

Narrative Exhibit

FCC Experimental Application

The experimental program will focus on testing and optimizing operations for a new FM low-power, community-oriented radio station emphasizing reliable coverage, audio quality, and integration of modern digital broadcasting technologies in the challenging desert environment of Maricopa, Arizona. The project will evaluate broadcast performance in an area characterized by urban development, mountainous terrain, and extreme seasonal temperatures.

Equipment

- Professional solid-state FM transmitter (maximum 150 watts output) compliant with applicable FCC technical standards.
- Omnidirectional antenna system with associated N-type coaxial cable and grounding system.
- Studio equipment including an audio mixing console, digital audio processors, RDS encoder, and streaming integration hardware.
- Test instrumentation including a spectrum analyzer, field strength meter, modulation monitor, and receiver test units.
- Ancillary equipment including backup power systems (UPS/generators), RF monitoring software, and listener feedback tools.

All equipment will operate on a non-interference basis, with transmitter power and antenna configurations adjusted as necessary to minimize the potential for impact on authorized services.

Experimental Objectives

- 1 Determine the optimal transmitter power, antenna height, and antenna configuration for reliable coverage while accounting for terrain shadowing, multipath interference, and seasonal atmospheric conditions.
- 2 Evaluate the effectiveness of modern audio processing and RDS techniques in improving listener experience without increasing occupied bandwidth or causing harmful interference.
- 3 Assess synchronization, latency, and listener transition between simultaneous over-the-air FM broadcasting and IP streaming.
- 4 Evaluate the effects of high temperatures, dust, and wind on long-term transmitter and antenna reliability and identify practical maintenance procedures.

Experimental Methodology

- Install, calibrate, and verify all equipment before conducting baseline low-power coverage measurements.
- Perform fixed-location and mobile drive testing using professional monitoring equipment to measure field strength, signal-to-noise ratio, modulation, audio quality, and coverage contours.
- Collect listener reports through the station website, toll-free telephone line, and social media using standardized reporting methods.
- Conduct controlled adjustments to transmitter power, audio processing, and antenna parameters while documenting results in engineering logs.

- Maintain compliance with applicable FCC operating requirements, RF exposure guidelines, and implement immediate shutdown capability if interference is observed.

This program is intended to provide practical engineering data on the deployment of cost-effective independent FM broadcasting systems in arid urban and suburban environments. Results will improve understanding of terrain-specific propagation, hybrid FM/IP broadcasting techniques, and long-term reliability of low-maintenance broadcast infrastructure.

Project Timeline

- **Phase 1 (Months 1–3):** Equipment installation, calibration, and baseline testing.
- **Phase 2 (Months 4–9):** Operational testing, coverage mapping, and audio optimization.
- **Phase 3 (Months 10–18):** Hybrid broadcasting evaluation, environmental testing, listener feedback analysis, and system refinement.
- **Phase 4 (Months 19–24, if extended):** Long-term reliability assessment and documentation of findings.

Engineering records and progress reports will be maintained throughout the experimental program and made available to the FCC upon request. The proposed 24-month schedule provides sufficient time to evaluate system performance while minimizing unnecessary spectrum use.