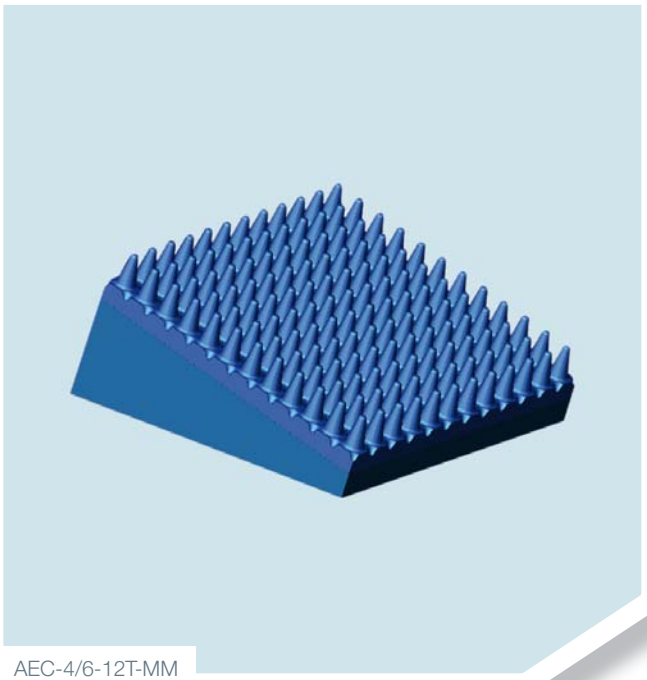
Millimeter Wave Absorbers - AEC-MM Series



AEC-4/6-12T-MM

Applications:

- **Millimeter wave measurement chambers**
- **RCS testing**

Key features:

- **Optimized for millimeter wave operation**
- **Excellent reflectivity at normal incidence up to 55 dB**

Shape:

- **Convoluted**

Frequency band:

- **From 12 GHz to 95 GHz**

Standard base size:

- **2' x 2' (60.96 cm x 60.96 cm)**

Height:

- **5" to 12" (12.7 cm to 30.5 cm)**

Operating conditions:

- **Temperature: 70° F +/- 10° (21° C +/- 3°)**
- **Relative humidity: 55 % RH +/-15 %**

Indoor/outdoor:

- **Indoor**

Related certifications:

- **NRL 8093 – 1, 2, 3**

Ordering code:

- **AEC-4/1-MM, AEC-4/1-MM-HP, AEC-4/5-XXT-MM, AEC-4/6-XXT-MM, where XX designates absorber height in inches**

1/ Description

Custom designs for a low-grazing application has lead to the development and manufacture of AEMI's Millimeter Wave tapered absorbers. These materials were developed for chamber applications where main beam energy of the source antenna was focused on the sidewalls of the chamber, due to its long overall length. These materials were effectively used in the overall chamber design to provide the required test environment at 45 GHz.

- Type AEC-4-MM is our standard material optimized for millimeter wave operation. By proper selection of the carbon loading, reflectivity on the order of 45 to 50 dB has been attained consistently at normal incidence over the 18 to 40 GHz frequency range.
- Type AEC-4/1-MM-HP is a high performance material using convoluted front face foam which has a very regular cell structure and is essentially window free. By properly selecting the carbon loading, reflectivity on the order of 50 to 55 dB has been consistently attained at normal incidence at 95 GHz. The material has a second layer that is necessary to provide the low frequency performance of -40 dB at 28 GHz. Good performance down to 10 GHz is achievable by properly adjusting the backing material.
- Type AEC-4/5-8T-MM is a high performance material for use in long, narrow chambers where the energy illuminating the side walls is arriving at about 10-25° grazing. This material is designed to provide about -35 dB forward scatter loss at those angles from 18-40 GHz. The units must be installed back-to-back in pairs to achieve the specified performance.
- Type AEC-4/6-12T-MM is the same as Type AEC-4/5-MM, but optimized for lower frequencies.

2/ Specifications

		AEC-4/1-MM-HP	AEC-4/6-12T-MM	AEC-4/5-8T-MM	AEC-4-MM
Overall height	in cm	5 12.7	6 to 12 15.2 to 30.5	5 to 8 12.7 to 20.3	4 10.2
Reflectivity		- 40 dB @ 18 GHz	- 50 dB @ 12-40 GHz	- 50 dB @ 12-40 GHz	- 45 dB @ 18
Absorption @ Normal Incidence	dB	- 50 dB @ 95 GHz	Grazing @ 10° - 35 dB @ 12-40 GHz	Grazing @ 10° - 35 dB @ 12-40 GHz	40 GHz
Weight per Sq. ft	lbs kg	3.7 1.7	2.6 1.2	1.9 0.9	2.75 1.25
Fire Protection		Base NRL 8093	NRL 8093	NRL 8093	NRL 8093
Color		Black	Blue*	Blue*	Blue*

*Light color application over black

AEC-4/1-MM-HP mechanical drawing