

MIL-STD- 1637A

24 December 1980

SUPERSEDING

MIL-STD- 1637

1 September 1977

MILITARY STANDARD

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



FSC 5985

MIL-STD-1637A
24 December 1980

DEPARTMENT OF DEFENSE
Washington, DC 20301

Dummy Loads, Electrical, Waveguide, Coaxial, and Stripline, Selection of.

MIL-STD-1637A

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: Commander, Naval Electronic Systems Command, ELEX 5043, Washington, DC 20360, 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 standard provides standard waveguide, coaxial, and stripline dummy loads considered by the Department of Defense as standard for use in military equipment and applications.

1.2 Purpose. The purpose 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.

2. REFERENCED DOCUMENTS

2.1 Issues of documents. The following documents of the issue in effect on date of invitation for bids or request for proposal, form a part of this standard to the extent specified herein.

SPECIFICATIONS

MILITARY

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

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

(Copies of specifications, standards, drawings, and publications required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

3. DEFINITIONS

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

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.

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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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					
					<u>W</u>	<u>KW</u>	<u>psig</u>			<u>gpm</u>	
M3954/15	01	1.12	1.70	1.1:1	8000	2200	23	M3922/58-008 (UG-418B/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	---	↓
M3954/14	01	18.00	26.50	↓	150	80	21.3	M3922/54-002 (UG-597/U)	DA-160/U	---	↓
M3954/12	01	26.50	40.00	↓	75	100	30	M3922/54-003 (UG-599/U)	DA-158/U	---	↓
CLASS II - LIQUID COOLED WAVEGUIDE LOADS											
M3954/15	02	1.12	1.70	1.1:1	15000	17200	30	M3922/58-008 (UG-418B/U)	---	5	AL
↓	03	↓	↓	↓	↓	↓	↓	M3922/58-007 (UG-417B/U)	---	↓	COP
↓	04	↓	↓	↓	↓	↓	↓	M3922/58-007 (UG-417B/U)	---	↓	CRES
M3954/18	02	2.60	3.95	↓	7500	3200	↓	M3922/56-002 (UG-584/U)	---	2.25	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)	---	1.25	AL
↓	03	↓	↓	↓	↓	↓	↓	M3922/57-002 (UG-149/U)	---	↓	COP
↓	04	↓	↓	↓	↓	↓	↓	M3922/57-002 (UG-149/U)	---	↓	CRES
M3954/20	01	5.40	5.90	1.2:1	4500	3000	↓	M3922/57-001 (UG-407/U)	---	1.3	AL
M3954/16	02	5.85	8.20	1.1:1	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
M3954/11	02	7.05	10.00	↓	1500	460	↓	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

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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					
M3954/19	02	8.20	12.40	1.1:1	W 400	kW 290	psig 30	M3922/53-001 (UG-39/U)	---	---	COP
↓	03	↓	↓	↓	↓	↓	↓	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.									
M3954/21	01	10.25	10.50	1.15:1	7000	---	40	(UG-80/U)	---	2	CRES
M3954/13	02	12.40	18.00	↓	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

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	
M39030/3	15	4.4	5.0	1.05:1	W 0.5	kW 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	---

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

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	
M39030/3	08	DC	18.0	1.23:1	0.5	0.05	PSVT	SMA-female	CRES	.80	.38	---
↓	11	DC	18.0	1.15:1	1.0	0.10	GLD	SMA-female	↓	.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-female	---	---	---	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	PSVT	↓	↓	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	↓	---
TYPE V - SERIES N CONNECTORS												
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	---

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	
M39030/6	04	.03	12.4	1.10:1	1.0	0.5	NP	N-female	CRES	1.48	.38	---
↓	06	DC	18.0	↓	2.0	1.0	PSVT	N-male	↓	1.28	.81	---
↓	07	↓	↓	↓	2.0	1.0	PSVT	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-female	---	---	---	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

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
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	↓	↓	↓	↓	↓	↓	↓	↓	↓
M39030/14	01	↓	18.0	1.40:1	1.0	0.2	↓	↓	.170	↓
↓	02	↓	↓	↓	↓	↓	↓	↓	↓	↓
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	↓

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

TYPE XIV - TAB CONTACT										
Part number	Dash	Frequency range (GHz)		VSWR (max)	Power		Finish	Body material	Dimensions	
		Min	Max		Average	Peak			L	W
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	PSVT	CRES	.525	.50
M39030/18	02	7.125	8.40	1.30:1	0.50	0.50	PSVT	CRES	.525	.50

Custodians:

Army - ER
Navy - EC
Air Force - 11

Review activities:

Army - MI, AR
Navy - OS, SH
Air Force - 17, 85
DLA - ES

User activities:

Army - AV
Navy - AS, CG, MC
Air Force - 19

Preparing activity:

Navy - EC

Agent:

DLA - ES

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DOCUMENT IDENTIFIER (Number) AND TITLE

MIL-STD-1637A - Dummy Loads, Electrical,

Waveguide, Coaxial, and Stripline Selection of

NAME OF ORGANIZATION AND ADDRESS OF SUBMITTER

VENDOR USER MANUFACTURER

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A. GIVE PARAGRAPH NUMBER AND WORDING

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B. RECOMMENDED WORDING CHANGE

C. REASON FOR RECOMMENDED CHANGE(S)

2. REMARKS

SUBMITTED BY (Printed or typed name and address - Optional)

TELEPHONE NO.

DATE