

Cellular Mast Emissions Survey: Fort Regent Rotunda (Jersey)



DOCUMENT DETAILS

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	(Jersey)	
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Survey Engineer:	Louise Sands	
Report Compiled by:	Lauren Medhurst	
Checked and Approved by	Bachir Belloul	
Authorised for Distribution	Ravi Mondair	

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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 Fort Regent Rotunda site located in Jersey.

The Fort Regent Rotunda 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
Fort Regent Rotunda	800	0.008151	Airtel J	4771	6.71908E-07	1/ 1488300
	900	1.613	JT J	26	0.001712596	1/ 584
	1800	0.2702	JT J	216	0.000192593	1/ 5192
	2100	0.00459	Sure J	13290	6.23054E-07	1/ 1604997
	2600	0.004842	JT J	12598	5.41024E-07	1/ 1848346
Total Site EQ					0.001907025	1/ 524

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/524 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

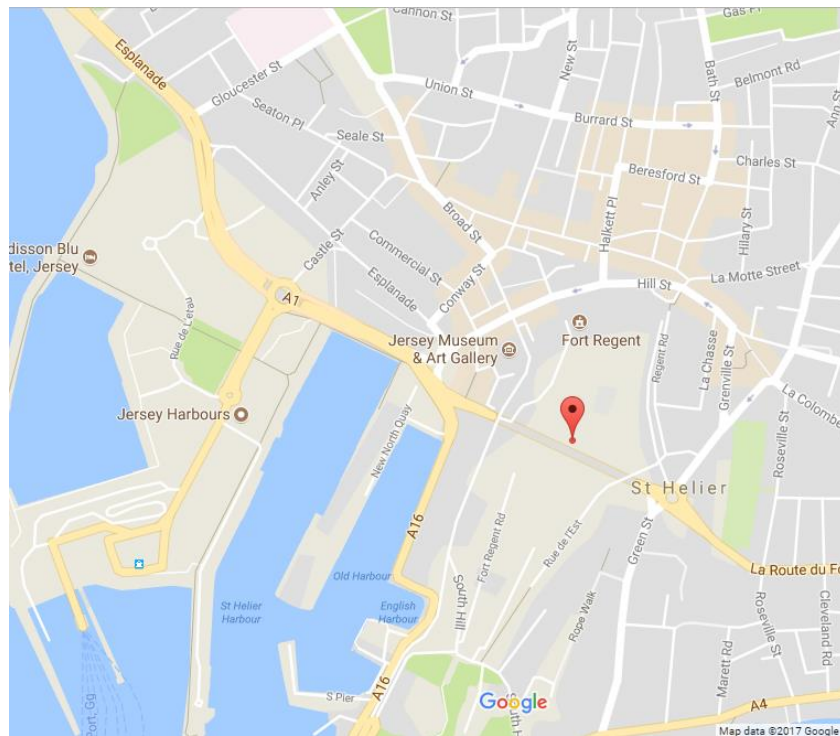


Figure 1 - Map of the Site Area

Site name	Fort Regent Rotunda
Site address	Fort Regent, Jersey
Site Latitude	N 49.18122
Site Longitude	W 02.10569

1.2 Site Description

Operators	JT J
Antenna types	Omni directional
Approximate height	5m
Site type	Indoor Wall Mount
Description	The antennas at the Fort Regent Rotunda are wall mounted inside the main building, out of reach of the public.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

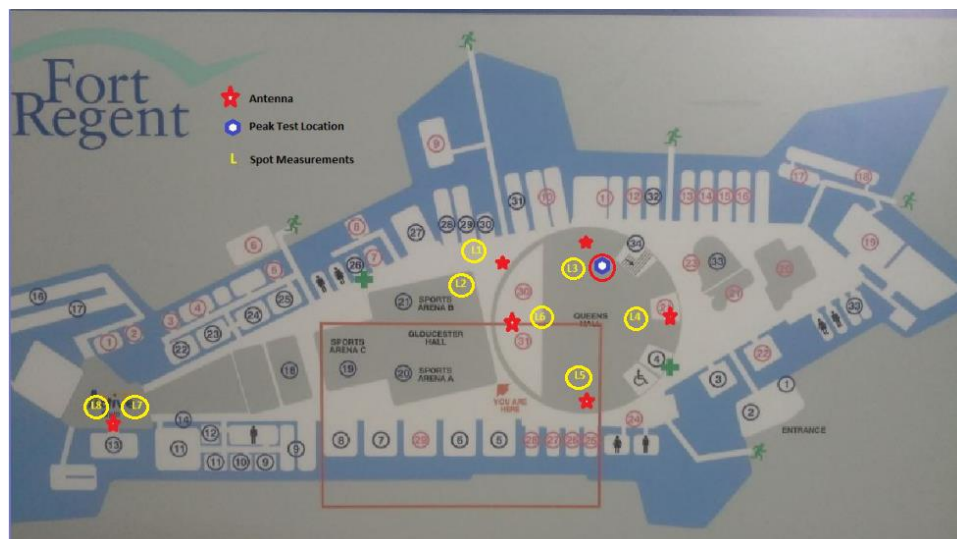


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

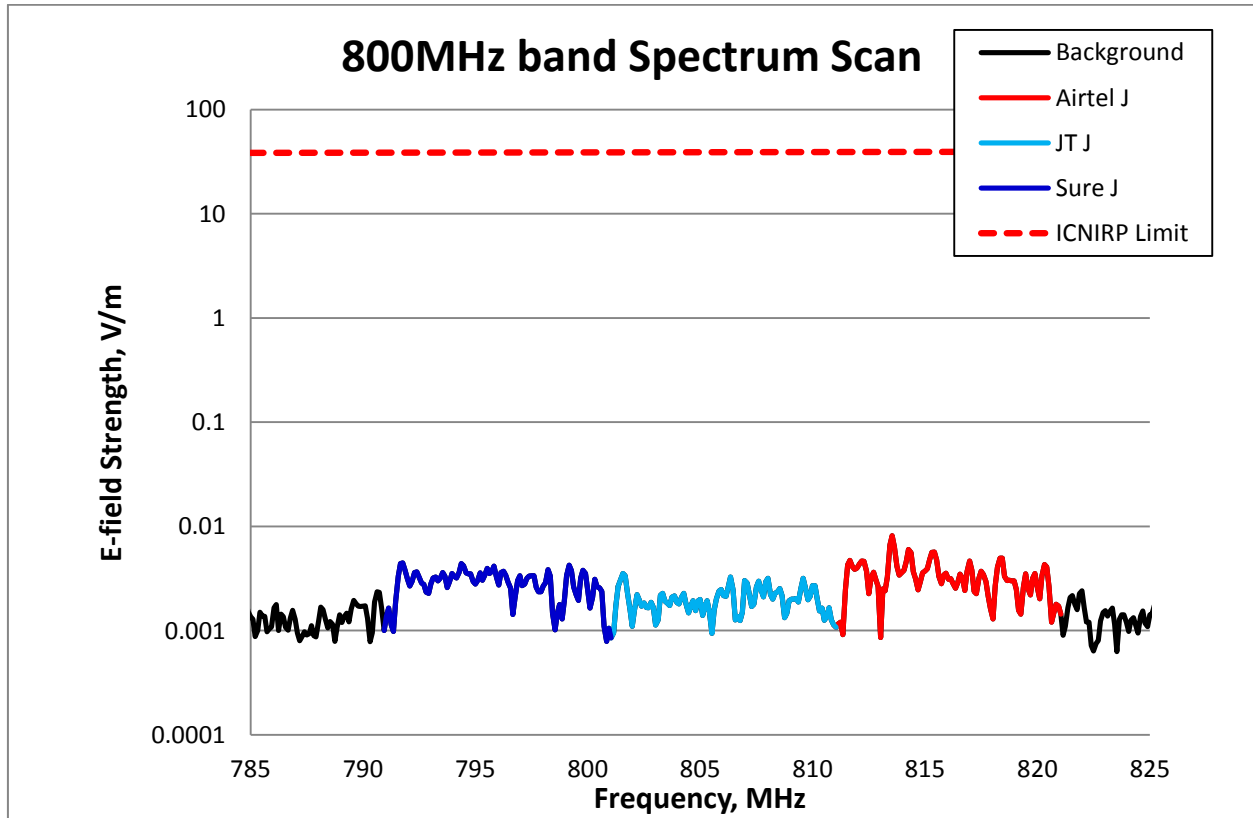


Figure 4 - 800MHz band Spectrum Scan

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.

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
Fort Regent Rotunda	Airtel J	800	0.008151	4771	3.27172E-07	1/ 3056493
	JT J		0.003524	11036	1.12537E-07	1/ 8885997
	Sure J		0.004471	8698	2.32199E-07	1/ 4306659
total band EQ					6.71908E-07	1/ 1488300

Table 2– 800MHz band Exposure Quotient at the Fort Regent Rotunda

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

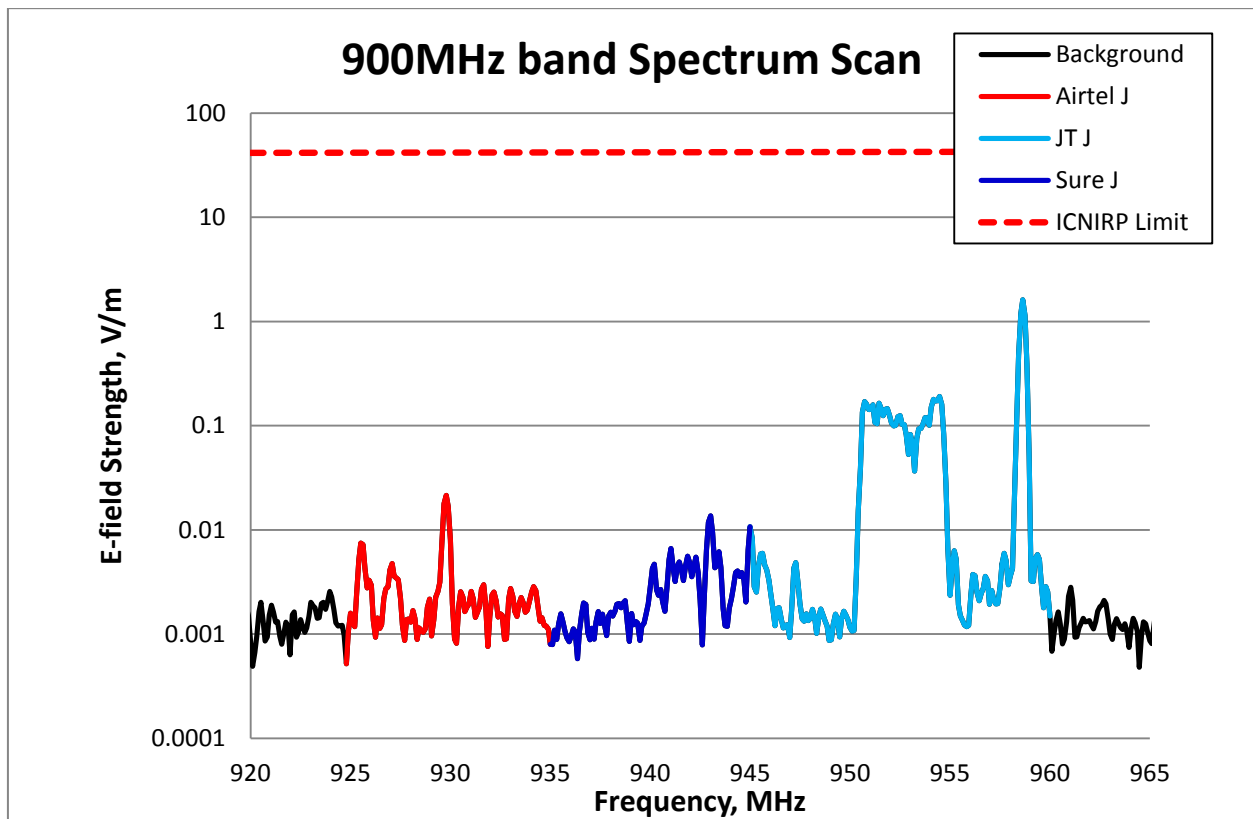


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 1.613 V/m (JT J), which is 26 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
Fort Regent Rotunda	Airtel J	900	0.02139	1928	4.61611E-07	1/ 2166324
	JT J		1.613	26	0.001711781	1/ 584
	Sure J		0.01364	3024	3.52812E-07	1/ 2834373
total band EQ					0.001712596	1/ 584

Table 3– 900MHz band Exposure Quotient at the Fort Regent Rotunda

2.3 1800 MHz Band

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

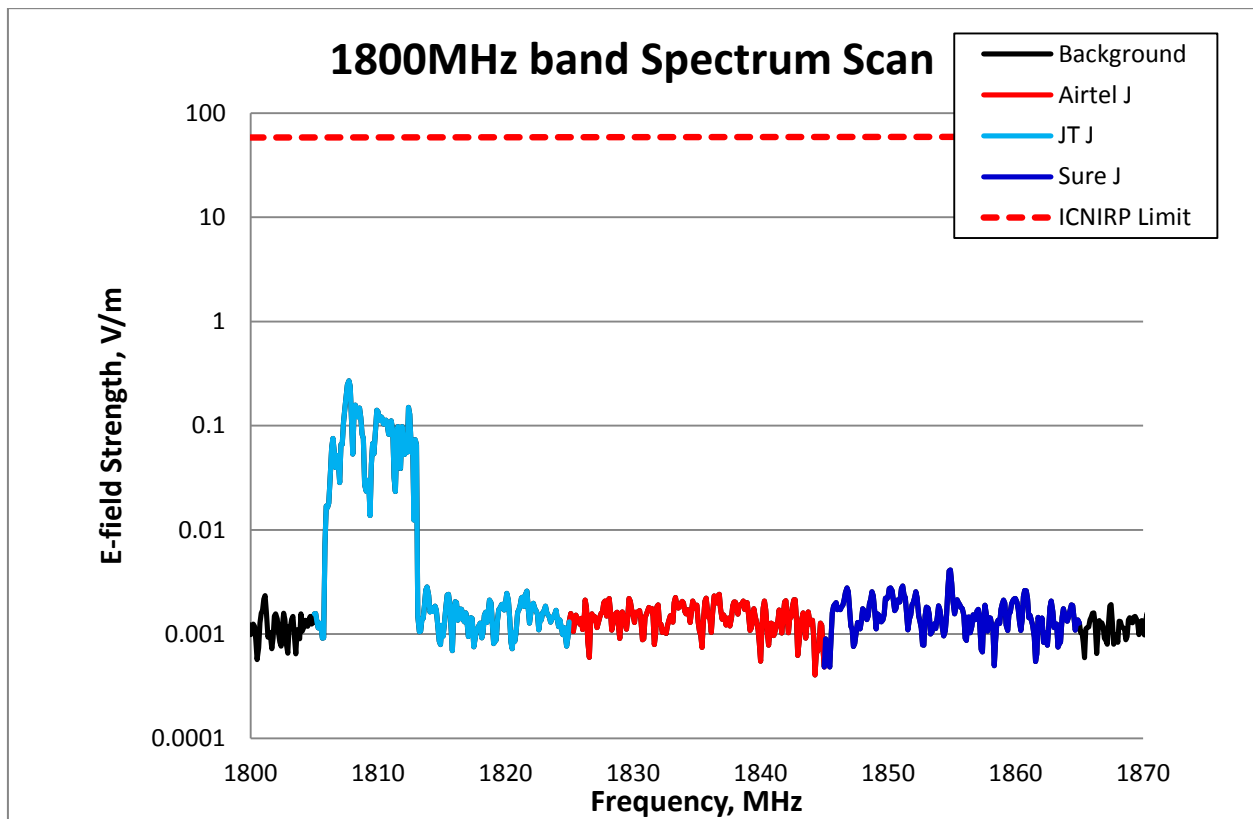


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.2702 V/m (JT J), which is 216 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
Fort Regent Rotunda	Airtel J	1800	0.002407	24236	1.20373E-07	1/ 8307506
	JT J		0.2702	216	0.000192325	1/ 5200
	Sure J		0.004134	14111	1.48433E-07	1/ 6737061
total band EQ					0.000192593	1/ 5192

Table 4 – 1800MHz band Exposure Quotient at the Fort Regent Rotunda

2.4 2100MHz Band

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

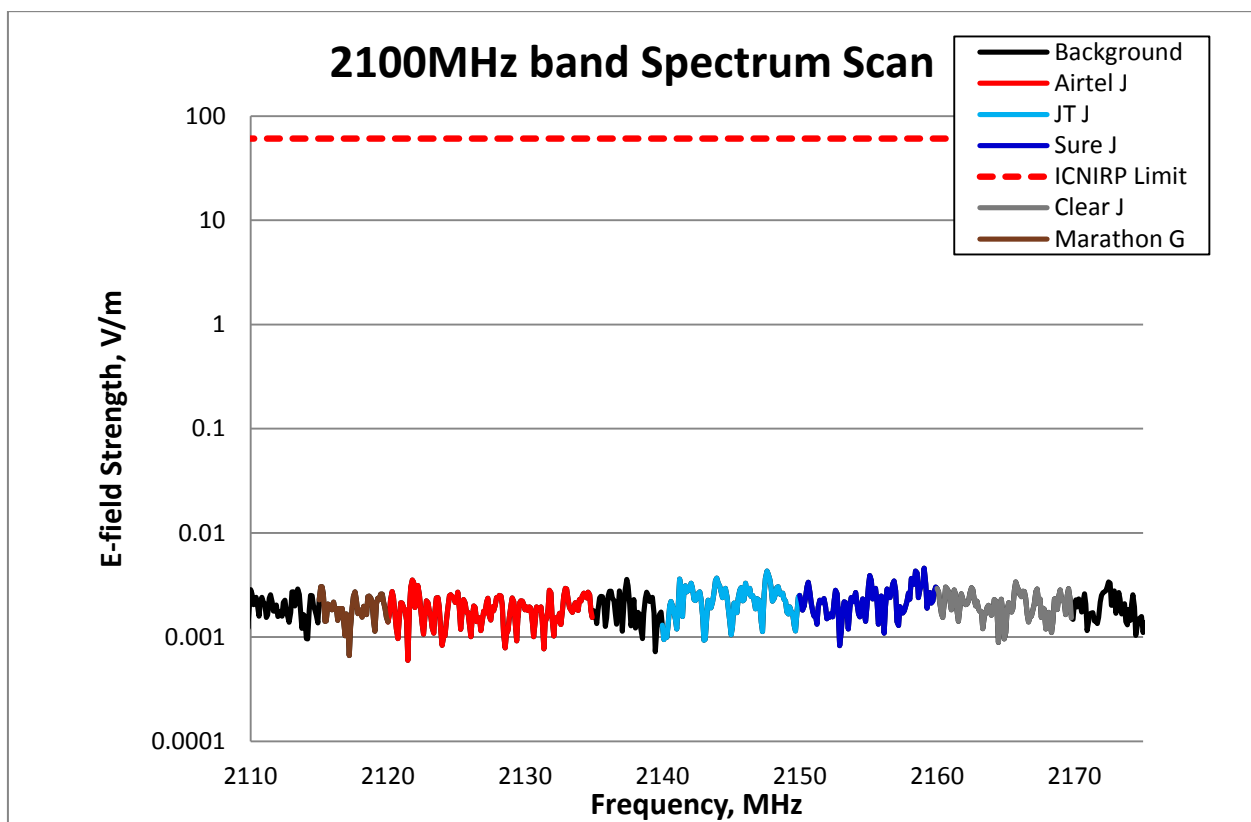


Figure 7 – 2100MHz band Spectrum Scan

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
Fort Regent Rotunda	Airtel J	2100	0.003531	17276	1.46867E-07	1/ 6808863
	Clear J		0.003376	18069	1.19062E-07	1/ 8398963
	JT J		0.004315	14137	1.51454E-07	1/ 6602648
	Marathon J		0.003055	19967	5.25817E-08	1/ 19018028
	Sure J		0.00459	13290	1.53088E-07	1/ 6532172
total band EQ					6.23054E-07	1/ 1604997

Table 5 – 2100MHz band Exposure Quotient at the Fort Regent Rotunda

2.5 2600MHz band

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

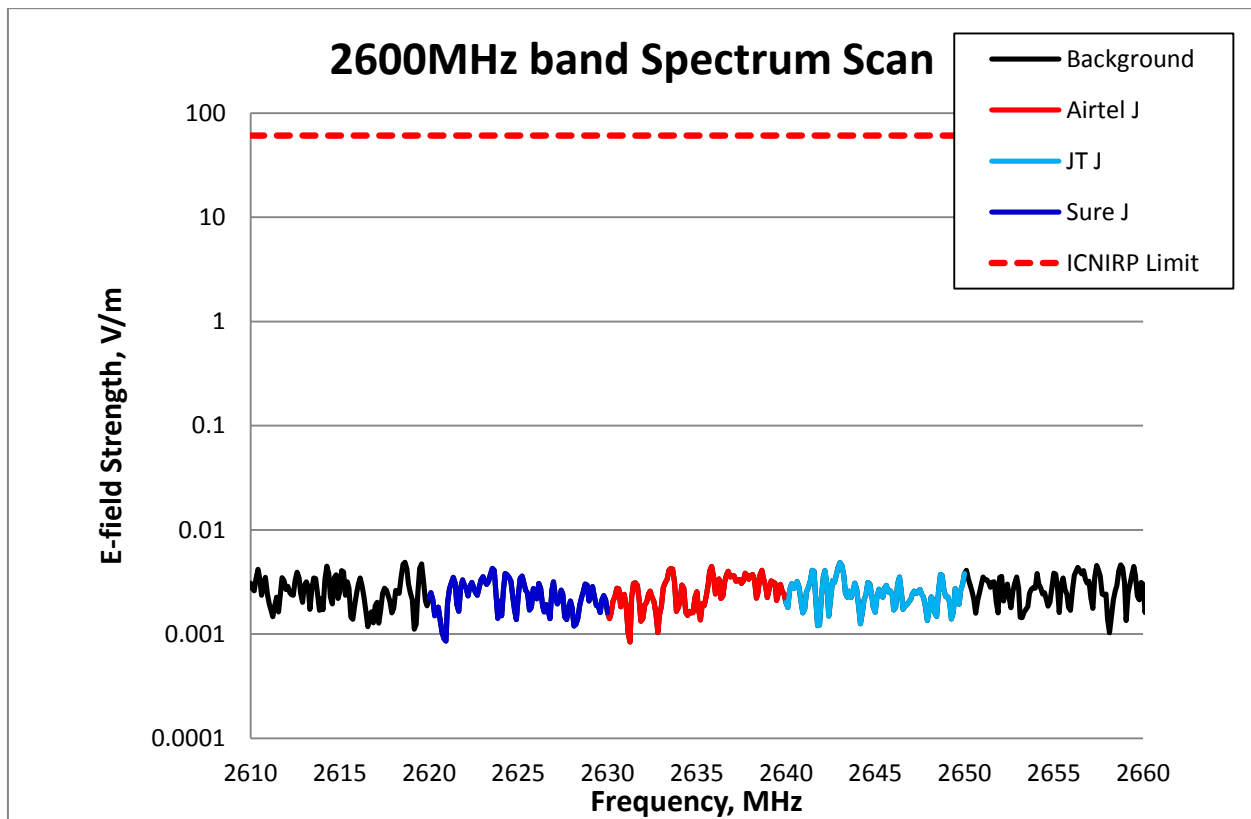


Figure 8 – 2600MHz band Spectrum Scan

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
Fort Regent Rotunda	Airtel J	2600	0.004464	13665	1.97096E-07	1/ 5073677
	JT J		0.004842	12598	1.81041E-07	1/ 5523611
	Sure J		0.004269	14289	1.62887E-07	1/ 6139209
total band EQ					5.41024E-07	1/ 1848346

Table 6 – 2600MHz band Exposure Quotient at the Fort Regent Rotunda

End