

E6950A eCall/ERA-GLONASS

Conformance Test Solution

Overview

This configuration guide contains information to help you configure your E6950A eCall/ ERA-GLONASS Conformance Test Solution with the E7515A UXM Wireless Test with PSAP software; together with the N5172B EXG X-Series RF Vector Signal Generator with N7609C Signal Studio for Global Navigation Satellite Systems (GNSS) Real-Time to meet test requirements.

The U8903B performance audio analyzer is optional, and the user can select this for further audio analysis of the IVS module.

The eCall/ERA-GLONASS test automation is built around TAP as plugins, the same as applications built around the OS. TAP will take the plugins and run the test cases in the plugins and publish the results in a form of either .txt, .CSV or in graphing format.

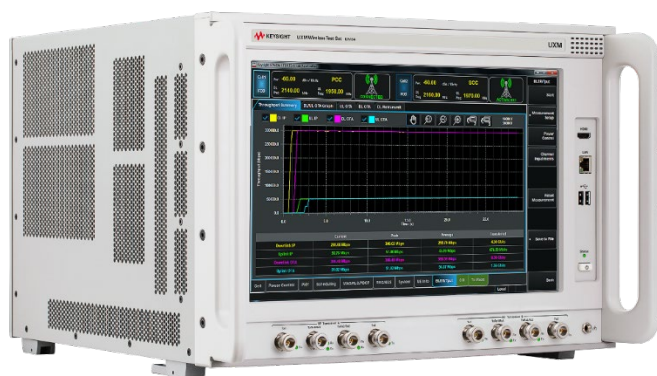
What the Solution Includes

The eCall solution includes the following:

- 1 x E7515A UXM or wireless test set
- 1 x E69511A Public Safety Answering Point (PSAP) software
- 1 x N5172B vector signal generator
- 1 x N7609C signal studio for GNSS
- Optional U8903B performance audio analyzer
- Optional Automation Software for eCall/ERA-GLONASS and GNSS test cases

Recommended Measurement Instruments for eCall/ERA-GLONASS Test:

Step 1. Select a UXM wireless test set as a network emulator



E7515A UXM

Model	Description
E7515A UXM Wireless Test Set	Wireless test set
E7515A-504	Frequency range 300 MHz to 3.8 GHz
E7515A-RA1	RF up-down converter A
E7515A- BA1	Digital baseband transceiver A
E7521A-1FP	GSM/GPRS/EGPRS Fixed Perpetual
E7523A-1FP	W-CDMA/HSPA+ Fixed Perpetual
E7515A-RB1	RF up down converter B (For NG eCall)
E7515A-BB1	Digital baseband transceiver B (For NG eCall)
E7535A-1FP	LTE FDD/TDD test application suite (For NG-eCall)
E7530A-FFP-OP1	IP data (FDD/TDD), fixed perpetual license (For NG eCall)
E7530A-FFP-OH1	Handovers (FDD/TDD), fixed perpetual license (For NG eCall)

IMS Software for Next Generation eCall

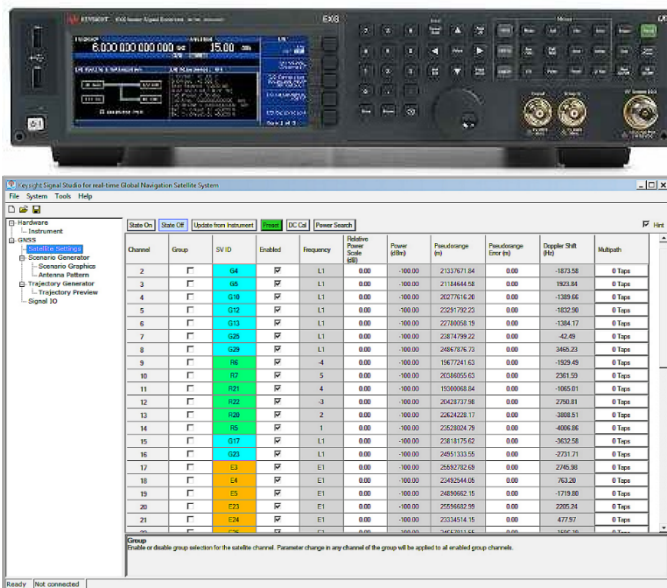
Model	Description
E6966B	IMS/SIP server/client software.
E6966B-1TP	IMS-SIP server emulator (Required)

Step 2. Select an E69511A PSAP Software accordingly

Model	Description
E69511A-1FP	PSAP software for eCall, node-locked perpetual license
E69512A-1FP	PSAP software for ERA-GLONASS, node-locked, perpetual license(including E69511A-1FP feature license)*
E69513A-1FP	PSAP software for Live Network Mode, node-locked, perpetual license
E69514A-1FP	PSAP software for Next Generation eCall, node-locked, perpetual license (Require E69512A or E69511A)

*E69512A license include E69511A eCall license feature.

Step 3. Select an EXG vector signal generator as a GNSS signal generator with Signal Studio for GNSS.



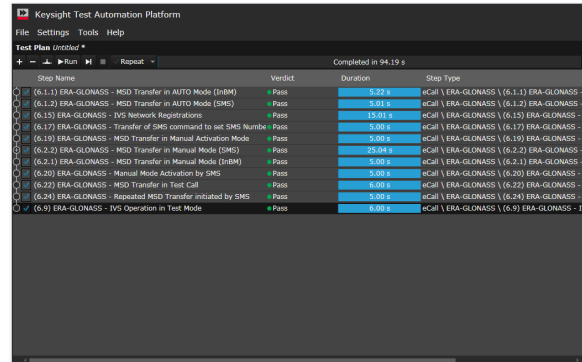
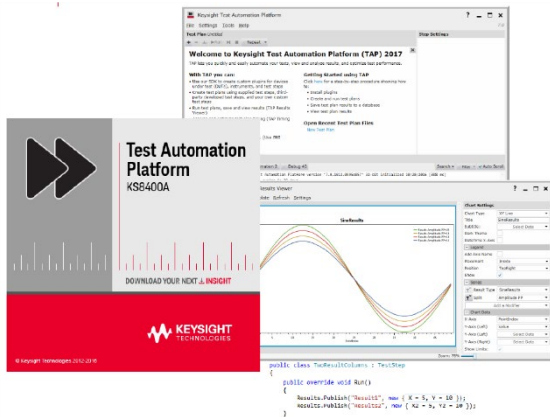
Model	Description	Option
N5172B	Vector signal generator	(Required)
N5172B-503	9 kHz - 3 GHz	(Required)
N5172B-653	Arbitrary baseband generator	(Required)
N5172B-660	Upgrade baseband generator with real-time capability	(Required)
N5172B-022	Upgrade baseband generator memory from 32 Msa to 256 Msa	(Required)
N7609C	Signal Studio for Global Navigation Satellite Systems (GNSS)	
N7609EMBC-1FP	Node-locked perpetual license	(Required)
R-Y5B-001-A	Support contract	(Required)

Step 4 (Optional). Select an U8903B performance audio analyzer for speech analysis



Model	Description	Option
U8903B (optional)	Performance audio analyzer	Optional
U8903B-STD	Performance audio analyzer; 2 channels	Optional
N3432A	Software, POLQA measurement, fixed perpetual license	Optional
DAC	Digital-to-analog converter	Optional

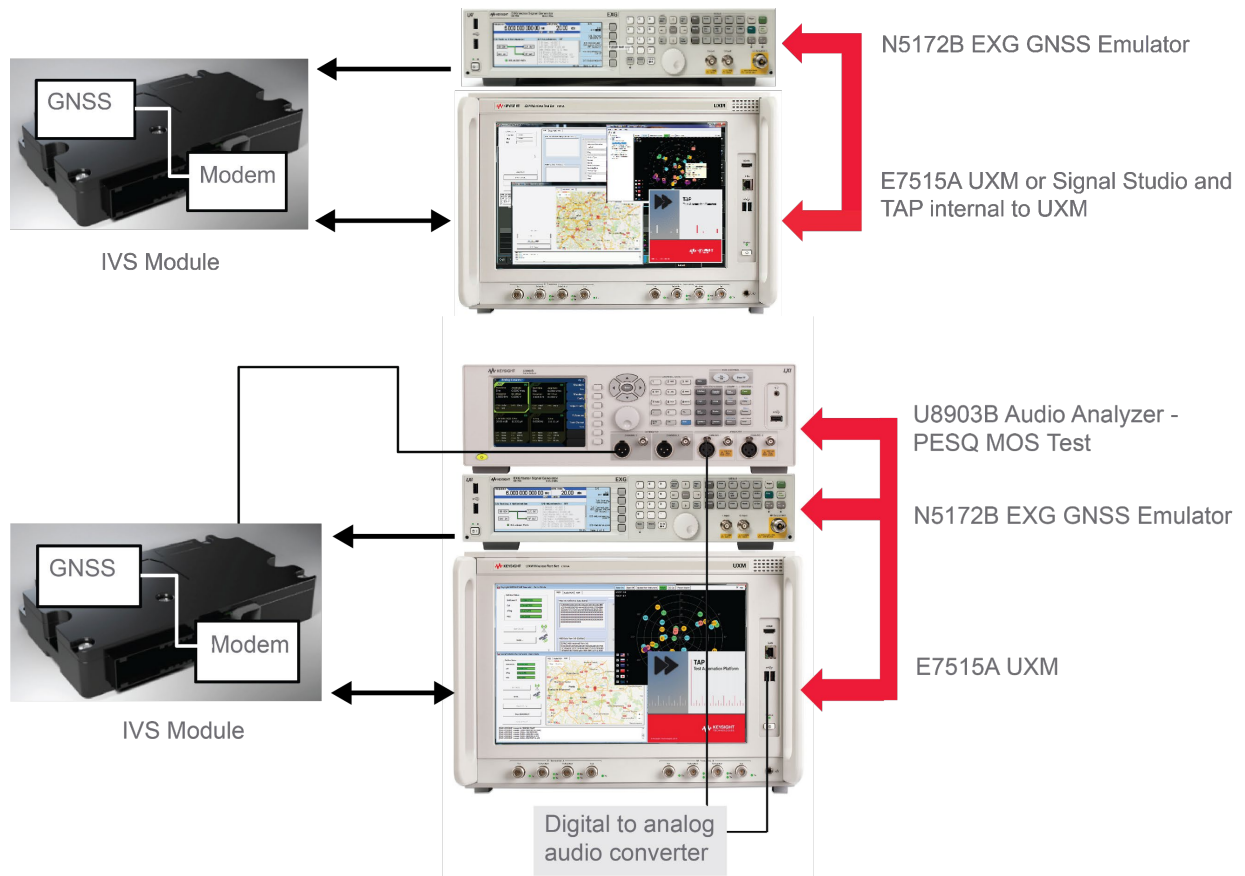
Step 5. (Optional). Select an Automation Software



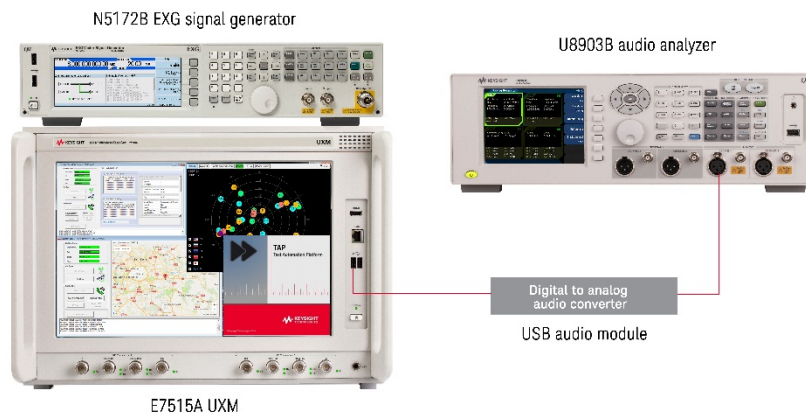
Model	Description
KS8400A-1FP	Test Automation Platform
KS82051B-1FP	eCall Automated Test Cases Fixed
KS82051B-1TP	eCall Automated Test Cases Transportable
KS82052B-1FP	ERA-GLONASS Automated Test Cases Fixed
KS82052B-1TP	ERA-GLONASS Automated Test Cases Transportable
KS82053B-1FP	GNSS Automated Test Case Fixed
KS82053B-1TP	GNSS Automated Test Case Transportable

*KS82052B ERA-GLONASS Test Cases licenses include KS82051B eCall Test Cases license feature.

Solution Diagram



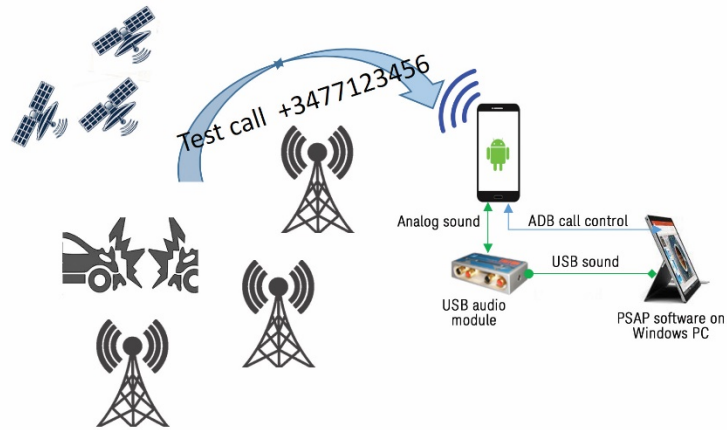
The PSAP software runs inside the UXM. It can be optionally run on a separate PC.



It is also possible to perform audio quality testing of the eCall using the Keysight U8903B Audio Analyzer. This requires an analog audio path connection between the E7515A UXM and U8903B using the existing analog audio In/Out ports.

The E69511A PSAP Emulator may also be used in conjunction with a commercial mobile phone with an active cellular connection in a live network environment

This will test the IVS module using a real cellular network in place of the network emulators such as the UXM.



E69511A PSAP Emulator in live network setup

Glossary

112	Single European emergency call number
E112	Emergency communication services - enhanced 112 with location information
eCall	A manually or automatically initiated emergency call (112) from a vehicle, supplemented with a minimum set of emergency-related data (MSD)
ERA-GLONASS	Russian system of emergency response, based on the European standard eCall/E112. The system is designed for use with the global satellite navigation system GLONASS on behalf of the Government of the Russian Federation.
NG-eCall	Next-generation Pan-European eCall
eCall In-band Modem (eIM)	Modem pair (consisting of transmitters and receivers at IVS and PSAP) that operates full-duplex and allows reliable transmission of eCall Minimum Set of Data from IVS to PSAP via the voice channel of the emergency voice call through cellular and PSTN networks.
eSafety	European Commission-sponsored forum to improve safety for European citizens.
IVS	The in-vehicle system which includes the NAD, eIM, collision detectors, position location (e.g. GPS) function and vehicle interface.
MSD	The Minimum Set of Data forming the data component of an eCall sent from a vehicle to a Public Safety Answering Point or other designated emergency call centers. The MSD has a maximum size of 140 bytes and includes, for example, vehicle identity, location information and time-stamp.
NAD	Network access device, e.g. a GSM module
PSAP	Public Safety Answering Point
TPS-eCall	Third Party Services supporting eCall. In these cases, the vehicle dials a private number to contact a call center, which filters the call and transmits the MSD and the call to the Public Safety Answering Points in case of emergency.
VIN	Vehicle Identification Number

Related Literature

For more detailed information on products and specifications, refer to the following literature on www.keysight.com/find/ecall

- E6950A eCall/ERA-GLONASS Conformance Test Solution - Brochure (literature part no. 5992-1823EN)
- E7515A UXM Wireless Test Set - Brochure (literature part no. 5992-0419EN)
- EXG X-Series Signal Generators - Configuration Guide (literature part no. 5990-9958EN)
- Signal Studio for Global Navigation Satellite Systems (GNSS) N7609C - Technical Overview- Technical Overview - (literature part no. 5992-2740)
- U8903B Performance Audio Analyzer - Data Sheet (literature no. 5991-4551EN)
- E6951A PSAP - User Guide (Manual part no. E695A-90002)

Learn more at: www.keysight.com

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

