

Mobile Phone Base-Station Audit

**Audit site: CROSBY YARD AREA
BRIDGEND
CF31**

In 2000 the Government asked the Radiocommunications Agency to implement a national measurement programme to ensure that emissions from cellular base stations do not exceed the guidelines for public maximum exposure set by the International Commission on Non-Ionizing Radiation Protection (ICNIRP). Ofcom took over the functions of the Radiocommunications Agency, along with those of the Independent Television Commission, Radio Authority, Ofjel and Broadcasting Standards Commission, on 29 December 2003.

Electric field strength measurements made in various bands are referenced to and presented alongside the relevant ICNIRP public maximum exposure levels. On the left hand side of the results page(s) is a graphical representation of the radio spectrum surveyed at each location on the site. The green line on each graph indicates the ICNIRP guideline exposure level for that frequency band. To the right hand side of each graph is a table showing the ten highest level emissions recorded within a band.

Further explanation of the results and their context within the ICNIRP guidelines can be provided by the Ofcom officers at the time of the audit or by contacting Ofcom on 0845 456 3000, or by email at contact@Ofcom.org.uk. Results taken from all audit sites and further information on the audit programme can be found on the Ofcom website at www.ofcom.org.uk.

Report Summary

As the radio spectrum is continually changing, these measurements can only provide information on the radio frequency (RF) conditions for the specific locations at the time of the survey.

Ofcom performed this survey of the RF emission environment prevailing in the vicinity of CROSBY YARD AREA on 23 September 2004.

The following table, sorted in descending order of signal level, summarises the results obtained at each measurement location.

Summary of results:		
Location	Total Band Exposure	Relationship to ICNIRP Limit
AREA OF UNITS 25-29	1.32E-05	1/75677
LANE BEHIND QUARELLA ROAD	1.16E-05	1/86121
CARPARK BY RAILWAY LINE	8.20E-06	1/121960
HAYS TERRACE	5.81E-06	1/172198
BETWEEN UNITS 13 AND 16	3.99E-06	1/250545
NORTHERN END OF QUARELLA GARDENS	3.95E-06	1/252916

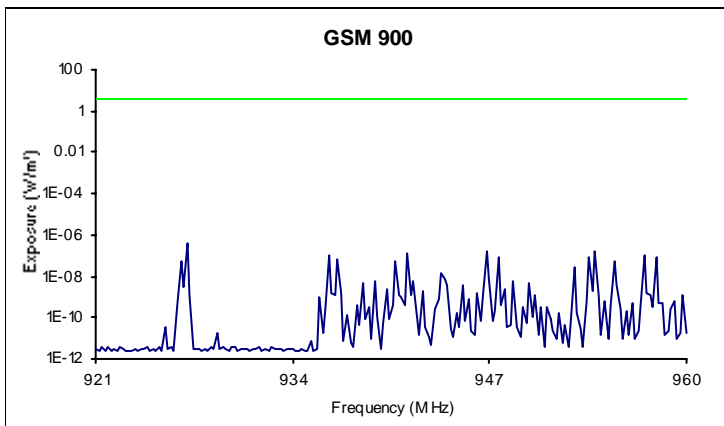
Issued on behalf of Ofcom.

Issued by:

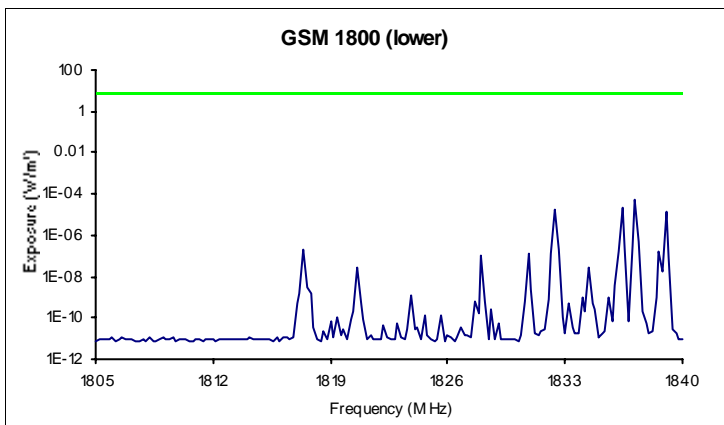
Received by:

Keith Stanton
Technical Investigation Officer

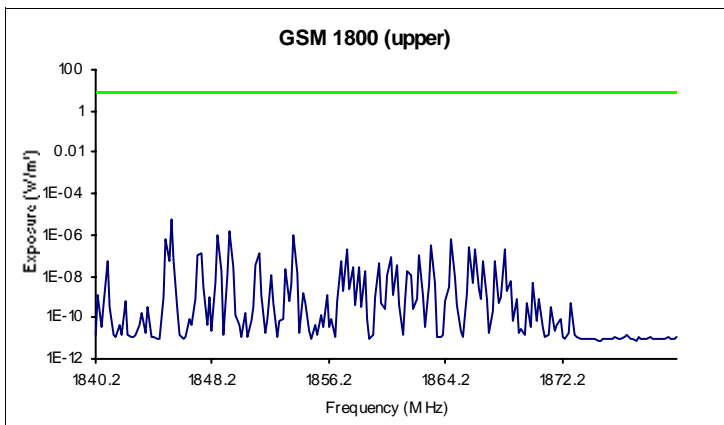
Site: CROSBY YARD AREA	Receiver:
Location: AREA OF UNITS 25-29	Manufacturer: ROHDE&SCHWARZ
NGR: SS 9042 8067 Taken from GPS	Model: EB200
Start Time: 23 September 2004 10:27:07	Serial Number: 836.378/014
Officer: Keith Stanton	Antenna:
	Manufacturer: Rohde & Schwarz
	Model: HE200.4050.3609.02
	Serial Number: 836287/009



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
927.000	4.18E-07	4.63	9.01E-08
946.800	1.74E-07	4.73	3.68E-08
954.000	1.47E-07	4.77	3.09E-08
941.600	1.19E-07	4.71	2.53E-08
957.200	9.80E-08	4.79	2.05E-08
936.400	9.56E-08	4.68	2.04E-08
953.600	9.07E-08	4.77	1.90E-08
958.000	7.80E-08	4.79	1.63E-08
947.600	7.61E-08	4.74	1.61E-08
937.000	6.18E-08	4.68	1.32E-08
Band Exposure Quotient:			3.52E-07



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,837.200	5.15E-05	9.19	5.61E-06
1,836.400	2.05E-05	9.18	2.23E-06
1,832.400	1.62E-05	9.16	1.76E-06
1,839.000	1.49E-05	9.20	1.62E-06
1,837.400	5.15E-07	9.19	5.61E-08
1,837.000	3.32E-07	9.19	3.62E-08
1,836.600	2.70E-07	9.18	2.94E-08
1,832.600	2.13E-07	9.16	2.32E-08
1,817.400	1.94E-07	9.09	2.13E-08
1,838.600	1.60E-07	9.19	1.74E-08
Band Exposure Quotient:			1.15E-05

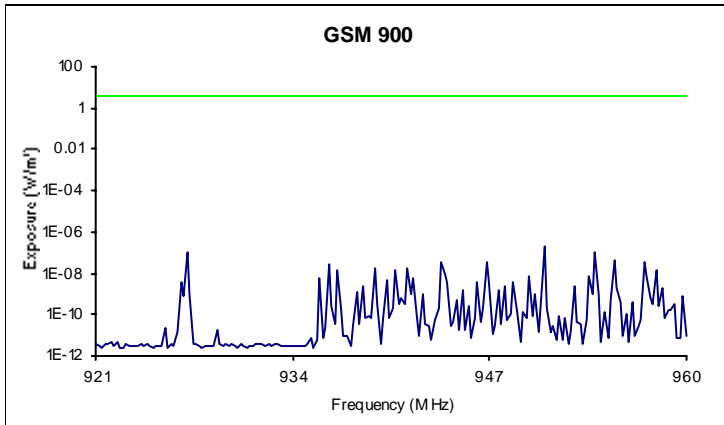


Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,845.400	5.60E-06	9.23	6.07E-07
1,849.400	1.59E-06	9.25	1.72E-07
1,853.800	1.03E-06	9.27	1.12E-07
1,848.600	8.72E-07	9.24	9.43E-08
1,845.000	5.99E-07	9.22	6.50E-08
1,864.600	5.79E-07	9.32	6.21E-08
1,863.200	3.56E-07	9.32	3.82E-08
1,865.800	2.42E-07	9.33	2.59E-08
1,857.400	1.94E-07	9.29	2.09E-08
1,868.200	1.93E-07	9.34	2.06E-08
Band Exposure Quotient:			1.38E-06

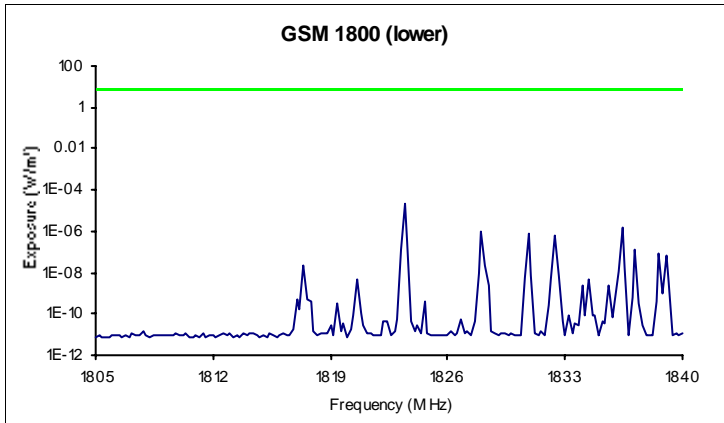
Total number of measurements: 572

Total Band Exposure Quotient: **1.32E-05**

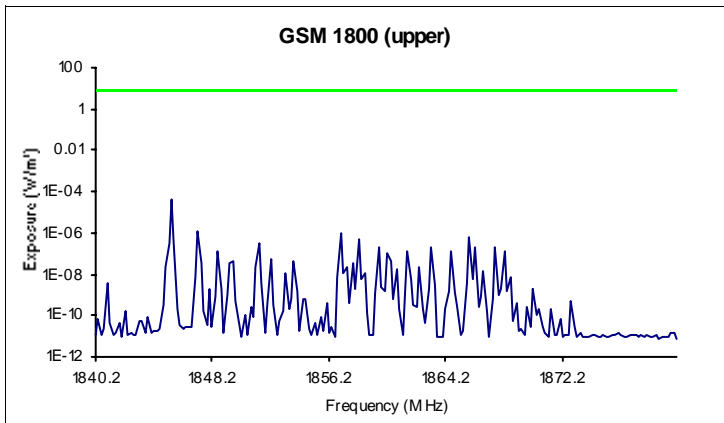
Site: CROSBY YARD AREA	Receiver:
Location: CARPARK BY RAILWAY LINE	Manufacturer: ROHDE&SCHWARZ
NGR: SS 9036 8068 Taken from GPS	Model: EB200
Start Time: 23 September 2004 10:46:24	Serial Number: 836.378/014
Officer: Keith Stanton	Antenna:
	Manufacturer: Rohde & Schwarz
	Model: HE200.4050.3609.02
	Serial Number: 836287/009



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
950.600	1.97E-07	4.75	4.15E-08
927.000	1.05E-07	4.63	2.26E-08
954.000	1.02E-07	4.77	2.14E-08
955.200	4.56E-08	4.78	9.55E-09
943.800	3.45E-08	4.72	7.31E-09
946.800	3.32E-08	4.73	7.01E-09
957.200	3.17E-08	4.79	6.63E-09
936.400	2.95E-08	4.68	6.31E-09
941.600	1.93E-08	4.71	4.10E-09
939.400	1.88E-08	4.70	4.00E-09
Band Exposure Quotient:			1.60E-07



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,823.400	2.25E-05	9.12	2.46E-06
1,836.400	1.35E-06	9.18	1.47E-07
1,828.000	9.44E-07	9.14	1.03E-07
1,830.800	7.71E-07	9.15	8.42E-08
1,832.400	5.87E-07	9.16	6.40E-08
1,823.600	3.32E-07	9.12	3.65E-08
1,823.200	1.23E-07	9.12	1.35E-08
1,837.200	1.18E-07	9.19	1.28E-08
1,838.600	9.18E-08	9.19	9.99E-09
1,839.000	7.47E-08	9.20	8.12E-09
Band Exposure Quotient:			2.96E-06

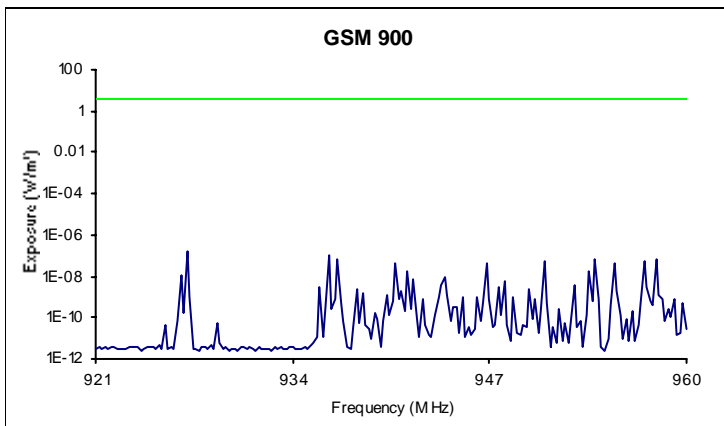


Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,845.400	4.06E-05	9.23	4.40E-06
1,847.200	1.15E-06	9.24	1.24E-07
1,857.000	9.70E-07	9.29	1.04E-07
1,865.800	6.51E-07	9.33	6.97E-08
1,845.600	5.11E-07	9.23	5.53E-08
1,858.200	4.98E-07	9.29	5.37E-08
1,845.200	3.22E-07	9.23	3.49E-08
1,851.400	3.04E-07	9.26	3.28E-08
1,863.200	2.14E-07	9.32	2.30E-08
1,859.600	2.08E-07	9.30	2.24E-08
Band Exposure Quotient:			5.08E-06

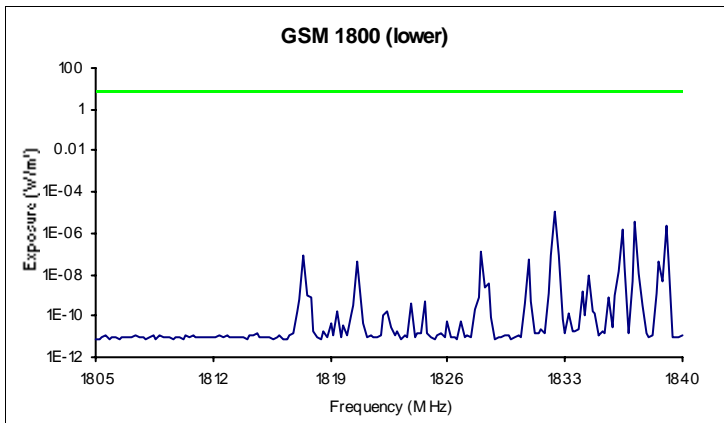
Total number of measurements: 572

Total Band Exposure Quotient: **8.20E-06**

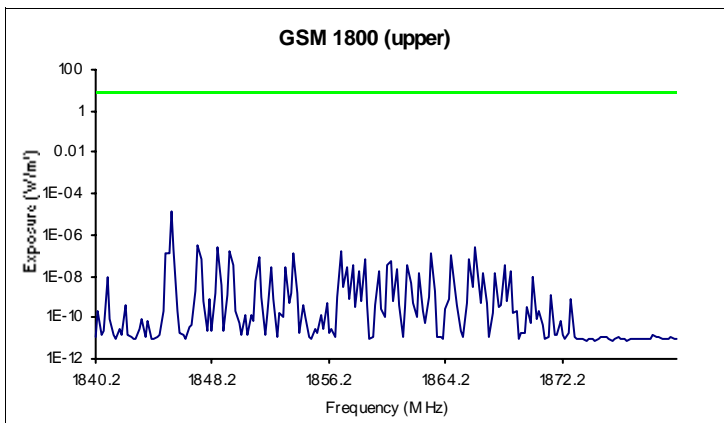
Site: CROSBY YARD AREA	Receiver:
Location: BETWEEN UNITS 13 AND 16	Manufacturer: ROHDE&SCHWARZ
NGR: SS 9041 8072 Taken from GPS	Model: EB200
Start Time: 23 September 2004 11:04:12	Serial Number: 836.378/014
Officer: Keith Stanton	Antenna:
	Manufacturer: Rohde & Schwarz
	Model: HE200.4050.3609.02
	Serial Number: 836287/009



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
927.000	1.55E-07	4.63	3.35E-08
936.400	9.78E-08	4.68	2.09E-08
954.000	7.21E-08	4.77	1.51E-08
958.000	6.49E-08	4.79	1.35E-08
937.000	6.18E-08	4.68	1.32E-08
957.200	5.77E-08	4.79	1.21E-08
950.600	5.43E-08	4.75	1.14E-08
955.200	4.78E-08	4.78	1.00E-08
946.800	4.69E-08	4.73	9.90E-09
940.800	4.31E-08	4.70	9.17E-09
Band Exposure Quotient:			1.75E-07



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,832.400	1.04E-05	9.16	1.14E-06
1,837.200	3.82E-06	9.19	4.16E-07
1,839.000	2.59E-06	9.20	2.82E-07
1,836.400	1.45E-06	9.18	1.58E-07
1,828.000	1.24E-07	9.14	1.36E-08
1,817.400	7.89E-08	9.09	8.68E-09
1,832.600	7.91E-08	9.16	8.64E-09
1,832.200	7.91E-08	9.16	8.63E-09
1,830.800	5.21E-08	9.15	5.69E-09
1,839.200	4.40E-08	9.20	4.78E-09
Band Exposure Quotient:			2.06E-06

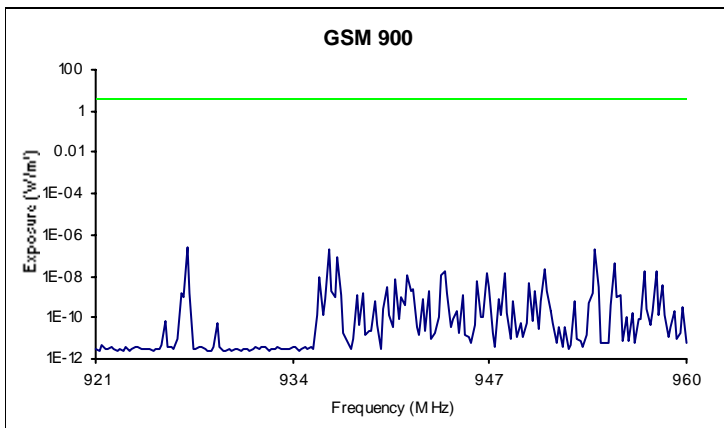


Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,845.400	1.34E-05	9.23	1.46E-06
1,847.200	2.95E-07	9.24	3.19E-08
1,866.200	2.71E-07	9.33	2.91E-08
1,848.600	2.40E-07	9.24	2.60E-08
1,845.600	1.85E-07	9.23	2.01E-08
1,849.400	1.82E-07	9.25	1.97E-08
1,857.000	1.61E-07	9.29	1.73E-08
1,845.000	1.44E-07	9.22	1.56E-08
1,853.800	1.43E-07	9.27	1.54E-08
1,863.200	1.29E-07	9.32	1.39E-08
Band Exposure Quotient:			1.75E-06

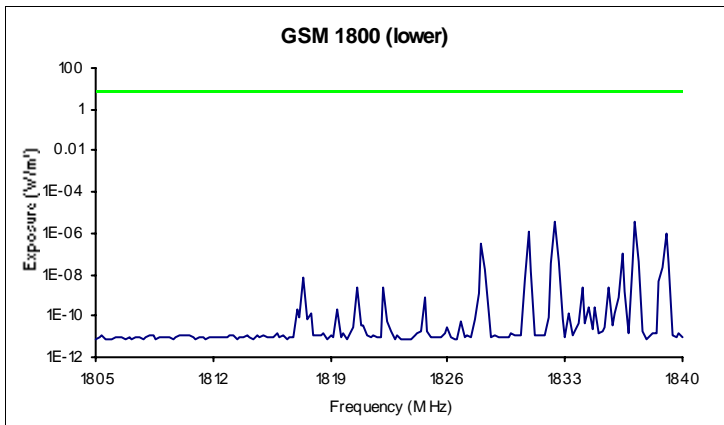
Total number of measurements: 572

Total Band Exposure Quotient: **3.99E-06**

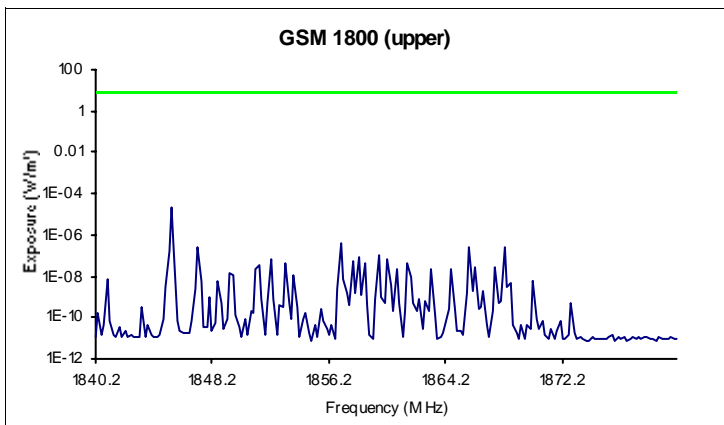
Site: CROSBY YARD AREA	Receiver:
Location: NORTHERN END OF QUARELLA GARDENS	Manufacturer: ROHDE&SCHWARZ
	Model: EB200
	Serial Number: 836.378/014
NGR: SS 9037 8055 Taken from GPS	Antenna:
Start Time: 23 September 2004 11:36:55	Manufacturer: Rohde & Schwarz
Officer: Keith Stanton	Model: HE200.4050.3609.02
	Serial Number: 836287/009



Frequency (MHz)	Maximum Exposure (W/m ²)	ICNIRP Limit (W/m ²)	Frequency Exposure Quotient
927.000	2.52E-07	4.63	5.43E-08
936.400	2.14E-07	4.68	4.57E-08
954.000	2.13E-07	4.77	4.46E-08
937.000	9.35E-08	4.68	2.00E-08
955.200	3.88E-08	4.78	8.13E-09
950.600	2.06E-08	4.75	4.34E-09
944.000	1.94E-08	4.72	4.11E-09
958.000	1.79E-08	4.79	3.73E-09
957.200	1.59E-08	4.79	3.32E-09
946.800	1.48E-08	4.73	3.13E-09
Band Exposure Quotient:			2.15E-07



Frequency (MHz)	Maximum Exposure (W/m ²)	ICNIRP Limit (W/m ²)	Frequency Exposure Quotient
1,832.400	4.06E-06	9.16	4.43E-07
1,837.200	3.73E-06	9.19	4.06E-07
1,830.800	1.19E-06	9.15	1.30E-07
1,839.000	9.40E-07	9.20	1.02E-07
1,828.000	3.51E-07	9.14	3.84E-08
1,836.400	1.05E-07	9.18	1.14E-08
1,832.600	4.55E-08	9.16	4.97E-09
1,837.400	3.91E-08	9.19	4.25E-09
1,839.200	3.49E-08	9.20	3.80E-09
1,832.200	3.37E-08	9.16	3.68E-09
Band Exposure Quotient:			1.16E-06

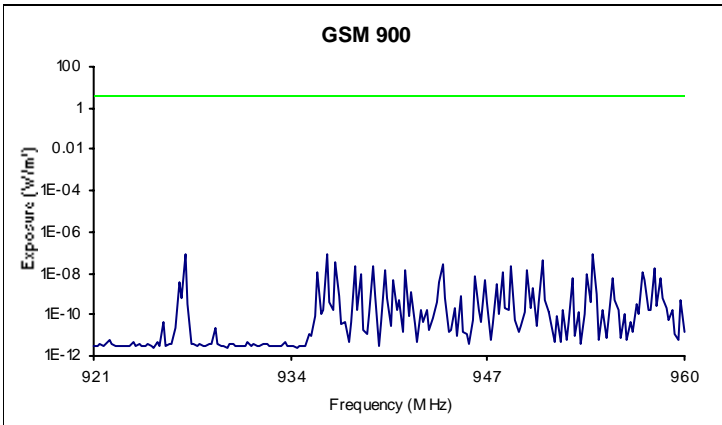


Frequency (MHz)	Maximum Exposure (W/m ²)	ICNIRP Limit (W/m ²)	Frequency Exposure Quotient
1,845.400	2.13E-05	9.23	2.31E-06
1,857.000	4.23E-07	9.29	4.56E-08
1,845.600	3.01E-07	9.23	3.26E-08
1,847.200	2.81E-07	9.24	3.05E-08
1,865.800	2.78E-07	9.33	2.98E-08
1,868.200	2.66E-07	9.34	2.85E-08
1,845.200	1.69E-07	9.23	1.83E-08
1,859.600	9.52E-08	9.30	1.02E-08
1,858.200	7.54E-08	9.29	8.12E-09
1,852.200	6.81E-08	9.26	7.35E-09
Band Exposure Quotient:			2.58E-06

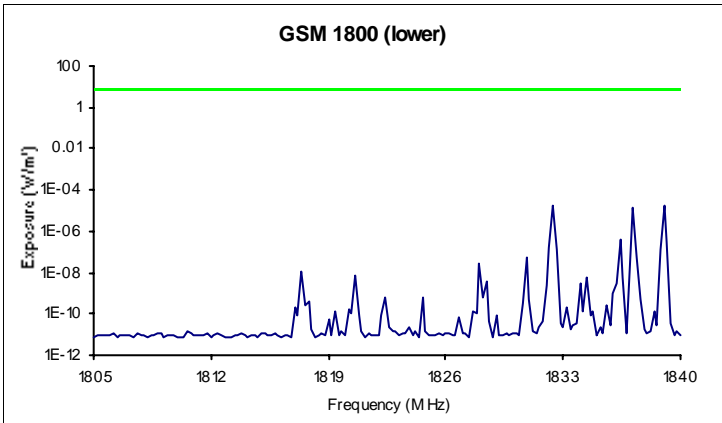
Total number of measurements: 572

Total Band Exposure Quotient: **3.95E-06**

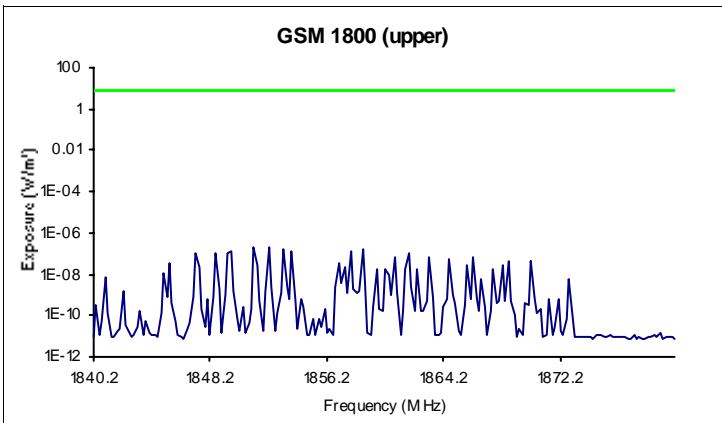
Site: CROSBY YARD AREA	Receiver:
Location: HAYS TERRACE	Manufacturer: ROHDE&SCHWARZ
NGR: SS 9054 8068 Taken from GPS	Model: EB200
Start Time: 23 September 2004 12:11:00	Serial Number: 836.378/014
Officer: Keith Stanton	Antenna:
	Manufacturer: Rohde & Schwarz
	Model: HE200.4050.3609.02
	Serial Number: 836287/009



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
927.000	7.60E-08	4.63	1.64E-08
936.400	7.59E-08	4.68	1.62E-08
954.000	7.55E-08	4.77	1.58E-08
950.600	4.12E-08	4.75	8.66E-09
937.000	3.40E-08	4.68	7.25E-09
944.000	2.81E-08	4.72	5.94E-09
938.200	2.25E-08	4.69	4.80E-09
939.400	2.11E-08	4.70	4.48E-09
948.600	2.05E-08	4.74	4.33E-09
958.000	1.63E-08	4.79	3.40E-09
Band Exposure Quotient:			1.22E-07



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,839.000	1.75E-05	9.20	1.90E-06
1,832.400	1.65E-05	9.16	1.80E-06
1,837.200	1.45E-05	9.19	1.58E-06
1,836.400	3.99E-07	9.18	4.35E-08
1,839.200	2.97E-07	9.20	3.23E-08
1,832.200	1.51E-07	9.16	1.65E-08
1,838.800	1.42E-07	9.19	1.55E-08
1,832.600	1.41E-07	9.16	1.54E-08
1,837.000	9.81E-08	9.19	1.07E-08
1,837.400	5.78E-08	9.19	6.29E-09
Band Exposure Quotient:			5.44E-06

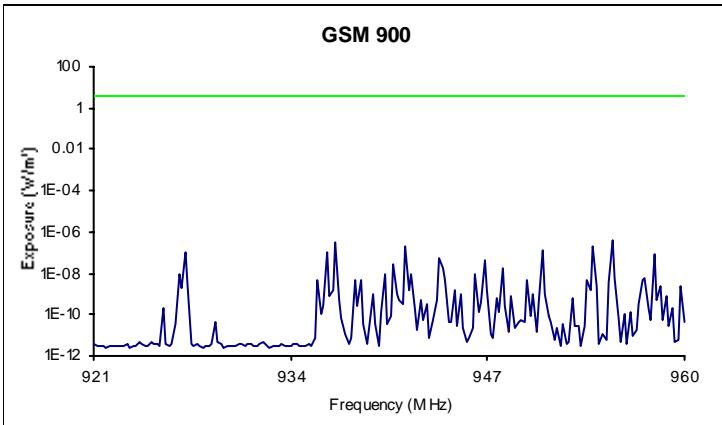


Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,852.200	2.10E-07	9.26	2.27E-08
1,851.200	1.83E-07	9.26	1.98E-08
1,858.600	1.58E-07	9.29	1.70E-08
1,853.200	1.56E-07	9.27	1.69E-08
1,857.800	1.37E-07	9.29	1.48E-08
1,853.800	1.27E-07	9.27	1.37E-08
1,849.600	1.26E-07	9.25	1.37E-08
1,849.400	1.12E-07	9.25	1.22E-08
1,848.600	1.10E-07	9.24	1.19E-08
1,861.800	1.07E-07	9.31	1.15E-08
Band Exposure Quotient:			2.41E-07

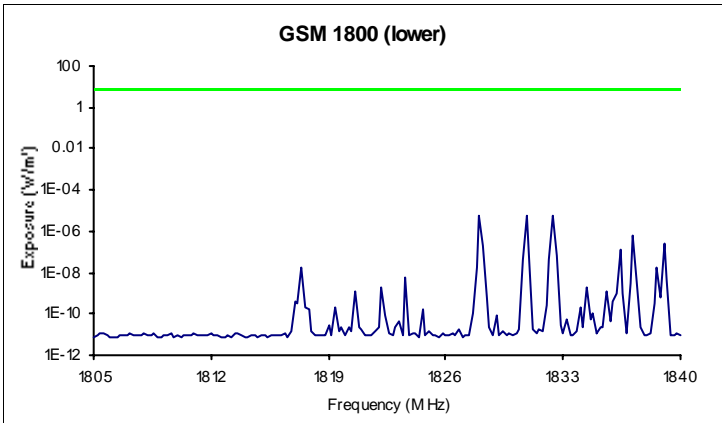
Total number of measurements: 572

Total Band Exposure Quotient: **5.81E-06**

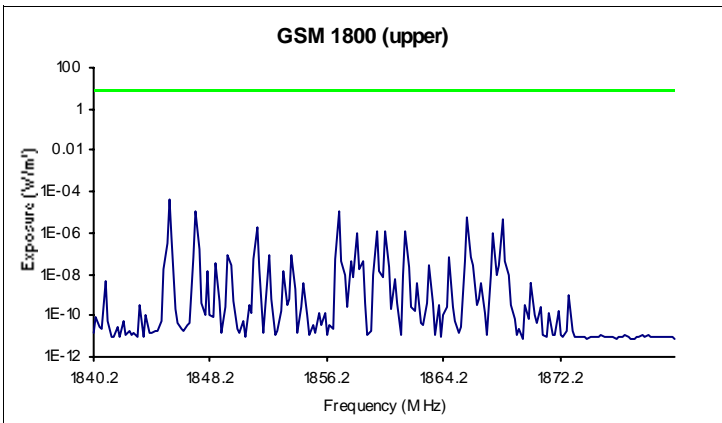
Site: CROSBY YARD AREA	Receiver:
Location: LANE BEHIND QUARELLA ROAD	Manufacturer: ROHDE&SCHWARZ
NGR: SS 9032 8062 Taken from GPS	Model: EB200
Start Time: 23 September 2004 12:36:20	Serial Number: 836.378/014
Officer: Keith Stanton	Antenna:
	Manufacturer: Rohde & Schwarz
	Model: HE200.4050.3609.02
	Serial Number: 836287/009



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
955.200	3.79E-07	4.78	7.95E-08
937.000	3.03E-07	4.68	6.46E-08
941.600	2.22E-07	4.71	4.71E-08
954.000	2.13E-07	4.77	4.46E-08
950.600	1.27E-07	4.75	2.68E-08
936.400	1.05E-07	4.68	2.24E-08
927.000	1.00E-07	4.63	2.16E-08
958.000	7.80E-08	4.79	1.63E-08
943.800	5.34E-08	4.72	1.13E-08
946.800	4.08E-08	4.73	8.62E-09
Band Exposure Quotient:			3.82E-07



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,828.000	6.38E-06	9.14	6.98E-07
1,832.400	6.28E-06	9.16	6.86E-07
1,830.800	5.85E-06	9.15	6.39E-07
1,837.200	5.91E-07	9.19	6.44E-08
1,839.000	2.31E-07	9.20	2.51E-08
1,828.200	2.16E-07	9.14	2.37E-08
1,836.400	1.18E-07	9.18	1.28E-08
1,831.000	8.27E-08	9.15	9.03E-09
1,832.600	6.58E-08	9.16	7.18E-09
1,830.600	4.33E-08	9.15	4.74E-09
Band Exposure Quotient:			2.18E-06



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,845.400	4.15E-05	9.23	4.50E-06
1,847.200	1.12E-05	9.24	1.21E-06
1,857.000	1.04E-05	9.29	1.12E-06
1,865.800	6.36E-06	9.33	6.82E-07
1,868.200	4.32E-06	9.34	4.62E-07
1,851.400	2.01E-06	9.26	2.17E-07
1,861.600	1.29E-06	9.31	1.38E-07
1,860.200	1.17E-06	9.30	1.26E-07
1,859.600	1.14E-06	9.30	1.23E-07
1,858.200	1.07E-06	9.29	1.15E-07
Band Exposure Quotient:			9.05E-06

Total number of measurements: 572

Total Band Exposure Quotient: **1.16E-05**

Glossary

- Site:** The building or area around which sets of measurements are taken
- Location:** The position within a site at which a single set of measurements is taken. A set of measurements consists of multiple scans of many frequencies within a number of bands
- Band:** A portion of the electromagnetic spectrum reserved for specific radio services
- NGR:** The Ordnance Survey national grid reference coordinates of the location. In this survey NGRs are specified to 8-digit (10-metre) resolution. E.g. SJ 9755 9888
- GPS:** The Global Positioning System
- Start Time:** The date and time at which the receiver started taking its measurements at a location
- Officer:** The name of the RA representative who carried out the audit
- Receiver:** The receiver used to perform the measurements
- Antenna:** The antenna used to perform the measurements
- Exposure:** The maximum measured electric field strength (dB(μ V/m)) converted to an equivalent power density (W/m²)
- Power Density:** The electromagnetic energy flowing through a unit area normal to the direction of propagation in a unit time. Measured in Watts per square metre (W/m²)
- ICNIRP Limit:** The reference level given by the International Commission for Non-Ionizing Radiation Protection (ICNIRP) for general public exposure to electromagnetic fields

Frequency	ICNIRP limit
10MHz to 400 MHz	2 W/m ²
400MHz to 2GHz	f / 200 W/m ²
2GHz to 300GHz	10 W/m ²

(where f is frequency in MHz)

Frequency Exposure Quotient:

The ratio of the measured maximum power density to the ICNIRP limit at a given frequency. A value close to 1 signifies that exposure levels could be near to the ICNIRP limit for that frequency

Band Exposure Quotient:

The sum of the frequency exposure quotients for a single band at a location

Total Band Exposure Quotient:

The sum of the frequency exposure quotients for all of the measured bands at a location

- GSM:** Global System for Mobile communication
- ETACS:** Extended Total Access Communications
- TETRA:** Terrestrial Trunked Radio
- 3G:** Third Generation mobile-phone services

- 1.00E-03:** Exponential (or 'scientific') number format. Equal to one thousandth
- 1.00E-06:** Equal to one millionth
- 1.00E-09:** Equal to one thousand-millionth
- 1.00E-12:** Equal to one million-millionth