

FCC 47 CFR PART 15 SUBPART B

Applicant : Telit Communications S.p.A.
Address : Viale Stazione di Prosecco 5/B, 34010 Sgonico- Trieste- Italy
Product Type : LE910-SV V2
Trade Name : Telit
Model Number : LE910-SV V2
Applicable Standard : FCC 47 CFR PART 15 SUBPART B: Oct., 2014
ANSI C63.4: 2014
ICES-003: Issue 5
Receive Date : Jun. 11, 2015
Test Period : Jun. 12 ~ 17, 2015
Issue Date : Jul. 08, 2015

Issue by

A Test Lab Techno Corp.
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Taiwan Accreditation Eoundation accreditation number: 1330

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	Jul. 08, 2015	Initial Issue	

Verification of Compliance

Issued Date: 07/08/2015

Applicant : Telit Communications S.p.A.
Address : Viale Stazione di Prosecco 5/B, 34010 Sgonico- Trieste- Italy
Product Type : LE910-SV V2
Trade Name : Telit
Model Number : LE910-SV V2
EUT Rated Voltage : DC 3.4V/3.8V/4.2V
Test Voltage : DC 3.8V
Applicable Standard : FCC 47 CFR PART 15 SUBPART B: Oct., 2014
ANSI C63.4: 2014
ICES-003: Issue 5
Test Result : Complied
Performing Lab. : A Test Lab Techno Corp.
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Taiwan Accreditation Foundation accreditation number: 1330
<http://www.atl-lab.com.tw/e-index.htm>

The above equipment has been tested by A Test Lab Techno Corp., and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Approved By : Misty Wu Reviewed By : Frank Lin
(Manager) (Misty Wu) (Testing Engineer) (Frank Lin)

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1 General Information

1.1 Summary of Test Result

Emission			
Standard	Item	Result	Remark
FCC 47 CFR PART 15 SUBPART B ANSI C63.4 ICES-003	Conducted Emission	N/A	The device use DC power source.
FCC 47 CFR PART 15 SUBPART B ANSI C63.4 ICES-003	Radiated Emission	PASS	Meet Class B limit

The test results of this report relate only to the tested sample(s) identified in this report. Manufacturer or whom it may concern should recognize the pass or fail of the test result.

1.2 Measurement Uncertainty

Test Item		Frequency Range	Uncertainty (dB)
Conducted Emission	AC Power Port	9kHz ~ 30MHz	2.8

Test Item	Test Site	Frequency Range		Uncertainty (dB)
Radiated Emission	TE06	30MHz ~ 1000MHz	Horizontal	5.2
			Vertical	5.5
	TE01	1000MHz ~ 6000MHz		4.7
		6000MHz ~ 18000MHz		5.1
		18000MHz ~ 265000MHz		5.6
		265000MHz ~ 400000MHz		5.1
	TE09	1000MHz ~ 6000MHz		4.3
		6000MHz ~ 18000MHz		4.6
		18000MHz ~ 265000MHz		5.6
		18000MHz ~ 400000MHz		5.1
Note: The Vertical and Horizontal measurement uncertainty of 1GHz to 6GHz is evaluated and choose which polarity is worst value.				

2 EUT Description

Applicant	Telit Communications S.p.A. Viale Stazione di Prosecco 5/B, 34010 Sgonico- Trieste- Italy
Manufacturer	Telit Communications S.p.A. Viale Stazione di Prosecco 5/B, 34010 Sgonico- Trieste- Italy
Product Type	LE910-SV V2
Trade Name	Telit
Model Number	LE910-SV V2

I/O Port Description :

I/O Port Types	Q'TY	Test Description
1). SMA Port	2	Connected to Antenna
2). DC Power Port	1	Connected to DC Power Source

3 Test Methodology

3.1. Decision of Test Mode

3.1.1. The following test mode(s) were scanned during the preliminary test:

Pre-Test Mode	
Mode 1: LTE Band 2 Mode	
Mode 2: LTE Band 4 Mode	
Mode 3: LTE Band 13 Mode	
Mode 4: IDLE Mode	

3.1.2. After the preliminary scan, the following test mode was found to produce the highest emission level.

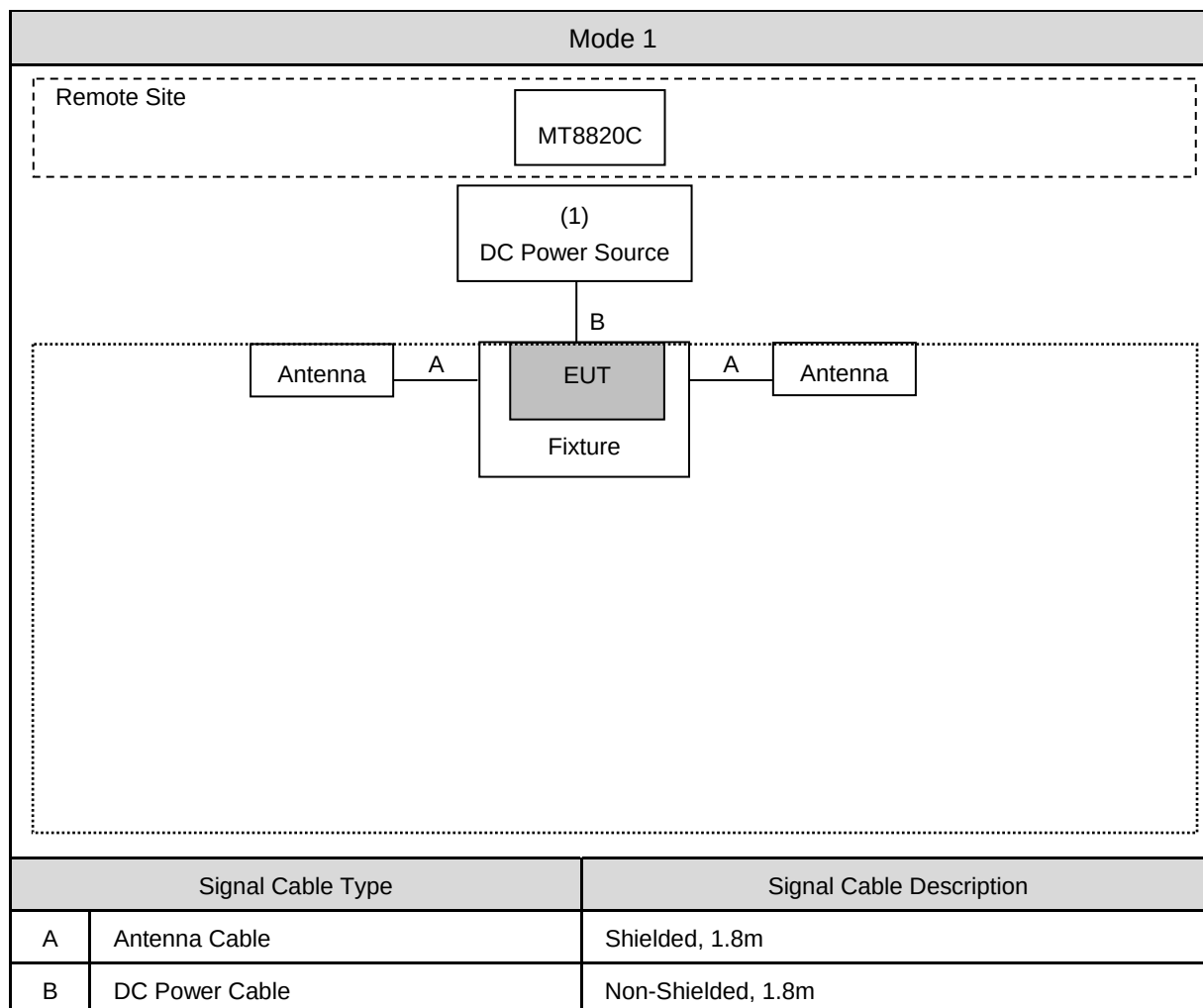
Final Test Mode			
Emission	Conducted Emission		Mode 1
	Radiated Emission	Below 1GHz	Mode 1
		Above 1GHz	Mode 1

Then, the above highest emission mode of the configuration of the EUT and cable was chosen for all final test items.

3.2. EUT Exercise Software

1	Setup the EUT and simulators as shown on 3.3.
2	Turn on the power of all equipment.
3	The EUT link to MT8820C
4	The EUT will start to operate function and Start to test and get the worst reading.

3.3. Configuration of Test System Details



Devices Description				
Product	Manufacturer	Model Number	Serial Number	Power Cord
(1) DC Power Source	HILA	DP-30032	N/A	Non-Shielded,1.8m

3.4. Test Site Environment

Items	Test Item	Required (IEC 60068-1)	Actual
Temperature (°C)	Radiated Emission	15-35	26
Humidity (%RH)		25-75	60
Barometric pressure (mbar)		860-1060	950

4 Emission Test

4.1. Radiated Interference Measurement

4.1.1. Limit

Under 1GHz test shall not exceed following value

FCC 47 CFR PART 15 SUBPART B				
Frequency range (MHz)	Class A		Class B	
	Distance (m)	dBuV/m	Distance (m)	dBuV/m
30 to 88	10	39	3	40
88 to 216	10	43.5	3	43.5
216 to 960	10	46.4	3	46
Above 960	10	49.5	3	54

CISPR 22				
Frequency range (MHz)	Class A		Class B	
	Distance (m)	dBuV/m	Distance (m)	dBuV/m
30 to 230	10	40	10	30
230 to 1000	10	47	10	37

Above 1GHz test shall not exceed following value

Frequency (MHz)	dBuV/m (Distance 3m)			
	Class A		Class B	
	Average	Peak	Average	Peak
1000 ~ 40000	60	80	54	74

- Remark:
1. The tighter limit shall apply at the edge between two frequency bands.
 2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.
 3. RF Voltage (dBuV/m) = 20 log RF Voltage (uV/m)
 4. Peak detector limit is corresponding to 20 dB above the maximum permitted average limit.

According to FCC Part 15.33 (b), for an unintentional radiator, including a digital device, the spectrum shall be investigated from the lowest radio frequency signal generated or used in the device, without going below the lowest frequency for which a radiated emission limit is specified, up to the frequency shown in the following table:

Highest frequency generated or used in the device or in which the device operated or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.75	30
1.75-108	1000
108-500	2000
500-1000	5000
Above 1000	5th harmonic of the highest frequency or 40GHz, whichever is lower

4.1.2. Test Instruments

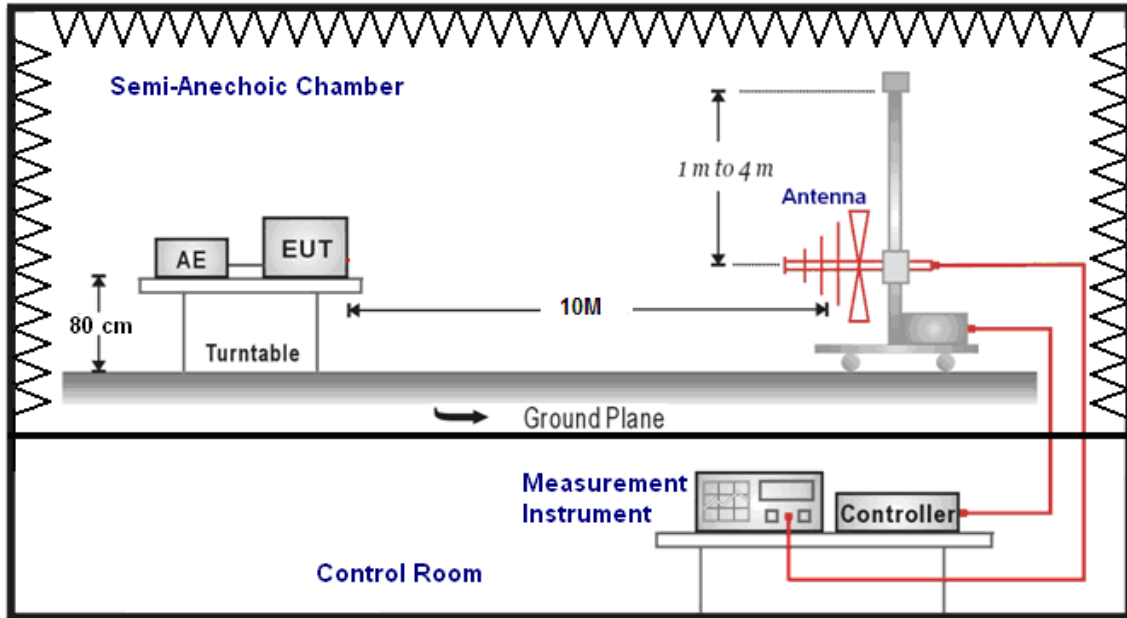
10 Meter Chamber					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Pre Amplifier	Agilent	8447D	2944A11120	01/09/2015	1 year
Pre Amplifier	Agilent	8447D	2944A11119	01/09/2015	1 year
Test Receiver	R&S	ESCI	100722	10/24/2014	1 year
Test Receiver	R&S	ESCI	101000	12/05/2014	1 year
Broadband Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	9160-3268	06/04/2015	1 year
Broadband Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB 9160	9160-3273	11/19/2014	1 year
Radio Communication Analyzer	Anritsu	MT8820C	6201300618	07/09/2014	1 year
Test Site	ATL	TE06	TE06	08/09/2014	1 year

3 Meter Chamber (966-B)					
Equipment	Manufacturer	Model Number	Serial Number	Cal. Date	Cal. Period
Spectrum Analyzer	Agilent	E4445A	MY46181986	05/11/2015	1 year
Amplifier	EM	EM330	060545	11/18/2014	1 year
Amplifier	Agilent	8449B	3008A02237	02/24/2015	1 year
RF Pre-selector	Agilent	N9039A	MY46520255	05/11/2015	1 year
Horn Antenna (1~18GHz)	ETS-Lindgren	3117	00128055	08/21/2014	1 year
Horn Antenna (18~40GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA9170	9170-320	07/02/2014	1 year
Radio Communication Analyzer	Anritsu	MT8820C	6201300618	07/09/2014	1 year
Test Site	ATL	TE09	TE09	05/05/2015	1 year

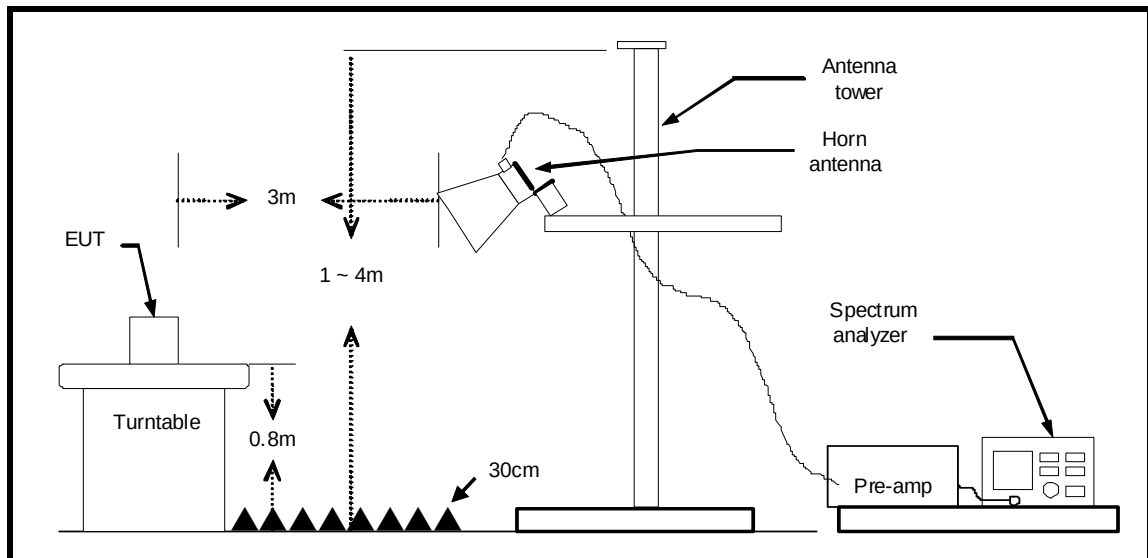
Note: N.C.R. = No Calibration Request.

4.1.3. Setup

Below 1GHz



Above 1GHz



4.1.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. When the EUT is floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 10 meters for under 1GHz, and 3 meter for above 1GHz, the highest frequency performed according to internal source frequency of the EUT, the specification was below:

Highest frequency generated or used in the device or on which the device operates or tunes (MHz)	Upper frequency of measurement range (MHz)
Below 1.705	30
1.705 - 108	1000
108 - 500	2000
500 - 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

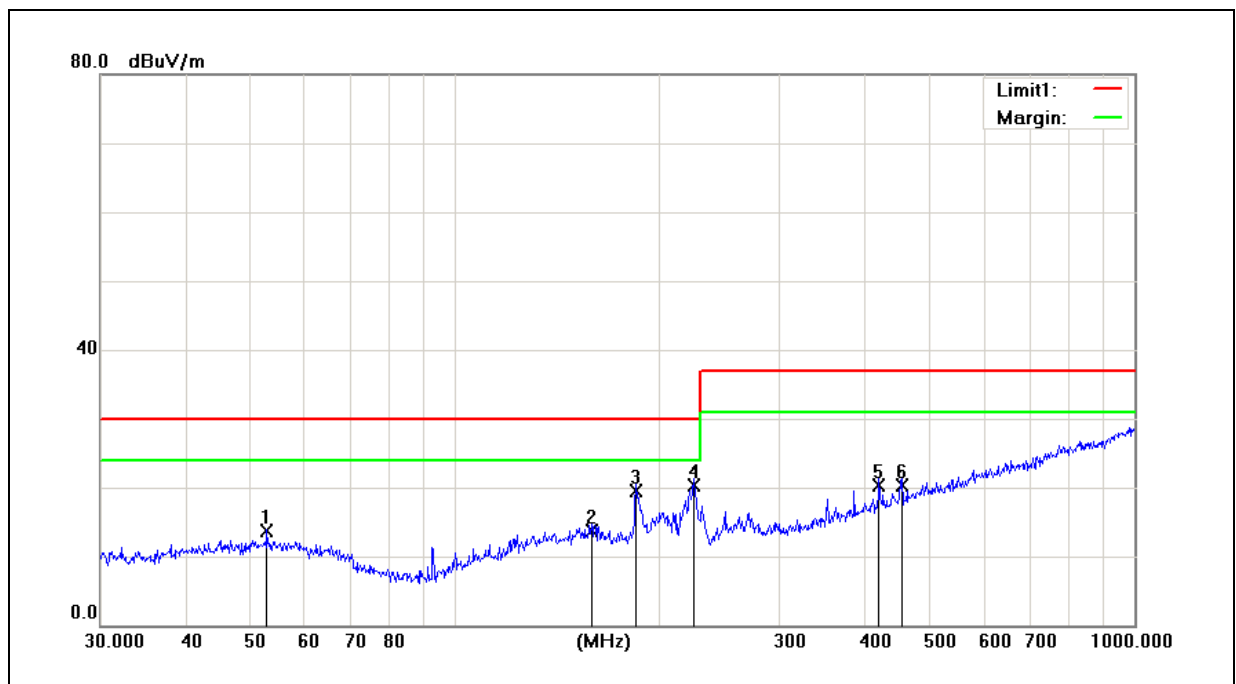
According to this standard paragraph 15.109, as an alternative to the radiated emission limits, digital devices may be shown to comply with the standards contained in Third Edition of the International Special Committee on Radio Interference (CISPR), Pub. 22, "Information Technology Equipment - Radio Disturbance Characteristics - Limits and Methods of Measurement".

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level. Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated on radiated measurement.

Radiated emissions were investigated over the frequency range from 30MHz to 1GHz using a receiver bandwidth of 120 kHz. Radiated was performed at an antenna to EUT distance of 10 meters.

4.1.5. Test Result

Standard:	CISPR 22	Test Distance:	10m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	LE910-SV V2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 1 (30MHz~1GHz)	Date:	06/17/2015
Ant.Polar.:	Horizontal	Test By:	Frank Lin

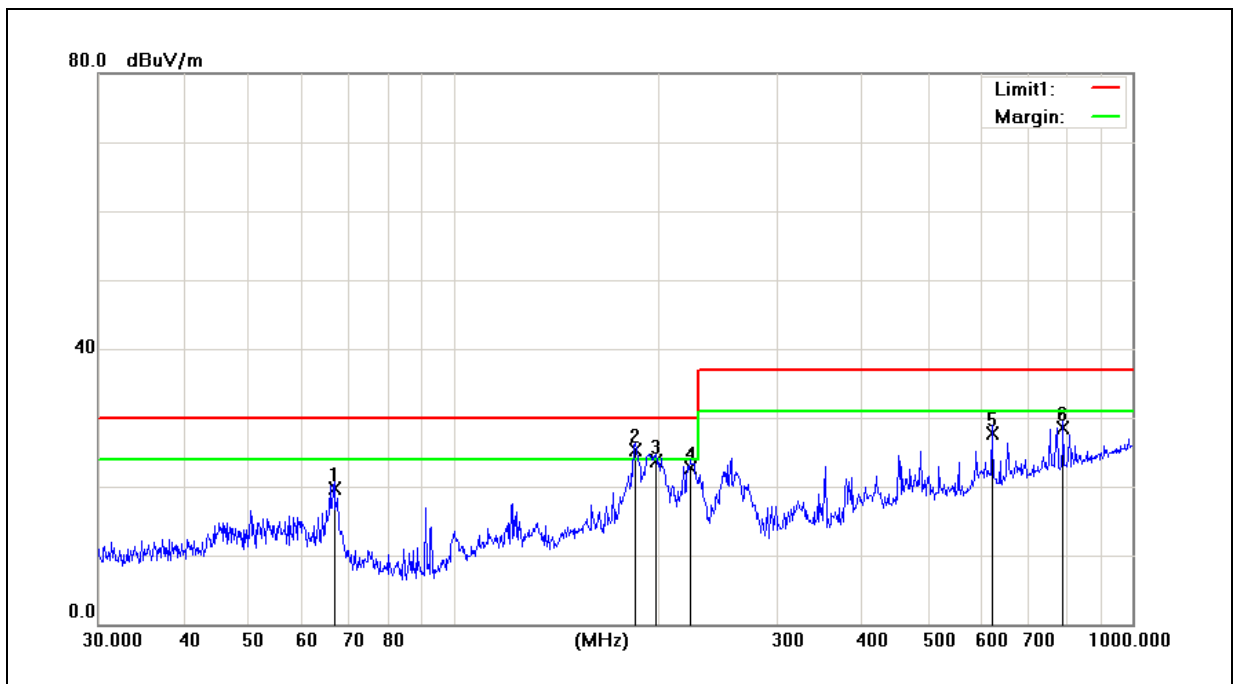


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	52.7600	28.02	-14.22	13.80	30.00	-16.20	200	53	QP
2	158.6677	26.31	-12.61	13.70	30.00	-16.30	257	360	QP
3	184.4898	33.85	-14.25	19.60	30.00	-10.40	400	3	QP
4	224.5193	34.55	-14.25	20.30	30.00	-9.70	400	12	QP
5	420.5803	28.20	-7.80	20.40	37.00	-16.60	400	108	QP
6	454.3100	27.32	-7.02	20.30	37.00	-16.70	400	149	QP

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

Standard:	CISPR 22	Test Distance:	10m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	LE910-SV V2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 1 (30MHz~1GHz)	Date:	06/17/2015
Ant.Polar.:	Vertical	Test By:	Frank Lin

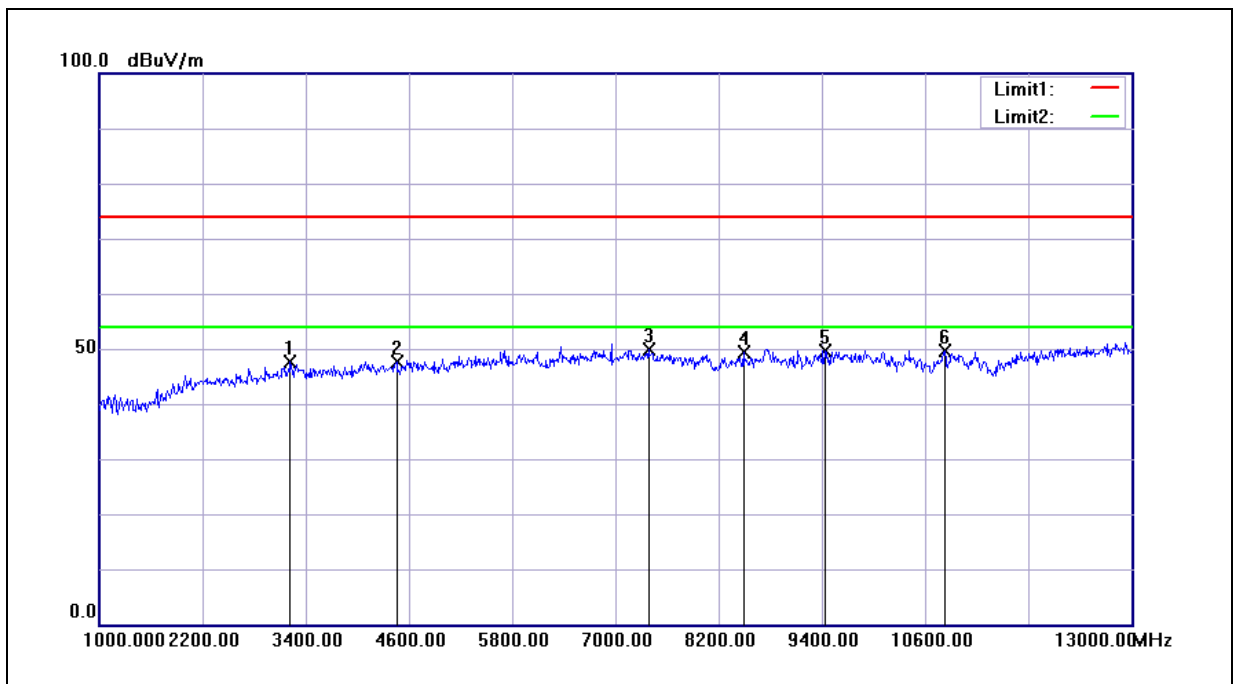


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
1	66.7325	35.80	-16.10	19.70	30.00	-10.30	301	0	QP
2	185.1380	40.19	-14.89	25.30	30.00	-4.70	100	305	QP
3	198.5880	39.80	-16.00	23.80	30.00	-6.20	100	79	QP
4	222.9502	37.76	-14.96	22.80	30.00	-7.20	100	50	QP
5	620.7096	31.53	-3.73	27.80	37.00	-9.20	101	0	QP
6	790.6188	28.73	-0.23	28.50	37.00	-8.50	101	0	QP

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

Standard:	FCC Part 15B	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	LE910-SV V2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 1 (1GHz~13GHz)	Date:	06/12/2015
Ant.Polar.:	Horizontal	Test By:	Frank Lin

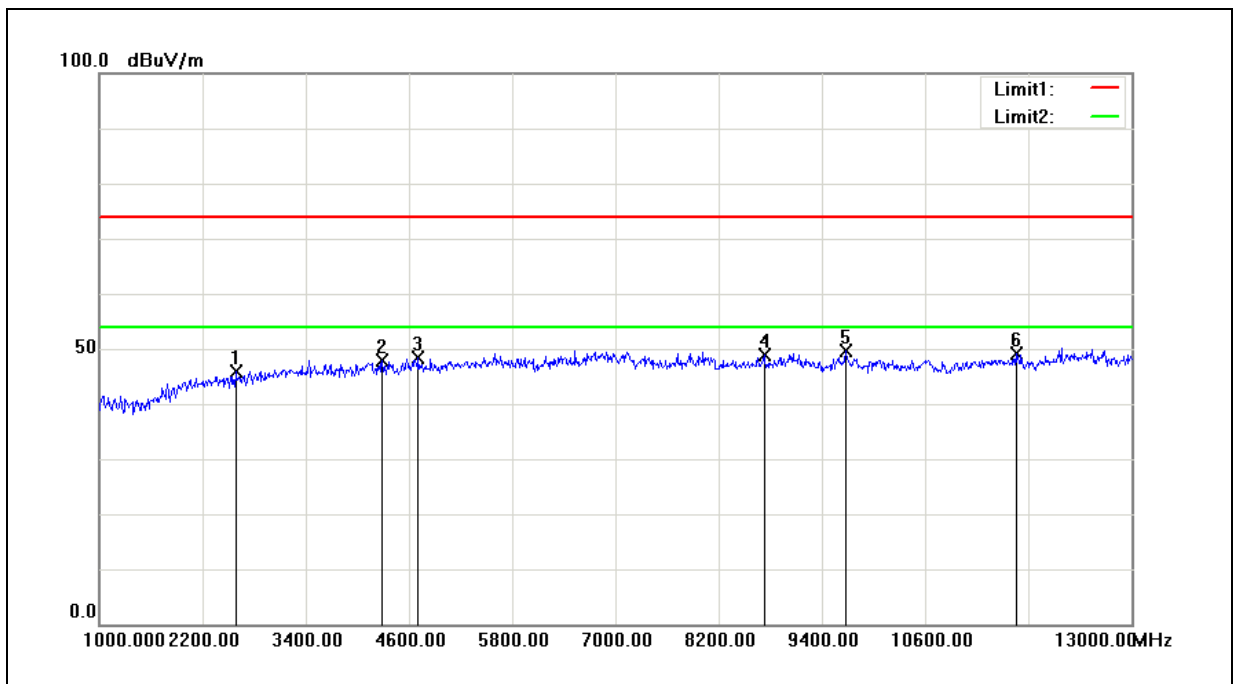


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	3220.000	40.20	7.38	47.58	74.00	-26.42	peak
2	4456.000	37.38	10.16	47.54	74.00	-26.46	peak
3	7384.000	34.21	15.55	49.76	74.00	-24.24	peak
4	8488.000	32.51	16.93	49.44	74.00	-24.56	peak
5	9436.000	31.50	18.22	49.72	74.00	-24.28	peak
6	10828.000	29.15	20.41	49.56	74.00	-24.44	peak

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).

Standard:	FCC Part 15B	Test Distance:	3m
Test item:	Radiated Emission	Power:	DC 3.8V
Model Number:	LE910-SV V2	Temp.(°C)/Hum.(%RH):	26(°C)/60%RH
Test Mode:	Mode 1 (1GHz~13GHz)	Date:	06/12/2015
Ant.Polar.:	Vertical	Test By:	Frank Lin



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	2584.000	39.89	5.96	45.85	74.00	-28.15	peak
2	4288.000	37.98	9.82	47.80	74.00	-26.20	peak
3	4708.000	37.67	10.61	48.28	74.00	-25.72	peak
4	8728.000	31.75	17.20	48.95	74.00	-25.05	peak
5	9676.000	30.88	18.77	49.65	74.00	-24.35	peak
6	11656.000	27.67	21.42	49.09	74.00	-24.91	peak

Note: 1. Result (dBuV) = Correction factor (dB) + Reading(dBuV).

2. Correction factor (dB/m) = Antenna Factor (dB/m) + Cable loss (dB) – Pre-Amplifier gain (dB).