PSK31 (Phase Shift Keying)

Anthony : F4GOH

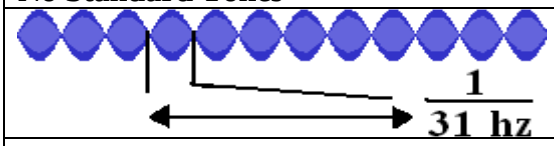
Features (standard):

Phase modulation

Speed : 31 bauds
1/31 s for 1 Bit

Transmission: Synchronous

No Standard Tones



Variable data bits between 2 idle states

Character set: Varicode (the transmission time varies depending on content)

Slow, The whole ASCII table is represented.
No check code. 31hz bandwidth.

Usual frequencies:
14,073 Mhz
7,037 Mhz

The letters are coded by a sequence of bits of variable length, as in the Morse alphabet. This coding called Varicode was invented by 2 radio amateurs in 1990. http://en.wikipedia.org/wiki/Varicode

Varicode	Character
1	SP
111111111	!
101011111	"
111110101	#
111011011	$
1011010101	%
1010111011	&
101111111	'
11111011	(
11110111	)
101101111	*
111011111	+
1110101	,
110101	-
1010111	.

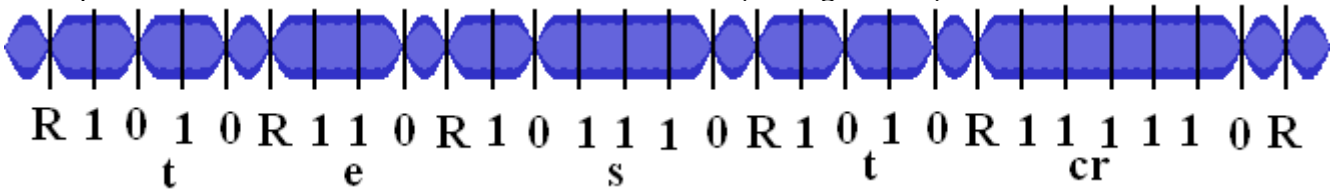
Varicode	Character
1010111101	@
1111101	A
11101011	B
10101101	C
10110101	D
1110111	E
11011011	F
11111101	G
101010101	H
1111111	I
111111101	J
101111101	K
11010111	L
10111011	M
11011101	N

Varicode	Character
1011011111	`
1011	a
1011111	b
101111	c
101101	d
11	e
111101	f
1011011	g
101011	h
1101	i
111101011	j
10111111	k
11011	l
111011	m
1111	n

Varicode coding is studied in order to reduce the number of bits transmitted for the most used characters.

For example the "e" is coded on 2 bits.
The 1-bit space character.
The @ character is not widely used, so it will be encoded in a larger number of bits.
The list of codes is not complete, but gives an overview.

Example of PSK31 frame: Send the word "test" then CR (carriage return)



Description:

We start by sending successive idle states (R), then as soon as the signal remains stable (of the same phase) an NL1 is transmitted, then it is a phase inversion and it is the turn of an NL0 . We finish each character by adding an NL0 because it is necessary to place the rest states R between each letter. This is why the frame clock corresponds directly to the idle states. The transmission is synchronous. To avoid the generation of too large harmonics, the amplitude is reduced before reversing the phase.

t e s t
t 1010
e 110
s 101110
t 1010
cr : enter 111110

For the PSK63 (63 bauds) and PSK125 (125 Bauds), the coding principle remains the same.