

Cellular Mast Emissions Survey: Clos des Ormes (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 des Ormes site located in Jersey.

The Clos des Ormes site was used by a single operator at the time of the survey: JT 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 Des Ormes	800	0.2433	JT J	160	0.00035314	1/ 2832
	900	3.454	JT J	12	0.008896793	1/ 112
	1800	0.3196	JT J	183	0.000696964	1/ 1435
	2100	0.06434	JT J	948	3.25695E-05	1/ 30704
	2600	0.004977	JT J	12256	7.2933E-07	1/ 1371121
Total Site EQ					0.009980196	1/ 100

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/100 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

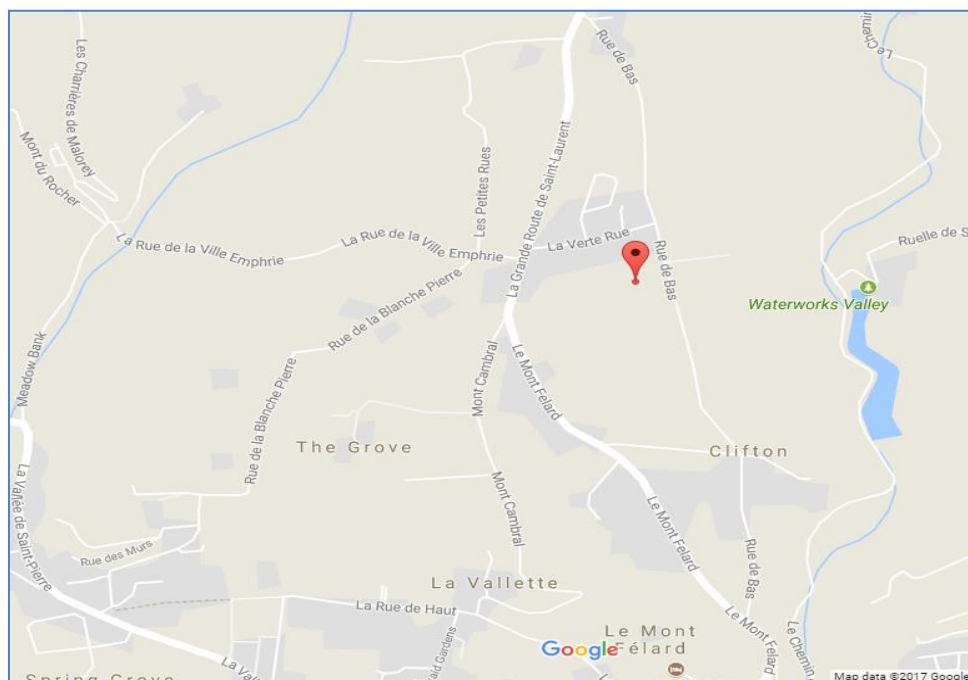


Figure 1 - Map of the Site Area

Site name	Clos des Ormes
Site address	Field 753, La Rue de Bas, St Lawrence, Jersey
Site Latitude	49.20769
Site Longitude	-2.14014

1.2 Site Description

Operators	JT J
Antenna types	Directional
Approximate height	12m
Site type	Monopole
Description	The antennas at the Clos des Ormes are located on a monopole on the edge of a field. The area around the monopole is accessible by the public.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

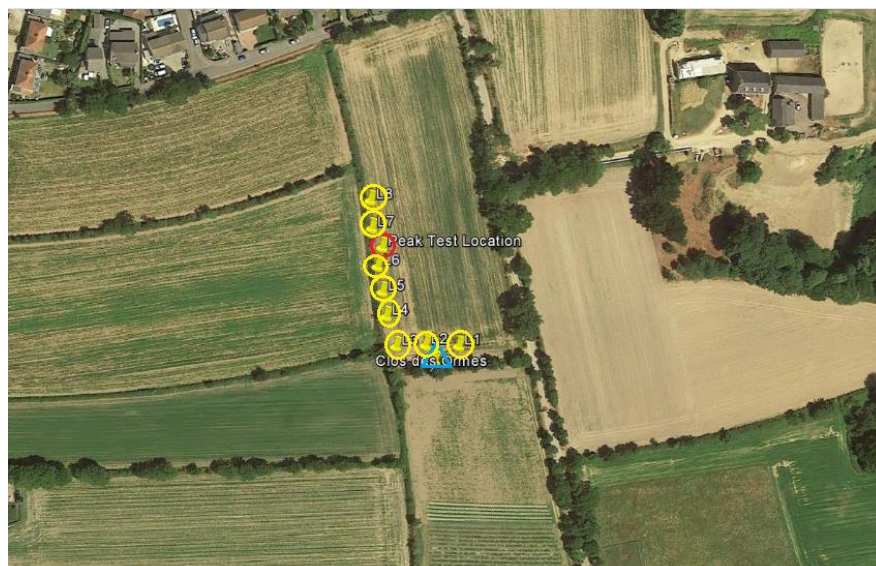


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

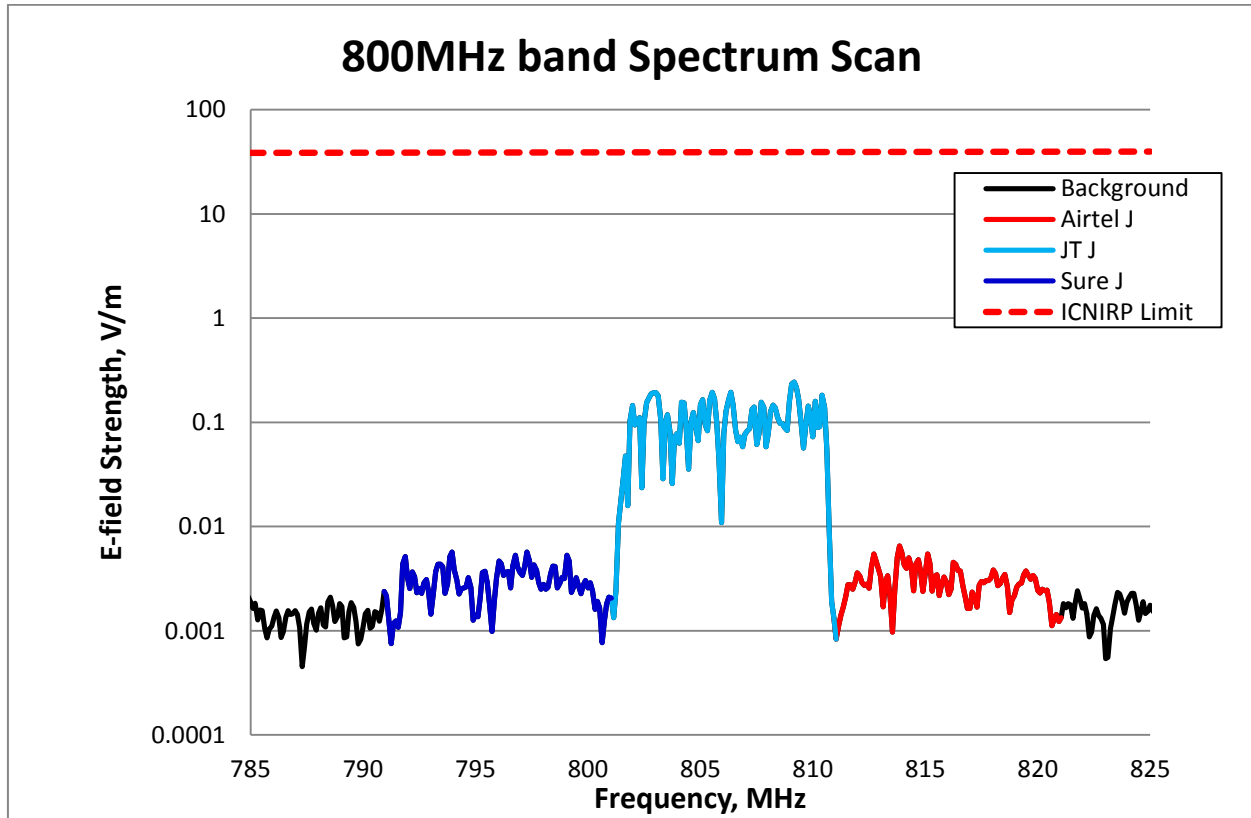


Figure 4 - 800MHz band Spectrum Scan

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 0.2433 V/m (JT J), which is 160 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 des Ormes	Airtel J	800	0.006494	5989	2.60126E-07	1/ 3844292
	JT J		0.2433	160	0.000352619	1/ 2836
	Sure J		0.005692	6833	2.6151E-07	1/ 3823944
total band EQ					0.00035314	1/ 2832

Table 2– 800MHz band Exposure Quotient at Clos des Ormes

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

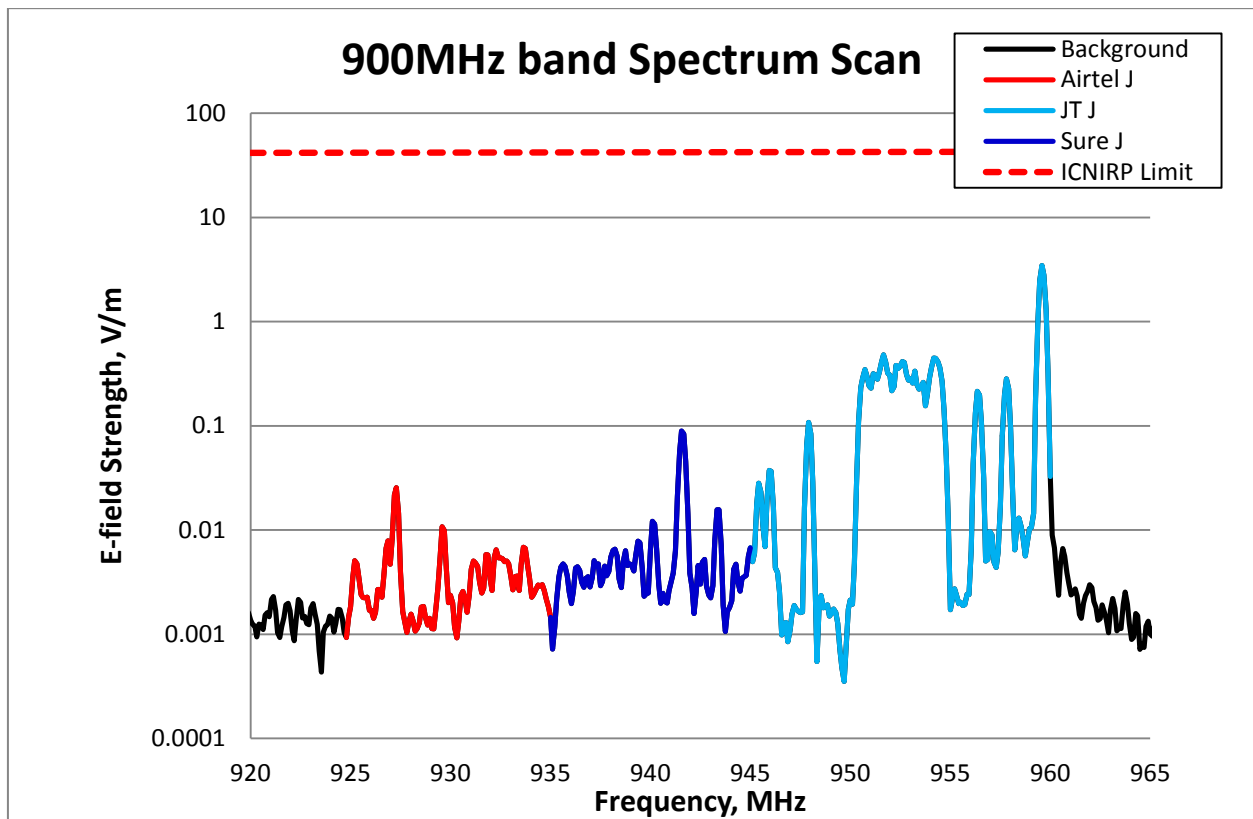


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 3.454 V/m (JT J), which is 12 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 900MHz band are shown below:

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 des Ormes	Airtel J	900	0.02552	1616	7.28765E-07	1/ 1372185
	JT J		3.454	12	0.00888991	1/ 112
	Sure J		0.08888	464	6.15418E-06	1/ 162491
total band EQ					0.008896793	1/ 112

Table 3– 900MHz band Exposure Quotient at Clos des Ormes

2.3 1800 MHz Band

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

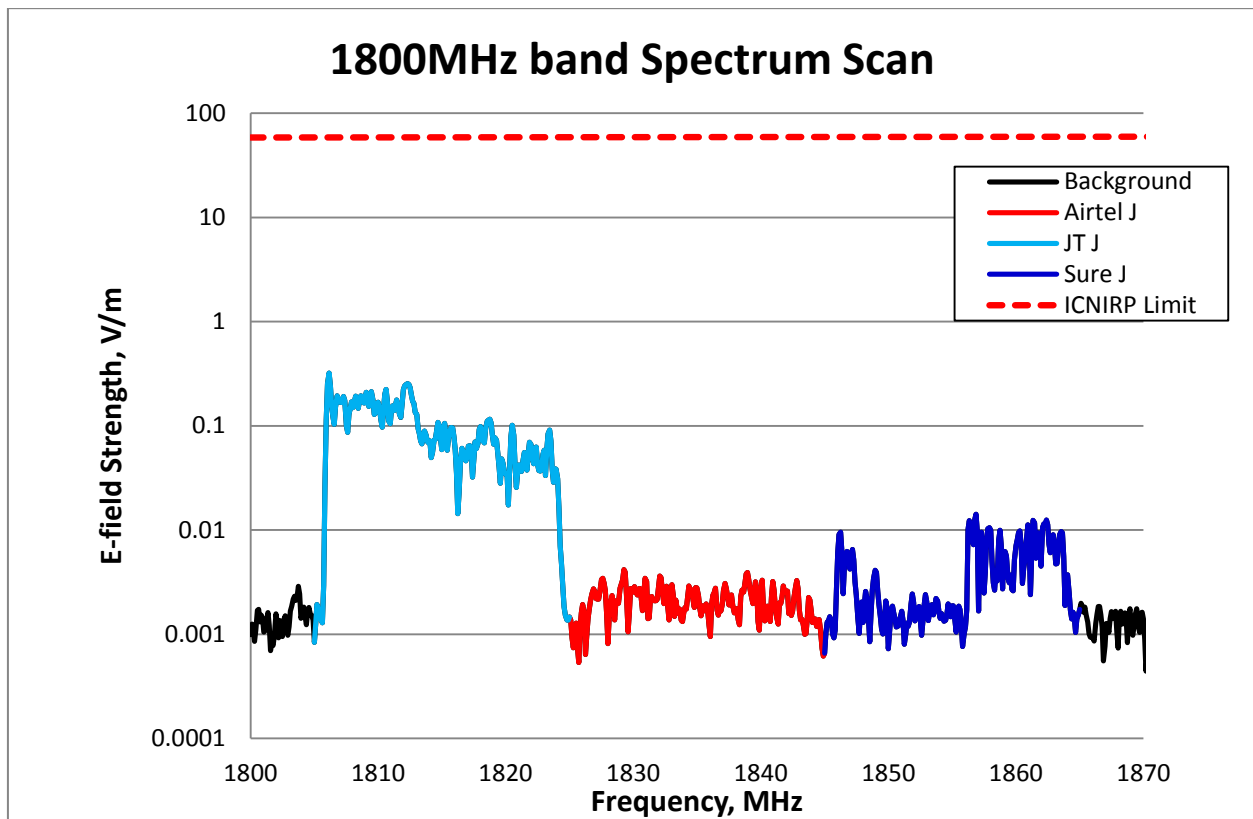


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.3196V/m (JT J), which is 183 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 1800MHz band are shown below:

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 des Ormes	Airtel J	1800	0.004154	14043	2.4807E-07	1/ 4031120
	JT J		0.3196	183	0.000695269	1/ 1438
	Sure J		0.01412	4131	1.44733E-06	1/ 690929
total band EQ					0.000696964	1/ 1435

Table 4 – 1800MHz band Exposure Quotient at Clos des Ormes

2.4 2100MHz Band

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

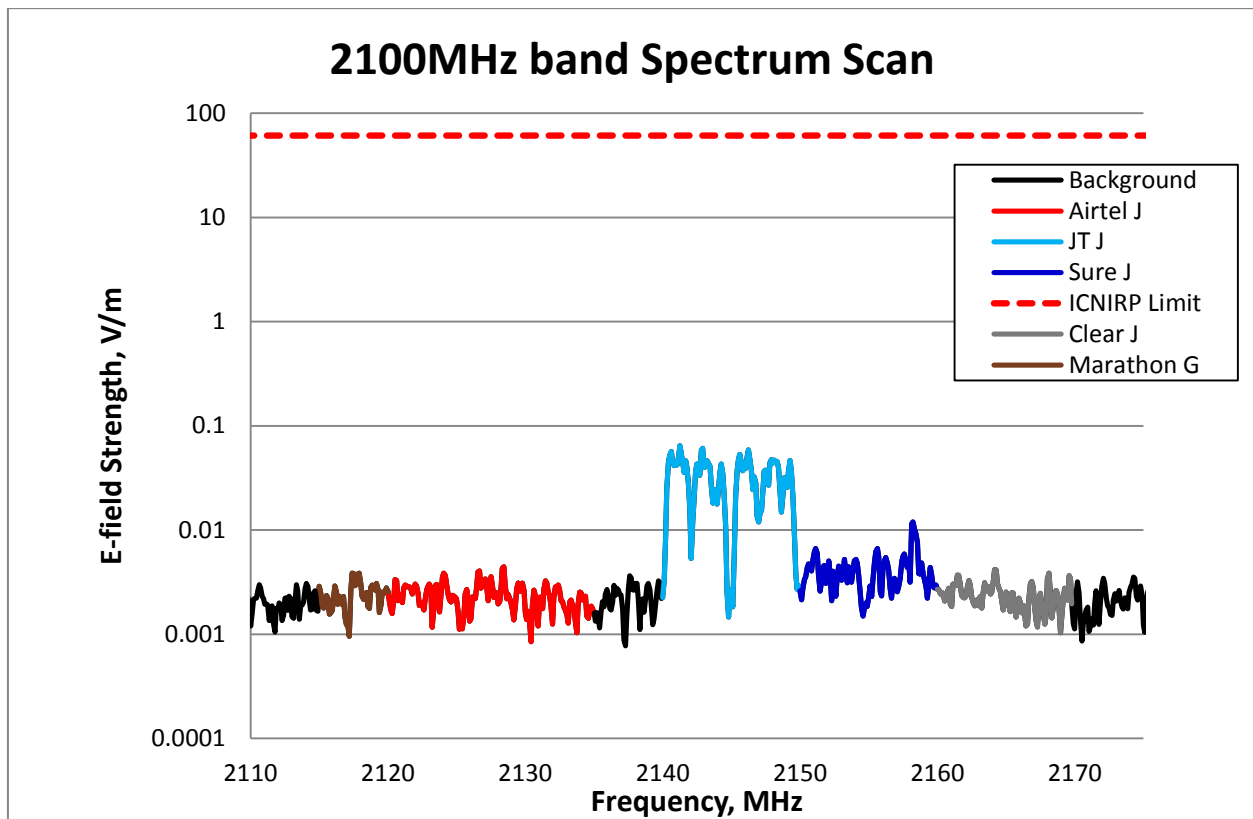


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.06434 V/m (JT J), which is 948 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 2100MHz band are shown below:

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 des Ormes	Airtel J	2100	0.00444	13739	2.2796E-07	1/ 4386732
	Clear J		0.004161	14660	1.5364E-07	1/ 6508705
	JT J		0.06434	948	3.1583E-05	1/ 31663
	Marathon J		0.003857	15815	8.06228E-08	1/ 12403439
	Sure J		0.01196	5100	5.24259E-07	1/ 1907454
total band EQ					3.25695E-05	1/ 30704

Table 5 – 2100MHz band Exposure Quotient at Clos des Ormes

2.5 2600MHz band

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

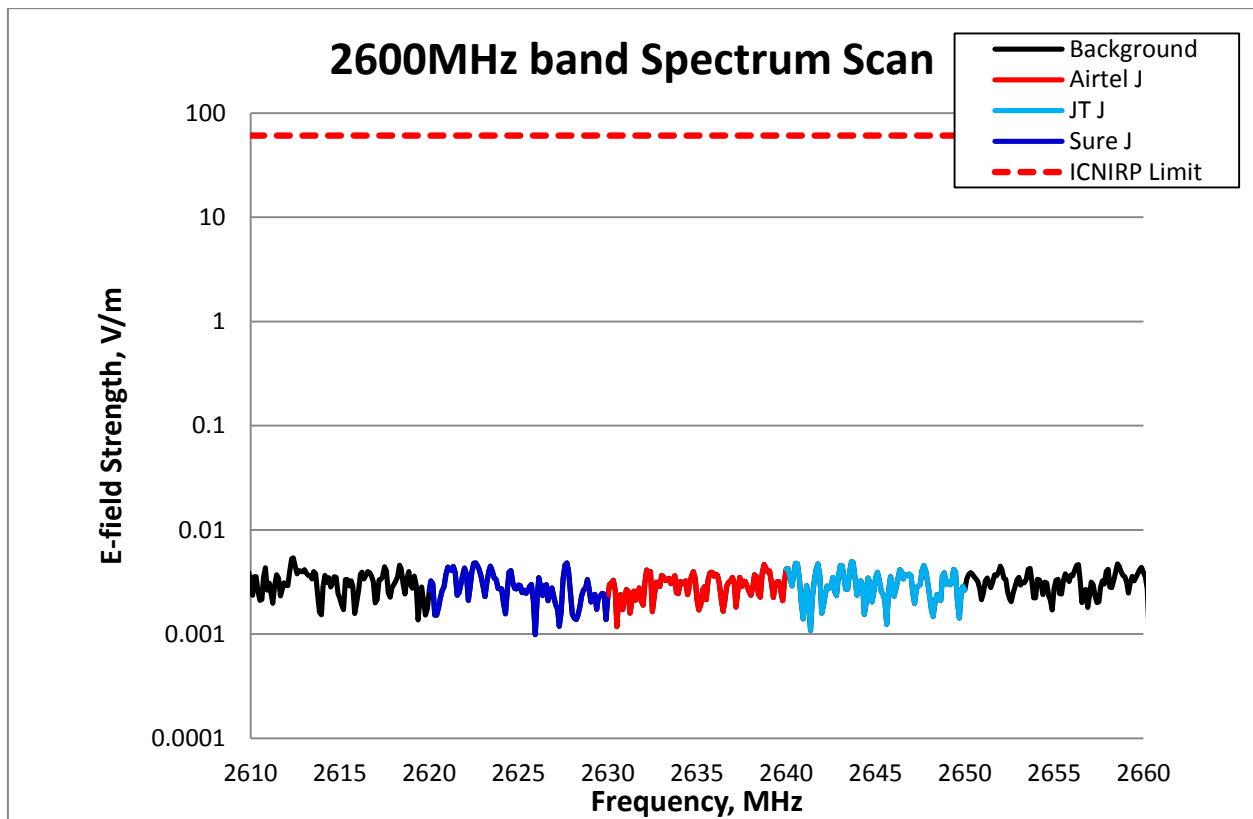


Figure 8 – 2600MHz band Spectrum Scan

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	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 des Ormes	Airtel J	2600	0.00464	13147	2.36068E-07	1/ 4236063
	JT J		0.004977	12256	2.61499E-07	1/ 3824111
	Sure J		0.004818	12661	2.31763E-07	1/ 4314744
	total band EQ				7.2933E-07	1/ 1371121

Table 6 – 2600MHz band Exposure Quotient at Clos des Ormes

End