

TECHNICAL EXHIBIT  
SUPPORTING APPLICATION FOR NEW FM BOOSTER  
UNIVISION RADIO LICENSE CORPORATION  
92.7 mHz Channel 224A  
BROOKLYN, NEW YORK

**PURPOSE OF APPLICATION**

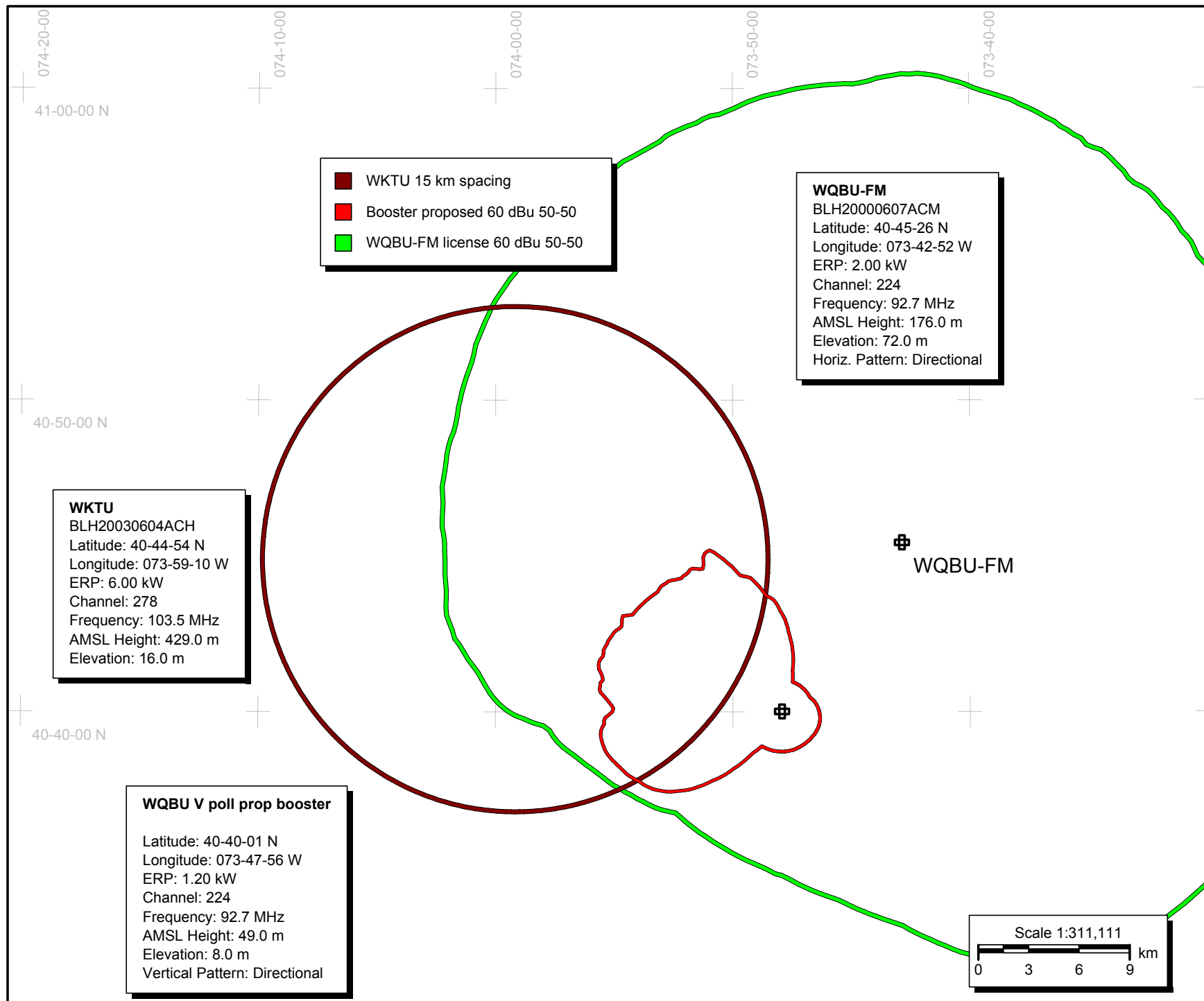
Univision Radio License Corporation, "(Univision)" proposes with this instant application to construct a new booster station for WQBU-FM, Facility ID#30573 Garden City, New York. The proposed facility utilizes a Kathrein-Scala CLFM log periodic directional antenna. The proposed facility will be located on a pipe mounted on an existing building. The existing structure is under two hundred feet so there is no ASR. The coordinates N40° 40' 01", W73° 47' 56", NAD27. The proposed antenna does not increase the overall height of the structure.

**INTERFERENCE**

The proposed Univision facility operates with a maximum ERP in the maxima of the composite directional pattern of 1200 Watts, vertical polarization only. The HAAT of the proposed facility is 37.59 m calculated using the V-Soft Probe 3 computer program. The proposed pattern does not exceed the WQBU-FM licensed 60 dBu 50-50 protected contour. See the attached map depicting the proposed contour of the booster and the protected contour of the parent facility. WQBU-FM and the proposed booster are fully spaced to all co-channel and first adjacent channel licensed facilities with the exception of WOBM-FM, Facility ID# 59508, Toms River, New Jersey, and WRRV(FM), Facility ID#3136, Middletown, New York. The proposed facility does not result in an interfering contour that overlaps the protected contour of WOBM-FM or WRRV(FM). There is no first adjacent facility that has any portion of its protected contour overlapped by the proposed facility. See the attached map depicting these contours. The proposed facility meets 73.207 b spacing requirements to 53<sup>rd</sup>, 54th channel separations with respect to the Channel 278 WKTU facility. The WKTU licensed facility is over 15 kilometers from the proposed booster.

**ENVIRONMENTAL**

The proposed facility will be located on the rooftop of an existing building. No alteration will be made to the structure will be made other than to add a pipe mount for the proposed antennas. This pipe and antenna will not increase the overall height of the building. The rooftop is a locked secure facility. No access is possible without permission from building security. The proposed site was evaluated using the guidelines in OET Bulletin 65, "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electro magnetic Fields", Edition 97-01. Equation 10 from this bulletin was employed to calculate the exposure levels at several points of interest. The maximum exposure level in a location accessible to the general population using this worst case calculation was 4.757 microwatts/cm<sup>2</sup>. This is 2.3% of the maximum for general population uncontrolled exposure level and therefore this proposal is an insignificant contributor.



**WQBU-FM**  
BLH20000607ACM  
Latitude: 40-45-26 N  
Longitude: 073-42-52 W  
ERP: 2.00 kW  
Channel: 224  
Frequency: 92.7 MHz  
AMSL Height: 176.0 m  
Elevation: 72.0 m  
HAAT: 159.0 m

**WRRV**  
BLH20010326AAD  
Latitude: 41-27-25 N  
Longitude: 074-26-24 W  
ERP: 6.00 kW  
Channel: 224  
Frequency: 92.7 MHz  
AMSL Height: 281.0 m  
Elevation: 189.0 m  
Horiz. Pattern: Omni

**WQBU-FM 60 dBu Service Contour**

**WQBU Booster 1**

Latitude: 40-40-01 N  
Longitude: 073-47-56 W  
ERP: 1.20 kW  
Channel: 224  
Frequency: 92.7 MHz  
AMSL Height: 49.0 m  
Elevation: 8.0 m  
Vertical. Pattern: Directional

**FM Booster V pol Interfering Contour 1.2 kW**

WQBU-FM  
WQBU Booster 1

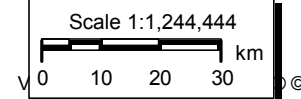
- Booster Composite Pattern 60 dBu 50-50
- FM License 60 dBu 50-50
- 40 dBu 50-10 Interfering contours

**WOBM-FM Max Protected Contour**

WOBM-FM-Max

**WOBM-FM-Max**  
BLH19890123KD  
Latitude: 39-52-30 N  
Longitude: 074-09-52 W  
ERP: 6.00 kW  
Channel: 224  
Frequency: 92.7 MHz  
AMSL Height: 107.47 m  
Elevation: 4.71 m  
Horiz. Pattern: Omni

**WQBU-FM Interfering Contour**



**WQBU V poll prop booster**

Latitude: 40-40-01 N  
Longitude: 073-47-56 W  
ERP: 1.20 kW  
Channel: 224  
Frequency: 92.7 MHz  
AMSL Height: 49.0 m  
Elevation: 8.0 m  
Vertical Pattern: Directional

**WWYZ**

BLH19940916KD  
Latitude: 41-33-47 N  
Longitude: 072-50-42 W  
ERP: 17.00 kW  
Channel: 223  
Frequency: 92.5 MHz  
AMSL Height: 368.0 m  
Elevation: 311.0 m  
Horiz. Pattern: Omni



WWYZ

075-00-00 W  
41-00-00 N

074-00-00 W

073-00-00 W

**FM Booster V pol Interfering Contours 1200 Watts**



WQBU-FM



WEHM



WXTU

40-00-00 N

**WXTU**

BLH20031017ACG  
Latitude: 40-02-19 N  
Longitude: 075-14-14 W  
ERP: 15.00 kW  
Channel: 223  
Frequency: 92.5 MHz  
AMSL Height: 343.0 m  
Elevation: 76.0 m  
Horiz. Pattern: Directional

- Class B FM License 54 dBu 50-50
- Booster 48 dBu 50-10 interfering contour
- Booster 54 dBu 50-10 interfering contour
- Class A Protected Contour
- Booster 60 dBu 50-50 Contour

**WEHM**

BLH20080610ACO  
Latitude: 40-51-18 N  
Longitude: 072-46-11 W  
ERP: 3.10 kW  
Channel: 225  
Frequency: 92.9 MHz  
AMSL Height: 157.0 m  
Elevation: 75.0 m  
Horiz. Pattern: Directional

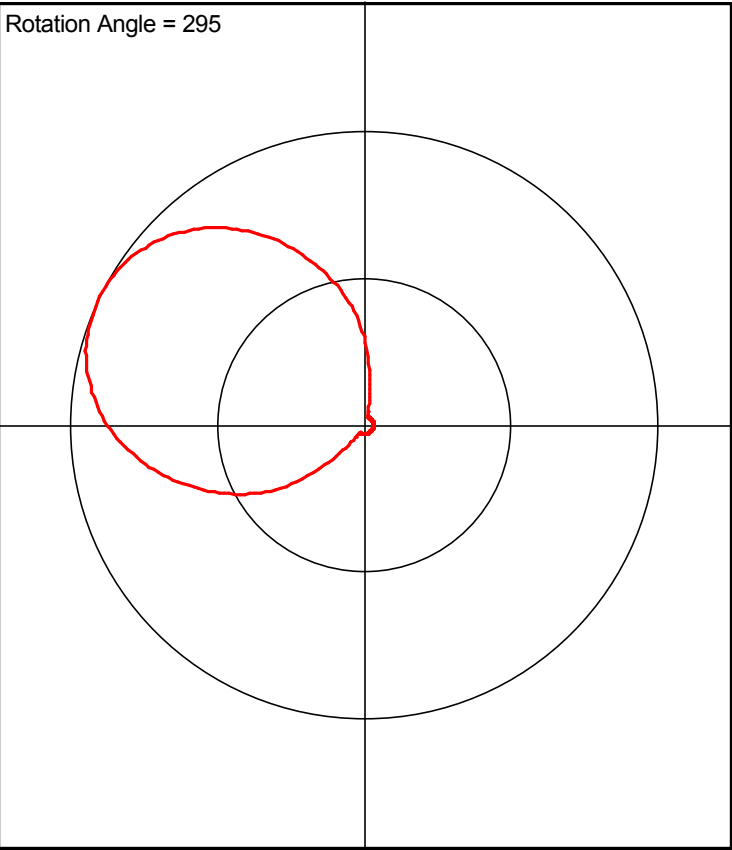
Scale 1:1,244,444

0 16.67 33.33 50 km

Antenna Pattern

Pre-Rotation Antenna Pattern....

Azimuth (deg)	Relative Field
0.0	1.0
1.0	0.9985
2.0	0.9975
3.0	0.996
4.0	0.995
5.0	0.9935
6.0	0.991
7.0	0.988
8.0	0.9855
9.0	0.9825
10.0	0.98
11.0	0.9745
12.0	0.969
13.0	0.9635
14.0	0.958
15.0	0.9525
16.0	0.9455
17.0	0.938
18.0	0.931
19.0	0.9235
20.0	0.9165
21.0	0.9075
22.0	0.899
23.0	0.89
24.0	0.8815
25.0	0.8725
26.0	0.8615
27.0	0.8505
28.0	0.8395
29.0	0.8285
30.0	0.8175
31.0	0.8055
32.0	0.7925
33.0	0.7805
34.0	0.7675
35.0	0.7555
36.0	0.742
37.0	0.7295
38.0	0.716
39.0	0.7035
40.0	0.69
41.0	0.6755
42.0	0.661
43.0	0.6465
44.0	0.632
45.0	0.6175
46.0	0.6025
47.0	0.588
48.0	0.573
49.0	0.5585
50.0	0.5435
51.0	0.5285
52.0	0.513
53.0	0.498
54.0	0.4825
55.0	0.4675
56.0	0.452
57.0	0.4365
58.0	0.421
59.0	0.4055



60.0	0.39	122.0	0.03
61.0	0.372	123.0	0.03
62.0	0.354	124.0	0.03
63.0	0.336	125.0	0.03
64.0	0.318	126.0	0.03
65.0	0.3	127.0	0.03
66.0	0.278	128.0	0.03
67.0	0.256	129.0	0.03
68.0	0.234	130.0	0.03
69.0	0.212	131.0	0.03
70.0	0.19	132.0	0.03
71.0	0.174	133.0	0.03
72.0	0.158	134.0	0.03
73.0	0.142	135.0	0.03
74.0	0.126	136.0	0.03
75.0	0.11	137.0	0.03
76.0	0.098	138.0	0.03
77.0	0.086	139.0	0.03
78.0	0.074	140.0	0.03
79.0	0.062	141.0	0.03
80.0	0.05	142.0	0.03
81.0	0.046	143.0	0.03
82.0	0.042	144.0	0.03
83.0	0.038	145.0	0.03
84.0	0.034	146.0	0.03
85.0	0.03	147.0	0.03
86.0	0.03	148.0	0.03
87.0	0.03	149.0	0.03
88.0	0.03	150.0	0.03
89.0	0.03	151.0	0.03
90.0	0.03	152.0	0.03
91.0	0.03	153.0	0.03
92.0	0.03	154.0	0.03
93.0	0.03	155.0	0.03
94.0	0.03	156.0	0.03
95.0	0.03	157.0	0.03
96.0	0.03	158.0	0.03
97.0	0.03	159.0	0.03
98.0	0.03	160.0	0.03
99.0	0.03	161.0	0.03
100.0	0.03	162.0	0.03
101.0	0.03	163.0	0.03
102.0	0.03	164.0	0.03
103.0	0.03	165.0	0.03
104.0	0.03	166.0	0.03
105.0	0.03	167.0	0.03
106.0	0.03	168.0	0.03
107.0	0.03	169.0	0.03
108.0	0.03	170.0	0.03
109.0	0.03	171.0	0.03
110.0	0.03	172.0	0.03
111.0	0.03	173.0	0.03
112.0	0.03	174.0	0.03
113.0	0.03	175.0	0.03
114.0	0.03	176.0	0.03
115.0	0.03	177.0	0.03
116.0	0.03	178.0	0.03
117.0	0.03	179.0	0.03
118.0	0.03	180.0	0.03
119.0	0.03	181.0	0.03
120.0	0.03	182.0	0.03
121.0	0.03	183.0	0.03

184.0	0.03	246.0	0.03
185.0	0.03	247.0	0.03
186.0	0.03	248.0	0.03
187.0	0.03	249.0	0.03
188.0	0.03	250.0	0.03
189.0	0.03	251.0	0.03
190.0	0.03	252.0	0.03
191.0	0.03	253.0	0.03
192.0	0.03	254.0	0.03
193.0	0.03	255.0	0.03
194.0	0.03	256.0	0.03
195.0	0.03	257.0	0.03
196.0	0.03	258.0	0.03
197.0	0.03	259.0	0.03
198.0	0.03	260.0	0.03
199.0	0.03	261.0	0.03
200.0	0.03	262.0	0.03
201.0	0.03	263.0	0.03
202.0	0.03	264.0	0.03
203.0	0.03	265.0	0.03
204.0	0.03	266.0	0.03
205.0	0.03	267.0	0.03
206.0	0.03	268.0	0.03
207.0	0.03	269.0	0.03
208.0	0.03	270.0	0.03
209.0	0.03	271.0	0.03
210.0	0.03	272.0	0.03
211.0	0.03	273.0	0.03
212.0	0.03	274.0	0.03
213.0	0.03	275.0	0.03
214.0	0.03	276.0	0.034
215.0	0.03	277.0	0.038
216.0	0.03	278.0	0.042
217.0	0.03	279.0	0.046
218.0	0.03	280.0	0.05
219.0	0.03	281.0	0.062
220.0	0.03	282.0	0.074
221.0	0.03	283.0	0.086
222.0	0.03	284.0	0.098
223.0	0.03	285.0	0.11
224.0	0.03	286.0	0.126
225.0	0.03	287.0	0.142
226.0	0.03	288.0	0.158
227.0	0.03	289.0	0.174
228.0	0.03	290.0	0.19
229.0	0.03	291.0	0.212
230.0	0.03	292.0	0.234
231.0	0.03	293.0	0.256
232.0	0.03	294.0	0.278
233.0	0.03	295.0	0.3
234.0	0.03	296.0	0.318
235.0	0.03	297.0	0.336
236.0	0.03	298.0	0.354
237.0	0.03	299.0	0.372
238.0	0.03	300.0	0.39
239.0	0.03	301.0	0.4055
240.0	0.03	302.0	0.421
241.0	0.03	303.0	0.4365
242.0	0.03	304.0	0.452
243.0	0.03	305.0	0.4675
244.0	0.03	306.0	0.4825
245.0	0.03	307.0	0.498

308.0	0.513
309.0	0.5285
310.0	0.5435
311.0	0.5585
312.0	0.573
313.0	0.588
314.0	0.6025
315.0	0.6175
316.0	0.632
317.0	0.6465
318.0	0.661
319.0	0.6755
320.0	0.69
321.0	0.7035
322.0	0.716
323.0	0.7295
324.0	0.742
325.0	0.7555
326.0	0.7675
327.0	0.7805
328.0	0.7925
329.0	0.8055
330.0	0.8175
331.0	0.8285
332.0	0.8395
333.0	0.8505
334.0	0.8615
335.0	0.8725
336.0	0.8815
337.0	0.89
338.0	0.899
339.0	0.9075
340.0	0.9165
341.0	0.9235
342.0	0.931
343.0	0.938
344.0	0.9455
345.0	0.9525
346.0	0.958
347.0	0.9635
348.0	0.969
349.0	0.9745
350.0	0.98
351.0	0.9825
352.0	0.9855
353.0	0.988
354.0	0.991
355.0	0.9935
356.0	0.995
357.0	0.996
358.0	0.9975
359.0	0.9985



# CL-FMRX

## FM LOG-PERIODIC RECEIVE ANTENNA

6.5 dBd gain  
88–108 MHz

The Kathrein Scala Division CL-FMRX is a ruggedly built log-periodic antenna, designed for professional FM receive applications.

Like all Kathrein Scala Division antennas, the CL-FMRX is made of the finest materials using state of the art electrical and mechanical designs, resulting in superior performance and long service life.

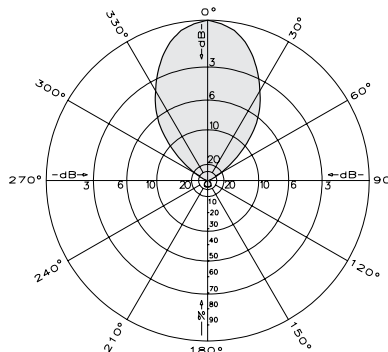
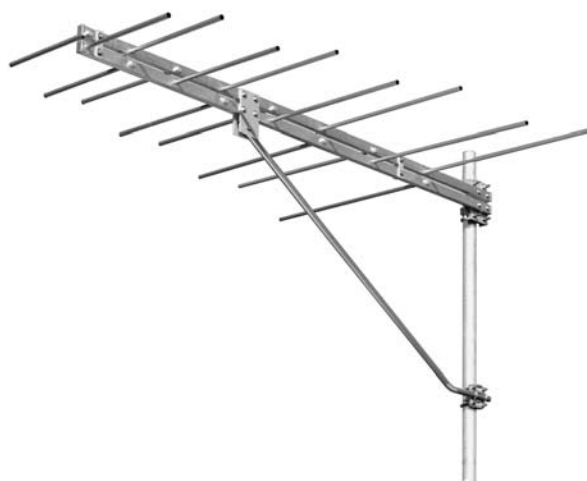
The CL-FMRX may be used stand-alone or in stacked arrays for higher gain, increased side-lobe suppression, or custom azimuth patterns.

### Specifications:

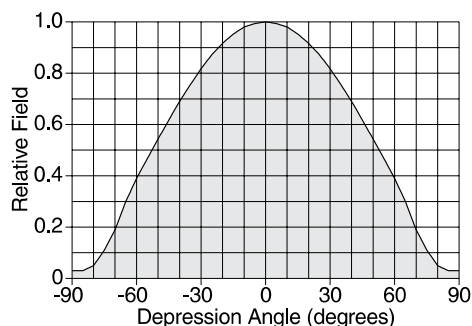
Frequency range	88–108 MHz (broadband)
Gain	6.5 dBd
Impedance	50 or 75 ohms
VSWR	< 1.5:1
Polarization	Horizontal or vertical
Front-to-back ratio	>25 dB
Azimuth pattern	52 degrees (half-power) horizontal polarization
Elevation pattern	78 degrees (half-power) horizontal polarization
Connector	Female 50Ω N or 75Ω N
Weight	18 lb (8.2 kg)
Dimensions	94.6 x 66.4 inches (2402 x 1686 mm)
Equivalent flat plate area	
<b>CL-FMRX/HCM</b>	2.98 ft <sup>2</sup> (0.277 m <sup>2</sup> )
<b>CL-FMRX/HRM</b>	3.36 ft <sup>2</sup> (0.312 m <sup>2</sup> )
<b>CL-FMRX/VRM</b>	3.36 ft <sup>2</sup> (0.312 m <sup>2</sup> )
Wind survival rating*	120 mph (200 kph)
Shipping dimensions	104 x 11 x 6 inches (2642 x 280 x 153 mm)
Shipping weight	34 lb (15.4 kg)
Mounting	For masts of 2.375 inches (60 mm) OD.
<b>CL-FMRX/HCM</b>	Horizontal polarization center-mount
<b>CL-FMRX/HRM</b>	Horizontal polarization rear-mount
<b>CL-FMRX/VRM</b>	Vertical polarization rear-mount

See reverse for order information.

\*Mechanical design is based on environmental conditions as stipulated in EIA-222-F (June 1996) and/or ETS 300 019-1-4 which include the static mechanical load imposed on an antenna by wind at maximum velocity. See the Engineering Section of the catalog for further details.



**Azimuth pattern (E-plane)**



**Elevation pattern (H-plane)**



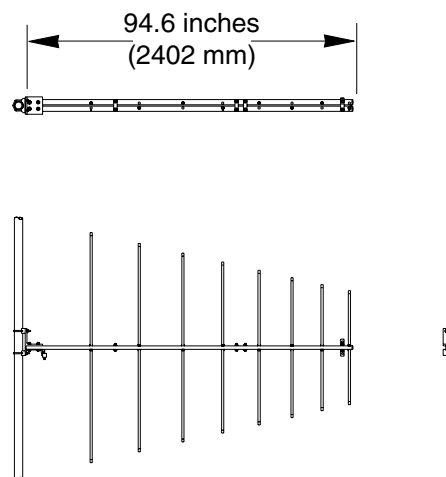
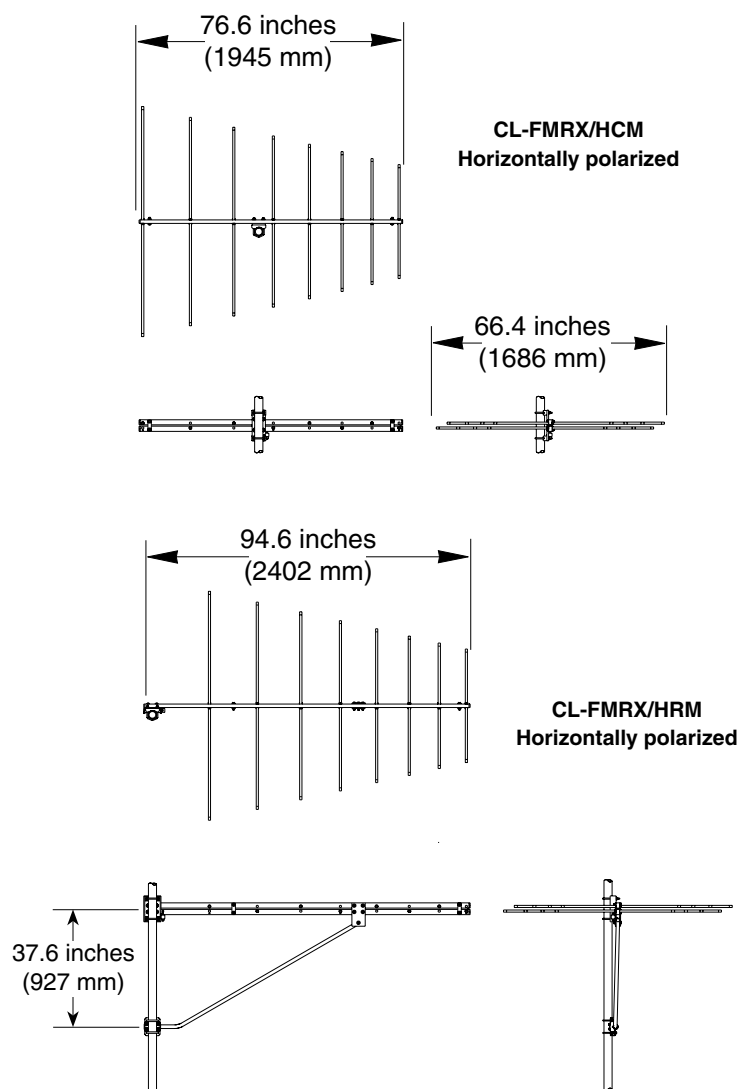
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# CL-FMRX

## FM LOG-PERIODIC RECEIVE ANTENNA

6.5 dBd gain  
88–108 MHz



**CL-FMRX/VRM**  
Vertically polarized

Vertically polarized antennas require lateral stabilization (not supplied) to prevent the antenna from turning on the mounting pipe.

### Order Information:

Model	Description
CL-FMRX/HCM/50N	Antenna with 50Ω N connector Horizontal polarization center-mount
CL-FMRX/HCM/75N	Antenna with 75Ω N connector Horizontal polarization center-mount
CL-FMRX/HRM/50N	Antenna with 50Ω N connector Horizontal polarization rear-mount

### Order Information:

Model	Description
CL-FMRX/HRM/75N	Antenna with 75Ω N connector Horizontal polarization rear-mount
CL-FMRX/VRM/50N	Antenna with 50Ω N connector Vertical polarization rear-mount
CL-FMRX/VRM/75N	Antenna with 75Ω N connector Vertical polarization rear-mount

All specifications are subject to change without notice. The latest specifications are available at [www.kathrein-scala.com](http://www.kathrein-scala.com).