

Cellular Mast Emissions Survey: Woodbine Corner (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 Woodbine Corner site located in Jersey.

The Woodbine Corner site was used by two operators at the time of the survey: JT J and Airtel 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
Woodbine Corner	800	0.1091	Airtel J	356	4.7231E-05	1/ 21173
	900	0.4224	Airtel J	98	0.000387626	1/ 2580
	1800	0.09343	JT J	624	3.47086E-05	1/ 28811
	2100	0.263	Airtel J	232	0.000370918	1/ 2696
	2600	0.002086	Airtel J	29243	1.07486E-07	1/ 9303501
Total Site EQ					0.00084059	1/ 1190

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/1190 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

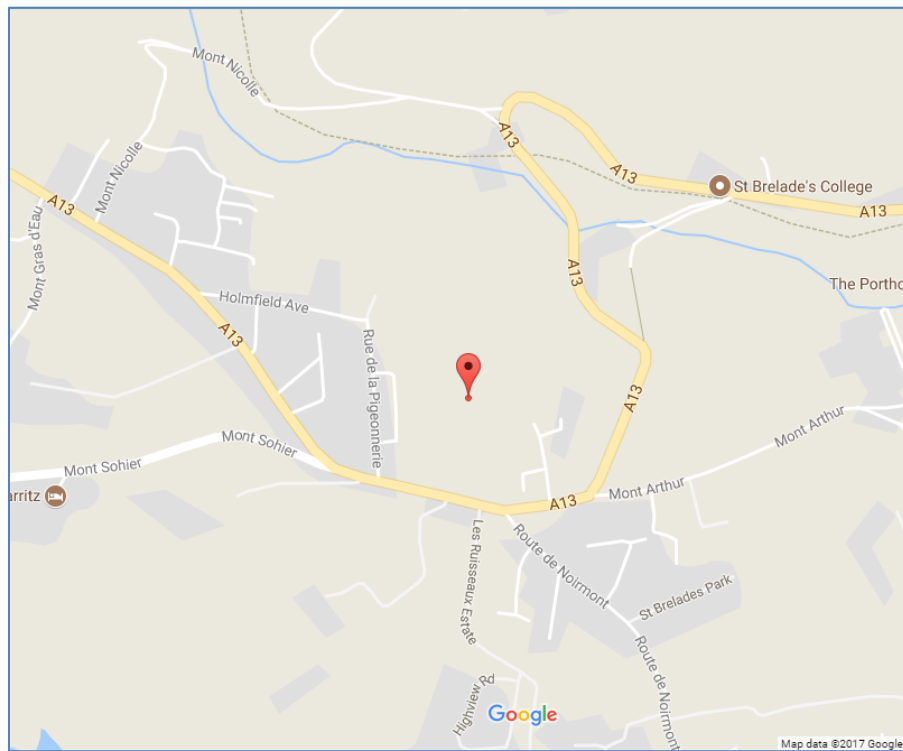


Figure 1 - Map of the Site Area

Site name	Woodbine Corner
Site address	Route Des Genets, St Brelade, Jersey
Site Latitude	N 49.18553
Site Longitude	W 02.18083

1.2 Site Description

Operators	JT J, Airtel J
Antenna types	Directional
Approximate height	15m
Site type	Pole Mast
Description	The Pole Mast at the Woodbine Corner is located on a side track, off of the main road. 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.

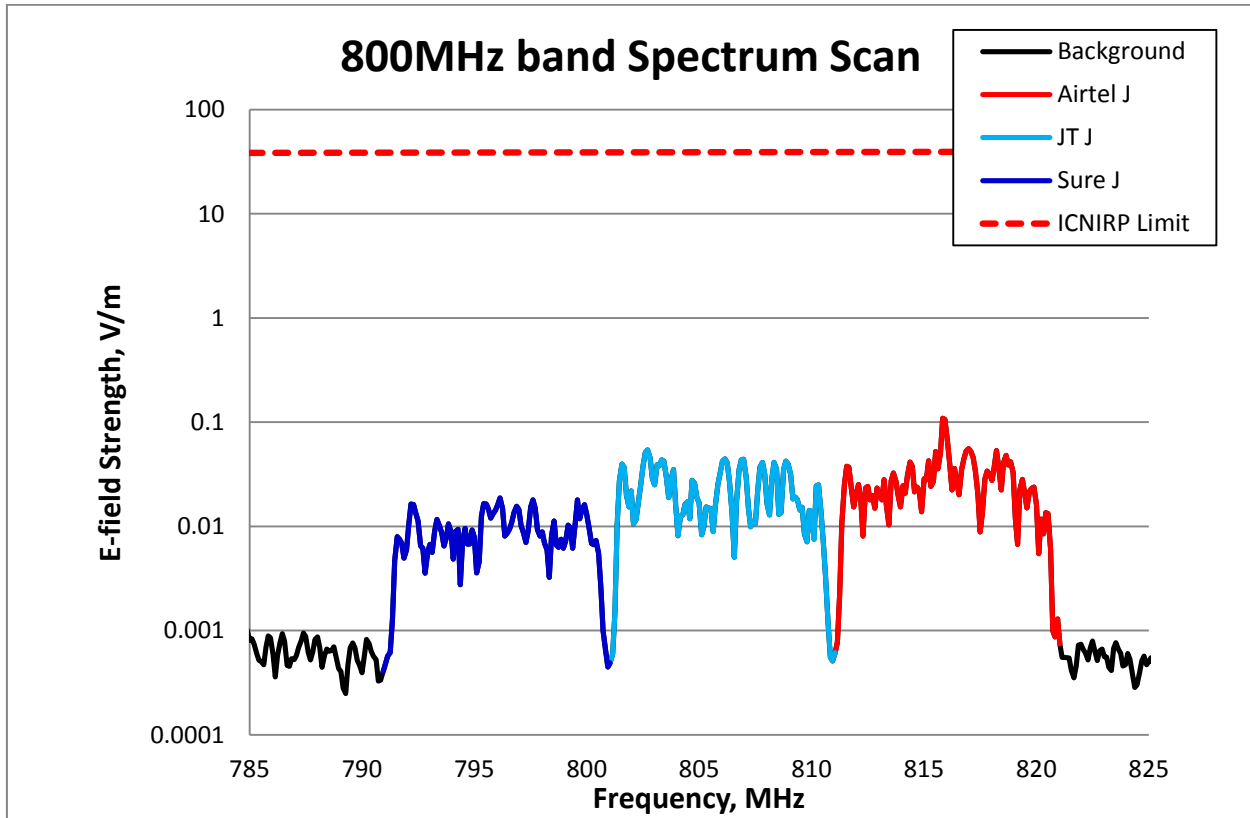


Figure 4 - 800MHz band Spectrum Scan

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 0.1091 V/m (Airtel J), which is 356 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
Woodbine Corner	Airtel J	800	0.1091	356	2.73852E-05	1/ 36516
	JT J		0.05411	719	1.7283E-05	1/ 57860
	Sure J		0.01874	2075	2.56274E-06	1/ 390207
total band EQ					4.7231E-05	1/ 21173

Table 2– 800MHz band Exposure Quotient at the Woodbine Corner

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

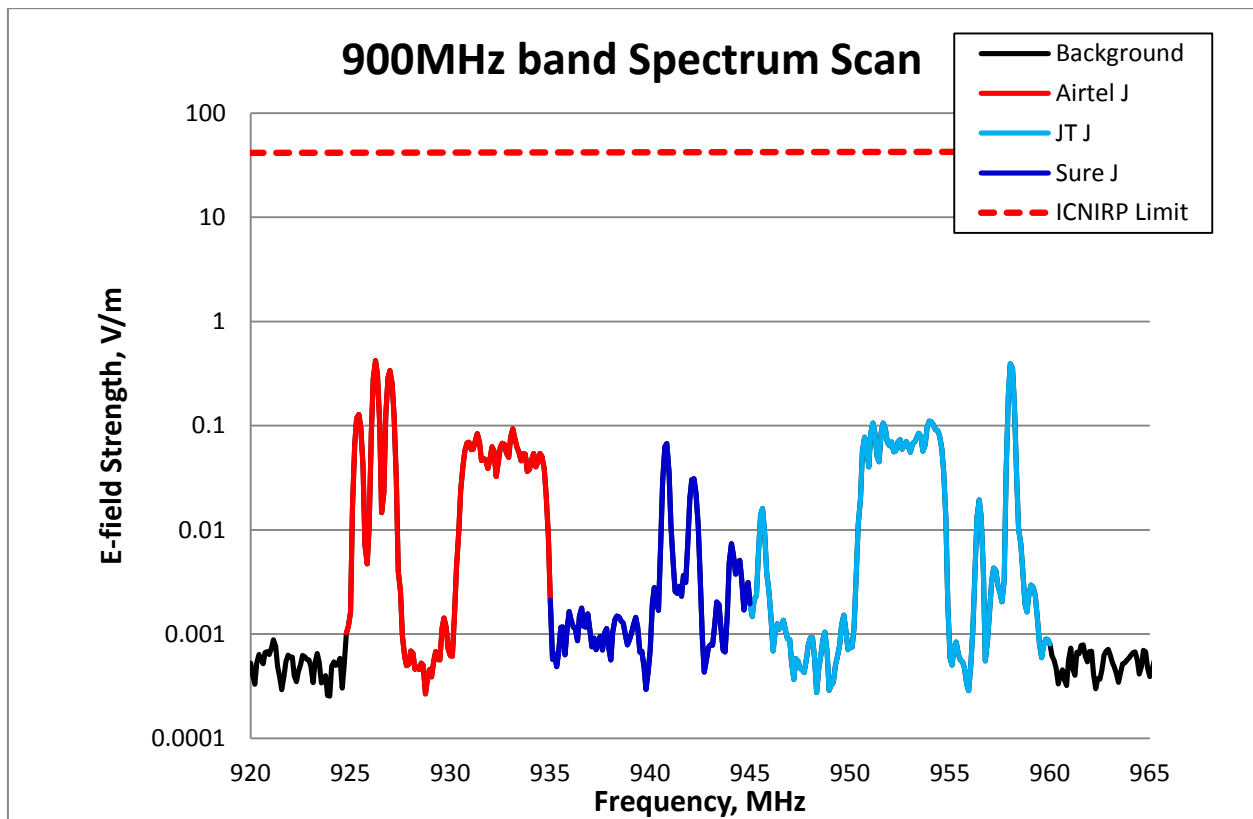


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.4224 V/m (Airtel J), which is 98 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
Woodbine Corner	Airtel J	900	0.4224	98	0.000227312	1/ 4399
	JT J		0.3942	105	0.000156505	1/ 6390
	Sure J		0.06768	609	3.80954E-06	1/ 262499
total band EQ					0.000387626	1/ 2580

Table 3– 900MHz band Exposure Quotient at the Woodbine Corner

2.3 1800 MHz Band

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

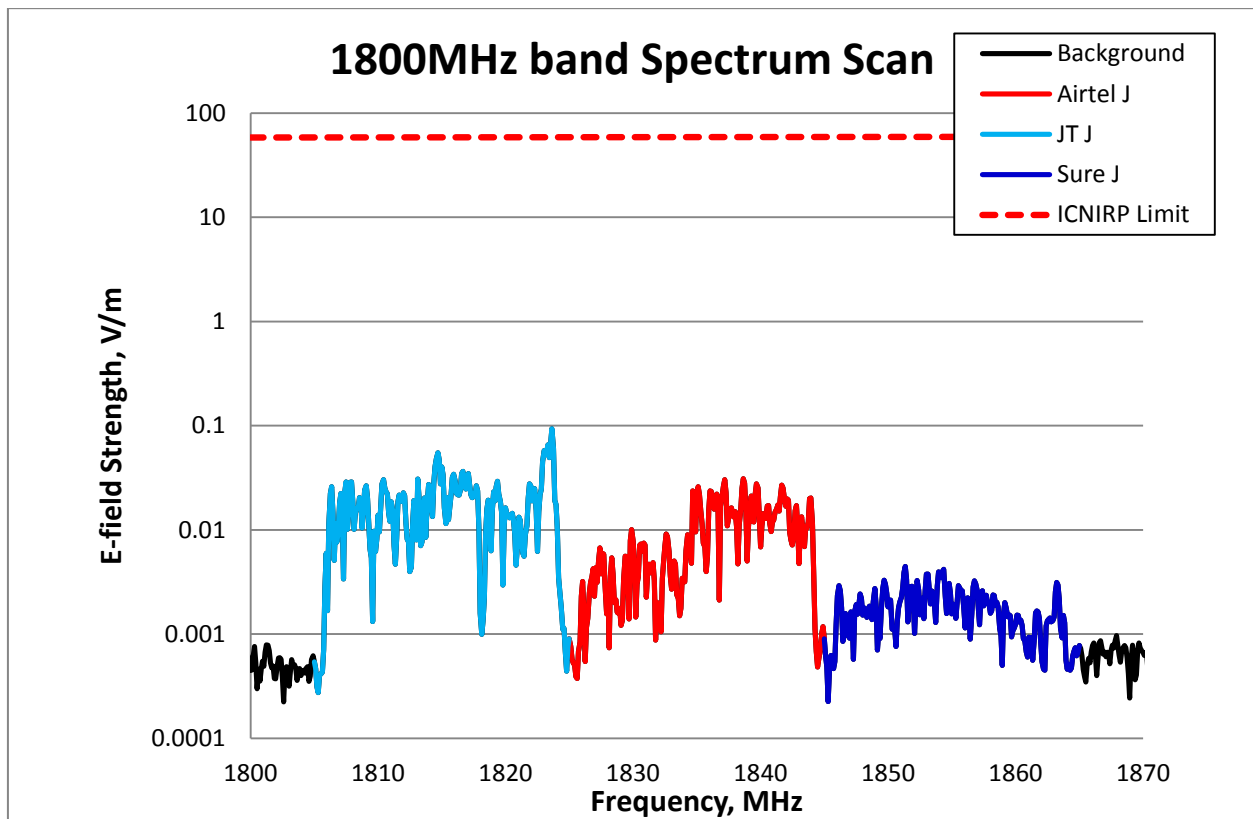


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.09343 V/m (JT J), which is 624 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
Woodbine Corner	Airtel J	1800	0.031	1882	7.32903E-06	1/ 136444
	JT J		0.09343	624	2.71818E-05	1/ 36789
	Sure J		0.004461	13077	1.97789E-07	1/ 5055892
total band EQ					3.47086E-05	1/ 28811

Table 4 – 1800MHz band Exposure Quotient at Woodbine Corner

2.4 2100MHz Band

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

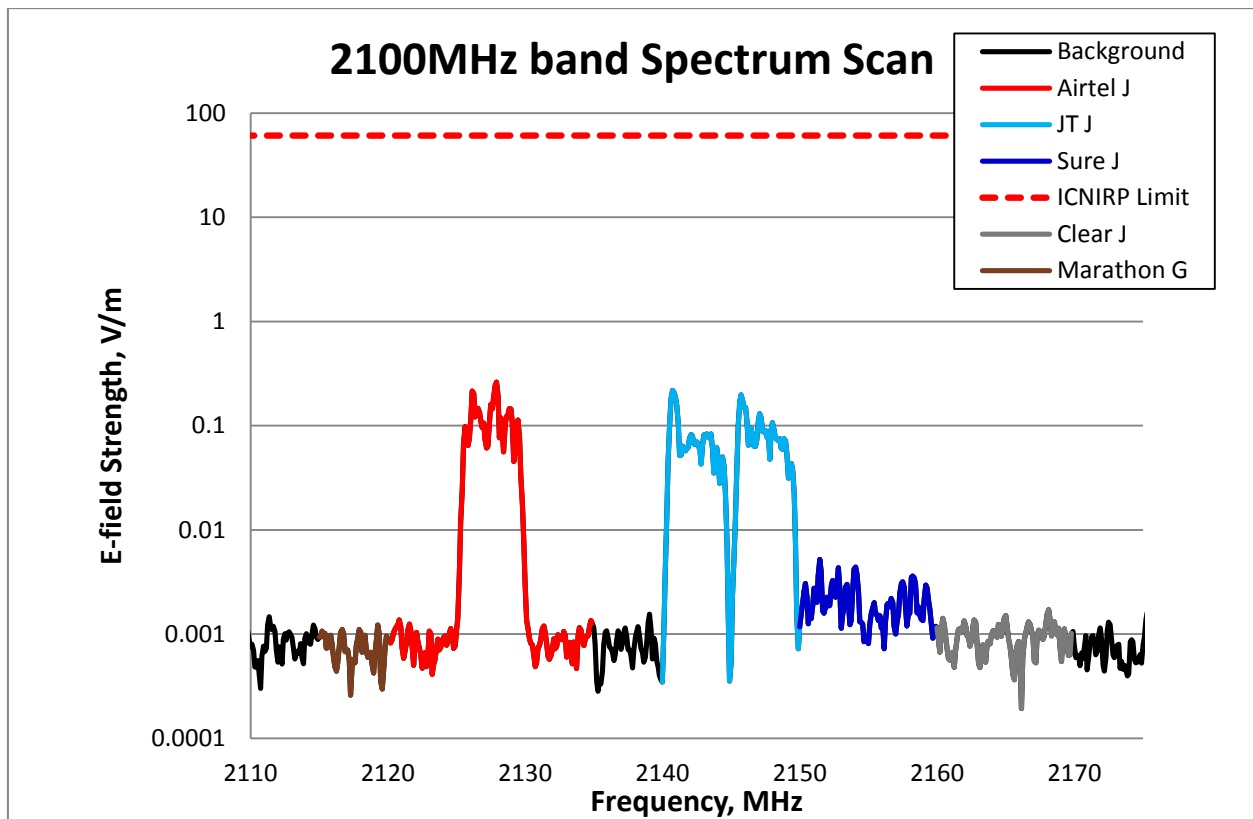


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.263 V/m (Airtel J), which is 232 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
Woodbine Corner	Airtel J	2100	0.263	232	0.000180767	1/ 5532
	Clear J		0.001721	35445	2.45702E-08	1/ 40699682
	JT J		0.2181	280	0.000189985	1/ 5264
	Marathon J		0.001223	49877	8.20586E-09	1/ 121864081
	Sure J		0.005197	11738	1.33115E-07	1/ 7512273
total band EQ					0.000370918	1/ 2696

Table 5 – 2100MHz band Exposure Quotient at the Woodbine Corner

2.5 2600MHz band

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

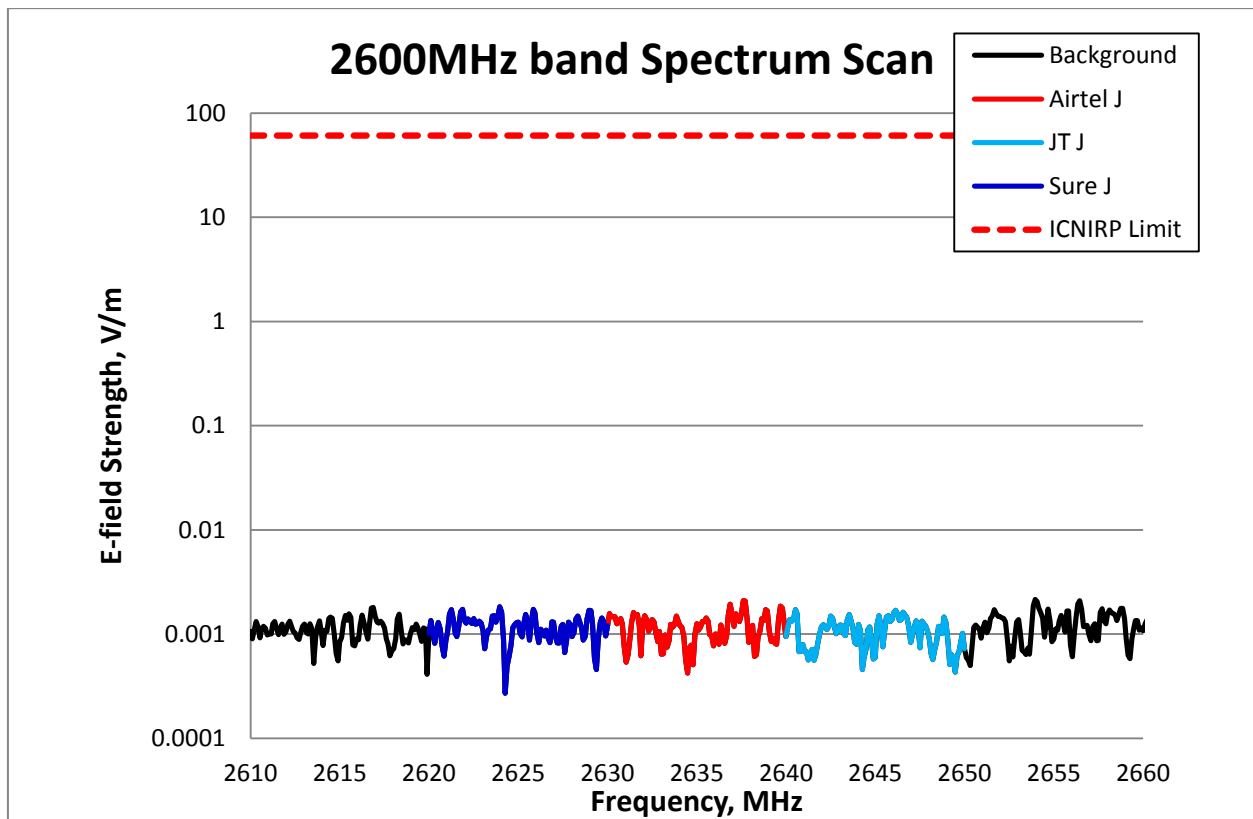


Figure 8 – 2600MHz band Spectrum Scan

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
Woodbine Corner	Airtel J	2600	0.002086	29243	3.85879E-08	1/ 25914838
	JT J		0.001722	35424	3.16974E-08	1/ 31548283
	Sure J		0.001829	33352	3.7201E-08	1/ 26880966
total band EQ					1.07486E-07	1/ 9303501

Table 6 – 2600MHz band Exposure Quotient at the Woodbine Corner

End