

Cellular Mast Emissions Survey: La Hambury (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 La Hambury site located in Jersey.

La Hambury 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
La Hambury	800	0.1034	Sure J	376	7.13412E-05	1/ 14017
	900	1.319	Sure J	31	0.001473825	1/ 679
	1800	0.3253	Sure J	179	0.000484284	1/ 2065
	2100	0.377	Sure J	162	0.000674101	1/ 1483
	2600	0.002322	JT J	26270	1.34169E-07	1/ 7453263
Total Site EQ					0.002703684	1/ 370

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/370 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

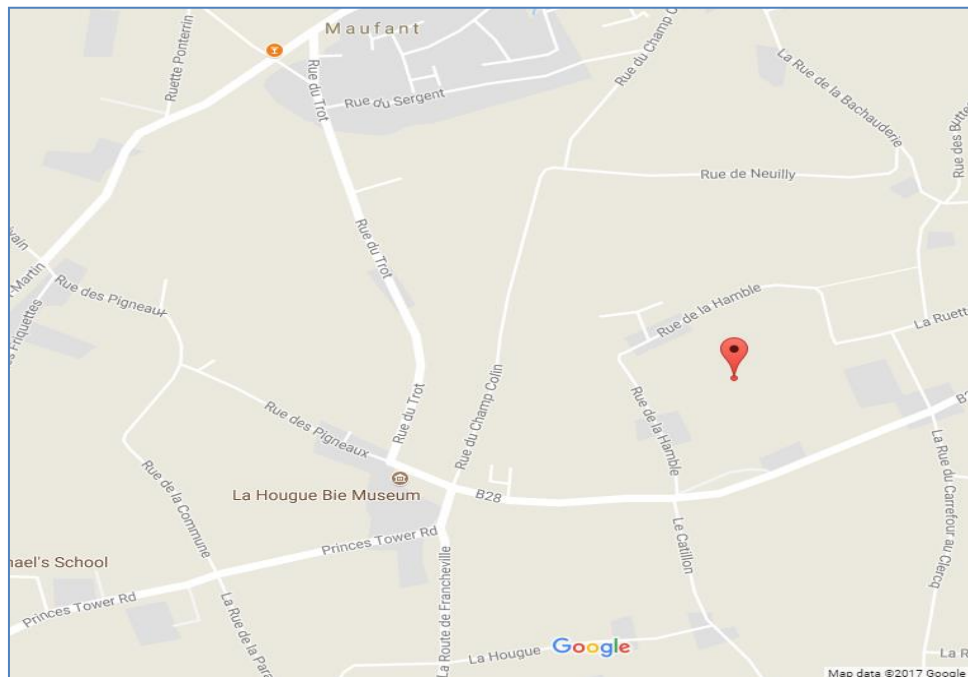


Figure 1 - Map of the Site Area

Site name	La Hambury
Site address	Rue de la Hambury, St Saviour, Jersey
Site Latitude	N49.20238
Site Longitude	W02.05722

1.2 Site Description

Operators	Sure J
Antenna types	Directional
Approximate height	12m
Site type	Pole Mast
Description	The antennas at La Hambury 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

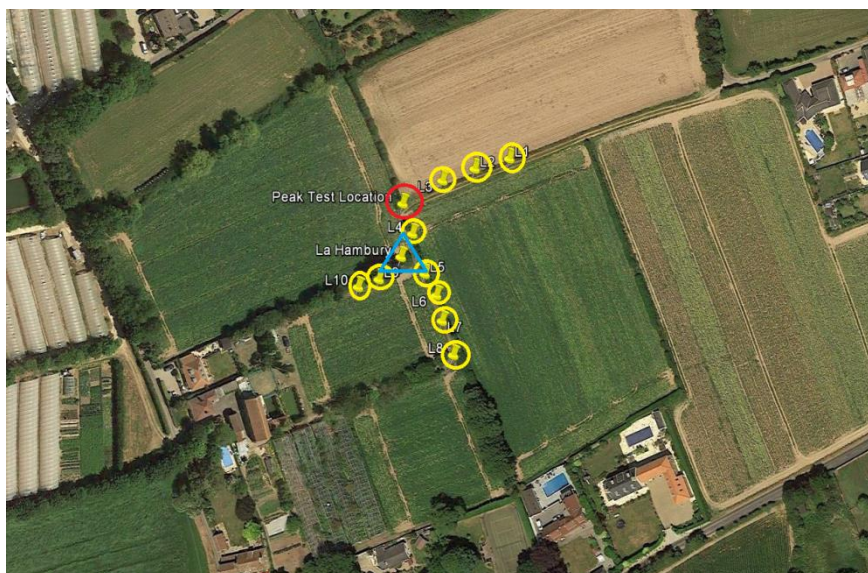


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

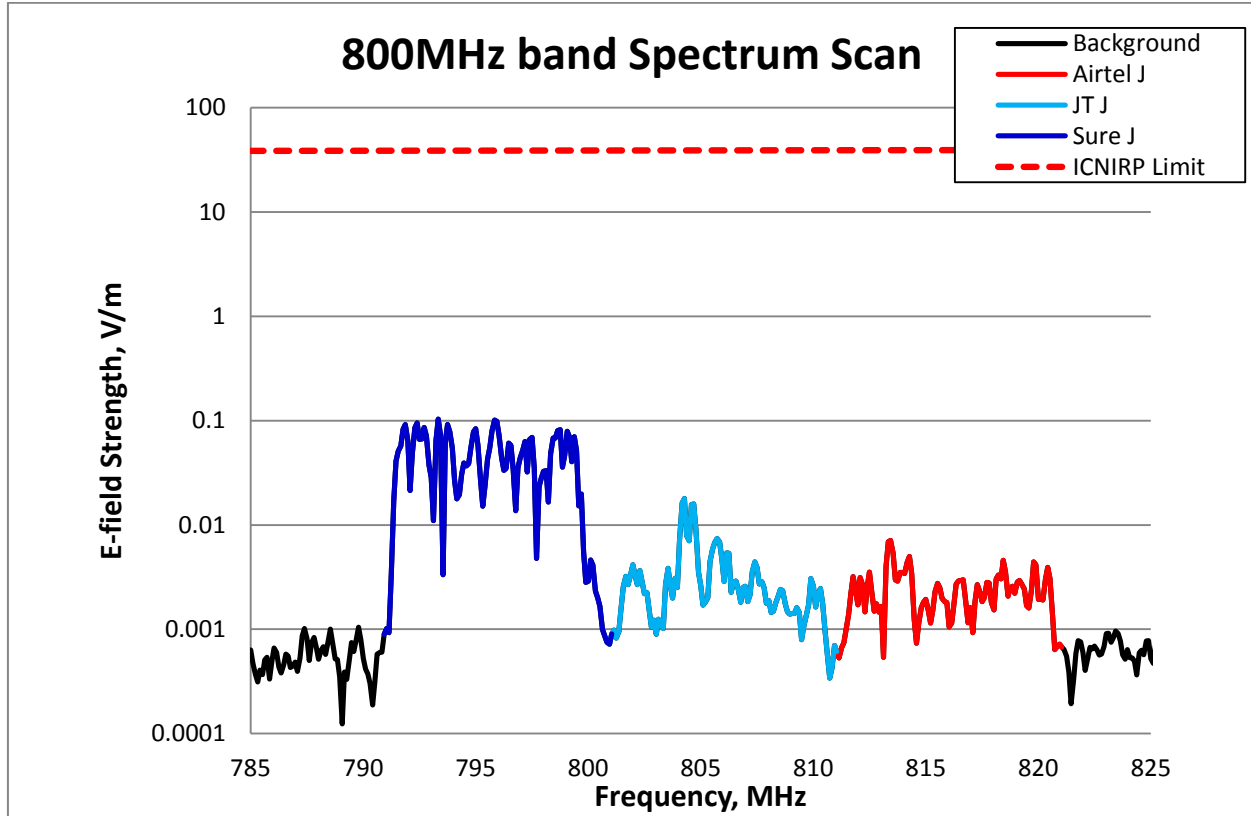


Figure 4 - 800MHz band Spectrum Scan

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 0.1034 V/m (Sure J), which is 376 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
La Hambury	Airtel J	800	0.007115	5466	1.84707E-07	1/ 5413989
	JT J		0.01788	2175	5.44279E-07	1/ 1837293
	Sure J		0.1034	376	7.06122E-05	1/ 14162
total band EQ					7.13412E-05	1/ 14017

Table 2– 800MHz band Exposure Quotient at La Hambury

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

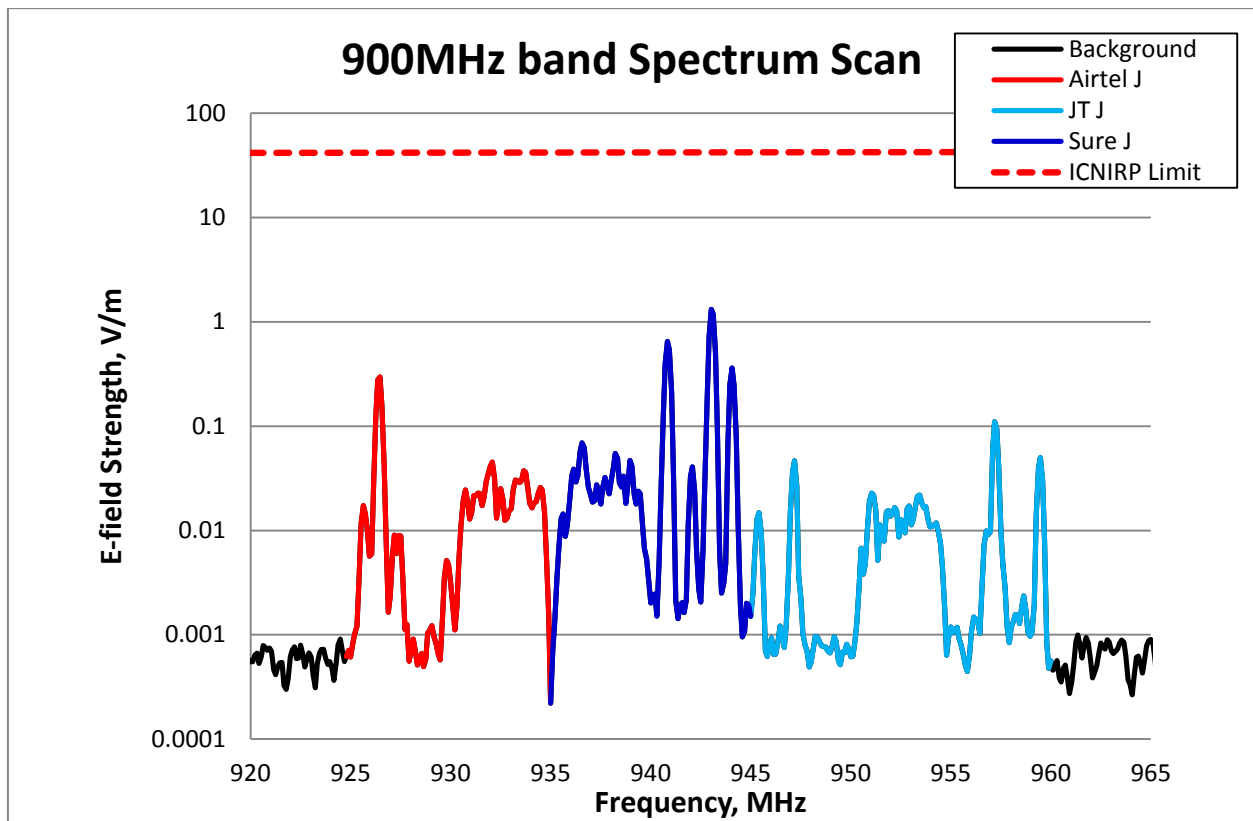


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 1.319 V/m (Sure J), which is 31 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
La Hambury	Airtel J	900	0.2958	139	6.27806E-05	1/ 15928
	JT J		0.1102	374	1.19858E-05	1/ 83432
	Sure J		1.319	31	0.001399058	1/ 715
total band EQ					0.001473825	1/ 679

Table 3– 900MHz band Exposure Quotient at La Hambury

2.3 1800 MHz Band

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

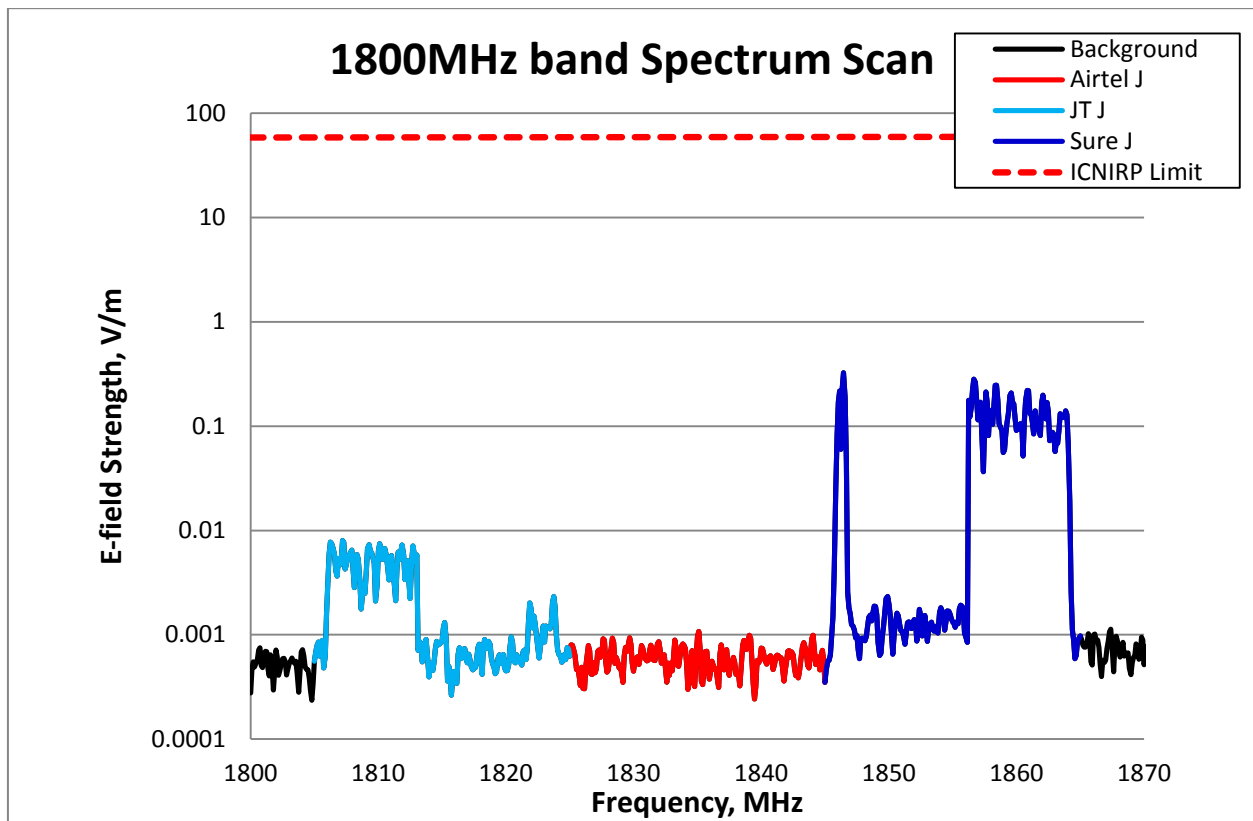


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.3253 V/m (Sure J), which is 179 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
La Hambury	Airtel J	1800	0.001075	54266	1.97859E-08	1/ 50541043
	JT J		0.008001	7291	5.36797E-07	1/ 1862902
	Sure J		0.3253	179	0.000483727	1/ 2067
total band EQ					0.000484284	1/ 2065

Table 4 – 1800MHz band Exposure Quotient at La Hambury

2.4 2100MHz Band

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

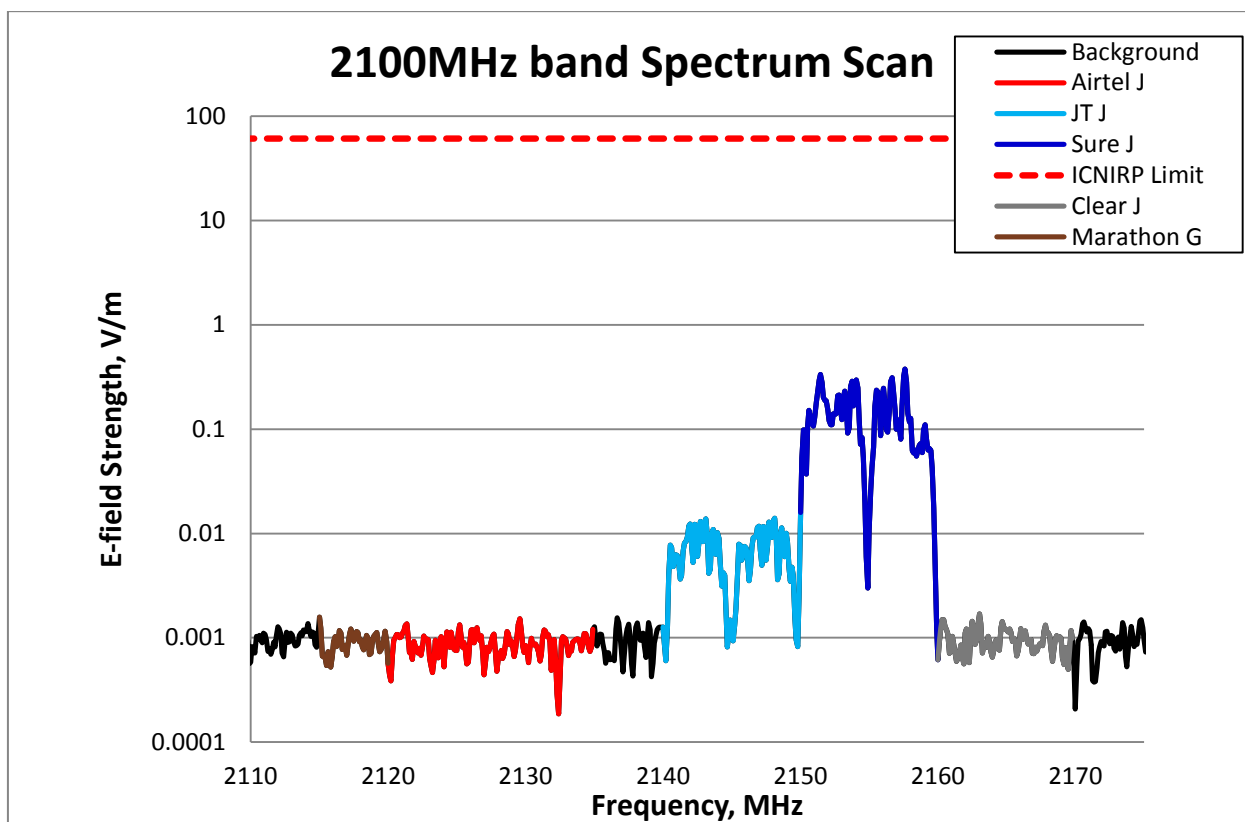


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.377 V/m (Sure J), which is 162 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
La Hambury	Airtel J	2100	0.001526	39974	3.06491E-08	1/ 32627347
	Clear J		0.00169	36095	2.4752E-08	1/ 40400779
	JT J		0.01588	3841	1.56527E-06	1/ 638868
	Marathon J		0.001572	38804	1.12228E-08	1/ 89104010
	Sure J		0.377	162	0.000672469	1/ 1487
total band EQ					0.000674101	1/ 1483

Table 5 – 2100MHz band Exposure Quotient at La Hambury

2.5 2600MHz band

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

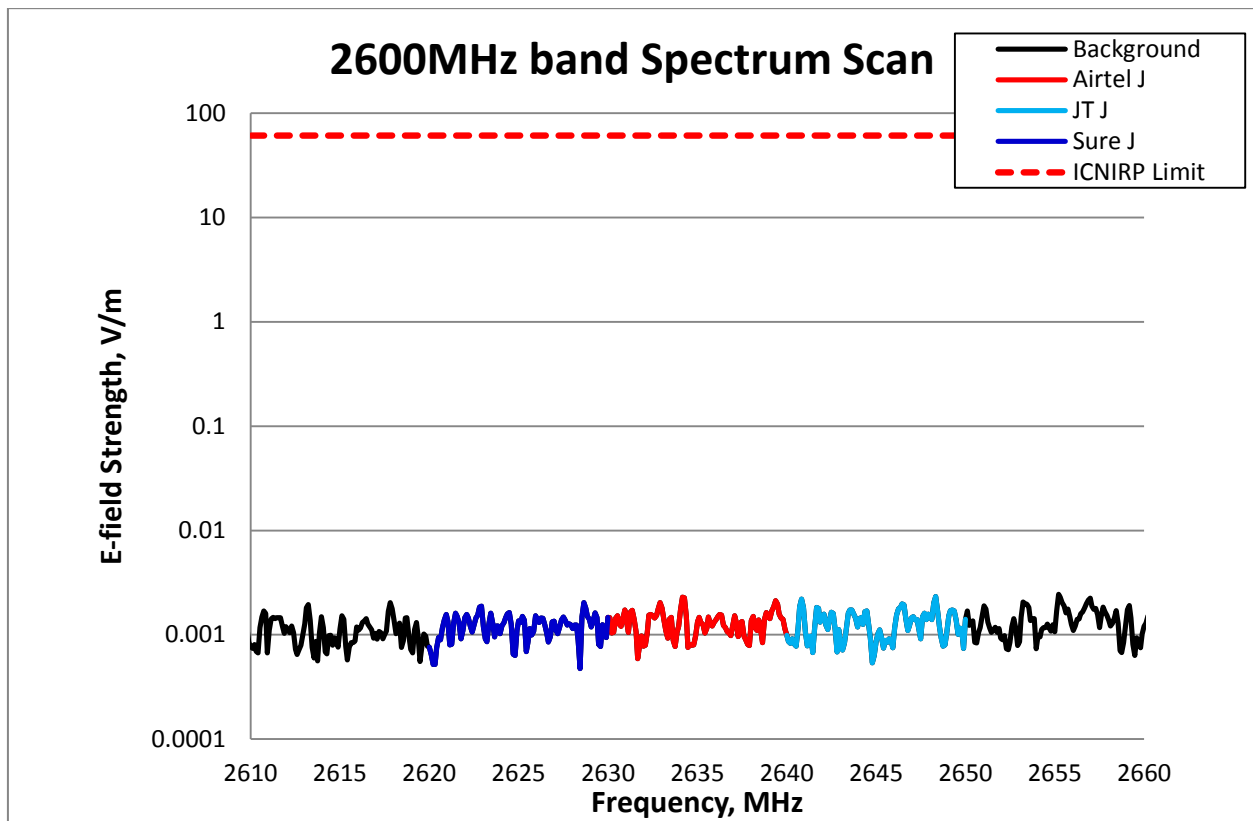


Figure 8 – 2600MHz band Spectrum Scan

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
La Hambury	Airtel J	2600	0.002296	26568	4.72392E-08	1/ 21168851
	JT J		0.002322	26270	4.61031E-08	1/ 21690517
	Sure J		0.00204	29902	4.08271E-08	1/ 24493532
total band EQ					1.34169E-07	1/ 7453263

Table 6 – 2600MHz band Exposure Quotient at La Hambury

End