

243 Jubug-Ri, Yangji-Myeon, Yongin-Si, Gyeonggi-Do, Korea 17159 Tel: +82-31-323-6008 Fax: +82-31-323-6010 http://www.ltalab.com

> Dates of Tests: March 15 ~ April 23, 2019 Test Report S/N: LR500111904M Test Site : LTA CO., LTD.

# **CERTIFICATION OF COMPLIANCE**

FCC ID.

## APPLICANT

# 2AMMIMIRO-07RCU

# **MIRO** Corporation

Equipment Class	:	Digital Transmission System (DTS)
Manufacturing Description	:	Humidifier Remote control
Manufacturer	:	MIRO Corporation
Model name	:	MIRO-07RCU
Test Device Serial No.:	:	Identical prototype
Rule Part(s)	:	FCC Part 15.247 Subpart C ; ANSI C-63.4-2014
		ANSI C-63.10-2013
Frequency Range	:	2402 ~ 2480 MHz
Max. Output Power	:	Max 8.25 dBm – Conducted
Data of issue	:	April 23, 2019

This test report is issued under the authority of:

Jabeom. Koo

Ja-Beom, Koo / Manager

The test was supervised by:

jae-Hum, Yeon / 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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## APPENDIX

# 1. General information

## **<u>1-1 Test Performed</u>**

Company name	: LTA Co., Ltd.
Address	: 243, Jubug-ri, Yangji-Myeon, Youngin-Si, Kyunggi-Do, Korea. 17159
Web site	: <u>http://www.ltalab.com</u>
E-mail	: <u>chahn@ltalab.com</u>
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	2019-09-30	ECT accredited Lab.
RRA	KOREA	KR0049	-	EMC accredited Lab.
FCC	U.S.A	649054	Updating	FCC CAB
VCCI	JAPAN	C-4948	2020-09-10	VCCI registration
VCCI	JAPAN	T-2416	2020-09-10	VCCI registration
VCCI	JAPAN	R-4483(10m)	2020-10-15	VCCI registration
VCCI	JAPAN	G-847	2022-06-13	VCCI registration
IC	CANADA	5799A-1	2019-06-15	IC filing
KOLAS	KOREA	NO.551	2021-08-20	KOLAS accredited Lab.

# 2. Information about test item 2-1 Client & Manufacturer

Company name	:	MIRO Corporation		
Address	:	26F, M, 32, Songdogwahak-ro, Yeonsu-gu,	INCHEON,	Korea
Tel / Fax	:	TEL No: +82-10-4861-9286 / FAX No: 07	0-4032-5030	

## <u>2-2 Equipment Under Test (EUT)</u>

Model name	:	MIRO-07RCU
Serial number	:	Identical prototype
Date of receipt	:	March 15, 2019
EUT condition	:	Pre-production, not damaged
Antenna type	:	Pattern Antenna (Max Gain : 0.60 dBi)
Frequency Range	:	2402 ~ 2480 MHz
RF output power	:	Max 8.25 dBm - Conducted
Number of channels	:	40
Type of Modulation	:	GFSK
Power Source	:	3.0 Vdc

## **2-3 Tested frequency**

	LOW	MID	HIGH
Frequency (MHz)	2402	2442	2480

## 2-4 Ancillary Equipment

Equipment	Model No.	Serial No.	Manufacturer
Notebook	CR720	MS-1736	MSI

# 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	15.207 AC Conducted Emissions Em		Conducted	С
15.203 Antenna requirement -		-	-	С
Note 1: C=Complies NC=Not Complies NT=Not Tested NA=Not Applicable				
Note 2: This product operates only with battery and does not operate during charging.				

 $\rightarrow$  Antenna Requirement

MIRO Corporation. FCC ID: 2AMMIMIRO-07RCU unit complies with the requirement of §15.203. The antenna type is Pattern Antenna

The sample was tested according to the following specification: \*FCC Parts 15.247; ANSI C-63.4-2014

\*FCC KDB Publication No. 558074 D01 v05r02 \*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 kHz (VBW $\geq$ RBW)	Sweep = auto
Trace = max hold	Detector function = peak

## Measurement Data : Complies

Frequency (MHz)	Test Results		
	Measured Bandwidth (MHz)	Result	
2402	0.695	Complies	
2442	0.666	Complies	
2480	0.666	Complies	

- See next pages for actual measured spectrum plots.

#### Minimum Standard:

6 dB Bandwidth > 500 kHz

### **Measurement Setup**

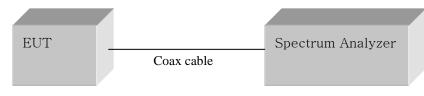
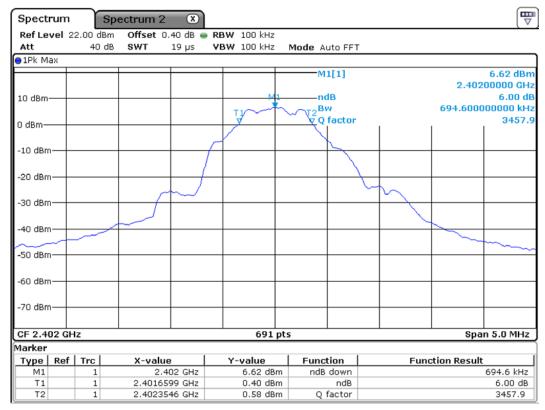


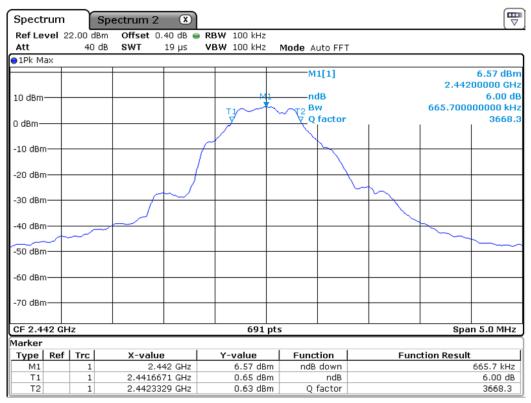
Figure 1: Measurement setup for the carrier frequency separation



Low Channel

Date: 17.APR.2019 08:24:39

## **Middle Channel**



Date: 17.APR.2019 08:25:11

Spectrum	Sp	ectrum 2	3						
Ref Level 2	2.00 dBm	Offset 0.40 dB	😑 RBW	100 kHz					
Att	40 dB	SWT 19 µs	VBW	100 kHz	Mode Au	uto FFT			
⊖1Pk Max									
					M	1[1]		2.480	6.36 dBn 00000 GH:
10 dBm				M1	nc				6.00 di
				rı~~†	~~~~~~~ BV			665.7000	100000 kH
0 dBm				<b>y</b>	Q	factor	1		3725.4
10 40									
-10 dBm			7						
-20 dBm									
-30 dBm			/				~~~		
-40 dBm	فستستسهر							~~~~	~~~
-50 dBm									
-60 dBm									
-70 dBm									
-, o ubiii									
CF 2.48 GHz	z			691 p	ots			Spa	n 5.0 MHz
Marker									
Type Ref	Trc	X-value	_	-value	Funct		Fun	ction Result	
M1	1	2.48 GH		6.36 dBn		down			665.7 kHz
T1	1	2.4796671 GH		0.48 dBm		ndB			6.00 dB
T2	1	2.4803329 GH	z	0.29 dBn	1 Q 1	factor			3725.4

# High Channel

Date: 17.APR.2019 08:25:38

## 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 channelsRBW = 1 MHzSpan = auto $VBW = 3 MHz (VBW \ge 3 * RBW)$ Sweep = autoDetector function = peak

### **Measurement Data : Complies**

Frequency	Test Results					
(MHz)	dBm	mW	Result			
2402	8.25	6.683	Complies			
2442	8.14	6.516	Complies			
2480	7.89	6.152	Complies			

- See next pages for actual measured spectrum plots.

#### Minimum Standard:

Peak output power	< 1 W
-------------------	-------

#### **Measurement Setup**

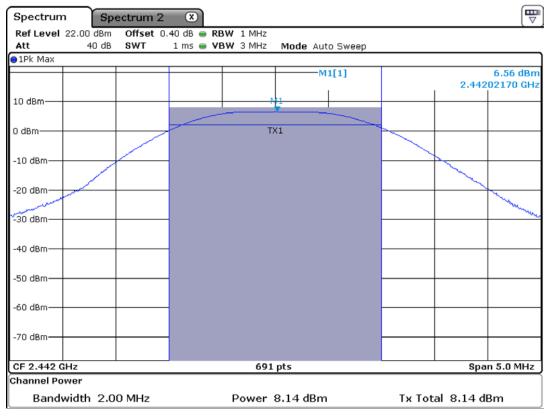
Same as the Chapter 3.2.1 (Figure 1)

Spectrum Spe	ectrum 2	×			
Ref Level 22.00 dBm		dB 🥃 RBW 1 MHz			`
Att 40 dB	SWT 1	ms 🛑 <b>VBW</b> 3 MHz	Mode Auto Sweep		
1Pk Max    10 dBm   0 dBm   -10 dBm   -20 dBm   -20 dBm   -30 dBm   -50 dBm   -50 dBm   -60 dBm		TX	M1[1]	2.4	6.60 dBi
-70 dBm					
CF 2.402 GHz		691	pts	S	pan 5.0 MHz
Channel Power Bandwidth 2.0	0 MHz	Power 8	3.25 dBm	Tx Total 8.25	dBm

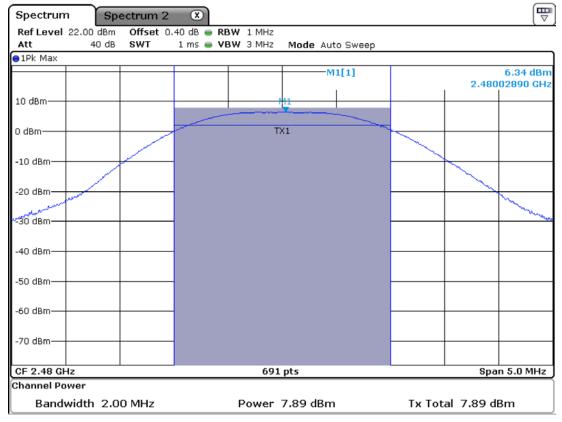
Low Channel

Date: 17.APR.2019 08:26:06

# Middle Channel



Date: 17.APR.2019 08:26:21



# High Channel

Date: 17.APR.2019 08:26:36

## **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: $RBW = 3 \text{ kHz} (3kHz \le RBW \le 100 \text{ kHz})$ Span = 1.5 times the DTS bandwidthVBW = 10 kHz (3 \* RBW)Sweep = autoDetector function = peakTrace = max hold

### Measurement Data : Complies

Frequency	Test Results					
(MHz)	dBm	Result				
2402	6.45	Complies				
2442	6.42	Complies				
2480	6.21	Complies				

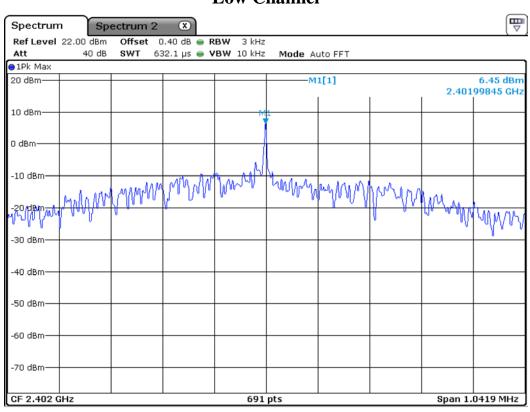
- See next pages for actual measured spectrum plots.

### Minimum Standard:

Power Spectral Density	< 8 dBm @ 3 kHz BW
------------------------	--------------------

### **Measurement Setup**

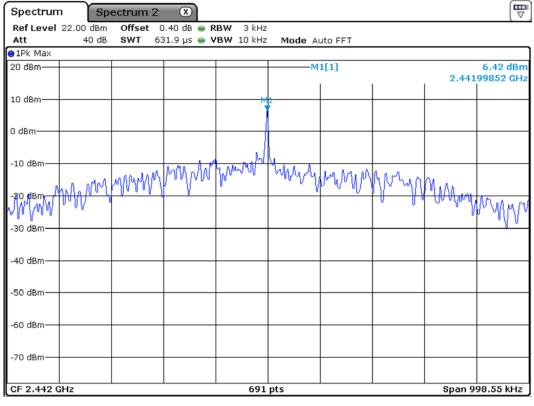
Same as the Chapter 3.2.1 (Figure 1)



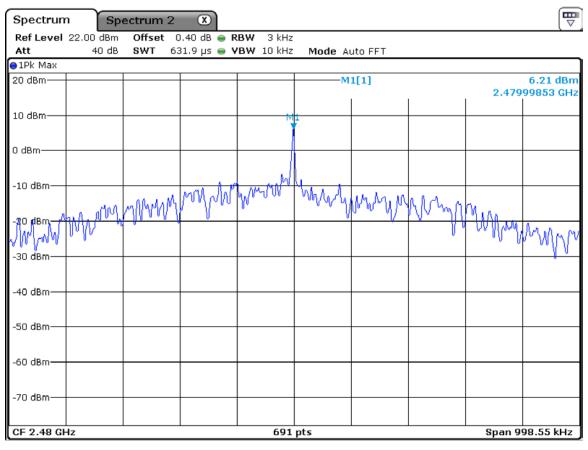
## Power Density Measurement Low Channel

Date: 17.APR.2019 08:27:58

## **Middle Channel**



Date: 17.APR.2019 08:28:32



# High Channel

Date: 17.APR.2019 08:28:48

## 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 channelsRBW = 100 kHzVBW = 100 kHzSpan = 40 MHz, 100 MHzDetector function = peakTrace = max holdSweep = 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 = 1 MHz,	VBW $\geq$ 3 MHz,	Sweep=Auto				
Average:	RBW = 1 MHz,	VBW = 10 Hz, Sv	veep=Auto				
Measurement Distance:	3 m						
Polarization:	Horizontal / Verti	ical					

## 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.

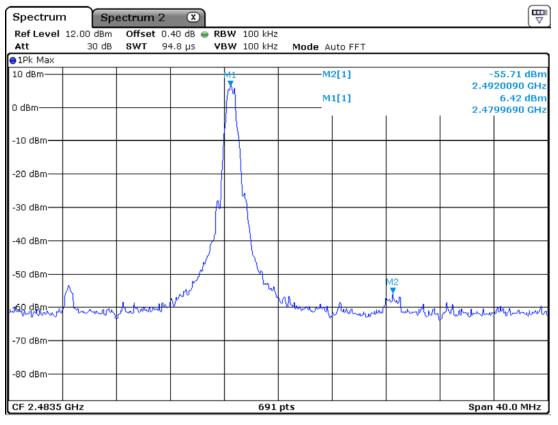
Minimum Standard:	> 20 dBc
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Spectrum	Spectrum 2	X							
RefLevel 12.00 Att 3		0.40 dB 👄 RB 94.8 µs VB	W 100 kHz W 100 kHz		uto FFT				
●1Pk Max									
10 dBm				M	2[1]		M1		53.93 dBn 99420 GH:
0 dBm				м	1[1]	I	ſ.	<b>2.40</b>	6.63 dBn 19830 GH
-10 dBm							' }		
-20 dBm							$\left  \right $		
-30 dBm						ſ			
-40 dBm							+		
-50 dBm				2			1	h	
-60 dBm	multinum	n My monterly	montor	Luwon	Normantoon	2		Vor	Unand V
-70 dBm			, • •		, 				
-80 dBm									
CF 2.39 GHz			691	pts				Span	40.0 MHz

Lower edge

Date: 17.APR.2019 08:29:49

# Upper edge



Date: 17.APR.2019 08:30:25

Frequency		dBuV/m]		Reading Correction   [dBuV/m] Factor		Limits [dBuV/m]		Result [dBuV/m]		Margin [dB]	
[MHz]	AV /	/ Peak	Pol.	Antenna	Amp. Gain + Cable Loss	AV / Peak		AV / Peak		AV / Peak	
2389.9	24.19	29.53	Н	28.08	8.77	54 74		43.5	48.84	10.5	25.16

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

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

Frequency	Reading [dBuV/m]		Del	(	Correction Factor		nits V/m]	Res [dBu	sult V/m]		rgin B]
[MHz]	AV /	/ Peak	Pol.	Antenna	Amp. Gain + Cable Loss	AV / Peak		AV / Peak		AV / Peak	
2492.1	23.81	28.96	Н	27.88	8.57	54 74		43.12	48.27	10.88	25.73

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 kHzSweep = autoVBW = 100 kHzDetector function = peak

7Trace = max hold

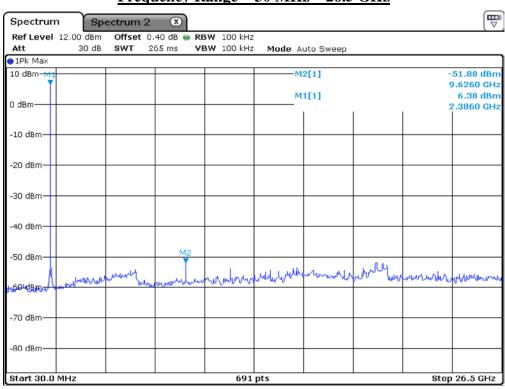
### Measurement Data: Complies

- 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
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#### **Measurement Setup**

Same as the Chapter 3.2.1 (Figure 1)

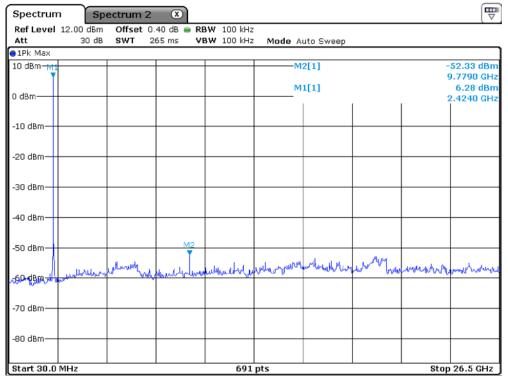


## <u>Unwanted Emission – Low Channel</u> Frequency Range = 30 MHz ~ 26.5 GHz

Date: 17.APR.2019 08:31:01

## **Unwanted Emission – Middle Channel**

## Frequency Range = 30 MHz ~ 26.5 GHz



Date: 17.APR.2019 08:31:18

Spectrum	ı Sp	ectrum	2 🗴						Ē
Ref Level	12.00 dBm	Offset	0.40 dB 😑 R	BW 100 kHz					
Att	30 dB	SWT	265 ms 🛛 🗸	' <b>BW</b> 100 kHz	Mode A	uto Sweep			
⊖1Pk Max									
10 dBm M1					M	2[1]			51.24 dBm
Ţ								ç	9.9320 GHz
0 dBm					M	1[1]			6.43 dBm 2.4620 GHz
							1	1	
10 10-									
-10 dBm									
-20 dBm									
-30 dBm									
40 40									
-40 dBm									
			M2						
-50 dBm			- T						
k.	maledhalesen	mouth	مقولين الماليني وعليها بالمان	ي ال	as with	working which	when why a	hour de re	
-60 dBm 📊	pushed have made	WW I	ملوليو الماليكور بعلمانها وللما	www	March AL .	40		a company	-hard and hallon
-70 dBm									
-70 00111									
-80 dBm									
Start 30.0	MHz	·		691	pts	·	·	Stop	26.5 GHz
ate: 17 APR 2	0040 00.04.0								

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

## **3.2.6 Radiated Spurious Emissions**

### **Procedure:**

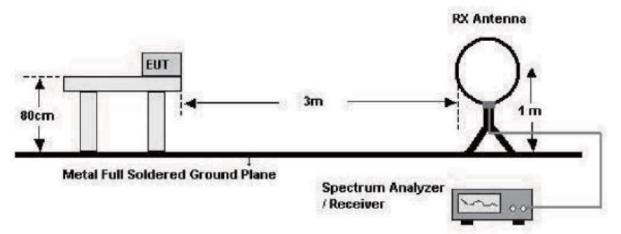
Radiated emissions from 30 MHz to 25 GHz were measured according to the methods defines in ANSI C63.10-2013.

The EUT is a placed on as turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with

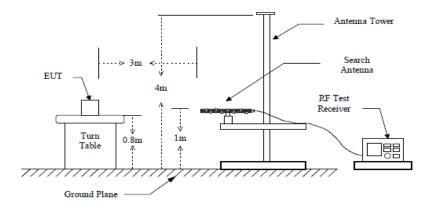
polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

The spectrum analyzer is set to:	
Center frequency = the worst channel	
Frequency Range = 9 kHz ~ $10^{\text{th}}$ harmonic.	
RBW = 100 kHz ( 30 MHz ~ 1 GHz)	$VBW \ge RBW$
= 1 MHz (1 GHz ~ $10^{\text{th}}$ harmonic)	
Span = 100 MHz	Detector function = peak
Trace = max hold	Sweep = auto

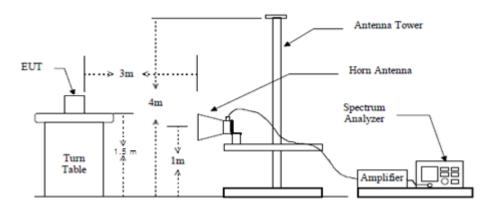




### below 1 GHz (30 MHz to 1 GHz)



#### above 1 GHz



#### Measurement Data: Complies

- See next pages for actual measured data.
- 30 MHz or less 414788 D01 Radiated Test Site The results of the test were compared to confirm thes imilarity of the test results.
- No other emissions were detected at a level greater than 20 dB below limit include from 9 kHz to 30MHz.

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</b> m)
30 ~ 88	100 **
88 ~ 216	150 **
216 ~ 960	200 **
Above 960	500

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

\*\* 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.

Frequency	Reading [dBuV/m] AV / Peak				Pol.	(	Correction Factor	Limits [dBuV/m]	Result [dBuV/m]	Margin [dB]
[MHz]				Antenna	Amp.Gain+Cable	AV / Peak	AV / Peak	AV / Peak		
-	-	-	-							
	No emissions were detected at a level greater than 20 dB below limit.									
-	-	-	-	-	-					
-	-	-	-	-	-					

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

## Measurement Data : (Below 1 GHz)

Fraguanay	Reading		Correction	Limits	Result	Margin	
Frequency	[dBuV/m]	Pol.	Factor	[dBuV/m]	[dBuV/m]	[dB]	
[MHz]	[ubuv/m]	Antenna-Amp.Gain+Cal			Lapavinj	[ub]	
51.34	45.90	V	-13.35	40	32.55	7.45	
-	-	-	-	-	-	-	
-	-	-	-	-	-	-	

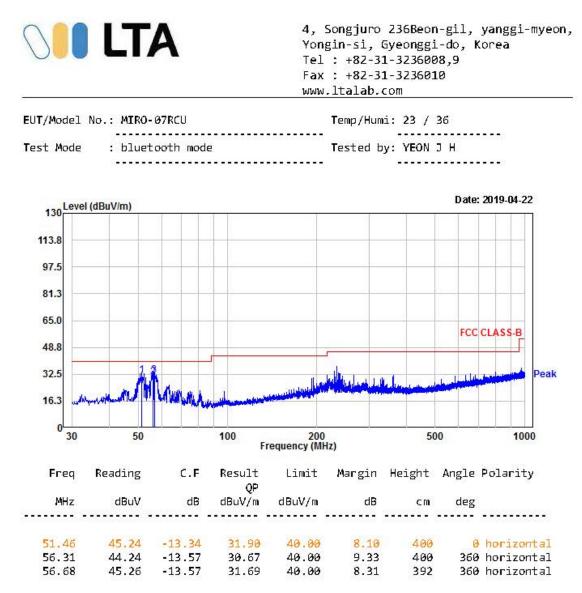
- No other emissions were detected at a level greater than 20 dB below limit.

### Measurement Data : (Above 1 GHz)

Froquoney	Rea	ding		Correction	Lin	nits	Res	sult	Mai	rgin
Frequency [dBuV/m]		Pol.	Factor	[dBu	V/m]	[dBu	V/m]	[d	B]	
[MHz]	AV / Peak			Antenna-Amp.Gain+Cable	AV/	AV/Peak		AV/Peak		Peak
13005.18	28.05	33.19	V	14.88	54	74	42.93	48.07	11.07	25.93
-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-

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

## Radiated Emissions - (Below 1 GHz)

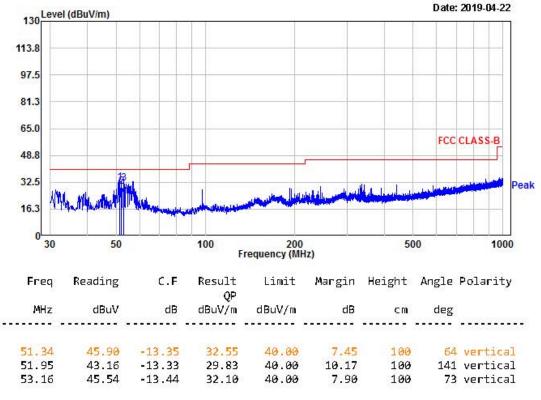


Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain



4, Songjuro 236Beon-gil, yanggi-myeon, Yongin-si, Gyeonggi-do, Korea Tel : +82-31-3236008,9 Fax : +82-31-3236010 www.ltalab.com

EUT/Model N	lo.: MIRO-07RCU	Temp/Humi: 23 / 36
Test Mode	: bluetooth mode	Tested by: YEON J H



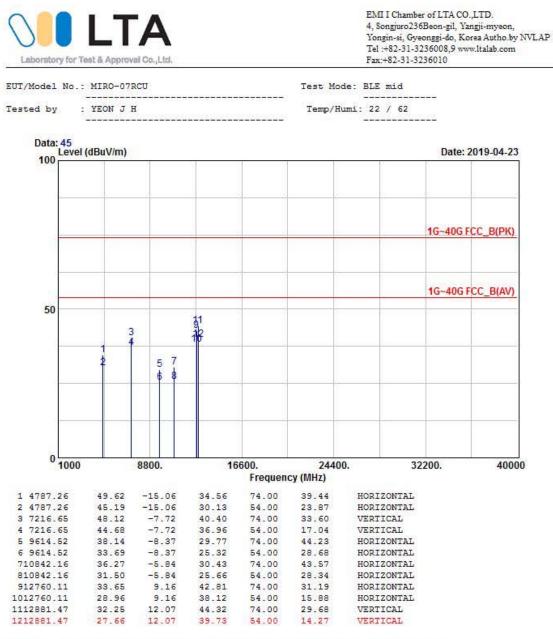
Remarks: C.F (Correction Factor) = Antenna factor + Cable loss - Preamp gain

- 1 -

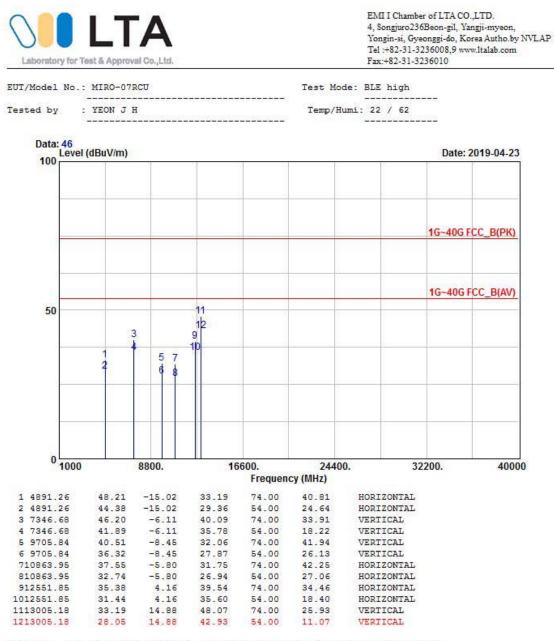
## Radiated Emissions - (Above 1 GHz)



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



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



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

## **3.2.7 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**

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

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

\* Note: This product operates only with battery and does not operate during charging.

# APPENDIX TEST EQUIPMENT USED FOR TESTS

	Use	Description	Model No.	Serial No.	Manufacturer	Interval	Last Cal. Date
1		Signal Analyzer (9 kHz ~ 30 GHz)	FSV30	100757	R&S	1 year	2018-09-06
2		SYNTHESIZED CW GENERATOR	83711B	US34490456	HP	1 year	2019-03-16
3		Attenuator (3 dB)	8491A	37822	HP	1 year	2018-09-06
4		Attenuator (10 dB)	8491A	63196	HP	1 year	2018-09-06
5		EMI Test Receiver (~7 GHz)	ESCI7	100722	R&S	1 year	2018-09-06
6		RF Amplifier (~1.3 GHz)	8447D OPT 010	2944A07684	НР	1 year	2018-09-06
7		RF Amplifier (1~26.5 GHz)	8449B	3008A02126	HP	1 year	2019-03-16
8		Horn Antenna (1~18 GHz)	3115	00114105	ETS	2 year	2018-09-26
9		DRG Horn (Small)	3116B	81109	ETS-Lindgren	2 year	2018-05-03
10		DRG Horn (Small)	3116B	133350	ETS-Lindgren	2 year	2018-05-03
11		TRILOG Antenna	VULB 9160	9160-3237	SCHWARZBECK	2 year	2019-03-23
12		Temp.Humidity Data Logger	SK-L200TH II A	00801	SATO	1 year	2018-09-06
13		DC Power Supply	6674A	3637A01657	Agilent	-	-
14		Power Meter	EPM-441A	GB32481702	HP	1 year	2019-03-16
15		Power Sensor	8481A	3318A94972	HP	1 year	2018-09-06
16		Audio Analyzer	8903B	3729A18901	HP	1 year	2018-09-06
17		Modulation Analyzer	8901B	3749A05878	HP	1 year	2018-09-06
18		TEMP & HUMIDITY Chamber	YJ-500	LTAS06041	JinYoung Tech	1 year	2018-09-06
19		Stop Watch	HS-3	812Q08R	CASIO	2 year	2019-03-16
20		LISN	KNW-407	8-1430-1	Kyoritsu	1 year	2018-09-06
21		Two-Lime V-Network	ESH3-Z5	893045/017	R&S	1 year	2019-03-16
22		Highpass Filter	WHKX1.5/15G-108S	74	Wainwright Instruments	1 year	2019-03-16
23		Highpass Filter	WHKX3.0/18G-10SS	118	Wainwright Instruments	1 year	2019-03-16
24		OSP120 BASE UNIT	OSP120	101230	R&S	1 year	2019-03-16
25		Signal Generator(100 kHz ~ 40 GHz)	SMB100A	177621	R&S	1 year	2019-03-16
26		Vector Signal Generator(9kHz ~ 6 GHz)	SMBV100A	255081	R&S	1 year	2019-03-16
27		Signal Analyzer (10 Hz ~ 40 GHz)	FSV40	101367	R&S	1 year	2019-03-16