

EME in the Home



Introduction to ACRBR EME in Homes Survey

Background

- Public concern regarding the RF levels from devices such as mobile phones and base stations, personal wireless devices, WiFi and wireless LAN
- Concern that such exposures may **ADD** to reach levels that might exceed compliance levels
- Little data available on typical sources or levels of exposure in Australian homes

Aim

- Conduct a series of measurements in homes around the Melbourne area
- Determine what RF devices (number and type) are 'typical' in Australian homes
- Compare to compliance levels

Hypothesis

- Each of the RF sources detected within the 'typical' home will be within compliance levels
- Summation of exposure from these RF devices will not exceed compliance levels

ACRBR Survey - Protocol

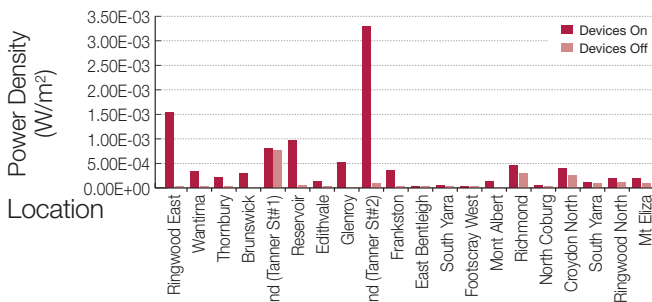
- Audit number and type of devices in home
- Measure personal exposure to individual devices
- Measure cumulative exposure at fixed locations in the home
 - Inside (lounge or living room)
 - Outside (front or rear yard)
 - Desk or study area
- Height of 1.5 m (head height for sitting adult)
- 20 cm from device (nearby but not hand held)

ACRBR Survey - Results

Exposure Location		Average (W/m ²)	Max (W/m ²)	Min (W/m ²)
Home	Inside	0.000507	0.003305	0.000029
	Outside	0.000215	0.000839	0.000017
Desk		0.002487	0.016720	0.000018
Personal		0.471114	1.635000	0.000001
			Microwave	Wireless Keyboard

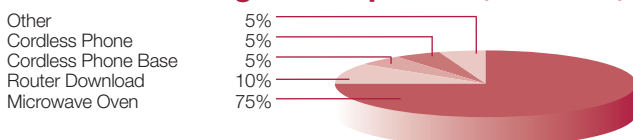
Note: Compliance limit > 4.5 W/m² for devices described here

Inside Reference Measurement



Note: Max value < 0.2% limit

Devices Causing Max Exposure (% of Homes)



Conclusions:

- All exposures less than compliance limit
- Cumulative exposure at reference point or desk hundreds or thousands of times below compliance limit
- Individual exposure dominated by microwave oven, cordless phone, wireless router
- Large variation in exposure across homes and across devices

References:

Foster KR. Radiofrequency exposure from wireless LANs utilizing Wi-Fi technology. Health Phys. 2007 Mar;92(3):280-9
 Thuroczy G, Molnar F, Janossy G, Nagy N, Kubinyi G, Bakos J, Szabo J. Personal RF dosimetry in urban area. Ann Telecommun. 2008 Feb; 63(1-2):87-96

Acknowledgements:

The ACRBR wishes to acknowledge the grant provided by the Australian Mobile Telecommunications Association, and RadHaz Consulting who undertook the measurement work.

