Note 8: SAR testing

SAR Testing is conducted on the SARA C IndexSAR test platform which is capable of performing SAR assessments on the Head and Body.

Testing can be performed at **frequencies ranging from 450 MHz to 5.8 GHz** and on many different types of products such as mobile handsets, mobile computers, micro and pico base stations, antennas, radio devices and wireless terminals.

SAR measurements are required to be performed on channels near the Top, Middle and Bottom of the operating frequency bands and at maximum power. Where devices under test have extended / retractable antennas, or are used in conjunction with various accessories, additional testing may be required and we will inform you prior to test. Note that for US, Canadian and Australian market entry, if the device can be worn on the body, BODY SAR is required using the accessories supplied with the device under test (e.g. Simple Hands Free kit / Belt clip / Holster etc.).

It is a requirement for the EIRP of a device submitted for SAR to be the same or greater than that measured during the EMC assessment. If EMC testing is not carried out at TÜV SÜD, then evaluation of the EMC test report will need to be conducted. Please supply the report.

For a product containing **one or more integrated radio products**, it will be necessary to **consider co-location SAR** for simultaneous transmission.

We have radio communication platforms which enable us to drive certain devices (for example, mobile phones), in order to establish the required test mode for the product and achieve the required power control level and other parameters. Where we are unable to establish the **required test mode** for your product, we will ask you to provide the appropriate drive equipment and / or provide the unit under test pre-configured with **appropriate test software** in order to select the correct parameters.

For **battery powered products**, please supply at least **3 fully charged batteries** per product to be tested. Additionally, we would require the supply of at least **1 charger** (preferably 2), which can be used **independently** of the product under test.

For **test reporting purposes**, please provide:

- Software and hardware version number of your product.
- Model or type number of each accessory supplied.
- Battery cell manufacturer name and model number (if device is battery supplied).

Standards we test to are typically as follows[1]:

USA	Federal Communications Commission, Code of Federal Regulations, Title 47 (CFR47), Vol. 1, Chapter 1, Part 2 (§2.1091 and §2.1093).
	OET Bulletin 65 Supplement C (Edition 97-01): Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields.

[1] We can also test to other SAR test specifications – please let us know of your testing needs.

	All applicable Knowledge DataBase (KDB) documents
CANADA	RSS-102 Issue 2 (2005-11): Radio Frequency Exposure Compliance of Radiocommunication Apparatus (All Frequency Bands).
EUROPE	EN 50361:2001, Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz).
	EN 62209-1 Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)
	EN50566: (2013) Product standard to demonstrate compliance of radio frequency fields from handheld and body-mounted wireless communication devices used by the general public (30 MHz - 6 GHz)
	EN62209-2: 2010 Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 2: Procedure to determine the specific absorption rate (SAR) for wireless communication devices used in close proximity to the human body (frequency range of 30 MHz to 6 GHz)
	EN 50385:2002, Product standard to demonstrate the compliances of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields (110 MHz – 40 GHz) — General Public
	EN 62479:2010 Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)
	EN62311: 2008 Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz - 300 GHz)
AUSTRALIA	ACA - Radiocommunications (Electromagnetic Radiation - Human Exposure) Standard – 2003.
INTERNATIONAL	IEC 62209-1 Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)