

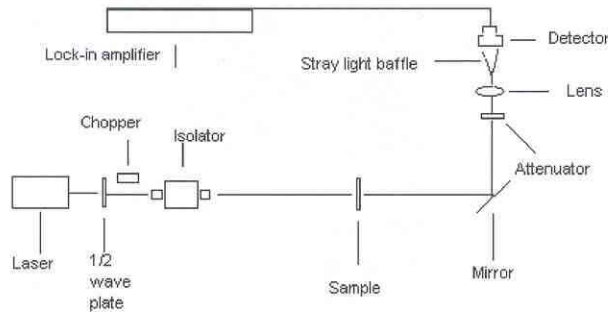
Sept-1999

RM02 Transmission Measurements

We re-measured the coating test sample of RM02 to validate our transmission measurement set-up and the measurements taken at Hanford.

The sample was coated on both sides; side 1 HR; side 2 AR

Our results show our measurements to be accurate within 0.1%



TRANSMISSION SET-UP

	Power - Sample out	Power - Sample in	Transmission
RM02	327.1 mV	8.1 mV	2.47%

Changes in transmission as a function of angle:

Measurements were taken by retroreflecting the beam into the isolator and by moving the beam to the top, to the bottom, to the left, to the right by 1.5 degrees. There was not change in the transmitted power.

	Power - Sample out	Power - Sample in	Transmission
RM02	408.5	10.1	2.47%

REO=2.84%

Measurements changed slightly with rotational angle changes.

Rotation to the left:

RM02	Power - Sample out	Power - Sample in	Transmission
5 deg.	408.5	10.0	2.44%
10 deg.	408.5	9.6	2.35%

Rotation to the right:

RM02	Power - Sample out	Power - Sample in	Transmission
5 deg.	408.5	9.7	2.37%
10 deg.	408.5	9.3	2.27%

To validate these measurements the following steps were taken to eliminate variables.

- 1) Set to 0 the lock-in amplifier offset
- 2) Checked the linearity of the lock-in amplifier using a function generator and voltmeter

	Volt meter measurement	Lock-in output
Generator level 1	351.6mV	6.65 mV
Generator level 2	8.7 v	.166 v
Ratio level1/level2	2.47%	2.49%

Transmission measurements were also taken on the coated samples of 2ITM01-03 and 4ITM02-03. These samples were coated on side 1 only. (HR)

	Power - Sample out	Power - Sample in	Transmission
2ITM01-03	406.7	10.3	2.53%
REO=2.82%			
4ITM02-03	405.7	10.6	2.61%
REO=2.88%			