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

| | |
|---|---|
| **Test Report No.** | **: OT-206-RWD-002** |
| **AGR No.** | **: A204A-242** |
| **Applicant** | **: SEONG JI INDUSTRIAL CO., LTD** |
| **Address** | **: 54-33, Dongtanhana 1-gil, Gyeonggi-do, Hwaseong-si, South Korea** |
| **Manufacturer** | **: SEONG JI INDUSTRIAL CO., LTD** |
| **Address** | **: 54-33, Dongtanhana 1-gil, Gyeonggi-do, Hwaseong-si, South Korea** |
| **Type of Equipment** | **: Asset Tracker** |
| **FCC ID.** | **: 2AS8LIET10MO** |
| **Model Name** | **: IET10MO** |
| **Multiple Model Name** | **: N/A** |
| **Serial number** | **: N/A** |
| **Total page of Report** | **: 20 pages (including this page)** |
| **Date of Incoming** | **: May 20, 2020** |
| **Date of issue** | **: June 01, 2020** |

## 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: Tae-Ho, Kim / Senior Manager, ONETECH Corp.

Approved by: Ki-Hong, Nam / Chief Engineer, 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)

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## Revision History

| Rev. No. | Issue Report No. | Issued Date | Revisions | Section Affected |
|---|---|---|---|---|
| 0 | OT-206-RWD-002 | June 01, 2020 | Initial Release | All |
| | | | | |
| | | | | |



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# 1. VERIFICATION OF COMPLIANCE

Applicant : SEONG JI INDUSTRIAL CO., LTD
Address : 54-33, Dongtanhana 1-gil, Gyeonggi-do, Hwaseong-si, South Korea
Manufacturer : SEONG JI INDUSTRIAL CO., LTD
Address : 54-33, Dongtanhana 1-gil, Gyeonggi-do, Hwaseong-si, South Korea
Contact Person : Sangyoung, Lee / Senior researcher
Telephone No. : +82-70-7837-2853
FCC ID : 2AS8LIET10MO
Model Name : IET10MO
Brand Name : -
Serial Number : N/A
Date : June 01, 2020

| | |
|---|---|
| EQUIPMENT CLASS | DTS – DIGITAL TRNSMISSION SYSTEM |
| E.U.T. DESCRIPTION | Asset Tracker |
| 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<br>558074 D01 15.247 Meas Guidance v05r02 |
| 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.

 
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# 2. TEST SUMMARY

## 2.1 Test items and results

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

Note: The EUT have a RF Test already approved. (Model: SRM200A / FCC ID: 2AS8LSRM200A)

## 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-14617/ G-10666/ T-11842

ISED (Innovation, Science and Economic Development Canada) – Registration No. Site# 3736A-3

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 SEONG JI INDUSTRIAL CO., LTD, Model IET10MO (referred to as the EUT in this report) is a Asset Tracker. The product specification described herein was obtained from product data sheet or user's manual.

| | | | |
|---|---|---|---|
| DEVICE TYPE | Asset Tracker | | |
| Temperature Range | -30 °C ~ 60 °C | | |
| OPERATING FREQUENCY | Sig Fox | 902.137 5 MHz ~ 904.662 5 MHz (RC2)<br>920.737 5 MHz ~ 923.262 5 MHz (RC4) | |
| | Bluetooth LE | 2 402 MHz ~ 2 480 MHz | |
| | WLAN 2.4 GHz | 2 412 MHz ~ 2 462 MHz (802.11b/g/n(HT20)) | |
| MODULATION TYPE | Sig Fox | DBPSK | |
| | Bluetooth LE | GFSK | |
| | WLAN 2.4 GHz | 802.11b: DSSS Modulation(DBPSK/DQPSK/CCK)<br>802.11g/n(HT20): OFDM Modulation(BPSK/QPSK/16QAM/64QAM) | |
| RF OUTPUT POWER | Sig Fox | 25.364 dBm | |
| | Bluetooth LE | Peak | 3.68 dBm |
| | | Average | 3.60 dBm |
| | WLAN 2.4 GHz | Peak | 17.38 dBm(802.11b)<br>20.05 dBm(802.11g)<br>19.91 dBm(802.11n_HT20) |
| | | Average | 11.55 dBm(802.11b)<br>12.17 dBm(802.11g)<br>12.09 dBm(802.11n_HT20) |
| ANTENNA TYPE | | Sig Fox : Metal Antenna<br>Bluetooth LE / WLAN 2.4 GHz : Chip Antenna<br>GPS : Ceramic Patch Antenna | |
| ANTENNA GAIN | | Sig Fox: 2.50 dBi<br>Bluetooth LE: 2.50 dBi<br>WLAN 2.4 GHz: 2.50 dBi | |
| List of each Osc. or crystal Freq.(Freq. >= 1 MHz) | | 32.768 kHz, 26 MHz, 32 MHz | |

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

-. None

 

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## 4. EUT MODIFICATIONS

-. None

 

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# 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 | SEONG JI INDUSTRIAL CO., LTD | IET10MO Rev0.9b | N/A |
| Module | SEONG JI INDUSTRIAL CO., LTD | SRM200A | 2AS8LSRM200A |

## 5.2 Peripheral equipment

Defined as equipment needed for correct operation of the EUT, but not considered as tested:

| Model | Manufacturer | Description | Connected to |
|---|---|---|---|
| IET10MO | SEONG JI INDUSTRIAL CO., LTD | Asset Tracker(EUT) | - |
| nRF52840-Preview-DK | NORDIC SEMICONDUCTOR | Jig Board | EUT |
| T10 DL Board V3 | N/A | Jig Board | EUT |
| HP Probook | HP | Notebook PC | - |
| PPP009C | LIE-ON TECHNOLOGY (CHANGZHOU)CO.,LTD. | AC Adapter | - |

## 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 2 402 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.

 

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-. Channel List(Bluetooth LE)

| Channel | Frequency[MHz] | Channel | Frequency[MHz] | Channel | Frequency[MHz] |
|---|---|---|---|---|---|
| 0 | 2 402.00 | 14 | 2 430.00 | 28 | 2 458.00 |
| 1 | 2 404.00 | 15 | 2 432.00 | 29 | 2 460.00 |
| 2 | 2 406.00 | 16 | 2 434.00 | 30 | 2 462.00 |
| 3 | 2 408.00 | 17 | 2 436.00 | 31 | 2 464.00 |
| 4 | 2 410.00 | 18 | 2 438.00 | 32 | 2 466.00 |
| 5 | 2 412.00 | 19 | 2 440.00 | 33 | 2 468.00 |
| 6 | 2 414.00 | 20 | 2 442.00 | 34 | 2 470.00 |
| 7 | 2 416.00 | 21 | 2 444.00 | 35 | 2 472.00 |
| 8 | 2 418.00 | 22 | 2 446.00 | 36 | 2 474.00 |
| 9 | 2 420.00 | 23 | 2 448.00 | 37 | 2 476.00 |
| 10 | 2 422.00 | 24 | 2 450.00 | 38 | 2 478.00 |
| 11 | 2 424.00 | 25 | 2 452.00 | 39 | 2 480.00 |
| 12 | 2 426.00 | 26 | 2 454.00 | | |
| 13 | 2 428.00 | 27 | 2 456.00 | | |

 

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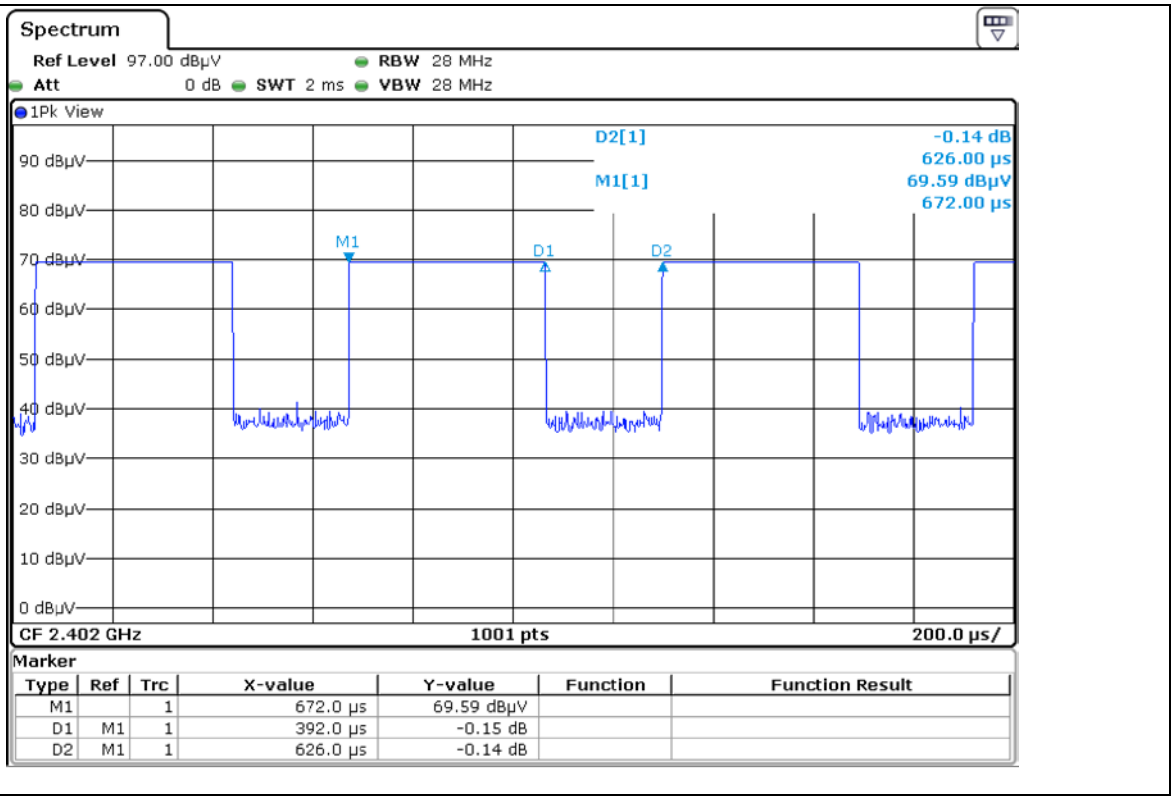
-. Duty Cycle

| Mode | Tx On Time [ ms ] | Tx Off Time [ ms ] | Duty Cycle [ % ] | Correction Factor [ dB ] |
|---|---|---|---|---|
| Bluetooth LE | 0.392 | 0.234 | 62.62 | 2.03 |

Note – Duty Cycle : (Tx On Time / (Tx On Time + Tx Off Time)) * 100

Correction Factor : 10 * Log(1 / (Duty Cycle / 100))

-. Test Plot



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### 5.4 Configuration of Test System

**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 Chip Antenna on the main board in the EUT, so no consideration of replacement by the user.

## 6. PRELIMINARY TEST

### 6.1 General Radiated Emissions Tests

During Preliminary Test, the following operating mode was investigated.

| Operation Mode | The Worse operating condition (Please check one only) |
|---|---|
| Transmitting Mode | X |

# 7. 100 kHz BANDWIDTH OUTSIDE THE FREQUENCY BAND

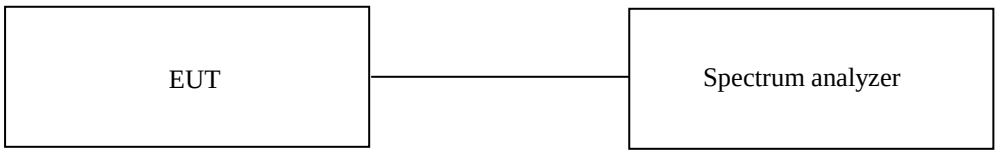
## 7.1 Operating environment

Temperature : 24.3 °C

Relative humidity : 43.9 % R.H.

## 7.2 Test set-up for conducted measurement

The antenna output of the EUT was connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz, the video bandwidth is set to 3 times the resolution bandwidth and peak detection was used.




## 7.3 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.

## 7.4 Test equipment used

| | Model Number | Manufacturer | Description | Serial Number | Last Cal. |
|---|---|---|---|---|---|
| ■ - | FSV40 | Rohde & Schwarz | Signal Analyzer | 101009 | Feb. 21, 2020 (1Y) |
| ■ - | ESW | Rohde & Schwarz | EMI Test Receiver | 101851 | Aug. 07, 2019 (1Y) |
| ■ - | 310N | Sonoma Instrument | Pre-Amplifier | 312544 | Mar. 16, 2020 (1Y) |
| ■ - | BBV 9718B | Schwarzbeck | Broadband Preamplifier | 00009 | Mar. 16, 2020 (1Y) |
| ■ - | SCU40A | Rohde & Schwarz | Signal Conditioning unit | 100436 | Feb. 20, 2020 (1Y) |
| ■ - | SCU18 | Rohde & Schwarz | Signal Conditioning unit | 102266 | Jul. 24, 2019 (1Y) |
| ■ - | DT3000-3t | Innco System | Turn Table | DT3000/093 | N/A |
| ■ - | MA-4000XPET | Innco System | Antenna Master | MA4000/509 | N/A |
| ■ - | VULB9163 | Schwarzbeck | TRILOG Broadband Antenna | 777 | Apr. 08, 2020 (2Y) |
| ■ - | BBHA9120D | Schwarzbeck | Horn Antenna | 9120D-1366 | Jul. 16, 2019 (1Y) |
| ■ - | BBHA9170 | Schwarzbeck | Horn Antenna | BBHA9170178 | Jan. 07, 2020 (1Y) |

All test equipment used is calibrated on a regular basis.

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## 7.5 Test data for radiated emission

### 7.5.1 Radiated Emission which fall in the Restricted Band

-. Test Date : May 21, 2020 ~ May 25, 2020

-. Resolution bandwidth : 1 MHz and Peak Detector for Peak Mode

1 MHz and RMS Detector for Average Mode

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Measurement distance : 3 m

-. Duty Cycle : 62.62 %

-. Result : PASSED

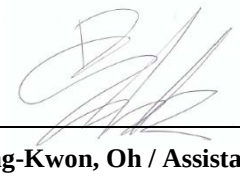
| Frequency (MHz) | Reading (dBμV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Correction Factor | Total (dBμV/m) | Limits (dBμV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Test Data for Low Channel** | | | | | | | | | |
| 2 390.000 | 17.69 | Peak | H | 26.94 | 9.20 | - | 53.83 | 74.00 | 20.17 |
| 2 390.000 | 6.15 | Average | H | 26.94 | 9.20 | 2.03 | 44.32 | 54.00 | 9.68 |
| 2 390.000 | 17.42 | Peak | V | 26.94 | 9.20 | - | 53.56 | 74.00 | 20.44 |
| 2 390.000 | 5.97 | Average | V | 26.94 | 9.20 | 2.03 | 44.14 | 54.00 | 9.86 |
| **Test Data for High Channel** | | | | | | | | | |
| 2 483.508 | 33.87 | Peak | H | 27.47 | 9.49 | - | 70.83 | 74.00 | 3.17 |
| 2 483.508 | 10.23 | Average | H | 27.47 | 9.49 | 2.03 | 49.22 | 54.00 | 4.78 |
| 2 483.508 | 33.21 | Peak | V | 27.47 | 9.49 | - | 70.17 | 74.00 | 3.83 |
| 2 483.508 | 10.10 | Average | V | 27.47 | 9.49 | 2.03 | 49.09 | 54.00 | 4.91 |

Tabulated test data for Restricted Band

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

Margin (dB) = Limits (dBμV/m) - Total Level (dBμV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor



**Tested by: Hyung-Kwon, Oh / Assistant Manager**

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### 7.5.2 Spurious & Harmonic Radiated Emission

-. Test Date : May 21, 2020 ~ May 25, 2020

-. Resolution bandwidth : 1 MHz for Peak and Average Mode for the emissions fall in restricted band,
1 MHz for Peak Mode for the emissions outside restricted band

-. Video bandwidth : 3 MHz for Peak and Average Mode

-. Frequency range : 1 GHz ~ 26.5 GHz

-. Measurement distance : 3 m

-. Duty Cycle : 62.62 %

-. Result : PASSED

| Frequency (GHz) | Reading (dBµV) | Detector Mode | Ant. Pol. (H/V) | Ant. Factor | Cable Loss | Correction Factor | Total (dBµV/m) | Limits (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|---|
| **Test Data for Low Channel** | | | | | | | | | |
| 4 804.00 | 14.32 | Peak | H | 28.84 | 10.31 | - | 53.47 | 74.00 | 20.53 |
| 4 804.00 | 5.12 | Average | H | 28.84 | 10.31 | 2.03 | 46.30 | 54.00 | 7.70 |
| 4 804.00 | 14.17 | Peak | V | 28.84 | 10.31 | - | 53.32 | 74.00 | 20.68 |
| 4 804.00 | 5.22 | Average | V | 28.84 | 10.31 | 2.03 | 46.40 | 54.00 | 7.60 |
| **Test Data for Middle Channel** | | | | | | | | | |
| 4 880.00 | 14.36 | Peak | H | 28.01 | 10.43 | - | 52.80 | 74.00 | 21.20 |
| 4 880.00 | 4.89 | Average | H | 28.01 | 10.43 | 2.03 | 45.36 | 54.00 | 8.64 |
| 4 880.00 | 14.26 | Peak | V | 28.01 | 10.43 | - | 52.70 | 74.00 | 21.30 |
| 4 880.00 | 5.35 | Average | V | 28.01 | 10.43 | 2.03 | 45.82 | 54.00 | 8.18 |
| **Test Data for High Channel** | | | | | | | | | |
| 4 960.00 | 14.46 | Peak | H | 29.15 | 10.81 | - | 54.42 | 74.00 | 19.58 |
| 4 960.00 | 5.03 | Average | H | 29.15 | 10.81 | 2.03 | 47.02 | 54.00 | 6.98 |
| 4 960.00 | 14.09 | Peak | V | 29.15 | 10.81 | - | 54.05 | 74.00 | 19.95 |
| 4 960.00 | 4.96 | Average | V | 29.15 | 10.81 | 2.03 | 46.95 | 54.00 | 7.05 |

Tabulated test data for Restricted Band

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

Margin (dB) = Limits (dBµV/m) - Total Level (dBµV/m)

Total Level = Reading + Antenna Factor + Cable Loss + Correction Factor

**Tested by: Hyung-Kwon, Oh / Assistant Manager**

 

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# 8. RADIATED EMISSION TEST

## 8.1 Operating environment

Temperature : 24 °C

Relative humidity : 43 % R.H.

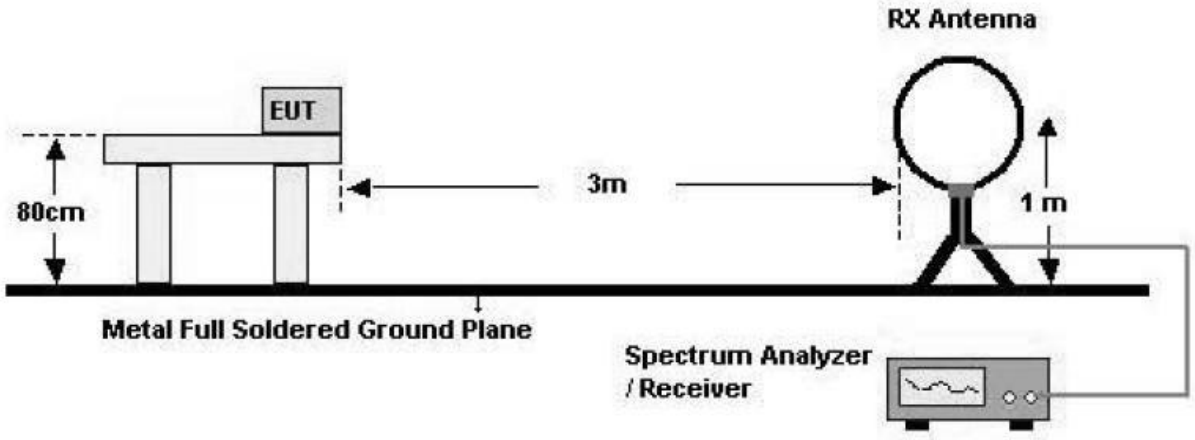
## 8.2 Test set-up

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.

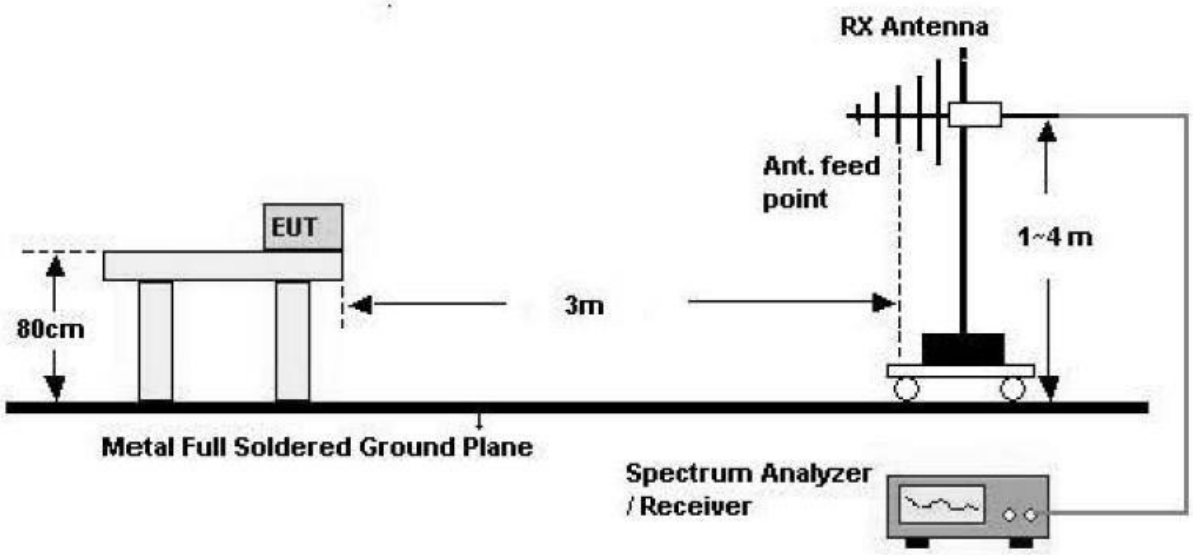
The frequency spectrum from 30 MHz to 26.5 GHz was scanned and emission levels maximized at each frequency recorded. The system was rotated 360°, and the antenna was varied in height between 1.0 m and 4.0 m in order to determine the maximum emission levels. This procedure was performed for both horizontal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

**- Test Configuration**

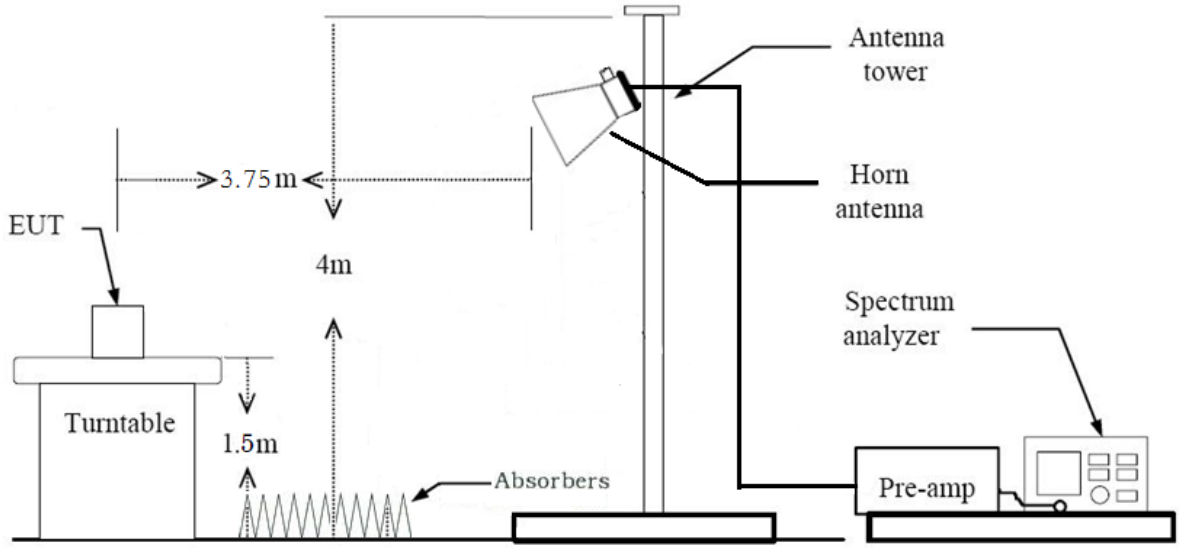
1. Below 30 MHz



2. 30 MHz - 1 GHz




3. Above 1 GHz



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## 8.3 Test equipment used

| | Model Number | Manufacturer | Description | Serial Number | Last Cal. |
|---|---|---|---|---|---|
| ■ - | FSV40 | Rohde & Schwarz | Signal Analyzer | 101009 | Feb. 21, 2020 (1Y) |
| ■ - | ESW | Rohde & Schwarz | EMI Test Receiver | 101851 | Aug. 07, 2019 (1Y) |
| ■ - | 310N | Sonoma Instrument | Pre-Amplifier | 312544 | Mar. 16, 2020 (1Y) |
| ■ - | BBV 9718B | Schwarzbeck | Broadband Preamplifier | 00009 | Mar. 16, 2020 (1Y) |
| ■ - | SCU40A | Rohde & Schwarz | Signal Conditioning unit | 100436 | Feb. 20, 2020 (1Y) |
| ■ - | SCU18 | Rohde & Schwarz | Signal Conditioning unit | 102266 | Jul. 24, 2019 (1Y) |
| ■ - | DT3000-3t | Innco System | Turn Table | DT3000/093 | N/A |
| ■ - | MA-4000XPET | Innco System | Antenna Master | MA4000/509 | N/A |
| ■ - | VULB9163 | Schwarzbeck | TRILOG Broadband Antenna | 777 | Apr. 08, 2020 (2Y) |
| ■ - | BBHA9120D | Schwarzbeck | Horn Antenna | 9120D-1366 | Jul. 16, 2019 (1Y) |
| ■ - | BBHA9170 | Schwarzbeck | Horn Antenna | BBHA9170178 | Jan. 07, 2020 (1Y) |

All test equipment used is calibrated on a regular basis.

 

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## 8.4 Test data

### 8.4.1 Test data for 30 MHz ~ 1 GHz

Humidity Level : 43 % R.H. Temperature: 24 °C

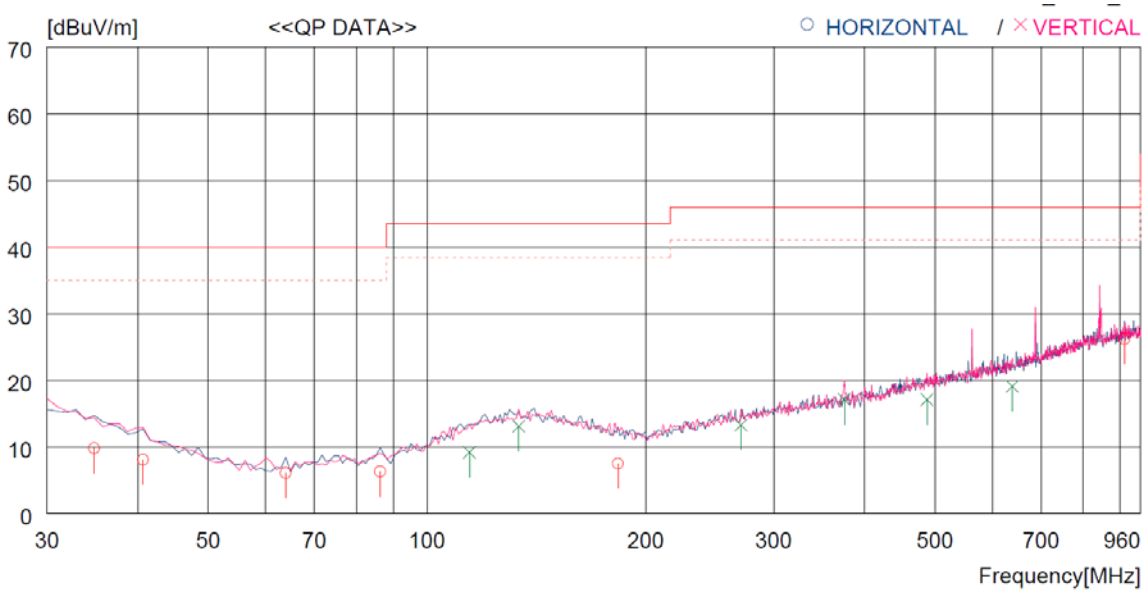
Limits apply to : FCC CFR 47, PART 15, SUBPART C, SECTION 15.247

Result : PASSED

EUT : Asset Tracker Date: May 21, 2020 ~ May 25, 2020

Detector : CISPR Quasi-Peak (6 dB Bandwidth: 120 kHz)

Operating mode : Transmitting mode




| 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 | 34.850 | 22.9 | 18.1 | 1.3 | 32.5 | 9.8 | 40.0 | 30.2 | 400 | 0 |
| 2 | 40.670 | 20.2 | 19.0 | 1.4 | 32.5 | 8.1 | 40.0 | 31.9 | 400 | 0 |
| 3 | 63.950 | 18.3 | 18.6 | 1.7 | 32.5 | 6.1 | 40.0 | 33.9 | 400 | 60 |
| 4 | 86.260 | 22.9 | 14.0 | 1.9 | 32.5 | 6.3 | 40.0 | 33.7 | 400 | 338 |
| 5 | 183.260 | 20.2 | 17.2 | 2.6 | 32.5 | 7.5 | 43.5 | 36.0 | 100 | 359 |
| 6 | 911.719 | 22.8 | 29.1 | 5.9 | 31.6 | 26.2 | 46.0 | 19.8 | 100 | 359 |
| ----- Vertical ------ | | | | | | | | | | |
| 7 | 114.390 | 23.3 | 16.2 | 2.2 | 32.5 | 9.2 | 43.5 | 34.3 | 300 | 0 |
| 8 | 133.790 | 25.5 | 17.9 | 2.2 | 32.5 | 13.1 | 43.5 | 30.4 | 300 | 330 |
| 9 | 270.560 | 24.1 | 18.4 | 3.2 | 32.4 | 13.3 | 46.0 | 32.7 | 100 | 83 |
| 10 | 375.320 | 24.8 | 21.0 | 3.8 | 32.5 | 17.1 | 46.0 | 28.9 | 100 | 191 |
| 11 | 487.841 | 22.0 | 23.5 | 4.2 | 32.6 | 17.1 | 46.0 | 28.9 | 300 | 0 |
| 12 | 639.157 | 20.7 | 26.1 | 4.9 | 32.6 | 19.1 | 46.0 | 26.9 | 100 | 108 |

**Tested by: Hyung-Kwon, Oh / Assistant Manager**

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### 8.4.2 Test data for Below 30 MHz

-. Test Date : May 21, 2020 ~ May 25, 2020

-. 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 (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) |
|---|---|---|---|---|---|---|---|---|---|
| Emission from the EUT more than 20 dB below the limit in each frequency range. | | | | | | | | | |

### 8.4.3 Test data for above 1 GHz

-. Test Date : May 21, 2020 ~ May 25, 2020

-. Resolution bandwidth : 1 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) |
|---|---|---|---|---|---|---|---|---|---|
| Emission from the EUT more than 20 dB below the limit in each frequency range. | | | | | | | | | |

**Tested by: Hyung-Kwon, Oh / Assistant Manager**

 

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