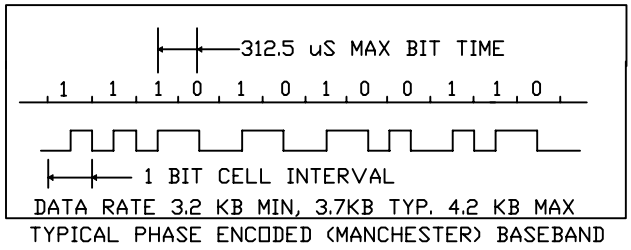
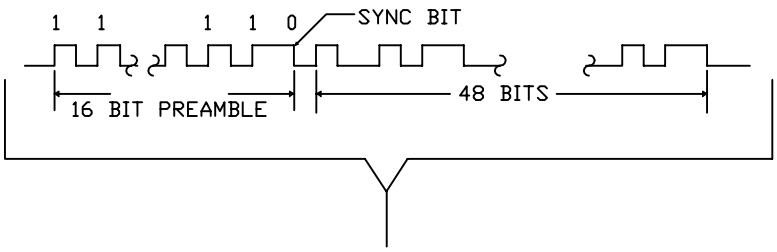
EXHIBIT 3 CFS8DL5853

5800SS1 - Duty Cycle Calculation

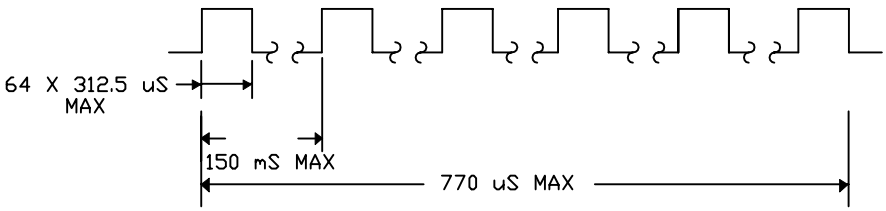
Message protocol, timing and duty cycle calculation.
The data output is phase-encoded Manchester that has inherent 50% duty cycle
and consists of 64 bits per word
A supervision transmission is six identical words separated by (start to start) by nominal
125mSec (100 mSec min, 150 mSec max). Each message has a nominal data rate of 3.7 kb/s
(3.2kb/s min to 4.2kb/s max).
Therefore the duty cycle is calculation is as follows:
The word format consists of 64 bits,
The duration of each bit is 312.5 uSec max.
The duty cycle over a 100 mSec measuring period is calculated as follows:
Duty cycle = Actual RF transmission ON time / 100 mSec
Actual transmission ON time = 64 bits X 50% X 312.5 uSec = 10 mSec
Therefore duty cycle = 10 / 100 mSec = .10 = 10%, and peak to average field strength is 20 db.
Total on-air time for a supervision transmission is:
64 X 312.5 uSec + (5 X 150 mSec) = 0.77 seconds
In the case of an alarm transmission, the group of six transmissions is repeated twice,
with the second group delayed from the first by a max time of 2 seconds.
The worst case on-air time is 2 X (supervision time) + 2 = 3.54 seconds
The worst case Duty cycle is : 10%



TYPICAL PHASE ENCODED (MANCHESTER) BASEBAND



SINGLE MESSAGE



6 IDENTICAL MESSAGES = 1 SUPERVISION MESSAGE

OR