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http://www.ltalab.com

Dates of Tests: January 14 ~ February 3, 2016 Test Report S/N: LR500111602C Test Site: LTA CO., LTD.

# **CERTIFICATION OF COMPLIANCE**

FCC ID.

**2AG9IHER-100** 

**APPLICANT** 

Edge I&D Co., Ltd.

**Equipment Class** : Digital Transmission System (DTS)

Manufacturing Description : EZ HOLDER

Manufacturer : Edge I&D Co., Ltd.

Model name : EHR-100

Test Device Serial No.: : Identical prototype

Rule Part(s) : FCC Part 15.247 Subpart C; ANSI C-63.4-2009

Frequency Range : 2404 ~ 2468 MHz

Max. Output Power : Max -11.29 dBm - Conducted

Data of issue : February 4, 2016

This test report is issued under the authority of:

The test was supervised by:

Yong-Cheol, Wang / Manager

Joon-Young, Jeon, Test Engineer

This test result only responds to the tested sample. It is not allowed to copy this report even partly without the allowance of the test laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.



NVLAP LAB Code.: 200723-0

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### 1. General information

### 1-1 Test Performed

Company name : LTA Co., Ltd.

Address : 243, Jubug-ri, Yangji-Myeon, Youngin-Si, Kyunggi-Do, Korea. 449-822

Web site : <a href="http://www.ltalab.com">http://www.ltalab.com</a>
E-mail : <a href="mailto:chahn@ltalab.com">chahn@ltalab.com</a>
Telephone : +82-31-323-6008
Facsimile +82-31-323-6010

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

### 1-2 Accredited agencies

LTA Co., Ltd. is approved to perform EMC testing by the following agencies:

Agency	Country	Accreditation No.	Validity	Reference
NVLAP	U.S.A	200723-0	2016-09-30	ECT accredited Lab.
RRA	KOREA	KR0049	-	EMC accredited Lab.
FCC	U.S.A	610755	2017-04-21	FCC filing
FCC	U.S.A	649054	2017-04-13	FCC CAB
VCCI	JAPAN	R2133(10 m), C2307	2017-06-21	VCCI registration
VCCI	JAPAN	T-2009	2016-12-23	VCCI registration
VCCI	JAPAN	G-563	2018-12-13	VCCI registration
IC	CANADA	5799A-1	UPDATING	IC filing
KOLAS	KOREA	NO.551 2017-01-08 KOL		KOLAS accredited Lab.

### 2. Information about test item

### 2-1 Client & Manufacturer

Company name : Edge I&D Co., Ltd.

Address : 1342-12, Gyeongchung-daero, Chowol-eup, Gwangju-si, Gyeonggi-do

Korea

Tel / Fax : TEL No : +82-1644-0702 / FAX No : +82-070-4850-7042

### **2-2 Equipment Under Test (EUT)**

Trade name : EZ HOLDER

Model name : EHR-100

Serial number : Identical prototype

Date of receipt : January 14, 2016

EUT condition : Pre-production, not damaged

Antenna type : PCB Printed Antenna (Max Gain : 2.10 dBi)

Frequency Range : 2404 ~ 2468 MHz

RF output power : Max - 11.29 dBm - Conducted

Number of channels : 33

Type of Modulation : GFSK

Power Source : 4.2 Vdc

# **2-3 Tested frequency**

	LOW	MID	HIGH
Frequency (MHz)	2404	2434	2468

### 2-4 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
-	-	-	-

### 3. Test Report

### 3.1 Summary of tests

FCC Part Section(s)	Parameter	Limit	Test Condition	Status (note 1)
15.247(a)	6 dB Bandwidth	> 500 kHz		С
15.247(b)	Transmitter Peak Output Power	< 1 Watt	Conducted	С
15.247(d)	Transmitter Power Spectral Density	< 8 dBm @ 3 kHz	Conducted	С
15.247(d)	Band Edge	> 20 dBc		С
15.209	Field Strength of Harmonics	Emission	Radiated	С
15.207	AC Conducted Emissions	Emissions	Conducted	С
15.203	Antenna requirement	-	-	С
Note 1: C=Complies	NC=Not Complies NT=Not Tested NA	A=Not Applicable	1	

<u>Note 1</u>: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable

<u>Note 2</u>: The data in this test report are traceable to the national or international standards.

#### → Antenna Requirement

The Edge I&D Co., Ltd. FCC ID: 2AG9IHER-100 unit complies with the requirement of §15.203. The antenna type is PCB Printed Antenna.

The sample was tested according to the following specification:

\*FCC Parts 15.247; ANSI C-63.4-2009

\*FCC KDB Publication No. 558074 v03r04

\*FCC TCB Workshop 2012, April

#### 3.2 Technical Characteristics Test

#### 3.2.1 6 dB Bandwidth

#### **Procedure:**

The bandwidth at 6 dB below the highest in-band spectral density was measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.

After the trace being stable, Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 6 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is ( as close as possible to ) even with the reference marker level. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

#### The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 100 kHz Span = 5 MHz

 $VBW = 100 \text{ kHz} (VBW \ge RBW)$  Sweep = auto

Trace = max hold Detector function = peak

#### **Measurement Data: Complies**

Frequency	Test Results				
(MHz)	Measured Bandwidth (MHz)	Result			
2404	0.84	Complies			
2434	0.77	Complies			
2468	0.85	Complies			

<sup>-</sup> See next pages for actual measured spectrum plots.

#### **Minimum Standard:**

6 dB Bandwidth > 500 kHz

#### **Measurement Setup**

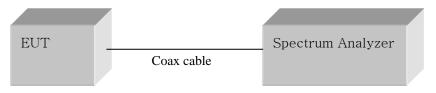
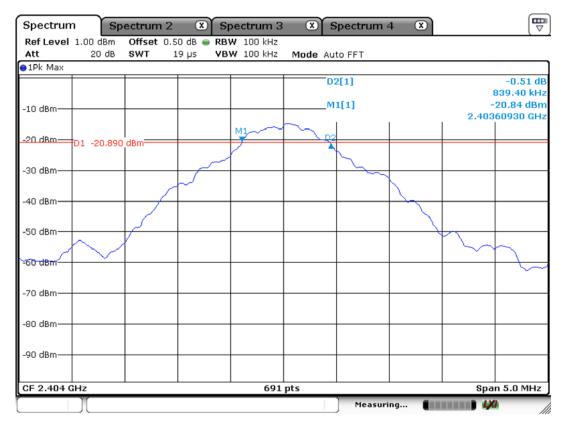


Figure 1: Measurement setup for the carrier frequency separation

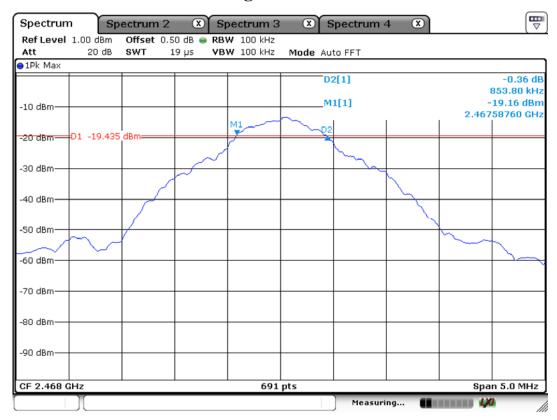
# **Low Channel**



### **Middle Channel**



# **High Channel**



### 3.2.2 Peak Output Power Measurement

#### **Procedure:**

The maximum peak output power was measured with the spectrum analyzer connected to the antenna output of the EUT. The spectrum analyzer's internal channel power integration function is used to integrate the power over a bandwidth greater than or equal to the 99 % bandwidth. The EUT was operating in transmit mode at the appropriate center frequency.

### The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

RBW = 1 MHz Span = auto

 $VBW = 1 MHz (VBW \ge RBW)$  Sweep = auto

Detector function = peak

#### **Measurement Data: Complies**

Frequency	Test Results				
(MHz)	dBm mW		Result		
2404	-13.06	0.05	Complies		
2434	-12.17	0.06	Complies		
2468	-11.29	0.07	Complies		

<sup>-</sup> See next pages for actual measured spectrum plots.

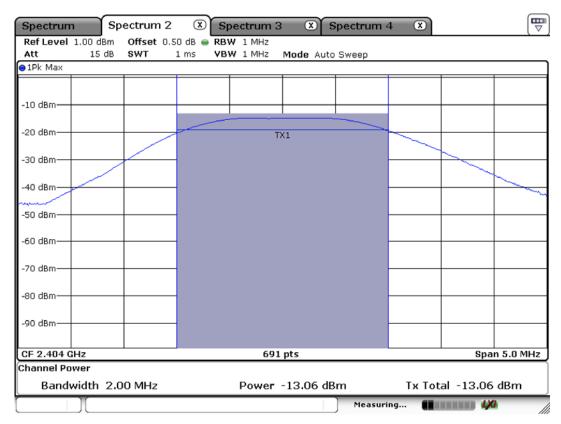
#### Minimum Standard:

Peak output power	< 1 W

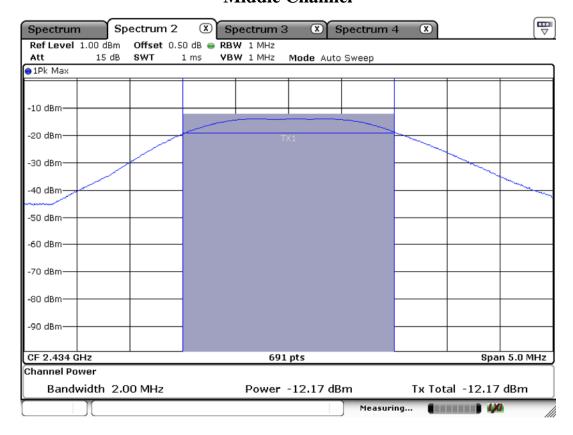
### **Measurement Setup**

Same as the Chapter 3.2.1 (Figure 1)

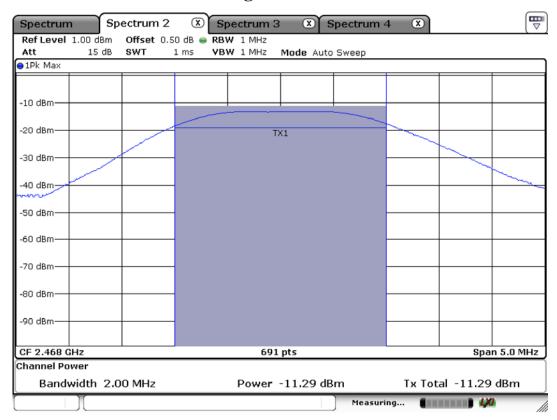
### **Low Channel**



### **Middle Channel**



# **High Channel**



### 3.2.3 Power Spectral Density

#### **Procedure:**

The peak power density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

#### The spectrum analyzer is set to:

RBW = 3 kHz Span = 300 kHz VBW = 3 kHz Sweep = auto Detector function = peak Trace = max hold

#### **Measurement Data: Complies**

Frequency	Test Results				
(MHz)	dBm	Result			
2404	-27.38	Complies			
2434	-25.52	Complies			
2468	-26.70	Complies			

<sup>-</sup> See next pages for actual measured spectrum plots.

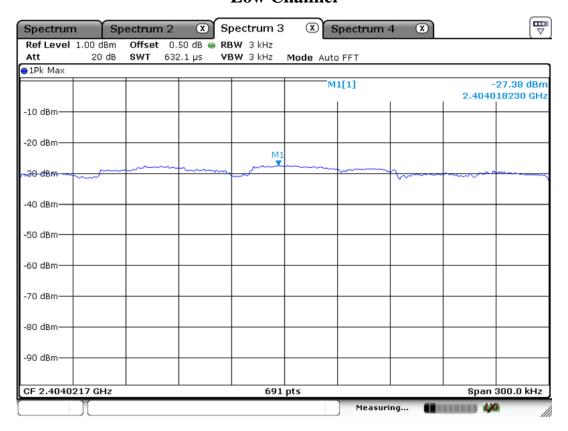
#### **Minimum Standard:**

Power Spectral Density	< 8 dBm @ 3 kHz BW
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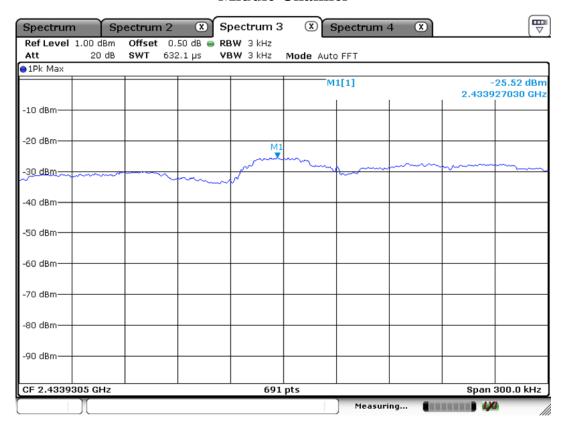
### **Measurement Setup**

Same as the Chapter 3.2.1 (Figure 1)

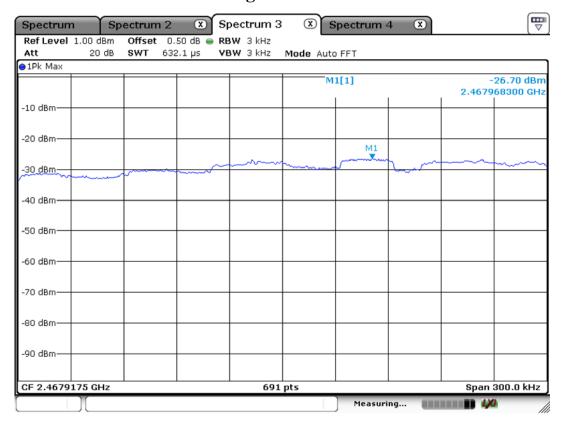
# **Power Density Measurement Low Channel**



### **Middle Channel**



# **High Channel**



### 3.2.4 Band Edge

#### **Procedure:**

The bandwidth at 20 dB down from the highest inband spectral density is measured with a spectrum analyzer connected to the antenna terminal, while EUT is operating in transmission mode at the appropriate frequencies.

After the trace being stable, Use the marker-to-peak function to measure 20 dB down both sides of the intentional emission.

The spectrum analyzer is set to:

Center frequency = the highest, middle and the lowest channels

 $RBW = 100 \text{ kHz} \qquad \qquad VBW = 100 \text{ kHz}$ 

Span = 40 MHz Detector function = peak

Trace =  $\max$  hold Sweep = auto

Radiated emissions which fall in the restricted bands, as defined in 15.205(a), must also comply with the radiated emission limits specified in 15.209(a)

The spectrum analyzer is set to:

Center frequency = the highest, the lowest channels

PEAK: RBW = VBW = 1 MHz, Sweep=Auto

Average: RBW = 1 MHz, VBW=10 Hz, Sweep=Auto

Measurement Distance: 3 m

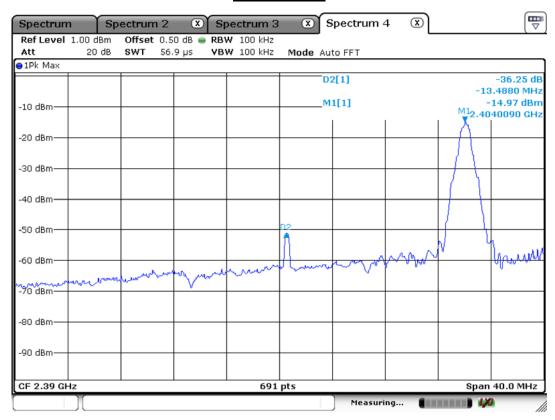
Polarization: Horizontal / Vertical

#### Measurement Data: Complies

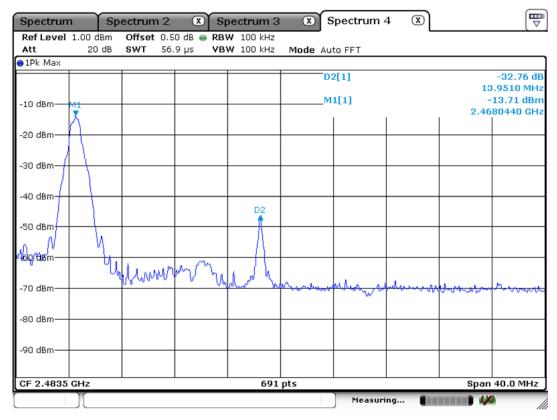
- All conducted emission in any 100 kHz bandwidth outside of the spread spectrum band was at least 20 dB lower than the highest inband spectral density. Therefore the applying equipment meets the require ment.
- See next pages for actual measured spectrum plots.

Minimum Standard:	> 20 dBc
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# **Band edge Lower edge**



# Upper edge



### Radiated Band-edges in the restricted band 2310-2390 MHz measurement

Frequency	Reading [dBuV/m]			(	Correction Factor		Limits [dBuV/m]		sult V/m]	Mar [d	
[MHz]	AV / P	Peak	Pol.	Antenna	Amp. Gain + Cable Loss	AV / Peak		AV /	Peak	AV /	Peak
2364.0	34.1	54.4	٧	27.9	24.4	54.0	74.0	37.6	57.9	16.4	16.1

### Radiated Band-edges in the restricted band 2483.5-2500 MHz measurement

Frequency	Reading [dBuV/m]	Pol.	(	Correction Factor	Limits Result [dBuV/m] [dBuV/m]				
[MHz]	AV / Peak	Poi.	Antenna	Amp. Gain + Cable Loss	AV / Peak	AV / Peak	AV / Peak		
2483.8	34.6 52.9	V	27.9	24.4	54.0 74.0	38.1 56.4	15.9 17.6		

Note: This EUT was tested in 3 orthogonal positions and the worst-case data was presented

### 3.2.5 Conducted Spurious Emissions

#### **Procedure:**

The test follows KDB558074. The conducted spurious emissions were measured with a spectrum analyzer connected to the antenna terminal, while EUT had its hopping function disabled at the highest, middle and the lowest available channels...

After the trace being stable, set the marker on the peak of any spurious emission recorded.

#### The spectrum analyzer is set to:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions

RBW = 100 kHz Sweep = auto

VBW = 100 kHz Detector function = peak

Trace = max hold

#### **Measurement Data: Complies**

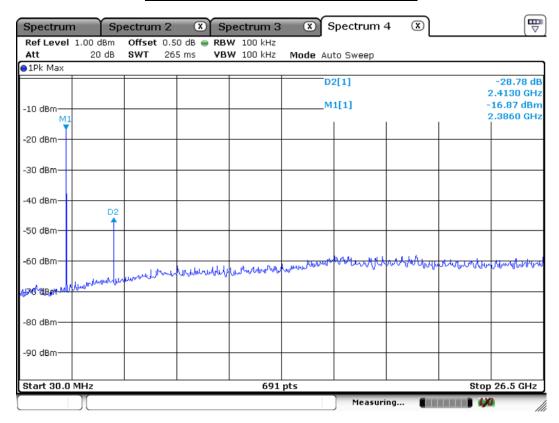
- All conducted emission in any 100 kHz bandwidth outside of the spread spectrum band was at least 20 dB lower than the highest inband spectral density. Therefore the applying equipment meets the require ment.
- See next pages for actual measured spectrum plots.

Minimum Standard:	> 20 dBc

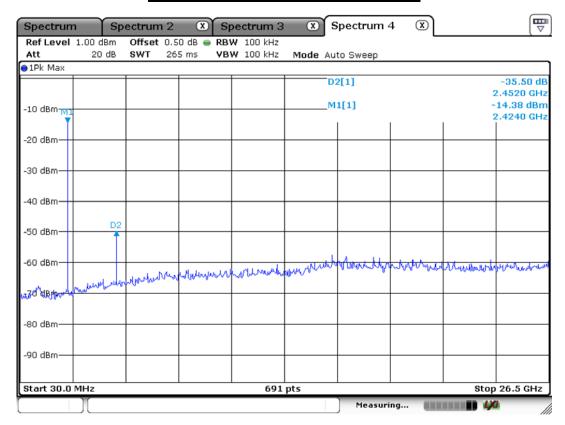
#### **Measurement Setup**

Same as the Chapter 3.2.1 (Figure 1)

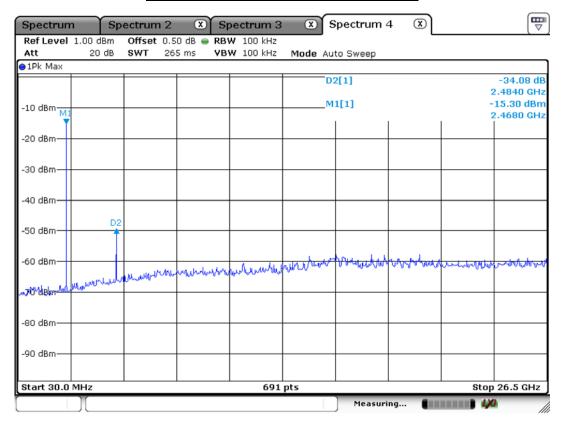
## <u>Unwanted Emission – Low Channel</u> Frequency Range = 30 MHz ~ 26.5 GHz



## <u>Unwanted Emission – Middle Channel</u> Frequency Range = 30 MHz ~ 26.5 GHz



# <u>Unwanted Emission – High Channel</u> Frequency Range = 30 MHz ~ 26.5 GHz



### 3.2.6 Radiated Spurious Emissions

#### **Procedure:**

The EUT was placed on a 0.8m high wooden table inside a shielded enclosure. An antenna was placed near the EUT and measurements of frequencies and amplitudes of field strengths were recorded for reference during final measurements. For final radiated testing, measurements were performed in OATS. Measurements were performed with the EUT oriented in 3 orthogonal axis and rotated 360 degrees to determine worst-case orientation for maximum emissions.

#### The spectrum analyzer is set to:

Center frequency = the worst channel

Frequency Range =  $9 \text{ kHz} \sim 10^{\text{th}} \text{ harmonic.}$ 

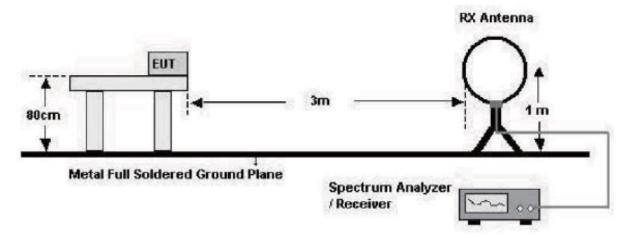
 $RBW = 100 \text{ kHz} (30 \text{ MHz} \sim 1 \text{ GHz})$   $VBW \geq RBW$ 

= 1 MHz  $(1 \text{ GHz} \sim 10^{\text{th}} \text{ harmonic})$ 

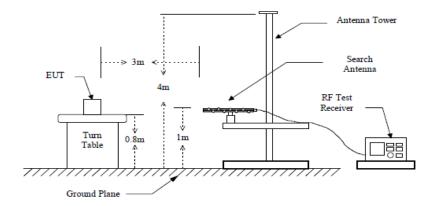
Span = 100 MHz Detector function = peak

Trace =  $\max \text{ hold}$  Sweep = auto

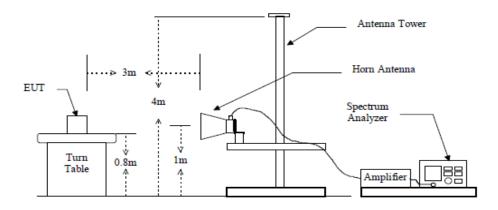
#### below 30 MHz



#### below 1 GHz (30 MHz to 1 GHz)



above 1 GHz



#### **Measurement Data: Complies**

- See next pages for actual measured data.
- No other emissions were detected at a level greater than 20 dB below limit include from 9 kHz to 30 MHz.

#### Minimum Standard: FCC Part 15.209(a)

Frequency (MHz)	Limit (uV/m) @ 3 m
0.009 ~ 0.490	2400/F(kHz) (@ <b>300 m</b> )
0.490 ~ 1.705	24000/F(kHz) (@ <b>30 m</b> )
1.705 ~ 30	30(@ <b>30 m</b> )
30 ~ 88	100 **
88 ~ 216	150 **
216 ~ 960	200 **
Above 960	500

<sup>\*\*</sup> Except as provided in 15.209(g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g. 15.231 and 15.241.

### **Measurement Data : (Above 1 GHz)**

Frequency	Reading [dBuV/m] Pol.		(	Correction Factor	Limits [dBuV/m]				Margin [dB]		
[MHz]	AV / Peak			Antenna	Amp.Gain+Cable	AV/Peak		AV/Peak		AV / Peak	
4933.4	34.3	34.3 49.1 V		32.9	16.0	54.0 74.0		51.2	66.0	2.8	8.0

<sup>-</sup> No other emissions were detected at a level greater than 20 dB below limit.

### Measurement Data: (9 kHz - 30 MHz)

Fraguanay	Rea	ding		(	Correction	Lin	nits	Res	sult	Mar	gin
Frequency	[dBu	V/m]	Pol.		Factor	[dBu	V/m]	[dBu	V/m]	[d	В]
[MHz]	AV /	Peak		Antenna Amp.Gain+Cable		AV A	/ Peak	AV / Peak		AV /	Peak
-	-	-	-			-	-	-	-	-	-
	No emissions were detected at a level greater than 20 dB below limit.										
-	-	_	_	-	-	-	_	-	-	-	-
-	-	-	_	-	-	-	_	-	_	-	_

<sup>\*</sup>No emissions were detected at a level greater than 20 dB below limit.

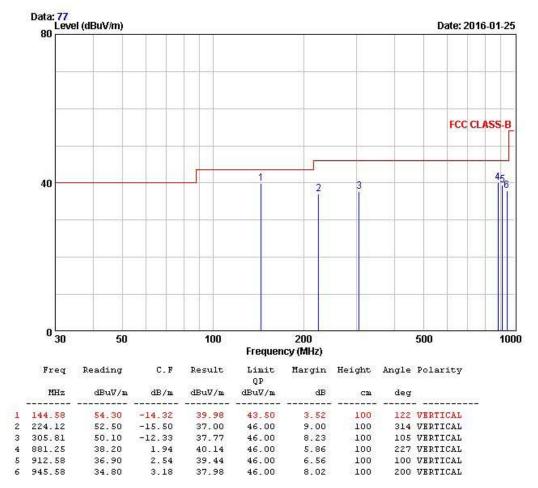
#### **Radiated Emissions – Wireless mode (LOW)**



4, Songjuro236Beon-gil, Yangji-myeon, Cheoin-gu, Youngin-si, Gyeonggi-do, 449-822 Korea Tel:+82-31-3236008,9 Fax:+82-31-3236010

EUT/Model No.: EHR-100 TEST MODE: Wireless mode(LOW)

Temp Humi : 0 / 35 Tested by: LEE S H



Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

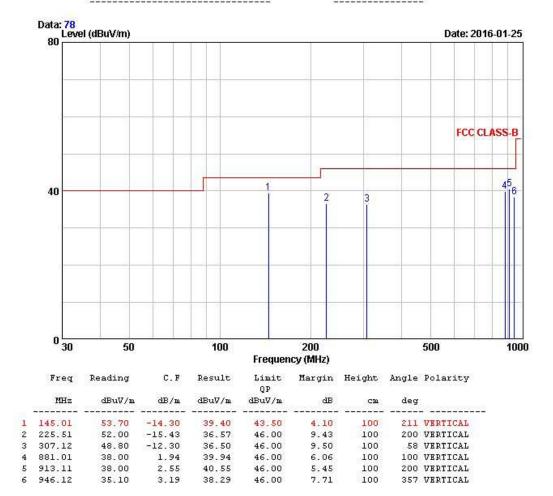
#### Radiated Emissions – Wireless mode (MID)



4, Songjuro236Beon-gil, Yangji-myeon, Cheoin-gu, Youngin-si, Gyeonggi-do, 449-822 Korea Tel:+82-31-3236008,9 Fax:+82-31-3236010

EUT/Model No.: EHR-100 TEST MODE: Wireless mode(MID)

Temp Humi : 0 / 35 Tested by: LEE S H



Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

#### **Radiated Emissions – Wireless mode (HIGH)**



944.58

35.20

4, Songjuro236Beon-gil, Yangji-myeon, Cheoin-gu, Youngin-si, Gyeonggi-do, 449-822 Korea Tel:+82-31-3236008,9 Fax:+82-31-3236010

300 VERTICAL

 EUT/Model No.:
 EHR-100
 TEST MODE:
 Wireless mode(HIGH)

 Temp Humi
 :
 0 / 35
 Tested by:
 LEE S H

Data: 79 Level (dBuV/m) 80 Date: 2016-01-25 FCC CLASS-B 40 0 <u>~</u> 200 50 100 500 1000 Frequency (MHz) Freq Reading C.F Result Limit Margin Height Angle Polarity MHz dBuV/m dB/m dBuV/m dBuV/m dB deg CM 145.11 54.00 -14.30 39.70 43.50 3.80 100 133 VERTICAL 225.25 52.30 -15.44 36.86 46.00 9.14 236 VERTICAL 100 304.99 -12.35 38.75 46.00 7.25 100 200 VERTICAL 51.10 39.94 46.00 6.06 205 VERTICAL 881.12 38.00 1.94 100 912.25 37.00 2.53 39.53 46.00 6.47 100 100 VERTICAL

Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

46.00

7.64

100

38.36

3.16

#### 3.2.6 AC Conducted Emissions

#### **Procedure:**

The conducted emissions are measured in the shielded room with a spectrum analyzer in peak hold. While the measurement, EUT had its hopping function disabled at the middle channels in line with Section 15.31(m). Emissions closest to the limit are measured in the quasi-peak mode (QP) with the tuned receiver using a bandwidth of 9 kHz. The emissions are maximized further by cable manipulation and Exerciser operation. The highest emissions relative to the limit are listed.

#### **Measurement Data: Complies**

- See next pages for actual measured spectrum plots.
- No emissions were detected at a level greater than 20 dB below limit.

#### Minimum Standard: FCC Part 15.207(a)/EN 55022

#### Class B

Frequency Range	quasi-peak	Average		
0.15 ~ 0.5	66 to 56 *	56 to 46 *		
0.5 ~ 5	56	46		
5 ~ 30	60	50		

<sup>\*</sup> Decreases with the logarithm of the frequency

### AC Conducted Emissions - Wireless mode - LINE



4, Songjuro 236 Beon-gil, Yangji-myeon Cheoin-gu, Youngin-si, Gyeonggi-do 449-822 Korea Tel:+82-31-3236008,9

Fax:+82-31-3236010

EUT / Model No. : EHR-100 Phase : LINE

: 120 / 60 Test Mode : Wireless mode Test Power

Temp. / Humi. : 22 / 38 Test Engineer : LEE S H

80 Level (dBuV)						oate: 2016-0	
70							
60						FCC CLAS	S-B
50					F	CC CLASS-B	AV
40	M						
30 +							
20	I Wanda	Luis rapakan	Mar 11/14 1/4 hall before the color of	White hours	A A	MANAPAN MANA	A Jahr
		A Land Street	T" P TOWARD THE PARTY	Mary Harris	M M A	Jungal V	M
10					Mr. W.	V V	0
00.150.2	0.5	1	2 Frequency (MHz)	5	10	20	290

Freq	RD	RD	C.F	Result	Result	Limit	Limit	Margin	Margin
	QP	AV		QP	AV	QP	AV	QP	AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0 151	27.93	2 27	19.57	47.50	21 04	65.92	EE 02	18.42	33.98
				100000000000000000000000000000000000000					
0.157	28.14	1.06	19.55	47.69	20.61	65.62	55.62	17.93	35.01
0.157	28.14	1.82	19.55	47.69	21.37	65.60	55.60	17.91	34.23
0.190	31.17	7.27	19.51	50.68	26.78	64.03	54.03	13.35	27.25
0.197	33.12	13.79	19.49	52.61	33.28	63.73	53.73	11.12	20.45
0.201	33.05	13.94	19.49	52.54	33.43	63.56	53.56	11.02	20.13

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

### AC Conducted Emissions - Wireless mode - NEUTRAL



4, Songjuro 236 Beon-gil, Yangji-myeon Cheoin-gu, Youngin-si, Gyeonggi-do 449-822 Korea Tel:+82-31-3236008,9

Fax:+82-31-3236010

EUT / Model No. : EHR-100 Phase : NEUTRAL

Test Mode : Wireless mode Test Power : 120 / 60

Temp. / Humi. : 22 / 38 Test Engineer : LEE S H

BO Level (dBuV)						Date: 2016-01	1-2
70							
50						FCC CLASS	S-E
502					F	CC CLASS-B	A۱
40							
30							
20 4	W Const	AND MANAGE	washington brand about some	Many of the service	h	AND THE WAR	W.)/
		ALCONOMINATION OF THE PROPERTY	Manyana	AND THE PROPERTY OF THE	A THE PARTY AND	Martin	٨,
10	ŀ				Met man	W. A.	4
0.150.2	0.5	1	2 Frequency (MHz)	.5	10	20	-

Freq	RD QP	RD AV	C.F	Result QP	Result AV	Limit QP	AV	Margin QP	Margin AV
MHz	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dB
0.154	28.46	0.78	19.57	48.03	20.35	65.79	55.79	17.76	35.44
0.160	27.17	0.88	19.57	46.74	20.45	65.48	55.48	18.74	35.03
0.177	22.15	-3.19	19.54	41.69	16.35	64.63	54.63	22.94	38.28
0.195	32.72	11.81	19.51	52.23	31.32	63.81	53.81	11.58	22.49
0.201	32.54	13.49	19.50	52.04	32.99	63.57	53.57	11.53	20.58
0.280	19.18	-0.39	19.47	38.65	19.08	60.83	50.83	22.18	31.75

Remarks: C.F (Correction Factor) = Insertion loss + Cable loss + Pulse Limiter

# **APPENDIX**

# TEST EQUIPMENT USED FOR TESTS

	Description	Model No.	Serial No.	Manufacturer	Interval	Last Cal. Date
1	Signal Analyzer (9 kHz ~ 30 GHz)	FSV-30	100757	R&S	1 year	2015-03-24
2	Signal Generator (~3.2 GHz)	8648C	3623A02597	НР	1 year	2015-03-23
3	SYNTHESIZED CW GENERATOR	83711B	US34490456	НР	1 year	2015-03-23
4	Attenuator (3 dB)	8491A	37822	НР	1 year	2015-09-14
5	Attenuator (10 dB)	8491A	63196	НР	1 year	2015-09-14
6	Test Receiver (~30 MHz)	ESHS10	828404/009	R&S	1 year	2015-03-23
7	EMI Test Receiver (~7 GHz)	ESCI7	100722	R&S	1 year	2015-09-15
8	RF Amplifier (~1.3 GHz)	8447D OPT 010	2944A07684	НР	1 year	2015-09-14
9	RF Amplifier (1~26.5 GHz)	8449B	3008A02126	HP	1 year	2015-03-23
10	Horn Antenna (1~18 GHz)	3115	00114105	ETS	2 year	2015-04-21
11	DRG Horn (Small)	3116B	81109	ETS-Lindgren	2 year	2014-02-26
12	DRG Horn (Small)	3116B	133350	ETS-Lindgren	2 year	2014-02-26
13	TRILOG Antenna	VULB 9160	9160-3237	SCHWARZBECK	2 year	2015-04-21
14	Temp.Humidity Data Logger	SK-L200TH II A	00801	SATO	1 year	2015-04-03
15	Splitter (SMA)	ZFSC-2-2500	SF617800326	Mini-Circuits	-	-
16	Power Divider	11636A	06243	НР	1 year	2015-09-14
17	DC Power Supply	6674A	3637A01657	Agilent	-	-
18	Frequency Counter	5342A	2826A12411	HP	1 year	2015-03-23
19	Power Meter	EPM-441A	GB32481702	HP	1 year	2015-03-23
20	Power Sensor	8481A	3318A94972	HP	1 year	2016-01-05
21	Audio Analyzer	8903B	3729A18901	HP	1 year	2015-09-14
22	Modulation Analyzer	8901B	3749A05878	HP	1 year	2015-09-15
23	TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	1 year	2015-09-14
24	Stop Watch	HS-3	812Q08R	CASIO	2 year	2014-04-03
25	LISN	KNW-407	8-1430-1	Kyoritsu	1 year	2015-09-14
26	Two-Lime V-Network	ESH3-Z5	893045/017	R&S	1 year	2015-03-23
27	UNIVERSAL RADIO COMMUNICATION TESTER	CMU200	106243	R&S	1 year	2015-03-23
28	Highpass Filter	WHKX1.5/15G-10SS	74	Wainwright Instruments	1 year	2015-03-30
29	Highpass Filter	WHKX3.0/18G-10SS	118	Wainwright Instruments	1 year	2015-03-30
30	Active Loop Antenna	FMZB1519	1519-031	SCHWARZBECK	2 year	2016-01-12
31	OSP120 BASE UNIT	OSP120	101230	R&S	1 year	2015-03-23
32	Signal Generator(100 kHz ~ 40 GHz)	SMB100A03	177621	R&S	1 year	2015-03-24
33	Signal Analyzer (10 Hz ~ 40 GHz)	FSV40	101367	R&S	1 year	2015-03-24