NAVSHIPS 94200.4-2 Directory of Electronics Test Equipment - Supplement 2
Section 4.5 Field Intensity Measuring

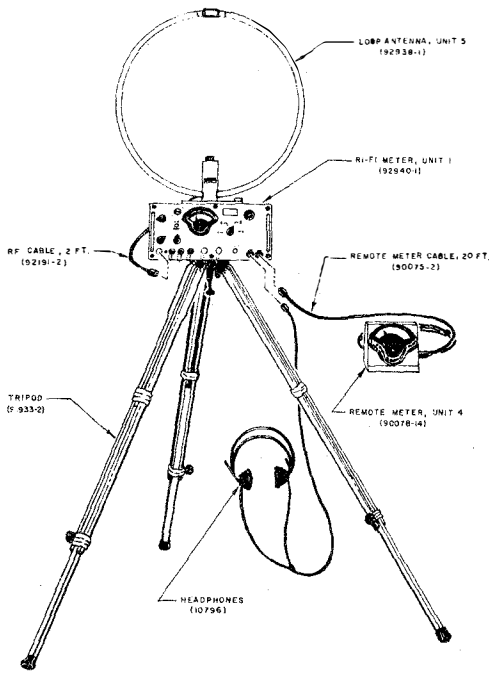
13 December 1965 RADIO INTERFERENCE MEASURING SET AN/PRM-27(XN-1)

Cog Service: USN FSN: Functional Class:

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Stoddart Aircraft Radio Company, (78591).



RADIO INTERFERENCE MEASURING SET AN/PRM-27(XN-1)

FUNCTIONAL DESCRIPTION:

Radio Interference Measuring Set AN/PRM-27(XN-1) is a portable highly versatile test instrument capable of analyzing the characteristics of all types of electromagnetic radiations within the frequency range of 10 to 250 kilocycles.

No field changes in effect at time of preparation (12 October 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 10 to 250 kc in 4 bands.

BAND 1: 10 to 22.4 kc.

BAND 2: 22.4 to 50 kc.
BAND 3: 50 to 112 kc.
BAND 4: 112 to 250 kc.
TYPE OF RECEIVER: Single conversion superheterodyne.
INTERMEDIATE FREQUENCY: 455 kc.
MODES OF RECEPTION: Continuous-wave (A0 and A1), amplitude-modulated (A2 and A3).
INPUT IMPEDANCE: 50 ohms (unbalanced).
INPUT VSWR: Less than 1.2.1.
SENSITIVITY
AS A TWO-TERMINAL 50 OHM RF VOLTMETER: Approx 1 uv for a unity signal-to-noise ratio; max input, 1.0 v.
AS A FIELD INTENSITY METER: Approx 1.0 uv per meter to 10 v per meter.
IN OTHER APPLICATIONS: Sensitivity is determined by the characteristics of the signal pickup device and the measurement freq.
SELECTIVITY
IF BANDWIDTH, TWO POSITIONS
BROAD POSITION: 2 kc at 6 db, 3.3 kc at 60 db.
NARROW POSITION: 100 cps at 6 db, 420 cps at 60 db.
RANDOM NOISE BANDWIDTH
BROAD SELECTIVITY POSITION: 700 and 1200 cps.
NARROW SELECTIVITY POSITION: 94 cps.
IMPULSE NOISE BANDWIDTH
NARROW SELECTIVITY POSITION: 150 cps.
SPURIOUS RESPONSE REJECTION: Better than 100 db.
LOCAL OSCILLATOR RADIATION: Less than 10^4 picowatts.
SHIELDING EFFECTIVENESS: Better than 130 db.
CALIBRATION: Internal pulse calibrator.
REPETITION RATE: Approx 25 pps.
OUTPUT LEVEL: Constant over entire freq range.
MEASUREMENT FACILITIES
MEASUREMENT ACCURACY: Freq ± 1%, Voltage ± 1 db.
DYNAMIC RANGE: 20 db, ± 2 db above input signal level for full scale meter deflection w/full-scale AGC held constant.
METERING CIRCUIT TIME CONSTANT
FIELD INTENSITY: 600 msec charge and discharge.
QUASI-PEAK: 1 msec charge, 600 msec discharge.
PEAK MEASUREMENT FUNCTION: Manual slideback control.
INDICATING METER: Two separate scales.
TOP SCALE: Two decades logarithmic, calibrated from 0 to 100 uv.
BOTTOM SCALE: Approx linear, calibrated from 0 to + 40 db.
OUTPUTS
AUDIO OUTPUT, STANDARD HEADPHONE RECEPTACLE
OUTPUT LOAD IMPEDANCE: 600 ohms.
OUTPUT POWER: 25 mw into a 600 ohm resistive load.
FREQUENCY RESPONSE: 2 db from 400 to 3000 cps (referenced to 0 db at 1000 cps).
IF OUTPUT, TYPE BNC COAXIAL RECEPTACLE
FREQUENCY: 455 kc.
OUTPUT LOAD IMPEDANCE: High impedance.
OUTPUT VOLTAGE: 260 mv (RMS) full-scale.

OSCILLOSCOPE OUTPUT, TYPE BNC COAXIAL RECEPTACLE
OUTPUT LOAD IMPEDANCE: Approx 1 megohm.
OUTPUT VOLTAGE: Determined by percentage of modulation of input signal.
FREQUENCY RESPONSE: Determined by IF bandwidth.
REMOTE METER/RECORDER OUTPUT, TWO CIRCUIT HEAD-PHONE RECEPTACLE
OUTPUT LOAD IMPEDANCE: 1500 ohms.
OUTPUT CURRENT: 1 ma max.

POWER REQUIREMENTS
AC POWER SUPPLY: 105 to 125 or 210 to 250 v, 50 to 400 cps, 1 ph, 1.5 W.
INTERNAL BATTERY SUPPLY: 14 to 18 v dc, nickle cadmium battery, 60 ma, 15 hr battery life for continuous operation.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Interference Measuring Set AN/PRM-27(XN-1) includes:			
1	Transit Case, Unit 6, mfr no. 92939-1		9-1/2 x 12 x 21	9.35
1	RI-FI Meter, Unit 1, mfr no. 92940-1		7 x 11-1/2 x 14	20.25
1	Rod Antenna Coupler, Unit 2, mfr no. 92943-1		3-1/2 x 4-1/2 x 5	2.7
1	Ground Plane, Unit 3, mfr no. 02035-1			2.35
1	Rod Antenna, 1/2 Meter, mfr no. 92221-2			0.375
1	Rod Antenna, 1 Meter, mfr no. 92222-2			0.5
1	Current Probe, mfr no. 91550-1		1-3/8 x 3 x 3-5/8	1.25
1	RF Loop Probe, mfr no. 90799-3		1/2 x 3-1/4 x 5-1/2	0.125
1	Coaxial Connector, mfr no. 11663			0.125
1	Technical Manual Current Probe		3/8 x 9 x 11-1/2	0.5
1	Cable Bag, mfr no. 91981-1		16 dia x 7	2.4
1	Remote Meter, Unit 4, mfr no. 90070-14		4 x 4-1/2 x 5-3/4	1.375
6	Cables			
2	Technical Manuals Test Set, mfr no. 92934-1		1 x 9 x 11	1.125
1	Headphones, mfr no. 10796			1.0
1	Tripod Bag, mfr no. 92049-1		6 dia x 38	1.25
1	Tripod, mfr no. 91933-2			7.7
1	Loop Antenna, Unit 5, mfr no. 92938-1			2.375

REFERENCE DATA AND LITERATURE:

PROJECT 319: Final Engineering Report on the Development of Three Prototype Models of the Radio Interference and Field Intensity Measuring Set (AN/PRM-27(XN-1)).

TUBE CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: (6) 1N816 (6) 2N835

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

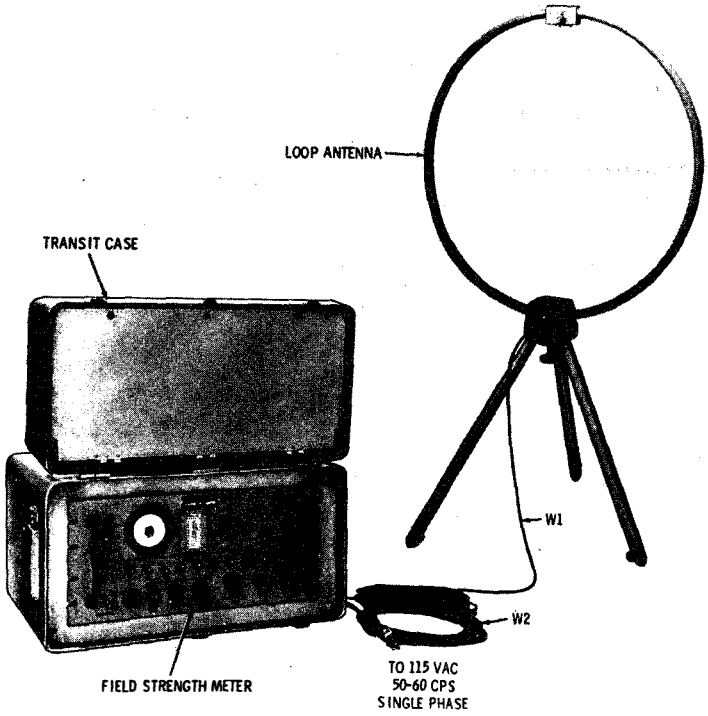
PROCURING SERVICE: USN DESIGN COG: USN, BuShips
SPEC &/OR DWG: SHIPS-E-2602A, TASK I PHASE II

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Stoddart Aircraft Radio Co.	Hollywood, California	NObsr-81133	

USA USN USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Motorola Incorporated, (70117).



METER FIELD STRENGTH AN/URM-139(XN-1)

FUNCTIONAL DESCRIPTION:

Meter Field Strength AN/URM-139(XN-1) is a ten channel field strength measuring device of the absolute value type. A true indication of the absolute value of the energy radiated by a transmitter, having a carrier frequency corresponding to one of the ten channels, is provided by an integral meter. The equipment utilizes a unique application of logarithmic attenuation circuit to provide an analog readout on a linear db scaled milliampere movement meter. Some of the station characteristics that can be determined by this instrument are antenna efficiency, directivity characteristics and signal coverage.

No field changes in effect at time of preparation (11 June 1965).

RELATION TO OTHER EQUIPMENT: None.

4.5 AN/URM-139(XN-1): 1

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(2) 45 v battery; (1) 24 v battery; (1) Audio Oscillator TS-382A/U; (1) Technical Manual for TS-382A/U TM11-2684A; (1) Oscilloscope AN/USM-81; (1) Technical Manual for AN/USM-81 TM11-6625-219-12; (1) Multimeter ME-26/U; (1) Technical Manual for ME-26B/U TM11-6625-200-12; (2) Milliammeter Recorder RD-59/U; (1) Electronic Voltmeter ME-30/U; (1) Multimeter TS-352B/U; (1) Technical Manual for TS-352B/U TM11-5527; (1) Frequency Meter AN/USM-26.

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 10 to 30 kc.
FREQUENCY STABILITY: ± 5 cps.
NUMBER OF CHANNELS: 10.
TYPE OF FREQUENCY CONTROL: Switched crystal.
TYPES OF RECEPTION: CW and noise.
RECEIVER TYPE: Superheterodyne.
INTERMEDIATE FREQUENCY: 60 kc.
IF BANDWIDTH: ± 25 cps (50 cps noise bandwidth).
LOCAL OSCILLATOR FREQUENCY RANGE: 70 to 90 kc.
DYNAMIC RANGE: 0 to 120 db.
RESPONSE ACCURACY: ± 0.5 db.
AMPLITUDE STABILITY: ± 1 db.
SENSITIVITY (S/N RATIO): 0 db for 10 uv/m (w/loop antenna); 0 db for 0.1 uv/m (50 ohm input).
IMAGE REJECTION: 60 db (min).
POWER DISSIPATION: 92 W max, 52 W avg.
OVEN TEMPERATURE RANGE: 62 to 68° C (144 to 153° F).
AMBIENT TEMPERATURE RANGE: 0 to 50° C (0 to 122° F).
POWER SUPPLY CHARACTERISTICS
- INPUT REQUIREMENTS: 115 (± 11.5) v ac at 0.8 amp; or + 45 (± 4.5) v dc at 0.4 amp; - 45 (± 4.5) v dc at 0.4 amp; 24 (± 2.4) v dc at 3 amp.
- OUTPUT VOLTAGES AND TOLERANCES: + 45 (+ 20 - 0) v dc; + 40 (± 0.4) v dc; + 10 (± 0.5) v dc, - 20 (± 1.0) v dc.

CRYSTAL SPECIFICATIONS
- FREQUENCY RANGE: 70 to 90 kc.
- FREQUENCY TOLERANCE: ± 0.5 cps from specified freq.
- OPERATING TEMPERATURE RANGE: 65° ± 5° C (149° ± 9° F).
- STORAGE TEMPERATURE: - 65 to + 80° C (- 85 to 176° F).
- TEMPERATURE STABILITY: ± 5 ppm for a ± 5° C deviation from 60° C (140° F).
- CRYSTAL HOLDER: Same type as HC-13/U w/2 in. height.
- OPERATIONAL MODE: Series resonant at specific freq.
- CRYSTAL IMPEDANCE: 800 to 1,200 ohms.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Meter Field Strength AN/URM-139(XN-1) includes:		8-3/4 x 14 x 19	32
1	Loop Antenna Unit			
1	Transit Case			
1	Headset NT-49985-A			

4.5 AN/URM-139(XN-1): 2

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Cable, Coaxial			
1	Cable Power			
4	Connectors Spare			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94137: Technical Manual for Field Strength Meter AN/URM-139(XN-1).

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 5904

CRYSTALS: (1) 74.0KC (1) 74.8KC (1) 75.5KC (1) 77.44KC (1) 78.0KC (1) 78.6KC
(1) 79.8KC (1) 82.3KC (1) 84.0KC (1) 86.1KC

SEMI-CONDUCTORS: (4) 1N118 (5) 1N483A (5) 1N914 (1) 1N2611 (5) SV5 (8) SV6
(1) SV134 (8) SG222 (1) 1.5M27Z5 (1) 1.5M20Z5 (1) 1.5M10Z5
(1) 1/4M6.8Z5 (1) 1/4M5.6AZ5 (1) 1/4M4.7AZ5 (1) 1/4M11Z5
(1) 1M20Z5 (1) 3/4M27Z5 (17) 4JX4D655 (1) 2N618 (2) 2N656
(2) 2N447A (4) 2N697 (1) 2N1275 (1) 2N331 (1) 3N40

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SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)
1	9	65
1	2.5	6

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:

DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Motorola Incorporated	Scottsdale, Arizona	NObsr-77543	

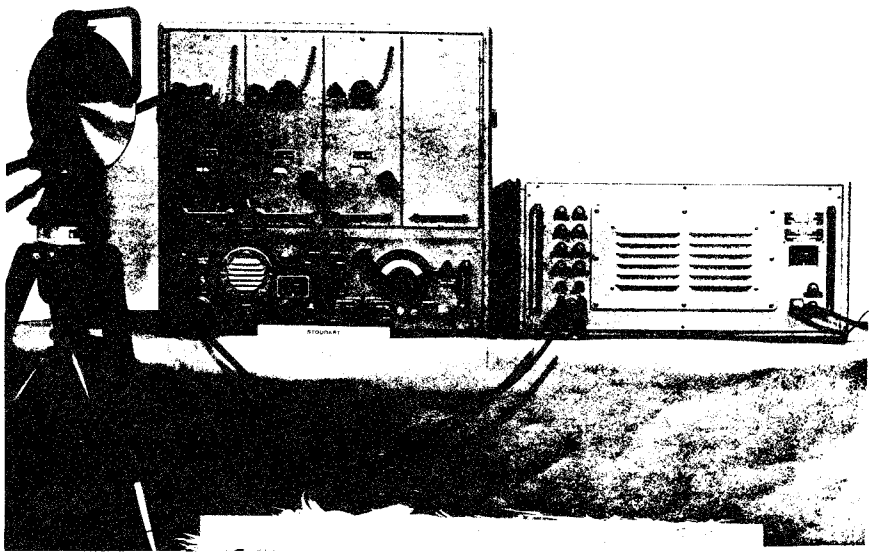
27 May 1965 RADIO INTERFERENCE MEASURING TEST SET AN/URM-141(XN-1)

Cog Service: USN FSN: Functional Class:

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Stoddart Aircraft Radio Company, Inc., (78591).



RADIO INTERFERENCE MEASURING TEST SET AN/URM-141(XN-1)

FUNCTIONAL DESCRIPTION:

The Radio Interference Measuring Test Set AN/URM-141(XN-1) is a double conversion superheterodyne microwave Receiver using preselection with no RF preamplification. It can be used for interference measurement and location for military and commercial acceptance tests. It may also be used for frequency conservation and allocation studies, field intensity services, RF energy surveillance and verification, and systems compatibility determination. It is a basic instrument for use when ever a field strength meter or selective RF power meter is required.

No field changes in effect at time of preparation (31 March 1965).

RELATION TO OTHER EQUIPMENT: None.

EQUIPMENT REQUIRED BUT NOT SUPPLIED: None.

4.5 AN/URM-141(XN-1): 1

TECHNICAL CHARACTERISTICS:

FREQUENCY RANGE: 10 to 38 kmc.
SENSITIVITY: 70 to 80 dbm.
IMAGE REJECTION: 60 db.
SPURIOUS RESPONSES: 60 db.
LOCAL OSCILLATOR
RADIATION: Less than 200 picowatts.
SHIELDING EFFECTIVENESS: Greater than 90 db.
MEASUREMENT ACCURACY
FREQUENCY: Freq calibration is accurate to ± 1%.
POWER: Pwr calibration is accurate to ± 2 db.
INPUT IMPEDANCE: Max input VSWR 3:1.
BANDWIDTH: 1 mc (6 db) 10 mc (6 db).
INDICATING METER: 4-1/2 in. linear scale.
AUDIO OUTPUT: 100 mw into 600 ohms.
VIDEO OUTPUT: 20 cps to 5.0 mc.
IF OUTPUT: 130 mc IF.
VOLTAGE REGULATION: For a pwr line v change of ± 10% the high voltage is regulated to within 0.05% and the filament voltage to within 0.5%. Other supply voltages are regulated to within 0.1%.

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MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Radio Interference Measuring Test Set AN/URM-141(XN-1) includes:			
1	RI-FI Meter 10-50 kmc			
1	Power Supply ac			
1	Reflector Assembly			
1	Antenna Mount			
1	Waveguide Feed Assembly (10-16 kmc)			
1	Waveguide Feed Assembly (16-25 kmc)			
1	Waveguide Feed Assembly (25-38 kmc)			
1	Tripod			
2	Waveguide Flexible RG-96/U equivalent 2 ft lg			
2	Waveguide Flexible RG-53/U equivalent 2 ft lg			
2	Waveguide Flexible RG-96/U equivalent 2 ft lg			
1	Cable, Power ac			
1	Cable, Power Interconnecting			
1	Headphones			
2	Chart Sets			
2	Instruction Books			

REFERENCE DATA AND LITERATURE:

NAVSHIPS 94784: Technical Manual for Radio Interference Measuring Set AN/URM-141(XN-1).
Final Report on the Development of a Radio Interference Measuring Test Set AN/URM-141(XN-1), Ships-E-2602A.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: (1) 5651WA (1) 0B2 (7) 5670 (3) 0G3/85A2 (2) 5726/6AL5W (1) X13 (2) 5751
(4) 5842/417A (3) 6098/6AR6WA (4) 6360 (6) 6442 (16) 6688A (2) 6AK5W
(1) 6BQ6GT (1) 6CW4 (14) 12AX7

CRYSTALS: Not required.

SEMI-CONDUCTORS: (1) 1N1590 (1) 1N23C (1) 1N1766 (1) 1N1805 (1) 1N26 (1) 1N1808
(12) 1N2071 (1) 1N26A (5) 1N3030B (4) 6F10 (1) 1N53 (5) 10J2
(2) 50M120Z (1) 1N53B (1) MA460F (1) 2N274 (1) 1N286 (1) 2N277
(4) 2N441 (3) 1N295 (1) 2N1008 (2) 1N416EM (1) 2N1086 (1) 1N468
(4) 2N1136B (2) 1N589 (1) 2N1218 (2) 1N1132 (1) 2N1547 (7) 1N1138
(2) 2N1557 (4) 1N1142 (1) 1/4M15Z10MM

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN DESIGN COG: USN, BuShips
SPEC &/OR DWG: SHIPS-E-2602A

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Stoddart Aircraft Radio Company, Inc.	Hollywood, Calif.	NObsr 81133	

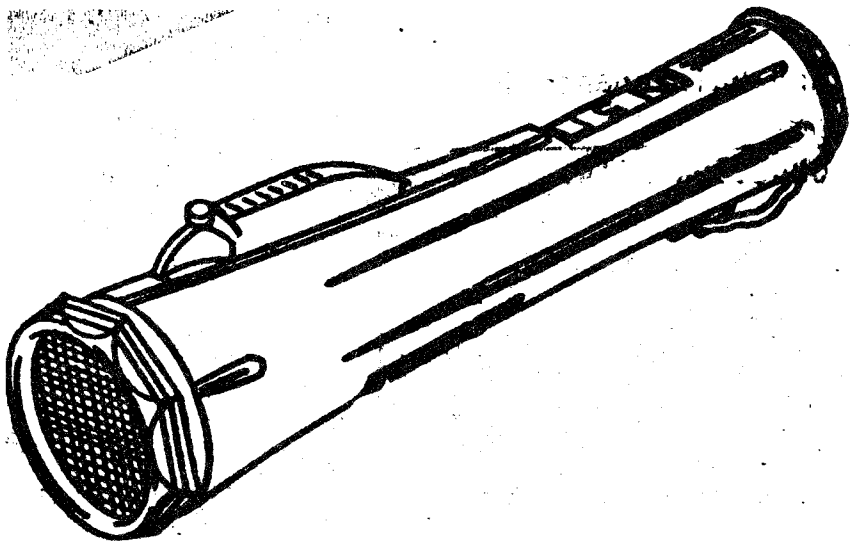
15 October 1964 GENERATOR, INTERFERENCE SG-354/U

Cog Service: USN **FSN:** 2F5895-664-1146 **Functional Class:**

USA	USN	USAF

TYPE CLASS: Used by

MANUFACTURER'S NAME/CODE NUMBER: Thompson Ramo Wooldridge Inc., (59875).



GENERATOR, INTERFERENCE SG-354/U

FUNCTIONAL DESCRIPTION:

Generator, Interference SG-354/U is used for operational check of radio and radar receiving systems. Button must be depressed to continue operation. Audible buzzing indicates unit is operating.

No field changes in effect at time of preparation (30 September 1964).

RELATION TO OTHER EQUIPMENT:

EQUIPMENT REQUIRED BUT NOT SUPPLIED:

(1) Battery Thompson Ramo Wooldridge Pt. No. 06-600057.

SG-354/U GENERATOR, INTERFERENCE

TECHNICAL CHARACTERISTICS:

POWER SOURCE: 18 v dry cell battery.
CURRENT DRAIN: 10 ma nom.
BATTERY LIFE: Avg life 50 hrs.
RANGE: Useful output 150 kc to 10000 mc; 15 to 25 ft from antenna.

MAJOR COMPONENTS

QTY	ITEM	STOCK NUMBERS	DIMENSIONS (INCHES)	WEIGHT (LBS)
1	Generator, Interference SG-354/U	2F5895-664-1146	2-5/8 x 8-7/32	1

REFERENCE DATA AND LITERATURE:

NAVSHIPS 93399: Operation and Maintenance Instructions for Interference Generator SG-354/U.

TUBE, CRYSTAL AND/OR SEMI-CONDUCTOR DATA:

TUBES: Not required.

CRYSTALS: Not required.

SEMI-CONDUCTORS: Not required.

SHIPPING DATA

PKGS	VOLUME (CU FT)	WEIGHT (LBS)

PROCUREMENT DATA

PROCURING SERVICE: USN
SPEC &/OR DWG:
DESIGN COG: USN, BuShips

CONTRACTOR	LOCATION	CONTRACT OR ORDER NO.	APPROX. UNIT COST
Thompson Ramo Wooldridge Inc.	Cleveland, Ohio	NObsr-75787	