Cellular Mast Emissions Survey: Biltmore Farms (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 Biltmore Farms site located in Jersey.

The Biltmore Farms site was used by a single operator at the time of the survey: Airtel 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
Biltmore Farms	800	0.004682	Sure J	8306	1.12724E-07	1/ 8871236
	900	0.5536	Airtel J	75	0.00025519	1/ 3919
	1800	0.001874	Sure J	31129	6.61218E-08	1/ 15123607
	2100	0.001725	Clear J	35362	1.2046E-07	1/ 8301523
	2600	0.002024	Airtel J	30138	1.08656E-07	1/ 9203376
				Total Site EQ	0.000255598	1/ 3912

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/3912 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	Biltmore Farms
Site address	Field 101, La Rue du Douet, St Lawrence, Jersey
Site Latitude	N 49.23032
Site Longitude	W 02.14911

1.2 Site Description

Operators	Airtel J
Antenna types	Directional
Approximate height	18m
Site type	Pole mast
Description	The pole mast at Biltmore Farms is located at the entrance of the site, out of reach of the public

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.

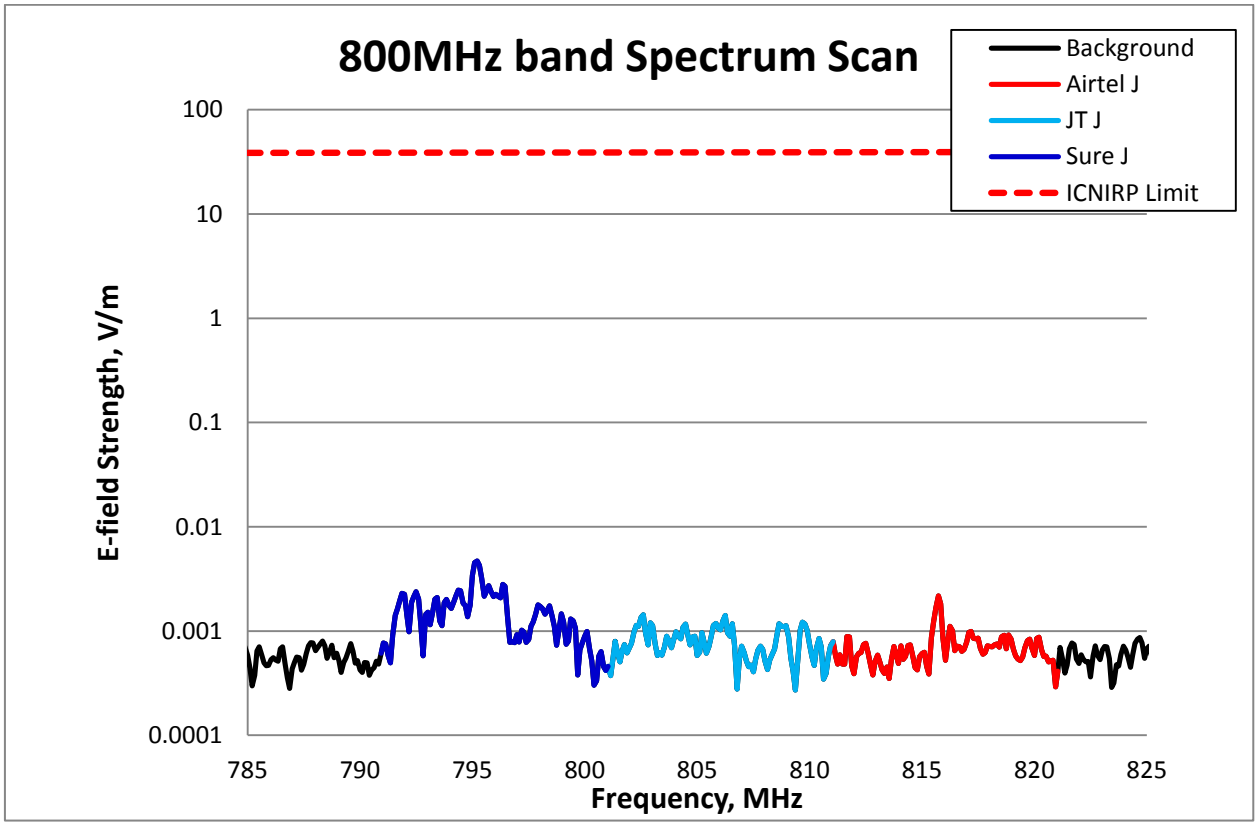

Figure 4 - 800MHz band Spectrum Scan

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.

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
Biltmore Farms	Airtel J	800	0.002165	17963	1.46544E-08	1/ 68239021
	JT J		0.001434	27121	1.80273E-08	1/ 55471571
	Sure J		0.004682	8306	8.00422E-08	1/ 12493404
				total band EQ	1.12724E-07	1/ 8871236

Table 2– 800MHz band Exposure Quotient at Biltmore Farms

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

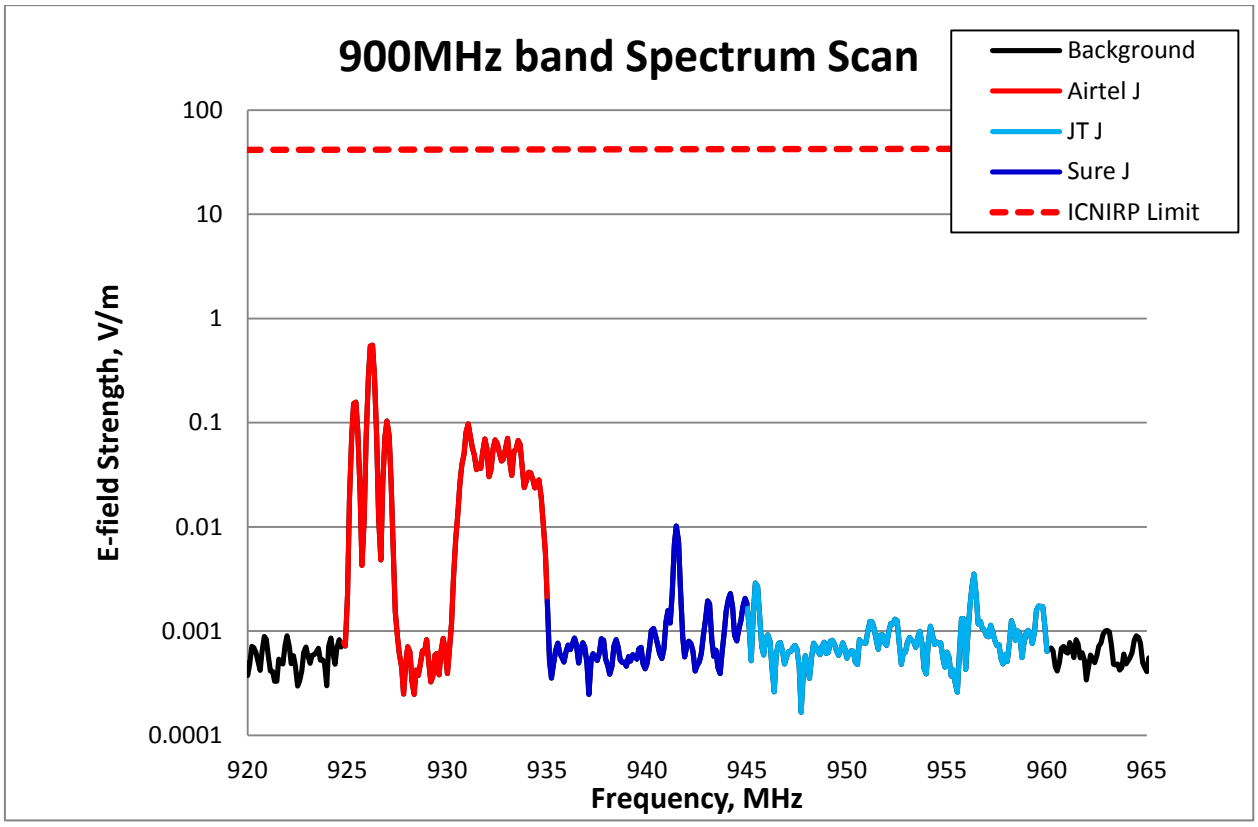

Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.5536 V/m (Airtel J), which is 75 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
Biltmore Farms	Airtel J	900	0.5536	75	0.000255072	1/ 3920
	JT J		0.003529	11689	3.91745E-08	1/ 25526808
	Sure J		0.0102	4044	7.90967E-08	1/ 12642752
				total band EQ	0.00025519	1/ 3919

Table 3– 900MHz band Exposure Quotient at Biltmore Farms

2.3 1800 MHz Band

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

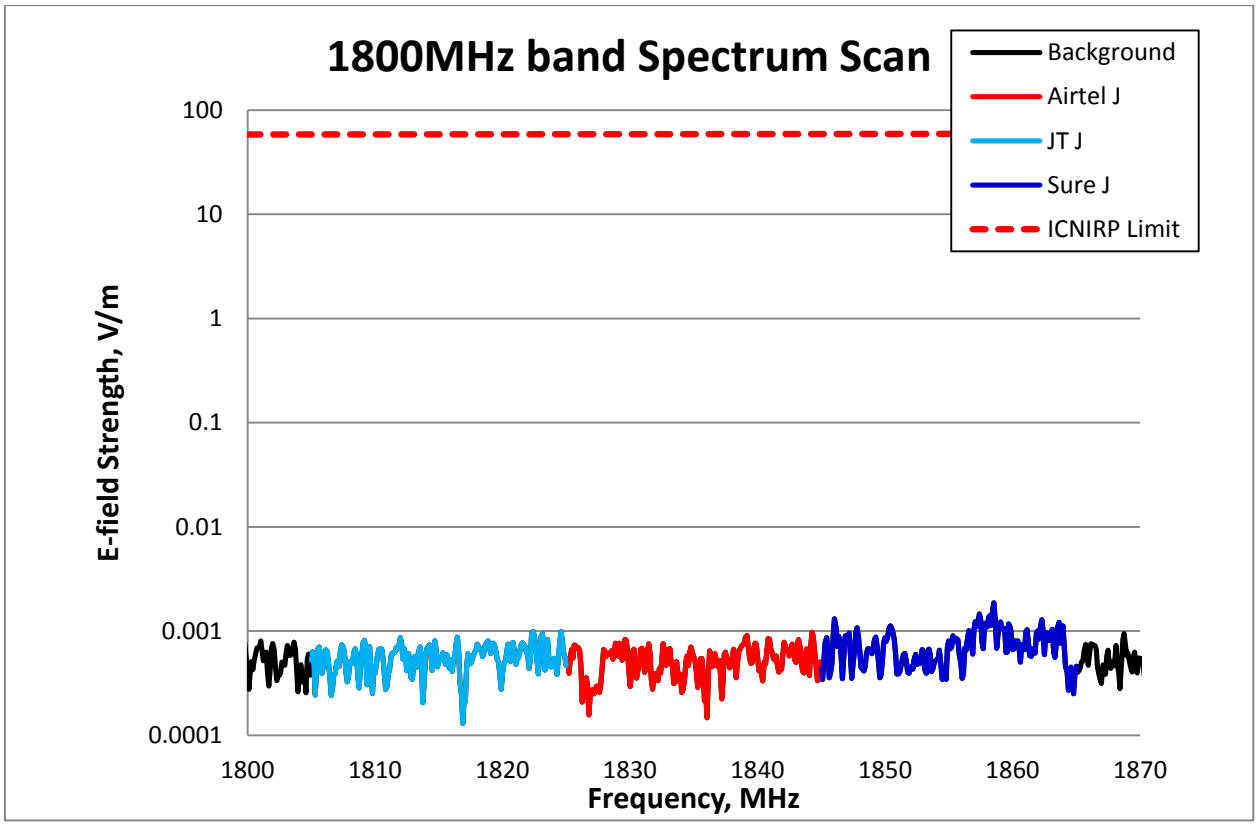

Figure 6 - 1800MHz Spectrum Scan

No activity was recorded in the 1800MHz as no operator appears to transmit in this band at this site.

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
Biltmore Farms	Airtel J	1800	0.0009775	59679	1.57798E-08	1/ 63372083
	JT J		0.0009954	58606	1.79101E-08	1/ 55834423
	Sure J		0.001874	31129	3.24319E-08	1/ 30833861
				total band EQ	6.61218E-08	1/ 15123607

Table 4 – 1800MHz band Exposure Quotient at Biltmore Farms

2.4 2100MHz Band

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

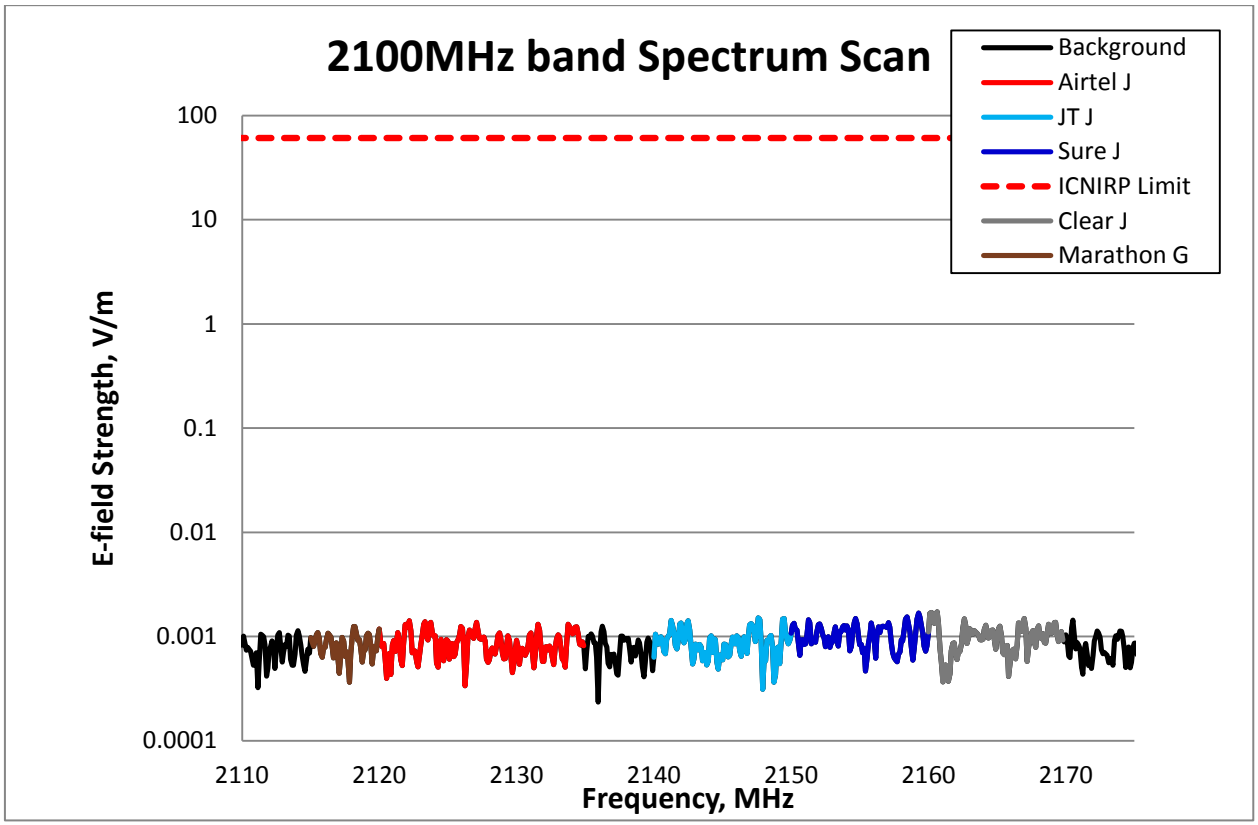

Figure 7 – 2100MHz band Spectrum Scan

No activity was recorded in the 2100MHz as no operator appears to transmit in this band at this site.

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
Biltmore Farms	Airtel J	2100	0.001419	42988	3.09117E-08	1/ 32350233
	Clear J		0.001725	35362	2.75664E-08	1/ 36276109
	JT J		0.001509	40424	2.24791E-08	1/ 44485690
	Marathon J		0.001248	48878	9.92335E-09	1/ 100772407
	Sure J		0.001684	36223	2.95793E-08	1/ 33807424
				total band EQ	1.2046E-07	1/ 8301523

Table 5 – 2100MHz band Exposure Quotient at Biltmore Farms

2.5 2600MHz band

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

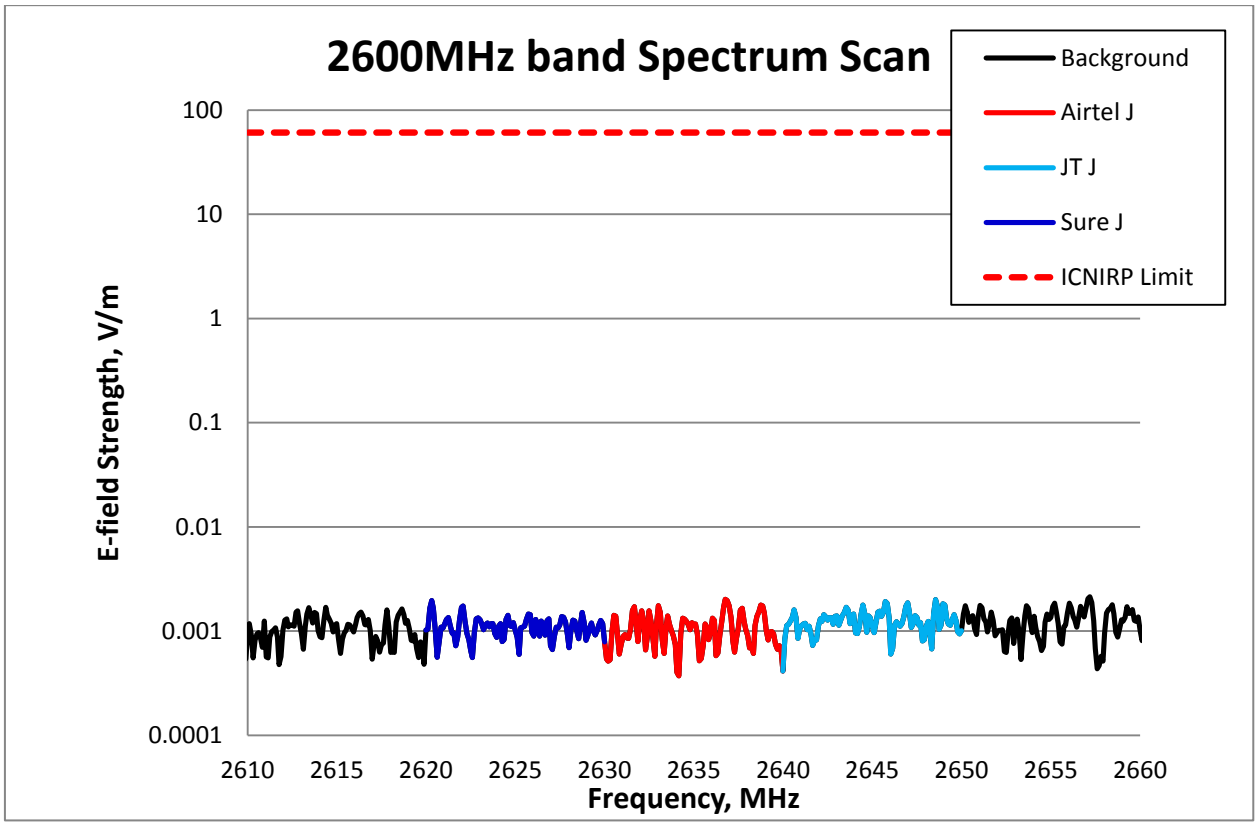

Figure 8 – 2600MHz band Spectrum Scan

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 2600MH 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
De La Mare Nursery	Airtel J	2600	0.002507	24332	4.97613E-08	1/ 20095955
	JT J		0.002462	24777	4.32744E-08	1/ 23108368
	Sure J		0.002142	28478	3.77415E-08	1/ 26496061
				total band EQ	1.30777E-07	1/ 7646600

Table 6 – 2600MHz band Exposure Quotient at Biltmore Farms

End