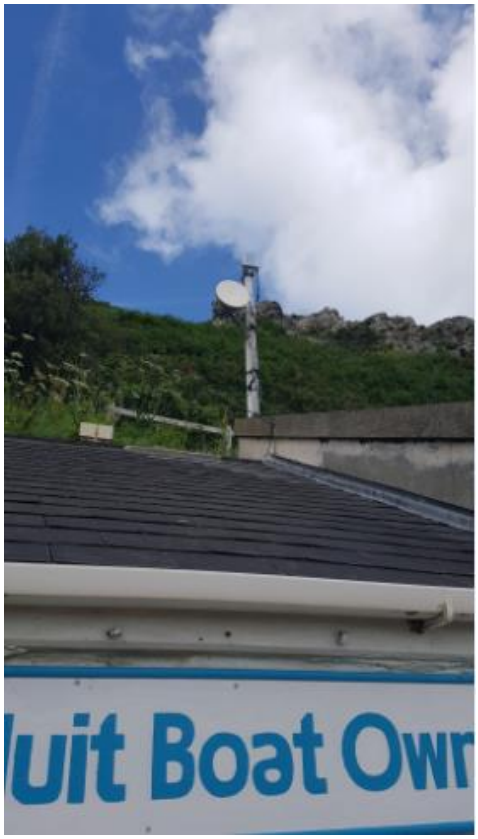
Cellular Mast Emissions Survey: Bonne Nuit (Jersey)



DOCUMENT DETAILS

Document Name:	Cellular Mast Emissions Survey:	Bonne Nuit (Jersey)
Survey Date:	07/06/2017 at 10:47	
Report issue Date	14/07/2017	
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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 BonneNuit site located in Jersey.

The Bonne Nuit site was used by a single operator at the time of the survey: Sure 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
Bonne Nuit	800	0.00568	JT J	6847	4.62213E-07	1/ 2163506
	900	1.696	Sure J	24	0.002007707	1/ 498
	1800	0.5785	Sure J	101	0.004724473	1/ 212
	2100	0.7036	Sure J	87	0.001090808	1/ 917
	2600	0.006956	JT J	8769	1.45482E-06	1/ 687368
				Total Site EQ	0.007824904	1/ 128

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/128 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

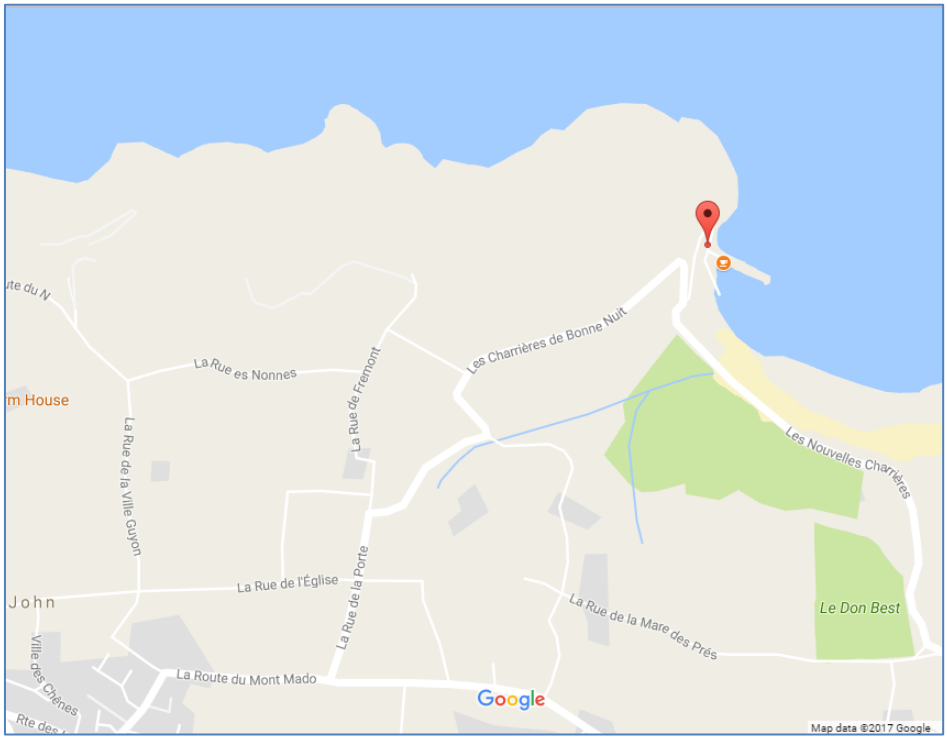

Figure 1 - Map of the Site Area

Site name	Bonne Nuit
Site address	Les Charrieres dee Bonne Nuit, St John, Jersey
Site Latitude	N 49.25224
Site Longitude	W 02.1209

1.2 Site Description

Operators	Sure J
Antenna types	Directional
Approximate height	5.5m
Site type	Pole mast
Description	The pole mast at Bonne Nuit is located at the rear of the 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.

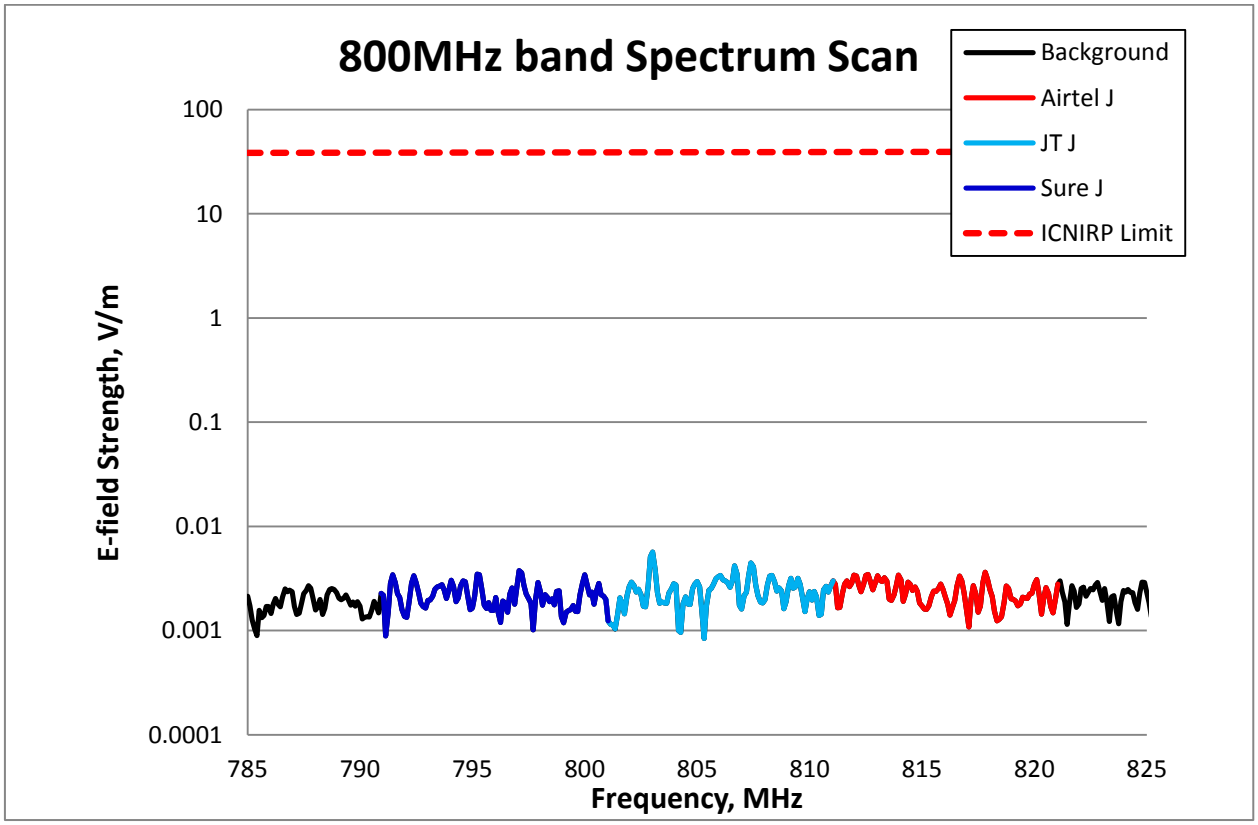

Figure 4 - 800MHz band Spectrum Scan

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
Bonne Nuit	Airtel J	800	0.003625	10729	1.55588E-07	1/ 6427212
	JT J		0.00568	6847	1.72311E-07	1/ 5803470
	Sure J		0.003758	10349	1.34314E-07	1/ 7445267
				total band EQ	4.62213E-07	1/ 2163506

Table 2– 800MHz band Exposure Quotient at Bonne Nuit

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

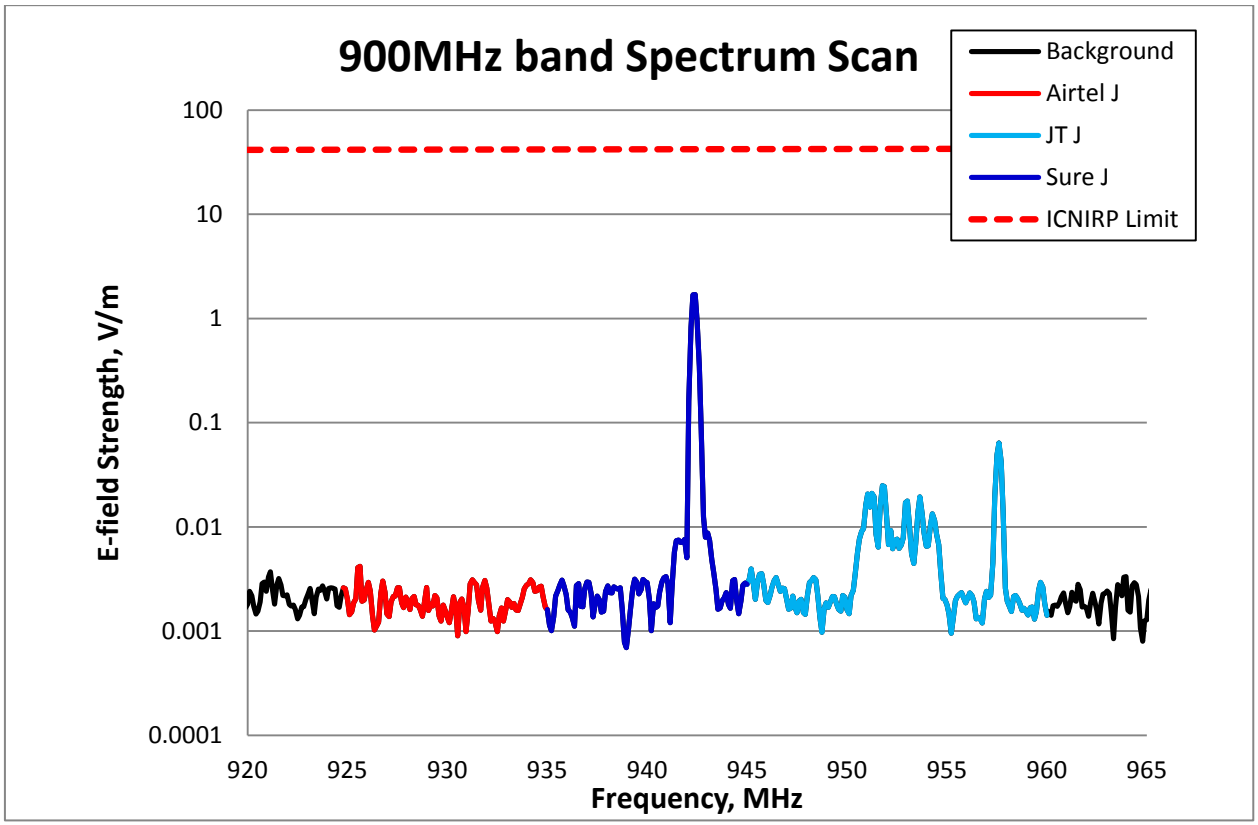

Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 1.696 V/m (Sure J), which is 24 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
Bonne Nuit	Airtel J	900	0.004196	9831	1.13336E-07	1/ 8823320
	JT J		0.06384	646	4.25312E-06	1/ 235121
	Sure J		1.696	24	0.002003341	1/ 499
				total band EQ	0.002007707	1/ 498

Table 3– 900MHz band Exposure Quotient at Bonne Nuit

2.3 1800 MHz Band

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

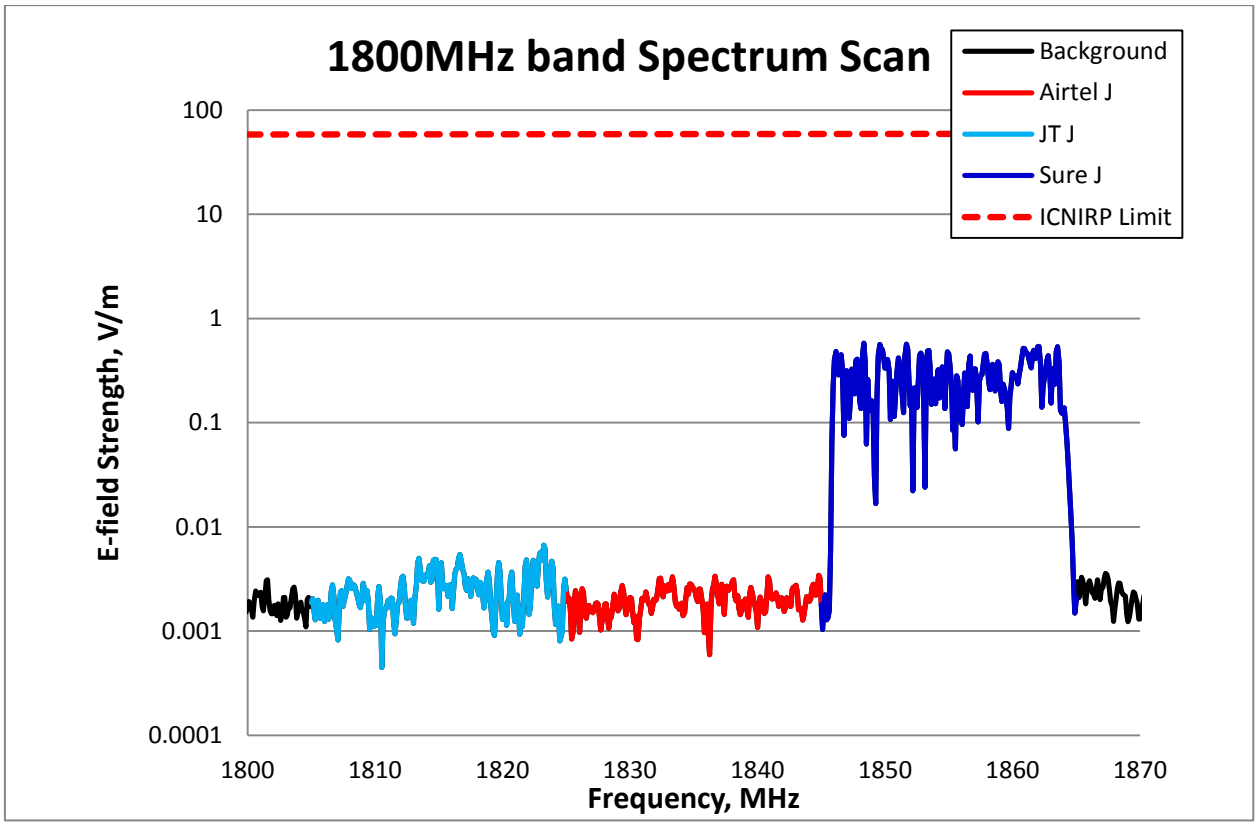

Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.5785 V/m (Sure J), which is 101 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
Bonne Nuit	Airtel J	1800	0.003443	16943	2.24402E-07	1/ 4456288
	JT J		0.006669	8747	4.03888E-07	1/ 2475932
	Sure J		0.5785	101	0.004723844	1/ 212
				total band EQ	0.004724473	1/ 212

Table 4 – 1800MHz band Exposure Quotient at Bonne Nuit

2.4 2100MHz Band

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

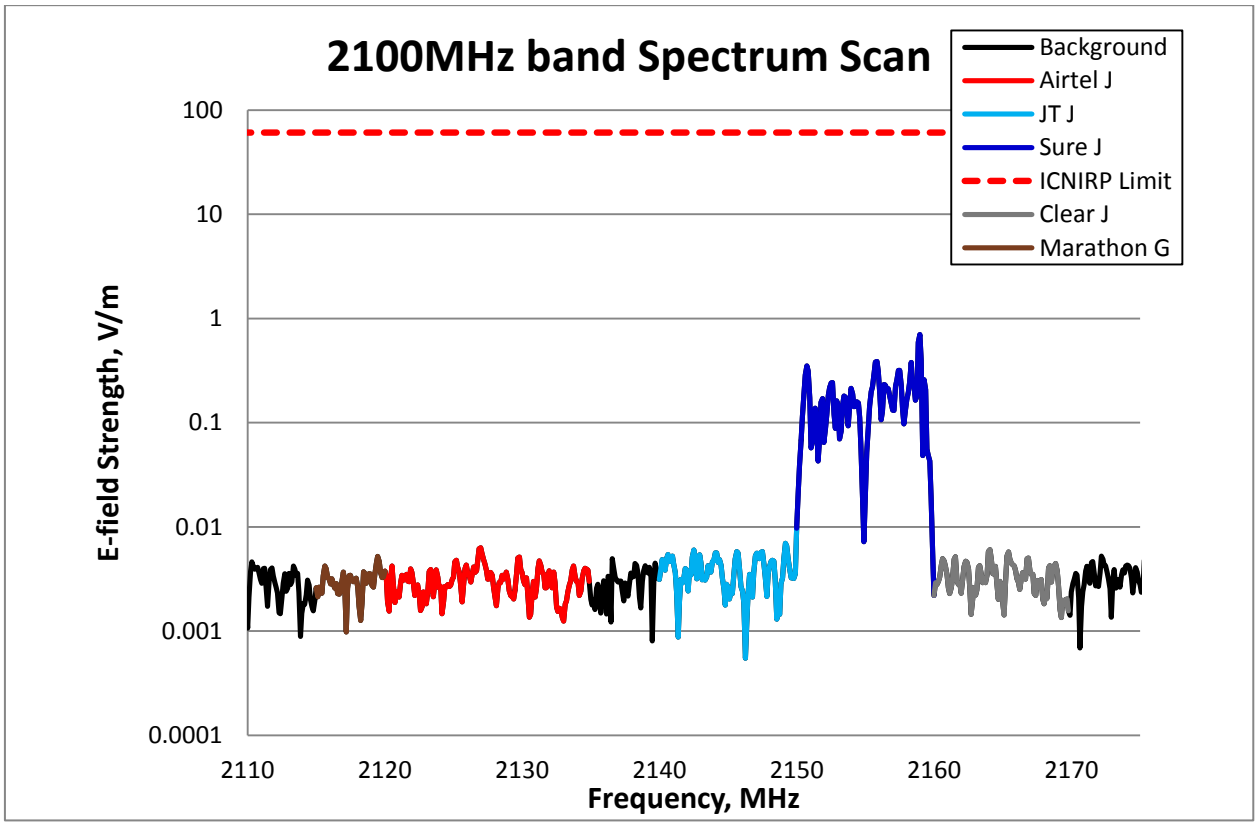

Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.7036 V/m (Sure J), which is 87 times smaller than the ICNIRP Reference level.

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
Bonne Nuit	Airtel J	2100	0.006331	9635	3.98272E-07	1/ 2510846
	Clear J		0.006064	10059	3.0719E-07	1/ 3255311
	JT J		0.009723	6274	4.39187E-07	1/ 2276933
	Marathon J		0.005216	11695	1.29618E-07	1/ 7715000
	Sure J		0.7036	87	0.001089533	1/ 918
				total band EQ	0.001090808	1/ 917

Table 5 – 2100MHz band Exposure Quotient at Bonne Nuit

2.5 2600MHz band

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

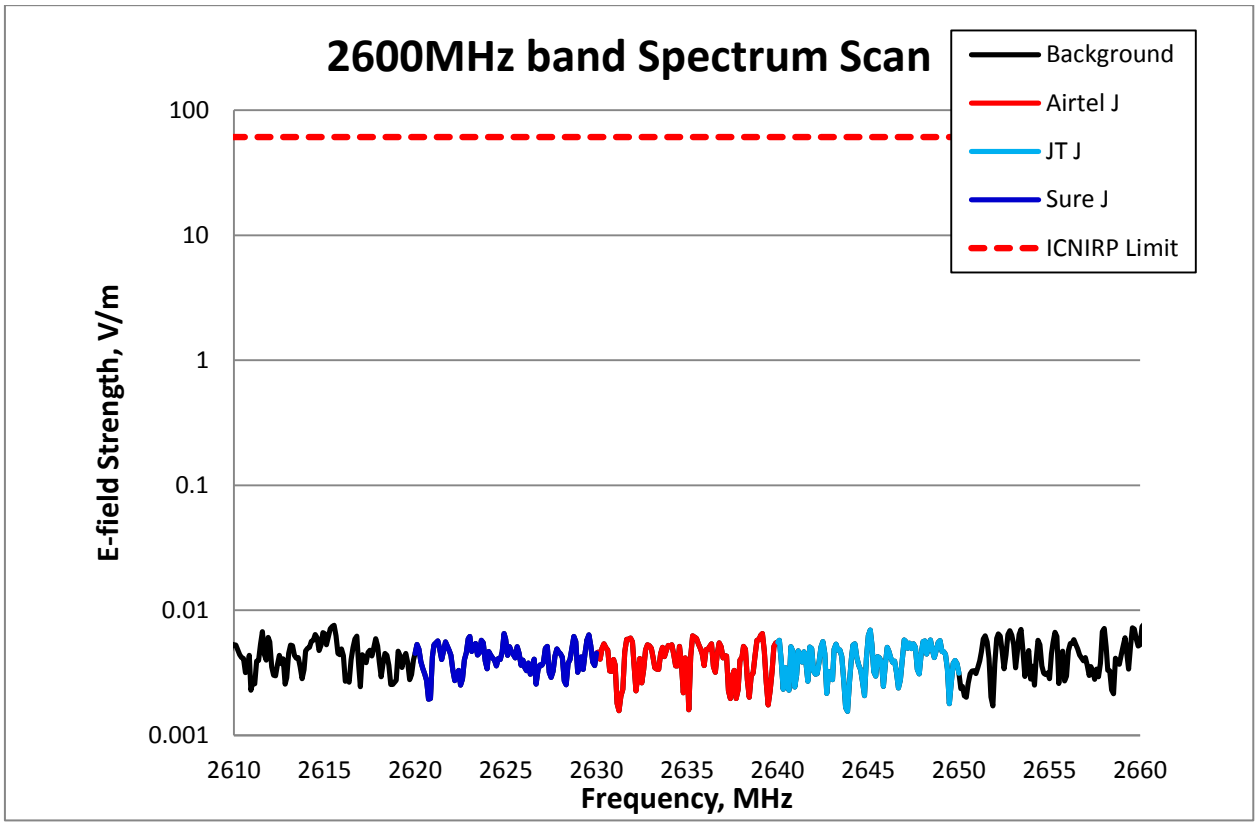

Figure 8 – 2600MHz band Spectrum Scan

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
Bonne Nuit	Airtel J	2600	0.006528	9344	4.90865E-07	1/ 2037219
	JT J		0.006956	8769	4.68671E-07	1/ 2133693
	Sure J		0.006505	9377	4.95288E-07	1/ 2019026
				total band EQ	1.45482E-06	1/ 687368

Table 6 – 2600MHz band Exposure Quotient at Bonne Nuit

End