# ELECTROMAGNETIC EMISSION COMPLIANCE REPORT
of

<span style="color:red">CHIRP'N CHIME
MODEL: DC10(TX)
FCC ID: OK71100</span>

*October 29, 1999*

This report concerns (check one):   Original grant __x__   Class II change _____
Equipment type: <u>Periodic Operation Intentional Radiator</u>

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Deferred grant requested per 47 CF 0.457(d)(1)(ii)?      yes _____   no __x__
                              If yes, defer until:                    (date)
Company agrees to notify the Commission by                     (date)
of the intended date of announcement of the product so that the grant can be
issued on that date.

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Transition Rules Request per 15.37?                    yes _____   no __x__
If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR
[10-1-90 Edition] provision.

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Report prepared for:        DAKA DEVELOPMENT LTD.
Report prepared by:         Fountain Compliance Lab
Report number:              <span style="color:red">0048-991014-01</span>

**NVLAP®**

**The test result in this report IS supported and covered by the NVLAP accreditation**

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# 1. GENERAL INFORMATION

## 1.1 Verification of Compliance

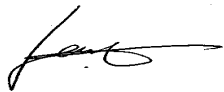|  |  |
|---|---|
| EUT: | CHIRP'N CHIME |
| Model: | DC10(TX) |
| Applicant: | DAKA DEVELOPMENT LTD. |
| Test Type: | FCC Part 15C  CERTIFICATION |
| Result: | PASS |
| Tested by: | FOUNTAIN COMPLIANCE LABORATORY |
| Test Date: | 10-14-99 |
| Report Number: | 0048-991014-01 |

The above equipment was tested by Compliance Laboratory, Fountain Technologies, Inc. for compliance with the requirement set forth in the FCC rules and regulations Part 15, subpart C. This said equipment in the configuration described in the report, shows the maximum emission levels emanating from equipment are within the compliance requirements.

The estimated uncertainty of the test result is given as following. The method of uncertainty calculation is provided in Fountain Compliance Lab. Doc. No. 0048-01-01.

|  | Prob. Dist. | Uncertainty(dB) | Uncertainty(dB) | Uncertainty(dB) |
|---|---|---|---|---|
|  |  | 30-1000MHz | 1-6.5GHz | Conducted |
| Combined Std. Uncertainty $u_c$ | norm. | ±2.36 | ±2.99 | ±1.83 |

Wei Li                                                    Date: Oct. 29. 1999
Lab Manager
Fountain Compliance Lab
Fountain Technologies, Inc.

## 1.2 Equipment Modifications

N/A

## 1.3 Product Information

### System Configuration

| ITEM | DESCRIPTION | FCC ID | CABLE |
|---|---|---|---|
| Product | Chip'n Chime[1]  DC10 (TX) | OK71100 | |
| Housing | PLASTICS | | |
| Power Supply | 9V DC BATTERY | | |
| Clock/OSC Freq. | 314.2MHz | | |
| Receiver | DC10 (RX)<br>(FCC Part15 Class B DOC) | | |
| Device Type | Periodic Operation | | |

(1) EUT submitted for grant.

## 1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-1992 at an antenna to EUT distance of 3 meters.

## 1.5 Test Facility

The open area test site and conducted measurement facility used to collect the radiated and conducted data are located at 50 Randolph Road, Somerset, New Jersey. This site has been accepted by FCC to perform measurements under Part 15 or 18 in a letter dated May 19, 1997 (Refer to: 31040/PRV 1300F2). The NVLAP Lab code for accreditation of FCC EMC Test Method is: 200101-0.

## 1.6 Test Equipment

| Manufacture | Model | Serial No. | Description | Last Cal dd/mm/yy | Cal Due dd/mm/yy |
|---|---|---|---|---|---|
| Hewlett-Packard | HP8546A | 3625A00341 | EMI Receiver | 17/11/98 | 17/11/99 |
| Fischer Custom | LISN-2 | 900-4-009 | Line Impedance Stabilization Networks | 26/04/99 | 26/04/00 |
| EMCO | 3115 | 4945 | Double Ridge Guide Horn Antenna | 21/10/98 | 21/10/99 |
| ARA | BCD-235/B | 172 | 30-200MHz Biconical Antenna | 05/05/99 | 05/05/00 |
| EMCO | 3146 | 9008-2860 | 200-1000MHz Log-Periodic Antenna | 05/05/99 | 05/05/00 |

All Test Equipment Used are Calibrated Traceable to NIST Standards.

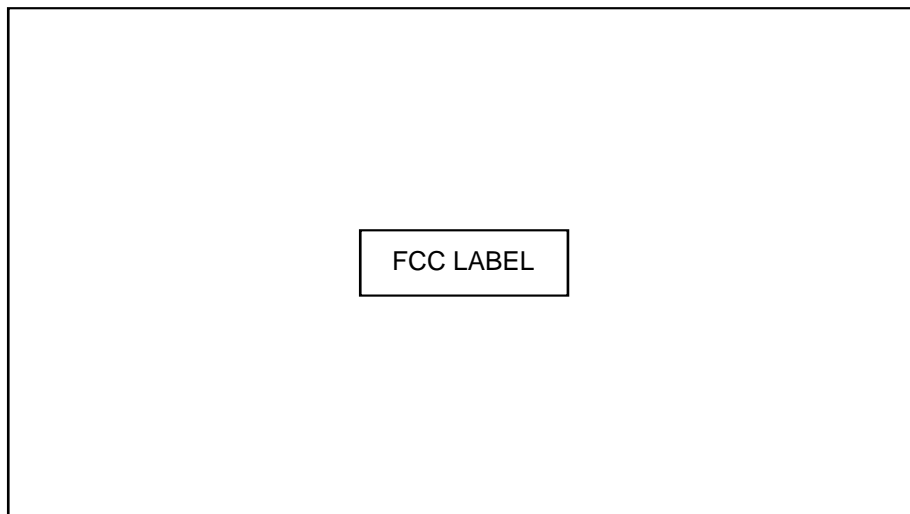## 1.7 Statement for the Document Use

This report shall not be reproduced except in full, without the written approval of the laboratory. And this report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.

## 2. PRODUCT LABELING



**Figure 2.1 FCC ID Label**

FCC ID:OK71100

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditoins:
(1) This device may not cause harmful interference, and
(2) This device must accept any interference
    received, including interference that may cause
    undesired operation.
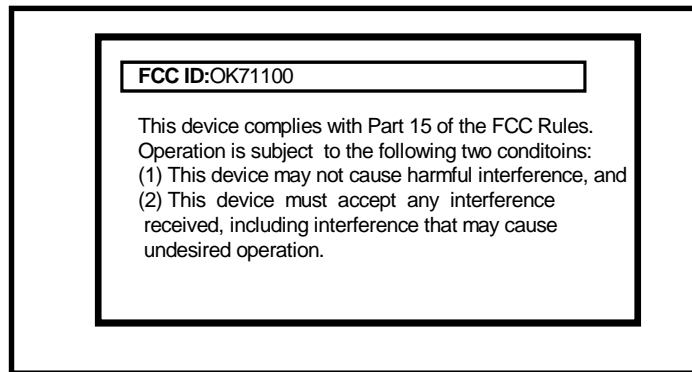


FCC LABEL

**Figure 2.2 Location of Label on Back of the EUT**

## 3. SYSTEM TEST CONFIGURATION

### 3.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it). And its antenna was permanently attached to the EUT (Made on the PCB).

This manually operated transmitter will deactivate immediately after releasing the "OFF" or "ON" switch button.

Testing was performed in "ON" mode. It is the worst case.

### 3.2 Special Accessories

N/A

### 3.3 Configuration of Tested System

Figure 3.1 and Figure 3.3 illustrate this system, which is tested standing along.

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**See attachment:   setup1.jpg**


**Figure 3.1 Radiated Test Setup, Position 1**


**See attachment: setup2.jpg**

**Figure 3.2 Radiated Test Setup, Position 2**

**See attachment: setup3.jpg**


**Figure 3.3 Radiated Test Setup, Position 3**

# 4. SYSTEM SCHEMATICS

**See attachment :  schem.jpg**

**Figure 4.1 System Schematics**

## 5. RADIATED EMISSION DATA

### 5.1 Field Strength Calculation

The corrected field strength is automatically calculated by EMI Receiver using following:

$$FS = RA - AF - CF - AG$$

where  FS: Corrected Field Strength in dBμV/m
      RA: Amplitude of EMI Receiver before correction in dBμV
      AF: Antenna Factor in dB/m
      CF: Cable Attenuation Factor in dB
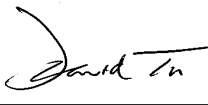      AG: Built-in Preamplifier Gain in dB (Stored in receiver as part of the calibration data)

### 5.2 Test Methods and Conditions

The EUT exercise program was loaded during the radiated emission test. The initial step in collecting radiated data is a EMI Receiver scan of the measurement range 30MHz - 5GHz using peak detector. IF bandwidth is 120kHz and video bandwidth is 300kHz for measuring 30MHz-1GHz. Both bandwidth are 1MHz for above 1GHz measurement.

### 5.3 Test Data

The following data lists the significant emission frequencies, polarity and position, peak reading of the EMI Receiver, calculated average reading, the FCC limit, and the difference between the peak reading and the limit. Explanation of the correction and calculation are given in section 5.1.

Test Personnel:

Tester Signature: _David Tu_____        Date: _10-14-1998____

Typed/Printed Name:  David Tu_____

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## Radiated Test Data

| Frequency (MHz) | Polarity [H, V] Position | Height (m) | Azimuth (Degree) | Peak Reading (dBµV/m) | Class B 3m Limit (dBµV/m) | Difference from limit (dB) |
|---|---|---|---|---|---|---|
| 314.2 | H,Y(1) | 1.0 | 258 | 53.7(3) | 75.5(2) | **-21.8** |
| 314.4 | H,Z | 1.0 | 229 | 42.5 | 75.5 | **-33** |
| 314.6 | H,X | 1.0 | 287 | 50.9 | 75.5 | **-24.6** |
| 314.2 | V,Y | 1.0 | 179 | 44.2 | 75.5 | **-31.3** |
| 314.4 | V,Z | 1.9 | 282 | 47.0 | 75.5 | **-28.5** |
| 314.6 | V,X | 1.0 | 212 | 39.2 | 75.5 | **-36.3** |
| 368.2 | V,Y | 1.0 | 226 | 36.5 | 72.5 | **-36** |

(1) See Figure 3.1, 3.2 and 3.3 for definition of position 1, 2, 3.
(2) Fundamental limit is 3750-12500 microvolts/meter linear interpolations.
    Spurious limit is 375-1250 microvolts/meter linear interpolations.
(3)  Because each peak reading is less than the FCC average limit, it is not necessary to show the calculated average reading based on the pulse train characteristic.


## 5.4 Occupied Bandwidth

The bandwidth of the emission shall be no wider than 0.25% of the center frequency, in this case, 0.785MHz. Bandwidth is determined at the points 20dB down from the modulated carrier. Figure 5.1 shows the occupied bandwidth plot.

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`See attachment: ocpband.jpg`

## Figure 5.1  Occupied Bandwidth

## 6. PHOTOS OF TESTED EUT

The following photos show the inside details of  the EUT.

See Attachments:  top.jpg,  bottom.jpg, compnt.jpg,  foil.jpg