MWR Liquid Water Calibration Check Procedure (CALC)

I. Purpose:

This document describes a performance calibration check on the MWR conducted in the field by the RESET team using plastic to simulate water.

II. Cautions and Hazards:

- Be careful not to disturb or damage the MWR during this procedure.

III. Requirements:

- Conduct this performance check when the sky is cloud-free directly above the MWR, remaining cloud-free for the duration of the procedure.
- Microwave oven dish.
- 1/16" plastic square (polycarbonate and acrylic.)
- Mount to hold container over MWR.
- Digital level.

IV. Procedure:

A. Steps:

1. Notify data-system controller of calibration check.
2. Log three values of Tsky31, Tsky22, Vapcm, Liqcm, Tau31, Tau22 from MWR computer display screen.
3. Install a temporary mount to hold container above the MWR (tape to MWR if windy).
4. Log three new values of Tsky31, Tsky22, Vapcm, Liqcm, Tau31, Tau22 from MWR computer display screen.
5. If large changes are observed in Liqcm, adjust the mount until only small differences are observed (less than 0.001 cm).
6. Place empty oven dish above MWR and level with the digital level.
7. Log three new values of Tsky31, Tsky22, Vapcm, Liqcm, Tau31, Tau22 from MWR computer display screen.
8. Liqcm increases to about 0.03 +/- 0.02 cm.

9. Remove oven dish and place 1/16" plastic square (polycarbonate or acrylic) on mount.
10. Log three new values of Tsky31, Tsky22, Vapcm, Liqcm, Tau31, Tau22 from MWR computer display screen.
11. Liqcm increases to about 0.1 +/- 0.5 cm.
12. If little or no change is observed in Liqcm or if the initial reading with no clouds for Liqcm differs from zero by more than +/- 0.01, notify mentor that there is a potential problem with the instrument.

V. References:

1. "Microwave Radiometer Installation, Operations and Maintenance Guide Version 2.1," by J. Liljegren (PNL Report, Richland, WA, 17 Nov. 1994. (60p.)
2. "Water Vapor Radiometer," Radiometrics Corporation Instrument Manual, May 1992.

VI. Attachments:

None.