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| SUBJECT | Combating Deliberate QRM | | |
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**Introduction**

Deliberate QRM and poor operating behaviour on the Amateur bands is on the increase, and threatens the entire Amateur movement and the high esteem the Radio Amateur is held in Administrations and NGOs around the world. It
will undermine our very existence if it is allowed to go unchallenged. Whilst encouraged with progress since the Interim Conference, February 2007, on making suitable education and training material available to address this issue, the RSGB remains sceptical that such action is sufficient. Accordingly, it has supported work by a number of Chiltern DX Club members and other Amateurs across Europe and Scandinavia to explore the potential of some form of technology intervention to trigger an appropriate change in behaviour. The project has been to create a so-called DF Cluster that is modelled upon the DX Cluster, though with some important differences.

**Discussion**

**Classifying the problem**

In studying the problem the following definitions have been developed:

• The "Inexperienced" and perhaps the "absent minded": this activity is mostly not deliberate, but it represents a group that needs educating. They manifest their inexperience through not understanding split operation, get confused between their VFOs, call continuously or out-of-turn and perhaps also have unrealistic expectations of a QSO;
• The "DXpedition operators": many factors associated with the DXpedition seem to have an effect on the instance of deliberate QRM. Some DXpeditioners need educating; we need to learn more and continue the good work started by many top DXpeditioners to share "best practice";
• The "Policemen": these people guard the DX frequency by announcing "up", "split", "QRX", "LID", etc. Well-intentioned but often cause more QRM than they solve. The downside is that they sometimes take on those causing the deliberate QRM. We need to address this group educationally, but in a different way by, for example, getting them to realise that it is pointless reasoning with someone in a raised sense of arousal. We also need to harness their altruism in a more constructive way;
• The "Vandals": Education will not change this group, hopefully very small in number. They try and destroy DXpeditions by intentionally jamming their transmit frequency. They need to be deterred and perhaps made to re-direct their malevolence preferably on some other hobby!

**DF Cluster project**

The concept behind the project was to harness the potential of a huge number of stations that are able to share data or other information on the signals causing the jamming. Thus, the name "DF Cluster" was perhaps an obvious choice; indeed our first experiment was created using DX Cluster technology, substituting bearings for DX callsign data.

Operational from September 2007 a small number of stations across Europe and Scandinavia were invited to participate. The DF Cluster experiment thus stated, what was perhaps the first systematic study of the phenomenon, by monitoring the 3B7C DXpedition for deliberate QRM. Other DXpeditions in the autumn were also monitored but without the same level of consistent monitoring.

Whilst it was good for the 3B7C operation that little deliberate QRM occurred, and then mostly restricted to 40 and 80m, it meant that the outcome from the experiment was limited. It did though produce some interesting subjective conclusions, which were that the low incidence of deliberate QRM was due to the following factors in rank order

- Good operating skills all round
- Position on the "Most Wanted List"
- Tight control of splits
- QSX announcements

Perhaps the most questionable of these was the issue of the position on the "Most Wanted List" as the QSO total and number of "uniques" rather disputes this finding.

Those involved in the project were acutely conscious of the need for the facilities and design of the DF Cluster need to be carefully controlled in order to drive the desired behavioural change, rather than make the problem worse. Accordingly, the cluster concept has two levels of output: a "public" one to motivate users to provide bearings, etc., and a "private" one that delivers processed data for exchange between National Societies. Both are equally important. Unlike the DX Cluster we need a high level of interaction amongst the user community. "Lurkers" (people who just read from online systems without contributing) and not encouraged! Conversely, widespread availability of highly processed data could well encourage those doing the jamming. We just need enough response from the system to seek out a few causing the problem and thus to deter others from vandalising our DXing hobby. Although still in its generic phase the DF Cluster project may perhaps creates an alternative platform for the "policemen", moving some of their activity away from the DX channel.

The experimental development of the DF Cluster, like the DX Cluster, does not need IARU endorsement. However, there is a role for IARU Member Societies beyond their agreement (REC/99/LH/C4.7) to "motivate their members to adhere to Amateur Radio ethics, and to take action against stations practising deliberate and malicious interference on the Amateur Radio Bands". These further agreements are detailed in the Recommendation below.

It is recognised that licensing conditions and attitudes of national Administrations to licence infringement vary across the Region. To address this enforcement a survey was started last August within CEPT WGRA, which it is hoped will lead to follow-on work to improve the harmonisation of licences at least within the countries covered by CEPT Rec T/R 61-02.

**Recommendation**

That in respect of combating deliberate QRM, Member Societies support the concept of DF Cluster project by agreeing

a)      To the exchange of data on approximate locations from where deliberate QRM is thought to be emanating;

b)      That the data will be brought to the attention of their national Administration for action;

c)      That Member Societies will seek to work with their national Administration to ensure that the provisions of their Radio Amateur Licence are sufficiently robust to allow enforcement, including sanctioning, in cases concerning acts of deliberate QRM.