

## ***3920 Version 1.7.8 Release Notes***

### **Version 1.7.8 Release Notes 05-06-2009**

Version 1.7.8 is compatible with all 3901, 3902 and 3920 models of the 3900 Series product line. Version 1.7.1 is the MINIMUM version required to be used with the new 3920 variant of the 3900 Series.

New features and functions universal to all 3900 Series products in this release:

#### **Standard Improvements and bug fixes to Overall System**

A selection for boot up configuration was added to the utilities menu. The new menu item is called Startup Options

Added sample setups for Daniels repeaters

Improved software upgrade reliability through USB (this will take affect on future upgrades)

Improved system stability / switching systems, analog routing etc

Fan speed will stay where set even after recalling setups

Fixed problem with network upgrade leaving message on screen

Fixed issue with switching gen level units from dBm to uV

#### **Analog Duplex System**

##### **Standard Improvements (Part of the 3900 Series standard Analog Duplex functions)**

Improved performance of AM SNR measurement

Improved DTMF Decode function

Added digits A-F to tone encoding

Changed the bottom of the squelch range from -130 to -140 dBm

#### **Analog Duplex Bug Fixes**

Fixed pass/fail limits issue with the frequency offset meter

Fixed problem with performing a user calibration while the Audio Analyzer tracker was on

Fixed issue with the distortion frequency not being recalled

Fixed issue with remote command not being able to select 152.3 Hz width for MOD or AF SINAD/Distortion

The remote command for selecting the SNR meter previously only selected the meters screen. It now selects the SNR meter.

#### **P25 and Smartnet/Smartzone**

### **Improvements (Part of the 3900 Series P25 functions)**

Added PPM measurement to P25 Frequency Error meter  
Added Send a Location Registration Response in P25 system  
Widened acceptance of symbol deviation when decoding P25 signals  
Added dBm units for audio level in P25 system  
Changed the P25 BER so that it does not count bit errors while it is trying to acquire sync  
Increased maximum number for average of transmitter and receiver BER meters

### **Options Added (Optional to the P25 functions)**

390XOPT606 - EF Johnson Radio Alignment Software  
390XOPT607 – BK DPHx Radio Alignment Software

### **P25 and Smartnet/Smartzone Bug Fixes**

Fixed issue with entering frequency instead of channel number in P25 / SN Trunking systems  
Resolved two issues with SN Trunking

- P25 handoff had wrong NAC
- No longer requires Implicit option

Fixed RCI problem that didn't allow 138 Hz to be used as the connect tone for SN/SZ  
Corrected issue with Signal Power meter not correcting for external loss correctly  
Fixed problem with limits not working correctly for frequency error meter  
Added units parameter to RCI command for Broadband Power meter

### **DMR**

Added Analog functions to DMR system  
Added Max Deviation for Each Symbol to Advanced Tile  
Added Decode for Color Code, Call ID and Unit ID in the DMR system  
Added capability of; transmitting BS activation bursts until the repeater wakes up; and then synchronizing the selected pattern to the outbound signal from the repeater

### **NXDN**

Added Encode / Decode for NXDN RAN

### **SpectrumAnalyzer**

Changes to Spectrum analyzer user interface. Removed the enable for the tracking generator and changed the drop down menu for Trk Gen to include Gen, TR, and off.  
Corrected issue with the full span button in the analyzer not actually moving the center frequency.  
Improved resolution of the Spectrum Analyzer marker level

## **TETRA BS**

Fixed issue with TETRA BS and BST1 offsets not working when first accessed  
Corrected problem with TETRA BS expected power not being saved

## **TETRA DM**

Fixed problem with TETRA DM operations status message function blanking display  
Fixed problem with save/recall not saving power level in TETRA DM

## **Version 1.7.7 Release Notes 12-16-2009**

Version 1.7.7 is compatible with all 3901, 3902 and 3920 models of the 3900 Series product line. Version 1.7.1 is the MINIMUM version required to be used with the new 3920 variant of the 3900 Series.

New features and functions universal to all 3900 Series products in this release:

### **Analog Duplex System**

The Analog Duplex engine has had some significant improvements in enhancements and options.

#### **Standard Improvements (Part of the 3900 Series standard Analog Duplex functions)**

Added 300Hz to 3KHz Band Pass Filter  
Added 3 kHz Low Pass Filter  
Added Frequency, Level and Duration headers to the Tone Encoding Screen  
Remote Command \*RST sets level to -130dBm and enables the generator

#### **Options Added (Optional to the Analog Duplex functions)**

Implemented Occupied Bandwidth measurement for Analog Duplex. Available under part number 390XOPT064 and includes power between markers.  
Improved functionality for the Audio Tracking Generator (390XOPT210) using the Audio Analyzer 390XOPT055

### **Analog Duplex Bug Fixes**

Fixed analog meter update and average rate.  
Fixed issue with AF Gen modulation signal slipping into RF modulation path.  
Fixed issue with Broadband Power meter limit RCI commands not accepting all units that are listed in the RCI document.  
Fixed issue TRIP Power meter limit RCI commands not accepting all units that are listed in the RCI document.  
Fixed issue with factory defaults sometimes leaving the Fgen units set to dBm

Fixed issue with Inband Power meter limit RCI commands not accepting all units that are listed in the RCI document.

Fixed issue with the AF:GEN:SOUR:FREQ RCI command parameter range

Fixed issue with the default units for the query RCI command  
:FETCh:AF:ANALyzer:LEVel?

Fixed issue with the Balanced AF Input Measurement Units selection not matching RCI documentation

## **P25 and Smartnet/Smartzone**

### **Improvements (Part of the 3900 Series P25 functions)**

#### **Improvements to 390XOPT200:**

Added LCO Encode Capabilities for P25 Traffic Channel Messages

Added “Unknown” for P25 voice frame ALG field for nonstandard values

Modified DataLink tile to read “Last LC Message” vs. “Last Trunking Command”

Added additional decode fields to Data Link Tile

#### **Improvements to 390XOPT201**

Added ability to place P25 Trunked call to UUT outside +/- 2.5MHz window.

#### **Improvements to 390XOPT207**

Added ability to perform Smartnet handoff outside +/- 2.5MHz window.

Added Sub Audible Demod Counter to meter tile

General Improvements to the Smartnet/Smartzone Analog and P25 modes

### **Options Added (Optional to the P25 functions)**

390XOPT210 - Simulcast Audio Analysis. Provides Audio Tracking Generator to sweep audio circuits. Specifically usable for Motorola Analog Simulcast tuning.

Implemented for 3920 only at this time.

390XOPT 214 - P25 Adjacent Status Broadcast Message

390XOPT 215 - P25 Secondary Control Channel Broadcast Messages

390XOPT 260 - P25 Performance Test Triggers. Allows for measurements on timing per TIA/EIA-102 CAAA-B

### **P25 and Smartnet/Smartzone Bug Fixes**

Fixed issue with registration refuse, deny and fail not working in the P25 trunking mode.

Fixed issue with P25 Generator port output Llevel jumping from -119dbm to -120dBm by 3dB

Fixed issues in P25 where the AF Level meter only updates once every 3 seconds.

Fixed problem with Smartnet/Smartzone P25 VM1 Pattern

Fixed issue with Smartnet/Smartzone Trunking with Analog Voice Channel only working with 105 connect tone

Fixed an issue with the RX BER meter

Fixed issues with Smartnet/Smartzone OBT Trunking and channel plans

## **DMR**

### **Improvements (Part of the 3900 Series DMR functions)**

Added capability to modify the standard 1031 pattern for Caller ID and Color Code to enable use of the 1031 pattern for BER on actual MotoTRBO and DMR systems,.

### **Options Added (Optional to the DMR functions)**

Added 390XOPT402 – DMR XML Channel Logger to log raw DMR symbols.

## **TETRA**

### **TETRA Bug Fixes**

Improved Switching Between TETRA Systems  
Fixed issue with TETRA RCI stopped responding after \*RST  
Fixed issue with TETRA MS call processing  
Fixed issue with MST1 Rx BER Samples Field  
Fixed issue with storing TETRA channel plan through remote

## **Platform**

### **Improvements (Part of the 3900 Series functions)**

Updated LINUX Printer drivers

### **Platform Bug Fixes**

Fixed general system switching instability  
Improved National Instruments Driver

## Version 1.7.6.2 Release Notes

07-24-2009

Version 1.7.6.2 is compatible with all 3901, 3902 and 3920 models of the 3900 Series product line. Version 1.7.1 is the MINIMUM version required to be used with the new 3920 variant of the 3900 Series.

New features and functions universal to all 3900 Series products in this release:

### Analog Duplex System

Added option 390XOPT210 - Analog Simulcast Option (Requires 390XOPT055)  
The option adds an audio tracking generator to the audio analyzer to allow swept measurements of audio response curves. Source and input can be front panel audio ports or used with modulation / demodulation.

Added option 390XOPT601 - XTS-3000 Autotest / Alignment (Requires 390XOPT200 and 390XOPT206) . This option allows automatic test and alignment of XTS-3000, ASTRO Sabre and ASTRO Spectra radios.

Added dBr function to FM Deviation meter.

### P25 System

Added option 390XOPT219 - X2 TDMA Test Suite  
This option provides functions for testing Motorola X2 TDMA P25 systems. Requires 390XOPT200 and 390XOPT201 (Available through Motorola Only)

Added option 390XOPT245 - X2 TDMA Mobile Emulator (Available through Motorola Only)

Added option 390XOPT261 - X2 TDMA Advanced Test Suite - Combines 390XOPT219 & 245 (Requires 390XOPT200 and 390XOPT201) - (Available through Motorola Only)

Added option 390XOPT230 - Off Air Monitor software for P25 message logging.  
Protocol analysis tool requires 390XOPT200 and 390XOPT206.

Enhanced Smartnet Smartzone Trunking to include Analog voice channel handoff.

### DMR System

Added the STD OB TSYNC pattern. This pattern is an outbound pattern, that a mobile with a transmit - receive offset, can synchronize to, enabling it to transmit.

Added the advanced analysis tile

## Other Systems

Added option 390XOPT402 - DMR XML Channel Logger Option (Requires 390XOPT400)

Added option 390XOPT420 - dPMR - ETSI 102-490

This option adds source and parametric measurements for dPMR ETSI 102-490 radio systems.

Added option 390XOPT421 - Autotest II for dPMR

Allows scripts to be written to automate tests and measurements for dPMR radios.

Added option 390XOPT440 - NXDN

This option adds source and parametric measurements for NXDN radio systems.

Added option 390XOPT441 - Autotest II for NXDN

Allows scripts to be written to automate tests and measurements for NXDN radios.

Added option 390XOPT460 - ARIB T98

This option adds source and parametric measurements for ARIB T98 radio systems.

Added option 390XOPT461 - Autotest II for ARIB T98

Allows scripts to be written to automate tests and measurements for ARIB T98 radios.

## All Systems

Added option 390XOPT064 - Power between markers function has been added to the spectrum and channel analyzers.

Changed minimum RF Frequency entry from 100 kHz to 20 kHz on RF Generator, Receiver and Spectrum Analyzer.

## Version 1.7.5.2 Release Notes

06-15-2009

Version 1.7.5.2 is compatible with all 3901, 3902 and 3920 models of the 3900 Series product line. Version 1.7.1 is the MINIMUM version required to be used with the new 3920 variant of the 3900 Series.

New features and functions universal to all 3900 Series products in this release:

#### Analog Duplex System

Added option 390XOPT090 - Chinese Language for Analog Duplex system

Added option 390XOPT064 - Power Bandwidth measurement

Resolved an issue with the Signal to Noise measurement function when using modulation sources.

#### Version 1.7.5 Release Notes

02-27-2009

Version 1.7.5 is compatible with all 3901, 3902 and 3920 models of the 3900 Series product line. Version 1.7.1 is the MINIMUM version required to be used with the new 3920 variant of the 3900 Series.

New features and functions universal to all 3900 Series products in this release:

#### Analog Duplex System

Changed AM Power measurements on IB Power meter to show true RMS power meter with AM Modulation applied.

Added Tone Signaling features:

Encode and Decode: ZVEI1, ZVEI2, ZVEI3, PZVEI, DZVEI, PDZVEI, CCIR1, CCIR2, PCCIR, EEA, EUROSIG, NATEL, EIA, MODAT

Encode and Decode: Two Tone Sequential

Encode and Decode: DTMF

Encode and Decode: Tone Remote

Improved RF Generator Leveling at low RF levels.

Added dBm and Watts selections with load factor entry to AF Level meter.

Updated the DCS Encoder to allow entry of any DCS code.

Improved FM Deviation measurements in the presence of carrier offset.

#### Spectrum Analyzer

Added 6 new markers for a total of 8 markers.

6 Vertical / 2 Horizontal

#### P25 System

Added additional speech patterns.

Added AFC pattern.

Fixed problems with KVL Keyloading of keys in ASN mode.

Fixed problems with encryption key id's.

Added autotune mode to find frequency of unknown transmitters.

Improved performance of all Trunking and Virtual Mobile functions.  
Added EMG bit, SID, MFID to Data Link Tile.  
Added P25 RX BER Meter.  
Improved Vocoder Audio Output.

#### DMR System

Corrected the STD IB 1031 pattern to allow audible tone to be heard in receiver under test.  
Added Magnitude Error Meter.

#### TETRA System

Improved Marker functions with Power Profile tile.  
Resolved issues with LED's not tracking selected ports for GEN/TR/ANT.  
Resolved issues with mobile registration

#### Autotest II System

Added XTS-5000 Automatic Alignment option (390XOPT600).  
Added LMR Auto test option (390XOPT603).

#### Other

Added Secure FTP capability (WinsSCP). User name: user\_3900, Password: 3900  
<http://winscp.net/eng/download.php>

Added support for Tight VNC (version 1.39)  
<http://www.tightvnc.com/download.html>

Added support for local network download of software updates.  
Added Aeroflex site for direct download of new software releases.  
\*STB remote command now indicates when a new reading is available.  
Added entry selection for Time Zone.

#### Version 1.7.4 Release Notes

Version 1.7.4 is compatible with all 3901, 3902 and 3920 models of the 3900 Series product line. Version 1.7.1 is the MINIMUM version required to be used with the new 3920 variant of the 3900 Series.

New features and functions universal to all 3900 Series products in this release:

#### Analog Duplex System

1. Added Modulator selection to Oscilloscope to view summed modulation sources.

2. Added 100 and 200 Hz scales to Oscilloscope Demod scales.
3. Added Two Tone sequential tone encoder tile.
4. Added feature to lock the Modulation Distortion / SINAD meter notch frequency to AF1 frequency.
5. Added feature to lock the Audio Distortion / SINAD meter notch frequency to the M1 frequency.
6. Added Log / Linear plot to Audio Analyzer option (390XOPT055)
7. Improved reliability of remote interface.
8. Improved Tracking Generator Leveling.
9. Improved AM Generator Leveling

#### P25 System

1. Added FM Analog Generate / Receive mode to P25 System (390XOPT200).
2. Added FM Analog metering to P25 System:
  - a. Audio Distortion Meter
  - b. Audio Frequency Meter
  - c. Audio Level Meter
  - d. Audio SINAD Meter
  - e. Broadband Power Meter
  - f. Demod Distortion Meter
  - g. Demod Frequency Meter
  - h. Demod SINAD Meter
  - i. FM Deviation Meter
  - j. In Band Power Meter
  - k. RF Frequency Error Meter
3. Added Demod Audio to Scope Display.
4. Added Peak / Avg selection to Modulation Fidelity meter.
5. Improved P25 Trunking Virtual Mobile simulation.
6. Improved P25 Data Link decoding.
7. Added KVL Keyloader / Cable option to P25 System (390XOPT209)
8. Added Smartnet / Smartzone Trunking for P25 Traffic channel handoffs (390XOPT207).

#### DMR

1. Added DMR (MOTOTRBO) parametric analysis system (390XOPT400).

#### Other:

There were many performance improvements / bug fixes implemented in this release.

#### Version 1.7.3 Release Notes

Version 1.7.3 is compatible with all 3901, 3902 and 3920 models of the 3900 Series product line. Version 1.7.1 is the MINIMUM version required to be used with the new 3920 variant of the 3900 Series.

New features and functions universal to all 3900 Series products in this release:

### Analog Duplex System

1. Added Pk-Pk / 2 Deviation meter scale.
2. Added selectable resolution to auto-tune 1 Hz, 100 Hz, 1 kHz.
3. Added selectable IB / BB power meter selection to Analyzers tile.
4. Added DCS and DCS INV Decode to Analyzers Tile.
5. Improved Squelch and Volume operation.
6. Analog Duplex Squelch will now produce flat line on scope when squelched.
7. Improved meter averaging functions.
8. Added additional DTMF key entries.
9. Added Power meter ranges 1 W, 2 W, 5 W.
10. Stabilized the audio filters to prevent oscillation.
11. Arbitrary H&N Reference remote command added.

### P25 System

1. Improved P25 Conventional operation.
2. Improved P25 C4FM, CQPSK and LSM synchronization.
3. Improved P25 Trunking operation.
4. Removed P25 patterns LDU1TRG and LDU2TRG.
5. Added P25 Trajectory Plot.
6. Corrected errors on signal encoding of P25 patterns.
7. Corrected errors on P25 data link decoding of MI field.

### TETRA:

1. Loopback function corrected for PowerPC based 3900s.

### Overall

1. Improved store and recall functions for all systems.
2. Return key can now be used to minimize an expanded tile.
3. Added Verification Procedure setups to setups directory. Version 1.7.2 and below had to be loaded from Maintenance CD ROM.
4. Added HPD setup files for testing Base Stations and Mobiles to Sample Setups.
5. Updated all pre-configured setup files for Analog and P25 in the Samples directory.
6. Added Manual / Auto mode to AC Power control in Hardware settings / operational status.

### Version 1.7.2 Release Notes

Version 1.7.2 is compatible with all 3901 and 3902 versions of the 3900 Series product line. Version 1.7.1 is the MINIMUM version required to be used with the new 3920 variant of the 3900 Series.

New features and functions universal to all 3900 Series products:

1. Improved P25 conventional operation (390XOPT200 P25 Conventional)

2. Improved P25 Trunking operation (390XOPT201 P25 Trunking)
  - a. Note: this option requires(390XOPT200 P25 Conventional)
3. Improved HPD performance (390XOPT300 HPD Testing Option)
4. Added DES Encryption as a standard feature to (390XOPT200 P25 Conventional)
5. Expanded features for Spectrum Analyzer and Tracking Generator
6. Added LSM Generate and Receive/Analysis option (390XOPT204)
  - a. Note: this option requires (390XOPT200 P25 Conventional)
7. Improved Save/Recall functions
  - a. Sample setups are now provided for basic Analog radio testing
  - b. Sample setups are now provided for aligning XTS-3000, XTS-5000, Quantar Base radios
8. Added new GPIB RCI commands
9. Improved Analog Duplex functions

#### Version 1.7.1 Release Notes

Version 1.7.1 is compatible with all 3901 and 3902 versions of the 3900 Series product line. In addition, Version 1.7.1 is the MINIMUM version required to be used with the new 3920 variant of the 3900 Series.

New features and functions universal to all 3900 Series products:

Supports new P25 conventional technology with 390XOPT200.

Expanded features for Spectrum Analyzer

Improved Save/Recall functions

Added new GPIB RCI commands

Improved Analog Duplex functions