

Cellular Mast Emissions Survey: Fencing Centre (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 Fencing Centre site located in Jersey.

The Fencing Centre 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
Fencing Centre	800	0.1827	Sure J	213	0.000164761	1/ 6069
	900	0.8912	Sure J	46	0.00076419	1/ 1309
	1800	0.1617	Sure J	361	0.000147122	1/ 6797
	2100	0.2204	Sure J	277	0.000353439	1/ 2829
	2600	0.003531	Airtel J	17276	3.34689E-07	1/ 2987853
Total Site EQ					0.001429848	1/ 699

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/699 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

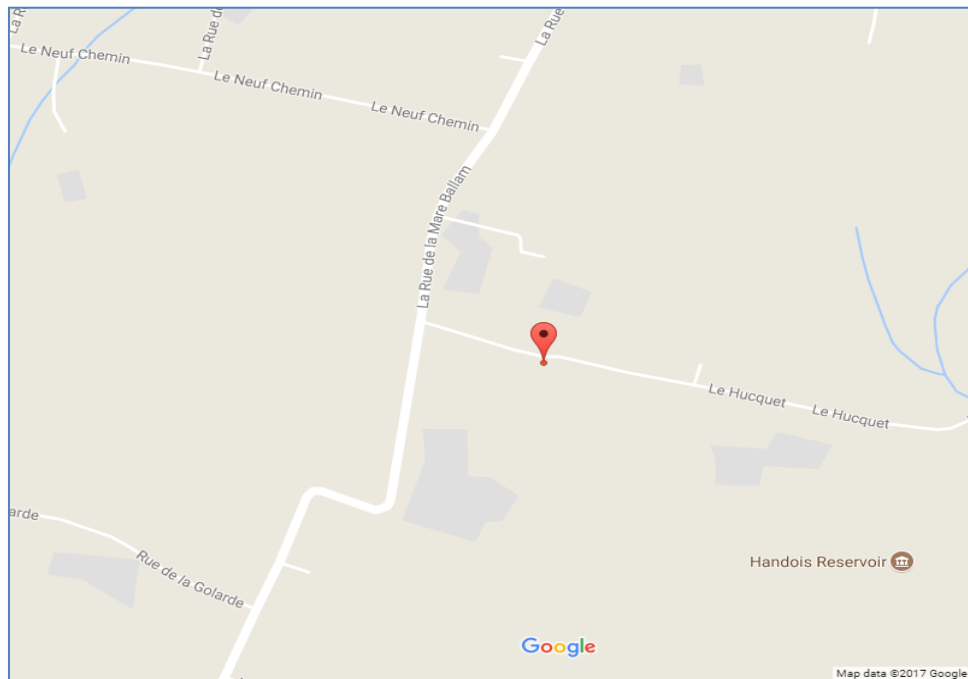


Figure 1 - Map of the Site Area

Site name	Fencing Centre
Site address	Northend, La Rue de la Scelleterie, St. Lawrence, Jersey
Site Latitude	49.23503
Site Longitude	-2.13836

1.2 Site Description

Operators	Sure J
Antenna types	Directional
Approximate height	12m
Site type	Pole Mast
Description	The antennas at the Fencing Centre are located in the north west corner of the Centre, 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.

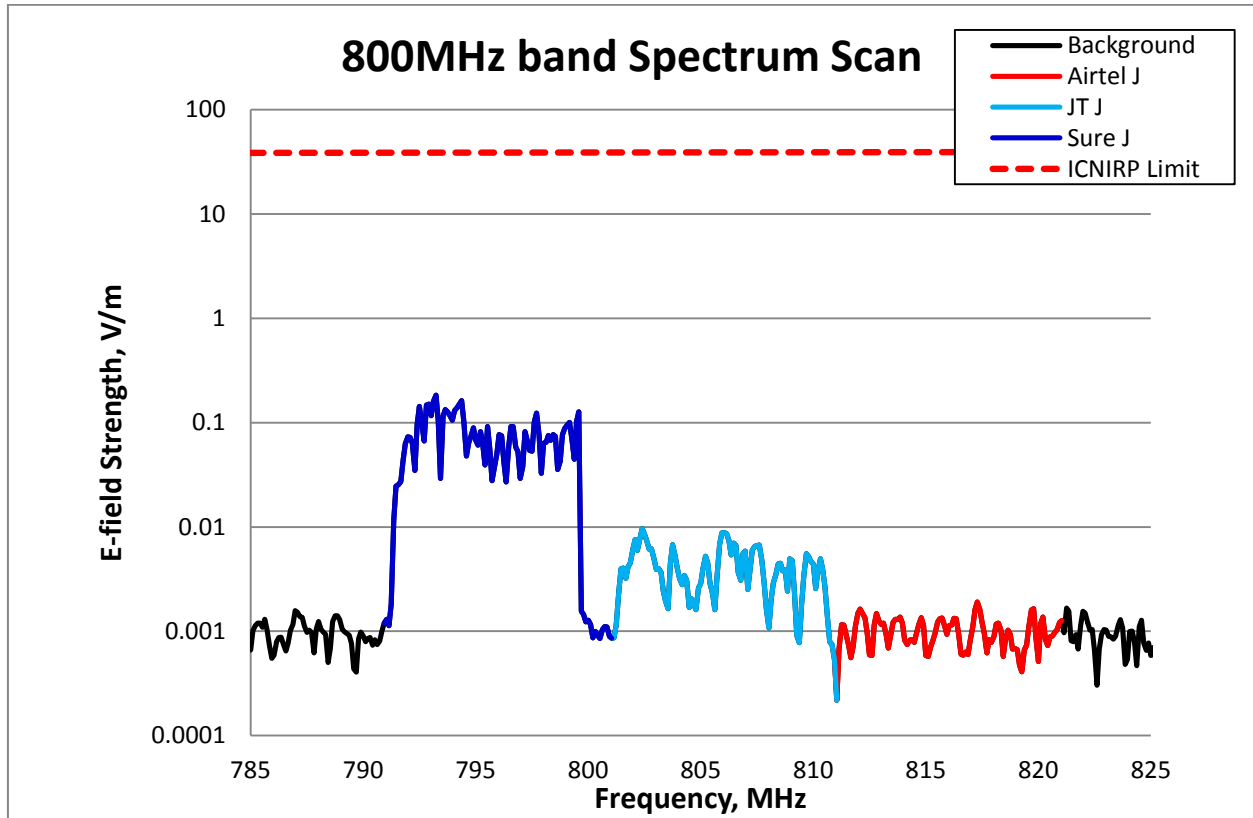


Figure 4 - 800MHz band Spectrum Scan

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 0.1827 V/m (Sure J), which is 213 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
Fencing Centre	Airtel J	800	0.001903	20437	2.86064E-08	1/ 34957250
	JT J		0.00963	4039	5.44519E-07	1/ 1836483
	Sure J		0.1827	213	0.000164188	1/ 6091
total band EQ					0.000164761	1/ 6069

Table 2– 800MHz band Exposure Quotient at Fencing Centre

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

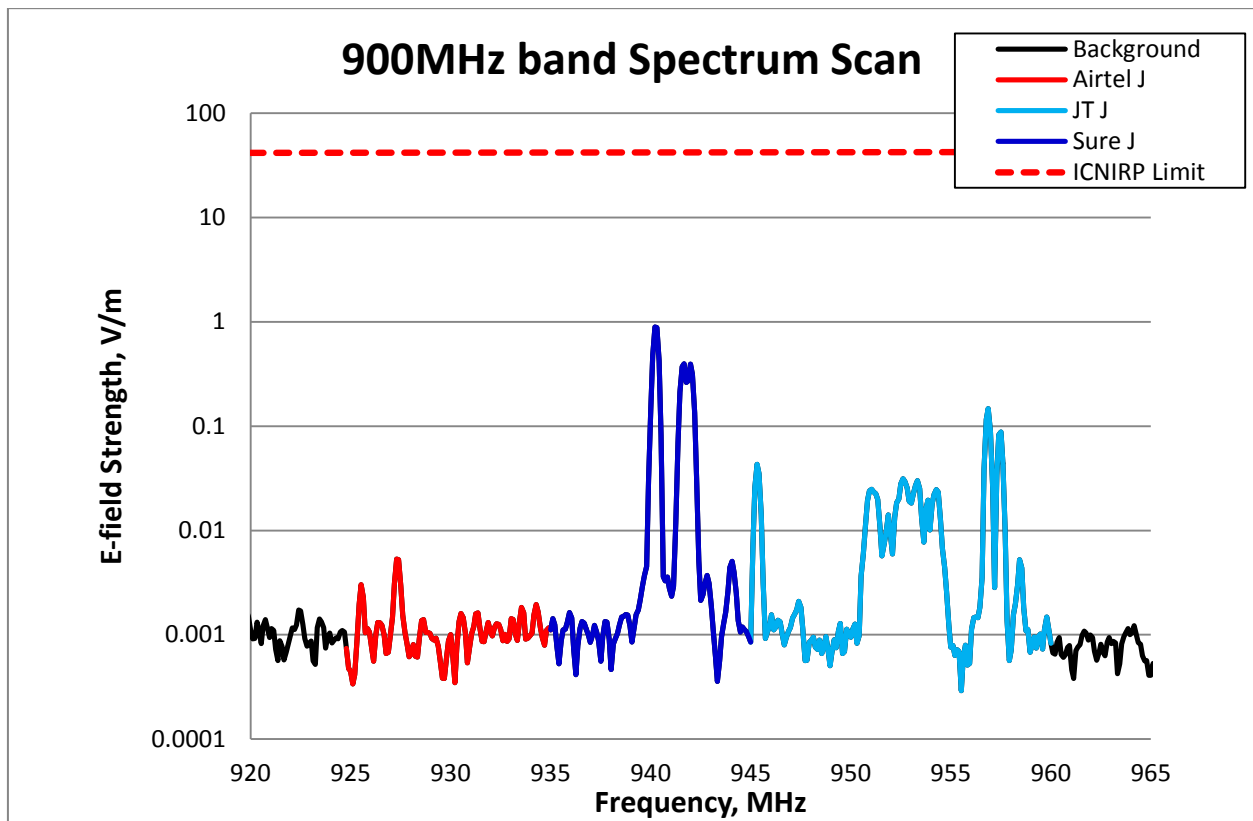


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.8912 V/m (Sure J), which is 46 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
Fencing Centre	Airtel J	900	0.005307	7773	5.27023E-08	1/ 18974502
	JT J		0.1474	280	2.2012E-05	1/ 45430
	Sure J		0.8912	46	0.000742125	1/ 1347
total band EQ					0.00076419	1/ 1309

Table 3– 900MHz band Exposure Quotient at Fencing Centre

2.3 1800 MHz Band

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

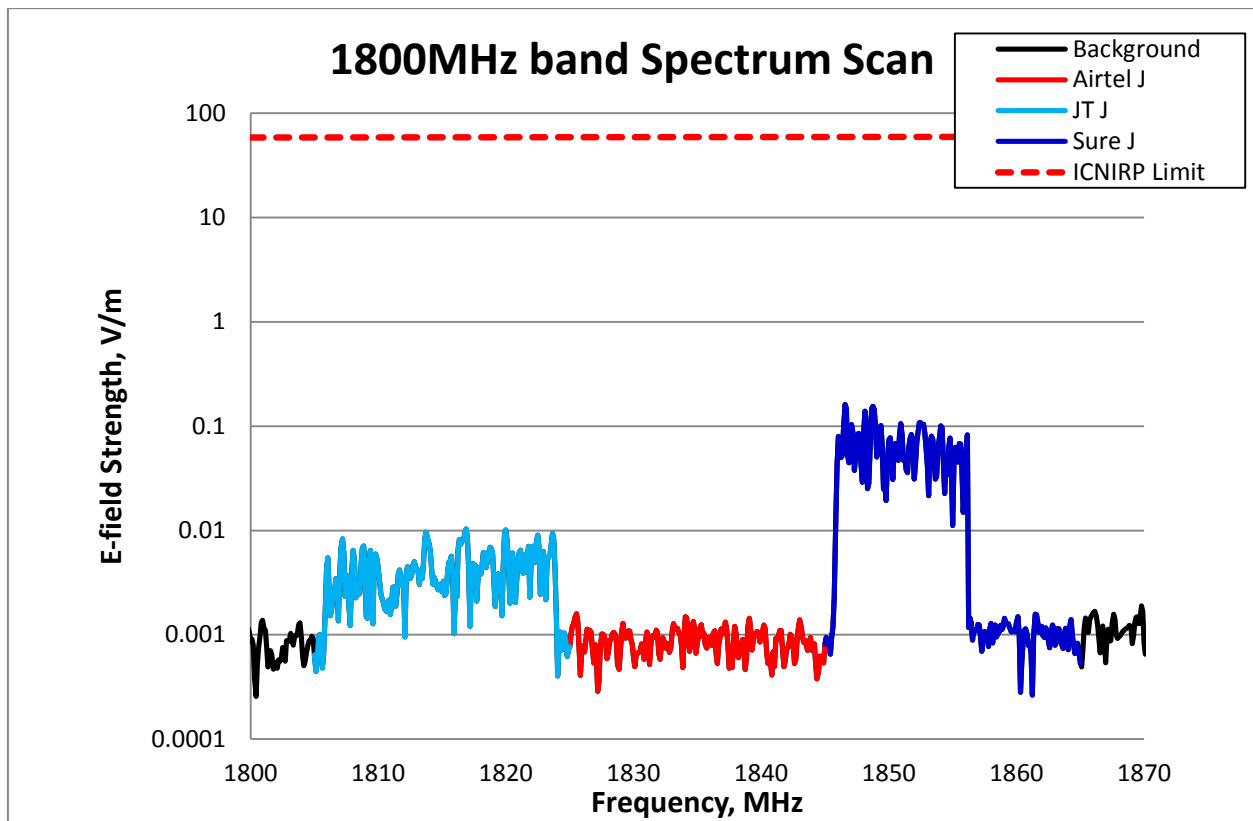


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1617 V/m (Sure J), which is 361 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
Fencing Centre	Airtel J	1800	0.00159	36690	4.22886E-08	1/ 23647053
	JT J		0.01031	5658	1.11383E-06	1/ 897805
	Sure J		0.1617	361	0.000145966	1/ 6851
total band EQ					0.000147122	1/ 6797

Table 4 – 1800MHz band Exposure Quotient at Fencing Centre

2.4 2100MHz Band

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

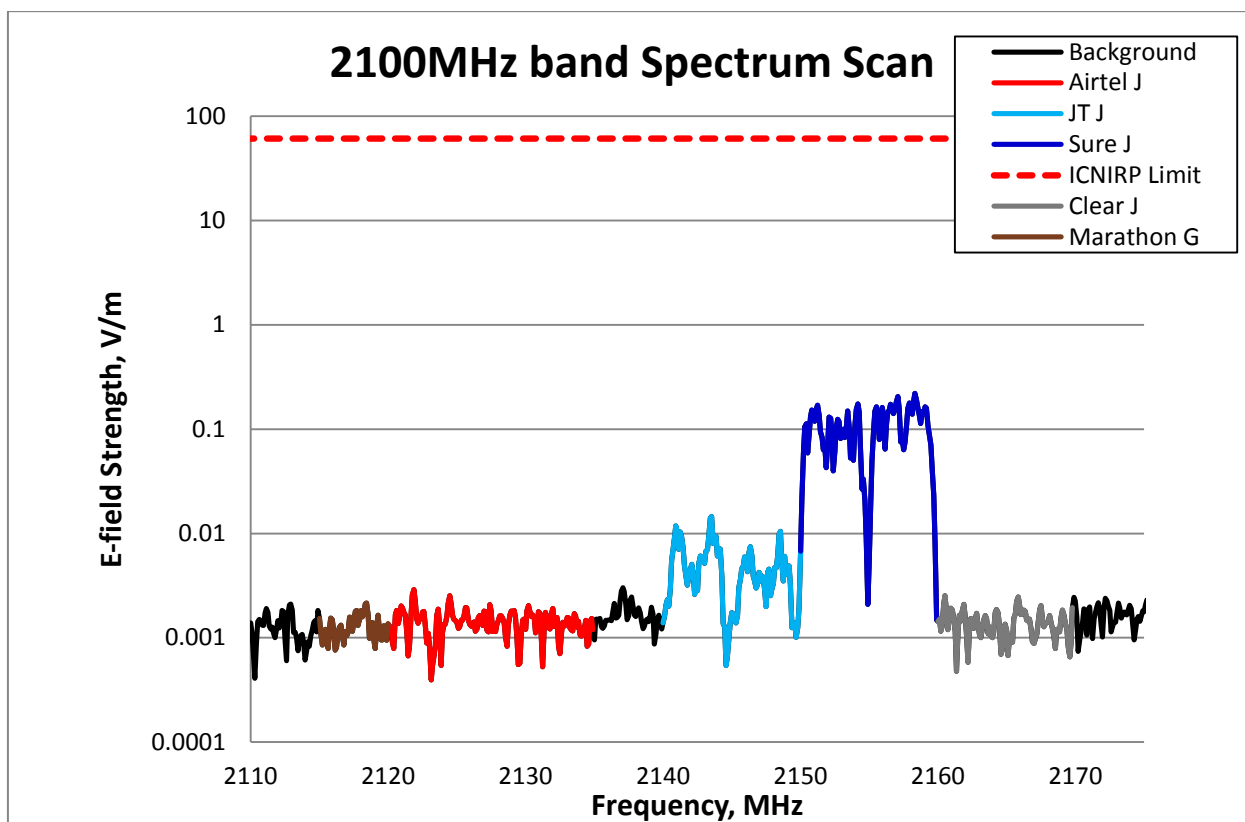


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.2204 V/m (Sure J), which is 277 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
Fencing Centre	Airtel J	2100	0.002904	21006	8.29802E-08	1/ 12051074
	Clear J		0.002535	24063	5.35815E-08	1/ 18663145
	JT J		0.01452	4201	8.0735E-07	1/ 1238620
	Marathon J		0.002156	28293	2.31602E-08	1/ 43177495
	Sure J		0.2204	277	0.000352472	1/ 2837
total band EQ					0.000353439	1/ 2829

Table 5 – 2100MHz band Exposure Quotient at Fencing Centre

2.5 2600MHz band

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

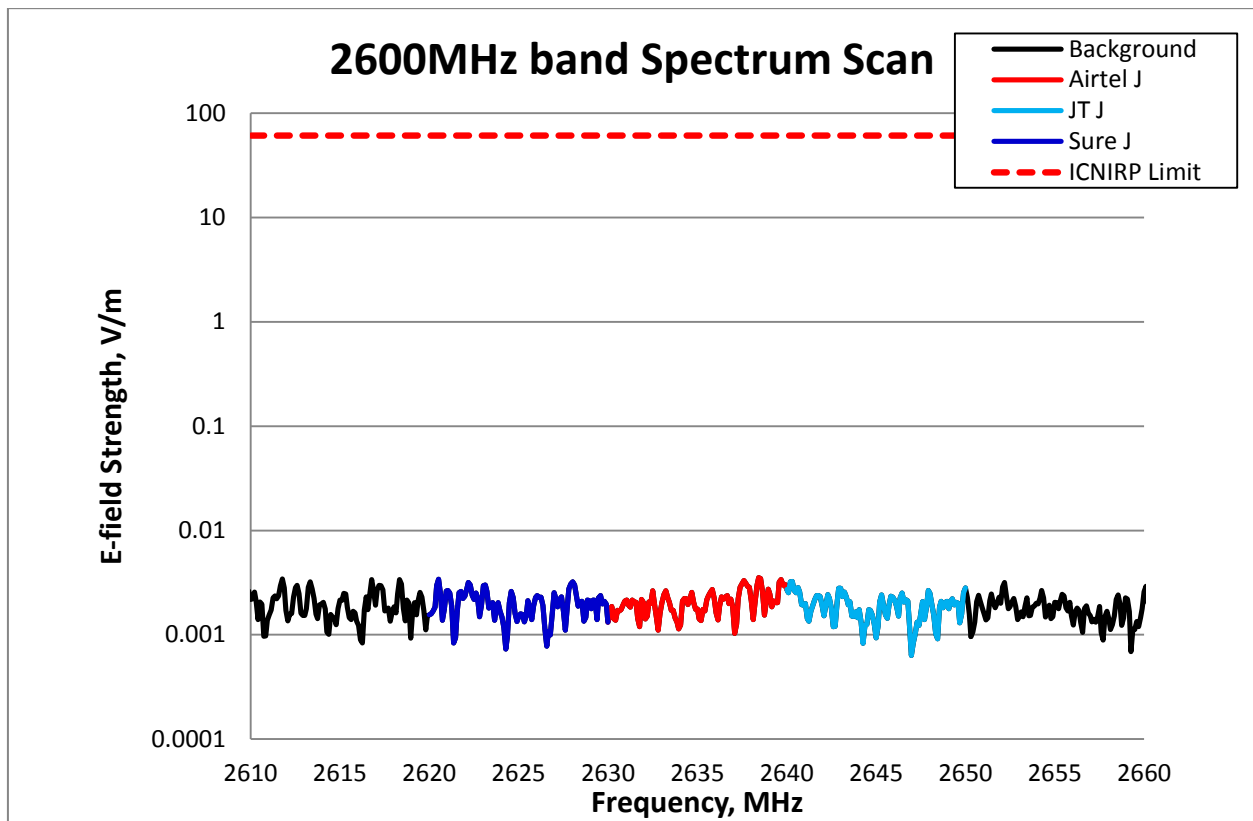


Figure 8 – 2600MHz band Spectrum Scan

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
Fencing Centre	Airtel J	2600	0.003531	17276	1.21185E-07	1/ 8251850
	JT J		0.003238	18839	1.01588E-07	1/ 9843655
	Sure J		0.003401	17936	1.11915E-07	1/ 8935329
total band EQ					3.34689E-07	1/ 2987853

Table 6 – 2600MHz band Exposure Quotient at Fencing Centre

End