29/6/87

Jean: The package arrived here in only four days via DHL. This is better than air mail. Thanks for all your considerable efforts.

The crystal people are not interested. The five months is freely translated to 7-9 months. Their prices tell us to get lost. Collins is no better. I notice their letter changes Sussex to Suffix. This has happened to me before. It is probably best to forget the old Hammarlund receiver. It has geriatric troubles.

I have an excellent receiver specially designed for low frequency observations of cosmic static. It operates in range 0.9 - 1.2 mc, and was used during solar minimum of 73-77. The IF is 250kc with bandwidths of 2.4, 8.5, 25kc. Shape factors are 2.3, 1.7, 1.3 I'll get it out and change coils to operate 1.8 - 2.4mc. Probably needs some other fixing too. I'll bring it with me.

Thanks for buying the Boonton 190A Q meter. We can make good use of it. Please continue to try locating a Marconi 20B/1 bridge, but don't buy one. The price will probably be astronomical. By time I return, it will be winter again. I'm not going to fuss around in cold and snow measuring antenna and transmission line impedances. Such is a summer job.

I have a considerable quantity of 3/30/44 litz. I'll bring some with me. According to New England catalog table 2, p12, my wire is suitable for range .35-.85mc. I found it good 0.9-1.2mc. For range 1.4-2.8mc they recommend finer (#48) strands. As comparison with my wire please purchase a small quantity (2 lbs?) of 5/3/20/48 code NELC 300/48 SPSN on page 20. I hope they have some on hand and don't need five months to make it. Insulation to be Sodereze or similar which will melt off when touched by a soldering iron. We are operating at top end of useful frequencies for litz.

My 2mc, 300/600 ohm impedance transformers were air core, short solenoids and worked quite well. I went to toroids at 1mc because solenoids became too large. Experiments at your lab and literature from NORAMEL suggest 2mc is beyond useful frequency for ferrite toroids. There is no purpose in using very fine litz to reduce copper loss when most (85%) of loss is in core. I want to try solenoids again with modest amounts of iron. Optimum design is when copper and iron losses are equal. This means fairly large diameter (1½") solenoids with small strait core. I left a few crooked rods in one of those cartons. For comparison, please purchase from NORAMEL five each R61-033-400 and R33-037-400 rods. They are quoted at $4.00 each.

I've examined the ionosonde data in detail, and scaled f_oF_2 from 1700-0700 for each hour of each day. f_oF_2 drops rapidly after sunset, often going below 2mc by 9pm. Then stays low most of nite.

A very fast rise occurs between 6&7a. This agrees with cosmic static traces which show a very rapid decline around sunrise. I've become interested enough to want to scale more traces. Please get same print outs 1st Dec 86 thru 7 Jan 87. Also ask for good clear prints of fourteen times on enclosed slip of paper. These should be from film taken by camera, not digital on tape.

Please write to Anzac Electronics, 39 Green Street, Waltham, Mass., 02154. Ask for details on their Quadrature Hybrids useful at low frequencies. Then send a copy of catalog to me. Thanks.

Ashton is a good site. I think we are on to a good thing. We need to put up wires which came down in ice storm; a good receiver; and a useful ionosonde. Let us push on with all haste. Will write again.

Grote

Grote Reber