



# International Standards **on Absorbed Radiation (SAR)**

## RADIATION

The International Commission on Non-Ionizing Radiation Protection (ICNIRP), a non-governmental organization recognized in the field of Non-Ionizing Radiation (NIR) protection by The World Health Organization (WHO), has established international guidelines on radiation limits due to human exposure to electromagnetic fields (please see page 2 for a definition of ionizing and non-ionizing radiation).

Internationally harmonized testing methods have been developed and agreed upon allowing manufactures to adopt common test methodologies and thereby ensuring consistency in consumer documentation.

For mobile phones and wireless headsets using UHF frequencies, the exposure is evaluated using the SAR (Specific Absorption Rate) method. SAR is a measure of the time-averaged energy absorption per mass unit. SAR values may be measured as full-body or localized (like the head). A localized SAR-value of more than 4 W/kg may produce adverse health effects in people exposed to radiation. Recommended localized SAR-levels for products such as wireless headsets and mobile phones are less than 2 W/kg according to the ICNIRP, Federal Communications Commission (FCC) requirements for USA and the European Recommendation 1999/519/EC\*.

\* Specific Absorption Rate (SAR) - Limits US level at or below 1.6 W/kg 1 gram of tissue EU level at or below 2.0 W/kg 10 grams of tissue

## Ionizing and non-ionizing radiation

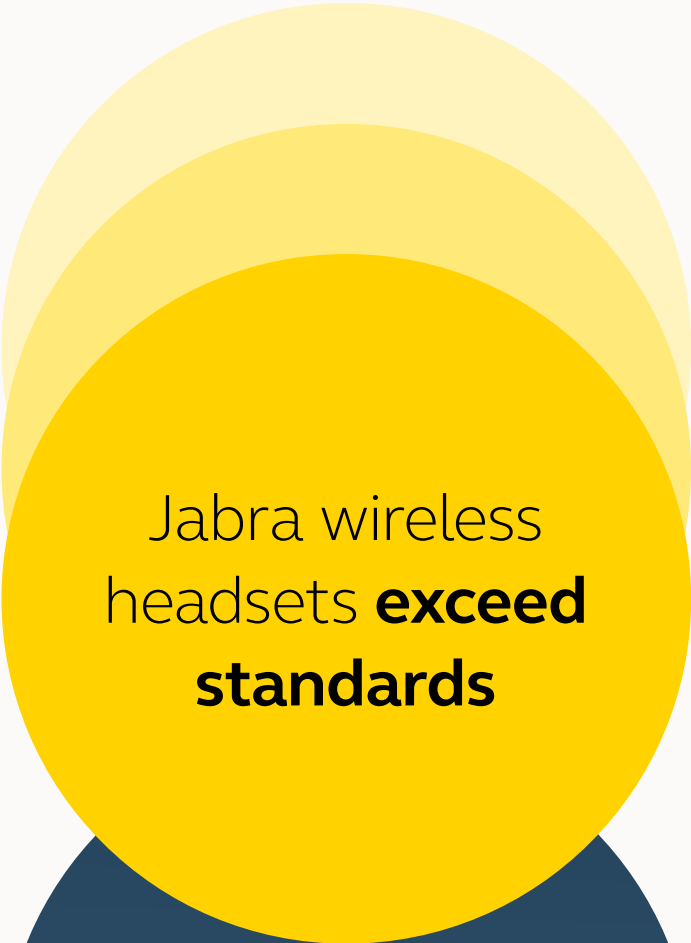
Electromagnetic radiation is divided into 2 categories depending on the energy in the radiation.

### Non-ionizing radiation

Has enough energy to move atoms in a molecule around or cause them to vibrate, but not enough to remove electrons. Examples of this kind of radiation are sound waves, radio waves, visible light, and microwaves.

### Ionizing radiation

Has enough energy to remove tightly bound electrons from atoms, thus creating “charged atoms” known as ions. Ionizing radiation is known from purposes like generating electric power, killing cancer cells, and in many manufacturing processes.



Jabra wireless  
headsets **exceed  
standards**

Jabra produces professional  
wireless headsets based  
on DECT and Bluetooth®  
wireless technologies.

## **DECT**

(Digital Enhanced Cordless Telecommunication) a common standard for wireless telephony, messaging and data transmission. It is a wireless technology suited for voice, data and networking applications in residential, corporate and public environments, and with range requirements up to a few hundred meters. Jabra DECT products operate using radio signals in the frequency band from 1880 to 1930 MHz. The output power of Jabra DECT equipment is very low, between 0.01 and 0.250 W.

## **BLUETOOTH®**

is a low powered standard technology for radio communication. It is a common standard for wireless machine-to-machine communication, data transmission and voice communication especially in wireless headsets. It is a radio technology suited for residential, corporate and public environments with range requirements from 10 up to 100 meters.

## **JABRA BLUETOOTH®**

products operate using radio signals in the frequency band from 2402 to 2480 MHz. The output power of Jabra Bluetooth® equipment is very low, between 0.001 W and up to 0.100 W.

In the European Union, SAR evaluation or measurement is part of the essential requirements of the Radio Equipment directive. The CE mark shows that the product has evaluated and approved. In the US, the FCC (Federal Communications Commission) regulation calls for SAR evaluation or measurement. The FCC ID shows that the product has been evaluated and approved.

All of Jabra's wireless headsets comply with - and most are in fact well below limits of - international safety standards set for human exposure to radiation.



## Jabra focus on safety

The actual SAR level of Jabra's wireless headsets while operating will often be well below this level, as the headsets are designed to use the minimum power required to communicate with their base. Tests for SAR are conducted using internationally acknowledged standardized methods with the headset and base station transmitting at their highest certified power level.

The safety of people who use headsets is of utmost importance to us, and Jabra continuously monitors research and results published in the area of non-ionizing electromagnetic radiation. Extensive independent research over more than 30 years has investigated the risk of adverse health effects related to the use of wireless devices like headsets or mobile phones and scientific knowledge in this area is quite extensive with more than 25,000 articles published. Based on this comprehensive insight the WHO concludes that current evidence does not confirm the existence of any health consequences from exposure to low level electromagnetic fields from wireless headsets based on e.g. DECT and Bluetooth®.

### **SAR LEVELS**

Jabra headset SAR levels are measured by independent test centers.



| Product                           | ENGAGE 75/65                    | ENGAGE 75/65                    | JABRA PRO 920/930               | JABRA PRO 925/935               | EVOLVE 65 SE/TE             |
|-----------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|-----------------------------|
| Configuration                     | Mono/Stereo                     | Convertible                     | Stereo                          | Convertible                     | Stereo                      |
| Radio technology (EU/US)          | 1.8/1.9 GHz                     | 1.8/1.9 GHz                     | 1.8/1.9 GHz                     | 2.4 GHz (Bluetooth®)            | 2.4 GHz (Bluetooth®)        |
| SAR value <sup>1</sup> EU (up to) | Measured over 10g:<br>0.038W/kg | Measured over 10g:<br>0.021W/kg | Measured over 10g:<br>0.017W/kg | Measured over 10g:<br>0.014W/kg | Not applicable <sup>2</sup> |
| SAR value <sup>1</sup> US (up to) | Measured over 1g:<br>0.031W/kg  | Measured over 1g:<br>0.044W/kg  | Measured over 1g:<br>0.035W/kg  | Measured over 1g:<br>0.017W/kg  | Not applicable <sup>2</sup> |



| Product                           | ENGAGE 45 SE, ENGAGE 55 SE, ENGAGE 75/65 SE | ENGAGE 45 SE, ENGAGE 55 SE, ENGAGE 75/65 SE | EVOLVE2 50                       | EVOLVE2 55                       |
|-----------------------------------|---------------------------------------------|---------------------------------------------|----------------------------------|----------------------------------|
| Configuration                     | Mono/Stereo                                 | Convertible                                 | Mono/stereo                      | Mono/stereo                      |
| Radio technology (EU/US)          | 2.4 GHz (Bluetooth®)                        | 2.4 GHz (Bluetooth®)                        | 2.4 GHz (Bluetooth®)             | 2.4 GHz (Bluetooth®)             |
| SAR value <sup>1</sup> EU (up to) | Measured over 10g:<br>0.038 W/kg            | Measured over 10g:<br>0.021 W/kg            | Measured over 10g:<br>0.076 W/kg | Measured over 10g:<br>0.053 W/kg |
| SAR value <sup>1</sup> US (up to) | Measured over 1g:<br>0.031 W/kg             | Measured over 1g:<br>0.044 W/kg             | Measured over 1g:<br>0.120 W/kg  | Measured over 1g:<br>0.230 W/kg  |



| Product                           | EVOLVE2 65 FLEX                  | EVOLVE2 75                      | EVOLVE2 85                  | EVOLVE2 BUDS                    | PERFORM 45                      |
|-----------------------------------|----------------------------------|---------------------------------|-----------------------------|---------------------------------|---------------------------------|
| Configuration                     | Stereo                           | Stereo                          | Stereo                      | In ear                          | Convertible                     |
| Radio technology (EU/US)          | 2.4 GHz (Bluetooth®)             | 2.4 GHz (Bluetooth®)            | 2.4 GHz (Bluetooth®)        | 2.4 GHz (Bluetooth®)            | 2.4 GHz (Bluetooth®)            |
| SAR value <sup>1</sup> EU (up to) | Measured over 10g:<br>0.069 W/kg | Not applicable <sup>2</sup>     | Not applicable <sup>2</sup> | Not applicable <sup>2</sup>     | Not applicable <sup>2</sup>     |
| SAR value <sup>1</sup> US (up to) | Measured over 1g:<br>0.230 W/kg  | Measured over 1g:<br>0.027 W/kg | Not applicable <sup>2</sup> | Measured over 1g:<br>0.075 W/kg | Measured over 1g:<br>0.438 W/kg |



| Product                           | EVOLVE3 45                       | EVOLVE3 65                       | EVOLVE3 65 FLEX                  | EVOLVE3 75                       | EVOLVE3 85                       |
|-----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Configuration                     | Mono/Stereo                      | Mono/Stereo                      | Stereo                           | Stereo                           | Stereo                           |
| Radio technology (EU/US)          | 2.4 GHz (Bluetooth®)             | 2.4 GHz (Bluetooth®)             | 2.4 GHz (Bluetooth®)             | 2.4 GHz (Bluetooth®)             | 2.4 GHz (Bluetooth®)             |
| SAR value <sup>1</sup> EU (up to) | Measured over 10g:<br>0.183 W/kg | Measured over 10g:<br>0.089 W/kg | Measured over 10g:<br>0.069 W/kg | Measured over 10g:<br>0.071 W/kg | Measured over 10g:<br>0.032 W/kg |
| SAR value <sup>1</sup> US (up to) | Measured over 1g:<br>0.562 W/kg  | Measured over 1g:<br>0.409 W/kg  | Measured over 1g:<br>0.953 W/kg  | Measured over 1g:<br>0.385 W/kg  | Measured over 1g:<br>0.440 W/kg  |

<sup>1</sup> SAR values may differ for similar technologies due to different measuring standards in the two regions.

<sup>2</sup> Formal testing exempted

For further information please visit:

**WHO**

Independent information on health related to electromagnetic radiation.

[www.who.int/peh-emf/en](http://www.who.int/peh-emf/en)

**The International EMF Project**

A WHO programme to identify research needs and recommend research, perform health risk assessments and produce information material concerning electromagnetic fields.

[www.who.int/peh-emf/project/en/](http://www.who.int/peh-emf/project/en/)

**International Commission on Non-Ionizing Radiation Protection (ICNIRP)**

ICNIRP is an independent scientific organization responsible for providing advice on non-ionizing radiation exposure.

[www.icnirp.org](http://www.icnirp.org)

**Mobile & Wireless Forum (MWF)**

MMF is an international association of radio communications equipment manufacturers.

[www.mwfai.org](http://www.mwfai.org)

**The DECT Forum**

The DECT Forum is the globally acting industry association embracing suppliers and operators of DECT based terminals, systems, and networks.

[www.dect.org](http://www.dect.org)



## Find out more

Different working environments demand different headset solutions. The Jabra range of headsets for Contact Centers and offices offers a wide choice of hands-free communication technology covering virtually any requirement.

To find out more about which Jabra headset solutions are relevant for specific working environments, please contact Jabra at [www.Jabra.com/contact-center](https://www.jabra.com/contact-center).