Shively Labs®
a division of Howell Laboratories, Inc.

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(207) 647-3327
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November 20, 2012

To whom it may concern;

In the summer of 1988 Shively Labs supplied a 6014-14/1 Shop Order 12003. This 14 level panel antenna system had only one panel per level for installation at the Palehua Tower Site.

During the summer of 2012 a direct replacement 6014-14/1, Shop Order 29946 was supplied to the same site because the tower structure had to be upgraded due to corrosion of the tower members. In order for the multiple stations to continue to broadcast during the upgrade of the tower and installation of the replacement panel antenna system, one half of the original panel antenna was removed from the tower and mounted on a pole to be used as an auxiliary antenna.

Seeing how this is a panel antenna system with only one panel per level, the azimuth patterns for all of the stations are unchanged even though the mounting structure is not the same as the original structure. Therefore, the original proofs-of-performances and supporting documentation as submitted to the FCC in support of their original applications for license, remain valid for this auxiliary antenna.

If you have any questions or need more information please do not hesitate to contact me.

Sincerely

Robert A. Surette

Director of Sales Engineering

Shively Labs
a division of Howell Laboratories,Inc.
- An Employee-Owned Company -

EXHIBIT 9B A

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S.O. 25449

Report of Test 6014-14/1-DA

For

KHAI 103.5 MHz Wahiawa, HI

OBJECTIVE:

The objective of this test was to demonstrate the directional characteristics of a 6014-14/1-DA to meet the needs of KHAI and to comply with the requirements of the FCC construction permit, file number BMPH-20060810AMO.

RESULTS:

The measured azimuth pattern for the 6014-14/1-DA is shown in Figure 1. Figure 1A shows the Tabulation of the Horizontal Polarization. Figure 1B shows the Tabulation of the Vertical Polarization. The calculated elevation pattern of the antenna is shown in Figure 3. Construction permit file number BMPH-20060810AMO indicates that the Horizontal radiation component shall not exceed 2.2 kW at any azimuth and is restricted to the following values at the azimuths specified:

180 - 350 Degrees T: 0.07 kW

From Figure 1, the maximum radiation of the Horizontal component occurs at 084 Degrees T to 098 Degrees T. At the restricted azimuth of 350 Degrees T the Horizontal component is 17.077dB down from the maximum of 2.2 kW, or 0.043 kW.

The R.M.S. of the Horizontal component is 0.463. The total Horizontal power gain is 37.790. The R.M.S. of the Vertical component is 0.463. The total Vertical power gain is 32.685. See Figure 4 for calculations. The R.M.S. of the FCC composite pattern is 0.488. The R.M.S. of the measured composite pattern is 0.480. Eighty-five percent (85%) of the original authorized FCC composite pattern is 0.415. Therefore this pattern complies with the FCC requirement of 73.316(c)(2)(ix)(A).

METHOD OF DIRECTIONALIZATION:

One bay of the 6014-14/1-DA was mounted on a tower of precise scale to the Stainless G-5 Tower at the KHAI site. The spacing and azimuth angle of the antenna in reference to the tower were varied to achieve the horizontal pattern shown in Figure 1. See Figure 2 for mechanical details.

METHOD OF MEASUREMENT:

As allowed by the construction permit, file number BMPH-20060810AMO, a single level of the 6014-14/1-DA was set up on the Howell Laboratories scale model antenna pattern measuring range. A scale of 4.5:1 was used.

SUPERVISION:

Mr. Surette was graduated from Lowell Technological Institute, Lowell, Massachusetts in 1973 with the degree of Bachelor of Science in Electrical Engineering. He has been directly involved with design and development of broadcast antennas, filter systems and RF transmission components since 1974, as an RF Engineer for six years with the original Shively Labs in Raymond, ME and for a short period of time with Dielectric Communications. He is currently an Associate Member of the AFCCE and a Senior Member of IEEE. He has authored a chapter on filters and combining systems for the latest edition of the CRC Electronics Handbook and for the 9th Edition of the NAB Handbook.

EQUIPMENT:

The scale model pattern range consists of a wooden rotating pedestal equipped with a position indicator. The scale model bay is placed on the top of this pedestal and is used in the transmission mode at approximately 20 feet above ground level. The receiving corner reflector is spaced 50 feet away from the rotating pedestal at the same level above ground as the transmitting model. The transmitting and receiving signals are carried to a control building by means of RG-9/U double shielded coax cable.

The control building is equipped with:

Hewlett Packard Model 8753 Network Analyzer
PC Based Controller
Hewlett Packard 7550A Graphics Plotter

The test equipment is calibrated to ANSI/NCSL Z540-1-1994.

TEST PROCEDURES:

The corner reflector is mounted so that the horizontal and vertical azimuth patterns are measured independently by rotating the corner reflector by 90 degrees. The network analyzer was set to 465.75 MHz. Calibrated pads are used to check the linearity of the measuring system. For example, 6 dB padding yields a scale reading of 50 from an unpadded reading of 100 in voltage. From the recorded patterns, the R.M.S. values are calculated and recorded as shown in Figure 1.

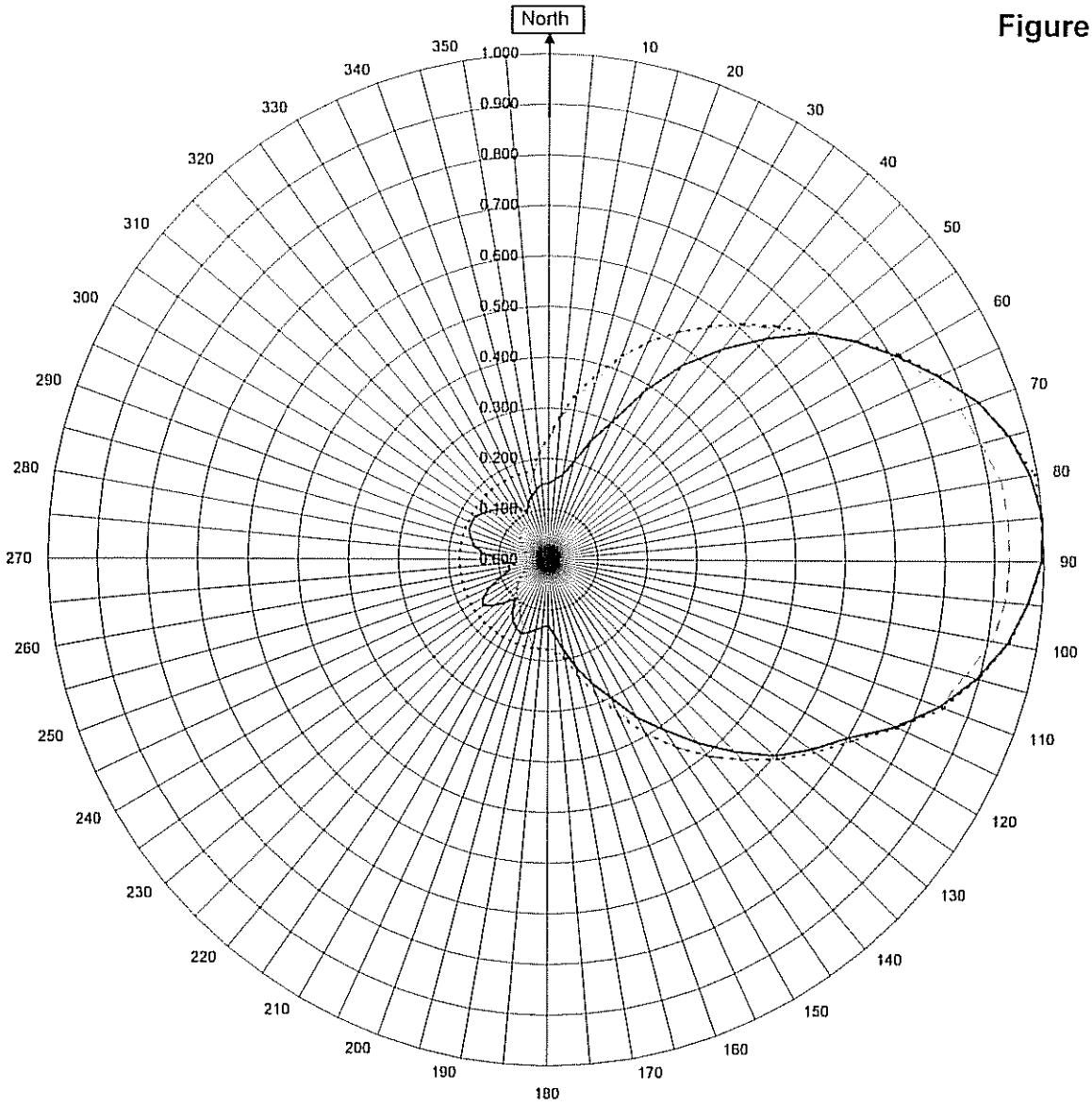
Respectfully submitted by:

Robert A. Surette
Director of Sales Engineering
S/O 25449

Shively Labs

Shively Labs, a division of Howell Laboratories, Inc. Bridgton, ME (207)647-3327

Figure 1



KHAI Wahiawa, HI

25449

February 6, 2007

Horizontal RMS	0.463
Vertical RMS	0.463
H/V Composite RMS	0.480
FCC Composite RMS	0.488

Frequency	103.5 / 465.75 mHz
Plot	Relative Field
Scale	4.5 : 1
	See Figure 2 for Mechanical Details

Antenna Model	6014-14/1-DA
Pattern Type	Directional Azimuth

Figure 1a

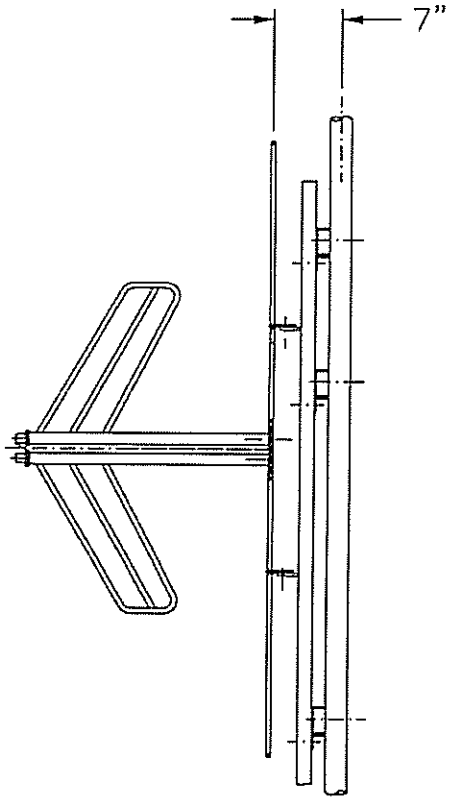
Tabulation of Horizontal Azimuth Pattern
KHAI Wahiawa, HI

Azimuth	Rel Field	Azimuth	Rel Field
0	0.150	180	0.130
10	0.170	190	0.140
20	0.250	200	0.155
30	0.385	210	0.140
40	0.545	220	0.100
45	0.620	225	0.120
50	0.700	230	0.140
60	0.810	240	0.150
70	0.920	250	0.100
80	0.985	260	0.080
90	0.995	270	0.100
100	0.940	280	0.150
110	0.840	290	0.170
120	0.700	300	0.170
130	0.600	310	0.150
135	0.535	315	0.140
140	0.470	320	0.130
150	0.360	330	0.120
160	0.260	340	0.120
170	0.180	350	0.140

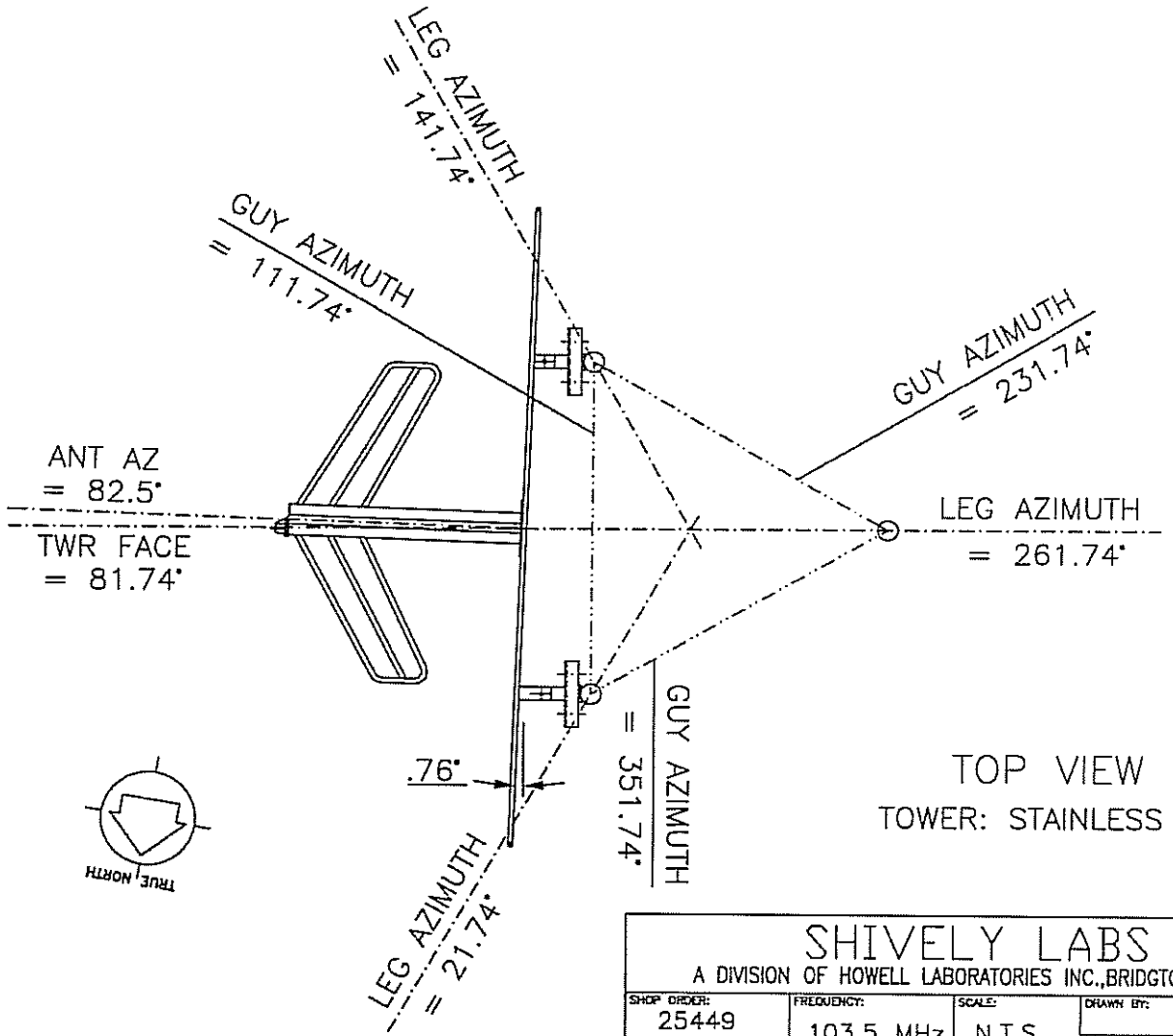
Figure 1b

Tabulation of Vertical Azimuth Pattern
KHAI Wahiawa, HI

Azimuth	Rel Field	Azimuth	Rel Field
0	0.240	180	0.175
10	0.330	190	0.175
20	0.425	200	0.140
30	0.520	210	0.110
40	0.605	220	0.095
45	0.650	225	0.090
50	0.690	230	0.080
60	0.810	240	0.060
70	0.880	250	0.045
80	0.925	260	0.040
90	0.930	270	0.040
100	0.910	280	0.040
110	0.840	290	0.050
120	0.710	300	0.060
130	0.610	310	0.075
135	0.555	315	0.075
140	0.505	320	0.080
150	0.395	330	0.080
160	0.280	340	0.100
170	0.195	350	0.170



SIDE VIEW



TOP VIEW
TOWER: STAINLESS G5

SHIVELY LABS
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SHOP ORDER:	FREQUENCY:	SCALE:	DRAWN BY:
25449 HONOLULU, HI	103.5 MHz.	N.T.S.	ASP
			APPROVED BY:

TITLE: MODEL-6014-14/1-DIRECTIONAL ANTENNA

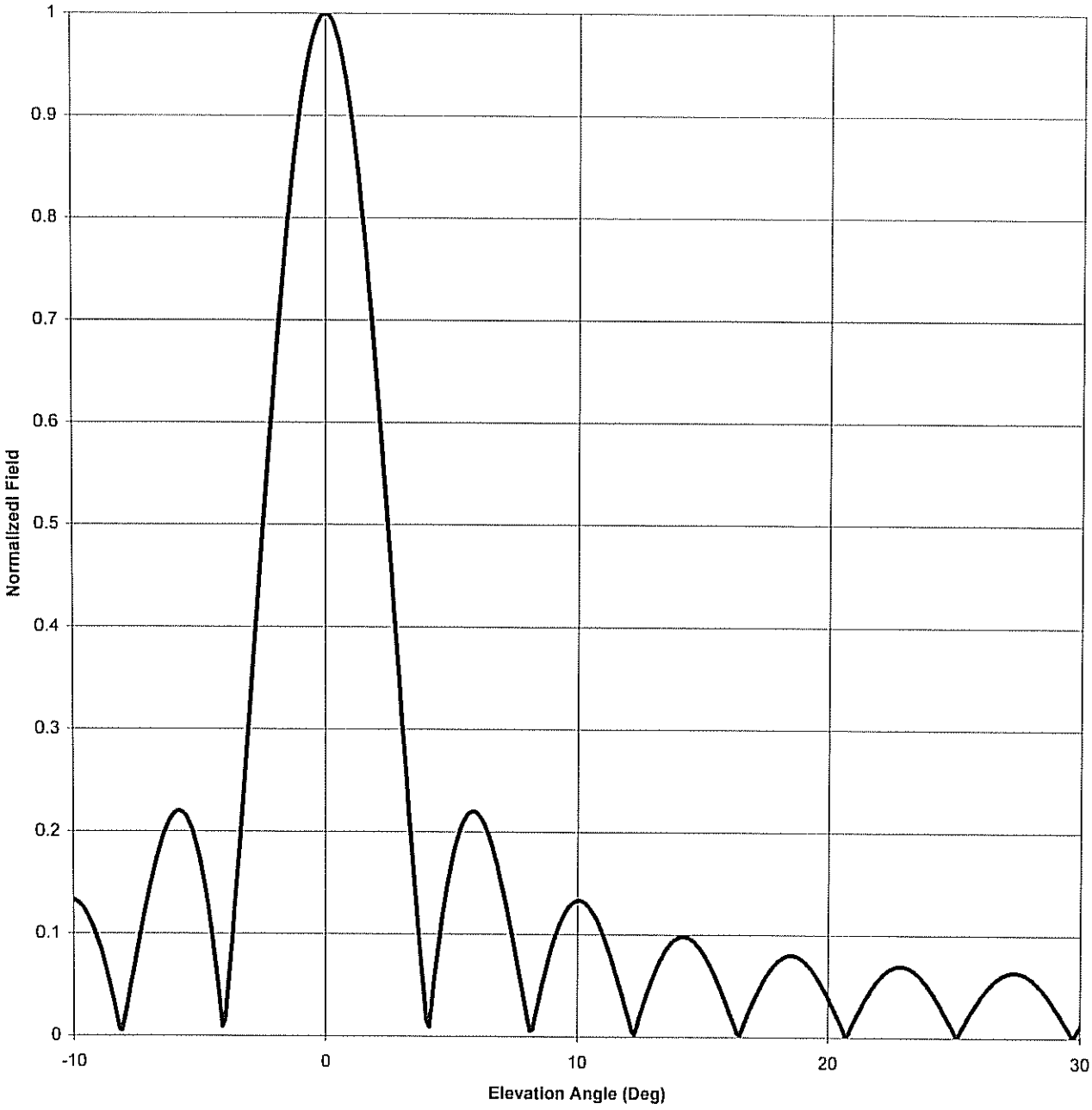
DATE: 2/6/07

FIGURE 2

Antenna Mfg.: Shively Labs
Antenna Type: 6014-14/1-DA
Station: KHAI
Frequency: 103.5
Channel #: 278
Figure: 3

Date: 2/6/2007

Beam Tilt	0	
Gain (Max)	37.790	15.774 dB
Gain (Horizon)	37.790	15.774 dB



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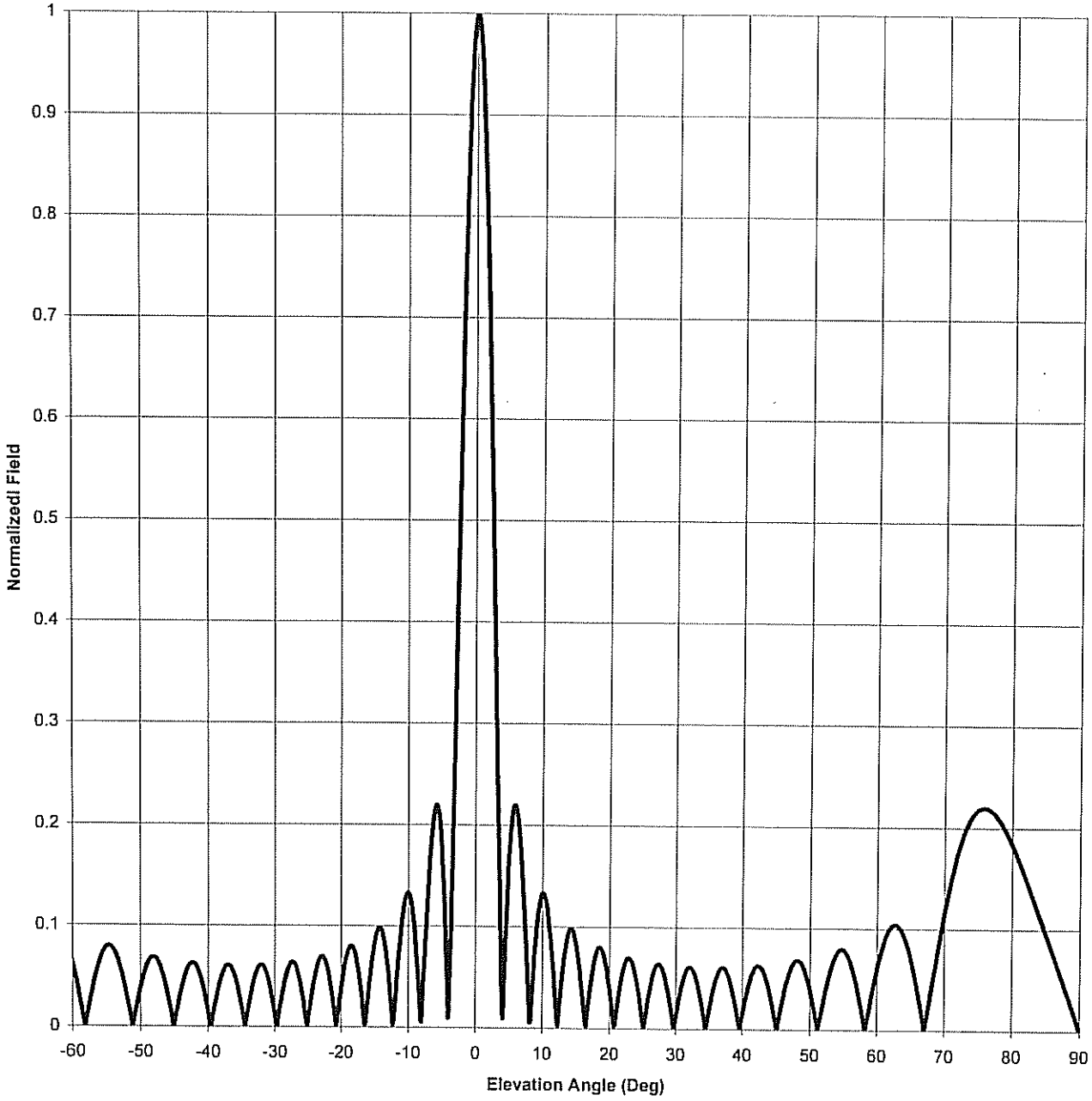

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Gain (Horizon)	37.790	15.774 dB

Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field	Angle of Depression (Deg)	Relative Field
-90	0.000	-44	0.037	0	1.000	46	0.031
-89	0.020	-43	0.059	1	0.903	47	0.057
-88	0.039	-42	0.062	2	0.647	48	0.069
-87	0.058	-41	0.046	3	0.316	49	0.062
-86	0.077	-40	0.014	4	0.015	50	0.039
-85	0.095	-39	0.022	5	0.173	51	0.006
-84	0.114	-38	0.050	6	0.218	52	0.029
-83	0.133	-37	0.061	7	0.145	53	0.058
-82	0.151	-36	0.049	8	0.018	54	0.076
-81	0.168	-35	0.018	9	0.090	55	0.079
-80	0.183	-34	0.020	10	0.133	56	0.066
-79	0.197	-33	0.051	11	0.101	57	0.041
-78	0.208	-32	0.061	12	0.023	58	0.008
-77	0.216	-31	0.046	13	0.056	59	0.029
-76	0.220	-30	0.011	14	0.097	60	0.062
-75	0.218	-29	0.029	15	0.084	61	0.087
-74	0.210	-28	0.059	16	0.030	62	0.102
-73	0.196	-27	0.062	17	0.033	63	0.103
-72	0.176	-26	0.037	18	0.075	64	0.092
-71	0.149	-25	0.007	19	0.075	65	0.070
-70	0.116	-24	0.049	20	0.039	66	0.039
-69	0.078	-23	0.070	21	0.014	67	0.002
-68	0.038	-22	0.056	22	0.056	68	0.038
-67	0.002	-21	0.014	23	0.070	69	0.078
-66	0.039	-20	0.039	24	0.049	70	0.116
-65	0.070	-19	0.075	25	0.007	71	0.149
-64	0.092	-18	0.075	26	0.037	72	0.176
-63	0.103	-17	0.033	27	0.062	73	0.196
-62	0.102	-16	0.030	28	0.059	74	0.210
-61	0.087	-15	0.084	29	0.029	75	0.218
-60	0.062	-14	0.097	30	0.011	76	0.220
-59	0.029	-13	0.056	31	0.046	77	0.216
-58	0.008	-12	0.023	32	0.061	78	0.208
-57	0.041	-11	0.101	33	0.051	79	0.197
-56	0.066	-10	0.133	34	0.020	80	0.183
-55	0.079	-9	0.090	35	0.018	81	0.168
-54	0.076	-8	0.018	36	0.049	82	0.151
-53	0.058	-7	0.145	37	0.061	83	0.133
-52	0.029	-6	0.218	38	0.050	84	0.114
-51	0.006	-5	0.173	39	0.022	85	0.095
-50	0.039	-4	0.015	40	0.014	86	0.077
-49	0.062	-3	0.316	41	0.046	87	0.058
-48	0.069	-2	0.647	42	0.062	88	0.039
-47	0.057	-1	0.903	43	0.059	89	0.020
-46	0.031	0	1.000	44	0.037	90	0.000
-45	0.003			45	0.003		

S.O. 25449 Figure 4

VALIDATION OF TOTAL POWER GAIN CALCULATION

KHAI Wahiawa

6014-14/1-DA

Elevation Gain of Antenna 8.101

The RMS values are calculated utilizing the data of a planimeter

Horizontal RMS value divided by the Vertical RMS value equals the Horiz. - Vert. Ratio

H RMS 0.463 V RMS 0.463 H/V Ratio 1.000

Elevation Gain of Horizontal Component 8.101

Elevation Gain of Vertical Component 8.101

Horizontal Azimuth Gain equals 1/(RMS)SQ. 4.665

Vertical Azimuth Gain equals 1/(RMS/Max Vert)SQ. 4.035
Max. Vertical 0.93

***Total Horizontal Power Gain is the Elevation Gain Times the Azimuth Gain**

Total Horizontal Power Gain = **37.790**

***Total Vertical Power Gain is the Elevation Gain Times the Azimuth Gain**

Total Vertical Power Gain = **32.685**

==========

ERP divided by Horizontal Power Gain equals Antenna Input Power

2.2 KW ERP Equals 0.058 KW Antenna Input Power

Antenna Input Power times Vertical Power Gain equals Vertical ERP

0.058 KW Times 32.685 KW Equals 1.903 KW ERP

Maximum Value of the Vertical Component squared times the Maximum ERP equals the Vertical ERP

0.93 Equals 1.903 KW Vertical ERP

NOTE: Calculating the ERP of the Vertical Component by two methods validates the total power gain calculations