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These notes are in response to the request for further information dated May 28, 1999.

General

The FA series transmitters and receivers are all similar in operation. The FA (for “Frequency Agile”) link was evolved over a period of time with the first certification granted in February, 1993 (HCQ3B6UTN). The one-way “FA” link and the design concept, around which the various transmitters and receivers have been designed, is described below:

1. The SSRL receiver (second IF) bandwidth is nominally 400 kHz. Both the receiver and transmitter employ a version of the standard FA series short message software which allows for acquisition, point ID, overhead information, and data within a single packet. The single packet transmission is made on one of the 25 pseudorandom frequencies. The receiver repeatedly scans the entire band of transmit frequencies plus a guard band both above and below the nominal transmit band. The receiver quickly acquires the transmitter, decodes the packet, and resumes the listen/acquisition process for other possible asynchronous transmissions . The next packet sent will be on the next frequency in the sequence. The receiver will acquire any transmitter on any of the possible transmit frequencies, utilizing each of the 25 channels, on average, equally.

To accommodate future expansion of product capability into multi-packet message capability, the FA communication protocol contains a “type” byte designating the length and format of the message to follow. While the standard transmitters and receivers used in security and related applications are optimized for the shortest message and thus shortest on-the-air time, the format allows for future expansion into longer message formats. For extended length data transmissions requiring a multi-packet transmission format, the sequence step number would be sent with the each packet to allow the receiver to move to the next channel in the sequence.

2. While all of the transmitters operate with the same channel sequence, no coordination between transmitters is possible, so that each transmitter is random relative to other transmitters. Each of the channels is occupied, on average, equally. The receiver is able to acquire the transmitter on any of the channels in the sequence. The transmitters do, on occasion, occupy the same channel at the same time. Under these conditions, one or both of the packets may be lost.

3. Attached is a corrected confidentiality letter listing only the schematic and detailed technical description. We request that this response be added to the confidential information if possible.

