

Cellular Mast Emissions Survey: Le Catillon (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 Le Catillon site located in Jersey.

Le Catillon 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
Le Catillon	800	0.2294	Sure J	170	0.000447496	1/ 2235
	900	2.834	Sure J	15	0.00523702	1/ 191
	1800	0.2799	Sure J	208	0.000622403	1/ 1607
	2100	0.4615	Sure J	132	0.001071024	1/ 934
	2600	0.003617	JT J	16865	2.94411E-07	1/ 3396614
Total Site EQ					0.007378238	1/ 136

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/136 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

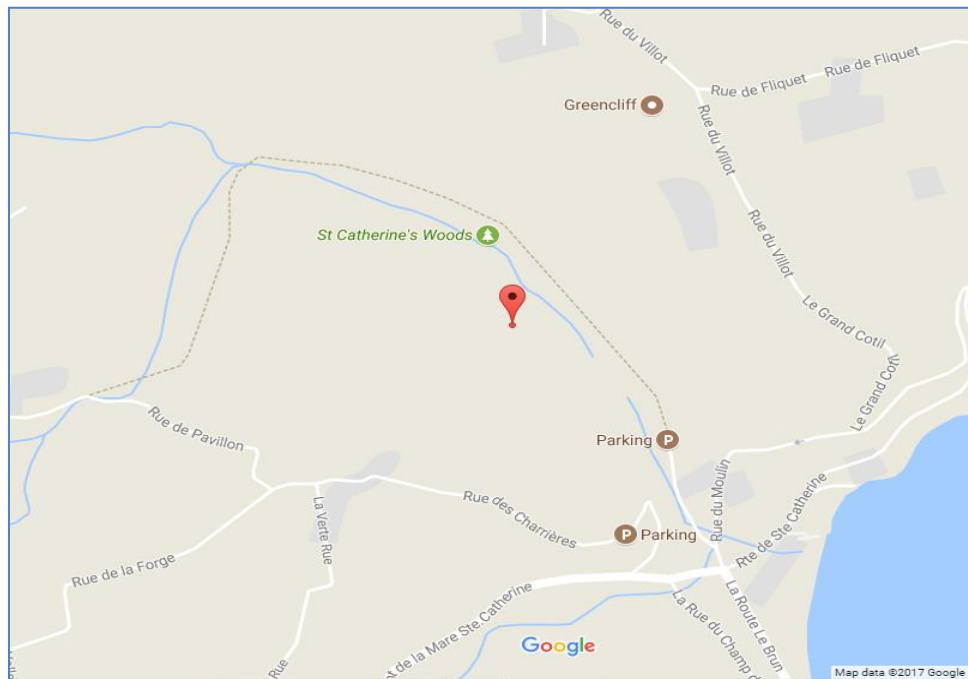


Figure 1 - Map of the Site Area

Site name	Le Catillon
Site address	Le Catillon, St. Martin, Jersey
Site Latitude	49.2209
Site Longitude	-2.03514

1.2 Site Description

Operators	Sure J
Antenna types	Directionals
Approximate height	12.0m
Site type	Pole Mast
Description	The antennas at Le Catillon are located in the corner of a field, the public have access.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

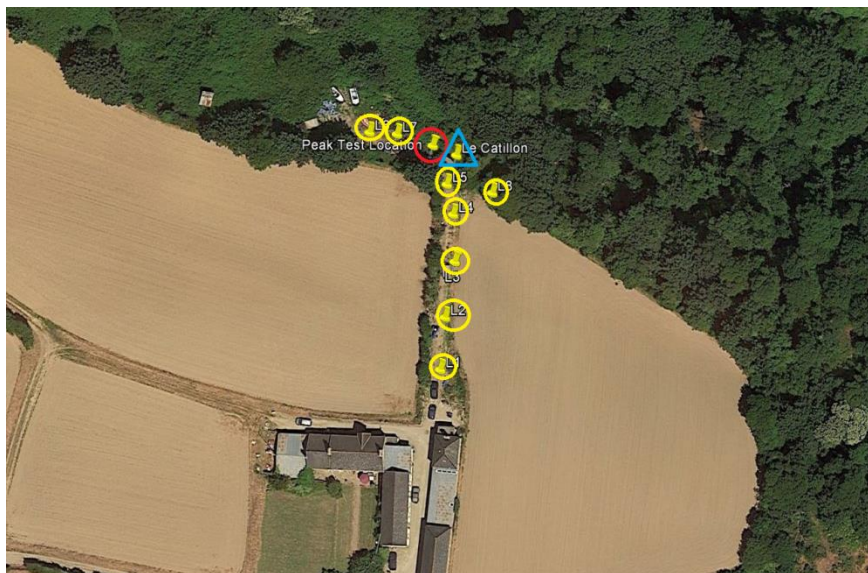


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

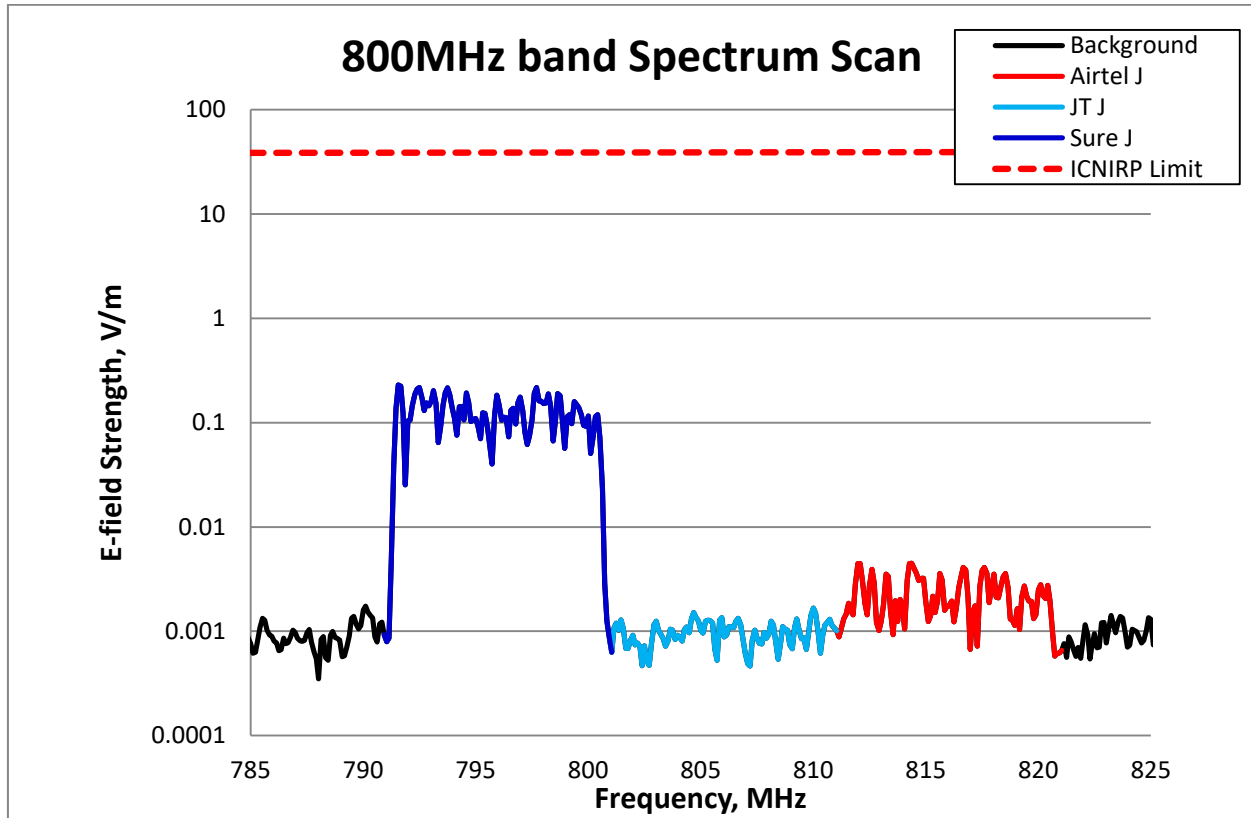


Figure 4 - 800MHz band Spectrum Scan

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 0.2294 V/m (Sure J), which is 170 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
Le Cattillon	Airtel J	800	0.00449	8662	1.55267E-07	1/ 6440539
	JT J		0.00167	23288	2.65224E-08	1/ 37703994
	Sure J		0.2294	170	0.000447314	1/ 2236
total band EQ					0.000447496	1/ 2235

Table 2– 800MHz band Exposure Quotient at Le Catillon

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

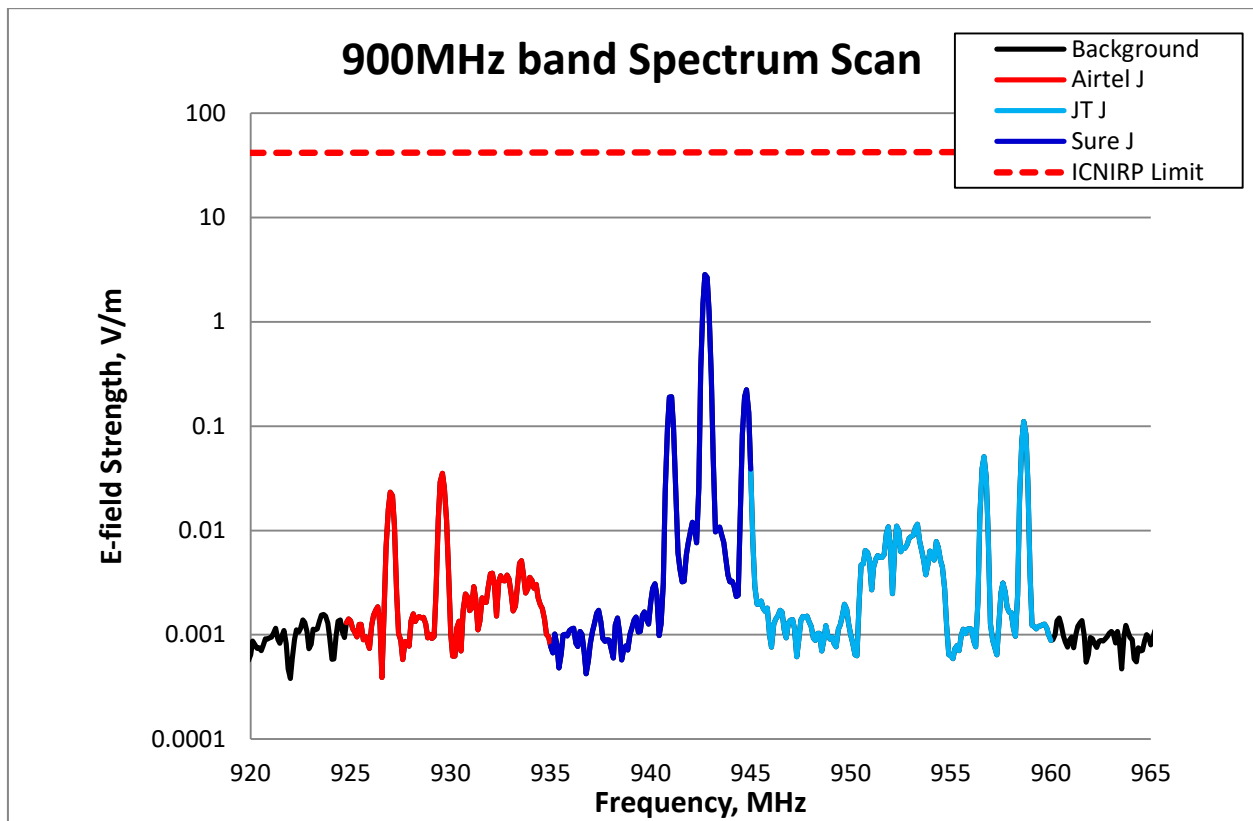


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 2.834 V/m (Sure J), which is 15 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
Le Cattilion	Airtel J	900	0.03529	1169	1.32293E-06	1/ 755900
	JT J		0.1111	371	9.33836E-06	1/ 107085
	Sure J		2.834	15	0.005226359	1/ 191
total band EQ					0.00523702	1/ 191

Table 3– 900MHz band Exposure Quotient at Le Catillon

2.3 1800 MHz Band

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

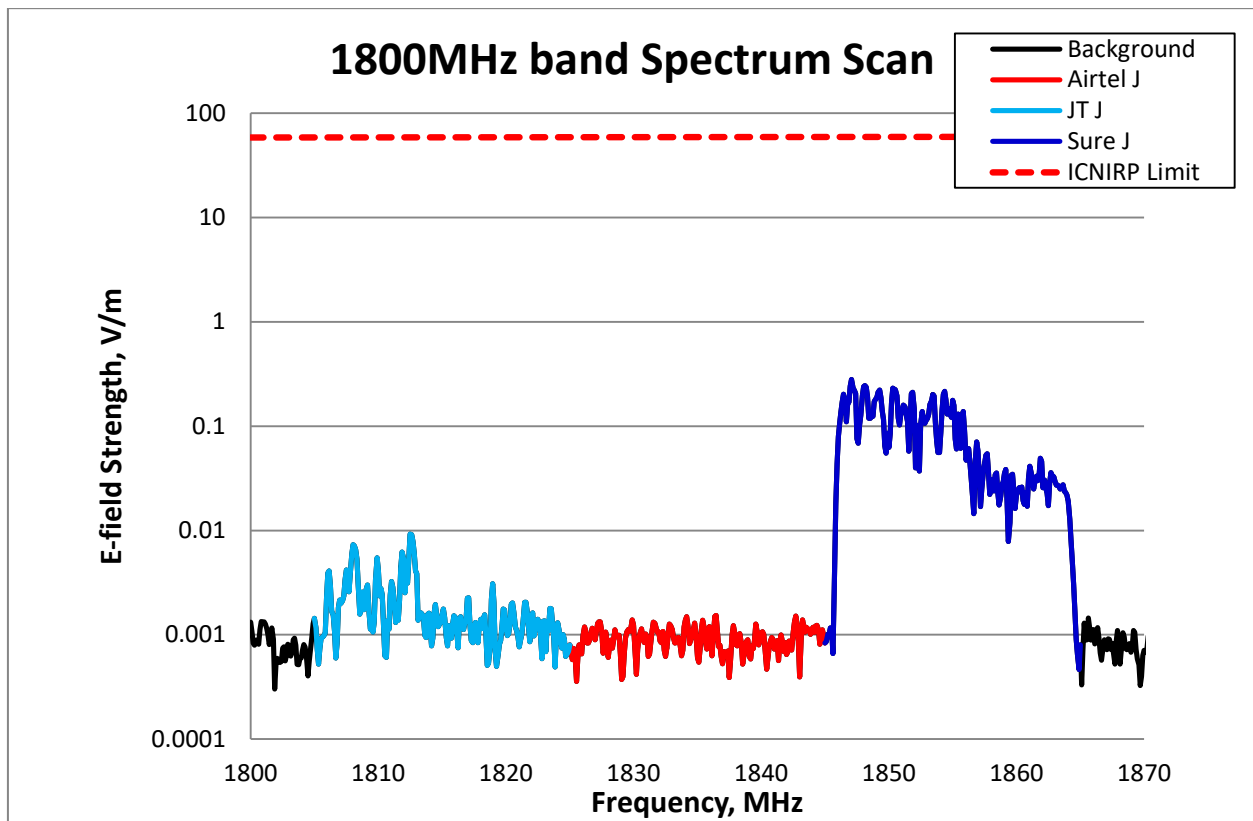


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.2799 V/m (Sure J), which is 208 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
Le Cattilion	Airtel J	1800	0.001535	38004	4.67879E-08	1/ 21373070
	JT J		0.009193	6346	3.16436E-07	1/ 3160196
	Sure J		0.2799	208	0.00062204	1/ 1608
total band EQ					0.000622403	1/ 1607

Table 4 – 1800MHz band Exposure Quotient at Le Catillon

2.4 2100MHz Band

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

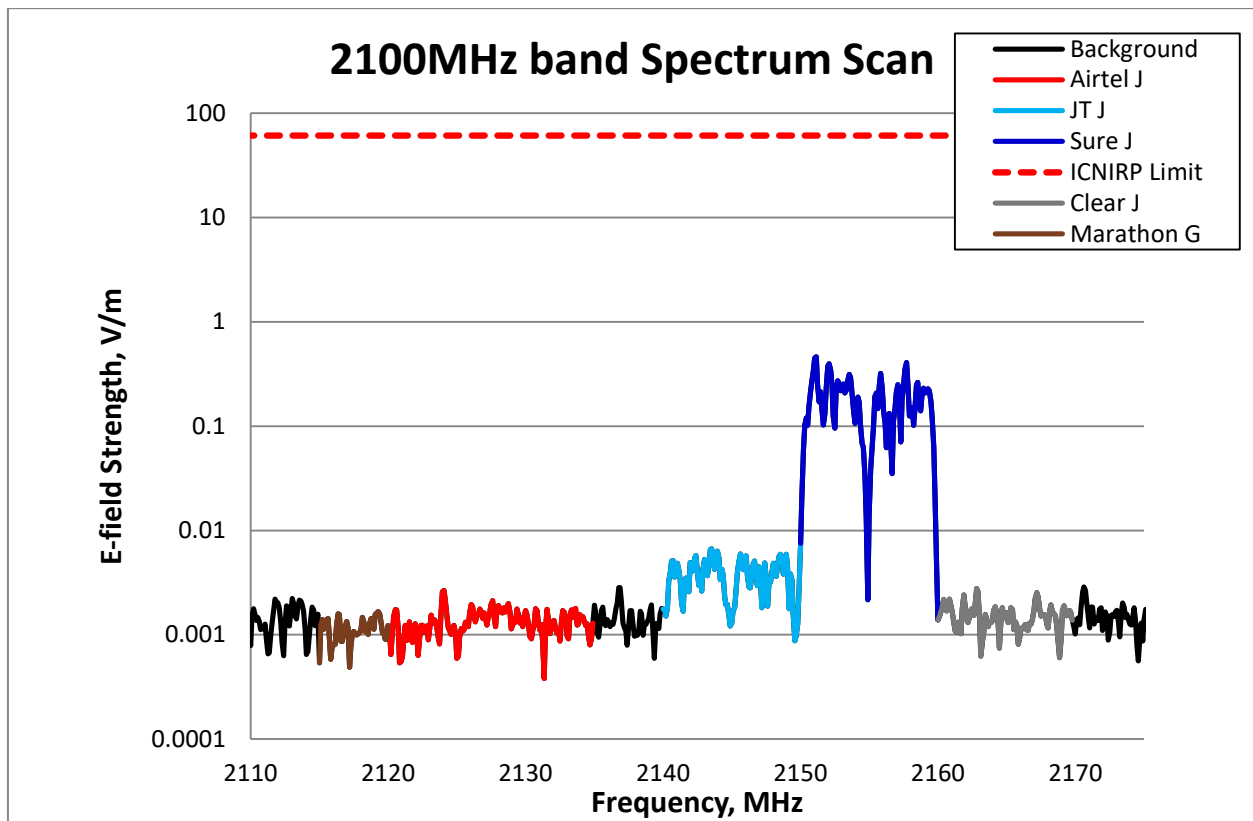


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.4615 V/m (Sure J), which is 132 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
Le Cattilion	Airtel J	2100	0.002659	22941	7.33829E-08	1/ 13627148
	Clear J		0.002768	22038	6.27638E-08	1/ 15932760
	JT J		0.007504	8129	4.24664E-07	1/ 2354803
	Marathon J		0.001674	36440	1.80094E-08	1/ 55526645
	Sure J		0.4615	132	0.001070446	1/ 934
total band EQ					0.001071024	1/ 934

Table 5 – 2100MHz band Exposure Quotient at Le Catillon

2.5 2600MHz band

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

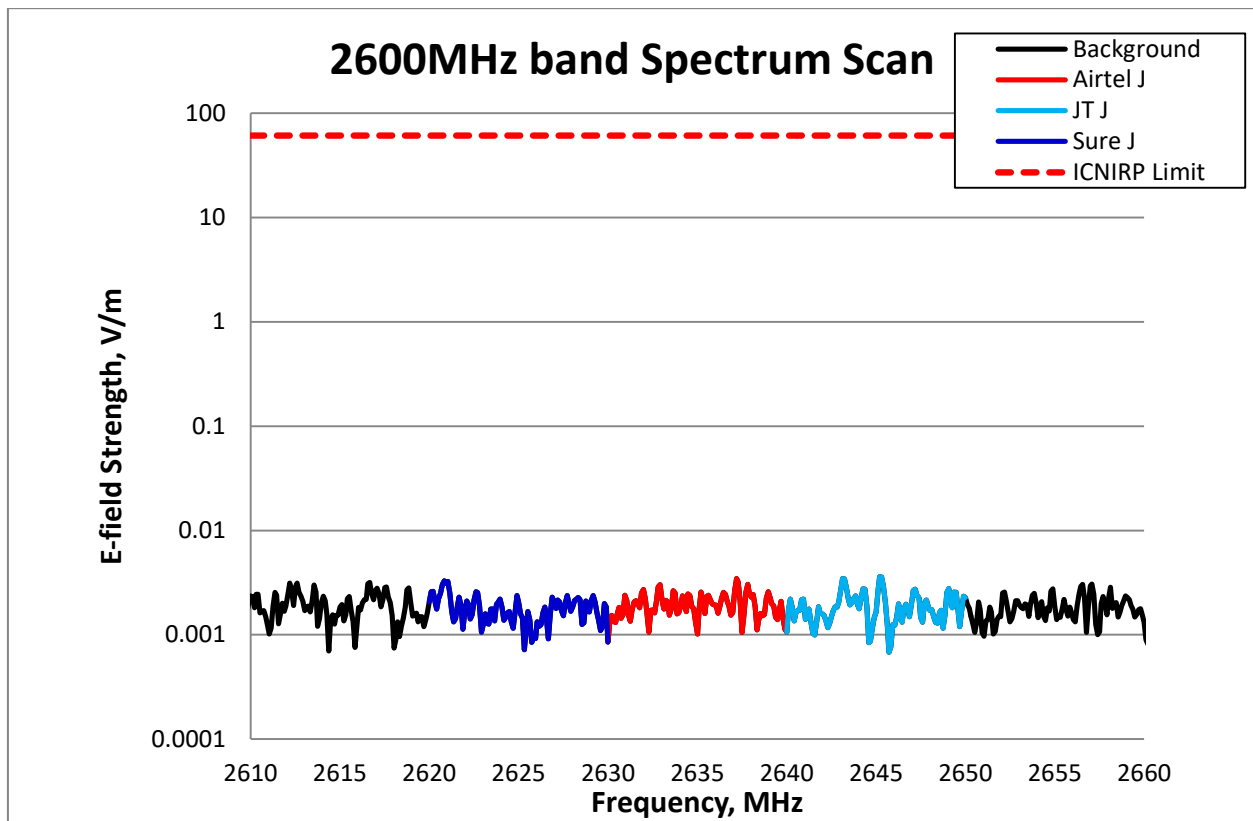


Figure 8 – 2600MHz band Spectrum Scan

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
Le Cattilion	Airtel J	2600	0.003449	17686	1.04197E-07	1/ 9597209
	JT J		0.003617	16865	9.95628E-08	1/ 10043916
	Sure J		0.00328	18598	9.06511E-08	1/ 11031304
total band EQ					2.94411E-07	1/ 3396614

Table 6 – 2600MHz band Exposure Quotient at Le Catillon

End