FCC PART 15, SUBPART B, CLASS B

TEST REPORT

For

YEALINK (XIAMEN) NETWORK TECHNOLOGY CO., LTD.

309, 3th Floor, No.16, Yun Ding North Road, Huli District, Xiamen City, Fujian, P.R. China

Model: SIP-T27G
FCC ID: T2C-YLT27G

Report Type	Product Type:
Original Report	IP Phone

Report Producer : **Jane Lee**

Report Number : **RTWS160913001-00**

Report Date : **2016-09-21**

Reviewed By: **Jerry Chang**

Prepared By: **Bay Area Compliance Laboratories Corp.(Taiwan)**
70, Lane 169, Sec. 2, Datong Road, Xizhi Dist.,
New Taipei City 22183, Taiwan, R.O.C.
Tel: +886 (2)2647 6898
Fax: +886 (2) 2647 6895
www.bacl.com.tw

Revision History

Revision	Issue Date	Description
1.0	2016.9.21	Original Report

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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

Applicant:	YEALINK (XIAMEN) NETWORK TECHNOLOGY CO., LTD. 309, 3th Floor, No.16, Yun Ding North Road, Huli District, Xiamen City, Fujian, P.R. China
Manufacturer:	YEALINK (XIAMEN) NETWORK TECHNOLOGY CO., LTD. 309, 3th Floor, No.16, Yun Ding North Road, Huli District, Xiamen City, Fujian, P.R. China
Product:	IP Phone
Model:	SIP-T27G
Trade Name:	Yealink
Operating Frequency:	333MHz
Voltage Range:	I/P: 100-240Vac, 50/60Hz, 250mA O/P: 5V, 1.2A
Date of Test:	Sep 13, 2016 ~Sep 21, 2016

**All measurement and test data in this report was gathered from production sample serial number: 16091301 (Assigned by BACL, Taiwan). The EUT supplied by the applicant was received on 2016-09-13*

Designation Number: TW1101

Adapter 1 Information:	Adapter 2 Information:
Model: YLPS051200C-US	Model: YLPS051200B-US
I/P: 100-240Vac, 50/60Hz, 250mA	I/P: 100-240Vac, 50/60Hz, 250mA
O/P: 5V, 1.2A	O/P: 5V, 1.2A

1.2 Objective

This test report is prepared on behalf of *YEALINK (XIAMEN) NETWORK TECHNOLOGY CO., LTD.* in accordance with Part 2, Subpart J, Part 15, Subparts A and B of the Federal Communication Commission's rules.

The tests were performed in order to determine the compliance of the EUT with FCC Part 15 B.

1.3 Related Submittal(s)/Grant(s)

No related submittal(s).

2. SYSTEM TEST CONFIGURATION

2.1 Description of Test Configuration

The system was configured for testing in testing mode which was provided by manufacturer.

2.2 Test Mode

Pretest Mode	Description
MODE 1	Normal operation(Adapter:YLPS051200B-US)
MODE 2	Normal operation(Adapter:YLPS051200C-US)
MODE 3	Normal operation(PoE)

Final Test Mode	Description
MODE 1	Normal operation(Adapter:YLPS051200B-US)

2.3 EUT Exercise Software

“myHwin” exercise software was used.

2.4 Special Accessories

No special accessory.

2.5 Equipment Modifications

No modification was made to the EUT.

2.6 Description of operation:

1. Turn on EUT and test equipment
2. NB use myHwin.exe that sends "H" to the Panel
3. Use ”Brunin” Drive do for Read/Write work
4. Use ”ping.exe for EUT to transmit and receive
5. Repeat steps 2-4

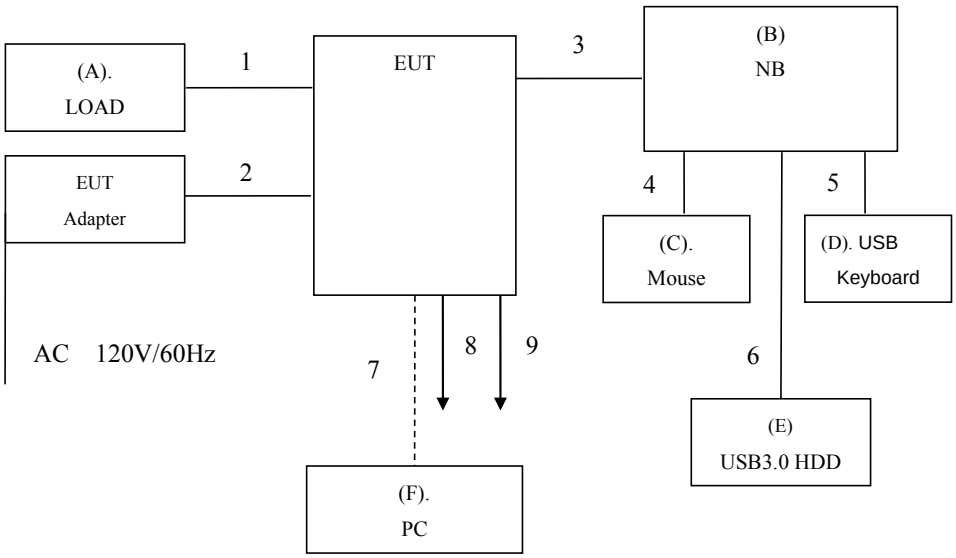
2.7 Support Equipment List and Details

No.	Description	Manufacturer	Model Number	BSMI	FCC ID	S/N
A	LOAD	N/A	N/A	N/A	N/A	N/A
B	NB	ASUS	X550J	R31018	DOC	F9N0CV2281 0937G
C	Mouse	DELL	MS111-P	R41108	DOC	N/A
D	USB Keyboard	DELL	SK-8120	R3A002	DOC	N/A
E	USB3.0 HDD	WD	My Passport Ultra	D33015	DOC	WX21A557K R62
F	PC	DELL	OptiPlex 790 SFF	R33002	DOC	H9WPSR1

2.8 External Cable List and Details

No.	Description	Shielded Type	Ferrite Core	Length
1	USB Cable	Non-Shielded	N/A	1 M
2	Power Cable	Non-Shielded	N/A	1.8M
3	RJ-45 Cable	Non-Shielded	N/A	1.5M
4	USB Cable	Non-Shielded	N/A	1.8M
5	USB Cable	Non-Shielded	N/A	1.8M
6	USB Cable	Shielded	N/A	0.5M
7	RJ-45 Cable	Non-Shielded	N/A	10M
8	RJ-9 Cable	Non-Shielded	N/A	1.5M
9	RJ-11 Cable	Non-Shielded	N/A	2.2M

2.9 Block Diagram of Test Setup



3. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emission	Compliance
§15.109	Radiated Emission	Compliance

4. FCC §15.107 – AC LINE CONDUCTED EMISSIONS

4.1 Applicable Standard

According to FCC §15.107

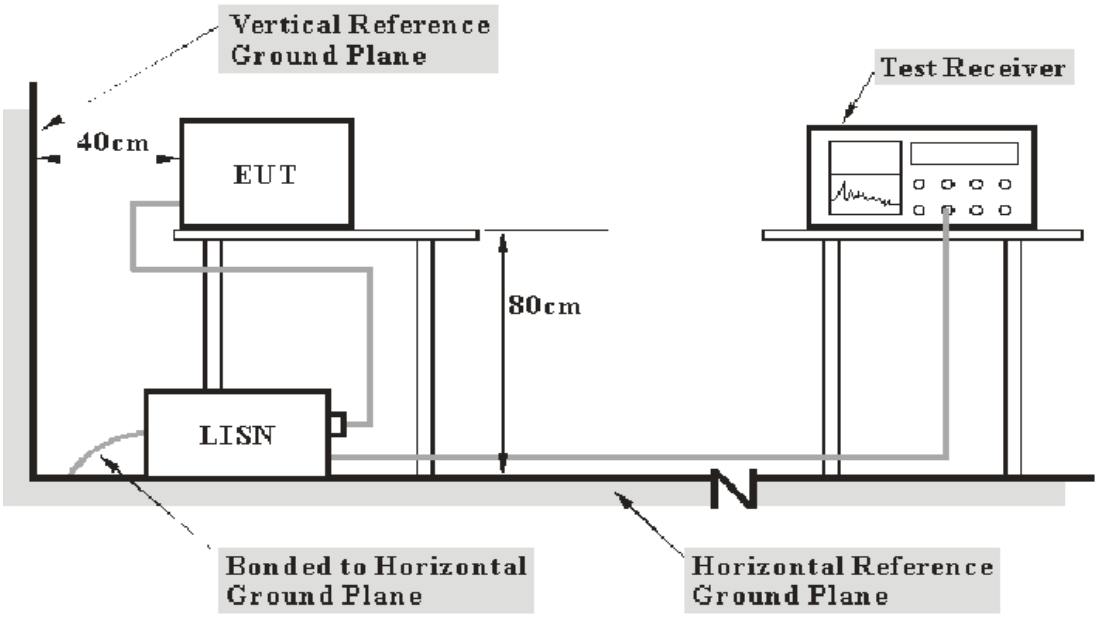
4.2 Measurement Uncertainty

Input quantities to be considered for conducted disturbance measurements maybe receiver reading, attenuation of the connection between LISN/ISN and receiver, LISN/ISN voltage division factor, LISN/ISN VDF frequency interpolation and receiver related input quantities, etc.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of conducted disturbance test at Bay Area Compliance Laboratories Corp. (Taiwan) is shown as below. And the uncertainty will not be taken into consideration for the test data recorded in the report.

Port	Expanded Measurement uncertainty
AC Mains	2.71 dB (k=2, 95% level of confidence)
CAT 3	3.81 dB (k=2, 95% level of confidence)
CAT 5	4.24 dB (k=2, 95% level of confidence)
CAT 6	4.71 dB (k=2, 95% level of confidence)

4.3 EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The measurement procedure of EUT setup is according with per ANSI C63.4-2014. The related limit was specified in FCC Part 15.107 Class B.

The spacing between the peripherals is 10 cm.

4.4 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

4.5 Test Procedure

During the conducted emission test, the power cord was connected to the first LISN and the other relevant equipments were conncected to the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

4.6 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
LISN	Rohde & Schwarz	ENV216	101248	2016/7/27	2017/7/26
LISN	EMCO	699837	75848	N.C.R	N.C.R
EMI Test Receiver	Rohde & Schwarz	ESCI	100540	2016/7/22	2017/7/21
Pulse Limiter	Rohde & Schwarz	ESH3Z2	TXZEM025	2016/8/19	2017/8/18
RF Cable	EMEC	EM-CB5D	001	2016/7/27	2017/7/26
Software	AUDIX	E3	V9.150826k	N.C.R	N.C.R

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Taiwan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

4.7 Factor & Over Limit Calculation

The factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Transient Limiter Attenuation. The basic equation is as follows:

Factor = LISN VDF + Cable Loss + Transient Limiter Attenuation

The "**Over Limit**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, an over limit of -7 dB means the emission is 7 dB below the limit. The equation for Over Limit calculation is as follows:

Over Limit = Level – Limit Line

4.8 Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.107. Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in complies with the limit if $L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$

In BACL, $U_{(Lm)}$ is less than U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

4.9 Test Data

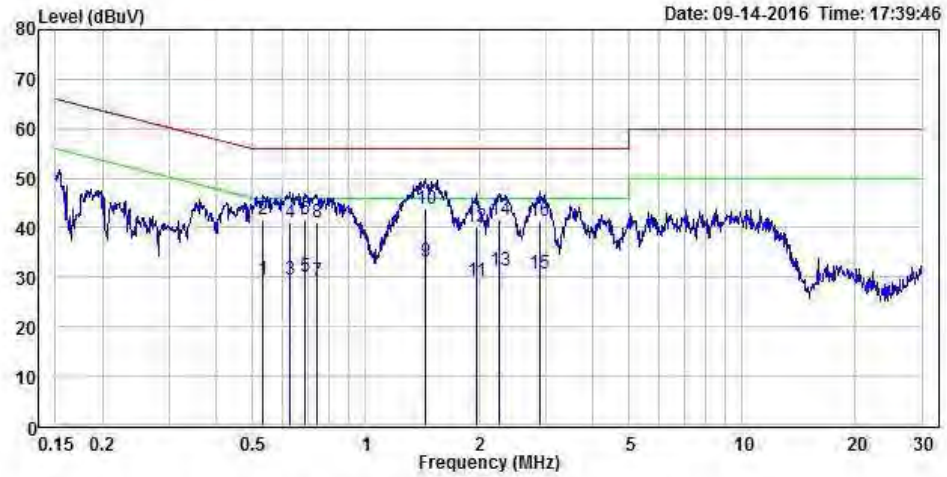
Environmental Conditions

Temperature:	26.7 ℃
Relative Humidity:	58 %
ATM Pressure:	101.0 kPa

The testing was performed by Kevin Kao on 2016-09-14.

Mode 1:

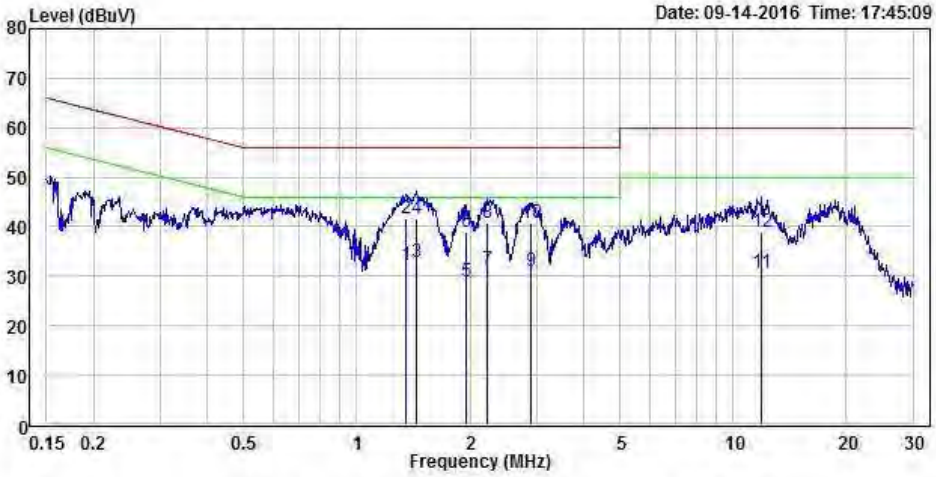
AC 120V/60 Hz, Line



Condition: limit\FCC\FCC Part15B CLASS-B QP.csv Line
EUT :
Mode :
Note : 120V/60Hz

	Freq	Level	Limit Line	Over Limit	Factor	Read Level	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB	dB	dBuV		
1	0.534	29.45	46.00	-16.55	19.55	9.90	Average	Line
2	0.534	41.59	56.00	-14.41	19.55	22.04	QP	Line
3	0.629	29.48	46.00	-16.52	19.56	9.92	Average	Line
4	0.629	41.18	56.00	-14.82	19.56	21.62	QP	Line
5	0.687	30.26	46.00	-15.74	19.56	10.70	Average	Line
6	0.687	41.62	56.00	-14.38	19.56	22.06	QP	Line
7	0.744	29.35	46.00	-16.65	19.58	9.77	Average	Line
8	0.744	41.01	56.00	-14.99	19.58	21.43	QP	Line
9	1.437	33.09	46.00	-12.91	19.64	13.45	Average	Line
10	1.437	43.85	56.00	-12.15	19.64	24.21	QP	Line
11	1.962	29.06	46.00	-16.94	19.67	9.39	Average	Line
12	1.962	40.14	56.00	-15.86	19.67	20.47	QP	Line
13	2.266	31.25	46.00	-14.75	19.66	11.59	Average	Line
14	2.266	41.67	56.00	-14.33	19.66	22.01	QP	Line
15	2.891	30.69	46.00	-15.31	19.65	11.04	Average	Line
16	2.891	41.41	56.00	-14.59	19.65	21.76	QP	Line

AC 120V/60 Hz, Neutral



Condition: limit\FCC\FCC Part15B CLASS-B QP.csv Neutral
EUT :
Mode :
Note : 120V/60Hz

	Freq	Level	Limit Line	Over Limit	Factor	Read Level	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB	dB	dBuV		
1	1.348	32.10	46.00	-13.90	19.60	12.50	Average	Neutral
2	1.348	41.80	56.00	-14.20	19.60	22.20	QP	Neutral
3	1.443	32.76	46.00	-13.24	19.63	13.13	Average	Neutral
4	1.443	41.81	56.00	-14.19	19.63	22.18	QP	Neutral
5	1.955	29.04	46.00	-16.96	19.65	9.39	Average	Neutral
6	1.955	38.82	56.00	-17.18	19.65	19.17	QP	Neutral
7	2.230	31.33	46.00	-14.67	19.66	11.67	Average	Neutral
8	2.230	40.85	56.00	-15.15	19.66	21.19	QP	Neutral
9	2.914	30.93	46.00	-15.07	19.67	11.26	Average	Neutral
10	2.914	40.71	56.00	-15.29	19.67	21.04	QP	Neutral
11	11.880	30.84	50.00	-19.16	19.88	10.96	Average	Neutral
12	11.880	38.93	60.00	-21.07	19.88	19.05	QP	Neutral

5. FCC §15.109 – RADIATED EMISSION

5.1 Applicable Standard

FCC §15.109

5.2 Measurement Uncertainty

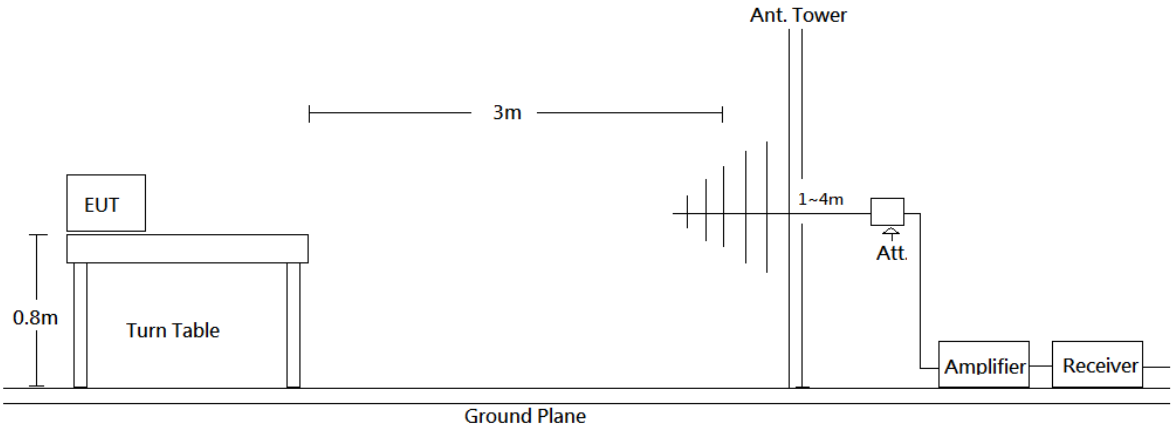
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2:2011, the expended combined standard uncertainty of radiation emissions at Bay Area Compliance Laboratories Corp. (Taiwan) is shown in below table. And the uncertainty will not be taken into consideration for the test data recorded in the report

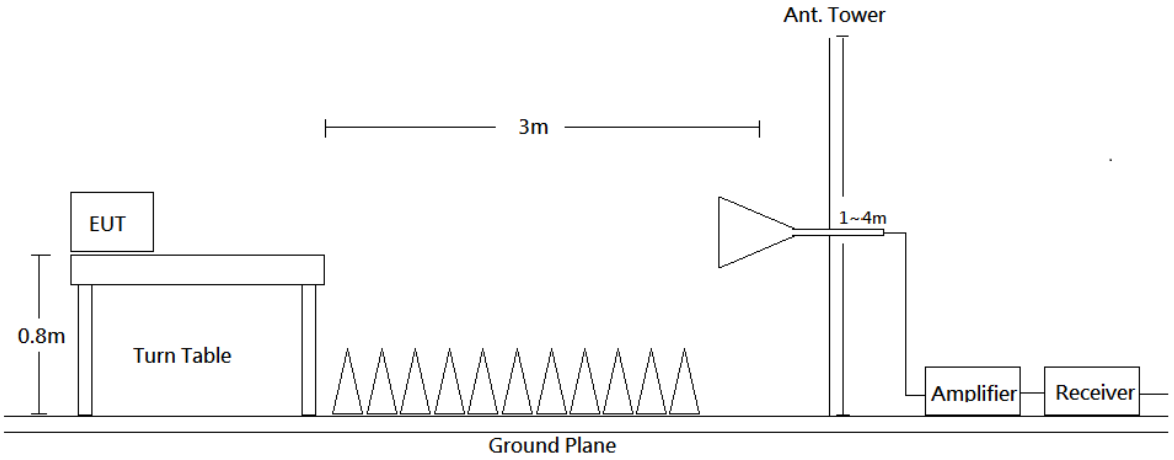
Frequency	Measurement uncertainty
9 kHz~30MHz	4.11 dB (k=2, 95% level of confidence)
30MHz~200MHz	4.21 dB (k=2, 95% level of confidence)
200MHz~1GHz	4.41 dB (k=2, 95% level of confidence)
1 GHz~6 GHz	4.51 dB (k=2, 95% level of confidence)
Above 6 GHz	4.88 dB (k=2, 95% level of confidence)

5.3 EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits. The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The power cord was connected to a 120 VAC/60 Hz power source.

5.4 EMI Test Receiver Setup

The system was investigated from 30 MHz to 18 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations

Frequency Range	RBW	RBW Video B/W	IF B/W	Detector
30MHz – 1000 MHz	100 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3MHz	/	PK
	1MHz	10 Hz	/	Ave.

5.5 Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detector mode from 30 MHz to 1 GHz and PK and average detector modes for frequencies above 1 GHz.

5.6 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Interval
Broadband Antenna	Sunol Sciences	JB6	A050115	2015/12/8	2016/12/7
Amplifier	Sonoma	310N	130602	2016/7/15	2017/7/14
EMI Test Receiver	Rohde & Schwarz	ESR7	101419	2015/11/4	2016/11/3
Mircoflex Cable	UTIFLEX	UFB311A-Q-1440-300300	220490-006	2015/11/4	2016/11/3
Mircoflex Cable	UTIFLEX	UFB197C-1-2362-70U-70U	225757-001	2016/7/15	2017/7/14
Mircoflex Cable	UTIFLEX	UFA210A-1-3149-300300	MFR64639 226389-001	2015/12/2	2016/12/1
Turn Table	Champro	TT-2000	060772-T	N.C.R	N.C.R
Antenna Tower	Champro	AM-BS-4500-B	060772-A	N.C.R	N.C.R
Controller	Champro	EM1000	060772	N.C.R	N.C.R
software	Farad	EZ_EMC	BACL-03A1	N.C.R	N.C.R
Horn Antenna	EMCO	3115	9311-4158	2016/5/10	2017/5/9
Horn Antenna	ETS-Lindgren	3116	00062638	2016/9/5	2017/9/4
Preamplifier	EMEC	EM01G18G	060657	2015/12/21	2016/12/20
Preamplifier	EMEC	EM18G40G	060656	2015/12/21	2016/12/20
Spectrum Analyzer	Rohde & Schwarz	FSEK30	825084/006	2015/12/24	2016/12/23
Mircoflex Cable	ROSNAL	K1K50-UP0264-K1K50-80CM	160309-2	2016/3/24	2017/3/23

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Taiwan) attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

5.7 Correct Factor & Margin Calculation

The Correct Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain + Attenuator

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Limit –Result

5.8 Test Results Summary

According to the data in the following table, the EUT complied with the FCC §15.109 Class B. Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level complies with the limit if

$L_m + U_{(Lm)} \leq L_{lim} + U_{cispr}$

In BACL, $U_{(Lm)}$ is less than U_{cispr}, if L_m is less than L_{lim}, it implies that the EUT complies with the limit.

5.9 Test Data

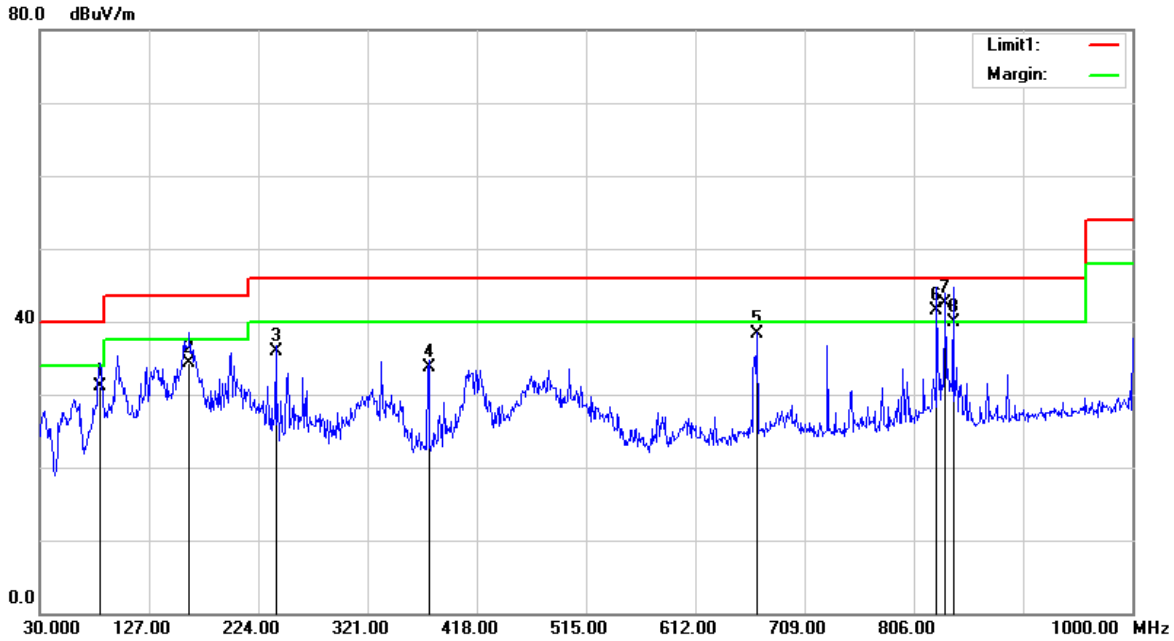
Environmental Conditions

Temperature:	23.8℃
Relative Humidity:	61 %
ATM Pressure:	101.0 kPa

The testing was performed by Louis Lin on 2016-09-19.

Below 1GHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	83.35	48.00	-16.94	31.06	40.00	-8.94	400	26	QP
2	162.89	46.10	-11.76	34.34	43.50	-9.16	200	40	QP
3	239.52	48.30	-12.37	35.93	46.00	-10.07	100	317	QP
4	375.32	42.20	-8.46	33.74	46.00	-12.26	100	4	QP
5	667.29	41.80	-3.51	38.29	46.00	-7.71	300	207	QP
6	826.37	42.10	-0.53	41.57	46.00	-4.43	100	10	QP
7	834.13	42.80	-0.37	42.43	46.00	-3.57	113	0	QP
8	840.92	40.10	-0.24	39.86	46.00	-6.14	101	0	QP

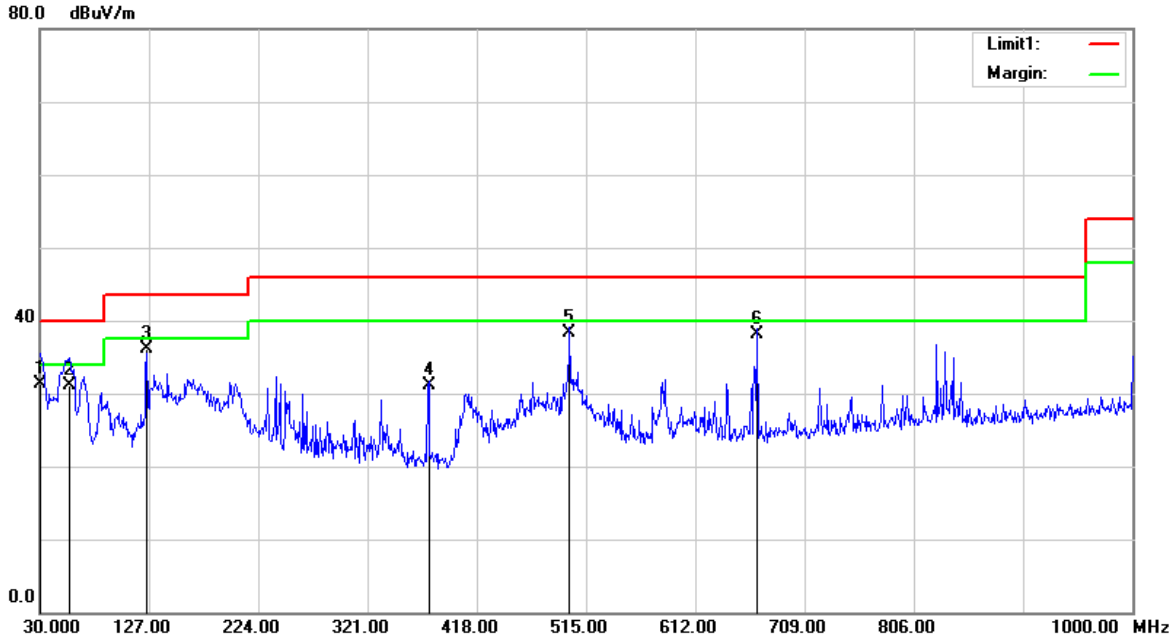
Note:

Result = Reading + Correct Factor

Margin = Limit –Result

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	30.97	35.60	-4.33	31.27	40.00	-8.73	100	227	QP
2	56.19	48.30	-17.11	31.19	40.00	-8.81	100	133	QP
3	125.06	46.90	-10.84	36.06	43.50	-7.44	100	63	QP
4	375.32	39.60	-8.46	31.14	46.00	-14.86	182	360	QP
5	500.45	44.20	-5.93	38.27	46.00	-7.73	100	321	QP
6	667.29	41.70	-3.51	38.19	46.00	-7.81	100	208	QP

Note:

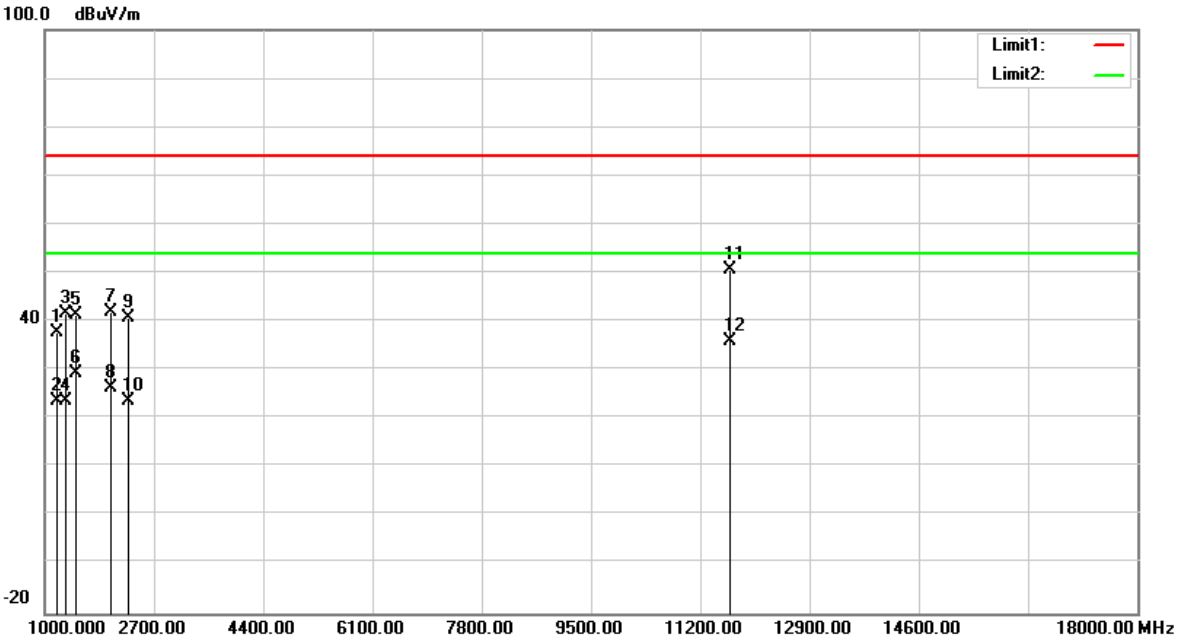
Result = Reading + Correct Factor

Margin = Limit –Result

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator

Above 1GHz

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	1187.00	47.78	-10.00	37.78	74.00	-36.22	100	33	peak
2	1187.00	33.78	-10.00	23.78	54.00	-30.22	100	33	AVG
3	1323.00	51.10	-9.46	41.64	74.00	-32.36	116	360	peak
4	1323.00	33.01	-9.46	23.55	54.00	-30.45	116	360	AVG
5	1493.00	50.11	-8.77	41.34	74.00	-32.66	100	97	peak
6	1493.00	38.18	-8.77	29.41	54.00	-24.59	100	97	AVG
7	2037.00	48.00	-6.16	41.84	74.00	-32.16	100	59	peak
8	2037.00	32.51	-6.16	26.35	54.00	-27.65	100	59	AVG
9	2309.00	46.20	-5.47	40.73	74.00	-33.27	100	18	peak
10	2309.00	29.19	-5.47	23.72	54.00	-30.28	100	18	AVG
11	11659.00	37.69	12.95	50.64	74.00	-23.36	100	16	peak
12	11659.00	22.87	12.95	35.82	54.00	-18.18	100	16	AVG

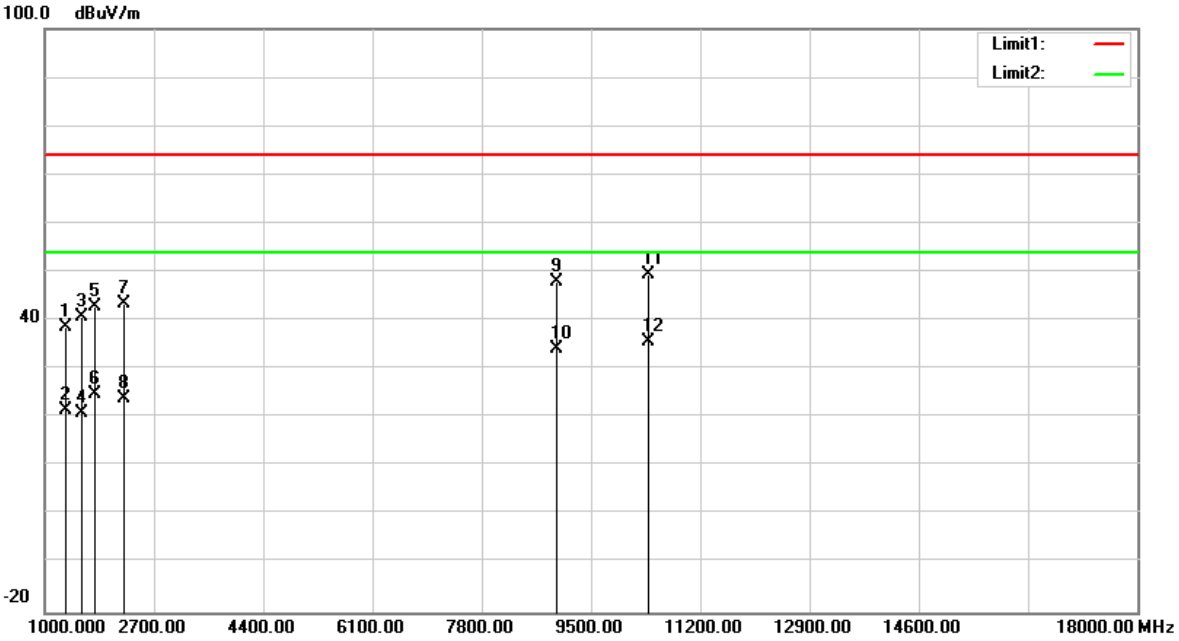
Note:

Result = Reading + Correct Factor

Margin = Limit –Result

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	(cm)	(°)	
1	1323.00	48.06	-9.46	38.60	74.00	-35.40	100	291	peak
2	1323.00	30.87	-9.46	21.41	54.00	-32.59	100	291	AVG
3	1578.00	48.96	-8.35	40.61	74.00	-33.39	100	209	peak
4	1578.00	29.29	-8.35	20.94	54.00	-33.06	100	209	AVG
5	1782.00	50.31	-7.34	42.97	74.00	-31.03	100	199	peak
6	1782.00	32.05	-7.34	24.71	54.00	-29.29	100	199	AVG
7	2241.00	49.25	-5.65	43.60	74.00	-30.40	100	201	peak
8	2241.00	29.71	-5.65	24.06	54.00	-29.94	100	201	AVG
9	8956.00	38.23	9.83	48.06	74.00	-25.94	300	260	peak
10	8956.00	24.27	9.83	34.10	54.00	-19.90	300	260	AVG
11	10384.00	37.45	12.09	49.54	74.00	-24.46	200	36	peak
12	10384.00	23.46	12.09	35.55	54.00	-18.45	200	36	AVG

Note:

Result = Reading + Correct Factor

Margin = Limit –Result

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain + Attenuator

******* END OF REPORT *******