MT8870A Release Notes

[Note]
Always perform the full calibration after the software of MT8870A is upgraded.

Release note of the following software is described.
Software with the product name followed by *1 is not supported by MU887002A.
Software with the product name followed by *2 is supported by MU887002A only.

<Platform> <VSG>

MU887000A	Firmware

<Cellular >

MX887010A	Cellular Standards Sequence Measurement
MX887011A	W-CDMA/HSPA Uplink TX Measurement
MX887012A	GSM/EDGE Uplink TX Measurement
MX887013A	LTE FDD Uplink TX Measurement
MX887013A-001	LTE-Advanced FDD Uplink CA TX Measurement
MX887014A	LTE TDD Uplink TX Measurement
MX887014A-001	LTE-Advanced TDD Uplink CA TX Measurement
MX887015A	CDMA2000 Reverse Link TX Measurement
MX887016A	1xEV-DO Reverse Link TX Measurement
MX887017A	TD-SCDMA Uplink TX Measurement
MX887018A	NR FDD sub-6GHz Uplink TX Measurement
MX887018A-001	NR FDD Contiguous ENDC TX Measurement
MX887019A	NR TDD sub-6GHz Uplink TX Measurement
MX887019A-001	NR TDD Contiguous ENDC TX Measurement
MX887065A	Category M FDD Uplink TX Measurement
MX887067A	NB-IoT Uplink TX Measurement
MX887068A	LTE-V2X TX Measurement
MX887068A-001	LTE-V2X PSCCH TX Measurement

<Small Cell >

MX887021A	W-CDMA/HSPA Downlink TX Measurement
MX887023A	LTE FDD Downlink TX Measurement

<SRW>

MX887030A	WLAN 802 11b/g/a/n TX Measurement
MX887031A	WLAN 802 11ac TX Measurement
MX887032A	WLAN 802 11p TX Measurement
MX887033A	WLAN 802 11ax TX Measurement
MX887034A	WLAN 802.11be TX Measurement *2
MX887040A	Bluetooth TX Measurement
MX887040A-001	DLE TX Measurement
MX887040A-002	2LE TX Measurement
MX887040A-003	BLR TX Measurement
MX887040A-004	BLE AoA/AoD TX Measurement
MX887050A	Short Range Wireless Average Power and Frequency Measurement

<LRWPAN>

MX887060A	IEEE 802.15.4 TX Measurement

<Z-Wave>

MX887061A	Z-Wave TX Measurement

<FM/Audio>
MX887070A FM/Audio TRX Measurement *1
<Multi-DUT Measurement Scheduler>
MX887090A Multi-DUT Measurement Scheduler
<Pathloss measurement function >
MX887092A Pathloss measurement function for MU887002A *2

[History]
●V06.03.07 [2026/3/27]
[Bug Fix]
<Platform>
- Fixed the bug where retrieve result and time of execution of Full Calibration and Band Calibration were sometimes not backed up.

●V06.03.05 [2026/2/20]
[Bug Fix]
<SRW>
== WLAN 11a/g/n/ac/p/ax ==
- Fixed the bug where the Center Frequency Leakage measurement result could sometimes be nan.

<FM/audio>
- Fixed the bug where the measurement could not be executed in V06.03.02.

●V06.03.02 [2025/4/23]
[New Feature]
<SRW>
== WLAN 11ac ==
- Added 11ac Spectrumflatness Calculation Mode
== Bluetooth ==
- Added the calculated Δf2max (%) result from Δf2max (Hz) in all packets.

[Bug Fix]
<SRW>
== WLAN 11be ==
- Fixed the bug that measuring 11be TB 320MHz signals resulted in only 160MHz of IQ Constellation being output.
- Fixed the bug that the software might forcibly terminate during 11be measurements.
== Bluetooth ==
- Fixed the bug that BLE threshold value was used in the calculation process of 2LE Δf2max (%).

●V06.02.00 [2023/6/26]
[New Feature]
<SRW>
== WLAN OFDM ==
- Added Symbol Clock Error correction function
== WLAN 11ax/be ==
- Supported 11ax MU-PPDU and 11be TB-PPDU measurements in CombiView SRW Applet.

[Bug Fix]
<SRW>
== WLAN OFDM ==
-Fixed the bug that sometimes makes the full-span Spectral graph become abnormal when a NonOFDMA signal is measured with AutoID.
== WLAN 11be ==
- Fixed the bug that causes the 11be TB RU Allocation type to not be reflected when it is 2 segments or more.

●V06.01.00 [2023/2/14]
[New Feature]
<Platform>
- Added a remote command which allows to set the values by batch in the loss-table list.

<Cellular>
==NR FDD/TDD sub-6GHz ==
- Supported the operation bands 75 and 76.
- Improved timing synchronization capability of sequence measurement.

<SRW>
- Added support for the following software to MU887002A
MX887034A WLAN 802.11be TX Measurement

== WLAN 11b ==
- Added Equalizer function for EVM measurement
== WLAN 11ax ==
- Supported measurement of MU-PPDU (HE MU) signal
- Improved packet detection capability of TB-PPDU measurements.
== WLAN 11a/g/n/p/ac/ax ==
- Added center frequency leakage measurement result in dBm unit to OFDM EVM measurement.
== Bluetooth ==
- Enhanced correlation function for signal detection during EDR measurement.

[Bug Fix]
<SRW>
- Fixed the issue where application terminates during measurement in RF-Semaphore Mode.

[Known Issue]
- 11ax MU-PPDU and 11be TB-PPDU measurements are not yet fully supported in CombiView SRW Applet. There are cases when the SRW Applet cannot start up after these measurements are done. When that happens, initialize the module settings, and then start up the SRW Applet.

●V05.01.00 [2022/8/18]
[New Feature]
<Cellular>
- Added support for the following software.
MX887068A-001 LTE-V2X PSCCH TX Measurement

==NR FDD/TDD sub-6GHz ==
- Supported operation bands 13, 14, 18, 24, 26, 30, 46, 48, 53, 65, 85, 90, 91, 92, 93, 94 and 96.

[Bug Fix]
<Platform>
- Fixed the issue that worsened the isolation between even-numbered and odd-numbered RF Ports of the MU887002A depending on the operating procedure.

<SRW>
- Fixed a bug that caused EVM to be around -140 [dB] when measuring 11ax 1 Symbol signal with FULLPACKET.

●V05.00.01 [2022/4/26]
The feature of this release is identical to V04.02.05.
If MU887002A is equipped with the RF Board or Divider Board of hardware revision 10 or later, make sure the version of the software installed is V05.00.01 or later.

●V04.02.05 [2022/3/7]
[Bug Fix]
<Platform>
- Fixed the issue where frequency characteristics within the modulation bandwidth deteriorated during vector modulation when using V04.02.00 on MU887002A-097.

●V04.02.00 [2022/1/21]
[New Feature]
<Platform>
- Added support for the following waveform files to MU887002A.

MV887021A	W-CDMA/HSPA Uplink waveforms
MV887023A	LTE FDD Uplink waveforms
MV887060A	IEEE 802.15.4 waveforms
MV887061A	Z-Wave waveforms
MV887065A	Category M FDD Downlink waveforms
MV887067A	NB-IoT Downlink waveforms
MV887068A	LTE-V2X waveforms
MV887104A	QZSS waveforms

<Cellular
- Added support for the following software to MU887002A.

MX887065A	Category M FDD Uplink TX Measurement
MX887067A	NB-IoT Uplink TX Measurement
MX887068A	LTE-V2X TX Measurement

<SRW>
- Added support for the following software.

MX887040A-004	BLE AoA/AoD TX Measurement

<Small Cell>
- Added support for the following software to MU887002A.

MX887021A	W-CDMA/HSPA Downlink TX Measurement
MX887023A	LTE FDD Downlink TX Measurement

<LRWPAN>
- Added support for the following software to MU887002A.

MX887060A IEEE 802.15.4 TX Measurement

<Z-Wave>
- Added support for the following software to MU887002A..
  MX887061A Z-Wave TX Measurement

<Pathloss measurement function>
- Added support for the following software to MU887002A.
  MX887092A Pathloss measurement function for MU887002A

[Bug Fix]
<Cellular>
==NR FDD/TDD sub-6GHz ==
- Fixed the issue that narrowed the setting range of UL RMC Starting RB for DFT-s-OFDM.

==LTE-V2X ==
- Fixed the issue that caused the in-band emission (Max. value) of the spectrum waveform data to be Not Measured.

<SRW>
== WLAN OFDM ==
- Fixed the issue that may worsen EVM when Frequency Correction Setting is SIG or DATA.

●V04.01.00 [2021/7/26]
[New Feature]
<Platform>
- Command Converter supports the following.
  11ax SU-PPDU 160MHz measurement
  11ax TB-PPDU measurement
  Additional setting commands for WLAN List mode
  MU887002A port5 to 12

<SRW>
== COMMON ==
- Auto OFDM segment supports 11ax SU-PPDU measurement.
== WLAN 11ax ==
- Supports measurement for 11ax SU-PPDU 160MHz.
- Supports measurement for 11ax TB-PPDU.
== WLAN 11n ==
- Supports separate settings of EVM limit for each Band.

[Bug Fix]
<Platform>
- In the case of MU887002A, fixed the issue where it may take around 1ms until SG level is stable when SG level is set.
- In the case of MU887002A-007, fixed the issue where overshoot of the SG signal may occur when SG frequency is set on a Half Duplex Port. Ports 5 to 12 are Half Duplex Ports in MU887002A.
- In the case of MU887002A, fixed the issue where the MIMO measurement of Command Converter is sometimes not completed.
- Fixed the MIMO wave output function of Command Converter.

<SRW>
== COMMON ==
- Fixed the issue where the results of Spectrum Profile shift 1 sample to the Lower side.

== WLAN 11ac ==
- In the case of PPDU type=160MHz, fixed a part of period for Average calculation in Spectrum Flatness maasurement.
- In the case of PPDU type=160MHz and Full Mask Enable=Off, fixed the Mask judgment function in SEM Measurement.

== WLAN 11ax ==
- Fixed the issue where the DataRate response for the follow commands are shifted by 0.1Mbps in some cases.
  FETCh:SRWireless:SEGMent:IDENtity?
  FETCh:SRWireless: PACKet:IDENtity?
- In the case of PPDU type=40MHz, fixed the frequency offset of transmit spectral mask.

●V04.00.02 [2021/7/12]
[New Feature]
<Platform>
- Supports MU887002A-007/107/207 7GHz Extension Function Option.
- Supports MU887002A-097/197 7GHz Extension Hardware Option.
- Changed the maximum configurable port difference from 8dB to 12dB for Path Loss in VSG (standard value is 8dB).

[Bug Fix]
<Platform>
- In the case of MU887002A, fixed the issue where frequency error occurs rarely but immediately after setting the frequency.
- In the case of MU887002A, fixed the issue where level error sometimes occurs at set frequency 5200 MHz of VSG.
- In the case of MU887002A, fixed the issue where the output signal leaks slightly even if the output setting is turned off in VSG.
- In the case of MU887002A, fixed the issue where booting is sometimes prevented when software installation fails.
- In the case of MU887002A, fixed the issue where the response becomes invalid when PORT? query command is executed in RF-Semaphore Mode.
- In the case of MU887002A, fixed the issue where the signal is not output when in Broadcast output setting and RF-Semaphore Mode.

<SRW>
- In the case of MU887002A, fixed the issue where the measurement is sometimes not completed when Capture Mode is Packet.

== WLAN OFDM ==
- In T-MIMO, fixed the issue where the first capture status of the response of ":FETCh:SRWireless:CINFormation?" query command sometimes becomes "3079".
- In S-MIMO, fixed the issue where the measurement is sometimes not completed.

●V03.02.02 [2021/5/24]
[New Feature]
<Platform>
- Supports MU887002A TRx Test Module. However, the following software and waveforms are not supported by MU887002A.

MX887021A	W-CDMA/HSPA Downlink TX Measurement
MX887023A	LTE FDD Downlink TX Measurement
MX887060A	IEEE 802.15.4 TX Measurement
MX887061A	Z-Wave TX Measurement
MX887065A	Category M FDD Uplink TX Measurement
MX887067A	NB-IoT Uplink TX Measurement
MX887068A	LTE-V2X TX Measurement
MX887070A	FM/Audio TRX Measurement
MV887021A	W-CDMA/HSPA Uplink waveforms
MV887023A	LTE FDD Uplink waveforms
MV887060A	IEEE 802.15.4 waveforms
MV887061A	Z-Wave waveforms
MV887065A	Category M FDD Downlink waveforms
MV887067A	NB-IoT Downlink waveforms
MV887068A	LTE-V2X waveforms
MV887070A	FM RDS waveforms
MV887104A	QZSS waveforms
MV887112A	ISDB-Tmm waveforms

<Cellular>
==NR FDD/TDD sub-6GHz ==
- Added MX887018A/19A-001 NR FDD/TDD Contiguous ENDC TX Measurement
- Added UL Channel Bandwidth 70MHz.
- Added DMRS add pos 2 and 3.
- Added Margin Measurement Function and Pass/Fail Judgment Function on Spectrum emission mask measurement.
- Added Margin Measurement Function and Pass/Fail Judgment Function on In-band emission measurement.
- Added Pass/Fail Judgment Function on Spectrum flatness measurement.
- Applied EVM window length to EVM measurement.

== Category M ==
- Added Operation Band 85.

==NB-IoT ==
- Improved the measurement resolution of Occupied Bandwidth measurement.

== COMMON ==
- Added Trigger source setting on IQ Capture function.
- Added Measurement bandwidth 30 to 100 MHz on IQ Capture function.

<SRW>
== WLAN ==
- Improved 11ac Pilot Tracking processing.

[Bug Fix]
<Platform>
- Fixed the issue where control right is released when setting LVL command to OFF in the middle of measurement and RFLOCKCOMB was SASG in RF-Semaphore Mode.

<Cellular>

==NR FDD/TDD sub-6GHz ==
- Fixed the issue where the detection of Reference Signal failed occasionally in DFT-s-OFDM.
- Fixed the issue where the detection of Reference Signal failed occasionally when Carrier Leak is large.
- Fixed the issue where the measurement results of Spectrum emission mask / Adjacent Channel Leakage Power Ratio / Occupied Bandwidth show abnormal values when UL duration was odd and average counts of Spectrum emission mask / Adjacent Channel Leakage Power Ratio / Occupied Bandwidth were even.

==Category M ==
- Fixed the issue where a parameter error occurs if OLVL_NB command sets to less than -130 dBm when Channel Bandwidth was 3 MHz or more.

==NB-IoT ==
- Fixed the issue where the modulation analysis results deteriorated occasionally when the reference signal EVM of the target signal was bad.

==LTE-V2X ==
- Fixed the issue where the detection of Reference Signal failed occasionally when Resource Block number was small.

●V03.01.07 [2021/1/15]
This is a maintenance release. The features in this release are identical to those in V03.01.04.

●V03.01.04 [2020/12/10]
This is a maintenance release. The features in this release are identical to those in V02.11.08.

●V02.11.08 [2020/2/19]
[New Feature]
<Platform>
- Command Converter supports WLAN List mode.

<VSG>
- Enhanced the maximum number of waveform transmissions (waveform index parameter) from 200 to 520 in Waveform List Table for Sequence measurement.

<Cellular>
== NR FDD/TDD sub-6GHz ==
- Added 30MHz and 90MHz to UL Channel Bandwidth.
- Added 15kHz to Subcarrier Spacing.
- Added PUSCH mapping type setting.
- Added 1 to DMRS add pos.

==Sequence==
- Added support for NR FDD sub-6GHz TX Measurement.

<SRW>
== WLAN ==
- Added support for WLAN list mode fuction of Command Converter.

●V02.11.05 [2020/1/22]
[New Feature]

<Cellular>
==LTE-V2X ==
- Added MX887068A LTE-V2X TX Measurement.

<SRW>
== WLAN 11ax ==
- Improved the EVM measurement performance.

[Bug Fix]
<VSG>
- Fixed the issue where LVL ON command caused a parameter error occasionally after getting Control Right of SG by RFLOCK command in RF-Semaphore Mode.

<Cellular>
== LTE-FDD/LTE-TDD ==
- Fixed the issues where the detection of Reference Signal failed occasionally when Resource Block number was 1.
- Fixed the issues where the measurement results of Spectrum emission mask / Adjacent Channel Leakage Power Ratio / Occupied Bandwidth deteriorated occasionally when DL/UL Periodicity was 2.5 msec, Measurement bandwidth was 60 MHz or larger, and Average number was 2 or more.
- Fixed the issues where the EVM deteriorated for DFT-s-OFDM.
- Fixed the issues where the detection of Reference Signal failed occasionally when DFT-s-OFDM and Resource Block number was 4 or less.
- Fixed the issues where the detection of Reference Signal failed occasionally when Resource Block number was the maximum value.

== LTE-FDD/LTE-TDD ==
- Fixed the issue where the measurement results of In-band emissions for non allocated RB deteriorated occasionally for Contiguous CA.

==NB-IoT ==
- Fixed the issues where the EVM deteriorated occasionally when UL RMC Number of Subcarrier was 6.

<SRW>
== WLAN OFDM ==
- Fixed the issues where the Spectrum Flatness result could not be acquired occasionally where Bandwidth was 40 MHz or larger.

==BT==
- Fixed the issues where the synchronization failed occasionally in EDR measurement.

●V02.10.43 [2019/6/17]
[New Feature]
<Platform>
- Expanded the frequency band which Band Calibration function calibrates.

<Cellular>
==NR FDD sub-6GHz ==
- Added MX887018A NR FDD sub-6GHz Uplink TX Measurement.

==NR TDD sub-6GHz ==
- Added DFT-s-OFDM measurement function.
- Added UL PI/2 BPSK measurement function.
- Added Pre Phase Correction function.
- Expanded the lower limit of Resource Block Number setting from 12 to 0.

==Sequence==
- Added support for NR TDD sub-6GHz TX Measurement.

<LRWPAN>
- Expanded the minimum value of Trigger Level setting to -50 dB.

[Bug Fix]
<Cellular>
== LTE-FDD/LTE-TDD ==
- Fixed the issues where the detection of Reference Signal failed occasionally when frequency error was large.

==Sequence==
- Fixed the issues where EVM deterioration occurred occasionally when the timing error of UL signal between segments was large in the LTE measurement.

==Category M ==
- Fixed the issues where the application ended occasionally during the measurement of Resource Block 6.

●V02.10.33 [2019/3/25]
[New Feature]
<Platform>
- Command Converter supports IEEE802.15.4.
< Cellular >
== LTE-FDD/LTE-TDD ==
- UL 256QAM signal measurement
== LTE-TDD ==
- Freerun setting for measurement start trigger
== GSM ==
- Bit Offset setting for analysis symbol position adjustment
== TDSCDMA ==
- Midamble Configuration setting
<Multi DUT Measurement Scheduler>
- Added MX887060A and MX887061A

[Bug Fix]
< Cellular >
== Sequence ==
- Fixed the issues where a timeout occurred in the subsquent TX measurement in rare cases when setting segments for which no TX measurement was executed for 2 seconds or longer in the WCDMA measurement.
== GSM ==
- Fixed the issues where measurements could not be executed when test port was set to Port3 or Port4 in Rx Sweep measurement.
== Bluetooth ==
- Fixed the analysis length for the following measurements.

BLE Carrier Drift
2LE - Carrier Drift Rate, Carrier Drift, and Drift Rate

- Fixed the following issues about the limit function.
  BLR Carrier Frequency Offset, Carrier Drift, and Carrier Drift Rate were judged by the limit setting for BLE.
  BLE Initial Carrier Drift Rate and BLR Initial Carrier Drift Rate were judged by the limit setting for BLE Carrier Drift Rate
- Fixed the frequency offset for 2LE Inband Emission measurements.

<Z-Wave>

- Fixed the following issue.
  In rare cases, the application will shut down during the measurement

●V02.10.06 [2018/8/30]

[New Feature]

< Cellular >

== NR TDD sub-6GHz ==

- Added MX887019A NR TDD sub-6GHz Uplink TX Measurement.

== Sequence ==

- Added a function to specify a RF input test port for each segment.

●V02.09.30 [2018/7/9]

[New Feature]

<SRW>

== Common ==

- Improved the precision of Trigger Timeout function.

== WLAN 11ax ==

- Improved Pilot Tracking function for EVM measurement.

==BT==

- Improved the synchronization process for BT/EDR measurement.

[Bug Fix]

<SRW>

==WLAN 11ax ==

- Fixed Spectrum Mask Limit value when Full Span setting is ON in a WLAN 802.11ax Segment.

●V02.09.16 [2018/1/26]

[New Feature]

<SRW>

== WLAN OFDM ==

- Added MX887033A WLAN 802. 11ax TX Measurement.

[Bug Fix]

<Cellular>

== LTE-FDD/LTE-TDD ==

- Improved EVM measurement for cases when there is spurious in the signal bandwidth.

●V02.09.14 [2017/12/15]
[New Feature]
<Cellular>
== Category M ==
- Added MX887065A Category M FDD Uplink TX Measurement.

[Bug Fix]
<VSG >
- Fixed the issue where Control Right of SG cannot be acquired when LVL command is ON in RF-Semaphore Mode.

●V02.09.09 [2017/12/05]
[New Feature]
<Cellular>
== NB-IoT ==
- Added MX887067A NB-IoT Uplink TX Measurement.

== LTE-FDD/LTE-TDD ==
- Supports the operation bands 48, 68, 69, 70, 71, and 250.

== Sequence ==
- Improved processing speed of TXPWR_OPAT command in Tx Power measurement.

●V02.08.51 [2017/06/15]
[New Feature]
<Platform>
- Added Command Converter Function to support specific vendor chipsets.

<Cellular>
==LTE-FDD/LTE-TDD==
- Improved measurement speed for conditions when LONGSEARCH setting is ON and Resource Block setting > 50.
- Added SCC-1 Downlink frequency setting and SCC-1 Channel Setting for Inter-band Uplink CA measurement.

[Bug Fix]
<Cellular>
==LTE-TDD==
- Fixed issue where Trigger delay setting is not applied correctly for Inter-band Uplink CA measurement.

== GSM ==
- Fixed issue where TX sweep measurement returns same results for first and second frames.

==Sequence==
- Fixed issue where LTE measurement is not completed for a condition when there are two segments with Trigger type “Frame” or “PWR” and the first segment does not have measurement.

●V02.08.45 [2017/04/12]
[New Feature]
<SRW>
== Bluetooth ==

- Added MX887040A-002 2LE TX Measurement.
- Added MX887040A-003 BLR TX Measurement.

[Bug Fix]
<Platform>
- Improved the stability of GPIB communication.

<VSG >
- Fixed issues where the response Stopped (Inactive) is returned for Sequence operation status query, irrespective that the sequence is still in progress (Active) in Forced Execution mode.

●V02.08.42 [2017/02/20]
[Bug Fix]
<Cellular >
== GSM ==
- Fixed issues where the measurement status of final step within one sequence was "Not measured" in Tx Sweep measurement.

●V02.08.39 [2017/02/06]
[New Feature]
<Cellular>
==LTE-FDD/LTE-TDD==
- Added MX887013A-001 LTE-Advanced FDD Uplink CA TX Measurement.
- Added MX887014A-001 LTE-Advanced TDD Uplink CA TX Measurement.
- Extended the upper limit of the frequency setting range from 3800MHz to 6000MHz. (Available when the 6GHz frequency extension option is installed.)
- Supports the operation bands 32, 45, 65, 66, 67, 252, and 255.
- Added UL 64QAM measurement function.

==LTE-TDD==
- Improved EVM measurement when the frequency error range is set to NARROW.

==COMMON==
- Extended the upper limit of the frequency setting range from 3800MHz to 6000MHz. (Available when the 6GHz frequency extension option is installed.)

==Sequence==
- Extended the upper limit of the frequency setting range from 3800MHz to 6000MHz. (Available when the 6GHz frequency extension option is installed.)
- Improved the timing synchronization by extending the reference signal detection range when the trigger condition was set to Freerun for a segment other than the first one in the LTE measurement.

<LRWPAN>
- Extended the setting ranges of PSD Mask Limit Offset Absolute and Relative.

[Bug Fix]
<Platform>
- Fixed the issues where the MT8870A could not receive binary data unless it included a termination code. We corrected so that EOI would be detected as a data termination.
- Fixed the issues where LF was added to the binary data that the MT8870A transmitted even if the termination code was set to NONE.

<Cellular>
- Fixed the issues where setting the Cellular application right after startup caused a hang-up occasionally.

==Sequence==
- Fixed the issues where a timeout occurred in the subsquent TX measurement in rare cases when setting segments for which no TX measurement was executed for 3 seconds or longer in the LTE measurement.

<SRW>
== WLAN ==
- Fixed the issues where multi-segment measurements could not be performed because the segments with or without full span measurement were mixed.

== WLAN OFDM ==
- Fixed the issues where application ended during the Composite MIMO measurement.

== WLAN DSSS ==
- Fixed the issues where the points on the extended mask were not counted for calculating the 11b DSSS mask violation when the full mask was enabled.

== Bluetooth ==
- Fixed the issues where the measurable range of frequency errors was narrowed in the BLE signal measurement.

●V02. 08.12 [2016/02/01]
[New Measurement Software]
- Added MX887061A Z-Wave TX Measurement.

[New Feature]
<SRW>
== WLAN OFDM ==
- Added MX887032A WLAN 802. 11p TX Measurement.

== Bluetooth ==
- Added MX887040A-001 DLE TX Measurement.

[Bug Fix]
<SRW>
== CW ==
- Increased CW frequency measurement range.

●V02. 07.19 [2015/12/18]
[New Feature]
<LRWPAN>
- Supports Normal EVM.
- Supports the measurement for of Modulation Waveforms in Continuous Mode.
- Extended the search range when Sync Mode is set to SFD.

<SRW>
== WLAN OFDM ==
- 11ac 80+80 measurement
- 11ac 160MHz full span

== WLAN DSSS ==
- Added EVM pass/fail limit test against limit value expressed as percentage.

== Bluetooth ==
- Supported analysis for short payload lengths.

== Common ==
- Supported full native commands defined as SCPI short form.

[Bug Fix]
<Cellular >
== LTE FDD ==
- Fixed issues where a detection failure of Reference Signal occurred when LONGSEARCH was set to OFF.

== LTE FDD TDD ==
- Fixed issues where a limit line was sometimes loosen in In- Band Emission measurement when UE power for each Allocated RB was large (the value 0dBm or larger).

<SRW>
== Common ==
- Improved list mode stability.
- Improved auto-level stabilityt.

== Bluetooth ==
- Improved measurement stability for short packets.
- Improved measurement capability for packets having a long delay between RF power on and start of modulation.

●V02. 07.10 [2015/07/28]
[New Feature]
<Platform>
- Added support for MN8116A Multi-Port Switch.

<Cellular >
== LTE FDD ==
- Added a Trigger Source command.

<Multi DUT Measurement Scheduler>
- Allowed a Normal mode to be set through RF Mode setting command without license of Multi-DUT Measurement Scheduler.

[Bug Fix]
<Platform>
- Fixed issues where transition was stopped when a large amount of commands were simultaneously inputted using GPIB on rare occasions.

<Cellular >
== LTE FDD/ LTE-TDD ==
- Improved the EVM measurement performance.
- Fixed issues where a detection failure of Reference Signal occurred when the average count was set to 2 or more.

<SRW>
== Common ==

- Improved auto-level stability.

== CW ==

- Improved CW frequency measurement for the case of high power.

==WLAN OFDM ==

- Improved spectral mask measurement.

<FM/Audio>

- Fixed issues where the audio signal output was not stopped even when the audio port was switched to the input port.

●V02. 04.23 [2015/02/25]

[Bug Fix]

<Cellular >

== GSM ==

- Improved the GSM ORFS measurement performance.

●V02. 04.16 [2014/12/25]

[Bug Fix]

<Platform>

- Improved the GPIB serial poll performance.

<Cellular >

== Sequence ==

- Fixed issues where a detection failure of Reference Signal occurred in LTE measurement when LONGSEARCH was set to OFF, and Frame Trigger was used.

●V02. 04.11 [2014/12/02]

[New Feature]

<VSG >

- Supports waveforms in compression data form.

<Cellular >

== LTE FDD/ LTE-TDD ==

- Allowed a Channel setup change to be linked with a Frame Type setting.
- Added a parameter to TP INBANDE LEAK.

== LTE FDD ==

- Changed the range of Frequency /Channel of Operation Band12.

== LTE FDD ==

- Supports Uplink-downlink configuration.

== WCDMA ==

- Added an IQ Imbalance measurement performed when a signal to be measured is QPSK.
- Supports Operation Band 25, 26.

== COMMON ==

- Expanded an upper limit of the number of sequences from 100 to 400, and an upper limit of the number of measurable segments from 1600 to 6400 in TxRx Frequency measurement.

== Sequence ==

- Added QPSK to be measured in WCDMA measurement.
- Added Rho measurement in TDSCDMA measurement.

- Changed the minimum number of Step in LTE measurement when LONGSEARCH is set to ON.
- Added SCPI command to collectively turn OFF for all measurement items of each Standard measurement.
- Expanded an upper limit of the number of segments from 200 to 2000.

== EVDO ==
- Added a RTCLCMI command.

<SRW>
== WLAN OFDM ==
- Supports T-MIMO, S-MIMO.

== Bluetooth ==
- BLE payload length setting

<Multi-DUT Measurement Scheduler>
- Improved the performance of multi DUT measurement scheduler.

[Bug Fix]
<Platform>
- Fixed issues where SRQ of GPIB was not generated under specific conditions.

<Cellular >
== LTE FDD/ LTE-TDD ==
- Fixed issues where a detection failure of Reference Signal occurred when the average count was set to 2 or more, LONGSEARCH was set to OFF, and Group Hopping was set to OFF.
- Fixed issues of EVM deterioration in measuring a signal with a small number of Resource Block when Frequency Error Range was set to NARROW.

== LTE FDD ==
- Fixed issues where a detection failure occurred when LONGSEARCH was set to OFF, and FREQERRRNG was set to NARROW.
- Fixed issues where the measurement did not start when Power Template measurement was set to ON, and the others were set to OFF.
- Fixed issues of EVM deterioration occurred when LONGSEARCH was set to OFF, and Group Hopping was set to OFF.

== TDSCDMA ==
- Improved the Power Template measurement performance.

== COMMON ==
- Fixed issues where the first segment had large values in TxRx Frequency measuring result when an external loss was set just after SNGLS was executed.

<SRW>
== Common ==
- Fixed IQ data transfer failing.

== WLAN OFDM ==
- Fixed C-MIMO measurement for MCS0.

●V02. 03.23 [2014/10/29]
[New Measurement Software]
- Added MX887060A IEEE802.15.4 TX Measurement.

[New Feature]

<SRW>
== WLAN DSSS ==
- ARIB RCR-STD 33(5.0) for 802.11b spectral mask measurement
- Supported DSSS analysis for short payload lengths down to 1byte.

[Bug Fix]
<Platform>
- Fixed issues where validity of the temporary license was shorten under specific conditions.
- Fixed issues where a failure of level trigger detection occurred on rare cases.

<SRW>
== WLAN ==
- Fixed wrong result for spot spectrum measurement.
== WLAN DSSS ==
- Changed DSSS chip clock analysis default length from 5500 to 1000, to follow IEEE specification.
- Fixed the issue with DSSS EVM Analysis length mode and changed the default setting from 'FULLPACKET' to 'USER'.
== Bluetooth ==
- Improved BLE measurement stability.

●V02. 02.18 [2014/09/30]
[New Measurement Software]
- Added MX887021A W-CDMA/HSPA Downlink TX Measurement.
- Added MX887023A LTE FDD Downlink TX Measurement.

●V02. 01.04 [2014/07/30]
[New Measurement Software]
- Added MX887090A Multi-DUT Measurement Scheduler.

[New Feature]
<SRW>
== Common ==
- Multi-segment mode
- Measurement replay
- Packet Detection
== WLAN OFDM ==
- C-MIMO measurements with variable scramble seed
- Frequency error vs time
- Phase error vs time
- Frequency correction method
== Bluetooth ==
- CRC Checking
- Header exclusion mode
- BR 20dB Bandwidth
- BLE In-band emission

[Bug Fix]
<SRW>

== Common ==
- Impvoved auto-level stability.
- Improved aborting stability.
- Fixed over-range bit in SCPI status registers.

== WLAN OFDM ==
- Occasional invalid OBW result

● V01.07.44 [2014.03.17]

[Bug Fix]

<SRW>
- Fixed hang issues that occurred when performing measurements without signal being detected during Auto Range in measurements using Auto Range function.

● V01.07.43 [2014.02.26]

[Bug Fix]

<Platform>
- Fixed hang issues that could occur depending on the reception timing of the measurement execution command and execution timing of the measurement inside the MU887000A.

● V01.07.42 [2013.12.13]

[Bug Fix]

<Cellular>

== Sequnce ==
- Fixed issues where segment of output signal could not be changed in sequence measurement function.

● V01.07.41 [2013.12.11]

[New Feature]

<Cellular>

== COMMON ==
- Added frequency counter measurement function to spectrum monitor.
- Tx Rx Frequency
  Changed upper limit of the number of sequence to 100 for frequency setting.
  Added Trigger Delay function.
  Extended upper limit of the number of Input Level setting to 100.

== Sequence ==
- Added W-CDMA Peak Code Domain Error measurement function.
- Tx Power
  Added function to read measurement results as a batch.
  Extended upper limit of Trigger Delay setting range to 1000ms.
  Extended upper limit of the setting range of pat from PAT3 to PAT19.

== W-CDMA ==
- Added Inner Loop Power Control measurement.

■ FM/Audio (MX887070A)
- Added function to configure Deviation for Pilot Tone.
- Added function to add AM modulation to FM signal.

- Added function to light LED4 at audio output and LED5 at audio input.

■ SRW(MX887030A/31A/40A/50A)

== CW ==
- Added function to output absolute value result of frequency measurement.

== WLAN ==
- Added Composite MIMO measurement function.
- Added DSSS,OFDM IQ Imbalance measurement function.
- Added function to output results of channel estimation value.
- Added function to output results of Power measurement in unit of mW/MHz and results of Spectrum Density measurement.

== BT ==
- Added Tx Output Spectrum 20 dB Bandwidth measurement function.
- Added Header Exclusion function that is able to measure signal with different bit string from the signal format in Bluetooth specifications.

[Bug Fix]

<VSG>
- Fixed hang issues that occurred when interrupting measurements in list mode.

<Cellular>
- Fixed issues where the response was NONE when confirming PACKAGE while PACKAGE was NONE even if waveform had been loaded using VSG function.

== Sequence ==
- Fixed issues where measurement sometimes did not complete when measuring a sequence where WCDMA and Tx Power measurement are mixed.
- Fixed issues where synchronization of signal sometimes could not be established in LTE measurement.
- Fixed hang issues that occurred when performing measurements under certain trigger conditions in GSM measurement.
- Fixed issues where the measurement status of trigger segment was “Not measured” in SEQ TXP measurement.

== COMMON ==
- Fixed issues where Level Over was detected even in non-measurement periods in TxRx Freq measurement and Multi Power measurement.

== W-CDMA ==
- Fixed issues that could cause 1Slot deviation of measured position in Inner Loop Power Control measurement.
- Fixed issues where the accuracy of Timing Error was coarse (about 0.5chip).

== LTE-TDD ==
- Fixed issues where measurement position was deviated and signal could not be analyzed when LONGSEARCH was set to OFF.

== GSM ==
- Modified so that Loop Back BER can be measured even when tail bit phase of measured signal is different from GSM specifications.
- Fixed issues where measurements could not be executed when REGMRXPCFG1 was set to OFF in Rx Sweep measurement.

== C2K,EVDO ==
- Fixed issues where Pass/Fail of Spurious Emission measurement was always judged under strict conditions.
- Fixed issues where the result of EVM was occasionally high depending on measurement timing.

== TDSCDMA ==

- Fixed issues where Pass/Fail of Power Template measurement was judged under more strict condition than the specification (-63.5dB).

<SRW>
- Fixed issues where measurement occasionally took longer time when using packet count function.

<FM/Audio>
- Fixed issues where same tone was detected twice under certain conditions when measuring multi tone signal.
- Fixed issues where results were not output due to wrong modulation in RDS measurement.
- Fixed issues where signal was output while 0.1 Hz of AF Tone frequency setting signal was always rounded off.
- Fixed issues where Audio measurement function occasionally did not work when powering on MT8870A.
- Fixed issues where signal was not switched to the signal set by FM signal output function when operating waveform with VSG function while using FM signal output function.

● V01.05.77 [2013.09.05]
[New Feature]
<VSG>
- Added function that supports waveform multi licenses.
  Supports waveform file that requires multi licenses.

<Cellular>
== GSM ==
- Extended Rx Sweep function.
  Added FCCH DUMMY2 for each type of waveform.
== LTE-FDD/TDD ==
- Supports Operation Band 26 - 31, 44.
== LTE-TDD ==
- Added Slot#7 and #17 to measurement target.
== TDSCDMA ==
- Added Loopback BER measurement function.
- Extended upper limit of average count of measurement from 200 to 500.
- Added function to change measurement target slot when using Frame Trigger.

[Bug Fix]
<VSG>
- Fixed issues where waveform file with 2GB or more could not be loaded.

● V01.05.75 [2013.07.13]
[Bug Fix]
<Platform>
- Fixed issues where module was sometimes not activated at power-on.
- Fixed issues where when transmitting IFC via GPIB, the command to be subsequently sent was error.
- Fixed issues where software of all modules were sometimes not updated when executing the command (FIRMUPDATE DIFF,ALL) that executes installation of multiple modules.
- Fixed issues where LED did not light during the installation of software.

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