

Proposal for Guidelines for Use and Implementation of Regenerative Packet Nodes.

A regenerative node is a node that starts to relay a packet frame before it has received a complete frame and is transparent to the stations using the node. You don't connect or link via the regenerative node, it simply passes all traffic heard on its input frequency that is recognised as being a packet at the correct speed and using the same modulation scheme.

This type of node greatly reduces 'hidden terminal' effect that is encountered when stations on either side of a topographic feature (hill, ridge etc) try to link on the same frequency via a node on top of this hill or ridge, causing clashes on the input of the node.

However, because of its transparent nature, certain precautions should be taken in the use and in the licensing of this type of node:

1. If possible, the input frequency (Rx) for regenerative nodes, should only be used for that purpose, and not shared with other mailbox to mailbox links or node to node links.
2. If possible, the input frequency should be paired with an output frequency (Tx), again this should only be used for this purpose.
3. Where a pair or more than one pairs of frequencies are used depending on the band in use), the input frequencies should be fixed in terms of which end of the band is chosen on a UK wide basis in the same way voice repeater frequencies are band-planned.
4. Cross-band regenerative nodes should be permitted, but the above guidelines should be followed with regard to their input and output frequencies on the respective bands.

The following are some suggested guidelines for the use of regenerative packet nodes.

1. CW idents received on the input frequency must not be allowed to appear on the output frequency but should cause the transmitter to energise and to send flags to indicate that the input is busy. (Prevent contention with cwid's). This would also make sure that the regenerative node didn't relay CWID's which would be illegal under the terms of BR68.
2. All up linking stations should use directional aerials with a beam-width (at -3 dB points) of not greater than 90 degrees. i.e. if using a Yagi, it should have not less than 3 elements. This will ensure that users will not be relayed by other regenerative nodes sharing the same frequency pair.
3. The transmit power of an up linking station should be not greater than required to give a reliable link to the regenerative node. This is a similar requirement to that of a satellite transponder.
4. Up linking stations should be nodes or mailboxes rather than individual users. This would give control over the number of stations accessing the regenerative node and ensure the points raised above would be complied with.
5. The received data must be decoded, i.e. no audio to audio packet repeaters allowed.

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