

Cellular Mast Emissions Survey: Boulivot (Jersey)



DOCUMENT DETAILS

Document Name:	Cellular Mast Emissions Survey:	Boulivot (Jersey)
Survey Date:	08/06/2017 at 15:03	
Report issue Date	14/07/2017	
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 Boulivot site located in Jersey.

Boulivot 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
Boulivot	800	0.007356	Airtel J	5287	6.33531E-07	1/ 1578454
	900	2.85	JT J	14	0.007649667	1/ 131
	1800	0.1625	JT J	359	0.000179921	1/ 5558
	2100	0.3234	JT J	189	0.000743237	1/ 1345
	2600	0.004129	Airtel J	14774	3.51607E-07	1/ 2844085
Total Site EQ					0.008573809	1/ 117

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/117 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.

1.3 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.

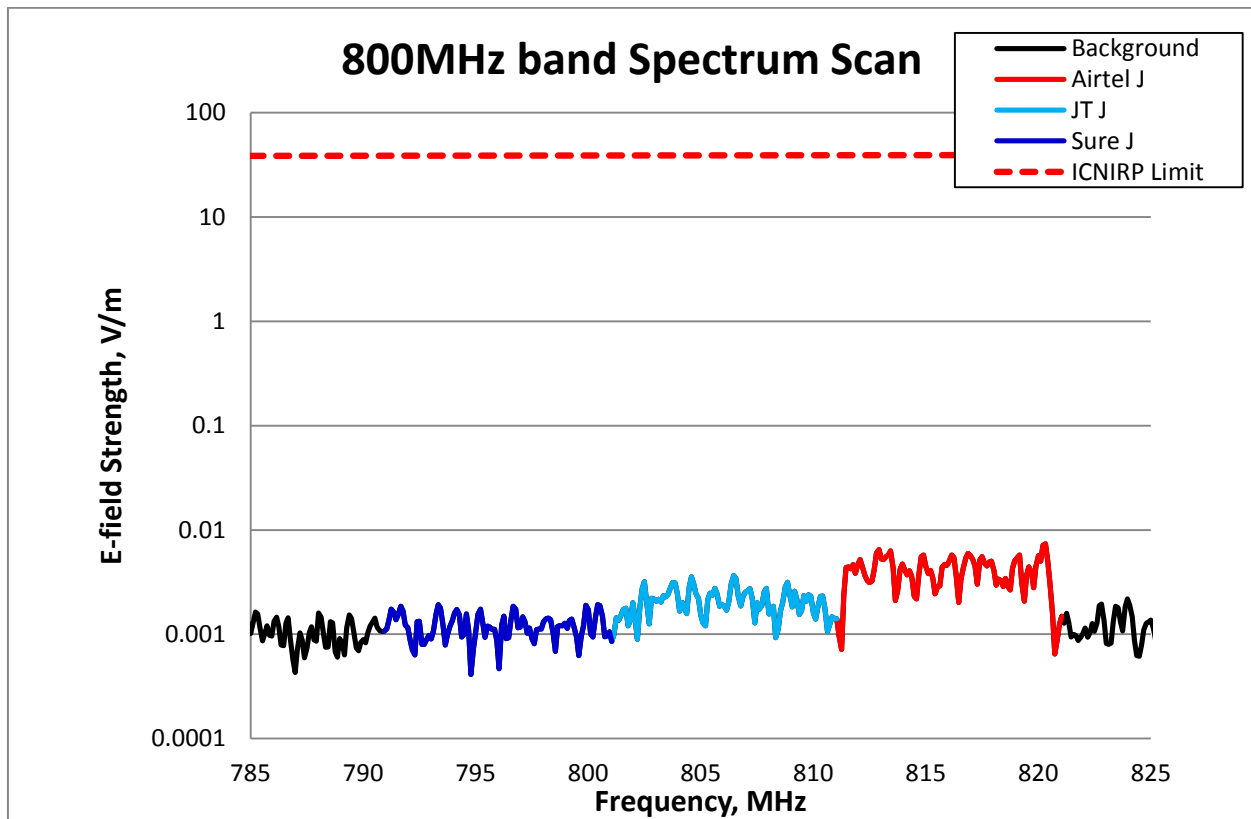


Figure 4 - 800MHz band Spectrum Scan

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 activity was recorded in the 800MHz as no operator appears to transmit in this band at this site.

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
Boulivot	Airtel J	800	0.007356	5287	4.72688E-07	1/ 2115562
	JT J		0.003666	10609	1.19107E-07	1/ 8395819
	Sure J		0.001925	20203	4.17365E-08	1/ 23959827
total band EQ					6.33531E-07	1/ 1578454

Table 2– 800MHz band Exposure Quotient at Boulivot

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

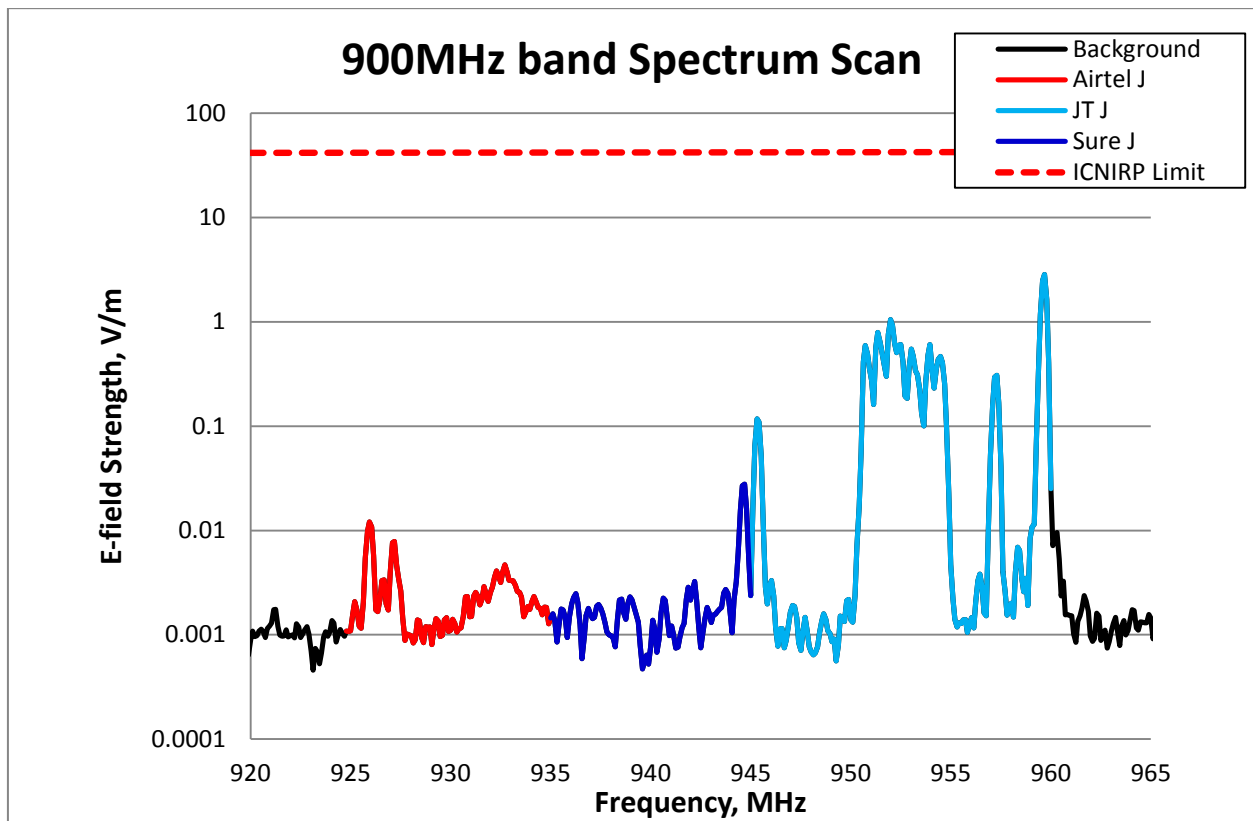


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 2.85 V/m (JT J), which is 14 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
Boulivot	Airtel J	900	0.01208	3415	2.64286E-07	1/ 3783777
	JT J		2.85	14	0.007648777	1/ 131
	Sure J		0.02782	1483	6.25368E-07	1/ 1599058
total band EQ					0.007649667	1/ 131

Table 3– 900MHz band Exposure Quotient at Boulivot

2.3 1800 MHz Band

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

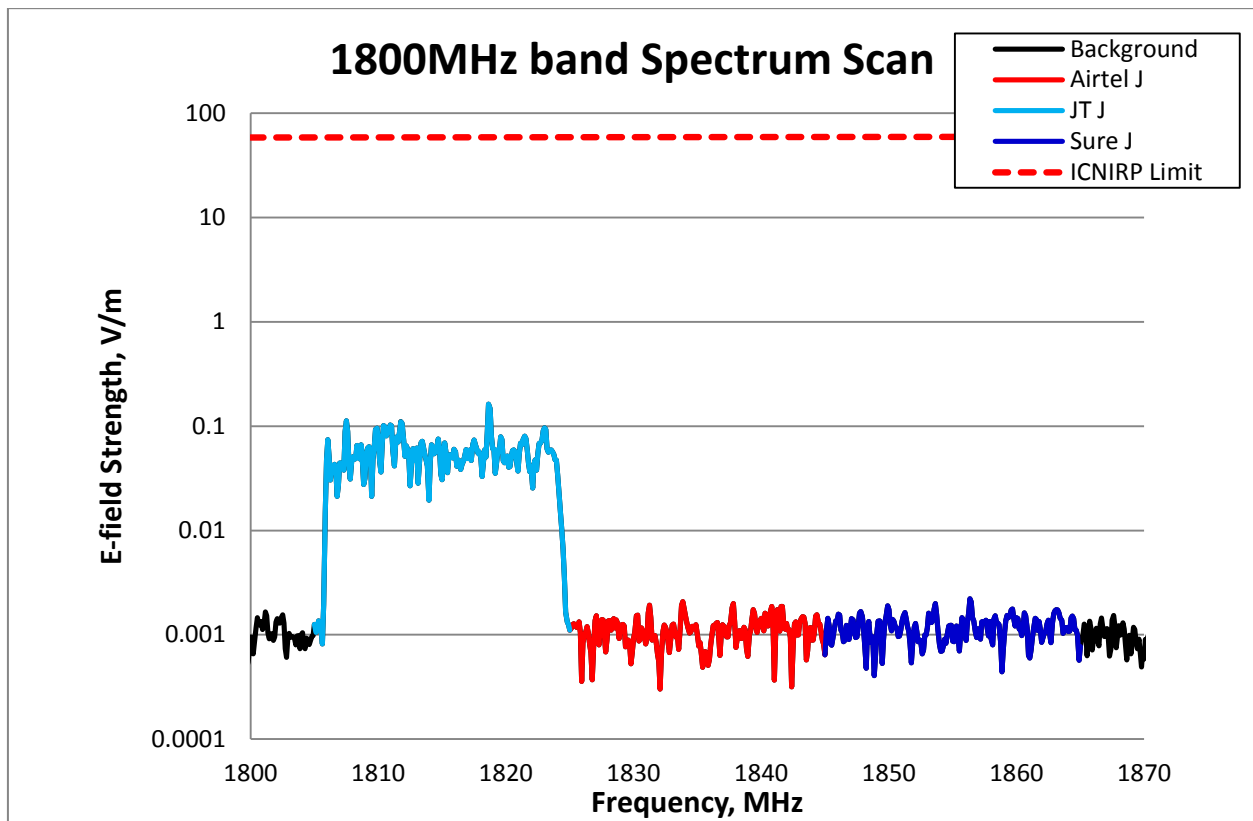


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1625 V/m (JT J), which is 359 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
Boulivot	Airtel J	1800	0.002076	28100	6.95718E-08	1/ 14373639
	JT J		0.1625	359	0.000179775	1/ 5563
	Sure J		0.00222	26278	7.64664E-08	1/ 13077633
	total band EQ			0.000179921	1/ 5558	

Table 4 – 1800MHz band Exposure Quotient at Boulivot

2.4 2100MHz Band

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

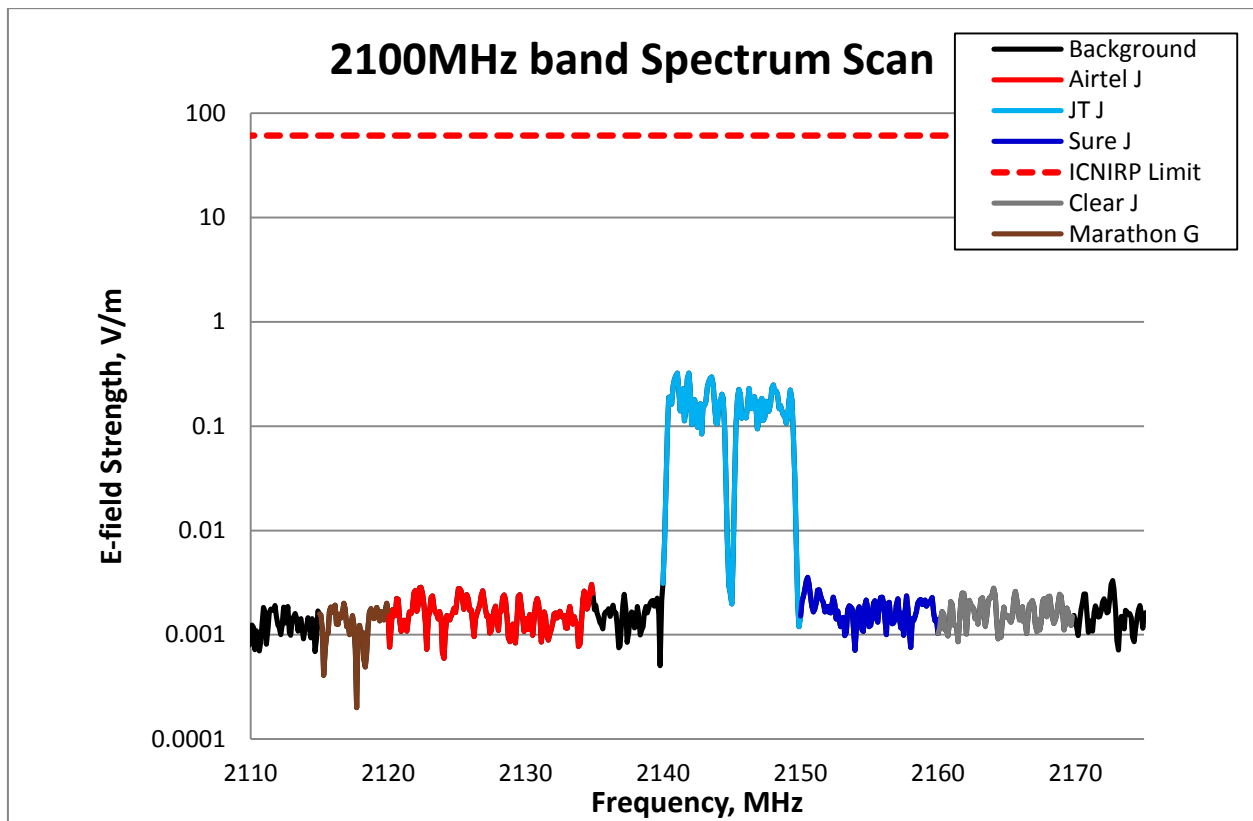


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.3234 V/m (JT J), which is 189 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
Boulivot	Airtel J	2100	0.00305	20000	1.13895E-07	1/ 8780051
	Clear J		0.002789	21872	7.48715E-08	1/ 13356220
	JT J		0.3234	189	0.000742933	1/ 1346
	Marathon J		0.002009	30363	2.59831E-08	1/ 38486502
	Sure J		0.003561	17130	8.85735E-08	1/ 11290060
total band EQ					0.000743237	1/ 1345

Table 5 – 2100MHz band Exposure Quotient at Boulivot

2.5 2600MHz band

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

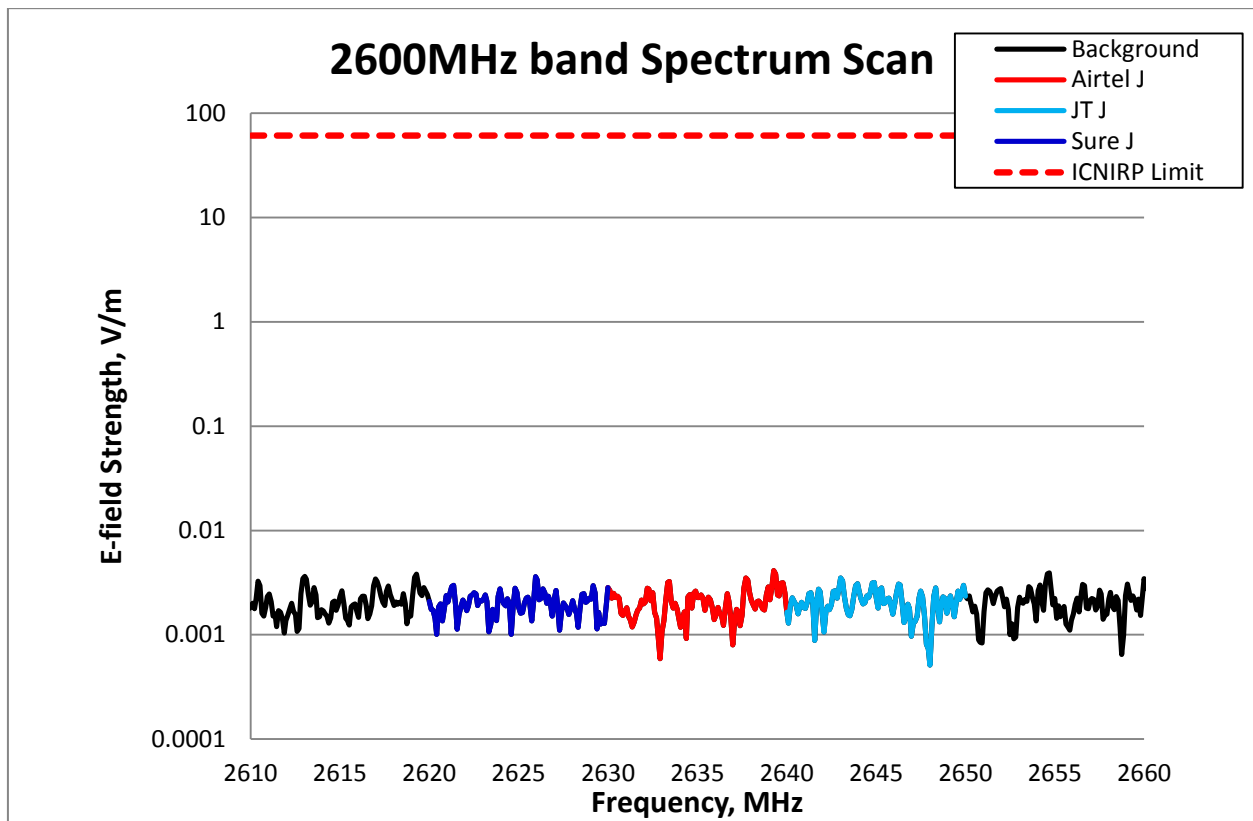


Figure 8 – 2600MHz band Spectrum Scan

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
Boulivot	Airtel J	2600	0.004129	14774	1.19656E-07	1/ 8357310
	JT J		0.003507	17394	1.2075E-07	1/ 8281556
	Sure J		0.003615	16874	1.11201E-07	1/ 8992726
total band EQ					3.51607E-07	1/ 2844085

Table 6 – 2600MHz band Exposure Quotient at Boulivot

End