



# CUMING MICROWAVE

## C-RAM MILLIMETER WAVE

RoHS  
Compliant

### APPLICATION NOTE 300-13

#### HIGH FREQUENCY RADAR ABSORBER

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Cuming Microwave offers various materials that provide excellent absorption at frequencies from 18 GHz to 110 GHz.

The C-RAM MMW absorbers include plastic foam sheet and elastomeric-based materials that have been characterized for peak performance across a wide range of frequencies. C-RAM MMW has proven to be ideal for side lobe suppression of communication antennas, used to separate adjacent antennas, shield or isolate equipment and Anechoic chamber applications.

The reflectivity of C-RAM MMW varies as a function of thickness and frequency. Standard sheet size is 24"x24" for foam and 12"x12" for elastomer in thicknesses shown in the chart below. Non-standard thickness and sizes are available on special order.

#### TYPICAL PERFORMANCE OF C-RAM MMW-1. LIGHTWEIGHT FOAM

##### CARBON TREATED, OPEN CELL FOAM

| <u>Thickness</u> | <u>Frequency</u> | <u>Reflectivity</u> |
|------------------|------------------|---------------------|
| 0.50"            | 26 to 110 GHz    | >20dB               |
| 0.25"            | 70 to 110 GHz    | >20dB               |

##### TYPICAL PHYSICAL PROPERTIES:

Color: Black  
Density: 3.2kg/m<sup>2</sup> (0.65lb/ft<sup>2</sup>)  
Temperature Range, °F: -60 to 80°F  
( Standard Formula Flammable) note.

#### TYPICAL PERFORMANCE OF C-RAM MMW-2, LIGHTWEIGHT FOAM

##### LOSSY, CARBON FILLED, FLEXIBLE FOAM

| <u>Thickness</u> | <u>Frequency</u> | <u>Reflectivity</u> |
|------------------|------------------|---------------------|
| 0.125"           | 70 – 110 GHz     | ≥17 dB              |
| 0.250"           | 40 – 110 GHz     | >20 dB              |
| 0.50"            | 26 – 110 GHz     | ≥20 dB              |

##### TYPICAL PHYSICAL PROPERTIES:

Color: Black  
Density (dependent upon grade): 0.06 to 0.13g/cm<sup>3</sup> ( 4 to 8 lb/ft<sup>3</sup>)  
Service Temperature, °F: -60°F to 180°F

# TYPICAL PERFORMANCE OF C-RAM MMW-3, ELASTOMERIC

## ELECTRICAL PERFORMANCE:

**Thickness**  
0.025"

**Weight**  
.5 lb/ft<sup>2</sup>

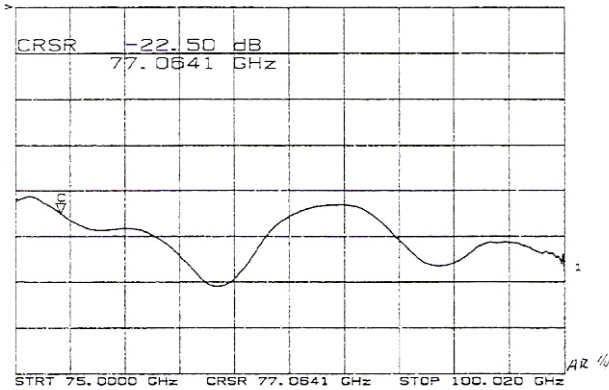
**Frequency**  
26 to 40 GHz  
40 to 110 GHz

**Reflectivity**  
-20dB  
>-15dB

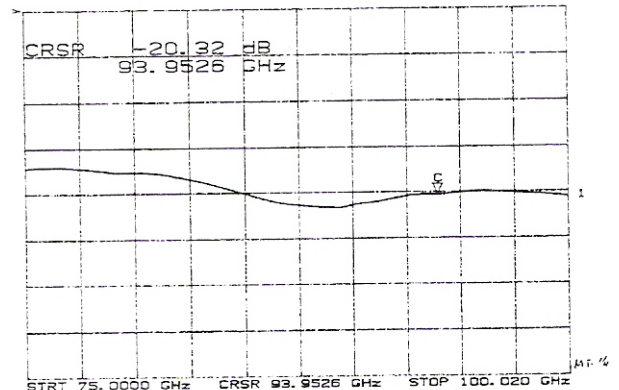
## TYPICAL PHYSICAL PROPERTIES:

Color: Grey  
Service Temperature, °F: -80 to 275°F (-62 to 134°C)  
Flammability: Non-Flammability

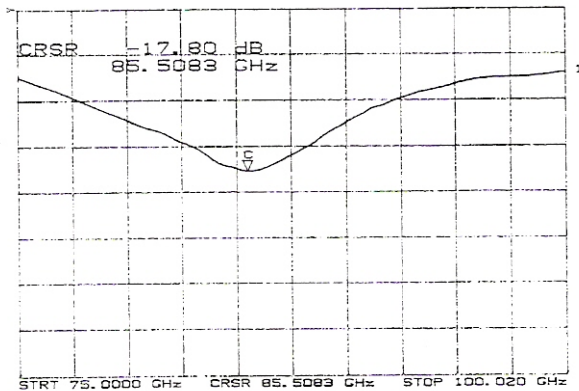
## TYPICAL REFLECTIVITY:



**TYPICAL PERFORMANCE C-RAM MMW-1  
OPEN CELL FOAM, 0.25" (T)**



**TYPICAL PERFORMANCE C-RAM MMW-2  
FLEXIBLE FOAM, 0.25" (T)**



**TYPICAL PERFORMANCE C-RAM MMW-3  
TUNED ELASTOMERIC ABSORBER  
(SPECIFIED FREQUENCY)**

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