

Cellular Mast Emissions Survey:

St Brelade Bay (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 St Brelade Bay site located in Jersey.

The St Brelade Bay 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
St Brelade Bay	800	0.09179	JT J	424	1.82818E-05	1/ 54699
	900	0.3637	JT J	113	0.000157502	1/ 6349
	1800	0.02625	JT J	2222	9.44433E-06	1/ 105884
	2100	0.06544	JT J	932	1.89947E-05	1/ 52646
	2600	0.002429	Airtel J	25113	1.26572E-07	1/ 7900659
Total Site EQ					0.000204349	1/ 4894

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/4894 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

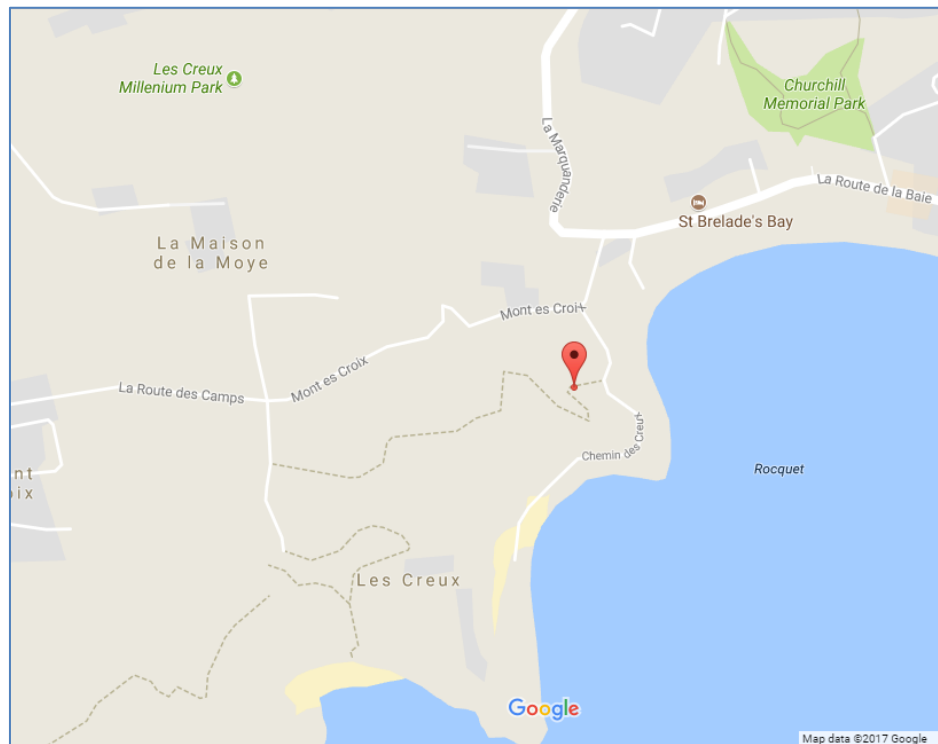


Figure 1 - Map of the Site Area

Site name	St Brelade Bay
Site address	Le Chemin des Creux, St Brelade, Jersey
Site Latitude	N 49.183
Site Longitude	W 02.2038

1.2 Site Description

Operators	JT J
Antenna types	Directional
Approximate height	20-25m
Site type	Lattice Mast
Description	The Lattice mast at the St Brelade Bay is located within a fenced enclosure, 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.

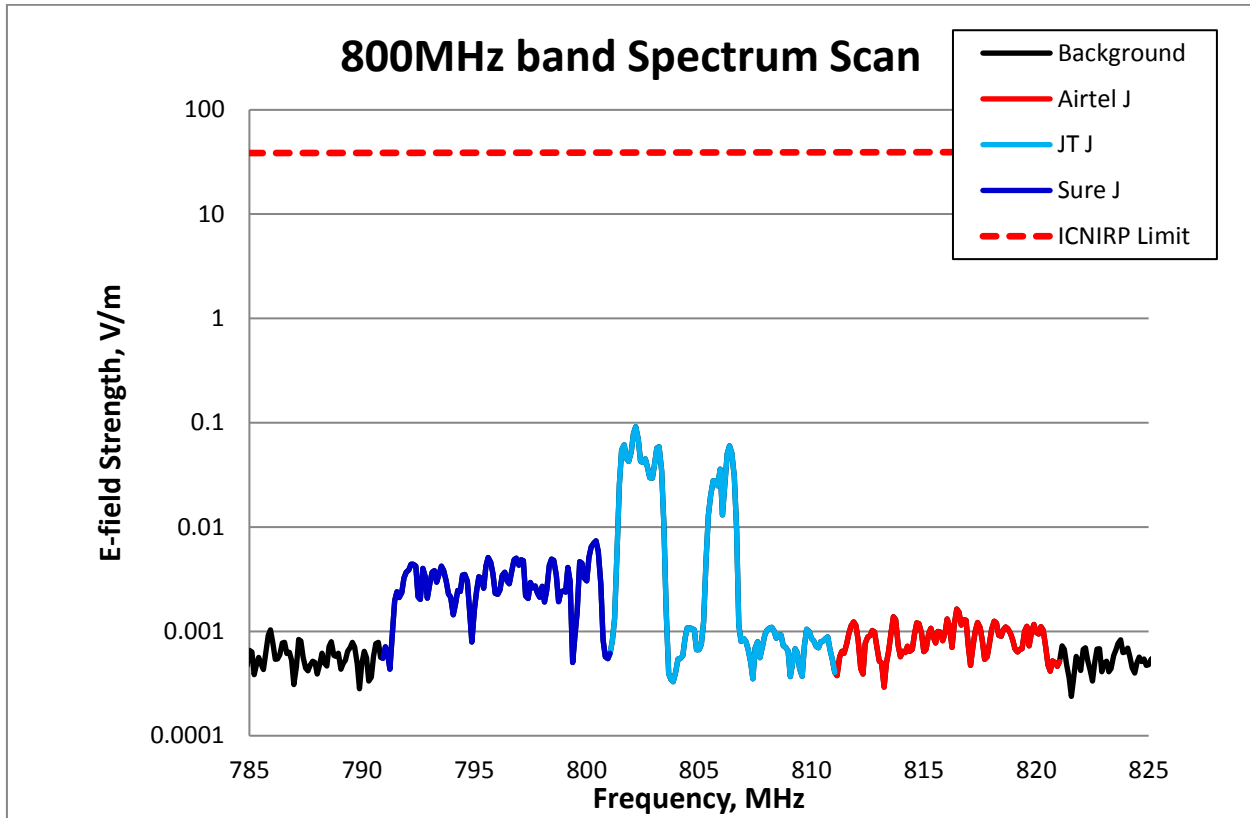


Figure 4 - 800MHz band Spectrum Scan

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 field level recorded across the band was higher than 0.09179 V/m (JT J), which is 424 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
St Brelade Bay	Airtel J	800	0.001641	23699	2.13464E-08	1/ 46846202
	JT J		0.09179	424	1.79674E-05	1/ 55656
	Sure J		0.007386	5265	2.93012E-07	1/ 3412826
total band EQ					1.82818E-05	1/ 54699

Table 2– 800MHz band Exposure Quotient at the St Brelade Bay

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

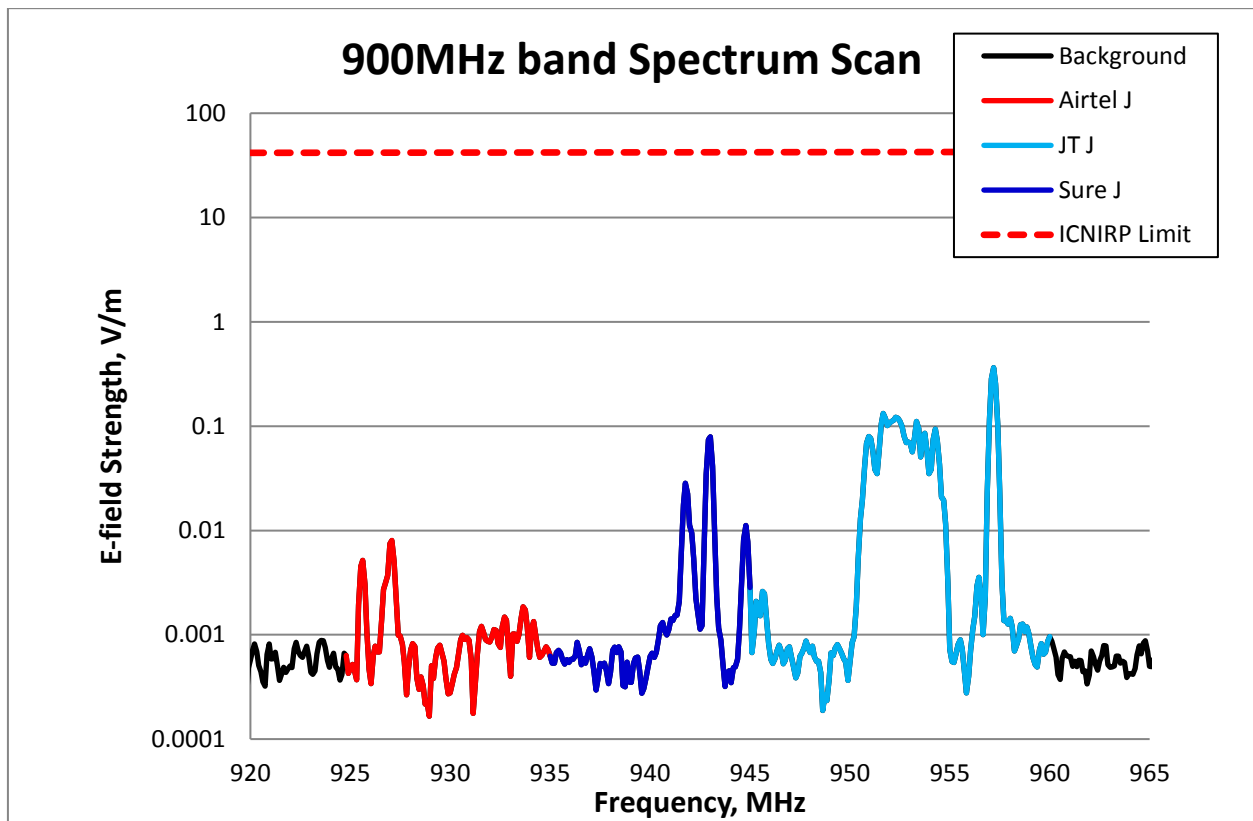


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.3637 V/m (JT J), which is 113 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 900MHz band are shown below:

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
St Brelade Bay	Airtel J	900	0.008031	5136	8.131E-08	1/ 12298613
	JT J		0.3637	113	0.000152841	1/ 6543
	Sure J		0.079	522	4.57958E-06	1/ 218361
total band EQ					0.000157502	1/ 6349

Table 3– 900MHz band Exposure Quotient at the St Brelade Bay

2.3 1800 MHz Band

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

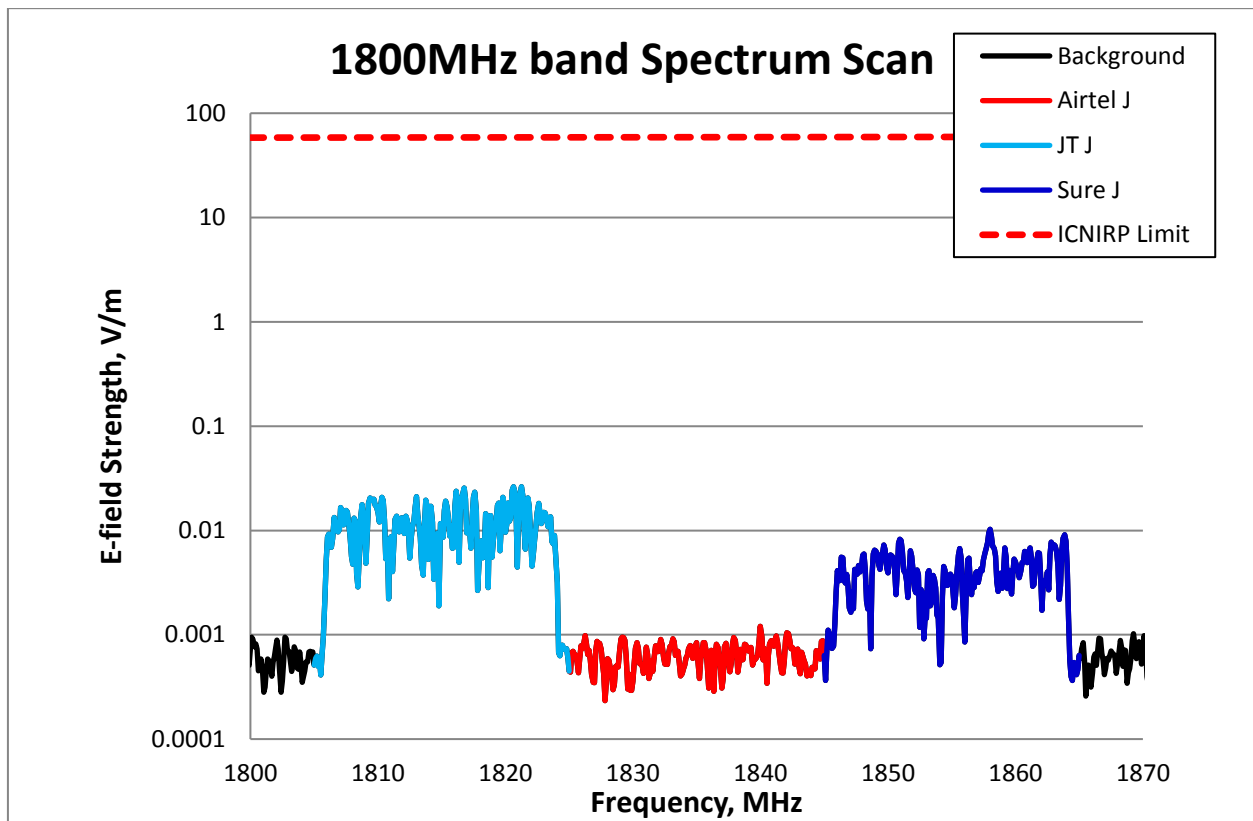


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.02625 V/m (JT J), which is 2222 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 1800MHz band are shown below:

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
St Brelade Bay	Airtel J	1800	0.001204	48452	2.25396E-08	1/ 44366445
	JT J		0.02625	2222	8.38296E-06	1/ 119290
	Sure J		0.01027	5680	1.03883E-06	1/ 962623
total band EQ					9.44433E-06	1/ 105884

Table 4 – 1800MHz band Exposure Quotient at the St Brelade Bay

2.4 2100MHz Band

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

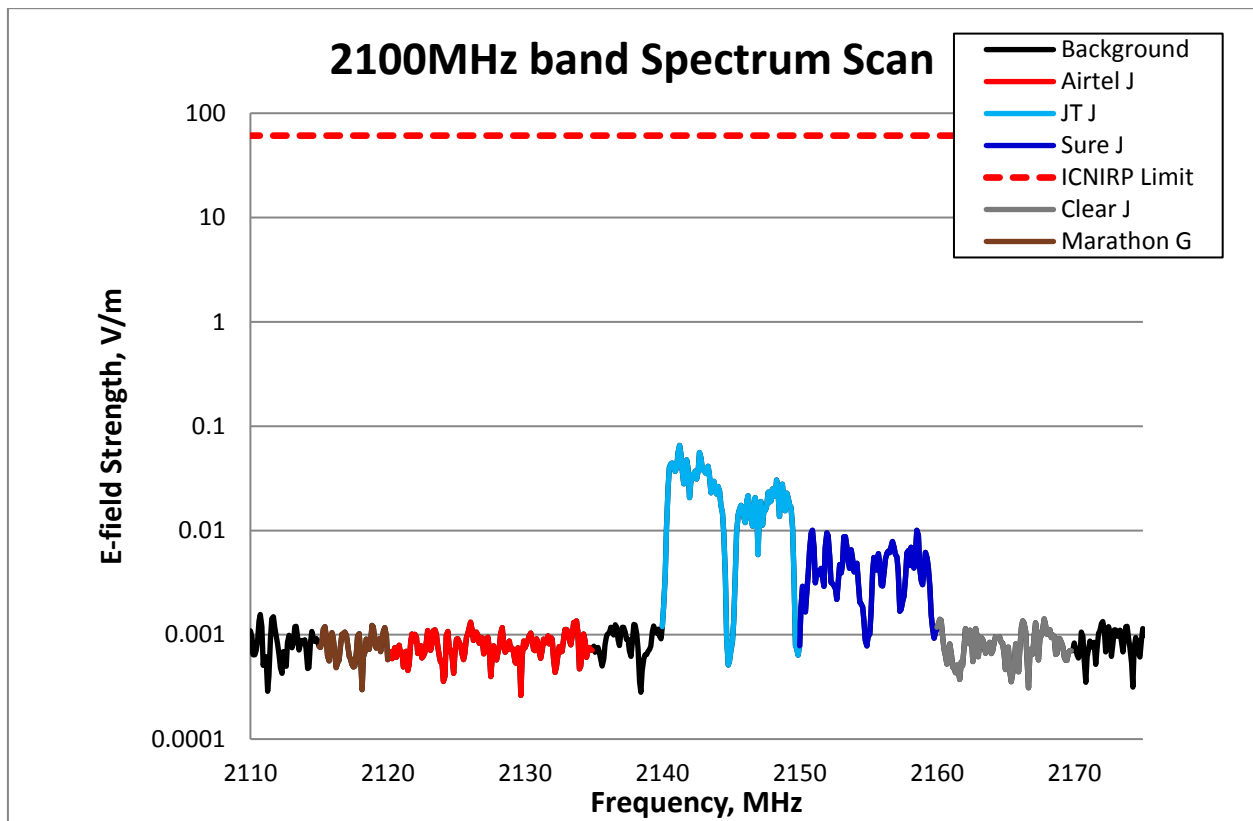


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.06544 V/m (JT J), which is 932 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 2100MHz band are shown below:

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
St Brelade Bay	Airtel J	2100	0.00136	44853	2.57934E-08	1/ 38769548
	Clear J		0.001422	42897	1.86489E-08	1/ 53622324
	JT J		0.06544	932	1.83075E-05	1/ 54622
	Marathon J		0.001227	49715	9.31048E-09	1/ 107405812
	Sure J		0.01005	6070	6.33424E-07	1/ 1578722
total band EQ					1.89947E-05	1/ 52646

Table 5 – 2100MHz band Exposure Quotient at the St Brelade Bay

2.5 2600MHz band

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

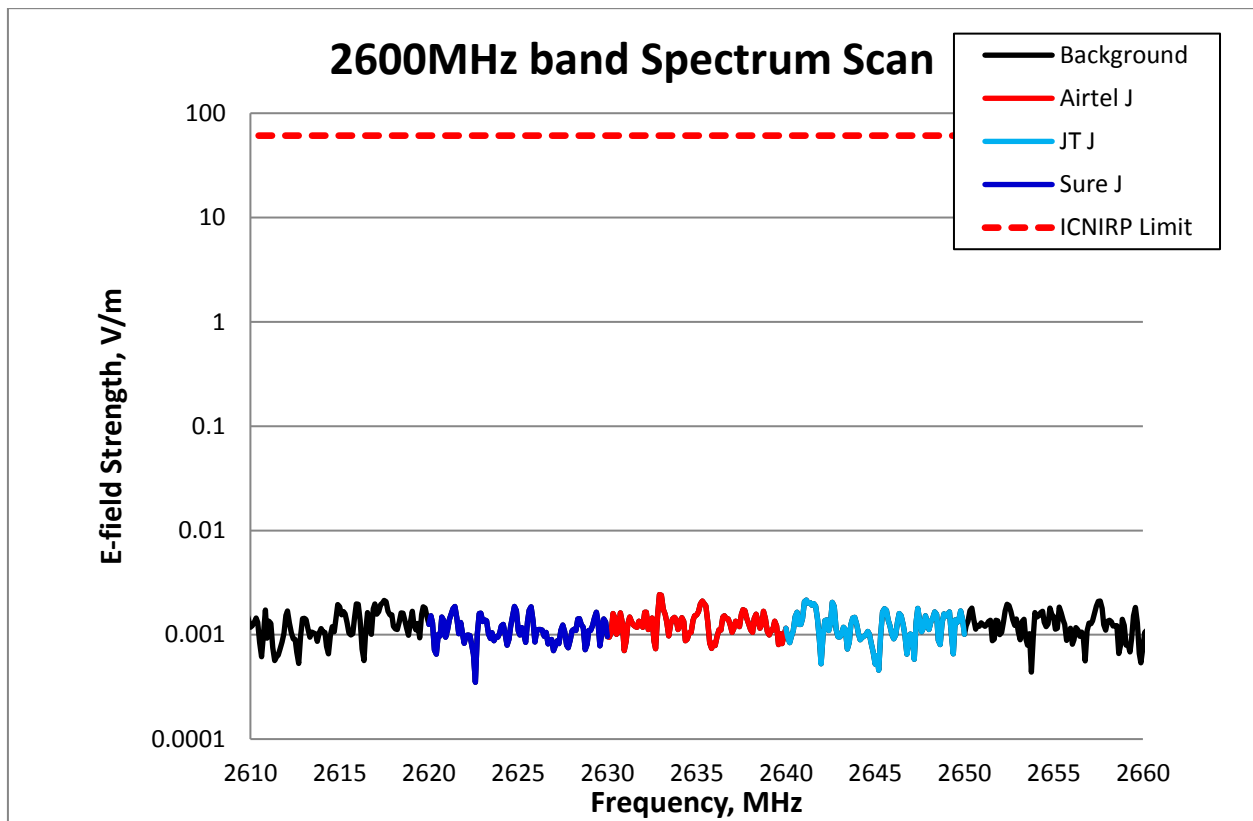


Figure 8 – 2600MHz band Spectrum Scan

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	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
St Brelade Bay	Airtel J	2600	0.002429	25113	4.6569E-08	1/ 21473504
	JT J		0.002148	28399	4.41841E-08	1/ 22632590
	Sure J		0.001871	32603	3.58186E-08	1/ 27918438
	total band EQ				1.26572E-07	1/ 7900659

Table 6 – 2600MHz band Exposure Quotient at the St Brelade Bay

End