

Section III



Precision Waveguide Terminations

l:compa2.ppt6

INTRODUCTION: Waveguide Terminations or loads, are power absorbing devices. They are matched to 50 Ohms, the characteristic impedance of the transmission line. The standard product line of precision low power Waveguide Terminations are using custom machined load elements for optimum electrical performance.

Applications: The waveguide power absorbing devices are needed during test and measurement, can be integrated in components and are used in systems applications.

Average Power Handling: This is the maximum allowable CW power to which the unit can be subjected to without suffering permanent damage. The power handling of absorptive units is a function of temperature. High temperature units are supplied with cooling fins or heat sinks or both for better power dissipation.

Custom Designs: Spectrum Elektrotechnik GmbH has been designing and supplying Waveguide Terminations to suit standard and particular requirements as well, such as unique lightweight and non typical mechanical outline, e.g. very short length, unusual mounting or special flange requirements, high power terminations, constructed of heavy wall aluminum waveguide and extruded heat sink material, load elements shaped for optimum power handling and heat transfer while maintaining excellent VSWR, or devices engineered for applications in rough environment, etc., etc.

Flanges: Waveguide Terminations are available with variety of flanges, meeting the appropriate standard interface specifications.

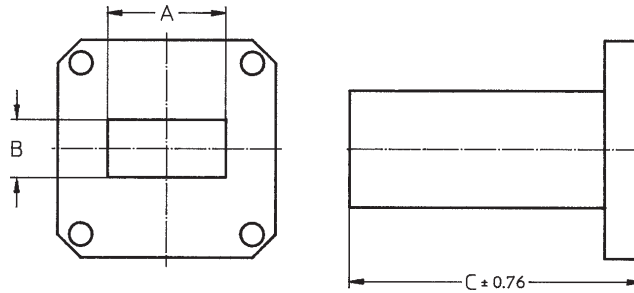
Frequency and Bandwidth: Waveguide Terminations do operate over their waveguide band. In special applications they may be tuned to certain criteria in narrower bands.

Materials: Aluminum, copper and brass are the materials used for Waveguide Terminations. For the flanges aluminum and brass are offered. The waveguide itself can be either made from aluminum with aluminum flanges, brass or copper, when a brass flange is used.

Operating Temperature Range: The temperature ranges from -54°C to $+125^{\circ}\text{C}$, or even wider, depending on the application. Precision Waveguide Terminations may have a rather limited temperature range, while the Power Terminations in Systems are usually designed for extreme temperature ranges. The operating temperature however, will reduce the power limit.

Standard Products: A standard product line of Waveguide Terminations is available with short deliveries. But if the product needed is not listed, there is always a possibility that the product required has been designed already or that a design, very close to the requirement exists. Therefore, please check your requirements with our sales force or our engineering staff.

VSWR: VSWR is the ratio of the reflected signal and the incident signal. It is desired that the loads are ideal, absorbing the power completely. In fact, Waveguide Terminations can be designed and manufactured almost ideally. But the units will still show some reflections and discontinuities within the circuit, as no design is perfect, and manufacturing tolerances do not allow perfect designs anyway. The VSWR of Precision Waveguide Terminations is less than 1.02 : 1 over the full waveguide bandwidth.

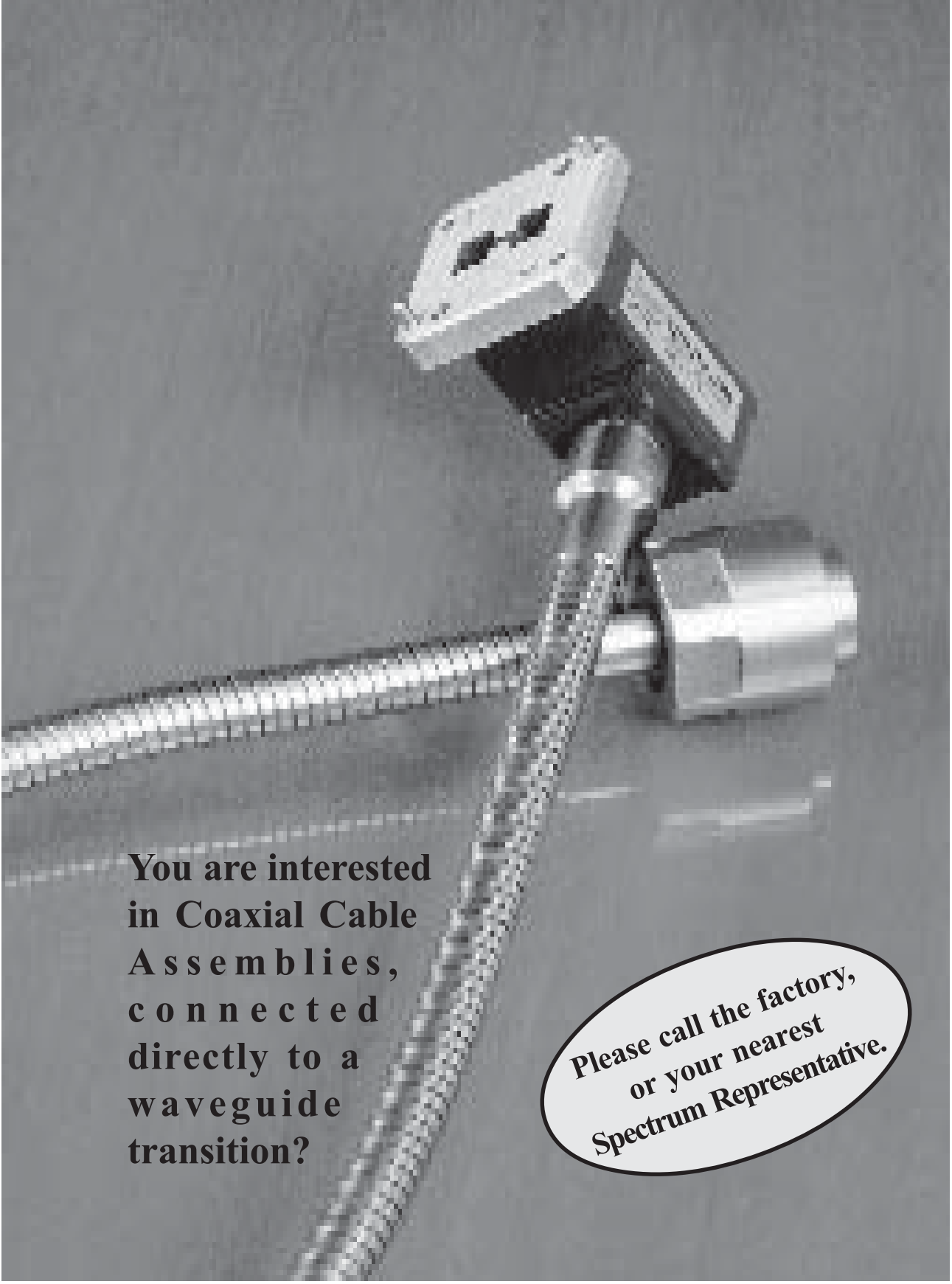


Designation			Frequency (GHz)	Radar Band	VSWR max.	Power Rating ¹⁾ CW (W)	Termination Dimensions (mm)			Standard Flange	Standard Flange Material	Part Number ²⁾
EIA (WR)	DEF (WG)	IEC (R)					A	B	C			
430	8	22	1.70-2.60	R	1.02	5	109.22	54.61	508.0	UG1711/U	Aluminum	TP-R437-AL01
										UG1716/U	Brass	TP-R437-BR01
340	9A	26	2.20-3.30		1.02	5	86.36	43.18	457.2	UG1713/U	Aluminum	TP-R340-AL01
										UG1712/U	Brass	TP-R340-BR01
284	10	32	2.60-3.95	S	1.02	5	72.136	34.036	457.2	UG1725/U	Aluminum	TP-R284-AL01
										UG1724/U	Brass	TP-R284-BR01
284R/H					1.02		17.018			Aluminum	TP-H284-AL01	
										Brass	TP-H284-BR01	
229	11A	40	3.30-4.90		1.02		58.166	29.083	355.6	UG1727/U	Aluminum	TP-R229-AL01
										UG1726/U	Brass	TP-R229-BR01
187	12	48	3.95-5.85	H	1.02		47.549	22.149	304.8	UG1729/U	Aluminum	TP-R187-AL01
										UG1728/U	Brass	TP-R187-BR01
159	13	58	4.90-7.05		1.02	4	40.386	20.193	304.8	UG1731/U	Aluminum	TP-R159-AL01
										UG1730/U	Brass	TP-R159-BR01
137	14	70	5.85-8.20	C	1.02	3	34.849	15.799	304.8	UG1733/U	Aluminum	TP-R137-AL01
										UG1732/U	Brass	TP-R137-BR01
112	15	84	7.05-10.0	B	1.02	2	28.499	12.624	254.0	UG138/U	Aluminum	TP-R112-AL01
										UG51/U	Brass	TP-R112-BR01
102			7.00-11.0		1.02	2	25.908	12.954	254.0		Aluminum	TP-R102-AL01
										UG1493/U	Brass	TP-R102-BR01
96			7.00-17.0		1.02	2	24.511	8.128	254.0		Aluminum	TP-R096-AL01
											Brass	TP-R096-BR01
90	16	100	8.20-12.4	X	1.02	2	22.860	10.160	203.2	UG135/U	Aluminum	TP-R090-AL01
												UG39/U
90R/H					1.02	2	5.080				Aluminum	TP-H090-AL01
											Brass	TP-H090-BR01
75	17	120	10.0-15.0		1.02	2	19.050	9.525	203.2	UBR120	Aluminum	TP-R075-AL01
											Brass	TP-R075-BR01
75R/H			10.0-15.0		1.02	2	5.080				Aluminum	TP-H075-AL01
											Brass	TP-H075-BR01
67			11.0-17.0		1.02	2	16.967	8.636	203.2		Aluminum	TP-R067-AL01
											Brass	TP-R067-BR01
62	18	140	12.4-18.0	KU	1.02	2	15.799	7.899		UG1665/U	Aluminum	TP-R062-AL01
										UG419/U	Brass	TP-R062-BR01
51	19	180	15.0-22.0		1.02	2	12.954	6.477	152.4	UBR180	Aluminum	TP-R051-AL01
											Brass	TP-R051-BR01
42	20	220	18.0-26.5	K	1.02	2	10.668	4.318	152.4	UG597/U	Aluminum	TP-R042-AL01
											UG595/U	Brass
34	21	260	22.0-33.0		1.02	2	8.636	4.318	152.4	UBR260	Aluminum	TP-R034-AL01
											Brass	TP-R034-BR01
28	22	320	26.5-40.0	KA	1.02	2	7.112	3.556	152.4	UBR320	Aluminum	TP-R028-AL01
											UG-599/U	Brass
22	23	400	33.0-50.0		1.02	2	5.690	2.845	152.4		Aluminum	TP-R022-AL01
											U383/U	Brass

1) At a pressure of one atmosphere.

2) For non Standard Flanges and/or Specifications, a special Part Number will be assigned.

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**You are interested
in Coaxial Cable
Assemblies,
connected
directly to a
waveguide
transition?**

**Please call the factory,
or your nearest
Spectrum Representative.**