Functional Test

Project:_____

FT-_____ PACKAGED ROOFTOP DX AIR CONDITIONING UNIT RTU_____

Including integral equipment: ___supply fans, ___relief fan, ___inlet vanes, ___variable speed drive

Related Tests: _____

1. Participants

Party	Participation

Party filling out this form and witnessing testing _____
Date of test _____

2. Prerequisite Checklist

a. The following have been started up and startup reports and prefunctional checklists submitted and approved ready for functional testing:
   __ Duct system __ _____
   __ Connected Terminal Units __ _____

b. __ All control system functions for this and all interlocking systems are programmed and operable per contract documents, including final setpoints and schedules with debugging, loop tuning and sensor calibrations completed.

_____ _____
Controls Contractor Signature or Verbal Date

c. __ Vibration control report approved (if required).
d. __ Test and balance (TAB) completed and approved for the hydronic systems and terminal units connected.
e. __ All A/E punchlist items for this equipment corrected.
f. __ These functional test procedures reviewed and approved by installing contractor.
g. __ Safeties and operating ranges reviewed.
h. __ Test requirements and sequences of operation attached.
i. __ Schedules and setpoints attached.
j. __ False loading equipment, system and procedures ready (boilers, preheat or reheat coils, control loops, over-ride on OSA dampers, etc.)

Notes:

k. __ Have all energy savings control strategies, setpoints and schedules been incorporated that this equipment and control system are capable of? If not, list recommendations below.

l. __ **BAS Program Review.** Review the BAS software control program(s) for this equipment. Parameters, setpoints and logic sequences appear to follow the specified written sequences.

m. __ **Packaged Control Program Review.** Review the packaged control program(s) for this equipment. Parameters, setpoints and logic sequences appear to follow the specified written sequences. Primary setpoints are documented in writing.

n. __ Record of All Values for Current Setpoints (SP), Control Parameters, Limits, Delays, Lockouts, Schedules, Etc. Changed to Accommodate Testing:

Parameter	Pre-Test Values	Returned to Pre-Test Values √
Supply air temp.		
Discharge static pressure (SP)		
Supply air reset schedule		
Bldg. static P.		
Low ambient lockout		
NLL return air setpt.		

Parameter	Pre-Test Values	Returned to Pre-Test Values √
High duct SP alarm		
Econ. min. when VFD or IGV @ 0%	%	%
Econ. min. when VFD or IGV @ 100%	%	%
Space temp. setpoint		
NLL space temp. setpt.		

3. Sensor Calibration Checks.

Check the sensors listed below for calibration and adequate location. This is a sampling check of calibrations done during prefunctional checklisting. Test the packaged controls and BAS readings.

"In calibration" means making a reading with a calibrated test instrument within 6 inches of the site sensor. Verify that the sensor reading (via the permanent thermostat, gage, packaged control panel or building automation system (BAS)) compared to the test instrument-measured value is within the tolerances specified in the prefunctional checklist requirements (_____). If not, install offset in BAS, calibrate or replace sensor. Use the same test instruments as used for the original calibration, if possible.

Notes:

Sensor & Location	Loc-ation OK[1]	**1st** Gage or Pkg & BAS Values	Instru. Meas'd Value	**Final** Gage or Pkg & BAS Values	Pass Y/N?
SAT		Pkg: BAS:		Pkg: BAS:	
RAT		Pkg: BAS:		Pkg: BAS:	
OSAT		Pkg: BAS:		Pkg: BAS:	
Disch. SP		Pkg: BAS:		Pkg: BAS:	
Enthalpy		Pkg:		Pkg:	

[1]Sensor location is appropriate and away from causes of erratic operation.

4. Device Calibration Checks. The actuators or devices listed below checked for calibration. This is a spot check on a sample of the calibrations done during prefunctional checklisting and startup.

"In calibration" means observing a readout in the BAS and going to the actuator or controlled device and verifying that the BAS reading is correct. For items out of calibration or adjustment, fix now if easy, via an offset in the BAS, or a mechanical fix.

Device or Actuator & Location	**Procedure / State**	**1st** Pkg'd Value	Site Observation	**Final** Pkg'd Reading	Pass Y/N
Inlet guide vane position*	1. Closed				
	2. Full open				
Variable frequency drive speed* (VFD)	1. Min.: _____%				
	2. Max.: _____%				
OSA damper position**	1. Closed				
	2. Full open				
Relief fan damper position	1.Closed				
	2. Full open				

*Vanes or VFD: *Procedure 1.* Lower the controlling static pressure setpoint (duct or discharge) to be 1/4 of its current value. Verify that the vanes are shut, or fan speed is at minimum for VFD *and* packaged controller reads the same. Return the static pressure setpoint to normal. *Procedure 2.* Lower the space temperature setpoint to be 20F below space temp. and cause TU dampers to go to full cooling. Raise the static pressure setpoint as necessary to cause the setpoint to not be met. Verify that the inlet vanes are fully open or the fan speed is at its max. and verify that the packaged controller reads the same. Return all to normal.

**OSA Damper. *Procedure 1.* Change minimum OSA damper position setting to 0%. Change economizing parameter as necessary to cause damper to go to minimum. Verify that the damper is shut. Change the minimum OSA damper position setting to 100%. Verify that the damper is fully open. Return all to normal.

Notes:

5. Verification of Misc. Prefunctional Checks.

Misc. site checks of the prefunctional checklist and startup reports completed successfully. Pass? Y / N _____

General Conditions of Test

_____

_____

6. Functional Testing Record

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	Test Procedure[3] (including special conditions)	Expected and Actual Response[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
1 Seq. 1; 31-33		Observe the unit in OFF condition.	Inlet vanes closed, [_____], relief and OSA dampers closed, RA dampers open [_____]. Associated exhaust fan(s) are OFF.	
2 Seq. 2; 3; 31-33		Disable optimum start. With the ASU in auto and with the schedule in unoccupied, change schedule to be occupied in a few minutes. Change the warm-up mode setpoint to be 3F greater than the RA temperature.	Upon the occpied time the unit should start. Observe that the inlet vanes are closed [_____] when the unit starts. Associated exhaust fan(s) are ON.	
3 Seq. 5; 22; 34		Warm-up Mode. Continuing with the last procedure observe the startup.	1) Economizer dampers are shut. 2) Perimeter TU box reheat valves open (observe 1/2 of designated perimeter TU's thru BAS). 3) Associated exhaust fan(s) are OFF.	
4 Seq. 6		Wait until the RA temperature rises sufficiently, or change the warmup mode setpoint to be = to RA temperature + any offset.	Perimeter reheat valves return to normal. Economizer damper returns to normal (minimum position). (Note: min. position varies with fan inlet vane position.)	

Notes:

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	Test Procedure[3] (including special conditions)	Expected and Actual Response[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
5 Seq. 7		Volume Capacity Control. Return all settings to normal. Record discharge static pressure. Command all TU dampers to minimum (via direct command or by raising the space temp. setpoint 20F above space temp). Command all TU dampers to max. cooling (via direct command or by lowering the space temperature setpoint 20F below space temp.).	1) Discharge static pressure setpoint = [_____]. Current static pressure = [_____]. 2) Inlet vanes should go to their minimum position (0% open) [_____%] in [_____minutes]. 3) Static pressure should remain at setpoint [_____]. 4) Inlet vanes should go to their max. position (100% open) [_____%] in [_____minutes]. 4) Static pressure should remain at setpoint [_____].	
6 Seq. 7		TREND LOG 1 Volume Capacity Control. Since the discharge pressure is not monitored, trend the inlet vane position command and OSAT for 8 hours in 1 minute intervals, with all systems in normal mode. Include transition from unoccupied to occupied periods. Attach occupied schedule. See Monitoring section at the end of this test.	Verify that the inlet vanes are not hunting excessively in trying to maintain the static pressure setpoint. If there is not a wide enough range of vane positions logged, repeat the trend with some simulated load conditions being applied.	
7 Seq. 8		Lower the ASU high static setpoint to be 0.1 inch lower than the current discharge static pressure. When done, return setpoint to normal.	ASU should shut down [_____]. .	

Notes:

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	Test Procedure[3] (including special conditions)	Expected and Actual Response[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
8 Seq. 12; 18; 20		Cooling Capacity Staging. a) Shut the ASU OFF. Raise the space temperature setpoints 10F above space temperatures. If the OSAT is >55F, overwrite the OSAT sensor, that controls the economizer, to be 55F. Turn ASU ON. b) Change SAT reset parameters so that at full economy, the SAT setpoint will still not be met upon a call for full cooling (so SAT setpoint will be >OSAT). Record changes _____ _____. c) Lower the space temperature setpoints to 20F below space temperatures.	a) SAT setpoint should change upward according to the strategy parameters [_____]. Compressors should be OFF [_____]. Economizer damper should be at minimum [_____]. (Note: min. position varies with fan inlet vane position.) b) SAT setpoint should change downward according to the strategy parameters [_____]. Compressors should be OFF [_____]. Economizer dampers should open over time go to full open [_____]. SAT setpoint will not be met. c) Compressors begin to stage ON, only after economizer dampers are fully open [_____]. Economizer damper remains fully open [_____].	
8 cont. Seq. 12		Continuing from above: If temperatures are so low that the OSA with only the lower stages of mechanical will meet the SAT setpoint, lower the enthalpy changeover setpoint to 10 Btu/lb, so economizer damper will go to minimum.	Observe the staging ON of multiple compressors and their condenser fans. [_____ _____]. Observe that SAT setpoint is met at all times, within 1F either side of the current deadband (+/- 4F). Maximum deviation observed [_____]. If OSAT is too cold for full compressor staging, repeat this sequence in warmer weather.	

Notes:

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	Test Procedure[3] (including special conditions)	Expected and Actual Response[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
9 Seq. 14		Compressor Lockout. Continuing from above, change the compressor lockout temperature to be 3F below the current OSAT. Change the compressor lockout temperature to be 1F above the current OSAT. Return all settings to normal.	Compressors should remain ON. Compressors should shut OFF.	
10 Seq. 12; 16-20		TREND LOG 2, Cooling Capacity Staging and Economizer. With all systems in normal mode, trend the OSAT, RAT, SAT, SAT setpoint, ASU inlet vane position command and datalog the compressor current. Synchronize datalogger and BAS time and starts. Sample at 5 min. intervals for 48 hours during weather near design cooling. Provide occupied schedule. See Monitoring section at the end of this test.	Observe that SAT setpoint is met at all times, within 1F either side of the current deadband (+/- 4F). Observe that economizer is first stage of cooling and that compressors stage ON and OFF according to need to maintain SAT setpoint. Verify that the compressors comply with the min. ON and OFF time of 3 minutes.	
11 Seq. 15		SAT Reset. a) With all systems in auto, make sure all polled zones are within 4F of space setpoint. Record the zone farthest above its setpoint. b) Overwrite a zone space temp to be 5F above its setpoint. Record the BAS SA setpoint. Observe the SA meet setpoint. c) Overwrite a zone space temp to be 10F below its setpoint. Observe the SA meet setpoint. Reset Schedule SA: Worst Zone (1) / SA Setpt 5F / 50F -10F / 70F (1) Farthest zone above its setpoint)	a) b) Setpoint goes to 50F [_____]. SA temp meets 50F without excessive hunting. c) Setpoint goes to 70F [_____]. SA temp meets 70F without excessive hunting. Compressors should shut OFF.	

Notes:

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	Test Procedure[3] (including special conditions)	Expected and Actual Response[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
12 Seq. 15		TREND LOG 3, SAT Reset. With all systems in normal mode, trend the five typical warmest zones space temps, the SAT and the SAT setpoint. Verify the reset schedule is being met, per procedure 12. Trend at 5 minute intervals for 48 hours, during the week. See Monitoring section at the end of this test.	Data indicates SA reset strategy is working.	
13a Seq. 16-19; 21		Economizer and Fresh Air Control. ***Method 1, when OSAT is <65F.*** a) Using a psychrometer or calibrated humidity sensor in the BAS and a psychrometric chart, determine the enthalpy of the inside (_____Btu/lb) and outside air (_____Btu/lb). b) With the ASU in normal mode, cause a call for cooling (if not currently calling) by changing the SAT reset parameters to call for a SAT >OSAT but < RAT, or overwrite SAT setpt. Record actions: OSAT = ____F, RAT = _____F; SAT setpoint = _____F _____ c) Cause inlet vanes to open to 100% by changing all space temp. setpoints to be 20F below the current space temperatures.		

Notes:

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	Test Procedure[3] (including special conditions)	Expected and Actual Response[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
13a Seq. 16-19; 21		Continuing from previous: d) Change the economizer changeover setpoint in the ASU to be 3 Btu/lb below the current OSA enthalpy, so economizer won't open. e) Cause inlet vanes to close to 0% open by changing all space temp. setpoints to be 20F above the current space temperatures. f) Change the economizer changeover setpoint in the ASU to be 3 Btu/lb above the current OSA enthalpy. g) Change conditions or overwrite so the SAT setpoint is < OSAT. OSAT = _____F, SAT setpoint = _____F. Return economizer setpoint, SAT reset and space setpoints to normal.	Fresh Air Control: d) Economizer damper should go to minimum. Observe that inlet vanes are 100% open [_____]. Verify that damper minimum is according to the Fresh Air Control OSA Compensation schedule: _____% open, [_____% open] for this inlet vane position. e) Economizer damper minimum should change. Observe that inlet vanes are 0% open [_____]. Verify that damper minimum is according to the Fresh Air Control OSA Compensation schedule: _____% open, [_____% open] for this inlet vane position. f) Economizer damper should begin to open and maintain SAT setpoint within 1F on both sides of the current SAT deadband of +/- 4F. Damper should not be fully open. [_____ _____]. g) Economizer damper should go to full open [_____]. RA damper modulates opposite of economizer damper. Parameters put back to normal.	

Notes:

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	Test Procedure[3] (including special conditions)	Expected and Actual Response[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
13b Seq. 16-19; 21		Economizer and Fresh Air Control. ***Method 2, when OSAT is >65F.*** a) Using a psychrometer or calibrated humidity sensor in the BAS and a psychrometric chart, determine the enthalpy of the inside (_____Btu/lb) and outside air (_____Btu/lb). b) With the ASU in normal mode, cause a call for cooling (if not currently calling) by changing the SAT reset parameters to call for cooling or overwrite SAT setpt. Record actions: OSAT = ____F, RAT = _____F; SAT setpoint = _____F. _____ c) Cause inlet vanes to open to 100% by changing all space temp. setpoints to be 20F below the current space temperatures.		
13b Seq. 16-19; 21		Continuing from previous: d) Change the economizer changeover setpoint in the ASU to be 3 Btu/lb below the current OSA enthalpy, so economizer won't open. e) Cause inlet vanes to close to 0% open by changing all space temp. setpoints to be 20F above the current space temperatures.	Fresh Air Control: d) Economizer damper should go to minimum. Observe that inlet vanes are 100% open [_____]. Verify that damper minimum is according to the Fresh Air Control OSA Compensation schedule: _____% open, [_____% open] for this inlet vane position. e) Economizer damper minimum should change. Observe that inlet vanes are 0% open [_____]. Verify that damper minimum is according to the Fresh Air Control OSA Compensation schedule: _____% open, [_____% open] for this inlet vane position.	

Notes:

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	Test Procedure[3] (including special conditions)	Expected and Actual Response[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
13b Seq. 16-19; 21		Continuing from previous: f) Change the economizer changeover setpoint in the ASU to be 3 Btu/lb above the current OSA enthalpy. Overwrite the SAT to be > SAT setpoint by 10F. Return economizer setpoint, SAT reset and space setpoints to normal.	f) Economizer damper should begin to open and eventually go to full open. Setpoint will not be met. Compressors will come on and economizer damper will remain fully open. [_____ _____]. RA damper modulates opposite of economizer damper. Parameters put back to normal.	
14 Seq. 23-26; 34		Unoccupied Night Low Limit Mode. a) With ASU in normal mode, change the schedule so unoccupied mode will begin in 5 minutes. b) After the ASU shuts OFF, change the RA NLL setpoint to be 10F above current RA temp. Overwrite one of the polled perimeter zone space temp. to be 1Fabove the space NLL heating setpoint, currently _____F. c) Overwrite one of the polled perimeter zone space temp. to be 3Fbelow the space NLL heating setpoint. d) Change the RA NLL setpoint to be within the bias or deadband range of the current RA temp. e) Return schedules, NLL RA setpoint and space overwritten values to normal.	a) When the schedule is met, the ASU shuts OFF. b) ASU and boiler does not come ON. c) The ASU and boilers come ON. Heating coil valves operate normally. Economizer dampers are shut and exhaust fans are OFF. d) The ASU and boilers shut OFF. e) Values returned to normal.	

Notes:

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	Test Procedure[3] (including special conditions)	Expected and Actual Response[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
15 Seq. 27-30; 34		Unoccupied Night High Limit Mode. a) With ASU in normal mode, change the schedule so unoccupied mode will begin in 5 minutes. b) After the ASU shuts OFF, change the RA NHL setpoint to be 10F below current RA temp. Change the space NHL cooling setpoint to be 65F (so no unoccupied cooling or heating is called for). Overwrite one of the polled perimeter zone space temp. to be 1Fbelow the space temporary NHL cooling setpoint, currently _____F. c) Change economizer changeover enthalpy as necessary to allow economizer damper to open. d) Overwrite one of the polled perimeter zone space temp. to be 3Fbelow the temporary space NHL cooling setpoint. e) Change the RA NHL setpoint to be within the bias or deadband range of the current RA temp. f) Return schedules, NHL RA, NHL space setpoint and space overwritten values to normal.	a) When the schedule is met, the ASU shuts OFF. b) ASU does not come ON. c; d) The ASU comes ON and economizer goes above minimum. Exhaust fans and boiler remain OFF. e) The ASU shuts OFF. f) Values returned to normal.	
16 Seq. 23-26		TREND LOG 4, Unoccupied NHL. During a period of weather with nights below 40F, with all systems in normal mode, trend the inlet vane position command (surragate for ASU status), RA temp, highest and lowest polled space temp., SAT, boiler status, HWST and OSAT. Trend at 15 min. intervals for 3 days. Provide occupied schedule. See Monitoring section at the end of this test.	Verify the proper sequencing per Procedure 14.	

Notes:

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	**Test Procedure**[3] (including special conditions)	**Expected and Actual Response**[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
17 Seq. 27-30		TREND LOG 5, Unoccupied NLL. During a period of weather with nights below 40F, with all systems in normal mode, trend the inlet vane position command (surragate for ASU status), RA temp, highest and lowest polled space temp., SAT, boiler status, HWST and OSAT. Trend at 15 min. intervals for 3 days. Provide occupied schedule. See Monitoring section at the end of this test.	Verify the proper sequencing per Procedure 15.	
18 Seq. 35		Misc. Alarms. a) Filter alarm. In the BAS, lower the filter alarm setpoint until it equals the filter differential pressure. b) Compressor failure. With an ASU compressor running, shut off the breaker to the compressor. Reset when done.	a) An alarm is registered in the BAS. b) An alarm is registered in the BAS. Breaker reset.	
19 Seq. 36		External Shutdowns and Alarms. a) *High duct static pressure.* In the BAS, lower the high duct static pressure alarm setpoint to the current duct static pressure. b) *Supply duct smoke detector.* Spray "smoke" on the SA duct sensor. c) *Return duct smoke detector.* Spray "smoke" on the RA duct sensor. d) Turn the *emergency shutdown switch* in on the BAS ASU controller in the Penthouse.	a) The ASU should shut OFF and register an alarm. b) The ASU should shut OFF and register an alarm in the BAS and generate a fire alarm. (see fire alarm response matrix). c) The ASU should shut OFF and register an alarm in the BAS and generate a fire alarm. (see fire alarm response matrix). d) The ASU should shut OFF and register an alarm.	
20 Seq. 37		Fire Alarm Shutdown. Initiate a fire alarm through the following: general smoke, pull station, sprinkler flow (jumper contacts).	All ASU's should shut OFF. General smoke alarm: ____ Pull station: _____ Sprinkler flow: _____ Duct smoke detector: (done above)	

Notes:

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	Test Procedure[3] (including special conditions)	Expected and Actual Response[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
21 Seq. 38		Telecom Rm C-104 Interlock. a) Change schedule to be in unoccupied mode. b) Overwrite the RA temp. to be 5F less than the RA unoccupied NHL setpoint to simulate a NHL satisfied condition. _____ c) Lower theTelecom Rm unoccupied TU-1-43 setpoint (initially 80F) to the current Telecom room space temp.	a) ASU should shut OFF and remain OFF. c) ASU should start and run, not in night high limit mode, but run until the unoccupied setpoint of TU-1-43 is satisfied.	
22 Seq. 39		BAS Monitored and Adjustable Points. Verify that the monitored and adjustable points specified in the sequences are actually operable in the BAS.	All points as per spec.	
23 Seq. 40		Terminal Boxes. Verify where in the BAS that the specified perimeter boxes are designated. Match to specs.	TU perimeter schedules match spec.	
24 Seq.		TREND LOG 6, Optimum Start. Trend the ASU static pressure (surrogate for ON condition), the OSA temperature and the average temperature used for the optimum start routine and the RA temp during weather with night time lows 30-40F, for three consecutive days in 5 minute intervals. Trend again when night time lows are 60-70F.	Observe that the start times vary per the optimum start routine and that the RA temp is met by the schedule.	
25 Seq. 9-11		TREND LOG 7, Building Static Pressure. Trend log the supply fan speed, the relief fan speed and the building static pressure for 24 hrs at 5 min. intervals. During the trend, force, if necessary, the economizer damper to be full open and at minimum. Document these times. If fan speeds can't be trended, perform just the trend of the bulding static pressure and conduct the following manual test.	Observe in the trends that the building static pressure is maintained within +/- 0.05" of setpoint without excessive hunting. Carefully observe during the extreme economizer damper positions. Max. deviation: [_____]. Physically observe that the relief dampers open and close as expected and that the relief fan is OFF when the dampers are closed.	

Notes:

Proced. No. & Spec. Seq. ID[1]	Req ID No.[2]	Test Procedure[3] (including special conditions)	Expected and Actual Response[4] [Write ACTUAL response in brackets or circle]	Pass Y/N & Note #
26 Seq. 9-11		Change the current building static pressure (BSP) setpoint to be 0.10" below the current BSP setpoint of _____. Change the current building static pressure (BSP) setpoint to be 0.50" above the current BSP setpoint of _____. Return setpoint to original.	The relief fan comes ON, if not already ON [_____], the damper opens and the BSP setpoint is met without overshoot. The relief dampers should close [_____]. Once the dampers are closed, the relief fan should turn OFF [_____].	
27	**--**	**Return all changed control parameters and conditions to their pre-test values[5]**	**Check off in Section 2 above when completed**	

MONITORING AND TREND LOGGING. Five monitoring via BAS trend logs are required per test Procedures 6, 10, 12, 16, 17, 24, 25. Trend logs __all__ shall be provided in electronic continuous columnar spreadsheet compatible format. Trends __all__ shall be provided in hard tabular format (continuous columnar with time in left column and at least four columns of point values in adjacent columns). All points for a given trend will begin at exactly the same time. Provide a key to all abbreviations. Attach representative graphs or columnar data and explanatory analysis to this test report.

Record Foot Notes

[1]Sequences of operation specified in Contract Documents (attached).
[2]Mode or function ID being tested, per testing requirements section of the project Specifications.
[3]Step-by-step procedures for manual testing, trend logging or data-logger monitoring.
[4]Include tolerances for a passing condition.
[5]Record any permanently changed parameter values and submit to Owner.

-- END OF TEST --

Notes: