

Measurement Report

Product : **Receiver**
Applicant : **Skytech II, Inc.**
FCC ID : **K9L3301PF**
Trade Name : **SKYTECH II**
Model No. : **3301PF (See Appendix II)**
Report No. : **MLT0601P15001**
Issue Date : **Jan 18, 2006**

Test By

Max Light Technology Co., Ltd.

**Room 5, 8F, No.125, Section 3 Roosevelt Road,
Taipei, Taiwan, R.O.C.**

Tel: 886-2-2363-2447 Fax: 886-2-2363-2597

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CERIFICATION

We here by verify that :

The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003. All test were conducted by *MLT (Max Light Technology Co., Ltd) Room 5, 8F, No.125, Section 3 Roosevelt Road, Taipei, Taiwan, R.O.C* Also, we attest to the accuracy of each.

We further submit that the energy emitted by the sample EUT tested as described in the report is in compliance with Class B radiated and conducted emission limit of FCC Rules Part 15 Subpart B.

EUT : Receiver

**Applicant : Skytech II, Inc.
9230 Conservation Way, Ft.
Wayne, IN 46809, U.S.A.**

**Manufacturer : FEGO Precision Industrial Co.,Ltd
947 LIN SEN RD.,WU-FENG SHIANG
TAICHUNG HSIEN R.O.C.**

Model No : 3301PF (See Appendix II)

FCC ID : K9L3301PF

Prepared by : Jesse Tien Approved by : Roger Chen
Jesse Tien Roger Chen



I. GENERAL

1.1 Introduction

The following measurement report is submitted on behalf of SKYTECH II INC. In support of a Class B Device Certification in accordance with Part 2 Subpart J and Part 15 Subpart A And B of the Commission's and Regulations.

The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4: 2003.

ANSI STANDARD C63.4- 2003 SUPER REGENERATIVE RECEIVER:

A signal generator was set to the unit under test operating frequency. An un-modulated continuous wave (CW) signal was radiated at the super-regenerative receiver operating frequency to cohere the characteristic broadband emissions from the receiver.

EUT : Receiver

Applicant : Skytech II, Inc.
9230 Conservation Way, Ft.
Wayne, IN 46809, U.S.A.

Manufacturer : FEGO Precision Industrial Co. Ltd
947 LIN SEN RD., WU-FENG SHIANG
TAICHUNG HSIEN R.O.C.

Model No : 3301PF (See Appendix II)

FCC ID : K9L3301PF

Power Type : Power By AC 120V / 60Hz

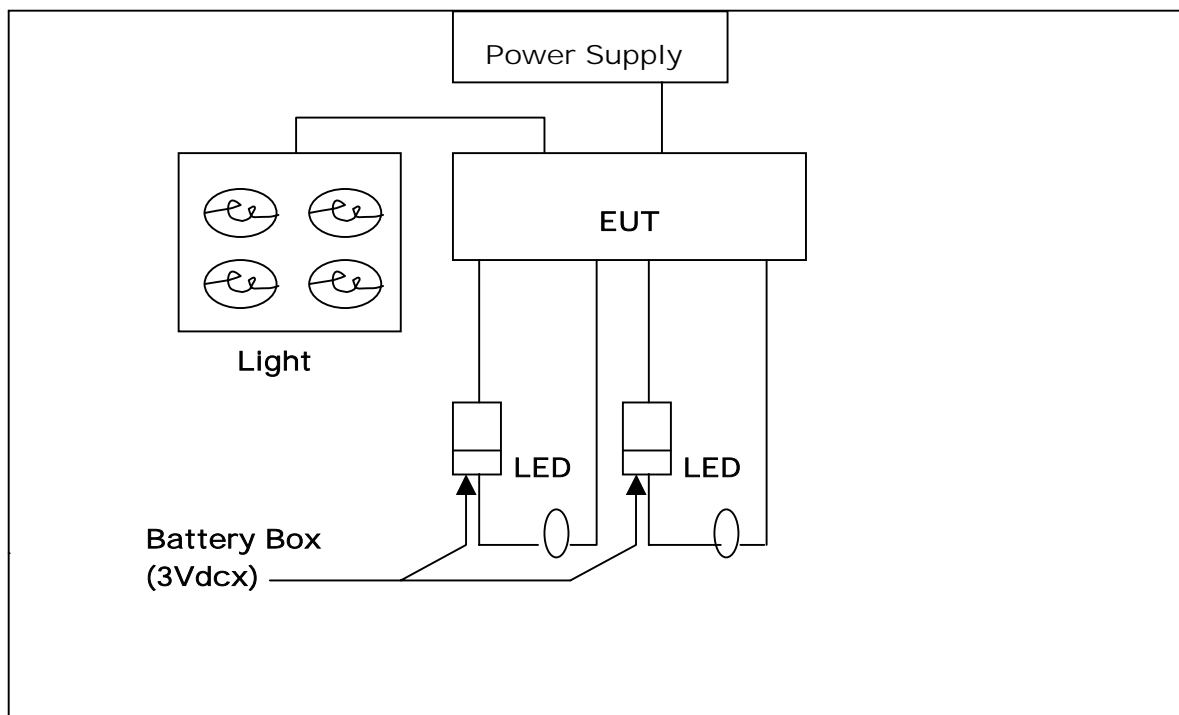
During testing the EUT was operated at Testing mode for each emission measured. This was done in order to ensure that maximum emission levels were attained.

1.2 Description of Support Equipment

In order to construct the minimum system which required by the ANSI C63.4: 2003, following equipments were used as the support units.

The Receiver itself forms a system. No support equipment is required for its normal operation.

1.3 Configuration of System Under Test



During testing the EUT (Receiver)'s one cable was connected to Light bulb, the other Port's cable was connected to LED and battery box circuit. When the EUT was "ON", the LED and light bulb were lighting.



1.4 Test Procedure

All measurements contained in this report were performed according to the techniques described in Measurement procedure ANSI C63.4-2003 "Measurement of unIntentional Radiators."

1.5 General Test Condition

The conditions under which the EUT operates were varied to determine their effect on the equipment's emission characteristics. The final configuration of the test system and the mode of operation used during these tests were chosen as that which produced the highest emission levels. However, only those conditions which the EUT was considered likely to encounter in normal use were investigated.

The system's radiated and conducted emissions were investigated while the EUT keep operating ON and OFF mode by receiving signals from transmitter. The system's physical layout and cabling was randomly arranged to ensure that maximum emission levels were attained.



II. Conducted Emissions Requirements

2.1 General & Setup :

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3825/2 Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPER quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 2.6.

2.2 Test Equipment List:

- A. EMCO 3825/2 LISN (S/N:2654)**
- B. EMCO 3825/2 LISN (S/N:2658)**
- C. HP 8591EM 9KHZ-1.8GHz Spectrum Analyzer (S/N:73412A00110)**
- D. R&S ESH3 Test Receiver (S/N:892108/025)**
- E. Shielded Room (MLT-SR1)**

2.3 Test Configuration:



Front View of The Test Configuration



Rear View of The Test Configuration



2.4 Test condition:

EUT tested in accordance with the specifications given by the manufacturer , and exercised in the most unfavorable manner.

2.5 Conducted Emissions Limits:

| <i>Frequency range (MHz)</i> | <i>Limits (dBuV)</i> | |
|---|-----------------------------|-----------------------|
| | <i>Quasi-peak</i> | <i>Average</i> |
| 0.15 to 0.50 | 66 to 56 | 56 to 46 |
| 0.50 to 5.0 | 56 | 46 |
| 5.0 to 30 | 60 | 50 |



2.6 Measurement Data Of Conducted Emissions:

2.6.1 Conducted Emissions (Subpart B)

The following table show a summary of the highest emissions of power line conducted emissions to the HOT and NEUTRAL conductor of the EUT power.

Applicant : Skytech II, Inc.
Model No : 3301PF (See Appendix II)
EUT : Receiver
Test Date : 01/03/2006

| Power Line Conducted Emissions (Class B) | | | | | |
|--|-----------------|-------------------|--------|----------------|--------|
| Conductor | Frequency (MHz) | Quasi-Peak (dBuV) | Limits | Average (dBuV) | Limits |
| L1 | 0.16 | 39.69 | 65.30 | -- | 55.30 |
| | 0.19 | 35.76 | 63.93 | -- | 53.93 |
| | 0.54 | 34.11 | 56 | -- | 46 |
| | 0.92 | 38.62 | 56 | -- | 46 |
| | 1.26 | 29.44 | 56 | -- | 46 |
| | 1.79 | 31.66 | 56 | -- | 46 |
| | 12.00 | 33.73 | 60 | -- | 50 |
| L2 | 0.16 | 43.71 | 65.30 | -- | 55.30 |
| | 0.25 | 34.88 | 61.56 | -- | 51.56 |
| | 0.38 | 32015 | 58.25 | -- | 48.25 |
| | 0.54 | 32.65 | 56 | -- | 46 |
| | 0.92 | 28.58 | 56 | -- | 46 |
| | 2.69 | 27.98 | 56 | -- | 46 |
| | 13.48 | 30.61 | 60 | -- | 50 |

Notes : 1.L1: One end & Ground L2: The other end & Ground
 2.Height of table on which the EUT was placed : 0.8 m.
 3.The Quasi-Peak Value have already met the Average Value Limit showed on above limits.
 4.The above test results are obtained under the normal condition.



III. Radiated Emissions Requirements

3.1 General & Setup :

Prior to open-field testing, the EUT was placed in a shielded enclosure and scanned at a close distance to determine its emission characteristics. The physical arrangement of the EUT was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude, directivity, and frequency. The exact system configuration which produced the highest emissions was noted so it could be reproduced later during the open-field tests. This was done to ensure that the final measurements would demonstrate the worst-case interference potential of the EUT. Final radiation measurements were made on a 3-meter, open-field test site. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 30 MHz to 1000 MHz using an Hewlett Packard 8591EM Spectrum Analyzer, EMCO Biconical Antenna (Model 3142) for 30-1000MHz. At each frequency, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization. Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post-detector video filters were used in the test. The spectrum analyzer's 6 dB bandwidth was set to 120 KHz, and the analyzer was operated in the quasi-peak detection mode. The highest emission amplitudes relative to the appropriate limit were measured and recorded in paragraph 3.6.

3.2 Test Equipment List:

- A. HP 8591EM 9KHz-1.8GHz Spectrum Analyzer (S/N:73412A00230)**
- B. HP 8447D Pre Amplifier (S/N:2944A08954)**
- C. EMCO 3142 Biconilog Antenna (S/N:1184)**
- D. R&S ESVP Test Receiver (S/N:881121/010)**

3.3 Test Configuration:



Front View of The Test Configuration



Rear View of The Test Configuration



3.4 Test condition:

EUT tested in accordance with the specifications given by the manufacturer , and exercised in the most unfavorable manner.

3.5 Radiated Emissions Limits:

| <i>Frequency range (MHz)</i> | <i>Quasi Peak (dBuV/m)</i> |
|-------------------------------------|-----------------------------------|
| 30 to 88 | 40 |
| 88 to 216 | 43.5 |
| 216 to 960 | 46 |
| <i>Frequency range (MHz)</i> | <i>Average (dBuV/m)</i> |
| 960 to 1610 | 54 |
| Above 1610 | 60 |

3.6 Test condition:

- A. Testing Room : Temperature 20 Humidity 55%RH**
- B. Testing Site : Temperature 21 Humidity 64%RH**

3.7 Measurement Data Of Radiated Emissions:

3.7.1 Open Field Radiated Emissions (HORIZONTAL)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation , etc. are recorded on the following

Applicant : Skytech II, Inc.
Model No : 3301PF (See Appendix II)
EUT : Receiver
Test Mode : Remote Mode
Test Date : 01/04/2006

| Radiated Emissions (HORIZONTAL) | | | | | |
|--|---------------------------|-----------------|-----------------------|---------------------------------|--------------------|
| Frequency (MHz) | Amplitude (dBuV/m) | Ant. (m) | Table (Degree) | Limits(Class B) (dBuV/m) | Margin (dB) |
| 47.82 | 19.07 | 1.5 | 150 | 40 | -20.93 |
| 123.96 | 22.94 | 1.2 | 250 | 43.5 | -20.56 |
| 142.86 | 23.51 | 1.8 | 310 | 43.5 | -19.99 |
| 149.07 | 22.43 | 2.4 | 300 | 43.5 | -21.07 |
| 165.81 | 24.92 | 1.6 | 180 | 43.5 | -18.58 |
| 176.07 | 25.21 | 1.9 | 240 | 43.5 | -18.29 |
| 213.60 | 25.03 | 2.1 | 220 | 43.5 | -18.47 |
| 300.00 | 32.56 | 1.0 | 110 | 46 | -13.44 |
| 309.10 | 37.66 | 1.9 | 150 | 46 | -8.34 |
| 370.70 | 25.57 | 2.0 | 110 | 46 | -20.43 |
| 519.10 | 24.68 | 1.7 | 210 | 46 | -21.32 |

- Notes :**
1. Margin= Amplitude - Limits
 2. Distance of Measurement : 3 Meter (30-1000MHz)
 3. Height of table for EUT placed: 0.8 Meter.
 4. ANT= Antenna height.
 5. Amplitude= Reading Amplitude -Amplifier gain+ Cable loss
+Antenna factor
(Auto calculate in spectrum analyzer)
 6. The worst case test data recorded in the tables



3.7.2 Open Field Radiated Emissions (VERTICAL)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation , etc. are recorded on the following.

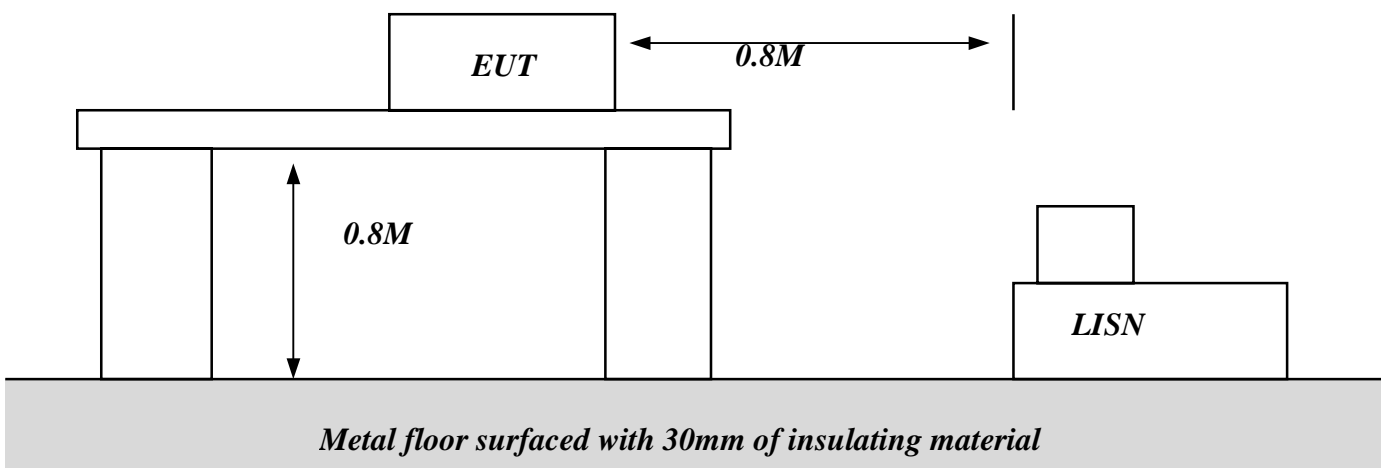
Applicant : Skytech II, Inc.
Model No : 3301PF (See Appendix II)
EUT : Receiver
Test Mode : Remote Mode
Test Date : 01/04/2006

| Radiated Emissions (VERTICAL) | | | | | |
|--------------------------------------|---------------------------|-----------------|-----------------------|---------------------------------|--------------------|
| Frequency (MHz) | Amplitude (dBuV/m) | Ant. (m) | Table (Degree) | Limits(Class B) (dBuV/m) | Margin (dB) |
| 28.12 | 24.93 | 1.5 | 120 | 40 | -15.07 |
| 62.57 | 17.66 | 1.8 | 180 | 40 | -22.34 |
| 137.19 | 22.06 | 3.1 | 290 | 43.5 | -21.44 |
| 157.71 | 26.03 | 1.6 | 270 | 43.5 | -17.47 |
| 172.56 | 24.56 | 1.7 | 210 | 43.5 | -18.94 |
| 194.97 | 23.06 | 2.5 | 260 | 43.5 | -20.44 |
| 333.61 | 27.42 | 1.9 | 150 | 46 | -18.58 |
| 349.70 | 26.32 | 2.2 | 190 | 46 | -19.68 |
| 482.05 | 26.01 | 2.5 | 320 | 46 | -19.99 |
| 514.20 | 24.25 | 2.3 | 210 | 46 | -21.75 |
| 589.80 | 20.35 | 1.7 | 280 | 46 | -25.65 |

- Notes :**
- 1.Margin= Amplitude - Limits**
 - 2.Distance of Measurement : 3 Meter (30-1000MHz)**
 - 3.Height of table for EUT placed: 0.8 Meter.**
 - 4.ANT= Antenna height.**
 - 5.Amplitude= Reading Amplitude -Amplifier gain+ Cable loss +Antenna factor (Auto calculate in spectrum analyzer)**
 - 6.The worst case test data recorded in the tables**

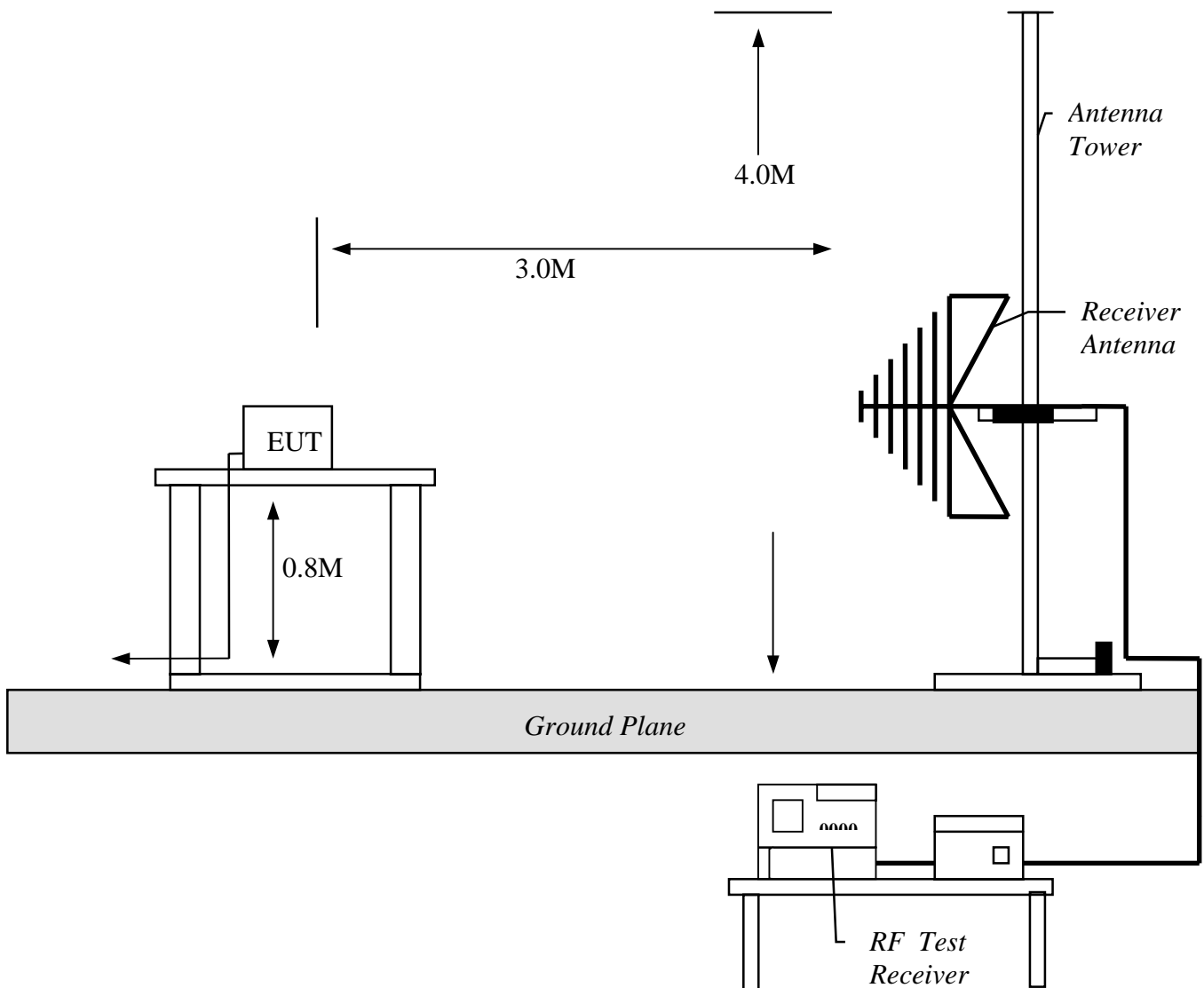
Appendix I- EUT Test SETUP

MEASUREMENT OF POWER LINE CONDUCTED RFI VOLTAGE



Appendix I- EUT Test SETUP

MEASUREMENT OF RADIATED EMISSION





Appendix II- Model No. List

| Model | Description |
|---------------|---|
| 3301PF | collocate different Transmitters |
| 3002PF | |
| 3003PF | |

Note: All the receivers listed in above have the same circuit and PCB layout, the only difference is for different transmitters .