

Cellular Mast Emissions Survey: Clos de la Croix (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 Clos de la Croix site located in Jersey.

The Clos de la Croix 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
Clos de la Croix	800	0.09681	Sure J	402	1.89795E-05	1/ 52689
	900	0.7274	Sure J	57	0.00041625	1/ 2402
	1800	0.1127	Sure J	518	8.28275E-05	1/ 12073
	2100	0.1113	Sure J	548	5.91085E-05	1/ 16918
	2600	0.001902	Sure J	32072	1.06802E-07	1/ 9363135
Total Site EQ					0.000577272	1/ 1732

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/1732 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	Clos de la Croix
Site address	La Rue de la Maitrerie, St Martin, Jersey
Site Latitude	N 49.2210
Site Longitude	W 02.06005

1.2 Site Description

Operators	Sure J
Antenna types	Directional
Approximate height	12m
Site type	Monopole
Description	The antennas at the Clos de la Croix are located on monopole, out of reach of the public

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

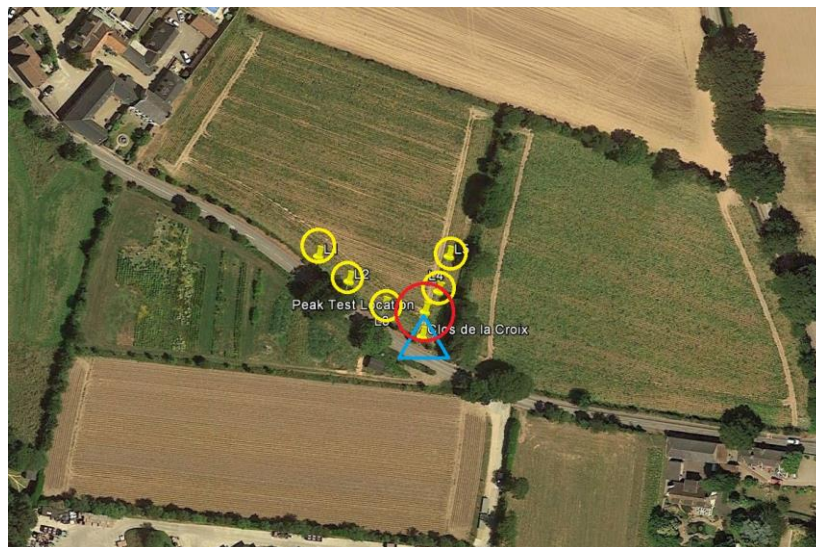


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

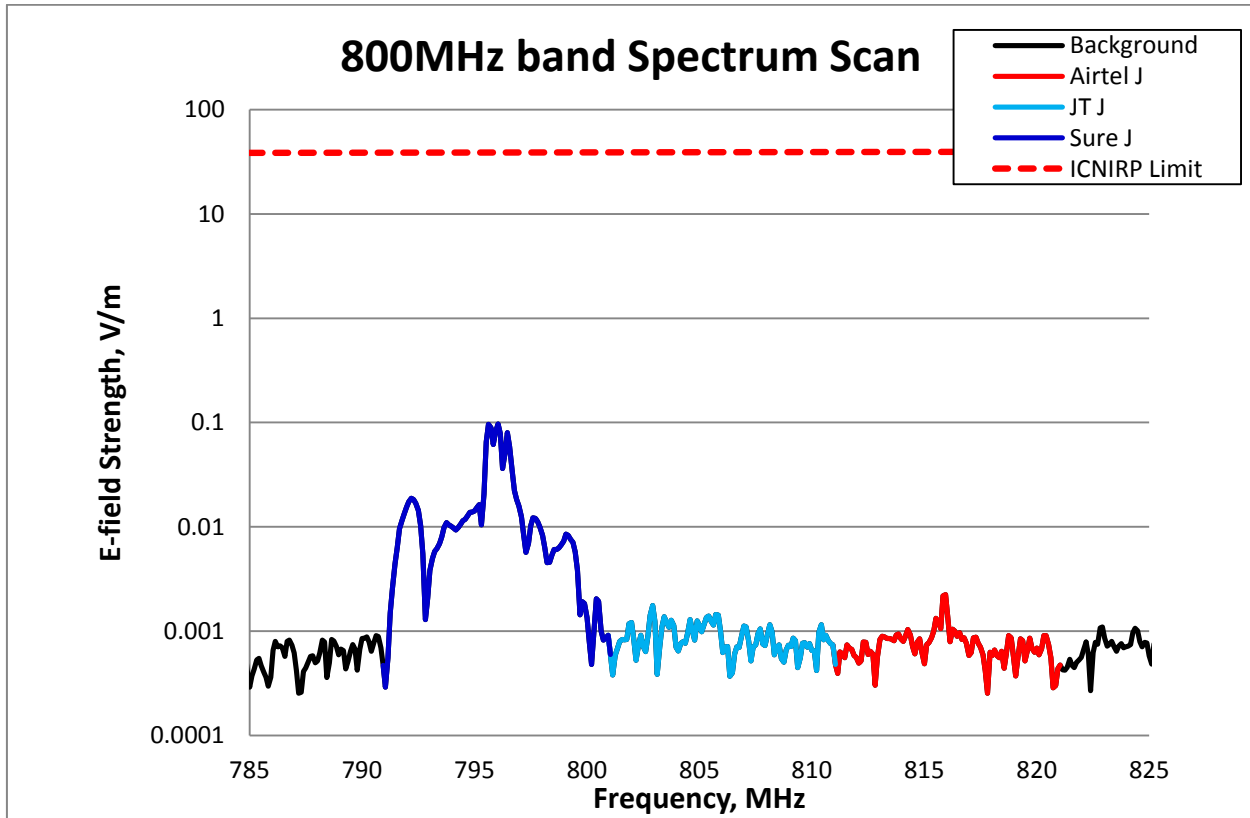


Figure 4 - 800MHz band Spectrum Scan

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 0.09681 V/m (Sure J), which is 402 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
Clos de la Croix	Airtel J	800	0.002233	17416	1.70597E-08	1/ 58617760
	JT J		0.001761	22085	2.16402E-08	1/ 46210221
	Sure J		0.09681	402	1.89408E-05	1/ 52796
total band EQ					1.89795E-05	1/ 52689

Table 2– 800MHz band Exposure Quotient at the Clos de la Croix

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

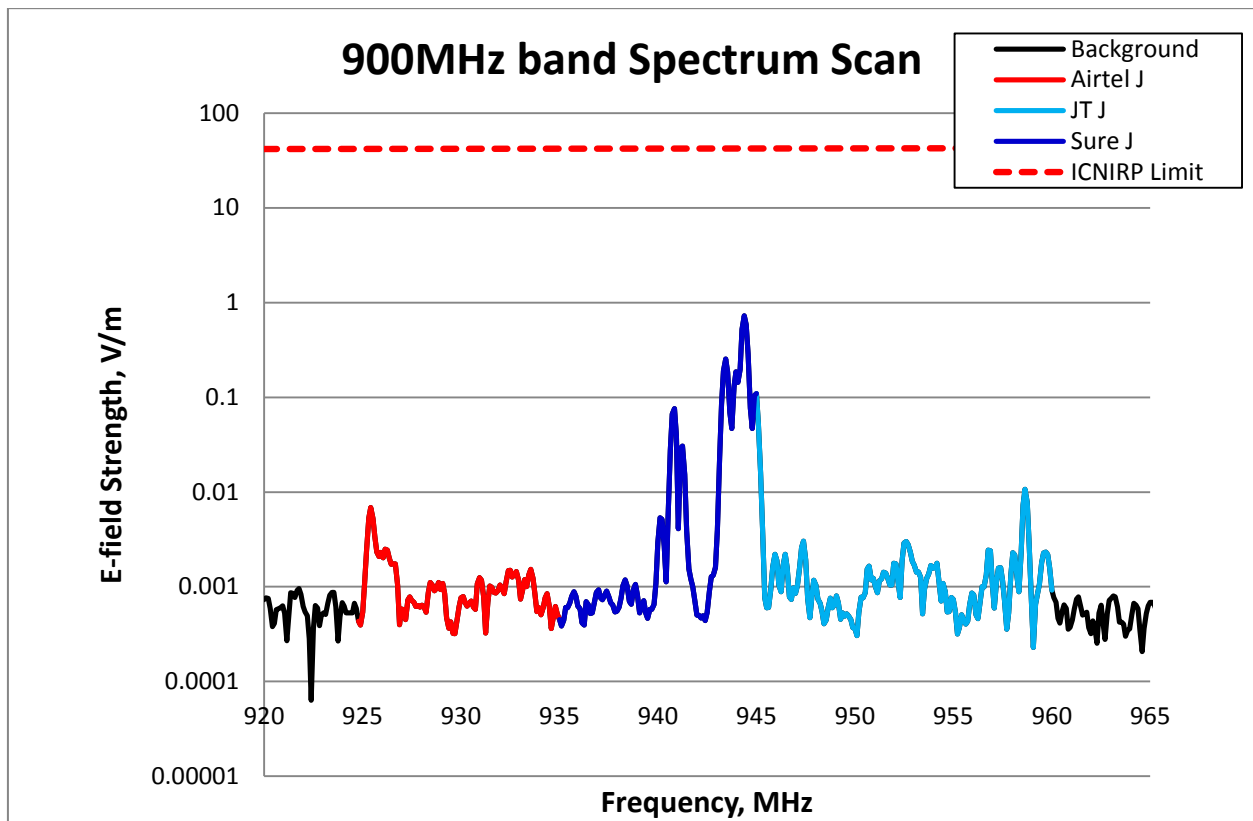


Figure 5 - 900MHz band Spectrum Scan

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
Clos de la Croix	Airtel J	900	0.006847	6025	6.04631E-08	1/ 16539018
	JT J		0.1091	378	4.17178E-06	1/ 239706
	Sure J		0.7274	57	0.000412018	1/ 2427
total band EQ					0.00041625	1/ 2402

Table 3– 900MHz band Exposure Quotient at the Clos de la Croix

2.3 1800 MHz Band

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

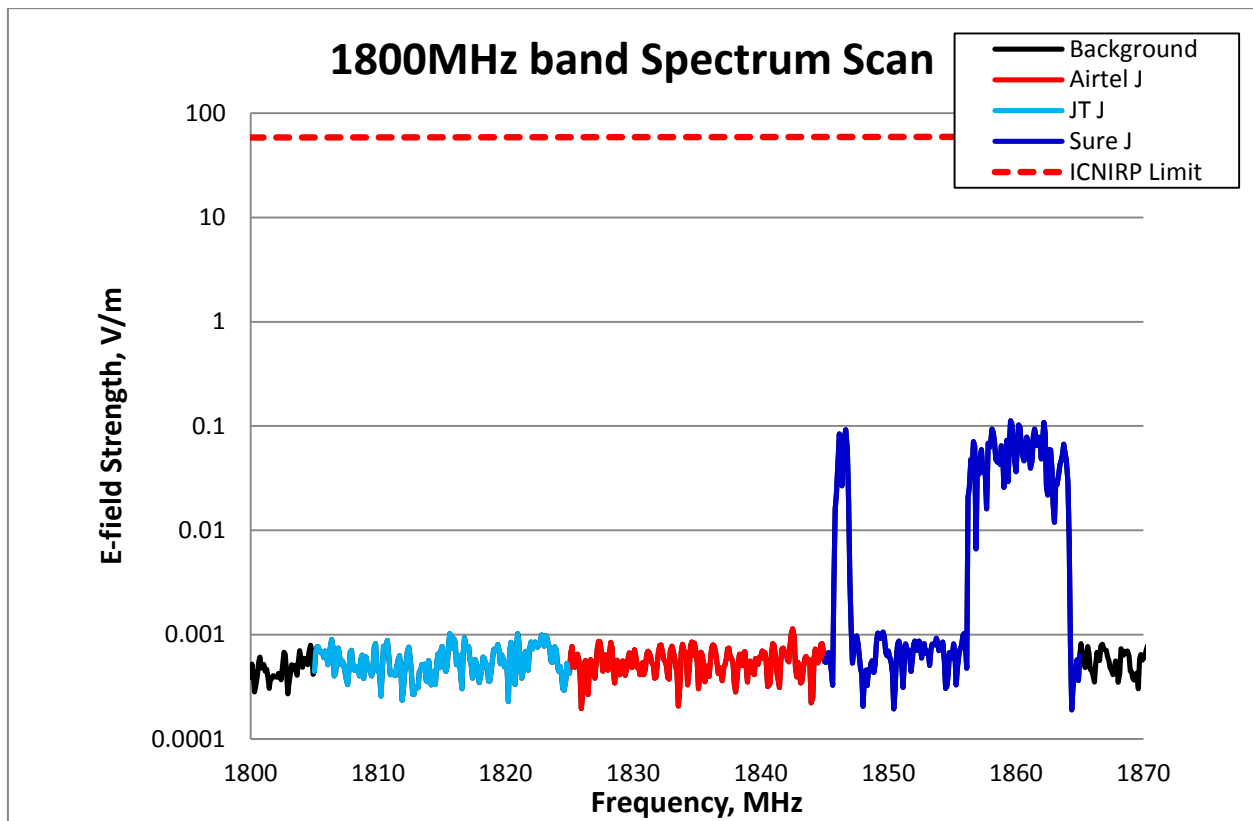


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1127 V/m (Sure J), which is 518 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
Clos de la Croix	Airtel J	1800	0.001138	51262	1.75766E-08	1/ 56893931
	JT J		0.001022	57081	1.87776E-08	1/ 53255051
	Sure J		0.1127	518	8.27911E-05	1/ 12079
total band EQ					8.28275E-05	1/ 12073

Table 4 – 1800MHz band Exposure Quotient at Clos de la Croix

2.4 2100MHz Band

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

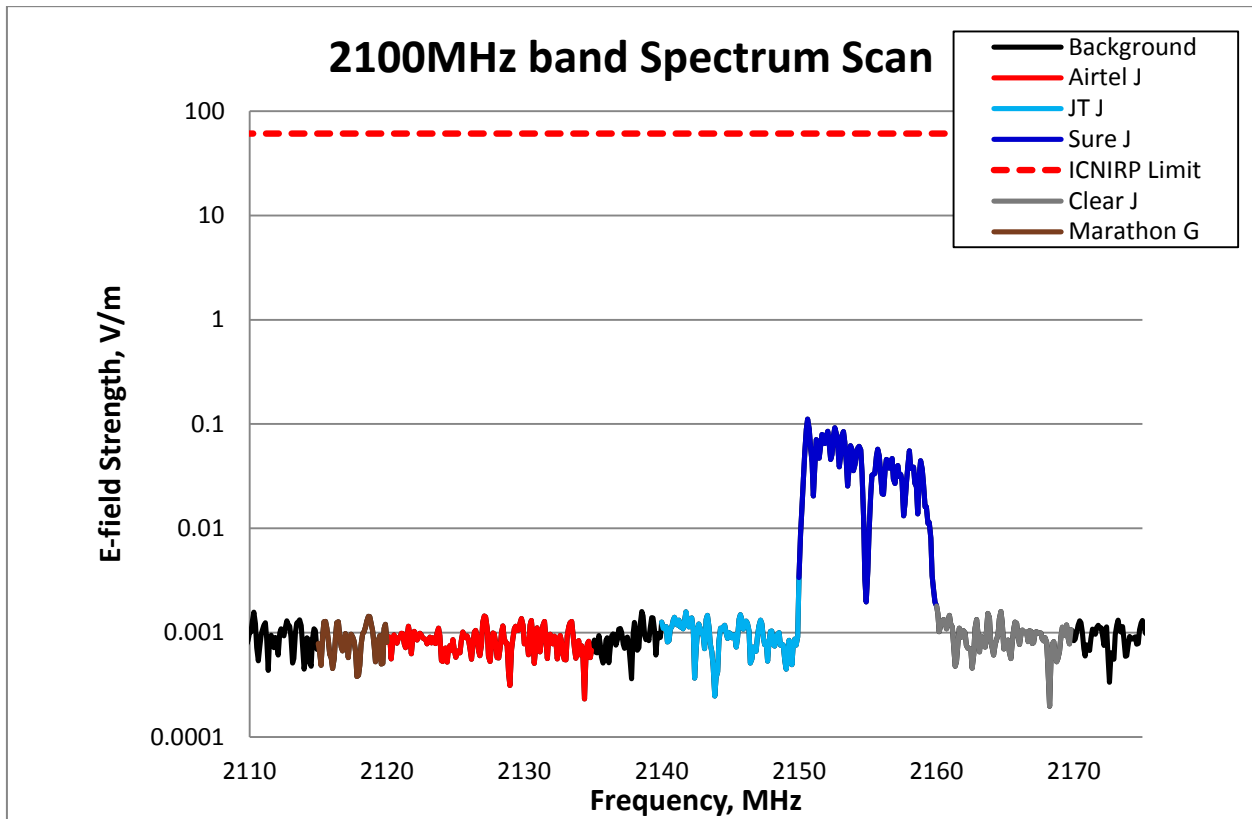


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.1113 V/m (Sure J), which is 548 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
Clos de la Croix	Airtel J	2100	0.001448	42127	2.92574E-08	1/ 34179382
	Clear J		0.001793	34021	2.42918E-08	1/ 41166129
	JT J		0.003378	18058	2.88862E-08	1/ 34618549
	Marathon J		0.001437	42450	1.07483E-08	1/ 93037642
	Sure J		0.1113	548	5.90154E-05	1/ 16945
total band EQ					5.91085E-05	1/ 16918

Table 5 – 2100MHz band Exposure Quotient at the Clos de la Croix

2.5 2600MHz band

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

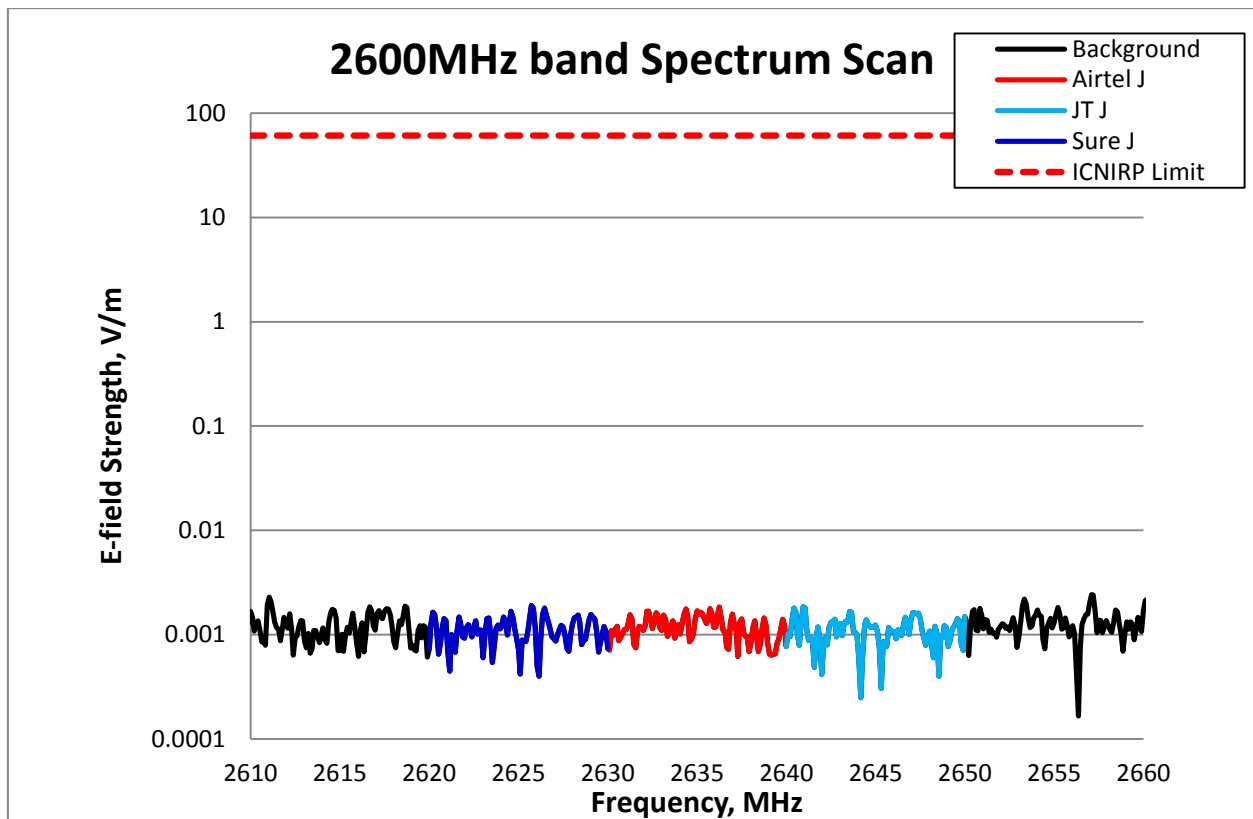


Figure 8 – 2600MHz band Spectrum Scan

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
Clos de la Croix	Airtel J	2600	0.001843	33098	3.81925E-08	1/ 26183161
	JT J		0.001845	33062	3.3914E-08	1/ 29486322
	Sure J		0.001902	32072	3.46953E-08	1/ 28822332
total band EQ					1.06802E-07	1/ 9363135

Table 6 – 2600MHz band Exposure Quotient at the Clos de la Croix

End