Supplementary Information

Development of an RF-EMF Exposure Surrogate for Epidemiologic Research

Table S1. WLAN prediction model: predicted far-field WLAN exposure contribution from a multivariable regression model using bootstrap (1000 replications), n = 95.

Mean WLAN Personal Measurements (µW/m²)	Exposure Contribution (µW/m²)	95% Confidence Interval	*p*-Value
WLAN in school	0.49	(−1.29, 2.26)	0.589
WLAN at home and not switched off during night	1.02	(−0.80, 2.83)	0.272
Time spent in trains (min/day)	0.07	(−0.06, 0.19)	0.290
Unexplained by the model	1.00	(−0.51, 2.52)	0.195

Table S2. Uplink prediction model: predicted far-field uplink exposure contribution from a multivariable regression model using bootstrap (1000 replications), n = 95.

Mean Uplink Personal Measurements (µW/m²)	Exposure Contribution (µW/m²)	95% Confidence Interval	*p*-Value
Number of smartphones at home	9.39	(−6.33, 25.12)	0.242
Time spent in trains (min/day)	1.06	(0.24, 1.87)	0.011
Time spent in buses (min/day)	0.64	(−0.02, 1.30)	0.057
Unexplained by the model	7.89	(−18.40, 34.18)	0.556

Table S3. Mean exposure duration (per day) of the different locations for the calculation of the far-field dose.

Location	Mean Exposure Duration (per day)
Home day [1]	8 h 21 min
Home night [1]	7 h 21 min
Home	15 h 41 min
School	4 h 43 min
Outside	1 h 41 min
Train	0 h 6 min
Bus	0 h 9 min
Car	0 h 13 min
Unspecified location [2]	1 h 27 min

[1] Home day and night: Home day means the time being at home in the time period 6:00 until 22:00; Home night means the time being at home in the time period 22:00 until 6:00; [2] Unspecified location means diary entries recorded as miscellaneous or other activity or location than the prespecified activities and locations in the time-activity diary.

Table S4. Measured, modelled or predicted mean power flux densities (μW/m²) at the different locations for the calculation of the far-field dose.

Band	Description	Power Flux Density (μW/m²)									
		Home Day [2]	Home Night [2]	Home	School	Outside	Train	Bus	Car	Unspecified Location [3]	Unexplained [4]
Radio [1]	Radio broadcast transmitter	1.73	1.73	–	0.77	–	–	–	–	–	–
TV	Television broadcast transmitter	0.48	0.48	–	0.06	4.14	7.25	24.70	4.38	6.16	–
Downlink 900	Transmission from base station to mobile phone handset	6.52	4.32	–	4.98	35.80	64.30	31.60	16.60	27.60	–
Downlink 1800	Transmission from base station to mobile phone handset	5.15	3.97	–	3.56	5.18	8.49	7.80	5.09	9.89	–
Downlink 2100	Transmission from base station to mobile phone handset	5.81	4.15	–	1.90	6.88	15.20	16.30	3.21	6.09	–
WLAN	Wireless local area network	–	–	0.56	0.18	–	0.24	–	–	–	1.00
DECT	Digital enhanced cordless telecommunications	–	–	1.18	–	–	-	–	–	–	–
Uplink [5]	Transmission from mobile phone handset to base station	–	–	21.48	–	–	3.88	7.33	–	–	7.89

For RF-EMF a power flux density of 1 μW/m² = 0.001 mW/m² corresponds to an electric field strength of 0.019 V/m; [1] Radio = radio FM (Frequency Modulation) + DAB (Digital Audio Broadcasting); Radio was considered only at home and in school (geospatial propagation modelling) because used exposimeters did not measure radio broadcasting; [2] Home day and night: Home day means the time being at home in the time period 6:00 until 22:00; Home night means the time being at home in the time period 22:00 until 6:00; [3] Unspecified location means diary entries recorded as miscellaneous or other activity or location than the prespecified activities and locations in the time-activity diary; [4] Unexplained means the part of the predicted WLAN and uplink power flux density not explained through the relevant far-field predictors found in the multivariable regression model used to predict WLAN and uplink exposure, respectively; [5] Uplink = Uplink 900 + Uplink 1800 + Uplink 1900.