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Project No.: 12CA42753
File No.: TC9191
Report No.: 12CA42753-2-FCC
Date: January 8, 2013
Model No.: SPP-R400
FCC ID.: U5MSPP-R400

FCC Test Report

in accordance with
FCC Part 15 Subpart C Section 15.247

for

Mobile Printer

BIXOLON CO.,LTD.

7th~8th FL, Miraeasset Venture Tower, 685, Sampyeong-dong,
Bundang-gu, Seongnam-si, Korea

Summary of Test Results:

The following tests were performed on a sample submitted for evaluation of compliance with FCC Part 15 Subpart C Section 15.247

No	Reference Clause No.	FCC Part15 Subpart C Conformance Requirements	Verdict	Remark
1	15.205(a) 15.209(a) 15.247(d)	Transmitter radiated spurious emissions and Conducted spurious emission	Complied	
5	15.207	Transmitter AC power line conducted emission	Complied	

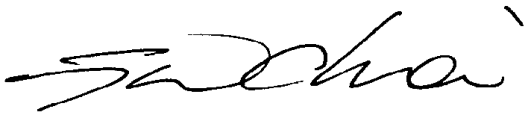
Note

1. The EUT includes approved WLAN module, CM-MS300, then measurement is required only radiated test item.
2. According to the original report of CM-MS300, WLAN module, the EUT is tested 11 Mbps for 802.11b and 24 Mbps for 802.11g as the worst case.
3. According to the original report of CM-MS300, WLAN module, the EUT is Set the power 7.46 dBm for 802.11b and 3.47 dBm for 802.11g.

Conclusion:

The tests listed in the Summary of Testing section of this report have been performed and the results recorded by UL Korea Ltd. in accordance with the procedures stated in each test requirement and specification. The test list was determined by the Applicant as being applicable to the Equipment Under Test. As a result, the subject product has been verified to comply or not comply as noted in the Summary of Testing with each test specification. The test results relate only to the items tested.

Tested by
Kyung Duk Ko, WiSE Project Engineer
UL Verification Services- 3014ASEO
UL Korea Ltd.
January 8, 2013



Reviewed by
Jeawoon, Choi, WiSE Engineering Leader
UL Verification Services- 3014ASEO
UL Korea Ltd.
January 8, 2013

Test Report Details

Witnessed By:	UL Korea Ltd. 33rd FL. GFC Center, 737 Yeoksam-dong, Gangnam-gu, Seoul, 135-984, Korea
Test Site:	ONETECH Corp. 301-14 Daessangryeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do, 464-862 Korea
Applicant:	BIXOLON CO.,LTD. 7th~8th FL, Miraeasset Venture Tower, 685, Sampyeong-dong, Bundang-gu, Seongnam-si, Korea
Factory:	EVERINT Co., Ltd. 129, Chungjusandan 13(sipsam)-ro, Chungju-si, Chungcheongbuk-do, Korea
Applicant Contact:	Son, Hyunsuk
Title:	QM Manager
Phone:	+82 31 218 5582
E-mail:	hs@bixolon.com
Product Type:	Mobile Printer
Model Number:	SPP-R400
Multiple Model Name	N/A
Trademark	BIXOLON®
Sample Serial Number:	N/A
Test standards:	FCC Part 15 Subpart C Section 15.247 Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz
Sample Serial Number:	N / A
Sample Receive Date:	August 13, 2012
Testing Start Date:	August 13, 2012
Date Testing Complete:	January 7, 2013
Overall Results:	**Pass**

Report Directory

1. General Product Information

1.1. Equipment Description

SPP-R400 is the module that integrates Wireless LAN (WLAN). This embedded module is optimized for WLAN enabled handheld mobile device.

1.2. Details of Test Equipment (EUT)

- Equipment Type : Mobile Printer
- Model No. : SPP-R400
- Trade name : BIXOLON
- Type of test Equipment : Portable type
- Operating characteristic : Short range wireless device operating in the 2400 – 2483.5 ISM frequency band
- Factory : EVERINT Co., Ltd.
- 129, Chungjusandan 13(sipsam)-ro, Chungju-si, Chungcheongbuk-do, Korea

1.3. Equipment Configuration

The EUT is consisted of the following component provided by the manufacturer.

Use*	Product Type	Factory	Model	Comments
EUT	Mobile Printer	EVERINT Co., Ltd.	SPP-R400	-
Note: Use = EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment. SIM - Simulator (Not Subjected to Test)				

1.4. Technical Data

Item	Type of Mobile Printer
Frequency Ranges	2400 – 2483.5 MHz
Kind of modulation (s)	11b(DSSS) : CCK, DQPSK, DBPSK 11g(OFDM) : BPSK, QPSK, 16QAM, 64QAM
Channel	11 channel
Antenna Gain	3.46 dBi
Working temperature	-20 ~ 70 ℃
Supply Voltage	DC 7.4 V

Note ;
1. All the technical data described above were provided by the manufacturer.

1.5. Antenna Information

Antenna Model Name : ECC-41B20-0000AA
Antenna Type : Chip Antenna
Manufacturer : EMW Co., Ltd.
Transmit Gain dBi : Max. 3.46 dBi
Azimuth Beam Pattern : Linear

1.6. Equipment Type :

☐ Radio and ancillary equipment for fixed or semi-fixed use
☐ Radio and ancillary equipment for vehicular mounted use
☒ Radio and ancillary equipment for portable or handheld use

☒ Stand alone ☐ Host connected ☐ Host connected

☐ Self contained single unit ☒ Module with associated connection or interface

1.7. Technical descriptions and documents

The following documents was provided by the manufacturer.

No.	Document Title and Description
1	User Manual
2	Product Specification for Antenna / EMW Co. Ltd.

1.8. Description of additional model name

Model name	Model name Designation	Description of design
SPP-R400	Basic model	-

2. Test Specification

The following test specifications and standards have been applied and used for testing.

1) FCC Part 15 Subpart C Section 15.247 : Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz
2) ANSI C63.4:2009 : American National Standard for Methods of Measurement of Radio- Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
3) KDB 558074 : Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247

3. Test Conditions

3.1. Equipment Used During Test

Use*	Product Type	Manufacturer	Model	Comments
EUT	Mobile Printer	Samsung Electro-Mechanics	SPP-R400	-
AE	Note PC	LG	R510	-
Note: Use = EUT - Equipment Under Test, AE - Auxiliary/Associated Equipment. SIM - Simulator (Not Subjected to Test)				

3.2. Input/Output Ports

No	Port Name	Type*	Cable Max. >3m (Y/N)	Cable Shielded (Y/N)	Comments
1	Power Input	DC	N	N	Connected to DC Power supply
2	Radio Antenna	I/O	N	Y	-
Note: *AC = AC Power Port DC = DC Power Port N/E = Non-Electrical I/O = Signal Input or Output Port (Not Involved in Process Control) TP = Telecommunication Ports					

3.3. Power Interface

Mode #	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
Rated	Input : 100~250 Vac Output : 8.4 Vdc	Input : 0.5 Output : 0.8	-	50/60 Hz	-	Rated of AC to DC Adapter
1	120 Vac	-	-	60 Hz	-	-

3.4. Operating Frequencies

Mode #	Frequency tested
1	2 412 ㎒ ~ 2 462 ㎒ : 802.11b/g - Low : 2412 MHz / CH = 1 - Mid : 2437 MHz / CH = 6 - Top : 2462 MHz / CH= 11

3.5. Operation Modes

Mode #	Description
1	Carrier on mode: Signal from the RF module was generated continuously for the representative channels (Low, Mid, High) by the test program incorporated

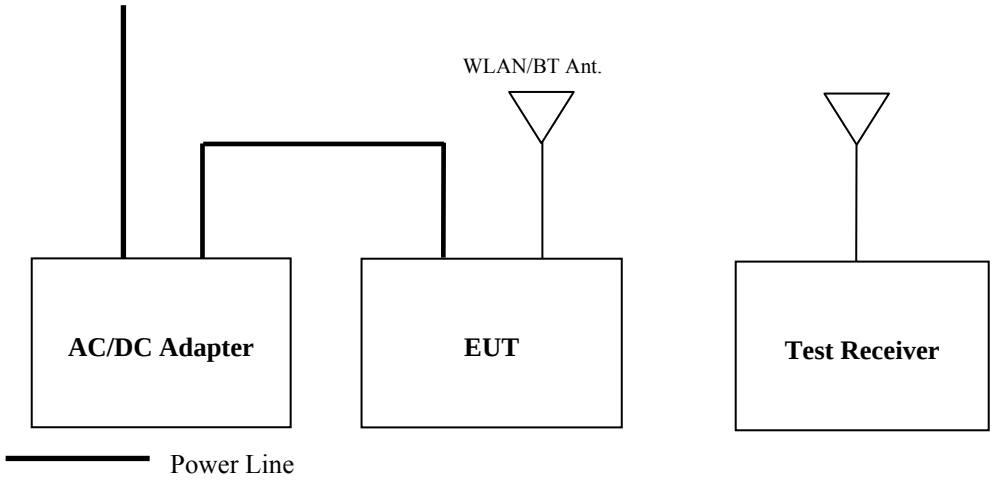
Note :
1. The measurements of the spurious emissions for transmitter on stand-by mode were performed as the receiver spurious emissions.
2. The worst-case condition is determined by the output power of the original test report for WLAN, CM-MS300.
   - 802.11b mode: 11Mbps
   - 802.11g mode: 24Mbps

3.6. Environment Conditions

Parameters	Normal condition
Temperature	+ 15℃ ~ +35℃
Humidity	20% ~ 75%
Supply voltage	7.40 Vdc (Rated nominal voltage)

Note ;
- The extreme condition is applied to the boundary limits of the declared operational environmental condition by the manufacturer.
- The operating condition for humidity requirement has not been declared in the manufacturer's specification.
- Test has been carried out for three frequencies specified above under the normal condition and for the extreme condition, minimum and maximum frequencies has been tested.

3.7. Test Configurations

Mode #	Description
1	

3.8. List of Test Equipment

No	Description	Manufacturer	Model	Identifier	Cal. Due
1	Signal Analyzer	Rohde & Schwarz	FSV30	101372	2013.05.31
2	Test Receiver	Rohde & Schwarz	ESCI	101012	2013.02.06
3	Test Receiver	Rohde & Schwarz	ESU	100261	2012.09.27
4	AMPLIFIER	Sonoma Instrument	310N	312544	2012.10.12
5	AMPLIFIER	Sonoma Instrument	310N	312545	2012.10.12
6	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-419	2014.05.27
7	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-420	2014.05.27
8	CONTROLLER	Innco Systems GmbH	CO2000	619/27030611/L	N/A
9	Turn Table	Innco Systems GmbH	DT3000	930611	N/A
10	Antenna Master	Innco Systems GmbH	MA4000-EP	MA4000/332	N/A
11	Antenna Master	Innco Systems GmbH	MA4000-EP	MA4000/335	N/A
12	Horn Antenna	Schwarzbeck	BBHA9120D	BBHA9120D295	2013.08.23
13	Horn Antenna	Schwarzbeck	BBHA9120D	BBHA9120D294	2013.08.23
14	Signal Conditioning Unit	Rohde & Schwarz	SCU 18	10041	2012.12.15
15	DC Power Supply	Digital Electronics	DRP-305DN	4030191	2013.09.13
16	Test Receiver	Rohde & Schwarz	ESCI	101012	2013.02.06
17	AMN	Schwarzbeck	NSLK 8128	8128-216	2013.06.11
18	AMN	EMCO	3825/2	9109-1869	2013.05.30

4. Overview of Technical requirements

The following essential requirements and test specifications are relevant to the presumption of conformity FCC Part 15 Subpart C Section 15.247			Reported
Reference Clause No.	Essential technical requirements	Test method	
15.205(a) 15.209(a) 15.247(d)	Transmitter radiated spurious emissions	ANSI C63.4-2009 KDB 558074	[X]
15.207	Transmitter AC power line conducted emission	ANSI C63.4-2009	[X]

5. Test Results

5.1. Radiated Spurious Emissions Measurement

TEST: Radiated spurious emissions measurement			
Method	Radiated emissions from the EUT were measured according to ANSI C63.4 procedure. 1. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter anechoic chamber test site. The table was rotated 360 degrees to determine the position of the highest radiation. The antenna is is varied from 1 to 4 meters above the ground to find the maximum field strength. Measurement are made with both horizontal and vertical polarizations For fundamental investigation, the EUT was positioned for 3 orthogonal orientations. 2. For measurement below 1GHz, the resolution bandwidth is set to 100 kHz for peak detection or 120kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak. 3. For measurement above 1GHz, the resolution bandwidth is set to 1 MHz and video bandwidth is set to 3 MHz for peak measurement and 1/ T_{on} for average measurement where T_{on} is the on-time of the duty cycle. 4. For 2.4GHz transmitter measurement, the spectrum from 30 MHz to 26GHz is investigated for Low, Mid and High channels.		
Reference Clause		Part15 Subpart C Section 15.247 (d)	
Parameters recorded during the test		Laboratory Ambient Temperature	22 °C
		Relative Humidity	36 %
		Frequency range	Measurement Point
Fully configured sample scanned over the following frequency range		30 MHz – 26.5 GHz	3 meter chamber

Configuration Settings

Test Item	Power Interface Mode # (See Section 3.3)	EUT Operation Mode # (See Section 3.5)	Test Configurations Mode # (See Section 3.7)
Radiated Spurious emission	1	1	1
Supplementary information: None			

Limits

According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. In addition, radiated emission which in the restricted band, as define in section §15.205(a), must also comply the radiated emission limits specified in section §15.209(a) (see section §15.205(c))

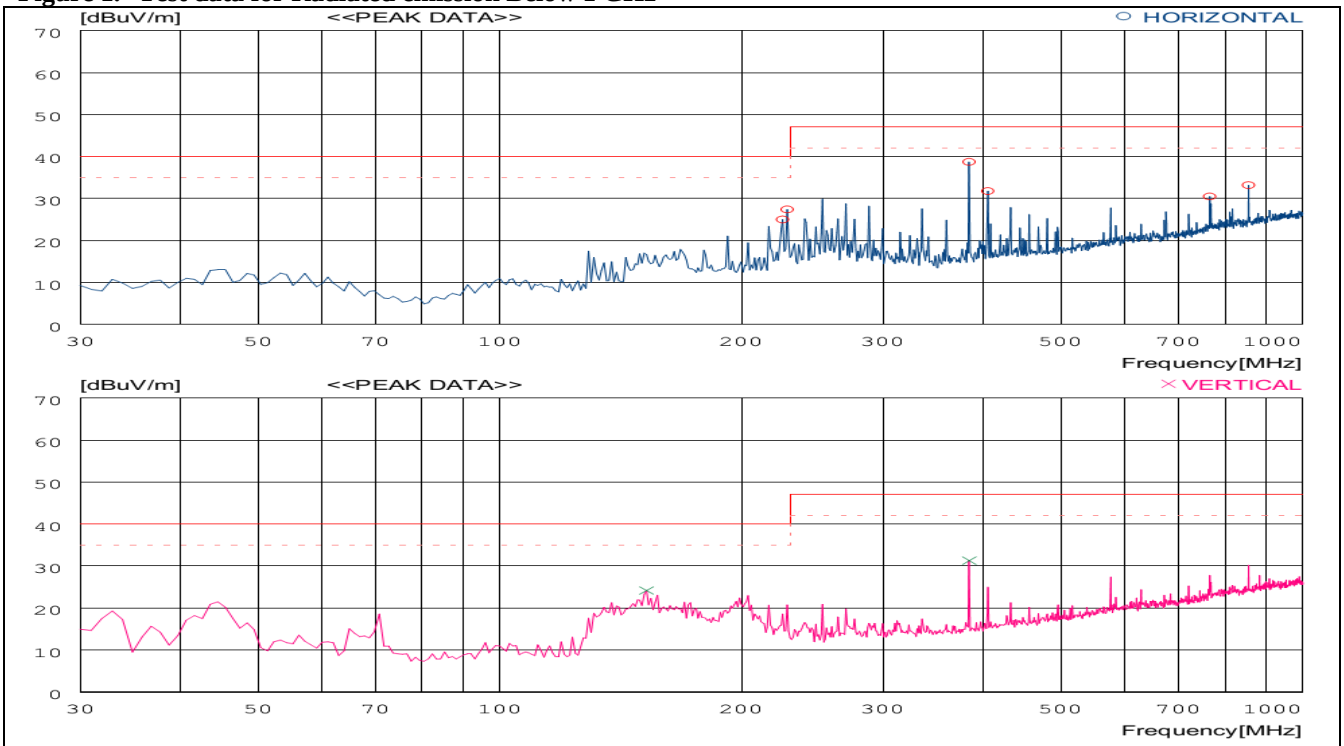
According to § 15.209(a), the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Distance (meters)	Field Strength (dBuV/m)	Field Strength (uV/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

5.1.1. Radiated Spurious Emissions Below 1 GHz

Measurement method : ☒ Radiated ☐ Conducted
Mode of operation : Continuous Wave
Power setting : Max. Power condition declared by the manufacturer
Worst case configuration :

Figure 1. Test data for Radiated emission Below 1 GHz



No.	FREQ [MHz]	READING PEAK [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	224.970	42.3	12.9	2.8	33.0	25.0	40.0	15	100	0
2	227.880	44.6	13.0	2.8	33.0	27.4	40.0	12.6	100	353
3	384.050	51.4	16.6	3.7	33.0	38.7	47.0	8.3	100	0
4	405.390	44.0	17.0	3.8	33.0	31.8	47.0	15.2	100	0
5	765.253	35.9	21.7	5.5	32.6	30.5	47.0	16.5	100	121
6	855.460	36.8	22.9	5.8	32.3	33.2	47.0	13.8	100	0
----- Vertical ------										
7	152.220	45.7	9.3	2.2	33.0	24.2	40.0	15.8	100	218
8	384.050	44.0	16.6	3.7	33.0	31.3	47.0	15.7	100	359

Supplementary information:
- The frequency spectrum from 30 MHz to 1 000 MHz was investigated. Emission levels of 30 dB below than the limit is not reported.
- The worst case is x-axis and reported.
- Actual = Reading + AF + AMP + CL (AF : Antenna factor, AMP : Amp gain, CL : Cable loss)
- Margin = Limit (dBuV/m) - Actual (dBuV/m)

5.1.2. Radiated Spurious Emissions Above 1 GHz – 26.5 GHz band

Measurement method : ☒ Radiated ☐ Conducted
Mode of operation : 2.4 GHz band Continuous Wave
Power setting : Max. Power condition declared by the manufacturer

Table 1. 802.11b Low Channel

Radiated emissions			Ant	Correction factors			Limit (dBuV/m)	Total	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	CL (dB)		Actual (dBuV/m)	Margin (dB)
*2390.00	15.04	Peak	H	N/A	27.05	3.13	74.00	45.22	28.78
*2390.00	15.60	Peak	V	N/A	27.05	3.13	74.00	45.78	28.22
4824.00	14.98	Peak	H	N/A	31.07	4.10	74.00	50.15	23.85
4824.00	15.73	Peak	V	N/A	31.07	4.10	74.00	50.90	23.10
*2390.00	3.82	Average	H	N/A	27.05	3.13	54.00	34.00	20.00
*2390.00	3.70	Average	V	N/A	27.05	3.13	54.00	33.88	20.12
4824.00	8.61	Average	H	N/A	31.07	4.10	54.00	43.78	10.22
4824.00	9.84	Average	V	N/A	31.07	4.10	54.00	45.01	8.99

Table 2. 802.11b Mid Channel

Radiated emissions			Ant	Correction factors			Limit (dBuV/m)	Total	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	CL (dB)		Actual (dBuV/m)	Margin (dB)
4874.00	14.55	Peak	H	N/A	31.19	4.12	74.00	49.86	24.14
4874.00	15.46	Peak	V	N/A	31.19	4.12	74.00	50.77	23.23
4874.00	5.74	Average	H	N/A	31.19	4.12	54.00	41.05	12.95
4874.00	7.64	Average	V	N/A	31.19	4.12	54.00	42.95	11.05

Table 3. 802.11b High Channel

Radiated emissions			Ant	Correction factors			Limit (dBuV/m)	Total	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	CL (dB)		Actual (dBuV/m)	Margin (dB)
*2483.50	15.63	Peak	H	N/A	27.31	3.17	74.00	46.11	27.89
*2483.50	15.40	Peak	V	N/A	27.31	3.17	74.00	45.88	28.12
4924.00	12.37	Peak	H	N/A	31.32	4.15	74.00	47.84	26.16
4924.00	14.47	Peak	V	N/A	31.32	4.15	74.00	49.94	24.06
*2483.50	3.55	Average	H	N/A	27.31	3.17	54.00	34.03	19.97
*2483.50	3.52	Average	V	N/A	27.31	3.17	54.00	34.00	20.00
4924.00	2.89	Average	H	N/A	31.32	4.15	54.00	38.36	15.64
4924.00	7.28	Average	V	N/A	31.32	4.15	54.00	42.75	11.25

Table 4. 802.11g Low Channel

Radiated emissions			Ant	Correction factors			Limit (dBuV/m)	Total	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)		Actual (dBuV/m)	Margin (dB)
*2390.00	48.43	Peak	H	N/A	27.05	39.97	74.00	35.51	38.49
*2390.00	47.97	Peak	V	N/A	27.05	39.97	74.00	35.05	38.95
4824.00	60.25	Peak	H	N/A	31.07	38.70	74.00	52.62	21.38
4824.00	62.95	Peak	V	N/A	31.07	38.70	74.00	55.32	18.68
*2390.00	38.05	Average	H	N/A	27.05	39.97	54.00	25.13	28.87
*2390.00	35.12	Average	V	N/A	27.05	39.97	54.00	22.20	31.80
4824.00	47.37	Average	H	N/A	31.07	38.70	54.00	39.74	14.26
4824.00	50.14	Average	V	N/A	31.07	38.70	54.00	42.51	11.49

Table 5. 802.11g Middle Channel

Radiated emissions			Ant	Correction factors			Limit (dBuV/m)	Total	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)		Actual (dBuV/m)	Margin (dB)
4874.00	56.76	Peak	H	N/A	31.19	38.68	74.00	49.27	24.73
4874.00	58.19	Peak	V	N/A	31.19	38.68	74.00	50.70	23.30
4874.00	42.46	Average	H	N/A	31.19	38.68	54.00	34.97	19.03
4874.00	43.48	Average	V	N/A	31.19	38.68	54.00	35.99	18.01

Table 6. 802.11g High Channel

Radiated emissions			Ant	Correction factors			Limit (dBuV/m)	Total	
Frequency (MHz)	Reading (dBuV)	Detect Mode	Pol.	Distance (dB)	AF (dB/m)	Amp gain+CL (dB)		Actual (dBuV/m)	Margin (dB)
*2483.50	48.52	Peak	H	N/A	27.31	39.93	74.00	35.90	38.10
*2483.50	50.49	Peak	V	N/A	27.31	39.93	74.00	37.87	36.13
4924.00	56.60	Peak	H	N/A	31.32	38.65	74.00	49.27	24.73
4924.00	58.03	Peak	V	N/A	31.32	38.65	74.00	50.70	23.30
*2483.50	34.37	Average	H	N/A	27.31	39.93	54.00	21.75	32.25
*2483.50	35.78	Average	V	N/A	27.31	39.93	54.00	23.16	30.84
4924.00	42.16	Average	H	N/A	31.32	38.65	54.00	34.83	19.17
4924.00	45.15	Average	V	N/A	31.32	38.65	54.00	37.82	16.18

Supplementary information:

- The frequency spectrum from 30 MHz to 1 000 MHz was investigated. Emission levels of 30 dB below than the limit is not reported.
- The worst case is x-axis and reported.
- Actual = Reading + AF + CL (AF : Antenna factor, CL : Cable loss)
- Distance factor = 20log(Measurement distance / The measured distance)
- Margin = Limit (dBuV/m) - Actual (dBuV/m)
- The measurements for above 1 GHz, Average measurements are recorded using Video Bandwidth 300 Hz for 11b and 500 Hz for 11g.
    1) 11b : Ton = 3.739 ms, 1/3.739 (ms) = 267 (Hz), VBW = 300 Hz
    2) 11g : Ton = 3.165 ms, 1/3.165 (ms) = 318 (Hz), VBW = 500 Hz

5.2. Transmitter AC Power Line Conducted Emission

TEST: Transmitter AC Power Line Conducted Emission		
Method	AC line conducted emissions from the EUT were measured according to the dictates of ANSI C63.4-2003. 1. The test procedure is performed in a 5.05m × 4.0m× 3.0m (L × W × H) shielded room. The EUT along with its peripherals were placed on a 1.0 m(W)× 1.5 m(L) and 0.8 m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. 2. The EUT was connected to power mains through a line impedance stabilization network (LISN) which provides 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. 3. The excess power cable between the EUT and the LISN was bundled. All connecting cables of EUT were moved to find the maximum emission.	
Basic Standard	FCC Part 15 Subpart C 15.207(a)	
Parameters recorded during the test	Laboratory Ambient Temperature	22°C
	Relative Humidity	46%
-	Frequency range on each side of line	Measurement Point
Fully configured sample scanned over the following frequency range	150 kHz to 30 MHz	A.C. Input port of A.C. to D.C. adapter.

Configuration Settings

Power Interface Mode # (See Section 3.3)	EUT Operation Mode # (See Section 3.5)	Test Configurations Mode # (See Section 3.7)
1	1	1
Supplementary information: None		

Limits

According to §15.207(a) 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 ㎑ to 30 ㎒, shall not exceed the limits in the following table, as measured using a 50 uH/50 ohm line impedance stabilization network (LISN).

Compliance with the provision of this paragraph shall on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower applies at the boundary between the frequency ranges.

Frequency of Emission (㎒)	Conducted limit (㏈ μV)	
	Quasi-peak	Average
0.15 – 0.5	66 - 56*	56 - 46*
0.5 – 5	56	46
5 – 30	60	50

* Decreases with the logarithm of the frequency.

5.2.1. Transmitter AC Power Line Conducted Emission

Measurement method : ☐ Radiated ☒ Conducted
Mode of operation : Continuous Wave
Power setting : Max. Power condition declared by the manufacturer

Table 7. Test data for conducted emission

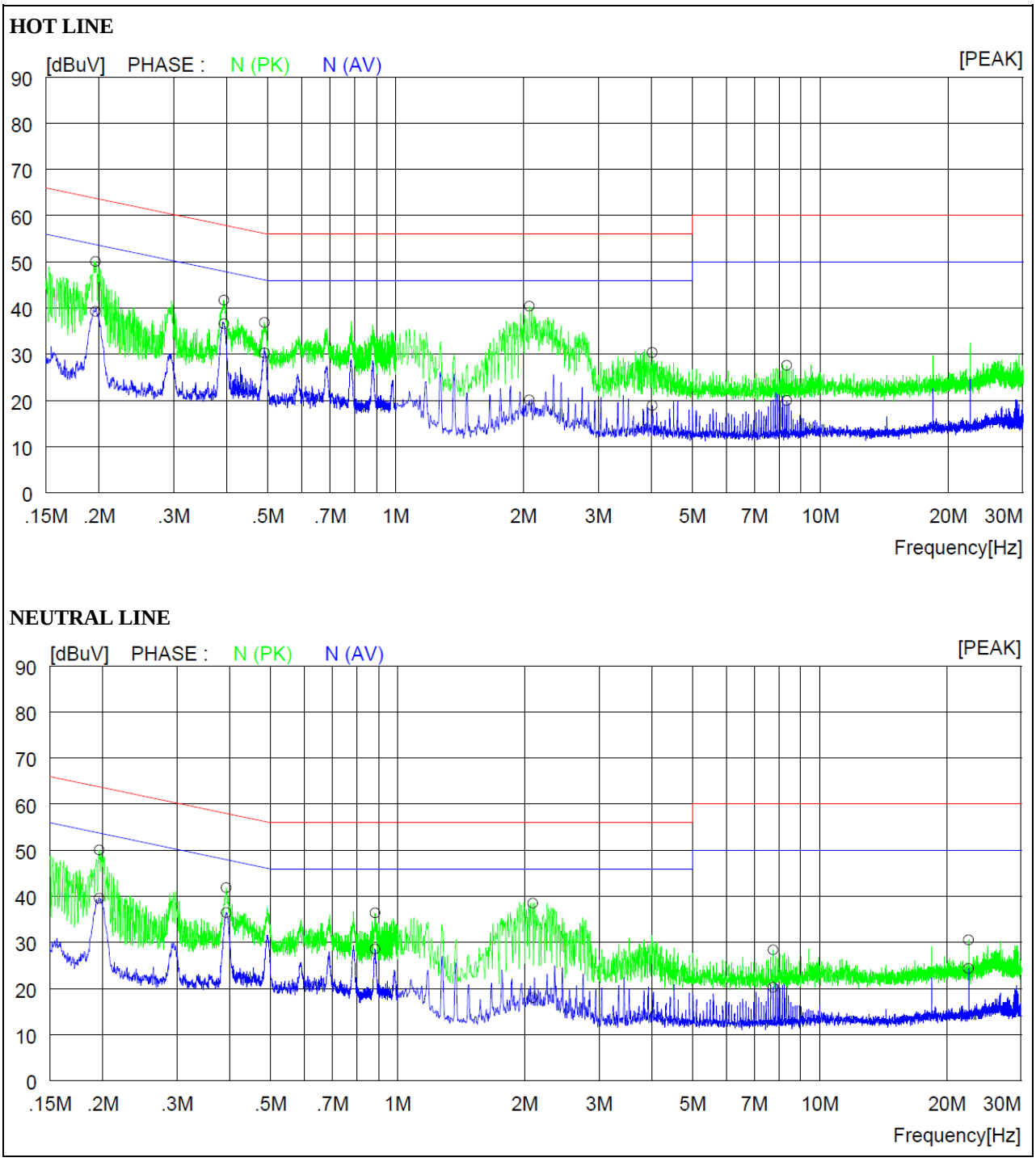
HOT LINE

NO	FREQ	READING(PK)	C.F	RESULT	LIMIT		MARGIN		PHASE
					QP	AV	QP	AV	
	[MHz]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]	
1	0.19600	40.1	10.0	50.1	63.8	53.8	13.7	3.7	N (PK)
2	0.39400	31.6	10.1	41.7	58.0	48.0	16.3	6.3	N (PK)
3	0.49100	26.8	10.1	36.9	56.2	46.2	19.3	9.3	N (PK)
4	2.06400	30.1	10.3	40.4	56.0	46.0	15.6	5.6	N (PK)
5	4.02000	20.0	10.4	30.4	56.0	46.0	25.6	15.6	N (PK)
6	8.33500	17.1	10.5	27.6	60.0	50.0	32.4	22.4	N (PK)
7	0.19600	29.3	10.0	39.3	63.8	53.8	24.5	14.5	N (AV)
8	0.39400	26.5	10.1	36.6	58.0	48.0	21.4	11.4	N (AV)
9	0.49100	20.2	10.1	30.3	56.2	46.2	25.9	15.9	N (AV)
10	2.06400	9.8	10.3	20.1	56.0	46.0	35.9	25.9	N (AV)
11	4.02000	8.5	10.4	18.9	56.0	46.0	37.1	27.1	N (AV)
12	8.33500	9.5	10.5	20.0	60.0	50.0	40.0	30.0	N (AV)

NETURAL LINE

NO	FREQ	READING(PK)	C.F	RESULT	LIMIT		MARGIN		PHASE
					QP	AV	QP	AV	
	[MHz]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dB]	[dB]	
1	0.19600	40.1	10.0	50.1	63.8	53.8	13.7	3.7	N (PK)
2	0.39200	31.8	10.1	41.9	58.0	48.0	16.1	6.1	N (PK)
3	0.88300	26.3	10.1	36.4	56.0	46.0	19.6	9.6	N (PK)
4	2.08800	28.2	10.3	38.5	56.0	46.0	17.5	7.5	N (PK)
5	7.75000	18.0	10.4	28.4	60.0	50.0	31.6	21.6	N (PK)
6	22.53000	19.1	11.5	30.6	60.0	50.0	29.4	19.4	N (PK)
7	0.19600	29.6	10.0	39.6	63.8	53.8	24.2	14.2	N (AV)
8	0.39200	26.4	10.1	36.5	58.0	48.0	21.5	11.5	N (AV)
9	0.88300	18.5	10.1	28.6	56.0	46.0	27.4	17.4	N (AV)
10	2.08800	7.8	10.3	18.1	56.0	46.0	37.9	27.9	N (AV)
11	7.75000	9.9	10.4	20.3	60.0	50.0	39.7	29.7	N (AV)
12	22.53000	12.9	11.5	24.4	60.0	50.0	35.6	25.6	N (AV)

Figure 2. Graphical representation of Conducted Emission



5.3. Antenna Requirement

5.3.1. Standard Applicable

For intentional device, according to FCC Part 15 Subpart C Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC Part 15 Subpart C Section 15.247 (b), if transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in Db that the gain of the antenna exceeds 6 dBi.

5.3.2. Antenna Connected Construction

The antenna used of this product is Metal Stamping Antenna Assembly and peak max gain of each antennas as below . :

Band	Antenna Gain (dBi)
2412 – 2462 MHz	3.46

APPENDIX A. Accreditations and Authorizations

ONETECH Corp. has been accredited / filed / authorized by the agencies listed in the following table;

Certificate	Nation	Agency	Code	Mark
Accreditation	Korea	KOLAS	No. 85	ISO/IEC 17025
Site Filing	USA	FCC	KR0013	Test Facility list & NSA Data
	Japan	VCCI	C-940 R-906 T-1842	Test Facility list & NSA Data
Certification	Korea	KC	KR0013	Test Facility list & NSA Data

Quality control in the testing laboratory is implemented as per ISO/IEC 17025 which is the "General requirements for the competent of calibration and testing laboratory".