

Version 3 Weekly Instrument Check Categories and Criteria

Flags	Criteria	Time Threshold
Low Battery	<u>Cimel Models 4.8 and 5.x</u> : Average Cimel battery - flag if < 5 volts, do not include voltages < 4 volts and > 6 volts.	None
	Average DCP battery - flag if < 11 volts, do not include voltages < 9 volts and > 15 volts	None
	Average external CIMEL battery - flag if < 11.5 volts, do not include voltages < 9 volts and > 15 volts.	None
Negative Battery Trend	Include battery voltage trends for all batteries: flag if trend exceeds -0.4V/week	None
Dark Current	Condition occurs more than twice per day: <u>Cimel Model 4.8x</u> : Flag if > 35 counts in any sun or sky channel <u>Cimel Models 5.x and T</u> : Flag if > 1000 counts in any sun or sky channel <u>Cimel Model T</u> : Flag if > 200 counts in sky/lunar channel	None
Robot Errors	This flag includes status “b”. Flag if > 35 ; or > 5 any day during week	None
Robot Proximity Switch Errors	Cimel Model T: This flag includes status “w”. Flag if > 35 ; or > 5 any day during week	None
Filter Wheel Errors	This flag includes status “s”. Flag if > 35 ; or > 5 any day during week	None
Average Sensor Head Relative Humidity	If filter wheel error flagged, then report average of sensor head relative humidity for the week	None
Sensor Head Relative Humidity Positive Trend	If filter wheel error flagged and sensor head relative humidity has an increasing trend during the week, then report the positive trend in relative humidity per week.	None
Sensor Head Cable Communication Errors	This flag includes status “p”. Flag if > 35 ; or > 5 any day during week	None
Too Many Resets	This flag includes status “r”. Flag if > 10 ; or > 5 any day during week; or at least 1 on each day during week	None
GPS not synchronized	Cimel Model T: Flag if the “t” and “g” status is missing for 3 consecutive days or GPS synchronization time is greater than 30000 for 3 consecutive days.	None
Cimel Clock Shift	Flag if >1 minute, list the date when it happened for the last time	None
DCP Clock Shift	Flag if shift >10 seconds and give the time difference from reference in the latest transmission	None
Missing Messages	Flag any missing messages in the last 24 hours (the last 24 hours may be when the instrument last transmitted continuous data, not necessarily from current time)	None
Parity Errors	Check for one parity error in message and then flag the message. Flag if >2 messages per day (GOES) or >4 messages per day (METEOSAT/GMS)	None
Constant Humidity Status	Flag if at least 4 days during a week only humidity statuses (status “h”) are reported from early morning till m=2.5.	None

Wet Sensor Not Responding	Check previous two months for water vapor greater than 3 cm; flag if no wet sensor status is found in 2 month period	None
Sensor Head Temperature Issues	Flag if temperature issue is noted according to Version 3 solar AOD algorithm temperature anomaly screening; flag if more than 25% of temperature measurements are removed and indicate total number of triplets removed	None
Bad Sun Tracking	Flag if <10 good triplets and no humidity status	>25%
A or K Too Low	Flag calibrated and temperature corrected radiance values < 0.3	>10%
Incomplete Almicantars/Hybrids	Non-Model T: Flag if more than 20% of almicantars are incomplete (possible MAX bytes problem) Cimel Model T: Flag if more than 20% of almicantars and hybrids are incomplete	>5%
A and K Discrepancy	Estimate A and K from PP and almicantars measurements (Silicon instruments) or almicantars and hybrids (InGaAs instruments) when Level 1.5 AOD data are available. Do not flag if at least in 2 instances for 440nm channel of A are within 10% from K. Indicate if A or K is affected.	>10%
Asymmetric Almicantars/Hybrids	Check almicantar from -6° to 0° and 0° to +6° azimuth angle. Check hybrid from -6° to 0° and 0° to +6° scattering angle. Flag if increasing in both ranges or decreasing in both ranges.	>10%
Header Only	If instrument sends only Cimel headers for the entire week	None
Diurnal Dependence Flag	Flag according to Version 3 solar AOD algorithm for wavelengths and number of days affected	>20%
InGaAs vs Si Detectors	<u>Instruments with InGaAs and Silicon Detectors:</u> Check Level 1.5 AOD data from 1020nm for the entire day. Flag according to the Version 3 solar AOD algorithm and indicate number of measurements and days removed and which side is affected	>10%
Voltage Ratio Deviation	For instruments located at GSFC and for Level 1.5 data, each non-UV channel is compared to the current master instrument channel when measurements are taken within 12 seconds. The voltage ratio (VR) is computed by calculating the maximum, minimum, and average for the period. Flag for voltage ratio deviation when $[(\max VR - \min VR) / \text{avg} VR] * 100$ is greater than 3%.	None
Direct Sun Saturation	Flag when any sun channel saturation values are detected for an instrument then indicate the wavelength(s) affected	None
Direct Moon Saturation	Flag when any lunar channel saturation values are detected or voltages are greater than calibration values for an instrument then indicate the wavelength(s) affected	None
K7 or K8 Data Missed	For K7 or K8 file submissions, data are scanned for the last 15 days to determine the date of last submission.	None
DCP Data Missed	DCP messages are scanned for each satellite during the last 15 days; if the last 3 or more continuous days have missed	None

	instrument data and they have not been restored, then the date of last received instrument data is determined	
Wavelength Out of Spectral Dependence	Flag according to Version 3 solar AOD algorithm for wavelength removal; indicate the number of measurements and days removed for each wavelength	>10%
Time Shift	Flag according to Version 3 solar AOD algorithm time shift screening; indicate the number of measurements and days affected	None
SIM Card Error	Cimel Model T: This flag includes status “c”. Flag if >35; or >5 any day during week; indicate if FTP or HTTPS SIM error; indicate the problem(s): SIM error (1-4), Internet connection (5-8) or connection to web site (9-10)	>50%
SD Card Status	Cimel Model T: This flag includes status “d”. Flag if any error status is indicated.	None