

Vehicle Acoustics Evaluation Solution for Wireless Communications Environment

Signalling Tester MD8475A/B

HEAD acoustics Corporation High Sound-Quality Analysis System ACQUA

Increasing Importance of Acoustics Evaluation in Connected Car Market

The number of vehicles with built-in communications functions is increasing rapidly as IT revolutionizes the automobile market and almost all vehicles in the future are expected to have built-in communications functions. In this so-called "connected car" market, acoustics quality evaluation will be extremely important for the following reasons.

- **Hands-free telephone functions will become common, requiring the same audio quality as mobile telephones.**
- **Complex communications paths between peripheral equipment and IVS mediated by Bluetooth and various applications will cause delay-related problems.**



Figure 1: Audio Interface Between Drivers and Vehicle

*1: © HEAD acoustics GmbH

For example, in the eCall*2 system stipulated for installation in Europe, since the emergency response information uses voice communications when an accident occurs, serious problems may occur if the driver is unable to communicate clearly due to inadequate acoustic quality.

*2: eCall is a European automatic emergency call system using voice communications with an emergency response center to send accident information including vehicle position when an automobile accident occurs.

Configuration of Acoustic Evaluation Solution

Anritsu offers an acoustics evaluation solution using its Signalling Tester MD8475A/B in combination with the ACQUA system from HEAD acoustics Corporation, a leading company in acoustics evaluations, to reproduce the actual acoustics environment as shown below.

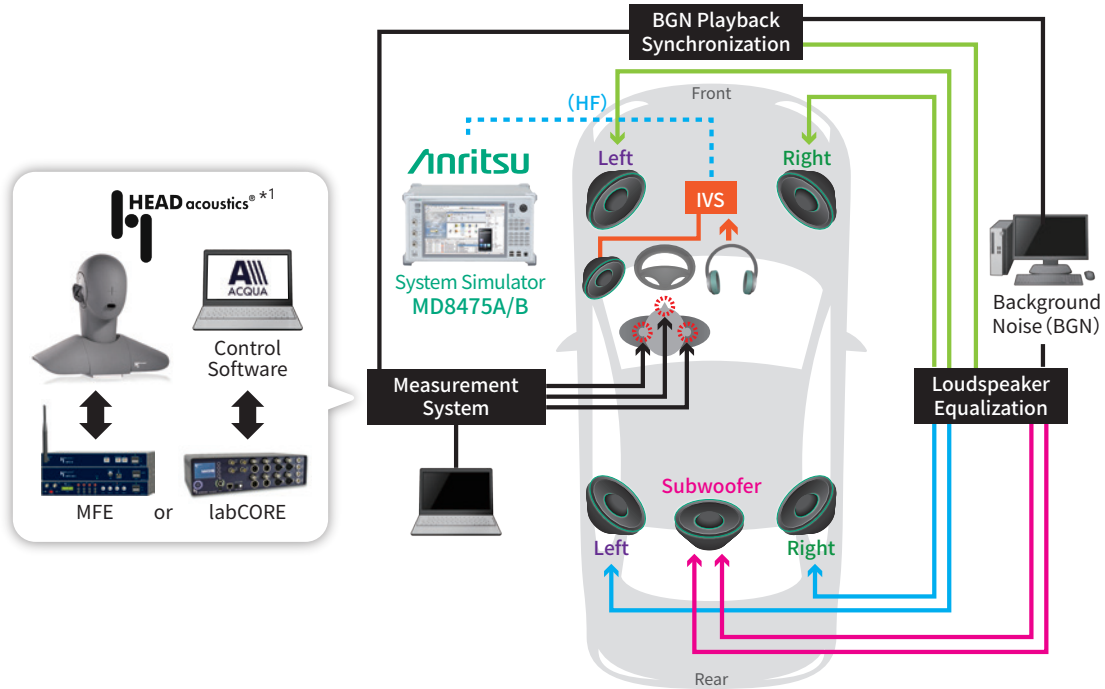


Figure 2: Example of Evaluation System

Advantages of Using MD8475A/B

The MD8475A/B offers the following advantages at acoustics evaluation.

Reduces burden of operating simulator and eliminates need for detailed understanding of wireless layer

The MD8475A/B uses an easy-to-understand interactive GUI for 2G, 3G, and 4G settings, eliminating the need to make complex settings requiring detailed knowledge of wireless protocols.

Reduces burden of configuring measurement environment and unnecessary conversion processing

Since the same measurement system can be used for 2G, 3G, and 4G communications methods there is no need to reconfigure the measurement setup when the communications method changes. Moreover, noise in the measurement system is minimized due to the digital interface with the Head acoustics equipment when using the MD8475A/B.

Acoustics Evaluation Standards Supported by MD8475A/B + ACQUA

Supported Standard*3	Communications Method	Codec	Application Example*4
GOST-R 55531	GSM	AMR-NB/FR/AMR-WB	eCall, etc.
	W-CDMA	AMR-WB	
GOST 33468	GSM	AMR-NB/FR/AMR-WB	
	W-CDMA	AMR-WB	
ITU-T P.1140	GSM, W-CDMA, LTE	AMR-NB/FR/AMR-WB	Hands-free car kits/car accessories, etc.
ITU-T P.1100 (Narrowband)	GSM	AMR-NB	
	W-CDMA	AMR-NB	
ITU-T P.1110 (Wideband)	GSM	AMR-WB	
	W-CDMA	AMR-WB	
ITU-T P.1120 (Super Wideband)	VoLTE (IMS)	EVS/SILK/OPUS*5	Mobile terminals, etc.
3GPP TS 26.131 (Technical Requirement)	GSM, W-CDMA, LTE	AMR-NB/AMR-WB/EVS	
3GPP TS 26.132 (Test Specification)			

*3: Request more details about each supported standard from the relevant business section.

*4: Example of evaluation application using listed standard

*5: Supported measurements only when combined with ACQUA