# **XCAL-**

# Mobile/Solo/Harmony Release Note

Doc Rev: 29 2021-03-22



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### **About Release Note**

This Release Note documentation announces new features, fixed bugs, changes, and removed function of XCAL-Mobile. This Release Note is provided with 5 types; **Autocall, RF view, Function, Scanner** and **Known Issue**.

For details of XCAL-Mobile/Solo/Harmony usage, refer to *XCAL-Mobile/Solo/Harmony User Guide* which is provided upon purchase.

### **Revision History**

Rev.	Product Version	Date of Release	Note
17	XCAL-Mobile/Solo: 4.15.415		
	XCAL-Harmony: 2.02.370	2020-05-11	
18	XCAL-Mobile/Solo: 4.15.419	2020-05-25	
	XCAL-Harmony: 2.02.374	2020-05-25	
19	XCAL-Mobile/Solo: 4.15.423		
	XCAL-Harmony: 2.02.379	2020-06-15	
20	XCAL-Mobile/Solo: 4.15.427	2020 06 20	
	XCAL-Harmony: 2.02.381	2020-06-29	
21	XCAL-Mobile/Solo: 4.15.433		
<u> </u>	XCAL-Harmony: 2.02.382	2020-07-13	
22	XCAL-Mobile/Solo: 4.15.435	2020-07-28	
	XCAL-Harmony: 2.02.385	2020-07-28	
23	XCAL-Mobile/Solo: 4.15.436	2020-08-10	
	XCAL-Harmony: 2.02.387	2020-08-10	
24	XCAL-Mobile/Solo: 4.15.439	2020-08-25	
	XCAL-Harmony: 2.02.389	2020-08-23	
25	XCAL-Mobile/Solo: 4.15.443	2020-09-21	
	XCAL-Harmony: 2.02.393	2020-09-21	
26	XCAL-Mobile/Solo: 4.15.445	2020-10-26	
	XCAL-Harmony: 2.02.394	2020-10-20	
27	XCAL-Mobile/Solo: 4.15.451	2020-11-11	
	XCAL-Harmony: 2.02.395	2020-11-11	
28	XCAL-Mobile/Solo: 4.15.453	2020 12 01	
	XCAL-Harmony: 2.02.396	2020-12-01	
29	XCAL-Mobile/Solo: 4.15.465	2021-03-22	
	XCAL-Harmony: 2.02.399	2021-03-22	



About Release Note	2
Revision History	3
Contents	4
XCAL-Mobile/Solo 4.15.465 & XCAL-Harmony 2.02.399	7
Autocall	7
RF View	10
Function	11
Scanner	16
Known Issue	16
XCAL-Mobile/Solo 4.15.453 & XCAL-Harmony 2.02.396	17
Autocall	17
RF View	19
Function	20
Scanner	21
Known Issue	21
XCAL-Mobile/Solo 4.15.451 & XCAL-Harmony 2.02.395	22
Autocall	22
RF View	23
Function	24
Scanner	24
Known Issue	24
XCAL-Mobile/Solo 4.15.445 & XCAL-Harmony 2.02.394	25
Autocall	25
RF View	26
Function	26
Scanner	

	Known Issue	7
XCA	L-Mobile/Solo 4.15.443 & XCAL-Harmony 2.02.3932	8
	Autocall	8
	RF View	9
	Function	0
	Scanner	2
	Known Issue	2
XCA	L-Mobile/Solo 4.15.439 & XCAL-Harmony 2.02.389	3
	Autocall	3
	RF View	3
	Function	5
	Scanner	7
	Known Issue	7
XCA	L-Mobile/Solo 4.15.436 & XCAL-Harmony 2.02.387	8
	Autocall	8
	RF View4	2
	Function	3
	Scanner	6
	Known Issue	6
XCA	L-Mobile/Solo 4.15.435 & XCAL-Harmony 2.02.3854	7
	Autocall	7
	RF View4	9
	Function	1
	Scanner5	1
	Known Issue5	1
XCA	L-Mobile/Solo 4.15.433 & XCAL-Harmony 2.02.38252	2
	Autocall	2
	RF View	4
	Function	8
	Scanner	8
	Known Issue	8
XCA	L-Mobile/Solo 4.15.427 & XCAL-Harmony 2.02.3815	9
	Autocall	9
	RF View	9

Function		63
Scanner		64
Known Issue	e	64
XCAL-Mobile/S	Solo 4.15.423 & XCAL-Harmony 2.02.379	65
Autocall		65
RF View		67
Function		71
Scanner		72
Known Issue	e	72
XCAL-Mobile/S	Solo 4.15.419 & XCAL-Harmony 2.02.374	73
Autocall		73
RF View		75
Function		
Scanner		79
Known Issue	e	79
XCAL-Mobile/S	Solo 4.15.415 & XCAL-Harmony 2.02.370	80
Autocall		80
RF View		
Function		89
Scanner		
Known Issue	e	
Technical Supp	port	95

# XCAL-Mobile/Solo 4.15.465 & XCAL-Harmony 2.02.399

#### Date of Release : 2021-03-22

#### **Autocall**

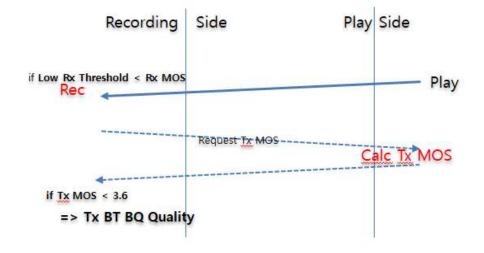
1. [Vocoder Mode for Solo]

Added Vocoder Mode for vocoder packet(ADSP Rx) MOS. This function only works on Qualcomm chip Smartphone.

Vocoder MOS Mode	On	Call Type Mobile MTe	M ORIGINA
Low Rx Threshold	3.0	[Tx BT is Bad Quality]	
3G/2G MDS File	off	Clip Num : 1-57	
Add wave file Add file		Gab of MOS : 0.59 Current MOS : 2.92	
B.Q Threshold	0.00	Tx MOS : 3.51 Low Count : 3/57	
C.B.Q Threshold	0.00		
C.II.Q Count	0		OK
M2E BT Delay Threater	100	Contraction and the second second	
Save wave stream to W		Control (MODPAy and Control (MODPAy) and seconding (USD)	
Save wave stream to D	RM file	C to Tel M05 Dep monthing (T-M1)	
Automatic Level Aligne		Constant Motorwy start	

If the Tx side MOS value is low when using this function, pop-up will notify you. But It only works with the MtoM type.

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2. [Ping]

It supports two Ping modes: DOS mode and Forced Request mode.

User can select test type in setting.

- DOS Mode: The time-out response affects the next transmission.
- Forced Request: The timeout response does not affect the next transmission. Force transfer to user-set interval.
- RRC Condition: The RRC release affects the ping request (support in LTE/5G NR mode).



#### 3. [Ping]

Tab the chart screen then it can monitoring ping command and response. Tab again then it return to the original chart screen.



4. [Multi-Call]

Added 'No packet capture required except VoLTE call' option.



### **RF View**

 [Hisilicon(Balong5000) Chipset – Only Support XCAL-Mobile version] Added the TAC in 5GNR Summary Menu

		5-R5RP / 80 dB++	55-RSRQ -13.11 88+	55-SINR 14.08 dll	
56	NR Summary				
¥	UL RB Num(Inc0)		0.0	i –	
2	UL MCS(Avg)		17.0		
*	UK. MCC Mad. Rale BUC/TE/GEOSES	4	0.0/0.0/0.0/100.0/0.0		
UL Rank			1.0		
×	PUSCH Throughput		0.00	)B	
~	UL MAC Throughpu	t.	0.00	14	
2	UL RLG Throughout		0.000		
¥,	ULPOCP Throughp		0.000		
Col	nmon				
~	NR-ARECN		6285	90	
2	Raster Frequency		3428 85		
~	GSCN		7796		
×.	Azimuth		25*		
×	Elevation		157*		
~	SCS		30 kHz		
~	gNB Tx Antenna Nu	m			
~	UE Rr Antenna Nun	1	- 4		
*	TAC		1320	345	

2. [Qualcomm Chipset]

Special Slot(pattern #) has been added.

It displays the number of slots with neutral sections not classified as DL or UL slots and the number of DL/Flexible/UL symbols.

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ReferenceSubcarrierSpacing	30kHz	ReferenceSubcarrierSpacing	30kHz
Pattern1 DL-UL-TransmissionPeriodicity	ms5	Pattern1 DL-UL-TransmissionPeriodicity	ms2p5
Pattern1 nrofDownlinkSlots	7	Pattern1 nrofDownlinkSlots	3
Pattern1 nrofDownlinkSymbols	6	Pattern1 nrofDownlinkSymbols	10
Pattern1 nrofUplinkSlots	2	Pattern1 nrofUplinkSlots	
Pattern1 nrofUplinkSymbols	4	Pattern1 nrofUplinkSymbols	
Pattern1 TransmissionPeriodicity-v1530		Pattern1 TransmissionPeriodicity v1530	
Pattern2 DL-UL-TransmissionPeriodicity		Pattern2 DL-UL-TransmissionPeriodicity	ms2p5
Pattern2 nrofDownlinkSlots		Pattern2 nrofDownlinkSlots	2
Pattern2 nrofDownlinkSymbols		Pattern2 nrofDownlinkSymbols	10
Pattern2 nrofUplinkSlots		Pattern2 nrofUplinkSlots	
Pattern2 nrofUplinkSymbols		Pattern2 nrofUplinkSymbols	
Pattern2 TransmissionPeriodicity-v1530		Pattern2 TransmissionPeriodicity-v1530	
Special Slot(pattern 1)	1(6D : 4F : 4U)	Special Slot(pattern 1)	1(10D : 2F : 2U)
Special Slot(pattern 2)		Special Slot(pattern 2)	1(10D : 2F : 2U)

### **Function**

1. [TTS Alarm]

Added TTS Alarm items for LTE RRC, LTE NAS, NR RRC, NR NAS Signlaing Message and QC 5GNR Event Report(QC Only).

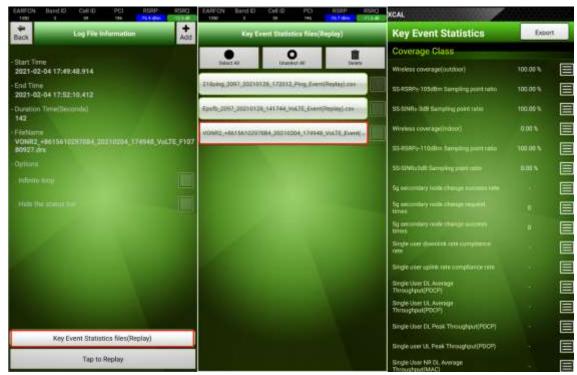
	Category Thirtie     System     System     Sumshiften     Sumshiften     Sumshiften     Sumshiften	Company 112 Year A Go Even report 6 Sepreting Message - LTE RRC	Campy mD had a use grant 4. RF Condition 7. 5. QC Event Report	Conjuny The Name 4. angli ang
TS MAREE Version Maringe Date Frame Nardon Largenze Key Date Blatteres Marke Autorate Auto	GOD Event Report     - CTE Event     - SUNR HIGE     SUNR HIGE     Hangsain Failure (2) 20 CMM     Failure Na Socies V2 CO 3752     Socie Failure (2) 21 M     Massave failure (2) 21 M     M     Massave failure (2) 21 M     M	DL-COCH  DL-	G. Signaling Message     UTE INIC     UTE     UTE	CITE NASE     ONE PACE      ONE

2. [Key Event Statistics Items – Only Ericsson China Customer]

Added the Key Event Statistics Items Setting menu.



[Key Event Statistics files(Replay) – Only Ericsson China Customer]
 Added Key Event statistics menu through Replay.



4. [ESP Info Logging & Packet Capture]

Added automatic setting of ESP Info Logging and Packey Capture options. When you select the ESP info logging option, the packet capture option is set automatically.

When the Packet Capture option is unchecked, the ESP Info Logging option is automatically turned off.



5. [QC Log Mask]

Added reference Log Mask (0x19B7: UIM APDU) for ESP Decrypt



6. [Ericsson China]

#### Added 'Autocall Pause[Manual]' option.



7. [Qualcomm Chipset Logmask]

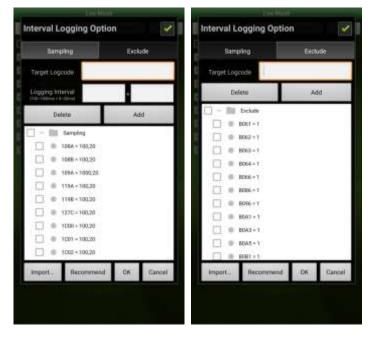
Interval logging option has been updated.

- Updated the basic Interval logging sampling list for 5GNR/LTE.
- Added logging exclusion function.

[Note] Even if logmask is checked and the value of the item is received, the item added to the Exclude list is excluded from logging.

- Added 'import' button to load ini file.

- Added 'Recommend' button to revert the Sampling / Exclude list to the default recommended list.



#### 8. [Inbuilding - Autocall]

Autocall status was added at the bottom of the measurement screen during the Inbuilding Autocall test.

One	Inbuilding - Moving	Done Store	
O stating			



Call Family	App.DL Thp
Contraction of the local division of the loc	190.0 - 120.0
Buccess CP Pending	120.0 - 90.0
Setup Feil 🥴 Call Drop	90.0 - 60.0
Traffic Fail @ Timotat	60.0 - 30.0
Bart Quality C Low TP	30.0 - 0.0

#### Scanner

1. [R&S TSMA6 Scanner]

Scanner connection and scan request button has been simplified.

Scanner information and scanner connection status are displayed in table.

Control	Setting	g So	an	BCH	Total	
Connection Disconnect Scan Stop Scan Type						
Scanner Info TSME6						
Scanner Status Scanning						
Detecting						
Connecting to	o server: 1	92 168 13	7.1:763	1		
ClientComml		ct: 192.16	8 137 1	7631		
Activate callb						
Activated cal			allbacks	Servant		
Creating servant stub						
Servant stub created						
Notify server that callback is installed						
Ready, return						
Connecting to						
ClientComm Activate calls		CE 192.16	8.137.1	7031		
Activate call Activated cal		renortar	allback	Concent		
Creating serv		isporterei	annack	Jervern		
Connecting to	And the second se	92 168 13	7 1 763	1		
ClientComm						
Servant stub						
Notify server		ack is inst	alled			
Activate callb						
Activated callback: TransporterCallbackServant						
Creating serv	ant stub					
Ready, return	ing Transp	ortLayerA	dapter			
Servant stub	created					
Notify server	that callb	ack is inst	alled			
Ready, return	ing Transp	ortLayerA	dapter			

#### **Known Issue**

None

# XCAL-Mobile/Solo 4.15.453 & XCAL-

### Harmony 2.02.396

#### Date of Release : 2020-12-01

### Autocall

1. [XCAL-Harmony – PS Call]

Added PS Call Type for Detach & Attach Test in XCAL-Harmony.

- Support CMD Type : CP Command, AT Command
- Support Call Type : Detach & Attach, Attach



2. [XCAL-Harmony - Youtube PEVQ-S]

#### Proprietary & Confidential

1) Added MOS CVQ(Currently Viewed Quality) in Monitoring screen.

$\bigcirc$	Co	nfigurati	on N	fonitoring	Inbuildin	9	Мар	Logdata	Settings
-			number LTE)						
	Band	1 F0000	ell ID : 99 PCI : To	RSRP :	-				and the second se
	DM	GPS		10.0%)	DM GPS			DM GPS	
(Child)				cess 0.0%)					
	N	/A		ail					
G	Mobile	Battery		.0%)				£0.	
	SD S	pace		iffic 9	2			-	
	-	мв	Start Delay/He	buttering Time/III					
	3.3	MD	3 8226/0.0	001/4.010			-		
	S			-	B		-		
	1				The second			Charles and a second	
	DM	6PS			DM GPS			DM GPS	
			-			and the second second			
					2				
					-				
	Cult	lates	RF Summary	DSS	DNDC Summary	LTE CA Summary	Signal Graph	Cel Measurement	Signaling Mag User Defined

2) Added MOS AVG to be displayed in the Call Result History.

	CONDICT OF	1444900	ASMACKING .			¥2
м	obile Status	CallS	tatistics		Call Result Histo	ry .
Model Operator Carnett Network MIN Data State Mobile SD Space Solo SD Space Mobile Battery Did port GPS Chipoet Wi-Fi Control	SM-G977B SKTelecom LTE unknown_number DISCONNECTED N/A N/A N/A N/A N/A N/A N/A N/A Samsung	Total Soccess Setup Fail TSetup Fail Connection Fail Traffic Fail Traffic Fail Traffic Fail Drop Pending Low Thr MOS(B,Q/C,B,Q) Tane(I/S/T.S/T) Work Type	2/10/20.0%) 2(100.0%) 0(0.0%	Recento (Nowe) povq povq	Read (Nino) 1.Success 2.Success	Throughput/MOS 3.79 3.79
	ig Data liife	Scenario Name	peve			
Log File Name Log File Size Start Point Last Point Last POI	3501110706945_202011 355,142113.dm 4620 kbyte / / 29	Current State Progress Call Call Avg. Call Result	T.Setup 0% 0.0Mbps 0.0Mbps Success			

- 3. [XCAL-Mobile/Solo Docomo speed test]
  - 1) Added Latitude/Longitude logging and displaying

Code	Message	^	[ 2020 Nov 26 14:08:08.106931 ]
Speed Test Call	Traffic Setup		
Speed Test Call	Traffic		byEF77Type : Speed Test(54)
Speed Test Call	Call Event		Version_number : 0
Speed Test Call	Call Event		Status : Call Event
Speed Test Call	Call Event		Detail Code2 : Latitude
Speed Test Call	Call Event		Info : 35.6646191
Speed Test Call	Call Event		
Speed Test Call	Call Event		
Speed Test Call	Call Event		
Speed Test Call	Call Event		

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Code	Message	^
Speed Test Call	Call Event	
Speed Test Call	Call Event	
Speed Test Call	Call Event	
Speed Test Call	Call Event	
Speed Test Call	Call Event	
Speed Test Call	Call Event	
Speed Test Call	Call Event	
Speed Test Call	Call Event	

[ 2020 Nov 26 14:08:08.106983 ]
byEF77Type : Speed Test(54)
Version\_number : 0
Status : Call Event
Detail Code2 : Longitude
Info : 139.7434049

2) Added adb command logging of Docomo speed test app.

Code	Message	^
AutoCall Config1		
AutoCall Config2		
Speed Test Call Config		
Speed Test Call	Idle	
LogCat		
LogCat		
Speed Test Call	Setup	
LogCat		
Speed Test Call	Call Start	
Speed Test Call	Traffic Setup	

sion\_count 1 --ei key\_dl\_warm\_up\_operation\_mo

#### **RF View**

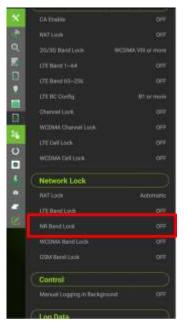
- 1) [XCAL-Harmony]
  - Bug fixed
  - The bug that does not displayed UARFCN values in Cell measurements have been fixed.

#### **Function**

- 2. [Samsung Network Lock]
  - 1) Delete Samsung Network Lock option.



- 3. [Setting list Softbank]
  - 1) Added NR Band lock in setting list used by Accuver Japan. Setting list is activate when the license is AJ or Softbank.



### Scanner

None

#### **Known Issue**

None

## XCAL-Mobile/Solo 4.15.451 & XCAL-

### Harmony 2.02.395

#### Date of Release : 2020-11-11

### Autocall

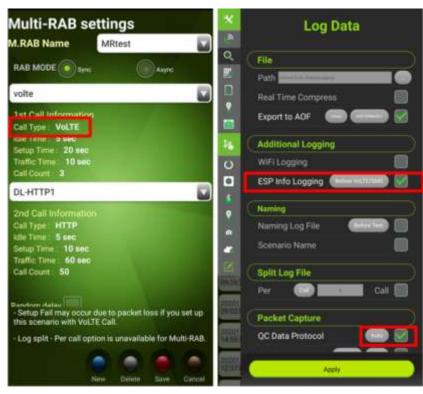
1. [Multi-RAB]

If a VoLTE Call is included in the scenario configuration,

1) [Log Data]-[Packet capture] [size – Auto] has been changed to automatically log to 1500.

2) [Log Data]-[ESP Info Logging]-[Before VoLTE/SMS] options have been changed to work.

[Caution!] If packet capture size is set to 1500, some data call(FTP) packets maight be lost.



#### **RF View**

- 1. [Qualcomm Chipset]
  - 1) The PUSCH RI and PUCCH RI items are integrated and displayed in the Rank Index.
  - 2) The Item names and units of Rank Index for LTE and 5G NR have been unified.



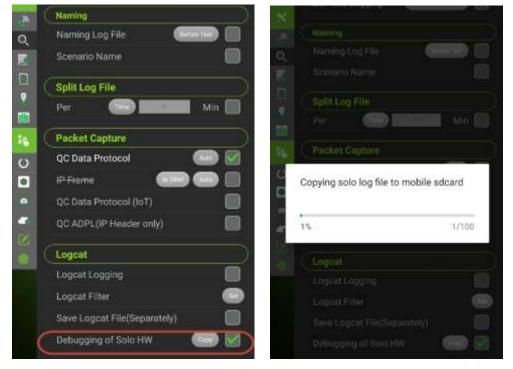
### **Function**

1. [AOF]

Fixed a problem where headers of items supported by the split AOF file were not logged when the [Log Data]- [Split Log File] option was enabled.

- 2. [Common]
  - 1) Added debugging of SOLO HW. Please turn off the function when you don't need it.
  - 2) You can Copy debug file to Mobile with Copy button.

(File Path on Mobile : /SDCARD/XCAL-Mobile/SoloDebug)



#### Scanner

None

#### **Known Issue**

None

# XCAL-Mobile/Solo 4.15.445 & XCAL-

### Harmony 2.02.394

Date of Release : 2020-10-26

### Autocall

1. [Docomo Speed Test]

Docomo speed test autocall has been newly added.

This autocall automates the speedtest app provided by Docomo. The decision condition of the call event is based on the \*.alc file. The [Autocall]-[Docomo speed test] license key is required.



2. [HTTP] – [DL/UL]

Bug Fixed

1) Fixed an HTTP status display error that occurred when the call result was low throughput.

#### **RF View**

- 1. [Common]
  - 1) Item names shown as 4G / LTE are unified as LTE.
  - 2) The item name shown as 5G / 5G NR has been unified as NR (Excluding screen title).



#### **Function**

- 9. [Qualcomm Chipset Logmask]
  - 1) Added an NR Logmask item.
  - \* MAC Layer
    - NR5G MAC Timing Advance(0xB89D)
  - 2) Added multiple LTE Logmask items.
  - \* [Lower Layer1] [Lower Layer1(Searcher & Measurement)]
    - LTE LL1 Serving Cell FTL Results (0xB11B)
  - \* [Management Layer1] [Management Layer1(Measurements/Idle Mode)]
    - LTE ML1 Multisim Packet (0xB182)
    - LTE ML1 CA Metrics Log Packet (0xB184)
    - LTE ML1 Coex Tx Power (0xB19F)
    - LTE ML1 Flow Control (0xB1E5)
    - LTE ML1 MPTL Flow Control (0xB1FB)
  - \* [RRC/NAS/MDT Layer] [LTE RRC Layer]
    - LTE RRC Cap Releated Info (0xB0D1)
    - LTE RRC connection Release Info (0xB0D3)

#### Scanner

1. [R&S Scanner]

Added LTE BCH View. BCH View only supports R&S Scanner (LTE) license.

#### **Known Issue**

None

# XCAL-Mobile/Solo 4.15.443 & XCAL-

### Harmony 2.02.393

Date of Release : 2020-09-21

### Autocall

1. [Voice/VoLTE – Bluetooth Module]

Change option to measure using Bluetooth Module(only Solo).

- 1) Voice/VoLTE Scenario Add/Edit check and save the [Bluetooth MOS Settings] value.
- 2) Press Autocall Start button and proceed with Voice, VoLTE MOS Test.



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#### **RF View**

- 1. [Signal Message]
  - 1) Bug fixed

The malfunction of Pause option in Signaling message when the scenario is moved to the next scenario during the measurement of multi-call has been fixed.

[Note] When starting a new auto call scenario or starting/stopping a log file replay, the 'Pause' button setting on the signaling message screen is initialized.

- 2. [Qualcomm chipset]
  - 1) 5G NR Beam Measurement

The units(to 3 decimal places) have been unified.

- BRSRP/BRSRQ/SNR
- 5G NR Summary View/Signal View/Inter RAT
   The issue SS-RSRP value was shown incorrectly has been corrected.
- 3) ENDC Summary

The issue not showing SCell(s) information according to the ICD version update has been fixed.

### **Function**

- 3. [Common]
  - 3) The XCAL-Format option has been removed from the UI. Even after the option is deleted on UI, logs are collected in XCAL-Format as before.
  - 4) The button name of Export AOF has been changed.



[Caution] If 'Export to AOF' option is set 'AOF Only' and the option is checked (Enable), (.drm)/(.dlf ) files are not created even if QC Packet capture option/DLF logging option are set.

- 4. [Inbuilding]
  - 1) Added "ENDC Thp" parameter to 5GNR. This parameter gets the Total value that located in the 5G NR ENDC Summary. Also applied to harmony.

			Norm	al Mo	de	G	ibps		Selec	t para	mete	er	
	0.430 Ti Nega ().30		Viterali Sciences President Avenues			ek () AT 2 12 Hage () 00		Common	- topic	LTE DO-HOH		35	2
s	imple I	Mode		Edit	T	Clea	r i	SS-SINR ENDC THP					
TE										PDSCH 1	13	_	
1			- 6410	-	100	-	Discourses		P	DSCH BI	FR.	_	_
	1.458	2450 -					0.004	5GNR ENDC	тнр				
	400						3.004			20000.0	> Value	>= 1000	0.0
							-			1000.0	> Value	× 90.0	
			-	T.			1041			90.0	+ Value	× 60.0	
G	NR									60.0	+ Value	÷ 30.0	
		Telleger	with.	101 101	sanser Lauri	1800	Disper In			30.0	+ Vatati	24	1.0
	100		sversas 0		-465	-106	11253					Sa	ve
8								1		ок			
łz -											30.0		440
								Dist Guery			50.0		0.0

2) Added pause function when Bluetooth is disconnected during the test. When the

pause starts, the retry timer runs. If Bluetooth is not connected until the timer expires, the test ends. The timer time can be set in the Bluetooth retry setting option of settings.



- 5. [XCAL-Harmony]
- 1) Deleted XCAL Format in Logging Option ( Default is ON )
- 6. [Logcat]
- 1) Fixed app termination phenomenon due to Logcat option.

#### Scanner

1. [R&S Scanner]

Added LTE BCH View. BCH View only supports R&S Scanner (LTE) license.

SIB and MIB messages are showing in the BCH view. Tap a message from Message list, and corresponding code will be shown.

Control	Setting	Scan		BCH	1	Solary/Total
Tim	• 1	SIB Type	1 8	ITS ID	1	First BTS ID
10:25:0	1.427	SI810		1		1
10,25:0	4.706	S/811				
10:25:0	5.450	SIB16		1		
10.25.94	s.450	SIB16				
bisLteM : fais dwBitCount : dwBtsId : 1 dwFirstBtsId dwStartTime dwStopTimel	24 :1 InMs:26430					
ePDU : SIB10						
pbActiveAnte	nnaMask : 3					
pbBitStream	t <del>i</del>					
pSFN_Info - d	wRadioFran	Number				
pSFN_Info - d	lwSystemFra	ameNumbe	r::34	0		
wPhysicalCe	lid : 458					

#### **Known Issue**

None

# XCAL-Mobile/Solo 4.15.439 & XCAL-

### Harmony 2.02.389

#### Date of Release : 2020-08-25

### Autocall

1. [Multi-call]

Bug Fixed

- 1) When multi-call is made up of YouTube or Web browsing, prevent Call start without WebView.
- 2) When multi-call is not made up of YouTube or Web browsing, launch Multi-Call start without WebView.

#### **RF View**

1. [Samsung Chipset - 5G NR Summary]

Added DL PRB Num(Including 0) KPI on 5G NR Summary View.

	art 14:00:19 ent: 14:00:33	Pause 🙆 Stop				
DL	enti 14100233					
~	PDSCH TP	562.980 Mbps				
~	MAC DL TP(Total)	515.964 Mbps				
~	REC DE TP	514,644 Mbps				
-	PDCP.DL TP	513 338 Mbps				
2	PDSCH Index					
2	POSCH BLER	12.57 %				
2	DL MCSO	24				
2	OL MCS1					
2	DL PRE Num(Avg)	266.73				
	DL PRB Num(Inc0)	197.06				
ui.						
2	MAC UL TP(Total)	0.713 Mbps				
2	RLC UL TP	0.547 Mbps				
2	PDCP UL TP	0.369 Mbps				
2	UL MCS(Avg)	14				
2	UL MCS Mod. Rate (B/Q/ 16/64/256/1024)	0.0/0.0/54.7/32.3/12.9/0				
2	UL PRB Num(Avg)	14.25				

- 2. [Hisilicon(Balong5000) Chipset Only Support XCAL-Mobile version]
- DM Interface is supported from the P40 model. (Mate model is not supported)
- Requires ENG Firmware with AIDL Interface applied.
- 1) Added 5GNR ENDC Summary Viewer in RF View Menu



#### **Function**

1. [Network Lock for Hisilicon(Balong5000) – Only Support XCAL-Mobile version] Added 2G/3G/LTE Lock and Exdended System Configuration Function for Hisilicon

HiSilicon Network	Lock(B5000)	HiSilicon Networ	k Lock(B5000)	HiSilicon Network Lock(B5000)				
2G/3G Lock		LTELook		Extended System Configuration				
3G Frequency Lock		Frequency Lock		RAT(acquirder)				
Castined If you went to use the minually change the R&T Mod	a 3G Rock Function, post-tould do of the device to 3G	CARPENIEUR: 0-1		Select RAT Lock Item 20/80 Band				
W	COMA	Earfon						
		Look	Unkock	Select 2G/3G Band Items				
uarfen(arfen)		Cell Lock		Roam	074			
ARPEN (CUR; 18287)		EARFONICHE SHI PONCUL I		Select Roaming Item				
Lock	Unlock	earfon	poi	Service Domain Countered The service domain in well-b only for USM, UN				
3G Cell Lock	a contente terrete en entrete	Look	Unlock	CTT, If the configured mode contains L to NR, the same cannet be set to CS_ONLY to ANY.	tra comaili			
Contract II you wont to use the menually change the RAT Mos	a 16 look tarettan, posistaat la of the device to 26			Select Service Domain Item	10			
W	COMA			LTE Band				
arfon	psc			Select UTE Band Items	- 64			
WEEH (CUB 18707) PSC (QUB 14	10			Set				
Look	Unlock							
20 Band&Frequency Loci								
GSM	Select Band Item							
EARFON (CUR: 18737)								
arten								
100	V Helesk V							

2. [Export to AOF Function for Hisilicon(Balong5000) – Only Support XCAL-Mobile version] Added 5GNR/LTE AOF Export Function for Hisilicon

50	GNR Items	LTE Items			
HiSi5GNR_SSBMRsIt_P	HiSi5GNR_PUSCH_Layer_S#	HiSiLTE_CellMRsIt_P	HiSiLTE_PUSCH_Mod		
HiSi5GNR_SSBMRslt_S#	HiSi5GNR_PUSCH_Mod_P	HiSiLTE_CellMRslt_S#	HISILTE_PUSCH_MCS		
HiSi5GNR_L1CellInfo_P	HiSi5GNR_PUSCH_Mod_S#	HiSiLTE_CellMRslt_N	HISILTE_PDSCH_BLER_P		
HiSi5GNR_L1CellInfo_S#	HiSi5GNR_PDSCH_BLER_Total_P	HiSiLTE_RI_P	HiSiLTE_PDSCH_BLER_S#		
HiSi5GNR_CSIRPT_Gen_P	HISI5GNR_PDSCH_BLER_CW0_P	HiSiLTE_RI_S#	HiSiLTE_PDSCH_BLER_Total		
HiSi5GNR_CSIRPT_Gen_S#	HISI5GNR_PDSCH_BLER_CW1_P	HiSiLTE_CQI_WB_P	HISILTE_PDCCH_BLER_P		
HISI5GNR_CSIRPT_PD_P	HiSi5GNR_PDSCH_BLER_Total_S#	HiSiLTE_CQI_WB_S#	HiSiLTE_PDCCH_BLER_S#		
HISI5GNR_CSIRPT_PD_S#	HiSi5GNR_PDSCH_BLER_CW0_S#	HiSiLTE_DLPHY_TP_P	HiSiLTE_PDCCH_BLER_Total		
HISI5GNR_CSIRPT_AD_P	HISI5GNR_PDSCH_BLER_CW1_S#	HiSiLTE_DLPHY_TP_S#	HISILTE_PHICH_BLER		
HISI5GNR_CSIRPT_AD_S#	HISI5GNR_PUSCH_BLER_P	HISILTE_ULPHY_TP	HISILTE_PUSCH_BLER		
HISI5GNR_PDSCH_PRB_P	HISI5GNR_PUSCH_BLER_S#	HiSiLTE_Tx Power	HiSiLTE_RA		
HiSi5GNR_PDSCH_PRB_S#	HISI5GNR_DCI_P	HiSiLTE_Cell_Info_P	HisiLTE_RRCMSG		
HiSi5GNR_PDSCH_Layer_P	HiSi5GNR_DCI_S#	HiSiLTE_Cell_Info_S#	HisiLTE_NASMSG		
HiSi5GNR_PDSCH_Layer_S#	HiSi5GNR_Txpwr_P	HiSiLTE_PDCCH_CFI_P			
HiSi5GNR_PDSCH_Mod_P	HiSi5GNR_Txpwr_S#	HiSiLTE_PDCCH_CFI_S#			
HiSi5GNR_PDSCH_Mod_S#	HISI5GNR_L1_TP_P	HiSiLTE_PDCCH_DCI_P			
HiSi5GNR_PDSCH_MCS_P	HiSi5GNR_L1_TP_S#	HiSiLTE_PDCCH_DCI_S#			
HiSi5GNR_PDSCH_MCS_S#	HiSi5GNR_L1_TP_Total	HiSiLTE_PDCCH_CCE_P			
HISI5GNR_PUSCH_MCS_P	HiSi5GNR_L2_TP	HiSiLTE_PDCCH_CCE_S#			
HiSi5GNR_PUSCH_MCS_S#	HiSi5GNR_L2_RA	HiSiLTE_PDSCH_Mod_P			
HiSi5GNR_PUSCH_PRB_P	HiSi5GNR_IntraFreq_MeasRslt	HiSiLTE_PDSCH_Mod_S#			
HiSi5GNR_PUSCH_PRB_S#	Hisi5GNR_RRCMSG	HiSiLTE_PDSCH_MCS_P			
HiSi5GNR_PUSCH_Layer_P	Hisi5GNR_NASMSG	HiSiLTE_PDSCH_MCS_S#			

3. [Samsung chipset - Logmask]

NR PHY ISR HBF BM (0x24) and LL1 RF Blackout Time Message (0x20) were added in Logmask setting.



4. [Qualcomm chipset - Logmask]

NR5G RRC Blacklist Update BM (0xB2C) had been added in Logmask setting.



### Scanner

None

### **Known Issue**

None

# XCAL-Mobile/Solo 4.15.436 & XCAL-

### Harmony 2.02.387

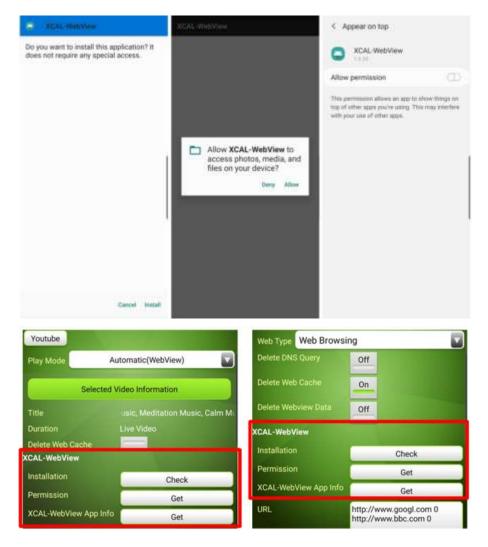
#### Date of Release : 2020-08-10

### Autocall

1. [HTTP/Youtube]

When installing XCAL-Solo (or Mobile) for the first time, the XCAL-WebView installation and authorization window does not open.

[Note] Installation and authorization can be obtained in each AutoCall scenario window requiring XCAL-WebView installation.



#### 2. [Voice/VoLTE]

Added option to measure using Bluetooth Module(only Solo)

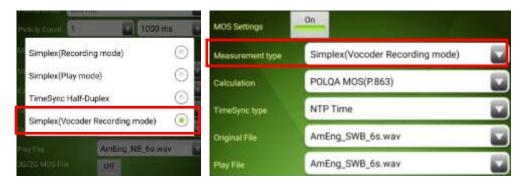
- 1) Control  $\rightarrow$  Auto call  $\rightarrow$  Activate Bluetooth module option
- 2) Voice/VoLTE Scenario Add/Edit check and save the [Bluetooth in call volume] value.
- 3) Press Autocall Start button and proceed with Voice, VoLTE MOS Test.



3. [Simplex(Vocoder Recording mode)]

This function can be seen on only Qualcomm chip mobile. Qualcomm Vocoder Rx Packet (0x1805) must be collected.

1) Added Qualcomm Vocoder recording mode



2) This function can only be recorded.



4. [Multi-Call]

Added Airplane mode ( Before Multi-Call ) option

- Proceed to airplane mode only before the first call of Multi-call.

Multi-Call Name	mc		
Scenario Name	ftpDL		
Network Locking			Edit
Select All		Delete	e.
Pro 1.ping			
2.voice			
a.youtube_fix	ed		
3 4.ftpDL			
Airplane mode(B	efore Multi-	Call)	OFF
and an an an a start a			
Repeat Count	1		
Split log file	Off		

### **RF View**

- 1. [Hisilicon(Balong5000) Chipset Only Support XCAL-Mobile version]
  - DM Interface is supported from the P40 model. (Mate model is not supported)
  - Requires ENG Firmware with AIDL Interface applied.
  - 1) Added the 3G Summary, 3G Signal, 3G Cell Viewer in RF View Menu



2) Added the GSM Summary, GSM Signal, GSM Cell Viewer in RF View Menu

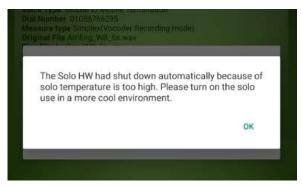
GSM Summary			GSM Signal	GSM Signal			GSM Coll Measurement					
	art: 2020-04-06 15:50:53 ent: 2020-04-06 15:50:56	🕕 Pause	O Stop	Start: 2020-04 Current: 2020-04		🕖 Pause	🖸 Stop		art: 2020-04-0 ent: 2020-04-0		🕡 Pause	🔘 Stop
Sele	et All View	Apply	Impart /Esport	-	N.L.	and the se	G1	Type	BOCH EARFON	liend	65(2)decimation	Robert
	MCC/MNC		460				-57.00		28	G5M990		41 dim
<b>—</b>								1.80				1.47.000
	LAC		345	194		-24	-57.00	-	635			-60 clim
	Band		M900	Are in some time i	As fai	diddid a	G2	-				141 min
≤	BSIC(decimal)		30				-57.00					
2	Cellip	16	5168		A F		-07.00	NS:				1000
2	BCCH EARFON		28	4			6.00	-				
~	TCH EARFON		28.	GSM								
~	Rx Level(Full)	-57	dBm	Rx Level(Full)	-57	G1	G2			-	-	
2	Rx Level(Sub)	-67	dBm	and a second second	-57					OSMICEI	Graph	
	Rx Level(Idle)	-57	dBm	Rx Level(Sub)	-9V	G1	G2					
	Rx Quality(Full)		6.1	Rx Level(Idie)	-57	G1	G2					
	Rx Quality(Sub)		6	Re Qualit(Full)		G1	G2	1				
2	RLT		36	Rx Qualit(Sub)	6	61	62	-				
1	RLT Max		35	Million - Charles			+					
~	BER Full	100	.00%	RET		G1	62	100		Steps		
×	BER Sub	100	.00 %	RLT Max		G1	G2					

### **Function**

- 1. [High Temperature Warning]
  - 1) Added Warning popup for Solo HW high temperature.



2) If the Solo internal temperature rises above 100 degrees, the System is automatically shut down.



2. [5G NR Network lock for Samsung Deivce]

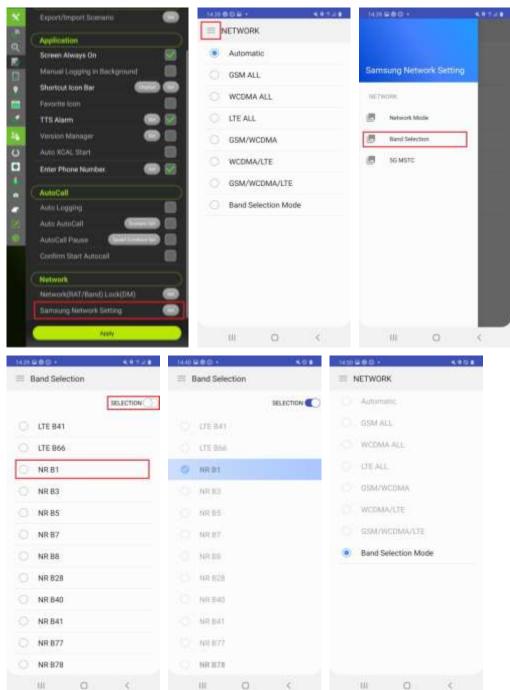
Added Samsung Network Lock option.

\* Samsung devices - not related to chipsets

#### \*Galaxy S20 sample image

If "Network Mode(=RAT Lock)" license is exists, this option is activated.

\*Galaxy S20 sample image



#### 3. [Common]

Added Network Lock option that operates in XML for 5G NR Band Lock.



### Scanner

1. [R&S TSMA6]

Added LTE ACD feature

LTE ACD feature has added. Numerous bands can be scanned per technology by comma symbol.

Dantari Satird	- Scan Vine	Total View	Contrat	Se	tiviq.	Scan Vie	Tub	it Viev
SCAN ID1 - ACD /	LTE Band 1,3.5	7. 😒		nID 1 A	CD : LT	EBand 1,3	1,5,7	
Scan Type	ACD		875 000MHz	UE	10000	15.0MHz	-14 2:8m	000000 GAL
			1889-000MH9	17E			38.568.0	
kon (D(1 – 3)	1	$\nabla$	1620.000MHz	ULE.	- 8		46.3dBm	. 8.
		_	1840,000MHz	LTE LTE		20 0MHz 10 0MHz	-65.000m	10.
ech	LTE		2120.000MHz	100			-47.2clbm	100
			2137 500MHz	UTE			-45.3dBm	- in
and	10	1,3,5,7	2155 000MHz	UTE .		1-4Mitz	106.11	- 14
	Sec		2157.500MHz	STE.		150MHz	-82.42811	- 86
leasurement Mode	Simple	1	2636 200MHz				-53.8x8m	- 84
			2650.000MHz				-51.00811	
			THMOOD ZOARS	- UTC		10 DMHz	-073288m	- 06
			Sca	nif) t A	0.17	Rand 1.3	57	
						Band 1,3		0.000
			Sca Machinesty 875-0200492	nID 1 A	CD : LTE	EW.	.5,7 -34.2:8m	1
			Encasery	Teat	fiant	10.0MHz	-34.260m	- 54,
			875.000MHz	ute.	1000) 5	10.0MHz 10.0MHz	-34.260m	
			875.030MHz 889.000MHz 1820.000MHz 1840.000MHz	011 012 012 012 012	1000001 5 5 5 5 5	10.0MHz 10.0MHz 20.0MHz 20.0MHz	34.2d0m 28.5d0m 46.3d0m 46.3d0m	10.00
			875.020MHz 859.000MHz 1620.000MHz 1640.000MHz 1640.000MHz 1654.400MHz	00000000000000000000000000000000000000	1007510 5 5	10.0464z 10.0464z 20.0464z 20.0464z 10.0464z	34.2dBm -28.5dBm -46.3dBm -61.5dBm -45.5dBm	
			875.0500Hs 889.0000H42 1820.000H42 1840.000H42 1840.000H42 1854.400H42 1854.400H42 2120.000H42		1000001 5 5 5 5 5	10.0404z 10.0444z 20.0444z 20.0464z 10.0464z 10.0464z 20.0464z	34.228m 28.528m 46.348m 61.548m 45.048m 47.268m	A B B B B B B B
			875.050MHz 889.000MHz 1620.000MHz 1630.000MHz 1850.000MHz 1854.400MHz 2120.000MHz 2120.000MHz	HURBERS	1000001 5 5 5 5 5	10.0MHz 10.0MHz 20.0MHz 20.0MHz 10.0MHz 20.0MHz 10.0MHz	34.2dBm -28.5dBm -46.3dBm -61.5dBm -45.5dBm	
			875-0200499 989-0004442 1823-0004442 1823-0004442 1825-40004442 2120-0004442 2120-0004442 2125-0004442	HUESEESES	1000001 5 5 5 5 5	10.0044 10.0044 20.0044 20.0044 10.0044 20.0044 10.004	34.2dbm 28.5dbm 46.3dbm 45.5dbm 45.5dbm 47.2dbm 49.3dbm	
			875-0200499 889-0004442 1823-0004442 1823-0004442 1854-4004442 2130-0004442 2137-5004442 2157-5004442	HURENESESS		10.0MHz 10.0MHz 20.0MHz 20.0MHz 10.0MHz 10.0MHz 15.0MHz 1.4MHz 15.0MHz	34.2d0m 28.5d0m 46.3d0m 45.5d0m 45.5d0m 47.2d0m 49.3d0m 49.3d0m	********
			875.000MHz 889.000MHz 1823.000MHz 1843.000MHz 1854.000MHz 2137.000MHz 2137.500MHz 2135.500MHz 2137.000MHz			10.0444 10.0444 20.0445 20.0445 20.0445 20.0445 10.0445 1.4545 1.4545 20.0445	34.285m 28.565m 46.365m 45.365m 45.965m 49.365m 49.365m 49.365m	
			875-0200499 889-0004442 1823-0004442 1823-0004442 1854-4004442 2130-0004442 2137-5004442 2157-5004442			10.0444 10.0444 20.0445 20.0445 20.0445 20.0445 10.0445 1.4545 1.4545 20.0445 20.0445 20.0445	34.240m 28.540m 46.1580m 45.548m 45.548m 45.548m 49.358m 49.358m 49.358m 49.358m	********
			875.030MHz 885.030MHz 1633.000MHz 1634.000MHz 1634.000MHz 1634.000MHz 1137.500MHz 2137.500MHz 2137.500MHz 2137.500MHz 2135.000MHz 2135.000MHz			10.0444 10.0444 20.0445 20.0445 20.0445 20.0445 10.0445 1.4545 1.4545 20.0445 20.0445 20.0445	34.285m 28.565m 46.365m 45.365m 45.965m 49.365m 49.365m 49.365m	**********

### **Known Issue**

None

# XCAL-Mobile/Solo 4.15.435 & XCAL-

### Harmony 2.02.385

#### Date of Release : 2020-07-28

### Autocall

- 1. [SPEEDTEST by Ookla]
  - 1) Added KPIs logging on CSV file and Detail Info screen.

_	_	20200720	18:15:14		_
ook	la ta				
Succes	unt : 0 (0%) is count : 7 ( ie : Ookla	100%)			
No.	Туре	DL Thr.	UL Thr.	Ping	Result
	Ookla	445.691	42.100	31.0	Success
2	Ookla	442.902	55.623	64,0	Success
3	Ookla	414.574	54,954	25.0	Success
643	Ookla I	449.262	68.616	40.0	Success
5	Ookla	336,266	51.894	41.0	Success
6	Ookla	421.880	79.787	91.0	Success
	💿 Ookla	462.981	54.731	73,0	Success
8	Ookia	0.000	0.000	0.0	EndByUse

2) Added default Setup/T.Setup/Traffic time in scenario.



- 3) An issue has been fixed where results were not shared.
- 4) When measuring Test Again mode, the problem that cannot be measured normally from the second call has been fixed.

#### 2. [Multi-Session]

Bug Fixed

- During the Multi-Session measurement, the bug that determines success without fully uploading/downloading files has been corrected.

#### 3. [Multi-Call]

Bug Fixed

- During the Multi-Call measurement, the RF view corrected the invisible bug each time it went over to the next call.

### **RF View**

- 1. [Hisilicon(Balong5000) Chipset Only Support XCAL-Mobile version]
  - DM Interface is supported from the P40 model. (Mate model is not supported)
  - Requires ENG Firmware with AIDL Interface applied.
  - 1) Added RF KPIs(DL Rank, PDCCH DCI FMT, UL Rank) in 5G NR Summary Menu

NE A2 626					COS ASALA	SERSIQ En la	15-51NH 1648-49
56.6	III Summary		50	NR Summary			
-			UL				
×	POSCH BLER	0.0	2	PUSCH BLER		100	0
2	POSCH I BLER	0.0	$\mathbf{\mathbb{Z}}$	PUSCH HBLEE		Nat	N):
×	DL RB Nam(Avg)	151.5	$\leq$	UL RB Num(Avg)		110	B
2	DL FIE Nur+()+(0)	151.5	2	UL MCS(/Wp)		26.	B))
M	DL MCS(Avg)	0.0		Charlester.		100.0/0.0/0	0/0.0/0.0
2		100.0/0.0/0.0/0.0		LIL RAVA		2,0	
2	DL Rane	1.0		PuSCH Throughp			
	CONTRACTOR OF TAXABLE	1/100		US MAD Through		75.8	48
	POSCH Throughout:	0.000	2	US ALC Throughout	<b>#</b> %	75.0	76
~	DL MAC Traughput	0.000	2	ULPOCP Through	***	89.5	60
~	DL BLO Throughout	6.000	Ce	ilimon)			
2	DL POCP Treasphere	0.000	$\mathbf{\mathbb{Z}}$	NEAREN		6285	90
UL.			2	Rauter Frequency		3428	85
×	PUSCH BLER	100.0	M	GSCN		779	6
×	EUSCH HBLER	NaN	2	Azimuth		50	
Ś,	LE, RB Num(Avg)	20.5	2	Elevation		129	
K	LIL MCS(Avg)	16.0	×	SCS		30 M	Hat

2) Added the LTE SINR KPI in RF shortcut Bar of Top

#### \* It handles the best value of CRS SINR(R0) and CRS SINR(R1)

Control	LTE Cell Quality				
	CP Type	LTE_CP_TYPE_NORMA			
	CRS SINR(R0)	15			
ortcut Icon Bar Setting	CRS SINA(R1)	13			
	CRS RSSI(R0)	-42			
	CRS RSS(R1)	-43			
ARFON	CRS RSRP(R0)	70			
land ID 🛛 🗹	CRS #SRP(RS)	/ 70			
a 🛛 🖸 D	CRS RSRQ				
RP 🗹	DRS RSRP(RD)				
a 🛛 🔂	DES RSRP(R1)				
awa 🔟					
CDMA (CO)					
DK Center	The second second				

3) Added the eNB ID and Cell ID KPIs in LTE Summary Menu

EAR 19	CN Band ID PCI	RSRP RSRQ Stivit -701 eller 12.0.48 13 aller				
LTE	Summary					
10	UL MUS(AVg)	22.0				
<b>*</b>	GL MCS Mini Rate (0214/86)	50.0/0.0/50.0				
2	PUSCH Throughput	0.002				
×	UL MAC Throughput	0.002				
M	UL RLC Throughput	0.000				
2	UL POCP Throughout	0.000				
Cot	nmon					
	Global Cell (D	14778648				
2	eNB ID	57729				
	Cell ID	24				
	Frequency(UL/DL)	1930.0/2120.0				
2	Bandwidth(UL/DL)	HEC. BAND, NOTH, TERES BRIL BAND, WOTH, TOPPO				
	Band Indicator:	1				
N	TAC	66				
X	EARFON(UL/DL)	18100/100				
¥	RRC Status	Connect				
*	Access Mode	FDD				

4) Added the gNB Tx Antenna Num and UE Rx Antenna Num KPIs in 5G NR Summary Menu

	NFCN PCI SS-RS BM 174 -71.21 df		- SS-SINR 17.40-68			
5G	NR Summary	_	_			
~	PUSCH I-BLER	Na	NC .			
~	UL RS Num(Avg)	8.	i			
×	UL MCS(Avg)	9	8			
2	14. Mich Mee Rass	100.0/0.0/0	0.0/0.0/0.0			
	UL Rank					
2	PUSCH Throughput					
	UL MAC Throughput	0.1	91			
	UL RLO Throughput	0.0	86			
2	UL PDCP Throughput	0.0	0.686			
Gu	minue					
2	NRARECN	628	590			
~	Ratter Frequency	342	1,85			
~	GSCN	77	96			
2	Azimuth	57	<b>E</b> . 1			
×	Elevation	14	12			
¥	scs	301	dHz			
×	gNB Tx Antenna Num	1				
~	UE Rx Antenna Num					

### **Function**

1. [Common]

Add "Hide the Log Data  $\ensuremath{\mathsf{Menu}}''$  license option.

If the option exists,

- 1) the Log Data menu of Settings is not displayed.
- 2) Logging file(drm) is not create.



### Scanner

None

### **Known Issue**

None

# XCAL-Mobile/Solo 4.15.433 & XCAL-

### Harmony 2.02.382

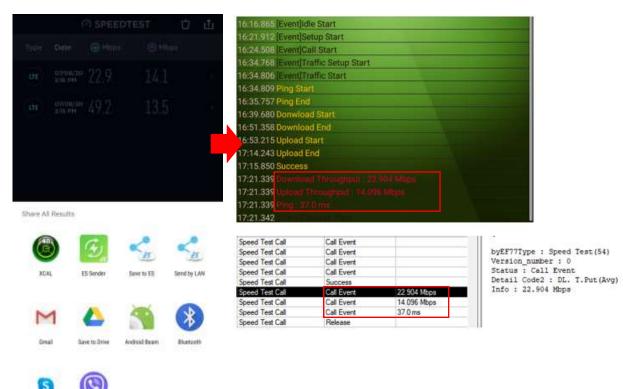
#### Date of Release : 2020-07-13

### Autocall

1. [SPEEDTEST by Ookla]

Added KPIs logging on SPEEDTEST by Ookla autocall.

• Download Throughput (Mbps) / Upload Throughput (Mbps) / Ping (ms)



2. [Multi-Session]

Bug Fixed

- 1) Traffic fail issue in the first call has been fixed.
- 2) Issue that changed the order of each session in Call result history has been fixed.

	AUTO CALL ST	OP	]	
1st Session	Call Type Katra Info	To 24 Mage		
	Diff.	TRAFFIC ID (S.: 7 F.S)		
2nd Session	Call Type Falls INF -	Wait		
	Timana	CALLEND (S.S./F.S)		
3rd Session	Call Date	Wait		
	Timonu	CALL DIO (1. 7/11)		
4th Session	Call Type	Wait		
	Timoon	and the second sec		
5th Session	Call Type	(mm)		
549551015	Eatra info	1117 M Meet		

	AUTO CALL	STOP
1st Sessio	Call Type	Wel
Tot Sessio	Extra info	5.80 Mbp
	Tautan	TRAFFIC 1(80 / FO
2n Sessio	Call Type	We
	Extra info	2.40 Mbp
	Status	TRAFFIC (Sto / Fil
3rd Sessia	Call Type	Wet
Si u Sessio	Extra info	1.11 Mbp
	Status	TRAFFIC (S= / F
4th Sessio	Call Type	Wei
4 un Sessio	Extra linfo	2.24 Mpp
	Status	TRAFFIC (S) / F.
5th Sessio	Call Type	Wal
Sul Sessio	Extra info	1/1 Mbp
	Status	TRAFFIC SO / Fa

### **RF View**

- 1. [Hisilicon(Balong5000) Chipset Only Support XCAL-Mobile version]
  - DM Interface is supported from the P40 model. (Mate model is not supported)
  - Requires ENG Firmware with AIDL Interface applied.
  - 3) Added the LTE Cell Quality Viewer in RF View Menu

EARFON Band ID 3000 7	PCI III	HSRP -711 dBn	RSRQ 40.9 cm
LTE Cell Quality			
CP Type	UT I	E_CP_TYPE_	ORMAL
CRS SINR(R0)		6	
CRS SINR(R1)		12	
CRS RSSI(R0)		-64	
CRS RSS(R1)		-48	
CRS RSRP(R0)		-99	
CRS RSRP(R1)		-79	
CRS RSRQ			
DRS RSRP(R0)			
DRS-RIRP(R1)			

4) Added the IMS message in Signal Message Viewer

NIR-AGE CN 608940	170	SS-RSRP 60.14 00m	SS RSRQ -II.17 dBn	SS-SINR 9.30 df	618596		RSRP 55-P						
Back	Messages Filter Setting				Messages Filter Setting		. M Save	Signaling	ing Messages				
				INSIAL	Cear	🐴 Deter	The	Reaste					
SCINIC	Lité:		- 29	MS	445	11	Tares .	Abdurent					
V IMS	Message				Tanadaec)	Channel	Mennage						
					14:02:00 753	4K-0CD-101							
					14 11 10 753	D. OCD4[[]	Her ground that	Recordiguration					
					(In sector of								
					14:51:50,791	ULOCOHE]	reConnection	Record puration Comp					
					14:53:50.829	PCCHILI	paging rtl						
					14 10:50 171	IN-SCO-(N)	no consettiue	Accordiguation					
					14:52:50.883	Specific Memore IN							
					14:57:50.923	IL COH	reconnection	ReconfigurationComp					
					1.1.1.1								
					14.55.55.675		mCommittee	Hiron Quartern					
					14:53:53.883	UL OCCHILL	reConnection	AcomputionComp					

- 2. [Qualcomm]
  - 1) 5G NR inter RAT and LTE CA View
    - Display up to SCell 7

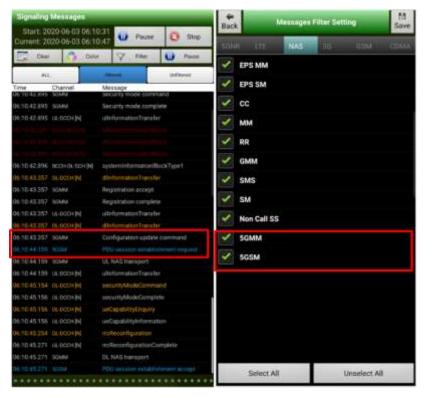
[Note] It may differ depending on your license.



- 2) 5G NR Summary NR RRC State
  - Added an item to display 5G NR RRC State for SA

50	NR Summary							
	urt 2020-06-03 06:10		Pause	O Shop				
-	ent: 2020-06-03 06,12			-				
24	ect.Al Unselect.Al	Al Ven	Acoty	import /Espert				
×	NSA RRC State							
2	NR RRC State		NR ARC Co	nnected				
2	PCI		625					
2	SS8 Index							
2	BRSRP		-107.33	dBm)				
2	BRSRO		-11.57	dB				
2	COLME		10.57					
2	SNR		7.21 dB					
2	DMRS.SNR		0.00 d8					
8	Frequency Office		-1,40 ppm					
2	Time Offset:		4076876888					
N.	SS-RSRP		-107.33 dBm					
5	Subcarrier Spacing		15 kHz					
≤	Pathioss		0.00 6	18)				
S S S	Band		71					
~	CarrierBandwidth(MEI)		10					
~	RI		2					
2	TB Size[Avg]		768.0					
~	Total Tx Power		-17.0	6				
	CDC To Ground							

- 3) NAS Signaling Message
  - Added an item to display 5G MM and 5G SM messages



4) Enhanced stability for RF View

Fixed the problem that the app is closed

- when you entering the screen (LTE Summary / LTE CA / LTE Signal).
- when you using the button in the LTE SIB Information screen.
- 5) 5G NR Beam information
  - Added tabs to display information for SCells.

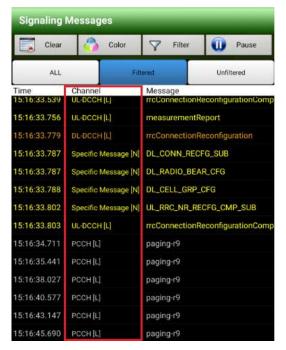


- 6) 5G NR NAS 5G MM State
  - Added a Screen to display 5G NR NAS 5G MM State



#### 3. [Common]

Added LTE/5GNR RRC Signaling Message identifier to Channel information of Signaling Message Viewer \* LTE = [L] / 5GNR = [N]



### **Function**

1. [Packet Capture]

Added the Size (Range is from 80 to 1500) option for Samsung chip.

Path International Internation	ne Size
Real Time Compress	0
Additional Logging 100	0
ESP Info Logging	0
Naming Log File Before Test 20 300	0
Scenario Name 500	0
Per Min 1500	0
IP Frame (1997) Early (1997)	
Logcat	
Logcat Logging	ок
Logcat Filter	
Save Logcat File(Separately)	
Format Loggin	
Apply	Apply

### Scanner

None

### **Known Issue**

None

## XCAL-Mobile/Solo 4.15.427 & XCAL-

### Harmony 2.02.381

Date of Release : 2020-06-29

### **Autocall**

None

### **RF View**

- 1. [Common]
  - 1) Display Azimuth using Gyro sensor.
    - Orientation Yaw, Pitch and Roll values have been added to Android RF View.
    - Azimuth, Elevation values has been added to 5G NR Summary.

0 %
89 %
842013
450050410147234
10
00
2020-06-19 10:44:56
3.9.5
rev:31037 (build.Jun 8 2020 18:18:58)
http(0)
NV
Yaw 1337, Pitch -347, Rell 377
ANDROID GPS
37,38005277
127.12433352
0.0
114.16205
3.7900925
26
LDCKED
1167
6
127.12433352

	Summary	
	And Contraction of the	
	POSCH BLER	
	OCISH DED Formal 0.0+0.18/03 Dourt/Percemage0	
	DCCH DC Furnat 1,1+1,1012 - Count/Percentage)	
L		
1	IL RB Num(Avg)	
	A 10 Nav(Ind))(Gradet)	
ļ	JL Allocated Slots	
	JL MC5(Avg)	
1	NCC Mail law Ingradestation	0.0/0.0/0.0/0.0/0.0/0.0/0.0/0.0/0.0/0.0
	PUSCH BLER	
	UL RLC Throughput	0.000 Mbps
	JL PDCP Throoghput	
	JL MAC Throughout	
	PUSCH Throughput	0.000 Mbps
1	PUSCH Til Power	0.00
	PUCCH Tx Power	0.00
omn	non	
	NR-ARFON	
	DL Frequency	
	SSCN	
	Azimuth	38*
	Bevation	115

#### 2) Added 5G NR State

NRARFON	PCI	BRSRP	BRSRO	SNR			
640588	421	-96.52 dBm	-11.85 d9	1.59 dB			
Android RF	View						
Autor att.	North T	ipe	INTERCES.	1			
501	R State		CONNECTED				
Data Vess	NOWOR	(1)(0)	LA BOALES	ŧ.			
WiFi C	onnection	'n	Disconnected				
IMS R	gistratio	ń	Unknown				
Netwo	k Operato	OF	SKTelecom				
Phone	Number		01086994	878			

X MCAL	Mobile 425		a en a el ex					
EARFCN 2500	Band ID \$	Cell ID 19	PCI 144	RSRP 78.5 dim	RSRQ 16.6 dl			
Android	RF View							
New	A Property	Laws	LIERCOM					
1	G NR Sta	lið .	NONE					
Linter V	once heren	окк уре	MERLE					
Wi	Fi Connec	tion	Disconnected					
165	Registra	tion	Linkowy					
Net	work Oper	ator	SKTelecom					
	ane Num	ber	01086994878					
	Contraction in the local division in the							

#### 3) ENDC Summary – UI improvement

A box button has been added to allow the top box, which used to provide only DL PHY values, to provide TP values for other layers (PDCP/RLC/MAC).

		DC Sum					-				-	
			Norn	nal Moo	le		Gbps		Paramete	r Setting		- OP
L	- 1 ces la		Peers 0.0	et e conserve					LTE DL PHY TP	Box	Table	
-	Simple I			Edit	Ť	Clear	-	Serve			1	F
			-					-	UL PHY TP	122	4	
TE								JE	DL RLC TP	1	1	
				122	-	146	1.00		UL RLC TP			
		200						2	50 NR	Box	Table	
									DL PHY TP		1	
	418	1840							OF HEAT IN		<b>*</b>	
	418	200		-				1	UL PHY TP		1	
i D	NR							SG NR	OL RLC TP	4	1	
		-	-	in provide States	UL PRO TO	10001	BLHOOP STREET		UL RLC TP			
			6423453	3000		9.061	0.080					
								15	Cancel	OK	-	
								16				
								=				

- 2. [Hisilicon(Balong5000) Chipset Only Support XCAL-Mobile version]
  - DM Interface is supported from the P40 model. (Mate model is not supported)
  - Requires ENG Firmware with AIDL Interface applied.
  - 1) Added the LTE and 5G NR Signal Viewer in RF View Menu

LTE Signal		SS-ASAQ no s2 atm	55 SINII 1209 de	SG NR Signal	53-11580 -71-10 48m	55-85RQ -0144-88m	BS SINR N 00 18
64 <b>202</b> 14 16	10	10 A.M. (1	G1	10 2010/10.2018	- 11 8397.44	1.019	G1
		¥	74.19		ø	3.	72.58
**			6.38 G2	a Santa ta t	11000	Concession of the local division of the loca	<b>71.80</b> G2
-		<u>4</u>	45.63	•	V	1.	72.57
		<u></u> .	-6 00	5G-NR			73.10
LTE	-		_	SS-RSRP AM. 0	72.575	G1	62
RSRP	-74,168	61	G2	SS-RSRP Ant. 1	-71,796	G1	G2
RSRQ	-6.375	<u>G1</u>	G2	SS-REAP Ant. 2	-72.571	G1	62
RSSI	45.625	G1	G2	SS-RSRP Ant 3	-73.100	61	62
PUSCH Tx Power	-6.000	G1	62				-
PUCCH Tx Power	-22,000	61	62	SS-RSRQ Ant. 0	-10.442	G1	62
PRACH Tx Power	-3.000	61	G2	SS-RSR0 Ant. 1	-10.504	GT	G2
SRS Tx Power	-1.000	61	G2	SS-RSRQ Ant. 2	-10.450	61	62
200 March 1			Concerner of	an an an an an			

2) Added the LTE Cell and 5G NR SSB Based Cell Viewer in RF View Menu

EAREC!	N Band II 7	) 1		RSRP R Ceri	#(#0) 1440	EAREC 190	N Ba	nd ID I	PCI M	18	RC mark	HSH09
LTE Ce	ан). П					SG NR	558 Ba	ied Cell				
Pri	Sec[1]	i Se	e[z]	Sec[3]	Sec[4]	Ser	ving Ce	ell 👘				
Set	EARFON	PCI	RSRP	RSRQ	RSSI	Bantl	ARECN	SCS (kHz)	PCI	SS8 Index	SS-RSRP	SS-SINR
120	3050	51	-74.4	-5.4	-43.8	76	628590	10	179		-72.78	17.78
IN.0	3050	72	-94:6	-15.9	-44.5							
	3050	285	-82.1	-13.6	-44.5	140.0		-				
							ghbor (					
						BAND	ARFON	905 (HH)		1000 mitters	US RURP	SS-64MI
		LTE De	4 Graph									
480		Tree	-									
	RSRP		-	RSRQ								

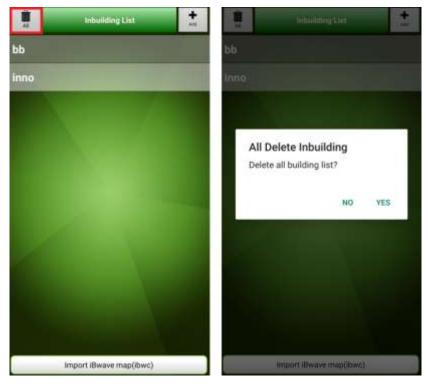
- 3) Added the 5G RF Parameter based on BTS DB in 5G NR Summary menu.
  - -. NR gNB ID / NR Sector ID / NCI(36Bit) / NR TAC
- $\ast$  These parameters appear only when 5G BTS DB is loaded.

	RFCN PCI SS-RSR 1890 174 -73.21 dBr	
56	NR Summary	
	UL MCS(Avg)	27.0
S S S	UL MCI Mid: Ram DrQ:16/04/259	100.0/0.0/0.0/0.0/0.0
~	PUSCH Throughput	
M	UL MAC Throughput	0.003
~	UL RLC Throughput	0.000
	UL PDCP Throughput	0.000
Co	nmon	
	NR-ARECN	628590
2	Raster Fréquency	3428.85
	GSCN	7796
	Azimuth	59*
2	Elevation	192*
~	SCS	30 kHz
	NR gNB ID (Based on BTS DB)	10490079
2	NR Sector ID (Based on BTS DB)	
1	NCI(36Bit) (Based on BTS DB)	1
~	NR TAC (Based on BTS DB)	

### **Function**

#### 2) [Inbuilding]

3) Added "All Delete" button to delete the all building list.



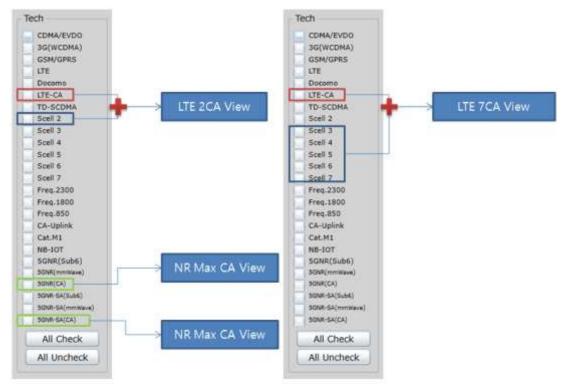
4) If the "Delete" button is pressed without saving, the information is reset.



3) [License]

Changed the CA License Combination of LTE/NR.

- LTE-CA = Pcell/Scell1
- LTE-CA + Scell2 = Pcell/Scell1/Sell2
- LTE-CA + Scell3(~7) = Pcell/Sell1~7
- 5GNR(CA) = NR Pcell/Sell1~(Max)
- 5GNR-SA(CA) = NR Pcell/Sell1~(Max)



### Scanner

None

### **Known Issue**

None

# XCAL-Mobile/Solo 4.15.423 & XCAL-Harmony 2.02.379

#### Date of Release : 2020-06-15

### Autocall

1. [Voice/VoLTE]

Added measurement function option using POLQA V3 for MOS measurement.

- Due to OPTICOM Library issue, it is not supported on Android OS Version 10 devices.
- Opticom has plan to release new library version after improvement by the end of June.



#### 2. [Multi-RAB]

Changed to not perform interface ID verification to enable VoLTE testing in Multi-RAB.

[Caution!] Please note that packet loss may occur if test VoLTE in Multi-RAB.

Please change the app's setting as below before the test.

大部		X International Advantage III	Log Mari
	A CALL OF A CALL	the state of a second provide	Recommend Interval Search Apply
*	Log Data	Log Data	🖻 🗸 🖿 COMMON
Q,	(m)	Q (##	🗆 > 🛅 8046
	Real Time Congress	B Red Deve Derevents	
	ENGINEER CONTRACT	2 Fager110.402* (1999) (1999)	Cartine Marine in and Parket
	continue of the second		C Contract Million Parlament
24	Additional Logging:	Additional Logging	
U.	Writegrep	Will Lagging	() ( Commence and the set
		Eth har rolling Comments N	E O DISCHARGE STREET
	( Marrie )	(hong	C
	Nameng Log File	Naming Log File	Carlos and the second
	Scenario Name	Sceneto Harro	Contern and and includes a
	(Split Log File	Refit Leg File	Controls Well Villa Emprese
<b>B</b> .	Par 🕒 🔚 🖬 👘		Det SOC: Hell Ville Detpense
	C Bentre Province	( Burnet Francis	Cu1633 AVE AVM Feedback Melonge
	ANY 0	4444	Det 791 IMS Carrens
	Aur (hay		🔲 🌻 far 1152 Avlis video Encoder

Enable the [Settings]-[Log Data]-[ESP Info Logging] option, and change Packet Capture size Auto to 1500 then Apply.

[Note] It is not necessary to change the above settings on specific devices (ex. Sonny XZ2) which can logging IMS SIP Message (0x156E) does not require separate ESP Info Logging settings and adjusting Packet Capture size.

### **RF View**

#### 1. [Common]

'Clear' button has been added to manually reset the values shown.

- Changed to show without initializing until next value comes in.



- 2. [Qualcomm Chipset]
  - 1) It has been modified to display all three types of SSB patterns that depending on the frequency band of 5G-NR.

50	all Summary		1.00	tel Summary		10	NIE Gammury	
Surr	11-221-40222 11-221-54311 🔍 🕫	um () 310		we 193354	- 0 -		Hert 2020-05-01 03:45 14 Hert 2020-05-01 03:51 26	a num O me
M	TR GardAval	720.00	22	Band	78	1	URSRO	-10.67 dB
	Total To Power		2	Certerbasie (B)(H1)	: 100			
	SHS Ta Power		2				COYWE	15.00
	She	ortBit(4)	2	TO Stan(Arg)	(800)	2	UNIK	17.85 68
2	Power Headmon	A DESCRIPTION OF		Total Ta Power	17.41	2	DMRSISNR	100 mil
2	\$58 Pattern		2	SETTIME Made	umBit(8)	2	Firequency Differt	4.33 ppm
	and the second se		12	Prese liesti	umbrico)		Time Officer	4132776001
×.	Falsen's Gang Paradidity?		2	In Patient	1 Information		STATISTICS IN CONTRACTOR	-10.72 dlm)
	March 15, Surgerson		100	Pateri Ras Patiente	raight -		Tidewriter Specifica	120 444
4	Percent M Merchanism		2	Patent (K. Strictments)			Parrieta	107.00 (8)
2	Partnersh Personal Pe			Partie Lid Son Sandaria	12		Barrel	1222
2	Friend Statements			Paters Texasters	matp1			
7	Manufacture Characterization		2		2/10		Centerlauberto(M-S)	
DE.			2	Parent 14 Marchineters	2/2	2		
	DC HIL Norm(Arg)	# 00	-04			1	TO Dominies	561.00
		0.00	2	DL RS HamilPage	276.29	1	Tutal Tx Power	1.68
			2	a transferrer	177.82		TRSTA Power Lor	ngBit(64)
2	DL MCSD Index[Arg]	13.000	1	DL MCSD Index[Avg]	18,960	12	PowerHeadbort	STATUTE OF
2	01. M050 Mpd. Rate (12/16/164/1256/1034)	0.0/0.0/100.0/0.0/0.0	2	Tel MCORINAL Rum TO/TE/SA/2541	0.0/0.0/09.1/10.9			001111110011111110000000000
Υ.	POSCH Throughout	0.000 Mbps	2	POSCH Throughput	\$77.315 Mbps	2	558 Pathen	000000000000000000000000000000000000000
N MM* Three select D DOD Miles				DL MAC Throughout	524.791 Mbox			**********

- 2) 5G Beam Measurement
  - Added Neighbor Measurement.
  - Added beam array based on SSB Idx.



- 3. [XCAL-Harmony]
  - 1) Added Uplink throughput information in 5G NR ENDC Summary screen. (Only Qualcomm chip)

Down-Link / Up-Link Throughput information conversion is possible through a button



- 4. [Hisilicon(Balong5000) Chipset Only Support XCAL-Mobile version]
  - DM Interface is supported from the P40 model. (Mate model is not supported)
  - Requires ENG Firmware with AIDL Interface applied.

ng

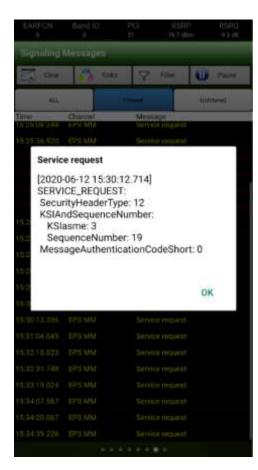
4) Added the 5G NR Summary Viewer in RF View Menu

		-RSRP SS-RS HidBm -11.18	
5G I	NR Summary		
Sele	ct All Unselect All A	I View App	ly Import /Export
<b>×</b>	NSA RRC State	NSA R	RC Connected
~	PCI		179
$\mathbf{\mathbf{v}}$	Band		78
	SS-RSRP 0/1/2/3	-78.9/-7	78.9/-78.9/-78.9
	SS-RSRQ 0/1/2/3	-11.2/-1	1.2/-11.2/-11.2
	SS-SNR 0/1/2/3	11.9/1	1.9/11.9/11.9
<b>M</b>	NR-RSSI 0/1/2/3	-54.7/-5	54.7/-54.7/-54.7
	Tx Beam ldx		
	Rx Beam Idx		0
<b></b>	PUSCH Power		-2.1
<b></b>	PUCCH Power		3.7
<b></b>	SRS Power		2047.9
~	RACH Power		0.0
~	TA Adjustments		3072.0
DL			
$\checkmark$	PDSCH BLER		0.0
1	DROOM LEI ER		0.0

5) Added the LTE Summary Viewer in RF View Menu

62859	0 179 -82.1	11 dBm	+11.98 d8m	6 52 dB
LTE S	ummary		-	_
Select All Unselect All View		View	Apply	Import /Export
2	PCI		51	
/	RSRP		-67.3	
2	RSRQ		-7.5	
<b>~</b>	RSSI		-42.8	
2	PUSCH Tx Power		-18.0	
2	PUCCH Tx Power		-32.0	
2	SRS Tx Power		-14.0	
<b>~</b>	TA		112	
2	TM Mode		2	
DL				
<b>~</b>	PDSCH BLER		0.0	
<b>~</b>	DL MCS CW0(Avg)		0.0	
2	DL MCS CW1(Avg)		0.0	
	DL MCS CW0 Mod. Rate (0/16/64/256)		100.0/0.0/0.0/0.0	
	Di, MCS CW1 Mod. Rate (Q/16/64/256)		100.0/0.0/0.0/0.0	
<	PDSCH Throughput		0.000	

6) Added the Signaling Message Viewer in RF View Menu



### **Function**

2. [Qualcomm Chipset Logmask]

Added 5G NR Logmask

- \* Management Layer1(ML1)
  - NR5G ML1 RLM Stats
  - NR5G ML1 Searcher Idle S Criteria
  - NR5G ML1 Antenna Switch Diversity
  - NR5G ML1 DLM2 CA Metrics Request
- \* NAS Layer
  - NR5G NAS MM5G Service Request
- \* FW
  - NR5G LL1 FW Serving FTL
- [Qualcomm Chipset]- [Settings]- [Log Data]-[Format]
   Changed logging format setting option
  - 1) XCAL-Format is always Enable. It cannot be disabled.
  - 2) DLF Logging (QC Format) can be set to 'DLF+DRM' or 'DLFOnly'.



### Scanner

None

### **Known Issue**

None

# XCAL-Mobile/Solo 4.15.419 & XCAL-

## Harmony 2.02.374

## Date of Release : 2020-05-25

## Autocall

## 1. [HTTP]

Traffic time and throughput display issue in HTTP Web Browsing Call has been fixed.

		Det	ail Info	96.0 dilm	( 4.5 dl		ghput : 10.9				
		-	18 12:47:	01		No.	Туре	Setup	Traffic	Throu.	Result
Brov	vsing					1-	Web Web	0.000	9.6	10.946	Success
ail cou	int : 0 (0%)			Det	tail Count -				1.251	9.964	
	s count : 1 e : Web Bro								0.562	14.937	
hrough	hput : 0.000	Mbps			C <sup>r</sup>		1-3		2.006	3.654	
No.	Туре	Setup	Traffic	Throu.	Resul		-				
	LTE Web	0.000	0.0	9.488	Success	X XCA	L-Solo 5.418_T15		8	2 🛛 🖬 👘	⊛×
1-	and the second second		1.281	7.837		NR-ARF	College and the	В	RSRP	BRSRQ	SNR
1-	1-1		1281	- Control of		THIS PUSE	1.01			bhong	SIAM
1-			1.155	8.010		640586	421	-	44 dBm cult Histor	-10.61 dB	10.63 dB

### 2. [Ping]

Added ping count and success rate item on Result History of Ping autocall. User can change the result of autocall item flexibly.

- 1) Detail Count added Ping Count item
- 2) Edit added Success Rate item

					Detail Info Sessenta neurosi				Detail Info 20200513 16 05 39						
					ping			ping	1						
				and the s	s		ect Item	Succes Call by	ont 0 (0%) Is count 190 In Ping (	(100%)					
			to and				Setup	Throug	Tice	Sete	877		des.		
- Ban - Call - Ping	d 7 Count : 10(5) Count : 5 ea	ccess : 1 h call	0, Fail : (	0)	0	2	RTT(Min) RTT(Max)	+ 2	Marrie Marrie	1.000	(Aid) 444 275	100.05	Service Become		
			6	OK.		2	RTT(Avg)		Tiona:	1.000	1074 715	100.0%	Second Second		
-	Tra 10		-		C	7	P.Loss(%)	4) 5)	Marrie Marrie	0.000	-	100 25	Berrens		
	Pres 14					2	Success Rate(%)	1	Here.	1.000		100 2%	Ballens		
					-	-		12	1 String	0.000	-	100.0%	Second		
	10 C 10						CANCEL OK		tine.	E 000	983	100.0%	Berry		
	100 · · ·						No. 100 - HD 1000 - Look		Mirror .	0.000	74.0	100.0%	Sectors		
					15			10	(The second	6.000	197	100.0%	Second		

## **RF View**

## 4. [Common]

Dynamic Spectrum Sharing(DSS) for 4G and 5G NR has been added.



- 5. [Qualcomm Chipset]
  - 1) Added Uplink throughput information in 5G NR ENDC Summary screen.

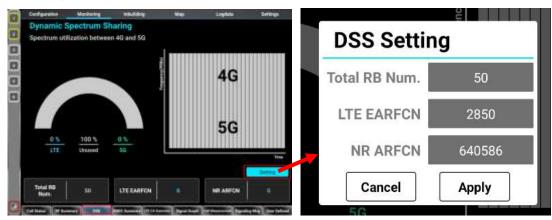
Down-Link / Up-Link Throughput information conversion is possible through a button.

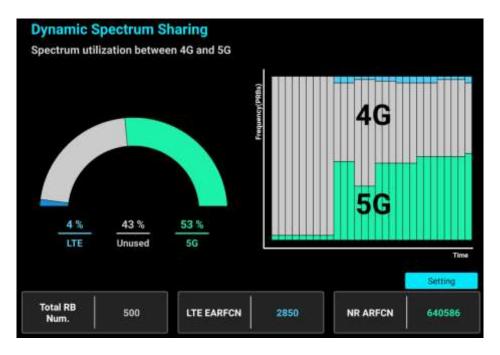
STREETOC IN	oli i contra de la c		SCINE DIDC Commercy
	Normal Mode Ju	Mate	Simple Mode [UL] Mare
	Test State		Up-Link Mormai mode Clear
Up Link	Simple mode	Oter	Total
		100 - 100 -	((아)) 순명은 Peak 73.122 Average 5.509
			5G'NR 0.1123 Mar.
SG NR			Average 4.718
140 Mar	4 4 5	100 - 100 100 - 100	LTE 1200
21 -			((•)) Peak 24.031 Average 6.309
TTP: Charlen 11	11/10/12) App Th	15.33 Mige	FTP: Troffic 5 (0.1 / F.0./ T.2) App Th: 10.66 Million

- 2) Added 5G RF information in 5G Summary screen.
  - UL MCS Mod.Rate of 1024QAM
  - PDCCH DCI Format[UL] Count / PDCCH DCI Format[DL] Count

	art 21:54:32	- O 9top
S.	D. HD Martylei DyDonaider1	0.22
×	DL MCS8 Index(Avg)	15.727
~	DL MC50 Mod. Rete (0/16/64/256)	0.0/0.0/100.0/0.0
2	PDSCH Throughout	G 188 Mbps
×.	DL MAC Throughput	0.188 Mbps
¥	DL REC Throughput	0.051 Mbps
~	PDCP Throughout	0.050 Mbps
2	POSCH BLER	0.00
~	ADICALICITUM CHOIN	31/58.49%
2	Manual Children	22/41.51
UL		
Y	UL RII Num(Avg)	3,19
¥	14. WE Handre Distantial	0.10
×	UL Allocated Slots	31
Ś	UL MCS(Avg)	21.39
×	ST. MCL Med. Swe (U/S/TE/64756/TED4)	0.0/0.0/3.2/96.8/0.0/ 0
×	PUSCH BLER	0.00 %

- 6. [XCAL-Harmony]
  - Dynamic Spectrum Sharing(DSS) for 4G and 5G NR has been added. [Monitoring DSS]





- 3) User defined Signal graph bug fix
  - Correct bug that don't display RF values stored in Signal Graph in User defined.

## **Function**

## 1. [Log upload]

Added 'DRM Auto Move' option in Log upload set.

At the end of logging, the log file saved in solo is moved to the smart phone.

EARFCN 1550	Band ID 3	Cell ID 3	PCI 282	RSRP -88.9 dBm	RSRQ -12.1 dll
4 Back		Upload :	Server (FTF	P)	Save
Logg	ing file FTI	Pset	мо	)S wave FTP	set
Server	Address				
	Port No				
	User ID				
	assword				
	rver Path				
		On			
	protocol	FTP			
Check FI	TP Server		Ch	eck	
DRM Aut	o Upload	Off		ng DRM log file w is completed.	
AOF Aut	o Upload	Off	Auto-uploadi test is compl	ng AOF log file wi ctód.	ien AutoCal
DRM A	uto Move	On	Auto-move D test is compl	RM log file when oted	AutoCall
Pause Pa	acket Cnt	128			

### 2. [Open API]

Added 'Open API' Function list and Callback function.

- Function list
  - Set / Get User Defined log name
  - Set / Get phone log path
  - Set / Get log auto move
- Callback function Log file copy status
- 3. [Replay]

The problem of suddenly reaching 100% of the Replay progress has been fixed. Changed to prevent Inbuilding measurements from starting during Replay.

4. [Logmask]

Added Logmask items for Qualcomm chipset devices.

- RLC Layer : NR5G RLC DL Status PDU (0xB84E)
- PDCP Layer : NR5G PDCP DL COM Stats (0xB843)



5. [XCAL-Harmony] Delete Replay mode.

## Scanner

None

## **Known Issue**

None

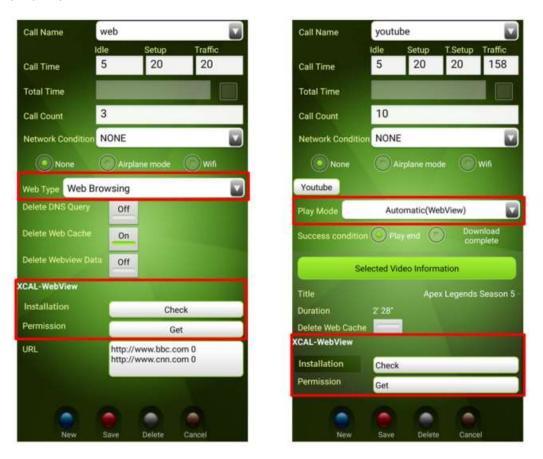
# XCAL-Mobile/Solo 4.15.415 & XCAL-Harmony 2.02.370

## Date of Release : 2020-05-11

## Autocall

- 1. [HTTP]
  - A feature to check the status of XCAL-WebView installation and permission has been added. Press [Check] button next to Installation to check if XCAL-Webview.apk is installed, and proceed with installing it if not. Also, press [Get] button next to Permission to get the accessibility permission of XCAL-Webview.

If XCAL-WebView.apk is not installed or no permission given, Autocall would not properly run.



2) If [Delete Web data] option is activated and the configured idle time is under 5secs,

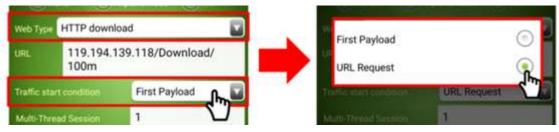
Call Name Web Call Name Web Traffi Traffi Idle Setup Idle Setup 20 1 50 10 20 50 Call Time Call Time Total Time Total Time 5 5 Call Count Call Count NONE NONE Network Conditio Network Conditio ( None Web Type Web Browsing Web Type Web Browsing Delete DNS Query Delete DNS Query Off Off Delete Web Cache On On **Delete Webview Data Delete Webview Data** On On CAL-WebView CAL-WebView Installation Installation Check Check Permission Permission Get Get URL http://www.naver.com 0 URL http://www.naver.com 0 http://www.bbc.com 0 http://www.bbc.com 0 http://www.google.com 0 http://www.google.com 0 Please adjust the idle time to 5 or more s been saved Delete Car

pop-up recommends to extend idle time. If idle time is under 5secs, the scenario would not be saved.

3) Added 'Traffic Start Condition' option in HTTP call scenario screen. Default set is First Payload.

- First payload: After receiving a response from the test web server, check the first payload to start traffic time.

- URL Request : After sending the request to the web server, traffic starts without checking the response to the request.



2. [Voice/VoLTE]

M2E Delay measurement function using NTP Time has been added.

This function was added to measure voice M2E Delay between devices in different locations.

\* This function may cause an error in Delay value due to NTP time delay and equipment delay(recording and play delay)



\* Only origination and termination call types are supported.

3. [PS Call]

PS Call added for Detach & Attach Test.

EARFON 4/1	Band ID	CHTID 9	124 195	RSRP #48.894	112800	EARFON 15N	Band (D)	Cell ID	PCS	RSRP 41.8 alter	RSRO	EARFC D43	N Band ID	Cell ID	PCI 2N1	RSRP CELL CP	RGRO
Call Nar		pş.								Detail Info							
Call Tim		idie 5	5	ietup 10		P	5		Bolevins			-	20200507 11:36:02				
Call Cos		9999	_					AUTO CALL STOP			Fail count :0 (0%)						
Сантур	Detach & áttach					Cali Stuh Delach A			ldie 2	(8:1 / F:S	/ T.9999) 1						
	De AT	Comman	Participation of the second seco							100 %	Throughput 10.000 Mbps						
						Arg Deta Attach At		(115).			165.0 mp	(No:	Type	Setup	Det.ciela A	ut Dela V.	Result
						Atlach St	iccess Ra	ne(%)			100 %	1.0	TE Detach.	4 973		064	Secons
						Avg Attac	th Delay(r	ris)			664.0 ms	2	Detach.	4.838	45	155	Success.
						Dates	2 - 4	Cell Summer	Managers.			1	LTE Detach	4835	65	189	Success
						3610 3641						4	Deneth.	41111	40	edit.	Success
						30.13.567		Rain Gun				•	UE Detach.	4417	17	595	Success
						16.14.360		antis missió64mi									
	-	-	-	-		36 15 220							Detach.	4,823		311	Buccess
				-		36.15.221						1.5	Denach.	4.802	174	241	Success
	New	These .	Deleta	Garton		10/10/272						1.80	Detach.	4.951	.69	716	Success

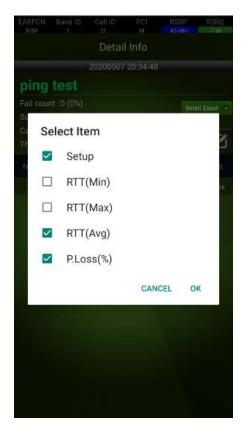
- Support CMD Type : CP Command, AT Command
- Support Call Type : Detach & Attach, Attach
- 4. [SMS]

Supported SMS of IMS : ESP Information log event in SMS Call is saved with ESP Info Logging option. Both [Before SMS call] and [At the beginning] options are supported.



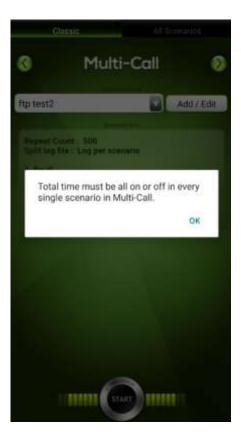
5. [Ping]

Added RTT(Min)/RTT(Max) items on Result History of Ping autocall. User can select what they show on call result history.

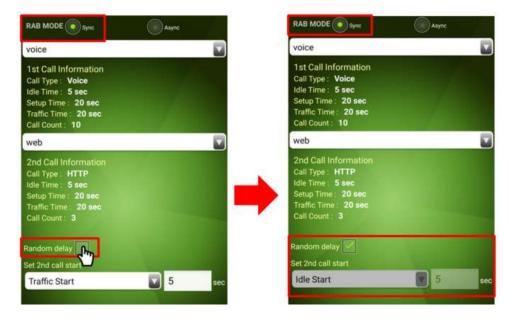


6. [Multi-Call]

Multi-call is only possible if all of Autocall's Total time applied in the Multi-call scenario is ON or OFF. Otherwise, the "Total time must be all on or off in every single scan in Multi-Call" pop-up will occur and will not start the call.



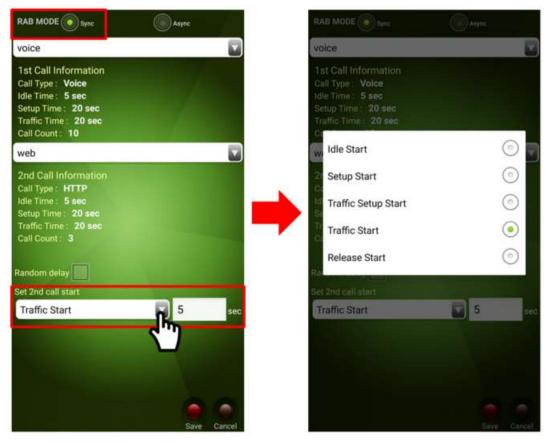
- 7. [Multi-RAB]
  - 1) [Random Delay] and [Set 2nd Call Start] options are added when RAB Mode of Multi-RAB is selected as Sync. Only one option can be selected.



\* Random delay : guard period of Random delay is 5 seconds(fixed)

st call	Setup	Traffic	Release	Waiting for sync call
	2nd call	Setup	Traffic	Release
lom delay Opt	tion : Enable	-		
LE SEAUR		TRAFFIC		RELEA
	LOLE SETUR	TRAFFIC RECEASE		
ANDOM DELAY nimum value = 0 aximum value = 1		d		
		TRAFFIC + RELEASE ) * Call Cou TRAFFIC + RELEASE ) * Call Cou		

\* Set 2nd call start : User can configure the start time(sec) of  $2^{nd}$  call based on the running time of the  $1^{st}$  call.



2) If the mode is Sync in Multi-RAB, two different calls will run for the same counts which is configured more less than the other.



8. [XCAL-Harmony]

Added MOS Timesync in MCPTT Autocall

\* MOS Timesync : Harmony time, Traffic time option added to MCPTT Autocall. (For Harmony time option, it is available only in Harmony)

Configuration	Municipy	Scenario	Mag.	Lagime	Settinge
YOUTUBE			CPTT M.CALL	М. КАВ	M.SESSION
PTT_Mast		Call Name	m	1	
PTT_Slave	Call Time	P	T Button		DEL
m 🗹	Idle	5	IOS Test		_
	Setup	N	IOS Type	Solo MOS	
	T.Setup	5 Me	asurement Type	olex(Play mode) 🛛 🛽	
	Traffic	5 Ce	louitation None	(Recording Only)	SAVE
	Total	Tim	eSync Type	NTP Time	
	Success		iginal File	NTP Time	
	Call Count		Play File	armony Time	
	Test Option	B.Q	Threshold	0.0	None

## **RF View**

## 1. [Common]

1) SSB Pattern, and Transmission Periodicity, DL/UL Slots, DL/UL Symbols regarding Pattern 1/2 information have been added in 5G NR Summary View.

~	TB Size[Avg]	0.00	<b>~</b>	SSB Index	1
~	Total Tx Power	1.53	<b></b>	SSB SINR Rx0/1/2/3	0.44/2.46/5.02/-3.29
~	SRS Tx Power	0.00		SSB Pattern	01000000
✓	Power Headroom	33.00		Pattern1 Trans. Periodicity	ms2p5
~	SSB Pattern	1000000		Pattern1 DL Slots/Symbols	3/10
•	Pattern1 Trans. Periodicity	ms2p5		Pattern1 UL Slota/Symbols	1/2
~	Pattern1 DL Slöts/Symbols	3/10			
1	Pattern1 UL Slots/Symbols	1/2		Pattern2 Trans. Periodicity	
~	Pattern2 Trans Periodicity	ms2p5		Pattern2 DL Slots/Symbols	-/-
~	Pattern2 DL Slots/Symbols	2/10	10	Pattern2 UL Slots/Symbols	-/-
~	Pattern2 UL Slots/Symbols	2/2	≤	CSI-RS Index	
DL	and the second		~	CSI-RS RSRP Rx0/1/2/3	-99.95/-96.53/-/-

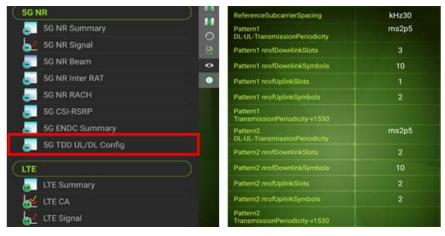
2) Simple Mode in 5G NR ENDC Summary Menu added.



- 2. [Qualcomm Chipset]
  - 1) Added the 5G CSI-RSRP View.

5G NR	Resource Type	SSBRI
5G NR Summary	CSI-RSRP 1	-99
🔮 5G NR Signal	CSI-RSRP 2	-100
5G NR Beam	CSI-RSRP 3	-109
5G NR Inter RAT	CSI-RSRP 4	-110
5G NR RACH	Resource 1	
5G CSI-RSRP	Resource 2	
5G ENDC Summary	Resource 3	
5G TDD UL/DL Config	Resource 4	10
rod rob debe doning	Resource Type	CRI
TE .	CSI-RSRP 1	-92
LTE Summary	CSI-RSRP 2	-99
🛃 LTE CA	CSI-RSRP 3	-104
J LTE Signal	CSI-RSRP 4	
LTE Cell	Resource 1	
SCell Event	Resource 2	
RTP Information	Resource 3	2
RTP Information	Resource 4	

2) Added the 5G TDD UL/DL Config View.



 [Qualcomm – Only Support Ericsson China] Key Event Statistics added in Call Result Menu.

NR-ARFCN 535918	PC1 625	BRSRP 94.25 dbm	BRSRQ 11.40 dB	SNR 6.46 dil	NR-ARFC 635918	N PC 625		RSRP 26 dBm	BRSRQ 10.82 dB	SNR 9.36 d8	XCAL		
		Result History			Event Sta	atistics	Det	ail Info			Key Event Statistics		
Date	Туре	Dur.(Total)	Thro	u./P.Loss	CONTRACT OF								
20200429	FTP	45.11	0	14.777 Mbps			202004	29 22 20:	57		Coverage Class		
and the second			_	_	4						Wireless coverage	64.15%	
20200429 21:50:59	HEFF	45.17	8	31:040 Mbps	10000	int :3 ( 100 s count :0			Det	ail Count 🕒	SS-RSRP=-105d8m Sampling point ratio	64.15%	
20200429 21:38:25	TP FIP	45.18	3	18.191 Mbps	Call typ	e : FTP Dn				Ø	SS-SINR 2-3dB Sampling point ratio	77.36%	
20200429	TP FTP	45.12	a.	34.765 Mbps		hput: 14.7			-		5g secondary node change supcess rate		
21:34:54			.0	Distrogramping a	No	Туре	Setup	Traffic	Throut	Result	5g secondary node change request		
20200429	TEFTP	45.04	11	22.028 Mbps	1	TP FTP	0.000		23.080	Timeout	times		
					2	TTP PTP	0.000		17.347	Timeout	5g secondary node change auccess times		
20200429 18:06:10	HETP	45.03	13	55.453 Mbpe	3	TP FTP	0.000	15.0	3.903	Timeout	Single user downlink rate compliance rate		
20200429 18:04:45	FTP	45.10	9 1	12.476 Mbps							Single user uplink rate compliance rate		
20200429 17:22:39	FIP	.45.08	17	24.515 Mbps							Average downlink rate of single user	16.73 Mbps	
20200429	TETP	45.05	8	30.360 Mbps							Single user uplink average rate	0.37 Mbps	
15:57:08			_		100						Single user downlink NR peak throughput	228.81 Mbps	
20200429 15:56:34	HEFTP	14.99	2	21.188 Mbps							Single user uplink NR peak throughput	3.19 Mbps	
20200429 15:50:26	FIP	45.03	6	31.531 Mbps							Access Class		
20200429	FIP	45.11	5	25.319 Mbps							En-do Mn anchor connection establishment success rate	83.33 %	
20200429	TEIP	45.04	0	21-893 Mbps							Number of Mn anchor service establishment attempta		
15:41:06		(1996)	80	ACAIN WHEN							Number of successful establishment of Mn anchor service		

## **Function**

1. [Android OS]

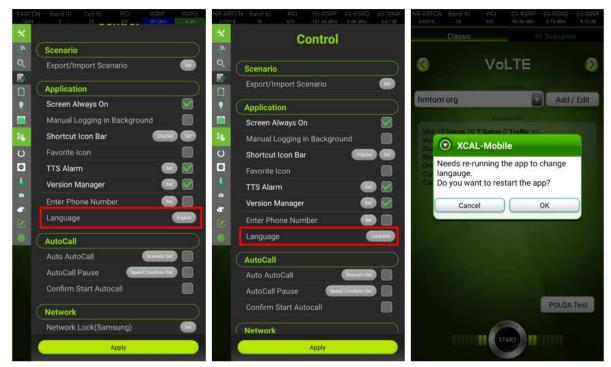
Because of Power-saving feature in Android setting, Accessibility service is sometimes turned off when running a long call test, therefore, the option to select XCAL-Mobile/Solo as a Power-saving exceptions has been added.

Select [Allow] on the popup message appearing when the app runs for Accessibility feature. If [Allow] is selected, XCAL is registered in Power-saving exceptions. Once it is registered, no more pop-up shows up.

terra lando del la rea mad	< Use details		< 0	ptimize battery usage	٩
Cinic (Constant			Apps	not optimized (68) 💌	
C VoLTE O	۲		U	10000 20083	W
htmomorg 🛃 Add/Edit	XCAL		C	Video Player	
Stop optimizing battery usage?	Manage battery usign Allow background activity		•	Weather	
XCAL will be able to run in the background. Its battery usage won't be restricted.	Optimize battery usage		0	Wi-Fi Calling	
Deny ABow	Not optimized     Since level fully charged		1	Wi-Fi Direct	
	Active use			XCAL 30-1 MB	Ð
	Background use Arche for the		X	XCAL	Ð
POLIDA THEF				Your Phone Companion	
	C Open Usernal	© Force step	0	BAER	

2. [Languege]

The language option to keep its setting in the application no matter of system language setting. This option is only available when Sales Region of License is AJ or Ericsson China. App rebooting is required after changing language setting with a pop-up.



3. [Samsung Chipset Logmask] Added NR Secondary Cell Info Logcode



- 4. [Qualcomm Chipset Logmaks] Added 5G NR Logmask
  - \* Management Layer1(ML1)
    - NR5G ML1 AFC Services
    - NR 5G ML1 DLM2 CA Metrics Request
  - \* RRC Layer
    - NR5G RRC Configuration info
    - NR5G RRC Supported CA Combos
    - NR5G RRC PLMN Search Request
    - NR5G RRC PLMN Search Response
    - NR5G RRC Detected Cell Info
  - \* NAS Layer
    - NR5G NAS MM5G NSSAI Info
  - \* FW
- NR5G LL1 FW RX Control AGC
- NR5G LL1 FW TX IU RFs
- NR5G LL1 FW CSF Reports
- 5. [Packet Capture]

Changed the default value of Packet Capture (IP Frame, QC Data Protocol) to be saved as Off when Sales Region: AA, Function: Open API. (Only the default setting value is changed)

6. [Packet Capture]

Added the Packet Capture Option - Qualcomm ADPL(IP Header only) option. This would not run with QC Data Protocol, IP Frame options at the same time.



#### 7. [SDSA Report]

Fixed an issue the SDSA Report was not generated during in-building test and fixed

parameter issue in 5G NR test.

8. [Network Lock]

Added LTE Cell Lock feature for use with Qualcomm SDM855 chips and higher.

Network(RAT/Ba	nd) Lock([	DM)
Cell Lock		EARFCN(1350) PCI(458)
LTE Cell Lock		
EARFCN(CUR) 2850	PCI(CUR)	458
EARFCN(SET) 1350 Response msg: Success	PCI(SET)	458
earfcn	pci	
GET	SET	UNLINK
LTE Physical Cell, EARF Mobility With Cell Lock	CN, Cell Barr	ing Lock(SDM855)
	led(Cell Lock	)
LTE DL EARFCN+PCI Lo	ck	
Cell Lock DL EARFCN (0=Disabled)	1350	
Cell Lock PCI(0~503)	458	
LTE DL Channel Lock		
EARFCN Lock DL EARFCN1 (0=Disabled)	0	
EARFCN Lock DL EARFCN2 (0=Disabled)	0	
LTE Cell Barring		
Short Cell Barring Time	0	
Reduced Cell Barring Time	0	

- 9. [XCAL-Harmony]
  - 1) Added a pop-up indicating that the Harmony screen is loading



2) XCAL-Harmony License/Non-License version has been integrated. You can add a license by clicking the Scanner Enable button at the bottom of the center of the initial screen, and the Scanner Enable button changes to the License Update button. To change a registered license, you can reboot Harmony by clicking the License Update button, and then register a new license.

Proprietary & Confidential

XCAL - Harmony
Configuration Monitoring Inbuilding Map
Logdata
Scamer Enable
XEAL - Harmony
Configuration Configuration Configuration Configuration Configuration Configuration Connected to Internet.
MAC - d4:11:a3:09:98:51 Logosta Download Ext XCAL- Harmony
Sciencer Enable
XCAL - Hermony
Configuration Monitoring Inbuilding Map
Scanner Logdata Settings
License Update

ä	0.0		
Configuration	Notice		Map
	Click 'OK' will delete the previous I application. When restarting, User will have to license update.	icense and automatically close the select 'Scanner Enable' for latest	
Scenner	No	0K	

## Scanner

1. [PCTEL IBflex/HBflex]

5GNR related Band code has been added in PCTEL Scanner Enhanced Power.

## **Known Issue**

None

## **Technical Support**

If you have any further queries while using XCAL-Mobile, visit our support page www.accuver.com or contact Technical Support via sales@accuver.com.



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