

To: Paul Slavens, Acme Testing
From: Len Dueckman, OMNEX CONTROL SYSTEMS INC.

RE: FCC Correspondence Reference Number: 15413
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Regarding telephone conversation with Mr. Joe Dichoso, Aug. 8/00

I have put together a few comments to summarize some of the issues we discussed this morning.

MASTER

This is a continuous system. The master transmits packets on every frequency in the sequence (63) before repeating. After acquisition, the slave receiver (and transmitter portion of the slave) tracks the master transmitter. It therefore must hop through all 63 frequencies to track the master before repeating. The only time the slave receiver goes back into acquisition mode is if the transmitter is turned off. This is accomplished only by human intervention. There is no electronic mechanism in the system to try to circumvent the FCC intent. In the event the slave system loses signal strength, it will only declare an out of lock condition after at least 30 missed packets and it cannot re-lock until the master transmitter has cycled through its 63 frequency table and transmitted on the channel selected for its acquisition channel. The master NEVER transmits out of sequence so all frequencies of the master transmitter sequence are used equally.

SLAVE

The return transmission again conforms to the FCC intent. The Slave only transmits after the Slave receiver has locked to the Master. Its packets are the same length as the Master but it only transmits them 1/10 as often. It transmits at a regular interval as shown in the table below. It does utilize every frequency in the sequence but of course not as often. It therefore also conforms to the FCC intent.

SYSTEM

The typical application for this system is for remote control of mobile industrial equipment. The equipment has an active ESTOP (meaning the equipment requires the signal to be present at all times or the equipment will shut down). For safety reasons this requires that the transmitter continually transmit packets so the system can tell it has a valid link. If the link ever fails either due to operator turning off the transmitter or a failure of the equipment, the system will be shut down immediately. It is usually turned on for hours at a time, whenever the equipment is being used. It is only turned off by a large red emergency STOP switch located on the transmitter.

The system is entirely predictive in nature. The transmitter is never aware of the condition of the receiver at the other end and will continue on a sequence as shown in the table below until the Master is turned off. As well the return link will continue to reply in a predictive fashion as indicated in the table below. When it has reached 63 hops, it will repeat just as the Master does.

Once the slave has acquired the Master, the following sequence continues until the unit is turned off. No channels are missed or repeated.

Master TX Channel #	Slave TX Channel #
1	
to	
10	
	1
11	
to	
20	
	2
21	
to	
30	
	3
31	
to	
40	
	4
41	
to	
50	
	5
51	
to	
60	
	6
61	
62	
63	
1	
2	
3	
4	
5	
6	
7	
	7
8	
9	
Etc.	Etc.
At Channel 63, it will repeat	At Channel 63, it will repeat