FCC Part 15 Subpart C

EMI Test Report

of

E.U.T.: **Motorized Total GYM Exerciser**

FCC ID: Q4CMTG12650-1R

Trade Name: Fitness Quest, Motorized Total Gym

Model Number: 12650-1R

Prepared for

Fitness Quest Inc

1400 Raff Road SW Canton,Ohio 44750-0001 U.S.A

TEL: 330 478 0755

FAX: 330 478 3862

Prepared by

Interocean EMC Technology Corp.

No.5-2, Lin 1, Tin-Fu Tsun, Lin-Kou Hsiang,

Taipei County, Taiwan, R.O.C.

TEL.: +886 2 2600 6861

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NVLAP LAB. Code: 200458-0

Remark:

1. The test report consists of ***26*** pages in total. It shall not be reproduced except in full, without the written approval of IETC. This document may be altered or revised by IETC only, and shall be noted in the revision section of the document. The test results in the report only to the tested sample.
2. The client shall not use it to claim product endorsement by NVLAP or and any U.S. government agencies.

Table of Contents

Certification of Compliance

Applicant:	**Fitness Quest Inc**
Manufacturer:	Tung Keng Enterprise Co., Ltd.
EUT Description:	Motorized Total GYM Exerciser
Trade Name:	Fitness Quest, Motorized Total Gym
Model No.:	12650-1R
FCC ID:	Q4CMTG12650-1R
Working Frequency:	433.852MHz
Tested Power Supply:	3.0 Vdc
Date of Final Test:	2003/7/13

Measurement Procedures and Standards Used:

☒ 47 CFR, Part 15, Subpart C
☒ ANSI C63.4: 1992

The device described above was tested by Interocean EMC Technology Corporation to determine the maximum emission levels emanated from the device and severity levels of the device endure and its performance criterion. The measurement results are contained in this test report and Interocean EMC Technology Corp assumes full responsibility for the accuracy and completeness of these measurements. This report shows the EUT is technically compliant with the Part 15 Subpart C and ANSI C63.4 official requirements. This report applies to the above sample only and shall not be reproduced in part without written approval of Interocean EMC Technology Corporation.

Report Issued: 2003/8/8

Test Engineer: Jeff Chuang 2003/8/8 Jeff Chuang

Checked: Joseph Lu Joseph Lu

Approved: Tim Hong Tim Hong

Aug. 12, 2003

1 General Information

1.1 Description of Equipment Under Test

Equipment Under Test	:	Motorized Total GYM Exerciser 12650-1R
Model Number	:	12650-1R
Serial Number	:	N/A
Type of Sample Tested	:	☒Proto-type ☐Pre-Production ☐Mass Production
Applicant	:	**Fitness Quest Inc** 1400 Raff Road SW Canton, Ohio 44750-0001 U.S.A
Manufacturer	:	**Tung Keng Enterprise Co., Ltd.** No. 1. Lane 160. Sec. 2, Tanfu Road, Tan Tzu Hsiang, Taichung, Taiwan
Power Supply	:	3.0 Vdc
Date of Receipt of Sample	:	Jul. 10, 2003
Date of Test	:	Jul. 10 ~ 18, 2003
Fundamental Frequency	:	433.852 MHz
Description of E.U.T.	:	This is a remote controller for Motorized Total Gym Exerciser. it uses a RF signal of 433.852 MHz to control the Total Gym Exerciser up and down.

Note: The receiver portion of the EUT has been tested in Interocean EMC Technology Corp. The test result has been verified to comply with FCC Part 15, Subpart B, Class B – Computing Devices (FCC DoC). The engineering test report can be provided upon FCC request.

1.2 Tested Supporting System Detail

Nothing tested supporting system detail.

1.3 Test Facility

Site Description : ☐OATS 1 ☒OATS 2 ☐OATS 3 ☐OATS 4

Name of Firm : Interocean EMC Technology Corp.

Site 1, 2 Location : No.5-2, Lin 1, Tin-Fu Tsun, Lin-Kou Hsiang, Taipei County, Taiwan, R.O.C.

Site 3, 4 Location : No. 12, Ruei-Shu Valley, Ruei-Ping Tsuen, Lin-Kou Shiang, Taipei County, Taiwan, R.O.C.

Site Filing :

- Federal Communication Commissions – USA
  Registration No.: 96399 (Site 1& 2)
  Registration No.: 518958 (Site 3 & 4)
- Voluntary Control Council for Interference by Information Technology Equipment (VCCI) – Japan
  Registration No. (Conducted Room): C-1094
  Registration No. (OATS 1): R-1040
  Registration No. (OATS 2): R-1041
- Industry Canada
  Submission: 44631

Site Accreditation :

- Bureau of Standards and Metrology and Inspection (BSMI) – Taiwan, R.O.C.
  Accreditation No.:
  SL2-IN-E-0026 for CNS13438 / CISPR22
  SL2-R1-E-0026 for CNS13439 / CISPR13
  SL2-R2-E-0026 for CNS13439 / CISPR13
  SL2-A1-E-0026 for CNS13783-1 / CISPR14
  SL2-L1-E-0026 for CNS14115 / CISPR15
- National Voluntary Laboratory Accreditation Program (NVLAP) - USA
  Lab Code: 200458-0
- Nemko AS
  Authorization No.: ELA 181-a
  Authorization No.: ELA 181-b

1.3.1 Test Methodology

Both conducted and Radiated Emission Measurement was performed according to the procedures in ANSI C63.4-1992 and Part 15 subpart C. Radiated Emission Measurement was performed at 3 meters distance from antenna to EUT.

1.3.2 Measurement Uncertainty

The uncertainty is calculated in accordance with NAMAS document NIS 81.

Conducted Uncertainty Uc = ±2.96dB.

Radiated Uncertainty Uc = ±3.67dB

2 Provisions Applicable

2.1 Definition

Unintentional radiator:

A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class A Digital Device:

A digital device which is marketed for use in commercial or business environment; exclusive of a device which is market for use by the general public, or which is intended to be used in the home.

Class B Digital Device:

A digital device which is marketed for use in a residential environment notwithstanding use in a commercial, business of industrial environment. Example of such devices that are marketed for the general public.

Note : A manufacturer may also qualify a device intended to be marketed in a commercial, business, or industrial environment as a Class B digital device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B Digital Device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B Digital Device, Regardless of its intended use.

Intentional radiator:

A device that intentionally generates and emits radio frequency energy by radiation or induction.

3 Power Line Conducted Emission Measurement

The EUT is powered by battery only.

4 Radiated Emission Measurement

4.1 Radiated Emission Measurement

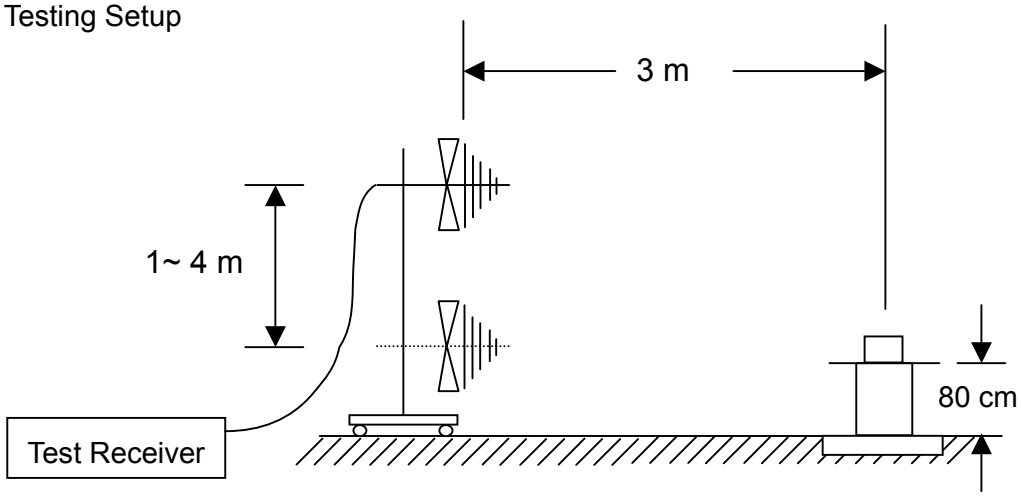
4.2 Instrument

Instrument	Manufacturer	Model	Serial No.	Last Calibration
EMI Test Receiver	Rohde & Schwarz	ESVS 10	826148/011	2003/07/29
Antenna	Schaffner	CBL6112B	2610	2003/02/25
Horn Antenna	Com-power	AH-118	10081	2003/04/28
Spectrum Analyzer	Rohde & Schwarz	FSP 30	100002	2003/03/10
Pre-Amplifier	Schaffner	CPA9231A/4	3350	2003/09/30
Pre-Amplifier	Agilent	8449B	3008A01434	2003/04/24
RF Cable	IETC	CBL02	N/A	2003/04/15
RF Cable	IETC	CBL09	N/A	2003/04/15

Note: All instrument upon which need to be calibrated are within calibration period of 1 year.

4.3 Block Diagram of Test Configuration

Configuration of Testing Setup



4.4 Radiated Limit

☒ Section **15.209** (FCC Part 15) (30 ~ 1000 MHz)

Frequency (MHz)	☐ Class A (10m)		☒ Class B (3m)	
	Field Strength (uV)	Quasi-Peak (dBuV)	Field Strength (uV)	Quasi-Peak (dBuV)
30 ~ 88	90	39.08	100	40.00
88 ~ 216	150	43.52	150	43.52
216 ~ 960	210	46.44	200	46.02
960 above	300	49.54	500	53.98

☒ According to **15.231**,Periodic operation in the band 40.66-40.70 MHz and above 70 MHz ,the field strength of emission from intentional radiators operated under this section shall not exceed the following:

Frequency MHz	**Distance Meters**	**Field strength of Fundamental (μV/m)**	**Field strength of Spurious (μV/m)**
40.66 ~ 40.70	3	2250	225
70 ~ 130	3	1250	125
130 ~ 174	3	*1,250 to3, 750	*125 to 375
174 ~ 260	3	3750	375
260 ~ 470	3	*3,750 to 12,500	*375 to 1,250
Above 470	3	12,500	1,250

*Linear interpolations

☒ **Limit of transmission time**

1.) A manually operated Transmitter of Remote Control shall employ a switch that will automatically deactivate the Transmitter of Remote Control within not more than 5 seconds of being released.

2.) A Transmitter of Remote Control activated automatically shall cease transmission within 5 Seconds after activation.

4.5 Measuring Instrument Setup

Explanation of measuring instrument setup in frequency band measured is as following:

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	N/A
	Spectrum Analyzer	Peak	100 kHz	100 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz

4.6 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 ~ 0.110	16.42 ~ 16.423	399.9 ~ 410	4.5 ~ 5.25
0.495 ~ 0.505 **	16.69475 ~ 16.69525	608 ~ 614	5.35 ~ 5.46
2.1735 ~ 2.1905	16.80425 ~ 16.80475	960 ~ 1240	7.25 ~ 7.75
4.125 ~ 4.128	25.5 ~ 25.67	1300 ~ 1427	8.025 ~ 8.5
4.17725 ~ 4.17775	37.5 ~ 38.25	1435 ~ 1626.5	9.0 ~ 9.2
4.20725 ~ 4.20775	73 ~ 74.6	1645.5 ~ 1646.5	9.3 ~ 9.5
6.215 ~ 6.218	74.8 ~ 75.2	1660 ~ 1710	10.6 ~ 12.7
6.26775 ~ 6.26825	108 ~ 121.94	1718.8 ~ 1722.2	13.25 ~ 13.4
6.31175 ~ 6.31225	123 ~ 138	2200 ~ 2300	14.47 ~ 14.5
8.291 ~ 8.294	149.9 ~ 150.05	2310 ~ 2390	15.35 ~ 16.2
8.362 ~ 8.366	156.52475 ~ 156.52525	2483.5 ~ 2500	17.7 ~ 21.4
8.37625 ~ 8.38675	156.7 ~ 156.9	2655 ~ 2900	22.01 ~ 23.12
8.41425 ~ 8.41475	162.0125 ~ 167.17	3260 ~ 3267	23.6 ~ 24.0
12.29 ~ 12.293	167.72 ~ 173.2	3332 ~ 3339	31.2 ~ 31.8
12.51975 ~ 12.52025	240 ~ 285	3345.8 ~ 3358	36.43 ~ 36.5
12.57675 ~ 12.57725	322 ~ 335.4	3360 ~ 4400	Above 38.6
13.36 ~ 13.41			

**: Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

4.7 Configuration of Measurement

4.7.1 The EUT was place on a non-conductive table whose total height equaled 80cm. The turntable can rotate 360 degree to determine the position of the maximum emission level.

4.7.2 The EUT was set 3 meters away from the receiving antenna that was mounted on a non-conductive mast. The antenna can move up and down between 1 to 4 meters to find out the maximum emission level.

4.7.3 The initial testing identified the frequency that has the highest disturbance relative to the limit while operating the EUT in typical modes of operation and cable positions in a test setup representative of typical system configuration.

4.7.4 The identification of the frequency of highest emission with respect to the limit was found by investigating emissions at a number of significant frequencies. The probable frequency of maximum emission had been found and that the associated cable and EUT configuration and mode of operation had been identified.

4.8 Configuration of EUT

4.8.1 Setup the EUT and simulators as shown section 4.3

4.8.2 Turn on the power and make sure that it is in normal function.

4.8.3 Contrast to the maximum position to get the worst-case reading.

4.8.4 Measured the horizontal polarization and record the value.

4.8.5 Changed into vertical polarization and record the value.

4.9 Test Result

PASS.

The final tests data are shown on following page.

Radiated Emission Measurement Data

Date of Tested	:	Jul. 18, 2003	Polarization	:	Horizontal
Temperature	:	28°C	Humidity	:	50%
Fundamental Frequency	:	433.853 MHz	Distance	:	3m
Tested Mode	:	TX			

Frequency (MHz)	Factor C	Factor D	Result (dBuV/m) Peak	Result (dBuV/m) Ave.	Limits (dBuV) Peak	Limits (dBuV) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
433.820	-9.60	-7.96	79.69	71.73	100.80	80.80	-9.07	0.0	1.0
867.704	-3.43	-7.96	44.67	---	66.00	46.00	-1.33	45.0	1.5
1301.556	-6.19	-7.96	51.59	---	74.00	54.00	-2.41	0.0	1.0
1735.408	-0.31	-7.96	50.26	---	74.00	54.00	-3.74	315.0	1.0
2169.260	-0.80	-7.96	51.47	43.51	80.80	60.80	-17.29	45.0	1.3
2603.112	-1.30	-7.96	51.42	43.46	80.80	60.80	-17.34	310.0	1.1
3036.964	-1.70	-7.96	49.64	41.68	80.80	60.80	-19.12	0.0	1.0
3470.816	-0.50	-7.96	50.31	42.35	80.80	60.80	-18.45	90.0	1.0
3904.668	1.00	-7.96	---	---	74.00	54.00	---	---	---
4338.520	2.60	-7.96	---	---	74.00	54.00	---	---	---

Remark:

1. Result = Reading + C. factor.
   Ave. = Peak Value + D factor.
2. Factor C means "***Corrected***", and that includes antenna factor, cable loss, amplifier gain (if any).
3. Factor D means "***Duty***", the total period of pulse train is ***48 ms***, and the total duty is ***19.24ms***, and the duty factor is calculated with following formula:

$$\textbf{20 log}\frac{TotalDuty}{PeriodofPulseTrain}\textbf{=20log}\frac{4.7ms+3.1ms+(4*1.16ms)+(17*0.4ms)}{48ms}\textbf{=-7.96(dB)}$$

4. Detail please see following to appendix 2.

Radiated Emission Measurement Data

Date of Tested	:	Jul. 18, 2003	Polarization	:	Vertical
Temperature	:	25°C	Humidity	:	50%
Fundamental Frequency	:	433.852 MHz	Distance	:	3m
Tested Mode	:	TX			

Frequency (MHz)	Factor C	Factor D	Result (dBuV/m) Peak	Result (dBuV/m) Ave.	Limits (dBuV) Peak	Limits (dBuV) Ave.	Margin (dB)	Table Degree (Deg.)	Ant. High (m)
433.852	-9.60	-7.96	70.90	62.96	100.80	80.80	-17.84	90.0	1.0
867.704	-3.43	-7.96	42.57	---	66.00	46.00	-3.43	0.0	1.2
1301.556	-6.19	-7.96	51.06	---	74.00	54.00	-2.94	45.0	1.5
1735.408	-4.31	-7.96	52.64	---	74.00	54.00	-1.36	0.0	1.0
2169.260	-0.80	-7.96	50.54	42.58	80.80	60.80	-18.22	45.0	1.3
2603.112	-1.30	-7.96	51.10	43.14	80.80	60.80	-17.66	0.0	1.0
3036.964	-1.70	-7.96	54.17	46.21	80.80	60.80	-14.59	90.0	1.0
3470.816	-0.50	-7.96	52.34	44.38	80.80	60.80	-16.42	145.0	1.2
3904.668	1.00	-7.96	---	---	74.00	54.00	---	---	---
4338.520	2.60	-7.96	---	---	74.00	54.00	---	---	---

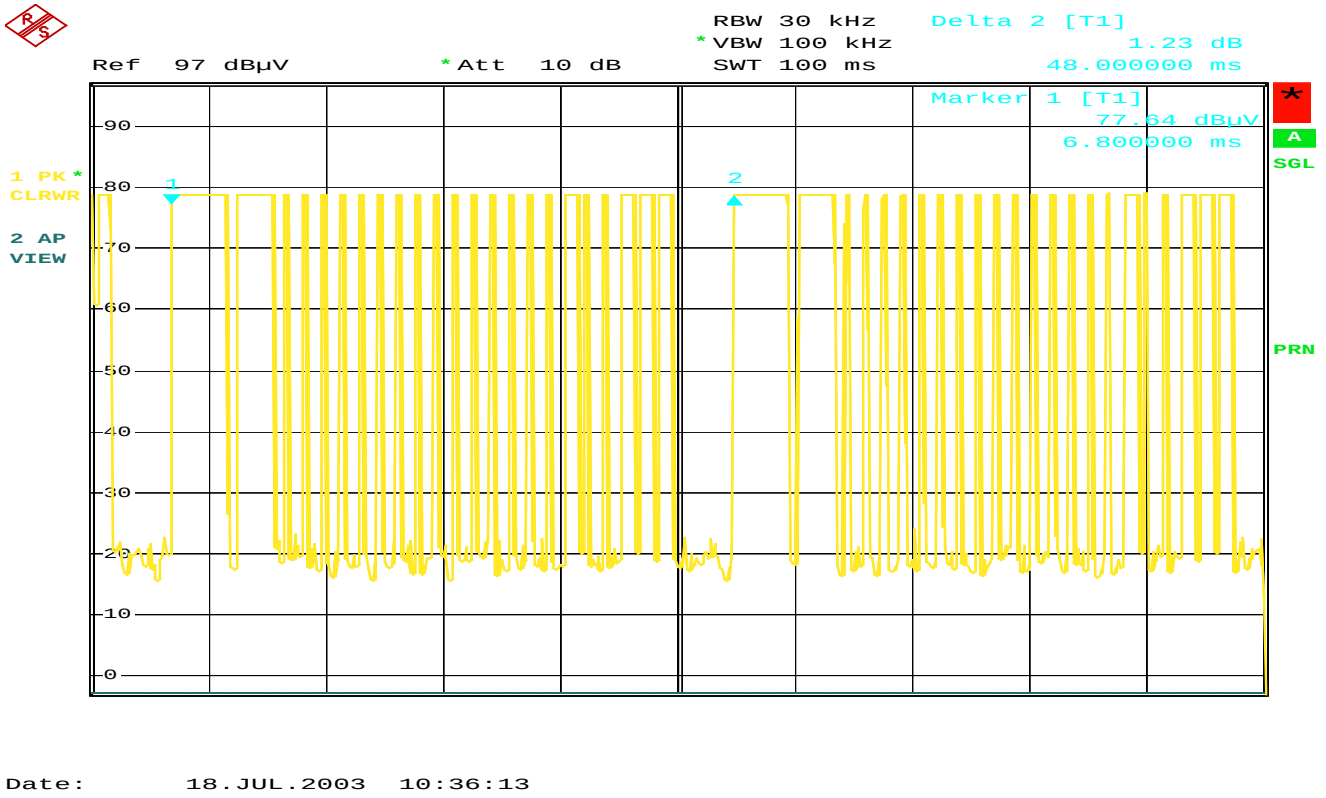
Remark:

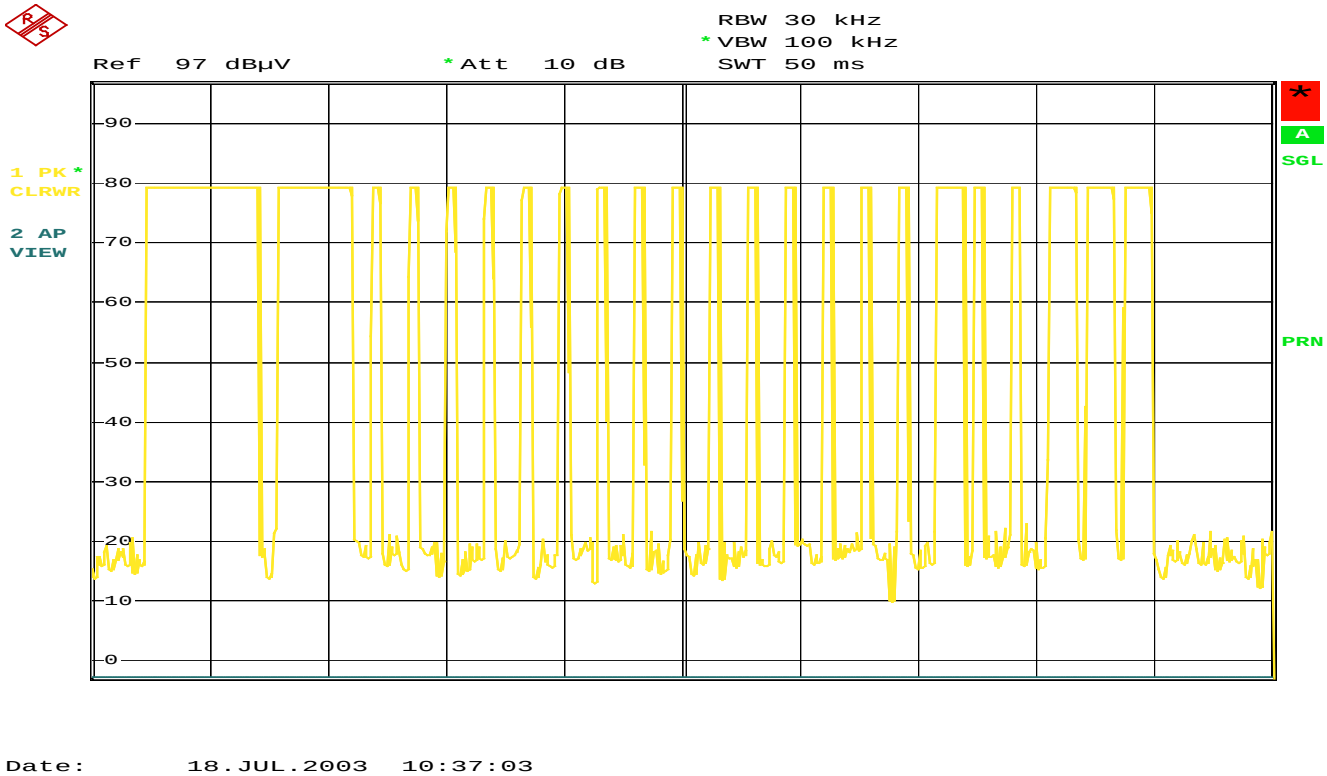
1. Result = Reading + C. factor.
   Ave. = Peak Value + D factor.
2. Factor C means "***Corrected***", and that includes antenna factor, cable loss, amplifier gain (if any).
3. Factor D means "***Duty***", the total period of pulse train is ***48 ms***, and the total duty is ***19.24ms***, and the duty factor is calculated with following formula:

$$\textbf{20 log}\frac{TotalDuty}{PeriodofPulseTrain}\textbf{=20log}\frac{4.7ms+3.1ms+(4*1.16ms)+(17*0.4ms)}{48ms}\textbf{=-7.96(dB)}$$

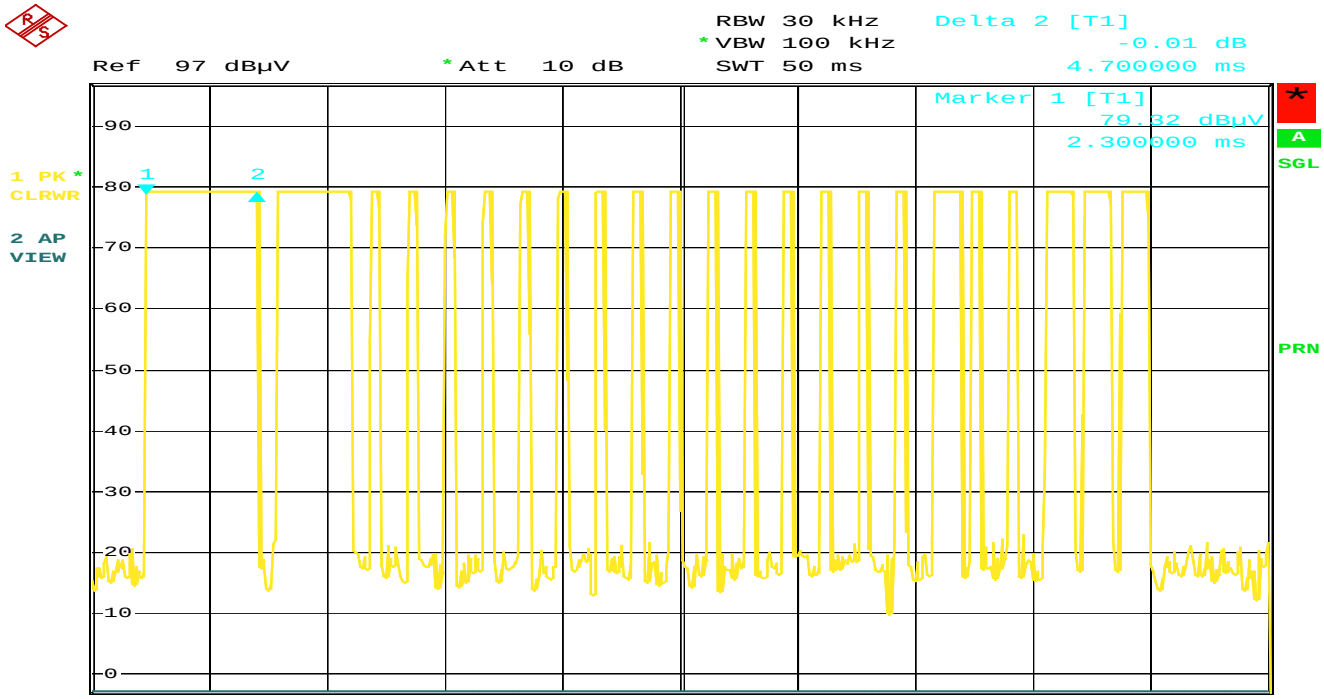
4. Detail please see following to appendix 1.

Appendix 1 – Duty factor Test Waveform





Full Cycle of The Pulse Train



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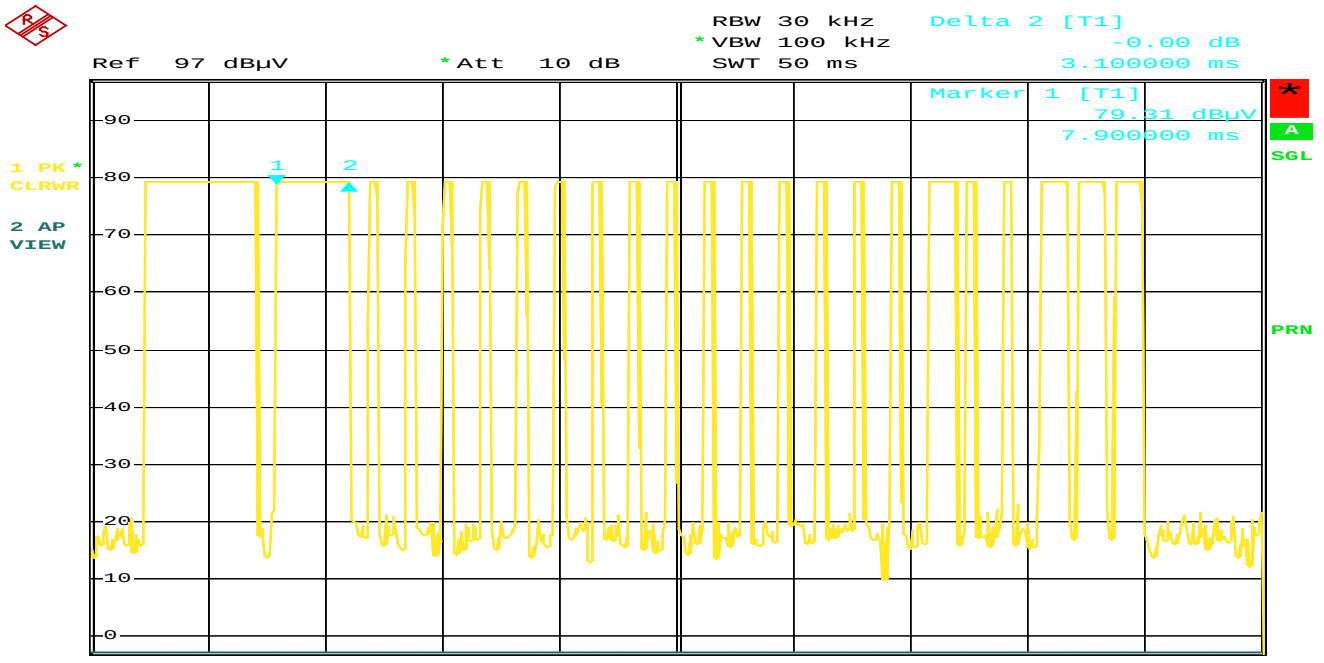
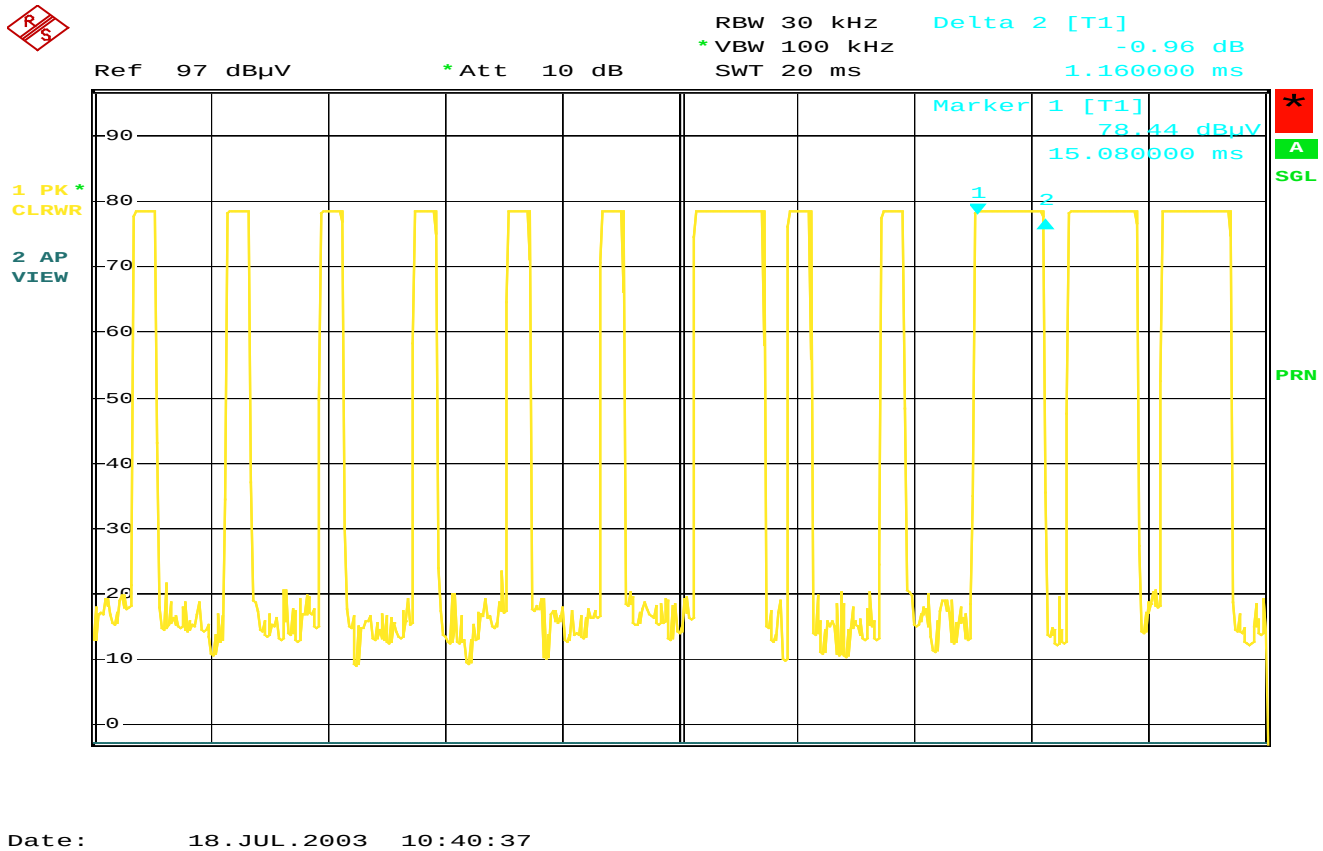


Date: 18.JUL.2003 10:38:16

Detail of The Pulse Train



Detail of The Pulse Train

5 Bandwidth of Emission Measurement

5.1 Instrument

Instrument	Manufacturer	Model	Serial No.	Last Calibration
Spectrum Analyzer	Rohde & Schwarz	FSP 30	100002	2003/03/10
Antenna	Schaffner	CBL6112B	2610	2003/02/25

Note: All instrument upon which need to be calibrated are within calibration period of 1 year.

5.2 Standard Applicable

Per FCC rule §15.231(c), the permitted emission bandwidth is no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz.

5.3 Plot Graphic of Bandwidth

The emission bandwidth for this transmitter is

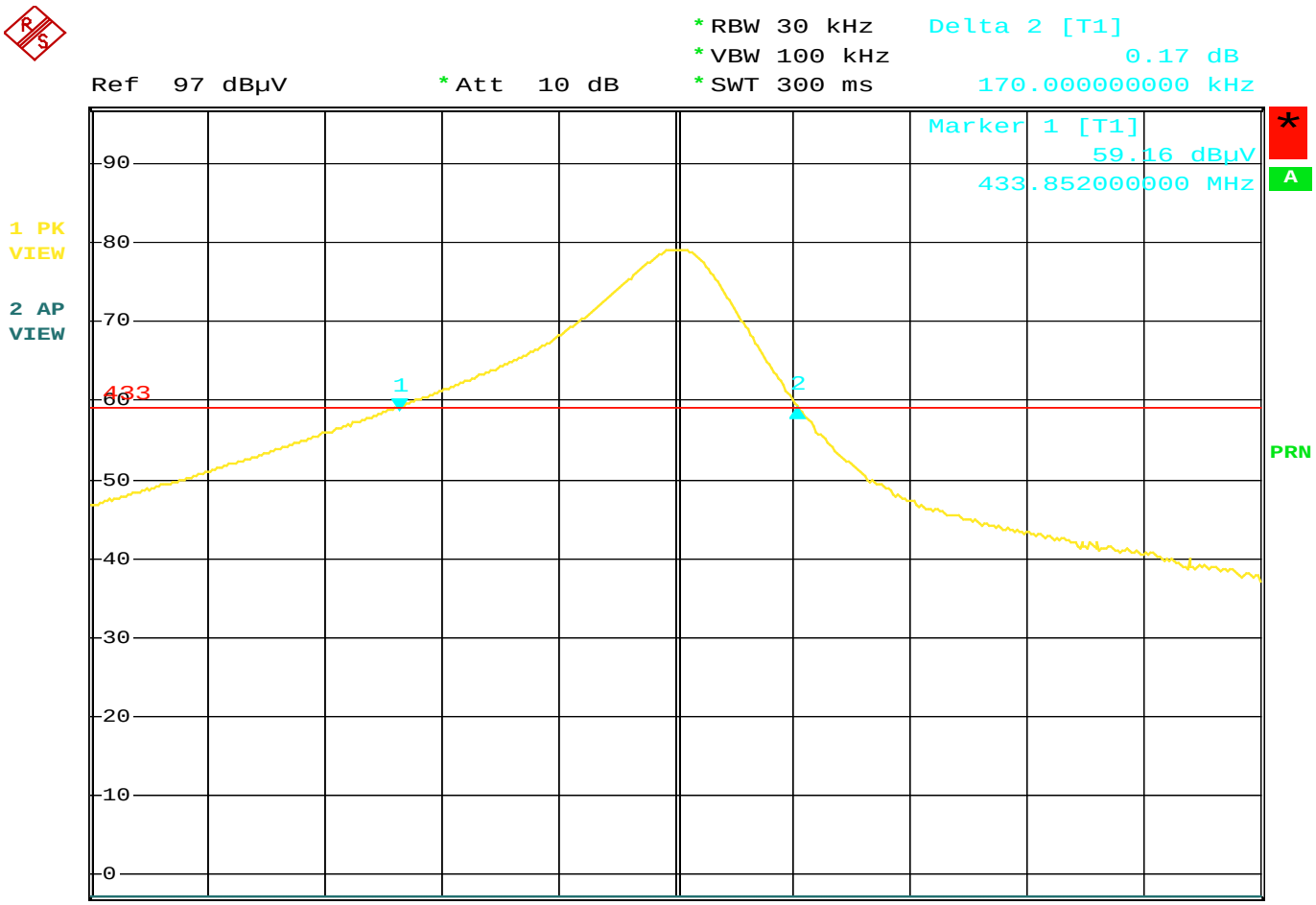
433.852x 0.25% = 1.084 MHz

5.4 Test Result

PASS.

Plotted graphics please see following to appendix 2.

Appendix 2 –Bandwidth of Emission Test Waveform



Date: 18.JUL.2003 10:33:56

Emission Bandwidth

6 Photographs of Measurement

6.1 Radiated Emission Measurement

Front View

Rear View

CERTIFICATE

Company : Interocean EMC Technology Corp.
Facility: OATS 1
(Radiation 3 and 10 meter site)
Address : No.5-2 Lin 1 Tin-Fu Tsun Lin-Kou Hsiang
Taipei County Taiwan 244

This is to certify that the following measuring facility has been registered in accordance with the Regulations for Voluntary Control Measures

Registration No. : R-1040
Date of Registration : January 13, 2000
This Certificate is valid until March 31, 2003

Voluntary Control Council for Interference by Information Technology Equipment

CERTIFICATE

Company : Interocean EMC Technology Corp.
Facility: OATS 2
(Radiation 3 and 10 meter site)
Address : No.5-2 Lin 1 Tin-Fu Tsun Lin-Kou Hsiang
Taipei County Taiwan 244

This is to certify that the following measuring facility has been registered in accordance with the Regulations for Voluntary Control Measures

Registration No. : R-1041
Date of Registration : January 13, 2000
This Certificate is valid until March 31, 2003

Voluntary Control Council for Interference by Information Technology Equipment

CERTIFICATE

Company : Interocean EMC Technology Corp.
Facility: Conducted Room
(Conducted Interference Measurement)
Address : No.5-2 Lin 1 Tin-Fu Tsun Lin-Kou Hsiang
Taipei County Taiwan 244

This is to certify that the following measuring facility has been registered in accordance with the Regulations for Voluntary Control Measures

Registration No. : C-1094
Date of Registration : January 13, 2000
This Certificate is valid until March 31, 2003

Voluntary Control Council for Interference by Information Technology Equipment

中 華 民 國 經 濟 部 標 準 檢 驗 局
臺北市濟南路一段四號
The Bureau of Standards, Metrology and Inspection
Ministry of Economic Affairs
4 Chinan Road, Section 1, Taipei, 100, Taiwan, Republic of China
Tel: (886-2) 2343-1700 Fax: (886-2) 2393-2324

To: Interocean EMC Technology Corp.
No.5-2 Lin 1 Tin-Fu Tsun, Lin-Kou Hsiang,
Taipei County, Taiwan R.O.C.

IN REPLY REFER TO
0913000285

This Designation Document confirms that your subject measurement facility has been validated according to the **ISO/IEC 17025-1999** and found to be in compliance with the requirements of " BSMI's Operation Guidelines of the Approval and Management of Designated Laboratories."

The description of your facility has, therefore, been placed on file and the name of your organization added to the Bureau's list of facilities whose measurement data and test reports will be accepted as a basis for attesting conformity to CNS13438, CNS13783-1, CNS13439, CNS14115 for Information Technology Equipment、household appliances /tools、broadcast receivers and related equipments and fluorescent lights/luminaries.

It is located at: **http://www.bsmi.gov.tw**

Please reference the file numbers below in the body of all test reports containing measurements made on the corresponding facility.

For your **EMI Testing Lab**, use reference " **SL2-IN-E-0026, SL2-A1-E-0026, SL2-R2-E-0026, SL2-R1-E-0026, SL2-A2-E-0026**"

Note that this filing must be updated for any changes made to the documentation and / or facility and whenever major modifications to your documentation or major construction or repairs to your facility are completed, re-submission of the related information or the site attenuation characteristics will be required within 2 weeks.

The Designation is valid through March 19, 2003.

Taipei, April 19, 2000
For BSMI, MOEA

Neng-Jong Lin

United States Department of Commerce
National Institute of Standards and Technology

NVLAP®

Certificate of Accreditation

ISO/IEC GUIDE 25:1990
ISO 9002:1987

INTEROCEAN EMC TECHNOLOGY CORP.
TAIPEI COUNTY 24443
TAIWAN

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

March 31, 2003
Effective through

David F. Alderman
For the National Institute of Standards and Technology

NVLAP Lab Code: 200458-0

NVLAP-01C (11-95)

National Institute of Standards and Technology NVLAP® National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Revised Scope 07/30/2002 **Page: 1 of 3**

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS **NVLAP LAB CODE 200458-0**

INTEROCEAN EMC TECHNOLOGY CORP.
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Phone: 886-2-26006861 Fax: 886-2-946775361
E-Mail: Mike_h@ietc.com.tw
URL: http://www.ietc.com.tw

NVLAP Code	*Designation / Description*
Emissions Test Methods:	
12/CIS14	CISPR 14-1 (March 30, 2000): Limits and methods of measurement of radio interference characteristics of household electrical appliances, portable tools and similar electrical apparatus - Part 1: Emissions
12/CIS14a	EN 55014-1 (1993) with Amendments A1 (1997) & A2 (1999)
12/CIS14b	AS/NZS 1044 (1995)
12/CIS14c	CNS 13783-1
12/CIS22	IEC/CISPR 22 (1997) and EN 55022 (1998): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22 (1993): Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1:1995, and Amendment 2:1996.

March 31, 2003
Effective through

David F. Alderman
For the National Institute of Standards and Technology

NVLAP-01S (06-01)

National Institute of Standards and Technology NVLAP® National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Revised Scope 07/30/2002 **Page: 2 of 3**

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS **NVLAP LAB CODE 200458-0**

INTEROCEAN EMC TECHNOLOGY CORP.

NVLAP Code	*Designation / Description*
12/CIS22b	CNS 13438 (1997): Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment
12/F01	ANSI C63.4 (2000) - cited in FCC Method - 47 CFR Part 15 - Digital Devices
12/F01a	Conducted Emissions, Power Lines, 150 KHz to 30 MHz
12/F01b	Radiated Emissions
12/T51	AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment
Immunity Test Methods:	
12/I01	IEC 61000-4-2 (1995) and Amendment 1 (1998): Electrostatic Discharge Immunity Test
12/I02	IEC 61000-4-3 (1995) and Amendment 1 (1998): Radiated, Radio-Frequency Electromagnetic Field Immunity Test
12/I03	IEC 61000-4-4 (1995): Electrical Fast Transient/Burst Immunity Test
12/I04	IEC 61000-4-5 (1995): Surge Immunity Test
12/I05	IEC 61000-4-6 (1996): Immunity to Conducted Disturbances, Induced Radio-Frequency Fields

March 31, 2003
Effective through

David F. Alderman
For the National Institute of Standards and Technology

NVLAP-01S (06-01)

National Institute of Standards and Technology NVLAP® National Voluntary Laboratory Accreditation Program

ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation

Revised Scope 07/30/2002 **Page: 3 of 3**

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS **NVLAP LAB CODE 200458-0**

INTEROCEAN EMC TECHNOLOGY CORP.

NVLAP Code	*Designation / Description*
12/I06	IEC 61000-4-8 (1993): Power Frequency Magnetic Field Immunity Test
12/I07	IEC 61000-4-11 (1994): Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests

March 31, 2003
Effective through

David F. Alderman
For the National Institute of Standards and Technology

NVLAP-01S (06-01)

Nemko

EMC Laboratory Authorisation

Aut. No.: ELA 181

EMC Laboratory: **Interocean EMC Technology Corp.**
No. 5-2, Lin 1, Tin-Fu Tsun, Lin-Kou Hsiang,
Taipei County
TAIWAN R.O.C.

Scope of Authorization: **All CENELEC standards [ENs] for EMC that are listed on the accompanying page, and, all of the corresponding CISPR, IEC, and ISO EMC standards that are listed on the accompanying page.**

Nemko has assessed the testing facilities, qualifications and testing practices and the relevant part of the organization. The above-mentioned EMC Laboratory has been validated against EN 45001 and ISO 17025 and found to be compliant. The laboratory also fulfils the conditions described in Nemko Document ELA-INFO-10. During Nemko's visit it was found that the EMC Laboratory is capable of performing tests within the Scope of Authorisation given on the accompanying page(s).

Accordingly, Nemko will accept test reports from the laboratory as a basis for attesting conformity to these EMC Standards under either the European Union EMC Directive (89/336/EEC) or, when applicable, the national standards of countries Nemko has been authorised to attest conformity with.

In order to maintain the Authorisation, the information given in the pertinent ELA-INFO-10 must be carefully followed. Nemko is to be promptly notified about any changes in the situation at the EMC Laboratory, which may affect the basis for this Authorisation. The Authorisation may be withdrawn at any time if the conditions are no longer considered to be fulfilled.

The Authorisation is valid through 31 December 2004.

Oslo, 30 May 2002

For Nemko AS:

Kjell Bergh, Nemko Group EMC Co-ordinator

ELA 4-EMC ED1-2002

Nemko AS Gaustadalléen 30 P.O.Box 73 Blindern N-0314 Oslo Norway T +47 22 96 03 30 F +47 22 96 05 50 Enterprise number NO974404532

Nemko

EMC Laboratory Authorisation

Aut. No.: ELA 181

SCOPE OF AUTHORIZATION

GENERIC & PRODUCT-FAMILY STANDARDS

EN 50081-1:1992 EN 61000-6-3 :2001 IEC 61000-6-3 :1996 (mod) EN 50081-2:1993 EN 61000-6-4 :2001 IEC 61000-6-4:1997 (mod)	EN 50082-1:1992 + 1997 EN 50082-1 :1997 EN 61000-6-1:2001 IEC 61000-6-1:1997 (mod)	EN 61000-6-2:1999 IEC 61000-6-2:1999 EN 61000-6-2:2001 IEC 61000-6-2:1999 (mod)
EN 55011:1998 + CISPR 11:97	EN 55013:90 + A12:94 + A13:96 CISPR 13:75 + A1:83	EN 55014-1:1993 + A1:97 CISPR 14:1993 + A1:96
EN 55014-2:1997 CISPR 14-2:1997 EN 55104:1995	EN 55015:1993, CISPR 15:1992 EN 55015:1996 + A1:97 CISPR 15:96 + A1:97	EN 55022:1994 + A1:95 + A2:97 CISPR 22:1993 + A1:95 + A2:96 EN 55022:1998, CISPR 22:1997
EN 55024:1998 CISPR 24:1997	EN 61000-3-2:1995 + A1:1998 + A2:1998 + A14 :2000 IEC 61000-3-2:1995 + A1:1997 + A2:1998 EN 61000-3-2 :2000 IEC 61000-3-2 :2000 (mod) + A1 :2001	EN 61000-3-3 :1995 + A1 :2001 IEC 61000-3-3 :1994 + A1 :2001
EN 61547:1995, IEC 61547:1995	EN 50091-2:1995	EN 50130-4:1995 + A1:98

BASIC STANDARDS

EN 61000-4-2:1995 + A1:98 IEC 61000-4-2:1995 + A1:98 EN 60801-1:1993 IEC 801.2:1991 IEC 801.2:1984	EN 61000-4-3:1996 + A1:98 IEC 61000-4-3:1995 + A1:98 HD 481.3, IEC 801.3:1984 ENV 50140:1993 + ENV 50204:1995	EN 61000-4-4:1995 IEC 61000-4-4:1995 IEC 801.4:1990
EN 61000-4-5:1995 IEC 61000-4-5:1995 ENV 50142:1994	EN 61000-4-6:1996 IEC 61000-4-6:1996 ENV 50141:1993	EN 61000-4-8:1993 IEC 61000-4-8:1993
EN 61000-4-11:1994 IEC 61000-4-11:1994	EN 61000-4-12:1995 IEC 61000-4-12:1995	

Oslo, 30 May 2002 Kjell Bergh, Nemko Group EMC Co-ordinator

2(2)

Nemko AS Gaustadalléen 30 P.O.Box 73 Blindern N-0314 Oslo Norway T +47 22 96 03 30 F +47 22 96 05 50 Enterprise number NO974404532

FEDERAL COMMUNICATIONS COMMISSION
Laboratory Division
7435 Oakland Mills Road
Columbia, MD. 21046

December 29, 1999

Registration Number: 96399

Interocean EMC Technology Corp.
No. 5-2, Lin 1, Tin-Fu Tsun
Lin-Kou Hsiang, Taipei County 244
Taiwan, R.O.C.
Attention: Kent Hsu

Re: Measurement facility located at Lin-Kou, OATS 1 & 2
3 & 10 meter sites
Date of Listing: December 29, 1999

Gentlemen:

Your submission of the description of the subject measurement facility has been reviewed and found to be in compliance with the requirements of Section 2.948 of the FCC Rules. The description has, therefore, been placed on file and the name of your organization added to the Commission's list of facilities whose measurement data will be accepted in conjunction with applications for Certification under Parts 15 or 18 of the Commission's Rules. Please note that this filing must be updated for any changes made to the facility, and at least every three years from the date of listing the data on file must be certified as current.

If requested, the above mentioned facility has been added to our list of those who perform these measurement services for the public on a fee basis. An up-to-date list of such public test facilities is available on the Internet on the FCC Website at WWW.FCC.GOV, E-Filing, OET Equipment Authorization Electronic Filing.

Sincerely,

Thomas W Phillips
Electronics Engineer