

# 14th Channel Waiver

According to the new FCC rule 74.705 (d)(5)

Subpart G--Low Power TV, TV Translator, and TV Booster Stations

Sec. 74.705 TV broadcast analog station protection.

(d) A low power TV, TV translator, or TV booster station application will not be accepted if the ratio in dB of its field strength to that of the TV broadcast station at the protected contour fails to meet the following:

(5) 23 dB when the protected TV broadcast station operates on a UHF channel that is fourteen channels below the requested channel.

Please find attached a study which shows the proposed signal does not exceed a ratio of desired to undesired that exceeds the required +23 db within the TV broadcast stations protected contour, therefore, the station complies with the FCC rule and does not cause harmful interference to KDEN, Channel 25.

At points where HAAT are less than 30.5, 30.5 was used per FCC rule 73.684. For close in calculations (1.5 – 5 Km), the Center of Radiation Above Ground is used unless the HAAT is higher for increased accuracy.

Contour At A Bearing of 000 Degrees From Proposed Station

KDEN -TV Distance-Km	45.31	44.81	43.81	42.82	41.82	36.83	31.84
Bearing-Deg	176.94	176.90	176.83	176.76	176.68	176.23	175.64
ERP-dBk	36.51	36.51	36.50	36.50	36.49	36.46	36.41
HAAT-m	293.46	293.52	293.63	293.75	293.88	294.60	295.56
Field Strength	85.87	86.17	86.79	87.42	88.07	91.56	95.46
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	6.07	4.56	3.04	2.28	1.83	.91	.61
ERP-dBk	-7.95	-2.24	.47	6.88	8.99	11.00	11.00
HAAT-m	159.54	159.54	159.54	159.54	159.54	159.54	159.54
Field Strength	94.19	96.20	93.71	96.09	94.97	85.59	78.60
Difference	8.32	10.03	6.92	8.67	6.90	-5.97	-16.86

Contour At A Bearing of 030 Degrees From Proposed Station

KDEN -TV Distance-Km	45.56	45.15	44.32	43.51	42.70	38.81	35.19
Bearing-Deg	176.00	175.65	174.92	174.16	173.37	168.96	163.60
ERP-dBk	36.44	36.42	36.36	36.30	36.24	35.87	35.28
HAAT-m	294.97	295.55	296.74	297.97	299.25	306.05	312.87
Field Strength	85.70	85.95	86.44	86.93	87.43	89.89	92.18
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	5.16	3.88	2.59	1.94	1.55	.78	.52
ERP-dBk	-3.21	-.70	5.16	9.10	10.14	11.43	11.43
HAAT-m	135.51	135.51	135.51	135.51	135.51	135.51	135.51
Field Strength	98.66	97.27	97.64	97.35	94.99	84.59	77.58
Difference	12.96	11.32	11.20	10.42	7.56	-5.30	-14.60

Contour At A Bearing of 060 Degrees From Proposed Station

KDEN -TV Distance-Km	46.15	45.94	45.53	45.13	44.76	43.20	42.18
Bearing-Deg	175.37	174.80	173.66	172.49	171.31	165.10	158.52
ERP-dBk	36.39	36.35	36.27	36.18	36.08	35.45	34.63
HAAT-m	296.00	296.92	298.78	300.67	302.60	310.95	318.92
Field Strength	85.34	85.45	85.67	85.89	86.08	86.71	86.80
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	3.90	2.93	1.95	1.46	1.17	.59	.39
ERP-dBk	.88	3.52	10.70	11.99	12.68	13.06	13.06
HAAT-m	102.19	102.19	102.19	102.19	102.19	102.19	102.19
Field Strength	101.92	100.30	101.47	98.25	95.35	83.77	76.75
Difference	16.58	14.85	15.80	12.36	9.27	-2.94	-10.05

Contour At A Bearing of 090 Degrees From Proposed Station

KDEN -TV Distance-Km	46.91	46.96	47.06	47.19	47.34	48.38	49.90
Bearing-Deg	175.20	174.59	173.37	172.16	170.96	165.08	159.51
ERP-dBk	36.38	36.34	36.24	36.15	36.06	35.45	34.77
HAAT-m	296.28	297.27	299.25	301.21	303.16	310.98	317.94
Field Strength	84.88	84.84	84.76	84.66	84.54	83.60	82.02
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	3.55	2.66	1.78	1.33	1.07	.36	.24
ERP-dBk	3.16	7.72	12.75	13.87	14.48	14.62	14.62
HAAT-m	93.00	93.00	93.00	93.00	93.00	62.47	62.47
Field Strength	103.84	104.02	102.87	99.40	96.37	81.08	74.05
Difference	18.96	19.18	18.11	14.74	11.83	-2.52	-7.97

Contour At A Bearing of 120 Degrees From Proposed Station

KDEN -TV Distance-Km	47.64	47.93	48.51	49.10	49.71	52.93	56.41
Bearing-Deg	175.51	175.02	174.05	173.10	172.18	167.88	164.09
ERP-dBk	36.41	36.37	36.30	36.22	36.15	35.76	35.34
HAAT-m	295.77	296.57	298.15	299.69	301.19	307.42	312.24
Field Strength	84.46	84.29	83.89	83.42	82.94	80.44	77.85
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	3.55	2.66	1.78	1.33	1.07	.18	.12
ERP-dBk	3.97	8.54	13.57	14.69	15.30	15.44	15.44
HAAT-m	93.00	93.00	93.00	93.00	93.00	30.50	30.50
Field Strength	104.66	104.84	103.69	100.22	97.19	75.95	68.98
Difference	20.20	20.55	19.80	16.80	14.25	-4.49	-8.87

Contour At A Bearing of 150 Degrees From Proposed Station

KDEN -TV Distance-Km	48.15	48.60	49.50	50.41	51.31	55.90	60.56
Bearing-Deg	176.22	175.96	175.45	174.96	174.48	172.35	170.54
ERP-dBk	36.46	36.44	36.40	36.36	36.33	36.17	36.02
HAAT-m	294.62	295.05	295.87	296.67	297.44	300.91	303.84
Field Strength	84.18	83.86	83.16	82.47	81.80	78.56	75.55
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	3.55	2.66	1.78	1.33	1.07	.32	.21
ERP-dBk	3.80	8.36	13.39	14.51	15.12	15.27	15.27
HAAT-m	93.00	93.00	93.00	93.00	93.00	55.50	55.50
Field Strength	104.48	104.67	103.52	100.04	97.02	80.67	73.65
Difference	20.30	20.81	20.36	17.57	15.22	2.11	-1.90

Contour At A Bearing of 180 Degrees From Proposed Station

KDEN -TV Distance-Km	48.31	48.81	49.81	50.80	51.80	56.80	61.79
Bearing-Deg	177.13	177.15	177.21	177.27	177.32	177.55	177.75
ERP-dBk	36.52	36.53	36.53	36.53	36.54	36.55	36.57
HAAT-m	293.15	293.11	293.01	292.92	292.84	292.46	292.14
Field Strength	84.10	83.72	82.96	82.21	81.48	78.03	74.87
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	3.55	2.66	1.78	1.33	1.07	.18	.12
ERP-dBk	2.77	7.33	12.36	13.48	14.09	14.23	14.23
HAAT-m	93.00	93.00	93.00	93.00	93.00	30.50	30.50
Field Strength	103.45	103.63	102.48	99.01	95.98	74.74	67.77
Difference	19.35	19.91	19.52	16.80	14.50	-3.29	-7.10

Contour At A Bearing of 210 Degrees From Proposed Station

KDEN -TV Distance-Km	48.08	48.50	49.35	50.21	51.08	55.47	59.95
Bearing-Deg	178.01	178.32	178.93	179.52	180.10	182.68	184.88
ERP-dBk	36.59	36.61	36.65	36.69	36.73	36.77	36.81
HAAT-m	291.72	291.21	290.22	289.26	288.48	288.21	287.99
Field Strength	84.25	83.97	83.32	82.68	82.04	78.97	76.08
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	3.55	2.66	1.78	1.33	1.07	.39	.26
ERP-dBk	1.00	5.57	10.59	11.71	12.32	12.47	12.47
HAAT-m	93.00	93.00	93.00	93.00	93.00	68.28	68.28
Field Strength	101.68	101.87	100.72	97.24	94.22	79.69	72.66
Difference	17.43	17.90	17.40	14.56	12.18	.72	-3.42

Contour At A Bearing of 240 Degrees From Proposed Station

KDEN -TV Distance-Km	47.51	47.75	48.25	48.76	49.28	52.12	55.27
Bearing-Deg	178.65	179.18	180.22	181.24	182.23	186.91	191.07
ERP-dBk	36.63	36.67	36.73	36.75	36.77	36.85	36.88
HAAT-m	290.68	289.82	288.46	288.36	288.26	287.78	287.89
Field Strength	84.59	84.45	84.18	83.81	83.42	81.37	79.20
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	4.56	3.42	2.28	1.71	1.37	.69	.46
ERP-dBk	-2.09	-.07	7.04	9.44	10.30	11.15	11.15
HAAT-m	119.53	119.53	119.53	119.53	119.53	119.53	119.53
Field Strength	99.52	97.49	98.89	96.92	94.28	83.22	76.19
Difference	14.93	13.04	14.71	13.11	10.86	1.85	-3.01

Contour At A Bearing of 270 Degrees From Proposed Station

KDEN -TV Distance-Km	46.76	46.75	46.75	46.77	46.82	47.36	48.42
Bearing-Deg	178.88	179.49	180.72	181.95	183.18	189.24	195.11
ERP-dBk	36.65	36.69	36.74	36.76	36.78	36.89	36.81
HAAT-m	290.31	289.31	288.41	288.29	288.16	287.54	289.52
Field Strength	85.03	85.04	85.06	85.06	85.05	84.82	84.17
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	5.39	4.05	2.70	2.03	1.62	.81	.54
ERP-dBk	-4.36	-1.18	4.05	8.65	9.82	11.29	11.29
HAAT-m	141.49	141.49	141.49	141.49	141.49	141.49	141.49
Field Strength	97.58	96.92	96.73	97.16	94.98	84.83	77.82
Difference	12.55	11.88	11.67	12.10	9.93	.01	-6.35

Contour At A Bearing of 300 Degrees From Proposed Station

KDEN -TV Distance-Km	46.01	45.75	45.25	44.76	44.29	42.22	40.66
Bearing-Deg	178.61	179.14	180.23	181.35	182.49	188.53	195.12
ERP-dBk	36.63	36.67	36.73	36.75	36.77	36.88	36.81
HAAT-m	290.75	289.88	288.46	288.35	288.23	287.61	289.52
Field Strength	85.47	85.63	85.95	86.27	86.58	87.99	89.03
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	6.15	4.62	3.08	2.31	1.85	.93	.62
ERP-dBk	-6.75	-1.38	1.36	7.65	9.88	11.96	11.96
HAAT-m	161.63	161.63	161.63	161.63	161.63	161.63	161.63
Field Strength	95.41	97.10	94.65	96.93	95.95	86.66	79.68
Difference	9.94	11.47	8.70	10.66	9.37	-1.33	-9.35

Contour At A Bearing of 330 Degrees From Proposed Station

KDEN -TV Distance-Km	45.48	45.04	44.16	43.29	42.42	38.18	34.14
Bearing-Deg	177.90	178.19	178.81	179.45	180.12	183.89	188.59
ERP-dBk	36.58	36.60	36.64	36.69	36.73	36.80	36.88
HAAT-m	291.90	291.42	290.42	289.38	288.47	288.09	287.61
Field Strength	85.78	86.05	86.61	87.17	87.74	90.70	93.86
Proposed Distance-Km	1.50	2.00	3.00	4.00	5.00	10.00	15.00
Tilt (Deg)	6.25	4.69	3.13	2.35	1.88	.94	.63
ERP-dBk	-6.59	-1.63	1.14	7.28	9.67	11.83	11.83
HAAT-m	164.24	164.24	164.24	164.24	164.24	164.24	164.24
Field Strength	95.60	96.90	94.51	96.65	95.84	86.67	79.69
Difference	9.82	10.85	7.90	9.48	8.10	-4.03	-14.17