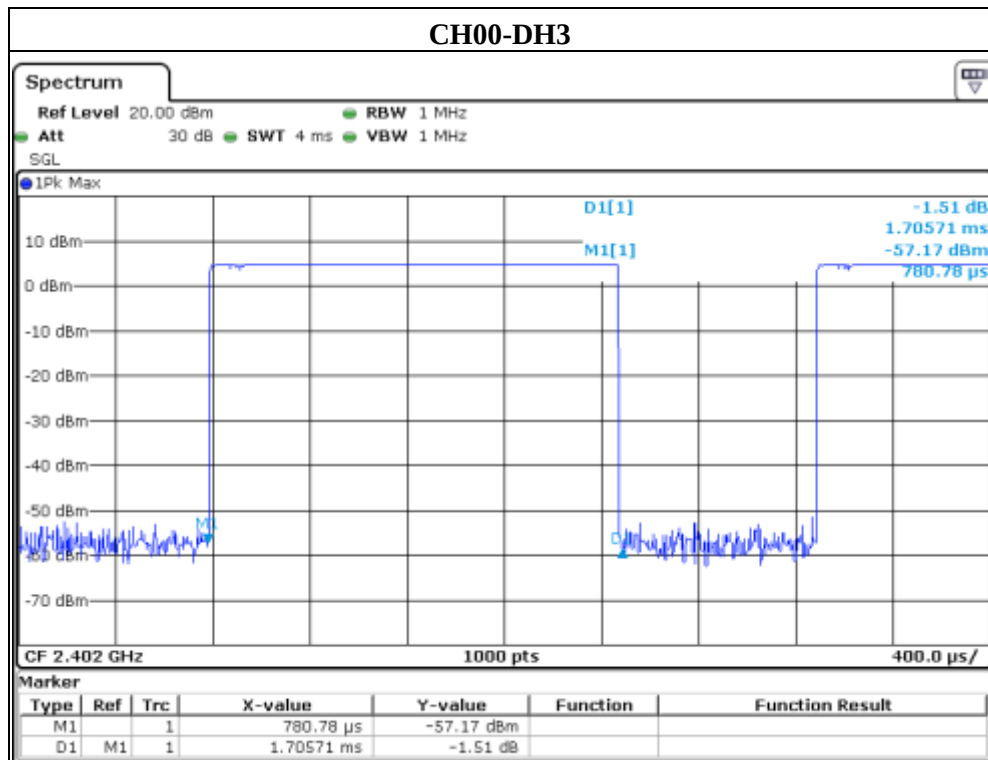
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.4 TEST RESULTS

EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V supplied by PC
Test Mode :	CH00-DH1/DH3/DH5 (1Mbps Mode)	Test Date :	2020-06-09

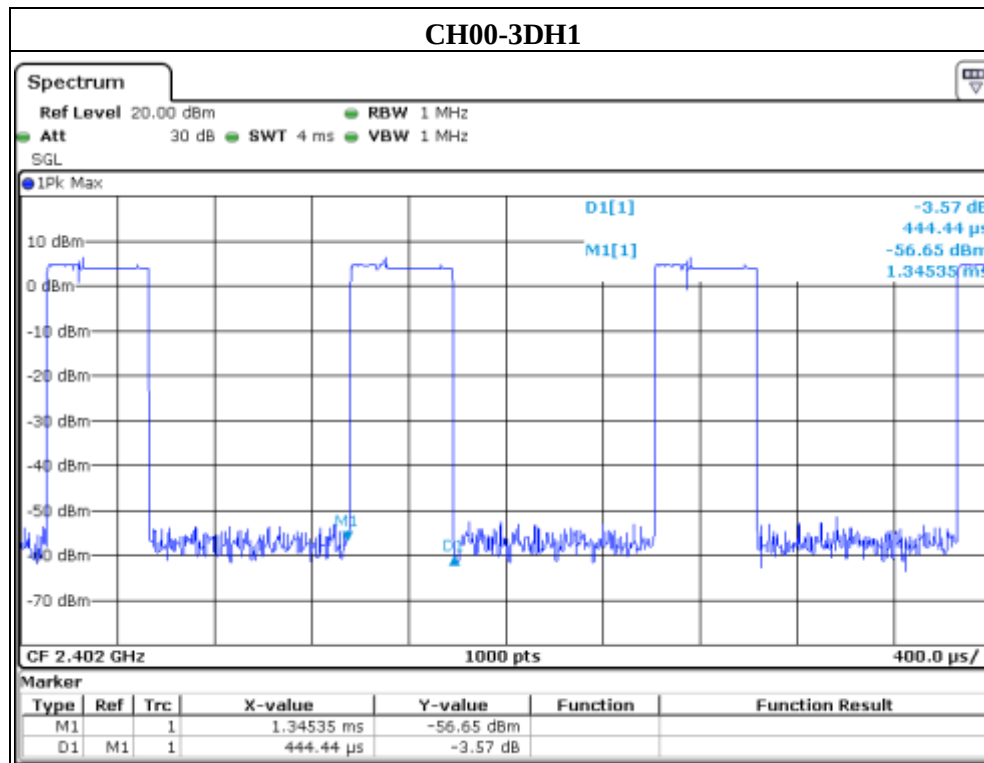
Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (ms)	Limits (s)
DH1	2402 MHz	0.440	140.800	0.4000
DH3	2402 MHz	1.706	272.960	0.4000
DH5	2402 MHz	2.947	314.347	0.4000

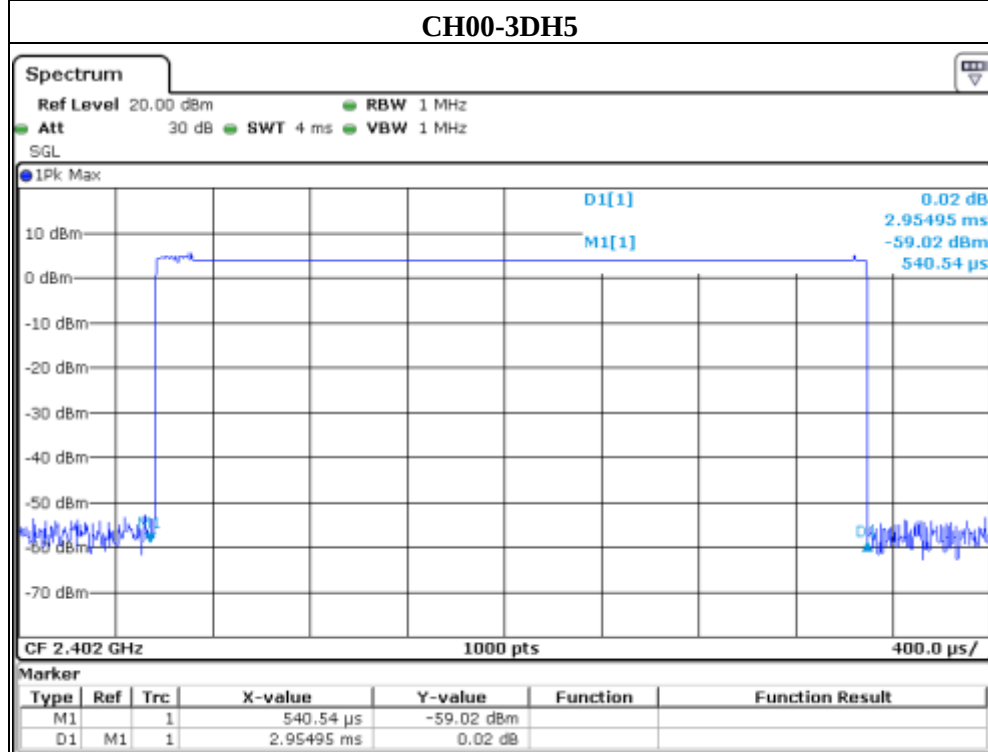
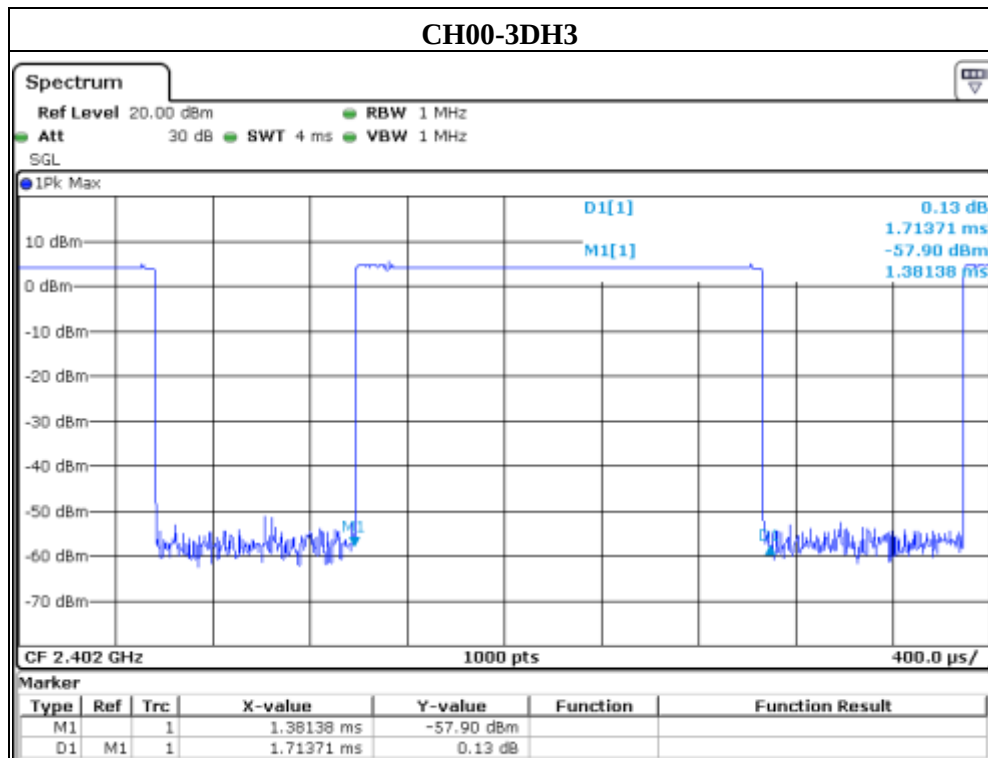




EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V supplied by PC
Test Mode :	CH00-3DH1/3DH3/3DH5 (3Mbps Mode)	Test Date :	2020-06-09

Data Packet	Frequency	Pulse Duration (ms)	Dwell Time (ms)	Limits (s)
3DH1	2402 MHz	0.444	142.080	0.4000
3DH3	2402 MHz	1.714	274.240	0.4000
3DH5	2402 MHz	2.955	315.200	0.4000





7. HOPPING CHANNEL SEPARATION MEASUREMENT

7.1 APPLIED PROCEDURES / LIMIT

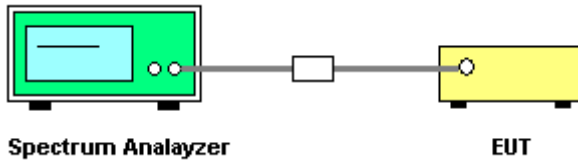
Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 300 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

7.1.1 TEST PROCEDURE

- The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
- The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for 20 dB bandwidth measurement.
- The resolution bandwidth of 100 kHz and the video bandwidth of 300 kHz were utilised for channel separation measurement.

7.1.2 TEST SETUP



7.1.3 EUT OPERATION CONDITIONS

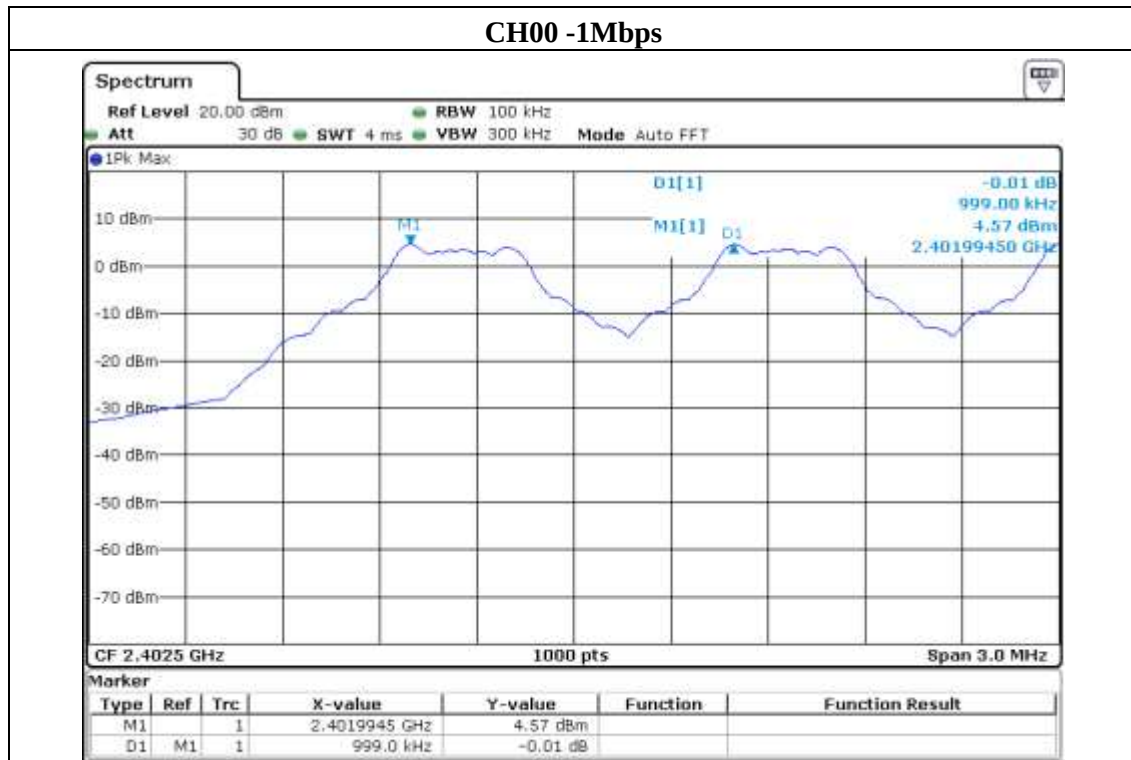
The EUT was programmed to be in continuously transmitting mode.

7.1.4 TEST RESULTS

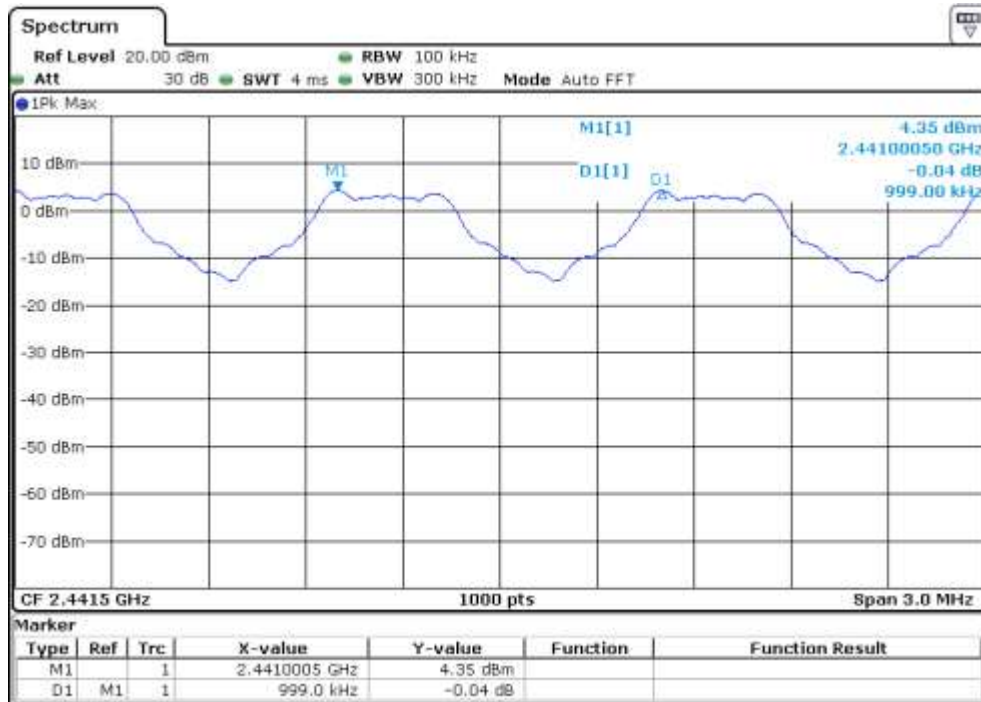
EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V supplied by PC
Test Mode :	CH00 / CH39 /CH78 (1Mbps Mode)	Test Date :	2020-06-09

Frequency	Ch. Separation (MHz)	2/3 of the 20 dB Bandwidth (MHz)	Result
2402 MHz	0.999	738.1	PASS
2441 MHz	0.999	735.1	PASS
2480 MHz	0.999	732.3	PASS

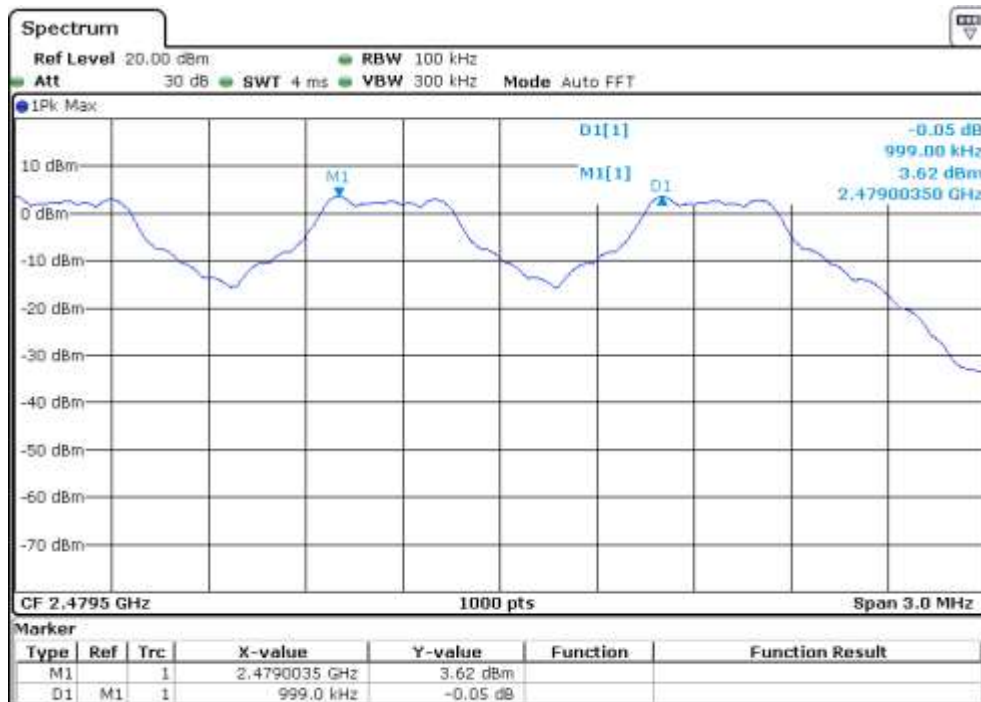
Ch. Separation >2/3(20dB bandwidth)



CH39 -1Mbps



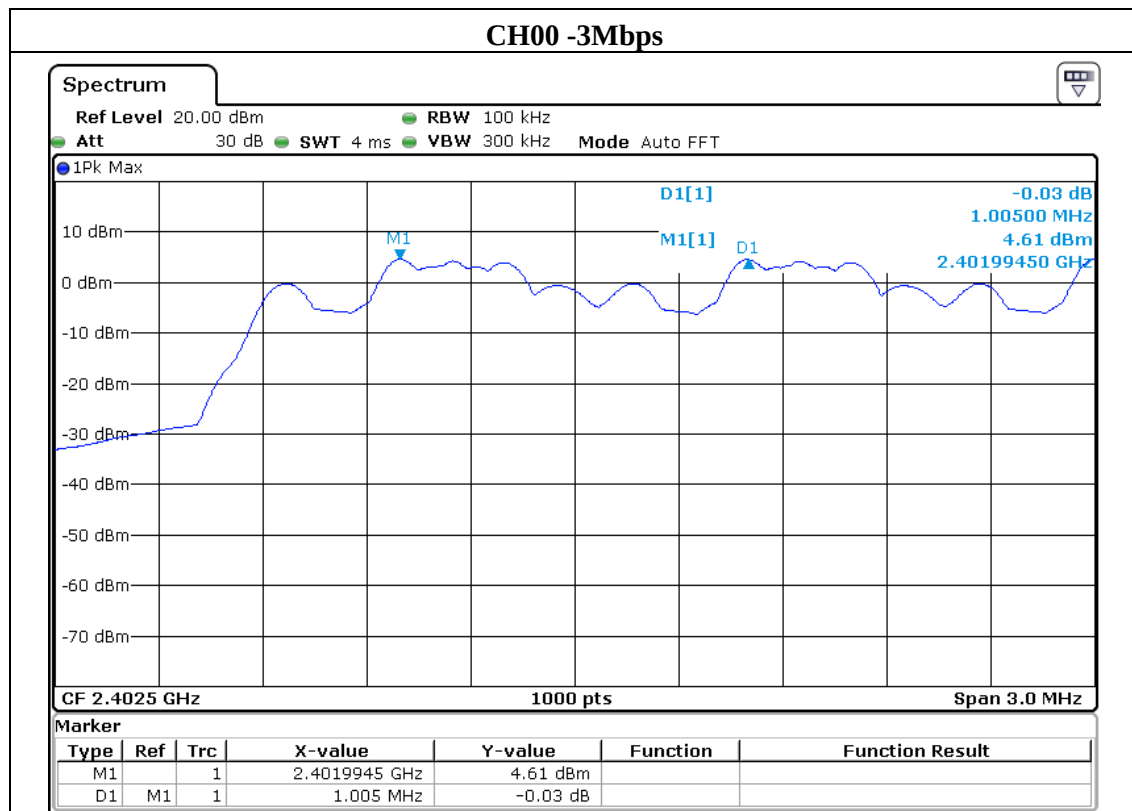
CH78 -1Mbps



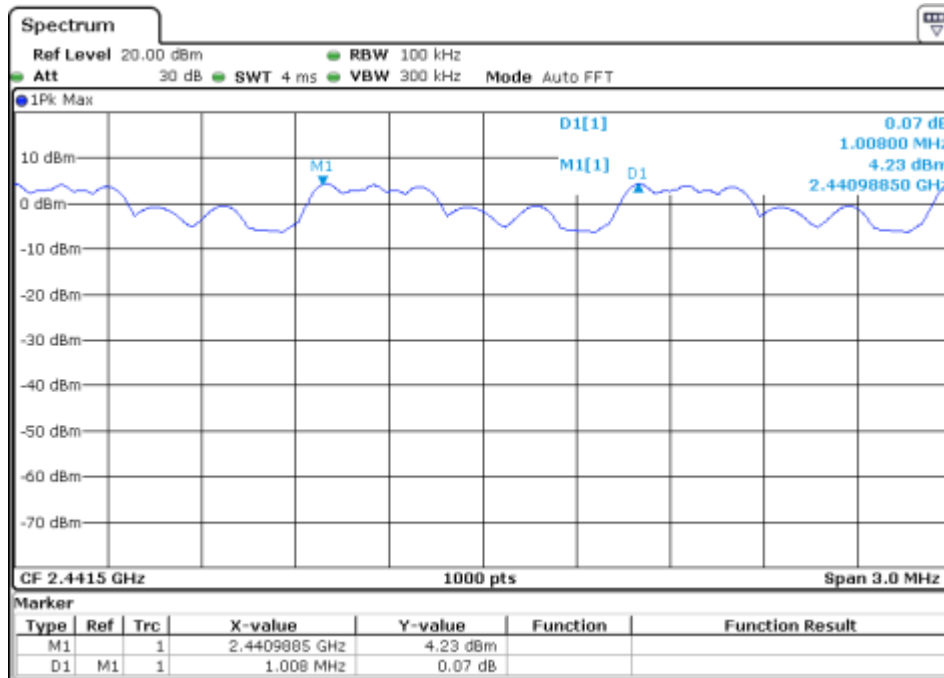
EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V supplied by PC
Test Mode :	CH00 / CH39 /CH78 (3Mbps Mode)	Test Date :	2020-06-09

Frequency	Ch. Separation (MHz)	2/3 of the 20 dB Bandwidth (MHz)	Result
2402 MHz	1.005	897.3	PASS
2441 MHz	1.008	894.3	PASS
2480 MHz	1.011	894.3	PASS

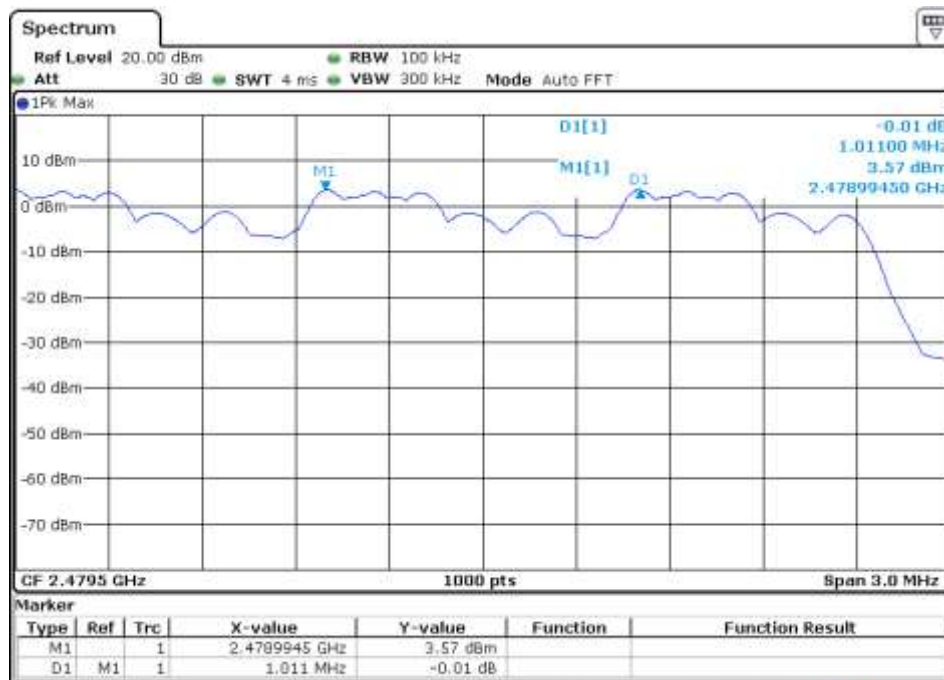
Ch. Separation >2/3(20dB bandwidth)



CH39 -3Mbps



CH78 -3Mbps



8. PEAK OUTPUT POWER TEST

8.1 APPLIED PROCEDURES / LIMIT

LP0002				
Section	Test Item	Limit	Frequency Range (MHz)	Result
3.10.1(2)	Peak Output Power	0.125 watt or 21dBm	2400-2483.5	PASS

8.1.1 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting : RBW= 3MHz, VBW= 3MHz, Sweep time = Auto.

8.1.2 DEVIATION FROM STANDARD

No deviation.

8.1.3 TEST SETUP



8.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.1.5 TEST RESULTS

EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V supplied by PC
Test Mode :	CH00/ CH39 /CH78 (1Mbps Mode)	Test Date :	2020-06-09

Frequency (MHz)	Reading Power (dBm)	Cable Loss (dB)	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
2402	3.19	0.50	3.69	21	0.125
2441	3.80	0.50	4.30	21	0.125
2480	3.23	0.50	3.73	21	0.125

EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V supplied by PC
Test Mode :	CH00/ CH39 /CH78 (3Mbps Mode)	Test Date :	2020-06-09

Frequency (MHz)	Reading Power (dBm)	Cable Loss (dB)	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
2402	3.17	0.50	3.67	21	0.125
2441	3.29	0.50	3.79	21	0.125
2480	3.24	0.50	3.74	21	0.125

9. ANTENNA CONDUCTED SPURIOUS EMISSION

9.1 APPLIED PROCEDURES / LIMIT

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency 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 or shall not exceed the general levels specified in Section 2.8.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

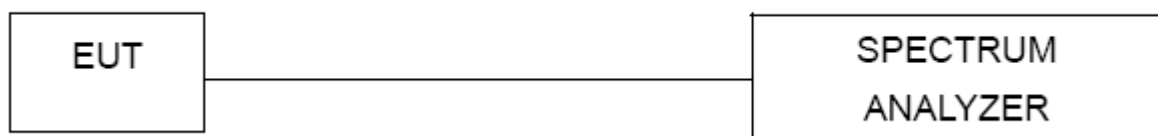
The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100 KHz /100 KHz for Peak

9.1.1 TEST PROCEDURE

- The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

9.1.2 TEST SETUP



9.1.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

9.1.4 TEST RESULTS

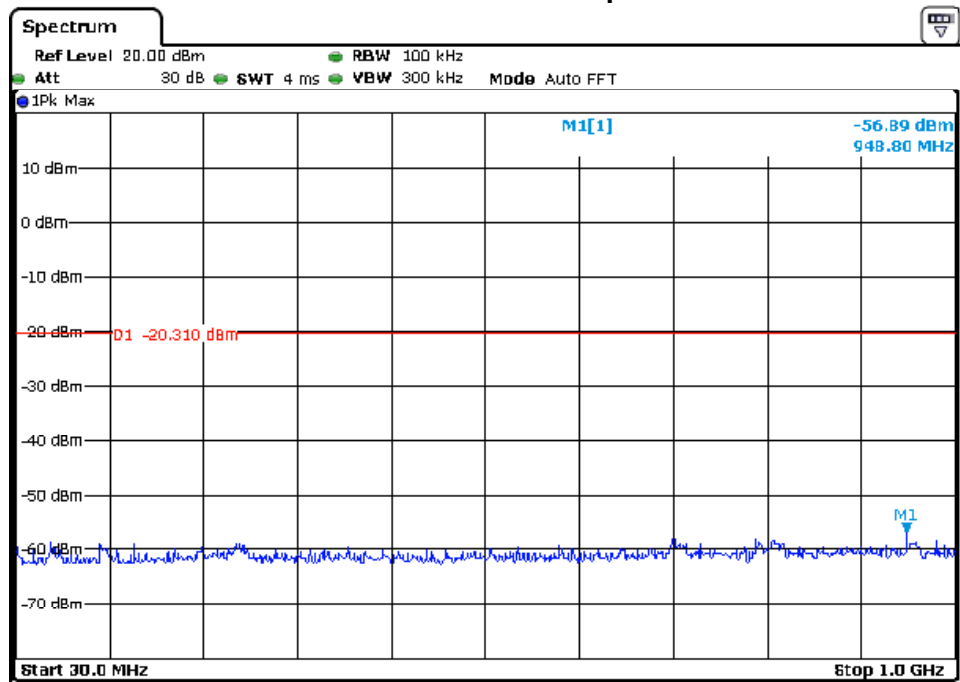
EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V supplied by PC
Test Mode :	CH00 / CH78 (1Mbps)	Test Date :	2020-06-09

in any 100kHz bandwidth outside the low frequency band	in any 100 kHz bandwidth outside the high frequency band
Pass	Pass
Result	
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.	

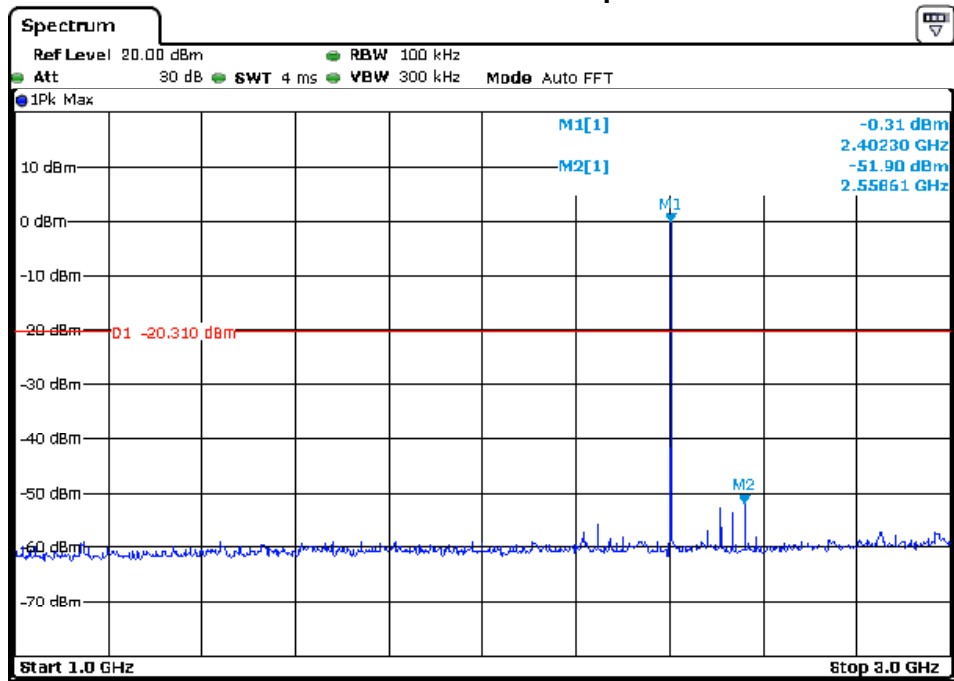
Remark :

- (1) Hopping enabled and disabled have evaluated, and the worst data was reported

CH00 Data rate 1Mbps

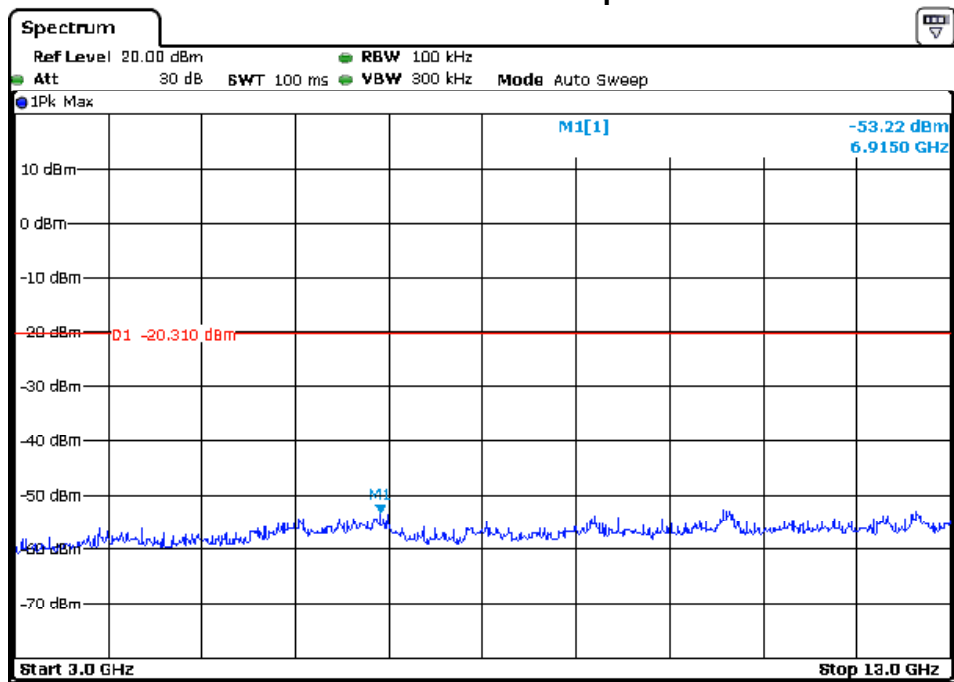


Note: Sweep Points=9700
CH00 Data rate 1Mbps

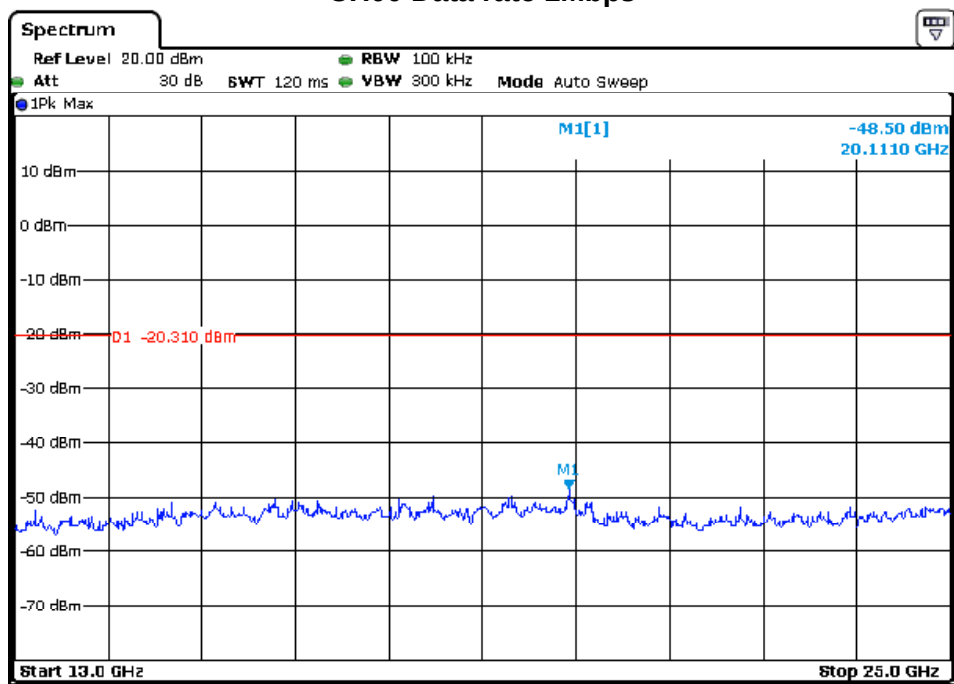


Note: Sweep Points=20000

CH00 Data rate 1Mbps

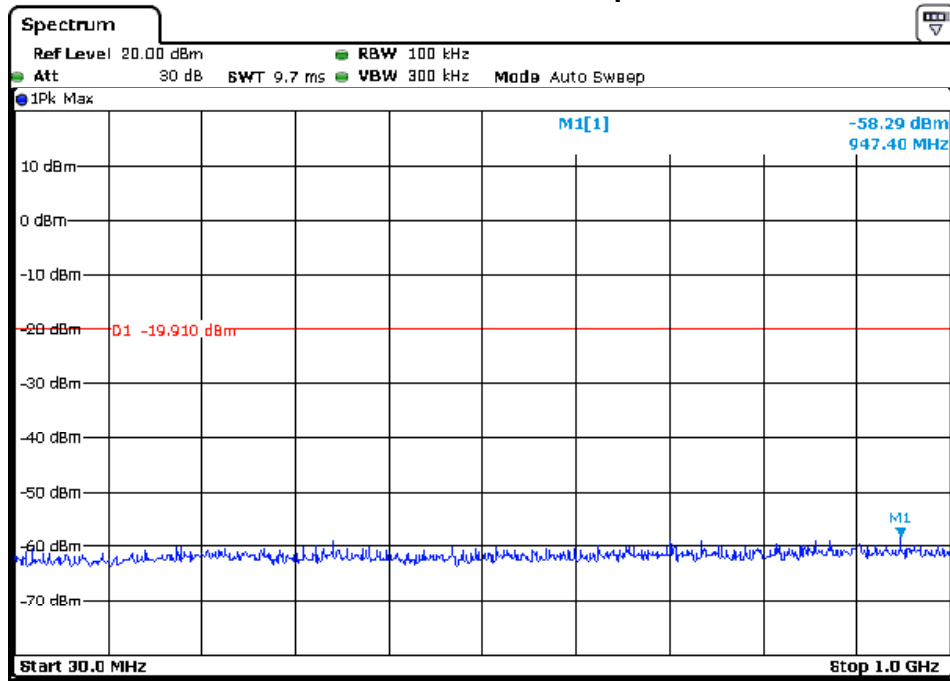


Note: Sweep Points=100000
CH00 Data rate 1Mbps



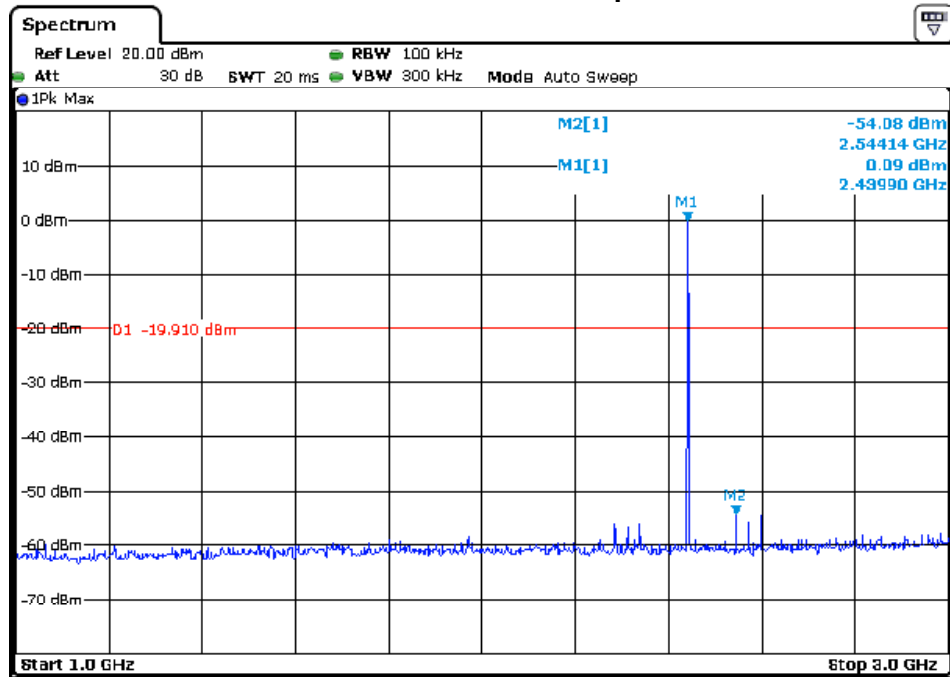
Note: Sweep Points=120000

CH39 Data rate 1Mbps



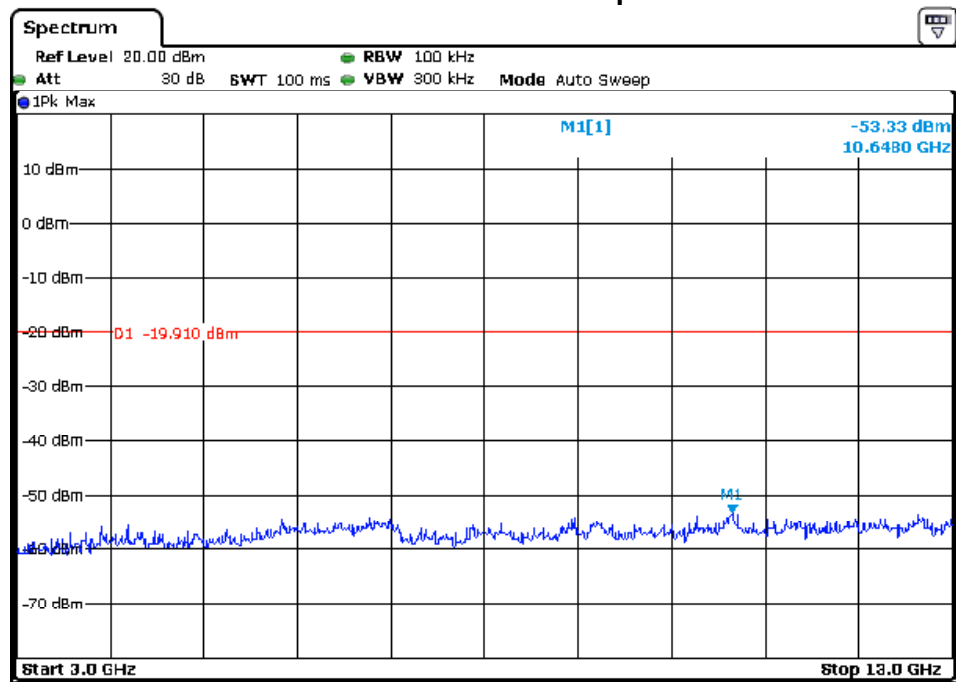
Note: Sweep Points=9700

CH39 Data rate 1Mbps



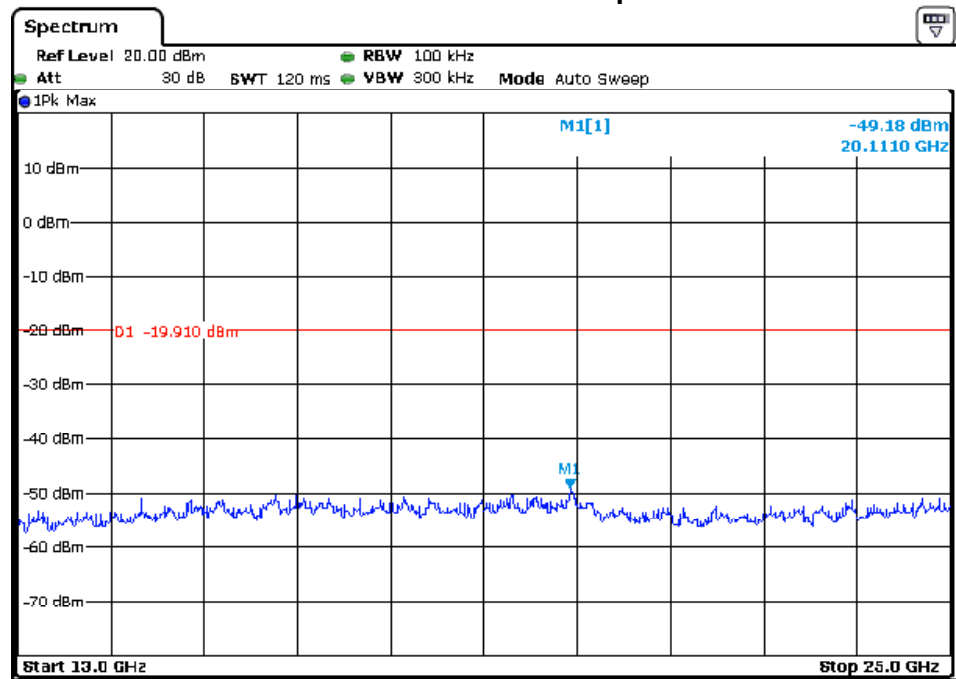
Note: Sweep Points=20000

CH39 Data rate 1Mbps



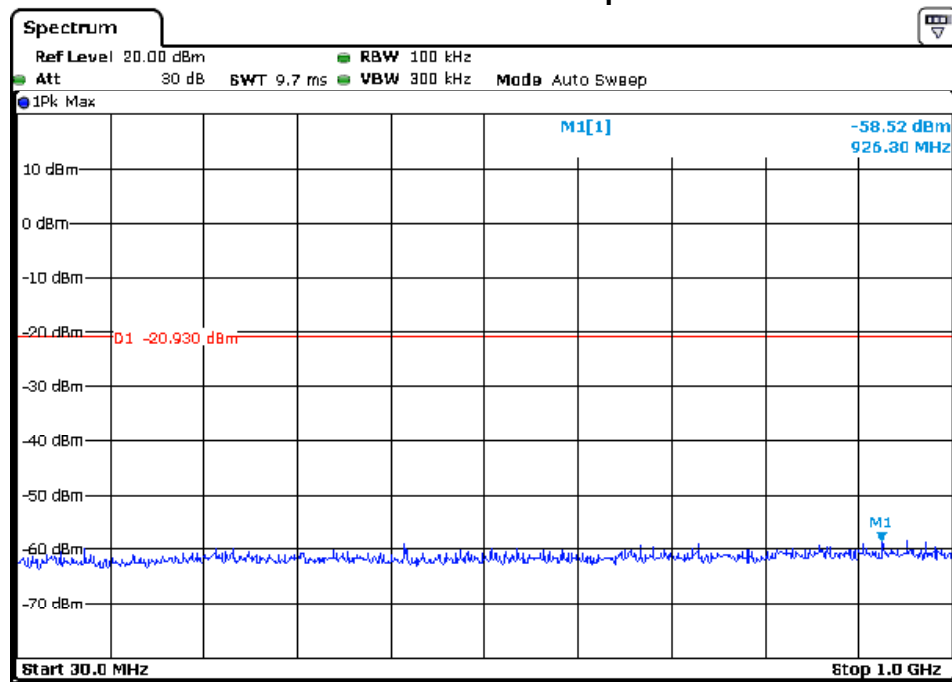
Note: Sweep Points=100000

CH39 Data rate 1Mbps

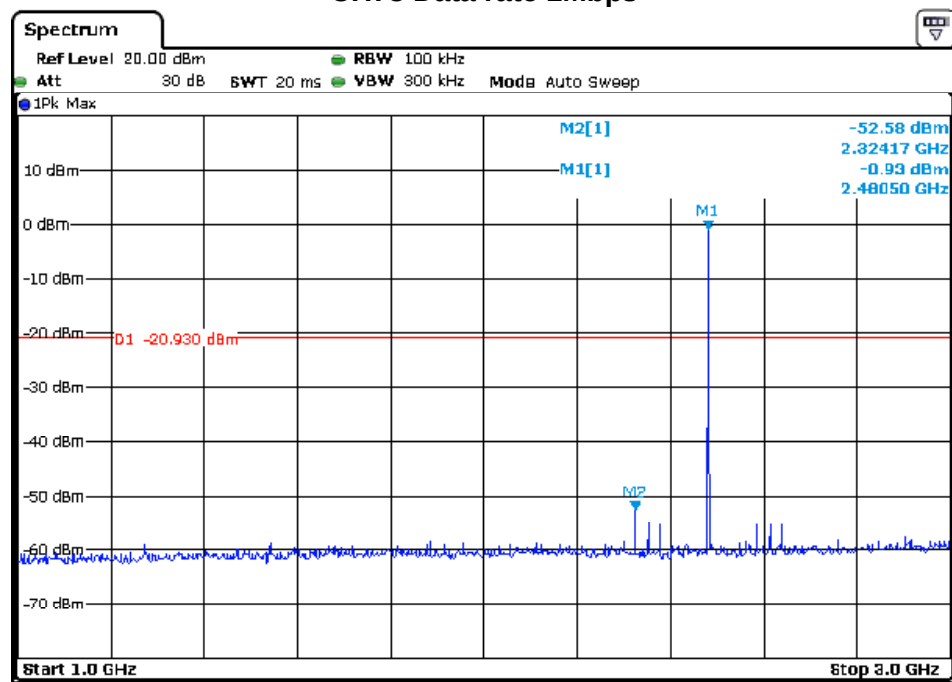


Note: Sweep Points=120000

CH78 Data rate 1Mbps

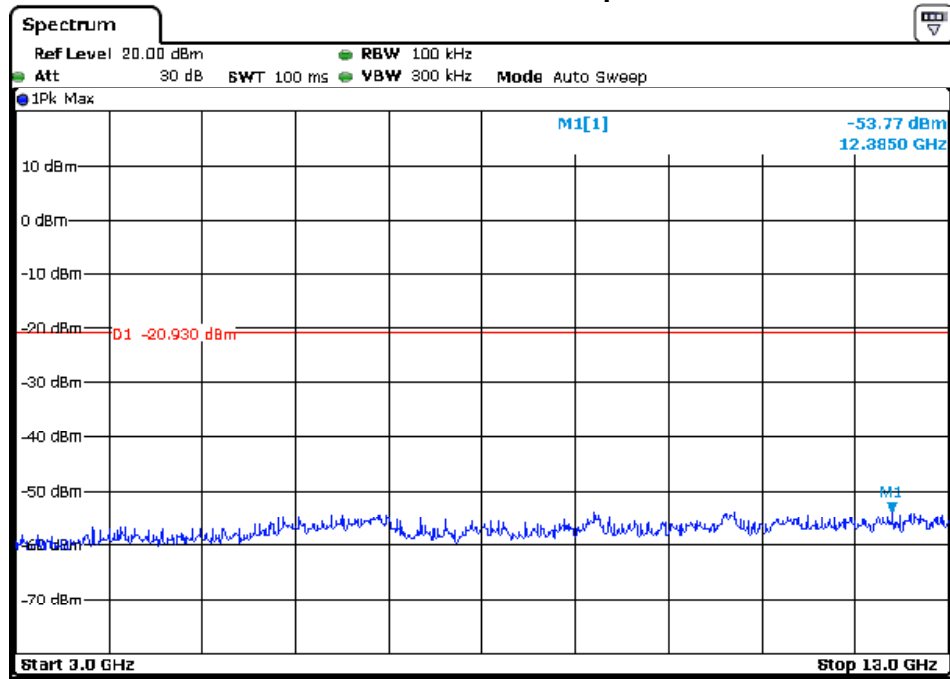


Note: Sweep Points=9700
CH78 Data rate 1Mbps

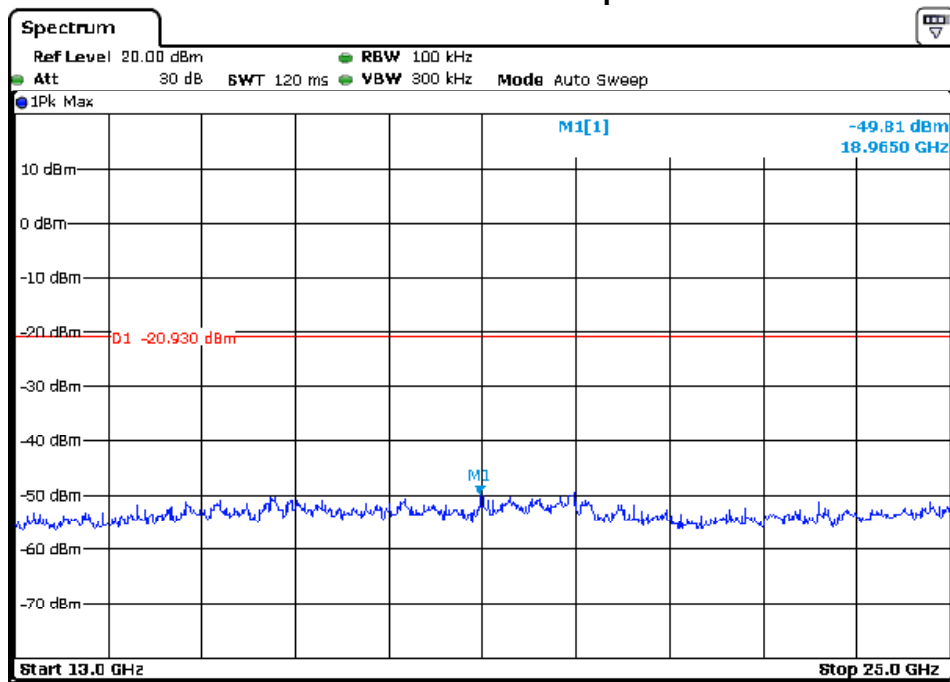


Note: Sweep Points=20000

CH78 Data rate 1Mbps



Note: Sweep Points=100000
CH78 Data rate 1Mbps



Note: Sweep Points=120000

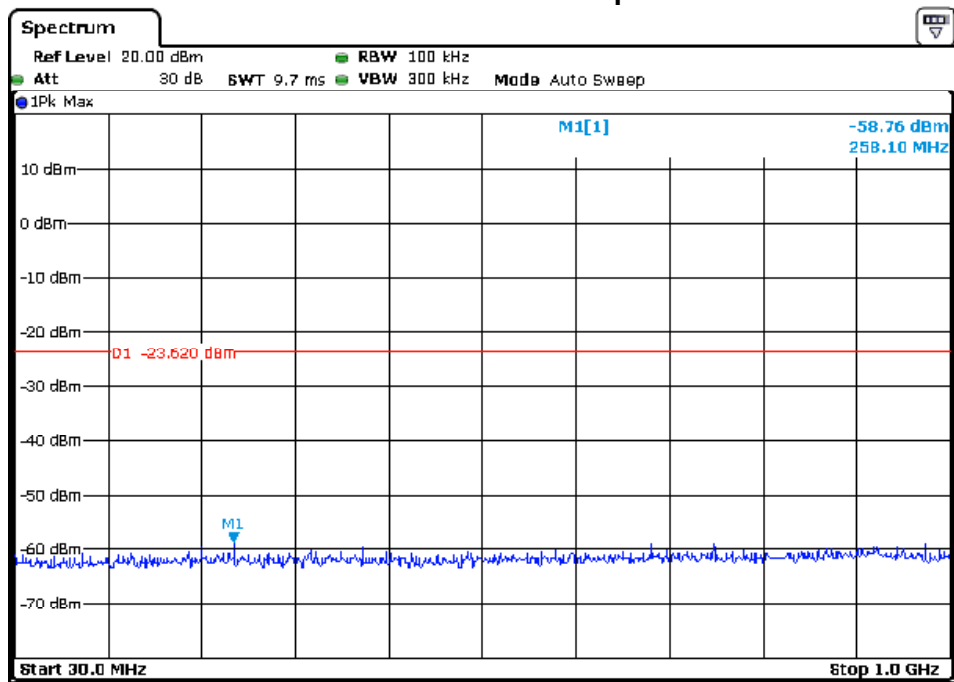
EUT :	CREATIVE BT-W3	Model Name :	SA0160
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V supplied by PC
Test Mode :	CH00 / CH78 (3Mbps)	Test Date :	2020-06-09

in any 100kHz bandwidth outside the low frequency band	in any 100 kHz bandwidth outside the high frequency band
Pass	Pass
Result	
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.	

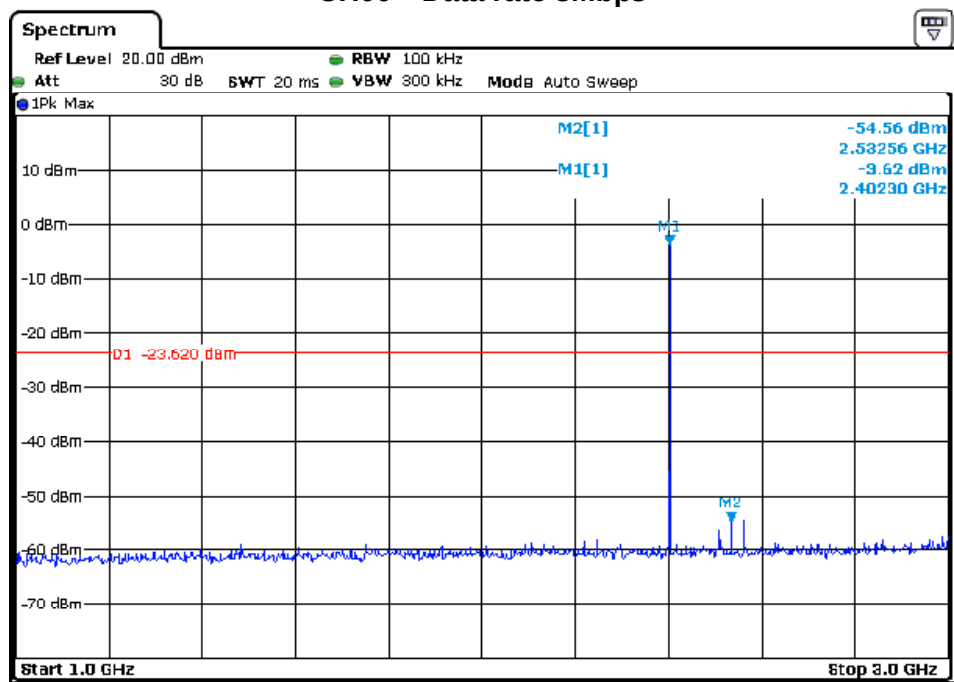
Remark :

- (1) Hopping enabled and disabled have evaluated, and the worst data was reported

CH00 Data rate 3Mbps

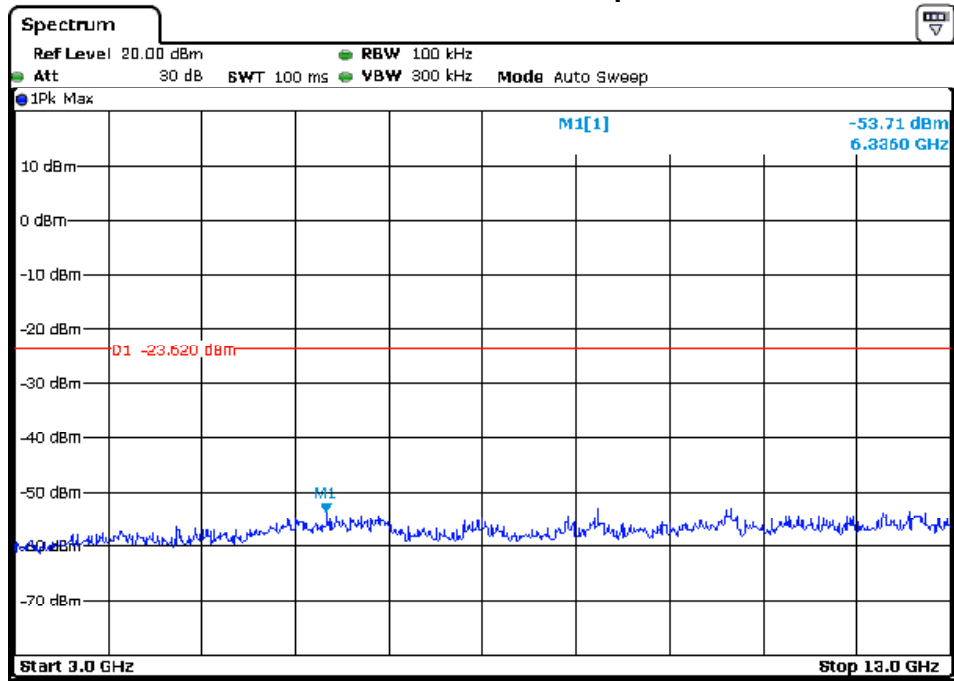


Note: Sweep Points=9700
CH00 Data rate 3Mbps

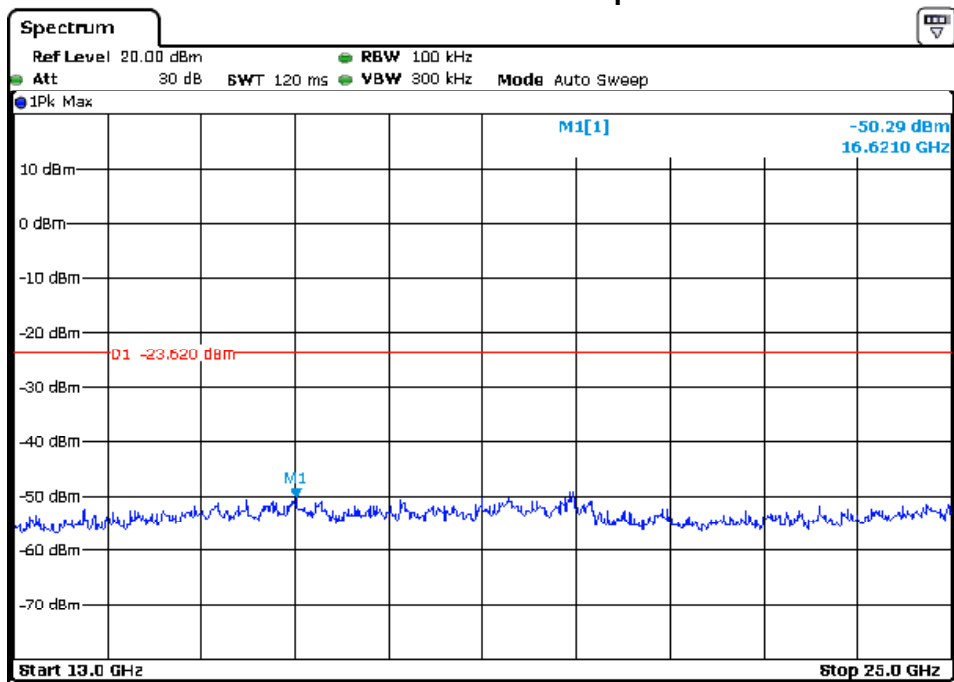


Note: Sweep Points=20000

CH00 Data rate 3Mbps

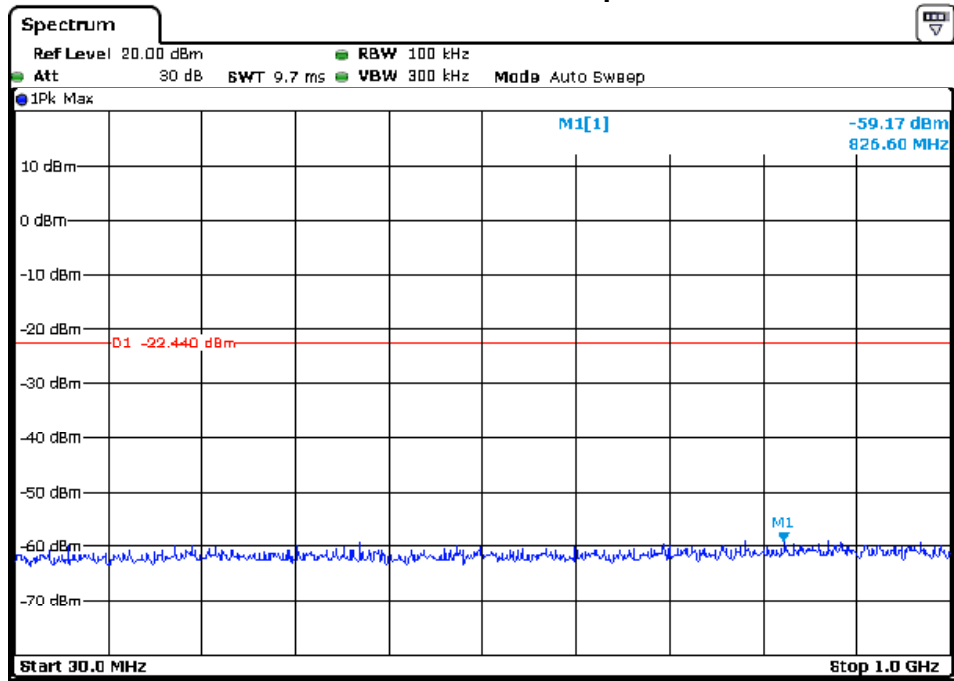


Note: Sweep Points=100000
CH00 Data rate 3Mbps

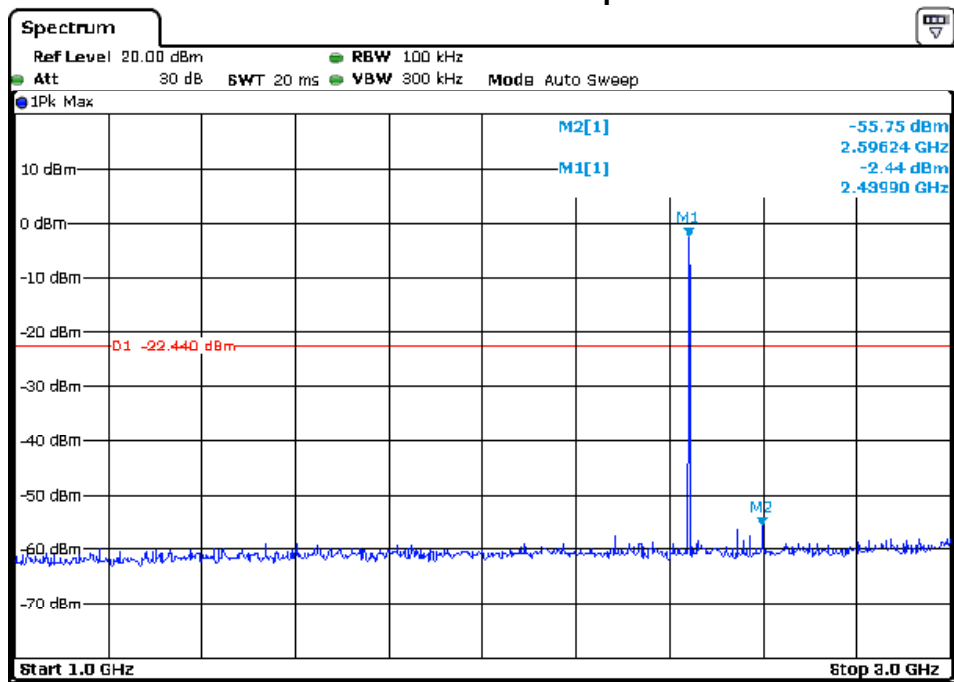


Note: Sweep Points=120000

CH39 Data rate 3Mbps

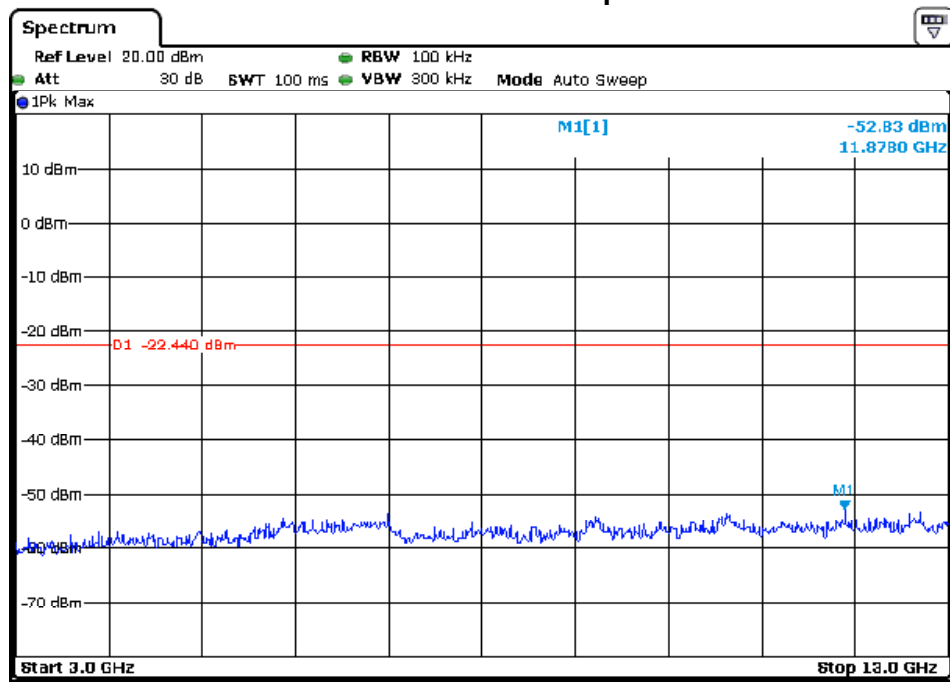


Note: Sweep Points=9700
CH39 Data rate 3Mbps

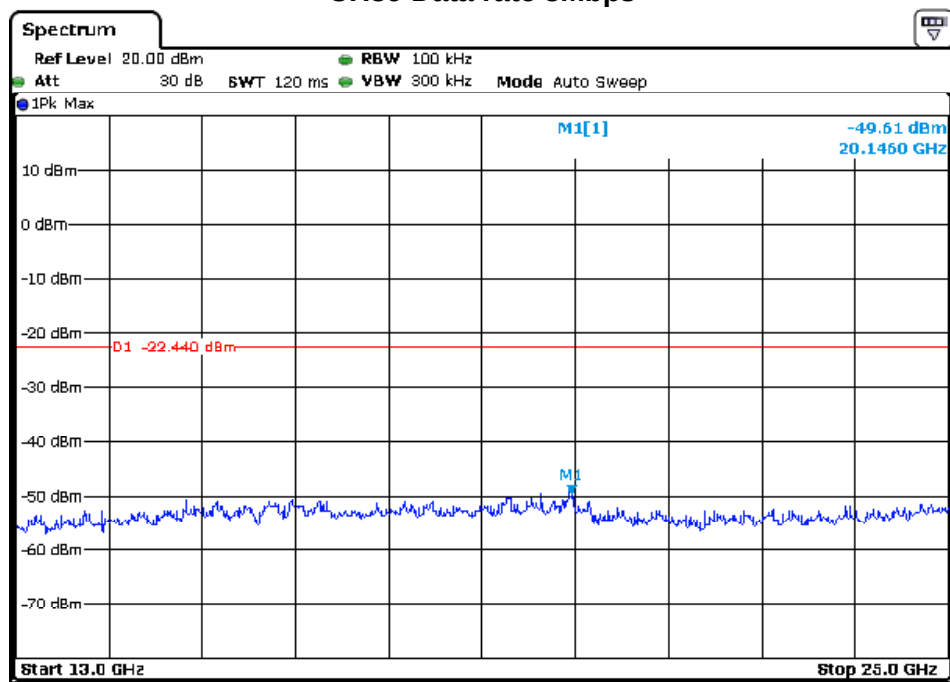


Note: Sweep Points=20000

CH39 Data rate 3Mbps

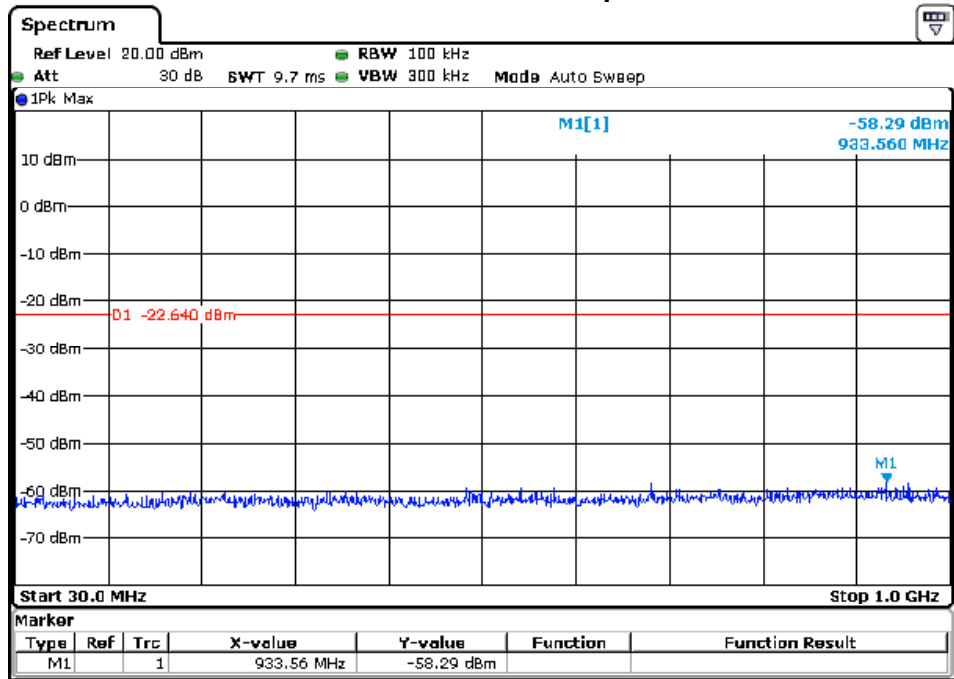


Note: Sweep Points=100000
CH39 Data rate 3Mbps

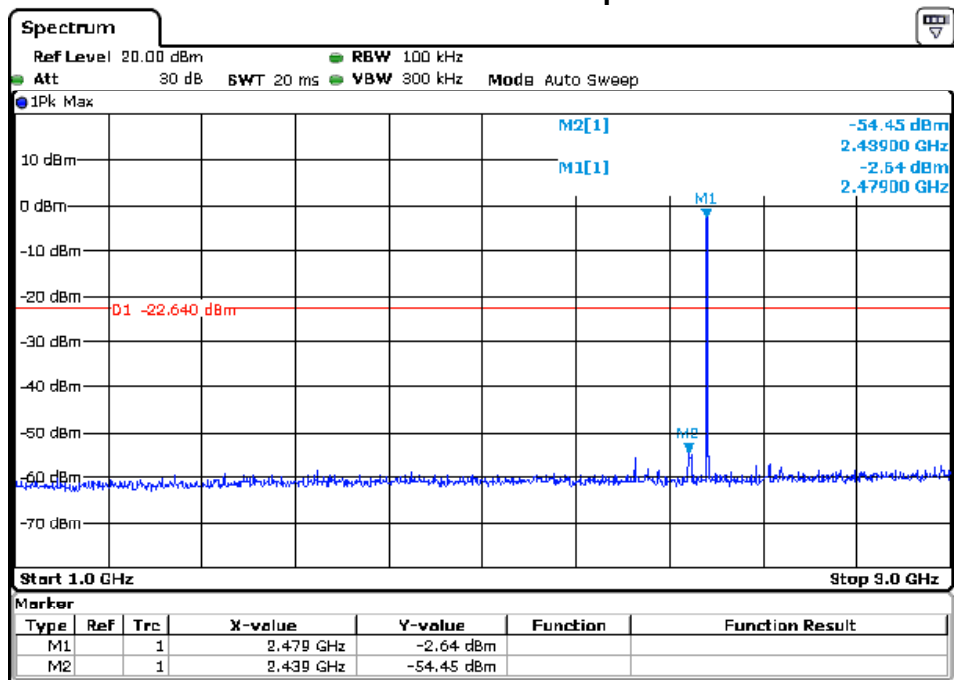


Note: Sweep Points=120000

CH78 Data rate 3Mbps

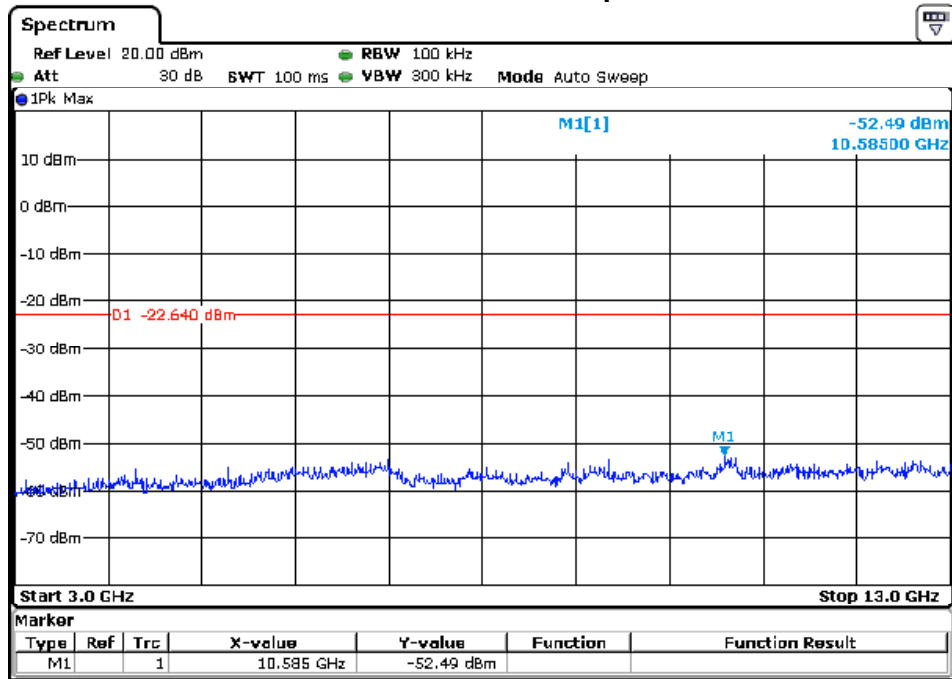


Note: Sweep Points=9700
CH78 Data rate 3Mbps

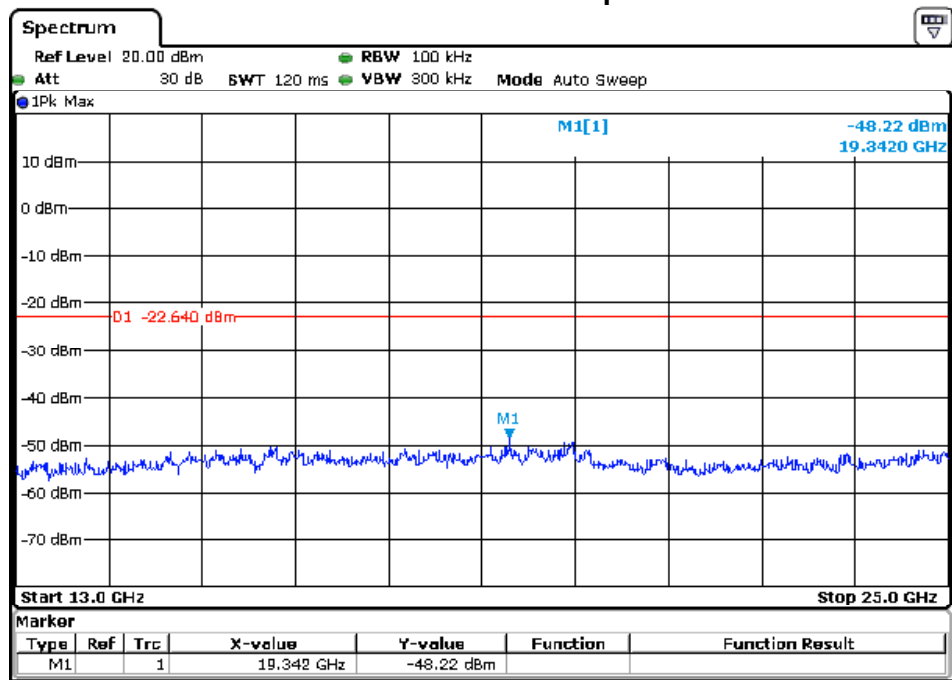


Note: Sweep Points=20000

CH78 Data rate 3Mbps



Note: Sweep Points=100000
CH78 Data rate 3Mbps



Note: Sweep Points=120000

10. ANTENNA REQUIREMENT

10.1 STANDARD REQUIREMENT

3.10.3.1.1 requirement: Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

10.2 EUT ANTENNA

The antenna is a CHIP Antenna and no consideration of replacement. Antenna max gain is 3.1 dBi from 2.4GHz to 2.484GHz.

11. EUT TEST PHOTO

Radiated Measurement Photos 30MHz-1GHz



**Radiated Measurement Photos
Above 1GHz**



Conducted Measurement Photos

****END OF REPORT****