

### **Sennheiser 1800 MHz – a viable alternative**

**Wedemark/Frankfurt, 10 April 2013 – When the first LTE smartphones were unveiled in autumn 2012 they caused quite a stir among audio engineers. According to the standard for the new handsets, they would transmit at 1800 MHz, a band which is also used by 1G8 wireless microphones. Would, the engineers wondered, conflicts occur with mics and – in the worst-case scenario – could interference be audible on a PA system instead of a singer’s voice? Such fears are fortunately unfounded: Within LTE, there is a five megahertz clearance distance between the uplink/downlink of the mobile radio applications and the band that wireless microphones work in. Even so, it is worth taking a closer look at the spectrum around 1800 MHz, part of which has been allocated to wireless audio transmission in many countries across Europe.**



Over the last few months, the first mobile networks based on the LTE (Long Term Evolution) standard have started going live, heralding the dawn of 4G, the fourth mobile radio generation. When the first LTE1800 transmitters were put into operation, they only used a bandwidth of 15 MHz between 1805 and 1820 MHz. Since then, however, many transmitters have been converted to a bandwidth of 20 MHz and also use the frequencies from 1820 to 1825 MHz. Between the frequency ranges used by LTE, the regulatory authorities of many European countries have allocated a range where wireless microphones can be used, in some countries even without a license.

### **evolution wireless ew 100 G3-1G8**

In 2011, Sennheiser was the first manufacturer to launch microphone systems that are able to operate in this range. The evolution wireless ew 100 G3-1G8 series systems work between 1785 and 1800 megahertz; there is a clearance distance of five megahertz to the downlink and uplink ranges of LTE transmitters to ensure that transmission is interference-free.

“With the 1800 MHz systems, we are relieving the burden on the UHF range,” explained Martin Fischer, Product Manager at Sennheiser. “The frequency band from

1785 MHz to 1800 MHz is reserved exclusively for audio transmission, which means that users no longer have to plan their systems around primary users or painstakingly search for gaps between TV channels. In addition, the band is unlicensed in some European countries, so there are no follow-up costs for the user."

The ew 100 G3-1G8 series enables up to twelve channels to be operated simultaneously. 12 compatible frequency presets are stored in each of the 20 channel banks, with the addition of a further user bank that is freely programmable in 10-kHz steps. The new systems have an RF transmission power of 10 mW; their range corresponds approximately to that of UHF systems with the same RF transmission power.



User-friendliness is a key feature of Sennheiser's 1800 MHz systems. The transmitters can be conveniently synchronised with the receivers via an infrared interface, and the systems have an integrated equaliser and a soundcheck mode that continuously checks the RF and audio levels. To protect the environment and to minimise costs, both the bodypack transmitter and the handheld transmitter can be powered by Sennheiser accupacks instead of standard batteries; the battery's state of charge is reliably displayed in four steps.

### **Versatile use**

The 1G8 solutions from Sennheiser are used successfully in a wide range of areas: schools, churches and universities rely on the frequency range between 1785 and 1800 megahertz just as much as bands and PA rental companies do.



As an example, in the summer of 2012, Aida, the musical written by Elton John and Tim Rice, was performed at the University of Erlangen-Nuremberg with 23 sold-out evening performances. Sennheiser ew 100 G3-1G8 microphone systems provided perfect sound for the ancient Egyptian love triangle drama to

unfold. The set-up included a 19" rack with 12 ew 172 G3-1G8-type receivers, joined

by two ASA 1-1G8 splitters suitable for the 1G8 frequency range, which were connected to a total of four passive AD 1800 directional antennas via AB 3-1G8 boosters. The antennas not only covered the 21 metre-wide stage, but also provided a reliable transmission during the first scene in which the actors moved from the back through the audience towards the podium. Event technician Christian Rheinfelder, responsible for the audio, was enthusiastic about the "set & forget" set-up of the wireless system: "The whole set worked completely stress-free. Despite the numerous wireless networks found on campus, I couldn't make out any noise interference while it was operating!"

With no permanent venue and around 200 performances during the three-month carnival season, the Cologne music group Kasalla requires maximum flexibility. From 11 November 2012 to Ash Wednesday 2013, Kasalla toured with ew 100 G3-1G8 microphone systems and provided the music in up to eight different festival halls per night. Both people and equipment are pushed to the limit by clocking up so many appearances, yet, even amongst the wildest, craziest goings-on, the Sennheiser systems proved the reliability of their RF transmission. In sound comparisons, the 1G8 systems also know how to convince, according to the experienced sound technician Roland Peiffers: "You perceive no difference to what you expect from the ew 100 G3 systems – just the famous Sennheiser quality!"



The Sennheiser Group, with its headquarters in Wedemark near Hanover, Germany, is one of the world's leading manufacturers of microphones, headphones and wireless transmission systems. The family-owned company, which was established in 1945, recorded sales of around €531 million euros in 2011. Sennheiser employs more than 2,100 people worldwide, and has manufacturing plants in Germany, Ireland and the USA. The company is represented worldwide by subsidiaries in France, Great Britain, Belgium, the Netherlands, Switzerland and Liechtenstein, Germany, Denmark (Nordic), Russia, Hong Kong, India, Singapore, Japan, China, Canada, Mexico and the USA, as well as by long-term trading partners in many other countries. Also part of the Sennheiser Group are Georg Neumann GmbH, Berlin (studio microphones and monitor loudspeakers), and the joint venture Sennheiser Communications A/S (headsets for PCs, offices and call centres).

You can find all the latest information on Sennheiser by visiting our website at [www.sennheiser.com](http://www.sennheiser.com).

Sennheiser electronic GmbH & Co. KG  
Press & PR, Professional Systems  
Stephanie Schmidt  
Am Labor 1 • 30900 Wedemark (Germany)  
Tel. +49 (5130) 600 - 275  
[stephanie.schmidt@sennheiser.com](mailto:stephanie.schmidt@sennheiser.com)

**Photo captions:**

*LTE mast.jpg*: LTE transmission mast

*ew 100 G3-1G8.jpg*: The evolution wireless ew 100-935 G3-1G8 system

*Aida.jpg*: The musical Aida relied on 1800 MHz systems from Sennheiser

*Kasalla.jpg*: The Cologne band Kasalla managed around 200 performances during the carnival season with 1G8 systems from Sennheiser

(Photo credit: Torben Köster/ [www.torbenkoester.de](http://www.torbenkoester.de))