

Intertek Testing Services - Menlo Park

Symbol Technologies Inc., Spread Spectrum
FCC ID: H9PNP3010

Date of Test: June 17 - 22, 1998 & July 8, 1998

4.4 Minimum Number of Hopping Frequencies, FCC Ref: 15.247(a)(1)(i&ii)

The RF passband of the EUT was divided into 2 approximately equal bands. With the analyzer set to MAX HOLD readings were taken for 2 - 3 minutes in each band. The channel peaks so recorded were added together, and the total number compared to the minimum number of channels required in the regulation.

No. of hopping channels	79
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Minimum Requirements:

- at least 50 channels for 902 - 928 MHz band;
- at least 75 channels for 2400 - 2483.5 and 5725 - 5850 MHz systems

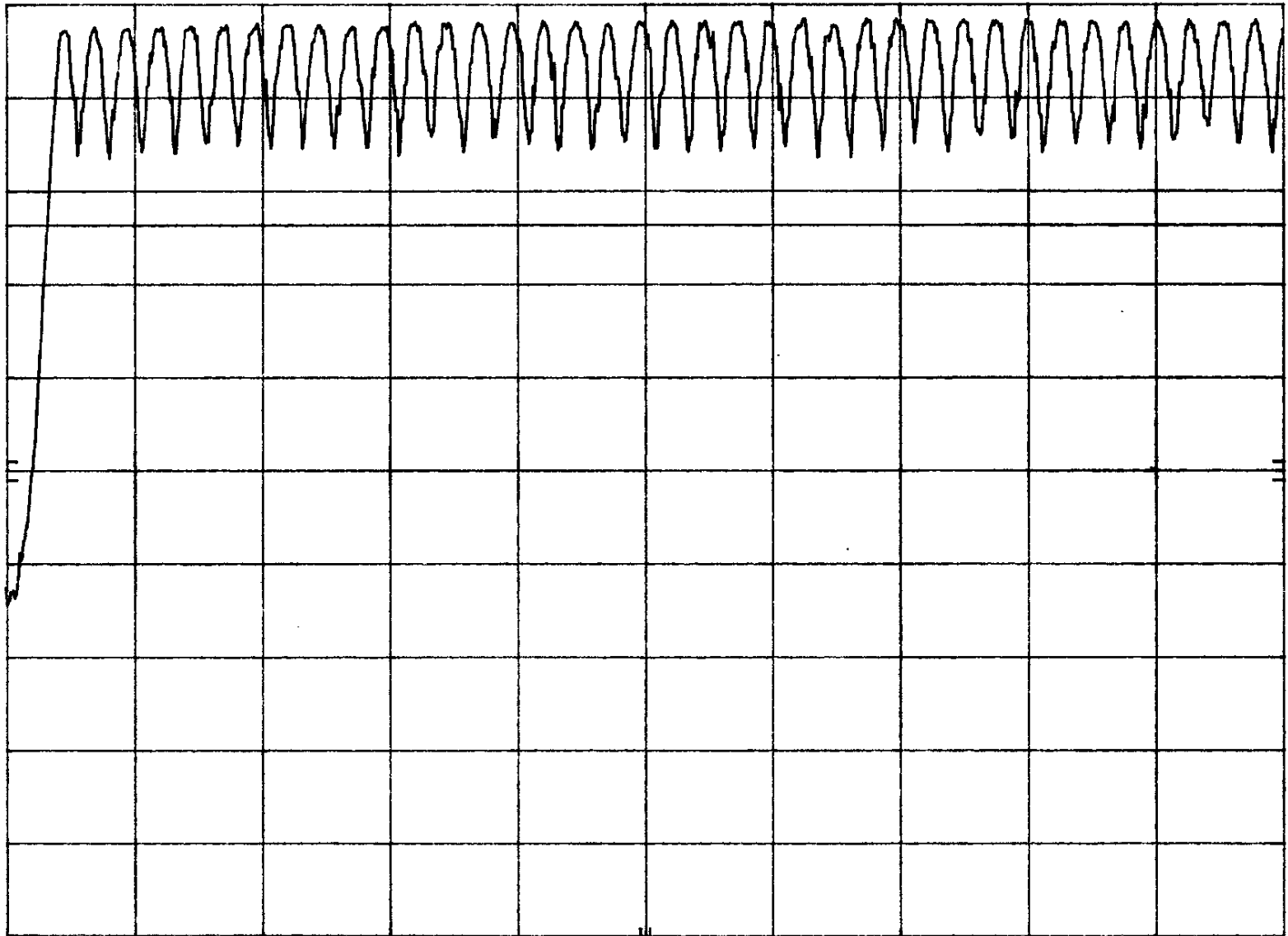
Refer to spectrum analyzer charts 4a - 4b.

PLOT# 4a

hp REF 20.0 dBm ATTN 40 dB

10 dB/

DL
-3.7
dBm



START 2.400 0 GHz

RES BW 300 kHz

VBW 30 kHz

STOP 2.440 0 GHz

SWP 20.0 msec

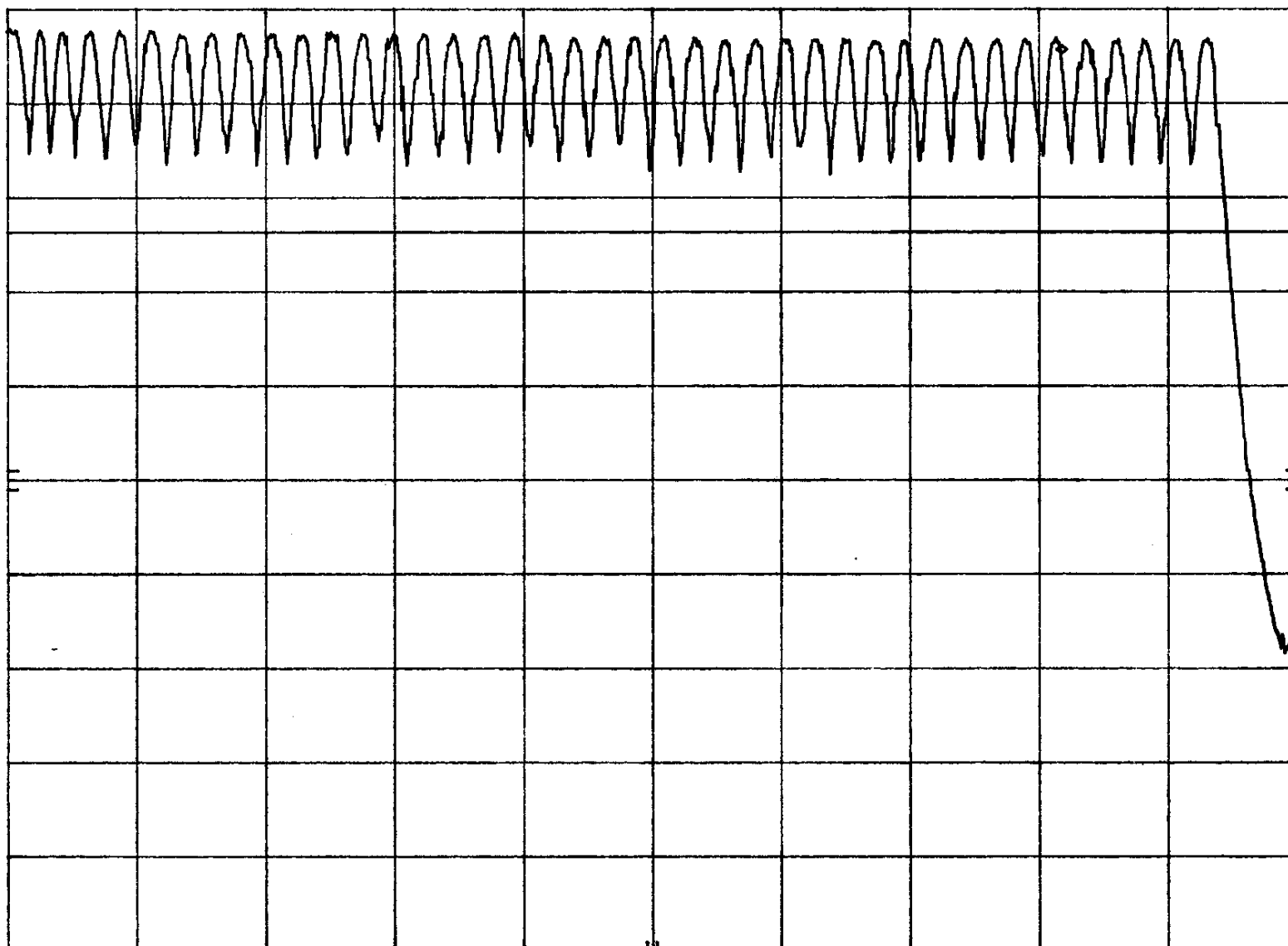
PLOT# 4b

MKR 2.475 54 GHz
15.70 dBm

hp REF 20.0 dBm ATTN 40 dB

10 dB/

DL
-3.7
dBm



START 2.440 0 GHz
RES BW 300 kHz

VBW 30 kHz

STOP 2.483 5 GHz
SWP 20.0 msec

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4.5 Average Channel Occupancy Time, FCC Ref: 15.247(a)(1)(i&ii)

The spectrum analyzer center frequency was set to one of the known hopping channels. The SWEEP was set to 0.4 second, the SPAN was set to ZERO SPAN, and the TRIGGER was set to VIDEO. The time duration of the transmission so captured was measured with the MARKER DELTA function.

The SWEEP was then set to the time required by the regulation (20 seconds for 902-928 MHz devices, 30 seconds for all other bands). The analyzer was set to SINGLE SWEEP, the total ON time was added and compared against the limit (0.4 seconds).

Average 0.4 seconds maximum occupancy in 20 seconds, 902-928 MHz

Average 0.4 seconds maximum occupancy in 30 seconds, 2400-2483.5/5725-5850 MHz

Refer to attached spectrum analyzer plots 5a - 5b for details.

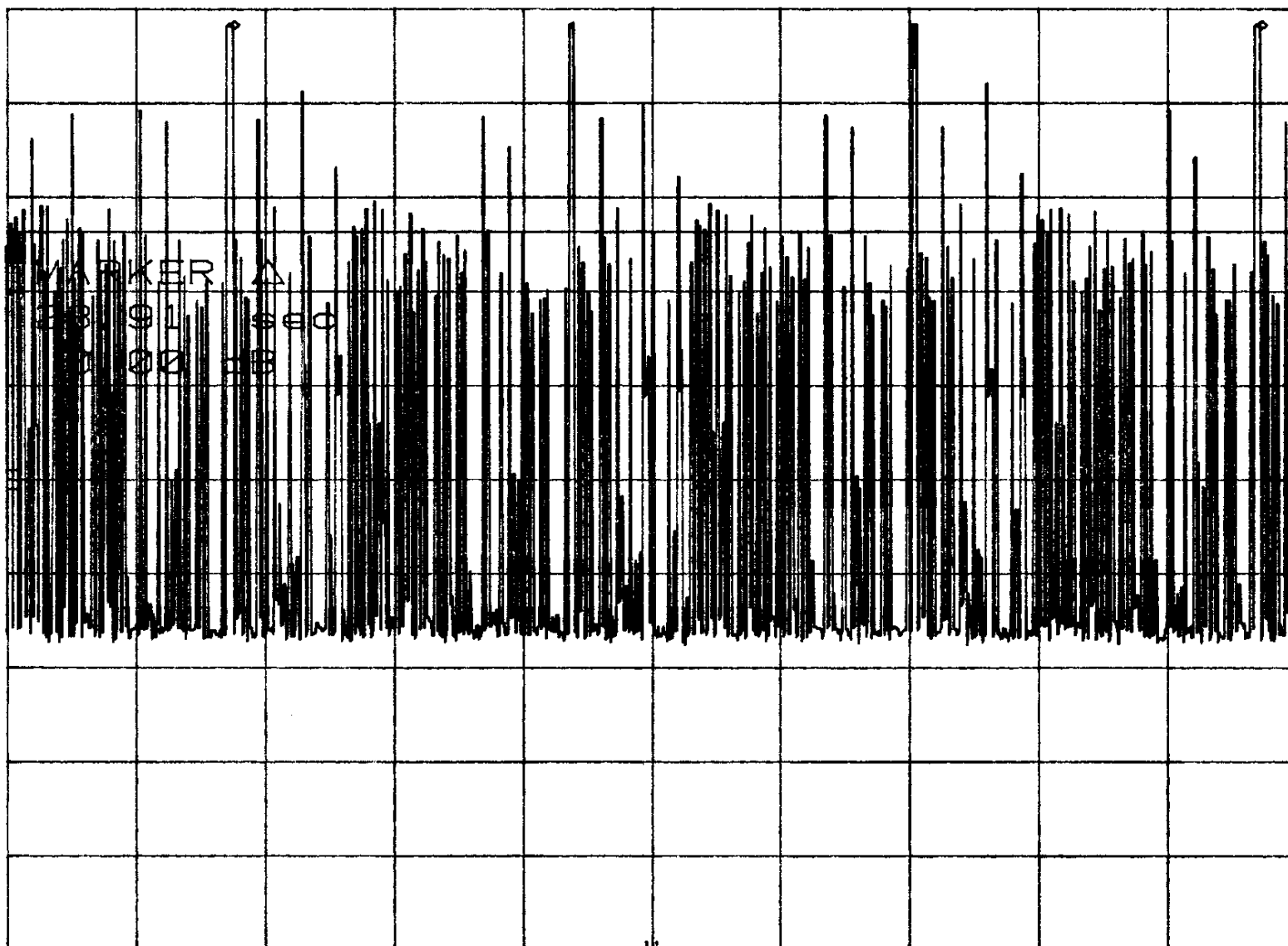
PLOT# 5a

MKR Δ 23.91 sec
0.00 dB

hp REF 20.0 dBm ATTN 40 dB

10 dB/

DL
-3.7
dBm



CENTER 2.442 972 442 GHz

RES BW 100 kHz

VBW 100 kHz

SPAN 0 Hz
SWP 30.0 sec

PLOT# 5b

MKR Δ 100.0 msec

hp

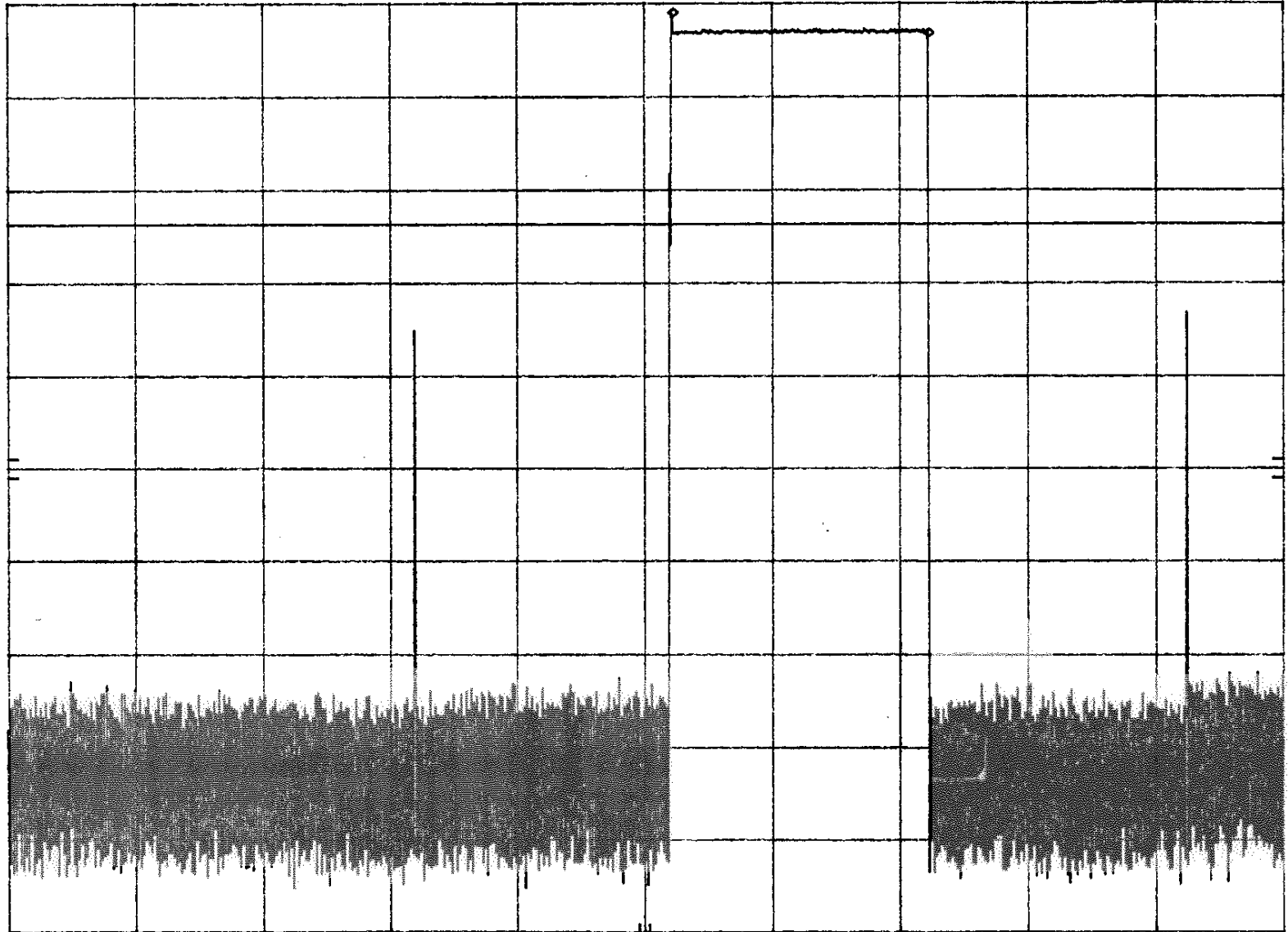
REF 20.0 dBm

ATTEN 40 dB

-2.20 dB

10 dB/

DL
-3.7
dBm



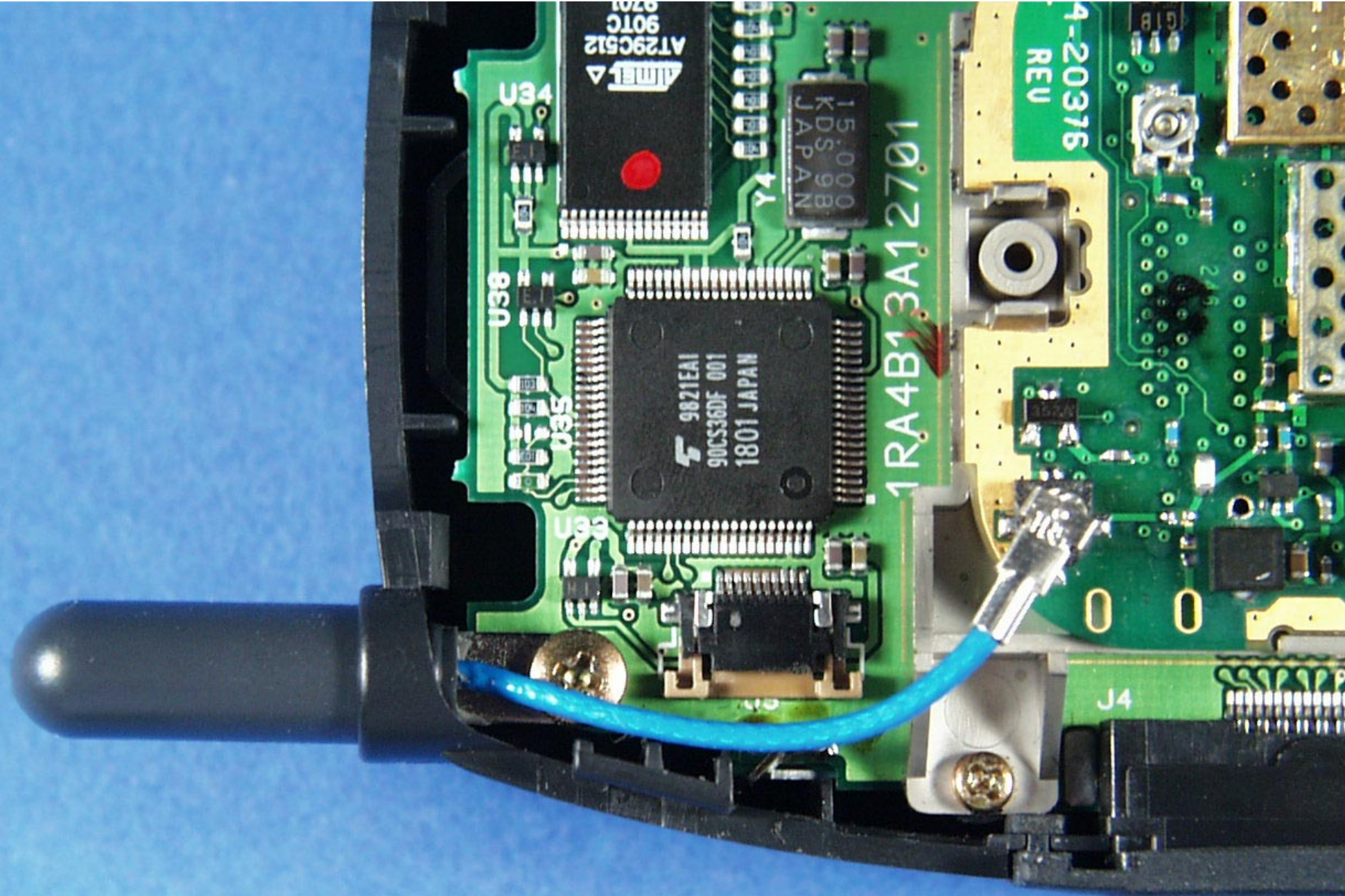
CENTER 2.442 972 442 GHz

RES BW 30 kHz

VBW 30 kHz

SPAN 0 Hz

SWP 500 msec



H9PND3010



Antenna PEP Display.vi

G:\LABVIEW\Project\AMS3\Display\Antenna PEP Display.vi

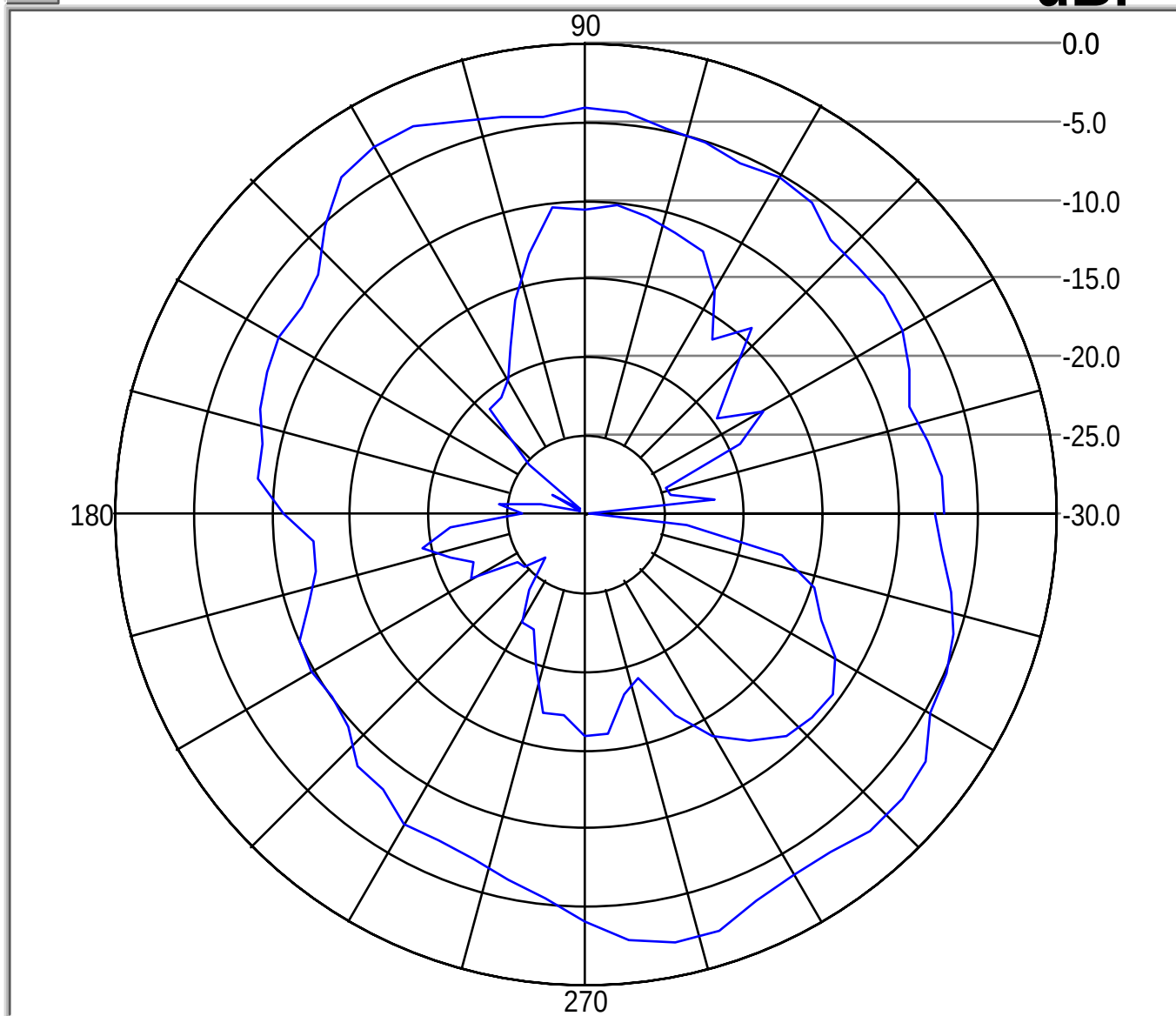
Last modified on 4/16/99 at 1:31 PM

Printed on 4/16/99 at 1:31 PM

Data Starts:**Path:** g:\Labview\data1\Norm\NDP\Antenna AB.dat**Records:** 6

4/5/99 4:57:33 PM

PEP

dBi**Run Info**

Model S-24 Rubber ND3010

S/N Monopole

Version Monopole/Dipole AB test

Ft(MHz) 2440

Harmonic Fund.

Polarity Vert

Scale Max

0.00

Scale Min

-30.00

New Run

OFF

size

33958

Rec No.
2

4/5/99 5:01:07 PM

Peak

-2.00

mean

-8.90

%

46

dBi