HEALTH AND SAFETY STATEMENT

As you are aware, technical information relating to health and safety has already been provided in the Supplementary Information Template which is enclosed with this application.

PPG8 states that it is not for the local planning authority to seek to replicate through the planning system controls under the health and safety regime as enforcement of this legislation is a matter for the Health and Safety Executive

However, Orange recognises the concerns of members of the public over perceived health effects and considers that detailed supplementary information would be beneficial for all parties concerned.

Independent Expert Group on Mobile Phones – 2000

As a result of concern over mobile phones and base stations the Minister for Public Health set up the Independent Group on Mobile Phones in the UK in 1999, under the chairmanship of Professor Sir William Stewart. Its report (The Stewart Report) was published in May 2000 and is the first genuinely independent and comprehensive review of mobile communications technology in the UK. A copy of the report can be found at www.iegmp.org.uk It concluded that:

- "the balance of evidence indicates that there is no general risk to the health of people living near base stations on the basis that exposures are expected to be small fractions of the guidelines;
- However there can be indirect adverse effects on their well being in some cases;
- There is now scientific evidence, however, which suggests that there may be biological effects occurring at exposures below these guidelines;
- We recommend that a precautionary approach of the use of mobile phone technology be adopted until much more detailed and scientifically robust information on any health effects becomes available".

Advisory Group on Non-ionising Radiation (AGNIR) - 2004

Following one of the recommendations made in the Stewart Report to review the possible health effects from mobile phone technology in three years time (paragraph 1.60) AGNIR was reconstituted in 1999 as an independent body that now reports directly to the Board of NRPB.

Their report issued 'Health Effects from Radiofrequency Electromagnetic Fields' was issued on 14th January 2004 and looked at the studies conducted since the review by the Independent Expert Group in 2000. Their conclusion is as follows:

> "In aggregate the research published since the IEGMP report does not give cause for concern. The weight of evidence now available does not suggest that there are adverse health effects to RF fields below guideline levels, but the published research on RF exposures and health has limitations, and mobile phones have only been in widespread use for a relatively short time. The possibility therefore remains open that there could be health effects from exposure to RF fields below guideline levels; hence continued research is required." (Paragraph 21, Chapter 8)
>
> "Exposure levels from living near to mobile phone base stations are extremely low, and the overall evidence indicates that they are unlikely to pose a risk to health". (Paragraph 20, Chapter 8).

A copy of the report can be found on the NRPB website: www.nrpb.org.

ICNIRP Compliance

One of the recommendations of the Stewart Report was to adopt ICNIRP (International Commission on Non-Ionising Radiation Protection) guidelines to limit public exposure from transmitter sites. The Government has adopted this recommendation.

Before going into further detail, we would like to confirm that the proposed installation as detailed in the enclosed numbers is designed to be in full compliance with the requirements of the radio frequency (RF) public exposure guidelines of the International Commission on Non-Ionising Radiation Protection (ICNIRP), as expressed in EU Council recommendation of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). A Certificate is enclosed to this effect.

The site has been designed so that no member of the public can be expected to be exposed to electromagnetic fields in excess of ICNIRP general public guidelines. For Orange installations this equates to safety distances of typically 10 metres between the front of the antenna and anywhere the general public may have access.

Further Research

Having considered research issues, AGNIR also made a number of specific recommendations that aim to improve the quality and interpretability of future health-related research and current health research programmes. These should be seen in context of the substantial programme of ongoing research in the UK funded jointly by the government and industry. The research is being carried out under the management of an independent Programme Management Committee. Full details can be found on www.mthr.org.uk.

Government Policy

The government's position relating to health and safety is clearly set out in paragraphs 29 – 31 of PPG8.

> 'Health considerations and public concern can in principle be material considerations in determining applications for planning permission and prior approval. [2]It is for the decision-maker (usually the local planning authority) to determine what weight to attach to such considerations in any particular case.' (Para 29 of Appendix)
>
> 'However, it is the Government's firm view that the planning system is not the place for determining what measures are necessary to protect public health. In the Governments view, if a proposed mobile phone base station meets the ICNIRP guidelines for public exposure it should not be necessary for the local planning authority to consider further the health effects and concerns about them.' (Para 30 of Note)

Furthermore in the Supporting Guidance it states that

> 'It is not for the local planning authority to seek to replicate through the planning system controls under the health and safety regime. Enforcement of health and safety legislation is a matter for the Health and Safety Executive and not the local planing authority.' (Para 94)

This policy has been tested in numerous appeals (many at public inquiry) and in the High Court sine PPG8 was re-issued in August 2001. To date no appeals by operators have been dismissed where perceived health effects was the main issue. Furthermore there have been seven public inquiries where health and safety was considered a main issue. In each case the Inspector allowed the appeal. On five occasions, costs were awarded against the Council. Details can be found on the Mobile Operator's Association (MOA) web site; http://www.mobilemastinfo.com/planning/policy/intro.htm

[2] Newport B.C. v S.S. for Wales and Browning Ferris Environmental Services Ltd (1998)

Although the application of this policy has been subject to challenge in the High Court, no decision granting permission for a mast has been quashed by the High Court where this policy has been applied. One such case was Trevett –v- Secretary of State DTLR and others [2002] EWHC 2696 Admin [2002]. Details can be found on the MOA web site.

Precautionary Approach

Much has been made of the term 'Precautionary Approach' and the Government has given guidance on what this constitutes.

> 'The Government's acceptance of the precautionary approach recommended by the Stewart Group's report "mobile phones and health" is limited to the specific recommendations in the Group's report and the Government's response to them. The report does not provide any basis for precautionary actions beyond those already proposed. In the Governments view, local planning authorities should not implement their own precautionary policies e.g. by way of imposing a ban or moratorium on new telecommunications development or insisting on minimum distances between new telecommunications development and existing development.' (Para 31 of Note)

As a precautionary approach the Government has adopted the ICNIRP general public guidelines in preference to the previously used NRPB guidelines. The ICNIRP standards are founded on the same scientific basis as NRPB but have, by including the precautionary approach, increased the safety standards by five.

World Health Organisation Report (July 2000)

The World Health Organisation updated its Fact Sheet No 193, Electromagnetic Fields and Public Health. It urges regulatory authorities not to undermine the science base of (health based) guidelines by incorporating arbitrary additional safety factors. The fact sheet also states that the ICNIRP guidelines offer protection against all identified hazards of RF energy with large safety margins.

The fact sheet concludes

> 'RF fields around base stations are not considered a health risk'.

Beam of Greatest Intensity

The Stewart Report referred to a 'Beam of Greatest Intensity' and this has been picked up on by local planning authorities and the public. Although the Stewart Report defines this beam it is our feeling that the purpose of this calculation has been misunderstood and consequently misused.

The Stewart Report defines the Beam of Greatest Intensity as the area at whose boundary the intensity falls to a half (Paragraph 4.32). So the region of greatest intensity lies between the points where the centre of the main beam hits the ground and where the nearest edge of the beam hits the ground.

The Stewart report points out whether the radio signal from a given site falls on a particular location is dependent on the height of antennas and their direction and tilt. Based on typical down-tilt for antennas on say a 15m mast the Beam would fall on a large area typically 180m to 400m for a macro cell.

In our opinion, the reference to the Beam has caused undue concern to residents and schools located near to a proposed telecommunications installation. The concept of anyone living in a beam is obviously likely to cause alarm particularly if they do not understand the technology and safety guidelines introduced by the Government. In reality, however as you will see from the diagrams below the theoretical maximum power levels are significantly below ICNIRP guidelines.

Due to the complexity of calculating where the Beam falls and possible concerns that could be raised by residents or schools located within it the Government have distanced themselves from the Beam of Greatest Intensity. None of the recent planning guidance such as PPG8 and the Town and Country Planning (General Permitted Development) (Amendment) (England) (Order) 2001 refers to it once.

We would, therefore, in light of the above propose a more pragmatic approach to such desktop calculation namely based on the theoretical power levels at various distances. We have also show the point at which the highest power level falls. These are also shown in terms of percentage of ICNIRP guidelines.

Power Levels

Orange have developed a desk top calculator that provides theoretical power level on a site specific basis expressed in terms of ICNIRP general public guidelines which for Orange is 9 W/m^2 (Watts per metres square).

Diagram 1 (overleaf) shows the theoretical maximum readings (in vertical elevation) from the antenna of a typical macrocell type installation[1]. The calculations are based on a 15m tower and readings are given at set distances of 50, 100, 200, 300, 400, 500 and 1000 metres. The diagram also shows the distance at which the power level is highest.

The signal levels are given in power flux density[2] and expressed in terms of factors and percentages of ICNIRP public guidelines.

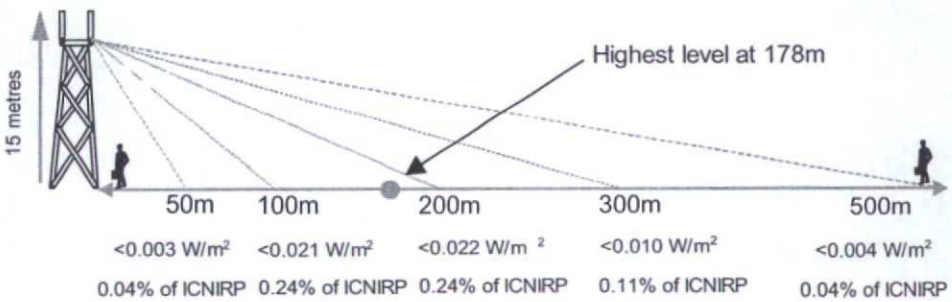
The theoretical model is based on optimum propagation and, therefore, cannot take account of normal terrain features such as trees and buildings that would degrade the received signal. It also does not allow for building penetration losses.

Based on a theoretical model the greatest power level would fall at a distance of 178m. At this point, however, it would only be 0.0273 W/m^2 and only 0.3033 per cent of ICNIRP public guidelines.

The diagram also shows how the power level rapidly decreases with distance.

Diagram 1 – power levels from typical macrocell (absolute worst case values)

ICNIRP Public exposure guideline: 9 W/m^2

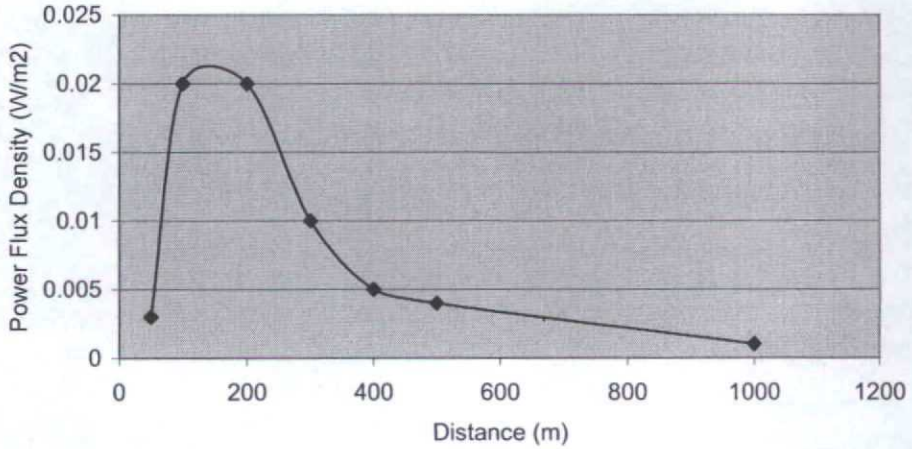


[1] The definition of Macrocells as given in PPG8 is they provide the main structure for the base station network. The base stations for macrocells have power outputs of tens of watts and communicate with phones up to about 35 kilometres (22 miles distant]

[2] This is an industry standard way of expressing the strength of a radio signal relative to a surface area. For example, a power flux density of 1 W/m^2 represents 1 watt of RF power spread evenly over $1m^2$. The Radiocommunications Agency uses this method of measurement in their schools audit. (see below)

Diagram 2 (below) shows the power levels in graph form (i.e. the signal along the ground). Note the point at which the level is highest and how rapidly this decreases with distance from the base station.

Diagram 2 Power levels from a typical macrocell. at ground level. Absolute worst case values.



The table below shows the figures for the theoretical model above.

Distance	Power Flex Density W/m^2	Electric field strength V/m	Percentage of ICNIRP	Factor Less than ICNIRP
50m	0.0032	1.1035	0.0359%	2786
100m	0.0215	2.8439	0.2384%	420
200m	0.0217	2.8579	0.2407%	415
300m	0.0097	1.9078	0.1073%	932
400m	0.0054	1.4315	0.0604%	1656
500m	0.0035	1.1455	0.0387%	2586
1000m	0.0009	0.5729	0.0097%	10337

Independent RF Surveys

In reality though, a number of independent surveys have confirmed that the actual emissions are well below the theoretical levels outlined above.

As a result of one of the recommendations of the Stewart Report, the Government commissioned the Radiocommunications Agency (now Ofcom) to implement a programme of surveys to ensure emissions from base stations do not exceed guidelines. Reflecting public concern, the initial focus of the audit was directed towards schools with base stations on or close to their premises.

The first programme of 100 surveys was completed on 21 December 2001. The audit results indicated in every case, levels of radiation far below those specified in the guidelines of the ICNIRP. The lowest recorded level was 1/825,764 (0.000012%) and the highest recorded level (at Folkestone School for Girls) was approximately 1/279th (0.00358%) of the ICNIRP maximum guideline reference level for public exposure.

As well as continuing surveys on schools located near to masts 2002/2003 programme of audits of mobile phone masts was extended to include other types of sensitive sites. The 2002 programme comprised surveys at 82 school sites and 27 hospitals located near to a mast. The lowest recorded level in 2002 was 1/19,907,515 (0.0000005%) and the highest recorded level (at Aintree Hospital, Liverpool) was 1/731 (0.00137%) below the guidelines.

The 2003 programme again included hospitals and schools. Some other sensitive sites were also audited, including residential areas and commercial premises. A total of 93 sites were audited in 2003. The lowest recorded level in 2003 was 1/10,843,598 below the guidelines and the highest recorded level 1/619 below the guidelines.

All of the 2001, 2002 and 2003 audit reports can be found on the Ofcom website - www.ofcom.org.uk

Ofcom also undertook some surveys of multi-user sites which can also be found in the RA archive. (These are aimed to give a more complete picture of emission levels across a wider range of radio frequencies).

The mobile phone base station audit programme is continuing.

As well as the Ofcom programme of surveys the National Radiological Protection Board are carrying out their own and the results can be found on the NRPB website can be found on (http://www.nrpb.org/radiation_topics/emf/index.htm)

The surveys include measurements near schools, homes and apartments, hospitals, public utilities, offices and other workplaces and show that exposures from mobile phone base stations are usually small fractions of international guidelines, typically less than 0.01% at most locations accessible to the public. The surveys also show that radio and TV transmitters can produce exposures that are comparable with those from mobile phone base stations.

The surveys include details of measurement locations, overall conclusions of the surveys and are displayed according to regional location and also within four broad categories: homes, workplaces, schools and public utilities. The results are expressed as percentages of the guidelines published by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) which have been adopted in the UK and in most other countries.