ORDER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

6560.29

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SUBJ: NEW GENERATION RUNWAY VISUAL RANGE SYSTEM

1. PURPOSE. This order directs the use of the following standard drawings, instruction book Runway Visual Range System On-Site Requirements TI 6560.17 section 9 and the Site Acceptance Test Procedure in appendix 1, for the establishment of the New Generation Runway Visual Range System (RVR), utilizing components furnished by Teledyne Controls, Type FA-10268 through FA-10268/6, contract DTFA01-88-C-00024.

NUMBER	TITLE
D-6282-0	New Generation Runway Visual Range System, Type FA-10268 Title/Index Sheet
D-6282-1	New Generation Runway Visual Range System Typical RVR Locations
D-6282-2	New Generation Runway Visual Range System Typical VS and SIE Unit Details
D-6282-3	New Generation Runway Visual Range System Typical ALS and RLIM Details
D-6282-4	New Generation Runway Visual Range System LIR Pole and SIE Box Support Foundation Details
D-6282-5	New Generation Runway Visual Range System LIR Pole Grounding and Misc. Details
D-6282-6	New Generation Runway Visual Range System LIR Pole Assembly and Mounting Stand Details
D-6282-7	New Generation Runway Visual Range System Power and Control Wiring Diagram

Distribution: A-W(NN/SE/NS/SM/TR/FS)-3; A-W(SU/PP/AS)-2; A-X(AF/AS/FS/AT)-3; A-Z(CN/CD)-3; A-Y(DE/AY)-2

Initiated By: ANN-140

D-6282-8	New Generation Runway Visual Range System Typical Electronic Interface and Wiring Diagram
D-6282-9	New Generation Runway Visual Range System RVR System Configuration

2. DISTRIBUTION. This order is being distributed to branch level in the office of the Program Director for Navigation and Landing, NAS System Engineering, NAS Transition and Implementation, Systems Maintenance, Air Traffic and Requirements, and the Flight Standards Services; division level to the Office of the Associate Administrator for Contracting and Quality Assurance and the offices of Airport Planning and Programming, and Airport Safety and Standards; branch level to regional Airway Facilities, Airports, Flight Standards and Air Traffic divisions; branch level to the Engineering, Test, and Evaluation and the Engineering, Research, and Development Services at the FAA Technical Center; division level to the FAA Logistics Center and the FAA Academy at the Mike Monroney Aeronautical Center.

3. APPLICATION. Drawings D-6282-0 through D-6282-9 shall be used to install New Generation RVR Systems Type FA-10268 through FA-10268/6 manufactured by Teledyne Controls under contract DTFA01-88-C-00024.

4. DEVIATION FROM STANDARD. No deviation from the standard drawing is authorized without the prior approval of a configuration control decision. Regional site adaptation to accommodate terrain, utility construction, parking lots, access roads, and similar details are authorized without further clearance. Dimensional errors, discrepancies, or suggestions for modification or addition of details should be brought to the attention of the Manager, Navigation and Landing Engineering Division, ANN-100.

5. CORRECTIONS TO STANDARD. Corrections to the standard drawing may be made by the Program Director for Navigation and Landing, without further regional or interservice coordination. These may include corrections of dimensional errors, misspellings, and modifications, additions, or deletion of details.

6. DISTRIBUTION OF DRAWINGS. A reproducible copy of each drawing is being forwarded to the Aeronautical Center, Attention: Director, FAA Logistics Center; to the Director, FAA Technical Center; and to each region, Attention: Manager, Airway Facilities Division.

Rodman B. Gill
Program Director for Navigation and Landing

APPENDIX 1. SITE ACCEPTANCE TEST PROCEDURE

SITE ACCEPTANCE TEST PROCEDURE

FOR THE

NEW GENERATION RUNWAY VISUAL RANGE SYSTEM
(RVR)

TYPE No. FA-10268

Manufactured by:

Teledyne Controls
Los Angeles, California

Under Contract:

DTFA01-88-C-00024

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Attachment 3 Visibility Sensor Data Sheet
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Attachment 5 Runway Light Intensity Monitor Data Sheet
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ABBREVIATIONS

Certain abbreviations have been used in this procedure. The following list delineates those abbreviations and their meanings:

AC	- Alternating current
ALS	- Ambient Light Sensor
Amp.	- Ampere
CCA	- Circuit Card Assembly
CD	- Controller Display
Ch. No.	- Channel Number
CS	- Current Sensor
<CR>	- Carriage Return/Enter key on computer keyboard
DPU	- Data Processing Unit
DGND	- Digital ground
<ESC>	- Escape key on computer keyboard
FAA	- Federal Aviation Administration
FL	- Foot-Lambert
GMT	- Greenwich Mean Time (ZULU)
INTEN	- Intensity
IOC	- Input Output Card
LCD	- Liquid Crystal Display
LED	- Light Emitting Diode
MDT	- Maintenance Data Terminal
MP	- Mid Point
MPS	- Maintenance Processor Subsystem
MPU	- Maintenance Processing Unit (part of DPU)
PN	- Part Number
PPU	- Product Processing Unit (part of DPU)
RLIM	- Runway Light Intensity Monitor
RO	- Rollout
RVR	- Runway Visual Range
RX	- Visibility Sensor Receiver
R/W	- Runway
SFO	- Sector Field Office
SIE	- Sensor Interface Electronics
SN.	- Serial number
<TAB>	- Tab key on computer keyboard
TD	- Touch Down
TP	- Test point
TX	- Visibility Sensor Transmitter
Vac	- Volts Alternating Current
Vdc	- Volts Direct current
VS	- Visibility Sensor

1. SCOPE

1.1 Scope. This document defines a standard Site Acceptance Test (SAT) procedure to be used for all of the New Generation RVR Systems Type No. FA-10268. All further references to RVR shall be assumed to be New Generation RVR.

1.2 Purpose. The procedure described herein is intended to provide detailed instructions on how to check out and certify the RVR System. This procedure is intended to be part of the Joint Acceptance Inspection procedure for transfer of the RVR system from Facilities Establishment to System Maintenance.

2. REFERENCES

2.1 References. The following documents form a part of this procedure to the extent specified herein. Reference to the applicable documents includes revisions and amendments thereto, as specified in or by the contract DTFA01-88-C-00024.

Federal Aviation Administration Specifications

FAA-E-2772 Runway Visual Range System Specification

Federal Aviation Administration Documents

TI 6560.17 Instruction Book for RVR System On-Site Requirements

TG-21-1 Controller User's Guide, Controller Display, RVR System

3. PROCEDURE

3.1 Data Processing Unit (DPU) Acceptance Procedure. - Perform the following to accept the data processing unit. Data sheets are to be filled out as the procedure is performed.

An asterisk (*) preceding a test step indicates that the test results should be recorded on the Data Processing Unit Data Sheet in Attachment 2.

3.1.1 DPU unit initial health check.

a) Set **AC POWER** switch to ON.
   * - AMBER light above switch should illuminate.

b) Set **PPU Select** switch to **A** (up) position.

c) * Verify the front panel LED's illuminate as follows (may take up to 30 seconds after **PPU Select** switch is thrown):

   All **HEALTH** LED's illuminate GREEN.

   PPU-A **ACTIVE** LED illuminates Yellow and PPU-B LED remains extinguished.

d) Set **PPU Select** switch to **B** (down) position.

e) * Verify PPU-B **ACTIVE** LED illuminates Yellow and PPU-A LED will turn OFF; and all **HEALTH** LED's illuminate (may take up to 30 seconds after **PPU Select** switch is thrown).

f) * Set **PPU Select** switch to **A** (up) position, and verify all front panel LED's illuminate as shown in step c) above.

g) PROCEDURE COMPLETE

3.1.2 Check DPU voltages as follows:

a) Turn **AC POWER** switch OFF.

b) Set the voltmeter to DC voltage and appropriate range and polarity for the voltage to be measured; or to autorange.

c) Remove the protective button (labeled **tp**) from the IOC card on the back right side of the DPU.

d) Connect the positive (+) lead of the voltmeter to the selected test point. Use the below table to determine the correct test point for the voltage to be measured:

Test Point	DC Voltage
TP 2	+5 vdc
TP 4	-5 vdc
TP 3	+12 vdc
TP 5	-12 vdc

Connect the negative (- ground) lead of the voltmeter to TP 8 (DGND) of the same circuit card.

e) Turn **AC POWER** switch ON and wait for ALL **HEALTH** LED's to illuminate.

f) * Verify the voltages against the tolerances provided on the check sheet and record on the check sheet.

g) Disconnect voltmeter leads from the test points.

h) Reinstall the protective button on the IOC card.

i) PROCEDURE COMPLETE

3.1.3 Cable assignment verification

a) Verify all cables are labeled as to their destination.

b) * Fill out the RVR Configuration Data Sheet in Attachment 1.

c) PROCEDURE COMPLETE

3.1.4 Verification of RVR system configuration.

a) Connect the MDT to the front panel J1 connector.

b) Log-On the MDT as follows:

1. Turn ON the MDT.

2. Activate the MDTs terminal emulator or communications software package (i.e. PROCOMM).

3. Repeatedly strike <CR> (respond to "Press <CR>" and "Press <TAB>" prompts as they appear) until the **Enter UIC?** is displayed.

4. Enter the three character UIC provided by the site manager, and strike <CR>.

5. When **Password?** appears, enter the Password provided by the site manager, and strike <CR>.

6. The RVR main menu will be displayed:

c) Continue with the configuration check as follows:

1. Select <O> from control.

2. <TAB> cursor to ***raise security level** and strike <CR> twice (will raise security level to 3).

3. Strike <ESC> to return to Main Menu and select <C> for configuration.

4. Select <U> for User IDs, Passwords, select <M> for Manager (all uic's).

5. * Verify User-id **RVR** and Password **SYSOP** are either deleted from the list or assigned a security level of **0**. Assigning a security level of **0** disables use of this User-id/password combination.

6. Strike <ESC> twice and select <O> for Options.

7. * Verify all sensors configured on the airport have been assigned a channel number; and the DPU Data Sheet filled out in step 3.1.3(b) contains this information.

8. <ESC> and select <R> for Runway specifications.

9. * Verify all runways containing visibility sensors are accurately specified in this configuration table; and the DPU Data Sheet filled out in step 3.1.3(b) contains this information.

10. <ESC) and select <S> for Site constants.

11. * Validate the **RMS_LINK_ADDRESS** with the MPS Administrator at the associated ARTCC. This assumes the RVR is connected to the MPS System.

12. <ESC> and select <D> for Date/time.

13. * Verify date is correct, time is set to Greenwich Mean Time (GMT) and is correct ± one minute.

14. <ESC> twice back to Main menu.

NOTE

Before proceeding all sensors must be calibrated and operating.

3.1.5 Verify system is operating correctly.

a) From the Main menu select <S> for Status.

b) * Verify all RVR subsystems show **online_auto** in the **Availability Status** column.

c) Strike <ESC> and select <D> for Data, select <P> for Product data display.

d) * Verify all configured runways are displayed.

* Verify valid RVR data (no FFF) is being displayed at the appropriate TD, MP, RO positions; and runway light setting data is correct.

e) Strike <ESC> twice back to the Main Menu.

f) PROCEDURE COMPLETE

3.1.6 Verify DPU has no detected faults.

a) From the Main Manu select <P> for Parameters, select <V> for Values.

b) * Verify ALL parameters show **normal** in the status column. Press <N> for next page or <P> for previous page to view the complete list.

NOTE

Parameters that show **not monitored** indicate interfaces that are not connected to the system (i.e. EU); or parameters that have been turned OFF through the MDT.

c) * Return to page 01 and verify the DPU voltages agree with the values determined in step 3.1.2(f) ± 5%. These voltages must be calculated by multiplying the **Value** column number by the factor in the **Units** column. Alternate method is to verify that the displayed values are 205 ± 10.

d) Strike <ESC> twice to return to the Main Menu.

e) Select <L> to Logout of the system.

f) Turn OFF the MDT and disconnect from the J1 connector on the DPU.

g) PROCEDURE COMPLETE

3.1.7 Final DPU test.

a) Verify that all items on the data sheet have been filled out.

b) If any failures occurred during this test, take the appropriate corrective action and repeat that portion of the test until the failure is corrected.

c) On the data sheet record all discrepancies and corrective action/s taken.

d) After all tests have passed, have the SFO manager sign and date the data sheet.

e) The DPU is operating correctly.

3.2 Visibility Sensor (VS) Acceptance Procedure. - Perform the following to accept the visibility sensor installation. Data sheets are to be filled out as the procedure is performed.

An asterisk (*) preceding a test step indicates that the test results should be recorded on the Visibility Sensor Data Sheet in Attachment 3.

Repeat this procedure for all VS sites installed on the airport.

Record test results for each VS site on separate data sheet sets.

3.2.1 VS SIE initial health check.

a) Turn on AC power to sensor site from main power source.

b) Open SIE door and turn SIE ON as follows:

1. Set **AC POWER** switch to ON.
   * - AMBER light under switch should illuminate.

2. Set **BATTERY ON/OFF** switch to ON.

c) * Verify **HEALTH LED** on top circuit card illuminates.
- Will be a GREEN light on lower left side of the circuit card (takes 20 seconds or less after AC power is turned on).

d) * Verify **HEALTH LED** on lower circuit card illuminates.
- Will be a GREEN light on lower right side of the circuit card (takes 20 seconds or less after AC power is turned on).

e) PROCEDURE COMPLETE

3.2.2 VS SIE voltage check.

a) Set the voltmeter to DC voltage and appropriate range and polarity for the voltage to be measured; or to autorange.

b) On the Controller Card (top circuit card in SIE enclosure) connect the positive (+) lead of the voltmeter to the selected test point. Use the below table to determine the correct test point for the voltage to be measured:

Test Point	DC Voltage
TP 7	+12 vdc
TP 8	-12 vdc
TP 9	-5 vdc
TP 10	+5 vdc

Connect the negative (- ground) lead of the voltmeter to TP 12 (DGND) of the same circuit card (refer to TI-6560.17, figure 2-13 for test point locations).

c) * Verify the voltages against the tolerances provided on the data sheet and record on the data sheet.

d) Disconnect voltmeter leads from the test points.

e) PROCEDURE COMPLETE.

3.2.3 VS calibration check.

a) Plug the MDT AC power cord into the GFI receptacle on the lower right side of the SIE.

b) Turn the **AUX POWER** switch ON.

c) Connect the MDT RS-232 cable to the J3 connector on the left side of the SIE power supply.

d) Lower the VS mounting pole and install the calibration plate on the VS fork assembly.

e) * Rotate the calibration plate to the LOW RANGE value; and record the VALUE on the data sheet. Wait one minute before proceeding.

f) Turn ON the MDT and activate the MDT's terminal emulator or communications software package (i.e. PROCOMM).

g) Alternately strike <TAB> & <a> (note - <a> must be lower case) repeatedly until the MDT Main Menu (- RVR VS SIE MDT OPERATION -) appears.

h) * Select "Fault Data" from the main menu and <CR>. Verify parameter 10 is all zeros. Enter <CR>.

i) * Select "Parameters" from the SIE main menu and <CR>. Verify "TX WC Snapshot (%)" and "RX WC Snapshot (%)" are 2% or less. Verify the "Ext Coeff (Corrected)" value displayed equals the LOW RANGE value ± 5%. Record the displayed VALUE on the data sheet. Strike <ESC> to return to the Main menu and <E> to exit.

j) * Rotate the calibration plate to the HIGH RANGE value; and record the VALUE on the data sheet. Wait one minute before proceeding.

k) * Repeat steps g) through i) for the high range values.

l) Remove the calibration plate from the VS fork assembly.

m) Raise the VS mounting pole back to the vertical position and secure.

n) PROCEDURE COMPLETE

3.2.4 <u>VS SIE diagnostic test.</u>

a) From the main menu select <D> for Diagnostics and <C> to continue.

b) The screen will display **Working** until diagnostics is complete; and will display the results. Takes one minute or less.

c) Verify all displayed Parameters display **OK** in the STATUS column.

d) * Record results and window contamination value's on the data sheet.

e) Strike <ESC> to return to the Main Menu.

f) Select <E> for Exit to Log-off the MDT.

g) Turn off the MDT; and disconnect RS-232 cable and AC power cord from the SIE.

h) Turn OFF the **AUX POWER** switch (leave ON if the obstruction lights are being powered from the SIE).

i) Close and secure the SIE door.

j) PROCEDURE COMPLETE

3.2.5 Final VS site test.

a) Verify that all items on the data sheet have been filled out.

b) If any failures occurred during this test, take the appropriate corrective action and repeat that portion of the test until the failure is corrected.

c) Record all discrepancies and corrective action taken on the data sheet.

d) After all tests have passed, have the SFO manager sign and date the data sheet.

e) The VS site is operating correctly.

3.3 Ambient Light Sensor (ALS) Acceptance Procedure. - Perform the following to accept the ambient light installation. Data sheets are to be filled out as the procedure is performed.

An asterisk (*) preceding a test step indicates that the test results should be recorded on the Ambient Light Sensor Data Sheet in Attachment 4.

3.3.1 ALS SIE initial health check.

Perform in accordance with paragraph 3.2.1.

3.3.2 ALS SIE voltage check.

Perform in accordance with paragraph 3.2.2.

3.3.3 ALS calibration check.

NOTE

This test should be done on a bright sunny day, at mid-day.

a) Install the foam plug in the ALS hood to block incomming light.

b) Connect the MDT to the SIE and Log on. Refer to paragraph 3.2.3(a) through 3.2.3(e) for these procedures. Main menu will be titled " -RVR ALS SIE MDT OPERATION -".

c) * Select <P> and <CR>. Verify and record that VDL (volts) and VBL (volts) are within the range -0.1 and +0.05.

d) Strike <CR> to return to the main menu and <E> to exit.

e) Remove the foam plug. Wait at least one minute.

f) Log back on the MDT and select <F> and <CR>.

g) * Verify and record that VDL (volts) is at least 4.0 volts for a bright sunny day.

h) * Strike <CR> to return to main menu and select <F> for Fault Diagnostics. Verify that WINDOW_CONTAM is 4 or less.

i) Select <CR> and <E> to log off the MDT.

j) PROCEDURE COMPLETE

3.3.4 ALS SIE diagnostic test.

Perform in accordance with paragraph 3.2.4.

3.3.5 Final ALS site test.

a) Verify that all items on the data sheet have been filled out.

b) If any failures occurred during this test, take the appropriate corrective action and repeat that portion of the test until the failure is corrected.

c) Record all discrepancies and corrective action taken on the data sheet.

d) After all tests have passed, have the SFO manager sign and date the data sheet.

e) The ALS site is operating correctly.

3.4 Runway Light Intensity Monitor Acceptance Procedure. - Perform the following to accept the RLIM installation. Data sheets are to be filled out as the procedure is performed.

An asterisk (*) preceding a test step indicates that the test results should be recorded on the Runway Light Intensity Monitor Data Sheet in Attachment 5.

Repeat this procedure for ALL RLIM sites installed on the airport.

Record test results for each RLIM site on separate data sheet sets.

3.4.1 RLIM SIE initial health check.

Perform in accordance with paragraph 3.2.1. except 3.2.1(d)

3.4.2 RLIM SIE voltage check.

Perform in accordance with paragraph 3.2.2.

3.4.3 RLIM current sensor calibration check.

NOTE

The current sensor's are permanently calibrated at the factory by the RVR contractor. This test is performed to verify 1) that the correct runway light step setting is displayed 2) verify the runway current loop transformers are within calibration.

a) Connect the MDT to the SIE and Log on. Refer to paragraph 3.2.3(a) through 3.2.3(e) for these procedures.

b) Have Air Traffic set the runway edge and centerline lights to OFF or 0.

c) From the main menu select <D> for Diagnostics and <CR>.

d) The screen will display **Working** until diagnostics is complete; and will display the results. Takes one minute or less.

e) Strike <M> and <CR>. Voltage values for each current sensor will be displayed.

f) * The values displayed for each configured current sensor "sensor_n" should equal the below values within the tolerances specified on the data sheets. Record the displayed VALUE on the data sheet.

Step Setting	Value for 6.6 AMP Circuit	Value for 20 AMP Circuit
0	0.0 VAC	0.0 VAC
1	2.6 VAC	8.2 VAC
2	3.2 VAC	11.9 VAC
3	3.9 VAC	12.5 VAC
4	4.8 VAC	15.5 VAC
5	6.4 VAC	20.0 VAC

g) Log off the MDT and log back on.

h) Repeat steps c. through g. for light settings 1 through 5.

i) PROCEDURE COMPLETE

3.4.4 RLIM SIE diagnostic test.

Perform in accordance with paragraph 3.2.4.

3.4.5 Final RLIM site test.

a) Verify that all items on the data sheet have been filled out.

b) If any failures occurred during this test, take the appropriate corrective action and repeat that portion of the test until the failure is corrected.

c) Record all discrepancies and corrective action taken on the data sheet.

d) After all tests have passed, have the SFO manager sign and date the data sheet.

e) The RLIM site is operating correctly.

3.5 Controller Display Acceptance Procedure. - Perform the following to accept the each Controller Display installation. Data sheets are to be filled out as the procedure is performed.

An asterisk (*) preceding a test step indicates that the test results should be recorded on the Controller Display Data Sheet in Attachment 6.

Repeat this procedure for ALL CDs installed on the airport.

Record test results for each CD on separate data sheet sets.

3.5.1 Controller Display health check.

a) Remove controller display from the console, if already installed, as follows:

1. Turn CD **AC POWER** switch OFF.

2. Remove four screws securing CD to the Console.

3. Pull CD out of the console being careful to not damage power cord, ground wire and data cable.

b) Turn CD **AC POWER** switch ON.

c) * Verify the **AC POWER** switch illuminates.

d) * Verify **HEALTH** LED illuminates.
- Will be a GREEN light on lower left side of the front panel.

e) CD will begin a Built-In-Test (BIT) that exercises all of the LCD segments and the Audio Alarm.

f) When the BIT is complete the display should be blanked except for the Trend Arrow's and a blinking cursor in the upper left corner.

g) PROCEDURE COMPLETE

3.5.2 Check CD voltages as follows:

a) Turn OFF **AC POWER** switch.

b) Remove the CD top cover.

CAUTION

The power supply is attached to the underside of the top cover. Carefully raise the top cover, turn over and lay next to the CD being careful to not damage the connecting cables.

c) Set the voltmeter to DC voltage and appropriate range and polarity for the voltage to be measured; or to autorange.

d) Connect the positive (+) lead of the voltmeter to the selected test point. Use the below table to determine the correct test point for the voltage to be measured:

Controller CCA Test Point	DC Voltage
TP 7	+5 vdc

Connect the negative (- ground) lead of the voltmeter to TP 8 (DGND) of the same circuit card.

LCD Driver CCA Test Points	DC Voltage
TP 6	+5 vdc
TP 7	-24 vdc

Connect the negative (- ground) lead of the voltmeter to TP 5 (DGND) of the same circuit card.

e) Turn CD **AC POWER** switch ON and wait for **HEALTH** LED to illuminate.

f) * Verify the voltages against the tolerances provided on the check sheet and record on the check sheet.

g) Turn OFF **AC POWER** switch.

h) Disconnect voltmeter leads from the test points.

i) Install CD top cover.

j) Install CD in console and secure.

k) PROCEDURE COMPLETE.

3.5.3 Verify CD operation.

NOTE

This procedure requires that the DPU, all VSs, ALS and RLIMs be operating and calibrated.

a) Turn CD **AC POWER** switch ON and wait for **HEALTH** LED to illuminate.

b) Verify Back Lighting functions:

1) Locate knob under **M/F** switch to left of the keypad.

2) Rotate knob all the way counter clockwise.

* 3) Back lighting should be **OFF**.

4) Rotate the knob all the way clockwise.

* 5) Back lighting should be **ON** at full brightness.

c) Verify KEYPAD functions;

1) The CD display screen should show trend arrows and a blinking cursor in the upper left corner.

2) Press the **RUNWAY** key repeatedly and note that the RVR system configured runways will be scrolled in the upper left quadrant of the CD.

* 3) Verify all configured runways plus a blank space are displayed (one at a time).

4) Press the **RUNWAY** key until any runway number is displayed and press **ENTER** on the keypad to select that runway. Cursor will move to the next runway field.

5) Repeat step 4) to select another runway (if airport has more only one runway configured procede to step 6). Cursor will move to the last Runway Field.

6) Press **ENTER** to select a blank runway in this field.

7) Press **RVR** on the keypad.

* 8) Display will fill all fields with RVR data (touchdown, midpoint, rollout, edge light setting, centerline light setting) for the runways selected.

NOTE

Runways not having a Midpoint and/or Rollout VS, the CD data field will be BLANK. If no Centerline lights exist, the centerline data field will be blank.

NOTE

If the touchdown RVR value for the first runway selected is greater than 6000 feet, install a calibration plate (set on HIGH range) on that VS before proceeding.

* 9) Record on the data sheet the Touchdown, Midpoint, Rollout RVR value for the first runway selected.

10) Press **LIMITS** on the keypad to put the CD into data entry mode for entering low visibility alarm limits.

NOTE

The CD screen Touchdown, Midpoint, Rollout data field will be BLANK; and the Trend Arrows will illuminate. Cursor will BLINK in the Touchdown field of the first runway.

11) Enter a 4 digit Numeric value GREATER THAN the Touchdown value recorded in step 9 , but less than 6500; and press ENTER. Cursor will move to Midpoint data field.

12) Enter a number LESS THAN the value recorded in step 9 for this field and Press **ENTER.** Cursor will move to Rollout data field.

* 13) Press **FILL.** Verify that the value entered in step 12 is copied into the Rollout data field.

* 14) Press **RVR** and the following will occur:

- CD will return to normal RVR display.
- Audio Alarm will sound three times and Visual Alarm will cause the Touchdown RVR value to blink.

* 15) Verify Audio Alarm stops and Visual Alarm continues.

* 16) Press **ALARM ACK** on keypad and verify Visual Alarm stops blinking.

17) Press **LIMITS** on the keypad to put the CD into data entry mode for entering low visibility alarm limits.

18) Press **->** key 3 times to move cursor to far right side of data field.

19) Press **DEL** four times to erase the value in the field, Enter "0000", press ENTER, press **FILL** twice, press **RVR**. This will set alarm limits to zero feet and return CD to normal display mode. This has the effect of turning off the low visibility alarm.

* 20) Push **M/F** switch UP and verify display values change to display RVR data in METERS. Displayed value will decrease.

* 21) Push **F/M** switch DOWN and verify display values change to display RVR data in FEET.

22) PROCEDURE COMPLETE.

3.5.4 <u>Final CD site test.</u>

a) Verify that all items on the data sheet have been filled out.

b) If any failures occurred during this test, take the appropriate corrective action and repeat that portion of the test until the failure is corrected.

c) Record all discrepancies and corrective action taken on the data sheet.

d) After all tests have passed, have the SFO manager sign and date the data sheet.

e) The CD is operating correctly.

<u>CAUTION</u>

Remove the Calibration Plate form VS if one was installed in step 3.5.3(c)(8).

Attachment 1

(Configuration Data Sheets)

NEW GENERATION RVR
CONFIGURATION DATA SHEET

Airport Name: _____

Data Processing Unit Serial No. _____

Ambient Light Sensor Data:

Location on Airport	ALS SN.	SIE SN.	DPU Ch. No.

Visibility Sensor Data:

R/W & location	VS SN.	SIE SN.	DPU Ch. No.	DPU Logical Name

Controller Display Serial Number's:

NEW GENERATION RVR
CONFIGURATION DATA SHEET (continued)

Runway Light Intensity Monitor Data:
(Mark **N/A** where it applies)

R/W	SIE SN.	DPU Ch. No.	DPU Logical Name	Current Sensor's Ch.No.	Edge/Center	Amp.
----	-------	--------	----------	1	---------	----
				2	---------	----
				3	---------	----
				4	---------	----
----	-------	--------	----------	1	---------	----
				2	---------	----
				3	---------	----
				4	---------	----
----	-------	--------	----------	1	---------	----
				2	---------	----
				3	---------	----
				4	---------	----
----	-------	--------	----------	1	---------	----
				2	---------	----
				3	---------	----
				4	---------	----
----	-------	--------	----------	1	---------	----
				2	---------	----
				3	---------	----
				4	---------	----
----	-------	--------	----------	1	---------	----
				2	---------	----
				3	---------	----
				4	---------	----
----	-------	--------	----------	1	---------	----
				2	---------	----
				3	---------	----
				4	---------	----
----	-------	--------	----------	1	---------	----
				2	---------	----
				3	---------	----
				4	---------	----

Page 2 of 2

Attachment 2

(Data Processing Unit Data Sheets)

DATA PROCESSING UNIT CHECK SHEET

DPU SN. _____

STEP		Pass/Fail
3.1.1(a)	AMBER light illuminates.	_____
3.1.1(c)	Front panel LEDs illuminate as described.	_____
3.1.1(e)	Front panel LEDs illuminate as described.	_____
3.1.1(f)	Front panel LEDs illuminate as described.	_____

3.1.2(f)

Voltage	Tolerance	Measured Value	Pass/Fail
+5 vdc	+4.75 to +5.25	_____	_____
-5 vdc	-5.25 to -4.75	_____	_____
+12 vdc	+11.4 to +12.6	_____	_____
-12 vdc	-12.6 to -11.4	_____	_____

3.1.3(b) Refer to Configuration Data Sheet in Attachment I.

3.1.4(c)(5)

Was it deleted? _____ or
assigned a security level of **0**? _____

		Pass/Fail
3.1.4(c)(7)	**YES** or **NO**? _____	_____
3.1.4(c)(9)	**YES** or **NO**? _____	_____
3.1.4(c)(11)	**YES** or **NO**? _____	_____

3.1.4(c)(13)

Current Date		Displayed Date	
_____	=	_____	_____

Current Time		Displayed Time		
_____	=	_____	± 1 minute	_____

Page 1 of 3

DATA PROCESSING UNIT CHECK SHEET (continued)

STEP		Pass/Fail
3.1.5(b)	All subsystems On-Line-Auto.	_____
3.1.5(d)	Enter data shown in this table.	_____

(Some lines may be blank)

R/W	TD	MP	RO	Edge	Center
____	_____	_____	_____	____	_____
____	_____	_____	_____	____	_____
____	_____	_____	_____	____	_____
____	_____	_____	_____	____	_____
____	_____	_____	_____	____	_____
____	_____	_____	_____	____	_____
____	_____	_____	_____	____	_____
____	_____	_____	_____	____	_____

ALS data value _____

STEP		Pass/Fail
3.1.6(c)	All diagnostic parameters are **NORMAL.**	_____
3.1.6(d)		

Measured Voltage step 3.1.2(f)		Displayed Value		Pass/Fail
_____	=	_____	± 5%	_____
_____	=	_____	± 5%	_____
_____	=	_____	± 5%	_____
_____	=	_____	± 5%	_____

END OF TEST

DATA PROCESSING UNIT CHECK SHEET (continued)

Discrepancies: _____

_____

_____

_____

_____

_____

_____

Resolution of Discrepancies: _____

_____

_____

_____

_____

_____

Installation Accepted and Passed _____
F & E Representative Date

_____
SFO Manager Date

Attachment 3

(Visibility Sensor Data Sheets)

VISIBILITY SENSOR DATA SHEET
(One set required for each Visibility Sensor site)

RUNWAY No. _____, SIE SN. _____, VS SN. _____

SENSOR LOCATION (ie. touchdown, midpoint, rollout) _____

STEP		Pass/Fail
3.2.1(b)(1)	AMBER light under switch illuminates.	_____
3.2.1(c)	**HEALTH LED** on top circuit card illuminates.	_____
3.2.1(d)	**HEALTH LED** on lower circuit card illuminates.	_____

3.2.2(c)

Voltage	Tolerance	Measured Value	Pass/Fail
+5 vdc	+4.75 to +5.25	_____	_____
-5 vdc	-5.25 to -4.75	_____	_____
+12 vdc	+11.4 to +12.6	_____	_____
-12 vdc	-12.6 to -11.4	_____	_____

3.2.3 NOTE: The value displayed at the MDT should be the same as the calibration plate value ± 5 %.

	Calibration Plate Value	Displayed Value	Pass/Fail
3.2.3(e) through (i)			
Low Range	_____	_____	_____
3.2.3(j) through (k)			
High Range	_____	_____	_____

3.2.4(d) All parameters display **OK**. _____

TX WC (snapshot) value _____
RX WC (snapshot) value _____

END OF TEST

VISIBILITY SENSOR DATA SHEET (continued)

Discrepancies: _____

_____

_____

_____

_____

_____

_____

Resolution of Discrepancies: _____

_____

_____

_____

_____

_____

Installation Accepted and Passed _____

F & E Representative Date

_____

SFO Manager Date

Attachment 4

(Ambient Light Sensor Data Sheets)

AMBIENT LIGHT SENSOR DATA SHEET

SENSOR LOCATION _____, SIE SN. _____, ALS SN. _____

STEP	Pass/Fail
3.2.1(b)(1) AMBER light under switch illuminates.	_____
3.2.1(c) **HEALTH LED** on top circuit card illuminates.	_____
3.2.1(d) **HEALTH LED** on lower circuit card illuminates.	_____

3.2.2

Voltage	Tolerance	Measured Value	Pass/Fail
+5 vdc	+4.75 to +5.25	_____	_____
-5 vdc	-5.25 to -4.75	_____	_____
+12 vdc	+11.4 to +12.6	_____	_____
-12 vdc	-12.6 to -11.4	_____	_____

3.3.3

	Calibration Value	Displayed Value	Pass/Fail
3.3.3(b)	VDL -0.1 to +0.05	_____	_____
	VBL -0.1 to +0.05	_____	_____
3.3.3(f)	VDL $\geq$ +4.0	_____	_____

3.2.4(g) All parameters display **OK.** _____

WINDOW CONTAM value _____

END OF TEST

AMBIENT LIGHT SENSOR DATA SHEET (continued)

Discrepancies: _____

_____

_____

_____

_____

_____

_____

Resolution of Discrepancies: _____

_____

_____

_____

_____

_____

Installation Accepted and Passed _____
F & E Representative Date

_____
SFO Manager Date

Attachment 5

(Runway Light Intensity Monitor Data Sheets)

RUNWAY LIGHT INTENSITY MONITOR DATA SHEET
(One set required for each RLIM sensor site)

RUNWAY No. _____, SIE SN. _____

CURRENT SENSOR (CS) LOCATION (mark N/A if not used)

CS SN.	Edge or Center Light Circuit.	Transformer Rating 6.6 or 20.0 AMP	RLIM Channel No.
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

STEP	Pass/Fail
3.2.1(b)(1) AMBER light under switch illuminates.	_____
3.2.1(c) **HEALTH LED** on top circuit card illuminates.	_____

3.2.2(c)

Voltage	Tolerance	Measured Value	Pass/Fail
+5 vdc	+4.75 to +5.25	_____	_____
-5 vdc	-5.25 to -4.75	_____	_____
+12 vdc	+11.4 to +12.6	_____	_____
-12 vdc	-12.6 to -11.4	_____	_____

RUNWAY LIGHT INTENSITY MONITOR DATA SHEET (continued)

3.4.3(f) through (g)

RLIM Channel No. 1 (mark N/A if not used)

Edge or Centerline circuit _____

If 6.6 AMP circuit, use this Table.

Step Setting	Tolerance	Measured Value	Pass/Fail
0	0.0 to 2.25 vac	_____	_____
1	2.35 to 2.85 vac	_____	_____
2	2.95 to 3.45 vac	_____	_____
3	3.55 to 4.20 vac	_____	_____
4	4.30 to 5.40 vac	_____	_____
5	5.40 to 7.15 vac	_____	_____

If 20.0 AMP circuit, use this Table.

Step Setting	Tolerance	Measured Value	Pass/Fail
0	0.0 to 2.25 vac	_____	_____
1	7.35 to 8.95 vac	_____	_____
2	9.05 to 10.95 vac	_____	_____
3	11.05 to 13.90 vac	_____	_____
4	14.00 to 17.00 vac	_____	_____
5	17.10 to 21.95 vac	_____	_____

RUNWAY LIGHT INTENSITY MONITOR DATA SHEET (continued)

RLIM Channel No. 2 (mark N/A if not used)

Edge or Centerline circuit _____

If 6.6 AMP circuit, use this Table.

Step Setting	Tolerance	Measured Value	Pass/Fail
0	0.0 to 2.25 vac	_____	_____
1	2.35 to 2.85 vac	_____	_____
2	2.95 to 3.45 vac	_____	_____
3	3.55 to 4.20 vac	_____	_____
4	4.30 to 5.40 vac	_____	_____
5	5.40 to 7.15 vac	_____	_____

If 20.0 AMP circuit, use this Table.

Step Setting	Tolerance	Measured Value	Pass/Fail
0	0.0 to 2.25 vac	_____	_____
1	7.35 to 8.95 vac	_____	_____
2	9.05 to 10.95 vac	_____	_____
3	11.05 to 13.90 vac	_____	_____
4	14.00 to 17.00 vac	_____	_____
5	17.10 to 21.95 vac	_____	_____

RUNWAY LIGHT INTENSITY MONITOR DATA SHEET (continued)

RLIM Channel No. 3 (mark N/A if not used)

Edge or Centerline circuit _____

If 6.6 AMP circuit, use this Table.

Step Setting	Tolerance	Measured Value	Pass/Fail
0	0.0 to 2.25 vac	_____	_____
1	2.35 to 2.85 vac	_____	_____
2	2.95 to 3.45 vac	_____	_____
3	3.55 to 4.20 vac	_____	_____
4	4.30 to 5.40 vac	_____	_____
5	5.40 to 7.15 vac	_____	_____

If 20.0 AMP circuit, use this Table.

Step Setting	Tolerance	Measured Value	Pass/Fail
0	0.0 to 2.25 vac	_____	_____
1	7.35 to 8.95 vac	_____	_____
2	9.05 to 10.95 vac	_____	_____
3	11.05 to 13.90 vac	_____	_____
4	14.00 to 17.00 vac	_____	_____
5	17.10 to 21.95 vac	_____	_____

RUNWAY LIGHT INTENSITY MONITOR DATA SHEET (continued)

RLIM Channel No. 4 (mark N/A if not used)

Edge or Centerline circuit _____

If 6.6 AMP circuit, use this Table.

Step Setting	Tolerance	Measured Value	Pass/Fail
0	0.0 to 2.25 vac	_____	_____
1	2.35 to 2.85 vac	_____	_____
2	2.95 to 3.45 vac	_____	_____
3	3.55 to 4.20 vac	_____	_____
4	4.30 to 5.40 vac	_____	_____
5	5.40 to 7.15 vac	_____	_____

If 20.0 AMP circuit, use this Table.

Step Setting	Tolerance	Measured Value	Pass/Fail
0	0.0 to 2.25 vac	_____	_____
1	7.35 to 8.95 vac	_____	_____
2	9.05 to 10.95 vac	_____	_____
3	11.05 to 13.90 vac	_____	_____
4	14.00 to 17.00 vac	_____	_____
5	17.10 to 21.95 vac	_____	_____

3.2.4(d) All parameters display **OK.** _____

END OF TEST

RUNWAY LIGHT INTENSITY MONITOR DATA SHEET (continued)

Discrepancies: _____

_____

_____

_____

_____

_____

_____

Resolution of Discrepancies: _____

_____

_____

_____

_____

_____

Installation Accepted and Passed _____
F & E Representative Date

_____
SFO Manager Date

Attachment 6

(Controller Display Data Sheets)

CONTROLLER DISPLAY DATA SHEET
(One set for each Controller Display)

Controller Display SN. _____

STEP		Pass/Fail
3.5.1(c)	**AC POWER** switch illuminates.	_____
3.5.1(d)	**HEALTH LED** on front panel illuminates.	_____

3.5.2(f)

Voltage	Tolerance	Measured Value	Pass/Fail
(Controller CCA)			
+5 vdc	+4.75 to +5.25	_____	_____
(LCD Driver CCA)			
+5 vdc	+4.75 to +5.25	_____	_____
-24 vdc	-26.4 to -21.6	_____	_____

3.5.3(b)(3)	Back lighting turns OFF	_____
3.5.3(b)(5)	Back lighting is full ON	_____
3.5.3(c)(3)	All configured runways plus a blank space are displayed (one at a time).	_____
3.5.3(c)(8)	Display shows all fields with RVR data (touchdown, midpoint, rollout, edge light setting, centerline light setting) for the runways selected.	_____
3.5.3(c)(9)	Touchdown Value _____	
	Midpoint value _____	
	Rollout value _____	
3.5.3(c)(13)	Value in Rollout field _____	_____
3.5.3(c)(14)	CD returned to normal RVR display.	_____
	- Audio Alarm sounded.	_____
	- Visual Alarm still displayed.	_____

CONTROLLER DISPLAY DATA SHEET (continued)

STEP		Pass/Fail
3.5.3(c)(16)	Audio Alarm stopped and Visual Alarm continued.	_____
3.5.3(c)(17)	Visual Alarm stopped blinking.	_____
3.5.3(c)(21)	Displays values in METERS.	_____
3.5.3(c)(22)	Displays values in FEET.	_____

END OF TEST

Discrepancies: _____

_____

_____

_____

_____

_____

_____

Resolution of Discrepancies: _____

_____

_____

_____

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_____

Installation Accepted and Passed _____
F & E Representative Date

_____
SFO Manager Date

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