

Cellular Mast Emissions Survey: Ogiers (Jersey)



DOCUMENT DETAILS

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Executive Summary

CICRA regularly monitors radiowave emissions from the cellular masts in the Bailiwicks of Guernsey and Jersey to ensure the mobile network operators who operate their services from those masts comply with their license obligations in terms of power levels and that the emissions from the sites comply with internationally recognised standards and guidelines regarding Health & Safety limits for the public.

In 2017, CICRA commissioned iWireless Solutions to conduct the emission surveys at all sites within the two Bailiwicks. This report is for the Ogiers site located in Jersey.

Ogiers site was used by a single operator at the time of the survey: JT J. Surveys were however conducted at all cellular frequency bands (800, 900, 1800, 2100 and 2600MHz) for all mobile cellular technologies (GSM, 3G and 4G) and for all three cellular operators as a routine procedure.

The survey established that the emissions around this site were very low and well below the safety limits for the public advised by internationally recognised standards.

The values shown hereafter are the maximum levels that were recorded around the site following a peak search. In most other locations, the levels were lower. The recorded values are only true at the time of testing and can go up or down depending on the level of user activity on the cell.

The Total Exposure Quotient for the site recorded across all detected cellular frequency bands is given at the bottom of the summary table below. A total Site EQ close to 1 (one) would mean that emissions at the site approach the limit advised by ICNIRP in their guidelines.

Site Name	Band [MHz]	Max E-field in band [V/m]	Operator at Max E-field	ICNIRP Limit Relative Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ogiers	800	0.001511	Airtel J	25738	4.18343E-08	1/ 23903826
	900	0.3407	JT J	121	9.57036E-05	1/ 10449
	1800	0.01106	JT J	5275	2.3256E-07	1/ 4299974
	2100	0.002124	Airtel J	28719	1.09376E-07	1/ 9142747
	2600	0.002261	JT J	26979	1.25845E-07	1/ 7946281
Total Site EQ					9.62132E-05	1/ 10394

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/10394 and therefore remains well below the ICNIRP guidelines.

The graphs which follow show the activity on all the frequency bands surveyed. The plots are colour-coded for easy identification of the three main operators: Airtel J in red, Sure J in dark blue, and Jersey Telecom J in light blue.

The graphs are also supported by the equivalent statistical figures derived from the measured levels at the site for added clarity.

1. Site Details

1.1 Site Location

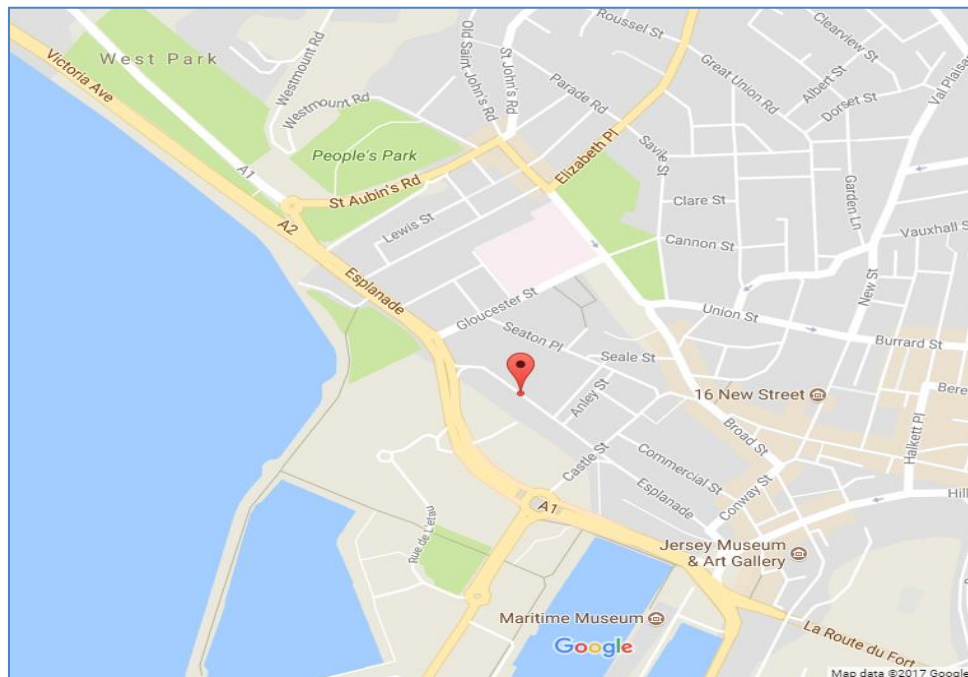


Figure 1 - Map of the Site Area

Site name	Ogiers
Site address	Esplanade, St Helier, Jersey
Site Latitude	49.18522
Site Longitude	-2.11276

1.2 Site Description

Operators	JT J
Antenna types	Omni directional
Approximate height	3m
Site type	Building – Ceiling Mount
Description	The antennas at Ogiers are located on the wall of the main building, the public have access.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

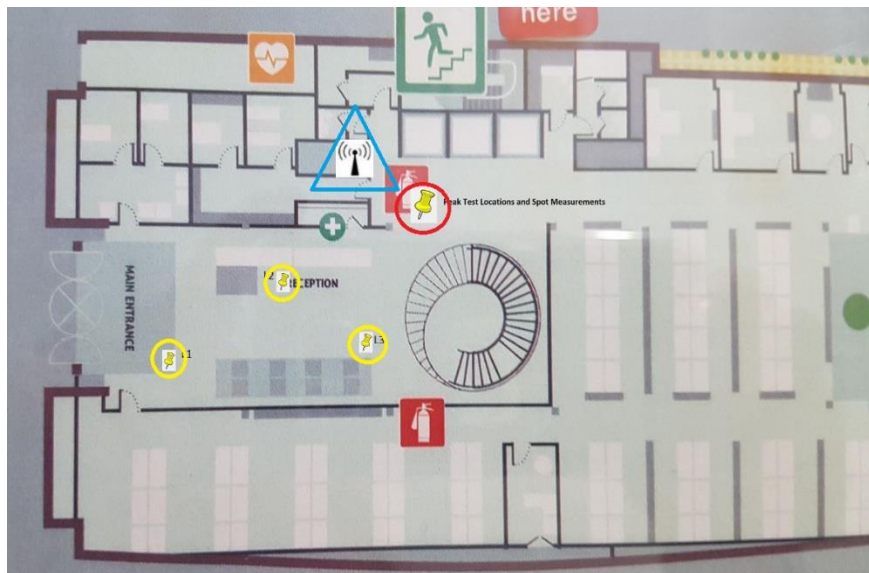


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

As part of the peak search procedure, spot measurements were taken at locations around the site, as shown on the above sketch. The reported spectrum scans were taken at the peak location (shown in red above) where the highest readings were recorded. The spectrum readings reported further down this report were recorded over a period of 6 minutes as advised by ICNIRP.

2. Survey Results

2.1 800 MHz Band

The graph for the 800 MHz activity is shown below with the E-field strength levels measured at the site plotted on a logarithmic scale.

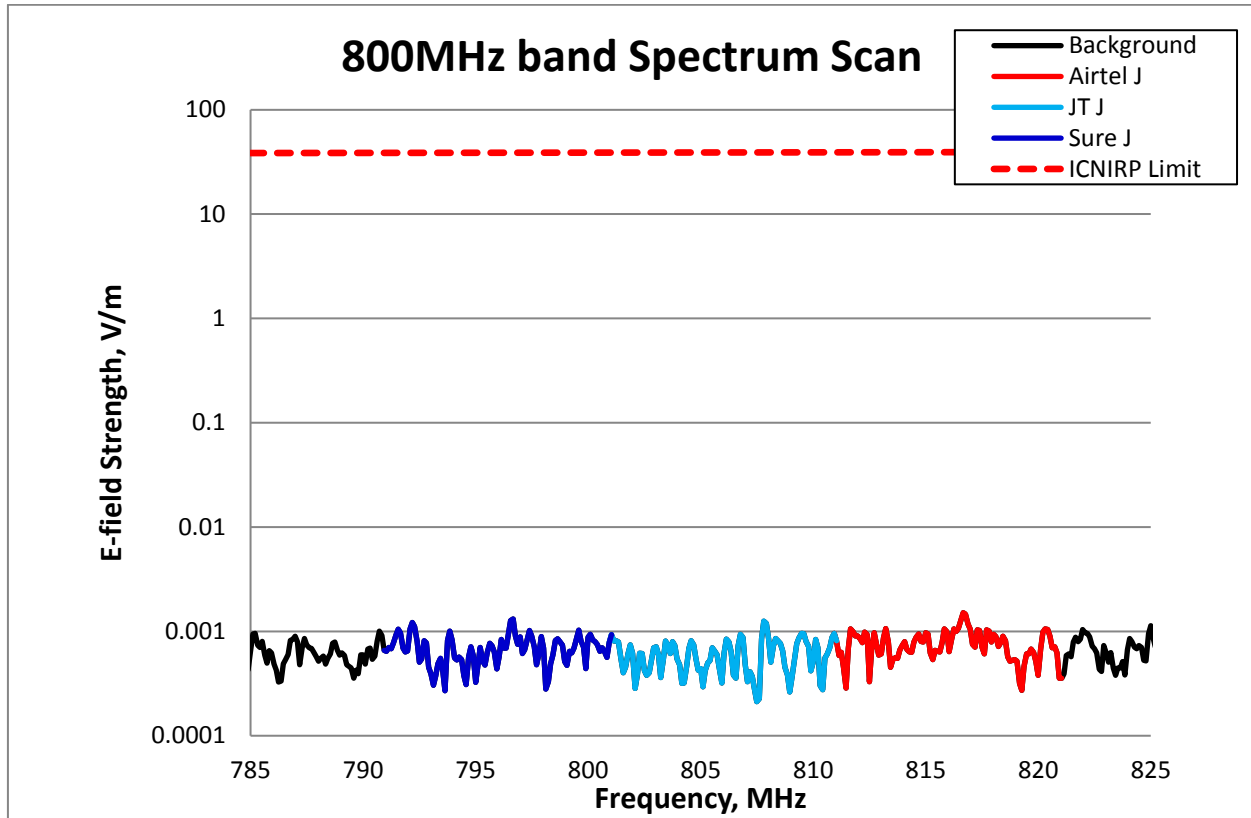


Figure 4 - 800MHz band Spectrum Scan

The red line on the scan represents the Airtel activity, the light blue is JT and the dark blue is Sure. ICNIRP's Reference Level for the General Public is also shown as the straight dashed line at the top of the graph. For clarity, each step on the vertical axis represents a 10-fold increase. The same scaling and colour scheme will be used throughout this report.

No activity was recorded in the 800MHz as no operator appears to transmit in this band at this site.

The Exposure Quotient results for the 800MHz band are shown below:

Site Name	Operator	Band [MHz]	Max E-field Strength [V/m]	ICNIRP Limit Relative to Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ogiers	Airtel J	800	0.001511	25738	1.69794E-08	1/ 58894878
	JT J		0.001256	30964	1.09543E-08	1/ 91288524
	Sure J		0.001314	29597	1.39006E-08	1/ 71939227
total band EQ					4.18343E-08	1/ 23903826

Table 2– 800MHz band Exposure Quotient at Ogiers

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

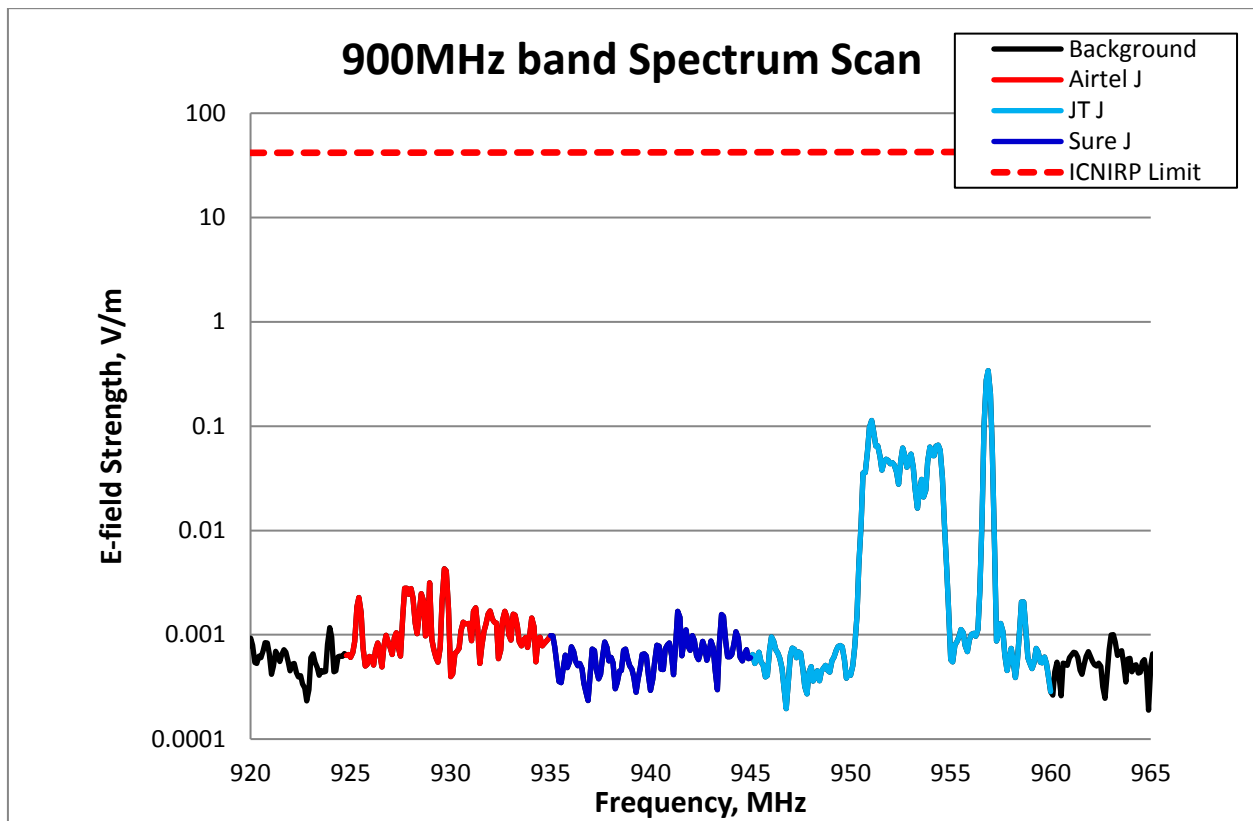


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.3407 V/m (JT J), which is 121 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 900MHz band are shown below:

Site Name	Band [MHz]	Max E-field in band [V/m]	Operator at Max E-field	ICNIRP Limit Relative Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ogiers	Airtel J	900	0.004286	9624	5.24975E-08	1/ 19048522
	JT J		0.3407	121	9.56381E-05	1/ 10456
	Sure J		0.001676	24612	1.29586E-08	1/ 77168993
total band EQ					9.57036E-05	1/ 10449

Table 3– 900MHz band Exposure Quotient at Ogiers

2.3 1800 MHz Band

The graph for the 1800 MHz activity around the site is shown below:

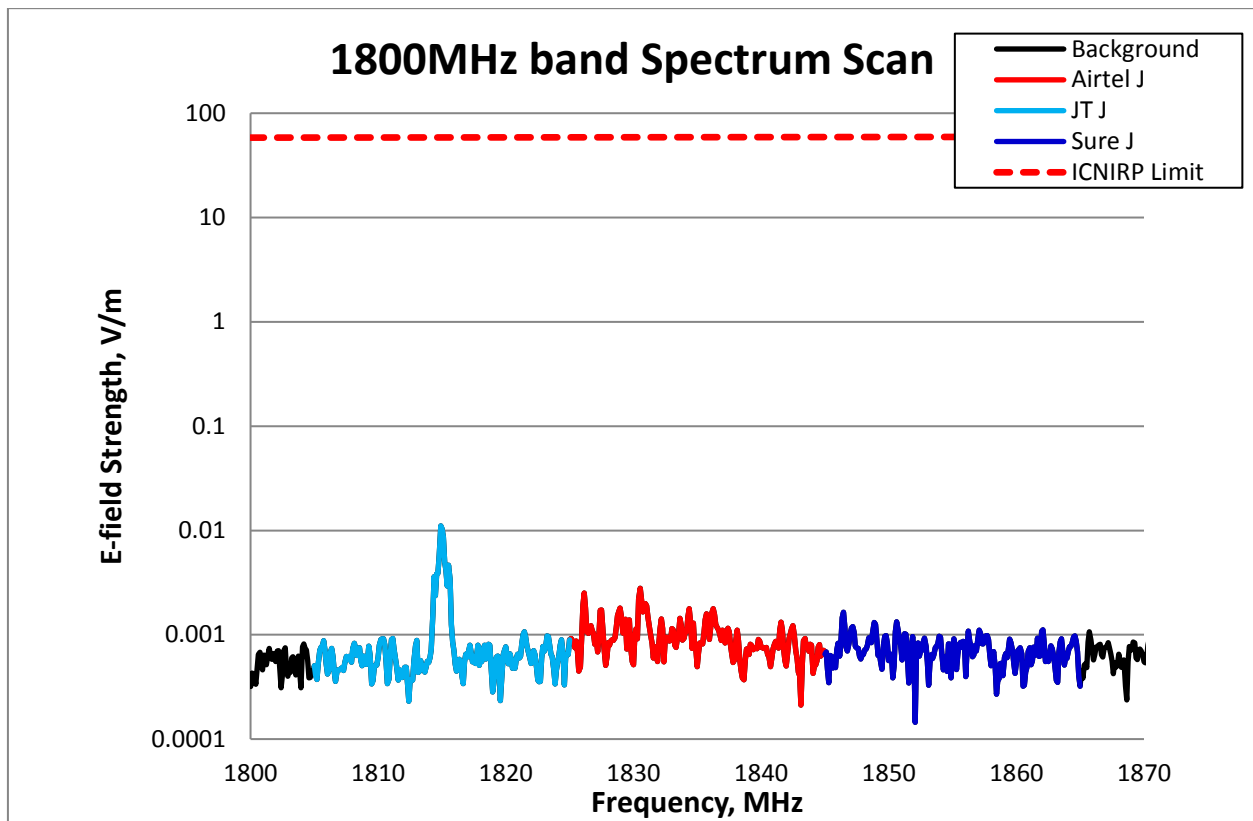


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.01106 V/m (JT J), which is 5275 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 1800MHz band are shown below:

Site Name	Band [MHz]	Max E-field in band [V/m]	Operator at Max E-field	ICNIRP Limit Relative Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ogiers	Airtel J	1800	0.002785	20947	5.71048E-08	1/ 17511666
	JT J		0.01106	5275	1.45673E-07	1/ 6864705
	Sure J		0.001643	35506	2.97821E-08	1/ 33577267
total band EQ					2.3256E-07	1/ 4299974

Table 4 – 1800MHz band Exposure Quotient at Ogiers

2.4 2100MHz Band

The graph for the UMTS activity around the site is shown below:

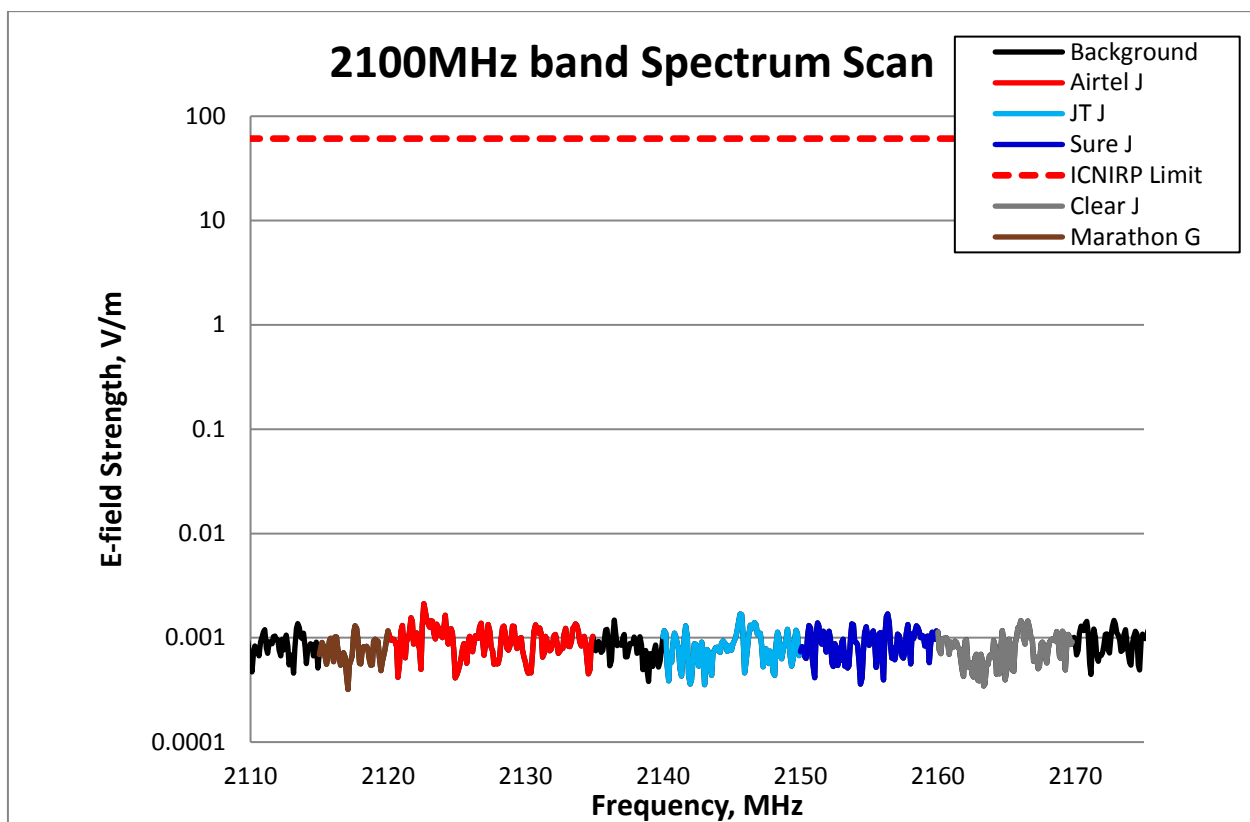


Figure 7 – 2100MHz band Spectrum Scan

No activity was recorded in the 2100MHz as no operator appears to transmit in this band at this site.

The Exposure Quotient results for the 2100MHz band are shown below:

Site Name	Band [MHz]	Max E-field in band [V/m]	Operator at Max E-field	ICNIRP Limit Relative Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ogiers	Airtel J	2100	0.002124	28719	3.90534E-08	1/ 25605993
	Clear J		0.001459	41809	1.80037E-08	1/ 55544243
	JT J		0.001688	36137	2.03434E-08	1/ 49155901
	Marathon J		0.001303	46815	8.2955E-09	1/ 120547277
	Sure J		0.001697	35946	2.36803E-08	1/ 42229106
total band EQ					1.09376E-07	1/ 9142747

Table 5 – 2100MHz band Exposure Quotient at Ogiers

2.5 2600MHz band

The graph for the 2600MHz band activity around the site is shown below:

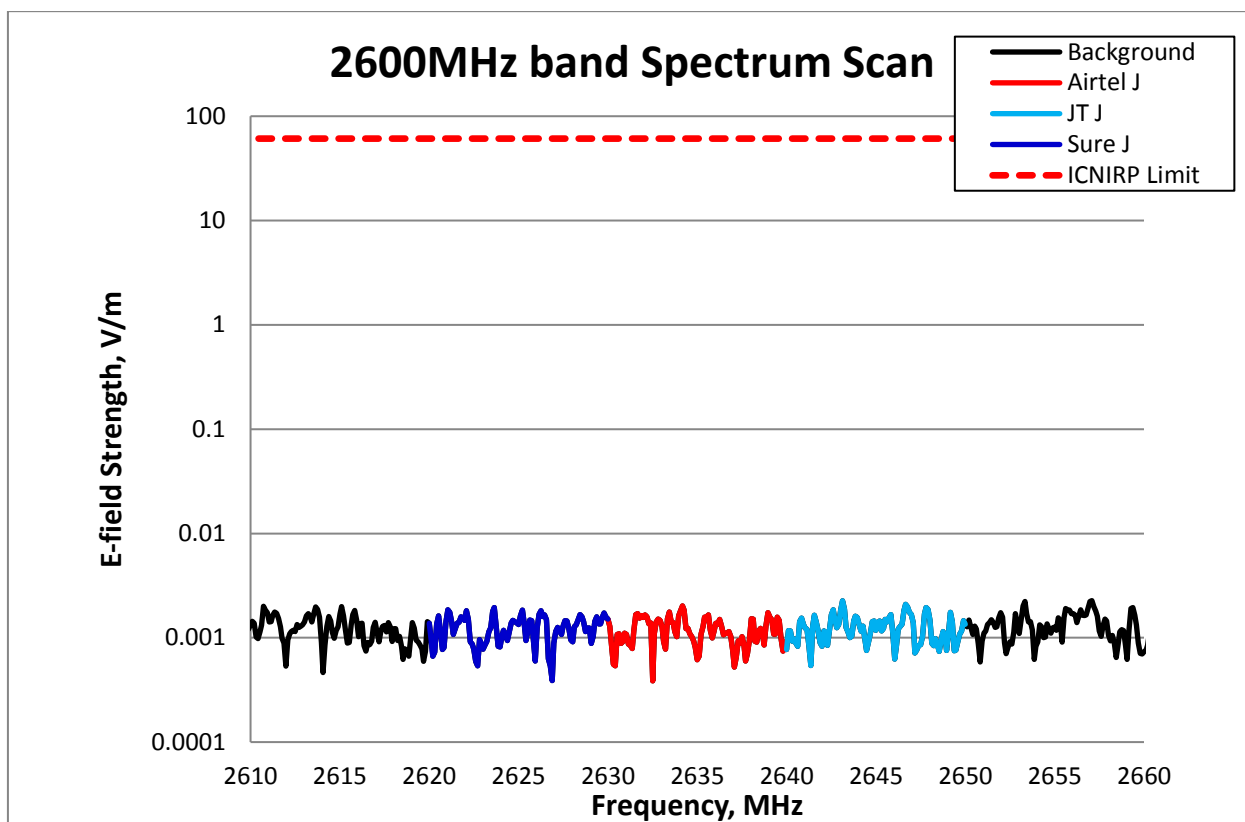


Figure 8 – 2600MHz band Spectrum Scan

No activity was recorded in the 2600MHz as no operator appears to transmit in this band at this site.

The Exposure Quotient results for the 2600MHz band are shown below:

Site Name	Band [MHz]	Max E-field in band [V/m]	Operator at Max E-field	ICNIRP Limit Relative Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Ogiers	Airtel J	2600	0.002021	30183	3.91375E-08	1/ 25550972
	JT J		0.002261	26979	4.35063E-08	1/ 22985166
	Sure J		0.00195	31282	4.32013E-08	1/ 23147471
total band EQ					1.25845E-07	1/ 7946281

Table 6 – 2600MHz band Exposure Quotient at Ogiers

End