

ELECTROMAGNETIC EMISSION COMPLIANCE REPORT FOR LOW-POWER, NON-LICENSED TRANSMITTER

Test Report No.	: W168R-D034
AGR No.	: A168A-146
Applicant	: LG Innotek Co., Ltd.
Address	: 26, Hanamsandan 5beon-ro Gwangsan-gu, 506-731, Gwangju, Korea
Manufacturer	: SUZHOU NIHONE Electronics Technology Co., LTD.
Address	: No.185 XiaoXiang Road Suzhou High tech Zone
Type of Equipment	: Electronic Shelf Label
FCC ID.	: YZP-REBETZ74A
Model Name	: REBE-TZ74A
Multiple Model Name	: REBE-MZ74A
Serial number	: N/A
Total page of Report	: 32 pages (including this page)
Date of Incoming	: August 01, 2016
Date of issue	: August 24, 2016

SUMMARY

The equipment complies with the regulation; *FCC PART 15 SUBPART C Section 15.247* This test report only contains the result of a single test of the sample supplied for the examination. It is not a generally valid assessment of the features of the respective products of the mass-production.

Reviewed by: Approved by: Ki-Hong, Nam / Asst, Chief Engineer ONETECH Corp.

Sung-Ik, Han/ Managing Director ONETECH Corp.



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ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

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Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
W168R-D034	August 24, 2016	Initial Issue	All

1. VERIFICATION OF COMPLIANCE

Applicant	: LG Innotek Co., Ltd.
Address	: 26, Hanamsandan 5beon-ro Gwangsan-gu, 506-731, Gwangju, Korea
Contact Person	: Jeong, Inchang / Director
Telephone No.	: +86-62-950-0332
FCC ID	: YZP-REBETZ74A
Model Name	: REBE-TZ74A
Serial Number	: N/A
Date	: August 24, 2016

EQUIPMENT CLASS	DTS – DIGITAL TRNSMISSION SYSTEM	
E.U.T. DESCRIPTION	Electronic Shelf Label	
THIS REPORT CONCERNS	Original Grant	
MEASUREMENT PROCEDURES	ANSI C63.10: 2013	
TYPE OF EQUIPMENT TESTED	Pre-Production	
KIND OF EQUIPMENT		
AUTHORIZATION REQUESTED	Certification	
EQUIPMENT WILL BE OPERATED		
UNDER FCC RULES PART(S)	FCC PART 15 SUBPART C Section 15.247	
Modifications on the Equipment to Achieve	Norte	
Compliance	None	
Final Test was Conducted On	3 m, Semi Anechoic Chamber	

-. The above equipment was tested by ONETECH Corp. for compliance with the requirement set forth in the FCC Rules and Regulations. This said equipment in the configuration described in this report, shows the maximum emission levels emanating from equipment are within the compliance requirements.



2. TEST SUMMARY

2.1 Test items and results

SECTION	TEST ITEMS	RESULTS
15.247 (a) (2)	Minimum 6 dB Bandwidth	Met the Limit / PASS
15.247 (b) (3)	Maximum Peak Conducted Output Power	Met the Limit / PASS
15.247 (d)	100 kHz Bandwidth Outside the Frequency Band	Met the Limit / PASS
15.247 (d)	Radiated Emission which fall in the Restricted Band	Met the Limit / PASS
15.247 (e)	Peak Power Spectral Density	Met the Limit / PASS
15.209	Radiated Emission Limits	Met the Limit / PASS
15.207	Conducted Limits	N/A (See Note)
15.203	Antenna Requirement	Met requirement / PASS

Note: This test is not performed because the EUT is operated by DC battery.

2.2 Additions, deviations, exclusions from standards

No additions, deviations or exclusions have been made from standard.

2.3 Related Submittal(s) / Grant(s)

Original submittal only

2.4 Purpose of the test

To determine whether the equipment under test fulfills the requirements of the regulation stated in FCC PART 15 SUBPART C Section 15.247.

2.5 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.10: 2013. Radiated testing was performed at a distance of 3 m from EUT to the antenna.

2.6 Test Facility

The Onetech Corp. has been designated to perform equipment testing in compliance with ISO/IEC 17025.

The Electromagnetic compatibility measurement facilities are located at 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si,

Gyeonggi-do, 12735, Korea

-. Site Filing:

VCCI (Voluntary Control Council for Interference) - Registration No. R-4112/ C-4617/ G-666/ T-1842

IC (Industry Canada) - Registration No. Site# 3736-3

-. Site Accreditation:

KOLAS (Korea Laboratory Accreditation Scheme) - Accreditation NO. KT085

FCC (Federal Communications Commission) - Accreditation No. KR0013

RRA (Radio Research Agency) - Designation No. KR0013

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3. GENERAL INFORMATION

3.1 Product Description

The LG Innotek Co., Ltd., Model REBE-TZ74A (referred to as the EUT in this report) is a Electronic Shelf Label. The product specification described herein was obtained from product data sheet or user's manual.

Device Type	Electronic Shelf Label	
Temperature Range	0 °C ~ +40 °C	
Operating Frequency	2 405 MHz ~ 2 480 MHz	
RF Output Power	5.34 dBm	
Number of Channel	16 Channel	
Modulation Type	O-QPSK	
Antenna Type	PCB Pattern Antenna	
USED RF CHIP	Marker: TEXAS INSRUMENTS	
	Model Name: CC2530	
Antenna Gain	3.10 dBi	
List of each Osc. or crystal		
Freq.(Freq. >= 1 MHz)	16 MHz	
RATED SUPPLY VOLTAGE	3.0 V Battery(CR2477-3P)	

3.2 Alternative type(s)/model(s); also covered by this test report.

-. The following lists consist of the added model and their differences.

Model Name	Differences	
	Basic Model.	
REBE-TZ74A	(DISPLAY: COLOR)	
REBE-MZ74A These models are identical to basic model except for the DISPLAY.		
KEDE-WIZ/4A	(DISPLAY: MONO)	

Note: 1. Applicant consigns only basic model to test. Therefore this test report just guarantees the units, which have been tested.

2. The Applicant/manufacturer is responsible for the compliance of all variants.

4. EUT MODIFICATIONS

-. None



5. SYSTEM TEST CONFIGURATION

5.1 Justification

This device was configured for testing in a typical way as a normal customer is supposed to be used. During the test, the following components were installed inside of the EUT.

DEVICE TYPE	MANUFACTURER	MODEL/PART NUMBER	FCC ID
Main Board	SUZHOU NIHONE Electronics Technology Co., LTD.	ES Tag 7.4 Rev 0.2	N/A
DISPLAY	N/A	N/A	N/A

5.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested: None

5.3 Mode of operation during the test

For the testing, software used to control the EUT for staying in continuous transmitting is programmed.

For final testing, the EUT was set at 2 405 MHz, 2 440 MHz, and 2 480 MHz to get a maximum emission levels from the EUT. The EUT was moved throughout the XY, XZ, and YZ planes and the worst case is "XZ" axis, but the worst data was recorded in this report.



5.4 Configuration of Test System

Line Conducted Test: It is not need to test this requirement, because the EUT shall be operated by DC battery.

Radiated Emission Test:Preliminary radiated emissions test were conducted using the procedure in ANSI C63.10:
2013 to determine the worse operating conditions. Final radiated emission tests were
conducted at 3 meter Semi Anechoic Chamber.
The turntable was rotated through 360 degrees and the EUT was tested by positioned
three orthogonal planes to obtain the highest reading on the field strength meter. Once
maximum reading was determined, the search antenna was raised and lowered in both
vertical and horizontal polarization.

5.5 Antenna Requirement

For intentional device, according to 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.

Antenna Construction:

The antenna of the EUT is a PCB pattern antenna on the main board in the EUT, so no consideration of replacement by the user.



6. PRELIMINARY TEST

6.1 AC Power line Conducted Emissions Tests

During Preliminary Tests, the following operating mode was investigated

Operation Mode	The Worse operating condition (Please check one only)
It is not need to test this requirement, beca	ause the power of the EUT is supplied by battery.

6.2 General Radiated Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
TX mode	Х



7. MIMIMUM 6 dB BANDWIDTH

7.1 Operating environment

Temperature	:	24.3 °C
Relative humidity	:	43.2 % R.H.

7.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz, and peak detection was used. The 6 dB bandwidth is defined as the total spectrum over which the power is higher than the peak power minus 6 dB.



7.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Jul. 22, 2016 (1Y)

All test equipment used is calibrated on a regular basis.



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7.4 Test data

-. Test Date : August 03, 2016

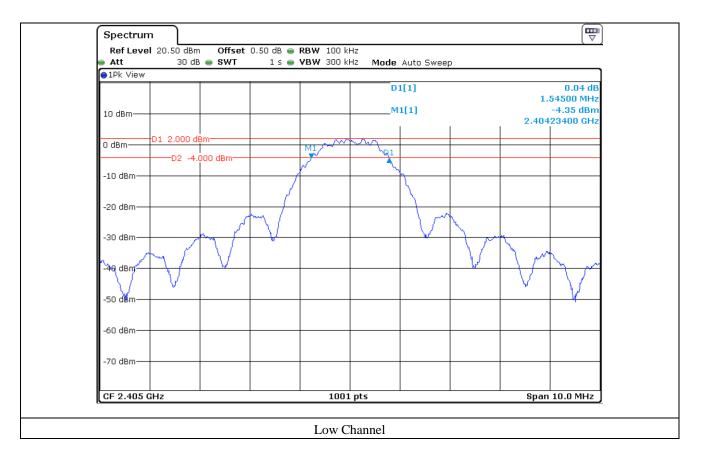
-. Test Result

: Pass

CHANNEL	FREQUENCY(MHz)	MEASURED VALUE (MHz)	LIMIT (MHz)	MARGIN (MHz)
Low	2 405	1.55	0.5	1.05
Middle	2 440	1.57	0.5	1.07
High	2 480	1.60	0.5	1.10

Remark. Margin = Measured Value - Limit

Tested by: Tae-Ho, Kim / Senior Engineer









8. MAXIMUM PEAK OUTPUT POWER

8.1 Operating environment

Temperature	:	24.3 °C
Relative humidity	:	43.2 % R.H.

8.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer.

The resolution bandwidth is set to \geq DTS Bandwidth, the video bandwidth is set to 3 times the resolution bandwidth.



8.3 Test equipment used

	Model Number Manufacturer		Description	Serial Number	Last Cal.	
-	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Jul. 22, 2016 (1Y)	

All test equipment used is calibrated on a regular basis.



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8.4 Test data

-. Test Date : August 03, 2016

-. Test Result

: Pass

CHANNEL	FREQUENCY (MHz)	DTS (MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
LOW	2 405	1.55	5.34	30	24.66
MIDDLE	2 440	1.57	4.98	30	25.02
HIGH	2 480	1.60	4.82	30	25.18

Remark. Margin = Limit – Measured Value (=Receiver Reading + Cable Loss)

4

Tested by: Tae-Ho, Kim / Senior Engineer

● Att 30 dB ● ● 1Pk View	SWT 1 s 👄 VBW 1	0 MHz Mode Auto Sweep	
The Alem		M1[1]	5.34 dBn 2.40450050 GH
10 dBm	M1		
U dBm			
-10 dBm			
-20 dBm			
-30 dBm			
-40 dBm			
-50 dBm			
-60 dBm			
-70 dBm			
CF 2.405 GHz		1001 pts	Span 5.0 MHz



	1 20.50 dBm	Offcet	0.50 dB 👄		17				
Att			1 s 🖷			Auto Sweep	I		
∋1Pk View									
					M	1[1]		2.439	4.98 dBm 48550 GHz
10 dBm				4					
			M	÷					
0 dBm									
-10 dBm—									
-20 dBm									
-30 dBm									
10.15									
-40 dBm									
50 db									
-50 dBm									
-60 dBm									
-oo ubiii									
-70 dBm									
CF 2.44 GH	-			1001				0	n 5.0 MHz
GF 2.44 GF	12			1001	. prs			эра	H 3.0 MHZ
Spectrum Ref Level		Offset	0.50 dB 🖷	Middle					
Ref Level Att	l 20.50 dBn	Offset	0.50 dB 👄 1 s 👄		łz	Auto Sweep	1		
Ref Leve	l 20.50 dBn		0.50 dB 👄 1 s 👄	RBW 3 MH	lz Iz Mode				
Ref Level Att	l 20.50 dBn		0.50 dB 👄 1 s 👄	RBW 3 MH	lz Iz Mode	Auto Sweep 1[1]		2.479	(₩ ▼ 4.82 dBm 52050 GHz
Ref Level Att	l 20.50 dBn		1 s 🖷	RBW 3 MH	lz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	lz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	lz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm- 0 dBm-	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	lz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	lz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	lz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm- 0 dBm-	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	lz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	lz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	lz Iz Mode			2.479	4.82 dBn
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	lz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	Iz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	Iz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	Iz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	Iz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	Iz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -40 dBm -50 dBm	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	Iz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm -60 dBm	l 20.50 dBn		1 s 🖷	RBW 3 MH VBW 10 MH	Iz Iz Mode			2.479	4.82 dBm
Ref Level Att 1Pk View 10 dBm 0 dBm -10 dBm -20 dBm -30 dBm -50 dBm -60 dBm	1 20.50 dBn 30 dE		1 s 🖷	RBW 3 MH VBW 10 MH	Iz Mode				4.82 dBm



9. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND

9.1 Operating environment

Temperature	:	24.1 °C
Relative humidity	:	43.8 % R.H.

9.2 Test set-up for conducted measurement

The antenna output of the EUT was connected to the spectrum analyzer. The resolution and video bandwidth is set to 100 kHz, and peak detection was used.



9.3 Test set-up for radiated measurement

The radiated emissions measurements were performed on the 3 m semi anechoic chamber. The EUT was placed on turntable approximately 1.5 m above the ground plane.

The frequency spectrum from 30 MHz to 26.5 GHz was scanned and maximum emission levels at each frequency recorded. The system was rotated 360°, and the antenna was varied in the height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for horizontal and vertical polarization of the receiving antenna.

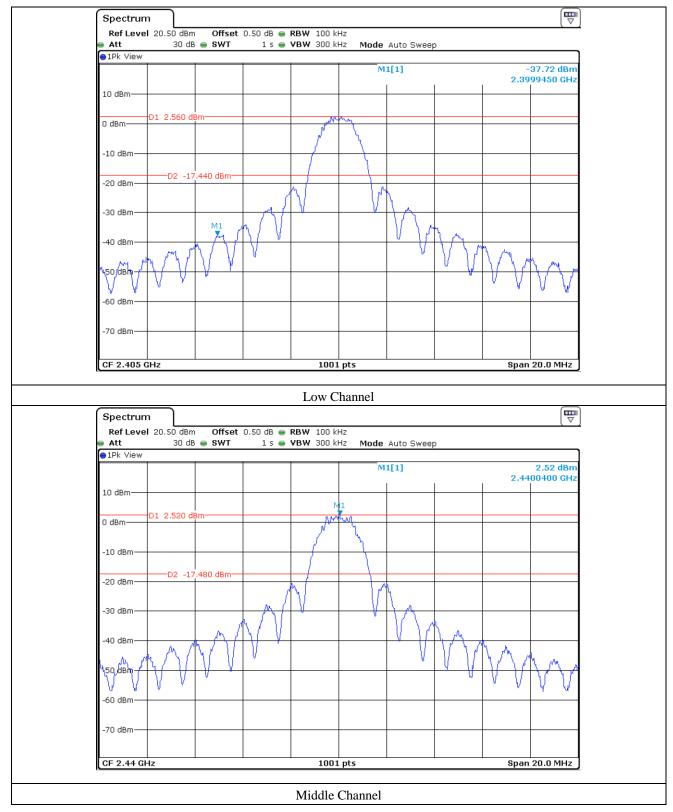
9.4 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Jul. 22, 2016 (1Y)
■ -	ESU	Rohde & Schwarz	EMI Test Receiver	100261	Apr. 06, 2016 (1Y)
■ -	310N	Sonoma Instrument	Pre-Amplifier	312544	Apr. 05, 2016 (1Y)
■ -	SCU-18	Rohde & Schwarz	Pre-Amplifier	10041	Nov. 23, 2015 (1Y)
■ -	DT3000	Innco System	Turn Table	930611	N/A
■ -	MA4000-EP	Innco System	Antenna Master	3320611	N/A
■ -	VULB9163	Schwarzbeck	TRILOG Broadband Antenna	9163-421	Apr. 15, 2016 (1Y)
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D295	Aug. 31, 2015 (2Y)
-	BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Aug. 31, 2015 (2Y)

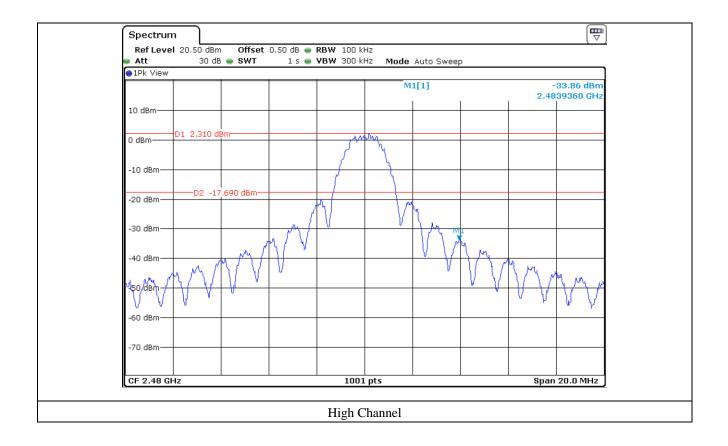
All test equipment used is calibrated on a regular basis.



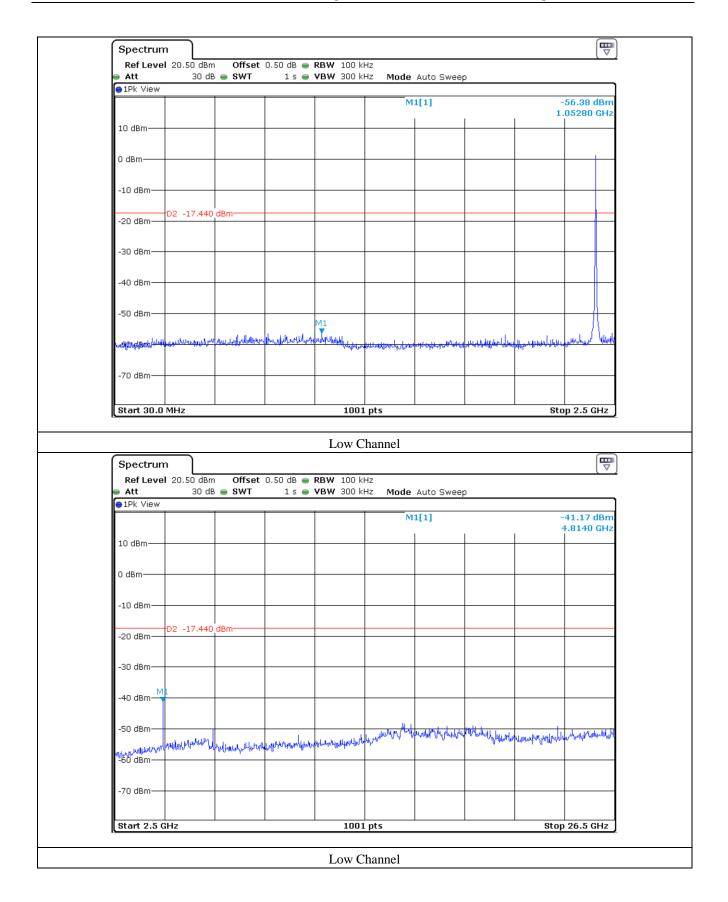
9.5 Test data for conducted emission



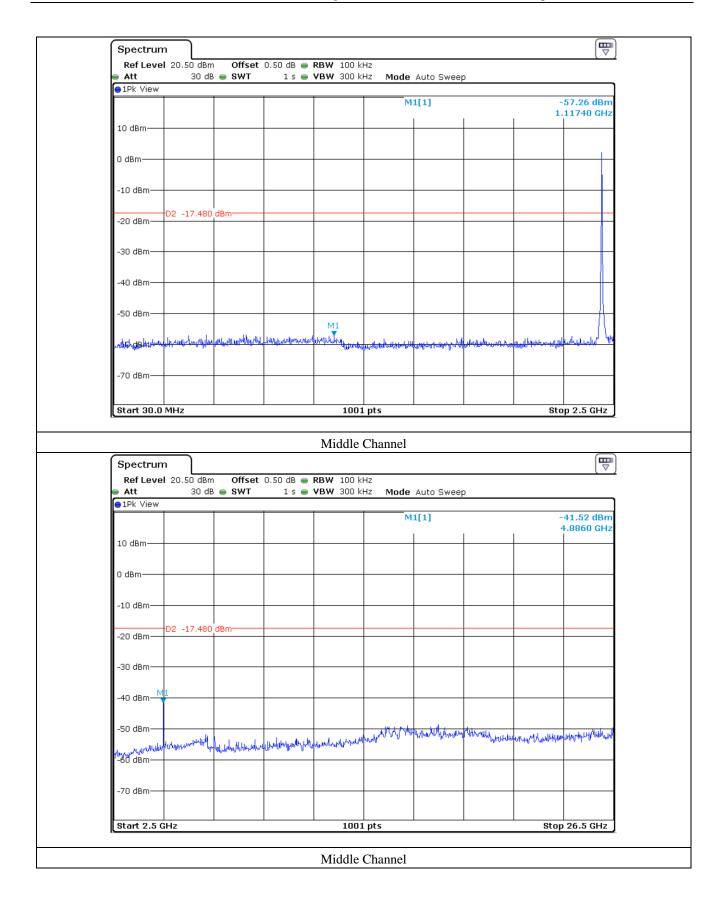




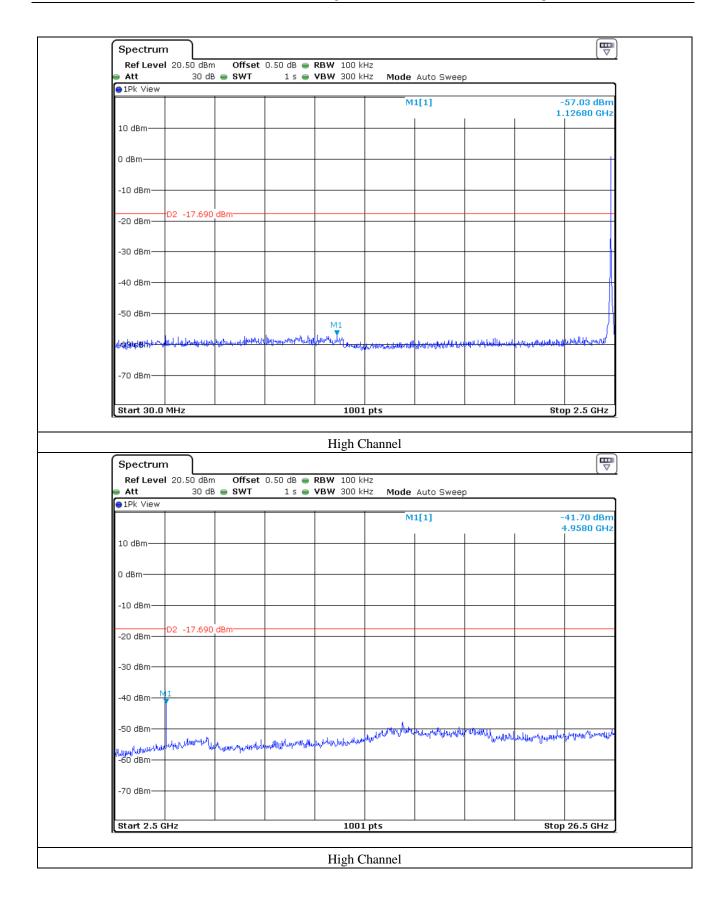














9.6 Test data for radiated emission

9.6.1 Radiated Emission which fall in the Restricted Band

- -. Test Date : August 18, 2016
- -. Resolution bandwidth 21 MHz for Peak and Average Mode
- -. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- -. Measurement distance : 3 m
- -. Result : <u>PASSED</u>

Frequency	Reading	Detector	Ant. Pol.	Ant.	Cable	Amp	Total	Limits	Margin	
(GHz)	(dBµV)	Mode	(H/V)	Factor	Loss	Gain	$(dB\mu V/m)$	$(dB\mu V/m)$	(dB)	
	Test Data for Low Channel									
	47.02	Peak	Н				38.22	74.00	35.78	
	39.75	Average	Н				30.95	54.00	23.05	
2.390 000	46.39	Peak	V	27.20	7.10	43.10	37.59	74.00	36.41	
	37.89	Average	V				29.09	54.00	24.91	
			Test l	Data for Lo	ow Channe	l				
	55.14	Peak	Н			43.10	46.34	74.00	27.66	
	46.89	Average	Н				38.09	54.00	15.91	
2.400 000	51.85	Peak	V	27.20	7.10		43.05	74.00	30.95	
	42.51	Average	V				33.71	54.00	20.29	
			Test I	Data for Hi	gh Channe	el				
	60.59	Peak	Н				51.99	74.00	22.01	
	52.21	Average	Н				43.61	54.00	10.39	
2.483 500	51.95	Peak	V	27.40	7.10	43.10	43.35	74.00	30.65	
	42.09	Average	V				33.49	54.00	20.51	

Tabulated test data for Restricted Band

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dB μ V/m) - Total Level (dB μ V/m)

Total Level = Reading + Antenna Factor + Cable Loss - Pre-Amplifier Gain

Tested by: Tae-Ho, Kim / Senior Engineer

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9.6.2 Spurious & Harmonic Radiated Emission

Test Date	: August 18, 2016
Resolution bandwidth	: 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
	100 kHz for Peak Mode for the emissions outside restricted band
Video bandwidth	: 1 MHz for Peak Mode, 10 Hz for Average Mode
Frequency range	: 1 GHz ~ 26.5 GHz

- -. Measurement distance : 3 m
- -. Result

: PASSED

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)			
Test Data for Low Channel												
	46.20	Peak	Н				44.50	73.98	29.48			
	35.11	Average	Н		9.60	42.40	33.41	53.98	20.57			
4 810.00	45.61	Peak	V	31.10			43.91	73.98	30.07			
	35.26	Average	V				33.56	53.98	20.42			
Test Data for Middle Channel												
	46.39	Peak	Н		9.80	42.40	45.09	73.98	28.89			
	35.94	Average	Н				34.64	53.98	19.34			
4 880.00	45.98	Peak	V	31.30			44.68	73.98	29.30			
	35.61	Average	V				34.31	53.98	19.67			
			Test	Data for H	ligh Chan	nel						
	45.39	Peak	Н				44.29	73.98	29.69			
	36.02	Average	Н				34.92	53.98	19.06			
4 960.00	45.84	Peak	V	31.30	9.90	42.30	44.74	73.98	29.24			
·	35.16	Average	V				34.06	53.98	19.92			

Tabulated test data for Restricted Band

Remark: "H": Horizontal, "V": Vertical

Margin (dB) = Limits (dB μ V/m) - Total Level (dB μ V/m)

 $Total \ Level = Reading + Antenna \ Factor + Cable \ Loss - Pre-Amplifier \ Gain$

Tested by: Tae-Ho, Kim / Senior Engineer

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10. PEAK POWER SPECTRAL DENSITY

10.1 Operating environment

Temperature	:	24.3 °C
Relative humidity	:	43.2 % R.H.

10.2 Test set-up

The antenna output of the EUT was connected to the spectrum analyzer.

The resolution bandwidth is set to 3 kHz \leq RBW \leq 100 kHz, the video bandwidth is set to 3 times the resolution bandwidth.



10.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.
-	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Jul. 22, 2016 (1Y)

All test equipment used is calibrated on a regular basis.



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10.4 Test data

-. Test Date : August 03, 2016

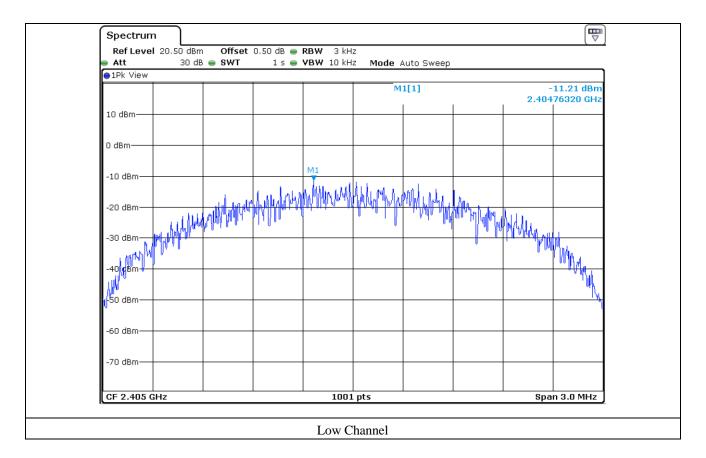
-. Test Result

: Pass -. Operating Condition : Continuous transmitting mode

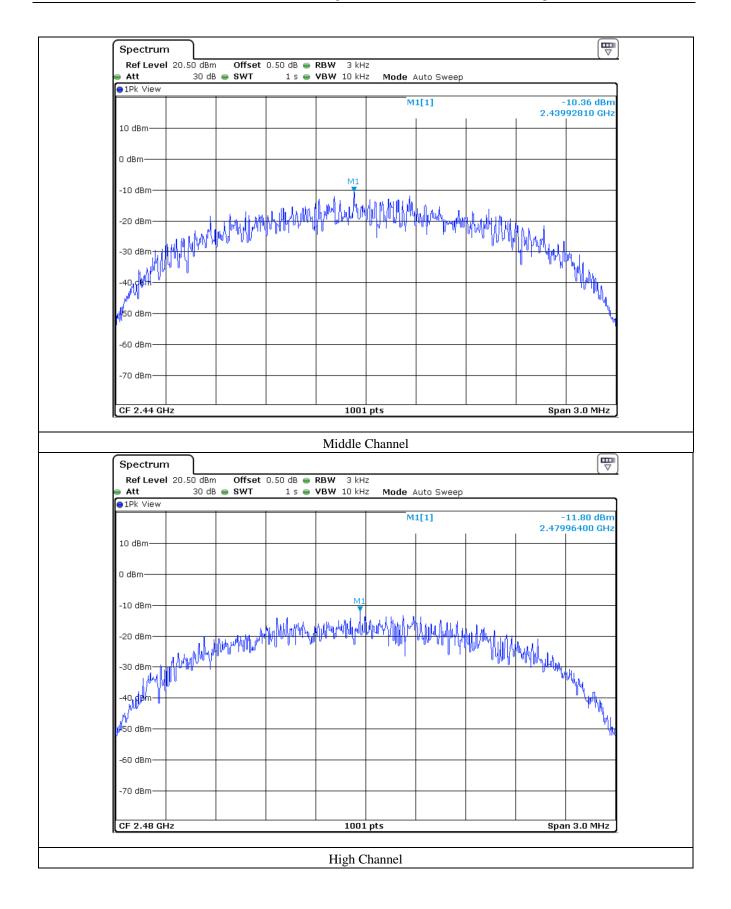
CHANNEL	FREQUENCY(MHz)	MEASURED VALUE (dBm)	LIMIT (dBm)	MARGIN (dB)
Low	2 405	-11.21	8.00	-19.21
Middle	2 440	-10.36	8.00	-18.36
High	2 480	-11.80	8.00	-19.80

Remark. Margin = Limit – Measured value

Tested by: Tae-Ho, Kim / Senior Engineer









11. RADIATED EMISSION TEST

11.1 Operating environment

Temperature	:	24.1 °C
Relative humidity	:	43.8 % R.H.

11.2 Test set-up

The radiated emissions measurements were on the 3 m semi anechoic chamber. The EUT and other support equipment were placed on a non-conductive turntable above the ground plane. The interconnecting cables from outside test site were inserted into ferrite clamps at the point where the cables reach the turntable.

The frequency spectrum from 30 MHz to 26.5 GHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal and vertical polarization of the receiving antenna.

11.3 Test equipment used

	Model Number	Manufacturer	Description	Serial Number	Last Cal.	
■ -	FSV40	Rohde & Schwarz	Signal Analyzer	101009	Jul. 22, 2016 (1Y)	
-	ESU	Rohde & Schwarz	EMI Test Receiver	100261	Apr. 06, 2016 (1Y)	
■ -	310N	Sonoma Instrument	Pre-Amplifier	312544	Apr. 05, 2016 (1Y)	
■ -	SCU-18	Rohde & Schwarz	Pre-Amplifier	10041	Nov. 23, 2015 (1Y)	
■ -	DT3000	Innco System	Turn Table	930611	N/A	
■ -	MA4000-EP	Innco System	Antenna Master	3320611	N/A	
■ -	VULB9163	Schwarzbeck	TRILOG Broadband Antenna	9163-421	Apr. 15, 2016 (1Y)	
■ -	BBHA9120D	Schwarzbeck	Horn Antenna	BBHA9120D295	Aug. 31, 2015 (2Y)	
■ -	BBHA9170	Schwarzbeck	Horn Antenna	BBHA9170178	Aug. 31, 2015 (2Y)	

All test equipment used is calibrated on a regular basis.



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11.4 Test data

Humi	dity Lev	el	:	: <u>43.8</u>	% R	. <u>H.</u>									Tem	perat	ure: <u>2</u>	24.1	°C
Limits	s apply t	0	:	FCC	CFF	R 47,	PAR	T 15, SI	UBP	ART C,	SECTI	ON 15	5.247						
Result	t		:	PAS	SED	<u>)</u>													
EUT				: Elec	Electronic Shelf Label Date: August 18, 2016)16				
Detec	tor		:	CISE	SISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)														
Opera	ting con	dition		: Low															
-	[dBuV/r			< <q< td=""><td>P D/</td><td>ATA</td><td>>></td><td></td><td></td><td></td><td></td><td></td><td>οH</td><td>ORIZO</td><td>NTAL</td><td>/×</td><td>VER</td><td>₹TIC</td><td>AL</td></q<>	P D/	ATA	>>						οH	ORIZO	NTAL	/×	VER	₹TIC	AL
70																			
60							_												
																			Н
50																		_	
40											 i								
30																		-	к¥Ч
20												f			Hat Barriston	WARD			
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0																			
3	0		50	7	0		100			20	00	3	00	4	500		00 uenc		000 H71
																печ	uene	YLIVI	112]
									15.1	DECLU				NI ANI-					
	No. F	REQ	READI QP		AN ACT		LOS	S GA	IN	RESUL	I LI	MIT	MARG	N AN	IENNA	IA	SLE		
	[N	/Hz]	[dBu\	√]	[dE	3]	[dB] [d	IB]	[dBuV/r	n] [dBı	uV/m]	[dB]	[cm]	[DE	G]		
	Horiz	zontal -																	
					_														

1	84.320	35.7	8.5	2.5	33.2	13.5	40.0	26.5	100
2	233.700	33.0	11.6	4.0	32.8	15.8	46.0	30.2	200
3	293.840	36.5	13.0	4.5	32.7	21.3	46.0	24.7	100
V	/ertical								
4	57.160	29.5	13.8	2.1	33.0	12.4	40.0	27.6	100
5	638.187	30.7	19.0	6.8	33.4	23.1	46.0	22.9	100
6	942.758	29.7	21.8	8.6	32.4	27.7	46.0	18.3	300

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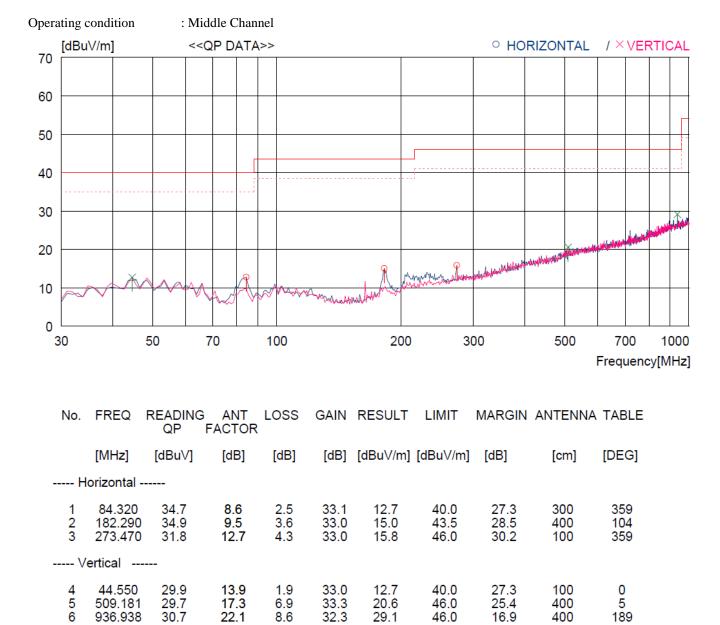
185 278 21

148 0 0

ONETECH Corp.: 43-14, Jinsaegol-gil, Chowol-eup, Gwangju-si, Gyeonggi-do, 12735, Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

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29.1

46.0

16.9

400

22.1

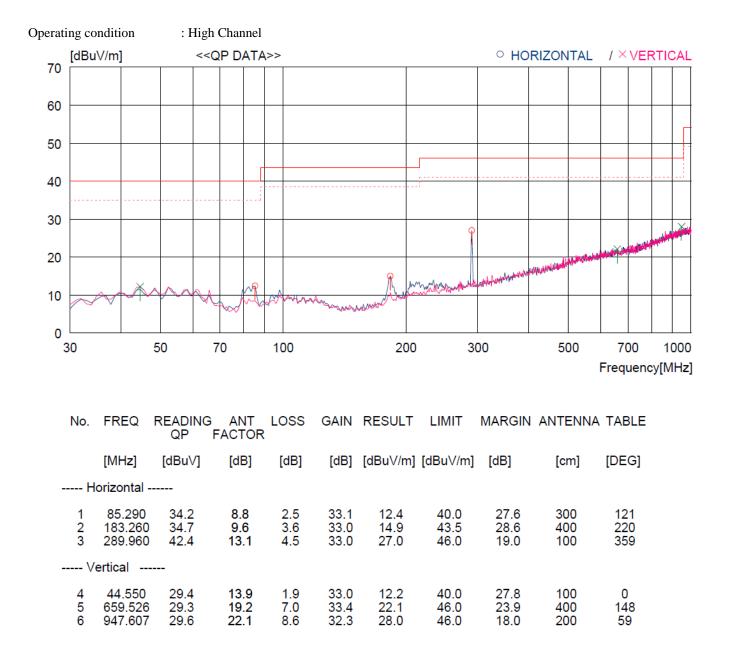
8.6

936.938



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Tested by: Tae-Ho, Kim / Senior Engineer

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EMC-003 (Rev.2)



11.4.1 Test data for Below 30 MHz

- -. Test Date : August 18, 2016
- -. Resolution bandwidth : 200 Hz (from 9 kHz to 0.15 MHz), 9 kHz (from 0.15 MHz to 30 MHz)
- -. Frequency range : 9 kHz ~ 30 MHz
- -. Measurement distance : 3 m
- -.Operating mode : Transmitting mode

Frequency	Reading	Ant. Pol.	Ant.	Angle	Ant. Factor	Cable	Emission	Limits	Margin
(MHz)	(dBµV)	(H/V)	Height (m)	(°)	(dB/m)	Loss	Level(dBµV/m)	(dBµV/m)	(dB)
			It was not o	observed a	any emissions t	from the I	EUT.		

11.4.2 Test data for above 1 GHz

- -. Test Date : August 18, 2016
- -. Resolution bandwidth 21 MHz for Peak and Average Mode
- -. Video bandwidth : 1 MHz for Peak Mode, 10 Hz for Average Mode
- -. Frequency range : 1 GHz ~ 26.5 GHz
- -. Measurement distance : 3 m
- -.Operating mode : Transmitting mode

Frequency (MHz)	Reading (dBµV)	Ant. Pol. (H/V)	Ant. Height (m)	Angle (°)	Ant. Factor (dB/m)	Cable Loss	Emission Level(dBµV/m)	Limits (dBµV/m)	Margin (dB)	
It was not observed any emissions from the EUT.										

Tested by: Tae-Ho, Kim / Senior Engineer