Educational Media Foundation
5700 West Oaks Boulevard
Rocklin, CA 95765

Exhibit 13
St Paul, MN

Channel Study

REFERENCE — CH# 225D - 92.9 MHz, Pwr= 0.099 kW, HAAT= 235.8 M, COR= 504 M — DISPLAY DATES
44 58 36.0 N. — Average Protected F(50-50)= 15.8 km — DATA 06-20-17
93 16 15.0 W. — Omni-directional — SEARCH 06-22-17

CH CALL / CITY	TYPE ANT / STATE	AZI. <--	DIST / FILE #	LAT. / LNG.	Pwr(kW) / HAAT(M)	INT(km) / COR(M)	PRO(km) / LICENSEE	*IN* (Overlap in km)	*OUT*
225D W225AP!	LIC C	0.0	0.00	44 58 36.0	0.099	52.1	15.9	-68.0	-68.0
St. Paul	MN	0.0	BLFT20150212AAA	93 16 15.0	236	504	Educational Media Foundati		
223C KQRS-FM	LIC CN	51.7	14.69	45 03 30.0	100.000	10.4	73.7	-10.9*<	-59.7*<
Golden Valley	MN	231.8	BLH19910814KB	93 07 27.0	315	593	Radio License Holdings Llc		
225D W225AP!	CP C	97.5	15.56	44 57 30.0	0.250	23.8	7.1	-24.1	-43.4
St. Paul	MN	277.6	BPFT20170223ABF	93 04 31.0		287	Educational Media Foundati		
225C3 KKJM	LIC CN	310.9	113.50	45 38 19.0	25.000	116.9	41.8	-18.9*<	20.7
St. Joseph	MN	130.1	BLH19960510KA	94 22 23.0	100	448	Gabriel Media		
227D W227BF	LIC V	240.6	0.12	44 58 34.0	0.099	0.7	15.2	-15.8*<	-15.8*<
Shoreview	MN	60.6	BLFT20130412ABJ	93 16 20.0	236	504	Educational Media Foundati		
227D W227BF	CP V	240.6	0.12	44 58 34.0	0.065	0.6	13.7	-15.7*<	-14.3*<
Shoreview	MN	60.6	BPFT20170223AAV	93 16 20.0		504	Educational Media Foundati		
226C1 KATO-FM	LIC CX	218.0	119.05	44 07 46.0	100.000	88.0	58.4	15.5	37.1
New Ulm	MN	37.3	BMLH20140612ACV	94 11 17.0	149	440	Minnesota Valley Broadcast		
225A KFSI	LIC CN	151.2	120.62	44 01 27.0	6.000	85.1	27.1	18.9	39.9
Rochester	MN	331.7	BLED19810507AJ	92 32 36.0	97	443	Faith Sound, Inc.		
225A WECL	LIC CN	93.8	133.52	44 53 04.0	3.300	83.1	28.1	34.6	53.6
Elk Mound	WI	275.0	BLH19920720KI	91 35 04.0	136	424	Mid-west Management, Inc.		
225A WECL	RSV-A	95.0	143.16	44 51 00.0	6.000	87.4	28.9	39.9	62.4
Lake Hallie	WI	276.3		91 28 00.0	100	379	Mid-west Management, Inc.		
225C1 WSCD-FM	LIC C	23.5	220.41	46 47 20.0	70.000	163.6	69.2	41.5	100.8
Duluth	MN	204.3	BMLED19940823KA	92 07 04.0	185	492	Minnesota Public Radio		
225A WECL	APP NCX	95.8	144.99	44 49 47.0	5.800	86.5	28.3	42.6	64.7
Lake Hallie	WI	277.1	BPH20170303ABG	91 26 48.0	92	372	Mid-west Management, Inc.		
226L1 WPCA-LP	LIC	62.2	82.35	45 19 02.0	0.050			56.9	52.2
Amery	WI	242.9	BLL20120523AAS	92 20 27.0	42	382	Dream Center, Inc.		

Terrain database is USGS 03 SEC, R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM
Contour distances are on direct line to and from reference station. Reference Zone= West Zone, Co to 3rd adjacent.
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.
< = Contour Overlap

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Exhibit 13-A
St Paul, MN

Compliance with C.F.R. 74.1204

The proposed FM Translator to operate on channel 225 is located within the protected 60dBu contour of second adjacent channel translator station W227BF, channel 227D, Minneapolis, MN. According to 74.1204(a)(3), in order to protect second and third adjacent facilities, the difference in dBu between the two facilities must not exceed 40dBu.

The proposed ERP for W225AP.P:	99 watts
The proposed COR for W225AP.P:	245 meters
W227BF F(50/50) contour at proposed site:	114.9dBu
The F(50/10) contour of proposed W225AP.P:	154.9dBu

The predicted distance to the 154.9dbu interfering contour is 1.26 meters. Taking into account the vertical elevation pattern of the Nicom BKG77 single bay circularly polarized antenna and the height above ground of 245m, it has been determined that the interfering contour of 154.9dbu does not reach the ground. As seen in Exhibit 13-A1, the lowest elevation for this interfering contour is 244.4m above ground at a distance of less than 1m from the antenna.

As can be seen in Exhibit 13–A2 there are no surrounding structures which are tall enough to enter the interfering contour within the 1.26m distance from the antenna. Taking into consideration the building underneath this rooftop antenna also provides ample distance to protect the potentially occupied floors since the lowest height above ground for the interfering contour is only .6m below the center of radiation of the antenna.

Therefore, EMF respectfully requests a waiver of C.F.R. 74.1204 based on no population within the area of predicted interference.

EXHIBIT 11 - C1
74.1204(d) Showing
W225AP
St Paul, MN

ERP (kw): 0.099
Height of Antenna Above Ground (m): 245
Translator's IX Contour: 154.9
Antenna Type: Nic BKG77-1

Depression Angle from Horizon	Antenna Relative Field	ERP (kw) from the Antenna RF	Dist. To IX Contour (m)	Height IX Contour Above Ground (m)
0	1.000	0.0990	1.2555	245.000
5	0.999	0.0988	1.2542	244.891
10	0.982	0.0955	1.2329	244.786
15	0.954	0.0901	1.1977	244.690
20	0.918	0.0834	1.1526	244.606
25	0.872	0.0753	1.0948	244.537
30	0.818	0.0662	1.0264	244.487
35	0.758	0.0569	0.9517	244.454
40	0.691	0.0473	0.8676	244.442
45	0.616	0.0376	0.7734	244.453
50	0.538	0.0287	0.6755	244.483
55	0.465	0.0214	0.5838	244.522
60	0.391	0.0151	0.4909	244.575
65	0.313	0.0097	0.3930	244.644
70	0.239	0.0057	0.3001	244.718
75	0.176	0.0031	0.2210	244.787
80	0.129	0.0016	0.1620	244.841
85	0.103	0.0011	0.1293	244.871
90	0.104	0.0011	0.1306	244.869

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Exhibit 13-A
St Paul, MN

Compliance with C.F.R. 74.1204

The proposed FM Translator to operate on channel 225 is located within the protected 60dBu contour of second adjacent channel station KQRS, channel 223C, Golden Valley, MN. According to 74.1204(a)(3), in order to protect second and third adjacent facilities, the difference in dBu between the two facilities must not exceed 40dBu.

The proposed ERP for W225AP.P:	99 watts
The proposed COR for W225AP.P:	245 meters
KQRS F(50/50) contour at proposed site:	93.9dBu
The F(50/10) contour of proposed W225AP.P:	133.9dBu

The predicted distance to the 133.9dbu interfering contour is 14.1 meters. Taking into account the vertical elevation pattern of the Nicom BKG77 single bay circularly polarized antenna and the height above ground of 245m, it has been determined that the interfering contour of 133.9dbu does not reach the ground. As seen in Exhibit 13-A1, the lowest elevation for this interfering contour is 238.7m above ground at a distance of 9.7m from the antenna.

As can be seen in Exhibit 13–A2 there are no surrounding structures which are tall enough to enter the interfering contour within the 14.1m distance from the antenna. Taking into consideration the building underneath this rooftop antenna also provides ample distance to protect the potentially occupied floors since the lowest height above ground for the interfering contour is only 6.3m below the center of radiation of the antenna.

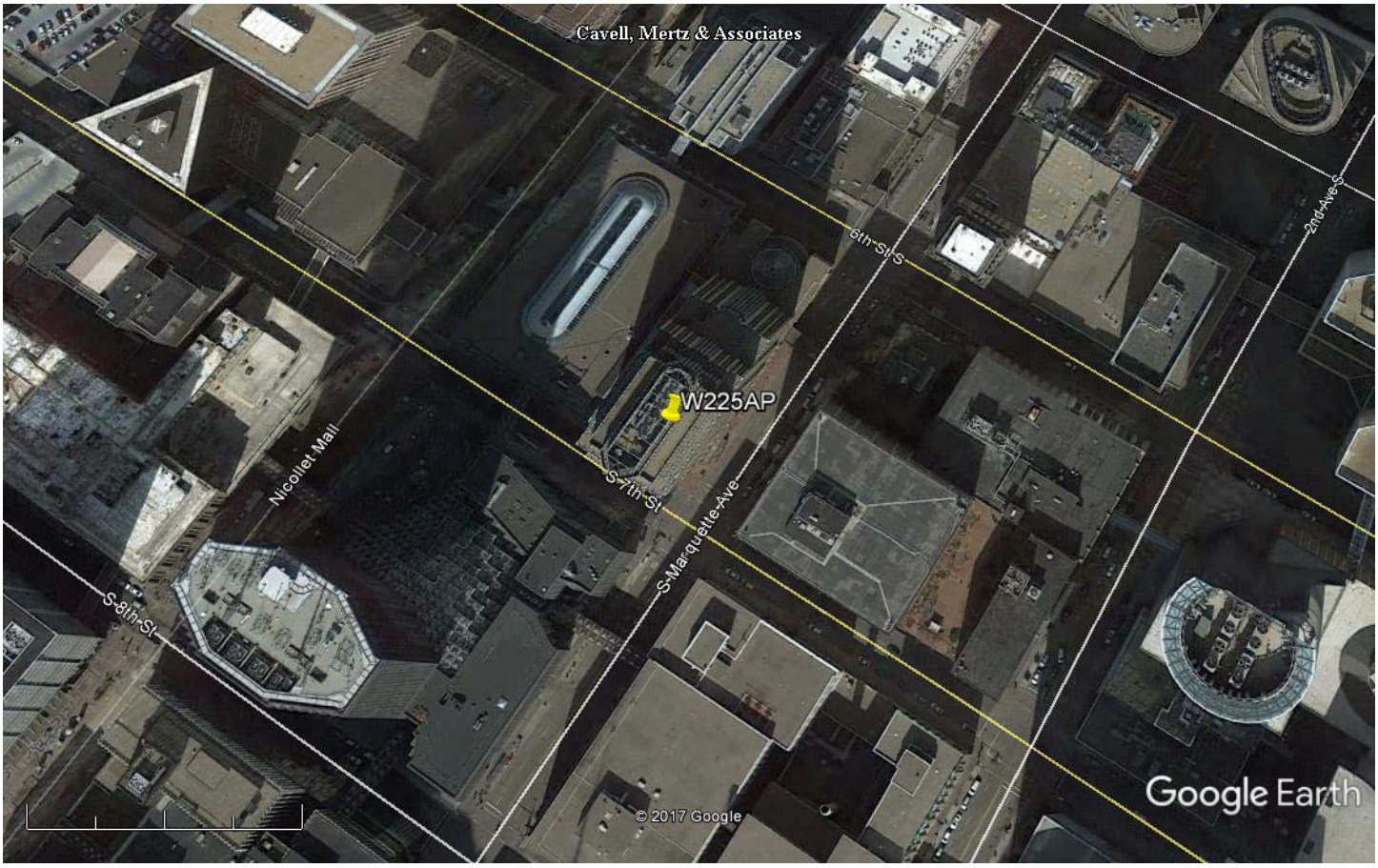
Therefore, EMF respectfully requests a waiver of C.F.R. 74.1204 based on no population within the area of predicted interference.

EXHIBIT 11 - C1
74.1204(d) Showing
W225AP
St Paul, MN

ERP (kw): 0.099
Height of Antenna Above Ground (m): 245
Translator's IX Contour: 133.9
Antenna Type: Nic BKG77-1

Depression Angle from Horizon	Antenna Relative Field	ERP (kw) from the Antenna RF	Dist. To IX Contour (m)	Height IX Contour Above Ground (m)
0	1.000	0.0990	14.0870	245.000
5	0.999	0.0988	14.0729	243.773
10	0.982	0.0955	13.8334	242.598
15	0.954	0.0901	13.4390	241.522
20	0.918	0.0834	12.9318	240.577
25	0.872	0.0753	12.2838	239.809
30	0.818	0.0662	11.5161	239.242
35	0.758	0.0569	10.6779	238.875
40	0.691	0.0473	9.7341	238.743
45	0.616	0.0376	8.6776	238.864
50	0.538	0.0287	7.5788	239.194
55	0.465	0.0214	6.5504	239.634
60	0.391	0.0151	5.5080	240.230
65	0.313	0.0097	4.4092	241.004
70	0.239	0.0057	3.3668	241.836
75	0.176	0.0031	2.4793	242.605
80	0.129	0.0016	1.8172	243.210
85	0.103	0.0011	1.4510	243.555
90	0.104	0.0011	1.4650	243.535

Exhibit 13-A2



Google Earth

feet 700
meters 200

Yellow Pin Marker

NAD 27

44-58-36.0 N 93-16-15.0 W