First Progress Report of Experimental Operations

The Federal Communications Commission ("FCC") has issued to Cognitive Data Dispatch LLC ("CDD") an experimental license (WF2XYA) to explore the utilization of short duration infrequent HF radio transmissions to establish a reliable communications link.

This is the first Progress Report and subsequent follow-up reports are expected to be filed every six months throughout the duration of this project to share our progress with the Commission.

**Concept**

In much the same manner that white spaces in the VHF and UHF frequency bands are being discussed as spectrum resources to consider for providing services such as wireless broadband internet access, CDD believes that underutilized regions of the HF radio spectrum may be capable of providing low bandwidth redundant communication services valuable for many business systems without causing any harmful interference to existing spectrum participants. Experimentation will inform CDD as to the viability of this claim and will establish limits to the features and nature of the communications services that are possible.

**Functional Use-Case**

CDD believes a valuable use for this type of communications system is augmenting critical existing connectivity solutions as a redundant and uncorrelated connectivity option. Most critical business networks are designed to include redundancy. One of the key challenges in achieving true redundancy is achieving sufficient path diversity between two points of presence. CDD believes the inherent path diversity present in this experimental communications link makes it a great compliment as a redundant link to many existing business networks where simple data is mission critical. The functional use-case for this communications system is depicted in Figure 1.

**Experimentation**

CDD has focused its significant technical experimentation on developing hardware and software solutions to facilitate all necessary aspects of the communications system including historical and predictive analysis, real-time RF channel monitoring and evaluation, state machine state to RF channel mapping, and other RF transmit and receive operations necessary for operation of this communications system.

A portion of CDD's experimentation has been conducted in conjunction with its parent company, Infinium Capital Holdings, LLC (ICH) and has attempted to integrate an HF RF link into ICH's standard business network consisting of fiber optic as well as Internet connectivity links. Experimentation has targeted analyzing and comparing circuit bandwidth, circuit latency, and circuit reliability. The experimentation with ICH has demonstrated the promise this technology may hold as a key component

of a highly available redundant communications network. CDD intends to continue this testing and will be evaluating the efficacy of this approach versus more conventional communications circuits.

**Broad Applicability**

CDD cannot envision all future uses of the technology it is currently attempting to develop, however, based on CDD's initial test results CDD believes the form of communication that it's currently developing may have far ranging application. Control systems typically function as finite-state machines making critical control systems of many types' possible beneficiaries of this technology. This may include military control systems where availability and therefore communications redundancy are paramount. This may include smart grid early warning alerting where efficiency and even damage mitigation relies on reliable reception of simple alerts. This may include gas pipeline or oil rig alerts where geographies are challenging or miles out to sea and reliable early warning alerting of problems may avoid damage and loss. This may include financial market alerts like market state or exceptional market conditions including infrastructure problem notifications designed to enhance risk management and protect the markets.

## Appendix 1 : Technical Figures

**Figure 1: Functional Use-Case**