

The Microwave Syndrome Further Aspects of a Spanish Study

3rd International Workshop
on Biological Effects of Electromagnetic Fields
4 – 8 October 2004, Kos, Greece

Oberfeld G, Navarro A E, Portolés M,
Maestú C, Gómez-Perretta C

Area under study

- ◆ La Ñora
 - little village close to Murcia – south east of Spain
 - ~ 1900 inhabitants
 - situated on the slope of a hill



Time schedule

GSM 900 mast
site

GSM 1800
mast site



1997

1998

1999

2000

2001

2002

2003

2004

GSM 900 MHz Base Station



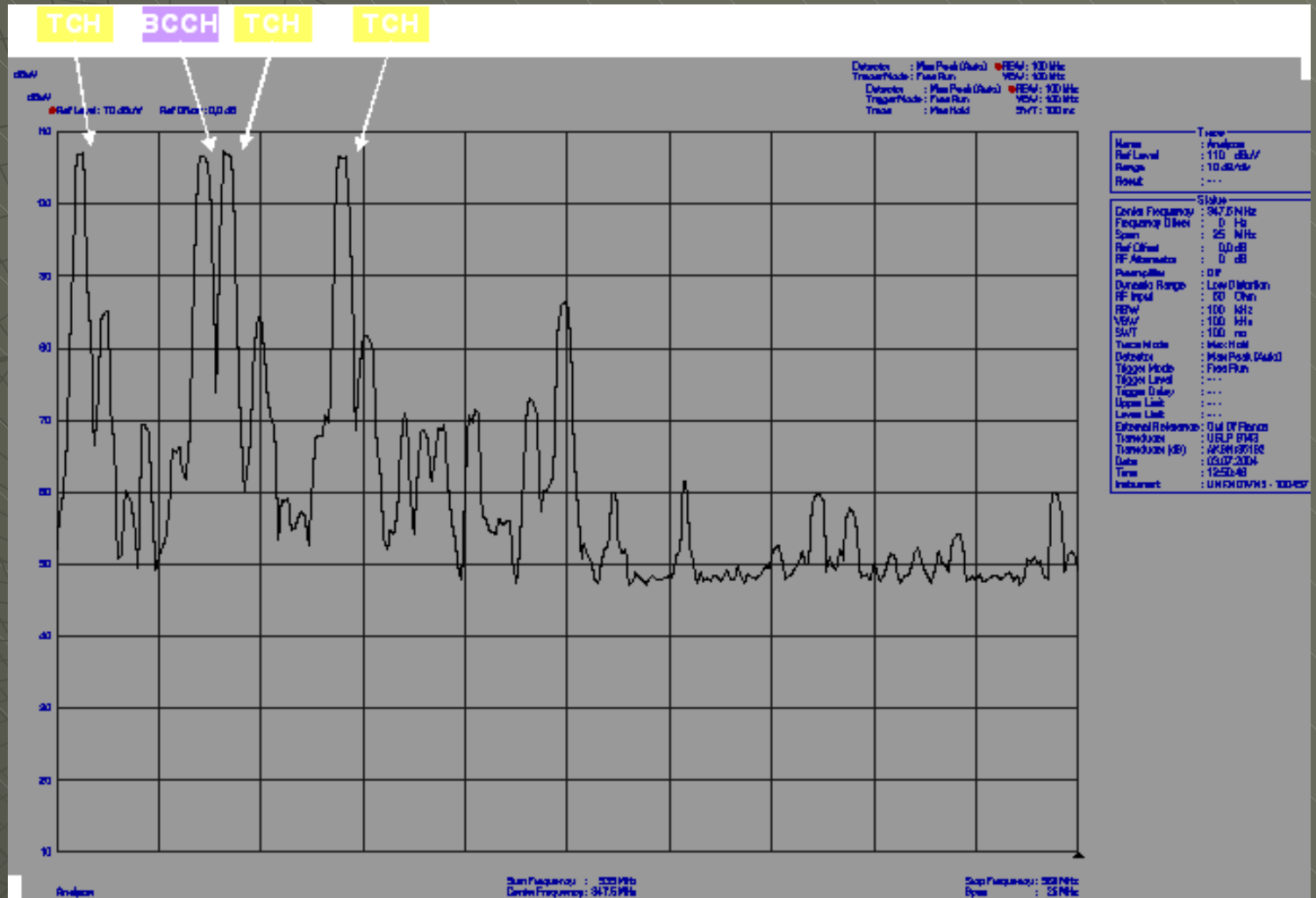
GSM 1800 MHz Base Station



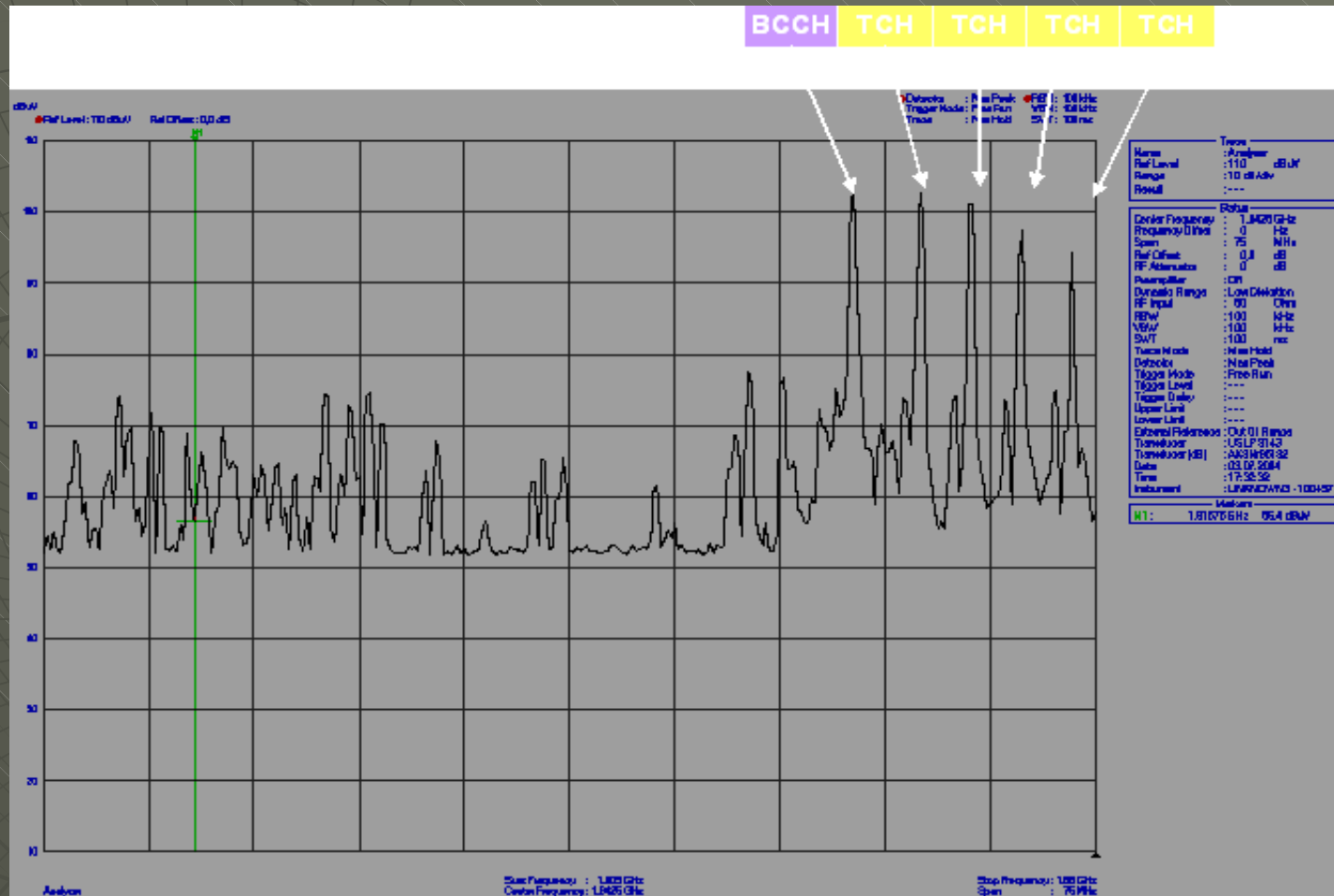
GSM 1800 MHz Base Station



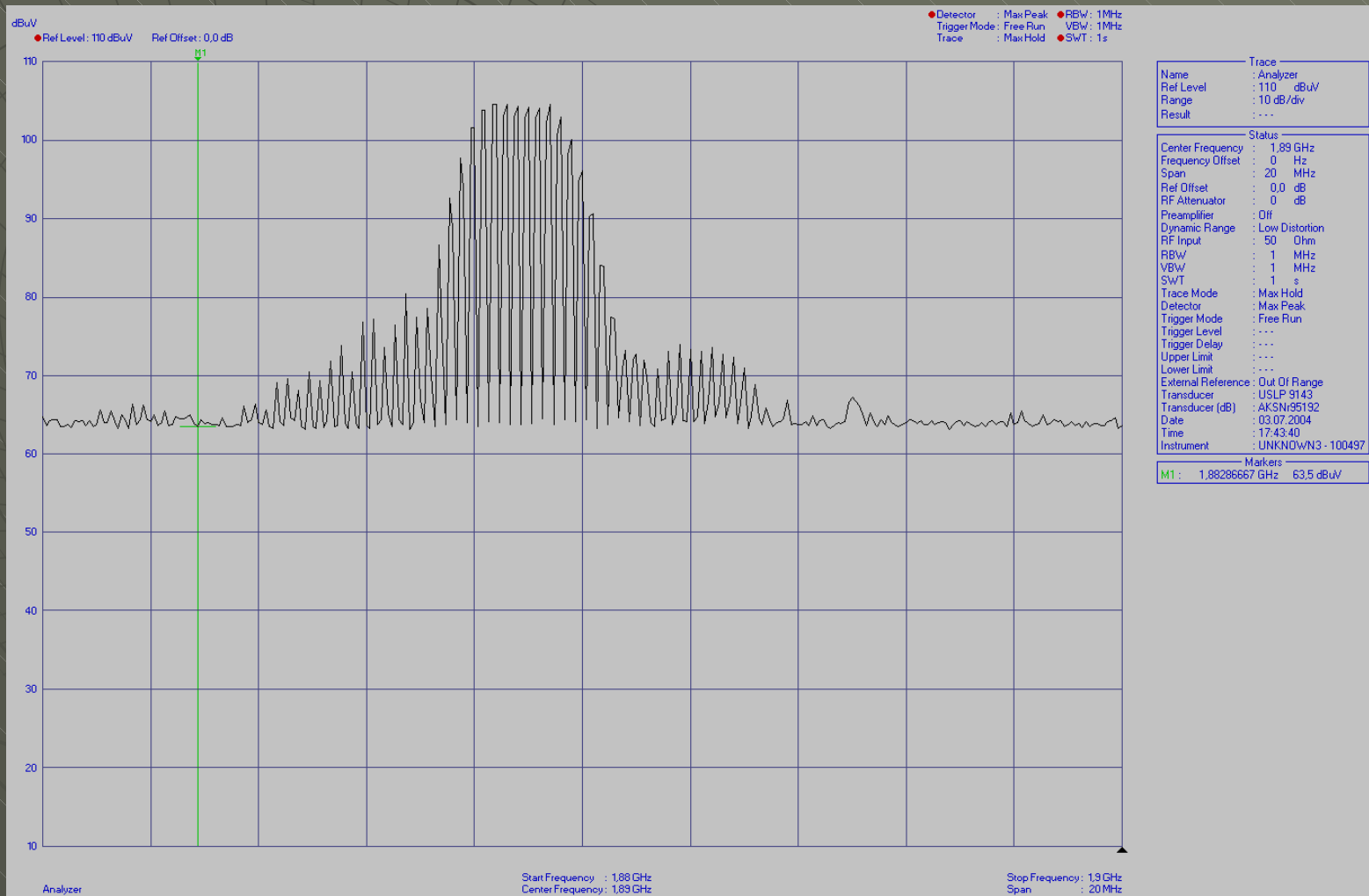
GSM 900 MHz



GSM 1800 MHz



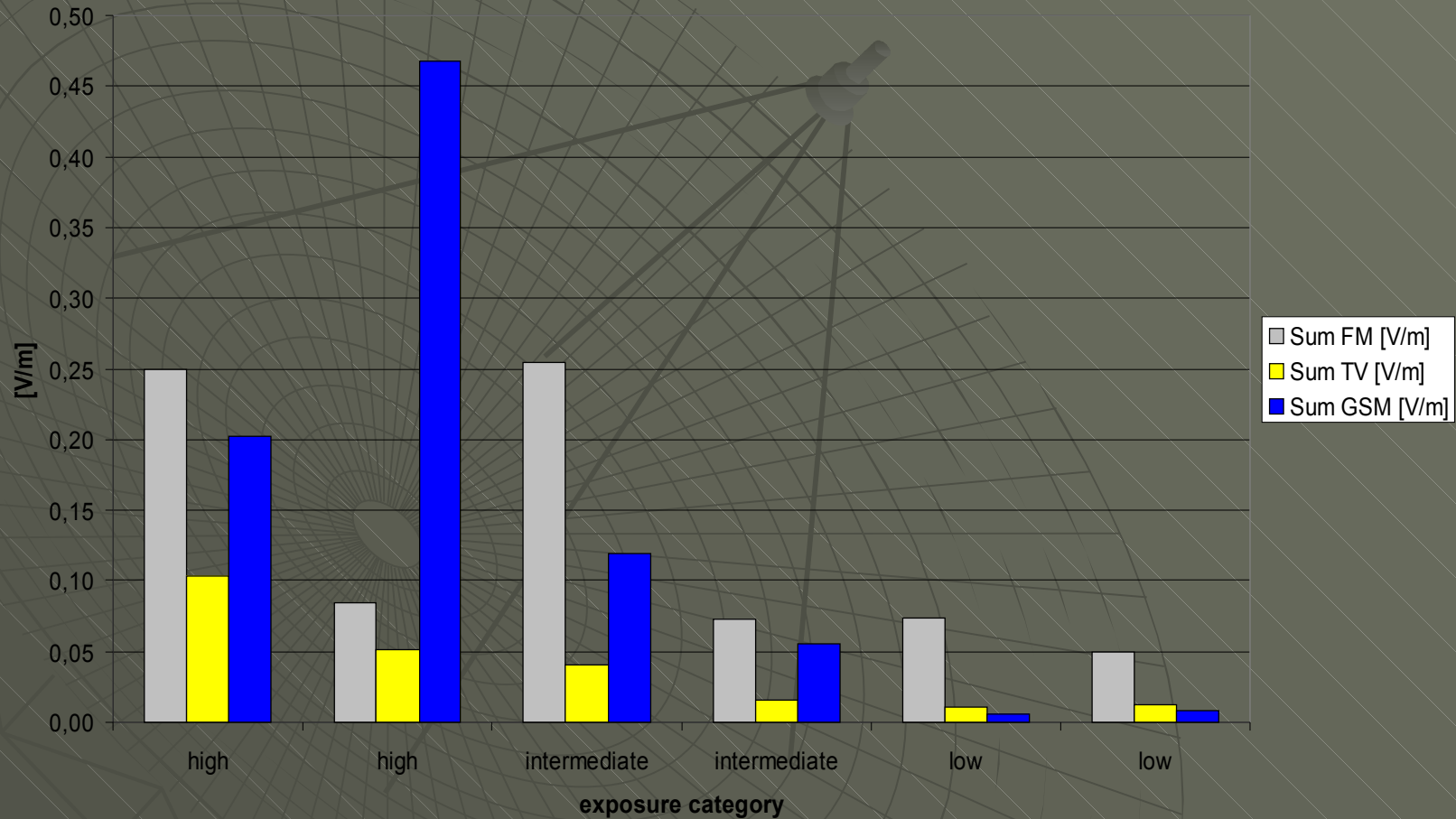
DECT 1880 - 1900 MHz



Results

Exposure distribution 2004

Exposure distribution La Ñora 3rd July 2004

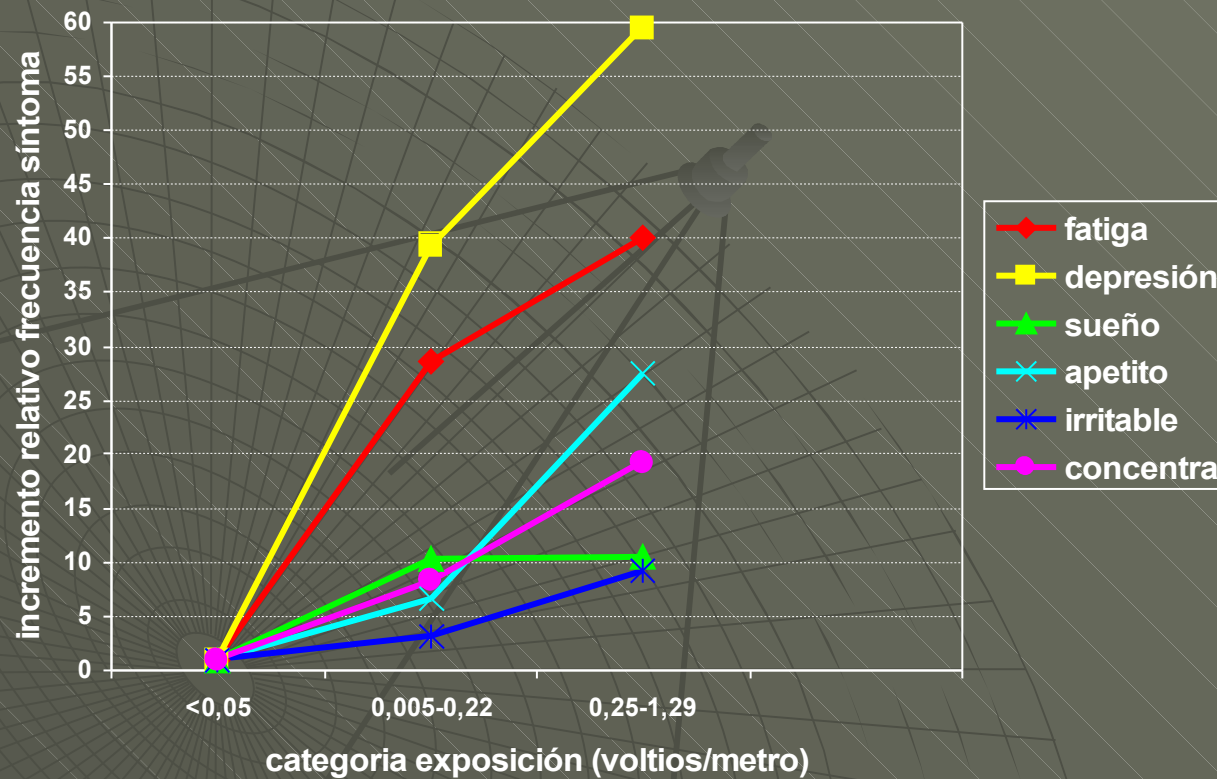


Results

Logistic regression model sex, age & distance adjusted

Health Outcome	0.05 – 0.22 V/m 0.0006 – 0.0128 $\mu\text{W}/\text{cm}^2$ 6 – 128 $\mu\text{W}/\text{m}^2$			0.25 – 1.29 V/m 0.0165 – 0.440 $\mu\text{W}/\text{cm}^2$ 165 – 4400 $\mu\text{W}/\text{m}^2$			p for the trend
	OR	95%-CI	p	OR	95%-CI	p	
Fatigue	28.53	3.03 – 268.78	0.0034	40.11	4.56 – 352.44	0.0009	0.0039
Irritability	3.12	0.91 – 10.68	0.0704	9.22	2.86 – 29.67	0.0002	0.0009
Headaches	5.99	1.50 – 23.93	0.0113	6.10	1.80 – 20.65	0.0037	0.0050
Nausea	5.92	0.60 – 58.68	0.1288	12.80	1.48 – 110.64	0.0205	0.0499
Loss of Appetite	6.66	0.62 – 71.52	0.1175	27.53	3.07 – 247.03	0.0031	0.0030
Sleeping Disorder	10.39	2.43 – 44.42	0.0016	10.61	2.88 – 39.19	0.0004	0.0008
Depressive Tendency	39.41	4.02 – 386.40	0.0016	59.39	6.41 – 550.11	0.0003	0.0016
Feeling of Discomfort	4.29	1.14 – 16.15	0.0314	10.90	3.16 – 37.56	0.0002	0.0007
Difficulty in Concentration	8.27	2.01 – 34.01	0.0034	19.17	4.91 – 74.77	0.0000	0.0001
Loss of Memory	2.35	0.62 – 8.89	0.2090	7.81	2.27 – 26.82	0.0011	0.0031
Skin Disorder	7.04	1.06 – 46.62	0.0429	8.22	1.39 – 48.51	0.0201	0.0628
Visual Disorder	2.48	0.65 – 9.44	0.1830	5.75	1.68 – 19.75	0.0054	0.0186
Hearing Disorder	3.89	0.99 – 15.21	0.0510	1.63	0.45 – 5.95	0.4572	0.1285
Dizziness	2.98	0.62 – 14.20	0.1712	8.36	1.95 – 35.82	0.0042	0.0117
Gait Difficulties	1.32	0.30 – 5.84	0.7114	2.07	0.57 – 7.50	0.2690	0.5211
Cardiovascular Problems	9.42	0.93 – 95.07	0.0572	17.87	1.96 – 162.76	0.0105	0.0333

Relación entre la frecuencia del síntoma con la exposición de campo eléctrico



CONCLUSIONES

Estos resultados coinciden con estudios similares [Santini 2002, Hutter 2002]

Basados en este estudio y en línea con la evidencia empírica de los últimos años el Departamento de Salud Pública de Salzburgo recomendó no sobrepasar nunca un promedio residencial de $0,0001 \text{ uW} / \text{cm}^2$ para las estaciones GSM de Telefonía Móvil

De esta forma el presente estudio realizado en la población española de La Ñora, Murcia ha servido de manera clave para establecer la anterior propuesta por el departamento de Salud Pública de Salzburgo desde el 2002