INCH-POUNDS

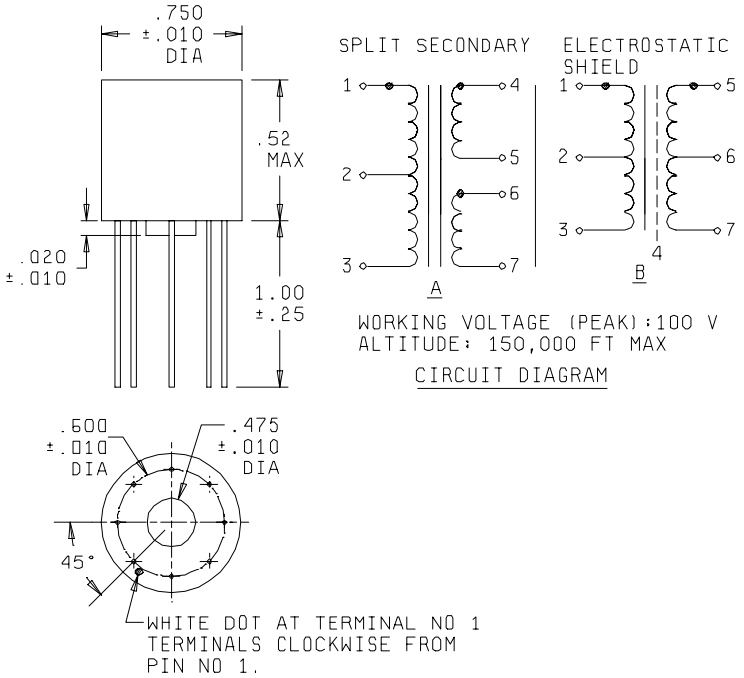
MIL-PRF-27/359C
18 September 2002
SUPERSEDING
MIL-PRF-27/359B
8 April 1992

PERFORMANCE SPECIFICATION SHEET

TRANSFORMERS, AUDIO FREQUENCY, ULTRA-MINIATURE

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

The complete requirements for acquiring the transformer described herein shall consist of this specification and the latest issue of MIL-PRF-27.



Inches	mm
.010	0.25
.020	0.51
.25	6.35
.475	12.07
.52	13.21
.600	15.24
.750	14.05
1.000	25.40

NOTES:
1. Dimensions are in inches.
2. Metric equivalents are given for general information only.
3. Marking shall be on the side of the case.
4. Terminals are identified by white dot as shown above.
5. Primary and secondary electrical values shall be marked as specified in table I, as applicable.
6. Dots on circuit diagram indicate polarity.

FIGURE 1. Dimensions and configuration.

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

REQUIREMENTS:

Electrical ratings: See table I.

Working Voltage (peak): 100 volts

Frequency range: 50 Hz to 30 kHz

Design and construction:

Dimensions and configuration: See figure 1.

Duty cycle: Continuous.

Terminals: Solid wire.

Composition: Copper clad steel.

Diameter: 0.0200 inch ±0.0015 (0.508 ±0.0381 mm).

Length: 1.00 inch ±0.25 (25.4 ±6.4 mm).

Final finish: Tinned, 100 percent coverage, electroplated in accordance with ASTM B 545. Use of tin-lead (Sn-PB) finishes are acceptable provided the minimum lead content is 3 percent.

Weight: 19 grams max.

Altitude: 150,000 feet, maximum.

Operating temperature range: -55°C to +130°C.

Vibration (high frequency): MIL-STD-202, method 204, test condition B.

Terminal strength: MIL-STD-202, method 211, test condition A, 2.0 pounds.

Thermal shock: 25 cycles, method 107, MIL-STD-202, test condition A-1.

Dielectric withstanding voltage:

At sea level: 200 V rms.

At barometric pressure: 200 V rms.

Electrical characteristics:

Temperature rise: +40°C maximum.

No Load (center tap unbalanced): ±1 percent at 1 volt, 5 kHz across the primary.

Harmonic distortion: Total harmonic content of output shall be a maximum of 5 percent at the specified power level (see table I) at 1 kHz, 300 Hz, and 50 Hz.

Insertion loss: At the specified power level (see table I), the insertion loss shall be a maximum of 3.0 dB at 1 kHz.

Frequency response: ±3 dB at the rated source and load impedances (see table 1) with 1.0 mW level output and a reference frequency of 1 kHz over a frequency range of 50 Hz to 30 kHz.

Polarity: Additive when appropriate terminals are connected. For configuration A, connect terminals 3 and 4, 5 and 6. For configuration B, connect terminals 3 and 5. (see figure 1, configurations A and B).

Self-resonance: The self-resonant frequency shall be greater than 60 kHz, when measured with the secondaries carrying the specified load and the secondary voltage observed.

Marking location: See figure 1.

Part number: M27/359- (dash number from table I).

Table I. Electrical ratings. 1/

Dash no.	Primary imped-ance (ohms)	Secondary Impedance (ohms)		Power in watts			Primary unbalanced dc current (mA)	Primary dc resistance (ohms)	Secondary dc resistance (ohms)		Turns ratio primary:secondary		Circuit diagram configur a-tion
		Series connec-tion	Parallel connec-tion	1 kHz and higher	300 Hz and higher	50 Hz and higher			Series connec-tion	Parallel connec-tion	Secondary series connection	Secondary parallel connection	
001	20 ct	8 ct	2	2.0	1.5	.03	22	1.6	.88	.22	1.58:1	3.16:1	A
002	20 ct	20 ct	5	2.0	1.5	.03	22	1.6	2.2	.55	1:1	2:1	“
003	32 ct	32 ct	8	2.0	1.5	.03	17.5	2.56	3.52	.88	1:1	2:1	“
004	40 ct	40 ct	10	2.0	1.5	.03	16	3.2	4.4	1.1	1:1	2:1	“
005	48 ct	16 ct	4	2.0	1.5	.03	14.5	3.84	1.76	.44	1.73:1	3.46:1	“
006	50 ct	50 ct	12.5	2.0	1.5	.03	14	4	5.5	1.38	1:1	2:1	“
007	80 ct	32 ct	8	2.0	1.5	.03	11	6.4	3.52	.88	1.58:1	3.16:1	“
008	100 ct	40 ct	10	2.0	1.5	.03	10	8	4.4	1.1	1.58:1	3.16:1	“
009	100 ct	100 ct	25	2.0	1.5	.03	10	8	11	2.75	1:1	2:1	“
010	120 ct	12.8 ct	3.2	2.0	1.5	.03	9	9.6	1.41	.35	3.06:1	6.12:1	“
011	120 ct	60 ct	15	2.0	1.5	.03	9	9.6	6.6	1.65	1.41:1	2.83:1	“
012	120 ct	120 ct	30	2.0	1.5	.03	9	9.6	13.2	3.3	1:1	2:1	“
013	150 ct	12 ct	3	2.0	1.5	.03	8	12	1.32	.33	3.54:1	7.08:1	“
014	150 ct	50 ct	12.5	2.0	1.5	.03	8	12	5.5	1.38	1.73:1	3.46:1	“
015	150 ct	100 ct	25	2.0	1.5	.03	8	12	11	2.75	1.22:1	2.44:1	“
016	150 ct	150 ct	37.5	2.0	1.5	.03	8	12	16.5	4.13	1:1	2:1	“
017	150 ct	600 ct	150	2.0	1.5	.03	8	12	66	16.5	1:2	1:1	“
018	200 ct	200 ct	50	2.0	1.5	.03	7	16	22	5.5	1:1	2:1	“
019	300 ct	12 ct	3	2.0	1.5	.03	5.5	24	1.32	.33	5:1	10:1	“
020	300 ct	50 ct	12.5	2.0	1.5	.03	5.5	24	5.5	1.38	2.45:1	4.9:1	“
021	300 ct	150 ct	37.5	2.0	1.5	.03	5.5	24	16.5	4.13	1.41:1	2.83:1	“
022	300 ct	300 ct	75	2.0	1.5	.03	5.5	24	33	8.25	1:1	2:1	“
023	300 ct	600 ct	150	2.0	1.5	.03	5.5	24	66	16.5	1.1:41	1.41:1	“
024	320 ct	12.8 ct	3.2	2.0	1.5	.03	5.5	25.6	1.41	.35	5:1	10:1	“
025	400 ct	40 ct	10	2.0	1.5	.03	5	32	4.4	1.1	3.16:1	6.23:1	“
026	400 ct	120 ct	30	2.0	1.5	.03	5	32	13.2	3.3	1.83:1	3.65:1	“
027	400 ct	200 ct	50	2.0	1.5	.03	5	32	22	5.5	1.41:1	2.83:1	“
028	400 ct	400 ct	100	2.0	1.5	.03	5	32	44	11	1:1	2:1	“
029	400 ct	1000 ct	250	2.0	1.5	.03	5	32	110	27.5	1:1.58	1.26:1	“
030	400 ct	2000 ct	500	2.0	1.5	.03	5	32	220	55	1:2.24	1:1.12	“
031	400 ct	4000 ct	1000	2.0	1.5	.03	5	32	440	110	1:3.16	1:1.58	“
032	500 ct	12.8 ct	3.2	2.0	1.5	.03	4.5	40	1.41	.35	6.25:1	12.5:1	“
033	500 ct	16 ct	4	2.0	1.5	.03	4.5	40	1.76	.44	5.6:1	11.2:1	“
034	500 ct	50 ct	12.5	2.0	1.5	.03	4.5	40	5.5	1.38	3.16:1	6.32:1	“
035	500 ct	150 ct	37.5	2.0	1.5	.03	4.5	40	16.5	4.13	1.83:1	3.65:1	“
036	500 ct	500 ct	125	2.0	1.5	.03	4.5	40	55	13.75	1:1	2:1	“
037	500 ct	500 ct	---	2.0	1.5	.03	4.5	40	55	---	1:1	---	B 2/
038	500 ct	600 ct	150	2.0	1.5	.03	4.5	40	66	16.5	1:1.1	1.83:1	A
039	600 ct	12.8 ct	3.2	2.0	1.5	.03	4	48	1.41	.35	6.85:1	13.7:1	“
040	600 ct	30 ct	7.5	2.0	1.5	.03	4	48	3.3	.83	4.47:1	8.94:1	“

See notes at end of table.

Table I. Electrical ratings – Continued. 1/

Dash no.	Primary imped-ance (ohms)	Secondary impedance (ohms)		Power in watts			Primary unbalanced dc current (mA)	Primary dc resist-ance (ohms)	Secondary dc resistance (ohms)		Turns ratio primary:secondary		Circuit diagram configu-ration
		Series connec-tion	Parallel connec-tion	1 kHz and higher	300 Hz and higher	50 Hz and higher			Series connec-tion	Parallel connection	Secondary series connection	Second ary parallel connec-tion	
041	600 ct	48 ct	12	2.0	1.5	.03	4	48	5.28	1.37	3.54:1	7.07:1	A
042	600 ct	200 ct	50	2.0	1.5	.03	4	48	22	5.5	1.73:1	3.46:1	“
043	600 ct	600 ct	150	2.0	1.5	.03	4	48	66	16.5	1:1	2:1	“
044	600 ct	600 ct	---	2.0	1.5	.03	4	48	66	---	1:1	---	B 2/
045	600 ct	900 ct	---	2.0	1.5	.03	4	48	99	---	1.1:22	---	B 2/
046	600 ct	1200 ct	300	2.0	1.5	.03	4	48	132	33	1:1.41	1.14:1	A
047	640 ct	12.8 ct	3.2	2.0	1.5	.03	4	51	1.41	.35	7.07:1	14.14:1	“
048	700 ct	100 ct	25	2.0	1.5	.03	3.5	56	11	2.75	2.65:1	5.29:1	“
049	800 ct	12.8 ct	3.2	2.0	1.5	.03	3.5	64	1.41	.35	7.91:1	15.8:1	“
050	800 ct	48 ct	12	2.0	1.5	.03	3.5	64	5.28	1.32	4.08:1	8.16:1	“
051	800 ct	800 ct	200	2.0	1.5	.03	3.5	64	88	22	1:1	2:1	“
052	900 ct	600 ct	150	2.0	1.5	.03	3	72	66	16.5	1.23:1	2.45:1	“
053	900 ct	900 ct	---	2.0	1.5	.03	3	72	99	---	1:1	---	B 2/
054	1000 ct	12 ct	3	2.0	1.5	.03	3	80	1.32	.33	9.13:1	18.26:1	A
055	1000 ct	50 ct	12.5	2.0	1.5	.03	3	80	5.5	1.38	4.47:1	8.94:1	“
056	1000 ct	1000 ct	250	2.0	1.5	.03	3	80	110	27.5	1:1	2:1	“
057	1060 ct	12.8 ct	3.2	2.0	1.5	.03	3	85	1.41	.35	9.1:1	18.2:1	“
058	1200 ct	12.8 ct	3.2	2.0	1.5	.03	3	96	1.41	.35	9.68:1	19.4:1	“
059	1200 ct	500 ct	125	2.0	1.5	.03	3	96	55	13.75	1.55:1	3.1:1	“
060	1200 ct	1200 ct	300	2.0	1.5	.03	3	96	132	33	1:1	2:1	‘
061	1200 ct	1200 ct	---	2.0	1.5	.03	3	96	132	---	1:1	---	B 2/
062	1500 ct	12 ct	3	2.0	1.5	.03	2.5	120	1.32	.33	11.18:1	22.36:1	A
063	1500 ct	500 ct	125	2.0	1.5	.03	2.5	120	55	13.75	1.73:1	3.46:1	“
064	1500 ct	600 ct	---	2.0	1.5	.03	2.5	120	66	---	1.58:1	---	B 2/
065	1500 ct	1500 ct	---	2.0	1.5	.03	2.5	120	165	---	1:1	---	B 2/
066	1600 ct	12.8 ct	3.2	2.0	1.5	.03	2.5	128	1.41	.35	11.18:1	22.26:1	A
067	2000 ct	8 ct	2	2.0	1.5	.03	2.2	160	88	.22	15.8:1	31.6:1	“
068	2000 ct	2000 ct	500	2.0	1.5	.03	2.2	160	220	55	1:1	2:1	“
069	2000 ct	2000 ct	---	2.0	1.5	.03	2.2	160	220	---	1:1	---	B 2/
070	2000 ct	8000 ct	2000	2.0	1.5	.03	2.2	160	880	220	1:2	1:1	A
071	2500 ct	2500 ct	625	2.0	1.5	.03	2	200	275	69	1:1	2:1	“
072	3000 ct	3000 ct	750	2.0	1.5	.03	1.8	240	330	83	1:1	2:1	“
073	3000 ct	3000 ct	---	2.0	1.5	.03	1.8	240	330	---	1:1	---	B 2/
074	3600 ct	3600 ct	900	2.0	1.5	.03	1.7	288	396	99	1:1	2:1	A
075	4000 ct	16 ct	4	2.0	1.5	.03	1.6	320	1.76	.44	15.8:1	31.6:1	“
076	4000 ct	600 ct	150	2.0	1.5	.03	1.6	320	66	16.5	2.58:1	5.16:1	“
077	4000 ct	1000 ct	250	2.0	1.5	.03	1.6	320	110	27.5	2:1	4:1	“
078	4000 ct	8000 ct	---	2.0	1.5	.03	1.6	320	880	---	1:1.41	---	B 2/
079	5000 ct	500 ct	125	2.0	1.5	.03	1.4	400	55	13.8	3.16:1	6.32:1	A
080	5000 ct	5000 ct	1250	2.0	1.5	.03	1.4	400	550	138	1:1	2:1	“

See notes at end of table.

Table I. Electrical ratings - Continued. 1/

Dash no.	Primary impedance (ohms)	Secondary Impedance (ohms)		Power in watts			Primary unbalanced dc current (mA)	Primary dc resistance (ohms)	Secondary dc resistance (ohms)		Turns ratio primary:secondary		Circuit diagram configu-ration
		Series connec-tion	Parallel connec-tion	1 kHz and higher	300 Hz and higher	50 Hz and higher			Series connec-tion	Parallel connec-tion	Secondary series connection	Secondary parallel connection	
081	7500 ct	50 ct	12.5	1.3	1.3	.03	1.2	600	5.5	1.38	12.25:1	24.5:1	A
082	7500 ct	100 ct	25	1.3	1.3	.03	1.2	600	11	2.75	8.66:1	17.32:1	“
083	7500 ct	600 ct	150	1.3	1.3	.03	1.2	600	66	16.5	3.54:1	7.07:1	“
084	7500 ct	2500 ct	625	1.3	1.3	.03	1.2	600	275	69	1.73:1	3.46:1	“
085	7500 ct	7500 ct	---	1.3	1.3	.03	1.2	600	825	---	1:1	---	B 2/
086	8000 ct	12.8 ct	3.2	1.2	1.2	.03	1.1	640	1.4	.35	25.1	50.1	A
087	8000 ct	1000 ct	250	1.2	1.2	.03	1.1	640	110	27.5	2.83:1	5.66:1	“
088	8000 ct	1200 ct	---	1.2	1.2	.03	1.1	640	132	---	2.58:1	---	B 2/
089	9000 ct	9000 ct	---	1.1	1.1	.03	1.1	720	990	---	1:1	---	B 2/
090	10,000 ct	12.8 ct	3.2	1.0	1.0	.03	1	800	1.4	.35	28:1	56:1	A
091	10,000 ct	16 ct	4	1.0	1.0	.03	1	800	1.76	.44	25:1	50:1	“
092	10,000 ct	100 ct	25	1.0	1.0	.03	1	800	11	2.75	10:1	20:1	“
093	10,000 ct	200 ct	50	1.0	1.0	.03	1	800	22	5.5	7.07:1	14.14:1	“
094	10,000 ct	500 ct	125	1.0	1.0	.03	1	800	55	13.75	4.47:1	8.94:1	“
095	10,000 ct	600 ct	150	1.0	1.0	.03	1	800	66	16.5	4.08:1	8.16:1	“
096	10,000 ct	1000 ct	250	1.0	1.0	.03	1	800	110	27.5	3.16:1	6.32:1	“
097	10,000 ct	1200 ct	300	1.0	1.0	.03	1	800	132	33	2.89:1	5.77:1	“
098	10,000 ct	1500 ct	375	1.0	1.0	.03	1	800	165	41.3	2.58:1	5.16:1	“
099	10,000 ct	2000 ct	500	1.0	1.0	.03	1	800	220	55	2.24:1	4.47:1	“
100	10,000 ct	5000 ct	1250	1.0	1.0	.03	1	800	550	138	1.41:1	2.83:1	“
101	10,000 ct	7500 ct	1875	1.0	1.0	.03	1	800	825	206	1.16:1	2.31:1	“
102	10,000 ct	10,000 ct	2500	1.0	1.0	.03	1	800	1100	275	1:1	2:1	“
103	10,000 ct	10,000 ct	---	1.0	1.0	.03	1	800	1100	---	1:1	---	B 2/
104	15,000 ct	400 ct	100	.65	.65	.03	.8	1200	44	11	6.12:1	12.25:1	A
105	15,000 ct	500 ct	125	.65	.65	.03	.8	1200	55	13.8	5.48:1	10.95:1	“
106	15,000 ct	600 ct	150	.65	.65	.03	.8	1200	66	16.5	5:1	10:1	“
107	15,000 ct	10,000 ct	2500	.65	.65	.03	.8	1200	1100	275	1.22:1	2.45:1	“
108	15,000 ct	15,000 ct	---	.65	.65	.03	.8	1200	1650	---	1:1	---	B 2/
109	15,000 ct	15,000 ct	3750	.65	.65	.03	.8	1200	1650	413	1:1	2:1	A
110	16.000 ct	1000 ct	250	.62	.62	.03	.8	1280	110	27.5	4:1	8:1	“
111	20,000 ct	500 ct	125	.5	.5	.03	.7	1600	55	13.8	6:32.1	12:65.1	“
112	20,000 ct	600 ct	150	.5	.5	.03	.7	1600	66	16.5	5.77:1	11.55:1	“
113	20,000 ct	800 ct	200	.5	.5	.03	.7	1600	88	22	5:1	10:1	“
114	20,000 ct	1000 ct	250	.5	.5	.03	.7	1600	110	27.5	4.47:1	8.94:1	“
115	20.000 ct	5000 ct	1250	.5	.5	.03	.7	1600	550	138	2:1	4:1	“
116	20,000 ct	10,000 ct	2500	.5	.5	.03	.7	1600	1100	275	1.41	2.83:1	“
117	20,000 ct	20,000 ct	---	.5	.5	.03	.7	1600	2200	---	1:1	---	B 2/
118	25,000 ct	500 ct	125	.4	.4	.03	.6	2000	55	13.8	7.07:1	14.14:1	A
119	25,000 ct	1000 ct	250	.4	.4	.03	.6	2000	110	27.5	5:1	10:1	“
120	30,000 ct	50 ct	12.5	.33	.33	.03	.6	2400	5.5	1.38	24.5:1	49:1	“

See notes at end of table.

Table I. Electrical ratings. - Continued.

Dash no.	Primary impedance (ohms)	Secondary Impedance (ohms)		Power in watts			Primary unbalanced dc current (mA)	Primary dc resistance (ohms)	Secondary dc resistance (ohms)		Turns ratio primary:secondary		Circuit diagram configu-ration
		Series connec-tion	Parallel connec-tion	1 kHz and higher	300 Hz and higher	50 Hz and higher			Series connec-tion	Parallel connec-tion	Secondary series connection	Secondary parallel connection	
121	30,000 ct	1200 ct	300	.33	.33	.03	.6	2400	132	33	5:1	10:1	A
122	30,000 ct	500 ct	125	.33	.33	.03	.6	2400	55	13.8	7.7:1	15.5:1	“
123	30,000 ct	200 ct	50	.33	.33	.03	.6	2400	22	5.5	12.2:1	24.5:1	“
124	30,000 ct	5000 ct	1250	.33	.33	.03	.6	2400	550	137.5	2.45:1	4.9:1	“
125	30,000 ct	10,000 ct	2500	.33	.33	.03	.6	2400	1100	275	1.73:1	3.46:1	“
126	30,000 ct	30,000 ct	---	.33	.33	.03	.6	2400	3300	---	1:1	---	B 2/
127	40,000 ct	400 ct	100	.25	.25	.03	.5	3200	44	11	10:1	20:1	A
128	40,000 ct	2000 ct	500	.25	.25	.03	.5	3200	220	55	4.47:1	8.94:1	“
129	40,000 ct	4000 ct	1000	.25	.25	.03	.5	3200	440	110	3.16:1	6.32:1	“
130	40,000 ct	20,000 ct	5000	.25	.25	.03	.5	3200	2200	550	1.41:1	2.83:1	“
131	40,000 ct	40,000 ct	---	.25	.25	.03	.5	3200	4400	---	1:1	---	B 2/
132	50,000 ct	200 ct	50	.2	.2	.03	.4	4000	22	5.5	15.8:1	31.6:1	A
133	50,000 ct	500 ct	125	.2	.2	.03	.4	4000	55	13.8	10:1	20:1	“
134	50,000 ct	600 ct	150	.2	.2	.03	.4	4000	66	16.5	9.13:1	18.26:1	“
135	50,000 ct	50,000 ct	12,500	.2	.2	.03	.4	4000	5500	1380	1:1	2:1	“
136	60,000 ct	15,000 ct	3750	.16	.16	.03	.4	4800	1650	413	2:1	4:1	“
137	62,500 ct	50 ct	12.5	.16	.16	.03	.4	5000	5.5	1.38	35.4:1	70.7:1	“
138	80,000 ct	15,000 ct	3750	.12	.12	.03	.3	6400	1650	413	2.3:1	4.6:1	“
139	90,000 ct	10,000 ct	2500	.11	.11	.03	.3	7200	1100	275	3:1	6:1	“
140	95,000 ct	15,000 ct	3750	.1	.1	.03	.3	7600	1650	413	2.5:1	5:1	“
141	100,000 ct	60 ct	15	.1	.1	.03	.3	8000	6.6	1.65	40.8:1	81.6:1	“
142	100,000 ct	100 ct	25	.1	.1	.03	.3	8000	11	2.75	31.6:1	63.2:1	“
143	100,000 ct	500 ct	125	.1	.1	.03	.3	8000	55	13.8	14.1:1	28.3:1	“
144	100,000 ct	1000 ct	250	.1	.1	.03	.3	8000	110	27.5	10:1	20:1	“
145	100,000 ct	2000 ct	500	.1	.1	.03	.3	8000	220	55	7.07:1	14.14:1	“
146	100,000 ct	10,000 ct	2500	.1	.1	.03	.3	8000	1100	275	3.16:1	6.32:1	“
147	135,000 ct	82 ct	20.5	.07	.07	.03	.2	10,800	9	2.25	40.6:1	81.2:1	“

1/ Qualification testing and approval to M27/359-131 and M27/359-147 shall be sufficient to grant approval to M27/359-001 through M27/359-147.

2/ Includes electrostatic shield. Shield terminal shall be 4. Voltage ratio shall be 2 to 1 at 20 kHz.

Custodians:
Army - CR
Navy - EC
Air Force - 11
DLA - CC

Review activities:
Army - AR, CR4
Navy - AS, MC, OS
Air Force - 99

Preparing activity:
DLA - CC

(Project 5950-1095)