

History and release notes for the R&S® FSU Spectrum Analyzer

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FSU driver history

Revision	Date	Note
4.40.0	10/2009	<p>Driver update for FSU Spectrum Analyzer Firmware 4.4x</p> <ul style="list-style-type: none"> - New VIs <ul style="list-style-type: none"> - Old SEM VIs deleted - RSFSU Channel Power Weighting Filters.vi - RSFSU Reference Oscillator External PLL Bandwidth.vi - RSFSU Channel Power Adjust Ref Level Offset.vi - RSFSU Signal Statistics Mean Power Position.vi - RSFSU Third Order Intercept Positioning.vi - RSFSU SE Limit Start Stop.vi - RSFSU Configure SEM Range Start Stop - RSFSU Configure SEM Range Filter Type - RSFSU Configure SEM Range Bandwidth - RSFSU Configure SEM Range Sweep Time - RSFSU Configure SEM Range Reference Level - RSFSU Configure SEM Range RF Attenuation - RSFSU Configure SEM Range Transducer Factor - RSFSU Configure SEM Range Limits - RSFSU Configure SEM State - RSFSU Configure SEM List Evaluation - RSFSU Configure SEM Peak Search - RSFSU Configure SEM Preset Standard - RSFSU Configure SEM Reference Range - RSFSU Selected Reference Oscillator Source.vi - RSFSU Load Trace From File.vi - RSFSU Channel Power Standard Catalog.vi - RSFSU Channel Power User Standard Save.vi - RSFSU Channel Power User Standard Delete.vi - RSFSU Adjust Reference Level To Channel Power.vi - RSFSU Get Harmonic Distortion Bandwidth List.vi - RSFSU SEM Start Measurement.vi - RSFSU Restore SEM Standard Files.vi - RSFSU Get SEM Reference Range Position.vi - RSFSU SEM Sweep List Table.vi - Updated VIs <ul style="list-style-type: none"> - RSFSU SE Get Measurement Peak List.vi - moved to data group - RSFSU Channel Power Standard.vi - RSFSU Trace IQ Set.vi - RSFSU Trace IQ Sampling Rate.vi - RSFSU Reference Oscillator.vi - RSFSU Get WCDP Measurement.vi - RSFSU Get WCDP MS Measurement.vi - RSFSU Read WCDP Trace Data.vi - RSFSU Set Status Register.vi - RSFSU Get Status Register.vi
4.30.0	01/2009	<p>Driver update for FSU Spectrum Analyzer Firmware 4.3x</p> <ul style="list-style-type: none"> - New VIs <ul style="list-style-type: none"> - RSFSU IF Shift.vi - RSFSU IF Shift Frequency.vi - RSFSU Application Setup Recovery.vi - Digital Standard Group - Digital Modulation Group - RSFSU Digital Demodulation Record Len.vi - RSFSU Digital Demodulation Eval Line.vi - RSFSU Digital Demodulation Normalize.vi

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Revision	Date	Note
		<ul style="list-style-type: none"> - RSFSU Digital Demodulation Sideband.vi - RSFSU Digital Demodulation Wideband Path.vi - RSFSU Digital Meas Demod Filter.vi - RSFSU Digital Meas Result Group.vi - RSFSU Digital Meas Result.vi - RSFSU Digital Meas Result Rel (Abs).vi - RSFSU Digital Meas Result Length.vi - RSFSU Digital Meas EVM Calc.vi - RSFSU Signal Statistics Bars Count.vi - Fit Trace Group - Burst and Pattern Group - RSFSU CDP Sync To Slot.vi - RSFSU CDP User Defined CPICH.vi - RSFSU Phase Noise Frequency Tolerance Absolute.vi - Avionics Measurement - Digital Demodulation Group - RSFSU SEM Peak Search.vi - RSFSU SEM Mark All Peaks.vi - Vector Signal Analysis Group - Updated VIs - RSFSU Signal Statistics State.vi - RSFSU Phase Noise Trace Mode.vi - RSFSU SE Filter.vi - Analog Demodulation Group - RSFSU actWCDPMarkMeas.vi - RSFSU actWCDPMSMarkMeas.vi
4.21.0	02/2008	<p>Driver update for FSU Spectrum Analyzer Firmware 4.21</p> <ul style="list-style-type: none"> - Added support for FSU 43 and FSU 67 - List of options: <ul style="list-style-type: none"> - K5 GSM/EDGE (4.20) - K7 FM-Demodulator (4.20) - K8 Bluetooth (4.20) - K9 Power sensor measurements (4.20) - K30 Noise Figure and Gain Measurements (4.20) - K40 Phase Noise Measurements (4.20) - K70 Vector Signal Analysis, FSU-B73 (4.20) - K72 3GPP FDD Base Station Test (4.20) - K73 3GPP FDD User Equipment Test (4.20) - K74 3GPP HSDPA Base Station Test (4.20) - K76 TD-SCDMA Base Station Test (4.20) - K77 TD-SCDMA Mobile Station Test (4.20) - K82 cdma2000 Base Station Test (4.20) - K83 cdma2000/1xEV-DV Mobile Station Test (4.20) - K84 1xEV-DO Base Station Test (4.20) - K85 1xEV-DO Mobile Station Test (4.20) - New VIs: <ul style="list-style-type: none"> - RSFSU Get Transducer Active.vi - RSFSU Tracking Generator Ext Send Command.vi - RSFSU Get Active Limit Lines.vi - RSFSU Get ID String Factory.vi - RSFSU SEM List Evaluation State.vi - RSFSU SEM Peak Search.vi

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		<ul style="list-style-type: none"> - K5 option: - New VIs: <ul style="list-style-type: none"> - RSFSU GSM Modulation Spectrum List Average.vi - RSFSU GSM Extended Slot State.vi - RSFSU GSM Extended Slot.vi - RSFSU GSM Extended Slot Common Settings.vi - RSFSU GSM Extended Slot Parameters.vi - RSFSU GSM Extended Slot Limit Line Ctrl.vi - RSFSU GSM Extended Slot Limit Lines.vi - RSFSU Read Extended Slot Ptemplate Ref.vi - RSFSU Fetch Extended Slot Ptemplate Ref.vi - K7 option: - Updated VIs: <ul style="list-style-type: none"> - RSFSU Analog Demodulation Filter.vi ... High pass filter frequency value 20 Hz, Low pass filter frequency value 23.0 kHz added - New VIs: <ul style="list-style-type: none"> - RSFSU Analog Demod Filter Weigting.vi - RSFSU Analog Demod THD Unit.vi - K8 option: - New VIs: <ul style="list-style-type: none"> - RSFSU Get BTooth Packet Data Bits.vi - RSFSU Read BTooth FM Trace.vi - K9 option: - New VIs: <ul style="list-style-type: none"> - RSFSU PWR Meter Reference Level Offset State.vi - K30 option: - New VIs: <ul style="list-style-type: none"> - RSFSU Noise X Axis Frequency Display.vi - K72/K74 options: - Updated VIs: <ul style="list-style-type: none"> - RSFSU Read WCDP Trace Data.vi ... CWCDP help updated, ATRACE2 added - RSFSU Get WCDP Measurement.vi ... PSYMBOL and ACHannel added - RSFSU WCDP Measurement Mode.vi ... Frequency Error Vs. Slot measurement added - K73 option: - New VIs: <ul style="list-style-type: none"> - RSFSU CDP EVM Meas Interval.vi - Updated VIs: <ul style="list-style-type: none"> - RSFSU Get WCDP MS Measurement.vi ... values RHO, TOFF, EVMB, EVM, MTYP, ACH added - RSFSU Read WCDP Trace Data.vi ...RMS of EVM added - K77 option: - Updated VIs: <ul style="list-style-type: none"> - RSFSU CDP High Dynamic.vi ... available for K77. - K84 option:

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		<ul style="list-style-type: none"> - New VIs: - RSFSU CDP PVT List Eval.vi - RSFSU CDP PVT Burst Fit.vi - RSFSU CDP PVT Restart On Fail.vi - RSFSU Read EVDO BTS Power vs Time List Evaluation.vi - Updated VIs: - RSFSU SEM Peaks Per Range.vi ... supported with K84 - RSFSU SEM Margin.vi ... supported with K84 - RSFSU SEM Results.vi ... supported with K84 - RSFSU Get 1xEV-DO CDP Measurement.vi ... PDMMax, PDMIn, IPMMax added
4.0.0	12/2006	<p>Driver update for FSU Spectrum Analyzer Firmware 4.01</p> <ul style="list-style-type: none"> - List of options: - K5 GSM/EDGE (4.00) - K7 FM-Demodulator (3.80) - K8 Bluetooth (3.80) - K9 Power sensor measurements (3.80) - K30 Noise Figure and Gain Measurements (4.00) - K40 Phase Noise Measurements (4.00) - K70 Vector Signal Analysis (4.00) - K72 3GPP FDD Base Station Test (4.00) - K73 3GPP FDD User Equipment Test (4.00) - K74 3GPP HSDPA Base Station Test (3.80) - K76 TD-SCDMA Base Station Test (4.00) - K77 TD-SCDMA Mobile Station Test (4.00) - K82 cdma2000 Base Station Test (4.00) - K83 cdma2000/1xEV-DV Mobile Station Test (4.00) - K84 1xEV-DO Base Station Test (4.00) - K85 1xEV-DO Mobile Station Test (4.00) - New VIs: Marker Search Auto (rsfsu_actMarkSearchAuto) RSFSU Get Active Window (rsfsu_actGetActiveWindow) RSFSU Store Marker to File (rsfsu_actMarkerToFile) RSFSU Phase Noise Auto Peak Search (rsfsu_confSAMMarkPhaseNoiseAutoPeakSearch) RSFSU SE List Evaluation State (rsfsu_confSELListEvaluationState) RSFSU SE Limit (rsfsu_confSELimit) Memory Size on Boards (rsfsu_memSizeBoards) - Updated VIs: RSFSU Channel Power Standard.vi RSFSU Read WCDP Trace Data.vi RSFSU Analog Demod Phase Wrap.vi - fixed - K7 - Updated VIs: RSFSU Vector Signal Analysis Mode.vi - K9 - New VIs RSFSU PWR Meter Meas Time Manual.vi - K72/73/74 - Updated VIs:

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		<p>RSFSU Read WCDMA Trace Data.vi RSFSU WCDP Measurement Mode.vi RSFSU WCDP Channel Table Data.vi RSFSU Read WCDP Trace Data.vi</p> <ul style="list-style-type: none"> - K76 <ul style="list-style-type: none"> - New VIs RSFSU CDP High Dynamic.vi - Updated VIs <ul style="list-style-type: none"> RSFSU Configure CDP Measurement.vi RSFSU CDP Channel Table Data.vi - K84 <ul style="list-style-type: none"> - New VIs RSFSU CDP Revision.vi - Updated VIs <ul style="list-style-type: none"> RSFSU Get 1xEV-DO CDP Measurement.vi
3.8.0	03/2005	<p>Modifications:</p> <ul style="list-style-type: none"> - Driver update for Firmware 3.81 - Format returned to ASCII after finished transmission of REAL,32 data: <ul style="list-style-type: none"> - RSFSU Read Trace Data.vi - RSFSU SEM Results.vi - RSFSU Write Trace Data.vi - RSFSU Read Trace IQ Data.vi - RSFSU Read Memory IQ Data.vi - RSFSU Read WCDP Trace Data.vi - RSFSU SE Measurement Results.vi - Synchronization change implemented in: <ul style="list-style-type: none"> - RSFSU Self-Test.vi - RSFSU Read Level Time Values.vi - RSFSU Get BTooth Exceptions.vi - RSFSU Get BTooth Power Of Channels.vi - RSFSU Get BTooth Power Control.vi - RSFSU Get BTooth Output Power.vi - RSFSU Get Power Of Signal Pulses.vi - RSFSU Get Analog Demod Result Values.vi - RSFSU Get Peak Values.vi - Fixed RSFSU Channel Power Standard.vi - Added RSFSU Get Marker Position.vi - Driver update for FSU Spectrum Analyzer Firmware 3.81 <ul style="list-style-type: none"> - List of options: <ul style="list-style-type: none"> - K5 GSM/EDGE (3.80) - K7 FM-Demodulator (3.80) - K8 Bluetooth (3.80) - K9 Power sensor measurements (3.80) - K30 Noise Figure and Gain Measurements (3.80) - K40 Phase Noise Measurements (3.80) - K70 Vector Signal Analysis (3.80) - K72 3GPP FDD Base Station Test (3.80) - K73 3GPP FDD User Equipment Test (3.80) - K74 3GPP HSDPA Base Station Test (3.80) - K76 TD-SCDMA Base Station Test (3.80) - K77 TD-SCDMA Mobile Station Test (3.80)

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		<ul style="list-style-type: none"> - K82 cdma2000 Base Station Test (3.80) - K83 cdma2000/1xEV-DV Mobile Station Test (3.80) - K84 1xEV-DO Base Station Test (3.80) - K85 1xEV-DO Mobile Station Test (3.80) <ul style="list-style-type: none"> - New VIs - RSFSU Conversion Loss Table Catalog.vi <ul style="list-style-type: none"> - RSFSU Limit Lines Catalog.vi - RSFSU Transducer Catalog.vi - RSFSU List Power Set Average Type.vi - RSFSU Marker Demodulation Squelch.vi - RSFSU Channel Power Alternate Channel Spacing.vi - RSFSU Channel Power Alternate Channel Bandwidth.vi - RSFSU Channel Power Mode.vi - RSFSU Channel Power Alternate Channel Limit .vi - RSFSU Signal Statistics Scaling Units.vi - RSFSU Tracking Generator Power Sweep.vi - RSFSU Trace Results.vi - RSFSU Trace Level.vi - RSFSU Get CCDF Statistics.vi - RSFSP ID String Factory.vi - RSFSU SE Get Number Of Ranges.vi <p>Updated Vis:</p> <ul style="list-style-type: none"> - RSFSU Emulation.vi - RSFSU Channel Power Channels.vi - RSFSU Channel Power Channel Opt.vi - RSFSU Channel Power Meas Limit.vi - RSFSU Get ACP Limit Check.vi - RSFSU Marker Search N dB.vi - RSFSU Read WCDP Trace Data.vi <ul style="list-style-type: none"> - K5 <ul style="list-style-type: none"> - New VIs: <ul style="list-style-type: none"> - RSFSU GSM IFRF Power as IQ Trigger.vi <ul style="list-style-type: none"> - K7 <ul style="list-style-type: none"> - New VIs: <ul style="list-style-type: none"> - RSFSU Analog Demod Auto Tune.vi - RSFSU Analog Demodulation Filter Relative.vi <ul style="list-style-type: none"> - K40 <ul style="list-style-type: none"> - New VIs: <ul style="list-style-type: none"> - RSFSU Phase Noise Trace Math State.vi - RSFSU Phase Noise Trace Math Expression.vi - RSFSU Phase Noise Marker Zoom.vi - Updated VIs: <ul style="list-style-type: none"> - RSFSU Phase Noise Trace Mode.vi <ul style="list-style-type: none"> - K72/73/74 <ul style="list-style-type: none"> - New VIs: <ul style="list-style-type: none"> - RSFSU CDP HSDPAUPA State.vi - RSFSU WCDP MS Channel E-DPDCH.vi - RSFSU WCDP MS Channel E-DPDCH Table Data.vi - Updated VIs: <ul style="list-style-type: none"> - RSFSU WCDP Channel Table Data.vi

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		<ul style="list-style-type: none"> - K82 - New VIs: <ul style="list-style-type: none"> - RSFSU SEM Peaks Per Range.vi - RSFSU SEM Margin.vi - RSFSU Store Spectrum Emission Mask to File.vi - RSFSU SEM Search Peak.vi - RSFSU SEM Results.vi
1.8.3	11/2005	Modifications Fixed VI: <ul style="list-style-type: none"> - RSFSU Fetch Noise Measurement Result (Array).vi
1.8.2	08/2005	Modifications Fixed VI: <ul style="list-style-type: none"> - RSFSU Trace IQ Set.vi
1.8.1	08/2005	Modifications Fixed VIs: <ul style="list-style-type: none"> - RSFSU Noise Gain Trace Settings.vi - RSFSU Noise 2nd Stage Correction State.vi - RSFSU Noise Trace Settings.vi
1.8	06/2005	<ul style="list-style-type: none"> - Driver update for FSU Spectrum Analyzer Firmware 3.61 - List of changed options: <ul style="list-style-type: none"> - K5 GSM/EDGE (3.60) - K7 FM-Demodulator (3.60) - K9 Power sensor measurements (3.60) - K30 Noise Figure and Gain Measurements (3.60) - K40 Phase Noise Measurements (3.60) - K72 3GPP FDD Base Station Test (3.60) - K73 3GPP FDD User Equipment Test (3.60) - K74 3GPP HSDPA Base Station Test (3.60) - K76 TD-SCDMA Base Station Test (3.60) - K77 TD-SCDMA Mobile Station Test (3.60) - K82 cdma2000 Base Station Test (3.60) - K83 cdma2000/1xEV-DV Mobile Station Test (3.60) - K84 1xEV-DO Base Station Test (3.60) - K85 1xEV-DO Mobile Station Test (3.60) - New VIs: <ul style="list-style-type: none"> External Trigger Level.vi FFT Filter Mode.vi Harmonic Distortion State.vi Number Of Harmonics.vi Harmonic Resolution BW Auto.vi Channel Power Separate Channel Spacing.vi PWR Meter External Sensor.vi PWR Meter Type.vi PWR Meter Address.vi PWR Meter Sensor Cal Factor.vi PWR Meter Sensor Label.vi PWR Meter Sensor Select.vi Harmonic Distortion Adjust Settings.vi Get Harmonic Distortion Result Values.vi Get First Harmonic Frequency.vi Power Splitter State.vi Power Splitter Insertion Loss.vi Power Splitter Path Loss.vi - Updated VIs <ul style="list-style-type: none"> Trace IQ Set.vi

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Revision	Date	Note
		<p>Set Status Register.vi Get Status Register.vi Vector Signal Analysis Mode.vi</p> <p>- Moved to Obsolete functions: Channel Power Channel Spacing.vi</p> <p>- Option FS-K40 (Phase Noise Measurements) - New functions: Phase Noise Scale.vi Phase Noise Autoscale Y.vi Phase Noise Center Freq.vi Phase Noise Start And Stop Freq.vi Phase Noise Resolution BW Type.vi Phase Noise Resolution BW Ratio.vi Phase Noise Ref Level.vi Phase Noise Ref Level Offset.vi Phase Noise Auto Level.vi Phase Noise Signal Level (RF).vi Phase Noise Sweep.vi Phase Noise Sweep Count.vi Phase Noise Sweep Direction.vi Phase Noise Sweep Display.vi Phase Noise Sweep Mode.vi Phase Noise Sub Channel RBW.vi Phase Noise Sub Channel RBW Type.vi Phase Noise Sub Channel Sweep Count.vi Phase Noise Verification State.vi Phase Noise Frequency Tolerance.vi Phase Noise Power Tolerance.vi Evaluation Range State.vi Evaluation Range Frequency.vi Phase Noise Limit Lines State.vi Phase Noise Limit Lines Operation.vi Phase Noise Limit Lines Data.vi Phase Noise Limit Lines Switch.vi Phase Noise Limit Lines Shift.vi Phase Noise Limit Lines Trace.vi Phase Noise Marker State.vi Phase Noise Marker Position (x).vi Phase Noise Marker Position (y).vi Phase Noise Marker to Trace.vi Phase Noise Marker All Off.vi Phase Noise Delta Marker State.vi Phase Noise Delta Marker Position (x).vi Phase Noise Delta Marker Position (y).vi Phase Noise Delta Marker to Trace.vi Phase Noise Delta Marker All Off.vi Phase Noise Spot Noise State.vi Phase Noise Spot Noise Position (x).vi Phase Noise Spot Noise All Off.vi Phase Noise Trace State.vi Phase Noise Trace Mode.vi Phase Noise Smoothing State.vi Phase Noise Smoothing Aperture.vi Phase Noise Mode.vi Phase Noise Scale Auto Adjust.vi</p>

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Revision	Date	Note
		Phase Noise Start Measurement.vi Phase Noise Start Measurement And Wait for OPC.vi Phase Noise Stop Measurement.vi Get Phase Noise Measurement Time.vi Phase Noise Limit Check Result.vi Phase Noise Limit Check Result Clear.vi Get Phase Noise Spot Noise Position (y).vi Fetch Phase Noise Result.vi
1.7.1	06/2005	Modifications - Fixed RSFSU Limit Lines Data.vi
1.7	04/2005	- Driver update for FSU Spectrum Analyzer Firmware 3.50 - List of options: - K5 GSM/EDGE (3.50) - K9 Power sensor measurements - K30 Noise Figure and Gain Measurements (3.50) - K70 Vector Signal Analysis (3.50) - K72 3GPP FDD Base Station Test (3.50) - K73 3GPP FDD User Equipment Test (3.50) - K74 3GPP HSDPA Base Station Test (3.50) - K76 TD-SCDMA Base Station Test (3.50) - K77 TD-SCDMA Mobile Station Test (3.50) - K82 cdma2000 Base Station Test (3.50) - K83 cdma2000/1xEV-DV Mobile Station Test (3.50) - K84 1xEV-DO Base Station Test (3.50) - K85 1xEV-DO Mobile Station Test (3.50) - Added software support for option FSU-B21 - List of updated and new VIs follow: Configuration Functions General Device Settings Input Group RSFSU External Mixer.vi RSFSU External Mixer LO Level.vi RSFSU External Mixer Signal.vi RSFSU External Mixer Parameters.vi RSFSU Default Conversion Loss.vi RSFSU Conversion Loss Table.vi RSFSU Conversion Loss Table Delete.vi System Setup Group RSFSU Reference Oscillator.vi (modified) RSFSU Generate Transducer Factor.vi Tracking Generator Mode RSFSU Tracking Generator Ext Select RSFSU Tracking Generator Ext Src Ref.vi Vector Signal Analysis Mode Config Group - Analog Demod RSFSU FM Demodulation.vi RSFSU FM Demodulation Filter.vi RSFSU FM Demodulation LowPass Filter Auto.vi RSFSU FM Demodulation Range.vi RSFSU FM Demodulation Range Auto.vi RSFSU Analog Demodulation Filter.vi GSM / EDGE MS/BTS Analysis Mode RSFSU GSM Burst Zoom Transition Number.vi RSFSU GSM Multi Carrier Mode State.vi

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Revision	Date	Note
		<p>Cdma2000 / 1xEV-DO / 3GPP WCDMA / TD-SCDMA MS/BTS</p> <p>RSFSU Configure WCDPower Measurement.vi (modified)</p> <p>RSFSU WCDP Measurement Mode.vi (modified)</p> <p>CDP Measurement Setting</p> <p>RSFSU CDP RRC Filter.vi</p> <p>RSFSU CDP Eliminate Tail Chips.vi</p> <p>RSFSU CDP Slot Difference.vi</p> <p>RSFSU CDP Slot Sets Count.vi</p> <p>RSFSU CDP Slot Set To Analyze.vi</p> <p>RSFSU CDP Scrambling Code.vi (modified))</p> <p>RSFSU CDP Long Code Mode.vi</p> <p>RSFSU CDP Constellation Parameter B.vi</p> <p>RSFSU CDP Power Control.vi (modified)</p> <p>WCDP Channel Table (MS)</p> <p>RSFSU WCDP MS Channel HS-DPCCH.vi</p> <p>RSFSU WCDP Channel Table.vi (modified)</p> <p>RSFSU WCDP Channel Table File.vi (modified)</p> <p>RSFSU WCDP Channel Table Name.vi (modified)</p> <p>RSFSU WCDP Channel Table Copy.vi (modified)</p> <p>RSFSU WCDP Channel Table Delete.vi (modified)</p> <p>RSFSU WCDP Channel Table Comment.vi (modified)</p> <p>RSFSU WCDP Channel Table Data.vi (modified)</p> <p>RSFSU WCDP Channel Table Catalog.vi (modified)</p> <p>Spurious Emissions</p> <p>RSFSU SE Attenuator Auto.vi</p> <p>RSFSU SE Attenuator.vi</p> <p>RSFSU SE Break Sweep.vi</p> <p>RSFSU SE Delete Range.vi</p> <p>RSFSU SE Detector.vi</p> <p>RSFSU SE Filter.vi</p> <p>RSFSU SE Measurement Results.vi</p> <p>RSFSU SE Pre-amplifier.vi</p> <p>RSFSU SE Ref Level.vi</p> <p>RSFSU SE Resolution Bandwidth.vi</p> <p>RSFSU SE Search Peaks.vi</p> <p>RSFSU SE Send Trigger And Wait for OPC.vi</p> <p>RSFSU SE Send Trigger.vi</p> <p>RSFSU SE Start And Stop Freq.vi</p> <p>RSFSU SE Sweep Mode.vi</p> <p>RSFSU SE Sweep Points.vi</p> <p>RSFSU SE Sweep Time Auto.vi</p> <p>RSFSU SE Sweep Time.vi</p> <p>RSFSU SE Transducer.vi</p> <p>RSFSU SE Video Bandwidth.vi</p> <p>Action/Status Functions</p> <p>General Device Settings</p> <p>Marker Group</p> <p>RSFSU Delta Marker Link.vi (modifie))</p> <p>File Group</p> <p>RSFSU File Decimal Separator.vi</p> <p>RSFSU Store SE To File.vi</p> <p>RSFSU Store Trace to File.vi</p> <p>RSFSU Trace IQ BW Extension.vi</p> <p>RSFSU File Directory Path.vi</p> <p>Signal Analysis Mode</p> <p>Measure Group</p> <p>Channel Power / ACP</p>

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		<ul style="list-style-type: none"> Adapt to Signal <ul style="list-style-type: none"> RSFSU Channel Power Stop Slot.vi RSFSU Channel Power Start Slot.vi RSFSU Channel Power Autorange.vi RSFSU Channel Power Autorange Result.vi RSFSU Channel Power Auto Adjust.vi RSFSU Channel Power Auto Adjust Result.vi GSM / EDGE MS/BTS Analysis Mode <ul style="list-style-type: none"> RSFSU GSM Burst Section.vi (modified) Lines Group <ul style="list-style-type: none"> RSFSU SEM Limit Line Check.vi (modified) Data Functions <ul style="list-style-type: none"> RSFSU Read Trace IQ Data.vi (modified) RSFSU Read Memory IQ Data.vi (modified) Spurious Emissions <ul style="list-style-type: none"> SE Measurement Results (rsfsu_dataSEMeasurementResults) Utility <ul style="list-style-type: none"> RSFSU Error Query.vi - Code maintenance: <ul style="list-style-type: none"> - I/O conversion specification fixed: <ul style="list-style-type: none"> Input: "%le" for DBL, "%ld" for I32 Output: "%.12f" for DBL "%ld" for I32 - Renamed VIs (old prototypes are moved to Obsolete & backward compability VIs section): <ul style="list-style-type: none"> RSFSU Channel Power Trigger Spacing.vi changed to RSFSU Channel Power Channel Spacing.vi RSFSU Channel Power Trigger Count.vi changed to RSFSU Channel Power Carrier Count.vi - Description of Channel Power Type parameter changed, code improved <ul style="list-style-type: none"> RSFSU Channel Power Meas Mode.vi RSFSU Adjust Channel Power Settings.vi RSFSU Get Channel Power Value.vi RSFSU Get Occupied Bandwidth Value.vi - Parameter range extended, description changed <ul style="list-style-type: none"> RSFSU Channel Power Reference Manual.vi RSFSU Resolution BW.vi - Trace IQ Group moved to the Trace Section in VI Tree - Fixed code (description) <ul style="list-style-type: none"> RSFSU Channel Power Standard.vi RSFSU Channel Power Auto Adjust Result.vi RSFSU Channel Power Autorange Result.vi RSFSU Get Peaks Values.vi - New additional functions <ul style="list-style-type: none"> RSFSU SE Start Measurement.vi RSFSU SE Start Measurement And Wait for OPC.vi RSFSU SE Stop Measurement.vi
1.6.2	09/2004	Modifications <ul style="list-style-type: none"> - Added: <ul style="list-style-type: none"> RSFSU Initiate Hardcopy To File.vi - Fixed: <ul style="list-style-type: none"> RSFSU Error Query.vi RSFSU Read Trace IQ Data.vi RSFSU Read Trace Data.vi RSFSU Read To File From Instrument.vi RSFSU Write From File To Instrument.vi

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		RSFSU Check Error.vi RSFSU Analog Demodulation Meas Time.vi RSFSU Signal Track.vi RSFSU Get Channel Power Value.vi RSFSU CDP C2k Channel Table Catalog.vi RSFSU WCDP Channel Table Catalog.vi RSFSU WCDP MS Channel Table Catalog.vi RSFSU Signal Statistics.vi RSFSU List Power State.vi RSFSU Analog Demodulation BW.vi RSFSU Coupling Settings.vi RSFSU Limit Lines Data.vi RSFSU Noise ENR Settings.vi RSFSU Noise Gain Trace Settings.vi RSFSU Noise Trace Settings.vi RSFSU Noise LO Frequency.vi RSFSU Noise Sweep Time.vi RSFSU Noise Loss Input Settings.vi RSFSU Noise Loss Output Settings.vi RSFSU Noise Ref Level.vi RSFSU Bluetooth Measurement Mode.vi RSFSU Get BTooth Output Power.vi RSFSU Set Status Register.vi RSFSU Channel Power Meas Mode.vi
1.6.1	07/2004	Modifications - Fixed RSFSU Read To File From Instrument.vi
1.6	04/2004	Modifications - Option checking added. - Parameters range checking added. - Error checking added.
1.5	04/2004	Modifications Driver update for FSU Spectrum Analyzer (Firmware 2.31/3.31 Support for FSU3, FSU8, FSU26, FSU46 and FSU50 List of updated options - K5 GSM/EDGE (2.30/3.30) - K72 3GPP FDD Base Station Test (2.30/3.30) - K73 3GPP FDD User Equipment Test (2.30/3.30) - K82 cdma2000 Base Station Test (2.30/3.30) List of new options: - K9 Power sensor measurements - K30 Noise Figure and Gain Measurements (2.30/3.30) - K74 3GPP HSDPA Base Station Test (2.30/3.30) - K76 TD-SCDMA Base Station Test (2.30/3.30) - K77 TD-SCDMA Mobile Station Test (2.30/3.30) - K83 cdma2000/1xEV-DV Mobile Station Test (2.30/3.30) - K84 1xEV-DO Base Station Test (2.30/3.30) - K85 1xEV-DO Mobile Station Test (2.30/3.30) Updated VIs (Base + Misc): - Channel Power Trigger Count.vi - value range extended - Channel Power Standard.vi - new WLAN standards added - Coupling Settings.vi - Filter Type range extended - Analog Demodulation Type.vi

FSU driver history

Revision	Date	Note
		<ul style="list-style-type: none"> - PM modulation added - Get Analog Demod Value.vi <ul style="list-style-type: none"> - AM and PM modulation added - Signal Statistics.vi <ul style="list-style-type: none"> - added additional parameter's items - Get N dB Down Marker Value.vi <ul style="list-style-type: none"> - Also available in zero span mode - Emulation.vi <ul style="list-style-type: none"> - parameter values added - Analog Demodulation Demod BW.vi <ul style="list-style-type: none"> - parameter values added - Analog Demodulation BW.vi <ul style="list-style-type: none"> - parameter values added - Analog Demod RF Param.vi <ul style="list-style-type: none"> - parameter values added - Limit Lines State.vi <ul style="list-style-type: none"> - added 'comment' parameter value - Limit Lines Parameters.vi <ul style="list-style-type: none"> - moved to obsolete functions - Set Limit Lines Offset.vi <ul style="list-style-type: none"> - moved to obsolete functions - Marker Opt.vi <ul style="list-style-type: none"> - fixed control description - WCDP Channel Table Data.vi <ul style="list-style-type: none"> - channel type (former pitch flag) is improved - Read WCDP Trace Data.vi <ul style="list-style-type: none"> - CWCDp and ABITstream added, functionality improved - Read WCDMA Trace Data.vi <ul style="list-style-type: none"> - description update, functionality improved - WCDP Measurement Mode.vi <ul style="list-style-type: none"> - new modes added, description changed - Get WCDP Measurement.vi <ul style="list-style-type: none"> - new meas added, description changed - WCDPower Mode.vi <ul style="list-style-type: none"> - option added, description changed - WCDPower MS Mode.vi <ul style="list-style-type: none"> - option added, description changed - Get C2k CDP Measurement.vi <ul style="list-style-type: none"> - description changed - Configure C2k Band Class.vi <ul style="list-style-type: none"> - additional classes added, skipped optional "[:BTS]", option added - Configure C2k Measurement.vi <ul style="list-style-type: none"> - skipped optional "[:BTS]", option added, parameter's item added - CDP Measurement Mode.vi <ul style="list-style-type: none"> - option added, parameter items added - SEM Limit Line.vi <ul style="list-style-type: none"> - option added - CDP Marker To.vi <ul style="list-style-type: none"> - option added - CDP C2k Channel Table File.vi <ul style="list-style-type: none"> - option added - CDP C2k Channel Table Name.vi <ul style="list-style-type: none"> - option added - CDP C2k Channel Table Data.vi <ul style="list-style-type: none"> - option added, parameters adjusted for options - CDP C2k Channel Table Comment.vi <ul style="list-style-type: none"> - option added

FSU driver history

Revision	Date	Note
		<ul style="list-style-type: none"> - CDP C2k Channel Table Copy.vi <ul style="list-style-type: none"> - option added - CDP C2k Channel Table Delete.vi <ul style="list-style-type: none"> - option added - CDP C2k Channel Table Catalog.vi <ul style="list-style-type: none"> - option added - CDP C2k Channel Table.vi <ul style="list-style-type: none"> - option added - C2k CDPower Mode.vi <ul style="list-style-type: none"> - description changed - CDP Inactive Channel Treshold.vi <ul style="list-style-type: none"> - option added - CDP Side Band.vi <ul style="list-style-type: none"> - option added - CDP Level Auto Adjust.vi <ul style="list-style-type: none"> - option added - CDP Code Number.vi <ul style="list-style-type: none"> - option added - CDP Signal Mapping.vi <ul style="list-style-type: none"> - option added - CDP Spreading Factor.vi <ul style="list-style-type: none"> - option added - CDP Normalize.vi <ul style="list-style-type: none"> - option added - CDP Q Invert.vi <ul style="list-style-type: none"> - option added - CDP Preference.vi <ul style="list-style-type: none"> - option added, additional item added - CDP C2k IQ Length.vi <ul style="list-style-type: none"> - option added, range checking changed - CDP C2k Order.vi <ul style="list-style-type: none"> - option added - CDP C2k Timing And Phase Offs.vi <ul style="list-style-type: none"> - option added - Read C2k Trace Data.vi <ul style="list-style-type: none"> - option added, functionality improved - CDP Scrambling Code.vi <ul style="list-style-type: none"> - option added - Set Active Window.vi <ul style="list-style-type: none"> - an alias command is provided (:DISPlay::SSElect) <p>New VIs:</p> <ul style="list-style-type: none"> RSFSU 1xEV-DO CDPower Mode.vi RSFSU 1xEV-DO CDPower MS Mode.vi RSFSU Analog Demod Phase Wrap.vi RSFSU Analog Demod PM Units.vi RSFSU Analog Demod Zero Phase Ref Point.vi RSFSU C2k CDPower MS Mode.vi RSFSU CDP Analysis Base.vi RSFSU CDP Averaging.vi RSFSU CDP C2k Channel Table Restore.vi RSFSU CDP Channel Table Catalog.vi RSFSU CDP Channel Table Comment.vi RSFSU CDP Channel Table Copy.vi RSFSU CDP Channel Table Data.vi RSFSU CDP Channel Table Delete.vi RSFSU CDP Channel Table File.vi

FSU driver history

Revision	Date	Note
		RSFSU CDP Channel Table Midamble Shift.vi RSFSU CDP Channel Table Name.vi RSFSU CDP Channel Table Order.vi RSFSU CDP Channel Table.vi RSFSU CDP Channel Type.vi RSFSU CDP Frame to Analyze.vi RSFSU CDP IQ Length.vi RSFSU CDP Long Code Mask.vi RSFSU CDP Long Code Offset.vi RSFSU CDP Midamble Shift.vi RSFSU CDP Operation Mode.vi RSFSU CDP Order.vi RSFSU CDP Overview Display.vi RSFSU CDP PN Offset.vi RSFSU CDP RF Slot.vi RSFSU CDP Signal Mapping Mode.vi RSFSU CDP Slot.vi RSFSU CDP Standard.vi RSFSU CDP Subframes.vi RSFSU CDP Switching Point.vi RSFSU CDP Timing And Phase Offset.vi RSFSU Configure CDP Measurement.vi RSFSU Fetch Noise Measurement Result (Array).vi RSFSU Fetch Noise Measurement Result (Scalar).vi RSFSU Fetch PWR Meter Result.vi RSFSU Frequency Axis Mode.vi RSFSU Get 1xEV-DO CDP Measurement.vi RSFSU Get 1xEV-DO CDP MS Measurement.vi RSFSU Get Sweep Count.vi RSFSU Get TD-SCDMA CDP Measurement.vi RSFSU GSM Burst Meas Filter.vi RSFSU GSM Burst Search Threshold.vi RSFSU GSM Burst Search.vi RSFSU GSM Burst Time Meas High Resolution.vi RSFSU GSM Sync Search.vi RSFSU GSM Trigger Free Run.vi RSFSU Limit Check Result Clear.vi RSFSU Limit Lines Data.vi RSFSU Limit Lines Domain.vi RSFSU Limit Lines Margin.vi RSFSU Limit Lines Measurement Type.vi RSFSU Limit Lines Mode.vi RSFSU Limit Lines Offset.vi RSFSU Limit Lines Shift.vi RSFSU Limit Lines Switch.vi RSFSU Limit Lines Threshold.vi RSFSU Limit Lines Trace.vi RSFSU Limit Lines Units.vi RSFSU Noise 2nd Stage Correction State.vi RSFSU Noise 2nd Stage Correction.vi RSFSU Noise Average.vi RSFSU Noise DUT Range.vi RSFSU Noise DUT Settling Time.vi RSFSU Noise DUT Type.vi RSFSU Noise ENR Settings.vi RSFSU Noise ENR Table.vi RSFSU Noise Fixed IF Frequency.vi

FSU driver history

Revision	Date	Note
		RSFSU Noise Frequency Measurement.vi RSFSU Noise Frequency Table.vi RSFSU Noise Frequency.vi RSFSU Noise Gain Trace Settings.vi RSFSU Noise Generator Automatic Control.vi RSFSU Noise Generator Frequency.vi RSFSU Noise Generator Level.vi RSFSU Noise Generator Settings.vi RSFSU Noise Image Rejection.vi RSFSU Noise LO Frequency.vi RSFSU Noise Loss Input Settings.vi RSFSU Noise Loss Input Table.vi RSFSU Noise Loss Output Settings.vi RSFSU Noise Loss Output Table.vi RSFSU Noise Measurement Mode.vi RSFSU Noise Pre-amplifier.vi RSFSU Noise Pre-selector.vi RSFSU Noise Ref Level.vi RSFSU Noise Resolution Bandwidth.vi RSFSU Noise RF Attenuation.vi RSFSU Noise Start Frequency.vi RSFSU Noise Step Frequency.vi RSFSU Noise Stop Frequency.vi RSFSU Noise Sweep Time.vi RSFSU Noise Trace Display.vi RSFSU Noise Trace Settings.vi RSFSU PVT Limit Line.vi RSFSU PWR Meter Frequency Coupling.vi RSFSU PWR Meter Frequency.vi RSFSU PWR Meter Meas Time.vi RSFSU PWR Meter Reference Value.vi RSFSU PWR Meter Result Display.vi RSFSU PWR Meter Sensor Zeroing.vi RSFSU PWR Meter State.vi RSFSU PWR Meter Units.vi RSFSU Read C2k CDP Trace Data.vi RSFSU Read CDP Trace Data.vi RSFSU Read PWR Meter Result.vi RSFSU SEM Limit Line Check.vi RSFSU Setup Transducer Ref Level Adj.vi RSFSU TD-SCDMA CDPower Mode.vi RSFSU TD-SCDMA CDPower MS Mode.vi RSFSU Trigger Delay Compensation.vi RSFSU WLAN Spectrum Mask Select.vi
1.4.4	03/2004	Modifications: - Fixed RSFSU Setup Transducer Def.vi
1.4.3	01/2004	Modifications: - Added Remote-control command(s) to each VI's description - Sample rate value range changed RSFSU Trace IQ Set.vi RSFSU Trace IQ Sampling Rate.vi - File transfer from FSU to the PC and vice versa: RSFSU Read To File From Instrument.vi RSFSU Write From File To Instrument.vi - Minor changes in help text - Fixed connector: RSFSU Channel Power Meas Limit.vi

FSU driver history		
Revision	Date	Note
		RSFSU Get Analog Demod Value.vi RSFSU Initiate Hardcopy.vi RSFSU Marker Demodulation.vi
1.4.2	11/2003	Modifications: Changed function: RSFSP Trigger.vi
1.4.1	06/2003	Modifications: Modified structure of the FP Tree -For Agilent VISA Version L01 or higher and Agilent GPIB board added "/n" in I/O functions - Changed VIs are: RSFSU Copy Trace.vi RSFSU Read Trace Data.vi RSFSU Write Trace Data.vi - New VIs are: RSFSU Read WCDMA Trace Data.vi RSFSU Read WCDP Trace Data.vi RSFSU Read C2k Trace Data.vi This driver supports the options: B4, B9, B10, B12 B16, B25, K5, K7, K8, K72, K73, K82
1.3	04/2003	Modifications: - Added new Help for LabVIEW - New VI: RSFSU Marker Search Limits.vi - RSFSU Get Peaks Values.vi fixed command string - RSFSU Marker Search Parameter.vi Range checkig for Search Limits is skipped. This driver supports the options: B4, B9, B10, B12 B16, B25, K5, K7, K8, K72, K73, K82
1.2	01/2003,	Modifications: Added support for K82 and new functions for K72/K73 - Bug fixes: RSFSU CDP C2k Channel Table Data.vi RSFSU CDP Measurement Mode.vi RSFSU CDP Marker To.vi RSFSU Marker Search Parameter.vi RSFSU VI Tree.vi RSFSU GSM Trigger Adjust.vi RSFSU Read Trace IQ Data.vi - Added new VI's RSFSU RF Input YIG Filter Temp Corr.vi RSFSU Set Limit Line Spacing.vi RSFSU Set Param Limit Line Spacing.vi RSFSU Display Size.vi RSFSU Emulation.vi RSFSU Channel Power Trigger Spacing.vi RSFSU Channel Power Trigger Count.vi RSFSU Channel Power Reference Auto.vi RSFSU Channel Power Reference Man.vi RSFSU Configure C2k Band Class.vi RSFSU CDP Power Control.vi RSFSU Configure C2k Measurement.vi RSFSU CDP Measurement Mode.vi RSFSU CDP C2k PN Offset.vi RSFSU CDP C2k IQ Length.vi RSFSU CDP C2k Order.vi

FSU driver history		
Revision	Date	Note
		RSFSU CDP C2k Timing And Phase Offs.vi RSFSU CDP C2k Channel Table.vi RSFSU CDP C2k Channel Table File.vi RSFSU CDP C2k Channel Table Name.vi RSFSU CDP C2k Channel Table Copy.vi RSFSU CDP C2k Channel Table Delete RSFSU CDP C2k Channel Table Comment.vi RSFSU CDP C2k Channel Table Data.vi RSFSU CDP C2k Channel Table Catalog.vi RSFSU C2k CDPower Mode.vi RSFSU Get C2k CDP Measurement.vi RSFSU Self Test Result.vi RSFSU File Directory.vi - Modified VI's: RSFSU Channel Power Meas Mode.vi RSFSU Level Range.vi RSFSU CDP Inactive Channel Treshold.vi RSFSU CDP Side Band.vi RSFSU CDP Spreading Factor.vi RSFSU CDP Code Number.vi RSFSU CDP CPICH Slot.vi RSFSU CDP Normalize.vi RSFSU CDP Q Invert.vi RSFSU CDP Antenna Type.vi RSFSU Get Channel Power Value.vi RSFSU Adjust Channel Power Settings.vi RSFSU MS Set Channel.vi RSFSU CDP Level Auto Adjust.vi RSFSU CDP Marker To.vi This driver supports the options: B4, B9, B10, B12 B16, B25, K5, K7, K8, K72, K73, K82
1.1	07/2002	Modifications: - Added new VI's for supporting new options K72, K73, K8 - Minor bugfixes
1.0	05/2001	Driver created.

Additional Help for LabVIEW drivers

The LabVIEW instrument driver consists of a ZIP archive containing the driver sources (LLB and MNU files). In addition, the instrument driver documentation is included in compressed HTML format (Windows CHM help file) stored together with the LV driver sources.

Each VI's help is linked to the section in the "CHM" file that describes all the features of the VI.

- **LabVIEW 6.1** and higher an additional help topic can be accessed directly by pressing "[Click here for more help](#)" in the Context Help

LabVIEW 8.0 higher

Please use the LabVIEW 8 driver.

Remote control via LAN

Instrument Name and IP Address

In order to connect the instrument using VXI-11 or RSIB use the instrument name or the IP address.

Default Name of the Instrument

The R&S FSU is preconfigured for networks using DHCP (dynamic host configuration protocol). In these networks, an available IP address is automatically assigned to the R&S FSU. In this case the generator is identified via an unambiguous computer name in the network.

As **default** the name is composed of:

FSUx- (FSU3, FSU8, FSU26, FSU46 or FSU50)
Serial number (on the rear panel of the instrument)

Example: FSU8-100165

To find the instrument name and IP address with a keyboard connected to the instrument

For XP (Firmware 3.xx):

Instrument name: Start => Settings =>Control Panel => System => Computer Name
IP Address: Start => Settings =>Network Connections =>
Local Area Connection => Support

For NT (Firmware2.xx):

Instrument name: Start => Settings =>Control Panel => System => Network
IP Address: Start => Settings =>Control Panel => System => Network => Protocols =>
TCP/IP Protocol => Properties

To find the IP Address without a Keyboard connected to the instrument

If you need the IP-Address of the instrument send a "ping" command in the command prompt window.

Example

Ping FSU8-100265

If you do not know the name, connect a keyboard and use the procedure above.

VXI-11 Support

VXI-11 support since Firmware 3.6x (XP).

Use the instrument name or the IP address as **resourceName** in the rfsu_init function.

Example TCPIP:: FSU8-100265::INSTR
 TCPIP::192.168.1.33::INSTR

RSIB Interface

This driver supports remote control via RSIB. For more information see application note 1EF47

Use the instrument name or the IP address as **resourceName** in the rfsu_init function.

Example RSIB:: FSU8-100265::INSTR or
 RSIB::192.168.1.33::INSTR