

INCH-POUND

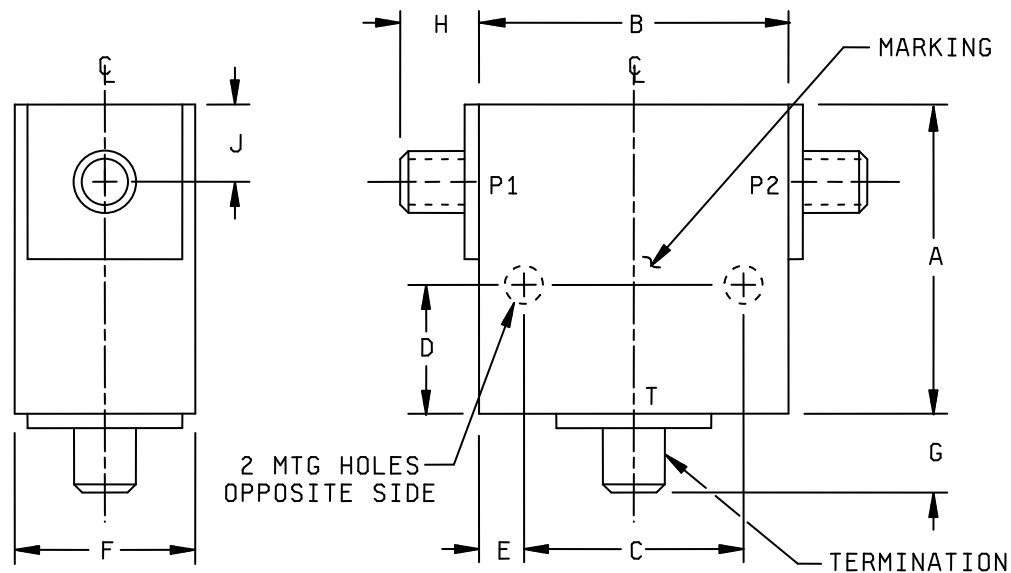
MIL-DTL-28791/1C
 10 March 2011
 SUPERSEDING
 MIL-DTL-28791/1B
 20 September 2006

DETAIL SPECIFICATION SHEET

ISOLATORS, RADIO FREQUENCY, COAXIAL

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

The requirements for acquiring the product listed herein shall
 consist of this specification sheet and MIL-DTL-28791.



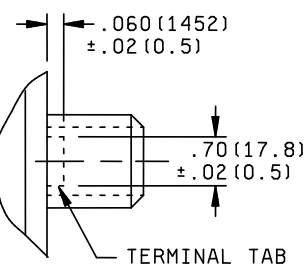
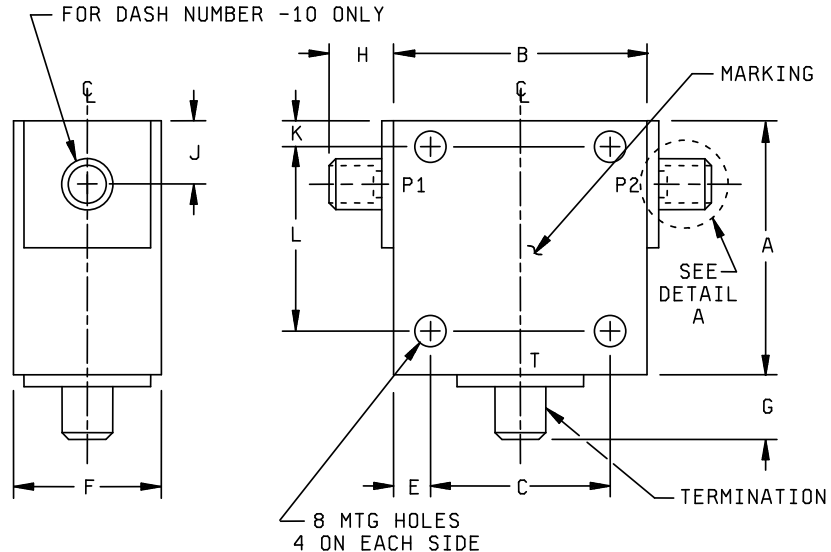
NOTES:

1. See table I for dimensions.
2. All un-dimensioned pictorial representations are for reference purposes only.

FIGURE 1. Dimensions and configurations for dash numbers 001, 002, 003, 004, 005, 016, 017, 020, 022, 023, 024, 025, 030, 031, and 035.

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CONNECTORS SHALL MATE WITH SMA
TYPE CONNECTORS FEMALE OR MALE IAW
MIL-PRF-39012
SEE TABLE I
REMOVABLE SMA CONNECTORS
FOR DASH NUMBER -10 ONLY



DETAIL A

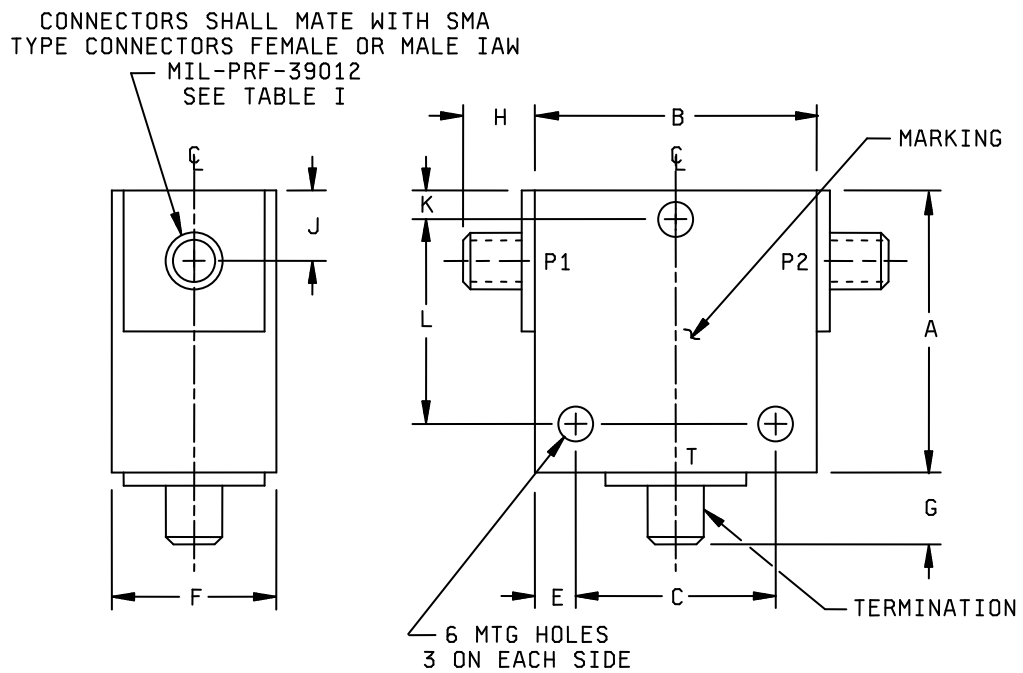
STRIPLINE TERMINAL TABS PROTRUSION FROM CASE WHEN INPUT AND OUTPUT
PORT CONNECTORS ARE REMOVED. SHIM CONNECTOR MOUNTINGS AS REQUIRED.

NOTES:

1. See table I for dimensions.
2. All un-dimensioned pictorial representations are for reference purposes only.
3. Metric equivalents are in parentheses.

FIGURE 2. Dimensions and configurations for dash numbers 006, 010, and 014.

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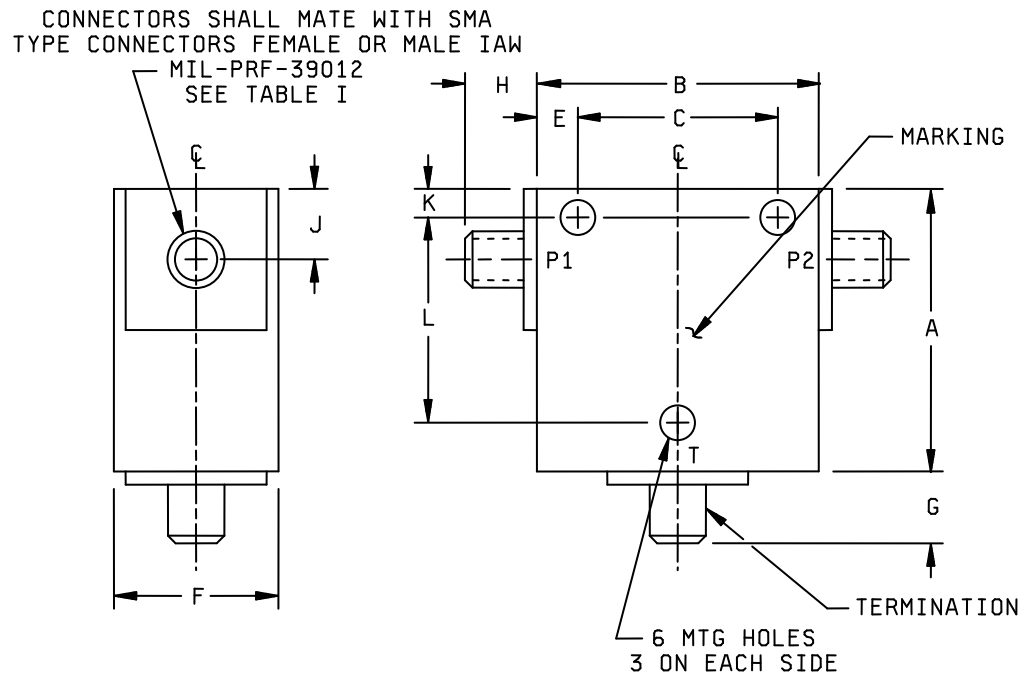


NOTES:

1. See table I for dimensions.
2. All un-dimensioned pictorial representations are for reference purposes only.

FIGURE 3. Dimensions and configurations for dash numbers 007, 009, 011, 012, and 027.

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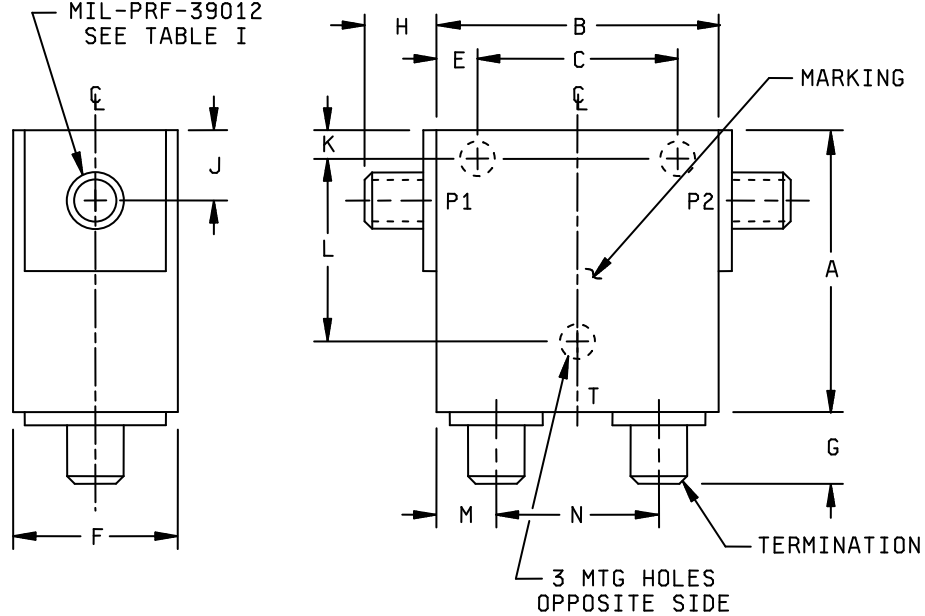
NOTES:

1. See table I for dimensions.
2. All un-dimensioned pictorial representations are for reference purposes only.

FIGURE 4. Dimensions and configurations for dash numbers 008, 013, 015, 018, 019, 021, 028, and 033.

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CONNECTORS SHALL MATE WITH SMA
TYPE CONNECTORS FEMALE OR MALE IAW
MIL-PRF-39012
SEE TABLE I

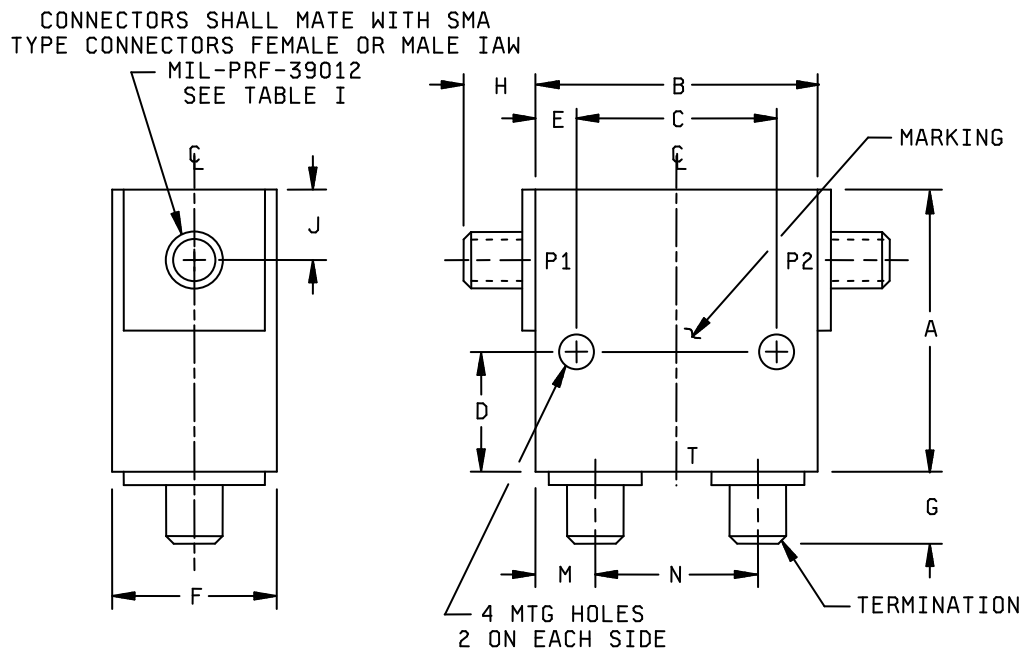


NOTES:

1. See table I for dimensions.
2. All un-dimensioned pictorial representations are for reference purposes only.

FIGURE 5. Dimensions and configurations for dash numbers 026 and 032.

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NOTES:

1. See table I for dimensions.
2. All un-dimensioned pictorial representations are for reference purposes only.

FIGURE 6. Dimensions and configurations for dash numbers 029 and 034.

TABLE I. Dimensional and thread requirements.

Dash no.	Dimensions 1/ 2/													
	A	B	C		D		E		F	G	H		J	
	Max	Max	Min	Max	Min	Max	Min	Max	Max	Max	Min	Max	Min	Max
-001	.66 (16.8)	.53 (13.5)	.345 (8.76)	.355 (9.02)	.407 (10.34)	.417 (10.59)	.070 (1.78)	.080 (2.03)	.53 (13.5)	.135 (3.43)	.220 (5.59)	.415 (10.54)	.245 (6.22)	.255 (6.48)
-002	.66 (16.8)	.53 (13.5)	.345 (8.76)	.355 (9.02)	.407 (10.34)	.417 (10.59)	.070 (1.78)	.080 (2.03)	.53 (13.5)	.135 (3.43)	"	"	.245 (6.22)	.255 (6.48)
-003	1.055 (26.80)	.955 (24.26)	.645 (16.38)	.655 (16.64)	.395 (10.03)	.405 (10.29)	.145 (3.68)	.155 (3.94)	.65 (16.5)	.27 (6.9)	"	"	.245 (6.22)	.255 (6.48)
-004	1.055 (26.80)	.955 (24.26)	.645 (16.38)	.655 (16.64)	.395 (10.03)	.405 (10.29)	.145 (3.68)	.155 (3.94)	.65 (16.5)	.27 (6.9)	"	"	.245 (6.22)	.255 (6.48)
-005	1.20 (30.5)	1.20 (30.5)	.945 (24.00)	.955 (24.26)	.395 (10.03)	.405 (10.29)	.125 (3.18)	.135 (3.43)	.75 (19.0)	.17 (4.3)	"	"	.255 (6.48)	.265 (6.73)
-006	1.25 (31.8)	1.25 (31.8)	.645 (16.38)	.655 (16.64)			.295 (7.49)	.305 (7.75)	.75 (19.0)	.17 (4.3)	"	"	.295 (7.49)	.305 (7.75)
-007	1.50 (38.1)	1.50 (38.1)	.995 (25.27)	1.005 (25.53)			.245 (6.22)	.255 (6.48)	.63 (16.0)	.27 (6.9)	"	"	.265 (6.73)	.275 (6.98)
-008	2.75 (69.8)	2.75 (69.8)	1.995 (50.67)	2.005 (50.93)			.495 (12.57)	.505 (12.83)	.89 (22.6)	.69 (17.5)	"	"	.399 (10.13)	.349 (8.86)
-009	1.25 (31.8)	1.25 (31.8)	.995 (25.27)	1.005 (25.53)			.115 (2.92)	.125 (3.18)	.63 (16.0)	.27 (6.9)	"	"	.245 (6.22)	.255 (6.48)
-010	1.500 (38.10)	1.49 (37.8)	.995 (25.27)	1.005 (25.53)			.245 (6.22)	.255 (6.48)	.65 (16.5)	.17 (4.3)	"	"	.275 (6.98)	.285 (7.24)
-011	1.25 (31.8)	1.25 (31.8)	.995 (25.27)	1.005 (25.53)			.115 (2.92)	.125 (3.18)	.63 (16.0)	.27 (6.9)	"	"	.245 (6.22)	.255 (6.48)
-012	2.00 (50.8)	2.00 (50.8)	1.713 (43.51)	1.723 (43.76)			.135 (3.43)	.145 (3.68)	1.00 (25.4)	.27 (6.9)	"	"	.495 (12.57)	.505 (12.83)
-013	1.70 (43.2)	1.63 (41.4)	1.115 (28.32)	1.125 (28.58)			.245 (6.22)	.255 (6.48)	.75 (19.0)	.27 (6.9)	"	"	.349 (8.86)	.355 (9.02)
-014	1.72 (43.7)	1.65 (41.9)	1.045 (26.54)	1.055 (26.80)			.295 (7.49)	.305 (7.75)	.75 (19.0)	.17 (4.3)	"	"	.335 (8.51)	.345 (8.76)
-015	2.08 (52.8)	1.77 (45.0)	1.095 (27.81)	1.105 (28.07)			.325 (8.26)	.335 (8.51)	.99 (25.1)	.17 (4.3)	"	"	.275 (6.98)	.285 (7.24)
-016	1.625 (41.28)	1.625 (41.28)	1.320 (33.53)	1.330 (33.78)	.807 (20.50)	.817 (20.75)	.120 (3.05)	.130 (3.30)	.75 (19.0)	.27 (6.9)	"	"	.370 (9.40)	.380 (9.65)
-017	1.625 (41.28)	1.625 (41.28)	1.320 (33.53)	1.330 (33.78)	.807 (20.50)	.817 (20.75)	.120 (3.05)	.130 (3.30)	.75 (19.0)	.27 (6.9)	"	"	.370 (9.40)	.380 (9.65)

See footnotes at end of table I.

TABLE I. Dimensional and thread requirements - Continued.

Dash no.	Dimensions - Continued. 1/ 2/						
	K		L		MTG threads	Connectors	Figure no.
	Min	Max	Min	Max			
-001					.086-56 UNC-2B x .13DP	2 females	1
-002					.086-56 UNC-2B x .13DP	2 females	1
-003					.112-40 UNC-2B x .15DP	2 females	1
-004					.112-40 UNC-2B x .15DP	2 females	1
-005					.086-56 UNC-2B x .13DP	2 females	1
-006	.145 (3.68)	.155 (3.94)	.995 (25.27)	1.005 (25.53)	.086-56 UNC-2B x .30DP	2 females	2
-007	.145 (3.68)	.155 (3.94)	1.182 (30.02)	1.192 (30.28)	.112-40 UNC-2B x .13DP	2 females	3
-008	.399 (10.13)	.349 (8.86)	1.995 (50.67)	2.005 (50.93)	.112-40 UNC-2B x .19DP	2 females	4
-009	.115 (2.92)	.125 (3.18)	.995 (25.27)	1.005 (25.53)	.086-56 UNC-2B x .13DP	1 female and 1 male	3
-010	.115 (2.92)	.125 (3.18)	.995 (25.27)	1.005 (25.53)	.086-56 UNC-2B x .13DP	2 females	2
-011	.115 (2.92)	.125 (3.18)	.995 (25.27)	1.005 (25.53)	.086-56 UNC-2B x .13DP	1 female and 1 male	3
-012	.135 (3.43)	.145 (3.68)	1.713 (43.51)	1.723 (43.76)	.112-40 UNC-2B x .15DP	2 females	3
-013	1.075 (27.30)	1.085 (27.56)	.349 (8.86)	.355 (9.02)	.112-40 UNC-2B x .15DP	2 females	4
-014	.335 (8.51)	.345 (8.76)	1.0495 (26.657)	1.0505 (26.683)	.112-40 UNC-2B x .15DP	2 females	2
-015	.345 (8.76)	.355 (9.02)	1.395 (35.43)	1.405 (35.69)	.112-40 UNC-2B x .15DP	2 females	4
-016					.112-40 UNC-2B x .15DP	2 females	1
-017					.112-40 UNC-2B x .15DP	2 females	1

See footnotes at end of table I.

TABLE I. Dimensional and thread requirements - Continued.

Dash no.	Dimensions <u>1/</u> <u>2/</u>													
	A	B	C		D		E		F	G	H		J	
	Max	Max	Min	Max	Min	Max	Min	Max	Max	Max	Min	Max	Min	Max
-018	1.00 (25.4)	1.00 (25.4)	.795 (20.19)	.805 (20.45)			.095 (2.41)	.105 (2.67)	.50 (12.7)	.17 (4.3)	.220 (5.59)	.415 (10.54)	.245 (6.22)	.255 (6.48)
-019	1.06 (26.9)	1.00 (25.4)	.745 (18.92)	.755 (19.18)			.115 (2.92)	.125 (3.18)	.75 (19.0)	.27 (6.9)	"	"	.245 (6.22)	.255 (6.48)
-020	1.03 (26.2)	1.00 (25.4)	.595 (15.11)	.605 (15.37)	.395 (10.03)	.405 (10.29)	.195 (4.95)	.205 (5.21)	.63 (16.0)	.17 (4.3)	"	"	.275 (6.98)	.285 (7.24)
-021	1.30 (33.0)	1.15 (29.2)	.695 (17.65)	.705 (17.91)			.225 (5.72)	.235 (5.97)	.63 (16.0)	.17 (4.3)	"	"	.275 (6.98)	.285 (7.24)
-022	1.00 (25.4)	1.00 (25.4)	.745 (18.92)	.755 (19.18)	.182 (4.62)	.192 (4.88)	.120 (3.05)	.130 (3.30)	.50 (12.7)	.27 (6.9)	"	"	.245 (6.22)	.255 (6.48)
-023	1.00 (25.4)	1.00 (25.4)	.745 (18.92)	.755 (19.18)	.182 (4.62)	.192 (4.88)	.120 (3.05)	.130 (3.30)	.50 (12.7)	.27 (6.9)	"	"	.245 (6.22)	.255 (6.48)
-024	1.12 (28.4)	.91 (23.1)	.820 (20.83)	.830 (21.08)	.090 (2.29)	.100 (2.54)	.080 (2.03)	.090 (2.29)	.90 (22.9)	.27 (6.9)	"	"	.375 (9.52)	.385 (9.78)
-025	.85 (21.6)	.75 (19.0)	.595 (15.11)	.605 (15.37)	.255 (6.48)	.265 (6.73)	.075 (1.90)	.085 (2.16)	.60 (15.2)	.17 (4.3)	"	"	.255 (6.48)	.265 (6.73)
-026	.85 (21.6)	1.60 (40.6)	1.395 (35.43)	1.405 (35.69)			.095 (2.41)	.105 (2.67)	.60 (15.2)	.17 (4.3)	"	"	.245 (6.22)	.255 (6.48)
-027	1.06 (26.9)	.87 (22.1)	.620 (15.75)	.630 (16.00)			.115 (2.92)	.125 (3.18)	.81 (20.6)	.17 (4.3)	"	"	.245 (6.22)	.255 (6.48)
-028	1.08 (27.4)	.94 (23.9)	.620 (15.75)	.630 (16.00)			.155 (3.94)	.165 (4.19)	.56 (14.2)	.17 (4.3)	"	"	.275 (6.98)	.285 (7.24)
-029	1.00 (25.4)	1.80 (45.7)	1.595 (40.51)	1.605 (40.77)	.375 (9.52)	.385 (9.78)	.095 (2.41)	.105 (2.67)	.63 (16.0)	.17 (4.3)	"	"	.265 (6.73)	.275 (6.98)
-030	.77 (19.6)	.63 (16.0)	.495 (12.57)	.505 (12.83)	.515 (13.08)	.525 (13.34)	.058 (1.47)	.068 (1.73)	.50 (12.7)	.25 (6.4)	"	"	.245 (6.22)	.255 (6.48)
-031	.84 (21.3)	.63 (16.0)	.465 (11.81)	.475 (12.06)	.325 (8.26)	.335 (8.51)	.075 (1.90)	.085 (2.16)	.62 (15.7)	.17 (4.3)	"	"	.285 (7.24)	.295 (7.49)
-032	.68 (17.3)	1.02 (25.9)	.855 (21.72)	.865 (21.97)			.075 (1.90)	.085 (2.16)	.56 (14.2)	.45 (11.4)	"	"	.265 (6.73)	.275 (6.98)
-033	.83 (21.1)	.67 (17.0)	.355 (9.02)	.365 (9.27)			.155 (3.94)	.165 (4.19)	.62 (15.7)	.35 (8.9)	"	"	.275 (6.98)	.285 (7.24)
-034	.78 (19.8)	1.20 (30.5)	.955 (24.26)	.965 (24.51)	.525 (13.34)	.535 (13.59)	.115 (2.92)	.125 (3.18)	.63 (16.0)	.15 (3.8)	"	"	.245 (6.22)	.255 (6.48)
-035	.77 (19.6)	.63 (16.0)	.495 (12.57)	.505 (12.83)	.515 (13.08)	.525 (13.34)	.058 (1.47)	.068 (1.73)	.80 (20.3)	.25 (6.4)	"	"	.245 (6.22)	.255 (6.48)

See footnotes at end of table I.

TABLE I. Dimensional and thread requirements - Continued.

Dash no.	Dimensions - Continued. 1/ 2/								Fig. no.
	K		L		M	N	MTG threads	Connectors	
	Min	Max	Min	Max	Max	Max			
-018	.225 (5.72)	.235 (5.97)	.645 (16.38)	.655 (16.64)			.086-56 UNC-2B x .13DP	2 females	4
-019	.225 (5.72)	.235 (5.97)	.695 (17.65)	.705 (17.91)			.086-56 UNC-2B x .13DP	2 females	4
-020							.112-40 UNC-2B x .15DP	2 females	4
-021	.175 (4.44)	.185 (4.70)	.945 (24.00)	.955 (24.26)			.112-40 UNC-2B x .15DP	2 males	4
-022							.125 DIA through	2 females	1
-023							.125 DIA through	2 females	1
-024							.086-56 UNC-2B x .13DP	2 females	1
-025							.086-56 UNC-2B x .16DP	2 females	1
-026	.245 (6.22)	.255 (6.48)	.495 (12.57)	.505 (12.83)	.40 (10.2)	.80 (20.3)	.086-56 UNC-2B x .16DP	2 females	5
-027	.145 (3.68)	.155 (3.94)	.732 (18.59)	.742 (18.85)			.112-40 UNC-2B x .18DP	2 females	3
-028	.245 (6.22)	.255 (6.48)	.595 (15.11)	.605 (15.37)			.086-56 UNC-2B x .16DP	2 males	4
-029					.45 (11.4)	.45 (11.4)	.112-40 UNC-2B x .15DP	2 females	6
-030							.086-56 UNC-2B x .13DP	2 females	1
-031							.086-56 UNC-2B x .13DP	2 females	1
-032	.265 (6.73)	.275 (6.98)	.305 (7.75)	.315 (8.00)	.25 (6.4)	.51 (13.0)	.086-56 UNC-2B x .13DP	2 females	5
-033	.225 (5.72)	.235 (5.97)	.485 (12.32)	.495 (12.57)			.086-56 UNC-2B x .16DP	2 males	4
-034							.086-56 UNC-2B x .16DP	2 females	6
-035							.086-56 UNC-2B x .13DP	2 females	1

1/ Metric equivalents are in parentheses.

2/ Metric equivalents are given for general information only.

MIL-DTL-28791/1C

Part or Identifying Number (PIN): M28791/1 - (dash number from table II).

ENGINEERING DATA:

Frequency range: See table II.

Voltage rating (sea level): 335 V.

Nominal impedance: 50 ohms.

Operating temperature range: See table II.

Power rating: See table II.

Input port: P₁.

Output port: P₂.

RF connectors: Shall be stainless steel.

REQUIREMENTS:

Dimensions and configurations: See figure 1 through figure 6, and table I.

Dielectric withstanding voltage: 1,000 V rms minimum.

Isolation: See table II.

Insertion loss: See table II.

VSWR: See table II.

Marking: See figure 1 through figure 6.

Salt atmosphere (where applicable): MIL-STD-202, method 101, test condition B. This test shall be performed under first article inspection after the vibration test. Insertion loss and VSWR shall be measured after the test.

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TABLE II. Electrical and additional environmental requirements.

Dash number	Frequency range GHz	Isolation dB min	Insertion loss dB max	VSWR max	Operating temperature range °C	Input power rating average Watt min	Salt atmosphere <u>1/</u>
-001	9.50-10.0	20	0.3	1.25:1	-55°C to +95°C	10	N/A
-002	12.5-13.5	20	0.3	1.25:1	-55°C to +95°C	10	N/A
-003	7.0-11.0	20	0.5	1.30:1	-55°C to +95°C	10	N/A
-004	11.0-18.0	20	0.5	1.30:1	-55°C to +95°C	10	N/A
-005	0.95-1.225	20	0.5	1.25:1	-54°C to +85°C	2	N/A
-006	0.95-1.225	22	0.4	1.25:1	0°C to +71°C	2	Condition B
-007	0.96-1.215	18	0.5	1.25:1		75	N/A
-008	1-2	18	0.5	1.30:1	0°C to +71°C	2	Condition B
-009	1.255-1.41	20	0.4	1.25:1	-28°C to +65°C	5	Condition B
-010	1.26-1.666	20	0.5	1.25:1	-40°C to +65°C	0.03	Condition B
-011	1.495-1.65	20	0.3	1.25:1	-28°C to +65°C	5	Condition B
-012	1.53-1.87	20	0.5	1.25:1	-20°C to +70°C	2	N/A
-013	1.8-4.2	20	0.8	1.50:1	-40°C to +75°C	2	Condition B
-014	2-4	20	0.4	1.25:1	-55°C to +125°C	1	Condition B
-015	2-4	20	0.4	1.25:1	-54°C to +71°C	2	Condition B
-016	2.16-4.16	18	0.5	1.35:1	-55°C to +85°C	2	Condition B
-017	2.2-4.2	18	0.5	1.35:1	-55°C to +85°C	2	Condition B
-018	2.7-2.9	20	0.4	1.25:1	-41°C to +53°C	2	Condition B
-019	3.6-8.4	20	0.5	1.50:1	-40°C to +75°C	2	Condition B
-020	4.0-8.0	20	0.5	1.30:1	-55°C to +125°C	1	Condition B
-021	4.0-8.0	20	0.4	1.25:1	-54°C to +70°C	2	Condition B
-022	4.16-8.16	18	0.5	1.35:1	-55°C to +85°C	2	Condition B
-023	4.2-8.2	18	0.5	1.35:1	-55°C to +85°C	2	Condition B
-024	4.35-4.85	25	0.5	1.18:1	-40°C to +71°C	2	N/A
-025	7-11	20	0.4	1.22:1	-54°C to +105°C	10	N/A
-026	7.55-12.85	25	1.2	1.35:1	-40°C to +75°C	2	Condition B
-027	8-12	20	0.4	1.25:1	-54°C to +70°C	1	N/A
-028	8-12	20	0.4	1.25:1	-55°C to +95°C	2	Condition B
-029	8-12	40	0.8	1.25:1	0°C to +65°C	2	Condition B
-030	8.16-12.56	18	0.5	1.35:1	-55°C to +85°C	2	Condition B
-031	8-16	17	0.7	1.35:1	-45°C to +85°C	2	Condition B
-032	12-18.5	30	1.2	1.35:1	-40°C to +75°C	2	Condition B
-033	12-18	18	0.6	1.30:1	-54°C to +71°C	2	Condition B
-034	12.4-18	40	0.8	1.25:1	0°C to +65°C	2	Condition B
-035	12.56-18.16	17	1.0	1.45:1	-55°C to +85°C	2	Condition B

1/ This test shall be performed under first article inspection and be conducted after the vibration test. After exposure, isolators shall be examined for evidence of corrosion. Any corrosion shall be considered a failure. After the salt atmosphere test, the VSWR shall be measured and shall not be greater than specified.

MIL-DTL-28791/1C

Referenced documents. In addition to MIL-DTL-28791, this specification sheet references the following documents:

MIL-PRF-39012

MIL-STD-202

The margins of this specification sheet are marked with vertical lines 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.

Custodians:

Army - CR

Navy - EC

Air Force - 85

DLA - CC

Preparing activity:

DLA - CC

(Project 5985-2011-014)

Review activities:

Navy - AS, MC, OS, SH

Air Force - 99

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 <https://assist.daps.dla.mil>.