TRANSMITTER DUTY CYCLE CALCULATIONS
AND TIME DOMAIN INFORMATION

Duty Cycle is fixed because binary-coded, pulse-position type AIA
 modulation is used. Modulation rate is fixed at 167 bits per
second. Therefore, each bit frame occupies 6 ms.

During transmission, the transmitter sequentially emits a group
of 25 pulses in the form of a pulse-keyed carrier. Each pulse
(transmitter ON time) has a duration of one millisecond (ms).

REAL TIME ANALYSIS: Refer to Page 6 for timing diagram. From
time zero, one synchronization pulse of 1 ms duration occurs
within a 6 ms "bitframe." Elapsed time: 6 ms.

Each of the remaining 24 information pulses occupy a 1 ms
duration position within a 6 ms wide "bit frame" (24 frames)
Total elapsed time: 144 ms.

DUTY CYCLE FACTOR:

\[
\frac{25 \text{ pulses (1ms)}}{150 \text{ ms}} = 0.16 \left(20 \log_{10} \text{ voltage}\right) - 15.56 \text{dB} (-16 \text{ practical})
\]

This calculation is based on a 150 ms total cycle time which is
representative of actual operation.

In compliance with Rule 15.205(b), the following duty cycle
factor is used for all field strength calculations:
For a worst-case 100 ms interval occurring during the 144ms-long
string of 24 bit frames:

\[
\frac{100 \text{ ms}}{6 \text{ ms per frame}} = 16.66 \text{ frames average, 17 pulses possible.}
\]

\[
0.17 \left(20 \log_{10} \text{ voltage}\right) = -15.6 \text{ dB}
\]

LINEAR CORPORATION
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