

Cellular Mast Emissions Survey: Avalon Park (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 the Avalon Park site located in Jersey.

The Avalon Park site was used by a single 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
Avalon Park	800	0.03927	JT J	990	9.6293E-06	1/ 103850
	900	0.5121	JT J	81	0.000448051	1/ 2232
	1800	0.002007	Airtel J	29066	1.30307E-07	1/ 7674197
	2100	0.003301	JT J	18479	1.6393E-07	1/ 6100168
	2600	0.002167	Sure J	28150	1.19125E-07	1/ 8394568
Total Site EQ					0.000458094	1/ 2183

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/2183 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	Avalon Park
Site address	La Grande Route De La Cote, Jersey
Site Latitude	N 49.16414
Site Longitude	W 02.07838

1.2 Site Description

Operators	JT J
Antenna types	Omni directional
Approximate height	12m
Site type	Monopole
Description	The monopole at the Avalon Park is located at the front of the building; access is open to 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.

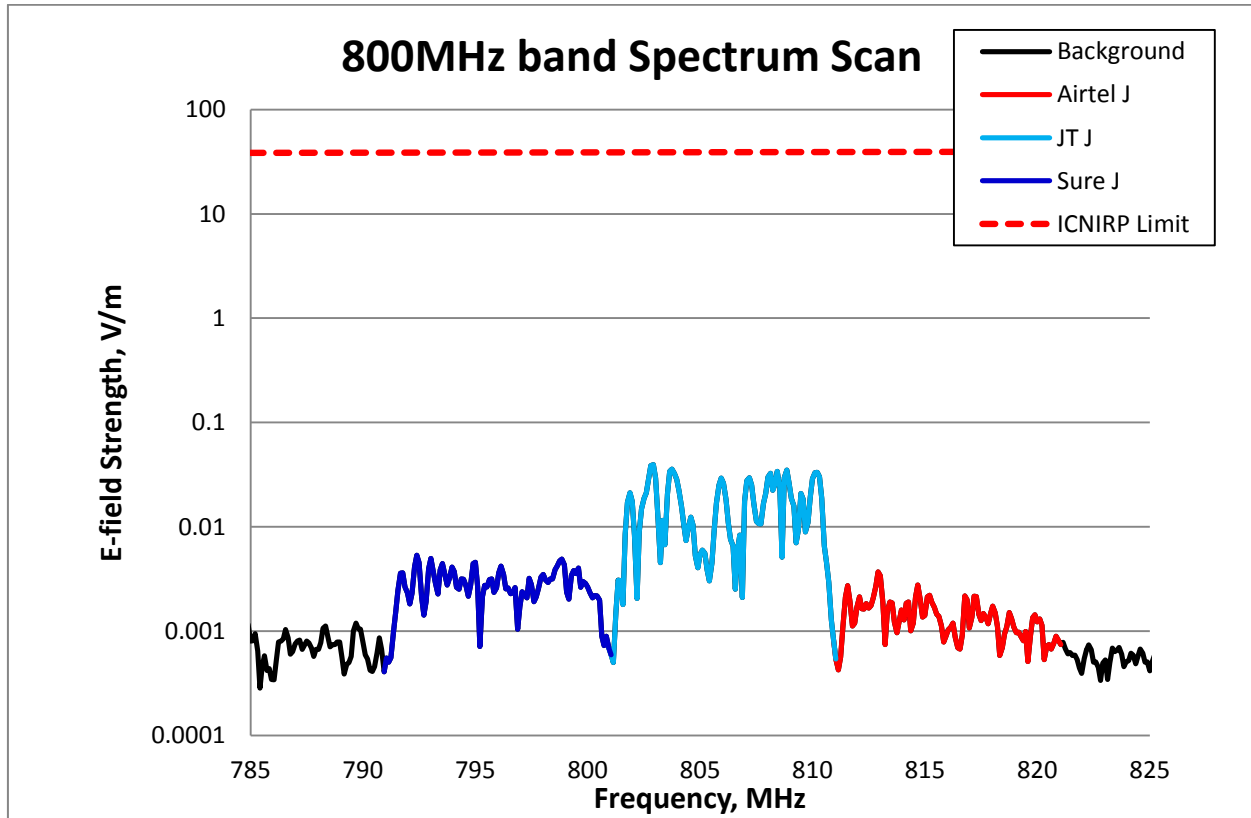


Figure 4 - 800MHz band Spectrum Scan

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 field level recorded across the band was higher than 0.03927 V/m (JT J), which is 990 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
Avalon Park	Airtel J	800	0.003681	10565	6.01574E-08	1/ 16623060
	JT J		0.03927	990	9.33982E-06	1/ 107068
	Sure J		0.005336	7288	2.29327E-07	1/ 4360585
total band EQ					9.6293E-06	1/ 103850

Table 2– 800MHz band Exposure Quotient at Avalon Park

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

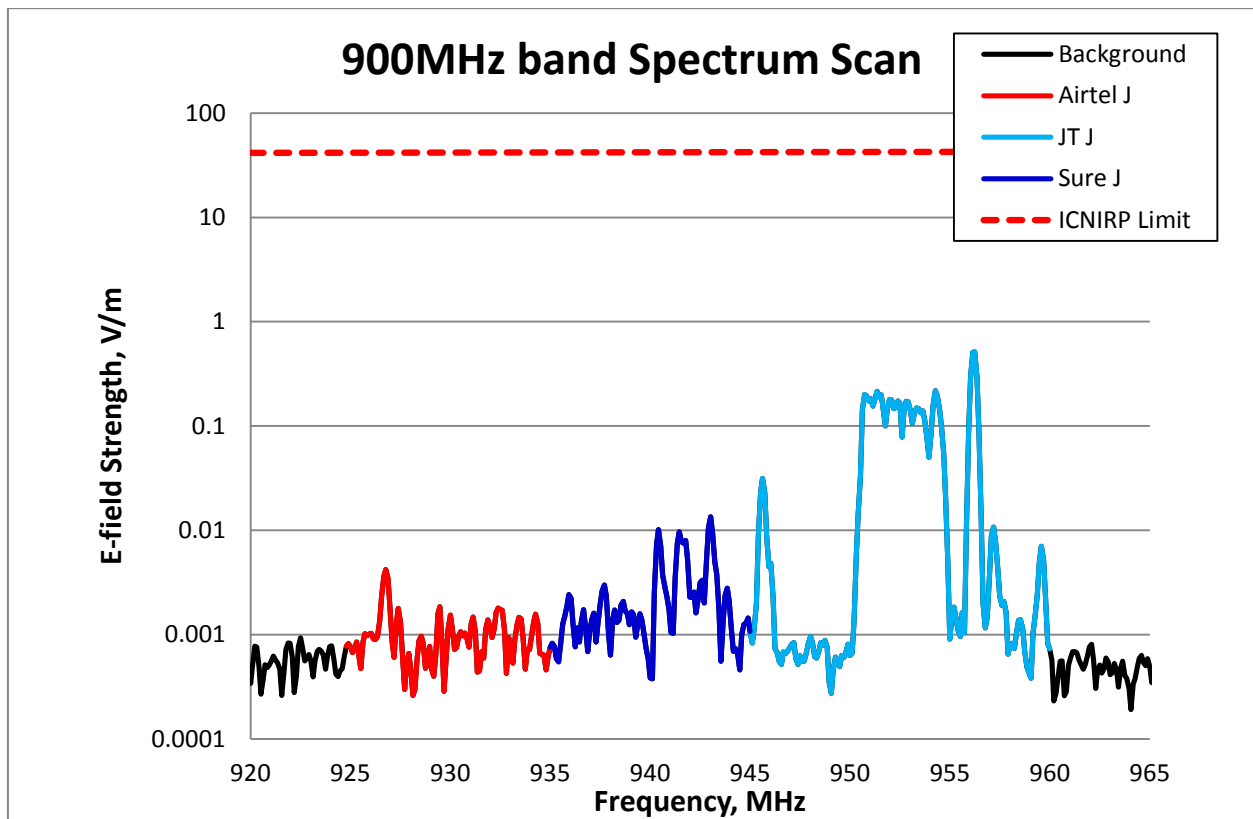


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.5121 V/m (JT J), which is 81 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
Avalon Park	Airtel J	900	0.004193	9838	3.79345E-08	1/ 26361213
	JT J		0.5121	81	0.000447678	1/ 2234
	Sure J		0.01344	3069	3.35039E-07	1/ 2984725
total band EQ					0.000448051	1/ 2232

Table 3– 900MHz band Exposure Quotient at Avalon Park

2.3 1800 MHz Band

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

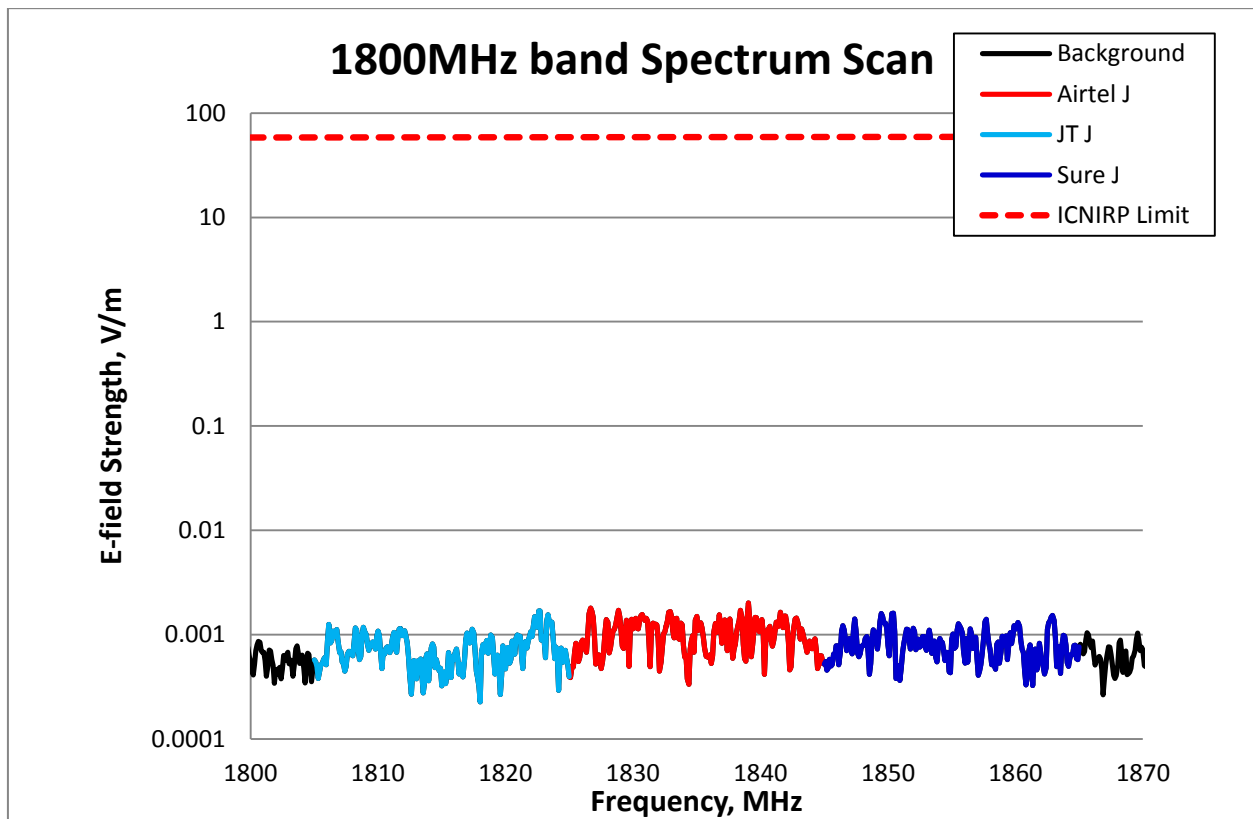


Figure 6 - 1800MHz Spectrum Scan

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
Avalon Park	Airtel J	1800	0.002007	29066	5.96044E-08	1/ 16777287
	JT J		0.001689	34539	3.18893E-08	1/ 31358515
	Sure J		0.001601	36437	3.88131E-08	1/ 25764474
total band EQ					1.30307E-07	1/ 7674197

Table 4 – 1800MHz band Exposure Quotient at Avalon Park

2.4 2100MHz Band

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

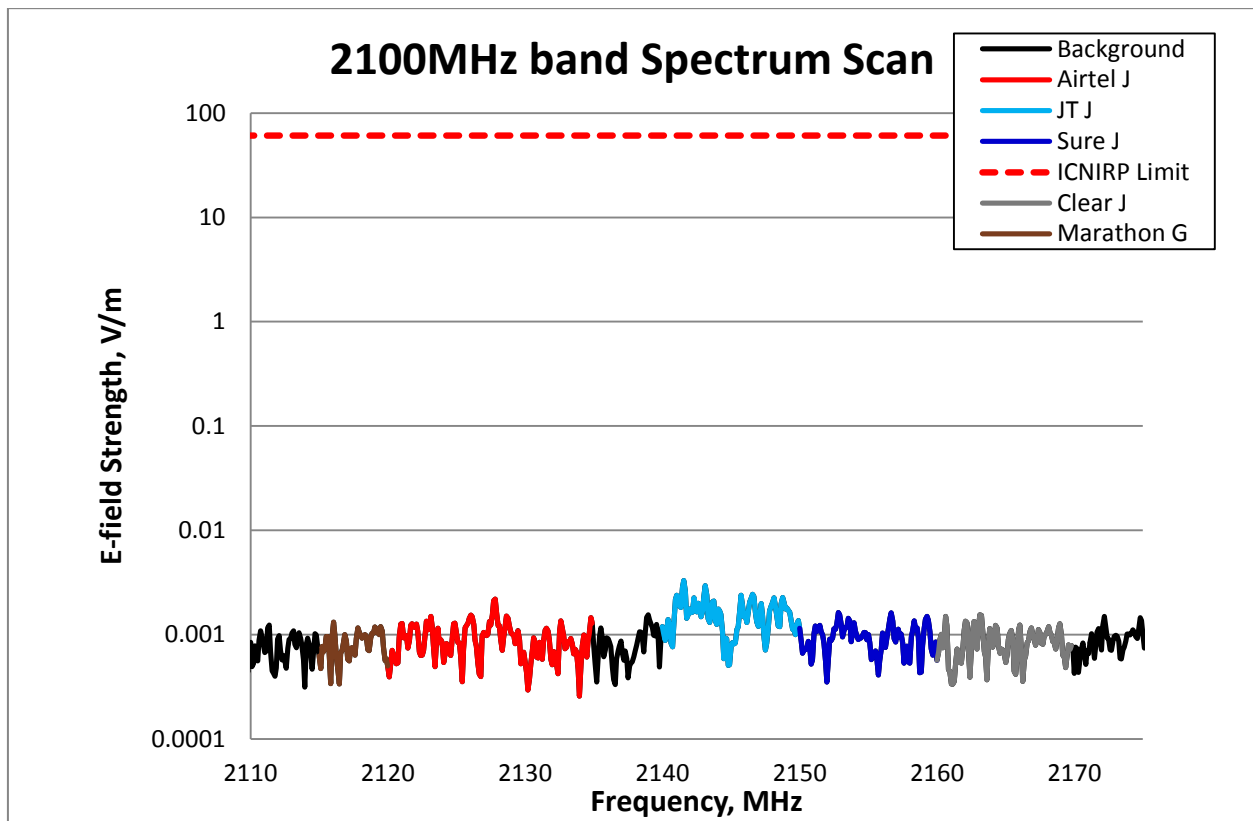


Figure 7 – 2100MHz band Spectrum Scan

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
Avalon Park	Airtel J	2100	0.002181	27969	3.62039E-08	1/ 27621360
	Clear J		0.001549	39380	2.0383E-08	1/ 49060465
	JT J		0.003301	18479	7.26095E-08	1/ 13772301
	Marathon J		0.001314	46423	9.59975E-09	1/ 104169369
	Sure J		0.001627	37492	2.51338E-08	1/ 39787106
total band EQ					1.6393E-07	1/ 6100168

Table 5 – 2100MHz band Exposure Quotient at Avalon Park

2.5 2600MHz band

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

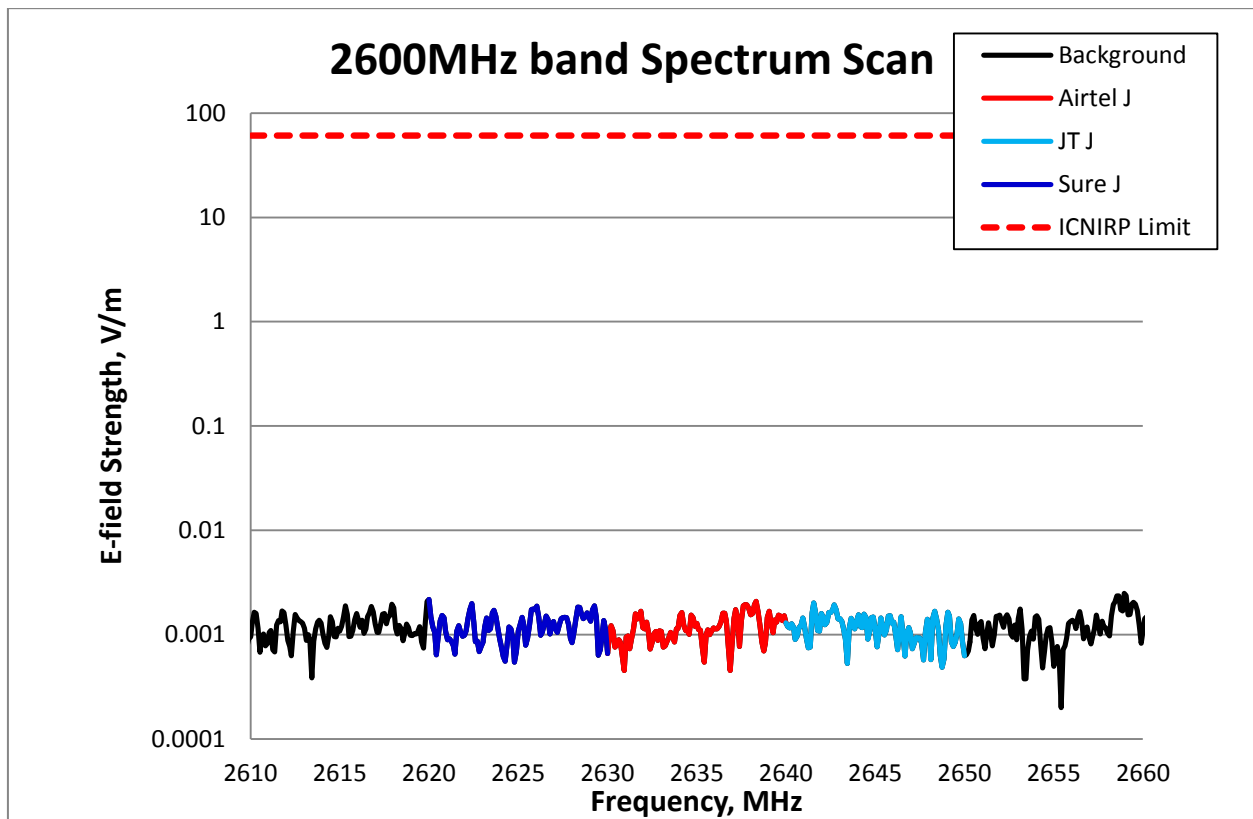


Figure 8 – 2600MHz band Spectrum Scan

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
Avalon Park	Airtel J	2600	0.002087	29229	3.94357E-08	1/ 25357717
	JT J		0.002007	30394	3.85593E-08	1/ 25934085
	Sure J		0.002167	28150	4.11296E-08	1/ 24313370
total band EQ					1.19125E-07	1/ 8394568

Table 6 – 2600MHz band Exposure Quotient at Avalon Park

End