

Cellular Mast Emissions Survey: Fauvic Pumping Station (Jersey)



DOCUMENT DETAILS

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	(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 Fauvic Pumping station site located in Jersey.

The Fauvic 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
Fauvic Pumping Station	800	0.06679	Sure J	582	2.52233E-05	1/ 39646
	900	0.7274	Sure J	57	0.000439855	1/ 2273
	1800	0.1224	Sure J	477	5.45364E-05	1/ 18336
	2100	0.06891	Sure J	885	2.81598E-05	1/ 35512
	2600	0.0023	Airtel J	26522	1.15548E-07	1/ 8654442
Total Site EQ					0.00054789	1/ 1825

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/1825 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

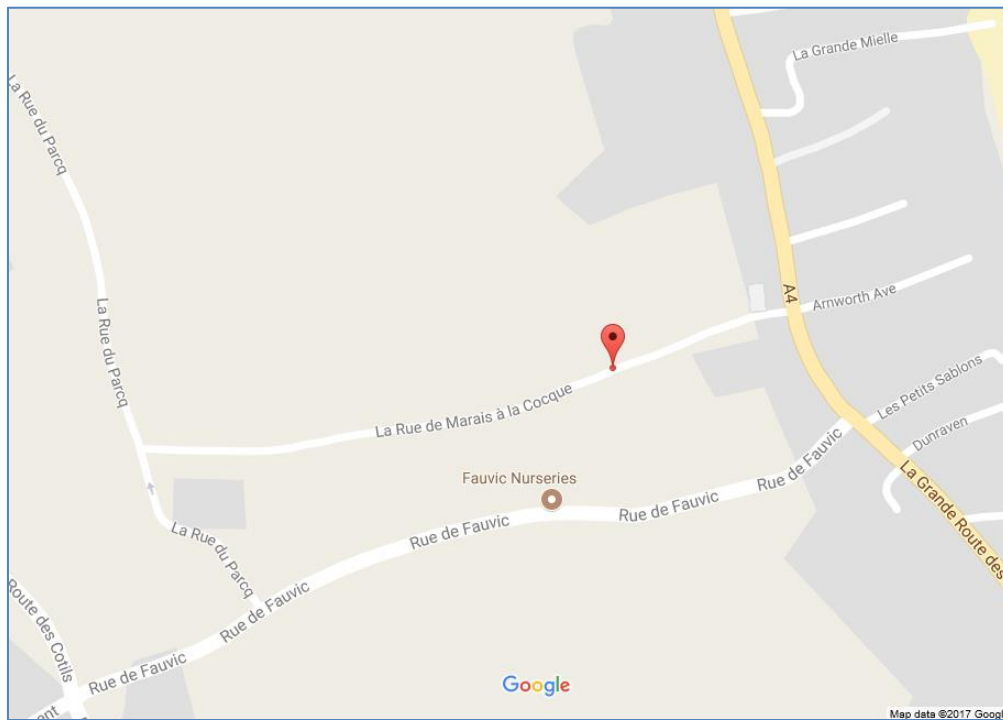


Figure 1 - Map of the Site Area

Site name	Fauvic Pumping Station
Site address	La Rue de Marais a la Cocque, Grouville, Jersey
Site Latitude	N 49.17822
Site Longitude	W 02.03681

1.2 Site Description

Operators	Sure J
Antenna types	Directional
Approximate height	12m
Site type	Pole Mast
Description	The pole mast Fauvic Pumping Station is located inside the site compound and is out of reach of the public

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

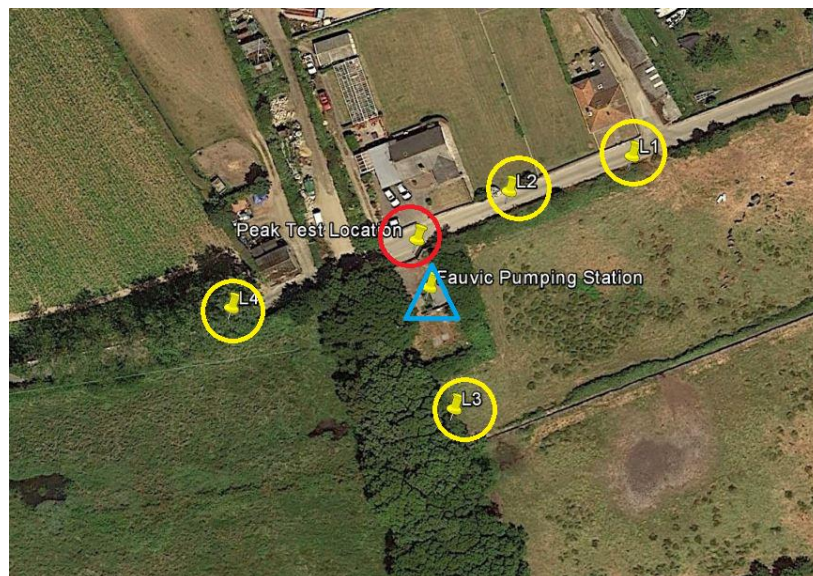


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

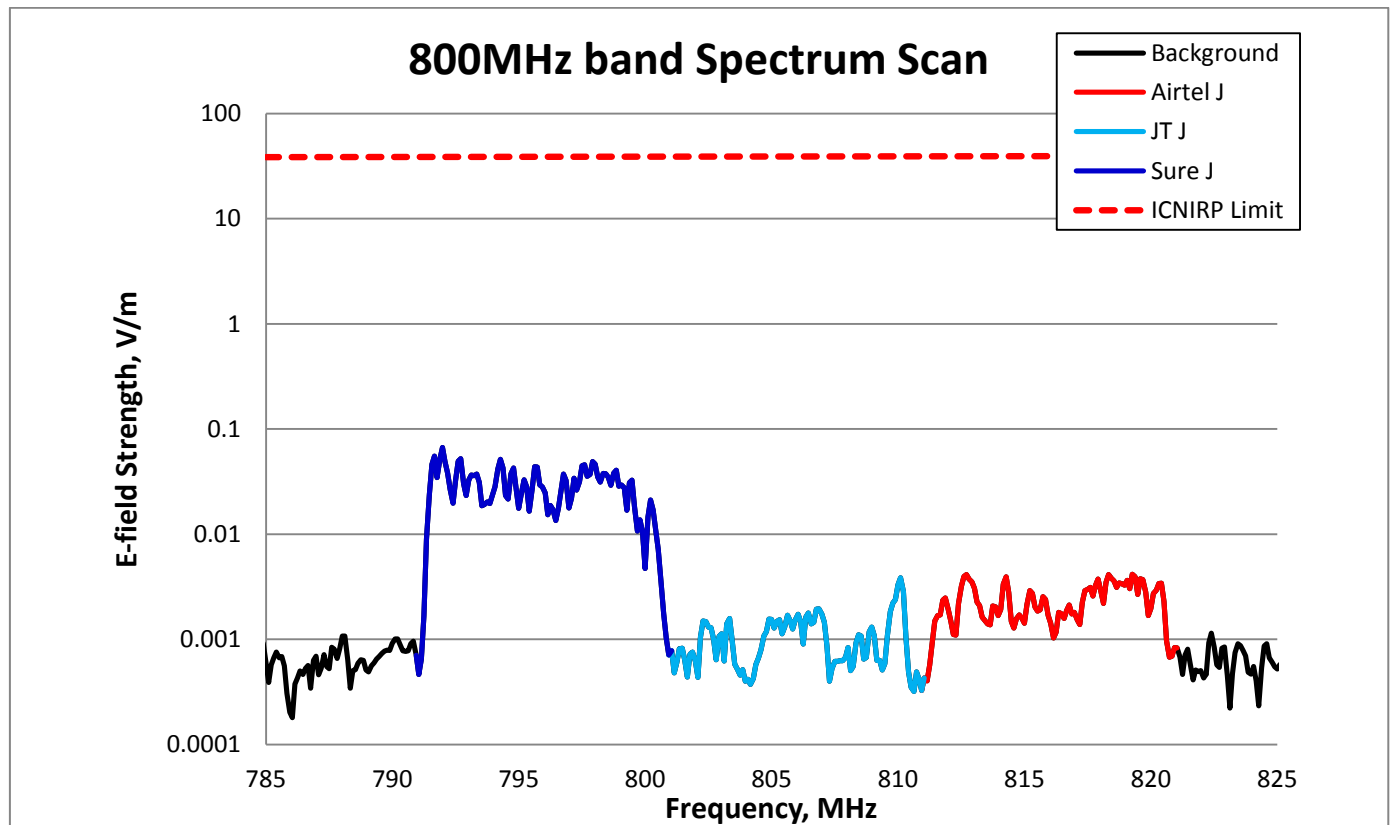


Figure 4 - 800MHz band Spectrum Scan

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 0.06679 V/m (Sure J), which is 582 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
Fauvic Pumping Station	Airtel J	800	0.004163	9342	1.62134E-07	1/ 6167724
	JT J		0.003848	10107	3.93852E-08	1/ 25390280
	Sure J		0.06679	582	2.50218E-05	1/ 39965
	total band EQ			2.52233E-05	1/ 39646	

Table 2– 800MHz band Exposure Quotient at Fauvic Pumping Station

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

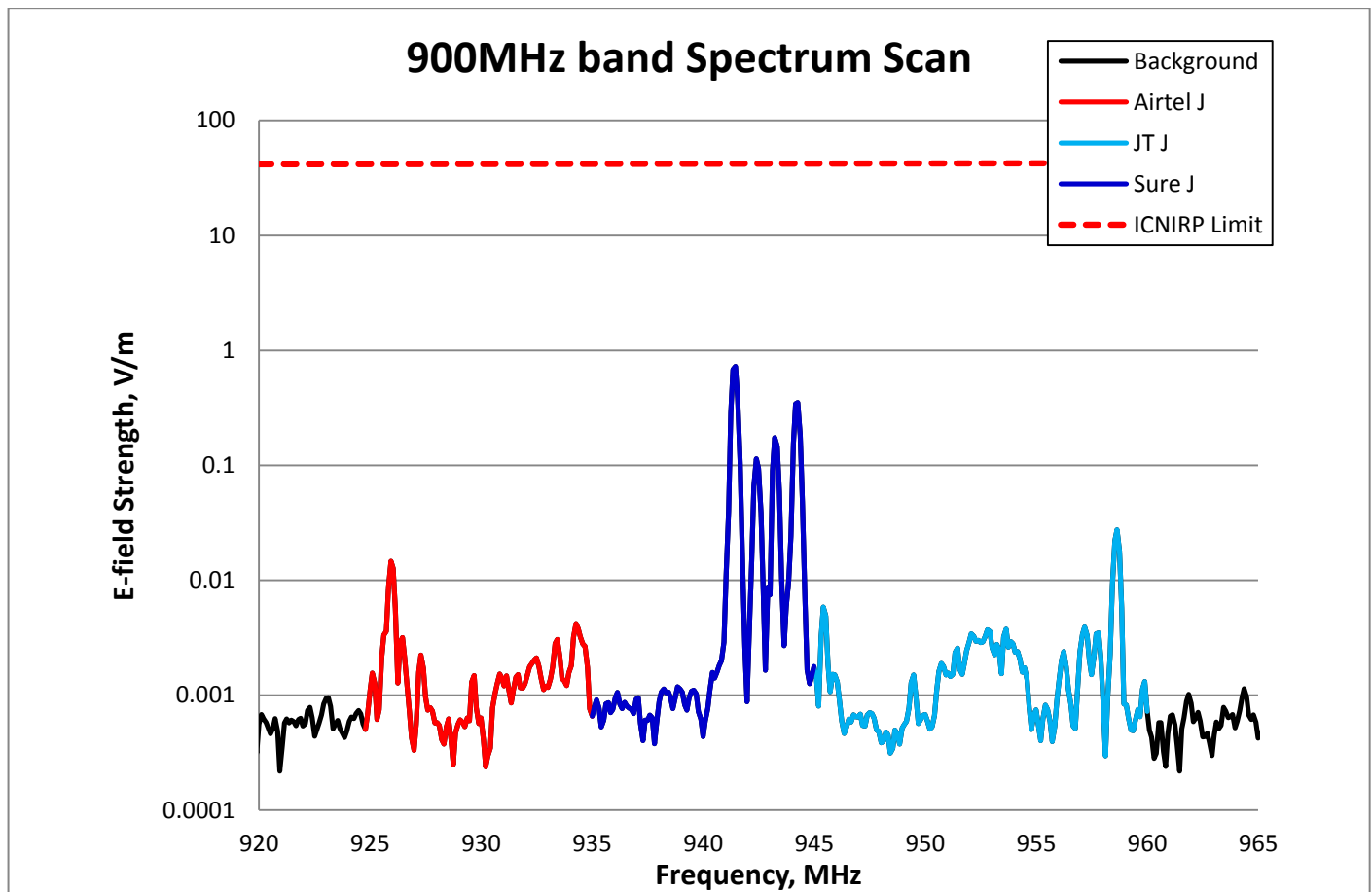


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.7274 V/m (Sure J), which is 57 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
Fauvic Pumping Station	Airtel J	900	0.01466	2814	1.95602E-07	1/ 5112426
	JT J		0.02753	1498	5.7794E-07	1/ 1730285
	Sure J		0.7274	57	0.000439082	1/ 2277
	total band EQ			0.000439855	1/ 2273	

Table 3– 900MHz band Exposure Quotient at Fauvic Pumping Station

2.3 1800 MHz Band

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

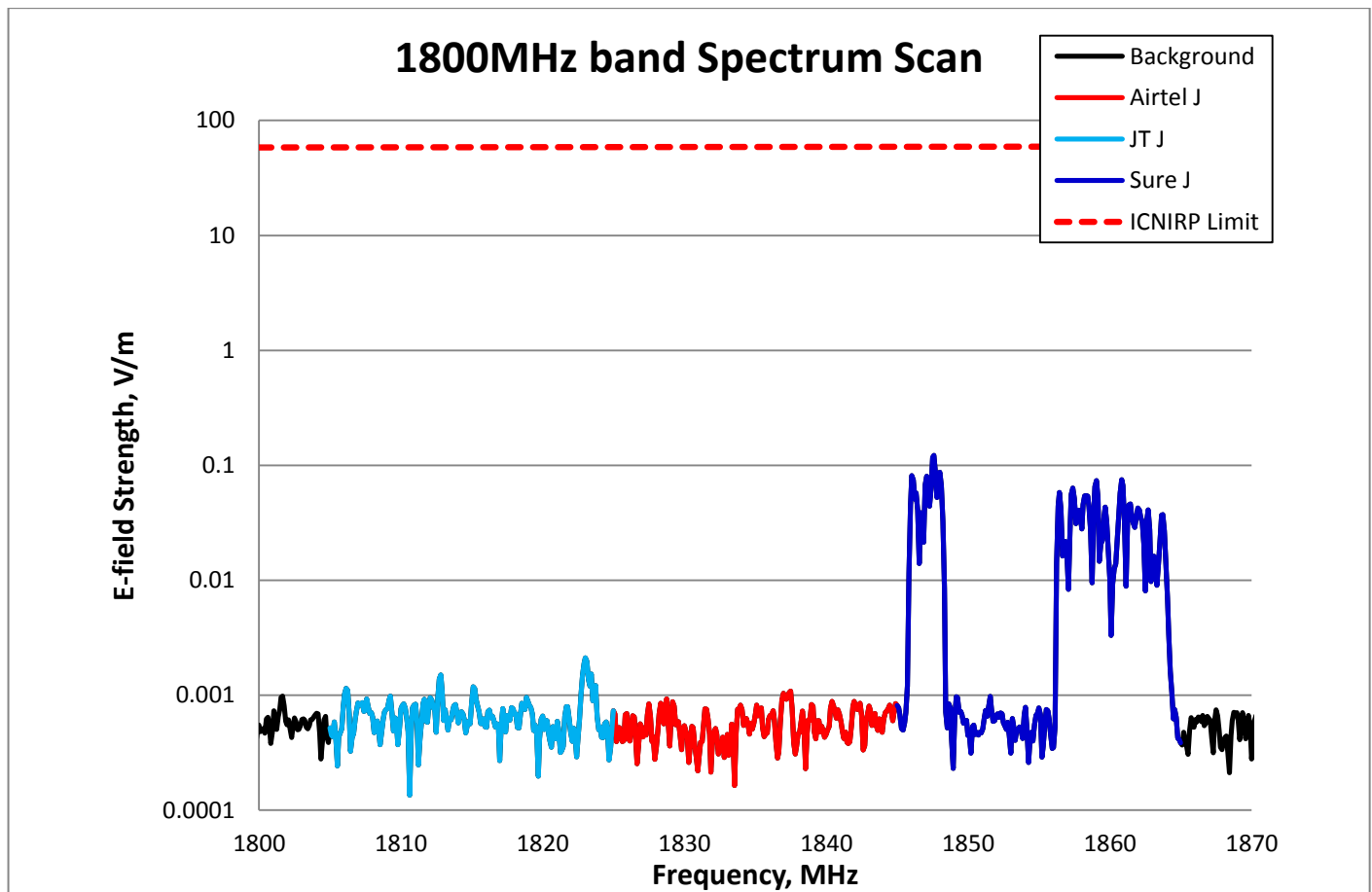


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1224 V/m (Sure J), which is 477 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
Fauvic Pumping Station	Airtel J	1800	0.001087	53667	1.86968E-08	1/ 53485001
	JT J		0.002123	27478	2.85325E-08	1/ 35047775
	Sure J		0.1224	477	5.44892E-05	1/ 18352
	total band EQ				5.45364E-05	1/ 18336

Table 4 – 1800MHz band Exposure Quotient at Fauvic Pumping Station

2.4 2100MHz Band

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

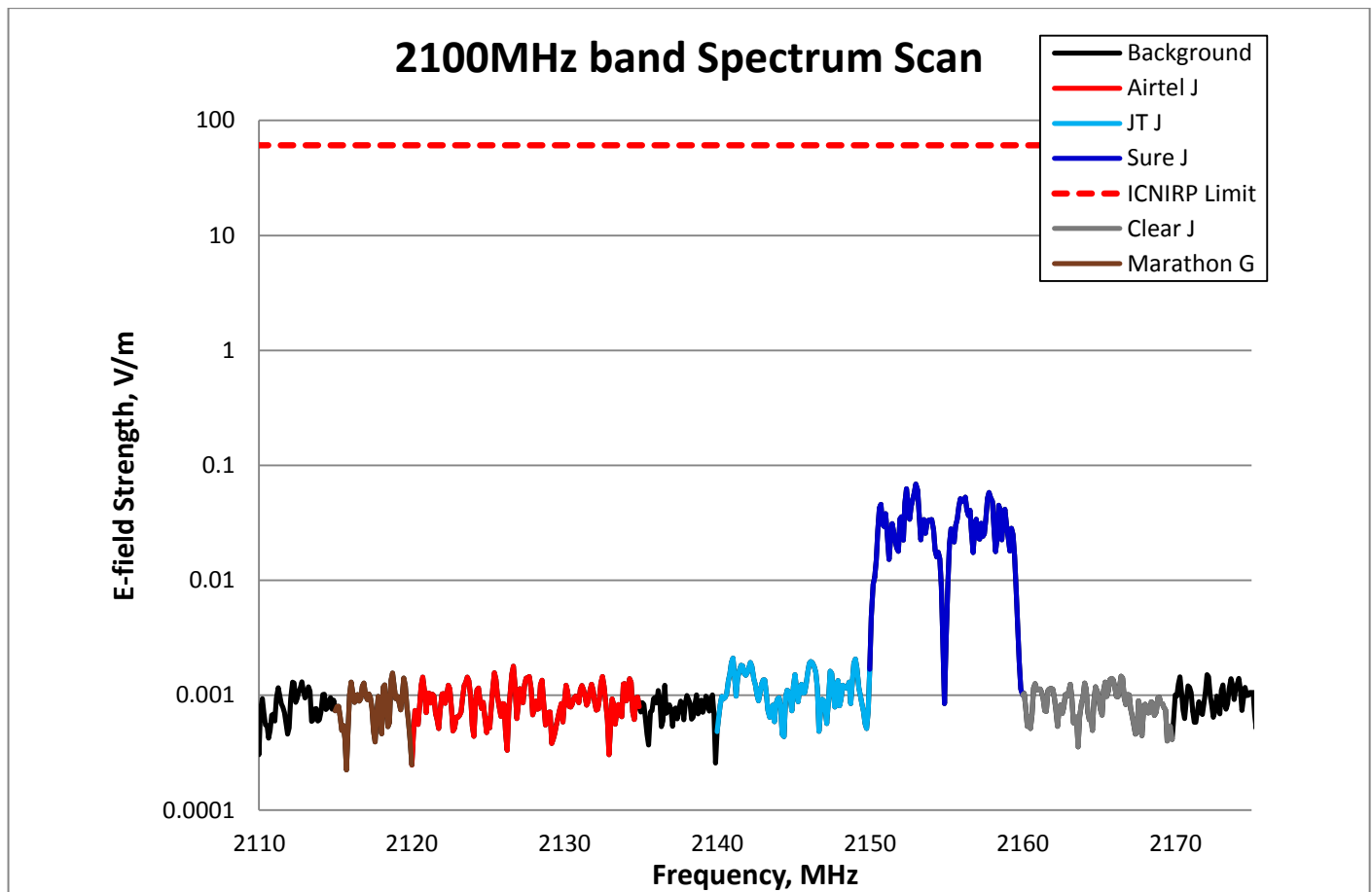


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.06891 V/m (Sure J), which is 885 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
Fauvic Pumping Station	Airtel J	2100	0.001788	34116	3.43726E-08	1/ 29092960
	Clear J		0.00147	41497	2.11504E-08	1/ 47280376
	JT J		0.0021	29048	3.99796E-08	1/ 25012761
	Marathon J		0.001561	39078	1.08669E-08	1/ 92022734
	Sure J		0.06891	885	2.80534E-05	1/ 35646
total band EQ					2.81598E-05	1/ 35512

Table 5 – 2100MHz band Exposure Quotient at Fauvic Pumping Station

2.5 2600MHz band

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

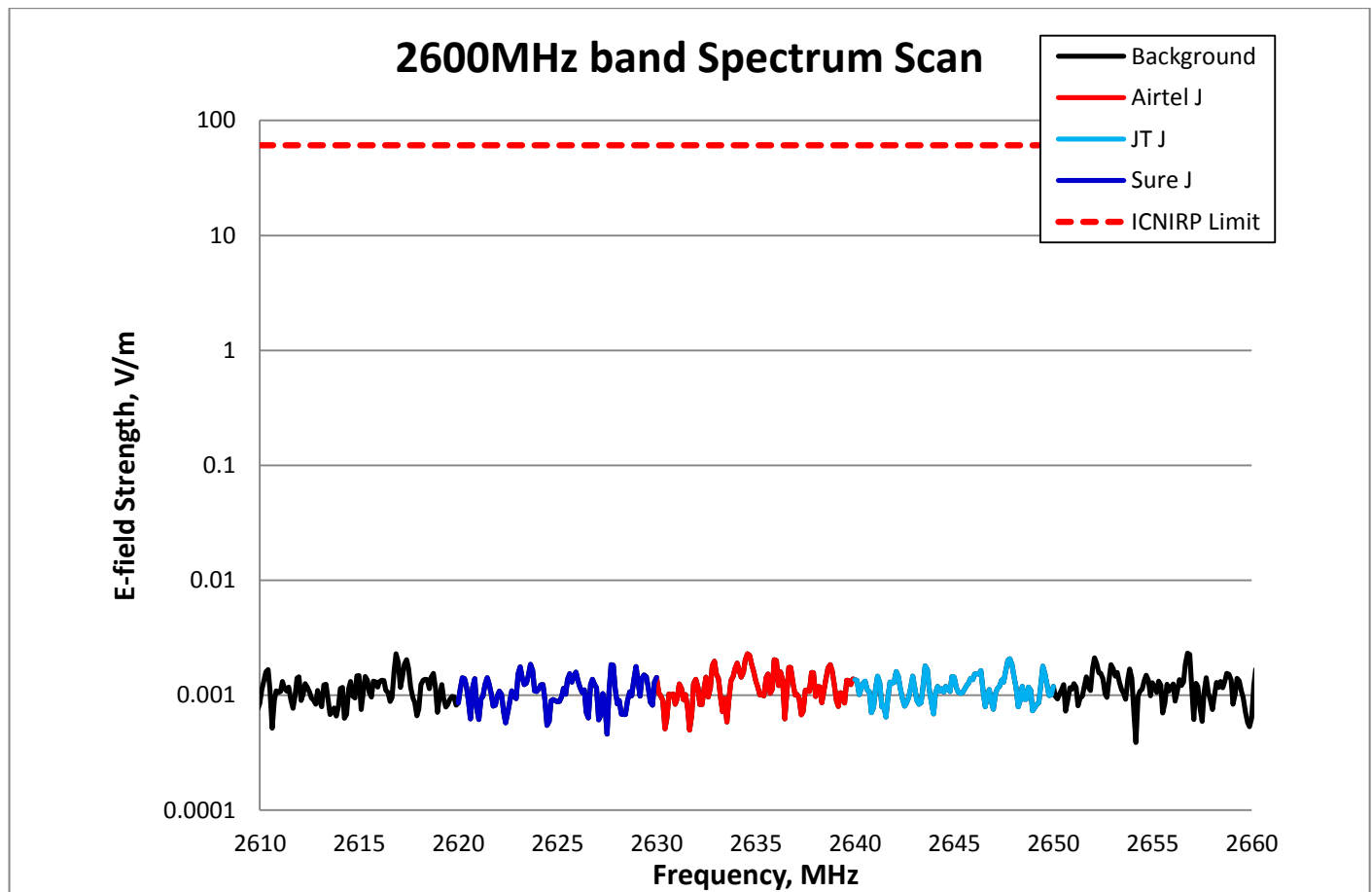


Figure 8 – 2600MHz band Spectrum Scan

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
Fauvic Pumping Station	Airtel J	2600	0.0023	26522	4.34084E-08	1/ 23037011
	JT J		0.002072	29440	3.79886E-08	1/ 26323709
	Sure J		0.001857	32849	3.41506E-08	1/ 29282038
	total band EQ			1.15548E-07	1/ 8654442	

Table 6 – 2600MHz band Exposure Quotient at Fauvic Pumping Station

End