



Test report No. : 4788387996A-US-R2-V0
Page : 1 of 72
Issued date : May 28, 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 Subpart C (Section 15.225)**

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

Test Date : **Apr. 16, 2018 ~ May 16, 2018**

Issued Date : **May 28, 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

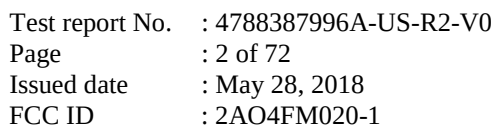


The results reported herein have been performed in accordance with the laboratory's terms of accreditation. This report shall not be reproduced except in full without the written approval of the Laboratory. The results in this report apply to the test sample(s) mentioned above at the time of the testing period only and are not to be used to indicate applicability to other similar products. This report does not imply that the product(s) has met the criteria for certification.

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Doc No: 17-EM-F0875 / 1.0



Original Test Report No.: 4788387996A-US-R2-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: Apr. 16, 2018 ~ May. 16, 2018

APPLICABLE STANDARDS	
STANDARD	Test Results
FCC 47 CFR PART 15 Subpart C (Section 15.225)	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 28, 2018

Approve By:

John Cheng
Project Engineer

Date : May 28, 2018

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2. Summary of Test Results

Summary of Test Results		
Test Items	FCC Rules	Test Result
Emission Bandwidth	FCC 15.215 (c)	PASS
Field Strength of Fundamental Emissions and Spectrum Mask	FCC 15.225 (a) ~ (d)	PASS
Transmitter Radiated Unwanted Emissions	FCC 15.209 FCC 15.225 (d)	PASS
Frequency Stability	FCC 15.225 (e)	PASS
AC Power Line Conducted Emission	FCC 15.207	PASS

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3. Test Methodology

The tests documented in this report were performed in accordance with FCC CFR 47 Part 15, KDB174176 D01 Line Conducted FAQ v01r01 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
Operating Frequency	13.56 MHz
Modulation	ASK
Normal Voltage	5Vdc (adapter or host equipment) 3.8Vdc for battery
Hardware Version	M021-PRODxx-Vx-x
Software Version	M000-TESTOS-V8-0c OS
Field Strength (dBuV/m)	68.63

6.2. 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

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6.3. Description Of Available Antennas

Antenna	Brand Name	Model Name	Antenna Type	Connector Type	Antenna Gain(dBi)
N/A	N/A	N/A	N/A	N/A	N/A

6.4. Operating Mode and Worst Case of EUT

Co-location

Test item	Mode	Modulation Technology	Test Channel
Radiated Emissions (Above 1GHz)	802.11b+NFC	DSSS+ASK	802.11b : 11 NFC : 1
	BT EDR+NFC	GFSK+ASK	BT EDR : 78 NFC : 1
Radiated Emissions (Below 1GHz)	802.11b+NFC	DSSS+ASK	802.11b : 11 NFC : 1
	BT EDR+NFC	GFSK+ASK	BT EDR : 78 NFC : 1
Power Line Conducted Emission	802.11b+NFC	DSSS+ASK	802.11b : 11 NFC : 1
	BT EDR+NFC	GFSK+ASK	BT EDR : 78 NFC : 1

Note:

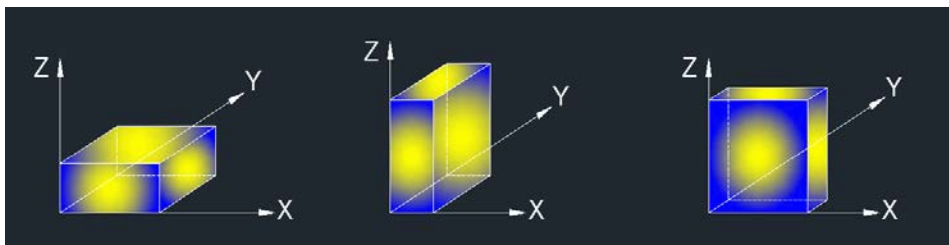
1. Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
2. For below 1 GHz radiated emission, 1 GHz to 18GHz radiated emission, above 18GHz radiated emissions 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.

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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 Z axis were worst-case . Therefore, all final radiated testing was performed with the EUT in Z axis.

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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
Signal Generator	Keysight	N5182B	MY56200244	Jan. 8, 2018	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
Four-Line V-Network	Rohde & Schwarz	ENV432	101298	Dec. 7, 2017	1 year
RF Cable-CON	Huber+Suhner	RG214/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

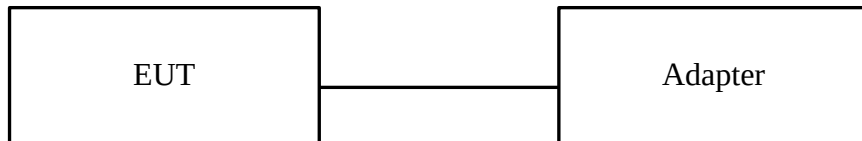
Accessory

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. Emission Bandwidth

Requirements

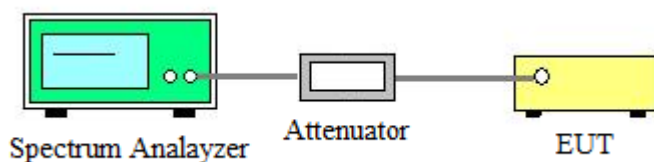
N/A.

Test procedure

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	1kHz
VBW	approximately $3 \times \text{RBW}$
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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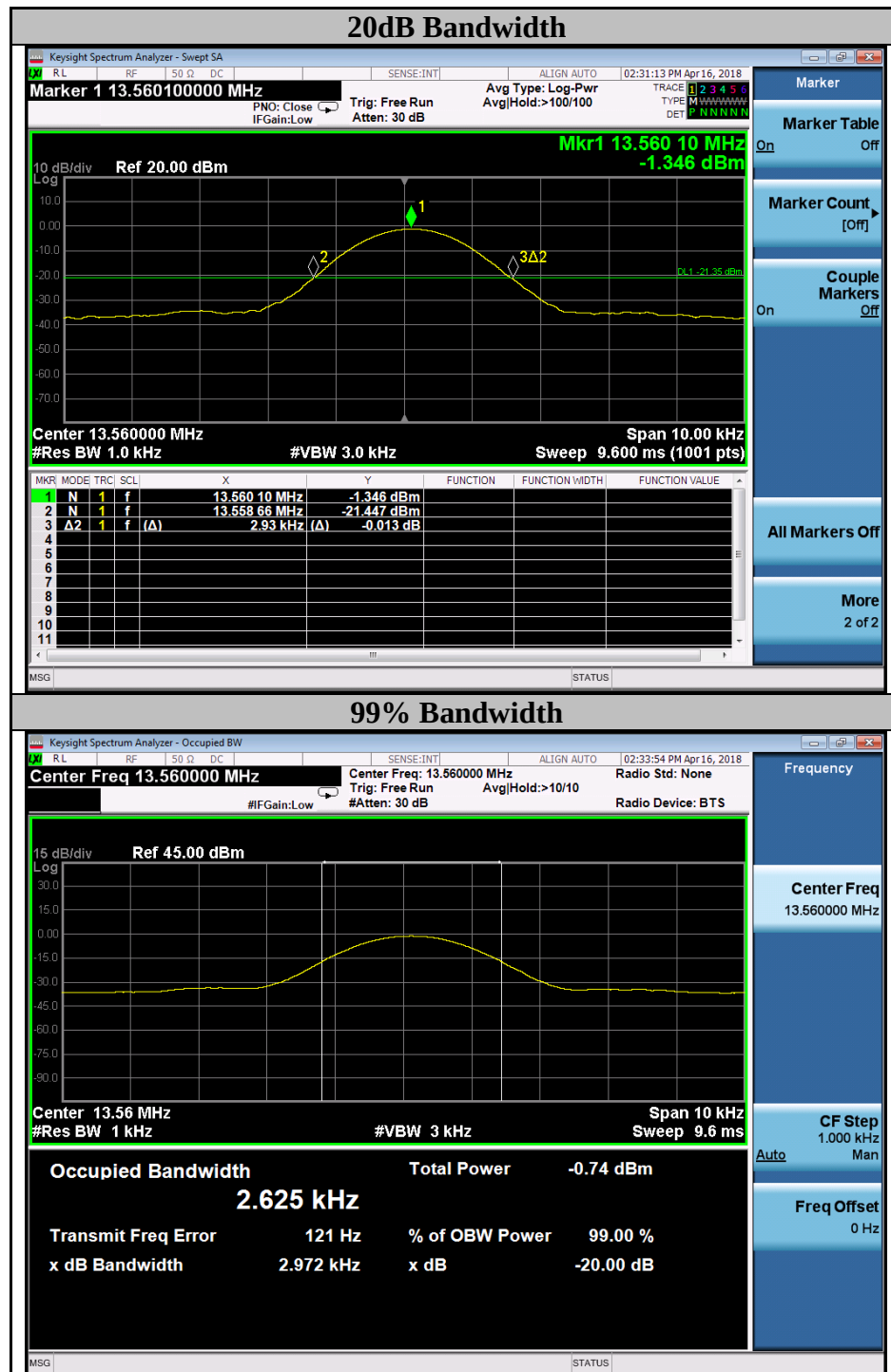
Test Data

Mode	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
NFC	13.56	2.93	2.625

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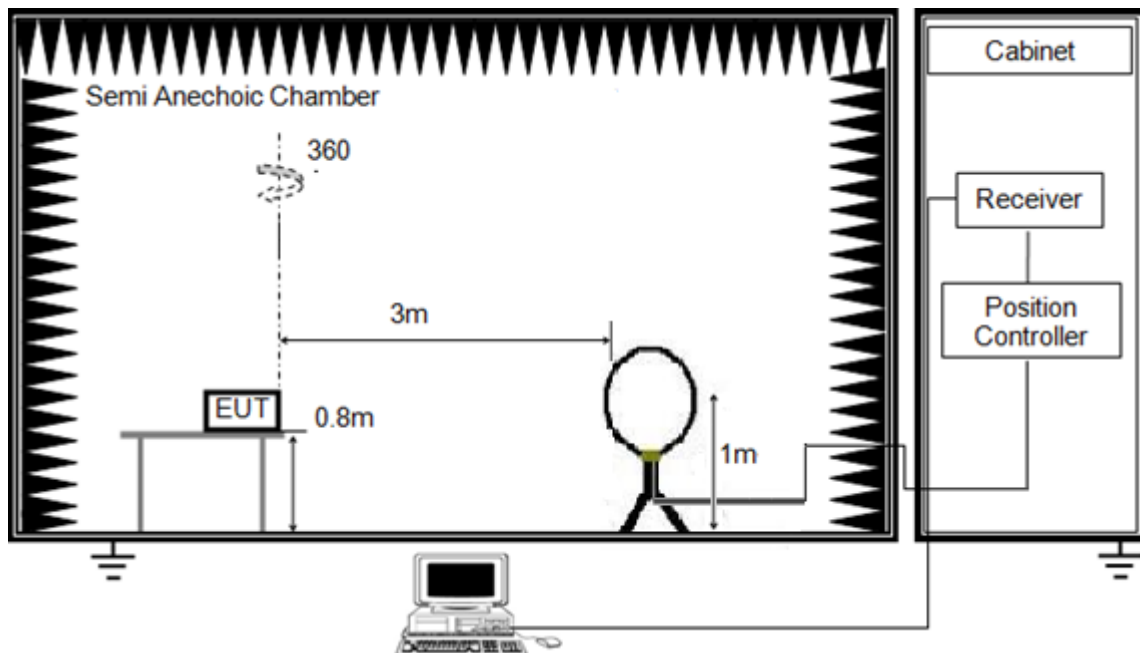
9.2. Field Strength of Fundamental Emissions and Spectrum Mask

Requirements

§ 15.225

- (a) The field strength of any emissions within the band 13.553-13.567 MHz shall not exceed 15,848 microvolts/meter at 30meters.
- (b) Within the bands 13.410-13.553 MHz and 13.567-13.710 MHz, the field strength of any emissions shall not exceed 334 microvolts/meter at 30 meters.
- (c) Within the bands 13.110-13.410 MHz and 13.710-14.010 MHz the field strength of any emissions shall not exceed 106microvolts/meter at 30 meters.

Test Procedure



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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 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)
- If peak Result complies with AV limit, AV Result is deemed to comply with AV limit.

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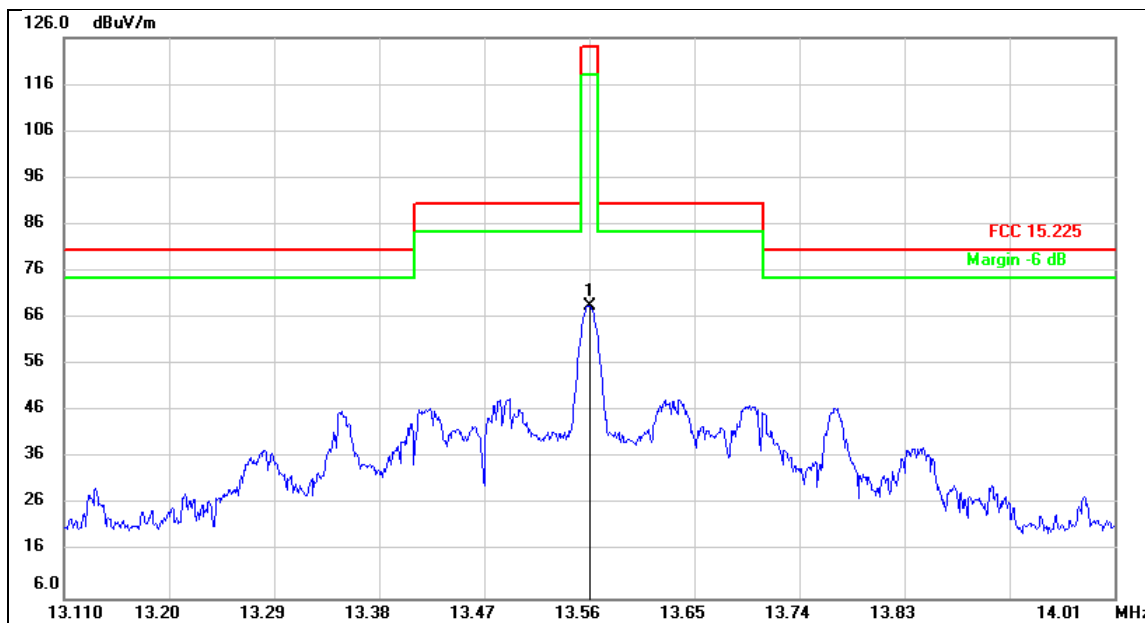
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Test Data

Spectrum Mask 0 Degree



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13.5601	57.18	11.45	68.63	124.00	-55.37	peak

Note :

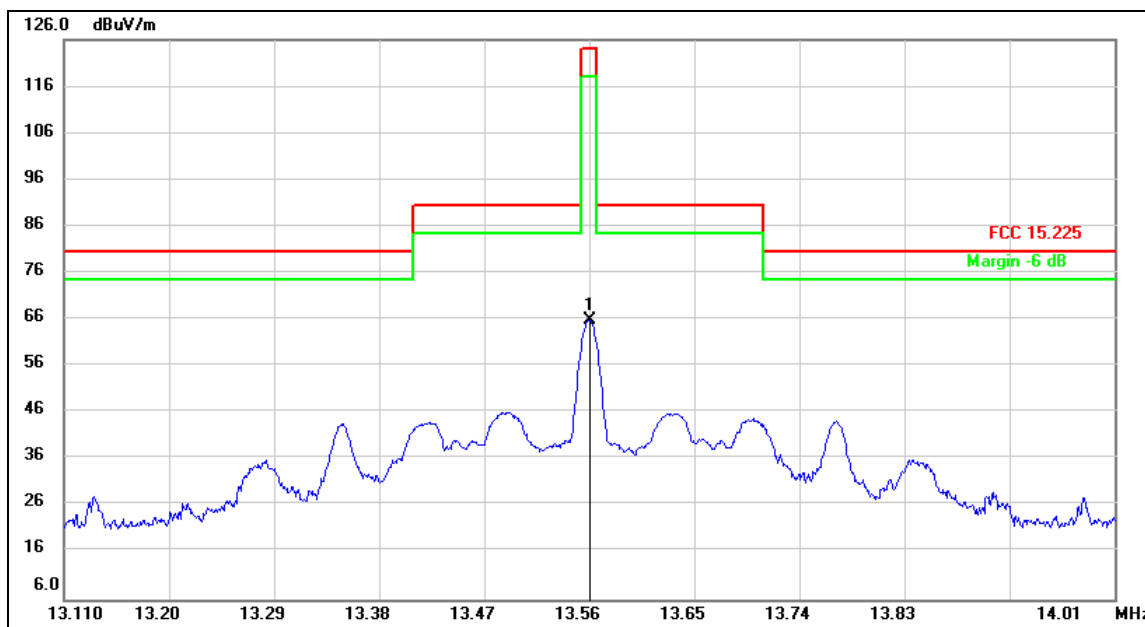
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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Spectrum Mask 90 Degree



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	13.5601	54.35	11.45	65.80	124.00	-58.20	peak

Note :

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

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9.3. Transmitter Radiated Unwanted Emissions

Requirements

§ 15.225

(d) The field strength of any emissions appearing outside of the 13.110-14.010 MHz band shall not exceed the general radiated emission limits in §15.209.

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

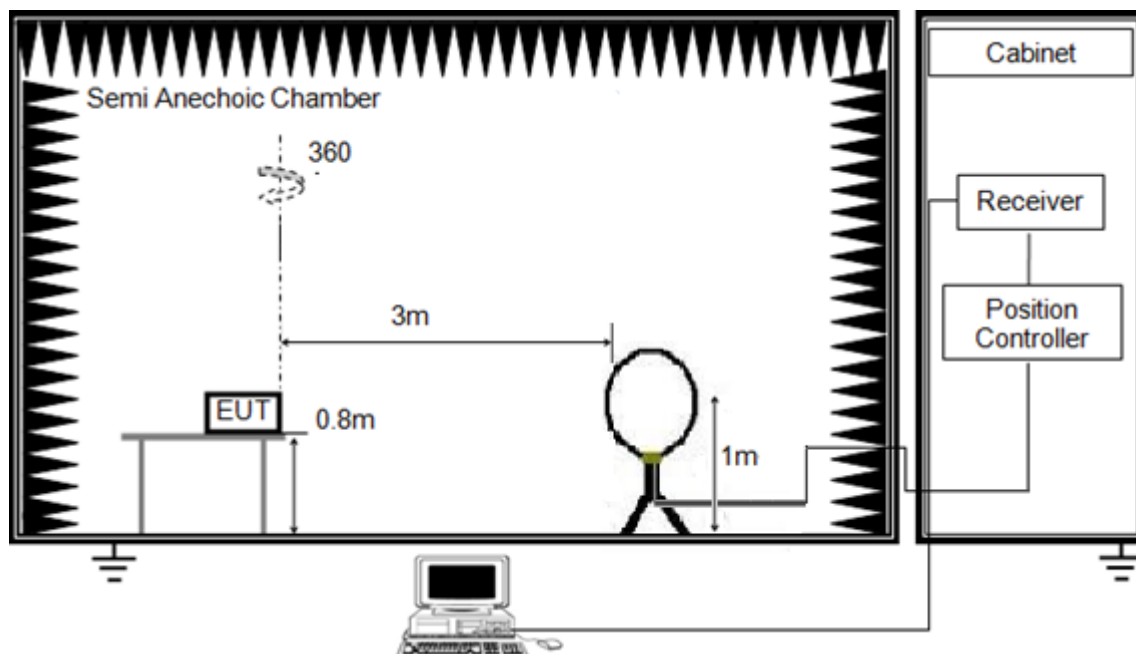
**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

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Test procedure

[For below 30 MHz]



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The setting of the spectrum analyzer

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 KHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 KHz (From 0.15 MHz to 30 MHz)
Sweep	Auto
Detector	Peak/QP/Average
Trace	Max hold

Note:

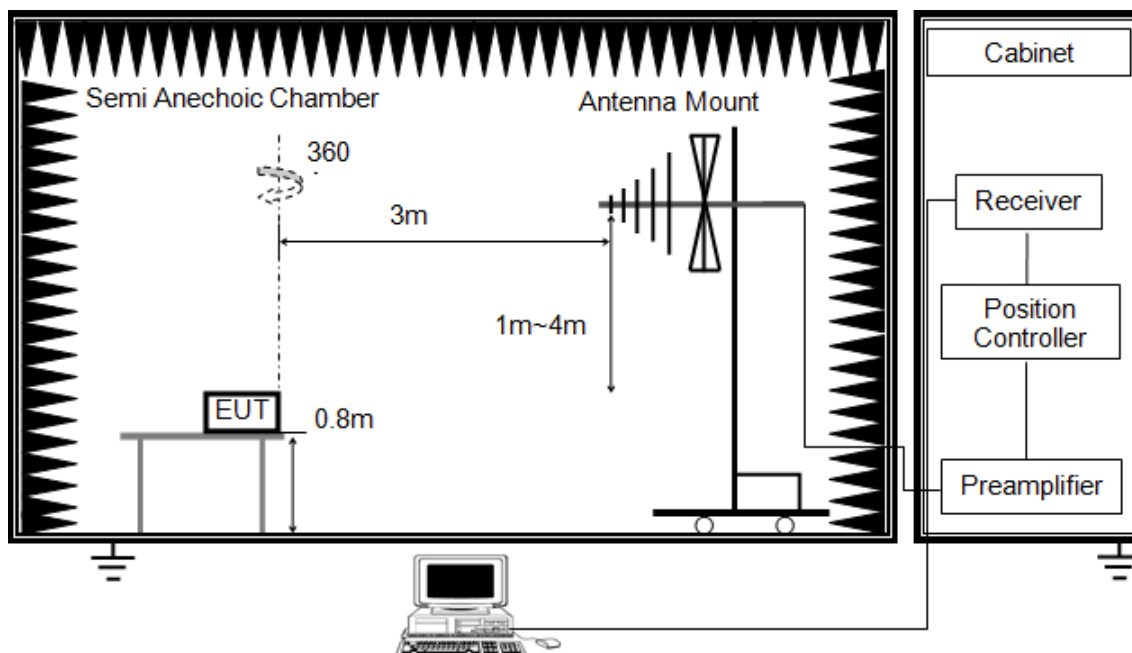
- The testing follows the guidelines in ANSI C63.10-2013
- The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations 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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[For below 1 GHz]



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The setting of the spectrum analyzer:

RBW	120 KHz
VBW	300 KHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

Note:

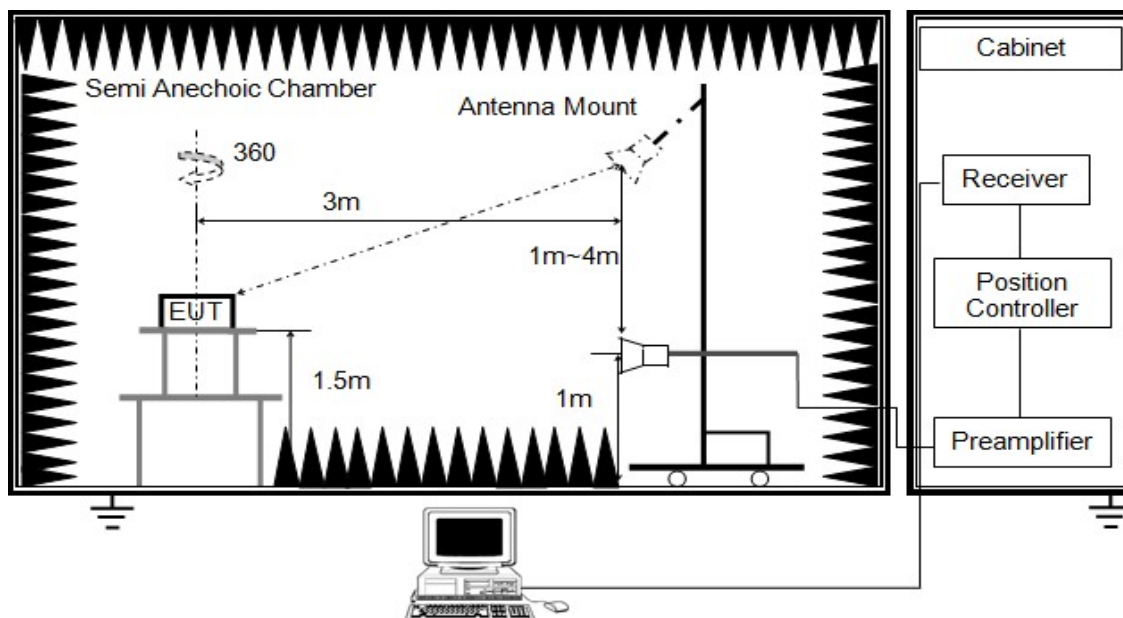
- The testing follows the guidelines in ANSI C63.10-2013.
- The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better 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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[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.

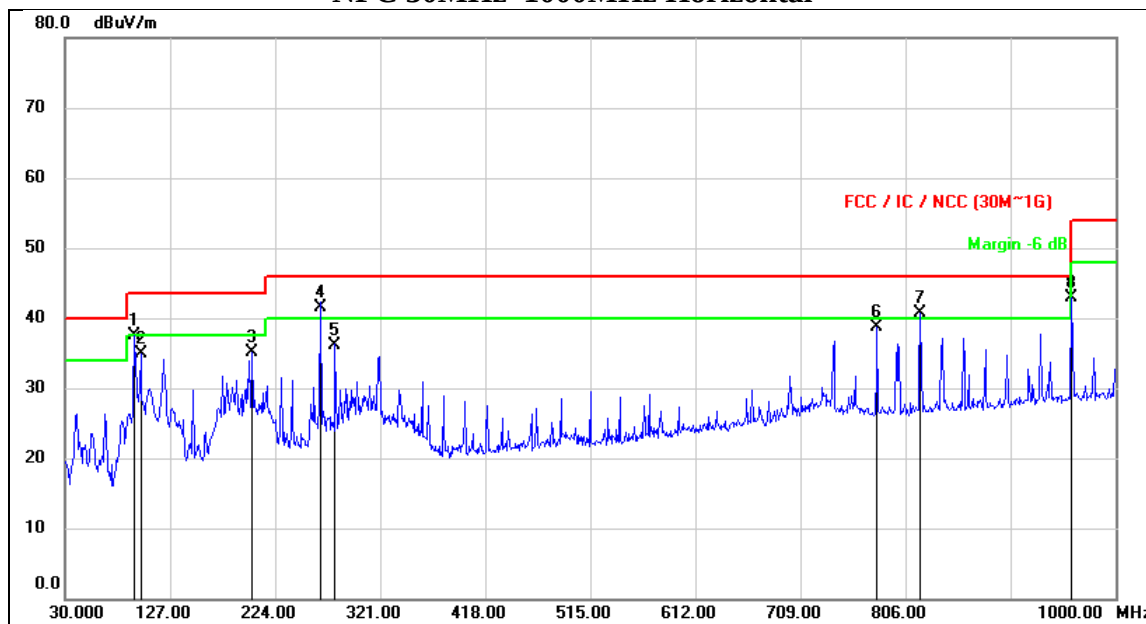
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Test Data

NFC 30MHz~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	55.44	-20.56	34.88	43.50	-8.62	peak
3	203.4037	53.11	-18.00	35.11	43.50	-8.39	peak
4	266.0333	57.35	-15.78	41.57	46.00	-4.43	QP
5	280.0013	51.25	-15.05	36.20	46.00	-9.80	peak
6	780.0687	43.32	-4.70	38.62	46.00	-7.38	peak
7	820.0973	45.01	-4.27	40.74	46.00	-5.26	peak
8	960.1007	44.93	-2.03	42.90	54.00	-11.10	peak

Note :

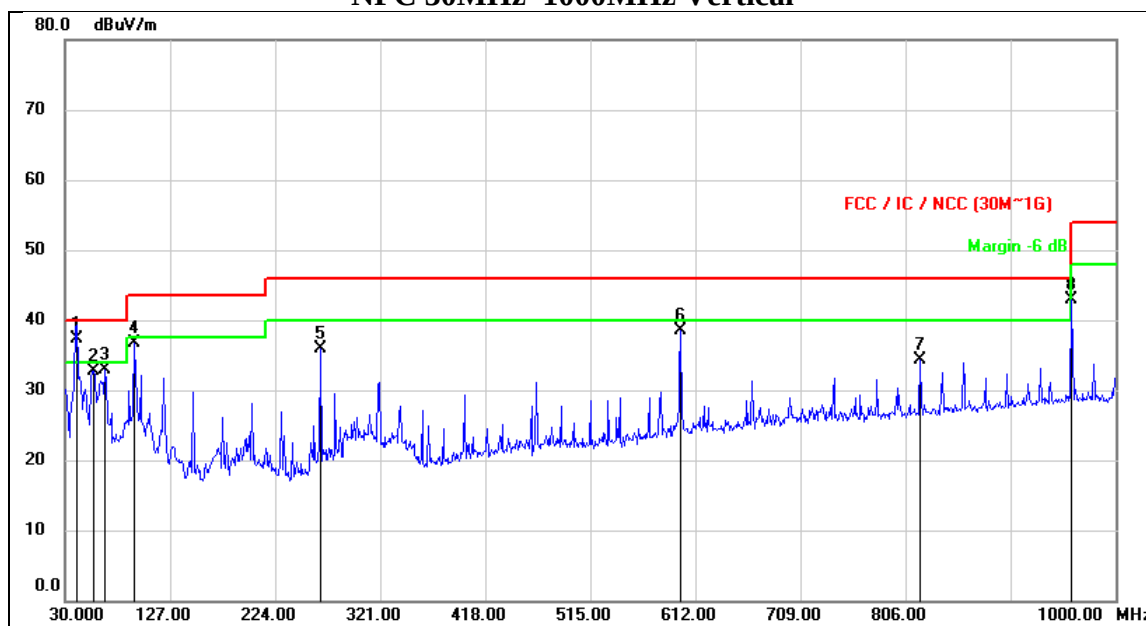
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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NFC 30MHz~1000MHz Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	40.6699	52.95	-15.72	37.23	40.00	-2.77	QP
2	56.3840	48.45	-15.65	32.80	40.00	-7.20	peak
3	67.7977	50.21	-17.38	32.83	40.00	-7.17	peak
4	94.8930	57.74	-21.09	36.65	43.50	-6.85	peak
5	266.0010	51.66	-15.78	35.88	46.00	-10.12	peak
6	598.5817	45.93	-7.46	38.47	46.00	-7.53	peak
7	820.0973	38.51	-4.27	34.24	46.00	-11.76	peak
8	960.1007	45.00	-2.03	42.97	54.00	-11.03	peak

Note :

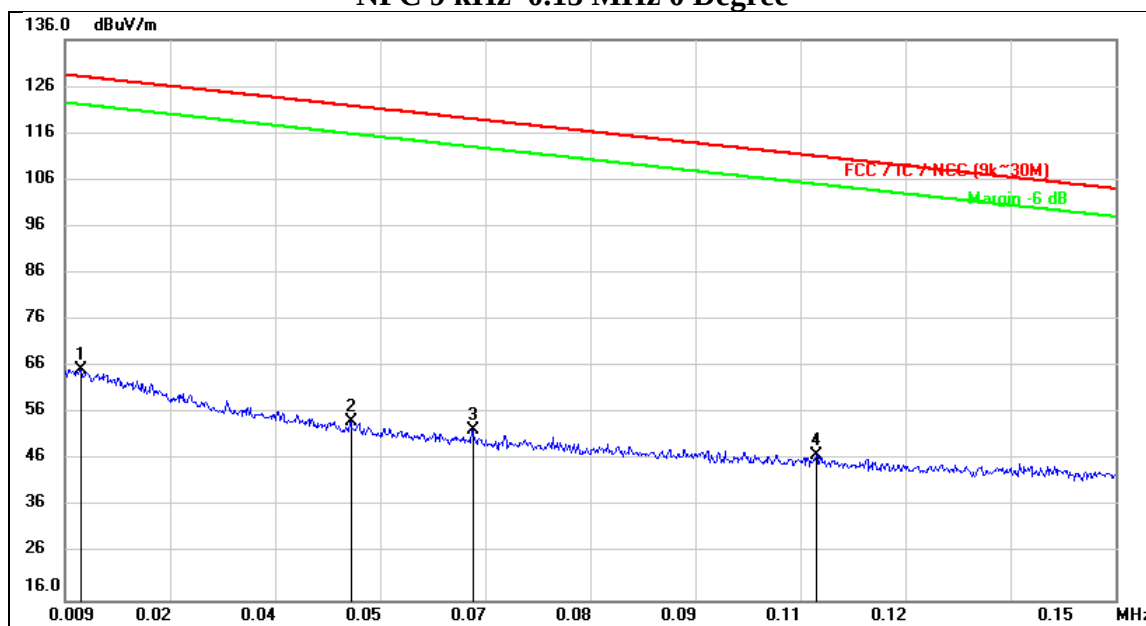
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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NFC 9 kHz~0.15 MHz 0 Degree



No.	Frequency (KHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0111	46.14	19.32	65.46	128.12	-62.66	peak
2	0.0474	41.40	12.84	54.24	121.84	-67.60	peak
3	0.0637	39.99	12.45	52.44	119.03	-66.59	peak
4	0.1100	35.01	11.94	46.95	111.02	-64.07	peak

Note :

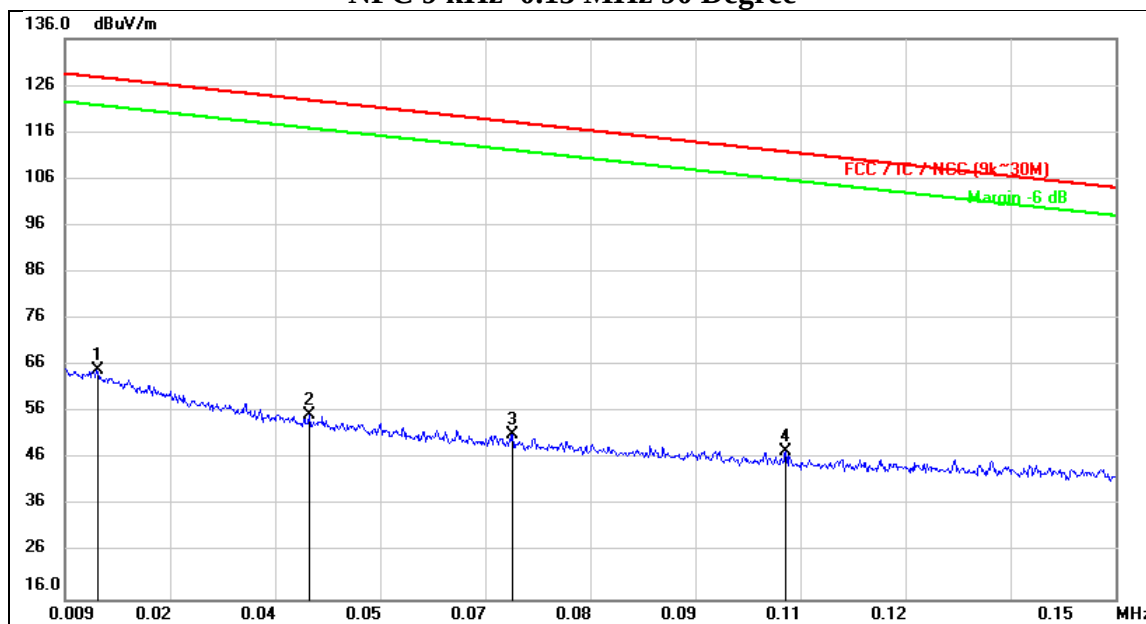
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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NFC 9 kHz~0.15 MHz 90 Degree



No.	Frequency (KHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.0134	46.42	18.70	65.12	127.74	-62.62	peak
2	0.0419	42.23	13.29	55.52	122.81	-67.29	peak
3	0.0691	38.86	12.38	51.24	118.10	-66.86	peak
4	0.1057	35.68	11.96	47.64	111.77	-64.13	peak

Note :

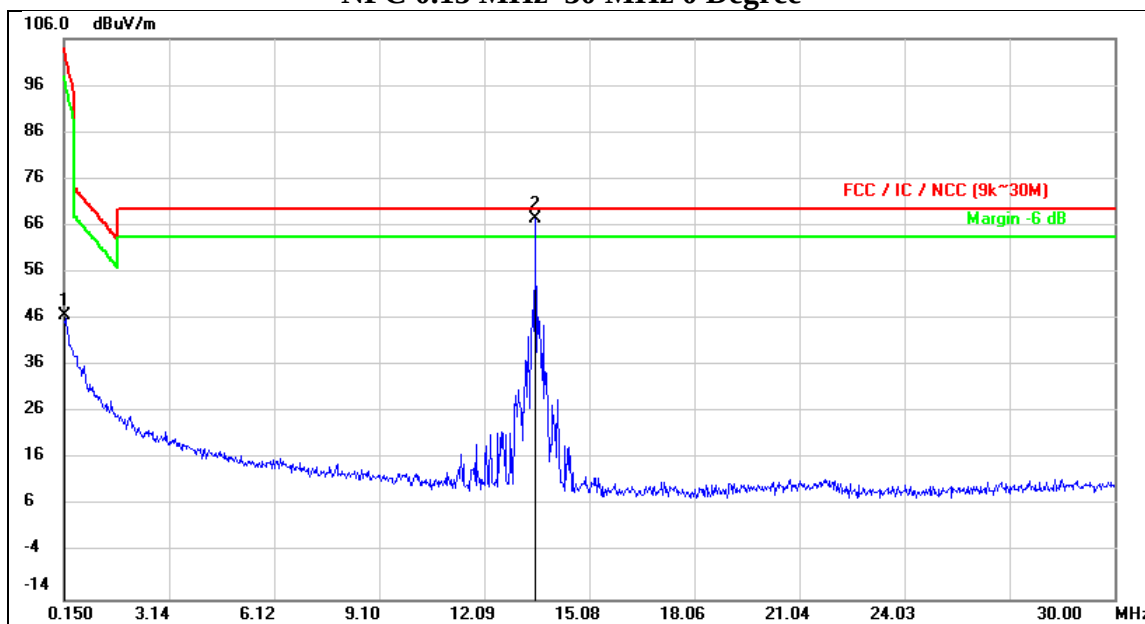
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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NFC 0.15 MHz~30 MHz 0 Degree



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1688	34.98	11.80	46.78	103.53	-56.75	peak
2	13.5606	55.92	11.45	67.37	-	-	peak

Note :

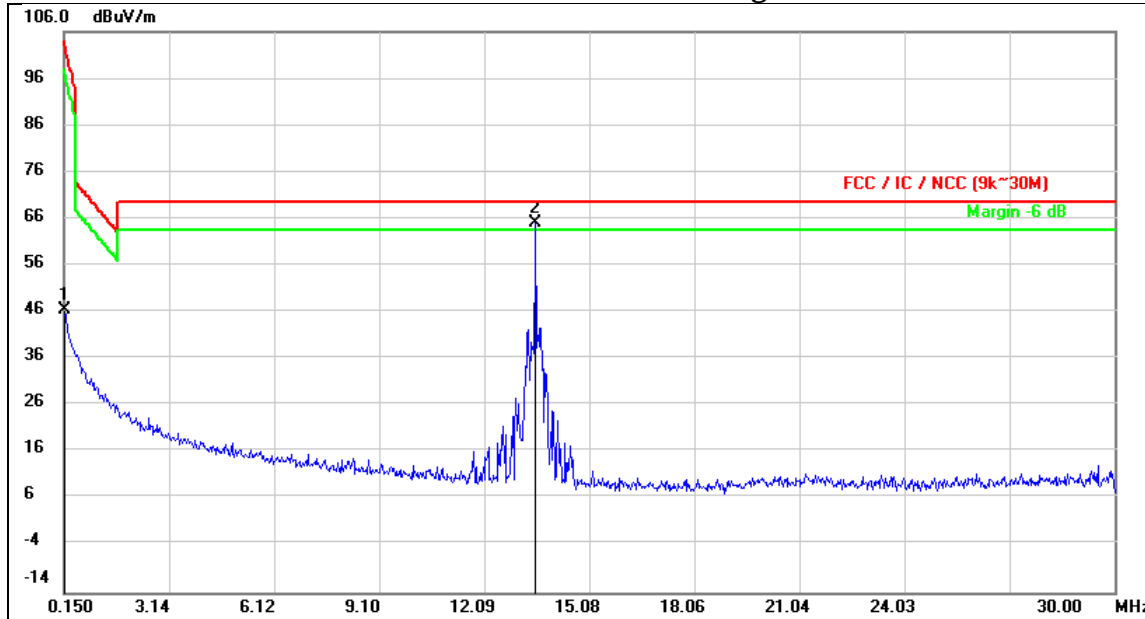
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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NFC 0.15 MHz~30 MHz 90 Degree



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	0.1508	34.74	11.81	46.55	104.08	-57.53	peak
2	13.5606	53.58	11.45	65.03	-	-	peak

Note :

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

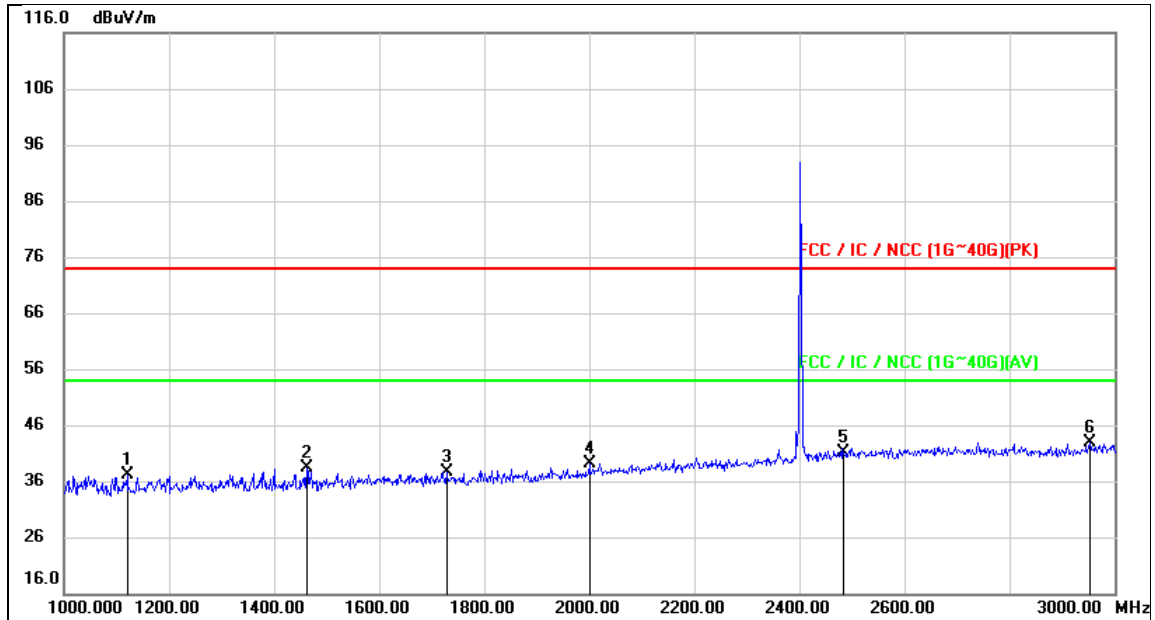
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Co-location (WIFI + NFC)

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

Note :

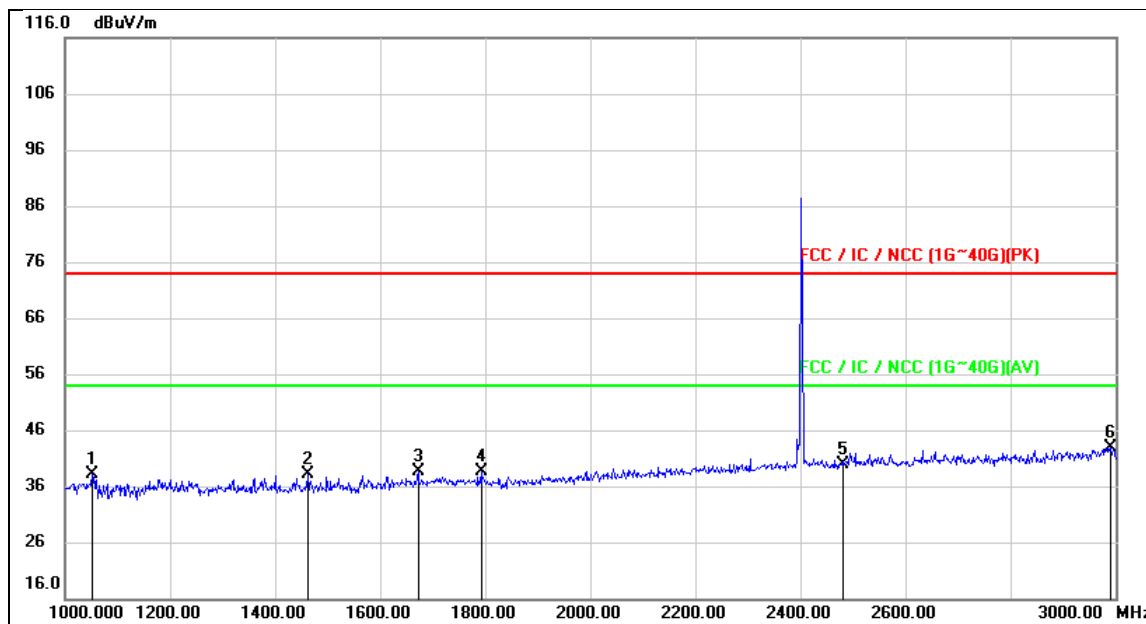
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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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

Note :

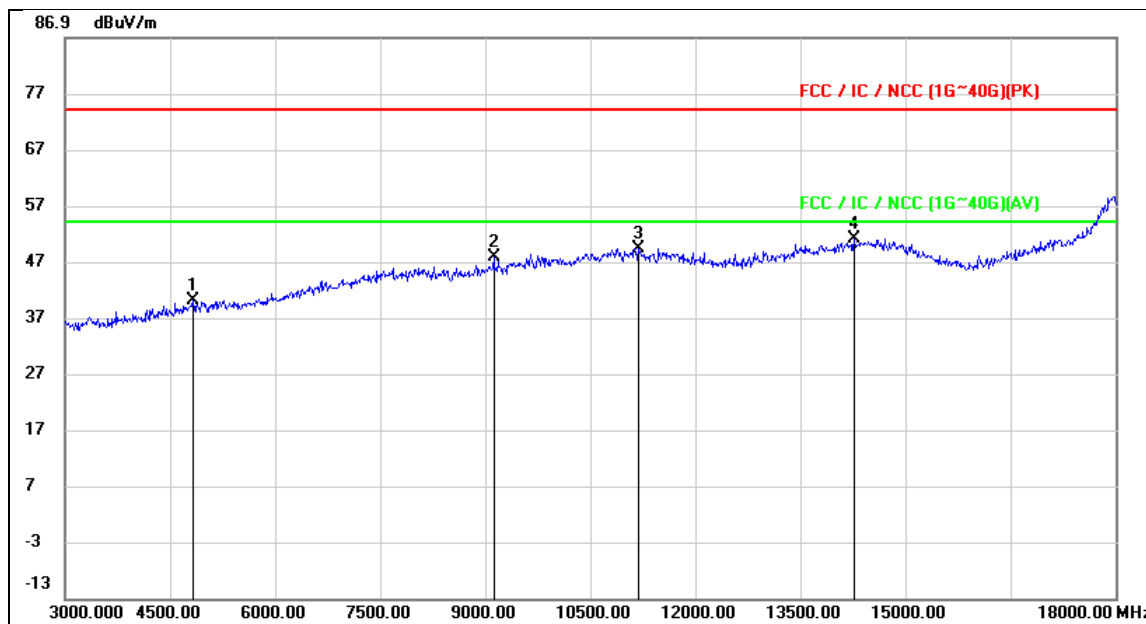
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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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

Note :

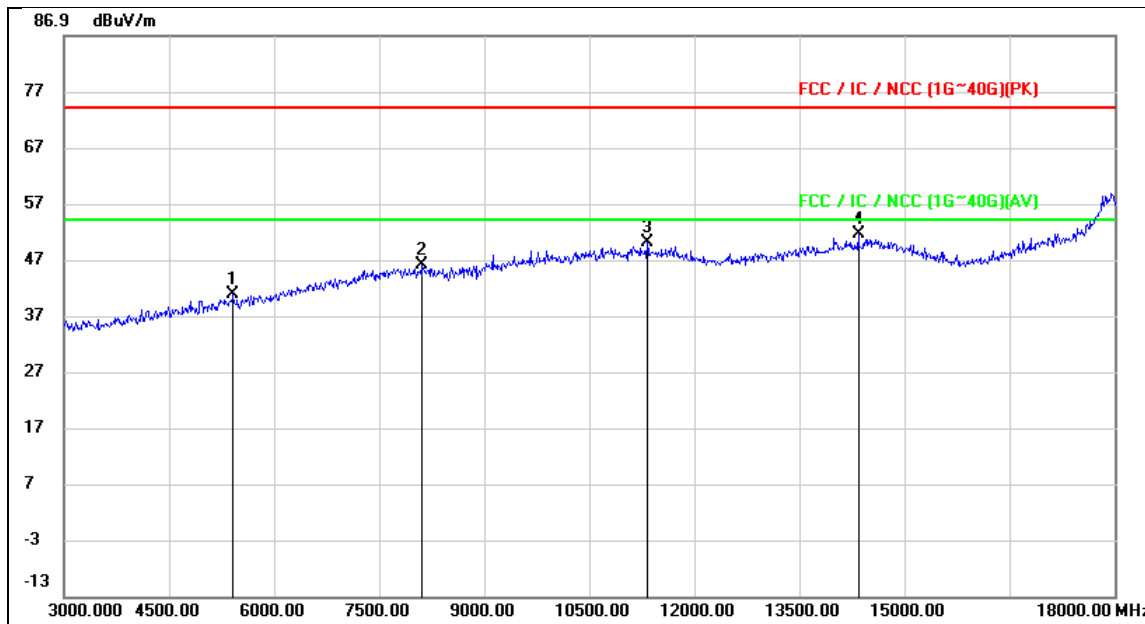
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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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

Note :

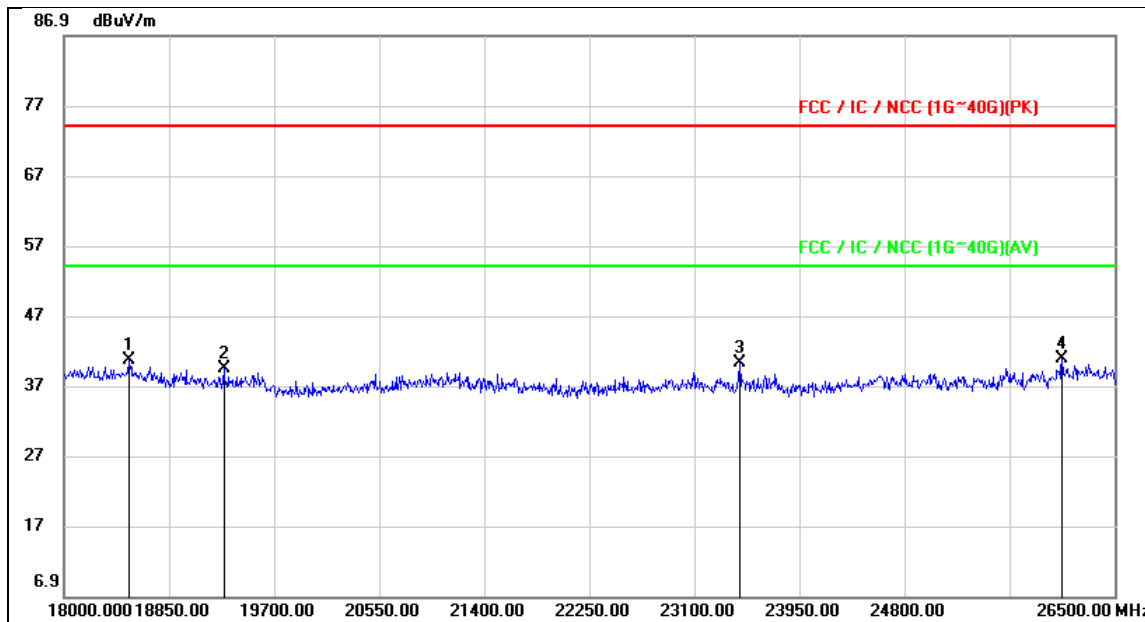
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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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

Note :

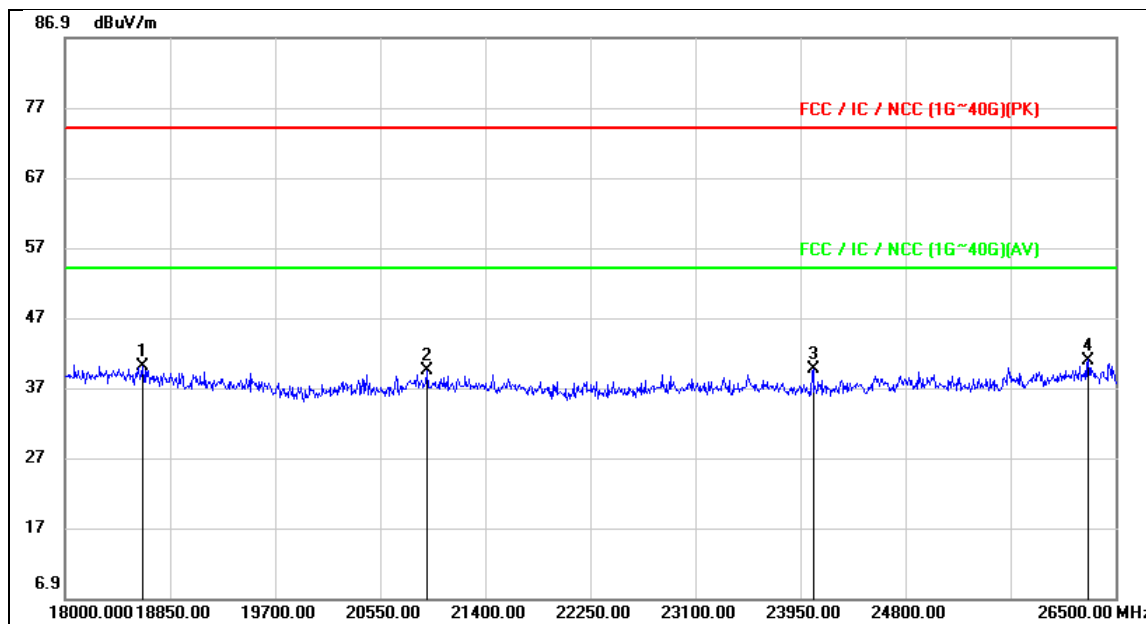
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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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

Note :

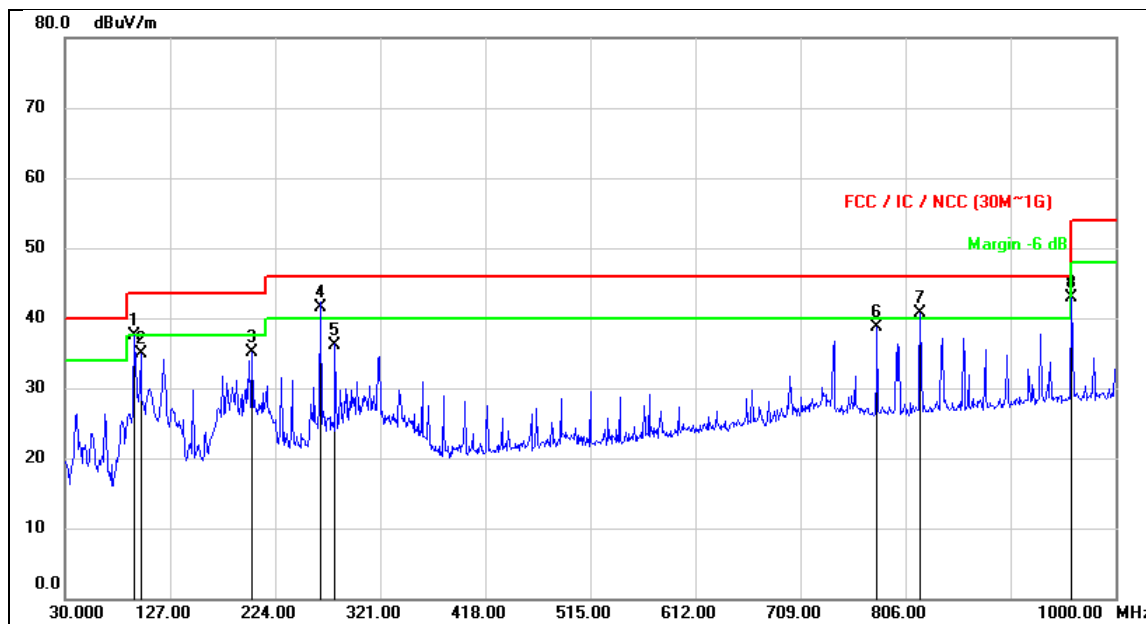
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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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	55.44	-20.56	34.88	43.50	-8.62	peak
3	203.4037	53.11	-18.00	35.11	43.50	-8.39	peak
4	266.0333	57.35	-15.78	41.57	46.00	-4.43	QP
5	280.0013	51.25	-15.05	36.20	46.00	-9.80	peak
6	780.0687	43.32	-4.70	38.62	46.00	-7.38	peak
7	820.0973	45.01	-4.27	40.74	46.00	-5.26	peak
8	960.1007	44.93	-2.03	42.90	54.00	-11.10	peak

Note :

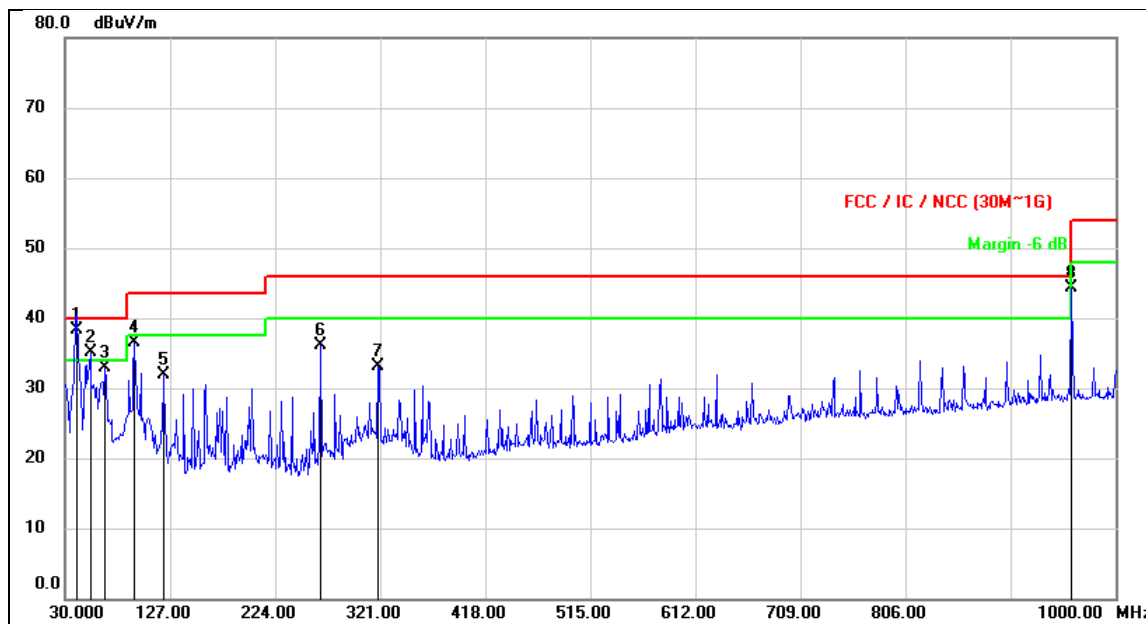
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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Spurious Emission 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

Note :

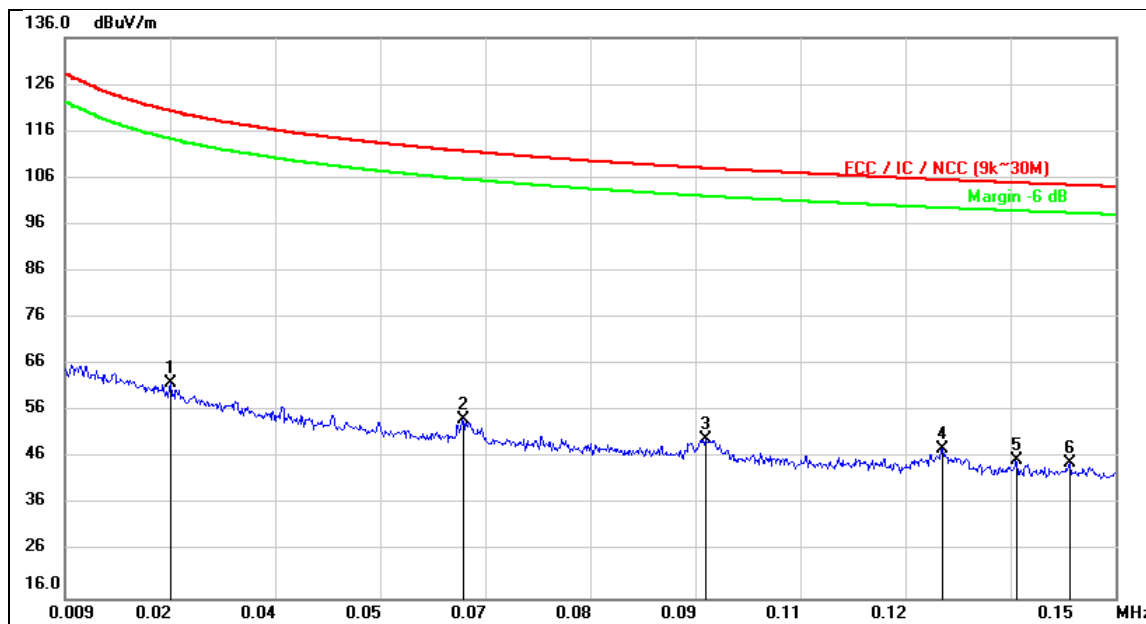
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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Spurious Emission Worst case 9-150kHz 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

Note :

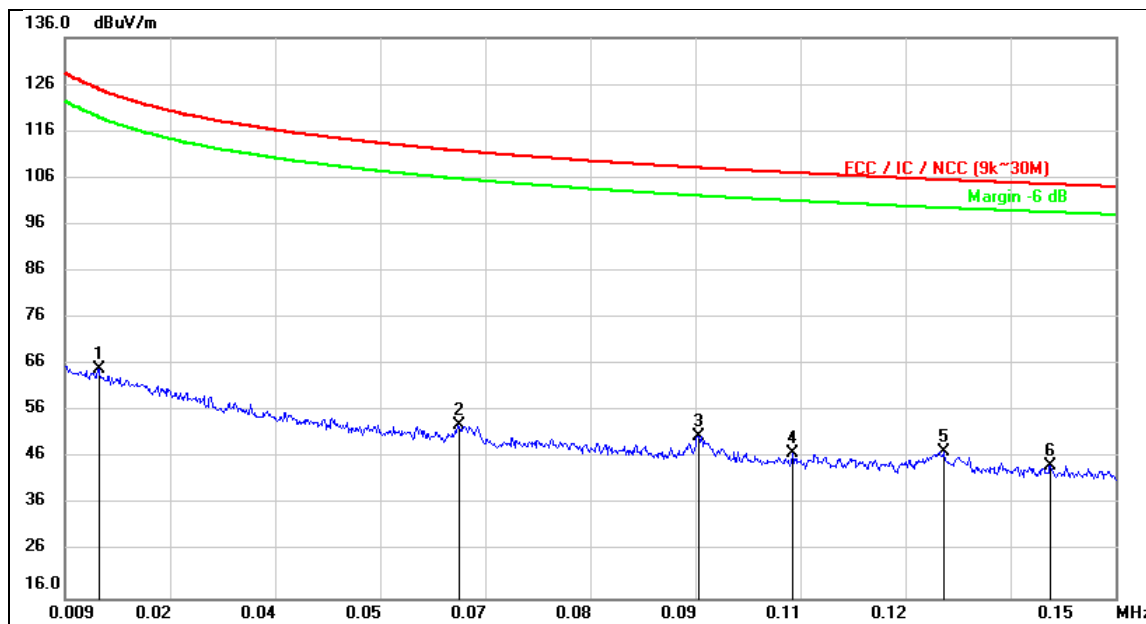
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement 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	0.0135	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

Note :

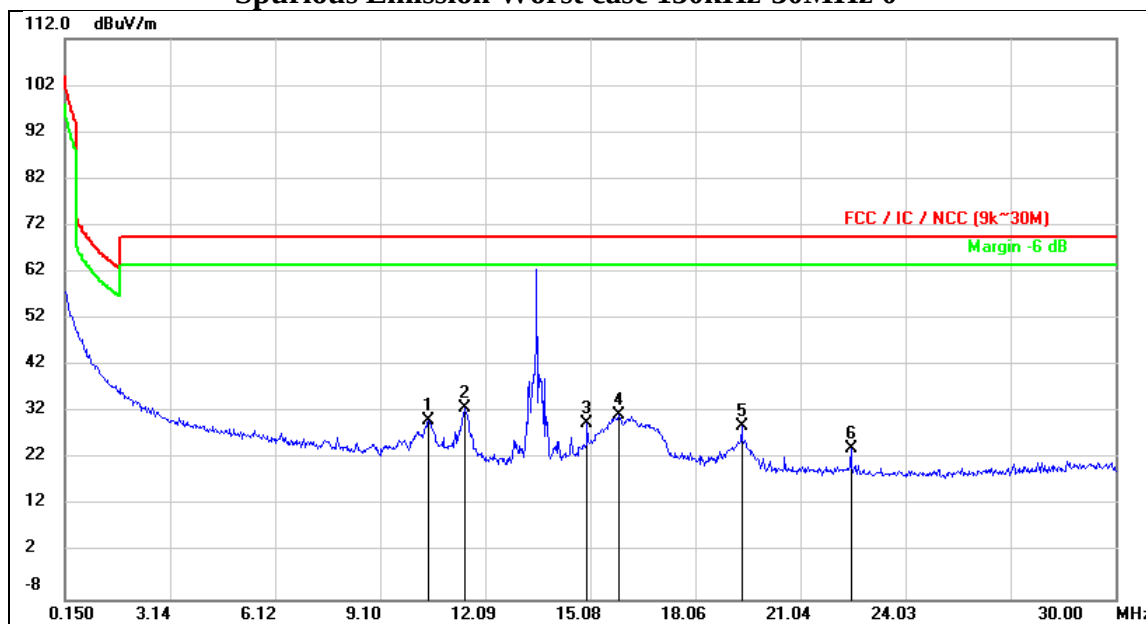
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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Spurious Emission Worst case 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

Note :

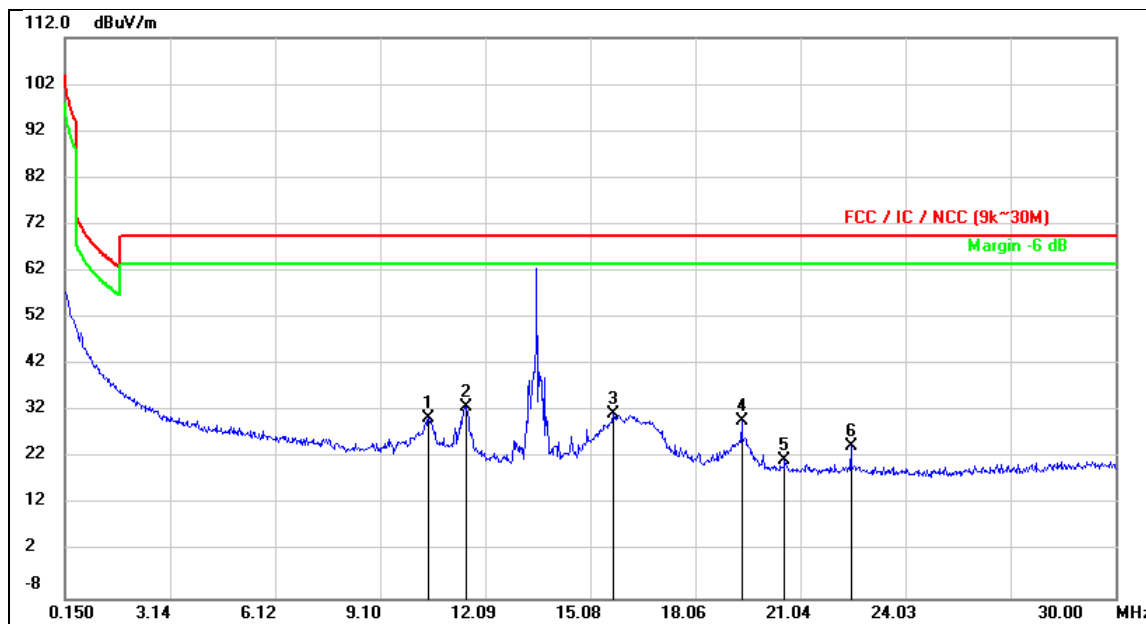
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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Spurious Emission Worst case 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

Note :

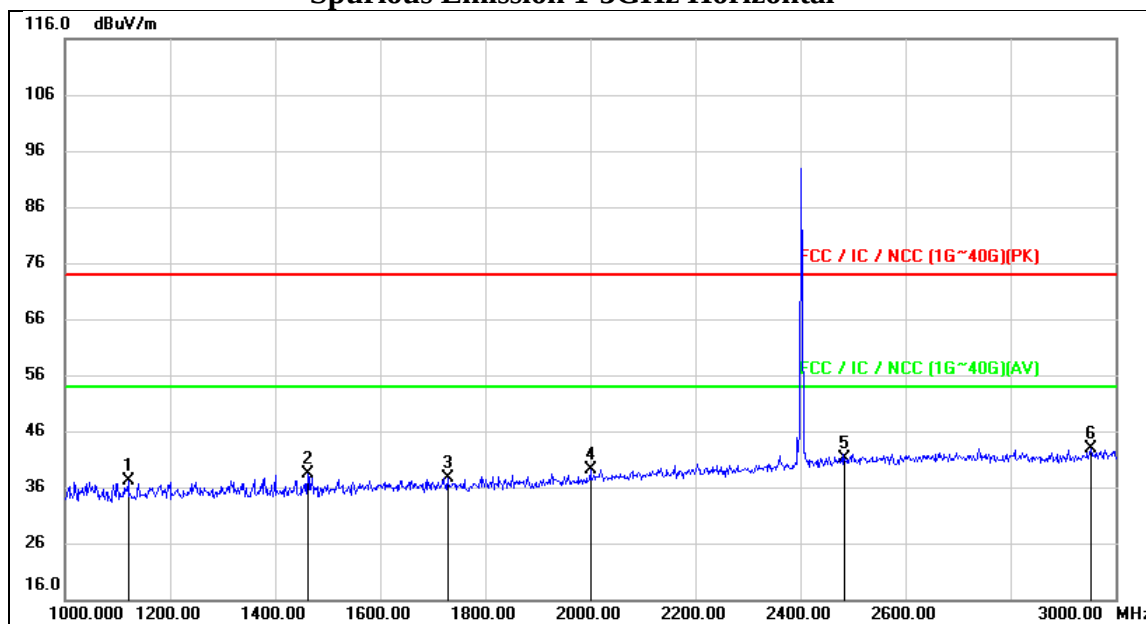
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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**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

Note :

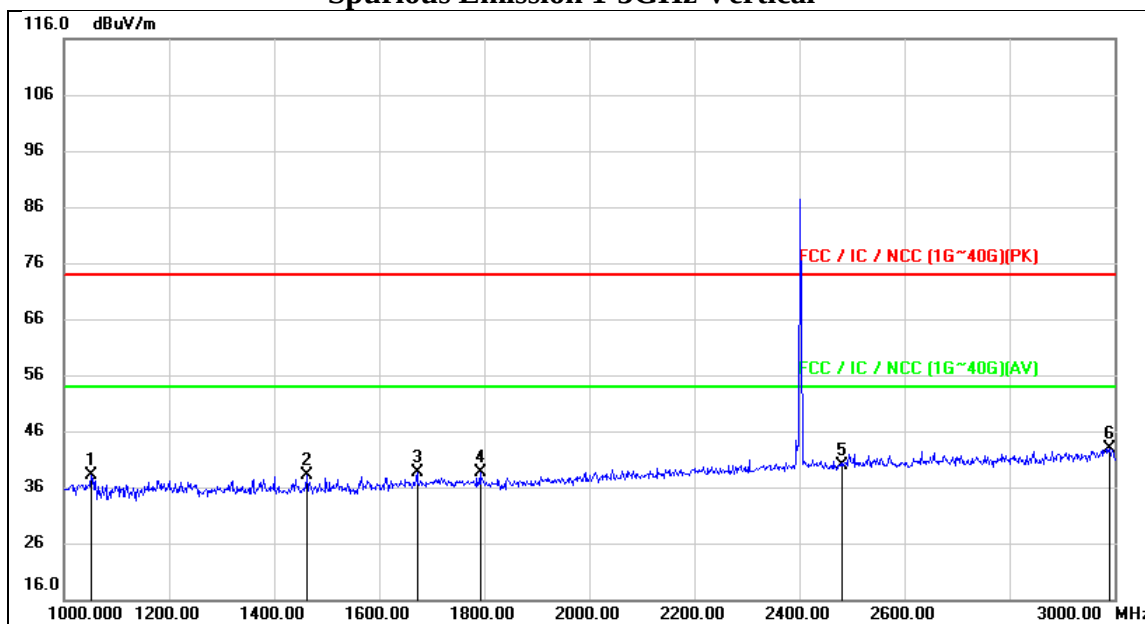
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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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

Note :

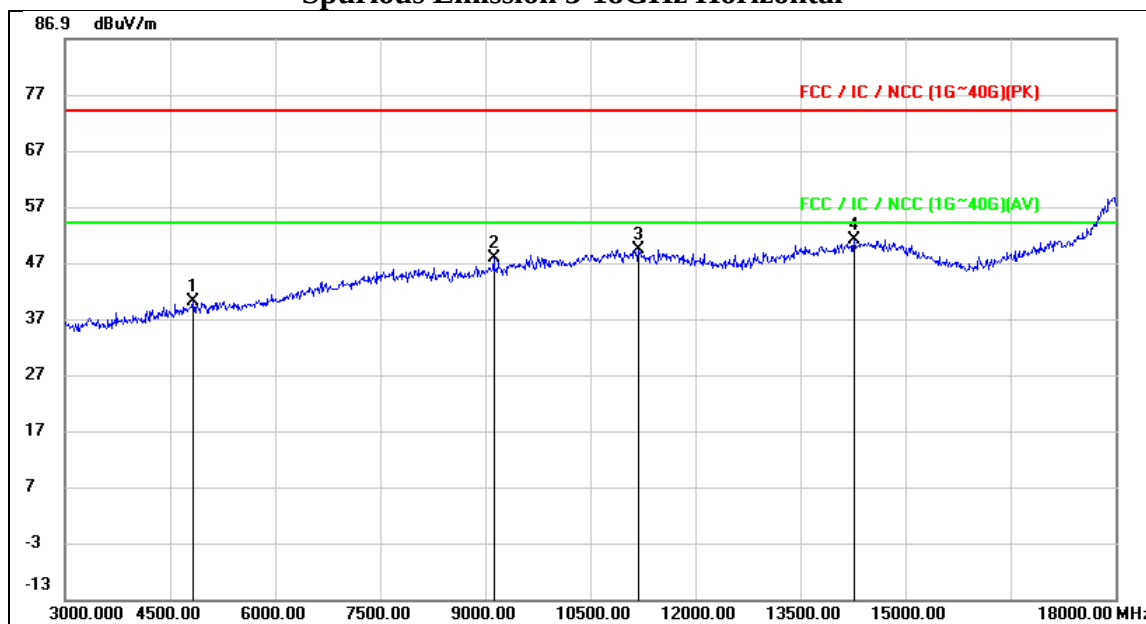
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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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

Note :

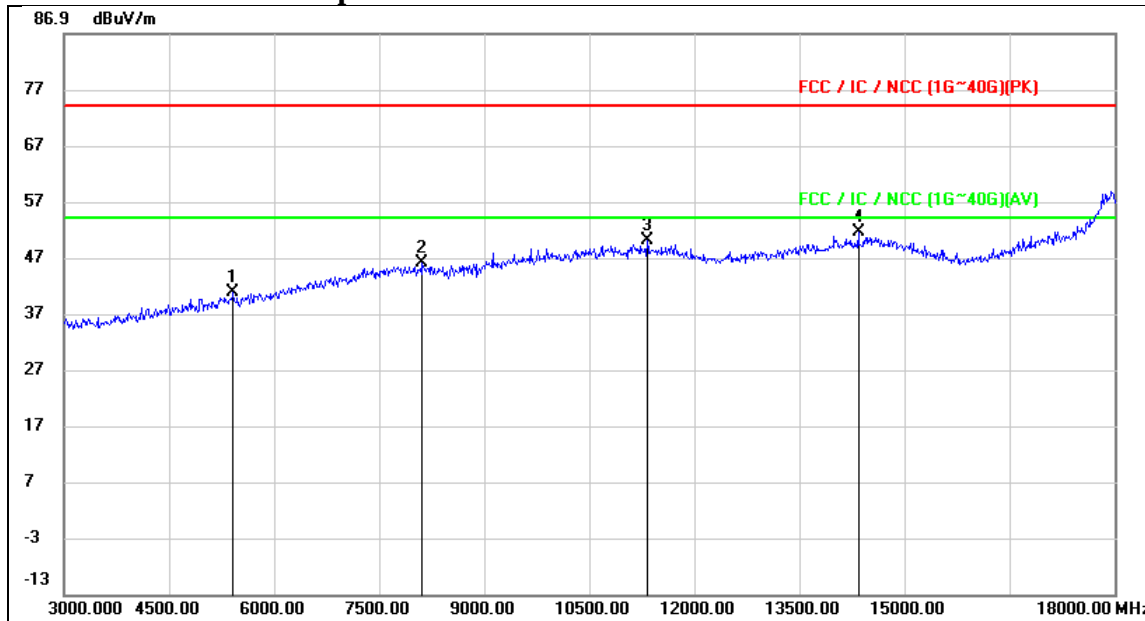
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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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

Note :

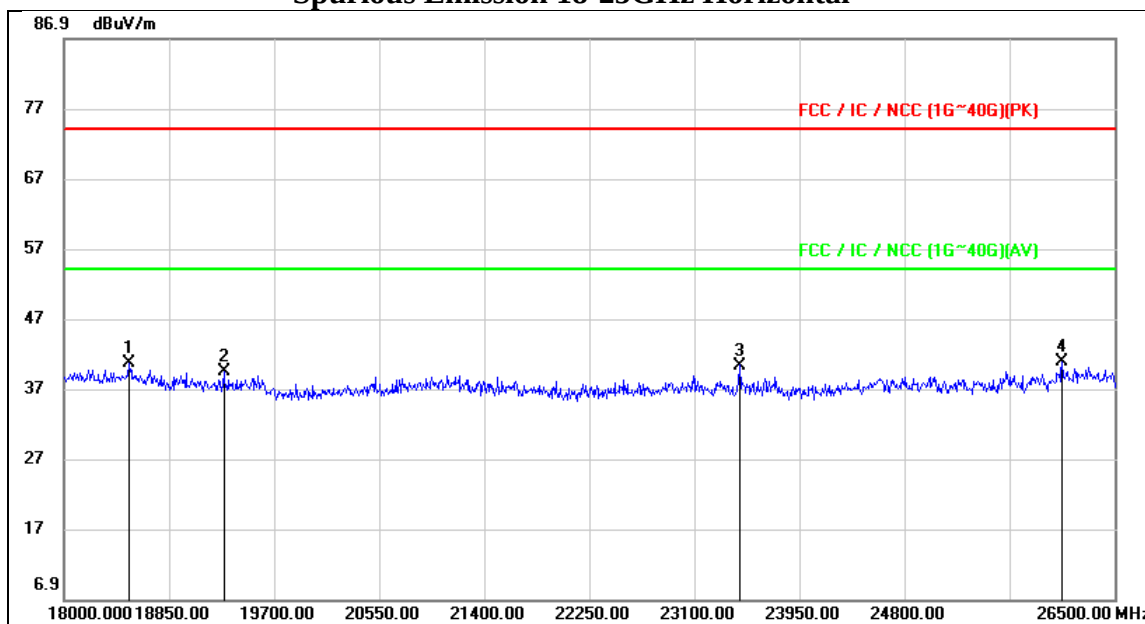
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. The signal trace which over average limit is background noise.

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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

Note :

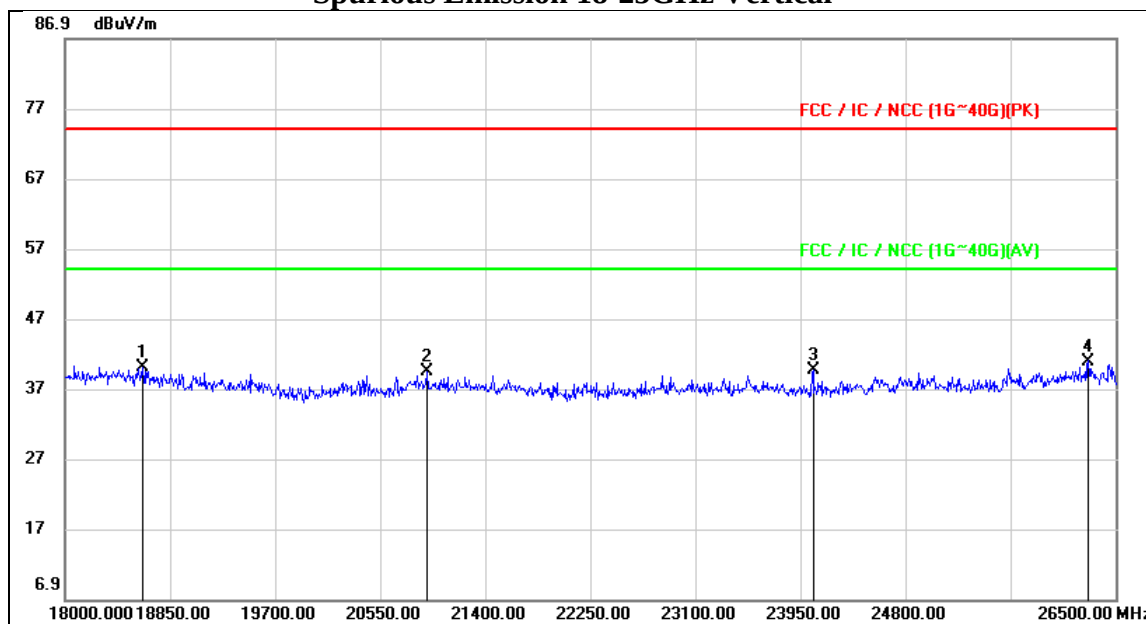
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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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

Note :

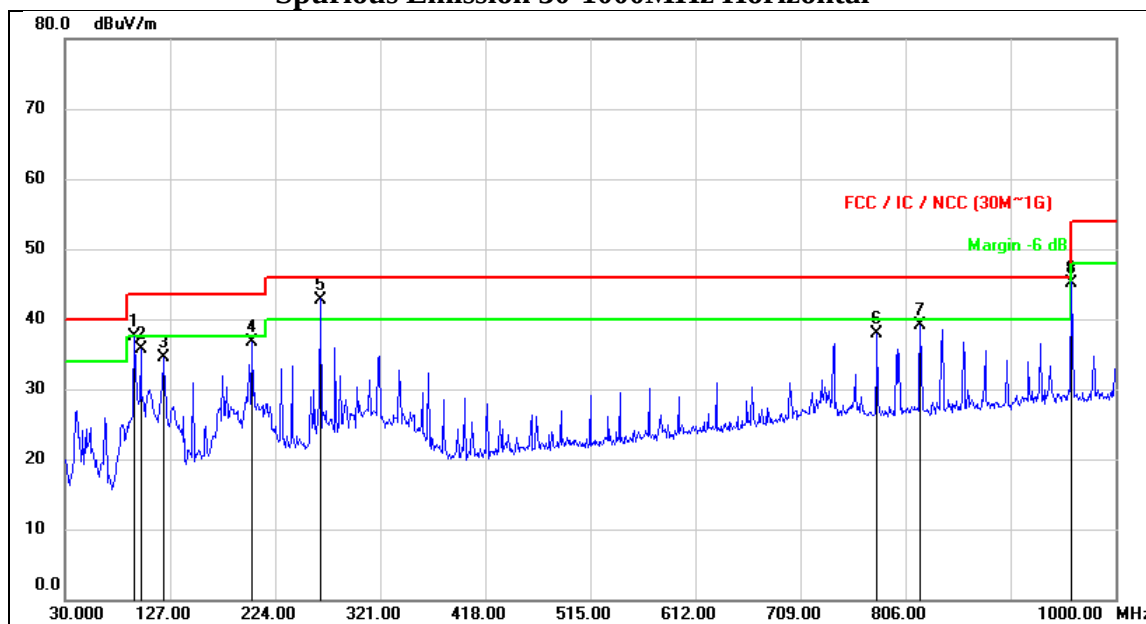
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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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

Note :

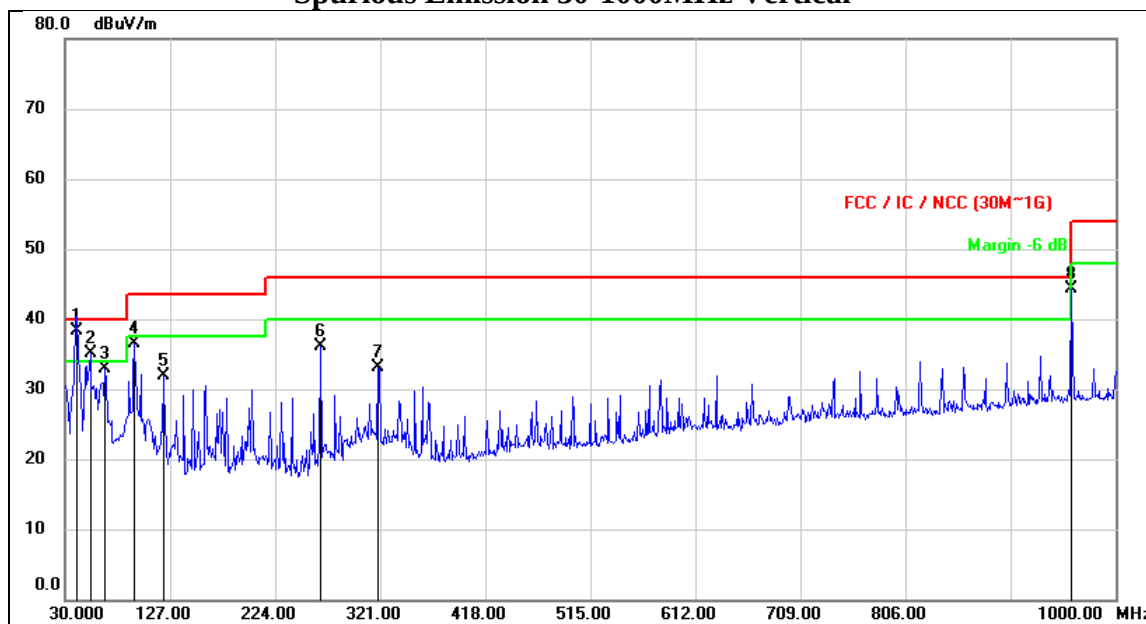
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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Spurious Emission 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

Note :

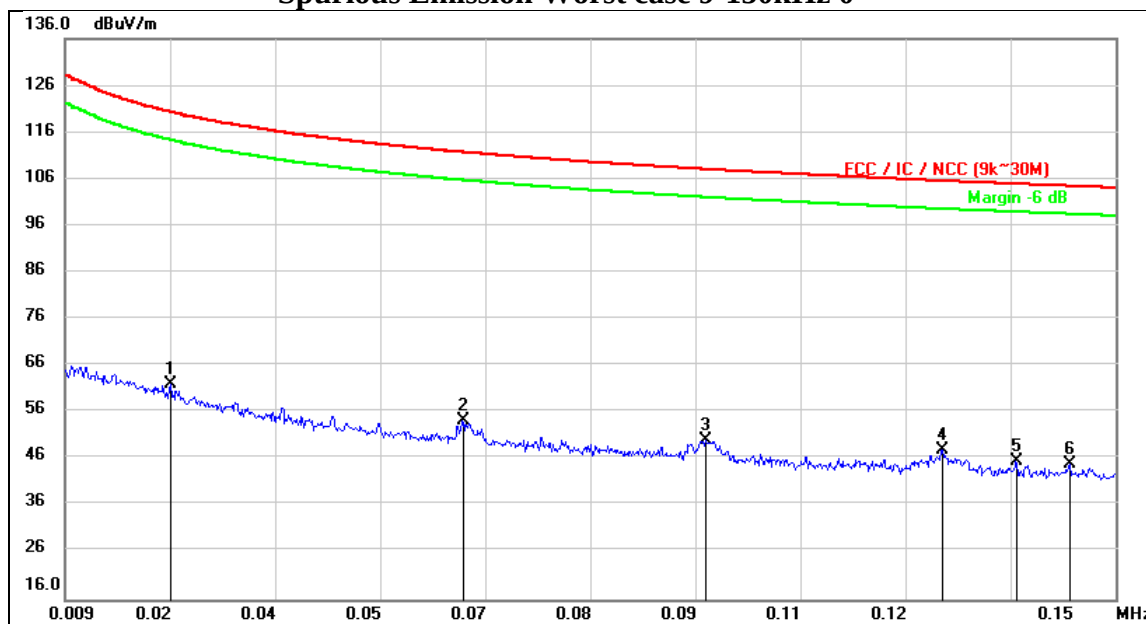
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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Spurious Emission Worst case 9-150kHz 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

Note :

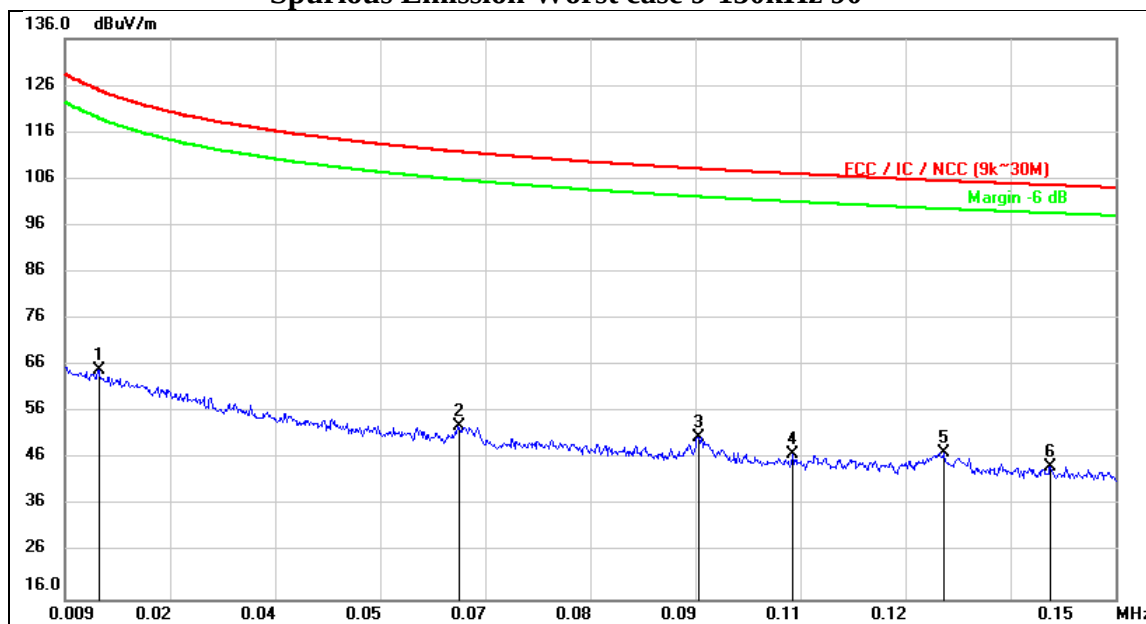
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement 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	0.0135	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

Note :

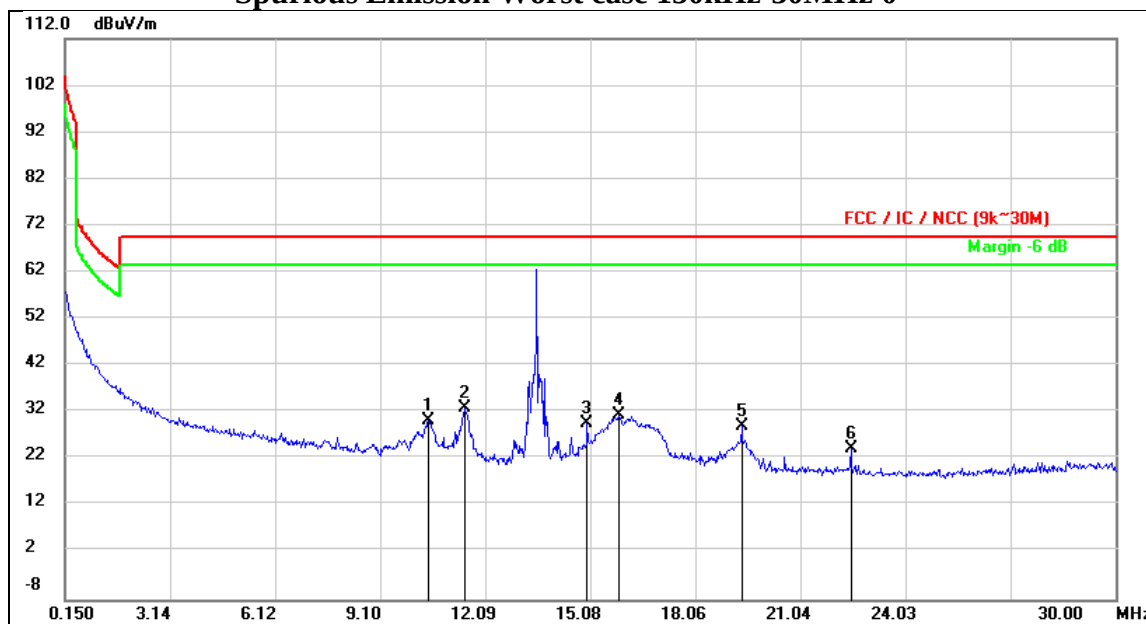
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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Spurious Emission Worst case 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

Note :

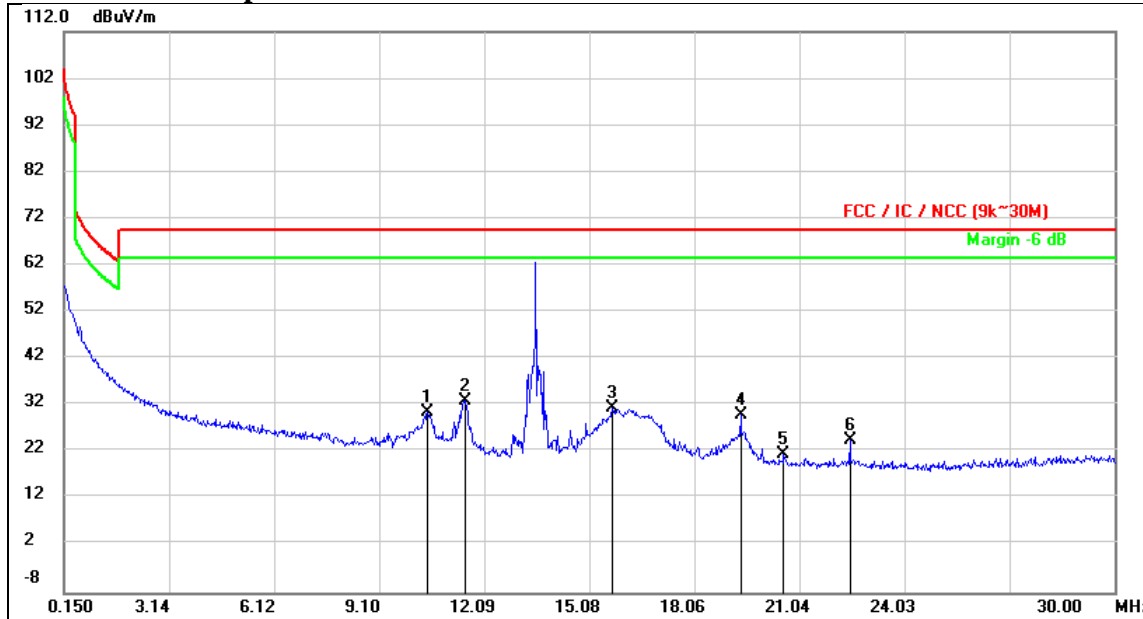
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement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

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Spurious Emission Worst case 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

Note :

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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9.4. Frequency Stability

Requirements

§ 15.225 (e) The frequency tolerance of the carrier signal shall be maintained within $\pm 0.01\%$ of the operating frequency.

Test procedure

- a. The EUT was placed inside the environmental test chamber and powered by nominal AC voltage.
- b. Turn the EUT on and couple its output to a spectrum analyzer.
- c. Turn the EUT off and set the chamber to the highest temperature specified.
- d. Allow sufficient time (approximately 30 minutes) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 Minutes.
- e. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
- f. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 Minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

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Test Data

13.56 MHz		Frequency Stability(%)			
Temperature (°C)	Voltage (V)	0 minute	2 minutes	5 minutes	10 minutes
50	120	0.00087	0.00096	0.00104	0.00108
40	120	0.00086	0.00083	0.00081	0.00082
30	120	0.00066	0.00070	0.00068	0.00067
20	120	0.00078	0.00078	0.00079	0.00077
10	120	0.00100	0.00098	0.00098	0.00099
0	120	0.00165	0.00165	0.00156	0.00161
-10	120	0.00157	0.00172	0.00169	0.00173
-20	120	0.00154	0.00158	0.00159	0.00165
20	138	0.00083	0.00148	0.00136	0.00170
20	102	0.00115	0.00109	0.00140	0.00127

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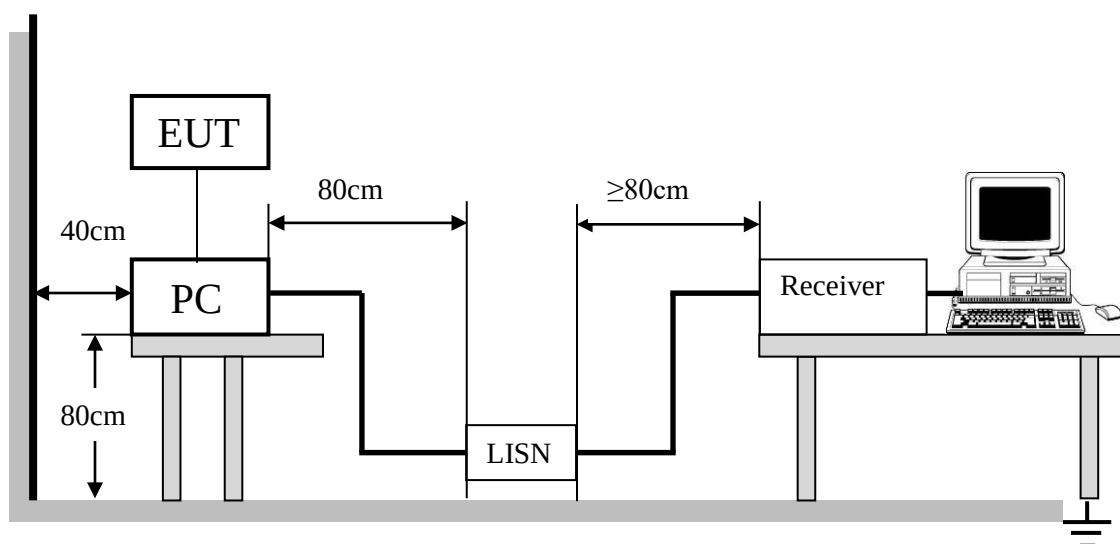


9.5. AC Power Line Conducted Emission

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.

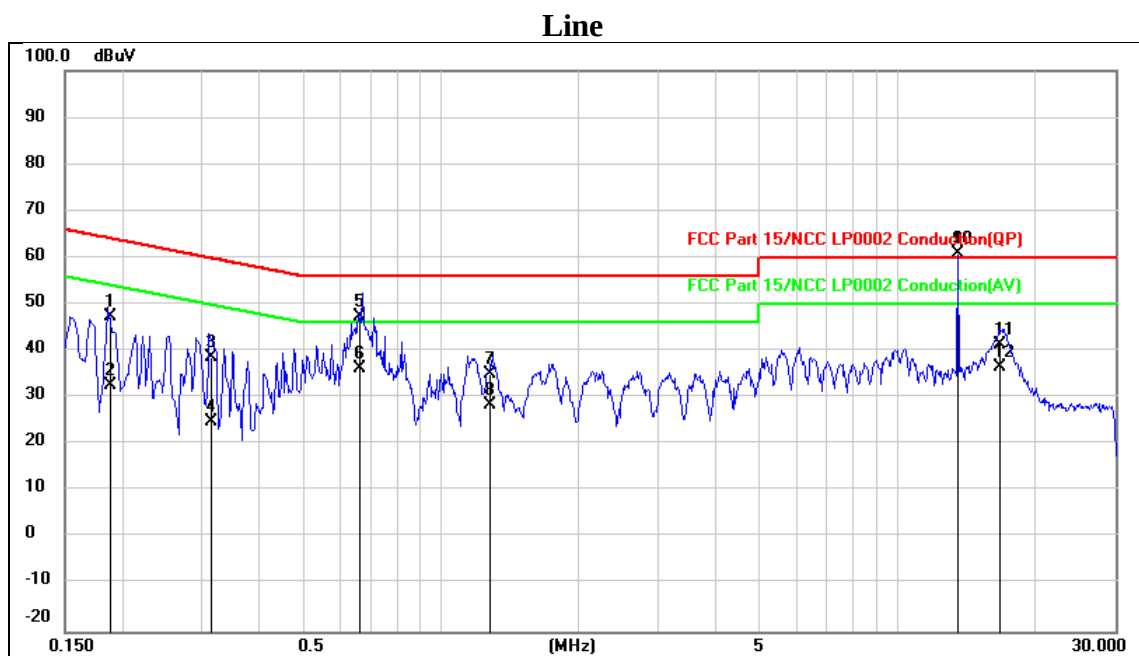
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Test Data

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



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1889	27.64	19.58	47.22	64.08	-16.86	QP
2	0.1889	13.05	19.58	32.63	54.08	-21.45	AVG
3	0.3147	18.98	19.60	38.58	59.85	-21.27	QP
4	0.3147	5.21	19.60	24.81	49.85	-25.04	AVG
5	0.6666	27.64	19.58	47.22	56.00	-8.78	QP
6	0.6666	16.60	19.58	36.18	46.00	-9.82	AVG
7	1.2881	15.48	19.64	35.12	56.00	-20.88	QP
8	1.2881	8.76	19.64	28.40	46.00	-17.60	AVG
9*	13.5603	40.70	20.03	60.73	-	-	QP
10*	13.5603	40.75	20.03	60.78	-	-	AVG
11	16.8205	21.32	20.00	41.32	60.00	-18.68	QP
12	16.8205	16.69	20.00	36.69	50.00	-13.31	AVG

Note :

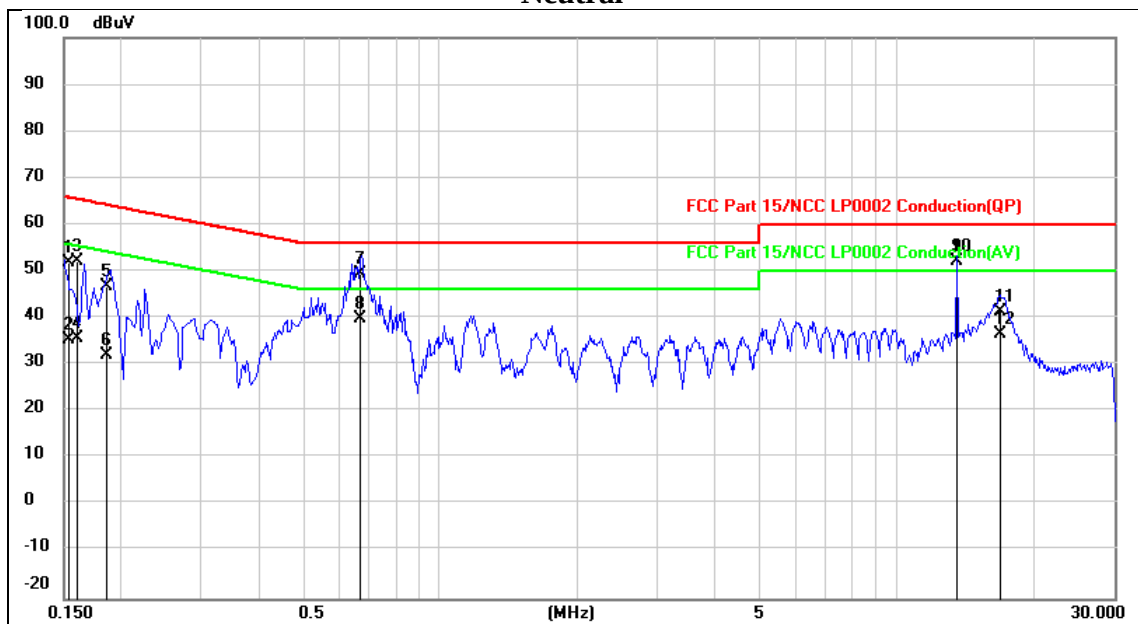
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. "*" means Fundamental Frequency.

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Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1536	32.29	19.59	51.88	65.80	-13.92	QP
2	0.1536	15.81	19.59	35.40	55.80	-20.40	AVG
3	0.1614	32.51	19.59	52.10	65.39	-13.29	QP
4	0.1614	15.93	19.59	35.52	55.39	-19.87	AVG
5	0.1850	27.03	19.59	46.62	64.26	-17.64	QP
6	0.1850	12.57	19.59	32.16	54.26	-22.10	AVG
7	0.6697	29.82	19.60	49.42	56.00	-6.58	QP
8	0.6697	20.21	19.60	39.81	46.00	-6.19	AVG
9*	13.5603	32.17	20.09	52.26	-	-	QP
10*	13.5603	32.10	20.09	52.19	-	-	AVG
11	16.8134	21.24	20.08	41.32	60.00	-18.68	QP
12	16.8134	16.60	20.08	36.68	50.00	-13.32	AVG

Note :

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

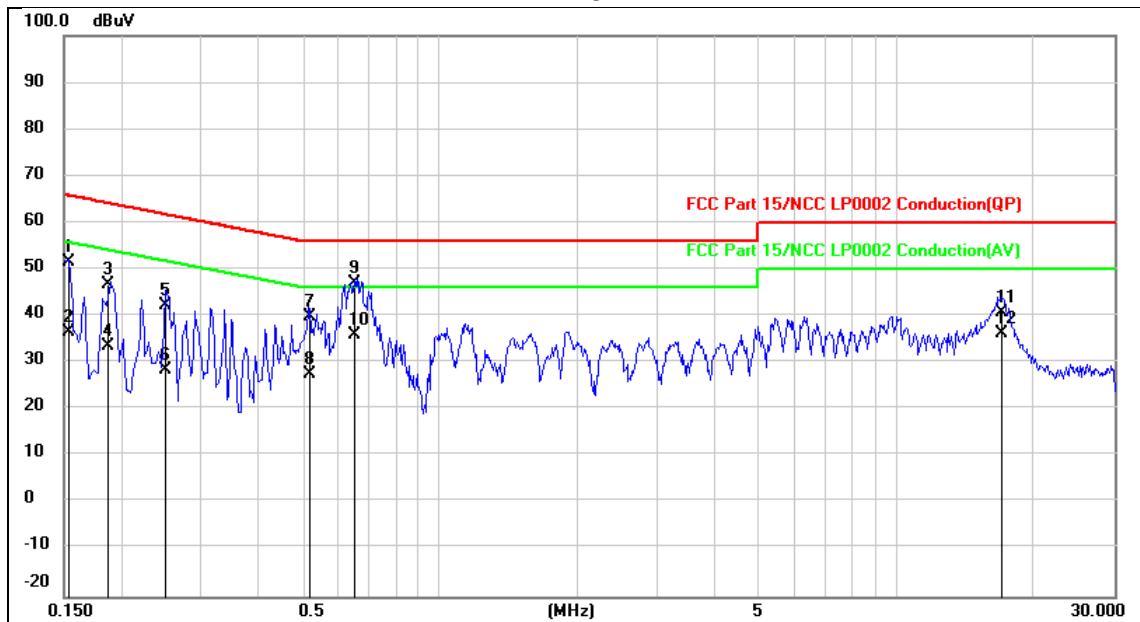
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Retest with a dummy load in lieu of the NFC antenna to determine compliance.

Line



No.	Frequency (MHz)	Reading (dBuV)	Correct (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1541	32.09	19.57	51.66	65.78	-14.12	QP
2	0.1541	16.84	19.57	36.41	55.78	-19.37	AVG
3	0.1874	27.17	19.58	46.75	64.15	-17.40	QP
4	0.1874	13.87	19.58	33.45	54.15	-20.70	AVG
5	0.2497	22.67	19.59	42.26	61.77	-19.51	QP
6	0.2497	8.75	19.59	28.34	51.77	-23.43	AVG
7	0.5215	20.27	19.59	39.86	56.00	-16.14	QP
8	0.5215	8.01	19.59	27.60	46.00	-18.40	AVG
9	0.6540	27.36	19.58	46.94	56.00	-9.06	QP
10	0.6540	16.42	19.58	36.00	46.00	-10.00	AVG
11	17.0634	20.89	20.01	40.90	60.00	-19.10	QP
12	17.0634	16.13	20.01	36.14	50.00	-13.86	AVG

Note :

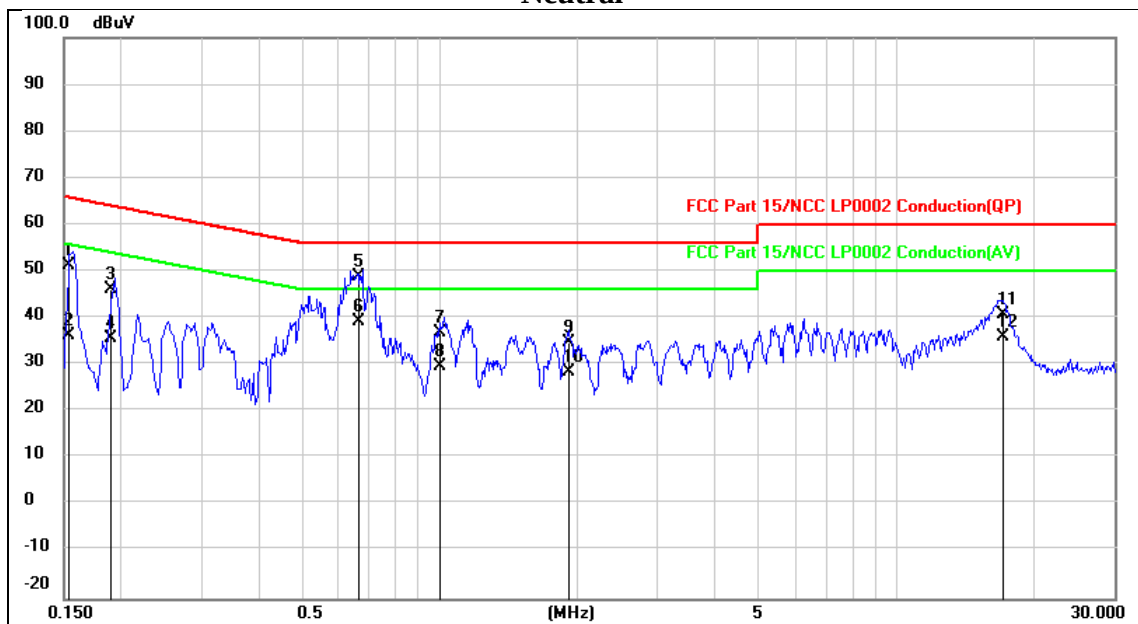
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1536	31.77	19.59	51.36	65.80	-14.44	QP
2	0.1536	16.65	19.59	36.24	55.80	-19.56	AVG
3	0.1903	26.71	19.59	46.30	64.02	-17.72	QP
4	0.1903	16.04	19.59	35.63	54.02	-18.39	AVG
5	0.6660	29.17	19.60	48.77	56.00	-7.23	QP
6	0.6660	19.73	19.60	39.33	46.00	-6.67	AVG
7	1.0097	17.29	19.63	36.92	56.00	-19.08	QP
8	1.0097	10.00	19.63	29.63	46.00	-16.37	AVG
9	1.9142	14.93	19.70	34.63	56.00	-21.37	QP
10	1.9142	8.84	19.70	28.54	46.00	-17.46	AVG
11	17.0962	20.58	20.09	40.67	60.00	-19.33	QP
12	17.0962	15.82	20.09	35.91	50.00	-14.09	AVG

Note :

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

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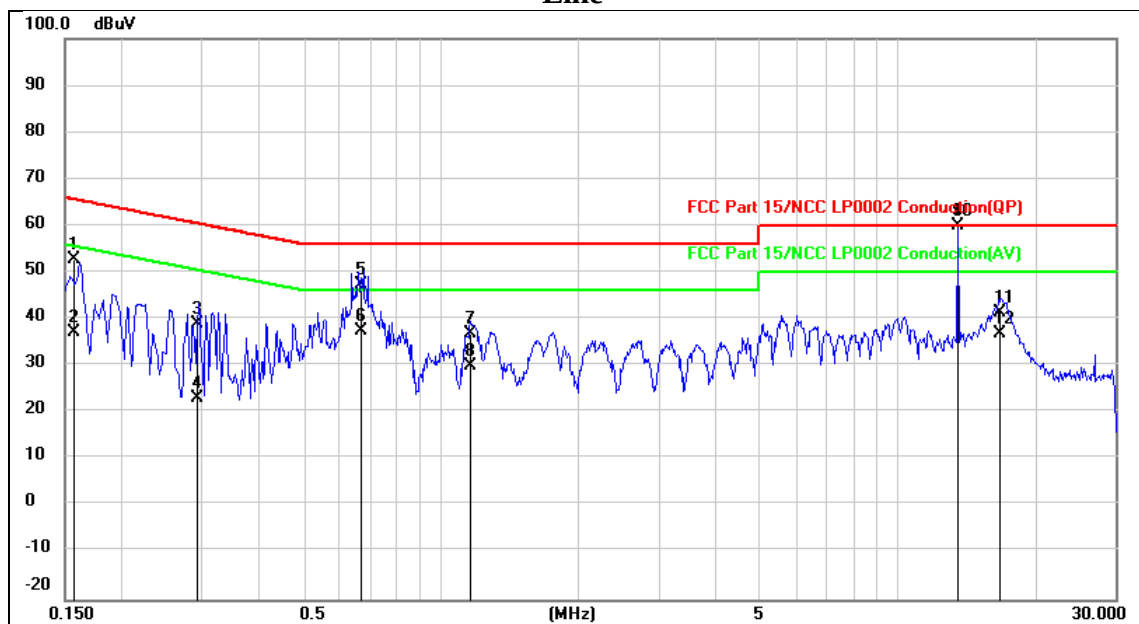
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Co-Location (BT + NFC)

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

Note :

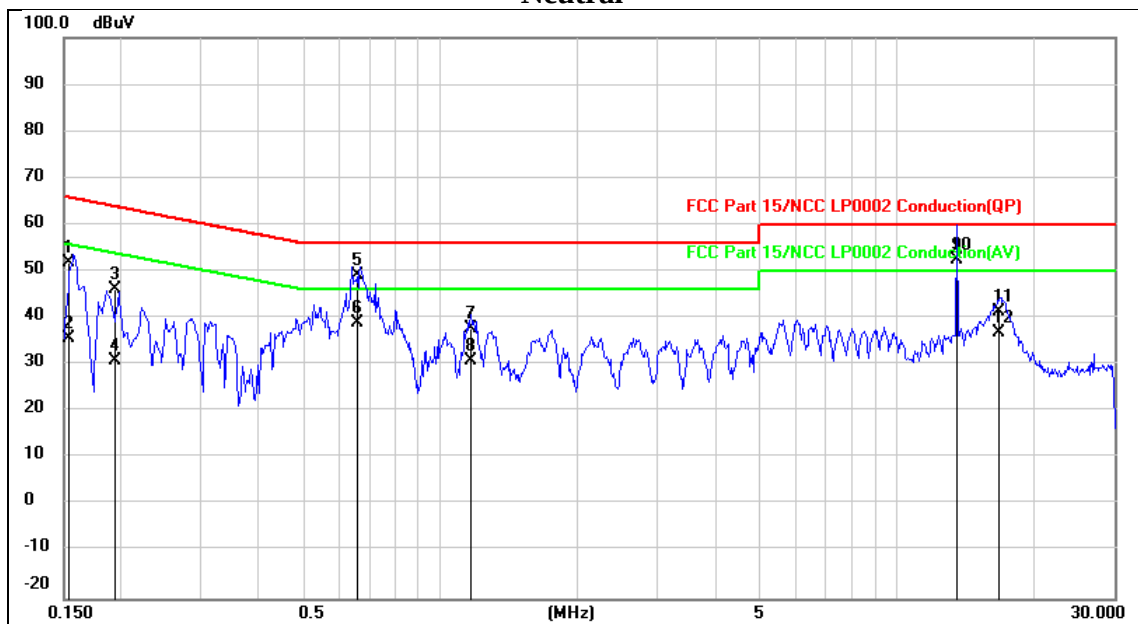
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
4. “*” means Fundamental Frequency.

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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

Note :

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

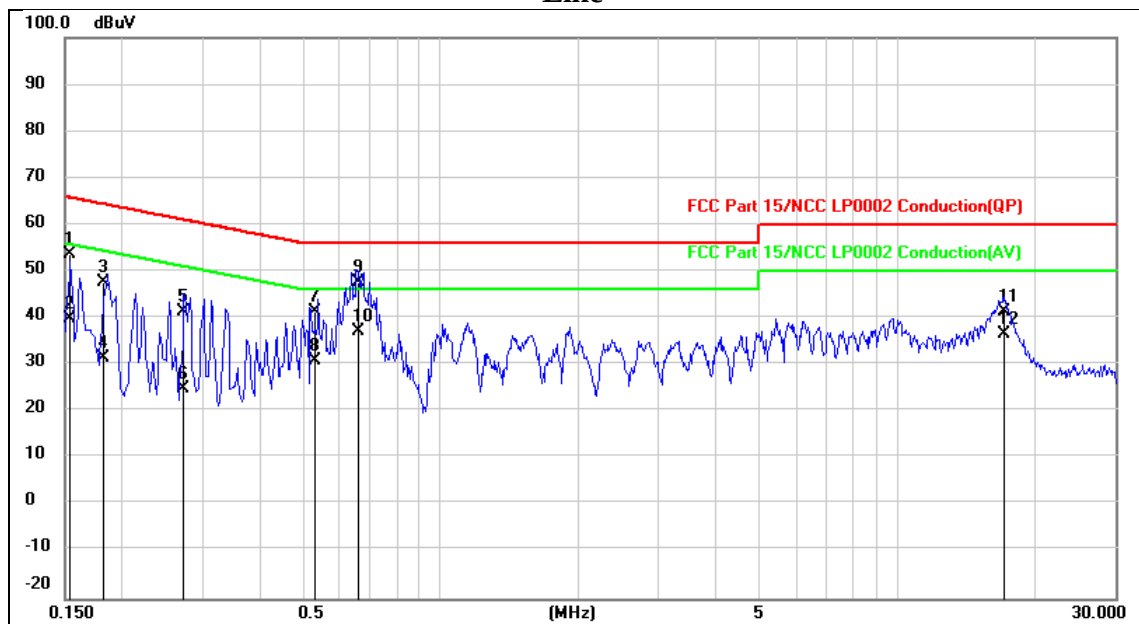
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Retest with a dummy load in lieu of the NFC antenna to determine compliance.

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

Note :

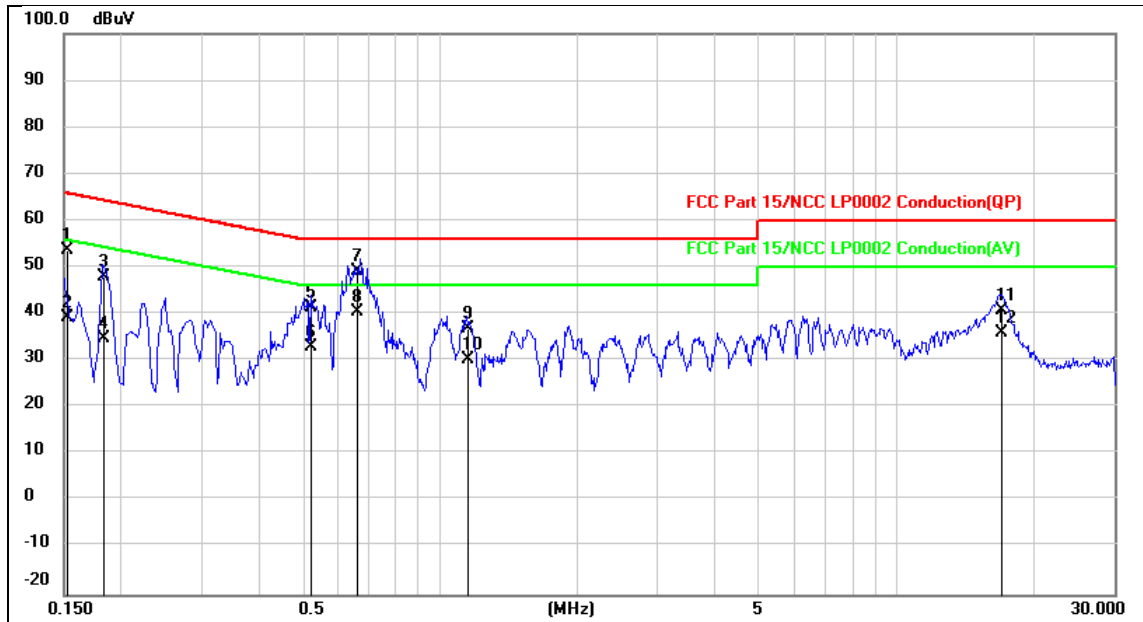
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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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

Note :

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

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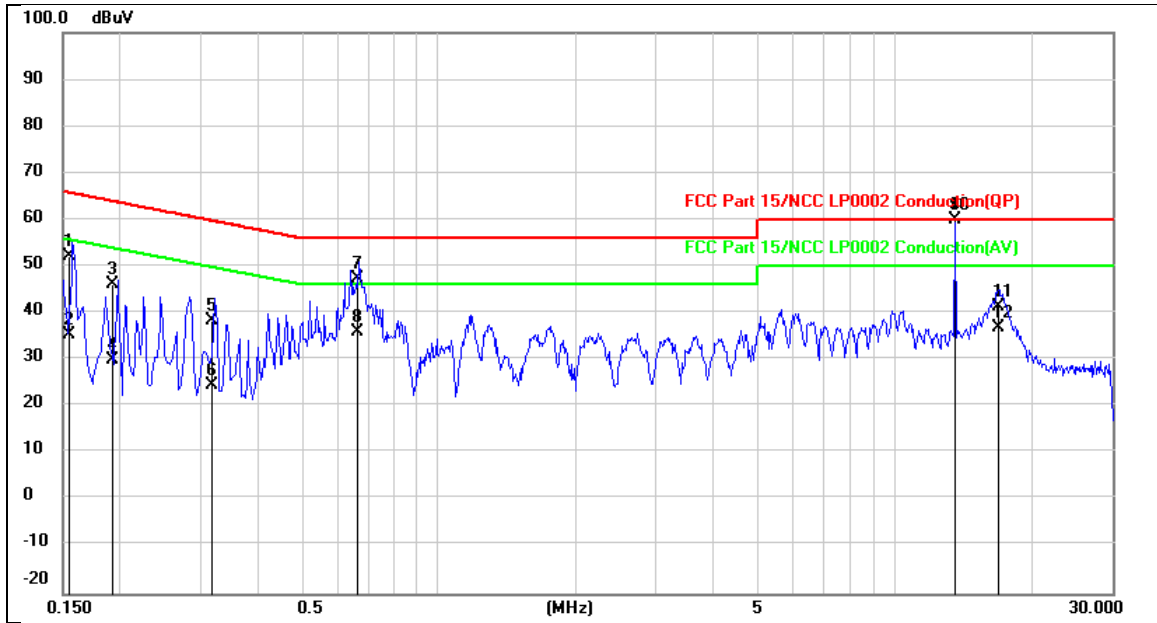
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Co-location (WiFi + NFC)

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	0.1545	32.52	19.57	52.09	65.75	-13.66	QP
2	0.1545	15.85	19.57	35.42	55.75	-20.33	AVG
3	0.1939	26.46	19.58	46.04	63.87	-17.83	QP
4	0.1939	10.35	19.58	29.93	53.87	-23.94	AVG
5	0.3181	18.73	19.60	38.33	59.76	-21.43	QP
6	0.3181	4.86	19.60	24.46	49.76	-25.30	AVG
7	0.6631	27.90	19.58	47.48	56.00	-8.52	QP
8	0.6631	16.52	19.58	36.10	46.00	-9.90	AVG
9*	13.5602	39.96	20.03	59.99	-	-	QP
10*	13.5602	39.96	20.03	59.99	-	-	AVG
11	16.8914	21.48	20.00	41.48	60.00	-18.52	QP
12	16.8914	16.80	20.00	36.80	50.00	-13.20	AVG

Note :

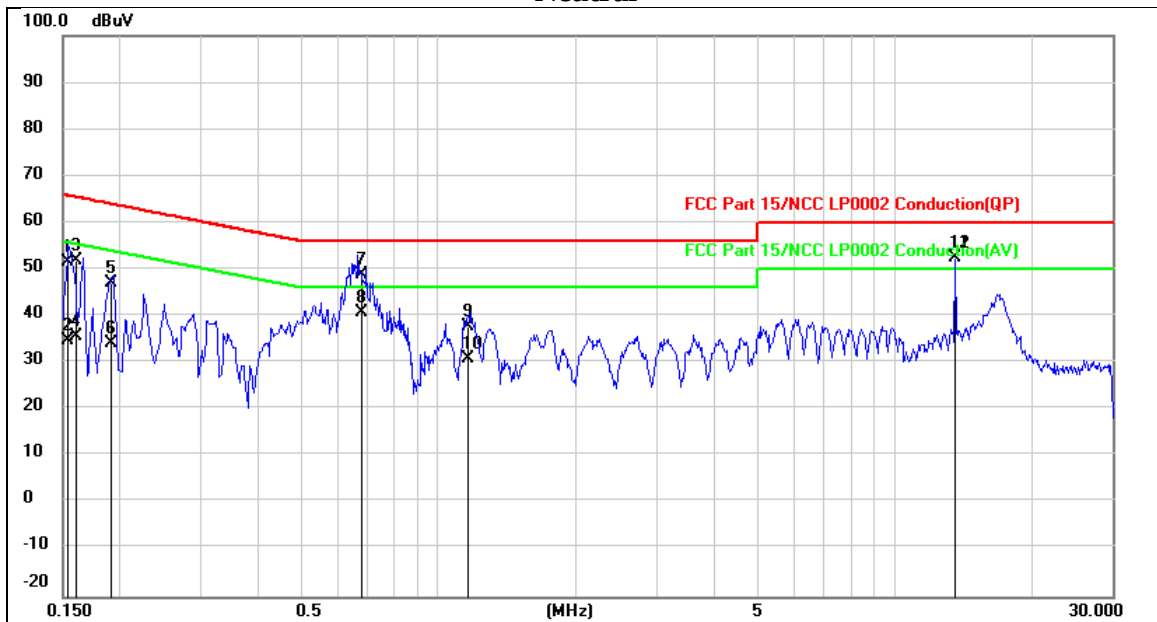
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit
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Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1535	31.91	19.59	51.50	65.81	-14.31	QP
2	0.1535	15.27	19.59	34.86	55.81	-20.95	AVG
3	0.1614	32.39	19.59	51.98	65.39	-13.41	QP
4	0.1614	16.09	19.59	35.68	55.39	-19.71	AVG
5	0.1905	27.32	19.59	46.91	64.01	-17.10	QP
6	0.1905	14.42	19.59	34.01	54.01	-20.00	AVG
7	0.6768	29.39	19.60	48.99	56.00	-7.01	QP
8	0.6768	21.12	19.60	40.72	46.00	-5.28	AVG
9	1.1658	18.19	19.64	37.83	56.00	-18.17	QP
10	1.1658	11.36	19.64	31.00	46.00	-15.00	AVG
11*	13.5603	32.46	20.09	52.55	-	-	QP
12*	13.5603	32.40	20.09	52.49	-	-	AVG

Note :

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

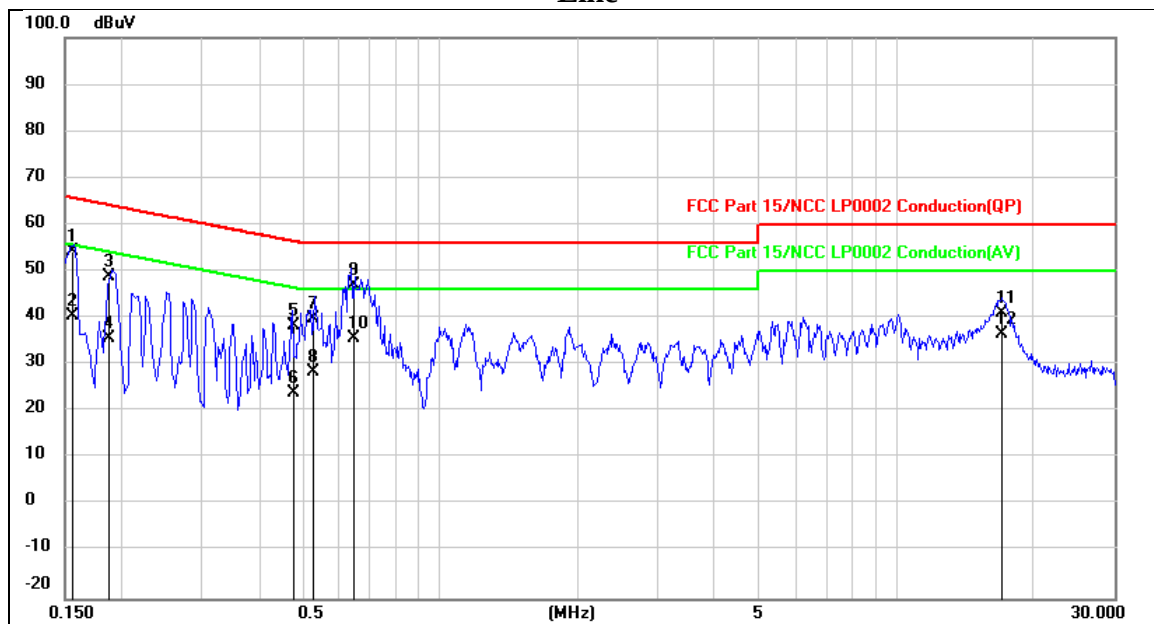
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Retest with a dummy load in lieu of the NFC antenna to determine compliance.

Line



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1556	34.58	19.57	54.15	65.70	-11.55	QP
2	0.1556	20.79	19.57	40.36	55.70	-15.34	AVG
3	0.1867	29.23	19.58	48.81	64.18	-15.37	QP
4	0.1867	15.99	19.58	35.57	54.18	-18.61	AVG
5	0.4781	18.67	19.59	38.26	56.37	-18.11	QP
6	0.4781	4.26	19.59	23.85	46.37	-22.52	AVG
7	0.5237	20.38	19.59	39.97	56.00	-16.03	QP
8	0.5237	8.91	19.59	28.50	46.00	-17.50	AVG
9	0.6435	27.40	19.58	46.98	56.00	-9.02	QP
10	0.6435	16.04	19.58	35.62	46.00	-10.38	AVG
11	17.0155	21.16	20.01	41.17	60.00	-18.83	QP
12	17.0155	16.55	20.01	36.56	50.00	-13.44	AVG

Note :

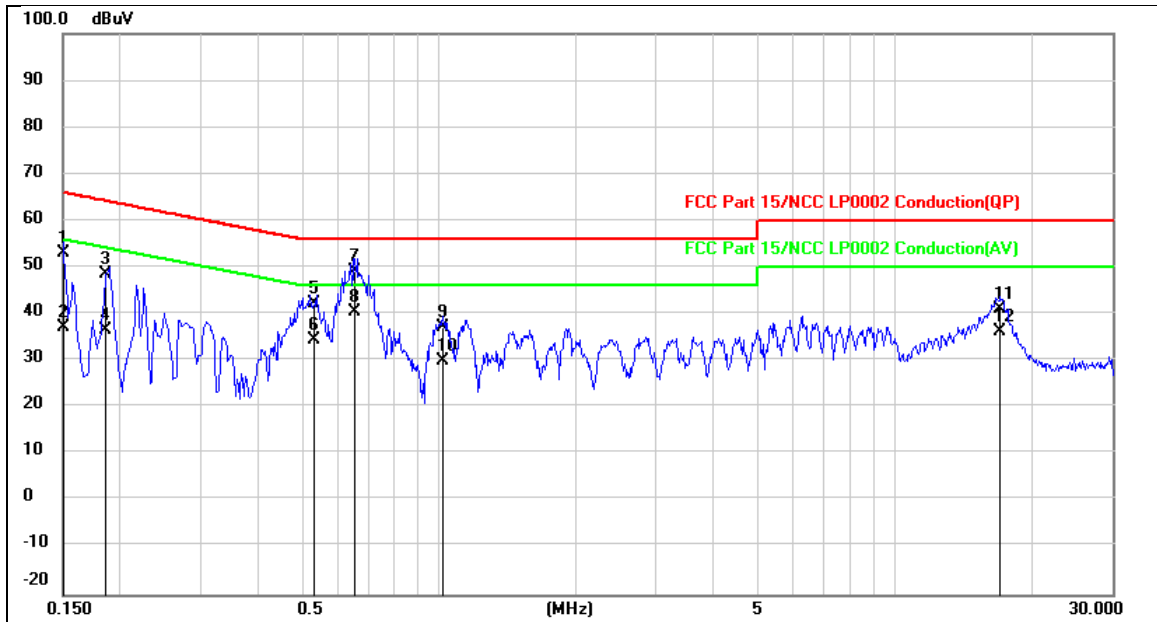
1. Correct = Antenna factor + Cable loss - Amplifier Factor
2. Result = Reading + Correct
3. Margin = Result - Limit

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Neutral



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1513	33.41	19.59	53.00	65.93	-12.93	QP
2	0.1513	17.46	19.59	37.05	55.93	-18.88	AVG
3	0.1863	28.92	19.59	48.51	64.20	-15.69	QP
4	0.1863	16.88	19.59	36.47	54.20	-17.73	AVG
5	0.5302	22.63	19.61	42.24	56.00	-13.76	QP
6	0.5302	14.78	19.61	34.39	46.00	-11.61	AVG
7	0.6544	29.46	19.60	49.06	56.00	-6.94	QP
8	0.6544	20.73	19.60	40.33	46.00	-5.67	AVG
9	1.0245	17.42	19.63	37.05	56.00	-18.95	QP
10	1.0245	10.22	19.63	29.85	46.00	-16.15	AVG
11	17.0614	20.85	20.09	40.94	60.00	-19.06	QP
12	17.0614	16.09	20.09	36.18	50.00	-13.82	AVG

Note :

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

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