

TECHNICAL EXHIBIT
APPLICATION FOR MODIFICATION OF
DTV CONSTRUCTION PERMIT
DTV STATION KBFD
HONOLULU, HAWAII
CH 33 49.6 KW (DA) -36 M

Technical Narrative

The technical exhibit of which this narrative is part was prepared in support of an application for modification of DTV construction permit for DTV station KBFD on channel 33 at Honolulu, Hawaii. Station KBFD is currently authorized (BPCDT-19991029AIJ) to operate on channel 33 with a maximum directional effective radiated power (ERP) of 108 kilowatts and an antenna radiation center height above average terrain (HAAT) of -5 meters.

It is proposed to operate with facilities that differ from the currently authorized KBFD facility. Specifically, it is proposed to reduce the maximum directional ERP, correct the antenna radiation center height based on updated specifications on the building height, and also to change the directional antenna system. DTV station KBFD is currently authorized to operate with a Bogner B16UGM/RD16UG directional antenna. RFS designed an antenna to match the authorized Bogner antenna, however we've been informed that there are differences in the horizontal relative field values due to improved pattern measurement techniques which report better degrees of accuracy. Because of this, there are areas where the RFS pattern extends beyond the Bogner pattern. Other than the ERP reduction, the directional antenna pattern differences, and correction of the antenna radiation center height above mean sea level (RCAMSL) no other changes are proposed.

Proposed Operation

It is proposed to operate on DTV channel 33 from the following site coordinates, N 21°18'49" W 157°51'43". It is also proposed to operate with an RFS RD16G-578668L3L00 horizontally polarized directional antenna, a maximum ERP of 49.6 kW and an antenna radiation center height above mean sea level (RCAMSL) of 129 meters.

A Notice of Proposed Alteration has been filed with the FAA to correct the overall height of the building plus the existing tower.

The antenna structure registration number (ASRN) for the existing tower is 1004411.

KBFD-DT Authorized, Certified and Proposed Coverage

Figure 1 depicts the authorized, certified and proposed KBFD dipole adjusted noise limited contours (40.6 dBu) contours. As shown the proposed facility will more than replicate the certified post transition operation.

Compliance with the current DTV Freeze

There is area toward the northwest where the proposed 40.6 dBu contour will extend beyond the currently authorized 40.6 dBu dipole adjusted noise limited contour. However, it occurs over water, and therefore it is believed the proposal is in compliance with the FCC's Freeze on the Filing of Certain DTV and DTV Requests for Allotment or Service Area Changes. Figure 1 is a map showing the 40.6 dBu contours for the authorized and proposed facilities.

Antenna Data

Figure 2 provides the horizontal and vertical plane pattern data for the proposed RFS RD16G-578668L3L00 directional antenna system.

City Coverage

Figure 3 is a map showing the FCC predicted DTV coverage contours. The map provides the FCC predicted 40.6 dBu f(50,90) noise-limited contour and 48 dBu f(50,90) city grade contour. The extent of the contours has been calculated using the normal FCC prediction method and a 3-second digitized terrain database. The Honolulu city limits were derived from information contained in the 2000 U.S. Census for Hawaii. As shown, the 48 dBu contour encompasses the entire city limits of Honolulu.

NTSC/DTV/Class A Allocation Considerations

Figure 4 is DTV channel 33 separation study toward other NTSC and DTV allotments based on a 50 kilometer "buffer". Although the

separation requirements are only applicable to new DTV allotments, they can be used as an indication of which stations have the potential of receiving interference from the proposed channel 33 DTV operation.

An interference analysis has been conducted using the procedures outlined in the FCC's OET-69 bulletin, which demonstrates that the proposal complies with the interference protection provisions of Section 73.623(c)(2).¹ Interference calculations for the proposed operation are summarized below with respect to all authorized NTSC, DTV, and Class A facilities.

Station	Facility	Ch.	City	State	FCC Service Population	Proposed Interference Population	% of Baseline
KAAH-TV	CP	26	HONOLULU	HI	--	--	None
KAAH-TV	LIC	26	HONOLULU	HI	--	--	None
KBFD	LIC	32	HONOLULU	HI	--	--	None

As shown above, the proposal on channel 33 complies with the FCC's interference standards towards all authorized NTSC, DTV and Class A stations.

Objectionable Interference

There are several authorized full service AM station within 5 kilometers (3 miles) of the proposed transmitter site. Figure 5 provides a tabulation of the FM and TV stations within 16 kilometers of the proposed site. Although no adverse electromagnetic impact is expected, the applicant recognizes its responsibility to correct problems, which are a result of its proposed DTV operation.

The proposed transmitter site is 4118 kilometers from the Canadian border. It is also more than 4181 kilometers from the US/Mexican border area. The proposed DTV site is outside the National Radio Quiet Zone (VA/WVA), the closest point being 7469 kilometers to the northeast. The closest point of the Table Mountain Radio Quiet

¹ The du Treil, Lundin & Rackley, Inc. DTV interference analysis program is based on the program and procedures outlined by the FCC in the Sixth Report and Order; subsequent Memorandum Opinion and Order; and FCC OET Bulletin No. 69. A nominal grid size resolution of 2 km was employed. A Sun based processor computer system was employed.

Zone (CO) is more than 5,356 kilometers to the northeast. The closest radio astronomy site operating on TV channel 37 is at Mauna Kea, Hawaii located approximately 301 kilometers to the southeast. These separations are sufficient to not be a concern for coordination purposes.

The closest FCC monitoring is at Waipahu, Hawaii, approximately 15.9 kilometers to the northwest. The proposed operation will reduce the field strength produced over the monitoring station from that previously authorized in BPCDT-19991029AIJ. Therefore, it is believed that the proposal complies with the provisions of Section 73.1030(c).

Response to Paragraph 13 - Environmental Protection Act

Public access to the building rooftop of the Century Square Building in downtown Honolulu is restricted, as access is locked and secure. In addition, LeSea Broadcasting Corporation controls access to the rooftop and has a policy of stations reducing or ceasing operation when maintenance personnel are on the rooftop or near the antenna. On August 19, 2005 measurements were made at the site by the KDNN(FM) engineering staff and showed that the maximum RF exposure levels in the Controlled/Occupational Exposure areas was observed to be 42.8% of the 1997 FCC Occupational/Controlled Exposure limit. However, since that time, KWHE-DT has been licensed with different facilities, and KBFD-DT is now proposing to modify its DTV facilities. Therefore, these two facilities have been evaluated in terms of potential radiofrequency electromagnetic field exposure at the rooftop in accordance with OET Bulletin No. 65, Evaluating Compliance with FCC Specified Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields², in order to determine if this site is still in compliance. The power density at 2 meters above the rooftop for each station was calculated using the appropriate procedures contained in the Bulletin.

The radiation center for the proposed KBFD-DT DTV antenna is located 6 meters above the rooftop. The maximum DTV ERP is 49.6 kW. A vertical plane relative field value of 0.058 (for angles below 60 degrees downward) is assumed for the antenna's downward radiation (see

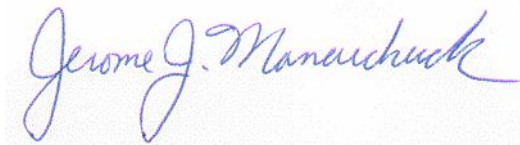
² OET Bulletin 65, Second Edition 97-01, August, 1997.

Figure 2, Sheet 4). The calculated power density at a point 2 meters above the rooftop is 0.3484 mW/cm^2 . This is 18% of the FCC's recommended limit of 1.94 mW/cm^2 for DTV channel 33 for an occupational "controlled" environment.

The RF contribution for the licensed KWHE-DT facility was also calculated. The radiation center for the KWHE-DT DTV antenna is located 5 meters above the rooftop. The maximum DTV ERP is 20.1 kW. A vertical plane relative field value of 0.06 (for angles below 60 degrees downward) was presumed for its RFS RD8H-1736L1L00 antenna's downward radiation (see Sheet 2 of Figure 5). The calculated power density at a point 2 meters above the rooftop is 0.1343 mW/cm^2 . This is 14% of the FCC's recommended limit of 1.92 mW/cm^2 for DTV channel 31 for an occupational "controlled" environment. Based on the calculated contributions of KBFD-DT (18%) and KWHE-DT (14%) and the measurements (42.8%) submitted by the KDNN engineering staff which took into account the other broadcasters on the rooftop, it is believed the total contributions of the stations will not exceed 100% of the FCC's Occupational/Controlled exposure limit.

Finally, it is noted that this technical exhibit only addresses the potential for radio frequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be or already has been provided to the FCC by the tower owner as part of the tower registration process.

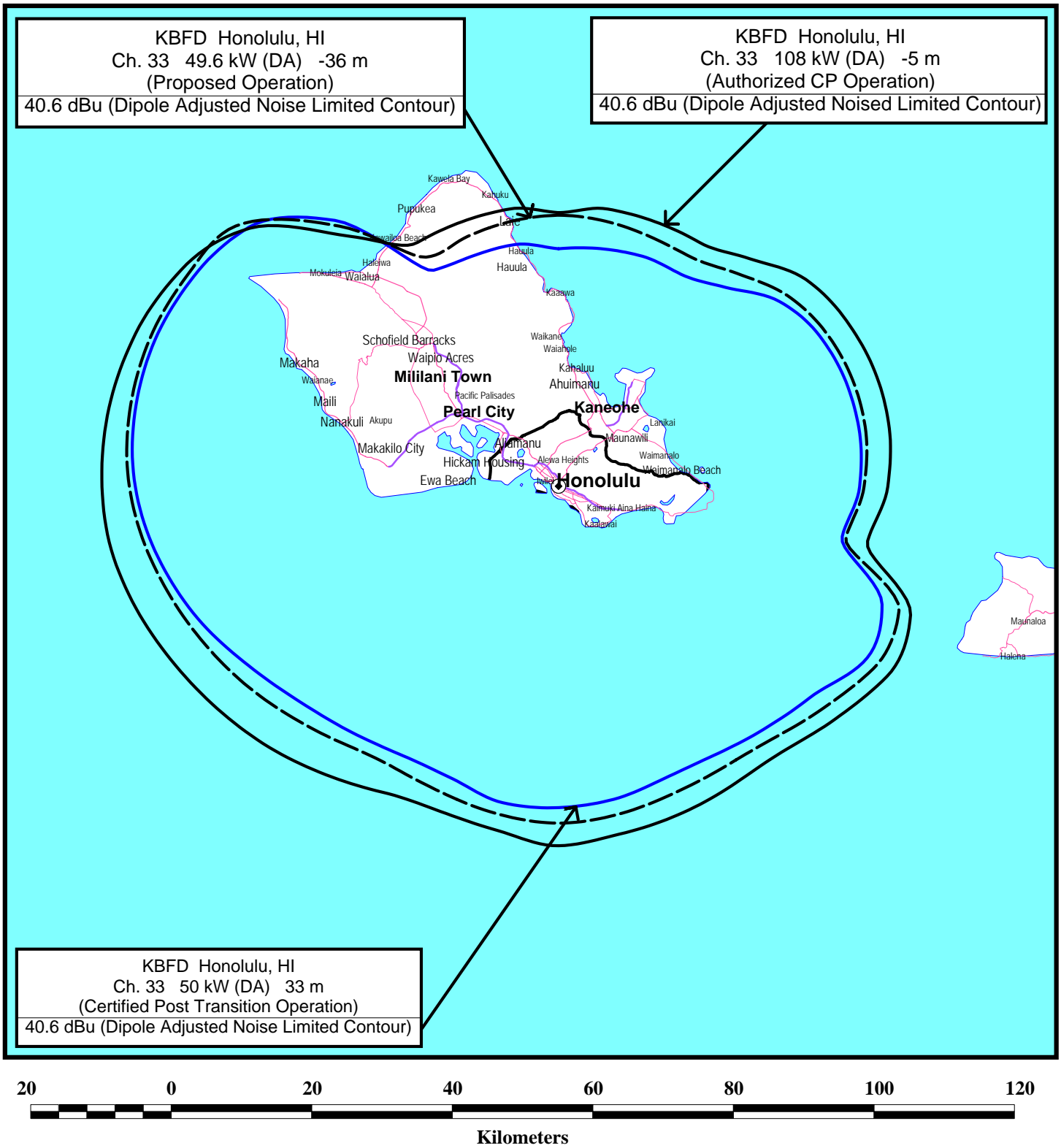
If there are questions concerning the technical portion of this application, please contact the office of the undersigned.



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January 12, 2007

Figure 1



FCC PREDICTED COVERAGE CONTOURS

DTV STATION KBFD
HONOLULU, HAWAII
CH 33 49.6 kW (DA) -36 m

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

RADIO FREQUENCY SYSTEMS
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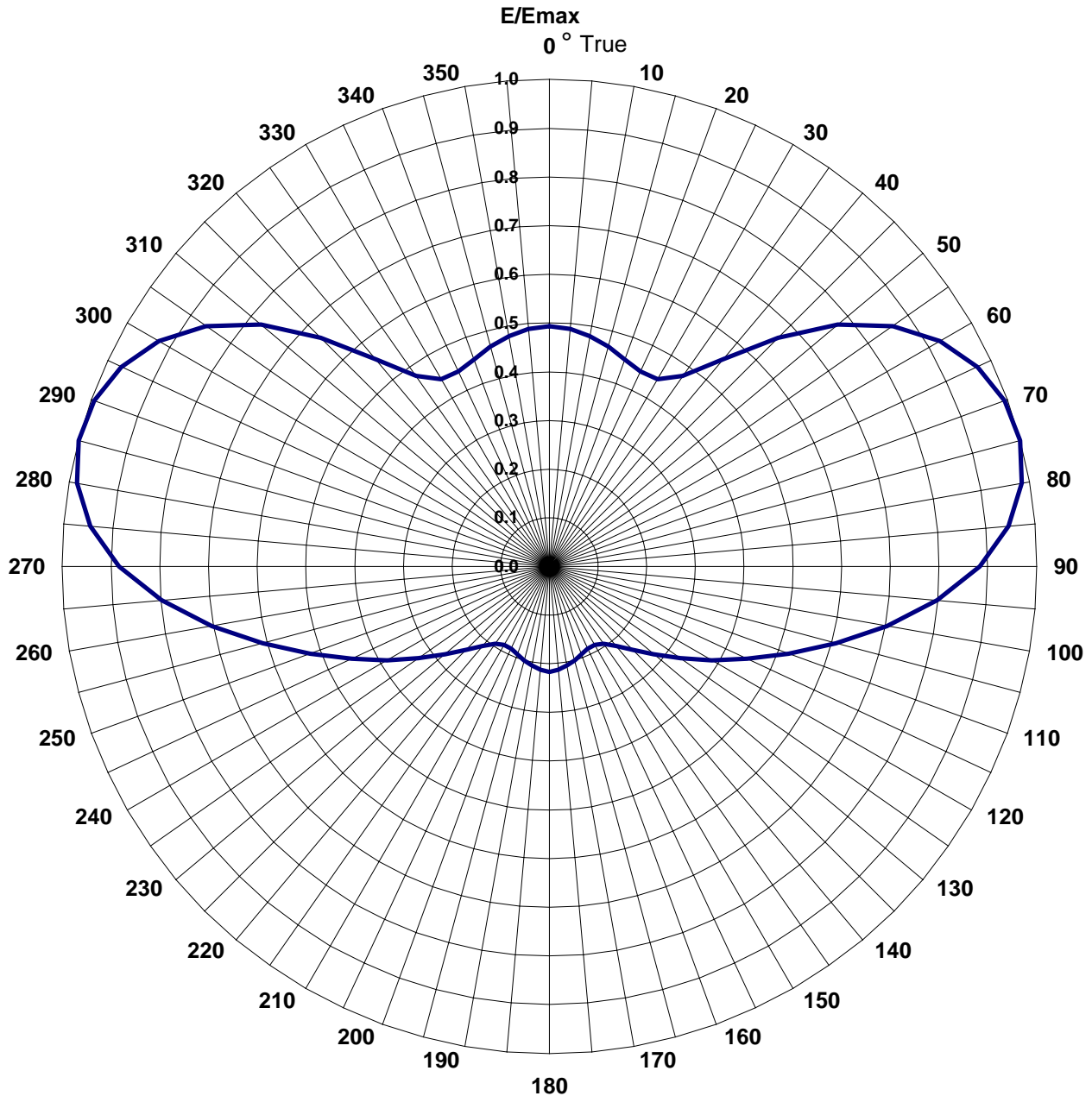


AZIMUTH PATTERN

TYPE:	RFS - G	
	Numeric	dB
Directivity:	<u>3.00</u>	<u>4.8</u>
Polarization:	Horizontal	
Channel:	NTSC 32, DTV 33	
Location:	Honolulu, HI	

Model:	RD16G-578668L3L00
INQUIRY #:	I2106
QUOTE #:	AG06092006-I2106
ATS Job#:	2456

Note: Pattern shape and directivity may vary with channel and mounting configuration.



Radio Frequency Systems, Inc.
200 Pondview Drive Meriden, CT 06450
Tel: +1 203-630-3311 Fax: +1 203-821-3852
www.rfsworld.com

TABULATED DATA FOR AZIMUTH PATTERN

TYPE: RFS - G

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ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
0	0.494	-6.13	94	0.818	-1.75	188	0.210	-13.58	282	0.993	-0.06
2	0.493	-6.14	96	0.781	-2.15	190	0.207	-13.70	284	0.998	-0.02
4	0.491	-6.18	98	0.742	-2.59	192	0.204	-13.83	286	1.000	0.00
6	0.488	-6.23	100	0.703	-3.06	194	0.201	-13.96	288	0.999	-0.01
8	0.484	-6.30	102	0.665	-3.55	196	0.198	-14.09	290	0.994	-0.05
10	0.479	-6.39	104	0.627	-4.05	198	0.195	-14.22	292	0.986	-0.12
12	0.475	-6.48	106	0.591	-4.57	200	0.192	-14.35	294	0.976	-0.21
14	0.469	-6.57	108	0.556	-5.10	202	0.189	-14.47	296	0.962	-0.34
16	0.464	-6.67	110	0.523	-5.63	204	0.187	-14.56	298	0.945	-0.49
18	0.458	-6.78	112	0.492	-6.16	206	0.186	-14.62	300	0.925	-0.68
20	0.453	-6.88	114	0.462	-6.70	208	0.185	-14.64	302	0.902	-0.90
22	0.448	-6.98	116	0.435	-7.24	210	0.186	-14.60	304	0.875	-1.16
24	0.444	-7.06	118	0.408	-7.78	212	0.188	-14.50	306	0.845	-1.46
26	0.441	-7.11	120	0.384	-8.32	214	0.192	-14.33	308	0.811	-1.82
28	0.441	-7.11	122	0.360	-8.86	216	0.197	-14.10	310	0.772	-2.24
30	0.444	-7.04	124	0.338	-9.41	218	0.204	-13.80	312	0.730	-2.73
32	0.453	-6.88	126	0.318	-9.97	220	0.213	-13.44	314	0.686	-3.28
34	0.467	-6.61	128	0.298	-10.52	222	0.223	-13.03	316	0.640	-3.88
36	0.489	-6.21	130	0.280	-11.06	224	0.235	-12.58	318	0.595	-4.51
38	0.518	-5.71	132	0.263	-11.59	226	0.248	-12.10	320	0.554	-5.13
40	0.554	-5.13	134	0.248	-12.10	228	0.263	-11.59	322	0.518	-5.71
42	0.595	-4.51	136	0.235	-12.58	230	0.280	-11.06	324	0.489	-6.21
44	0.640	-3.88	138	0.223	-13.03	232	0.298	-10.52	326	0.467	-6.61
46	0.686	-3.28	140	0.213	-13.44	234	0.318	-9.97	328	0.453	-6.88
48	0.730	-2.73	142	0.204	-13.80	236	0.338	-9.41	330	0.444	-7.04
50	0.772	-2.24	144	0.197	-14.10	238	0.360	-8.86	332	0.441	-7.11
52	0.811	-1.82	146	0.192	-14.33	240	0.384	-8.32	334	0.441	-7.11
54	0.845	-1.46	148	0.188	-14.50	242	0.408	-7.78	336	0.444	-7.06
56	0.875	-1.16	150	0.186	-14.60	244	0.435	-7.24	338	0.448	-6.98
58	0.902	-0.90	152	0.185	-14.64	246	0.462	-6.70	340	0.453	-6.88
60	0.925	-0.68	154	0.186	-14.62	248	0.492	-6.16	342	0.458	-6.78
62	0.945	-0.49	156	0.187	-14.56	250	0.523	-5.63	344	0.464	-6.67
64	0.962	-0.34	158	0.189	-14.47	252	0.556	-5.10	346	0.469	-6.57
66	0.976	-0.21	160	0.192	-14.35	254	0.591	-4.57	348	0.475	-6.48
68	0.986	-0.12	162	0.195	-14.22	256	0.627	-4.05	350	0.479	-6.39
70	0.994	-0.05	164	0.198	-14.09	258	0.665	-3.55	352	0.484	-6.30
72	0.999	-0.01	166	0.201	-13.96	260	0.703	-3.06	354	0.488	-6.23
74	1.000	0.00	168	0.204	-13.83	262	0.742	-2.59	356	0.491	-6.18
76	0.998	-0.02	170	0.207	-13.70	264	0.781	-2.15	358	0.493	-6.14
78	0.993	-0.06	172	0.210	-13.58	266	0.818	-1.75	360	0.494	-6.13
80	0.984	-0.14	174	0.212	-13.46	268	0.852	-1.39			
82	0.972	-0.25	176	0.215	-13.36	270	0.884	-1.08			
84	0.955	-0.40	178	0.216	-13.30	272	0.911	-0.81			
86	0.935	-0.58	180	0.217	-13.28	274	0.935	-0.58			
88	0.911	-0.81	182	0.216	-13.30	276	0.955	-0.40			
90	0.884	-1.08	184	0.215	-13.36	278	0.972	-0.25			
92	0.852	-1.39	186	0.212	-13.46	280	0.984	-0.14			

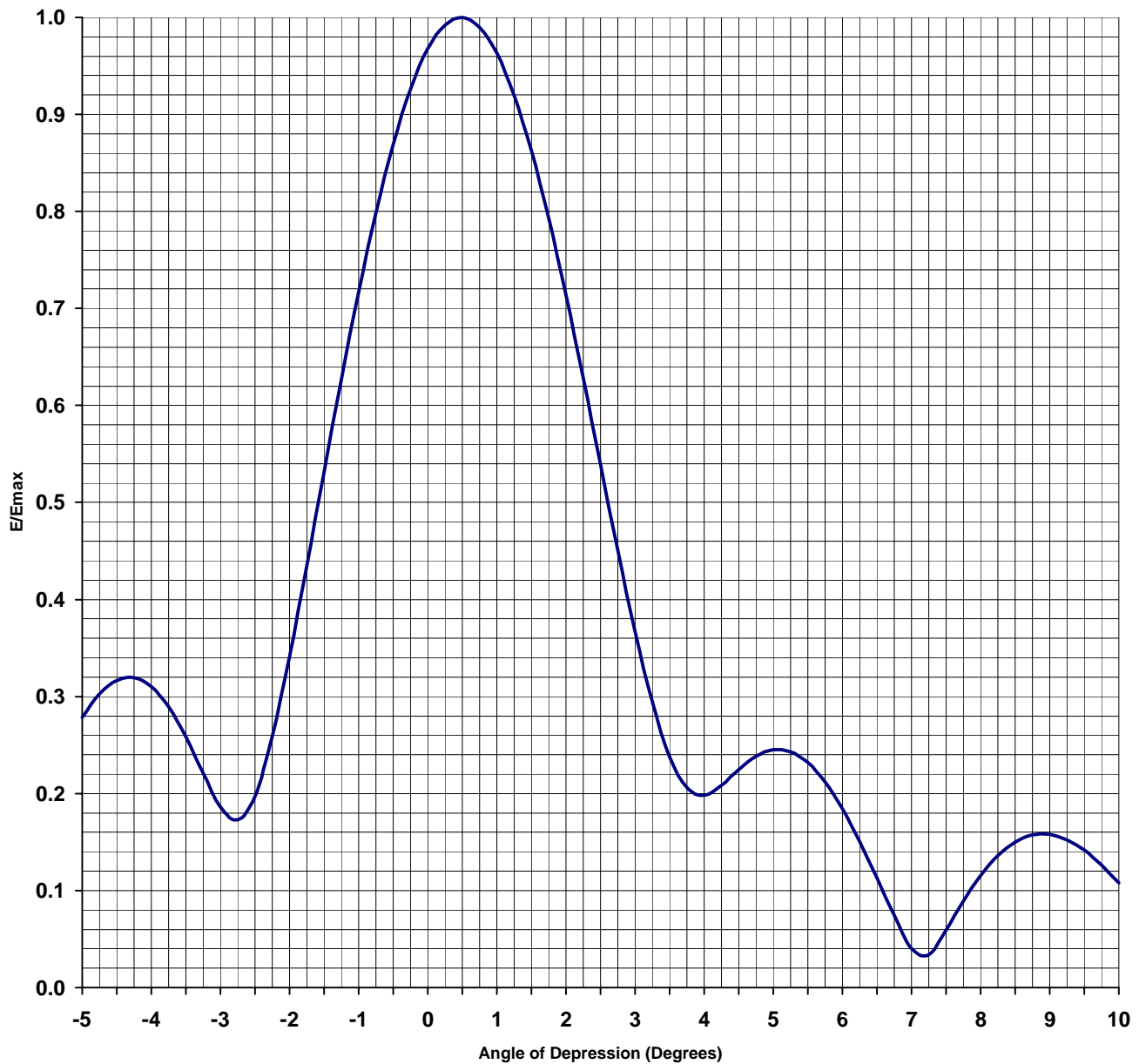
RADIO FREQUENCY SYSTEMS
The Clear Choice™



ELEVATION PATTERN

TYPE:	RD16L00	
Directivity:	Numeric	dBd
Main Lobe:	<u>17.6</u>	<u>12.44</u>
Horizontal:	<u>16.4</u>	<u>12.16</u>
Beam Tilt:	0.50	
3 dB Beamwidth:		
Polarization:	Horizontal	
Channel:	NTSC 32, DTV 33	
Location:	Honolulu, HI	

Model:	RD16G-578668L3L00
INQUIRY #:	I2106
QUOTE #:	AG06092006-I2106
ATS Job#:	2456



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TABULATED DATA FOR ELEVATION PATTERN

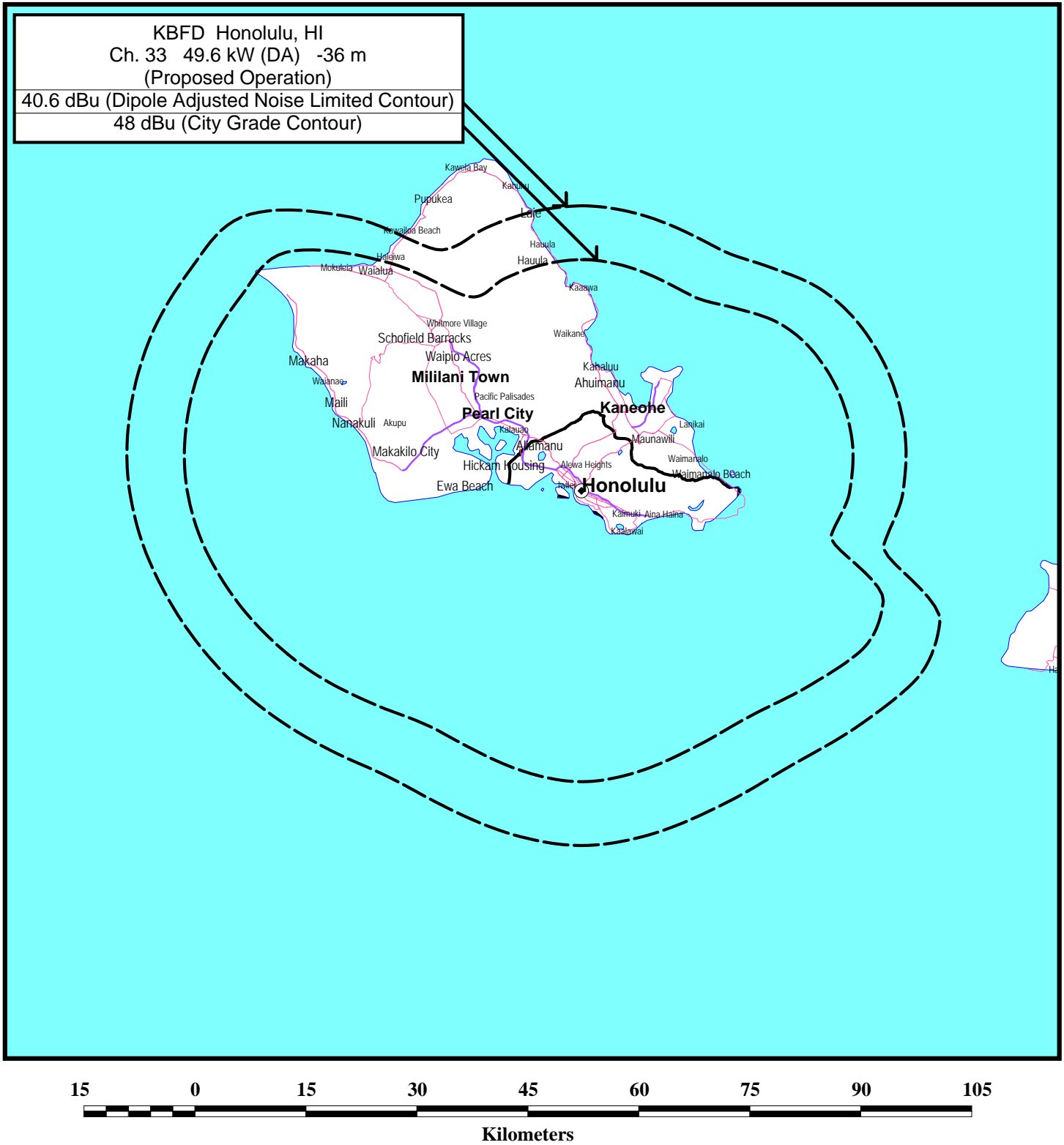
TYPE: RD16L00

-5 to 10 in 0.25 increments

10 to 90 in 0.50 increments

ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB	ANGLE	FIELD	dB
-5.00	0.279	-11.10	6.75	0.075	-22.52	27.00	0.002	-52.77	50.50	0.025	-32.22	74.00	0.057	-24.84
-4.75	0.302	-10.39	7.00	0.040	-27.87	27.50	0.010	-39.74	51.00	0.016	-35.70	74.50	0.058	-24.79
-4.50	0.317	-9.99	7.25	0.034	-29.45	28.00	0.027	-31.31	51.50	0.011	-38.94	75.00	0.057	-24.90
-4.25	0.319	-9.92	7.50	0.059	-24.58	28.50	0.046	-26.78	52.00	0.009	-41.11	75.50	0.055	-25.16
-4.00	0.310	-10.16	7.75	0.089	-21.02	29.00	0.063	-23.99	52.50	0.007	-42.62	76.00	0.053	-25.58
-3.75	0.289	-10.77	8.00	0.115	-18.76	29.50	0.077	-22.29	53.00	0.006	-44.73	76.50	0.049	-26.18
-3.50	0.258	-11.75	8.25	0.136	-17.34	30.00	0.084	-21.47	53.50	0.004	-49.12	77.00	0.045	-26.94
-3.25	0.221	-13.12	8.50	0.150	-16.47	30.50	0.085	-21.40	54.00	0.001	-63.10	77.50	0.040	-27.92
-3.00	0.186	-14.61	8.75	0.157	-16.07	31.00	0.079	-22.06	54.50	0.002	-53.15	78.00	0.035	-29.12
-2.75	0.173	-15.26	9.00	0.158	-16.03	31.50	0.067	-23.47	55.00	0.005	-46.56	78.50	0.029	-30.63
-2.50	0.197	-14.12	9.25	0.152	-16.34	32.00	0.052	-25.66	55.50	0.006	-43.88	79.00	0.024	-32.51
-2.25	0.259	-11.74	9.50	0.142	-16.98	32.50	0.038	-28.50	56.00	0.007	-43.22	79.50	0.018	-34.89
-2.00	0.341	-9.34	9.75	0.126	-17.97	33.00	0.029	-30.66	56.50	0.006	-44.15	80.00	0.012	-38.27
-1.75	0.435	-7.24	10.00	0.108	-19.32	33.50	0.030	-30.34	57.00	0.004	-47.13	80.50	0.007	-43.48
-1.50	0.531	-5.49	10.50	0.069	-23.26	34.00	0.035	-29.02	57.50	0.002	-53.15	81.00	0.001	-57.72
-1.25	0.627	-4.06	11.00	0.042	-27.54	34.50	0.038	-28.31	58.00	0.004	-47.96	81.50	0.004	-48.64
-1.00	0.717	-2.89	11.50	0.046	-26.80	35.00	0.037	-28.54	58.50	0.008	-41.72	82.00	0.008	-41.51
-0.75	0.798	-1.96	12.00	0.056	-25.04	35.50	0.032	-29.84	59.00	0.013	-37.86	82.50	0.013	-37.99
-0.50	0.869	-1.22	12.50	0.054	-25.40	36.00	0.024	-32.43	59.50	0.017	-35.29	83.00	0.017	-35.65
-0.25	0.926	-0.67	13.00	0.036	-28.80	36.50	0.014	-37.02	60.00	0.021	-33.60	83.50	0.020	-34.07
0.00	0.968	-0.29	13.50	0.007	-42.97	37.00	0.005	-46.02	60.50	0.024	-32.51	84.00	0.023	-32.88
0.25	0.992	-0.07	14.00	0.028	-31.09	37.50	0.006	-44.44	61.00	0.025	-31.94	84.50	0.025	-31.97
0.50	1.000	0.00	14.50	0.062	-24.18	38.00	0.011	-39.02	61.50	0.026	-31.80	85.00	0.027	-31.34
0.75	0.990	-0.09	15.00	0.088	-21.11	38.50	0.014	-37.20	62.00	0.025	-32.08	85.50	0.029	-30.84
1.00	0.963	-0.33	15.50	0.102	-19.81	39.00	0.013	-37.52	62.50	0.023	-32.73	86.00	0.030	-30.52
1.25	0.920	-0.73	16.00	0.103	-19.78	39.50	0.010	-39.74	63.00	0.020	-33.81	86.50	0.031	-30.31
1.50	0.863	-1.28	16.50	0.090	-20.89	40.00	0.006	-44.73	63.50	0.017	-35.34	87.00	0.031	-30.23
1.75	0.793	-2.01	17.00	0.070	-23.09	40.50	0.001	-60.00	64.00	0.014	-37.27	87.50	0.031	-30.26
2.00	0.714	-2.92	17.50	0.051	-25.85	41.00	0.003	-50.75	64.50	0.010	-39.66	88.00	0.030	-30.37
2.25	0.628	-4.04	18.00	0.046	-26.67	41.50	0.005	-45.85	65.00	0.008	-42.27	88.50	0.030	-30.57
2.50	0.539	-5.36	18.50	0.056	-24.99	42.00	0.006	-44.15	65.50	0.006	-44.44	89.00	0.029	-30.87
2.75	0.451	-6.92	19.00	0.066	-23.60	42.50	0.010	-40.45	66.00	0.005	-46.02	89.50	0.027	-31.31
3.00	0.367	-8.70	19.50	0.068	-23.36	43.00	0.017	-35.39	66.50	0.004	-47.74	90.00	0.000	0.00
3.25	0.294	-10.62	20.00	0.060	-24.50	43.50	0.028	-31.06	67.00	0.003	-51.06			
3.50	0.238	-12.48	20.50	0.043	-27.41	44.00	0.041	-27.74	67.50	0.001	-63.10			
3.75	0.206	-13.72	21.00	0.021	-33.64	44.50	0.055	-25.24	68.00	0.002	-52.40			
4.00	0.198	-14.05	21.50	0.011	-39.49	45.00	0.068	-23.40	68.50	0.007	-43.74			
4.25	0.209	-13.61	22.00	0.029	-30.78	45.50	0.079	-22.09	69.00	0.011	-38.94			
4.50	0.225	-12.96	22.50	0.044	-27.09	46.00	0.087	-21.25	69.50	0.017	-35.49			
4.75	0.238	-12.45	23.00	0.052	-25.68	46.50	0.091	-20.84	70.00	0.023	-32.88			
5.00	0.245	-12.20	23.50	0.052	-25.76	47.00	0.091	-20.81	70.50	0.029	-30.81			
5.25	0.243	-12.28	24.00	0.044	-27.11	47.50	0.087	-21.17	71.00	0.035	-29.19			
5.50	0.232	-12.69	24.50	0.032	-29.84	48.00	0.080	-21.92	71.50	0.040	-27.87			
5.75	0.212	-13.48	25.00	0.020	-34.07	48.50	0.070	-23.06	72.00	0.046	-26.84			
6.00	0.184	-14.68	25.50	0.012	-38.64	49.00	0.059	-24.61	72.50	0.050	-26.06			
6.25	0.151	-16.43	26.00	0.011	-39.49	49.50	0.047	-26.63	73.00	0.053	-25.47			
6.50	0.113	-18.91	26.50	0.009	-40.72	50.00	0.035	-29.17	73.50	0.056	-25.07			

Figure 3



FCC PREDICTED COVERAGE CONTOURS

DTV STATION KBFD
HONOLULU, HAWAII
CH 33 49.6 kW (DA) -36 m

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

Figure 4

CDBS TV/DTV SEPARATION STUDY

Job Title:
 Channel: 33
 Class:
 Type: DT

Separation Buffer: 50 km
 Coordinates: 21-18-49 157-51-43
 Zone: II

Call Id	City St	Status	File Num	Channel Zone	ERP HAAT	DA Id	Latitude Longitude	Bear	Dist. (km)	Req. min	max
KAAH-TV 3246	HONOLULU HI	LIC C	BLCT 19970717KE	26(Z) II	269.000 580	D 20087	21-23-45 158-05-58	290.4	26.3 2.16	24.1	96.6 Short
KAAH-TV 3246	HONOLULU HI	CP C	BPCT 20031204AA	26(Z) II	272.000 577	D 64931	21-23-45 158-05-58	290.4	26.3 2.16	24.1	96.6 Short
KBFD 65395	HONOLULU HI	LIC C	BLCT 19860903KF	32(Z) II	145.000 -5	D 18233	21-18-49 157-51-43	90.0	0.0 12.00	12.0	106.0 Close
DKBFD	HONOLULU HI	DTV		33() II	50.000 33	D	21-18-49 157-51-43	90.1	0.0		
KBFD 65395	HONOLULU HI	CP C	BPCDT 19991029AI	33() II	108.000 -5	D 30596	21-18-49 157-51-43	90.0	0.0		
D	WAILUKU HI	DTV		34() II	50.000 366	D	20-53-25 156-30-22	108.3	148.5 38.46	24.0	110.0 Clear

du Treil, Lundin, and Rackley

Coordinates: 21-18-49 157-51-43 Frequency Range: 200-300 Range: 16

FM STATIONS WITHIN 16 KMS

<i>Rec Type</i>	<i>Fac Id</i>	<i>Call</i>	<i>Status</i>	<i>Chan</i>	<i>Svc Class</i>	<i>Class</i>	<i>City</i>	<i>St</i>	<i>DA</i>	<i>Latitude</i>	<i>Longitude</i>	<i>ERP (kW)</i>	<i>HAAT (m)</i>	<i>RCAMSL (m)</i>	<i>Bear</i>	<i>Dist. (km)</i>
C	40144	KDNN	LIC	253	FM	C1	HONOLULU	HI	N	21-18-49	157-51-43	51.000	18.0	141.0	0.0	0.0
C	34592	KIKI-FM	LIC	230	FM	C1	HONOLULU	HI	N	21-19-26	157-52-32	100.000	44.0	125.0	309.0	1.8
C	34620	KHNR-F	LIC	248	FM	C1	HONOLULU	HI	N	21-17-37	157-50-32	80.000	14.0	141.0	137.4	3.0
C	31601	KUMU-F	LIC	234	FM	C1	HONOLULU	HI	N	21-17-09	157-50-19	100.000	24.0	141.0	142.0	3.9
C	66592	KTUH	LIC	212	FM	A	HONOLULU	HI	N	21-18-14	157-49-22	3.000	-25.0	77.0	104.9	4.2
C	26440	KIPO	CP	207	FM	C0	HONOLULU	HI	D	21-20-12	157-49-03	26.000	529.0	637.0	60.9	5.3
C	26446	KHPR	LIC	201	FM	C	HONOLULU	HI	N	21-19-49	157-45-24	35.000	645.0	771.0	80.3	11.1
C	81548	960418M	APP	218	FM	C	KANEOHE	HI		21-19-49	157-45-24	50.000	659.0	756.0	80.3	11.1
C	50118	KRTR-FM	LIC	242	FM	C	KAILUA	HI	N	21-19-49	157-45-24	75.000	645.0	771.0	80.3	11.1
C	27424	KPHW	LIC	282	FM	C	KANEOHE	HI	N	21-19-49	157-45-24	75.000	645.0	771.0	80.3	11.1

du Treil, Lundin, and Rackley

Coordinates: 21-18-49 157-51-43 Channel Range: 2-69 Distance: 16 km

TV STATIONS WITHIN 16 KMS

Rec. Type	Facility ID	Callsign	Status	Chan.	Serv.	City	State	DA	Latitude	Longitude	ERP (kW)	HAAT (m)	RCAMSL (m)	Bear (deg)	Dist (km)
C	36846	KWHE	LIC	31	DT	HONOLULU	HI	D	21-18-49	157-51-43	20.100	5	140	0	0
C	36846	KWHE	STA	31	DS	HONOLULU	HI	D	21-18-49	157-51-43	5.000	31	128	0	0
C	36846	KWHE	LIC	14	TV	HONOLULU	HI	D	21-18-49	157-51-43	75.900	8	131	0	0
C	36846	KWHE	APP	14	TV	HONOLULU	HI	D	21-18-49	157-51-43		8		0	0
C	65395	KBFD	CP	33	DT	HONOLULU	HI	D	21-18-49	157-51-43	108.000	-5	119	0	0
C	65395	KBFD	LIC	32	TV	HONOLULU	HI	D	21-18-49	157-51-43	145.000	-5	119	0	0
C	65395	KBFD	STA	33	DS	HONOLULU	HI	D	21-18-49	157-51-43	14.400	-5	242	0	0
C	4144	KHON-TV	LIC	8	DT	HONOLULU	HI	N	21-17-46	157-50-36	7.200	-12	128	135.26	2.74
C	4144	KHON-TV	STA	22	DS	HONOLULU	HI	N	21-17-46	157-50-36	4.560	-33.3	109	135.26	2.74
C	26431	KHET	LIC	11	TV	HONOLULU	HI	N	21-17-46	157-50-36	148.000	-25.2	117	135.26	2.74
C	36917	KGMB	LIC	8	DT	HONOLULU	HI	N	21-17-46	157-50-36	7.200	-12	128	135.26	2.74
C	36917	KGMB	APP	22	DT	HONOLULU	HI	D	21-17-46	157-50-36	15.000	-33.3	109	135.26	2.74
C	36917	KGMB	LIC	9	TV	HONOLULU	HI	N	21-17-46	157-50-36	105.000	-12	128	135.26	2.74
C	64548	KITV	CP	40	DT	HONOLULU	HI	D	21-17-37	157-50-34	85.000	1	128	138.24	2.98
C	64548	KITV	LIC	4	TV	HONOLULU	HI	N	21-17-37	157-50-34	100.000	14	141	138.24	2.98
C	64548	KITV	LIC	40	DT	HONOLULU	HI	D	21-17-37	157-50-34	8.500	1	128	138.24	2.98
C	4144	KHON-TV	LIC	2	TV	HONOLULU	HI	N	21-17-39	157-50-18	50.000	18	143	131.47	3.26
C	36917	KGMB	CP	22	DT	HONOLULU	HI	N	21-17-39	157-50-18	1000.000	9.2	134	131.47	3.26
C	34867	KHNL	LIC	13	TV	HONOLULU	HI		21-17-09	157-50-19	316.000	48	127	141.95	3.91
C	50002	K42CO	LIC	42	TX	HONOLULU	HI	N	21-19-49	157-45-25	13.100		757	80.311	11.05
C	77483	KPXO	STA	41	DS	KANEOHE	HI	N	21-19-49	157-45-24	1.660	632	757	80.336	11.08
C	77483	KPXO	LIC	66	TV	KANEOHE	HI	N	21-19-49	157-45-24	95.500	632	757	80.336	11.08
C	77483	KPXO	LIC	41	DT	KANEOHE	HI	N	21-19-49	157-45-24	34.000	632	757	80.336	11.08
C	83180	KKAI	LIC	50	TV	KAILUA	HI	N	21-19-49	157-45-24	83.200	632	757	80.336	11.08
C	89714	KUPU	LIC	56	TV	WAIMANALO	HI	N	21-19-49	157-45-24	83.200	632	757	80.336	11.08

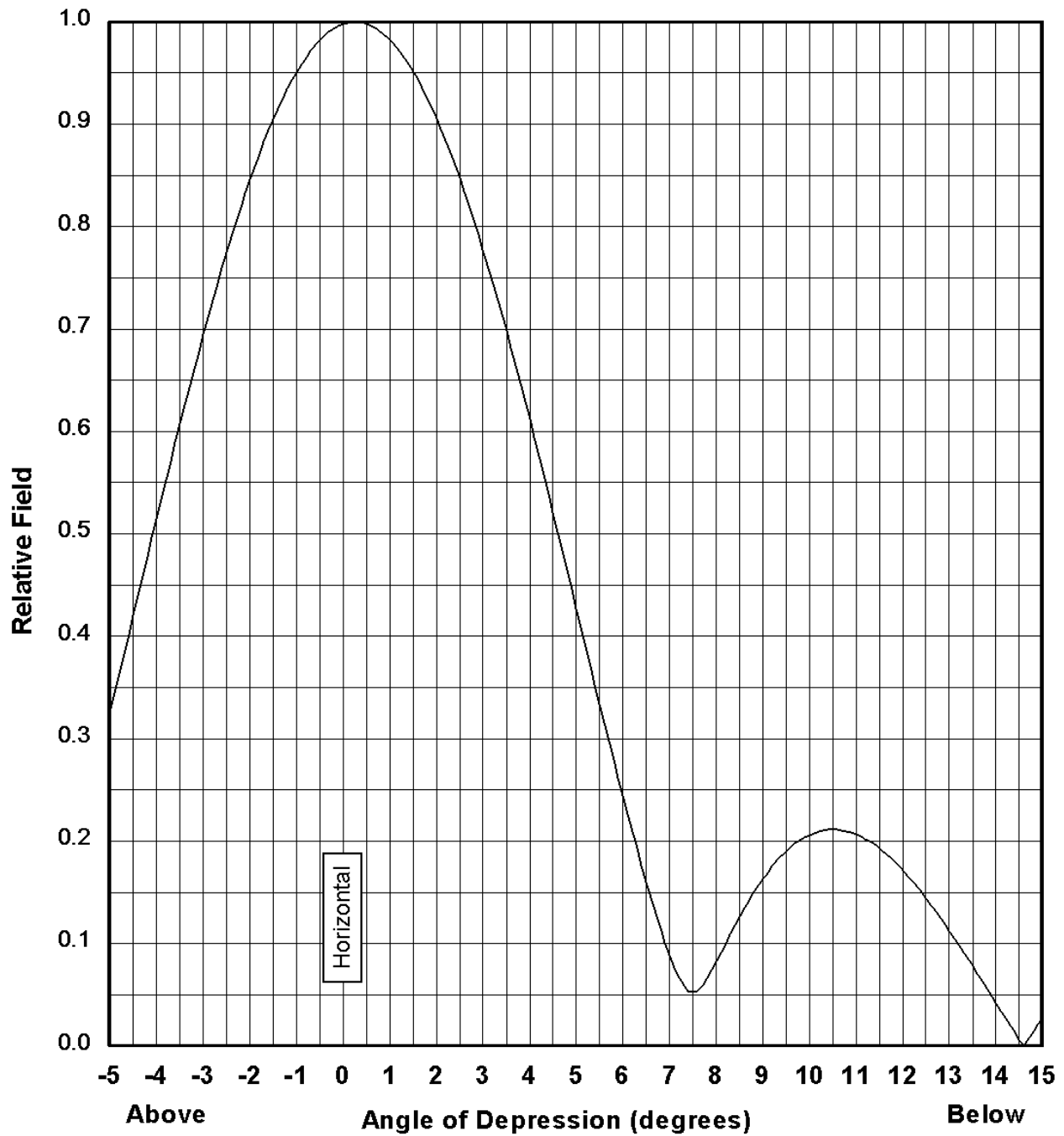
Elevation Pattern
Model: RD8

RADIO FREQUENCY SYSTEMS



Beam Tilt: 0.25 degrees
Null Fill: 5%

Directivity: 9.73 (9.88 dBd)
Polarization: Horizontal



Elevation Pattern Tabulated Data**Model: RD8****RADIO FREQUENCY SYSTEMS****Beam Tilt: 0.25 degrees****Directivity: 9.73 (9.88 dBd)****Null Fill: 5%****Polarization: Horizontal**

Angle	Relative Field	dB	Angle	Relative Field	dB	Angle	Relative Field	dB	Angle	Relative Field	dB
-5.0	0.33	-9.75	7.2	0.07	-23.50	33.5	0.09	-20.60	64.0	0.02	-34.70
-4.8	0.36	-8.80	7.4	0.05	-25.35	34.0	0.09	-20.73	64.5	0.02	-33.23
-4.6	0.40	-7.94	7.6	0.05	-25.32	34.5	0.09	-21.11	65.0	0.03	-32.04
-4.4	0.44	-7.15	7.8	0.07	-23.68	35.0	0.08	-21.73	65.5	0.03	-31.12
-4.2	0.48	-6.43	8.0	0.08	-21.74	35.5	0.07	-22.64	66.0	0.03	-30.43
-4.0	0.51	-5.77	8.2	0.10	-20.03	36.0	0.06	-23.84	66.5	0.03	-29.95
-3.8	0.55	-5.16	8.4	0.12	-18.62	36.5	0.05	-25.38	67.0	0.03	-29.66
-3.6	0.59	-4.60	8.6	0.13	-17.46	37.0	0.04	-27.39	67.5	0.03	-29.55
-3.4	0.63	-4.08	8.8	0.15	-16.52	37.5	0.03	-29.98	68.0	0.03	-29.63
-3.2	0.66	-3.60	9.0	0.16	-15.76	38.0	0.02	-33.43	68.5	0.03	-29.92
-3.0	0.69	-3.16	9.2	0.17	-15.14	38.5	0.01	-37.99	69.0	0.03	-30.43
-2.8	0.73	-2.76	9.4	0.19	-14.64	39.0	0.01	-41.51	69.5	0.03	-31.18
-2.6	0.76	-2.39	9.6	0.19	-14.24	39.5	0.01	-39.17	70.0	0.02	-32.25
-2.4	0.79	-2.05	9.8	0.20	-13.94	40.0	0.02	-36.19	70.5	0.02	-33.68
-2.2	0.82	-1.74	10.0	0.21	-13.72	40.5	0.02	-34.47	71.0	0.02	-35.76
-2.0	0.85	-1.46	10.5	0.21	-13.50	41.0	0.02	-33.72	71.5	0.01	-38.79
-1.8	0.87	-1.20	11.0	0.21	-13.69	41.5	0.02	-33.85	72.0	0.01	-44.01
-1.6	0.89	-0.97	11.5	0.19	-14.28	42.0	0.02	-34.80	72.5	0.00	-61.94
-1.4	0.92	-0.77	12.0	0.17	-15.29	42.5	0.01	-37.02	73.0	0.00	-46.38
-1.2	0.93	-0.59	12.5	0.14	-16.79	43.0	0.01	-41.41	73.5	0.01	-39.49
-1.0	0.95	-0.44	13.0	0.11	-18.95	43.5	0.00	-57.72	74.0	0.02	-35.70
-0.8	0.96	-0.31	13.5	0.08	-22.15	44.0	0.01	-43.10	74.5	0.02	-33.11
-0.6	0.98	-0.20	14.0	0.04	-27.51	44.5	0.02	-35.86	75.0	0.03	-31.18
-0.4	0.99	-0.12	14.5	0.01	-43.61	45.0	0.03	-31.73	75.5	0.03	-29.68
-0.2	0.99	-0.06	15.0	0.03	-31.34	45.5	0.04	-28.92	76.0	0.04	-28.50
0.0	1.00	0.00	15.5	0.06	-24.78	46.0	0.05	-26.80	76.5	0.04	-27.51
0.2	1.00	0.00	16.0	0.08	-21.50	46.5	0.06	-25.18	77.0	0.05	-26.76
0.4	1.00	0.00	16.5	0.11	-19.54	47.0	0.06	-23.90	77.5	0.05	-26.14
0.6	1.00	0.00	17.0	0.12	-18.33	47.5	0.07	-22.91	78.0	0.05	-25.68
0.8	0.99	-0.08	17.5	0.13	-17.65	48.0	0.08	-22.15	78.5	0.05	-25.34
1.0	0.98	-0.15	18.0	0.13	-17.40	48.5	0.08	-21.59	79.0	0.06	-25.11
1.2	0.97	-0.25	18.5	0.13	-17.52	49.0	0.09	-21.21	79.5	0.06	-25.01
1.4	0.96	-0.36	19.0	0.13	-17.99	49.5	0.09	-20.99	80.0	0.06	-25.01
1.6	0.94	-0.50	19.5	0.11	-18.85	50.0	0.09	-20.92	80.5	0.06	-25.11
1.8	0.93	-0.67	20.0	0.10	-20.12	50.5	0.09	-21.00	81.0	0.05	-25.32
2.0	0.91	-0.86	20.5	0.08	-21.93	51.0	0.09	-21.24	81.5	0.05	-25.66
2.2	0.88	-1.07	21.0	0.06	-24.45	51.5	0.08	-21.61	82.0	0.05	-26.11
2.4	0.86	-1.31	21.5	0.04	-28.09	52.0	0.08	-22.12	82.5	0.05	-26.69
2.6	0.83	-1.57	22.0	0.02	-33.15	52.5	0.07	-22.81	83.0	0.04	-27.41
2.8	0.81	-1.86	22.5	0.02	-34.47	53.0	0.07	-23.64	83.5	0.04	-28.31
3.0	0.78	-2.18	23.0	0.03	-29.95	53.5	0.06	-24.64	84.0	0.03	-29.42
3.2	0.75	-2.53	23.5	0.05	-26.61	54.0	0.05	-25.85	84.5	0.03	-30.81
3.4	0.71	-2.91	24.0	0.06	-24.52	54.5	0.04	-27.29	85.0	0.02	-32.58
3.6	0.68	-3.33	24.5	0.07	-23.22	55.0	0.04	-29.00	85.5	0.02	-34.89
3.8	0.65	-3.78	25.0	0.07	-22.52	55.5	0.03	-31.03	86.0	0.01	-38.20
4.0	0.61	-4.26	25.5	0.08	-22.29	56.0	0.02	-33.51	86.5	0.01	-43.61
4.2	0.58	-4.79	26.0	0.07	-22.50	56.5	0.01	-36.59	87.0	0.00	-61.94
4.4	0.54	-5.36	26.5	0.07	-23.17	57.0	0.01	-40.82	87.5	0.00	-46.20
4.6	0.50	-5.98	27.0	0.06	-24.35	57.5	0.00	-47.13	88.0	0.01	-39.58
4.8	0.46	-6.65	27.5	0.05	-26.20	58.0	0.00	-66.02	88.5	0.02	-35.97
5.0	0.43	-7.38	28.0	0.04	-29.09	58.5	0.00	-52.40	89.0	0.02	-33.51
5.2	0.39	-8.18	28.5	0.02	-34.20	59.0	0.00	-47.33	89.5	0.03	-31.73
5.4	0.35	-9.05	29.0	0.00	-50.46	59.5	0.01	-45.51	90.0	0.03	-30.34
5.6	0.32	-10.01	29.5	0.01	-37.20	60.0	0.01	-45.19			
5.8	0.28	-11.07	30.0	0.03	-30.40	60.5	0.01	-45.85			
6.0	0.24	-12.24	30.5	0.05	-26.82	61.0	0.00	-47.13			
6.2	0.21	-13.56	31.0	0.06	-24.51	61.5	0.00	-47.33			
6.4	0.18	-15.07	31.5	0.07	-22.93	62.0	0.01	-45.04			
6.6	0.14	-16.78	32.0	0.08	-21.83	62.5	0.01	-41.72			
6.8	0.12	-18.78	32.5	0.09	-21.13	63.0	0.01	-38.86			
7.0	0.09	-21.06	33.0	0.09	-20.72	63.5	0.01	-36.54			