## SUMMARY

According to a first aspect of the present invention, there is provided a system comprising:

a transmitter configured to transmit an encoded data signal by skywave propagation;

a receiver configured to receive the encoded data signal transmitted by the transmitter and to decode the received encoded data signal to produce a decoded data signal;

metadata corresponding to the encoded data signal, wherein the metadata is collected at the receiver;

a service provider, wherein the service provider operates the transmission of the data signal between the transmitter and the receiver;

a client, wherein the client provides the service provider with the data signal to be transmitted between the transmitter and the receiver; and

wherein the service provider provides both the data signal decoded at the receiver and the metadata to the client.

According to a second aspect of the present invention, there is provided a method comprising:

transmitting an encoded data signal from a transmitter to a receiver over a first communication path, wherein a service provider transmits the encoded data signal for a client;

decoding the transmitted data signal after the data signal has been received at the receiver;

determining whether to accept or reject the decoded data signal, wherein the service provider determines to accept or reject the decoded signal based on the accuracy of the signal;

transmitting the decoded data signal to the client and indicating whether the signal is accepted or rejected; and

transmitting metadata from the encoded data signal to the client.

In prior systems only the decoded signal or data that is passed is what the receiving station or provider considers to be accurate; however, there are a number of risks that can occur. The information that is transmitted to the client might in fact be bad information that was inaccurate due to noise and/or errors in its decoding. Conversely, the information that is not transmitted and considered bad by the provider may in fact be accurate, creating a lost

opportunity cost. This can be especially harmful in financial trading and other areas where the accuracy of the information is of importance.

To address this issue, the service provider's system transmits to the client not only the decoded signal (both rejected and accepted) but also the metadata such as the ionospheric conditions, the provider's confidence level in decoding accuracy, and other information that may impact signal accuracy. The client then can decide whether or not to perform a particular transaction, such as a financial transaction, upon weighing these factors. For future reference, a copy of the original communication that was transmitted over a slower fiber optic cable is also sent to the client.

Generally speaking, this system provides the decoded communication and metadata about the current communication conditions as well as other information in real time to a client. The client can then determine whether or not to perform particular action based on their confidence that the communication is correct. All or some of the metadata concerning the signal is passed on to the client who then decides the action to take based on the decoded communication and the metadata.

While the system will be described with reference to executing financial trading strategies, this system and technique can be used in other situations or industries where time. error rates, and/or bandwidth are of concern. For example, this system can be used to perform remote surgery or medical diagnostics, scientific instruments or studies (e.g., for astronomy or physics), controlling dispersed global computer networks, and/or military applications.

Further forms, objects, features, aspects, benefits, advantages, and embodiments of the present invention will become apparent from a detailed description and drawings provided herewith.

## CLAIMS

1. A system comprising:

a transmitter configured to transmit an encoded data signal by skywave propagation;

a receiver configured to receive the encoded data signal transmitted by the transmitter and to decode the received encoded data signal to produce a decoded data signal;

metadata corresponding to the encoded data signal, wherein the metadata is collected at the receiver;

a service provider, wherein the service provider operates the transmission of the data signal between the transmitter and the receiver;

a client, wherein the client provides the service provider with the data signal to be transmitted between the transmitter and the receiver; and

wherein the service provider provides both the data signal decoded at the receiver and the metadata to the client.

2. The system of claim 1, wherein the service provider indicates whether the decoded data signal is allowed or rejected.

3. The system of any preceding claim, wherein the metadata includes information concerning the environmental conditions during transmission of the encoded data signal.

4. The system of claim 3, wherein the environmental conditions include ionospheric conditions.

5. The system of any preceding claim, wherein the client uses the decoded data signal and the metadata to determine whether the decoded data signal is accurately decoded.

6. The system of any preceding claim, further comprising:

a wired data transmission path between the transmitter and the receiver; and

wherein a copy of the encoded data signal is transmitted from the transmitter to the receiver by the wired data transmission path.

7. The system of claim 6, wherein the wired data transmission path is a fiber optic cable.

8. The system of any preceding claim, wherein the metadata includes the confidence of the service provider as to the accuracy of the decoded data signal.

9. The system of any preceding claim, wherein the metadata includes the method used by the service provider to decode the received encoded data signal.

10. The system of any preceding claim, wherein the metadata includes the carrier frequency of the encoded data signal.

11. A method comprising:

transmitting an encoded data signal from a transmitter to a receiver over a first communication path, wherein a service provider transmits the encoded data signal for a client;

decoding the transmitted data signal after the data signal has been received at the receiver;

determining whether to accept or reject the decoded data signal, wherein the service provider determines to accept or reject the decoded signal based on the accuracy of the signal;

transmitting the decoded data signal to the client and indicating whether the signal is accepted or rejected; and

transmitting metadata from the encoded data signal to the client.

12. The method of claim 11, further comprising:

indicating whether the signal is accepted or rejected when the transmitting the decoded data signal to the client.

13. The method of any of claims 11-12, further comprising:

transmitting a copy of the encoded data signal by a second communication path.

14. The method of claim 13, wherein the second communication path is a fiber optic cable.

15. The method of any of claims 11-14, further comprising:

using the metadata as an input to determine whether the decoded data signal was accurately decoded.

16. The method of any of claims 11-15, wherein the metadata includes information concerning the environmental conditions during transmission of the encoded data signal.

17. The method of claim 16, wherein the environmental conditions include ionospheric conditions.

18. The method of any of claims 11-17, wherein the metadata includes the confidence of the service provider as to the accuracy of the decoded data signal.

19. The method of any of claims 11-18, wherein the metadata includes the method used by the service provider to decode the received encoded data signal.

20. The method of any of claims 11-19, wherein the metadata includes the carrier frequency of the encoded data signal.