

Cellular Mast Emissions Survey: Grand Vaux (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 Grand Vaux site located in Jersey.

Grand Vaux site was used by one operator at the time of the survey: Sure 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
Grand Vaux	800	0.1665	Sure J	234	0.000224019	1/ 4464
	900	1.705	Sure J	24	0.001796086	1/ 557
	1800	0.321	Sure J	182	0.000815622	1/ 1226
	2100	0.2922	Sure J	209	0.000325115	1/ 3076
	2600	0.002342	Airtel J	26046	1.22887E-07	1/ 8137567
Total Site EQ					0.003160965	1/ 316

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/316 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

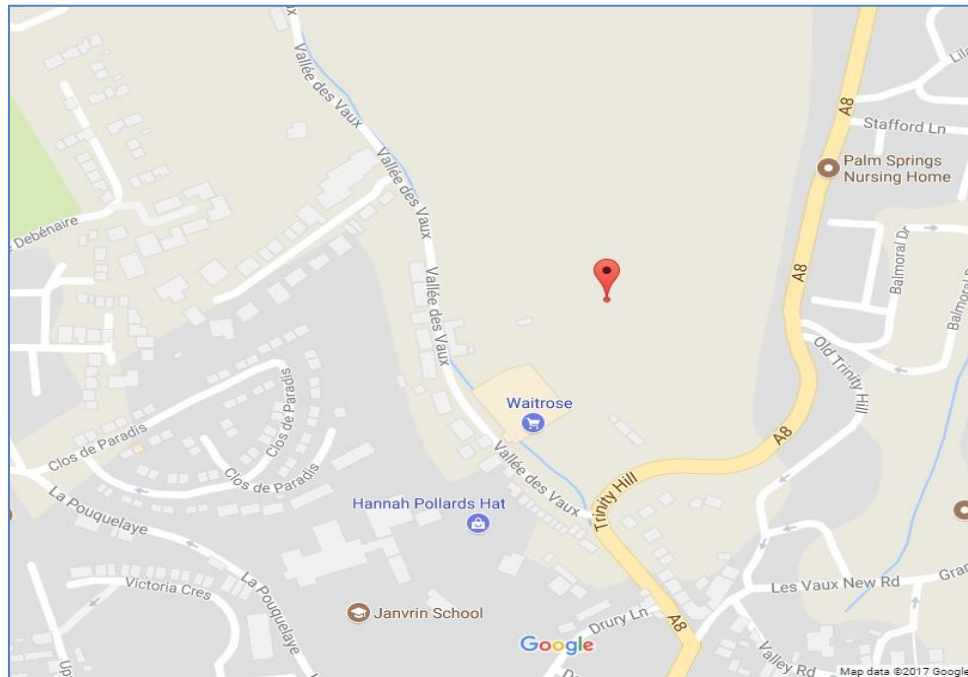


Figure 1 - Map of the Site Area

Site name	Grand Vaux
Site address	Field 1341/A, La Mont De La Trinity, St. Helier, Jersey
Site Latitude	N49.19637
Site Longitude	W02.10141

1.2 Site Description

Operators	Sure J
Antenna types	Directionals
Approximate height	12m
Site type	Pole Mast
Description	The antennas at Grand Vaux are located at the corner of a field, the public have access.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

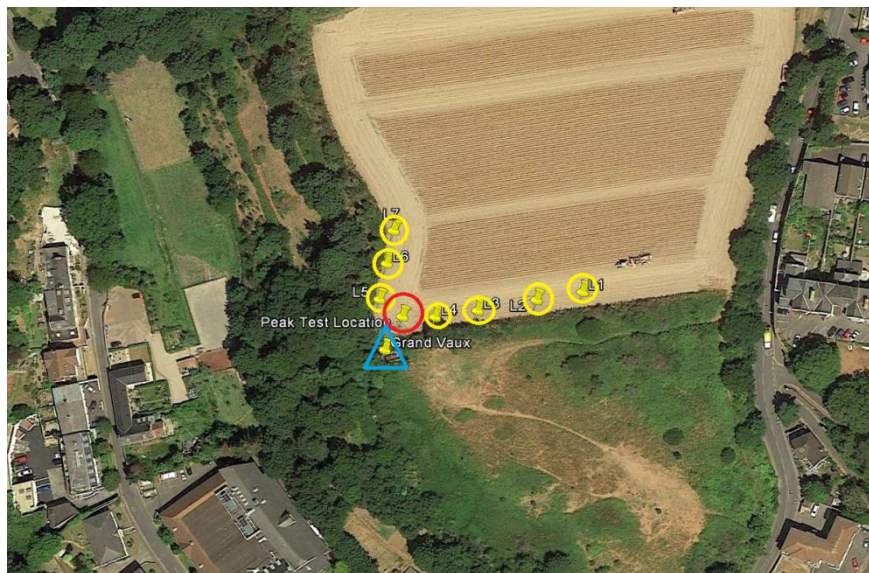


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

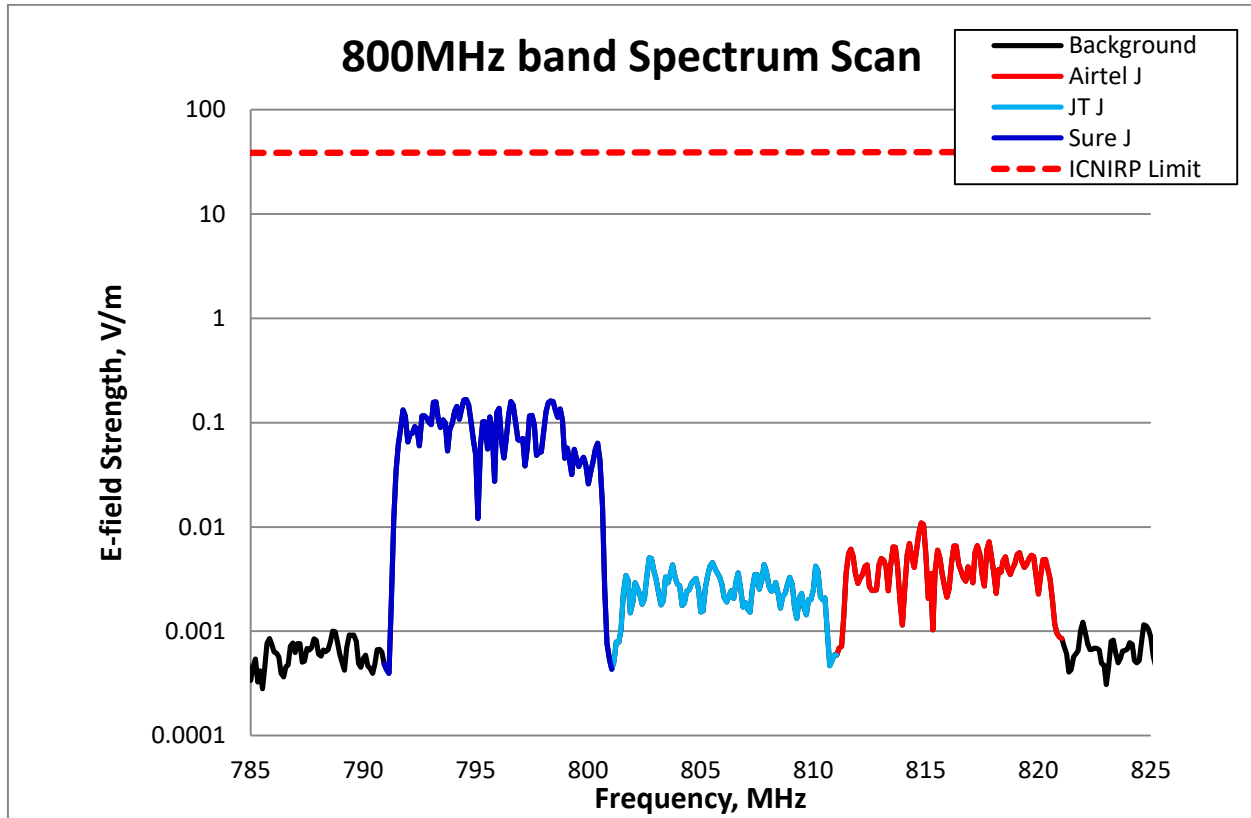


Figure 4 - 800MHz band Spectrum Scan

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 field level recorded across the band was higher than 0.1665 V/m (Sure J), which is 234 times smaller than the ICNIRP Reference level.

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
Grand Vaux	Airtel J	800	0.01096	3548	5.28704E-07	1/ 1891417
	JT J		0.005067	7675	1.87981E-07	1/ 5319697
	Sure J		0.1665	234	0.000223302	1/ 4478
total band EQ					0.000224019	1/ 4464

Table 2– 800MHz band Exposure Quotient at Grand Vaux

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

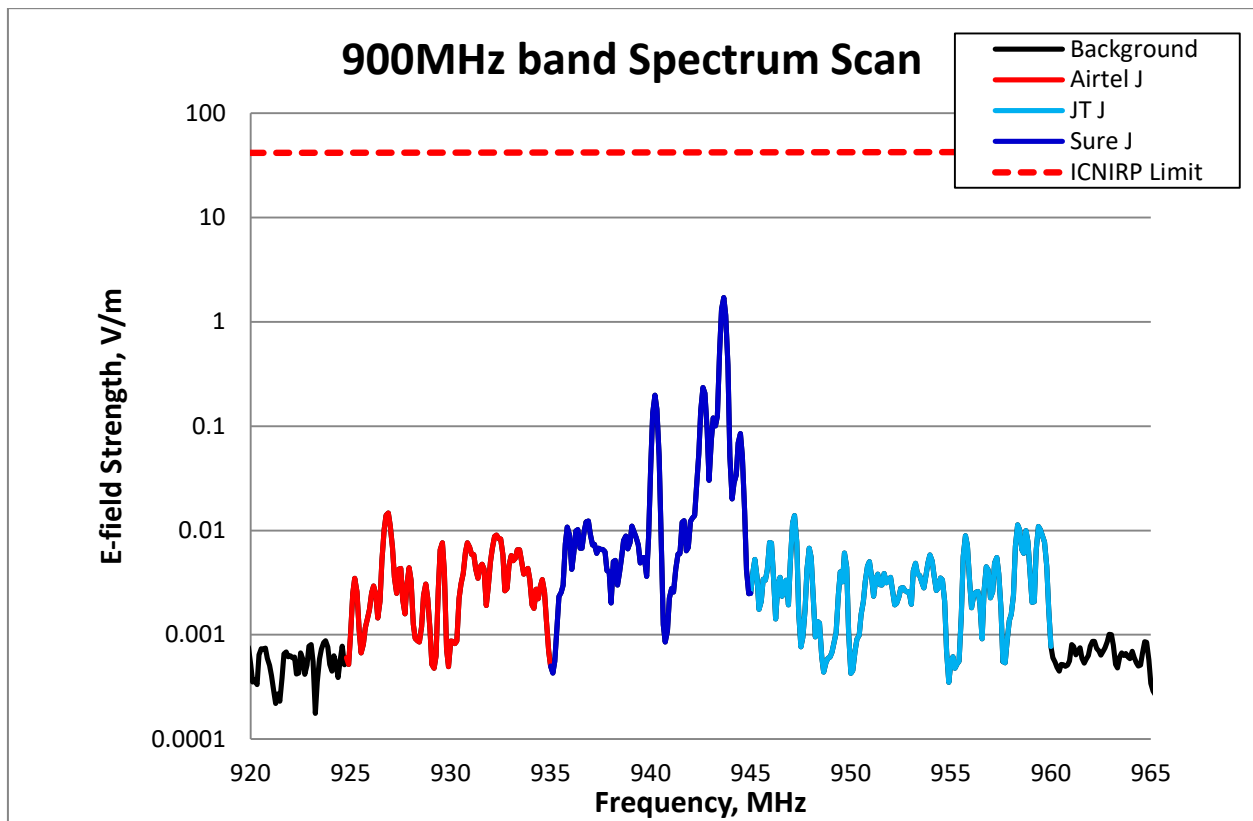


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 1.705 V/m (Sure J), which is 24 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 900MHz 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
Grand Vaux	Airtel J	900	0.01467	2812	5.70013E-07	1/ 1754346
	JT J		0.01393	2961	7.28417E-07	1/ 1372841
	Sure J		1.705	24	0.001794788	1/ 557
total band EQ					0.001796086	1/ 557

Table 3– 900MHz band Exposure Quotient at Grand Vaux

2.3 1800 MHz Band

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

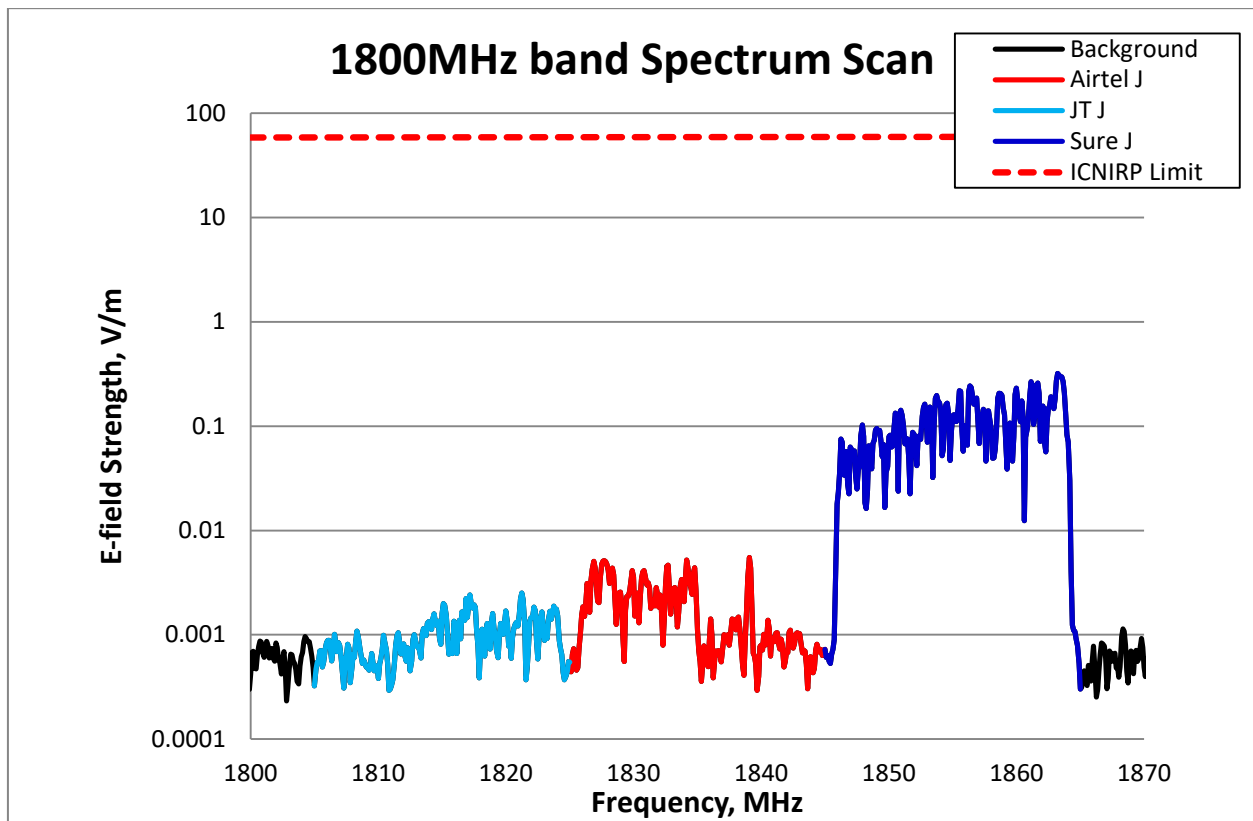


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.321 V/m (Sure J), which is 182 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 1800MHz 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
Grand Vaux	Airtel J	1800	0.005495	10616	2.54578E-07	1/ 3928073
	JT J		0.002506	23279	6.06905E-08	1/ 16477031
	Sure J		0.321	182	0.000815307	1/ 1227
total band EQ					0.000815622	1/ 1226

Table 4 – 1800MHz band Exposure Quotient at Grand Vaux

2.4 2100MHz Band

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

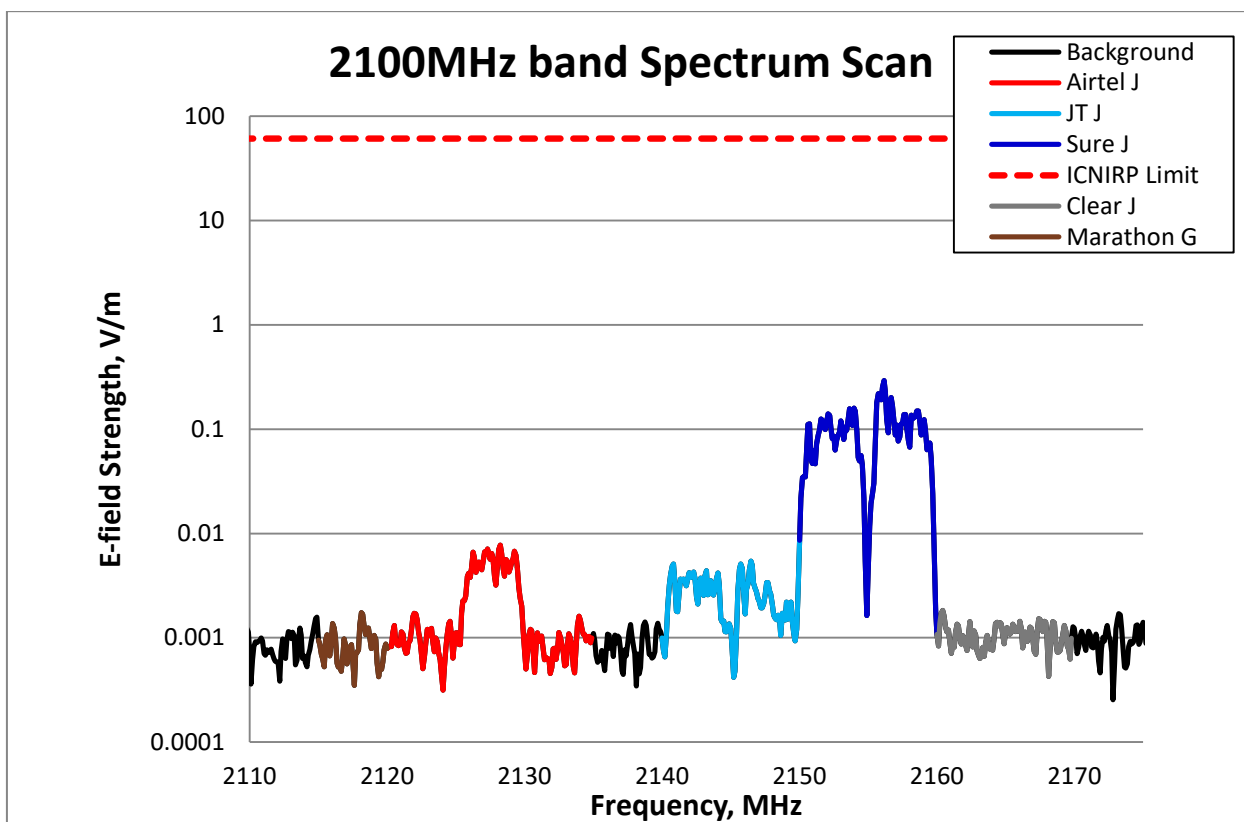


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.2922 V/m (Sure J), which is 209 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 2100MHz 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
Grand Vaux	Airtel J	2100	0.00773	7891	3.25499E-07	1/ 3072206
	Clear J		0.001832	33297	3.07917E-08	1/ 32476321
	JT J		0.008574	7115	2.31332E-07	1/ 4322791
	Marathon J		0.001739	35078	1.07083E-08	1/ 93385513
	Sure J		0.2922	209	0.000324517	1/ 3082
total band EQ					0.000325115	1/ 3076

Table 5 – 2100MHz band Exposure Quotient at Grand Vaux

2.5 2600MHz band

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

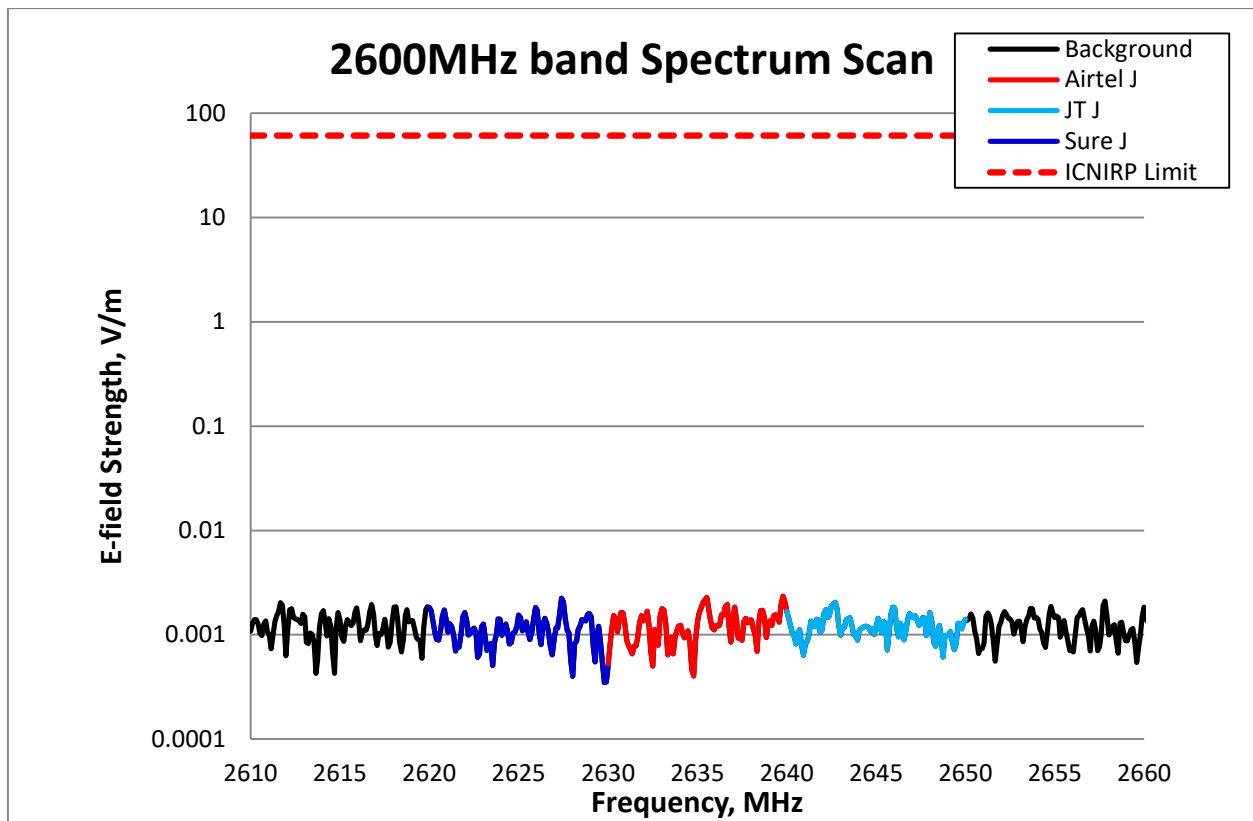


Figure 8 – 2600MHz band Spectrum Scan

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	Operator	Band [MHz]	Max E-field Strength [V/m]	ICNIRP Limit Relative to Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Grand Vaux	Airtel J	2600	0.002342	26046	4.60021E-08	1/ 21738161
	JT J		0.002051	29742	4.11005E-08	1/ 24330623
	Sure J		0.002241	27220	3.57843E-08	1/ 27945188
total band EQ					1.22887E-07	1/ 8137567

Table 6 – 2600MHz band Exposure Quotient at Grand Vaux

End