CLAIMS

1 – A method for communication in a wideband high frequency HF communication system comprising a transmitter (300) for an HF signal and a receiver (320), at least n communication channels ch_n, an FEC error correction code (301) and an interleaver (302) that are common to the n channels, a means (312, 313) allowing determination of the communication quality Qn provided by each of the n channels ch_n, the data being transmitted in the form of a frame comprising an initial synchronization preamble and a standard autobaud (401a, 401b) followed by a block of data (402) characterized in that it has at least the following steps, which are performed in order to allow the use of n channels in parallel, sharing one and the same coder and one and the same interleaver in order to benefit from frequency diversity protection, while allowing the use of different modulations on the n channels and providing redundancy on the information pertaining to coding, interleaving, modulation by channel, number of channels:

- a step that involves introducing, into the structure of the frame of the data in the transmitted HF signal, an autobaud extension preamble (405) after the standard autobaud (401b), said extension preamble having at least the following information:
    - a piece of information about the modulation used on each of the n channels ch_1, .., ch_n,
    - a piece of information about the interleaver that is considered common to the n channels,
    - the FEC correction code used, which is common to the n channels,
    - the number of channels used (n), and for each the identifier id_1, .., id_n thereof that allows them to be ordered,
- a step of choosing the modulation (304mn) on a channel n on the basis of the link quality of said channel,
- a common coding and interleaving operation (312, 313) on the n channels,

- the transmission of the information introduced into the shared autobaud at the receiver~~.~~
- a step that involves inserting the autobaud extension preamble (405) after a standard autobaud (404) that is itself regularly inserted into the data frame.

~~2 – The method as claimed in claim 1, characterized in that it has a step that involves inserting the autobaud extension preamble (405) after a standard autobaud (404) that is itself regularly inserted into the data frame~~.

3~~2~~ – The method as claimed in claim 1, characterized in that said frame comprises a first standard portion composed of two tribits followed by a mini-probe and a second portion made up of n tribits followed by a mini-probe.

4~~3~~ – The method as claimed in claim 1, characterized in that the information on the modulation used is a piece of bit rate information.

5~~4~~ – The method as claimed in claim 1, characterized in that a propagation channel ch_k carries the bit rate information for the communication channels ch_k and $ch_{k+1}[n]$.

6~~5~~ – The method as claimed in claim 1, characterized in that the choice of modulation used on a path is made by taking into account the quality Q_n of the communication channel ch_n.

7~~6~~ – The method as claimed in claim 6~~5~~, characterized in that the link quality of a communication channel is estimated by executing at least one of the following steps:

- measurement of power of the received signal, in the absence of communication, in each channel considered by the system,
- attribution of a quality grade to each of said channels by comparing the value measured for the power with one or more threshold values,
- selection of the n channels having the highest grade values.

~~8~~7 – The method as claimed in either of claims ~~6~~5 and ~~7~~6, characterized in that the link quality of a communication channel is determined at the transmitter (300).

~~9~~8 – The method as claimed in one of the preceding claims, characterized in that the width of a channel is 3 kHz, 6 kHz or t kHz, t being a given real number.

~~10~~9 – The method as claimed in claim 1, characterized in that the frame structure is defined in the ST4539 standard or the MIL 188-110B standard and in that the method uses the value '111' of the first tribit of the autobaud in order to signal extended autobaud operation to the receiver and in that four additional tribits are defined, or eight symbols for forming an autobaud of 137 symbols and thus constituting the extended autobaud, said tribits being protected by a correction code.

~~11~~10 – The method as claimed in one of claims 1 to ~~10~~9, characterized in that various coded modulations are used, on the basis of a channel that is under consideration.

~~12~~11 – A wideband high frequency communication system having at least one HF transmitter (300) and at least one HF receiver (320) that are suited to transmitting and receiving a signal having an HF waveform, characterized in that:

- said HF receiver (320) has means for determining n frequency channels, on which it will transmit an HF signal,
- said receiver has means for evaluating the transmission quality of a channel,
- said HF transmitter (300) moreover has means allowing generation of an autobaud comprising at least the following information:
    - a piece of information about the modulation used on each of the n channels ch_1, .., ch_n,

- a piece of information about the interleaver that is considered common to the n channels,
- the FEC correction code used, which is common to the n channels,
- the number of channels used (n), and for each the identifier idn thereof that allows them to be ordered,

- the system comprising a return path (312) allowing the information about the quality of the channel to be sent back up to the HF transmitter,
- said HF transmitter (300) has means allowing insertion of an autobaud extension preamble (405) after a standard autobaud (404) that is itself regularly inserted into the data frame.