Link Master™ LMA

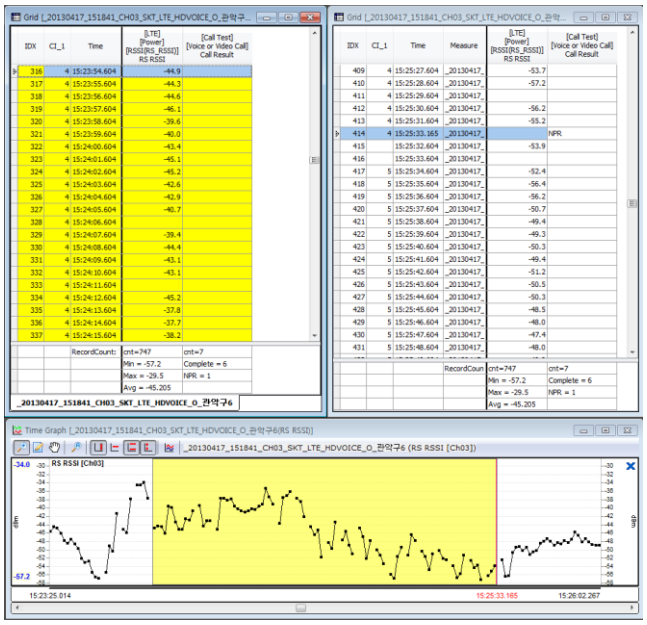
Revision History

Version 3.26.0511

WirelessMETRIX Inc. Proprietary

Ver 3.6.1210

- By Voice MOS tab in import option, default value of "Limit max. count per Call was changed from checked to unchecked
- On Grid Synchronized-Block-Mark modified that the mark indicate with color (It applied on Call Result Sync and Block Sync)



Ver 3.7.0103

- [Map] Some of features upgrade
  - ✓ Grayscale supports Google Map (It is selectable at Google Map Option)
  - ✓ (Korea Ver.)Default Map Mode for Domestic user set up to Korean Map.
- Handling of Voice Call Event (Addition 'ETC' Case)
  - ✓ The Case which '$E: Invalid state' message comes on Rx after dialing on Blue Tooth.
  - ✓ In this case the Call result handles to 'ETC'
  - ✓ Call Reason ➔ UE BT Dial Invalid State

[TOOL]		Voice Call Start	Call 34 / Origination / Tick 3540598	25	8047
[TOOL]		Bluetooth Info	(Tx) Msg : $D:01029914288	142	8566
[TOOL]		Bluetooth Info	(Tx) Msg : $GV	142	8708
[TOOL]		Bluetooth Info	(Rx) Msg : $E:D01029914288;INVALID STATE	142	8850
[TOOL]		Bluetooth Info	(Rx) Msg : $D:GV;0216	142	8992
[TOOL]		Bluetooth Info	(Tx) Msg : $BS?	142	53421

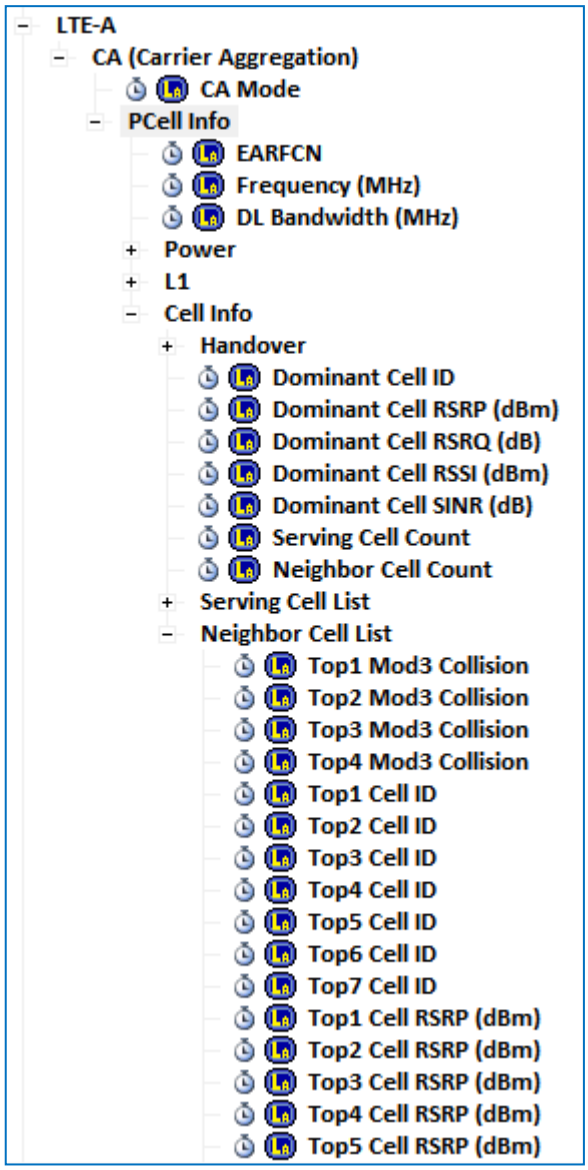
- The Bug which 3 Sec Data value is missed when in merge Importing
- Addition of Feature - SDM supports the importing in-building log file
- Addition of HSUPA Throughput

Ver 3.7.0121

- Waveform of reference sound indicates together with waveform of recorded sound on Waveform item in Voice quality Monitor
- Google Map relevant function Upgrade
- Addition of the handling feature for IPv6 RTP Packet

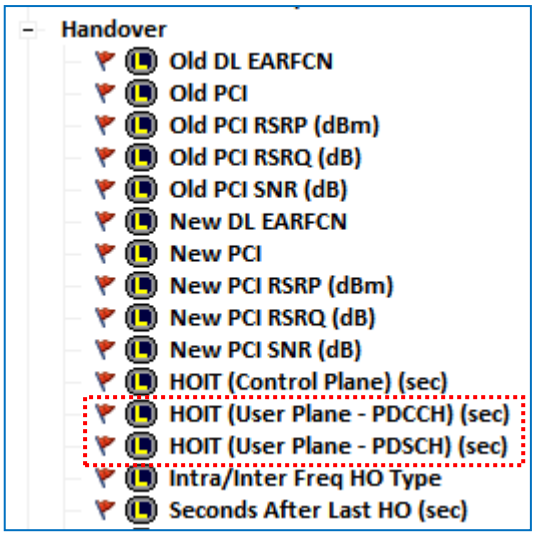
Ver 3.7.0215

- [Bug Fix] Overwrite problem of installing patch(when GMCTool is in processing)
- Addition of item for LTE-A(PCell/SCell) Neighbor Cell
  - ✓ Grouping of LTE-A/PCell/Cell Info/Neighbor List
  - ✓ Grouping of LTE-A/SCell/Cell Info/Neighbor List

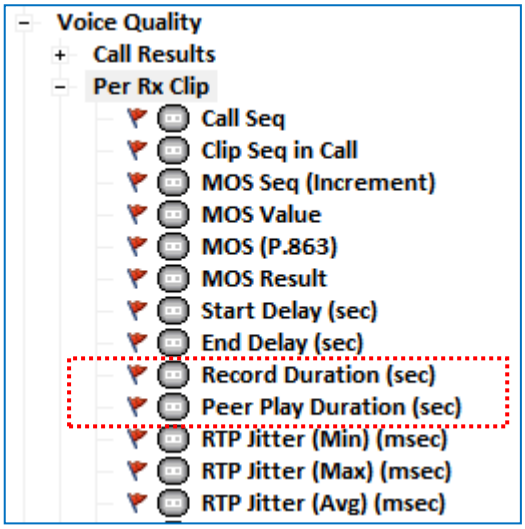


- [Map] Providing Default Map in World Map Mode, when UI loading
- [Map] Providing Install function, when New version map is released
- [Map] providing the option whether user use Online google map..

- [Map]Fixing the Bug of Range-notation of the last item in Legend
- Addition the AutoReportHO Interruption Time(User Plane) Field
  - ✓ Attribute Name : HOIT(User Plane - PDCCH)(sec)
  - ✓ Attribute Name : HOIT(User Plane - PDSCH)(sec)



- Changing the calculation form of DL/UL RB(Average In 0)
  - ✓ before : Just Reference of SFN information -> After : Calculation with direct reference of SFN
- Addition the new Field
  - ✓ /Call Test/Voice Quality/Per Rx Clip/Record duration
  - ✓ /Call Test/Voice Quality/Per Rx Clip/Peer play duration



Ver 3.7.0224

- [Map] Deletion the Default Map supply feature of World Map.

  - Reason : Because of too long loading time of browser

Ver 3.7.0303

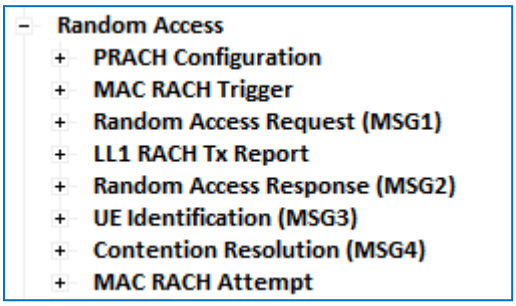
- Addition of Logging feature : Logging on Trace File, if it occurs in Power or Log etc. calculation

Ver 3.7.0312

- [Modified] DMA indicates the "Problem", if there is "(Rx) Incoming Call" message after receiving "(Rx) Answer Call" message on Blue Tooth

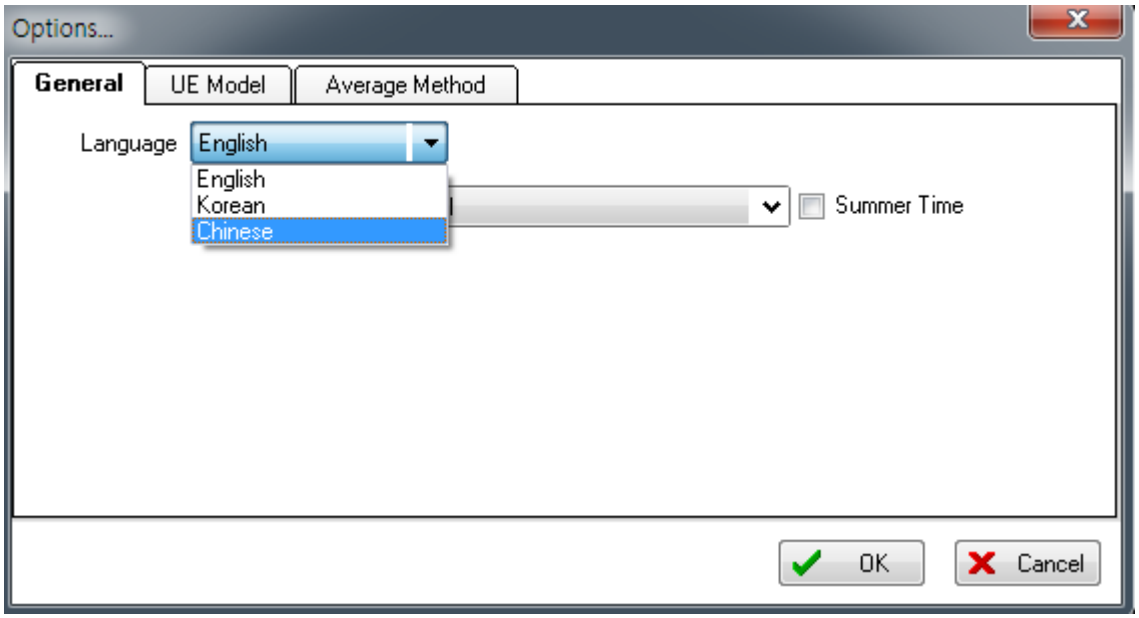
Ver 3.7.0324

- Addition of group & subordinate attributes about LTE Random Access



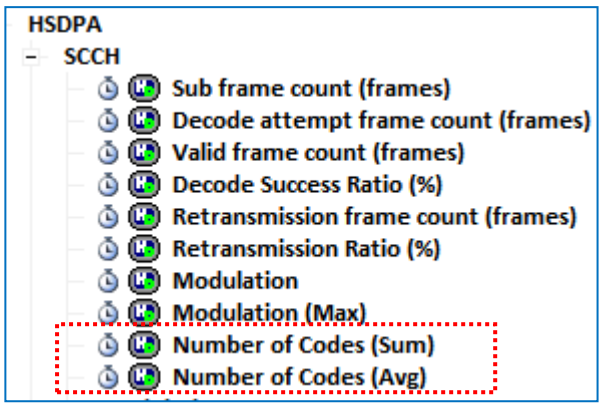
Ver 3.7.0328

- Addition of New Korean sound source for TTA 2014 in MOS Sound Source
- supporting the Chinese - Configuration/Option/General/Language

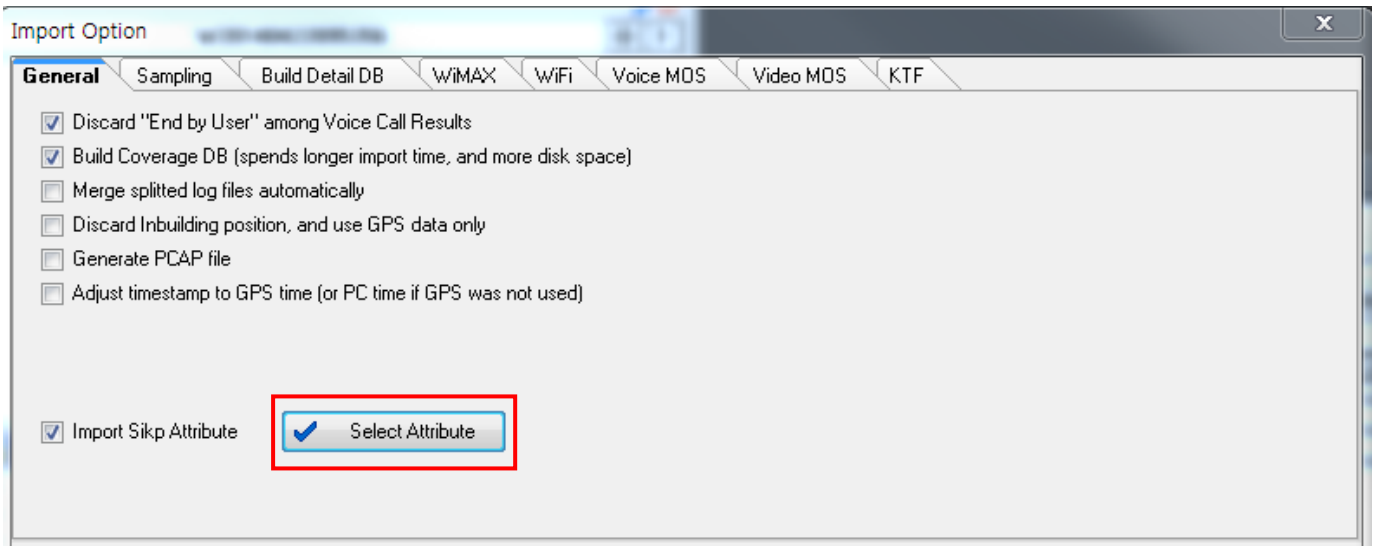


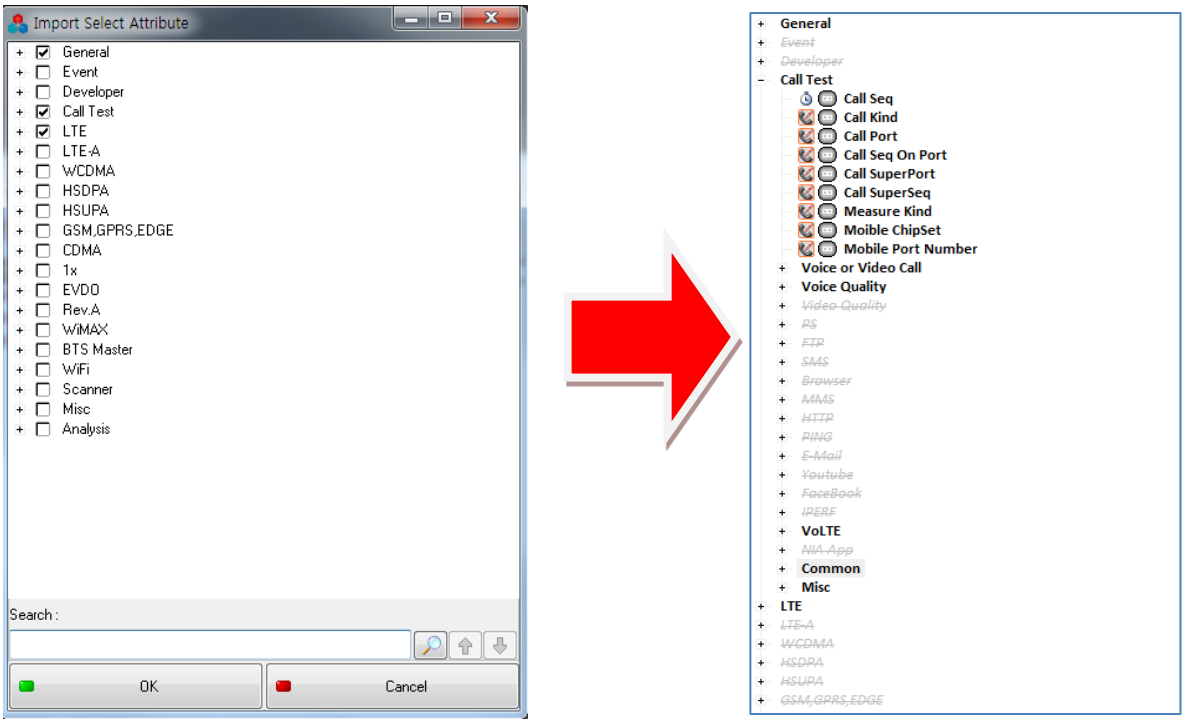
Ver 3.7.0425

- Supporting the Galaxy S5
- Improved processing time for “Save selected calls to new log file” in Call Result & Log Analysis
  - ✓ Before : DMA checked all Log-File and had processing for correction of GPS Data(Provider's Requirement)
  - ✓ Through excluding this process, Processing time of Loading & saving was improved.
- Addition and modification of Attribute "Number of Codes for HSDPA
  - ✓ The existing attribute "Sum" changed to "Number of Codes (Sum)"
  - ✓ Addition of attribute "Number of Codes (Avg)"



- Reference Packet for Samsung Chipset PUSCH/PUSCH TP. was changed
  - ✓ Before : SAMSUNG LTE Common Data Information -> After : SAMSUNG LTE LDATA Throughput Info
- Indication of Ping Test Result was changed.
  - ✓ Before : If there is no response even for one time, DMA indicated "0" on RTT Value etc.
  - ✓ After : DMA indicated just blank
- Addition of "Import Skip Attribute Option"
  - ✓ Only selected attribute will imported

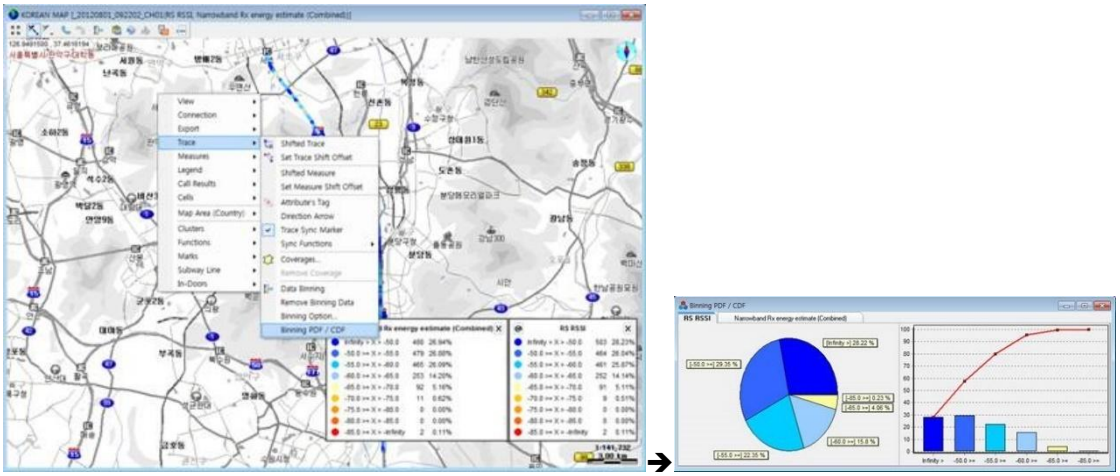




- [Map] Build Map of Google Map bug was fixed
  - ✓ The problem was occurred in build map, if the language setting of Google map options uncheck "Use the Local language"
- Addition of function that calculation method (Max., Avr., Min., First, Last) of representative value from Scanner Data can be selected by user

Ver 3.7.0515

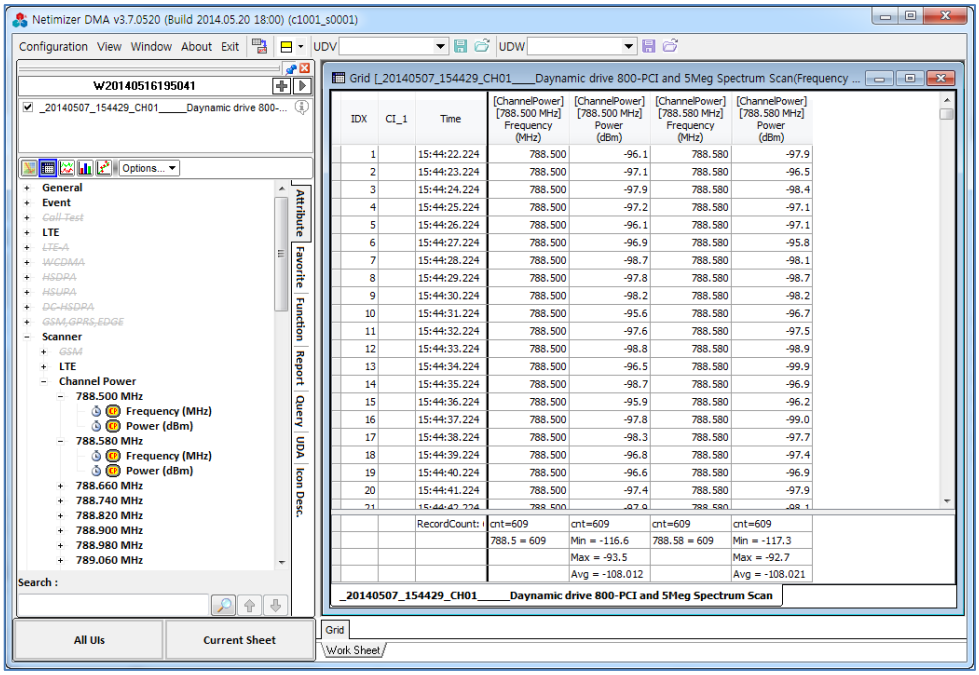
- Added attributes
  - ✓ "/ Call Test/Common/Traffic Average (LTE)/L1"group
  - ✓ "/DC-HSDPA/MAC" group
- Call Result& Log Analysis UI shows SINR Good Ratio, SINR Normal Ratio, SINR Bad Ratio for each call
- When exports to KML (Google Earth) in Grid and Map UI, visibility option in legend is applied.
- After binning in Map UI, binned data can be displayed in separate PDF/CDF chart.



- Changed LTE MAC Throughputcalculation method

Ver 3.7.0520

- Changed LTE MAC Throughput calculation method
- Log file import update
  - ✓ PCTEL Spectrum



Ver 3.7.0527

- **Upgrade**
  - ✓ Qualcomm DM update : LTE LL1 PUSCH CSF log (0xB14E) – ver22
- **Bug fix**
  - ✓ Log Index version mismatch bug fix
  - ✓ Log Message UI filtering/display bug fix (different log file index was used in DML, DMA, and LogParser, and it caused problem to DML replay, Log Message UI, etc. This bug is fixed)

Ver 3.7.0607

- **Upgrade**
  - ✓ Qualcomm DM update
    - 4176 – ver2 (WCDMA AGC Edition 2)
    - 4225 - ver7 (WCDMA HSDPA configuration V2)
    - B119 - ver 41 (LL1 - Neighbor cell measurement and tracking)
    - B123 - ver 41 (LL1 - Neighbor cell CER)
    - B12A - ver 41 (LL1 - PCFICH decoding results)
    - B130 - ver 41 (LL1 - PDCCH decoding results)
    - B139 - ver 41 (LL1 - PUSCH Tx report)
    - B13C - ver 41 (LL1 - PUCCH Tx report)

- B146 - ver 41 (LL1 - AGC Tx report)
- B14D - ver 42 (LL1 - PUCCH CSF log)
- B16C - ver 6 (ML1 - DCI information report)
- B16D - ver 8 (ML1 - GM Tx report)
- B16E - ver 5 (ML1 - PUSCH power control)
- B170 - ver 4 (ML1 - SRS Tx report)
- B1BD - ver 2 (ML1 - All DL channels decode results)
- B193 - Subpacket_ID 0x19 – ver 6 (ML1 - Serving cell measurement result)
- B193 - Subpacket_ID 0x19 - ver 16 (ML1 - Serving cell measurement result)

- **Change**
  - ✓ "/HSDPA/SCCH/ Number of Codes (Sum), Number of Codes (Avg)" attributes are calculated from "WCDMA HSDPA configuration V2 (0x4225)" log packet, instead of "WCDMA HS Decode Status With Data V3 (0x4222)"
- **Bug fix**
  - ✓ PDSCH Throughput of each HARQ calculation bug fixed
  - ✓ Samsung Chipset - Call Result & Log Analysis PDSCH/PUSCH Throughput is displayed now

Ver 3.7.0607

- **Bug fix**
  - ✓ Inbuilding UI attribute point display bug fixed

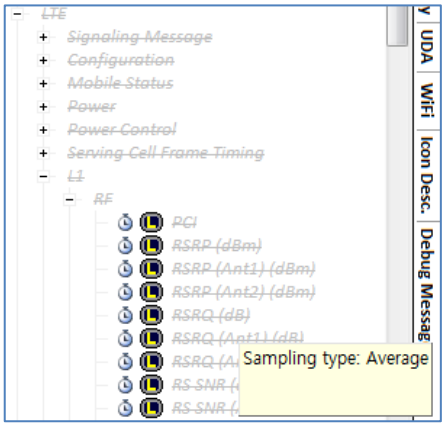
Ver 3.7.0610

- Bug fix
  - ✓ Inbuilding UI had problem displaying attribute sometime. This bug is fixed
- New Attributes
  - ✓ /General/Mobile Info/MSISDN
  - ✓ /Event/LTE/MR Trigger (A1,A2,A3,A4,A5,A6,B1,B2)
  - ✓ /Call Test/VoLTE/Audio Media Type/Rx Audio Format
  - ✓ /Call Test/VoLTE/Audio Media Type/Rx Audio Sample Rate
  - ✓ /Call Test/VoLTE/Audio Media Type/Tx Audio Format
  - ✓ /Call Test/VoLTE/Audio Media Type/Tx Audio Sample Rate
  - ✓ /Event/Event Types/RRC Connection Reestablishment (event type)
  - ✓ /Event/Event Occurrence Count/RRC Connection Reestablishment (sampled value type : shows count per every seconds)
  - ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA1 Threshold RSRP
  - ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA1 Threshold RSRQ
  - ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA2 Threshold RSRP
  - ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA2 Threshold RSRQ
  - ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA3 Offset
  - ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA3 ReportOnLeave
  - ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA4 Threshold RSRP

- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA4 Threshold RSRQ
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA5 Threshold1 RSRP
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA5 Threshold1 RSRQ
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA5 Threshold2 RSRP
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA5 Threshold2 RSRQ
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA6 Offset
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventA6 ReportOnLeave
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventB1 Threshold UTRA RSCP
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventB1 Threshold UTRA EcNo
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventB1 Threshold GERAN
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventB1 Threshold CDMA2000
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventB2 Threshold1 RSRP
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventB2 Threshold1 RSRQ
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventB2 Threshold2 UTRA RSCP
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventB2 Threshold2 UTRA EcNo
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventB2 Threshold2 GERAN
- ✓ /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig/eventB2 Threshold2 CDMA2000

Ver 3.7.0618

- New feature
  - ✓ Attribute hint window shows sampling method also



  - ✓ Added “S0”(Orig_SEND_success ~ Orig_INVITE_Tx) phase in the VoLTE Setup Time calculation during VoLTE report generation
- Bug fix
  - ✓ Broadcast data decoding is discarded from the PDSCH/MAC throughput calculation
  - ✓ “OLE Errors” during Excel report generation is fixed

Ver 3.7.0620

- Update
  - ✓ Abnormal timestamp values in the log file are adjusted automatically during import in DMA

- ✓ Progress bar is displayed in below cases;
  - During Key Parameter summary information analysis when Measure DB is opened
  - During summary information analysis when attribute is dropped to UI
  - During export to csv/txt file in Grid view
- Bug fix
  - ✓ “Out of memory” but during export to csv/txt in Grid view is fixed

Ver 3.7.0623

- Update
  - ✓ 0x4110(WCDMA Active Set) and 0x4127(WCDMA Cell ID) logs are referred also for serving network decision
- New Attributes
  - ✓ /LTE/Data Throughput/Downlink (Traffic)/IP/IP DL Throughput (Total)
  - ✓ /LTE/Data Throughput/Uplink (Traffic)/IP/IP UL Throughput (Total)
  - ✓ /LTE/Data Throughput/Downlink (All)/IP/ IP DL Throughput (Total)
  - ✓ /LTE/Data Throughput/Uplink (All)/IP/ IP UL Throughput (Total)

Ver 3.7.0624

- Bug fix
  - ✓ PCTEL scanner WCDMA Ec/Io import error fixed
  - ✓ Scanner cell TopN sorting bug fixed

Ver 3.7.0711

- New feature
  - ✓ Added “Auto adjust jumping timestamps” to Import option
- Bug fix
  - ✓ Scanner data import bug fix
  - ✓ Inbuilding UI -- merge display bug fix

Ver 3.7.0714

- Bug fix
  - ✓ FTP long call test caused integer overflow for ‘received bytes’ calculation. This bug is fixed.
  - ✓ When USB lock key is used, log file import was extremely slow. This bug is fixed.

Ver 3.7.0716

- Update
  - ✓ [Tool] Event time-point changed : Voice - Orig Request in /Event/Voice Call Event
    - Bluetooth Message was changed

Before - Rx Message : $O:GV;XXXX -> after : Tx Message : $D:XXXXXX

- ✓ Group comparison Mode deactivated

Ver 3.7.0717

- Bug fix
  - ✓ Modification for below case
    - In the case when a call which was judged with "Error-call" on "DMA v0423" is judged with "Setup-fail" on "DMA v0715"
      - ◆ On 2014/07/10 11:23:37.132 - "Incoming call event" was received via Bluetooth (Contents : $I)
      - ◆ On 2014/07/10 11:23:37.265 - Judgment of Call Result (Term. Fail)
      - ◆ On 2014/07/10 11:23:38.668 - "Incoming call event" was received via Bluetooth (Contents : $I:01029219335)
    - In this case, DMA v0423 had referred the "Incoming call event" at first and second,
    - Because "DMA v0715" skipped the "Incoming call event" which had received at first, this phenomenon was occurred
    - Modified judgment criteria(it will refer above all 2 method)

Ver 3.7.0720

- Update
  - ✓ Processing the 0xB14E (LL1 PUSCH CSF log) Ver41
- Bug fix
  - ✓ Modified the phenomenon which pop up infinity “Measure is currently being used. Close measure first” message box on Add Measure, when user try to operate Clear all measure(Clear all DB).
  - ✓ Modified that 0x11EB Protocol Service Message have to be in processing after gathering in import phase.
  - ✓ Modified the value processing which play duration value of /Call Test/Voice Quality/Per Tx Clip is over 65 sec.
  - ✓ Modified the calculation algorithm of HTTP Call Result Throughput.
    (Before : Referring the byte of Result Packet ➔ After : Referring the byte of each URL and Load Time Sum)

Ver 3.7.0731

- Update
  - ✓ “Num of DL RB (Avg Including 0)” and “Num of UL RB (Avg Including 0)” calculation method update
    - Before: Refers RB number and Sub-fn number per each log packet, and calculates above value for each log packet. 1sec value is calculated from average of each log packet’s value.
    - After: RB number and Sub-fn counts are accumulated during 1 sec, and 1sec value is calculated based on these accumulated RB number and Sub-fn counts.
    - Reason: If Qualcomm chip drops some log packet because of Qualcomm chip’s internal DM buffer overflow, RB number is calculated low value in the previous calculation method. New calculation method overcomes these problem of Qualcomm chip.
  - ✓ New Attributes

- DL RB Num TB0 (Avg Including 0)
- UL RB Num TB0 (Avg Including 0)

- Bug fix
  - ✓ Installation software's font installation bug fix

Ver 3.7.0801

- Bug fix
  - ✓ LTE NAS – Attach Accept detail decoding bug fix

Ver 3.7.0814

- New feature
  - ✓ Auto Upgrade feature added:
    - Select "Check for update on startup" option in the General Option UI, or
    - Select "Check for Updates..." in the About menu, or
    - Run "Check Update" in the Windows startup menu
- New Attributes
  - ✓ Call Test/Ping/Loss Count
- Update
  - ✓ For the DNS packet among TCP/IP packets, detail summary column shows DNS string and IP address as below

↑	[TCPIP]	Protocol Services Data	[TX:13543] UDP DNS:10.129.213.50(17032) -> 223.62.230.7(53) (57B): m.naver.com
↓	[TCPIP]	Protocol Services Data	[RX:12354] UDP DNS:223.62.230.7(53) -> 10.129.213.50(17032) (169B): m.naver.com (202.131.29.100)

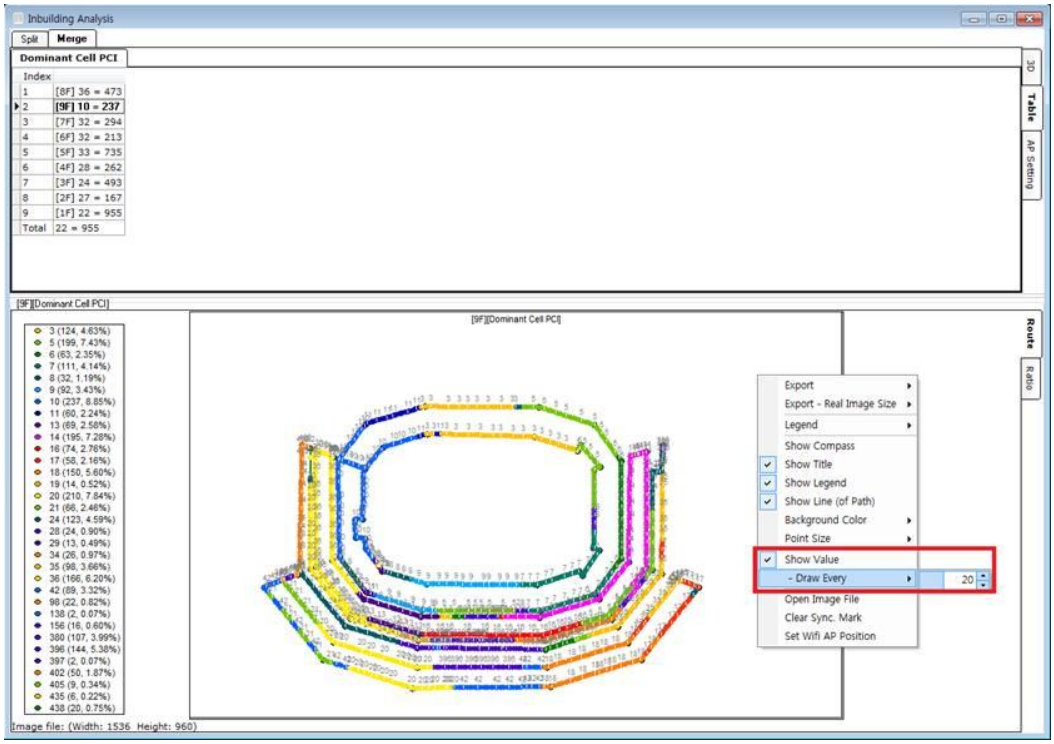
  - ✓ LTE SINR uses maximum value among average values of SINR (Ant1) and SINR (Ant2)
- Bug fix
  - ✓ LTE NAS – Attach Accept detail decoding bug fix

Ver 3.7.0819

- New feature
  - ✓ Group comparison mode
  - ✓ User defined duration attribute definition is possible (ex: "My duration 1" = RRC connection request ~ RRC connection complete)
- New Attributes
  - ✓ /Call Test/FTP/TCP Info/**Window Size** – for each TCP packet
  - ✓ /Call Test/FTP/TCP Info/**Delta** – for each TCP packet
    - "General - TCP/IP Detail Log" item, in the 'Build Detail DB' tab of 'Import Option' dialog should be selected before import.
- Update
  - ✓ Inbuilding UI update
    - Single measure data with multiple time of measurement for the SAME floor can be displayed in the "merge" tab as

below figure.

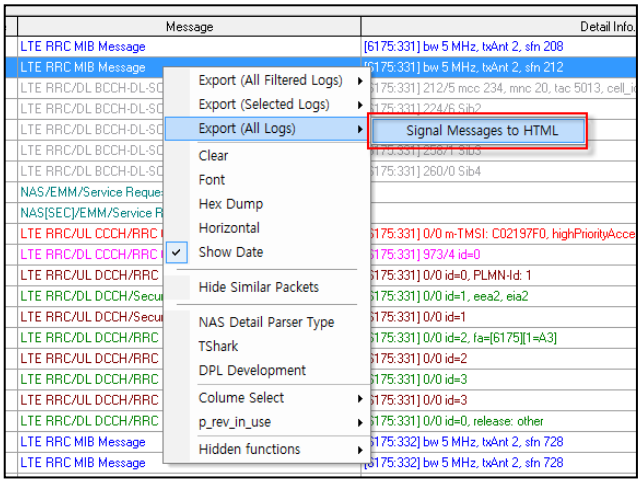
- Legend color in the inbuilding UI follows the legend configuration color.
- Supports “Show value” function in popup menu. This function is supported for the “value” type attributes(ex: PCI, EARFCN, etc.) only, and not supported for “range” type attributes(ex: RSRP, RSSI, etc.)



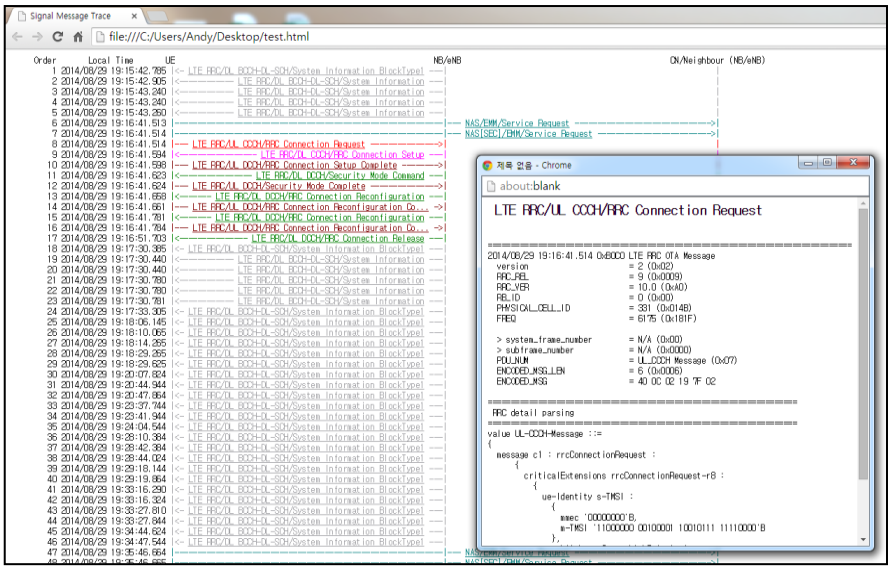
- Bug fix
  - ✓ Inbuilding UI legend shows abnormal characters sometimes. This bug is fixed.

Ver 3.7.1006

- New feature
  - ✓ Log Message UI provides new popup menu “Export (All Logs) – Signal Messages to HTML”. When clicked, all signaling messages(RRC, NAS, etc.) in the log file will be saved to HTML file, embedding message details into the HTML file itself.



If you open HTML file in the browser, it’s displayed as below figure. Click specific message in the browser, then message details will be displayed in the popup window.



- ✓ Report/User Parameter Report (user-selected Attribute Auto Report) function added

- New Attributes
  - ✓ "/LTE/SigMsg Values/NAS ESM/Activate Dedicated EPS Bearer Context Request Msg" group added
  - ✓ "/Android Info" group
  - ✓ /Call Test/FTP/During real application traffic duration/Instantaneous Throughput/Event/ FTP DL Inst. Throughput
  - ✓ /Call Test/FTP/During real application traffic duration/Instantaneous Throughput/Event/ FTP UL Inst. Throughput
  - ✓ /Call Test/FTP/During real application traffic duration/Instantaneous Byte/Event/FTP DL Inst. Bytes
  - ✓ /Call Test/FTP/During real application traffic duration/Instantaneous Byte/Event/FTP UL Inst. Bytes
- Update
  - ✓ Rename – "/Call Test/Youtube" group is renamed to "Call Test/VOD" group
  - ✓ Rename – "/Call Test/Facebook" group is renamed to "Call Test/SNS" group
  - ✓ If there was GPS disconnection error, all GPS attributes are cleared, and "GPS Event" attribute shows the error details
  - ✓ New Voice Call Reason added : "Interrupt Setup Call"
    - "Interrupt Setup Call" : if "Setup Calling Party BCD Number" or "BT Incoming call Number" is different with "Plan Dial Number", it means someone else has called to this mobile
  - ✓ Qualcomm 0x520A(GPRS RLC DL Statistics) log update – GPRS RLC DL Throughput problem is fixed also
- Bug fix
  - ✓ FTP Traffic End decision point changed
    - Before: First event of EVENT_FTP_DaaEndFail or FTP_FTP_T_End
    - After: FTP_FTP_T_End
  - ✓ FTP Throughput calculation method revised
    - Before: Packet's Inst time and Inst Byte was used for calculation
    - After: Refers Total Time and Total Byte (Reason : Inst time and Inst Byte can have abnormal value during measurement)
  - ✓ Inbuilding log file import – bug fix
  - ✓ Inbuilding UI – legend – bug fix

Ver 3.7.1009

- New Feature

✓ "Help – Revision History (PDF)" menu is provided

✓ Import for Anite FSR log data is added

Ver 3.7.1014

- Update

✓ UMTS band class calculation update following TS25.101 update

- Bug fix

✓ Fixed FTP throughput calculation bug

Ver 3.7.1022

- Update

✓ Map engine update

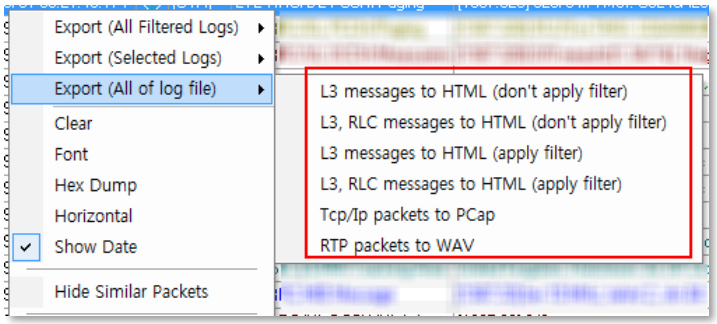
✓ Log Message UI - "Export (All Logs) – Signal Messages to HTML" menu feature updated.

L2 messages are also exported to HTML, as well as RRC and NAS messages.

Ver 3.7.1024

- New Feature

✓ Log Message UI provides new popup menus as below. (These features read whole log file and export to appropriate format. Therefore, it's not usable during real-time, but works during replay mode)



Ver 3.7.1028

- Update

✓ Import Option default values changed : Below options are configured to FALSE as default in case of Korean customer

- Adjust timestamp to GPS time (or PC time if GPS was not used)
- Auto adjust jumping timestamps

✓ Faster import speed

Ver 3.7.1106

- New Attributes
  - ✓ /CDMA/SigMsg group – various attributes added
- Update
  - ✓ China map GPS position auto-adjust feature added
- Bug fix
  - ✓ FTP upload call average throughput calculation problem fix

Ver 3.7.1113

- Update
  - ✓ Map – supports big cell site data file
  - ✓ Map – increased cell site draw speed
  - ✓ /Call Test/Common/Call Info/LTE/Duration/Intra-LTE MR to HO Success (Avg) – DB write error fix
  - ✓ MCC, MNC is extracted from IMSI value also
- New Attribute
  - ✓ /Call Test/Voice Quality/TTA/Duration – Shows original durations decided from logging tool
- Bug fix
  - ✓ If there is no MOS value calculated, call result was decided as “Complete”. It’s now decided as “CBQ”.

Ver 3.7.1114

- New Feature
  - ✓ Map – cell site display engine upgrade (you can choose antenna display style among 4 types)
- Update
  - ✓ Discontinued support for VIA CDMA chipset
  - ✓ VoLTE – Decodes NULL encrypted ESP packets
  - ✓ VoLTE – Can detect and process non-standard SIP port numbers

Ver 3.7.1120

- New Feature
  - ✓ Supports ALT3800 (Altair 3800) chipset

Ver 3.7.1121

- Bug fix
  - ✓ Sampling interval configuration in the “Import Option” dialog – bug fix

Ver 3.7.1128

- Update

- ✓ Supports new Qualcomm log packets
  - 0x4340 - WCDMA Multi Carrier EUL DL Channel Configuration
  - 0x4341 - WCDMA Multi Carrier EUL UL Channel Configuration
  - 0x4342 - WCDMA Multi Carrier EUL UL E-DPCH
  - 0x4345 - WCDMA Multi Carrier EUL Link Statistics
- Bug Fix
  - ✓ NAS text parser – 'Attach Reject' 3402 Timer, 'Attach Accept' Emergency Number List – bug fix

Ver 3.7.1202

- Update
  - ✓ PESQ or POLQA license is not necessary in DMA to import MOS calculation result from log file and display in DMA

Ver 3.7.1208

- Update
  - ✓ Netimizer Online Update – displays "What's new" information

Ver 3.7.1209

- Update
  - ✓ "WiFi" license option is enabled for all customers

Ver 3.7.1211

- New Feature
  - ✓ Added "Help – Remote Support" menu (usable in Netimizer DMA only). It launches Teamviewer client.
  - ✓ Added "Help – Submit a question" menu (usable in Netimizer DMA only). It opens web browser with Netimizer technical support site (http://netimizersupport.com/).
- Update

- ✓ “Merging splitted log files” method changed
  - Previous method: If there are splitted log files (ex: a-01.dml, a-02.dml, and a-03.dml), and you selects “merge splitted log files automatically” option from “Import Option” window, DMA merged all log files as a single file named “a.dml” and changed extension of original log files to “dml0”, “dml1”, etc.
  - New method: Field engineers wanted to keep the original filename, so new DMA creates folder named “SplitLogFiles” and moves original files to this folder.
- ✓ Map – Offline map manager
  - Support new feature of “Save as bounds”
- ✓ Map – Build Offline Map dialog is enhanced

• Bug Fix
- ✓ Memory leakage because of USB device driver is fixed

Ver 3.7.1216

• Update
- ✓ Updated attribute enable/disable depending on installed license option

Ver 3.7.1217

• Update
- ✓ Qualcomm 0xB116(LTE LL1 serving cell measurement results) log packet includes “Carrier Type” field, but it’s value is wrong sometimes. Therefore DMA doesn’t refer this log packet for bandwidth calculation now.

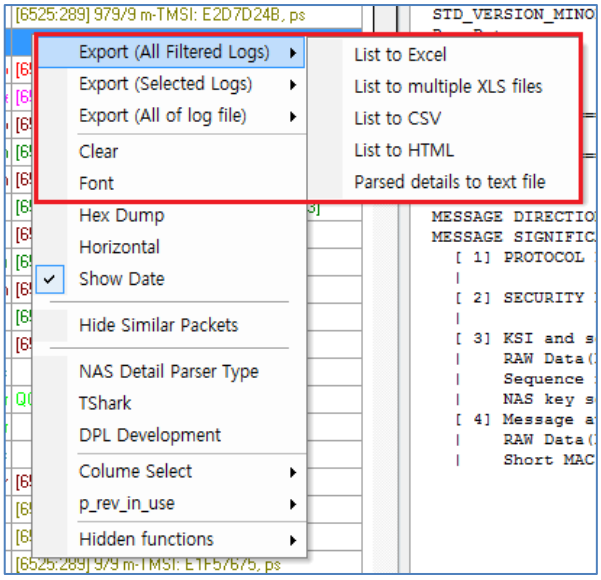
• Bug Fix
- ✓ SCell Bandwidth calculation reference packet changed
  - Before: Referred 0xB1B9(LTE ML1 Coex State Info Packet) log packet always
  - After: If there is rrcConnectionReconfiguration, DMA refers this message first. Otherwise, refer 0xB1B9.

Ver 3.7.1218

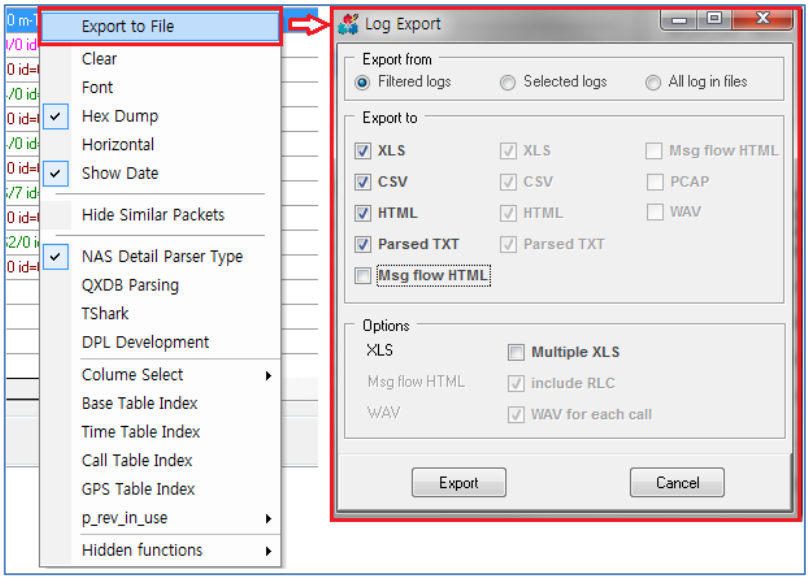
• Update
- ✓ Inbuilding UI – user can change title

✓ Simplified “export” features in the log message UI

<before>



<after>



- Bug Fix
  - ✓ Call Result & Log Analysis → Save selected calls to new log file : Some common packets (ex: Plan Packet, etc.) was not saved to new log file. This bug is fixed.

Ver 3.7.1223

- Update
  - ✓ Indoor UI supports “Legend – Show All” option
  - ✓ /LTE/Handover/LTE – EUTRA LTE to GSM – parsing rule updated
    - refers “mobilityFromEUTRACommand ~ GSM RR signaling HANDOVER COMPLETE Messge” also
- Bug Fix
  - ✓ Map UI – Cell site selection bug fix

Ver 3.7.1224

- New Feature

- ✓ New attribute group added : “Rev.A/Multi-User Forward Traffic Channel Statistics”

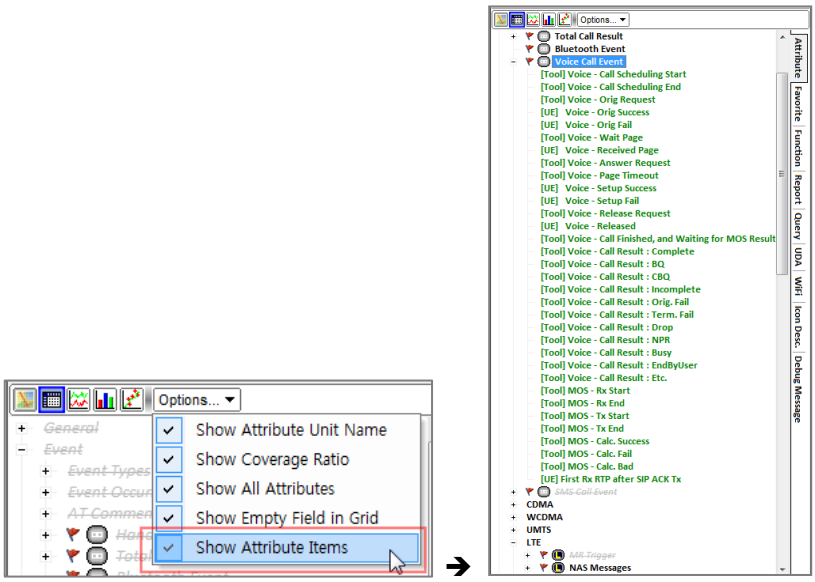
- Update
  - ✓ HSPA, HSPA+ Network detection in detail
- Bug Fix
  - ✓ “Merging splitted log files” function had bug for 2G or larger log file. This bug is fixed

Ver 3.8.0106

- Bug Fix
  - ✓ “/LTE/L1/PDSCH Decoding Result (per TTI)” group was not imported – this bug is fixed
  - ✓ Attribute find button works for “group name” also, as well as “attribute name”
  - ✓ Database corruption bug occurred during “per TTI” import for large size log file. This bug is fixed.

Ver 3.8.0109

- New Feature
  - ✓ Grid UI – If specific row doesn’t have any data for all columns, this row is not displayed anymore
  - ✓ Attribute tree – You can choose to show/hide attribute’s item list in the attribute tree. You can drag & drop specific item(s) to Grid, Map, Inbuilding UIs. To display items in the tree, you should select “Show Attribute Items” menu in the “Options” as below figure (default setting is “unselected”).



- Update
  - ✓ "/Call Test/VoLTE/RTP Analysis/Throughput" group and "/Call Test/VoLTE/RTP Analysis/Transfer Bytes" group
    - Invalid packets are not counted for the bytes or throughput calculation for these groups
    - “Network Throughput” and “Network Bytes” – includes RTP header size

      Others (Application, Audio, Video) – excepts RTP header size
  - ✓ “/Call Test/VoLTE/RTP Analysis/Throughput (Including Invalid Packets)” group added

    "/Call Test/VoLTE/RTP Analysis/Transfer Bytes (Including Invalid Packets)" group added
    - Invalid packets are counted for the bytes or throughput calculation for these groups

➔ Invalid packets: duplicated or out-of-order sequence packets

Ver 3.8.0115

- New Feature
  - ✓ Supports 3-band LTE CA for Samsung chipset log file (added “LTE-A/SCell #2” group attributes)
- Update
  - ✓ SIP and RTP analysis function is updated
- Bug Fix
  - ✓ Fragmented IPv6 RTP packets were processed not processed correctly. This bug is fixed.
  - ✓ Cell site font installation problem solved
  - ✓ GMCTool – Wrong interpretation of map coordination due to decimal point problem is fixed
  - ✓ Memory leakage because of USB device driver is updated

Ver 3.8.0117

- New Feature
  - ✓ LG L5000 chip WCDMA log packet processing added
- Update
  - ✓ Qualcomm packet version update
  - ✓ Import speed improved
- Bug Fix
  - ✓ WCDMA RRC SIB Parsing error bug fix (MCC, MNC value extraction from SIB had problem sometimes)

Ver 3.8.0119

- Bug Fix
  - ✓ Time Graph UI – Zoom all minor bug fix
  - ✓ TCP/IP packet analysis – Wrong direction(rx/tx) interpretation of interface ID 30 packets is fixed

Ver 3.8.0126

- Update
  - ✓ Grid UI – “Show All Records” option is added in the “Misc Options” menu group. (default = checked)
  - ✓ Progress bar is displayed during DB open, Data analysis, Attribute analysis, etc.

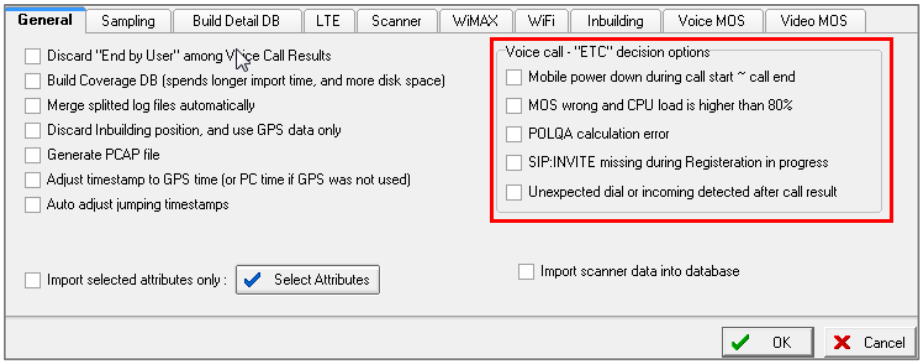
Ver 3.8.0203

- New Feature
  - ✓ New attributes : “/LTE-A/CA (Carrier Aggregation)/SCell #2/Cell Info” group
- Update
  - ✓ CBQ decision rule changed : If MOS count is less than pre-defined calculation count, it’s decided as CBQ.

- ✓ ETC decision rule changed : If drive test tool decided as CBQ and MOS count is 0, call result is decided as ETC.
- ✓ Call Result & Log Analysis UI update : SCell #2 RF fields are added

Ver 3.8.0210

- Update
  - ✓ Import Option – You can configure voice call test result decision rules for “ETC” call.



  - Mobile power down during call start ~ call end : The case there was any mobile power down event during call start ~ call end
  - MOS wrong and CPU load is higher than 80% : The case that MOS calculation count is less than pre-defined(in the plan setting) MOS calculation count, and CPU load is more than 80%. (This case means that MOS calculation was not successful because of high overload to CPU)
  - POLQA calculation error : The case that POLQA calculation failed, and therefore MOS value is set to 1.01
  - SIP: INVITE missing during Registration in progress : The case that mobile was in the Registration progress, thus couldn’t send INVITE message
  - Unexpected dial or incoming call detected after call result : The case there was any incoming call event message during call result ~ next call start

Ver 3.8.0216

- New attributes
  - ✓ “Call Test/PING/Sampled” group added
    - Request Count
    - Reply Count
    - Last Byte
    - Last RTT
    - Total Byte
    - Total RTT

Ver 3.8.0221

- Update
  - ✓ Qualcomm log 0x4179 ver2 (WCDMA PN Search Edition 2) - update

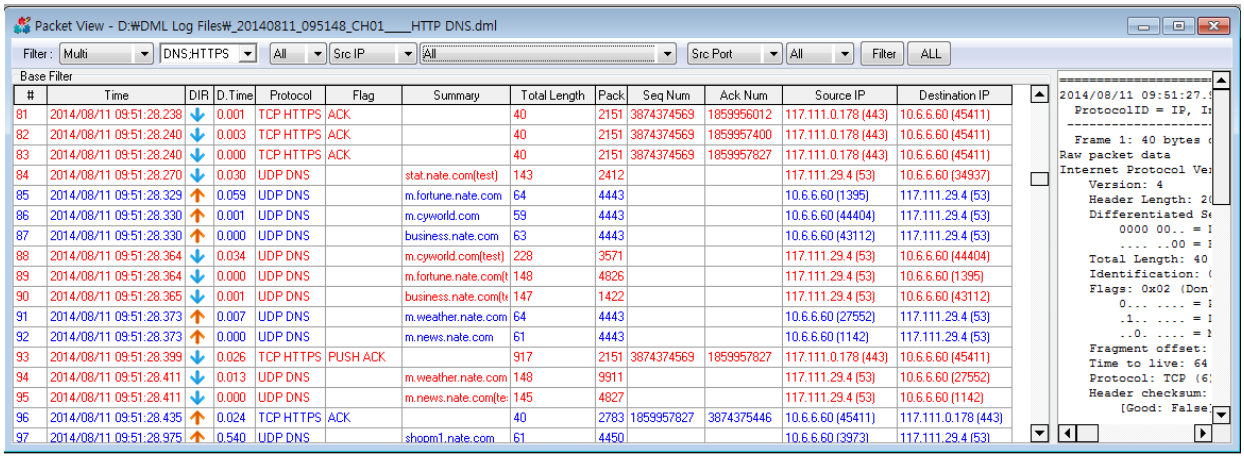
- ✓ Qualcomm log 0xB139 ver25 (LTE LL1 PUSCH Tx report) – update

Ver 3.8.0225

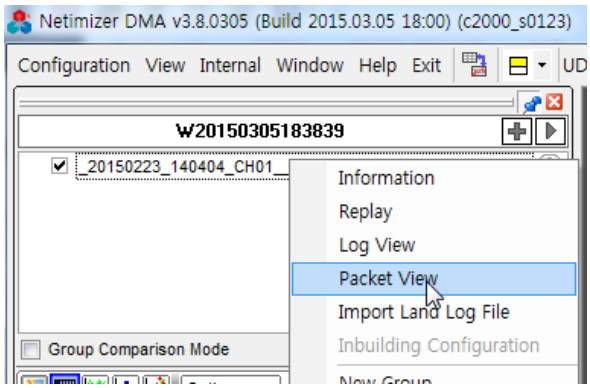
- Update
  - ✓ ".SDM" log file processing - update

Ver 3.8.0302

- New Feature
  - ✓ Packet View – New UI



How to open packet view UI: Select measure, right click, and select "Packet View" menu.



Ver 3.8.0306

- Update
  - ✓ Import speed improved
  - ✓ GMCTool update
  - ✓ Google map and Baidu map display method update
  - ✓ Map UI – External CSV import and draw function – now supports more than 1 million records

Ver 3.8.0309

- New Attributes – Added more subgroups under "/LTE/Per TTI" groups

- Update
  - ✓ Improved import speed
- BugFix
  - ✓ Access violation bug fix

Ver 3.8.0311

- New Attributes
  - ✓ LTE-A/CA (Carrier Aggregation)/SCell Event/ Scell Act-Deact (Sampled values)
  - ✓ LTE-A/CA (Carrier Aggregation)/SCell Event/SCell #1/Act-Deact (Event values)
  - ✓ LTE-A/CA (Carrier Aggregation)/SCell Event/SCell #2/Act-Deact (Event values)
- BugFix
  - ✓ Access violation bug fix and minor bug fixes

Ver 3.8.0315

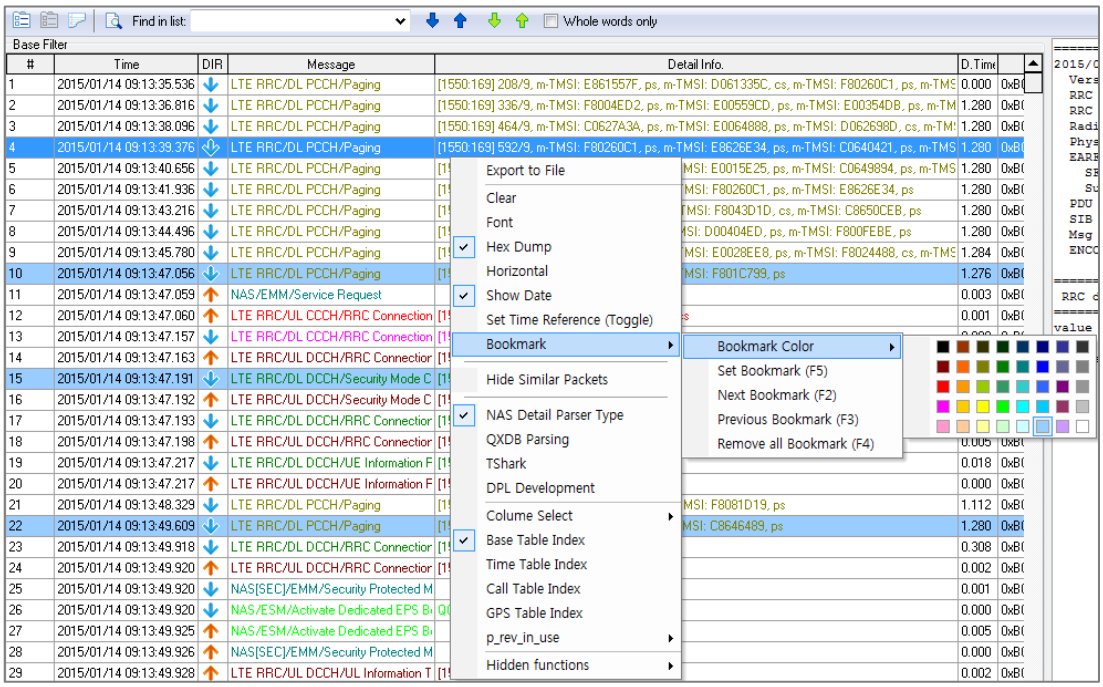
- New Attributes
  - ✓ /Layer-3 Message/CDMA L3 Msg
- Update
  - ✓ Added "/Layer-3 Message" group and located signaling message events under this group
    - /Layer-3 Message/CDMA L3 Msg
    - /Layer-3 Message/CDMA L3 Msg – Order
    - /Layer-3 Message/GSM Call Control Msg
    - /Layer-3 Message/GSM Msg – Logical Channel
    - /Layer-3 Message/WCDMA Call Control Msg
    - /Layer-3 Message/UMTS NAS Msg
    - /Layer-3 Message/LTE RRC Msg
    - /Layer-3 Message/LTE NAS Msg

Ver 3.8.0316

- BugFix
  - ✓ Function Tab - Pair Analysis (MM), Pair Analysis (ML, LM) Data - Log Open Error bug fix

Ver 3.8.0317

- Update
  - ✓ Packet View UI – Added checksum, sack columns
  - ✓ Log View UI, Packet View UI – Bookmark function added



Ver 3.8.0318

- New Attributes
  - ✓ "/Packet Data/RoHC" group added
  - ✓ "/Packet Data/RTP" group added
- Update
  - ✓ Inbuilding UI – Export All – You can define string to add to each exported image filename
  - ✓ Inbuilding UI - Export All – You can create, delete folders in the folder selection dialog
- BugFix
  - ✓ Inbuilding UI - Export All - "No data" popup bug fix
  - ✓ Inbuilding UI – when "per TTI" option was used during import, inbuilding UI didn't display any data. This bug is fixed
  - ✓ Import option – "discard Inbuilding position, and use GPS data only" option didn't work. This bug is fixed

Ver 3.8.0320

- New Attributes
  - ✓ "/LTE/per TTI/LL1 PUCCH Tx Report" group added
  - ✓ "/LTE/per TTI/LL1 PUSCH Tx Report" group added
  - ✓ "/LTE/per TTI/LL1 PUCCH CSF" group added
  - ✓ "/LTE/per TTI/LL1 PUSCH CSF" group added
- Update
  - ✓ LTE RLC, PDCP (In-Traffic) throughput calculation method updated
    - Before : Total bytes / (end time – start time)
    - After : Total bytes / sum of each durations
- Bug Fix

- ✓ RTP Gap, RTP SN Gap events calculation bug fix

Ver 3.8.0323

- Bug Fix
  - ✓ Call Result & Log Analysis UI – exported data mismatch with displayed data – bug fixed
  - ✓ Import – Per TTI groups import bug fix
  - ✓ Import - RTP Gap, RTP SN Gap calculation bug fix

Ver 3.8.0327

- Update
  - ✓ Statistic Chart UI – "Export All (Graph only)" menu added
  - ✓ Statistic Chart UI – During export, file save folder is stored and recovered next time
  - ✓ Grid UI – "Show group name for XLS/CSV export" menu is changed into "Show group name" menu
    - Current displayed setting is applied during export to file
  - ✓ Import Option – "SIP:INVITE missing during Registeration in progress" handling is updated
- Bug Fix
  - ✓ Auto Upgrade – Upgrade version check for each CID - bug fix

Ver 3.8.0403

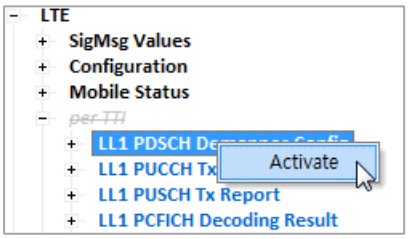
- Update
  - ✓ /LTE/SigMsg Values/RRC/radioResourceConfigDedicated/mac-MainConfig group Add
- Bug Fix
  - ✓ Crash during import – wrong Qualcomm log 0x4186 caused crash – bug fixed

Ver 3.8.0407

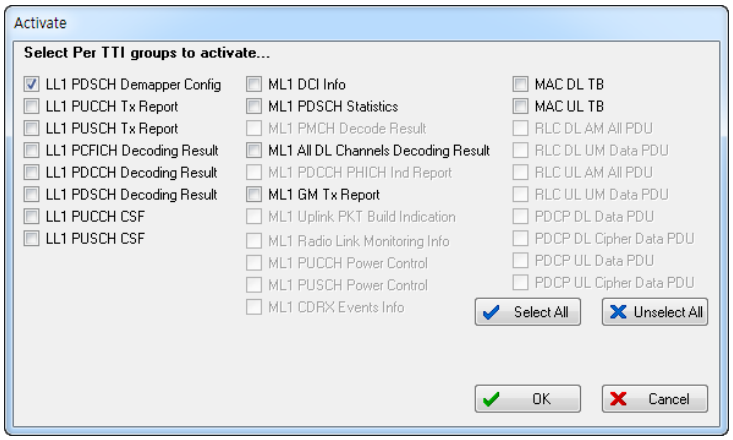
- New Feature
  - ✓ "Activate" feature added

    "Activate" more attributes after 1st step import is supported in new version. During 1st step import, some disk-consuming or time-consuming attributes are not imported to save your time and disk space. These attributes(or groups) are displayed as blue color as below figure, and you can "Activate" those attributes after import as below steps. This "Activate" is called as "2nd Parsing" also, and has same meaning.

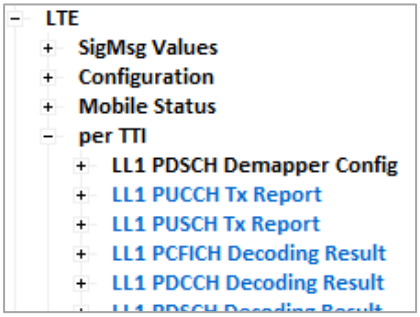
    - You'll see blue-colored groups or attributes, which you can "Activate". Select group or attributes, and right click. Then "Activate" popup will appear.



- Click “Activate”, then you’ll see below dialog, where you can select which groups (or attributes) you want to activate. Select items, and click “OK” button. Then 2nd parsing will be performed, and group (or attribute) will be activated.



- After 2nd parsing finishes, DMA refreshes attribute tree as below, where activated group is now displayed as black color.

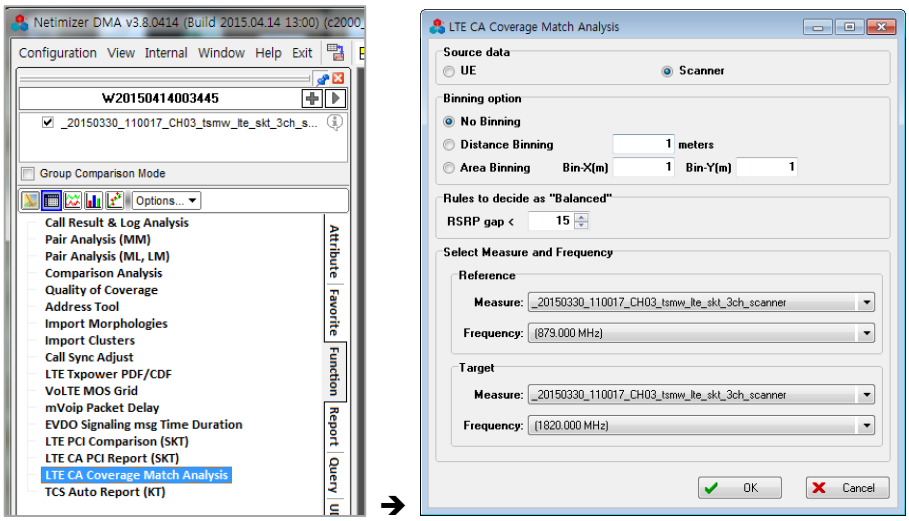


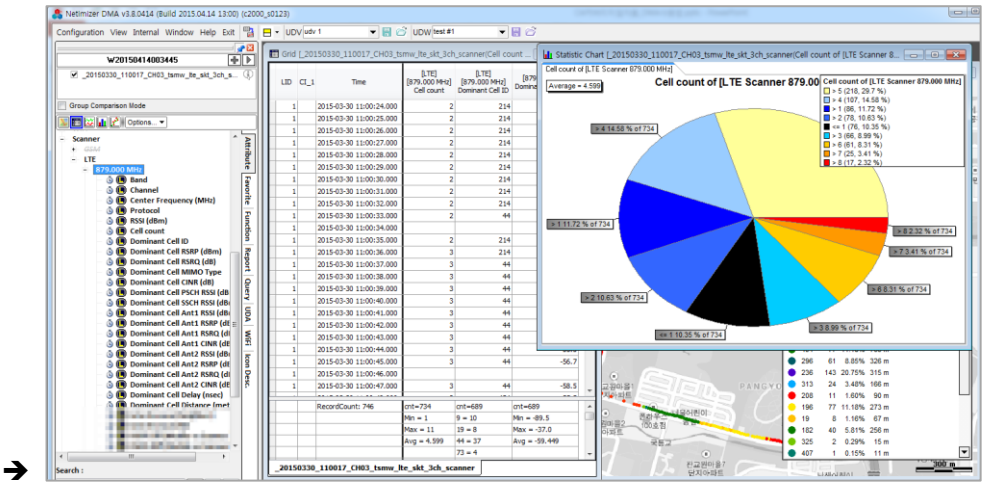
Ver 3.8.0410

- Bug Fix
  - ✓ Samsung LTE chip – LTE-CA PCell RSRP, RSSI calculation bug fix

Ver 3.8.0414

- New Feature
  - ✓ Function tab – “LTE CA Coverage Match Analysis” function added





- ✓ GCT QLog parsing added

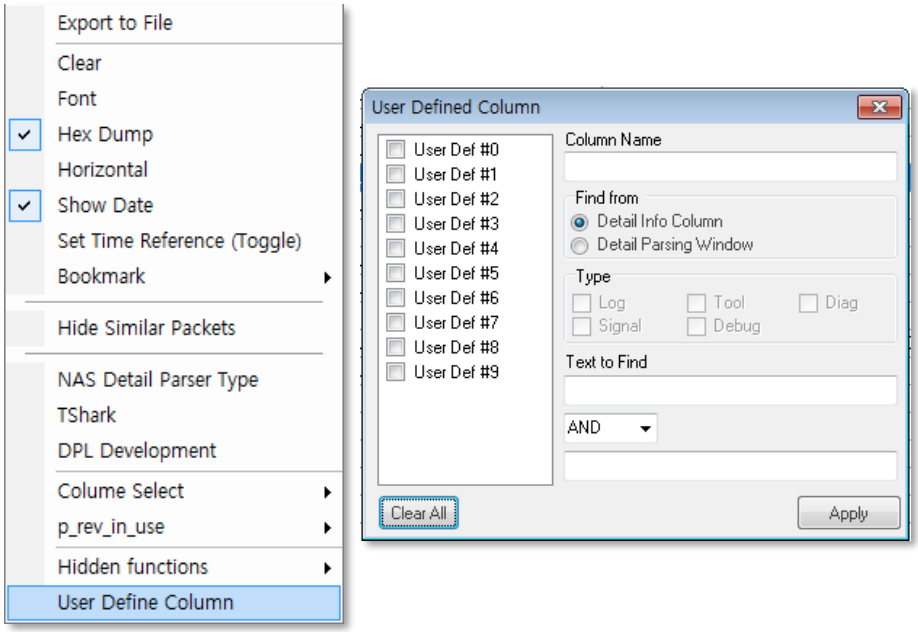
- New Attribute
  - ✓ RS_RSSI(Ant3), RS_RSSI(Ant4), RSRP(Ant3), RSRP(Ant4), RSRQ(Ant3), RSRQ(Ant4), SINR(Ant3), SINR(Ant4)
- Bug Fix
  - ✓ Legend modification didn't apply to UIs for some attribute types (enum types). This bug is fixed.

Ver 3.8.0416

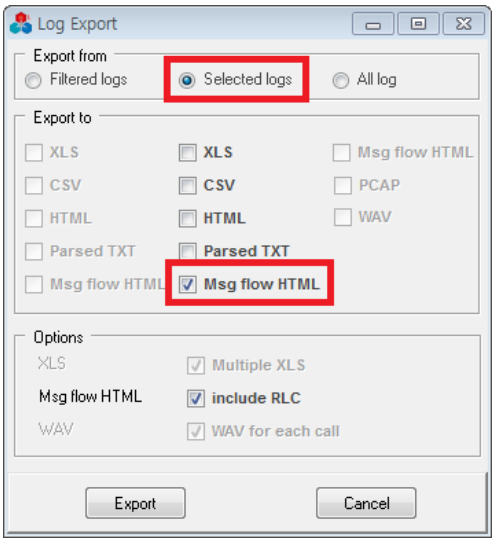
- Update
  - ✓ RoHC packet parser update

Ver 3.8.0421

- New Feature
  - ✓ Log Messages UI – Supports 'User Define Column' – you can define text to filter out and display in a separate column



- Update
  - ✓ Import speed - enhanced
  - ✓ Log Messages UI – Added ‘Msg flow HTML’ in the case of ‘Selected logs’



Ver 3.8.0422

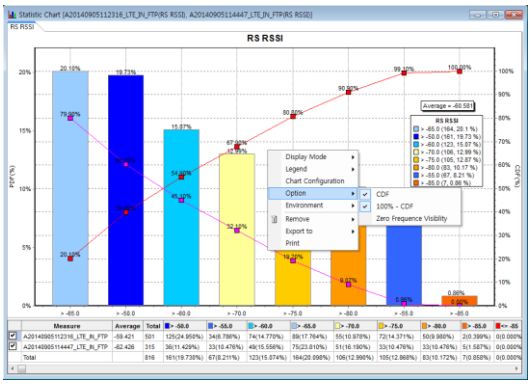
- Update
  - ✓ Serving network – naming changed
    - LTE : 1band
    - LTE CA : 10+10 or “BW is unknown for 2-carriers“
    - LTE 2CA : 10+20 or 20+10
    - LTE 3CA : 20+10+10

Ver 3.8.0426

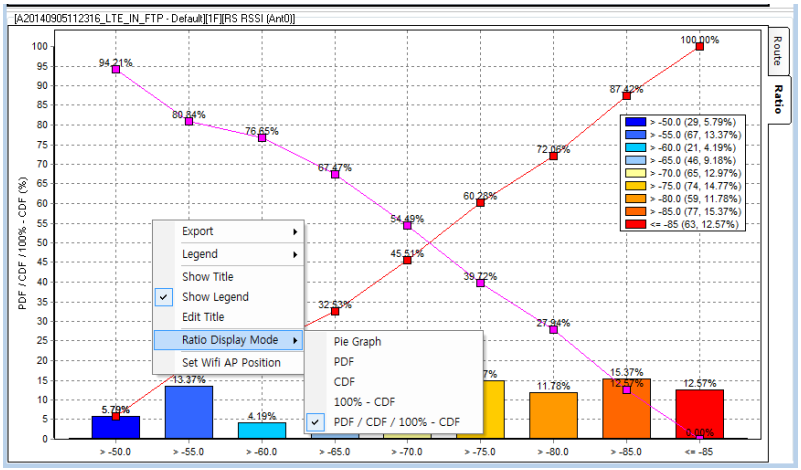
- New Attributes
  - ✓ “/LTE/Handover/HOIT” group – RTP related attributes are added
  - ✓ “/LTE/Power Control” group – Power Headroom Report – PHR dB value in the UL MAC header
- Update
  - ✓ Can uninstall from “Control Panel – Add/Remove Program”
  - ✓ Supports new Qualcomm log packets
    - 0x4179 – ver 4 – WCDMA PN Search Edition 2
    - 0x4186 – ver 8 – WCDMA Finger Temporal Analysis V2
    - 0x4221 – ver 5 – WCDMA HS-DSCH HARQ Statistics V2
    - 0x4225 – ver 8 – WCDMA HSDPA configuration V2
    - 0x4341 – ver 3 – WCDMA Multi Carrier EUL UL Channel Configuration
- Bug Fix
  - ✓ TCP, UDP Rx/Tx throughput calculation bug fix for IPv6 case
  - ✓ Samsung chip – LTE CA - PDSCH, PUSCH throughput calculation bug fix
  - ✓ Grid UI – Column width save/reload bug fix
  - ✓ Scanner attribute – legend display bug fix

Ver 3.8.0427

- Update
  - ✓ Statistic Chart – Legend position save/load function added. ‘100% - CDF’ option added

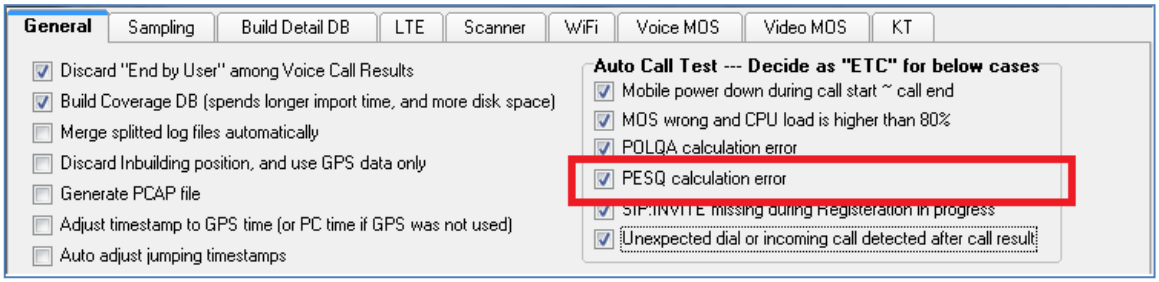


  - ✓ Inbuilding – Ratio tab in the bottom – ‘Ratio Display Mode’ popup menu added (includes submenus for Pie Graph, PDF, CDF, 100%-CDF)

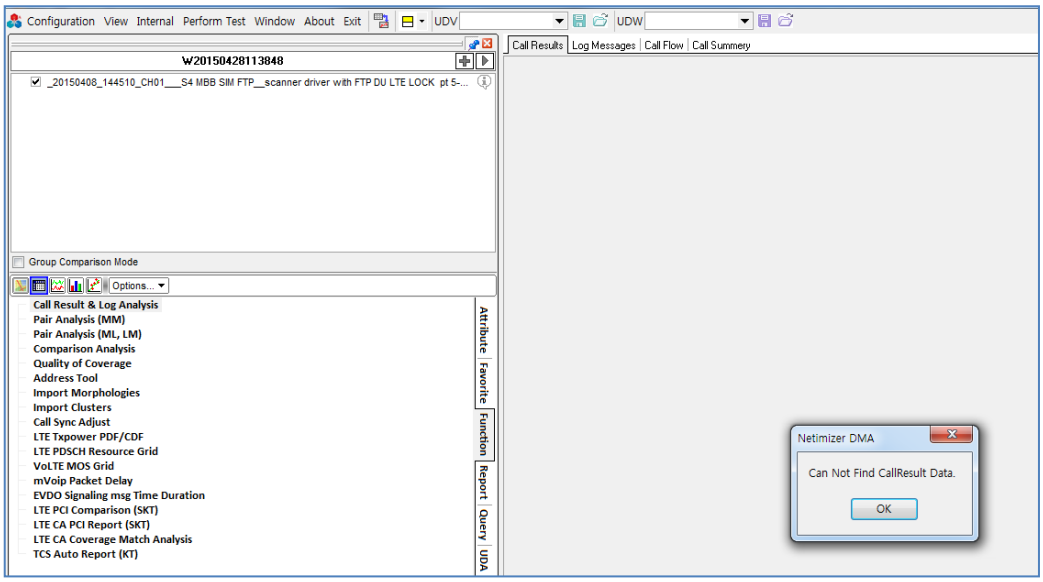


Ver 3.8.0512

- Update
  - ✓ Import option – “Decide as ETC” option includes “PESQ calculation error” now



  - ✓ Call Result & Log Analysis UI – Shows message if there is no call result data



  - ✓ Inbuilding UI - Ratio Display Mode supports 'PDF/CDF', 'PDF/100%-CDF' menu
- Bug Fix
  - ✓ LTE PDCP throughput calculation bug fix (First packet and Reset packets are skipped for the throughput calculation)

Ver 3.8.0514

- New Attributes

- ✓ "/LET/Handover" group – "Intra/Inter eNB"

- Update
  - ✓ 0xB173 PDSCH statistics indication ver 4 – Packet import logic update
  - ✓ 0x4179 WCDMA PN Search Edition 2 – Skips RSSI value calculation result when it's invalid

Ver 3.8.0519

- Update
  - ✓ Attribute "Serving Network" – Items are simplified
- Bug Fix
  - ✓ "/LTE/MC (Multi Carrier)" group – Attribute value calculation bug fix

Ver 3.8.0529

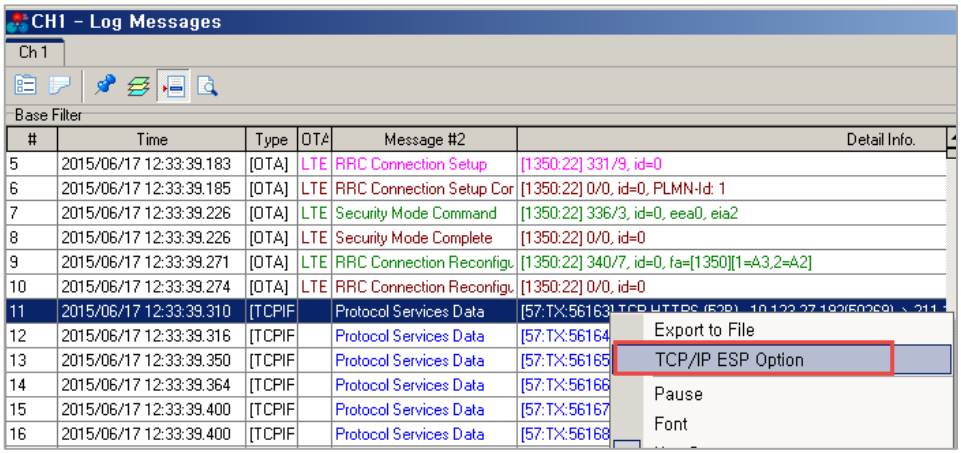
- Update
  - ✓ Log Parser – update for LG L5000 chip
  - ✓ License check module – update for LG L5000 chip
  - ✓ UDA edit dialog – Attribute search function added

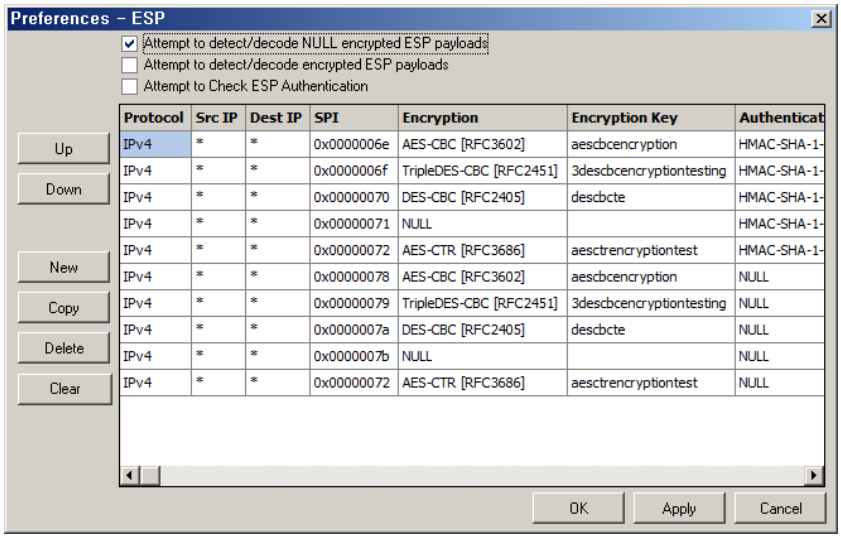
Ver 3.8.0615

- Bug Fix
  - ✓ Samsung Chipset – Supports updated Samsung DM spec (later than version 0x0460)
  - ✓ Samsung Chipset – 3CA decision method update
    - Before : RRC Connection Reconfiguration message was referred to decide CA status
    - After : If there is no RRC Connection Reconfiguration message, "LTE LL1 CA Cell Info" log packet's SCell Active information is referred to decide CA status
  - ✓ Enhanced processing for fragmented IP and fragmented TCP packets

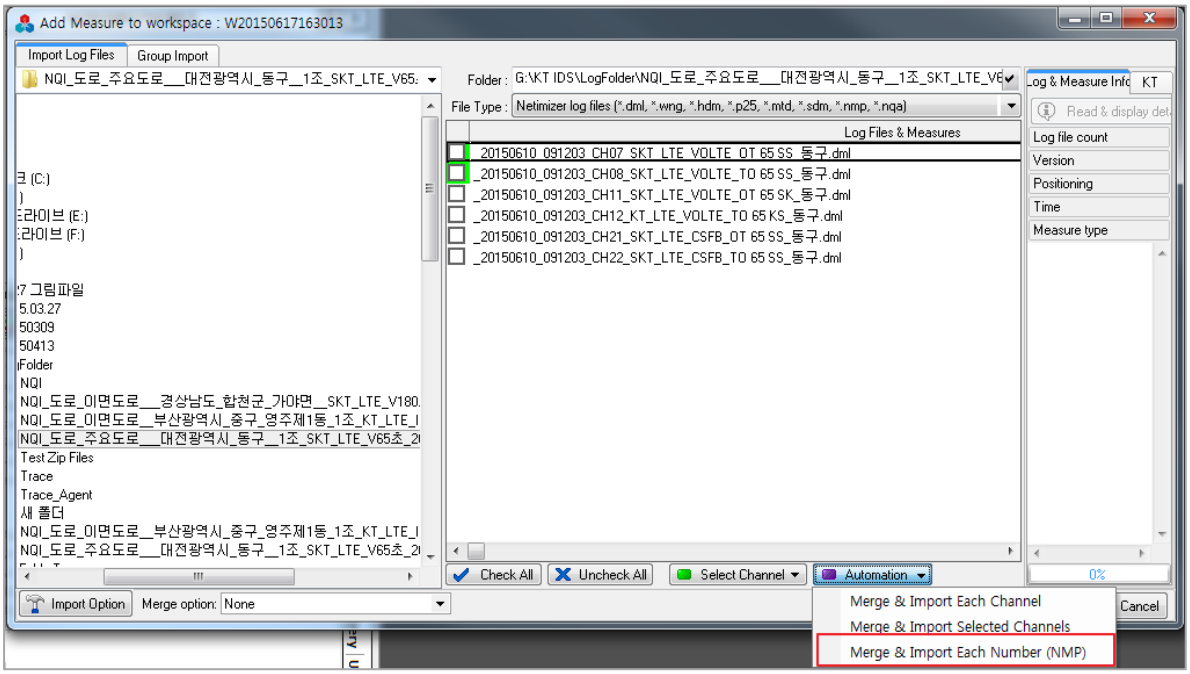
Ver 3.8.0617

- New Feature
  - ✓ Log Message UI – "TCP/IP ESP Option" added

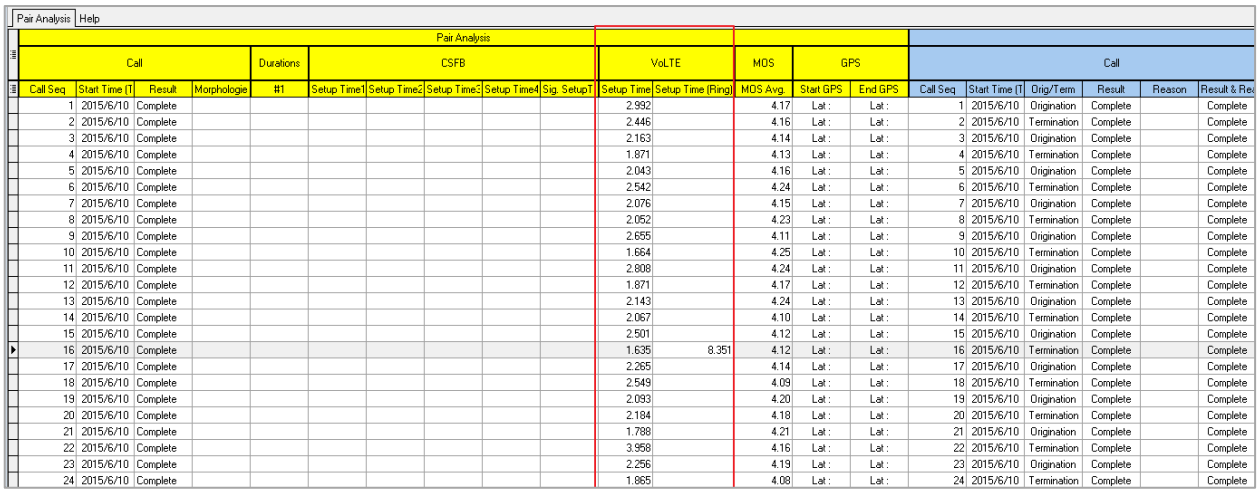




- Update
  - ✓ Log Parser – Samsung Log LRRC State (0xEB51) – rrc state field update
  - ✓ Import – Automation function update
    - Merge & Import Each Number (NMP) : Merge log files with same phone number, and import.



- ✓ Function/Pair Analysis - VoLTE Setup Time fields added



Pair Analysis | Help

Pair Analysis																					
Call				Durations	CSFB					VoLTE		MOS	GPS		Call						
Call Seq	Start Time (T	Result	Morphologie	#1	Setup Time1	Setup Time2	Setup Time3	Setup Time4	Sig. SetupT	Setup Time	Setup Time (Ring)	MOS Avg.	Start GPS	End GPS	Call Seq	Start Time (T	Orig/Term	Result	Reason	Result & Re
1	2015/6/10	Complete								2.992		4.17	Lat :	Lat :	1	2015/6/10	Origination	Complete		Complete
2	2015/6/10	Complete								2.446		4.16	Lat :	Lat :	2	2015/6/10	Termination	Complete		Complete
3	2015/6/10	Complete								2.163		4.14	Lat :	Lat :	3	2015/6/10	Origination	Complete		Complete
4	2015/6/10	Complete								1.871		4.13	Lat :	Lat :	4	2015/6/10	Termination	Complete		Complete
5	2015/6/10	Complete								2.043		4.16	Lat :	Lat :	5	2015/6/10	Origination	Complete		Complete
6	2015/6/10	Complete								2.542		4.24	Lat :	Lat :	6	2015/6/10	Termination	Complete		Complete
7	2015/6/10	Complete								2.076		4.15	Lat :	Lat :	7	2015/6/10	Origination	Complete		Complete
8	2015/6/10	Complete								2.052		4.23	Lat :	Lat :	8	2015/6/10	Termination	Complete		Complete
9	2015/6/10	Complete								2.655		4.11	Lat :	Lat :	9	2015/6/10	Origination	Complete		Complete
10	2015/6/10	Complete								1.664		4.25	Lat :	Lat :	10	2015/6/10	Termination	Complete		Complete
11	2015/6/10	Complete								2.808		4.24	Lat :	Lat :	11	2015/6/10	Origination	Complete		Complete
12	2015/6/10	Complete								1.871		4.17	Lat :	Lat :	12	2015/6/10	Termination	Complete		Complete
13	2015/6/10	Complete								2.143		4.24	Lat :	Lat :	13	2015/6/10	Origination	Complete		Complete
14	2015/6/10	Complete								2.067		4.10	Lat :	Lat :	14	2015/6/10	Termination	Complete		Complete
15	2015/6/10	Complete								2.501		4.12	Lat :	Lat :	15	2015/6/10	Origination	Complete		Complete
16	2015/6/10	Complete								1.635	8.351	4.12	Lat :	Lat :	16	2015/6/10	Termination	Complete		Complete
17	2015/6/10	Complete								2.265		4.14	Lat :	Lat :	17	2015/6/10	Origination	Complete		Complete
18	2015/6/10	Complete								2.549		4.09	Lat :	Lat :	18	2015/6/10	Termination	Complete		Complete
19	2015/6/10	Complete								2.093		4.20	Lat :	Lat :	19	2015/6/10	Origination	Complete		Complete
20	2015/6/10	Complete								2.184		4.18	Lat :	Lat :	20	2015/6/10	Termination	Complete		Complete
21	2015/6/10	Complete								1.788		4.21	Lat :	Lat :	21	2015/6/10	Origination	Complete		Complete
22	2015/6/10	Complete								3.958		4.16	Lat :	Lat :	22	2015/6/10	Termination	Complete		Complete
23	2015/6/10	Complete								2.256		4.19	Lat :	Lat :	23	2015/6/10	Origination	Complete		Complete
24	2015/6/10	Complete								1.865		4.08	Lat :	Lat :	24	2015/6/10	Termination	Complete		Complete

- Bug Fix
  - ✓ Qualcomm 3CA Scell Index #3, #4 processing bug fix

Ver 3.8.0619

- Update
  - ✓ Qualcomm chip – LTE – if both of 0xB173(ML1 PDSCH stat indication) and 0xB1BD(ML1 All DL channels decode result) log packets doesn't exist in the log file, DMA calculates LTE PDSCH DL Throughput from 0xB132(LL1 PDSCH decoding results) log packet
  - ✓ Log View – Filter – Provides IPv4/IPv6 selection filter

Ver 3.8.0630

- Update
  - ✓ LTE RRC upgrade (10.7.0 → 11.11.0) – Supports parsing for SIB14, SIB15, SIB16
  - ✓ Favorite management – Supports copy, paste for Favorite groups
  - ✓ Import Option – Scanner – "Fill Blank Period" option is added, and you can choose among "none, 1sec, 2sec, 3sec, 4sec, 5sec". (default = 3sec)

Ver 3.8.0701

- New Attribute
  - ✓ "/LTE-A/CA (Carrier Aggregation)/TTI Info" group added
    - TTI count, where "RB num > 0", is provided as count and rate, for each carrier
    - You can recognize TTI count where 2-CA or 3-CA really worked
- Update
  - ✓ Time Graph – Environment options updated

Ver 3.8.0704

- Update
  - ✓ TCP/IP packet parser – Enhanced processing for fragmented packets

Ver 3.8.0705

- New Attribute
  - ✓ "/Packet Data/SIP" group – "UL/DL" attribute added, which shows direction of SIP messages

Ver 3.8.0709

- Update
  - ✓ Favorite – Hint displays full group names of attribute on where mouse cursor is located
- Bug Fix
  - ✓ Favorite – Scanner attribute favorite management bug fix

Ver 3.8.0710

- Update
  - ✓ Import – check "folder + filename" full path, and show warning message when the path length exceeds limit of DB engine.
  - ✓ Call Result & Log Analysis UI
    - Radio Link Failure : RRE rate is calculated and displayed
    - CA Active Rate : 75M, 150M, 225M, 300M ratio is displayed

Ver 3.8.0714

- Update
  - ✓ Supports new Qualcomm log packets
    - 0xB139 – ver 43 – LTE LL1 PUSCH Tx report
    - 0xB13C – ver 43 – LTE LL1 PUCCH Tx report
  - ✓ Measure data management – Measure data that doesn't have group specified is displays in "No Group" now
- Bug Fix
  - ✓ Scanner Data Import – Dominant cell was missing even though there are Top1 cell information. This bug is fixed.

Ver 3.8.0727

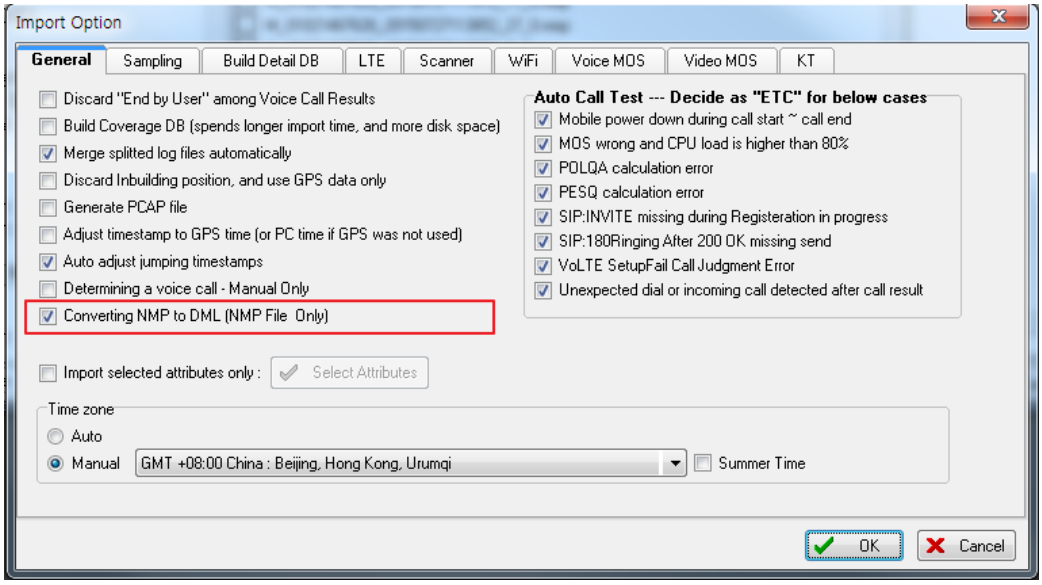
- New Attributes – Added more subgroups under "/LTE/Per TTI" groups
  - ✓ "ML1 PDCCH PHICH Ind Report" group is added

Ver 3.8.0804

- Update

✓ Added “NMP log files converting” option to the import option.

- Import Option ➔ Converting NMP to DML (NMP File Only)



- Original log files will be moved to “..\ Backup_NMP” folder

- Bug Fix
  - ✓ WCDMA RSCP calculation bug fix

Ver 3.8.0805

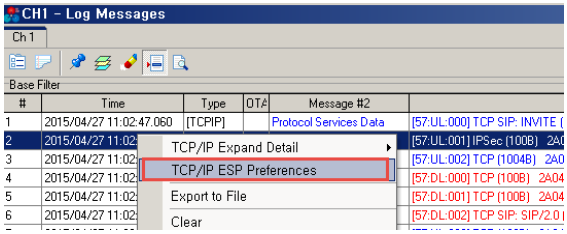
- Bug Fix
  - ✓ UDA – calculation bug fix

Ver 3.8.0806

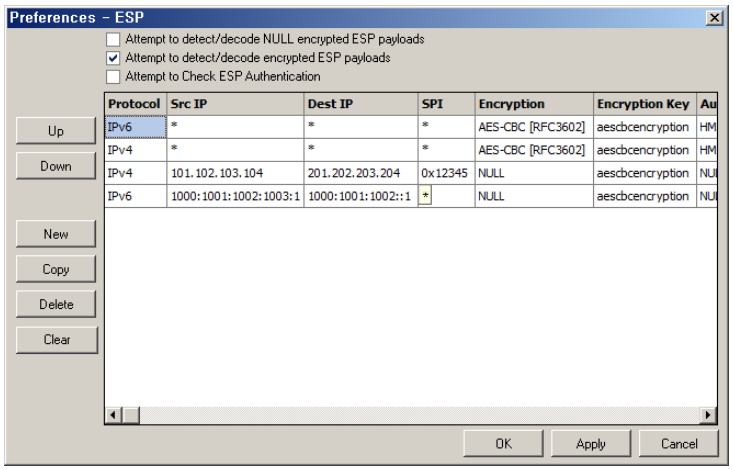
- Bug Fix
  - ✓ LTE CA – PCell, SCell list analysis bug fix

Ver 3.8.0811

- New Feature
  - ✓ TCP/IP IPSec (ESP) decoding function for VoLTE is added
    - ESP Configuration method : Log Message UI : Right Button Popup Menu - ESP Config Button



- Preference - ESP Dialog UI



Protocol : IPv4 or IPv6

Src IP : IP's Source Address for ESP decoding (* for any address)

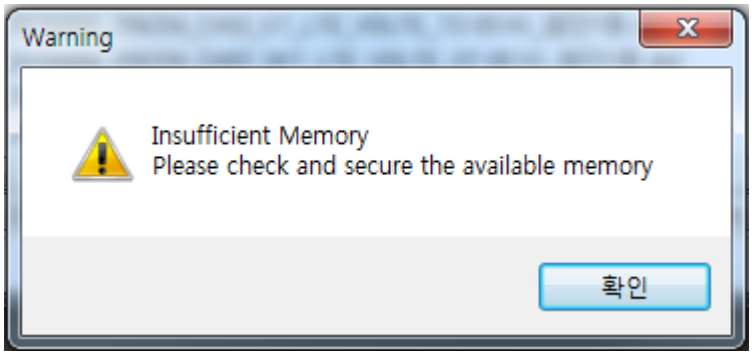
Dest IP : IP's Destination Address for ESP decoding (* for any address)

ESP SPI : ESP SPI for ESP decoding (* for any address)

Encryption : Encryption algorithm for ESP decoding

Encryption Key : Encryption Key for ESP decoding

- Update
  - ✓ When memory usage exceeds 65% during import or measure open, DMA displays below warning message



- Bug Fix
  - ✓ RTP jitter calculation bug fix – when RTP timestamp is rounded, first (after round) jitter value was not calculated. This bug is fixed.

Ver 3.8.0816

- New Attributes – Added more subgroups under "/LTE/Per TTI" groups
  - ✓ "PDCP DL Cipher Data PDU" group is added
  - ✓ "PDCP UL Cipher Data PDU" group is added

Ver 3.8.0818

- Update
  - ✓ VoLTE Report – supports large number of measures
    - Before, you had to open measures in DMA, and run VoLTE report.

- Now, you don't need to open measures – usage flow is changed as below;
  (1) Close all measures in DMA
  (2) double-click "VoLTE Report"
  (3) Select measures that you want to include in the report
  (4) Select attributes that you want to display in time graph and map
  (5) Click "Start Export" button – then report generation will start

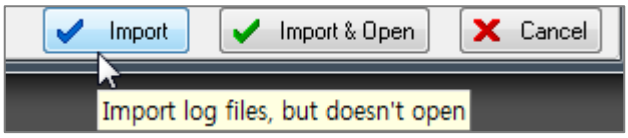
✓ LTE PCI Pollution – supports "Count" and "List" display

- Bug Fix
  ✓ RTP Gap events in the "Packet Data – RoHC – RoHC Decompressor – Event" – calculation bug fix
  ✓ RTP Gap events in the "Packet Data – RoHC – RoHC Compressor – Event" – calculation bug fix

Ver 3.8.0819

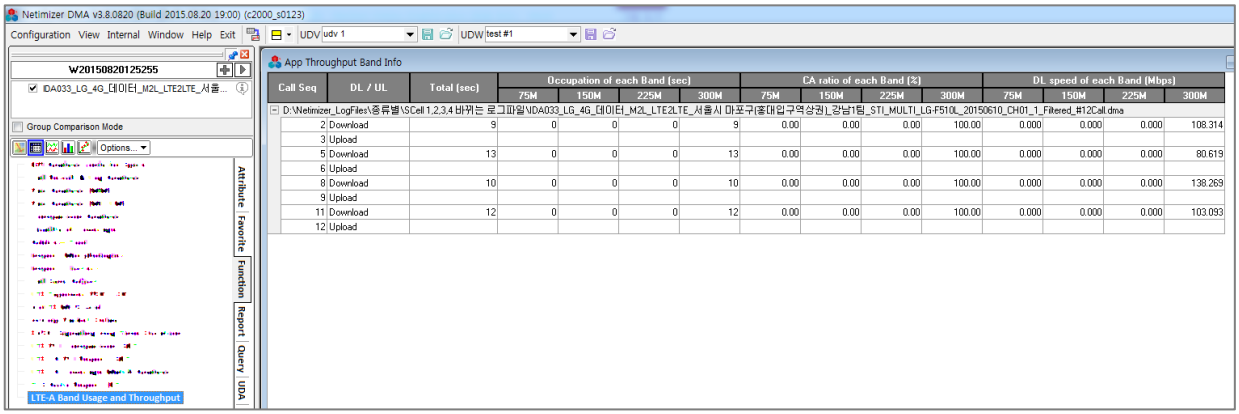
- Update
  ✓ Workspace open dialog window is added
  ✓ "/Call Test/FTP/During real application traffic duration/Instantaneous Throughput/LTE-A" group attributes are added
  - Physical Throughput Rate PCell (PCell PDSCH Rate %)
  - Physical Throughput Rate SCell #1 (SCell #1 PDSCH Rate %)
  - Physical Throughput Rate SCell #2 (SCell #2 PDSCH Rate %)

  ✓ Import dialog – Added "Import" button, which performs import only, but doesn't open to current workspace.



Ver 3.8.0820

- New Feature
  ✓ Function Tab – "LTE-A Band Usage and Throughput" added



Ver 3.8.0821

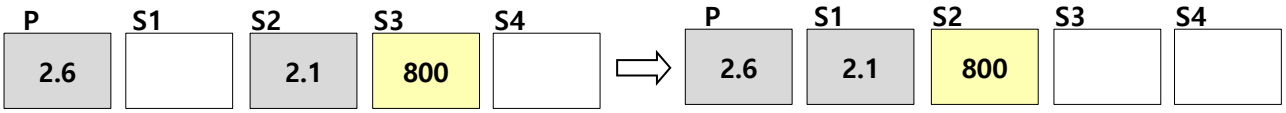
- New Attributes

- ✓ “/Delays/Activate Dedicated EPS Bearer/” group is added
- ✓ “/Delays/Deactivate Dedicated EPS Bearer/” group is added
- ✓ “/Call Test/Voice Quality/Per Rx Clip/Attenuation” is added

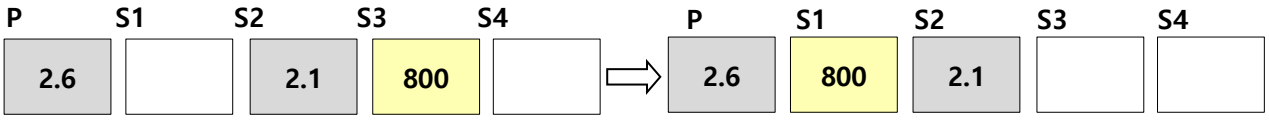
- Bug Fix
  - ✓ “WCDMA/System/DL Frequency” – calculation bug fix
  - ✓ “WCDMA/System/UL Frequency” – calculation bug fix

Ver 3.8.0826

- New Attributes
  - ✓ “/Delays/Activate Default EPS Bearer/” group is added
- Update
  - ✓ Changed SCell index calculation method (reference message : rrcConnectionReconfiguration)
    - Before : Shifted with SCell add sequence

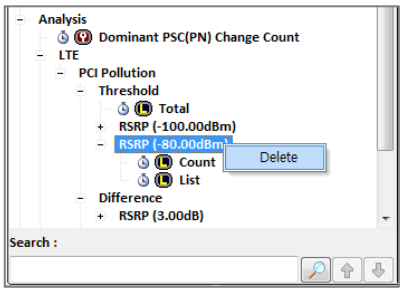


- New : Fills empty SCell regardless of add sequence



Ver 3.8.0827

- Update
  - ✓ Added “Delete” menu to LTE PCI Pollution (Count, List) item node



Ver 3.8.0902

- Update
  - ✓ License Manager update

Ver 3.8.0903

- Update
  - ✓ License Manager update – Check LIF file, if the installed floating license doesn’t support product license

Ver 3.8.0910

- New Feature
  - ✓ “Analysis – LTE - Missing Neighbor” feature added

Ver 3.8.0917

- Update
  - ✓ Terminology change – “End by User” is changed to “Forced measure stop”
  - ✓ VoLTE Report - update

Ver 3.8.0921

- Bug Fix
  - ✓ Buffer clear problem for the fragmented packets – bug fixed
  - ✓ VoLTE Report – Attribute selection save/load bug fix

Ver 3.8.0922

- Update
  - ✓ “Packet Data – RoHC – RoHC Decompressor – Event – RTP Gap” and “RTP SN Gap”
    - Skips IR(initiation and refresh) RoHC packet types for the event detection of “RTP Gap” and “RTP SN Gap”, so that big RTP gap during call initiation is not counted as event.

Ver 3.8.0924

- New Attributes
  - ✓ “/Call Test/FTP/Throughput Info (LTE - A)” group is added
    - Shows App throughput for each band in case of LTE CA
- Update
  - ✓ “LTE – Data Throughput – RLC DL Throughput” and “LTE – Data Throughput – RLC UL Throughput” – calculation method updated

Ver 3.8.0925

- New Attributes
  - ✓ “/Android Mobile” group
    - New attributes added: Latitude, Longitude, Location Source, Location Valid

Ver 3.8.0930

- Update

✓ “Report – VoLTE Report”

- Added WCDMA scanner to the “Call Result” and “Per Call Info” worksheet
- “Timestamp” group has four fields: Call scheduling start time, Connect time, Result time, Call scheduling end time

Call Results

Measure	Seq.	File name	Call Seq	Timestamp				Traffic Duration (sec)	Call Result
				Call scheduling start time	Connect time	Result time	Call scheduling end time		
_20150919_132426_CH01___MO__Leeds 6_R&S-Call#1									
	1	_20150	1	2015-09-19 13:37:30.906	2015-09-19 13:37:36.818	2015-09-19 13:39:22.823	2015-09-19 13:39:38.107	106.0	Complete
	2	_20150	2	2015-09-19 13:39:38.686	2015-09-19 13:39:46.501	2015-09-19 13:41:32.083	2015-09-19 13:41:47.527	105.6	Complete

- “Traffic Duration (sec)” is calculated by “Connect time” ~ “Result time”

- Bug Fix
  - ✓ “Report – VoLTE Report” – Scanner attribute graph/map display bug fix

Ver 3.8.1002

- New Attributes
  - ✓ “/Call Test” – Ping, HTTP(Web), iPerf group – Added test plan attributes
    - /Call Test/PING/ UDP Port Number
    - /Call Test/PING/Call Type
    - /Call Test/HTTP/Call Type – added “K.Web”
    - /Call Test/IPERF/Call Type
    - /Call Test/IPERF/Slow/Start
- Update
  - ✓ “.SDM” log file processing update – Inbuilding data and image processing is updated
  - ✓ Samsung Chipset – LTE CA frequency processing logic updated
- Bug Fix
  - ✓ UDA configuration dialog – Broken characters display bug fix

Ver 3.8.1014

- New Feature
  - ✓ Supports NEMO log file (NMF file)
    - Network: GSM

      Call Type: Voice
    - You need “NEMO log file support” license option of DMA
- New Attributes
  - ✓ Added “/NEMO” attribute group – Supports below event IDs, based on “NEMO File Format Specification – version 2.18”.
    - L3SM Layer3 signaling message
    - AMRQ AMR link quality estimate
    - CI Carrier per interference
    - CELLMEAS Cell measurement
    - RXQ RX quality
    - GPS GPS information

- AMRS AMR status
- FER Frame error rate
- RLT Radio link timeout
- TAD Timing advance
- MSP MS power
- SEI Service information
- CHI Channel info
- CAC Call Connect Success
- HOP Frequency hopping status
- HOA Handover/handoff attempt
- HOS Handover/handoff success
- CAA Call attempt
- PCHI Packet channel info
- CAD Call Disconnect
- DSC Downlink signaling counter
- ROAM Roaming information
- AMRI AMR information
- TBFI TBF information
- LUA Location area update attempt
- LUS Location area update successful
- CAF Call failed
- CARE Call re-establishment
- LOCK Lock info
- RUA Routing area update attempt
- RUS Routing area update successful
- GAA Attach attempt
- GAC Attach connected
- GAD Attach failed

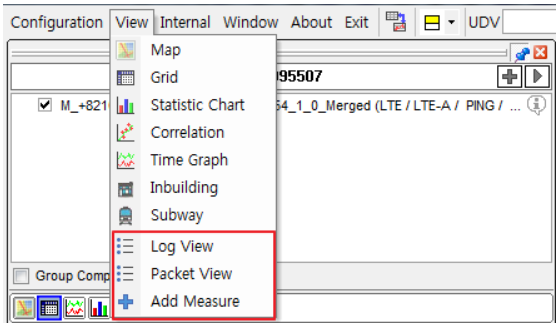
- Bug Fix
  - ✓ Indoor UI – Export All – bug fix

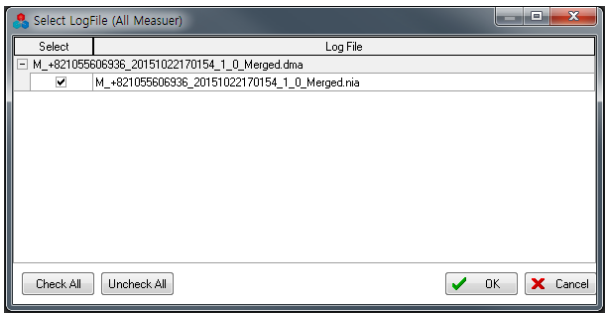
Ver 3.8.1020

- Update
  - ✓ Qualcomm Log “LTE ML1 PDSCH Stat Indication(0xB173)“ – Parser update for “ACK/NACK Decision” field
  - ✓ Layer-3 message parsing – NAS/CC/SETUP – “Supported codec” detail parsing is added

Ver 3.8.1028

- Update
  - ✓ Import - RTP Gap, RTP SN Gap calculation bug fix – Now calculated only after receiving “200OK INVITE” or after DML detected conversation state.
  - ✓ LogView and PacketView UI – Added “Measure Select” function as below.





- Bug Fix
  - ✓ NIA DM Parsing - bug Fix (decryption logic update)

Ver 3.8.1029

- Update
  - ✓ Supports new Qualcomm log packets
    - 0x119B – id2 – ver2 (Srch TNG 1x Searcher Dump, RF subpacket, ver2)

Ver 3.8.1102

- Bug Fix
  - ✓ Attribute value range error – bug fixes

Ver 3.8.1104

- New Feature
  - ✓ Supports .QMDL file – DMA will create new file (.DLF) and import it.
- Bug Fix
  - ✓ e-License management – Summer time related bug fix.

Ver 3.8.1105

- Bug Fix
  - ✓ /LTE/per TTI/LL1 PUCCH CSF group – PCell, SCell#1, SCell#2 separation bug fix

Ver 3.8.1106

- Bug Fix
  - ✓ Samsung DM log packet – 0xED17 UL1 Cell Measurement Info Packet – Invalid data is skipped now.

Ver 3.8.1107

- New Feature
  - ✓ _ImportResul.txt – Import results are written (appended) to the "_ImportResult.txt" file, in the execution folder.

Ver 3.8.1108

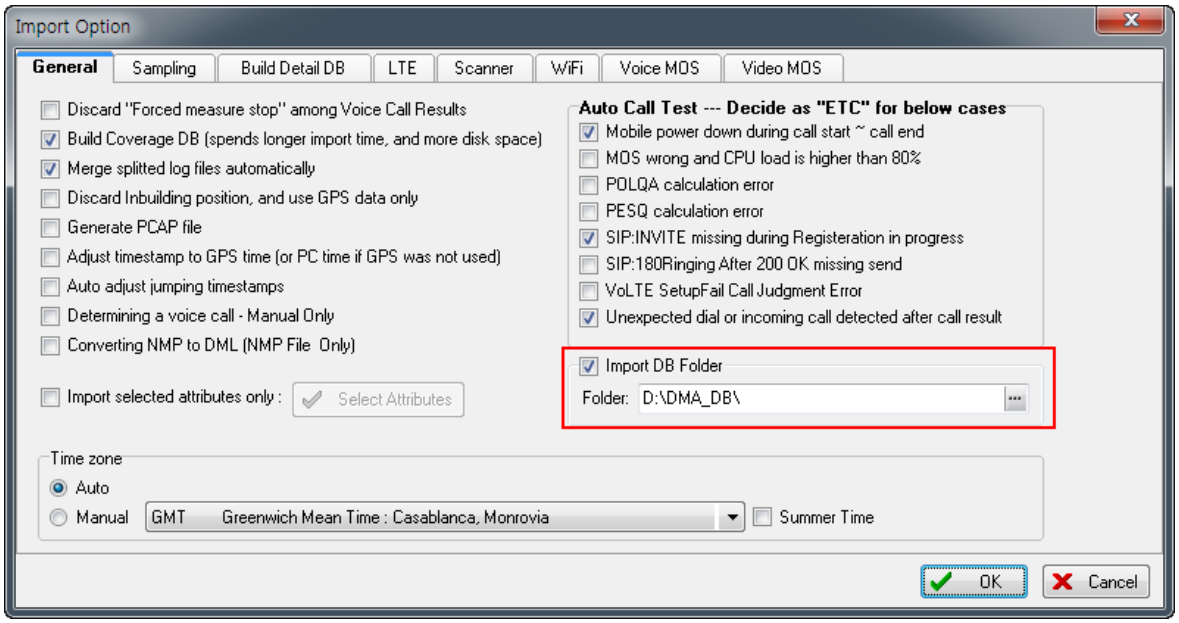
- Update
  - ✓ License manager update

Ver 3.8.1109

- New Feature

✓ Import Option – “Import DB Folder” option is added (default = uncheck)

- When checked: Imported DB is created in user-selected folder
- When unchecked: Imported DB is created in the same folder as original log file



- Update
  - ✓ Memory usage enhanced 25% in average

Ver 3.8.1111

- New Feature
  - ✓ Utility - “QMDL Files -> DML File” menu is added.
- Update
  - ✓ “Packet Data – RoHC – RoHC Compressor – Event – RTP Gap” and “RTP SN Gap”

    “Packet Data – RoHC – RoHC Decompressor – Event – RTP Gap” and “RTP SN Gap”
    - Before: Skipped in case of RoHC packet type 42(IR S), 43(IR S D), and 44(IR S D P)

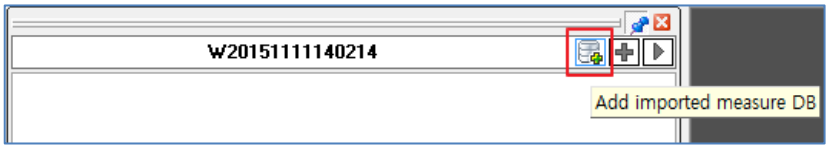
      After: Doesn’t skip
    - Before: Calculation was reset if instance ID is changed

      After: Doesn’t reset
    - Before: Skipped if error field is not 0

      After: Doesn’t skip

Ver 3.8.1112

- New Feature
  - ✓ “Add Imported Measure DB” button is added
    - It will show imported measure DB list, which is stored in the “Import DB Folder”



Ver 3.8.1113

- New Attributes
  - ✓ "/Call Test/VOD" group – attributes added
  - ✓ "/WiFi" group – attributes added
- Update
  - ✓ Calculation update
    - /GSM,GPRS,EDGE/Dedicated Radio Link/ServMsTxPowerActual

Ver 3.8.1119

- New Feature
  - ✓ Favorite Tab – Added new popup menu function
    - Export Favorite - All
    - Export Favorite – Selected Group
    - Import Favorite
- Update
  - ✓ "Packet Data – RoHC – RoHC Compressor – Event – RTP Gap" and "RTP SN Gap"

    "Packet Data – RoHC – RoHC Decompressor – Event – RTP Gap" and "RTP SN Gap"
    - Calculation method updated
- Bug Fix
  - ✓ WiFi Data Throughput Parsing – bug fixed

Ver 3.8.1124

- Update
  - ✓ GCT 7243 chipset – "Num of RB" and "Num of RBG" calculation update
  - ✓ "/Packet Data/SIP/BYE Cause" – Import logic update

Ver 3.8.1204

- Update
  - ✓ "/LTE/per TTI" group – Import function update

Ver 3.8.1207

- Update
  - ✓ Calculation updates
    - /General/Serving Network
    - /Call Test/Voice or Video Call/Real Service
  - ✓ Log Message UI

- DL/UL direction display update

Ver 3.8.1210

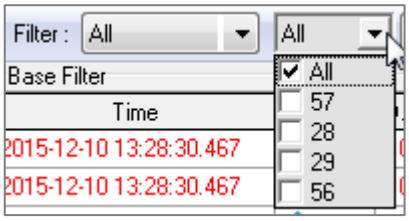
- Update
  - ✓ Import speed - enhanced

Ver 3.8.1214

- Update
  - ✓ Log View UI – Summary text is now displayed even in case of corrupted TCP/IP packet

Ver 3.8.1215

- New Attributes
  - ✓ Added new attributes in the "/Mobile Info" group
- Update
  - ✓ Packet View UI – Added filtering combo box for "Interface ID"



Ver 3.8.1216

- New Attributes
  - ✓ "/LTE/Inter-Freq Measurement Info" group is added

Ver 3.8.1218

- Bug Fix
  - ✓ License management – bug fix
  - ✓ Import option – "Adjust timestamp to GPS time" – bug fix

Ver 3.8.1222

- Update
  - ✓ Import speed – enhanced
  - ✓ Import – enhanced invalid timestamp handling
- Bug Fix
  - ✓ Time Graph – when min, max values are same, vertical axis value was displayed as 0. This bug is fixed.

Ver 3.8.1224

- Update
  - ✓ "/Packet Data/SIP/BYE Cause" – Renamed to "/Packet Data/SIP/Cause"
  - ✓ "/Packet Data/SIP/Cause" – Displays CANCEL cause also

Ver 3.8.1228

- New Attributes
  - ✓ "/Packet Data/SIP/Cause" is added – shows cause for Request Methods (ex: CANCEL)

Ver 3.8.1229

- New Attributes
  - ✓ "/LTE/per TTI/MAC DL TB/PCell (HARQ ID 0)" ~ "/LTE/per TTI/MAC DL TB/PCell (HARQ ID 14)" groups are added
- Bug Fix
  - ✓ Import bug – "Mode" value calculation had bug from v3.8.1218. This bug is fixed.

Ver 3.9.0106

- New Attributes
  - ✓ Added new attributes in the "/LTE-A/CA (Carrier Aggregation)/SCell #1/Cell Info/Neighbor Cell List" group
- Update
  - ✓ "/HSDPA/HS Decode Status" group – Sub-groups and attributes are added

Ver 3.9.0109

- Update
  - ✓ "/Call Test/Voice or Video Call/Problems" shows text for more cases
- Bug Fix
  - ✓ Bug fix for "Pair Analysis (MM)" function

Ver 3.9.0110

- Bug Fix
  - ✓ Calculation bug fix for "Transmission byte/throughput during FTP transmission"

Ver 3.9.0111

- Update
  - ✓ LTE RRC parser update

Ver 3.9.0115

- New Attributes
  - ✓ “/Call Test/FTP/Throughput Info (LTE - A)/75M” group is added
  - ✓ “/LTE/TTI Bundling” group is added
- Bug Fix
  - ✓ Calculation bug fix for “/General/Serving Network”

Ver 3.9.0120

- New Attributes
  - ✓ “/LTE/SigMsg Values/RRC/SIB2” group is added
  - ✓ “/LTE/L1/BLER/PUSCH BLER (rev.1)” is added, which shows PUSCH BLER considering TTI bundling case also.
    - PUSCH BLER (rev.1) = (re-transmit subframe count) / (new-transmit subframe count + re-transmit subframe count)
    - In case of TTI Bundling, TTI-B index 0,1,2,3 each with redundancy version 0,2,1,3 will be considered as new-transmit subframe count
    - “PUSCH BLER” doesn’t consider TTI bundling case, thus it shows higher value during TTI bundling period.
- Bug Fix
  - ✓ Grid synchronization bug fix

Ver 3.9.0121

- Bug Fix
  - ✓ "Call Result & Log Analysis" UI – Export bug fix
  - ✓ MNP, MNPM log – Auto merge mode import bug fix

Ver 3.9.0122

- Bug Fix
  - ✓ GCT WiMAX log import – bug fix

Ver 3.9.0202

- Feature removed
  - ✓ In the “Map” UI popup menu, “Export – Power Point” menu is removed.

Ver 3.9.0204

- Update
  - ✓ You can add UDA to the Favorite group

Ver 3.9.0211

- New Attributes
  - ✓ Added various LTE attributes
- Bug Fix
  - ✓ “PCI MOD collision” calculation bug fix

Ver 3.9.0218

- Bug Fix
  - ✓ “Merge as a single file” for split log files – Call result recording bug fix

Ver 3.9.0220

- New Attributes
  - ✓ “/Event/Events (Qualcomm chip)”
- Bug Fix
  - ✓ Import bug fix
    - /LTE/SigMsg Values/RRC/SIB1/trackingAreaCode – binary overflow bug fix
    - /LTE/SigMsg Values/RRC/SIB1/cellIdentity – binary overflow bug fix

Ver 3.9.0226

- Bug Fix
  - ✓ VoLTE Report – call count mismatch bug fix
  - ✓ Memory overwrite during Import - bug fix

Ver 3.9.0229

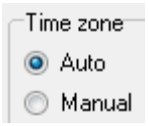
- Update
  - ✓ Import – Updated for new Qualcomm log versions
  - ✓ Import – LTE bandwidth decision – refers LTE RRC Serving Cell Info also
  - ✓ VoLTE Report – Shows “PCI MOD3 collision”, “abnormal UL TA increment/decrement”, “Ant1 and Ant2 RSRP gap >= 10” cases as event.

Ver 3.9.0302

- New Feature
  - ✓ “Report – LTE Benchmark Report” is added (Available for licensed customers only)
- Bug Fix
  - ✓ “LTE – NAS – ESM Bearer Context Info” group import bug fix

Ver 3.9.0305

- Bug Fix
  - ✓ Import – From version 3.9.0222, import had problem when “Time zone – Auto” is selected in the import option. This bug is fixed now.



Ver 3.9.0311

- New Attributes
  - ✓ “/General/Morphology” group is added
- Update
  - ✓ NMP, NMPM voice call test log files
    - /Call Test/ Call State - added
    - Category13~14 - added

Ver 3.9.0316

- Update
  - ✓ Voice Call Result decision – In case of Multi-RAB test, if there was “DM reconnection” and voice call result was “Drop”, DMA changes the voice call result into “Etc.”

Ver 3.9.0317

- Update
  - ✓ Attribute “IMEI” – refers more packet to retrieve IMEI
  - ✓ Samsung chip – Update for BLER calculation

Ver 3.9.0318

- Bug Fix
  - ✓ Text parser – CDMA OTA FTCH message handling bug fix

Ver 3.9.0325

- Update
  - ✓ Import – PCI MOD3 collision is calculated only when PCI is really changed
  - ✓ Import – supports new log versions of Qualcomm chipset (Snapdragon 820)

Ver 3.9.0401

- Bug Fix
  - ✓ Inbuilding UI – legend display bug fix

Ver 3.9.0405

- New Attribute
  - ✓ Added “/Call Test/Active Test State” group
- Bug Fix
  - ✓ Grid – “Misc Option – Display non-existing attributes also” option bug fix
  - ✓ Group Comparison Mode – popup menu display bug fix

Ver 3.9.0411

- New Attribute
  - ✓ /Call Test/FTP/ MPTCP Ratio (%)
- Update
  - ✓ Import – supports new log versions of Qualcomm chipset

Ver 3.9.0421

- New Attribute
  - ✓ “/WiFi/Connect/Connect AP/RSSI” attribute is added
- Update
  - ✓ iPerf Dual Test Mode log file analysis is supported

Ver 3.9.0504

- New Attribute
  - ✓ /WiFi/MPTCP/Throughput group
  - ✓ /WiFi/MPTCP/Transfer Bytes group
- Update
  - ✓ MAP UI – Detect map zone automatically. Popup menus are changed according to this.

Ver 3.9.0505

- Update
  - ✓ “General – Serving Network” attribute: Refers QCom log B116 for the “bandwidth” information display
  - ✓ Import – supports new log versions of Qualcomm chipset

Ver 3.9.0509

- Update

- ✓ LTE – RSSI, RSRP, RSRQ, SINR for Ant0~Ant4 is supported
- ✓ Inbuilding UI – When user tries to open JPG file larger than 2MB, it's converted to PNG file and loaded in the UI to save memory usage

Ver 3.9.0512

- New Attribute
  - ✓ Added attributes for LTE uplink CA
    - ✓ /LTE/L1/Misc/DL Bandwidth(Serving)
    - ✓ /LTE/L1/Misc/UL Bandwidth(Serving)
    - ✓ /LTE-A/CA/PCell Info/UL EARFCN,
    - ✓ /LTE-A/CA/PCell Info/UL Frequency
    - ✓ /LTE-A/CA/PCell Info/UL BW
    - ✓ /LTE-A/CA/SCell #1/UL EARFCN
    - ✓ /LTE-A/CA/SCell #1/UL Frequency
    - ✓ /LTE-A/CA/SCell #1/UL BW
    - ✓ /LTE-A/CA/SCell #1/Power/Tx Power/Tx power(PUCCH)
    - ✓ /LTE-A/CA/SCell #1/Power/Tx Power/Tx Power(PUCCH Actual)
    - ✓ /LTE-A/CA/SCell #1/Power/Tx Power/Tx power(PUSCH Total)
    - ✓ /LTE-A/CA/SCell #1/Power/Tx Power/Tx Power(PUSCH Actual)
    - ✓ /LTE-A/CA/SCell #1/Power/Tx Power/Tx power(SRS)
    - ✓ /LTE-A/CA/SCell #1/Power/Tx Power/Tx Power(SRS Actual)
    - ✓ /LTE-A/CA/SCell #1/Power/Tx Power/Tx power(PRACH)
    - ✓ /LTE-A/CA/SCell #1/Power/Tx Power/Tx power(Total)
    - ✓ /LTE-A/CA/SCell #1/L1/RB & TB/Num of UL RB (Mode)
    - ✓ /LTE-A/CA/SCell #1/L1/RB & TB/Num of UL RB (Sum)
    - ✓ /LTE-A/CA/SCell #1/L1/RB & TB/Num of UL RB (Total Average)
    - ✓ /LTE-A/CA/SCell #1/L1/RB & TB/Num of UL RB (SFN Average)
    - ✓ /LTE-A/CA/SCell #1/L1/RB & TBNum of UL RB (Average In 0)
    - ✓ /LTE-A/CA/SCell #1/L1/Modulation/UL MCS (Mode)
    - ✓ /LTE-A/CA/SCell #1/L1/Modulation/UL MCS (Average)
    - ✓ /LTE-A/CA/SCell #1/L1/Modulation/UL Modulation Count (QPSK)
    - ✓ /LTE-A/CA/SCell #1/L1/Modulation/UL Modulation Count (16QAM)
    - ✓ /LTE-A/CA/SCell #1/L1/Modulation/UL Modulation Count (64QAM)
    - ✓ /LTE-A/CA/SCell #1/L1/Throughput/PUSCH PHY Throughput
    - ✓ /LTE-A/CA/SCell #1/L1/Throughput/PUSCH PHY Bytes
    - ✓ /LTE-A/CA/SCell #1/L1/BLER/PUSCH BLER
    - ✓ /LTE-A/CA/Scell #2/UL EARFCN
    - ✓ /LTE-A/CA/Scell #2/UL Frequency
    - ✓ /LTE-A/CA/Scell #2/UL BW
    - ✓ /LTE-A/CA/Scell #2/Power/Tx Power/Tx power(PUCCH)
    - ✓ /LTE-A/CA/Scell #2/Power/Tx Power/Tx Power(PUCCH Actual)
    - ✓ /LTE-A/CA/Scell #2/Power/Tx Power/Tx power(PUSCH Total)
    - ✓ /LTE-A/CA/Scell #2/Power/Tx Power/Tx Power(PUSCH Actual)
    - ✓ LTE-A/CA/Scell #2/Power/Tx Power/Tx power(SRS)
    - ✓ /LTE-A/CA/Scell #2/Power/Tx Power/Tx Power(SRS Actual)
    - ✓ /LTE-A/CA/Scell #2/Power/Tx Power/Tx power(PRACH)
    - ✓ /LTE-A/CA/Scell #2/Power/Tx Power/Tx power(Total)
    - ✓ /LTE-A/CA/Scell #2/L1/RB & TB/Num of UL RB (Mode)
    - ✓ /LTE-A/CA/Scell #2/L1/RB & TB/Num of UL RB (Sum)
    - ✓ /LTE-A/CA/Scell #2/L1/RB & TB/Num of UL RB (Total Average)
    - ✓ /LTE-A/CA/Scell #2/L1/RB & TB/Num of UL RB (SFN Average)
    - ✓ /LTE-A/CA/Scell #2/L1/RB & TBNum of UL RB (Average In 0)
    - ✓ /LTE-A/CA/Scell #2/L1/Modulation/UL MCS (Mode)
    - ✓ /LTE-A/CA/Scell #2/L1/Modulation/UL MCS (Average)
    - ✓ /LTE-A/CA/Scell #2/L1/Modulation/UL Modulation Count (QPSK)
    - ✓ /LTE-A/CA/Scell #2/L1/Modulation/UL Modulation Count (16QAM)

- ✓ /LTE-A/CA/Scell #2/L1/Modulation/UL Modulation Count (64QAM)
- ✓ /LTE-A/CA/Scell #2/L1/Throughput/PUSCH PHY Throughput
- ✓ /LTE-A/CA/Scell #2/L1/Throughput/PUSCH PHY Bytes
- ✓ /LTE-A/CA/Scell #2/L1/BLER/PUSCH BLER

- Update
  - ✓ Samsung Chip – Updated Serving Network decision method
    - Before: Refers LL1 CA Cell Info Packet
    - After: Refers PCell, SCell RB values also, and classifies as CA, 2CA, 3CA, etc.

Ver 3.9.0513

- Update
  - ✓ Installation package – Checks if below packages are installed already, and skips installation is it's already installed.
    - License management driver
    - vcredist packages
- Bug Fix
  - ✓ LMA Engine – License check bug fix
  - ✓ Import – Merge as a single measure – "Serving Network" wrong decision bug fix
  - ✓ Import – Merge as a single measure – "PCell/SCell1/SCell2 UL BW" wrong decision bug fix

Ver 3.9.0514

- New Attributes
  - ✓ /LTE-A/CA/DL SCell Event
- Bug Fix
  - ✓ Import – LTE CA throughput calculation bug fix for below attributes
    - "/LTE/L1/Throughput" group
      - ✧ PDSCH Inst. Throughput
    - "/LTE/Data Throughput" group
      - ✧ PDSCH Throughput (Total)
      - ✧ PDSCH Throughput (Total) (PCell)
      - ✧ PDSCH Throughput (Total) (SCell1)
      - ✧ PDSCH Throughput (Total) (SCell2)
      - ✧ MAC DL Throughput (Total)

Ver 3.9.0516

- New Attributes
  - ✓ "/Call Test/FTP/Throughput Info (LTE - A)/" group includes various LTE CA related attributes
- Update
  - ✓ Import – Calculation method update for below attributes
    - /General/Serving Network
- Bug Fix

- ✓ Inbuilding UI – Export All – Legend display was corrupted when you try export all from “PDF/CDF” type display. This bug is fixed.

Ver 3.9.0519

- New Attributes
  - ✓ /LTE-A/CA/UL CA Mode
- Update
  - ✓ /General/Serving Network
    - If there is no RB allocated to PCell, Serving Network is calculated from SCell1 and SCell2 Bandwidth information

Ver 3.9.0520

- Bug Fix
  - ✓ Import – bug fix for some HSDPA log packets

Ver 3.9.0524

- New Feature
  - ✓ Import Option – “Show result on error” option is added (default = unchecked). When checked, errors occurred during import will be displayed when import finished.

- Update
  - ✓ License Manager update

Ver 3.9.0528

- Update
  - ✓ Import – Data Sampling – If there is no log data from modem chipset, GPS packets are referred to decide data sampling point.

Ver 3.9.0603

- Update
  - ✓ Import – HTTP Download – “/LTE/Data Throughput/Downlink(Traffic)” group is imported for http download test also, as well as ftp download test.
- Bug Fix
  - ✓ Import – “LTE-A/CA” group is imported correctly for band 28 or higher also.

Ver 3.9.0613

- Update
  - ✓ Import – Supports new FTP result log packet, which is created by DML version later than 3.9.0601
  - ✓ Import – Samsung Chip – Partial of "/LTE/Random Access" group attributes are visible for Samsung chipset
- Bug Fix
  - ✓ Import – Enhanced handling of Qualcomm chip bug for 0xB139 (LL1 PUSCH Tx report) and 0xB146 (LTE LL1 UL AGC Tx Report) and 0xB16E (LTE PUSCH Power Control) – SCell Index is invalid by Qualcomm chip bug, and it's processing is bug fixed
  - ✓ Import – Bug fix for handling non-ASCII characters in the WiFi SSID

Ver 3.9.0616

- Update
  - ✓ Import – Samsung Chip – 0xEB19_v503 is supported
  - ✓ Attribute tree – Changed "Per TTI" terminology to "TTI Level"

Ver 3.9.0622

- New Feature
  - ✓ Time Graph UI – "Environment – Show Attribute Group Name" option is added to popup menu. This option is effective only when single attribute is displayed in each graph panel. When selected, group name is displayed together as well as attribute name.

Ver 3.9.0624

- Update
  - ✓ "/LTE/TTI Level/ML1 PDSCH Statistics" group
    - "ACK/NACK Decision" attribute added
    - SCell 2 group added

Ver 3.9.0711

- New Atrribute
  - ✓ "/Call Test/HTTP Transfer" group is added
- Update
  - ✓ Samsung Chip 256QAM is supported
  - ✓ Android RIL Data import is supported

Ver 3.9.0715

- Update
  - ✓ Import – Samsung chip – UMTS vocoder packets are processed during import
  - ✓ Pair Analysis (MM) Field 추가

- Duration/Tool Origination
- Duration/Tool Setup
- Duration/Tool Traffic
- PN/PSC List

Ver 3.9.0727

- New Attributes
  - ✓ /Call Test/HTTP/Browser Event/Event
  - ✓ /Call Test/HTTP/Browser Event/Info
- Update
  - ✓ Pair Analysis (MM) – CSV Export function is added

Ver 3.9.0801

- Update
  - ✓ "/Call Test/VOD" group attribute – Update and added more attributes

Ver 3.9.0804

- Update
  - ✓ License manager update
  - ✓ Samsung chip log file – Supports encrypted Samsung chip log file

Ver 3.9.0808

- Update
  - ✓ License manager update
- Bug Fix
  - ✓ Samsung chip – Bug fix for interpretation of "0xEB12 LL1 Downlink Info – v503" log packet

Ver 3.9.0812

- New Attributes
  - ✓ "/Call Test/VoLTE/Audio Media Type/Rx Audio Frame Type"
    "/Call Test/VoLTE/Audio Media Type/Tx Audio Frame Type"
    - These attribute shows media type, such as "AMR-WB 6.60 Kbps", "AMR-WB 8.85 Kbps", … "AMR-WB 23.85 Kbps", "AMR-WB SID", "Speech Lost", "No Data (No Tx/Rx)".

Ver 3.9.0823

- Bug Fix
  - ✓ Log Message UI – Export To PCAP bug fix

- ✓ Import – Samsung chip signaling message processing buf fix

Ver 3.9.0824

- Update
  - ✓ Rearranged attribute tree
    - "/Call Test/VoLTE/Audio Media Type" group is moved to "/Packet Data/RTP/Audio Media Type"
  - ✓ Import – Supports EVS translation for the "/Packet Data/RTP/Audio Media Type" group

Ver 3.9.0831

- Update
  - ✓ License manager update

Ver 3.9.0907

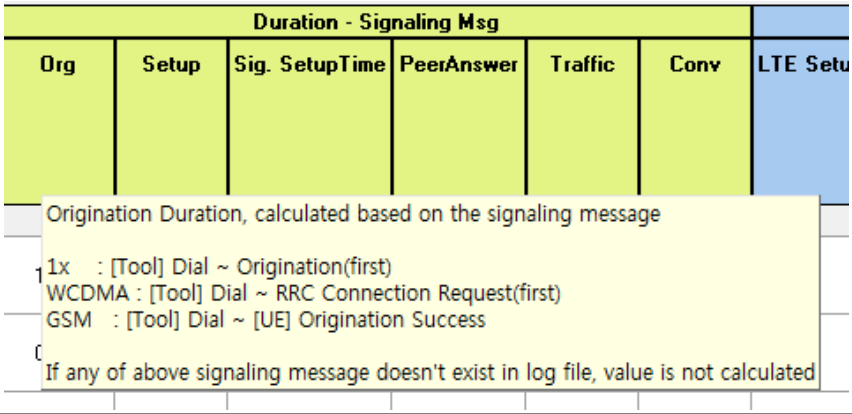
- Bug Fix
  - ✓ Export to KML – bug fix

Ver 3.9.0918

- Update
  - ✓ Import – Supports new Qualcomm log version

Ver 3.9.0923

- Update
  - ✓ Import – Supports PCTEL CDMA, EVDO data
  - ✓ CallResult & Log Analysis UI – Voice Grid Header Hint is displayed
    - Duration - Signaling Msg/ Org
    - Duration - Signaling Msg/ Setup
    - Duration - Signaling Msg/ PeerAnswer
    - Duration - Signaling Msg/ Traffic
    - Duration - Signaling Msg/ Conv



Ver 3.9.1010

- Bug Fix
  - ✓ WiFi Serving Network decision – bug fix for the decision during voice call
  - ✓ Serving Network decision – bug fix (LTE 20MHz+20MHz+20MHz)

Ver 3.9.1012

- New Attribute
  - ✓ "/Call Test/IPERF/" group – added new attributes
- Update
  - ✓ Call Result & Log Analysis – Supports iPerf throughput

Ver 3.9.1013

- Bug Fix
  - ✓ License manager – bug fix for processing multiple licenses

Ver 3.9.1014

- Update
  - ✓ Import – RTP jitter calculation – Enhanced handling for the decreased RTP header timestamp values

Ver 3.9.1020

- New Attribute
  - ✓ "/Call Test/VoLTE/RTP Analysis" group
    - Rx RTP Packet Count (Actual)
    - Rx Loss Ratio
    - Tx RTP Packet Count (Actual)
    - Tx Loss Ratio
- Update
  - ✓ Inbuilding UI – Auto zoom level adjust update
  - ✓ Pair Analysis (MM) – Field added
    - LTE/PCI List
    - eNB-ID

Ver 3.9.1026

- New Attribute
  - ✓ "/Call Test/VOD/Call Quality" group – added new attributes
  - ✓ "/General/GPS" group – added new attributes

Ver 3.9.1103

- New Attribute
  - ✓ “PDSCH Throughput per PRB” attributes are added
- Update
  - ✓ Import – Some Qualcomm chip log provides wrong SCell index. Manipulation for wrong SCell index is added.
  - ✓ Import – LTE PDSCH Throughput calculation update

Ver 3.9.1104

- Update
  - ✓ Import – “/Call Test/Voice or Video Call/Reason” – Added “RTP Timeout (No RTP)” item, and updated VoLTE call drop reason decision function during import
- Bug Fix
  - ✓ Import – Bluetooth Rx message parsing bug fix
  - ✓ Import – PUSCH modulation 64QAM analysis bug fix

Ver 3.9.1111

- Update
  - ✓ Import – Supports new call type “Idle Wait Call”
  - ✓ FIT Report – Supports multiple log files for each channel
- Bug Fix
  - ✓ Import – Serving Network decision rule bug fix for “WiFi network state”

Ver 3.9.1116

- Update
  - ✓ Import – Updated IMEI and IMSI information retrieval method

Ver 3.9.1117

- Bug Fix
  - ✓ Import – “LTE-A/CA/SCell Event/Scell Act-Deact State” value calculation bug fixed for LTE-CDMA IRAT HO case

Ver 3.9.1121

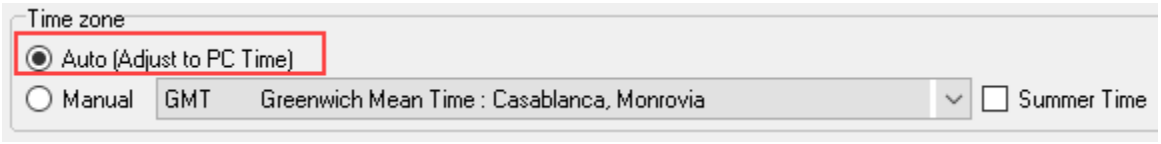
- Update
  - ✓ Import – Supports new Qualcomm log version
    - 4342 - ver 2 (WCDMA Multi Carrier EUL UL E-DPCH)
    - 4345 - ver 2 (WCDMA Multi Carrier EUL Link Statistics)

Ver 3.9.1123

- New Attribute
  - ✓ "/Call Test/PTT" group – added new attributes
- Update
  - ✓ Export to CSV – Enhanced handling for the column value with ',' characters

Ver 3.9.1206

- Bug Fix
  - ✓ Import option – Time zone "Auto" didn't work correctly during import, thus timestamp was incorrect after import. This bug is fixed.



Ver 3.9.1207

- Update
  - ✓ Import – "/LTE-A/CA/DL CA Mode" and "/LTE-A/CA/UL CA Mode" now displays 'maximum value' instead of 'last value'. Enum values for these attributes are as below;
    - DL CA Mode: None(0), Single Freq(1), 2band CA(2), 3band CA(3)
    - UL CA Mode: None(0), Single Freq(1), 2band CA(2), 3band CA(3), MC PUSCH(4)
  - ✓ Map UI – Popup menu for "Legend" update

Ver 3.9.1209

- New Attribute
  - ✓ "/Packet Data/ICMP" group is added

Ver 3.9.1214

- Update
  - ✓ Import – PTT Test – Added call setup related calculations during import
  - ✓ Import – Youtube KPI – Calculation method update
- Bug Fix
  - ✓ Import – Local phone number missing for data test log file – bug fix
  - ✓ Import – Youtube KPI – Freeze Duration calculation bug fix

Ver 3.9.1215

- Update
  - ✓ Import – GPS – Process latitude and longitude, even if date/time is invalid

Ver 3.9.1219

- Update
  - ✓ LogFile Tool – Supports IBflex scanner
- Bug Fix
  - ✓ Import – Android Temperature had negative value – bug fixed

Ver 3.9.1220

- Update
  - ✓ Import – PTT Termination Call Access Time calculation update
- Bug Fix
  - ✓ Import – Qualcomm 4x4 RSSI, RSRP, RSRQ, SINR – Displaying n/a value for disabled antenna – bug fix

Ver 3.9.1228

- Update
  - ✓ Inbuilding UI – Added “Export” – “All – Keeping zoom level” popup menu. User’s recent zoom level and relative scroll position will be kept for all floors during image export.

Ver 3.10.0110

- Bug Fix
  - ✓ FIT_Report – DUT channel miscalculation bug fix
  - ✓ LTE ML1 Serving Cell Measurement Result – Calculates RF for the “Serving Cell Index Packet” only, discarding neighbor cell information
  - ✓ Measure Plan Info – Missing “User Info Packet” caused import failure for inbulding and subway data. This bug is fixed.

Ver 3.10.0111

- Update
  - ✓ “General/Serving Network” – Added new network types; “LTE + WIFI”, “WCDMA + WIFI”, “Other + WIFI” (for the customer ID 0x7001 only)
  - ✓ Import – During voice call service, WiFi is not used as a ‘serving network’ for below duration
    - Before: Voice Call Start ~ Voice Call Result
    - After: Voice Call Start ~ Voice Call End
- Bug Fix
  - ✓ Import - “/WiFi/Serving AP/Connect State” import bug fix

Ver 3.10.0114

- Bug Fix
  - ✓ Import – Fixed bug during handling invalid timestamps when “Auto adjust jumping timestamps” option is selected in the import option.

Ver 3.10.0124

- Update
  - ✓ Import – Supports new Qualcomm log version
    - 0x4186 ver11 WCDMA Finger Termporal Analysis V2)
- Bug Fix
  - ✓ “Call Result & Log Analysis” UI – Some fields didn’t display value – bug fixed
  - ✓ DB creation fail – Some DB fields had same name, which caused DB creation fail – bug fixed

Ver 3.10.0201

- Bug Fix
  - ✓ Inbuilding UI – Merged tab route display bug fix

Ver 3.10.0207

- Update
  - ✓ Samsung chip ICD rev5, IPSec, UL_CA is supported by default without license option

Ver 3.10.0208

- New Attributes
  - ✓ “/Call Test/VOD/” group
    - “/Call Test/VOD/Quality (per Call)/Setup Duration” - VOD_T_Start ~ VOD_GetUrlOk
    - “/Call Test/VOD/Quality (per Call)/Playback Time”
    - “/Call Test/VOD/Quality (per Call)/Playback Rate”
    - “/Call Test/VOD/Quality (per Call)/Remaining Time”

Ver 3.10.0209

- New Attributes
  - ✓ “/Mobile Info/Android/Acceleration Sensor” group
  - ✓ “/Mobile Info/Android/GyroScope Sensor” group
  - ✓ “/Mobile Info/Android/Geomagnetic Sensor” group
- Update
  - ✓ Import – GPS coordinates are processed even if “tracked satellite number” is 0.

Ver 3.10.0213

- Update
  - ✓ Import – WCDMA RRC Signal Message Update (ext LogMessage Parsing)

- ✓ Qualcomm WCDMA Signal Message(0x412F) “DL BCCH-BCH” message format parser update

Ver 3.10.0220

- Update
  - ✓ Import, Parser – Update for new version of Qualcomm LTE log

Ver 3.10.0221

- Bug Fix
  - ✓ Grid UI – Append mode display bug fix
  - ✓ Voice call traffic duration decision bug fix
  - ✓ Time Graph – Synchronization display bug fix

Ver 3.10.0222

- New Attributes
  - ✓ “LTE – L1 – Misc – DL MIMO Type” – Legend item list updated
  - ✓ “LTE – L1 – Misc – DL MIMO Type (SCell1)” ~ “LTE – L1 – Misc – DL MIMO Type (SCell3)”
- Update
  - ✓ License manager update

Ver 3.10.0227

- New Attributes
  - ✓ /Call Test/Call Start Network
  - ✓ /Call Test/Call Middle Network
  - ✓ /Call Test/Call Result Network
  - ✓ /Call Test/Call End Network
  - ✓ /Call Test/Active Test Event

Ver 3.10.0228

- Update
  - ✓ Inbuilding UI – Legend window is enabled with scrollbar

Ver 3.10.0302

- Bug Fix
  - ✓ Import – Bug fix for importing “/Packet Data/RTP/DL RTP Packet Header/All” group and “/Packet Data/RTP/UL RTP Packet Header/All”

Ver 3.10.0307

- Bug Fix
  - ✓ Import – Bug fix for importing "/Packet Data/RTP/DL RTP Packet Header/All" group and "/Packet Data/RTP/UL RTP Packet Header/All"

Ver 3.10.0310

- New Attributes
  - ✓ "/LTE-A/CA/PCell/L1/" and "/LTE-A/CA/SCell #1/L1/" and "/LTE-A/CA/SCell #2/L1/" groups;
    - RS SNR (Ant2), RS SNR (Ant3), RSRP (Ant2), RSRP (Ant3), RSSI (Ant2), RSSI (Ant3), RS SNR (Ant2) , RS SNR (Ant3)
- Bug Fix
  - ✓ Import – "/Call Test/Voice or Video Call/ Comment" showed "UE didn't accept tool's origination request" string even when there was no BT used for call control – bug fixed

Ver 3.10.0314

- Update
  - ✓ Import – Supports new Samsung chipset

Ver 3.10.0317

- New Attributes
  - ✓ New sub groups in "/LTE/Cell Info/Serving Cell List/" – Group Ant2, Ant3
  - ✓ New sub groups in "/LTE-A/CA/PCell/Cell Info/Serving Cell List/" – Group Ant2, Ant3
  - ✓ New sub groups in "/LTE-A/CA/SCell1/Cell Info/Serving Cell List/" – Group Ant2, Ant3
  - ✓ New sub groups in "/LTE-A/CA/SCell2/Cell Info/Serving Cell List/" – Group Ant2, Ant3
- Update
  - ✓ WCDMA RRC parser update – Now supports 3GPP 12.9.0
  - ✓ Import – Updated fragmented SIP packet processing

Ver 3.10.0325

- Update
  - ✓ LMA Engine – Requires Administrator right to run
- Bug Fix
  - ✓ Import – "/LTE/L1/RF/RS SNR" calculation bug fix

Ver 3.10.0328

- Update
  - ✓ Import – Updated fragmented SIP packet processing
  - ✓ Time Graph UI – Horz axis label shows msec automatically, if displayed time gap (of horz axis) is less than 3sec. When

larger than 3sec, label doesn't show msec.

- ✓ Time Graph UI – If you merge several attributes to be displayed in a single chart, and save to Favorite, your configuration of merging attributes in a single chart will be saved. If you drag & drop Favorite to Time Graph UI, merged state will be recovered.

- Bug Fix
  - ✓ Time Graph – Group name display option – bug fixed

Ver 3.10.0331

- New Attributes
  - ✓ "/LTE/SigMsg Values/NAS ESM/Activate Default EPS Bearer Context Request" group
    - "DL Max bit rate", "UL Max bit rate", "DL Guaranteed bit rate", "UL Guaranteed bit rate"
  - ✓ "/Packet Data/RTP/DL RTP Packet Header/Event" and "/Packet Data/RTP/UL RTP Packet Header/Event" group
    - "RTP Gap (> 1sec)", "RTP Gap (> 10sec)", "RTP Gap (> 30sec)"
- Update
  - ✓ "/LTE/SigMsg Values/NAS ESM/Activate Default EPS Bearer Context Request" Group
    - DL Max bit rate ➔ DL Max bit rate (Extended)
    - UL Max bit rate ➔ UL Max bit rate (Extended)
    - DL Guaranteed bit rate ➔ DL Guaranteed bit rate (Extended)
    - UL Guaranteed bit rate ➔ UL Guaranteed bit rate (Extended)
- Bug Fix
  - ✓ Pair Analysis(MM) Time Sync – bug fixed, and Excel Export format is updated

Ver 3.10.0402

- Bug Fix
  - ✓ License manager bug fix

Ver 3.10.0407

- Update
  - ✓ Import – Updated fragmented SIP packet processing
- Bug Fix
  - ✓ NMP log file import – Wrong display of "WiFi" as serving network, because of skipping "#WIFI" log packet – bug fixed

Ver 3.10.0411

- New Attributes
  - ✓ "/Call Test/HTTP Transfer" group – Added new attributes
- Bug Fix
  - ✓ cdma2000 SMS over 80 byte sizes bug fixed
  - ✓ cdma2000 SMS(TIA/EIA-637-A) "GSM 7-bit default alphabet" user data parser bug fixed

Ver 3.10.0413

- New Attributes
  - ✓ /LTE/Mobile Status/RRC State (sampled data)

Ver 3.10.0418

- New Attributes
- ✓ /Call Test/Scenario Seq
- ✓ "/Packet Data/Mobile Chip" group added
- Update
- ✓ Import – SMS Test import update

Ver 3.10.0421

- Update
- ✓ Supports LTE RRC d50.
- Bug Fix
- ✓ LMA Engine – removed duplicated fields

Ver 3.10.0425

- Update
- ✓ "/Call Test/Voice or Video Call/Reason" – Added SIP - Failure Responses
- Bug Fix
- ✓ "/LTE/Handover/DL_DCCH RRC Connection Reconfiguration/t304" – updated for LTE RRC d50

Ver 3.10.0427

- New Attributes
- ✓ "/Delays/Modify Dedicated EPS Bearer" group is added
- Bug Fix
- ✓ "/Packet Data/SIP/Cause" – BYE cause/reason was not displayed some cases – bug fixed.

Ver 3.10.0501

- Bug Fix
- ✓ "/Packet Data/RTP/DL RTP Packet Header/Event" group – When there was DM reconnect, RTP Gap, RTP SN Gap, etc. had high values because of missing data from chipset. This bug is fixed.
- ✓ Import – Packet data parsing – In some case, HTTP packet was processed as SIP packet. This bug is fixed.

Ver 3.10.0503

- Bug Fix
- ✓ "/LTE/L1/Modulation/" group – 256QAM was not calculated on some cases. This bug is fixed.

Ver 3.10.0512

- Update
- ✓ Import – Updated fragmented SIP packet processing
- Bug Fix
- ✓ "/LTE/L1/RF/RSRP" attributes – RSRP value calculation bug for Samsung chip log – bug fixed.

Ver 3.10.0518

- New Attribute
- ✓ "/Mobile Info/Android/ADB Log" is added

Ver 3.10.0522

- Bug Fix
- ✓ "/LTE-A/CA/PCell/L1/Modulation/TB1 DL Modulation Count (256QAM)" and "TB2 DL Modulation Count (256QAM)" calculation bug fix

Ver 3.10.0526

- Update
- ✓ UI style is changed
- ✓ Import – Supports new version of Qualcomm log
- 1FEE 3D GPS Info
- B139 LTE LL1 PUSCH Tx report - v103
- B16C LTE ML1 DCI information report - v28
- B193 LTE ML1 serving cell measurement result - v24
- B195 LTE ML1 connected neighbor measurement result - v24
- ✓ Samsung chipset - 4CA, 5CA is supported

Ver 3.10.0607

- Update
- ✓ Import – Supports PCTEL scanner EPS(enhanced power scan) results
- Bug Fix
- ✓ Import – "Adjust to GPS(or PC) time" – bug fixed
- ✓ Pair Analysis (MM) – Timestamp display bug fix

Ver 3.10.0608

- New Attributes
- ✓ /LTE/L1/Modulation/UL Modulation (Ant0 - Mode)
- ✓ /LTE/L1/Modulation/UL Modulation (Ant1 - Mode)
- Bug Fix
- ✓ Import – Qualcomm chip – LTE UL Modulation calculation bug fix
- Before: Counted all modulations from three different log types. This caused about x3 times of modulation counts
- After: Use single type of log for the UL modulation calculation

Ver 3.10.0609

- Update
- ✓ Import – Qualcomm chip – LTE DL Modulation calculation update

Ver 3.10.0619

- Update
- ✓ FIT Report – Merge split files before processing
- ✓ FIR Report – Added Call Details worksheet. Added MOS distribution.

Ver 3.10.0622

- Update
- ✓ FIT Report – No need to close Excel before report generation
- ✓ Import – Supports new version of Qualcomm log
- B140 LTE LL1 SRS Tx report – v121

Ver 3.10.0624

- Update
- ✓ Import – Supports new version of Qualcomm log
- B114 LTE LL1 serving cell frame timing – v122

Ver 3.10.0626

- Update
- ✓ Import – Supports new Samsung chipset log packets for the calculation of “RB Num” values

Ver 3.10.0722

- Update
  - ✓ Correlation Graph UI – Displays each measure with different colors

- ✓ KPI (TP, RB, SINR, etc.) for each LTE band – Added more combination cases(75M, 150M, 225M, 300M, 375M, 450M, 525M) and updated calculation for each

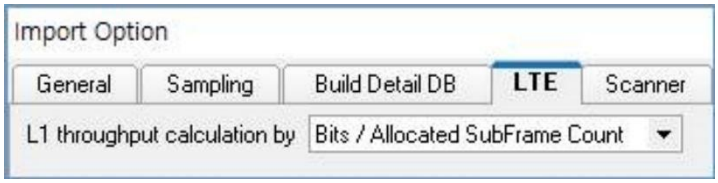
- Bug Fix
  - ✓ Samsung chip DL RB(include0), UL RB(include0) – calculation bug fix
  - ✓ KPI (TP, RB, SINR, etc) for each LTE band – calculation bug fix
  - ✓ LTE band class and center frequency calculation from EARFCN – bug fix

Ver 3.10.0728

- Bug Fix
  - ✓ TTI Level Import – DB table management bug fix

Ver 3.10.0802

- New Feature
  - ✓ Added "L1 throughput calculation by" option in the import option dialog.
    - Bits / Allocated SubFrame Count (default) : divided by sub frame count, where RB num > 0.
    - Bits / Sampling Duration : divided by 1sec



- Update
  - ✓ Import – Supports R&S TSMx scanner for LTE, WCDMA Log (Ver 3.10.0727)

Ver 3.10.0808

- New Feature
  - ✓ Added "LogConverter" in the installation package. Added to program group also.
- Bug Fix
  - ✓ TTI Level Import – DB table management bug fix

Ver 3.10.0810

- Bug Fix
  - ✓ KT Band Info - 2CA 150M calculation rule is changed

Ver 3.10.0814

- Bug Fix
  - ✓ LTE Cell Coverage – DB field modified. Coverage ratio display bug fixed.

Ver 3.10.0817

- New Attributes

✓ Added “/LTE-A/PCell” ~ “/LTE-A/SCell7” groups

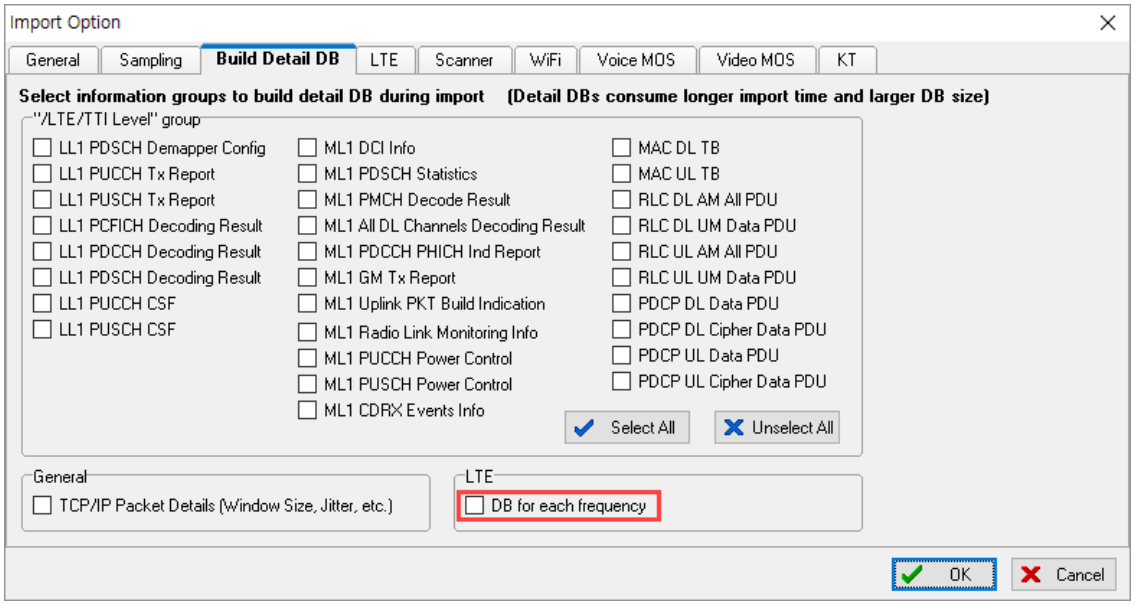
- Update

✓ Import speed improved

Ver 3.10.0819

- New Feature

✓ Added “DB for each frequency” option for LTE, in the import option dialog. (Default = uncheck). If you select this option, each LTE frequency’s attribute DB will be created during import. These frequency attributes are provided in “/LTE-A/CA (Frequency)” groups.



Ver 3.10.0824

- New Attributes

✓ Added “/General/Serving Network (Traffic)”

Ver 3.10.0828

- Update

✓ Import speed improved

Ver 3.10.0829

- Update

✓ LicenseChecker update

Ver 3.10.0904

- Update

✓ Supports new Qualcomm log versions

- B060 sub 3 - v5
- B062 sub 6 - v4
- B126 v28
- B132 v27
- B139 v26
- B13C v22
- B167 v7
- B16C v9

Ver 3.10.0906

- New Feature

✓ “DML2CSV“ is added

Ver 3.10.0908

- Update

✓ Import – HTTP DL/UL call test group import update

Ver 3.10.0915

- Update

✓ Import – Updated import module for LTE

✓ Time Graph UI – Added “Title Overlap“ option in popup menu

Ver 3.10.0921

- New Attributes

✓ “/Cat NB1” group is added

- Update

✓ Import – Updated fragmented SIP packet processing (Corrupt packet processing)

✓ Supports new Qualcomm log versions

- 4186 – v12
- 4222 – v15

- Bug Fix

✓ Import – When RTP SN wrap around occurs during long VoLTE call, RTP SN gap and Jitter calculation had bug – it’s fixed.

✓ “Call Result & Log Analysis” – Call End GPS value display bug fix

Ver 3.10.0926

- New Attributes
- ✓ "/LTE-A/PCell ~ SCell/L1/Modulation" group

Ver 3.10.1011

- Update
- ✓ Import – Qualcomm NB-IOT log parsing update
- Bug Fix
- ✓ FTP Data Throughput Sampling – bug fix

Ver 3.10.1012

- Update
- ✓ Import – "Auto adjust jumping timestamps" feature is updated
- Before: Time difference large than 10min was treated as timestamp jump
- After: Changed 10min threshold to 1min
- ✓ Supports new Qualcomm log versions
- 0xB0C1 – v3

Ver 3.10.1016

- New Attributes
- ✓ "/Packet Data/RTP/Video" group is added
- ✓ "/Packet Data/RTP/DL RTP Packet Header/All/Payload Media Type"
- ✓ "/Packet Data/RTP/UL RTP Packet Header/All/Payload Media Type"

Ver 3.10.1016

- Update
- ✓ Import – Supports embedded test start/end sequences for RootLmlTest

Ver 3.10.1023

- Update
- ✓ PCAP export - updated
- Bug Fix
- ✓ Samsung Chip PCell UL frequency calculation bug fix

Ver 3.10.1101

- Update

- ✓ Favorite – Added “Export to CSV” popup menu function
- ✓ Import – “"/LTE/Power Control/Power Headroom" is imported for Samsung chip also

- Bug Fix
  - ✓ Qualcomm Chip - LTE ML1 Serving Cell Measurement Result(V22) – Serving Cell Index calculation bug fix

Ver 3.10.1102

- Bug Fix
  - ✓ Import – EARFCN to Frequency conversion bug fix to UL

Ver 3.10.1103

- Update
  - ✓ Samsung chip – Frequency and RF parameter parsing update
  - ✓ Qualcomm chip – “0xB19D LTE ML1 GSM Measurement” parser update

Ver 3.10.1115

- Update
  - ✓ Supports new Qualcomm log version
    - 0xB111 v122, 0xB115 v122, 0xB132 v126, 0xB139 v124, 0xB14D v102, 0xB14E v102
  - ✓ DML2CSV license check module update
- Bug Fix
  - ✓ Map UI – Binning error bug fix

Ver 3.10.1117

- Update
  - ✓ DML2CSV update

Ver 3.10.1120

- New Attributes
  - ✓ Call Test/Call Seq (Start ~ Result)
  - ✓ Call Test/Call Seq (Start ~ End)
- Update
  - ✓ Supports new Qualcomm log version
    - 0xB119 v121, 0xB1BD v32,33,34,35,36

Ver 3.10.1123

- New Attributes
  - ✓ Added in “/Layer-3 Message/LTE Detail Values/” and “/Layer-3 Message/CDMA Detail Values/” group

- Update
  - ✓ CDMA OTA parser update

Ver 3.10.1127

- Update
  - ✓ CDMA OTA parser update
- Bug Fix
  - ✓ UL iBLER and UL rBLER calculation bug fix for TTI bundling case

Ver 3.10.1128

- Update
  - ✓ License manager update
  - ✓ EarfcnOperatingTable file updated

Ver 3.10.1130

- Bug Fix
  - ✓ FTP DL/UL Throughput for T-3 calculation method changed
    - Before : 3.001 sec TP data was included for the averaging
    - After : 3.0x sec TP data is discard for the averaging

Ver 3.10.1202

- Update
  - ✓ GPS DOP Type – Shown as string, instead of value
- Bug Fix
  - ✓ GPS DOP – import calculation bug fix

Ver 3.10.1205

- Update
  - ✓ FIT Report – Supports 8UEs, etc.

Ver 3.10.1208

- Update
  - ✓ Support Log Message Filter Tree for Qualcomm GSM DSDS log packets
  - ✓ Support Qualcomm GSM DSDS Signal Messages
    - GSM DSDS RR Signaling Message (0x5B2F)
    - GPRS DSDS MAC Signaling Messages (0x5C26)
    - GPRS DSDS SM/GMM OTA Signaling Messages (0x5C30)

- ✓ Support Qualcomm GSM DSDS log packets
  - GSM DSDS L1 Monitor Bursts (0x5A82)
  - GPRS DSDS MAC UL Ack/Nack (0x5C2C)
  - GPRS DSDS MAC DL Ack/Nack (0x5C2D)

Ver 3.10.1209

- New Attributes
  - ✓ Added “iBLER(2)” attributes for PDSCH and PUSCH

Ver 3.10.1211

- Update
  - ✓ H chip – applied ICD-20171207v2
  - ✓ FIT Report update

Ver 3.10.1219

- Update
  - ✓ H chip – applied ICD-20171215

Ver 3.10.1222

- Update
  - ✓ DML2CSV – License management update, merge split files

Ver 3.10.1228

- Bug Fix
  - ✓ rBLER(2) calculation bug fix

Ver 3.11.0104

- Update
  - ✓ Samsung chip – Supports ICD v5.21

Ver 3.11.0105

- Update
  - ✓ eLicense manager update

Ver 3.11.0108

- Update

- ✓ eLicense manager update
- ✓ Log View parser update
  - Supports Qualcomm GSM DSDS Log packets (0x5A6A ~ 0x5B91)
  - Supports Qualcomm GPRS DSDS Log packets (0x5BF4 ~ 0x5C73)

- Bug Fix
  - ✓ NMP RIL data import – RSRP, RSRQ, SINR with n/a value was processed as 0 value in previous version. This bug is xied.

Ver 3.11.0110

- Update
  - ✓ H-chip – Import supports LTE attributes
  - ✓ Log Converter – supports DLF file

Ver 3.11.0112

- Update
  - ✓ Supports new Qualcomm log version
    - LTE RRC Signal Messages ver20 (0xB0C0 v20)
    - LTE ML1 Serving Cell Measurement Result (0xB193 0x19 - ver26)

Ver 3.11.0121

- Update
  - ✓ Log Converter – Added “Merge all by force” option. If you select this option, all files will be merged (with time sort in ascending) into new file named “MergedFile”, and exported to CSV. Original files might be moved to “SplitFiles” folder.
- Bug Fix
  - ✓ “[LTE-A] [CA] [(PCell + SCell)] [L1] [Modulation] DL Modulation Count (QPSK)” ~ “[LTE-A] [CA] [(PCell + SCell)] [L1] [Modulation] DL Modulation Count (256QAM)” displays sum of all carriers (PCell ~ SCell7) now. These values showed sum of P+S1+S2 until previous version.

Ver 3.11.0129

- New Attributes
  - ✓ /WiFi/Serving AP/Frequency (MHz)
  - ✓ /WiFi/Serving AP/Link Speed (Mbps)

Ver 3.11.0131

- New Attributes
  - ✓ Added “Ant4 - Ant7” to “/LTE-A” group, for RSSI, RSRP, RSRQ, SINR
  - ✓ /Mobile Info/Android/Date Time (UTC)
  - ✓ /Mobile Info/Android/Date Time (Local)

Ver 3.11.0203

- Update
  - ✓ Import – Samsung chip – Spatial Rank is calculated from RI field of “LTE LL1 CA Cell Info” log packet
  - ✓ Import – RMA information processing update

Ver 3.11.0205

- Update
  - ✓ LMA Engine update

Ver 3.11.0206

- Update
  - ✓ Supports new Qualcomm log version – 0xB246 v2

Ver 3.11.0207

- Update
  - ✓ LMA Engine update

Ver 3.11.0208

- Update
  - ✓ CDMA diag response packet processing update

Ver 3.11.0217

- Update
  - ✓ LMA Engine update

Ver 3.11.0221

- Update
  - ✓ Samsung chip – Invalid LTE log packet processing while served by GSM network is updated

Ver 3.11.0222

- Update
  - ✓ Import – Updated fragmented SIP packet processing

Ver 3.11.0227

- Update
  - ✓ LTE RRC parser update
  - ✓ PDSCH TTI count and PDSCH throughput calculation method update
- Bug Fix
  - ✓ Import – Adjust to GPS time – bug fix

Ver 3.11.0301

- Bug Fix
  - ✓ LTE UL Modulation QPSK/16QAM/64QAM was displayed as 16QAM/64QAM/256QAM each. This bug is fixed.
  - ✓ Import – Min/Max calculation bug fix

Ver 3.11.0308

- Bug Fix
  - ✓ "/LTE-A/CA/PCell/L1/nSINR Info" and "/LTE-A/CA/SCell[n]/L1/nSINR Info" – Calculation bug fix for Spire and KT license

Ver 3.11.0309

- Update
  - ✓ Import – Samsung Chip – If there is no 0xEB19(LTE CA Cell Info), CA act/deact state can't be determined. In this case, we refers 0xEB12(LL1 Downlink Info) and if there is SCells allocated with RB_Num>0, that SCell is determined as Activated state.

Ver 3.11.0313

- Update
  - ✓ Import – Decision rule for the jumping GPS position is updated
- Bug Fix
  - ✓ "/Call Test/FTP/During real application traffic duration/Instantaneous Throughput/WCDMA RLC DL Inst. Throughput" was not calculated – bug fixed

Ver 3.11.0318

- Update
  - ✓ "/Call Test/FTP/During real application traffic duration/Instantaneous Throughput/WCDMA RLC DL Inst. Throughput" is calculated on during FTP download now
  - ✓ "/Call Test/FTP/During real application traffic duration/Instantaneous Throughput/WCDMA RLC UL Inst. Throughput" is calculated on during FTP upload now

Ver 3.11.0320

- New Feature
  - ✓ Added new import option: “Get exact GPS position matching to date and time” (default = unchecked)
    - If unchecked, latest GPS position is displayed for each sampling time
    - If checked, latest GPS info is not used. Instead, best matching GPS information for each sampling date/time is searched from GPS list.
- Bug Fix
  - ✓ “/Layer-3 Message/LTE Detail Values/Change CSF Tx Mode” – It referred all carrier’s information, which caused bulk value changes when PCell and SCells has different CSF Tx Mode. Updated to refer PCell information only.

Ver 3.11.0321

- New Attribute
- ✓ /LTE/Power Control/DL PathLoss (RefSigPwr - RSRP)
- ✓ /LTE/Power Control/Open Loop PUCCH Estimate

Ver 3.11.0322

- New Feature
- ✓ “Export TTI Level group to CSV” popup menu is added to TTI Level attribute groups. You can export TTI Level groups directly to CSV, without using Grid UI.

Ver 3.11.0329

- Bug Fix
- ✓ “/Call Test/FTP/Call Reason” displayed “RAS Device Error” for LTE device – it’s changed to display as “Data Service Not Available”
- ✓ NMP log file import – Channel number display bug fix

Ver 3.11.0330

- Update
- ✓ Import – Update to support additional Android WiFi information from RMA v2.51

Ver 3.11.0405

- Bug Fix
- ✓ “/LTE/L1/PDSCH Statistics/PCell/DL RB Share” – Calculation bug fix

Ver 3.11.0409

- Bug Fix

- ✓ LTE PCell~SCell bandwidth calculation bug fix

Ver 3.11.0410

- Bug Fix
- ✓ LMA Engine – bug fix
- ✓ Log Converter – bug fix

Ver 3.11.0416

- Bug Fix
- ✓ Import – Web Page test result – calculation bug fix
- ✓ Function – LTE CA Coverage Match Analysis – bug fix

Ver 3.11.0418

- Bug Fix
- ✓ Import – Web Page test result – calculation bug fix (Total Call Result)
- ✓ LogConverter – “Adjust timestamp to GPS” option didn’t work – it’s bug fixed

Ver 3.11.0424

- Update
- ✓ LMA Engine update
- Bug Fix
- ✓ User Plan packet parsing – bug fix

Ver 3.11.0501

- Update
- ✓ Import – Samsung chip’s internal bug for MIMO Type 0x12 – updated
- Bug Fix
- ✓ Import – “Delete Traffic Time (NIA)” group – Calculation bug fix
- ✓ Import – UL EARFCN and BW calculation bug fix
- ✓ Import – Youtube Error Event – Error Code processing bug fix

Ver 3.11.0510

- Update
- ✓ Import – IP fragmented SIP processing – Enhanced merging method
- Bug Fix
- ✓ Import - Samsung Chip WCDMA Network decision – bug fix

Ver 3.11.0515

- Update

✓ Import – LTE DL BW decision – If there are no other logs available to extract DL BW information, 0xB130 (LTE LL1 PDCCH Decoding Results) log is referred to get DL BW information.

✓ Import – SCell EARFCN & Frequency determination – “rrcConnectionReconfiguration/dl-CarrierFreq-v1090” is referred in add, to determine SCell EARFCN and frequency information

Ver 3.11.0517

- Bug Fix

✓ Import Option – Time zone – Auto (Adjust to PC Time)

- When you select this option, timestamp was adjusted to PC GMT time. Now it’s changed to be adjusted to PC local time.

Ver 3.11.0526

- Bug Fix

✓ “/WCDMA/Pilot Set/” – PSC list display for Monitored set and Unmonitored set – bug fix

Ver 3.11.0530

- Bug Fix

✓ Calculation bug right after FTP transfer start – bug fix

- “/Call Test/FTP/Sampled values/Call Average Throughput/WCDMA RLC DL Avg Throughput”
- “/Call Test/FTP/Sampled values/Call Average Throughput/WCDMA RLC UL Avg Throughput”

Ver 3.11.0601

- Bug Fix

✓ Web Search – Traffic timeout reference bug fix

Ver 3.11.0604

- Bug Fix

✓ Import – Some attributes in "/Call Test/FTP/During real application traffic duration" group were not written during import for some customer IDs. This bug is fixed.

Ver 3.11.0612

- Update

✓ Import – Updated for Qualcomm log

- 0x412C v2, 0x4222 v11

Ver 3.11.0614

- Bug Fix

✓ Samsung chip UMTS NAS message parsing bug fix

Ver 3.11.0625

- New Feature

✓ Added new NB-IoT attribute to “/Cat NB1” group

Ver 3.11.0629

- Update

✓ License Manager update

Ver 3.11.0630

- Bug Fix

✓ 0x4222 ver11 (WCDMA HS Decode Status With Data V3) log parsing bug fix

Ver 3.11.0702

- Bug Fix

✓ UARFCN to center frequency mapping bug fix

Ver 3.11.0704

- New Attributes

✓ Added attributes to “Cat.NB1” group

- “/Cat NB1/SigMsg Values/SIB1” group
- “/Cat NB1/SigMsg Values/SIB3” group
- “/Cat NB1/Modulation/NPUSCH/NPDSCH Modulation xxxx Count” attributes

Ver 3.11.0706

- Update

✓ Altair chipset log import update

- PDSCH/PUSCH, MAC DL/UL, RLC DL/UL, PDCP DL/UL throughput calculation update
- RSRP, RSRQ, SINR for Ant0~Ant3 update
- RSSI calculation update

✓ LMA Engine update – removed 54 fields and added 9 fields

Ver 3.11.0709

- Update
- ✓ “0xEB19 SAMSUNG - LL1 CA Cell Info” processing update
- ✓ Added attributes to “/LTE/PCell~SCell/L1/Spatial Rank” group
- ✓ Altair chipset log import update
- PDCP, RLC – shows TP of each bearer, and bearer ID
- ″/LTE/PDCP/DL” and “/LTE/PDCP/UL” group – RBID shows Bearer ID of three bearers
- ″/LTE/Data Throughput/Download(All)/RLC” and “/LTE/Data Throughput/Download(All)/PDCP” group shows TP of each bearer and total TP

Ver 3.11.0711

- Bug Fix
- ✓ Altair chipset – DL_RB and UL_RB calculation bug fix
- ✓ Samsung chipset – Valid WCDMA Tx Power Range(-55 ~ 33) values are processed, and invalid values are discarded

Ver 3.11.0727

- New Feature
- ✓ Inbuilding UI – Added “Plot top 5%” menu
- Bug Fix
- ✓ Import – NB-IoT SNR value validity check is added to discard invalid values

Ver 3.11.0801

- Update
- ✓ Import – Supports new Qualcomm log version
- 0xB130 LTE LL1 PDCCH Decoding Results - v24, new DCI Format (12="60A", 13="61A", 14="62")
- 0xB14D LTE LL1 PUCCH CSF - v25
- Bug Fix
- ✓ “/LTE/L1/Misc/DL MIMO Type (SCell4)” – import bug fix
- ✓ LTE coverage DB – Neighbor cell DB problem bug fix

Ver 3.11.0803

- Update
- ✓ Map UI – Changed “Subway” popup into “Railway Line”, and updated features

Ver 3.11.0820

- Update
- ✓ Import – Supports GPS data from R&S scanner

- ✓ Import – WiFi Throughput calculation doesn't refer "FTP Throughput" log packet

- Bug Fix
  - ✓ LogFile Merge Import – FTP Throughput calculation buf fix

Ver 3.11.0829

- Update
  - ✓ Qualcomm log parser update
  - ✓ QMDL to DML conversion module update

Ver 3.11.0831

- Update
  - ✓ Log Parser Tool - QMDL(Qualcomm Memory-Device Log) Format update – support "extend diag" packet
  - ✓ Supports new Qualcomm log
    - TRM(Transceiver Resource Manager) (0x12E8 v16)
    - LTE ML1 Multisim Packet (0xB182 v25,v26,v27)
  - ✓ Grid UI – Non-existing scanner attributes are supported for Favorite and drag & drop to Grid UI

Ver 3.11.0903

- Bug Fix
  - ✓ Import – Scanner group's LTE RSSI is displayed even when cell count value is 0

Ver 3.11.0904

- Update
  - ✓ Import – "Adjust Jumping Timestamp" – Threshold for jumping timestamp decision is changed from 60sec to 10sec

Ver 3.11.0912

- Update
  - ✓ Added Samsung chip WCDMA attributes
    - WCDMA/Finger Attribute Group
    - CQI, Retransmission Rate, QPSK, 16QAM, 64QAM
- Bug Fix
  - ✓ Earfcn to Frequency calculation bug fix

Ver 3.11.0921

- Bug Fix
  - ✓ Duration calculation logic bug fix

Ver 3.11.1004

- Update
  - ✓ Qualcomm parser update
    - 0xB184 LTE ML1 CA Metrics - ver24

Ver 3.11.1008

- Bug Fix
  - ✓ Samsung chip – EARFCN calculation from RRC message and Samsung event log – bug fix
  - ✓ Samsung chip – Rank (Avg) calculation bug fix

Ver 3.11.1017

- New Attributes
  - ✓ "/Android/DatumAuto" group is added
- Bug Fix
  - ✓ Samsung chip – WCDMA RAC, LAC value calculation bug fix
  - ✓ Qualcomm chip – LTE Uplink CA SCell Index calculation bug fix

Ver 3.11.1106

- Update
  - ✓ KR – Subway information update
- Bug Fix
  - ✓ LTE Call Result group - QAM Rate calculation bug fix

Ver 3.11.1129

- New Attributes
  - ✓ "/Mobile Info/AIM" group added
  - ✓ "/NR 5G" group added – supports Samsung 5G chip
- Update
  - ✓ Samsung chip – ICD update
  - ✓ Samsung chip – 5G support

Ver 3.11.1203

- Update
  - ✓ Supports new version of Qualcomm log

Ver 3.11.1206

- Update
  - ✓ LMA Engine update

Ver 3.11.1211

- Update
  - ✓ LMA Engine update

Ver 3.11.1214

- New Attributes
  - ✓ "/NR 5G/RB & TB/ Num of DCI DL RBG (Mode)" is added
  - ✓ "/NR 5G/RB & TB/ Num of DCI DL RBG (Sum)" is added
  - ✓ "/NR 5G/RB & TB/ Num of DCI DL RBG (Total Avg)" is added
- Bug Fix
  - ✓ Samsung Chip "/LTE/L1/Modulation" group MCS calculation bug fix
  - ✓ Samsung NR5G MCS calculation bug fix

Ver 3.11.1218

- New Attributes
  - ✓ New attribute groups added - "/Cat NB1/Cell Info", "/Cat NB1/Search PBCH Decode", "/Cat NB1/Cell Reselection"

Ver 3.11.1220

- New Attributes
  - ✓ "/NR 5G/RB & TB/Num of DL RB (Mode)" is added
  - ✓ "/NR 5G/RB & TB/Num of DL RB (Sum)" is added
  - ✓ "/NR 5G/RB & TB/Num of DL RB (Total Avg)" is added
- Bug Fix
  - ✓ Iperf Transfer Data Bytes – unit display bug fix (Kbps -> Mbps)
  - ✓ "/NR 5G/RB & TB/ Num of DCI DL RBG" Group calculation bug fix
  - ✓ Grid UI bug fix for displaying non-existing attributes

Ver 3.12.0104

- New Attributes
  - ✓ /LTE/MAC/Throughput/MAC DL Padding Bytes
  - ✓ /LTE/MAC/Throughput/MAC UL Padding Bytes
- Bug Fix
  - ✓ NR 5G – PUSCH RB 및 Modulation 참조 Packet변경

- PUSCH Status ➔ NR PHY DCI UL Grant Information 1 or NR PHY DCI UL Grant Information 2으로 변경

✓ Samsung chip – LTE Uplink CA SCell Index calculation bug fix

✓ Calculation bug fix

- /LTE/MAC/Throughput/MAC DL Bytes
- /LTE/MAC/Throughput/MAC UL Bytes

Ver 3.12.0108

- Update
  - ✓ Samsung 5G chip – Updated to discard invalid RSRP values

Ver 3.12.0109

- Bug Fix
  - ✓ Import DB handler – Inbuilding position handling bug fix
  - ✓ "LTE-A/CA/Scell2/Modulation/DL Modulation (TB1,2) (mode)" missing bug fix

Ver 3.12.0110

- New Attributes
  - ✓ "/HSDPA/HS Decode Status/Carrier[ALL]/Number of Codes (Including 0) "
  - ✓ "/HSDPA/HS Decode Status/Carrier[0] /Number of Codes (Mode) "
  - ✓ "/HSDPA/HS Decode Status/Carrier[0] /Number of Codes (Including 0) "
  - ✓ "/HSDPA/HS Decode Status/Carrier[1] /Number of Codes (Mode) "
  - ✓ "/HSDPA/HS Decode Status/Carrier[1] /Number of Codes (Including 0) "
  - ✓ "/HSDPA/HS Decode Status/Carrier[2] /Number of Codes (Mode) "
  - ✓ "/HSDPA/HS Decode Status/Carrier[2] /Number of Codes (Including 0) "
  - ✓ "/HSDPA/HS Decode Status/Carrier[3] /Number of Codes (Mode) "
  - ✓ "/HSDPA/HS Decode Status/Carrier[3] /Number of Codes (Including 0) "
- Update
  - ✓ Samsung chip – "HSDPA Number of Codes" are added

Ver 3.12.0111

- New Attributes
  - ✓ /LTE-A/CA/(PCell + SCell)/L1/Throughput/PUSCH Throughput
  - ✓ /LTE-A/CA/(PCell + SCell)/L1/Throughput/PUSCH Bytes
- Bug Fix
  - ✓ Qualcomm Uplink CA (TDD) – Frequency calculation bug fix
  - ✓ EARFCN to Frequency conversion bug fix (Band class 12)

Ver 3.12.0121

- New Attributes
  - ✓ Added Samsung 5G chip attributes in "/NR 5G" group

Ver 3.12.0123

- Update
  - ✓ Inbuilding UI – added new popup menu for "tab close" function
- Bug Fix
  - ✓ Android RIL information parsing bug fix

Ver 3.12.0124

- Update
  - ✓ Update for new Qualcomm log version

Ver 3.12.0131

- Update
  - ✓ Update for new Qualcomm log version
- Bug Fix
  - ✓ Qualcomm LTE CA – SCell index calculation bug fix

Ver 3.12.0201

- Update
  - ✓ LMAEngine update

Ver 3.12.0203

- Update
  - ✓ FIT Report update

Ver 3.12.0214

- Bug Fix
  - ✓ LTE Per TTI Attribute Display – bug fix

Ver 3.12.0215

- Update
  - ✓ "LTE-A/CA/SCell Event/" group event KPIs calculation update

Ver 3.12.0217

- Update
  - ✓ Altair chipset – RSRP and SINR display method updated, to show best of RSRP/SINR for Ant1-Ant4

Ver 3.12.0219

- Update
  - ✓ Scanner import – If WCDMA “Aggregate Ec/Io” value is blank, “PrimarySchEcIo” value will be used as representative “Ec/Io” of WCDMA TopN Cell group.
- Bug Fix
  - ✓ Samsung LTE Uplink CA Throughput - calculation bug fix

Ver 3.12.0220

- Update
  - ✓ NR 5G RRC parser update (TS38.331 v15.2.1 -> v15.4.0)
- Bug Fix
  - ✓ “LTE-A/CA/SCell Event/” group event KPIs calculation bug fix for SCell3 and SCell4

Ver 3.12.0221

- Update
  - ✓ Samsung NR5G – Supports log version v0602

Ver 3.12.0222

- Update
  - ✓ Samsung NR5G – added Neighbor Cell group
  - ✓ SKT LTE EARFCN and BW changed (EARFCN 250, 10MHz -> EARFCN 275, 15MHz)

Ver 3.12.0227

- Bug Fix
  - ✓ Scanner import – If WCDMA “Aggregate Ec/Io” value is blank and “PrimarySchEcIo” is used instead, RSCP was blank also – bug fixed

Ver 3.12.0301

- Bug Fix
  - ✓ “/General/Inbuilding/Floor Route Sequence” and ““/General/Inbuilding/Route Index”started from 2, not 1 – bug fixed to start from 1

Ver 3.12.0304

- Update
  - ✓ LTE Serving Network 15M Bandwidth type support is updated

Ver 3.12.0308

- Update
  - ✓ FIT Report update
  - ✓ Attribute name update

Ver 3.12.0312

- Bug Fix
  - ✓ Samsung NR5G log was not processed when serving network is LTE. This is fixed to be processed even if serving network is LTE.

Ver 3.12.0313

- Update
  - ✓ Added new network types to “Serving Network” to support NR5G

Ver 3.12.0314

- New Attribute
  - ✓ “/General/GPS/Address/US ZIP Code” (Sampled value)

Ver 3.12.0322

- New Attributes
  - ✓ “/Call Test/Common/Call average/NR 5G” group
  - ✓ “/Call Test/Common/Traffic average/NR 5G” group
  - ✓ “/NR 5G/Handover” group

Ver 3.12.0326

- Update
  - ✓ License driver update

Ver 3.12.0404

- New Attributes
  - ✓ “/Call Test/FTP/LTE BandInfo/” groups
- Bug Fix

- ✓ Qualcomm LTE - Serving Network calculation bug fix

Ver 3.12.0410

- New Feature
  - ✓ Scanner import - Supports NR5G TopN (PCTEL, R&S)
- New Attributes
  - ✓ "/LTE/SigMsg Values/RRC/scgFailureInformationNR" group
  - ✓ /Call Test/Common/Call Info/LTE/Sig Msg Count/RRC scgFailureInformationNR
- Update
  - ✓ Supports new Qualcomm log version
    - 0xB0C0 LTE RRC Signal Messages
    - 0xB16E ML1 - PUSCH power control
- Bug Fix
  - ✓ Qualcomm LTE – Scell Index calculation bug fix

Ver 3.12.0411

- Update
  - ✓ Map UI update – map type (google map, vector map, etc.) switching update
  - ✓ Legend setting – added "select all" and "unselect all"

Ver 3.12.0416

- Update
  - ✓ NR RRC parser update – "Measurement Report" shows dBm or dB values

Ver 3.12.0426

- Update
  - ✓ Parser update

Ver 3.12.0429

- New Attributes
  - ✓ "/NR 5G/(NR + LTE)/Throughput" group
- Bug Fix
  - ✓ Samsung chip – NR PDSCH BLER calculation bug fix

Ver 3.12.0502

- Bug Fix
  - ✓ Samsung chip – NR RLC ReRx Rate/UL ReTx Rate – calculcation bug fix

- ✓ Samsung chip – NR PDSCH BLER calculation bug fix

Ver 3.12.0503

- Bug Fix
  - ✓ Samsung chip – NR RLC ReRx Rate/UL ReTx Rate – calculation bug fix

Ver 3.12.0514

- Bug Fix
  - ✓ Samsung chip – /NR 5G/RLC/UL /ReTx Rate – calculation bug fix
  - ✓ Samsung NR5G – “TB Count” and “BLER” attributes DB size change (word -> integer)

Ver 3.12.0516

- Bug Fix
  - ✓ Qualcomm chip – per Call MCS and QAM count calculation bug fix

Ver 3.12.0523

- Update
  - ✓ Map UI
    - Cluster and Morphology management function update
    - MIF import as cluster is added

Ver 3.12.0524

- Bug Fix
  - ✓ Altair chipset – RRC message processing bug fix

Ver 3.12.0530

- New Attribute
  - ✓ [NR5G] [RACH] group is added
- Update
  - ✓ Time Graph UI – added popup menu “Environment – Show detailed title” option

Ver 3.12.0604

- Update
  - ✓ Samsung Chip - NR5G CQI import update
- New Attribute
  - ✓ /NR 5G/Modulation/Grant Info Group added

Ver 3.12.0611

- New Attribute
  - ✓ "/Call Test/FTP/Call Average Throughput/NR5G" group
  - ✓ "/Call Test/FTP/Call Average Throughput/NR5G (T-3)" group
  - ✓ "/Call Test/FTP/Throughput Info (NR5G)" group
- Bug Fix
  - ✓ Samsung chip – LTE LL1 Downlink Info / LL1 Uplink Info - Resource Block Counter – accumulated values are proceseed
  - ✓ WCDMA Voice Call Type decision rule update (CS, CSFB, etc.)

Ver 3.12.0612

- Update
  - ✓ Scanner data import - CINR range check changed (-30 to 30 -> -40 to 40), following comment from PCTEL

Ver 3.12.0618

- Bug Fix
  - ✓ Samsung chip import – When there is no LTE or 3G log packets, and only 5G logs exists, Serving Network decision was wrong – bug fixed
  - ✓ Scanner import – Fix to handle abnormal NR scanner data log packet

Ver 3.12.0626

- Bug Fix
  - ✓ YouTube test – Buffering duration calculation update
  - ✓ NR5G ServingNetwork decision rule update
  - ✓ SIP message processing update

Ver 3.12.0702

- Bug Fix
  - ✓ Import – DB import fail when there is 5G log packets only – bug fixed

Ver 3.12.0709

- Bug Fix
  - ✓ Qualcomm import - LTE OTA message parse missing – bug fixed

Ver 3.12.0717

- Update
  - ✓ Samsung ICD update to v6.08

Ver 3.12.0722

- New Attribute
  - ✓ "/NR 5G/Beam Info/PCC" group

Ver 3.12.0724

- New Attribute
  - ✓ "/NR 5G/CSI-RS" group
- Update
  - ✓ Samsung chip – "NR5G Serving Cell Info" v6.04 support

Ver 3.12.0725

- Update
  - ✓ Samsung chip – calculation update
    - /NR 5G/Throughput/ PDSCH TP. (CW All)
    - /NR 5G/Throughput/ PDSCH TP. (CW 0)
    - /NR 5G/Throughput/ PDSCH TP. (CW 1)

Ver 3.12.0726

- Bug Fix
  - ✓ Samsung chip – Num of RB calculation bug fix

Ver 3.12.0729

- New Attribute
  - ✓ Added new group, and added attributes on each group
    - /NR5G/PCC
    - /NR5G/SCC1 … /NR5G/SCC7
    - /NR5G/ALL CC

Ver 3.12.0817

- Update
  - ✓ Import option – "Adjust timestamp to GPS time" option's default setting is changed to "UNCHECKED". Configuration you made already will be not changed of course.
- Bug Fix
  - ✓ Fixed not to clear LTE and WCDMA group attributes during WiFi measurement

Ver 3.12.0819

- Bug Fix
  - ✓ Import– "/LTE-A/CA/DL SCell Event" import bug fix
  - ✓ Grid – Append mode caused mis-order column display – bug fixed

Ver 3.12.0830

- Update
  - ✓ LogConverter – updated to support scanner attributes

Ver 3.12.0904

- Update
  - ✓ Import – Updated to cope with missing "Voice Call End" log packet

Ver 3.12.0919

- Update
  - ✓ Import – Altair chipset – "/Event/Event Types/Cell Reselection" decision rule update
  - ✓ Serving Network - NR5G UL refers MAC Throughput also
- Bug Fix
  - ✓ Qualcomm LTE – PDCP Throughput calculation doesn't include signaling data
  - ✓ Altair chipset – RSRP and RSRQ distinguish bug fix
    - Before: cell quality higher than -30 was used as RSRQ. Others used as RSRP
    - After: changed threshold to -40

Ver 3.12.1005

- Bug Fix
  - ✓ Import – "Adjust timestamp to GPS time" bug fix

Ver 3.12.1008

- Bug Fix
  - ✓ Grid UI –TimeStamp type of attribute was not calculated for Summary(cnt) display in the bottom. This bug is fixed.
  - ✓ Samsung chip – "NR Neighbor Cell Info" log with invalid data is discarded now

Ver 3.12.1010

- Update
  - ✓ Altair chipset – Import – "Num of DL RB" calculation logic is updated to skip invalid values in Altair "Scheduling Part 2" log packet

Ver 3.12.1011

- Update
  - ✓ "/NR5G/RACH" group attributes are added and updated for import
  - ✓ Added iPerf Call Events
- Bug Fix
  - ✓ Import – LTE Call PDSCH/PUSCH TP calculation bug fix

Ver 3.12.1015

- Update
  - ✓ Option – Added "Show Virtual Folders in 'Add Measure' dialog" option. (default = false)
- Bug Fix
  - ✓ Import – Samsung chip – Fixed to skip invalid NR5G RACH packets

Ver 3.12.1016

- Update
  - ✓ Samsung chip – Update for CDMA

Ver 3.12.1017

- New Feature
  - ✓ ETRI BSDM support
- Bug Fix
  - ✓ Import – Samsung chip "NR PDCP DL/UL Statistics" validity check logic updated

Ver 3.12.1018

- Update
  - ✓ Log View UI – Updated SIP packet defragment logic

Ver 3.12.1025

- Update
  - ✓ Altair chip – Changed to refer other log packet to get RSRQ
    - Before: Altair Trace Data – Cell Qual
    - After: Altair Trace Data – Cell Qual (db)
- Bug Fix
  - ✓ Grid UI – Summary display while column filtered – bug fix

Ver 3.12.1101

- New Attribute
  - ✓ /Call Test/Common/NR5G Staticts/5G Activation Rate (Call)
  - ✓ /Call Test/Common/NR5G Staticts/5G Activation Rate (Call Accumulate)
- Bug Fix
  - ✓ ETRI – BSDM Throughput calculation rule update
  - ✓ Scanner attribute import bug fix

Ver 3.12.1111

- Bug Fix
  - ✓ NR5G - “/NR5G/PDCCH/PDCCH Format” calculation bug fix
  - ✓ NR5G Scanner Log Import – format update
- Update
  - ✓ KR PS-LTE import
    - "/Call Test/Voice or Video Call/Group Currency" Group
  - ✓ ETRI - BSDM Log Convert Tool (DML -> DMA) function is added

Ver 3.12.1116

- Update
  - ✓ Update for KR PS-LTE analysis – text message in voice/video call scenario support
  - ✓ Supports new Qualcomm log versions

Ver 3.12.1121

- Added new attributes for NR;
  - ✓ Group : /LTE/Handover/DL_DCCH RRC Connection Reconfiguration/ReportConfig
    New Attributes: eventB1 Threshold NR RSRP, eventB1 Threshold NR RSRQ, eventB1 Threshold NR SINR, eventB2 Threshold NR RSRP, eventB2 Threshold NR RSRQ, eventB2 Threshold NR SINR

Ver 3.12.1126

- Update
  - ✓ Import - SMS Call Result is decided as Etc, if message is received over air (by RRC or SIP) but UE didn’t nofity until setup timeout. This will filter out UE problem, and only the network problem can be filtered.
- Bug Fix
  - ✓ ETRI BSDM
    - Import bug fix
    - Time Graph Scale bug fix

Ver 3.12.1129

- New Attribute
  - ✓ NR5G - Layer Index (PCC ~ SCC7) Attribute 추가
- Update
  - ✓ Stopped support for;
    - LMDM chipset
    - Infineon chipset
    - WiMAX chipset (GCT, Samsung)
- Bug Fix
  - ✓ Inbuilding UI – Error during displaying scanner data – bug fixed

Ver 3.12.1205

- Update
  - ✓ Altair chip – RSRP, RSRQ, SINR calculation method update following Altair ICD update
  - ✓ Updates for ETRI BSDM
  - ✓ Supports GCT WiMAX again

Ver 3.12.1209

- Update
  - ✓ Altair chip – "[LTE] [Mobile Status] RRC State Event" import update to show below Altair logs;
    - Altair LTE DT – RRC State
    - Altair LTE DT – RRC HO Start
    - Altair LTE DT – RRC HO End (Success or Failure)
    - Altair LTE DT – RRC Abnormal Disconnect
    - Altair LTE DT – RRC Cell Reselection
  - ✓ Update to support iPerf3 active call test

Ver 3.12.1211

- Update
  - ✓ Qualcomm chip – supports new log versions
  - ✓ Samsung NR5G – Modulation calculation refers "256QAM enabled flag" in the log, instead of OTA message (for log v6.08 or later)
  - ✓ Time Graph UI – vertical scale display method update for enum type attributes

Ver 3.12.1213

- Update
  - ✓ NMP log file - Sampling data write decision updated to refer GPS and PCTIME info also, in case there were no log data

from chip during sampling period

- Bug Fix
  - ✓ LTE SCell Index decision logic bug fix

Ver 3.12.1220

- Update
  - ✓ Samsung chip – NMP and NMPM log files – Serving Network is filled as blank if;
    - There is no NR log from Samsung chip during 1sec, even though there should be
    - This problem happens because of Samsung chip internal bug sometimes
  - ✓ "KR PS-LTE" function – Call matching logic update
- Bug Fix
  - ✓ Qualcomm chip – NR5G RSRP, RSRQ, SINR calculation bug fix

Ver 3.12.1224

- Update
  - ✓ MCC/MNC of serving network decision method updated to refer other message

Ver 3.12.1227

- Update
  - ✓ Samsung chip – NMP and NMPM log files – Serving Network is filled as blank if;
    - There is NR related signaling message in the log file, but no Samsung NR log exists

Ver 3.12.1229

- Update
  - ✓ QCom chip – Supports new log versions (B951 v20005)
- Bug Fix
  - ✓ QCom chip - B975 v20001 – CC index calculation bug fix
  - ✓ QCom chip – B883 v20007 – import bug fix

Ver 3.20.0103

- Update
  - ✓ SeeZn - KPIs are added
- Bug Fix
  - ✓ Samsung Chip - MCC/MNC refers more kinds of log types
  - ✓ Samsung Chip - NR5G Network decision bug fix and decision rule update
    - "NR5G UL MAC Throughput" reference bug fix
    - In case of Silent Log, NR5G MAC/RLC/PDCP Throughput packets are referred to decide if serving network is LTE or

NR5G

Ver 3.20.0108

- Update
  - ✓ Samsung Chip – "/LTE-A/SCell../L1/MCS" group attributes import logic update
- Bug Fix
  - ✓ Import – Exception occurred while preparing DB – bug fixed

Ver 3.20.0110

- Bug Fix
  - ✓ Serving Network is now not displayed as blank in case of voice call test

Ver 3.20.0116

- Bug Fix
  - ✓ Import - Android RIL's LTE SINR validity check bug fix

Ver 3.20.0117

- Update
  - ✓ Qualcomm chip – Supports new version log

Ver 3.20.0128

- Bug Fix
  - ✓ NR RRC message processing – CC index processing bug fix
  - ✓ QCom chip NR log parsing bug fix

Ver 3.20.0203

- Update
  - ✓ USB lock key management module update
- Bug Fix
  - ✓ Qualcomm chip – bug fixed of SCell order management when there is no rrcConnectionReconfiguration message

Ver 3.20.0206

- Bug Fix
  - ✓ ETRI BSDM Analyzer – MCS Tab/ RNTI Select - bug fix
  - ✓ Qualcomm chip – NR Uplink Modulation calculation bug fix

Ver 3.20.0207

- Bug Fix
  - ✓ Samsung NR Neighbor Cell Info – log parsing bug fix

Ver 3.20.0208

- Update
  - ✓ LMA Engine update

Ver 3.20.0212

- Update
  - ✓ QCom chip NR Tx power calculation update

Ver 3.20.0213

- Update
  - ✓ "UE Capability Information" 2nd parsing update

Ver 3.20.0221

- Update
  - ✓ "UE Capability Information" 2nd parsing update
  - ✓ Grid UI update – Same timestamp is now displayed in same row in case of Multiple mode
- Bug Fix
  - ✓ Samsung chip LTE – SCell index decision bug when LL1 CA Cell Info is missing – bug fixed

Ver 3.20.0224

- Bug Fix
  - ✓ Samsung chip LTE – SCell index decision bug when LL1 CA Cell Info is missing – bug fixed

Ver 3.20.0226

- Update
  - ✓ HTTP Call Monitor UI update
  - ✓ NAS EMM Location(LPP) – 2nd parsing is added

Ver 3.20.0227

- Update
  - ✓ Altair chipset – PDCP throughput sampling method update
- Bug Fix

- ✓ Samsung chipset – Time binning (time sampling) bug fix

Ver 3.20.0303

- Bug Fix
  - ✓ WCDMA RRC parsing – SIB type detection bug fix

Ver 3.20.0304

- Bug Fix
  - ✓ "/LTE/Data Throughput" group items were not activated for Samsung chip log file – bug fixed
  - ✓ Qualcomm LTE – PDSCH Throughput calculation bug fix (discards when received bytes = 0)

Ver 3.20.0305

- Bug Fix
  - ✓ LTE Global Cell ID, ECI, ECGI – calculation bug fix

Ver 3.20.0306

- Update
  - ✓ Samsung chip - "NR5G/Beam Info" group is activated for Samsung chip also

Ver 3.20.0309

- Update
  - ✓ Added "Map (Each)" in the popup menu to draw attributes

Ver 3.20.0311

- Update
  - ✓ "Map (Each)" function update to use same MBR for all Map UIs
- Bug Fix
  - ✓ Beam Info is saved when there is any of Q5G or S5G license

Ver 3.20.0317

- Update
  - ✓ Log Message UI – Log filter tree update
- Bug Fix
  - ✓ Samsung LTE - LTE Packet skip decision bug fix for "Serving Network Blank"

Ver 3.20.0319

- Update
  - ✓ QCom 5G import update
    - Some UE doesn't provide B884 and B981, thererfore;
    - "UL RB" refers B883 if there is no B884
    - "RI" refers B8A7 if there is no B891

Ver 3.20.0320

- Bug Fix
  - ✓ Qualcomm NR5G - PDSCH BLER calculation bug fix

Ver 3.20.0324

- Update
  - ✓ Import - NR5G usage ratio calculation update

Ver 3.20.0325

- Update
  - ✓ NMP, NMPM log file import – Serving Network blank display rule update
    - If there is any Samsung NR log in the whole log file, and if there is no Samsung NR log during sampling period, Serving Network was displayed as Blank (for NMP and NMPM log file only)
    - This rule is removed

Ver 3.20.0326

- Bug Fix
  - ✓ Workspace management bug fix

Ver 3.20.0331

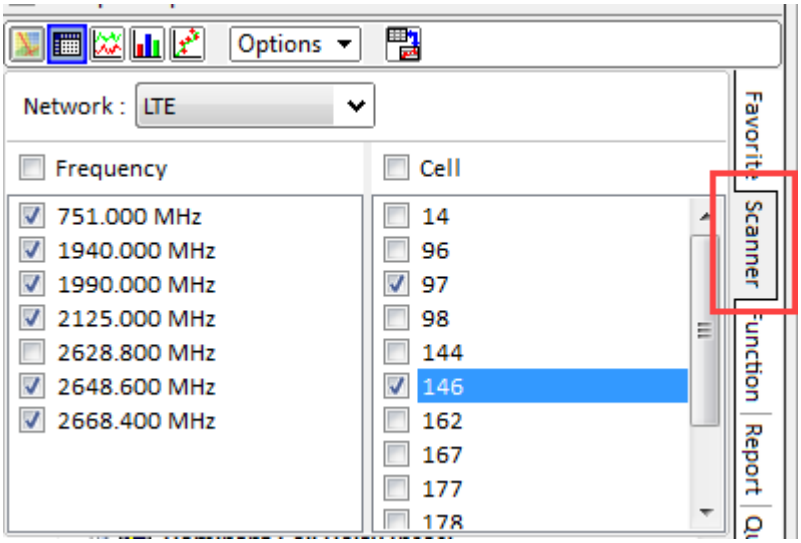
- New Attributes
  - ✓ "Call Test/Voice Quality/UL MOS" group added
- Bug Fix
  - ✓ NR5G – "PUSCH Txpower" call average calculation bug fix

Ver 3.20.0406

- Update
  - ✓ Qualcomm chip – supports new LTE and NR5G log versions

Ver 3.20.0408

- Update
  - ✓ LPP ASN.1 decoder update (3GPP TS 36.355 V10.11.0 -> 3GPP TS 36.355 V15.5.0)
- New Attributes
  - ✓ “Call Test/SST” group added
- New Feature
  - ✓ Added “Scanner” tab in the left



Ver 3.20.0414

- Update
  - ✓ License Manager update – for KR PSNet
  - ✓ Supports SST log file
  - ✓ Changed attribute properties from ITEM to STRING
    - /General/Railway/Railway Line
    - /General/Railway/Previous station
    - /General/Railway/Railway Line
    - /LTE/L1/Misc/DL Serving BW
    - /LTE/L1/Misc/UL Serving BW

Ver 3.20.0421

- Update
  - ✓ Changed attribute properties from Sum to Last
    - /Call Test/SST/Ping/Latency/Request Count
    - /Call Test/SST/Ping/Latency Reply Count
  - ✓ Supports Samsung log v0610
  - ✓ Samsung LTE - PDSCH TP/PUSCH TP Sampling method update

- Bug Fix
  - ✓ LTE SCell Index decision – reference problem bug fix
  - ✓ Qualcomm NR5G – “Call Average PUSCH TP” and “Traffic Average PUSCH TP” missing – bug fix
  - ✓ Qualcomm NR – NR-ARFCN, PCI missing bug fix

Ver 3.20.0429

- Update
  - ✓ Qualcomm chip – supports new LTE log versions
  - ✓ Altair chipset – PDCP throughput sampling method update

Ver 3.20.0507

- Update
  - ✓ New Attributes – “/NR5G/PUSCH BLER” (for each CC)
- Bug Fix
  - ✓ Cluster Report bug fix

Ver 3.20.0509

- Update
  - ✓ Supports new version of QCom LTE and NR5G logs
- Bug Fix
  - ✓ Qualcomm LTE import
    - LTE ML1 Connected Mode Neighbor Meas Req/Resp Log -> Scell Index decision bug fix
    - LTE ML1 GM Tx report Log -> PUSCH Modulation Type “N/A” decision bug fix

Ver 3.20.0514

- New Feature
  - ✓ Map UI – Added “Trace Rerouting” function. Popup->Trace->Rerouting.

Ver 3.20.0519

- New Attribute
  - ✓ Added “Layer-3 Message/LPP” group
- Update
  - ✓ “/GPS/Speed” – property changed word -> integer

Ver 3.20.0602

- Bug Fix
  - ✓ Processing scanner data with frequency higher than 16.7GHz – bug fixed

Ver 3.20.0604

- Update
  - ✓ Qualcomm chip – supports new LTE and NR5G log versions
- Bug Fix
  - ✓ QCom 5G 0xB888 v0x20000 – import bug fix for NR5G PDSCH calculation of multi carriers
  - ✓ “NR5G/System/Num of CC” calculation bug fix

Ver 3.20.0608

- Update
  - ✓ Supports Samsung ICD v6.11 and 6.12
    - Important: Log codes are changed in ICD

Ver 3.20.0618

- Update
  - ✓ License driver update to v8.11

Ver 3.20.0629

- Update
  - ✓ Samsung chip – Improved exception handling for corrupt Samsung log

Ver 3.20.0701

- Update
  - ✓ Map UI – Enabled Google Map for KT license

Ver 3.20.0707

- Update
  - ✓ PCTEL – enhanced exception handling of invalid data in PCTEL NR TopN results

Ver 3.20.0714

- New Attribute
  - ✓ KR-PS-LTE KPI added - "/Call Test/Voice or Video Call/Duration/Pick up" - /Function/PS LTE
  - ✓ NR5G "/PDSCH/MIMO/ Num of Layer 1 (Count) ~ Num of Layer 8 (Count) "added (PCC~ SCC7)
  - ✓ LTE Hanover values
    - “/LTE/Handover/HOITHO Count"
    - “/LTE/Handover/HOIT (Control Plane)"

- “/LTE/Handover/HOIT (User Plane - PDCCH)"
- “/LTE/Handover/HOIT (User Plane - PDSCH)"
- "/Call Test/Common/Call Info/LTE/Handover/HOIT (Traffic)" Group

- Update
  - ✓ Supports Samsung ICD v6.12
  - ✓ NR5G "/PDSCH/MIMO/Num of RxAnt" ==> Renamed as "/PDSCH/MIMO/Num of Layer" (PCC~ SCC7)
  - ✓ “/NR5G/PDCP/DL/Num of RLC Path Change" Attribute property update (Word -> Integer)
- Bug Fix
  - ✓ Ping Result packet – missing case processing update
  - ✓ KR-PS-LTE - Voice Call Result decision bug fix
  - ✓ Samsung NR5G – “PDSCH BLER (Alt)” / “PDSCH BLER (TB0)” / “PDSCH BLER (TB1)” calculation bug fix
  - ✓ NR5G - Serving Network decision bug fix
  - ✓ When “Adjust timestamp to GPS time (or PC time if GPS was not used)” Import Option is used, and if GPS Type is GPS_Type_Mobile_Cellular, that packet is skipped for Adjust Timestamp
  - ✓ Qualcomme NR5G
    - PDSCH Throughput calculation bug fix
    - NR5G RRC OTA Packet – secondaryCellGroup processing is removed (In case of NR NSA, refers LTE RRC message)
    - “Tx Power (Actual)” values calculation update
  - ✓ Samsung NR5G
    - “Tx Power (Actual)” values are displayed

Ver 3.20.0715

- Bug Fix
  - ✓ Qualcomm NR5G – RSRP, RSRQ, CINR calculation bug fix

Ver 3.20.0716

- New Attribute
  - ✓ NR5G – UL Modulation 256QAM is added
    - “/NR5G/Modulation/Grant Info/UL Modulation Count (256QAM)”
    - “/Call Test/Common/Call average/NR 5G/Modulation/ UL Modulation Ratio (256QAM)”
  - ✓ Scanner – LTE
    - MIMO Tx Cnt (of eNB)
    - MIMO Rx Cnt (of Scanner)
    - “Valid, RSRP, RSRQ, CINR” attributes are added for each of 4x4 MIMO
- Update
  - ✓ Scanner DB version update – Old scanner DB is not opened anymore, and you need to import again
  - ✓ Qualcomm NR5G – supports new log version
  - ✓ Samsung NR5G – QAM reference priority changed (“NR PHY PUSCH STATUS” is referred as top priority)
  - ✓ CallResult And LogAnalysis

- NR5G – UL Modulation 256QAM is added
- NR5G – PUSCH BLER is added

✓ “KR PS-LTE” report update

Ver 3.20.0720

- Update

✓ Supports new Qualcomm log version

- Bug Fix

✓ LTEA SCell Index decision bug fix

Ver 3.20.0724

- New Attributes

✓ /Layer-3 Message/NR SA RRC Msg

✓ /Layer-3 Message/NR SA RRC Msg (info1)

✓ /Layer-3 Message/NR SA RRC Msg (info2)

✓ /Layer-3 Message/NR SA NAS Msg

✓ /Layer-3 Message/NR SA NAS Msg (cause)

✓ /Layer-3 Message/NR SA NAS Msg (info1)

✓ /Layer-3 Message/NR SA NAS Msg (info2)

- Update

✓ Inbuilding UI – Auto zoom out when floorplan size is larger than default blank image size

Ver 3.20.0804

- Update

✓ Stopped support for INFINEON chipset

- Bug Fix

✓ Scenario mode multi-RAB import – bug fix (phase 1)

Ver 3.20.0806

- Bug Fix

✓ Qualcomm chip – 5G calculation bug fix

- /NR5G/Throughput/PDCP DL TP
- /NR5G/Throughput/PDCP UL TP
- /NR5G/Throughput/RLC DL TP
- /NR5G/Throughput/RLC UL TP

Ver 3.20.0807

- Update
- ✓ “Scanner” tab – Added new popup menu: “Export to CSV” and “Export to CSV (each Freq & Cell)”
- Bug Fix
- ✓ Samsung Chip – NR5G RLC Retransmission Ratio calculation bug fix

Ver 3.20.0820

- Update
- ✓ Import – Ping (NIA UDP Echo) – Updated for modified test method
- Bug Fix
- ✓ Import – Ping – Updated invalid RTT values
- RTT < 0 : Treats as loss
- Skips “Ping Info Packet” saved after Call Result log
- If Call Result is Complete or Incomplete, and if RTT avg is less than 5 msec, call is decides as ETC

Ver 3.20.0821

- New Attributes
- ✓ “/NR5G/PCC - All CC/L2/” group
- UL Grant Size, UL Bytes Built, UL Grant Utilization
- ✓ “/NR5G/RRC/” group

Ver 3.20.0826

- New Attributes
- ✓ “/NR5G/MAC/PDSCH Stat/” group
- ✓ “/NR5G/PCC - All CC/MAC/PDSCH Stat/” group
- Update
- ✓ Import – Ping import update
- ✓ Scanner DB open speed is improved

Ver 3.20.0830

- Update
- ✓ Import – NR5G import update
- ✓ LogConverter license check rule update

Ver 3.20.0902

- New Attributes
- ✓ Added new attributes

- Update
- ✓ Attribute group rename – “/LTE/L1/Misc/” group is renamed to “/LTE/System/”

Ver 3.20.0908

- New Attributes
- ✓ "/Call Test/FTP/Excluding SlowStart (NIA)/Sampled values/After Seconds" group
- ✓ "/Call Test/IPERF/Call Average/Throughput/Excluding SlowStart" group
- ✓ /Call Test/PING/RTT/ RTT (First) "
- Update
- ✓ Grid UI – Time consumption during drag & drop is enhanced
- Bug Fix
- ✓ /NR5G/Throughput/PDCP UL TP – calculation bug fix
- Before: Calculated for NR path only, and didn’t include LTE and NR+LTE paths
- After: Calculates regardless of path, therefore all LTE, NR, NR+LTE paths are included
- ✓ “/Call Test/IPERF/Duration/ Connect 및 /Call Test/IPERF/Duration/ Transfer” calculation bug fix

Ver 3.20.0914

- Bug Fix
- ✓ Ping Call – NIA UDP Echo
- loss count calculation bug fix
- call average RTT calculation bug fix

Ver 3.20.0921

- Update
- ✓ SAMSUNG LTE – Supports LPHY N Cell Info v0607
- Bug Fix
- ✓ Ping Call – Request Count and Reply Count calculation bug fix

Ver 3.20.0923

- Bug Fix
- ✓ Grid UI – display bug with same timestamp – bug fix
- ✓ Import – NR5G parameters from RRC – bug fix

Ver 3.20.1008

- Update
- ✓ Import – “Adjust timestamp” method update
- Bug Fix

- ✓ Call Result & Log Analaysis
- Calculation method of “5G usage ratio” update
- Changed calculation method per customer ID in license information

Ver 3.20.1019

- Update
- ✓ Supports new version of QCom LTE and NR logs

Ver 3.20.1021

- Update
- ✓ Inbuilding position calculation bug fix

Ver 3.20.1023

- Update
- ✓ Supports new version of QCom LTE and NR logs
- ✓ Inbuilding location calculation method update

Ver 3.20.1106

- Update
- ✓ Qualcomm NR – PDSCH, PUSCH RB inc0
- ✓ QCom 5G SA license manager update
- ✓ License Manager update
- New Attributes
- ✓ “/LTE/Handover/RRC Connection Reconfiguration/ReportConfig/ReportConfigId[1~10]” group
- ✓ "/NR5G/SigMsg Values" group
- ✓ "/NR5G/Handover/RRC Connection Reconfiguration" group
- ✓ “/NR5G/PCC - All CC//PUSCH /Modulation/” group
- ✓ “/NR5G/PCC - All CC//PUSCH /Modulation/Num of 1024QAM”
- ✓ “/NR5G/PCC - All CC//PUSCH /Modulation/Rate of 1024QAM”
- ✓ “/Call Test/Common/Traffic average/NR 5G/[PCC ~ SCC7]/ DL Layer Info” Attribute Group

Ver 3.20.1116

- Update
- ✓ License management module update

Ver 3.20.1119

- Update

- ✓ Scanner – LTE dominant cell – added Ant3 and Ant4 RSRP, RSRQ, CINR
- Bug Fix
- ✓ QCom 5G – Total Tx Power calculation bug fix
- ✓ QCom LTE PDCP Throughput calculation bug fix

Ver 3.20.1123

- New Attribute
- ✓ "/NR5G/PCC..SCC7/MAC/HARQ/" group – added "DL iBLER" and "DL rBLER"
- Update
- ✓ "/NR5G/Beam Info/PCC/Detected Beam Info" import update for recent QCom NR log version

Ver 3.20.1127

- Bug Fix
- ✓ Inbuilding UI – "Export All – Keeping zoom level" MBR adjust bug fix

Ver 3.20.1201

- Bug Fix
- ✓ QCom 5G – SSB RSRQ calculation bug fix (v3.20.1123 to v3.20.1130)

Ver 3.20.1218

- New Attribute
- ✓ Added "/Call Test/McPTT" group
- ✓ Added "/Call Test/Common/Call average/NR 5G/Modulation/DL Modulation Ratio (1024QAM)" etc.
- ✓ Added"/NR5G/Modulation/DL Modulation Count (TB0 - 1024QAM)" etc.

Ver 3.21.0119

- New Attribute
- ✓ "/Call Test/Common/Mobile Temperature Min"
- Update
  - ✓ Time Graph – Enum type display update
- Bug Fix
- ✓ Qualcomm 5G - PUSCH Modulation calculation bug fix
- ✓ CallResult & LogAnalysis - Call Excel Export bug fix
- ✓ "/Call Test/Common/Mobile Temperature Max" attribute property update
- ✓ Qualcomm LTE – PDCP TP throughput calculation bug fix (bug since v3.20.1119)

Ver 3.21.0122

- New Feature
- ✓ Supports OpenStreetMap in the Map UI
- New Attribute
- ✓ "/Packet Data/SIP/P-Access-Network-Info" Attribute Group
- Update
  - ✓ "/LTE/System/DL Bandwidth(MHz)" – added more items
- Bug Fix
- ✓ LTE TTI Data - Time Sync bug fix
- ✓ Call Result Analysis Excel Export bug fix
- ✓ Map UI – enum type attribute coloring bug fix

Ver 3.21.0128

- New Attribute
- ✓ “NR Channel Type”
- Update
- ✓ Qualcomm 5G - "/ Num of DL RB (Avg Including 0)" calculation method update
- ✓ Samsung 5G - "/NR5G/Power/Tx power (Total)" calculation method update
- Bug Fix
- ✓ KT TCS AutopReport - CSFB Setup Time calculation bug fix

Ver 3.21.0214

- Update
- ✓ License driver update to v8.15
- Bug Fix
- ✓ Import – “Adjust timestamp to GPS time” bug fix
- ✓ Grid – UI Sync bug fix for Attribute, Multiple mode
- ✓ Time Graph – Display bug fix for item type attribute

Ver 3.21.0217

- Bug Fix
- ✓ TimeGraph – Vertical axis auto range bug fix

Ver 3.21.0223

- New Attribute
- ✓ /NR5G/Power/Tx power (Endc Total)
- ✓ /NR5G/PDSCH/MIMO/Num of Layer" (Avg)" [PCC ~ SCC7]

- Update
  - ✓ " /NR5G/RACH/MSG2/TA" attribute property update (Smallint ==> Integer)
  - ✓ "/NR5G/PDSCH/MIMO/Num of Layer" [PCC ~ SCC7] attribute property update
  - ✓ LTE and NR5G attribute name change (“Total Avg” ➔ “Avg”)
- “/Call Test/Common/Call average/LTE/L1/RB“ group
- “/Call Test/Common/Call average/LTE-A/PCell/L1/RB“ group
- “/Call Test/Common/Call average/LTE-A/SCell #1/L1/RB“ group
- “/Call Test/Common/Call average/LTE-A/SCell #2/L1/RB“ group
- “/Call Test/Common/Call average/LTE-A/SCell #3/L1/RB“ group
- “/Call Test/Common/Call average/LTE-A/SCell #4/L1/RB“ group
- “/Call Test/Common/Call average/NR 5G/RB & TB“ group
- “/Call Test/Common/Traffic average/NR 5G/RB & TB“ Attribute Group
- “/LTE/L1/RB & TB“ group
- “/LTE-A/CA/PCell/L1/RB & TB“ group
- “/LTE-A/CA/SCell1/L1/RB & TB“ group
- “/LTE-A/CA/SCell2/L1/RB & TB“ group
- “/LTE-A/CA/SCell3/L1/RB & TB“ group
- “/LTE-A/CA/SCell4/L1/RB & TB“ group
- “/LTE-A/CA/(PCell + SCell)/L1/RB“ group
- “/LTE-A/L1/RB [PCell ~ SCell7] “ group
- “/Cat NB1/SF & RU“ group
- “/NR5G/RB & TB“ group
- Bug Fix
- ✓ 0x1FFB Log Timestamp processing bug fix
- ✓ "NR5G/PDSCH/MIMO/Num of Layer 1 (Count) ~ Num of Layer 8 (Count)" calculation bug fix

Ver 3.21.0303

- New Attribute
- ✓ "/Mobile Info/Android/ADB/getprop" group
- Update
  - ✓ Qualcomm chip – Supports new log versions

Ver 3.21.0304

- Update
  - ✓ LogConverter – license check update

Ver 3.21.0310

- New Attribute

- ✓ /Call Test/SST/Speed/Throughput/DL Inst. TP
- ✓ /Call Test/SST/Speed/Throughput/UL Inst. TP
- Update
- ✓ Qualcomm 5G – “WB CQI” for each CC – calculation update

Ver 3.21.0311

- Update
- ✓ “/Call Test/SST” group – attribute list update
- Bug Fix
- ✓ Log Converter - License check bug fix
- ✓ MTK - NR5G RRC 0xE513 parsing bug Fixed

Ver 3.21.0316

- Update
- ✓ "User Parameter Report" function removed
- Bug Fix
- ✓ Import – “Adjust Jumping Timestamp” bug fix
- ✓ Grid – Custom filter bug fix

Ver 3.21.0318

- Update
- ✓ QCom chip – supports new log version

Ver 3.21.0401

- Update
- ✓ Mediatek chip – import update

Ver 3.21.0411

- Update
- ✓ QCom 5G - PDCP DL/UL, RLC DL/UL, MAC DL/UL, PDSCH, PUSCH Throughput calculation update
- ✓ MTK – LTE RSSI validity check update

Ver 3.21.0412

- Bug Fix
- ✓ “FTP Setup Duration” was displayed even in the case when call result is “Setup Fail” or “Etc”. This bug is fixed.

Ver 3.21.0414

- Bug Fix
- ✓ Import – Memory over consumption during import – bug fixed

Ver 3.21.0427

- Update
- ✓ 5G Power attributes – added MTPL
- Bug Fix
- ✓ KT NQI - LTE Band TP calculation bug fix

Ver 3.21.0429

- Update
- ✓ 5G RRC parser version update: TS38.331 15.8.0 to 15.10.0

Ver 3.21.0507

- Update
- ✓ Qualcomm chip – Update for new version of LTE and NR5G logs
- ✓ McPTT import update – chirp detection update

Ver 3.21.0512

- Bug Fix
- ✓ Qualcomm 5G PDSCH throughput calculation bug fix (B888 v10002 processing bug fix)
- ✓ LTE - Serving Network decision bug fix

Ver 3.21.0513

- Bug Fix
- ✓ QCom 5G RLC DL throughput calculation bug fix (B84D processing bug fix)

Ver 3.21.0514

- Update
- ✓ QCom chip – “NR SA” and “NR NSA” decision rule update

Ver 3.21.0519

- Bug Fix
- ✓ Import option “Adjust timestamp to GPS time (or PC time) – bug fix

Ver 3.21.0521

- Bug Fix
- ✓ Inbuilding UI – Floor merge bug for 0F is fixed

Ver 3.21.0527

- New Attribute
- ✓ /NR5G/[PCC..SCC]/Serving Cell Info/UL NR-ARFCN
- ✓ /NR5G/[PCC..SCC]/Serving Cell Info/UL Bandwidth
- ✓ /NR5G/[PCC..SCC]/PDSCH/Modulation/MCS Spectral Efficiency (Avg)
- ✓ /NR5G/[PCC..SCC]/PUSCH/Modulation/MCS Spectral Efficiency (Avg)

Ver 3.21.0531

- New Attribute
- ✓ /NR5G/SigMsg Values/RRC/SIB1 ~ SIB5 Group

Ver 3.21.0601

- New Attribute
- ✓ "/Call Test/Voice Quality/Per Rx Clip/RF Quality" group added
- Update
- ✓ Qualcomm chip – Update for new version of LTE and NR5G logs

Ver 3.21.0602

- Bug Fix
- ✓ NR5G CC list management bug fix

Ver 3.21.0603

- New Attribute
- ✓ "/LTE/Power/Tx Power/Max Tx Power" – Max UE Tx Power configured
- Update
- ✓ Import of "/LTE-A/[PCell..SCell]/L1/MCS" group is updated
- ✓ Import of "/LTE-A/[PCell..SCell]/L1/Spatial Rank" group is updated
- ✓ UL NR-ARFCN – displayed in case of TDD and SDL also
- ✓ LogConverter update – Rebuild columns when convert starts

Ver 3.21.0607

- Update

- ✓ Grid UI – cell row navigation with Ctrl+Up, Ctrl+Down in similar way with Excel is added
- Bug Fix
- ✓ LTE-A SCell EARFCN list management bug fix

Ver 3.21.0608

- Update
- ✓ MTK – LTE PUSCH MCS import update
- ✓ QCom – 5G DL BW translation update

Ver 3.21.0611

- Bug Fix
- ✓ Import – Some SIP KPIs were not calculated for voice call. Bug fixed.

Ver 3.21.0615

- Update
- ✓ Import update for GCT chip – to skip invalid log
- ✓ Import update for QCom chip
- B115 (LTE LL1 SSS Results) – SSS Peak Value calculation update

Ver 3.21.0623

- New Attribute
- ✓ /Latency/SCG Setup Latency

Ver 3.21.0624

- Update
- ✓ /LTE/TTI Level/MAC UL TB – import update
- ✓ QCom log – Serving SNR log import update

Ver 3.21.0626

- New Attribute
- ✓ /Call Test/VoNR/IRAT(VoNR to VoLTE) DL RTP gap
- ✓ /Call Test/VoNR/IRAT(VoNR to VoLTE) DL RTP loss
- Update
- ✓ Supports Samsung ICD v6.21

Ver 3.21.0705

- New Attribute
- ✓ "/NR5G/RLC/DL/per DRB" group added
- ✓ "/NR5G/RLC/DL/per 5QI" group added
- ✓ "/NR5G/RLC/UL/per DRB" group added
- Bug Fix
- ✓ Qualcomm WCDMA - PN Search Edition 2 Version 7,8 processing bug fix

Ver 3.21.0715

- New Attribute
- ✓ "/LTE/SigMsg Values/RRC/SIB6" group added
- Bug Fix
- ✓ iPerf – Throughput data after call result decision as "Fail" is discarded
- ✓ Qualcomm NR-NSA/SA decision bug fix
- ✓ Serving Network decision as WiFi – bug fix
- ✓ VoLTE/VoNR classification bug fix

Ver 3.21.0720

- New Attributes
- ✓ New attributes added to "/Call Test/VoLTE/Duration" group
- Bug Fix
- ✓ Data Packet processing – Reassembly of segmented SIP packets – bug fix (for the case of ESP compression, ESP packet loss, etc.)

Ver 3.21.0722

- Bug Fix
- ✓ "/Mobile Info/Umetrix Data/scoreUL" calculation bug fix
- ✓ GCT chip – PDSCH throughput and PUSCH throughput in multi carrier LTE – bug fix

Ver 3.21.0728

- Bug Fix
- ✓ "/Analysis/LTE/Missing Neighbor" visibility bug fix

Ver 3.21.0806

- Bug Fix
  - ✓ LTE cell info (band, earfcn, etc.) was blank when Serving Network is NSA – bug fixed
  - ✓ QCom 5G RLC DL TP and RLC UL TP calculation bug fix

- ✓ Inbuilding UI – “Export All” menu malfunction when building name includes special characters not usable for Windows file name - bug fixed

Ver 3.21.0813

- New Feature
- ✓ “/Analysis/NR5G/Missing Neighbor” function is added
- Update
  - ✓ Qualcomm, Samsung LTE SCell Index calculation update

  (Refers last information among rrcConnectionReconfiguration and LL1 CA Cell Info during sampling period)
  - ✓ LTE ML1 CA Metrics display method update (Shows last value during sampling period)
- Bug Fix
  - ✓ Samsung LTE - RSRQ, RSRP, RSSI, SINR – duplicated calculation bug fix
  - ✓ Samsung 5G – PDSCH Num of Layers – wrong value from Samsung log v0620 will be skipped

Ver 3.21.0822

- Bug Fix
  - ✓ Qualcomm 5G – PDSCH BLER for each HARQ ID calculation bug fix

Ver 3.21.0824

- Bug Fix
  - ✓ Qualcomm LTE – “LTE LL1 SSS results” log process bug fix
  - ✓ Grid – Hexa-decimal attributes were displayed in decimal. Bug fixed.

Ver 3.21.0825

- Update
- ✓ LTE RRC parser update (TS36.331 v15.8.0 to v15.14.0)
- Bug Fix
  - ✓ Samsung NR activity decision bug fix

Ver 3.21.0827

- New Attribute
- ✓ /Call Test/VoLTE/Duration/5QI 1 Setup Duration
- Bug Fix
  - ✓ Import – Timestamp adjust malfunction when “Adjust timestamp to GPS time (or PC time if GPS was not found)” option is checked – bug fixed

Ver 3.21.0908

- Update
- ✓ Voice Call Result – updated to check “Delayed ADB event” which might cause abnormal active call test during logging
- /Call Test/Voice or Video Call/Reason – added new reasons as below

  ADB - Commanded answer to UE, but UE didn't answer

  ADB - UE Logcat is abnormally delayed
- /Call Test/Voice or Video Call/Call Result – shows as “Etc” for above two cases
- Bug Fix
  - ✓ Time Graph – Items type attribute value display bug fix
  - ✓ MTK – “LTE Serving Cell Measurement” log import bug fix

Ver 3.21.0914

- Bug Fix
  - ✓ QCom chip – 5G SCC’s SSB RSRP calculation bug fix
  - ✓ "/Call Test/Call State" In-Traffic decision bug fix
  - ✓ Inbuilding UI– Value Attribute display in table bug fix

Ver 3.21.0924

- Update
  - ✓ NR CC – Serving Cell Info import update

Ver 3.21.0927

- New Attributes
  - ✓ Added “/NR5G/Handover/Old & New” group

Ver 3.21.0928

- Update
  - ✓ Import – supports Android RIL ver4 log

Ver 3.21.0930

- Update
- ✓ Update for Samsung ICD v6.22
- Bug Fix
  - ✓ Grid UI - column index management bug fix

Ver 3.21.1007

- Update
- ✓ "/NR5G/Handover/Old & New" group – supports NSA, as well as SA
- Bug Fix
  - ✓ "/Latency/NR RWR - TAU Update Complete" calculation bug fix

Ver 3.21.1013

- New Attributes
  - ✓ "/Call Test/HTTP Transfer/" group – "HTTP DL Inst. Bytes" and "HTTP UL Inst. Bytes"
- Bug Fix
  - ✓ LTE TTI level import bug fix
  - ✓ "/Call Test/HTTP Transfer/Request to Session Connect" calculation bug fix
  - ✓ HTTP Download, iPerf throughput – sampled value import method update
  - ✓ SST DL/UL – Call Result TP reference packet change

Ver 3.21.1018

- Bug Fix
  - ✓ LogView timestamp display bug fix for "Adjust timestamp" during import
  - ✓ "/LTE/System/UL Bandwidth (MHz)" missing bug fix

Ver 3.21.1020

- New Attribute
- ✓ Added below attributes on "/LTE-A/PCell .. SCell/ ML1/PDSCH Stat/" group
- Num of Layers (Mode)
- TB Size (TB0) (Avg)
- TB Size (TB1) (Avg)
- Bug Fix
  - ✓ Map UI – 5G cell connection line display bug fix

Ver 3.21.1021

- New Attribute
- ✓ Added below attributes on "/LTE-A/PCell .. SCell/ ML1/PDSCH Stat/" group
- ✓ /NR5G/Cell Info/Serving Cell, /NR5G/Cell Info/Neighbor Cell Group
- Imported when Import Option "Build Coverage DB (spends longer import time, and more disk space)" is selected
- Update
  - ✓ LogView timestamp display bug fix for "Adjust timestamp" during import - updated

Ver 3.21.1025

- New Attribute
- ✓ "/NR5G/Cell Info/Serving Cell List" Group
- Update
- ✓ QCom – Supports new NR and LTE log versions

Ver 3.21.1028

- New Attribute
- ✓ "/LTE-A/[PCell .. SCell7]/L1/Rank Index" group added
- ✓ "/LTE-A/[PCell .. SCell7]/ML1/PDSCH Stat/Num of Layers (Avg)" added

Ver 3.21.1102

- Update
- ✓ License driver update to v8.23

Ver 3.21.1104

- New Attribute
- ✓ "/NR5G/SigMsg Values/RRC/MIB" group added
- Bug Fix
  - ✓ QCom 5G – Tx power (Actual) calculation bug fix (log code B884)
  - ✓ Call result missing when there are Idle calls only – bug fixed

Ver 3.21.1112

- Update
- ✓ UDA – updated "Value UDA" to support event attributes also, when it's value or range type attribute
- ✓ licmgr update to v3.21.1112
- Bug Fix
- ✓ 5G CC index calculation bug fix

Ver 3.21.1122

- Update
- ✓ Samsung LTE – RF quality and throughput logs while RRC is not active will be discarded
- ✓ Time Graph UI – Split works now even if "Share same attributes" option is enabled
- Bug Fix
- ✓ Qualcomm 5G – mmWave bandwidth calculation bug fix

Ver 3.21.1123

- Bug Fix
- ✓ Import – DB save bug fix

Ver 3.21.1202

- New Feature
- ✓ Map UI – “Overlay Values” menu is added to popup menu on Legend
- Update
- ✓ Import – Samsung LTE Version management method update
- ✓ Import – Supports R&S scanner NR log version 4 types
- New Attribute
- ✓ “/LTE/SigMsg Values/RRC/SIB24” group added

Ver 3.21.1224

- New Attribute
- ✓ "/NR5G/SigMsg Values/RRC/spCellConfig/spCellConfigDedicated/csi-MeasConfig setup :" group added
- Update
- ✓ Mediatek chip – Supports updated ICD : LTE V3.0(2021-11-03), NR V1.71(2021-11-18), IMS V1.3(2021-11-03)
- ✓ Scanner data import – Chip & network license is not referred
- ✓ Import – R&S scanner WCDMA/LTE log version 4 support
- Bug Fix
- ✓ ETRI BSDM Import bug fix
- ✓ Qualcomm NR - 0xB8D2 “NR5G LL1 FW MAC TX IU Power” log process bug fix

Ver 3.22.0104

- Update
- ✓ License management module update for Q5GSA and S5GSA (for LIF)
- ✓ LTE RRC parser update (TS36.331 v15.14.0 to v16.6.0)
- ✓ 5G RRC parser update (TS38.331 v15.10.0 to v16.6.0)

Ver 3.22.0107

- Update
- ✓ LMA Engine update
- ✓ Favorite group rename, favorite import update (duplicated name check)
- ✓ Samsung, QCom LTE RF quality calculation update
- Bug Fix
- ✓ “/LTE/L1/RF/RSRP - RS RSSI” was not calculated – bug fixed

Ver 3.22.0111

- Update
- ✓ [IMPORTANT] Naming rule change
- Index starts from 0 always.
- "Ant" is used for RF layer only. "TB" and "CW" is used for upper layers.
  Example
- Ant1, Ant2, Ant3, … → Ant0, Ant1, Ant2, …
- TB1, TB2 → TB0, TB1
- CW1, CW2 → CW0, CW1
- ✓ Qualcomm LTE – DL Modulation refers B173, instead of B126
  [IMPORTANT] This update will cause change in modulation statistics
- ✓ Supports Samsung chip ICD v7.00
- Bug Fix
- ✓ Log Converter – CDMA frequency conversion error bug fix

Ver 3.22.0112

- New Attribute
- ✓ /NR5G/System/Num of CC (Data)
- Update
- ✓ "/NR5G/[PCC..SCC7]/System/DSS State" calculation method update

Ver 3.22.0117

- Update
- ✓ License Manager update
- ✓ Qualcomm WCDMA – Ec/Io calculation method update for log code 4179, 4186
- 0x4179 - WCDMA PN Search Edition 2,
- 0x4186 - WCDMA Finger Temporal Analysis V2

Ver 3.22.0119

- Update
- ✓ Discontinued support for "Import Land Log File", which reads LDS log file into database
- ✓ Supports string type attributes to be displayed in Map, Time Graph, Statistics Chart, etc.
- Bug Fix
- ✓ MTK chip - Serving Network decision bug fix

Ver 3.22.0126

- Update
- ✓ Mediatek chip – TCP/IP log import update
- ✓ Correlation Graph – “Remove Page” popup menu update
- ✓ Channel Merge Import Option – supports channel 25 to 36
- Bug Fix
- ✓ Samsung NR “NR PHY PRACH STATUS” Log - “Tx_Power_Value” range update

Ver 3.22.0127

- Bug Fix
- ✓ Qualcomm chip – LTE uplink allocated slot count calculation bug fix
  This change affects “LTE SCell PUSCH TP” and “LTE MAC UL TP”

Ver 3.22.0128

- New Attribute
- ✓ New attribute group “/Call Test/Voice or Video Call/Call Campaign Server” is added

Ver 3.22.0203

- New Attribute
- ✓ “/Call Test/McPTT/Details” group added
- Update
- ✓ McPTT chirp-based KPI calculation method update
- Before: <Btn press response> to <chirp start>
- After: <Btn press request> to <chirp start>
  affected KPIs:
- /Call Test/McPTT/McPTT KPI 1 (from Chirp)
- /Call Test/McPTT/McPTT KPI 2 (from Chirp)

Ver 3.22.0210

- New Attribute
- ✓ “/General/GPS” group – PDOP, HDOP, VDOP added

Ver 3.22.0216

- New Attribute
- ✓ “/Call Test/Common/Call average/NR 5G/RB & TB” group
- Num of DL RB (Avg Including 0)
- Num of UL RB (Avg Including 0)

- Num of DL RB (Avg Including 0)
- Num of UL RB (Avg Including 0)

Ver 3.22.0218

- Update
- ✓ QCom chip – updated to support new LTE and NR log versions
- Bug Fix
- ✓ "/LTE/Data Throughput/Uplink (All)/PUSCH/PUSCH TP (Total)" – updated to show total throughput for all CC

Ver 3.22.0222

- Update
- ✓ Samsung chip – calculates "LTE DL Scheduling %" and "5G DL Scheduling %" for Samsung chip log
- Bug Fix
- ✓ App Throughput attribute property change (Integer --> Float)
- ✓ Samsung chip – 5G DL/UL RB (Avg Including 0) calculation bug fix

Ver 3.22.0223

- Update
- ✓ "UE Capability Information" 2nd parsing 'SupportedBandCombination(EN-DC, NR CA)' update

Ver 3.22.0308

- Update
- ✓ NR RRC – sCellIndex value management is updated

Ver 3.22.0310

- Update
- ✓ NR RRC – sCellIndex value management is updated
- ✓ QCom chip – B888 log import logic update
- Bug Fix
- ✓ QCom chip - "/LTE/L1/HARQ/ACK,NACK/" group calculation bug fix

Ver 3.22.0311

- Update
- ✓ Mediatek chip – LTE Serving Cell Info log processing update

Ver 3.22.0313

- New Attribute
- ✓ Added "/NR5G/SigMsg Values/RRC/spCellConfig/spCellConfigDedicated/uplinkBWP-ToAddModList/List[0]/bwp-Dedicated/srs-Config setup : srs-ResourceToAddModList" group
- ✓ Added "/NR5G/[PCC..SCC]/MAC/UL Physical Channel/Counts" group
- Update
- ✓ "/LTE/Configuration/Uplink Common/SRS" group
- Values are filled from RRC SIB2, if there is no B162 log in log file

Ver 3.22.0318

- Update
- ✓ Supports Samsung ICD v7.01
- v7.01 log provides invalid NR log's sfn/subfn values (all ZERO) – Samsung chip bug
- Updated to discard sfn/subfn for v7.01 NR logs. "elapsed slot count" will be calculated in other method.
- Bug Fix
- ✓ Qualcomm chip – NR "elapsed slot count" calculation bug fix. It'll affect change to attributes;
- /NR5G/[PCC…SCC]/PDSCH/TB, RB/Num of DL RB (Avg Including 0)
- /NR5G/[PCC…SCC]/PDSCH/TB, RB/Num of total slots
- /NR5G/[PCC…SCC]/PUSCH/TB, RB/Num of UL RB (Avg Including 0)
- /NR5G/[PCC…SCC]/PUSCH/TB, RB/ Num of total slots
- ✓ Samsung chip – NR "elapsed slot count" calculation bug fix. It'll affect change to attributes;
- /NR5G/[PCC…SCC]/PDSCH/TB, RB/Num of DL RB (Mode)
- /NR5G/[PCC…SCC]/PDSCH/TB, RB/Num of DL RB (sum)
- /NR5G/[PCC…SCC]/PDSCH/TB, RB/Num of DL RB (Avg)
- /NR5G/[PCC…SCC]/PDSCH/TB, RB/Num of DL RB (Avg Including 0)
- /NR5G/[PCC…SCC]/PUSCH/TB, RB/Num of UL RB (Mode)
- /NR5G/[PCC…SCC]/PUSCH/TB, RB/Num of UL RB (sum)
- /NR5G/[PCC…SCC]/PUSCH/TB, RB/Num of UL RB (Avg)
- /NR5G/[PCC…SCC]/PUSCH/TB, RB/Num of UL RB (Avg Including 0)
- ✓ Samsung chip - "/NR5G/RB & TB/ Num of UL Symbol (Mode), DL TBS (TB1)(Avg)" calculation bug fix

Ver 3.22.0321

- Update
- ✓ License Manager update to v3.22.0321

Ver 3.22.0322

- Update
- ✓ License Manager update to v3.22.0322

✓ Qualcomm chip – supports new NR log versions in parser

Ver 3.22.0323

- Update

✓ Qualcomm chip – 5G PDSCH TP calculation update

Ver 3.22.0324

- Update

✓ Samsung chip – NR “elapsed slot count” calculation bug fix. It’ll affect change to attributes;

- /NR5G/[PCC…SCC]/PDSCH/TB, RB/Num of DL RB (Avg Including 0)
- /NR5G/[PCC…SCC]/PUSCH/TB, RB/Num of UL RB (Avg Including 0)

Ver 3.22.0325

- New Attributes

✓ Added new attributes in “E911” group

- Number of satellite, Uncertainty, Calc error

Ver 3.22.0328

- Update

✓ Qualcomm chip – supports new LTE log versions

✓ “Excluding SlowStart” group calculation – refers plan, if not configured in import option.

Ver 3.22.0401

- New Attributes

✓ “/LTE/SigMsg Values/RRC/sCellToAddModList-r10” Attribute Group

Ver 3.22.0406

- Update

✓ Mediatek chip

- Enhanced handling jumping timestamps between ICD and MAPI logs
- LTE log import update

✓ Datum log – Discards Datum log through logcat, if there is Datum log from log file

- Bug Fix

✓ Samsung chip – Update for log version older than 4.00

Ver 3.22.0411

- Update
  - ✓ LicenseManager update

Ver 3.22.0412

- Bug Fix
  - ✓ Samsung chip – “EB13 LL1 Uplink Info” was not processed from v3.22.0315. This bug is fixed.

Ver 3.22.0418

- Update
  - ✓ Qualcomm chip – supports new NR log versions

Ver 3.22.0421

- New Attributes
  - ✓ "/Call Test/FTP/Plan/MinQos" Attribute group
- Update
  - ✓ Scanner data import – LTE TopN import method update
    - Cell’s representative value of RSRP, RSRQ, CINR calculation method update
      Before: value of Tx antenna #1 was used as representative value
      After: find Tx antenna which provides best RSRP, and use RSRP, RSRQ, CINR values of that Tx antenna
    - Dominant cell decision is updated also because representative value each call is changed

Ver 3.22.0503

- New Attributes
  - ✓ /General/Drone Telemetry/App Ground Elevation
  - ✓ /General/Drone Telemetry/App Absolute Altitude
- Update
  - ✓ Import – processes “Altitude Info” log
  - ✓ Attribute title change
    - “/General/Drone Telemetry/App Altitude” -> “/General/Drone Telemetry/App Pressure Altitude”
  - ✓ LogConverter – DASView export supports EPS & CW scan result

Ver 3.22.0511

- New Attributes
  - ✓ “/LTE-A/CA/TTI Info/Cell (RB>0)” group – “DL TTI Count (TB0)” and “DL TTI Count (TB1)” added for each CC
- Update
  - ✓ [IMPORTANT] LMAEngine - Naming rule change

- ✓ "/LTE-A/CA/TTI Info/Cell (RB>0)" group –if there is any value in DL or UL, all other attributes without any RB assignment will have value 0, instead of blank

Ver 3.22.0518

- Update
  - ✓ Attribute name change
    - "/Layer-3 Message/NR SA RRC" to "NR RRC"
    - "/Layer-3 Message/NR SA NAS" to "NR NAS"
  - ✓ "/Layer-3 Message/NR SA RRC msg" import update

Ver 3.22.0519

- Update
  - ✓ Import update – Logs generated from RMA is discarded when log file is created from mobile app (NMP, NMP-Manager, etc.)

Ver 3.22.0520

- Update
  - ✓ Favorite – Export to CSV – Update to process comma(,) character in column header and values

Ver 3.22.0527

- New Attributes
  - ✓ LTE PCell~SCell7 - .. /L1/RB/Num of DL RB (Avg Including 0 - per ACT),
    /L1/RB/Num of UL RB (Avg Including 0 - per ACT)
  - ✓ NR PCC ~ SCC7 - ../PDSCH/TB, RB/ Num of DL RB (Avg Including 0 - per ACT),
    ../PUSCH/TB, RB/ Num of UL RB (Avg Including 0 - per ACT),

Ver 3.22.0531

- New Attribute
  - ✓ "/LTE-A/ALL CC/" group added

Ver 3.22.0601

- Update
  - ✓ QCom chip – "B139 LTE LL1 PUSCH Tx report" – Num of RB calculation update to consider clustering

Ver 3.22.0603

- Update

- ✓ QCom chip – Supports new log version

Ver 3.22.0607

- Update
  - ✓ Samsung chip – supports new log version

Ver 3.22.0610

- Update
  - ✓ License management module update

Ver 3.22.0614

- Update
  - ✓ LMA Engine update

Ver 3.22.0616

- Update
  - ✓ Qualcomm chip – supports new LTE and NR log versions

Ver 3.22.0621

- Bug Fix
  - ✓ Qualcomm NR – PCC..SCC "/PDSCH/MIMO/DL MIMO (Mode)" import bug fix

Ver 3.22.0623

- New Attributes
  - ✓ "/Packet Data/IP" group added
  - ✓ "/Packet Data/TCP" group added
- Update
  - ✓ Qualcomm chip – Duplicated IP packets handling update
  - ✓ Import - TCP/IP packet processing update

Ver 3.22.0708

- Bug Fix
  - ✓ Supports NMP v7.0610 or later log versions

Ver 3.22.0711

- Update

- ✓ Qualcomm chip – supports new NR log versions

Ver 3.22.0713

- Bug Fix
  - ✓ FTP Call Result missing bug fix when there was DM disconnection

Ver 3.22.0716

- Update
  - ✓ Samsung chip – import update to refer “0xEA00 Common Basic Information” log to decide “Serving Network”

Ver 3.22.0718

- Update
  - ✓ Qualcomm chip – supports new NR log versions

Ver 3.22.0719

- Bug Fix
  - ✓ “/LTE/Data Throughput/Uplink (All)/MAC/MAC UL TP (Total)” calculation bug fix
    - Before: MAC UL TP of PCell
    - After: MAC UL TP of all CC

Ver 3.22.0725

- New Attributes
  - ✓ “/Mobile Info/Android/Network Type (Data Svc)”
  - ✓ “/Mobile Info/Android/Network Type (Camped)”
  - ✓ “/Mobile Info/Android/Network Type (Display)”
  - ✓ “/Mobile Info/Android/Network Intf Cnt”
  - ✓ “/Mobile Info/Android/Network Intf[0] IP Address”
  - ✓ “/Mobile Info/Android/Network Intf[1] IP Address”
  - ✓ “/Mobile Info/Android/Network Intf[2] IP Address”
  - ✓ “/Mobile Info/Android/Network Intf[3] IP Address”
  - ✓ “/Mobile Info/Android/Network Intf[4] IP Address”

Ver 3.22.0726

- Update
  - ✓ Qualcomm chip – supports new NR log versions

Ver 3.22.0727

- New Attribute
  - ✓ “/Call Test/Voice or Video Call/Duration/MT Paging - Conv Start”
- Update
  - ✓ “/Event/Voice Call Event”
    - "[UE] Voice - Received Page" event is displayed when there was “RRC Paging” with matching m-TMSI

Ver 3.22.0731

- Update
  - ✓ “/Packet Data/TCP/TCP DL Retransmission count” calculation update
  - ✓ Log Message UI – Export to PCAP update not to save duplicated TCP/IP packets from multiple interfaces

Ver 3.22.0731

- Update
  - ✓ Qualcomm chip – supports new NR and LTE log versions

Ver 3.22.0804

- Bug Fix
  - ✓ WCDMA RRC message parsing bug fix
  - ✓ Samsung LTE – Pcell-SCell7 "/Throughput/PDSCH TP", "/Throughput/PUSCH TP" missing bug fix

Ver 3.22.0805

- Bug Fix
  - ✓ Subway log import bug fix

Ver 3.22.0811

- Update
  - ✓ “/HSDPA/HS Decode Status - Carrier[ALL], Carrier[0]~Carrier[3] "Sub frame count" value range modified
  - ✓ Log Message UI – shows “tick”, “modem ID”, “subscription ID” in timestamp column

Ver 3.22.0826

- New Attributes
  - ✓ “/LTE/SigMsg Values/RRC/SIB1/MCC #4”
  - ✓ “/LTE/SigMsg Values/RRC/SIB1/MNC #4”
  - ✓ “/LTE/SigMsg Values/RRC/SIB1/cellReservedForOperatorUse #4”
  - ✓ “/LTE/SigMsg Values/RRC/SIB1/MCC #5”

- ✓ “/LTE/SigMsg Values/RRC/SIB1/ MNC #5”
- ✓ “/LTE/SigMsg Values/RRC/SIB1/cellReservedForOperatorUse #5”

- Bug Fix
  - ✓ HSDPA, HSUPA, HSPA, HSPA+ decision method update (to refer below WCDMA RRC messages)
    - rrcConnectionSetup
    - radioBearerSetup
    - radioBearerReconfiguration
    - rrcConnectionRelease
  - ✓ NMP log file - Bluetooth message save rule update
    - When ear-jack is used, " Bluetooth - $O:BS;DISCONNECTED DISCONNECTED" message is not saved

Ver 3.22.0831

- New Attributes
  - ✓ /NR5G/[PCC..SCC7]/Serving Cell Quality/SSB RSRP (Ant0..Ant4)
  - ✓ /NR5G/[PCC..ALL CC]/MAC/PDSCH Stat/PDSCH Retransmission Rate
- Update
  - ✓ QCom chip – NR5G RSSI, RSRP for each antenna is shown
  - ✓ QCom chip – PDSCH throughput calculation update

Ver 3.22.0904

- Update
  - ✓ License Manager update to v3.22.0904

Ver 3.22.0905

- Bug Fix
  - ✓ NMP, NMPM log file – Data call – Throughput missing bug fix

Ver 3.22.0907

- New Attribute
  - ✓ “/Packet Data/PC Time & SIP Events” group added

Ver 3.22.0913

- New Attribute
  - ✓ “/NR5G/PCC .. SCC7/LNA Gain State (Ant0)” - “/NR5G/PCC .. SCC7/LNA Gain State (Ant3)”

Ver 3.22.0920

- New Attribute

- ✓ “/NR5G/PCC .. All CC/L2/BSR” group added

- Update
  - ✓ Qualcomm chip – LTE MAC DL throughput calculation method update to refer other log packet. Below KPIs are affected.
    - /LTE/Data Throughput/Downlink (All)/MAC/MAC DL TP (Total)
    - /LTE/MAC/Throughput/MAC DL TP
    - /LTE/MAC/Throughput/MAC DL Bytes

Ver 3.22.0921

- New Attribute
  - ✓ “/NR5G/PCC .. SCC7/Beam Info” group added

Ver 3.22.0923

- Bug Fix
  - ✓ Mediatek chip – “Serving Network” decision bug fix (for 5G SA mode mobile)

Ver 3.22.0928

- New Attributes
  - ✓ “/LTE-A/PCell .. ALL CC/MAC/BSR” group added
  - ✓ “/NR5G/PCC .. ALL CC/L2/BSR” group added
- Update
  - ✓ Qualcomm chip – LTE MAC BSR, NR5G MAC BSR import update
  - ✓ Favorite – during “Export to CSV”, general fields are exported also
- Bug Fix
  - ✓ In-building data parsing bug fix

Ver 3.22.0929

- New Attributes
  - ✓ “/NR5G/PCC .. ALL CC/Throughput/Bytes” group added

Ver 3.22.1003

- Update
  - ✓ Qualcomm chip – NR5G – MAC UL throughput and bytes calculation method update
    - Before: refers “B881 NR5G MAC UL TB Stats” first if B881 exists, and refers B883 if B881 doesn’t exist
    - After: doesn’t refer B881 anymore

Ver 3.22.1005

- Bug Fix

- ✓ LTE CC index calculation bug fix
- ✓ TAB file load bug fix

Ver 3.22.1006

- Update
  - ✓ Qualcomm chip – “B888 NR5G MAC PDSCH Stats” import update

Ver 3.22.1009

- Update
  - ✓ LTE RRC – update to support r13 extensions
  - ✓ "/General/Serving Network" – added “LTE 6CA”

Ver 3.22.1012

- New Attributes
  - ✓ /Mobile Info/Android/Radio/SignalBar – Network
  - ✓ /Mobile Info/Android/Radio/SignalBar – Level

Ver 3.22.1024

- Update
  - ✓ QCom chip – B8D8 log – 5G SINR calculation method update
    - Before: average of all antennas
    - After: max of all antennas
  - ✓ NMP inbuilding image auto loading function added
- Bug Fix
  - ✓ LTE SCell duplicated processing bug fix
  - ✓ NMP-GPS Assist Information log reference bug fix (not to refer for below attributes)
    - /General/Drone Telemetry/App Pressure Altitude
    - /General/Drone Telemetry/App Relative Altitude" Attribute

Ver 3.22.10248

- Update
  - ✓ Qualcomm chip – Supports new NR log versions

Ver 3.22.1031

- New Attribute
  - ✓ “/NR5G/Handover/EN-DC Handover Event” added

Ver 3.22.1101

- Bug Fix
  - ✓ iPerf Call Throughput missing but fix
    - "/Call Test/IPERF/Call Average/Throughput"
    - “/Call Test/IPERF/Call Average/Throughput/Excluding SlowStart”
  - ✓ RCS Subway measurement -> Event display bug fix

Ver 3.22.1104

- Bug Fix
  - ✓ "/LTE-A/CA/PCell" Group Data missing bug fix

Ver 3.22.1115

- Bug Fix
  - ✓ Memory leak during import – bug fix

Ver 3.22.1118

- Update
  - ✓ “/NR5G/Handover/EN-DC Handover Event” import update

Ver 3.22.1124

- Update
  - ✓ License Management library update
  - ✓ Import speed update – by calculation method update
  - ✓ Qcom B173 – Calculation method update to improve import speed
- Bug Fix
  - ✓ Qcom B173 – TB index calculation bug fix
  - ✓ Duplicated calculation bug fix
    - /LTE/L1/RB & TB/DL TB Size (Sum)
    - /LTE/L1/RB & TB/DL TB Size (Avg)

Ver 3.22.1128

- Bug Fix
  - ✓ Samsung NR - DL,UL RB Num RB (Avg Including 0) calculation method update (to refer time slot index)
    - /NR5G/PCC ~ /NR5G/SCC7/PDSCH/TB, RB/Num of DL RB (Avg Including 0)
    - /NR5G/PCC ~ /NR5G/SCC7/PDSCH/TB, RB/Num of DL RB (Avg Including 0 - per ACT)
    - /NR5G/PCC ~ /NR5G/SCC7/PUSCH/TB, RB/Num of DL RB (Avg Including 0)
    - /NR5G/PCC ~ /NR5G/SCC7/PUSCH/TB, RB/Num of DL RB (Avg Including 0 - per ACT)

Ver 3.22.1129

- Update
  - ✓ Samsung NR – supports new log versions

Ver 3.22.1206

- Update
  - ✓ “/NR5G/Handover/EN-DC Handover Event” import update

Ver 3.22.1208

- Update
  - ✓ UDA feature update – supports “Boolean data type” and logical operators

Ver 3.22.1212

- Update
  - ✓ iPerf UDP UL test import update
  - ✓ LMA Engine update
- Bug Fix
  - ✓ Phone Information - NMP RIL DATA Log Packet Import bug fix

Ver 3.22.1214

- Update
  - ✓ Lock key management module update

Ver 3.22.1215

- Update
  - ✓ Supports LTE 8CA
  - ✓ "/General/Serving Network" - added “LTE 7CA”, “LTE 8CA”
- Bug Fix
  - ✓ LTE SCell1~SCell7 "Cell/DL EARFCN" duplicated calculation bug fix
  - ✓ Phone Information - NMP RIL DATA Log Packet Import bug fix

Ver 3.22.1219

- New Attribute
  - ✓ “/Call Test/Other UEs” – shows if there were any ETC call on other UEs tested together

Ver 3.22.1228

- Bug Fix
  - ✓ Time Graph UI bug fix – Vertical axis was wrong while displaying multiple measure's item type attribute in a single graph panel

Ver 3.23.0103

- Update
  - ✓ "Serving Network" – 5G active state decision rule update
    - Before: There is PCI and RSRP and (TP or RB or TB)
    - After : There is PCI and (RSRP or RSRQ or SINR or TxPower) and (TP or RB or TB)
- Bug Fix
  - ✓ Grid UI – Enum attribute value display bug fix
  - ✓ Import with "merge as a single measure" - LTE Cell Index calculation bug fix

Ver 3.23.0109

- Bug Fix
  - ✓ "/General/Serving Network"– NRNSA, NRSA decision bug fix
  - ✓ Samsung Chip – "Serving Network" Blank condition update

Ver 3.23.0111

- Update
  - ✓ QCom chip – supports new LTE log versions
  - ✓ QCom chip – Sampling point decision rule update

Ver 3.23.0116

- Update
  - ✓ iPerf UDP UL test import update

Ver 3.23.0121

- Update
  - ✓ QCom B9A7 (NR5G ML1 DLM2 CA Metrics) – v2.4 Bandwidth enum processing update (following recent version of firmware)

Ver 3.23.0127

- New Attributes
  - ✓ "/Call Test/VoLTE/RTP Codec/EVS Count (DL)" group - added

- ✓ “/Call Test/VoLTE/RTP Codec/EVS Count (UL)” group - added

- Bug Fix
  - ✓ Time Graph UI bug fix – Vertical axis was wrong while displaying multiple measure’s item type attribute in a single graph panel

Ver 3.23.0128

- Update
  - ✓ Qcom chip – NR5G “Num of DL RB” and “TB Bytes” calculation rule update
    - Before: Includes all types of RNTI’s RB num and TB bytes
    - After: Includes C-RNTI and TC-RNTI’s RB num and TB bytes only
- Bug Fix
  - ✓ QCom chip – NR 5G – DL bandwidth of P-RNTI and RA-RNTI is discarded from decision of DL Bandwidth

Ver 3.23.0130

- Bug Fix
  - ✓ Fragmented SIP message processing bug fix

Ver 3.23.0201

- Bug Fix
  - ✓ “/Call Test/Other UEs” – import bug fix

Ver 3.23.0202

- Update
  - ✓ Call Server Interface – MOS test synchronization update
  - ✓ PCTEL_MGR update to save NR Blind Scan Result’s MIB/SIB1

Ver 3.23.0211

- Update
  - ✓ “/NR5G/Handover/EN-DC Handover Event” import update (for Blind EN-DC setup attempt)
- Bug Fix
  - ✓ Samsung NR – “/MAC/PDSCH Statistics/DL Scheduling % (PCC~ SCC7)” calculation bug fix

Ver 3.23.0215

- Bug Fix
  - ✓ “/NR5G/PCC..SCC/Serving Cell Info/Band” – import bug fix

Ver 3.23.0222

- Update
  - ✓ LogConverter update – to display “CI_1” (voice call sequence) and “CI_2” (data call sequence) columns
    - CI_1 : voice call sequence
    - CI_2 : data call sequence
    - They will be displayed during “call start” to “call result” only. It’ll be null during “call result” to “call end” duration.
- Bug Fix
  - ✓ Voice call result of BQ/CBQ – processing update
    - If “Check BQ” and “Check CBQ” import options are both unchecked, call result from measurement tool will be used

Ver 3.23.0223

- Update
  - ✓ Qualcomm chip – supports new NR log versions
  - ✓ Scanner log import – validity check logic update

Ver 3.23.0309

- Bug Fix
  - ✓ “/Call Test/Voice or Video Call/Reason” decision bug fix for Multi-RAB test

Ver 3.23.0316

- Update
  - ✓ Import – Refers “Periodic Common Info” log
- Bug Fix
  - ✓ “/NR5G/PCC..SCC7/MAC/PDSCH Statistics/DL Scheduling %” calculation bug fix
  - ✓ Samsung LTE UL BW missing bug fix

Ver 3.23.0328

- Update
  - ✓ Import – Refers “Periodic Common Info” log
  - ✓ MTK chip – updated to skip invalid log versions
- Bug Fix
  - ✓ ″/Call Test/Voice or Video Call/Real Service″ decision bug fix

Ver 3.23.0330

- Bug Fix
  - ✓ Samsung chip – NR5G Power value import and parser display bug fix

Ver 3.23.0406

- Update
  - ✓ Qualcomm chip – supports new NR log versions

Ver 3.23.0407

- Bug Fix
  - ✓ Samsung chip – NR5G Power value import and parser display bug fix

Ver 3.23.0411

- Bug Fix
  - ✓ Mediatek chip – Supports new log versions

Ver 3.23.0419

- Bug Fix
  - ✓ Memory leak during import - bug fix

Ver 3.23.0420

- Update
  - ✓ LMAEngine, LMAEngineM update – to support sampling duration definition

Ver 3.23.0421

- Update
  - ✓ /Events/Events (Abnormal) – shows BT and RMA fail events

Ver 3.23.0508

- Update
  - ✓ Qualcomm chip – supports new NR log versions

Ver 3.23.0524

- Bug Fix
  - ✓ Import bug fix for "/Call Test/iPerf/Call Average/Jitter and Error/DL Jitter"

Ver 3.23.0525

- Bug Fix
  - ✓ Log timestamp validity check bug fix (for timestamp later than 2023-05-25)

Ver 3.23.0531

- New Attribute
  - ✓ /Call Test/Voice Quality/Per Rx Clip/Active Speech Ratio (Ref)
  - ✓ /Call Test/Voice Quality/Per Rx Clip/Active Speech Ratio (Deg)
  - ✓ /Call Test/Voice Quality/UL MOS/Active Speech Ratio (Ref)
  - ✓ /Call Test/Voice Quality/UL MOS/Active Speech Ratio (Deg)
  - ✓ /Call Test/Voice Quality/UL MOS/MOS Result
- Update
  - ✓ Updated to show 'Fail' in "/Call Test/Voice Quality/Per Rx Clip/MOS Result", when POLQA calculation failed

Ver 3.23.0613

- Update
  - ✓ Voice Call Result decision update
    - Before: Drop call was decided as Complete, if WCDMA DISCONNECT message cause was 'Normal call clearing' or 'Normal, unspecified'
    - After: Removed above logic. Decide as Drop call.

Ver 3.23.0616

- Update
  - ✓ LMA Engine update

Ver 3.23.0623

- New Attribute
  - ✓ [Latency] 5G Data Service Setup Delay (sec)
  - ✓ [NR5G] [Handover] PDCP DL RRC Leg Switch Latency (sec)
- Update
  - ✓ LMA Engine update

Ver 3.23.0628

- Bug Fix
  - ✓ Qualcomm "B063 LTE MAC DL Transport Block" – DL MAC header decoding bug fix

Ver 3.23.0726

- New Attribute
  - ✓ /LTE/Handover/Handover Attempt Count
  - ✓ /LTE/Handover/ Handover Success Count

- ✓ /LTE/Handover/ Handover Fail Count
- ✓ /NR/Handover/Handover Attempt Count
- ✓ /NR/Handover/ Handover Success Count
- ✓ /NR/Handover/ Handover Fail Count

- Update
  - ✓ Medkatek chip – Wrong log version processing method update
- Bug Fix
  - ✓ Call state decision for FTP long call – bug fix

Ver 3.23.0727

- Update
  - ✓ Medkatek chip – Serving network decision logic update

Ver 3.23.0801

- New Features
  - ✓ Grid UI – added “Export to XLSX”

Ver 3.23.0807

- New Attributes
  - ✓ /NR5G/PCC..SCC7/PDSCH/TB, RB/DL Assigned BW
  - ✓ /NR5G/PCC..SCC7/PDSCH/TB, RB/Total Spectrum Efficiency
  - ✓ /NR5G/PCC..SCC7/PDSCH/TB, RB/Assigned Spectrum Efficiency
- Bug Fix
  - ✓ “/Call Test/Voice or Video Call/Real Service” decision bug fix (EPSFB was decided as VoNR-VoLTE by bug)

Ver 3.23.0821

- Bug Fix
  - ✓ LTE ECGI, ECI, PLMN ID – import bug fix (not to refer SIB1)

Ver 3.23.0823

- Bug Fix
  - ✓ LTE serving cell information (PCI, etc.) – fixed not to refer QCom log which includes cell information used for SIB1 decoding

Ver 3.23.0907

- Update
  - ✓ Log Message UI – message and detail info columns are displayed indented when sub_id (SIM ID) is 2
- Bug Fix

- ✓ “/Call Test/Voice or Video Call/Start Network” and “/Call Test/Voice or Video Call/End Network” import bug fix
- ✓ “/Call Test/Voice or Video Call/Target Service” import bug fix
- ✓ Samsung LTE PLMN_ID parsing bug fix

Ver 3.23.0911

- Bug Fix
- ✓ “/Events/Voice Call Event” – import bug fix

Ver 3.23.0915

- New Attribute
- ✓ “DSDS/Data Service SIM” added
- Update
- ✓ DSDS import update for QCom chip

Ver 3.23.0918

- Bug Fix
- ✓ Fragmented SIP message processing bug fix
- ✓ Android RIL log - MNC, MCC parsing bug fix

Ver 3.23.0926

- Update
- ✓ Qualcomm chip – supports new NR log versions

Ver 3.23.1004

- New Attributes
- ✓ “/NR5G/PDCP/DL/Route Status” group added

Ver 3.23.1006

- Update
- ✓ Scanner import – PCTEL Mobile Blind scan import update

Ver 3.23.1012

- New Attributes
- ✓ /Call Test/iPerf/Session Count
- Update
- ✓ Group name update

- Before: /Call Test/IPERF
- After: /Call Test/iPerf

• Bug Fix

✓ Inbuilding position interpolation – update and bug fix

Ver 3.23.1016

• New Attribute

✓ /Layer-3 Message/LTE RRC msg (textinfo)

• Update

✓ Import update to show Paging message also for LTE and NR in below KPIs

- /Layer-3 Message/LTE RRC msg
- /Layer-3 Message/NR RRC msg

✓ Inbuilding position calculation reference log packet update (to refer PC Time Info Log also for NMP log file)

Ver 3.23.1023

• New Feature

✓ “World Map” is added to “View” menu. It supports world-wide level of zoom level with correct map projection.

• Update

✓ QCom chip – Supports new NR and LTE log versions

Ver 3.23.1025

• Update

✓ ATT FIT Report – MOS statistics calculation update to include POLQA fail results also

Ver 3.23.1026

• Update

✓ MTK chip – Serving Network decision update for LTE IDLE_CAMPED state

✓ MTK chip – Voice Call Start Network decision update for LTE IDLE_CAMPED state

Ver 3.23.1027

• Update

✓ MTK chip – Serving Network decision update for LTE IDLE_CAMPED state

✓ MTK chip – Voice Call Start Network decision update for LTE IDLE_CAMPED state

✓ Qualcomm chip – supports new Common log versions (IMS log)

✓ Log Message UI – Log filter tree update (Qualcomm LTE/NR5G)

Ver 3.23.1108

- Update
- ✓ License driver update to v8.23
- Bug Fix
- ✓ QCom chip LTE and NR - CellIdentity calculation bug fix

Ver 3.23.1110

- Update
- ✓ LTE RRC parser update (TS36.331 v16.6.0 to v17.6.0)
- ✓ 5G RRC parser update (TS38.331 v16.6.0 to v17.6.0)
- ✓ Qualcomm chip – supports new NR log versions

Ver 3.23.1122

- Update
- ✓ Attribute name change to fix duplicated name
- /LTE/System/DL Bandwidth --> /LTE/System/DL Bandwidth (MHz)
- /LTE/System/DL Bandwidth --> /LTE/System/DL Bandwidth (RB)
- /LTE/System/UL Bandwidth --> /LTE/System/UL Bandwidth (MHz)
- /LTE/System/UL Bandwidth --> /LTE/System/UL Bandwidth (RB)

Ver 3.23.1123

- Bug Fix
- ✓ /General/Serving Network – calculation bug fix

Ver 3.23.1127

- Update
- ✓ Mediatek chip – Supports updated ICD : LTE(V3.5) / NR (V2.2)

Ver 3.23.1128

- Update
- ✓ PCTEL scanner log – validity check update

Ver 3.23.1207

- Update
- ✓ Samsung chip – supports new log version
- ✓ NMP log – imports Android Radio Info log

Ver 3.23.1214

- Update
- ✓ UL MOS score import – Updated to overwrite UL MOS dummy log, to cover abnormal termination during logging

Ver 3.23.1220

- Update
- ✓ LMAEngine update

Ver 3.23.1222

- Update
- ✓ Samsung chip – supports new log version

Ver 3.23.1223

- Update
- ✓ LMAEngine update

Ver 3.24.0110

- Update
- ✓ Mediatk log – validity check update
- Bug Fix
- ✓ Call Result & Log Analysis - DL, UL NR 5G/Transmission Success Ratio (%), NR 5G/Transmission Success Rate (Mbps) calculation bug fix

Ver 3.24.0112

- Bug Fix
- ✓ "/NR5G/RLC/DL/per DRB", "/NR5G/RLC/UL/per DRB" – import bug fix

Ver 3.24.0113

- Update
- ✓ licmgr update – changed exit codes as below

  Exit Codes:

  -1 = Unknown
  0 = Success
  1 = InvalidCommand
  2 = InitializationFail
  3 = ServerConnectFail
  4 = UsernamdInvalid
  5 = PasswordInvalid

6 = LicenseOnServerNotAvailable
7 = PcInfoRetrievalFail
8 = FingerPrint_RetrievalFail
9 = Recipient_RetrievalFail
10 = HaspIdInvalid
11 = LicenseOnLocalNotAvailable
12 = LicenseReturnFail
50 = Timeout
99 = Error

Ver 3.24.0119

- Update
- ✓ Samsung chip – supports new log version

Ver 3.24.0123

- Update
- ✓ Subway test – Updated to process undo position log
- Bug Fix
- ✓ Inbuilding test – position calculation/display bug fix

Ver 3.24.0131

- Update
- ✓ World Map – supports cell site management & display
- ✓ LogConverter – added “Convert scanner CW RSSI to RSRP” option and features for DASView
- ✓ Samsung chip – version check update
- Bug Fix
- ✓ "/NR5G/PDCP/DL/Route Status" group attributes – changed data type (word -> integer)

Ver 3.24.0205

- Update
- ✓ “/LTE/SigMsg Values/NAS ESM/Activate Default EPS Bearer Context Request/PDN Address” – updated to show full IPv6 address

Ver 3.24.0206

- Update
- ✓ Inbuilding test – Geolocation latitude, longitude calculation update

Ver 3.24.0216

- New Attributes
- ✓ “/Call Test/SMS/Duration/Tool“, “/Call Test/MMS/Duration/Tool“ group added

- Bug Fix
- ✓ "/LTE/Cell Info/Serving Cell List/Top N" group – parsing bug fix

Ver 3.24.0219

- Update
- ✓ MTK chip – updated to refer “IMS SIP Message” for “UL INVITE” and “DL INVITE(200)” event detection

Ver 3.24.0228

- Update
- ✓ KML export – added KML options

Ver 3.24.0229

- Update
- ✓ "/Call Test/FTP/Durations/Pending duration", "/Call Test/FTP/Durations/Pending Total duration" calculation update
- ✓ McPTT decision – changed to refer McPTT event log, as well as mobile model
- ✓ Qualcomm chip – supports new log versions

Ver 3.24.0308

- Update
- ✓ "/Call Test/FTP/Durations/Pending duration, Pending Total duration" attribute name change, and license check update

Ver 3.24.0311

- Update
- ✓ Qualcomm chip – supports new NR log versions

Ver 3.24.0322

- New Attribute
- ✓ /LTE-A/CA/DL CA Validity
- ✓ /LTE-A/CA/UL CA Validity
- Update
- ✓ KML export – Supports KMZ export now, and updated KML/KMZ export features
- ✓ ATT FIT Report update

Ver 3.24.0326

- New Attributes
- ✓ /Latency/Registration Delay

Ver 3.24.0402

- Bug Fix
- ✓ NR-ARFCN calculation from RRC message – bug fix

Ver 3.24.0412

- Update
- ✓ Mediatek chip – Supports updated ICD : LTE(V3.9) / NR (V2.6) / IMS (V1.7- V1.8)
- ✓ Samsung chip – supports ICD v9.02
- Bug Fix
- ✓ B887 log – updated not to check SIM ID and use all logs
- ✓ "/LTE/System/UL Serving BW (MHz)" missing in case of NR NSA – bug fix

Ver 3.24.0429

- New Attributes
- ✓ Added “/NR5G/NAS/MM5G State” group
- Bug Fix
- ✓ “/LTE-A/CA/SCell Act-Deact State” decision bug fix

Ver 3.24.0510

- New Attributes
- ✓ Added new group - "/Call Test/Mobile Messenger"
- Bug Fix
- ✓ SIP “CSeq" processing bug fix

Ver 3.24.0513

- Update
- ✓ DML2CSV update – added new options ”-l3” and ”-sip”
- Usage: DML2CSV <FavoriteFile.XPF> <IN_Folder> <Out_Folder> [options]
- You need proper license.
- [options]
- -l3 : parse layer-3 messages to separate txt file
- -sip : parse SIP messages to separate txt file

Ver 3.24.0516

- Update
- ✓ Samsung ICD update – fixed log versions

Ver 3.24.0524

- New Attributes
- ✓ Added new group and attributes for NRDC
- "/NR5G/SCG PCC" … "/NR5G/SCG SCC7" group added
- Update
- ✓ Updated for NRDC

Ver 3.24.0529

- Update
- ✓ World Map UI – feature update
- ✓ LMA Engine update – added columns

Ver 3.24.0603

- Bug Fix
- ✓ "/Call Test/iPerf/Call Average/Jitter and Error/DL Jitter" and "/Call Test/iPerf/Call Average/Jitter and Error/UL Jitter" calculation bug fix

Ver 3.24.0613

- Update
- ✓ PCTEL NR TopN scan result import update
- ✓ LTE and NR TopN attribute name is changed to "band : channel : center_frequency" format

Ver 3.24.0614

- Update
- ✓ PCTEL NR TopN scan result – validity check update

Ver 3.24.0618

- Update
- ✓ Umetrix Data – UDP Download, UDP Upload – UDP latency refers realtimeLatency

Ver 3.24.0627

- Update
- ✓ Samsung chip – supports new log version
- ✓ VoLTE Call Result Etc decision – Import option apply method update

Ver 3.24.0701

- Update
- ✓ Qualcomm chip – supports new NR log versions

Ver 3.24.0709

- New Attributes
- ✓ Added "/NR5G/PCC … SCC/PUSCH/MIMO" group
- Update
- ✓ Mediatek chip – SIP event reference update

Ver 3.24.0717

- Update
- ✓ Qualcomm chip – supports new NR, LTE, Common log versions

Ver 3.24.0719

- Update
- ✓ Attribute name change
- before: /NR5G/PCC .. SCC/MAC/MAC CE/Power Headroom
- after: /NR5G/PCC .. SCC/MAC/MAC CE/Power Headroom Level
- ✓ New Attribute
- /NR5G/PCC .. SCC/MAC/MAC CE/Power Headroom (dB)
- ✓ Licmgr.exe update

Ver 3.24.0724

- Update
- ✓ [IMPORTANT] Samsung chip – 5G 'Rank Index' and 'CQI' refers EAF1_0001 (NR PHY Debug Statistics), instead of EAF1_001D (NR PHY CSI Report) log. Reason is because 'NR PHY CSI Report' log doesn't include CC index. However, 'LI', 'CRI', and 'PMI' still refers 'NR PHY CSI Report' log, because no other log provides those KPIs. Therefore, these KPIs will be available for PCC only.
- ✓ Some KPIs were not imported depending on chip vendor. Updated to calculate below KPIs for each chip.
- Samsung - [NR5G] [PCC] [Quality Report] RI (Rank Index) (Mode)
- Samsung - [NR5G] [MAC] [PDSCH Stat] DL Scheduling %
- MTK- [NR5G] [MAC] [PDSCH Stat] DL Scheduling %
- MTK- [NR5G] [PCC] [Quality Report] RI (Rank Index) (Mode)
- MTK- [NR5G] [PDCCH] DCI 0_1 %
- MTK- [NR5G] [PDCCH] DCI 0_0 %
- MTK- [NR5G] [PDCCH] DCI 1_0 %

- MTK- [NR5G] [PDCCH] DCI 1_1 %
- MTK- [NR5G] [BLER & HARQ] PDSCH BLER

Ver 3.24.0725

- Bug Fix

✓ [Important] Samsung chip –NR RRC Reconfiguration messages were not processed. Fixed this bug.

Ver 3.24.0726

- Update

✓ Mediatek chip – added RSRP/RSRP/SINR/RSSI value range check for below logs

- E511-9001 NL1 Serving Cell Measurement
- E511-9002 NL1 Neighbor Cell Measurement

Ver 3.24.0730

- Update

✓ Mediatek chip – 5G PUSCH MIMO, Num of Layer import update

Ver 3.24.0801

- Update

✓ Samsung chip – updated “5G PDSCH DL Scheduling %” calculation to handle invalid CC_Index in Samsung log

Ver 3.24.0808

- New Features

✓ “LogFileChecker” is added to package

Ver 3.24.0812

- Bug Fix

✓ Data Call – In-Traffic state decision bug fix

Ver 3.24.0814

- Update

✓ Samsung chip – updated “5G PDSCH DL Scheduling %” calculation to handle invalid CC_Index in Samsung log

Ver 3.24.0823

- Bug Fix

✓ HTTP download/upload – Negative value in Throughput and transferred bytes – bug fixed

Ver 3.24.0828

- Update

✓ Update for logging tool v3.24.0828

Ver 3.24.0831

- Bug Fix

✓ HTTP download/upload import bug fix

Ver 3.24.0919

- Bug Fix

✓ Import error bug fix

Ver 3.24.0921

- New Attributes

✓ Added below to "/Mobile Info/Android/" group

- DL Throughput, UL Throughput, DL Bytes, UL Bytes

- Update

✓ Serving Network was decided as NSA sometimes, even though LTE is disconnected. Updated to refer RRC message and detect as SA in this case.

Ver 3.24.0924

- Bug Fix

✓ Voice call – in-traffic state detection bug fix

Ver 3.24.0925

- Update

✓ Qualcomm chip – supports new LTE, NR log versions

Ver 3.24.0926

- Update

✓ Qualcomm chip – supports new log versions

Ver 3.24.1009

- Update

✓ Qualcomm chip – supports new NR log versions

- ✓ DLF file – updated jumping timestamp adjustments

Ver 3.24.1011

- New Feature
- ✓ [Important] DB engine is changed to SQLite from v3.24.1011

Ver 3.24.1015

- Update
- ✓ QCom chip - Serving Network – updated to discard old QCom DIAG log, which includes invalid network value

Ver 3.24.1016

- Update
- ✓ Qualcomm chip – supports new NR log versions

Ver 3.24.1030

- Update
- ✓ Updated to handle Samsung chip NAS log “direction = 2” bug

Ver 3.24.1106

- Bug Fix
- ✓ “/Call Test/VOD/Event/Buffering/Buffering Duration” – calculation bug fix
- ✓ Qualcomm chip – B97F log ssb_index decision bug fix

Ver 3.24.1114

- Update
- ✓ “/WiFi/AP” group is visible for all licenses
- Bug Fix
- ✓ “/LTE-A/CA/(PCell + SCell)/L1/Throughput/PDSCH Bytes” calculation bug fix

Ver 3.24.1119

- New Attributes
- ✓ “/DSDS/SIM1/IMEI” and “/DSDS/SIM2/IMEI”

Ver 3.24.1121

- New Attributes
- ✓ /NR5G/PCC .. SCC/Serving Cell Info/Num of Max DL Slot
- ✓ /NR5G/PCC .. SCC/Serving Cell Info/Num of Max UL Slot

Ver 3.24.1126

- Update
- ✓ Import option “Get exact GPS position matching to date and time”
- updated to match based on UTC
- updated not to refer Android time
- ✓ “/General/GPS/GPS Date Time (GMT)” – updated to show UTC, instead of local time

Ver 3.24.1127

- Update
- ✓ Qualcomm chip – supports new NR and LTE log version
- Bug Fix
- ✓ DB duplication while re-import bug fix
- ✓ Subway GPS calculation bug fix

Ver 3.24.1128

- New Attributes
- ✓ /Modem Chip/Samsung/RAT (SIM1)
- ✓ /Modem Chip/Samsung/RAT (SIM2)
- ✓ /Modem Chip/Samsung/Modem Status (SIM1)
- ✓ /Modem Chip/Samsung/Modem Status (SIM2)
- Update
- ✓ Samsung chip – updated not to discard SIM2(stack2) logs
- Bug Fix
- ✓ “/WiFi/Connect State” import bug fix

Ver 3.24.1209

- Update
- ✓ “Serving Network” – updated “no service” state decision logic
- ✓ “/Call Test/Voice or Video Call/Middle Network” is changed as “Result Network” – shows serving network at the voice call result decision event

Ver 3.24.1212

- New Attributes
- ✓ /NR5G/System/Num of DL CC used
- ✓ /NR5G/System/Num of UL CC used
- ✓ /NR5G/MRDC/Num of SCG DL CC used

- ✓ /NR5G/MRDC/Num of SCG UL CC used
- Update
- ✓ LMA Engine update

Ver 3.24.1216

- Update
- ✓ Qualcomm chip – supports new LTE and NR log versions

Ver 3.25.0103

- Update
- ✓ LMA Engine update

Ver 3.25.0106

- New Attributes
- ✓ "/General/Highway" group is added

Ver 3.25.0108

- Update
- ✓ DSDS – doesn't refer operator name and MCC/MNC retrieved from Android

Ver 3.25.0116

- Bug Fix
- ✓ DSDS – SIM ID was changed during time adjust. Bug fixed

Ver 3.25.0117

- Update
- ✓ DSDS process update

Ver 3.25.0123

- Update
- ✓ Samsung chip – supports ICD rev 9.06

Ver 3.25.0208

- Update
- ✓ RM automation update
- ✓ Qualcomm chip – supports new LTE, NR log versions

Ver 3.25.0213

- Bug Fix
- ✓ QCom LTE log B183 latest log version(v66) import bug fix

Ver 3.25.0214

- Update
- ✓ Samsung chip – supports ICD v9.06 rev1

Ver 3.25.0222

- Update
- ✓ MTK chip – NR import update (DL BW)

Ver 3.25.0306

- New Attributes
- ✓ /LTE/System/DL Total Bandwidth
- ✓ /LTE/System/UL Total Bandwidth
- ✓ /LTE/System/Band Combination
- Update
- ✓ Scanner – NR, LTE TopN import update for the case of “Same center frequency from different band and channel”
- ✓ Scanner – PCTEL LTE TopN – check invalid EARFCN and skips

Ver 3.25.0320

- New Attributes
- ✓ NR – added decimal type of “cellIdenditity” attributes
- Update
- ✓ Scanner – NR, LTE TopN import update for the case of “Same center frequency from different band and channel”

Ver 3.25.0324

- Update
- ✓ Mediatek chip – import update for “NL1 Physical Configuration” log

Ver 3.25.0327

- Update
- ✓ Mediatek chip – import update for “NL1 Serving Cell Measurement” log for SCCs

Ver 3.25.0328

- Update
- ✓ WiFi log import speed enhanced

Ver 3.25.0403

- New Attributes
- ✓ Added NR Cell ID Attribute
- Update
- ✓ WiFi scan result (F0EB) import update
- Bug Fix
- ✓ NR/Serving Cell Info/gNB ID – type changed (hexa to decimal)

Ver 3.25.0405

- Update
- ✓ Import - VoNR-VoLTE IRAT Handover analysis update

Ver 3.25.0418

- Update
- ✓ ATT FIT Report update

Ver 3.25.0430

- Update
- ✓ Import – Qcom “B887 NR5G MAC PDSCH Status” time slot calculation method update

Ver 3.25.0502

- Update
- ✓ Import - Mediatek chip – Supports new ICD LTE (V4.2-4.3), NR (V2.9-3.0), IMS (V2.1-2.2)

Ver 3.25.0508

- Update
- ✓ Samsung chip – supports ICD v9.08

Ver 3.25.0512

- Update
- ✓ Samsung chip – NR “Scell Index” to “CC Index” mapping logic is added, to handle Samsung chip bug of “invalid SCell Index”

Ver 3.25.0514

- Update
- ✓ Samsung chip - NR “Samsung CC index” to “Scell Index” mapping logic is added, to handle Samsung chip bug of “invalid SCell Index”
- Bug Fix
- ✓ Samsung chip - NR MAC DL TP, MAC UL TP, PDSCH TP calculation method update

Ver 3.25.0605

- Bug Fix
- ✓ MTK chip – NR spectral efficiency calculation bug fix

Ver 3.25.0609

- Update
- ✓ Samsung chip – two SIM log with old log version handling update

Ver 3.25.0616

- Update
- ✓ Import – supports indoor test log with AI route prediction
- ✓ Import – supports HTTP transfer bi-directional test

Ver 3.25.0619

- Update
- ✓ MTK chip – NR bandwidth and maxRB calculation update to refer MTK chip log first, instead of RRC message

Ver 3.25.0622

- Bug Fix
- ✓ Samsung chip – two SIM log with old log version handling (v3.25.0609) bug fix

Ver 3.25.0625

- Update
- ✓ “/General/Serving Network” decision update in case of NR – not to check TP or RB, if the license is not Korean customers
- Before: (PCI should exist) AND (any of RF(RSRP,RSRQ,SINR,TxPower) should exist) AND (TP or RB should exist)
- After: (PCI should exist) AND (any of RF(RSRP,RSRQ,SINR,TxPower) should exist)
- ✓ Samsung chip – “Samsung SCell index” to CC index mapping update in case of MRDC
- ✓ MTK chip – updated to skip logs with “PROTOCOL_ID > 1”

Ver 3.25.0626

- New Attributes
- ✓ /NR5G/NAS/MM5G NSSAI/SST
- ✓ /NR5G/NAS/MM5G NSSAI/SD
- Update
- ✓ LMA Engine update

Ver 3.25.0627

- New Attributes
- ✓ /General/Band Classification

Ver 3.25.0704

- Bug Fix
- ✓ VDR scanner import bug fix

Ver 3.25.0708

- Update
- ✓ “Num of total slots” calculation method update for MTK chip. This will affect to ‘Spectral Efficiency’ calculation.

Ver 3.25.0717

- Update
- ✓ “\Layer-3 Message\NR RRC msg” – “Paging (this UE)” decision update

Ver 3.25.0729

- Update
- ✓ Samsung chip – updated not to check SIM ID if there is no “EA00 Common Basic Information” log packet
- ✓ Log parsing – DM port setting’s “Samsung chip logmask setting parser to text” update

Ver 3.25.0804

- New Atrributes
- ✓ Added “\NR5G\PCC .. SCC\PDSCH\Spectral Efficiency” group, and added new KPIs under this group

Ver 3.25.0811

- Update
- ✓ MTK chip – supports new log version

Ver 3.25.0813

- Update

✓ LTE handover result decision update for below attributes;

- /Event/Events (Abnormal)
- /LTE/Handover/Handover Result

Ver 3.25.0818

- Update

✓ MTK chip – MCS spectral efficiency is calculated for MTK chip also

✓ Voice Call – if call result is CBQ and there was "ERROR : Rx fail !!!", call result is decided as ETC.

Ver 3.25.0901

- Bug Fix

✓ Scanner LTE or NR TopN with different band & channel with same center frequency – this caused problems in DMA and LogConverter. Bug fixed.

Ver 3.25.0903

- Update

✓ "/General/Band Classification" and "/General/Band Classification (formal)" display update

✓ QCom B9A7 v2.4 – BW parsing update

Ver 3.25.0915

- Bug Fix

✓ Scanner LTE or NR TopN with different band & channel with same center frequency – this caused problems in DMA and LogConverter. Bug fixed.

Ver 3.25.0917

- Update

✓ Samsung chip – SIP messages in the "0xEA03 Common Signaling Message" log is processed to show SIP events and calculate durations between SIP messages. "REGISTER, INVITE, 200OK, CANCEL, BYE" SIP messages will be processed.

✓ Log Parser – updated to allow log file drag & drop from explorer

Ver 3.25.0925

- Update

✓ Qualcomm chip – supports new log version

Ver 3.25.1001

- Update
- ✓ Qualcomm chip – supports new Common log, NR, LTE log versions

Ver 3.25.1004

- Update
- ✓ Qualcomm chip – supports new LTE log versions

Ver 3.25.1014

- Update
- ✓ ATT FIT Report update

Ver 3.25.1017

- Update
- ✓ Mediatek chip – supports new log versions

Ver 3.25.1020

- Update
- ✓ Log Converter update for DASView
- ✓ Mediatek chip – supports new log versions

Ver 3.25.1022

- Update
- ✓ ATT FIT Report update

Ver 3.25.1023

- Bug Fix
- ✓ Measure DB fullset bug fix

Ver 3.25.1028

- Bug Fix
- ✓ Favorite Editor bug fix

Ver 3.25.1104

- Bug Fix
- ✓ Log Converter – bug fix for processing scanner NR TopN results with different band and same NR-ARFCN

Ver 3.25.1107

- Update
- ✓ Samsung chip - Serving_Cell_Index to CC index mapping update, to handle invalid Serving_Cell_Index value
- ✓ Mediatek chip – NR Tx Power calculation update to refer other fields of “NL1 PUSCH Power Control” log

Ver 3.25.1114

- New Attributes
- ✓ “\NR5G\SigMsg Values\RRC\measurementReport\measResults\MR Trigger” is added

Ver 3.25.1117

- Update
- ✓ Mediatek chip – LTE Tx Power calculation update to refer other fields of “LTE PUSCH Power Control” log

Ver 3.25.1118

- Update
- ✓ Mediatek chip – logs with “protocol id 2” on single SIM UE – processing update

Ver 3.25.1125

- New Attributes
- ✓ “/General/Project Info” group added
- Update
- ✓ DML2CSV – option “-pi” is added

Ver 3.25.1205

- Update
- ✓ “/DSDS/Config/Data Service SIM” calculation logic update

Ver 3.25.1215

- Update
- ✓ VoLTE/VoNR SIP related durations calculation update to discard timestamp of below SIP messages after conversation started.
- 200 OK for INVITE/TRYING/RINGING/PRACK_OK/SESSION_PROGRESS
- 100 Trying
- 180 Ringing
- 183 Session Progress
- Bug Fix

- ✓ “/Call Test/Call Seq (Unique)” error fix for Multi-RAB

Ver 3.25.1216

- Update
- ✓ Inbuilding UI – Image orientation feature update
- ✓ Merging split files – don’t merge log files end with “_sim1”, “_sim2”, “_sim3”, or “_sim4”

Ver 3.25.1217

- Update
- ✓ Voice call ‘setup time’ and ‘traffic time’ – updated to calculate during import, when voice call result contains wrong setup time and traffic time during multi-RAB test
- Bug Fix
- ✓ Scanner CW data display bug fix

Ver 3.25.1218

- Bug Fix
- ✓ "/Call Test/Voice or Video Call/Rx codec type" missing bug fix

Ver 3.25.1229

- New Attributes
- ✓ Added uplink spectral efficiency attributes in “/NR5G/PCC…ALL CC/PUSCH/TB, RB” group
- Update
- ✓ Import option – added “Remove slow TCP based on Z-Score” option
- ✓ DML2CSV update
- Added “-tpcut=N" option

Ver 3.26.0106

- New Atrributes
- ✓ /NR5G/PCC..ALL CC/MAC/UL Physical Channel/PUSCH Tx Mode/PUSCH Transform Precoding (Mode)
- ✓ /NR5G/PCC..ALL CC/MAC/UL Physical Channel/PUSCH Tx Mode/PUSCH Repetition State
- ✓ /NR5G/PCC..ALL CC/MAC/UL Physical Channel/PUSCH Tx Mode/Num of PUSCH Repetition (Sum)
- ✓ /NR5G/PCC..ALL CC/MAC/UL Physical Channel/PUSCH Tx Mode/Num of PUSCH Repetition (Mode)
- ✓ “/NR5G/SigMsg Values/RRC/measurementReport/measResults” group
- Added “ssbFrequency”
- ✓ “/LTE/SigMsg Values/RRC/measurementReport/measResults” group
- Added “carrierFreq”
- ✓ /Latency/5G SA Data Service Setup Delay

Ver 3.26.0108

- Update
- ✓ LMAEngine update

Ver 3.26.0109

- New Attributes
- ✓ “/LTE/SigMsg Values/NAS ESM/Negotiated QoS” added
- Update
- ✓ LMAEngine update

Ver 3.26.0116

- Update
- ✓ Mediatek chip – supports new log versions

Ver 3.26.0127

- Bug Fix
- ✓ “Map – Trace – Create Binned Measures” bug fix

Ver 3.26.0206

- Update
- ✓ Chipset support termination: HiSilicon chip, ICPM chip
- ✓ Supports new Qualcomm chip log versions
- ✓ Supports new Samsung chip log versions
- Bug Fix
- ✓ "/Call Test/Common" attribute group creation fail bug for HTTP test – bug fixed

Ver 3.26.0209

- Update
- ✓ Mediatek chip – supports new log versions

Ver 3.26.0210

- Bug Fix
- ✓ Time Graph UI – merge bug fix

Ver 3.26.0209

- Update
- ✓ Mediatek chip – supports new log versions

Ver 3.26.0210

- Bug Fix
- ✓ Time Graph UI – merge bug fix

Ver 3.26.0219

- Update
- ✓ Mediatek chip – supports new log versions
- ✓ "/LTE-A/ALL CC" group calculation logic update

Ver 3.26.0223

- Update
- ✓ "/NR5G/System/Num of CC" calculation method update – Before: If RRC exists, refer RRC. Otherwise refer RF information. After: Refer both of RRC and RF information and use max value.

Ver 3.26.0225

- Update
- ✓ Favorite Editor update to support .xpf file load

Ver 3.26.0226

- Update
- ✓ Qualcomm chip – SIM2 log processing update

Ver 3.26.0309

- Bug Fix
- ✓ NR bandwidth calculation bug fix (updated not to refer locationAndBandwidth)

Ver 3.26.0312

- Update
- ✓ Mediatek chip – update for when “SIM2 only” is used

Ver 3.26.0313

- Update
- ✓ "/Call Test/VoNR VoLTE/VoNR/VoNR Current Step" decision update to discard events during "voice call result" to "voice call end"
- New Attributes
- ✓ /Call Test/VoNR VoLTE/Duration/183 Session Progress - SIP PRACK
- ✓ /Call Test/VoNR VoLTE/Duration/SIP PRACK - 200 OK (PRACK)
- ✓ /Call Test/VoNR VoLTE/Duration/200 OK (PRACK) - 180 Ringing

Ver 3.26.0319

- Update
- ✓ "/NR5G/SigMsg Values/RRC/SIB1/ue_TimersAndConatants" group import update
- Bug Fix
- ✓ MRDC log import bug fix

Ver 3.26.0323

- Update
- ✓ "/Call Test/Active Test Event" import update for iPerf and HTTP DL/UL
- ✓ "/Call Test/Active Test State/Ping" import update to display during "Ping Call Start" to "Ping Call End" only

Ver 3.26.0326

- New Attributes
- ✓ /Call Test/iPerf/Bandwidth
- ✓ /Call Test/Throughput/Session Count
- ✓ /Call Test/Throughput/Bandwidth
- Update
- ✓ Qualcomm chip – supports new NR log versions

Ver 3.26.0331

- Update
- ✓ 5G Spectral Efficiency for Samsung chip

Ver 3.26.0402

- New Attributes
- ✓ /NR5G/PCC .. ALL CC/PDSCH/TB,RB/TEASE (Total Effective Allocated Spectral Efficiency)
- ✓ /NR5G/PCC .. ALL CC/PUSCH/TB,RB/TEASE (Total Effective Allocated Spectral Efficiency)

Ver 3.26.0407

- Bug Fix

✓ “/Call Test/Voice or Video Call/Duration/Setup Duration (LoggingTool)” calculation bug fix

Ver 3.26.0410

- Update

✓ Event name change for “/Event/Voice Call Event”

- Before: [UE] Voice – Pair Channel Call Drop
- After: [UE] Voice – Pair Channel Call Released

- Bug Fix

✓ RRC text parser bug fix for “NR RRC Reconfiguration – b2-Threshold2EUTRA rsrp”

Ver 3.26.0411

- New Attributes

✓ /NR5G/SigMsg Values/RRC/MeasurementReport/measResults/MR Trigger Quantity

Ver 3.26.0416

- New Attributes

✓ [Call Test] [Voice or Video Call] MO/MT Type

Ver 3.26.0427

- Update

✓ Attribute location moved

- Before: /Layer-3 Message/LTE Detail Values/MR Trigger
- After: /LTE/SigMsg Values/RRC/measurementReport/measResults/MR Trigger

- New Attributes

✓ /LTE/SigMsg Values/RRC/measurementReport/measResults/MR Trigger Quantity

✓ /LTE/SigMsg Values/RRC/measurementReport/measResults/MR Trigger Offset

✓ /LTE/SigMsg Values/RRC/measurementReport/measResults/MR Trigger Threshold

Ver 3.26.0504

- New Attributes

✓ new attributes added in “/LTE/SigMsg Values/RRC/measurementReport/measResults/” group

Ver 3.26.0507

- Update

✓ Qualcomm chip – supports new NR log versions