

**Application for Conventional Experimental License  
Form 442 File Number: 1140-EX-CN-2023  
Altitude Line, Inc.  
September 01, 2023**

**Attachment 1: Purpose of Experiment**

**Overview:** Altitude Line, Inc. (“Altline”) seeks a new FCC Experimental Radio Service license to conduct propagation tests on certain frequency bands in the High Frequency (“HF”) portion of the electromagnetic spectrum. Altline will use its authority to test the efficiency and latency of data transmissions in the fixed services. Altline is aware of efforts to establish new licensing and service rules for operations in the high frequency bands and believes that the proposed propagation tests may serve to inform those discussions.<sup>1</sup> In accordance with Section 5.602 of the Commission’s Rules, Altline also seeks authority to conduct commercial market trials under experimental authority, as discussed below.

**Description of Proposed Tests:** The purpose of these proposed tests is to verify the reliability and availability of various HF transmissions paths for the distribution of digital data to and from fixed points. The experiments will use two transmitting antennas installed on the same tower located in Glendale Heights, Illinois. The tower’s registration number is 1025208.

The transmitting antennas are directional arrays commercially available and customized by the manufacturer to meet Altline’s specifications. Both antennas will be fed by the same commercially available power amplifier.

One of the antennas will be used for frequencies in the 7.450 – 8.100 MHz and 14.35 – 14.99 MHz bands and the other will be used for frequencies in the 10.15 – 11.175 MHz and 18.168 – 18.78 MHz bands. The beamwidth at the half-power point varies by frequency band as follows:

Frequency band	Beamwidth (deg)
7.450 – 8.100 MHz	72.8
10.15 – 11.175 MHz	65.8
14.35 – 14.99 MHz	58
18.168 – 18.78 MHz	54.4

The two antennas will be installed on a rotatable mast to allow for changes in horizontal orientation in order to transmit to three receive locations – one in Europe, one in South America and one in Asia. Altline will comply with all local regulations for operating the receive sites.

To maximize signal delivery to the three receive sites, horizontal orientation will be confined to: 1) 47 degrees from true north; 2) degrees from true north; and, 3) 323 – 335 degrees from true

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<sup>1</sup> See Petition for Rulemaking of the Shortwave Modernization Coalition, Docket No. RM-11953 (filed Apr. 28, 2023).

north. The two antennas will only transmit when at rest and pointed in these directions and never while rotating.

Emissions will be 10 kHz and 20 kHz wide within the frequency bands 7.450-8.100 MHz, 14.35-14.99 MHz, 10.15-11.175 MHz, and 18.168-18.78 MHz bands. At any given time, as many as two emissions will be transmitting. Altline will actively monitor channel activity both at the transmitter location and at the receive points to avoid transmitting when the frequency is in active use. Altline understands that not all frequencies within the requested bands may be available due to the protection of services with higher priority.

Transmissions will be limited to a maximum transmitter output power of 1.5 kW. ERP will vary between 10.8 kW and 23.5 kW depending on frequency band of operation as described in the associated FCC Form 442. The emissions are defined by the designators 10K0G1D and 20K0G1D and will utilize Phase-Shift Keying modulation.

**Stop Buzzer Point of Contact:**

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**Market Trial:**

Altline seeks authority to conduct market trials to evaluate the commercial feasibility of the use of this equipment and technology to facilitate financial trading services and markets.<sup>2</sup> Altline will comply with all applicable FCC conditions associated with the market trial rules.<sup>3</sup> The market trials will involve only affiliated entities of Altline using transmitted data for market transactions to assess the viability and functionality of the transmission path.<sup>4</sup>

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<sup>2</sup> *Promoting Expanded Opportunities for Radio Experimentation and Market Trials under Part 5 of the Commission's Rules and Streamlining Other Related Rules, 2006 Biennial Review of Telecommunications Regulations – Part 2 Administered by the Office of Engineering and Technology (OET), Report and Order, 28 FCC Rcd 758, ¶ 9 (2013); see also 47 C.F.R. § 5.3(k).*

<sup>3</sup> See 47 C.F.R. § 5.602.

<sup>4</sup> To be clear, data transmitted from the experimental radio links during these market trials will be used by affiliated entities of Altline to evaluate the viability and functionality of the transmission path in supporting market transactions, which are commercial in nature. For this reason, Altline in an abundance of caution has requested market trial authority. Altline will not be selling or leasing communications data capacity from the experimental operations to third parties.

**For Further Information:**

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