NOTICE — WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, OR OTHER DATA ARE USED FOR ANY PURPOSE OTHER THAN CONNEXION WITH A DEFINITELY RELATING GOVERNMENT PROCUREMENT OPERATION, THE UNITED STATES GOVERNMENT THEREBY INCURS NO RESPONSIBILITY NOR ANY OBLIGATION WHATSOEVER.

REVISIONS (ARR OMIG OMMG SION, SEE INITIAL RELEASE CLASS A

B. ELECTRICAL CHARACTERISTICS: THE FOLLOWING ELECTRICAL CHARACTERISTICS SHALL BE INSPECTED ON 100 PERCENT OF UNITS PROCURED. THE TEST SHALL BE PERFORMED WITH 50 MICROAMBER MAX DRIVE AND 25 PLUS OR MINUS 1 DEGREE CENTIGRADE UNLESS OTHERWISE SPECIFIED.

1. GENERAL:

(1) FREQUENCY: 2.048000 MEGACYCLES PLUS OR MINUS .001 PERCENT, CALIBRATED IN A STANDARD 330 CI METER AT 80 MICROHOPHE LOAD, RESISTANCE.

(2) SERIES RESISTANCE: 30 OHMS MAXIMUM FROM ZERO DEGREES CENTIGRADE TO 85 DEGREES CENTIGRADE; 50 OHMS MAXIMUM FROM MINUS 20 DEGREES CENTIGRADE TO ZERO DEGREES CENTIGRADE.

(3) MOTIONAL CAPACITANCE: $C_m = 0.1294 \mu F PLUS OR MINUS 10%.

(4) SHUNT CAPACITANCE: $C_s = 9 \mu F PLUS OR MINUS 1 \mu F.

(5) TEMPERATURE CHARACTERISTIC: TURN-OVER TEMPERATURE SHALL BE BETWEEN 61 DEGREES CENTIGRADE AND 65 DEGREES CENTIGRADE.

2. ACCEPTANCE AND INSPECTION:

INSPECTION AND TEST PROCEDURE SHALL BE IN ACCORDANCE WITH:

B. MECHANICAL REQUIREMENTS:

(1) MARKING: SAMPLE PER MIL-STD-10S, LEVEL 1, AQL OF 4 PERCENT.

(a) PACKAGING AND PACKING SHALL BE MARKED IN ACCORDANCE WITH MIL-STD-129 BOTH INTERNALLY AND EXTERNALLY WITH THE MANUFACTURER'S NAME, NASA DRAWING NUMBER AND REVISION LETTER, LOT NUMBER OR CODE, AND DATE OF MANUFACTURE.

(b) UNITS SHALL BE MARKED IN ACCORDANCE WITH MIL-PRF-90 WITH THE MANUFACTURER'S NAME, NASA DRAWING NUMBER AND REVISION LETTER, SERIAL NUMBER, DATE OF MANUFACTURE, NOMINAL FREQUENCY AND TURN-OVER TEMPERATURE.

(2) DIMENSIONS: IN ACCORDANCE WITH OUTLINE. 100 PERCENT OF UNITS PROCURED SHALL BE INSPECTED FOR THIS REQUIREMENT.

(3) LEAD MATERIAL: LEAD MATERIAL SHALL BE IRON-NICKEL-COBALT ALLOY (KOVAR) (IN ACCORDANCE WITH MIL-STD-129). A CERTIFICATE OF COMPLIANCE WITH THIS REQUIREMENT SHALL ACCOMPANY EACH SHIPMENT.

(4) LEAD TENSION: LEADS SHALL BE CAPABLE OF WITHSTANDING AN AXIAL PULL OF 4 POUNDS MINIMUM. NO MECHANICAL DAMAGE OR LACK OF PERFORMANCE SHALL BE EVIDENCED AS A RESULT OF THIS TEST. SAMPLE PER MIL-STD-10S, LEVEL 1, AQL OF 4 PERCENT.

(5) CRYSTAL MOUNTING: THE CRYSTAL MOUNTING SHALL BE RUGGEDIZED TO ENABLE UNIT TO MEET THE REQUIREMENTS SPECIFIED HEREIN.

3. PACKAGING AND PACKING:

PACKAGING AND PACKING SHALL BE IN ACCORDANCE WITH MIL-C-3098, LEVEL A IN BOTH INSTANCES.
3. DESIGN REQUIREMENTS:

A. SHELF LIFE: UNITS SHALL BE CAPABLE OF OPERATING WITHIN THE REQUIREMENTS SPECIFIED HEREIN AFTER ONE YEAR OF UNPACKAGED STORAGE UNDER THE FOLLOWING CONDITIONS: RELATIVE HUMIDITY UP TO 95 PERCENT, TEMPERATURES AS LOW AS MINUS 18 DEGREES CENTIGRADE OR AS HIGH AS PLUS 52 DEGREES CENTIGRADE, AND AT ALTITUDES AS HIGH AS 10,000 FEET. IT SHALL BE ASSUMED THAT THE UNITS WILL BE EXPOSED TO AMBIENT ATMOSPHERE DURING THE ONE YEAR PERIOD.

B. PACKAGED STORAGE: UNITS SHALL BE CAPABLE OF OPERATING WITHIN THE REQUIREMENTS SPECIFIED HEREIN AFTER 3 YEARS OF STAND STORAGE UNLESS PACKAGED FOR OVERSEAS SHIPMENT IN ACCORDANCE WITH SPECIFICATION JAN-P-100-1. ENVIRONMENTAL CONDITIONS FOR PACKAGED STORAGE SHALL BE AS INDICATED FOR ALL NON-OPERATING CONDITIONS SPECIFIED ABOVE EXCEPT THE STORAGE TEMPERATURE MAY BE AS HIGH AS PLUS 71 DEGREES CENTIGRADE OR AS LOW AS MINUS 40 DEGREES CENTIGRADE, THERE MAY BE VIBRATORY ACCELERATION FOR PERIODS OF 25 HOURS OF 1.0G FROM 2 TO 30 CYCLES PER SECOND AND THERE MAY BE OCCASIONAL SHOCKS UP TO 10G.

C. SPURIOUS MODES: ALL SPURIOUS MODES SHALL BE AT LEAST 3.5 DECIBELS DOWN FOR PLUS OR MINUS 100 KILOCYCLES FROM THE DRIVE LEVEL AT THE FOLLOWING ENVIRONMENTAL TESTS. MECHANICAL TESTS (VIBRATION, SHOCK AND ACCELERATION) SHALL BE CONDUCTED WITH THE UNIT MOUNTED BY MEANS OF AN APPROPRIATE FIXTURE WITH THE BODY RESTRAINED FROM MOVEMENT.

(1) VIBRATION: WHILE OPERATING FROM 15 TO 31 CYCLES PER SECOND AT 0.2 INCH DOUBLE AMPLITUDE; FROM 31 TO 200 CYCLES PER SECOND AT PLUS OR MINUS 100 FREQUENCY CHANGE DURING VIBRATION SHALL BE NO GREATER THAN PLUS OR MINUS ONE (1) PART PER 106.

(2) MECHANICAL SHOCK: WHILE OPERATING, 50G FOR 11 MILLI-SECONDS PLUS OR MINUS ONE (1) MILLISECOND DURATION SIMILAR TO THAT OBTAINED WITH A BARRY TYPE SHOCK MACHINE PER MIL-STD-202 3 SHOCKS IN EACH OF THE 5 MUTUALLY PERPENDICULAR PLANES FOR A TOTAL OF 15 SHOCKS. PERMANENT FREQUENCY CHANGE AFTER SHOCK SHALL BE NO GREATER THAN PLUS OR MINUS 2 PARTS PER 106.

(3) ACCELERATION: WHILE OPERATING AND NON-OPERATING, PLUS OR MINUS 20G IN ANY DIRECTION FOR 5 MINUTES. PERMANENT FREQUENCY CHANGE AFTER ACCELERATION SHALL BE NO GREATER THAN 1 PART PER 106.

D. CRYSTAL ELEMENT: QUARTZ, "AT" CUT, GOLD OR ALUMINUM PLATED. A CERTIFICATE OF COMPLIANCE WITH THIS REQUIREMENT SHALL ACCOMPANY EACH SHIPMENT.

E. ENVIRONMENTAL REQUIREMENTS: UNITS SHALL BE CAPABLE OF WITHSTANDING THE FOLLOWING ENVIRONMENTAL TESTS. MECHANICAL TESTS (VIBRATION, SHOCK AND ACCELERATION) SHALL BE CONDUCTED WITH THE UNIT MOUNTED BY MEANS OF AN APPROPRIATE FIXTURE WITH THE BODY RESTRAINED FROM MOVEMENT.

(1) VIBRATION: WHILE OPERATING FROM 15 TO 31 CYCLES PER SECOND AT 0.2 INCH DOUBLE AMPLITUDE; FROM 31 TO 200 CYCLES PER SECOND AT PLUS OR MINUS 100 FREQUENCY CHANGE DURING VIBRATION SHALL BE NO GREATER THAN PLUS OR MINUS ONE (1) PART PER 106.

(2) MECHANICAL SHOCK: WHILE OPERATING, 50G FOR 11 MILLI-SECONDS PLUS OR MINUS ONE (1) MILLISECOND DURATION SIMILAR TO THAT OBTAINED WITH A BARRY TYPE SHOCK MACHINE PER MIL-STD-202 3 SHOCKS IN EACH OF THE 5 MUTUALLY PERPENDICULAR PLANES FOR A TOTAL OF 15 SHOCKS. PERMANENT FREQUENCY CHANGE AFTER SHOCK SHALL BE NO GREATER THAN PLUS OR MINUS 2 PARTS PER 106.

(3) ACCELERATION: WHILE OPERATING AND NON-OPERATING, PLUS OR MINUS 20G IN ANY DIRECTION FOR 5 MINUTES. PERMANENT FREQUENCY CHANGE AFTER ACCELERATION SHALL BE NO GREATER THAN 1 PART PER 106.

F. AGING: PLUS 1 PART PER 106 PER WEEK MAXIMUM AT PLUS 60 DEGREES CENTIGRADE 50 MICROWATTS CRYSTAL DRIVE.

(1) TEMPERATURE SHOCK: MINUS 40 DEGREES CENTIGRADE FOR 30 MINUTES AND PLUS 85 DEGREES CENTIGRADE FOR 30 MINUTES. TIME INTERVAL CHANGING FROM ONE TEMPERATURE EXTREME TO THE OTHER SHALL NOT EXCEED 15 SECONDS. PERMANENT FREQUENCY CHANGE AFTER TEMPERATURE SHOCK SHALL BE NO GREATER THAN 1 PART PER 106.

G. ENVIRONMENTAL REQUIREMENTS: UNITS SHALL BE CAPABLE OF WITHSTANDING THE FOLLOWING ENVIRONMENTAL TESTS. MECHANICAL TESTS (VIBRATION, SHOCK AND ACCELERATION) SHALL BE CONDUCTED WITH THE UNIT MOUNTED BY MEANS OF AN APPROPRIATE FIXTURE WITH THE BODY RESTRAINED FROM MOVEMENT.

(1) VIBRATION: WHILE OPERATING FROM 15 TO 31 CYCLES PER SECOND AT 0.2 INCH DOUBLE AMPLITUDE; FROM 31 TO 200 CYCLES PER SECOND AT PLUS OR MINUS 100 FREQUENCY CHANGE DURING VIBRATION SHALL BE NO GREATER THAN PLUS OR MINUS ONE (1) PART PER 106.

(2) MECHANICAL SHOCK: WHILE OPERATING, 50G FOR 11 MILLI-SECONDS PLUS OR MINUS ONE (1) MILLISECOND DURATION SIMILAR TO THAT OBTAINED WITH A BARRY TYPE SHOCK MACHINE PER MIL-STD-202 3 SHOCKS IN EACH OF THE 5 MUTUALLY PERPENDICULAR PLANES FOR A TOTAL OF 15 SHOCKS. PERMANENT FREQUENCY CHANGE AFTER SHOCK SHALL BE NO GREATER THAN PLUS OR MINUS 2 PARTS PER 106.

(3) ACCELERATION: WHILE OPERATING AND NON-OPERATING, PLUS OR MINUS 20G IN ANY DIRECTION FOR 5 MINUTES. PERMANENT FREQUENCY CHANGE AFTER ACCELERATION SHALL BE NO GREATER THAN 1 PART PER 106.

H. ENVIRONMENTAL REQUIREMENTS: UNITS SHALL BE CAPABLE OF WITHSTANDING THE FOLLOWING ENVIRONMENTAL TESTS. MECHANICAL TESTS (VIBRATION, SHOCK AND ACCELERATION) SHALL BE CONDUCTED WITH THE UNIT MOUNTED BY MEANS OF AN APPROPRIATE FIXTURE WITH THE BODY RESTRAINED FROM MOVEMENT.

(1) VIBRATION: WHILE OPERATING FROM 15 TO 31 CYCLES PER SECOND AT 0.2 INCH DOUBLE AMPLITUDE; FROM 31 TO 200 CYCLES PER SECOND AT PLUS OR MINUS 100 FREQUENCY CHANGE DURING VIBRATION SHALL BE NO GREATER THAN PLUS OR MINUS ONE (1) PART PER 106.

(2) MECHANICAL SHOCK: WHILE OPERATING, 50G FOR 11 MILLI-SECONDS PLUS OR MINUS ONE (1) MILLISECOND DURATION SIMILAR TO THAT OBTAINED WITH A BARRY TYPE SHOCK MACHINE PER MIL-STD-202 3 SHOCKS IN EACH OF THE 5 MUTUALLY PERPENDICULAR PLANES FOR A TOTAL OF 15 SHOCKS. PERMANENT FREQUENCY CHANGE AFTER SHOCK SHALL BE NO GREATER THAN PLUS OR MINUS 2 PARTS PER 106.

(3) ACCELERATION: WHILE OPERATING AND NON-OPERATING, PLUS OR MINUS 20G IN ANY DIRECTION FOR 5 MINUTES. PERMANENT FREQUENCY CHANGE AFTER ACCELERATION SHALL BE NO GREATER THAN 1 PART PER 106.