CSK Code Symbols Extracted From Original CSK Code

Neff CSK Codes are designed for efficient extraction of 16 orthogonal symbols defined as binary codes. These code symbols are shown in the figure for a sample of a CSK Code. The first binary bit of this family of symbol codes is shifted by 25 bits from the previous symbol code, and then converted back to 100 hex character formats across the common binary length of 400 bits. In the CSK code generation process the pulse-width indexes of the Tier0 half-codes are shuffled and recombined to binary full codes of the original length with System Denominator of 10, wherein 10 CSK Codes are contained in each common 200 microsecond transmission slots. Each CSK code has a chipping rate consistent with an exact fit of 10 CSK codes per 200 microseconds. This collection of transmit CSK Code symbols can be selected to fit N Carriers with Quadrature Phase Shift Key (QPSK) modulation allowing 2 to 4 independent quadrature CSK Code symbols occupying the same carrier. All carriers are defined as: unique chipping rate * N Integer multiplier. The QPSK symbol correlation time slot for any CSK Code symbol length is 20 microseconds. The half-symbols are robust enough to be detected in 10-microseconds portions of every 20-microsecond slot. The receive process can employ 20x parallel correlation processes for 4 unique half-symbols per 20-microsecond slot resulting in detection of 4 symbols per 20-microsecond transmission slot. When a downlink is formed to include 20x Multiple-Input Multiple-Output (MIMO) downlinks to a cell phone from multiple terrestrial servers, a single common channel can have throughputs of 2+ Gbps (or greater) on a common client receive channel with 76 unique carriers. There can be a total of 128 or more carriers including duplicates that form a 100 MHz containing closely packed (and overlapping) carriers using 29 unique CSK Code symbols.

EXPANSION OF SINGLE CSK CODE FROM MEMORY TO 16 CSK SYMBOL CODES

ORDER	ORIGINAL CSK CODE FROM MEMORY
	7E383E030038FFFFF9F0017FF82FFFF800FDFFFE07FFC004007FFFE0602C060203FE007FB1FE20FA3FB8FF00FF7F9C01FC0F
	CSK SYMBOL CODES
"1"	7E383E030038FFFFF9F0017FF82FFFF800FDFFFE07FFC004007FFFE0602C060203FE007FB1FE20FA3FB8FF00FF7F9C01FC0F
"2"	060071FFFFF3E002FFF05FFFF001FBFFFC0FFF800800FFFFC0C0580C0407FC00FF63FC41F47F71FE01FEFF3803F81EFC707C
"3"	FFFFE7C005FFE0BFFFE003F7FFF81FFF001001FFFF8180B018080FF801FEC7F883E8FEE3FC03FDFE7007F03DF8E0F80C00E3
"4"	800BFFC17FFFC007EFFFF03FFE002003FFFF03016030101FF003FD8FF107D1FDC7F807FBFCE00FE07BF1C1F01801C7FFFFCF
"5"	82FFFF800FDFFFE07FFC004007FFFE0602C060203FE007FB1FE20FA3FB8FF00FF7F9C01FC0F7E383E030038FFFFF9F0017FF
"6"	001FBFFFC0FFF800800FFFFC0C0580C0407FC00FF63FC41F47F71FE01FEFF3803F81EFC707C060071FFFFF3E002FFF05FFFF
"7"	FF81FFF001001FFFF8180B018080FF801FEC7F883E8FEE3FC03FDFE7007F03DF8E0F80C00E3FFFFE7C005FFE0BFFFE003F7F
"8"	E002003FFFF03016030101FF003FD8FF107D1FDC7F807FBFCE00FE07BF1C1F01801C7FFFFCF800BFFC17FFFC007EFFFF03FF
"9"	7FFFE0602C060203FE007FB1FE20FA3FB8FF00FF7F9C01FC0F7E383E030038FFFFF9F0017FF82FFFF800FDFFFE07FFC00400
"10"	C0580C0407FC00FF63FC41F47F71FE01FEFF3803F81EFC707C060071FFFFF3E002FFF05FFFF001FBFFFC0FFF800800FFFFC0
"11"	080FF801FEC7F883E8FEE3FC03FDFE7007F03DF8E0F80C00E3FFFFE7C005FFE0BFFFE003F7FFF81FFF001001FFFF8180B018
"12"	03FD8FF107D1FDC7F807FBFCE00FE07BF1C1F01801C7FFFFCF800BFFC17FFFC007EFFFF03FFE002003FFFF03016030101FF0
"13"	E20FA3FB8FF00FF7F9C01FC0F7E383E030038FFFFF9F0017FF82FFFF800FDFFFE07FFC004007FFFE0602C060203FE007FB1F
"14"	F71FE01FEFF3803F81EFC707C060071FFFFF3E002FFF05FFFF001FBFFFC0FFF800800FFFFC0C0580C0407FC00FF63FC41F47
"15"	3FDFE7007F03DF8E0F80C00E3FFFFE7C005FFE0BFFFE003F7FFF81FFF001001FFFF8180B018080FF801FEC7F883E8FEE3FC0
"16"	00FE07BF1C1F01801C7FFFFCF800BFFC17FFFC007EFFFF03FFE002003FFFF03016030101FF003FD8FF107D1FDC7F807FBFCE

Primary CSK Codes Advantages

- All CSK Code users have a common ability to extract 16 orthogonal symbols from any CSK Code
- All networks have a common synchronization method and a common compatible network code epoch
- All CSK users can join and exit networks at any 1-second epoch boundary using cloud CSK Code downloads
- All CSK users can configure for receive MIMO and demodulate 1-second epochs of any network
- All networks have the common ability to receive MIMO data throughputs of 1 Gbps to 2+ Gbps
- Pre-analyzed CSK Code symbol cross-correlations guarantees a specific maximum symbol cross-correlation
- Defined extractions of CSK symbols from a CSK Code guarantees a deterministic symbol detection