

Cellular Mast Emissions Survey: Greve De Lecq Pumping Station (Jersey)



DOCUMENT DETAILS

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	Station (Jersey)	
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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 Greve De Lecq Pumping Station site located in Jersey.

The Greve De Lecq Pumping Station site was used by a single 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
Greve de Lecq Pumping Station	800	0.006639	JT J	5858	2.46583E-07	1/ 4055436
	900	3.85	Sure J	11	0.009258976	1/ 108
	1800	0.3663	Sure J	159	0.0008545	1/ 1170
	2100	0.3658	Sure J	167	0.000991791	1/ 1008
	2600	0.005569	JT J	10953	6.76742E-07	1/ 1477668
Total Site EQ					0.011106191	1/ 90

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/90 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

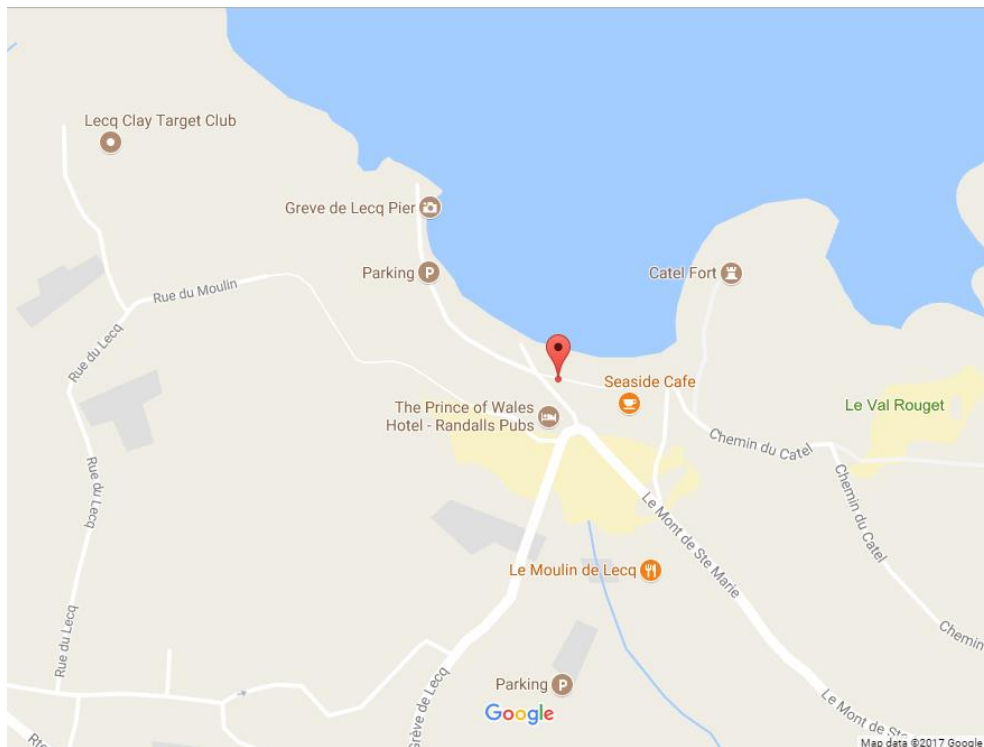


Figure 1 - Map of the Site Area

Site name	Greve De Lecq Pumping Station
Site address	Le Mont de la St Marie, St Ouen, Jersey.
Site Latitude	N 49.24694
Site Longitude	W 02.20126

1.2 Site Description

Operators	Sure J
Antenna types	Omni directional
Approximate height	7m
Site type	Building wall mount
Description	The antenna at Greve De Lecq Pumping Station is located at the rear of the building; access to the public is restricted.

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.

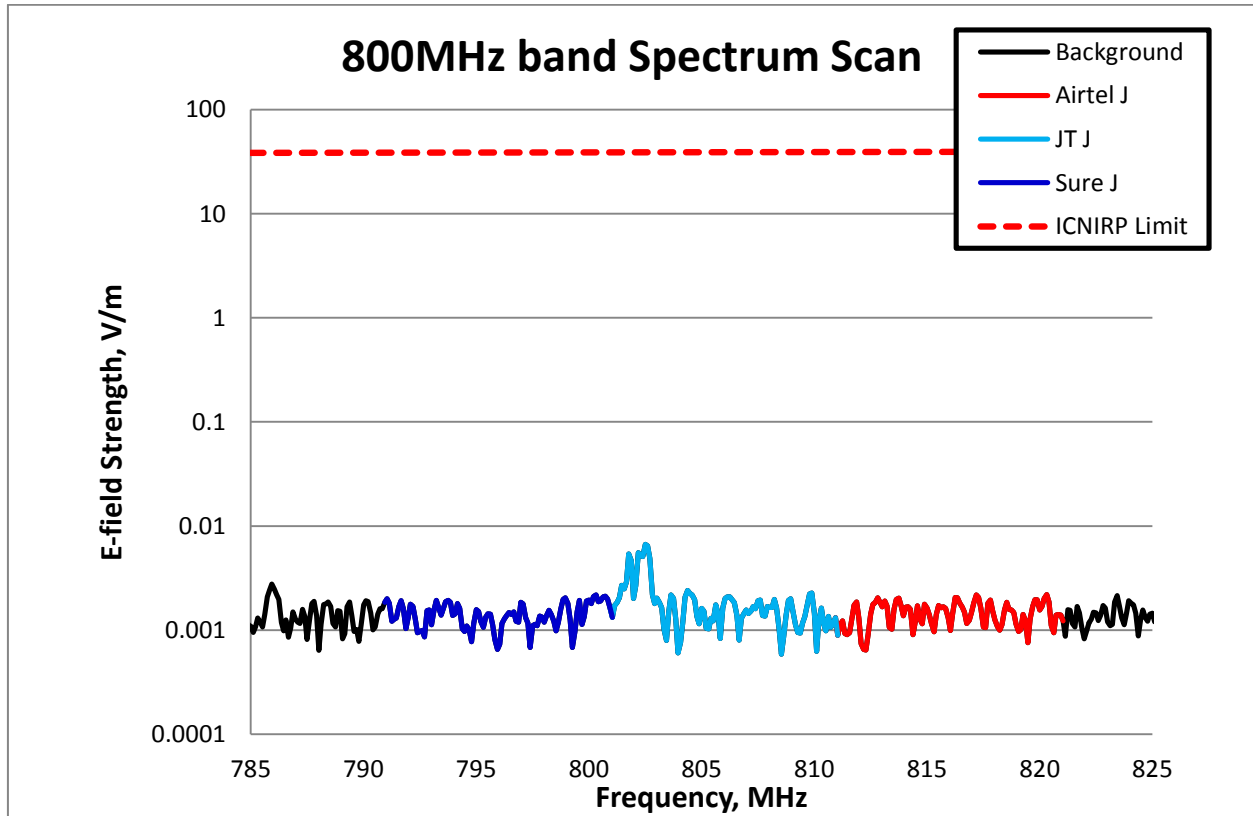


Figure 4 - 800MHz band Spectrum Scan

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
Greve de Lecq Pumping Station	Airtel J	800	0.002188	17775	5.89495E-08	1/ 16963665
	JT J		0.006639	5858	1.30239E-07	1/ 7678204
	Sure J		0.002178	17856	5.73943E-08	1/ 17423340
total band EQ					2.46583E-07	1/ 4055436

Table 2– 800MHz band Exposure Quotient at Greve De Lecq Pumping Station

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

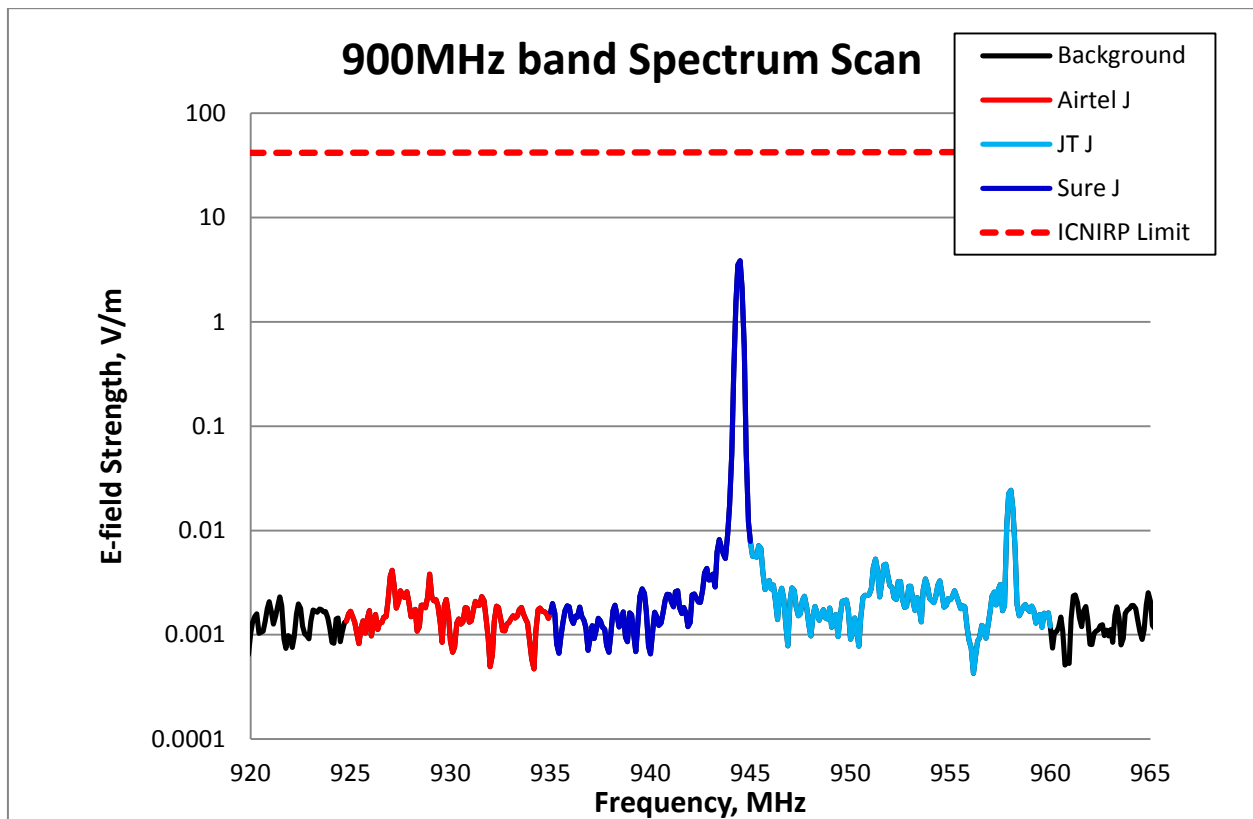


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 3.85 V/m (Sure J), which is 11 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
Greve de Lecq Pumping Station	Airtel J	900	0.004148	9945	7.79593E-08	1/ 12827212
	JT J		0.02425	1701	6.58045E-07	1/ 1519652
	Sure J		3.85	11	0.00925824	1/ 108
total band EQ					0.009258976	1/ 108

Table 3– 900MHz band Exposure Quotient at Greve De Lecq Pumping Station

2.3 1800 MHz Band

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

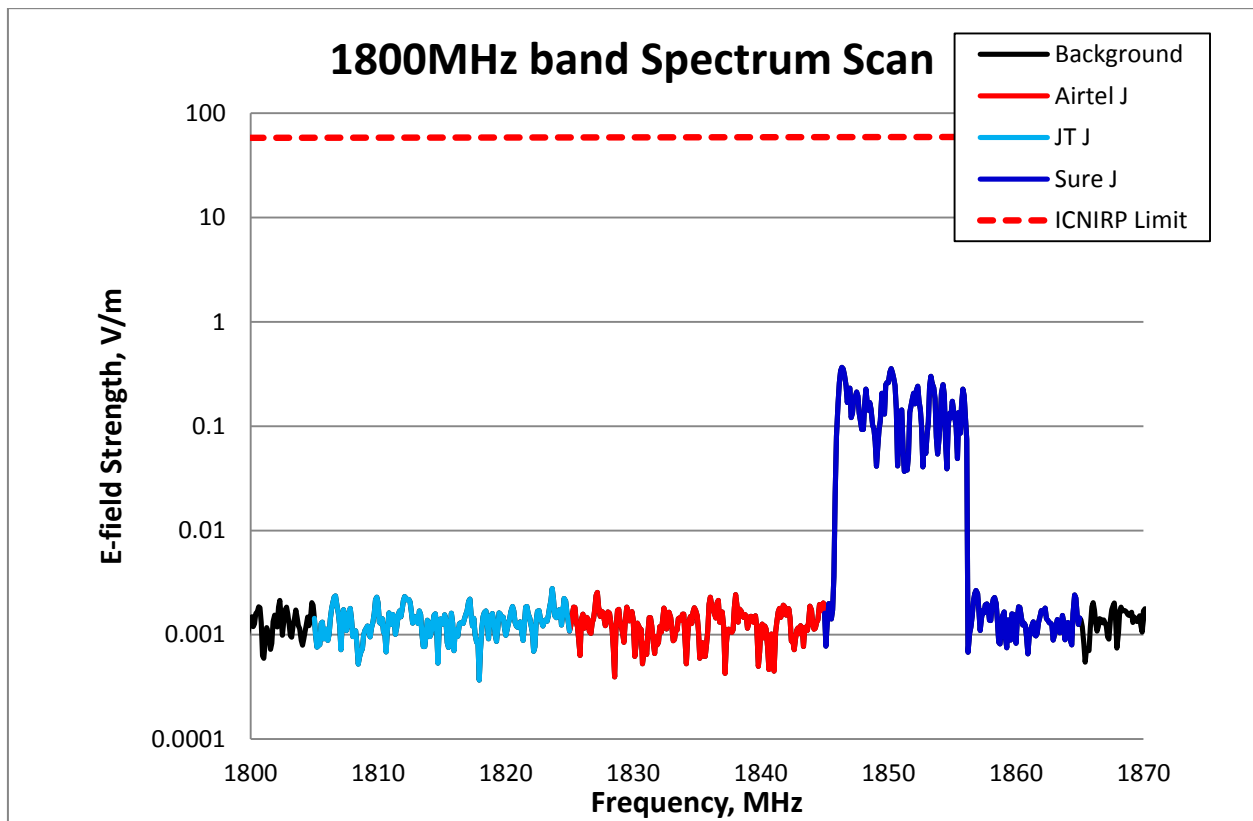


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.3663 V/m (Sure J), which is 159 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
Greve de Lecq Pumping Station	Airtel J	1800	0.00255	22877	9.66594E-08	1/ 10345608
	JT J		0.002771	21052	1.04791E-07	1/ 9542825
	Sure J		0.3663	159	0.000854299	1/ 1171
total band EQ					0.0008545	1/ 1170

Table 4 – 1800MHz band Exposure Quotient at Greve De Lecq Pumping Station

2.4 2100MHz Band

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

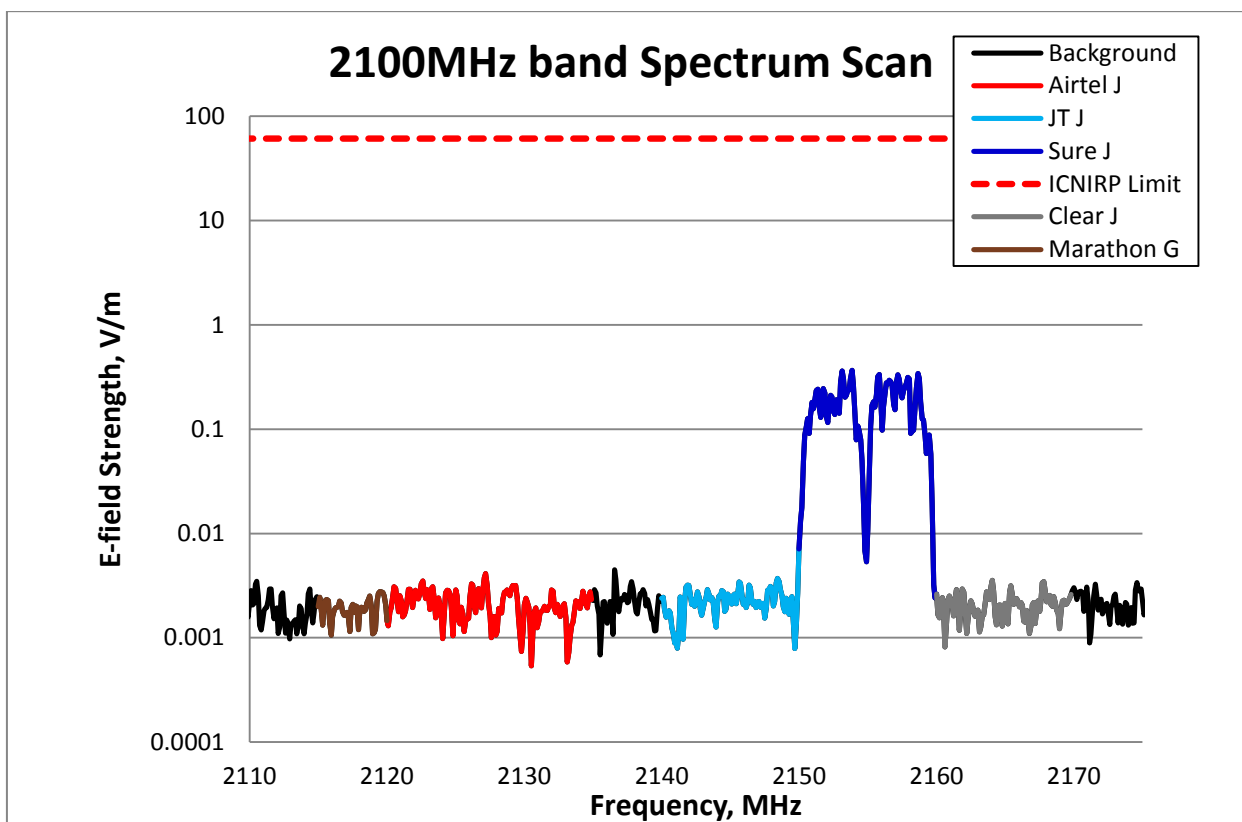


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.3658 V/m (Sure J), which is 167 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
Greve de Lecq Pumping Station	Airtel J	2100	0.004125	14788	1.90777E-07	1/ 5241729
	Clear J		0.00356	17135	1.15635E-07	1/ 8647899
	JT J		0.007105	8586	1.51292E-07	1/ 6609746
	Marathon J		0.002781	21935	5.12727E-08	1/ 19503544
	Sure J		0.3658	167	0.000991283	1/ 1009
total band EQ					0.000991791	1/ 1008

Table 5 – 2100MHz band Exposure Quotient at Greve De Lecq Pumping Station

2.5 2600MHz band

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

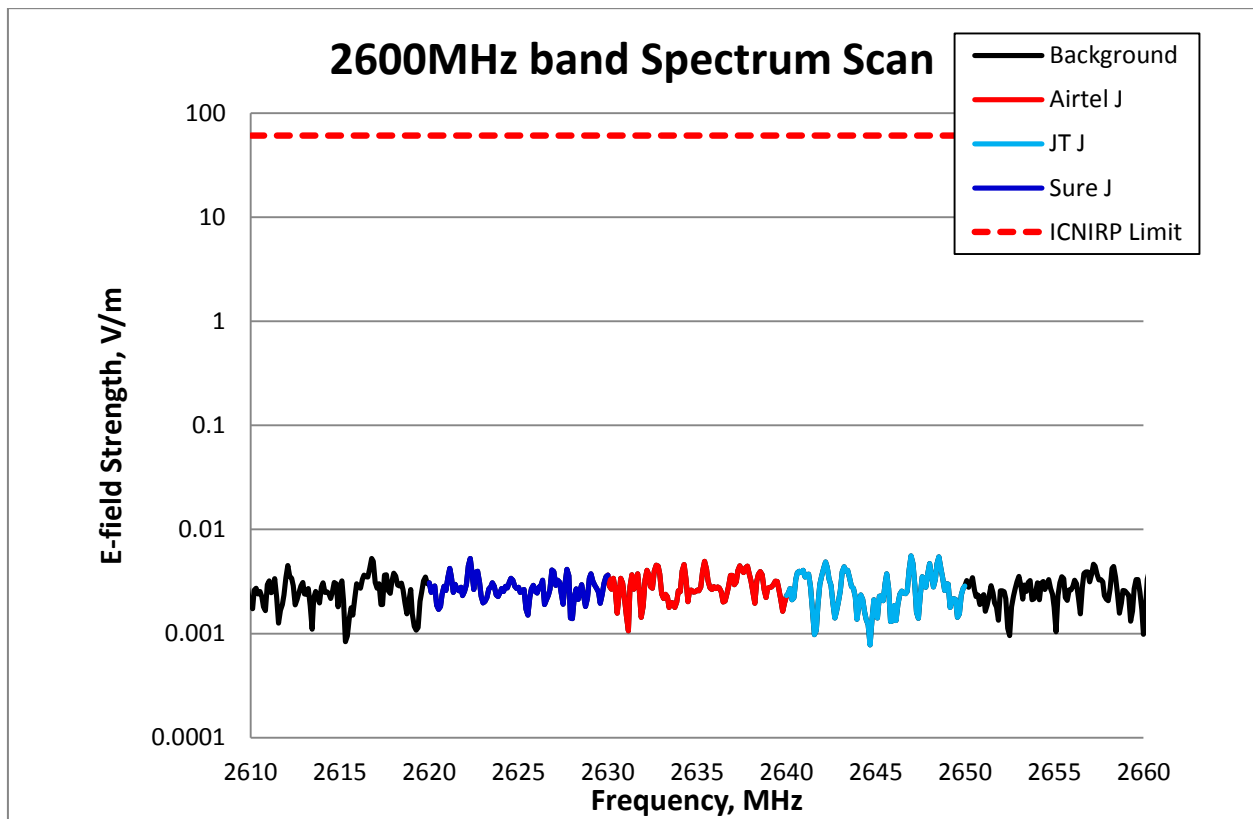


Figure 8 – 2600MHz band Spectrum Scan

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
Greve de Lecq Pumping Station	Airtel J	2600	0.004945	12336	2.40369E-07	1/ 4160271
	JT J		0.005569	10953	2.23811E-07	1/ 4468053
	Sure J		0.005281	11551	2.12562E-07	1/ 4704507
	total band EQ				6.76742E-07	1/ 1477668

Table 6 – 2600MHz band Exposure Quotient at Greve De Lecq Pumping Station

End