

Technical Report KKRX(AM) New 244D

This technical report is submitted for the Auction 100 long form application for a new fill-in translator at channel 244, FCC file no. BNPFT-20180125AFQ, to serve as a fill-in facility to rebroadcast KKRX(AM) 1380 kHz at Lawton, OK, FCC facility I.D. no. 50213.

New 244D Translator Analysis:

An overlap study in exhibit E-1 shows the new 244D translator is within the K242AA second adjacent protected contour. A tabulation of the 105.1 +40 dBu F(50-10) contour (exhibit E-2) shows the interfering contour lowest point = 6.8 meters above the ground which will not reach any population, roads or buildings (exhibit E-3). Based on this showing, a waiver of Section 74.1204 is requested, in accordance with *Living Way Ministries, Inc.* (FCC 08-242). The 60 dBu F(50-50) contour is contained within the KKRX(AM) 2.0 mV/m daytime contour (exhibit E-4).

Antenna System:

The new 244D translator is to be located on the existing tower, ASR #1054980, at coordinates:

34 35 28N 98 21 43W NAD 27.

A Nicom BKG77 4 bay, 0.85 wavelength spaced, nondirectional antenna will be mounted at a COR AGL of 82 meters, 408 meters AMSL and operate at 0.250 kW ERP.

RF Exposure Calculation:

The RF contribution was calculated using the formula from the OET Bulletin 65:

$$S \text{ (RF in microwatts/cm}^2\text{)} = \frac{33.4 \times F^2 \times (H \text{ ERP} + V \text{ ERP in watts})}{R^2 \text{ (height of radiation center in meters}^2\text{)}}$$

Using a worst case vertical (F) factor of 1.0, the RF is calculated to be $2.61 \mu\text{W}/\text{cm}^2$ to the ground, which is well below 5% of the $200 \mu\text{W}/\text{cm}^2$ maximum permissible for general public exposure allowing exclusion from consideration.

Conclusion:

It is concluded that the application for a new 244D translator facility for KKRX(AM) complies with all Commission rules and policies.

A handwritten signature in black ink, appearing to read 'Christopher Anderson', is written over a horizontal line.

Christopher Anderson March 26, 2018
andersce@bham.rr.com
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E-1 KKRX(AM) New 244D Overlap Study

REFERENCE 34 35 28.0 N. 98 21 43.0 W.		CH# 244D - 96.7 MHz, Pwr= 0.25 kW, HAAT= 62.0 M, COR= 408 M Average Protected F(50-50)= 10.32 km Omni -di recti onal								DISPLAY DATES DATA 03-26-18 SEARCH 03-26-18	
CH CITY	CALL	TYPE ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*	
244C Flower Mound	KTCK-FM	LIC _C_ TX	147.5 328.0	151.66 BLH20010424AAN	33 26 13.0 97 29 05.0	93.000 621	194.6 901	90.2 Radio License Holdings Lic	-54.3*	23.0	
244D Lawton	1776319	APP _C_ OK	0.0 0.0	0.00 BNPFT20180125AFQ	34 35 28.0 98 21 43.0	0.250	0.00 408	0.00 Perry Broadcasting Of Sout	64.5R	-64.5M	
242D Lawton, Etc.	K242AA	LIC _HN OK	280.8 100.8	9.57 BLFT19920601TF	34 36 26.0 98 27 53.0	0.250 74	1.1 436	12.8 Creative Educational Media	-1.4*	-4.3*(1)	
247D Lawton	K247BA	LIC _C_ OK	261.2 81.1	10.47 BLFT20070905AAO	34 34 36.0 98 28 30.0	0.145 47	0.8 398	9.0 Broadco Of Texas, Inc.	-0.8	0.4	
297C2 Lawton	KVRW	LIC NCX OK	254.2 74.1	16.89 BLH20100624AMO	34 32 59.0 98 32 21.0	26.000 178	115.0 531	30.0 Townsquare Media Lawton Li	14.5R	2.4M	
246A Duncan	KKEN	LIC _C_ OK	103.6 283.8	37.15 BMLH20010326AAZ	34 30 43.0 97 58 04.0	6.000 100	2.9 444	29.5 Perry Broadcasting Of Sout	23.4	6.5	
243C1 Elk City	KECO	LIC _CN OK	311.5 130.9	137.55 BLH19820802AS	35 24 22.0 99 29 54.0	100.000 210	98.1 820	66.5 Paragon Communications, In	30.4	59.0	
245C Enid	KQOB	LIC NC_ OK	21.2 201.6	165.91 BLH20071115ACM	35 58 50.0 97 41 42.0	100.000 451	125.4 774	84.3 Champlin Broadcasting, Inc	30.8	69.0	
245D Wichita Falls	K245CZ	CP _C_ TX	192.2 12.1	78.87 BNPFT20171201AFL	33 53 51.0 98 32 32.0	0.250	16.9 388	11.6 Townsquare Media Wichita F	49.9	49.5	

Terrain database is NGDC 30 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= West Zone, Co to 3rd adjacent.
All separation margins (if shown) include rounding.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"*"affixed to 'IN' or 'OUT' values = site inside restricted contour.
Reference station has protected zone issue: AM tower

- (1) The +40 105.1 dBu F(50-10) contour within the K242AA second adjacent protected contour
lowest point = 6.8 meters (exhibit E-2).

E-2 New 244D +40 dBu Tabulation Within K242AA

New Lawton, OK, Showing Protection to K242AA
74.1204(d) Study - Using FCC 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.25
Translator or LPFM Antenna Height AG = 82 Meters
New Antenna Model = NICOM BKG77-4-85% SPACED

Protected Station's Contour = 65.12611 dBu
Translator's or LPFM's full Interference contour 105.12611

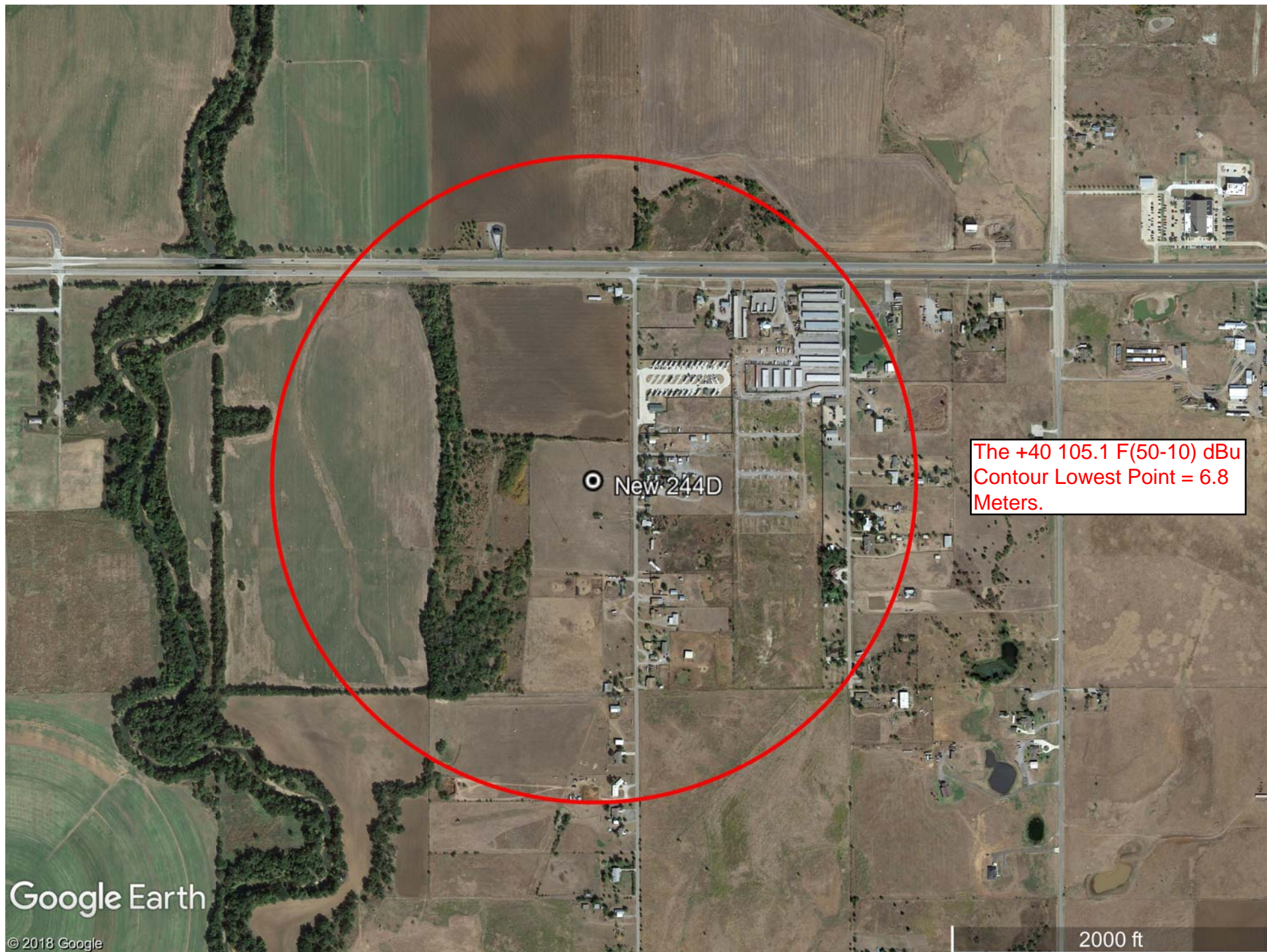
Review Azimuth = 0 Degrees True
Relative Field on the horizon at Review Azimuth = 1.000
Translator/LPFM ERP on the horizon at Review Azimuth = 0.25 kW
Distance between stations = 9.6 km
Protected Station= K242AA, .25 kW, 436 M Meters COR AMSL

Depression Angle From Horizon(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle (m)	Dist to IX Contour From Tower Base (m)	Height IX Above Ground (m) (1)
00.00	1.0	1.0	0.2500	614.7018	614.7018	082.000
01.00	0.994	1.0	0.2470	611.0136	610.9206	071.336
02.00	0.977	1.0	0.2386	600.5637	600.1978	061.041
03.00	0.949	1.0	0.2252	583.3520	582.5526	051.470
04.00	0.911	1.0	0.2075	559.9934	558.6293	042.937
05.00	0.863	1.0	0.1862	530.4877	528.4690	035.765
06.00	0.806	1.0	0.1624	495.4497	492.7355	030.211
07.00	0.742	1.0	0.1376	456.1087	452.7090	026.414
08.00	0.671	1.0	0.1126	412.4649	408.4508	024.596
09.00	0.596	1.0	0.0888	366.3623	361.8518	024.688
10.00	0.517	1.0	0.0668	317.8009	312.9727	026.814
11.00	0.434	1.0	0.0471	266.7806	261.8791	031.096
12.00	0.352	1.0	0.0310	216.3750	211.6467	037.013
13.00	0.271	1.0	0.0184	166.5842	162.3147	044.527
14.00	0.193	1.0	0.0093	118.6375	115.1134	053.299
15.00	0.118	1.0	0.0035	072.5348	070.0633	063.227
16.00	0.049	1.0	0.0006	030.1204	028.9536	073.698
17.00	0.014	1.0	0.0000	008.6058	008.2298	079.484
18.00	0.071	1.0	0.0013	043.6438	041.5078	068.513
19.00	0.119	1.0	0.0035	073.1495	069.1642	058.185
20.00	0.161	1.0	0.0065	098.9670	092.9986	048.151
21.00	0.193	1.0	0.0093	118.6375	110.7576	039.484
22.00	0.217	1.0	0.0118	133.3903	123.6773	032.031
23.00	0.233	1.0	0.0136	143.2255	131.8398	026.037
24.00	0.242	1.0	0.0146	148.7578	135.8971	021.495
25.00	0.243	1.0	0.0148	149.3725	135.3775	018.872
26.00	0.237	1.0	0.0140	145.6843	130.9402	018.136
27.00	0.225	1.0	0.0127	138.3079	123.2332	019.210
28.00	0.208	1.0	0.0108	127.8580	112.8919	021.974
29.00	0.186	1.0	0.0086	114.3345	099.9992	026.570
30.00	0.161	1.0	0.0065	098.9670	085.7079	032.517
31.00	0.132	1.0	0.0044	081.1406	069.5511	040.209
32.00	0.102	1.0	0.0026	062.6996	053.1723	048.774
33.00	0.07	1.0	0.0012	043.0291	036.0873	058.565
34.00	0.038	1.0	0.0004	023.3587	019.3652	068.938
35.00	0.007	1.0	0.0000	004.3029	003.5247	079.532
36.00	0.023	1.0	0.0001	014.1381	011.4380	073.690
37.00	0.051	1.0	0.0007	031.3498	025.0371	063.133
38.00	0.077	1.0	0.0015	047.3320	037.2982	052.859
39.00	0.1	1.0	0.0025	061.4702	047.7713	043.316
40.00	0.12	1.0	0.0036	073.7642	056.5067	034.585
41.00	0.137	1.0	0.0047	084.2141	063.5572	026.751
42.00	0.15	1.0	0.0056	092.2053	068.5219	020.303
43.00	0.16	1.0	0.0064	098.3523	071.9303	014.924
44.00	0.167	1.0	0.0070	102.6552	073.8440	010.690
45.00	0.17	1.0	0.0072	104.4993	073.8922	008.108
46.00	0.17	1.0	0.0072	104.4993	072.5913	006.829 (1)
47.00	0.167	1.0	0.0070	102.6552	070.0107	006.923
48.00	0.162	1.0	0.0066	099.5817	066.6332	007.996
49.00	0.154	1.0	0.0059	094.6641	062.1052	010.556
50.00	0.144	1.0	0.0052	088.5171	056.8977	014.192
51.00	0.133	1.0	0.0044	081.7553	051.4503	018.464
52.00	0.12	1.0	0.0036	073.7642	045.4138	023.873
53.00	0.106	1.0	0.0028	065.1584	039.2133	029.962
54.00	0.091	1.0	0.0021	055.9379	032.8795	036.745
55.00	0.075	1.0	0.0014	046.1026	026.4434	044.235
56.00	0.06	1.0	0.0009	036.8821	020.6242	051.423
57.00	0.044	1.0	0.0005	027.0469	014.7308	059.317
58.00	0.028	1.0	0.0002	017.2117	009.1208	067.404
59.00	0.013	1.0	0.0000	007.9911	004.1157	075.150
60.00	0.001	1.0	0.0000	000.6147	000.3074	081.468
61.00	0.015	1.0	0.0001	009.2205	004.4702	073.936
62.00	0.027	1.0	0.0002	016.5969	007.7918	067.346
63.00	0.039	1.0	0.0004	023.9734	010.8837	060.640
64.00	0.05	1.0	0.0006	030.7351	013.4734	054.375
65.00	0.059	1.0	0.0009	036.2674	015.3273	049.131
66.00	0.068	1.0	0.0012	041.7997	017.0015	043.814
67.00	0.075	1.0	0.0014	046.1026	018.0137	039.562
68.00	0.081	1.0	0.0016	049.7908	018.6520	035.835
69.00	0.086	1.0	0.0018	052.8644	018.9449	032.647
70.00	0.089	1.0	0.0020	054.7085	018.7114	030.591

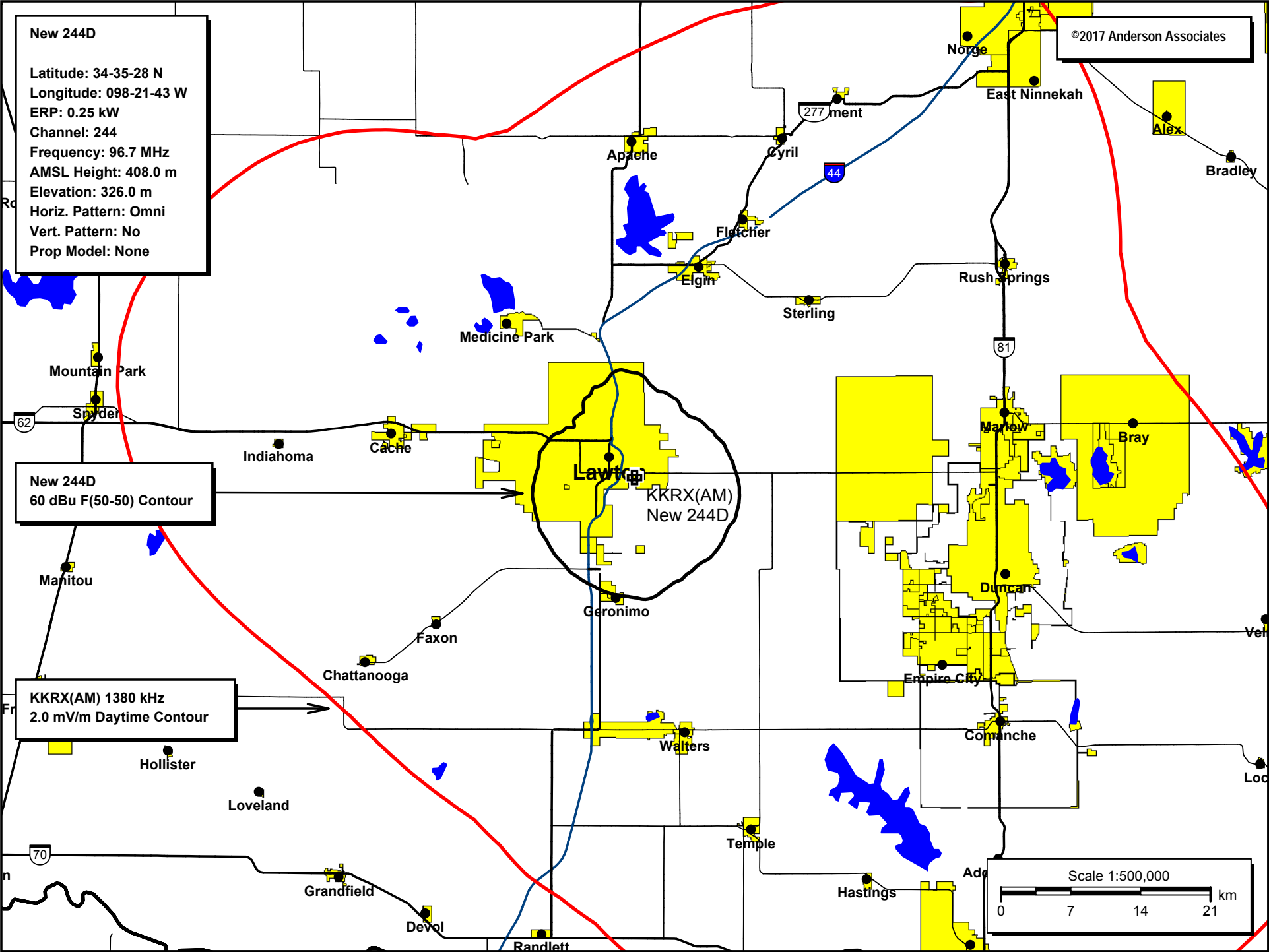
E-2 New 244D +40 dBu Tabulation Within K242AA, cont.

Depression Angle From Horizon (Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle (m)	Dist to IX Contour From Tower Base (m)	Height IX Above Ground (m)
71.00	0.093	1.0	0.0022	057.1673	018.6118	027.947
72.00	0.095	1.0	0.0023	058.3967	018.0456	026.461
73.00	0.096	1.0	0.0023	059.0114	017.2533	025.567
74.00	0.096	1.0	0.0023	059.0114	016.2657	025.275
75.00	0.096	1.0	0.0023	059.0114	015.2733	024.999
76.00	0.095	1.0	0.0023	058.3967	014.1274	025.338
77.00	0.094	1.0	0.0022	057.7820	012.9981	025.699
78.00	0.092	1.0	0.0021	056.5526	011.7579	026.683
79.00	0.089	1.0	0.0020	054.7085	010.4389	028.297
80.00	0.086	1.0	0.0018	052.8644	009.1798	029.939
81.00	0.085	1.0	0.0018	052.2497	008.1736	030.394
82.00	0.083	1.0	0.0017	051.0202	007.1006	031.476
83.00	0.081	1.0	0.0016	049.7908	006.0680	032.580
84.00	0.078	1.0	0.0015	047.9467	005.0118	034.316
85.00	0.076	1.0	0.0014	046.7173	004.0717	035.460
86.00	0.076	1.0	0.0014	046.7173	003.2588	035.396
87.00	0.075	1.0	0.0014	046.1026	002.4128	035.961
88.00	0.075	1.0	0.0014	046.1026	001.6090	035.925
89.00	0.074	1.0	0.0014	045.4879	000.7939	036.519
90.00	0.074	1.0	0.0014	045.4879	000.0000	036.512

(1) The +40 105.1 dBu F(50-10) contour within the K242AA second adjacent protected contour lowest point = 6.8 meters at a distance of 72 meters. It is noted that the nearest building is located at 98 meters and that all of the buildings within the interference contour are two stories or less while the interfering contour is at least 18 meters above ground.



E-4 New 244D 60 dBu Contour Plot



E-5 KKRX(AM) New Tx Tower ASR

ASR Registration 1054980

Registration Detail

Reg Number	1054980	Status	Constructed
File Number	A0419662	Constructed	01/01/1990
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type 2TA1 - Antenna Tower Array - 1st N = # towers 2nd N =

Location (in NAD83 Coordinates)

Lat/Long	34-35-28.0 N 098-21-44.0 W	Address	NORTH TWR - 1.5 MI E HWY 7 1/4 MI S HWY 29
City, State	LAWTON , OK		
Zip	73501	County	COMANCHE
Center of AM Array	34-35-24.0 N 098-21-44.0 W	Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
326.1	85.3
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
411.5	84.4

Painting and Lighting Specifications

FCC Paragraphs 1, 3, 12, 21

FAA Notification

FAA Study	FAA Issue Date
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Owner & Contact Information

FRN	0007755952	Owner Entity Type
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Owner

PERRY BROADCASTING OF SOUTHWEST OKLAHOMA, INC. Attention To: RUSSELL M. PERRY 1528 N.E. 23RD STREET OKLAHOMA CITY , OK 73111	P: (405)424-4695 F: E:
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Contact

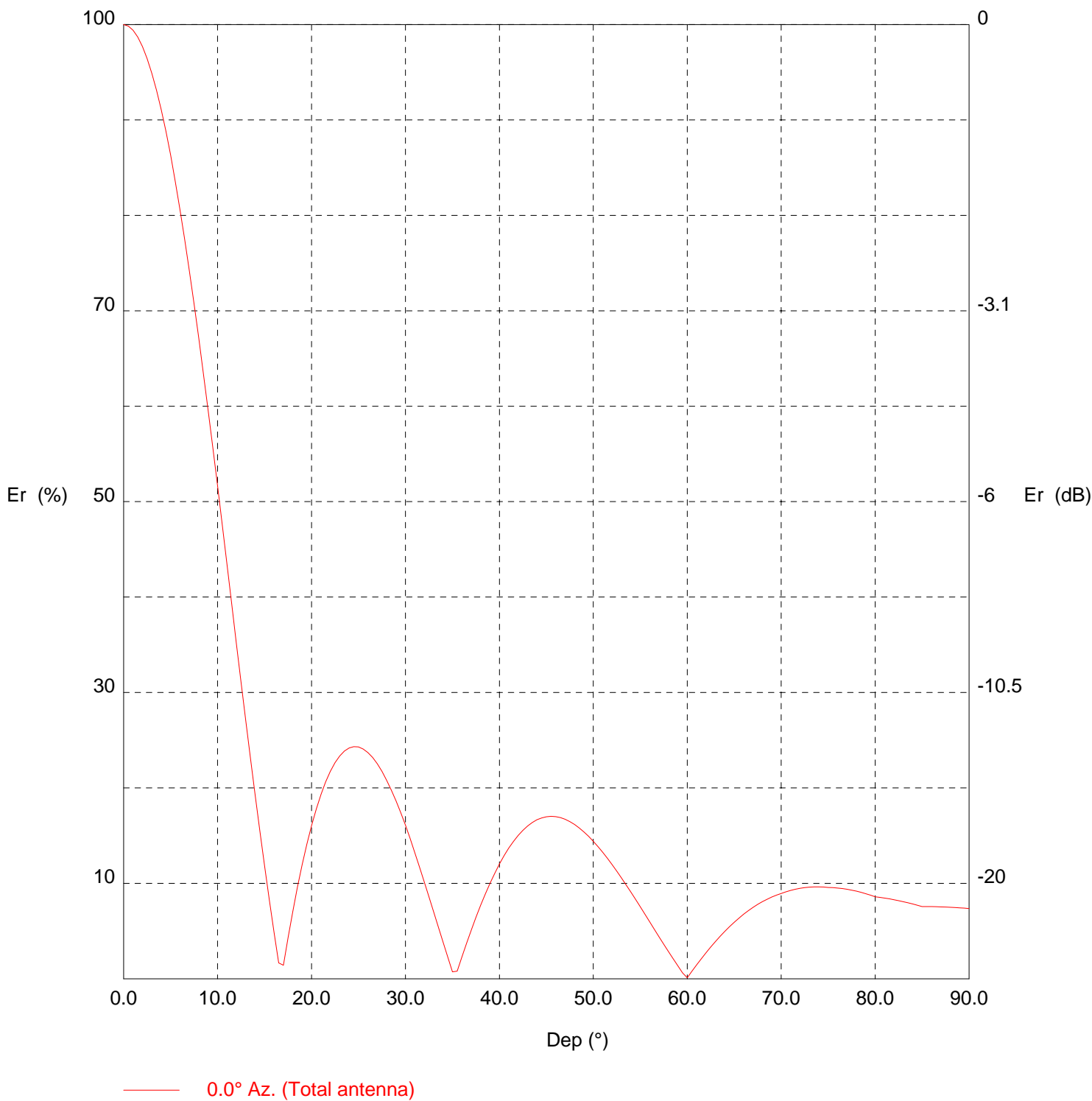
DEBEE , H. EDWARD ESQ 100 NORTH BROADWAY AVE., SUITE 1500 OKLAHOMA CITY , OK 73102	P: (405)232-7777 F: E: EDEBEE@DEBEEGILCHRIST.COM
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Last Action Status

Status	Constructed	Received	12/21/2004
Purpose	Admin Update	Entered	12/21/2004

TX station: NICOM 4 BKG77-4 (85%)
Frequency: 100.00 MHz

Vertical diagram



TX station: NICOM 4 BKG88

Site name:

Frequency: 100.00 MHz

Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)
0.0	100.0	1.79	30.0	16.1	0.05	60.0	0.1	0.00
0.5	99.8	1.78	30.5	14.7	0.04	60.5	0.8	0.00
1.0	99.4	1.77	31.0	13.2	0.03	61.0	1.5	0.00
1.5	98.7	1.74	31.5	11.7	0.02	61.5	2.1	0.00
2.0	97.7	1.71	32.0	10.2	0.02	62.0	2.7	0.00
2.5	96.4	1.66	32.5	8.6	0.01	62.5	3.3	0.00
3.0	94.9	1.61	33.0	7.0	0.01	63.0	3.9	0.00
3.5	93.1	1.55	33.5	5.4	0.01	63.5	4.5	0.00
4.0	91.1	1.48	34.0	3.8	0.00	64.0	5.0	0.00
4.5	88.8	1.41	34.5	2.3	0.00	64.5	5.5	0.01
5.0	86.3	1.33	35.0	0.7	0.00	65.0	5.9	0.01
5.5	83.6	1.25	35.5	0.8	0.00	65.5	6.4	0.01
6.0	80.6	1.16	36.0	2.3	0.00	66.0	6.8	0.01
6.5	77.5	1.07	36.5	3.7	0.00	66.5	7.1	0.01
7.0	74.2	0.98	37.0	5.1	0.00	67.0	7.5	0.01
7.5	70.7	0.89	37.5	6.4	0.01	67.5	7.8	0.01
8.0	67.1	0.80	38.0	7.7	0.01	68.0	8.1	0.01
8.5	63.4	0.72	38.5	8.9	0.01	68.5	8.3	0.01
9.0	59.6	0.63	39.0	10.0	0.02	69.0	8.6	0.01
9.5	55.7	0.55	39.5	11.1	0.02	69.5	8.8	0.01
10.0	51.7	0.48	40.0	12.0	0.03	70.0	8.9	0.01
10.5	47.6	0.40	40.5	12.9	0.03	70.5	9.1	0.01
11.0	43.4	0.34	41.0	13.7	0.03	71.0	9.3	0.02
11.5	39.3	0.28	41.5	14.4	0.04	71.5	9.4	0.02
12.0	35.2	0.22	42.0	15.0	0.04	72.0	9.5	0.02
12.5	31.1	0.17	42.5	15.6	0.04	72.5	9.5	0.02
13.0	27.1	0.13	43.0	16.0	0.05	73.0	9.6	0.02
13.5	23.1	0.10	43.5	16.4	0.05	73.5	9.6	0.02
14.0	19.3	0.07	44.0	16.7	0.05	74.0	9.6	0.02
14.5	15.5	0.04	44.5	16.9	0.05	74.5	9.6	0.02
15.0	11.8	0.03	45.0	17.0	0.05	75.0	9.6	0.02
15.5	8.3	0.01	45.5	17.0	0.05	75.5	9.6	0.02
16.0	4.9	0.00	46.0	17.0	0.05	76.0	9.5	0.02
16.5	1.7	0.00	46.5	16.9	0.05	76.5	9.5	0.02
17.0	1.4	0.00	47.0	16.7	0.05	77.0	9.4	0.02
17.5	4.3	0.00	47.5	16.5	0.05	77.5	9.3	0.02
18.0	7.1	0.01	48.0	16.2	0.05	78.0	9.2	0.02
18.5	9.6	0.02	48.5	15.8	0.04	78.5	9.0	0.01
19.0	11.9	0.03	49.0	15.4	0.04	79.0	8.9	0.01
19.5	14.1	0.04	49.5	14.9	0.04	79.5	8.8	0.01
20.0	16.1	0.05	50.0	14.4	0.04	80.0	8.6	0.01
20.5	17.8	0.06	50.5	13.8	0.03	80.5	8.5	0.01
21.0	19.3	0.07	51.0	13.3	0.03	81.0	8.5	0.01
21.5	20.6	0.08	51.5	12.6	0.03	81.5	8.4	0.01
22.0	21.7	0.08	52.0	12.0	0.03	82.0	8.3	0.01
22.5	22.6	0.09	52.5	11.3	0.02	82.5	8.2	0.01
23.0	23.3	0.10	53.0	10.6	0.02	83.0	8.1	0.01
23.5	23.9	0.10	53.5	9.8	0.02	83.5	8.0	0.01
24.0	24.2	0.10	54.0	9.1	0.01	84.0	7.8	0.01
24.5	24.3	0.11	54.5	8.3	0.01	84.5	7.7	0.01
25.0	24.3	0.11	55.0	7.5	0.01	85.0	7.6	0.01
25.5	24.1	0.10	55.5	6.7	0.01	85.5	7.6	0.01
26.0	23.7	0.10	56.0	6.0	0.01	86.0	7.6	0.01
26.5	23.2	0.10	56.5	5.2	0.00	86.5	7.5	0.01
27.0	22.5	0.09	57.0	4.4	0.00	87.0	7.5	0.01
27.5	21.7	0.08	57.5	3.6	0.00	87.5	7.5	0.01
28.0	20.8	0.08	58.0	2.8	0.00	88.0	7.5	0.01
28.5	19.8	0.07	58.5	2.1	0.00	88.5	7.5	0.01
29.0	18.6	0.06	59.0	1.3	0.00	89.0	7.4	0.01
29.5	17.4	0.05	59.5	0.6	0.00	89.5	7.4	0.01