

# Test report

## FCC 15.225 and RSS-210 A2.6 NFC #314207

Date of issue: September 14, 2016

Applicant: Vita-Mix Manufacturing Corporation

Product: Household Food Preparing Machine

Model: VM0185

Model Variant: Different shells and faceplates

FCC ID: 2AJEHVM0185

IC Registration number: 21814-VM0185

Specifications:

**FCC 47 CFR Part 15 Subpart C, §15.225**

Operation within the band 13.110-14.010 MHz.

**RSS-210 Issue 9**

Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment

#### Test location

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Province	CA
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Site number	FCC: US5058; IC: 2040B

Tested by	Feng You
Reviewed by	James Morris
Date	September 14, 2016
Signature	

#### Limits of responsibility

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Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report.

This test report has been completed in accordance with the requirements of ISO/IEC 17025. All results contain in this report are within Nemko USA's ISO/IEC 17025 accreditation.

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## Section 1. Report summary

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### 1.1 Applicant and manufacturer

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Company name	Vita-Mix Manufacturing Corporation
Address	8615 Usher Road
City	Cleveland
Province/State	OH
Postal/Zip code	44138
Country	U.S.A.

### 1.2 Test specifications

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FCC 47 CFR Part 15, Subpart C, Clause 15.225	Operation in the 13.110–14.010 MHz
RSS-210 Issue 9, December 2010, Annex 2.6	Band 13.110-14.010 MHz

### 1.3 Statement of compliance

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In the configuration tested, the EUT was found compliant.

Testing was completed against all relevant requirements of the test standard. Results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested.

See “Summary of test results” for full details.

### 1.4 Exclusions

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None

### 1.5 Test report revision history

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Revision #	Details of changes made to test report
1	Original report issued
2	Updated according to review comment

## Section 2. Summary of test results

### 2.1 FCC Part 15 Subpart C, general requirements test results

Part	Test description	Verdict
§15.31(e)	Variation of power source	Pass
§15.203	Antenna requirement	Pass <sup>1</sup>
§15.207(a)	Conducted limits	Pass
§15.215(c)	20 dB bandwidth	Pass

Notes: <sup>1</sup> The Antenna is internal to device.

### 2.2 FCC Part 15 Subpart C, intentional radiators test results

Part	Test description	Verdict
§15.225(a)	Field strength within 13.553–13.567 MHz band	Pass
§15.225(b)	Field strength within 13.410–13.553 MHz and 13.567–13.710 MHz bands	Pass
§15.225(c)	Field strength within 13.110–13.410 MHz and 13.710–14.010 MHz bands	Pass
§15.225(d)	Field strength outside 13.110–14.010 MHz band	Pass
§15.225(e)	Frequency tolerance of carrier signal	Pass

### 2.3 IC RSS-GEN, Issue 4, test results

Part	Test description	Verdict
6.6	Occupied bandwidth	Pass
6.11	Transmitter frequency stability	Pass <sup>1</sup>
7.1.2	Receiver spurious emissions limits (radiated)	Not applicable
7.1.3	Receiver spurious emissions limits (antenna conducted)	Not applicable
8.8	AC power lines conducted emission limits	Pass

Notes: <sup>1</sup> Frequency stability covered in RSS-210.

### 2.4 IC RSS-210, Issue 9, test results

Part	Test description	Verdict
A2.6 (a)	The field strength within the band 13.553–13.567 MHz.	Pass
A2.6 (b)	The field strength within the bands 13.410–13.553 MHz and 13.567–13.710 MHz	Pass
A2.6 (c)	The field strength within the bands 13.110–13.410 MHz and 13.710–14.010 MHz.	Pass
A2.6 (d)	The field strength outside the band 13.110–14.010 MHz.	Pass
A2.6	Carrier frequency stability shall be maintained to $\pm 0.01\%$ ( $\pm 100$ ppm)	Pass

## Section 3. Equipment under test (EUT) details

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### 3.1 Sample information

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Receipt date	August 4, 2016
Nemko sample ID number	314207 #1/#2/#3/#4/#5

### 3.2 EUT information

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Product name	Household Food Preparing Machine
Model	VM0185
Model variant	With different shells and faceplates
Serial number	BETA_02_51, BETA_06_37
FCC ID	2AJEHVM0185
IC Registration Number	21814-VM0185

### 3.3 Technical information

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Operating band	13.553–13.567 MHz
Operating frequency	13.56 MHz
Modulation type	ASK
Occupied bandwidth (99 %)	803.2kHz
Power requirements	120V AC 60Hz
Emission designator	A1D
Antenna information	The EUT uses a unique antenna coupling/ non-detachable antenna to the intentional radiator. Internal antenna inside device.

### 3.4 Product description and theory of operation

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Household Food Preparing Machine using 13.56MHz NFC reader to register container. It also has Bluetooth LE interface for download menu (BT LE in separate report).

### 3.5 EUT exercise details

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NFC reader is set to constant transmit with normal modulation. Only in frequency stability test, CW carrier is used. BT LE is turned off.

### 3.6 EUT setup diagram



**Figure 3.6-1: AC Powerline Conducted Emissions Setup**



**Figure 3.6-2: Radiated Emissions Setup – below 1GHz**





**Figure 3.6-3:** Radiated Emissions Setup – below 1GHz



### 3.7 EUT sub assemblies

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**Table 3.7-1:** EUT sub assemblies

Description	Brand name	Model/Part number	Serial number
Household Food Preparing Machine – NFC Modulated	Vita-Mix	VM0185	BETA_02_51
Household Food Preparing Machine – NFC CW	Vita-Mix	VM0185	BETA_06_37
64oz Food Container	Vita-Mix	061XXX	BETA_03_67

## Section 4. Engineering considerations

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### 4.1 Modifications incorporated in the EUT

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None

### 4.2 Technical judgment

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None

### 4.3 Deviations from laboratory tests procedures

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No deviations were made from laboratory procedures.

## Section 5. Test conditions

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### 5.1 Atmospheric conditions

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Temperature	15–30 °C
Relative humidity	20–75 %
Air pressure	860–1060 mbar

When it is impracticable to carry out tests under these conditions, a note to this effect stating the ambient temperature and relative humidity during the tests shall be recorded and stated.

### 5.2 Power supply range

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The normal test voltage for equipment to be connected to the mains shall be the nominal mains voltage. For the purpose of the present document, the nominal voltage shall be the declared voltage, or any of the declared voltages  $\pm 5\%$ , for which the equipment was designed.  
120VAC 60Hz

## Section 6. Measurement uncertainty

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### 6.1 Uncertainty of measurement

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Nemko USA Inc. has calculated measurement uncertainty and is documented in EMC/MUC/001 "Uncertainty in EMC measurements." Measurement uncertainty was calculated using the methods described in CISPR 16-4 Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC measurements; as well as described in UKAS LAB34: The expression of Uncertainty in EMC Testing. Measurement uncertainty calculations assume a coverage factor of  $K=2$  with 95% certainty.

Frequency/Time Uncertainty  $\leq 0.2\text{ms}$

Amplitude Uncertainty  $\leq 1.7\text{dB}$

## Section 7. Test equipment

### 7.1 Test equipment list

*Table 7.1-1: Equipment list*

Asset Tag	Description	Manufacturer	Model	Serial #	Next Cal
529	Antenna, DRWG	EMCO	3115	2505	01-Feb-2017
815	Multimeter	Fluke	111	78130066	02-Feb-2017
N106	Thermometer	FLUKE	50D	78620042	10-Aug-2016
E1013	DRG Horn (Small)	EMCO	3116	00119488	18-Nov-2016
E1019	Two Line V-Network	Rohde & Schwarz	ENV216	101045	15-Jun-2017
E1026	EMI Test Receiver 9kHz to 7GHz	Rohde & Schwarz	ESCI 7	100800	17-Mar-2017
S1043	Variac (Variable Transformer) 3kVA, Input 110/220VAC @ 4.8/12A	Shanghai China	TDGC	N/A	VOU
1733	Antenna, Active Loop	EMCO	6507	45939	21-Oct-2016
1763	Antenna, Bilog	Schaffner	CBL 6111D	22926	02-Oct-2016
1839	Environmental Chamber (Temperature only)	Tenney	T-14	14	VOU
E1120	Signal and Spectrum Analyzer	Rohde & Schwarz	FSV40	101395	25-May-2017
E1121	EMI Test Receiver	Rohde & Schwarz	ESU 40	100064	28-Apr-2017

Note: NCR - no calibration required, VOU - verify on use

## Section 8. Testing data

### 8.1 FCC 15.215(c) 20 dB bandwidth

#### 8.1.1 Definitions and limits

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

The specific requirement for bandwidth is in FCC 15.225(a–c) and RSS-210 A2.6 (a–c).

#### 8.1.2 Test summary

Test date	August 9, 2016	Temperature	23 °C
Test engineer	Feng You	Air pressure	1001 mbar
Verdict	Pass	Relative humidity	63 %

#### 8.1.3 Observations, settings and special notes

Spectrum analyzer settings:

Detector mode	Peak
Resolution bandwidth	≥1 % of span
Video bandwidth	RBW × 3
Trace mode	Max Hold

#### 8.1.4 Test data

**Table 8.1-1: 20dB bandwidth result**

Fundamental frequency, MHz	20dB bandwidth, kHz
13.560	325.6



8.1.4 Test data, continued

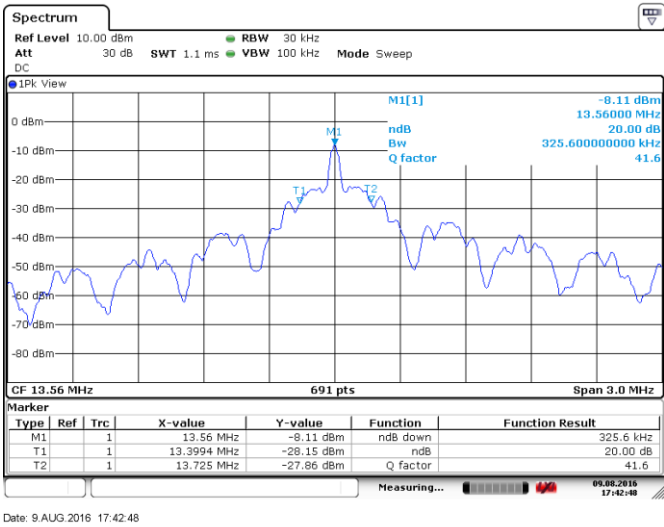


Figure 8.1-1: 20dB bandwidth

## 8.2 RSS-Gen 6.6 Occupied bandwidth

### 8.2.1 Definitions and limits

When an occupied bandwidth value is not specified in the applicable RSS, the transmitted signal bandwidth to be reported is to be its 99 percent emission bandwidth, as calculated or measured.

The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual.

The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded.

The span between the two recorded frequencies is the occupied bandwidth.

### 8.2.2 Test summary

Test date	August 9, 2016	Temperature	23 °C
Test engineer	Feng You	Air pressure	1001 mbar
Verdict	Pass	Relative humidity	63 %

### 8.2.3 Observations, settings and special notes

Spectrum analyzer settings:

Detector mode	Peak
Resolution bandwidth	$\geq 1$ % of span
Video bandwidth	RBW $\times$ 3
Trace mode	Max Hold

### 8.2.4 Test data

**Table 8.2-1:** 99 % occupied bandwidth result

Fundamental frequency, MHz	99 % occupied bandwidth, kHz
13.560	803.2

8.2.4 Test data, continued

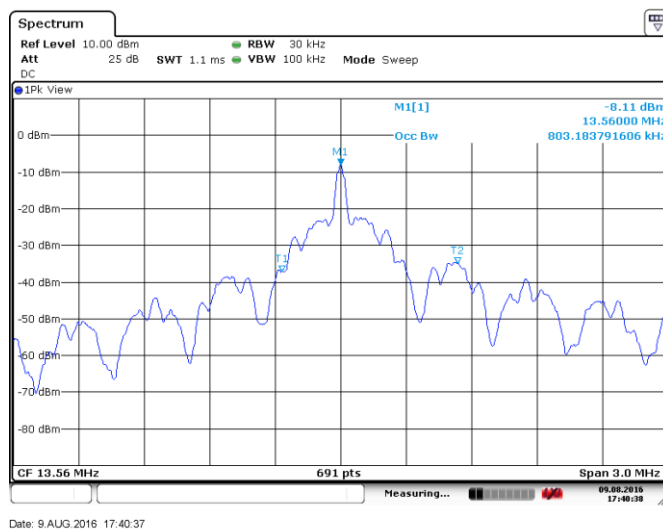


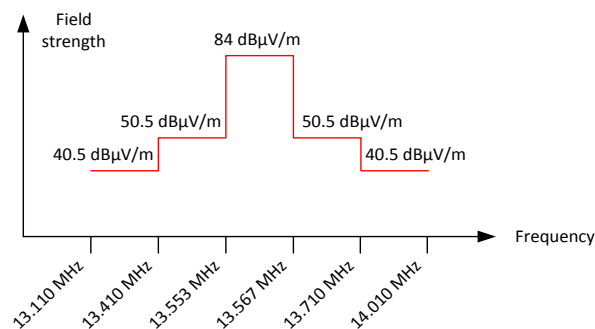
Figure 8.2-1: 99 % occupied bandwidth

## 8.3 FCC 15.225(a–c) and RSS-210 A2.6 (a–c) Field strength within the 13.110–14.010 MHz band

### 8.3.1 Definitions and limits

- a) The field strength of any emissions within the band 13.553–13.567 MHz shall not exceed 15848  $\mu\text{V/m}$  (84 dB $\mu\text{V/m}$ ) at 30 m.
- 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  $\mu\text{V/m}$  (50.5 dB $\mu\text{V/m}$ ) at 30 m.
- c) Within the bands 13.110–13.410 MHz and 13.710–14.010 MHz the field strength of any emissions shall not exceed 106  $\mu\text{V/m}$  (40.5 dB $\mu\text{V/m}$ ) at 30 m.

15.31(e) For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. For battery operated equipment, the equipment tests shall be performed using a new battery.



**Figure 8.3-1:** In-band spurious emissions limit

### 8.3.2 Test summary

Test date	August 4, 2016	Temperature	24 °C
Test engineer	Feng You	Air pressure	1001 mbar
Verdict	Pass	Relative humidity	54 %

### 8.3.3 Observations/special notes

The measurements were performed at the distance of 3 m. 40 dB distance correction factor\* was applied to the measurement result in order to comply with 30 m limits.

\* 30 m to 3 m distance correction factor calculation (for 13 MHz band):

$$40 \times \text{Log}_{10} (3 \text{ m}/30 \text{ m}) = 40 \times \text{Log}_{10} (0.1) = -40 \text{ dB}$$

Spectrum analyzer settings:

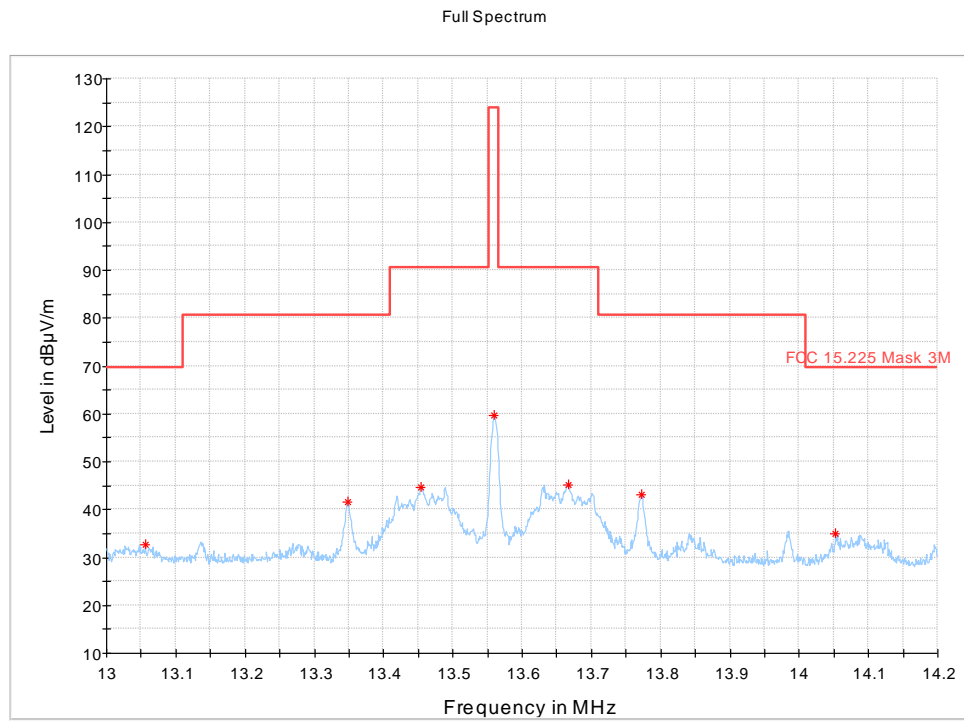
Detector mode	Peak
Resolution bandwidth	10 kHz
Video bandwidth	30 kHz
Trace mode	Max Hold

### 8.3.4 Test data

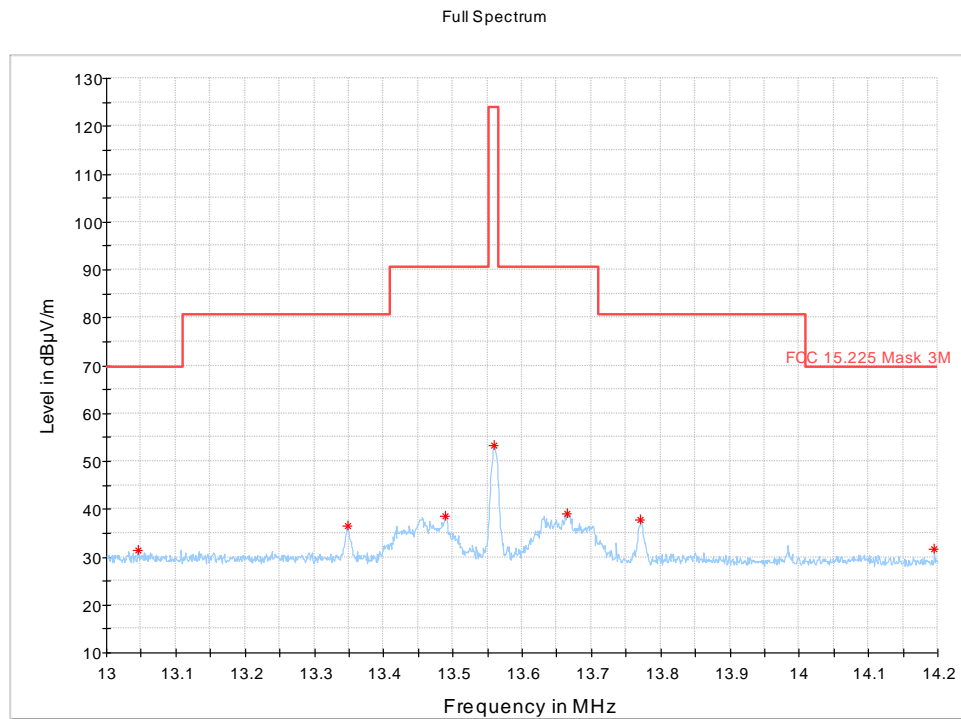
**Table 8.3-1: Field strength measurements results**

Frequency range, MHz	Frequency, MHz	Field strength at 3 m, dB $\mu$ V/m	Calculated field strength at 30 m, dB $\mu$ V/m	Limit, dB $\mu$ V/m	Margin, dB
13.553–13.567	13.56	59.7	19.7	84.00	64.3
13.410–13.553	13.45	44.5	4.5	50.50	46
13.567–13.710	13.67	45.2	5.2	50.50	45.3
13.110–13.410	13.35	41.5	1.5	40.50	39
13.710–14.010	13.77	43.1	3.1	40.50	37.4

Note: Calculated field strength at 30 m = Measured field strength at 3 m – 40 dB



**Figure 8.3-2: Field strength within 13.11–14.010 MHz band – 0 degree**



**Figure 8.3-3:** Field strength within 13.11–14.010 MHz band – 90 degree

**Table 8.3-2:** Field strength measurements of fundamental

Supply Voltage	Frequency, MHz	Field strength at 3 m, dBμV/m	Calculated field strength at 30 m, dBμV/m	Limit, dBμV/m	Margin, dB
120	13.56	59.68	19.68	84.00	64.32
102	13.56	59.67	19.67	84.00	64.33
138	13.56	59.7	19.7	84.00	64.3



## 8.4 FCC 15.225(d) and RSS-210 A2.6(d) Field strength of emissions outside 13.110–14.010 MHz band

### 8.4.1 Definitions and limits

FCC: 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

The field strength of emissions appearing within restricted bands (as specified in §15.205) shall not exceed the limits from §15.209.

IC: The field strength of any emission outside the band 13.110–14.010 MHz shall not exceed the 30 µV/m (29.5 dBµV/m) limit.

**Table 8.4-1: FCC §15.209 – Radiated emission limits**

Frequency, MHz	Field strength of emissions		Measurement distance, m
	µV/m	dBµV/m	
0.009–0.490	2400/F	$67.6 - 20 \times \log_{10}(F)$	300
0.490–1.705	24000/F	$87.6 - 20 \times \log_{10}(F)$	30
1.705–30.0	30	29.5	30
30–88	100	40.0	3
88–216	150	43.5	3
216–960	200	46.0	3
above 960	500	54.0	3

Notes: In the emission table above, the tighter limit applies at the band edges. For frequencies above 1 GHz the limit on peak RF emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test

**Table 8.4-2: Restricted frequency bands**

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675	156.7–156.9	2690–2900	22.01–23.12
8.41425–8.41475	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725	322–335.4	3600–4400	Above 38.6
13.36–13.41			

### 8.4.2 Test summary

Test date	August 4, 2016	Temperature	24 °C
Test engineer	Feng You	Air pressure	1001 mbar
Verdict	Pass	Relative humidity	54 %

### 8.4.3 Observations, settings and special notes

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The spectrum was searched from 9 kHz to 1 GHz.  
Radiated measurements were performed at a distance of 3 m.

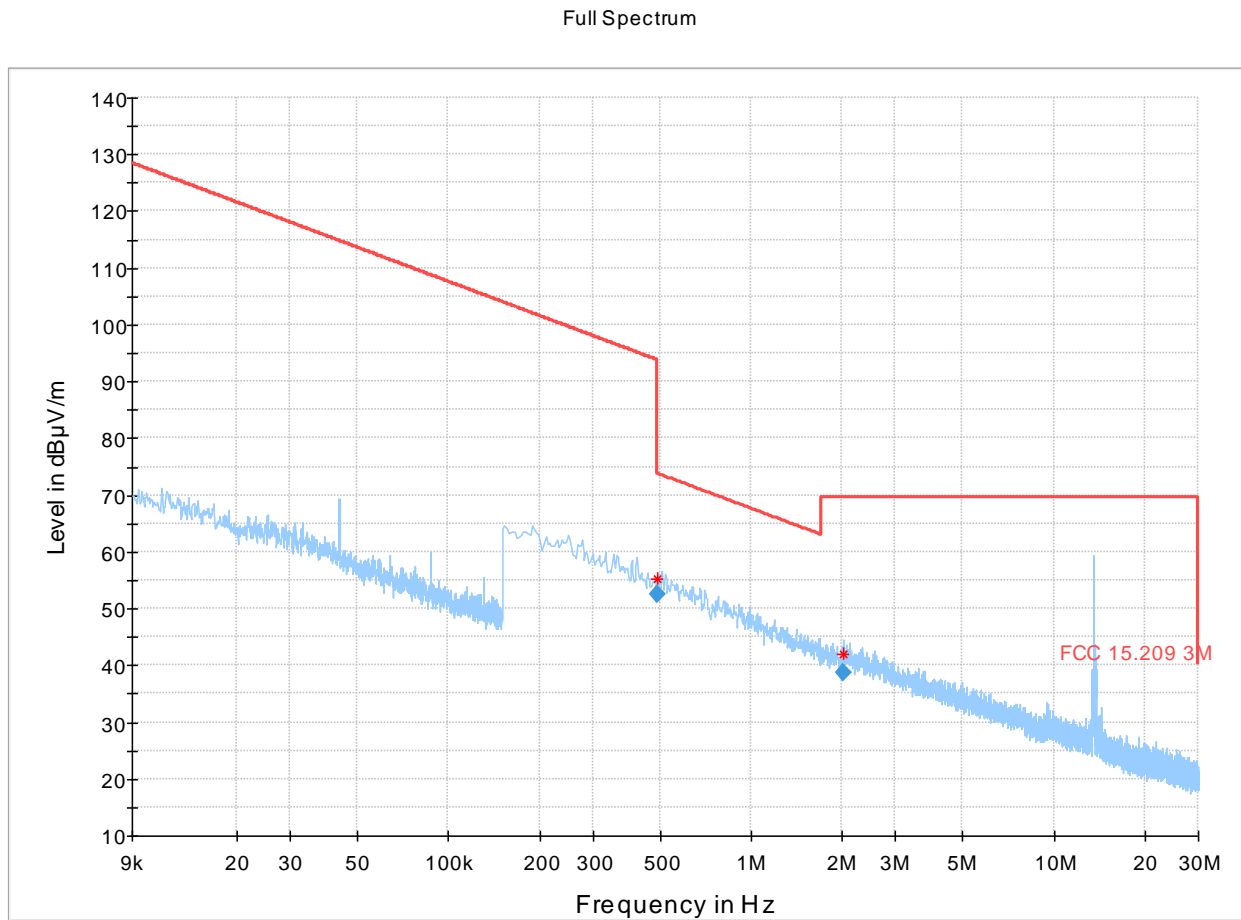
Spectrum analyzer settings for frequencies below 30 MHz:

Detector mode	Quasi-Peak
Resolution bandwidth	9 kHz
Video bandwidth	30 kHz
Trace mode	Max Hold
Measurement time	100 ms

Spectrum analyzer settings for frequencies above 30 MHz:

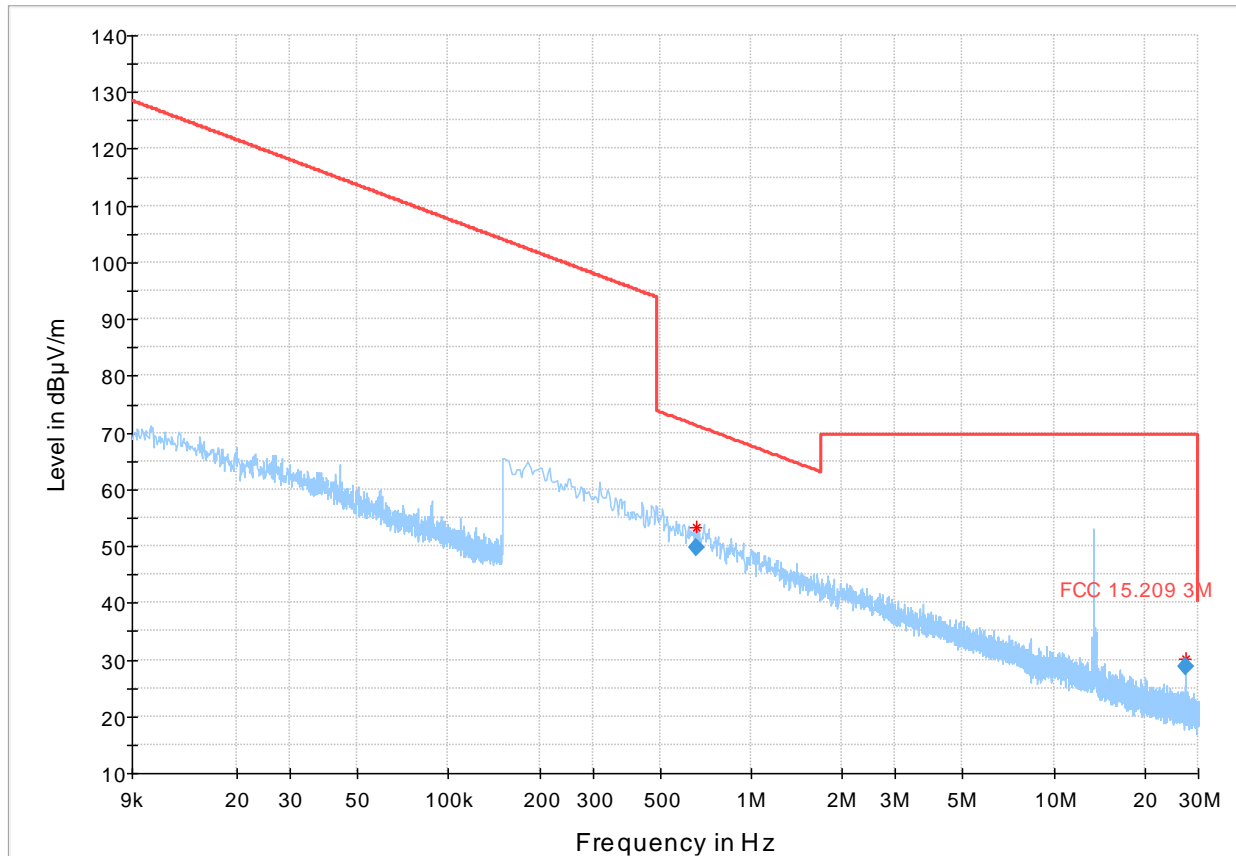
Detector mode	Peak
Resolution bandwidth	100 kHz
Video bandwidth	300 kHz
Trace mode	Max Hold
Measurement time	100 ms

8.4.4 Test data



**Figure 8.4-1:** Field strength of spurious emissions below 30 MHz – 0 Degree

Full Spectrum



**Figure 8.4-2:** Field strength of spurious emissions below 30 MHz – 90 Degree

Peak at 13.56MHz is the fundamental signal.

All spurious emissions are at least 20dB below limit.

8.4.4 Test data, continued

Full Spectrum

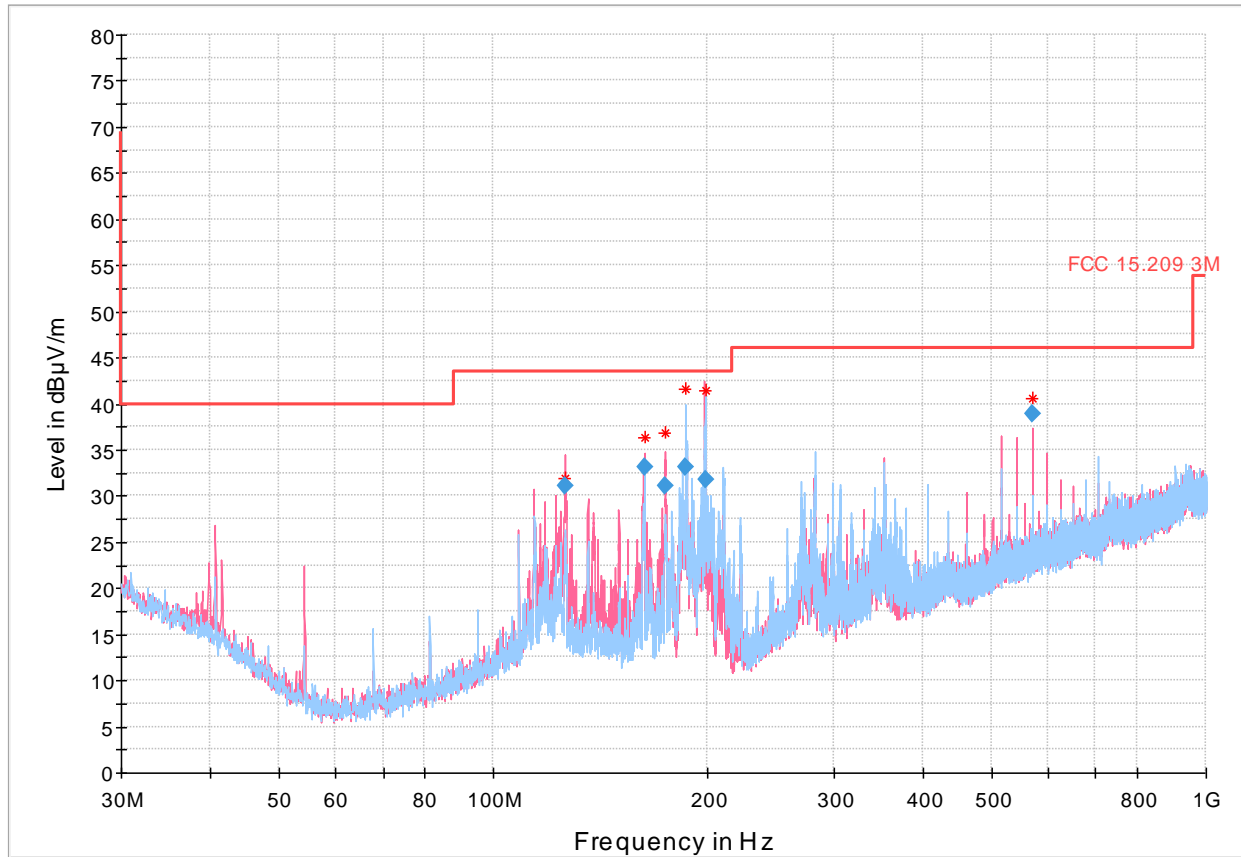


Figure 8.4-3: Field strength of spurious emissions 30-1000 MHz

Table 8.4-3: QP Measurement Results 30-1000MHz

Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
126.061500	31.03	43.50	12.47	1000.0	120.000	106.6	V	161.0
162.696000	33.14	43.50	10.36	1000.0	120.000	115.0	V	335.0
174.125000	31.10	43.50	12.40	1000.0	120.000	109.3	V	286.0
186.010000	33.10	43.50	10.40	1000.0	120.000	128.2	H	299.0
198.298500	31.74	43.50	11.76	1000.0	120.000	127.3	V	266.0
569.514000	38.94	46.00	7.06	1000.0	120.000	100.0	V	0.0

Full Spectrum

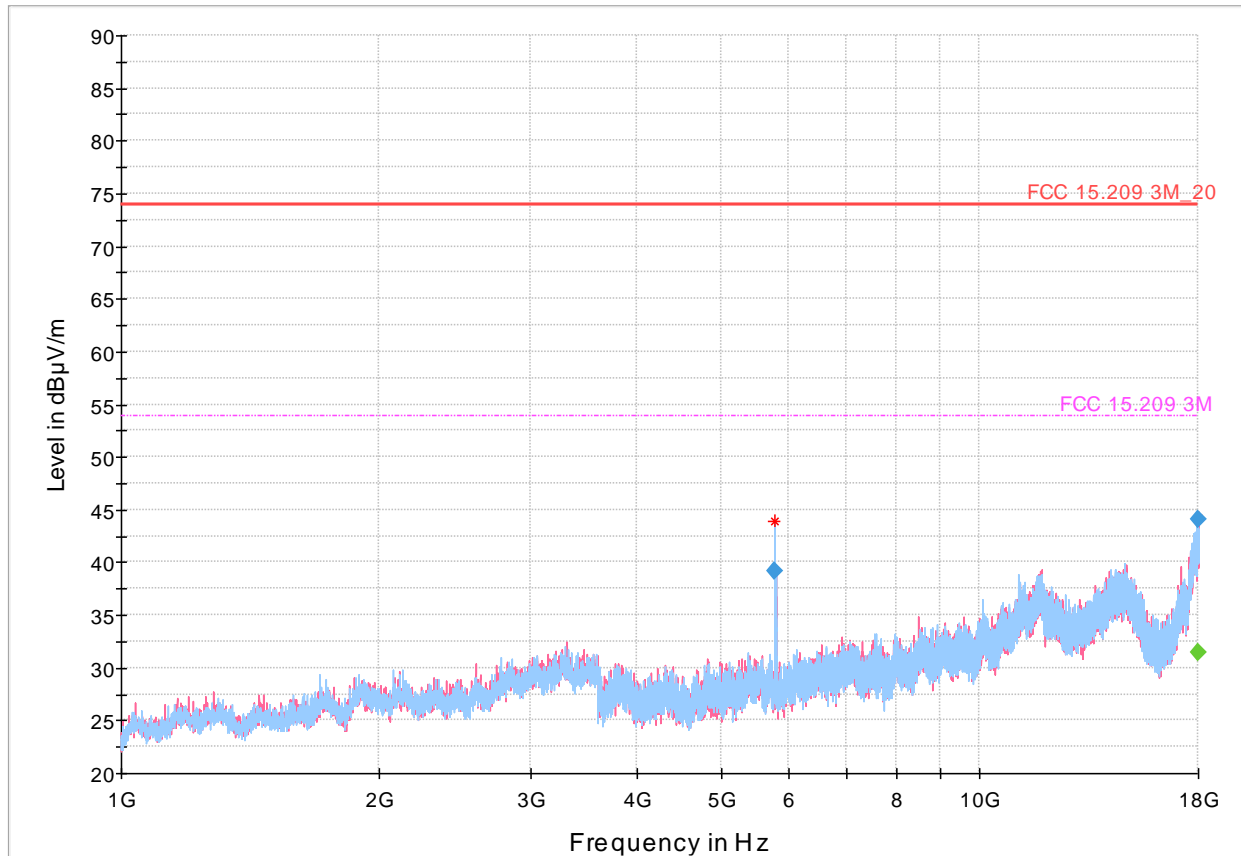


Figure 8.4-4: Field strength of spurious emissions >1GHz

Table 8.4-3: PK and AVG Measurement Results >1GHz

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)
5783.9666	---	17.66	53.90	36.24	1000.0	1000.000	290.8	H	268.0
5783.9666	39.14	---	73.90	34.76	1000.0	1000.000	290.8	H	268.0
17995.233	---	31.49	53.90	22.41	1000.0	1000.000	110.7	V	320.0
17995.233	44.13	---	73.90	29.77	1000.0	1000.000	110.7	V	320.0



## 8.5 FCC 15.225(e) and RSS-210 A2.6 Frequency tolerance of the carrier signal

### 8.5.1 Definitions and limits

The frequency tolerance of the carrier signal shall be maintained within  $\pm 0.01\%$  ( $\pm 100$  ppm) of the operating frequency over a temperature variation of  $-20\text{ }^{\circ}\text{C}$  to  $+50\text{ }^{\circ}\text{C}$  at normal supply voltage, and for a variation in the primary supply voltage from 85 % to 115 % of the rated supply voltage at a temperature of  $20\text{ }^{\circ}\text{C}$ . For battery operated equipment, the equipment tests shall be performed using a new battery.

### 8.5.2 Test summary

Test date	August 8, 2016	Temperature	23 $^{\circ}\text{C}$
Test engineer	Feng You	Air pressure	999 mbar
Verdict	Pass	Relative humidity	63 %

### 8.5.3 Observations, settings and special notes

Spectrum analyzer settings:

Detector mode	Peak
Resolution bandwidth	$\geq 1\%$ of emission bandwidth
Video bandwidth	RBW $\times 3$
Trace mode	Max Hold
Special Condition	Because the EUT is module for medical equipment used in operating room, the temperature range tested is extended according to the manufacturer declared operation range to $70^{\circ}\text{C}$ . The module is supplied with 36V DC nominal voltage. Declared voltage range is 17-41V DC.

### 8.5.4 Test data

**Table 8.5-1: Frequency drift measurements results**

Test conditions	Frequency, MHz	Frequency drift, $\pm\text{ppm}$	Limit, $\pm\text{ppm}$	Margin, ppm
+20 $^{\circ}\text{C}$ , Nominal 120V AC	13.560043	Reference	Reference	Reference
+20 $^{\circ}\text{C}$ , 102V AC	13.560043	0	100	100
+20 $^{\circ}\text{C}$ , 138V AC	13.560043	0	100	100
-20 $^{\circ}\text{C}$	13.560145	8	100	92
-10 $^{\circ}\text{C}$	13.560145	8	100	92
0 $^{\circ}\text{C}$	13.560145	8	100	92
+10 $^{\circ}\text{C}$	13.560101	4	100	96
+30 $^{\circ}\text{C}$	13.560014	-2	100	98
+40 $^{\circ}\text{C}$	13.559986	-4	100	96
+50 $^{\circ}\text{C}$	13.559971	-5	100	95

Note: frequency drift was calculated as follows:

$$\text{Frequency drift (ppm)} = ((F_{\text{measured}} - F_{\text{reference}}) \div F_{\text{reference}}) \times 1 \times 10^6$$

## 8.6 FCC 15.207(a) AC power line conducted emissions limits

### 8.6.1 Definitions and limits

Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50  $\Omega$  line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

The conducted emissions shall be measured with a 50  $\Omega$ /50  $\mu$ H line impedance stabilization network (LISN).

**Table 8.6-1: Conducted emissions limit**

Frequency of emission (MHz)	Conducted limit (dB $\mu$ V)	
	Quasi-peak	Average
0.15–0.5	66 to 56*	56 to 46*
0.5–5	56	46
5–30	60	50

Note: \* - Decreases with the logarithm of the frequency.

### 8.6.2 Test summary

Test date	August 8, 2016	Temperature	23 °C
Test engineer	Feng You	Air pressure	999 mbar
Verdict	Pass	Relative humidity	63 %

### 8.6.3 Observations, settings and special notes

The module is tested inside host device Stryker Neptune 3.

The EUT was set up as floor standing configuration.

The spectral scan has been corrected with transducer factors (i.e. cable loss, LISN factors, and attenuators) for determination of compliance.

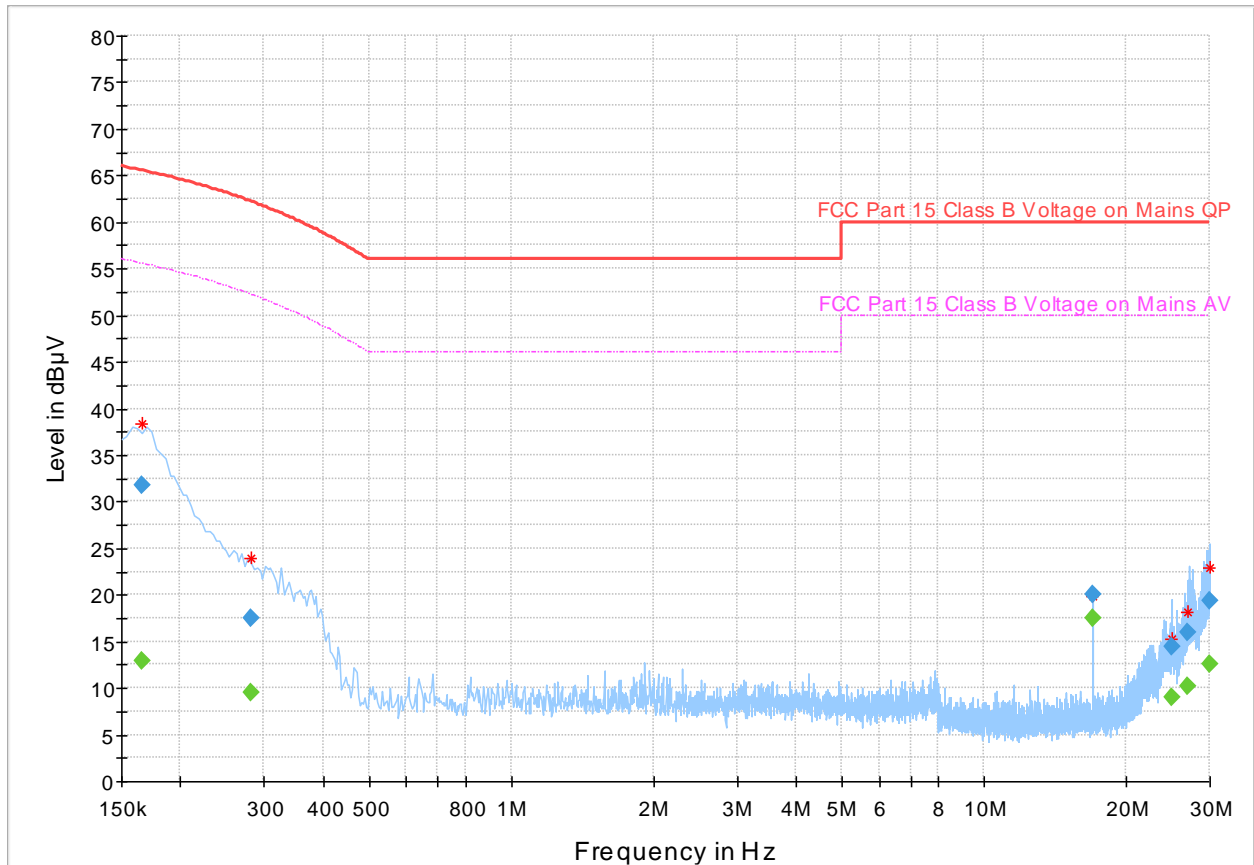
A preview measurement was generated with the receiver in continuous scan mode. Emissions detected within 6 dB or above limit were re-measured with the appropriate detector against the correlating limit and recorded as the final measurement.

Test receiver settings:

Frequency span	150 kHz to 30 MHz
Detector mode	Peak and Average (preview mode); Quasi-Peak (final measurements)
Resolution bandwidth	9 kHz
Video bandwidth	30 kHz
Trace mode	Max Hold
Measurement time	1000 ms

8.6.4 Test data

Full Spectrum



Plot 8.6-1: Conducted emissions

Table 8.6-2: Quasi-Peak and Average conducted emissions results

Frequency (MHz)	QuasiPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line
0.166000	31.76	---	65.54	33.78	1000.0	9.000	N
0.166000	---	12.93	55.54	42.61	1000.0	9.000	N
0.281000	---	9.46	52.26	42.80	1000.0	9.000	L1
0.281000	17.44	---	62.26	44.81	1000.0	9.000	L1
17.033000	20.03	---	60.00	39.97	1000.0	9.000	L1
17.033000	---	17.52	50.00	32.48	1000.0	9.000	L1
24.865000	---	9.04	50.00	40.96	1000.0	9.000	N
24.865000	14.44	---	60.00	45.56	1000.0	9.000	N
27.005000	---	10.13	50.00	39.87	1000.0	9.000	N
27.005000	15.96	---	60.00	44.04	1000.0	9.000	N
29.943000	---	12.51	50.00	37.49	1000.0	9.000	N
29.943000	19.36	---	60.00	40.64	1000.0	9.000	N

## Section 9. Block diagrams of test set-ups

### 9.1 Radiated emissions set-up

