Characterisation and Modelling of the HF Communications Channel

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ABSTRACT

High frequency (HF) skywave communications may exhibit poor signal-to-noise, slow fading at mid-latitudes and fast fading at high and equatorial latitudes. Furthermore, the channel is almost always frequency selective. Until recently data rates of ~75 bit/s and low availabilities were all that could be expected. However, with the advent of DSP, data rates have increased significantly - such is the progress that digital HF broadcasting is now planned to replace conventional analogue transmissions.

To support these initiatives it has been necessary to measure and model the HF channel. A paper reviewing recent contributions and areas requiring future research can be found in Reviews of Radio Science, 2002.