

Cellular Mast Emissions Survey: Maufant (Jersey)



DOCUMENT DETAILS

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Survey Engineer:	Louise Sands	
Report Compiled by:	Erin Dawson	
Checked and Approved by	Bachir Belloul	
Authorised for Distribution	Ravi Mondair	

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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 Maufant site located in Jersey.

Maufant site was used by one 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
Maufant	800	0.09016	JT J	431	8.25959E-05	1/ 12107
	900	2.228	JT J	19	0.003291794	1/ 304
	1800	0.03711	JT J	1572	1.64595E-06	1/ 607553
	2100	0.2287	JT J	267	0.000307582	1/ 3251
	2600	0.002275	JT J	26813	1.2158E-07	1/ 8225008
Total Site EQ					0.00368374	1/ 271

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/271 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

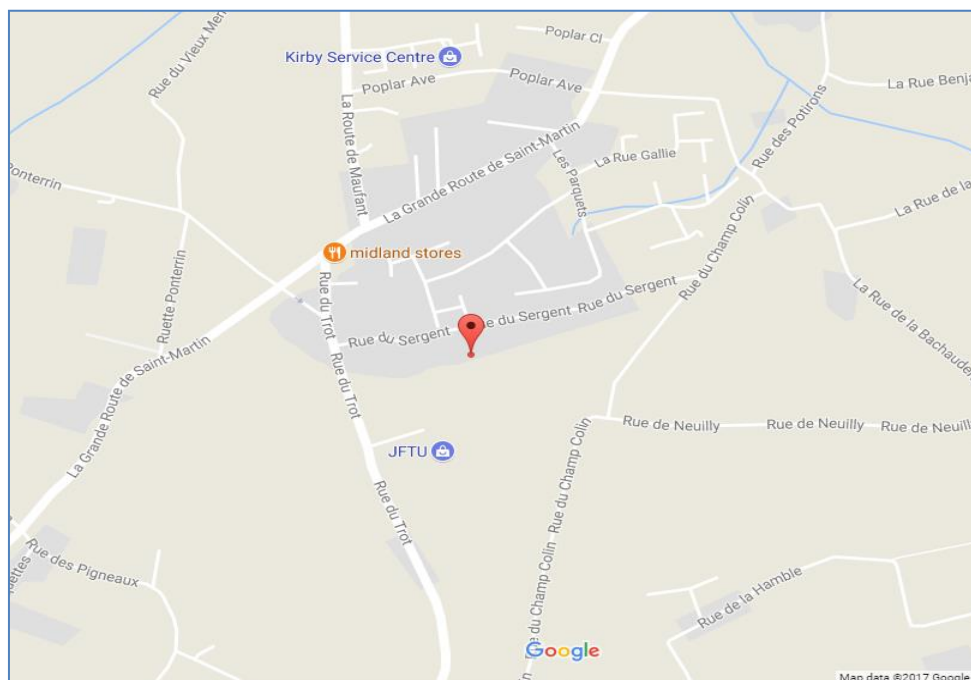


Figure 1 - Map of the Site Area

Site name	Maufant
Site address	Rue Du Trot, St Saviour, Jersey
Site Latitude	49.20685
Site Longitude	-2.06344

1.2 Site Description

Operators	JT J
Antenna types	Directional
Approximate height	15m
Site type	Pole Mast
Description	The antennas at Maufant are located at the corner of a field, the public have access.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

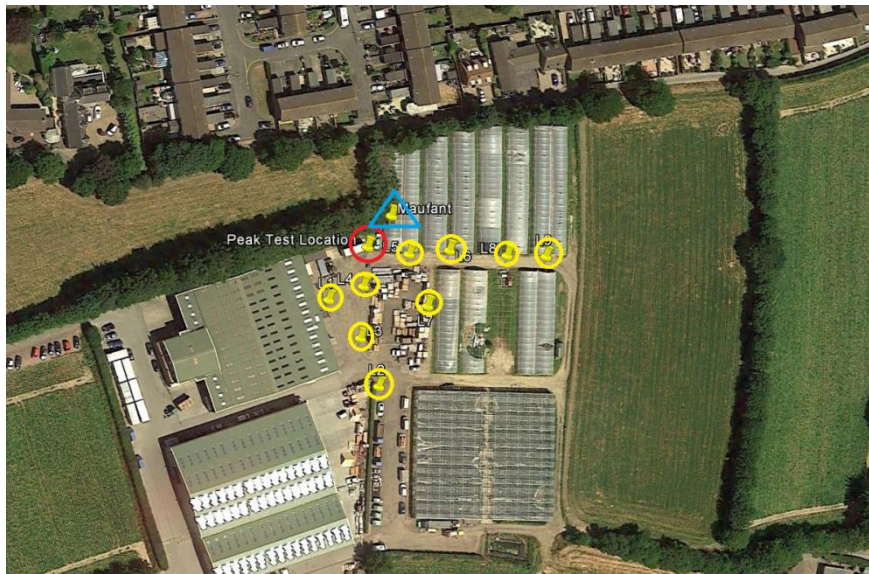


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

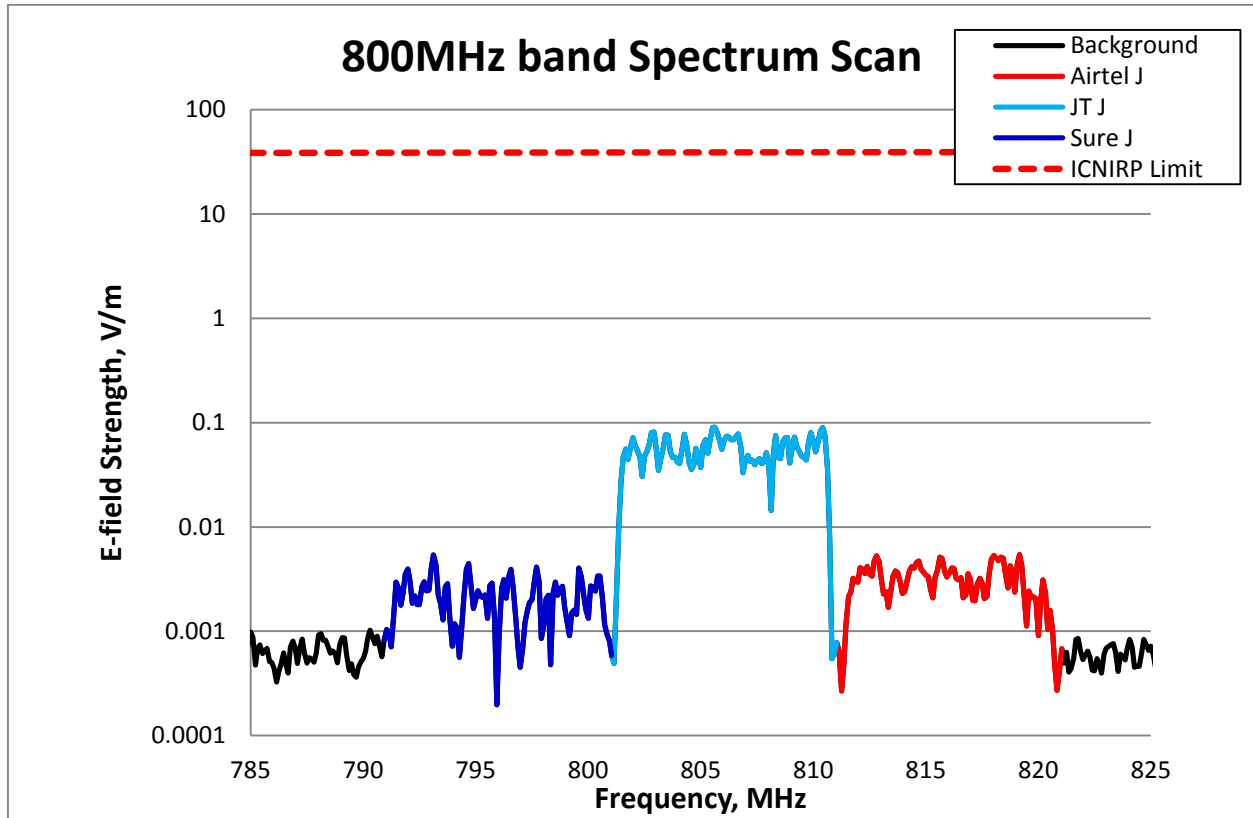


Figure 4 - 800MHz band Spectrum Scan

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 0.09016 V/m (JT J), which is 431 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
Maufant	Airtel J	800	0.005433	7158	2.80291E-07	1/ 3567716
	JT J		0.09016	431	8.21688E-05	1/ 12170
	Sure J		0.005381	7227	1.46853E-07	1/ 6809511
total band EQ					8.25959E-05	1/ 12107

Table 2– 800MHz band Exposure Quotient at Maufant

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

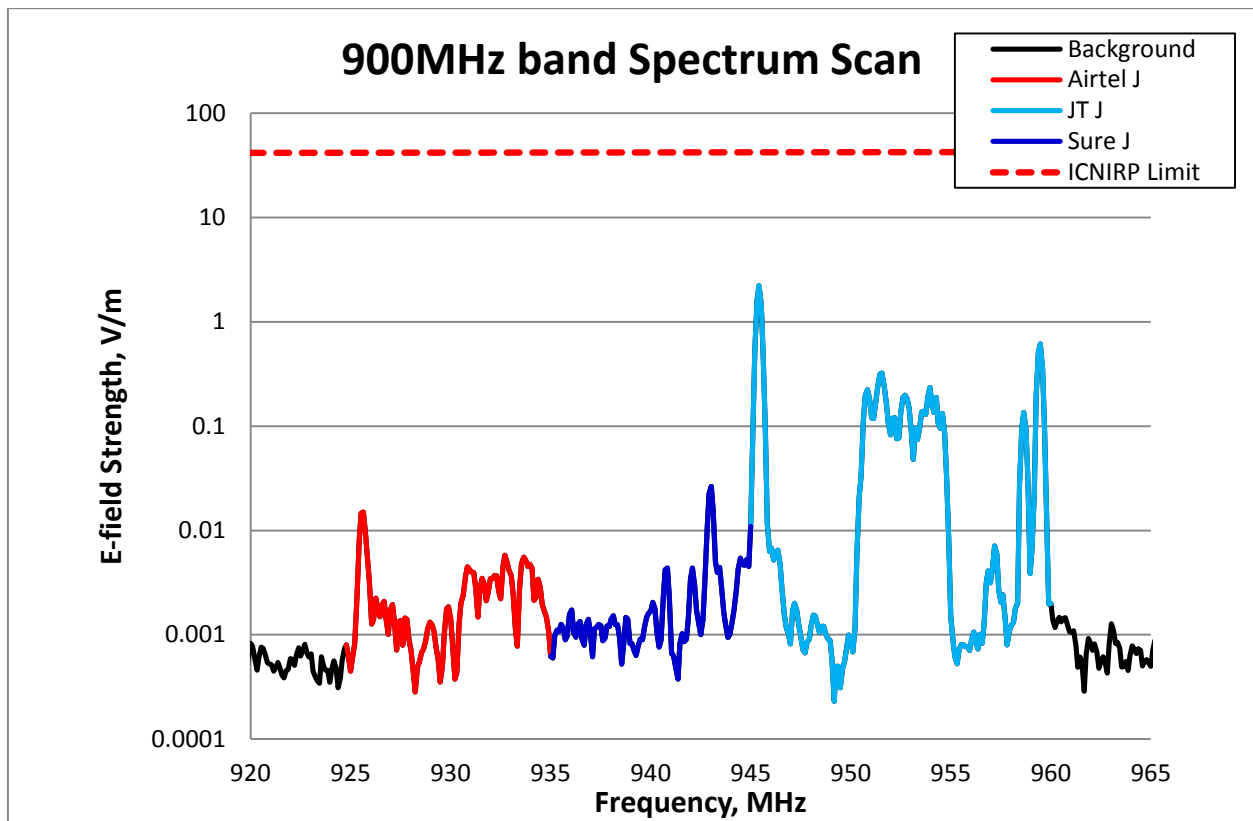


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 2.228 V/m (JT J), which is 19 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
Maufant	Airtel J	900	0.01507	2737	3.28575E-07	1/ 3043446
	JT J		2.228	19	0.00329091	1/ 304
	Sure J		0.02642	1561	5.55699E-07	1/ 1799537
total band EQ					0.003291794	1/ 304

Table 3– 900MHz band Exposure Quotient at Maufant

2.3 1800 MHz Band

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

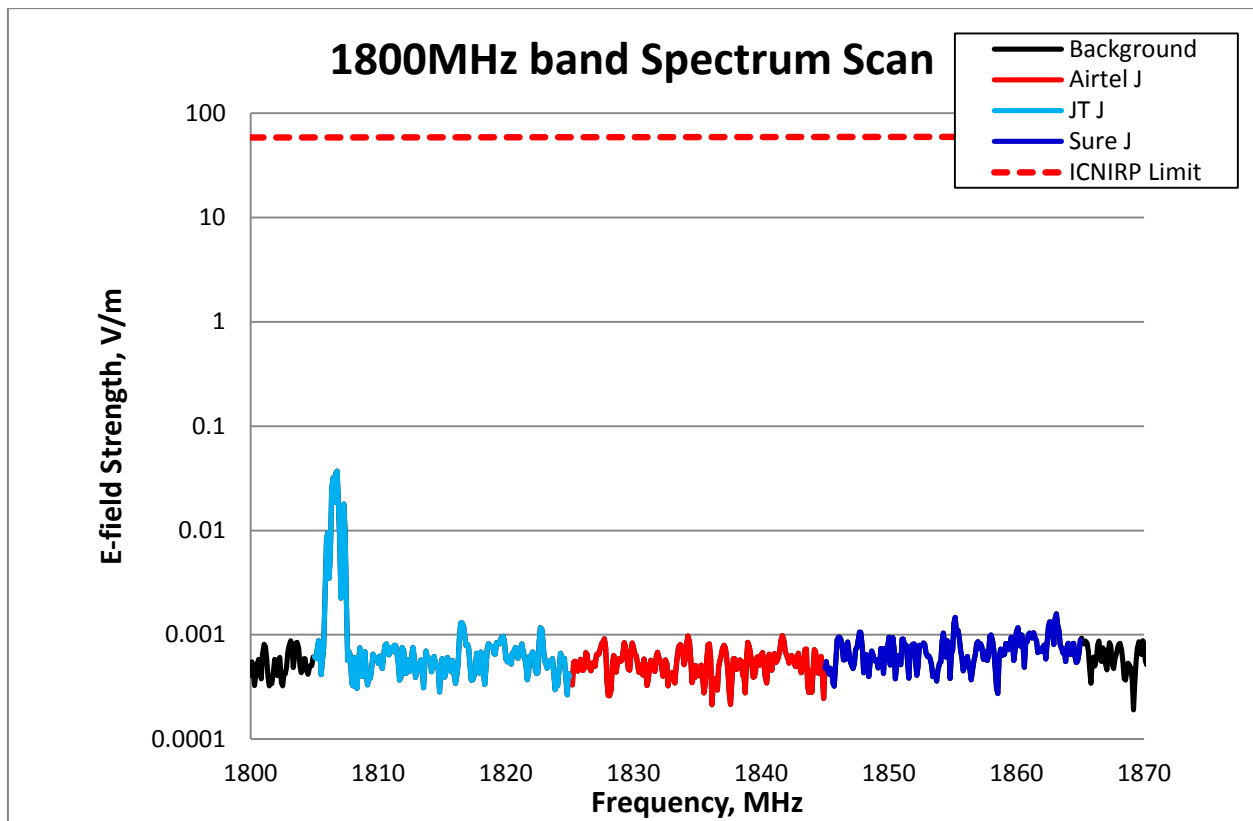


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.03711 V/m (JT J), which is 1572 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
Maufant	Airtel J	1800	0.0009804	59503	1.65756E-08	1/ 60329762
	JT J		0.03711	1572	1.59982E-06	1/ 625069
	Sure J		0.001584	36828	2.95493E-08	1/ 33841765
total band EQ					1.64595E-06	1/ 607553

Table 4 – 1800MHz band Exposure Quotient at Maufant

2.4 2100MHz Band

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

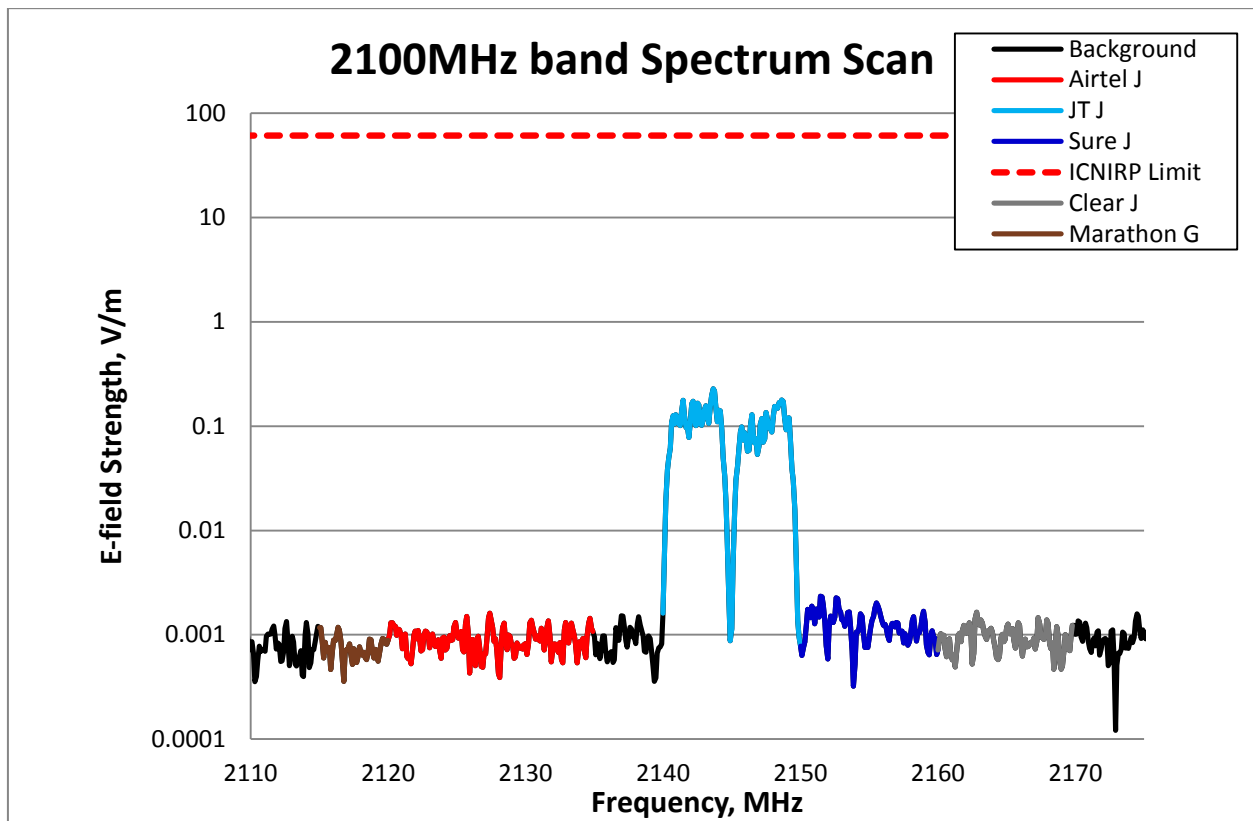


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.2287 V/m (JT J), which is 267 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
Maufant	Airtel J	2100	0.001612	37841	3.4306E-08	1/ 29149430
	Clear J		0.00165	36970	2.39652E-08	1/ 41727187
	JT J		0.2287	267	0.000307471	1/ 3252
	Marathon J		0.001179	51739	7.91183E-09	1/ 126393019
	Sure J		0.002345	26013	4.50872E-08	1/ 22179251
total band EQ					0.000307582	1/ 3251

Table 5 – 2100MHz band Exposure Quotient at Maufant

2.5 2600MHz band

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

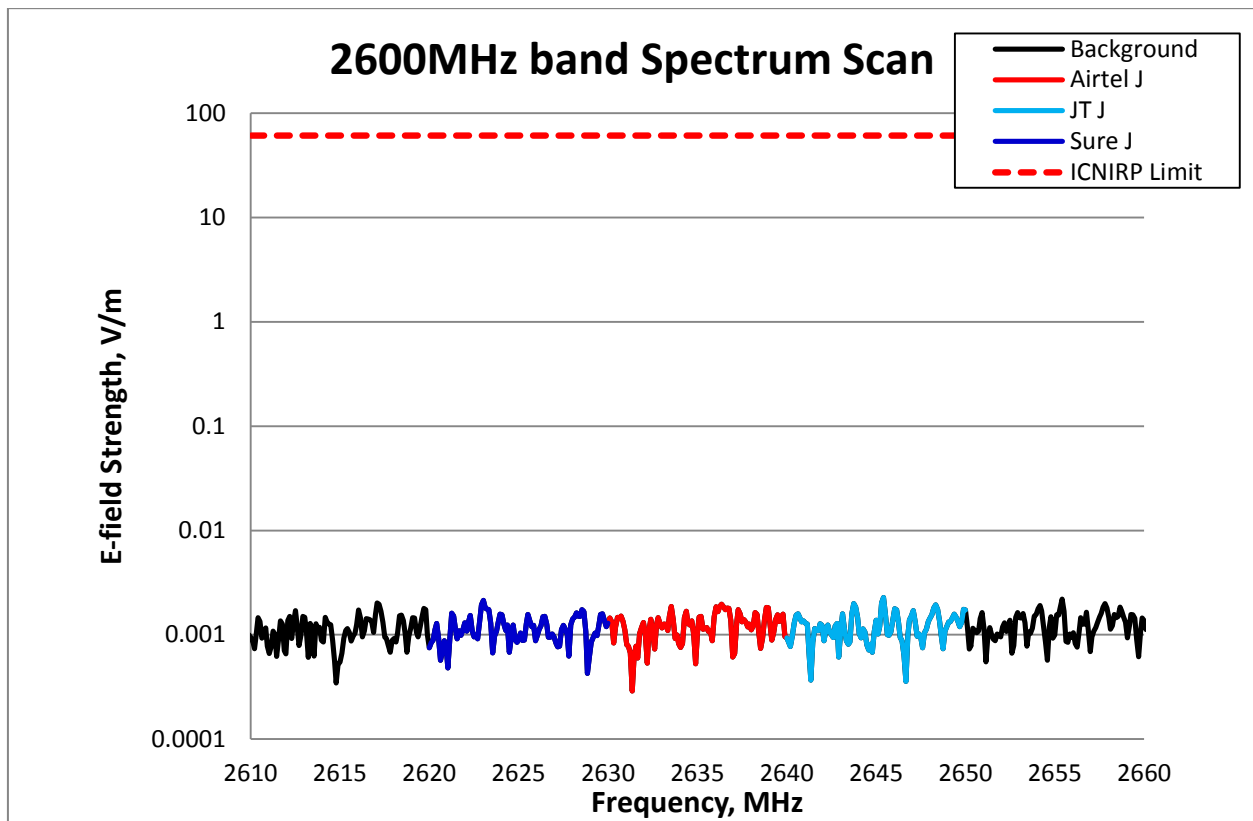


Figure 8 – 2600MHz band Spectrum Scan

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
Maufant	Airtel J	2600	0.001967	31012	4.27821E-08	1/ 23374258
	JT J		0.002275	26813	4.15076E-08	1/ 24091986
	Sure J		0.002141	28491	3.72907E-08	1/ 26816303
total band EQ					1.2158E-07	1/ 8225008

Table 6 – 2600MHz band Exposure Quotient at Maufant

End