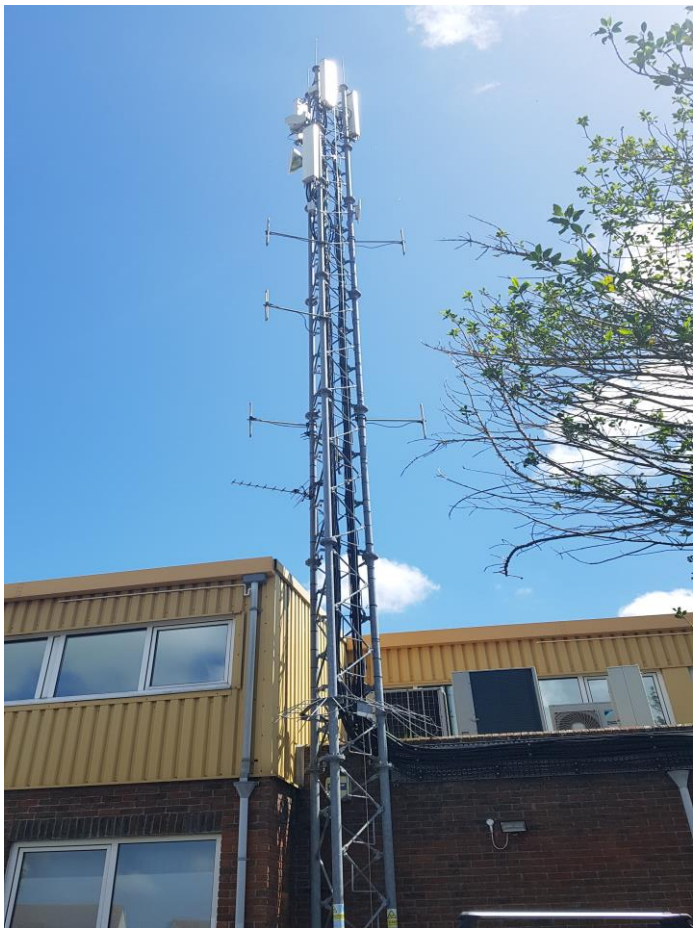
Cellular Mast Emissions Survey: 2_E_2 (Jersey)



DOCUMENT DETAILS

Document Name:	Cellular Mast Emissions Survey: 2_E_2 (Jersey)
Survey Date:	09/06/2017 at 12:31
Report issue Date	30/06/2017
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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 2_E_2 site located in Jersey.

The 2_E_2 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
2_E_2	800	0.1389	Sure J	280	0.000127047	1/ 7871
	900	1.469	Sure J	28	0.001770059	1/ 565
	1800	0.08139	Sure J	717	3.23424E-05	1/ 30919
	2100	0.1178	Sure J	518	9.70636E-05	1/ 10303
	2600	0.002202	Airtel J	27702	1.18516E-07	1/ 8437673
				Total Site EQ	0.00202663	1/ 493

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/493 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	2_E_2
Site address	2E2 Jersey Ltd, La Rue a la Dame, St Saviour, Jersey
Site Latitude	N 49.19872
Site Longitude	W 2.0834

1.2 Site Description

Operators	Sure J
Antenna types	Directional
Approximate height	20m
Site type	Lattice Mast
Description	The Lattice mast at 2_E_2 is located to the side of the building; access is open to the public.

1.3 Site Photo

Figure 2 – Peak Measurement Location

1.4 Test Location

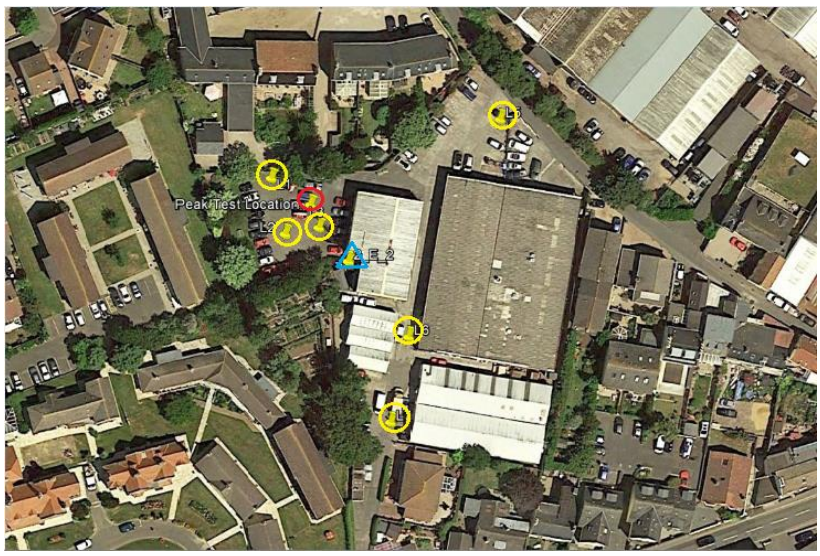

Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

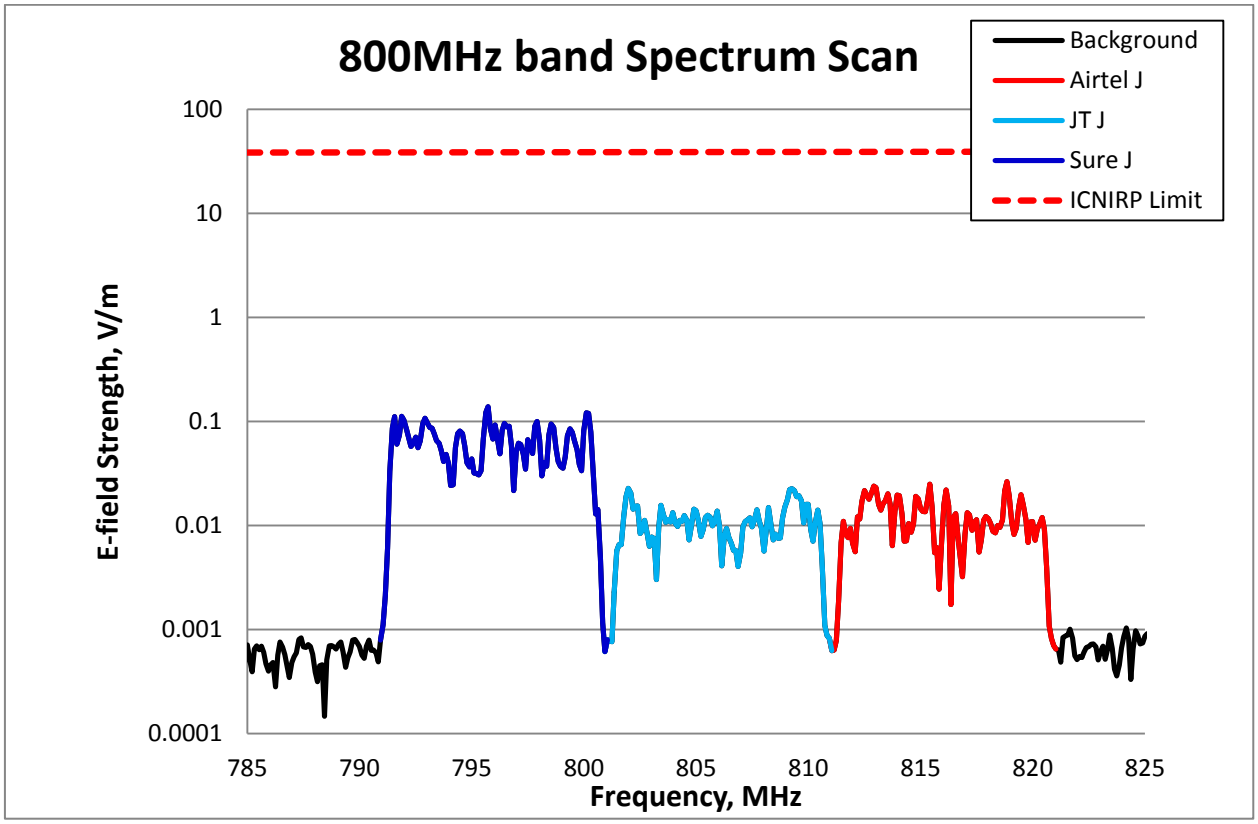

Figure 4 - 800MHz band Spectrum Scan

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 0.1389V/m (Sure J), which is 280 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
2_E_2	Airtel J	800	0.02634	1476	4.37865E-06	1/ 228381
	JT J		0.02283	1703	3.45441E-06	1/ 289485
	Sure J		0.1389	280	0.000119214	1/ 8388
				total band EQ	0.000127047	1/ 7871

Table 2– 800MHz band Exposure Quotient at 2_E_2

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

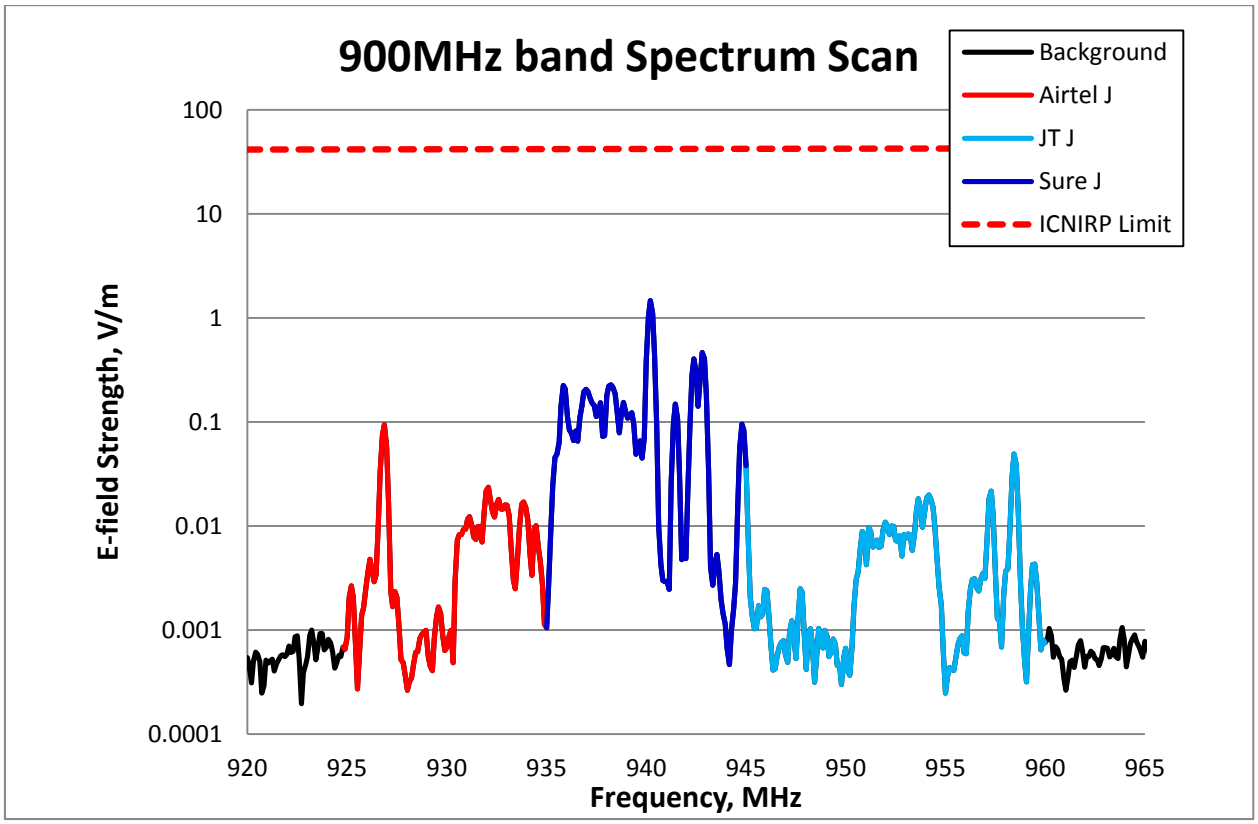

Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 1.469V/m (Sure J), which is 28 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
2_E_2	Airtel J	900	0.09386	439	6.89733E-06	1/ 144984
	JT J		0.04917	839	3.25561E-06	1/ 307162
	Sure J		1.469	28	0.001759906	1/ 568
				total band EQ	0.001770059	1/ 565

Table 3– 900MHz band Exposure Quotient at 2_E_2

2.3 1800 MHz Band

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

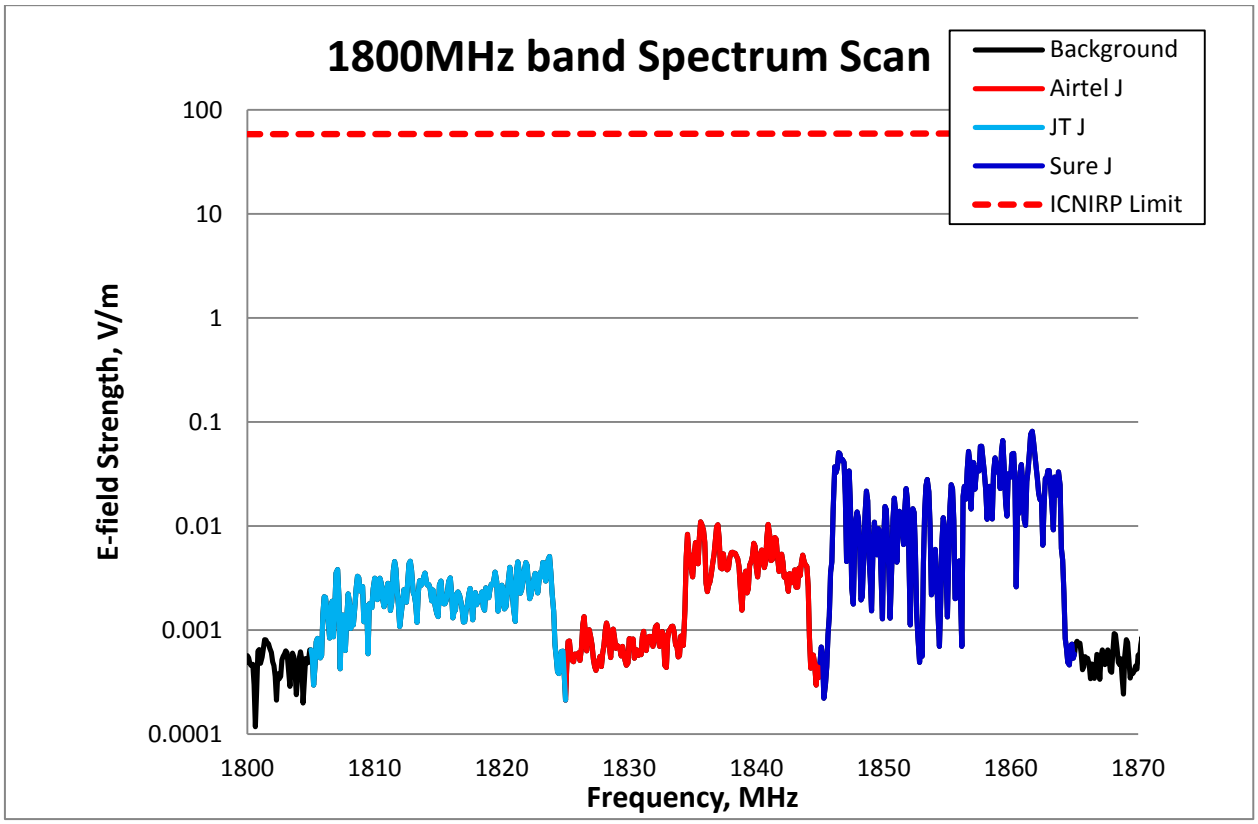

Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.08139 V/m (Sure J), which is 717 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
2_E_2	Airtel J	1800	0.011	5303	7.21759E-07	1/ 1385503
	JT J		0.005108	11421	3.02971E-07	1/ 3300643
	Sure J		0.08139	717	3.13176E-05	1/ 31931
				total band EQ	3.23424E-05	1/ 30919

Table 4 – 1800MHz band Exposure Quotient at 2_E_2

2.4 2100MHz Band

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

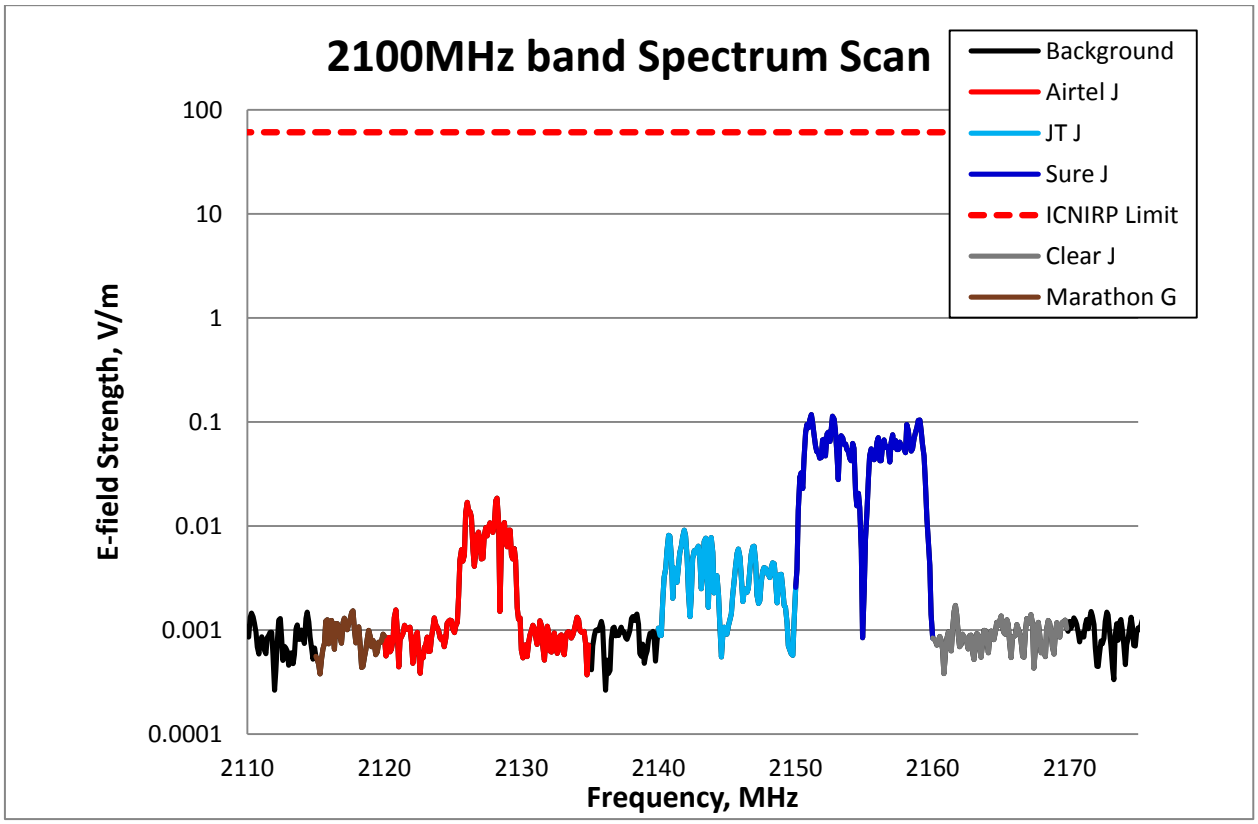

Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.1178V/m (Sure J), which is 518 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
2_E_2	Airtel J	2100	0.01855	3288	9.79858E-07	1/ 1020556
	Clear J		0.001721	35445	2.26611E-08	1/ 44128455
	JT J		0.009105	6700	4.33785E-07	1/ 2305291
	Marathon J		0.001529	39895	1.10998E-08	1/ 90091456
	Sure J		0.1178	518	9.56162E-05	1/ 10458
				total band EQ	9.70636E-05	1/ 10303

Table 5 – 2100MHz band Exposure Quotient at 2_E_2

2.5 2600MHz band

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

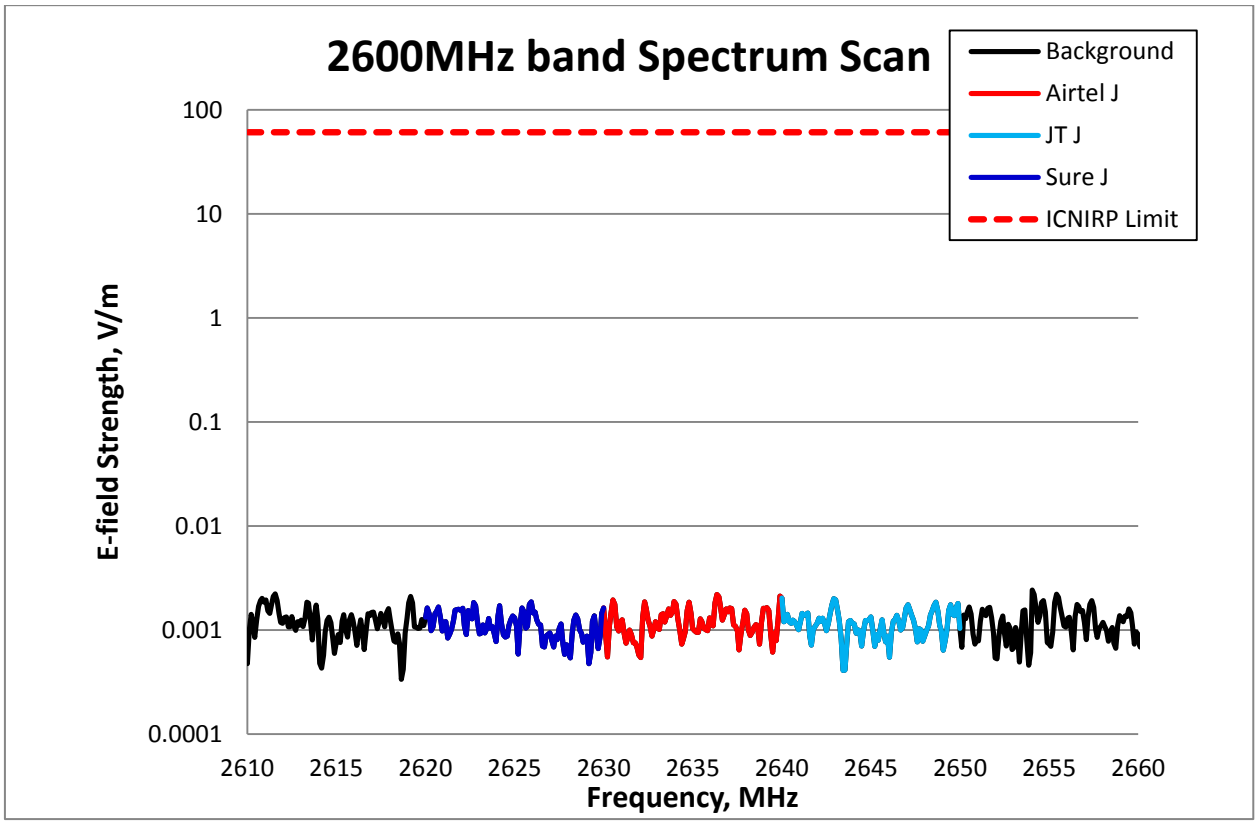

Figure 8 – 2600MHz band Spectrum Scan

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
2_E_2	Airtel J	2600	0.002202	27702	4.30006E-08	1/ 23255490
	JT J		0.002036	29961	3.936E-08	1/ 25406519
	Sure J		0.001861	32778	3.61555E-08	1/ 27658296
				total band EQ	1.18516E-07	1/ 8437673

Table 6 – 2600MHz band Exposure Quotient at 2_E_2

End