FCC PART 15.249

TEST REPORT

For

Targus International LLC

1211 North Miller Street, Anaheim, CA 92806 United States

FCC ID: OXM000084

Report Type:	**Product Type:**
Original Report	Wireless Receiver

Report Producer:	Jane Lee
Report Number:	RTWL170824003-00
Report Date:	2017-09-13
Reviewed By:	Jerry Chang

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Revision History

Revision	No.	Report Number	Issue Date	Description	Author/ Revised by
1.0	RTWL170824003	RTWL170824003-00	2017.09.13	Original Report	Jane

TABLE OF CONTENTS

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Applicant :	Targus International LLC 1211 North Miller Street, Anaheim, CA 92806 United States
Manufacturer :	ORtek Technology Inc. No 16, Xiang Pin HsiRoad, Xiang PingJieDao, DongAn Dist., Xiamen City, Xiamen, CHINA.
Product :	Wireless Receiver
Model :	AKP11AR
Trade Name :	Targus
Frequency Range :	2408~2474MHz
Antenna Specification :	PCB Antenna/Gain: -2.40 dBi
Voltage Range: :	5Vdc from USB
Date of Test :	August 24, 2017 ~Sep 11, 2017

**All measurement and test data in this report was gathered from production sample serial number: 170824003 (Assigned by BACL, Taiwan) The EUT supplied by the applicant was received on 2017-08-24*

Objective

This report is prepared on behalf of *Targus International LLC* in accordance with Part 2, Subpart J, Part 15, Subparts A and C of the Federal Communications Commission's rules.

The tests were performed in order to determine the test mode of EUT compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.249 rules.

Related Submittal(s)/Grant(s)

FCC Part 15.249 DXX submission with FCC ID: OXM000082

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Taiwan) to collect test data is located on

☒70, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.

☐68-3, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.

Bay Area Compliance Laboratories Corp. (Taiwan) Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 3180) and the FCC designation No.TW3180 under the Mutual Recognition Agreement (MRA) in FCC Test. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.10.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 974454. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in Engineering Mode, which was provided by the manufacturer, there are totally 3 channels.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2408	3	2474
2	2440	-	-

EUT Exercise Software

No test software was used.

Equipment Modifications

No modification was made to the EUT.

Support Equipment List and Details

Description	Manufacturer	Model Number	BSMI	FCC ID/DOC	S/N
Notebook	DELL	P62G	N/A	PD98260NGU	36113452562

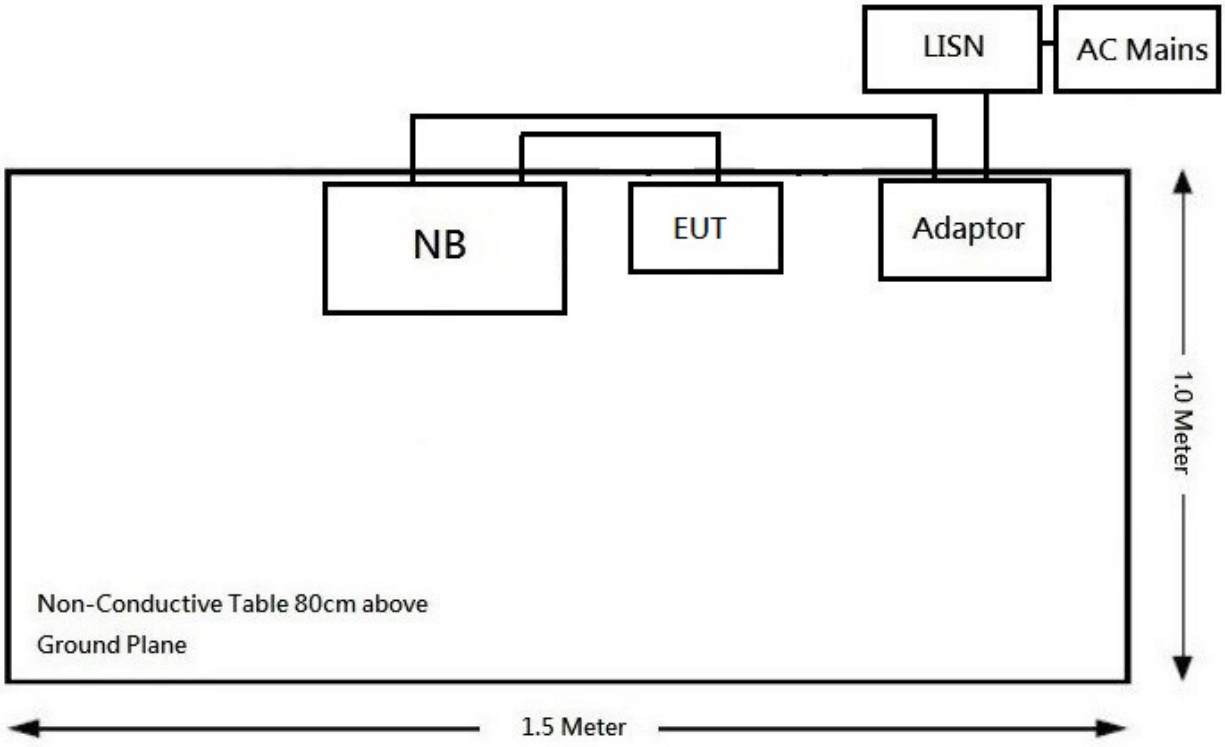
External Cable List and Details

Cable Description	Length (m)	From	To
USB Cable	1	NB	EUT

Block Diagram of Test Setup

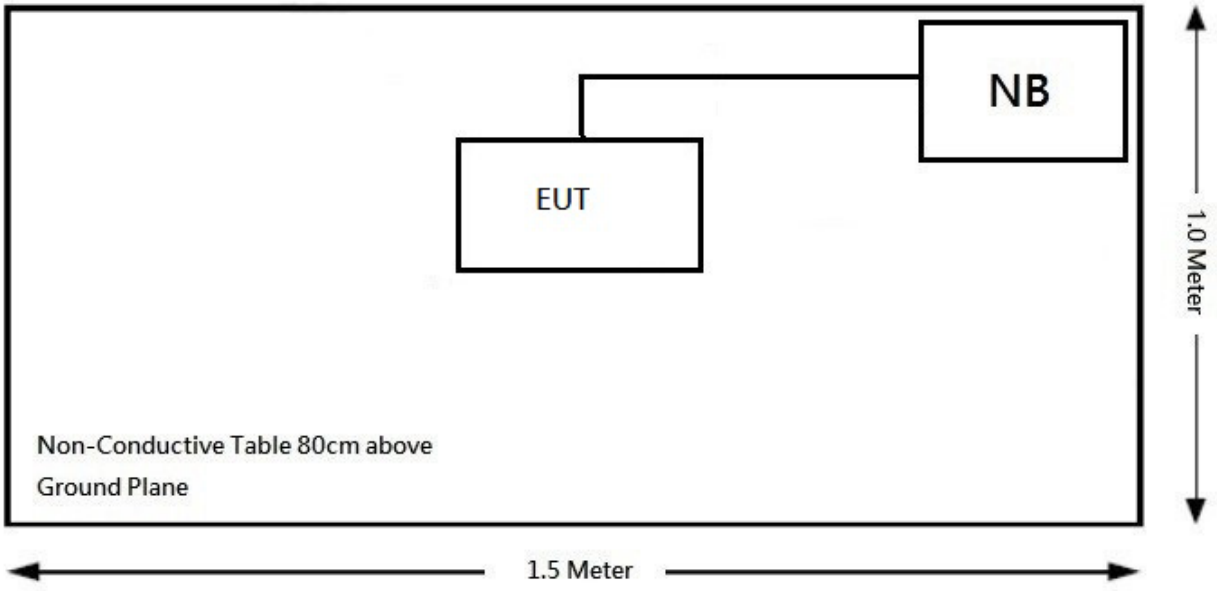
See the below setup block for the actual connections between EUT and support equipment

Conduction:

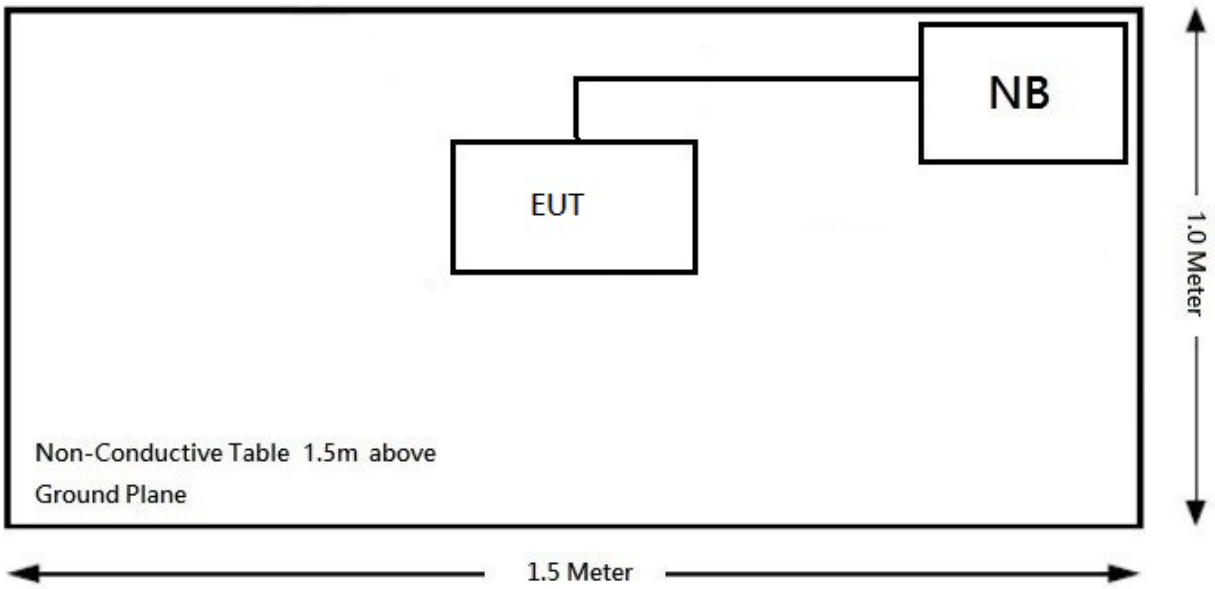


Radiation:

Below 1GHz:



Above 1GHz:


NB
EUT
1.0 Meter
Non-Conductive Table 1.5m above
Ground Plane
1.5 Meter

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.205, §15.209,§15.249	Radiated Emissions	Compliance
§15.215 (c)	20 dB Emission Bandwidth	Compliance

FCC §15.203 – ANTENNA REQUIREMENT

Applicable Standard

For intentional device, according to §15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used.

Antenna Connector Construction

Manufacturer	Type	Antenna Gain	Result
ORtek Technology Inc.	PCB Antenna	-2.40dBi	Compliance

FCC §15.207 - AC LINE CONDUCTED EMISSIONS

Applicable Standard

According to FCC §15.207 Conducted limits:

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequencies ranges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56 Note 1	56 to 46 Note 2
0.5-5	56	46
5-30	60	50

Note 1: Decreases with the logarithm of the frequency.
Note 2: A linear average detector is required

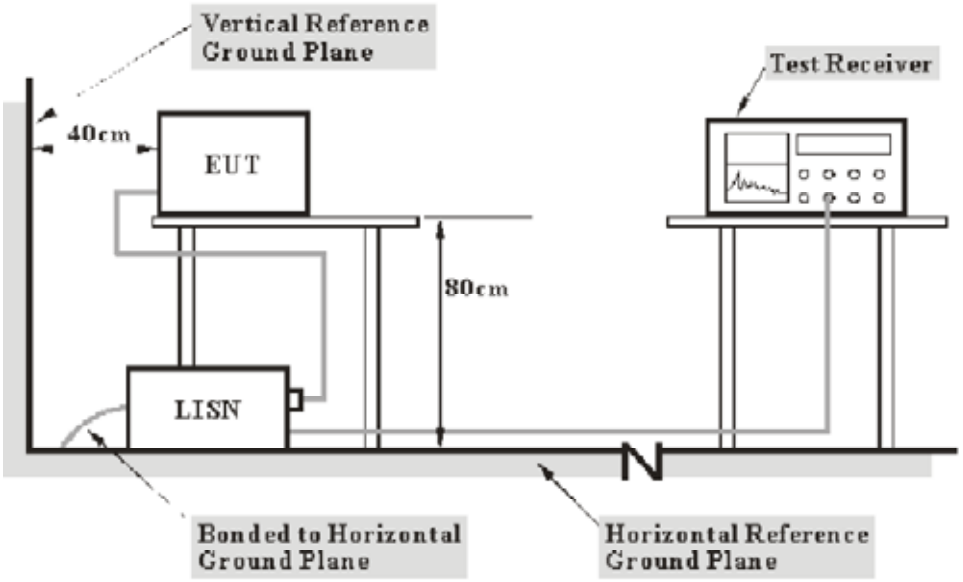
Measurement Uncertainty

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	4.64 dB (k=2, 95% level of confidence)

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 setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

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

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the 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.

Corrected Factor & Margin 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

Test Equipment List and Details

Manufacturers	Descriptions	Models	Serial Numbers	Calibration Date	Calibration Due Date
LISN	Rohde & Schwarz	ENV216	101248	2017/07/20	2018/07/19
LISN	EMCO	3816/2	75848	2017/08/02	2018/08/01
EMI Test Receiver	Rohde & Schwarz	ESCI	100540	2017/05/24	2018/05/23
Pulse Limiter	Rohde & Schwarz	ESH3Z2	TXZEM025	2017/08/11	2018/08/10
RF Cable	EMEC	EM-CB5D	001	2017/07/24	2018/07/23
Software	AUDIX	E3	V9.150826k	NCR	N.C.R

**** Statement of Traceability:*** BACL Corp. attests that all calibrations have been performed according to TAF requirements, traceable to the ETC.

Test Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	58 %
ATM Pressure:	1010 hPa

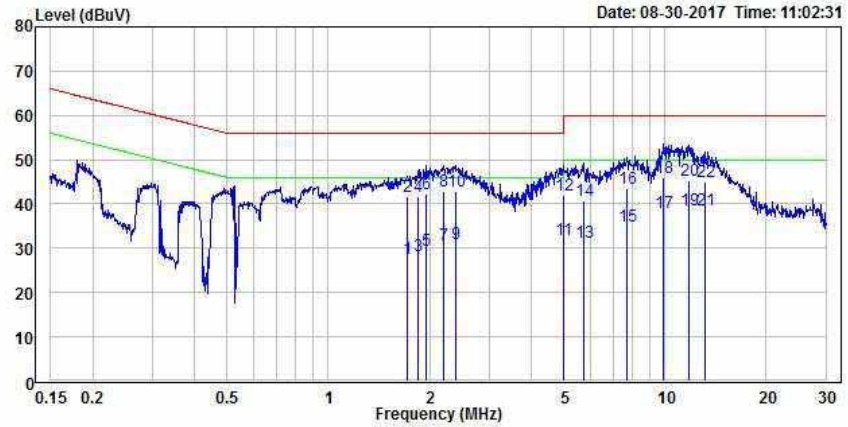
The testing was performed by Ian Tu on 2017-08-30.

Test Results: PASS

Please refer to the following plots and tables.

Test mode: Transmitting

Main: AC 120V/60 Hz, Line

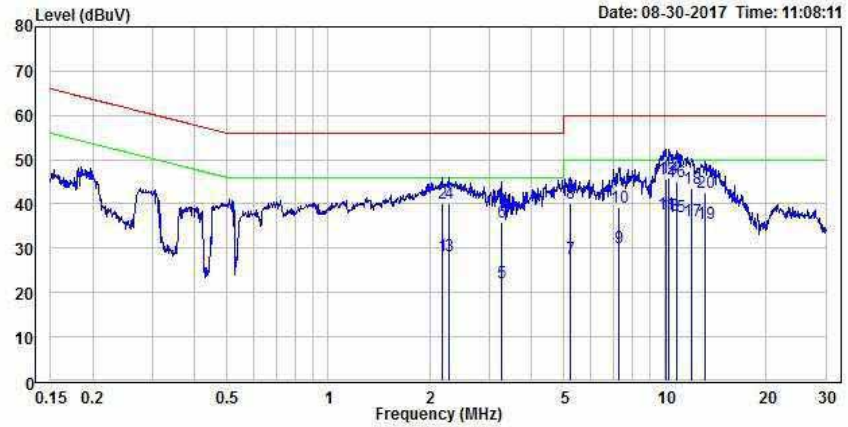


Condition: Line
EUT :
Mode :
Note :

	Freq	Level	Limit Line	Over Limit	Factor	Read Level	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB	dB	dBuV		
1	1.720	27.80	46.00	-18.20	19.57	8.23	Average	Line
2	1.720	41.78	56.00	-14.22	19.57	22.21	QP	Line
3	1.848	28.40	46.00	-17.60	19.58	8.82	Average	Line
4	1.848	41.57	56.00	-14.43	19.58	21.99	QP	Line
5	1.955	29.62	46.00	-16.38	19.58	10.04	Average	Line
6	1.955	42.31	56.00	-13.69	19.58	22.73	QP	Line
7	2.195	30.59	46.00	-15.41	19.59	11.00	Average	Line
8	2.195	43.00	56.00	-13.00	19.59	23.41	QP	Line
9	2.386	31.13	46.00	-14.87	19.59	11.54	Average	Line
10	2.386	42.77	56.00	-13.23	19.59	23.18	QP	Line
11	4.995	32.09	46.00	-13.91	19.67	12.42	Average	Line
12	4.995	42.08	56.00	-13.92	19.67	22.41	QP	Line
13	5.721	31.25	50.00	-18.75	19.69	11.56	Average	Line
14	5.721	40.76	60.00	-19.24	19.69	21.07	QP	Line
15	7.719	35.02	50.00	-14.98	19.73	15.29	Average	Line
16	7.719	43.63	60.00	-16.37	19.73	23.90	QP	Line
17	9.887	38.11	50.00	-11.89	19.77	18.34	Average	Line

	Freq	Level	Limit Line	Over Limit	Factor	Read Level	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB	dB	dBuV		
18	9.887	45.95	60.00	-14.05	19.77	26.18	QP	Line
19	11.739	38.53	50.00	-11.47	19.78	18.75	Average	Line
20	11.739	45.42	60.00	-14.58	19.78	25.64	QP	Line
21	13.127	38.54	50.00	-11.46	19.79	18.75	Average	Line
22	13.127	44.89	60.00	-15.11	19.79	25.10	QP	Line

Main: AC 120V/60 Hz, Neutral



Condition: Neutral
EUT :
Mode :
Note :

	Freq	Level	Limit Line	Over Limit	Factor	Read Level	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB	dB	dBuV		
1	2.177	28.17	46.00	-17.83	19.72	8.45	Average	Neutral
2	2.177	40.22	56.00	-15.78	19.72	20.50	QP	Neutral
3	2.275	28.34	46.00	-17.66	19.73	8.61	Average	Neutral
4	2.275	40.11	56.00	-15.89	19.73	20.38	QP	Neutral
5	3.258	22.17	46.00	-23.83	19.77	2.40	Average	Neutral
6	3.258	35.83	56.00	-20.17	19.77	16.06	QP	Neutral
7	5.219	27.79	50.00	-22.21	19.81	7.98	Average	Neutral
8	5.219	40.21	60.00	-19.79	19.81	20.40	QP	Neutral
9	7.299	30.03	50.00	-19.97	19.86	10.17	Average	Neutral
10	7.299	39.18	60.00	-20.82	19.86	19.32	QP	Neutral
11	10.046	37.57	50.00	-12.43	19.92	17.65	Average	Neutral
12	10.046	45.74	60.00	-14.26	19.92	25.82	QP	Neutral
13	10.290	37.39	50.00	-12.61	19.92	17.47	Average	Neutral
14	10.290	45.88	60.00	-14.12	19.92	25.96	QP	Neutral
15	10.795	37.01	50.00	-12.99	19.92	17.09	Average	Neutral
16	10.795	44.94	60.00	-15.06	19.92	25.02	QP	Neutral
17	12.024	36.16	50.00	-13.84	19.94	16.22	Average	Neutral

- 1 -

	Freq	Level	Limit Line	Over Limit	Factor	Read Level	Remark	Pol/Phase
	MHz	dBuV	dBuV	dB	dB	dBuV		
18	12.024	43.37	60.00	-16.63	19.94	23.43	QP	Neutral
19	13.127	35.68	50.00	-14.32	19.96	15.72	Average	Neutral
20	13.127	42.54	60.00	-17.46	19.96	22.58	QP	Neutral

FCC§15.209, §15.205 & §15.249 - RADIATED EMISSIONS

Applicable Standard

As per FCC§15.249 (a), except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per FCC§15.249 (c), Field strength limits are specified at a distance of 3 meters.

(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

Measurement Uncertainty

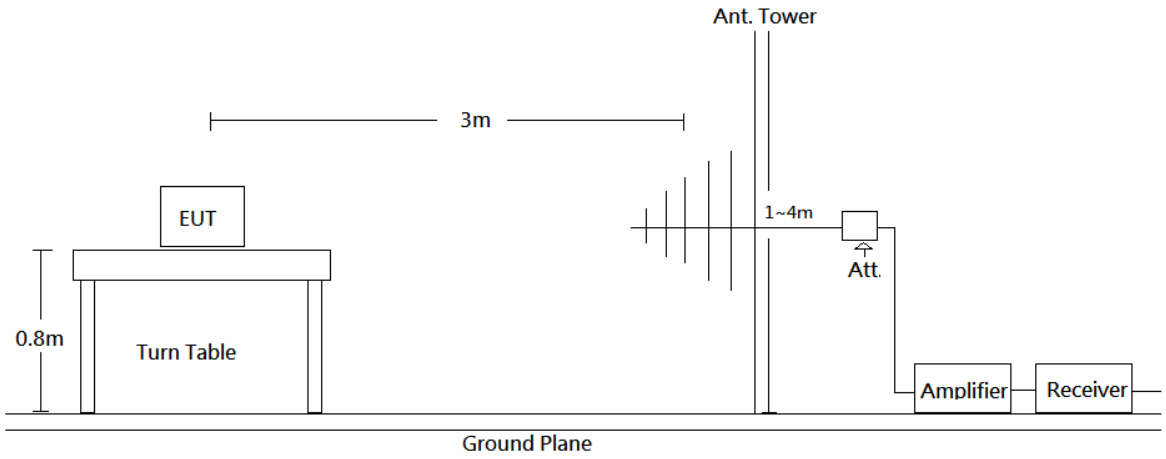
All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency 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.

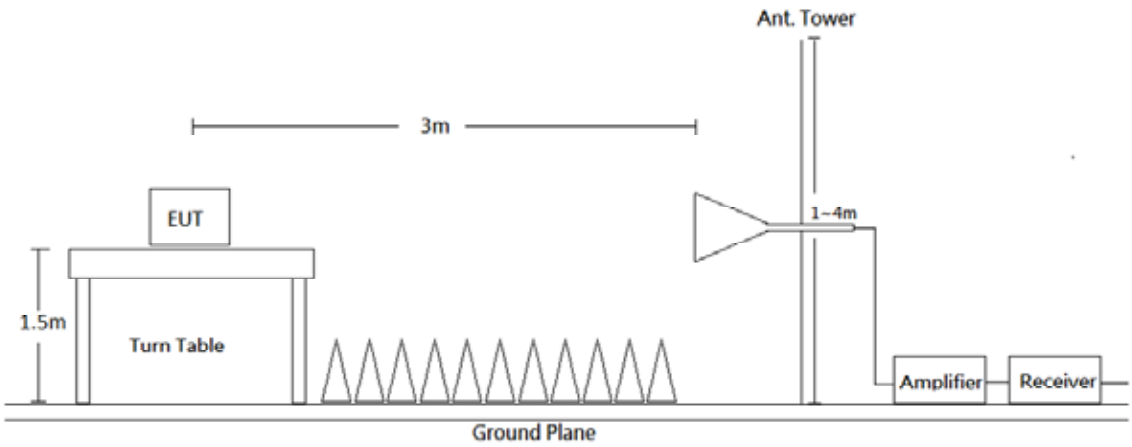
Frequency	Measurement uncertainty
30 MHz~200 MHz	3.76 dB (k=2, 95% level of confidence)
200 MHz~1 GHz	4.12 dB (k=2, 95% level of confidence)
1 GHz~6 GHz	4.84 dB (k=2, 95% level of confidence)
6 GHz~18 GHz	5.16 dB (k=2, 95% level of confidence)
18 GHz~26 GHz	4.84 dB (k=2, 95% level of confidence)
26 GHz~40 GHz	4.30 dB (k=2, 95% level of confidence)

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC 15.209, and FCC 15.249 limits.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

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

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.

Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
966A Room					
Bilog Antenna	Sunol & Mini-Circuits	JB6/ UNAT-6+	A050115 / 15542_01	2016/11/16	2017/11/15
Horn Antenna	EMCO	3115	9311-4158	2017/05/31	2018/05/30
Horn Antenna	ETS-Lindgren	3116	00062638	2016/09/05	2017/09/04
Preamplifier	Sonoma	310N	130602	2017/07/03	2018/07/02
Preamplifier	EMEC	EM01G18G	060697	2017/04/14	2018/04/16
Preamplifier	EMEC	EM18G40G	060656	2016/12/13	2017/12/12
EMI Test Receiver	R & S	ESR7	101419	2016/11/03	2017/11/03
Spectrum Analyzer	Rohde & Schwarz	FSV40	101203	2017/07/13	2018/07/12
Microflex Cable	UTIFLEX	UFB311A-Q-1440 -300300	220490-006	2016/11/02	2017/11/01
Microflex Cable	UTIFLEX	UFA210A-1-3149-300300	MFR64639 226389-001	2016/11/29	2017/11/28
Microflex Cable	ROSNOL	K1K50-UP0264-K 1K50-450CM	160309-1	2017/03/24	2018/03/23
Microflex Cable	ROSNOL	K1K50-UP0264-K 1K50-80CM	160309-2	2017/01/20	2018/01/19
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

*** *Statement of Traceability:*** BACL Corp. attests that all calibrations have been performed according to TAF requirements, traceable to the ETC.

Corrected Amplitude & 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 = Result –Limit

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, and section 15.205, 15.209 and 15.249.

Test Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	1010 hPa

The testing was performed by Ian Tu on 2017-09-11.

Test Results

Mode: Transmitting

Horizontal

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
Low Channel								
235.6400	42.77	-12.14	30.63	46.00	-15.37	100	289	QP
365.6200	36.58	-8.45	28.13	46.00	-17.87	100	49	QP
798.2400	33.40	-0.61	32.79	46.00	-13.21	100	267	QP
2395.500	59.66	-4.88	54.78	74.00	-19.22	150	20	peak
2395.500	53.51	-4.88	48.63	54.00	-5.37	150	20	AVG
2400.000	46.62	-4.86	41.76	74.00	-32.24	150	250	peak
2400.000	40.32	-4.86	35.46	54.00	-18.54	150	250	AVG
2408.000	92.62	-4.85	87.77	114.00	-26.23	150	19	peak
2408.000	91.44	-4.85	86.59	94.00	-7.41	150	19	AVG
2495.440	42.79	-4.65	38.14	74.00	-35.86	150	197	peak
2495.440	32.41	-4.65	27.76	54.00	-26.24	150	197	AVG
7224.000	51.19	6.63	57.82	74.00	-16.18	118	9	peak
7224.000	40.21	6.63	46.84	54.00	-7.16	118	9	AVG
Middle Channel								
71.7100	48.03	-16.84	31.19	40.00	-8.81	100	73	QP
274.4400	41.48	-10.21	31.27	46.00	-14.73	100	192	QP
370.4700	38.86	-8.35	30.51	46.00	-15.49	100	323	QP
2391.320	54.85	-4.88	49.97	74.00	-24.03	148	3	peak
2391.320	44.79	-4.88	39.91	54.00	-14.09	148	3	AVG
2440.000	95.72	-4.78	90.94	114.00	-23.06	165	292	peak
2440.000	93.02	-4.78	88.24	94.00	-5.76	165	292	AVG
2488.220	53.25	-4.67	48.58	74.00	-25.42	131	12	peak
2488.220	40.73	-4.67	36.06	54.00	-17.94	131	12	AVG
7320.000	50.37	7.03	57.40	74.00	-16.60	120	20	peak
7320.000	38.51	7.03	45.54	54.00	-8.46	120	20	AVG

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
High Channel								
72.6800	47.50	-16.82	30.68	40.00	-9.32	100	80	QP
382.1100	37.98	-8.10	29.88	46.00	-16.12	100	294	QP
797.2700	29.98	-0.64	29.34	46.00	-16.66	100	318	QP
2324.060	53.81	-5.03	48.78	74.00	-25.22	144	347	peak
2324.060	41.67	-5.03	36.64	54.00	-17.36	144	347	AVG
2474.000	94.39	-4.69	89.70	114.00	-24.30	166	291	peak
2474.000	91.49	-4.69	86.80	94.00	-7.20	166	291	AVG
2483.500	64.97	-4.69	60.28	74.00	-13.72	128	10	peak
2483.500	46.77	-4.69	42.08	54.00	-11.92	128	10	AVG
7422.000	49.23	7.43	56.66	74.00	-17.34	118	5	peak
7422.000	38.46	7.43	45.89	54.00	-8.11	118	5	AVG

Vertical

Frequency	Reading	Correct	Result	Limit	Margin	Height	Degree	Remark
(MHz)	(dBuV)	Factor(dB/m)	(dBμV/m)	(dBμV/m)	(dB)	(cm)	(°)	
Low Channel								
101.7800	45.07	-14.05	31.02	43.50	-12.48	100	318	QP
599.3900	33.33	-3.98	29.35	46.00	-16.65	100	182	QP
797.2700	34.26	-0.64	33.62	46.00	-12.38	100	357	QP
2396.640	55.34	-4.88	50.46	74.00	-23.54	150	300	peak
2396.640	47.09	-4.88	42.21	54.00	-11.79	150	300	AVG
2400.000	41.36	-4.86	36.50	74.00	-37.50	150	234	peak
2400.000	38.52	-4.86	33.66	54.00	-20.34	150	234	AVG
2408.000	87.37	-4.84	82.53	114.00	-31.47	150	301	peak
2408.000	84.98	-4.84	80.14	94.00	-13.86	150	301	AVG
2498.100	43.32	-4.64	38.68	74.00	-35.32	150	318	peak
2498.100	30.65	-4.64	26.01	54.00	-27.99	150	318	AVG
7224.000	49.69	6.63	56.32	74.00	-17.68	155	37	peak
7224.000	39.23	6.63	45.86	54.00	-8.14	155	37	AVG

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Height (cm)	Degree (°)	Remark
Middle Channel								
72.6800	46.82	-16.82	30.00	40.00	-10.00	100	156	QP
315.1800	42.09	-9.52	32.57	46.00	-13.43	100	360	QP
599.3900	36.96	-3.98	32.98	46.00	-13.02	100	187	QP
2394.740	53.13	-4.88	48.25	74.00	-25.75	188	3	peak
2394.740	39.14	-4.88	34.26	54.00	-19.74	188	3	AVG
2440.000	88.28	-4.78	83.50	114.00	-30.50	164	77	peak
2440.000	85.55	-4.78	80.77	94.00	-13.23	164	77	AVG
2492.020	54.55	-4.66	49.89	74.00	-24.11	181	264	peak
2492.020	39.99	-4.66	35.33	54.00	-18.67	181	264	AVG
7320.000	48.57	7.03	55.60	74.00	-18.40	158	251	peak
7320.000	37.89	7.03	44.92	54.00	-9.08	158	251	AVG
High Channel								
73.6500	45.86	-16.81	29.05	40.00	-10.95	100	192	QP
315.1800	41.64	-9.52	32.12	46.00	-13.88	100	323	QP
799.2100	33.24	-0.58	32.66	46.00	-13.34	100	51	QP
2393.980	43.74	-4.88	38.86	74.00	-35.14	183	1	peak
2393.980	29.50	-4.88	24.62	54.00	-29.38	183	1	AVG
2474.000	90.22	-4.69	85.53	114.00	-28.47	160	113	peak
2474.000	87.75	-4.69	83.06	94.00	-10.94	160	113	AVG
2484.040	45.44	-4.68	40.76	74.00	-33.24	175	60	peak
2484.040	32.51	-4.68	27.83	54.00	-26.17	175	60	AVG
7422.000	47.93	7.43	55.36	74.00	-18.64	152	248	peak
7422.000	38.66	7.43	46.09	54.00	-7.91	152	248	AVG

Result = Reading + Correct Factor

Margin = Result – Limit

Correct Factor = Antenna Factor + Cable Loss – Amplifier Gain

Spurious emissions more than 20 dB below the limit were not reported.

FCC§15.215(c) – 20 dB BANDWIDTH TESTING

Applicable Standard

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Spectrum Analyzer	Rohde & Schwarz	FSEK30	825084/006	2016/12/15	2017/12/14
Cable	WOKEN	SFL402	S02-160323-07	2017/02/22	2018/02/21

**** Statement of Traceability:*** BACL Corp. attests that all calibrations have been performed according to TAF requirements, traceable to the ETC.

Test Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	1010 hPa

The testing was performed by Ian Tu on 2017-08-18.

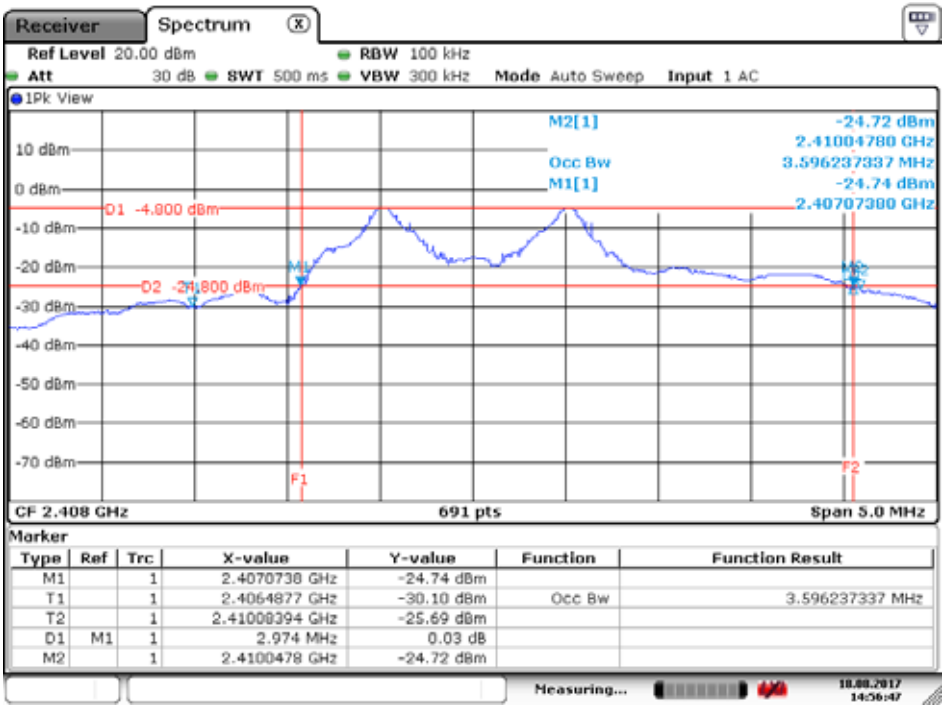
Test Results

Test Mode: Transmitting

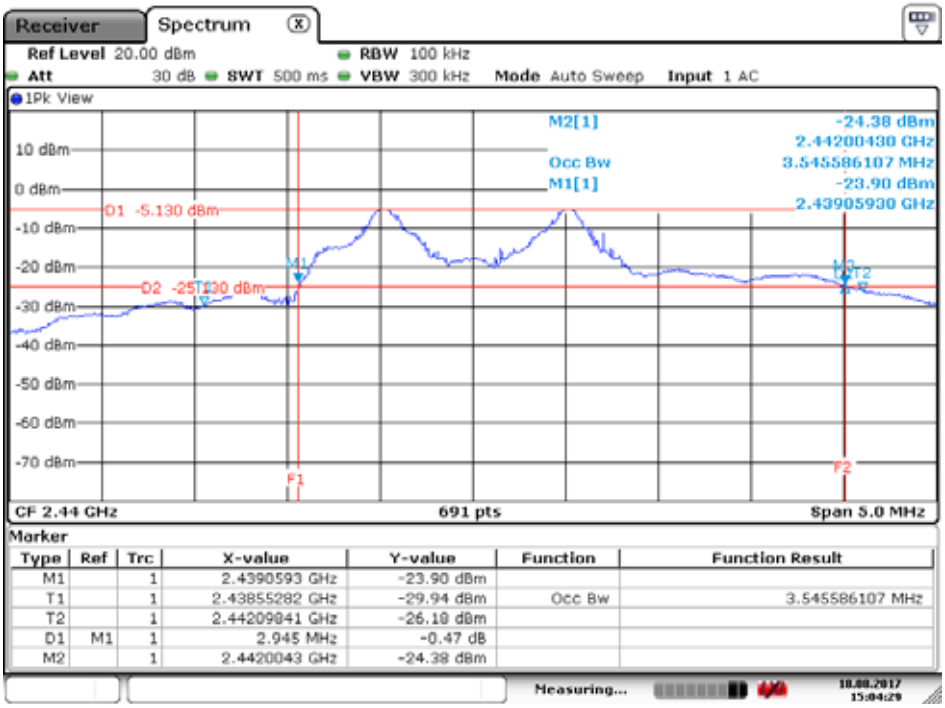
Channel	Frequency (MHz)	20 dB Emission Bandwidth (MHz)
Low	2408	2.974
Middle	2440	2.945
High	2474	3.003

Please refer to the following tables and plots.

Low Channel



Middle Channel



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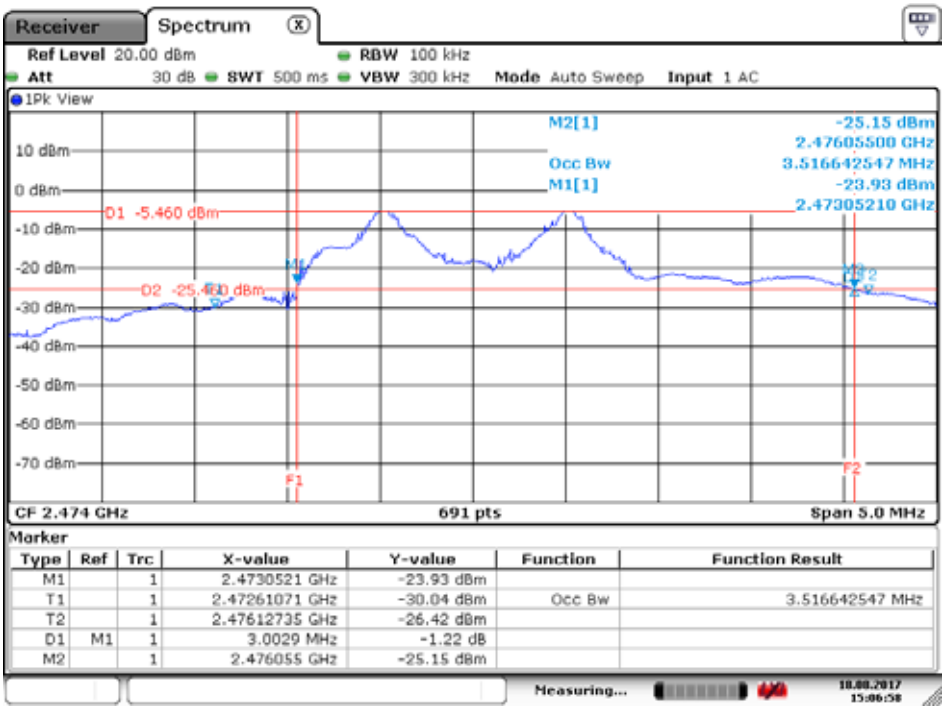
High Channel



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