Marstech Limited

11 Kelfield Street, Etobicoke, Ontario, Canada, M9W 5A1
Telephone (416) 246-1116, Fax (416) 246-1020

Authorized by: Professional Engineers Ontario

Certificated by UL — Engineering & Administrative Agency

Testing For FCC Submissions/Verifications

Approved Test Facility — Industry Canada

Qualified Facility

TEST REPORT

REPORT DATE:	20 April 1999		REPORT NO: 99140D
CONTENTS:	See Table of Contents		
SUBMITTOR:	THOMSON CONSUMER ELECTRONICS, INC. Audio & Communications Product Dev. 101 West 103rd Street Indianapolis, IN 46290-1102 USA		
SUBJECT:	Model No: 26930XXX-A		
	FCC ID: G9H2-9917		
TEST SPECIFICATION	FCC CFR 47 15.233 AND 2.989 Sections: 15.35, 15.107, 15.109, 15.207 and 15.209 NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	30 March 30 1999	DATE TESTED:	7 April 1999
RESULTS:	Equipment tested complies with referenced specification.		
ALTERATIONS	NONE		
Tested by:	Original signed by: Jim Sims	Approved by:	Original signed by: Ed. Chang
	Ed. Chang	for	Robert G. Marshall, P. Eng.
	Edward Chang	Date:	

TECHNICAL REPORT - FCC 2.1033(b)

Applicant

Thomson Consumer Electronics, Inc.
Audio & Communications Product Dev.
101 West 103rd Street
Indianapolis, IN
46290-1102 USA

FCC Identifier

G9H2-9917

Manufacturer

Integrated Display Technology Ltd.
Block D, Xixian Chen Tian Industrial Estate
Xixian Town, Baoan City
China

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EXHIBIT D

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

"Report of Measurements"

EXHIBIT D(1)

DEVICE MEASURED

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

APPLICANT:	Thomson Consumer Electronics, Inc. Audio & Communications Product Dev. 101 West 103rd Street Indianapolis, IN 46290-1102 USA
MANUFACTURER:	Integrated Display Technology Ltd. Block D, Xixian Chen Tian Industrial Estate Xixian Town, Baoan City China
FCC IDENTIFIER:	G9H2-9917
MODEL NUMBER:	26930XXX-A
SERIAL NO.:	N/M

Marstech Limited
11 Kelfield Street
Etobicoke, Ontario
M9W 5A1 CANADA

TECHNICIANS:
Jim Sims - Com-Serve Corp.
Edward Chang - Marstech Limited

Ed. Chang

Robert G. Marshall, P. Eng.

Date: 13 May 1999.

EXHIBIT D(2)

TEST FACILITY AND EQUIPMENT LIST

FACILITIES

Radiated	ANSI C63.4 (FCC OET/55) open field 3 meter test range. This test range is protected from the cold and moisture by a non-conductive enclosure.
Conducted	2.5m Anechoic Chamber

EQUIPMENT

Anritsu 2601 A spectrum analyzer.
Hewlett-Packard RF generator # 8640 B with an 002 doubler
Hewlett-Packard 8449B Preamp. (30 dB) .. 1.0 MHz to 26.5 GHz
A.H. Systems biconical antenna; ..... 20 MHz to 330 MHz
A.H. Systems log periodic antenna; ..... 300 MHz to 1.8 GHz
A.H. Systems log periodic antenna; ..... 1.0 GHz to 12.4 GHz
Eaton dipole antennas; T1, T2, T3 ..... 25 MHz to 1.0 GHz
Roberts dipole antennas; T1, T2, T3 & T4 25 MHz to 1.0 GHz
Compliance Design P950 Preamp (16 dB) ... 25 MHz to 1.0 GHz
Notch Filter; Model FIL01605001 ..... 30 dB at 920 MHz
M/A-COM High Frequency Cable Assembly; No. 2026-0600

NOTE:

The Anritsu 2601 A spectrum analyzer and the Advantest R3261A spectrum analyzer are calibrated annually, and that calibration is directly traceable to the National Research Council of Canada. (NRC) This equipment is only used by qualified technicians and only for the purpose of EMI measurements. The three metre test range has been carefully evaluated to the ANSI document C63.4 and will be remeasured for reflections and losses every three years.

FEDERAL COMMUNICATIONS COMMISSION

7435 Oakland Mills Road
Columbia, MD 21046
Telephone: 301-725-1585 (ext-218)
Facsimile: 301-344-2050

September 23, 1997

IN REPLY REFER TO
31040/SIT
1300F2

Electrohome Electronics Ltd
809 Wellington Street, North
Kitchener, Ontario N2G 4J6, Canada

Attention: Gerry Gallagher

Re: Measurement facility located at Roseville
(3 meter site)

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 or notification under Parts 15 or 18 of the Commission's Rules. Our list will also indicate that the facility complies with the radiated and AC line conducted test site criteria in ANSI C63.4-1992. Please note that this filing must be updated for any changes made to the facility, and at least every three years the data on file must be certified as current.

Per your request, the above mentioned facility has been also added to our list of those who perform these measurement services for the public on a fee basis. This list is published periodically and is also available on the Laboratory's Public Access Link as described in the enclosed Public Notice.

Sincerely,

Thomas W. Phillips
Electronics Engineer
Customer Service Branch

FCC ID: G9H2-9917
Marstech Report No. 99140D
EXHIBIT D(2)-2

EXHIBIT D(2)

SPECTRUM ANALYZER -	ANRITSU MS2601A S/N MT64544 - NEXT CALIBRATION APRIL 2000

SUMMARY OF RESULTS

		COMPLIANCE (yes)	(no)
FIELD STRENGTH OF THE CARRIER FREQUENCIES			
Handset:	Low Channel	(x)	( )
Handset:	High Channel	(x)	( )
Base Station:	Low Channel	(x)	( )
Base Station:	High Channel	(x)	( )
SPURIOUS RADIATED EMISSIONS (15.109)			
Handset:		(x)	( )
Base Station:		(x)	( )
SPURIOUS RADIATED EMISSIONS (15.209/15.249)			
Handset:	Low Channel	(x)	( )
Handset:	High Channel	(x)	( )
Base Station:	Low Channel	(x)	( )
Base Station:	High Channel	(x)	( )
LINE CONDUCTED SPURIOUS EMISSIONS			
Base Station:	Telephone Mode:	(x)	( )
EQUIPMENT REQUIREMENTS AND IDENTIFICATION			
a) Manufacturers or applicants name:		(x)	( )
b) FCC ID:		(x)	( )
c) Serial number:		(N/M)	( )
d) Antenna:		(x)	( )
e) Operator controls:		(x)	( )
f) Security Coding		(x)	( )
g) Equipment/Packaging Marking		(x)	( )

CARRIER FIELD STRENGTH

RESULTS

Handset:
Low Channel: **Maximum field strength of 42,018 μV/M; at 925.400 MHz.**
High Channel: **Maximum field strength of 49,170 μV/M; at 927.250 MHz.**
Note: *The remote headset was attached to the handset during carrier level tests.*

Base Station:
Low Channel: **Maximum field strength of 40,565 μV/M; at 902.850 MHz.**
High Channel: **Maximum field strength of 34,560 μV/M; at 904.750 MHz.**
Note: *All other channels were checked for carrier frequency field strength levels.*

TEST CONDITIONS

Equipment Positioning:
Handset: vertical or upright
Base Station: standing vertically with the antenna extended in the vertical plane.

Antenna Polarization:
Handset: vertical
Base Station: vertical

Antenna Type: T.4; tuned half wave dipole

Measurement Bandwidth: 100 KHz

Supply Voltages:
Handset: 3.6 VDC from an internal battery.
Base Station: 120 VAC/60 Hz to 15 VDC (adapter)

METHODS OF MEASUREMENT

The cordless phone components were placed in turn on a one metre high, non-metallic turntable and set at maximum output level. Measurements were made in a minimum of 3 positions for the handset and 2 for the base station. If adjustable, the whip antennas were fully extended.

For each of the above conditions the turntable was rotated through 360 degrees while the receiving antenna, at three (3) metres from the EUT, was varied in height from 1 to 4 metres and set in both planes of polarization to find the maximum signal strength. The level was measured using a spectrum analyzer. The measured level was converted to a field strength using the antenna correction factors and cable losses.

All base station measurements were made with the equipment under test connected to an artificial telephone line network, with 48 VDC applied.

SPURIOUS RADIATED EMISSIONS

RESULTS

The maximum field strength of any harmonic or spurious emission with respect to the applicable limit, while transmitting or receiving was:

Handset: **Maximum field strength of: 060.0 μV/M at 462.80 MHz**
Maximum field strength of: NONE FOUND ABOVE 1.0 GHz

Note: *The remote headset was attached to the handset during spurious emission tests.*

Base Station:

Maximum field strength of: 156.2 μV/M at 936.98 MHz
Maximum field strength of: 370.0 μV/M at 1.8095 GHz

TEST CONDITIONS

Equipment Positioning:	
Handset:	laying on its side
Handset, above 1 GHz	standing vertically
Base Station:	standing on its back with the antenna extended in the vertical plane.
Antenna Polarization:	
Handset:	horizontal
Base Station:	horizontal
Base Station, Receive:	horizontal
Measurement Bandwidth:	100/120 KHz(IF) & 1 MHz(IF) for frequencies above 1.0 GHz.
Supply Voltages:	
Handset:	3.6 VDC from an internal battery.
Base Station:	120 VAC/60 Hz to 15 VDC (adapter)

METHODS OF MEASUREMENT

The cordless phone components were placed in turn on a one metre high, non-metallic turntable. Measurements were made in a minimum of 3 positions for the handset and 2 for the base station. If adjustable, the whip antennas were fully extended.

For each of the above conditions the turntable was rotated through 360 degrees while the receiving antenna, at three (3) metres from the EUT, was varied in height from 1 to 4 metres and set in both planes of polarization to find the maximum signal strength. The level was measured using a spectrum analyzer. The measured level was converted to a field strength using the antenna correction factors and cable losses.

All base station measurements were made with the equipment under test connected to an artificial telephone line network, with 48 VDC applied.

RADIATED EMISSION RESULTS

BW: 100/120 KHz and 1.0 MHz
Span: 5 to 50 MHz

HANDSET

TEST # MODE	FREQ MHz BAND	LEVEL μV	ANT. TYPE (PZ)	ANT. FACT.	F.S. μV/M	LIMIT μV/M	DIFF. TO LIMIT; dB
CARRIER	925.4	940	RT.4 V	44.7	42018.0	50000	-1.51
CARRIER	927.25	1100	RT.4 V	44.7	49170.0	50000	-0.15
01 TX	462.8	6	L/P H	10	60.0	200	-10.46

BASE STATION

TEST # MODE	FREQ MHz BAND	LEVEL μV	ANT. TYPE (PZ)	ANT. FACT.	F.S. μV/M	LIMIT μV/M	DIFF. TO LIMIT; dB
CARRIER	902.85	939	RT.4 V	43.2	40564.8	50000	-1.82
CARRIER	904.75	800	RT.4 V	43.2	34560.0	50000	-3.21
01 TX	1805.7	95	L/P H	3.7	351.5	500	-3.06
02 TX	1809.5	100	L/P H	3.7	370.0	500	-2.62
03 TX	451.8	11.1	L/P H	9	99.9	200	-6.03
04 RX	468.2	4.3	L/P H	10.4	44.7	200	-13.01
05 RX	936.98	4.2	L/P H	37.2	156.2	200	-2.14

POWER LINE CONDUCTED EMISSIONS

RESULTS

The largest RF voltages on the AC power lines, over the frequency range of 450 KHz to 30 MHz, was **8.13 μV (18.20 dBμV) at 7.14 MHz** from the base station while transmitting and/or receiving. (B side of the line in the telephone mode) Refer to the attached results.

TEST CONDITIONS

Measurement Bandwidth:	9 KHz Q.P. (IF)
AC Test Voltage:	120 VAC (filtered and stabilized)
Mode of Operation:	Telephone

METHODS OF MEASUREMENT

The base station portion of the cordless phone was placed on a wooden table directly above a 50 ohm line impedance stabilization network.(LISN) If adjustable, the whip antenna was fully extended vertically and the AC power attachment cord went directly down to the LISN. The LISN is grounded directly to the floor of the test facility. Excess AC cord was coiled in a figure eight pattern before connecting directly to the 50 micro-henry LISN.

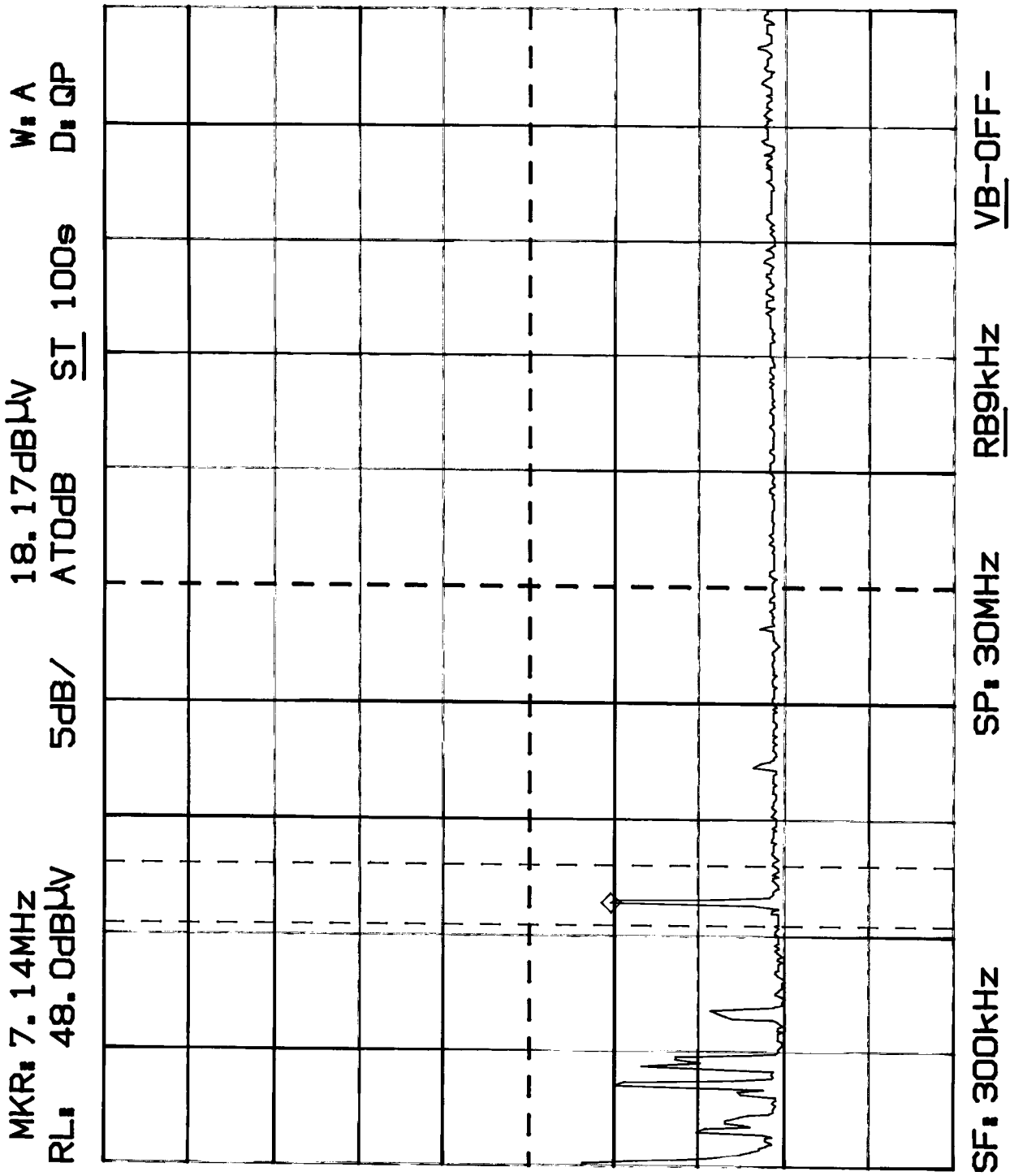
The base station was connected to a simulated 9,000 foot phone line and 48 VDC was applied. The 9,000 foot phone line network was grounded to the nearest AC outlet with a test lead.

A length of low loss RF foam cable was used to couple the RF voltages from the LISN to the spectrum analyzer. The base station transmitter was keyed on by the handset transmitting nearby. All of the RF voltages were recorded and are attached.

The base station was tested in all modes of operation which were applicable to the specific equipment under test. This included operating modes such as "calling/paging", quiescent or receive mode and standard telephone/transmit operation.

If the cordless phone contained an intercom mode of operation, then this test was repeated in that mode. The attached results represent the **worst case results** in each test condition.

AC WIRELINE CONDUCTED EMISSIONS
MODEL 26930XXX-A
SIDE: A



AC WIRELINE CONDUCTED EMISSIONS
MODEL 26930XXX-A
SIDE: B