

Viziv Technologies, LLC
Request for Part 5 Experimental License
ELS File No. 0042-EX-CR-2020

NARRATIVE STATEMENT

Pursuant to Sections 5.203 of the Commission's rules, 47 C.F.R. § 5.203 (2016), Viziv Technologies, LLC ("Viziv") hereby respectfully requests renewal of its experimental license from February 1, 2020 to February 1, 2025, to operate in the 1800 kHz spectrum band. This experimental license will allow Viziv to continue the experimental testing done under experimental license (call sign: WJ2XGB). Viziv is developing systems for the excitation of terrestrial electromagnetic surface waves (Zenneck surface waves, not Norton ground waves) with the ultimate intent of more efficient broadcast signaling without the current issues associated with ionosphere skip interference. The equipment to be used is experimental and proprietary and is entirely of a prototype nature. A five-year term is request to give Viziv the time to research and develop new technologies, techniques, applications, and advanced materials to improve and extend the range, reliability, and quality of surface wave signals in the 1800 kHz band. A longer license term will allow Viziv the ability to invest in these new technologies and advanced materials, while performing testing over time.

A. Purpose of Operation and Need for Renewal:

Viziv is a startup technology company focused in the fields of energy storage and distribution. Viziv will be recording precise field strength measurements at the requested frequency ranges using low frequency spectrum analyzers and calibrated antennas. The purpose of the test is to determine the efficiency of design of the prototype and validate the science of the terrestrial EM surface wave for use in signaling. Importantly, Viziv believes such testing will be non-radiating – which will limit the interference effects to any other party in the spectrum bands under test. The system under test will be used to demonstrate the science and applications of Zenneck surface waves and is a precursor to a larger demonstration of this new signaling technology. The experimental license is needed to tune and test the demonstration apparatus.

B. Location of Proposed Operation:

Viziv proposes to conduct its experimental testing at its facilities in Texas. The approximate reference coordinates (in Datum: NAD83) of the fixed location is:

Approx. 32° 9' 24"N, 96° 56' 22"W

C. Technical Specifications:

1. Frequencies Desired

Viziv will be conducting the testing and tuning in the frequency range 1710-1900 kHz. To conduct a series of measurements over a frequency range, Viziv requests authorization to use a continuous wave (CW) transmission with a 3 dB bandwidth of less than 10 Hertz (Hz).

2. Effective Radiated Power

Viziv anticipates that the demonstrations will be non-radiating. To conduct the demonstrations, the RF power necessary to maintain the voltage to produce local fields required to launch a high velocity propagating surface wave will be utilized. The testing will not exceed 50 kW of RF input power to the surface wave launching probe at 1710 kHz. The intent is to produce a surface wave without producing any Norton ground wave radiation. Viziv believes that the EIRP will be limited to 1000 watts. Viziv will conduct other testing in the spectrum range from 1710 kHz to 1900 kHz but the input power will be less than 5 kW for those tests with EIRP limited to 100 watts or less for that testing.

3. Modulation and Emissions

Viziv proposes to utilize a continuous wave signal with less than 10 Hertz of bandwidth. The emission designator would be N0N.

4. Antenna Information

While the testing should be non-radiating, the surface wave launching probe will not exceed 35 feet above ground level for the 1800 kHz testing and tuning. No probes will be mounted in a fashion that will require approval under FAA and FCC rules and regulations.

5. Equipment To Be Used

Viziv expects to conduct its demonstration with a single test probe at the above referenced fixed location. The surface wave structure is entirely custom built and proprietary to Viziv Technologies. The transmitter used to produce and drive the signal is a Nautel NX 50 broadcast transmitter with modifications made. Viziv will limit the power, area of operation, and transmitting times to the minimum necessary to gather the needed scientific measurements of this new technology.

D. Protection Against Causing Interference:

Viziv has requested authority to operate in the 1800 kHz band. The 1800 kHz band is a primary Amateur Radio Service as well as a primary band for fixed, mobile, and radiolocation services. Viziv understands that it must accept any interference from any users of this band and that all operations by Viziv will be on a secondary basis. Viziv has established a point of contact identified below with “kill switch” authority should any interference occur to primary licensed

services. Should interference occur, Viziv will take immediate steps to resolve the interference, including, if necessary, arranging for the discontinuance of operation.

E. Restrictions on Operation:

Viziv is not seeking authority to perform a market study under the requested experimental license. Moreover, no fees will be charged to entities using the equipment during this test. Entities will be advised in accordance with Section 2.803 of the Commission's rules, 47 C.F.R. §2.803, that any unapproved devices which have not been authorized as required by the FCC are not being offered for sale or lease, or sold or leased, until authorization is obtained.

F. Public Interest:

Viziv submits that issuance of an experimental license as requested is in the public interest, convenience, and necessity. Grant of an STA will help Viziv to develop and test innovative equipment that will allow for more effective and efficient power management and distribution.

G. Contact Information:

Technical Contact and "Stop Buzzer/Kill Switch:"

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