

Marstech Limited

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Authorized by:

Professional Engineers
Ontario



Engineering &
Administrative



Testing For FCC
Submissions/Verifications

Industry Canada
Industry Canada

Approved Test Facility



TEST REPORT

REPORT DATE:	22 November 2000	REPORT NO:	20475D1
CONTENTS:	See Table of Contents		
SUBMITTOR:	GRACO CHILDREN'S PRODUCTS INC. 51 South Pine Street, P. O. Box 100 Elverson, PA 19520 USA		
SUBJECT:	Model No: 2775 (S-Parent Unit) FCC ID: M6Y001020900R		
TEST SPECIFICATION	CFR 47 FCC Part 15 Sections: 15.35; 15.109, 15.209 and 15.249 NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	10 November 2000	DATE TESTED:	14 November 2000
RESULTS:	Equipment tested complies with referenced specification.		
ALTERATIONS	The following modifications are required in compliance with referenced specification: 1. The shield was soldered around the gaps. 2. Additional decoupling caps were added to the supply and signal traces.		
Tested by:	Edward Chang	Approved by:	Robert G. Marshall, P. Eng.
		Date:	Dec 11/00
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TECHNICAL REPORT - FCC 2.1033(b)

Applicant

GRACO CHILDREN's PRODUCTS INC.
51 South Pine Street, P. O. Box 100
Elverson, PA
19520 USA

FCC Identifier

M6Y001020900R

Manufacturer

Tru Tech Electronics (M) Sdn Bhd
Kawasan Perindustrian
Kota Tinggi Batu 2 Jalan Lombong
81900 Kota Tinggi
Johor, Malaysia

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EXHIBIT D

[FCC Ref. 2.1033(b)(6)]

"Report of Measurements"

Exhibit D(1)-1 to D(1)-15 - Test Report

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TEST REPORT CONTAINING:

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Exhibit D(1)-15	Measurement Facility (3 meter site)

PRODUCT DESCRIPTION

The three-way S-Parent Unit baby monitor Model 2775 operates in the 902 MHz to 928 MHz band. The antenna used for the S-Parent Unit baby monitor is permanently attached to the UUT. Its actual frequency range is **902.5 to 904.3 MHz**.

TEST EQUIPMENT LIST

- 1 Spectrum Analyzer: HP 8591EM, S/N 3639A00995, Cal. March 2000.
- 2 Spectrum Analyzer: Anritsu 2601A, S/N MT64544, Cal. May 2000.
- 3 Spectrum Analyzer: IFR AN940, S/N 635001039, Cal. March 2000.
- 4 Spectrum Analyzer: Advantest R3271A, S/N J001279, Cal. due May 2001.
- 5 Preamp: HP 8449B, S/N 3008A00378, Cal. March 2000.
- 6 Bilog Antenna: Chase CBL6121A, S/N 1039, Cal. July 2000.
- 7 Dipole Antenna Kit: Compliance Design A100, S/N 00430, Cal. due Sept. 2004.
- 8 Horn Antenna: Q-PAR 6878/24, S/N 1721, 1.5-18GHz.
- 9 Line Impedance Stabilization Network: Marstech, Cal. July 2000.

TEST PROCEDURE

GENERAL:

Shielded interface cables were used in all cases except for cables connecting to the telephone line and the power cords. A test program was run which simulated a normal transmission.

POWER LINE CONDUCTED INTERFERENCE:

The procedure used was ANSI STANDARD C63.4 1992 using a 50uH LISN. Both lines were observed with the UUT transmitting. The bandwidth of the spectrum analyzer was 9KHz QP with an appropriate sweep speed. The ambient temperature of the UUT was 24°F with a humidity of 60%.

BANDWIDTH 20dB:

The measurements were made with the spectrum analyzer's resolution bandwidth (RBW)=100KHz and the video bandwidth (VBW)=1.0MHz and the span set as shown on plot.

POWER OUTPUT:

The radiated output power was measured with the spectrum analyzer and dipole Antenna.

RADIATION INTERFERENCE:

The test procedure used was ANSI STANDARD C63.4-1992 using an appropriate spectrum analyzer, as listed in the Test Equipment List. The bandwidth (RBW) of the spectrum analyzer was 100KHz/120KHz up to 1GHz with an appropriate sweep speed. The RBW above 1.0GHz was = 1MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 24°F with a humidity of 60%.

15.107 (a) POWER LINE CONDUCTED INTERFERENCE

Requirements: 0.45 - 30MHz 250 μ V or 47.96dB μ V

Test Procedure: ANSI STANDARD C63.4-1992.
The spectrum was scanned from 0.45 to 30MHz.

Test Data:

THE HIGHEST EMISSION READ FOR LINE 1 WAS 23.04 dB μ V @ 7.17 MHz.

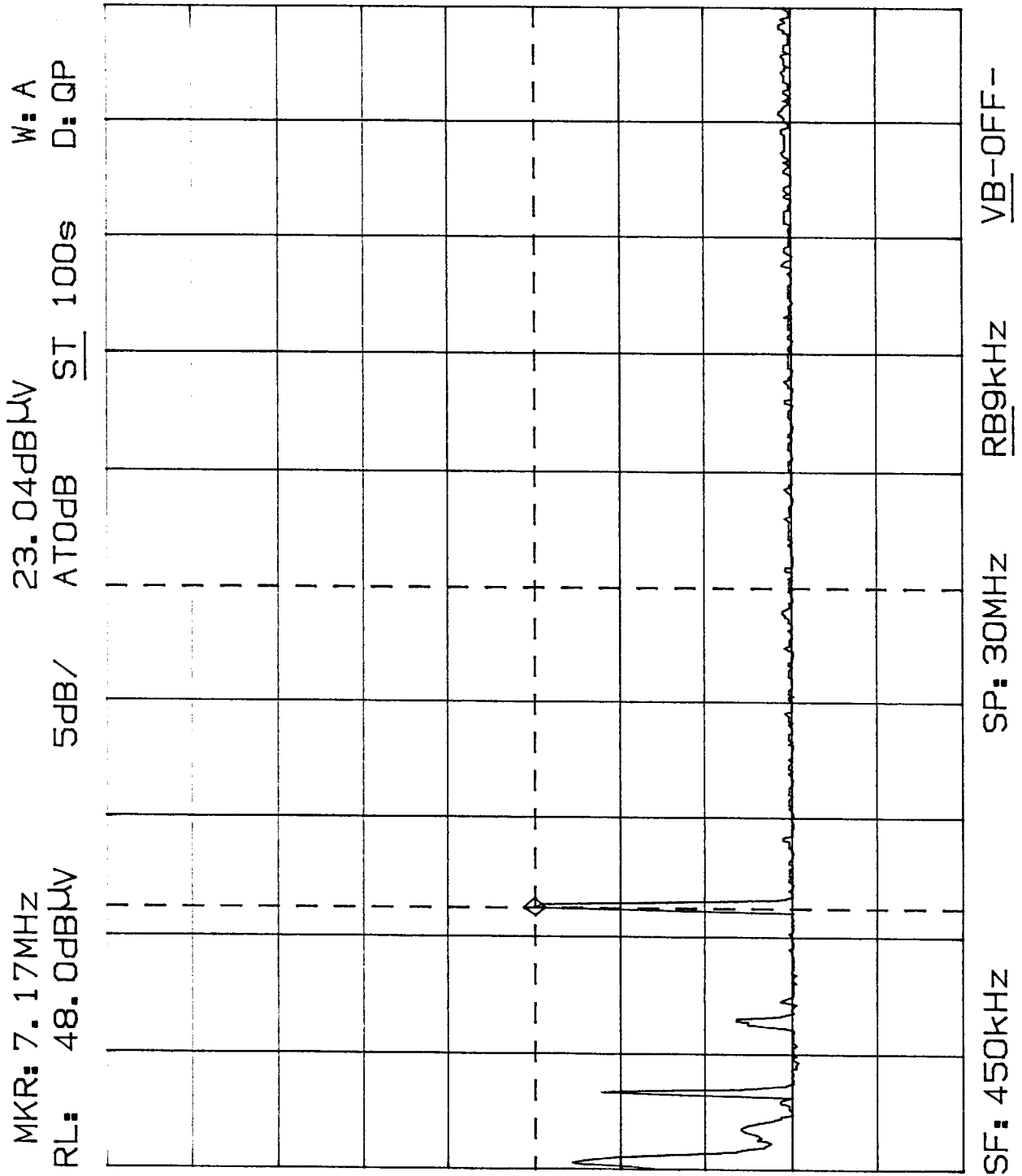
THE HIGHEST EMISSION READ FOR LINE 2 WAS 21.78 dB μ V @ 7.17 MHz

The graphs in Exhibits D(1)-6 and -7 represent the emissions taken for this device.

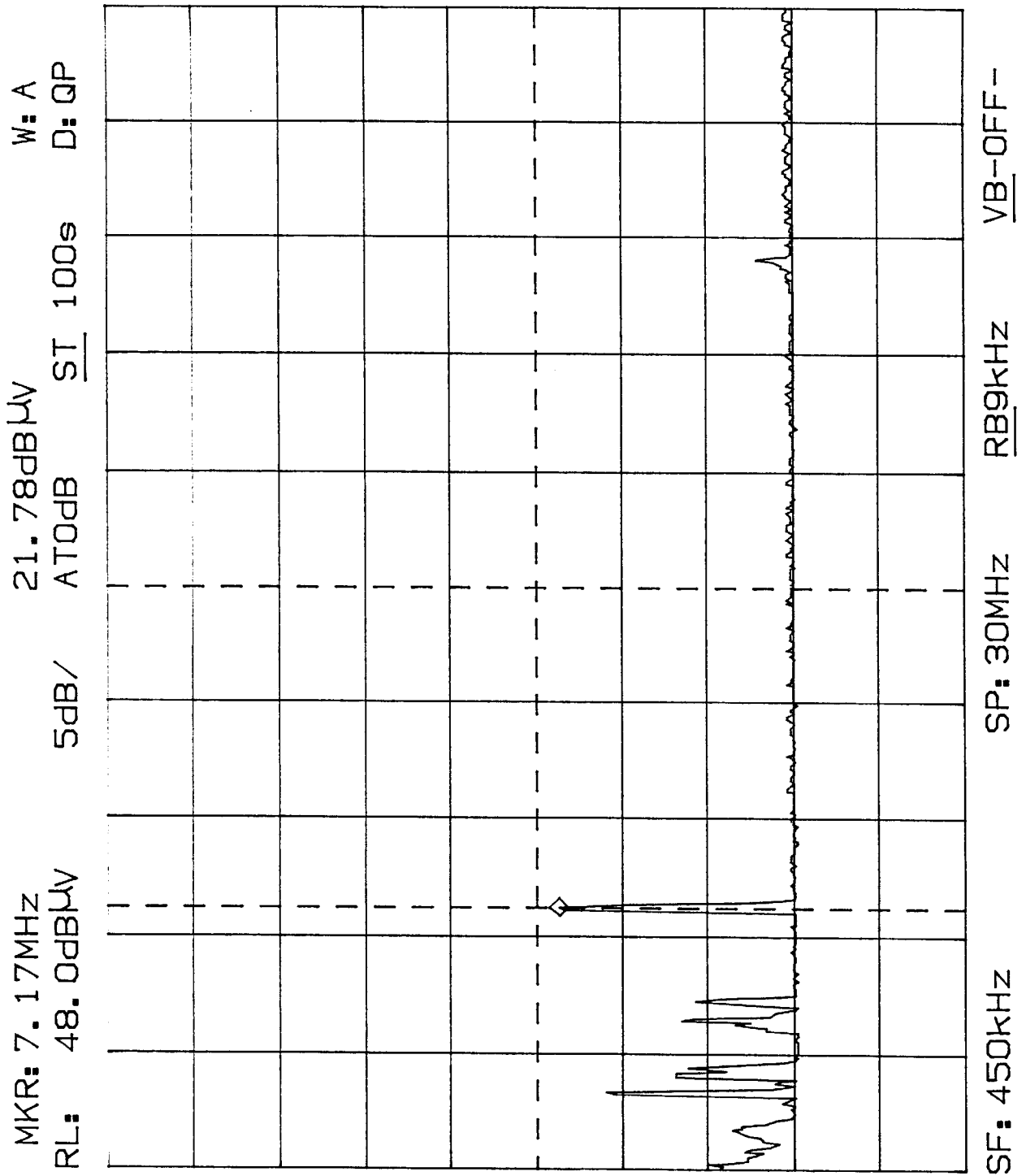
Test Results:

Both lines were observed. The measurements indicate that the unit DOES appear to meet the FCC requirements for this class of equipment.

POWER LINE CONDUCTED EMISSIONS
MODEL 2775 (S-Parent Unit); LINE 1



POWER LINE CONDUCTED EMISSIONS
MODEL 2775 (S-Parent Unit; LINE 2)



15.249 (c) BAND EDGES

Requirements: Emissions outside of the frequency band 902 to 928 MHz must be attenuated 50dB below the fundamental.

Measurement: The unit was attenuated by 50 dB.

Measurement Data: See Plots on next page.

BAND EDGE ATTENUATION **MODEL 2775 (Baby Unit)**

12:28:44 NOV 15, 2000

17

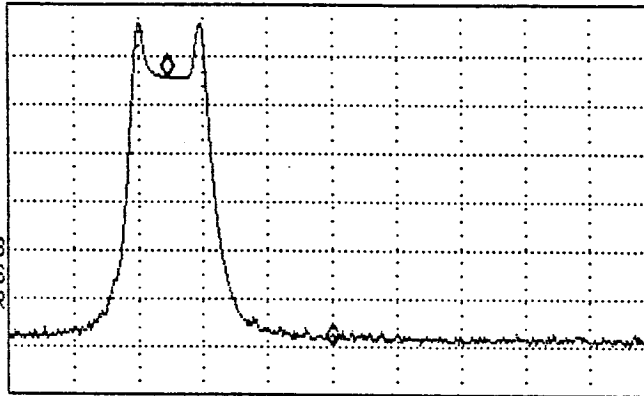
MARKER Δ
-510 kHz
55.23 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ -510 kHz
55.23 dB

LOG REF 80.0 dB μ V

10
dB/
#ATH
0 dB

WA SB
SC FS
CORR



CENTER 928.000 MHz

#IF BW 10 kHz

#AVG BW 1 MHz

SPAN 2.000 MHz

#SWP 20.0 sec

12:35:58 NOV 15, 2000

17

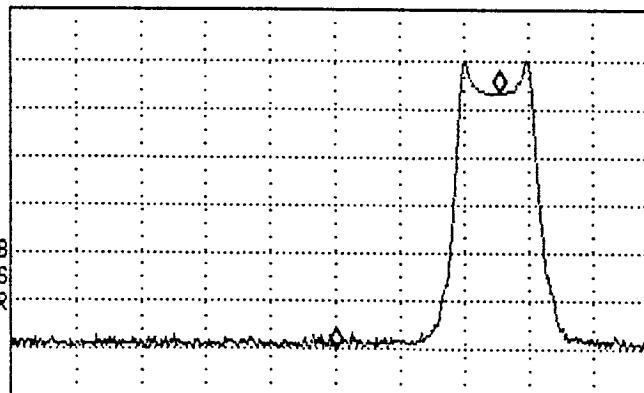
MARKER Δ
510 kHz
53.18 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR Δ 510 kHz
53.18 dB

LOG REF 80.0 dB μ V

10
dB/
#ATH
0 dB

WA SB
SC FS
CORR



CENTER 902.000 MHz

#IF BW 10 kHz

#AVG BW 1 MHz

SPAN 2.000 MHz

#SWP 19.0 sec

BAND EDGE ATTENUATION **MODEL 2775 (S-Parent Unit)**

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EXHIBIT D(1)-9

BANDWIDTH

MODEL 2775 (Baby Unit)

11:32:54 NOV 15, 2000

/P

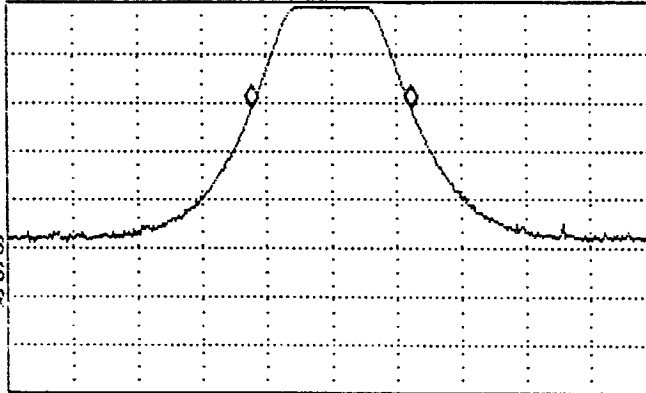
MARKER Δ
490 kHz
-.04 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 490 kHz
-.04 dB

LOG REF 68.0 dBμV

10
dB/
#ATH
0 dB

WA SB
SC FS
CORR



CENTER 925.700 MHz SPAN 2.000 MHz
#IF BW 120 kHz #AVG BW 1 MHz #SWP 20.0 sec

11:41:00 NOV 15, 2000

/P

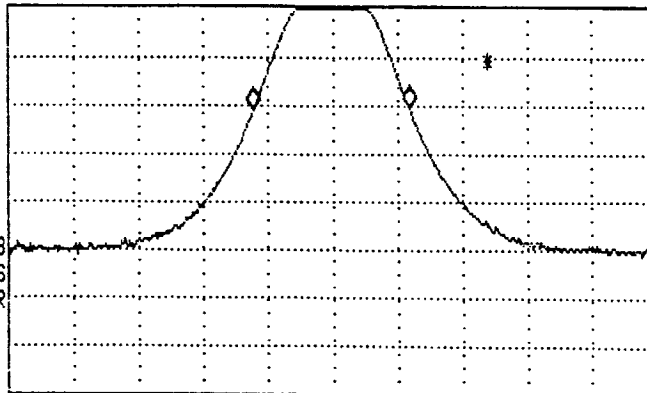
MARKER Δ
480 kHz
.30 dB

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKRΔ 480 kHz
.30 dB

LOG REF 70.0 dBμV

10
dB/
#ATH
0 dB

WA SB
SC FS
CORR



CENTER 902.500 MHz SPAN 2.000 MHz
#IF BW 120 kHz #AVG BW 1 MHz #SWP 19.8 sec

BANDWIDTH

MODEL 2775 (S-Parent Unit)

FCC ID: M6Y001020900R
Marstech Report No. 20475D1
EXHIBIT D(1)-10

15.249 (a) and 15.249 (b)
FIELD STRENGTH OF EMISSIONS

Requirements:

<u>Field Strength of</u> <u>Fundamental</u>		<u>Field Strength of</u> <u>Harmonics</u>	<u>S15.209</u>	
			30-88 MHz	40 dB μ V/m@ 3m
902 to 928MHz	94dB μ V	54dB μ V/m@ 3m	88-216 MHz	43.5
			216-960 MHz	46
			Above 960 MHz	46

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation.

Emissions that fall in the restricted bands (15.205) must be less than 54dB μ V/m

FIELD STRENGTH OF EMISSIONS

Test Data:**S-PARENT UNIT**

Emission Frequency MHz	Meter Reading @3m dB μ V	Antenna	Cable and ACF dB	Field Strength dB μ V/M	FCC Limit dB μ V/M	Margin dB	Detector & BW KHz
<u>Channel 1</u>							
902.500	56.40	RT.4 V	33.10	89.5	94	-4.5	PK 100
1805.00	12.92	Horn V	33.20	46.12	54	-7.88	PK 1000
2707.70	13.03	Horn V	33.92	46.95	54	-7.05	PK 1000
3610.13	17.38	Horn V	35.38	52.76	54	-1.24	PK 1000
4512.70	12.70	Horn V	37.17	49.87	54	-4.13	PK 1000
5415.40	9.72	Horn V	38.61	48.33	54	-5.67	PK 1000
6317.50	---						
7220.00	---						
8122.50	---						
9025.00	---						
<u>Channel 25</u>							
904.3000	56.82	RT.4 V	33.20	90.02	94	-3.98	PK 100
1808.60	13.92	Horn V	33.20	47.12	54	-6.88	PK 1000
2712.90	13.03	Horn V	33.92	46.95	54	-7.05	PK 1000
3617.40	17.36	Horn V	35.38	52.74	54	-1.26	PK 1000
4521.60	14.36	Horn V	37.22	51.58	54	-2.42	PK 1000
5425.80	---						
6330.10	---						
7234.40	---						
8138.70	---						
9043.00	---						

FEDERAL COMMUNICATIONS COMMISSION

Laboratory Division
7435 Oakland Mills Road
Columbia, MD. 21046

September 20, 2000

Registration Number: 90578

Electrohome Electronics Ltd.
809 Wellington St. N.
Kitchener, Ontario N2G 4J6
Canada

Attention: Gerry Gallagher

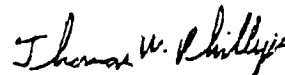
Re: Measurement facility located at Roseville
3 meter-site
Date of Listing: September 20, 2000

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