General Caution

Please use a USB Memory Stick for firmware updates.

If there is a firmware update question, please contact Anritsu service support at
https://www.anritsu.com/test-measurement/contact-us for further information.

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What will the customer see in this release?

Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B
Application Package   : V4.50
Release Date   : Release Aug. 2022
Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

 -> Software - DMR2
[SPH-5000] Added signal generator Board ID to the S412E Application Self Test output.

 -> Software - NBFM
[SPH-5000] Added signal generator Board ID to the S412E Application Self Test output.

 -> Software - NXDN
[SPH-5000] Added signal generator Board ID to the S412E Application Self Test output.

 -> Software - P25/P25p2
[SPH-5000] Added signal generator Board ID to the S412E Application Self Test output.

 -> Software - PTC
[SPH-5000] Added signal generator Board ID to the S412E Application Self Test output.

 -> Software - TETRA
[SPH-5000] Added signal generator Board ID to the S412E Application Self Test output.

 -> Software - dPMR
[SPH-5000] Added signal generator Board ID to the S412E Application Self Test output.

*** IMPROVEMENTS ***

 -> Software - CAA
[SPH-5066] Added new Time Delay measurement in the DTF measurement screen (-S33xE -MT821xE -MW82119B). When a marker is used it will display both the DTF information and the Time Delay information. The Time Delay information will also display on the left-hand side and is also available within the marker table.
[SPH-5080] Added 4 additional cables to the standard cable list suite. -ACC014J50 (1/4) -AC012J50 (1/2) -AT078J50 (7/8) -AT114J50 (1 ¼).

 -> Software - VNA
[SPH-5080] Added 4 additional cables to the standard cable list suite. -ACC014J50 (1/4) -AC012J50 (1/2) -AT078J50 (7/8) -AT114J50 (1 ¼).

*** BUG FIXES ***

 -> Software - DMR2
[SPH-5046] Fixed S412E Tx Output Level value mismatch after measurement is saved or recalled in Watts.
[SPH-5071] Resolved an issue where S412E Tx Output Level unit in Volts did not recall correctly from a measurement file.

 -> Software - LTE
[SPH-4943] Fixed issue where transient messages will not clear and continue to stack up. One on top of the other while in single sweep.
[SPH-5051] Fixed issue with RSRQ LTE Measurement in MS2720T.

 -> Software - NBFM
[SPH-5046] Fixed S412E Tx Output Level value mismatch after measurement is saved or recalled in Watts.
[SPH-5071] Resolved an issue where S412E Tx Output Level unit in Volts did not recall correctly from a measurement file.

 -> Software - NXDN

[SPH-5046] Fixed S412E Tx Output Level value mismatch after measurement is saved or recalled in Watts.
[SPH-5071] Resolved an issue where S412E Tx Output Level unit in Volts did not recall correctly from a measurement file.

 -> Software - P25/P25p2

[SPH-4938] Fixed issue where the S412E CW generator FM deviation was not working.
[SPH-5046] Fixed S412E Tx Output Level value mismatch after measurement is saved or recalled in Watts.
[SPH-5071] Resolved an issue where S412E Tx Output Level unit in Volts did not recall correctly from a measurement file.

 -> Software - PDT

[SPH-5071] Resolved an issue where S412E Tx Output Level unit in Volts did not recall correctly from a measurement file.

 -> Software - PIM

[SPH-4978] Resolved issue where changes to default parameters on the PIM Hunting application are not maintained when leaving mode or when unit is turned off.

 -> Software - PTC

[SPH-5046] Fixed S412E Tx Output Level value mismatch after measurement is saved or recalled in Watts.
[SPH-5071] Resolved an issue where S412E Tx Output Level unit in Volts did not recall correctly from a measurement file.

 -> Software - SPA and Sub-apps

[SPH-4938] Fixed issue where the S412E CW generator FM deviation was not working.

 -> Software - TETRA

[SPH-5046] Fixed S412E Tx Output Level value mismatch after measurement is saved or recalled in Watts.
[SPH-5071] Resolved an issue where S412E Tx Output Level unit in Volts did not recall correctly from a measurement file.
[SPH-5082] Fixed issue in the S412E where the fm_1kHz_audio pattern does not work after a custom DL pattern is loaded or deleted.

 -> Software - dPMR

[SPH-5046] Fixed S412E Tx Output Level value mismatch after measurement is saved or recalled in Watts.
[SPH-5071] Resolved an issue where S412E Tx Output Level unit in Volts did not recall correctly from a measurement file.

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What will the customer see in this release?

Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B
Application Package   : V4.30
Release Date   : Quarterly Release April 2021
Information below may not apply to every model/option in Product list

*** NEW FEATURES ***
 -> Software - PIM
[SPH-4844] Added Support for MW82119B-0703 option.

*** IMPROVEMENTS ***
 -> Software - PIM
[SPH-4510] DTP overlay previously had to be re-applied/measured every time a user switched to another PIM measurement mode (Swept PIM or PIM vs. Time). with this fix the DTP overlay will stay active between PIM measurement modes. This will save the technician time in the field since they will only need a single DTP overlay measurement per antenna.

*** BUG FIXES ***
 -> Software - CAA
[SPH-5003] Fixed an issue were the default F1 and F2 frequencies for the MW82119B-0194 model were incorrect.
[SPH-5007] Resolved an issue where setting the option 28 CWSG frequency to 3 decimal places (1 kHz resolution) resulted in the actual CW frequency being rounded to 2 decimal places (10 kHz resolution).

 -> Software - SPA and Sub-apps
[SPH-4946] Fixed an issue with functionality of the PIM hunting measurement mode when recalling a setup file.
[SPH-4948] Fixed an issue were the PIM Hunting sweep time was not matching in the status window.
[SPH-5007] Resolved an issue where setting the option 28 CWSG frequency to 3 decimal places (1 kHz resolution) resulted in the actual CW frequency being rounded to 2 decimal places (10 kHz resolution).

 -> Software - PIM

[SPH-4674] Fixed an issue where the MW82119B-0700 PIM Master was not remembering non-default F1 and F2 settings.

[SPH-4954] Fixed an issue were user defined F1 and F2 values and calibration were lost going between High band and Low band in the MW82119B-0700 700 MHz PIM Master. The unit will now remember both the F1 and F2 values and the calibration between High band and Low band.

[SPH-4968] Resolved an issue when using the SCPI command (programming language) to recall the residual PIM value returning the wrong value.

[SPH-4975] Fixed an issue were the residual PIM calibration was not applied to F2 on the MW82119B-0700/-0701 PIM Master models at 20W with the Swept PIM measurement.

[SPH-4977] Fixed an issue in the MW82119B-0700 model that was setting the wrong IM range for Swept PIM measurements after the user makes PIM vs. Time measurements in both Low Band and High Band before making a swept PIM measurement.

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What will the customer see in this release?
Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B
Application Package: V4.20
Release Date   : Quarterly Release Jan. 2021
Information below may not apply to every model/option in Product list

*** IMPROVEMENTS ***

 -> Software - PIM

[SPH-4510] DTP overlay previously had to be re-applied/measured every time a user switched to another PIM measurement mode (Swept PIM or PIM vs. Time). with this fix the DTP overlay will stay active between PIM measurement modes. This will save the technician time in the field since they will only need a single DTP overlay measurement per antenna.

*** BUG FIXES ***

 -> Software - SPA and Sub-apps

[SPH-4939] Fixed an issue in PIM Hunting mode when a user changed the default settings the unit did not remember the last settings.
[SPH-4947] Fixed an issue where the PIM Hunter Menu button would show up in IA mode of operation.
[SPH-4950] Fixed a problem when switching between PIM Analyzer mode (1st generation/legacy PIM Master receiver mode) and PIM Hunting mode in our spectrum analyzers. The sweep in PIM Hunting mode stopped and the left side parameters were not reset.
[SPH-4952] Fixed an issue in PIM Hunting mode. When manually changing the span (normal spectrum analyzer function) and resetting to Zero span or using last span. PIM Hunting mode would not restart. PIM Hunting mode is a Zero Span measurement.
[SPH-4983] Fixed an issue in PIM Hunting mode under certain conditions when switching from PIM Hunting mode to another measurement mode (ie. LTE) the unit would freeze up or reboot.
[SPH-4984] Fixed an issue when in PIM Hunting mode the sweep would slow down if power cycled or switched back and forth between other modes.

 -> Software - PIM

[SPH-4674] Fixed an issue where the MW82119B PIM Master was not remembering non-default F1 and F2 settings.
[SPH-4954] Fixed an issue were user defined F1 and F2 values and calibration were lost going between High band and Low band in the MW82119B-0700 700 MHz PIM Master. The

unit will now remember both the F1 and F2 values and the calibration between High band and Low band.

[SPH-4958] Fixed an issue in PIM Hunting mode when the 1 KHz RBW was used the trace sweep would stop.

[SPH-4968] Resolved an issue using the SCPI command (programming language) to recall the residual PIM value returned the wrong value.

[SPH-4986] Fixed an issue in PIM Hunting mode when the 1 KHz RBW was used the trace sweep would stop.

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What will the customer see in this release?

Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T

Application Package: V4.00

Release Date   : Quarterly Release Sept. 2020

Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

 -> Software - SPA and Sub-apps

[SPH-4917] Resolved an issue where it was not possible to set Zero Span time markers to negative values remotely. This change applies only to Spectrum Analyzer (SPA) modes.

*** IMPROVEMENTS ***

 -> Software - SPA and Sub-apps

[SPH-4809] Added .csv file save format for the Cable/Antenna analyzer (CAA) measurements.

*** BUG FIXES ***

 -> Software - CAA

[SPH-4935] In response to numerous customer requests, dual trace .dat measurement files will no longer result in 2 individual files saved. Dual trace .dat measurement files saved are fully compatible with Line Sweep Tools (LST). This change affects the Cable/Antenna analyzer (CAA) mode only.

[SPH-4936] Fixed an issue in PIM Hunting mode when the RBW was set at 1 KHz the sweep could freeze.

[SPH-4937] Fixed an issue were the attenuation level was changing based on the Reference Level setting. For the PIM Hunting application this behavior has been changed so that

the value stays the same and the default is 0 dB attenuation.
[SPH-4957] Resolved an issue where certain combinations of start/stop frequency and number of data points could result in spikes appearing after calibration.

 -> Software - SPA and Sub-apps
[SPH-4949] Fixed an issue were the Spectrum graph in PIM Hunting measurement covered the Center Frequency as well as Span and other annotations in (ms/s) after switching mode from SPA PIM Hunting to AM-FM-PM => PIM Analyzer => Spectrum Analyzer.

 -> Software - VNA
[SPH-4830] Resolved an issue where recalling a [Trace + Memory]/2 measurement resulted in the Trace Math function being re-applied.

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What will the customer see in this release?
Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B
Application Package: V3.90
Release Date   : Release May. 2020
Information below may not apply to every model/option in Product list

*** IMPROVEMENTS ***

 -> Software - CAA
[SPH-2095] The following cables have been added per customer requests: RLCX-SL 158R, RLCX-SL 114R, RLCX-SL 078R, RLCX-SL012R, RLCX-SL038R, RLCX-SL014R, RLCX-SL012S, RLCX-SL038S, RLCX-SL014S, RLCX-SL012R FPR.
[SPH-4778] CSV file format added to File Save Menu.

 -> Software - VNA
[SPH-2095] The following cables have been added per customer requests: RLCX-SL 158R, RLCX-SL 114R, RLCX-SL 078R, RLCX-SL012R, RLCX-SL038R, RLCX-SL014R, RLCX-SL012S, RLCX-SL038S, RLCX-SL014S, RLCX-SL012R FPR.

*** BUG FIXES ***

 -> Software - CAA

[SPH-4731] Resolved an issue where sometimes the last point marker value displayed would not match the last point data in the saved measurement.

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What will the customer see in this release?
Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B
Application Package: V3.80
Release Date   : Release Jan. 2020
Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

 -> Software - LTE
[SPH-4852] Adding initial support for TD-LTE measurements for S412E.

 -> Software - PIM
[SPH-4844] Added Support for MW82119B-0703 option.

 -> Software - OS/Base
[SPH-4806] Added support for amplitude blanking capability in S11 and S21 Log Mag graph types only, for models with option 007 installed.

 -> Software - SPA and Sub-apps
[SPH-4808] New PIM Hunting mode, used for PIM Hunting applications on rooftops with the PIM Hunting probe or Yagi antennas.

*** BUG FIXES ***

 -> Software - P25/P25p2
[SPH-4884] Corrected an error on the Band plan. The frequency and channel numbers for P25 will now be correct.

 -> Software - PTC

[SPH-4798] Improved Trigger Timeout message responsiveness.

 -> Software - VNA

[SPH-4760] Resolved an issue in VNA Mode where saving a measurement + JPG could result in repeated file confirmation messages.

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What will the customer see in this release?

Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B

Application Package: V3.70

Release Date   : Quarterly Release October 2019

Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

 -> Software - CAA

[SPH-4784] Added (Trace + Memory)/2 feature to Trace Memory. Allows users to reduce or eliminate peak-to-peak ripple caused by standing waves when making 1-port cable loss measurements.

*** BUG FIXES ***

 -> Software - DMR2

[SPH-4000] regional language Support for S412E LMR Master is available.

 -> Software - NXDN

[SPH-4000] regional language Support for S412E LMR Master is available.

 -> Software - dPMR

[SPH-4000] regional language Support for S412E LMR Master is available.

 -> Software - NBFM

[SPH-4000] regional language Support for S412E LMR Master is available.

 -> Software - TETRA
[SPH-4000] regional language Support for S412E LMR Master is available.
[SPH-4690] Fixed an issue where TETRA Base Station Receiver Sensitivity loading of customer patterns did not operate correctly. Added a softkey to display BCC, MCC, and MNC of loaded BSRS custom patterns.

 -> Software - P25/P25p2
[SPH-4000] regional language Support for S412E LMR Master is available.

 -> Software - PTC
[SPH-4000] regional language Support for S412E LMR Master is available.

 -> Software - PDT
[SPH-4000] regional language Support for S412E LMR Master is available.

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What will the customer see in this release?
Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T
Application Package: V3.50
Release Date   : Quarterly Release April 2019
Information below may not apply to every model/option in Product list

*** IMPROVEMENTS ***

 -> Software - CPRI
[SPH-4627] Added Samsung and Huawei to PIM Aid radio preset selections.

*** BUG FIXES ***

 -> Software - SPA and Sub-apps
[SPH-4691] Fixed an issue where field strength measurement settings might not properly apply after power cycle.

 -> Software - OS/Base
[SPH-4617] Fixed an issue in S412E where setting the Input Power Warning to ON would prevent the 'available firmware update message' from displaying when appropriate during power-up.
[SPH-4713] Fixed an issue where automatic firmware updates would not execute in S412E under some circumstances.

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What will the customer see in this release?
Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B
Application Package: V3.40
Release Date   : Quarterly Release January 2019
Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

 -> Software - CAA
[SPH-4535] Added cal coefficient support for cal kits with 4.3-10 connectors.

 -> Software - PTC
[SPH-4442] Added common American Association of Railroads (AAR) frequency standards to our Signal Standards lists, and made them available in PTC mode.

 -> Software - SPA and Sub-apps
[SPH-4566] Added dBuW, dBmA, and dBuA units in SPA mode.

 -> Software - VNA
[SPH-4535] Added cal coefficient support for cal kits with 4.3-10 connectors.

*** IMPROVEMENTS ***

 -> Software - LTE
[SPH-4590] Added Band 71, the new 600 MHz LTE Band to the signal standard list.

*** BUG FIXES ***

 -> Software - LTE
[SPH-4597] Fixed an issue where recalled 4x4 MIMO LTE measurement would not properly display the green/grey antenna icons.

 -> Software - ISDBT/SFN
[SPH-4687] Corrected the antenna.txt file so that it would behave correctly in ISDB-T mode.

 -> Software - VNA
[SPH-4689] Fixed an issue in field mode that unnecessarily limited scale settings in Field Mode VSWR measurements.

 -> Software - SPA and Sub-apps
[SPH-3745] Fixed a corner case error with averaging in Interference Analysis Field Strength measurement.
[SPH-4458] Antenna selection list now includes EMI antennas when 'All' is selected.

 -> Software - PIM
[SPH-4642] Changed the time/date text layout in the PIM Calibration Due popup.
[SPH-4644] Addressed an issue that could cause an option 600 or 902 instrument to lock up when they are set to high band and perform a calibration via the SCPI command:
CAL:PIM:FULL ON

 -> Software - OS/Base
[SPH-4593] Fixed an issue where unit would hang during power-up under certain conditions after recalling a VNA setup from SPA mode.

 -> Software - CAA
[SPH-4593] Fixed an issue where unit would hang during power-up under certain conditions after recalling a VNA setup from SPA mode.

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What will the customer see in this release?
Product   : S33xE, S36xE, MS271xE, MT821xE, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T
Application Package: V3.30
Release Date   : Quarterly Release October 2018
Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

 -> Software - TETRA
[SPH-3853] External - Used Training Sequence symbols to determine BER for both allocated and unallocated signal bursts.

*** BUG FIXES ***

 -> Software - ISDBT/SFN
[SPH-3731] Fixes an issue where over a 100 ISDBT files were saved into a folder which resulted in the unit slowing down in time. Files are now saved in multiple folders with date and timestamp.

 -> Software - VNA
[SPH-4026] Fixes an issue where the application would hang in Transmission Measurement mode when recalling a set up file to put the unit into Cable and Antenna Analyzer Mode, and then attempting to run an OSL calibration.
[SPH-4028] Fixes an issue where the SPA Amplitude Menu would show up in Transmission Measurement Mode.

[SPH-4605] Fixed an issue in VNA mode where glitches would appear at 375MHz and 1500 MHz after a calibration.

 -> Software - SPA and Sub-apps
[SPH-3745] Fixed a corner case error with averaging in Interference Analysis Field Strength measurement
[SPH-3951] Disabled the use of Start Freq and Stop Freq in Interference Analysis mode. Center Freq is the proper way to set frequency in this mode.
[SPH-4547] Fixed an issue with field strength limits under V/m units setting

-> Software - TETRA

[SPH-3570] Fixed a bug in TETRA where some units would not recall the correct Tx Output pattern as part of a recalled measurement or setup

[SPH-3943] Fixed an issue in TETRA app where recalling a measurement or setup would not correctly recall the Tx pattern.

-> Software - OBSAI

[SPH-3738] Fixed an issue where the system time would not recall properly under some saved measurement conditions

-> Software - CPRI

[SPH-3738] Fixed an issue where the system time would not recall properly under some saved measurement conditions

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What will the customer see in this release?
Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B
Application Package: V3.20
Release Date   : Quarterly Release beginning July 2018
Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

-> Software - TETRA

[SPH-4471] Motorola EBTS added to Base Station Selections in Tetra Base Station Sensitivity Tests

-> Software - NB-IoT

[SPH-4569] Fixes an issue where performing a preset does not set the center frequency of the analyzer correctly. Similar behavior can be noticed during setup and measurement recall.

-> Software - PIM

[SPH-4546] Changed the default F2 frequencies for Option 700 to 764 / 761 MHz for low / high band, respectively.

-> Software - OS/Base

[SPH-4429] Improved battery charge algorithm.

*** BUG FIXES ***

 -> Software - DMR2
[SPH-3621] Fixes an issue where the Back soft button is inactivated incorrectly after pressing Max/Min Active Graph soft button
[SPH-3797] Fixes an issue where ENTER button from keypad to collect new data points from Coverage Mapping doesn't work.

 -> Software - NXDN
[SPH-3797] Fixes an issue where ENTER button from keypad to collect new data points from Coverage Mapping doesn't work.

 -> Software - VNA
[SPH-4504] Fixes an issue where in Dual Channel mode, the Smith Chart marker table TR1 and TR2 readout text would overwrite each other.

 -> Software - dPMR
[SPH-3797] Fixes an issue where ENTER button from keypad to collect new data points from Coverage Mapping doesn't work.

 -> Software - OS/Base
[SPH-4426] Fixed the issue where saving files to a USB memory via the MMEMory:STORe:JPEG command failed when the usr folder was not present in the USB memory.

 -> Software - TETRA
[SPH-3797] Fixes an issue where ENTER button from keypad to collect new data points from Coverage Mapping doesn't work.

 -> Software - NBFM
[SPH-3797] Fixes an issue where ENTER button from keypad to collect new data points from Coverage Mapping doesn't work.

 -> Software - P25/P25p2
[SPH-3797] Fixes an issue where ENTER button from keypad to collect new data points from Coverage Mapping doesn't work.

 -> Software - PTC
[SPH-3797] Fixes an issue where ENTER button from keypad to collect new data points from Coverage Mapping doesn't work.

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What will the customer see in this release?
Product   : S412E, MS202xB, MS203xB, MS202xC, MS203xC, MW82119B
Application Package: V3.10
Release Date   : Quarterly Release beginning April 2018
Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

 -> Software - GSM/EDGE
[SPH-3938] Added option 880, GSM/EDGE Signal Analyzers to model S412E

 -> Software - LTE
[SPH-4436] Change MIMO auto detect threshold in LTE and TD-LTE applications, so that the unit is less likely to assume that noise is another active antenna.

 -> Software - dPMR
[SPH-1520] Enables NXDN_4800 O.153 pattern in dPMR

*** BUG FIXES ***

 -> Software - DMR2
[SPH-3316] Fixed an issue where mapping data points could unexpectedly persist between applications.

 -> Software - LTE
[SPH-3833] Fixed an issue where values for PHICH and PDCCH in LTE application did not export correctly into Master Software Tools.

 -> Software - NXDN
[SPH-3316] Fixed an issue where mapping data points could unexpectedly persist between applications.

 -> Software - dPMR

[SPH-3316] Fixed an issue where mapping data points could unexpectedly persist between applications.

 -> Software - SPA and Sub-apps
[SPH-3940] Fixed an issue in spectrum analyzer mode where adding multiple markers, and/or setting markers beyond the instrument's frequency range, could cause the instrument to lock up.

 -> Software - NBFM
[SPH-3316] Fixed an issue where mapping data points could unexpectedly persist between applications.

 -> Software - OS/Base
[SPH-4360] Fixed an issue where the GPS information in the title would disappear after recalling a setup file.

 -> Software - P25/P25p2
[SPH-3316] Fixed an issue where mapping data points could unexpectedly persist between applications.

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What will the customer see in this release?
Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B
Application Package: V3.00
Release Date   : Quarterly Release beginning January 2018
Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

 -> Software - CAA
[SPH-3864] Added additional save type Measurement and JPG" to the uWave VNA family."

 -> Software - PIM
[SPH-3921] PIM Measurement Tx1 range adjusted to cover 731 MHz to 734.5 MHz

 -> Software - VNA

[SPH-3864] Added additional save type Measurement and JPG" to the uWave VNA family."

*** BUG FIXES ***

-> Software - VNA
[SPH-3591] Fixes an issue with Cable Loss mode where limit lines would change after a calibration was completed.
[SPH-3646] Fixes an issue where the touch screen functionality would be disabled due to the Attention" dialog moving behind the main form window."

-> Software - CPRI
[SPH-2932] Fixed an issue in single sweep CPRI Spectrogram where it would not always stop the measurement after one sweep.
[SPH-3536] Fixed an issue - Limits can now only be recalled if the limits were saved in the same mode of operation (SPA, CPRI, OBSAI) as is currently running on the unit.

-> Software - OS/Base
[SPH-3572] Fixed an issue where the GPS tag does not disappear even though GPS is off. This would occur when recalling a trace with GPS data then switching to a live trace and switching modes.
[SPH-3739] Fixed an issue where the unit didn't display an error message when setting the Save Location to USB, then removing the USB, and pressing the camera icon to save a screenshot.
[SPH-3829] Fixed an issue where the option list on the boot up screen was beyond the right edge.

-> Software - OBSAI
[SPH-3536] Fixed an issue - Limits can now only be recalled if the limits were saved in the same mode of operation (SPA, CPRI, OBSAI) as is currently running on the unit.

-> Software - P25/P25p2
[SPH-3321] Fixed an issue with file format. Saving control channel files now places each group of associated data on its own line, when recalled with a text editor.

-> Software - CAA
[SPH-3646] Fixes an issue where the touch screen functionality would be disabled due to the Attention" dialog moving behind the main form window."
[SPH-3837] Fixes an issue where the Dmax value could be manually set to a value that was large then the calculated Dmax value.

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What will the customer see in this release?

Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T
Application Package: V2.90
Release Date   : Quarterly Release beginning October 2017
Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

 -> Software - LTE
[SPH-3136] Added Option 886 for 256 QAM extension to FD-LTE and TD-LTE applications
[SPH-3777] Fixed an issue in TD-LTE that would cause constellation to occasionally make bad measurements on valid 256 QAM input signals. (MS2720T Only)
Fixed an issue where changing modes directly to LTE or TD-LTE after a factory default would not correctly display a 256-QAM constellation (MS2720T Only)

[SPH-3188] Added 3GPP Release 13 Spectral Emission Masks for frequencies > 3 GHz in LTE & TD-LTE measurements.

 -> Software - PIM
[SPH-3658] SPH-3658 Adds support for the SCPI command MMEMory:DELete for deleting setup and measurement files.

 -> Software - VNA
[SPH-2592] Increases the number of markers from 8 to 12 in VNA mode (mwVNA Instruments, VNA and Field measurement views).

*** IMPROVEMENTS ***

 -> Software - DMR2
[SPH-2941] Added remote command to maximize/minimize the active graph type. (See Programming manual for details)

*** BUG FIXES ***

 -> Software - VNA
[SPH-2451] Fixes an issue where the Cable List Window was not remaining the top-most form and would move behind the VNA graph.

[SPH-2593] Changes the mwVNA Instruments Limit Line Feature such that each measurement mode can now have independent limit line settings.

 -> Software - OS/Base
[SPH-3237] Fixed the issue where using the arrow keys to move around the indoor map was slow in the Spectrum Analyzer mode.
Fixed the issue where moving the cursor around the indoor map failed after recalling a AZM file.
Fixed the issue where pressing the Enter key didn't record data points in indoor map in Spectrum Analyzer mode.

 -> Software - NBFM
[SPH-2811] Fixed a bug in NBFM that would cause beep with every sweep when Auto Scan is On.

 -> Software - CPRI
[SPH-3029] Fixed a bug that could prevent the second waterfall graph from displaying in a Dual Display recalled spectrogram measurement.

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What will the customer see in this release?
Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B
Application Package: V2.80
Release Date   : Quarterly Release beginning July 2017
Information below may not apply to every model/option in Product list

*** BUG FIXES ***

 -> Software - LTE
[SPH-2922] In LTE-EMF mode, when the EMF antenna is disconnected, error messages have been reorganized to have better readability.
[SPH-2924] In WCDMA-EMF mode, when the EMF antenna is disconnected, error messages have been reorganized to have better readability.

 -> Software - VNA
[SPH-2594] Fixed an issue with multiple markers and touching the trace, which was causing the nearest marker to become active and move to the touched location.The new behavior is such that touching the trace will result in the marker that is already active to move to the location that was touched.
[SPH-2595] Fixed an issue where when Marker on trace" was set to "All" (in field mode for example) the marker would not update correctly when the start or stop frequency was changed."

-> Software - CPRI

[SPH-2708] Preset now set Spectrogram Record to 'Off' state

[SPH-2898] Starting with MST V2.36.8 and unit firmware V2.8x, MST will support multiple traces from OBSAI and CPRI applications.

[SPH-2969] Corrected preset values for limit lines in CPRI and OBSAI applications.

[SPH-2970] Fixed a bug where CPRI/OBSAI limit lines would not correctly export to Master Software Tools. Also requires MST v2.36.8

[SPH-2971] Lower Limit line default value corrected in CPRI and OBSAI to match the RF applications

[SPH-3232] Fixed a bug where internal time base would not always lock to external or GPS reference in CPRI mode

-> Software - SPA and Sub-apps

[SPH-2841] Fixes an issue where EMI antenna selection was off by one.

[SPH-3138] Fixes rounding error of BW value in Channel Scanner file after Scriptmaster scan.

-> Software - OS/Base

[SPH-3237] Fixed the issue where using the arrow keys to move around the indoor map was slow in the Spectrum Analyzer mode. Also fixed the issue where moving the cursor around the indoor map failed after recalling a AZM file.

-> Software - OBSAI

[SPH-2975] Fixed a bug where Single Sweep mode would occasionally cause the Layer 2 Alarms display to flicker

-> Software - P25/P25p2

[SPH-3147] Mapping data collection for is now limited to 8 hours or 60,000 points of data collection to avoid memory overrun issues.

-> Software - CAA

[SPH-2424] Fixed an issue where the unit would hang if a SCPI preset was issued and the Cable list table dialog was open.

NOTE: THIS FIX ALSO APPLIES TO THE PIM MASTER.

[SPH-2548] Fixed an issue where the marker would not move when adjusting the twiddle knob to the left.

[SPH-3114] Fixed an issue where Marker-to-Peak and Marker-to-Valley were shifted 1 pixel to the left when recall a measurement file type .dat.

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What will the customer see in this release?

Product   : S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MW82119B
Application Package: V2.70
Release Date   : Quarterly Release beginning April 2017
Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

*** IMPROVEMENTS ***

 -> Software - DMR2
[SPH-2156] Tx Output will now synchronize to Base Station downlink signal

 -> Software - VNA
[SPH-2402] The limit line behavior in the Cable and Antenna mode of the BTS Master has been enhanced. With this update, the limit line settings for each measurement type will be unique for that measurement and will persist even if the measurement type is changed.

*** BUG FIXES ***

 -> Software - SPA and Sub-apps
[SPH-2337] Fixes an issue where Emission Mask measurements produced erroneous pass/fail results under certain conditions.
[SPH-2504] Fixed an issue where Field Strength measurements in Coverage Mapping did not display the correct results for non-dBm units

 -> Software - OS/Base
[SPH-2860] Added support for commands with a block data parameter for the raw socket SCPI interface.

 -> Software - TETRA
[SPH-2397] Fixed a bug where saved .mtd files were not correctly storing EVM data.

 -> Software - NBFM

[SPH-2891] Fixed a bug in NBFM where changing DCS value could corrupt the Signal Generator pattern outputs for all LMR demod applications

 -> Software - CAA
[SPH-2393] Fixed an issue with the Back soft key in the Application Options menu that would not return the user back to the System Menu once they have entered into the Bias Tee menu.

 -> Software - PTC
[SPH-2455] SOURce:DM:PATTern and SOURce:DM:PATTern? remote commands are now functional

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What will the customer see in this release?
Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B
Application Package: V2.60
Release Date   : Quarterly Release beginning January 2017
Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

 -> Software - DMR2
[SPH-1811] DMR2 Application nomenclature changed to DMR" Remote command remain compatible."

 -> Software - CAA
[SPH-2508] Added support for easyTest in the VNA Master (MS20xxB series) and LMR Master (S412E).
[SPH-1506] Added a SCPI command to allow saving of .dat measurement files.

 -> Software - LTE
[SPH-2296] Added limited support for TD-LTE 4x4 MIMO

 -> Software - VNA
[SPH-2508] Added support for easyTest in the VNA Master (MS20xxB series) and LMR Master (S412E).
[SPH-1506] Added a SCPI command to allow saving of .dat measurement files.

-> Software - CPRI
[SPH-2180] For Option 751 CPRI - Added the ability to show two spectrum or spectrogram graphs which can display up to four separate AxC groups (traces).
[SPH-2448] Added support for CPRI line rate 8 (10.1376 Gbps)
[SPH-2449] Added support for compressed LTE sampling rate on 20 MHz LTE signals
[SPH-2640] Auto Detect improved with Ericsson presets

*** IMPROVEMENTS ***

-> Software - OS/Base
[SPH-2515] Web UI tab removes model information.

*** BUG FIXES ***

-> Software - LTE
[SPH-47] Fixed a bug in LTE EMF recalled measurements where RS values might recall improperly
[SPH-2240] Fixed an issue that prevented 4x4 MIMO time alignment data from recalling properly to unit.
[SPH-2788] Shift-1 Preset is now prevented while a recalled measurement is displayed.

-> Software - SPA and Sub-apps
[SPH-1988] Fixes a bug where the zero span max RBW value was incorrectly limited in the GUI and as a result was out of sync with the actual RBW value.

-> Software - OS/Base
[SPH-1812] Fixed an issue where black on white and color on white schemes were not displaying correctly in some LMR Master modes.

-> Software - HiPM
[SPH-1667] Fixed a bug where the unit would unexpectedly attempt to zero the sensor after recalling a measurement
[SPH-2381] Fixes an issue where the Quick name buttons were not saved with the setup in Hi-PM mode.

-> Software - TETRA

[SPH-2376] Save on Event .csv measurement files are updated to contain results for recently-added RMS Vector Error and Peak Vector Error measurements.

-> Software - VSG

[SPH-1800] BTS Master VSG now allows up to 48 waveforms to be loaded

-> Software - P25/P25p2

[SPH-2373] Fixed an issue that could cause the unit to hang when recalling setups for an application other than the current one.

[SPH-2501] Updated remote DISPlay:TRACe<Tr>:FORMat:SIGAnalyzer command/query parameters to match the Programming Manual.

-> Software - WiMAX

[SPH-2309] Fixed a bug where the unit would intermittently hang when displaying Spectral Emission Mask

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What will the customer see in this release?

Product   : S33xE, S36xE, MS271xE, MT821xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MT822xB, MT8220T, MW82119B

Application Package: V2.50

Release Date   : Quarterly Release beginning October 2016

Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

-> Software - TETRA

[SPH-2147] Added Residual Carrier Magnitude measurement to the Summary display

[SPH-2149] TETRA remote queries :FETCh:SIGAnalyzer? :READ:SIGAnalyzer?   :MEASure:SIGAnalyzer? will now contain two additional values in the response for Peak Vector Error and Residual Carrier Magnitude

[SPH-1603] Added Police Digital Trunking Options 563 and 562

-> Software - OS/Base

[SPH-119] Improved error message on LTE trace save failure when trying to save before the end of the first sweep.

-> Software - NBFM

[SPH-1919] Remote command :FETCh:SIGAnalyzer? updated so the second returned value in the string will represent the value indicated by the Summary Freq Disp front panel setting. (Carrier Frequency or Frequency Error)

 -> Software - VNA

[SPH-1921] Added select SCPI commands to support VNA Field Mode.

*** BUG FIXES ***

 -> Software - VNA

[SPH-2307] Resolved an issue with marker interpolation on Smith Charts or Polar Charts that caused stray lines to be drawn over the entire screen. This issue only affected VNA mode in the VNA Master products.

 -> Software - SPA and Sub-apps

[SPH-282] Fixed an issue where Markers on Result traces do not jump to the right frequency when markers are toggled between traces.

[SPH-2182] In SPA field strength graph, negative antenna factors show correctly over frequency.

 -> Software - OS/Base

[SPH-1642] Fixed a typo in the power limit warning message at boot.

[SPH-1653] Clearing old messages when changing modes from a recall state.

[SPH-1681] Fixed a black out of the web interface remote display in Chrome when selecting a different browser tab then selecting the remote display tab.

[SPH-1863] Fixed an issue where SPA application performed a LO Null search on the second application load after a master reset.

[SPH-1889] Fixed a problem where user defined calibration files were getting deleted on entering the PIM application a second time after a master reset.

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What will the customer see in this release?

Product   : S33xE, S36xE, S412E, MS202xB, MS203xB, MS202xC, MS203xC, MS2720T, MS822xB, MT8220T, MW82119B

Application Package: V2.40

Release Date   : Quarterly Release beginning July 2016

Information below may not apply to every model/option in Product list

*** NEW FEATURES ***

 -> Software - VNA
[SPH-1744] Added support for interpolated markers in VNA mode. When marker values are set via the numeric keypad or via SCPI, interpolation will be used if the desired marker x-axis value is not an actual measurement point. Markers will continue to snap to the nearest point if the twiddle knob or the arrow keys are used to set their location.

 -> Software - dPMR
[SPH-1656] Added remote command support for dPMR.

 -> Software - SPA and Sub-apps
[SPH-1914] New trace result types Max Hold and Total Max Hold added to EMF Measurements.

 -> Software - OS/Base
[SPH-116] Added Quick Name Matrix support to Transmission Mode.
[SPH-1858] Added EasyTest repeat script capability.

 -> Software - TETRA
[SPH-1565] Added remote command support for RMS, Peak Vector Error and Residual Carreer Feed Through.

 -> Software - CPRI
[SPH-1804] Added Option 413 Ethernet, which is compatible with all options.

 -> Software - P25/P25p2
[SPH-36] P25P2 - Added four new Control Channel summary displays - Active Control Channel Summary, Adjacent Site Summary, Band Plan Summary, Backup Control Channel Summary.

*** IMPROVEMENTS ***

 -> Software - OS/Base
[SPH-1510] Fixed an issue where web server popups were showing up off screen on pages that can be scrolled.

*** BUG FIXES ***

 -> Software - DMR2
[SPH-660] Fixed an issue with pan and zoom with indoor maps where data points would not zoom in sync with the map.

 -> Software - NXDN
[SPH-660] Fixed an issue with pan and zoom with indoor maps where data points would not zoom in sync with the map.

 -> Software - VNA
[SPH-502] Resolved an issue that prevented the instrument settings from getting preset after a measurement file was recalled.

 -> Software - HiPM
[SPH-1606] Fixed a bug in High Accuracy Power Meter mode where max power for the MA24106A sensor could not be set up to +23 dBm.

 -> Software - OS/Base
[SPH-104] Fixed as issue where Option 31 (GPS) was listed as an add-on option in MT8220T. It is standard in this model.
[SPH-107] Fixed an issue where instruments would respond to multiple IP addresses.
[SPH-1859] Fixed the issue where the instrument would hang at the last step when executing an easyTest script with the maximum number of steps(500) allowed.

 -> Software - SPA and Sub-apps
[SPH-283] VBW set to correct bandwidth in Zero Span after presetting the instrument.
[SPH-284] Enabled ability to turn on Markers after sending Preset command over SCPI.
[SPH-289] Initial attenuation level values are restored after going in and out of Coverage Mapping.
[SPH-298] Fixed an issue where sweep time was not estimated correctly after preset
[SPH-302] Preset SCPI command now resets Auto RBW from Off to On when C/I is turned On.
[SPH-303] RBW/VBW ratio returns to default value after AM/FM/PM mode switching.
[SPH-304] Navigation hard keys when map is not loaded works in Coverage Mapping.
[SPH-305] Fixed an issue where a mode switch, after Esc-On, from SPA into IA and then back into SPA, will cause the Save On Event button to vanish.
[SPH-307] Fixed an issue where IFBW state indicator in the status window displays incorrectly.
[SPH-325] Fixed an issue where recalling a measurement file with field strength units would not recall correctly.

-> Software - TETRA
[SPH-660] Fixed an issue with pan and zoom with indoor maps where data points would not zoom in sync with the map.
[SPH-1443] Fixed an issue where 'Received Pwr' of the summary display did not show power with in acceptable range.
[SPH-1513] TETRA - Fixed a bug where recalled measurements would not correctly populate values in the Summary Table

-> Software - NBFM
[SPH-660] Fixed an issue with pan and zoom with indoor maps where data points would not zoom in sync with the map.

-> Software - P25/P25p2
[SPH-660] Fixed an issue with pan and zoom with indoor maps where data points would not zoom in sync with the map.
[SPH-1665] Modified SCPI command to include new Summary display graphs in P25 P2 Analyzer measurement
[SPH-1690] Fixed Motorola Base Station Test in P25 Phase 2 app. Removed additional sampling that was added when when implementing FDMA Control Channel measurement. Additional sampling was causing improper delay estimation for re-sync of signal pattern.

-> Software - PTC
[SPH-660] Fixed an issue with pan and zoom with indoor maps where data points would not zoom in sync with the map.
[SPH-1555] EVM and other summary measurements were adversely affected by PTC burst selection method when frequency offset between transmitter and receiver was more than about 150Hz. The burst selection method was optimized to increase the frequency offset capability to at least +/- 340Hz. This should allow customers to measure the standard of +/- 330Hz Wayside requirement.

Changed 'IQ Imbal' to 'IQ Offset' to better reflect all combined DC offsets (LO leakage, IQ DC Offset, etc...). Measurement now responds to changes in IQ DC Offset injection

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What will the customer see in this release?
Product   : MS202xB/MS203xB
Application Package: V2.30
Release Date   : May 13, 2016\

*** NEW FEATURES ***

General [2]
 - Allow WEB server admin login to access all instrument control capabilities. QDF-79

 - Added the ability to select and display favorites in the VNA Cable List.

High Accuracy Power Meter [1]
 - Added support for MA243xxA USB power sensors.

*** ENHANCEMENTS ***

General [3]
 - Substantial updates to Japanese language translation files for SPA and System applications.
 - Substantial updates to Chinese language translation files for all applications.
 - Disclaimer notice on web server login page. QDF-81
 - Added the ability to select and display favorites in the VNA Cable List.

Vector Network Analyzer [1]
 - Updated the default scale for Insertion Loss, Return Loss, and DTF Return Loss for Field mode. Top now defaults to 0.0dB and Bottom to
   -100.00dB on models MS2024B, MS2025B, MS2034B, MS2035B and S412E.

*** BUG FIXES ***

General [5]
 - Fixed an issue where the instrument would display an incorrect IP address when using a Zyxel mobile router powered by the instrument's USB
   port. #23728
 - Fixed an issue where the status window reported an invalid IP address of 169.254.x.x if the window was opened shortly after the Ethernet cable
   was plugged in. #23045
 - Fixed an issue where the first time recalling a setup resulted in wrong marker info. #23367
 - Fixed an issue where the first login attempt after a timeout always returned an "incorrect password" error. QDF-80
 - Fixed an issue where the file type warning message was not shown in the Select File Type dialog.

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What will the customer see in this release?

Product   : MS202xB/MS203xB
Application Package: V2.25
Release Date   : March 30, 2016

*** NEW FEATURES ***

  Vector Network Analyzer [4]
   - Added display Average Cable Loss on the top status menu when the measurement type is set to Cable Loss. #23448
   - Added Page Up, Page Down, Top of List, Bottom of List soft keys to the Cable List. Added touch capability for cable list to allow user to
     select the cable list using touch screen. #23487
   - Improved Cable List speed by adding 'Top of List' and 'Bottom of List' buttons. #23500
   - Update the Cable List menu Page Up and Page Down to move by a set of 25, to move a whole page at a time for page up and down.

*** ENHANCEMENTS ***

  General [1]
   - Updated the CableList.txt file to add 9 additional cables in response to customer request.

  Vector Network Analyzer [1]
   - Update the default scale for Insertion Loss, Return Loss, and DTF Return Loss for Field mode. Top is now default to 0.0dB and Bottom to
     -100.00dB.
MODELS: MS2024B, MS2025B, MS2034B, MS2035B, S412E

*** BUG FIXES ***

  Vector Network Analyzer [1]
   - Fixed an issue in Field mode where changing measurement type also changed the scale of other measurement types. #23370

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What will the customer see in this release?

Product   : MS202xB/MS203xB
Application Package: V1.23
Release Date   : November 20, 2015

*** MISCELLANEOUS ***

General [1]
- Adjusted LCD Horizontal and Vertical timing to work with display manufacturer revision changes.
  Updated SPL/IPL to V3.60 and ATABoot revision to V3.71 for improved the handling of battery charge termination while unit is in the powered
  down state.
  SPL/IPL and ATABoot are only available for update at Factory or Customer Service Centers.

*** ENHANCEMENTS ***

General [3]
- Added a warning that appears when downloading multiple files via a WEB browser now indicates that the process may make the instrument
  unresponsive until the download is completed. If there is an error during the process, another message will appear to suggest a smaller
  download. #22945
- Added additional monitoring of Battery SMBus to improve the handling of battery charge termination while unit is in operation. #23219.
- Changed several icons used in Night Vision mode for better visibility. #22831

Spectrum Analyzer and Sub-modes [1]
- Added Pan & Zoom functionality for .azm maps inside Coverage mapping measurements for SPA mode. #3217

*** BUG FIXES ***

General [5]
- Fixed an issue in the WEB UI of device where the scale on the graph showed incorrect units under certain conditions. #22659
- Fixed an issue in the WEB UI of the device where the 'Menu' button would occasionally not be displayed, when using Internet Explorer version
  10/11. #22535

- Fixed an issue in the WEB UI where some elements on the screen were not displayed properly in the browser, in SPA mode. #22659
- Fixed an issue in web server where SPL/IPL versions did not show. #23041
- Fixed an issue where the File type selection in Save dialog was very slow when using the rotary knob. #22559

Spectrum Analyzer and Sub-modes [19]

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Fixed an issue in SPA mode where 'Save On Event' button gets hidden after using IA mapping feature.
  - Fixed an issue in coverage mapping where the direction hard keys would not function when a map is not loaded.
  - Fixed an issue in IA RSSI mode where color of the trace changed erroneously from yellow to red while recalling a measurement. #23007
  - Fixed an issue in power meter where the saved setup values did not account for the offset settings. #23199
  - Fixed an issue in SPA mode that prevented changing reference level using the rotary knob or arrow keys on the device. #22630
  - Fixed an issue in SPA mode where a Preset operation soon after a recall could cause problems with GPS measurements. #23186
  - Fixed an issue in SPA mode where changing the sweep time in Zero Span using the rotary knob or arrow keys would cause the value to fluctuate before settling to the set value. #22803
  - Fixed an issue in SPA mode where channel power used to show 0 dBm for smaller span values. #22772
  - Fixed an issue in SPA mode where Emission Mask incorrectly reported "Fail" on segments that were actually a "Pass". #21687
  - Fixed an issue in SPA mode where setting detection to Quasi Peak did not allow the correct range of permitted RBW values for this detection standard. #22918
  - Fixed an issue in SPA mode where the counter marker showed the marker in the wrong location after changing frequencies. #22400
  - Fixed an issue in SPA mode where the marker value shown above the graph area varied from the value shown inside the graph after the marker location was moved with the rotary knob. #22083
  - Fixed an issue in SPA mode where the number of points for the limit envelope was not updated properly when the limit envelope shape was changed. #22821
  - Fixed an issue in SPA mode where the reference level after recalling values from file was wrong. #22224
  - Fixed an issue in SPA mode where the SCPI command returned values with incorrect number of decimal point precision. #11751
  - Fixed an issue in SPA where the Spurious emissions data was not cleared when doing a preset. #23183
  - Fixed an issue in Spectrogram mode where invalid data was shown on screen when the view setting for the trace was set to 'blank'. #22819
  - Fixed an issue where a preset was required to re-enable the auto reference level/attenuation coupling after recalling a manual attenuation setup or measurement file. #21981
  - Fixed an issue where Fast Sweep Mode would periodically pause during the sweep under unique setups. #23002

Vector Network Analyzer [4]

- Fixed an issue in mwVNA measurements where the limit line amplitude showed incorrect values due to rounding errors. #22834
- Fixed an issue where Auto gain ranging of S21 measurements resulted in inconsistent values. #22897
- Fixed problem where the markers in a recalled measurement did not display the marker values of the recalled measurement. #22204, 3338
- Fixed problem where VVM looked like it was freezing after doing calibration.
  This happened when the unit was put to single sweep in VNA mode. #23225

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What will the customer see in this release?
Product   : MS202xB/MS203xB
Application Package: V1.22
Release Date   : July 6, 2015

*** NEW FEATURES ***

  General [3]
 - A small camera icon has been added to the system title bar next to the floppy disk save icon. This touch screen icon can be used to quickly
   save a screenshot to the last-used save location. #2719
 - Added separate message dialog box when deleting folders when file type selection is not set to "All Files" type. #21672
 - The Quick Name configuration is now preserved for future firmware upgrades when selecting the "Save and Restore" option during the firmware
       upgrade process. Upgrading your firmware to this version will clear the existing configuration, but future firmware upgrades will not.
       Quick Name configuration is now stored as part of the setup file, not separately. #2715, #2907

  Spectrum Analyzer and Sub-modes [3]
 - 'Auto Ref Level' button added to Amplitude Menu (in Spectrum Analyzer and Interference Analyzer modes) for quick access. #3045
 - Enabled editing center frequency when in RSSI coverage mapping mode. #21664
 - Save Measurement and JPG feature added for AM/FM/PM mode. #21670

  High Accuracy Power Meter [1]
 - Added support for the MA24208A and MA24218A High Accuracy power sensors.

*** ENHANCEMENTS ***

General [4]
 - Added the ability to lock an instrument from Telnet and FTP connections.
   After setting the remote password and rebooting the unit, the unit will no longer allow Telnet and FTP connections.
   To remove the lock, either do a factory reset or remove the remote password by setting it to blank. #22432
 - Enhanced visibility of traces and text in "Black on White" display mode. #21738
 - Improved start-up power management to prevent reboot when first turned on after being off for a while, especially with less than full battery
   or running on external power. #21153
 - Made error message more meaningful when saving files with target memory nearly full. #21966

Spectrum Analyzer and Sub-modes [3]
 - Counter Marker accuracy improvements for center frequency of 5 MHz and 10 MHz.
 - Display format of amplitude units on graph is now changed. Units are displayed only on top and bottom of the grid. #22145
 - When recalling saved setup, invalid channels/frequencies are shown as "--" and readings are masked out corresponding to the invalid channels.
   #21603

Vector Network Analyzer [1]
 - Enhanced spur avoidance to remove some customer reported spurs.

*** BUG FIXES ***

General [2]
 - Changed the Spanish Language translation of ON/OFF to fit within the allowable space of the Marker Table. #22315
 - Fixed an issue where dragging an open dialog box would leave tracers on the screen. #21961

Spectrum Analyzer and Sub-modes [19]
 - Corrected back button behavior in detection menu for SPA mode, to properly return to previous menu.
 - Fixed an issue where Emission mask would fail at times, even though the measurements were well below the limit lines. #21687
 - Fixed an issue where Main Channel power showed invalid values when Span was less than Main Channel BW. #20922
 - Fixed an issue where more than 255 calibration data points were not properly accepted by the device when reading an antenna.txt file. #21854
 - Fixed an issue where RBW could be set to an invalid value in zero span under SPA mode. #21788
 - Fixed an issue where recalling spectrogram measurement file causes unit reboot. #21952

- Fixed an issue where sweep time was not updated properly when auto sweep time was enabled in SPA mode. #22210
- Fixed an issue where the attenuation level was set incorrectly upon recalling a measurement in IA mode. #21981
- Fixed an issue where the BW could be set to 0 in Channel Scanner Custom Scan list.
  This is now limited to 1 Hz. #21960
- Fixed an issue where the number of digits after the decimal point were incorrect when querying a measurement using SCPI, for SPA mode. #11751
- Fixed an issue where the Reference Level value returned via SCPI command was erroneous when RL Offset was set to a non zero value. #11751
- Fixed an issue where the Save On Event button would show up in IA Mapping measurement mode. #21471
- Fixed an issue where trace shows erroneous data when sweep mode changes while a sweep is in progress. #21868
- Fixed an issue with selecting a frequency with Mapping mode not locked to GPS, the frequency pop-up obscures part of the GPS warning.
  GPS message has been moved to the bottom of the map area to prevent the overlap. #22240, #3045
- Fixed an issue with the "Distortion/Total Vrms" value returned by the SCPI data query did not match the value displayed in the table. #21597
- Fixed an issue with the Limit Envelope Offset when using linear units of measure. #21558
- Fixed issue where measurement value "Distortion/Total Vrms" was not updated properly in GUI when in single sweep mode. #21597
- Fixed the issue in Channel Scanner mode where power readings and graph were updated in frequency scanner mode, for invalid frequencies. #21603
- GUI updates are now consistent after Spurious Emission segment changes via SCPI. #18981

Vector Network Analyzer [1]
- Fixed an issue where preset operation did not work when calibration procedure had warnings. #21998

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What will the customer see in this release?
Product   : MS202xB/MS203xB
Application Package: V1.21
Release Date   : March 9, 2015

*** NEW FEATURES ***

General [4]
- Added a timer that automatically dims the display of the instrument when it is operating under battery power to save power.
  "Auto-Dim" feature is enabled in System Options -> Display -> Brightness menu.
  Each Model has a unique default time. Most are approximately 15 minutes. #2521
- Added an error message pop up during Code Loading to notify the user in the case the USB stick does not have enough space to store all of the

  user files from the instrument. #20524
 - File sort method and sort order will now be persistent through window closes.
 - Improved speed for INST:NSEL command in Base application. See Programming Manual for details.

 Spectrum Analyzer and Sub-modes [7]
 - Added a new SCPI command, "CALCulate:MARKer#:MAXimum:NEXT" to move the marker to the highest peak anywhere in the trace which is lower than
   the current marker.
   If the given marker is not on, the command turns it on and sets it to the second highest peak in the trace.
   The command uses the existing peak threshold values to determine what is and is not a peak.
 - Added commands to check for end of sweep in SPA and LTE modes.
   1) In LTE/TD-LTE mode :[SENSe:]LTE:STATus?   Returns 1 when sweep is complete. Returns 0 when sweep is in progress.
   2) In SPA mode   :[SENSe:]SWEep:STATus?   Returns 1 when sweep is complete. Returns 0 when sweep is in progress.
   See Programming Manual for details.
 - Added Span Setting to ACPR coverage mapping mode. #20923
 - Added warning message when turning on markers 2-6 with marker 1 reference ON.
   With Marker 1 reference turned ON, turning on other markers with Delta markers OFF now turns On the Delta Marker with warning message. #21472
 - Antenna File updated to V2.07 to include Anritsu Antenna 2000-1715-R
 - Improved speed for INST:NSEL command in Base application. See Programming Manual for details.
 - User can now select FM scale % values with a minimum of 0.01%. #21502

 Vector Network Analyzer [1]
 - Allow user to select user cal kit for waveguide SOLR, SSLR, and SSSR. #20355

*** ENHANCEMENTS ***

 General [6]
 - Added a warning message to the SAVE FILE dialog to indicate excessive files saved in a single directory, which may slow down file access
   performance. #20113
 - Added more improvements to System Level Russian language translations. #19993
 - Free space on the storage device will be checked before JPGs can be saved. #21369
 - Improved display of sweep time to displaying >1 hr for sweep time estimates over 1 hour instead of showing ~1.2 hours.

- The same file type used when SAVING a measurement is initially selected when opening the RECALL measurement dialog.
- Updated Support files.
  Updated the Antenna.txt file to V2.06 by adding 3 antennas.
  Updated the CableList.txt file to V3.05 by adding 13 cables.
  Updated the Signal Standards File to V2.10 by replacing 43 Standards that had been previously removed. (CDMA, Fixed WiMAX, TD-LTE, and a number of the 700MHz bands)

Spectrum Analyzer and Sub-modes [9]
- Added a message saying that Spurious Emissions is getting turned off when switching to the unsupported Interference Analyzer mode. #20123
- Added the ability to continue capturing bearings with the MA2700A after switching from Interference Mapping to Interference Analyzer Spectrum measurement. #20585
- Changed the lower limit of the CS Frequency BW from 0 to 1 Hz. #21663
- Improved Counter Marker Stability. #20559
- Increased maximum value of RSSI time span to 7 days (60*60*24*7 = 604800 seconds). #10873
- Limited minimum sweep time entry to 7 us. #20406
- Made improvements in Counter Marker accuracy. #20982
- Preset will now default the upper envelope limit number of points to 20. #20182
- Saturation and ADC over-range error messages are cleared more quickly in zero span and IA signal strength modes. #20006

Vector Network Analyzer [4]
- Increased Reference Plane Length minimum from -100m to -1000m and maximum from 100m to 1000m
- Increased Reference value minimum for Group Delay from 0 to -1ms.
- Increased user cal kit maximum capacitance and inductance value from 2000 to 100,000. #20910
- Updated the Cable List to add support for an additional manufacturer of RG58C-U Cable with a propagation velocity of 0.656

*** BUG FIXES ***

General [15]
- Files or directories with leading spaces in their names cannot be saved. #21560
- Fixed an issue in Spectrum Analyzer mode that did not show a warning dialog when saving a measurement file with existing filename. #20011
- Fixed an issue where "fW" was displayed when "fA" was expected. #20911

- Fixed an issue where a '(null)' was displayed on unit buttons. #21038
- Fixed an issue where a message "Successfully Saved File to USB1" when the save operation actually failed due to the disk being full. #20031
- Fixed an issue where a Save/Recall message would partially cover the parameter status area. #20786
- Fixed an issue where icons in Save/Recall window were not being updated to match the current color scheme of the device. #20996
- Fixed an issue where not all files were listed in the Recall dialog. #19989
- Fixed an issue with an overflowing USBtmc queue by increasing the buffer size from 50 to 500.
  This solves a problem where the queue was overflowing from SCPI commands. #21312
- Fixed an issue with changing the instrument device name to close the dialog box cleanly. #21135
- Fixed an issue with incorrect values being displayed for marker frequency, for values less than 1 Hz. #15953
- Fixed an issue with limit line value not having enough resolution in Cable and Antenna Analyzer, VSWR, SPA and PIM modes. #10370
- Fixed an issue with 'Save Measurement As' to properly handle multiple '_' in the filename. #20540
- Fixed an issue with the date/time window focus, shifting behavior after an error encountered while attempting to set a leap year date in a non
  leap year. #21366
- Fixed an issue with the Save/Recall dialog screen size. Enlarged the screen to allow entire warning messages to fit. #20113

Spectrum Analyzer and Sub-modes [21]
- Added 0|1 as valid parameters to the SCPI Command ":CALCulate:MARKer:TABLe:STATe" command for consistency with Programming Manual. #20089
- Fixed a problem where manually setting a sweep time with a narrow span on single sweep mode caused a very inaccurate actual sweep time to be
  reported. #20558
- Fixed an intermittent issue with presetting the instrument in Zero Span Mode. #20439
- Fixed an issue in IA mode where the limit line would not get reset properly following a preset. #19998
- Fixed an issue in Spectrum Analyzer mode that did not show a warning dialog when saving a measurement file with existing filename. #20011
- Fixed an issue in zero span, where Marker units are sometimes in Hz, after changing from log amplitude units to linear amplitude units. #20626
- Fixed an issue involving SCPI command to change Trigger Mode to Free Run. #20257
- Fixed an issue when incrementing or decrementing sweep times with arrow keys or twiddle knob. #19991
- Fixed an issue where ADC Over Range Error message did not appear on the screen when a marker was not located within the ADC Over Range area of
  the trace. #20493
- Fixed an issue where Coverage mapping measurement mode was not set properly to default values upon performing preset. #20920
- Fixed an issue where not all files were listed in the Recall dialog. #19989
- Fixed an issue where the spectrogram trace count did not reset with Sweep Interval if the Trace mode was set to average. #20609
- Fixed an issue where there were differences between the recalled measurement and JPEG files color and location of vertical reference lines.
  #20341

- Fixed an issue with limit line value not having enough resolution in Cable and Antenna Analyzer, VSWR, SPA and PIM modes. #10370
- Fixed an issue with recalled Spectrogram colors corrected to match the colors during measurement. #20584
- Fixed an issue with recalling an AM/FM/PM measurement file with a marker on, now retains original marker position rather than snapping to center screen. #20318
- Fixed an issue with Sweep Once when invoked via SCPI command. #18978
- Fixed an issue with the header units for Attenuation in SPE file. #21568
- Fixed an issue with the Input Attenuation setting after loading a saved setup file. #21482
- Fixed several issues related to Spurious Emissions not handling Reference Level Offset correctly. #20144
- Fixed single sweep not sweeping when manually triggered with auto sweep time turned on. #20981

Vector Network Analyzer [2]
- Fixed a problem where the center and span was being restored to the default values as opposed to the values before cal. This problem is encountered when redoing a cal, prior to which the center and span had been updated during a full range cal. #20948
- Fixed an issue with the Group Delay scale for higher units of measure. #20908,

High Accuracy Power Meter [2]
- Fixed an issue with the Save Measurement button in High Accuracy Power Meter. Now it correctly selects a measurement file type instead of a setup file type. #21088
- Hi Accuracy Power Meter summary window now correctly clears with preset command. #21352

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What will you see in this release?
Product: MS2024B, MS2025B, MS2034B & MS2035B
Application Package: V1.20
Release Date: 08-05-2014

*** NEW FEATURES ***

General [13]
- Added "Delete All Points" confirmation for Coverage Mapping functions in all modes. #18221
- Added an EEPROM snapshot feature for troubleshooting intermittent instrument problems. A folder named "Anritsu_Snapshot" in internal memory contains these files, and

may be deleted for security purposes. This feature does not apply to units with security option 7.
  - Added feature for installing field-upgradeable options from USB drive's license files.
  - Added GPS location in radians to saved measurement file headers.
  - Added MA2700A compass calibration images.
  - Added night vision icons for the save/recall dialog.
  - Added option 431(Coverage Mapping) to the MS2034B/MS2035B instruments.
  - Added support for passive GPS antenna.
  - Added support for saving images(jpg) and measurement files simultaneously.
  - Added the automatic turn on feature when power is applied to a unit without battery. The button has been added under the system menu. Requires IPL/SPL/ataBoot version 3.25 or later. Contact Anritsu Customer Service to update IPL/SPL/ataBoot.
  - Added to Saved Measurement Files, the firmware package version number.
  - Displays asterisks in entry field when Remote Access Password is set. #12998
  - Now displays a different icon when battery is fully charged. #12031

  Spectrum Analyzer [6]
  - Added ":SENS:SWE:TRAC?" to return string with two integers: current trace average count & total traces to average. #16093
  - Added additional SCPI commands in Interference Analysis application. #18286
  - Added large marker table in AM/PM/FM mode. #17845
  - Added SCPI command ":DISPlay[:WINDow]:TRACe:Y[:SCALe]:RLEVel:AUTO IMMediate".
  - Added SCPI command ":SENSe:FREQuency:REFerence:SOURce?".
  - Added VBW/Average Type in zero-span mode for Spectrum Analyzer application.

  Vector Network Analyzer [4]
  - Added Distance Domain(option 501) as standard for MS2024B/MS2025B & MS2034B/MS2035B models.
  - Added interpolation calibration feature for MS2024B/MS2025B and MS2034B/MS2035B.
  - Added support for more than 1 cal kit per connector type.
  - Updated SCPI commands for connectors and cal kits. See Programming Manual for details.

  Operating System [4]
  - Added a prompt on bootup to warn for battery communication failures.
  - Added support for newer NAND file storage Hardware.
  - Added support for passive (non amplified) GPS antennas.

- Added support for replacement USB Host Hardware (1763A).

*** MISCELLANEOUS ***

General [2]
 - Updated Russian language translations.
 - Updated signal standard file to V2.08.

Vector Network Analyzer [2]
 - Updated cable list to V3.04.
 - Updated MWVNA FPGA to V17.0.

*** ENHANCEMENTS ***

General [29]
 - Added a special case for the battery self-test so that it doesn't indicate failure when the battery is not installed, but it indicates that there was no response from the battery so that the user can decide if there is a failure or not. #9981
 - Added ellipses for long names when using quick name matrix buttons. #19341
 - Added GPS altitude to saved measurement files. #11663
 - Added label in file save dialog to show free space available. #12294
 - Added label to show the free space on the currently selected save location.
 - Added more descriptive file save error messages. #16298
 - Added restrictions for special characters and spaces when naming filenames and folders. #9868
 - Added smaller fonts for Russian translation to better fit available space on buttons in the system language files. #16851
 - Added warning message when recalling a KML file whose map no longer exists. #12201
 - Allowing setup file shortcuts to use spaces in the filename. #19355
 - Applied Night Vision mode at bootup. IPL/SPL/ataBoot V3.50 or higher is required. Contact Anritsu Customer Service to update IPL/SPL/ataBoot. #9778
 - Better handling of touchscreen calibration aborts. #15600
 - Changed Display Settings menu buttons from "Invert Black & White" to "Color on White" and also changed "Black & White" to "Black on White".
 - Changed handling of multiple softkey presses. #15375

- Changed low battery warning sound interval. #15829
- Created a new icon for recalling setup files. #12957
- Implemented ISDBT-SFN Shift+7(File). #15443
- Improved error handling when overwriting existing files and folders. #14794
- Improved GPS frequency accuracy during temperature changes. #19096
- Improved handling of Recall KML Points & Map when the map isn't available. #18638
- Improved menu shortcut names for longer text. #17422, #15124
- Improved touchscreen interface for Ethernet dialog. #18622
- Line-wrapping option numbers in Status dialog. #19979
- Moved text overlapping with error messages when using MA24105A sensor. #16236
- Prevented creation of folders and filenames with only spaces.
- Removed CF card operations for instruments that do not support CF cards. #15444, #15595
- Restricted the ability to copy from a parent directory into a sub-directory. #14794
- Short form for SCPI command parameter "QUAS"(or "QUASi") is now valid. e.g. ":SENS:DET:FUNC QUAS". #7635
- Updated battery message status when no battery is connected. #7866

Spectrum Analyzer [36]
 - Added map-type delimited files to be saved in Interference Analysis and AM/FM/PM applications. #15156
 - Added support for sweep time measurement in sample detection mode.
 - Adjusted reference level maximum for field strength. #9858
 - Allowing longer antenna names. #18714
 - AM/FM/PM sweep time increment/decrement should now behave the same as sweep time in SPA. #8429
 - Applying Antenna Correction factors when using traces B and C. #15463
 - Changed delta markers to follow corresponding reference marker when they are off-screen. #9453
 - Changed message for available space from number of files to actual bytes remaining. #16298
 - Changed minimum value for recalled center frequency to 0Hz in Spectrum Analyzer application after power cycle. #20021
 - Disabled access to the limit menu and all limit-line related SCPI commands when Emission Mask is enabled. #16848
 - Disabled trigger menu and related SCPI commands while in interference mapping mode. #12671
 - Fixed a save on event issue between "Save Then Stop" interaction with "Crossing Limit" and "Sweep Complete". #16842
 - Fixed an unstable measurement in zero span for RBW 300kHz measurement setups. #16942
 - Fixed preset problem when field strength is enabled. #19595
 - Improved annotation of sweep time in zero span mode. #17588

- Improved auto reference level adjustment for field strength mode as units are changed. #18642
- Improved auto reference level adjustment with delta markers while changing units.
- Improved counter marker peak search operation. #19891
- Improved interface for trace averaging function. #10355
- Improved reference level offset calculation in Emission Mask. #20204
- Improved single sweep mode Channel Power measurements. #17617
- Improved the Audio Spectrum measurement in Spectrum Analyzer application. #17623
- Improved the spur performance at 1950 and 2041 MHz.
- Improved tone rate in IA Signal Strength mode. #18241
- Improved usability of setting recording time with twiddle knob for a Spectrogram measurement. #18211
- Improved user messages in IA Spectrogram mode. #17349
- Improved visibility of screen messages in IA Spectrogram mode. #17775, #18217
- Improved zero span narrow VBW performance in Spectrum IA mode. #19248
- Increased displayed resolution for sweep time in zero span. #17588
- Removing Auto Ref Level button from all SPA submodes except for SPA, PM, and IA.
- Revised EEPROM error message. #18651
- RSSI in Interference Analyzer mode auto-scale better positioned in graph. #17657
- Selecting "Set Demod Freq to Current Marker Freq" button turns on marker and demodulation frequency will be the last-edited marker frequency in AM/FM demodulation mode. #17425
 - Turn coverage mapping off when "All Measurements Off" is pressed so last span will be restored. #19502
 - Updated Chinese translation. #18427
 - Updated preamp, input attenuation, reference level interactions. #7801

 Vector Network Analyzer [8]
 - Changed the annotation for Measurement Type in Field mode list from "Cable Loss" to "Cable Loss (ReturnLoss/2)". #18601
 - Improved marker movement along trace.
 - Improved marker twiddle knob interaction. #18765
 - Marker adjustment is now independent of number of sweep points. #16934
 - Relabeled source power level button. Preset applies defaults for IFBW and source power in Vector Volt Meter mode.
 - Updated ":VVM:FETCh:DATA?" SCPI command. See programming manual for details.
 - Updated Phase Reference Line Max value from 0 to 10. Updated Phase Reference max from 180 to 225 and min from -180 to -225. #19333
 - Updated Vector Volt Meter IFBW to be a tri-state button when in field mode. #19186

Operating System [9]
 - Added additional error handling for USB incoming communication errors with Windows 7 systems. #15322
 - Added check for 100% charge, so battery charger will not restart if the battery is full.
 - Adjusted the SDRAM clock freq. to eliminate display flicker at extreme temperatures.
 - Improved communication stability with replacement USB Host Hardware (1763A).
 - Improved dynamic memory management with Windows 7 hosts. #15322
 - Improved error handling for WiFi TCP data transfer functions.
 - Improved timing of motherboard self test to prevent false reports of -5.8 Volt failures.
 - Improved touchscreen calibration. #17147
 - Improved video controller operation to prevent unstable screen at extreme temperatures.

*** BUG FIXES ***

General [30]
 - Changed VSWR limit line edits from "dB" to "Enter" since it is unitless. #18473
 - Corrected a rounding issue from tenths of Hz for frequencies. #16170
 - Corrected the Save dialog while using Arrow Navigation mode for touchscreen instruments. #16181
 - Fixed a problem where ":SENSe:FREQuency:STARt" SCPI command truncates the last digit when setting frequency beyond 4,294,967,295 Hz. #15669
 - Fixed a problem with displaying large Russian fonts. #16851
 - Fixed a problem with editing and saving of instrument names when USB device is selected as save location. #15232
 - Fixed a problem with multiple marker table presses causing the instrument to freeze. #16099
 - Fixed a problem with pressing '1' when Signal Standards List is displayed. #17293
 - Fixed an issue where ":MMEMory:DIRectory?" command was returning incorrect filenames and extensions. #19358
 - Fixed an issue where coverage mapping points did not map correctly on touch screens if base jpg was smaller than the map region on the screen. #17810
 - Fixed an issue where Menu screen help window would not close. #17387
 - Fixed an issue where sending a mode switch command through SCPI with the mode selector displayed, which would cause the unit to freeze after the mode switch. #16100
 - Fixed an issue with setting the date to Feb 29 on a leap year. #13709
 - Fixed defect related to save file overwrite behavior not prompting the user to confirm a file overwrite operation. #15975
 - Fixed defect that allowed overwriting an existing measurement file without notification. #15975
 - Fixed defect where the user could not use the left/right arrow keys to navigate the buttons in the "Confirm File Delete" dialog when the instrument language was set to

French. #19073
 - Fixed defect where touching any empty area on the Modulation Summary measurements would cause the keyboard to become unresponsive. #15790
 - Fixed error where negative volts or watts was being displayed as huge negative femto-Volt or femto-Watt values. #14636
 - Fixed French translation for "Save Measurement As". #19074
 - Fixed intermittent hang up when recalling setups from a touchscreen menu shortcut. #19066
 - Fixed limit line resolution for VSWR measurements. #18875
 - Fixed limit line resolution when saving measurement files allowing external PC Tools to recreate the limit line. #10370
 - Fixed night vision mode grid from white to red in Coverage Mapping mode. #12718
 - Fixed SCPI update for ":SENSe:GPS" when instrument is recalling a trace. #12000
 - Fixed touchscreen user interface for remote user passwords. #18640.
 - Fixed visual appearance of transitions out of menu screen. #11437
 - Improved filename entry in File Save dialog on touchscreen devices. #6967
 - Increased VSWR limit line parameter entry resolution to two significant digits past the decimal point. #18473
 - Prevent menu key press when the measurement is running. #16181
 - Recording time now calculates based on available storage space. #7192

Spectrum Analyzer [34]
 - Corrected intermittent false self-test failures. #16540
 - Corrected language file for Chinese translation. #17600
 - Fixed "Sweep Once" in IA Spectrogram mode. #10982
 - Fixed a color inconsistency in RSSI map legend. #14673
 - Fixed a defect where a counter marker's location on the screen would not match its actual frequency. #15671
 - Fixed a defect where Video trigger level with RL Offset was not displayed properly. #11523
 - Fixed a display issue with external trigger representation. #18623
 - Fixed a problem with instruments not remembering field strength measurement setup state following power cycle.
 - Fixed an intermittent problem where an EEPROM error message was displayed.
 - Fixed an issue preventing triggering from working while in IA Spectrum zero span mode. #12671
 - Fixed an issue where GPS Hi Accuracy was not always reported correctly. #19181
 - Fixed an issue where the twiddle knob does not work properly in Zero span. #17626
 - Fixed an issue with Audio demodulation of a narrow band FM tone. #15208
 - Fixed an issue with Field Strength measurement: antenna factor display is no longer affected by changes in the reference level offset. #10628
 - Fixed auto ref level not working in IA mode.

- Fixed Channel Power Measurement table not getting drawn after recalling measurement file or using some related SCPI commands. #19518, #18917
- Fixed colors for coverage mapping plotted points and RSSI value. #14673
- Fixed defect in the limit line envelope that had a restriction for even number of points. #16853
- Fixed defect where Spurious Emissions Mask amplitude was not set correctly for the first segment added to empty table. #18877
- Fixed defect where touching any empty area on the Modulation Summary measurements would cause the keyboard to become unresponsive. #15790
- Fixed limit move button showing wrong units when using non-dB units. #14963
- Fixed marker position update displayed after SCPI command to change the marker location in Single sweep mode. #13118
- Fixed marker units not getting updated immediately after switching units. #18516
- Fixed occasional freeze when measurement units are non-dBm based.
- Fixed preset following C/I measurement that did not reset certain parameters properly. #7971
- Fixed problem with peak search of reference delta markers. #9999
- Fixed recalling a limit line in IA Spectrogram mode. #17841
- Fixed SCPI command ":AFPanalyzer:RFSPectrum:DATA?" result. #15100
- Fixed SCPI command ":CALCulate:LIMit:POINt:Y?". #17464
- Fixed setting wrong Reference Level when noise marker is turned on.
- Fixed spikes in performance and fast sweep mode causing erroneous measurements. #16897
- Fixed squelch amplitude bug in AM demodulation mode below 8 MHz. #18621
- Fixed unexpected trace problems when issuing SCPI command ":TRACe:DATA?". #18093
- Reference level restored correctly when Field Strength is turned On/Off with linear units.

Vector Network Analyzer [7]
- Fixed a problem where IFBW selection had no effect. #16654
- Fixed an issue that did not show cal state when recalling measurements. #12204
- Fixed an issue where Hold mode was carried over between application switches. #13264
- Fixed an issue where the status area was not always drawn after changing applications into Vector Network Analyzer application using a menu shortcut.
- Fixed an issue which caused display problems when switching out of VNA application when the sweep was in hold mode. #16720
- Fixed an issue which was causing the memory Trace frequency axis to be incorrect if the number of points were changed after the display was set to Trace + Memory. #12012
- Fixed erratic behavior in Vector Volt Meter when the phase measurement is exactly 180 degrees. #14874

High Accuracy Power Meter [2]
- Corrected order of magnitude for percent of duty cycle in HI-PM mode for MA24105A power sensor. #17756
- Fixed defect that caused strange behavior of two buttons ("Reverse Lower Limit" and "Reverse Upper Limit") in HI-PM mode with MA24105A power sensor attached when

connected to MST. #16431

  Operating System [1]
  - Fixed battery charge LED response and improved battery charging operations. #18488

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What will the Customer See in this release? MS2024/25/34/35B Application Package V1.17 4-8-2013

Internal Release: support for change in anti-backlash setting in LO2.

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What will the Customer See in this release? MS2024/25/34/35B Application Package V1.16 12-07-2012

Internal Release: Fix for a NAND flash problem.

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What will the Customer See in this release? MS2024/25/34/35B Application Package V1.15 11-15-2012

General Features

- Changed File deletion user interface to prevent user from accidentally deleting all files.
- Added more granularity to the brightness adjustment
- Added 'Display Blank', which turns off the whole display
- Added 'invert Black and White'
- Japanese language translation updated

Vector Network Analyzer Application

- No Change

High Accuracy Power Meter

- No Changes.

Spectrum Analyzer Application

- Fixed a bug where RSSI was not reflecting Ref Level Offset correctly in coverage mapping mode.
- Fixed a bug where a Counter marker's location on the screen would not match its actual frequency.
- Sweep Time is now displayed with an initial 'estimate' for the first sweep and updated to measured values in subsequent sweeps.
- Added support for new units - dBW, A and dBA and Watt/cm2 in Field Strength mode.
- Added new measurement units for Field Strength
- Added new Antenna EMI display option
- Fixed a bug where level accuracy was affected by ~2 dB with the 3 MHz RBW filter in certain spans
- Fixed several units and marker related bugs
- Fixed a bug that would cause Bias Tee output voltage to increase after performing a preset. Bias Tee will now be turned off after performing a Preset
- Fixed a problem when moving markers using touch screen in zero span

Interference Analyzer Application

- Fixed a bug that would cause Bias Tee output voltage to increase after performing a preset. Bias Tee will now be turned off after performing a Preset

Channel Scanner Application

- Fixed a bug that would cause Bias Tee output voltage to increase after performing a preset. Bias Tee will now be turned off after performing a Preset
- Fixed a DDC error when selected signal standards have span less than ~40 MHz.

AM-FM-PM Analyzer

- Fixed an audio output problem when turning on Audio demod
- Fixed File Save menu to include KML (2D/3D) and Tab delimited
- Fixed a problem with coverage mapping when switching applications
- Fixed a problem displaying ADC over range & Saturation messages in the Summary window.

Vector Volt Meter

- No Changes.

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What will the Customer See in this release? MS2024/25/34/35B Application Package V1.14 5-25-2012

General Features

- Fixed an issue where the graph was being drawn over the shortcut menu after a mode switch.
- In Language Selector, 'Custom 1' is now 'Russian', 'Custom 2' is now 'Custom'.

Vector Network Analyzer Application

- Fixed an issue where amplitude menu shows incorrect buttons after switching from field mode to vna mode.
- Fixed an issue where the first point of a trace would randomly spike.
- Fixed an issue where the cable list could not be updated through MST or LST.
- Fixed an issue where the CALCulate:MARKer#:X? SCPI command was returning 0 Hz for markers on all traces.
- Changed default IF BW from 10 kHz to 1 kHz.
- Improved DTF loss per foot calculation for frequencies below 1000 MHz.
- Added an automatic IF Gain Cal during first bootup after firmware update. Please note that reverting back to
  older firmware will require the unit to be sent into a service center to re-run the IF Gain Cal.

High Accuracy Power Meter

- No Changes.

Spectrum Analyzer Application

- Fixed a bug where RSSI was not reflecting Ref Level Offset correctly in coverage mapping mode.

- Fixed a bug where a Counter marker's location on the screen would not match its actual frequency.
- Sweep Time is now displayed with an initial 'estimate' for the first sweep and updated to measured values in subsequent sweeps.
- Added support for new units - dBW, A and dBA and Watt/cm2 in Field Strength mode.
- Please note that Russian translation is not available for this application for this release.

Interference Analyzer

- Fixed a problem where the spectrum sweep doesn't reset after it has been recorded into
  the spectrogram trace under some circumstances.
- Please note that Russian translation is not available for this application for this release.

Channel Scanner

- Fixed a bug where the signal standard list window was dismissed prematurely when
  user has selected an invalid signal standard such as "NONE."
- Please note that Russian translation is not available for this application for this release.

AM-FM-PM Analyzer

- No Changes.
- Please note that Russian translation is not available for this application for this release.

Vector Volt Meter

- No Changes

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What will the Customer See in this release? MS2024/25/34/35B Application Package V1.06 12-7-2011

General Features

- Added a new feature which automatically pops up a firmware update window when a USB stick

containing the firmware is attached to the instrument.

Vector Network Analyzer Application

- Added 1-Port Response and 2-Port Response calibrations in field mode.

High Accuracy Power Meter Application

- Added support for the new power sensor model MA24240A, and MA24105A.

Spectrum Analyzer Application

- Fixed the problem of which marker jumps onto trace A when user presses button to search
  next peak to the left/right.
- Stopped displaying antenna factor in field strength measurement if the spectrum measurement
  is outside of the valid antenna's frequencies.
- Disallow recalling of a setup if the instrument is in measurement recall mode.

Interference Analyzer Application

- Fixed the problem in which the spectrum sweep doesn't reset after it has been recorded into
  the spectrogram trace under some circumstances.

Channel Scanner Application

- Fixed the problem in which the signal standard list window was dismissed prematurely when
  user has selected an invalid signal standard such as "NONE."

AM-FM-PM Analyzer

- No changes

Vector Volt Meter

- No Changes.

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What will the Customer See in this release? MS2024/25/34/35B Application Package V1.05 09-15-2011

General Features

- Fixed a problem where a saved JPEG file could be empty.

Vector Network Analyzer Application

High Accuracy Power Meter Application

Spectrum Analyzer Application

Interference Analyzer Application

Channel Scanner Application

AM-FM-PM Analyzer

Vector Volt Meter

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What will the Customer See in this release? MS2024/25/34/35B Application Package V1.04 05-18-2011

General Features

- Temperature reading in status window now displays both in Celsius and Fahrenheit.
- Touching parameters on the left column of screen activating for parameter editing.
- Preventing saved jpeg from including save Recall window when the button ENTER is repeatedly pressed during save.

Vector Network Analyzer Application

- Calibration type selection in field mode has been simplified to '1-Port' and '2-Port' calibrations.
- Added warning window when calibration is ON and the user attempts to set a frequency outside of the calibration frequency range.
- Scaling has been changed from 'Reference Value'/'Resolution Per Div' to 'Top'/'Bottom' in field mode.
- Dual graph display added in field mode.
- 'Dithering' has been renamed to 'RF Immunity' in field mode.
- 'IFBW' button has been removed in field mode.
- Calibration will be invalidated when switching from Field mode to VNA mode and vice versa.

High Accuracy Power Meter Application

No changes

Spectrum Analyzer Application

- Overhaul of the User Interface (see New Measurement Guide 10580-00244 for more details)
  - More setup information is now displayed on the left edge of the screen.
  - Amplitude menu
    - Reference Level Offset is now more consistent with 'Power Offset' used in other modes.
      It now accepts 'Gain' or 'Loss' as terminators and the value is shared with other modes by default.
  - BW menu
    - RBW and VBW values are now maintained separately for zero-span measurements.
    - The default value of Span/RBW is now 100.
    - A new button to change VBW average type to Log.
  - Marker menu
    - A 'Large' setting is now available for the Marker table to view marker readout in a large font.
  - Trace menu
    - A new Trace Info button is now available in the Trace menu to show a concise listing of all parameters
      for the selected trace.
    - 'Reset Sweep' button has been renamed to 'Reset Trace' and moved to the Trace menu.
  - Sweep menu
    - 'Manual Trigger' is now called 'Sweep Once'.
    - A new 'Sweep n Averages' button has been added to allow a full set of averages to sweep when the sweep
      is set to Single.
    - A new Sweep Mode button (only certain models) allows users to control the sweep algorithm.
    - A new 'Auto Sweep Time' button has been added.
    - Trigger sub-menu has been revamped with the ability to add hysteresis to the video trigger level.
    - Gated Sweep Setup (Option 90) is now more responsive and has separate controls for the gate view (zero span).
- Improvements and bug fixes to the Field Strength measurement.
- In Coverage Mapping, user can now retrieve GPS altitude information via SCPI commands, and saved tab delimited and/or KML files.
- Added quick key access, and screen touch access to SPA measurement settings in Coverage Mapping.
- Added color legends for setting threshold levels in Coverage Mapping.
- Fixed units in RSSI Coverage Mapping.
- Added the display of frequency range in the antenna table.
- Added the display of a frequency offset.
- Added the display of Fahrenheit for temperature in the Selftest window.

- Fixed display issues when switching from SPA to AM/FM/PM.
- Fixed problems in zero span where IF bandwidth appears different than what is set to.
- Disabling of save-on-event in spa when switching to other spa submode, i.e. IA.
- Save/Recalling a saved trace with some ref level offset in MST.

Interference Analyzer Application

- Fixed a bug where the 'Save' window would also be saved when saving to jpeg from Spectrogram measurements.
- In Interference Mapping, user can now retrieve GPS altitude information via SCPI commands, and saved tab delimited and KML files.
- Timing accuracy of sweep interval of RSSI has been improved.

Channel Scanner Application

- Fixed several bugs related to Script Master.
- Fixed a frequency range discrepancy to the model frequency range.

AM-FM-PM Analyzer

- Fixed an issue with power offset.
- Added SCPI commands.
- Added coverage mapping.

Vector Volt Meter

No changes

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What will the Customer See in this release? MS2024/25/34/35B Application Package V1.03 03-23-2011

General Features

Fixed a mode switch hangup in units with option 411 installed
Fixed a false EEPROM Failure in units with Option 411 installed

Vector Network Analyzer Application

No changes

High Accuracy Power Meter Application

No changes

Spectrum Analyzer Application

No changes

Interference Analyzer Application

No changes

Channel Scanner Application

No changes

AM-FM-PM Analyzer

No changes

Vector Volt Meter

No changes

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What will the Customer See in this release? MS2024/25/34/35B Application Package V1.00 09-23-2010

General Features

Initial Release

Vector Network Analyzer Application

Initial Release.

High Accuracy Power Meter Application

Initial Release.

Spectrum Analyzer Application

Initial Release.

Interference Analyzer Application

Initial Release.

Channel Scanner Application

Initial Release.

AM-FM-PM Analyzer

Initial Release.

Vector Volt Meter

Initial Release.