

CL31 QUALITY CERTIFICATE

CL31 Ceilometer

Serial No. B20202 Software version 1.500

We hereby certify that the instrument described above has been carefully inspected and tested and found to meet it's published specifications when it was shipped from the factory.

CL31 consists of following individually tested subunits:

TYPE	SUBUNIT	PRODUCT	SERIAL NO.
CLO311		Optics Unit	<u>B15106</u>
	CLR311	Ceilometer Receiver	<u>B12403</u>
	CLT311	Ceilometer Transmitter	<u>B05214</u>
	CLM311	Laser Monitor Board	<u>B1340005</u>
CL31ENCL		Enclosure	<u>B15309</u>
	CLP311	AC Power	<u>B19301</u>
	CLE311(C)	Ceilometer Engine Board	<u>B19301</u>
CLH311-230	☒	Inside heater (230 VAC) /	<u>B151</u>
CLH311-115	☐	Inside heater (115 VAC)	<u> </u>
CLB311-230	☒	Window Blower (230 VAC) /	<u>B15103</u>
CLB311-115	☐	Window Blower (115 VAC)	<u> </u>
DMX501		Modem Board (optional)	<u> </u>

for VAISALA OYJ

Per Anthony Date 2006-05-29

CL31 TEST REPORT & ACCEPTANCE

Unit serial number B20202 Sales order 5533712 Site _____Software version 1.500 Sky condition option code 46633 RWY _____

Tests	FIT	FAT	SAT	Remarks
1. Check of mechanical installation	N/A	N/A		
2. Check of electrical wiring	N/A	N/A		
3. Check of electrical grounding	N/A	N/A		
4. Check of start-up operation	OK			
5. Setting factory parameters	OK	N/A	N/A	
6. Check of data line and other settings	OK	N/A	N/A	
7. Cloud message test	OK			
8. Check of sensor options and status	OK			
9. Printout of parameters	OK	N/A	N/A	
10. Check of factory parameters	N/A			
11. Check of output interface	N/A			
12. Window blower test <u>24%</u>	OK			
13. Inheater test	OK			
14. Indoor "virtual sky" test at Vaisala	OK	N/A	N/A	
15. Check of beam	OK	N/A	N/A	
16. Check of battery	OK			
Total test result [OK/FAIL]	<u>OK</u>			

Use N/A for not applicable parts of the tests.

Final Inspection Test Tested by Pero Mulhenny Date 2006-05-29

Factory Acceptance Test Tested by _____ Date _____

Acceptance and approval on behalf
of the buyer

for Vaisala OYj

Site Acceptance Test Tested by _____ Date _____

Acceptance and approval on behalf
of the buyer

for Vaisala OYj

2006-05-29
TKu
CL31 s/n: B20202

CEILO > SYSTEM

Vaisala Ceilometer CL31

Unit ID: 0
Serial Nro: 620202
SW Version: 1.500

HW Options
Modem: N/A
Humitter: N/A

CEILO > GET PARAMS ALGORITHM

Algorithm Sensitivity:

General: 3
Second Layer: 3
Cloud: 3
High Cloud: 3

CEILO > GET PARAMS DATA_ACQ

Oper Mode: normal Autoadj: on
Meas Mode: standard Interval: 2.0 s
Power Save: disabled Sleep Int: 60 s

Transmitter		Receiver	
Pulse Len: long		Gain: high	
Inlaser: 2070		Bandwidth: narrow	
Pulse Cnt: 16384		Smpl Rate: 15 MHz	
Pulse Frq: 10.0 kHz			

CEILO > GET PARAMS FACTORY

Target Outlaser: 482
Factory Inlaser: 2050

Inclinometer

Sens
1: 2.444e1 2: -3.591e-2 3: 2.174e-5
4: -6.179e-9 5: 6.813e-13
A: Bias
1: -1.658e3 2: 6.745 3: -4.700e-3
4: 1.458e-6 5: -1.668e-10
Sens sc: 1.014
B: Bias
1: 2.041e3 2: 0.0 3: 0.0
4: 0.0 5: 0.0
Sens sc: 1.001

Window Cond.: 9.363e4
Cross-Talk: 5.493e5
Opt. Sensit.: 102 %

CEILO > GET PARAMS MESSAGE

Type: msg2_10x770
Port: data
Transmission: periodic

Interval: 15 s
Transm Delay: N/A
Manual Msg: disabled
Units: feet
Height Offs: 0 ft
Angle Corr: on
Sky Cond: enabled

Profile
Scale: 1.00
Noise h2: on

VV Limit
Ceiling: 6562 ft
Reporting: 50 %

CEILO > GET PARAMS PORT

Port Settings
Maintenance: 9600 bps, 8n1
Data: 19.2k bps, 8n1, rs-232
CTS Control: off

Modem
Type: N/A
Status: N/A

UI
Port: maintenance
Timeout: 30 min

Message Port: data

CEILO > SERVICE SELF_CHECK

Running self-check.

Temperatures: OK
Voltages: OK
Humidity: N/A
Profile
Noise: OK
DC Offset: OK
Crosstalk: OK
Transmitter
Power: OK
Pulse Len: OK
Receiver
Gain Ctrl: OK
Test Pulse: OK
Inheater: OK
Blower: OK

System Status: OK
Suspect Module: none

CEILO > STATUS

00 ///// ///// ///// 00000000C000

Alarms
Tmit Shutoff OK Transmitter OK
Receiver OK Voltages OK
Alignment OK Ext Memory OK
Light Pth Obs OK Rec Saturat OK

Coaxial Cable OK Engine OK

Oper Mode: normal Autoadj: on
 Meas Mode: standard Interval: 2.0 s
 Power Save: disabled Sleep Int: 60 s

Transmitter	Receiver
Pulse Len: long	Gain: high
Inlaser: 2070	Bandwidth: narrow
Pulse Cnt: 16384	Smpl Rate: 15 MHz
Pulse Frq: 10.0 kHz	

Window Cnd: 95 %	Outlaser: 478
Backg Rad: 9.8	99 %

Tilt Angle: 1.9	Humidity: N/A
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Temperatures

Internal: 42.4	External: 28.5
DC Power: 46.0	Inclinom: 44.5
Laser: 39.9	Blower: 35.4

Heater: off (auto)	Outheater: on
Blower: on (auto)	Batt Use: off

System Status: OK
 Suspect Module: none

CEILO > GET FAILURE STATUS

Alarms

Tmit Shutoff OK	Transmitter OK
Receiver OK	Voltages OK
Alignment OK	Ext Memory OK
Light Pth Obs OK	Rec Saturat OK
Coaxial Cable OK	Engine OK

Warnings

Window Contam OK	Battery Low OK
Transm Expire OK	Humid High OK
Blower OK	Humid Sensor OK
Int Heater OK	High Rad OK
Engine OK	Battery OK
Laser Monitor OK	Receiver OK
Tilt Angle OK	

System Status: OK
 Suspect Module: none

CEILO > GET FAILURE DIAG

Device Failures

Laser Temp OK	Laser Power OK
Window Cont OK	Int Heater OK
Ext Heater OK	Humidity N/A
Humid Sensor N/A	Blower OK
Radiance OK	Alignment OK
Receiver OK	Ext Memory OK
Light Satur OK	Rec Saturat OK
Rec Gain OK	Pulse Len OK
Noise Level OK	Bang Level OK
Near 0 Sgnl FAIL-L	Laser Ctrl OK
DC Offset OK	EEPROM Main OK
EEPROM Optic OK	Tilt Angle OK

Temperature Failures

Intern Temp OK Incl Temp OK
DC-Pwr Temp OK

Voltage Failures

+12V OK	VIN	OK	+13V R OK
+5V R OK	BAT	OK	+90V D OK
+5V A OK	+5V	OK	-5V R OK
-13VR OK	+2.5V	OK	+3.3V OK
RHVD OK	PFB	OK	-10V OK
+12VO OK	+12VF	OK	+3.3VA OK
+3.3C OK			

CEILO > GET UPTIME

Uptime: 00:000:20:36:13 (y:d:h:m:s)

Special settings for aerosol application!
Sky condition option code 46633