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February 16, 2006

TEST DATA TO BE SUPPLIED

Each of the parts relating to purchase order G122548 will be supplied with spectral test data. Barr Associates, however, is not able to test the narrowband filters (1644nm, 2124nm, 2168nm) to the letter of the specification, due to equipment capabilities. Following is an explanation of the data that will be supplied to show the parts do indeed meet spec.

The specification in question is "Transmission $\geq 90\%$ of peak over all angles 0° to 13.5° AOI". Since Barr does not have the capability to test in this wavelength range with a collimated light source, we will supply theoretical data as well as actual test data at $f/8$ ($\pm 3.6^\circ$). When we tilt the part to 13.5° AOI, however, we would be basically seeing an average of about 10° to 17° . Because there is only about 1% transmission at 17° AOI for any of these filters, the data would be distorted and therefore meaningless. The parts will be tested at 0° and 10° AOI on a witness sample.

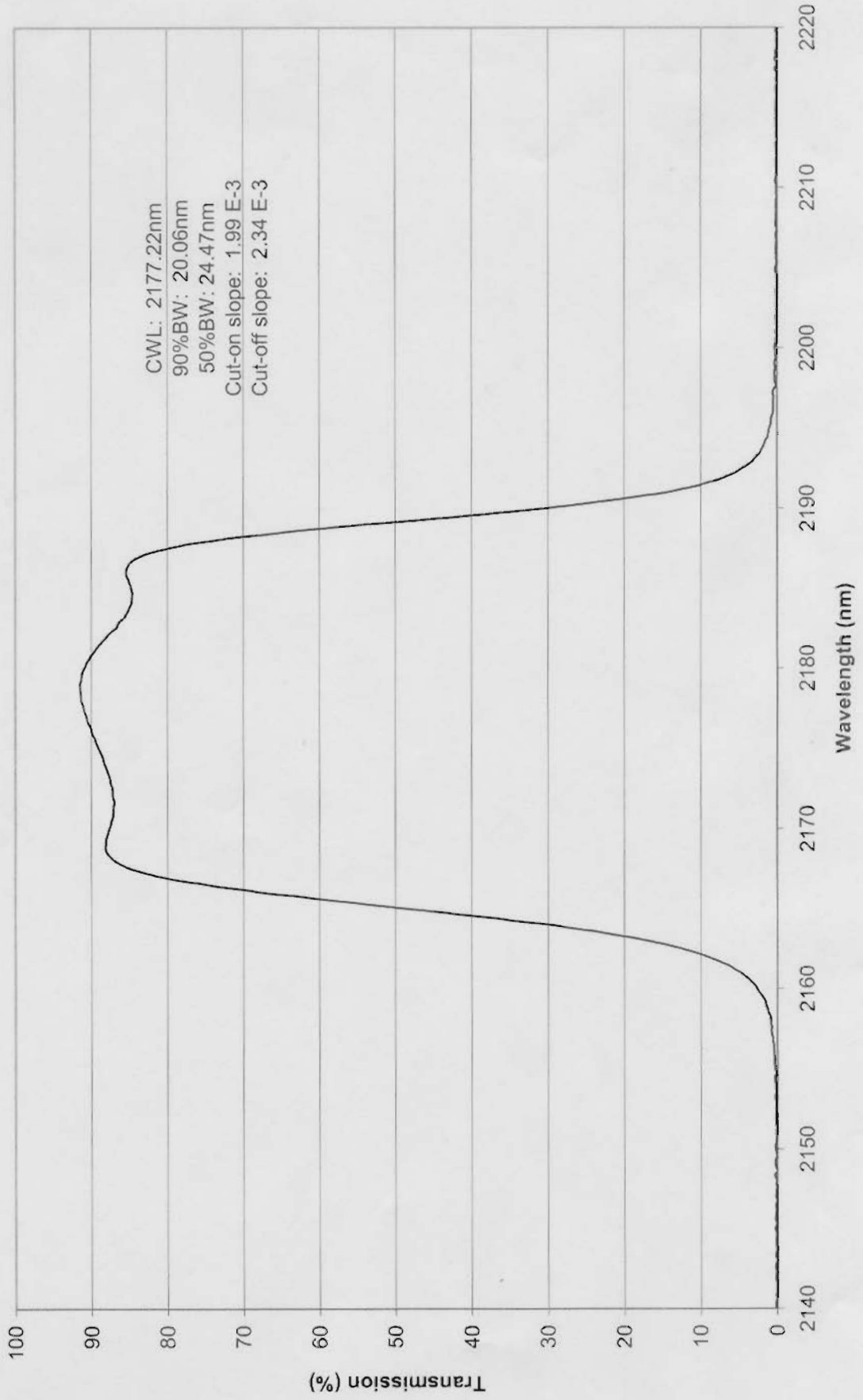
Data being supplied with the narrowband components:

1. Actual test data of the actual part, performed at 0° , $f/8$.
2. Actual test data of a witness sample at 0° and 10° , $f/8$.
3. Theoretical data normalized to actual data (from item 1, above), including: 0° at $f/8$, 10° at $f/8$, 0° collimated and 13.5 degrees collimated.
4. Actual thermal test data at 0° AOI and 298°K and 77°K .
5. Near band blocking data at 0° AOI and 298°K .

Data supplied with the blocker components:

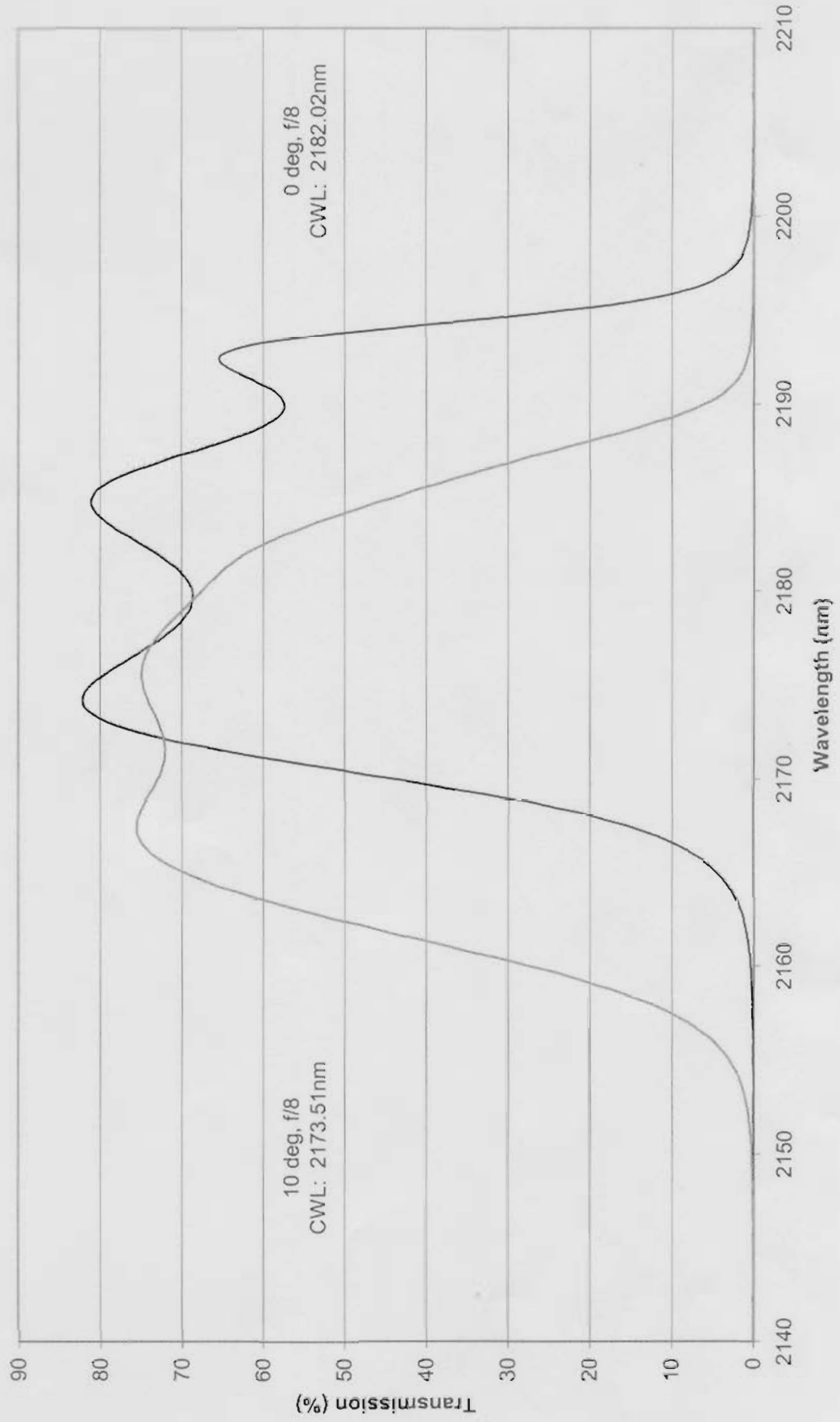
1. Actual test data of the actual part, performed at 0° , $f/8$.
2. Actual thermal test data at 0° AOI and 298°K and 77°K .
3. Blocking data 300-4000nm.

2168nm Narrowband at 0 degrees AOI, f/8

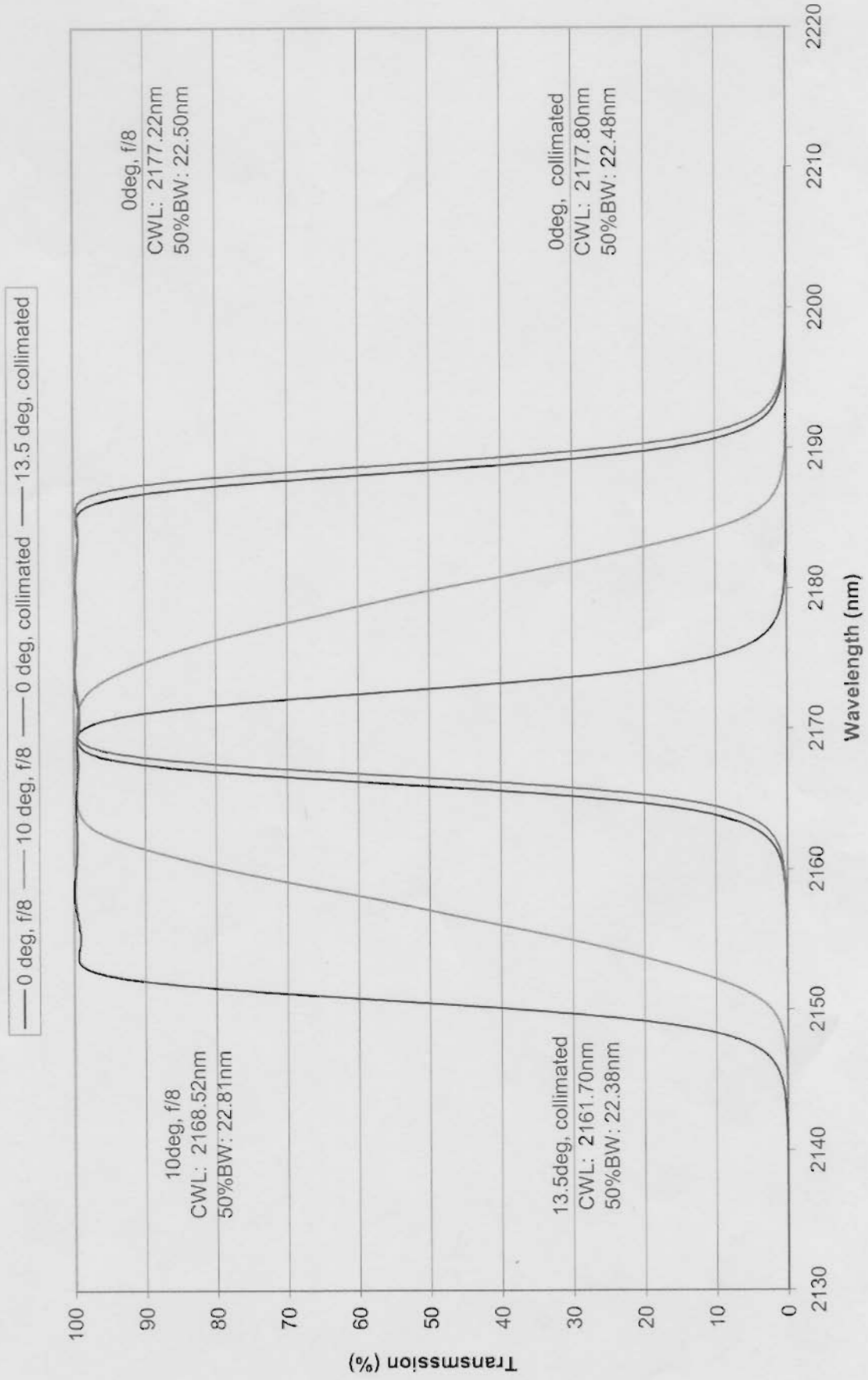


2168nm Narrowband - Angle shift data of witness sample

— 0 deg, f/8 — 10 deg, f/8



2168nm Narrowband - Theoretical angle data



2168nm Cold Shift on witness sample

