

## Guidelines for Safest Use of the S15 Earphones

MR  
Conditional



Non-clinical testing has demonstrated that the Sensimetrics S15 earphones are MR Conditional. They can be used safely while scanning under the following conditions:

- Static magnetic field of 3, 7 or 9.4 Tesla
- Normal operating mode
- Sequence power should be restricted to the IEC's regulations

In non-clinical testing, the S15 earphones produced a temperature rise of:

- less than 2.5°C at a maximum whole-body-averaged specific absorption rate (SAR) of 0.4 W/kg, as assessed by calorimetry for 60 minutes of MR scanning in a 3T Siemens Prisma Fit (software version VB 13D) MR scanner
- less than 4°C at a maximum specific absorption rate (SAR) of 10 W/kg (head), as assessed by calorimetry for 60 minutes of MR scanning in a Siemens Magnetom 7T (software version VB 17B) MR scanner
- less than 1.5 °C at a maximum power of 9.3W on a 16 element head coil, as assessed by calorimetry for 60 minutes of MR scanning in a Siemens Magnetom 9.4T (software version VB 17B Step 2.3) MR scanner

Parameter	Conditions for safest use	Notes
MRI field strength	3T, 7T and 9.4T	Not tested at other field strengths.
RF transmit coil	Body volume transmit coil (3T) Head-only volume transmit coil (7T) Head-only volume transmit coil (9.4 T) Localized (temporal lobes) transmit coil (9.4 T)	
RF receive coil	Any receive coil can be used.	
Cable positioning	<ul style="list-style-type: none"> <li>• The corrugated earphone tube should be routed as close as possible to the center axis of the scanner bore.</li> <li>• Left and Right earphone cables must not be crossed.</li> <li>• Cables must not be held by the subject.</li> <li>• Under no circumstances should the earphone cable be disconnected from the long cable assembly.</li> </ul>	Loops in cables can increase RF coupling.
SAR	Sequence power should be restricted to the IEC's regulations.	Lower sequence powers reduce the risk of heating. Therefore it is recommended that sequences should be adapted to use less power if possible. Additionally high and low power sequences can be interleaved, or pauses in scanning can be introduced, to reduce the time-averaged power.
Sequence type	Any sequence	