NOTICE OF CHANGE

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MIL-STD-188-115
NOTICE 1
17 Dec 98

MILITARY STANDARD
INTEROPERABILITY AND PERFORMANCE STANDARDS FOR
COMMUNICATIONS TIMING AND SYNCHRONIZATION SUBSYSTEMS

TO: ALL HOLDERS OF MIL-STD-188-115

1. THE FOLLOWING PAGES OF MIL-STD-188-115, 31 Mar 1986 HAVE BEEN REVISED AND SUPERSEDE THE PAGES LISTED:

NEW PAGE	DATE	SUPERSEDED PAGE	DATE
13	17 Dec 98	13	31 Mar 86
13A	17 Dec 98	New Page	

2. RETAIN THIS NOTICE AND INSERT BEFORE TABLE OF CONTENTS.

3. Holders of MIL-STD-188-115 will verify that page changes and additions indicated above have been entered. This notice and page will be retained as a check sheet. This issuance, together with appended pages, is a separate publication. Each notice is to be retained by stocking points until the military standard is completely revised or canceled.

CUSTODIANS:	Reviewing Activities:	Preparing Activity:
DISA: DC	ARMY: CR, SATCOMA	DISA (DC1)
ARMY: SC	NAVY: MCDEC, USNO, NRL	
AIR FORCE: 90	AIR FORCE: RADC	
NAVY: EC	NSA: T25, TS	
NCS: NS		(Project TCSS-00450)

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5.1.2.1 Network time. Principal and alternate clocks shall have the ability to maintain network time from a designated internal source(s) when all external timing references are lost. Networks requiring independent maintenance of accurate time at the nodal level shall employ nodal clocks or ensembles capable of maintaining network time after loss of all external references.

5.1.2.2 Initial setting and maintenance of time. Provisions shall be made at each node for initially setting the nodal clock. Subsequent network interaction shall allow for additional time updates. Nodes that are intermittently connected to networks shall contain a clock of sufficient rate accuracy so that after initial setting and after quiescent periods (in a free-running mode, see 4.3.1.1), the clock remains within system tolerances such that the node can still transmit and receive information.

5.1.2.3 Time dependent network clock outputs. Clocks (or clock systems) for time-dependent networks shall provide the following outputs:

(a.) The output frequency provided shall be in accordance with 5.2.1

(b.) The harmonic distortion for sine wave outputs shall be at least 40 dB below the required output level. The level of any signal component not a harmonic of the output reference shall be at least 60 dB below the required output level.

(c.) Nodal clocks shall provide a one pulse-per-second UTC as shown in figure 1.

(d.) A binary coded decimal (BCD) reference signal shall provide UTC TOD in hours, minutes and seconds. The leading edge of the BCD code (negative going transitions after extended high level) shall coincide with the on-time (positive going transition) edge of the one pulse-per-second signal to within +/- 1 millisecond (msec). Provisions shall be made for leap second adjustment. As an example, the Global Positioning System (GPS) will have its rollover event on 21 August 1999 at 23:59:47 UTC. At that time, the week counters will rollover from 1023 to 0. GPS receivers that are incorrectly programmed may set the date to 5 January 1980 rather than 21 August 1999.

Leap second adjustments are independent of leap year adjustments. For those systems requiring adjustments based on leap years, the following guidance is included: Leap years are years evenly divisible by 4. Years evenly divisible by 100 are not leap years. The exception to this is that years evenly divisible by 400 are leap years. Thus the year 2000 is a leap year, and Day of Year (DOY) counters will need to take this into account. The time code shall be a 24 bit serial bit stream using international telegraph alphabet number 2 (ITA-2) code. The bit rate shall be a minimum of 50 bits per second. Rise and fall times shall be in accordance with MIL-STD-188-114. The time word starts with the most significant digit. (This time word provides TOD information, hours, minutes and seconds to within 1 msec) (see figure 2).

NOTE: For additional information, refer to DoD-STD-1399/441.