C O N F I D E N T I A L

UK Radon Levels Data Service

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Revision 1.3

Contents

1. Overview

This document describes the internet interface to access the UK Radon Level data-set hosted by OSS and provided by Groundsure, covering England and Wales. Data for Scotland and Northern Ireland are not available.

This data-set is updated as new updates become available.

2. Technical Details

Co-ordinate System

Radon level information can be requested for any particular location by supplying the co-ordinates of that point.

The x-y co-ordinates must refer to the British National Grid (defined by the Ordnance Survey), and should be supplied as the full figure “Eastings” and “Northings”.

Example: Trafalgar Square:

Eastings (x) = 530000
Northings (y) = 180500

It is also possible to specify a radon level search for any given region by specifying a polygon, i.e. a series of x-y co-ordinates as above. For example, a rectangular region can be specified by a sequence of 4 points.

Transfer Protocol

Requests are made using the Hypertext Transfer Protocol (HTTP/1.1) as defined by the Internet Engineering Taskforce (IETF).

The document defining this protocol may be found at either of the following:

http://www.ietf.org/rfc/rfc2616.txt
http://www.w3.org/Protocols/rfc2616

Either the “GET” or “POST” methods can be used for making requests.

Parameters

A standard http GET method requires the construction of a URL defined as:

URL = "http:" "//" host [":" port] [abs_path ["?" query]]

Host

Two alternative IPv4 addresses are used for fail-over and redundancy in order to increase system reliability. These should be found using dynamic DNS look-ups from the following domains:

mapping1.net (Primary)
mapping2.net (Secondary)

Although RFC 2616 recommends avoiding the use of IP addresses, the current IP addresses may be used in the event of DNS failure. These are:

91.186.17.110 (Primary)
82.69.46.94 (Secondary)

Either of these domains may be used, although the first is considered to be the primary address. If reliability is an important aspect of a system that uses this service, that system should be designed to automatically switch between these if a timely response is not received from any one domain. Typical time-out periods are usually in the range of 30 to 90 seconds. Time-out periods less than this are not recommended.

Port

The default Transmission Control Protocol (TCP) Ports 80 and 443 are used for HTTP and HTTPS respectively. In many cases the port number may be omitted.

Abs_path

This should be the string “get.rad” (excluding quotation delimiters).

Query

There are two formats for the query depending upon whether a point search or a polygon search is being requested.

1. For point searches the query string should be constructed as:

“userID=<userID>&passKey=<passkey>&x=<Eastings>&y=<Northings>”

(excluding quotation delimiters)

2. For area searches, the region of interest is defined by supplying the co-ordinates of the vertices of the polygon. The co-ordinates are 2-dimensional Cartesian x,y pairs. The parameters for a polygon of n vertices are passed as follows:-

polygon=x_1,y_1,x_2,y_2,x_3,y_3,…x_n,y_n

The polygon is always considered to be a closed loop, where the n^{th} point must join to the 1^{st} point. A triangle will therefore be specified with 3 points.

For a polygon search the query string should be constructed as:

“userID=<userID>&passKey=<passkey>&polygon=<x_1>,<y_1>,…<x_n>,<y_n>”

(excluding quotation delimiters)

SessionID

This is an optional parameter that can be added to each call to aid session tracking. For example:-

&sessionID=testSession123

For full details see the document entitled “Session ID Registration Service”.

Responses

Correct responses to each request is a simple comma-delimited text string, following the document RFC 4180 produced by the Network Working Group.

Any response that it is not in this format is indicative of a system failure, e.g. server over-load.

The response fields are as follows:

Field Name	Type	Example
Capture_Code1	Char 10	“1”
Percentage_above_Action	Char 20	“1 – 3”
OldGuidance	Char 200	“”
Guidance	Char 10	“None”

The response is always the highest level found within a buffer of 50m.

The complete set of possible responses is as follows:

"0","0 - 1","","None"

"1","1 - 3","","None"

"3","3 - 5","The study site is located in an area where new developments or extensions require radon protection.","Basic"

"4","5 - 10","The study site is located in an area where new developments or extensions require radon protection.","Basic"

"10","10 - 30","The study site is located in an area where new developments or extensions require radon protection.","Full"

"G","Greater than 30","The study site is located in an area where new developments or extensions require radon protection.","Full"

"","No data available.","",""

Notes

In order to increase security, the use of source-IP address restrictions will be made wherever possible.

3. Test Examples

The following strings are complete examples that should return the responses indicated.

Example 1: Standard point search.
Request:

get.rad?userID=<userID>&passKey=<passKey>&x=271000&y=83000

Response:

"G","Greater than 30","The study site is located in an area where new developments or extensions require radon protection.","Full"

Example 2: Co-ordinates outside dataset.
Request:

get.rad?userID=<userID>&passKey=<passKey>&x=-123&y=123

Response:

"","No data available.","",""

Example 3: Non-numeric co-ordinates.
Request:

get.rad?userID=<userID>&passKey=<passKey>&x=-123&y=abcde

Response:

"","No data available.","",""

Example 4: Standard polygon region search.
Request:

get.rad?userID=<userID>&passKey=<passKey>&polygon=237000,81000,237010,81500,237000,81510&sessionID=testSession

Response:

"G","Greater than 30","The study site is located in an area where new developments or extensions require radon protection.","Full"

4. Revision History

Date	Revision	Author	Notes
14 February 2008	1.0 Draft A.	PJH	For review.
18 January 2011	1.0	PJH	Minor changes and corrections.
23 March 2011	1.1	PJH	Addition of sessionID. Included list of responses. Polygon search facility.
26 January 2012	1.2	PJH	Documented 250m buffer.
6 February 2012	1.3	PJH	Reduced to 50m buffer.