



FieldServer Driver - Serial FS8700-74 Veeder-Root Serial Driver

Driver Code: VRoot
Version: 1.00a
Protocol Version: (576013-635 Revision J)
Document Rev: 1
Devices Supported: TLS-300 TLS-350 TLS-350R

Device	Tested
TLS-350	SITE

Interface: RS232 or RS-485 (Half-Duplex)
Baud Rates: Std Baud Rates up to 9600 (V-R limitation)
Data Bits: 7,8
Stop Bits: 1,2
Parity: Odd, Even, None
Handshaking: None

The Veeder-Root Serial driver is a client only driver. It is not capable of acting as a slave. I.e. It cannot emulate a Veeder-Root device.

The Veeder-Root Serial driver supports a limited set of functions defined by the Veeder-Root protocol specification (576013-635 Revision J).

The driver is capable of exposing communication statistics so that they can be monitored by a downstream device.

Only one Veeder-Root device may be connected to each port of the FieldServer. This limitation arises because the protocol is nodeless. (Messages do not identify the source/dest node.)

Alarms may be polled using two methods. The first method is to poll for the active alarm table or the system status and have the driver store alarm states for all the tanks/sensors reporting alarms. The second method is to poll for the alarm state or specific tanks/sensors.

The following table indicates the Veeder-Root functions / queries supported by the driver.



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Supported Functions

SYSTEM REPORTS (7.2.1)

- 101 1 System Status Report
- 102 1 System Configuration Report

- 113 14 Active Alarm Report
- 114 19 Cleared Alarm Report

IN-TANK REPORTS (7.2.2)

- 201 1 In-Tank Inventory Report
- 205 1 In-Tank Status Report
- 20C 15 In-Tank Most Recent Delivery Report
- 20D 15 In-Tank Stick Height Report

SENSOR REPORTS (7.2.3)

- 301 1 Liquid Sensor Status Report
- 306 1 Vapor Sensor Status Report
- 311 1 Groundwater Sensor Status Report
- 341 2 Type A (2 Wire CL) Sensor Status Report
- 346 2 Type B (3 Wire CL) Sensor Status Report
- 34B 4 Universal Sensor Status Report

LINE LEAK REPORTS (7.2.4)

- 381 7 Pressure Line Leak Status
- 386 10 WPLLD Line Leak Status

I/O DEVICE REPORTS (7.2.6)

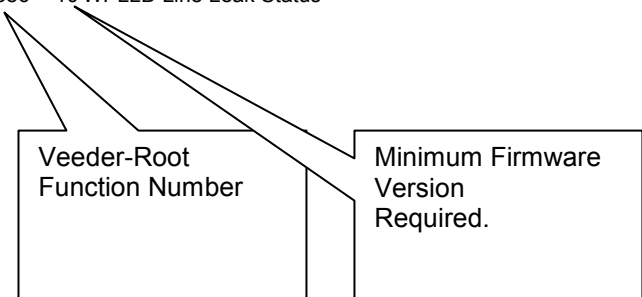
- 401 1 Input Status Report
- 406 1 Relay Status Report

SYSTEM DIAGNOSTIC REPORTS (7.4.1)

- 901 1 Self Test Results Report
- 902 1 System Revision Level Report
- 905 15 System Revision Level Report II

CONTROL FUNCTIONS (7.1)

- 1 1 System Reset
- 2 1 Clear Power Reset Flag
- 3 1 Remote Alarm Reset
- 31 10 Confirm Clear Function
- 51 1 Clear In-Tank Delivery Reports
- 52 1 Start In-Tank Leak Detect Test
- 53 1 Stop In-Tank Leak Detect Test
- 54 5 Delete CSLD Rate Table
- 81 7 Start Pressure Line Leak Test (3.0 GPH only in V18)
- 82 7 Stop Pressure Line Leak Test
- 83 10 Start WPLLD Line Leak Test (3.0 GPH only in V18)
- 84 10 Stop WPLLD Line Leak Test





Known Exclusions

CONTROL FUNCTIONS (7.1)

- 87 18 Start Pressure Line Leak Test by Type
- 88 18 Start WPLLD Line Leak Test by Type
- 89 19 Pressure Line Leak Pressure Offset Reset
- 90 19 WPLLD Line Leak Pressure Offset Reset
- 91 15 Close Current Shift

OPERATIONAL REPORTS (7.2)

SYSTEM REPORTS (7.2.1)

- 111 2 Priority Alarm History Report
- 112 2 Non-Priority Alarm History Report

- 116 119 Service Report History

IN-TANK REPORTS (7.2.2)

- 202 1 In-Tank Delivery Report
- 203 1 In-Tank Leak Detect Report
- 204 1 In-Tank Shift Inventory Report
- 206 1 In-Tank Alarm History Report

SENSOR SETUP (7.3.5) (Continued)

- 711 1 Set Groundwater Sensor Configuration
- 712 1 Set Groundwater Sensor Location Label
- 713 2 Set Groundwater Sensor Category
- 741 2 Set Type A (2 Wire CL) Sensor Configuration
 - Set Type A (2 Wire CL) Sensor Location
- 742 2 Label
- 743 2 Set Type A (2 Wire CL) Sensor Type
- 744 2 Set Type A (2 Wire CL) Sensor Category
- 746 2 Set Type B (3 Wire CL) Sensor Configuration
 - Set Type B (3 Wire CL) Sensor Location
- 747 2 Label
- 748 5 Set Type B (3 Wire CL) Sensor Type
- 749 2 Set Type B (3 Wire CL) Sensor Category
- 74B 4 Set Universal Sensor Configuration
- 74C 4 Set Universal Sensor Location Label
- 74D 4 Set Universal Sensor Type
- 74E 4 Set Universal Sensor Category

VOLUMETRIC LINE LEAK SETUP (7.3.6)

- 751 1 Set Volumetric Line Leak Configuration
- 752 1 Set Volumetric Line Leak Tank Number
- 753 1 Set Volumetric Line Leak 2 Inch Pipe Length
- 754 1 Set Volumetric Line Leak 3 Inch Pipe Length
- 755 1 Set Volumetric Line Leak Pump PSI
- 756 1 Set Volumetric Line Leak Piping Material
- 757 1 Set Volumetric Line Leak Shutdown Rate
- 758 1 Set Volumetric Line Leak Pump Side Test
 - Set Volumetric Line Leak Test Type & Start
- 759 1 Time
- 75A 1 Set Line Leak Lockout Schedule (All Types)
- 75B 2 Set Line Disable Alarm Assignments

VOLUMETRIC LINE LEAK SETUP (7.3.6) (Continued)

- 75C 2 Set Volumetric Line Leak Last Annual Test
- 75D 4 Set Volumetric Line Leak Dispense Mode
- 75E 4 Set Volumetric Line Leak Fuel Type
- 75F 5 Set Volumetric Line Leak Wait Method
- 760 6 Set Volumetric Line Leak Location Label



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207	2 In-Tank Leak Test History Report	761	7 Set Volumetric Line Leak Blend Partner
208	2 In-Tank Leak Test Results Report		PUMP SENSOR SETUP (7.3.7)
20A	110 HRM Adjusted Delivery Report		
20B	110 BIR Adjusted Delivery Report	771	2 Set Pump Sensor Configuration
		772	2 Set Pump Sensor Tank Number
		773	4 Set Pump Sensor Dispense Mode
211	14 Tank Chart Report		PRESSURE LINE LEAK SETUP (7.3.8)
221	116 Ticketed Delivery Report		
			Set Pressure Line Leak Low Pressure
225	116 Periodic Delivery Variance Report	77C	19 Shutoff
			Set Pressure Line Leak Altitude Pressure
226	116 Weekly Delivery Variance Report	77D	19 Offset
			Set Pressure Line Leak Secondary Pipe
227	116 Daily Delivery Variance Report	77F	17 Length
		780	7 Pressure Line Leak General Setup Inquiry
IN-TANK REPORTS (7.2.2) (Continued)		781	7 Set Pressure Line Leak Configuration
		782	7 Set Pressure Line Leak Label
			Set Pressure Line Leak 0.10 GPH Test
251	3 CSLD Results Report	783	7 Schedule
281	3 Fuel Management Report	784	7 Set Pressure Line Leak Shutdown Rate
282	119 FLS Diagnostic: Volume History Table	785	7 Set Pressure Line Leak Tank Number
200	14 In-Tank Stored Inventory Report	786	7 Set Pressure Line Leak Dispense Mode
			Set Pressure Line Leak Disable Alarm
SENSOR REPORTS (7.2.3)		787	7 Assignments
		788	9 Set Pressure Line Leak Piping Material
		789	9 Set Pressure Line Leak Primary Pipe Length
302	1 Liquid Sensor Alarm History Report	78A	11 Set Pressure Line Leak Sensor Type
			Set Pressure Line Leak 0.10 GPH Test
		78B	16 Schedule
			Set Pressure Line Leak 0.20 GPH Test
307	1 Vapor Sensor Alarm History Report	78C	12 Schedule
			Set Pressure Line Leak 0.1 GPH Auto Test
		78E	17 Enable
312	1 Groundwater Sensor Alarm History Report	78F	17 Set Pressure Line Leak Dispense Threshold
342	Type A (2 Wire CL) Sensor Alarm History 2 Report		RECONCILIATION SETUP (7.3.9)
347	Type B (3 Wire CL) Sensor Alarm History 2 Report	791	106 Set Mechanical Dispenser Interface String
		792	106 Set Electronic Dispenser Interface String
34C	4 Universal Sensor Alarm History Report	793	106 Set Reconciliation Auto Daily Closing Time
		794	106 Set Auto Shift Closing Time 1
LINE LEAK REPORTS (7.2.4)		795	106 Set Periodic Reconciliation Mode
		796	106 Set Periodic Reconciliation Report Length
351	1 Volumetric Line Leak Result Report	797	106 Set Periodic Reconciliation Alarm Flag

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352	1 Volumetric Line Leak Alarm History Report	798	106 Set Periodic Reconciliation Alarm Threshold
353	2 Volumetric Line Leak Pump Status	799	106 Set Periodic Reconciliation Alarm Offset
373	Pressure Line Leak Test Results (with 0.20 14 test data)	79A	Set Remote Printer Reconciliation Report 106 Format
374	Pressure Line Leak Test History (with 0.20 14 test data)	79B	106 Set Shift Manual Adjustment Value
382	7 Pressure Line Leak Alarm History Report	79C	106 Set Daily Manual Adjustment Value
383	Pressure Line Leak Test Results (0.10 test 7 data only)	79D	106 Close Current Reconciliation Shift
384	Pressure Line Leak Test History (0.10 test 7 data only)	79E	106 Clear Tank Map Table
387	10 WPLLD Line Leak Alarm History Report	79F	108 Set BIR Temperature Compensation Flag
388	10 WPLLD Line Leak Test Results		
389	12 WPLLD Line Leak Test History		
MISCELLANEOUS REPORTS (7.2.5)		WIRELESS PLLD SETUP (7.3.10)	
391	10 Tanker Load Report	7A0	10 WPLLD Line Leak General Setup
I/O DEVICE REPORTS (7.2.6)		7A1	10 Set WPLLD Line Leak Configuration
402	1 Input Alarm History Report	7A2	10 Set WPLLD Line Leak Label
403	5 Input/Generator Alarm History Report	7A3	Set WPLLD Line Leak 0.20 GPH Test 10 Schedule
		7A4	10 Set WPLLD Line Leak Shutdown Rate
		7A5	10 Set WPLLD Line Leak Tank Number
		7A6	10 Set WPLLD Line Leak Dispense Mode
		7A7	10 Set WPLLD Line Disable Alarm Assignments
		7A8	10 Set WPLLD Line Leak Pipe Type
		7A9	10 Set WPLLD Line Leak Pipe Length
		7AA	11 Set WPLLD 0.10 GPH Test Schedule
		7AC	Set WPLLD Line Leak 0.10 GPH Test 17 Schedule
		7AF	Set WPLLD Line Leak Altitude Pressure 19 Offset
SETUP FUNCTIONS & REPORTS (7.3)		METER MAP & DELIVERY TICKET SETUP (7.3.11)	
SYSTEM SETUP (7.3.1)		7B1	110 Set BIR Meter/Tank mapping
501	1 Set Time of day	7B5	116 Set Ticketed Delivery
502	1 Set Shift Start Time 1		
503	1 Set Print Header Line 1		
504	1 Set System RS-232 Security Code		
505	1 Set System Type & Language Flags	I/O DEVICE SETUP (7.3.12)	
506	2 Set Periodic Test Needed Warning	7BC	19 Set Line Disable Alarm Assignments II
507	Set Days Before Periodic Test Needed 4 Warning	7BD	Set Pressure Line Disable Alarm 19 Assignments II
508	Set Days Before Periodic Test Needed 4 Alarm	7BE	Set WPLLD Line Disable Alarm Assignments 19 II
509	4 Set Annual Test Needed Warning	801	1 Set Input Configuration
50A	Set Days Before Annual Test Needed 4 Warning	802	1 Set Input Location Label
50B	4 Set Days Before Annual Test Needed		

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Alarm

50C	5 Set Remote Printer Page Eject Flag	803	1 Set Input Type
50D	8 Set Print Temperature Compensation Flag	804	4 Set Input Dispense Mode
50E	8 Set Temperature Compensation Value	806	1 Set Relay Configuration
50F	10 Set System Date/Time Display Format	807	1 Set Relay Location Label
511	110 Set BIR Shift Printouts Flag	808	1 Set Relay Alarm Assignments
512	110 Set BIR Daily Printouts Flag	809	2 Set Relay Orientation
513	10 Set Tanker Load Report Flag	80A	4 Set Relay Type
514	10 Set H-Protocol Height/Volume format	80B	4 Set Relay Tank Assignment
515	110 Set HRM - QPLD Monthly Printout	EEPROM SETUP (7.3.13)	
516	14 Set Re-direct Local Printout Flag		
517	15 Set System Type & Language Flags Set Secondary Language Code Page	851	107 Restore All Setup Data from EEPROM
518	15 Output Set PLLD & WPLLD Duration Before	852	107 Save All Setup Data to EEPROM
519	15 Precision Retest	853	107 Clear All Setup Data from EEPROM

MISCELLANEOUS SETUP (7.3.14)

SYSTEM SETUP (7.3.1) (Continued)

	Set Enable/Disable Auto Daylight Saving	881	9 Set Communication Port Data
51A	15 Time	882	9 Initialize Communication Port Data
	Set Start/End Daylight Saving Date and		
51B	15 Time	885	19 Set SiteLink Modem Type
51C	116 Set Ticketed Delivery Flag Enable	888	19 Communication Status Information
	Set Ticketed Delivery Temperature		
51D	116 Compensation Flag	891	108 Set AccuChart Calibration Restart
51E	116 Set Ticketed Delivery Close Day of Week	8BC	19 Set Relay Alarm Assignments II

COMMUNICATIONS SETUP (7.3.2)

SYSTEM DIAGNOSTIC REPORTS (7.4.1)

521	2 Set Receiver Configuration Flag		
522	2 Set Receiver Location Label		
523	2 Set Receiver Telephone Number		
524	2 Set Receiver Dialing Destination Type	903	106 PC Diagnostic Report
525	2 Set Receiver Port Number to Dial		
526	2 Set Receiver Retry Number		
527	2 Set Receiver Retry Delay Time		
528	2 Set Receiver Confirmation Report Flag		
529	19 Set Fax Auto Dial Method		
52A	3 Set Receiver Report List		
52B	3 Set Receiver Auto Dial Type and Start Time		
52C	3 Set Receiver Auto Dial On Alarms		
52D	17 Autodial Alarm Status		
52E	19 Set Delay for Autodial on Alarm Clear		
52F	19 Set Receiver Alarm Status		
531	8 Set RS-232 End of Message		

IN-TANK DIAGNOSTIC REPORTS (7.4.2)

A01	1 Probe Type and Serial Number
A02	1 Probe Factory Dry Calibration Values
A03	1 Probe Factory Wet Calibration Values
A04	1 Probe Updated Dry Calibration Values
A05	1 Probe Updated Wet Calibration Values
A06	1 Probe Segment Sensitivity Ratios
A10	1 Probe Last Sample Buffers
A11	1 Probe Fast Average Buffers
A12	1 Probe Standard Average Buffers

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WARNING ALARM & AUTO-PRINT SETUP (7.3.3)		A13	1 Probe Long Term Average Buffers
		A20	1 Probe Leak Test Flags - Present Test
		A22	2 Probe Leak Test Flags - Gross Test
532	Set Ticketed Variance Analysis Printout 116 Flags	A23	5 Tank Leak Test Averaging Buffers
533	Set Ticketed Delivery Book Variance 116 Printout Flags	A51	3 CSLD Diagnostics: Rate Table
534	Set Ticketed Delivery Variance Printout 116 Flags	A52	3 CSLD Diagnostics: Rate Test
546	15 Set Tank Periodic Test Needed Warning	A53	3 CSLD Diagnostics: Volume History Table
547	Set Days Before Tank Periodic Test 15 Needed Warning	A54	3 CSLD Diagnostics: Moving Average Table
548	Set Days Before Tank Periodic Test 15 Needed Alarm	A55	3 CSLD Diagnostics: Leak Test Status
549	15 Set Tank Annual Test Needed Warning	A61	110 HRM Diagnostic Report
54A	Set Days Before Tank Annual Test Needed 15 Warning	A62	112 HRM Daily History
54B	Set Days Before Tank Annual Test Needed 15 Alarm	A81	6 Fuel Management Diagnostic Report
54C	Set CSLD Evaporation Reid Vapor 19 Pressure Chart	A91	9 Power Outage Diagnostic Report
553	19 Set Line Re-Enable Method		
554	18 Set Periodic Line Leak Test Auto-Confirm	SENSOR DIAGNOSTIC REPORTS (7.4.3)	
555	18 Set Annual Line Leak Test Auto-Confirm	B01	1 Liquid Sensor Diagnostic Report
556	15 Set Line Periodic Test Needed Warning	B06	1 Vapor Sensor Diagnostic Report
557	Set Days Before Line Periodic Test Needed 15 Warning	B07	3 Vapor Sensor Concentration (PPM) Report
558	Set Days Before Line Periodic Test Needed 15 Alarm	B11	1 Groundwater Sensor Diagnostic Report
559	15 Set Line Annual Test Needed Warning	B21	Ground Temperature Sensor Diagnostic 1 Report
55A	Set Days Before Line Annual Test Needed 15 Warning	B41	Type A Sensor (2 Wire CL) Diagnostic 2 Report
55B	Set Days Before Line Annual Test Needed 15 Alarm	B46	Type B Sensor (3 Wire CL) Diagnostic 2 Report
5BC	19 Set Receiver Auto Dial on Alarm II	B4B	4 Universal Sensor Diagnostic Report
500	14 Set Inventory Record Time 1	LINE LEAK DIAGNOSTIC REPORTS (7.4.4)	
IN-TANK SETUP (7.3.4)		B50	1 Volumetric Line Leak Status
601	1 Set Tank Configuration	B51	Volumetric Line Leak Diagnostic Gross Test 1 History
602	1 Set Tank Product Label	B52	Volumetric Line Leak 0.1 & 0.2 GPH 1 Diagnostic History
603	1 Set Tank Product Code	B71	2 Pump Sensor Diagnostic
604	1 Set Tank 1 Point Full Height Volume	B7C	19 Pressure Line Leak Pressure Offset Test
605	1 Set Tank 4 Point Full	B7D	19 WPPLD Line Leak Pressure Offset Test



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606	1 Set Tank 20 Point Full	B7E	Pressure Line Leak Pressure Offset Monitor 19 Report
607	1 Set Tank Diameter	B7F	WPLLD Line Leak Pressure Offset Monitor 19 Report
608	1 Set Tank Tilt	B81	7 Pressure Line Leak Diagnostic Report
609	1 Set Tank Thermal Expansion Coefficient	B82	10 WPLLD Line Leak Diagnostic Report
60A	9 Set Tank Linear Calculated Full Volume	B83	WPLLD Line Leak Communication 10 Diagnostic Report
60B	15 Set Tank Stick Height Function Enable		
60C	15 Set Tank Stick Height Offset		LINE LEAK DIAGNOSTIC REPORTS (7.4.4) (continued)
610	1 Set Tank Delivery Delay		
611	1 Set Tank Leak Test Type & Start Time	B87	19 Pressure Line Leak 3.0 GPH Test Diagnostic Pressure Line Leak Mid-range Test
612	1 Set Tank Manifolder Partners	B88	19 Diagnostic
613	3 Set CSLD Probability of Detection	B89	19 Pressure Line Leak 0.2 GPH Test Diagnostic
614	5 Set CSLD Climate Factor	B8A	19 Pressure Line Leak 0.1 GPH Test Diagnostic
615	108 Set BIR Meter Data Present	B8B	19 WPLLD Line Leak 3.0 GPH Test Diagnostic
616	110 Set AccuChart Update Scheduling	B8C	19 WPLLD Line Leak Mid-range Test Diagnostic
618	19 Set Tank CSLD Evaporation Compensation	B8D	19 WPLLD Line Leak 0.2 GPH Test Diagnostic
619	19 Set Tank Stage II Vapor Recovery	B8E	19 WPLLD Line Leak 0.1 GPH Test Diagnostic
621	1 Set Tank Low Level Limit		RECONCILIATION
622	1 Set Tank High Level Limit		
623	1 Set Tank Overfill Level Limit	B91	108 AccuChart Diagnostics Report
624	1 Set Tank High Water Level Limit	B93	108 AccuChart Status Report
625	1 Set Tank Sudden Loss Limit	B94	108 AccuChart Calibration History Report
626	1 Set Tank Leak Alarm Limit	BA0	110 MDIM Totalizer Report
627	2 Set Tank High Water Warning Limit		RECONCILIATION REPORTS (7.5)
628	2 Set Tank Maximum Volume Limit		
629	2 Set Tank Delivery Required Limit	C01	Basic Inventory Reconciliation Daily "Row" 106 Report
62A	Set Tank Annual Leak Test Minimum 2 Volume	C02	Basic Inventory Reconciliation Daily 106 "Column" Report
		C03	Basic Inventory Reconciliation Shift "Row" 106 Report
IN-TANK SETUP (7.3.4) (Continued)		C04	Basic Inventory Reconciliation Shift "Column" 106 Report
		C05	Basic Inventory Reconciliation Periodic 106 "Row" Report
62B	2 Set Tank Last Annual Test	C06	Basic Inventory Reconciliation Periodic 106 "Column" Report
62C	2 Set Tank Periodic Test Type	C07	Basic Inventory Reconciliation Periodic 114 "Row" Report
62D	Set Enable/Disable Tank Leak Test Fail 2 Alarms	C08	Basic Inventory Reconciliation Periodic 114 "Column" Report
62E	3 Set CAP0 Probe Conductive Boot Flag	C09	Individual Basic Reconciliation Daily History 119 Diagnostic
62F	3 Set Mag Probe Float Size		



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630 3 Set Tank Leak Test Notify
631 5 Set Tank Leak Test Averaging
632 5 Set Tank Test Siphon Break
633 9 Set Leak Test Report Type
634 110 Set Tank HRM Reconciliation Warning Limit
635 110 Set Tank HRM Reconciliation Alarm Limit
Set Tank Periodic Leak Test Minimum
636 14 Volume
Set Tank AccuChart End Shape Type and
639 115 Factor
680 6 Fuel Management General Setup Inquiry
Set Fuel Management Delivery Needed
681 6 Warning
Set Fuel Management Automatic Report
682 6 Print Time
683 6 Set Fuel Management Average Daily Sales

SENSOR SETUP (7.3.5)

701 1 Set Liquid Sensor Configuration
702 1 Set Liquid Sensor Location Label
703 1 Set Liquid Sensor Type
704 2 Set Liquid Sensor Category
706 1 Set Vapor Sensor Configuration
707 1 Set Vapor Sensor Location Label
708 1 Set Vapor Sensor Alarm Threshold
709 2 Set Vapor Sensor Category

VARIANCE ANALYSIS REPORTS (7.6)

C10 116 Periodic Book Variance
C11 116 Weekly Book Variance
C12 116 Daily Book Variance
C20 116 Periodic Variance Analysis Report
C21 116 Weekly Variance Analysis Report
C22 116 Daily Variance Analysis Report
C25 119 Periodic Variance Analysis Daily Report