Appendix A

Studies of the effects of high frequency electromagnetic fields on the cellular level

Abbreviations

neg.	negative finding
n.s.	not statistically significant
pos.	positive finding
s.s.	statistically significant
partly	some findings
#	disagreement with the conclusions of the authors
?	unknown; not provided; unreliable

Table A.1 Genotoxic effects of high frequency electromagnetic fields

Frequency	Modulation	Power Flux Density / SAR	Exposure duration	Studies subject / Method	Result	Ref.
Direct DNA damage						
2,45 GHz	cw	10 – 20 W/m^2 0,6 – 1,2 W/kg	2 h	Rat, in vivo	pos., s.s.	Lai & Singh 1995
2,45 GHz	PM, 500 Hz	10 – 20 W/m^2 0,6 – 1,2 W/kg	2 h	Rat, in vivo	pos., s.s.	Lai & Singh 1995
2,45 GHz	PM, cw	20 W/m^2 1,2 W/kg	2 h	Rat, in vivo	pos., s.s.	Lai & Singh 1996
2,45 GHz	PM, 500 Hz	20 W/m^2 1,2 W/kg	2 h	Rat, in vivo	pos., s.s.	Lai & Singh 1996
2,45 GHz	PM, 500 Hz	20 W/m^2 1,2 W/kg	2 h	Rat, in vivo	pos., s.s.	Lai & Singh 1997
2,45 GHz	cw	0,7 – 1,9 W/kg	2 h – 24 h	Glioblastoma Cells (Human), in vitro	neg.?	Malyapa et al. 1997a
2,45 GHz	cw	0,7 – 1,9 W/kg	2 h – 24 h	Fibroblasts (Mouse), in vitro	neg.?	Malyapa et al. 1997a
836 – 848 MHz	cw, FM, PM	0,6 W/kg	2 h – 24 h	Glioblastoma Cells (Human), in vitro	neg.?	Malyapa et al. 1997b
836 – 848 MHz		0,6 W/kg	2 h – 24 h	Fibroblasts (Mouse), in vitro	neg.?	Malyapa et al. 1997b
2,45 GHz	cw	1,2 W/kg	2 h	Rat (Brain), in vivo	?	Malyapa et al. 1998
814 – 837 MHz	PM, TDMA, 50 Hz	8 – 90 W/m^2 2,4 – 26 W/kg	1 h – 10,67 h	T-Lymphoblasten	pos., s.s.	Phillips et al. 1998
2,45 GHz	cw	10 W/m^2 1,18 W/kg	120 d, 2 h/d – 200 d, 2 h/d	Mouse (Brain, Testicles), in vivo	pos., s.s.	Sarkar et al. 1994
1,7 GHz	cw	500 W/m^2	30 min	Mouse (Testicles), in vivo	pos.	Varma & Traboulay 1977
Influences on DNA synthesis and repair						
350 MHz	cw	10 – 100 W/m^2 0,039 – 4,5 W/kg	1 h – 3 h	Fibroblasts (Human), in vitro	unclear, partly pos.	Meltz et al. 1987

Frequency	Modulation	Power Flux Density / SAR	Exposure duration	Studies subject / Method	Result	Ref.
350 MHz	PM, 5,0 Hz	10 – 100 W/m^2 0,039 – 4,5 W/kg	1 h – 3 h	Fibroblasts (Human), in vitro	unclear, partly pos.	Meltz et al. 1987
850 MHz	cw	10 – 100 W/m^2	1 h – 3 h	Fibroblasts (Human), in vitro	unclear, partly pos.	Meltz et al. 1987
850 MHz	PM, 5,0 Hz	10 – 100 W/m^2	1 h – 3 h	Fibroblasts (Human), in vitro	unclear, partly pos.	Meltz et al. 1987
1,2 GHz	cw	10 – 100 W/m^2	1 h – 3 h	Fibroblasts (Human), in vitro	unclear, partly pos.	Meltz et al. 1987
1,2 GHz	PM, 80 kHz	10 – 100 W/m^2	1 h – 3 h	Fibroblasts (Human), in vitro	unclear, partly pos.	Meltz et al. 1987
836,55 MHz	PM, TDMA, 50 Hz	0,9 – 90 W/m^2 0,00015 - 0,059 W/kg	4 h – 14 d	Glioma-Cells (Rat), in vitro	pos., s.s.	Stagg et al. 1997
Chromosome aberrations						
2,45 GHz	cw	?	?	Mouse (bone marrow), in vivo	pos.	Banerjee et al. 1983
2,45 GHz	cw	400 W/m^2	6 d, 30 min/d	Rat, in vivo	pos.	Beechey et al. 1986
7,7 GHz	cw	300 W/m^2	15 - 60 min	Fibroblasts (Chin. Hamster), in vitro	pos., s.s.	Garaj-Vrohac et al. 1990
7,7 GHz	cw	5 W/m^2	15 - 60 min	Fibroblasts (Chin. Hamster), in vitro	pos., s.s.	Garaj-Vrohac et al. 1991
7,7 GHz	cw	5 – 300 W/m^2	10 min	Lymphocytes (Human), in vitro	pos., s.s.	Garaj-Vrohac et al. 1992
0,4 MHz – 20 GHz	cw, AM, PM			Human, in vivo	pos.#, n.s.	Garson et al. 1991
2,45 GHz	PM, 25 kHz	490 W/m^2 33,8 W/kg	2 h	Egg Cells (Chinese Hamster)	pos., partly s.s.	Kerbacher et al. 1990
2,45 GHz	cw	104 – 193 W/kg	20 min	Lymphocytes (Human), in vitro	neg.	Lloyd et al. 1984
2,45 GHz	cw	4 – 200 W/kg	20 min	Lymphocytes (Human)	neg.	Lloyd et al. 1986

Frequency	Modulation	Power Flux Density / SAR	Exposure duration	Studies subject / Method	Result	Ref.
2,45 GHz	cw	75 W/kg	30 – 120 min	Lymphocytes (Human), in vitro	pos.	Maes et al. 1993
954 MH	PM, 217 Hz, GSM	Occupational exposure		Lymphocytes, Human, in vivo	pos., s.s.	Maes et al. 1995
954 MHz	217 Hz, GSM	15 W/m^2 1,5 W/kg	2 h	Lymphocytes (Human), in vitro	pos., s.s.	Maes et al. 1995
935,2 MHz	PM/GSM, 217 Hz	0,3 – 0,4 W/kg	2 h	Lymphocytes (Human), in vitro	pos., n.s.	Maes et al. 1997
9,4 GHz	PM, 1000 Hz	1 – 100 W/m^2	2 w, 3 d/w, 1 h/d	Mouse, in vivo	pos., s.s.	Manikowska et al. 1979
2,45 GHz	cw	0,05 – 20 W/kg	2 w, 6 d/w, 30 min/d	Mouse, in vivo	pos., s.s.	Manikowska-Czerska et al. 1985
2,55 GHz	cw	2W/kg	20 min	DNA (E.coli), in vitro	pos.	Sagripanti & Swicord 1986
2,0 – 8,75 GHz	cw	10 W/kg	5 min – 25 min	DNA, in vitro	pos., s.s.	Sagripanti et al. 1987
2,45 GHz	cw	100 W/m^2	120 d 6 h/d	Spermatogonia (Mouse), in vivo	neg.	Saunders et al. 1988
2,45 GHz	cw	50 W/m^2 12,46 W/kg	90 min	Lymphocytes (Human), in vitro	pos., n.s.	Vijayalaxmi et al. 1997
2,45 GHz	cw	750 W/m^2	5 – 30 min	Chinese Hamster (Corneal Epithelium), in vivo	pos, s.s.	Yao 1978
2,45 GHz	cw	15,2 W/kg		RH5- and RH16-Cells (Kangaroo-Rat), in vitro	pos., s.s.	Yao 1982
Micronuclea						
154 – 162 MHz	PM, 24,4 Hz	Changing exposures on the pastures		Cow (Erythrocytes) in vivo	pos., s.s.	Balode 1996
2,45 GHz	CW	530 W/m^2 90 W/kg	10 min	Lymphocytes (Human), in vitro	pos., partly s.s.	d'Ambrosio et al. 1995

Frequency	Modulation	Power Flux Density / SAR	Exposure duration	Studies subject / Method	Result	Ref.
2,45	AM, 50 Hz, sin	530 W/m^2 90 W/kg	10 min	Lymphocytes (Human), in vitro	pos., partly s.s.	d'Ambrosio et al. 1995
1,25 – 1,35 GHz	?PM	0,1 – 200 W/m^2	Occupational exposure	Lymphocytes (Human), in vivo	pos.	Fucic et al. 1992
7,7 GHz	cw	5 W/m^2	15 - 60 min	Fibroblasts (Chin. Hamster), in vitro	pos., s.s.	Garaj-Vrohac et al. 1991
7,7 GHz	cw	5 – 300 W/m^2	10 min	Lymphocytes (Human), in vitro	pos., s.s.	Garaj-Vrohac et al. 1992
2,45 GHz	cw	75 W/kg	30 – 120 min	Lymphocytes (Human), in vitro	pos.	Maes et al. 1993
9,0 GHz	cw	70 W/kg	10 min	Lymphocytes (bovine), in vitro	pos., s.s.	Scarfi et al. 1996
2,45	cw	50 W/m^2 12,46 W/kg	90 min	Lymphocytes (Human), in vitro	pos.#, n.s.	Vijayalaxmi et al. 1997 b
2,45	cw	1,0 W/kg	18 mon	Erythroczyten (Mouse blood / bone marrow)	pos, s.s.	Vijayalaxmi et al. 1997 a
Sister chromatid exchange						
380 MHz	PM, 17,65 Hz	80 W/kg	?	Lymphocytes (Human), in vitro	neg.	Antonopoulos et al. 1997
900 MHz	PM/DCS, 217 Hz	208 W/kg	?	Lymphocytes (Human), in vitro	neg.	Antonopoulos et al. 1997
1,8 GHz	PM/GSM, 217 Hz	1700 W/kg	?	Lymphocytes (Human), in vitro	neg.	Antonopoulos et al. 1997
2,45 GHz	cw	?	?	Mouse (bone marrow), in vivo	neg.	Banerjee et al. 1983
2,45 GHz	PM, 25 kHz	490 W/m^2 33,8 W/kg	2 h	Egg Cells (Chinese Hamster), in vitro	neg.	Ciaravino et al. 1987
2,45 GHz	PM, 25 kHz	490 W/m^2 33,8 W/kg	2 h	Egg Cells (Chinese Hamster), in vitro	neg.	Ciaravino et al. 1991
2,45 GHz	cw	104 – 193 W/kg	20 min	Lymphocytes	pos., s.s.#	Lloyd et al. 1984

Frequency	Modulation	Power Flux Density / SAR	Exposure duration	Studies subject / Method	Result	Ref.
				(Human), in vitro, Add. caffeine		
2,45 GHz	cw	75 W/kg	30 – 120 min	Lymphocytes (Human), in vitro	neg.	Maes et al. 1993
954 MHz	PM/GSM, 217 Hz	1,5 W/kg	2 h	Lymphocytes (Human), in vitro	pos., s.s.	Maes et al. 1996
935,2 MHz	PM/GSM, 217 Hz	0,3 – 0,4 W/kg	2 h	Lymphocytes (Human), in vitro	pos., partly s.s.	Maes et al. 1997
2,45 GHz	cw	100 W/m^2	120 d 6 h/d	Spermatogonia (Mouse), in vivo	neg.	Saunders et al. 1988
Mutations						
2,45 GHz	AM, 100 Hz	40 – 80 W/kg	2 h –6 h	Escherichia coli, in vitro	partly pos., s.s.	Anderstam et al. 1983
2,45 GHz	AM, 100 Hz	40 – 80 W/kg	4 h – 7 h	Salmonella typhimurium, in vitro	neg.	Anderstam et al. 1983
3,07 GHz	PM, 500 Hz	95 W/kg	1 h	Escherichia coli, in vitro	neg.	Anderstam et al. 1983
3,07 GHz	PM, 500 Hz	75 - 100 W/kg	2 h – 2,5 h	Salmonella typhimurium, in vitro	neg.	Anderstam et al. 1983
9,4 GHz	cw	600 W/m^2 23 W/kg	30 – 120 min	Escherichia coli, in vitro	neg.	Dardalhon et al. 1981
9,4 GHz	cw	600 W/m^2 23 W/kg	30 – 120 min	Saccharomyces cerevisiae, in vitro	partly pos., s.s.	Dardalhon et al. 1981
9,4 GHz	cw	10 – 600 W/m^2	330 min	Saccharomyces cerevisiae, in vitro	pos.	Dardalhon et al. 1985
2,45 GHz	AM, 100 Hz	130 W/kg	5,7 h	Salmonella typhimurium, in vitro	partly pos, s.s.	Hamnerius et al. 1985
3,10 GHz	PM, 500 Hz	90 W/kg	6 h	Salmonella	partly pos., n.s.	Hamnerius et al.

Frequency	Modulation	Power Flux Density / SAR	Exposure duration	Studies subject / Method	Result	Ref.
				typhimurium, in vitro		1985
2,45 GHz	AM, 100 Hz	110 W/kg	6 h	Drosophila melanogaster, in vivo	neg.	Hamnerius et al. 1985
3,10 GHz	PM, 500 Hz	60 W/kg	6 h	Drosophila melanogaster, in vivo	neg.	Hamnerius et al. 1985
2,375 MHz	cw	150.000 – 250.000 W/m^2	25 – 300 min	Drosophila melanogaster, in vivo	partly pos., s.s.	Marec et al. 1985
2,45	PM, 25 kHz	480 W/m^2 30 W/kg	bis 63 h	Leukaemia-Cells (Mouse), in vitro	pos./neg., partly s.s.	Meltz et al. 1989
2,45 GHz	PM, 25 kHz	650 – 870 W/m^2 40 – 40,8 W/kg	4 h	Leukaemia-Cells (Mouse), in vitro	neg.	Meltz et al. 1990

Table A.2 Effects of high frequency electromagnetic fields on cellular processes

Frequency	Modulation	Power Flux Density SAR	Exposure Duration	Examines Subject Method	Result	Ref.
Gene transcription and gene translation						
890 – 915 GHz	PM/GSM, 217 Hz	0,3 – 7,5 W/kg	4 h	Brain (Rat), in vivo	pos., partly s.s.	Fritze et al. 1997 a
835,62 MHz	FM/cw	0,6 W/kg	4 d	Fibroblasts (Mouse), in vitro	partly pos., s.s.	Goswami et al. 1999
847,74 MHz	PM/CDMA, 50 Hz	0,6 W/kg	4 d	Fibroblasts (Mouse), in vitro	partly pos., s.s.	Goswami et al. 1999
836,55 MHz	PM/TDMA, 50 Hz	0,9 – 90 W/m^2 0,00026 – 0,026 W/kg	20 – 100 min	Pheochromocytoma Cells (Rat), in vitro	pos., s.s.	Ivaschuk et al. 1997
Cell-Cycle						
380 MHz	PM, 17,65 Hz	80 W/kg	?	Lymphocytes (Human), in vitro	neg.	Antonopoulos et al. 1997
900 MHz	PM/DCS, 217 Hz	208 W/kg	?	Lymphocytes (Human), in vitro	neg.	Antonopoulos et al. 1997
1,8 GHz	PM/GSM, 217 Hz	1700 W/kg	?	Lymphocytes (Human), in vitro	neg.	Antonopoulos et al. 1997
2,45 GHz	PM, 25 kHz	490 W/m^2 33,8 W/kg	2 h	Egg Cells (Chinese Hamster), in vitro	neg.	Ciaravino et al. 1991
2,45 GHz	cw	5 – 25 W/kg	2 h	Egg Cells (Chinese Hamster), in vitro	pos., s.s.	Cleary et al. 1996
9,4 GHz	PM, 1,0 kHz	1 – 100 W/m^2	2 w 5 d/w 1 h/d	Mouse, in vivo	pos., s.s.	Manikowska et al. 1979
2,45 GHz	cw	100 W/m^2	6x1 h	Lymphocytes (Human), in vitro	neg.	Pazmany et al. 1990
2,45 GHz	cw	100 W/m^2	3x1 h	Lymphocytes (Human), in vitro	neg.	Pazmany et al. 1990
2,45 GHz	cw	100 W/m^2	5 h	Lymphocytes (Human), in vitro	pos., s.s.	Pazmany et al. 1990

Table A.3 Effects of high frequency electromagnetic fields on cell transformation and cell proliferation

Frequency	Modulation	Power Flux Density SAR	Exposure Duration	Studied Subject Method	Result	Ref.
Cell Transformations (including neoplastic)						
2,45 GHz	PM, 120 Hz	4,4 W/kg	24 h	Fibroblasts (Mouse), in vitro	partly pos., s.s.	Balcer-Kubiczek & Harrison 1985
2,45 GHz	PM, 120 Hz	4,4 W/kg	24 h	Fibroblasts (Mouse), in vitro	partly pos., s.s.	Balcer-Kubiczek & Harrison 1989
2,45 GHz	PM, 120 Hz	0,1 – 4,4 W/kg	24 h	Fibroblasts (Mouse), in vitro	partly pos., s.s.	Balcer-Kubiczek & Harrison 1991
2,45 GHz	cw	0,8 – 12,3 W/kg	5 d	Lymphocytes (Human), in vitro	neg.	Czerska et al. 1992
2,45 GHz	PM, 1000 Hz	0,8 – 12,3 W/kg	5 d	Lymphocytes (Human), in vitro	pos., s.s.	Czerska et al. 1992
2,45 GHz	cw	50 W/m^2		Lymphocytes (Mouse)	pos.	Smialowicz et al. 1979
Cell Communication						
836,55 MHz	PM, TDMA, 50 Hz	0,3 – 30 W/m^2 0,00015 - 0,015 W/kg	28 d	Fibroblasts (Mouse), in vitro	partly pos., s.s.	Cain et al. 1997
Cell Proliferation						
2,45 GHz	AM, 100 Hz	40 – 80 W/kg	2 h –6 h	Escherichia coli, in vitro	partly pos., s.s.	Anderstam et al. 1983
2,45 GHz	AM, 100 Hz	40 – 80 W/kg	4 h – 7 h	Salmonella typhimurium, in vitro	partly pos., s.s.	Anderstam et al. 1983
3,07 GHz	PM, 500 Hz	95 W/kg	1 h	Escherichia coli, in vitro	partly pos., s.s.	Anderstam et al. 1983
3,07 GHz	PM, 500 Hz	75 - 100 W/kg	2 h – 2,5 h	Salmonella typhimurium, in vitro	partly pos., s.s.	Anderstam et al. 1983
900 MHz	PM/GSM, 217 Hz	0,55 – 2,0 W/m^2	10 d 2 h/d	Lymphocytes (Rat,	neg.	Chagnaud & Veyret

Frequency	Modulation	Power Flux Density SAR	Exposure Duration	Studied Subject Method	Result	Ref.
		0,075 – 0,270 W/kg		(Sprague-Dawley), in vivo		1999
2,45	cw	5 – 50 W/kg	2 h	Blut (Human), Lymphocytes, in vitro	pos., s.s.	Cleary et al. 1990 a
2,45	cw	5 – 75 W/kg	2 h	Glioma-Cells, in vitro	pos. s.s.	Cleary et al. 1990 b
2,45 GHz	cw	5 – 50 W/kg	2 h	T-Lymphocytes (Mouse, CTLL-2), in vitro	pos., s.s.	Cleary et al. 1996
2,45 GHz	PM/PCS, 50 Hz	5 W/kg	2 h	T-Lymphocytes (Mouse, CTLL-2), in vitro	pos., s.s.	Cleary et al. 1996
2,45 GHz	?	?	15 s – 5 h	Myeloma- and Hybridoma-Cells (Mouse), in vitro	?, Methode fragwürdig	Dorp et al. 1998
150 MHz	AM, 72 Hz, 217 Hz, 1100 Hz	1,6 kV/m 5,4 µT		Escherichia coli, in vitro	pos., partly s.s.	Grospietsch et al. 1995
2,45 GHz	AM, 100 Hz	130 W/kg	5,7 h	Salmonella typhimurium,	pos, s.s.	Hamnerius et al. 1985
3,10 GHz	PM, 500 Hz	90 W/kg	6 h	Salmonella typhimurium,	pos., s.s.	Hamnerius et al. 1985
836,55 MHz	PM, TDMA, 50 Hz	0,9 – 90 W/m^2 0,00015 - 0,059 W/kg	4 h – 14 d	Glioma-Cells (Rat), in vitro	neg.	Stagg et al. 1997
960 MHz	PM, GSM, 217 Hz	0,0021 W/kg	30 min	transform. Epithel-Amnion-Cells (Human), in vitro	pos., (s.s)	Velizarov et al. 1999

Appendix B

Studies of the effects of high frequency electromagnetic fields on the central nervous system (Blood-Brain-Barrier)

Abbreviations

neg.	negative finding
n.s.	not statistically significant
pos.	positive finding
s.s.	statistically significant
partly	some findings
#	disagreement with the conclusions of the authors
?	unknown; not provided; unreliable

Table B.1 Effects of high frequency electromagnetic fields on the central nervous system

Frequency	Modulation	Power Flux Density / SAR	Exposure duration	Studies subject / Method	Result	Ref.
2,8 GHz	cw	100 W/m^2	2 h	Rat (Wistar)	pos.	Albert 1979
2,45 GHz	cw	100 W/m^2 2,5 W/kg	2 h	Hamster (Chin.)	pos., s.s.	Albert & Kerns 1981
900 MHz	PM/GSM, 217 Hz	0,3 – 7,5 W/kg	4 h	Rat (Wistar)	pos., partly s.s.	Fritze et al. 1997 b
2,8 GHz	cw	100 – 400 W/m^2	4 h	Rat (Tac:N(SD)sBR)	partly pos, n.s.	Gruenau et al. 1982
2,8 GHz	PM, 500 Hz	10 – 150 W/m^2	4 h	Rat (Tac:N(SD)sBR)	partly pos, n.s.	Gruenau et al. 1982
2,45 GHz	PM, 100 Hz	100 W/m^2 2 W/kg	30 min – 2 h	Rat (Sprague Dawley)	pos., s.s.	Neubauer et al. 1990
1,3 GHz	cw	3 – 30 W/m^2	20 min	Rat (Wistar)	pos., s.s.	Oscar & Hawkins 1977
1,3 GHz	PM, 5 Hz	0,3 – 0,5 W/m^2	20 min	Rat (Wistar)	pos., s.s.	Oscar & Hawkins 1977
1,3 GHz	PM, 1000 Hz	1 – 10 W/m^2	20 min	Rat (Wistar)	pos., s.s.	Oscar & Hawkins 1977
2,45 GHz	cw	1,0 – 300 W/m^2	30 min	Rat (Sprague-Dawley)	partly pos., s.s.	Preston et al. 1979
915 MHz	cw	0,3 – 5,0 W/kg	2 h	Rat (Fischer 344)	pos., s.s.	Salford et al. 1994
915 MHz	PM, 8 Hz	0,016 – 0,16 W/kg	2 h	Rat (Fischer 344)	pos., s.s.	Salford et al. 1994
915 MHz	PM, 16 Hz	0,03 – 2,1 W/kg	2 h	Rat (Fischer 344)	pos., s.s.	Salford et al. 1994
915 MHz	PM, 50 Hz	0,3 – 5,0 W/kg	2 h	Rat (Fischer 344)	pos., s.s.	Salford et al. 1994
915 MHz	PM, 200 Hz	0,4 – 2,9 W/kg	2 h	Rat (Fischer 344)	pos., s.s.	Salford et al. 1994

Appendix C

Studies of the Carcenogenic Effects of High Frequency Electromagnetic Fields in Animal Experiments

Abbreviations

neg.	negative finding
n.s.	not statistically significant
pos.	positive finding
s.s.	statistically significant
partly	some findings
#	disagreement with the conclusions of the authors
?	unknown; not provided; unreliable

Table C.1 Animal experiments regarding the carcenogenic effects of high frequency electromagnetic fields

Frequency	Modulation	Power Flux Density / SAR	Exposure duration	Studies subject / Method	Result	Ref.
836,55 MHz	PM/TDMA, 50 Hz	0,74 – 1,6 W/kg	24 mon 4 d/w 2 h/d	Rat (Fischer 344)	neg.	Adey et al. 1999
900 MHz	PM/GSM, 217 Hz	0,55 – 2,0 W/m^2	2 w, 2 h/d	Rat, Cancer, total	neg.	Chagnaud et al. 1999
2,45 GHz	PM, 800 Hz	0,15 – 0,4	25 mon	Rat, Cancer, total	pos., s.s.	Chou et al. 1992
2,45 GHz	cw	0,3 W/kg	18 mon, 7 d/w, 20 h/d	Mouse (C3H/HeJ), Cancer, total	neg.	Frei et al. 1998 a
2,45 GHz	cw	1,0 W/kg	78 w, 7 d/w, 20 h/d	Mouse (C3H/HeJ), Cancer, total	partly pos., n.s.	Frei et al. 1998 b
835,62 MHz	FM, cw	0,75 W/kg	150 d, 5 d/w, 4 h/d	Rat (Fischer 344), B16 Melanoma	partly pos., n.s.	Higashikubo et al. 1999
835,62 MHz	PM/CDMA, 50 Hz	0,75 W/kg	150 d, 5 d/w, 4 h/d	Rat (Fischer 344), B16 Melanoma	neg.	Higashikubo et al. 1999
929,2 MHz	PM/TDMA, 50 Hz	0,58 – 0,8	6 w, 5 d/w, 90 min/d	Rat (Fischer 344), Liver cancer	neg.	Imaida et al 1998 a
1,439 GHz	PM/TDMA, 50 Hz	0,453 - 0,680 W/kg	6 w, 5 d/w, 90 min/d	Rat (Fischer 344), Liver cancer	neg.	Imaida et al. 1998 b
900 MHz	PM/GSM, 217 Hz	2,6 – 13 W/m^2 0,008 – 4,2 W/kg	18 mon 30 min/d	Mouse (transgenic Eμ-Pim1), Lyphomas	pos., s.s.	Repacholi et al. 1997
915 MHz	PM, 4 – 217 Hz	0,0077 – 1,0 W/kg	2-3 w 5d/w 7h/d	Rat (Fischer 344), Brain Tumor	partly pos., n.s.	Salford et al. 1993
2,45 GHz	cw	10 W/m^2 1,2 W/kg	max. 46 w, 6 d/w, 2,5 h/d	Mouse (C57BL/6J), B16 Melanoma	partly pos., n.s.	Santini et al. 1988
2,45 GHz	PM, 25 Hz	10 W/m^2 1,2 W/kg	max. 46 w, 6 d/w, 2,5 h/d	Mouse (C57BL/6J), B16 Melanoma	partly pos., n.s.	Santini et al. 1988
2,45 GHz	cw	50 – 150 W/m^2 2 – 8 W/kg	12 mon 6d/w, 2h/d	Mouse (C3H/HeA), Cancer, total	pos., s.s.	Szmigielski et al. 1982
2,45 GHz	cw	50 – 150 W/m^2 2 – 8 W/kg	5 mon 6d/w, 2h/d	Mouse (Balb/c), Skin Cancer	pos., s.s.	Szmigielski et al. 1982

2,45 GHz	cw	50 – 150 W/m^2	6 mon, 2 h/d	Mouse (Balb/c), Hautcancer	pos., s.s.	Szudinski et al. 1982
435 MHz	PM, 1,0 kHz	10 W/m^2 0,32 W/kg	21 mon	Mouse (C3H/HeJ), Chest tumors, Ovarian tumors	partly pos., s.s.	Toler et al. 1997
2,45 GHz	cw	100 W/m^2 11 W/kg	5 mon, 6 d/w, 3 h/d	Mouse (Balb/c), Intestinal cancer	partly pos., n.s.	Wu et al. 1994

Appendix D

Epidemiological Studies of the health Risks of HF EMFs

Table D.1 Overview of the results of epidemiological studies regarding exposures in the high frequency spectrum and health risks

Column 1: studied illness
Column 2: Exposure situation
Column 3: Reliability of the exposure classification:
- 3: Source of exposure and quantity clearly identified,
- 2: Method of exposure clearly identified
- 1: HF-exposure probable

Column 4: Relative Risk (R.R.), Explanations see text
Column 5: Statistical significance of the findings:
- s.s.: statistically significant(R.R.=1 outside of 95 %-trust interval, or. p<0,05
- n.s.: statistically not significant

Column 6: Literatur reference
Column 7: Comments:
- R: Values in the Column R.R. obtained by conversion (reciprocal value, proportion) of other numerical values or via the interpretation of diagrams
- *: Paper listed in the literature references of Appendix E

Illness	**Exposure**	**Exp. class.**	**R.R.**	**stat. Sign.**	**References**	**C**
All Illnesses						
All illnesses, morbidity	MW, Radar, Military	2	1,18	n.s.	Robinette et al. 1980	R*
All Illnesses, morbidity	MW, mobile telecommunications	3	0,93	n.s.	Rothman et al. 1996	
Cancer, total						
Cancer, total, morbidity	MW, Radar, Military	2	1,50	n.s.	Robinette et al 1980	R*
Cancer, total, Incidence	RF, Radio, women	2	1,2	s.s.	Tynes et al. 1996	*
Cancer, total, Incidence	RF/MW, Military	2	2,07	s.s.	Szmigielski 1996	*
Cancer, total, Incidence	HF, Radio and TV transmitters, local residents	3	1,09	s.s.	Dolk et al. 1997 a	*
Cancer, total,	HF, place of work	1	2,0	n.s.	Lagorio et al. 1997	

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
Incidence						
Cancer, total, Incidence	RF/MW, Radar and Radio, Police	2	0,96	n.s.	Finkelstein 1998	*
Multiple Myelome	HF, Radio and TV transmitter, local residents	3	1,23	n.s.	Dolk et al. 1997 a	*
Brain tumors, total and tumors of the nervous system, total						
Brain-Tumors, total, Morbidity	HF, Place of work	1	1,54	n.s.	Lin et al. 1985	
Brain-Tumors, Glioblastomas and Astrocytoma, Morbidity	HF, Place of work	1	2,15	s.s.	Lin et al. 1985	
Brain-Tumors, total, Morbidity	HF, Place of work, Men	1	0,38	n.s.	Milham 1985	
Brain-Tumors, total, Morbidity	RF/MW, Place of work, Men	2	2,3	s.s.	Thomas et al. 1987	*
Brain-Tumors, total, Morbidity	RF, Amateur Radio Users	2	1,39	n.s.	Milham 1988	
Brain-Tumors, total, Incidence	HF, Place of work	1	2,9	s.s.	Törnqvist et al. 1991	
Brain-Tumors, Glioblastomas, Incidence	HF, Place of work	1	3,4	s.s.	Törnqvist et al. 1991	
Brain-Tumors, total, Incidence	RF, Place of work, Men	2	0,61	n.s.	Tynes et al. 1992	
Brain-Tumors, total, Incidence	RF, Radio, Women	2	1,0		Tynes et al. 1996	*
Brain-Tumors, total, Incidence	HF, Place of work, Men	1	2,4	s.s.	Beall et al. 1996	
Brain-Tumors, total,	RF/MW, Military	2	1,39	s.s.	Grayson 1996	*

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
Incidence						
Brain-Tumors, total, Morbidity	HF/MW, TV transmitters and others residents (adults)	3	0,89	n.s.	Hocking et al. 1996	*
Brain-Tumors, total, Incidence	HF/MW, TV and other transmitters, Local residents/ Adults	3	0,82	n.s.	Hocking et al. 1996	*
Brain-Tumors, total, Morbidity	HF/MW, TV and other transmitters, Local residents/child.	3	1,0		Hocking et al. 1996	*
Brain-Tumors, total, Incidence	HF/MW, TV and other transmitters, Local residents/child.	3	1,3	n.s.	Hocking et al. 1996	*
Tumors des Nervensystems einschl. Hirntumors, Incidence	RF/MW, Military	2	1,91	s.s.	Szmigielski 1996	*
Brain-Tumors, total, Incidence	HF, Sender Radio and Fernsehen, Local residents	3	1,29	n.s.	Dolk et al. 1997 a	*
Brain-Tumors, maligne, Incidence	HF, Sender Radio and Fernsehen, Local residents	3	1,31	n.s.	Dolk et al. 1997 a	*
Brain-Tumors, total, Incidence	RF/MW, Radar and Radio, Police	2	0,84	n.s.	Finkelstein 1998	*
Brain-Tumors, total, Incidence	MW, Mobil telecommunications, Mobile phones	3	1,20	n.s.	Hardell et al. 1999	*
Brain-Tumors,	MW, Mobilradio,	3	R 2,45	n.s.	Hardell et al. 1999	*

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
Expos.seite, Incidence	Handy		L 2,40	n.s.		
Cancer, Eyes						
Melanome, Augen, Incidence	MW, Radar, Military	1	2,1	s.s.	Holly et al. 1995	
Cancer of the respiratory system, lung cancer						
Cancer der Atmungsorgane, Morbidity	MW, Radar, Military	2	2,59	s.s.	Robinette et al. 1980	R*
Lungencancer, Morbidity	HF, Place of work, Men	1	0,80	n.s.	Milham 1985	
Lungencancer, Incidence	RF, Radio, Women	2	1,2	n.s.	Tynes et al. 1996	*
Lungencancer, Incidence	HF, Sender Radio and Fernsehen, Local residents	3	1,01	n.s.	Dolk et al. 1997 a	*
Lungencancer, Incidence	RF/MW, Radar and Radio, Police	2	0,66	s.s.	Finkelstein 1998	*
Chest cancer, Men						
Brustcancer, Mönner, Incidence	HF, Place of work	1	2,9	n.s.	Demers et al. 1991	
Brustcancer, Men, Incidence	HF, Sender Radio and Fernsehen, Local residents	3	1,64	n.s.	Dolk et al. 1997 a	*
Breast cancer, Women						
Brustcancer, Women, Morbidity	HF, Place of work	2	1,15	s.s.	Cantor et al. 1995	*
Brustcancer, Women, Incidence	RF, Radio, Women	2	1,5	s.s.	Tynes et al. 1996	*
Brustcancer, Women, Incidence	HF, Sender Radio and Fernsehen, Local	3	1,08	n.s.	Dolk et al. 1997 a	*

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
	residents					
Cancer of the lymphatic and blood forming systems, total						
Cancer des lymphat. and des blutbild. Systems, Morbidity	MW, Radar, Military	2	1,98	n.s.	Robinette et al. 1980	R*
Cancer des lymphat. and des blutbild. Systems, Morbidity	HF, Place of work, Men	1	1,37	n.s.	Milham 1985	
Cancer des lymphat. and des blutbild. Systems, Incidence	HF, Sender Radio and Fernsehen, Local residents	3	1,21	n.s.	Dolk et al. 1997 a	*
Cancer des lymphat. and des blutbild. Systems, Incidence	RF/MW, Military	2	6,31	s.s.	Szmigielski 1996	*
Leukaemia, total						
Leukaemia, total, Morbidity	HF, Place of work	1	1,11	n.s.	Milham 1982	
Leukaemia, total, Morbidity	RF, Amateur radio user	2	1,91	s.s.	Milham 1985 a	
Leukaemia, total, Morbidity	HF, Place of work, Men	1	1,02	n.s.	Milham 1985 b	
Leukaemia, total, Morbidity	RF Amateur radio user	2	1,24	n.s.	Milham 1988	
Leukaemia, total, Incidence	HF, Military	1	2,4	s.s.	Garland et al. 1990	
Leukaemia, total, Incidence	HF, Place of work	1	0,8	n.s.	Törnqvist et al. 1991	
Leukaemia, total, Incidence	RF, Place of work, Men	2	2,85	s.s.	Tynes et al. 1992	
Leukaemia, total, Incidence	RF, Radio, Women	2	1,1	n.s.	Tynes et al. 1996	*

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
Leukaemia, total, Morbidity	RF/MW, TV and other transmitters, Local residents/ Adults	3	1,17	n.s.	Hocking et al. 1996	*
Leukaemia, total, Morbidity	RF/MW, TV and other transmitters, Local residents/ children.	3	2,32	s.s.	Hocking et al. 1996	*
Leukaemia, total, Incidence	RF/MW, TV and other transmitters , Local residents/ Adults	3	1,24	s.s.	Hocking et al. 1996	*
Leukaemia, total, Incidence	RF/MW, TV and other transmitters, Local residents/ Children.	3	1,58	s.s.	Hocking et al. 1996	*
Leukaemia, total, Incidence	HF, Sender Radio and Fernsehen, Local residents	3	1,83	s.s.	Dolk et al. 1997 a	*
Leukaemia and Non-Hodgkin-Lymphoma, total, Incidence	HF, Sender Radio and Fernsehen, Local residents	3	1,25	n.s.	Dolk et al. 1997 a	*
Leukaemia, total, Incidence	RF/MW, Radar and Radio, Police	2	0,6	n.s.	Finkelstein 1998	*
Leukaemia, total, Incidence	RF/MW, TV and other transmitters, Local residents/ children.	3	1,47	n.s.	McKenzie et al. 1998	*
Acute Leukaemia, total						
Acute Leukaemia, total, Morbidity	HF, Place of work	1	2,39	n.s.	Milham 1982	

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
Acute Leukaemia, total, Morbidity	HF, Place of work, Men	1	2,12	n.s.	Milham 1985	
Acute Unspez. Leukaemia, Morbidity	RF, Amateur radio users	2	1,76	n.s.	Milham 1988	
Acute Leukaemia, total, Incidence	HF, TV and Radio transmitters, Local residents	3	1,86	n.s.	Dolk et al. 1997 a	*
Lymphat. Leukaemia, total						
Lymphat. Leukaemia, total, Morbidity	RF, Amateur radio users	2	0,77	n.s.	Milham 1985	
Lymphat. Leukaemia, total, Morbidity	RF, Amateur radio users	2	1,03	n.s.	Milham 1988	
Lymphat. Leukaemia, total, Morbidity	RF/MW, TV and other transmitters, Local residents/ Adults	3	1,39	s.s.	Hocking et al. 1996	*
Lymphat. Leukaemia, total, Morbidity	RF/MW, TV and other transmitters, Local residents/ children.	3	2,74	s.s.	Hocking et al. 1996	*
Lymphat. Leukaemia, total, Incidence	RF/MW, TV and other transmitters, Local residents/ Adults	3	1,32	s.s.	Hocking et al. 1996	*
Lymphat. Leukaemia, total, Incidence	RF/MW, TV and other transmitters, Local residents/ children	3	1,55	s.s.	Hocking et al. 1996	*

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
Lymphat. Leukaemia, total, Incidence	RF/MW, TV and other transmitters, Local residents /children.	3	1,53	n.s.	McKenzie et al. 1998	*
Acute Lymphat. Leukaemia						
Acute Lymphat. Leukaemia, Morbidity	RF, Amateur radio users	2	1,20	n.s.	Milham 1988	
Acute Lymphat. Leukaemia, Incidence	HF, Sender Radio and Fernsehen, Local residents	3	3,57	n.s.	Dolk et al. 1997 a	*
Chron. Lymphat. Leukaemia						
Chron. Lymphat. Leukaemia, Morbidity	RF, Amateur radio users	2	1,43	n.s.	Milham 1985	
Chron. Lymphat. Leukaemia, Morbidity	RF, Amateur radio users	2	1,09	n.s.	Milham 1988	
Chron. Lymphat. Leukaemia, Incidence	HF, Place of work	1	1,3	n.s.	Törnqvist et al. 1991	
Chron. Lymphat. Leukaemia, Incidence	HF, Sender Radio and Fernsehen, Local residents	3	2,56	s.s.	Dolk et al. 1997 a	*
Myelo. Leukaemia, total						
Myelo. Leukaemia, total, Morbidity	RF, Amateur radio users	2	2,81	s.s.	Milham 1985	
Myelo. Leukaemia, total, Morbidity	RF, Amateur radio users	2	1,40	n.s.	Milham 1988	
Myelo. Leukaemia, total, Morbidity	RF/MW, TV and other transmitters,	3	1,01	n.s.	Hocking et al. 1996	*

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
	Local residents/ Adults					
Myelo. Leukaemia, total, Morbidity	RF/MW, TV and other transmitters, Local residents/child.	3	1,77	n.s.	Hocking et al. 1996	*
Myelo. Leukaemia, total, Incidence	RF/MW, TV and other transmitters, Local residents/ Adults	3	1,09	n.s.	Hocking et al. 1996	*
Myelo. Leukaemia, total, Incidence	RF/MW, TV and other transmitters, Local residents/child.	3	1,73	n.s.	Hocking et al. 1996	*
Acute Myelo. Leukaemia						
Acute Myelo. Leukaemia, Morbidity	RF, Amateur radio users	2	2,89	s.s.	Milham 1985	
Acute Myelo. Leukaemia, Morbidity	RF, Amateur radio users	2	1,76	s.s.	Milham 1988	
Acute Myelo. Leukaemia, Incidence	HF, Place of work	1	2,1	n.s.	Törnqvist et al. 1991	
Acute Myelo. Leukaemia, Incidence	HF, Radio, TV, Local residents	3	1,02	n.s.	Dolk et al. 1997	*
Chron. Myelo. Leukaemia						
Chron. Myelo. Leukaemia, Morbidity	RF, Amateur radio users	2	2,67	s.s.	Milham 1985	
Chron. Myelo. Leukaemia,	RF, Amateur radio users	2	0,86		Milham 1988	

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
Morbidity						
Chron. Myelo. Leukaemia, Incidence	HF, Radio and TV transmitters, Local residents	3	1,23	n.s.	Dolk et al. 1997	*
Leukaemia, non-lymph. and non-myelo.						
Leukaemia, non-lymph. and non-myelo., Morbidity	RF/MW, TV and other transmitters, Local residents/ Adults	3	1,57	s.s.	Hocking et al. 1996	*
Leukaemia, non-lymph. and non-myelo., Morbidity	RF/MW, TV and other transmitters, Local residents/child.	3	1,45	n.s.	Hocking et al. 1996	*
Leukaemia, non-lymph. and non-myelo., Incidence	RF/MW, TV and other transmitters, Local residents/ Adults	3	1,67	s.s.	Hocking et al. 1996	*
Leukaemia, non-lymph. and non-myelo., Incidence	RF/MW, TV and other transmitters, Local residents/child.	3	1,65	n.s.	Hocking et al. 1996	*
Lymphomas, Hodgkin-Syndrome						
Lymphosarkome, Morbidity	HF, Place of work, Men	1	0,73	n.s.	Milham 1985	
Lymphome, excl. Lymphosarkoma, Morbidity	HF, Place of work, Men	1	3,42	n.s.	Milham 1985	
Hodgkin-Syndrome, Morbidity	RF, Amateur radio users	2	1,23	n.s.	Milham 1988	
Other malignant illness of the lymphat. tissues, Morbidity	RF, Amateur radio users	2	1,62	s.s.	Milham 1988	

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
Lymphomas, total, Incidence	RF, Radio, Women	2	1,3	n.s.	Tynes et al. 1996	*
Hodgkin-Syndrome, Incidence	RF/MW, Radar and Radio, Police	2	0,84	n.s.	Finkelstein 1998	*
Non-Hodgkin-Lymphoma, Incidence	HF, Radio and TV transmitters, Local residents	3	0,66	n.s.	Dolk et al. 1997 a	*
Testicular cancer						
Testicular cancer, Incidence	RF/MW, Place of work	2	3,1	s.s.	Hayes et al. 1990	
Germ cell-Carcinoma, Seminoma	RF/MW, Place of work	2	2,8	n.s.	Hayes et al. 1990	
Germ cell-Carzinome, others	RF/MW, Place of work	2	3,2	s.s.	Hayes et al. 1990	
Testicular cancer, Incidence	MW, Radar, Police	2	6,9	s.s.	Davis & Mostofi 1993	*
Testicular cancer, Incidence	RF/MW, Radar and Radio, Police	2	1,33	s.s.	Finkelstein 1998	*
Cancer of the uterus						
Cancer of the uterus, Incidence	RF, Radio, Women	2	1,9	s.s.	Tynes et al. 1996	*
Skin cancer						
Skin Cancer, Malignant Melanoma, Incidence	RF, Radio, Women	2	0,9	n.s.	Tynes et al. 1996	*
Skin Cancer, total, Incidence	RF/MW, Military	2	1,67	n.s.	Szmigielski 1996	*
Skin cancer, Malignant	HF, Radio and TV transmitters, Local	3	1,43	n.s.	Dolk et al. 1997 a	*

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
Melanoma, Incidence	residents					
Skin cancer, Malignant Melanoma, Incidence	RF/MW, Radar and Radio, Police	2	1,37	s.s.	Finkelstein 1998	*
Heart and cardio vascular diseases						
Cardio vascular diseases, Morbidity	MW, Radar, Military	2	1,09	n.s.	Robinette et al. 1980	R*
Cardio vascular diseases, Morbidity	RF, Amateur radio users	2	0,70	s.s.	Milham 1988	
Abnorm. Hearbeat rate variability	RF/AM, Radio transmitters, Place of work	2	1,6	s.s.	Bortkiewicz et al. 1996	*
Abnormal ECG	MW	2	2,9	?	Zhao et al. 1994	R
Cardio vascular complaints	MW	2	3,2	?	Zhao et al. 1994	R
Infertility, reduced fertility, Men						
reduced Fertility, reduced Sperm count	MW, Place of work	2	1,20	s.s.	Lancranjan et al. 1975	R
reduced Fertility, immob. Spermatozoa	MW, Place of work	2	1,39	s.s.	Lancranjan et al. 1975	R
reduced Fertility, normal Spermatozoa	MW, Place of work	2	1,18	s.s.	Lancranjan et al. 1975	R
reduced. Fertility, reduced Sperm count	MW, Military	2	2,70	s.s.	Weyandt et al. 1996	R
reduced Fertility, reduced sperm	MW, Radar	2	1,54	n.s.	Hjollund et al. 1997	R

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
count						
reduced Fertility, immob. Spermatozoa	MW, Radar	2	1,58	n.s.	Hjollund et al. 1997	R
reduced Fertility, reduced Sperm count	MW, Radar	2	1,10	n.s.	Schrader et al 1998	R
Infertility, reduced. fertility, Women						
reduced. fertilityt	KW, Place of work, Physiotherapie, Mothers	2	1,7	n.s.	Larsen et al. 1991 a	*
Miscarriages, Stillbirths, Malformations and other abnormalities of newborns						
Malformations and perinatal death	KW, Place of work, Mother	2	2,36	s.s.	Källén et al 1982	
Miscarriage	MW, Place of work, Mother	2	1,28	s.s.	Ouellet-Hellstrom & Stewart 1993	*
Miscarriage	KW, Place of work, Mother	2	1,07	n.s.	Ouellet-Hellstrom & Stewart 1993	*
Cancer, Offspring (parental exposure)						
Tumors of the nervous system	HF, Place of work, fathers	1	2,01	n.s.	Cole Johnson & Spitz 1989	
Cancer, total, Incidence	Radar, Place of work, fathers	2	2,3	s.s.	Smulevich et al. 1999	*
Neurodegenerative Diseases						
Alzheimer's, Morbidity	HF, Place of work	1	1,5	n.s.	Savitz et al. 1998	*
Parkinson's Disease	HF, Place of work	1	-		Savitz et al. 1998	*
Amyotrophic Lateral Sklerosis	HF, Place of work	1	-		Savitz et al. 1998	*
Disturbances of motoric and psychological reactions, Unwellness						
Reduced stamina,	MW, Radar	2	1,38	s.s.	Kolodynski &	R*

Illness	Exposure	Exp. class.	R.R.	stat. Sign.	References	C
Boys					Kolodynska 1996	
Reduced stamina, Girls	MW, Radar	2	1,38	s.s.	Kolodynski & Kolodynska 1996	R*
reduced memory, Boys	MW, Radar	2	1,09	s.s	Kolodynski & Kolodynska 1996	R*
Reduced memory, Girls	MW, Radar	2	1,12	s.s	Kolodynski & Kolodynska 1996	R*
Reduced concentration, Boys	MW, Radar	2	1,23	s.s.	Kolodynski & Kolodynska 1996	R*
Reduced Concentration, Girls	MW, Radar	2	1,20	s.s.	Kolodynski & Kolodynska 1996	R*
Extended reaction time, Boys	MW, Radar	2	1,07	n.s.	Kolodynski & Kolodynska 1996	R*
Extended reaction time, Girls	MW, Radar	2	1,12	s.s.	Kolodynski & Kolodynska 1996	R*
Unwellness. ('Neurosis')	MW	2	3,2	?	Zhao et al. 1994	R

Appendix E (only available in German)

Extracts of our database (EMFbase)

Important research papers relevant to the assessment of health risks resulting from exposure to the electromagnetic fields of mobile telecommunications under the aspect of precautionary health protection