



Application for Minor Change  
Translator K280GU Lubbock TX  
FCC Facility ID 201090

## TECHNICAL EXHIBITS

This technical exhibit is prepared on behalf of *Townsquare Media Lubbock License, LLC*, permittee of Translator K280GU Lubbock TX. This instant application requests a minor modification of Construction Permit BNPFT-20171219AAD to an alternate height on the authorized tower location, utilizing the authorized operating frequency, effective radiated power and antenna.

## CONTOUR OVERLAP REQUIREMENTS

The attached maps of contours depict the proposed allocation situation with respect to all pertinent co-channel and adjacent channel facilities. All facilities have been depicted utilizing either the maximum ERP or directional pattern data as on file with the commission. AAT data for the proposed facility was derived from the FCC's 30 second database, *ComStudy*.

As seen on the attached maps of contours, channel 280-D is operable at the proposed location with the following facility notes:

- In compliance with 47 CFR 74.1204(g) the proposed facility operates at an effective radiated power which is not over 100 watts, therefore protection to intermediate frequency facilities has not been calculated.
- The proposed location is within the protected 60dbu (50,50) contour of second-adjacent station KAMZ (FM) channel 278-cC located 22.1 km away. Therefore, an interference analysis has been conducted based on the U/D ratio of +40 dB at the proposed site. The signal of KAMZ (FM) at the proposed location is 68.4 dBu (50,50) making the relevant interfering contour of the proposed facility 108.4 dBu (50,10). The free space distance to this contour in a worse-case scenario utilizing a single dipole antenna is 422 meters.

– The proposed location is within the protected 60dbu (50,50) contour of second-adjacent station KEJS (FM) channel 282–C2 located 29.3 km away. Therefore, an interference analysis has been conducted based on the U/D ratio of +40 dB at the proposed site. The signal of KEJS (FM) at the proposed location is 72.3 dBu (50,50) making the relevant interfering contour of the proposed facility 112.3 dBu (50,10). The free space distance to this contour in a worse-case scenario utilizing a single dipole antenna is 269 meters.

– The proposed antenna height is 153 meters above ground, just above the 2 bay half wave spaced antenna utilized by translator K236CP also owned by this applicant. The Proposed 2-bay antenna has the characteristics shown in the attached chart; the vertical radiation field values were provided by the manufacturer and the calculations demonstrate that the larger of the 2 relevant interfering contours – that being the 108.4 dBu (50,10) – will not reach a point closer than 9 meters above ground at any elevation angle. As such, the interfering contour is incapable of reaching the general public.

Based on this showing, a waiver of Section 74.1204 is requested in accordance with *Living Way ministries*, Inc. (FCC 08–242) on the basis of zero population in the area of interference.

It should be noted that should any actual real world interference occur, the applicant acknowledges that it will promptly suspend operation of this translator in accordance with 47 c.f.r. 74.1203.

#### FILL-IN STATUS

Applicant certifies that the proposal is for a fill-in translator entirely within the greater of the 2mv/m daytime protected contour or a 25-mile radius centered at the Am primary station's transmitter site

See Contour map attached demonstrating compliance.

## ENVIRONMENTAL PROTECTION ACT

Section 1.1307(b)(1) of the Commission's rules exempts FM translators and boosters operating with an effective radiated power of 100 watts or less from the requirement to submit an environmental assessment to determine compliance with FCC specified guidelines for human exposure to radiofrequency radiation. The applicant proposes operation with an effective radiated power of 99 watts and therefore no calculations have been submitted.

The applicant also certifies that it, in coordination with other users of the site, will reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency electromagnetic fields in excess of FCC guidelines.

Respectfully,

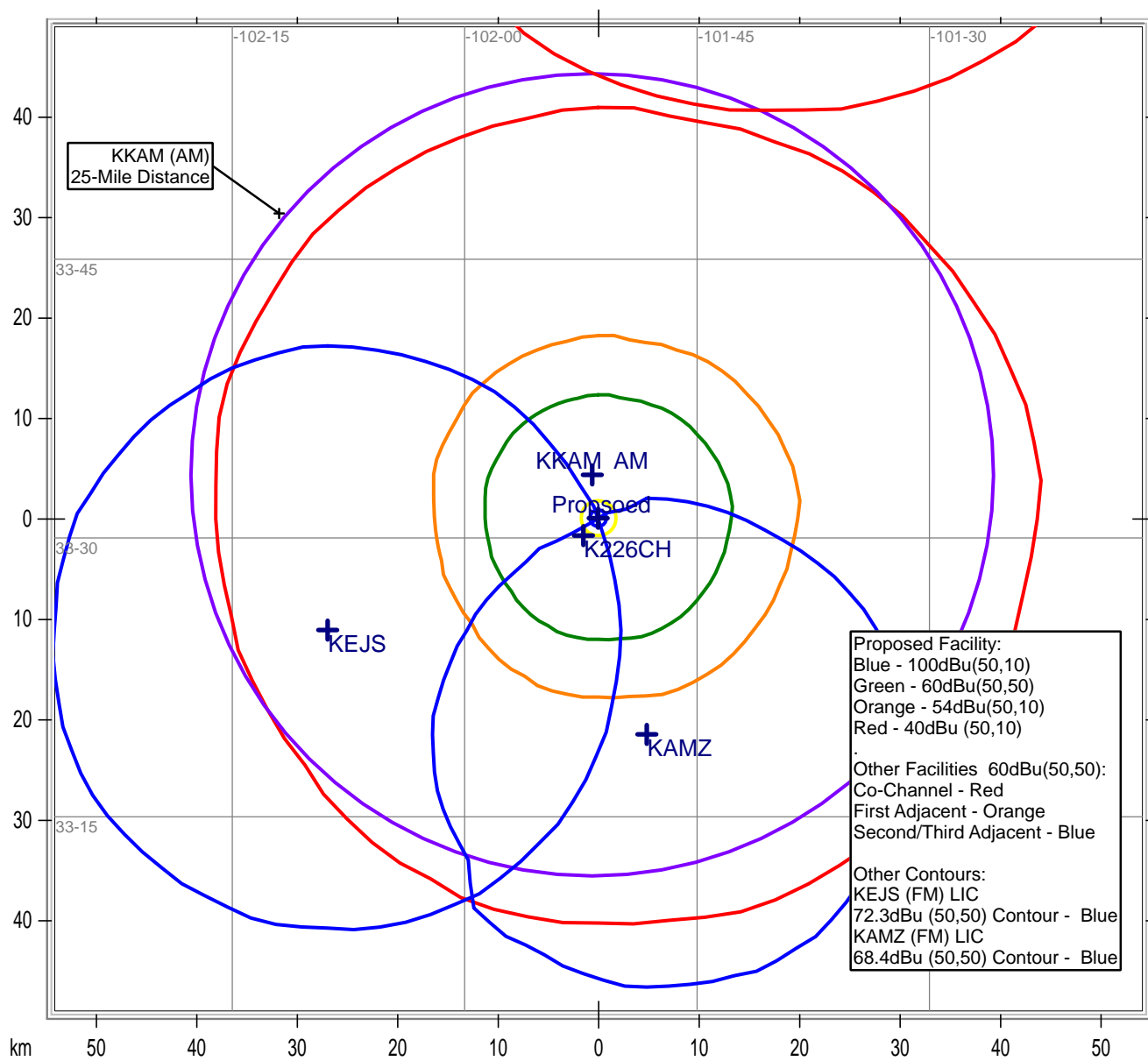
A handwritten signature in black ink, appearing to read "Jim Turvaille". The signature is fluid and cursive, with the first name "Jim" and last name "Turvaille" clearly distinguishable.

Jim Turvaille, Owner  
Turbo Tech Services  
Certified Radio Engineer – Consultant

Attachments:

Map of Contours

Antenna Vertical Radiation Chart



Lat/Lon Grid

**Nicom BKG-77 / 2-HW**  
**2-bay Half Wave Spaced Circularly Polarized FM Antennaa**



Frequency = 

103.9
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 Mhz  
 Interfering Contour 

108.4
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 dBu (50,10)

ERP= 

250
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 watts  
 Height = 

151
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 m AGL

Depression Angle	Relative Field (o)	Effective Power (w)	Distance to Contour (m)	Distance from Antenna to Ground (m)	Clearance (m)
1	1.000	250.0	421.67	8,594.80	8173
2	0.998	249.0	420.82	4,298.06	3877
3	0.996	248.0	419.98	2,866.10	2446
4	0.993	246.5	418.72	2,150.34	1732
5	0.990	245.0	417.45	1,721.06	1304
6	0.985	242.6	415.34	1,435.02	1020
7	0.980	240.1	413.23	1,230.83	818
8	0.974	237.2	410.70	1,077.79	667
9	0.967	233.8	407.75	958.87	551
10	0.959	229.9	404.38	863.82	459
11	0.951	226.1	401.01	786.13	385
12	0.942	221.8	397.21	721.46	324
13	0.932	217.2	392.99	666.81	274
14	0.921	212.1	388.36	620.03	232
15	0.910	207.0	383.72	579.56	196
16	0.899	202.1	379.08	544.19	165
17	0.886	196.2	373.60	513.05	139
18	0.873	190.5	368.12	485.41	117
19	0.860	184.9	362.63	460.73	98
20	0.846	178.9	356.73	438.57	82
21	0.832	173.1	350.83	418.56	68
22	0.817	166.9	344.50	400.42	56
23	0.801	160.4	337.76	383.90	46
24	0.786	154.4	331.43	368.79	37
25	0.770	148.2	324.68	354.93	30
26	0.753	141.8	317.52	342.18	25
27	0.736	135.4	310.35	330.40	20
28	0.720	129.6	303.60	319.51	16
29	0.702	123.2	296.01	309.40	13
30	0.685	117.3	288.84	300.00	11
31	0.667	111.2	281.25	291.24	10
32	0.650	105.6	274.08	283.06	9
33	0.632	99.9	266.49	275.41	9
34	0.614	94.2	258.90	268.24	9
35	0.596	88.8	251.31	261.52	10
36	0.578	83.5	243.72	255.20	11
37	0.561	78.7	236.56	249.25	13
38	0.543	73.7	228.97	243.64	15
39	0.525	68.9	221.38	238.35	17
40	0.508	64.5	214.21	233.36	19
41	0.490	60.0	206.62	228.64	22
42	0.473	55.9	199.45	224.17	25
43	0.456	52.0	192.28	219.94	28
44	0.439	48.2	185.11	215.93	31
45	0.422	44.5	177.94	212.13	34

Depression Angle	Relative Field	Effective Power (w)	Distance to Contour (m)	Distance from Antenna to Ground (m)	Clearance (m)
46	0.405	41.0	170.78	208.52	38
47	0.389	37.8	164.03	205.10	41
48	0.373	34.8	157.28	201.84	45
49	0.358	32.0	150.96	198.75	48
50	0.352	31.0	148.43	195.81	47
51	0.327	26.7	137.89	193.01	55
52	0.313	24.5	131.98	190.35	58
53	0.298	22.2	125.66	187.82	62
54	0.284	20.2	119.75	185.41	66
55	0.271	18.4	114.27	183.12	69
56	0.258	16.6	108.79	180.93	72
57	0.245	15.0	103.31	178.85	76
58	0.232	13.5	97.83	176.88	79
59	0.220	12.1	92.77	175.00	82
60	0.208	10.8	87.71	173.21	85
61	0.197	9.7	83.07	171.50	88
62	0.186	8.6	78.43	169.89	91
63	0.179	8.0	75.48	168.35	93
64	0.165	6.8	69.58	166.89	97
65	0.156	6.1	65.78	165.51	100
66	0.146	5.3	61.56	164.20	103
67	0.137	4.7	57.77	162.95	105
68	0.128	4.1	53.97	161.78	108
69	0.120	3.6	50.60	160.67	110
70	0.112	3.1	47.23	159.63	112
71	0.104	2.7	43.85	158.64	115
72	0.097	2.4	40.90	157.72	117
73	0.090	2.0	37.95	156.85	119
74	0.083	1.7	35.00	156.04	121
75	0.077	1.5	32.47	155.29	123
76	0.064	1.0	26.99	154.59	128
77	0.059	0.9	24.88	153.95	129
78	0.053	0.7	22.35	153.35	131
79	0.048	0.6	20.24	152.81	133
80	0.043	0.5	18.13	152.31	134
81	0.043	0.5	18.13	151.87	134
82	0.038	0.4	16.02	151.47	135
83	0.033	0.3	13.92	151.13	137
84	0.028	0.2	11.81	150.83	139
85	0.023	0.1	9.70	150.57	141
86	0.019	0.1	8.01	150.37	142
87	0.014	0.0	5.90	150.21	144
88	0.009	0.0	3.80	150.09	146
89	0.005	0.0	2.11	150.02	148
90	0.000	0.0	0.00	150.00	150

**NOTES:**

- HEIGHT HAS BEEN REDUCED BY 2 METERS TO ALLOW FOR HUMAN EXPOSURE
- DISTANCE FROM ANTENNA TO GROUND IS ACTUALLY TO A POINT 2 METERS ABOVE GROUND