Minor Construction Permit Modification Application

K273AF, NV –Fill-in Translator for KCMY (AM)

This technical statement and attached exhibits have been prepared on behalf of The Evans Broadcast Company, Inc, ("Evans"), licensee of station K273AF, Carson City, NV Facility identifier 13529. Evans proposes to modify the current Construction Permit (LMS File # 0086357) for K273AF to relocate 0.4km from the current CP facility to a different existing tower on the same antenna farm and slightly modify the proposed antenna. K273AF will continue to be used as a fill-in translator for co-owned KCMY (AM), 1300kHz, Carson City, NV, Facility identifier 40801.

FACILITIES REQUESTED

The 60dBu contour of the requested facility will operate within the 2mV/m contour of KCMY (AM) using a directional Kathrein/ Scala dual CA2-FM-CP antenna with elements pointed at 170deg T and 330deg T.

PROPOSED TECHNICAL PARAMETERS

Booster Location:	Carson City, NV
ASR	NONE (See TOWAIR Study attached)
Geographic Coordinates (NAD83):	39˚15'28.6" N, 119˚ 42' 40.4" W
Channel:	273D (102.5 MHz)
Effective Radiated Power:	250 W (H+V)
Antenna Type, Pattern:	Directional (Exhibit A)
Antenna Orientation:	Elements pointing at 170degT and 330degT
Site Height AMSL	2315m
Tower OAGL	57m
Antenna Height :	
Above ground:	44.0m
Above mean sea level:	2359.0m

INTERFERENCE STUDY

ComStudy 2.2 search of channel 273 (102.5 MHz Class D) at 39-15-28.6 N, 119-42-40.4 W.

CALL	CITY	ST	CHN	CL	DIST	SEP	BRNG	CLEARANC
KWYL	SOUTH LAKE TAHOE	CA	275	C	16.06	0.00	291.4	-38.05 dB Exhibit D
KRNV-FM	RENO	NV	271	C3	36.98	0.00	348.3	-8.74 dB Exhibit D
KSFM	WOODLAND	CA	273	B	189.87	0.00	247.5	5.38 dB Exhibit C
K271BT	SOUTH LAKE TAHOE	CA	271	D	50.48	0.00	210.1	6.70 dB
KNVR	FALLON	NV	273	A	83.85	0.00	73.1	13.11 dB
K272DX	GRASS VALLEY	CA	272	D	108.18	0.00	269.7	18.22 dB
K274CG	SONORA	CA	274	D	149.89	0.00	202.4	20.90 dB
K272AE	HAWTHORNE	NV	272	D	120.97	0.00	136.9	22.83 dB
KDON-FM	SALINAS	CA	273	B	319.13	0.00	210.0	22.52 dB
KNTY	SHINGLE SPRINGS	CA	270	B	115.52	0.00	247.4	23.99 dB
KHGE	FRESNO	CA	274	B	271.33	0.00	176.2	32.87 dB
KJSN	MODESTO	CA	272	A	204.65	0.00	211.4	34.71 dB
KKRO	RED BLUFF	CA	274	C2	226.37	0.00	303.0	38.37 dB

(LMS as of 9/9/2020)

There are no facilities with IF protection considerations

Exhibit B demonstrates compliance with Rule 74.1201(g) governing the use of a translator as a fill-in for an AM station. The 60dBu contour of the proposed translator will be completely contained within the 2mV/m contour of KCMY (AM).

Exhibit C demonstrates compliance with Rule 74.1204(a). There are no impermissible contour overlaps to any other facilities.

As demonstrated in Exhibit D, per Rule 74.1204(d), there will be no location at ground level where the signal of the proposed translator will be in excess of 40dBu above 2nd adjacent KWYL (FM) 275C Regarding interference to 2nd adjacent KRNV-FM, 271C3. The K273AF antenna will mounted on a remote hilltop. As shown in Exhibit D, the worst-case interfering contour (assuming non-directional operation) will extend 394m from the K273AF antenna. The nearest residence is over 500m from the tower base to the southeast. Therefore, no actual interference to KRNV-FM will be generated to any residence.

ENVIRONMENTAL CONSIDERATIONS

The Booster will be attached at 44m AGL on an existing 57m tower. The tower is not registered. To verify that an ASR is not necessary, TOWAIR was run. The results are attached as Exhibit E.

The proposed 273D facility will utilize a dual Yagi antenna with elements directed at 170degT and 330degT, 44m AGL, Based upon the FCC "FM Model for Windows"[1] program using a worst-case ring-stub antenna, the proposed 273D operation will produce 5.7 μW/cm² at a distance of 11.4m from the base of the tower at ground level or 2.9% of the MPE level. Because the projected MPE is under 5%, this translator can be considered independently of other RF sources on the tower or in the vicinity.

The applicant agrees to reduce power or cease operations when it becomes necessary if workers are near the antenna in order to ensure that they will not be exposed to levels of radio frequency electromagnetic radiation that exceed FCC guidelines.

CERTIFICATION

The undersigned hereby certifies that the foregoing statement and associated attachments were prepared by him or under his direct supervision, and that they are true and correct to the best of his knowledge and belief.

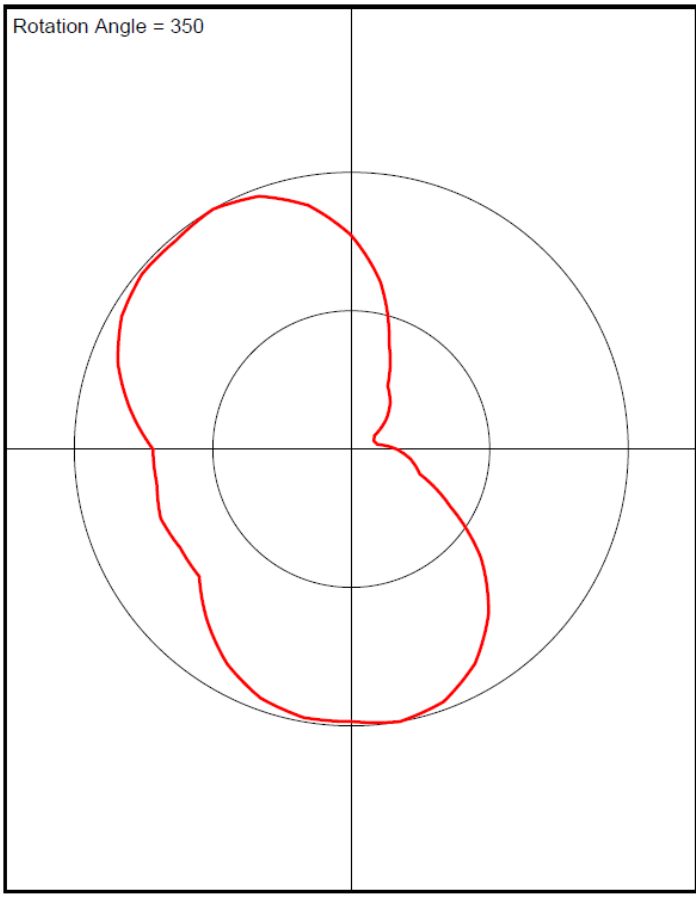
Bertram S. Goldman
Goldman Engineering Management

[1] https://www.fcc.gov/general/fm-model

K273 Antenna Pattern

Post-Rotation Antenna Pattern....

Azimuth (deg)	Relative Field
0.0	0.772
5.0	0.6915
10.0	0.611
15.0	0.506
20.0	0.401
25.0	0.332
30.0	0.263
35.0	0.241
40.0	0.219
45.0	0.191
50.0	0.163
55.0	0.1295
60.0	0.096
65.0	0.091
70.0	0.086
75.0	0.091
80.0	0.096
85.0	0.1295
90.0	0.163
95.0	0.191
100.0	0.219
105.0	0.241
110.0	0.263
115.0	0.337
120.0	0.411
125.0	0.511
130.0	0.611
135.0	0.6915
140.0	0.772
145.0	0.833
150.0	0.894
155.0	0.933
160.0	0.972
165.0	0.986
170.0	1.0
175.0	0.992
180.0	0.984
185.0	0.9845
190.0	0.985
195.0	0.971
200.0	0.957
205.0	0.9265
210.0	0.896
215.0	0.8525
220.0	0.809
225.0	0.7625
230.0	0.716
235.0	0.7145
240.0	0.713
245.0	0.7225
250.0	0.732
255.0	0.7225
260.0	0.713
265.0	0.7145
270.0	0.716
275.0	0.7625
280.0	0.809
285.0	0.8525
290.0	0.896
295.0	0.9265
300.0	0.957
305.0	0.971
310.0	0.985
315.0	0.9845



320.0	0.984
325.0	0.992
330.0	1.0
335.0	0.986
340.0	0.972
345.0	0.933
350.0	0.894
355.0	0.833

K273AF PROP 74.1201(g) Compliance

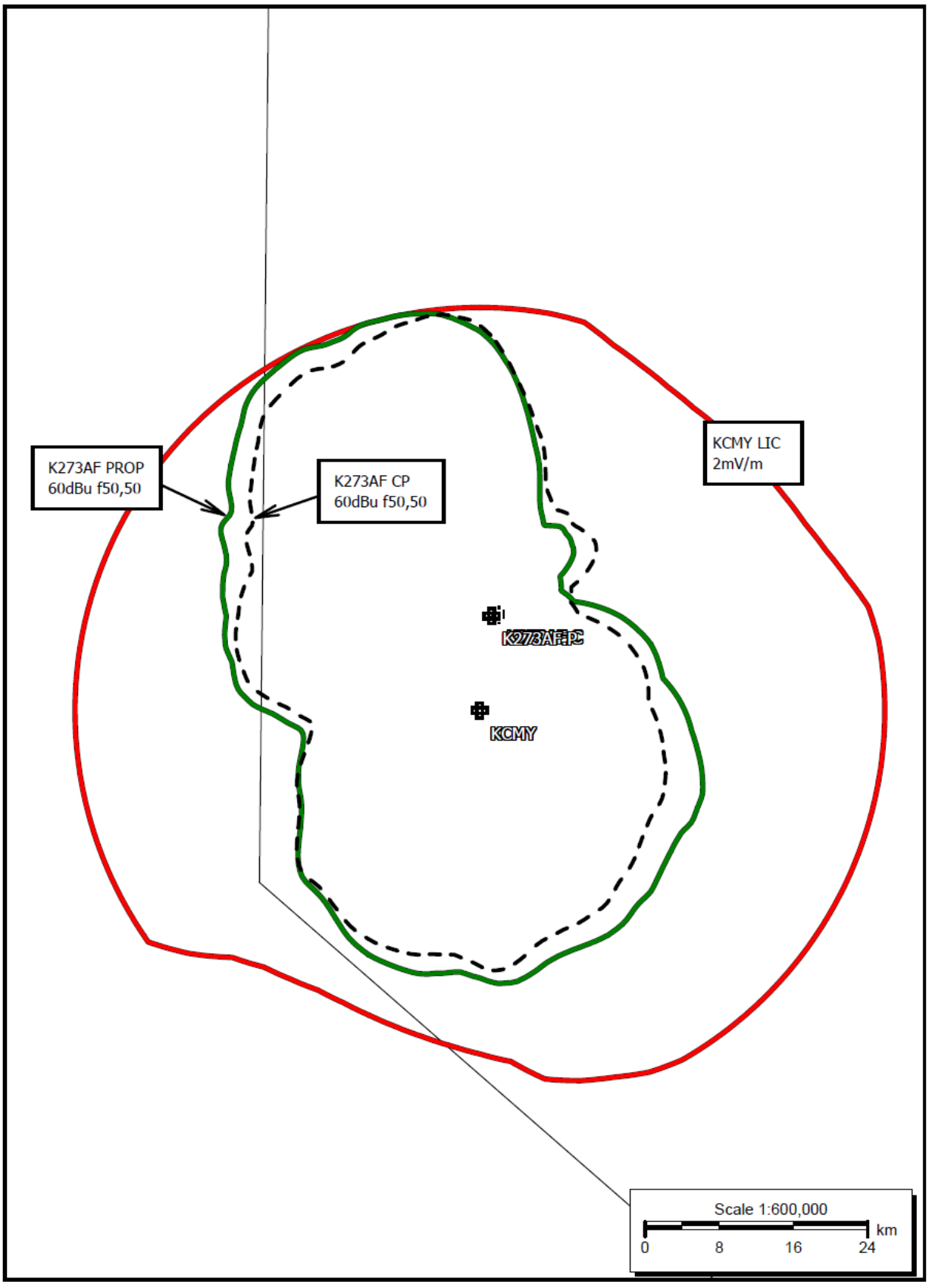


Exhibit C- 74.1204a Compliance

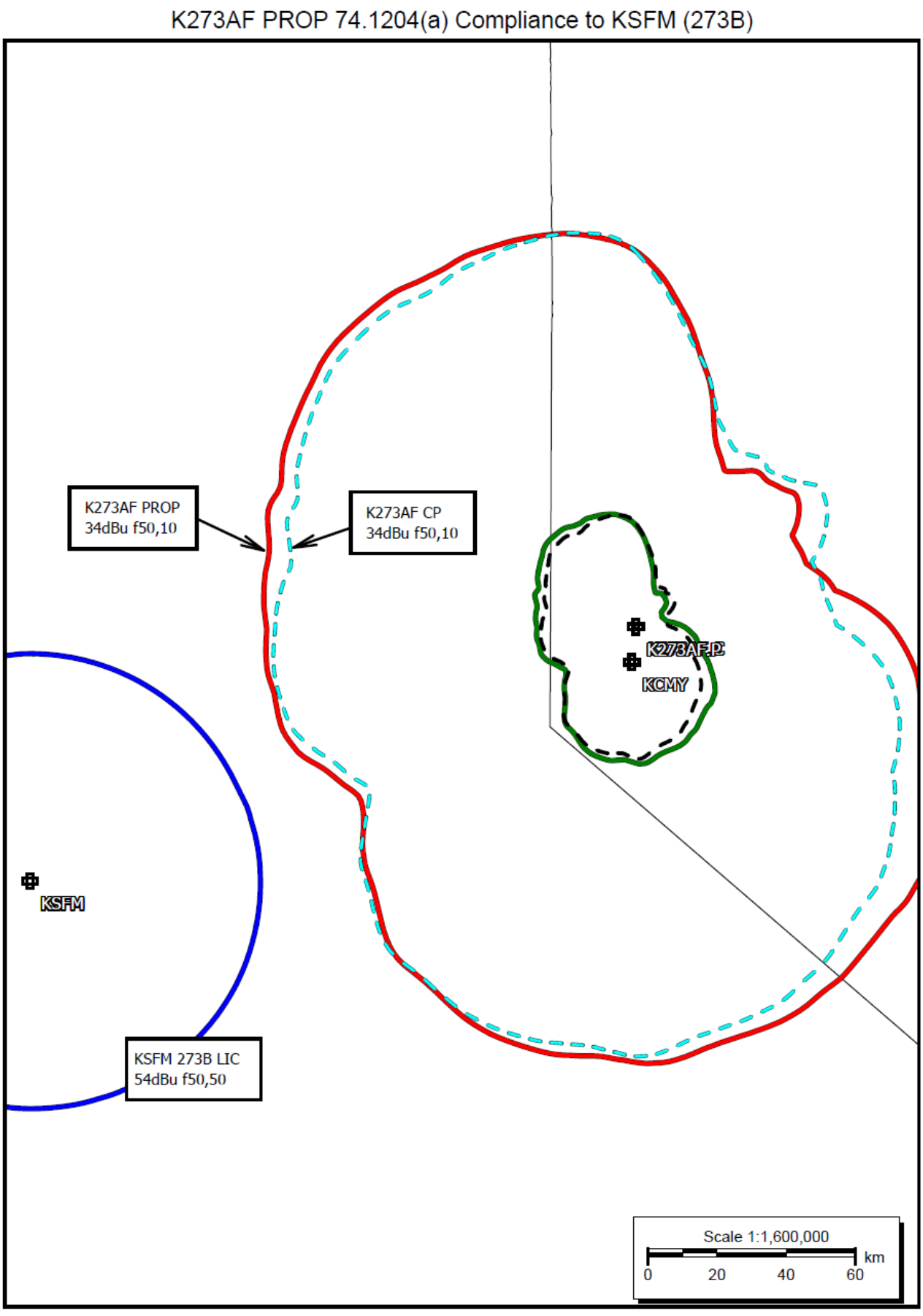


Exhibit D- 74.1204(d) Analysis KRNV- 271

K273AF Carson City, NV, Showing Protection to KRNV-FM, Channel: 271
Geographic Coordinates: N. 391528.6 W. 1194240.4
74.1204(d) Study - Using NED 03 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.25 kW, Channel: 273
Translator or LPFM Antenna Height AG = 44 meters
K273AF Antenna Model = CA2-FM-CP-RM_0098-MHZ_CPOL_000DT

Protected Station's Contour = 68.74269 dBu
Translator's or LPFM's full Interference contour 108.74269

Review Azimuth = 330 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.25 kW
Distance between stations = 37.0 km
Protected Station= KRNV-FM, 11 kW, 1708 M meters COR AMSL

Depression Angle From Degree(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)
00.00	1.0	1.0	0.2500	405.3550	405.3550	044.000
01.00	0.997	1.0	0.2483	403.9362	403.8747	036.950
02.00	0.993	1.0	0.2465	402.4770	402.2318	029.954
03.00	0.989	1.0	0.2447	401.0582	400.5086	023.010
04.00	0.986	1.0	0.2430	399.6395	398.6660	016.123
05.00	0.982	1.0	0.2412	398.1802	396.6650	009.296
06.00	0.976	1.0	0.2383	395.7481	393.5801	002.633
07.00	0.97	1.0	0.2354	393.3159	390.3842	-003.933
08.00	0.964	1.0	0.2325	390.8838	387.0797	-010.401
09.00	0.958	1.0	0.2296	388.4517	383.6692	-016.767
10.00	0.952	1.0	0.2267	386.0195	380.1550	-023.032
11.00	0.945	1.0	0.2232	382.9794	375.9430	-029.076
12.00	0.937	1.0	0.2196	379.9392	371.6366	-034.994
13.00	0.93	1.0	0.2161	376.8585	367.1997	-040.775
14.00	0.922	1.0	0.2126	373.8184	362.7144	-046.435
15.00	0.915	1.0	0.2092	370.7782	358.1442	-051.964
16.00	0.905	1.0	0.2047	366.8057	352.5963	-057.105
17.00	0.895	1.0	0.2003	362.8738	347.0179	-062.094
18.00	0.886	1.0	0.1960	358.9418	341.3740	-066.919
19.00	0.876	1.0	0.1917	354.9693	335.6301	-071.567
20.00	0.866	1.0	0.1875	351.0374	329.8673	-076.062
21.00	0.852	1.0	0.1815	345.3624	322.4236	-079.767
22.00	0.838	1.0	0.1756	339.6875	314.9527	-083.249
23.00	0.824	1.0	0.1697	334.0125	307.4601	-086.509
24.00	0.81	1.0	0.1640	328.3375	299.9513	-089.547
25.00	0.796	1.0	0.1584	322.6626	292.4316	-092.363
26.00	0.781	1.0	0.1523	316.3796	284.3601	-094.692
27.00	0.765	1.0	0.1463	310.0560	276.2619	-096.762
28.00	0.749	1.0	0.1404	303.7730	268.2157	-098.613
29.00	0.734	1.0	0.1347	297.4900	260.1906	-100.226
30.00	0.718	1.0	0.1290	291.1665	252.1576	-101.583
31.00	0.7	1.0	0.1226	283.8701	243.3241	-102.204
32.00	0.682	1.0	0.1164	276.5737	234.5478	-102.562
33.00	0.664	1.0	0.1103	269.2773	225.8350	-102.659
34.00	0.646	1.0	0.1044	261.9809	217.1920	-102.498
35.00	0.628	1.0	0.0987	254.6845	208.6254	-102.081
36.00	0.608	1.0	0.0925	246.5774	199.4853	-100.935
37.00	0.588	1.0	0.0865	238.4703	190.4509	-099.515
38.00	0.568	1.0	0.0807	230.3632	181.5287	-097.826
39.00	0.548	1.0	0.0752	222.2561	172.7255	-095.870
40.00	0.528	1.0	0.0698	214.1490	164.0477	-093.652
41.00	0.507	1.0	0.0643	205.6366	155.1959	-090.910
42.00	0.486	1.0	0.0591	197.1241	146.4918	-087.902
43.00	0.465	1.0	0.0541	188.6117	137.9418	-084.633
44.00	0.444	1.0	0.0494	180.0992	129.5525	-081.107
45.00	0.423	1.0	0.0448	171.5868	121.3302	-077.330
46.00	0.405	1.0	0.0409	163.9661	113.9004	-073.947
47.00	0.386	1.0	0.0372	156.3454	106.6273	-070.344
48.00	0.367	1.0	0.0337	148.7247	099.5163	-066.524
49.00	0.348	1.0	0.0303	141.1041	092.5726	-062.493
50.00	0.329	1.0	0.0271	133.4834	085.8015	-058.254

51.00	0.313	1.0	0.0245	126.7950	079.7947	-054.538
52.00	0.296	1.0	0.0219	120.1067	073.9451	-050.645
53.00	0.28	1.0	0.0196	113.3778	068.2325	-046.548
54.00	0.263	1.0	0.0173	106.6894	062.7105	-042.314
55.00	0.247	1.0	0.0152	100.0011	057.3583	-037.916
56.00	0.235	1.0	0.0138	095.3800	053.3358	-035.074
57.00	0.224	1.0	0.0125	090.7995	049.4530	-032.151
58.00	0.213	1.0	0.0113	086.2190	045.6891	-029.118
59.00	0.201	1.0	0.0101	081.5980	042.0261	-025.943
60.00	0.19	1.0	0.0090	077.0174	038.5087	-022.699
61.00	0.18	1.0	0.0081	073.0855	035.4326	-019.922
62.00	0.171	1.0	0.0073	069.1941	032.4847	-017.095
63.00	0.161	1.0	0.0065	065.2621	029.6284	-014.149
64.00	0.151	1.0	0.0057	061.3302	026.8854	-011.123
65.00	0.142	1.0	0.0050	057.4388	024.2747	-008.057
66.00	0.14	1.0	0.0049	056.7902	023.0987	-007.880
67.00	0.139	1.0	0.0048	056.1822	021.9521	-007.716
68.00	0.137	1.0	0.0047	055.5742	020.8184	-007.527
69.00	0.136	1.0	0.0046	054.9256	019.6836	-007.277
70.00	0.134	1.0	0.0045	054.3176	018.5777	-007.042
71.00	0.134	1.0	0.0045	054.3986	017.7105	-007.435
72.00	0.134	1.0	0.0045	054.4797	016.8352	-007.813
73.00	0.135	1.0	0.0045	054.5608	015.9520	-008.177
74.00	0.135	1.0	0.0045	054.6419	015.0613	-008.525
75.00	0.135	1.0	0.0046	054.7229	014.1633	-008.858
76.00	0.136	1.0	0.0046	055.2499	013.3662	-009.609
77.00	0.138	1.0	0.0047	055.8174	012.5562	-010.387
78.00	0.139	1.0	0.0048	056.3443	011.7146	-011.113
79.00	0.14	1.0	0.0049	056.8713	010.8516	-011.826
80.00	0.142	1.0	0.0050	057.4388	009.9741	-012.566
81.00	0.143	1.0	0.0051	058.0874	009.0869	-013.372
82.00	0.145	1.0	0.0053	058.7765	008.1801	-014.204
83.00	0.147	1.0	0.0054	059.4656	007.2470	-015.022
84.00	0.148	1.0	0.0055	060.1141	006.2836	-015.785
85.00	0.15	1.0	0.0056	060.8032	005.2994	-016.572
86.00	0.152	1.0	0.0057	061.4113	004.2838	-017.262
87.00	0.153	1.0	0.0058	061.9788	003.2437	-017.894
88.00	0.154	1.0	0.0060	062.5868	002.1842	-018.549
89.00	0.156	1.0	0.0061	063.1948	001.1029	-019.185
90.00	0.157	1.0	0.0062	063.7623	000.0000	-019.762

74.1204(d) Analysis KWYL (FM) 275

K273AF Carson City, NV, Showing Protection to KWYL, Channel: 275
Geographic Coordinates: N. 391528.6 W. 1194240.4
74.1204(d) Study - Using NED 03 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.25 kW, Channel: 273
Translator or LPFM Antenna Height AG = 44 meters
K273AF Antenna Model = CA2-FM-CP-RM_0098-MHZ_CPOL_000DT

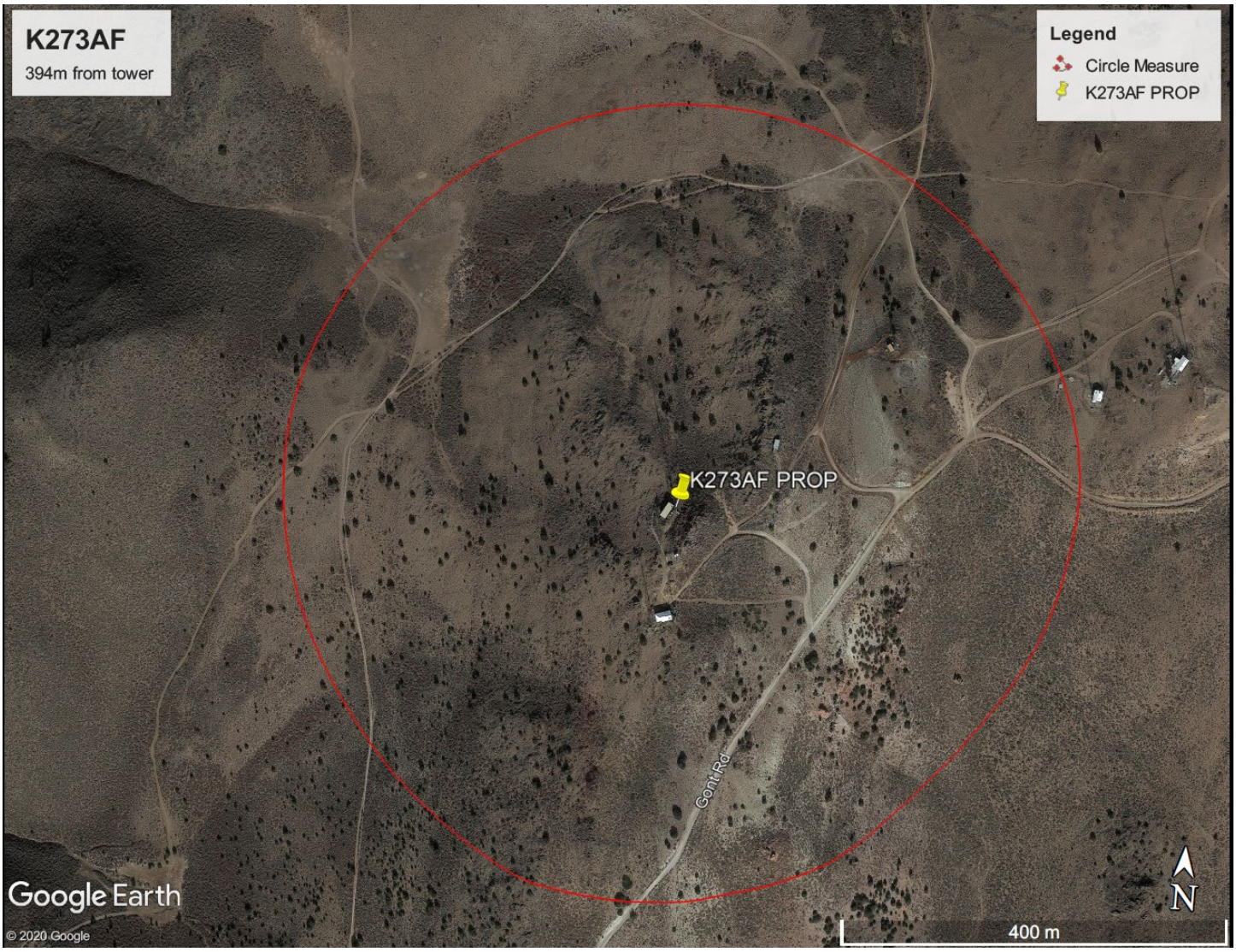
Protected Station's Contour = 97.45701 dBu
Translator's or LPFM's full Interference contour 137.45701

Review Azimuth = 330 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.25 kW
Distance between stations = 15.9 km
Protected Station= KWYL, 39 kW, 2969 M meters COR AMSL

Depression Angle From Degree(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)
00.00	1.0	1.0	0.2500	014.8634	014.8634	044.000
05.00	0.982	1.0	0.2412	014.6004	014.5448	042.727
10.00	0.952	1.0	0.2267	014.1545	013.9394	041.542
15.00	0.915	1.0	0.2092	013.5956	013.1323	040.481
20.00	0.866	1.0	0.1875	012.8717	012.0955	039.598
25.00	0.796	1.0	0.1584	011.8313	010.7228	039.000
30.00	0.718	1.0	0.1290	010.6764	009.2460	038.662
35.00	0.628	1.0	0.0987	009.3387	007.6498	038.644
40.00	0.528	1.0	0.0698	007.8524	006.0153	038.953
45.00	0.423	1.0	0.0448	006.2917	004.4489	039.551
50.00	0.329	1.0	0.0271	004.8945	003.1461	040.251
55.00	0.247	1.0	0.0152	003.6668	002.1032	040.996
60.00	0.19	1.0	0.0090	002.8241	001.4120	041.554
65.00	0.142	1.0	0.0050	002.1062	000.8901	042.091
70.00	0.134	1.0	0.0045	001.9917	000.6812	042.128
75.00	0.135	1.0	0.0046	002.0066	000.5193	042.062
80.00	0.142	1.0	0.0050	002.1062	000.3657	041.926
85.00	0.15	1.0	0.0056	002.2295	000.1943	041.779
90.00	0.157	1.0	0.0062	002.3380	000.0000	041.662

NO INTERFERENCE TO KWYL(FM) 275C AT GROUND LEVEL

Exhibit D (Cont'd) 74.1204(d) – No Residences within interfering contour to KRNV. KWYL will be considerably less restrictive.



TOWAIR Determination Results

A routine check of the coordinates, heights, and structure type you provided indicates that this structure does not require registration.

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

PASS SLOPE(100:1): NO FAA REQ-RWY MORE THAN 10499 MTRS & 7524.90 MTRS (7.52489 KM) AWAY

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	39-11-39.00N	119-44-35.00W	CARSON	CARSON CITY CARSON CITY, NV	1431.2	1859.5999999999999

Your Specifications

NAD83 Coordinates	
Latitude	39-15-28.6 north
Longitude	119-42-40.4 west
Measurements (Meters)	
Overall Structure Height (AGL)	57
Support Structure Height (AGL)	0
Site Elevation (AMSL)	2263
Structure Type	
LTOWER - Lattice Tower	

Tower Construction Notifications
Notify Tribes and Historic Preservation Officers of your plans to build a tower.