


Marstech Limited

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TEST REPORT			
REPORT DATE:	October 26, 1998	REPORT NO: 98404D/B	
CONTENTS:	See Table of Contents		
SUBMITTOR:	SMARTHOMES PRODUCTS LTD. 8/F Block B Rm. B812, Sea View Estate 2-8 Watson Road North Point, Hong Kong		
SUBJECT:	Model No:	WC812P	
	FCC ID:	LQP-R00	
TEST SPECIFICATION:	FCC CFR 47 Part 15.109 and 15.107 IC RSS-210 Section 7.3 and 7.4 NOTE: Tests Conducted Are "Type" Tests.		
DATE SAMPLE RECEIVED:	September 25, 1998	DATE TESTED:	October 19, 1998
RESULTS:	Equipment tested complies with referenced specification.		
ALTERATIONS	None		
Tested by:	Original signed by:	Approved and Certified by: 	
	Jim Sims	Robert G. Marshall	
		Date:	Oct 29/98
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Authorized by:
Professional Engineers
Ontario



Engineering &
Administrative



Testing For FCC
Submissions/Verifications

Approved Test Facility



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TECHNICAL REPORT - FCC 2.1033(b)/RSS-210 Cl. 5.

Applicant

Smarthome Products Ltd.
8/F Block B, Rm. B812, Sea View Estate
2-8 Watson Road
North Point, Hong Kong

FCC Identifier

LQP-R00

Manufacturer

Smarthome Products (Shenzhen) Co. Ltd.
Shiyan, Baoan,
Shenzhen, CHINA 518108

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EXHIBIT D

(FCC Ref. 2.1033(b)(6)/
IC RSS-210 Cl. 5.2-5.8

"Report of Measurements"

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EXHIBIT D(1)

DEVICE MEASURED

(FCC Ref. 2.1033(b)(6)/
IC RSS-210 Cl. 5.3)

APPLICANT: Smarthome Products Ltd.
8/F Blk. B Rm. B812, Sea View Estate
2-8 Watson Road
North Point, Hong Kong

MANUFACTURER: Smarthome Products (Shenzhen) Co. Ltd.,
Shiyan, Baoan,
Shenzhen, CHINA 518108

FCC IDENTIFIER: LQP-R00

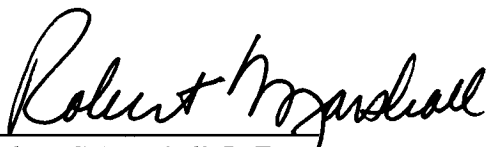
TRADE NAME: CHIME-PLUS

MODEL NUMBER: WC812P

SERIAL NO.: Not Marked

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

TECHNICIANS:
Jim Sims - Com-Serve Corp.


Robert G. Marshall, P. Eng.

Date: Oct 29/98

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

- Hewlett-Packard spectrum analyzer # 8554 RF & 141T video.
- Anritsu 2601 A spectrum analyzer.
- Advantest R3261A Spectrum Analyzer
- Hewlett-Packard RF generator # 8640 B with an 002 doubler
- Hewlett-Packard RF voltmeter # 400 FL.
- Hewlett-Packard attenuator 30 dB # 11708A.
- Narda 20 watt (20 dB) attenuator
- A.H. Systems biconical antenna; 20 MHZ - 330 MHZ
- A.H. Systems log periodic antenna; 300 MHZ - 1.8 GHZ
- Eaton dipole antennas; T1, T2, T3 25 MHZ - 1.0 GHZ
- CDI Roberts dipole antennas; T1, T2, T3 & T4 25 MHZ - 1.0 GHZ

NOTE:

The Anritsu 2601 A spectrum analyzer, the Hewlett-Packard 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 meter 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

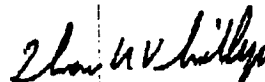
Re: Measurement facility located at Roseville
(3 meter site)

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

SUMMARY OF RESULTS

COMPLIANCE

(yes) (no)

FIELD STRENGTH OF THE CARRIER FREQUENCIES

Transmitter:

(N/A) ()

OCCUPIED BANDWIDTH:

Transmitter:

(N/A) ()

SPURIOUS RADIATED EMISSIONS

Receiver: FCC 15.109 (a), IC RSS-210 Cl. 7.3

(X) ()

Transmitter:

(N/A) ()

LINE CONDUCTED SPURIOUS EMISSIONS

Receiver: FCC 15.107, IC RSS-210 Cl. 7.4

(X) ()

Transmitter:

(N/A) ()

ENVIRONMENTAL TESTS

Transmitter:

(N/A) ()

EQUIPMENT REQUIREMENTS AND IDENTIFICATION

a) Manufacturers/Applicants or Tradename:

(X) ()

b) Model designation:

(X) ()

c) FCC ID/IC Certification Number

(X) ()

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SPURIOUS RADIATED EMISSIONS

RESULTS

The maximum field strength of any spurious emission or harmonic, from 25 MHz to 2,000 MHz, while receiving was:

Model WC812P

Receiver: **Maximum field strength of 113.0 μ V/M: at 312.70 MHz**

TEST CONDITIONS

Equipment Positioning:

Receiver: standing vertically

Antenna Polarization:

Receiver: horizontal

Measurement Bandwidth:

120 KHz and 1 MHz (IF)

Supply Voltages:

Receiver: 120 VAC/60 Hz

METHODS OF MEASUREMENT

The remote door chime receiver, was placed on a one metre high, non-metallic turntable. The EUT was an unmodified sample as supplied by the manufacturer. Power was provided via a standard extension cord, directly connected to the 120 VAC powerline. The remote door chime receiver was set in the receive mode and the entire spectrum up to 2,000 MHz was searched for spurious emissions. All emissions were measured and recorded. The spectrum analyzer used was set in both the PEAK and QUASI-PEAK modes of operation to ensure consistent results. Measurements over 1 GHz were in PEAK mode only.

The receive frequency, 315 MHz, was measured using an external, unmodulated ambient RF carrier signal tuned across the wideband of receiver noise. The unmodulated carrier was emanating from an antenna in the proximity of the receiver. Care was taken so as not to overload the receiver, however the carrier level was varied in amplitude and frequency to obtain the highest level of spurious emissions from the receiver. This external signal was set to cause receiver "quieting" or to cohere the superregenerative receiver and cause single, discrete noise components to appear. At this point the largest emission or single frequency component within this band was measured and recorded.

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 to find the maximum signal strength. The measured level was converted to a field strength using the antenna correction factors and cable losses.

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RADIATED EMISSION RESULTS

BW: 100/120QP KHz and 1 MHz

Span: 05 to 50 MHz

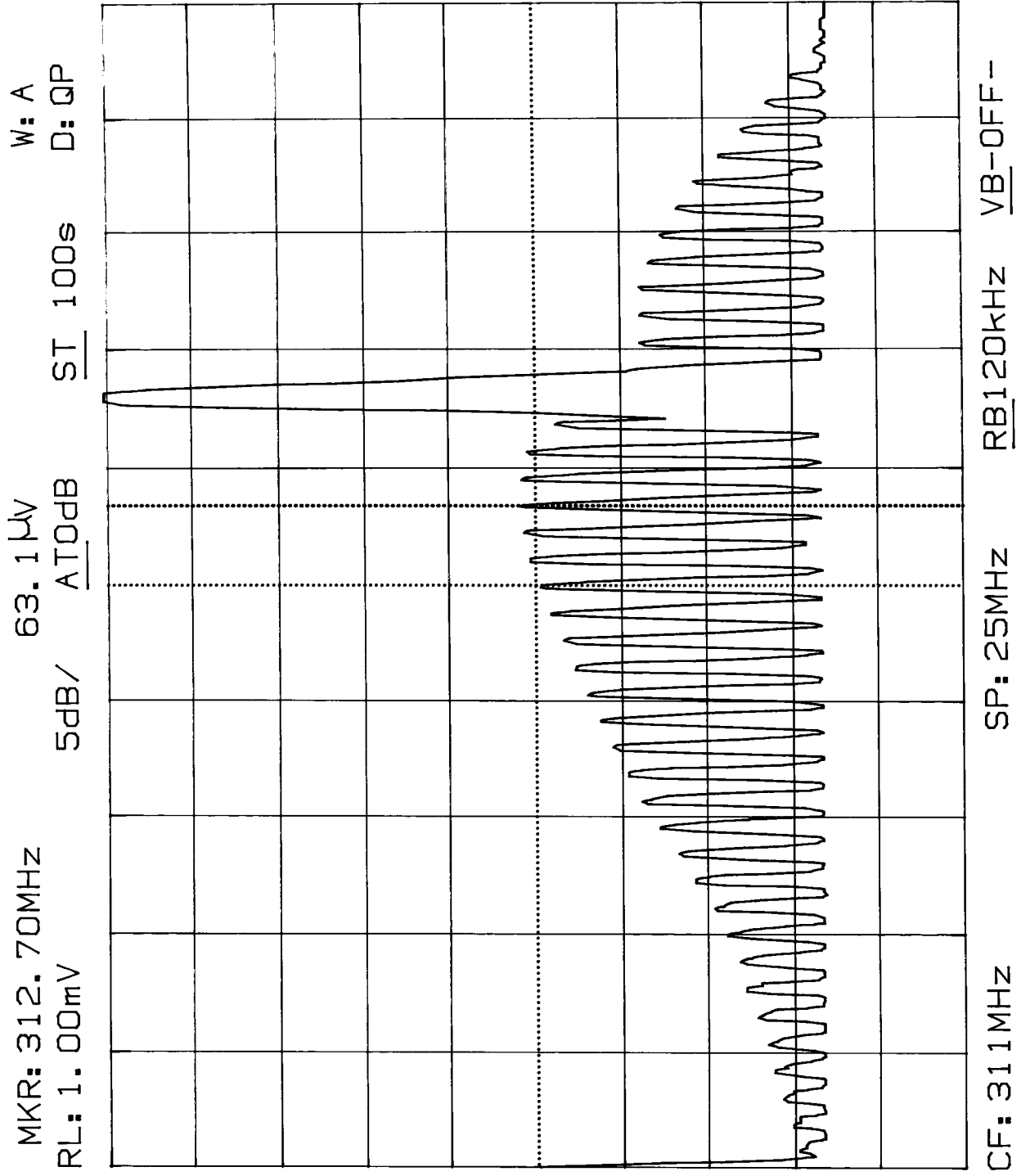
RECEIVER MODEL WC812P

TEST #	FREQ. M Hz	LEVEL μ V	ANT. TYPE (PZ)	ANT. FACT.	F.S. μ V/M	LIMIT μ V/M	DIFF. TO LIMIT; dB
01	312.70	10.0	RT.3 H	11.3	113.0	200	-4.96
02	622.55	06.4	L/P H	14.4	92.2	200	-6.73
03	941.95	02.0	L/P H	37.6	75.2	200	-8.50
04	1242.05	02.1	L/P H	50.0	105.0	500	-13.56

Note:

- 1) A 16 dB RF preamplifier was used for all above measurements.

SPURIOUS RADIATED EMISSIONS
MODEL WC812P; RECEIVER



6.6 & 7.4 AC WIRELINE CONDUCTED EMISSIONS

RESULTS

The largest RF voltages on the AC power lines, over the frequency range of 450 KHz to 30 MHz, was 196.56 μ V (45.87 dB μ V) at 25.0 MHz while receiving (B side of the line). Refer to the attached results.

TEST CONDITIONS

<u>Measurement Bandwidth:</u>	9 KHz Q.P. (IF)
<u>AC Test Voltage:</u>	120 VAC (filtered and stabilized)
<u>Mode of Operation:</u>	Receiver

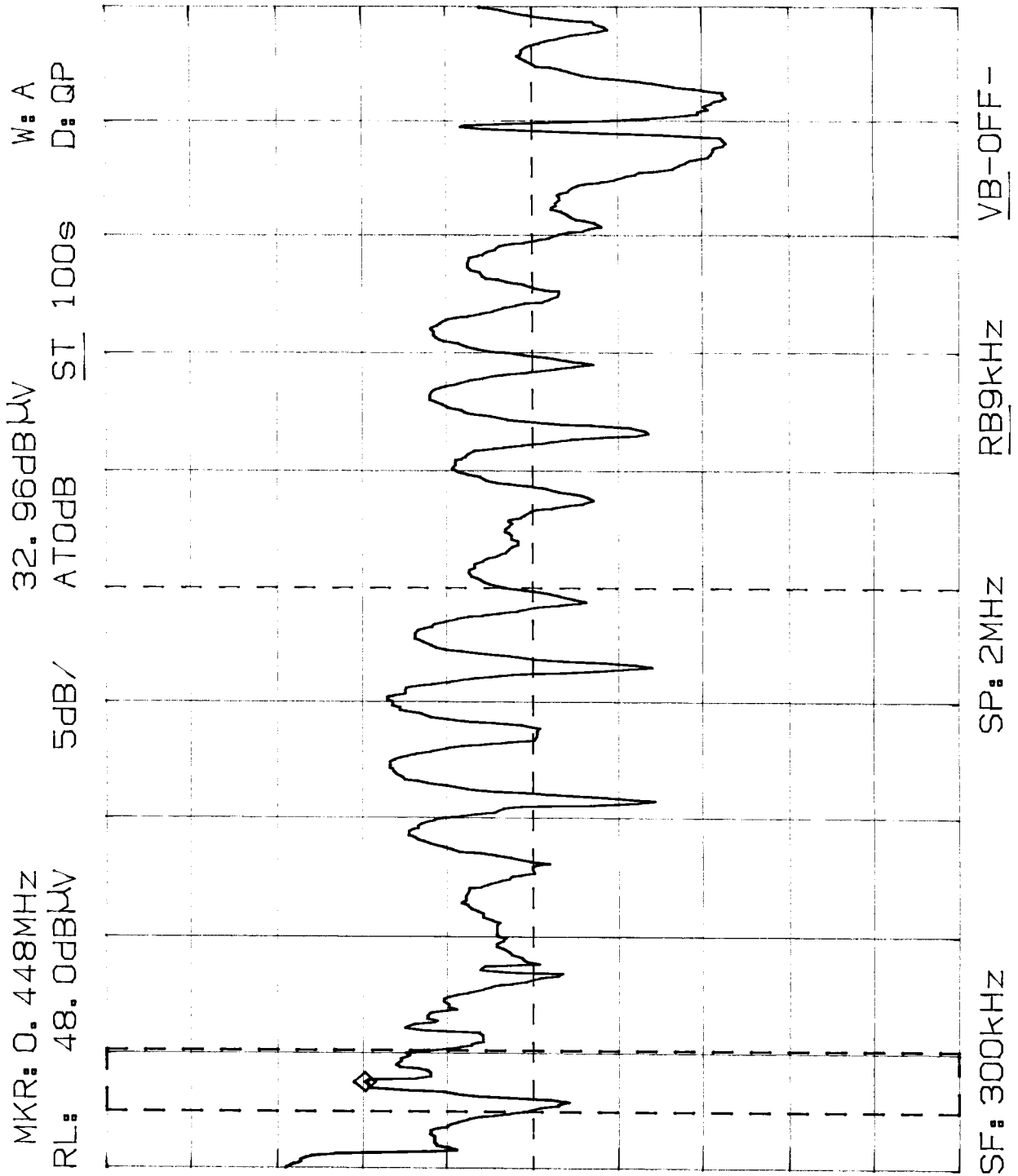
METHODS OF MEASUREMENT

The receiver was placed on a wooden table directly above a 50 ohm line impedance stabilization network.(LISN). 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.

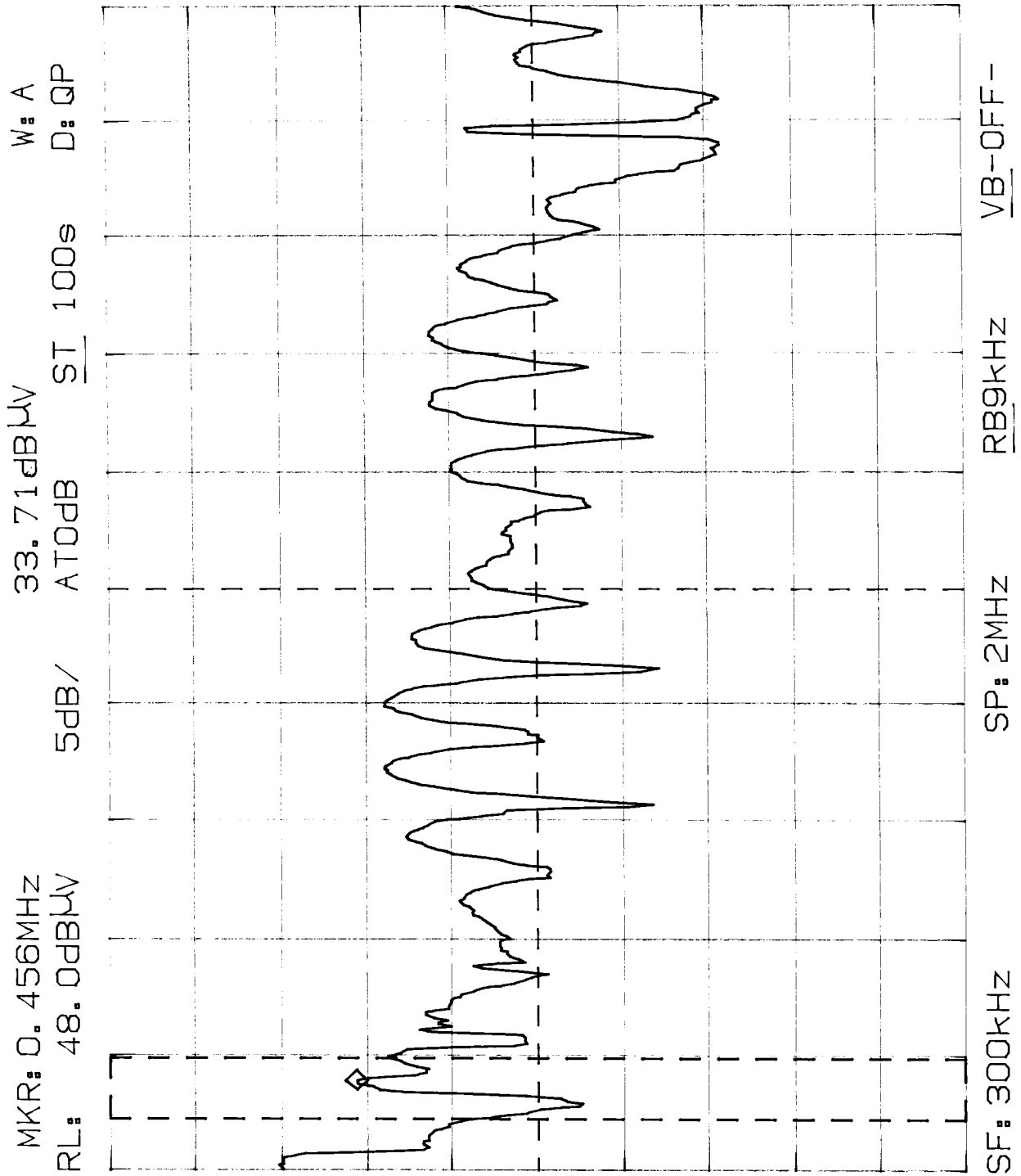
A length of low loss RF foam cable was used to couple the RF voltages from the LISN to the spectrum analyzer. All of the RF voltages were recorded and are attached.

The attached results represent the **worst case results**.

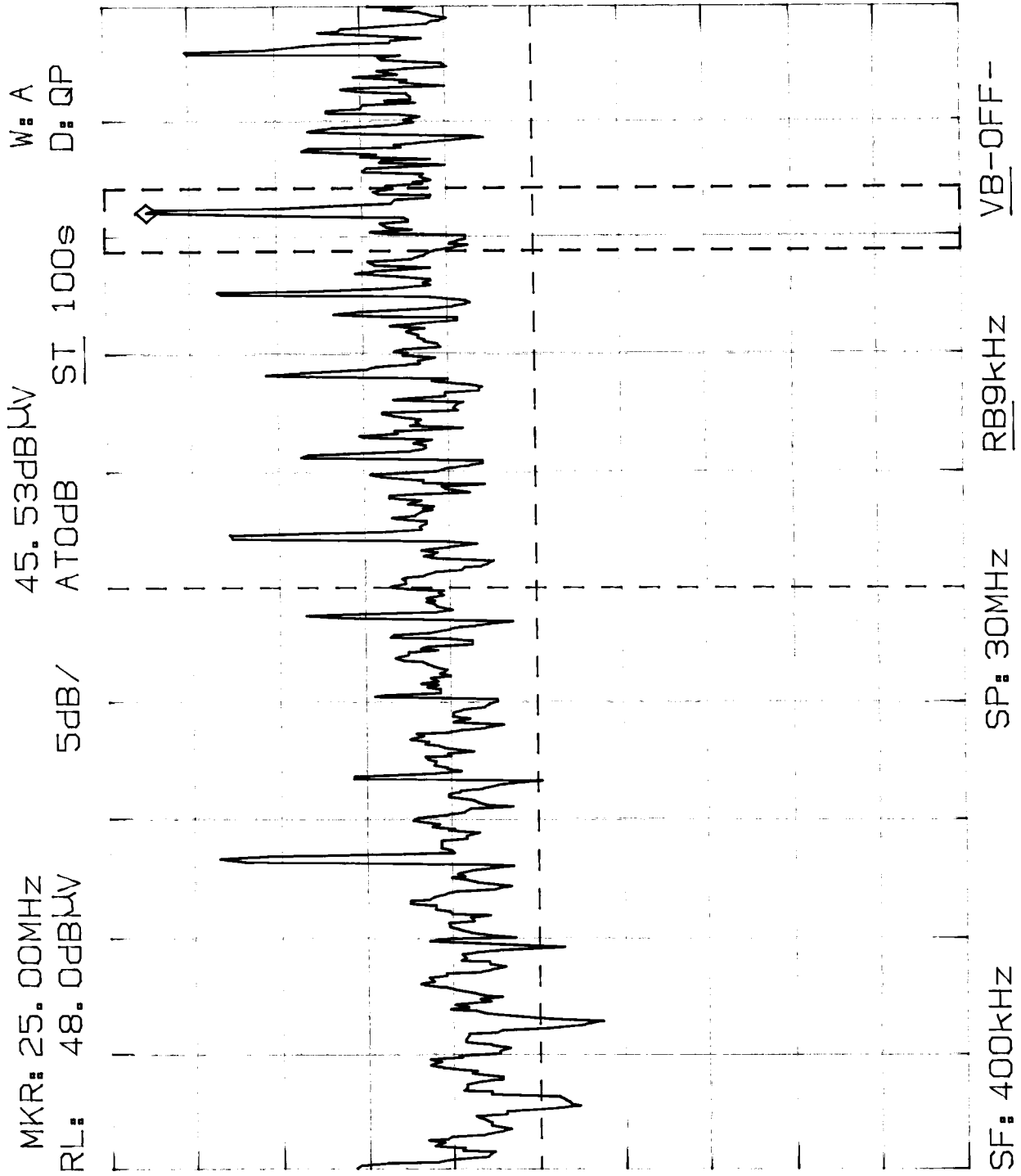
POWER LINE CONDUCTED EMISSIONS
MODEL WC812P
SIDE: A



POWER LINE CONDUCTED EMISSIONS
MODEL WC812P
SIDE: B



POWER LINE CONDUCTED EMISSIONS
MODEL WC812P
SIDE: A



POWER LINE CONDUCTED EMISSIONS
MODEL WC812P
SIDE: B

