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## Roof of CMA Met Building – SKYRAD Stand

### SKYRAD – IRT Up-looking

#	Question	Yes	No
1.	Clean lens by dowsing with distilled water and then drying with Kimwipes (or equivalent) or compressed air, as outlined in procedure PRO(OPS)-050. Was this completed successfully?		
2.	Clean gold mirror as outlined in procedure PRO(IRT)-008. Was this completed successfully?		

### SKYRAD – PIR Shaded #1 & #2, B/W Shaded

#	Question	Yes	No
1.	Clean domes by dowsing with distilled water and then drying with Kimwipes (or equivalent) or compressed air, as outlined in procedure PRO(OPS)-050. Was this completed successfully?		
2.	Are ventilator fans running?		
3.	Are all domes free of scratches, pits or cracks?		
4.	Are all cables and connectors securely attached and free of damage?		
5.	Is desiccant orange/brown (i.e., dry)? If No, change the desiccant.		
6.	If it is a clear day, check shading. Are all domes shaded properly?		

### SKYRAD – PSP Unshaded

#	Question	Yes	No
1.	Clean dome by dowsing with distilled water and then drying with Kimwipes (or equivalent) or compressed air, as outlined in procedure PRO(OPS)-050. Was this completed successfully?		
2.	Is ventilator fan running?		
3.	Is dome free of scratches, pits or cracks?		
4.	Are all cables and connectors securely attached and free of damage?		
5.	Is desiccant orange/brown (i.e., dry)? If No, change the desiccant.		

### SKYRAD – NIP

#	Question	Yes	No
1.	Clean NIP window by dowsing with distilled water and then drying with Kimwipes (or equivalent) compressed air, as outlined in procedure PRO(OPS)-050. Was this completed successfully?		

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### Roof of CMA Met Building – TSI Stand

#### **Stand-Alone Instrument – Total Sky Imager (TSI)**

#	Question	Yes	No
1.	Clean mirror by dowsing with distilled water and then drying with compressed air, as outlined in procedure PRO(OPS)-050. Was this completed successfully? Note: No waxing is necessary.		

#### **Stand-Alone Instrument – Multi-Filter Rotating Shadowband Radiometer (MFRSR)**

See Procedure PRO(RSR)-001

#	Question	Yes	No
1.	Clean sensor head as outlined in procedure PRO(RSR)-001. Was this completed successfully?		
2.	Is shadowband rotating 3 times per minute?		
3.	Does shadowband stop 3 times during rotation?		
4.	During the second stop, did shadowband shade the sensor head?		

### Roof of CMA Met Building – CIMEL

#### **Stand-Alone Instrument – Cimel Sunphotometer (CIMEL)**

#	Question	Yes	No
1.	Visually inspect CIMEL exterior. Is it free of any damage?		
2.	Does CIMEL track the sun properly?		

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### Instrument Field – GNDRAD Tower

#### **GNDRAD – PIR, PSP, IRT Down-looking**

#	Question	Yes	No
1.	Visually inspect the PIR and PSP domes, and the IRT lens. Do they all appear OK?		

### Instrument Field – SMET Tower

#### **Optical Rain Gauge (ORG)**

#	Question	Yes	No
1.	Are lenses free of moisture/condensation?		
2.	Clean lenses by dowsing with distilled water and then drying with Kimwipes (or equivalent) or compressed air, as outlined in procedure PRO(OPS)-050. Was this completed successfully?		
3.	Check window heater by touching the two optical window. Are they warm?		

#### **Anemometer – Wind Speed and Direction (WND)**

#	Question	Yes	No
1.	Is anemometer pointing into the wind?		
2.	Is the propeller rotating when there is wind?		

#### **T/RH Sensor**

#	Question	Yes	No
1.	Feel air flow at the bottom of the tube. Is aspirator operating?		
2.	Looking up from below, is the probe filter free of salt or dirt? If No, clean it.		

#### **Present Weather Detector (PWD)**

#	Question	Yes	No
1.	Clean PWD sensor with distilled water and then dry it with Kimwipes (or equivalent) or compressed air. Was this completed successfully?		

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### Instrument Field – ECOR Tower

#### **Stand-Alone Instrument – Eddy Correlation Flux Measurement System (ECOR)**

#	Question	Yes	No
1.	Clean the upper and lower windows on LI-COR LI-7500 with distilled water and then dry it with compressed air. Was this completed successfully?		

### Instrument Field – MWR, MWRP & MWRHF

#### **Stand-Alone Instrument – Microwave Water Radiometer (MWR)**

#	Question	Yes	No
1.	Is white Teflon window free of damage?		
2.	Can you hear or feel blower operating?		
3.	Lightly touch rain sensor on top of MWR. Did “Heater Enabled” LED turn on?		
4.	Check functions of elevation mirror. Placing your ear against the unit, did you hear 6 turns per minute (listen for a groaning sound)?		
5.	Clean white Teflon window with distilled water and dry it with compressed air. (Do NOT touch or wipe.) Was this completed successfully?		
6.	Clean rain sensor with distilled water and dry it with compressed air. Was this completed successfully?		

#### **Stand-Alone Instrument – Microwave Water Radiometer Profiler (MWRP)**

#	Question	Yes	No
1.	Is white Teflon window free of damage?		
2.	Can you hear or feel blower operating?		
3.	Lightly touch rain sensor on top of MWR. Did “Heater Enabled” LED turn on?		
4.	Check functions of elevation mirror. Placing your ear against the unit, did you hear 6 turns per minute (listen for a groaning sound)?		
5.	Clean white Teflon window with distilled water and dry it with compressed air. (Do NOT touch or wipe.) Was this completed successfully?		
6.	Clean rain sensor with distilled water and dry it with compressed air. Was this completed successfully?		
7.	On IRT, is lens free of dust, debris, water or water spots?		
8.	On IRT, is lens free of internal condensation?		
9.	On IRT, is gold mirror free of dust debris, water or water spots?		

**Stand-Alone Instrument – Microwave Water Radiometer High Frequency (MWRHF)**

#	Question	Yes	No
1.	Is white Teflon window free of damage?		
2.	Can you hear or feel blower operating?		
3.	Lightly touch rain sensor on top of MWR. Did “Heater Enabled” LED turn on?		
4.	Check functions of elevation mirror. Placing your ear against the unit, did you hear 6 turns per minute (listen for a groaning sound)?		
5.	Clean white Teflon window with distilled water and dry it with compressed air. (Do NOT touch or wipe.) Was this completed successfully?		
6.	Clean rain sensor with distilled water and dry it with compressed air. Was this completed successfully?		

**Instrument Field – RWP**

**Stand-Alone Instrument – Radar Wind Profiler (RWP)**

#	Question	Yes	No
1.	Visually inspect RWP. Is it free of any damage?		

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**Top of AMF-A2 Van**

**Stand-Alone Instrument – 2-Channel Narrow Field of View (2NFOV)**

See PRO(2NFOV)-001

#	Question	Yes	No
1.	Visually inspect 2NFOV for any damage. Is it free of any damage?		
2.	Is PVC window sun shield securely in place?		
3.	Is detector housing insulation securely in place?		
4.	Is 2NFOV stand vertical and secure?		
5.	Visually inspect fiberglass electronics enclosure for any damage. Is it free of any damage?		
6.	Are all connections to fiberglass electronics enclosure tight and secure?		
7.	Inspect all cables and grounding connections for damage and tightness. Are they free of damage and secure?		
8.	Remove PVC sun shield and visually inspect glass window for any physical damage. Is it free of any damage?		
9.	Is glass window free of dust, water spots, or any debris?		
10.	Clean glass window by squirting it with distilled water and gently drying with Kimwipes. Was this completed successfully? Record time of cleaning in SDL.		
11.	Inspect inside of glass window. Is it free of moisture or condensation?		
12.	With PVC sun shield removed, check level of 2NFOV by placing Battelle MFRSR level on top. Is level bubble centered within inner circle? If NO, re-level instrument by loosening locking screws and adjusting with three leveling thumbscrews. Record time of leveling in SDL.		

**Top of AMF-A2 Van**

**Stand-Alone Instrument – W-band ARM Cloud Radar (WACR)**

#	Question	Yes	No
1.	Visually inspect WACR. Is it free of any damage?		

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## Inside AMF-A2 Van

### AMF-A2 Van Environment

See Procedure PRO(ARCS)-007

#	Question	Yes	No
1.	Is temperature 65 – 75 degrees F (18 – 24 degrees C)?		
2.	Is air conditioner functioning properly?		
3.	Are lights functioning?		

### Site Data System (SDS)

#	Question	Yes	No
1.	Inspect the equipment on the right rack. Are there only green lights blinking?		
2.	Inspect the computer on the left side. Are all indicators green?		

### Stand-Alone Instrument – TSI Computer

#	Question	Yes	No
1.	Is the window screen free of warnings or alarms?		
2.	Is the clock updating?		

### Stand-Alone Instrument – CEILOMETER Computer (VCEIL)

See Procedure PRO(CEI)-004

#	Question	Yes	No
1.	Is the window screen free of warnings or alarms, and is the clock updating? If NO, press the “RESET” button.		

### Stand-Alone Instrument – MWR Computer

#	Question	Yes	No
1.	Are data scrolling up the screen?		

### Stand-Alone Instrument – MWRP Computer

#	Question	Yes	No
1.	Are data showing on the screen?		

### Stand-Alone Instrument – MWRHF Computer

#	Question	Yes	No
1.	Are data showing on the screen?		

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### Inside AMF-A2 Van

#### **Stand-Alone Instrument – W-band ARM Cloud Radar (WACR)**

See *MAN(WACR)-001*

#	Question	Yes	No
1.	Check radar for normal use. Is WACR operating normally?		
2.	Visually inspect the radome and splash plate. Are they free of any damages?		
3.	Is the modulator controller LED lit in steady yellow?		
4.	Is the modulator body current less than 0.5 mA?		
5.	Is the modulator beam voltage approximately 17.5 kV?		
6.	Check 4 parameters of data display: Transmitter Power, Transmit Drive Power Sample, Receiver Gain, and Receiver Noise Temperature. Are they all within the dashed lines on the plot?		
7.	Is the Lacie Disk Drive light glowing blue and flashing periodically?		
8.	Is the Lacie Disk capacity under 90%? Note: If it is above 90%, change the disk.		

#### **Stand-Alone Instrument – Radar Wind Profiler (RWP)**

#	Question	Yes	No
1.	Inspect the RWP components and computer. Are they operating properly?		



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## Inside AMF-A1 Van

### AMF-A1 Van Environment

#	Question	Yes	No
1.	Is temperature 65 – 75 degrees F (18 – 24 degrees C) dry?		
2.	Is HVAC functioning properly?		
3.	Are lights functioning?		

### Stand-Alone Instrument – Atmospheric Emitted Radiance Interferometer (AERI)

#### Outside:

#	Question	Yes	No
1.	Climb on a ladder to the roof of AMF-A1 Van and then inspect the roof opening and hatch assembly. Is it free of debris or damage?		
2.	Inspect the air intake on the side of the van. Is it free of debris or damage?		
3.	Clean the rain sensor with distilled water and dry it with compressed air. Was this completed successfully?		
4.	Remove intake hood steel filter and clean. Was this completed successfully?		

#### Inside:

5.	Is the air conditioner working?		
6.	Is the Van temperature between 65 – 75 degrees F (18 – 24 degrees C)?		
7.	In the ventilation closet (open door inside) observe the roof opening. Is the hatch operating properly (i.e., open except during rain)?		
8.	On the FEP Monitor is the date and time (GMT) display correct?		
9.	On the FEP Monitor do the two (2) graphs display the full range?		
10.	On the FEP Monitor, are the status indicators all GREEN? If not indicate which is RED and which is YELLOW.		
11.	On the Signal Conditioning Electronics unit is the switch ON?		
12.	On the Blackbody Temperature Controller unit is the AMBIENT switch OFF?		
13.	On the Blackbody Temperature Controller unit is the HOT switch ON?		
14.	On the Sterling Cooler Electronics unit is the switch ON?		
15.	Clean the rain sensor with distilled water and dry it with compressed air. Was this completed successfully?		

## Inside AMF-A1 Van

### Stand-Alone Instrument – Micropulse Lidar (MPL)

See Procedure PRO(MPL)-002

#	Question	Yes	No
1.	Are all cables and cable connectors securely attached and free of damage?		
2.	Are all indicator lights on the MPL computer, computer monitor, Photonics Laser Controller, Lidar Data System, and (if installed) shutter control box illuminated?		
3.	Go to Meadowlark Optics box. Is "Power" light on? If "Status" light does not blink briefly every 3 seconds, power cycle Meadowlark Optics box and check that the status light blinks every 3 seconds.		
4.	Check monitor. Is MPL updating the display every 3 seconds?		
5.	Go to MPL Data Graph on monitor. Are the DAY and TIME readings correct?		
6.	Is detector temperature between 20° C and 30° C?		
7.	Is telescope temperature between 20° C and 30° C?		
8.	Is laser temperature between 20° C and 30° C?		
9.	Is Energy Cal EM between 5 and 8 microjoules?		
10.	Does PolarVolt0 alternate between two values every 3 seconds?		
11.	Check laser supply. Is Ia set between 0.80 and 1.2?		
12.	Check laser supply. Is R-Rate 2500?		
13.	Go to MPL Sigma Display and check the following boxes: Collect Data, Detector Power Channel 1, and Save Data. Is each of the boxes selected?		
14.	Is Bin Resolution 30 m?		
15.	Is Averaging Time 3 seconds?		
16.	Is MPL Sigma Display scroll buffer free of any error messages? If NO, report any error messages on SDL.		
17.	Hold a piece of white paper over lidar telescope. Does a uniform, green circle appear? If any deformity or unevenness exists, report on SDL.		
18.	Check the telescope exit glass. Is it free of any dust or debris? If NO, use air duster to remove any debris. If any further contamination of telescope exists, contact BOM technicians.		
19.	Use ladder to climb on to the I-Van roof. Check MPL Ceiling Port Window and Sun Position Sensor Tube Window (if unit is equipped with shutter). Is it free of dust or debris? If NO, clean the windows with distilled water or mild detergent solution (e.g., Windex) and wipe dry with paper towels.		

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## Inside AMF-A1 Van

### **Stand-Alone Instrument – Aerosol Observation System (AOS)**

#	Question	Yes	No
1.	Go to the PID Controller Box. Are the humidity PID controllers (leftmost two controllers) showing measured values (red numbers) close to or below their set points (green numbers)? Acceptable range is between 0 and 42.		
2.	Does the PID flow controller (rightmost controller) show a measured value close to its set point? Acceptable range is between 29.5 and 30.5.		
3.	Go to the UMAC-1050 Electronics Box. Is the green power indicator light on?		
4.	In the UMAC-1050 Electronics Box, are the yellow Tx and Rx lights blinking, indicating communication with the laptop?		
5.	Go to the PSAP Box. Is the PSAP transmittance (Tr) greater than 0.75? If NO, change PSAP sample filter (left position).		
6.	Is the PSAP flow between 0.4 and 0.6 lpm? If NO, adjust it to 0.5 lpm.		
7.	Go to the CN Box. Is the system vacuum gauge in the CN box reading greater than 12 in. Hg?		
8.	Does the CN dryer flow rotameter read greater than 6 lpm?		
9.	Is the level of butanol in the CN counter visible through the viewing port? If NO, fill the CN counter up to the fill line with butanol.		
10.	Go to the Impactor Box. Is one of the two indicator lights lit on the yellow motorized ball valve, indicating that the valve is either in the open or closed position?		
11.	Go to the AOS laptop computer. Does the laptop appear to be communicating with the instruments (i.e., it is not “locked up” and values on the screen are changing)?		
12.	Is the laptop free of any error messages (usually in red boxes)?		
13.	Go to the CCN Instrument (black instrument in center rack). Is the distilled water level in the supply bottle (bottle just inside the door) above the line at about 100 mL? If NO, refill the supply bottle and empty the drain bottle.		
14.	Is the small water trap bottle empty? If NO (i.e., water present), drain it.		
15.	Are the temperatures on the touch screen (purple, green, and red lines) stepping each hour?		
16.	Are the flows set as follows: Total 495; Sheath 450; Sample 45?		
17.	Check the reading of the 1 <sup>st</sup> -stage monitor on the OPC touch screen. Is the value greater than 1.0?		

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#	Question	Yes	No
18.	Go to the humidifier. Check the water level in the reservoir. <b>If leaving it overnight</b> , is it at least half full? <b>If leaving it for the weekend or longer than overnight</b> , is it within a few inches of the top? If NO, fill the reservoir to the appropriate level.		
19.	Is the water dripping at a rate of 1-2 drops per second? (Note: It may be necessary to wait a few minutes as the humidifier can be in the draining part of its cycle.) If NO, check the float valve for water and adjust the small manual valve.		
20.	Check the blue drain bottle upstream of the Nephelometer. Is it empty? If NO (i.e., water inside), disable set point scanning in the humidograph window on the computer.		
21.	Go to the Pump Box (outside the I-Van). Do the readings on both System and CN vacuum gauges exceed 12 in. Hg?		
22.	On the Pump Box, does the Magnehelic Differential Pressure Gauge (large gauge) read between 0.24 and 0.26 in. H <sub>2</sub> O? If NO, adjust the knob in front of the gauge.		
23.	On the Pump Box, do the three rotameters all read between 25 and 35 lpm? If NO, adjust them using the rotameter valves.		

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**Inside CMA Met Building**

**Stand-Alone Instrument – Balloon-Borne Sounding System (BBSS)**

BBSS system includes DigiCORA III and BBSS computer.

See Procedure *PRO(BBSS)-022*

#	Question	Yes	No
1.	Was the balloon/radiosonde successfully launched at 05:30 UTC (13:30 CST)		
2.	Was the balloon/radiosonde successfully launched at 11:30 UTC (19:30 CST)		
3.	Was the balloon/radiosonde successfully launched at 17:30 UTC (01:30 CST, following day)		
4.	Was the balloon/radiosonde successfully launched at 23:30 UTC (07:30 CST, following day)		