

Radio Test Report

FCC ID: HLEMT200LF

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

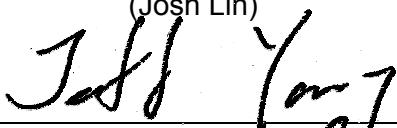
Project No. : 1410172
Equipment : IP Base Intercom Door Phone
Model Name : MT200L
Applicant : unitech electronics co., ltd.
Address : 5F, No. 136, Lane 235, Pao-Chiao Rd., Hsin-Tien City, New Taipei City, Taiwan.

Date of Receipt : Oct. 20, 2014
Date of Test : Oct. 20, 2014 ~ Nov. 14, 2014
Issued Date : Nov. 17, 2014
Tested by : BTL Inc.

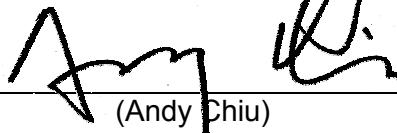
Testing Engineer

: 
(Josh Lin)

Technical Manager

: 
(Jeff Yang)

Authorized Signatory

: 
(Andy Chiu)

B T L I N C .

B1, No. 37, Lane 365, Yang-guang St.,
Nei-hu District, Taipei City 114, Taiwan.
TEL:+886-2-2657-3299 FAX: +886-2- 2657-3331



Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C.**, or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

BTL's reports apply only to the specific samples tested under conditions. It is manufacturer's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

BTL's reports must not be used by the client to claim product endorsement by the authorities or any agency of the Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and **BTL-self**, extracts from the test report shall not be reproduced except in full with **BTL**'s authorized written approval.

BTL's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

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.

Table of Contents

REPORT ISSUED HISTORY	5
1 CERTIFICATION	6
2 SUMMARY OF TEST RESULTS	7
2.1 TEST FACILITY	8
2.2 MEASUREMENT UNCERTAINTY	8
3 GENERAL INFORMATION	9
3.1 GENERAL DESCRIPTION OF EUT	9
3.2 DESCRIPTION OF TEST MODES	10
3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	11
3.4 DESCRIPTION OF SUPPORT UNITS	12
4 CONDUCTED EMISSION	13
4.1 LIMITS	13
4.2 TEST PROCEDURES	13
4.3 TEST SETUP LAYOUT	14
4.4 DEVIATION FROM TEST STANDARD	14
4.5 EUT OPERATING CONDITIONS	14
4.6 EUT TEST CONDITIONS	14
4.7 TEST RESULTS	14
5 RADIATED EMISSION	15
5.1 LIMITS	15
5.2 TEST PROCEDURE	16
5.3 DEVIATION FROM TEST STANDARD	17
5.4 TEST SETUP	17
5.5 EUT OPERATING CONDITIONS	17
5.6 EUT TEST CONDITIONS	18
5.7 TEST RESULTS (BELOW 30MHZ) - FCC PART 15.209	18
5.8 TEST RESULTS - (30-1000MHZ) - FCC PART 15.209	18
5.9 TEST RESULTS- FCC PART 15.225	18
6 FREQUENCY STABILITY	19
6.1 LIMITS	19
6.2 TEST PROCEDURE	19
6.3 DEVIATION FROM TEST STANDARD	19
6.4 EUT OPERATING CONDITIONS	19
6.5 EUT TEST CONDITIONS	19
6.6 TEST RESULTS	19
7 . MEASUREMENT INSTRUMENTS LIST	20
8 EUT TEST PHOTO	21
ATTACHMENT A - CONDUCTED EMISSION	24

Table of Contents

ATTACHMENT B - RADIATED EMISSION (9KHZ-30MHZ)	27
ATTACHMENT C - RADIATED EMISSION (30MHZ TO 1000MHZ)	29
ATTACHMENT D - RADIATED EMISSION (FCC PART 15.225)	32
ATTACHMENT E - FREQUENCY STABILITY MEASUREMENT	34

REPORT ISSUED HISTORY

Issue No.	Description	Issued Date
BTL-FCCP-1-1410172	Original Issue.	Nov. 17, 2014

1 CERTIFICATION

Equipment : IP Base Intercom Door Phone
Brand Name : TASHI;unitech
Model Name : MT200L
Applicant : unitech electronics co., ltd.
Date of Test : Oct. 20, 2014 ~ Nov. 14, 2014
Standards : FCC Part 15, Subpart C: 2013
ANSI C63.4-2009

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-1-1410172) 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:

C02: (VCCI RN: C-3477; FCC RN: 614388; FCC DN: TW1054)

1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

Radiated emission Test:

CB08: (FCC RN: 614388; FCC DN: TW1054; IC Assigned Code: 4428C-1)

1F., No. 61, Ln. 77, Sing-ai Rd., Neihu Dist., Taipei City 114, Taiwan (R.O.C.)

2.2 MEASUREMENT UNCERTAINTY

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

The reported uncertainty of measurement $y \pm U$, where expended 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.

A. Conducted emission test:

Test Site	Measurement Frequency Range	U,(dB)	NOTE
C02	150 kHz ~ 30 MHz	2.59	

B. Radiated emission test:

Test Site	Item	Measurement Frequency Range	Uncertainty	NOTE
CB08	Radiated emission at 3m	Horizontal Polarization	30 - 200MHz	3.35 dB
			200 - 1000MHz	3.11 dB
			1 - 18GHz	3.97 dB
			18 - 40GHz	4.01 dB
		Vertical Polarization	30 - 200MHz	3.22 dB
			200 - 1000MHz	3.24 dB
			1 - 18GHz	4.05 dB
			18 - 40GHz	4.04 dB

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} .

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	IP Base Intercom Door Phone				
Brand Name	TASHI;unitech				
Model Name	MT200L				
OEM Brand/Model Name	N/A				
Model Difference	N/A				
Product Description	<table border="1"> <tr> <td>Operation Frequency</td> <td>13.56 MHz</td> </tr> <tr> <td>Antenna Designation</td> <td>LOOP Antenna</td> </tr> </table> <p>More details of EUT technical specification please refer to the User's Manual.</p>	Operation Frequency	13.56 MHz	Antenna Designation	LOOP Antenna
Operation Frequency	13.56 MHz				
Antenna Designation	LOOP Antenna				
Power Source	<p>#1 DC Voltage supplied from AC Adapter. Manufacturer: SUNNY COMPUTER TECHNOLOGY CO.,LTD Model: SYS1319-2412-T3</p> <p>#2 Supplied From POE.</p>				
Power Rating	<p>#1 I/P: AC 100-240V~1.0A MAX 50-60Hz O/P:+12V/2.0A</p> <p>#2 I/P: DC 48V</p>				
Connecting I/O Port(s)	Please refer to the User's Manual				
EUT Modification(s)	N/A				

Note:

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

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.

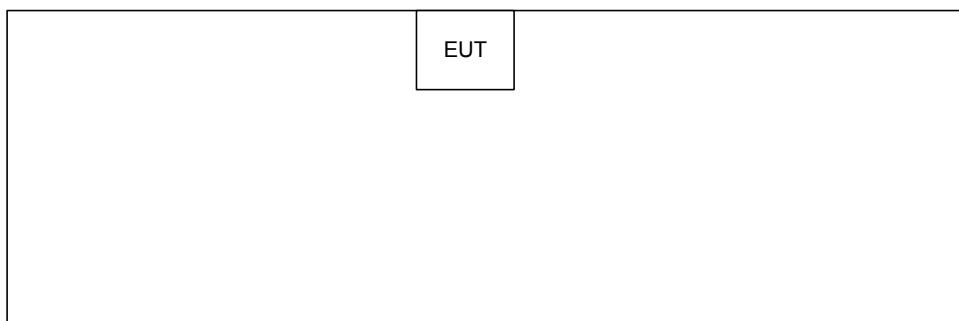
Pretest Test Mode	Description
Mode 1	13.56MHz Transmit

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

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.	Note
-	-	-	-	-	-	-

Item	Shielded Type	Ferrite Core	Length	Note
-	-	-	-	-

Note:

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

4 CONDUCTED EMISSION

4.1 LIMITS

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 - 5.0	73.00	60.00	56.00	46.00
5.0 - 30.0	73.00	60.00	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:

$$\text{Measurement Value} = \text{Reading Level} + \text{Correct Factor}$$

$$\text{Correct Factor} = \text{Insertion Loss} + \text{Cable Loss} + \text{Attenuator Factor(if use)}$$

$$\text{Margin Level} = \text{Measurement Value} - \text{Limit Value}$$

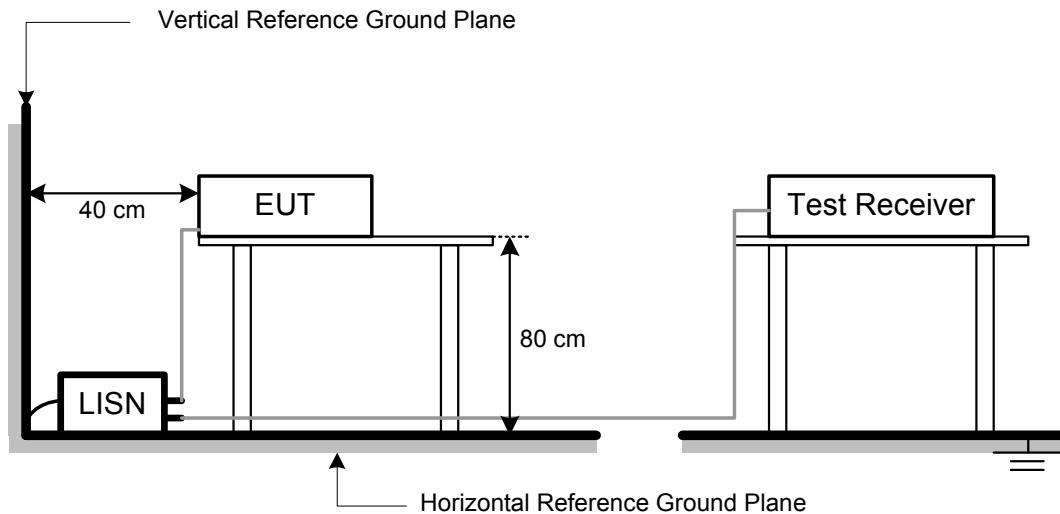
4.2 TEST PROCEDURES

- 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	106	30 m	106*100	80.5
13.710 – 14.010				

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 at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m or 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting radiated 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.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. 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)

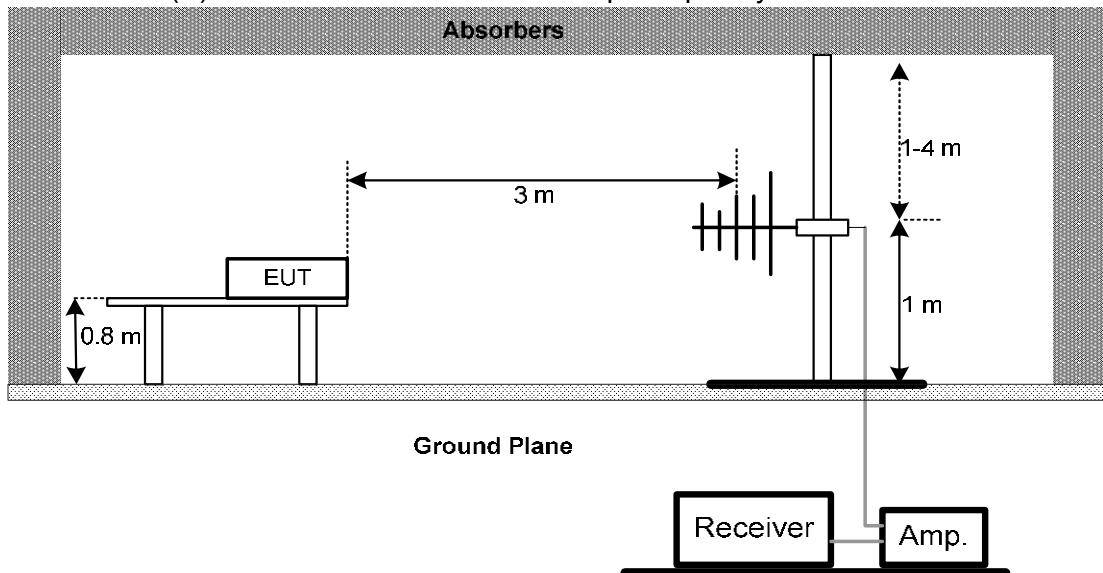
- a. Spectrum Setting:
9 KHz – 150 KHz, RBW= 200Hz, VBW=200Hz, Sweep time = 200 ms.
150 K Hz – 30 MHz, RBW= 10 KHz, VBW=10 KHz, Sweep time = 200 ms.
30 MHz – 1000 MHz, RBW= 100KHz, VBW=100KHz, Sweep time = 200 ms.
- b. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that 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

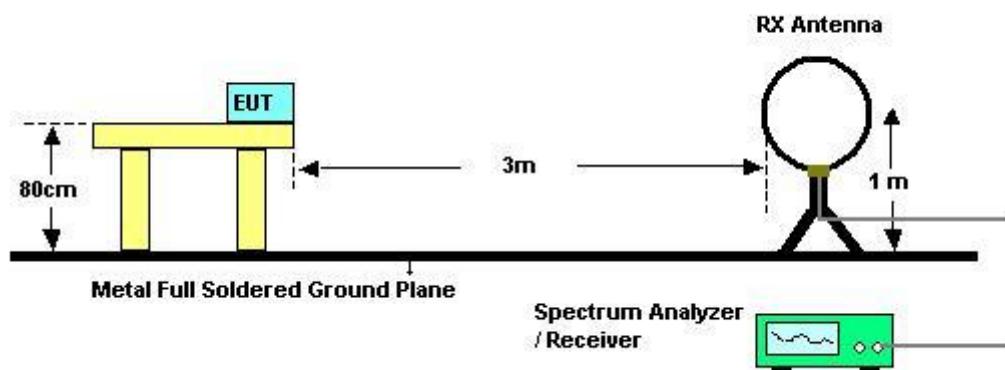
No deviation

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 **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

5.6 EUT TEST CONDITIONS

Temperature: 21°C

Relative Humidity: 62%

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 ($25\pm5^{\circ}\text{C}$), 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: 25°C

Relative Humidity: 55%

Test Voltage: AC 120V/60Hz

6.6 TEST RESULTS

Please refer to the Attachment E.

7. MEASUREMENT INSTRUMENTS LIST

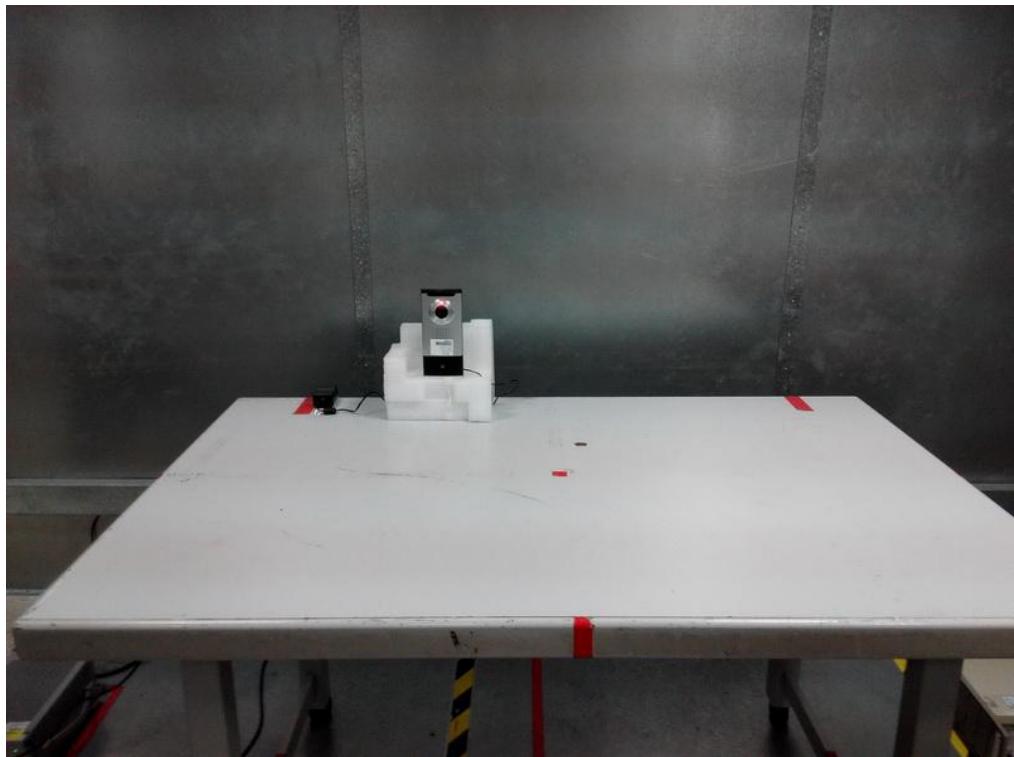
Conducted Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	R&s	ENV216	100087	Nov. 23, 2014
2	Test Cable	TIMES	CFD300-NL	C01	Jun. 15, 2015
3	EMI Test Receiver	R&S	ESCI	100082	Apr. 13, 2015
4	Measurement Software	EZ	EZ_EMCS (Version NB-02A)	N/A	N/A

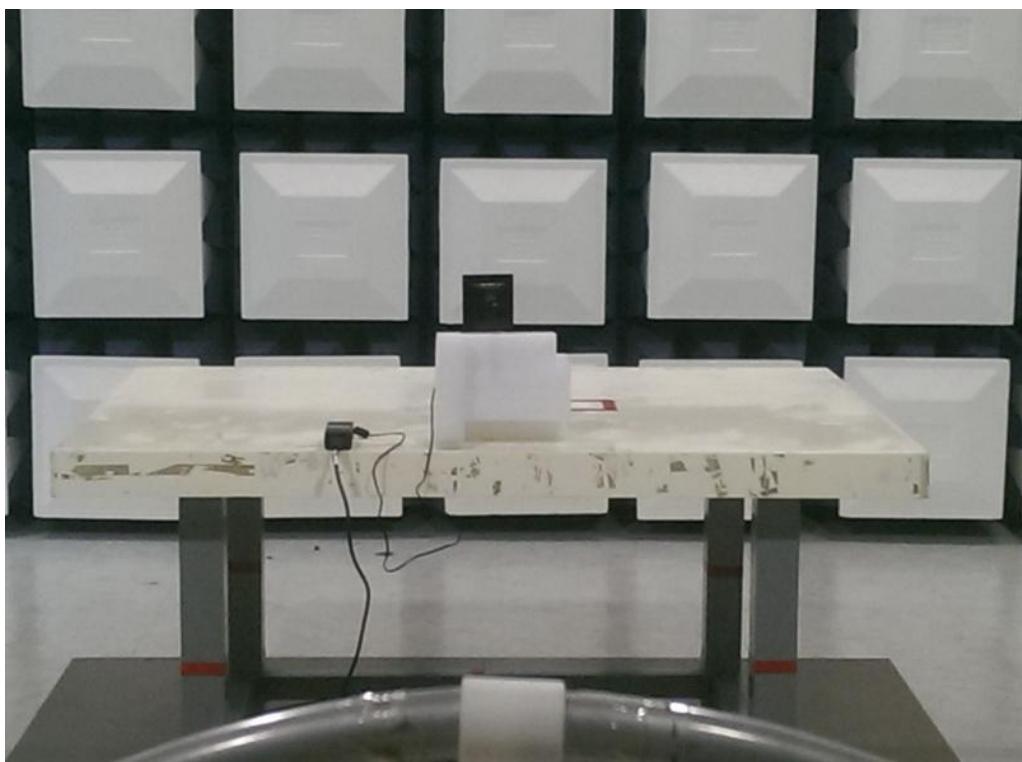
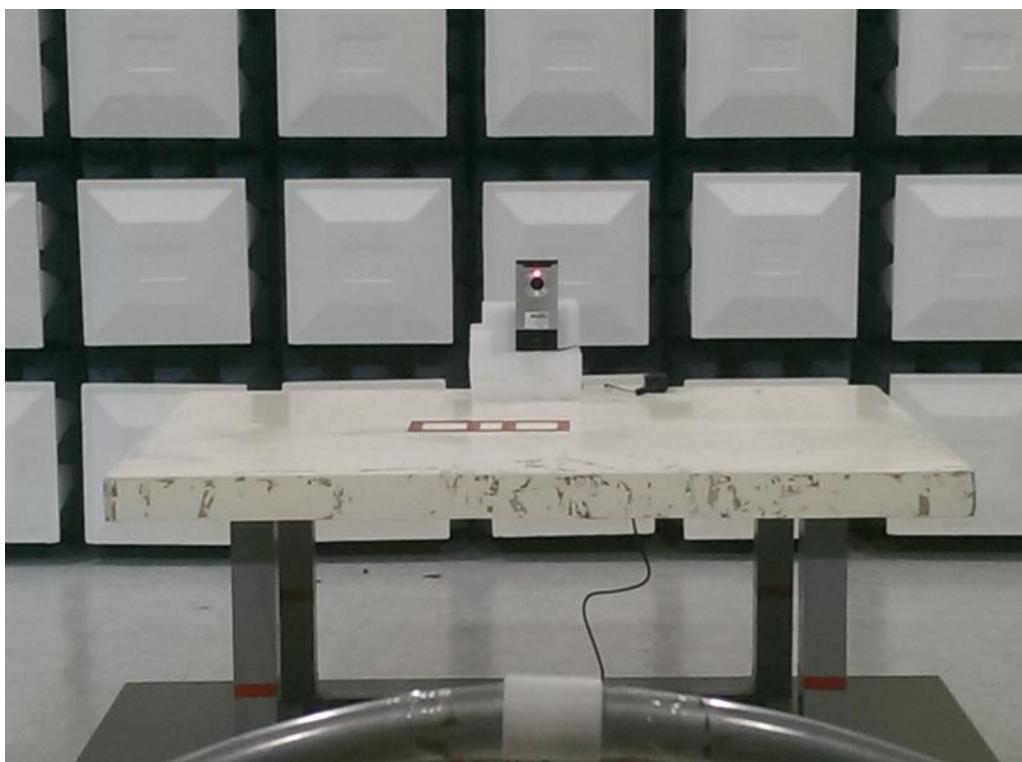
Radiated Emission Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Oct. 26, 2015
2	Microflex Cable	Harbour industries	27478LL142	1m	May. 12, 2015
3	Test Cable	LMR	LMR-400	12m	May. 13, 2015
4	Test Cable	LMR	LMR-400	3m	May. 13, 2015
5	Pre-Amplifier	Anritsu	MH648A	M92649	Jun. 17, 2015
6	Log-Bicon Antenna	Schwarzbeck	VULB9168-35 2	9168-352	July. 10, 2015

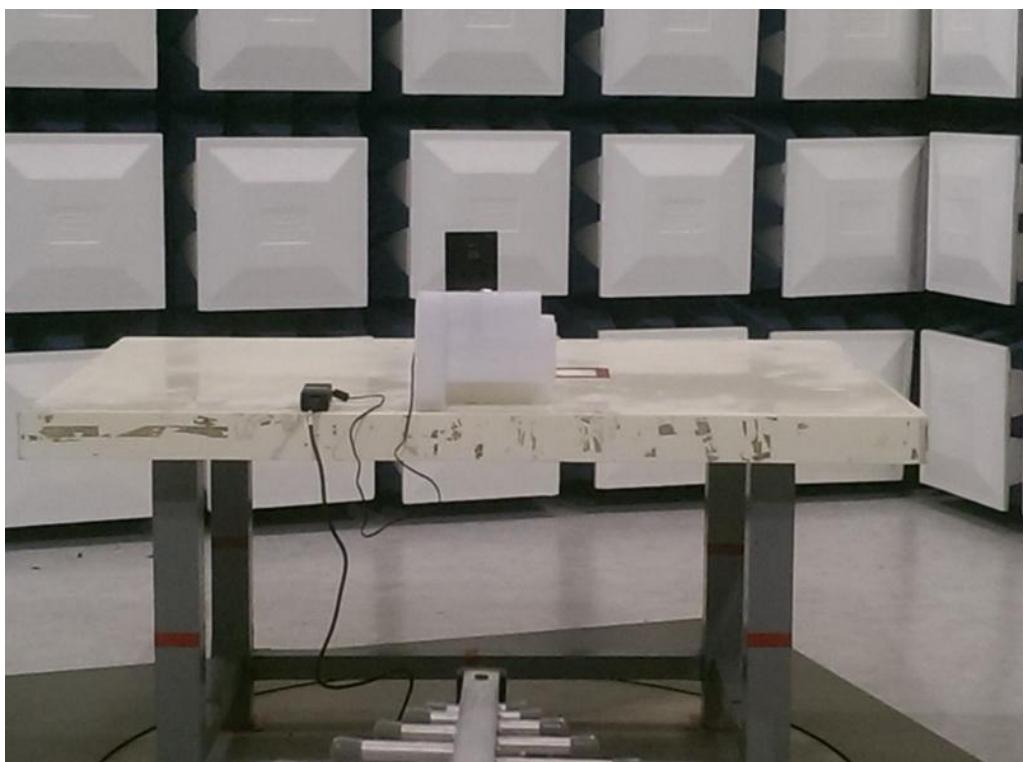
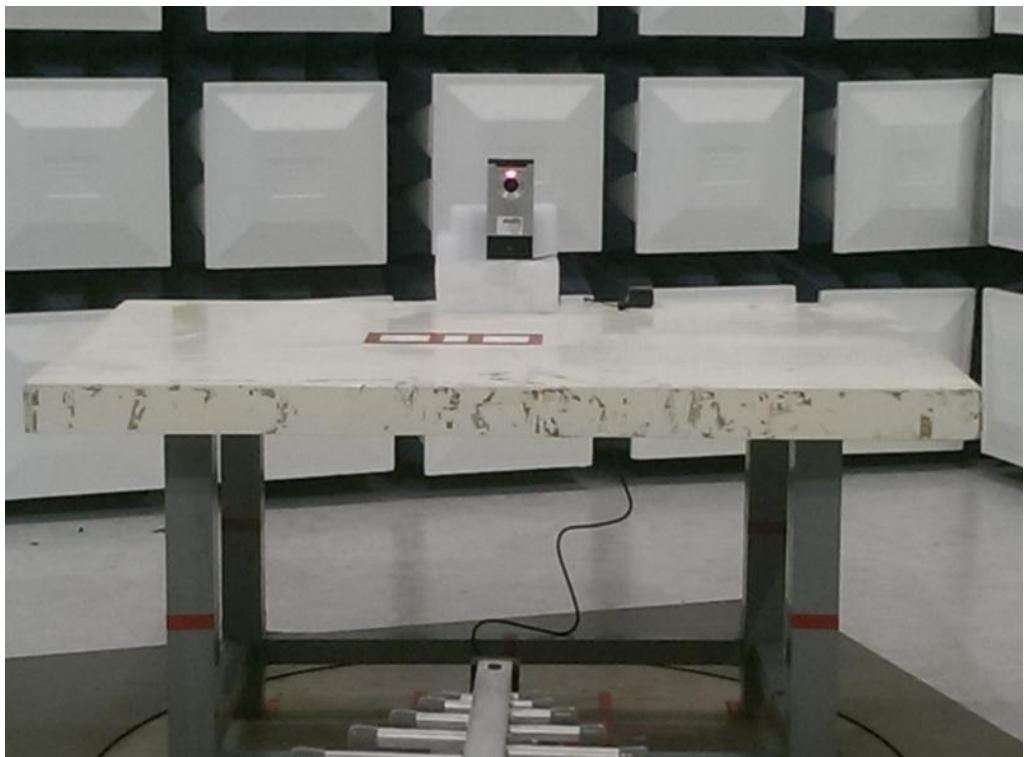
Frequency Stability Measurement					
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP-30	100854	Oct. 26, 2015

Remark: "N/A" denotes no model name, serial no. or calibration specified.

All calibration period of equipment list is one year.

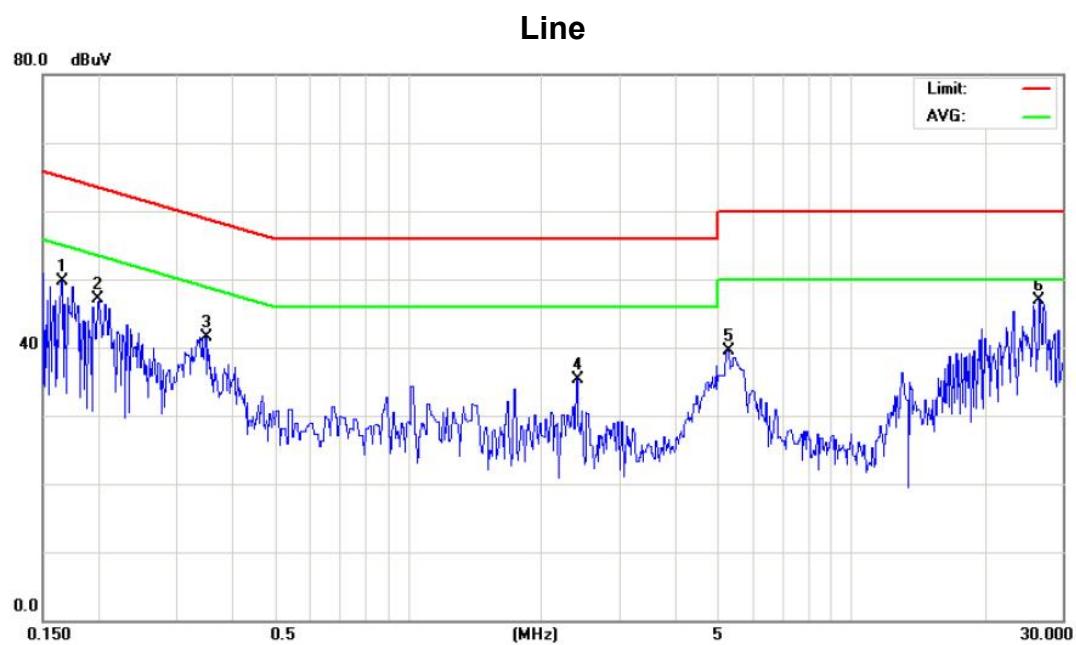
8 EUT TEST PHOTO**Conducted emission test photos**

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

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

ATTACHMENT A - CONDUCTED EMISSION

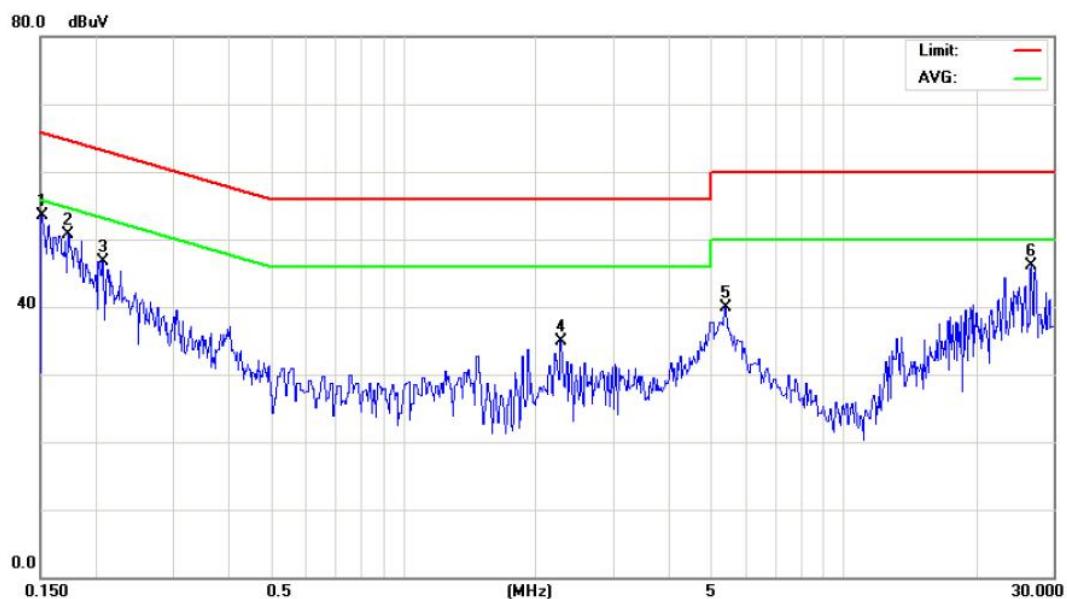
Test Mode : 13.56MHz Transmit



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dB	Over Detector	Comment
1		0.1654	40.13	9.61	49.74	65.18	-15.44	peak
2		0.1997	37.45	9.60	47.05	63.62	-16.57	peak
3		0.3488	31.94	9.61	41.55	58.99	-17.44	peak
4		2.3990	25.63	9.73	35.36	56.00	-20.64	peak
5		5.3000	29.68	9.83	39.51	60.00	-20.49	peak
6	*	26.5000	36.94	9.90	46.84	60.00	-13.16	peak

Test Mode : 13.56MHz Transmit

Neutral



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Comment
			Level	Factor	ment			
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	*	0.1514	43.83	9.60	53.43	65.92	-12.49	peak
2		0.1731	41.12	9.60	50.72	64.81	-14.09	peak
3		0.2074	37.12	9.60	46.72	63.30	-16.58	peak
4		2.2730	25.17	9.71	34.88	56.00	-21.12	peak
5		5.4000	29.98	9.83	39.81	60.00	-20.19	peak
6		26.6500	36.17	9.93	46.10	60.00	-13.90	peak

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

Test Mode :	13.56MHz Transmit
-------------	-------------------

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.2600	0°	55.24	11.31	66.55	119.30	-52.75	PK
0.2600	0°	38.67	11.31	49.98	99.30	-49.32	AVG
0.3670	0°	55.36	11.11	66.47	116.31	-49.84	PK
0.3670	0°	40.17	11.11	51.28	96.31	-45.03	AVG
0.5500	0°	31.82	11.24	43.06	72.80	-29.74	QP
0.5880	0°	33.54	11.26	44.80	72.22	-27.42	QP
0.7680	0°	32.36	11.33	43.69	69.90	-26.21	QP
1.1350	0°	32.88	11.45	44.33	66.50	-22.17	QP

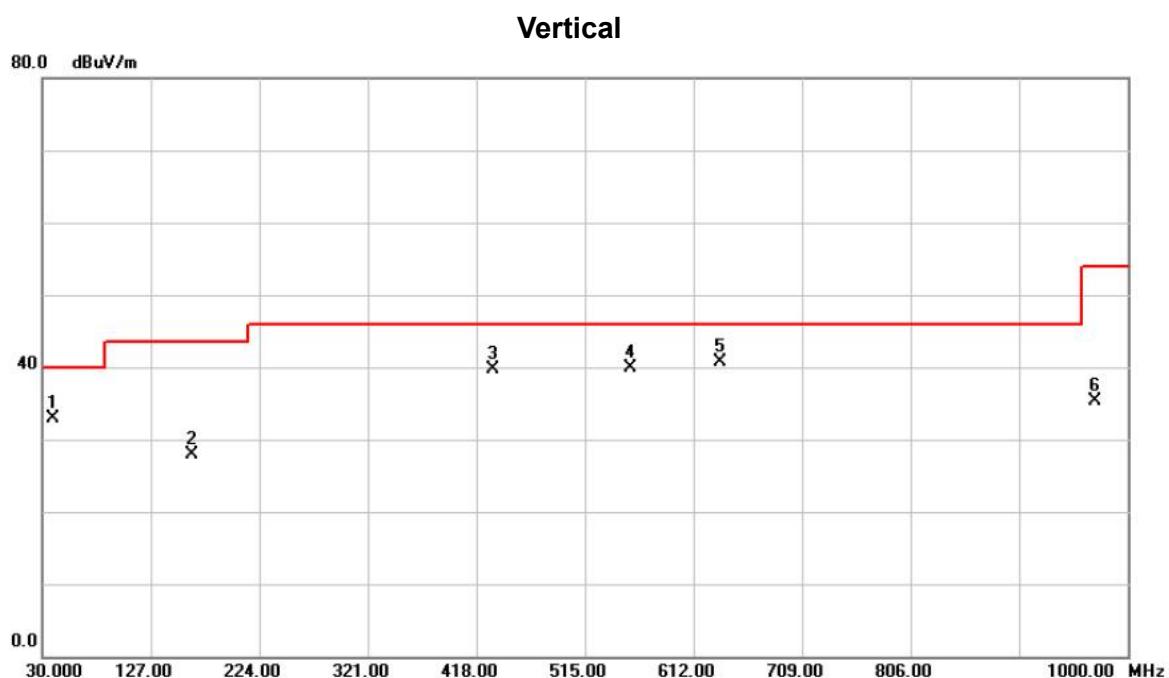
Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
0.2890	90°	53.66	11.12	64.78	118.39	-53.60	PK
0.2890	90°	37.51	11.12	48.63	98.39	-49.75	AVG
0.3900	90°	57.28	11.13	68.41	115.78	-47.38	PK
0.3900	90°	40.56	11.13	51.69	95.78	-44.10	AVG
0.5520	90°	33.41	11.24	44.65	72.77	-28.11	QP
0.5890	90°	33.25	11.26	44.51	72.20	-27.70	QP
0.7800	90°	31.63	11.33	42.96	69.76	-26.80	QP
1.1500	90°	31.88	11.45	43.33	66.39	-23.06	QP

Remark:

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.
- (2) Distance extrapolation factor = $40 \log (\text{specific distance} / \text{test distance})$ (dB);
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor.

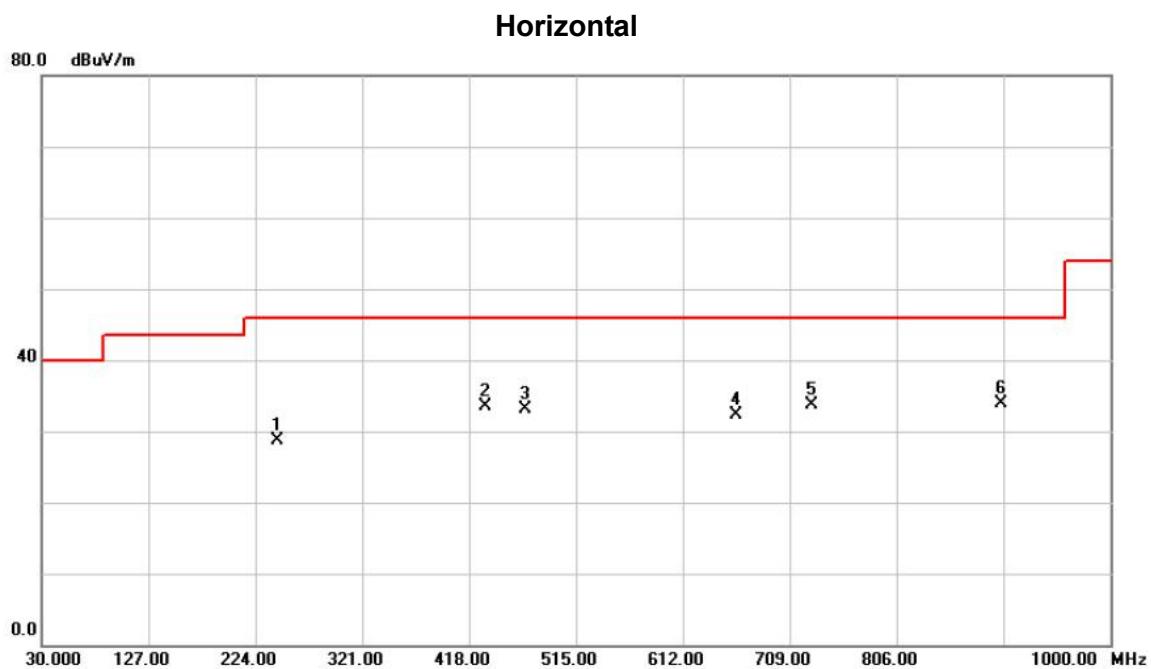
ATTACHMENT C - RADIATED EMISSION (30MHZ TO 1000MHZ)

Test Mode: 13.56MHz Transmit



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB		
1		39.7000	47.09	-14.25	32.84	40.00	-7.16	peak	
2		163.3750	42.04	-14.09	27.95	43.50	-15.55	peak	
3		432.5500	49.81	-10.16	39.65	46.00	-6.35	peak	
4		556.2250	47.83	-7.91	39.92	46.00	-6.08	peak	
5	*	636.2500	47.74	-7.05	40.69	46.00	-5.31	peak	
6		970.9000	36.85	-1.56	35.29	54.00	-18.71	peak	

Test Mode: 13.56MHz Transmit



No.	Mk.	Freq.	Reading	Correct	Measure-	Limit	Over	Detector	Comment
			Level	Factor	ment				
		MHz	dBuV	dB	dBuV/m	dB			
1		243.4000	43.85	-15.22	28.63	46.00	-17.37	peak	
2		432.5500	43.61	-10.16	33.45	46.00	-12.55	peak	
3		468.9250	42.62	-9.53	33.09	46.00	-12.91	peak	
4		660.5000	38.99	-6.59	32.40	46.00	-13.60	peak	
5		728.4000	38.83	-5.19	33.64	46.00	-12.36	peak	
6	*	900.5750	36.72	-2.82	33.90	46.00	-12.10	peak	

ATTACHMENT D - RADIATED EMISSION (FCC PART 15.225)

Test Mode	13.56MHz Transmit
-----------	-------------------

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
13.559	0°	48.75	11.06	59.81	124.00	-64.19	
27.143	0°	17.65	9.47	27.12	69.54	-42.42	

Freq. (MHz)	Ant. 0°/90°	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
13.559	90°	48.69	11.06	59.75	124.00	-64.25	
27.144	90°	17.61	9.47	27.08	69.54	-42.46	

ATTACHMENT E - FREQUENCY STABILITY MEASUREMENT

Test Mode:	13.56MHz Transmit
------------	-------------------

Frequency Stability Versus Environmental Temperature						
	Temperature (°C)	Voltage (AC)	Frequency (MHz)	Frequency Error (kHz)	Limit (kHz)	Result
	20	120V	13.559	-	-	-
0 min	50	120V	13.5601	0.0001	+/- 1.356	PASS
	-20	120V	13.558	-0.0020	+/- 1.356	PASS
2 min	50	120V	13.5601	0.0001	+/- 1.356	PASS
	-20	120V	13.558	-0.0020	+/- 1.356	PASS
5 min	50	120V	13.5601	0.0001	+/- 1.356	PASS
	-20	120V	13.558	-0.0020	+/- 1.356	PASS
10 min	50	120V	13.56	0.0000	+/- 1.356	PASS
	-20	120V	13.559	-0.0010	+/- 1.356	PASS

Frequency Stability Versus Input Voltage						
Temperature (°C)	Voltage (AC)		Frequency (MHz)	Frequency Error (kHz)	Limit (kHz)	Result
20	V-nom	120	13.559	-	-	-
20	V-min	102	13.56	0.0000	+/- 1.356	PASS
20	V-max	138	13.559	-0.0010	+/- 1.356	PASS