

**DELAUDER COMMUNICATIONS, INC.**

P.O. Box 1095  
Ashburn, Virginia 20146-1095  
(703) 299-9222

**ENGINEERING REPORT**

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**K287BQ, Houston, TX, Channel 287D FM Translator Application**

**ENGINEERING STATEMENT**

Applicant proposes this minor change to the K287BQ FM translator station to change the proposed tower site to a downtown Houston location (the 300 meter tall, with appurtenances, Wells Fargo Plaza Building). (Note that ASR 1053112 has a listed status of "dismantled". This "dismantled" status must reflect a previous antenna mount on the building. The building itself still exists.)

**PROTECTION TO KHCB-FM AND KAMA-FM**

KHCB-FM, Houston 289C (24.6 kilometers at 211 degrees True from proposed translator site) and KAMA-FM, Deer Park 285C2 (2.8 kilometers at 93 degrees True from proposed translator site) are second-adjacent channel facilities to the proposed channel 287D facility. The 60 dBu F50,50 service contour of these two full-powered FM stations extends well beyond the proposed channel 287D transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to either KHCB-FM or KAMA-FM.

The F50,50 signal strength from KHCB-FM at the proposed 287D transmitter site is greater than 88 dBu (the "desired" KHCB-FM signal). The F50,50 signal strength from KAMA-FM at the proposed 287D transmitter site is greater than 107 dBu (the "desired" KAMA-FM signal). The second/third adjacent-channel protection of Section 74.1204 is an undesired-to-desired ("U/D") dB signal strength ratio of 40:1. Therefore, lowest predicted interference level that will cause interference to either of these full-powered FM stations is a signal of greater than or equal to 128 dBu.

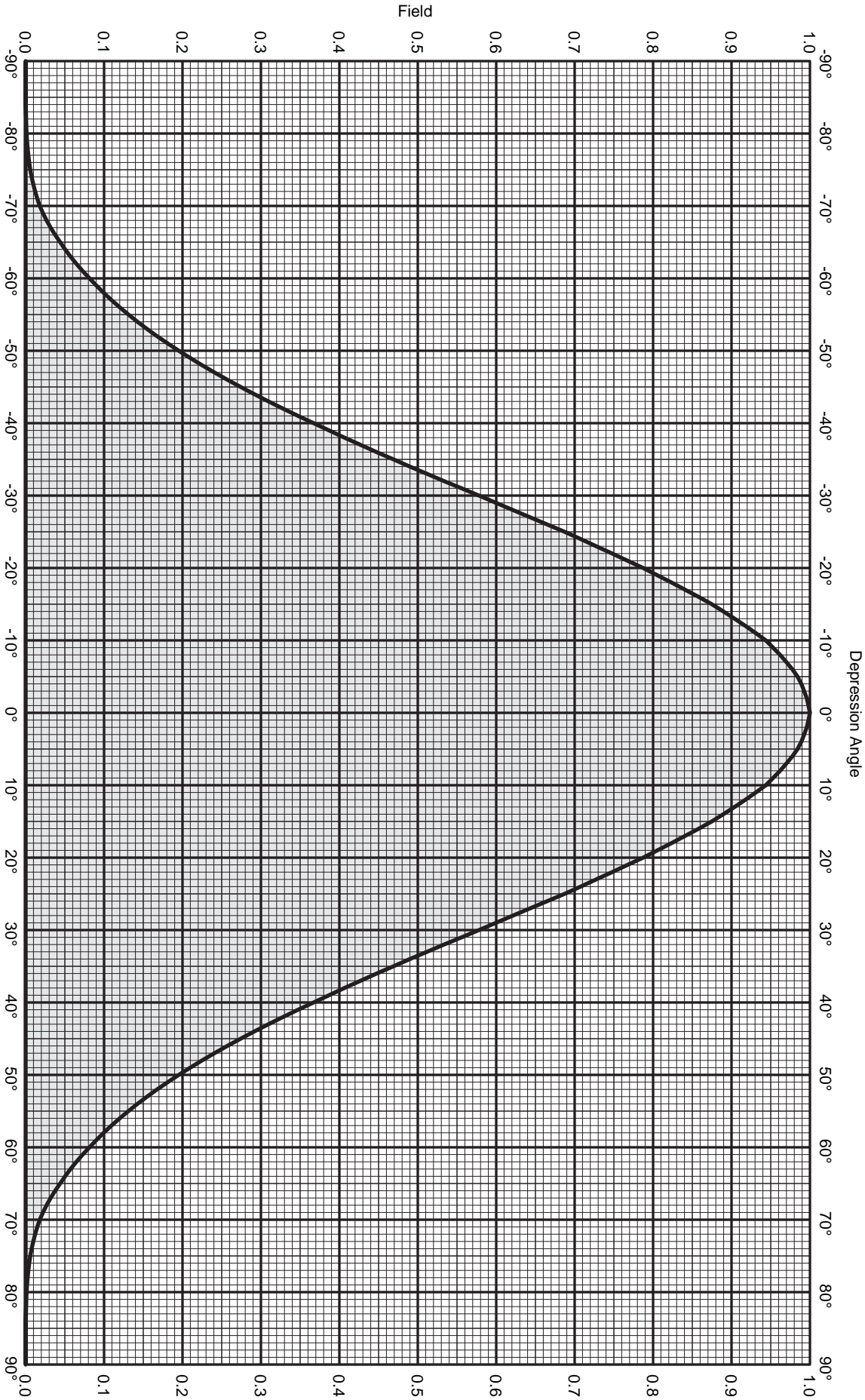
Figure EE1 is the vertical plane relative field pattern for the proposed Scala CLFM(H-pol) two-bay halfwave-spaced antenna. By adjusting for the vertical plane downward relative field values of the proposed antenna, it is herein demonstrated that the 128 dBu interfering signal (using a free space field determination) does not exist at any point below the rooftop mount of the antenna where the public has access. (The top floor of the building is more than 12 meters below the proposed transmit antenna.)

The attached tabulation (in the form requested by the FCC) demonstrates the

clearance to the top-floor of the building—the nearest location to the antenna that has access by the public.

Therefore, pursuant to Section 74.1204(d) of the FCC Rules, KHCB-FM and KAMA-FM are adequately protected by the proposed facility.

FIGURE EE1 (Page 1 of 3)



**KATHREIN**  
**SCALA DIVISION**

Post Office Box 4580  
Medford, OR 97501 (USA)  
Phone: (541) 779-6500  
Fax: (541) 779-3991  
<http://www.kathrein-scala.com>

Two CL-FM/HRM/50N Log-periodic Antennas

Oriented at 0 degrees

Frequency: 98.3 MHz

Gain: 9.5 dBd (x 8.9)

Horizontal Polarization

Vertical stacked 0.5 wavelength

Vertical plane Pattern



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Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
-90	0.010	-40.00	-30.50	0.00	-45	0.274	-11.24	-1.74	0.67
-89	0.010	-40.00	-30.50	0.00	-44	0.292	-10.70	-1.20	0.76
-88	0.010	-40.00	-30.50	0.00	-43	0.310	-10.18	-0.68	0.85
-87	0.010	-40.00	-30.50	0.00	-42	0.328	-9.67	-0.17	0.96
-86	0.010	-40.00	-30.50	0.00	-41	0.347	-9.18	0.32	1.08
-85	0.010	-40.00	-30.50	0.00	-40	0.367	-8.70	0.80	1.20
-84	0.010	-40.00	-30.50	0.00	-39	0.387	-8.25	1.25	1.33
-83	0.010	-40.00	-30.50	0.00	-38	0.406	-7.82	1.68	1.47
-82	0.010	-40.00	-30.50	0.00	-37	0.427	-7.39	2.11	1.63
-81	0.010	-40.00	-30.50	0.00	-36	0.448	-6.98	2.52	1.79
-80	0.010	-40.00	-30.50	0.00	-35	0.469	-6.58	2.92	1.96
-79	0.010	-40.00	-30.50	0.00	-34	0.490	-6.20	3.30	2.14
-78	0.010	-40.00	-30.50	0.00	-33	0.512	-5.82	3.68	2.34
-77	0.010	-40.00	-30.50	0.00	-32	0.533	-5.46	4.04	2.54
-76	0.010	-40.00	-30.50	0.00	-31	0.556	-5.10	4.40	2.75
-75	0.010	-40.00	-30.50	0.00	-30	0.578	-4.76	4.74	2.98
-74	0.010	-40.00	-30.50	0.00	-29	0.600	-4.44	5.06	3.20
-73	0.010	-40.00	-30.50	0.00	-28	0.621	-4.13	5.37	3.44
-72	0.012	-38.31	-28.81	0.00	-27	0.643	-3.83	5.67	3.69
-71	0.015	-36.55	-27.05	0.00	-26	0.665	-3.54	5.96	3.94
-70	0.018	-34.90	-25.40	0.00	-25	0.687	-3.26	6.24	4.21
-69	0.022	-33.12	-23.62	0.00	-24	0.708	-3.00	6.50	4.46
-68	0.027	-31.46	-21.96	0.01	-23	0.728	-2.76	6.74	4.72
-67	0.032	-29.93	-20.43	0.01	-22	0.748	-2.52	6.98	4.98
-66	0.038	-28.48	-18.98	0.01	-21	0.767	-2.30	7.20	5.25
-65	0.044	-27.13	-17.63	0.02	-20	0.787	-2.08	7.42	5.53
-64	0.050	-25.96	-16.46	0.02	-19	0.805	-1.88	7.62	5.78
-63	0.057	-24.84	-15.34	0.03	-18	0.823	-1.69	7.81	6.04
-62	0.065	-23.78	-14.28	0.04	-17	0.841	-1.51	7.99	6.30
-61	0.073	-22.76	-13.26	0.05	-16	0.858	-1.33	8.17	6.56
-60	0.081	-21.78	-12.28	0.06	-15	0.875	-1.16	8.34	6.82
-59	0.090	-20.89	-11.39	0.07	-14	0.890	-1.02	8.48	7.05
-58	0.100	-20.04	-10.54	0.09	-13	0.904	-0.88	8.62	7.28
-57	0.109	-19.22	-9.72	0.11	-12	0.918	-0.75	8.75	7.51
-56	0.120	-18.42	-8.92	0.13	-11	0.931	-0.62	8.88	7.73
-55	0.131	-17.65	-8.15	0.15	-10	0.944	-0.50	9.00	7.94
-54	0.143	-16.92	-7.42	0.18	-9	0.953	-0.42	9.08	8.09
-53	0.155	-16.20	-6.70	0.21	-8	0.962	-0.34	9.16	8.25
-52	0.168	-15.51	-6.01	0.25	-7	0.970	-0.26	9.24	8.38
-51	0.181	-14.83	-5.33	0.29	-6	0.978	-0.20	9.30	8.52
-50	0.195	-14.19	-4.69	0.34	-5	0.984	-0.14	9.36	8.63
-49	0.210	-13.56	-4.06	0.39	-4	0.989	-0.10	9.40	8.72
-48	0.225	-12.96	-3.46	0.45	-3	0.993	-0.06	9.44	8.78
-47	0.241	-12.37	-2.87	0.52	-2	0.996	-0.03	9.47	8.84
-46	0.257	-11.80	-2.30	0.59	-1	0.998	-0.02	9.48	8.88
					0	1.000	0.00	9.50	8.91



Two CL-FM/HRM/50N Log-periodic Antennas  
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Horizontal Polarization  
 Vertical stacked 0.5 wavelength  
 Vertical plane Pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	9.50	8.91	45	0.274	-11.24	-1.74	0.67
1	0.998	-0.02	9.48	8.88	46	0.257	-11.80	-2.30	0.59
2	0.996	-0.03	9.47	8.84	47	0.241	-12.37	-2.87	0.52
3	0.993	-0.06	9.44	8.78	48	0.225	-12.96	-3.46	0.45
4	0.989	-0.10	9.40	8.72	49	0.210	-13.56	-4.06	0.39
5	0.984	-0.14	9.36	8.63	50	0.195	-14.19	-4.69	0.34
6	0.978	-0.20	9.30	8.52	51	0.181	-14.83	-5.33	0.29
7	0.970	-0.26	9.24	8.38	52	0.168	-15.51	-6.01	0.25
8	0.962	-0.34	9.16	8.25	53	0.155	-16.20	-6.70	0.21
9	0.953	-0.42	9.08	8.09	54	0.143	-16.92	-7.42	0.18
10	0.944	-0.50	9.00	7.94	55	0.131	-17.65	-8.15	0.15
11	0.931	-0.62	8.88	7.73	56	0.120	-18.42	-8.92	0.13
12	0.918	-0.75	8.75	7.51	57	0.109	-19.22	-9.72	0.11
13	0.904	-0.88	8.62	7.28	58	0.100	-20.04	-10.54	0.09
14	0.890	-1.02	8.48	7.05	59	0.090	-20.89	-11.39	0.07
15	0.875	-1.16	8.34	6.82	60	0.081	-21.78	-12.28	0.06
16	0.858	-1.33	8.17	6.57	61	0.073	-22.76	-13.26	0.05
17	0.841	-1.51	7.99	6.30	62	0.065	-23.78	-14.28	0.04
18	0.823	-1.69	7.81	6.04	63	0.057	-24.84	-15.34	0.03
19	0.805	-1.88	7.62	5.78	64	0.050	-25.96	-16.46	0.02
20	0.787	-2.08	7.42	5.53	65	0.044	-27.13	-17.63	0.02
21	0.767	-2.30	7.20	5.25	66	0.038	-28.48	-18.98	0.01
22	0.748	-2.52	6.98	4.98	67	0.032	-29.93	-20.43	0.01
23	0.728	-2.76	6.74	4.72	68	0.027	-31.46	-21.96	0.01
24	0.708	-3.00	6.50	4.46	69	0.022	-33.12	-23.62	0.00
25	0.687	-3.26	6.24	4.21	70	0.018	-34.90	-25.40	0.00
26	0.665	-3.54	5.96	3.94	71	0.015	-36.55	-27.05	0.00
27	0.643	-3.83	5.67	3.69	72	0.012	-38.31	-28.81	0.00
28	0.621	-4.13	5.37	3.44	73	0.010	-40.00	-30.50	0.00
29	0.600	-4.44	5.06	3.20	74	0.010	-40.00	-30.50	0.00
30	0.578	-4.76	4.74	2.98	75	0.010	-40.00	-30.50	0.00
31	0.556	-5.10	4.40	2.75	76	0.010	-40.00	-30.50	0.00
32	0.533	-5.46	4.04	2.54	77	0.010	-40.00	-30.50	0.00
33	0.512	-5.82	3.68	2.34	78	0.010	-40.00	-30.50	0.00
34	0.490	-6.20	3.30	2.14	79	0.010	-40.00	-30.50	0.00
35	0.469	-6.58	2.92	1.96	80	0.010	-40.00	-30.50	0.00
36	0.448	-6.98	2.52	1.79	81	0.010	-40.00	-30.50	0.00
37	0.427	-7.39	2.11	1.63	82	0.010	-40.00	-30.50	0.00
38	0.406	-7.82	1.68	1.47	83	0.010	-40.00	-30.50	0.00
39	0.387	-8.25	1.25	1.33	84	0.010	-40.00	-30.50	0.00
40	0.367	-8.70	0.80	1.20	85	0.010	-40.00	-30.50	0.00
41	0.347	-9.18	0.32	1.08	86	0.010	-40.00	-30.50	0.00
42	0.328	-9.67	-0.17	0.96	87	0.010	-40.00	-30.50	0.00
43	0.310	-10.18	-0.68	0.85	88	0.010	-40.00	-30.50	0.00
44	0.292	-10.70	-1.20	0.76	89	0.010	-40.00	-30.50	0.00
					90	0.010	-40.00	-30.50	0.00

74.1204(d) Showing

K287BQ, Houston, TX 287D

ERP (kw)  
Height of Antenna above Ground (m)  
Translator's IX Contour

0.099  
12 (in this case, above top floor of building)  
128  
Scala CLFM(H) 2-bay (HW spaced)

<u>Depression Angle from Horizon</u>	<u>Antenna Relative Field</u>	<u>ERP (kw) from the Antenna RF</u>	<u>Dist. To IX Contour (m)</u>	<u>Height IX Contour Above Ground (m)</u>
0	1	0.0990	27.7855	12.000
5	0.984	0.0959	27.3409	9.617
10	0.944	0.0882	26.2295	7.445
15	0.875	0.0758	24.3123	5.708
20	0.787	0.0613	21.8672	4.521
25	0.767	0.0582	21.3114	2.993
30	0.578	0.0331	16.0600	3.970
35	0.469	0.0218	13.0314	4.526
40	0.367	0.0133	10.1973	5.445
45	0.274	0.0074	7.6132	6.617
50	0.195	0.0038	5.4182	7.849
55	0.131	0.0017	3.6399	9.018
60	0.081	0.0006	2.2506	10.051
65	0.044	0.0002	1.2226	10.892
70	0.018	0.0000	0.5001	11.530
75	0.01	0.0000	0.2779	11.732
80	0.01	0.0000	0.2779	11.726
85	0.01	0.0000	0.2779	11.723
90	0.01	0.0000	0.2779	11.722

**Note: Input the ERP, Height of the antenna above Ground, the Calculated Translator IX contour, and the specified Antenna Relative Field Pat**