Daily and Weekly Instrument Check Categories and Criteria

Flags	Criteria	Daily	Weekly
Low Battery	Average Cimel battery - flag if < 5 volts, do not include voltages < 4 volts and > 6 volts.	**X**	**X**
	Average DCP battery - flag if < 11 volts, do not include voltages < 9 volts and > 15 volts	**X**	**X**
	Average external CIMEL battery - flag if < 11.5 volts, do not include voltages < 9 volts and > 15 volts.	**X**	**X**
Negative Battery Trend	Include battery voltage trends for all 3 batteries: flag if trend exceeds -0.2V/week	**X**	**X**
Dark Current	Condition occurs more than twice per day: Cimel Version 4.8x: Flag if > **35** counts in any sun or sky channel Cimel Version 5.x: Flag if > **1000** counts in any sun or sky channel	**X**	**X**
Robot Errors	Flag if >**35**; or >**5** any day during week	**X**	**X**
Filter Wheel Errors	Flag if >**35**; or >**5** any day during week	**X**	**X**
Cimel Clock Shift	Flag if > 1 minute, list the date when it happened for the last time	**X**	**X**
DCP Clock Shift	Flag if shift >10 seconds and give the time difference from reference in the latest transmission	**X**	**X**
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)	**X**	**X**
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)	**X**	**X**
Temperature Jumps	Flag if temperature change is >12C in 15 minutes or less when this condition occurs more than **7** times		**X**
	Flag if temperature change is >12C in 15 minutes or less when this condition occurs more than **2** times	**X**	
Bad Temperature	Flag if Temperature >55C and below -30C when this condition occurs more than **7** times		**X**
	Flag if Temperature >55C and below -30C when this condition occurs more than **2** times	**X**	
Constant Humidity Status	Flag if at least 4 days during a week only humidity statuses are reported from early morning till m=2.5.		**X**
	Flag if humidity statuses are reported from early morning till m=2.5.	**X**	
Bad Sun Tracking	Flag if <**10** good triplets		**X**
	Flag if <**2** good triplets	**X**	
A or K Too Low	Flag voltage values < 0.3	**X**	**X**
Incomplete Almucantars	Flag if more than 20% of almucantars are incomplete (possible MAX bytes problem)	**X**	**X**
A and K Discrepancy	Instruments with Silicon Detectors Only: Estimate A and K from PP and almucantars	**X**	**X**

	measurements when Level 1.5 AOT data are available. Do not flag if at least in 2 instances for 440nm channel of A are within **10**% from K.		
Asymmetric Almucantars	Check almucantar from -6 degrees to 0 and 0 to +6 degrees. Flag if increasing in both ranges or decreasing in both ranges.	**X**	**X**
Header Only	If instrument sends only Cimel headers for the entire week	**X**	**X**
Diurnal Dependence Flag	Check all good level 1.5 days (80% of all solar measurements are processed to level 1.5, and there are at least 25 of them). For the first half of the day, run regression of AOT vs 1/m (m is air mass) for all channels and find minimal slope for all good days. Flag if minimum slope is greater than 0.1, which means a constant diurnal dependence which could be a result of something in the collimator.	**N/A**	**N/A**
InGaAs vs Si Detectors	Instruments with InGaAs and Silicon Detectors: Check Level 1.5 AOT data from 1020nm for the entire day. Flag if average AOT difference is more than 0.03 for any measurements.	**X**	**X**
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 [(maxVR-minVR)/avgVR]*100 is greater than 3%.	**X**	**X**
Direct Sun Saturation	Flag when any sun channel saturation values are detected for an instrument	**X**	**X**
K7 Data Missed	For K7 file submissions, data are scanned for the last 15 days to determine the date of last submission.		**X**
DCP Data Missed	DCP messages are scanned for each satellite during the last 15 days; if the last three or more continuous days have missed instrument data and they have not been restored, then the date of last received instrument data is determined		**X**
Sensor Cable Errors	Flag if >**35**; or >**5** any day during week	**X**	**X**

Updates – 6/28/2010

- Added description for Voltage Ratio Deviation

Updates – 1/22/2010

- Clarified text in Dark Current to indicate “any” not “all”
- Added direct sun saturation category description

Updates – 8/3/2009

- Changed Dark Current flags to apply to new firmware version 5.x and apply a 1000 count threshold to these instruments
- Added documentation for specific flags for instrument versions
- Indicated that the Diurnal Dependence Flag is not available (i.e., N/A)

Updates – 11/01/2010

- Changed the InGaAs vs Si Dectector flag to remove time constraint of 1.5 hours around solar noon and established reporting the flag for any number of measurements.

Updates – 11/24/2010

- Added weekly check flag to determine when the K7 data flow stops.

Updates – 1/13/2011

- Added weekly check flag to determine when the data flow stops over transmissions

Update – 4/18/2011

- Corrected “A/K Too Low” to “A or K Too Low”

Update – 5/16/2012

- Added sensor cable error check for indication of status “p” condition in Version 5 instruments.

Update – 8/26/2013

- Modified A and K Discrepency, A or K Too Low, and InGaAs vs Si Detector instrument check descriptions to specify instrument types considered for the check.