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ENGINEERING REPORT

ENVIRONMENTAL STATEMENT

A Scala Cl-FM vertically-polarized antenna is being mounted on the rooftop of a 8 meter tall building with a centerline that is three meters above the rooftop. The single bay antenna will be mounted near the southern edge of the building (within two meters of the edge) and will be oriented at 180 degrees True. Therefore, the downward relative field values to any point that exists on the rooftop will be below the downward angle of 45 degrees (relative to the horizontal plane at the centerline of the antenna). Figure EE1, attached, is a vertical plane pattern for the proposed antenna. The relative field value at all depression angles at and below 45 degrees is 0.36 or less.

This FM station proposal specifies an ERP that is less than or equal to 0.11 kilowatts (peak). Assuming: (a) a maximum ERP of 0.11 kilowatts; (b) a relative field of less than 0.36 in the critical downward angles; and (c) a distance of at least 3 meters from the lowest antenna element to the rooftop, the maximum power density is calculated as follows:

$S = 33.4 (F)(F)(ERP) / [(R)(R)]$

Where, S equals power density in uW/cm2
F equals the relative field factor
ERP equals the effective radiate power in watts
R equals the distance in meters

$= 33.4 (0.36)(0.36)(110) / [(3)(3)]$

$= 52.9 \text{ uW/cm}^2$

52.9 uW/cm^2 represents less than the uncontrolled power density limit (200 uW/cm^2 for FM). The electromagnetic radiation from this proposed operation will not produce a value in excess of the radiation standard. The electromagnetic radiation from the proposed operation will not combine with other facilities on or near the structure to produce a significant change in value. If this is a structure that may support various other operations, the applicant will cooperate with the other operators in establishing a plan for work done on the structure in close proximity to the existing antenna.

FIGURE EE1 : Vertical Plane Pattern for Scala CL-FM(V)

Antenna: CL-FM 01-27-2016

Frequency: 105 MHz

Polarization: Horizontal (Vertical Plane Pattern for V-Pol CL-FM)

Azimuth	Field	Rel.dB	dBd	Pwr Gain
0	1.000	0.0	7.0	5.012
1	0.996	-0.0	7.0	5.012
2	0.992	-0.1	6.9	4.898
3	0.988	-0.1	6.9	4.898
4	0.984	-0.1	6.9	4.898
5	0.980	-0.2	6.8	4.786
6	0.974	-0.2	6.8	4.786
7	0.968	-0.3	6.7	4.677
8	0.962	-0.3	6.7	4.677
9	0.956	-0.4	6.6	4.571
10	0.950	-0.4	6.6	4.571
11	0.939	-0.5	6.5	4.467
12	0.928	-0.6	6.4	4.365
13	0.917	-0.8	6.2	4.169
14	0.906	-0.9	6.1	4.074
15	0.895	-1.0	6.0	3.981
16	0.880	-1.1	5.9	3.890
17	0.865	-1.3	5.7	3.715
18	0.850	-1.4	5.6	3.631
19	0.835	-1.6	5.4	3.467
20	0.820	-1.7	5.3	3.388
21	0.803	-1.9	5.1	3.236
22	0.786	-2.1	4.9	3.090
23	0.769	-2.3	4.7	2.951
24	0.752	-2.5	4.5	2.818
25	0.735	-2.7	4.3	2.692
26	0.717	-2.9	4.1	2.570
27	0.699	-3.1	3.9	2.455
28	0.681	-3.3	3.7	2.344
29	0.663	-3.6	3.4	2.188
30	0.645	-3.8	3.2	2.089
31	0.628	-4.0	3.0	1.995
32	0.612	-4.3	2.7	1.862
33	0.595	-4.5	2.5	1.778
34	0.579	-4.7	2.3	1.698
35	0.563	-5.0	2.0	1.585
36	0.544	-5.3	1.7	1.479
37	0.525	-5.6	1.4	1.380
38	0.507	-5.9	1.1	1.288

39	0.488	-6.2	0.8	1.202
40	0.470	-6.6	0.4	1.096
41	0.448	-7.0	0.0	1.000
42	0.426	-7.4	-0.4	0.912
43	0.404	-7.9	-0.9	0.813
44	0.382	-8.4	-1.4	0.724
45	0.360	-8.9	-1.9	0.646
46	0.338	-9.4	-2.4	0.575
47	0.316	-10.0	-3.0	0.501
48	0.294	-10.6	-3.6	0.437
49	0.272	-11.3	-4.3	0.372
50	0.250	-12.0	-5.0	0.316
51	0.231	-12.7	-5.7	0.269
52	0.212	-13.5	-6.5	0.224
53	0.193	-14.3	-7.3	0.186
54	0.174	-15.2	-8.2	0.151
55	0.155	-16.2	-9.2	0.120
56	0.141	-17.0	-10.0	0.100
57	0.127	-17.9	-10.9	0.081
58	0.113	-18.9	-11.9	0.065
59	0.099	-20.1	-13.1	0.049
60	0.085	-21.4	-14.4	0.036
61	0.077	-22.3	-15.3	0.030
62	0.069	-23.2	-16.2	0.024
63	0.061	-24.3	-17.3	0.019
64	0.053	-25.5	-18.5	0.014
65	0.045	-26.9	-19.9	0.010
66	0.040	-28.0	-21.0	0.008
67	0.035	-29.1	-22.1	0.006
68	0.030	-30.5	-23.5	0.004
69	0.025	-32.0	-25.0	0.003
70	0.020	-34.0	-27.0	0.002
71	0.018	-34.9	-27.9	0.002
72	0.016	-35.9	-28.9	0.001
73	0.014	-37.1	-30.1	0.001
74	0.012	-38.4	-31.4	0.001
75	0.010	-40.0	-33.0	0.001
76	0.010	-40.0	-33.0	0.001
77	0.010	-40.0	-33.0	0.001
78	0.010	-40.0	-33.0	0.001
79	0.010	-40.0	-33.0	0.001
80	0.010	-40.0	-33.0	0.001
81	0.010	-40.0	-33.0	0.001
82	0.010	-40.0	-33.0	0.001
83	0.010	-40.0	-33.0	0.001
84	0.010	-40.0	-33.0	0.001
85	0.010	-40.0	-33.0	0.001
86	0.010	-40.0	-33.0	0.001
87	0.010	-40.0	-33.0	0.001
88	0.010	-40.0	-33.0	0.001
89	0.010	-40.0	-33.0	0.001
90	0.010	-40.0	-33.0	0.001