



CIRCULARLY POLARIZED DIRECTIONAL FM ANTENNA:

PATTERN ENVELOPE

JAMPRO ANTENNAS, INC. proposes to custom build and directionalize a standard FM side mount antenna to meet this station's needs. The final patterns of the HPOL and VPOL will remain within the given pattern envelope.

DESCRIPTION OF TEST

JAMPRO ANTENNAS, INC. will build or utilize an exact duplicate of the support structure for constructing, testing, and certifying the antenna while paying close attention to details, such as: including other structures present, as well as climbing steps, feed lines, electrical conduit, etc. that are within the aperture of the antenna.

JAMPRO ANTENNAS, INC. will perform all testing in **full scale** on our 700 acre, full size test range. Full scale testing allows the antenna to be tested exactly as it will be used at the station's site. JAMPRO ANTENNAS, INC. may add parasitic reflectors to the antenna environment to manipulate the pattern in order to meet all requirements. All brackets and reflectors are hot dipped galvanized steel to ensure good electrical contact and long life.

JAMPRO ANTENNAS, INC. will provide a final certification and complete installation drawings of the system when all work is completed. The customer will be provided mounting instructions and advised to have a licensed surveyor verify the heading of the antenna boom. All full size range testing will be under the direct supervision of JAMPRO ANTENNAS, INC.'s full time engineering staff.

RULE COMPLIANCE

JAMPRO ANTENNAS, INC. will comply with all known FCC rules including those stated directly on the station's construction permit. The rules include the following:

The licensed ERP will not be exceeded at any heading
The RMS of the Vertical pole will not exceed the RMS of the Horizontal pole
JAMPRO ANTENNAS, INC. will attempt to fill the 85% RMS requirement



MOUNTING CONSIDERATIONS

JAMPRO ANTENNAS, INC. instructs that no other antennas are mounted within the aperture of the directional array. A minimum vertical spacing of 10' should be kept for antennas mounted on the same mounting structure. The tower and all cables, steps, etc. should be properly RF grounded.

Since directional antenna systems sometimes include parasitic reflectors and special bracketing, standard weights and wind loads should not be used. Contact JAMPRO ANTENNAS, INC. for estimated weights and wind loads on this antenna.

CONCLUSION

JAMPRO ANTENNAS, INC. carefully follows sound engineering principles in all aspects of developing an FM directional antenna. Over 50 years of experience are crafted into the design of each system. The customer or his engineer is welcome to be on site during testing, please contact factory for scheduling.

Full Scale Far Field Range

Full size testing is conducted on our 700 acre, full scale test site. This site is located in an “RF Quiet” area near Sacramento, CA.



The RF point source is located multiple wave lengths (~ a mile) away from the antenna turntables to provide the signal used by your antenna while under test. The sources are operated from the control center at the base of the turntables. Several antennas can be under test at any give time. The source RF generators work for FM and TV antenna systems.

The antenna turntable is locked to the automatic plot recorder. As the turntable revolves, the recorder plots the intensity of the received RF from the source point generator. The plot recorder, source point generator and antenna are calibrated for high accuracy to allow both certified Directional Antenna Work plus Pattern Measurement and Optimization services.





Here a Penetrator is mounted on the full scale tower section mounted to the turntable for testing. This particular order was to optimize the vertical radiation component while leaving the horizontal energy as omni as possible. Notice the vertical only reflectors just over the technician's shoulder. The sample tower section is the exclusive Jampro FMT (Frequency Matched Tower) to minimize tower effects on the station's coverage.

Full scale tower duplication on the range provides an accurate representation of all items in the aperture of the antenna under test. Just as the antenna will be used at your stations. This assures 'no surprise' when erected at your site. This photo shows a Jampro Pro Star Slot antenna having its pattern verified.





The 'back yard' where a large quantity of sample towers are stored for full size testing. Full size VSWR setting is also done here. This assures meeting the VSWR antenna specification with virtually no field 'tweaking' when the antenna is mounted on your tower.

On-range customer witness is available to allow your consultant and/or engineer to observe the range tests. Adequate heavy duty equipment allows for quick adjustments so many patterns may be run in a single day. The average range time for Pattern Measurement Service takes two days, Pattern Optimization Service takes three days and typical times for FCC directional antenna certification runs three to four days. This photo shows a Spiral antenna being tested and witnessed.



Jampro FM and TV antennas are 100% built in the USA. When buying Jampro you always get a 'Built in America' product. Over 50 years of experience and pride are crafted into each and every product we produce.