JAMPRO ANTENNAS, INC.

PARADISE BROADCASTING
(KVED-88.1, KPRO-93.5, KQTX-98.1)

JCPB-10HR

88.1, 93.5, 98.1 MHZ

APRIL 19, 2022

SERIAL NUMBER 20149-A

JAMPRO ANTENNAS, INC.

RCCS-313-2.5H

PARADISE BROADCASTING

88.1, 93.5 & 98.1 MHZ

APRIL 12, 2022

SERIAL NUMBER 20149-D

JAMPRO ANTENNAS, INC.
6340 Sky Creek Drive, Sacramento, California 95828
P.O. Box 292880, Sacramento, California 95829-2880
(916) 383-1177 FAX (916) 383-1182

INTRODUCTION

Jampro Antennas, Inc. is proud to present the RCCS-313-2.5H Starpoint Combiner System. State-of-the-art design and manufacturing techniques have been used in the production and testing of the RCCS-313-2.5H combining system. System performance has been verified and documented prior to shipment; copies of the factory data are provided as evidence of testing.

This manual will assist in the setup of the combining system. Completely read this manual prior to installation. The first section contains installation and set up instructions. This is then followed by factory performance data. The third section of this document contains Jampro's Limited Warranty and Terms of Sale. If there are any questions regarding the combiner or this document, please contact Jampro's local representative or contact us directly at our factory in the USA.

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SYSTEM SPECIFICATIONS

MODEL: RCCS-313-2.5H **SERIAL NO:** 20149-D

ELECTRICAL SPECIFICATIONS

COMBINER TYPE:	STARPOINT
CENTER FREQUENCY (Fc):	88.1, 93.5 & 98.1 MHz
BANDWIDTH (BW):	Fc ± 150 kHz
INPUT POWER (88.1 MHz):	8 kW
(93.5 MHz):	10 kW
(98.1 MHz):	8 kW
INSERTION LOSS:	0.30 dB
VSWR:	1.08:1
ISOLATION:	34 dB @ 2.5 MHz separation 50 dB @ 5.0 MHz separation
INPUT CONNECTORS:	1-5/8" Unflanged
OUTPUT CONNECTOR:	3-1/8" EIA Flanged
HEAT SINKS:	Yes

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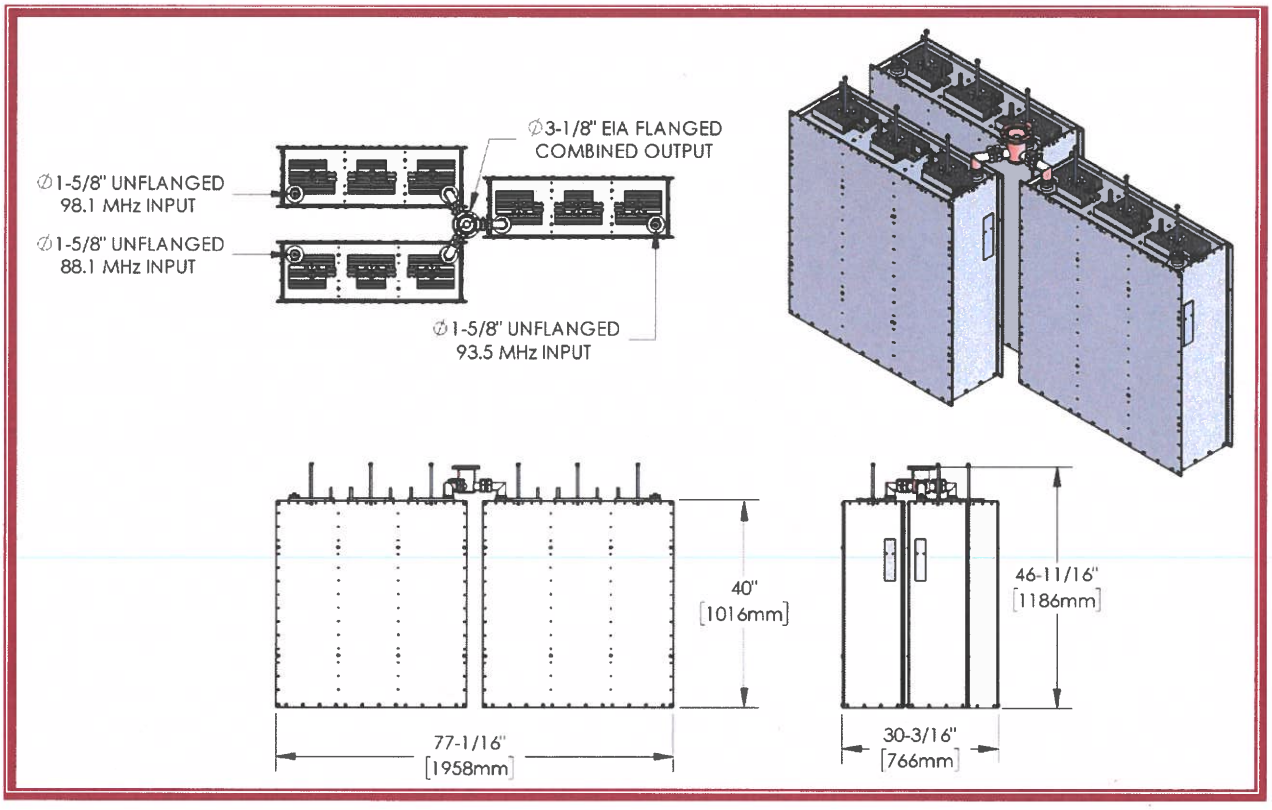
RCCS-313-2.5H



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PACKING LIST

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Date: 12-Apr-22

PACKING LIST
JOB # 20149-D
FILTER
PARADISE BROADCASTING

ITEM #	QTY (req spare)	MODEL #	DESCRIPTION	BOX #	Q/A
1	1	NPN	INSTRUCTION MANUAL	1	ZL CR
2	1	20149-D-010	3 WAY TEE WITH ELBOWS	1	ZL CR
3	3	001-90055-06	RCBC-213-FMH ASSEMBLY	1	ZL CR

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UNPACKING AND INSTALLATION

1. Clear the area needed to install the combiner of all debris and ensure there is ample headroom to allow for the height of the system.

2. Prior to moving the combiner system to its final location, the system should be inspected for damage. If damage is found, report it to the shipping company immediately. Jampro will not bear the responsibility or liability for any damage to the combiner incurred during the shipping and installation processes.

3. Attach Tee junction as shown in the drawing. Line lengths are critical to the performance of the combiner and should not be modified.

4. At this point the combiner is ready for operation. Attach each input line to its corresponding combiner-input connector and the output line to its corresponding combiner output connector.

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PLANT PERFORMANCE DATA

All plots were recorded at Jampro RF Systems' manufacturing facility using an Agilent Vector Network Analyzer, calibrated to a 50 Ω Standard using eighteen point error correction. All test equipment is returned annually to a certified Agilent service center for recalibration.

The plots are individually labeled above each plot; a table is given below for your convenience.

- 88.1 MHz VSWR
- 88.1 MHz Impedance
- 88.1 MHz Insertion Loss
- 88.1 MHz Rejection
- 93.5 MHz VSWR
- 93.5 MHz Impedance
- 93.5 MHz Insertion Loss
- 93.5 MHz Rejection
- 98.1 MHz VSWR
- 98.1 MHz Impedance
- 98.1 MHz Insertion Loss
- 98.1 MHz Rejection
- 88.1 MHz and 93.5 MHz Isolation
- 88.1 MHz and 98.1 MHz Isolation
- 93.5 MHz and 98.1 MHz Isolation

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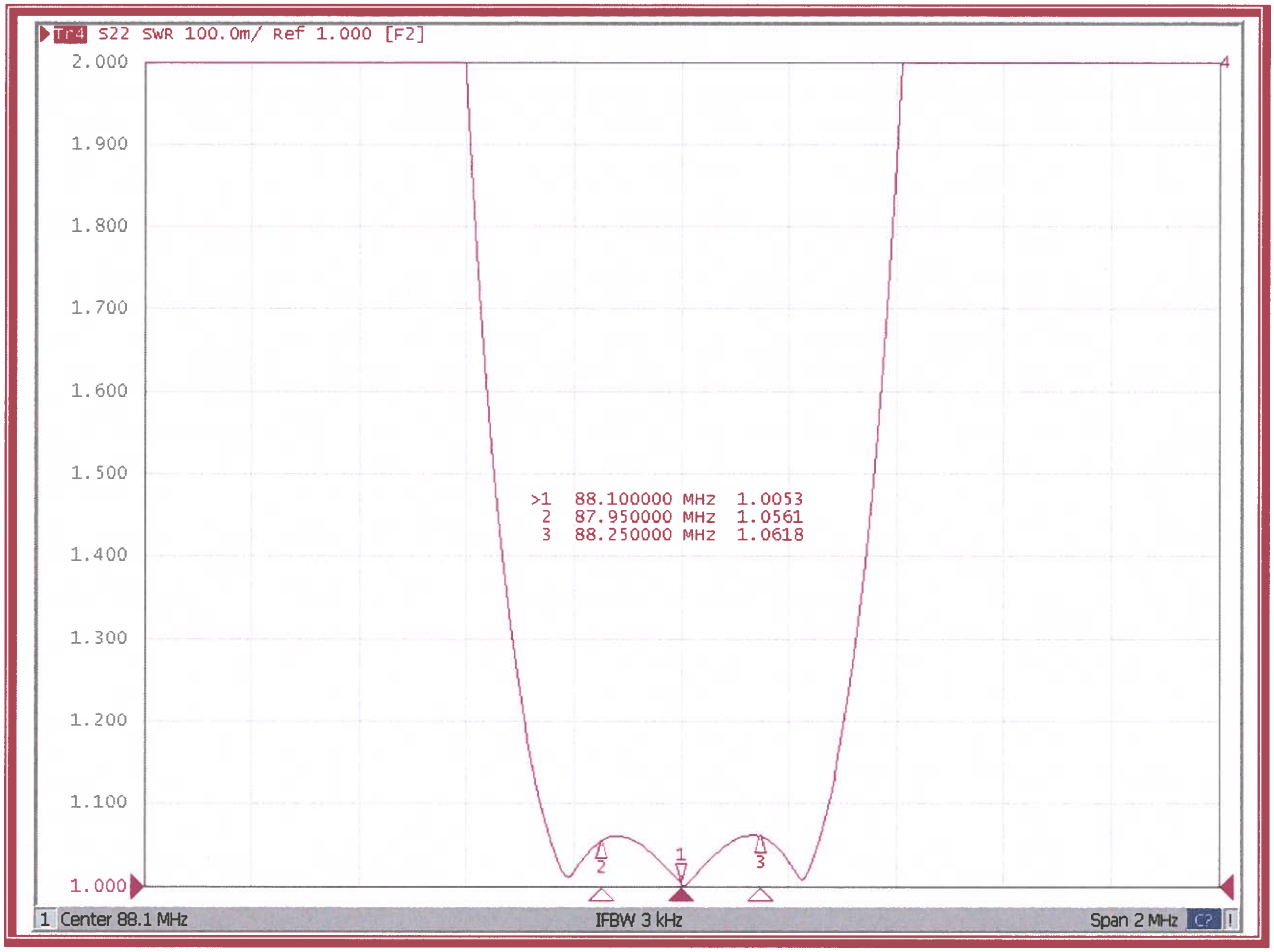
88.1 MHZ VSWR



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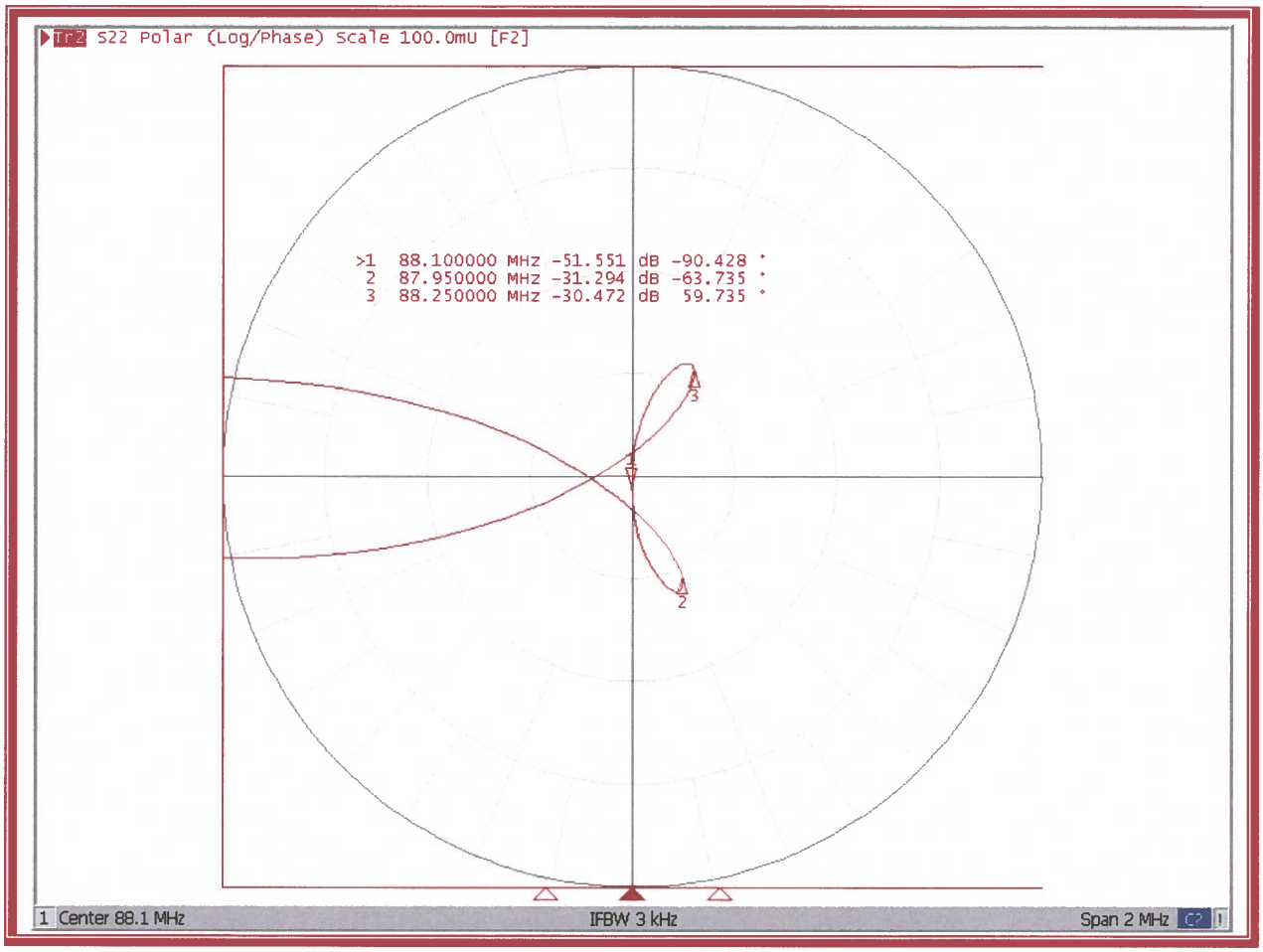
88.1 MHZ IMPEDANCE



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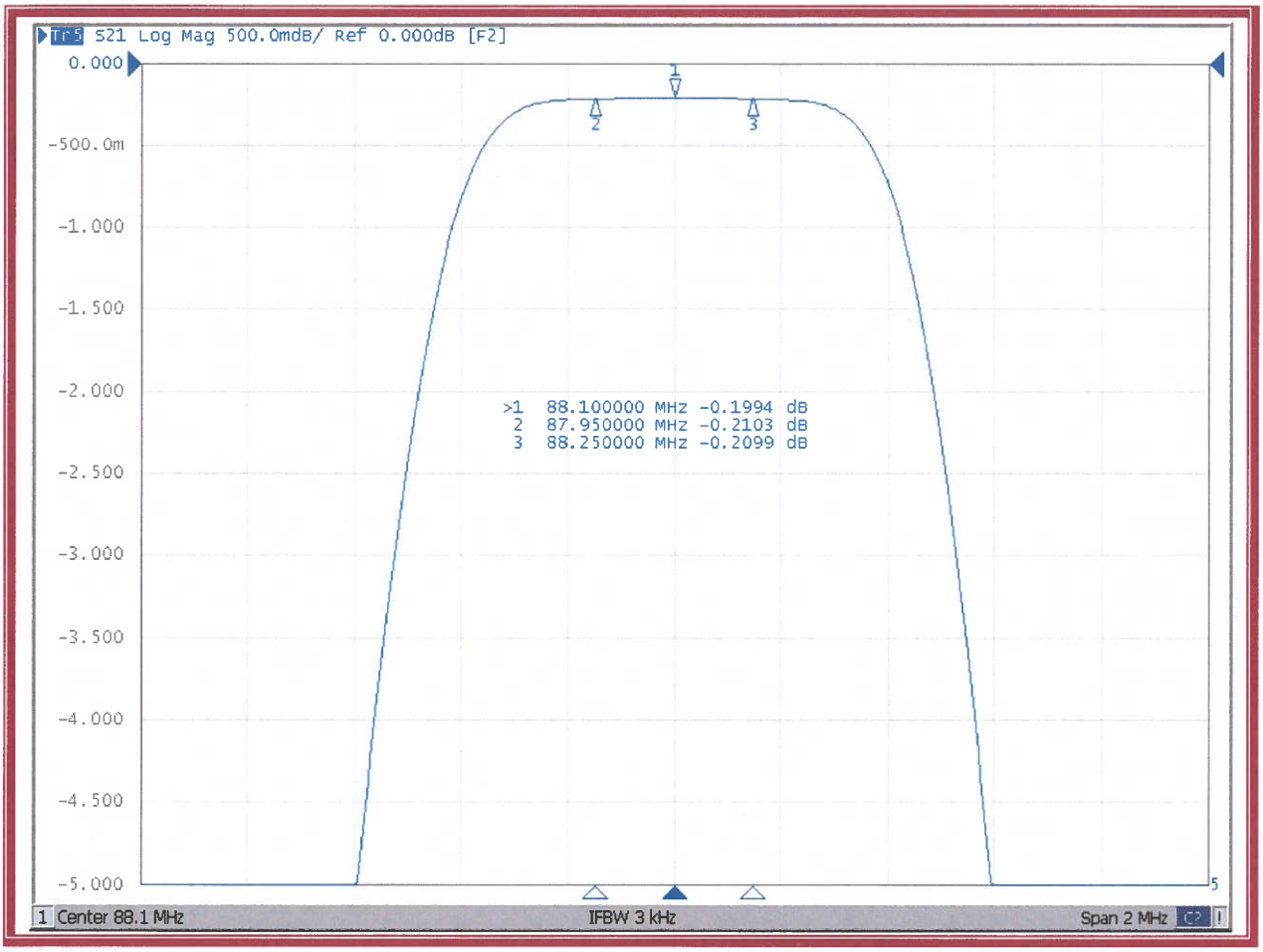
88.1 MHZ INSERTION LOSS



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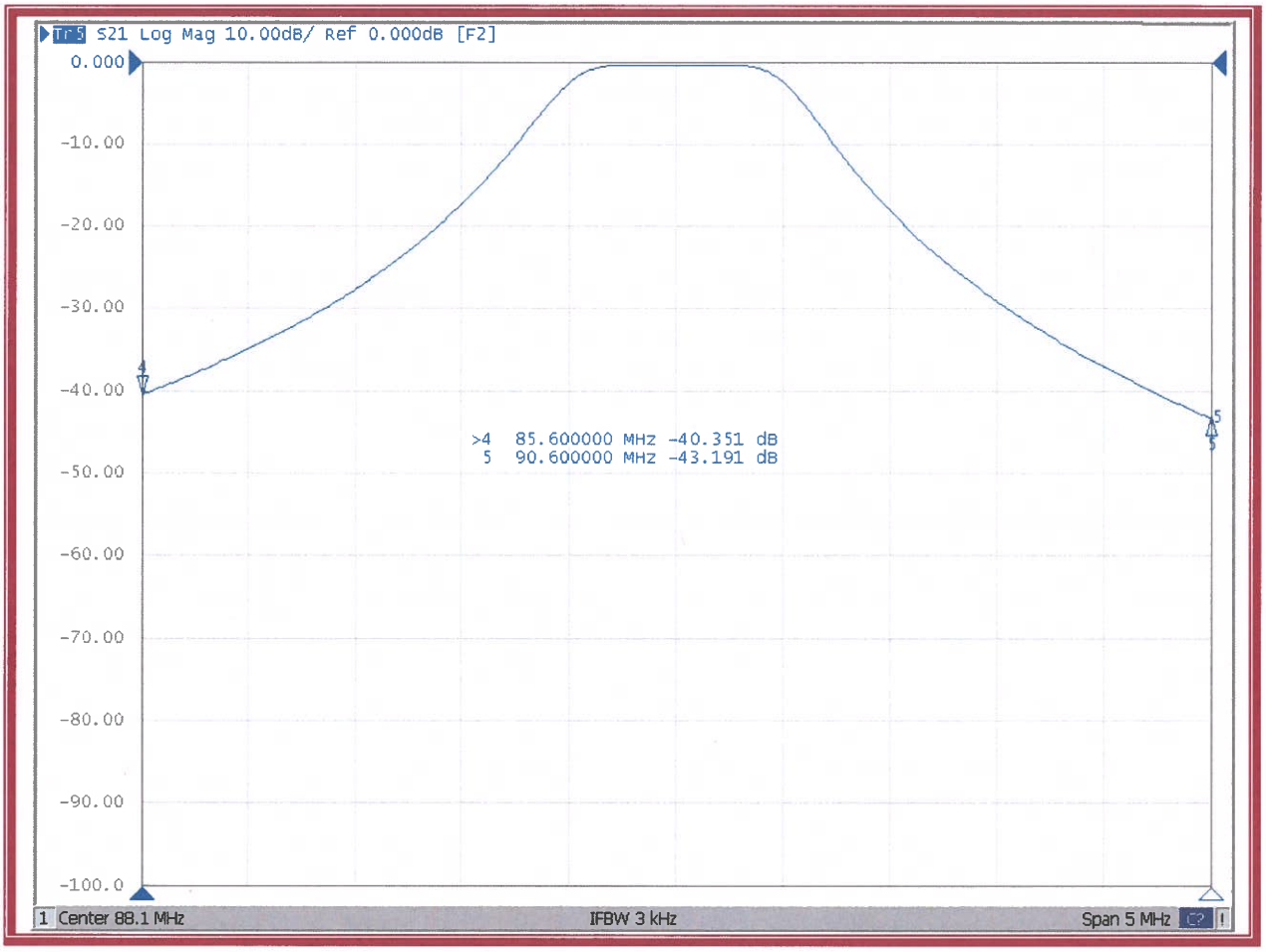
88.1 MHZ REJECTION



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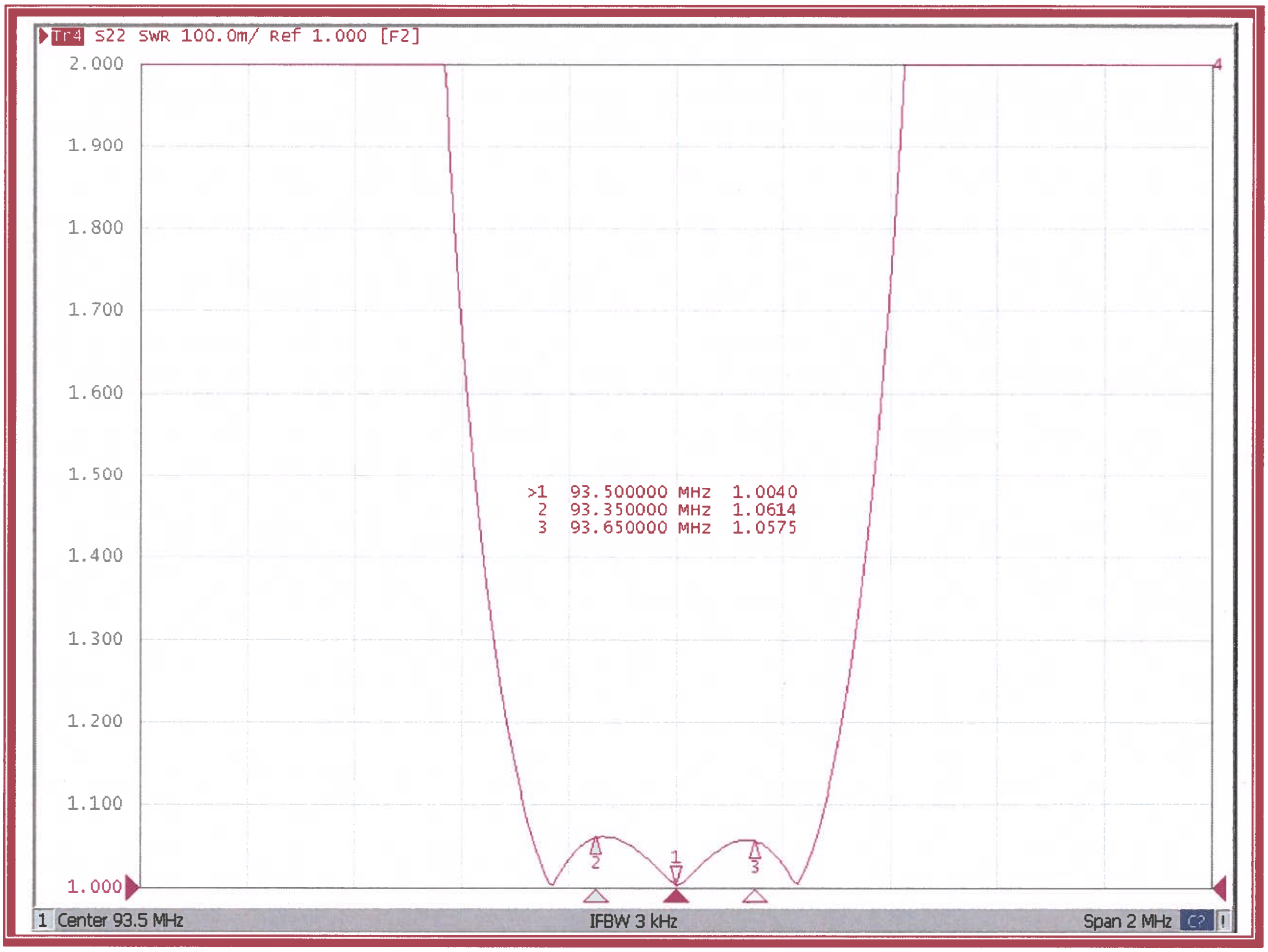
93.5 MHZ VSWR



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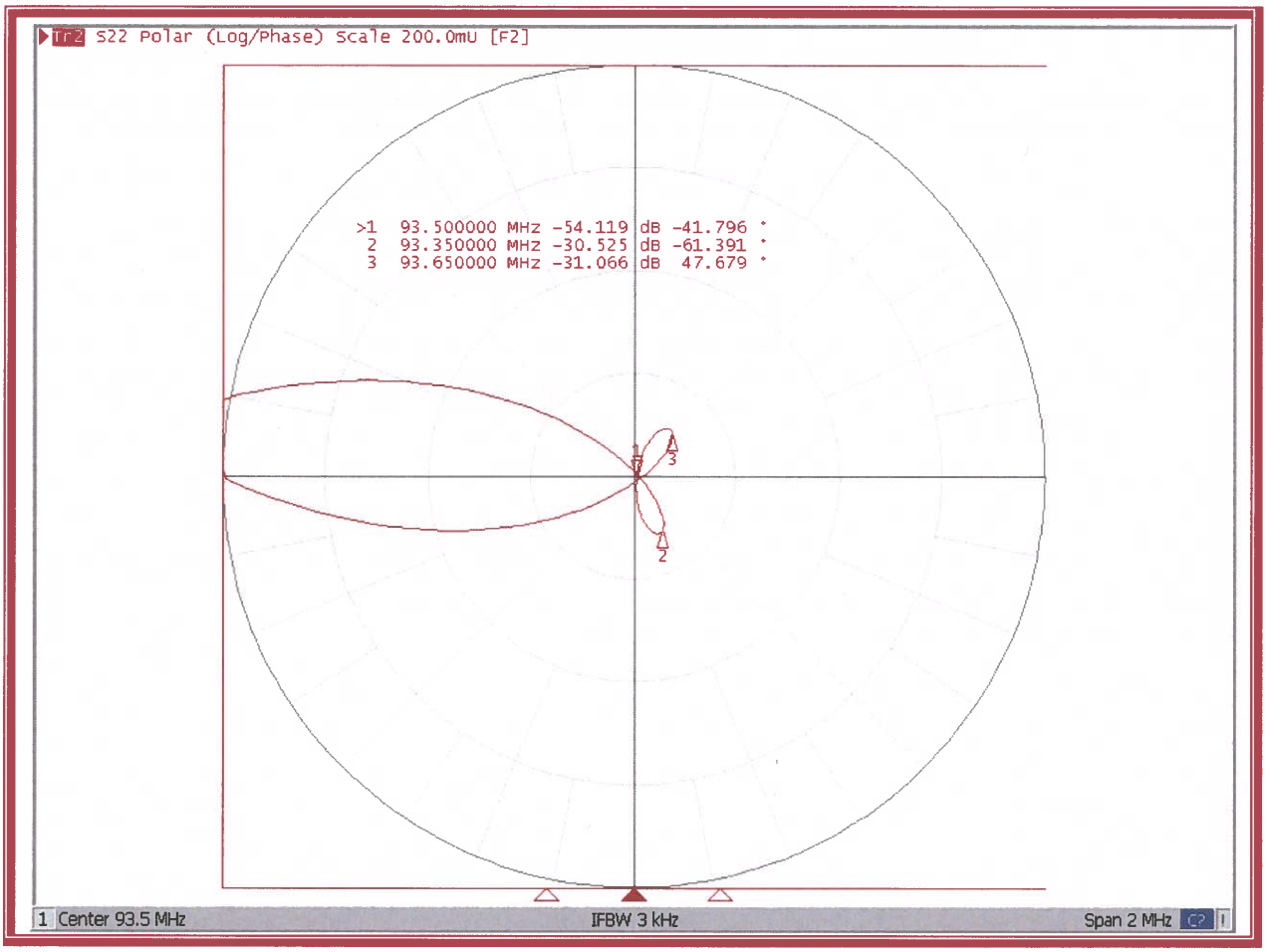
93.5 MHZ IMPEDANCE



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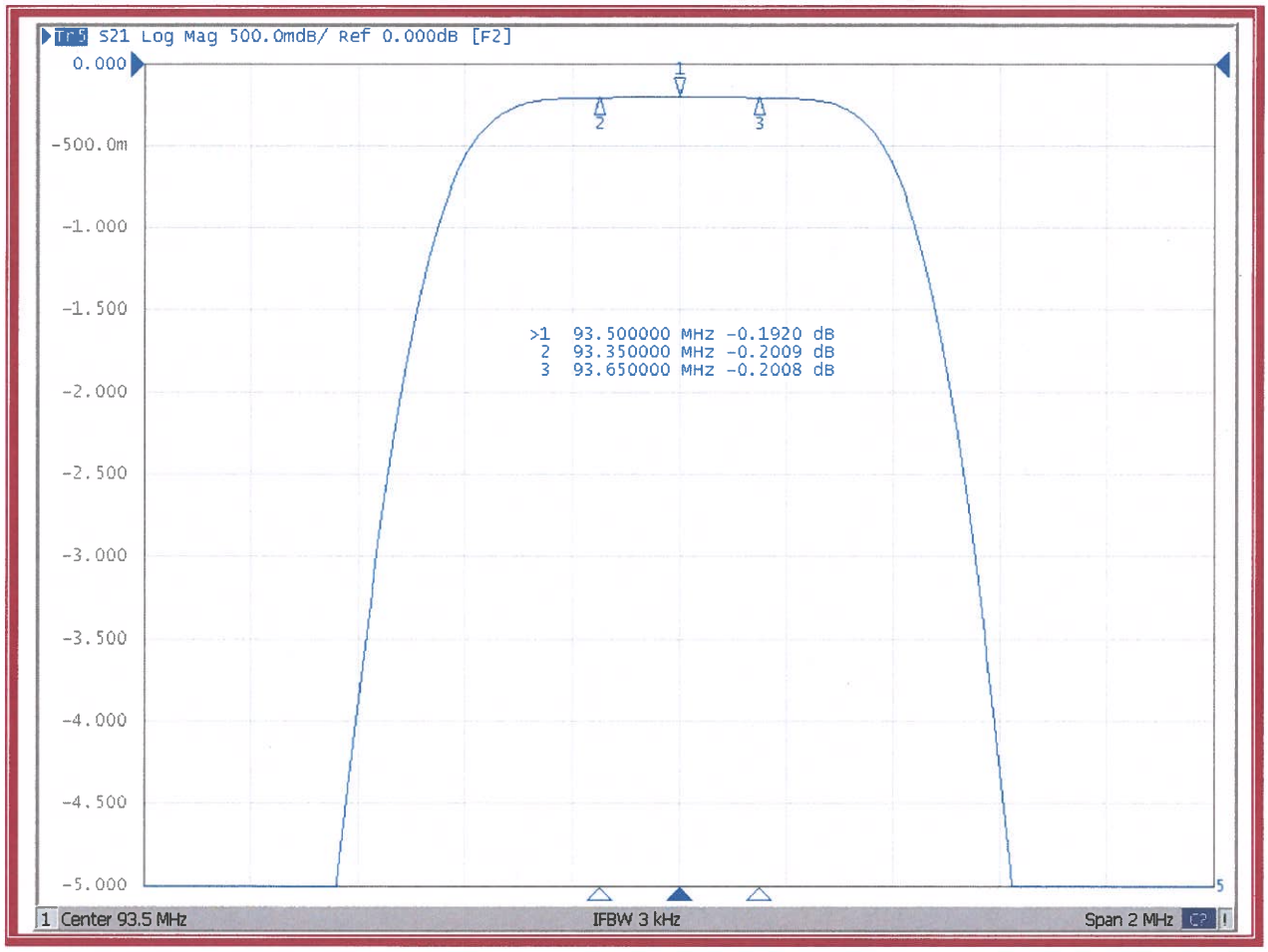
93.5 MHZ INSERTION LOSS



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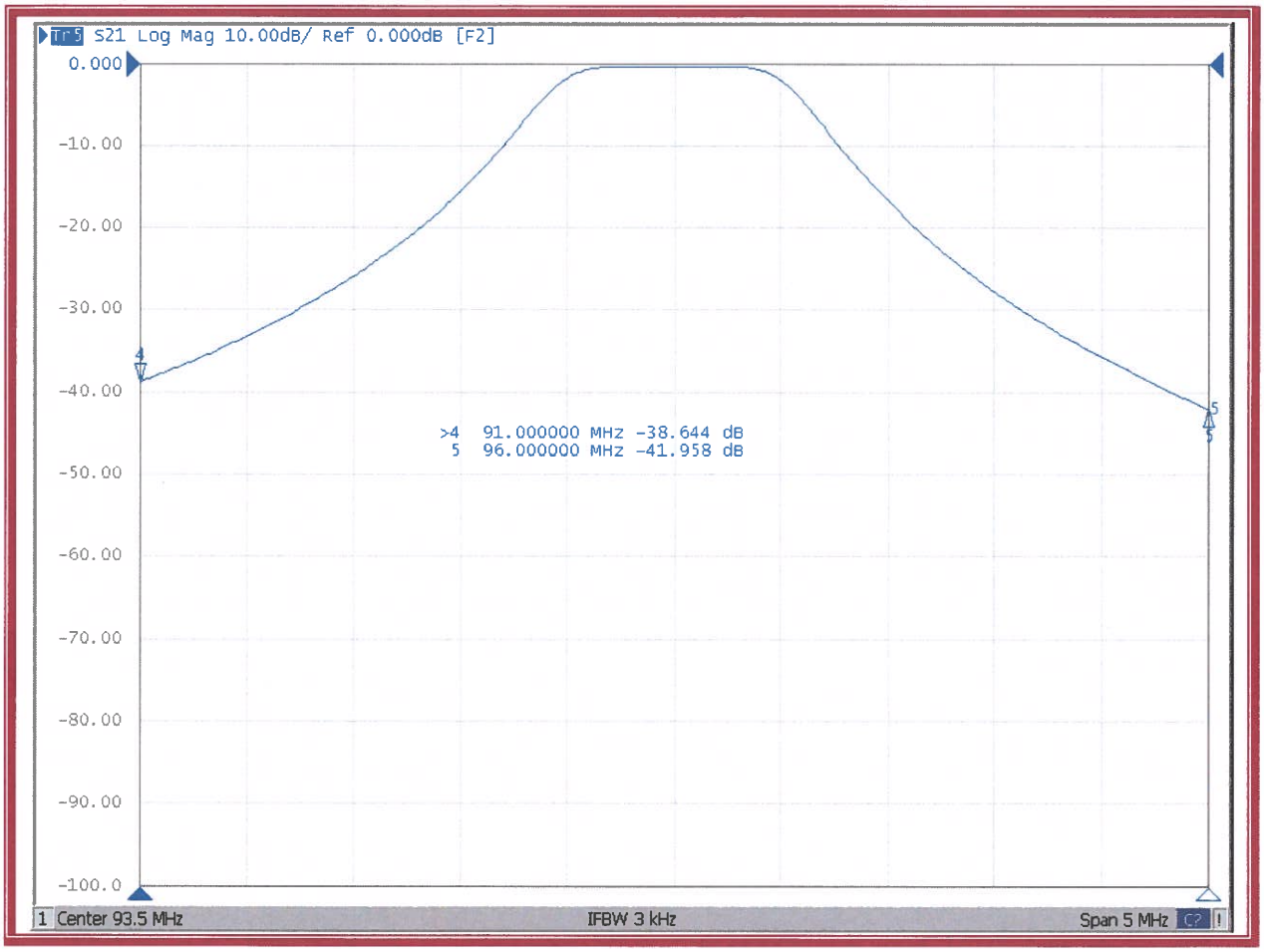
93.5 MHZ REJECTION



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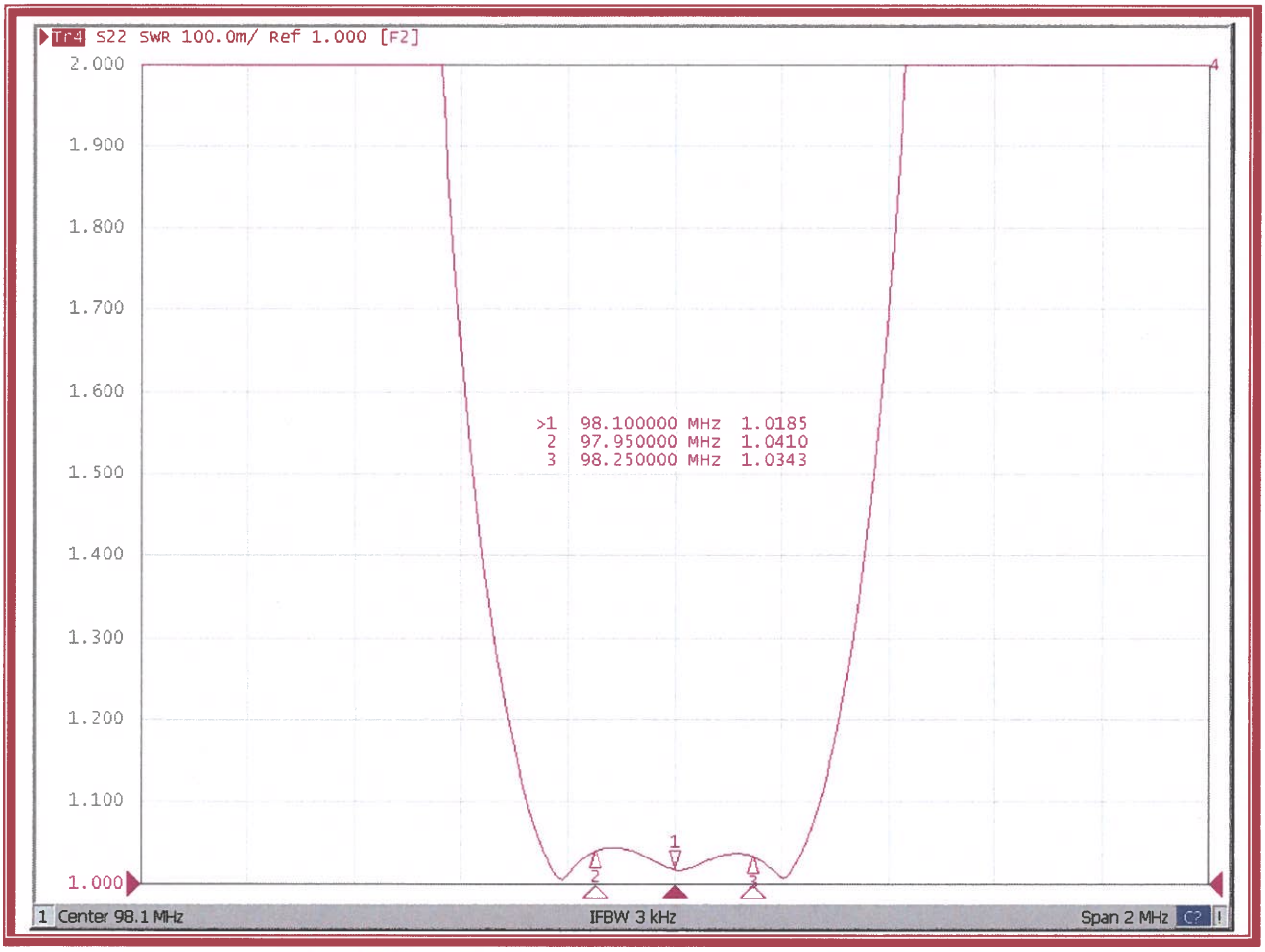
98.1 MHZ VSWR



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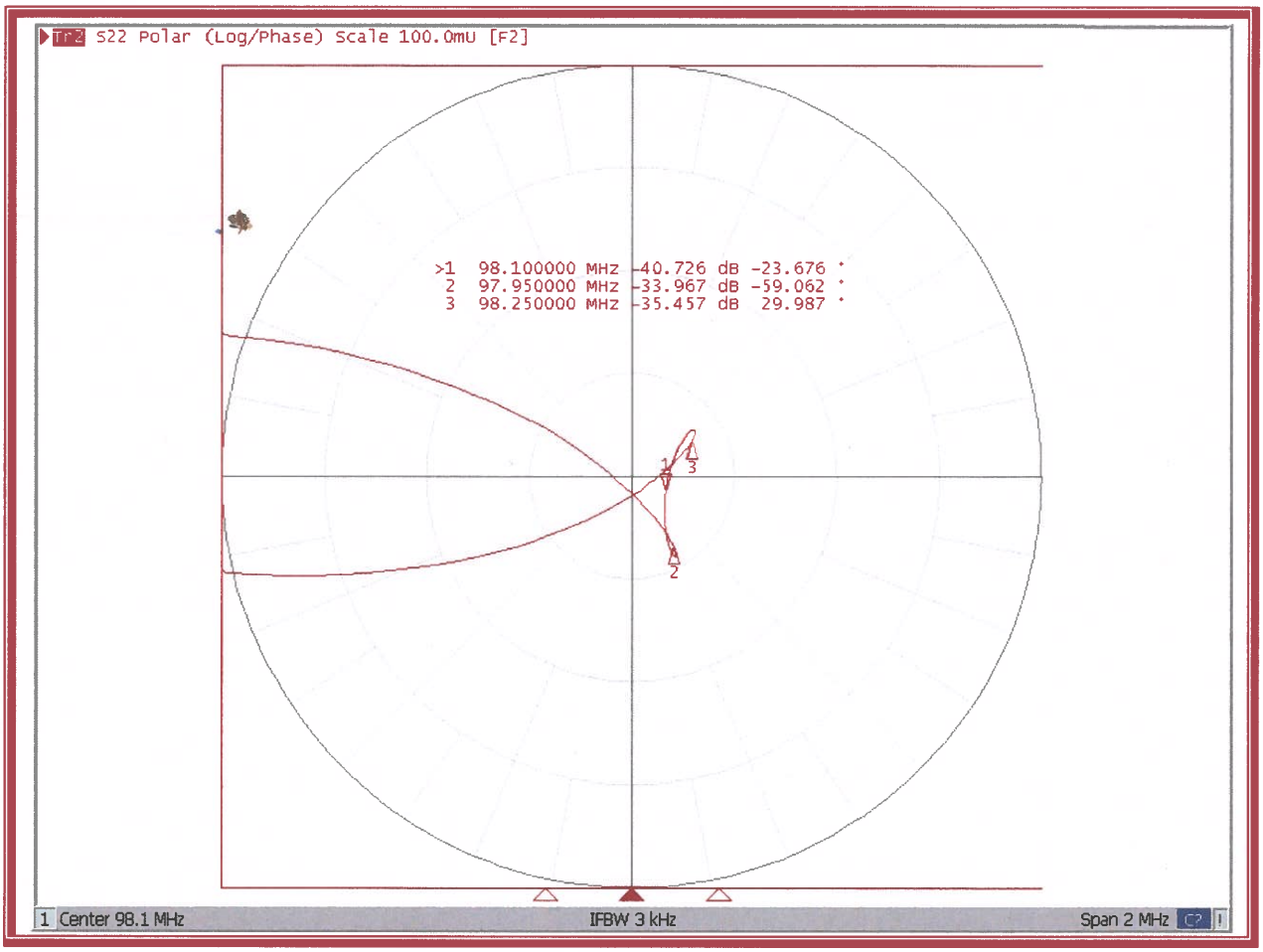
98.1 MHZ IMPEDANCE



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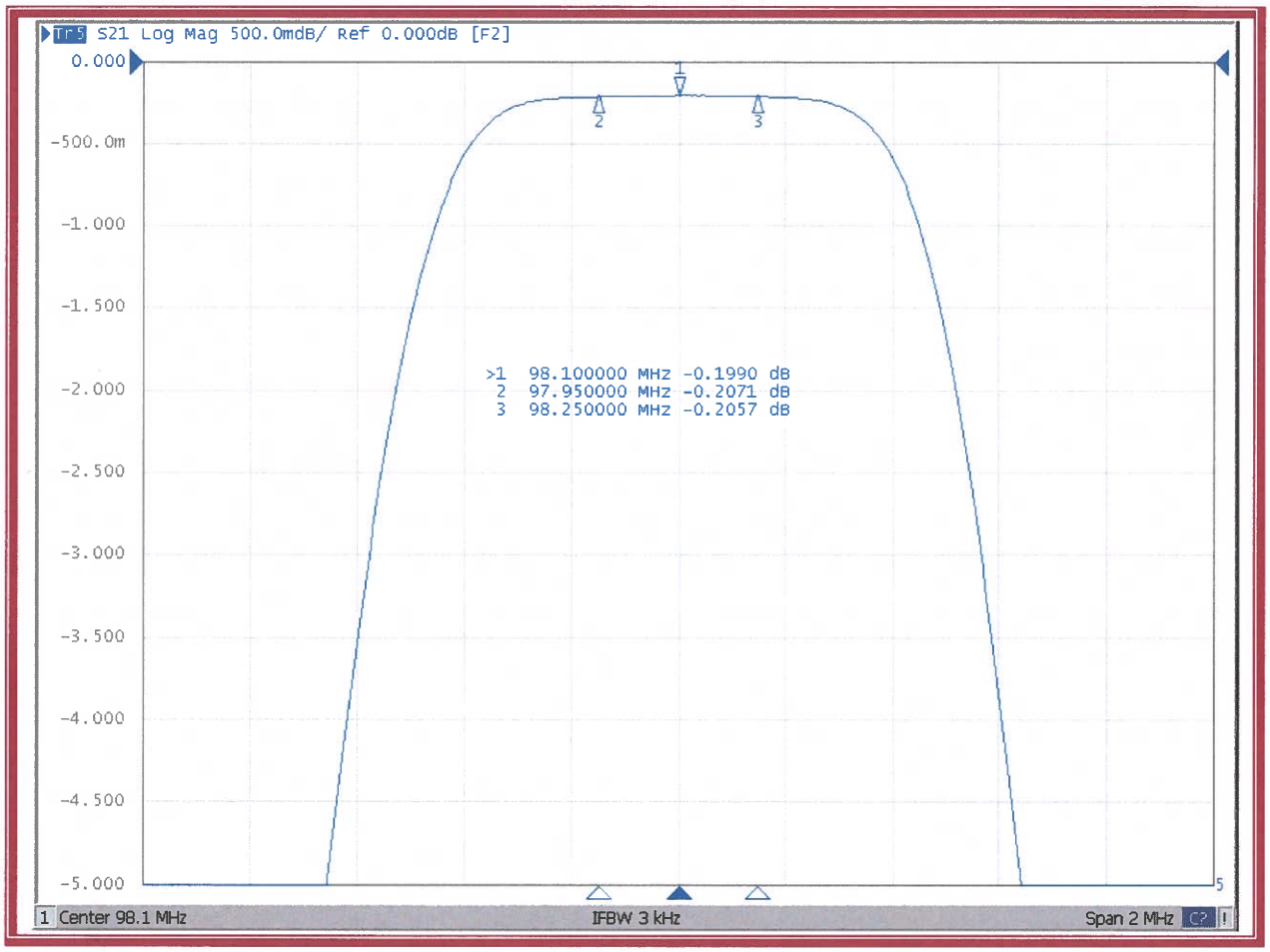
98.1 MHZ INSERTION LOSS



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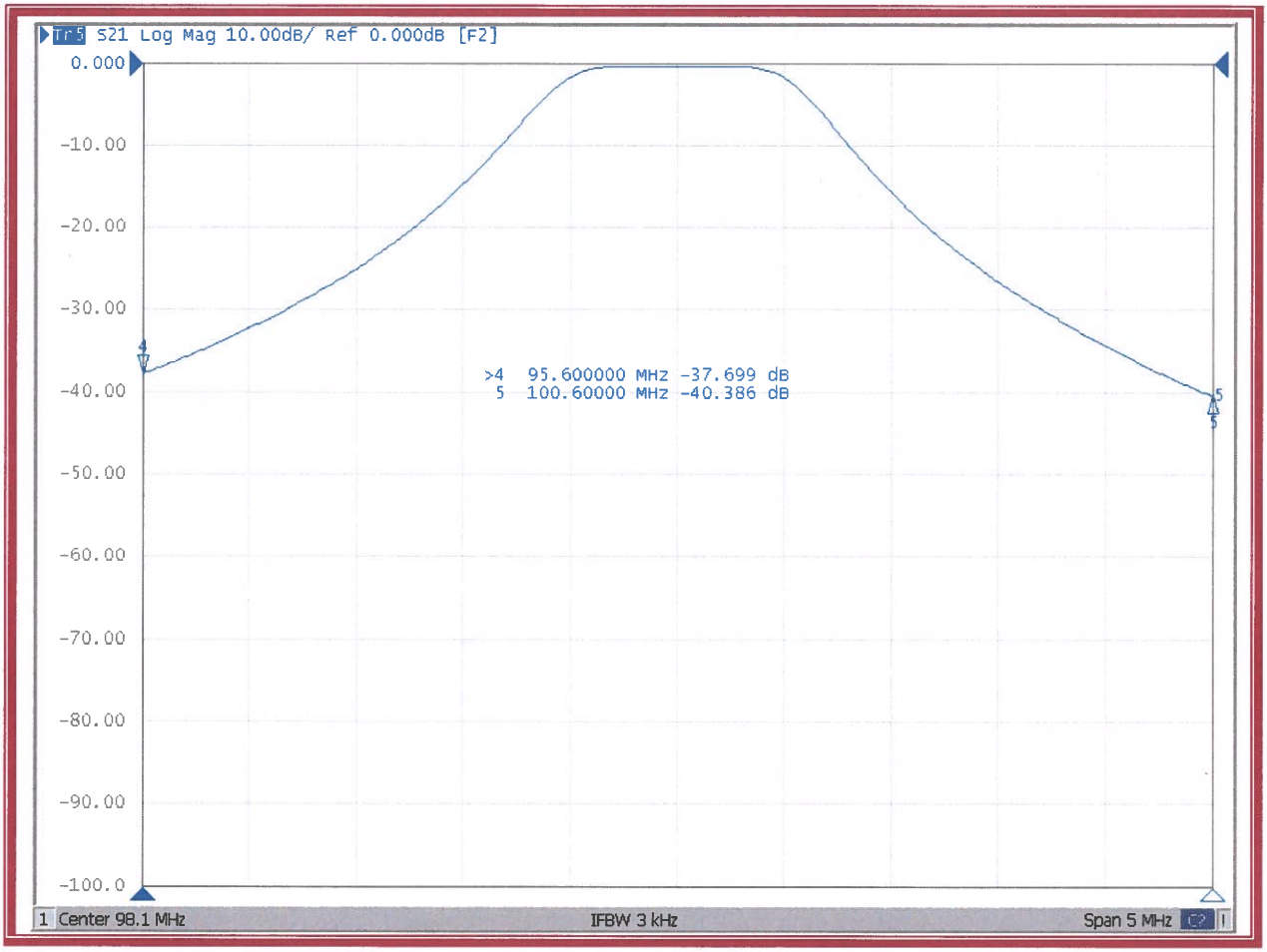
98.1 MHZ REJECTION



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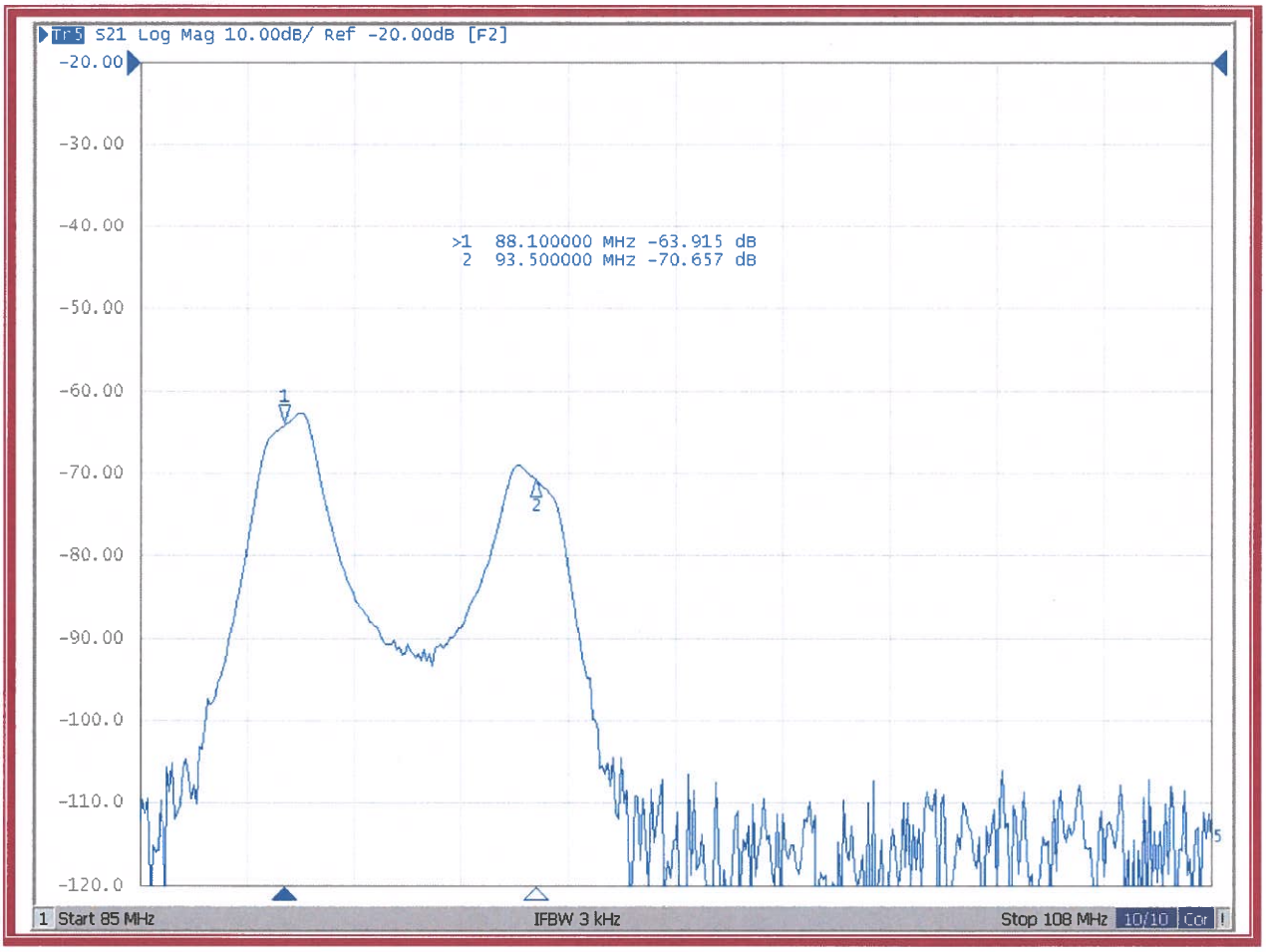
88.1 MHZ AND 93.5 MHZ ISOLATION



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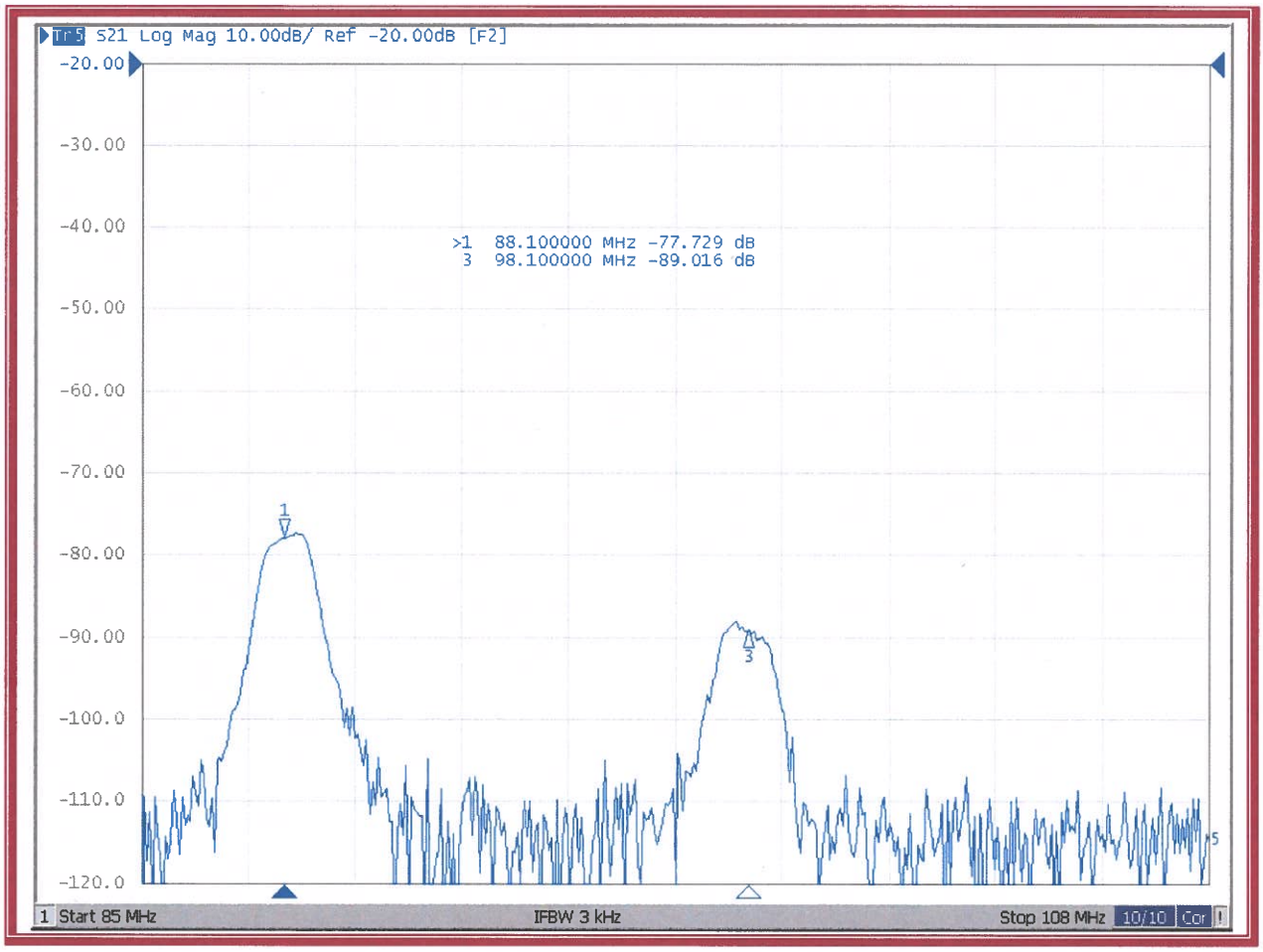
88.1 MHZ AND 98.1 MHZ ISOLATION



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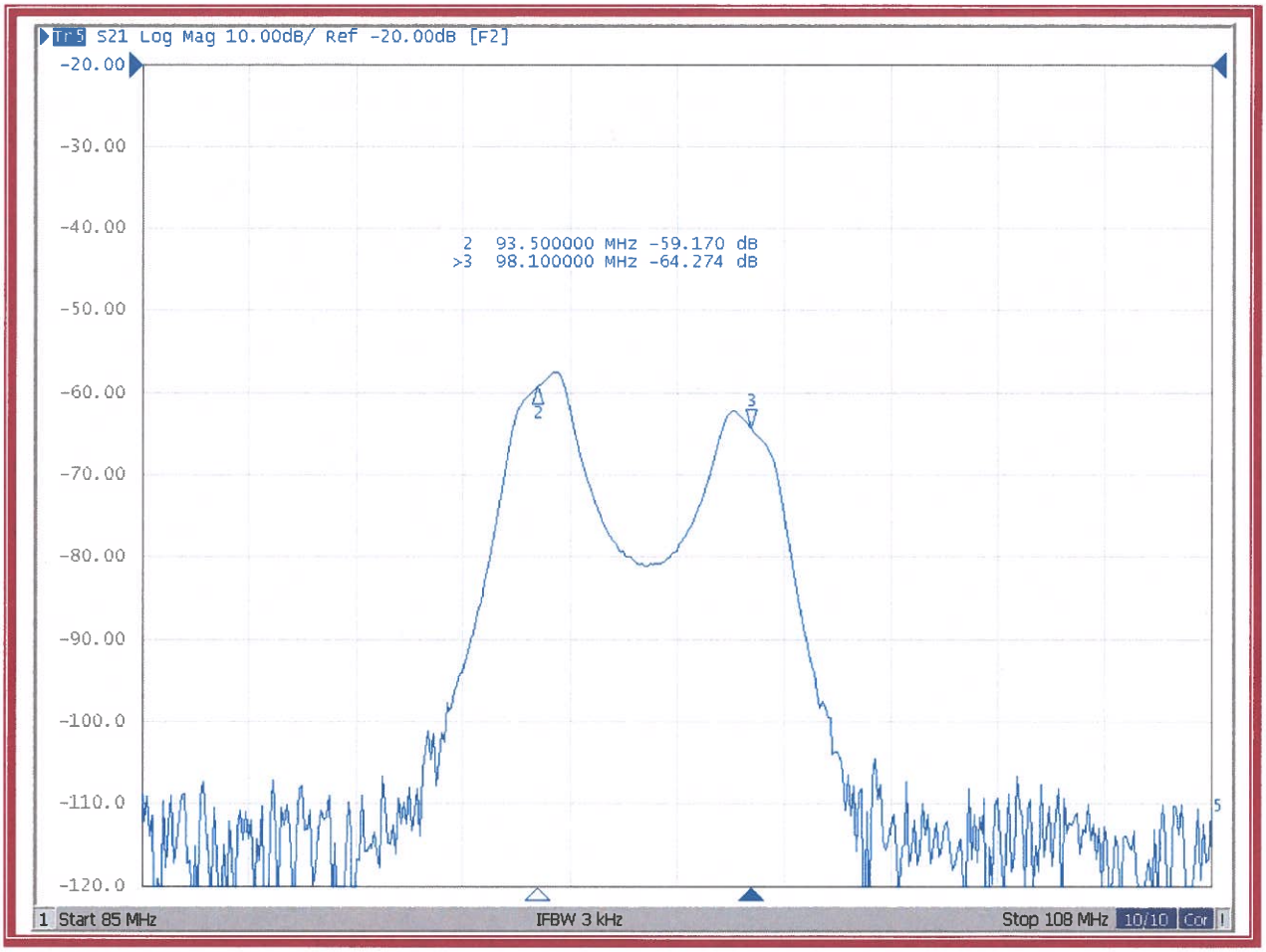
93.5 MHZ AND 98.1 MHZ ISOLATION



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INTRODUCTION

The JAMPRO JCPB-series FM antenna is one of the finest available to the broadcasting industry. This antenna type is available for all frequencies between 88 and 108 megahertz, and on other frequencies by special order.

JAMPRO has developed the JCPB-series of circularity-polarized FM antennas providing signals for portable, home and car receivers. This antenna incorporates transmission of horizontally and vertically polarized signals. The JCPB antenna provides a rugged and economical FM radiating element and still provides equal power levels for omni-directional service.

The radiation patterns of a side-mounted antenna are subject to wide variation. The non-circularity is greatly minimized by the design of the JAMPRO JCPB antenna. The basic radiation pattern is circular. Typically, free space variations are limited to less than ±2 dB.

This antenna type features field tuning of the elements. After installation on the tower, the antenna reflectometer, or suitable test equipment may be used to simply tune the installed antenna system for minimum Voltage Standing Wave Ratios (VSWR) on the order of 1.2:1 or less.

This instruction book contains illustrations which illustrate a typical mounting scheme. The radiating elements are fed power through coax cable from one or more power dividers. The power divider(s) located near the middle of the antenna array is fed power from the transmission line.

The antenna input is 50 ohms EIA. The input size is as specified on the purchase order.

The type of feed shown in this instruction book provides uniform phase amplitude across the antenna aperture.

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ANTENNA SPECIFICATIONS

MODEL: JCPB-10HR **SERIAL NO:** 20149-A

ELECTRICAL SPECIFICATIONS

FREQUENCY:	88.1, 93.5, 98.1 MHz
POLARIZATION:	Circular
AZIMUTH PATTERN:	Side mount
ESTIMATED GAIN:	@ 88.1 MHz – 4.75x/6.77 dBd @ 93.5 MHz – 4.92x/6.92 dBd @ 98.1 MHz - 5.01x/7.0 dBd
BEAM TILT:	2.2°
NULL FILL:	10%
MAX.INPUT POWER:	30 kW max
INPUT IMPEDANCE:	50 ohms, nominal
MAXIMUM VSWR:	1.15:1 or better over Fc
ELECTRICAL DE-ICER:	none
INPUT CONNECTION:	3-1/8" EIA (f), Flanged

MECHANICAL/ENVIRONMENTAL SPECIFICATIONS

WEIGHT:	1273 lbs. (577 kg), no ice
EFFECTIVE PROJECTED AREA (EPA):	95 ft^2 (8.8m^2) no ice, per TIA-222-G
PRESSURIZATION:	10 psi max, 3–5 psi operating
ANTI-ICING PROTECTION:	Feed Point Radome

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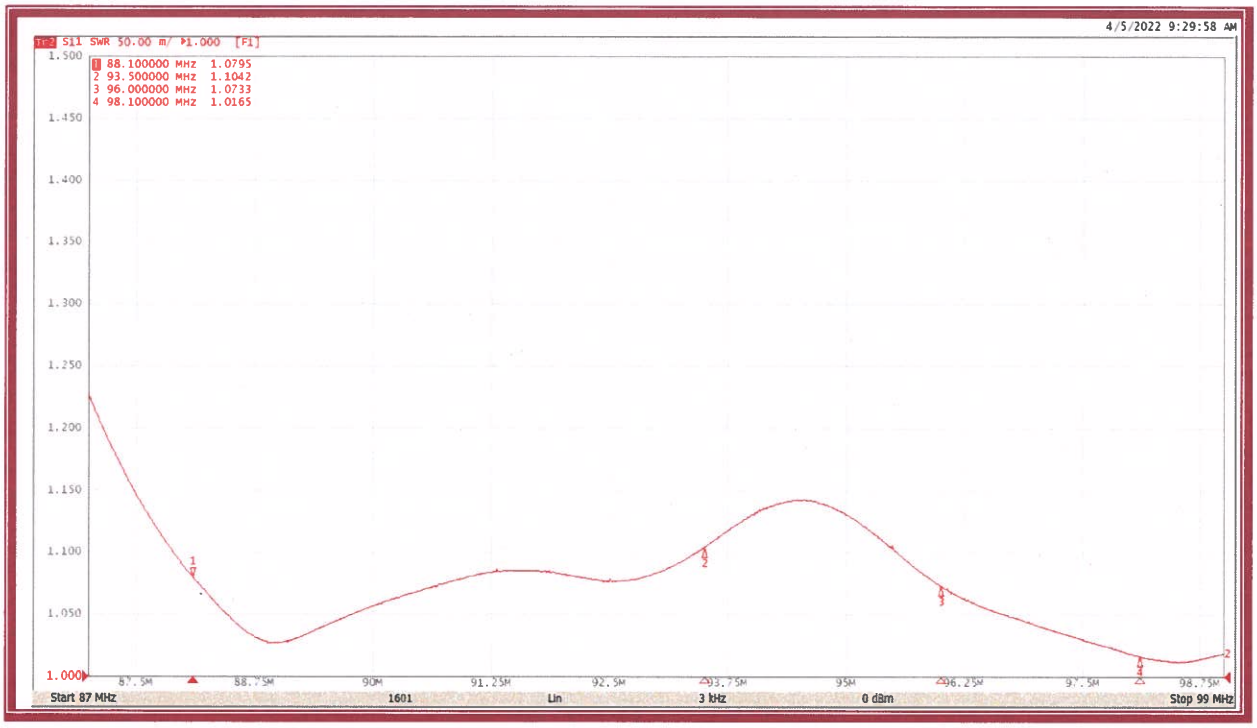
VSWR DATA PLOT



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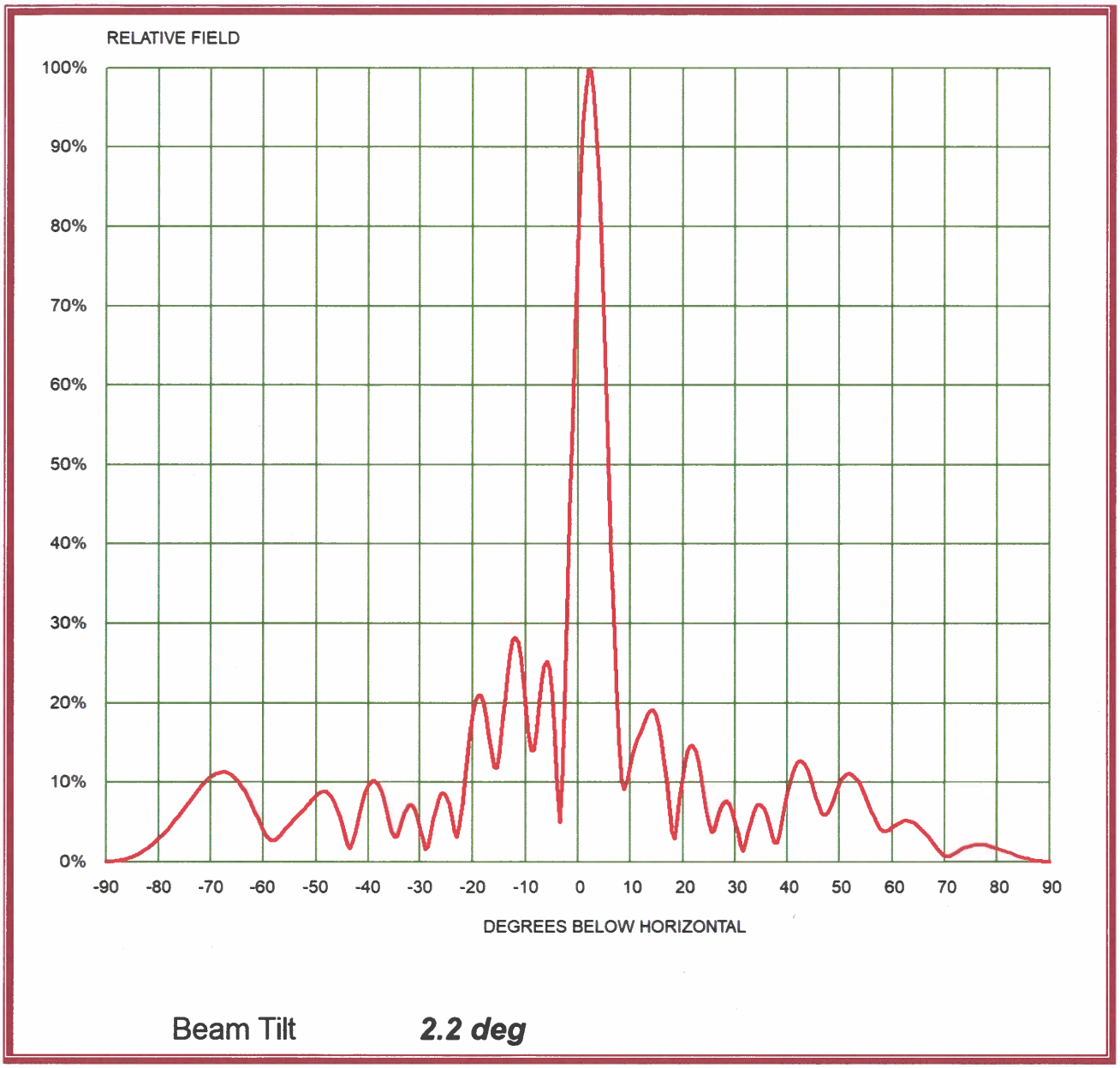
ELEVATION PATTERN



Beam Tilt ***2.2 deg***

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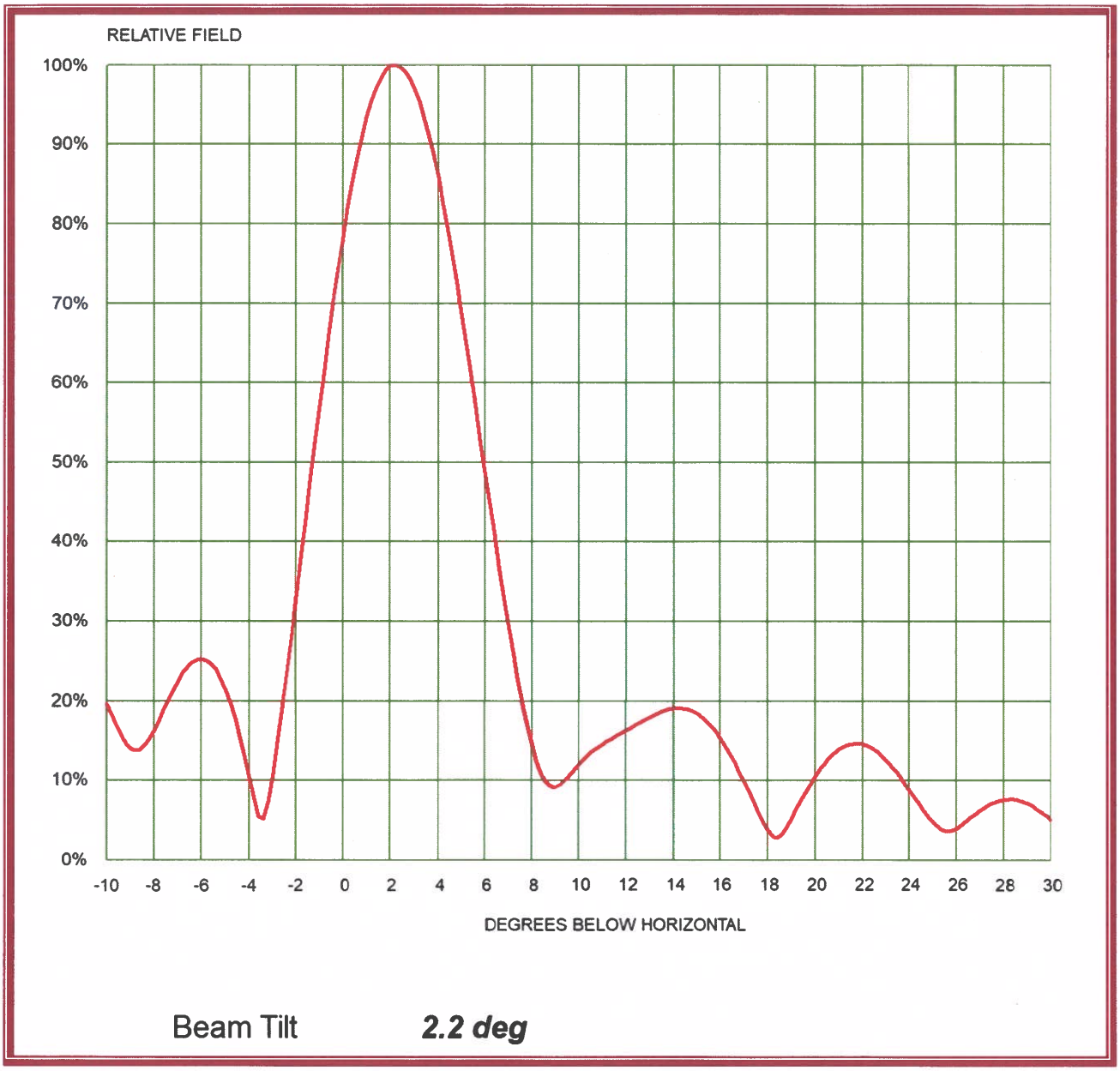
EXPANDED ELEVATION PATTERN



Beam Tilt ***2.2 deg***

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ELEVATION PATTERN TABULATION

Relative Field VS Elevation Angle

Elevation Angle	Relative Field	Elevation Angle	Relative Field	Elevation Angle	Relative Field
-10	19.55	26	3.95	61	4.78
-9	13.99	27	6.23	62	5.1
-8	16.25	28	7.57	63	5.15
-7	22.45	29	7.11	64	4.91
-6	25.26	30	5.02	65	4.43
-5	21.39	31	2.07	66	3.76
-4	10.32	32	2.3	67	2.99
-3	10.8	33	5.07	68	2.16
-2	33.14	34	6.86	69	1.36
-1	57.13	35	7.15	70	0.71
0	78.36	36	5.91	71	0.6
1	93.36	37	3.57	72	1.01
2	99.82	38	2.39	73	1.43
3	97.01	39	5.17	74	1.75
4	85.84	40	8.47	75	1.96
5	68.7	41	11.05	76	2.07
6	48.78	42	12.46	77	2.07
7	29.59	43	12.56	78	2
8	14.67	44	11.43	79	1.86
9	9.13	45	9.44	80	1.66
10	11.87	46	7.2	81	1.44
11	14.47	47	5.83	82	1.21
12	16.24	48	6.33	83	0.96
13	17.93	49	7.99	84	0.73
14	19.03	50	9.66	85	0.52
15	18.37	51	10.75	86	0.34
16	15.25	52	11.08	87	0.19
17	9.89	53	10.65	88	0.08
18	3.75	54	9.59	89	0.01
19	5.22	55	8.09	90	0
20	10.56	56	6.43		
21	13.91	57	4.93		
22	14.53	58	3.99		
23	12.57	59	3.86		
24	8.8	60	4.28		
25	4.75				