

Baldock Radio Station
Royston Road
Baldock
Herts SG7 6SH



Mobile Phone
Base-Station Audit

Audit Site: Fort George Radio Statio
Rue de la Douzaine
Fort George
Guernsey

Work Performed by		Distribution List	
James Loughlin Field Manager	3G measurements & Report	Lloyd Tailby	1
Mike Reynolds Field Officer	2G measurements & Report	Office of Utility Regulation	1
		Technical Manager	1
		Case/Year file	2

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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.

The Office of Communications (Ofcom) performed this survey of the RF emission environment in the vicinity of the Fort George Radio Station on 19th September 2005. Both second generation (2G) and third generation (3G) base station emissions were measured separately and the signal levels combined to give the Total Band Exposure as detailed below.

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

Summary of results:

Location	* 2G Band Exposure	3G Band Exposure	Total Band Exposure	Relationship to ICNIRP Limit
Rue de la Douzane	1.09E-05	1.27 E-06	7.34E-05	1/82172
16 The Citadel	4.68E-06	3.75E-06	5.03E-06	1/118669
Rue de Belevedere	8.11E-06	6.36E-08	2.04E-06	1/122345

2G Quotient Exposure values are annexed to this report

Mobile team 2 from Baldock completed concurrent 2G and 3G surveys. The results from both have been combined to provide the summary of results on page 3.

Initially the base station was scanned to ascertain the extent of 3G activity. Only one carrier associated with this base station site was detected.

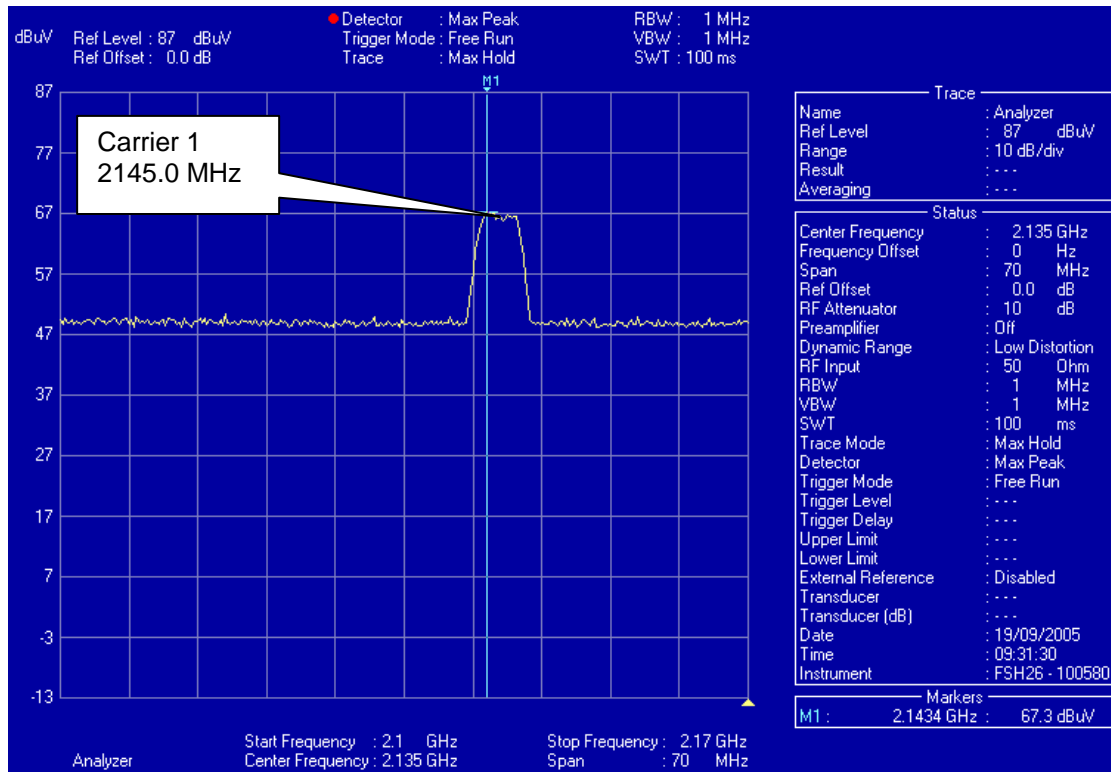


Figure 1

Figure 1 shows the whole band activity. Carrier 1 was active at this site. At each measurement location the measuring antenna was then set up on a tripod 1.5m above ground level. In this position and the carrier's field strength was recorded.

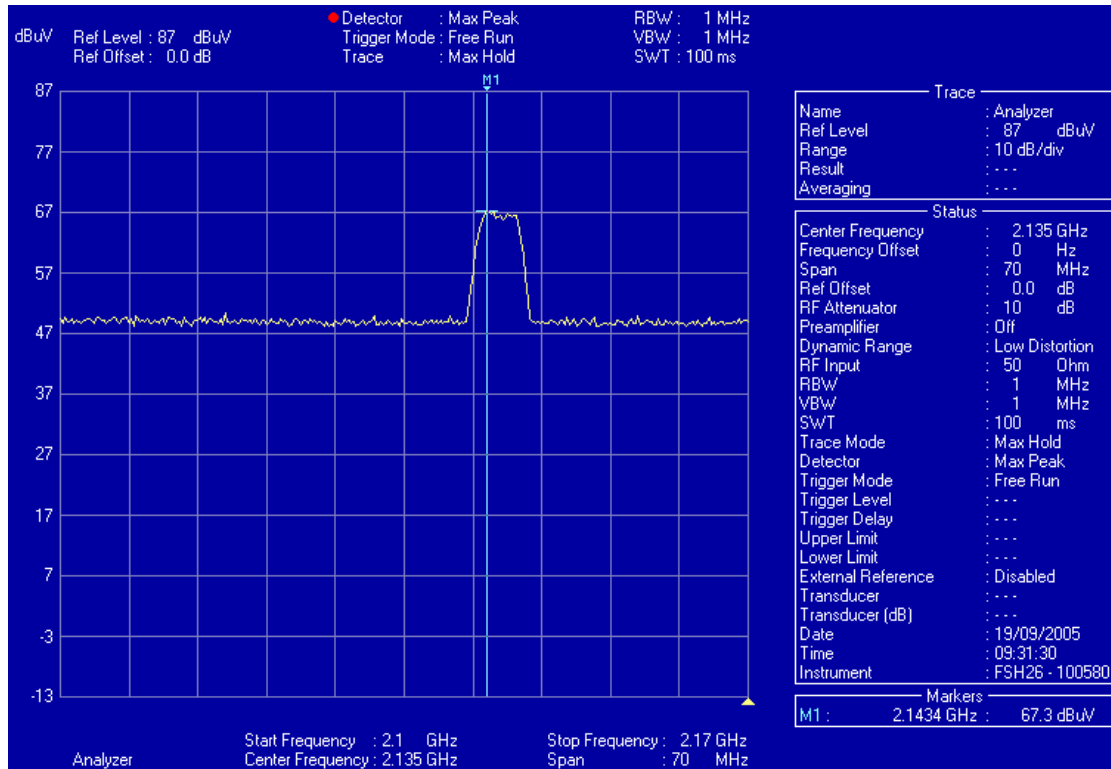
For each measurement location the 3G exposure quotient was then calculated. This in turn was added to the 2G exposure quotient before calculating the Total Exposure Quotient for each survey site.

All the 3G measurement data is given on page 5 together with the Total Band Exposure values, while the 2G data is contained in the annex to this report.

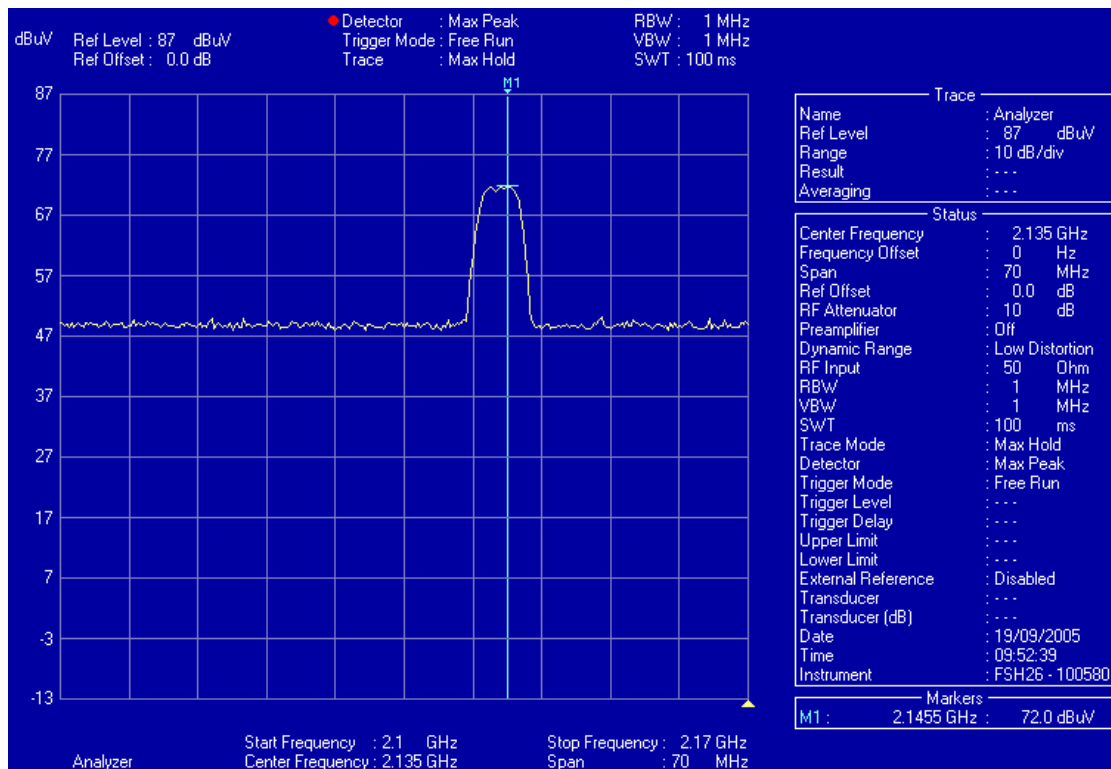
Equipment: Rohde & Schwarz FSH6 Spectrum Analyser serial number: 100580 CEMS number: 200103
 EMCO DRG 3115 horn Antenna 2153 200005
 Garmin GPS75 receiver 37524369 200011
 Reynolds 3 metre cable type ML2/002 196

Location	Frequency	Fieldstrength	Fieldstrength	Fieldstrength	Power	Power	ICNIRP	3G	3G	2G	TOTAL	Related to
Fort George								Exposure	Exposure	Exposure	3G + 2G	
	MHz	dBuV/m	uV/m	V/m	W/m ²	W/m ²	W/m ²	Quotient	Quotient	Quotient	Exp. Quot.	ICNIRP limit
[1] Huleley Rue de la Douzane	2143.4	96.8	69,183.1	0.069183	0.0000126957	1.27E-05	10	0.000001269570	1.27E-06	1.09E-05	1.22E-05	1/82172
[2] 16 the Citadel	2145.5	101.5	118,850.2	0.118850	0.0000374677	3.747E-05	10	0.000003746770	3.75E-06	4.68E-06	8.43E-06	1/118669
[3] Rue de Belevedere	2145.3	83.8	15,488.2	0.015488	0.0000006363	6.363E-07	10	0.000000063630	6.36E-08	8.11E-06	8.17E-06	1/122345

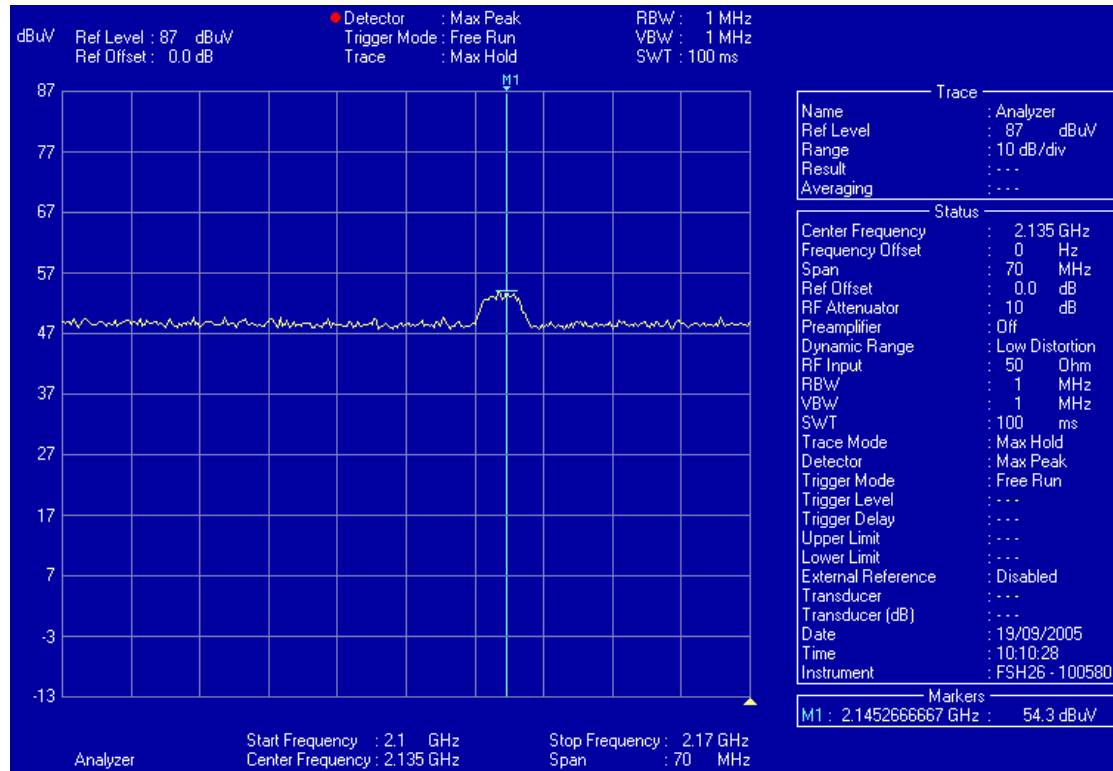
Location 1: Outside 'Hukeley' Rue de la Douzane



Location 2: La Maison du Barra, 16 the Citadel



Location 3: Junction of Rue de Belevdere & Le Val des Terres



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Annex

2G Mobile Phone Base-Station Audit

Mobile Phone Base-Station Audit

Audit site: FORT GEORGE RADIO STATION
Rue De La Douzaine
Fort George
Guernsey

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, Oftel 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 FORT GEORGE RADIO STATION on 19 September 2005.

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 Quotient	Relationship to ICNIRP Limit
Outside Hukeley Rue de la Douzane	1.09E-05	1/92142
Junction Rue de Belevdere & Le val des Terres	8.11E-06	1/123314
la Maison du Barra 16 the Citadel	4.68E-06	1/213834

Issued on behalf of Ofcom.

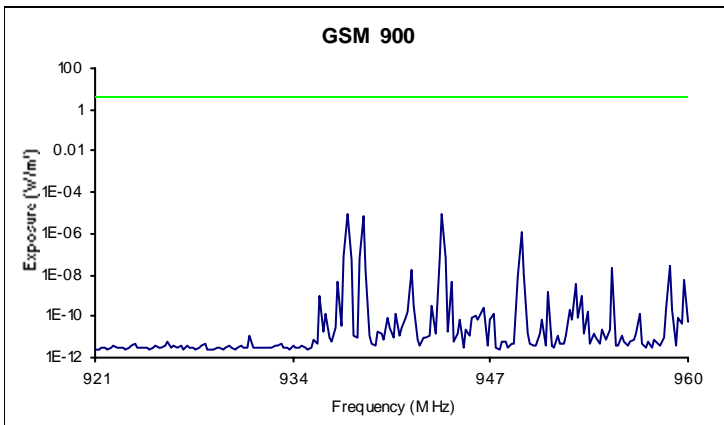
Issued by:

Received by:

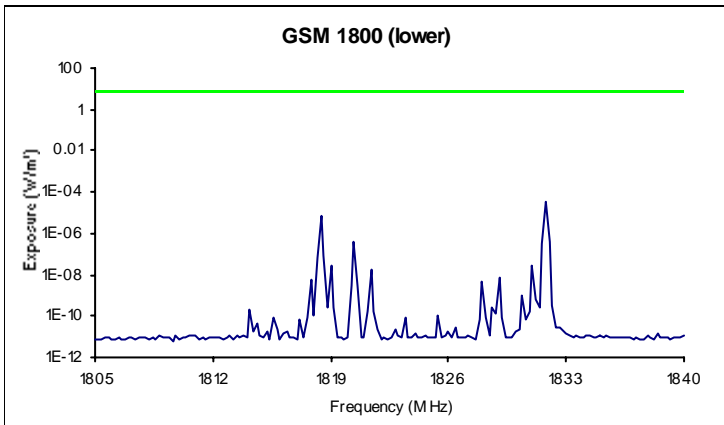
Mike Reynolds
Technical Investigation Officer

Site: FORT GEORGE RADIO STATION
Location: Outside Hukeley
 Rue de la Douzane
NGR: N49 26 30.0 W002 32 23.0
Start Time: 19 September 2005 09:36:24
Officer: Mike Reynolds

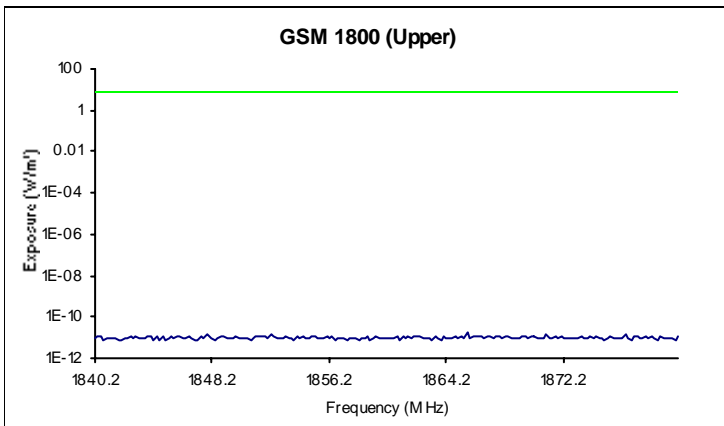
Receiver:
 Manufacturer: ROHDE&SCHWARZ
 Model: EB200
 Serial Number: 836.378/017
Antenna:
 Manufacturer: Rohde & Schwarz
 Model: HE200
 Serial Number: 728264/025



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
943.800	9.29E-06	4.72	1.97E-06
937.600	9.15E-06	4.69	1.95E-06
938.600	7.12E-06	4.69	1.52E-06
949.000	1.30E-06	4.75	2.73E-07
937.400	8.54E-08	4.69	1.82E-08
938.400	7.45E-08	4.69	1.59E-08
943.600	7.37E-08	4.72	1.56E-08
944.000	6.58E-08	4.72	1.39E-08
937.800	5.91E-08	4.69	1.26E-08
958.800	2.71E-08	4.79	5.65E-09
Band Exposure Quotient:			5.82E-06



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,831.800	3.70E-05	9.16	4.04E-06
1,818.400	7.72E-06	9.09	8.49E-07
1,820.400	3.88E-07	9.10	4.27E-08
1,832.000	3.87E-07	9.16	4.23E-08
1,831.600	3.29E-07	9.16	3.60E-08
1,818.600	9.29E-08	9.09	1.02E-08
1,818.200	7.21E-08	9.09	7.93E-09
1,831.000	3.07E-08	9.15	3.35E-09
1,819.000	2.68E-08	9.10	2.95E-09
1,821.400	1.78E-08	9.11	1.95E-09
Band Exposure Quotient:			5.04E-06



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,865.600	1.67E-11	9.33	1.79E-12
1,847.800	1.44E-11	9.24	1.56E-12
1,852.200	1.36E-11	9.26	1.47E-12
1,876.400	1.32E-11	9.38	1.41E-12
1,871.000	1.31E-11	9.36	1.40E-12
1,869.600	1.28E-11	9.35	1.37E-12
1,843.800	1.25E-11	9.22	1.36E-12
1,878.200	1.27E-11	9.39	1.35E-12
1,867.200	1.24E-11	9.34	1.33E-12
1,867.000	1.24E-11	9.34	1.33E-12
Band Exposure Quotient:			2.14E-10

Total number of measurements: 572

Total Band Exposure Quotient: 1.09E-05

Site: FORT GEORGE RADIO STATION

Location: la Maison du Barra
16 the Citadel

NGR: N49 26 40.9 W002 32 16.9

Start Time: 19 September 2005 09:59:22

Officer: Mike Reynolds

Receiver:

Manufacturer: ROHDE&SCHWARZ

Model: EB200

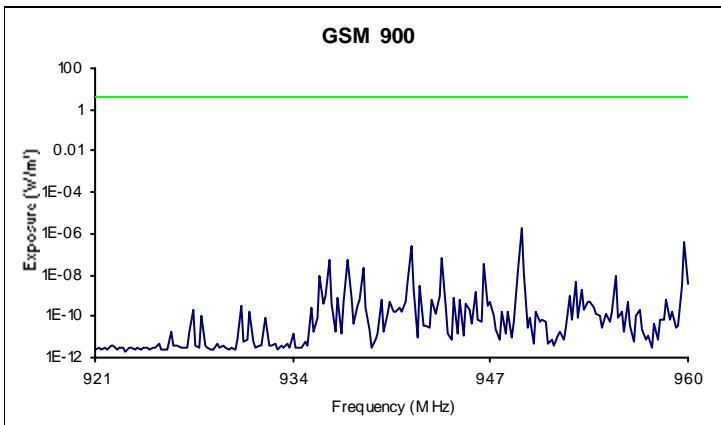
Serial Number: 836.378/017

Antenna:

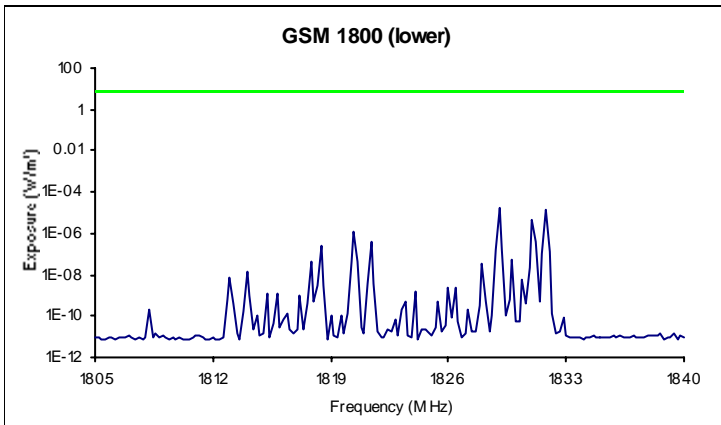
Manufacturer: Rohde & Schwarz

Model: HE200

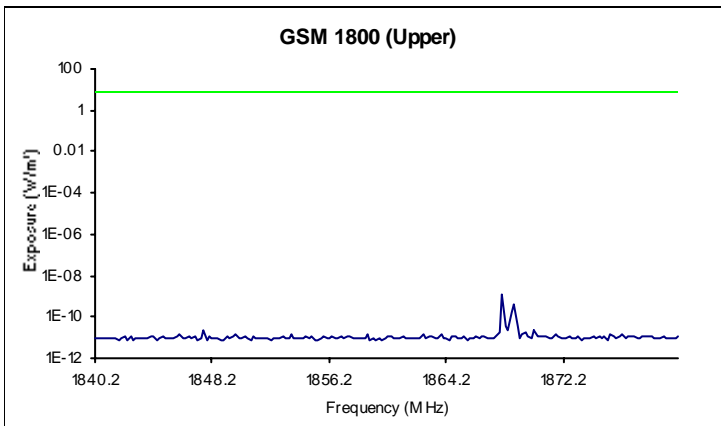
Serial Number: 728264/025



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
949.000	2.01E-06	4.75	4.23E-07
959.800	4.02E-07	4.80	8.37E-08
941.800	2.60E-07	4.71	5.53E-08
943.800	6.73E-08	4.72	1.43E-08
936.400	5.89E-08	4.68	1.26E-08
937.600	5.64E-08	4.69	1.20E-08
946.600	3.17E-08	4.73	6.69E-09
938.600	2.25E-08	4.69	4.80E-09
949.200	1.56E-08	4.75	3.29E-09
948.800	1.49E-08	4.74	3.14E-09
Band Exposure Quotient:			6.32E-07



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,829.000	1.61E-05	9.14	1.76E-06
1,831.800	1.37E-05	9.16	1.50E-06
1,831.000	4.14E-06	9.15	4.52E-07
1,820.400	1.17E-06	9.10	1.29E-07
1,821.400	3.98E-07	9.11	4.37E-08
1,831.200	3.61E-07	9.16	3.94E-08
1,818.400	2.62E-07	9.09	2.88E-08
1,828.800	1.61E-07	9.14	1.76E-08
1,829.200	1.50E-07	9.15	1.64E-08
1,832.000	1.37E-07	9.16	1.50E-08
Band Exposure Quotient:			4.04E-06



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,868.000	1.30E-09	9.34	1.40E-10
1,868.800	4.42E-10	9.34	4.73E-11
1,868.600	1.53E-10	9.34	1.64E-11
1,869.000	3.60E-11	9.35	3.85E-12
1,868.200	3.51E-11	9.34	3.76E-12
1,847.600	2.45E-11	9.24	2.66E-12
1,870.200	2.38E-11	9.35	2.55E-12
1,868.400	2.07E-11	9.34	2.21E-12
1,867.800	1.84E-11	9.34	1.97E-12
1,869.600	1.68E-11	9.35	1.80E-12
Band Exposure Quotient:			4.25E-10

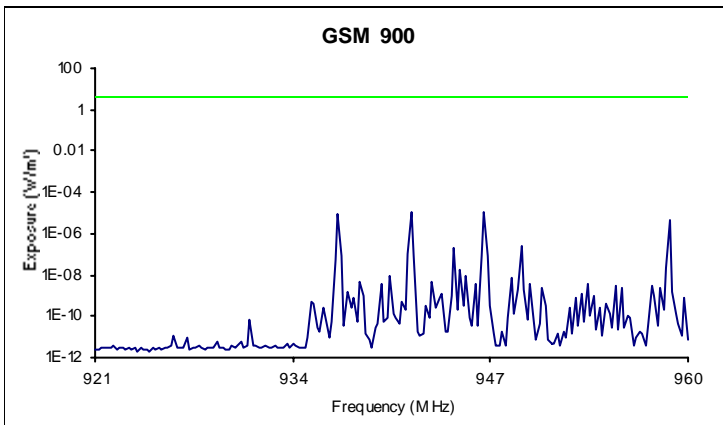
Total number of measurements: 572

Total Band Exposure Quotient:

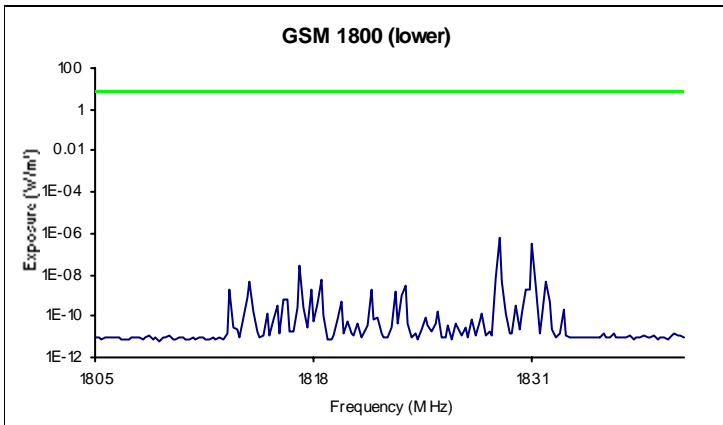
4.68E-06

Site: FORT GEORGE RADIO STATION
Location: Junction Rue de Belevdere & Le val des Terres
NGR: N49 26 46.2 W002 32 16.6
Start Time: 19 September 2005 10:18:48
Officer: Mike Reynolds

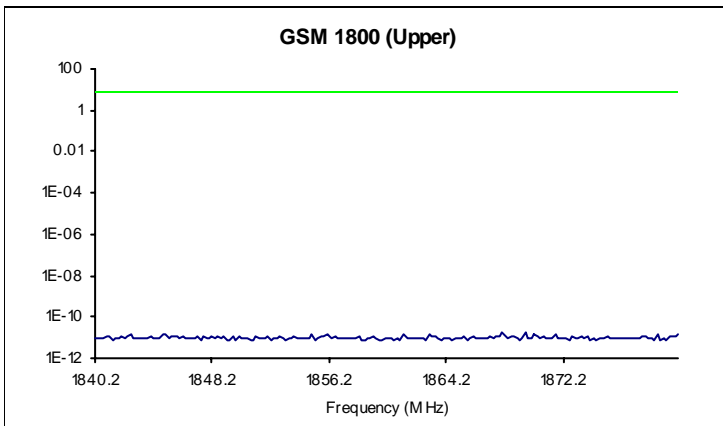
Receiver:
 Manufacturer: ROHDE&SCHWARZ
 Model: EB200
 Serial Number: 836.378/017
Antenna:
 Manufacturer: Rohde & Schwarz
 Model: HE200
 Serial Number: 728264/025



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
941.800	1.19E-05	4.71	2.53E-06
946.600	1.05E-05	4.73	2.22E-06
937.000	9.57E-06	4.68	2.04E-06
958.800	4.71E-06	4.79	9.82E-07
949.000	2.31E-07	4.75	4.86E-08
944.600	2.04E-07	4.72	4.31E-08
941.600	1.14E-07	4.71	2.41E-08
942.000	8.83E-08	4.71	1.87E-08
946.400	8.52E-08	4.73	1.80E-08
937.200	8.15E-08	4.69	1.74E-08
Band Exposure Quotient:			7.99E-06



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,829.000	6.85E-07	9.14	7.49E-08
1,831.000	2.87E-07	9.15	3.13E-08
1,817.200	2.49E-08	9.09	2.74E-09
1,828.800	7.51E-09	9.14	8.21E-10
1,818.400	6.13E-09	9.09	6.75E-10
1,814.200	4.95E-09	9.07	5.46E-10
1,829.200	4.96E-09	9.15	5.43E-10
1,831.800	4.65E-09	9.16	5.08E-10
1,823.400	2.89E-09	9.12	3.17E-10
1,831.200	2.80E-09	9.16	3.06E-10
Band Exposure Quotient:			1.15E-07



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,869.600	1.80E-11	9.35	1.93E-12
1,868.000	1.72E-11	9.34	1.84E-12
1,845.000	1.44E-11	9.22	1.56E-12
1,871.600	1.44E-11	9.36	1.54E-12
1,842.600	1.40E-11	9.21	1.52E-12
1,844.800	1.37E-11	9.22	1.49E-12
1,856.000	1.37E-11	9.28	1.47E-12
1,855.000	1.37E-11	9.28	1.47E-12
1,880.000	1.36E-11	9.40	1.45E-12
1,870.200	1.34E-11	9.35	1.43E-12
Band Exposure Quotient:			2.12E-10

Total number of measurements: 572

Total Band Exposure Quotient: 8.11E-06

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

<i>Frequency</i>	<i>ICNIRP limit</i>
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