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HARMAN introduces revolutionary QuantumLogic™ surround technology for its JBL® Professional audio system in Ferrari's new FF

GENEVA MOTOR SHOW, Switzerland, 1st March 2011 (www.harman.com/automotive) – Launching together with the new Ferrari, the FF, HARMAN, the premium global audio and infotainment group, presents the world's first production vehicle featuring HARMAN's innovative QuantumLogic surround sound technology. Developed entirely by HARMAN's audio experts, QuantumLogic technology transforms any stereo or multi-channel audio source into an astounding 7.1 channel surround sound experience. QuantumLogic technology sets a new benchmark in audio signal processing excellence.

The patented QuantumLogic technology forms an integral part of the newly developed JBL® Professional surround sound system for the FF, Ferrari's innovative four-seater Gran Turismo. The premium branded audio system offers unparalleled listening enjoyment, with a dynamic, accurate spatial quality never before thought possible in a vehicle.

"The world premiere of the JBL Professional QuantumLogic surround sound system in the new FF represents a new milestone in our partnership with the legendary Italian sports car manufacturer," says Dinesh C. Paliwal, Chairman, President and CEO of HARMAN. "With our uncompromising determination to capture every detail of the sound experience, together we have reached new heights in audio signal processing and sound quality. The HARMAN JBL Professional brand represents decades of experience in reproducing audio in the world's best concert halls and performance venues, and QuantumLogic helps bring that immersive, surround sound experience to the interior of the Ferrari."

Engineers from the two companies share a passionate dedication to performance excellence, and strove to exceed the expectations of the discerning clientele of the Ferrari and JBL Professional brands. This challenge has been brilliantly achieved with the implementation of HARMAN's QuantumLogic surround technology in the all-new JBL Professional sound system for the FF. QuantumLogic surround technology gives audio tracks a controlled sound quality by introducing revolutionary new audio algorithms to extract signal streams and impulse responses from the original recording. Individual voices and instruments, as well as embedded reverberant spatial information, are identified then re-authored into a precise multi-channel soundstage. Unique to QuantumLogic is its "aesthetic engine", which scientifically combines the individual signal streams and patented spatial filter bank technology with psycho-acoustic modeling for transparent digital processing and perfect acoustic reconstruction. The result is a stunningly immersive playback system with refined clarity and detail.

The HARMAN automotive acoustic specialists have spent years creating the JBL Professional audio system for the FF that is custom tuned to meet the unique environmental characteristics of this world-class sports car. A total of 15 speakers and a 1280-watt, JBL Professional Class-D high-performance amplifier provide rich and powerful sound levels with excellent dynamics. Individual audio components are honed to the nearest millimeter through computerized simulations before being seamlessly integrated into the car's instrument panel, doors, and quarter panels behind the rear seats. In the B pillar of the car, acoustic specialists mounted two HARMAN patented, ultra slim EPDL (Electro Dynamic Planar Loudspeakers), ensuring perfect surround sound.

Additionally a subwoofer box with a 335 mm x 190 mm racetrack Carbon Rohacell drive unit is integrated into the trunk area capable to produce an extensive, rich bass response. Only advanced materials have been chosen to perfectly match the target frequency range of all JBL Professional loudspeaker components: CMMD (Ceramic Metal Matrix Diaphragm) for tweeters, Kevlar for midranges, Black Kevlar for mid-woofers and Rohacell for woofers. Sound tuning was carried out using HARMAN's AuraVox technology which greatly enhanced the system performance.

In addition to their landmark audio systems, the new Ferrari features a HARMAN hard-disk-based GPS navigation system with map and arrow display. The hard disk offers access times are much quicker than conventional alternatives with data on a DVD. Bird's-eye perspectives and an automatic intersection zoom feature are included, as are dynamic route and destination calculation and a large range of points of interest (POI). HARMAN has integrated "one shot" directions through its voice recognition engine, allowing for more natural interaction with the navigation system. Verbal route guidance is available in a choice of five languages. HARMAN also expands the functionality of the infotainment system with a number of connectivity options, including USB iPod support via the Apple ID chip; Bluetooth™ connectivity for hands free dialing as well as phone book and contact access; and streaming music to the JBL Professional audio system from Bluetooth-enabled smartphones or devices, thanks to an A2DP wireless protocol. The DVD player is designed to play video DVDs, audio DVDs and CDs in MP3 and WMA format and an integral USB port allows connection to external media. Satellite radio support will also be available for US vehicles.

Close cooperation for maximum performance

The engineers from Ferrari and HARMAN share a passion for technical perfection and precision engineering, as well as a highly developed sense of individuality. Since 2008, HARMAN has created five made-to-measure JBL Professional sound systems for sports cars from Maranello, including the Scuderia Spider 16M, 458 Italia and Ferrari California models.

About HARMAN

HARMAN (www.harman.com) designs, manufactures and markets a wide range of audio and infotainment solutions for the automotive, consumer and professional markets – supported by 15 leading brands including AKG®, Harman Kardon®, Infinity®, JBL®, Lexicon® and Mark Levinson®. The Company is admired by audiophiles across multiple generations and supports leading professional entertainers and the venues where they perform. More than 20 million automobiles on the road today are equipped with HARMAN audio and infotainment systems. HARMAN has a workforce of about 11,800 people across the Americas, Europe and Asia, and reported sales of \$3.5 billion over the twelve months ending December 31, 2010. The Company's shares are traded on the New York Stock Exchange under the symbol NYSE: HAR.

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