

EXHIBIT 13-3
FREE SPACE SIGNAL LEVEL

Computation of Signal Level
2 METERS AGL
from Proposed WVCH(AM) Translator CH 277
Chester, Pennsylvania

November, 2017

Depression Angle, Degrees	Relative Field	ERP Watts	dBk	Distance to the Ground in Kilometers	Free Space Signal
90	0.100	2.5000	-26.0	0.1300	98.6
85	0.100	2.5000	-26.0	0.1305	98.6
80	0.100	2.5000	-26.0	0.1320	98.5
75	0.100	2.5000	-26.0	0.1346	98.3
70	0.120	3.6000	-24.4	0.1383	99.7
65	0.130	4.2250	-23.7	0.1434	100.0
60	0.150	5.6250	-22.5	0.1501	100.9
55	0.170	7.2250	-21.4	0.1587	101.5
50	0.190	9.0250	-20.4	0.1697	101.9
45	0.230	13.2250	-18.8	0.1838	102.8
40	0.300	22.5000	-16.5	0.2022	104.3
35	0.380	36.1000	-14.4	0.2266	105.4
30	0.470	55.2250	-12.6	0.2600	106.0
25	0.600	90.0000	-10.5	0.3076	106.7
20	0.700	122.5000	-9.1	0.3801	106.2
15	0.810	164.0250	-7.9	0.5023	105.1
10	0.900	202.5000	-6.9	0.7486	102.5
5	0.960	230.4000	-6.4	1.4916	97.1
4	0.968	234.2560	-6.3	1.8636	95.2
3	0.975	237.6563	-6.2	2.4840	92.8
2	0.984	242.0640	-6.2	3.7250	89.3
1	0.992	246.0160	-6.1	7.4488	83.4

Notes:

Antenna radiation center above ground (meters): 130
Maximum ERP (watts) at 0° Depression angle: 250
Free Space Signal = $106.92 - 20 \cdot \log(\text{distance in km}) + \text{dBk}$
Relative Field from Aldena AST.05.02.336 Pair of 5 element Yagis, Horizontal Stack.