



Test report No. : 4788387996A-US-R0-V0
Page : 1 of 120
Issued date : May 29, 2018
FCC ID : 2AO4FM020-1

RADIO TEST REPORT

Product : **Payment Terminal**

Model Name : **M020**

FCC ID : **2AO4FM020-1**

Test Regulation : **FCC 47 CFR Part 15 C (Section 15.247)**

Received Date : **Apr. 10, 2018**

Test Date : **May 7, 2018 ~May 29,2018**

Issued Date : **May 29, 2018**

Applicant : **Miura Systems Ltd.**
Unit 3, Cliveden Office Village, Lancaster Road,
Cressex Industrial Estate, High Wycombe HP12 3YZ

Issued By : **Underwriters Laboratories Taiwan Co., Ltd.**
Building B and Building E, No. 372-7, Sec. 4,
Zhongxing Rd., Zhudong Township, Hsinchu County,
Taiwan



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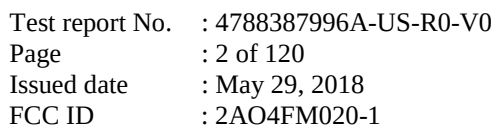
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Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan

Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Original Test Report No.: 4788387996A-US-R0-V0

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1. Attestation of Test Results

APPLICANT: Miura Systems Ltd.
Unit 3, Cliveden Office Village, Lancaster Road,
Cressex Industrial Estate, High Wycombe HP12 3YZ

MANUFACTURER Jabil
Miłosna 32, 82-500 Kwidzyn, Poland

EUT DESCRIPTION: Payment Terminal

BRAND: Miura

MODEL: M020

SAMPLE STAGE: Production Unit

DATE of TESTED: May 7, 2018 ~May 29, 2018

APPLICABLE STANDARDS	
STANDARD	Test Results
FCC 47 CFR PART 15 Subpart C (Section 15.247)	PASS

Underwriters Laboratories Taiwan Co., Ltd. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by Underwriters Laboratories Taiwan Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Underwriters Laboratories Taiwan Co., Ltd. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Underwriters Laboratories Taiwan Co., Ltd. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Prepared By:

Evelyn Lee
Project Handler

Date : May 29, 2018

Approve By:

John Cheng
Project Engineer

Date : May 29, 2018

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2. Summary of Test Results

Summary of Test Results		
Test Items	FCC Rules	Test Result
20dB Bandwidth and 99% Bandwidth	FCC 15.247 (a) (1)	PASS
Peak Conducted Output Power	FCC 15.247 (b) (1)	PASS
Carrier Frequency Separation (ChS)	FCC 15.247 (a) (1)	PASS
Number of Hopping Frequencies (N)	FCC 15.247 (a) (1) (III)	PASS
Time of Occupancy (Dwell Time)	FCC 15.247 (a) (1) (III)	PASS
Conducted Bandedge and Spurious Emission	FCC 15.247 (d)	PASS
Radiated Bandedge and Spurious Emission	FCC 15.247 (d) FCC 15.209 FCC 15.205	PASS
Conducted Emission Test For AC Power Port	FCC 15.207	PASS
Antenna Requirement	FCC 15.203	PASS

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3. Test Methodology

The tests documented in this report were performed in accordance with FCC CFR 47 Part 2, FCC CFR 47 Part 15, DA 00-705, KDB414788 D01 Radiated Test Site v01 and ANSI C63.10-2013.

4. Facilities and Accreditation

Test Location	Underwriters Laboratories Taiwan Co., Ltd.
Address	Building B and Building E, No. 372-7, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County, Taiwan
Accreditation Certificate	Underwriters Laboratories Taiwan Co., Ltd. is accredited by TAF, Laboratory Code 3398. The full scope of accreditation can be viewed at http://accreditation.taftw.org.tw/taf/public/basic/viewApplyItems.action?unitNo=3398

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5. Measurement Uncertainty

The following uncertainties have been calculated to provide a confidence level of 95 % using a coverage factor $k=2$.

Test Item	Measurement Frequency Range	K	U(dB)
Conducted disturbance at mains terminals ports	0.15MHz ~ 30MHz	2	2.6
RF Conducted	9 kHz - 40GHz	2	1.0
Radiated disturbance below 30MHz	9 kHz - 30 MHz	2	2.4
Radiated disturbance below 1 GHz	30MHz ~ 1GHz	2	5.5
Radiated disturbance above 1GHz	1GHz ~ 40GHz	2	5.0

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6. Equipment under Test

6.1. Description of EUT

Product	Payment Terminal
Brand Name	Miura
Model Name	M020
Radio Technology and Operating Frequency	2402MHz~2480MHz
Modulation	GFSK, $\pi/4$ -DQPSK and 8DPSK
Normal Voltage	5Vdc (adapter or host equipment) 3.8Vdc for battery
Bluetooth Version	V4.2
Hardware Version	M021-PRODxx-Vx-x
Software Version	M000-TESTOS-V8-0c OS

Note : This report only applies to modulation technology DSS (BDR+EDR).

6.2. Maximum Output Power

Bluetooth Mode	Frequency Range (MHz)	Channel Number	Max Output Power (dBm)
GFSK	2402-2480	0-78[79]	2.20
$\pi/4$ -DQPSK	2402-2480	0-78[79]	4.50
8DPSK	2402-2480	0-78[79]	4.97

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6.3. Channel List

Channel List					
Channel	Frequency (MHz)	Channel	Frequency(MHz)	Channel	Frequency (MHz)
0	2402	27	2429	54	2456
1	2403	28	2430	55	2457
2	2404	29	2431	56	2458
3	2405	30	2432	57	2459
4	2406	31	2433	58	2460
5	2407	32	2434	59	2461
6	2408	33	2435	60	2462
7	2409	34	2436	61	2463
8	2410	35	2437	62	2464
9	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	-	-

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6.4. Test Condition

Test Item	Test Site No.	Relative Humidity	Temperature	Voltage	Test Engineer
Antenna Port Conducted Measurement	SR4	55%	22°C	120 Vac/ 60 Hz	WaterNil Guan
Radiated Spurious Emission	966-2	52%	25°C	120 Vac/ 60 Hz	WaterNil Guan
AC power Line Conducted Emission	SR1	54%	26°C	120 Vac/ 60 Hz	WaterNil Guan

FCC Test Firm Registration Number: 498077

6.5. Description Of Available Antennas

Antenna	Brand Name	Model Name	Antenna Type	Antenna Gain(dBi)
Chain(0)	Amotech	ALA621C4	Chip	3.5

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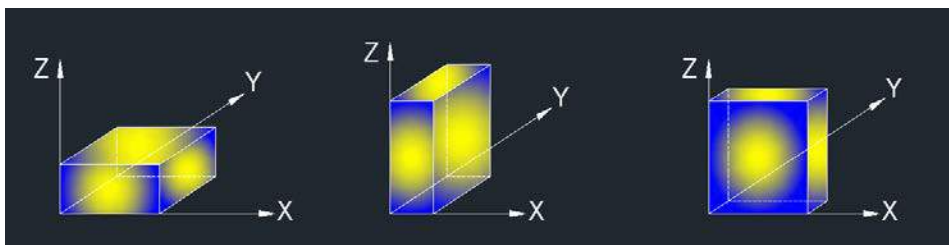
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6.6. Operating Mode and Worst Case of EUT

For below 1 GHz radiated emission, 1 GHz to 18GHz radiated emission, above 18GHz radiated emission and AC power line conducted emission and were performed with the EUT set to transmit at the channel with highest output power as worst-case.

X axis, Y axis, Z axis positions:



The fundamental of the EUT was investigated in three orthogonal axes X/Y/Z, it was determined that X axis was worst-case . Therefore, all final radiated testing was performed with the EUT in X axis.



7. Test Equipment

Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
Radiated Spurious Emission					
Spectrum Analyzer	Keysight	N9010A	MY56070821	Nov. 28, 2017	1 year
Loop Antenna	ETS lindgren	6502	00213440	Dec. 7, 2017	1 year
Trilog-Broadband Antenna with 5dB Attenuator	Schwarzbeck & EMCI	VULB 9168 & N-6-05	VULB 9168-773 & AT-N0539	Feb. 12, 2018	1 year
Horn Antenna (1-18 GHz)	Schwarzbeck	BBHA 9120 D	BBHA 9120D-01686	Jan. 23, 2018	1 year
Horn Antenna(18-40 GHz)	Schwarzbeck	BBHA 9170	BBHA9170750	Jan.12, 2018	1 year
Preamplifier (30-1000 MHz)	EMCI	RMC330E	980404	Jan. 9, 2018	1 year
Preamplifier (1-18 GHz)	EMCI	EMC051835B E	980407	Jan. 10, 2018	1 year
Preamplifier (18-40GHz)	EMCI	EMC184040S EE	980408	Mar. 13, 2018	1 year
RF Cable (9 KHZ~18 GHz)	UltraPhase & EMC Instrument	A1K50-UP0358-A1K50-1500&EMC106-NM-SM-2500/8000	170111-3&170104/170223	Feb. 1, 2018	1 year
RF Cable (18 GHz~40 GHz)	UltraPhase	K1K50-UP0264-K1K50-500/2500/4000	170214-3/170214-3/170214-1	Feb. 1, 2018	1 year

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Test Equipment List					
Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Interval
Antenna Port Conducted Measurement					
Spectrum Analyzer	Keysight	N9010A	MY56070834	Nov. 20, 2017	1 year
Power meter	Anrisu	MA2411B	1531202	Dec. 14, 2017	1 year
Power sensor	Anrisu	ML2495A	1645002	Dec. 14, 2017	1 year
AC power Line Conducted Emission					
EMI Test Receiver	Rohde & Schwarz	ESR7	101753	Nov. 28, 2017	1 year
Two-Line V-Network	Rohde & Schwarz	ENV216	102136	Aug. 2, 2017	1 year
Impuls-Begrenzer Pulse Limiter	Rohde & Schwarz	ESH3-Z2	102219-Qt	July 31, 2017	1 year
Cables	Huber+Suhner	RG 214/U	FCC-BCICF-4_RF	Feb. 1, 2018	1 year
UL Software					
Description			Name		Version
Radiated measurement			EMC-RI		1.0.0.0
Conducted measurement			Keysight.TestSystem		1.0.0.0
AC power Line Conducted Emission			EZ_EMC		1.1.4.2

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8. Description of Test Setup

Support Equipment

Item	Equipment	Brand Name	Model Name	P/N
1	Adapter	ANKER	A2021	N/A

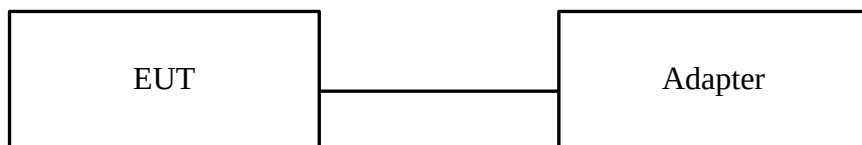
Accessory

Item	Accessory	Brand Name	Model Name	Description
1	USB Cable	N/A	N/A	Micro USB shielding 1 meter *1

Test Setup

The EUT was worked in engineering mode to transmit signal.

Setup Diagram for Test



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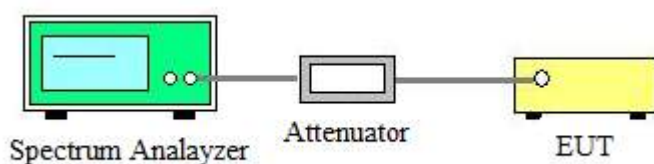
9. Test Result

9.1. Duty Cycle

Requirements

N/A

Test Setup



Test Data

Mode	On Time (ms)	Period (ms)	Duty cycle (%)	Duty cycle Correction Factor (dB)	1/B Min VBW (KHz)
GFSK	2.886	3.750	76.96%	1.14	0.347
8-DPSK	2.886	3.750	76.96%	1.14	0.347

Note: Duty Cycle Correction Factor= $10\log(1/x)$.

Where: x is Duty Cycle (Linear) Where: B is On Time

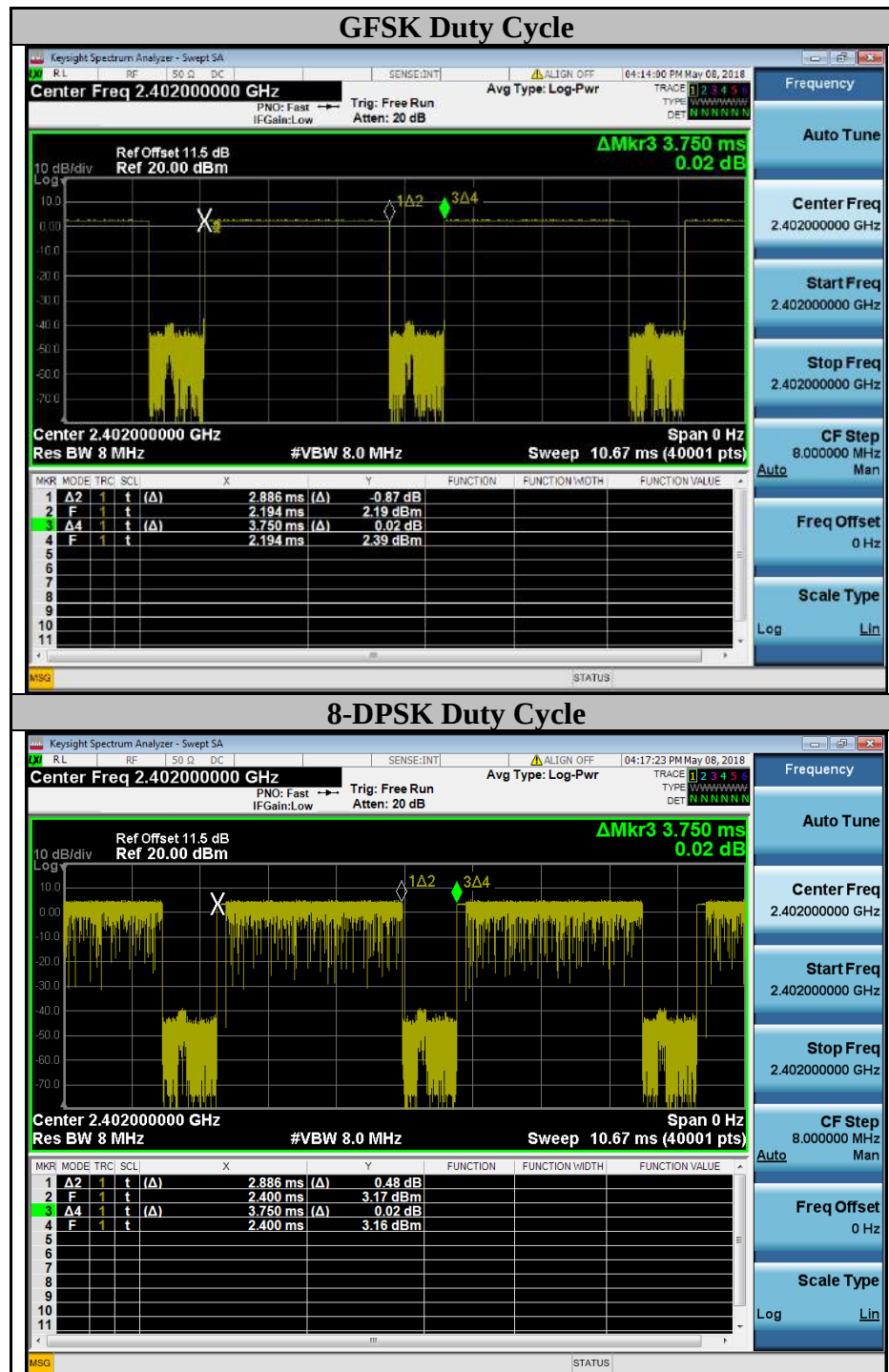
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9.2. 20dB Bandwidth and 99% Bandwidth

Requirements

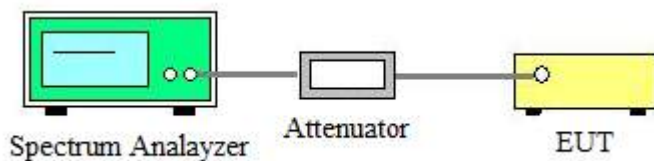
N/A

Test procedure

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	For 20dB Bandwidth : 1% to 5% of the occupied bandwidth For 99% Bandwidth :1% to 5% of the occupied bandwidth
VBW	For 20dB Bandwidth : $\geq 3 \times \text{RBW}$ For 99% Bandwidth : approximately $3 \times \text{RBW}$
SPAN	For 20dB Bandwidth : 2.0 times and 5.0 times the OBW For 99% Bandwidth : 1.5 times and 5.0 times the OBW
Trace	Max hold
Sweep	Auto couple

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB and 99% relative to the maximum level measured in the fundamental emission.

Test Setup



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Test Data

Mode	Channel	Frequency (MHz)	20dB Bandwidth (MHz)	99% Bandwidth (MHz)
GFSK	00	2402	0.9659	0.88763
	39	2441	0.9664	0.87553
	78	2480	0.9664	0.88274
8-DPSK	00	2402	1.249	1.1791
	39	2441	1.268	1.1815
	78	2480	1.258	1.1745

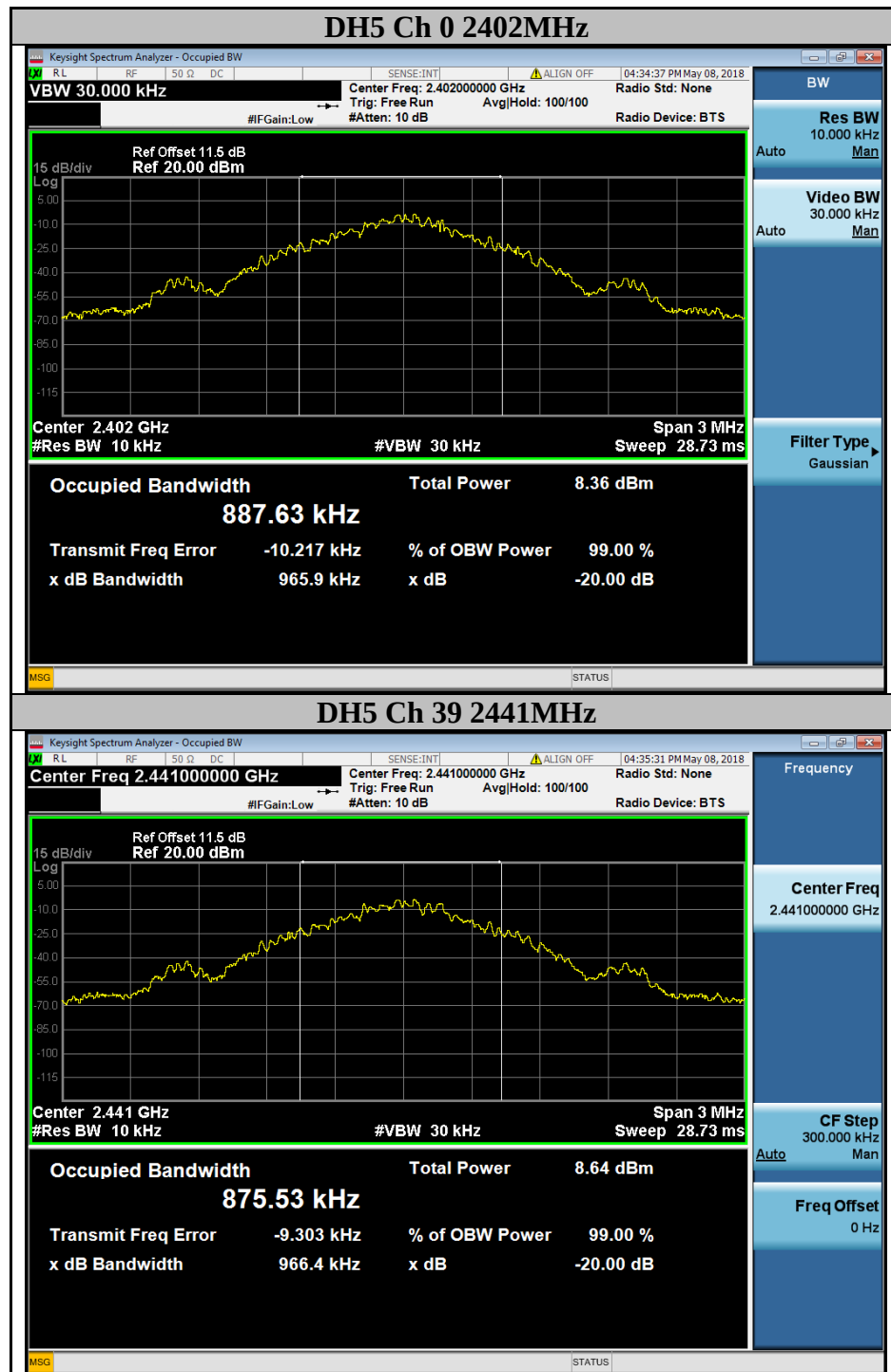
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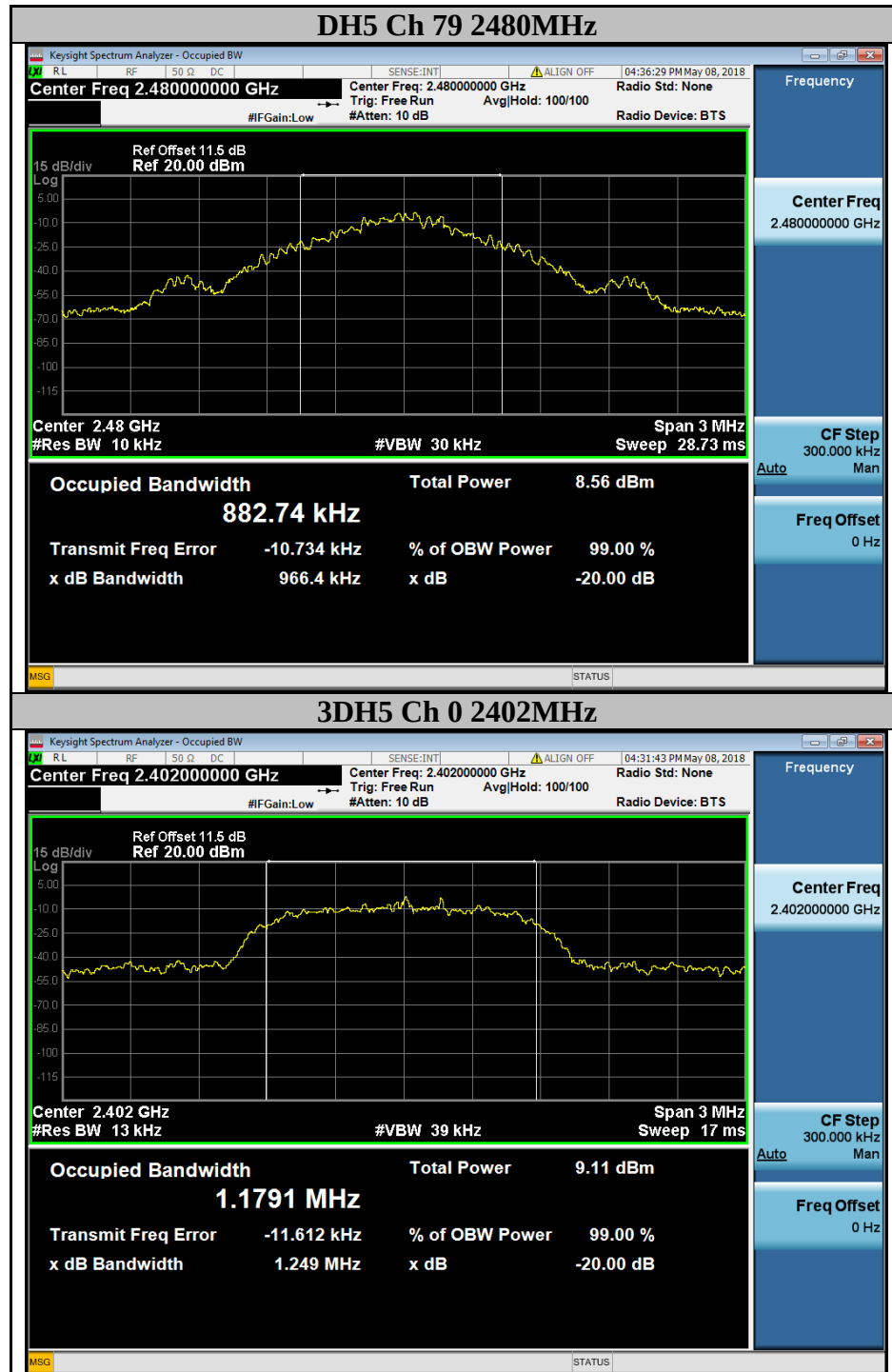
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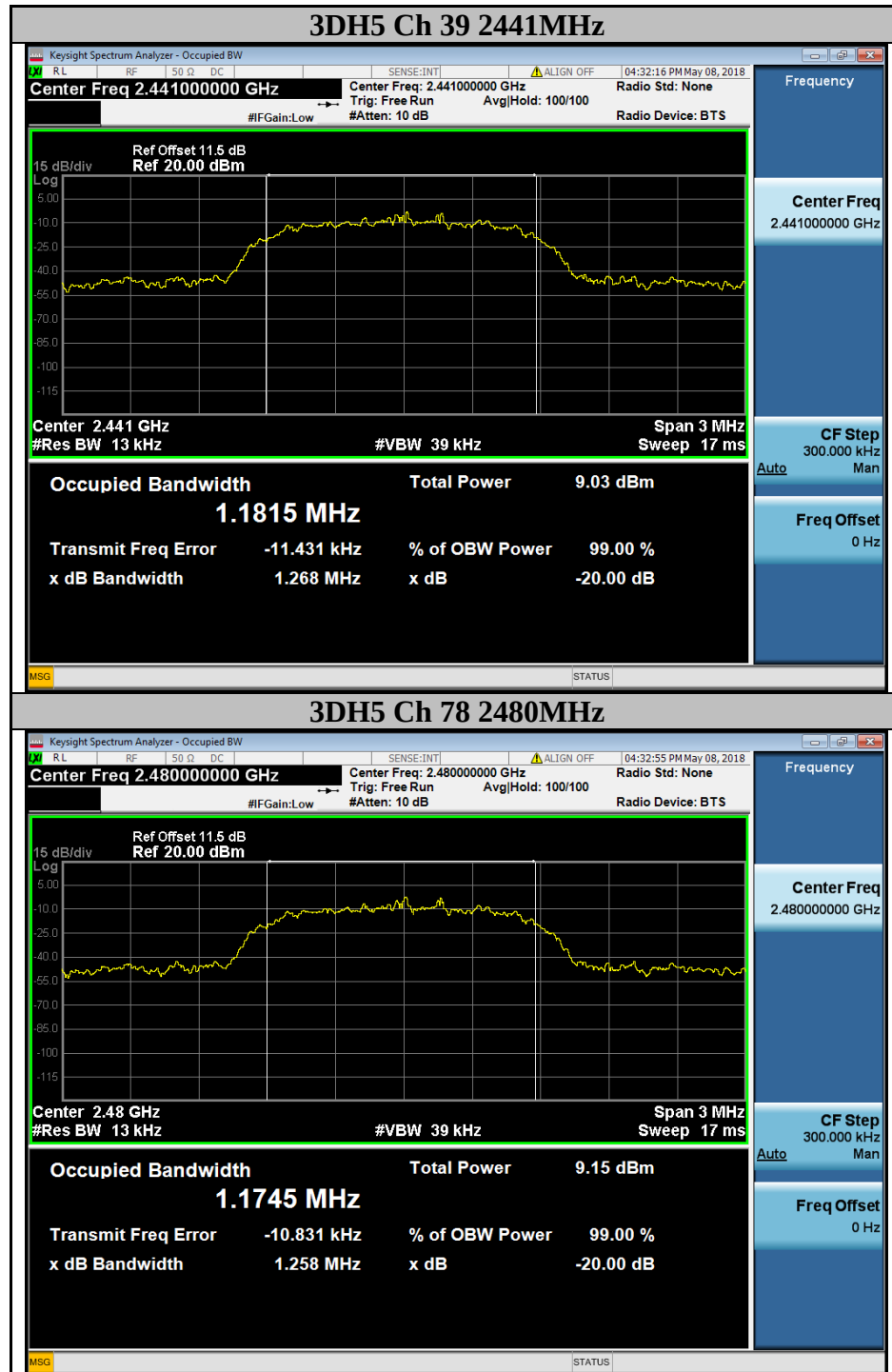
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9.3. Maximum conducted output power

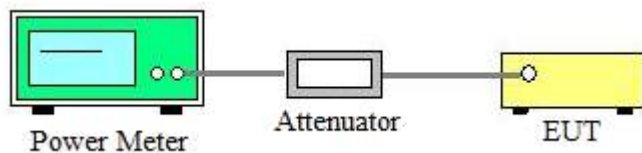
Requirements

For systems using digital modulation in the 2400-2483.5 MHz bands: 1 Watt.

Test Procedure

- To place the EUT on the table and set it in the transmitting mode.
- To remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the Power sensor.
- To measure peak power for each channel

Test Setup





Test Data

Mode	Channel	Frequency (MHz)	Output Power (PK) (dBm)	Total Power (PK) (dBm)	Limit (dBm)	Margin (dB)
GFSK	00	2402	1.96	1.96	21	-19.27
	39	2441	2.20	2.20	21	-19
	78	2480	1.63	1.63	21	-19.66
$\pi/4$ -DQPSK	00	2402	3.84	3.84	21	-19.44
	39	2441	4.21	4.21	21	-19.11
	78	2480	4.50	4.50	21	-18.81
8DPSK	00	2402	4.33	4.33	21	-19.52
	39	2441	4.69	4.69	21	-19.16
	78	2480	4.97	4.97	21	-18.86

Note: Margin (dB) = Total Power (PK) (dBm) - Limit (dBm)

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9.4. Carrier Hopping Channel Separation

Requirements

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

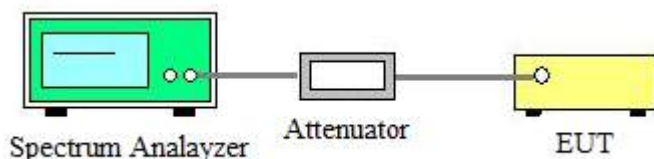
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW

Test procedure

Connect the EUT to the spectrum analyser and use the following settings:

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	set to approximately 30% of the channel spacing
VBW	$\geq$ RBW
Span	Wide enough to capture the peaks of two adjacent channels
Trace	Max hold
Sweep Time	Auto couple

Test Setup



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Test Data

Mode	Channel	Frequency (MHz)	Carrier Hopping Channel Separation (MHz)	Limit (MHz)	Result
GFSK	00	2402	1.00	0.6439	PASS
	39	2441	1.00	0.6443	PASS
	78	2480	1.00	0.6443	PASS
8-DPSK	00	2402	1.00	0.8327	PASS
	39	2441	1.00	0.8453	PASS
	78	2480	1.00	0.8387	PASS

Note: Limit (MHz) = two/three of 20dB Bandwidth

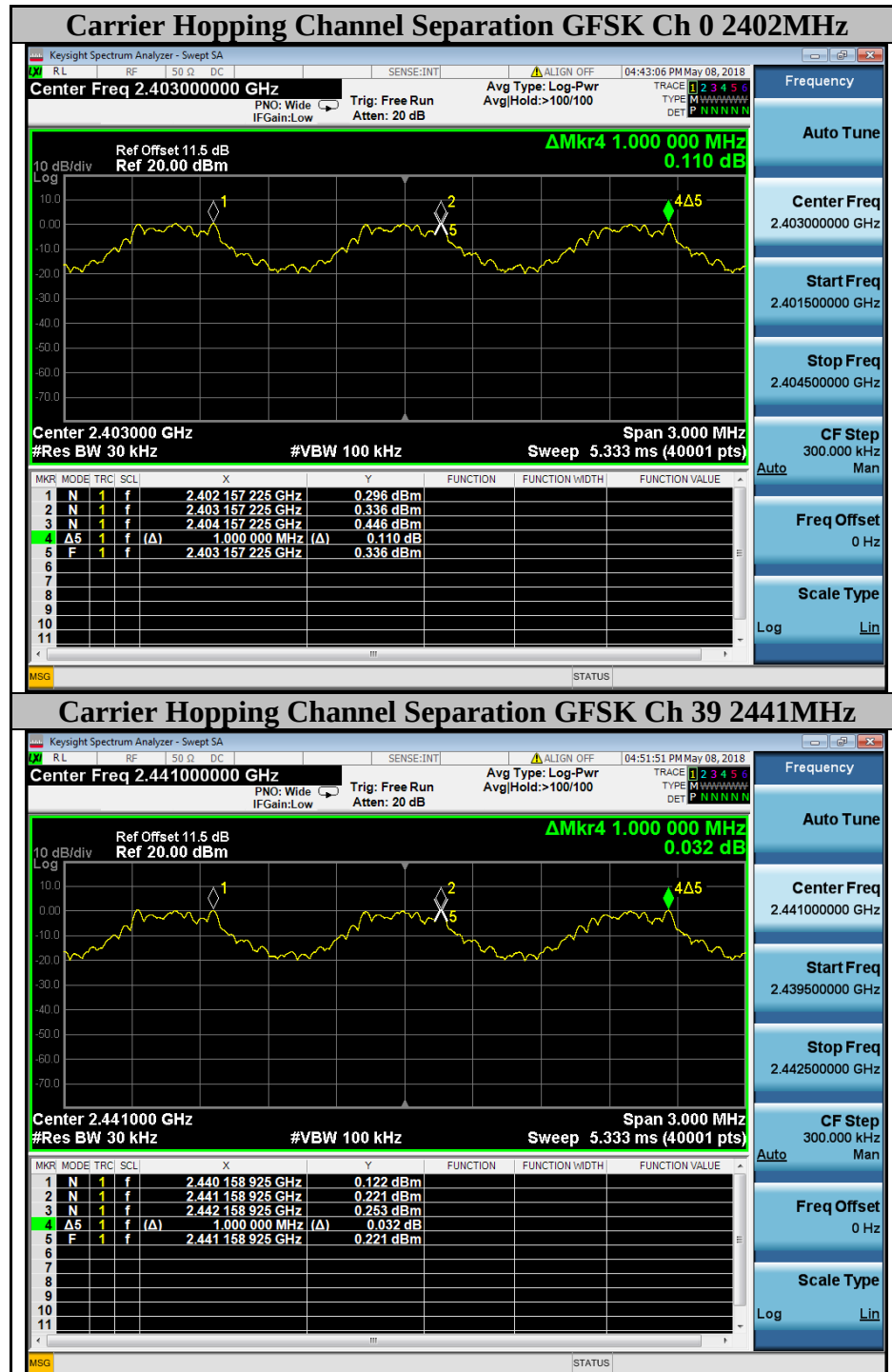
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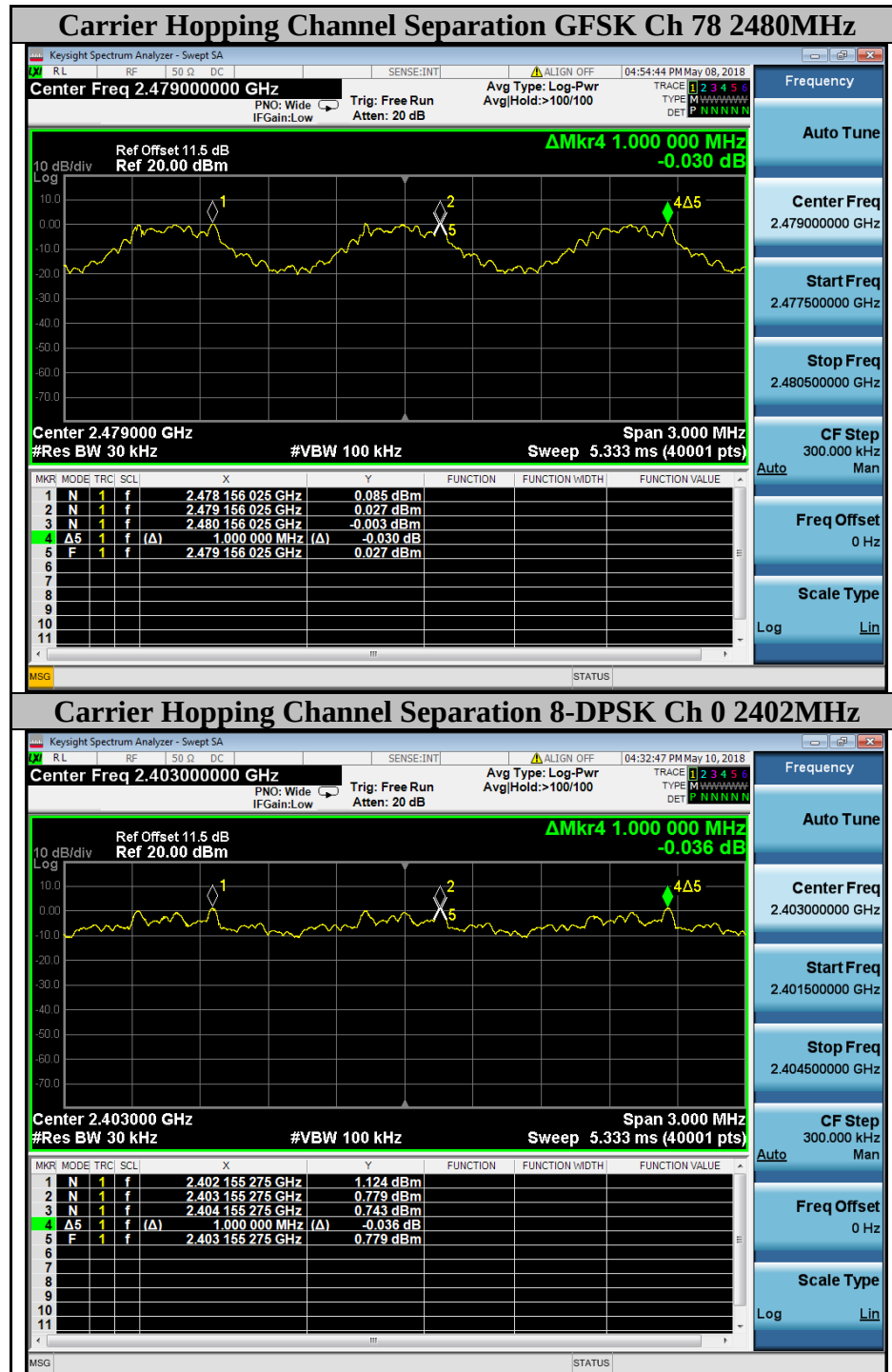
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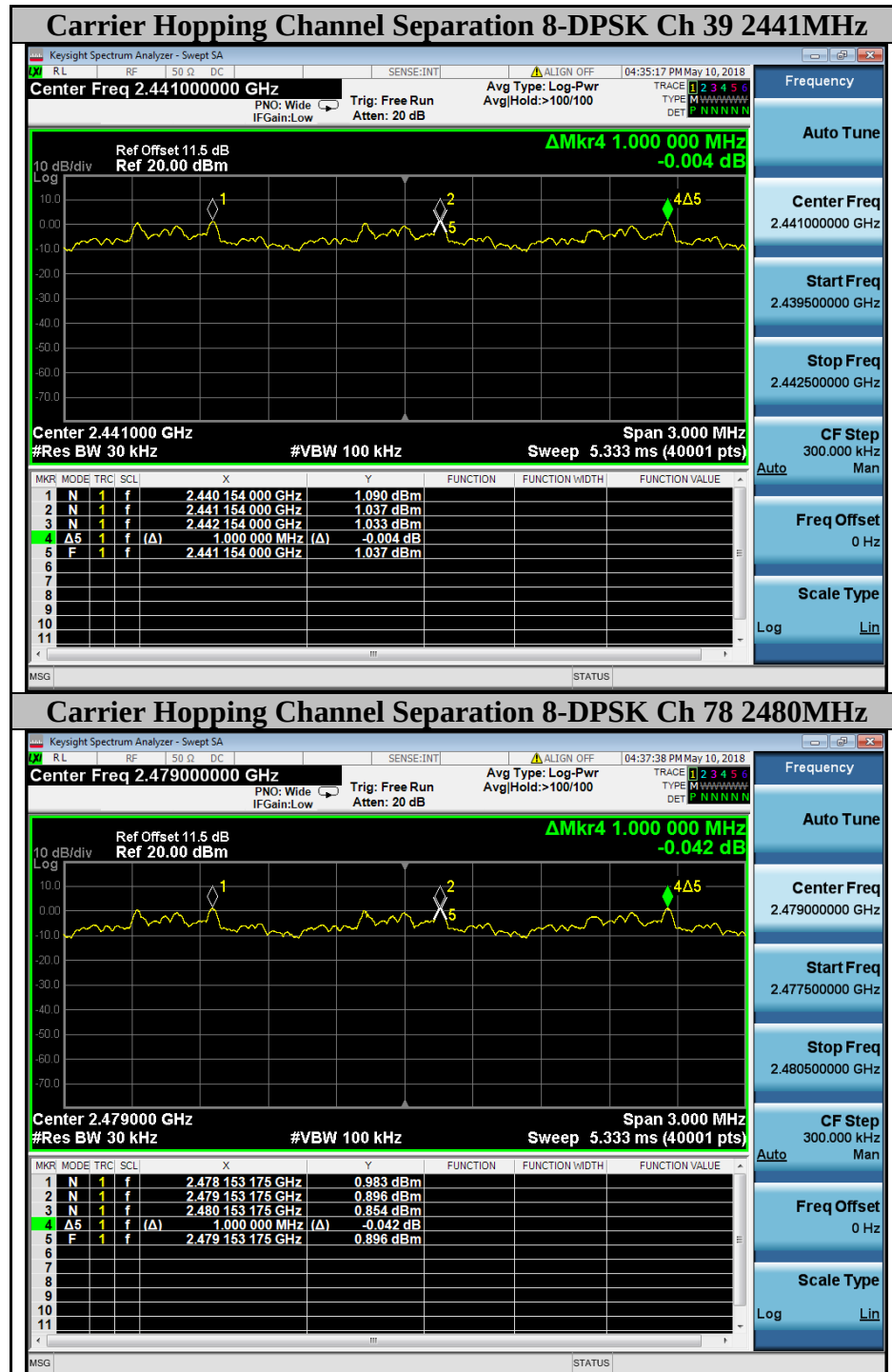
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9.5. Number of Hopping Frequencies

Requirements

at least 15 hopping channels

Test procedure

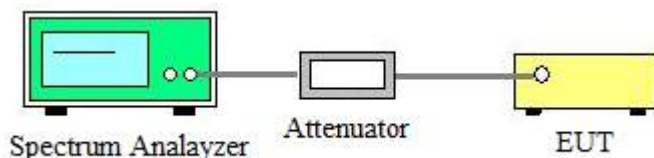
Connect the EUT to the spectrum analyser and use the following settings:

Detector	Peak
RBW	less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller
VBW	$\geq$ RBW
Span	The frequency band of operation
Trace	Max hold
Sweep Time	Auto

Set EUT to transmit maximum output power and switch on frequency hopping function. then set enough count time (larger than 5000 times) to get all the hopping frequency channel displayed on the screen of spectrum analyzer.

Count the quantity of peaks to get the number of hopping channels.

Test Setup



Test Result

There are 79 hopping frequencies in hopping mode and 20 hopping frequencies in the AFH mode. Please refer to next page for the test result.

Number of Hopping (Channel)	Adaptive Frequency Hopping (Channel)	Limit	Pass/Fail
79	20	>15	Pass

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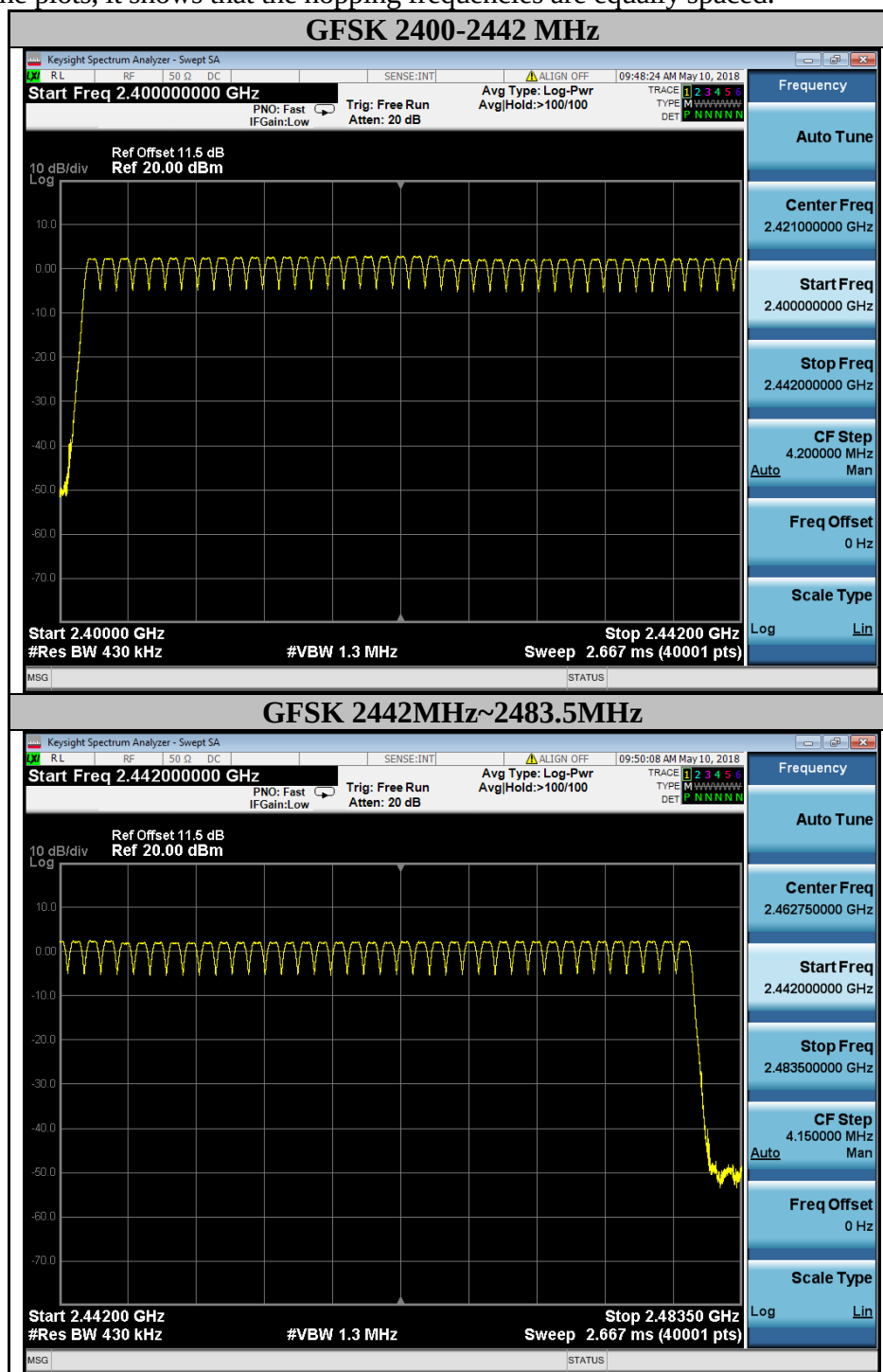
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Test Data

There are 79 hopping frequencies in the hopping mode. Please refer to next page for the test result. On the plots, it shows that the hopping frequencies are equally spaced.



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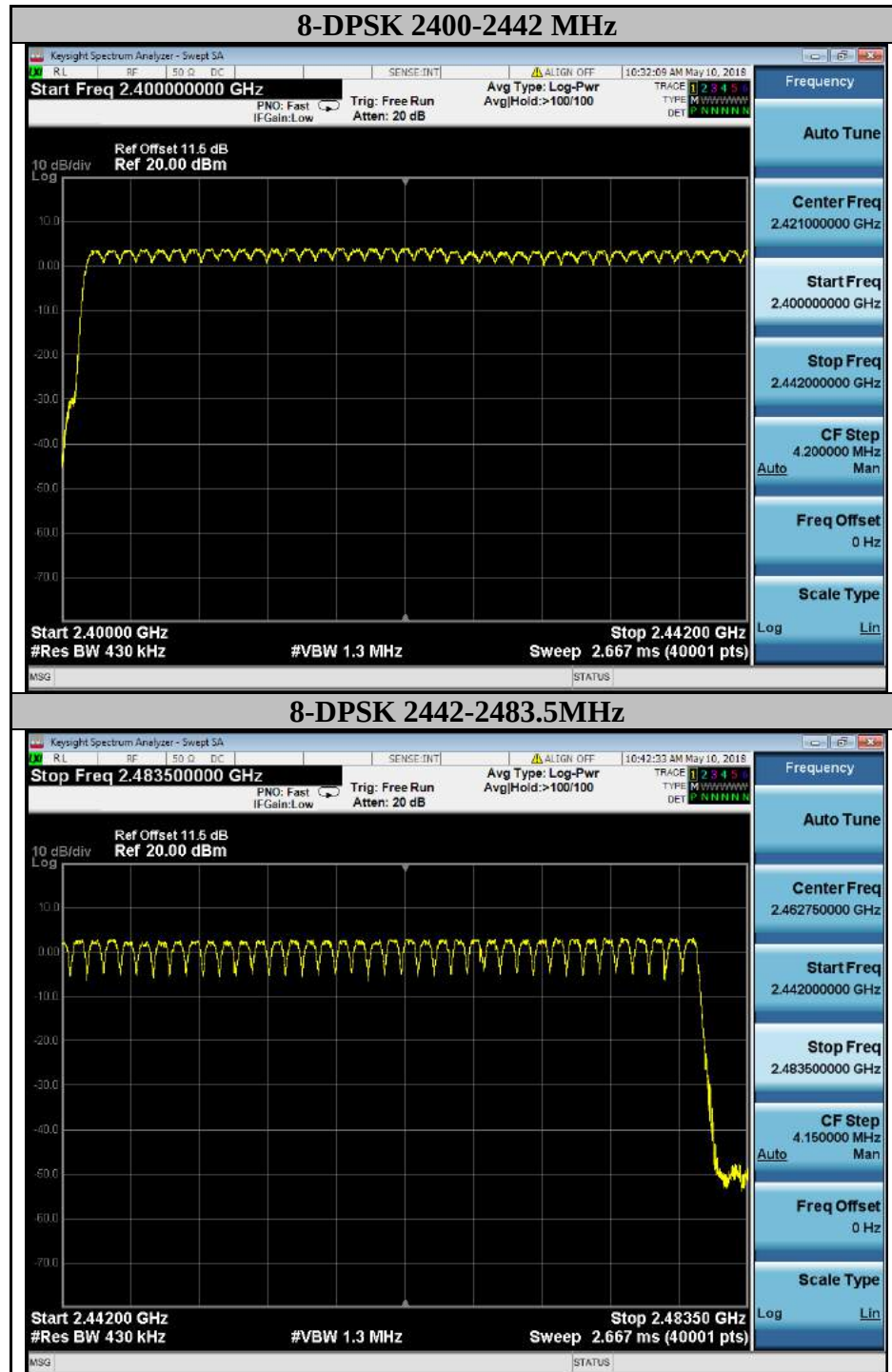
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9.6. Time of Occupancy (Dwell Time)

Requirements

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.

Test procedure

Connect the EUT to the spectrum analyzer and use the following settings:

Center Frequency	The centre frequency of the channel under test
Detector	Peak
RBW	1 MHz
VBW	$\geq$ RBW
Span	zero span
Trace	Max hold
Sweep time	As necessary to capture the entire dwell time per hopping channel

- The transmitter output (antenna port) was connected to the spectrum analyzer
- Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
- Use a video trigger with the trigger level set to enable triggering only on full pulses.
- Sweep Time is more than once pulse time.
- Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- Measure the maximum time duration of one single pulse.
- Set the EUT for DH5, DH3 and DH1 packet transmitting.
- Measure the maximum time duration of one single pulse.

A Period Time = (channel number)*0.4

DH1 Time Slot: Reading * (1600/2)*31.6/(channel number)

DH3 Time Slot: Reading * (1600/4)*31.6/(channel number)

DH5 Time Slot: Reading * (1600/6)*31.6/(channel number)

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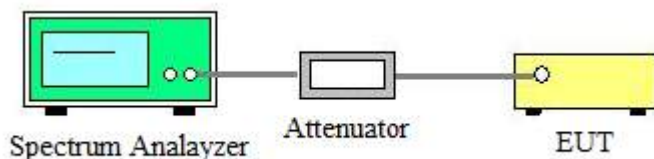
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Test Setup



Test Data

GFSK

Modulation	Channel	Frequency (MHz)	Length of transmission time (msec)	Result (msec)	Limit (msec)	Result
DH1	39	2441	0.382	40.748	400	PASS
DH3	39	2441	1.638	174.725	400	PASS
DH5	39	2441	2.886	307.850	400	PASS

8DPSK

Modulation	Channel	Frequency (MHz)	Length of transmission time (msec)	Result (msec)	Limit (msec)	Result
3DH1	39	2441	0.382	40.748	400	PASS
3DH3	39	2441	1.638	174.725	400	PASS
3DH5	39	2441	2.886	307.850	400	PASS

Note :

1. In normal mode, hopping rate is 1600 hops/s with 6 slots in 79 hopping channels.
With channel hopping rate (1600 / 6 / 79) in Occupancy Time Limit (0.4 x 79) (s), Hops Over Occupancy Time comes to (1600 / 6 / 79) x (0.4 x 79) = 106.67 hops.
2. Dwell time (ms) = Hops Over Occupancy Time (hops) x Length of transmission time (ms).

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(AFH mode)

GFSK

Modulation	Channel	Frequency (MHz)	Length of transmission time (msec)	Result (msec)	Limit (msec)	Result
DH1	39	2441	0.382	20.372	400	PASS
DH3	39	2441	1.638	87.354	400	PASS
DH5	39	2441	2.886	153.910	400	PASS

8DPSK

Modulation	Channel	Frequency (MHz)	Length of transmission time (msec)	Result (msec)	Limit (msec)	Result
3DH1	39	2441	0.382	40.748	400	PASS
3DH3	39	2441	1.638	174.725	400	PASS
3DH5	39	2441	2.886	307.850	400	PASS

Note :

1. In AFH mode, hopping rate is 800 hops/s with 6 slots in 20 hopping channels. With channel hopping rate $(800 / 6 / 20)$ in Occupancy Time Limit (0.4×20) (s), Hops Over Occupancy Time comes to $(800 / 6 / 20) \times (0.4 \times 20) = 53.33$ hops.
2. Dwell time (ms) = Hops Over Occupancy Time (hops) x Length of transmission time (ms).

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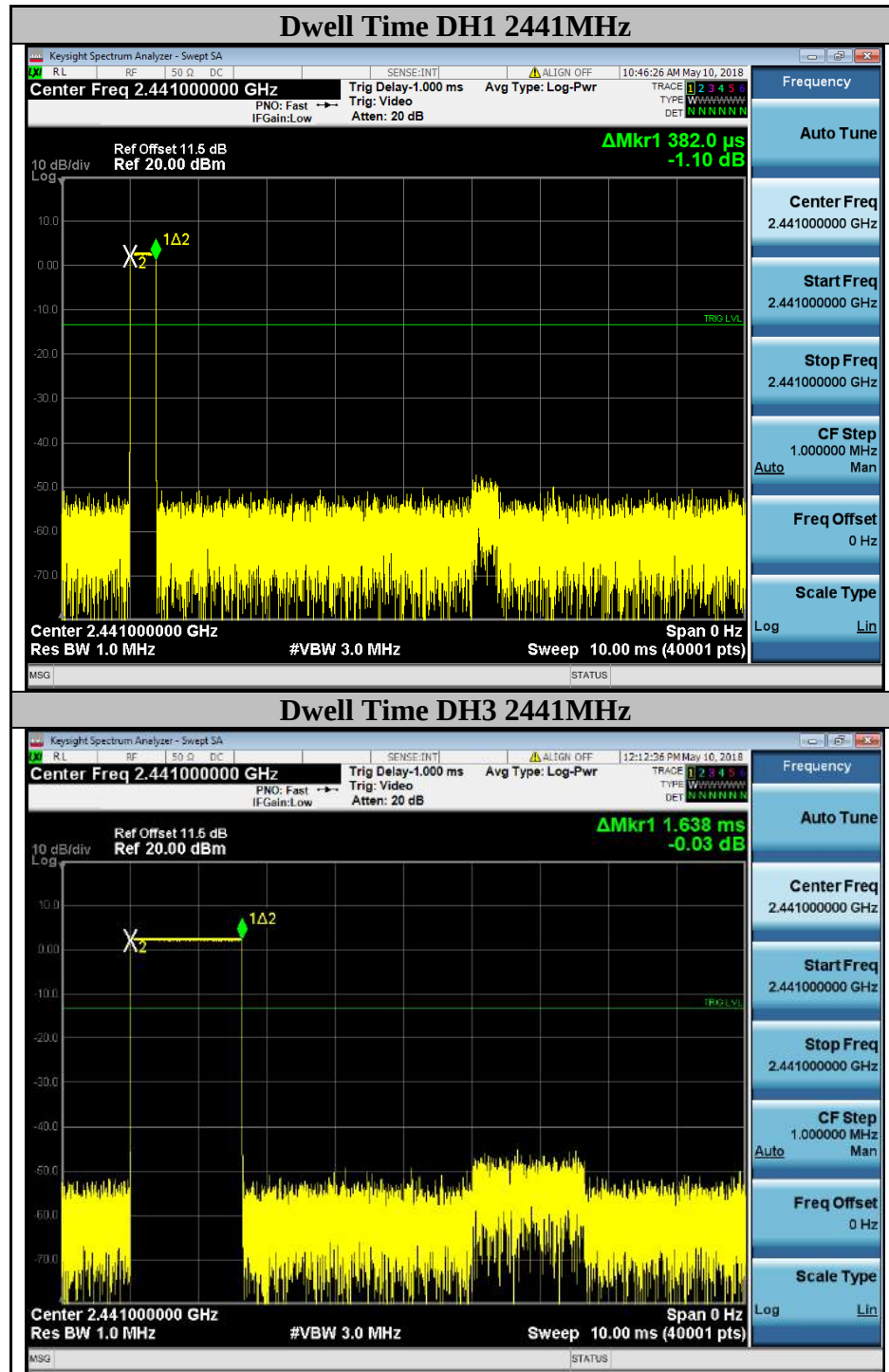
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Mode: GFSK



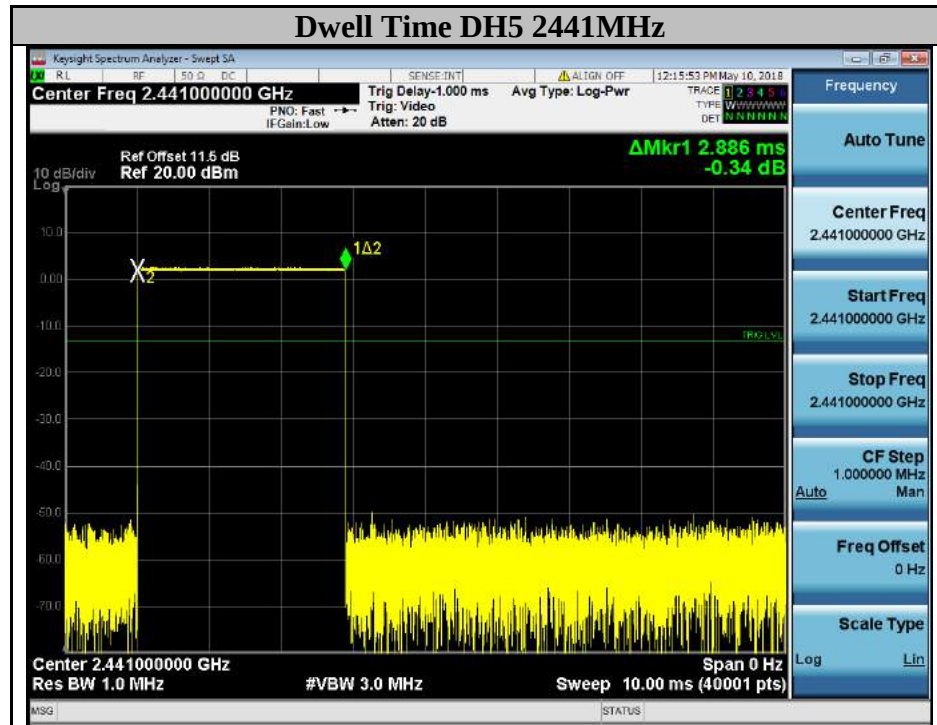
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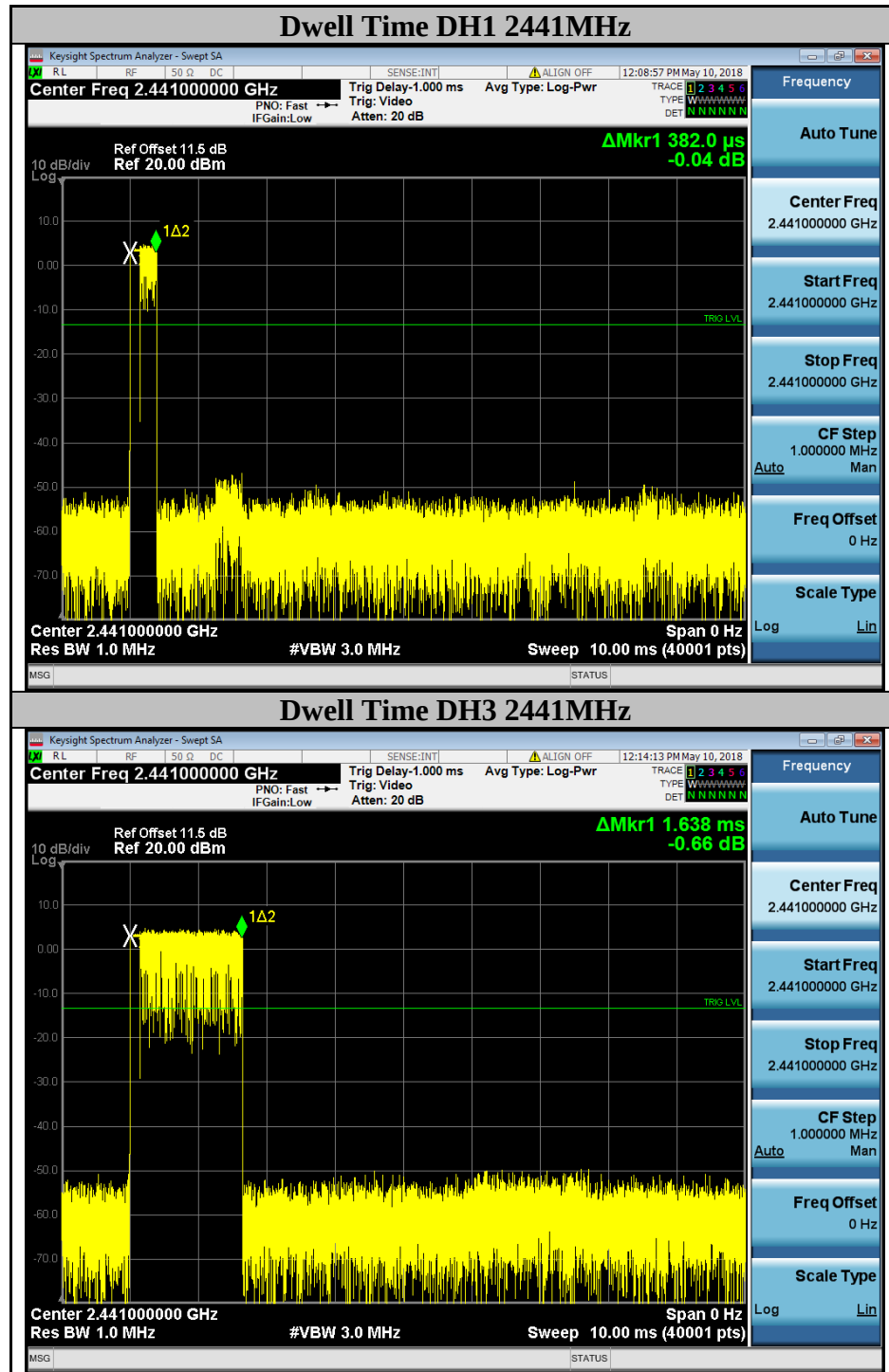
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Mode: 8-DPSK



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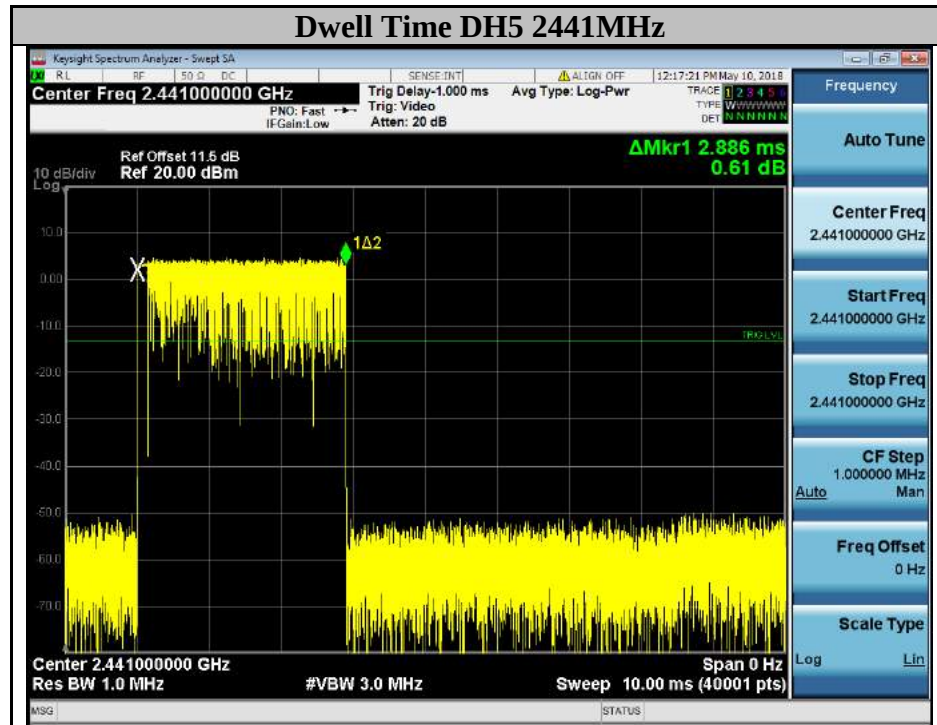
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9.7. Conducted Bandedge and Spurious Emission

Requirements

at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power

Test procedure

Connect the EUT to the spectrum analyzer and use the following settings:

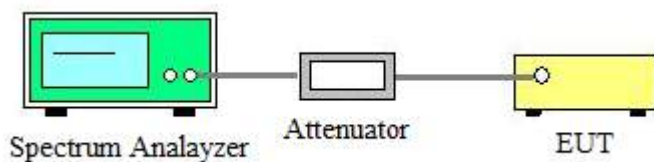
Center Frequency	Set the center frequency and span to encompass frequency range to be measured
Detector	Peak
RBW	100K
VBW	$\geq 3 \times \text{RBW}$
Measurement Points	$\geq \text{span}/\text{RBW}$
Trace	Max hold
Sweep time	Auto couple.

Use the peak marker function to determine the maximum amplitude level.

The spectrum from 30MHz to 26GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

The bandedge at 2.4 and 2.4835GHz are investigated with the transmitter set to the normal hopping mode.

Test Setup



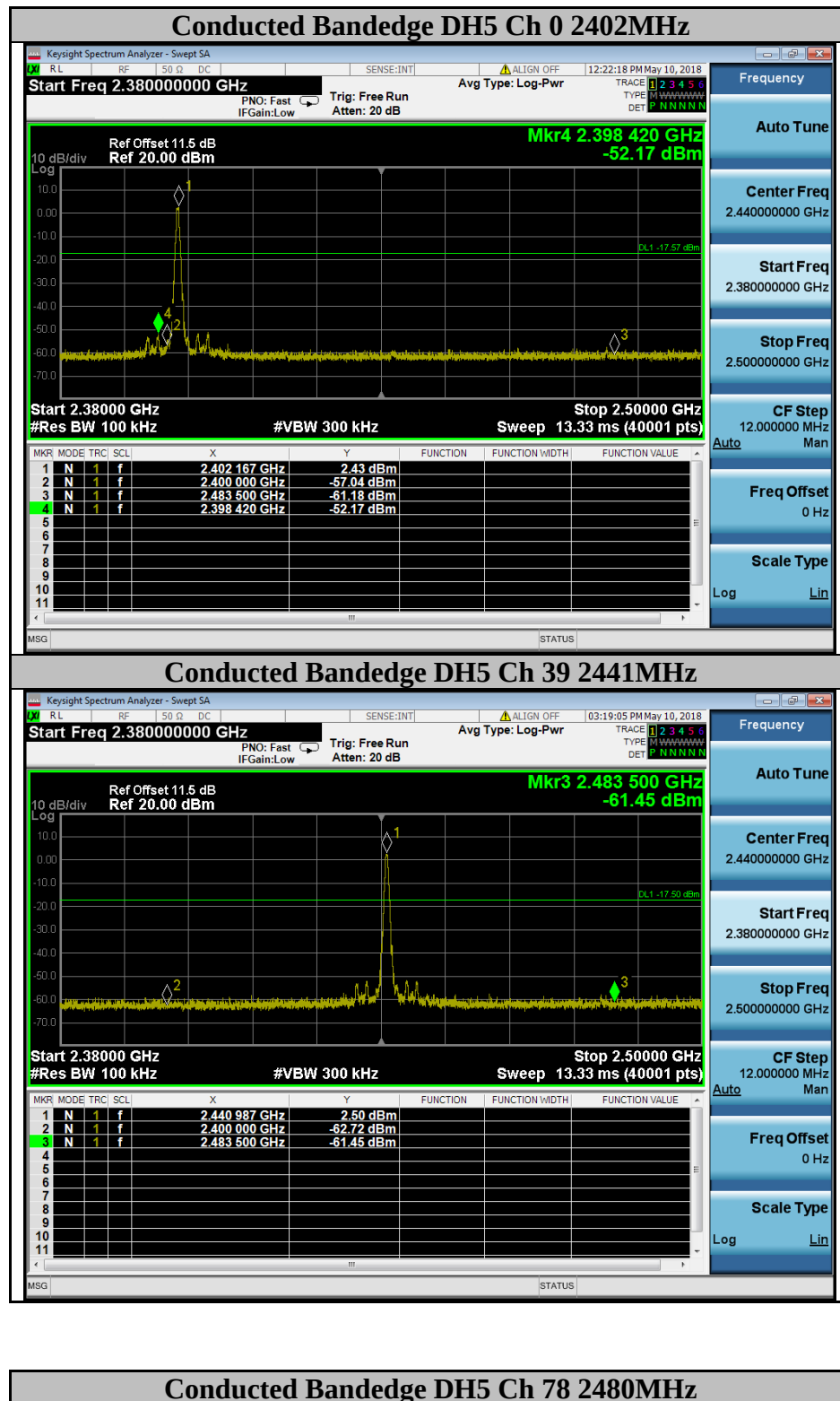
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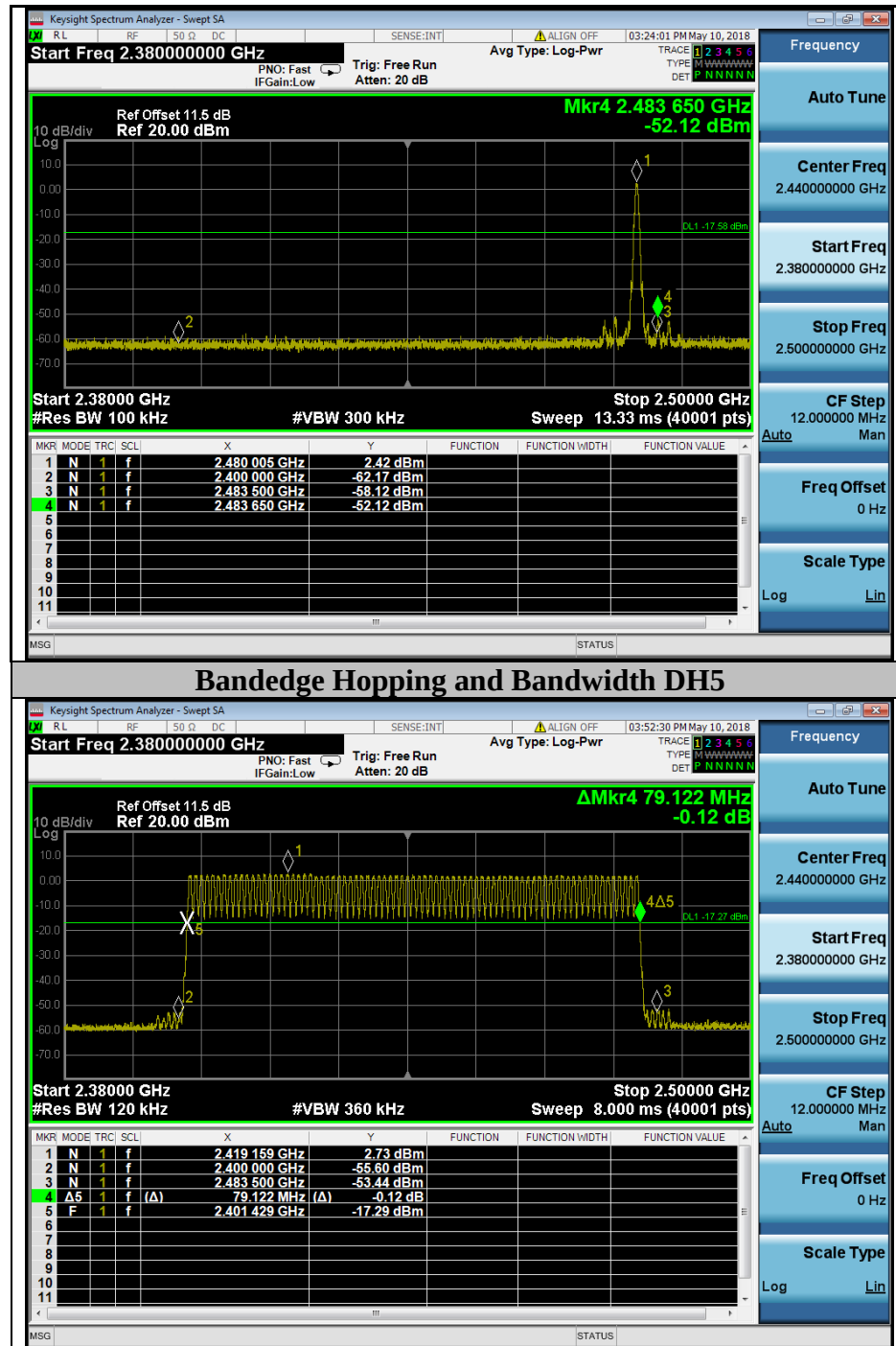
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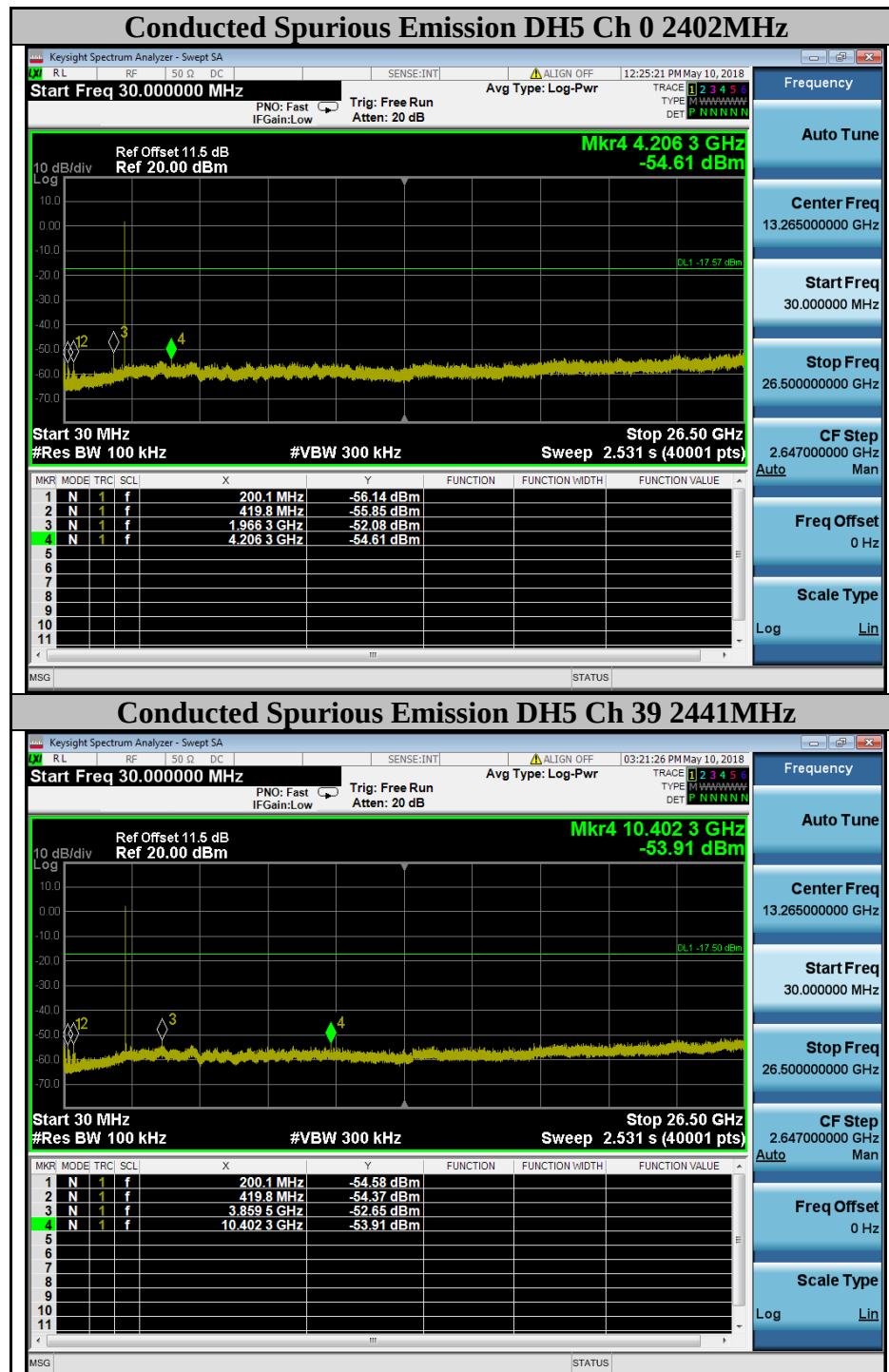
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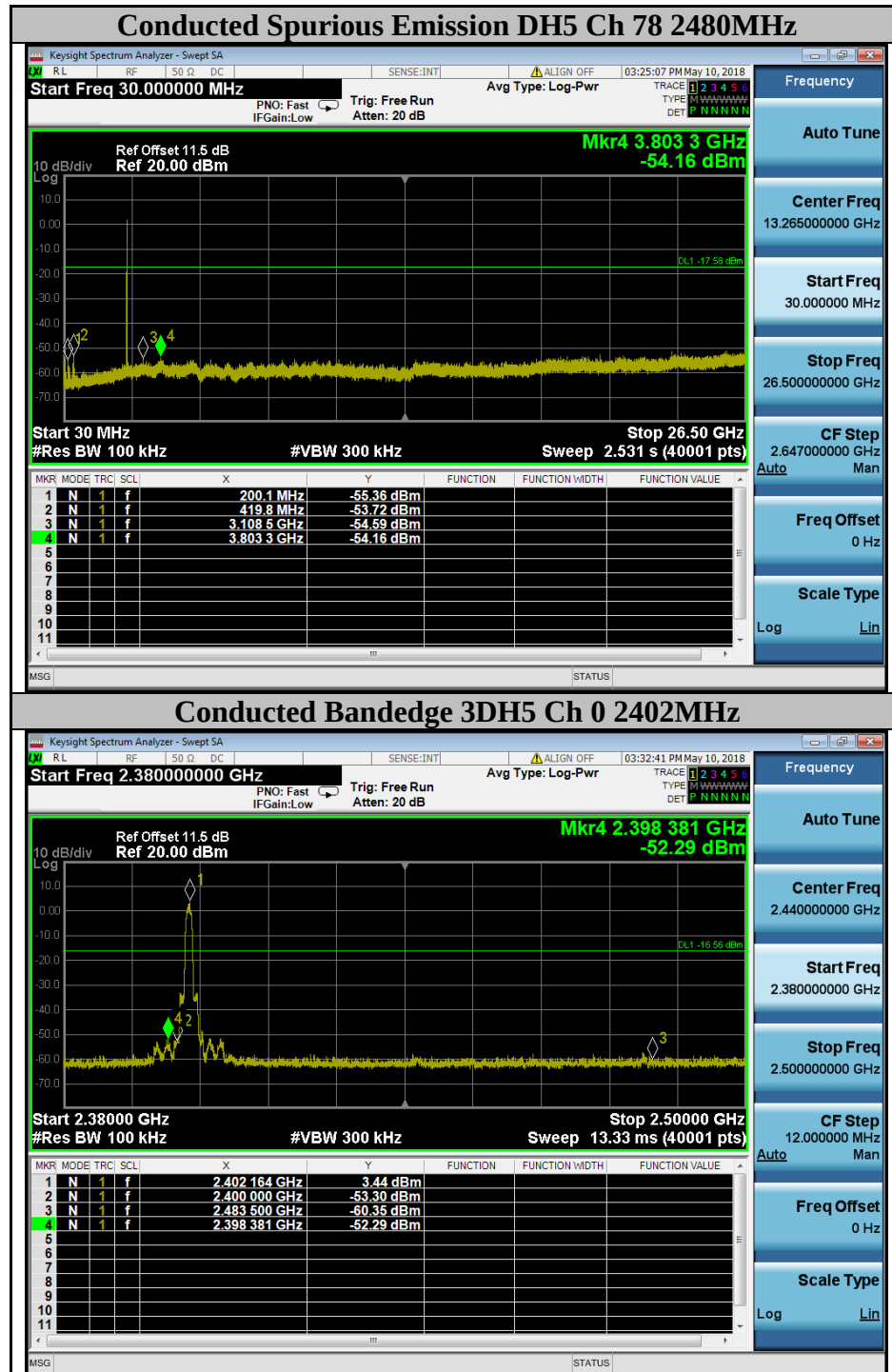
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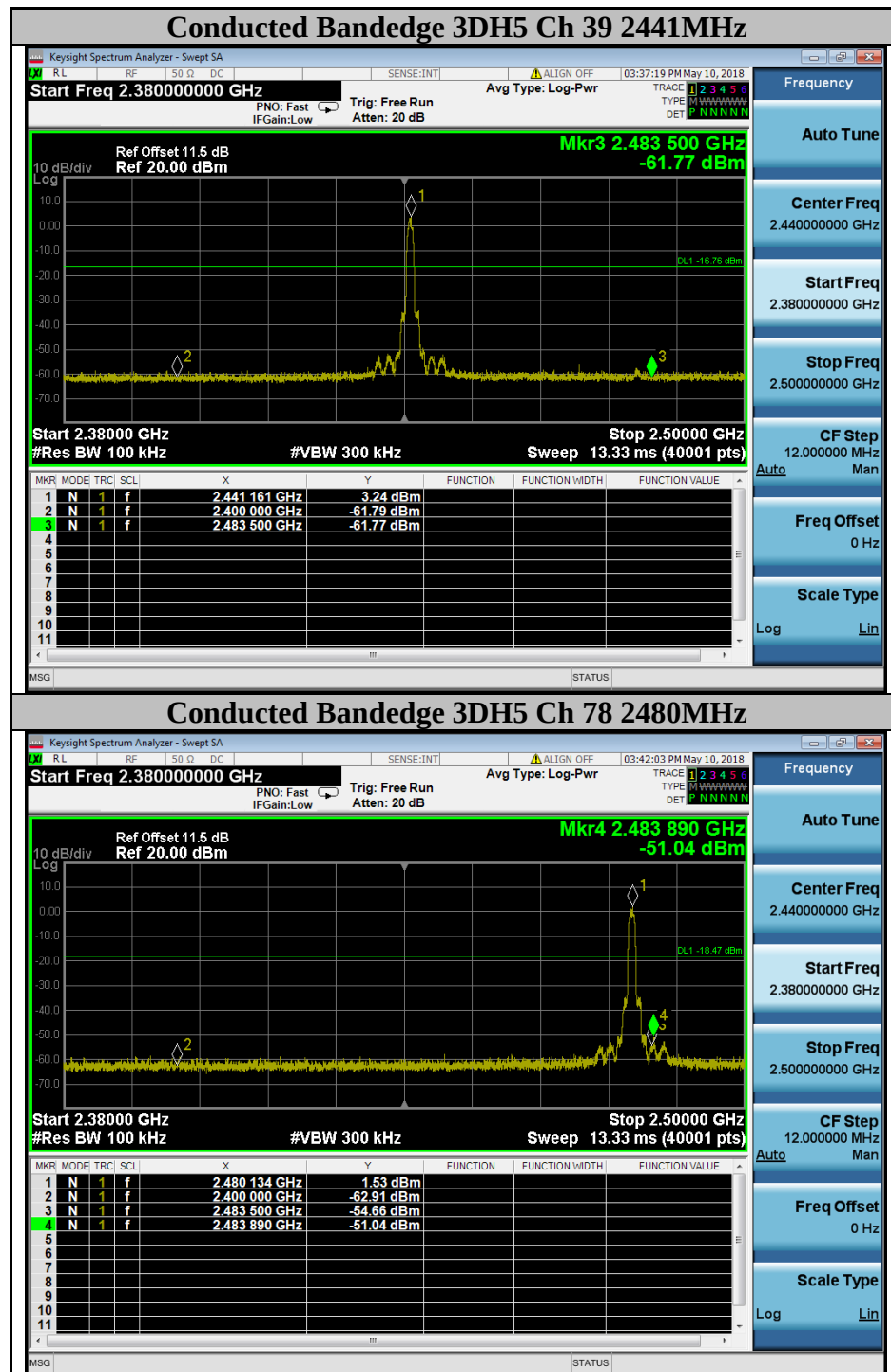
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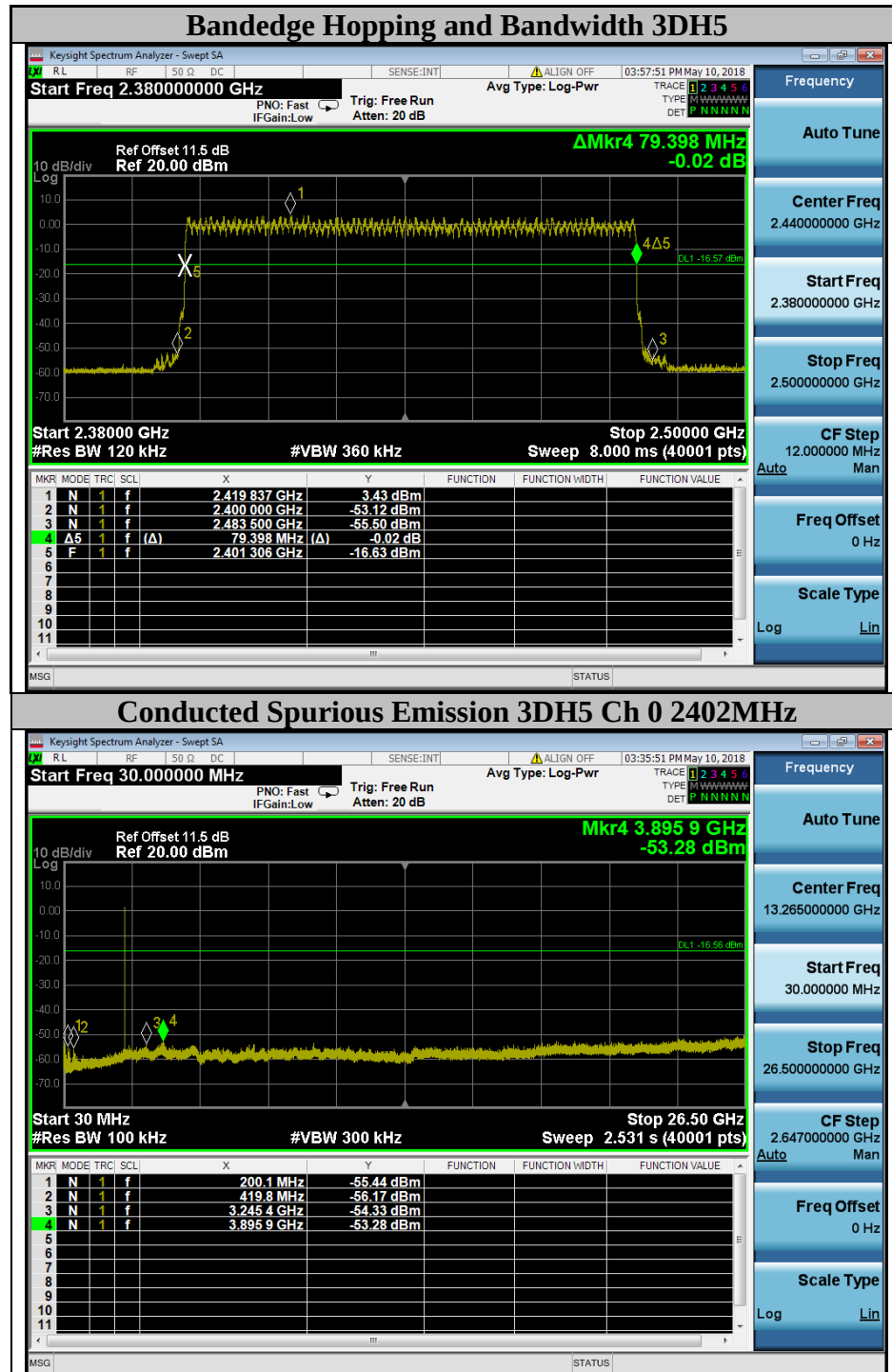
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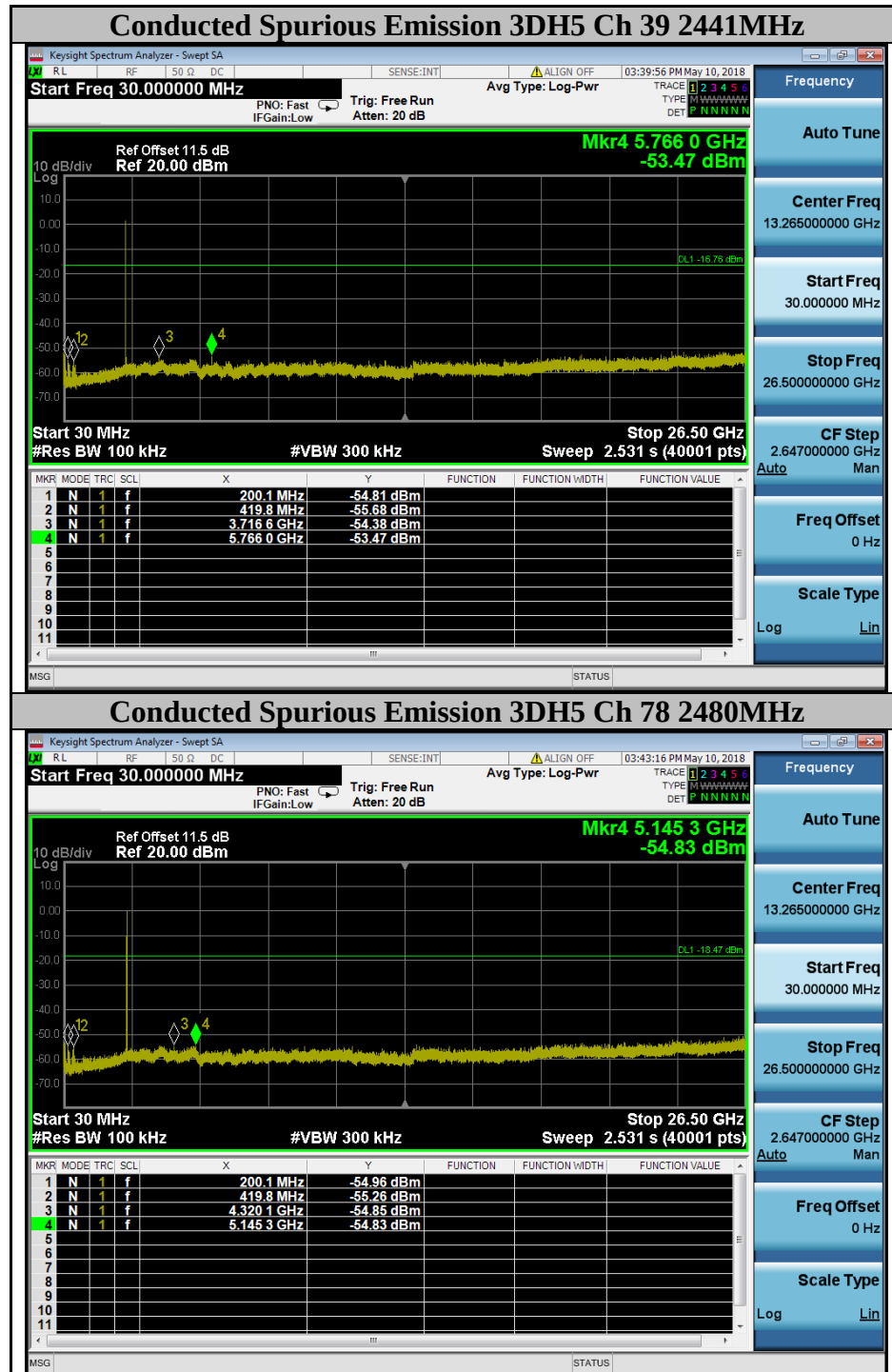
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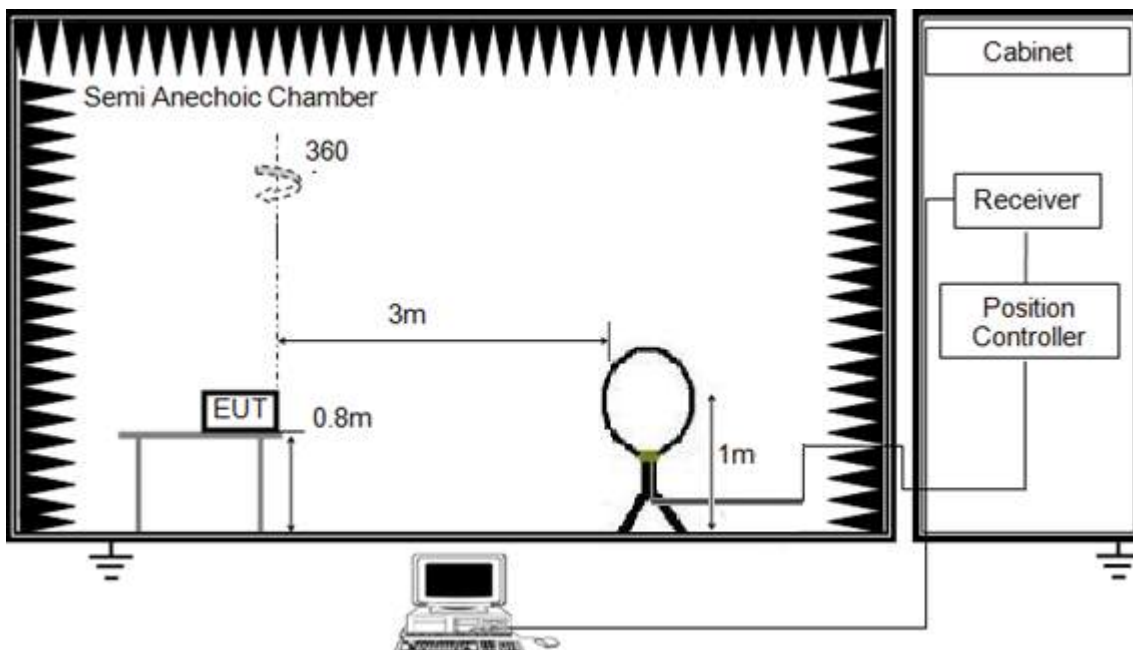
9.8. Radiated Bandedge and Spurious Emission

Requirements

Frequency(MHz)	Field strength (microvolts/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

Test Procedures

[For below 30MHz]



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The setting of the spectrum analyzer

RBW	9 KHz
VBW	9 KHz
Sweep	Auto
Detector	Peak/QP/Average
Trace	Max hold

Note:

- The testing follows the guidelines in ANSI C63.10-2013
- The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The EUT was placed on a turntable with 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- For measurement below 30MHz, 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 emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
- For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)
- If peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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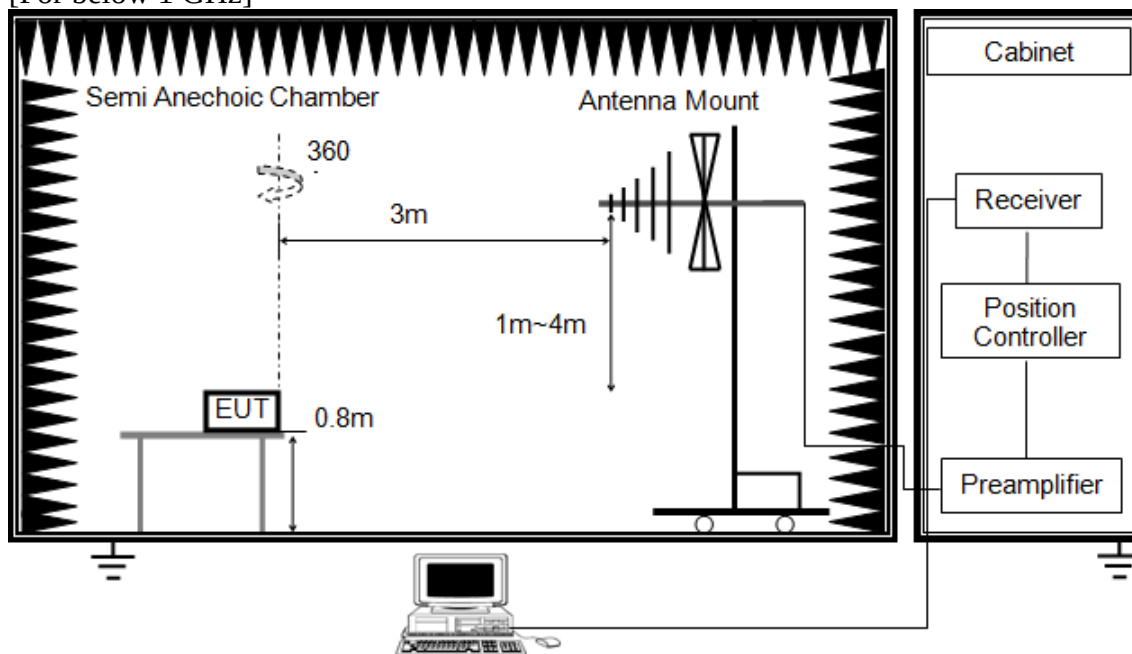
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[For below 1 GHz]



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The setting of the spectrum analyzer:

RBW	Peak: 100kHz QP: 120kHz
VBW	300K
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

Note:

- The testing follows the guidelines in ANSI C63.10-2013.
- The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The EUT was placed on a turntable with 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- For measurement below 1GHz, 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 emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
- For the actual test configuration, please refer to the related Item in this test report (Photographs of the Test Configuration)

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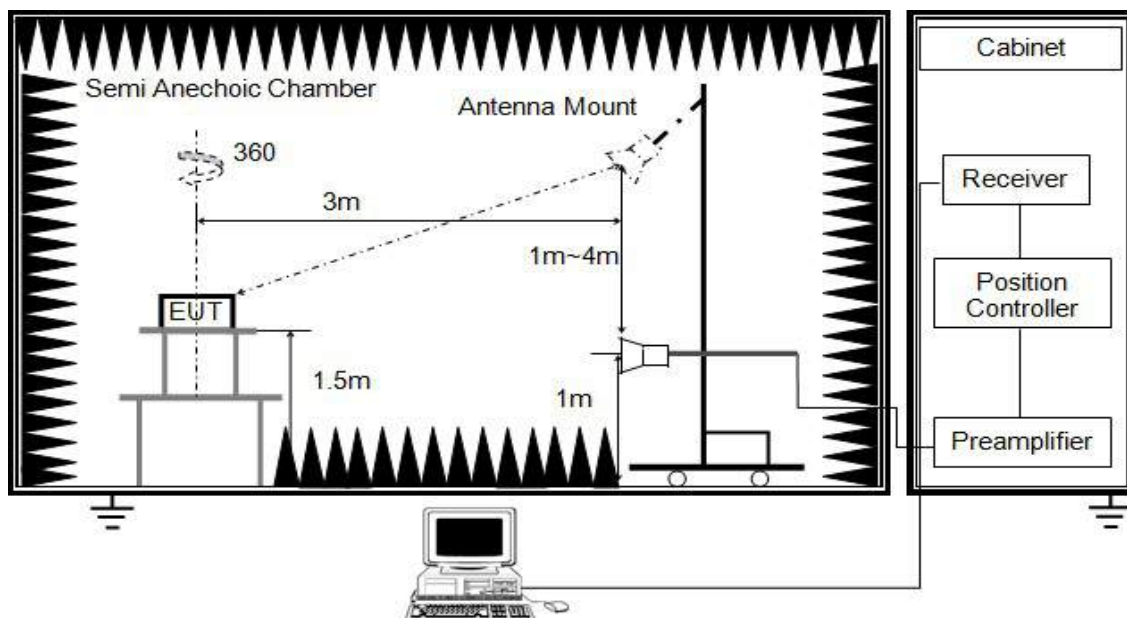
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[For above 1 GHz]



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The setting of the spectrum analyzer:

RBW	1M
VBW	PEAK: 3M AVG: see note f
Sweep	Auto
Detector	Peak
Trace	Max hold

Note:

- The testing follows the guidelines in ANSI C63.10-2013.
- The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- The EUT was placed on a turntable with 1.5m above ground.
- The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- For measurement above 1GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.
- For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements and 1 MHz resolution bandwidth with 1/T video bandwidth with peak detector.
- For the actual test configuration, please refer to the related item in this test report (Photographs of the Test Configuration)
- If peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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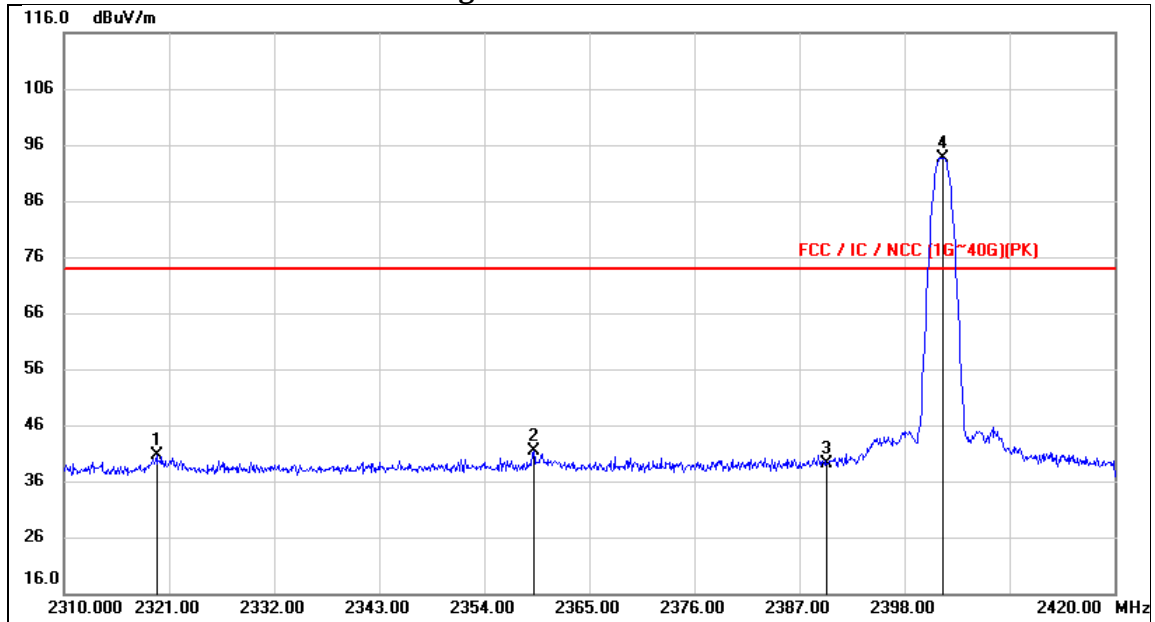
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Test Data

Mode: GFSK

Restricted Band Edge GFSK Ch 0 2402MHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2319.687	49.66	-9.03	40.63	74.00	-33.37	peak
2	2359.177	50.23	-8.89	41.34	74.00	-32.66	peak
3	2390.000	47.79	-8.78	39.01	74.00	-34.99	peak
4*	2402.030	102.42	-8.73	93.69	-	-	peak

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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Restricted Band Edge GFSK Ch 0 2402MHzVertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2386.824	49.69	-8.78	40.91	74.00	-33.09	peak
2	2390.000	46.60	-8.78	37.82	74.00	-36.18	peak
3*	2402.063	93.89	-8.73	85.16	-	-	peak

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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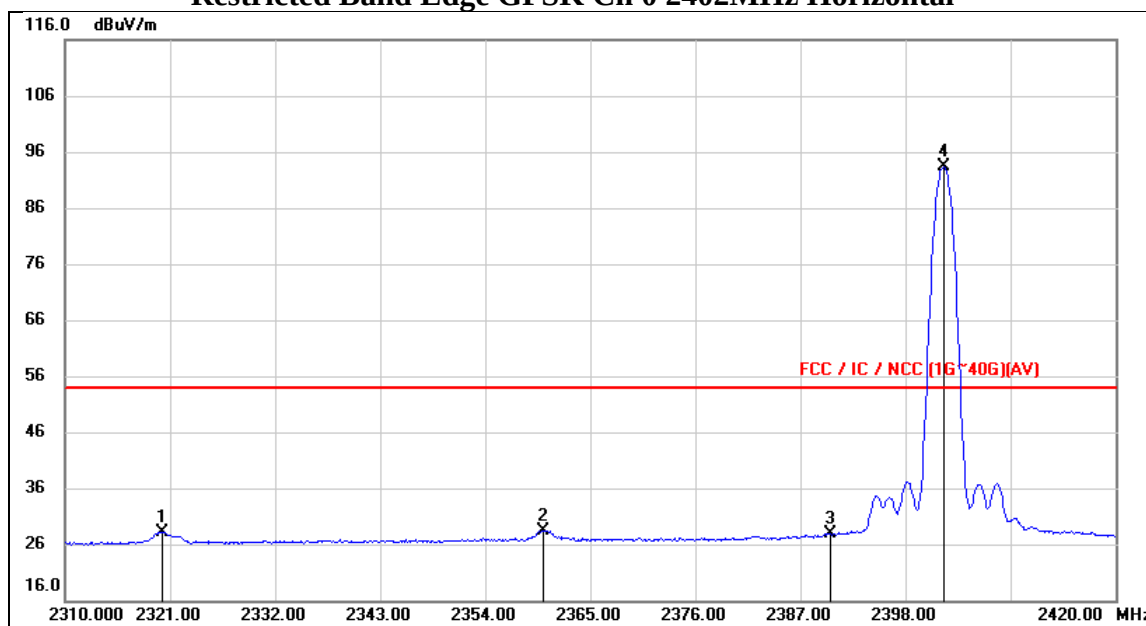
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Doc No: 17-EM-F0876 / 1.1



Restricted Band Edge GFSK Ch 0 2402MHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2320.252	37.27	-9.03	28.24	54.00	-25.76	AVG
2	2360.123	37.27	-8.88	28.39	54.00	-25.61	AVG
3	2390.000	36.65	-8.78	27.87	54.00	-26.13	AVG
4*	2402.037	102.06	-8.73	93.33	-	-	AVG

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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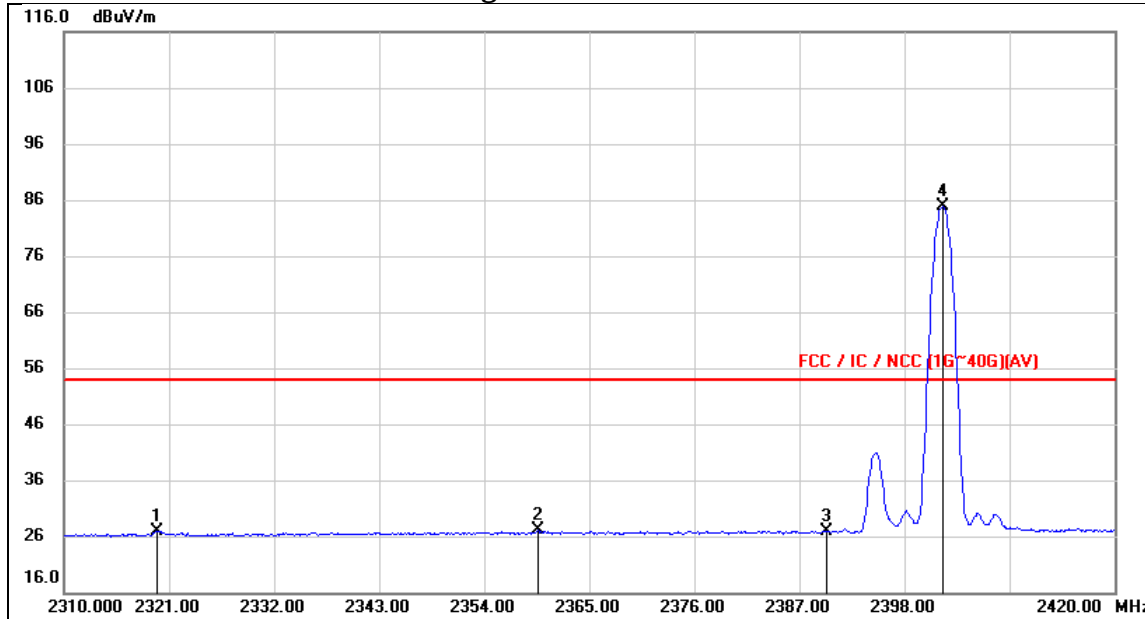
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Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Restricted Band Edge GFSK Ch 0 2402MHzVertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2319.852	36.02	-9.03	26.99	54.00	-27.01	AVG
2	2359.680	35.89	-8.88	27.01	54.00	-26.99	AVG
3	2390.000	35.56	-8.78	26.78	54.00	-27.22	AVG
4*	2402.011	93.52	-8.73	84.79	-	-	AVG

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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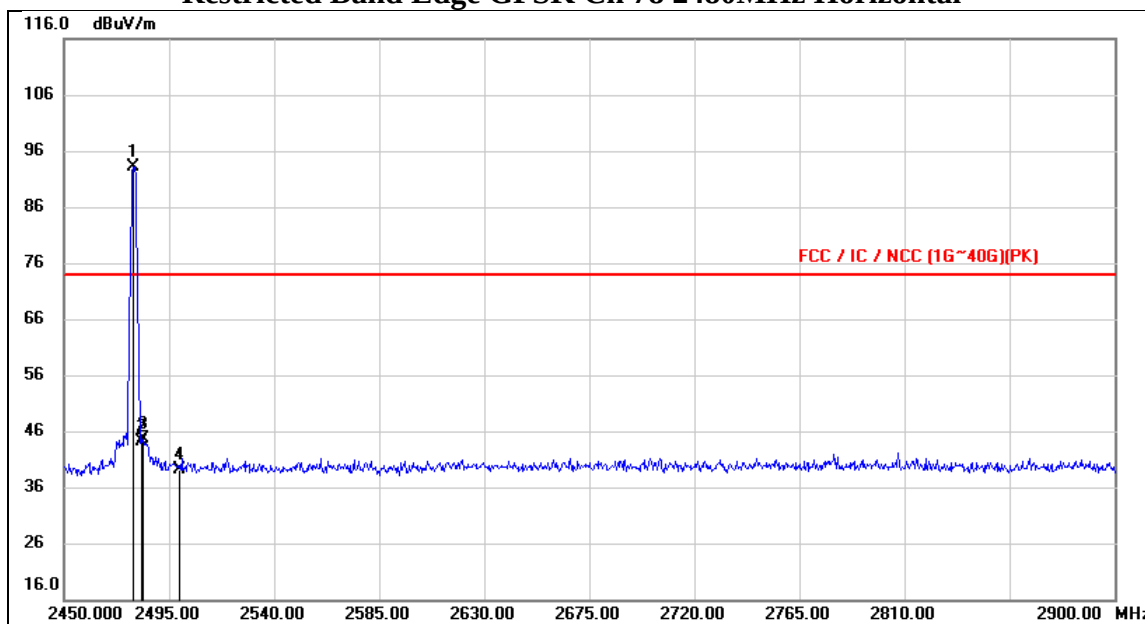
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Doc No: 17-EM-F0876 / 1.1



Restricted Band Edge GFSK Ch 78 2480MHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1*	2480.120	101.46	-8.45	93.01	-	-	peak
2	2483.500	52.49	-8.44	44.05	74.00	-29.95	peak
3	2483.780	53.01	-8.44	44.57	74.00	-29.43	peak
4	2500.000	47.59	-8.38	39.21	74.00	-34.79	peak

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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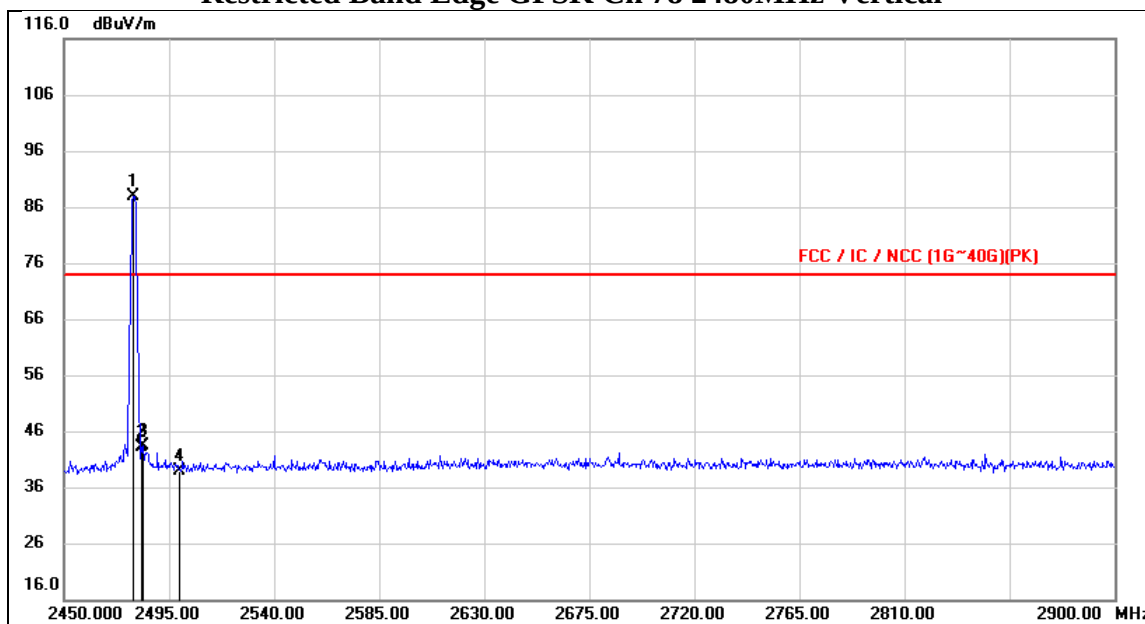
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Doc No: 17-EM-F0876 / 1.1



Restricted Band Edge GFSK Ch 78 2480MHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1*	2480.015	96.28	-8.45	87.83	-	-	peak
2	2483.500	51.50	-8.44	43.06	74.00	-30.94	peak
3	2483.765	51.76	-8.44	43.32	74.00	-30.68	peak
4	2500.000	47.37	-8.38	38.99	74.00	-35.01	peak

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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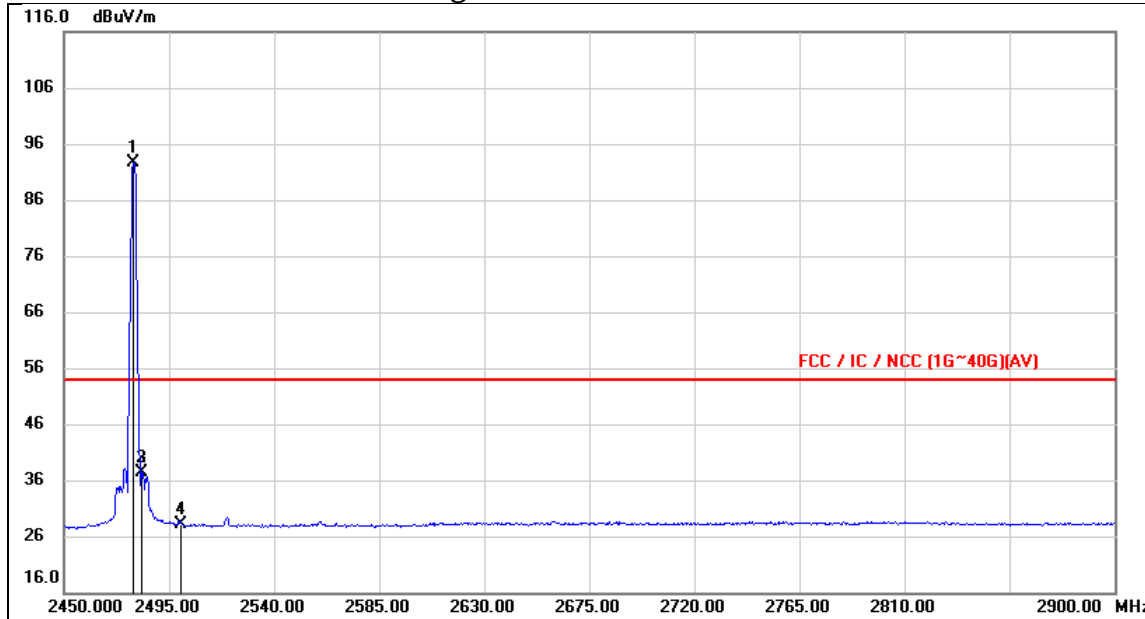
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Restricted Band Edge GFSK Ch 78 2480MHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1*	2480.030	101.15	-8.45	92.70	-	-	AVG
2	2483.500	45.75	-8.44	37.31	54.00	-16.69	AVG
3	2483.705	45.75	-8.44	37.31	54.00	-16.69	AVG
4	2500.000	36.52	-8.38	28.14	54.00	-25.86	AVG

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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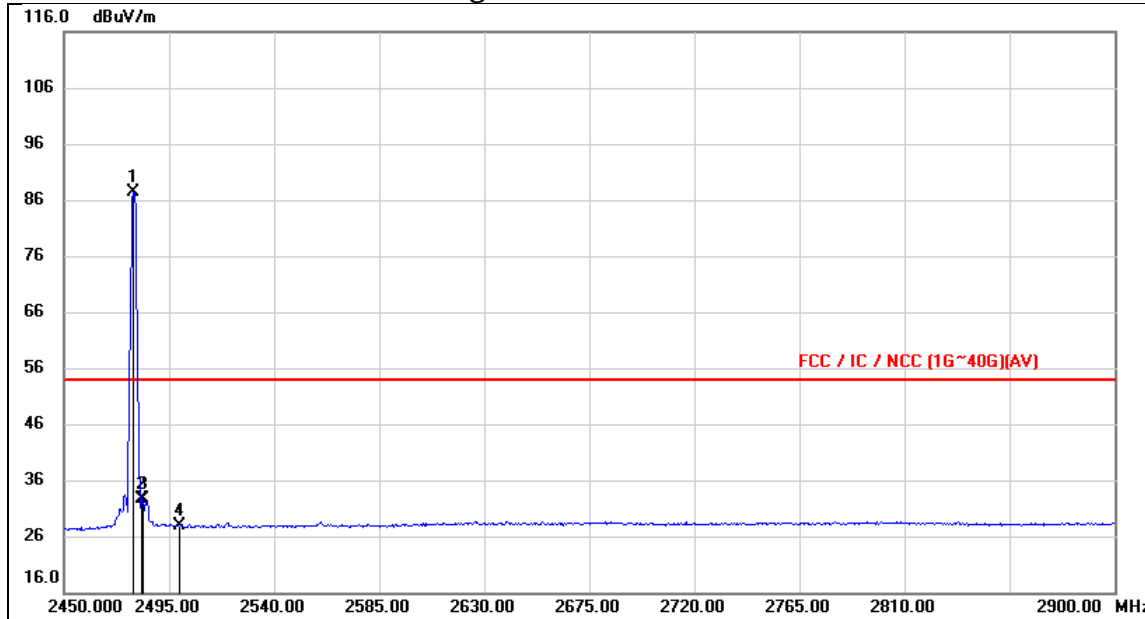
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Doc No: 17-EM-F0876 / 1.1



Restricted Band Edge GFSK Ch 78 2480MHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1*	2480.030	95.93	-8.45	87.48	-	-	AVG
2	2483.500	41.07	-8.44	32.63	54.00	-21.37	AVG
3	2483.765	41.15	-8.44	32.71	54.00	-21.29	AVG
4	2500.000	36.36	-8.38	27.98	54.00	-26.02	AVG

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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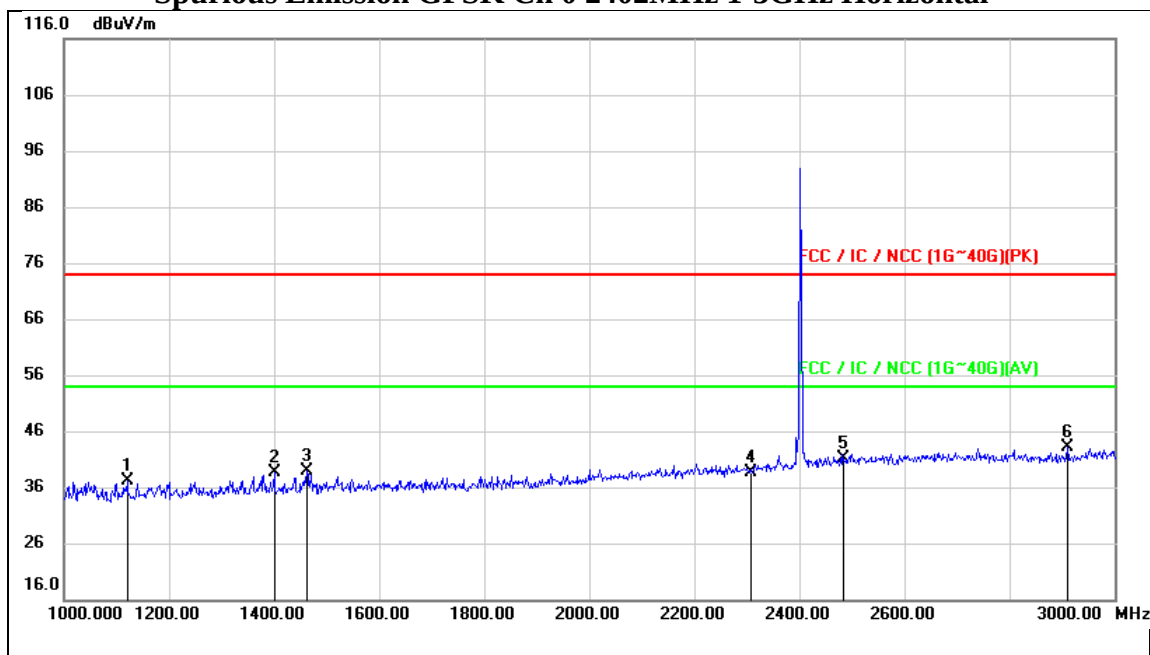
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission GFSK Ch 0 2402MHz 1-3GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1120.467	49.75	-12.72	37.03	74.00	-36.97	peak
2	1400.667	50.19	-11.62	38.57	74.00	-35.43	peak
3	1463.000	50.22	-11.38	38.84	74.00	-35.16	peak
4	2310.000	47.75	-9.06	38.69	74.00	-35.31	peak
5	2483.500	49.62	-8.44	41.18	74.00	-32.82	peak
6	2911.533	50.69	-7.54	43.15	74.00	-30.85	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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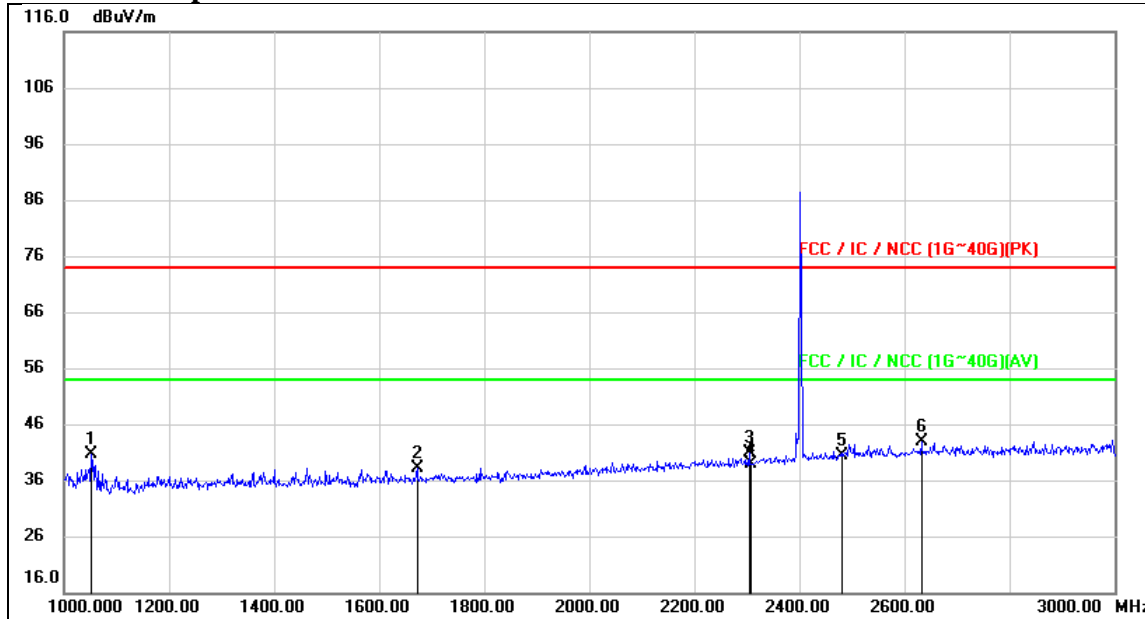
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission GFSK Ch 0 2402MHz 1-3GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1053.600	53.70	-12.97	40.73	74.00	-33.27	peak
2	1673.733	48.99	-10.87	38.12	74.00	-35.88	peak
3	2304.867	49.93	-9.08	40.85	74.00	-33.15	peak
4	2310.000	47.86	-9.06	38.80	74.00	-35.20	peak
5	2483.500	48.80	-8.44	40.36	74.00	-33.64	peak
6	2633.267	50.96	-8.10	42.86	74.00	-31.14	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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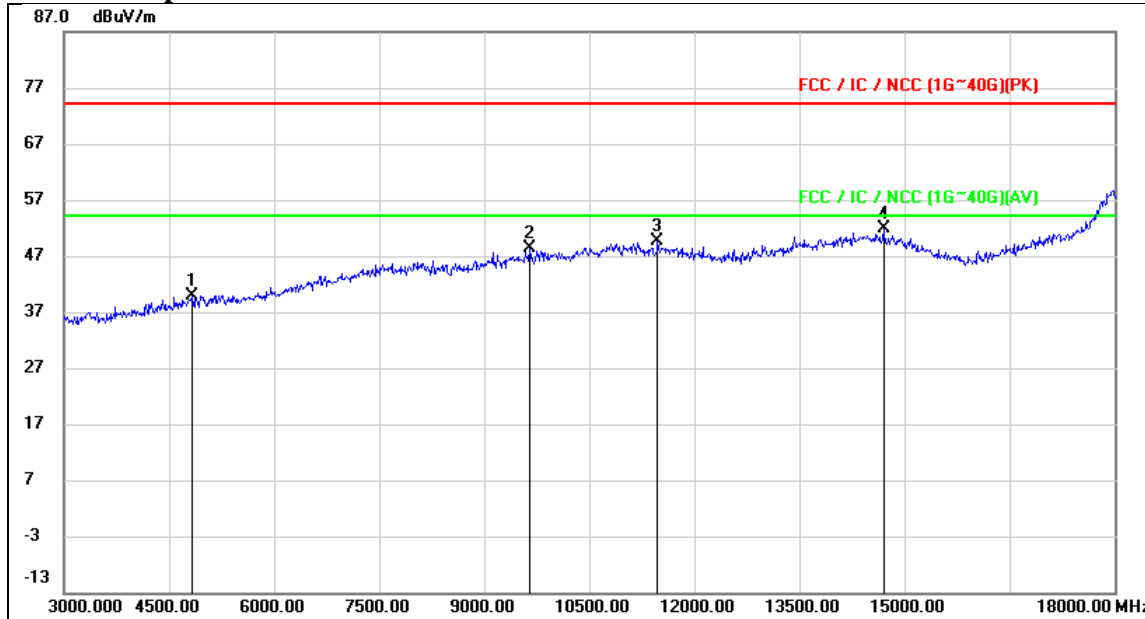
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Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Spurious Emission GFSK Ch 0 2402MHz 3-18GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4833.500	43.42	-3.47	39.95	74.00	-34.05	peak
2	9646.500	41.33	7.07	48.40	74.00	-25.60	peak
3	11483.000	39.46	10.20	49.66	74.00	-24.34	peak
4	14714.500	38.01	13.96	51.97	74.00	-22.03	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result – Limit
4. The signal trace which over average limit is background noise.

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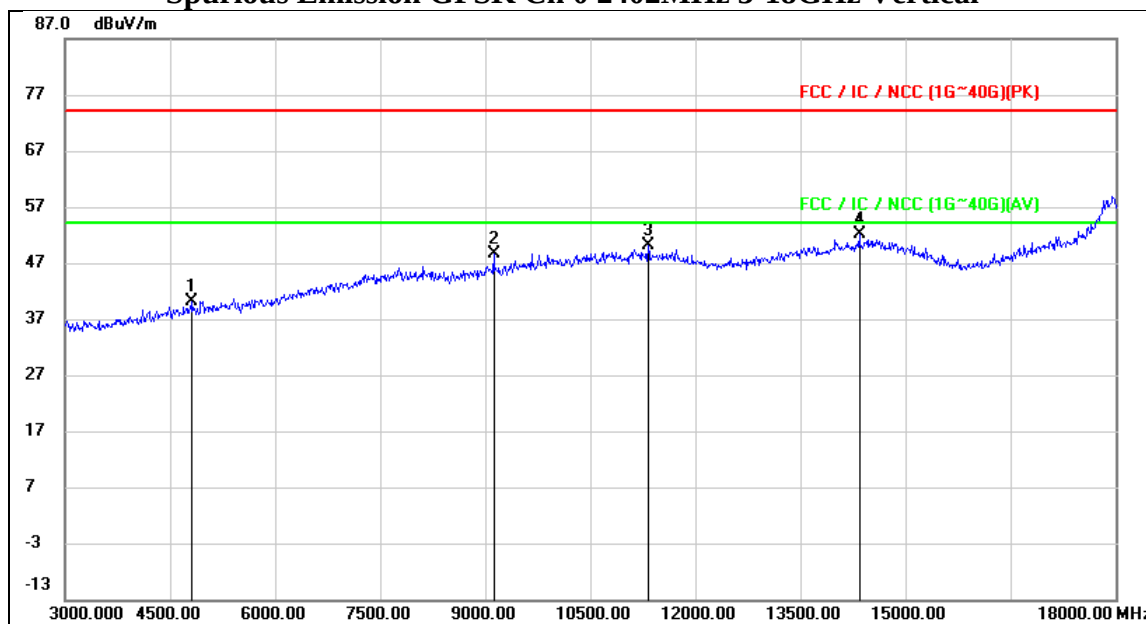
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission GFSK Ch 0 2402MHz 3-18GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4822.500	43.59	-3.48	40.11	74.00	-33.89	peak
2	9127.000	42.66	6.01	48.67	74.00	-25.33	peak
3	11330.000	40.07	10.07	50.14	74.00	-23.86	peak
4	14353.500	38.03	14.01	52.04	74.00	-21.96	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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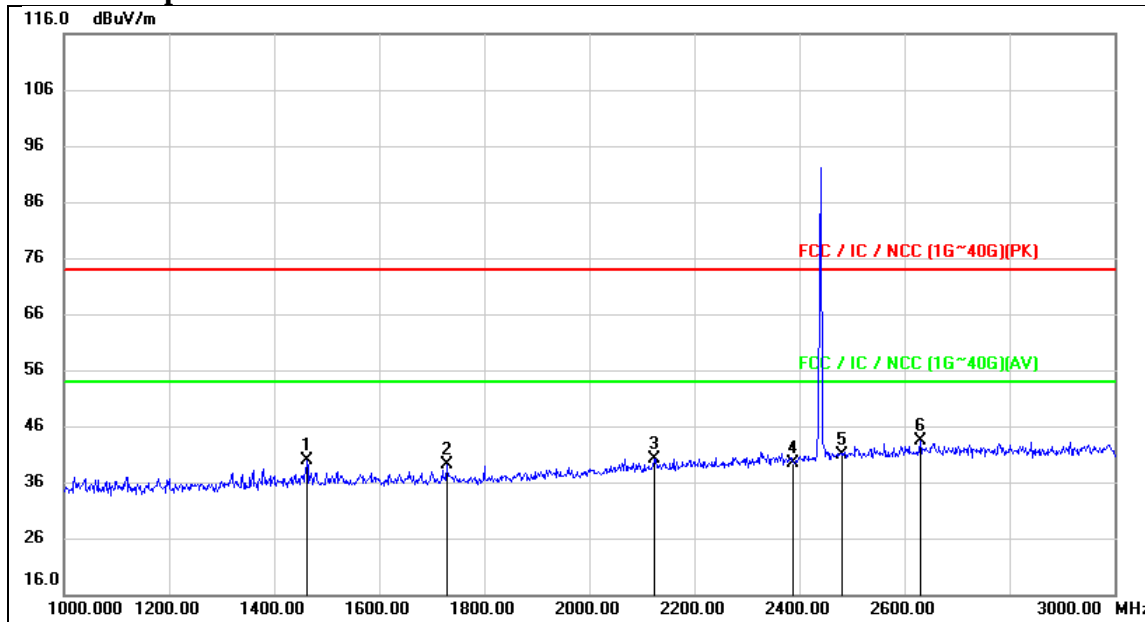
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission GFSK Ch 39 2441MHz 1-3GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1463.467	51.15	-11.37	39.78	74.00	-34.22	peak
2	1729.600	49.76	-10.75	39.01	74.00	-34.99	peak
3	2125.933	49.96	-9.72	40.24	74.00	-33.76	peak
4	2390.000	48.24	-8.78	39.46	74.00	-34.54	peak
5	2483.500	49.23	-8.44	40.79	74.00	-33.21	peak
6	2631.200	51.58	-8.10	43.48	74.00	-30.52	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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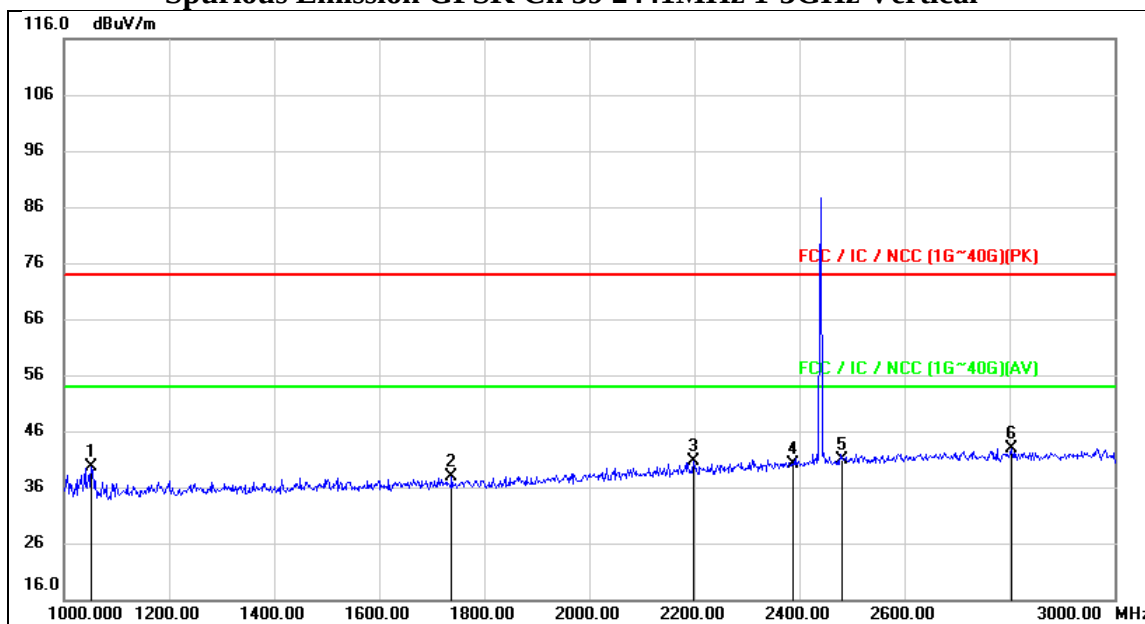
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Spurious Emission GFSK Ch 39 2441MHz 1-3GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1053.600	52.65	-12.97	39.68	74.00	-34.32	peak
2	1739.133	48.51	-10.72	37.79	74.00	-36.21	peak
3	2198.467	50.12	-9.47	40.65	74.00	-33.35	peak
4	2390.000	48.90	-8.78	40.12	74.00	-33.88	peak
5	2483.500	49.35	-8.44	40.91	74.00	-33.09	peak
6	2804.200	50.69	-7.75	42.94	74.00	-31.06	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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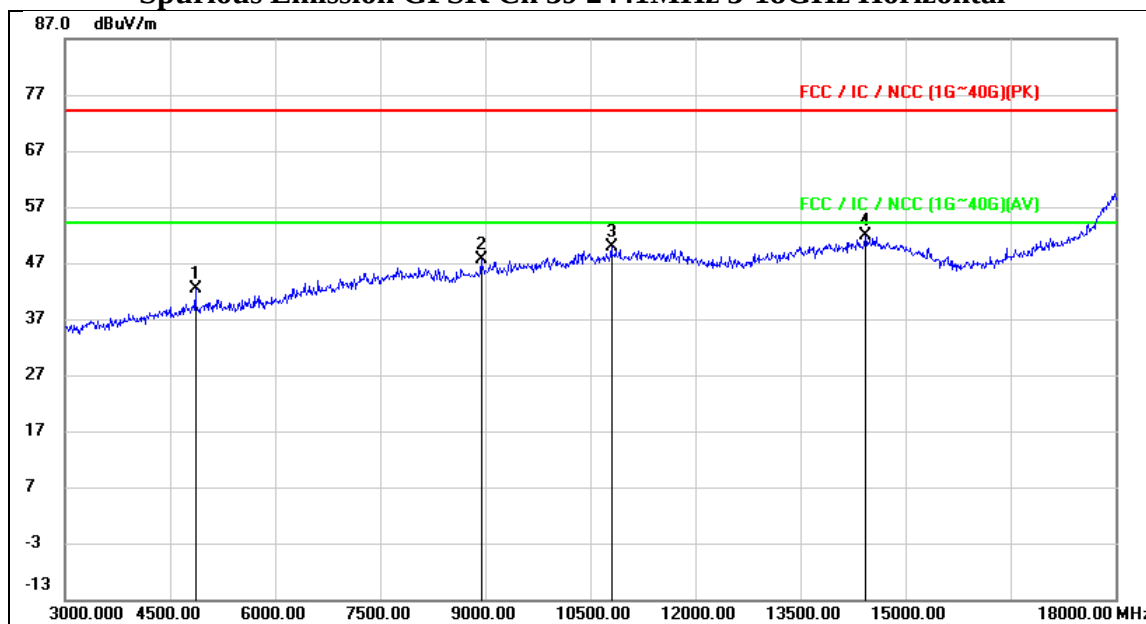
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Spurious Emission GFSK Ch 39 2441MHz 3-18GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4868.000	45.81	-3.39	42.42	74.00	-31.58	peak
2	8946.500	41.95	5.59	47.54	74.00	-26.46	peak
3	10812.000	40.36	9.48	49.84	74.00	-24.16	peak
4	14438.000	37.71	14.18	51.89	74.00	-22.11	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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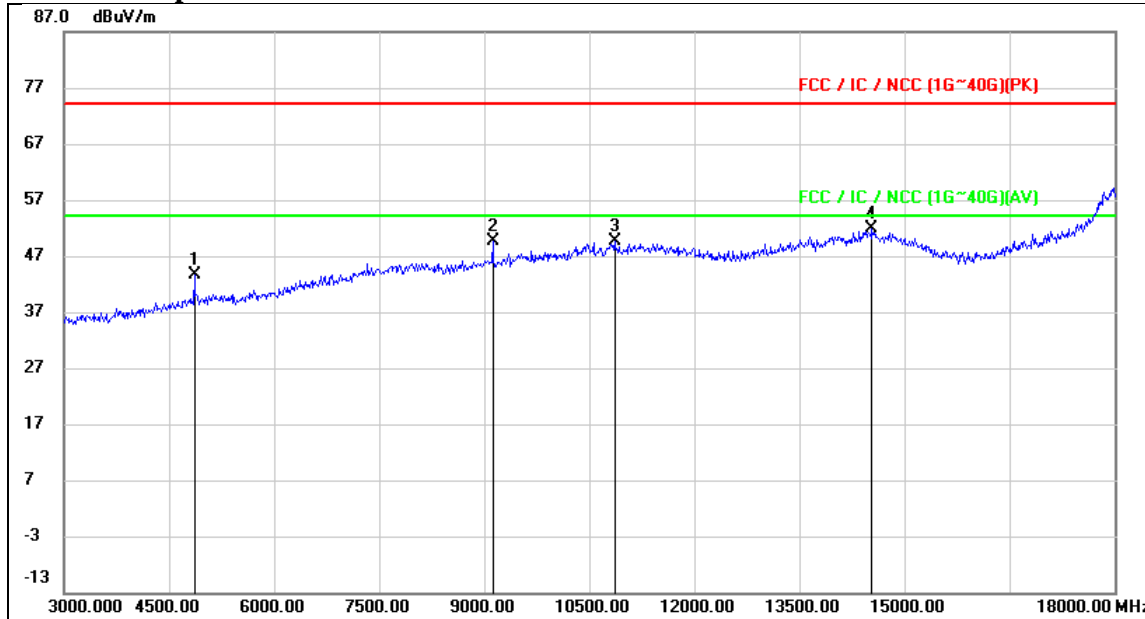
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Spurious Emission GFSK Ch 39 2441MHz 3-18GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4868.000	47.05	-3.39	43.66	74.00	-30.34	peak
2	9127.000	43.54	6.01	49.55	74.00	-24.45	peak
3	10867.500	40.11	9.56	49.67	74.00	-24.33	peak
4	14549.000	37.59	14.24	51.83	74.00	-22.17	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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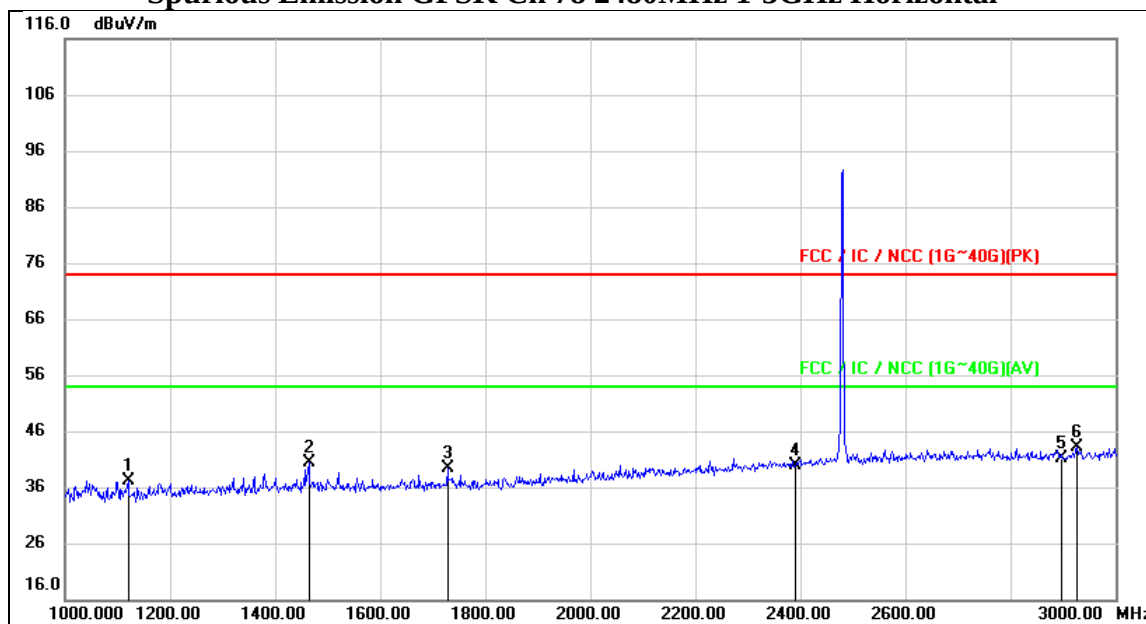
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Spurious Emission GFSK Ch 78 2480MHz 1-3GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1120.067	49.92	-12.72	37.20	74.00	-36.80	peak
2	1464.133	51.84	-11.36	40.48	74.00	-33.52	peak
3	1728.600	50.14	-10.75	39.39	74.00	-34.61	peak
4	2390.000	48.74	-8.78	39.96	74.00	-34.04	peak
5	2900.000	48.72	-7.55	41.17	74.00	-32.83	peak
6	2926.067	50.59	-7.49	43.10	74.00	-30.90	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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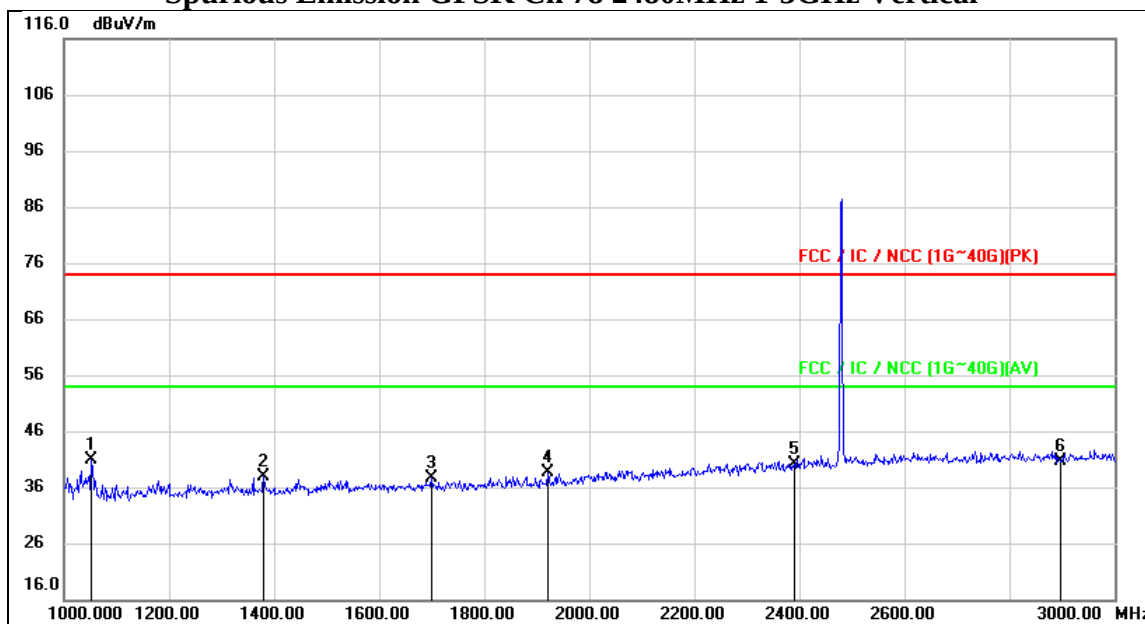
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Spurious Emission GFSK Ch 78 2480MHz 1-3GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1053.800	53.82	-12.97	40.85	74.00	-33.15	peak
2	1380.467	49.54	-11.69	37.85	74.00	-36.15	peak
3	1701.733	48.39	-10.80	37.59	74.00	-36.41	peak
4	1923.800	48.92	-10.34	38.58	74.00	-35.42	peak
5	2390.000	48.96	-8.78	40.18	74.00	-33.82	peak
6	2900.000	48.10	-7.55	40.55	74.00	-33.45	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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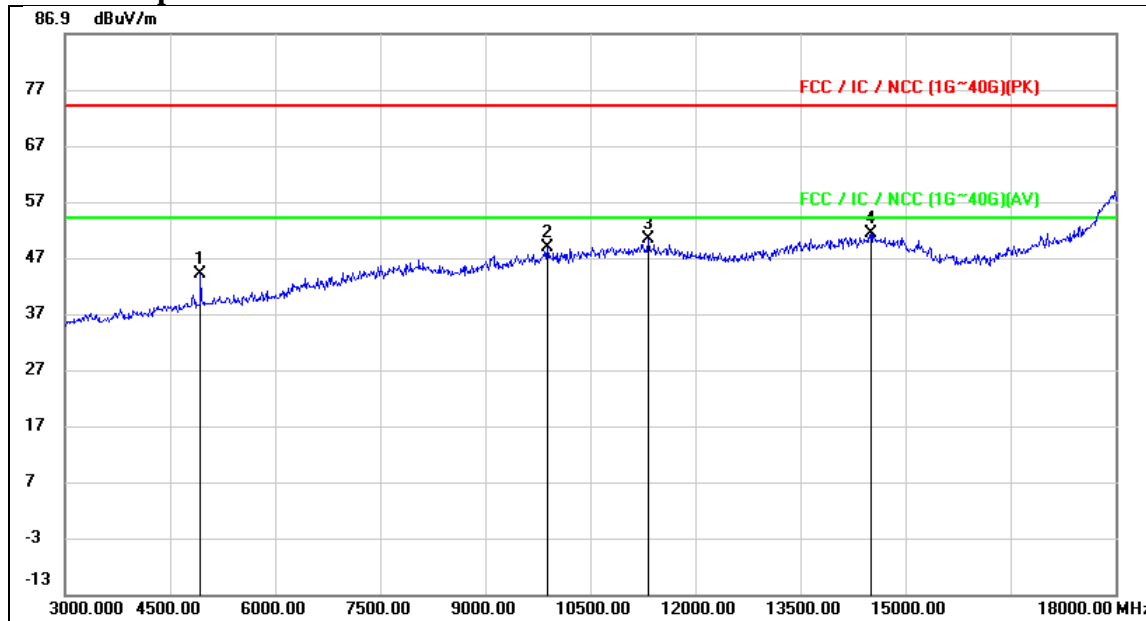
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission GFSK Ch 78 2480MHz 3-18GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4946.500	47.19	-3.24	43.95	74.00	-30.05	peak
2	9889.000	41.22	7.55	48.77	74.00	-25.23	peak
3	11326.500	40.28	10.07	50.35	74.00	-23.65	peak
4	14509.500	36.91	14.30	51.21	74.00	-22.79	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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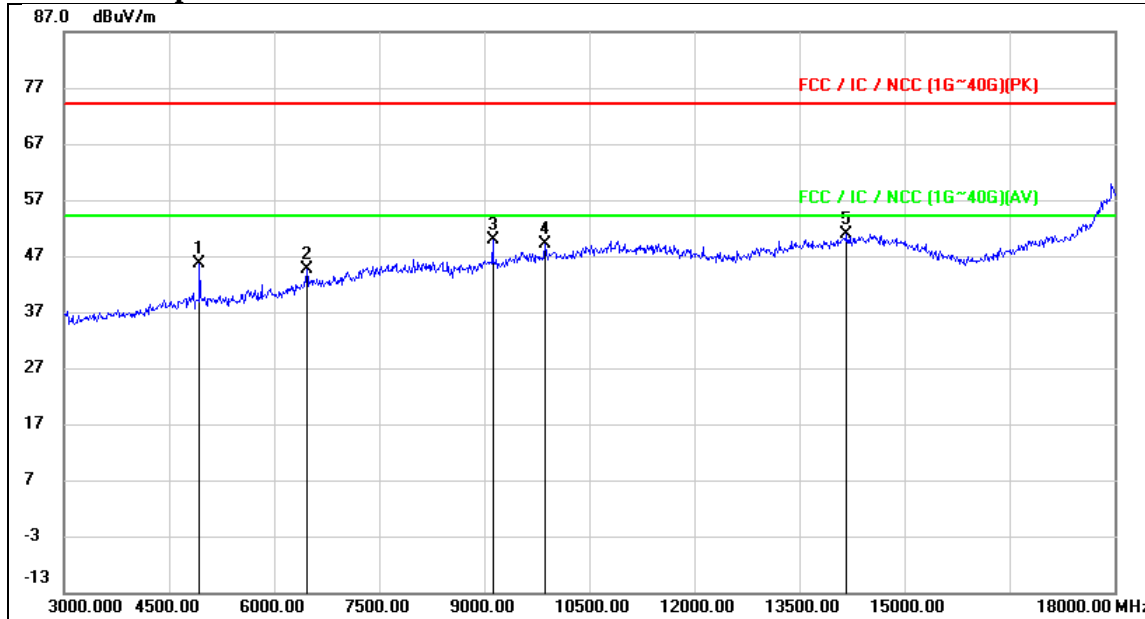
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission GFSK Ch 78 2480MHz 3-18GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4946.500	48.79	-3.24	45.55	74.00	-28.45	peak
2	6471.500	44.21	0.46	44.67	74.00	-29.33	peak
3	9127.500	43.75	6.01	49.76	74.00	-24.24	peak
4	9880.000	41.54	7.53	49.07	74.00	-24.93	peak
5	14183.500	37.35	13.62	50.97	74.00	-23.03	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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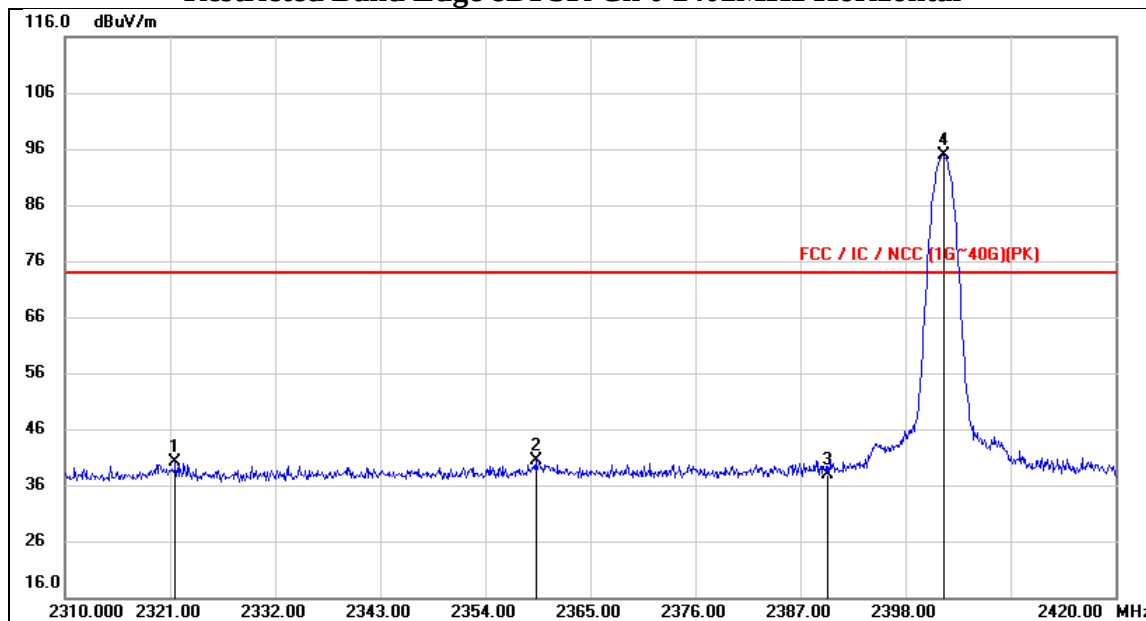
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Doc No: 17-EM-F0876 / 1.1



Mode: 8DPSK

Restricted Band Edge 8DPSK Ch 0 2402MHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2321.587	49.09	-9.02	40.07	74.00	-33.93	peak
2	2359.361	49.39	-8.89	40.50	74.00	-33.50	peak
3	2390.000	46.57	-8.78	37.79	74.00	-36.21	peak
4*	2402.004	103.53	-8.73	94.80	-	-	peak

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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Restricted Band Edge 8DPSK Ch 0 2402MHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2363.511	49.30	-8.87	40.43	74.00	-33.57	peak
2	2390.000	48.24	-8.78	39.46	74.00	-34.54	peak
3*	2401.982	96.14	-8.73	87.41	-	-	peak

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
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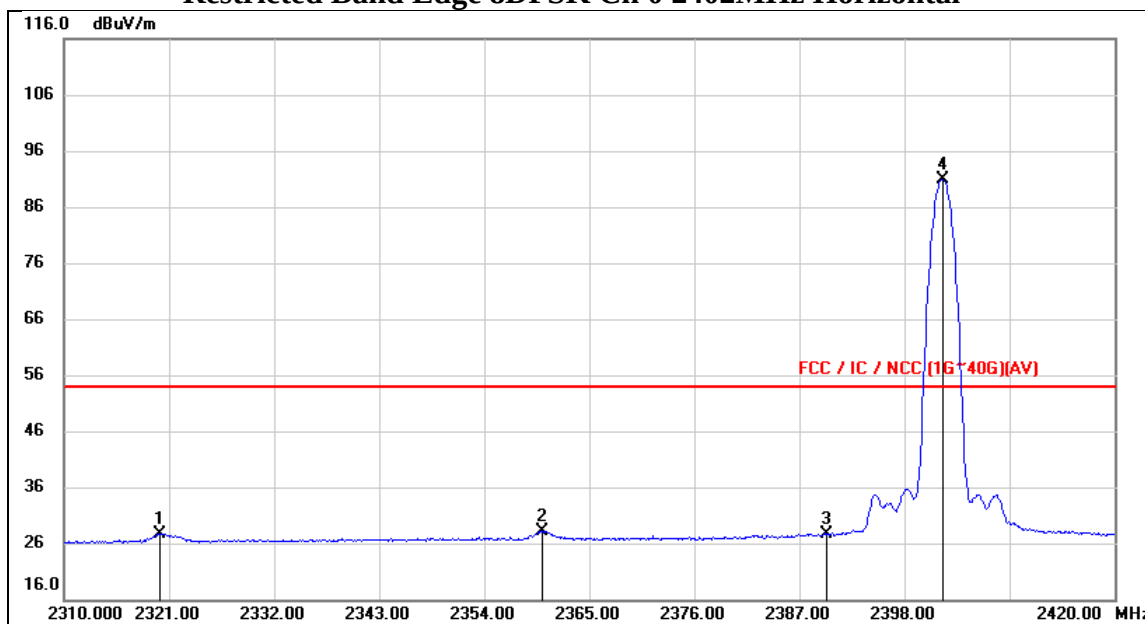
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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Restricted Band Edge 8DPSK Ch 0 2402MHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2320.054	36.75	-9.03	27.72	54.00	-26.28	AVG
2	2360.061	36.98	-8.88	28.10	54.00	-25.90	AVG
3	2390.000	36.32	-8.78	27.54	54.00	-26.46	AVG
4*	2402.015	99.59	-8.73	90.86	-	-	AVG

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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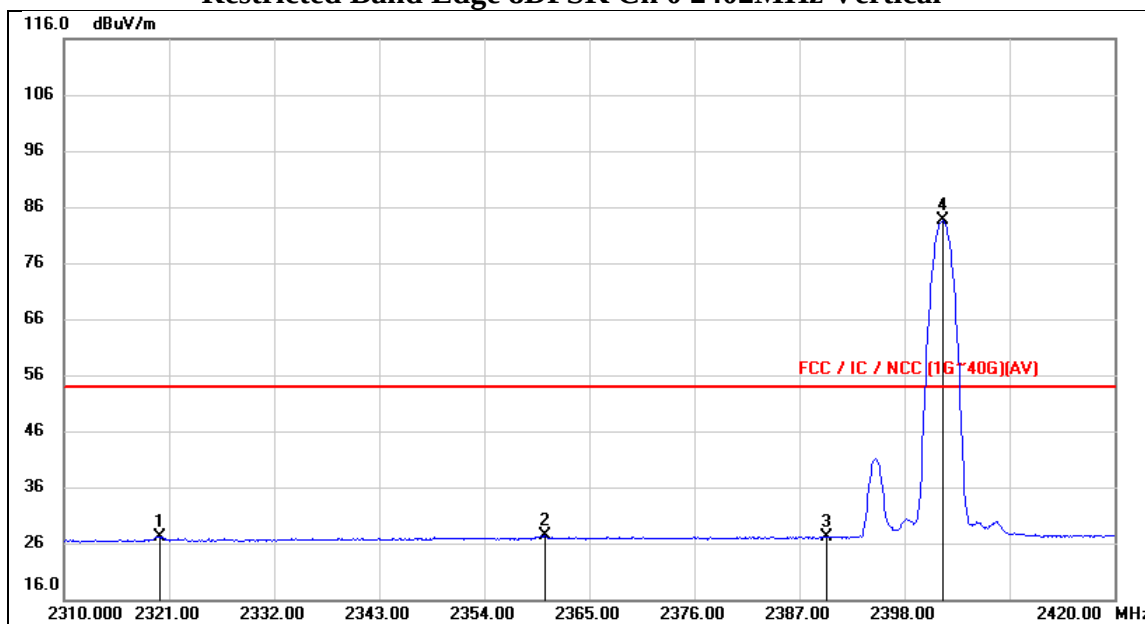
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Doc No: 17-EM-F0876 / 1.1



Restricted Band Edge 8DPSK Ch 0 2402MHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2320.061	36.27	-9.03	27.24	54.00	-26.76	AVG
2	2360.472	36.16	-8.87	27.29	54.00	-26.71	AVG
3	2390.000	35.90	-8.78	27.12	54.00	-26.88	AVG
4*	2402.019	92.26	-8.73	83.53	-	-	AVG

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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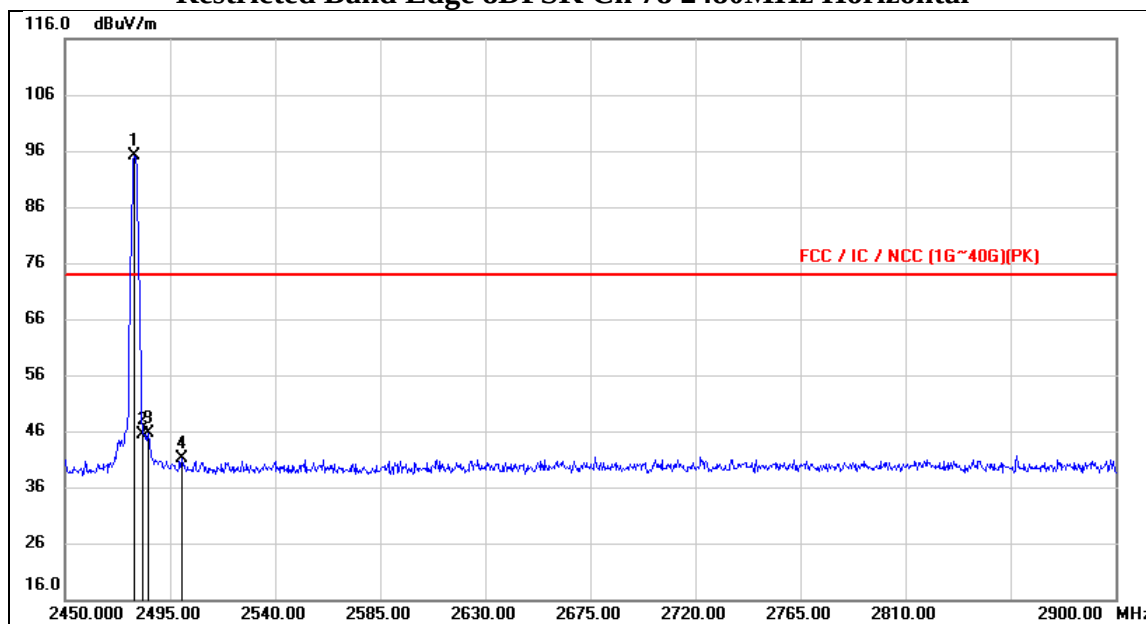
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Doc No: 17-EM-F0876 / 1.1



Restricted Band Edge 8DPSK Ch 78 2480MHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1*	2480.075	103.55	-8.45	95.10	-	-	peak
2	2483.500	53.74	-8.44	45.30	74.00	-28.70	peak
3	2485.895	53.99	-8.44	45.55	74.00	-28.45	peak
4	2500.000	49.53	-8.38	41.15	74.00	-32.85	peak

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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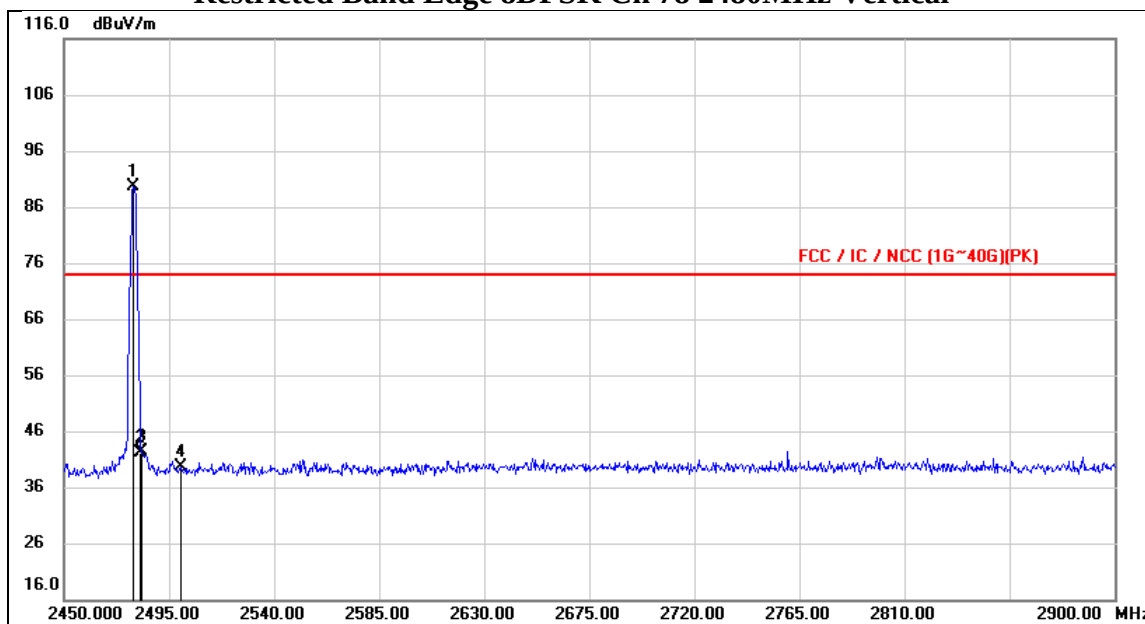
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Doc No: 17-EM-F0876 / 1.1



Restricted Band Edge 8DPSK Ch 78 2480MHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1*	2480.030	98.11	-8.45	89.66	-	-	peak
2	2483.500	50.66	-8.44	42.22	74.00	-31.78	peak
3	2483.660	50.75	-8.44	42.31	74.00	-31.69	peak
4	2500.000	48.09	-8.38	39.71	74.00	-34.29	peak

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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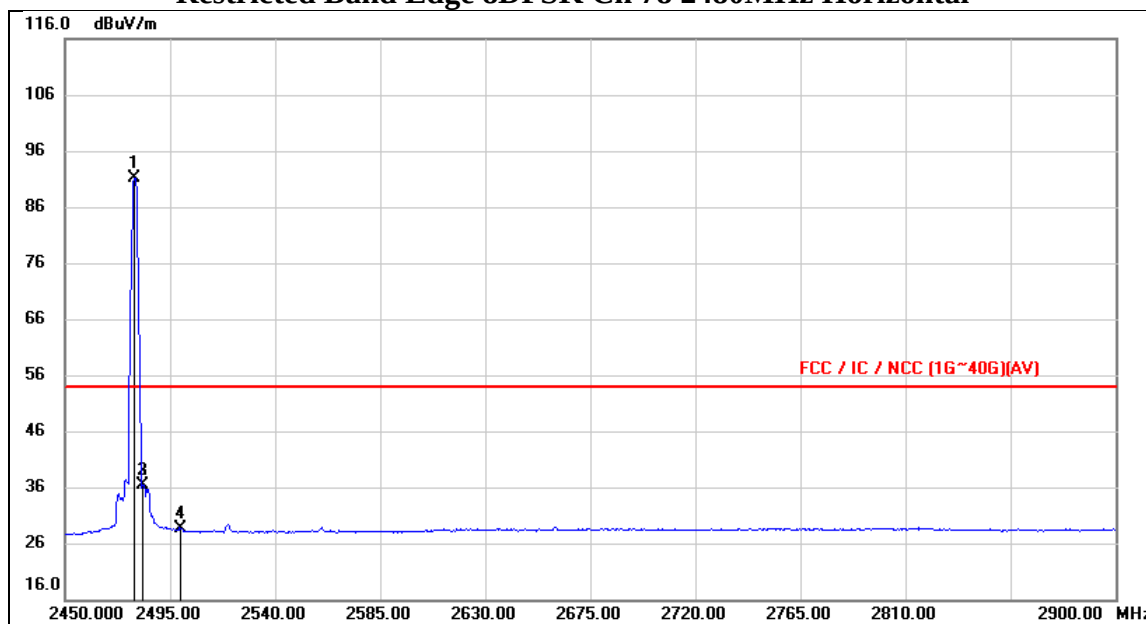
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Restricted Band Edge 8DPSK Ch 78 2480MHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1*	2480.030	99.68	-8.45	91.23	-	-	AVG
2	2483.500	44.92	-8.44	36.48	54.00	-17.52	AVG
3	2483.645	44.92	-8.44	36.48	54.00	-17.52	AVG
4	2500.000	36.96	-8.38	28.58	54.00	-25.42	AVG

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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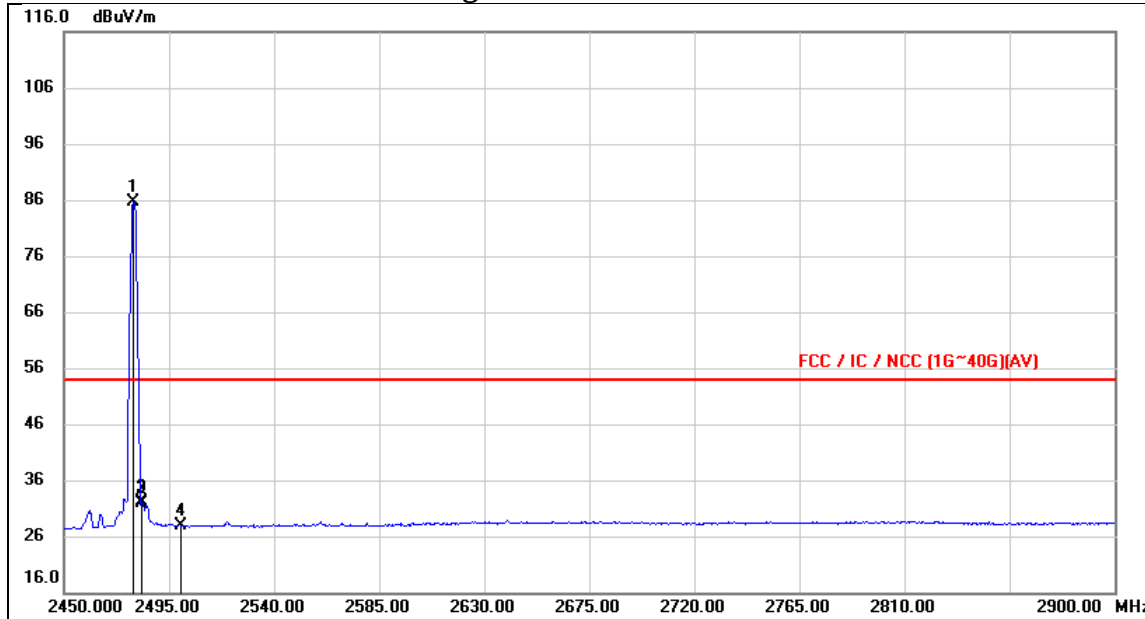
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Restricted Band Edge 8DPSK Ch 78 2480MHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1*	2480.045	94.17	-8.45	85.72	-	-	AVG
2	2483.500	40.39	-8.44	31.95	54.00	-22.05	AVG
3	2483.570	40.45	-8.44	32.01	54.00	-21.99	AVG
4	2500.000	36.27	-8.38	27.89	54.00	-26.11	AVG

*	Fundamental Frequency which can be ignored. However, the level of any unwanted emissions shall not exceed the level of the fundamental frequency.
---	--

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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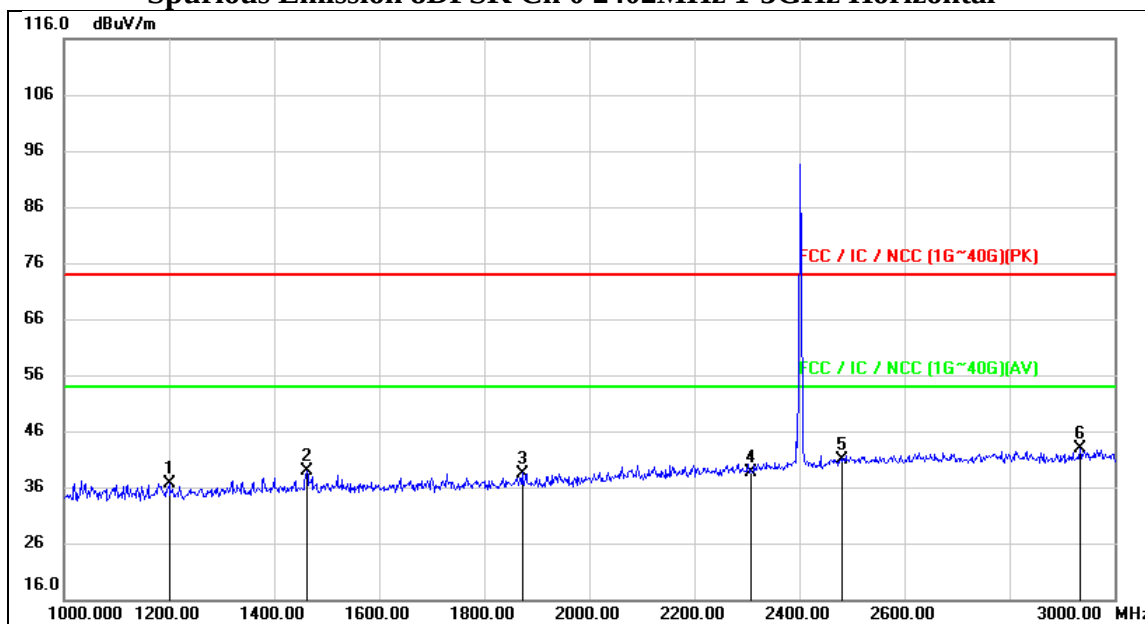
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission 8DPSK Ch 0 2402MHz 1-3GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1200.267	49.09	-12.40	36.69	74.00	-37.31	peak
2	1463.333	50.37	-11.38	38.99	74.00	-35.01	peak
3	1872.933	48.95	-10.45	38.50	74.00	-35.50	peak
4	2310.000	47.78	-9.06	38.72	74.00	-35.28	peak
5	2483.500	49.32	-8.44	40.88	74.00	-33.12	peak
6	2935.067	50.47	-7.49	42.98	74.00	-31.02	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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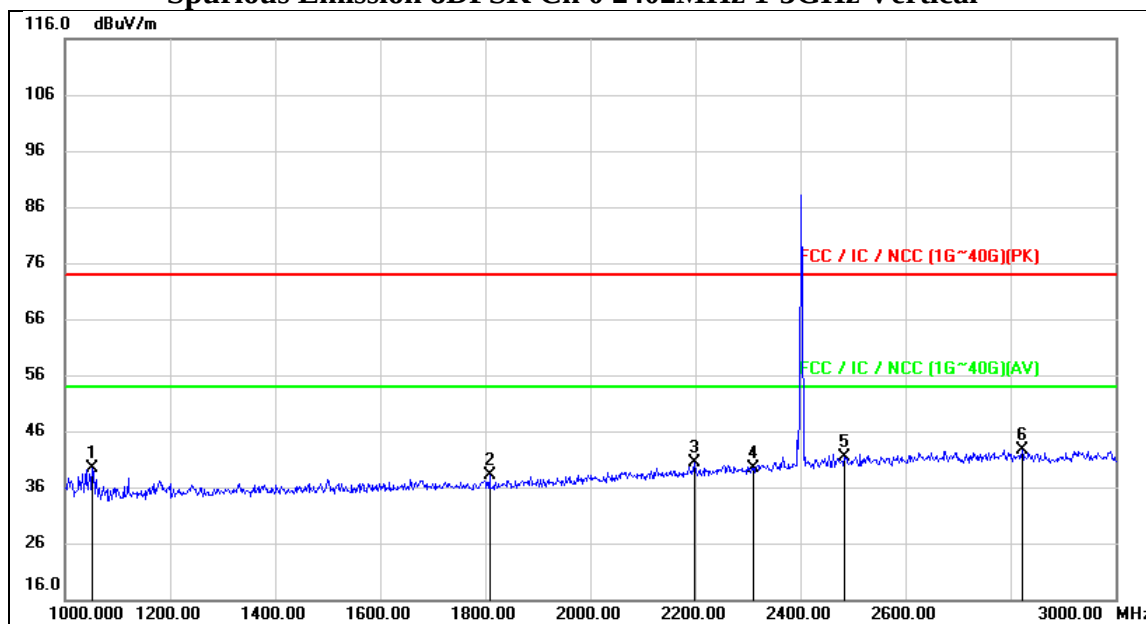
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission 8DPSK Ch 0 2402MHz 1-3GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1053.733	52.44	-12.97	39.47	74.00	-34.53	peak
2	1808.267	48.59	-10.58	38.01	74.00	-35.99	peak
3	2199.667	49.90	-9.46	40.44	74.00	-33.56	peak
4	2310.000	48.48	-9.06	39.42	74.00	-34.58	peak
5	2483.500	49.74	-8.44	41.30	74.00	-32.70	peak
6	2822.600	50.32	-7.71	42.61	74.00	-31.39	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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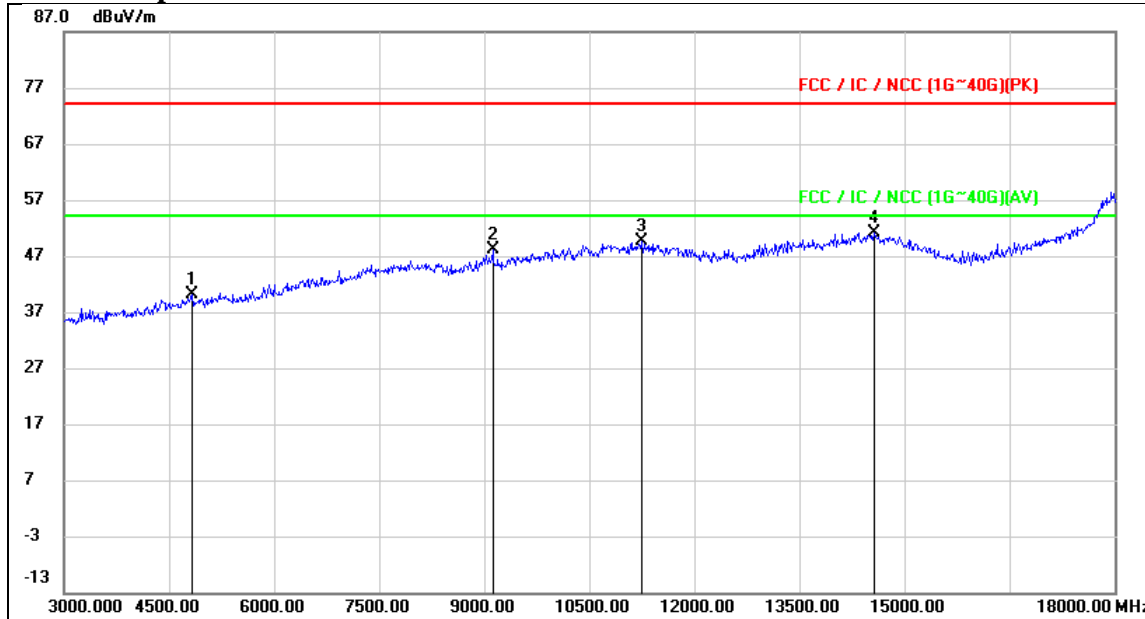
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission 8DPSK Ch 0 2402MHz 3-18GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4832.500	43.55	-3.47	40.08	74.00	-33.92	peak
2	9128.000	42.04	6.02	48.06	74.00	-25.94	peak
3	11255.500	39.57	10.01	49.58	74.00	-24.42	peak
4	14579.500	36.96	14.19	51.15	74.00	-22.85	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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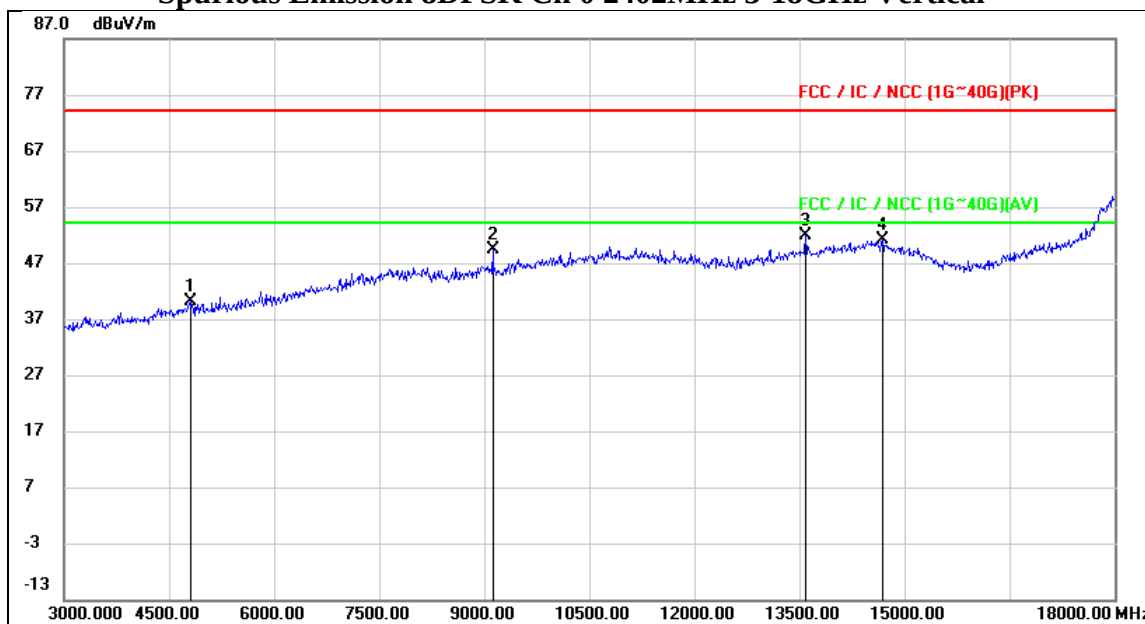
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission 8DPSK Ch 0 2402MHz 3-18GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4804.000	43.57	-3.52	40.05	74.00	-33.95	peak
2	9127.000	43.34	6.01	49.35	74.00	-24.65	peak
3	13590.500	39.80	12.18	51.98	74.00	-22.02	peak
4	14685.500	37.04	14.02	51.06	74.00	-22.94	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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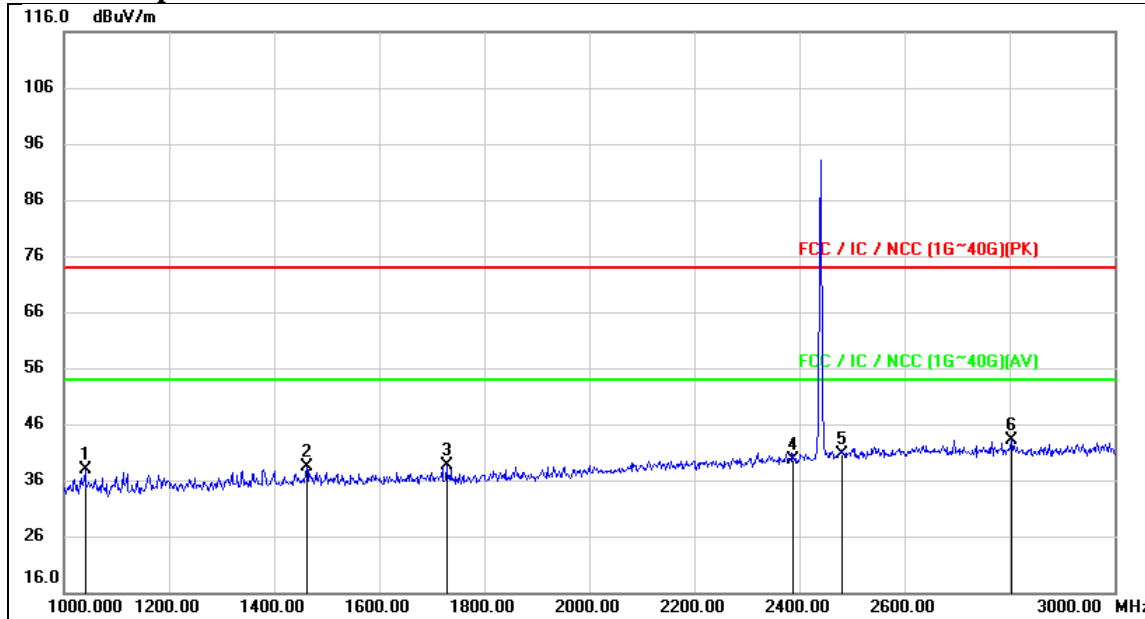
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission 8DPSK Ch 39 2441MHz 1-3GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1040.333	50.81	-13.03	37.78	74.00	-36.22	peak
2	1463.333	49.78	-11.38	38.40	74.00	-35.60	peak
3	1729.733	49.44	-10.75	38.69	74.00	-35.31	peak
4	2390.000	48.50	-8.78	39.72	74.00	-34.28	peak
5	2483.500	49.13	-8.44	40.69	74.00	-33.31	peak
6	2805.400	50.91	-7.75	43.16	74.00	-30.84	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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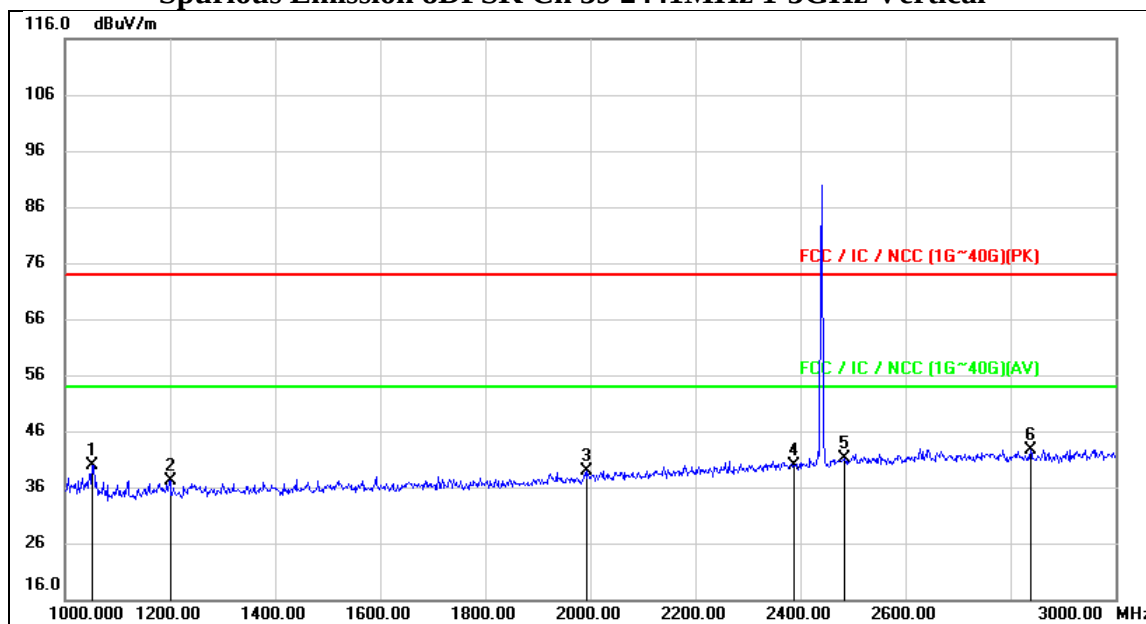
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission 8DPSK Ch 39 2441MHz 1-3GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1053.600	52.88	-12.97	39.91	74.00	-34.09	peak
2	1200.000	49.48	-12.40	37.08	74.00	-36.92	peak
3	1995.133	49.03	-10.19	38.84	74.00	-35.16	peak
4	2390.000	48.57	-8.78	39.79	74.00	-34.21	peak
5	2483.500	49.54	-8.44	41.10	74.00	-32.90	peak
6	2838.933	50.36	-7.68	42.68	74.00	-31.32	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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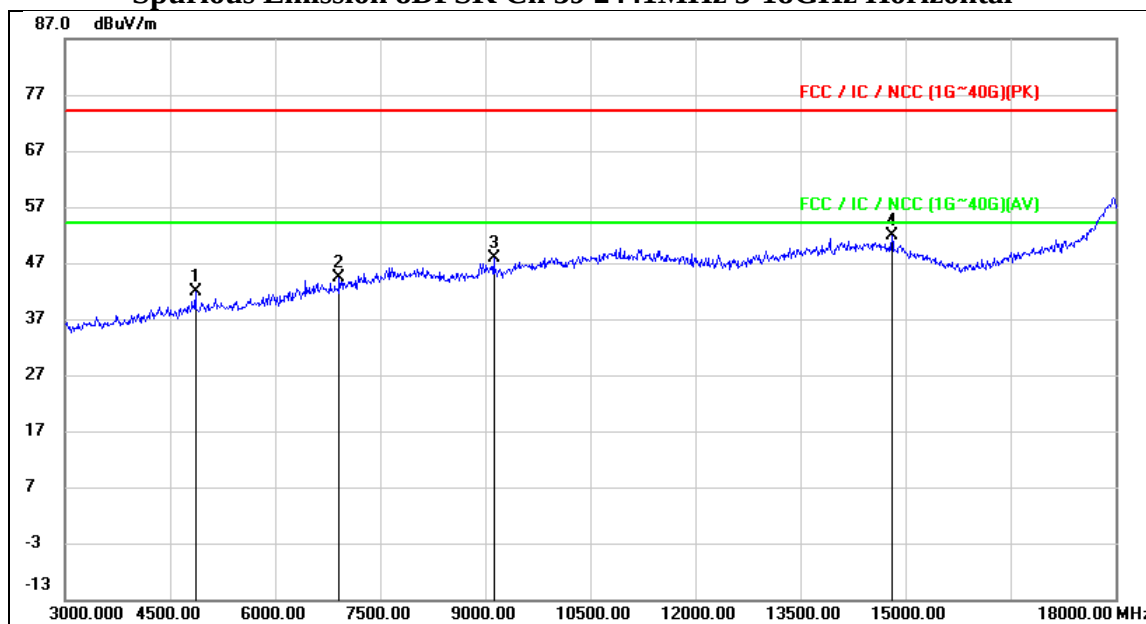
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Spurious Emission 8DPSK Ch 39 2441MHz 3-18GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4868.500	45.14	-3.39	41.75	74.00	-32.25	peak
2	6921.000	42.72	1.56	44.28	74.00	-29.72	peak
3	9127.500	41.97	6.01	47.98	74.00	-26.02	peak
4	14816.000	37.96	13.80	51.76	74.00	-22.24	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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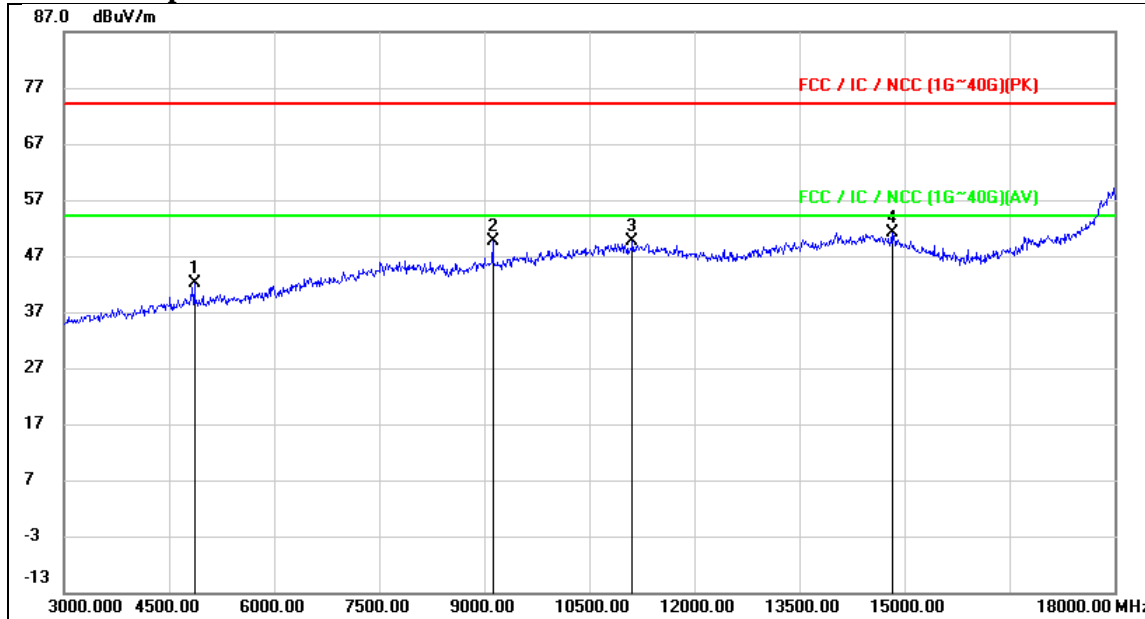
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Spurious Emission 8DPSK Ch 39 2441MHz 3-18GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4868.000	45.53	-3.39	42.14	74.00	-31.86	peak
2	9127.500	43.49	6.01	49.50	74.00	-24.50	peak
3	11125.000	39.80	9.90	49.70	74.00	-24.30	peak
4	14832.000	37.43	13.78	51.21	74.00	-22.79	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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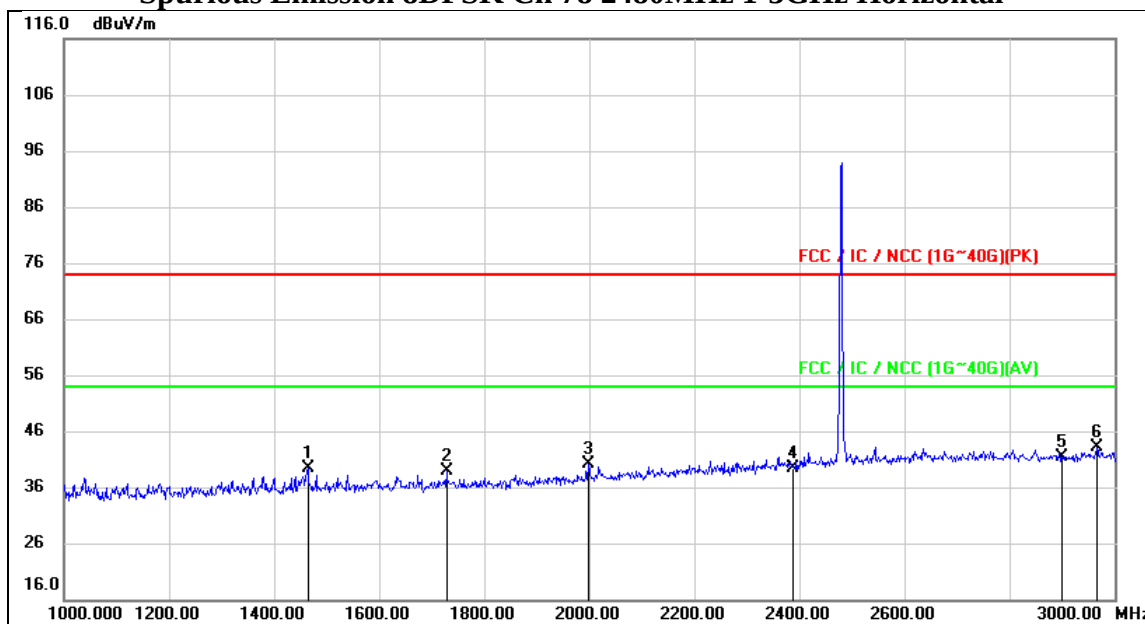
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Spurious Emission 8DPSK Ch 78 2480MHz 1-3GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1464.333	50.84	-11.36	39.48	74.00	-34.52	peak
2	1729.467	49.52	-10.75	38.77	74.00	-35.23	peak
3	1998.800	50.24	-10.18	40.06	74.00	-33.94	peak
4	2390.000	48.24	-8.78	39.46	74.00	-34.54	peak
5	2900.000	48.86	-7.55	41.31	74.00	-32.69	peak
6	2967.267	50.48	-7.41	43.07	74.00	-30.93	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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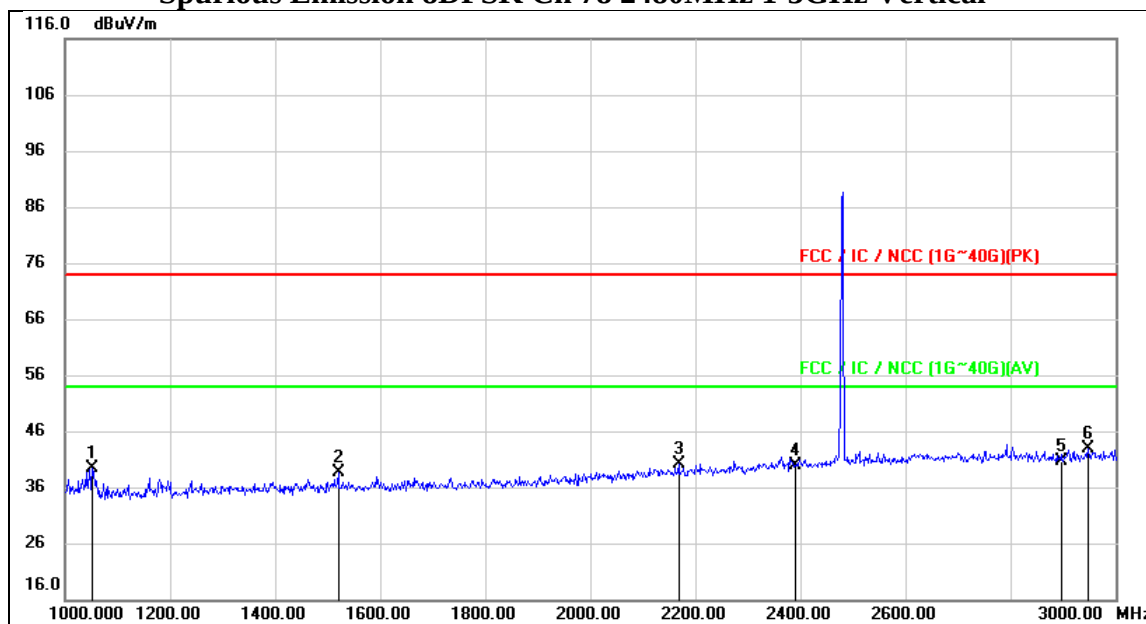
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Spurious Emission 8DPSK Ch 78 2480MHz 1-3GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1053.733	52.24	-12.97	39.27	74.00	-34.73	peak
2	1520.400	49.78	-11.18	38.60	74.00	-35.40	peak
3	2168.600	49.73	-9.57	40.16	74.00	-33.84	peak
4	2390.000	48.73	-8.78	39.95	74.00	-34.05	peak
5	2900.000	48.28	-7.55	40.73	74.00	-33.27	peak
6	2948.933	50.45	-7.46	42.99	74.00	-31.01	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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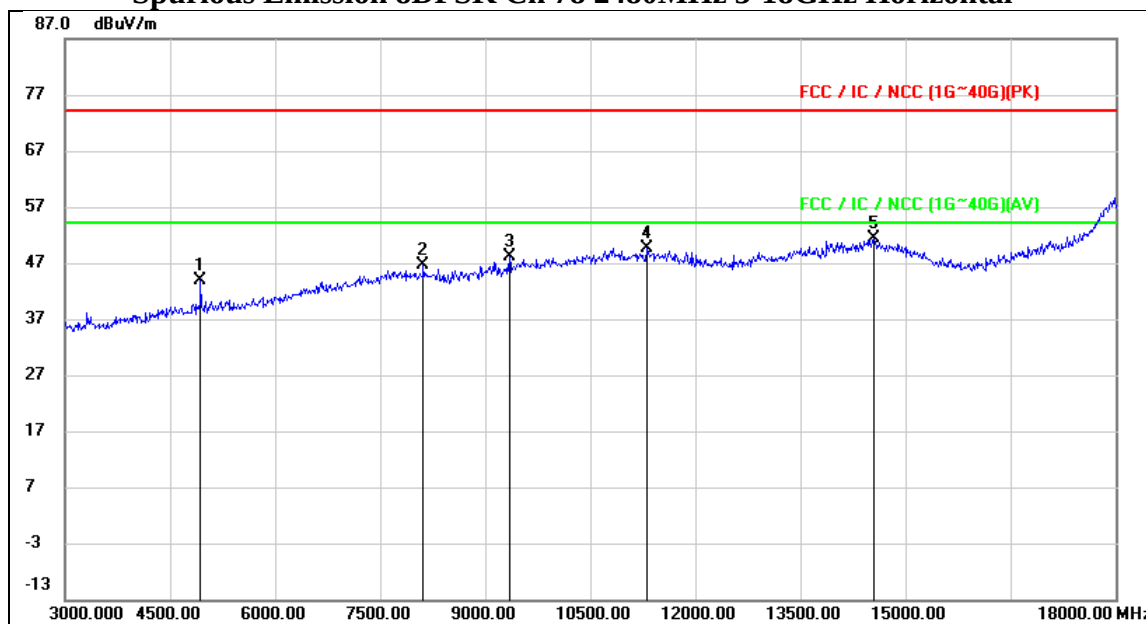
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Spurious Emission 8DPSK Ch 78 2480MHz 3-18GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4946.000	47.04	-3.24	43.80	74.00	-30.20	peak
2	8127.500	42.23	4.27	46.50	74.00	-27.50	peak
3	9347.500	41.55	6.47	48.02	74.00	-25.98	peak
4	11316.000	39.54	10.07	49.61	74.00	-24.39	peak
5	14558.000	37.25	14.22	51.47	74.00	-22.53	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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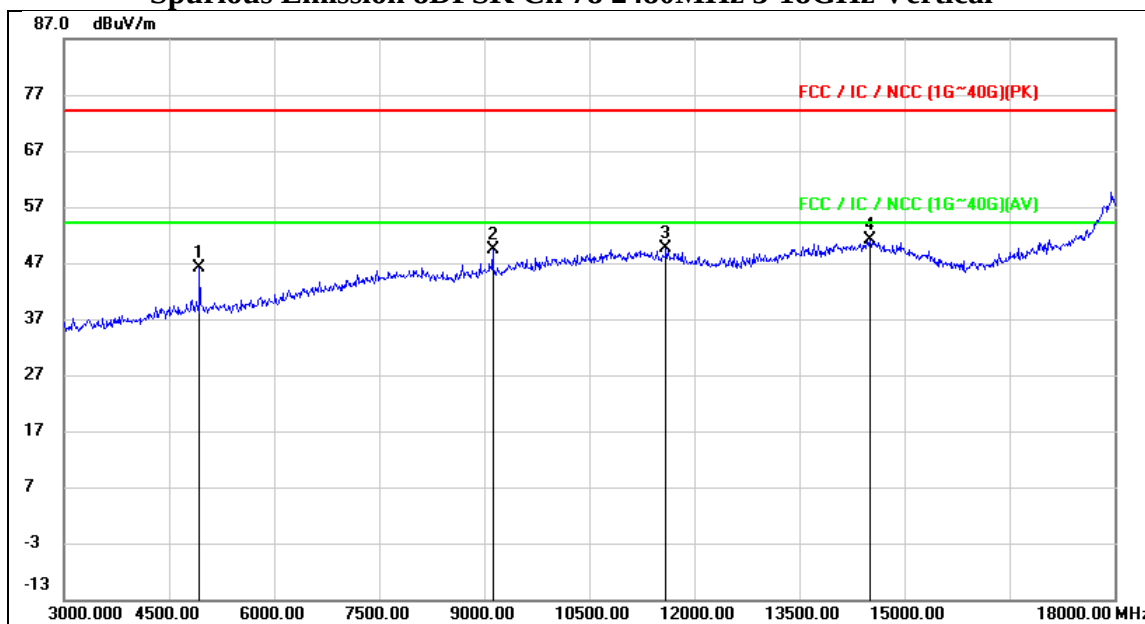
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Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Spurious Emission 8DPSK Ch 78 2480MHz 3-18GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4946.000	49.33	-3.24	46.09	74.00	-27.91	peak
2	9127.500	43.25	6.01	49.26	74.00	-24.74	peak
3	11605.500	39.57	10.05	49.62	74.00	-24.38	peak
4	14508.500	36.86	14.30	51.16	74.00	-22.84	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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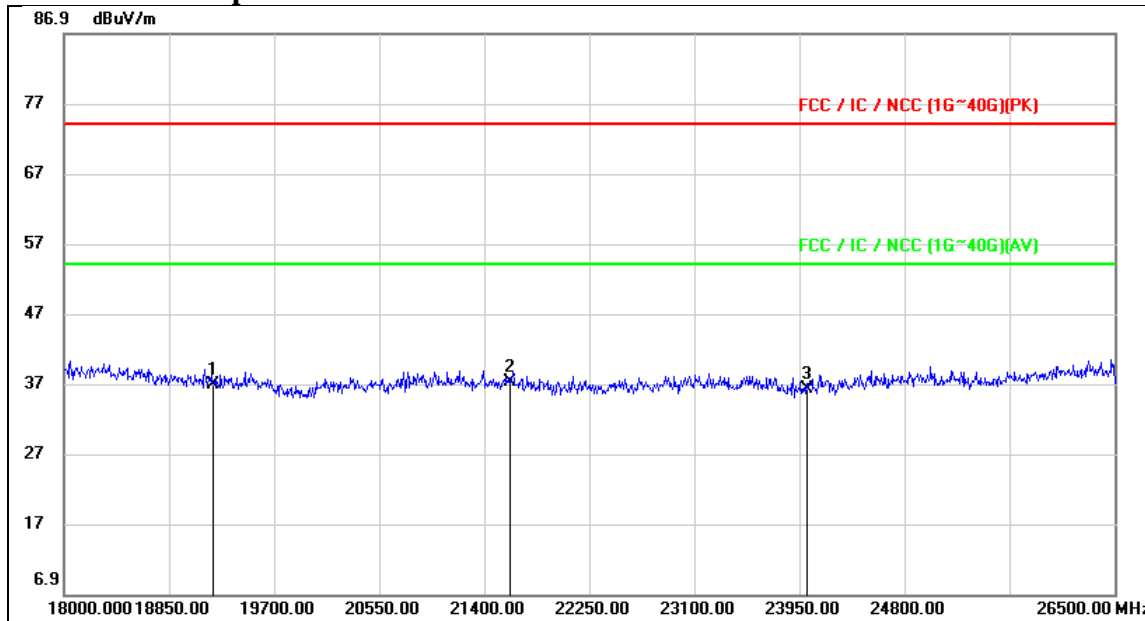
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Doc No: 17-EM-F0876 / 1.1



Mode: GFSK

Spurious Emission Worst case 18-25GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19216.000	39.66	-2.87	36.79	74.00	-37.21	peak
2	21618.000	39.37	-2.19	37.18	74.00	-36.82	peak
3	24020.000	37.96	-1.77	36.19	74.00	-37.81	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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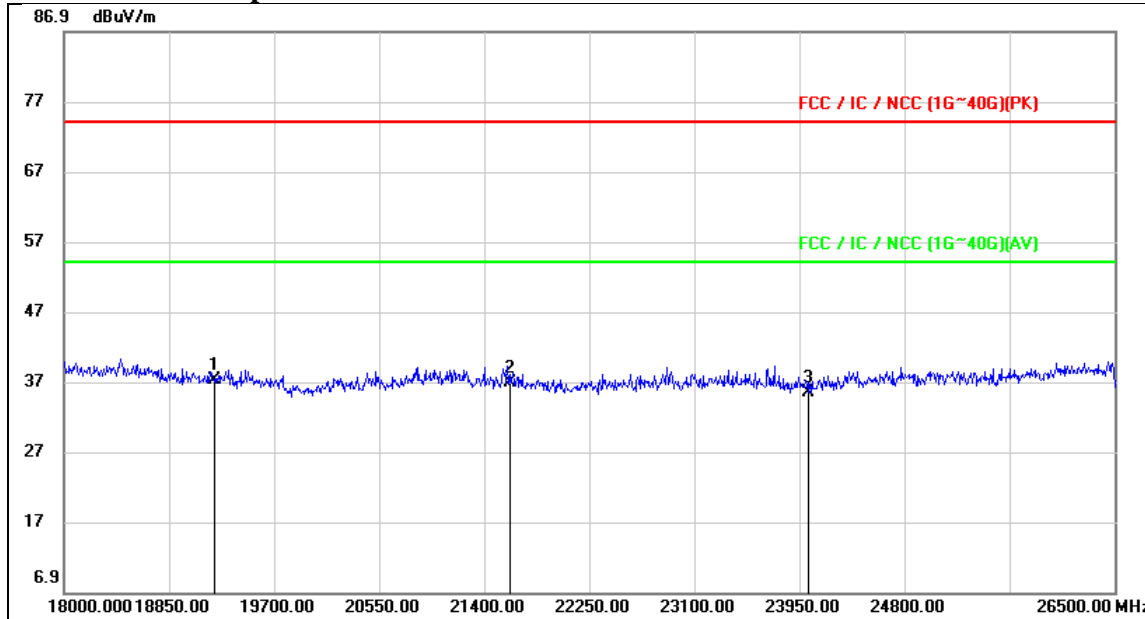
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Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Spurious Emission Worst case 18-25GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	19216.000	40.11	-2.87	37.24	74.00	-36.76	peak
2	21618.000	39.05	-2.19	36.86	74.00	-37.14	peak
3	24020.000	37.21	-1.77	35.44	74.00	-38.56	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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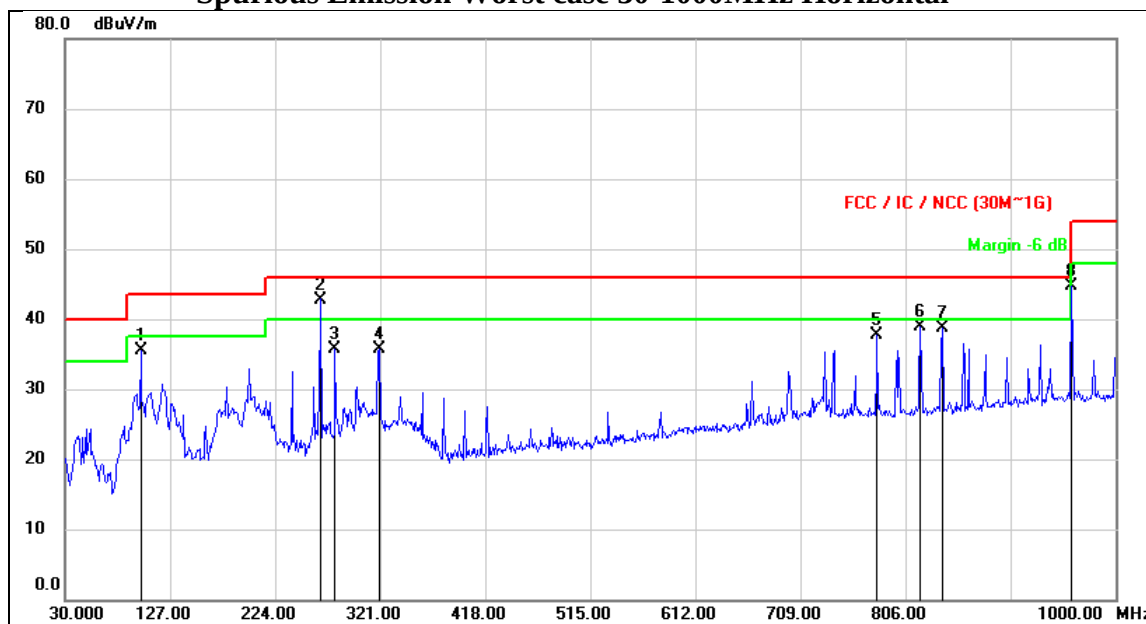
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Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Spurious Emission Worst case 30-1000MHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	100.0017	56.15	-20.56	35.59	43.50	-7.91	peak
2	266.0333	58.53	-15.78	42.75	46.00	-3.25	QP
3	280.0337	50.69	-15.05	35.64	46.00	-10.36	peak
4	320.0300	49.72	-14.03	35.69	46.00	-10.31	peak
5	780.1010	42.38	-4.70	37.68	46.00	-8.32	peak
6	820.0973	43.08	-4.27	38.81	46.00	-7.19	peak
7	840.0793	42.77	-4.00	38.77	46.00	-7.23	peak
8	960.1007	46.65	-2.03	44.62	54.00	-9.38	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

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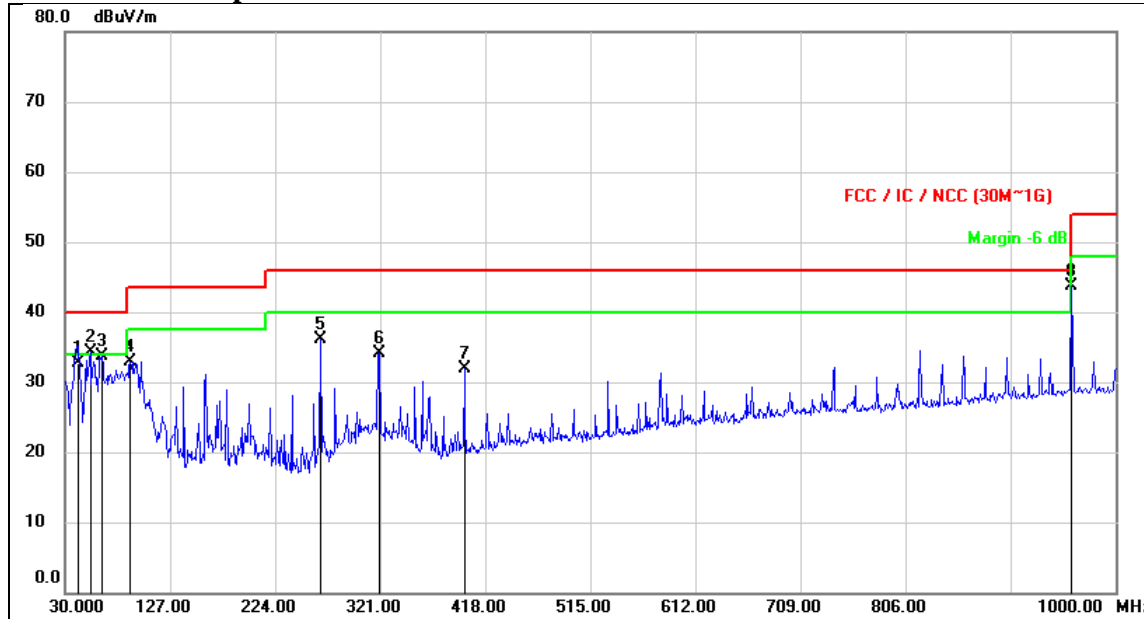
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Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Spurious Emission Worst case 30-1000MHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	42.0927	48.28	-15.59	32.69	40.00	-7.31	QP
2	53.3123	49.81	-15.44	34.37	40.00	-5.63	peak
3	64.5967	50.42	-16.76	33.66	40.00	-6.34	peak
4	90.2047	54.58	-21.58	33.00	43.50	-10.50	peak
5	266.0010	51.96	-15.78	36.18	46.00	-9.82	peak
6	320.0300	48.09	-14.03	34.06	46.00	-11.94	peak
7	399.0203	43.79	-11.94	31.85	46.00	-14.15	peak
8	960.1007	45.72	-2.03	43.69	54.00	-10.31	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

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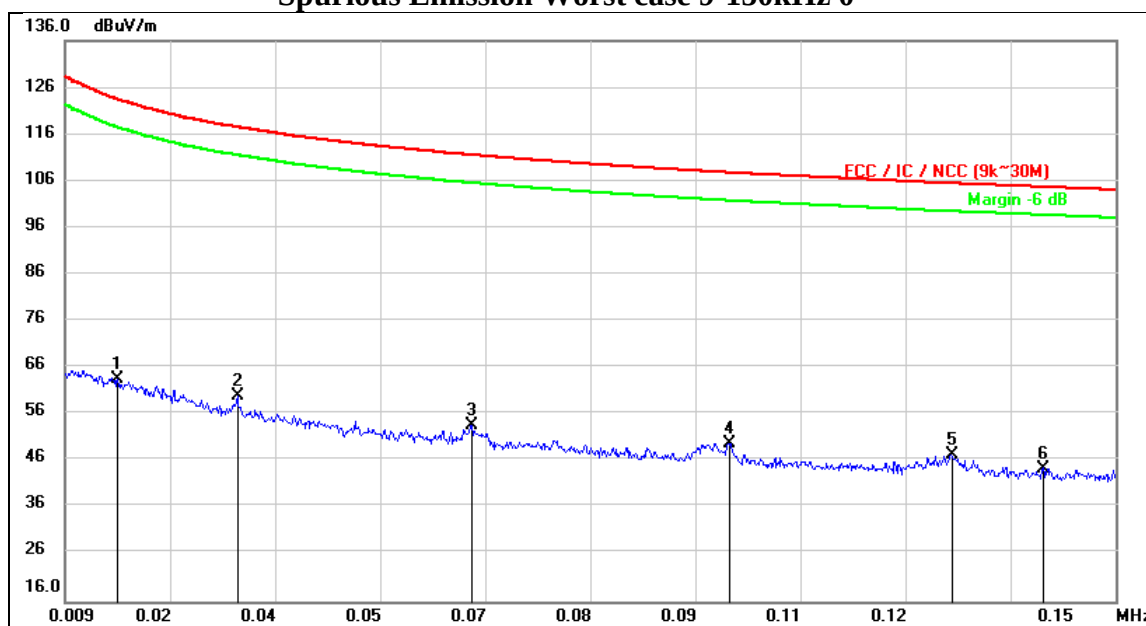
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Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Spurious Emission Worst case 9-150kHz 0°



No.	Frequency (KHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0161	45.38	18.09	63.47	123.49	-60.02	peak
2	0.0322	45.73	14.21	59.94	117.51	-57.57	peak
3	0.0636	41.10	12.58	53.68	111.56	-57.88	peak
4	0.0981	37.76	12.10	49.86	107.77	-57.91	peak
5	0.1280	35.33	12.07	47.40	105.48	-58.08	peak
6	0.1403	32.43	12.07	44.50	104.70	-60.20	peak

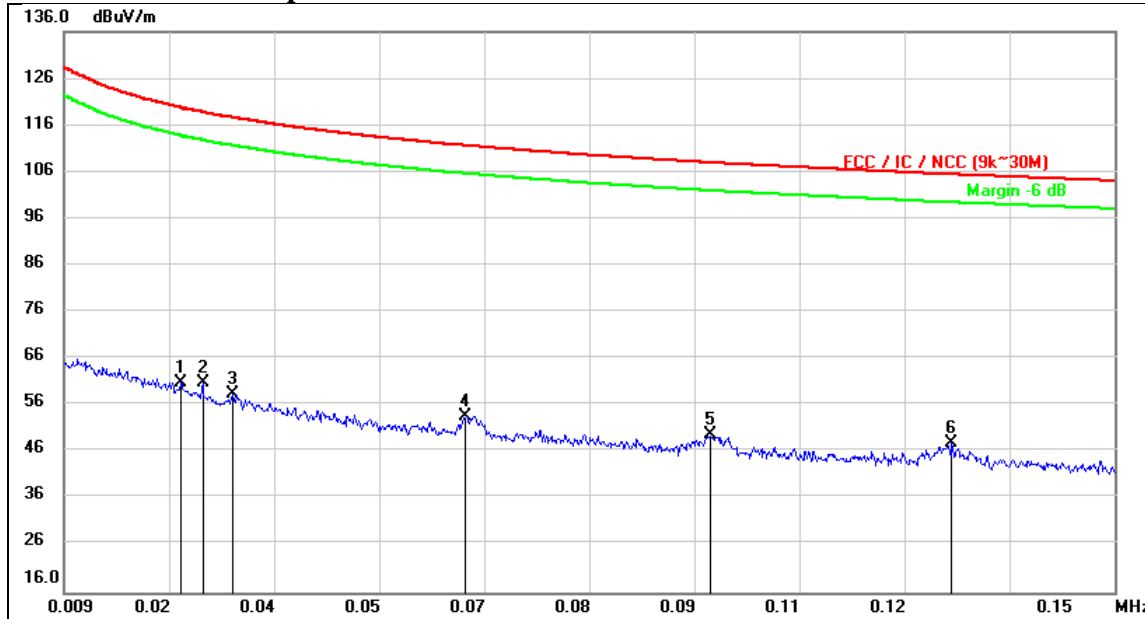
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

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Spurious Emission Worst case 9-150kHz 90°



No.	Frequency (KHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0247	44.97	15.79	60.76	119.77	-59.01	peak
2	0.0277	45.75	14.99	60.74	118.79	-58.05	peak
3	0.0317	44.19	14.25	58.44	117.64	-59.20	peak
4	0.0629	41.05	12.59	53.64	111.65	-58.01	peak
5	0.0958	37.46	12.14	49.60	107.99	-58.39	peak
6	0.1282	35.90	12.07	47.97	105.47	-57.50	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.

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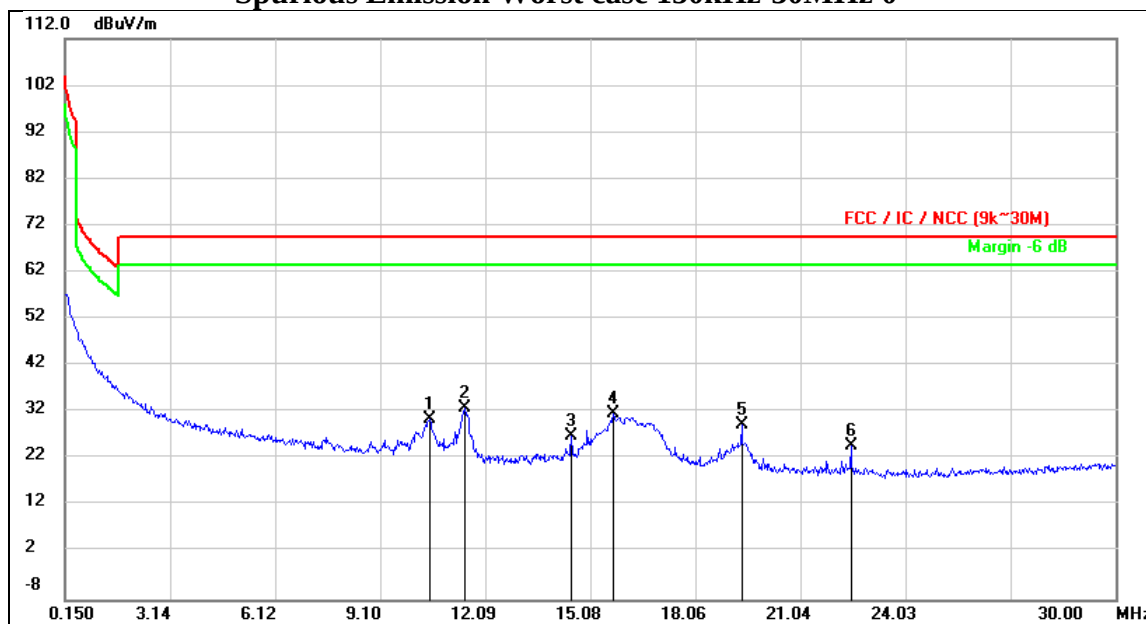
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission Worst case 150kHz-30MHz 0°



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10.5109	18.80	11.64	30.44	69.54	-39.10	peak
2	11.5179	21.37	11.62	32.99	69.54	-36.55	peak
3	14.5477	15.26	11.54	26.80	69.54	-42.74	peak
4	15.7606	20.10	11.51	31.61	69.54	-37.93	peak
5	19.3963	18.06	11.41	29.47	69.54	-40.07	peak
6	22.5017	13.91	10.91	24.82	69.54	-44.72	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported

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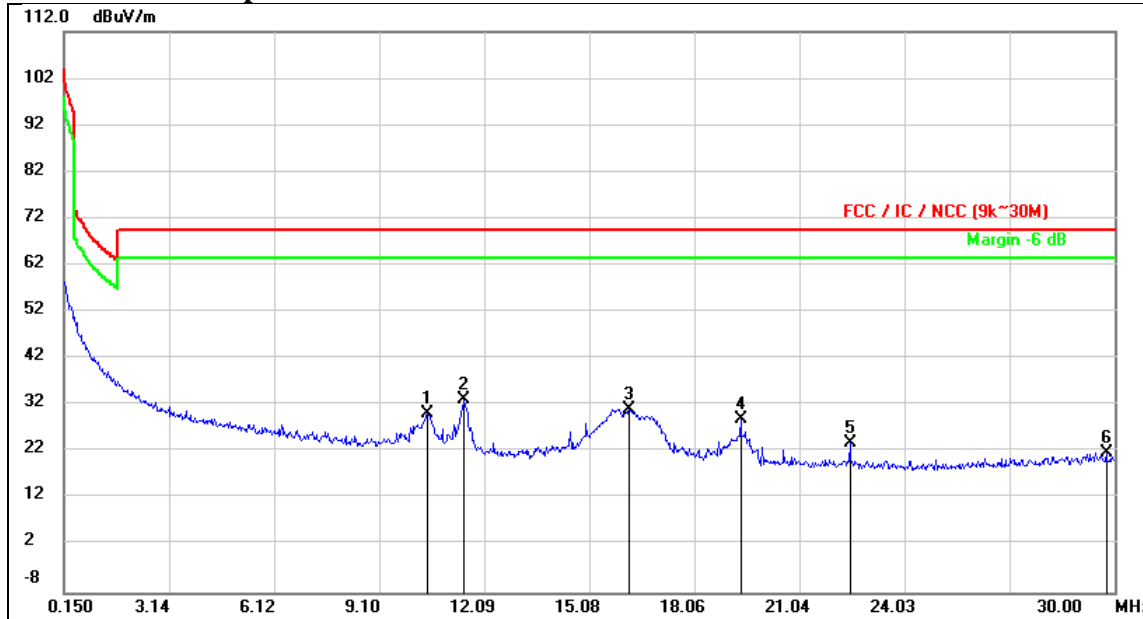
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Spurious Emission Worst case 150kHz-30MHz 90°



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10.4821	18.70	11.65	30.35	69.54	-39.19	peak
2	11.5437	21.67	11.62	33.29	69.54	-36.25	peak
3	16.2113	19.57	11.49	31.06	69.54	-38.48	peak
4	19.3933	17.57	11.41	28.98	69.54	-40.56	peak
5	22.5026	13.01	10.91	23.92	69.54	-45.62	peak
6	29.7751	12.39	9.54	21.93	69.54	-47.61	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported

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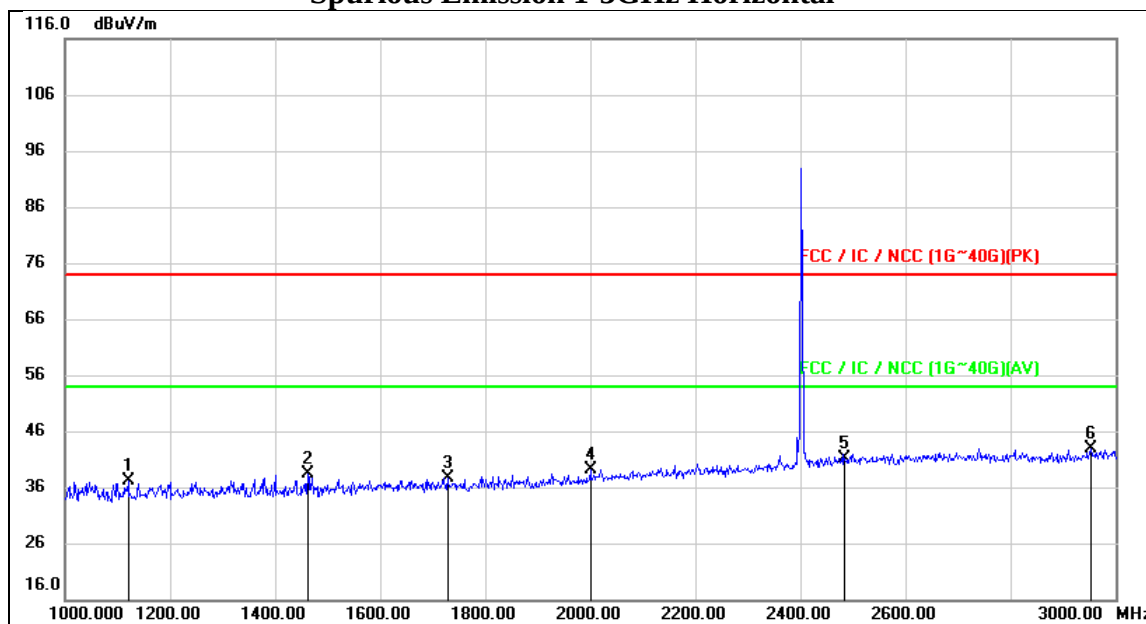
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Doc No: 17-EM-F0876 / 1.1



**Co-location (BT + NFC)
Spurious Emission 1-3GHz Horizontal**



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1120.467	49.75	-12.72	37.03	74.00	-36.97	peak
2	1463.000	49.72	-11.38	38.34	74.00	-35.66	peak
3	1729.667	48.31	-10.75	37.56	74.00	-36.44	peak
4	2001.200	49.37	-10.18	39.19	74.00	-34.81	peak
5	2483.500	49.62	-8.44	41.18	74.00	-32.82	peak
6	2953.933	50.35	-7.44	42.91	74.00	-31.09	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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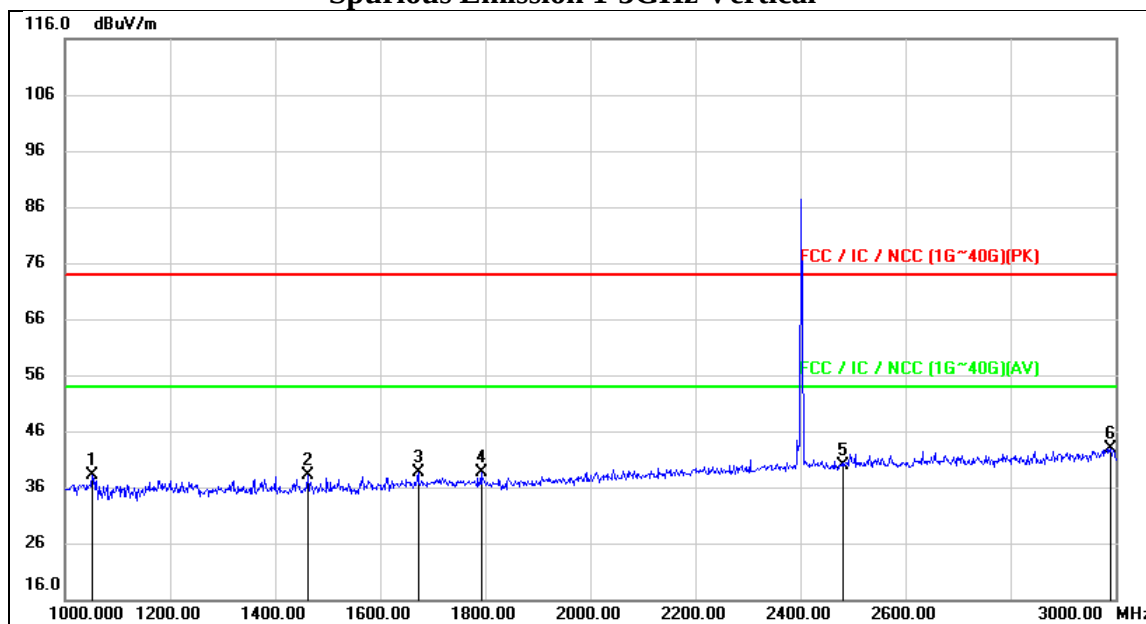
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Spurious Emission 1-3GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	1053.600	51.20	-12.97	38.23	74.00	-35.77	peak
2	1463.533	49.51	-11.37	38.14	74.00	-35.86	peak
3	1673.733	49.49	-10.87	38.62	74.00	-35.38	peak
4	1792.667	49.29	-10.61	38.68	74.00	-35.32	peak
5	2483.500	48.29	-8.44	39.85	74.00	-34.15	peak
6	2990.467	50.30	-7.38	42.92	74.00	-31.08	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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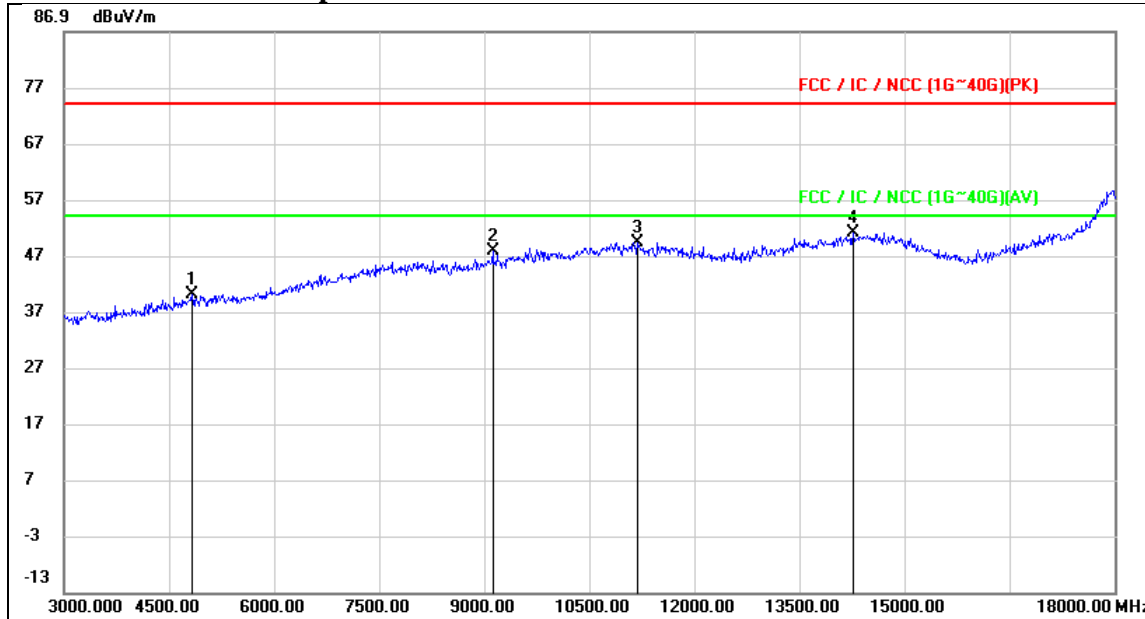
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Spurious Emission 3-18GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4833.500	43.42	-3.47	39.95	74.00	-34.05	peak
2	9127.000	41.69	6.01	47.70	74.00	-26.30	peak
3	11201.500	39.42	9.96	49.38	74.00	-24.62	peak
4	14273.000	37.20	13.82	51.02	74.00	-22.98	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result – Limit
4. The signal trace which over average limit is background noise.

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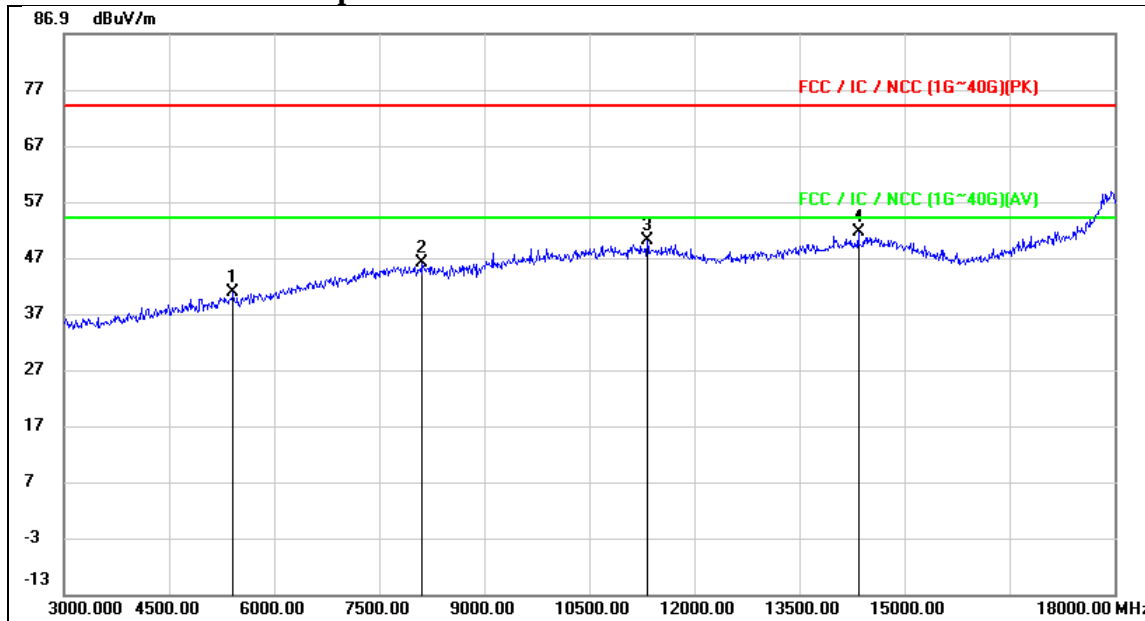
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Spurious Emission 3-18GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5422.000	43.45	-2.76	40.69	74.00	-33.31	peak
2	8124.500	41.72	4.27	45.99	74.00	-28.01	peak
3	11330.000	40.07	10.07	50.14	74.00	-23.86	peak
4	14353.500	37.53	14.01	51.54	74.00	-22.46	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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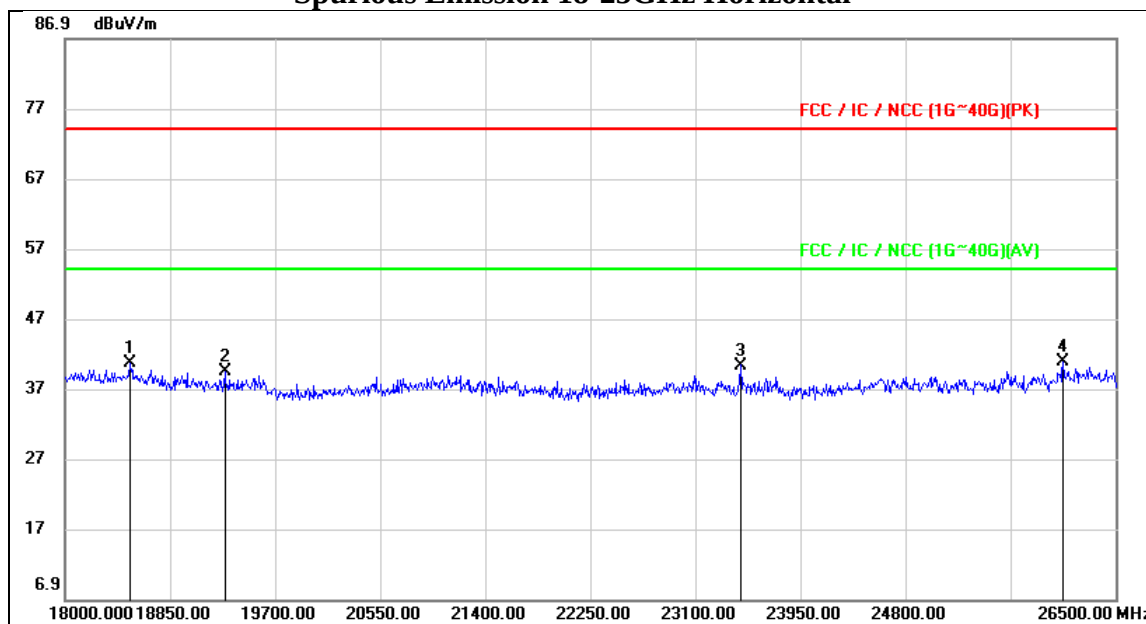
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Spurious Emission 18-25GHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18534.650	42.98	-2.45	40.53	74.00	-33.47	peak
2	19300.217	42.20	-2.86	39.34	74.00	-34.66	peak
3	23468.617	41.32	-1.02	40.30	74.00	-33.70	peak
4	26079.533	40.18	0.53	40.71	74.00	-33.29	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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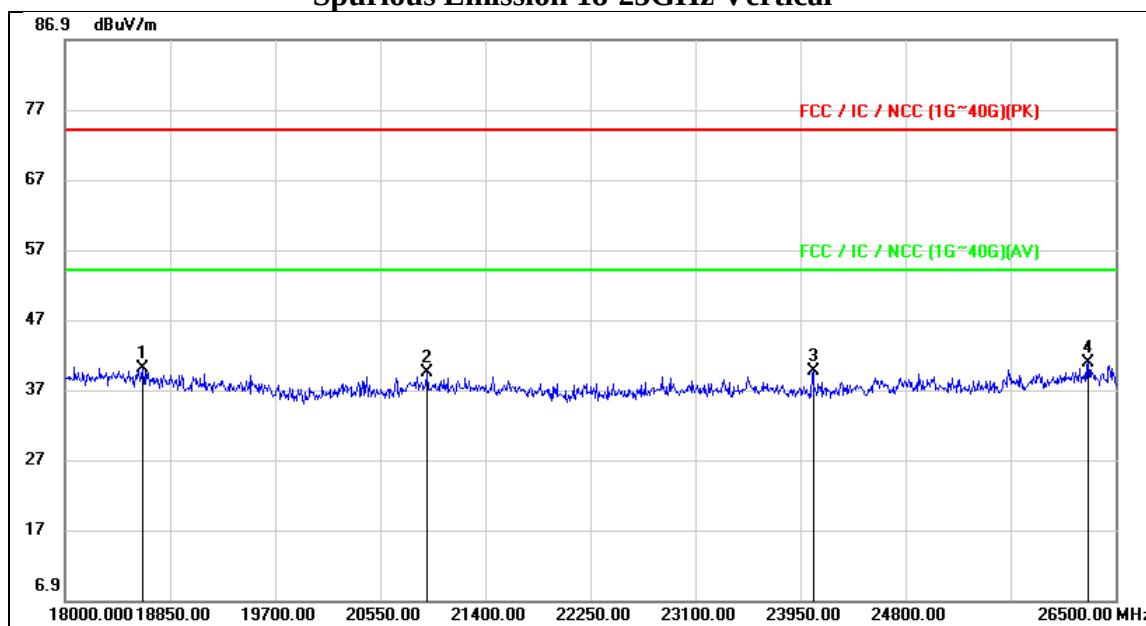
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Spurious Emission 18-25GHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	18631.833	42.51	-2.54	39.97	74.00	-34.03	peak
2	20931.650	41.41	-1.97	39.44	74.00	-34.56	peak
3	24052.000	41.18	-1.67	39.51	74.00	-34.49	peak
4	26284.100	40.21	0.69	40.90	74.00	-33.10	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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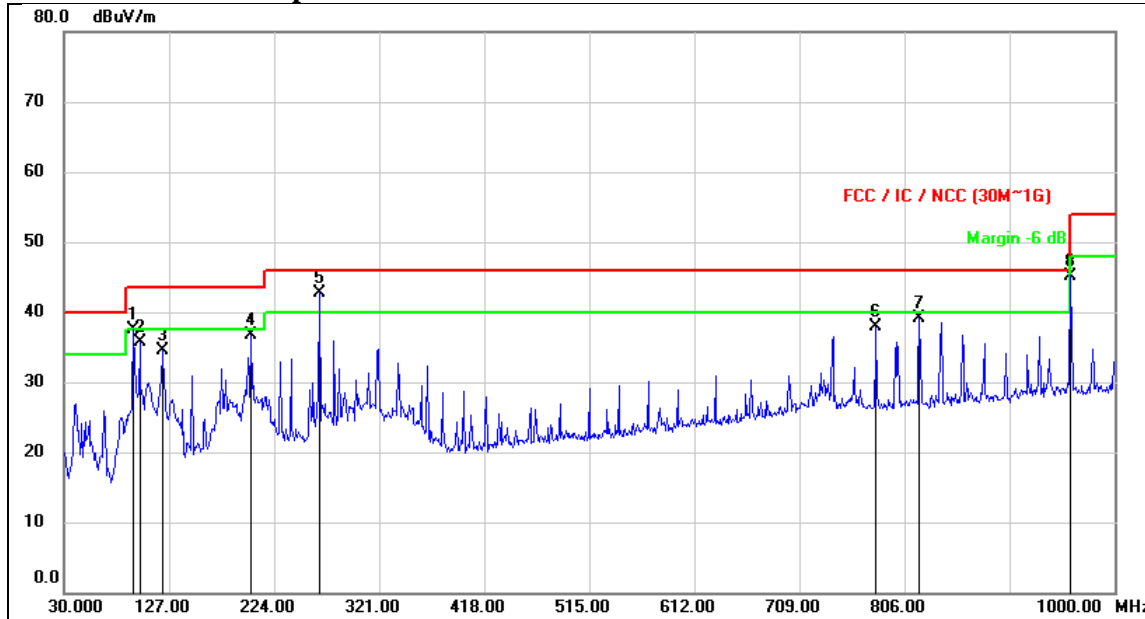
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Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Spurious Emission 30-1000MHz Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	94.8930	58.60	-21.09	37.51	43.50	-5.99	peak
2	100.0017	56.20	-20.56	35.64	43.50	-7.86	peak
3	122.0207	52.46	-17.88	34.58	43.50	-8.92	peak
4	203.4037	54.66	-18.00	36.66	43.50	-6.84	peak
5	266.0333	58.47	-15.78	42.69	46.00	-3.31	QP
6	780.0687	42.53	-4.70	37.83	46.00	-8.17	peak
7	820.0650	43.43	-4.27	39.16	46.00	-6.84	peak
8	960.1007	47.23	-2.03	45.20	54.00	-8.80	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported

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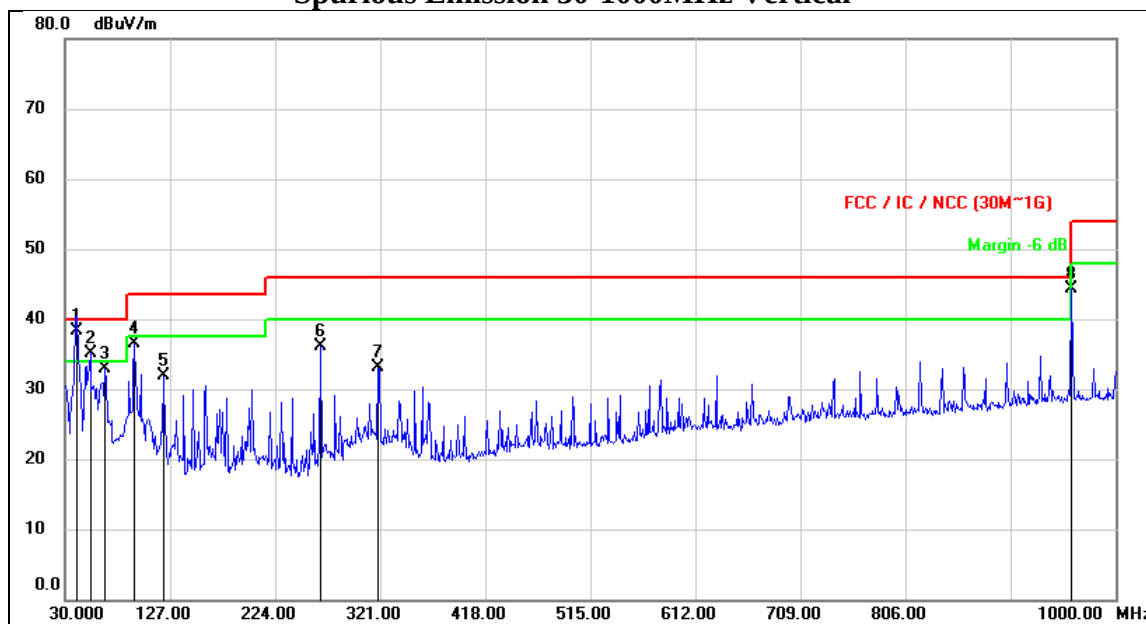
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Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Spurious Emission 30-1000MHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	40.6699	54.07	-15.72	38.35	40.00	-1.65	QP
2	53.3123	50.61	-15.44	35.17	40.00	-4.83	peak
3	67.7977	50.25	-17.38	32.87	40.00	-7.13	peak
4	94.8930	57.61	-21.09	36.52	43.50	-6.98	peak
5	122.0207	49.71	-17.88	31.83	43.50	-11.67	peak
6	266.0010	51.90	-15.78	36.12	46.00	-9.88	peak
7	319.9977	47.06	-14.03	33.03	46.00	-12.97	peak
8	960.1007	46.33	-2.03	44.30	54.00	-9.70	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported

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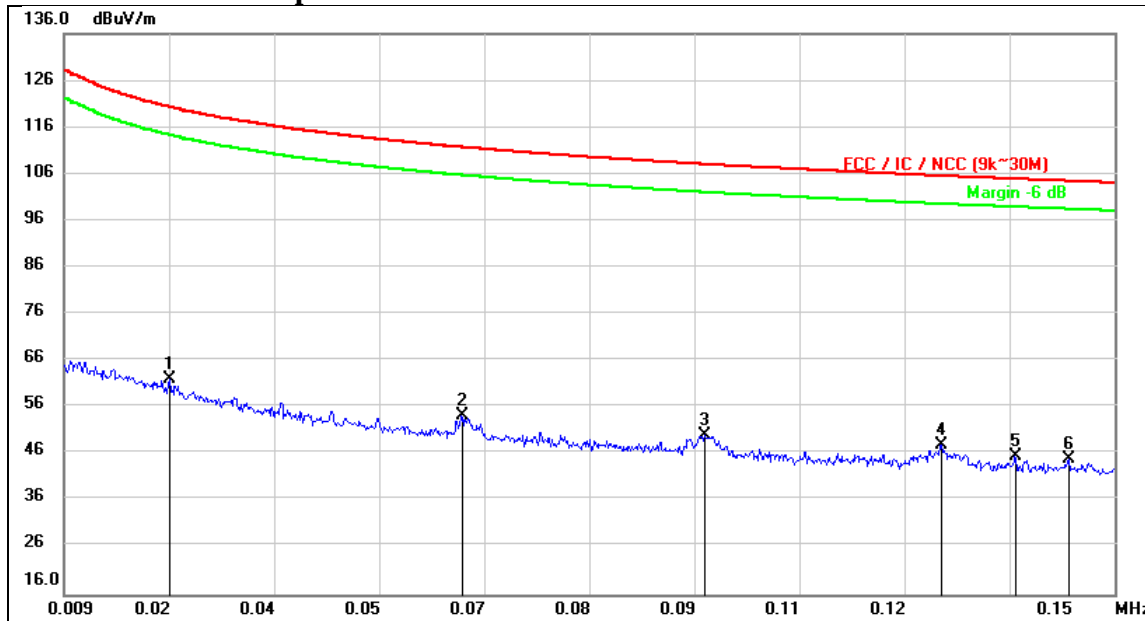
Telephone :+886-2-7737-3000

Facsimile (FAX) :+886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Spurious Emission Worst case 9-150kHz 0°



No.	Frequency (KHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0232	45.85	16.20	62.05	120.34	-58.29	peak
2	0.0624	41.53	12.60	54.13	111.72	-57.59	peak
3	0.0950	37.95	12.14	50.09	108.06	-57.97	peak
4	0.1267	35.84	12.07	47.91	105.56	-57.65	peak
5	0.1367	33.49	12.07	45.56	104.93	-59.37	peak
6	0.1439	33.07	12.00	45.07	104.47	-59.40	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported

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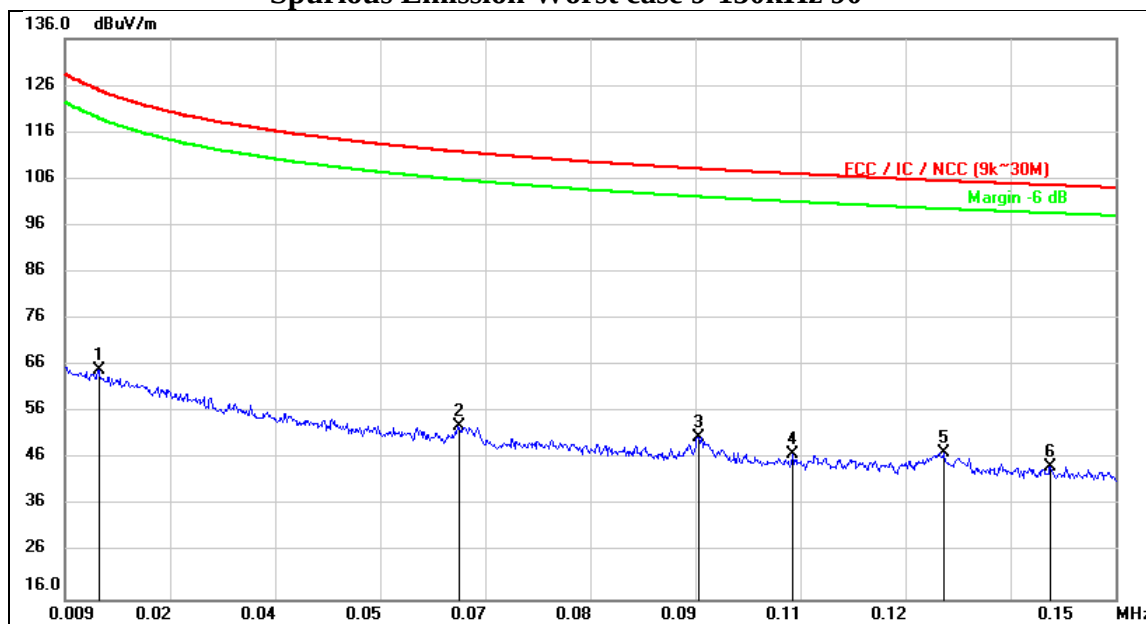
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Doc No: 17-EM-F0876 / 1.1



Spurious Emission Worst case 9-150kHz 90°



No.	Frequency (KHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0135	46.23	18.79	65.02	125.09	-60.07	peak
2	0.0619	40.44	12.61	53.05	111.79	-58.74	peak
3	0.0940	38.57	12.16	50.73	108.15	-57.42	peak
4	0.1068	35.21	11.96	47.17	107.07	-59.90	peak
5	0.1270	35.31	12.07	47.38	105.54	-58.16	peak
6	0.1413	32.42	12.05	44.47	104.63	-60.16	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported

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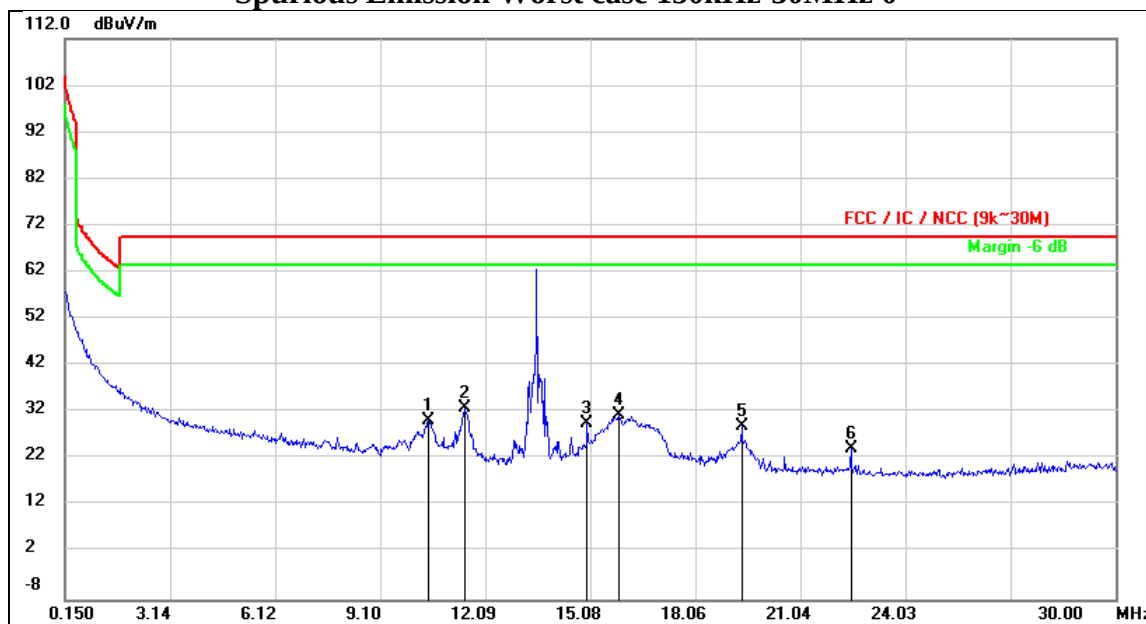
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Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Spurious Emission Worst case 150kHz-30MHz 0°



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10.5079	18.58	11.64	30.22	69.54	-39.32	peak
2	11.5447	21.26	11.62	32.88	69.54	-36.66	peak
3	15.0004	18.15	11.53	29.68	69.54	-39.86	peak
4	15.8909	19.99	11.50	31.49	69.54	-38.05	peak
5	19.3993	17.51	11.41	28.92	69.54	-40.62	peak
6	22.5026	13.33	10.91	24.24	69.54	-45.30	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported

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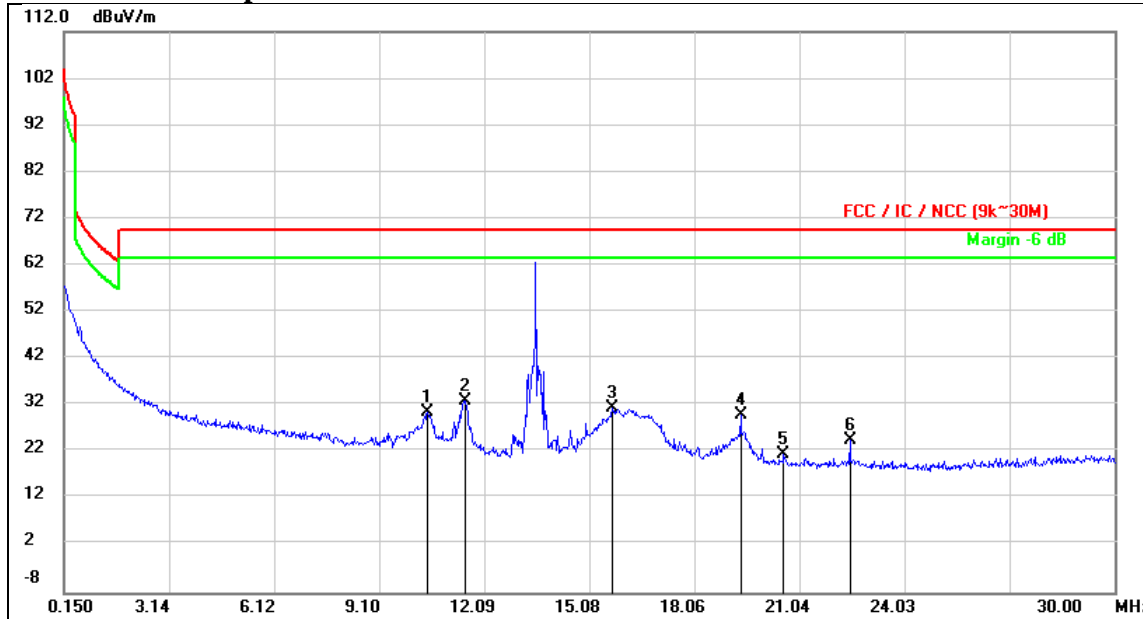
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Facsimile (FAX) : +886-3-583-7948

Doc No: 17-EM-F0876 / 1.1



Spurious Emission Worst case 150kHz-30MHz 90°



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	10.5000	18.98	11.64	30.62	69.54	-38.92	peak
2	11.5547	21.31	11.62	32.93	69.54	-36.61	peak
3	15.7596	19.87	11.51	31.38	69.54	-38.16	peak
4	19.3953	18.55	11.41	29.96	69.54	-39.58	peak
5	20.6072	10.32	11.27	21.59	69.54	-47.95	peak
6	22.5017	13.72	10.91	24.63	69.54	-44.91	peak

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported

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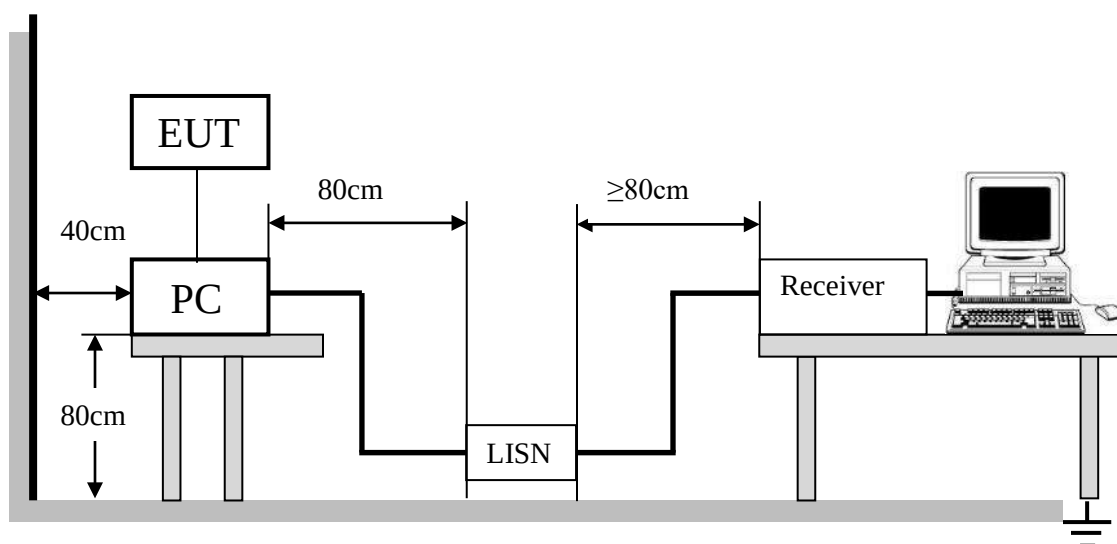


9.9. AC Power Line Conducted Emission

Requirements

Frequency of Emission(MHz)	Conducted limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Test Procedures



The EUT was put on a table of non-conducting material that was 80cm high. The vertical conducting wall of shielding was located 40cm to the rear of the EUT. The power line of the EUT was connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) was used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10 - 2013. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver was set at 9kHz.

The arrangement of the equipment was installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

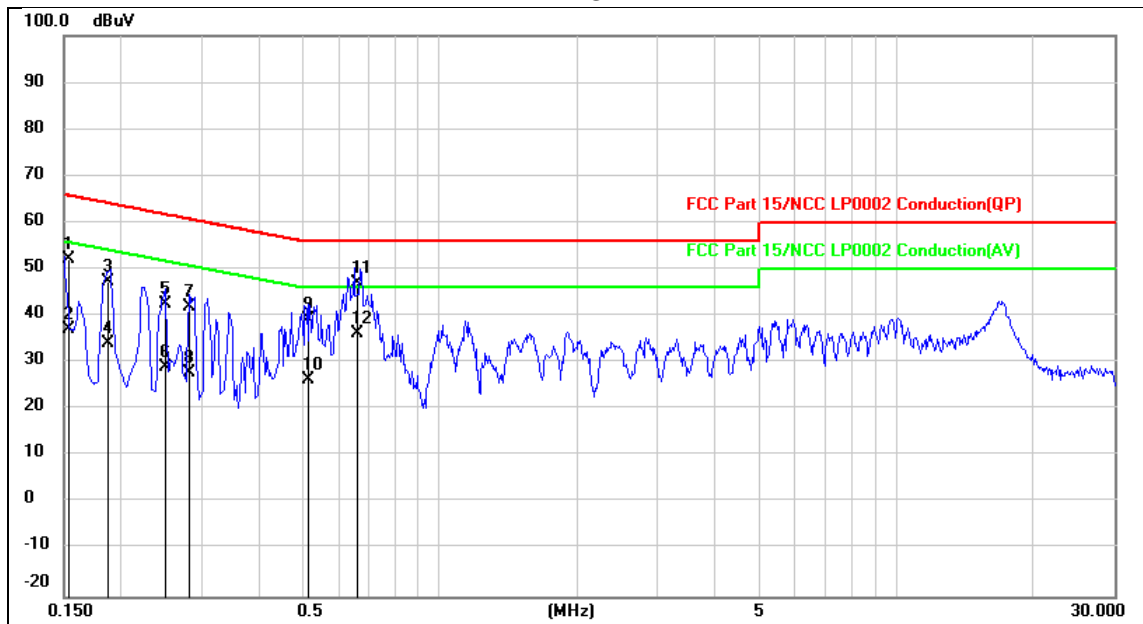
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Test Data

Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1536	32.65	19.57	52.22	65.80	-13.58	QP
2	0.1536	17.53	19.57	37.10	55.80	-18.70	AVG
3	0.1866	27.82	19.58	47.40	64.19	-16.79	QP
4	0.1866	14.51	19.58	34.09	54.19	-20.10	AVG
5	0.2488	23.07	19.59	42.66	61.80	-19.14	QP
6	0.2488	9.36	19.59	28.95	51.80	-22.85	AVG
7	0.2821	22.44	19.60	42.04	60.75	-18.71	QP
8	0.2821	8.32	19.60	27.92	50.75	-22.83	AVG
9	0.5166	19.69	19.59	39.28	56.00	-16.72	QP
10	0.5166	6.88	19.59	26.47	46.00	-19.53	AVG
11	0.6588	27.35	19.58	46.93	56.00	-9.07	QP
12	0.6588	16.71	19.58	36.29	46.00	-9.71	AVG

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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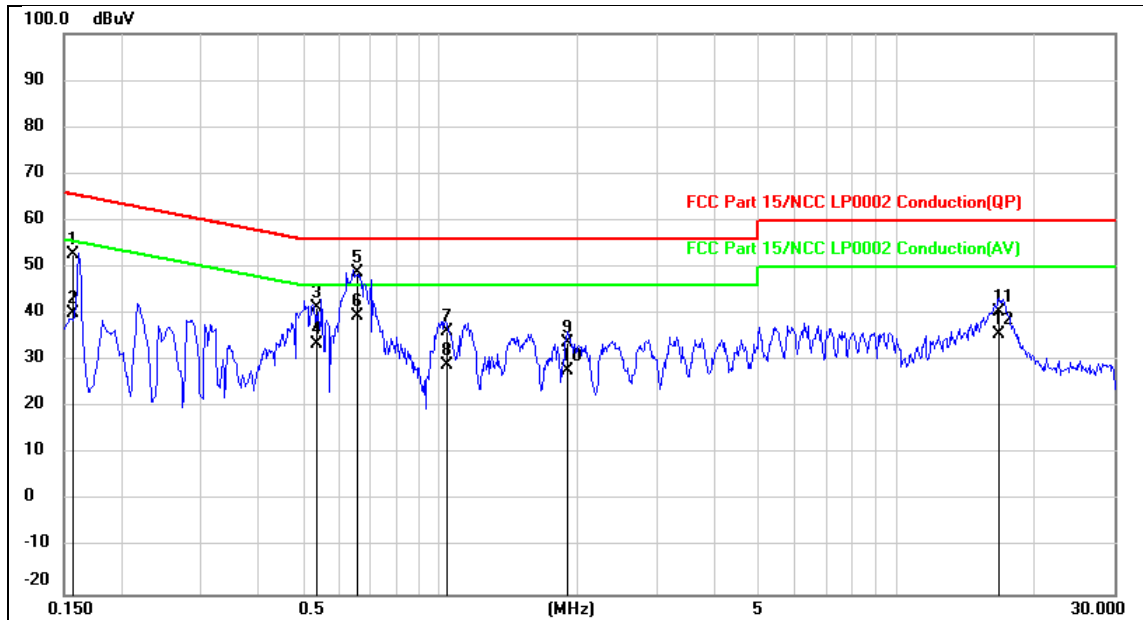
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Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1573	33.15	19.59	52.74	65.61	-12.87	QP
2	0.1573	20.56	19.59	40.15	55.61	-15.46	AVG
3	0.5355	21.86	19.60	41.46	56.00	-14.54	QP
4	0.5355	13.81	19.60	33.41	46.00	-12.59	AVG
5	0.6604	29.27	19.60	48.87	56.00	-7.13	QP
6	0.6604	19.90	19.60	39.50	46.00	-6.50	AVG
7	1.0360	16.51	19.63	36.14	56.00	-19.86	QP
8	1.0360	9.38	19.63	29.01	46.00	-16.99	AVG
9	1.9094	14.28	19.70	33.98	56.00	-22.02	QP
10	1.9094	8.25	19.70	27.95	46.00	-18.05	AVG
11	16.8025	20.36	20.08	40.44	60.00	-19.56	QP
12	16.8025	15.59	20.08	35.67	50.00	-14.33	AVG

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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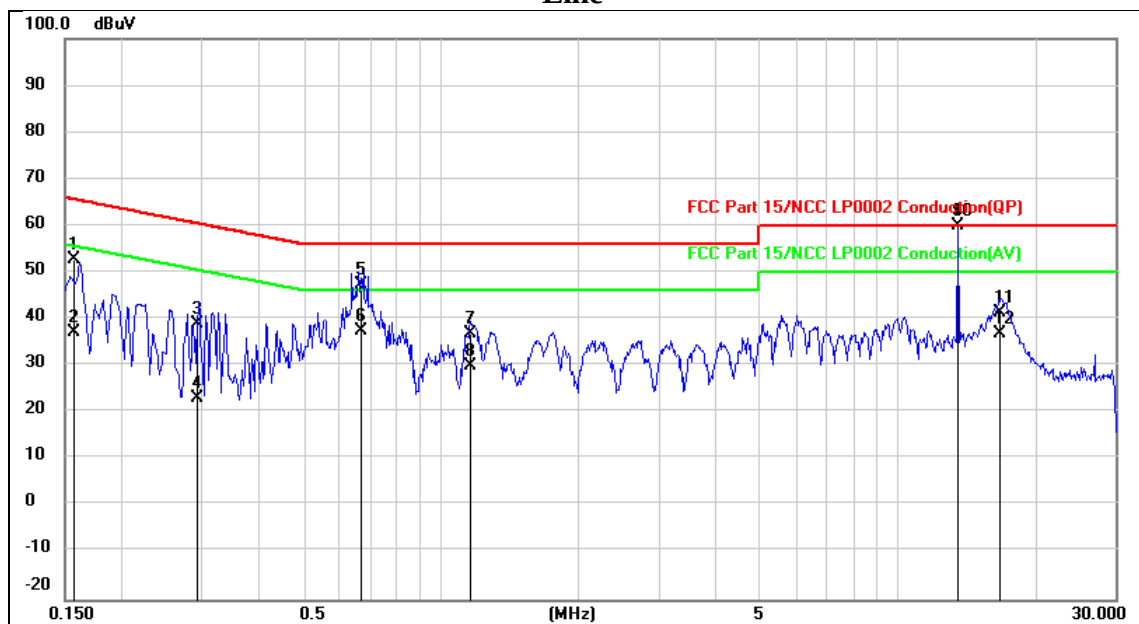
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Co-Location (BT + NFC)

Perform the AC power-line conducted tests with the NFC antenna connected to determine compliance.

Line



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1570	33.12	19.57	52.69	65.62	-12.93	QP
2	0.1570	17.55	19.57	37.12	55.62	-18.50	AVG
3	0.2923	19.46	19.61	39.07	60.46	-21.39	QP
4	0.2923	3.32	19.61	22.93	50.46	-27.53	AVG
5	0.6718	27.83	19.58	47.41	56.00	-8.59	QP
6	0.6718	17.73	19.58	37.31	46.00	-8.69	AVG
7	1.1653	17.17	19.63	36.80	56.00	-19.20	QP
8	1.1653	10.34	19.63	29.97	46.00	-16.03	AVG
9*	13.5602	39.97	20.03	60.00	-	-	QP
10*	13.5602	39.97	20.03	60.00	-	-	AVG
11	16.8272	21.43	20.00	41.43	60.00	-18.57	QP
12	16.8272	16.79	20.00	36.79	50.00	-13.21	AVG

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. "*" means Fundamental Frequency.

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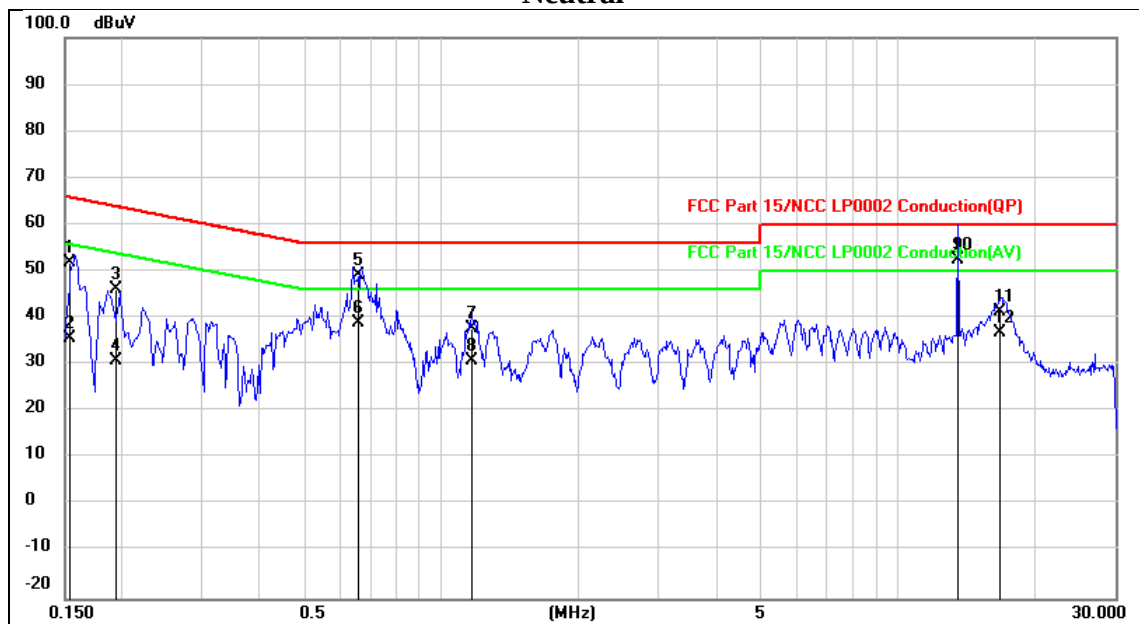
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Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1538	32.41	19.59	52.00	65.79	-13.79	QP
2	0.1538	15.97	19.59	35.56	55.79	-20.23	AVG
3	0.1943	26.56	19.59	46.15	63.85	-17.70	QP
4	0.1943	11.36	19.59	30.95	53.85	-22.90	AVG
5	0.6617	29.65	19.60	49.25	56.00	-6.75	QP
6	0.6617	19.45	19.60	39.05	46.00	-6.95	AVG
7	1.1634	18.00	19.64	37.64	56.00	-18.36	QP
8	1.1634	11.24	19.64	30.88	46.00	-15.12	AVG
9*	13.5603	32.31	20.09	52.40	-	-	QP
10*	13.5603	32.24	20.09	52.33	-	-	AVG
11	16.7845	21.22	20.08	41.30	60.00	-18.70	QP
12	16.7845	16.63	20.08	36.71	50.00	-13.29	AVG

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. "*" means Fundamental Frequency.

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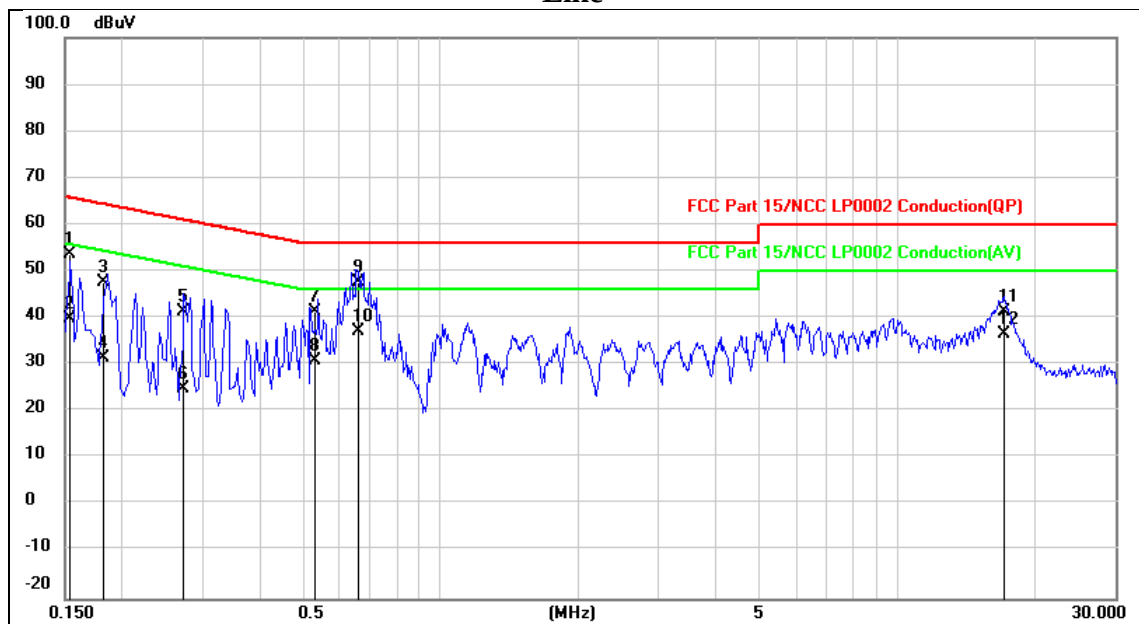
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Retest with a dummy load in lieu of the NFC antenna to determine compliance.

Line



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1545	34.12	19.57	53.69	65.75	-12.06	QP
2	0.1545	20.33	19.57	39.90	55.75	-15.85	AVG
3	0.1819	28.09	19.58	47.67	64.40	-16.73	QP
4	0.1819	11.94	19.58	31.52	54.40	-22.88	AVG
5	0.2738	21.84	19.60	41.44	61.00	-19.56	QP
6	0.2738	5.23	19.60	24.83	51.00	-26.17	AVG
7	0.5298	21.67	19.59	41.26	56.00	-14.74	QP
8	0.5298	11.19	19.59	30.78	46.00	-15.22	AVG
9	0.6600	28.22	19.58	47.80	56.00	-8.20	QP
10	0.6600	17.70	19.58	37.28	46.00	-8.72	AVG
11	17.1139	21.30	20.01	41.31	60.00	-18.69	QP
12	17.1139	16.64	20.01	36.65	50.00	-13.35	AVG

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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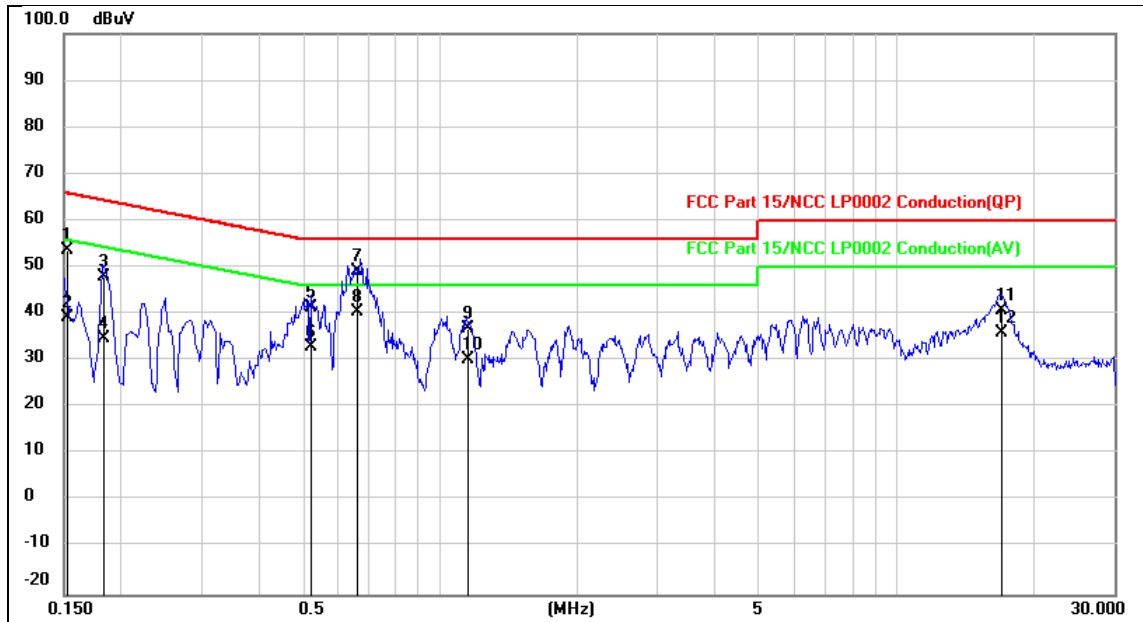
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Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1531	34.09	19.59	53.68	65.83	-12.15	QP
2	0.1531	19.69	19.59	39.28	55.83	-16.55	AVG
3	0.1839	28.34	19.59	47.93	64.31	-16.38	QP
4	0.1839	15.17	19.59	34.76	54.31	-19.55	AVG
5	0.5255	21.83	19.61	41.44	56.00	-14.56	QP
6	0.5255	13.29	19.61	32.90	46.00	-13.10	AVG
7	0.6549	29.54	19.60	49.14	56.00	-6.86	QP
8	0.6549	20.78	19.60	40.38	46.00	-5.62	AVG
9	1.1523	17.25	19.64	36.89	56.00	-19.11	QP
10	1.1523	10.64	19.64	30.28	46.00	-15.72	AVG
11	17.0300	20.80	20.09	40.89	60.00	-19.11	QP
12	17.0300	15.99	20.09	36.08	50.00	-13.92	AVG

1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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9.10. Antenna Requirement

Applicable Requirements

Please refer to FCC §15.203

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

Antenna Connector

EUT has a FPCB antenna with antenna connector.

Antenna Gain

The antenna gain of EUT is less than 6 dBi.

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