

DTV Broadcast Antenna

Process



Recent Projects

Elliptically Polarized Direction Side Mount Antenna Built to assemble on rooftop
Antenna was constructed in two - 10' sections to be assembled, ground checked and pressure checked atop sears tower rooftop. Installation 3/18/13



Elliptically Polarized Direction Side Mount Antenna –VHF with Support Mast
Elliptically Polarized Skull Pattern with 35% V-POL. Installed 8/10/12



UHF E-POL Top Mount 26kW Input



Design and Manufacturing Process

Design Single Layer Computer Simulation to determine feasibility and starting locations for physical single bay model. Full Scale Single layer is preset and set to resonance coupling based on the required elevation pattern.

Chamber work begins, first optimizing the horizontal pattern followed by vertical component. Model is then rechecked for coupling resonance. At this time axial ratio measurements are made to ensure a quality signal. After any final adjustments coupling is checked again. Model is firmed up by replacing any temporary radiator directors with machined samples.

Model is measured and documented for array design. Array is design using proprietary software. An unique and no uniform slot spacing generates greater control over the beamtilt null fill and bandwidth.

Mechanical Review continues the process, once structural approval is determined drafting of any specialty parts commences. Once all prints are complete a design review signs off on electrical and mechanical components. Non-stock items are ordered from pre-approved vendors.

Alive utilizes parasitic vertical elements at each slot to deliver the same elevation gain and pattern per polarization. This practice provides a more consistent signal helping the axial ratio and maximizing the gain over aperture space minimizing the cost of transmitter operation. Full enclosed fiberglass radomes provide a pressurized solution which will protect the antenna long term

Alive Telecom follows ISO9001 standards. Each employee is trained on document procedures including control of records, non-conforming products, corrective and preventative actions. Alive Telecom performs an annual internal audit of quality management.

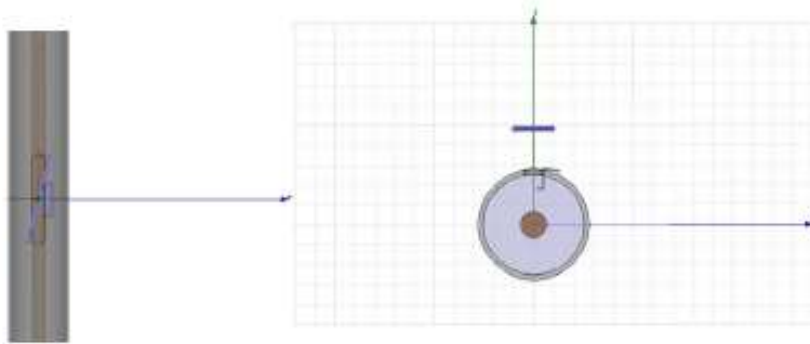
Once materials arrive and are inspected, manufacturing begins. All welds are performed by certified welders and dye penetration tested. Assembly and "pretuning" begins once all piece parts are fabricated. Array measurements are made in a near-field probe method. Each element is measured for amplitude and phase relative to the first bay. The data along with the spacing file is used to calculate the far field elevation pattern. Minor adjustments are made to the slot to achieve the actual pattern over laying the design. The top short location is adjusted also to assist in the antenna bandwidth. All adjustments are locked down and the input is matched utilizing an impedance transformer or in-line stub.



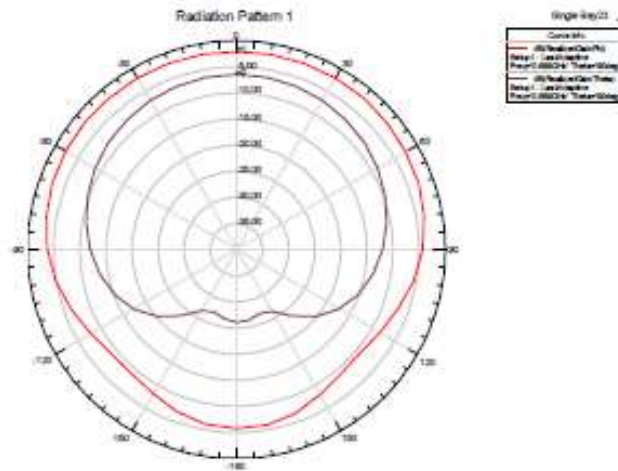
Typical Computer Model

High Frequency Solid Simulation Single Layer Model

Ch 50 WXFT-DT Aurora IL 2/21/13



Name	Re	Im	Mag
rad	180.0000	-0.0000	1.8000
rad	180.0000	0.0000	0.4500



Name	Re	Im
rad	180.0000	-0.1800
rad	180.0000	-0.0100
rad	170.0000	0.1800

