Marstech Limited

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

Authorized by: Professional Engineers Ontario

Engineering & Administrative

CERTIFICATED UL AGENCY

Testing For FCC Submissions/Verifications

Industry Canada Industrie Canada Approved Test Facility

Qualified SP Facility

TEST REPORT

REPORT DATE:	May 1, 1998		REPORT NO: 98131D
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:	2-9769(XXXX)	
	FCC ID:	G9H2-9769	
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:	March 31, 1998	DATE TESTED:	April 15, 21 to 23, 1998
RESULTS:	Equipment tested complies with referenced specification.		
ALTERATIONS	The following alterations required for compliance with referenced specification: 1) Handset Inductor L1 changed from 1 μH to 2.2 μH; 2) Handset Antenna changed from a 62mm flexible rubber to a 50mm rigid rubber.		
Tested by:	Original signed by: Jim Sims	Approved and Certified by:	Original signed by: Robert G. Marshall, P. Eng.
	Hiran De Silva		
Reviewed by:	Original signed by: Edward Chang	Date:	May 13/98

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

G9H2-9769

Manufacturer

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

TABLE OF CONTENTS

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, Bao An City China
FCC IDENTIFIER:	G9H2-9769
TRADE NAME:	GE
MODEL NUMBER:	2-9769(XXXX)
SERIAL NO.:	N/M

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

TECHNICIANS:
Jim Sims - Com-Serve Corp.
Hiran De Silva - Marstech Limited

Robert G. Marshall, P. Eng.

Date: May 14/98

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 attenuator 30 dB # 11708A.
Narda 20 watt (20 dB) attenuator
Compliance Design P950 Preamp (16 dB)..... 25 MHZ -1.0 GHZ
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

FCC ID: G9H2-9769
EXHIBIT D(2)-2
Marstech Report No. 98131D

EXHIBIT D(2)

SPECTRUM ANALYZER -	ANRITSU MS2601A S/N MT64544 - NEXT CALIBRATION APRIL 1999
MULTIMETER -	FLUKE 75
POWER SUPPLY -	IN HOUSE
OVEN -	IN HOUSE
FREEZER -	IN HOUSE

SUMMARY OF RESULTS

COMPLIANCE	(yes)	(no)
FIELD STRENGTH OF THE CARRIER FREQUENCIES		
Handset: 48 MHz and 49 MHz bands	(x)	( )
Base Station: 43/44 MHz and 46 MHz bands	(x)	( )
OCCUPIED BANDWIDTH		
Handset: 48 MHz and 49 MHz bands	(x)	( )
Base Station: 43/44 MHz and 46 MHz bands	(x)	( )
SPURIOUS RADIATED EMISSIONS		
Handset: 48 MHz and 49 MHz bands	(x)	( )
Base Station: 43/44 MHz and 46 MHz bands	(x)	( )
LINE CONDUCTED SPURIOUS EMISSIONS		
Base Station: Telephone Mode: 43/44 MHz and 46 MHz bands	(x)	( )
TRANSMITTER ENVIRONMENTAL TESTS		
Handset:	(x)	( )
Base Station:	(x)	( )
EQUIPMENT REQUIREMENTS AND IDENTIFICATION		
a) Manufacturers or applicants name:	(x)	( )
b) FCC ID:	(N/M)	( )
c) Serial number:	(x)	( )
d) Antenna:	(x)	( )
e) Operator controls:	(x)	( )
f) Security Coding	(x)	( )
g) Equipment/Packaging Marking	(x)	( )

CARRIER FREQUENCY FIELD STRENGTH

RESULTS

Handset: **Maximum field strength of 4,791 μV/M: Channel # 01**
Handset: **Maximum field strength of 5,880 μV/M: Channel # 25**

Base Station:
Modes:
Telephone: **Maximum field strength of 7,860 μV/M: Channel # 01**
Telephone: **Maximum field strength of 5,440 μV/M: Channel # 25**

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.1; tuned half wave dipole
Measurement Bandwidth:	100 KHz (IF)
Supply Voltages:	
Handset:	3.6 VDC from an internal battery.
Base Station:	120 VAC/60 Hz to 12 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 unmodulated carrier level was measured using a spectrum analyzer and a substitution signal from an RF generator. 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.

OCCUPIED BANDWIDTH RESULTS

RESULTS

The highest level emission resulting from the modulation process exceeding the specified frequency range of ± 10 KHz (20 KHz) over the carrier frequency was:

Handset:
Unmodulated carrier level: **-43 dB** (30 dB external pad) **Channel # 01**
Unmodulated carrier level: **-43 dB** (30 dB external pad) **Channel # 25**

a) At the maximum frequency deviation at 2,500 Hz: Channel # 01
-81 dB at +12.5 KHz.
b) At the maximum frequency deviation at 2,500 Hz: Channel # 25
-74 dB at -12.5 KHz.

Base Station:
Unmodulated carrier level: **-52 dB** (30 dB external pad) **Channel # 01**
Unmodulated carrier level: **-52 dB** (30 dB external pad) **Channel # 25**

Telephone:
a) At the maximum frequency deviation at 2,500 Hz: Channel # 01
-88 dB at -12.5 KHz.
b) At the maximum frequency deviation at 2,500 Hz: Channel # 25
-89 dB at -12.5 KHz.

METHODS OF MEASUREMENT

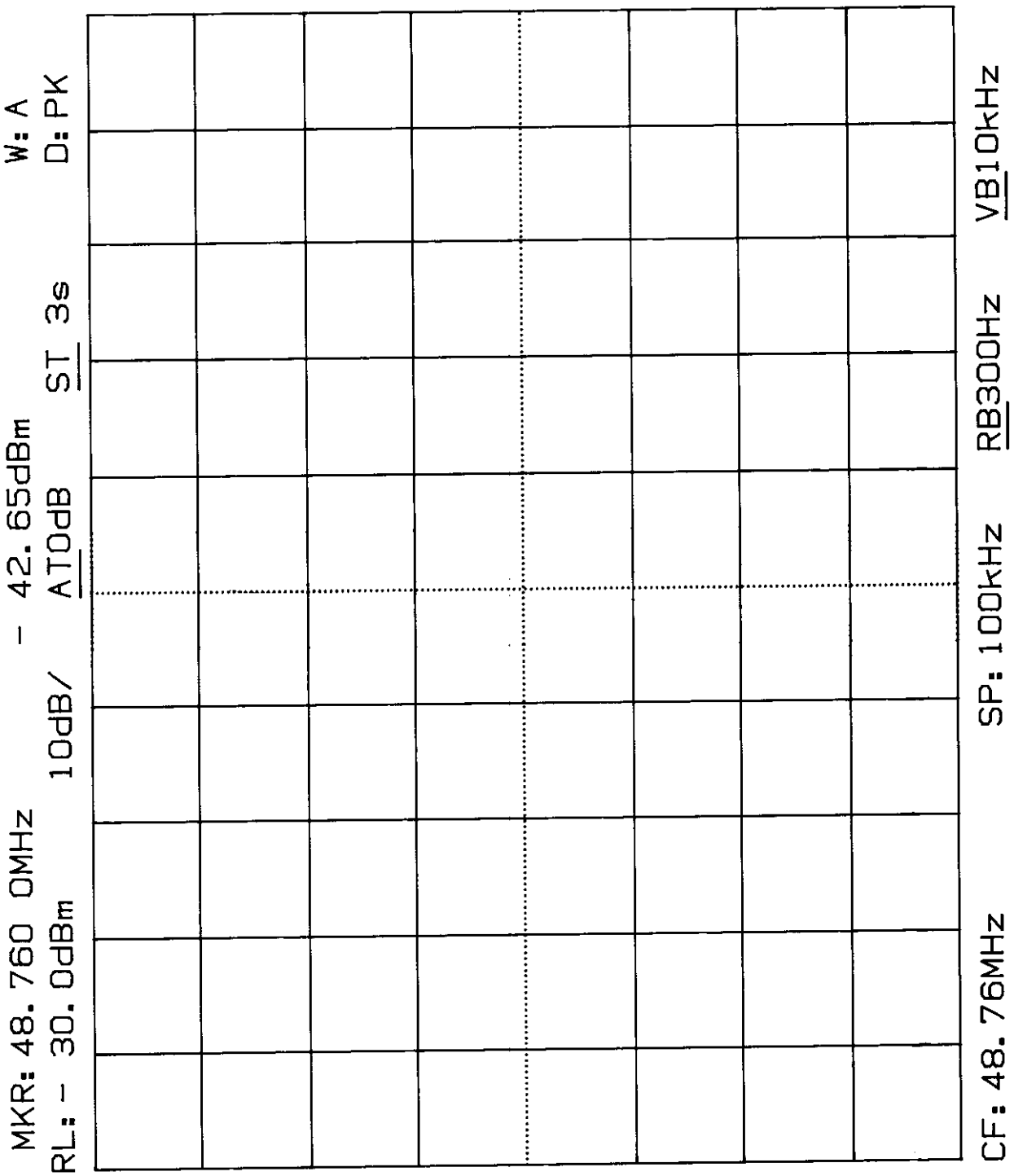
Each transmitter was operated in turn under the standard test conditions specified, and at the maximum output power. An external 2,500 Hz audio signal was coupled to the standard input port and adjusted to a level which produced 85% of the measured "Maximum Frequency Deviation". In this case, the base station and the handset modulation in-band emissions, meet the requirements at maximum frequency deviation. Levels for compliance have therefore been evaluated at these levels. Any internal modulation source that normally operates on a continuous basis was disabled.

A portion of the radio frequency power delivered by the transmitter into the standard output termination was coupled to a spectrum analyzer.

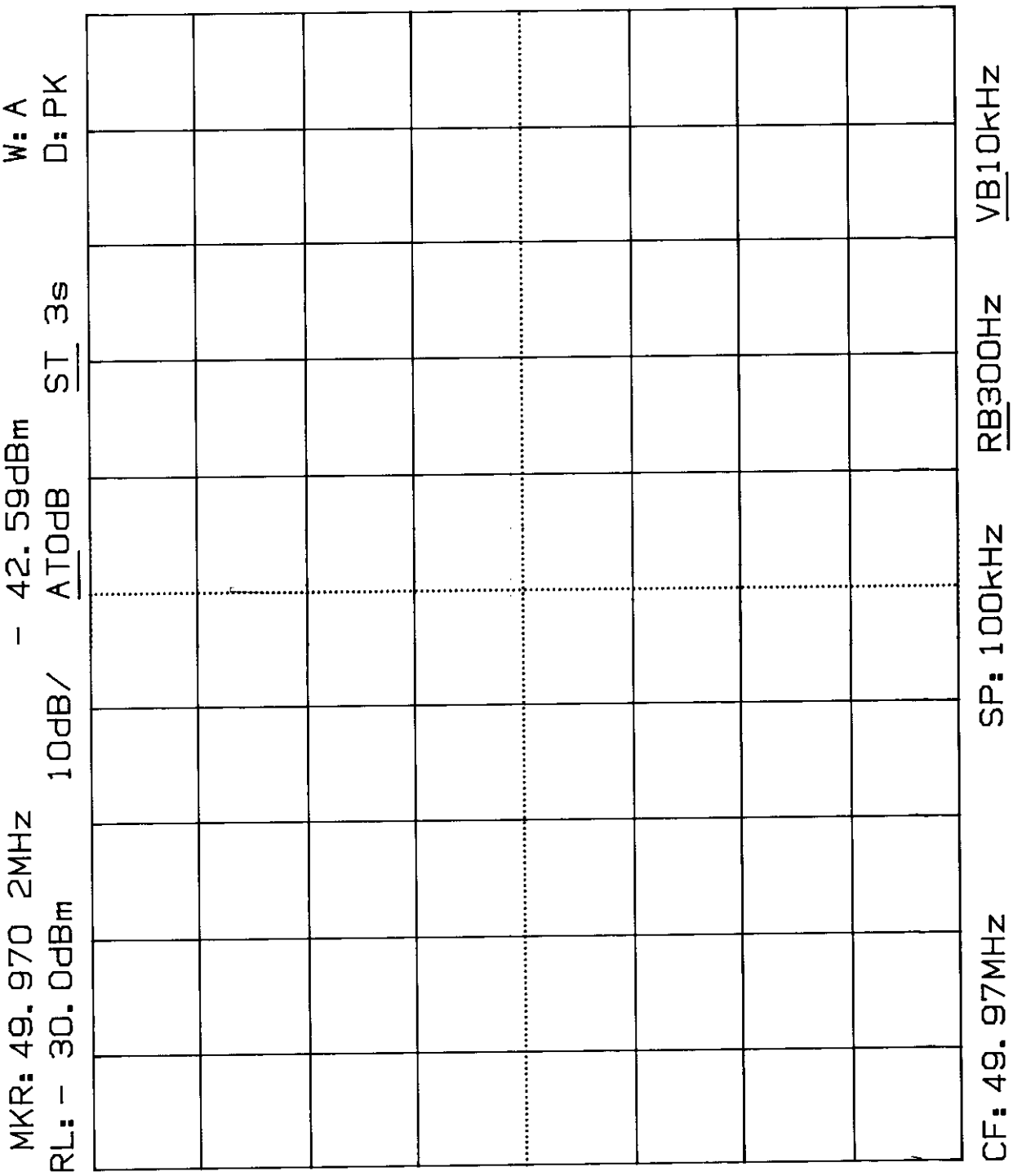
If the cordless telephone contained an internal modulation source that normally operates continuously or for more than three (3) seconds, then the above test was also repeated with the external 2,500 Hz disconnected.

Please refer to the attached results.

HANDSET; UNMODULATED CARRIER LEVEL
MODEL 2-9769(XXXX); 48 MHz

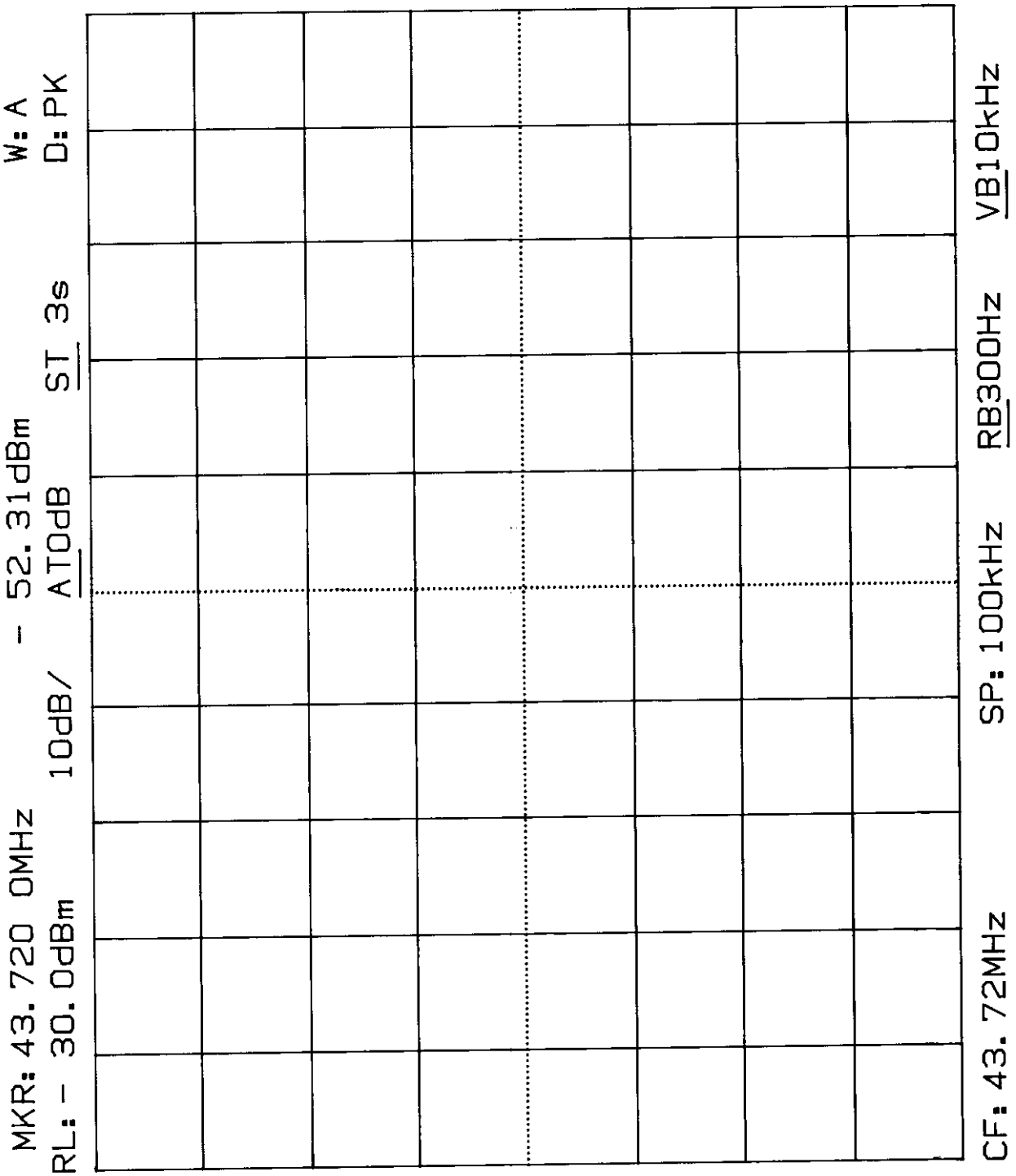


HANDSET; UNMODULATED CARRIER LEVEL
MODEL 2-9769(XXXX); 49 MHz

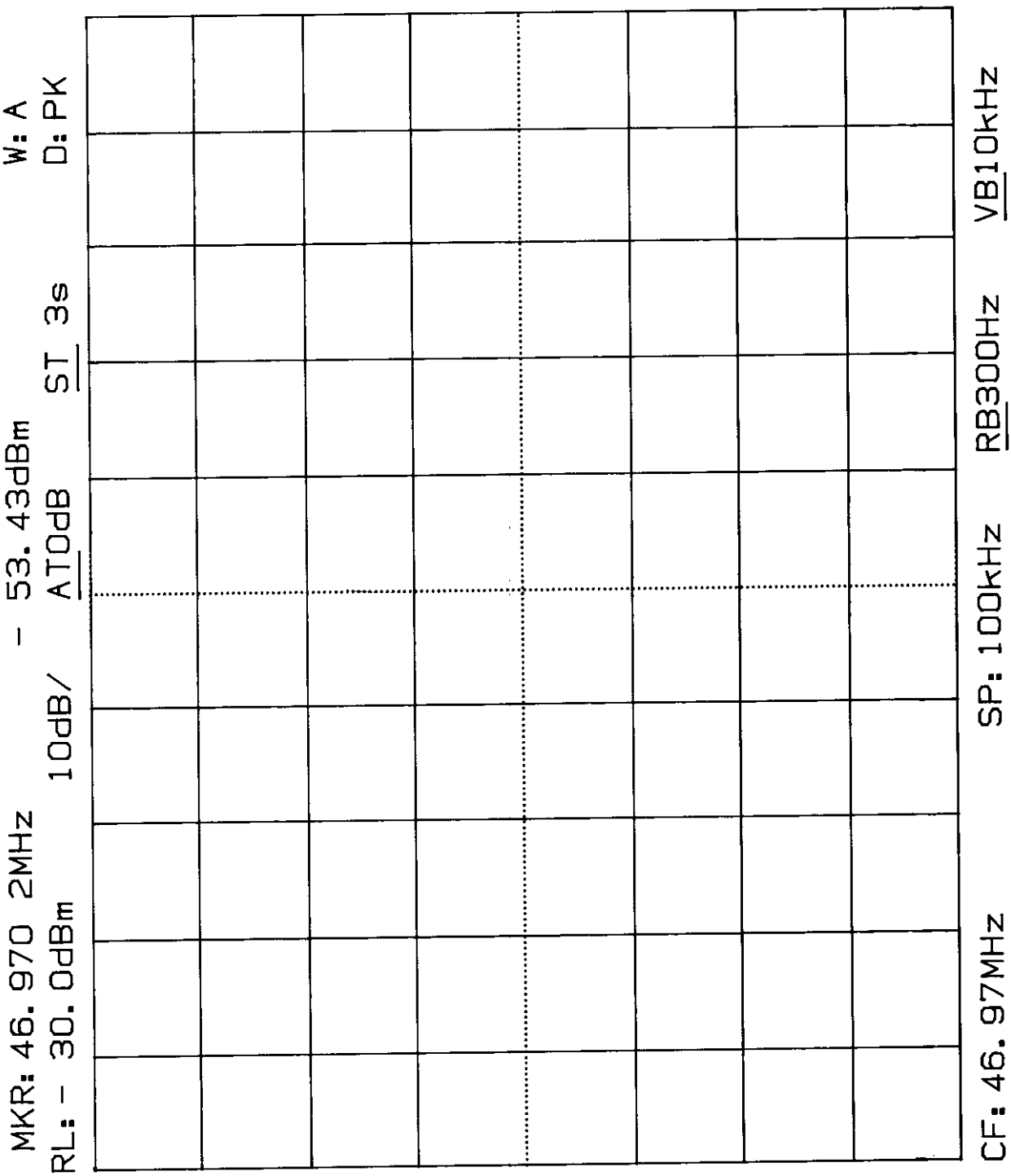


FCC ID: G9H2-9769
EXHIBIT D(3)-5
Marstech Report No. 98131D

BASE STATION; UNMODULATED CARRIER LEVEL
MODEL 2-9769(XXXX); 43/44 MHz

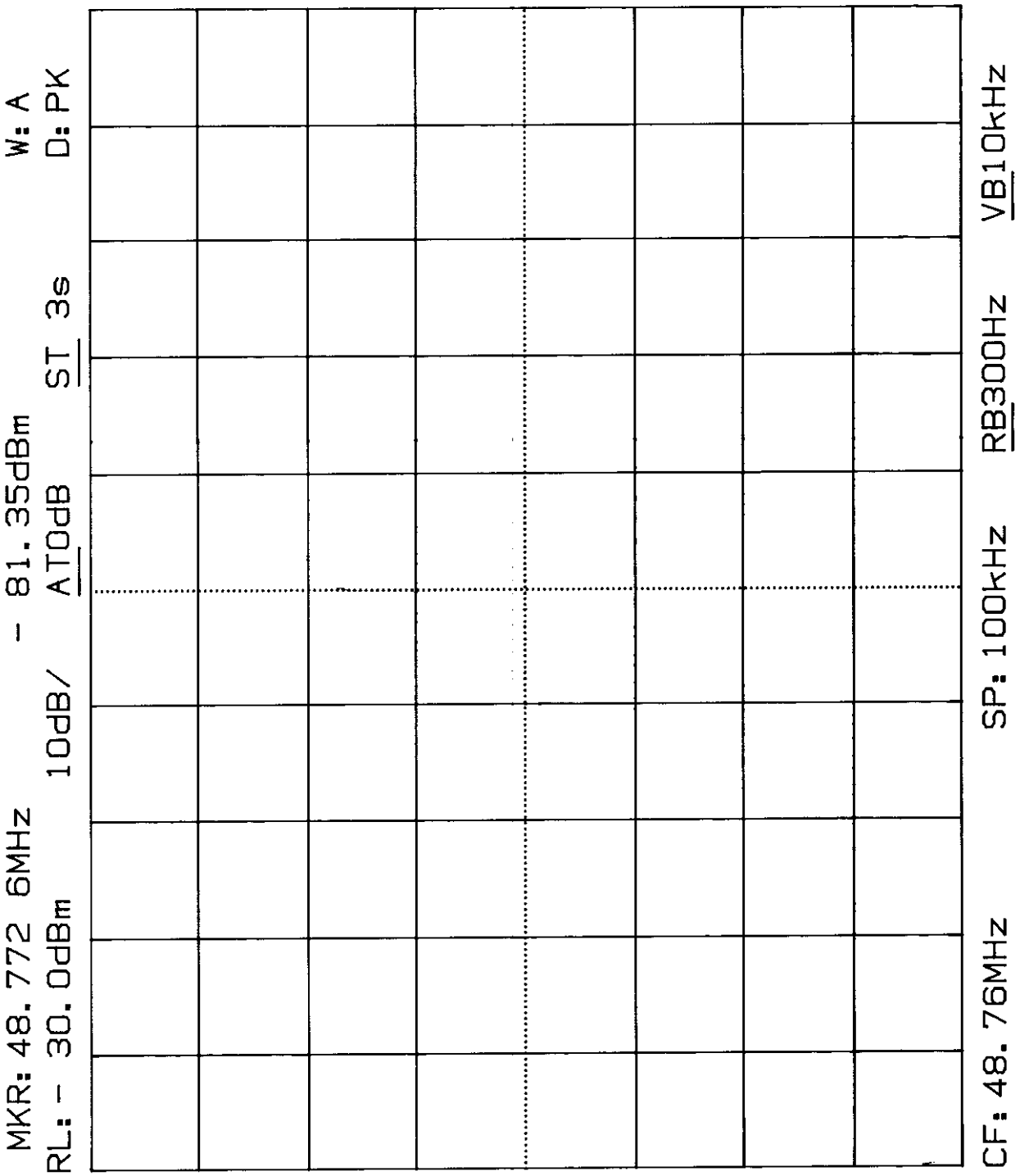


BASE STATION; UNMODULATED CARRIER LEVEL
MODEL 2-9769(XXXX); 46 MHz



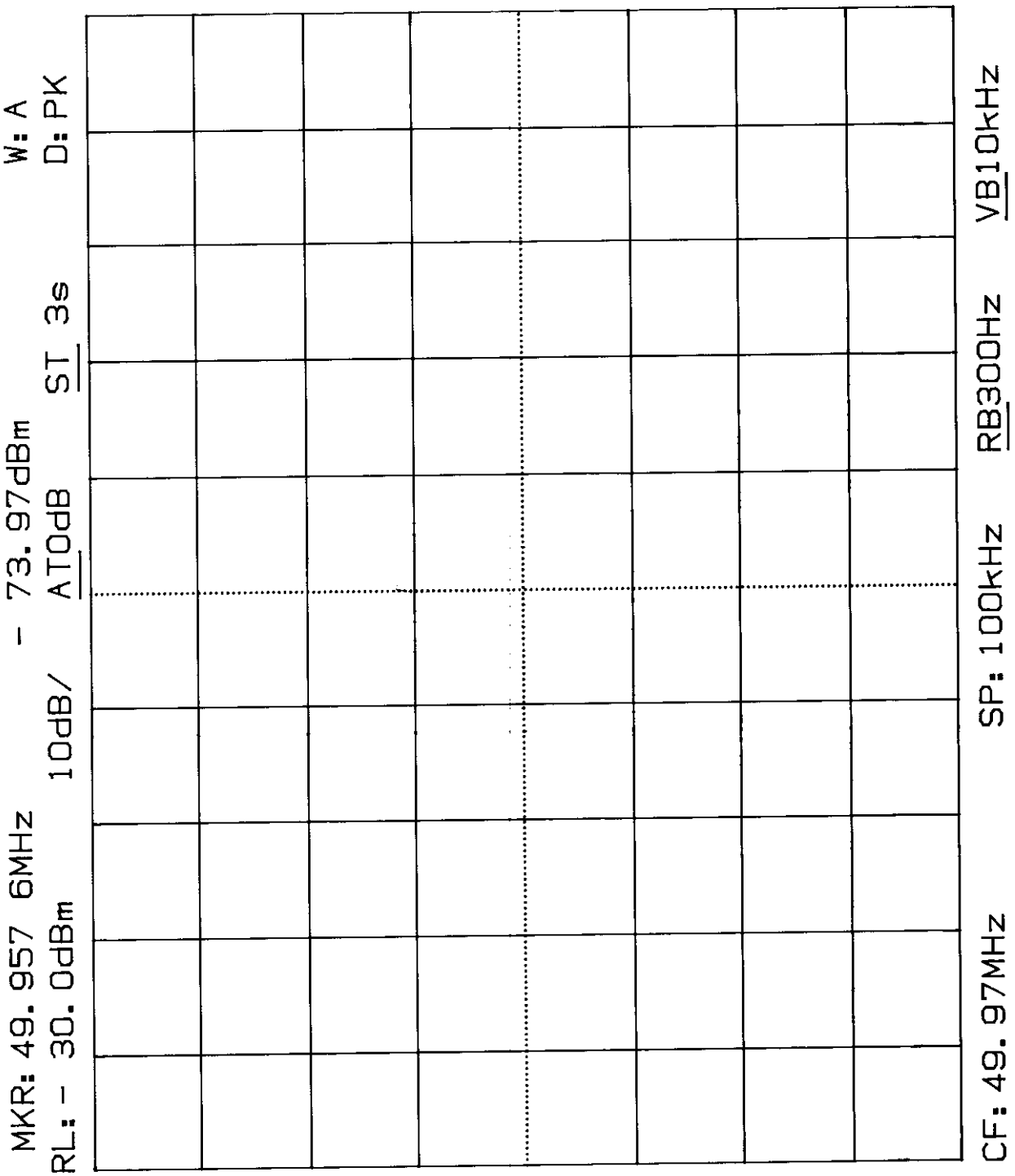
FCC ID: G9H2-9769
EXHIBIT D(3)-7
Marstech Report No. 98131D

OUT-OF-BAND HANDSET; 48 MHz
4.00 VOLTS AT MFD; MODEL 2-9769(XXXX)



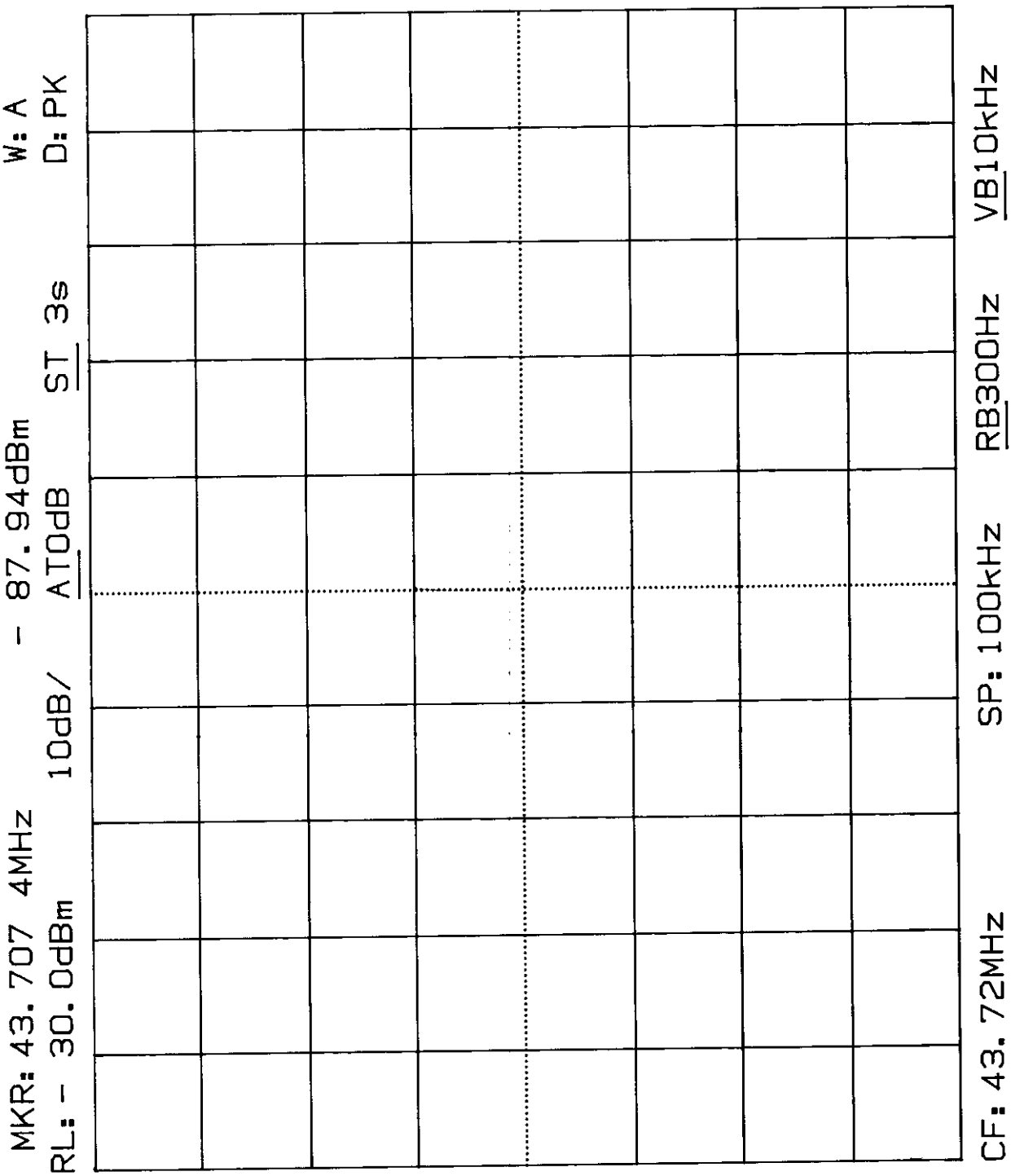
FCC ID: G9H2-9769
EXHIBIT D(3)-8
Marstech Report No. 98131D

OUT-OF-BAND HANDSET; 49 MHz
4.00 VOLTS AT MFD; MODEL 2-9769(XXXX)



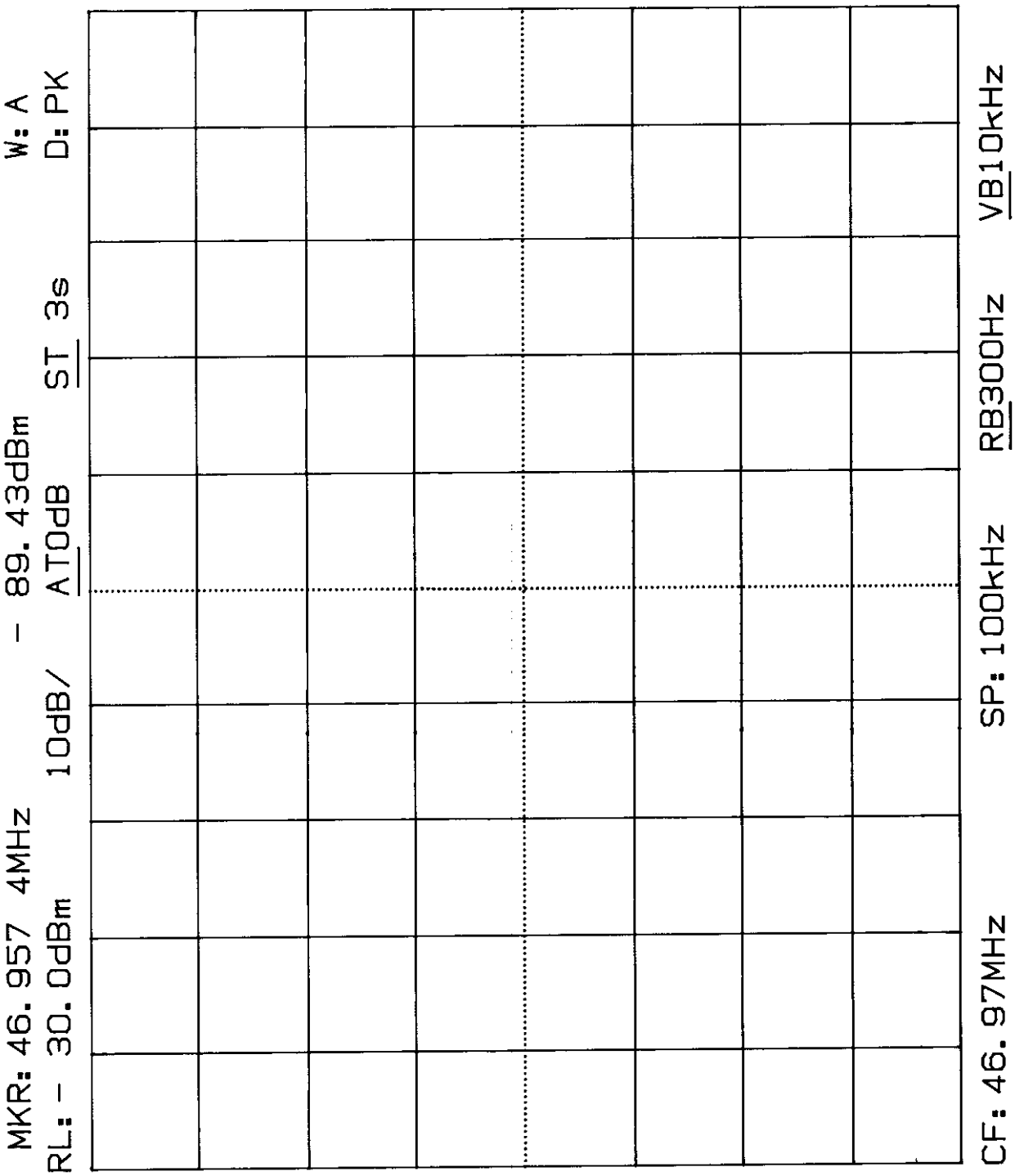
FCC ID: G9H2-9769
EXHIBIT D(3)-9
Marstech Report No. 98131D

OUT-OF-BAND BASE STATION; 43/44 MHz
4.00 VOLTS AT MFD; MODEL 2-9769(XXXX)



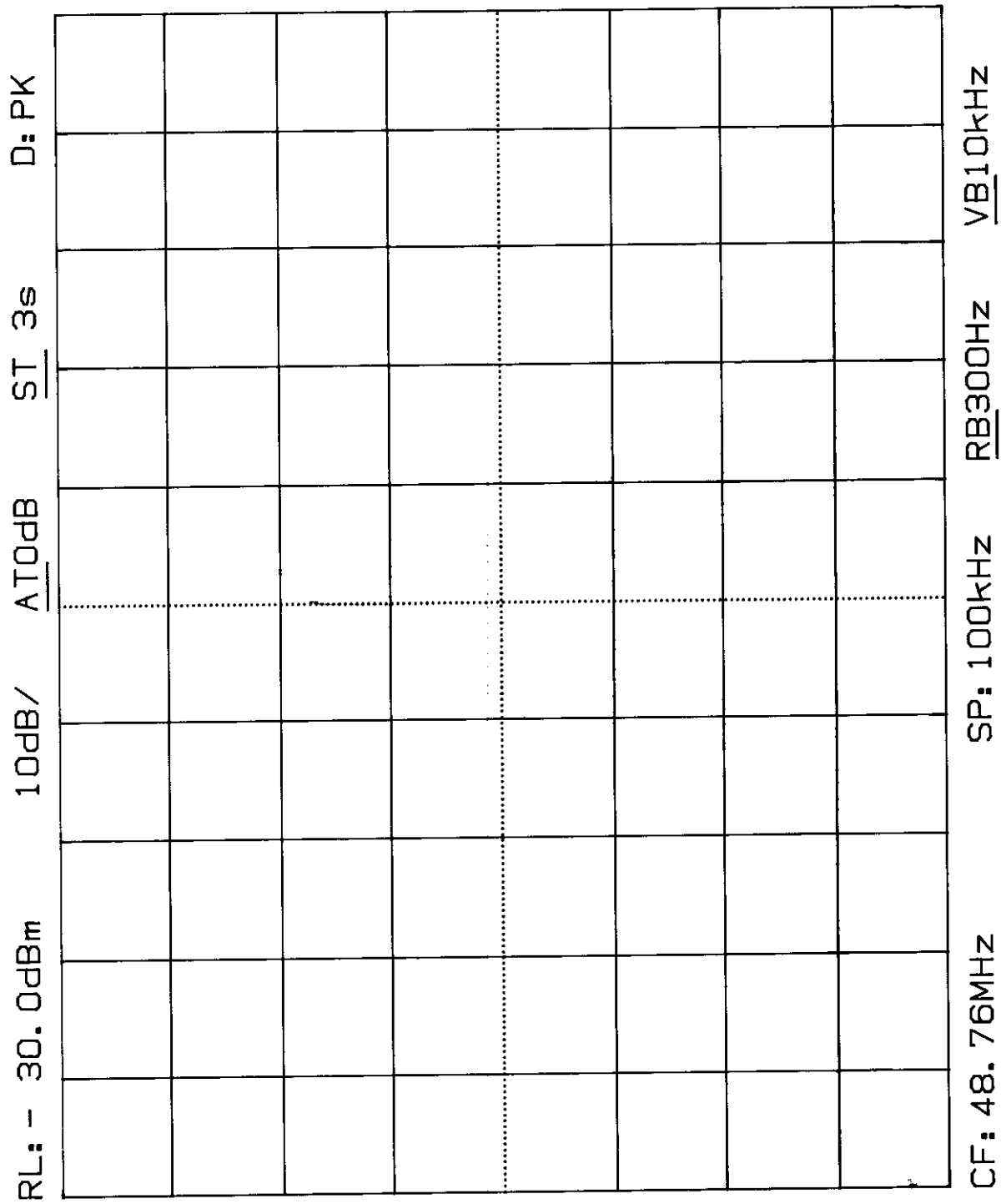
FCC ID: G9H2-9769
EXHIBIT D(3)-10
Marstech Report No. 98131D

OUT-OF-BAND BASE STATION; 46 MHz
4.00 VOLTS AT MFD; MODEL 2-9769(XXXX)

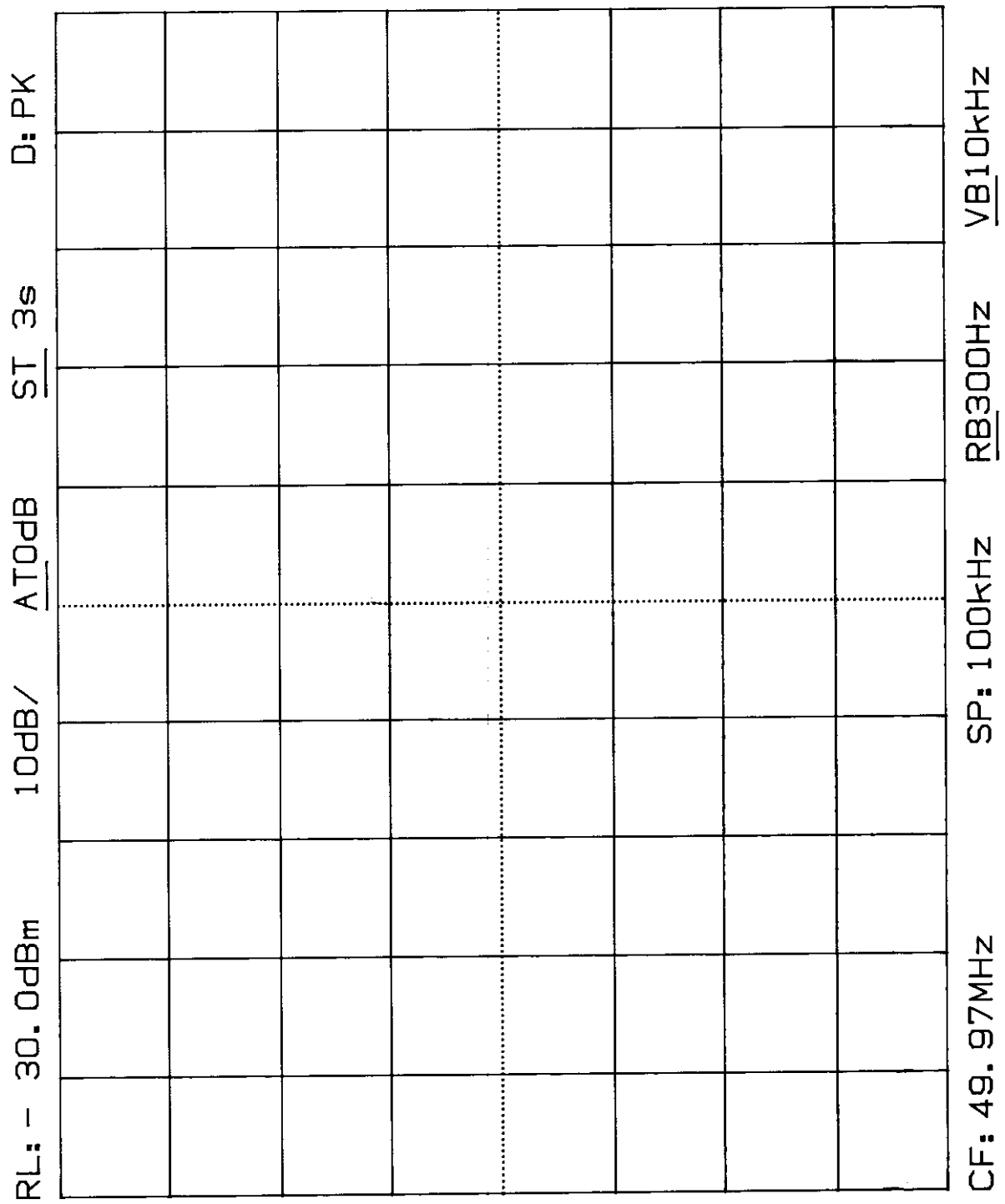


FCC ID: G9H2-9769
EXHIBIT D(3)-11
Marstech Report No. 98131D

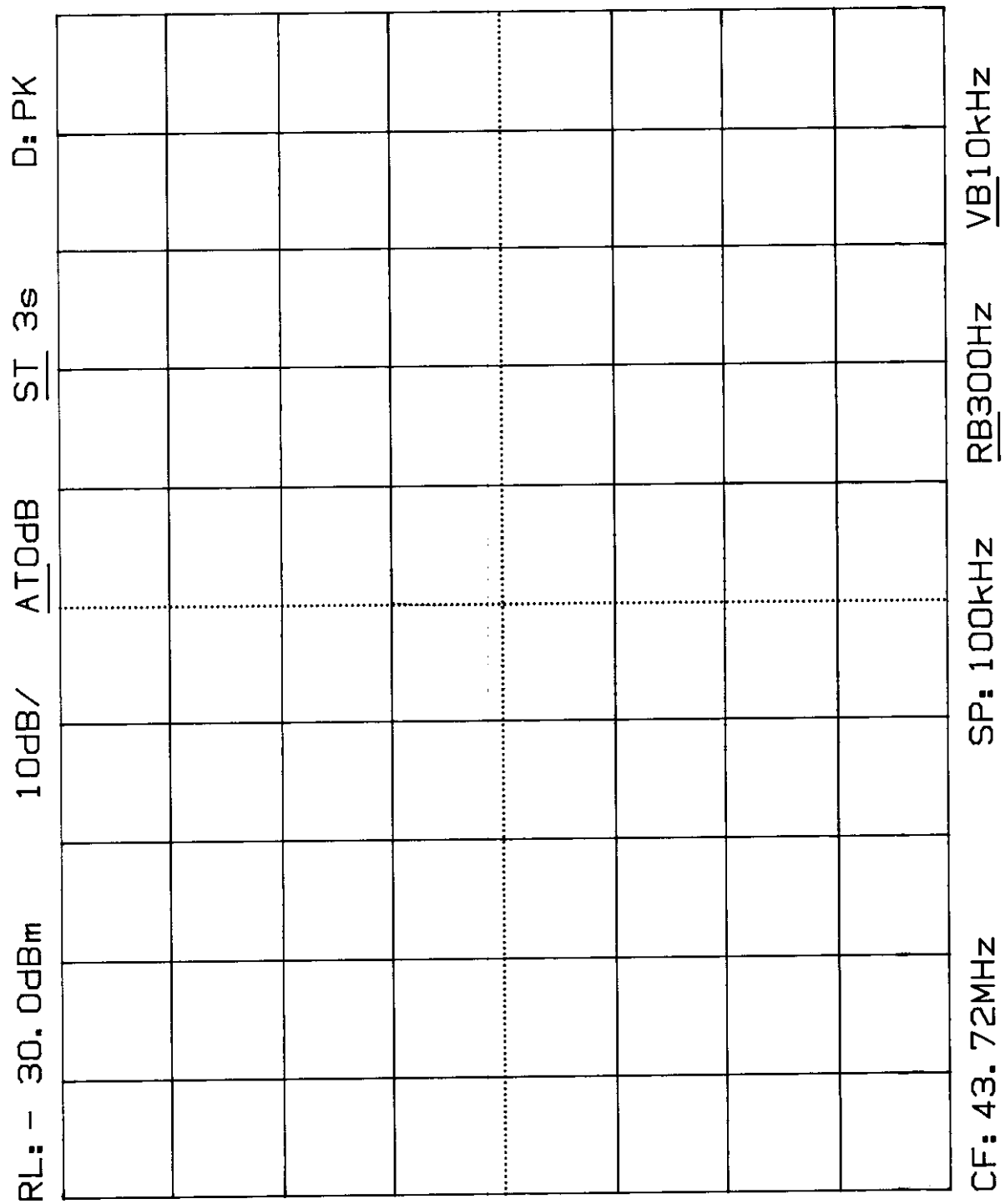
MAXIMUM FREQUENCY DEVIATION; 48 MHz
HANDSET; 4.00 VOLTS MODEL 2-9769(XXXX)



MAXIMUM FREQUENCY DEVIATION; 49 MHz
HANDSET; 4.00 VOLTS MODEL 2-9769(XXXX)

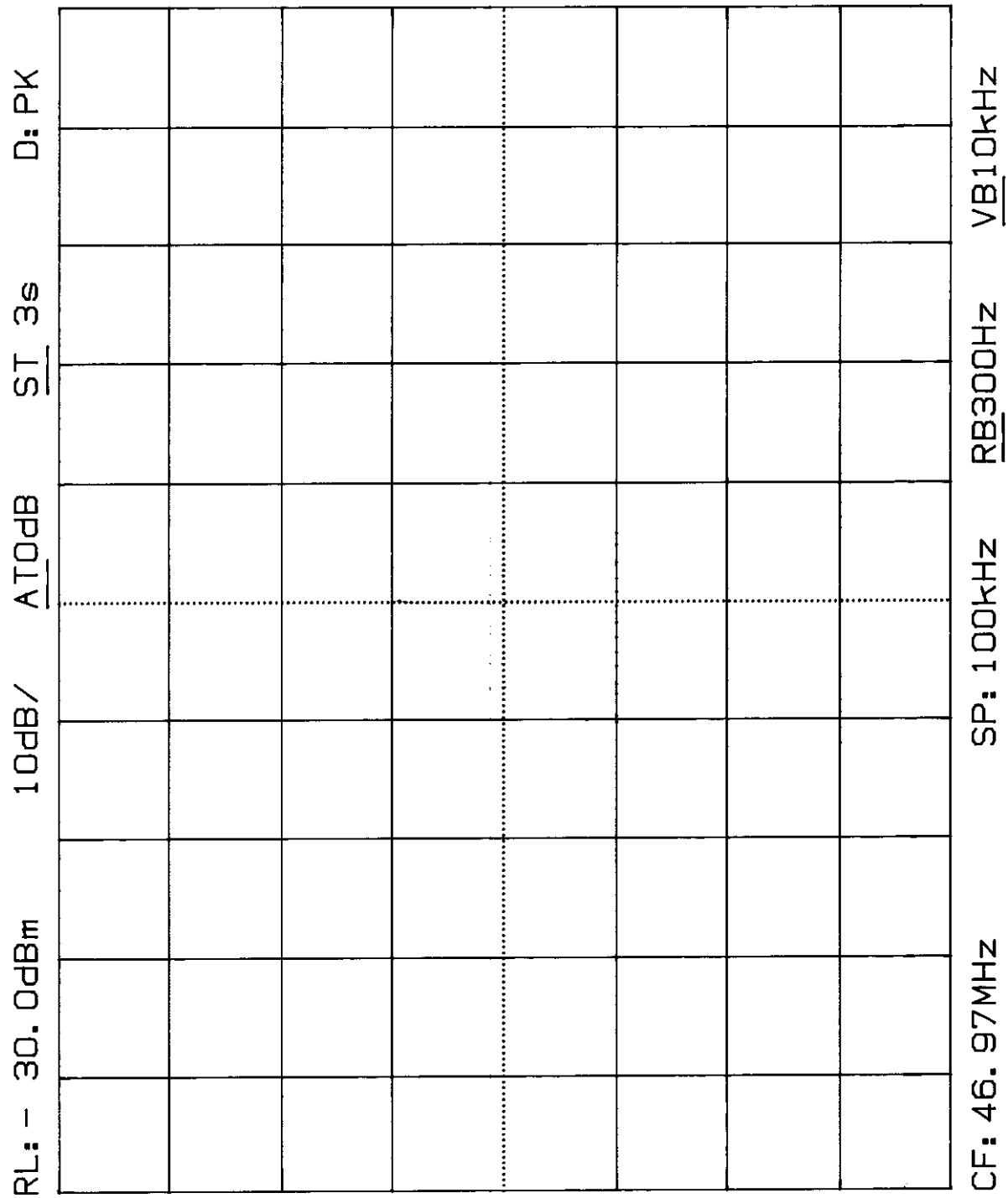


MAXIMUM FREQUENCY DEVIATION; 43/44 MHz
BASE STATION; 4.00 VOLTS MODEL 2-9769(XXXX)



FCC ID: G9H2-9769
EXHIBIT D(3)-14
Marstech Report No. 98131D

MAXIMUM FREQUENCY DEVIATION; 46 MHz
BASE STATION; 4.00 VOLTS MODEL 2-9769(XXXX)



SPURIOUS RADIATED EMISSIONS

RESULTS

The maximum field strength of any spurious emission, with respect to the applicable limit, to 1,000 MHz, while transmitting or receiving was:

Handset: **Maximum field strength of 129.8 μV/M: at 146.24 MHz; Channel 01**
Maximum field strength of 41.8 μV/M: at 99.96 MHz; Channel 25

Base Station:
Maximum field strength of: NONE FOUND at 000.00 MHz; Channel 01
Maximum field strength of 38.0 μV/M: at 93.94 MHz; Channel 25
Maximum field strength of: NONE FOUND at 000.00 MHz; RECEIVE

TEST CONDITIONS

Equipment Positioning:	
Handset:	laying on its side
Base Station:	standing on its back with the antenna extended in the vertical plane.
Antenna Polarization:	
Handset:	horizontal
Base Station:	vertical
Base Station: Receive	vertical and horizontal
Measurement Bandwidth:	100 KHz/120 KHz Q.P. (IF)
Supply Voltages:	
Handset:	3.6 VDC from an internal battery.
Base Station:	120 VAC/60 Hz to 12 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 and a substitution signal from an RF generator. 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
Span: 5 to 50 MHz

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	43.720	6,000.0	RT.1 V	1.31	7860.0	10,000	-2.09
CARRIER	46.970	4,000.0	RT.1 V	1.36	5440.0	10,000	-5.29
01 TX	93.94	10.0	B/C V	3.8	38.0	150	-11.93

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	48.760	3,350.0	RT.1 V	1.43	4790.5	10,000	-6.39
01 TX	97.52	16.2	B/C V	4.0	64.8	150	-7.29
02 TX	146.24	20.6	B/C H	6.3	129.8	150	-1.26
03 TX	195.02	17.5	B/C H	7.2	126.0	150	-1.51
04 TX	243.80	15.1	B/C H	10.7	161.6	200	-1.85
05 TX	292.53	09.1	B/C H	17.7	161.1	200	-1.88
06 TX	341.27	10.4	L/P H	11.1	115.4	200	-4.77
07 TX	390.09	08.9	L/P H	9.3	82.8	200	-7.66
CARRIER	49.970	4,000.0	RT.1 V	1.47	5880.0	10,000	-4.61
08 TX	99.96	10.2	B/C V	4.1	41.8	150	-11.09

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 **6.86μV (16.73 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.

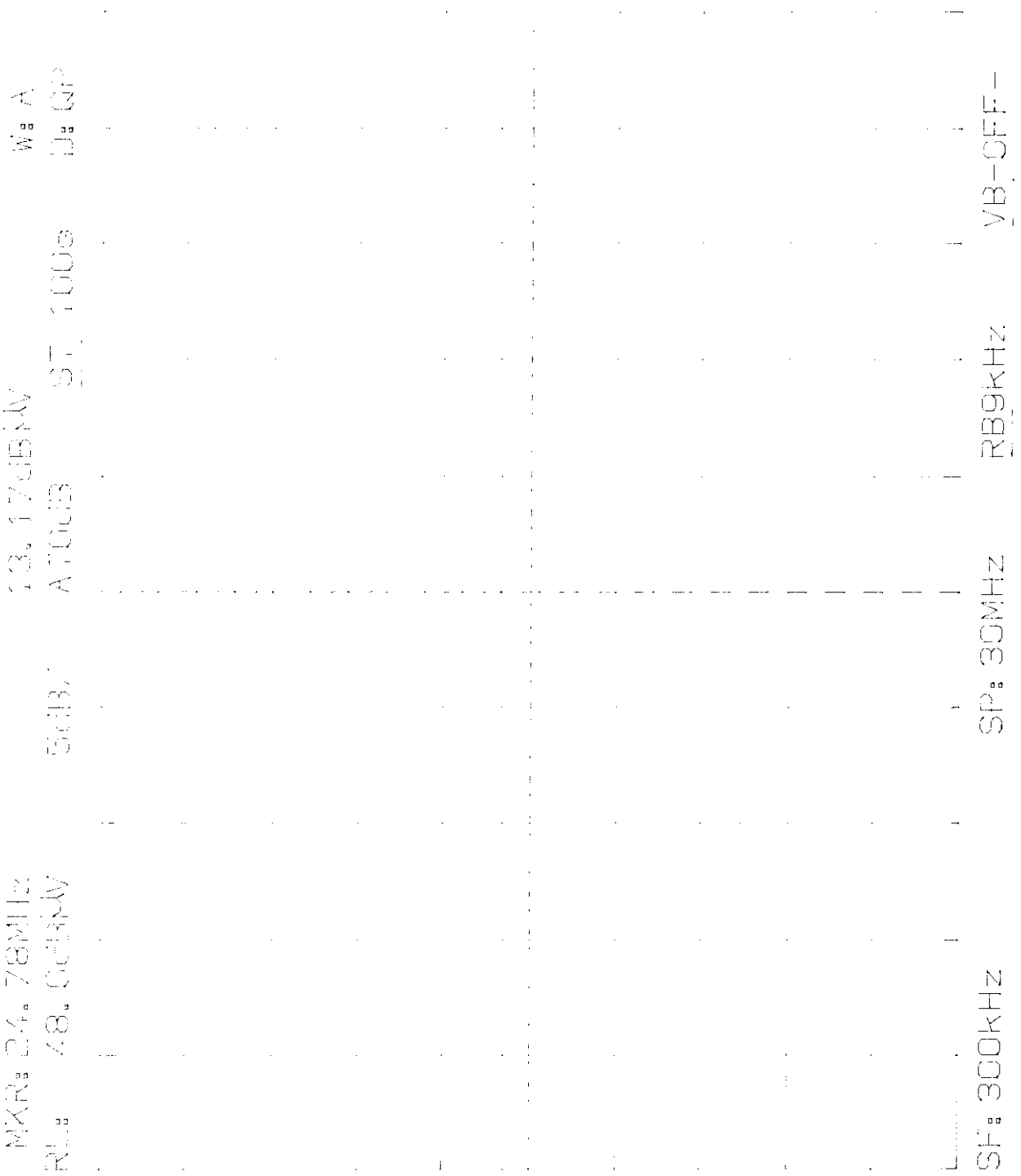
The base station was connected to a simulated 9,000 foot phone line and 48 VDC was applied. The 9,000 foot phone line network was grounded to the nearest AC outlet with a test lead.

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.

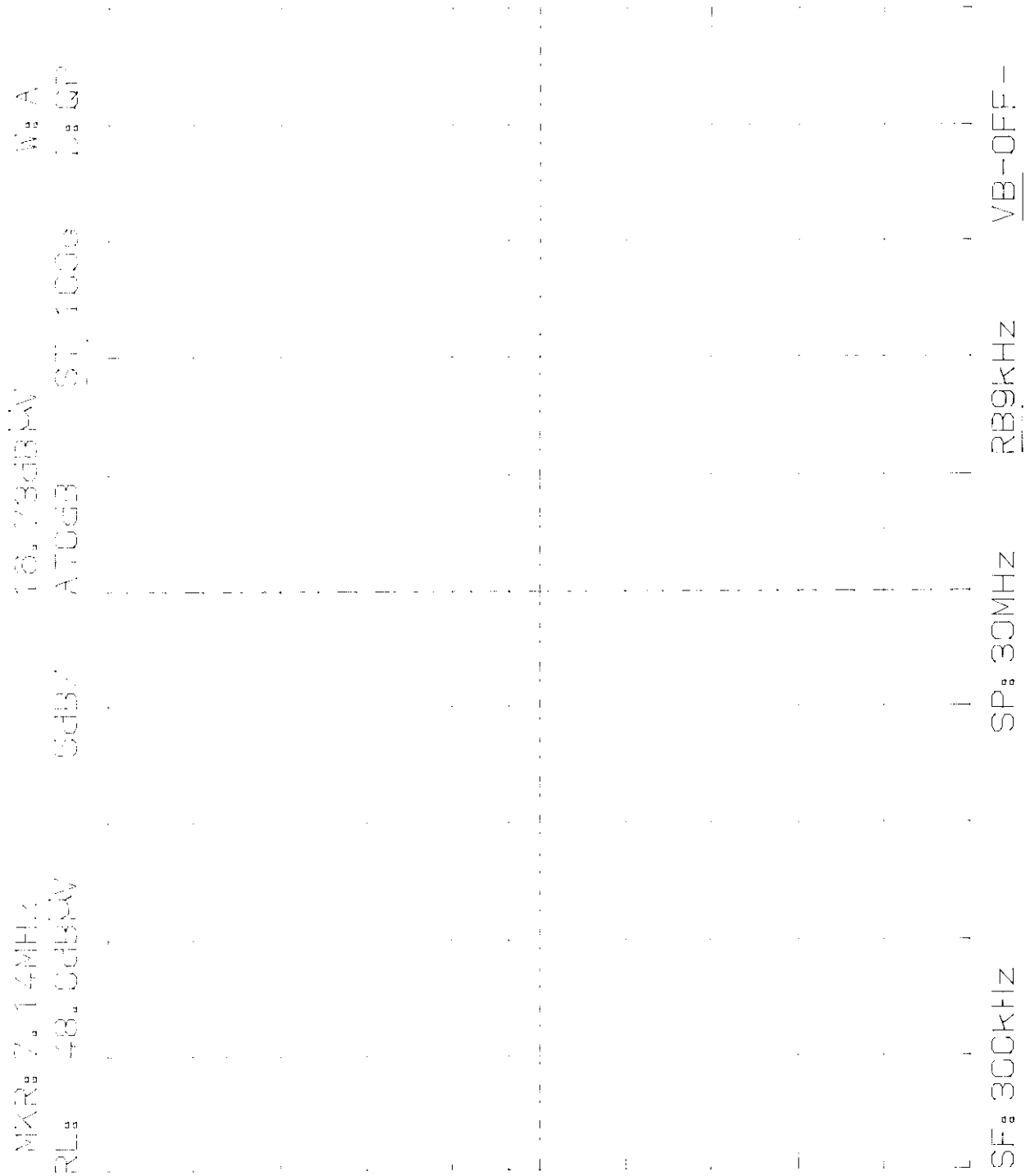
The base station was tested in all modes of operation which were applicable to the specific equipment under test. This included operating modes such as "calling/paging", quiescent or receive mode and standard telephone/transmit operation in both the 43/44 MHz and the 46 MHz bands.

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 and frequency band.

POWER LINE CONDUCTED EMISSIONS
MODEL 2-9769(XXXX)
SIDE: A - ON HOOK



POWER LINE CONDUCTED EMISSIONS
MODEL 2-9769(XXXX)
SIDE: B - ON HOOK



TRANSMITTER ENVIRONMENTAL TESTS

FREQUENCY TOLERANCE OF CARRIER

MINIMUM PERFORMANCE STANDARD: The stability of the carrier frequency shall be maintained within +0.01 percent over a range of:

a) Temperature from -20 to +50 degrees Celsius at normal supply voltage;
b) Voltages that vary from 85 percent to 115 percent of the rated supply voltage at a temperature of +20 degrees Celsius.

TEST RESULTS:

Channel 1:

Handset: The largest deviation from the authorized carrier frequency of 48,760,000 Hz was +265 Hz ±10Hz at -10 degress Celsius and 3.6 VDC. The test limit is ±4876 Hz.

Base Station: The largest deviation from the authorized carrier frequency of 43,720,000 Hz was +373 Hz ±10Hz at -20 degrees Celsius and 120 VAC. This was within the ±4372 Hz limit.

Channel 25:

Handset: The largest deviation from the authorized carrier frequency of 49,970,000 Hz was +293 Hz ±10Hz at 0 degress Celsius and 3.6 VDC. The test limit is ±4997 Hz.

Base Station: The largest deviation from the authorized carrier frequency of 46,970,000 Hz was +382 Hz ±10Hz at -20 degrees Celsius and 120 VAC. This was within the ±4697 Hz limit.

TEST CONDITIONS:

Supply Voltages:	85%, 100% and 115% of 120VAC, ±2%
Stabilization Time:	60 minutes
Temperature:	-20, -10, 0, +10, +20, +30, +40 and +50, ±3 degrees Celsius
Modulation:	Both transmitters were unmodulated.

METHOD OF MEASUREMENT:

Both the base and handset components were placed individually in a thermal chamber. The frequency was monitored by a spectrum analyzer and recorded at 1 minute intervals.

The base station was powered from a variable AC transformer. The handset battery was disconnected to enable external DC power operation. The antennae of both transmitters were replaced with short lengths of miniature 50Ω cable fitted with BNC connectors, for shielded connections to the frequency counter.

At +20 degrees Celsius, after the chamber had stabilized for at least 60 minutes and the samples had been turned off for 15 minutes, the transmitters were operated continuously for 5 minutes at each voltage condition. At the temperature extremes, each transmitter was operated for 5 minutes following stabilization. The frequencies were recorded at 1 minute intervals. The temperature was monitored by a thermocouple on the enclosure.

ENVIRONMENTAL TEST RESULTS FCC 15

CHANNEL 1

	BASE	HANDSET
+50°C	120V	3.6V
	43719777	48759972
	43719764	48759971
	43719757	48759960
	43719747	48759960
	43719735	48759948
+40°C	120V	3.6V
	43719822	48760028
	43719813	48760013
	43719804	48760008
	43719790	48759990
	43719782	48759984
+30°C	120V	3.6V
	43719916	48760108
	43719898	48760101
	43719885	48760084
	43719862	48760072
	43719851	48760050

	102V	120V	138V	3.06V	3.6V	4.14V
+20°C	43719949	43719952	43719955	48760110	48760148	48760175
	43719942	43719948	43719956	48760109	48760145	48760176
	43719942	43719955	43719952	48760112	48760159	48760174
	43719943	43719953	43719951	48760110	48760148	48760186
	43719944	43719947	43719952	48760112	48760149	48760177

	120V	3.6V
+10°C	43719968	48760107
	43719977	48760135
	43720015	48760145
	43720039	48760177
	43720070	48760186

0°C	120V	3.6V
	43720085	48760208
	43720118	48760221
	43720140	48760238
	43720167	48760235
	43720176	48760249

-10°C	120V	3.6V
	43720197	48760253
	43720221	48760263
	43720248	48760265
	43720260	48760262
	43720278	48760261

-20°C	120V	3.6V
	43720366	48760171
	43720367	48760164
	43720368	48760152
	43720373	48760145
	43720370	48760134

MODEL NO.:	2-9769(XXXX)
DATE:	April 15, 1998
BASE FREQ:	**43,720,000 Hz**
HANDSET FREQ:	**48,760,000 Hz**

ENVIRONMENTAL TEST RESULTS FCC 15

CHANNEL 25

	BASE	HANDSET
+50°C	120V	3.6V
	46969771	49969964
	46969768	49969963
	46969761	49969964
	46969758	49969962
	46969754	49969963
+40°C	120V	3.6V
	46969882	49970060
	46969861	49970046
	46969854	49970027
	46969829	49970004
	46969825	49969998
+30°C	120V	3.6V
	46969956	49970143
	46969944	49970131
	46969926	49970123
	46969916	49970093
	46969895	49970083

+20°C	102V	120V	138V	3.06V	3.6V	4.14V
	46969943	46969946	46969944	49970112	49970157	49970191
	46969941	46969943	46969945	49970115	49970164	49970192
	46969936	46969943	46969949	49970114	49970160	49970193
	46969940	46969943	46969944	49970117	49970158	49970192
	46969939	46969948	46969944	49970115	49970154	49970190

+10°C	120V	3.6V
	46970015	49970213
	46970043	49970220
	46970058	49970232
	46970089	49970236
	46970098	49970255

0°C	120V	3.6V
	46970132	49970269
	46970151	49970277
	46970167	49970286
	46970185	49970292
	46970204	49970293

-10°C	120V	3.6V
	46970239	49970285
	46970265	49970286
	46970280	49970282
	46970300	49970277
	46970311	49970265

-20°C	120V	3.6V
	46970373	49970208
	46970380	49970199
	46970380	49970187
	46970382	49970173
	46970379	49970167

MODEL NO.:	2-9769(XXXX)
DATE:	April 15, 1998
BASE FREQ:	**46,970,000 Hz**
HANDSET FREQ:	**49,970,000 Hz**

CLEAR CHANNEL DETECTION

Test Procedure

Setup the equipment as per figure 1.

Verification of Base Unit Detector

1. Connect the base unit to an AC source and place the handset in the off hook mode and select channel 1.
2. Using the spectrum analyzer verify the base and handset frequencies are on channel 1 using the RX antenna.
3. Put the handset on hook.
4. Set the signal generator to channel 1 modulated at 1KHz dev., approx. 20KHz, to produce approximately -30dBM to -40dBM on the analyzer from the RX antenna when feeding this signal to the TX antenna several seconds.
5. Turn the handset on and go off hook.
6. Re-measure the base and handset frequencies. They must be other than the initial ones.
7. Busy the resulting frequency and repeat the above steps.

Verification of Handset Unit Detector

1. Connect the base unit to an AC source and place the handset in the off hook mode and select channel 4.
2. Using the spectrum analyzer verify the base and handset frequencies are on channel 4 using the RX antenna.
3. Put the handset on hook.
4. Set the signal generator to channel 4 modulated at 1KHz dev., approx. 20KHz, to produce approximately -30dBM to -40dBM on the analyzer from the RX antenna when feeding this signal to the TX antenna for several seconds.
5. Place the handset off hook.
6. Re-measure the base and handset frequencies. They must be other than the initial ones.
7. Busy the resulting frequency and repeat the above steps.

TESTS RESULTS

Model: 2-9769(XXXX) Date: April 9, 1998

Base Unit Detector

Step 2 - Check initial channel

43,719,973 Hz Channel 1
Base

Step 6 - Recheck channel frequencies

43,919,958 Hz Channel 5
Base

Step 7 - Recheck channel frequencies

44,180,105 Hz Channel 9
Base

Step 7 - Recheck channel frequencies

44,399,958 Hz Channel 13
Base

Step 7 - Recheck channel frequencies

46,629,955 Hz Channel 17
Base

Step 7 - Recheck channel frequencies

46,769,952 Hz Channel 21
Base

Handset Unit Detector

Step 2 - Check initial channel

48,920,334 Hz Handset — Channel 4

Step 6 - Recheck channel frequencies

49,160,380 Hz Handset — Channel 6

Step 7 - Recheck channel frequencies

49,360,162 Hz Handset — Channel 12

Step 7 - Recheck channel frequencies

49,670,163 Hz Handset — Channel 16

Step 7 - Recheck channel frequencies

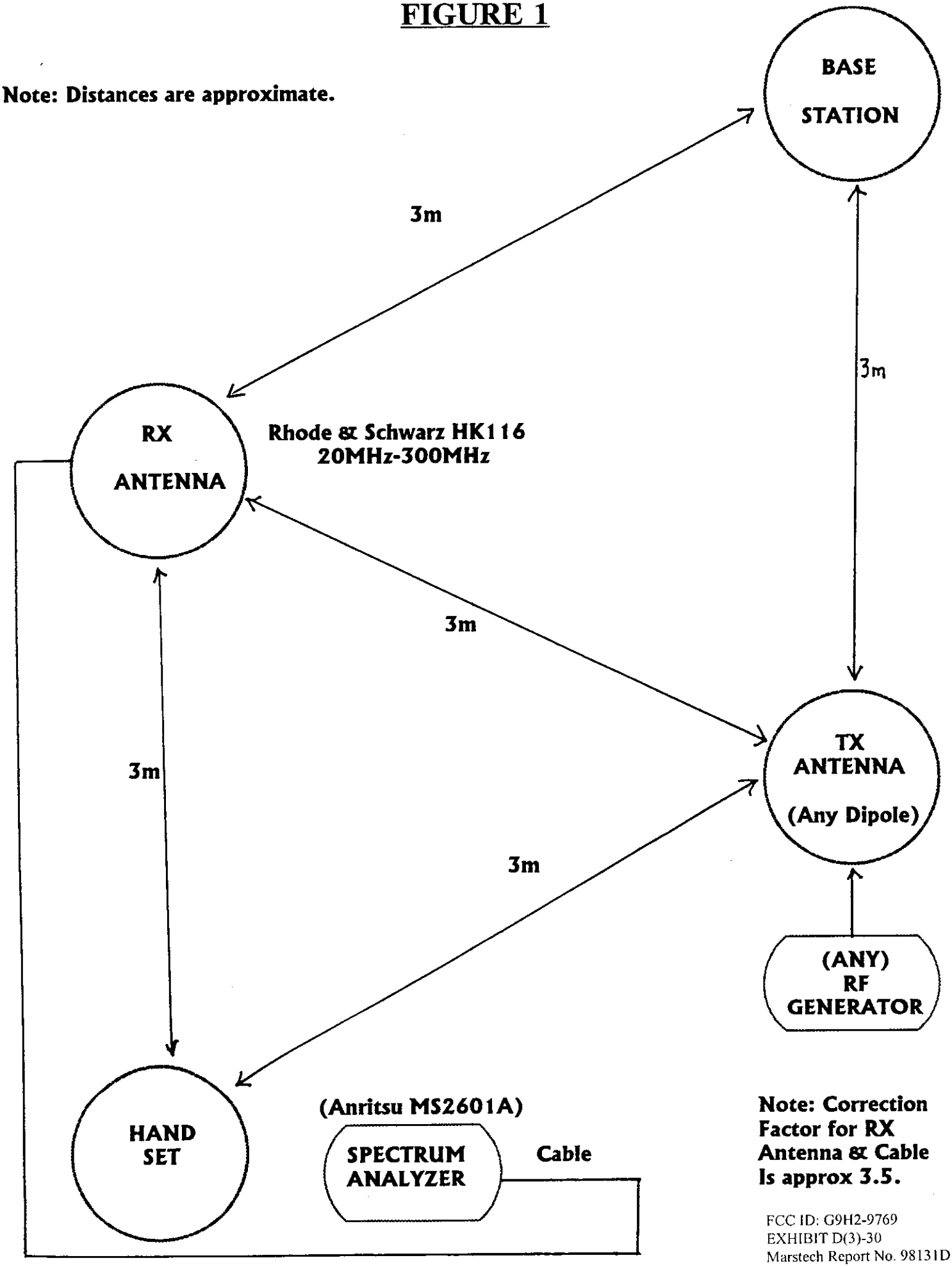
49,875,166 Hz Handset — Channel 20

Results: Satisfactory

Technician: Hiran De Silva

FIGURE 1

Note: Distances are approximate.



Note: Correction Factor for RX Antenna & Cable Is approx 3.5.

FCC ID: G9H2-9769
EXHIBIT D(3)-30
Marstech Report No. 98131D

D-1

VI. Verify According to the 15.233(b)(2)(i) Requirements

Accocding to 15.233(b)(2)(i), an automatic channel selection mechanism that will prevent establishment of a link on any occupied frequency on channels one through fifteen must be incorcorated. The following test method is used to confirm this function:

1.Turn on the EUT and record the frequency of base from the spectrum analyzer.

2.Turn off the EUT.

3.Set the signal generator(HP3325B) to the frequency recorded in step 1.

4.Turn on the EUT again and read the frequency from the spectrum analyzer. If the reading is not same as the frequency recorded in step 1, this means the EUT complies with the requirements.

5.Press the channel select button 25 times and read the frequency every time the button is pressed. If the frequency reading is not same as the frequency recorded in step 1, this means the EUT complies with the requirements.

6.Repeat steps 1-5 for the handset.

7.Repeat steps1-6 for another frequency pairs.

P/S: The level of the radiated signal generated by signal generator is set to 10dB below, 10dB above and equal to the EUT's radiated leval respectively for testing.

RESULT : After three pairs of frequency (channel 1, 8, 15) was verified with the steps mentioned above, no frequency reading is recorded same as the pre-set frequency of signal genarator.