

**Baldock Radio Station  
Royston Road, Baldock  
Herts SG7 6SH**



**Mobile Phone  
Base-Station Audit**

Audit Site: Beacon House  
Western Way  
Whitley Bay  
NE26 1HW

Work Performed by		Distribution List	
James Loughlin Field Manager	3G measurements & Report	Lloyd Tailby	2
Mike Reynolds Field Officer	3G measurements TETRA measurements	J Hunter	1
Jeff Hunter T.I. Officer	2G & TETRA measurements	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 Beacon House on the 18<sup>th</sup> August 2005. Both second generation (2G) and third generation (3G) base station emissions were measured separately. TETRA activity was noted in the 380 – 400 MHz band, and hence all three transmissions were 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	3G Exposure Quotient	2G Exposure Quotient	TETRA Exposure Quotient	TOTAL Exposure Quotient	Related to ICNIRP limit
13 Grenada Drive	2.15E-05	3.35E-05	1.86E-03	1.92E-03	1/522
31 Western Way	1.32E-05	4.66E-06	1.50E-03	1.52E-03	1/659
Junction Kingston Drive & Western Way	2.48E-06	1.43E-05	3.98E-04	4.15E-04	1/2411
Brier Dene Close	3.66E-05	2.92E-06	1.20E-04	1.60E-04	1/6269

Both the 2G and TETRA measurements are annexed to this report

The Washington office carried out the 2G audit, while mobile team 2 from Baldock completed a concurrent 3G survey followed by a TETRA band audit. The results from all three surveys have been combined to provide the summary of results on page 3.

Initially the base station was scanned from the Links Car Park to ascertain the extent of 3G activity.

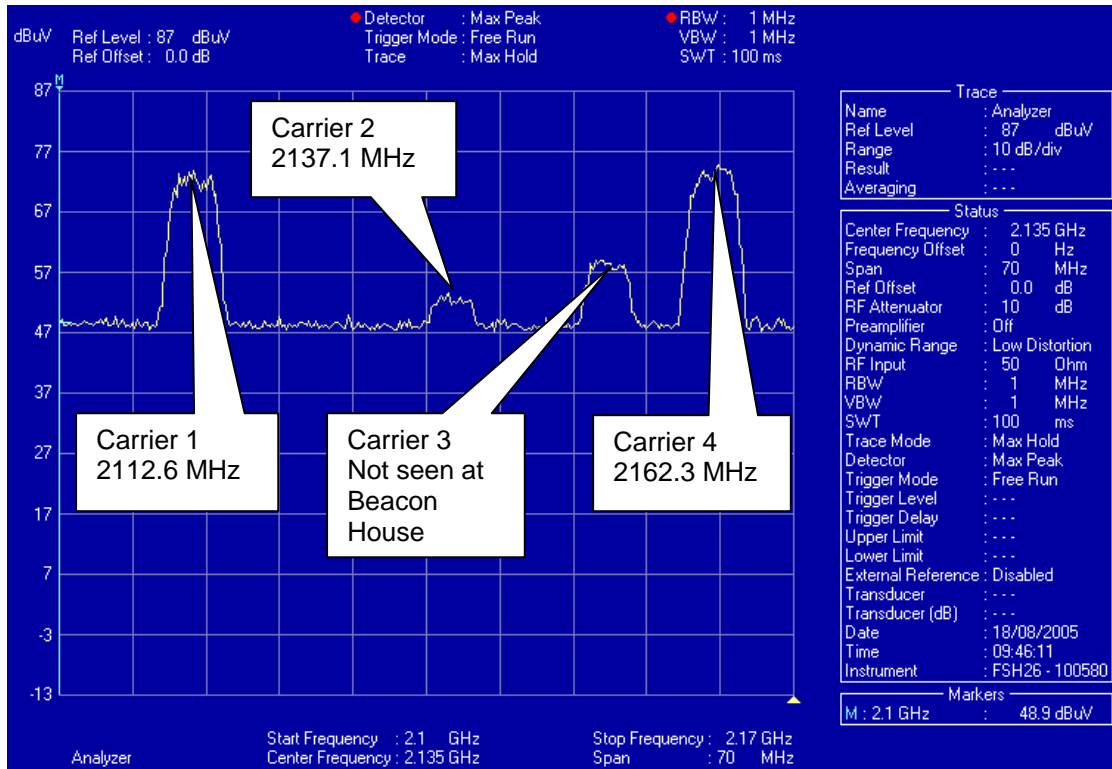


Figure 1

Figure 1 shows that four transmissions were active in the area but Carrier 3 was not associated with the Beacon House site. At each measurement location the antenna was set up on a tripod 1.5m above ground level on the pavement. In this position the field strength of each visible carrier was recorded.

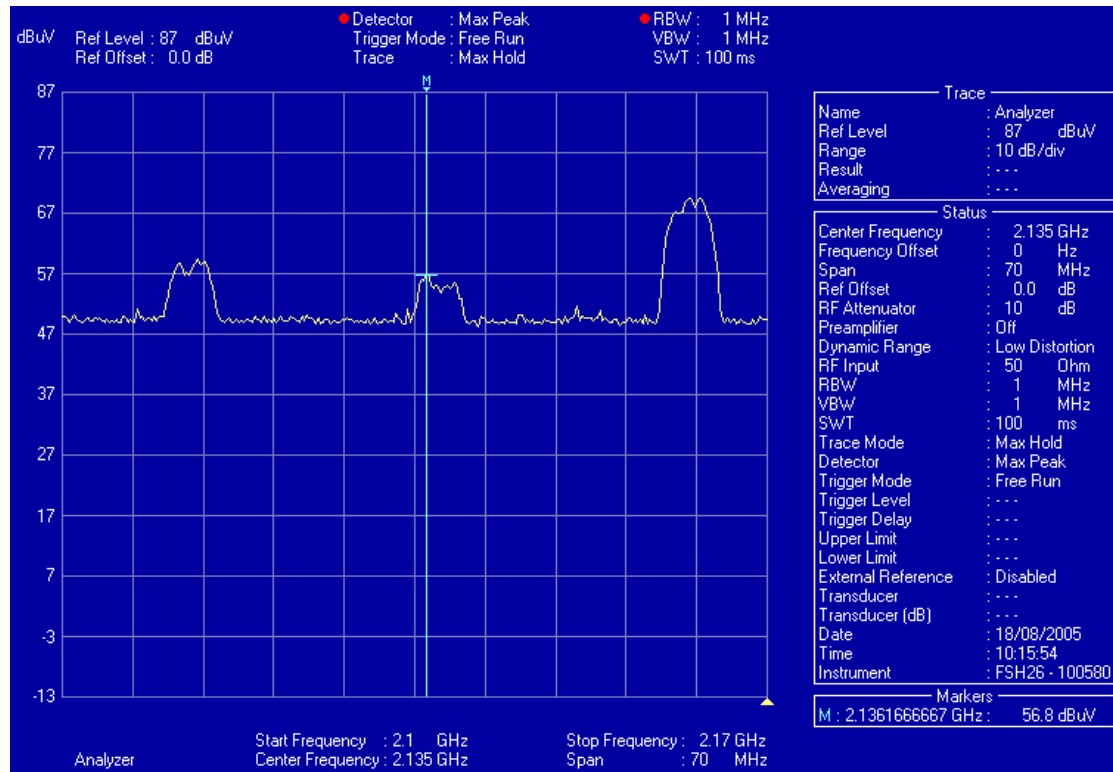
For each measurement location the 3G exposure quotient was calculated for the individual carriers and summed to provide the total exposure quotient. This in turn was added to the 2G and TETRA exposure quotients before calculating the Total Exposure Quotient for each survey site.

All the 3G measurement data is given on pages 5 to 8, while the 2G and TETRA data is contained in the annex to this report.

Equipment:	serial number:	CEMS number
FSH6 Spectrum Analyser	100580	200103
EMCO DRG 3115 horn Antenna	2153	200005
Garmin GPS75 receiver	37524369	200011
Reynolds cable type 219-0088	ML2/002-196	-

Location 1: Junction of Kingston Drive & Western Way

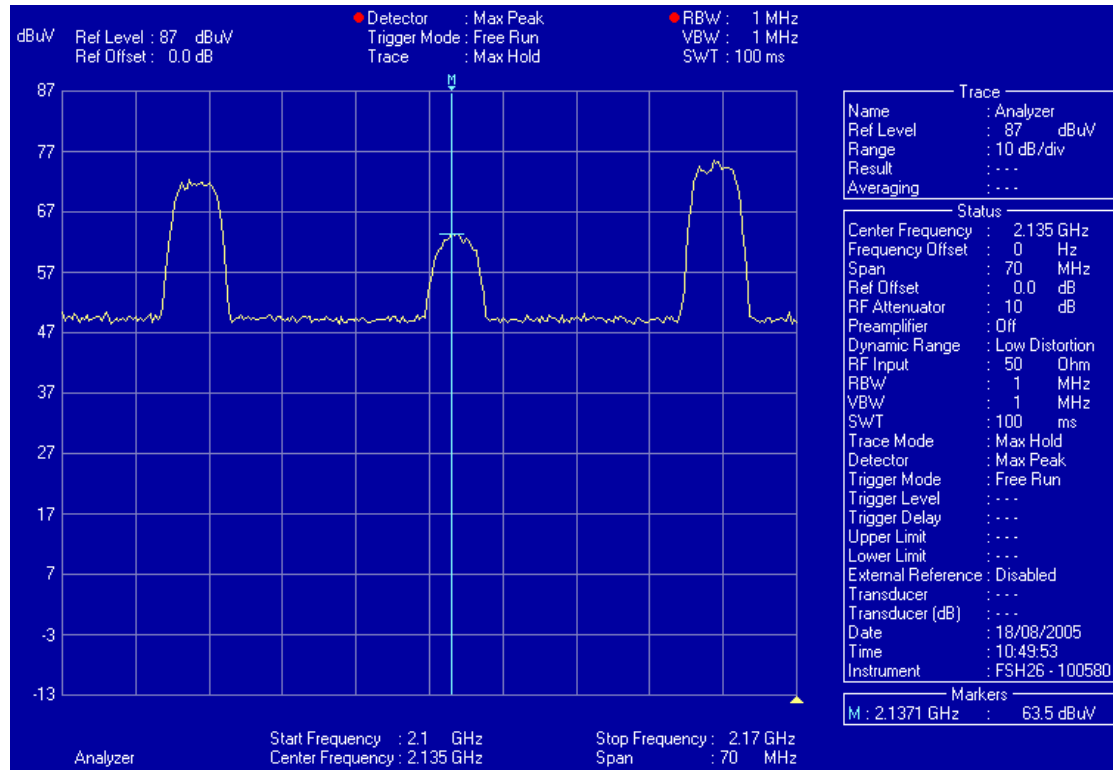
NGR: NZ 3477 7413



Channel	Frequency MHz	Fieldstrength dBuV/m	Fieldstrength uV/m	Fieldstrength V/m	Power W/m <sup>2</sup>	Power W/m <sup>2</sup>	ICNIRP W/m <sup>2</sup>	3G Exposure Quotient	3G Exposure Quotient
1	2112.6	89.1	28,510.2	0.028510	0.0000021560	2.156E-06	10	0.000000215600	2.16E-07
2	2137.1	86.3	20,653.8	0.020654	0.0000011315	1.132E-06	10	0.000000113150	1.13E-07
3	not seen		1.0	0.000001	0.0000000000	0	10	0.000000000000	0.00E+00
4	2162.3	99.1	90,157.1	0.090157	0.0000215604	2.156E-05	10	0.000002156040	2.16E-06
									<b>TOTAL</b> 2.48E-06

Location 2: 31 Western Way

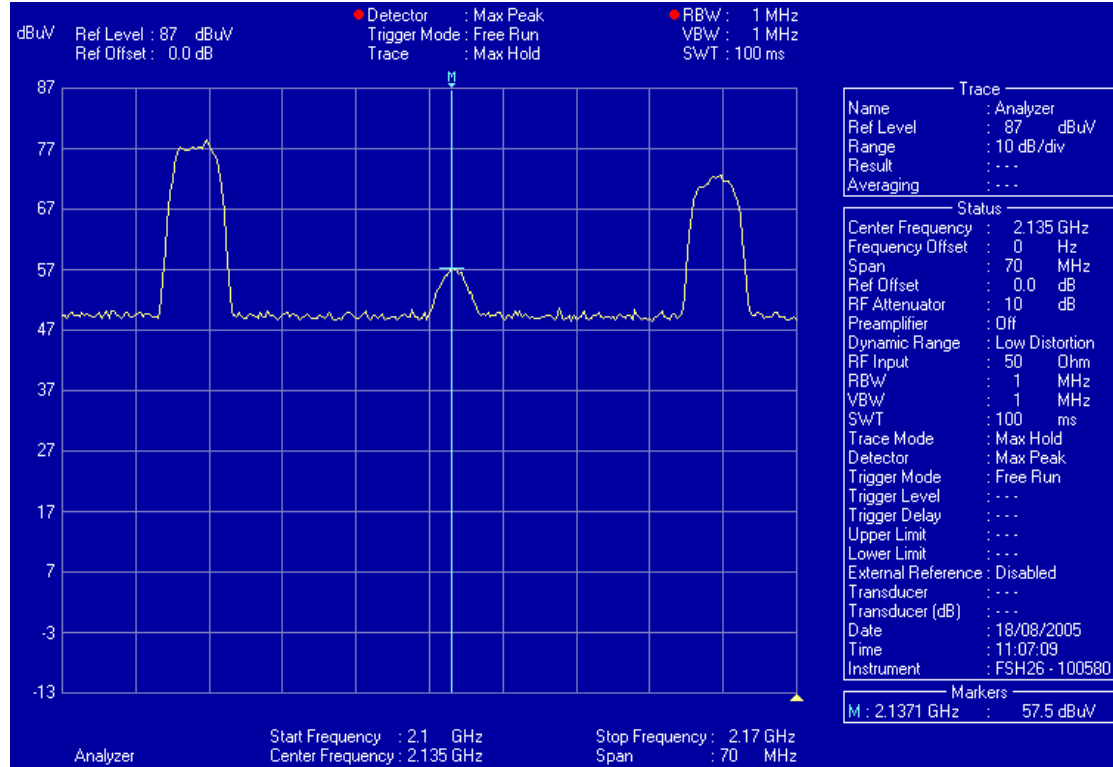
NGR: NZ 3458 7408



Channel	Frequency MHz	Fieldstrength dBuV/m	Fieldstrength uV/m	Fieldstrength V/m	Power W/m <sup>2</sup>	Power W/m <sup>2</sup>	ICNIRP W/m <sup>2</sup>	3G Exposure Quotient	3G Exposure Quotient
1	2112.6	101.9	124,451.5	0.124452	0.0000410830	4.108E-05	10	0.000004108300	4.11E-06
2	2137.1	93	44,668.4	0.044668	0.0000052924	5.292E-06	10	0.00000529240	5.29E-07
3	not seen		1.0	0.000001	0.0000000000	0	10	0.000000000000	0.00E+00
4	2162.3	105.1	179,887.1	0.179887	0.0000858338	8.583E-05	10	0.000008583380	8.58E-06
									<b>TOTAL</b> 1.32E-05

Location 3: 13 Grenada Drive

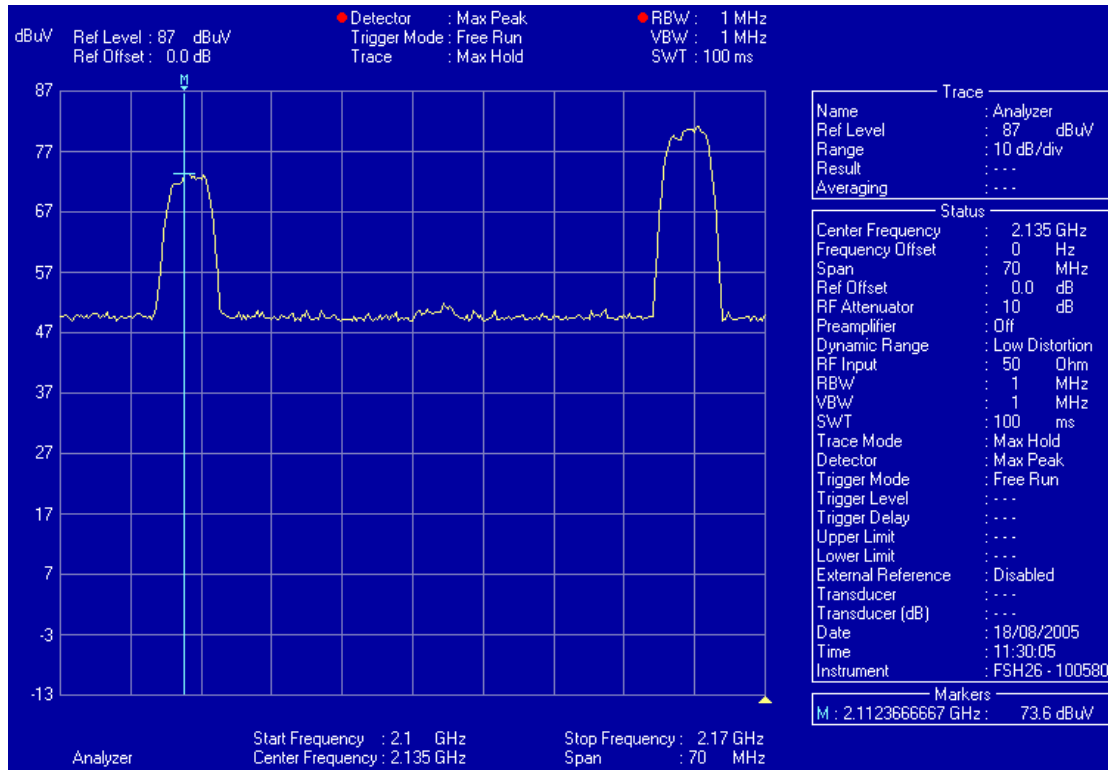
NGR: NZ3449 7418



Channel	Frequency MHz	Fieldstrength dBuV/m	Fieldstrength uV/m	Fieldstrength V/m	Power W/m <sup>2</sup>	Power W/m <sup>2</sup>	ICNIRP W/m <sup>2</sup>	3G Exposure Quotient	3G Exposure Quotient
1	2112.6	108.1	254,097.3	0.254097	0.0001712607	0.0001713	10	0.000017126070	1.71E-05
2	2137.1	87	22,387.2	0.022387	0.0000013294	1.329E-06	10	0.000000132940	1.33E-07
3	not seen		1.0	0.000001	0.0000000000	0	10	0.000000000000	0.00E+00
4	2162.3	102	125,892.5	0.125893	0.0000420399	4.204E-05	10	0.000004203990	4.20E-06
<b>TOTAL</b>									<b>2.15E-05</b>

Location 4: Brier Dene Close

NGR: NZ 3467 7442



Channel	Frequency MHz	Fieldstrength dBuV/m	Fieldstrength uV/m	Fieldstrength V/m	Power W/m <sup>2</sup>	Power W/m <sup>2</sup>	ICNIRP W/m <sup>2</sup>	3G Exposure Quotient	3G Exposure Quotient
1	2112.6	103.1	142,889.4	0.142889	0.0000541572	5.416E-05	10	0.000005415720	5.42E-06
2	not seen		1.0	0.000001	0.0000000000	0	10	0.000000000000	0.00E+00
3	not seen		1.0	0.000001	0.0000000000	0	10	0.000000000000	0.00E+00
4	2162.3	110.7	342,767.8	0.342768	0.0003116443	0.0003116	10	0.000031164430	3.12E-05
									<b>TOTAL</b> 3.66E-05



Measurement Locations



1. Junction of Kingston Drive & Western Way
2. 31 Western Way
3. 13 Grenada Drive
4. Brier Dene Close

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## **Annex**

### **2G & TETRA Base-Station Audits**

## **Mobile Phone Base-Station Audit**

**Audit site: Beacon House  
Western Way  
Whitley Bay  
NE26 1HW**

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, Ofcom 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](mailto: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](http://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 Beacon House on 18 August 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	Relationship to ICNIRP Limit
13 Grenada Drive	3.35E-05	1/29833
Junction Kingston Drive & Western Way	1.43E-05	1/69831
31 Western Way, Brier Dene Close	4.66E-06	1/214603
	2.92E-06	1/342811

Issued on behalf of Ofcom.

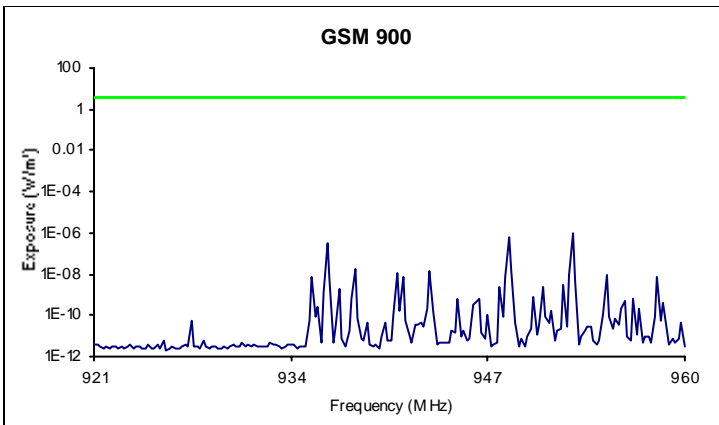
Issued by:

Received by:

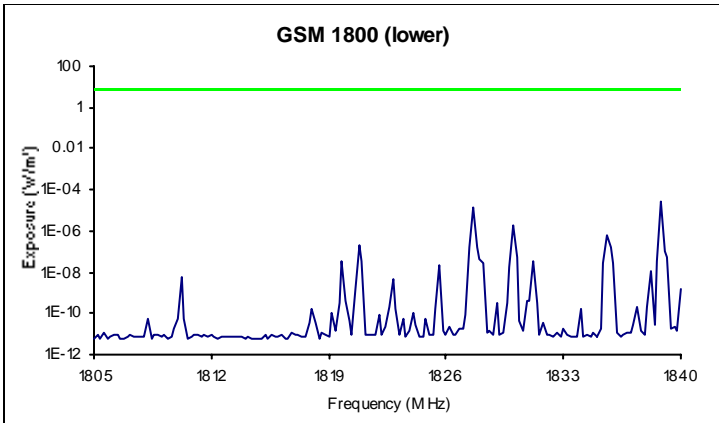
Jeff Hunter  
Technical Investigation Officer

**Site:** Beacon House  
**Location:** Junction Kingston Drive & Western Way  
**NGR:** NZ 3477 7413 **Taken from GPS**  
**Start Time:** 18 August 2005 10:16:02  
**Officer:** Jeff Hunter

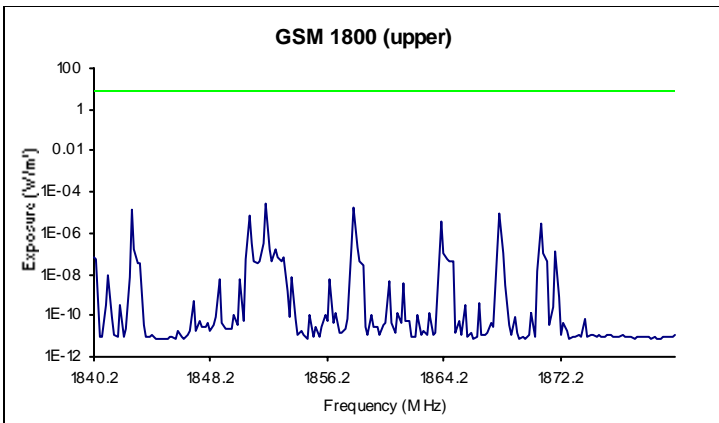
**Receiver:**  
 Manufacturer: ROHDE&SCHWARZ  
 Model: EB200  
 Serial Number: 833.643/005  
**Antenna:**  
 Manufacturer: Rohde & Schwarz  
 Model: HE200.4050.3609.02  
 Serial Number: 758745/007



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
952.600	9.48E-07	4.76	1.99E-07
948.400	5.92E-07	4.74	1.25E-07
936.400	3.17E-07	4.68	6.76E-08
938.200	1.79E-08	4.69	3.81E-09
948.600	1.52E-08	4.74	3.21E-09
943.200	1.47E-08	4.72	3.12E-09
941.000	1.14E-08	4.71	2.41E-09
954.800	9.97E-09	4.77	2.09E-09
952.400	8.84E-09	4.76	1.86E-09
941.400	7.86E-09	4.71	1.67E-09
<b>Band Exposure Quotient:</b>			<b>4.20E-07</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,838.800	2.77E-05	9.19	3.02E-06
1,827.600	1.36E-05	9.14	1.49E-06
1,830.000	2.03E-06	9.15	2.21E-07
1,835.600	6.18E-07	9.18	6.73E-08
1,820.800	2.04E-07	9.10	2.24E-08
1,835.800	1.82E-07	9.18	1.99E-08
1,827.800	1.72E-07	9.14	1.88E-08
1,827.400	1.72E-07	9.14	1.88E-08
1,839.000	1.01E-07	9.20	1.10E-08
1,839.200	5.05E-08	9.20	5.49E-09
<b>Band Exposure Quotient:</b>			<b>4.94E-06</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,852.000	2.65E-05	9.26	2.86E-06
1,858.000	1.81E-05	9.29	1.95E-06
1,842.800	1.40E-05	9.21	1.52E-06
1,868.000	8.61E-06	9.34	9.22E-07
1,850.800	6.64E-06	9.25	7.17E-07
1,864.000	3.33E-06	9.32	3.57E-07
1,870.800	2.86E-06	9.35	3.06E-07
1,851.800	3.49E-07	9.26	3.77E-08
1,851.000	2.97E-07	9.26	3.21E-08
1,858.200	2.28E-07	9.29	2.45E-08
<b>Band Exposure Quotient:</b>			<b>8.96E-06</b>

**Site:** Beacon House  
**Location:** 31 Western Way,

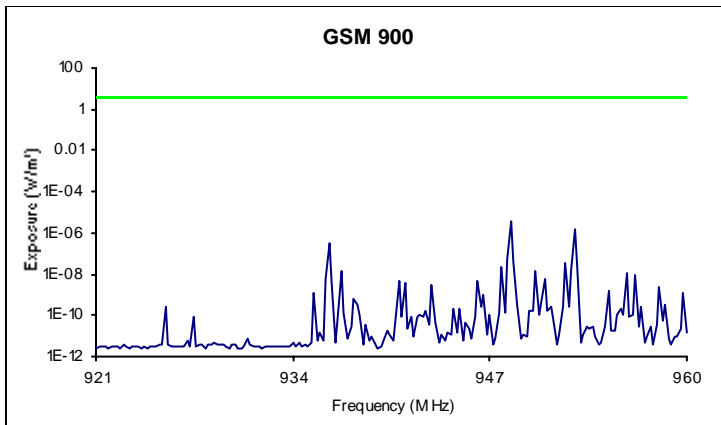
**NGR:** NZ 3458 7408 **Taken from GPS**

**Start Time:** 18 August 2005 10:41:31

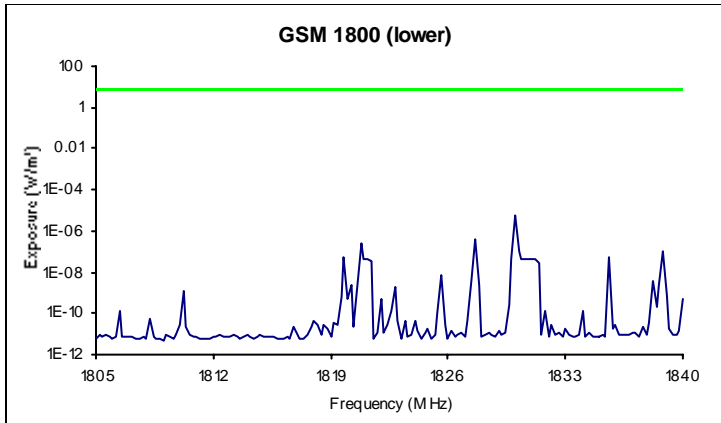
**Officer:** Jeff Hunter

**Receiver:**  
Manufacturer: ROHDE&SCHWARZ  
Model: EB200  
Serial Number: 833.643/005

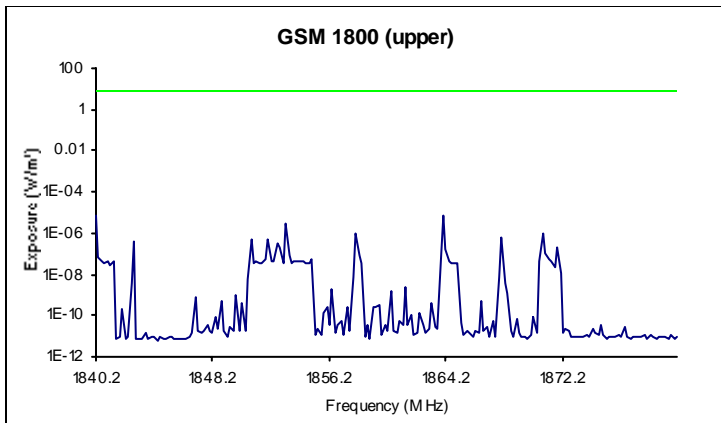
**Antenna:**  
Manufacturer: Rohde & Schwarz  
Model: HE200.4050.3609.02  
Serial Number: 758745/007



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
948.400	3.65E-06	4.74	7.70E-07
952.600	1.69E-06	4.76	3.54E-07
936.400	3.02E-07	4.68	6.46E-08
948.200	5.15E-08	4.74	1.09E-08
948.600	3.91E-08	4.74	8.25E-09
952.000	3.68E-08	4.76	7.73E-09
952.800	2.49E-08	4.76	5.23E-09
947.800	2.05E-08	4.74	4.33E-09
950.000	1.49E-08	4.75	3.14E-09
952.400	1.47E-08	4.76	3.08E-09
<b>Band Exposure Quotient:</b>			<b>1.25E-06</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,830.000	5.21E-06	9.15	5.69E-07
1,827.600	3.67E-07	9.14	4.02E-08
1,820.800	2.69E-07	9.10	2.95E-08
1,830.200	1.09E-07	9.15	1.19E-08
1,838.800	9.62E-08	9.19	1.05E-08
1,819.800	6.01E-08	9.10	6.60E-09
1,835.600	5.76E-08	9.18	6.28E-09
1,830.400	4.75E-08	9.15	5.19E-09
1,829.800	4.64E-08	9.15	5.07E-09
1,821.200	4.47E-08	9.11	4.90E-09
<b>Band Exposure Quotient:</b>			<b>7.22E-07</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,840.200	7.66E-06	9.20	8.32E-07
1,864.000	7.45E-06	9.32	7.99E-07
1,853.200	3.19E-06	9.27	3.44E-07
1,858.000	1.02E-06	9.29	1.10E-07
1,870.800	1.02E-06	9.35	1.09E-07
1,868.000	5.82E-07	9.34	6.23E-08
1,852.000	5.53E-07	9.26	5.98E-08
1,850.800	4.81E-07	9.25	5.20E-08
1,842.800	4.13E-07	9.21	4.48E-08
1,852.600	3.34E-07	9.26	3.60E-08
<b>Band Exposure Quotient:</b>			<b>2.69E-06</b>

**Site:** Beacon House  
**Location:** 13 Grenada Drive

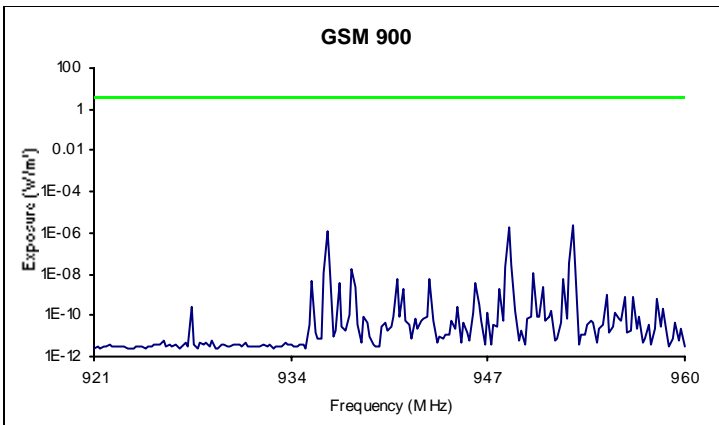
**NGR:** NZ 3449 7418 **Taken from GPS**

**Start Time:** 18 August 2005 11:00:40

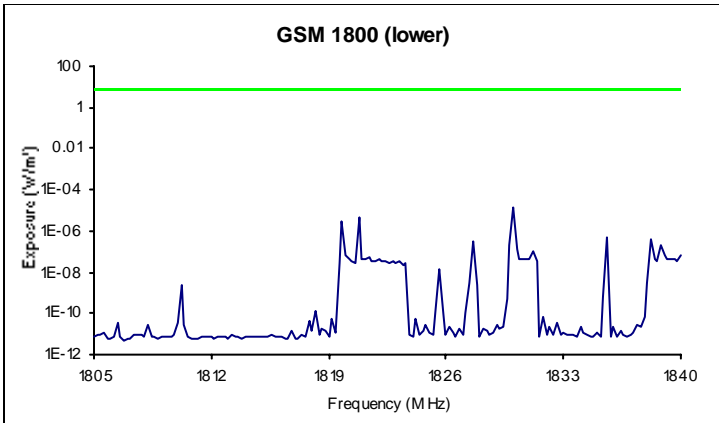
**Officer:** Jeff Hunter

**Receiver:**  
Manufacturer: ROHDE&SCHWARZ  
Model: EB200  
Serial Number: 833.643/005

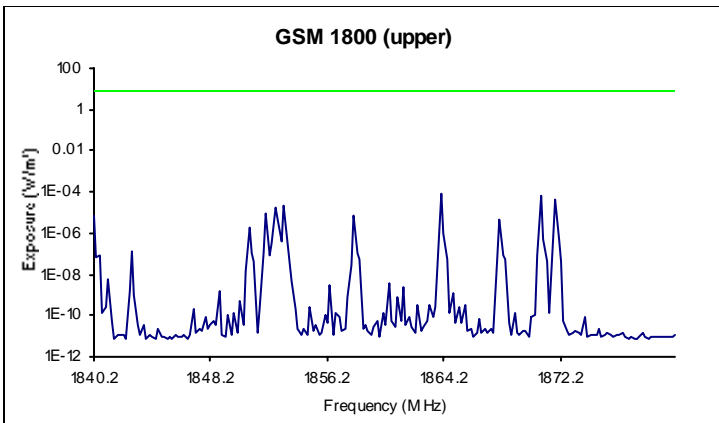
**Antenna:**  
Manufacturer: Rohde & Schwarz  
Model: HE200.4050.3609.02  
Serial Number: 758745/007



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
952.600	2.49E-06	4.76	5.23E-07
948.400	2.10E-06	4.74	4.43E-07
936.400	1.10E-06	4.68	2.34E-07
936.600	3.81E-08	4.68	8.13E-09
952.400	3.44E-08	4.76	7.22E-09
948.600	2.90E-08	4.74	6.12E-09
952.800	2.80E-08	4.76	5.87E-09
948.200	2.47E-08	4.74	5.20E-09
938.000	1.75E-08	4.69	3.72E-09
936.200	1.07E-08	4.68	2.29E-09
<b>Band Exposure Quotient:</b>			<b>1.25E-06</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,830.000	1.31E-05	9.15	1.43E-06
1,820.800	4.26E-06	9.10	4.68E-07
1,819.800	2.81E-06	9.10	3.09E-07
1,835.600	5.50E-07	9.18	6.00E-08
1,838.200	4.10E-07	9.19	4.46E-08
1,827.600	3.43E-07	9.14	3.75E-08
1,838.800	2.10E-07	9.19	2.29E-08
1,829.800	2.02E-07	9.15	2.21E-08
1,830.200	1.40E-07	9.15	1.53E-08
1,831.200	9.49E-08	9.16	1.04E-08
<b>Band Exposure Quotient:</b>			<b>2.56E-06</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,864.000	8.55E-05	9.32	9.17E-06
1,870.800	6.56E-05	9.35	7.02E-06
1,871.800	4.65E-05	9.36	4.97E-06
1,853.200	2.21E-05	9.27	2.38E-06
1,852.600	1.60E-05	9.26	1.72E-06
1,852.000	9.40E-06	9.26	1.01E-06
1,858.000	7.90E-06	9.29	8.50E-07
1,840.200	7.15E-06	9.20	7.77E-07
1,852.800	4.40E-06	9.26	4.75E-07
1,868.000	4.22E-06	9.34	4.51E-07
<b>Band Exposure Quotient:</b>			<b>2.97E-05</b>



**Site:** Beacon House  
**Location:** Brier Dene Close

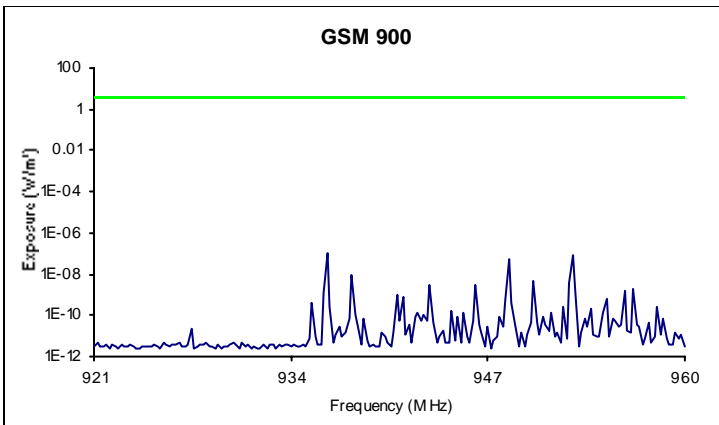
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**Start Time:** 18 August 2005 11:21:44

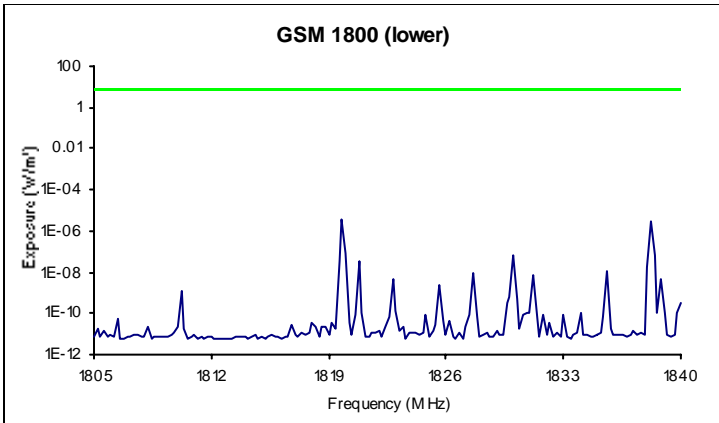
**Officer:** Jeff Hunter

**Receiver:**  
Manufacturer: ROHDE&SCHWARZ  
Model: EB200  
Serial Number: 833.643/005

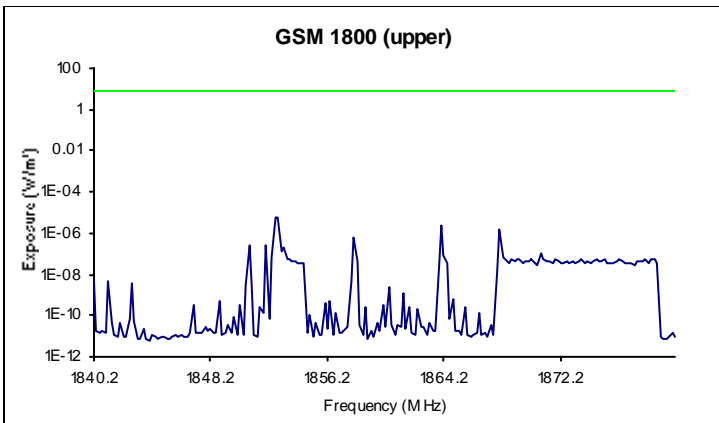
**Antenna:**  
Manufacturer: Rohde & Schwarz  
Model: HE200.4050.3609.02  
Serial Number: 758745/007



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
936.400	1.12E-07	4.68	2.40E-08
952.600	8.06E-08	4.76	1.69E-08
948.400	5.04E-08	4.74	1.06E-08
938.000	1.00E-08	4.69	2.14E-09
950.000	4.61E-09	4.75	9.71E-10
952.400	4.04E-09	4.76	8.48E-10
943.200	3.00E-09	4.72	6.36E-10
946.200	2.76E-09	4.73	5.82E-10
952.800	1.98E-09	4.76	4.16E-10
956.600	1.82E-09	4.78	3.81E-10
<b>Band Exposure Quotient:</b>			<b>5.98E-08</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,819.800	3.54E-06	9.10	3.89E-07
1,838.200	2.90E-06	9.19	3.16E-07
1,820.000	7.93E-08	9.10	8.71E-09
1,838.400	6.96E-08	9.19	7.58E-09
1,830.000	6.26E-08	9.15	6.84E-09
1,819.600	3.54E-08	9.10	3.89E-09
1,820.800	3.39E-08	9.10	3.72E-09
1,838.000	1.96E-08	9.19	2.13E-09
1,835.600	1.05E-08	9.18	1.14E-09
1,827.600	8.22E-09	9.14	8.99E-10
<b>Band Exposure Quotient:</b>			<b>7.42E-07</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
1,852.800	5.94E-06	9.26	6.41E-07
1,852.600	5.67E-06	9.26	6.12E-07
1,864.000	2.20E-06	9.32	2.36E-07
1,868.000	1.43E-06	9.34	1.53E-07
1,858.000	5.85E-07	9.29	6.30E-08
1,850.800	2.70E-07	9.25	2.92E-08
1,852.000	2.65E-07	9.26	2.86E-08
1,853.200	2.16E-07	9.27	2.33E-08
1,853.000	1.19E-07	9.27	1.28E-08
1,870.800	1.14E-07	9.35	1.22E-08
<b>Band Exposure Quotient:</b>			<b>2.11E-06</b>

## 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( $\mu$ V/m)) converted to an equivalent power density (W/m<sup>2</sup>)
- 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/m<sup>2</sup>)
- 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 <sup>2</sup>
400MHz to 2GHz	f / 200 W/m <sup>2</sup>
2GHz to 300GHz	10 W/m <sup>2</sup>

(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

## **Mobile Phone Base-Station Audit**

Audit site: Beacon House  
Weston Way  
Whitley Bay  
NE26 1HW

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, Ofel 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](mailto: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](http://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 Beacon House on 18 August 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
13 Grenada Drive	1.86E-03	1/539
31 Western Way	1.50E-03	1/666
Junction Kingston Close & Western Way	3.98E-04	1/2514
Briardene Close	1.20E-04	1/8325

Issued on behalf of Ofcom.

Issued by:

Received by:

Mike Reynolds  
Technical Investigation Officer

**Site:** Beacon House  
**Location:** Brierdene Close

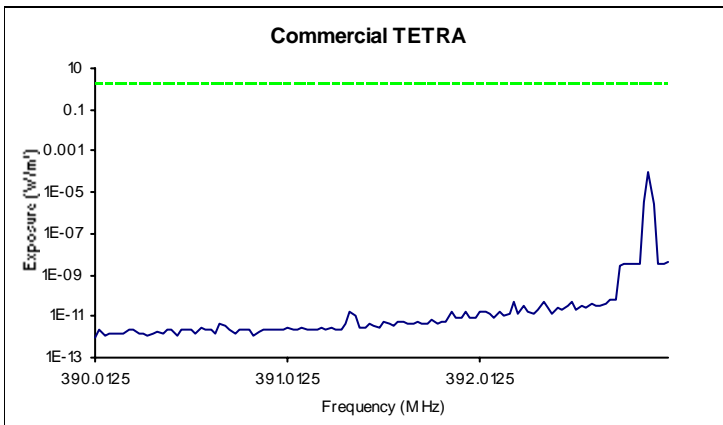
**NGR:** NZ 3467 7442 **Taken from GPS**

**Start Time:** 18 August 2005 12:08:14

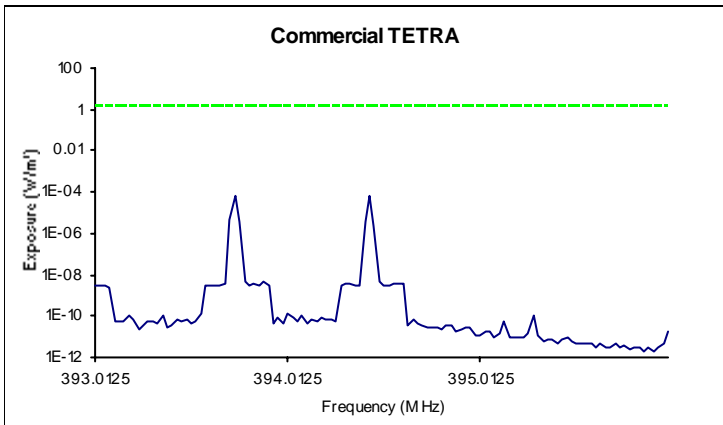
**Officer:** Mike Reynolds

**Receiver:**  
Manufacturer: ROHDE&SCHWARZ  
Model: EB200  
Serial Number: 833.643/005

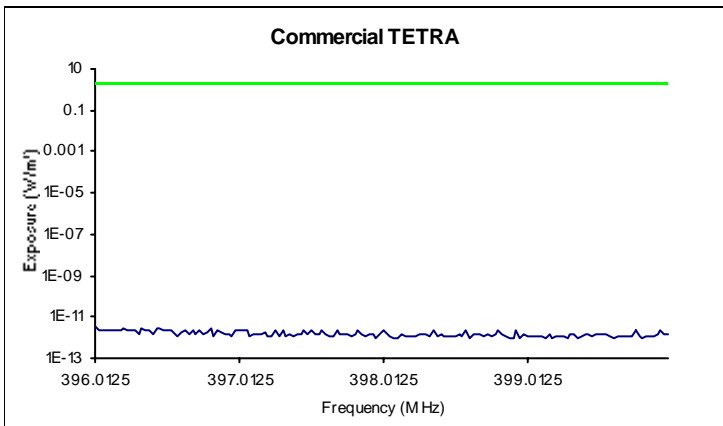
**Antenna:**  
Manufacturer: Rohde & Schwarz  
Model: HE200 - 200-500  
Serial Number: 838789/027



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
392.887	8.67E-05	2.00	4.33E-05
392.863	3.78E-06	2.00	1.89E-06
392.913	3.01E-06	2.00	1.50E-06
392.988	4.55E-09	2.00	2.27E-09
392.962	3.78E-09	2.00	1.89E-09
392.788	3.61E-09	2.00	1.81E-09
392.762	3.61E-09	2.00	1.81E-09
392.837	3.29E-09	2.00	1.65E-09
392.938	3.22E-09	2.00	1.61E-09
392.813	3.15E-09	2.00	1.57E-09
<b>Band Exposure Quotient:</b>			<b>4.67E-05</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
393.738	6.75E-05	2.00	3.37E-05
394.438	6.46E-05	2.00	3.23E-05
393.712	4.26E-06	2.00	2.13E-06
394.413	3.98E-06	2.00	1.99E-06
393.762	3.97E-06	2.00	1.99E-06
394.462	2.45E-06	2.00	1.23E-06
393.788	4.67E-09	2.00	2.33E-09
393.887	4.56E-09	2.00	2.28E-09
394.488	4.47E-09	2.00	2.23E-09
394.613	3.98E-09	2.00	1.99E-09
<b>Band Exposure Quotient:</b>			<b>7.34E-05</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
396.012	3.56E-12	2.00	1.78E-12
396.438	2.84E-12	2.00	1.42E-12
396.813	2.65E-12	2.00	1.32E-12
396.337	2.65E-12	2.00	1.32E-12
396.462	2.59E-12	2.00	1.29E-12
396.212	2.53E-12	2.00	1.26E-12
396.163	2.47E-12	2.00	1.23E-12
396.087	2.41E-12	2.00	1.21E-12
398.363	2.32E-12	2.00	1.16E-12
397.012	2.31E-12	2.00	1.15E-12
<b>Band Exposure Quotient:</b>			<b>1.23E-10</b>

Total number of measurements: 400

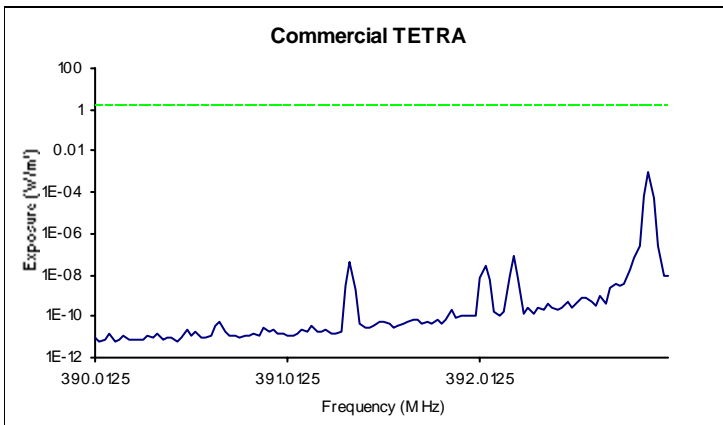
**Total Band Exposure Quotient:** **1.20E-04**

**Site:** Beacon House  
**Location:** 31 Western Way

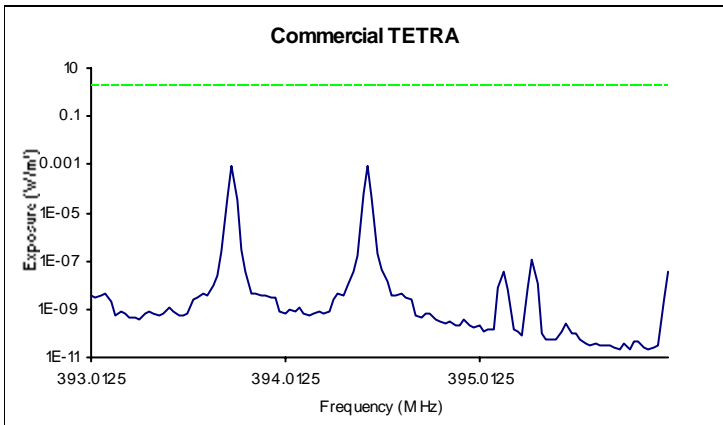
**NGR:** NZ 3458 7408 **Taken from GPS**  
**Start Time:** 18 August 2005 12:27:26  
**Officer:** Mike Reynolds

**Receiver:**  
Manufacturer: ROHDE&SCHWARZ  
Model: EB200  
Serial Number: 833.643/005

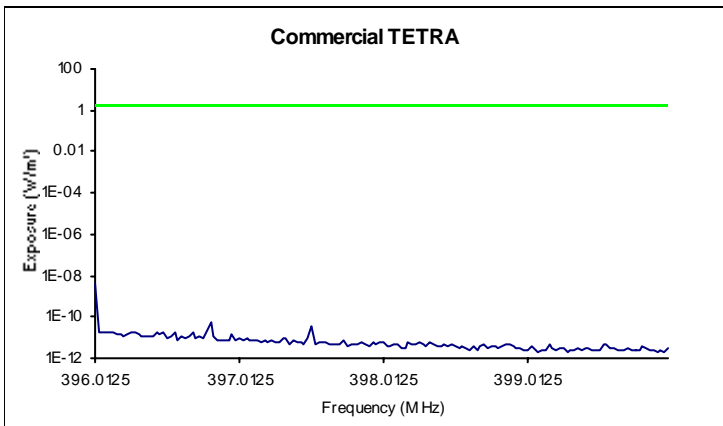
**Antenna:**  
Manufacturer: Rohde & Schwarz  
Model: HE200 - 200-500  
Serial Number: 838789/027



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
392.887	9.72E-04	2.00	4.86E-04
392.863	6.00E-05	2.00	3.00E-05
392.913	4.99E-05	2.00	2.49E-05
392.938	2.68E-07	2.00	1.34E-07
392.837	2.44E-07	2.00	1.22E-07
392.188	9.27E-08	2.00	4.63E-08
392.813	6.13E-08	2.00	3.07E-08
391.337	3.94E-08	2.00	1.97E-08
392.038	2.61E-08	2.00	1.31E-08
392.788	1.73E-08	2.00	8.64E-09
<b>Band Exposure Quotient:</b>			<b>5.42E-04</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
393.738	9.10E-04	2.00	4.55E-04
394.438	8.32E-04	2.00	4.16E-04
394.413	5.75E-05	2.00	2.88E-05
393.712	4.35E-05	2.00	2.18E-05
394.462	3.80E-05	2.00	1.90E-05
393.762	3.46E-05	2.00	1.73E-05
393.788	2.88E-07	2.00	1.44E-07
393.688	2.29E-07	2.00	1.14E-07
394.488	2.19E-07	2.00	1.09E-07
394.387	1.58E-07	2.00	7.92E-08
<b>Band Exposure Quotient:</b>			<b>9.58E-04</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
396.012	3.48E-09	2.00	1.74E-09
396.813	5.29E-11	2.00	2.64E-11
397.512	3.42E-11	2.00	1.71E-11
396.788	2.10E-11	2.00	1.05E-11
396.087	1.96E-11	2.00	9.80E-12
396.038	1.96E-11	2.00	9.80E-12
396.688	1.87E-11	2.00	9.37E-12
396.137	1.83E-11	2.00	9.14E-12
396.113	1.83E-11	2.00	9.14E-12
396.063	1.83E-11	2.00	9.14E-12
<b>Band Exposure Quotient:</b>			<b>2.29E-09</b>

Total number of measurements: 400

**Total Band Exposure Quotient:** **1.50E-03**

**Site:** Beacon House  
**Location:** 13 Grenada Drive

**NGR:** NZ 3450 7418 **Taken from GPS**

**Start Time:** 18 August 2005 12:41:07

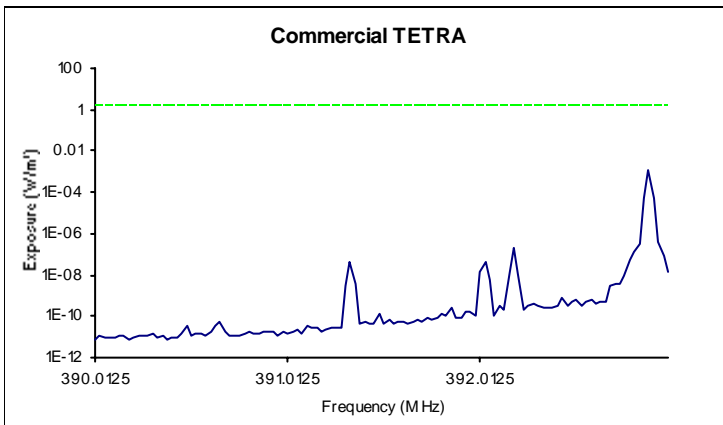
**Officer:** Mike Reynolds

**Receiver:**

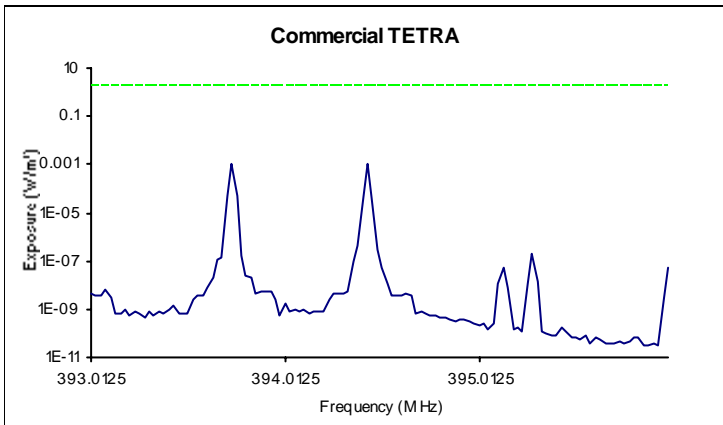
Manufacturer: ROHDE&SCHWARZ  
Model: EB200  
Serial Number: 833.643/005

**Antenna:**

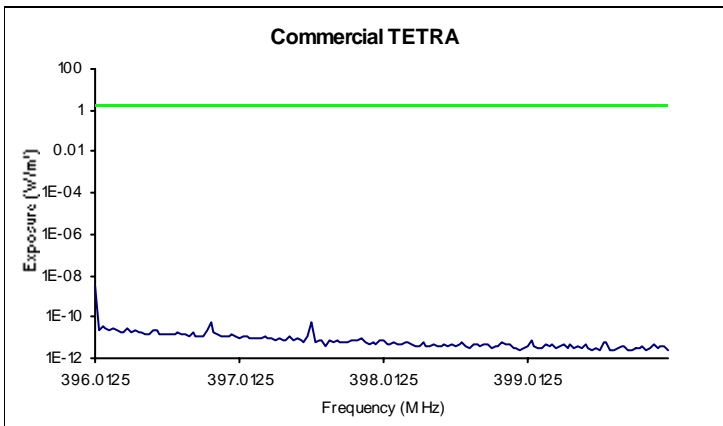
Manufacturer: Rohde & Schwarz  
Model: HE200 - 200-500  
Serial Number: 838789/027



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
392.887	1.20E-03	2.00	5.98E-04
392.913	5.73E-05	2.00	2.86E-05
392.863	5.10E-05	2.00	2.55E-05
392.938	3.70E-07	2.00	1.85E-07
392.837	3.00E-07	2.00	1.50E-07
392.188	1.94E-07	2.00	9.68E-08
392.813	1.25E-07	2.00	6.26E-08
392.962	8.47E-08	2.00	4.24E-08
392.788	5.10E-08	2.00	2.55E-08
392.038	4.75E-08	2.00	2.38E-08
<b>Band Exposure Quotient:</b>			<b>6.53E-04</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
393.738	1.12E-03	2.00	5.60E-04
394.438	1.10E-03	2.00	5.48E-04
393.712	5.12E-05	2.00	2.56E-05
394.413	5.01E-05	2.00	2.51E-05
393.762	4.67E-05	2.00	2.33E-05
394.462	3.89E-05	2.00	1.95E-05
394.387	3.98E-07	2.00	1.99E-07
394.488	2.88E-07	2.00	1.44E-07
395.288	2.19E-07	2.00	1.10E-07
393.788	1.55E-07	2.00	7.73E-08
<b>Band Exposure Quotient:</b>			<b>1.20E-03</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
396.012	3.10E-09	2.00	1.55E-09
397.512	5.81E-11	2.00	2.90E-11
396.813	5.05E-11	2.00	2.52E-11
396.063	3.48E-11	2.00	1.74E-11
396.238	2.83E-11	2.00	1.42E-11
396.087	2.77E-11	2.00	1.38E-11
396.137	2.58E-11	2.00	1.29E-11
396.438	2.47E-11	2.00	1.23E-11
396.038	2.47E-11	2.00	1.23E-11
396.288	2.30E-11	2.00	1.15E-11
<b>Band Exposure Quotient:</b>			<b>2.26E-09</b>

Total number of measurements: 400

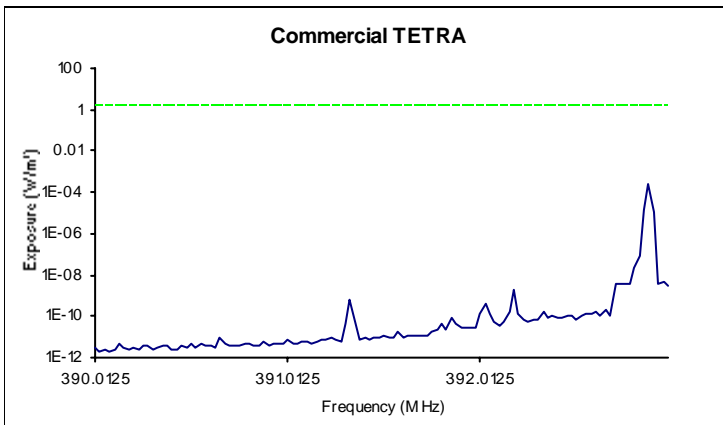
**Total Band Exposure Quotient:**

**1.86E-03**

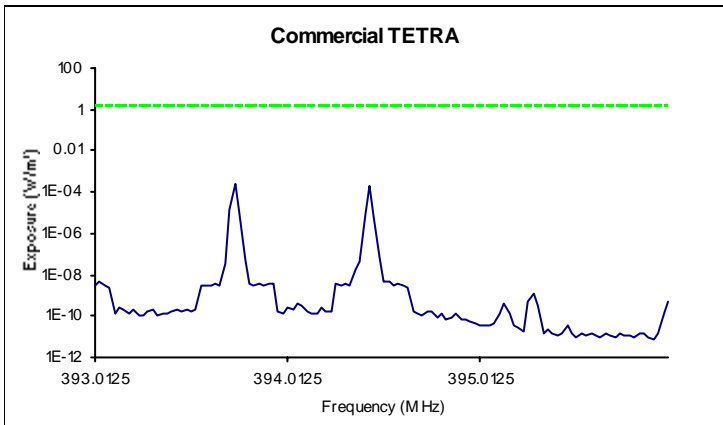


**Site:** Beacon House  
**Location:** Junction Kingston Close & Western Way  
**NGR:** NZ 3476 7414 **Taken from GPS**  
**Start Time:** 18 August 2005 12:54:02  
**Officer:** Mike Reynolds

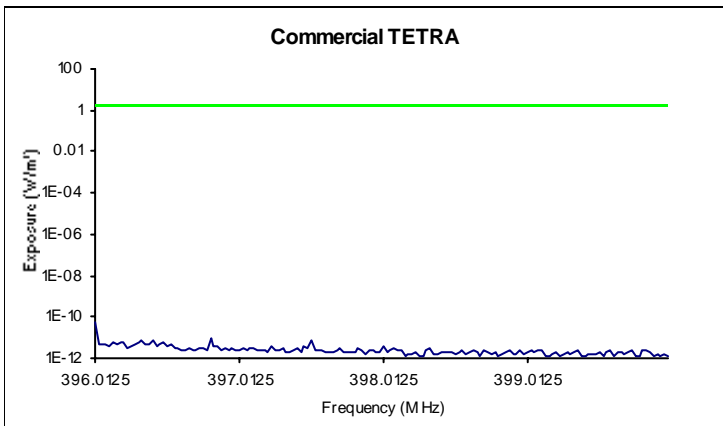
**Receiver:**  
 Manufacturer: ROHDE&SCHWARZ  
 Model: EB200  
 Serial Number: 833.643/005  
**Antenna:**  
 Manufacturer: Rohde & Schwarz  
 Model: HE200 - 200-500  
 Serial Number: 838789/027



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
392.887	2.74E-04	2.00	1.37E-04
392.863	1.31E-05	2.00	6.56E-06
392.913	1.12E-05	2.00	5.58E-06
392.837	9.29E-08	2.00	4.64E-08
392.813	2.28E-08	2.00	1.14E-08
392.962	4.34E-09	2.00	2.17E-09
392.938	4.05E-09	2.00	2.03E-09
392.712	3.96E-09	2.00	1.98E-09
392.762	3.78E-09	2.00	1.89E-09
392.738	3.78E-09	2.00	1.89E-09
<b>Band Exposure Quotient:</b>			<b>1.49E-04</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
393.738	2.34E-04	2.00	1.17E-04
394.438	2.24E-04	2.00	1.12E-04
393.712	1.26E-05	2.00	6.28E-06
393.762	9.98E-06	2.00	4.99E-06
394.413	8.91E-06	2.00	4.46E-06
394.462	7.58E-06	2.00	3.79E-06
394.488	6.46E-08	2.00	3.23E-08
393.788	5.00E-08	2.00	2.50E-08
394.387	4.57E-08	2.00	2.28E-08
393.688	3.38E-08	2.00	1.69E-08
<b>Band Exposure Quotient:</b>			<b>2.49E-04</b>



Frequency (MHz)	Maximum Exposure (W/m²)	ICNIRP Limit (W/m²)	Frequency Exposure Quotient
396.012	5.27E-11	2.00	2.64E-11
396.813	9.19E-12	2.00	4.59E-12
397.512	6.98E-12	2.00	3.49E-12
396.337	6.96E-12	2.00	3.48E-12
396.413	6.65E-12	2.00	3.32E-12
396.488	6.20E-12	2.00	3.10E-12
396.313	6.20E-12	2.00	3.10E-12
396.137	5.52E-12	2.00	2.76E-12
396.212	5.40E-12	2.00	2.70E-12
396.188	5.40E-12	2.00	2.70E-12
<b>Band Exposure Quotient:</b>			<b>2.32E-10</b>

Total number of measurements: 400

**Total Band Exposure Quotient: 3.98E-04**

## 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( $\mu$ V/m)) converted to an equivalent power density (W/m<sup>2</sup>)
- 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/m<sup>2</sup>)
- 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 <sup>2</sup>
400MHz to 2GHz	$f / 200$ W/m <sup>2</sup>
2GHz to 300GHz	10 W/m <sup>2</sup>

(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

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- ETACS:** Extended Total Access Communications
- TETRA:** Terrestrial Trunked Radio
- 3G:** Third Generation mobile-phone services

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- 1.00E-06:** Equal to one millionth
- 1.00E-09:** Equal to one thousand-millionth
- 1.00E-12:** Equal to one million-millionth