

Cellular Mast Emissions Survey: Sorel Stables (Jersey)



DOCUMENT DETAILS

Document Name:	Cellular Mast Emissions Survey:	Sorel Stables (Jersey)
Survey Date:	11/06/2017 at 17:14	
Report issue Date	28/07/2017	
Survey Engineer:	Louise Sands	
Report Compiled by:	Erin Dawson	
Checked and Approved by	Bachir Belloul	
Authorised for Distribution	Ravi Mondair	

This document and any information contained therein are intended for the use of employees and customers of iWireless Solutions Limited only. No part of this document may be reproduced or transmitted to a third party in any form or means without the prior written consent of iWireless Solutions Limited

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 Sorel Stables site located in Jersey.

The Sorel Stables 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
Sorel Stables	800	0.1313	JT J	296	9.02737E-05	1/ 11077
	900	3.14	JT J	13	0.007620806	1/ 131
	1800	0.1727	JT J	338	0.00012552	1/ 7967
	2100	0.1037	JT J	588	4.86229E-05	1/ 20566
	2600	0.003737	JT J	16323	2.42735E-07	1/ 4119725
Total Site EQ					0.007885466	1/ 127

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/127 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

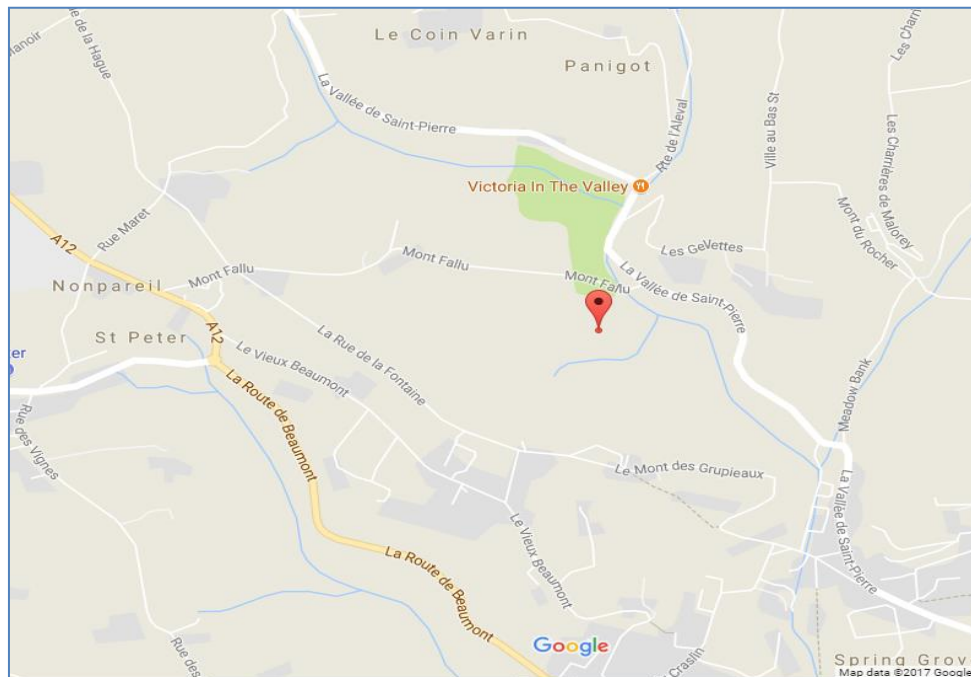


Figure 1 - Map of the Site Area

Site name	Sorel Stables
Site address	Mont Fallu, St Peter, Jersey
Site Latitude	49.20763
Site Longitude	-2.16227

1.2 Site Description

Operators	JT J
Antenna types	Directional
Approximate height	15m
Site type	Pole Mast
Description	The antennas at the Sorel Stables are located in the side 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.

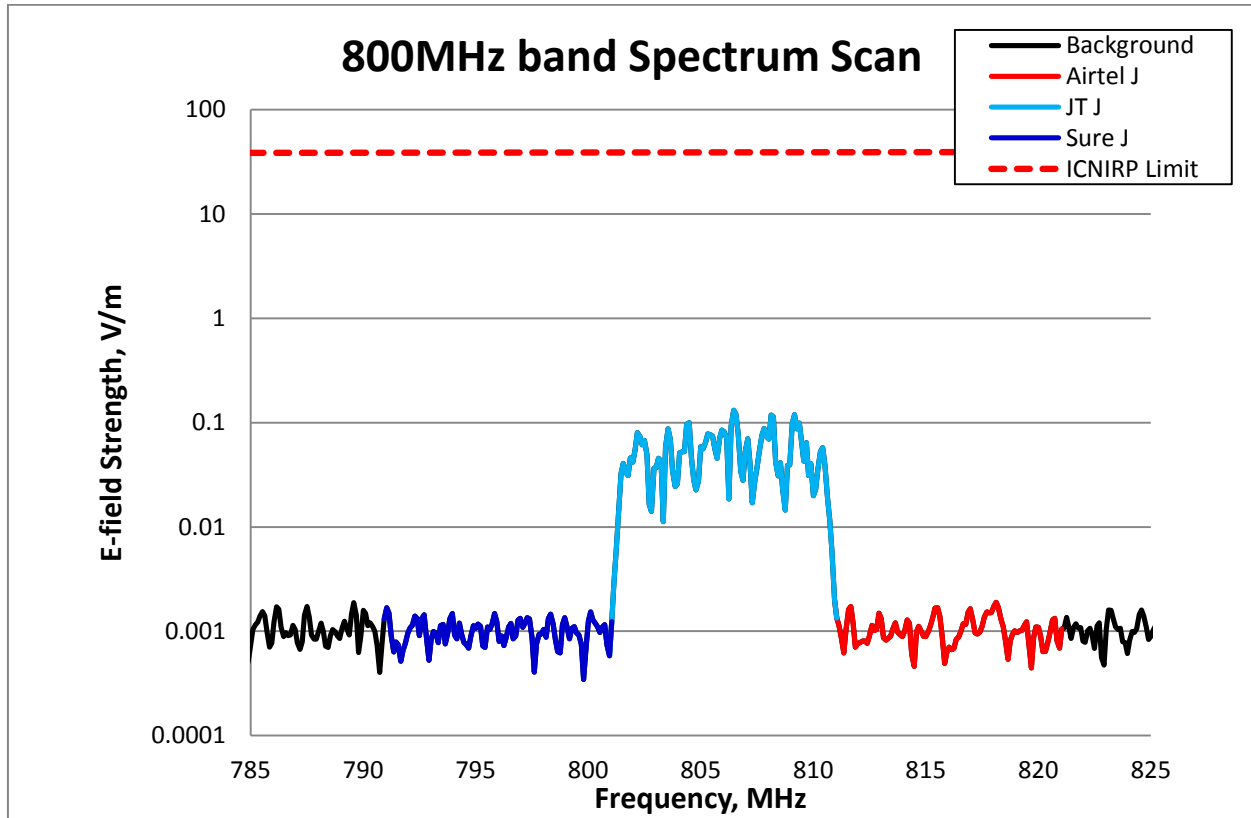


Figure 4 - 800MHz band Spectrum Scan

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 0.1313 V/m (JT J), which is 296 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
Sorel Stables	Airtel J	800	0.002004	19407	3.20962E-08	1/ 31156295
	JT J		0.1313	296	9.02129E-05	1/ 11085
	Sure J		0.001678	23177	2.87176E-08	1/ 34821854
total band EQ					9.02737E-05	1/ 11077

Table 2– 800MHz band Exposure Quotient at Sorel Stables

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

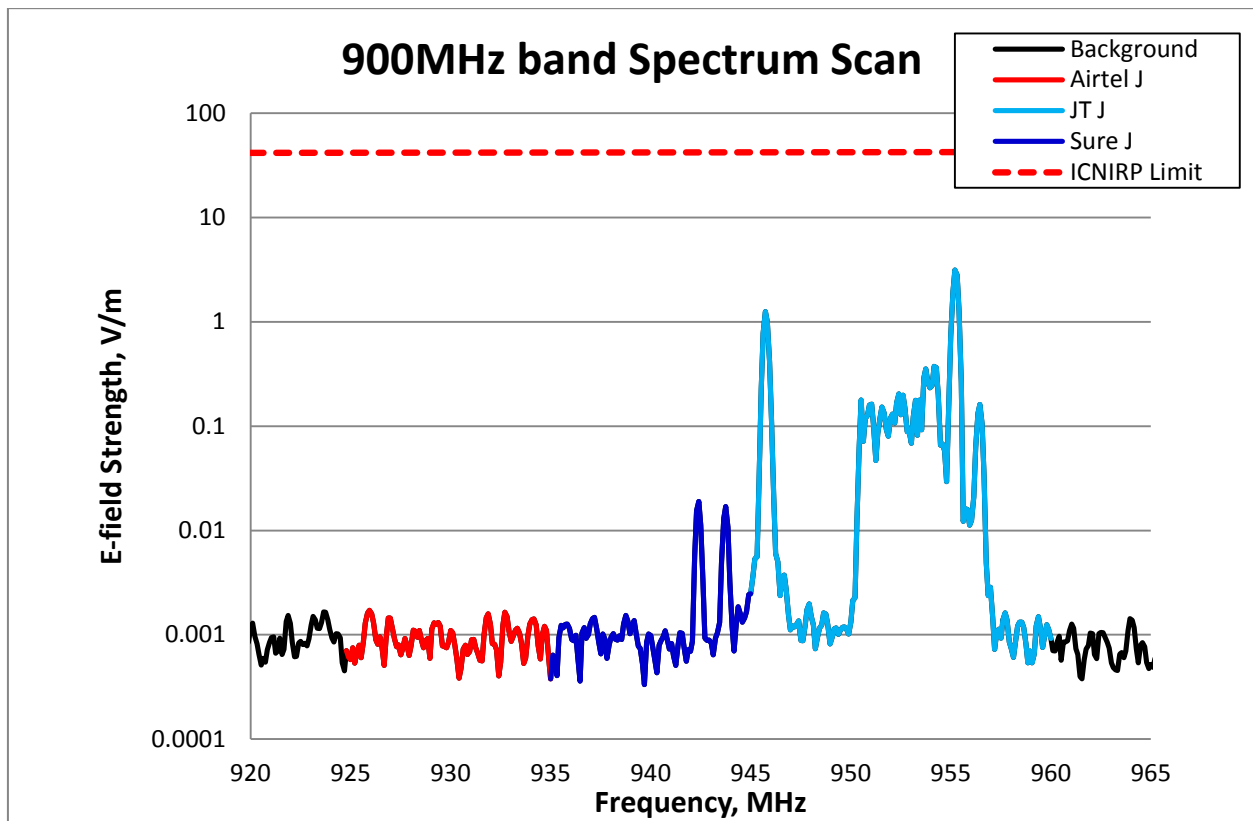


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 3.14 V/m (JT J), which is 13 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
Sorel Stables	Airtel J	900	0.00172	23983	2.52484E-08	1/ 39606487
	JT J		3.14	13	0.007620386	1/ 131
	Sure J		0.01897	2174	3.94534E-07	1/ 2534633
	total band EQ			0.007620806	1/ 131	

Table 3– 900MHz band Exposure Quotient at Sorel Stables

2.3 1800 MHz Band

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

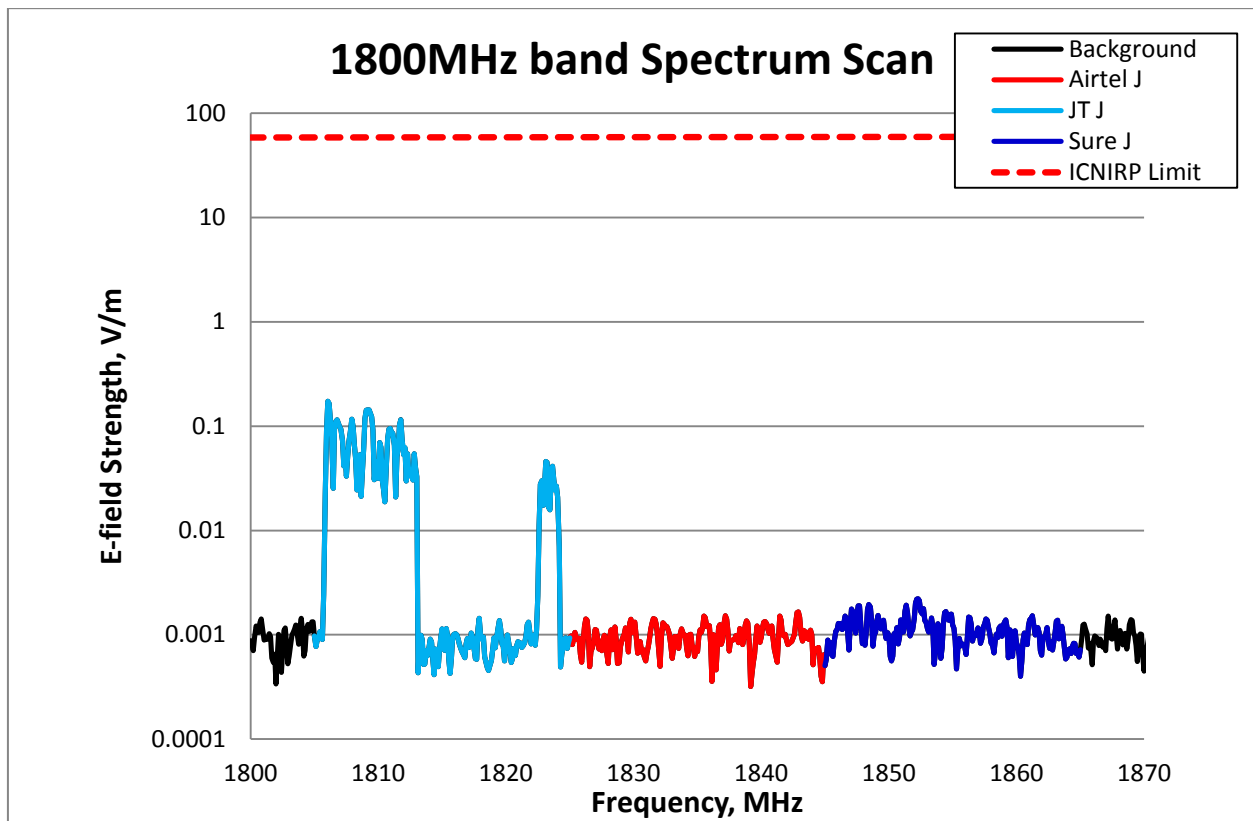


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1727 V/m (JT J), which is 338 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
Sorel Stables	Airtel J	1800	0.001659	35164	5.01746E-08	1/ 19930412
	JT J		0.1727	338	0.000125402	1/ 7974
	Sure J		0.002213	26361	6.86857E-08	1/ 14559069
	total band EQ			0.00012552	1/ 7967	

Table 4 – 1800MHz band Exposure Quotient at Sorel Stables

2.4 2100MHz Band

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

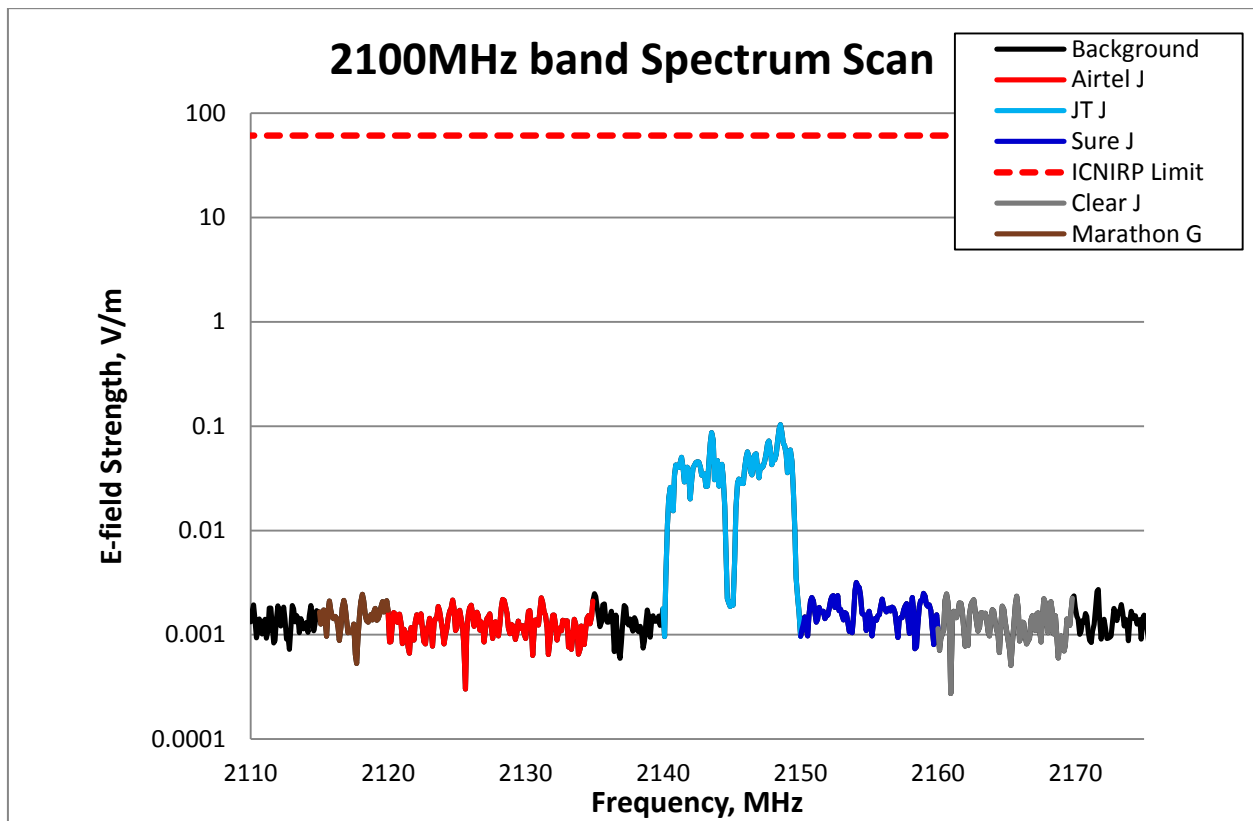


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.1037 V/m (JT J), which is 588 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
Sorel Stables	Airtel J	2100	0.002254	27063	6.83305E-08	1/ 14634751
	Clear J		0.002464	24756	5.11041E-08	1/ 19567905
	JT J		0.1037	588	4.83942E-05	1/ 20664
	Marathon J		0.002444	24959	3.18411E-08	1/ 31405966
	Sure J		0.003169	19249	7.74503E-08	1/ 12911508
total band EQ					4.86229E-05	1/ 20566

Table 5 – 2100MHz band Exposure Quotient at Sorel Stables

2.5 2600MHz band

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

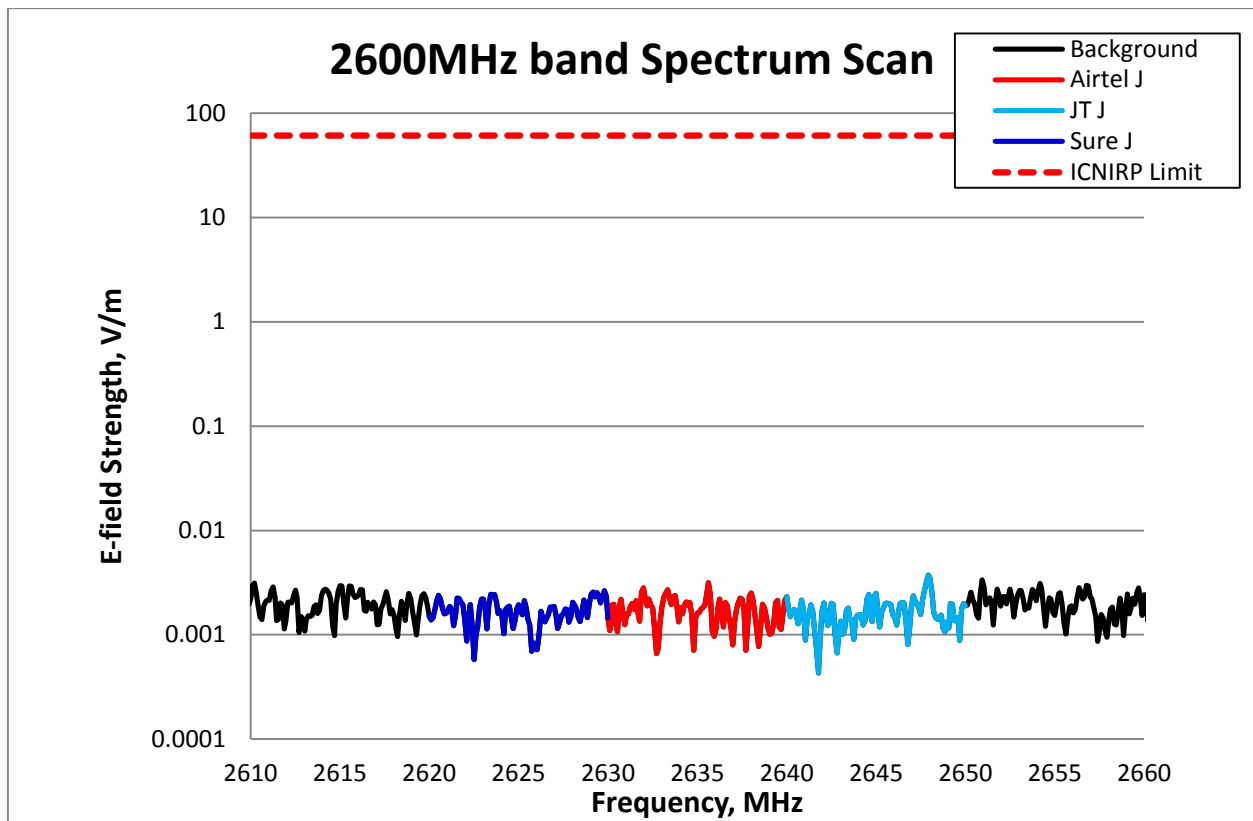


Figure 8 – 2600MHz band Spectrum Scan

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
Sorel Stables	Airtel J	2600	0.003152	19353	8.39956E-08	1/ 11905380
	JT J		0.003737	16323	7.8655E-08	1/ 12713749
	Sure J		0.002633	23167	8.0084E-08	1/ 12486893
total band EQ					2.42735E-07	1/ 4119725

Table 6 – 2600MHz band Exposure Quotient at Sorel Stables

End