| | |
|---|---|
| Report No. | G2815148T |
| Specifications<br>Test Method | FCC Part 15, Class B<br>ANSI C63.4 1992 |
| Applicant address | 2Fl., No. 101, Feenlian Street, Nei-Hu 114,<br>Taipei, Taiwan |
| Applicant | GLOBLINK TECHNOLOGY INC. |
| Items tested<br>Model No. | Free Board 2FT<br>GL3001 (Sample # G28148T) |
| Results<br>Date | **Compliance** (As detailed within this report)<br>03/21/2001 (month / day / year) (Sample received)<br>04/04/2001 (month / day / year) (Test) |
| Prepared by | Project Engineer |
| Authorized by | General Manager<br>(Frank Tsai) |
| Issue date | *April 18, 2001*<br>(month / day / year) |
| **Modifications** | **None** |
| Tested by | Training Research Co., Ltd. |
| Office at | 2, Lane 194, Huan-Ho Street, Hsichih, Taipei Hsien 221, Taiwan |
| Chamber at | 2, Lane 194, Huan-Ho Street, Hsichih, Taipei Hsien 221, Taiwan |

***Conditions of issue :***

(1) ***This test report shall not be reproduced except in full, without written approval of TRC. And the test result contained within this report only relate to the sample submitted for testing.***

(2) ***This report must not be used by the client to claim product endorsement by NVLAP or any agency of U.S. Government.***

★ ***FCC ID: OR7GL3001***

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# *Chapter 1 Introduction*

## *Description of EUT:*

| | | |
|---|---|---|
| **EUT** | **:** | Free Board 2FT |
| **Model No.** | **:** | GL3001 |
| **FCC ID** | **:** | OR7GL3001 |
| **Frequency Range** | **:** | 26.96 – 27.28 MHz |
| **Power Type** | **:** | Powered by two 1.5VDC batteries |

This wireless keyboard with track ball use advanced transmission technology to allow comfortable use. However, occasionally outside sources may cause interference.

## *Test method:*

All measurements contained in this report were performed according to the techniques described in Measurement procedure ANSI C63.4 – 1992.

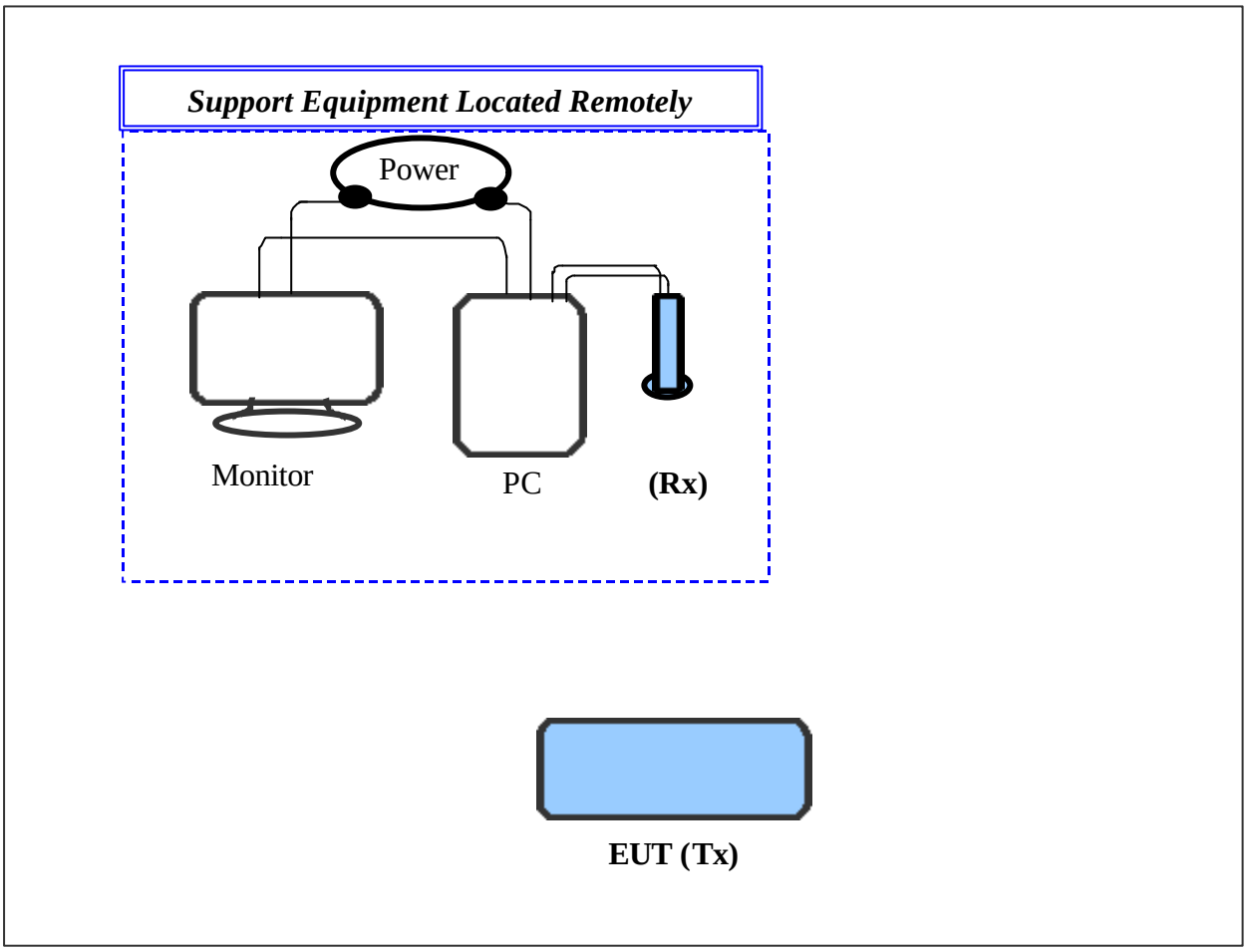
Pretest was found that the emission of operating mode is worse than standby mode. So, The final test is made at the operating mode.

While testing, the EUT was made to transmit continuously and adjusted at a position, which transmitted the maximum emission.

The test placement as the photographs showed is the worst case emission placed. (If the emission is close to the ambient, the resolution BW and view resolution will be reduced and the data will be recorded by detection of maximum hold peak mode.)

***The testing configuration of test setup is showing in the next page.***

## *Configuration of Test Setup*




## ***Connections:***

### ***EUT:***

Put two AAA size, 1.5V battery into the battery cell of EUT, powers the subject device. The EUT does not be connected with any product.

## *List of Support Equipment:*

## Conducted (Radiated) test:

| | | |
|---|---|---|
| **PC** | **:** | **HP Brio 85xx 6/350** |
| Model No. | : | D6928A |
| Serial No. | : | TW90400174 |
| FCC ID | : | N/A, Doc Approved |
| **檢磁** | : | 3872H013 |
| Power type | : | 100 ~ 230VAC / 50 ~ 60Hz, 5A, Switching |
| Power cord | : | Non-shielded, 2.33m long, Plastic, No ferrite core |
| | | |
| **Monitor** | **:** | **HP 15' Color Monitor** |
| Model No. | : | D2832A |
| Serial No. | : | MY90615892 |
| FCC ID | : | N/A, Doc Approved |
| **檢磁** | : | 4872A167 |
| Power type | : | 100 ~ 240 VAC / 50 ~ 60 Hz, Switching |
| Power cord | : | Shielded, 1.80m long, No ferrite core |
| Data cable | : | Shielded, 1.50m long, with two ferrite cores |
| | | |
| **Rx** | **:** | **GLOBLINK TECHNOLOGY INC.** |
| Model No. | : | GL3001 |
| FCC ID | : | N/A, Doc Approved |
| Power type | : | Powered by PC |
| Data cable | : | Non-shielded, 1.50m (Keyboard) and 1.90m (Mouse) long, no ferrite core |

# *Chapter 2 Conducted Emission Test*

## *Test Condition and Setup:*

All the equipment is placed and setup according to the ANSI C63.4 – 1992.

The EUT is assembled on a wooden table, which is 80 cm high, is placed 40 cm from the back-wall, which is a vertical conducting plane. One LISN is for EUT, the other LISN is for support equipment. They are all placed on the conductive ground. The EUT's LISN connect a line switch box for selecting L1 or L2, then connect to a preamplifier and spectrum.

The spectrum scans from 150KHz to 30MHz. Conducted emission levels are detected at max. peak mode . But if the max. peak mode failed or over average limit, it will be measured by average detection mode.

While testing, there is the worst-emission plot printed at peak detection mode, and there are more than 6 highest emissions relative to limit recorded. The plot is kept as the original data, not included in test report.

## *List of test Instrument:*

| | | | | **Calibration Date** | |
|---|---|---|---|---|---|
| Instrument Name | Model No. | Brand | Serial No. | Last time | Next time |
| Spectrum analyzer | 8591EM | H P | 3619A01203 | 02/22/01 | 02/22/02 |
| Pre-selector (<30MHz) | AMP-01 | TRC | REP-001 | 08/09/00 | 08/09/01 |
| LISN (EUT) | TRC LISN01 | TRC | LISN-01 | 08/21/00 | 08/21/01 |
| LISN (Support E.) | LISN01 | TRC | 9912-01, 02 | 12/02/00 | 12/02/01 |

The level of confidence of 95%, the uncertainty of measurement of conducted emission is ± 2.4 dB.

***Test Result: N/A***

# *Chapter 3 Radiated Emission Test*

## *Test Condition and Setup:*

***Pretest :*** Prior to the final test ,the EUT is placed in an anechoic chamber, and scan from 30MHz to 1GHz. The devices rotated through three orthogonal axes to determine which attitude and configuration produces the highest emission relative to the limit. This is done to ensure the radiation exactly emits form the EUT.

***Final test:*** Final radiation measurements is made on a **3 – meter** anechoic chamber.. The EUT's maximum emission of radiation is placed on a nonconductive table, which is 0.8m height, the top surface is 1.0 x 1.5 meter. All placement is according to ANSI C63.4 - 1992.

The spectrum is examined from 30 MHz to 1000 MHz measured by HP spectrum.

The whole range Antenna is used to measure frequency from 30 MHz to 2 GHz. The final test is used the spectrum analyzer.

Measure more than six top marked frequencies generated form pretest by computer step by step at each frequency. The EUT is rotated 360 degrees, and antenna is raised and lowered from 1 to 4 meters to find the maximum emission levels. The antenna is used with both horizontal and vertical polarization.

Appropriated preamplifier, which is made by TRC is used for improving sensitivity and precautions is taken to avoid overloading. The spectrum analyzer's 6dB bandwidth is set to 120 KHz, and the EUT is measured at quasi-peak mode.

If the emission is close to the frequency band of ambient, the tester will recheck the data and the corrected data will be written in the test data sheet. If the emission is just within the ambient, the data from shield room will be taken as the final data.

## *List of test Instrument:*

| | | | | Calibration Date | |
|---|---|---|---|---|---|
| Instrument Name | Model No. | Brand | Serial No. | Last time | Next time |
| EMI Receiver | 8546A | H P | 3520A00242 | 10/01/00 | 10/01/01 |
| RF Filter Section | 85460A | H P | 3448A00217 | 10/01/00 | 10/01/01 |
| Bi-log Antenna | CBL6141A | Schaffner | 4151 | 06/28/00 | 06/28/01 |
| Bi-log Antenna | 3141 | EMCO | 1049 | 06/27/00 | 06/27/01 |
| Switch/Control Unit (> 30MHz) | 3488A | HP | N/A | 11/20/00 | 11/20/01 |
| Auto Switch Box (> 30MHz) | ASB-01 | TRC | 9904-01 | 11/20/00 | 11/20/01 |
| Anechoic Chamber (cable calibrated together) | | | | 05/20/00 | 05/20/01 |

The level of confidence of 95% , the uncertainty of measurement of radiated emission is ± 4.96 dB .

***Test Result : Pass (Appendix A)***

## *Radiated Test Placement: (Photographs)*

# *Appendix A*

## *Radiated Emission Test Result: (Horizontal)*

Test Conditions:

Testing room : Temperature : 26 ° C Humidity : 73 % RH

Testing site : Temperature : 31 ° C Humidity : 75 % RH

| **Frequency** | **Reading Amplitude** | **Ant. Height** | **Table** | **Correction Factors** | **Corrected Amplitude** | **Class B Limit** | **Margin** |
|---|---|---|---|---|---|---|---|
| MHz | dBμV | m | degree | dB/m | dBμV/m | dBμV/m | dB |
| 54.428 | 18.17 | 2.45 | 133 | -13.42 | 31.59 | 40.00 | -8.41 |
| 136.067 | 20.56 | 2.45 | 20 | -14.74 | 35.30 | 43.50 | -8.20 |
| 162.240 | 4.88 | 1.00 | 109 | -14.11 | 18.99 | 43.50 | -24.51 |
| 190.500 | 17.94 | 1.00 | 43 | -12.77 | 30.71 | 43.50 | -12.79 |
| 247.915 | 2.98 | 1.00 | 77 | -15.43 | 18.41 | 46.00 | -27.59 |
| *** | | | | | | | |
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Note:

1.Margin = Amplitude – limit, *if margin is minus means under limit.*

2.Corrected Amplitude = Reading Amplitude – Correction Factors

3.Correction factor = Antenna factor + ( Cable Loss – Amplitude gain)

(For example : 30MHz correction factor = 15.5 + (–15.26) = 0.24 dB/m)

## *Radiated Emission Test Result: (Vertical)*

| Frequency | Reading Amplitude | Ant. Height | Table | Correction Factors | Corrected Amplitude | Class B Limit | Margin |
|---|---|---|---|---|---|---|---|
| MHz | dBμV | m | degree | dB/m | dBμV/m | dBμV/m | dB |
| 54.428 | 12.25 | 1.00 | 147 | -13.20 | 25.45 | 40.00 | -14.55 |
| 136.067 | 16.96 | 1.00 | 150 | -14.04 | 31.00 | 43.50 | -12.50 |
| 162.240 | 4.90 | 1.00 | 13 | -13.27 | 18.17 | 43.50 | -25.33 |
| 190.500 | 11.79 | 1.00 | 13 | -12.88 | 24.67 | 43.50 | -18.83 |
| 247.915 | 3.56 | 1.00 | 5 | -15.47 | 19.03 | 46.00 | -26.97 |
| *** | | | | | | | |
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## *Radiated Emission Test Result: (Horizontal)*

| *Frequency: 26.985 MHz (CH 1)* | | | | | |
|---|---|---|---|---|---|
| **Antenna Polarity** | **Reading Amplitude** | **Correction Factors** | **Corrected Amplitude** | **Limit** | **Margin** |
| | dBμV | dB/m | dBμV/m | dBμV/m | dB |
| | 37.63 | -14.16 | 51.79 | 80 | -28.21 |

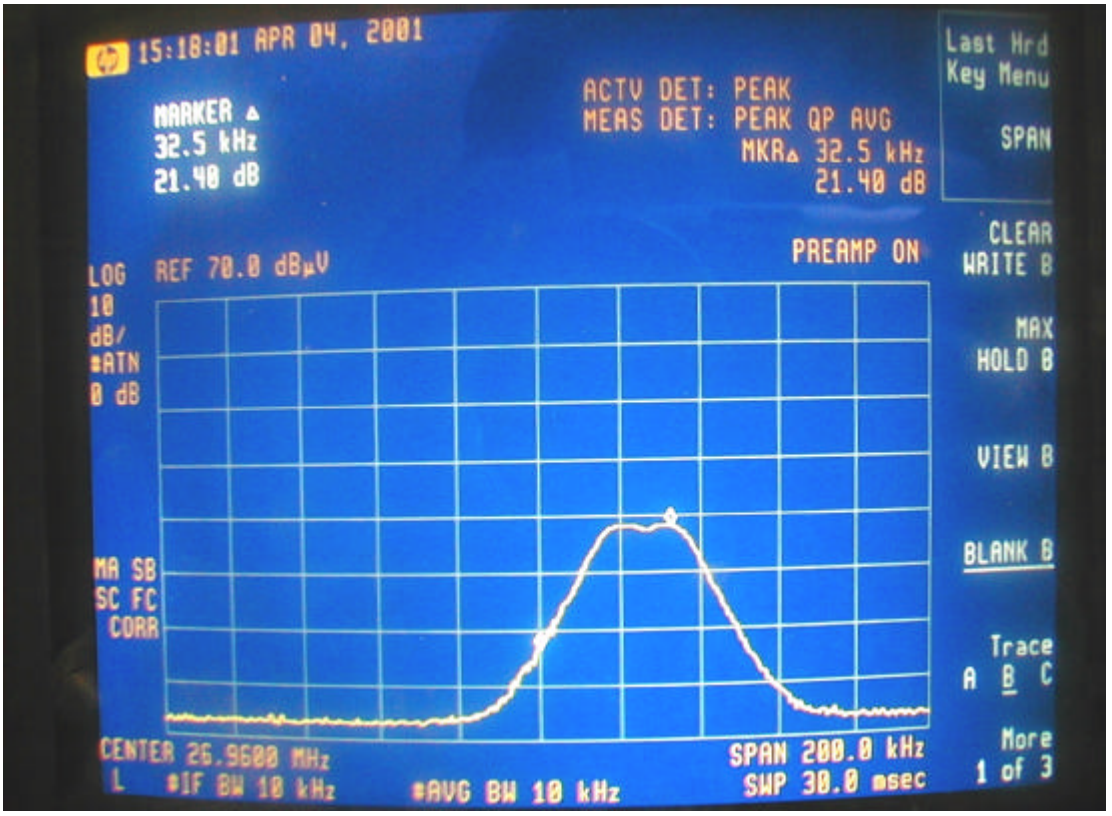
## *Radiated Emission Test Result: (Vertical)*

| *Frequency: 26.985 MHz (CH 1)* | | | | | |
|---|---|---|---|---|---|
| **Antenna Polarity** | **Reading Amplitude** | **Correction Factors** | **Corrected Amplitude** | **Limit** | **Margin** |
| | dBμV | dB/m | dBμV/m | dBμV/m | dB |
| | 32.91 | -14.16 | 47.07 | 80 | -32.93 |

# *Appendix B*

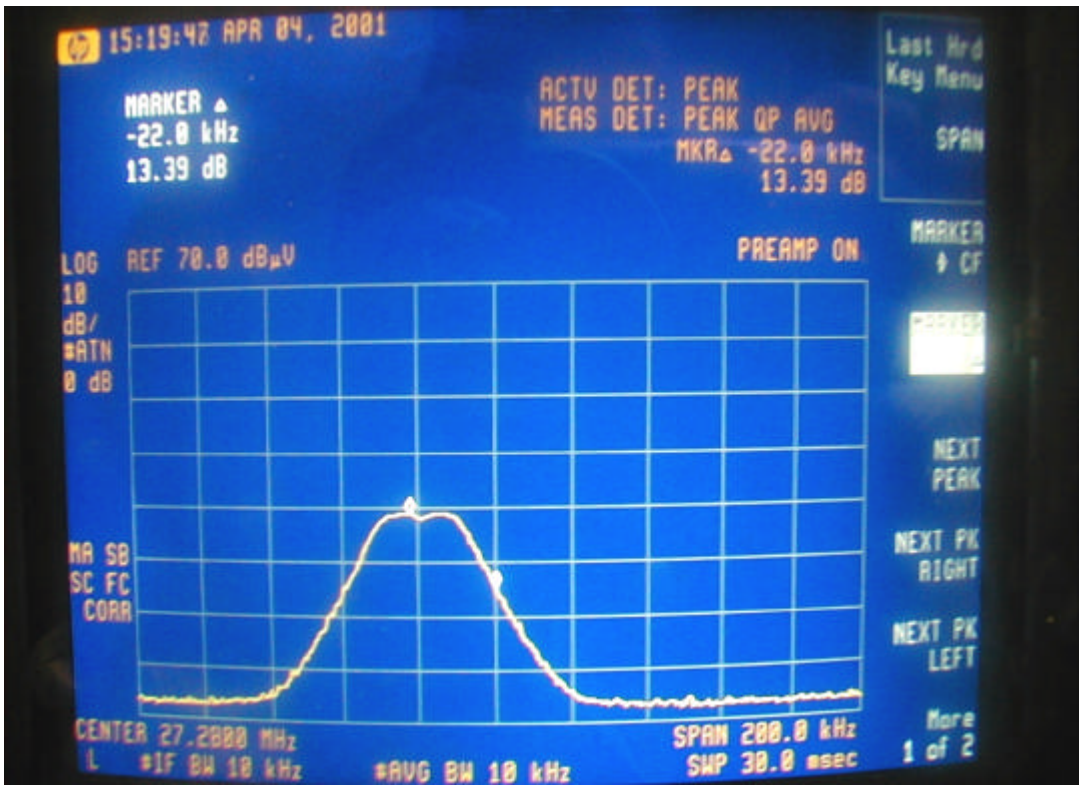
## *Band Edge of Measurement: (Frequency Band: 26.96 ~ 27.28)*

**Channel 1**




**51.79 dB µV/m (Corrected Amplitude) – 21.40dB = 30.39 dB µV/m < Class B Limit.**

**Channel 6**




**52.81 dB µV/m (Corrected Amplitude) – 13.39dB = 39.42 dB µV/m < Class B Limit.**