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

Test Report No.	**: W174R-D058**
AGR No.	**: A15OA-148**
Applicant	**: AIRO Co.,LTD.**
Address	**: 203, Hanulteo Bldg, 464-2, Sangsam-ri, Haeryong-myeon, Suncheon-si, Jeollanam-do, South Korea, 58005**
Manufacturer	**: AIRO Co.,LTD.**
Address	**: 203, Hanulteo Bldg, 464-2, Sangsam-ri, Haeryong-myeon, Suncheon-si, Jeollanam-do, South Korea, 58005**
Type of Equipment	**: Aquarium Fish Robot**
FCC ID	**: 2ALUA-MIRO-9**
Model No.	**: MIRO-9**
Serial number	**: N/A**
Total page of Report	**: 24 pages (including this page)**
Date of Incoming	**: January 29, 2016**
Date of issuing	**: April 19, 2017**

SUMMARY

The equipment complies with the regulation; ***FCC PART 15 SUBPART C Section 15.231***

This test report contains only the result of a single test of the sample supplied for the examination. It is not a general valid assessment of the features of the respective products of the mass-production.

Reviewed by: Jae-Ho Lee / Chief Engineer
ONETECH Corp.

Approved by: Keun-Young, Choi / Vice President
ONETECH Corp.

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

CONTENTS

Page

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

Revision History

Issued Report No.	Issued Date	Revisions	Effect Section
W174R-D058	April 19, 2017	Initial Issue	All

DOCUMENT HISTORY

Revision No.	Issued Date	Revisions	Effect Section
Original	April 19, 2017	Initial Issue	-
Revision 01	April 28, 2017	Add limit	5.4 Bandwidth of operating frequency
Revision 02	May 08, 2017	Add Test Plot	5.3.2 Test data for 30 MHz to 1 000 MHz
Revision 03	May 10, 2017	Revised Limits and Margin.	5.3.3 Test data for above 1 GHz

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

1. VERIFICATION OF COMPLIANCE

APPLICANT : AIRO Co.,LTD.

ADDRESS : 203, Hanulteo Bldg, 464-2, Sangsam-ri, Haeryong-myeon, Suncheon-si, Jeollanam-do, South Korea, 58005

CONTACT PERSON : Ji-hoon Kim / Manager

TELEPHONE NO : +82-61-727-6760

FCC ID : 2ALUA-MIRO-9

MODEL NAME : MIRO-9

BRAND NAME :

DATE : April 19, 2017

EQUIPMENT CLASS	DSR- Part 15 Remote Control/Security Device Transceiver
E.U.T. DESCRIPTION	Aquarium Fish Robot
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 15.231
MODIFICATIONS ON THE EQUIPMENT TO ACHIEVE 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.

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

2. GENERAL INFORMATION

2.1 Product Description

The AIRO Co.,LTD., Model MIRO-9 (referred to as the EUT in this report) is an Aquarium Fish Robot. The product specification described herein was obtained from product data sheet or user's manual.

CHASSIS TYPE	Plastic
OPERATING FREQUENCY	447.862 5 MHz ~ 447.987 5 MHz
MODULATION	GFSK
NUMBER OF CHANNEL	11
LIST OF EACH OSC. OR CRY. FREQ.(FREQ.>= 1 MHz)	16 MHz
ANTENNA TYPE	Helical Antenna
RATED SUPPLY VOLTAGE	DC 12 V
NUMBER OF LAYERS	2 Layers

2.2 Model Differences:

-. None

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 15.231

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.

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

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-10666 / T-1842

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

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

3. SYSTEM TEST CONFIGURATION

3.1 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	AIRO Co.,LTD.	MIRO9 Main V1.1	N/A
Module	N/A	N/A	N/A
Antenna	N/A	N/A	N/A
Battery	SAMSUNG SDI	N/A	N/A
Battery Board 1	AIRO CO.,LTD.	MIRO9 Battery V1.0	N/A
Battery Board 2	N/A	EJ209A	N/A
Sensor Board	AIRO CO.,LTD.	MIRO-9 Sensor	N/A
Sensor 1	Pololu	N/A	N/A
Sensor 2	Pololu	N/A	N/A
Sensor 3	Pololu	N/A	N/A
Sensor 4	Pololu	N/A	N/A

3.2 Peripheral equipment

Model	Manufacturer	Description	Connected to
BPL910S08N01	BridgePower Corp.	Adapter	EUT

3.3 Mode of operation during the test

-. To get a maximum radiated emission from the EUT, the button on the EUT was continuously pressed to transmit the signal. To activate continuous transmission, place a small plastic block between rubber band and the push button on the EUT. To get a maximum emission levels from the EUT, the EUT was moved throughout the XY, XZ, and YZ planes. The worst case data is XY axis.

3.4 Equipment Modifications

-. None

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

3.5 Configuration of Test System

Line Conducted Test: The EUT was tested in a Charging & Transmitting Mode. The EUT was connected to Adapter. All supporting equipments were connected to another LISN. Preliminary Power line Conducted Emission test was performed by using the procedure in ANSI C63.10: 2013 to determine the worse operating conditions.

Radiated Emission Test: The EUT was tested in a charging mode and Transmitter mode. 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 m 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.

Occupied Bandwidth Measurement: This measurement is performed with the antenna located close enough to give a full-scale deflection of the modulated carrier on the spectrum analyzer. The plot is taken at 20 kHz/division frequency span, 10 kHz resolution bandwidth and 10 dB/division logarithmic display from the spectrum analyzer.

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

3.6 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 transmitter antenna of the EUT is a Helical Antenna inside the EUT, so no consideration of replacement by the user.

4. PRELIMINARY TEST

4.1 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)
Charging & Transmitting Mode	X

4.2 Radiated Emissions Tests

During Preliminary Tests, the following operating modes were investigated

Operation Mode	The Worse operating condition (Please check one only)
Charging & Transmitting Mode	X

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

5. FINAL RESULT OF MEASURMENT

Radiated emission electric field intensity, 30 MHz ~ 300 MHz : ± 4.43 dB
Radiated emission electric field intensity, 300 MHz ~ 1 000 MHz : ± 3.80 dB
Measurement uncertainty is calculated in accordance with CISPR 16-4-2. The measurement uncertainty is given with a confidence of 95 % with the coverage factor, k = 2.

5.1 Field Strength of the Carrier Test

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 44 % R.H. Temperature: 23 °C
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.231(b)
Result : PASSED

EUT : Aquarium Fish Robot Date: April 16, 2017
Operating Condition : Charging & Transmitting Mode
Distance : 3 m

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									
447.862 5	84.94	Peak	H	16.20	5.70	33.22	73.62	101.27	27.65
	84.93	Average	H				73.61	81.27	7.66
Test Data for Middle Channel									
447.925 0	84.73	Peak	H	16.20	5.70	33.22	73.41	101.27	27.86
	84.63	Average	H				73.31	81.27	7.96
Test Data for High Channel									
447.987 5	84.47	Peak	H	16.20	5.70	33.22	73.15	101.28	28.13
	84.31	Average	H				72.99	81.28	8.29

Tested by: Min-Gu Ji / Assistant Manager

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

5.2 Transmitter Transmission Duration

Humidity Level : 44 % R.H. Temperature: 23 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.231(a)

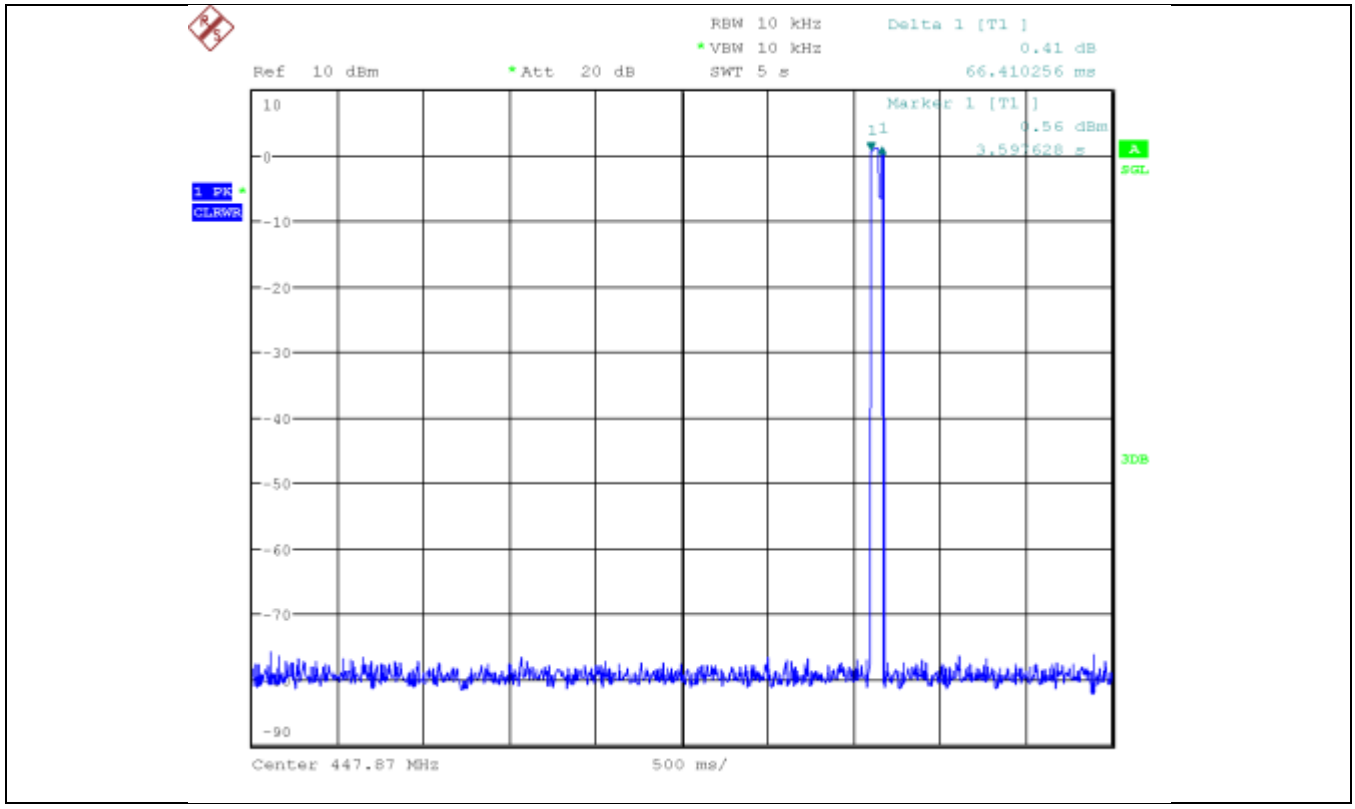
Result : PASSED

EUT : Aquarium Fish Robot Date: April 16, 2017

Operating Condition : Charging & Transmitting Mode

Distance : 3 m

Manually Activated Duration (s)	Limit (s)	Margin (s)	Result
0.07	5.00	4.93	Pass



Tested by: Min-Gu Ji / Assistant Manager

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

5.3 Spurious Emission Test

Radiated emission electric field intensity, 30 MHz ~ 300 MHz : ± 4.43 dB
Radiated emission electric field intensity, 300 MHz ~ 1 000 MHz : ± 3.80 dB
Measurement uncertainty is calculated in accordance with CISPR 16-4-2. The measurement uncertainty is given with a confidence of 95 % with the coverage factor, k = 2.

5.3.1 Test data for Blow 30 MHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 44 % R.H. Temperature: 23 °C
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.231(b)
Measurement Freq. Range : 9 kHz ~ 30 MHz
Result : PASSED

EUT : Aquarium Fish Robot Date: April 16, 2017
Operating Condition : Charging & Transmitting Mode
Distance : 3 m

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)
Any emissions less than 20 dB below the limit were not observed.									

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

5.3.2 Test data for 30 MHz to 1 000 MHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 44 % R.H. Temperature: 23 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.231(b)

Measurement Freq. Range : 30 MHz ~ 1 000 MHz

Result : PASSED

EUT : Aquarium Fish Robot Date: April 16, 2017

Operating Condition : Charging & Transmitting Mode

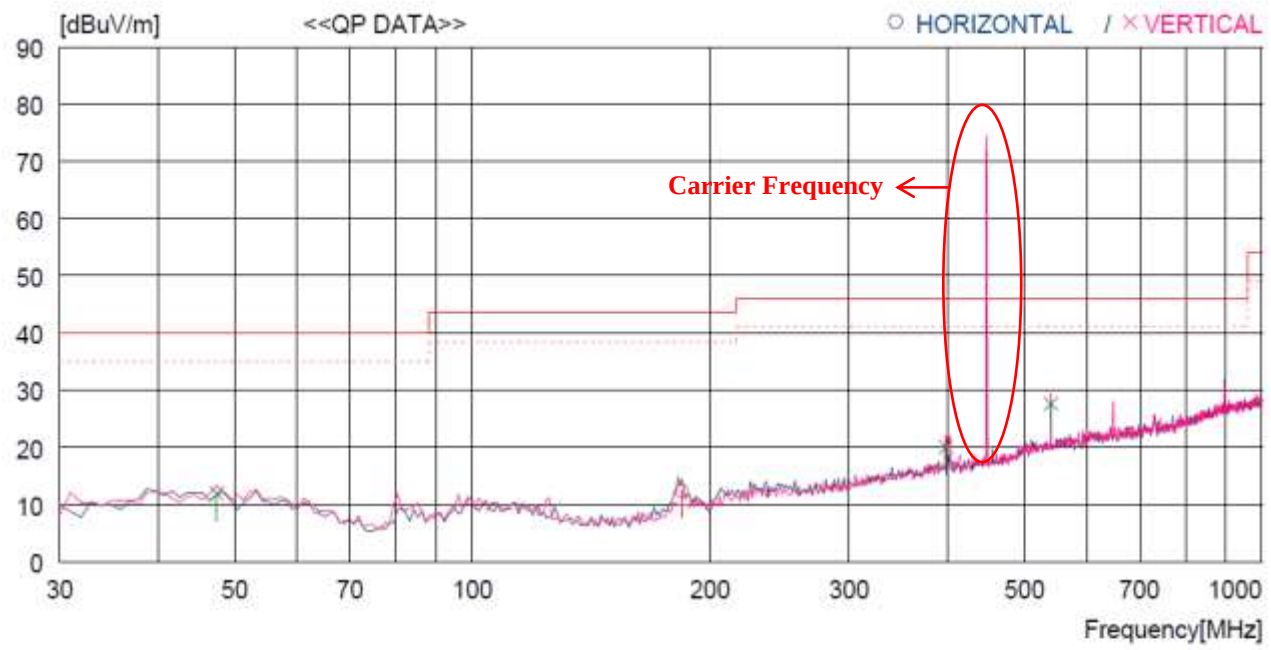
Distance : 3 m

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									
895.725	52.68	Peak	H	22.00	8.30	32.50	50.48	81.27	30.79
	39.91	Average	H				37.71	61.27	23.56
Test Data for Middle Channel									
895.850	53.46	Peak	H	22.00	8.30	32.50	51.26	81.27	30.01
	40.10	Average	H				37.90	61.27	23.37
Test Data for High Channel									
895.975	52.61	Peak	H	22.00	8.30	32.50	50.41	81.28	30.87
	39.95	Average	H				37.75	61.28	23.53

Tested by: Min-Gu Ji / Assistant Manager

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

- Test Plot (Worst Case)



No.	FREQ [MHz]	READING QP [dBuV]	ANT FACTOR [dB]	LOSS [dB]	GAIN [dB]	RESULT [dBuV/m]	LIMIT [dBuV/m]	MARGIN [dB]	ANTENNA [cm]	TABLE [DEG]
----- Horizontal ------										
1	184.230	31.6	10.2	3.6	33.0	12.4	43.5	31.1	300	0
----- Vertical ------										
2	47.460	28.6	14.3	2.0	33.0	11.9	40.0	28.1	100	359
3	397.630	32.1	15.8	5.3	33.2	20.0	46.0	26.0	300	359
4	540.220	36.2	17.9	6.8	33.3	27.6	46.0	18.4	300	224

Tested by: Min-Gu Ji / Assistant Manager

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

5.3.3 Test data for above 1 GHz

The following table shows the highest levels of radiated emissions on both polarizations of horizontal and vertical.

Humidity Level : 44 % R.H. Temperature: 23 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.209

Measurement Freq. Range : 1 GHz ~ 4 GHza

Result : PASSED

EUT : Aquarium Fish Robot Date: April 16, 2017

Operating Condition : Charging & Transmitting Mode

Distance : 3 m

Frequency (GHz)	Reading (dBµV)	Detector Mode	Ant. Pol. (H/V)	Ant. Factor	Cable Loss	Amp Gain	Total (dBµV/m)	Limits (dBµV/m)	Margin (dB)
1 343.587 5	36.36	Peak	H	25.05	7.20	40.03	28.58	74.00	45.42
	33.57	Average	H				25.79	54.00	28.21
1 791.450 0	42.77	Peak	H	25.50	8.70	40.22	36.75	74.00	37.25
	41.08	Average	H				35.06	54.00	18.94
1 343.775 0	36.31	Peak	H	25.05	7.20	40.03	28.53	74.00	45.47
	33.75	Average	H				25.97	54.00	28.03
1 791.700 0	42.79	Peak	H	25.50	8.70	40.22	36.77	74.00	37.23
	41.32	Average	H				35.30	54.00	18.70
1 343.962 5	36.26	Peak	H	25.05	7.20	40.03	28.48	74.00	45.52
	33.92	Average	H				26.14	54.00	27.86
1791.950 0	42.85	Peak	H	25.50	8.70	40.22	36.83	74.00	37.17
	41.14	Average	H				35.12	54.00	18.88

Tabulated test data for Restricted Band

Remark : “H”: Horizontal, “V”: Vertical

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

5.3.4 Limit

Frequency Range (MHz)	Limit @ 3 m
447.862 5	41.6667(447.862 5) – 7083.3333 = 11577.6 uV/m = 81.27 dBuV/m (Average) 101.27 dBuV/m (Peak)
Harmonics	61.27 dBuV/m (The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.)

Tested by: Min-Gu Ji / Assistant Manager

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

5.4 Bandwidth of the operating frequency

5.4.1 Test Data

Humidity Level : 44 % R.H. Temperature: 23 °C

Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.231(c)

Result : PASSED

EUT : Aquarium Fish Robot Date: April 16, 2017

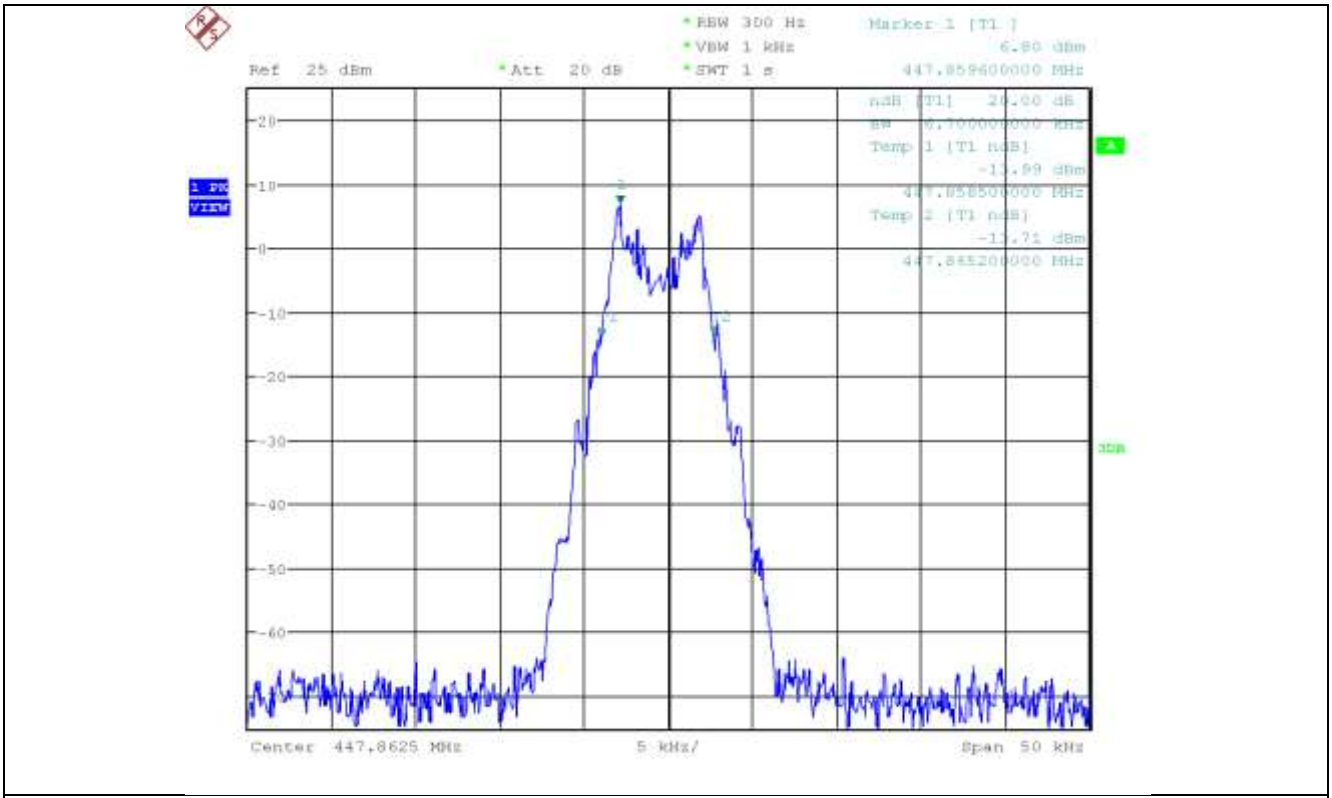
Operating Condition : Charging & Transmitting Mode

Minimum Resolution Bandwidth : 10 kHz

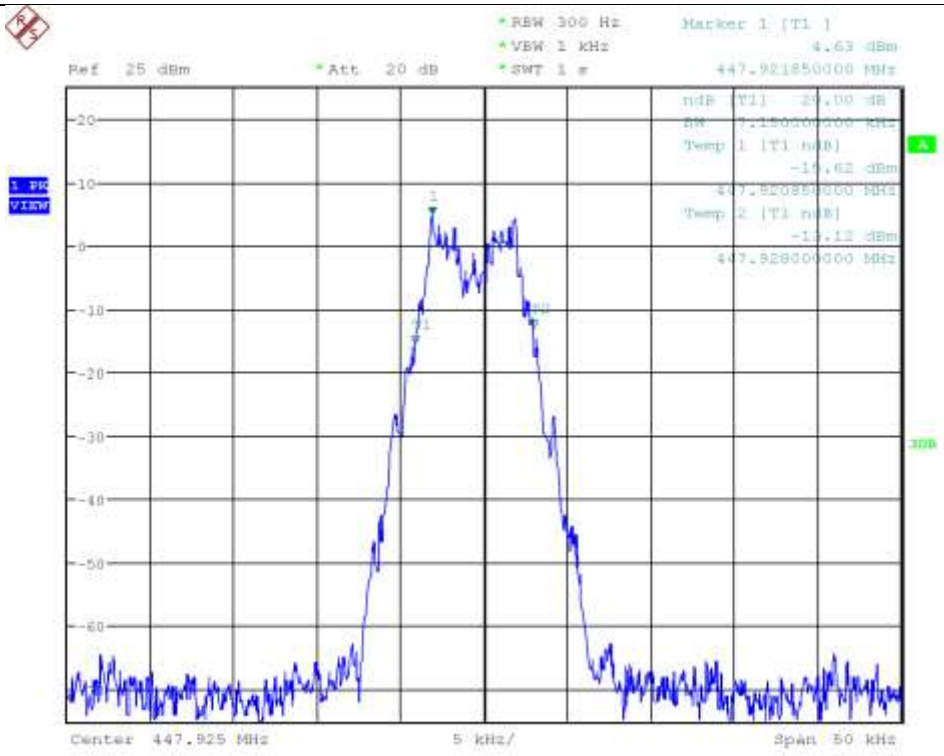
CHANNEL	FREQUENCY (MHz)	20 dB Bandwidth (kHz)	Limit
Low	447.862 5	6.70	111.97
Middle	447.925 0	7.15	111.98
High	447.987 5	6.75	112.00

Remark: Please refer to photo data for bandwidth for test data.

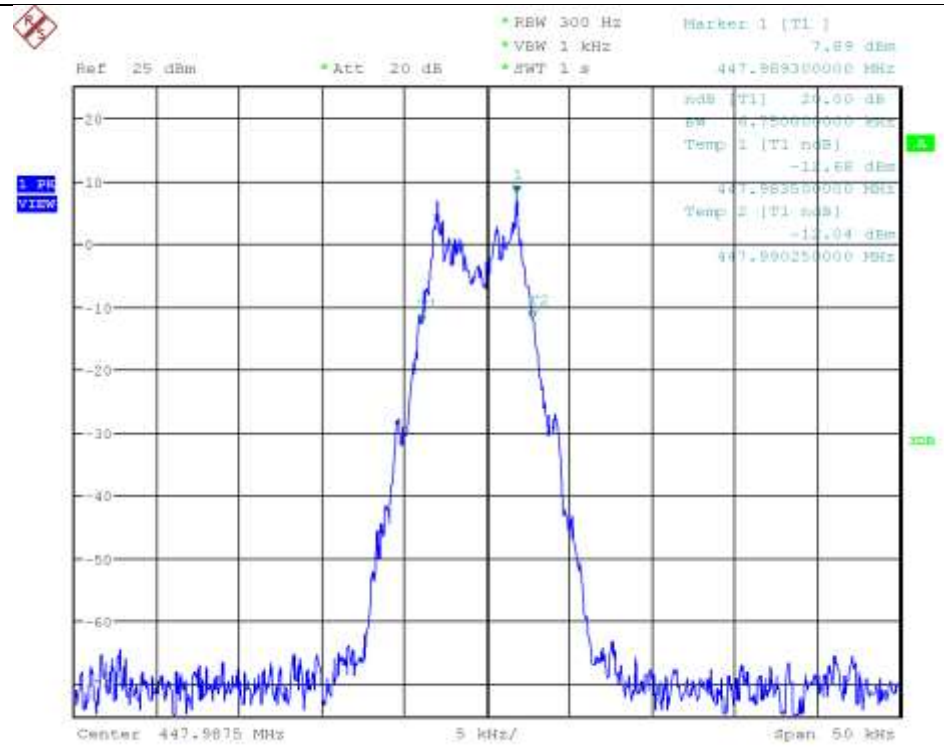
Tested by: Min-Gu Ji / Assistant Manager



Low Channel



Middle Channel



High Channel

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

5.4.2 Limit

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Tested by: Min-Gu Ji / Assistant Manager

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

5.5 Conducted Emission Test

5.5.1 Operating environment

Temperature	:	23 °C
Relative humidity	:	44 % R.H.

5.5.2 Test set-up

The EUT was placed on a wooden table, 0.8 m height above the floor. Power was fed to the EUT through a 50 Ω / 50 μH + 5 Ω Artificial Mains Network (AMN). The ground plane was electrically bonded to the reference ground system and all power lines were filtered from ambient.

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

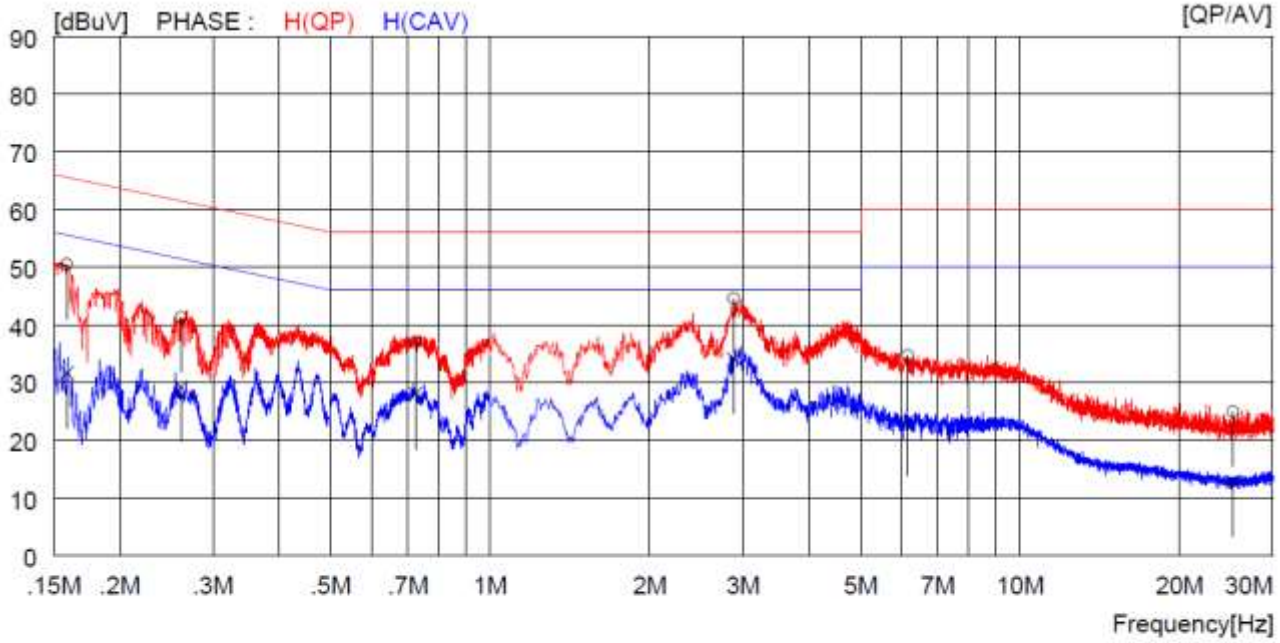
5.5.3 Test data

-. Test Date : April 16, 2017

-. Resolution bandwidth : 9 kHz

-. Frequency range : 0.15 MHz ~ 30 MHz

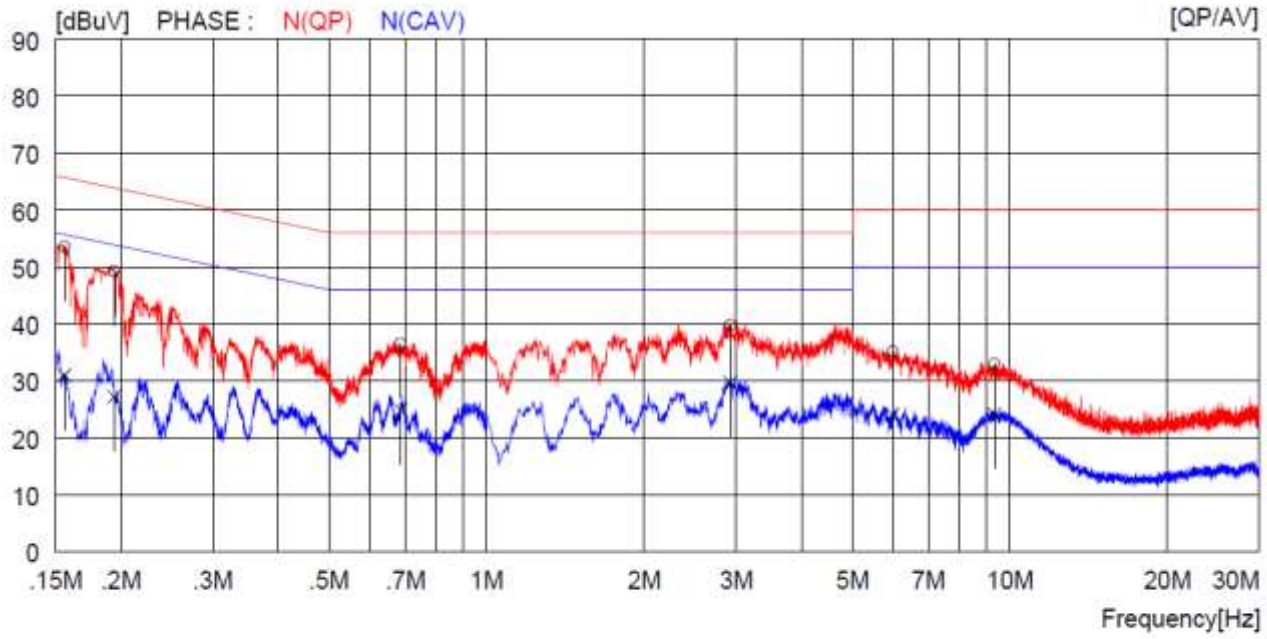
-. Tested Line : HOT LINE



NO	FREQ [MHz]	READING QP [dBuV]	READING AV [dBuV]	C.FACTOR [dB]	RESULT QP [dBuV]	RESULT AV [dBuV]	LIMIT QP [dBuV]	LIMIT AV [dBuV]	MARGIN QP [dBuV]	MARGIN AV [dBuV]	PHASE
1	0.15900	40.3	----	10.2	50.5	----	65.5	----	15.0	----	H(QP)
2	0.26100	31.2	----	10.1	41.3	----	61.4	----	20.1	----	H(QP)
3	0.72300	27.0	----	10.0	37.0	----	56.0	----	19.0	----	H(QP)
4	2.88800	34.5	----	10.1	44.6	----	56.0	----	11.4	----	H(QP)
5	6.15500	24.6	----	10.1	34.7	----	60.0	----	25.3	----	H(QP)
6	25.24000	14.5	----	10.4	24.9	----	60.0	----	35.1	----	H(QP)
7	0.15900	----	21.5	10.2	----	31.7	----	55.5	----	23.8	H(CAV)
8	0.26100	----	19.1	10.1	----	29.2	----	51.4	----	22.2	H(CAV)
9	0.72300	----	18.0	10.0	----	28.0	----	46.0	----	18.0	H(CAV)
10	2.88800	----	24.0	10.1	----	34.1	----	46.0	----	11.9	H(CAV)
11	6.15500	----	13.3	10.1	----	23.4	----	50.0	----	26.6	H(CAV)
12	25.24000	----	2.4	10.4	----	12.8	----	50.0	----	37.2	H(CAV)

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

-. Tested Line : NEUTRAL LINE



NO	FREQ	READING QP	READING AV	C.FACTOR	RESULT QP	RESULT AV	LIMIT QP	LIMIT AV	MARGIN QP	MARGIN AV	PHASE
	[MHz]	[dBuV]	[dBuV]	[dB]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	
1	0.15600	43.3	----	10.2	53.5	----	65.7	----	12.2	----	N(QP)
2	0.19400	39.1	----	10.1	49.2	----	63.9	----	14.7	----	N(QP)
3	0.68400	26.5	----	10.0	36.5	----	56.0	----	19.5	----	N(QP)
4	2.92400	29.7	----	10.1	39.8	----	56.0	----	16.2	----	N(QP)
5	5.97500	25.0	----	10.1	35.1	----	60.0	----	24.9	----	N(QP)
6	9.35000	22.9	----	10.1	33.0	----	60.0	----	27.0	----	N(QP)
7	0.15600	----	20.8	10.2	----	31.0	----	55.7	----	24.7	N(CAV)
8	0.19400	----	17.1	10.1	----	27.2	----	53.9	----	26.7	N(CAV)
9	0.68400	----	14.8	10.0	----	24.8	----	46.0	----	21.2	N(CAV)
10	2.92400	----	19.6	10.1	----	29.7	----	46.0	----	16.3	N(CAV)
11	5.97500	----	13.9	10.1	----	24.0	----	50.0	----	26.0	N(CAV)
12	9.35000	----	14.0	10.1	----	24.1	----	50.0	----	25.9	N(CAV)

Remark: Margin (dB) = Limit – Level (Result)

The emission level in above table is included the transducer factor that means insertion loss (LISN), cable loss and attenuator.

Tested by: Min-Gu Ji / Assistant Manager

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

6. FIELD STRENGTH CALCULATION

Meter readings are compared to the specification limit correcting for antenna and cable losses

+	Meter reading	(dBμV)
+	Cable Loss	(dB)
+	Antenna Factor (Loss)	(dB/m)
-	Amplifier Gain	(dB)
=	Corrected Reading	(dBμV/m)
-	Specification Limit	(dBμV/m)
=	dB Relative to Spec	(± dB)

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

7. LIST OF TEST EQUIPMENT

No.	EQUIPMENTS	MFR.	MODEL	SER. NO.	LAST CAL	DUE CAL	USE
1.	Test receiver	R/S	ESCI	101013	Apr. 04, 2017	12MONTH	■
2.	Test Receiver	R/S	ESR	101470	Feb. 08, 2017	12MONTH	■
3.	SPECTRUM ANALYZER	R/S	FSU26	200319	Apr. 04. 2017	12MONTH	■
4.	Amplifier	Sonoma Instrument	310N	312544	Apr. 04, 2017	12MONTH	■
7.	TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-419	Aug. 05, 2016	24MONTH	■
8.	Controller	Innco System	CO3000	CO3000/904/ 37211215/L	N/A	N/A	■
9.	Turn Table	Innco System	DT3000	930611	N/A	N/A	■
10.	Antenna Master	Innco System	MA-4000XPET	MA4000/509/ 37211215/L	N/A	N/A	■
12.	Pre-Amplifier	R/S	SCU-18	102209	May 31, 2016	12MONTH	■
13.	Horn Antenna	Schwarzbeck	BBHA9120D	BBHA9120D295	Aug. 31, 2015	24MONTH	■
14.	LOOP ANTENNA	Schwarzbeck	FMZB 1513	1513-235	Jun. 10, 2016	24MONTH	■

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