NOTICE: When government or other drawings, specifications or other data are used for any purpose other than in connection with a definitely related government procurement operation, the U. S. Government thereby incurs no responsibility, nor any obligation whatsoever; and the fact that the Government may have formulated, furnished, or in any way supplied the said drawings, specifications, or other data is not to be regarded by implication or otherwise as in any manner licensing the holder or any other person or corporation, or conveying any rights or permission to manufacture, use or sell any patented invention that may in any way be related thereto.
Report No. 8926-104

Material - Finishes and Coatings - Reflective Tapes - No. 630, 633 and 3270, Minnesota Mining and Manufacturing Co.

Reflectance Characteristics

B. H. Faulkenberry, F. M. Gruber, E. E. Keller

7 May 1959

Published and Distributed under Contract AF 33(657)-8926
Report No. 8926-104

Material - Finishes and Coatings - Reflective Tapes -
No. 630, 633 and 3270, Minnesota Mining and
Manufacturing Co.

Reflectance Characteristics

Abstract

The specular reflectance of Minnesota Mining and Manufacturing Co. No. 633
gold colored D.S. Scotchcal, and No. 630 chrome colored D.S. Scotchcal
films, and No. 3270 silver W/A D.S. Flat Top (R) Scotchlite reflective
film was determined in the 0.35 to 2.5 micron wavelength range with a
Beckman DK-2 recording spectrophotometer, and in the 1.0 to 15 micron wave-
length range with a Beckman IR-4 recording spectrophotometer. Recordings
of all measurements are given.

Reference: Faulkenberry, B. H., Graber, F. M.,eller, E. E.,
"Reflectance Characteristics of Reflective Tapes,"
General Dynamics/Convair Report 59-191, San Diego,
California, 7 May 1959. (Reference attached).
REPORT NO. MP-59-191

REFLECTANCE CHARACTERISTICS OF REFLECTIVE TAPE

PREPARED BY

GROUP MATERIALS & PROCESSES Lab.

CHECKED BY

REFERENCE

APPROVED BY

Chief of Structures & Materials Laboratories

CHECKED BY

NO. OF PAGES 13

NO. OF DIAGRAMS 12

REVISIONS

FORM 1913A-4
OBJECT:

To determine the reflectance vs. wavelength of No. 633, No. 630 and No. 3270 reflective tapes which were received from the Minnesota Mining and Manufacturing Company.

TEST SPECIMENS:

1. No. 633    Gold Colored D.S. Scotchcal Brand Film
2. No. 630    Chrome Colored D.S. Scotchcal Brand Film
3. No. 3270   Silver W/A D.S. Flat-Top (R) Scotchlite Brand Reflective Sheeting.

TEST PROCEDURE:

A Beckman IR-2 recording spectrophotometer was used to determine the diffuse and total reflectance over the range of 0.35 to 2.5 microns. The total reflectance over this range was calculated by using the following relationship:

Total Reflectance = Diffuse Reflectance + Specular Reflectance.

A Beckman IR-4 spectrophotometer was used to determine the spectral reflectance of the three samples over the range of 1.0 to 2.5 microns. The specimens were maintained at room temperature for all measurements.

RESULTS:

The reflectance characteristics of the three reflective tapes are shown in Figures I through XI.