

FCC Radio Test Report

FCC ID: WXAMP200A

This report concerns (check one): ☒ Original Grant ☐ Class II Change

Project No. : 1607163
Equipment : RFID Multi-ISO Protocol Scanner
Model Name : MP200A, MP200A-NP, MP200A-00, MP200A-XXX
(X=0~9,A~Z)
Applicant : GIGA-TMS INC.
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Date of Receipt : Jul. 25, 2016
Date of Test : Jul. 25, 2016 ~ Aug. 19, 2016
Issued Date : Aug. 22, 2016
Tested by : BTL Inc.

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Declaration

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For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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REPORT ISSUED HISTORY

Issue No.	Description	Issued Date
BTL-FCCP-1-1607163	Original Issue.	Aug. 22, 2016

1 CERTIFICATION

Equipment : RFID Multi-ISO Protocol Scanner
Brand Name : GIGATEK, PROMAG, ProxData
Model Name : MP200A, MP200A-NP, MP200A-00, MP200A-XXX (X=0~9,A~Z)
Applicant : GIGA-TMS INC.
Date of Test : Jul. 25, 2016 ~ Jun.06, 2016
Standard(s) : FCC Part 15, Subpart C (15.225)
ANSI C63.10-2013

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-1-1607163) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2 SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Standard Section	Test Item	Result
15.207	Conducted emission	PASS
15.35 / 15.205 / 15.209 / 15.225	Radiated emission	PASS
15.225(e)	Frequency Stability	PASS
15.203	Antenna Requirement	PASS

NOTE:

(1) N/A denotes test is not applicable in this test report

2.1 TEST FACILITY

The test facilities used to collect the test data in this report:

Conducted emission Test:

C05: (VCCI RN: C-4742; FCC RN:949005; FCC DN:TW1082)

No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

Radiated emission Test:

CB15: (VCCI RN: R-4260; FCC RN:949005; FCC DN:TW1082; IC Assigned Code:20088)

No. 68-1, Ln. 169, Sec.2, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan

2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty is not specified by FCC rules and for reference only.

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

The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

The BTL measurement uncertainty is less than the CISPR 16-4-2 U_{CISPR} requirement.

A. Conducted emission test:

Test Site	Method	Measurement Frequency Range	U, (dB)
C05	CISPR	150 kHz~30MHz	2.04

B. Radiated emission test:

Test Site	Method	Measurement Frequency Range	U, (dB)
CB15 (3m)	CISPR	9kHz ~ 150kHz	4.00
		150kHz ~ 30MHz	4.00

Test Site	Method	Measurement Frequency Range	Ant. H / V	U, (dB)
CB15 (3m)	CISPR	30 MHz ~ 200 MHz	V	3.06
		30 MHz ~ 200 MHz	H	2.58
		200 MHz ~ 1, 000 MHz	V	3.50
		200 MHz ~ 1, 000 MHz	H	3.10

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above. These are our U_{lab} values in CISPR 16-4-2 terminology.

Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR} , as follows:

Conducted Disturbance (mains port) - 150 kHz - 30 MHz: 3.6 dB

Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz - 1000 MHz: 5.2 dB

It can be seen that our U_{lab} values are smaller than U_{CISPR} .

Note: Unless specifically mentioned, the uncertainty of measurement has not been taken into account to declare the compliance or non-compliance to the specification.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	RFID Multi-ISO Protocol Scanner	
Brand Name	GIGATEK, PROMAG, ProxData	
Host Model	MP200A, MP200A-NP, MP200A-00, MP200A-XXX (X=0~9,A~Z)	
Model Difference	Only differ in I/O interface and one more switch PCB board	
Product Description	Operation Frequency	13.56 MHz
	Antenna Designation	LOOP Antenna
Power Source	Support from USB Port.	
Power Rating	DC 5V	

Note:

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

3.2 DESCRIPTION OF TEST MODES

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

Pretest Mode	Description
Mode 1	13.56MHz Transmit

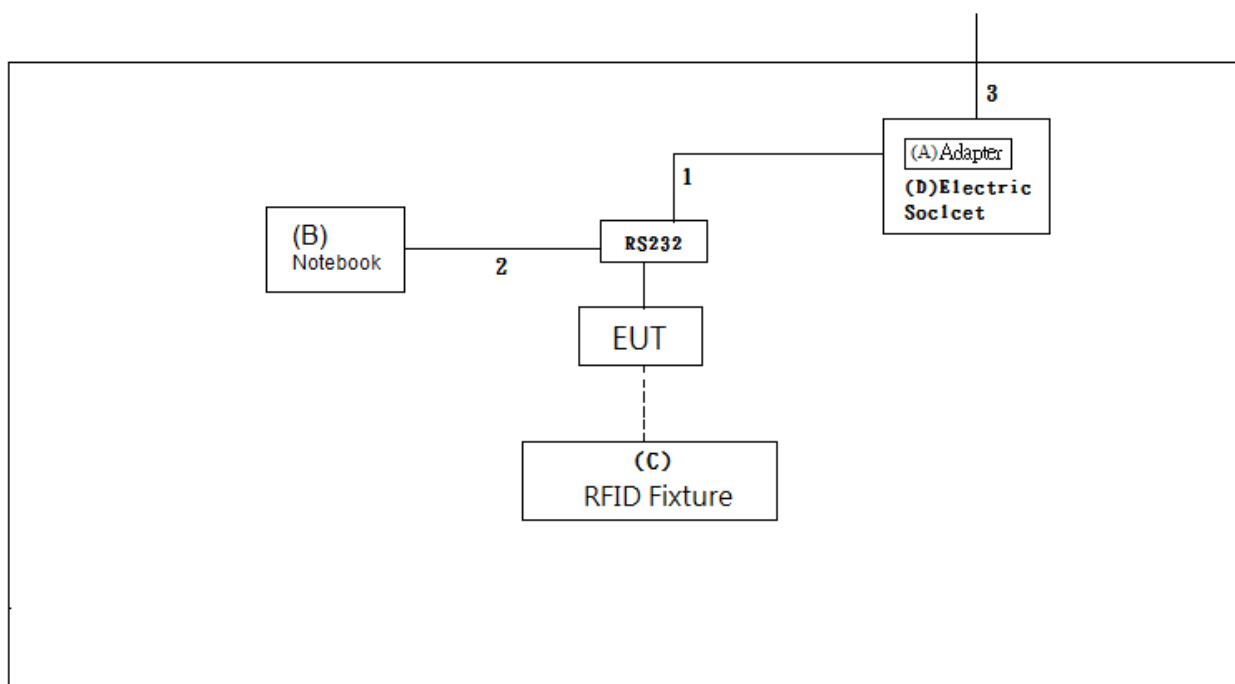
Conducted emission test	
Final Test Mode	Description
Mode 1	13.56MHz Transmit

Radiated emission test	
Final Test Mode	Description
Mode 1	13.56MHz Transmit

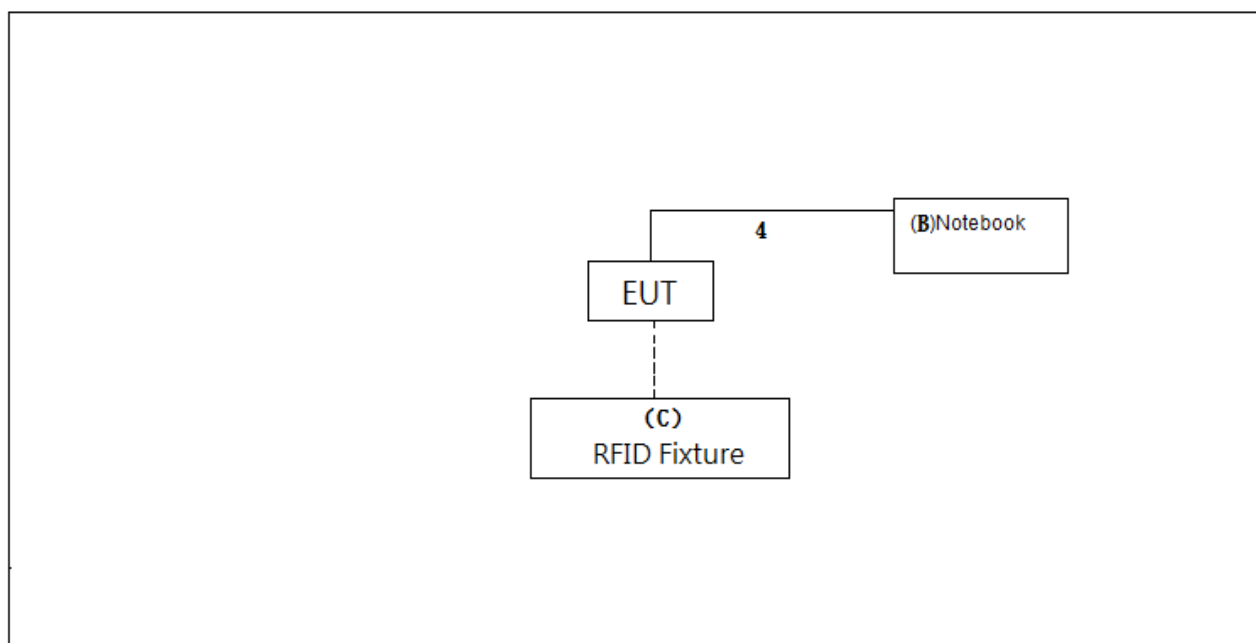
Frequency Stability test	
Final Test Mode	Description
Mode 1	13.56MHz Transmit

Antenna Requirement test	
Final Test Mode	Description
Mode 1	13.56MHz Transmit

3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED MP200A



MP200A-NP



3.4 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.
A	Notebook PC	Acer	Z8C	DOC	NXVAJTA0015520042C7600
B	RFID Fixture	N/A	N/A	N/A	N/A
C	Adapter	Acer	PA-1450-26	DOC	KP0450300254408652PE03
D	Adapte	JENTEC TECHNOLOGY	CF 1205-B	DOC	A1R01134106532
E	Electric Socket	N/A	N/A	N/A	N/A

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	Yes	1.5m	Power Cable
2	YES	NO	1m	Console to USB Cable
3	NO	NO	1.8m	Power Core
4	YES	NO	1.5m	USB Cable

Note:

(1) The support equipment was authorized by Declaration of Conformity (DOC).

4 CONDUCTED EMISSION

4.1 LIMITS

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

NOTE:

1. The tighter limit applies at the band edges.
2. The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.
3. The test result calculated as following:
 Measurement Value = Reading Level + Correct Factor
 Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
 Margin Level = Measurement Value – Limit Value

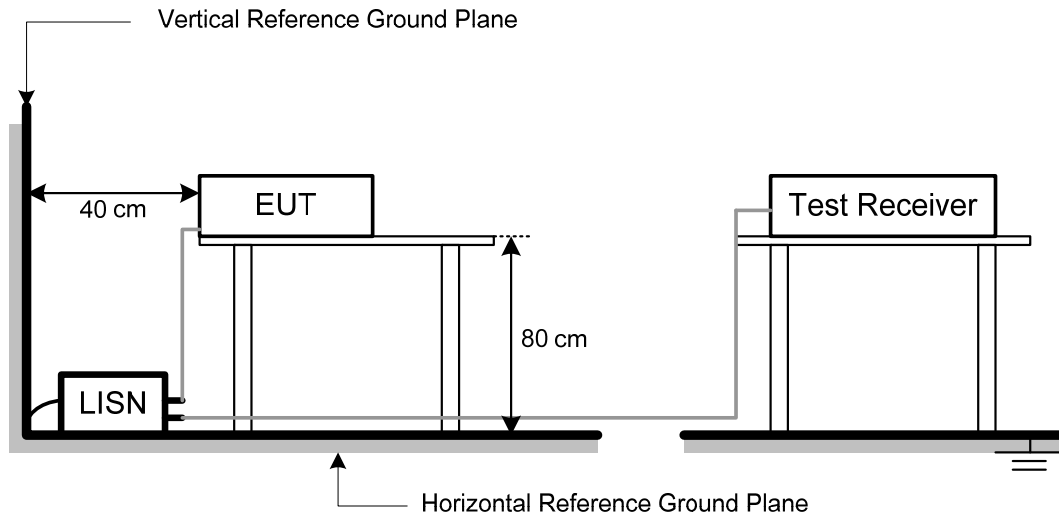
4.2 TEST PROCEDURES

- a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

NOTE:

- a. Reading in which marked as Peak, QP or AVG means measurements by using are Quasi-Peak or Average Mode with Detector BW=9 kHz (6 dB Bandwidth).
- b. All readings are Peak Mode value unless otherwise stated QP or AVG in column of Note. If the Peak or QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only Peak or QP Mode was measured, but AVG Mode didn't perform.

4.3 TEST SETUP LAYOUT



4.4 DEVIATION FROM TEST STANDARD

No deviation

4.5 EUT OPERATING CONDITIONS

The EUT used during radiated and/or conducted emission measurement was designed to exercise in a manner similar to a typical use.

4.6 EUT TEST CONDITIONS

Temperature: 25°C

Relative Humidity: 55%

Test Voltage: AC 120V/60Hz

4.7 TEST RESULTS

Please refer to the Attachment A.

Remark:

- (1) All readings are QP Mode value unless otherwise stated AVG in column of 『Note』 . If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform in this case, a "*" marked in AVG Mode column of Interference Voltage Measured.
- (2) Measuring frequency range from 150KHz to 30MHz.

5 RADIATED EMISSION

5.1 LIMITS

FCC Part 15.209				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
0.009 – 0.490	2400 / F(KHz)	300m	10000 * 2400/F(KHz)	20log 2400/F(KHz) + 80
0.490 – 1.705	24000 / F(KHz)	30m	100 * 24000/F(KHz)	20log 24000/F(KHz) + 40
1.705 – 30.00	30	30m	100* 30	20log 30 + 40
30.0 – 88.0	100	3m	100	20log 100
88.0 – 216.0	150	3m	150	20log 150
216.0 – 960.0	200	3m	200	20log 200
Above 960.0	500	3m	500	20log 500
FCC Part 15.225(a)/(b)/(c)				
Frequency (MHz)	Field Strength Limitation		Field Strength Limitation at 3m Measurement Dist	
	(uV/m)	Dist	(uV/m)	(dBuV/m)
13.553 – 13.567	15,848	30 m	15,848*100	124
13.567 – 13.710	334	30 m	334*100	90.5
13.110 – 13.410 13.710 – 14.010	106	30 m	106*100	80.5

NOTE:

- (1) The tighter limit shall apply at the boundary between two frequency range.
- (2) Limitation expressed in dBuV/m is calculated by 20log Emission Level (uV/m).
- (3) If measurement is made at 3m distance, then F.S Limitation at 3m distance is adjusted by using the formula of $L_{d1} = L_{d2} * (d_2/d_1)^2$.
Example:
F.S Limit at 30m distance is 30uV/m , then F.S Limitation at 3m distance is adjusted as $L_{d1} = L_1 = 30uV/m * (10)^2 = 100 * 30 uV/m$
- (4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Insertion Loss + Cable Loss + Attenuator Factor(if use)
Margin Level = Measurement Value – Limit Value

5.2 TEST PROCEDURE

- a. The measuring distance of 3 m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
- b. The height of the equipment or of the substitution antenna shall be 0.8 m or 1.5m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- c. The initial step in collecting radiated emission data is a receiver peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- d. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform. (below 1GHz)
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

NOTE: (FCC PART 15.209)

- a. Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode with Detector BW=120 kHz.
- b. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

NOTE: (FCC PART 15.225)

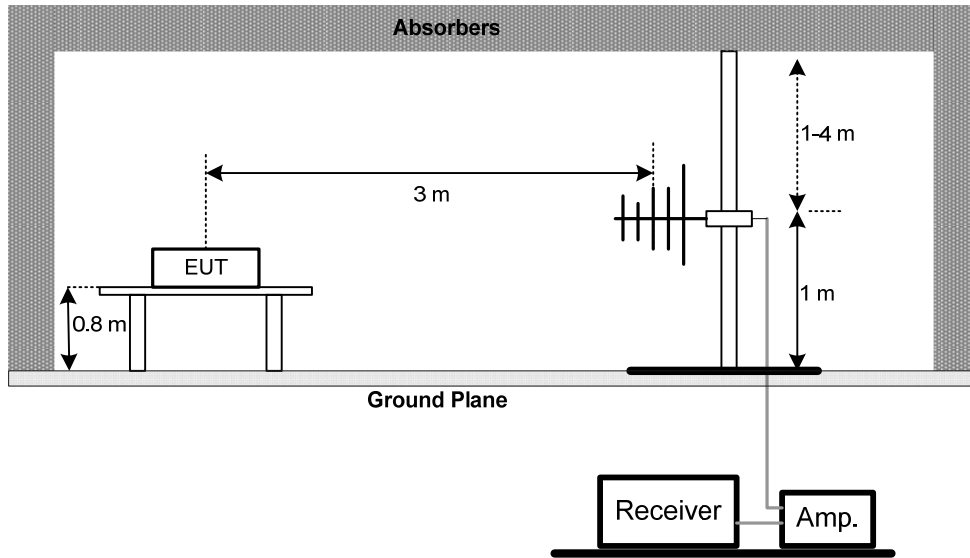
- a. Spectrum Setting:
 - 9 KHz – 150 KHz, RBW= 200Hz, VBW=200Hz, Sweep time = 200 ms.
 - 150 K Hz – 30 MHz, RBW= 10 KHz, VBW=10 KHz, Sweep time = 200 ms.
 - 30 MHz – 1000 MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.
- b. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- c. The Log-Bicon Antenna will use to test frequency range from 30MHz to 1000MHz and the Loop Antenna will use to test frequency below 30MHz.

5.3 DEVIATION FROM TEST STANDARD

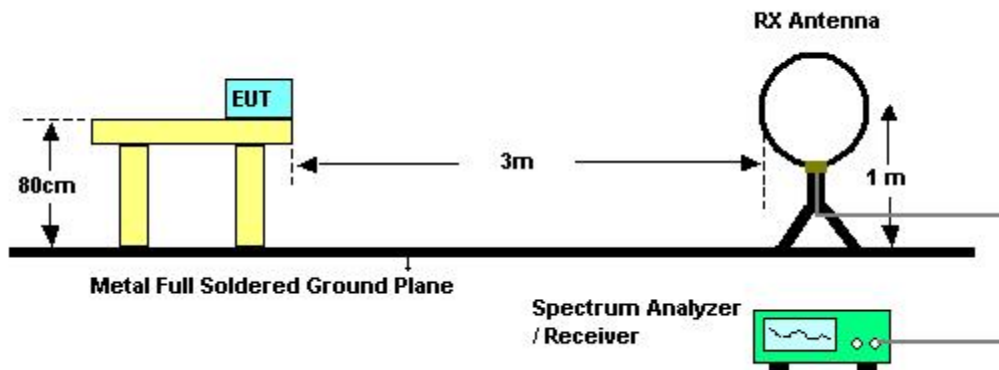
No deviation

5.4 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) For radiated emissions below 30MHz



5.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.5 unless otherwise a special operating condition is specified in the follows during the testing.

5.6 EUT TEST CONDITIONS

Temperature: 25°C

Relative Humidity: 45%

Test Voltage: AC 120V/60Hz

5.7 TEST RESULTS (BELOW 30MHZ) - FCC PART 15.209

Please refer to the Attachment B.

5.8 TEST RESULTS - (30-1000MHZ) - FCC PART 15.209

Please refer to the Attachment C.

5.9 TEST RESULTS- FCC PART 15.225

Please refer to the Attachment D.

6 FREQUENCY STABILITY

6.1 LIMITS

FCC Part 15.225(e)

The frequency tolerance of the carrier signal shall be maintained within +/-0.01% of the operating frequency over a temperature variation of - 20 degrees to + 50 degrees 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 degrees C.

For battery operated equipment, the equipment tests shall be performed using a new battery.

6.2 TEST PROCEDURE

- a. The equipment under test was connected to an external AC power supply and the RF output was connected to a frequency counter via feed through attenuators. The EUT was placed inside the temperature chamber.
After the temperature stabilized for approximately 20 minutes, the frequency of the output signal was recorded from the counter.
- b. At room temperature (25±5°C), an external variable AC power supply was connected to the EUT. The frequency of the transmitter was measured for 115%, 100% and 85% of the nominal operating input voltage.

6.3 DEVIATION FROM TEST STANDARD

No deviation

6.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 4.5. unless otherwise a special operating condition is specified in the follows during the testing.

6.5 EUT TEST CONDITIONS

Temperature: 22°C

Relative Humidity: 66%

Test Voltage: AC 120V/60Hz

6.6 TEST RESULTS

Please refer to the Attachment E.

7. MEASUREMENT INSTRUMENTS LIST

Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	TWO-LINE V-NETWORK	R&S	ENV216	101050	Jan. 26, 2017
2	Test Cable	TIMES	CFD300-NL	C02	Jun. 15, 2017
3	EMI Test Receiver	R&S	ESR7	101433	Dec. 10, 2016
4	Measurement Software	EZ	EZ_EMC (Version NB-03A)	N/A	N/A

Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Trilog-Broadband Antenna	Schwarzbeck	VULB9168-352	9168-352	Feb. 04, 2017
2	Horn Antenna	Schwarzbeck	BBHA 9120	D-546	Nov. 05, 2017
3	Pre-Amplifier	HP	8447D	2944A08891	Mar. 09 2017
4	Pre-Amplifier	Agilent	8449B	3008A02331	Jan. 24, 2017
5	Test Cable	EMCI	EMC8D-NM-NM-8000	150301	Mar. 09, 2017
6	Test Cable	EMCI	EMC104-SM-SM-2500	150303	Mar. 09, 2017
7	Test Cable	EMCI	EMC104-NM-SM-1000	150304	Mar. 09, 2017
8	Test Cable	EMCI	EMC104-SM-SM-5000	150302	Mar. 29, 2017
9	Test Cable	EMCI	EMC104-SM-SM-800	150305	Mar. 29, 2017
10	EXA Spectrum Analyzer	Agilent	N9010A	MY52220990	Feb. 24, 2017
11	EMI Test Receiver	Agilent	N9038A	MY51210215	Jan. 08, 2017
12	Loop Antenna	EMCO	6502	00042960	Nov. 06. 2016

Frequency Stability Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	EXA Spectrum Analyzer	Agilent	N9010A	MY52220990	Feb. 24, 2017

Remark: "N/A" denotes no model name, serial no. or calibration specified.
All calibration period of equipment list is one year.

8 EUT TEST PHOTO

Conducted emission test photos

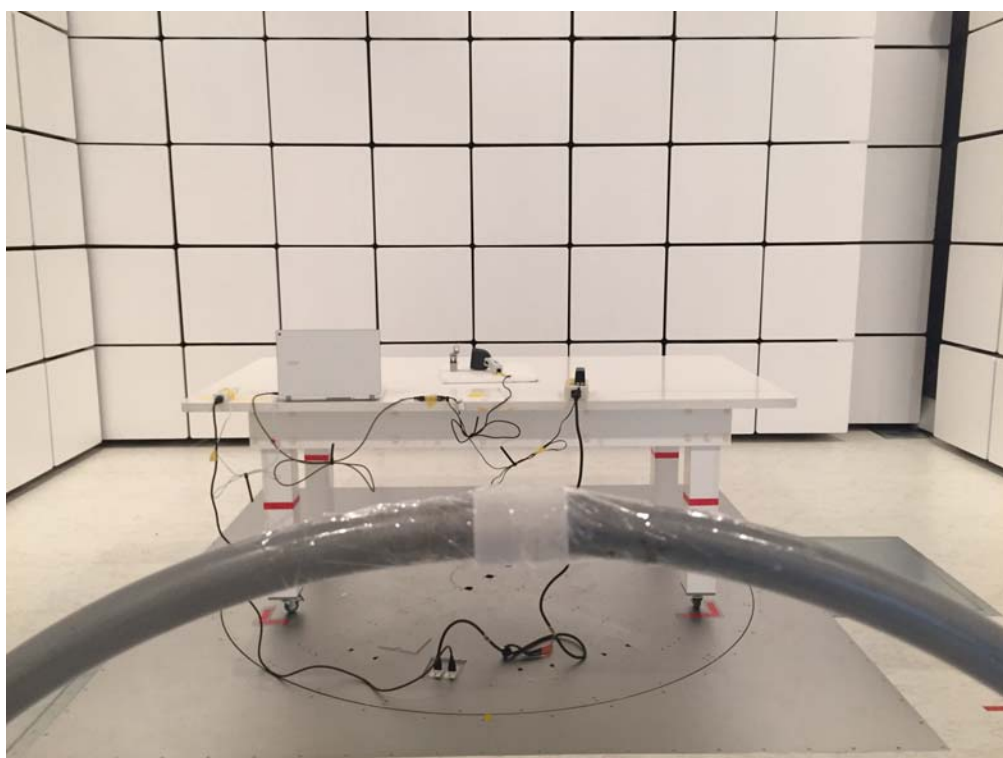
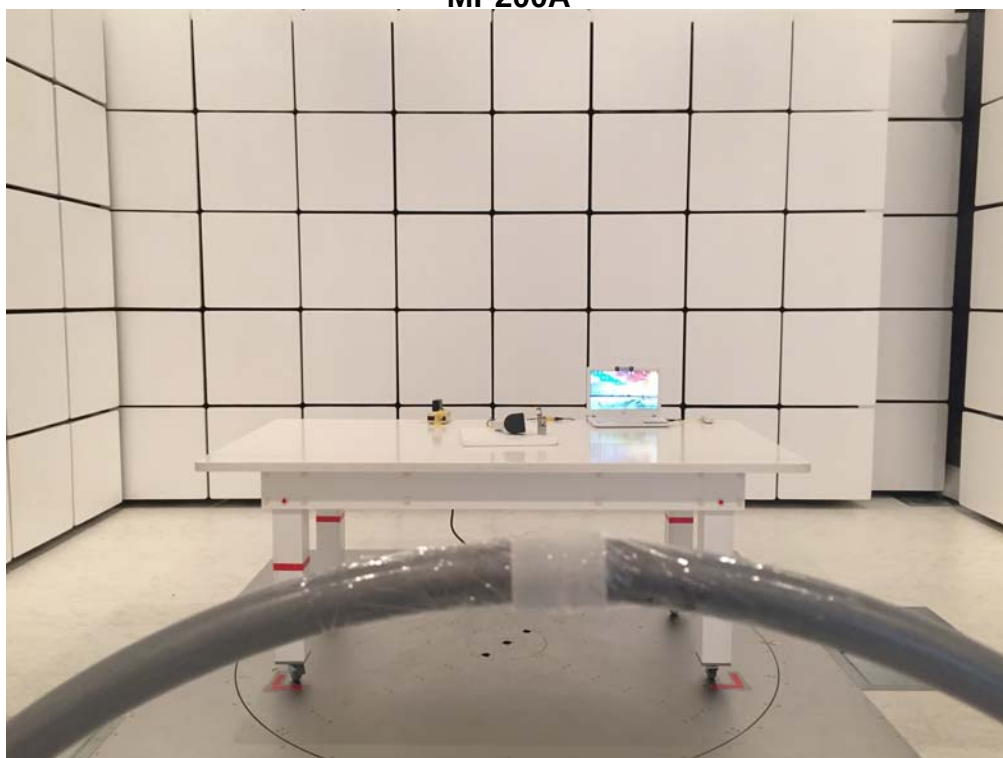
MP200A



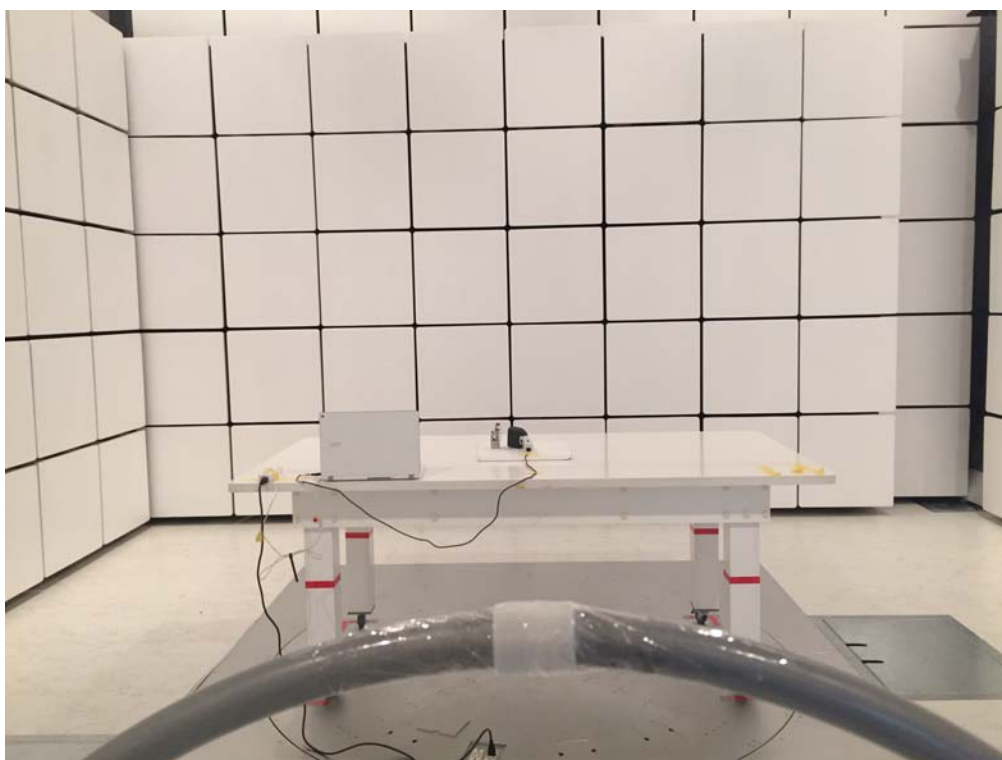
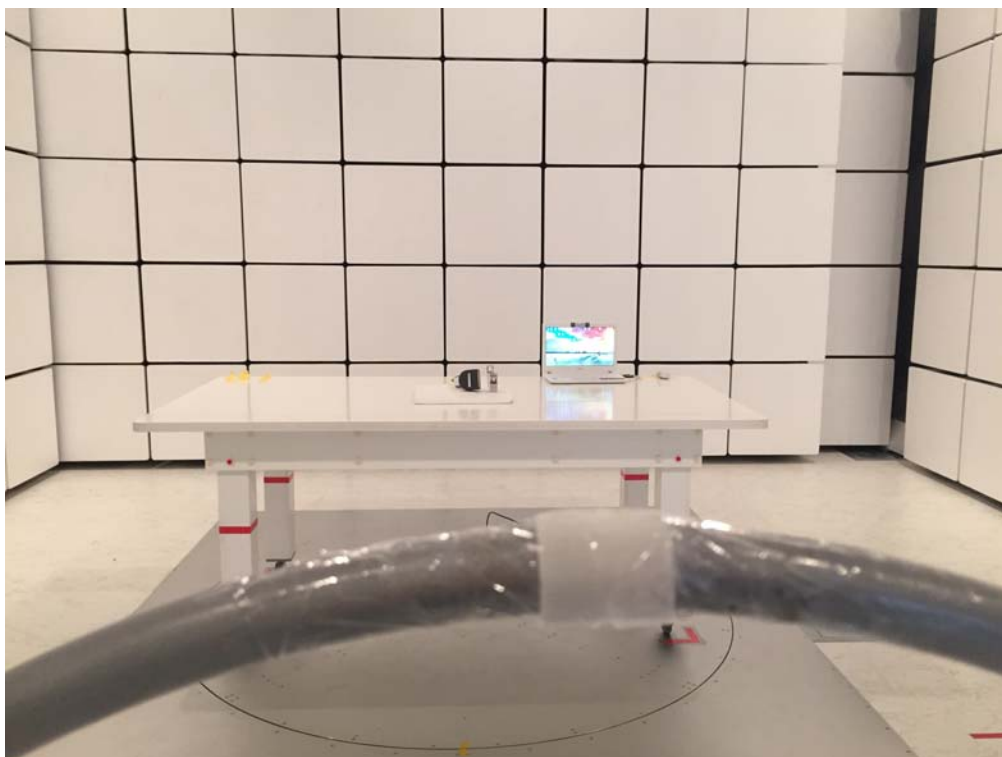
MP200A-NP



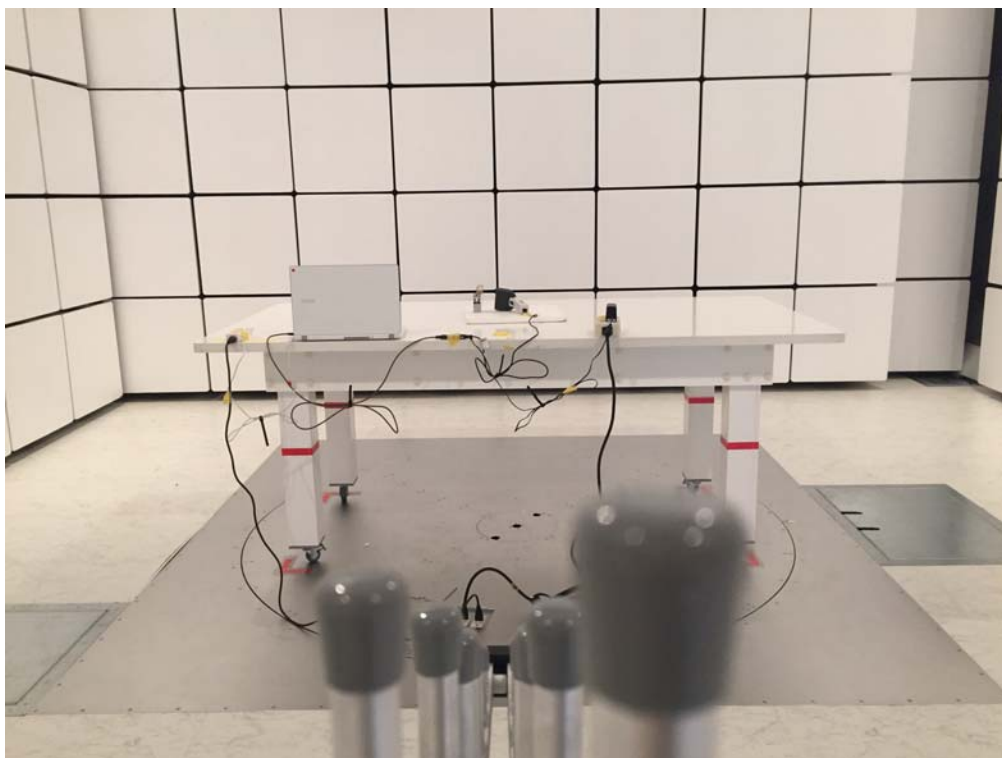
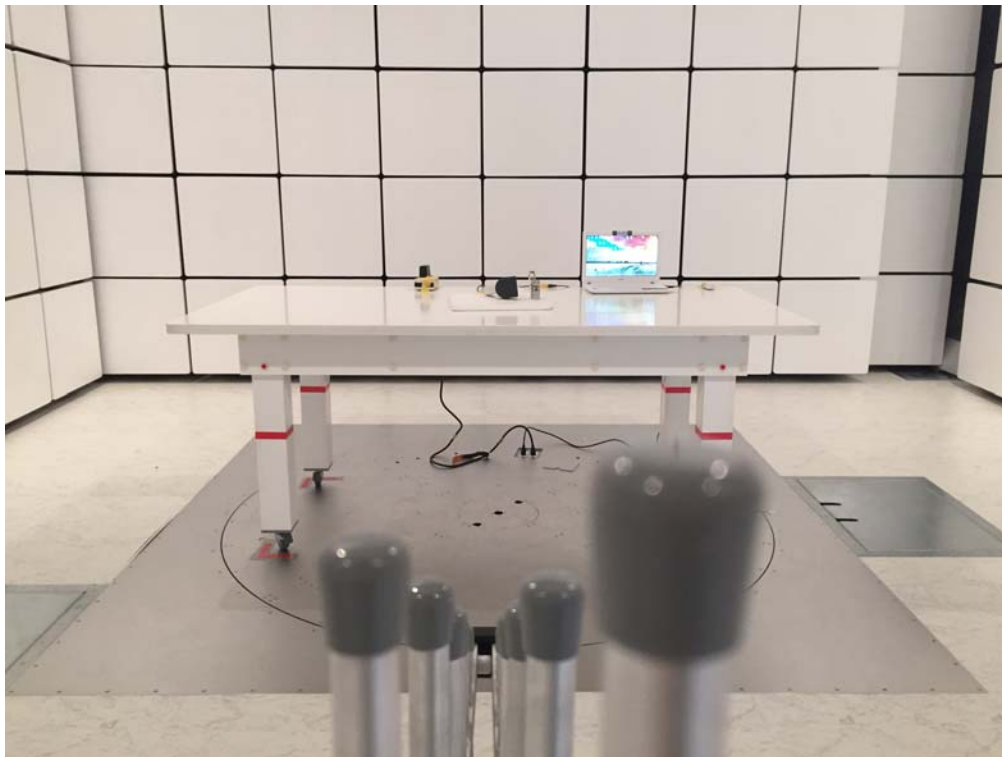
**Radiated emission test photos
9KHz to 30MHz
MP200A**



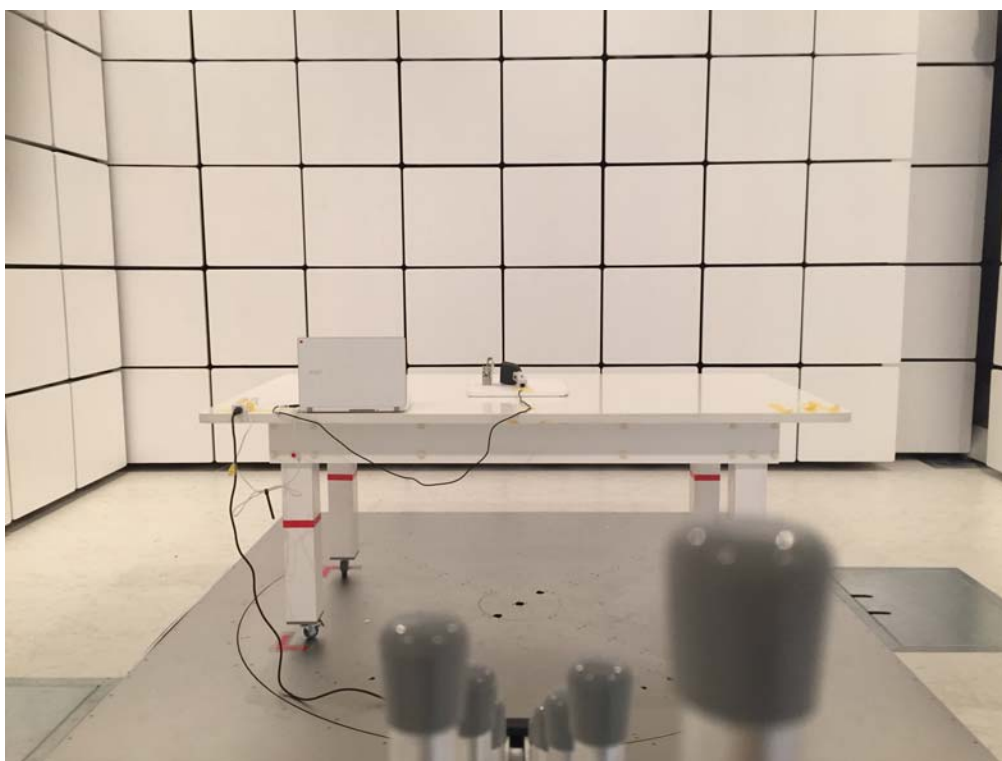
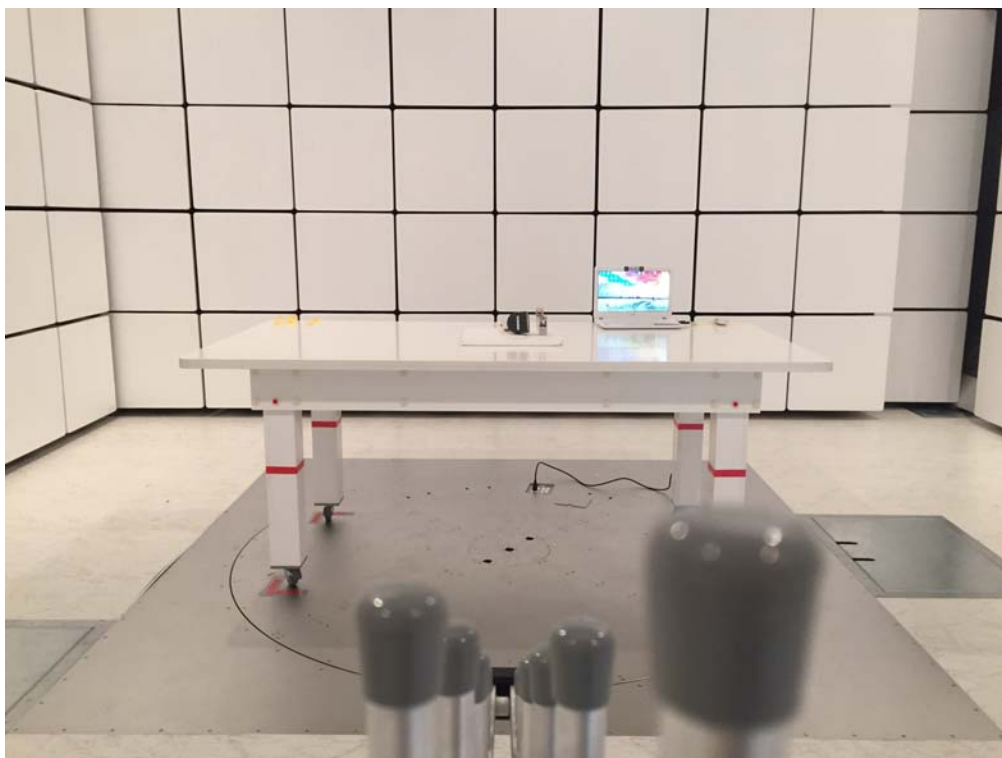
MP200A-NP



**Radiated emission test photos
30MHz to 1000MHz
MP200A**

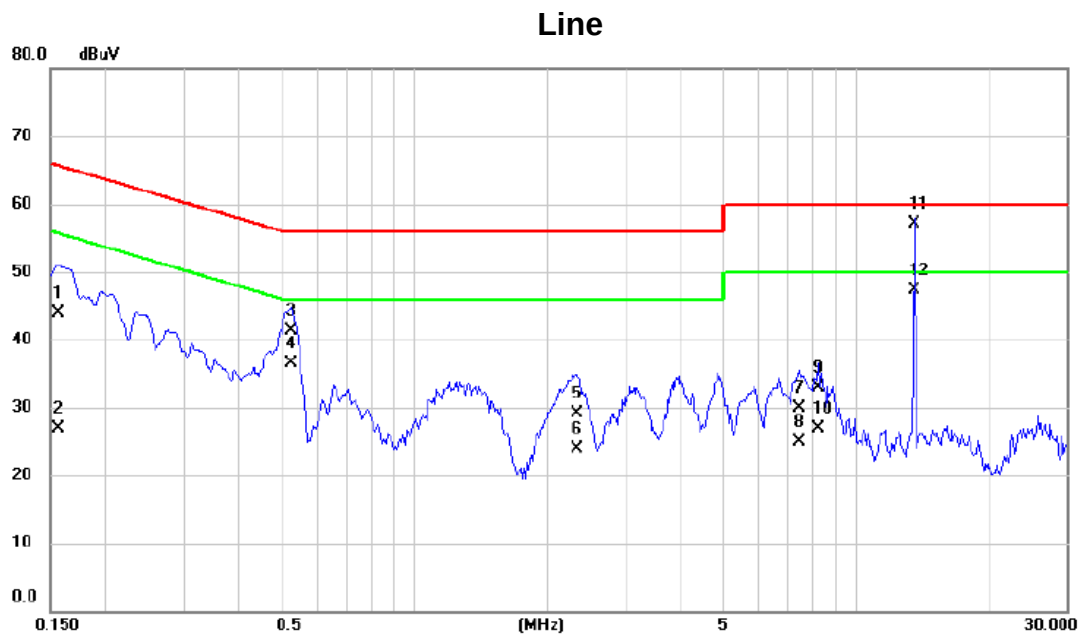


MP200A-NP



ATTACHMENT A - CONDUCTED EMISSION

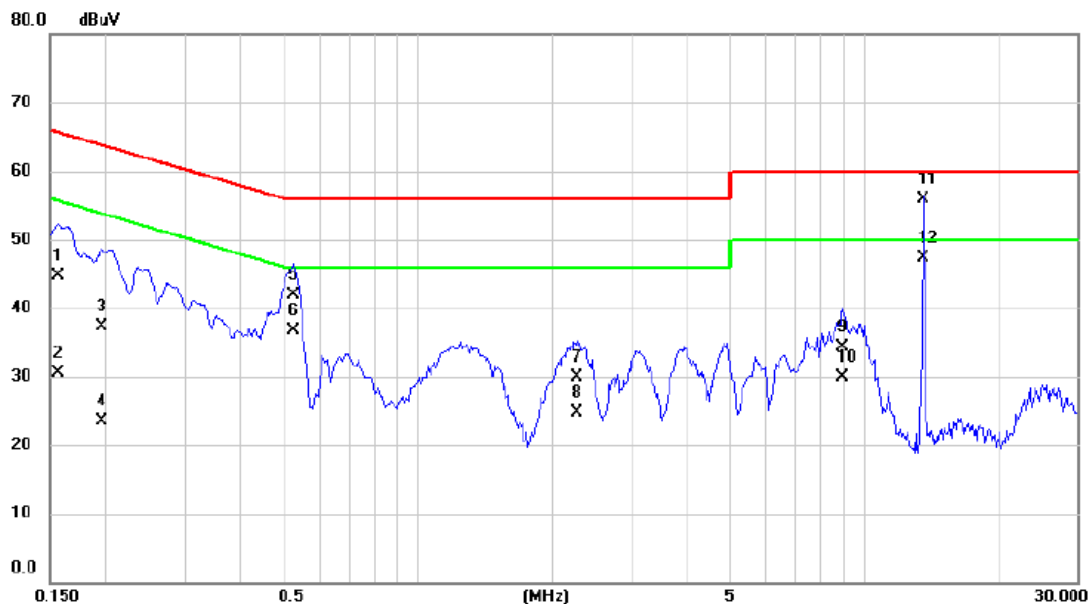
Test Mode : 13.56MHz Transmit_MP200A



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1556	34.20	9.66	43.86	65.70	-21.84	QP	
2		0.1556	17.30	9.66	26.96	55.70	-28.74	AVG	
3		0.5270	31.60	9.67	41.27	56.00	-14.73	QP	
4		0.5270	26.80	9.67	36.47	46.00	-9.53	AVG	
5		2.3360	19.40	9.74	29.14	56.00	-26.86	QP	
6		2.3360	14.10	9.74	23.84	46.00	-22.16	AVG	
7		7.4500	20.00	9.82	29.82	60.00	-30.18	QP	
8		7.4500	15.00	9.82	24.82	50.00	-25.18	AVG	
9		8.2000	23.00	9.82	32.82	60.00	-27.18	QP	
10		8.2000	17.10	9.82	26.92	50.00	-23.08	AVG	
11		13.5500	47.30	9.90	57.20	60.00	-2.80	QP	
12	*	13.5500	37.50	9.90	47.40	50.00	-2.60	AVG	

Test Mode : 13.56MHz Transmit_MP200A

Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1563	35.10	9.67	44.77	65.66	-20.89	QP	
2		0.1563	20.80	9.67	30.47	55.66	-25.19	AVG	
3		0.1955	27.70	9.66	37.36	63.80	-26.44	QP	
4		0.1955	13.90	9.66	23.56	53.80	-30.24	AVG	
5		0.5270	32.20	9.67	41.87	56.00	-14.13	QP	
6		0.5270	27.10	9.67	36.77	46.00	-9.23	AVG	
7		2.2640	20.20	9.75	29.95	56.00	-26.05	QP	
8		2.2640	15.00	9.75	24.75	46.00	-21.25	AVG	
9		8.9500	24.50	9.83	34.33	60.00	-25.67	QP	
10		8.9500	20.00	9.83	29.83	50.00	-20.17	AVG	
11		13.5500	46.00	9.90	55.90	60.00	-4.10	QP	
12	*	13.5500	37.40	9.90	47.30	50.00	-2.70	AVG	

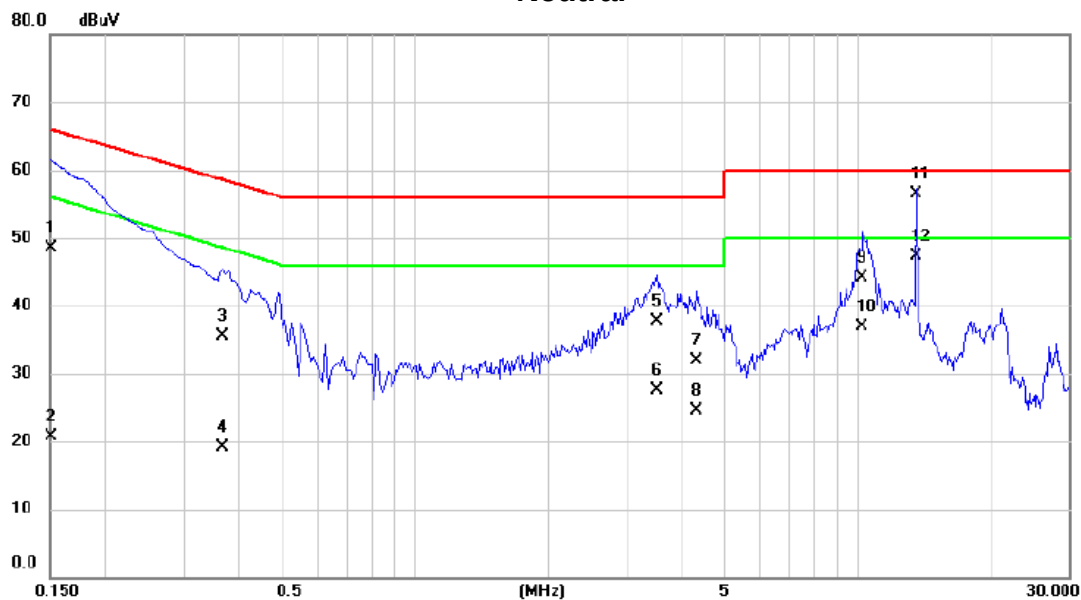
Test Mode : 13.56MHz Transmit_ MP200A-NP



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1500	39.30	9.66	48.96	66.00	-17.04	QP	
2		0.1500	11.80	9.66	21.46	56.00	-34.54	AVG	
3		3.5150	27.10	9.78	36.88	56.00	-19.12	QP	
4		3.5150	15.90	9.78	25.68	46.00	-20.32	AVG	
5		3.8660	25.40	9.79	35.19	56.00	-20.81	QP	
6		3.8660	16.00	9.79	25.79	46.00	-20.21	AVG	
7		4.4960	22.30	9.80	32.10	56.00	-23.90	QP	
8		4.4960	14.40	9.80	24.20	46.00	-21.80	AVG	
9		10.6500	33.40	9.83	43.23	60.00	-16.77	QP	
10		10.6500	25.80	9.83	35.63	50.00	-14.37	AVG	
11		13.5500	46.90	9.90	56.80	60.00	-3.20	QP	
12	*	13.5500	37.50	9.90	47.40	50.00	-2.60	AVG	

Test Mode : 13.56MHz Transmit_ MP200A-NP

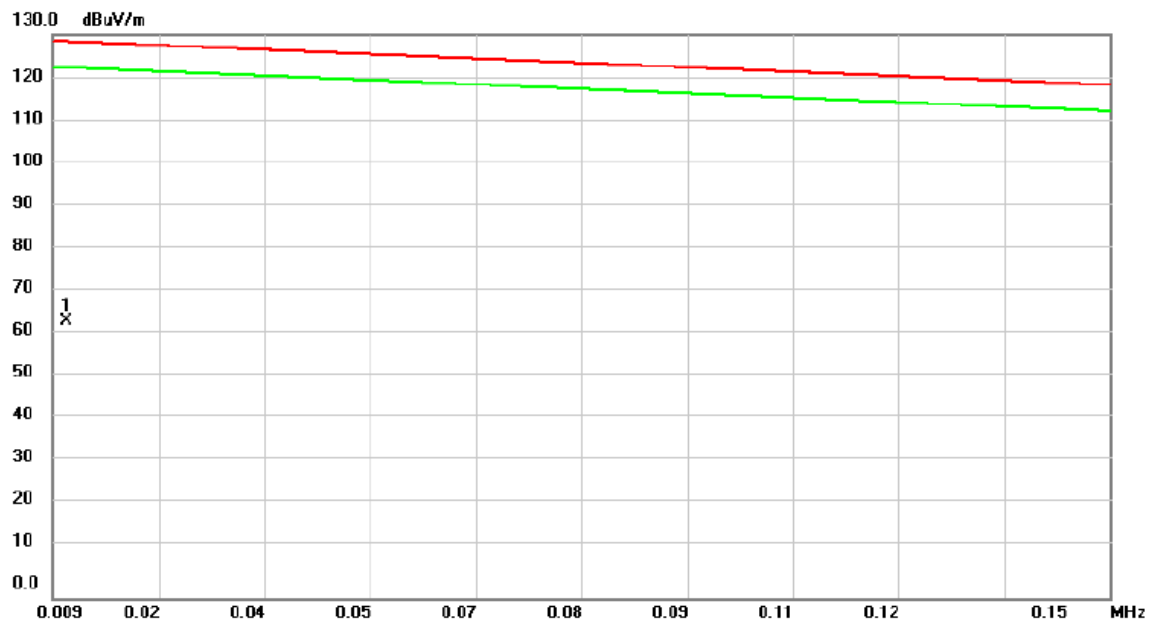
Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1500	38.80	9.67	48.47	66.00	-17.53	QP	
2		0.1500	11.00	9.67	20.67	56.00	-35.33	AVG	
3		0.3670	25.90	9.66	35.56	58.57	-23.01	QP	
4		0.3670	9.50	9.66	19.16	48.57	-29.41	AVG	
5		3.5240	27.90	9.78	37.68	56.00	-18.32	QP	
6		3.5240	17.70	9.78	27.48	46.00	-18.52	AVG	
7		4.3160	22.20	9.80	32.00	56.00	-24.00	QP	
8		4.3160	14.80	9.80	24.60	46.00	-21.40	AVG	
9		10.2500	34.20	9.83	44.03	60.00	-15.97	QP	
10		10.2500	27.10	9.83	36.93	50.00	-13.07	AVG	
11		13.5500	46.60	9.90	56.50	60.00	-3.50	QP	
12	*	13.5500	37.50	9.90	47.40	50.00	-2.60	AVG	

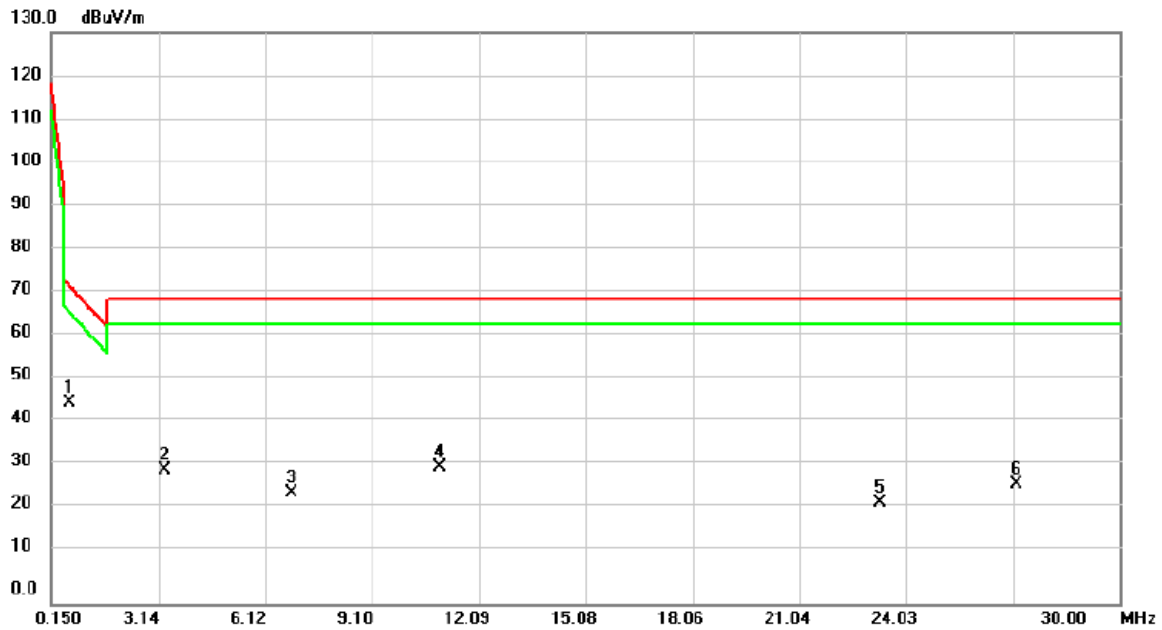
ATTACHMENT B - RADIATED EMISSION (9KHZ-30MHZ)

Test Mode: 13.56MHz Transmit – Open



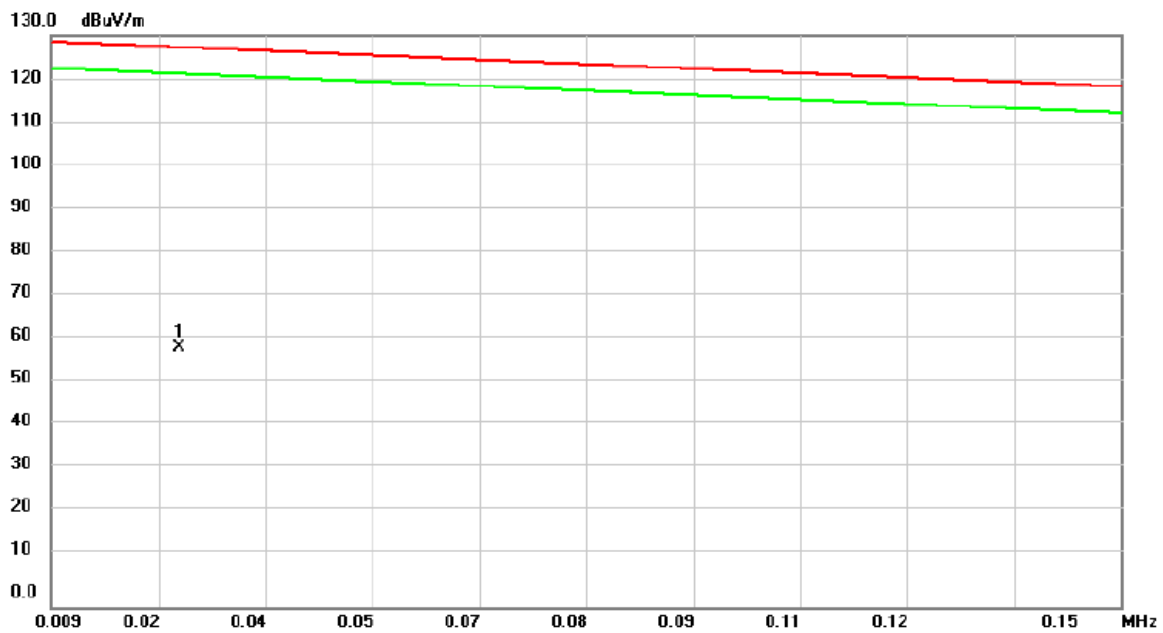
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	0.0107	43.65	20.31	63.96	128.40	-64.44	peak	

Test Mode: 13.56MHz Transmit - Open



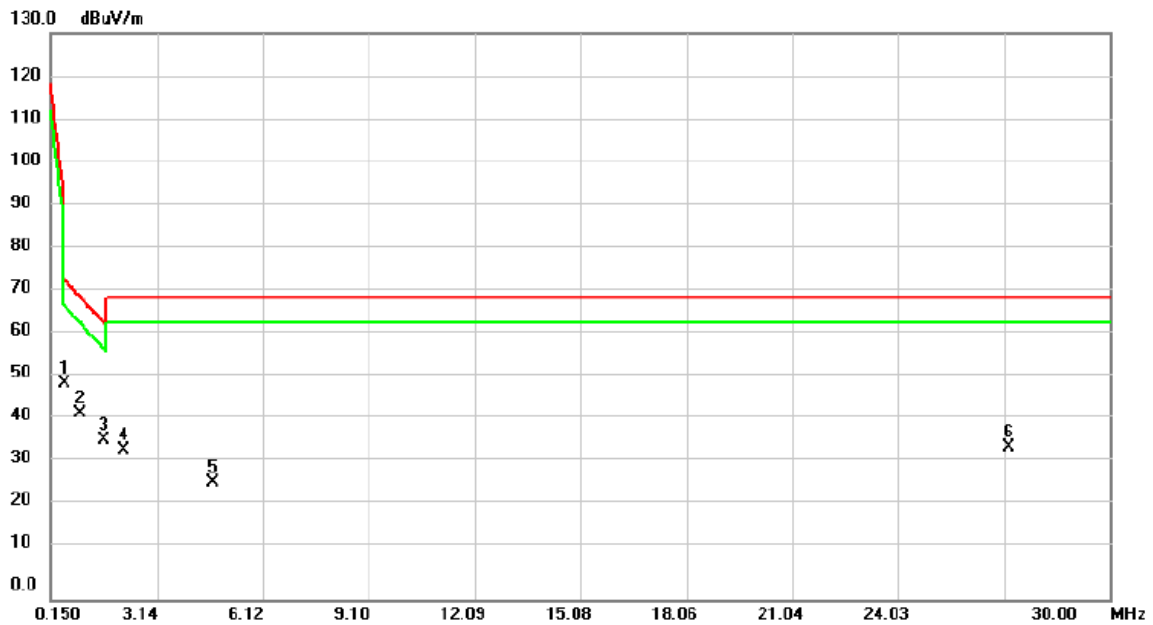
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.6572	33.83	11.86	45.69	72.31	-26.62	peak	
2		3.3140	19.21	11.15	30.36	69.54	-39.18	peak	
3		6.8364	13.90	11.36	25.26	69.54	-44.28	peak	
4		11.0152	19.71	11.27	30.98	69.54	-38.56	peak	
5		23.2835	12.57	10.41	22.98	69.54	-46.56	peak	
6		27.1341	17.28	9.72	27.00	69.54	-42.54	peak	

Test Mode: 13.56MHz Transmit - Close



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	0.0258	42.89	16.16	59.05	127.31	-68.26	peak	

Test Mode: 13.56MHz Transmit - Close

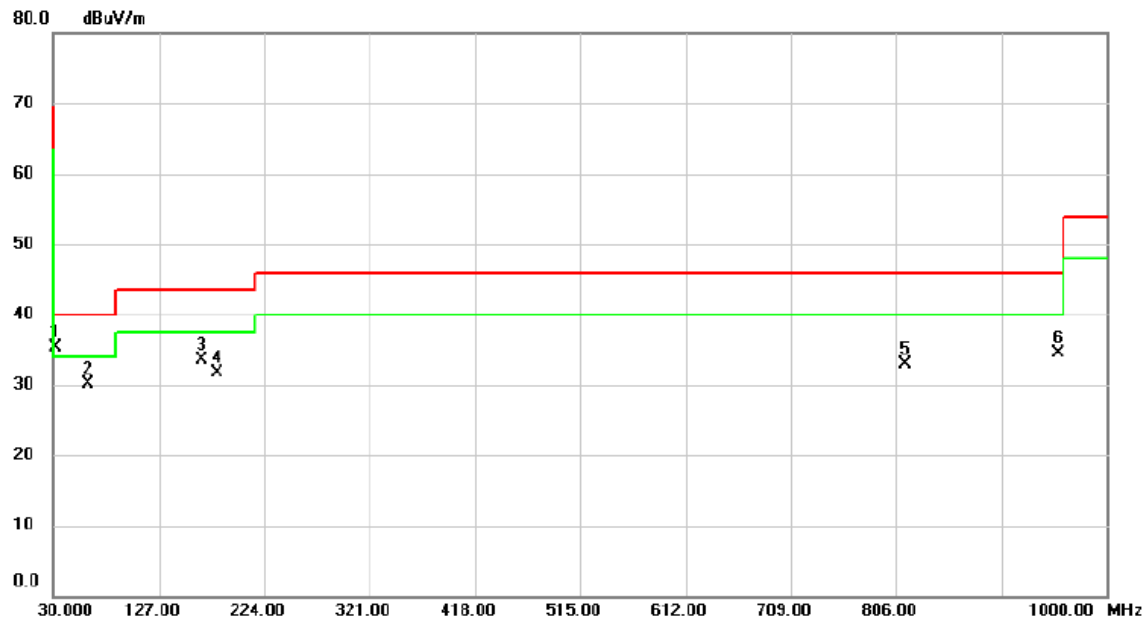


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	0.5082	37.73	11.80	49.53	73.64	-24.11	peak	
2		0.9560	30.88	11.98	42.86	69.65	-26.79	peak	
3		1.6425	24.97	11.71	36.68	63.53	-26.85	peak	
4		2.2096	22.89	11.46	34.35	69.54	-35.19	peak	
5		4.7171	15.59	11.36	26.95	69.54	-42.59	peak	
6		27.1344	25.23	9.72	34.95	69.54	-34.59	peak	

ATTACHMENT C - RADIATED EMISSION (30MHZ TO 1000MHZ)

Test Mode: 13.56MHz Transmit

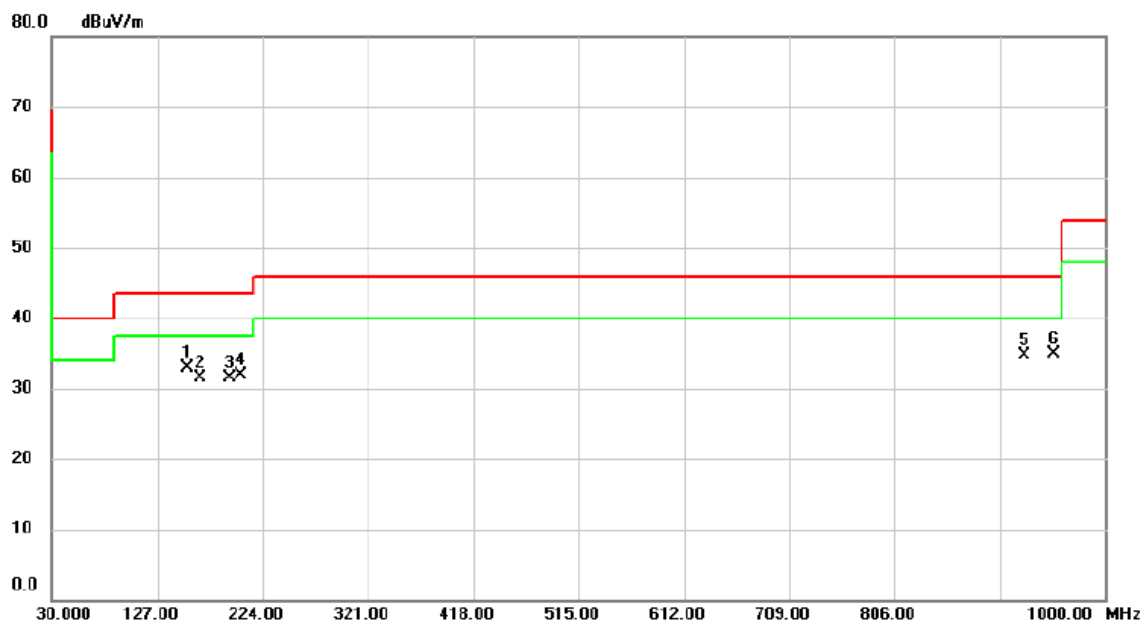
Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	31.9400	44.22	-8.93	35.29	40.00	-4.71	peak	
2		62.0100	39.23	-9.16	30.07	40.00	-9.93	peak	
3		165.8000	42.21	-8.73	33.48	43.50	-10.02	peak	
4		180.3500	41.62	-9.90	31.72	43.50	-11.78	peak	
5		814.7300	29.88	3.10	32.98	46.00	-13.02	peak	
6		955.3800	28.88	5.56	34.44	46.00	-11.56	peak	

Test Mode: 13.56MHz Transmit

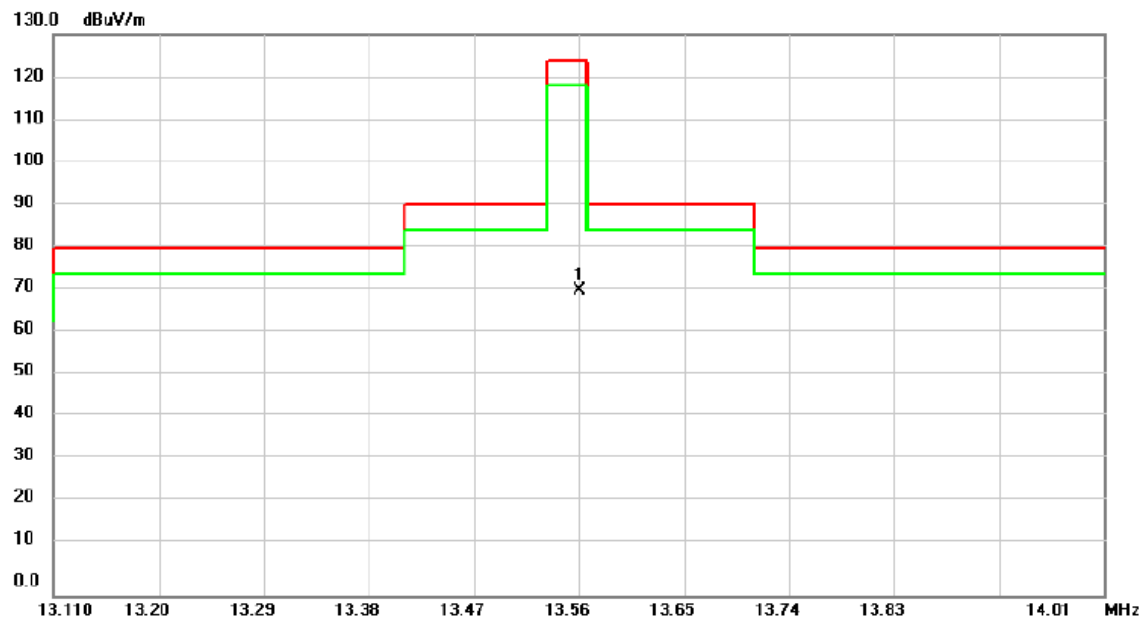
Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	155.1300	41.49	-8.65	32.84	43.50	-10.66	peak	
2		165.8000	40.15	-8.73	31.42	43.50	-12.08	peak	
3		192.9600	42.19	-10.66	31.53	43.50	-11.97	peak	
4		203.6300	42.82	-10.85	31.97	43.50	-11.53	peak	
5		925.3100	29.61	5.05	34.66	46.00	-11.34	peak	
6		952.4700	29.38	5.52	34.90	46.00	-11.10	peak	

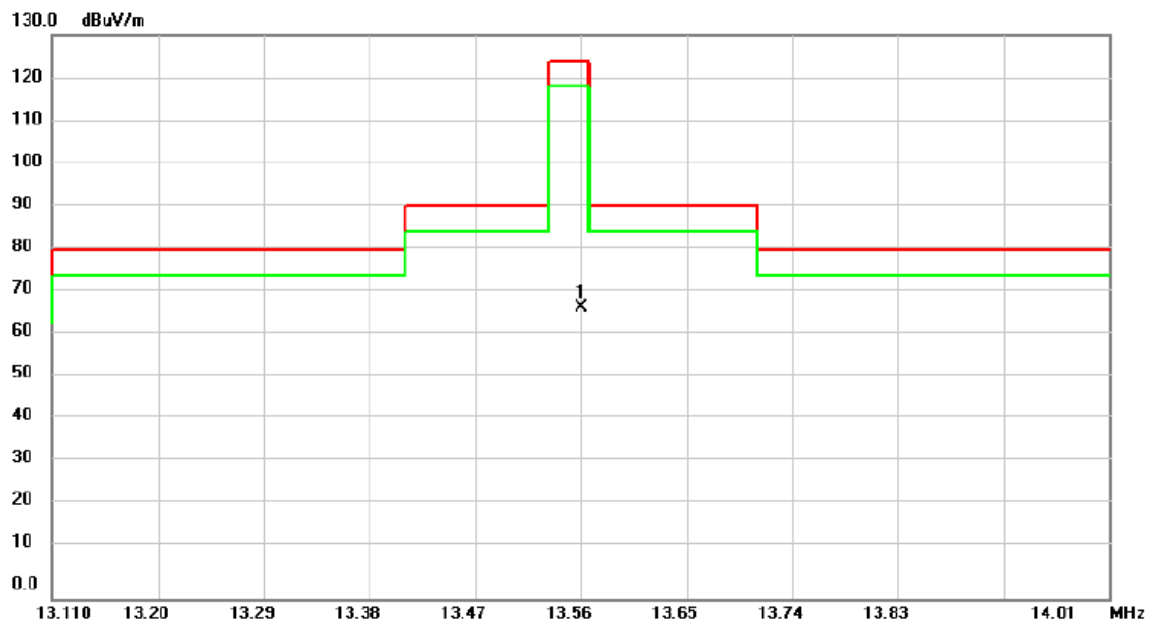
ATTACHMENT D - RADIATED EMISSION (FCC PART 15.225)

Test Mode: 13.56MHz Transmit – Open



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Margin dB	Detector	Comment
1	*	13.5610	59.47	11.19	70.66	124.00	-53.34	peak	

Test Mode: 13.56MHz Transmit - Close



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Margin		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	13.5610	55.77	11.19	66.96	124.00	-57.04	peak	

ATTACHMENT E - FREQUENCY STABILITY MEASUREMENT

Test Mode:	13.56MHz Transmit_MP200A
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Frequency Stability Versus Environmental Temperature						
	Temperature (°C)	Voltage (AC)	Frequency (MHz)	Frequency Error (kHz)	Limit (kHz)	Result
0 min	20	5V	13.56094	-	-	-
	50	5V	13.56089	-0.050	+/- 1.356	PASS
2 min	-20	5V	13.56103	0.090	+/- 1.356	PASS
	50	5V	13.56082	-0.120	+/- 1.356	PASS
5 min	-20	5V	13.56108	0.140	+/- 1.356	PASS
	50	5V	13.56075	-0.190	+/- 1.356	PASS
10 min	-20	5V	13.56112	0.180	+/- 1.356	PASS
	50	5V	13.56066	-0.280	+/- 1.356	PASS
	-20	5V	13.56125	0.310	+/- 1.356	PASS

Frequency Stability Versus Input Voltage						
Temperature (°C)	Voltage (AC)		Frequency (MHz)	Frequency Error (kHz)	Limit (kHz)	Result
20	V-nom	5	13.56094	-	+/- 1.356	PASS
20	V-min	4	13.56096	0.02	+/- 1.356	PASS
20	V-max	6	13.56098	0.04	+/- 1.356	PASS

Test Mode:	13.56MHz Transmit_ MP200A-NP
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Frequency Stability Versus Environmental Temperature						
	Temperature (°C)	Voltage (AC)	Frequency (MHz)	Frequency Error (kHz)	Limit (kHz)	Result
	20	5V	13.56094	-	-	-
0 min	50	5V	13.56089	-0.050	+/- 1.356	PASS
	-20	5V	13.56103	0.090	+/- 1.356	PASS
2 min	50	5V	13.56082	-0.120	+/- 1.356	PASS
	-20	5V	13.56108	0.140	+/- 1.356	PASS
5 min	50	5V	13.56075	-0.190	+/- 1.356	PASS
	-20	5V	13.56112	0.180	+/- 1.356	PASS
10 min	50	5V	13.56066	-0.280	+/- 1.356	PASS
	-20	5V	13.56125	0.310	+/- 1.356	PASS

Frequency Stability Versus Input Voltage						
Temperature (°C)	Voltage (AC)		Frequency (MHz)	Frequency Error (kHz)	Limit (kHz)	Result
20	V-nom	5	13.56094	-	+/- 1.356	PASS
20	V-min	4	13.56096	0.02	+/- 1.356	PASS
20	V-max	6	13.56098	0.04	+/- 1.356	PASS