

D-Star radio packet structure for the Digital Voice (DV) mode

by Dick Rucker, KM4ML

date: 07-Sep-06

version: 1

source: JARL protocol for D-Star; downloaded from here:

<http://www.arl.org/FandES/field/regulations/techchar/D-STAR.pdf>

Structure of a D-Star voice packet:

sync	64 bit	Bit sync	1 0 1 0 ... for GMSK; 1 0 0 1 ... for QPSK
pulses	14 bit	Frame sync	
flags	1 octet	Flag 1	same as DD mode
	1 octet	Flag 2	same as DD mode
	1 octet	Flag 3	same as DD mode
r o u t i n g	8 octets	RPT2	Destination repeater ≤ 8 ASCII chars; fill blanks with space characters
	8 octets	RPT1	Departure repeater ≤ 8 ASCII chars; fill blanks with space characters
	8 octets	UR	Companion's call sign ≤ 8 ASCII chars; fill blanks with space characters
	8 octets	MY call 1	Own station's call sign ≤ 8 ASCII chars; fill blanks with space characters
	4 octets	MY call 2	Own station's call suffix ≤ 4 ASCII chars; fill blanks with space characters
	2 octets	Packet Forward Check Sum (FCS) = CRC-CCITT checksum: $G(x) = x^{16} + x^{12} + x^5 + 1$	
p a k e t s	72 octets	20 ms of digitized voice from the AMBE codec with Forward Error Correction	
	24 octets	1st data frame	
	72 octets	next 20 ms of digitized voice	
	24 octets	1st & every 21st data frame are used for synchronizing data across the link - see spec	
	...	voice + data frame repeats until...	
d	24 octets	last data frame contains a unique terminating bit pattern	