Certificate

Issue Date: July 11, 2018
Ref. Report No. ISL-18LE343FB

Product Name	:	IOT gateway
Model(s)	:	BWG832F; BWG832X; BWG832XE
Brand	:	Fanstel
Applicant	:	Fanstel Corp.
Address	:	7466 E. Monte Cristo Ave. Scottsdale, AZ 85260, United States

We, **International Standards Laboratory Corp.**, hereby certify that:

The sample ISL received which bearing the trade name and model specified above has shown to comply with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified. (refer to Test Report if any modifications were made for compliance). And Our laboratories is the accredited laboratories and are approved according to ISO/IEC 17025.

Standards:

FCC CFR Title 47 Part 15 Subpart B: 2017- Section 15.107 and 15.109
ANSI C63.4-2014
Industry Canada Interference-Causing Equipment Standard ICES-003 Issue 6: 2016
Class B

I attest to the accuracy of data and all measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

International Standards Laboratory Corp.

Bert Chen

Bert Chen / Director

☐ **Hsi-Chih LAB**:
No. 65, Gu Dai Keng Street, Hsi-Chih Dist.,
New Taipei City 221, Taiwan
Tel: 886-2-2646-2550; Fax: 886-2-2646-4641

☒ **Lung-Tan LAB**:
No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist.,
Tao Yuan City 325, Taiwan
Tel: 886-3-407-1718; Fax: 886-3-407-1738

Supplier's Declaration of Conformity

This device complies with Part 15 of the FCC Rules. The test result has been shown in the ISL test report with number ISL-18LE343FB. 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.

Product Name:	IOT gateway
Model(s):	BWG832F; BWG832X; BWG832XE
Brand:	Fanstel
Name of Responsible Party:	Fanstel Corp.
Address of Responsible Party:	7466 E. Monte Cristo Ave. Scottsdale, AZ 85260, United States
Contact Person:	Dr Yuanneng Fan
Phone No.:	(480) 948-4928
Fax No.:	(480) 948-5459

We, Fanstel Corp., hereby declare that the equipment bearing the trade name and model number specified above was tested conforming to the applicable FCC Rules under the most accurate measurement standards possible, and that all the necessary steps have been taken and are in force to assure that production units of the same equipment will continue to comply with the Commissions requirements.

Dr Yuanneng Fan
Fanstel Corp.
Issue Date: July 11, 2018

Remarks: 1) The responsible party for Supplier's Declaration of Conformity must be located within the United States, 2) The above is a sample of SDoC, one should modify it to meet remark 1 requirement.

FCC TEST REPORT

of

CFR 47 Part 15 Subpart B Class B

Application Type: Supplier's Declaration of Conformity

Product : **IOT gateway**

Model(s): **BWG832F; BWG832X; BWG832XE**

Brand: **Fanstel**

Applicant: **Fanstel Corp.**

Address: **7466 E. Monte Cristo Ave.**
Scottsdale, AZ 85260, United States

Test Performed by:
International Standards Laboratory Corp.
<Lung-Tan LAB>
*Address:
No. 120, Lane 180, Hsin Ho Rd.,
Lung-Tan Dist., Tao Yuan City 325, Taiwan
*Tel: 886-3-407-1718; Fax: 886-3-407-1738

Report No.: **ISL-18LE343FB**
Issue Date : **July 11, 2018**

This report totally contains 25 pages including this cover page and contents page.

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1. General

1.1 Certification of Accuracy of Test Data

Standards:	FCC CFR Title 47 Part 15 Subpart B: 2017- Section 15.107 and 15.109 ANSI C63.4-2014 Industry Canada Interference-Causing Equipment Standard ICES-003 Issue 6: 2016 Class B
Equipment Tested:	IOT gateway
Model:	BWG832F; BWG832X; BWG832XE
Brand:	Fanstel
Applicant:	Fanstel Corp.
Sample received Date:	June 13, 2018
Final test Date:	refer to the date of test data
Test Site:	International Standards Laboratory Corp. Chamber 02; Chamber 14; Conduction 03
Test Distance:	10M; 3M (above1GHz)
Temperature:	refer to each site test data
Humidity:	refer to each site test data
Input power:	Conduction input power: AC 120 V / 60 Hz Radiation input power: AC 120 V / 60 Hz
Test Result:	**PASS**
Report Engineer:	Winnie Huang
Test Engineer:	Eddie Peng Eddie Peng
Approved By:	Angus Chu Angus. Chu / Director

1.2 Description of EUT

EUT

Description	IOT gateway
Condition	Pre-Production
Model	BWG832F; BWG832X; BWG832XE
Serial Number	N/A
Cable(adapter to EUT Micro USB port)	2.0m x1
Highest working frequency	2.4GHz

The devices can be installed inside the EUT are listed below:

Component	Vendor	Description
Bluetooth module	Fanstel Corp.	BWG832F
	Fanstel Corp.	BWG832XE; BWG832X
Wireless module	Ai-Thinker	ESP-12F
Adapter	Huizhou Guoaotong Technology Co.,Ltd	GAT-0501000U
Detailed information, please refer to user manual		

The I/O Ports of EUT are listed below:

I/O Port Type	Quantity
Micro USB Port	1

Pretest configuration:

Configurations	model	mode
1	BWG832F	Without antenna
2	BWG832XE	With antenna

All the devices listed below are chosen by the applicant to be the representative configuration for testing in this report.

Final Test configuration:

Configuration	model	mode
1	BWG832F	Without antenna
Test plan according to customer requirements.		

Model Difference:

Model	antenna	Market
BWG832F; BWG832X	Without antenna	Difference Market
BWG832XE	With antenna	
Model difference is different for Bluetooth module and antenna		

EMI Noise Source:
Please refer to the technical documents.

EMI Solution:
Please refer to the technical documents.

1.3 Description of Support Equipment

No	Unit	Model / Serial No.	Brand	Power Cord	FCC ID
1	Tablet PC	SGP311 S/N:N/A	SONY	Non-shielded	FCC DOC

1.4 Software for Controlling Support Unit

Test programs exercising various part of EUT were used. The programs were executed as follows:

1. EUT link to Tablet PC(Bluetooth) through EUT Bluetooth Module
2. EUT link to Tablet PC(Wireless) through EUT Wireless Module
3. Repeat the above steps.

	Filename	Issued Date
Bluetooth Module	nrf connect for mobile	04/10/2018

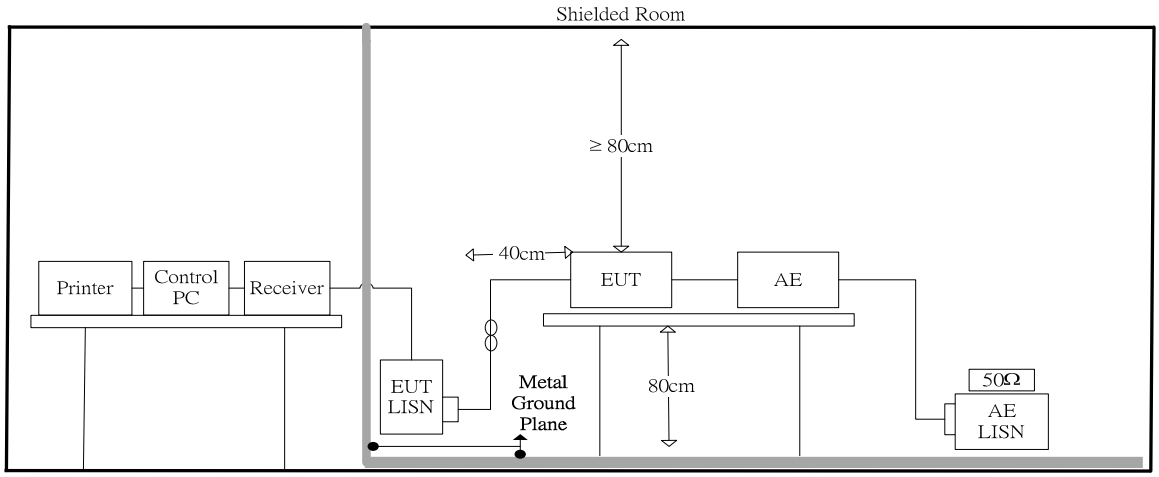
1.5 I/O Cable Condition of EUT and Support Units

Description	Path	Cable Length	Cable Type
Micro USB to USB data cable	120V to EUT SPS	2.0m	Non-shielded

2. Power Line Conducted Emissions

2.1 Test Setup and Procedure

2.1.1 Test Setup



2.1.2 Test Procedure

The measurements are performed in a 3.5m x 3.4m x 2.5m shielded room, which referred as Conduction 01 test site, or a 3m x 3m x 2.3m test site, which referred as Conduction 02 test site. The EUT was placed on non-conduction 1.0m x 1.5m table, which is 0.8 meters above an earth-grounded.

Power to the EUT was provided through the LISN which has the Impedance (50ohm/50uH) vs. Frequency Characteristic in accordance with the standard. Power to the LISNs were filtered to eliminate ambient signal interference and these filters were bonded to the ground plane. Peripheral equipment required to provide a functional system (support equipment) for EUT testing was powered from the second LISN through a ganged, metal power outlet box which is bonded to the ground plane at the LISN.

The interconnecting cables were arranged and moved to get the maximum measurement. Both the line of power cord, hot and neutral, were measured. All of the interface cables were manipulated according to ANSI C63.4 requirements.

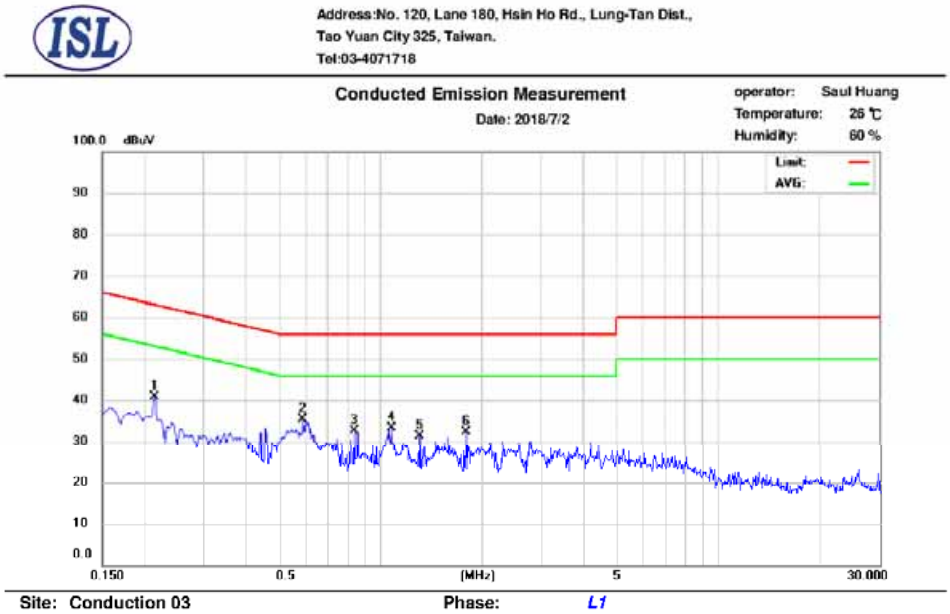
The highest emissions were analyzed in details by operating the spectrum analyzer in fixed tuned mode to determine the nature of the emissions and to provide information which could be useful in reducing their amplitude.

2.1.3 EMI Receiver/Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range:	150kHz~30MHz
Detector Function:	Quasi-Peak / Average Mode
Resolution Bandwidth:	9kHz

2.2 Conduction Test Data: Configuration 1

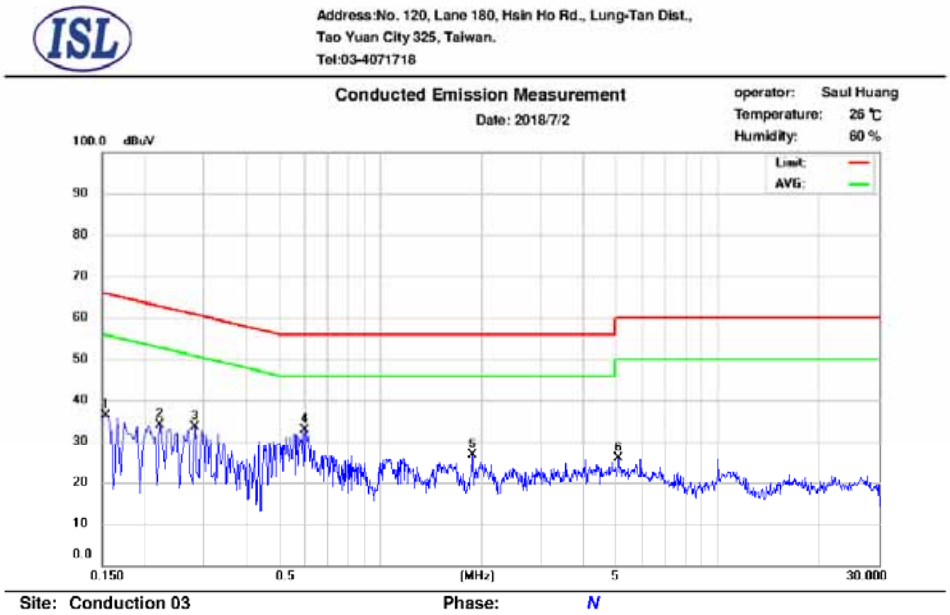
- Line



No.	Frequency (MHz)	QP_R (dBuV)	AVG_R (dBuV)	Correct Factor (dB)	QP Emission (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVG Emission (dBuV)	AVG Limit (dBuV)	AVG Margin (dB)
1	0.214	21.29	7.78	9.80	31.09	63.05	-31.96	17.58	53.05	-35.47
2	0.590	18.82	13.55	9.83	28.65	56.00	-27.35	23.38	46.00	-22.62
3	0.838	12.56	5.83	9.83	22.39	56.00	-33.61	15.66	46.00	-30.34
4	1.078	16.70	6.85	9.83	26.53	56.00	-29.47	16.68	46.00	-29.32
5	1.306	10.00	3.58	9.85	19.85	56.00	-36.15	13.43	46.00	-32.57
6	1.806	10.76	2.99	9.87	20.63	56.00	-35.37	12.86	46.00	-33.14

Note:
Margin = QP/AVG Emission - Limit
QP/AVG Emission = QP_R/AVG_R + Correct Factor
Correct Factor = LISN Loss + Cable Loss
A margin of -8dB means that the emission is 8dB below the limit
The frequency spectrum graph is for final peak graph, and the attached table is for QP/AVG test result.
If peak data can pass, it will be shown in “QP/AVG Correct” column, if not, QP/AVG data will instead.
The CISPR 22 limits would be applied to all FCC Part 15 devices.

- Neutral



No.	Frequency (MHz)	QP_R (dBuV)	AVG_R (dBuV)	Correct Factor (dB)	QP Emission (dBuV)	QP Limit (dBuV)	QP Margin (dB)	AVG Emission (dBuV)	AVG Limit (dBuV)	AVG Margin (dB)
1	0.154	24.53	12.36	9.82	34.35	65.78	-31.43	22.18	55.78	-33.60
2	0.222	20.11	5.88	9.82	29.93	62.74	-32.81	15.70	52.74	-37.04
3	0.282	19.01	5.06	9.83	28.84	60.76	-31.92	14.89	50.76	-35.87
4	0.598	20.66	9.62	9.85	30.51	56.00	-25.49	19.47	46.00	-26.53
5	1.874	6.13	0.33	9.90	16.03	56.00	-39.97	10.23	46.00	-35.77
6	5.086	8.27	-0.87	9.97	18.24	60.00	-41.76	9.10	50.00	-40.90

Note:
Margin = QP/AVG Emission - Limit
QP/AVG Emission = QP_R/AVG_R + Correct Factor
Correct Factor = LISN Loss + Cable Loss
A margin of -8dB means that the emission is 8dB below the limit
The frequency spectrum graph is for final peak graph, and the attached table is for QP/AVG test result.
If peak data can pass, it will be shown in “QP/AVG Correct” column, if not, QP/AVG data will instead.
The CISPR 22 limits would be applied to all FCC Part 15 devices.

2.3 Test Setup Photo

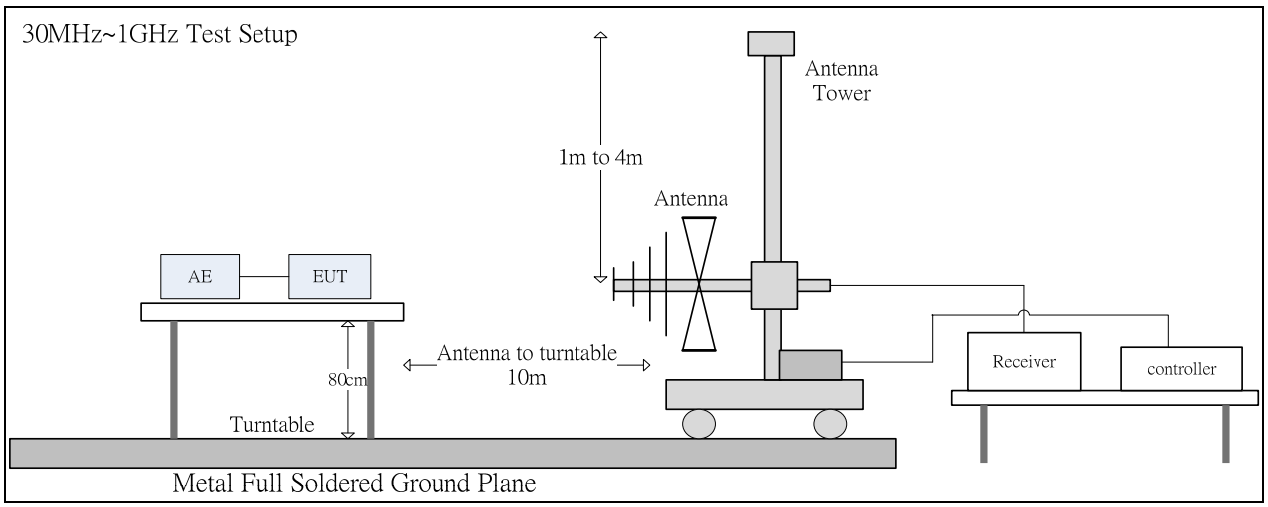
Front View

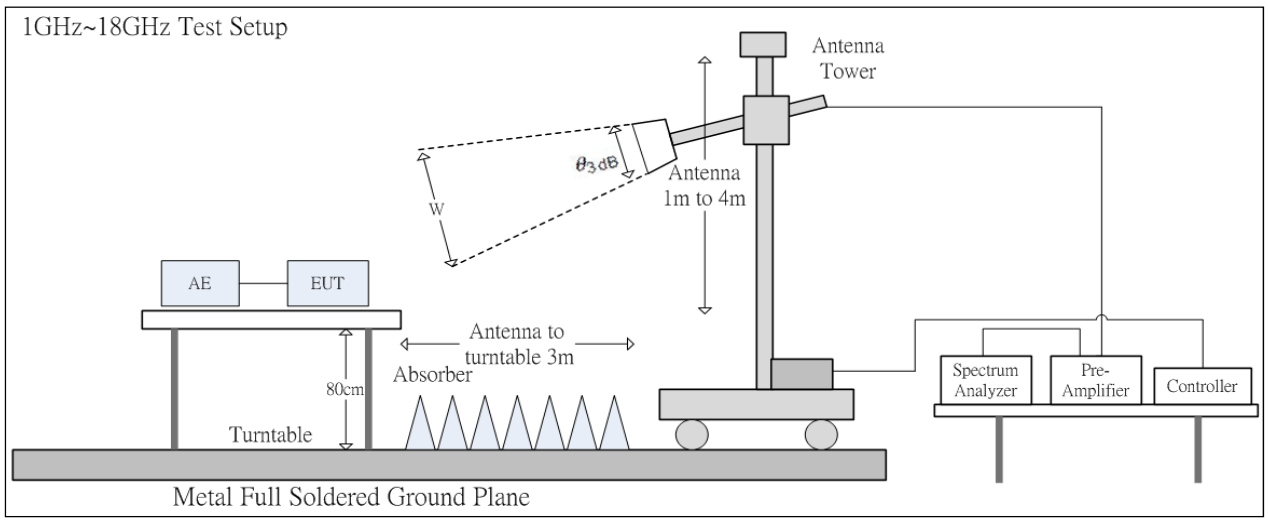
Back View

3. Radiated Emissions

3.1 Test Setup and Procedure

3.1.1 Test Setup





The 3dB beam width of the horn antenna used for the test is as shown in the table below.
1GHz~18GHz

Frequency GHz	E-plane	H-plane	$\theta_{3\,dB}$ (min)	d= 3 m
				w (m)
1	88°	147°	88°	5.79
2	68°	119°	68°	4.04
3	73°	92°	73°	4.44
4	70°	89°	70°	4.20
5	55°	60°	55°	3.12
6	63°	62°	62°	3.60
7	48°	49°	48°	2.67
8	39°	46°	39°	2.12
9	32°	42°	32°	1.72
10	30°	39	30°	1.61

Frequency GHz	E-plane	H-plane	$\theta_{3\,dB}$ (min)	d= 3 m
				w (m)
11	32°	35°	32°	1.72
12	35°	32°	35°	1.89
13	34°	31°	31°	1.66
14	32°	27°	27°	1.44
15	36°	26°	26°	1.39
16	40°	28°	28°	1.50
17	43°	26°	26°	1.39
18	41°	22°	22°	1.17

18 GHz~26.5 GHz

Frequency GHz	E-plane	H-plane	$\theta_{3\,dB}$ (min)	d= 1 m	d= 3 m
				w (m)	w (m)
18	11.4°	12.7°	11.4°	0.199	0.598
19	10.9°	12.4°	10.9°	0.190	0.572
20	10.8°	12.4°	10.8°	0.189	0.567
21	9.8°	12°	9.8°	0.171	0.514
22	9.7°	11°	9.7°	0.169	0.509
23	10°	11.8°	10°	0.174	0.524
24	9°	11°	9°	0.157	0.472
25	10°	12.3°	10°	0.174	0.524
26	9.9°	11.1°	9.9°	0.173	0.519
26.5	9.4°	11.3°	9.4°	0.164	0.493

26 GHz~40 GHz

Frequency GHz	E-plane	H-plane	$\theta_{3\,dB}$ (min)	d= 1 m	d= 3 m
				w (m)	w (m)
26	12°	12.2°	12°	0.210	0.631
27	13°	10.5°	10.5°	0.184	0.551
28	13.2°	12.3°	12.3°	0.216	0.647
29	11.5°	12.8°	11.5°	0.201	0.604
30	12°	8°	8°	0.140	0.420
31	11.5°	10.1°	10.1°	0.177	0.530
32	11.8°	10°	10°	0.175	0.525
33	11.8°	9.5°	9.5°	0.166	0.499
34	11.6°	10°	10°	0.175	0.525
35	10.9°	9.8°	9.8°	0.171	0.514
36	11.8°	8.6°	8.6°	0.150	0.451
37	12.9°	10.5°	10.5°	0.184	0.551
38	12°	10.3°	10.3°	0.180	0.541
39	11.8°	9.8°	9.8°	0.171	0.514
40	12.5°	11.2°	11.2°	0.196	0.588

3.1.2 Test Procedure

The radiated emissions test will then be repeated on the open site or chamber to measure the amplitudes accurately and without the multiple reflections existing in the shielded room. The EUT and support equipment are set up on the turntable of one of 10 meter open field sites or 10 meter chamber. Desktop EUT are set up on a wooden stand 0.8 meter above the ground or floor-standing arrangement shall be placed on the horizontal ground reference plane. The test volume for a height of up to 30 cm may be obstructed by absorber placed on the ground plane.

For the initial measurements, the receiving antenna is varied from 1-4 meter height and is changed in the vertical plane from vertical to horizontal polarization at each frequency. The highest emissions between 30 MHz to 1000 MHz were analyzed in details by operating the spectrum analyzer and/or EMI receiver in quasi-peak mode to determine the precise amplitude of the emissions. The highest emissions between 1 GHz to 40 GHz were analyzed in details by operating the spectrum analyzer in peak and average mode to determine the precise amplitude of the emissions.

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the antenna in the cone of radiation from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response. At the highest amplitudes observed, the EUT is rotated in the horizontal plane while changing the antenna polarization in the vertical plane to maximize the reading. The interconnecting cables were arranged and moved to get the maximum measurement. Once the maximum reading is obtained, the antenna elevation and polarization will be varied between specified limits to maximize the readings. All of the interface cables were manipulated according to ANSI C63.4 requirements.

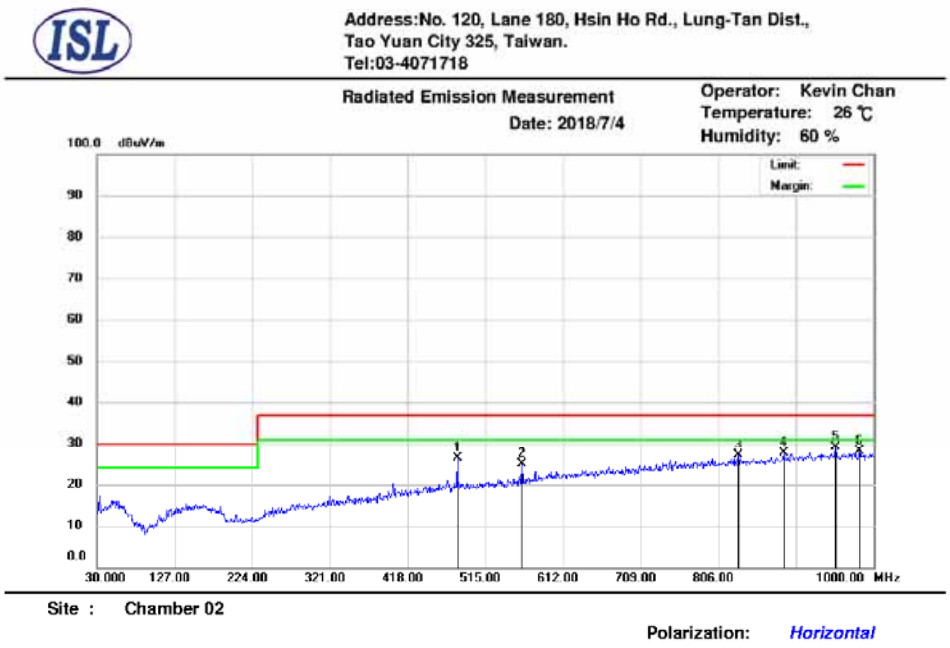
The highest internal source of the EUT is defined as the highest frequency generated or used within the EUT or on which the EUT operates or tunes. If the highest frequency of the internal sources of the EUT is less than 108 MHz, the measurement shall only be made up to 1 GHz. If the highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz, the measurement shall only be made up to 2 GHz. If the highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz, the measurement shall only be made up to 5 GHz. If the highest frequency of the internal sources of the EUT is above 1 GHz, the measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is less.

3.1.3 Spectrum Analyzer Configuration (for the frequencies tested)

Frequency Range:	30MHz--1000MHz
Detector Function:	Quasi-Peak Mode
Resolution Bandwidth:	120kHz

Frequency Range:	Above 1000MHz
Detector Function:	Peak/Average Mode
Resolution Bandwidth:	1MHz

3.2 Radiation Test Data: Configuration 1
- Radiated Emissions (Horizontal)



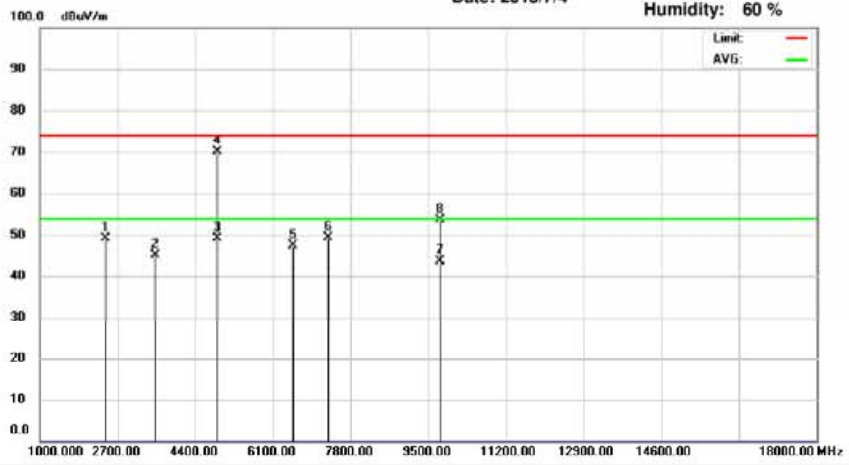
Mk.	Frequency (MHz)	RX_R (dBuV)	Correct Factor(dB/m)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
1	480.08	36.69	-10.34	26.35	37.00	-10.65	200	331	peak
2	560.59	33.75	-8.97	24.78	37.00	-12.22	200	275	peak
3	631.22	31.98	-4.75	27.23	37.00	-9.77	200	241	peak
4	887.48	31.62	-3.97	27.65	37.00	-9.35	200	360	peak
5	952.47	32.07	-2.95	29.12	37.00	-7.88	100	153	peak
6	982.54	30.61	-2.60	28.01	37.00	-8.99	100	60	peak

* Note:
Margin = Emission – Limit
Emission = Radiated Amplitude + Correct Factor
Correct Factor = Antenna Correction Factor + Cable Loss – Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit
Antenna Distance: 10 meters
The CISPR 22 limits would be applied to all FCC Part 15 devices.
Below 1GHz test, if the peak measured value meets the QP limit, it is unnecessary to perform the QP measurement.

Address:No. 120, Lane 180, Hsin Ho Rd., Lung-Tan Dist.,
Tao Yuan City 325, Taiwan.
Tel:03-4071718

Radiated Emission Measurement
Date: 2018/7/4

Operator: Elric Chen
Temperature: 26 ℃
Humidity: 60 %



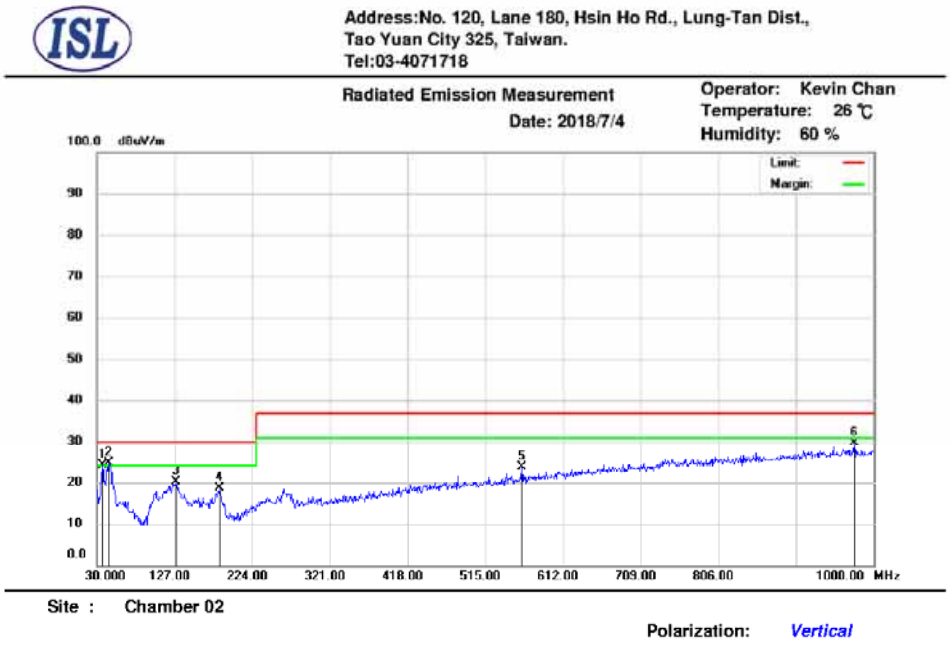
Site : Chamber 14

Polarization: *Horizontal*

Mk.	Frequency (MHz)	RX_R (dBuV)	Correct Factor(dB/m)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
1	2428.00	59.53	-10.30	49.23	74.00	-24.77	231	0	peak
2	3533.00	54.31	-9.11	45.20	74.00	-28.80	400	332	peak
3	4873.94	57.49	-8.45	49.04	54.00	-4.96	198	116	AVG
4	4876.00	78.50	-8.44	70.06	74.00	-3.94	199	113	peak
5	6542.00	53.17	-5.70	47.47	74.00	-26.53	300	327	peak
6	7307.00	54.23	-4.88	49.35	74.00	-24.65	300	103	peak
7	9747.92	44.02	-0.28	43.74	54.00	-10.26	164	360	AVG
8	9755.00	53.98	-0.26	53.72	74.00	-20.28	166	360	peak

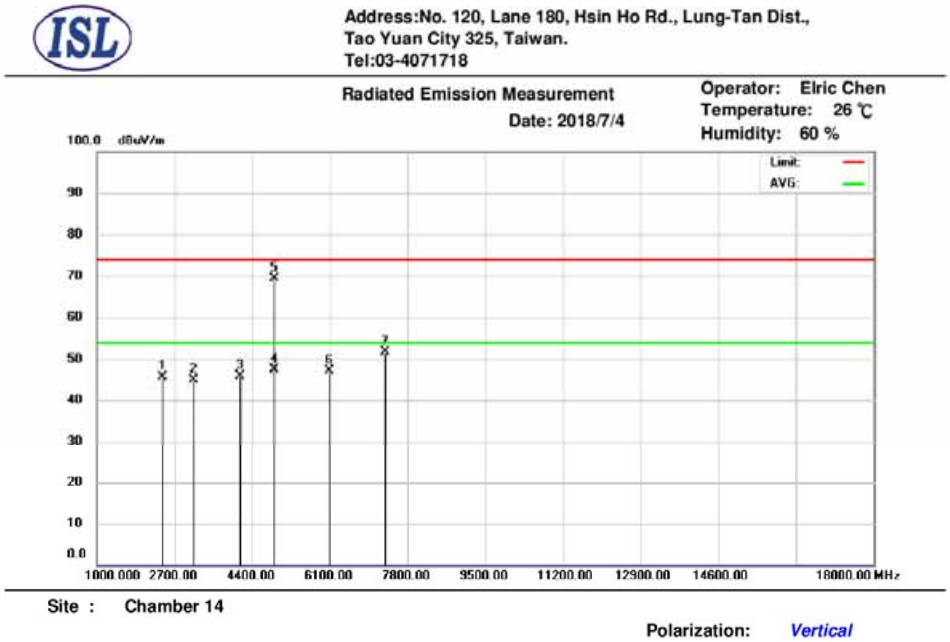
* Note:
Margin = Emission – Limit
Emission = Radiated Amplitude + Correct Factor
Correct Factor = Antenna Correction Factor + Cable Loss – Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit
Antenna Distance: 3 meters
Above 1GHz test, if the peak measured value meets the average limit, it is unnecessary to perform the average measurement.

-Radiated Emissions (Vertical)



Mk.	Frequency (MHz)	RX_R (dBuV)	Correct Factor(dB/m)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
1	36.79	42.22	-18.10	24.12	30.00	-5.88	400	220	peak
2	44.55	41.83	-17.25	24.58	30.00	-5.42	100	248	peak
3	126.94	37.66	-17.61	20.05	30.00	-9.95	100	95	peak
4	183.26	36.06	-17.51	18.55	30.00	-11.45	100	280	peak
5	560.59	32.67	-8.97	23.70	37.00	-13.30	315	360	peak
6	975.75	32.41	-2.68	29.73	37.00	-7.27	400	238	peak

* Note:
Margin = Emission – Limit
Emission = Radiated Amplitude + Correct Factor
Correct Factor = Antenna Correction Factor + Cable Loss – Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit
Antenna Distance: 10 meters
The CISPR 22 limits would be applied to all FCC Part 15 devices.
Below 1GHz test, if the peak measured value meets the QP limit, it is unnecessary to perform the QP measurement.



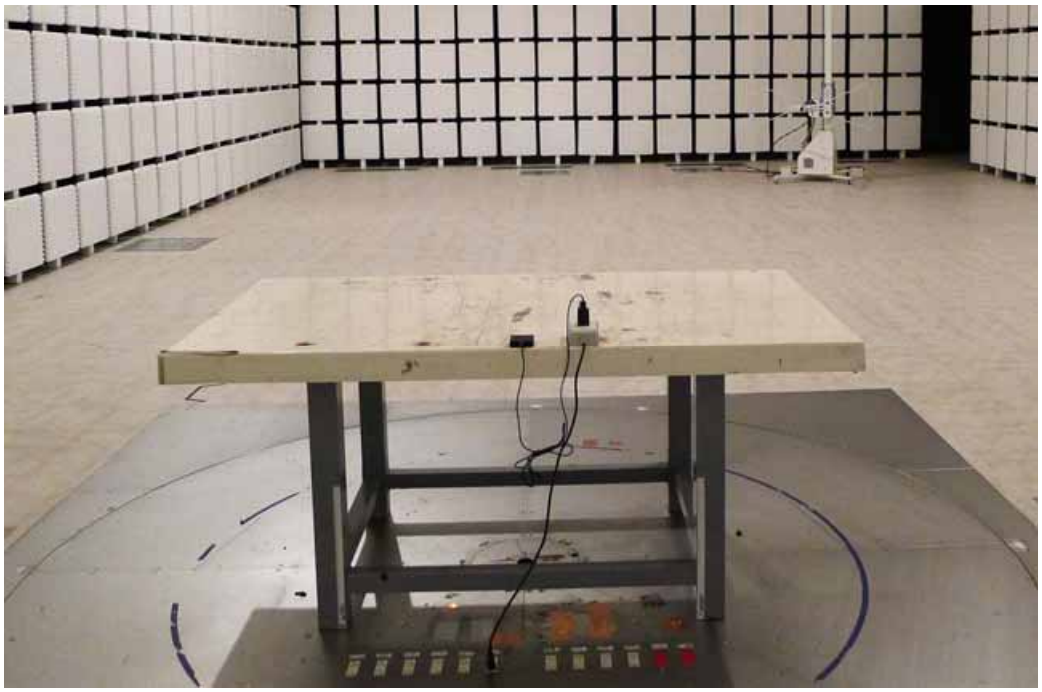
Mk.	Frequency (MHz)	RX_R (dBuV)	Correct Factor(dB/m)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.Pos (cm)	Tab.Pos (deg.)	Detector
1	2428.00	55.95	-10.30	45.65	74.00	-28.35	297	0	peak
2	3125.00	54.17	-9.37	44.80	74.00	-29.20	201	72	peak
3	4128.00	54.05	-8.25	45.80	74.00	-28.20	201	346	peak
4	4874.08	55.75	-8.45	47.30	54.00	-6.70	304	360	AVG
5	4876.00	77.82	-8.44	69.38	74.00	-4.62	303	360	peak
6	6083.00	53.80	-6.58	47.22	74.00	-26.78	201	147	peak
7	7307.00	56.58	-4.88	51.70	74.00	-22.30	201	192	peak

* Note:
Margin = Emission – Limit
Emission = Radiated Amplitude + Correct Factor
Correct Factor = Antenna Correction Factor + Cable Loss – Pre-Amplifier Gain
A margin of -8dB means that the emission is 8dB below the limit
Antenna Distance: 3 meters
Above 1GHz test, if the peak measured value meets the average limit, it is unnecessary to perform the average measurement.

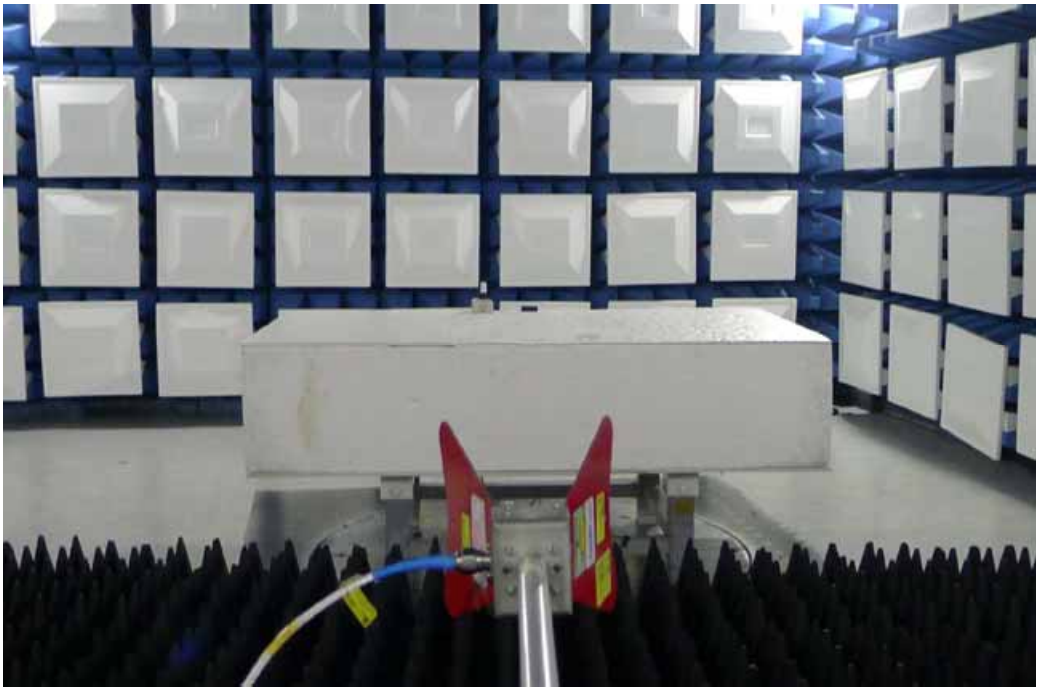
3.3 Test Setup Photo

Front View (30MHz~1GHz)

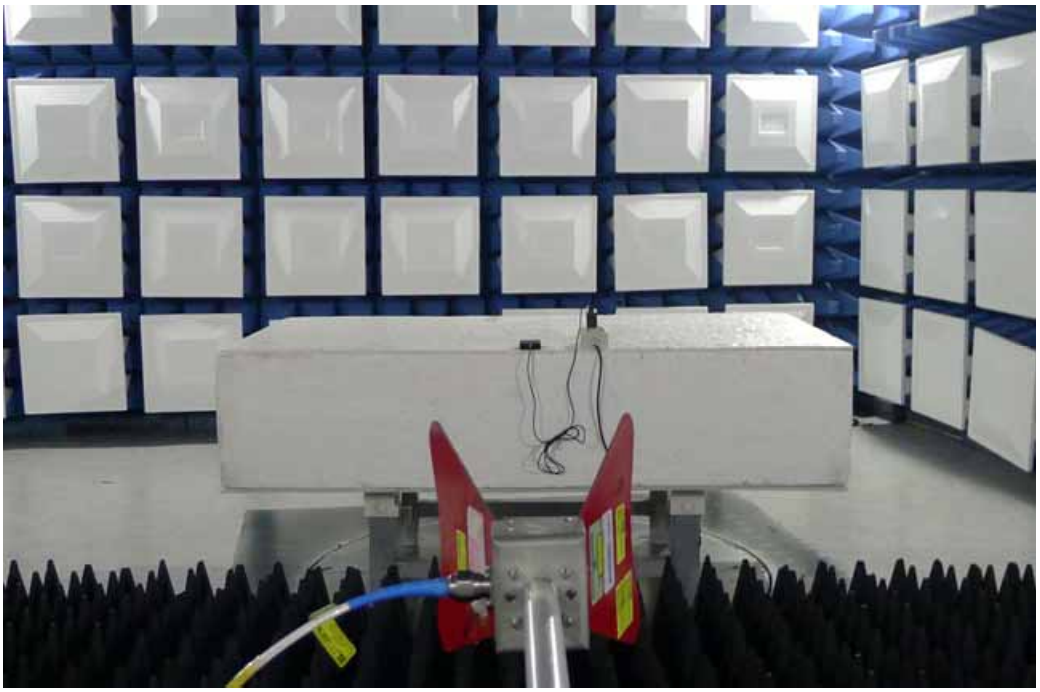
Back View (30MHz~1GHz)



Front View (above 1GHz)



Back View (above 1GHz)



4. Appendix

4.1 Appendix A: Warning Labels

Label Requirements

A Class B digital device subject to authorization under Supplier's Declaration of Conformity of FCC shall carry a label which includes the following statement:

*** * * W A R N I N G * * ***

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.

Devices subject to authorization under Supplier's Declaration of Conformity may be labeled with FCC logo on a voluntary basis as a visual indication that the product complies with the applicable FCC requirements

The sample label shown shall be permanently affixed at a conspicuous location on the device and be readily visible to the user at the time of purchase.

4.2 Appendix B: Warning Statement

Statement Requirements

The operators' manual for a Class B digital device shall contain the following statements or their equivalent:

*** * * W A R N I N G * * ***

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

Notice: The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equivalent.

*** * * * * * * * * ***

If the EUT was tested with special shielded cables the operator's manual for such product shall also contain the following statements or their equivalent:

Shielded interface cables and/or AC power cord, if any, must be used in order to comply with the emission limits.

4.3 Appendix C: Test Equipment

4.3.1 Test Equipment List

Location Con03	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Conduction 03	EMI Receiver 11	ROHDE & SCHWARZ	ESCI	100568	06/27/2018	06/27/2019
Conduction 03	LISN 19	R&S	ENV216	101425	07/15/2017	07/15/2018
Conduction 03	LISN 08	FCC	FCC-LISN-50/250-25-2-01	07039	07/31/2017	07/31/2018
Conduction 03	Conduction 03 -1 Cable	WOKEN	CFD 300-NL	Conduction 03 -1	09/01/2017	09/01/2018

Location Chamber02	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Radiation (Chamber02)	BILOG Antenna 17	Schwarzbeck	Schwarzbeck VULB 9168+EMCI-N-6-05	645	03/02/2018	03/02/2019
Radiation (Chamber02)	Preamplifier 25	EMCI	EMC9135	980295	03/05/2018	03/05/2019
Radiation (Chamber02)	Coaxial Cable Chmb 02-10M-02	EMC	RG214U	Chmb 02-10M-02	09/01//2017	09/01/2018
Radiation (Chamber02)	EMI Receiver 12	ROHDE & SCHWARZ	ESCI	100804	07/10/2017	07/10/2018

Location Chmb14	Equipment Name	Brand	Model	S/N	Last Cal. Date	Next Cal. Date
Rad. Above 1GHz	Spectrum Analyzer 22 20Hz-43GHz	R&S	FSU43	100143	05/24/2018	05/24/2019
Rad. Above 1GHz	Spectrum Analyzer 24 (1G~26.5GHz)	Agilent	N9010A	MY49060537	08/10/2017	08/10/2018
Rad. Above 1GHz	Horn Antenna 06 (1G~18G)	ETS	3117	00066665	10/31/2017	10/31/2018
Rad. Above 1GHz(Chamber12)	Preamplifier 13	MITEQ	AFS44-00101800-25-10P-44	1329256	10/26/2017	10/26/2018
Rad. Above 1GHz	Microwave Cable 26	HUBER SUHNER	EMC104-SM-NM-800	141112	04/27/2018	04/27/2019
Rad. Above 1GHz	Microwave Cable 30	EMC Instruments	EMC104-NM-SM-6000	170108	02/23/2018	02/23/2019

4.3.2 Software for Controlling Spectrum/Receiver and Calculating Test Data

Site	Filename	Version	Issue Date
Conduction/Radiation	EZ EMC	ISL-03A2	3/6/2013

4.4 Appendix D: Uncertainty of Measurement

The measurement uncertainty refers to CISPR 16-4-2. The coverage factor k = 2 yields approximately a 95 % level of confidence.

<Conduction 03>
AMN: ±2.90dB
ISN T2: ±3.04dB
ISN T4: ±3.05dB
ISN T8: ±3.05dB
CVP: ±3.62dB
CP: ±2.88dB

<Chamber 02 (10M)>
Horizontal
30MHz~200MHz: ±4.69dB
200MHz~1000MHz: ±4.30dB
Vertical
30MHz~200MHz: ±4.65dB
200MHz~1000MHz: ±4.35dB

<Chamber 14 (3M)>
1GHz~6GHz: ±5.12dB
1GHz~18GHz: ±4.66dB
18GHz~26.5GHz: ±4.48dB
26.5GHz~40GHz: ±4.58dB

4.5 Appendix E: Photographs of EUT

Please refer to the File of **ISL-18LE343P**