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IN REPLY  
REFER TO

DSCC-VAT

September 14, 2004

MEMORANDUM FOR MILITARY/INDUSTRY DISTRIBUTION

SUBJECT: Initial Draft of MIL-PRF-55310/26C; Project Number 5955-0772

The initial draft of the subject document is now available for viewing and downloading from the DSCC-VA web site:

<http://www.dsc.dla.mil/Programs/MilSpec/initialdrafts.asp>

This initial draft document is being forwarded for your review and comment. This revision modifies the oscillator requirement in MIL-PRF-55310/26 to allow for both mixed and discrete class oscillators. This will further reduce restrictions since MIL-PRF-55310 is now a more performance-based specification.

Concurrence or comments are required at this Center no later than 45 days from the date of this letter. Late comments will be held for the next coordination of the document. Comments from military departments must be identified as either "Essential" or "Suggested". Essential comments must be justified with supporting data. Military review activities should forward comments to their custodians or this office, as applicable, in sufficient time to allow for consolidating the department reply. All Navy review activities are requested to send their comments to this center in lieu of the Navy - EC custodian.

Please forward your comments or concurrence electronically to the project engineer listed below. This can be in the form of a return e-mail, with or without an attached text file. If an electronic response is not possible, we will accept comments via letter, facsimile, or phone call but only after you have contacted the project officer. Any further coordination concerning this document will be circulated only to firms and organizations that furnish comments or reply that they have an interest.

The point of contact for this document is Mr. Fred W. Lester, DSCC-VAT. The preferred method of contact is via e-mail: fred.lester@dla.mil. Mr. Lester can also be reached at 614-692-0548/DSN 850-0548, or by facsimile 614-692-6939/DSN 850-6939.

/SIGNED/

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Chief  
Electronic Components Team



NOTE: This draft, dated 15 September, 2004 prepared by DLA-CC, as agent for Army - CR, has not been approved and is subject to modification. DO NOT USE PRIOR TO APPROVAL. (Project 5955-0772)

INCH-POUND  
MIL-PRF-55310/26C  
DRAFT  
SUPERSEDING  
MIL-PRF-55310/26B  
8 July 2002

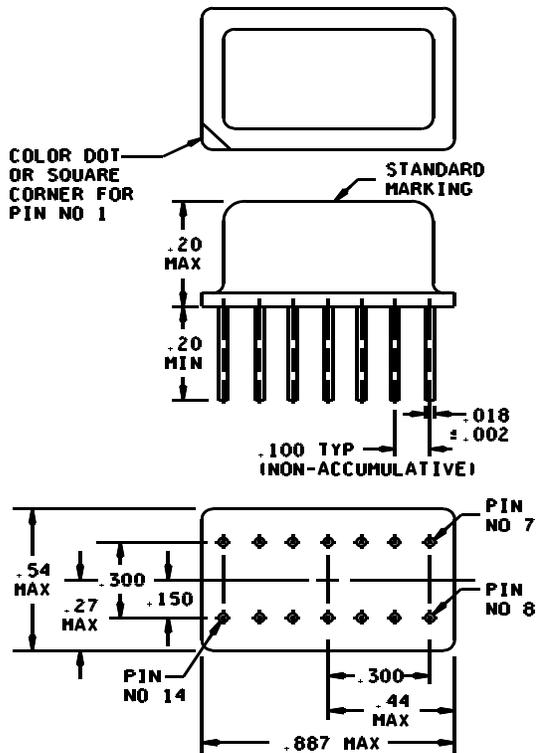
PERFORMANCE SPECIFICATION SHEET

OSCILLATOR, CRYSTAL CONTROLLED, TYPE 1 (CRYSTAL OSCILLATOR (XO)),  
10 KHz THROUGH 65 MHz, HERMETIC SEAL, SQUARE WAVE, HIGH SPEED CMOS

This specification is approved for use by all Departments and Agencies of the Department of Defense.

The requirements for acquiring the product described herein shall consist of this specification and MIL-PRF-55310.

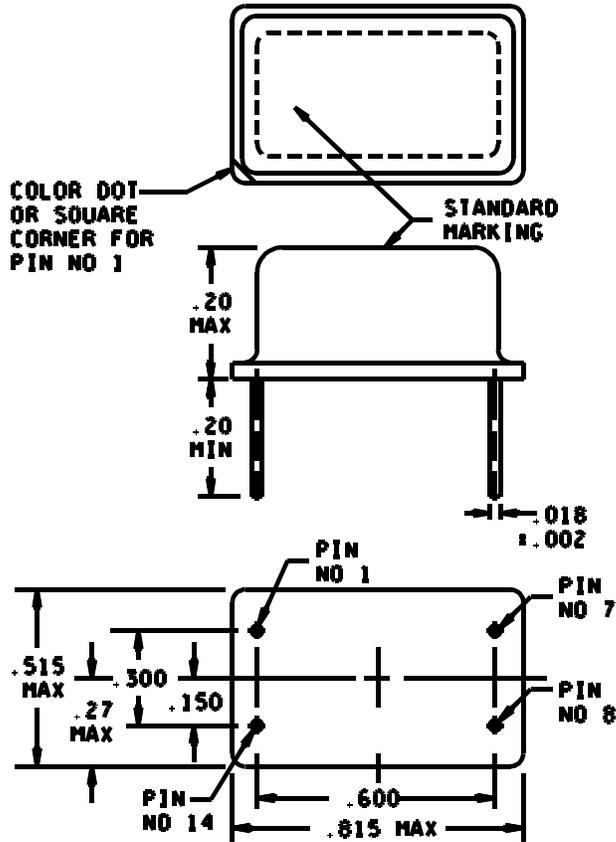
Pin number	Function
1	NC
2	NC
3	NC
4	NC
5	NC
6	NC
7	GND/case
8	OUTPUT
9	NC
10	NC
11	NC
12	NC
13	NC
14	B+



Inches	mm
.002	0.05
.018	0.46
.100	2.54
.150	3.81
.20	5.1
.27	6.9
.300	7.62
.44	11.2
.54	13.7
.887	22.53

Configuration A

FIGURE 1. Dimensions and configuration.



Pin number	Function
1	NC
7	GND/case
8	Output
14	B+

Inches	mm
.002	0.05
.018	0.46
.150	3.81
.20	5.1
.27	6.9
.300	7.62
.515	13.08
.600	15.24
.815	20.70

Configuration B

NOTES:

1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Unless otherwise specified, tolerances are  $\pm 0.005$  (0.13 mm) for three place decimals and  $\pm 0.02$  (0.5 mm) for two place decimals.
4. All pins with the NC function may be connected internally and are not to be used as external tie points or connections.

FIGURE 1. Dimensions and configurations - Continued.

REQUIREMENTS:

Interface and physical dimensions: See figure 1.

Package configuration: See figure 1.

Terminals: See figure 1.

Weight: 0.5 ounces (14.2 grams-mass), maximum.

- Oscillator: Class 2 or any class 1 or class 3 oscillator meeting all class 2 requirements and verification tests specified herein and in MIL-PRF-55310.

Calibration: Manufacturer calibrated.

Screening: In accordance with MIL-PRF-55310, product level B or S, as applicable.

Temperature:

Operating: See table I.

Storage: -62°C to +125°C.

Load test circuit: See figure 2.

Seal: Hermetic in accordance with MIL-PRF-55310, maximum leakage rate  $5 \times 10^{-8}$  atm cc/s.

Supply voltage (B+): 5.0 V dc  $\pm 10$  percent.

Overvoltage survivability: In accordance with MIL-PRF-55310.

Supply current: At designated supply voltage (see table I).

Start-up time: 15 milliseconds maximum, measurement shall be taken at reference temperature and operating temperature range endpoints.

Nominal output frequency: Frequency as designated at time of acquisition (see table I).

Output logic voltage levels at designated HCMOS load: See figure 3.

Logic 1: 90 percent of  $V_{DD}$ , minimum.

Logic 0: 10 percent of  $V_{DD}$ , maximum.

Output waveform: Symmetrical square wave, HCMOS logic compatible (see figure 3).

Duty cycle: See table I and figure 3.

Rise and fall times (see table I): Measurements shall be taken at the 10 percent and 90 percent peak-to-peak output voltage levels, with peak-to-peak output defined as Logic 1 - Logic 0 (see figure 3).

Initial accuracy at reference temperature: See table I.

Initial frequency-temperature accuracy (1/2 temperature cycle): See table I. Measurements shall be taken at ten equally spaced increments over the specified operating temperature range.

Frequency-voltage tolerance  $\pm 2$  ppm maximum for a  $\pm 10$  percent change in supply voltage. Measurements shall be taken at reference temperature and operating temperature range endpoints.

## MIL-PRF-55310/26C

TABLE I. Dash numbers and operating characteristics.

Dash number	Output frequency range		Input current (max) at 5.0 V $\pm 10\%$ <u>3/</u>	Pulse characteristics <u>1/</u>		Initial accuracy at 23°C $\pm 1^\circ\text{C}$ <u>2/</u>	Frequency aging per year (max) <u>4/</u>	Initial frequency temperature accuracy		
				Rise/fall time (max)	Duty cycle min-max			-55°C to +125°C	-55°C to +105°C	-20°C to +70°C
A	B							A	B	C
02	03	.01 MHz to 1.0 MHz	10 mA	10 ns	<u>percent</u> 45 to 55	<u>ppm</u> $\pm 15$	<u>ppm</u> $\pm 5$	<u>ppm</u> $\pm 65$	<u>ppm</u> $\pm 55$	<u>ppm</u> $\pm 40$
06	07	.01 MHz to 1.0 MHz	10 mA	10 ns	45 to 55	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$
22	23	1 MHz to 4 MHz	15 mA	10 ns	45 to 55	$\pm 15$	$\pm 5$	$\pm 65$	$\pm 55$	$\pm 40$
26	27	1 MHz to 4 MHz	15 mA	10 ns	45 to 55	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$
32	33	4 MHz to 20 MHz	20 mA	10 ns	40 to 60	$\pm 15$	$\pm 5$	$\pm 65$	$\pm 55$	$\pm 40$
36	37	4 MHz to 20 MHz	20 mA	10 ns	40 to 60	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$
42	43	20 MHz to 35 MHz	35 mA	10 ns	40 to 60	$\pm 15$	$\pm 5$	$\pm 65$	$\pm 55$	$\pm 40$
46	47	20 MHz to 35 MHz	35 mA	10 ns	40 to 60	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$
52	53	35 MHz to 50 MHz	40 mA	5 ns	40 to 60	$\pm 15$	$\pm 5$	$\pm 65$	$\pm 55$	$\pm 40$
56	57	35 MHz to 50 MHz	40 mA	5 ns	40 to 60	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$
62	63	50 MHz to 65 MHz	70 mA	5 ns	40 to 60	$\pm 15$	$\pm 5$	$\pm 65$	$\pm 55$	$\pm 40$
66	67	50 MHz to 65 MHz	70 mA	5 ns	40 to 60	$\pm 25$	$\pm 10$	$\pm 100$	$\pm 75$	$\pm 50$

1/ See figure 3.

2/ Up to 30 days following shipment see table II.

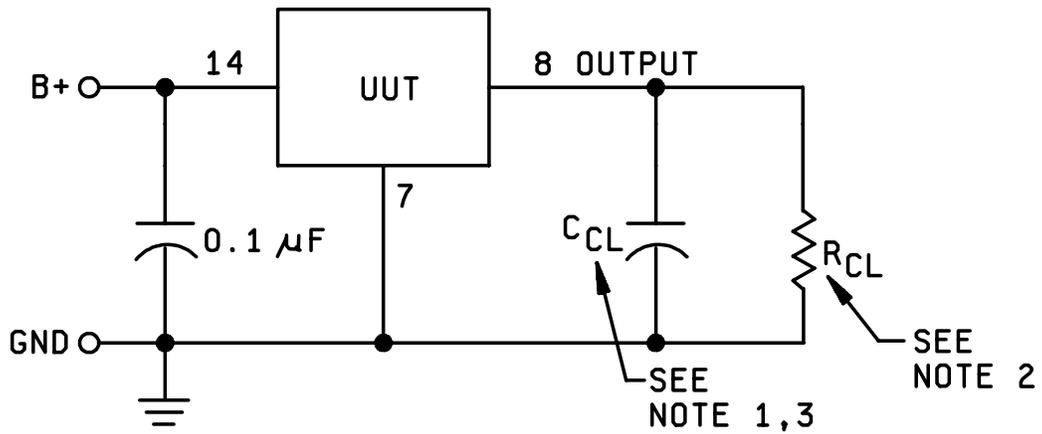
3/ No load condition.

4/ After 30 days following shipment, see table II.

TABLE II. Frequency aging limits.

	5 ppm per year <u>1/</u>	10 ppm per year <u>1/</u>
Maximum change over 30 days	$\pm 0.7$ ppm	$\pm 1.5$ ppm
Projected maximum change for 1 year after 30 days	$\pm 5.0$ ppm	$\pm 10.0$ ppm

1/ See table I.



NOTES:

1. For HCMOS:  $C_{CL} = 15 \text{ pF} \pm 5 \text{ percent}$ .
2. For HCMOS:  $R_{CL} = 10 \text{ k}\Omega \pm 5 \text{ percent}$ .
3.  $C_{CL}$  includes scope capacitance.

FIGURE 2. Load test circuit.

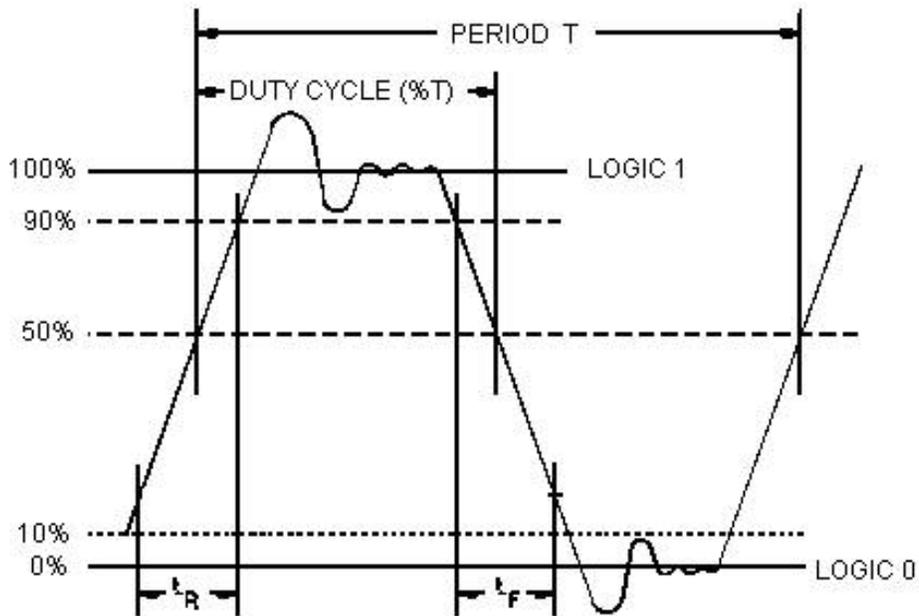


FIGURE 3. Waveform.

MIL-PRF-55310/26C

Frequency-environmental tolerance:  $\pm 3$  ppm.

Frequency aging: Frequency aging shall be in accordance with MIL-PRF-55310 and shall meet the limits of table II.

Vibration, sinusoidal: Method 204 of MIL-STD-202.

Nonoperating: Test condition D.

Operating: Not required.

Shock (nonoperating): Method 213 of MIL-STD-202, test condition I.

Thermal shock (nonoperating): Method 107 of MIL-STD-202, test condition B.

Ambient pressure:

Nonoperating: In accordance with MIL-PRF-55310.

Operating: Method 105 of MIL-STD-202, test condition C.

Resistance to soldering heat: Method 210 of MIL-STD-202, test condition E.

Moisture resistance: Method 106 of MIL-STD-202.

Terminal strength: Method 211 of MIL-STD-202, test condition C.

Applied force: 2 pounds each terminal for 10 seconds.

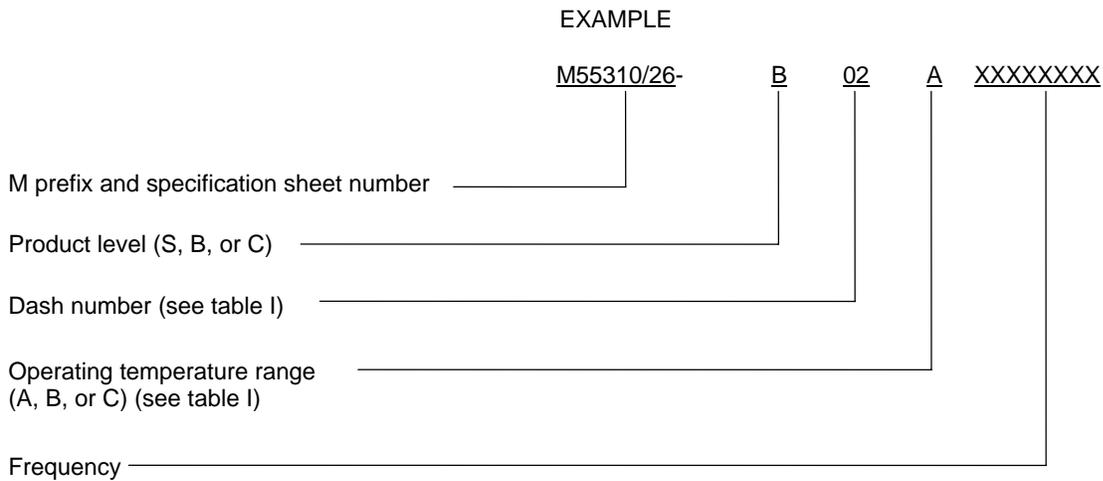
Bends: 5 at 45 degrees each.

Solderability: Method 208 of MIL-STD-202.

Resistance to solvents: Method 215 of MIL-STD-202.

Screening: In accordance with MIL-PRF-55310, class B or S, as applicable.

Part or Identifying Number (PIN): Consists of "M" prefix followed by specification sheet number, a dash and coded alphas, and numeric number. See example:



\* Reference documents. In addition to MIL-PRF-55310, this document references the following:  
MIL-STD-202

The margins of this specification sheet are marked with asterisks to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

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Navy - EC  
Air Force - 11  
DLA - CC

Preparing activity:

Army - CR

Agent:

DLA - CC

Review activities:

Army - AR, MI, SM  
Navy - AS, CG, MC  
Air Force - 19, 99

(Project 5955-0772)

\* NOTE: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at [www.dodssp.daps.mil](http://www.dodssp.daps.mil).