

INCH - POUND

MIL-STD-1637B

22 September 1989

SUPERSEDING

MIL-STD-1637A

24 DECEMBER 1980

MILITARY STANDARD

DUMMY LOADS, ELECTRICAL, WAVEGUIDE, COAXIAL, AND STRIPLINE, SELECTION OF



AMSC N/A

FSC 5985

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FOREWORD

1. This military standard is approved for use by all Departments and Agencies of the Department of Defense.

2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: Defense Electronics Supply Center, ATTN: DESC-ES, 1507 Wilmington Pike, Dayton, Ohio 45444-5276, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.

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1. SCOPE

1.1 Scope. This military standard provides standard waveguide, coaxial, and stripline dummy loads considered by the Department of Defense as standard for use in military equipment and applications.

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2. APPLICABLE DOCUMENTS

2.1 Government documents.

2.1.1 Specifications, standards, and handbooks. The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DODISS) and supplement thereto, cited in the solicitation.

SPECIFICATIONS

MILITARY

- MIL-D-3954 - Dummy Loads, Electrical, Waveguide, General Specification for.
- MIL-D-39030 - Dummy Load, Electrical, Coaxial, General Specification for.

(Unless otherwise indicated, copies of federal and military specifications, standards, and handbooks are available from the Naval Publications and Forms Center, (ATTN: NPODS), 5801 Tabor Avenue, Philadelphia, PA, 19120-5099.)

2.2 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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3. DEFINITIONS

3.1 The terms used in this standard are those commonly encountered in microwave engineering practices.

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4. GENERAL REQUIREMENTS

4.1 Selection of dummy loads. Dummy loads to be used in military applications shall be selected from those listed in tables I, II, and III.

4.2 Criteria for inclusion. The criteria for the selection of dummy load types for inclusion in this standard are:

- a. The dummy loads shall be considered by representatives of the military departments the best available type for current application.
- b. Availability of the dummy loads shall be reasonably certain.
- c. The dummy loads shall have an approved military specification.

4.3 Electrical and physical tolerances. Dummy loads used in military applications shall be representative of manufactured lots possessing acceptable material and physical and electrical characteristics and shall in no manner degrade the operational characteristics of the equipment in which used.

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TABLE I. MIL-D-3954 waveguide dash numbers and characteristics.

Class I - Dry finned waveguide loads											
Part number	Dash	Frequency range GHz		VSWR (max)	Power		Pressure	Flange equivalent to	AN nomenclature	Flow rate	Material
		Min	Max		Average	Peak					
					W	kW	psig			gpm	
M3954/15	01	1.12	1.70	1.1:1	8000	2200	23	M3922/58-008 (UG-4188/U)	DA-147/U		AL
M3954/18	01	2.60	3.95	"	4500	3200	30	M3922/56-002 (UG-584/U)	DA-145/U		"
M3954/17	01	3.95	5.85	"	2000	1000	17.2	M3922/57-001 (UG-407/U)	DA-149/U		"
M3954/16	01	5.85	8.20	"	1000	710	30	M3922/55-002 (UG-441/U)	DA-144/U		"
M3954/11	01	7.05	10.00	"	600	460	"	M3922/53-004 (UG-138/U)	DA-148		"
M3954/19	01	8.20	12.40	"	500	290	"	M3922/53-003 (UG-135/U)	DA-146/U		"
M3954/13	05	12.40	18.00	"	200	10	"	M3922/53-006 (UG-1665/U)	---		"
M3954/13	01	12.40	18.00	1.15:1	250	160	"	M3922/53-006 (UG-1665/U)	DA-159/U		"
Class II - Liquid cooled waveguide loads											
M3954/15	02	1.12	1.70	1.1:1	15000	17200	30	M3922/58-008 (UG-4188/U)		5	AL
"	03	"	"	"	"	"	"	M3922/58-007 (UG-4178/U)		"	COP
"	04	"	"	"	"	"	"	M3922/58-007 (UG-4178/U)		"	CRES
M3954/18	02	2.60	3.95	"	7500	3200	"	M3922/56-002 (UG-584/U)		2.5	AL
"	03	"	"	"	"	"	"	M3922/56-001 (UG-53/U)		"	COP
"	04	"	"	"	"	"	"	M3922/56-001 (UG-53/U)		"	CRES
M3954/17	02	3.95	5.85	"	4000	1300	"	M3922/57-001 (UG-407/U)		125	AL
"	03	"	"	"	"	"	"	M3922/57-002 (UG-149/U)		"	COP
"	04	"	"	"	"	"	"	M3922/57-002 (UG-149/U)		"	CRES
M3954/16	02	5.85	8.20	"	2000	710	"	M3922/55-002 (UG-441/U)		0.667	AL
"	03	"	"	"	"	"	"	M3922/55-001 (UG-344/U)		"	COP
"	04	"	"	"	"	"	"	M3922/55-001 (UG-344/U)		"	CRES

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TABLE I. MIL-D-3954 waveguide dash numbers and characteristics - Continued.

Class II - Liquid cooled waveguide loads												
Part number	Dash	Frequency range GHz		VSWR (max)	Power		Pressure	Flange equivalent to	AN nomenclature	Flow rate	Material	
		Min	Max		Average	Peak						
					W	kW	psig			gpm		
M3954/11	02	7.05	10.00	1.1:1	1500	460	30	M3922/53-004 (UG-138/U)		0.5	AL	
"	03	"	"	"	"	"	"	M3922/53-002 (UG-51/U)		"	COP	
"	04	"	"	"	"	"	"	M3922/53-002 (UG-51/U)		"	CRES	
M3954/19	02	8.20	12.40	"	400	290	"	M3922/53-001 (UG-39/U)			COP	
"	03	"	"	"	1000	"	"	M3922/53-003 (UG-135/U)		0.30	AL	
"	04	"	"	"	"	"	"	M3922/53-001 (UG-39/U)		"	COP	
"	05	"	"	"	"	"	"	M3922/53-001 (UG-39/U)		"	CRES	
M3954/22	001	"	"	1.15:1	2000	"	---	M3922/53-001 (UG-39/U)		0.2	AL	
M3954/22	002	Same as -001 except has resistor, fuse, and thermopile.										
M3954/13	02	12.40	18.00	1.15:1	500	160	30	M3922/53-006 (UG-1665/U)		0.15	AL	
"	03	"	"	"	"	"	"	M3922/53-005 (UG-419/U)		"	COP	
"	04	"	"	"	"	"	"	M3922/53-005 (UG-419/U)		"	CRES	
Class III - Nonfinned and nonliquid cooled waveguide loads												
M3954/18	05	2.60	3.95	1.1:1	750	4000	10	M3922/52-010 (UG-1725/U)			AL	
M3954/16	05	5.85	8.20	1.1:1	2	2		M3922/55-001 (UG-344/U)			COP	

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TABLE II. MIL-D-39030 coaxial dash numbers and characteristics.

Type I - Series SMA connectors												
Part number	Dash	Frequency range GHz		VSWR (max)	Power		Finish	Connector	Body material	Dimensions		AN nomenclature
		Min	Max		Average	Peak				L	W	
					W	kW						
M39030/3	15	4.4	5.0	1.05:1	0.5	0.05	GLD	SMA-male	CRES	.56	.28	
M39030/3	09	DC	10.0	1.10:1	1.0	0.10	GLD	"	CRES	.84	.26	
M39030/3	10	"	10.0	2.10:1	2.0	0.20	GLD	"	CRES	.55	.26	
M39030/4	01	"	12.4	1.30:1	10.0	3.0	---	"	AL	2.0	1.25	
M39030/4	02	"	12.4	1.30:1	10.0	3.0	---	"	CRES	2.0	1.25	
M39030/3	01	"	18.0	1.23:1	0.5	0.05	GLD	"	"	.73	.28	
"	02	"	"	"	"	"	PSVT	"	"	.73	.28	
"	03	"	"	"	"	"	GLD	"	"	.85	.36	
"	04	"	"	"	"	"	PSVT	"	"	.85	.36	
"	05	"	"	"	"	"	GLD	SMA-female	"	.72	.31	
"	06	"	"	"	"	"	PSVT	"	"	.72	.31	
"	07	"	"	"	"	"	GLD	"	"	.80	.38	
"	08	"	"	"	"	"	PSVT	"	"	.80	.38	
"	11	"	"	1.15:1	1.0	0.10	GLD	SMA-male	"	.43	.27	
"	12	2.0	19.0	1.30:1	1.0	0.10	"	"	"	.55	.26	
"	13	"	"	"	0.5	0.05	"	"	"	.61	.26	
"	14	"	"	"	1.0	0.10	"	"	"	.55	.26	
Type III - Series BNC connectors												
M39030/7	01	DC	.25	1.10:1	0.5	1.0	GLD	BNC-male	CRES	1.42	.50	
"	02	"	"	"	"	"	"	"	"	"	"	
"	03	"	"	"	"	"	"	"	"	"	"	
"	04	"	"	"	"	"	"	"	"	"	"	
"	05	"	"	1.15:1	2.0	"	NP	"	BRS	1.00	"	
"	06	"	"	1.15:1	2.0	"	NP	BNC-female	BRS	1.00	"	
M39030/1	03	"	5.0	1.50:1	600	2.5	---	BNC-male	---	---	---	DA-495/U
M39030/1	04	"	5.0	1.50:1	600	2.5	---	BNC-male	---	---	---	DA-496/U
Type IV - Series TNC connectors												
M39030/5	02	.06	.08	1.12:1	0.5	0.6	GLD	TNC-male	CRES	1.29	.50	
M39030/1	05	DC	5.0	1.50:1	600	2.5	---	TNC-male	---	---	---	DA-497/U
M39030/1	06	"	5.0	1.50:1	600	2.5	---	TNC-female	---	---	---	DA-498/U
M39030/8	01	"	6.0	1.30:1	10.0	5.0	ANDZ	TNC-male	AL	2.25	1.39	
M39030/9	01	"	8.0	1.40:1	25.0	5.0	ANDZ	"	AL	4.35	1.39	
M39030/5	01	"	10.0	1.40:1	5.0	6.0	GLD	"	CRES	1.52	0.70	
"	03	"	"	1.15:1	2.0	2.5	"	"	"	1.30	---	
"	04	"	"	1.20:1	5.0	6.0	"	"	"	1.50	.69	
"	05	"	11.0	1.10:1	3.0	1.0	PVST	"	"	1.33	.50	
"	06	.03	12.4	"	1.0	1.2	NP	"	"	1.32	"	
"	07	.03	12.4	"	1.0	1.2	NP	TNC-female	"	1.20	"	

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TABLE II. MIL-D-39030 coaxial dash numbers and characteristics - Continued.

Type V - Series N connectors												
Part number	Dash	Frequency range GHz		VSWR (max)	Power		Finish	Connector	Body material	Dimensions		AN nomenclature
		Min	Max		Average	Peak				L	W	
					W	kW						
M39030/1	01	DC	5.0	1.50:1	600	10.0		N-male				DA-494/U
M39030/1	02	"	5.0	1.50:1	600	10.0		N-female				DA-492/U
M39030/10	01	"	6.0	1.30:1	10.0	5.0	ANDZ	N-male	AL	2.25	1.39	
M39030/11	01	"	8.0	1.40:1	50.0	5.0	"	"	"	4.61	1.63	
"	02	"	10.0	1.30:1	40.0	7.5	"	"	"	5.06	1.63	
"	03	"	10.0	1.30:1	40.0	7.5	"	N-female	"	4.91	1.66	
M39030/6	05	"	12.4	1.15:1	5.0	2.0	"	N-male	"	1.64	.70	
"	01	"	"	1.20:1	5.0	2.0	GLD	"	CRES	1.64	.76	
"	02	"	"	1.35:1	1.0	1.0	GLD	"	"	1.90	.76	
"	03	.03	"	1.10:1	1.0	0.5	NP	"	"	1.51	.38	
"	04	.03	"	1.10:1	1.0	0.5	NP	N-female	"	1.48	.38	
"	06	DC	18.0	1.10:1	2.0	1.0	PVST	N-male	"	1.28	.81	
"	07	"	"	1.10:1	2.0	1.0	PVST	N-female	"	1.28	.81	
M39030/10	02	"	"	1.30:1	20.0	5.0	ANDZ	"	AL	2.28	1.28	
M39030/11	04	0.7	"	1.20:1	175	10.0	ANDZ	"	AL	12.94	2.44	
Type VI - Series C connectors												
M39030/1	09	DC	5.0	1.50:1	600	10.0		C-male				
M39030/1	10	"	5.0	1.50:1	600	10.0		C-female				
M39030/12	01	"	12.4	1.30:1	10.0	5.0	GLD	C-male	CRES	1.76	.76	
Type IX - Series LC connectors												
M39030/2	01	DC	3.5	1.30:1	500	50		LC/mod				DA-75/U
M39030/2	02	"	3.5	1.30:1	500	50		LC/mod				DA-504/U
M39030/1	07	"	5.0	1.50:1	600	250		LC-male				DA-499/U
M39030/1	08	"	5.0	1.50:1	600	250		LC-male				DA-500/U
Type XII - 1-5/8 inch coaxial												
M39030/1	11	DC	5.0	1.50:1	600	250		1-5/8 in. coax				DA-503/U

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TABLE III. MIL-D-39030 stripline dash numbers and characteristics.

Type XIV - Socket contact										
Part number	Dash	Frequency range GHz		VSWR (max)	Power		Finish	Body material	Dimensions	
		Min	Max		Average	Peak			L	W
					<u>W</u>	<u>kW</u>				
M39030/13	01	DC	12.4	1.25:1	1.0	1.0	GLD	AL	.32	.50
Type XIV - Bifurcated contact										
M39030/15	01	DC	12.0	1.50:1	20.0	0.5	CHEM CVRSN CTD	AL	.281	.500
"	02	"	"	"	"	"	"	"	"	"
"	03	"	"	"	"	"	"	"	"	"
M39030/14	01	"	18.0	1.40:1	1.0	0.2	"	"	.170	"
"	02	"	"	"	"	"	"	"	"	"
"	03	"	"	"	"	"	"	"	"	"
M39030/16	01	"	"	"	"	"	"	"	"	1.00
"	02	"	"	"	"	"	"	"	"	"
"	03	"	"	"	"	"	"	"	"	"
Type XIV - Tab center contact										
M39030/19	01	DC	12.0	1.50:1	20.0	20.0	CHEM CVRSN CTD	AL	.281	.500
M39030/19	02	"	12.0	1.50:1	20.0	20.0	CHEM CVRSN CTD	AL	.281	"
M39030/17	01	"	12.4	1.30:1	1.0	1.0	GLD	BRS	.165	"
Type XIV - Tab contact										
M39030/21	01	DC	3.0	1.15:1	3.0	0.1	GLD	BRS		
M39030/22	01	"	4.0	1.25:1	40.0	0.3	"	CRES		
M39030/20	01	"	6.0	1.35:1	1.0	0.1	"	BRS		
M39030/21	02	"	6.0	1.35:1	3.0	"	"	"		
M39030/20	02	"	12.0	1.40:1	1.0	"	"	"		
M39030/20	03	"	"	"	1.0	"	"	"		
M39030/21	03	"	"	"	3.0	"	"	"		
M39030/21	04	"	12.4	1.25:1	3.0	3.0	"	"		
M39030/20	05	"	"	1.35:1	0.5	0.5	"	"		
M39030/20	04	"	"	1.35:1	1.0	0.1	"	"		
M39030/20	06	"	18.0	1.25:1	1.0	1.0	NP	"		
Type XIV - Pin contact										
M39030/18	01	4.40	5.00	1.10:1	0.50	0.50	PVST	CRES	.525	.50
M39030/18	02	7.125	8.40	1.30:1	0.50	0.50	PVST	CRES	.525	.50

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5. DETAILED REQUIREMENTS

5.1 The detailed requirements for dummy loads listed in this standard are covered by the applicable MIL-D-3954 and MIL-D-39030 specification sheets.

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6. NOTES

(This section contains information of a general or explanatory nature which may be helpful, but is not mandatory.)

6.1 Intended use. The intended use of this standard is to:

- a. Provide the equipment designer with a list of dummy loads considered standard for use in military applications.
- b. Restrict and minimize the variety of dummy loads for use in military applications in order to provide effective logistic support of equipment.
- c. Establish criteria pertinent to choice and application of dummy loads for use in military equipment.

6.2 Key word listing.

- a. Dummy loads.
- b. Stripline.

6.3 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extensiveness of the changes.

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