Lindecker Patrick (F6CTE) the 17th of August 2019 – Maisons-Alfort (France) rev A

Multipsk protocol for transmission of messages compatible with the ICOM 20 characters messages

Only one message of 20 characters can be sent before an answer, this to give the possibility for an ICOM radio to receive the message and, possibly, to answer. So the normal way for a QSO is an alternate of small messages, each one contained in one DSTAR frame, between one Ham and the other Ham.

The characters must be ASCII readable characters, so between CHR(32) and CHR(126), on 8 bits.

The message of 20 characters max is completed up to 20 characters with spaces.

They are transmitted in the 8 first data slots (a data slot is 24 bits or 3 bytes long), in the following way (with « x » is one character of the message).

@xx
xxx
Axx
xxx
Bxx
xxx
Cxx
xxx

These 8 data slots are always followed by a certain number of « f » by ICOM.

So Multipsk adds:

- two data slots (no. 9 and 10) filled with 6 “f”,
- then a data slot (no. 11) filled with 1 space and the two first characters of the message,
- followed by 6 data slots (no. 12 and 17) filled with the remaining 18 characters of the message.

This message repetition permits a redundancy of the message (for information, in case of bad reception of the first message).

All voice slots are filled with this random sequence:
“11101010001010111010101000101001101011001011100010110010110010011001010101”.

Note that:

- all data slots are submitted to a scrambling
- the “Own callsign 2” field of 4 characters is filled with “MPSK” for “message sent by Multipsk” (just for information).