

Advanced
Compliance Laboratory

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ELECTROMAGNETIC EMISSION COMPLIANCE REPORT

of

PET CHIME TRANSMITTER

MODEL: PP10TX

FCC ID: OK7PP10TX

March 11, 2004

This report concerns (check one): Original grant ☒ Class II change ☐
Equipment type: TRANSMITTER

Deferred grant requested per 47 CF 0.457(d)(1)(ii)? yes ☐ no ☒

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.

Transition Rules Request per 15.37? yes ☐ no ☒

If no, assumed Part 15, Subpart B for unintentional radiators - the new 47 CFR
[10-1-90 Edition] provision.

Report prepared for:

DAKA DEVELOPMENT LTD.

Report prepared by:

Advanced Compliance Lab

Report number:

0048-040227-01-TX



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

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1. GENERAL INFORMATION

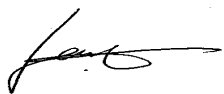
1.1 Verification of Compliance

EUT: PET CHIME TRANSMITTER
 Model: PP10TX
 Applicant: DAKA DEVELOPMENT LTD.
 Test Type: FCC Part 15C CERTIFICATION
 Result: PASS
 Tested by: ADVANCED COMPLIANCE LAB
 Test Date: March 10, 2004
 Report Number: 0048-040227-01-TX

The above equipment was tested by Advanced Compliance Laboratory 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 Advanced 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
 Lab Manager
 Advanced Compliance Lab

Date: March 11, 2004

1.2 Equipment Modifications

N/A

1.3 Product Information

System Configuration

ITEM	DESCRIPTION	FCC ID	CABLE
Product	PET CHIIME TRANSMITTER	OK7PP10TX(1)	
Housing	PLASTICS		
Power Supply	9V DC BATTERY		
Operation Freq.	315 MHz		
Device Type	Periodic Operation		
Receiver	FCC ID: OK7PP10RX		

(1) EUT submitted for grant.

1.4 Test Methodology

Radiated tests were performed according to the procedures in ANSI C63.4-2001 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 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/y	Cal Due dd/mm/y
Hewlett-Packard	HP8546A	3625A00341	EMI Receiver	12/01/04	12/01/05
EMCO	3115	4945	Double Ridge Guide Horn Antenna	11/08/03	11/08/04
AIL	94455	933	20-300MHz Biconical Antenna	11/03/03	11/03/04
EMCO	3146	2860	200-1000MHz Log-Periodic Antenna	09/02/04	09/02/05
Fischer Custom	LISN-2	900-4-0008	Line Impedance Stabilization Networks	11/08/03	11/08/04
Fischer Custom	LISN-2	900-4-0009	Line Impedance Stabilization Networks	25/08/03	25/08/04

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

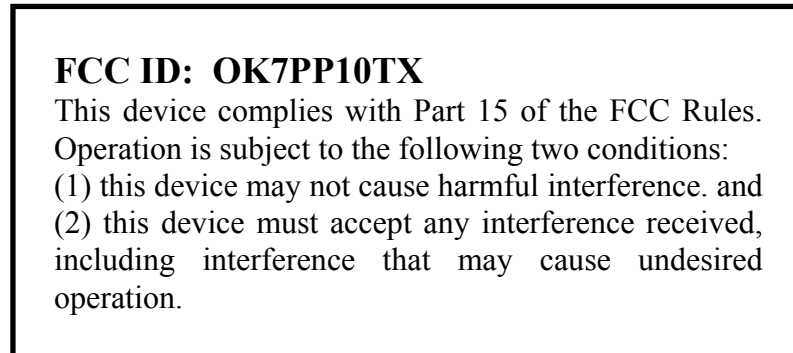


Figure 2.1 FCC ID Label

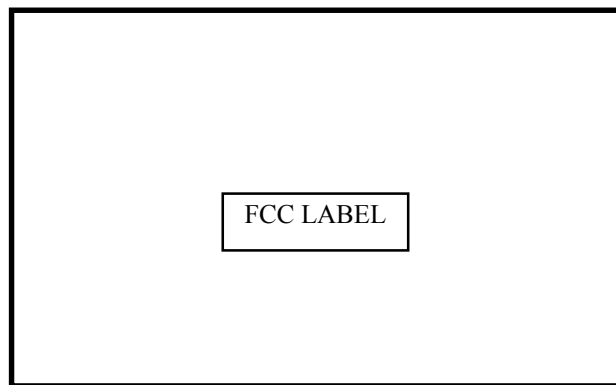


Figure 2.2 Location of Label on Back of the EUT

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. Transmitter will be cease the transmission once the ON button is released.

3.2 Special Accessories

N/A

3.3 Configuration of Tested System

Figure 3.1 and Figure 3.2 illustrate this system, which is tested standing along.



Figure 3.1 Radiated Test Setup, Front



Figure 3.2 Radiated Test Setup, Rear

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 dB μ V/m

RA: Amplitude of EMI Receiver before correction in dB μ V

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)

The pulse train timing plots are showed in Figure 5.1.

$$\text{Coeff.} = 0.5 \times [(2 \times 384a) \times 12 + 128a] / (16 \times 1024a) = 0.285$$

The maximum average field strength should be 0.285 of the peak field strength measured. So we use peak value minus 10.8dB as calculated maximum average field strength.

5.2 Test Methods and Conditions

The initial step in collecting radiated data is an 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 bandwidths 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



Typed/Printed Name: Edward Lee

Date: March 11, 2004

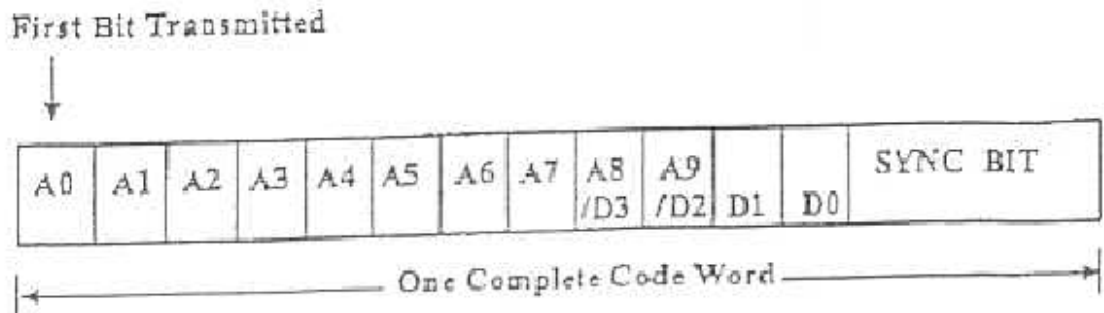
Radiated Test Data

Frequency (MHz)	Polarity [H or V], Position (X,Y,Z) (1)	Height (m)	Azimuth (Degree)	Peak Reading (dB μ V/m)	Calculated Average Reading (dB μ V/m)	FCC 3m Limit (dB μ V/m) (2)(3)(4)	Difference from limit (dB)
315.4	H	1.2	160	70.1	59.3	75.6	-16.3
630.8	H	1.3	170	60.2	49.4	55.6	-6.2
946.2	H	1.4	160	55.4	44.6	55.6	-11
1261.6	H	1.2	160	46.5	35.7	55.6	-19.9
315.4	V	1.1	150	75.4	64.6	75.6	-11
630.8	V	1.2	160	63.0	52.2	55.6	-3.4
946.2	V	1.4	150	56.5	45.7	55.6	-9.9
1261.6	V	1.2	150	47.4	36.6	55.6	-19
1577	V	1.3	180	46.0	35.2	54	-18.8

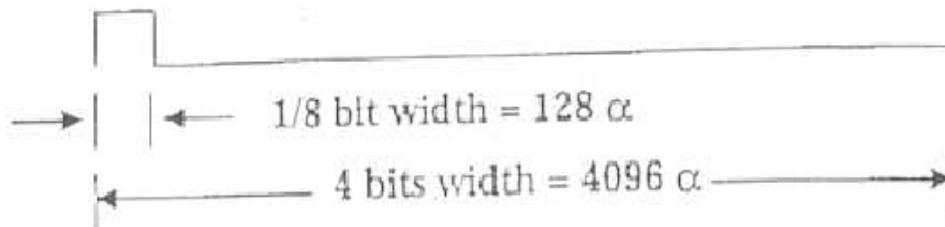
- (1) See Figure 3.X for definition of position X-1, Y-2, Z-3, if applicable.
 (2) Restricted band limit, if applicable.
 (3) Fundamental limit is 3750-12500 microvolts/meter linear interpolations.
 (4) Spurious limit is 375-1250 microvolts/meter linear interpolations.

5.4 Occupied Bandwidth

The bandwidth of the emission shall be no wider than 0.25% of the center frequency, in this case, 788KHz($315.4 \times 0.25\%$). Bandwidth is determined at the points 20dB down from the modulated carrier. Figure 5.2 shows the occupied bandwidth plot.



The Synchronous Bit Waveform is 4 bits long with 1/8 bit width pulse. Please refer to the diagram below:



Note : 1 bit = 1024α

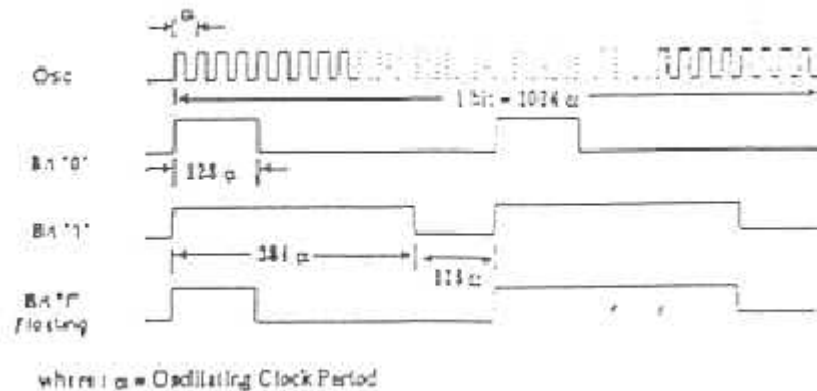


Figure 5.1 Pulse Train Timing

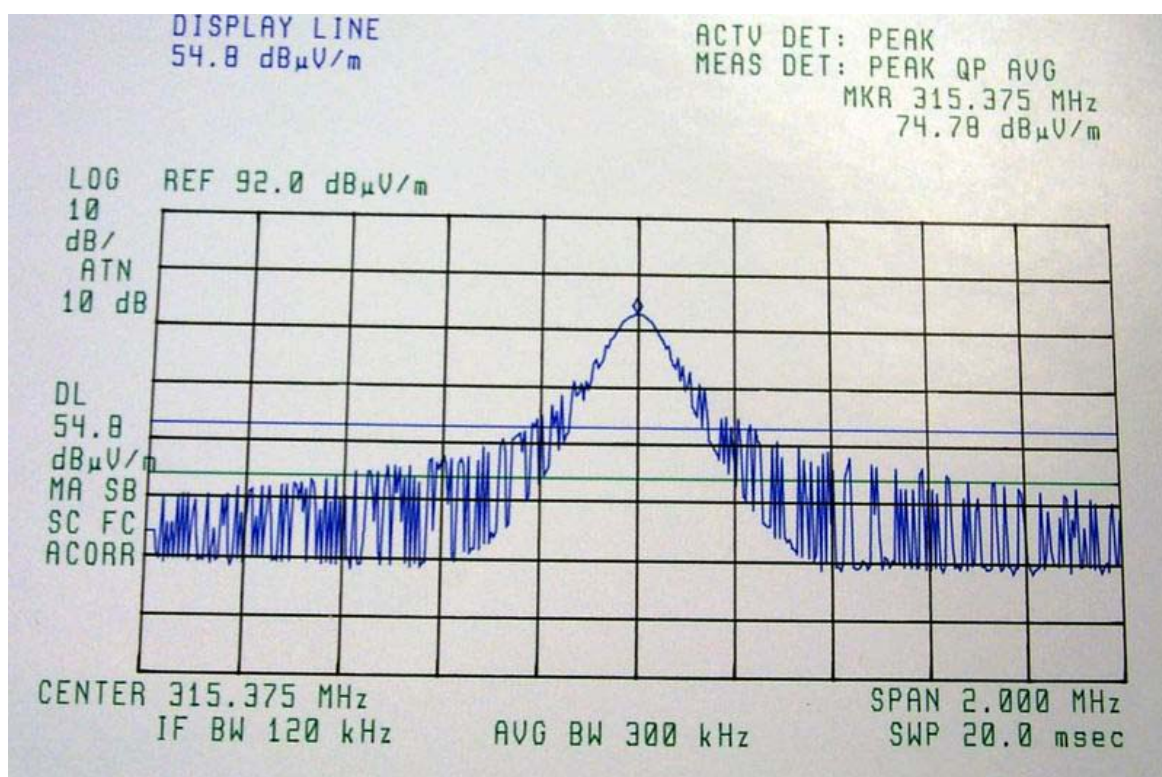


Figure 5.2 Occupied Bandwidth

6. PHOTOS OF TESTED EUT