CONFORMANCE TEST REPORT
FOR
FCC 47 CFR, Part 15 Subpart C

Report No.: 13-10-MAS-197-02

Client:	Scientech Electronics Co., Ltd.
Product:	Home Management Gateway
Model:	LS-10
FCC ID:	TYLLS10
Manufacturer/supplier:	Scientech Electronics Co., Ltd.

Date test item received:	2013/07/19
Date test campaign completed:	2014/06/24
Date of issue:	2014/06/24

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Total number of pages of this test report: 29 pages

Total number of pages of photos: External photos 3 pages
Internal photos 6 pages
Setup photos 3 pages

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Manufacturer	: Scientech Electronics Co., Ltd.
Address	: 4F, No. 501-17, Zhong Zheng Rd., Xin Dian Dist., New Taipei City 23148, Taiwan
EUT	: Home Management Gateway
Trade name	: LifeSOS
Model No.	: LS-10
Power Source	: Adapter : GFP 051U-070085-5 Input: 100-240VAC, 50-60Hz, 0.2A Output: DC 7V, 0.85A
Regulations applied	: FCC 47 CFR, Part 15 Subpart C

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⑤ FCC Registration Number: 91095, 392735, 278818

⑥ Industry Canada Site Registration number: IC 2949A-2

NVLAP Lab Code 200133-0

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1. GENERAL INFORMATION

1.1 Product Description

a) Type of EUT : Home Management Gateway
b) Model No. : LS-10
c) Serial No. : ----
d) FCC ID : TYLLS10
e) Working Frequency : TX:433.92 MHz ; RX:915 MHz

1.2 Characteristics of Device:

LS-10 is a wireless Home Management Gateway with home security and automation functions. It can cooperate with different kinds of wireless security and environment sensors to issue alarm status to the server through Internet and control switch operation automatically.

1.3 Test Methodology

Both Conducted and radiated testing were performed according to the procedures in chapter 13 of ANSI C63.4 (2003).
The equipment under test was operated continuously in its normal operating mode for the purpose of the measurements. In order to secure the continuous operation of the device under test, the circuit rewired by the manufacturer to affect its intended operation.
The receiving antenna was varied from 1 to 4 meters and the wooden turntable was rotated through 360 degrees to obtain the highest reading on the field strength meter or on the display of the spectrum analyzer. And also, each emission was to be maximized by changing the orientation of the equipment Home Management Gateway under test.

1.4 Test Facility

The semi-anechoic chamber and conducted measurement facility used to collect the radiated and conducted data are located inside the Building at No.8, Lane 29, Wen-ming Road, Lo-shan Tsun, Kweishan Hsiang, Taoyuan, Taiwan, R.O.C.
This site has been accreditation as a FCC filing site.

1.5 Test Summary

Requirement	FCC Paragraph #	Test Pass
Radiated Emission	15.231(b)(e)&15.209	☒
Bandwidth of Emission	15.231(c)	☒
Conducted Emission	15.207	☒
Limit of Transmission Time	15.231(a)(1)&15.231(e)	☒

2. DEFINITION AND LIMITS

2.1 Definition

Intentional radiator:
A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42-16.423	399.9-410	4.5-5.25
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	2655-2900	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			

Remark "**" : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

2.3 Limitation

(1) Conducted Emission Limits :

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the conducted limit is the following:

Frequency MHz	**Quasi Peak dB μ V**	**Average dB μ V**
0.15 - 0.5	66-56	56-46
0.5 - 5.0	56	46
5.0 - 30.0	60	50

(2) Radiated Emission Limits :

According to 15.231 (b) , in addition to the provisions of section 15.205, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Frequency Band (MHz)	Field strength of Fundamental (uV/m)	Field strength of Spurious (uV/m)
40.66-40.70	2250	225
70-130	1250	125
130-174	*1,250 to 3,750	*125 to 375
174-260	3750	375
260-470	*3,750 to 12,500	*375 to 1250
Above 470	12500	1250

* Linear interpolations.

According to 15.231(e) ,Periodic operation in the band 40.66-40.70 MHz and above 70 MHz, the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Frequency Band (MHz)	Field strength of Fundamental (uV/m)	Field strength of Spurious (uV/m)
40.66-40.70	1000	100
70-130	500	50
130-174	*500-1500	*50-150
174-260	1500	150
260-470	*1500-5000	*150-500
Above 470	5000	500

* Linear interpolations.

According to 15.205 (b), the field strength of emissions appearing within the Restricted Bands shield not exceed. The general radiated limits in 15.209, as following table:

Frequenciey (MHz)	Field Strength μV/meter	Field Strength dBμV/meter	Measurement Distance (meters)
30 - 88	100	40.0	3
88 - 216	150	43.5	3
216 - 960	200	46.0	3
Above 960	500	54.0	3

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20 dB under any condition of modulation.

For intentional radiator device, according to § 15.209(a), the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table::

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., Sections 15.231 and 15.241.

(3) Limit of transmission time

According to 15.231(a)(1), a manually operated Home Management Gateway shall employ a switch that will automatically deactivate the Home Management Gateway within not more than 5 seconds of being released.

According to 15.231(e) , devices operated under the provisions of this paragraph shall be provided with a means for automatically limiting operation so that the duration of each transmission shall not be greater than one second and the silent period between transmissions shall be at least 30 times the duration of the transmission but in no case less than 10 seconds.

2.4 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device :

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.5 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To comply with the FCC RF exposure compliance requirement, this device and its antenna must not be co-located or operating to conjunction with any other antenna or Home Management Gateway.

3. SYSTEM TEST CONFIGURATION

3.1 Justification

For the purposes of this test report ancillary equipment is defined as equipment which is used in conjunction with the EUT to provide operational and control features to the EUT during the test.

3.2 Devices for Tested System

Device	Manufacture	Model	Cable Description
* Home Management Gateway	Scientech Electronics Co., Ltd.	LS-10	1.8m*1, Unshielded Power Line/Adapter

Remark :"*" means equipment under test.

4. RADIATED EMISSION MEASUREMENT

4.1 Applicable Standard

For periodic operation intentional radiator, the radiated emission shall comply with § 15.231(b).

4.2 Measurement Procedure

A.Preliminary Measurement For Portable Devices.

For movable devices, the following procedure was performed to determine the maximum emission axis of EUT (X andY):

1. With the receiving antenna is H polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
2. With the receiving ntenna is V polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
3. Compare the results derived from above two steps. The axis of maximum emission from EUT was determined and the configuration was used to perform the final measurement.
4. The position in which the maximum noise occurred was “X axis”. (Please see the test setup photos)

B. Final Measurement

1. Setup the configuration per figure 1 and 2 for frequencies measured below and above 1 GHz respectively. Turn on EUT and make sure that it is in continuous operating function.
2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a semi-anechoic chamber to determine the accurate frequencies of higher emissions and then each selected frequency is precisely measured. As the same purpose, for emission measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.
3. For emission measured below and above 1 GHz, set the spectrum analyzer on a 120 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.

Figure 1 : Frequencies measured below 1 GHz configuration

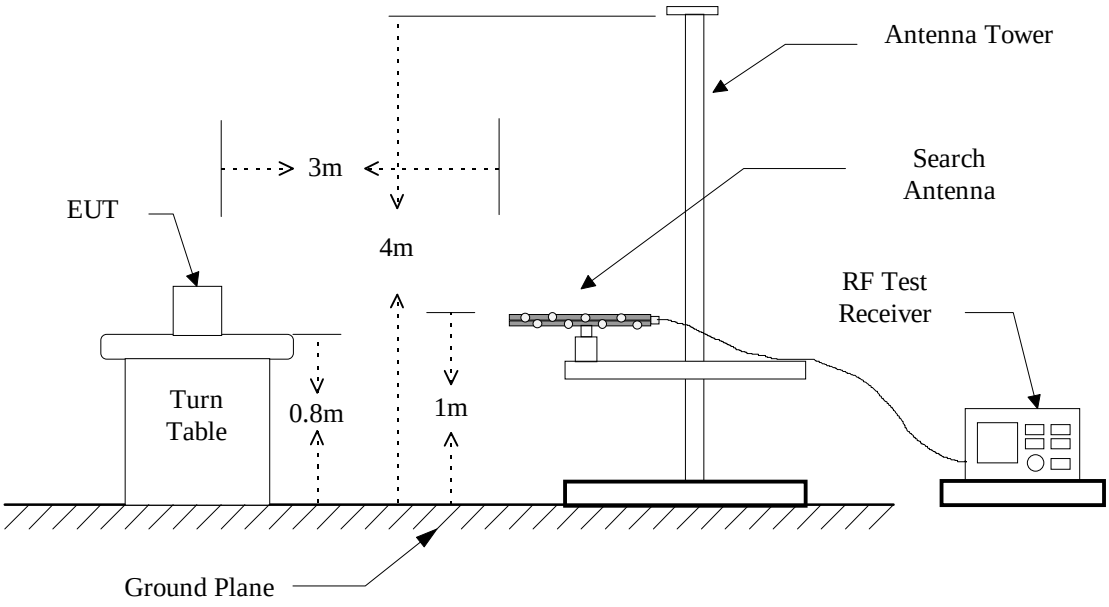
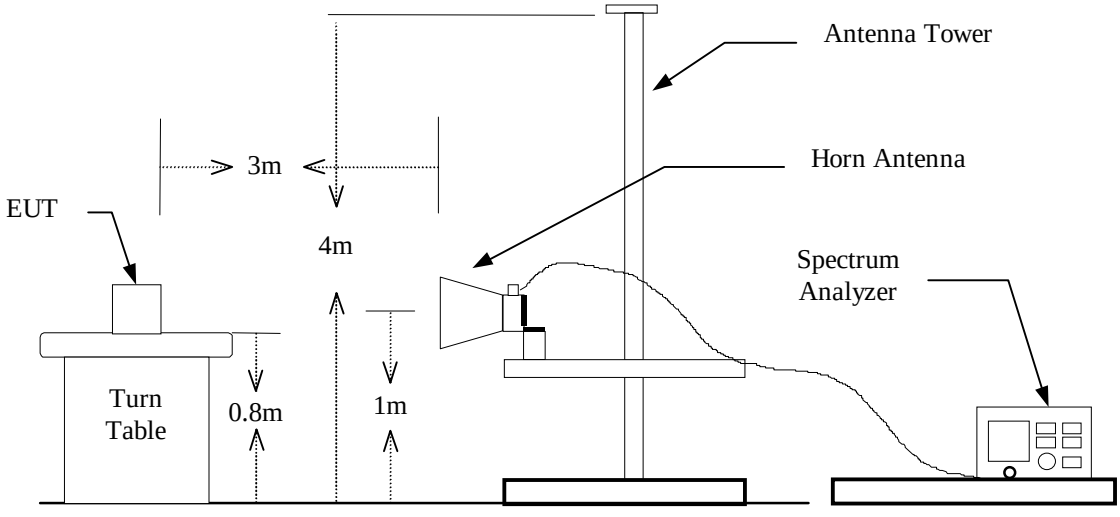


Figure 2 : Frequencies measured above 1 GHz configuration



4.3 Test Data

4.3.1 Fundamental and Harmonic of Transmitter
Operated mode : Transmitting
Test Date : Aug. 13, 2013 Temperature : 24℃ Humidity : 58%

Frequency	Ant Pol	Reading (dBuV/m) @3m		Correct Factor	Duty Factor	Result (dBuV/m) @3m			Limit (dBuV/m) @3m			Margin
(MHz)	H/V	Peak	QP	(dB)	(dB)	Peak	QP	AVG	Peak	QP	AVG	(dB)
Fundamental												
433.8977	H	61.4	---	19.58	-5.25643	81.0	---	75.7	100.8	---	80.8	-5.1
433.8977	V	54.3	---	19.58	-5.25643	73.9	---	68.6	100.8	---	80.8	-12.2
Harmonic												
867.7954	H	16.1	---	27.92	-5.25643	44.0	---	38.7	80.8	---	60.8	-22.1
867.7954	V	16.9	---	27.92	-5.25643	44.8	---	39.5	80.8	---	60.8	-21.3
*1301.6931	H	66.4	---	-12.86	-5.25643	53.5	---	48.2	74.0	---	54.0	-5.8
*1301.6931	V	64.0	---	-12.86	-5.25643	51.1	---	45.8	74.0	---	54.0	-8.2
1735.5908	H	66.4	---	-10.65	-5.25643	55.8	---	50.5	80.8	---	60.8	-10.3
1735.5908	V	66.2	---	-10.65	-5.25643	55.6	---	50.3	80.8	---	60.8	-10.5
2169.4885	H	59.9	---	-8.69	-5.25643	51.2	---	45.9	80.8	---	60.8	-14.9
2169.4885	V	60.7	---	-8.69	-5.25643	52.0	---	46.7	80.8	---	60.8	-14.1
2603.3862	H	58.7	---	-7.28	-5.25643	51.4	---	46.1	80.8	---	60.8	-14.7
2603.3862	V	62.1	---	-7.28	-5.25643	54.8	---	49.5	80.8	---	60.8	-11.3
3037.2839	H	60.1	---	-5.84	-5.25643	54.3	---	49.0	80.8	---	60.8	-11.8
3037.2839	V	57.4	---	-5.84	-5.25643	51.6	---	46.3	80.8	---	60.8	-14.5
3471.1816	H	49.4	---	-4.60	-5.25643	44.8	---	39.5	80.8	---	60.8	-21.3
3471.1816	V	49.0	---	-4.60	-5.25643	44.4	---	39.1	80.8	---	60.8	-21.7
*3905.0793	H	---	---	-2.96	-5.25643	---	---	---	74.0	---	54.0	---
*3905.0793	V	---	---	-2.96	-5.25643	---	---	---	74.0	---	54.0	---
*4338.9770	H	---	---	-2.63	-5.25643	---	---	---	74.0	---	54.0	---
*4338.9770	V	---	---	-2.63	-5.25643	---	---	---	74.0	---	54.0	---

Note:

1. Peak Result =Peak Reading + Correct Factor

2. AVG Result = Peak Result + Duty Factor

3. If the result of peak value is under the limit of average, the average value doesn't need to be measured.

4. "" means the frequency is in the Restricted Bands.*

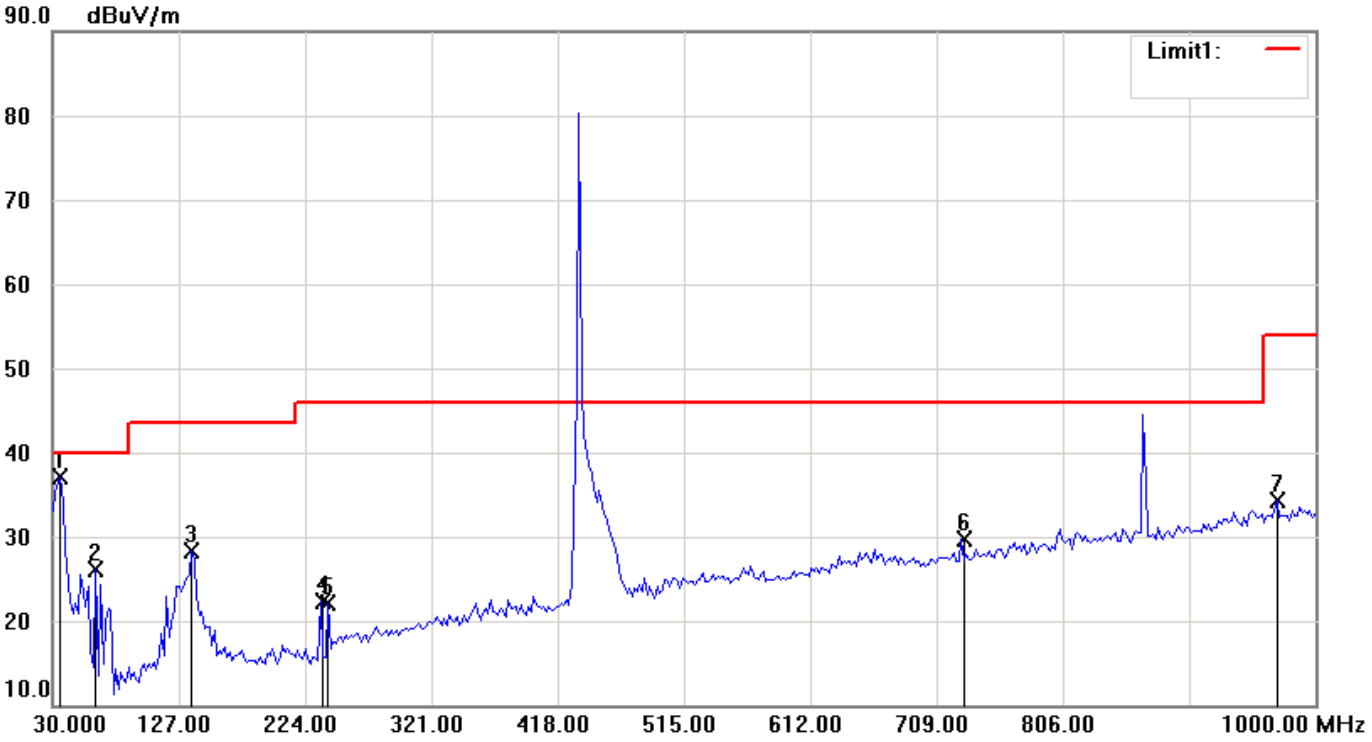
5. Remark "---" means that the emissions level is too low to be measured.

4.3.2 Other Emission

4.3.2.1 30MHz to 1GHz

File: LS-10 FCC 15C-1 **Data:** #1 **Date:** 2013/8/13 **Temperature:** 24 ℃

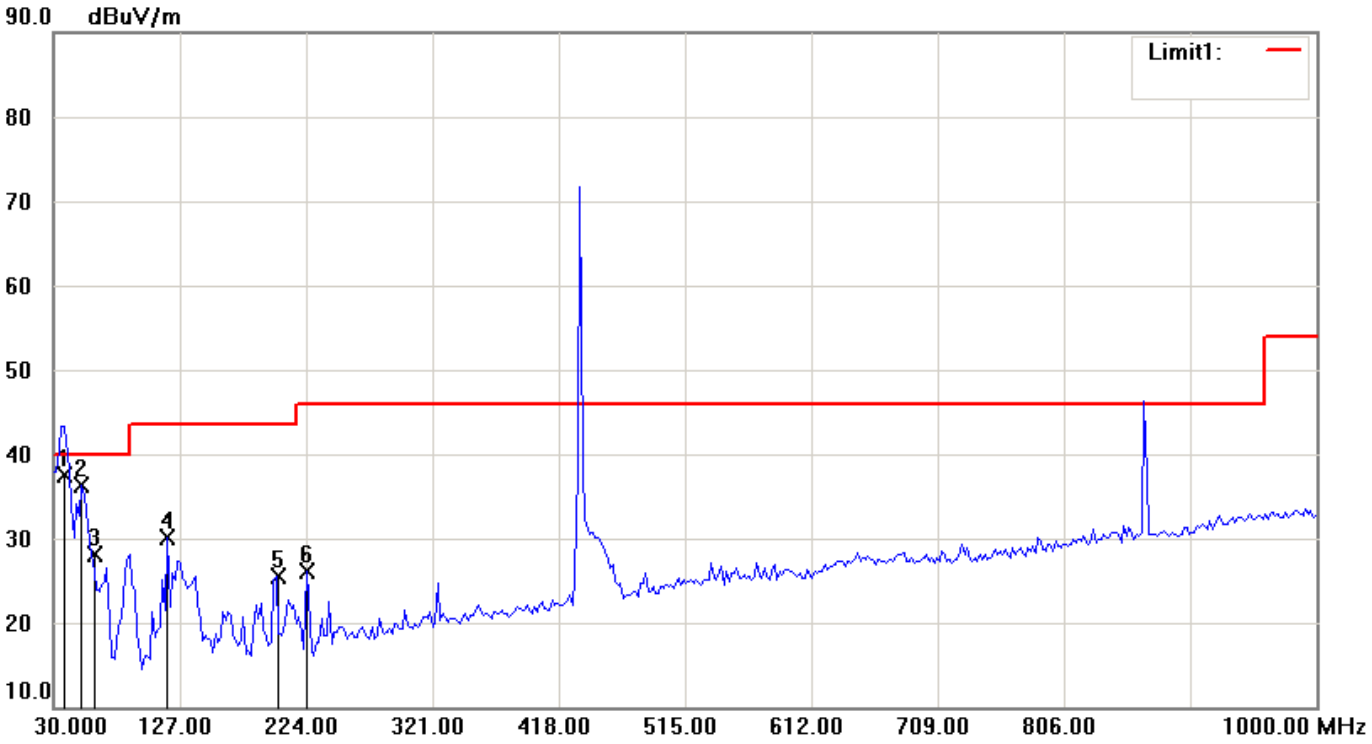
Time: PM 08:05:54 **Humidity:** 58 %



Condition: FCC Part15 RE-Class B_30-1000MHz **Polarization:** Horizontal
EUT: **Distance:** 3m
Model:
Test Mode:
Note:

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	35.8316	19.80	peak	17.33	37.13	40.00	-2.87
2	63.0461	18.81	peak	7.23	26.04	40.00	-13.96
3	136.9138	14.39	peak	13.94	28.33	43.50	-15.17
4	236.0521	7.72	peak	14.54	22.26	46.00	-23.74
5	241.8838	6.89	peak	15.20	22.09	46.00	-23.91
6	727.8557	4.06	peak	25.64	29.70	46.00	-16.30
7	970.8416	4.40	peak	29.88	34.28	54.00	-19.72

File:	**LS-10 FCC 15C-1**	**Data:**	**#2**	**Date:**	**2013/8/13**	**Temperature:**	**24 ℃**
				Time:	**PM 08:14:23**	**Humidity:**	**58 %**



Condition: **FCC Part15 RE-Class B_30-1000MHz** **Polarization:** **Vertical**
EUT: **Distance:** **3m**
Model:
Test Mode:
Note:

No.	Frequency	Reading	Detector	Corrected	Result	Limit	Margin
	(MHz)	(dBuV/m)		dB/m	(dBuV/m)	(dBuV/m)	(dB)
1	37.5105	21.04	QP	16.54	37.58	40.00	-2.42
2	51.3828	26.14	peak	10.13	36.27	40.00	-3.73
3	59.1583	20.66	peak	7.48	28.14	40.00	-11.86
4	117.4750	17.17	peak	12.90	30.07	43.50	-13.43
5	201.0621	11.60	peak	13.92	25.52	43.50	-17.98
6	224.3888	11.92	peak	14.10	26.02	46.00	-19.98

4.3.2.2 above 1GHz

Frequency (MHz)	Ant Pol H / V	Reading (dBuV) Peak	Correct Factor (dB)	Duty Factor (dB)	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) AVG	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) AVG	Margins (dB)
Radiated emission frequencies above 1 GHz to 4.5 GHz were too low to be measured.									

4.3.2.3 below 30MHz

Frequency (MHz)	Reading (dBuV/m) Peak	Duty (dB)	Factor (dB)	Result @3m (dBuV/m) Peak	Result @3m (dBuV/m) QP	Result @3m (dBuV/m) AVG	Limit @3m (dBuV/m) Peak	Limit @3m (dBuV/m) AVG
Radiated emission frequencies from 9 kHz to 30 MHz were too low to be measured.								

Note: 1. Place of Measurement: Measuring site of the ETC.
2. Item of margin shown in above table refer to average limit.
3. Remark "---" means that the emissions level is too low to be measured.
4. If the peak result is under the average limit, that is deemed to meet the average limit.
5. If there is only peak result, item "Margin" referred to "peak result – average limit".
6. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.
7. The estimated measurement uncertainty of the result measurement is
±4.2dB (9kHz≦f≦30MHz)
±4.6dB (30MHz≦f<300MHz).
±4.4dB (300MHz≦f<1000MHz).
±2.9dB (1GHz≦f<18GHz).
±3.5dB (18GHz≦f≦40GHz).

4.4 Field Strength Calculation

(a) Field Strength:

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + CORR. FACTOR

where CORR. FACTOR = Antenna FACTOR + Cable FACTOR

(b) Duty Factor:

$$20\log\frac{24\times 0.4(\text{ms})+54\times 0.833(\text{ms})}{100(\text{ms})} = -5.25643 \text{ dB}$$

The plotted graph of Duty Factor please see page 17 ~ 19.

☐ This Duty Factor is the worst case of the EUT and confirmed by the test engineer.
☒ There is only one Duty Factor of the EUT and confirm by the test engineer.

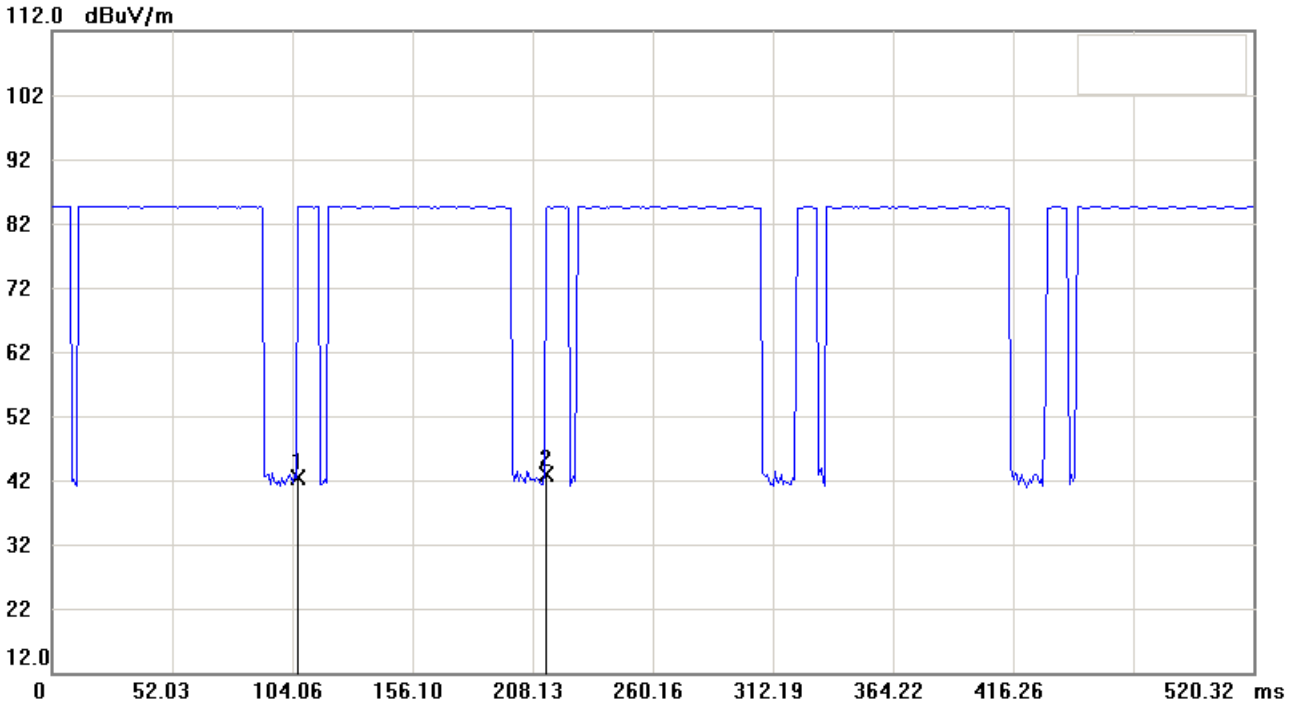
4.5 Radiated Test Equipment

The following instrument are used for radiated emissions measurement :

Equipment	Manufacturer	Model No.
EMI Receiver	R&S	ESIB7
BiLog Antenna	ETC	MCTD2786
Horn Antenna	EMCO	3115
PRE-Amplifier	Agilent	8449B
Spectrum Analyzer	Rohde & Schwarz	FSU46

Note: The standards used to perform this calibration are traceable to NML/ROC, NIST/USA and NPL.

File: **LS-10 FCC** **Data:** **#2** **Date:** **2013/7/19** **Temperature:** **26 ℃**
Time: **AM 11:14:47** **Humidity:** **60 %**

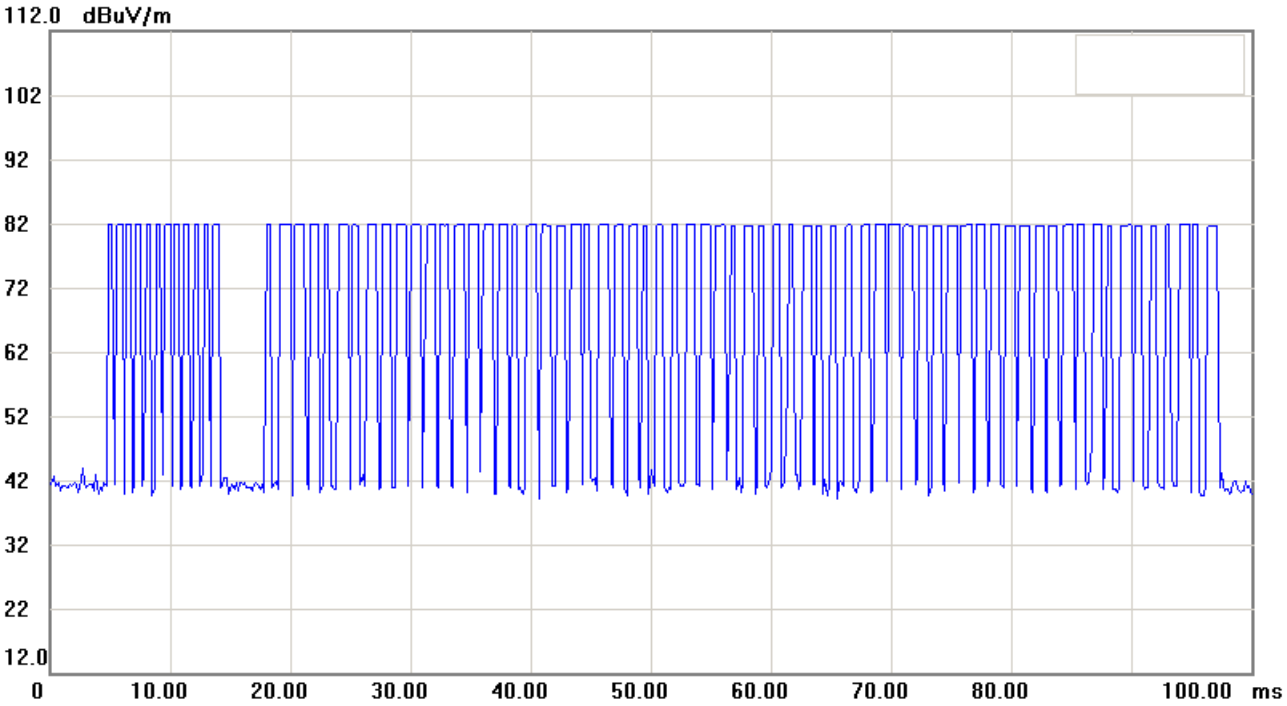


Condition: **RF Conducted**
EUT: **Sweep Time: 520.32ms Att.: 10dB**
Model: **RBW: 1000 KHz VBW: 1000 KHz**
Test Mode:
Note: **Duty Cycle1**

No.	Sweep time(ms)	Level(dBm)
1	105.7984	42.27
2	213.3312	42.87

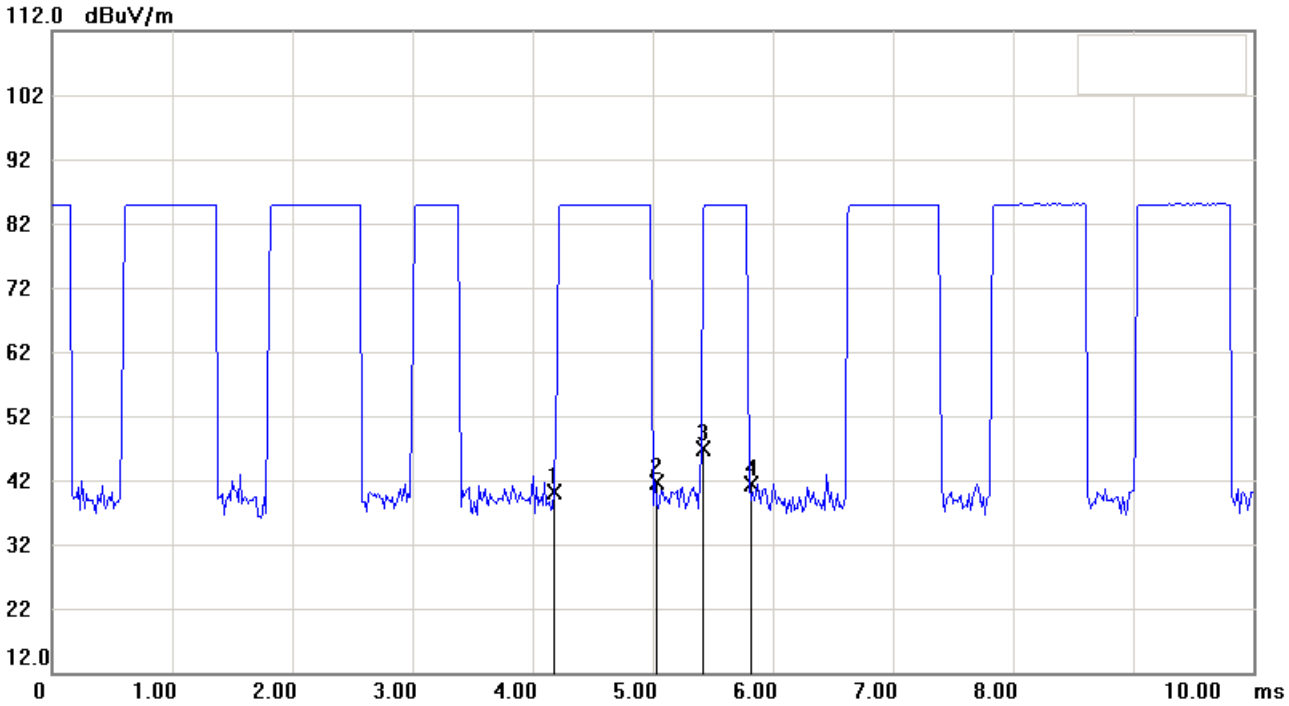
No.		△Time(ms)	△Level(dB)
1	mk2-mk1	107.5328	0.6

File: **LS-10 FCC** **Data:** **#3** **Date:** **2013/7/19** **Temperature:** **26 ℃**
Time: **AM 11:23:43** **Humidity:** **60 %**



Condition: **RF Conducted**
EUT: **Sweep Time: 100ms** **Att.: 10dB**
Model: **RBW: 1000 KHz** **VBW: 1000 KHz**
Test Mode:
Note: **duty cycle 2**

File: **LS-10 FCC** **Data:** **#5** **Date:** **2013/7/19** **Temperature:** **26 ℃**
Time: **AM 11:30:38** **Humidity:** **60 %**



Condition: **RF Conducted**
EUT: **Sweep Time: 10ms** **Att.: 10dB**
Model: **RBW: 1000 KHz** **VBW: 1000 KHz**
Test Mode:
Note: **duty cycle 3**

No.	Sweep time(ms)	Level(dBm)
1	4.1833	40.03
2	5.0167	41.72
3	5.4000	46.91
4	5.8000	41.33

No.		△Time(ms)	△Level(dB)
1	mk2-mk1	0.8334	1.69
2	mk4-mk3	0.4	-5.58

4.6 Measuring Instrument Setup

Measuring instrument setup in measured frequency band when specified detector function is used :

Frequency Band (MHz)	Instrument	Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	EMI Test Receiver	Peak	120 kHz	300 kHz
1000 to 4500	EMI Test Receiver	Peak	1 MHz	1 MHz

5. BANDWIDTH OF EMISSION

5.1 Applicable Standard Plot Graphic of Bandwidth

Per FCC rule §15.231(c), the permitted emission bandwidth is no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the centre frequency.

5.2 Test Equipment

Equipment	Manufacturer	Model No.
Spectrum Analyzer	Agilent	E4446A

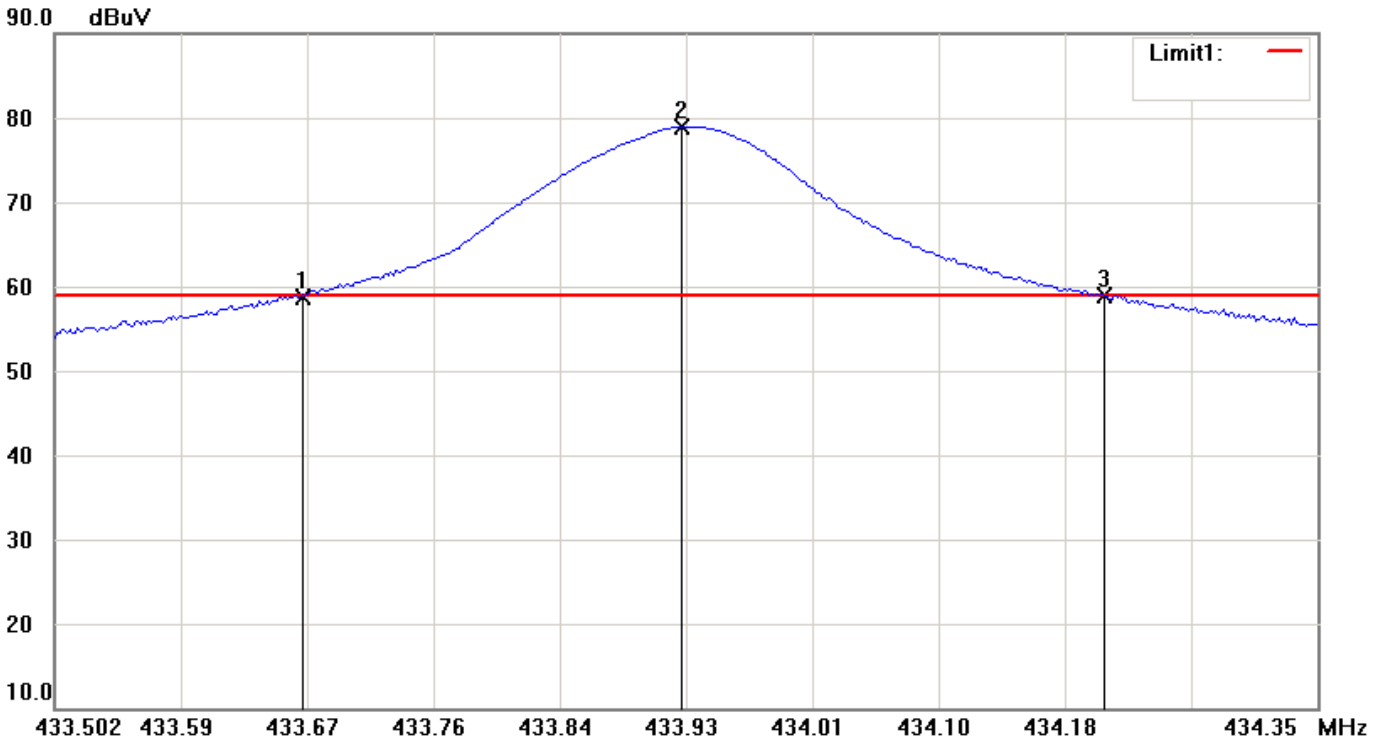
5.3 Test Result

Test Date : Oct. 29, 2013 Temperature : 23℃ Humidity : 52%

Center Frequency	433.8977 MHz
Limit	433.8977 MHz ×0.25%＝1084.744 kHz
20dB Bandwidth of Emission	540 kHz
Chart	Page 22
Result	PASS

File: **LS-10 FCC 15C-1** **Data:** **#9** **Date:** **2013/10/29** **Temperature:** **23 ℃**

Time: **PM 03:22:10** **Humidity:** **52 %**



Condition:
EUT:
Model:
Test Mode:
Note:

Polarization: **Horizontal**
Distance: **3m**

No.	Frequency (MHz)	Reading (dBuV)
1	433.6674	37.48
2	433.9241	57.75
3	434.2080	37.62

No.		△Frequency(MHz)	△Level(dB)
1	mk3-mk1	0.5406	0.15

6. CONDUCTED EMISSION MEASUREMENT

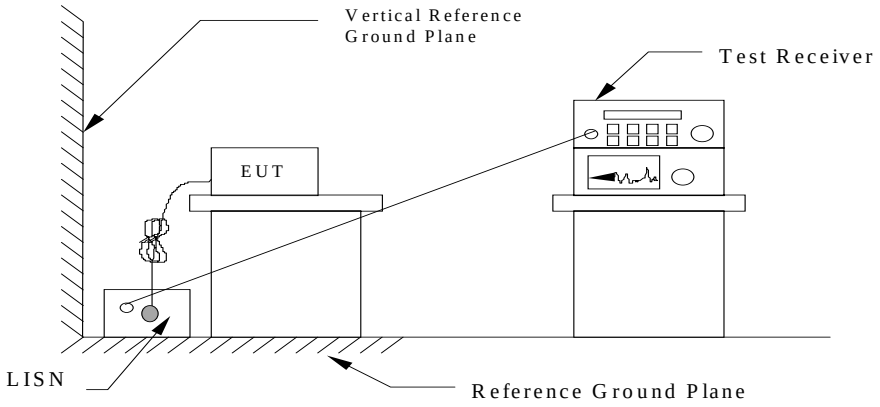
6.1 Standard Applicable

For unintentional and intentional device, Line Conducted Emission Limits are in accordance to §15.107(a) and §15.207(a) respectively. Both Limits are identical specification.

6.2 Measurement Procedure

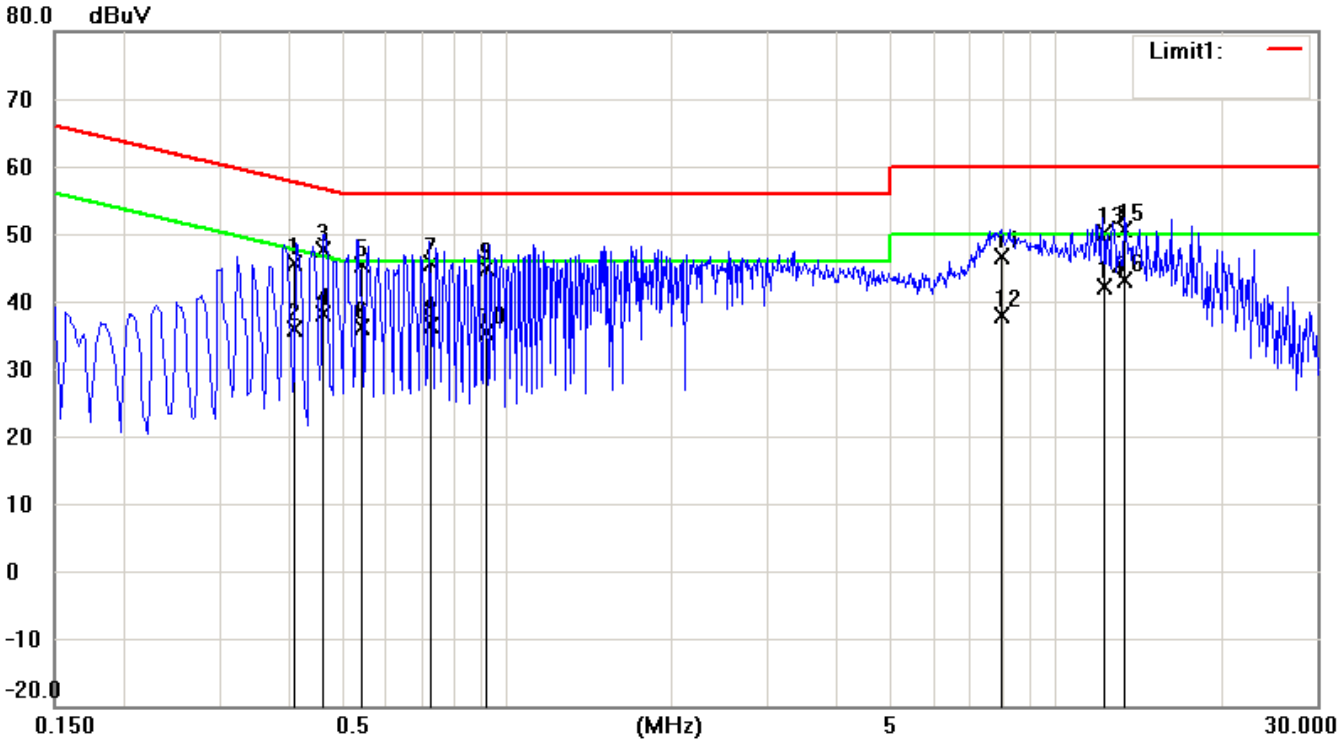
1. Setup the configuration per figure 3.
2. A preliminary scan with a spectrum monitor is performed to identify the frequency of emission that has the highest amplitude relative to the limit by operating the EUT in selected modes of operation, typical cable positions, and with a typical system configuration.
3. Record the 6 highest emissions relative to the limit.
4. Measure each frequency obtained from step 3 by a test receiver set on quasi peak detector function, and then record the accuracy frequency and emission level. If all emissions measured in the specified band are attenuated more than 20 dB from the limit, this step would be ignored, and the peak detector function would be used.
5. Confirm the highest three emissions with variation of the EUT cable configuration and record the final data.

Figure 3 : Conducted emissions measurement configuration



6.3 Conducted Emission Data

File: LS-10++ **Data:** #1 **Date:** 2013/10/30 **Temperature:** 23 ℃
Time: PM 07:35:50 **Humidity:** 56 %

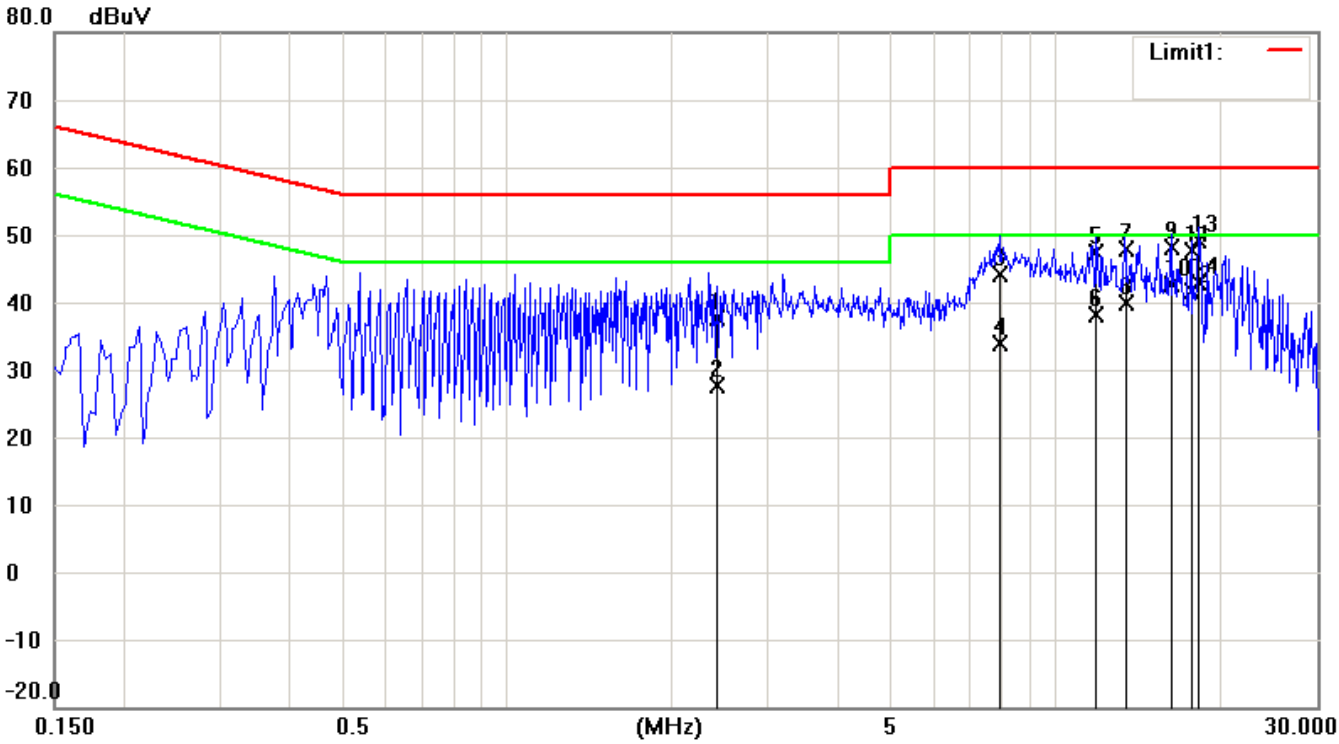


Condition: **Phase:** L1
EUT:
Model:
Test Mode:
Note: FCC CE 15C

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected dB	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	0.4101	36.10	QP	9.63	45.73	57.65	-11.92
2	0.4101	26.27	AVG	9.63	35.90	47.65	-11.75
3	0.4622	38.06	QP	9.63	47.69	56.65	-8.96
4	0.4622	28.39	AVG	9.63	38.02	46.65	-8.63
5	0.5444	35.84	QP	9.63	45.47	56.00	-10.53
6	0.5444	26.56	AVG	9.63	36.19	46.00	-9.81
7	0.7278	35.97	QP	9.64	45.61	56.00	-10.39
8	0.7278	26.68	AVG	9.64	36.32	46.00	-9.68
9	0.9184	35.18	QP	9.65	44.83	56.00	-11.17
10	0.9184	25.68	AVG	9.65	35.33	46.00	-10.67
11	7.9727	36.71	QP	9.81	46.52	60.00	-13.48
12	7.9727	28.17	AVG	9.81	37.98	50.00	-12.02
13	12.1994	40.23	QP	9.87	50.10	60.00	-9.90
14	12.1994	32.30	AVG	9.87	42.17	50.00	-7.83
15	13.3573	40.81	QP	9.89	50.70	60.00	-9.30
16	13.3573	33.24	AVG	9.89	43.13	50.00	-6.87

Note: 1. Place of measurement: EMC LAB. of the ETC.
2. "***" means the value was too low to be measured.
3. If the data table appeared symbol of "----" means the Q.P. value is under the limit of AVG. so, the AVG. value doesn't need to be measured.
4. "#" means the noise was too low, so record the peak value.
5. The estimated measurement uncertainty of the result measurement is ±2.5dB.

File: LS-10++ **Data:** #2 **Date:** 2013/10/30 **Temperature:** 23 ℃
Time: PM 07:42:16 **Humidity:** 56 %



Condition: **Phase:** **N**
EUT:
Model:
Test Mode:
Note: **FCC CE 15C**

No.	Frequency (MHz)	Reading (dBuV)	Detector	Corrected dB	Result (dBuV)	Limit (dBuV)	Margin (dB)
1	2.4138	27.94	QP	9.67	37.61	56.00	-18.39
2	2.4138	18.01	AVG	9.67	27.68	46.00	-18.32
3	7.9248	34.24	QP	9.81	44.05	60.00	-15.95
4	7.9248	23.99	AVG	9.81	33.80	50.00	-16.20
5	11.8931	37.43	QP	9.89	47.32	60.00	-12.68
6	11.8931	28.22	AVG	9.89	38.11	50.00	-11.89
7	13.3588	37.94	QP	9.92	47.86	60.00	-12.14
8	13.3588	30.00	AVG	9.92	39.92	50.00	-10.08
9	16.2305	38.26	QP	9.97	48.23	60.00	-11.77
10	16.2305	32.54	AVG	9.97	42.51	50.00	-7.49
11	17.6931	37.64	QP	10.00	47.64	60.00	-12.36
12	17.6931	31.67	AVG	10.00	41.67	50.00	-8.33
13	18.2438	39.12	QP	10.01	49.13	60.00	-10.87
14	18.2438	32.79	AVG	10.01	42.80	50.00	-7.20

Note: 1. Place of measurement: EMC LAB. of the ETC.
2. “***” means the value was too low to be measured.
3. If the data table appeared symbol of "----" means the Q.P. value is under the limit of AVG. so, the AVG. value doesn't need to be measured.
4. “#” means the noise was too low, so record the peak value.
5. The estimated measurement uncertainty of the result measurement is ±2.5dB.

6.4 Result Data Calculation

The result data is calculated by adding the LISN Factor to the measured reading. The basic equation with a sample calculation is as follows:

RESULT = READING + LISN FACTOR (Included Cable Loss)

6.5 Conducted Measurement EquiPMent

The following test equiPMent are used during the conducted test.

Equipment	Manufacturer	Model No.
EMI Test Receiver	R&S	ESCI
V-LISN	R&S	ENV216
V-LISN	R&S	ENV216

7. LIMIT OF TRANSMISSION TIME

7.1 Applicable Standard

☐ According to 15.231(a)(1), a manually operated transmission shall employ a switch that will automatically deactivate the transmission within not more than 5 seconds of being released.

■ According to 15.231(a)(2), a transmitter activated automatically shall cease transmission within 5 seconds after activation.

7.2 Test Equipment

Equipment	Manufacturer	Model No.
Spectrum Analyzer	Agilent	E4446A

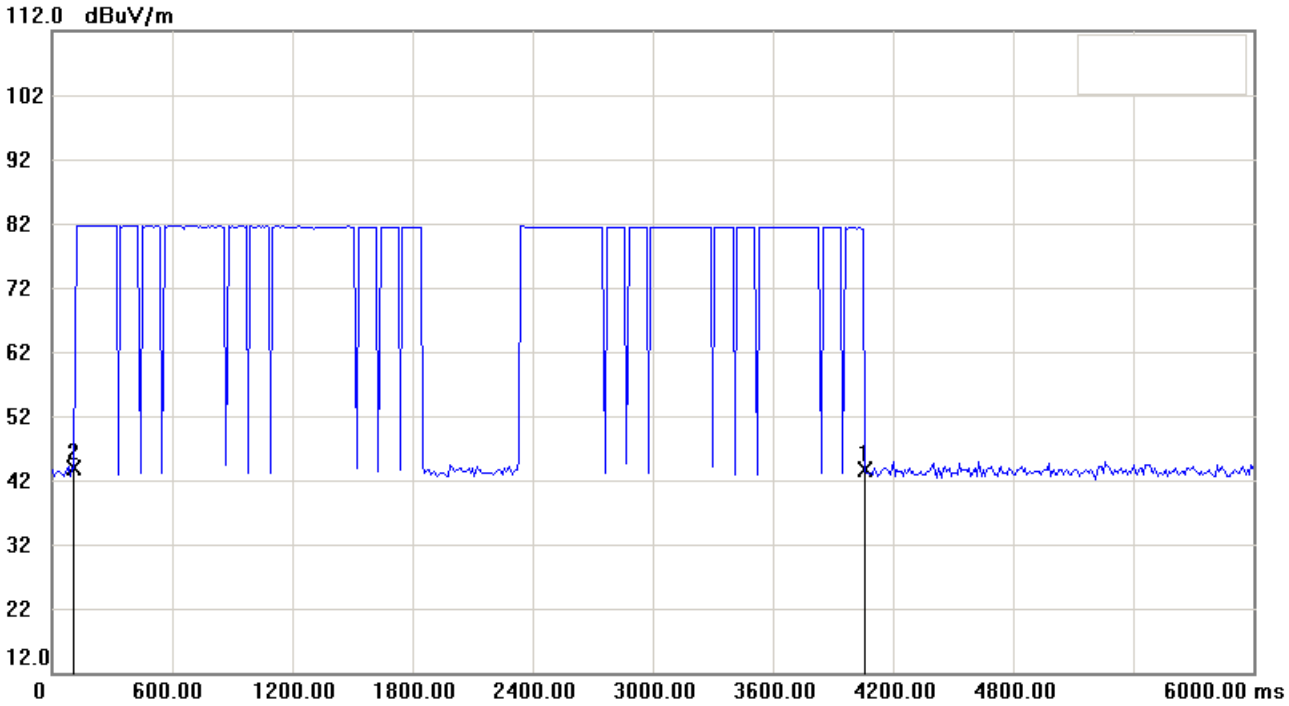
7.3 Test Result

Test Date : Jul. 19, 2013 Temperature : 26℃ Humidity : 60%

This Home Management Gateway is operated by transmission time is 3.95 second after activation.

Note : Please refer to page 28 for chart

File: **LS-10 FCC** **Data:** **#6** **Date:** **2013/7/19** **Temperature:** **26 ℃**
Time: **PM 01:26:35** **Humidity:** **60 %**



Condition: **RF Conducted**
EUT: **Sweep Time: 6000ms** **Att.: 10dB**
Model: **RBW: 1000 KHz** **VBW: 1000 KHz**
Test Mode:
Note: **release time**

No.	Sweep time(ms)	Level(dBm)
1	4060.00000	43.59
2	110.0000	43.90

No.		△Time(ms)	△Level(dB)
1	mk2-mk1	3950	0.31

8. EQUIPMENTS LIST FOR TESTING

Equipment	Manufacturer	Model No.	S/N	Calibration Date	Next Cal. Due
EMI Receiver	R&S	ESIB 7	13054414-001	07/11/2013	07/10/2014
BiLog Antenna	ETC	MCTD2786	BL09D01004	02/07/2014	02/06/2015
Horn Antenna	EMCO	3115	13059201-001	07/22/2013	07/21/2014
PRE-Amplifier	Agilent	8449B	13040709-001	11/26/2013	11/25/2014
Spectrum Analyzer	Rohde & Schwarz	FSU46	13040904-001	01/20/2014	01/19/2015
Spectrum Analyzer	Agilent	E4446A	13052013-001	10/04/2013	10/03/2014
EMI Test Receiver	R&S	ESCI	13054418-001	07/04/2013	07/03/2014
V-LISN	R&S	ENV216	13057719-001	10/16/2013	10/15/2014
V-LISN	R&S	ENV216	13057719-002	12/12/2013	12/11/2014