

FCC PART 15.231
EMI MEASUREMENT AND TEST REPORT
For
ERIC INDUSTRIAL (HANGZHOU) CO.,LTD.

No.12, Jianshe 3rd Road, Shibei District, Xiaoshan Economic And Technological Development Zone, Xiaoshan District, Hangzhou City, Zhejiang Province, 311215 P.R.C.

FCC ID:X43E3-AK

Jan. 27, 2010

| | |
|--|--|
| This Report Concerns: Original Report | Equipment Type : REMOTE TRANSMITTER |
| Test Engineer: | Eric Li <i>Eric Li</i> |
| Report No.: | <u>BST10012271827R-3</u> |
| Receive EUT Date/Test Date: | <u>Jan.18,2010/ Jan.18,2010-Jan.27,2010</u> |
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1. GENERAL INFORMATION

1.1. Report information

1.1.1. This report is not a certificate of quality; it only applies to the sample of the specific product/equipment given at the time of its testing. The results are not used to indicate or imply that they are application to the similar items. In addition, such results must not be used to indicate or imply that BST approves recommends or endorses the manufacture, supplier or use of such product/equipment, or that BST in any way guarantees the later performance of the product/equipment.

1.1.2. The sample/s mentioned in this report is/are supplied by Applicant, BST therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture or any information supplied.

Additional copies of the report are available to the Applicant at an additional fee. No third part can obtain a copy of this report through BST, unless the applicant has authorized BST in writing to do so.

Test Facility -

The test site used to collect the radiated data is located on the address of
emitel (Shenzhen) Limited
(FCC Registered Test Site Number: 746887) on
Building 2, 171 Meihua Road, Futian District, Shenzhen, 518049 China
The Test Site is constructed and calibrated to meet the FCC requirements.

1.2. Measurement Uncertainty

Available upon request.

2. PRODUCT DESCRIPTION

2.1. EUT Description

Description : REMOTE TRANSMITTER
Applicant : ERIC INDUSTRIAL (HANGZHOU) CO.,LTD.
Model Number : E3-AK

Additonal Information

Frequency : 433.92MHz
Power Supply : DC3V (Supplied by battery)
Maximum : N/A
Range
Transmitter : -
Antenna
Current N/A
Consumption

2.2. Block Diagram of EUT Configuration



2.3. Support Equipment List

| | | |
|----|----|-------|
| 1. | -- | ----- |
| 2. | -- | ----- |
| 3. | -- | ----- |

2.4. Test Conditions

Temperature: 23~25

Relative Humidity: 55~63 %

3. FCC ID LABEL

FCC ID: X43E3-AK

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- 1. This device may not cause harmful interference, and**
- 2. This device must accept any interference received, including interference that may cause undesired operation.**

Label Location on EUT

EUT Bottom View/ FCC ID Label Location



4. TEST RESULTS SUMMARY

FCC 15 Subpart C,Paragraph 15.231

| Test Standards | Test Items | Test Results |
|----------------|-------------------------|--------------|
| | Conducted test | N/A |
| §15.231 (b) | Radiated Emission | Pass |
| §15.231 (c) | 20dB Band Width Testing | Pass |
| §15.231 (a) | Deactivation Testing | Pass |
| §15.203 | ANTENNA REQUIREMENT | Pass |
| | | |

Remark: "N/A" means "Not applicable."

Modifications

No modification was made.

5. TEST EQUIPMENT USED

| Equipment/Facilities | Manufacturer | Model # | Serial no. | Date of Cal. | Cal. Interval |
|---------------------------------|--------------------|--------------|------------|---------------|---------------|
| Cable | Resenberger | N/A | NO.1 | Mar 10 , 2009 | 1 Year |
| Cable | SCHWARZBECK | N/A | NO.2 | Mar 10 , 2009 | 1 Year |
| Cable | SCHWARZBECK | N/A | NO.3 | Mar 10 , 2009 | 1 Year |
| LISN | Rohde & Schwarz | ESH3-Z5 | 100305 | Mar 10 , 2009 | 1 Year |
| 50 Coaxial Switch | ANRITSU CORP | MP59B | 6200283933 | Mar 10, 2009 | 1 Year |
| EMI Test Receiver | Rohde & Schwarz | ESP13 | 100180 | Oct.11,2009 | 1 Year |
| Spectrum Analyzer | Rohde & Schwarz | FSP40 | 100273 | Sep.10,2009 | 1 Year |
| 3m Semi-Anechoic Chamber | Albatross Projects | 9mx6mx6m | N/A | Feb.20,2009 | 1 Year |
| Signal Generator | FLUKE | PM5418 + Y/C | LO747012 | Feb.20,2009 | 1 Year |
| Signal Generator | FLUKE | PM5418TX | LO738007 | Feb.20,2009 | 1 Year |
| Loop Antenna | SCHWARZBECK | FMZB1516 | 113 | Jan.30,2009 | 1 Year |
| Trilog-Super Broadband Antenna | SCHWARZBECK | VULB9161 | 9161-4079 | Sep.22,2009 | 1 Year |
| Broad-Band Horn Antenna | SCHWARZBECK | BBHA9120D | 9120D-564 | Sep.22,2009 | 1 Year |
| Ultra Broadband Antenna | Rohde & Schwarz | HL-562 | 100110 | June.15,2009 | 1 Year |
| AMN | Rohde & Schwarz | ESH3-Z5 | 100196 | Oct.11,2009 | 1 Year |
| AMN | Rohde & Schwarz | ESH3-Z5 | 100197 | Oct.11,2009 | 1 Year |
| Pulse Limiter | Rohde & Schwarz | ESH3-Z2 | N/A | N/A | N/A |
| Power Meter | Rohde & Schwarz | NRVD | 100041 | Feb.20,2009 | 1 Year |
| EMI Test Receiver | Rohde & Schwarz | ESCS30 | 100003 | Feb.20,2009 | 1 Year |
| Coaxial Cable with N-connectors | SCHWARZBECK | AK9515H | 95549 | Sep.22,2009 | 1 Year |
| Radio Communication Test Set | Rohde & Schwarz | CMS 54 | 846621/024 | Feb.20,2009 | 1 Year |
| Modulation Analyzer | Hewlett-Packard | 8901B | 2303A00362 | Feb.20,2009 | 1 Year |
| Absorbing clamp | Rohde & Schwarz | MDS-21 | N/A | Oct.11,2009 | 1 Year |

6. CONDUCTED POWER LINE TEST

6.1. Test Equipment

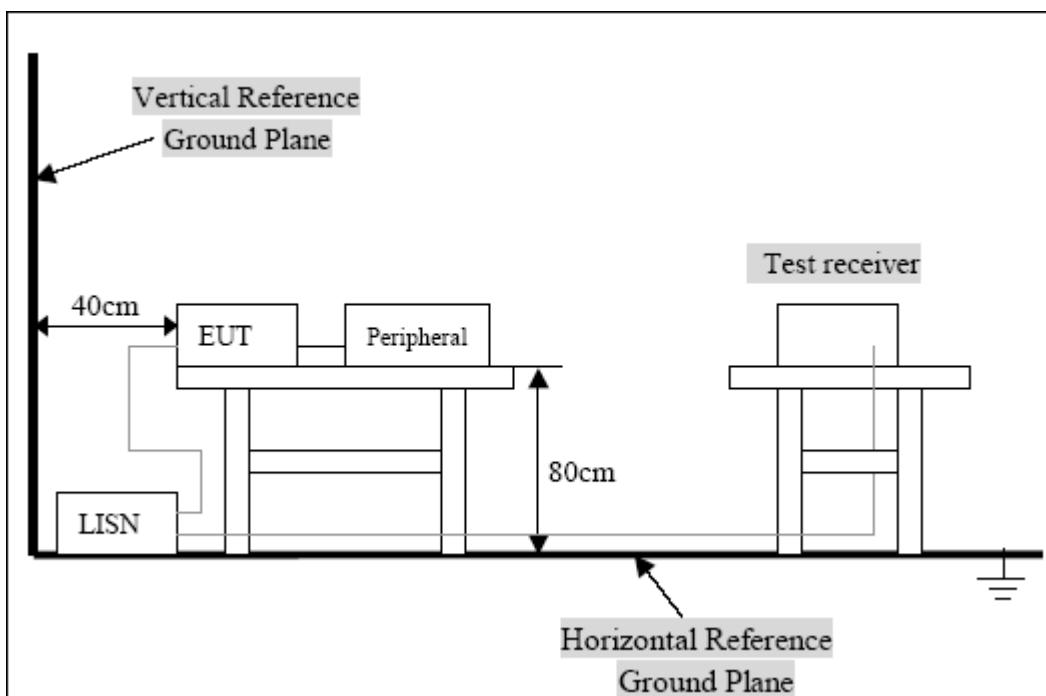
Please refer to section 4 this report.

6.2. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.).This provides a 50ohm/50uh coupling impedance for the measuring equipment.The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uh coupling impedance with 50ohm termination.

Both sides of A.C. Line are check for maximum conducted interference.In order to find the maximum emission,the relative positions of equipment and all of the interface cables must be changed according to ASIN C63.4:2009 on conducted measurement .Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9Khz.

6.3. Test Setup



For the actual test configuration,Please refer to the related items-Photos of testing

6.4. Configuring of the EUT

The EUT was configured according to ASIN C63.4:2009. Enable the signal transmitted from the external antenna from EUT to receiver. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

Note:

Below 1GHZ, the channel low, middle, high were pre-tested, The channel low, worst case one, was chosen for conducted and radiated emission test.

Above 1GHZ, the channel low ,middle, high were tested individually.

A.EUT

| Device | Manufacturer | Model # | FCC ID |
|--------------------|-------------------------------------|---------|----------|
| REMOTE TRANSMITTER | ERIC INDUSTRIAL (HANGZHOU) CO.,LTD. | E3-AK | X43E3-AK |

B.Internal Devices

| Device | Manufacturer | Model # | FCC ID |
|--------|--------------|---------|--------|
| N/A | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

C.Peripherals

| Device | Manufacturer | Model # Serial # | FCC ID/ Doc | Cable |
|--------|--------------|---------------------|----------------|-------|
| N/A | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

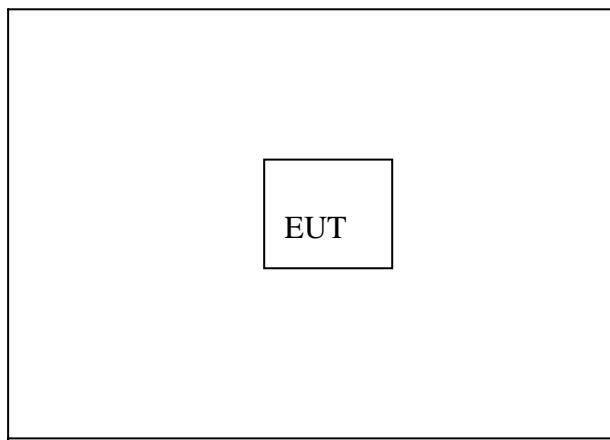
6.5. EUT Operating Condition

Operating condition is according to ANSI C63.4-2009.

Setup the EUT and simulators as shown on follow.

Enable RF signal and confirm EUT active.

Modulate output capacity of EUT up to specification.



6.6. Conducted Power line Emission Limits

| FCC Part 15 Paragraph 15.207 (dBuv) | | |
|-------------------------------------|---------------|---------------|
| Frequency Range (MHZ) | Class A QP/AV | Class B QP/AV |
| 0.15-0.5 | 79/66 | 65-56/56-46 |
| 0.5-5.0 | 73/60 | 56/46 |
| 5.0-30 | 73/60 | 60/50 |

Note: In the above table, the tighter limit applies at the band edges.

6.7. Conducted Power Line Test Result

N/A(The EUT Supplied by battery)

7. RADIATION EMISSIONS

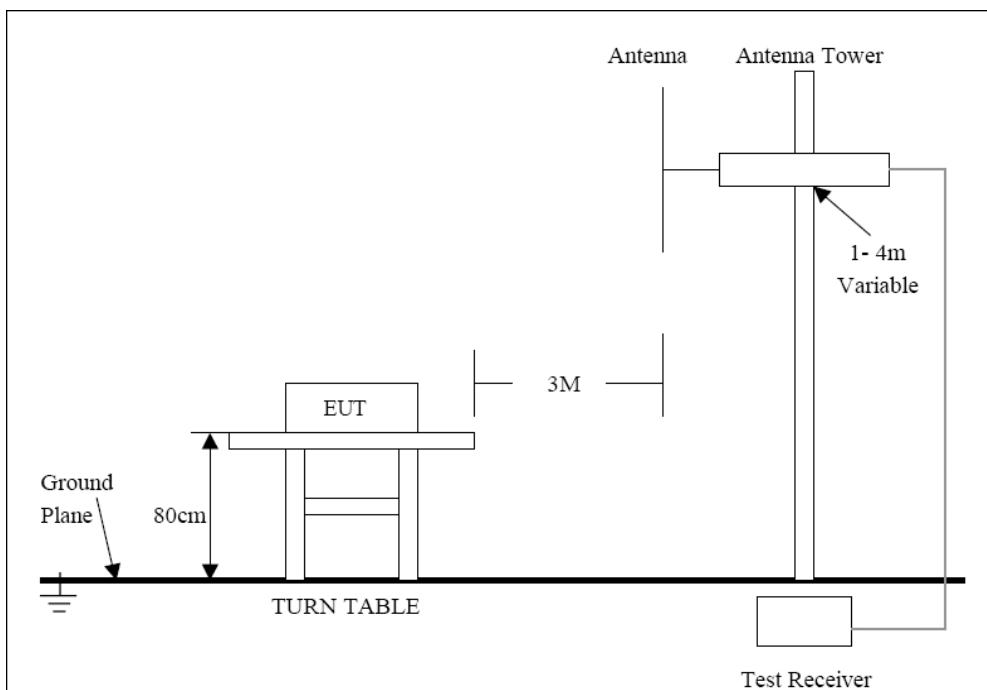
7.1. Test Equipment

Please refer to section 4 this report.

7.2. Test Procedure

The emission tests were performed in the 3-meter chamber test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC Part Subpart C limits. through three orthogonal axes to determine which attitude and equipment arrangement produces the highest emission relative to the limit.

7.3. Radiated Test Setup



Setup below 3mMHz, refer to 7.3; For the accrual test configuration, please refer to the related items-photos of Testing.

7.4. Radiated Emission Limit

According to §15.231(b), the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

| Fundamental frequency (MHz) | Field Strength of Fundamental (Microvolts /meter) | Field Strength of spurious emissions (Microvolts /meter) |
|-----------------------------|---|--|
| 40.66-40.70 | 2,250..... | 225 |
| 70-130..... | 1,250..... | 125 |
| 130-174..... | 1,250 to 3,370..... | 125 to 375 |
| 174-260..... | 3,750 | 375 |
| 260-470..... | 3,750 to 12,500..... | 375 to 1,250 |
| Above 470 | 12,500..... | 1,250 |

Linear interpolations for frequency ranges 130 - 174 MHz and 260 - 470 MHz.

The above field strength limits are specified at a distance of 3-meters the tighter limits apply at the band edges.

7.5. Radiated Emission Test Result

Temperature: 25

Humidity: 56%RH

Test Result: PASS

| Frequency (MHz) | Antenna Polarization | Emission Level (PK)(dBuV/m) | FCC 15 Subpart C Limit (AV)(dBuV/m) |
|-----------------|----------------------|-----------------------------|-------------------------------------|
| 433.92 | V | 64.40 | 80.8 |
| 433.92 | H | 60.21 | 80.8 |
| 867.64 | V | 44.42 | 60.8 |
| 867.64 | H | 42.23 | 60.8 |
| 1301.76 | V | 42.54 | 54 |
| 1301.76 | H | 41.52 | 54 |
| 1735.68 | V | 40.23 | 60.8 |
| 1735.68 | H | 39.15 | 60.8 |
| 2169.60 | V | ----- | 60.8 |
| 2169.60 | H | ----- | 60.8 |
| 2603.52 | V | ----- | 60.8 |
| 2603.52 | H | ----- | 60.8 |
| 3037.44 | V | ----- | 60.8 |
| 3037.44 | H | ----- | 60.8 |
| 3471.36 | V | ----- | 60.8 |
| 3471.36 | H | ----- | 60.8 |
| 3905.28 | V | ----- | 54 |
| 3905.28 | H | ----- | 54 |
| 4339.2 | V | ----- | 54 |
| 4339.2 | H | ----- | 54 |

Note:

-----means the emission is too low,more than 20dB from the limit.

8. 20B BANDWIDTH

8.1. Test Equipment

Please refer to Section 4 this report.

8.2. Test Procedure

1. The EUT was tested according C63.4-2009. The radiated test was performed at FCC Registration laboratory.
2. With the EUT's antenna attached, the EUT's 20dB Bandwidth power was received by the test antenna which was connected to the spectrum analyzer with the START and STOP frequencies set to the EUT's operation band.

8.3. FCC 15.231(c) 20B Bandwidth Limit

Per 15.231(c) ,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. Bandwidth is determined at the points 20 dB down from the modulated carrier.

8.4. Test Result

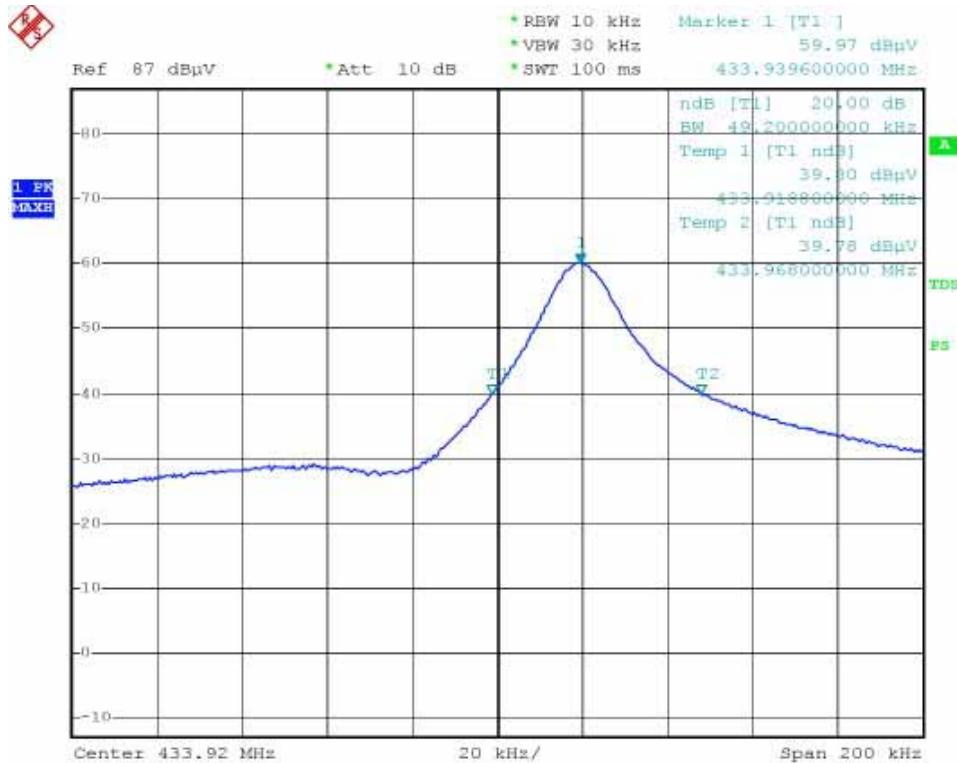
Temperature: 25

Humidity: 56%RH

Limit=Frequency×0.25%=433.9200×0.25%=1084.8 kHz

Test data: 49.2KHz

Test Result: PASS



9. DEACTIVATION TESTING

9.1. Test Equipment

Please refer to Section 4 this report.

9.2. Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

9.3. Deactivation Requirement

Per 15.231(a) (1), a manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

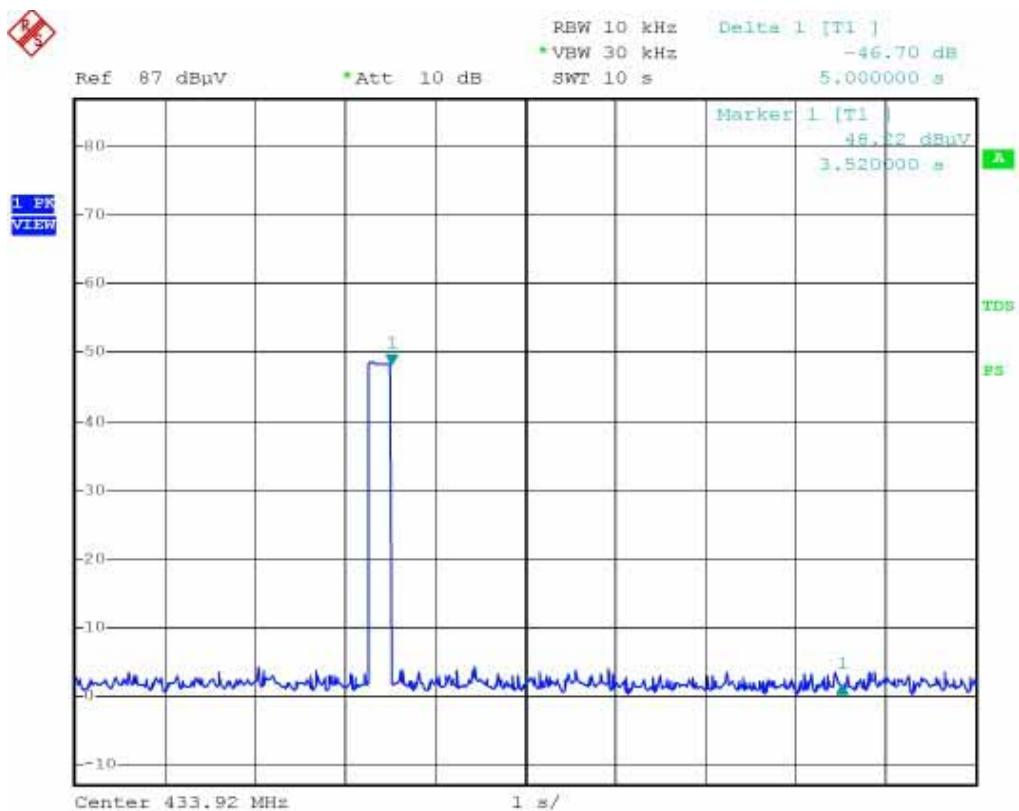
9.4. Test Result

Temperature: 25

Humidity: 56%RH

THE TRANSMITTER TRANSMITTING TIME NOT MORE THAN 5 SECONDS

Test Result: PASS



10. ANTENNA REQUIREMENT

10.1. STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR 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.

10.2. ANTENNA CONNECTED CONSTRUCTION

According to § 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

The antenna used in this product is A UNIQUE ANTENNA. please refer to the internal photos.

10.3. Result

Compliance