

Cellular Mast Emissions Survey: Petit Port (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 Petit Port site located in Jersey.

The Petit Port 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
Petit Port	800	0.002053	Sure J	18943	9.77458E-08	1/ 10230619
	900	0.3424	JT J	120	8.87382E-05	1/ 11269
	1800	0.00165	Sure J	35355	9.0675E-08	1/ 11028400
	2100	0.005361	JT J	11378	2.22029E-07	1/ 4503924
	2600	0.002108	Airtel J	28937	1.3275E-07	1/ 7532942
Total Site EQ					8.92814E-05	1/ 11201

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/11201 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

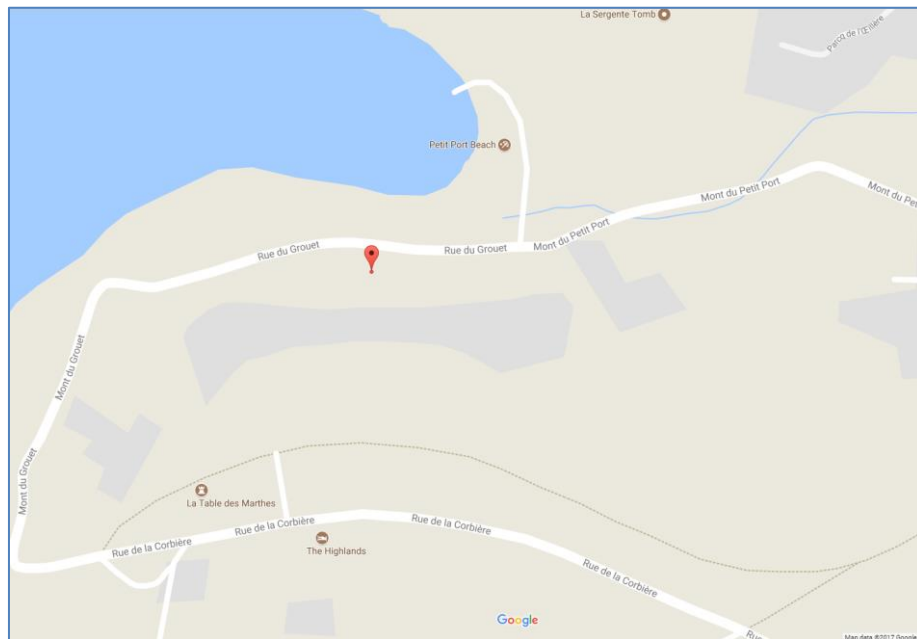


Figure 1 - Map of the Site Area

Site name	Petit Port
Site address	La Rue de Grouet, St Brelade, Jersey
Site Latitude	N 49.18371
Site Longitude	W 02.23587

1.2 Site Description

Operators	JT J
Antenna types	Omni-directional
Approximate height	5m
Site type	Monopole
Description	The Monopole at the Petit Port is located at the back of the main building, 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.

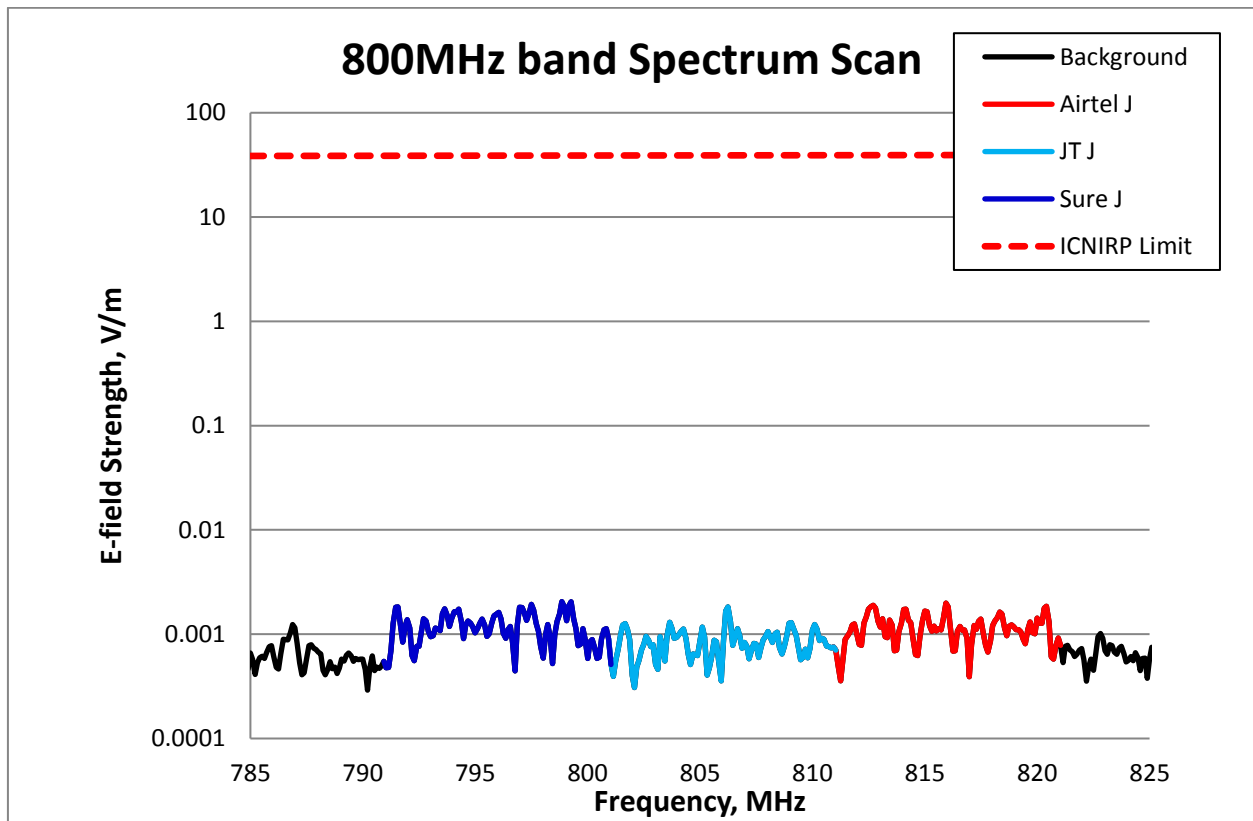


Figure 4 - 800MHz band Spectrum Scan

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 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
Petit Port	Airtel J	800	0.001985	19592	3.72373E-08	1/ 26854792
	JT J		0.001825	21310	2.04146E-08	1/ 48984666
	Sure J		0.002053	18943	4.00939E-08	1/ 24941421
total band EQ					9.77458E-08	1/ 10230619

Table 2– 800MHz band Exposure Quotient at Petit Port

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

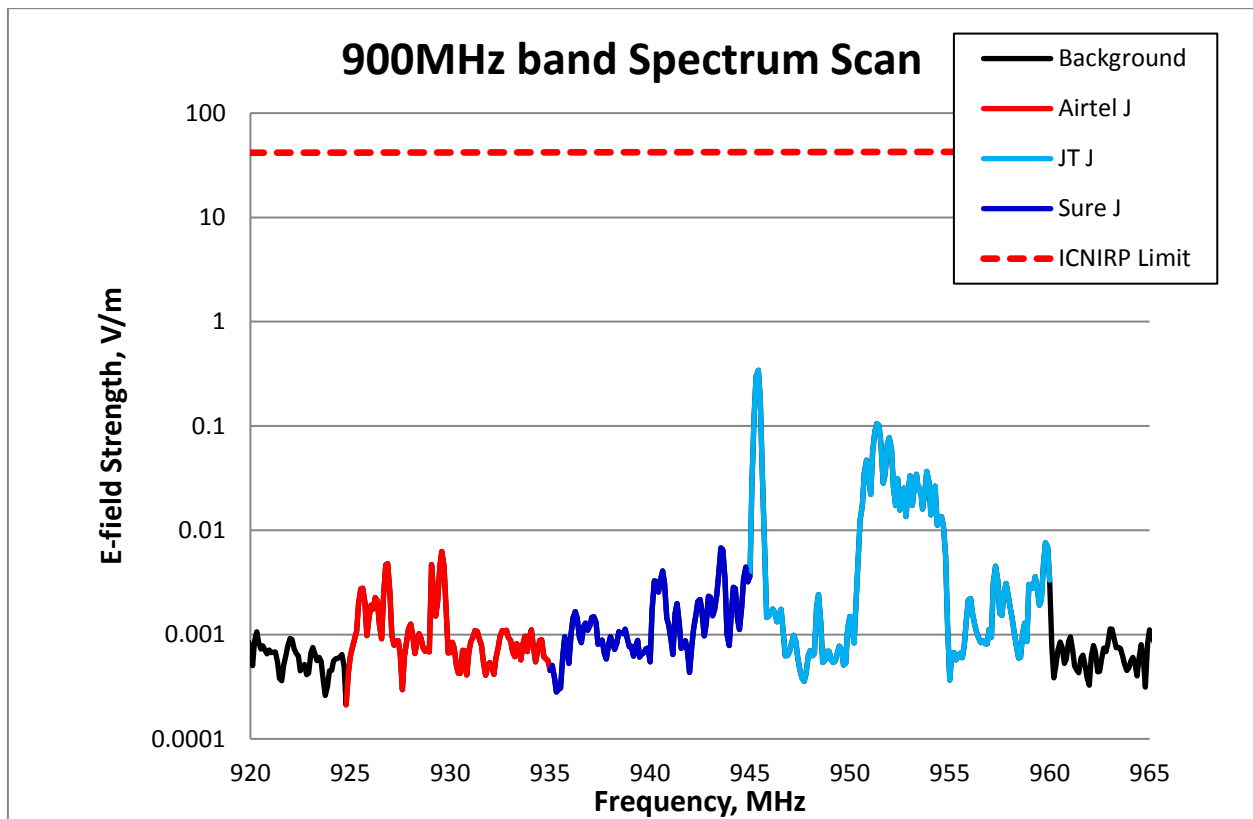


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.3424 V/m (JT J), which is 120 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
Petit Port	Airtel J	900	0.006266	6583	7.14956E-08	1/ 13986874
	JT J		0.3424	120	8.857E-05	1/ 11291
	Sure J		0.006781	6083	9.67113E-08	1/ 10340051
total band EQ					8.87382E-05	1/ 11269

Table 3– 900MHz band Exposure Quotient at Petit Port

2.3 1800 MHz Band

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

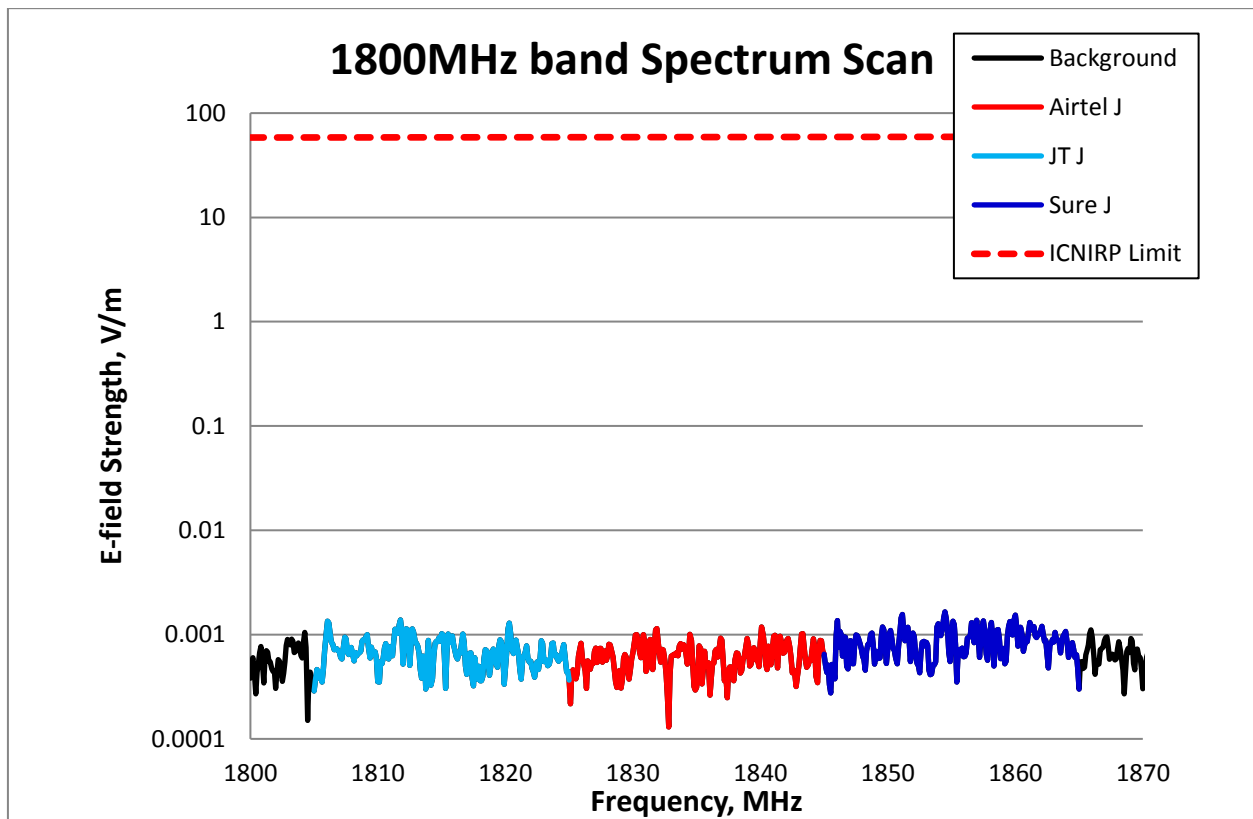


Figure 6 - 1800MHz Spectrum Scan

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
Petit Port	Airtel J	1800	0.00118	49438	2.19704E-08	1/ 45515799
	JT J		0.001379	42303	2.69592E-08	1/ 37093091
	Sure J		0.00165	35355	4.17454E-08	1/ 23954737
total band EQ					9.0675E-08	1/ 11028400

Table 4 – 1800MHz band Exposure Quotient at Petit Port

2.4 2100MHz Band

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

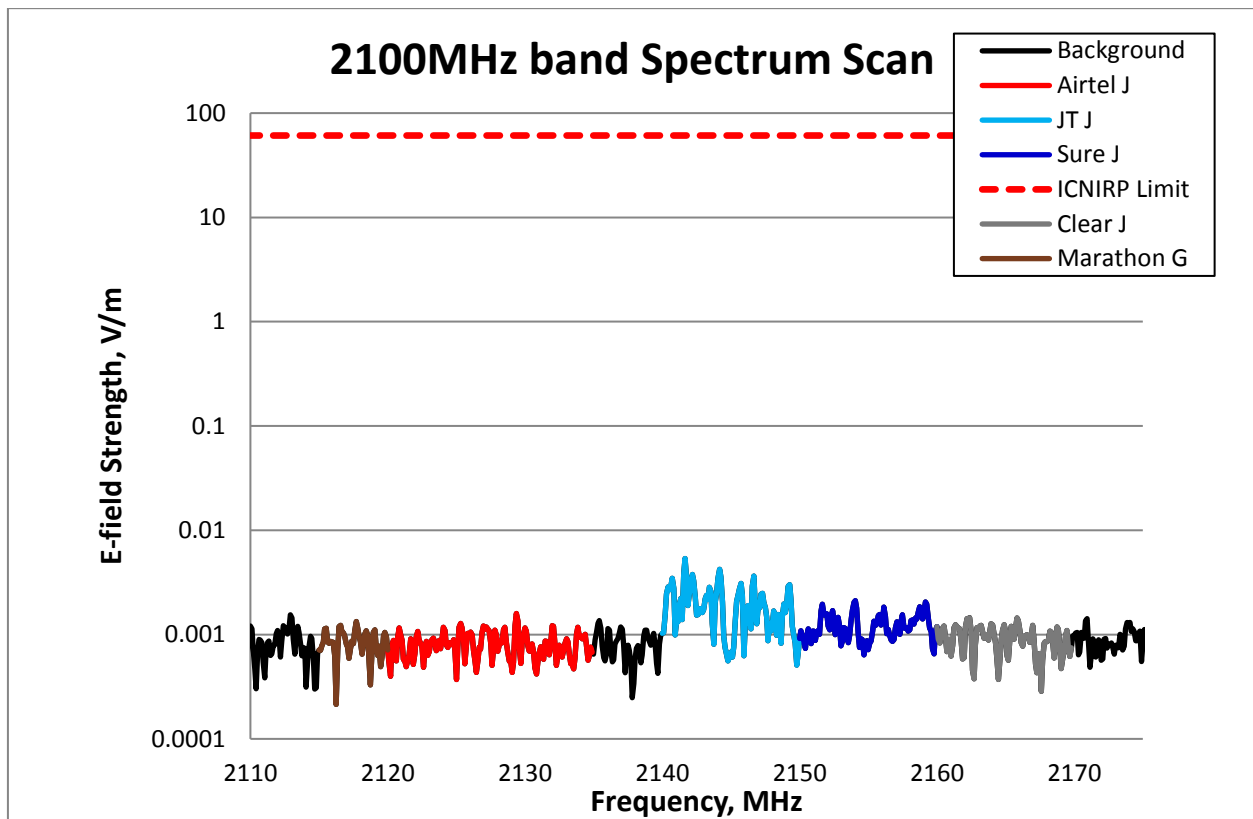


Figure 7 – 2100MHz band Spectrum Scan

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
Petit Port	Airtel J	2100	0.001593	38293	2.72254E-08	1/ 36730456
	Clear J		0.001449	42098	2.35292E-08	1/ 42500296
	JT J		0.005361	11378	1.19344E-07	1/ 8379138
	Marathon J		0.001333	45761	1.02333E-08	1/ 97720541
	Sure J		0.002113	28869	4.16967E-08	1/ 23982686
total band EQ					2.22029E-07	1/ 4503924

Table 5 – 2100MHz band Exposure Quotient at Petit Port

2.5 2600MHz band

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

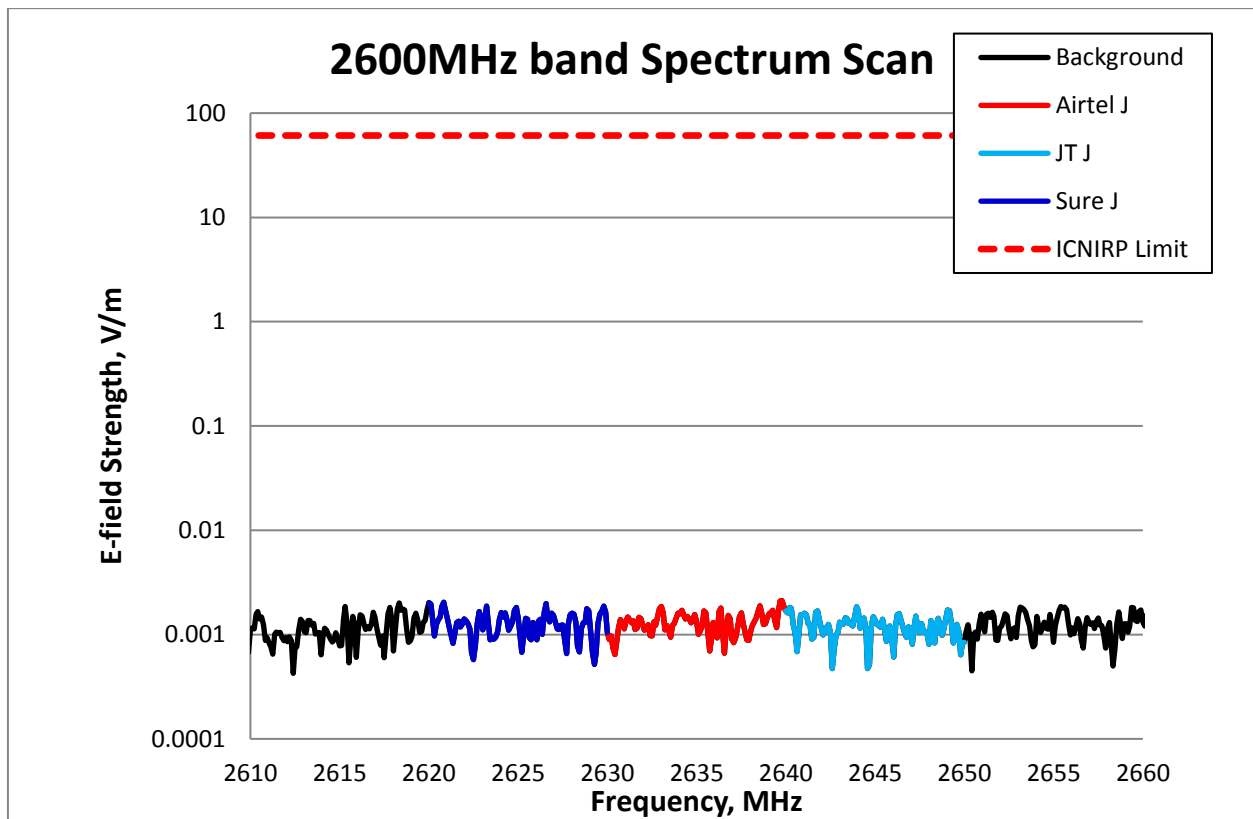


Figure 8 – 2600MHz band Spectrum Scan

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
Petit Port	Airtel J	2600	0.002108	28937	4.7106E-08	1/ 21228708
	JT J		0.001848	33009	3.9948E-08	1/ 25032520
	Sure J		0.002044	29843	4.56962E-08	1/ 21883656
total band EQ					1.3275E-07	1/ 7532942

Table 6 – 2600MHz band Exposure Quotient at Petit Port

End