

Cellular Mast Emissions Survey: Pomme D'Or (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 Pomme D'Or site located in Jersey.

The Pomme D'Or 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
Pomme D'or	800	0.001229	Sure J	31644	3.53495E-08	1/ 28288932
	900	0.5895	JT J	70	0.000252834	1/ 3955
	1800	0.09809	Sure J	595	5.37733E-06	1/ 185966
	2100	0.001782	Clear J	34231	1.04574E-07	1/ 9562583
	2600	0.002472	JT J	24676	1.21893E-07	1/ 8203943
Total Site EQ					0.000258473	1/ 3869

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/3869 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

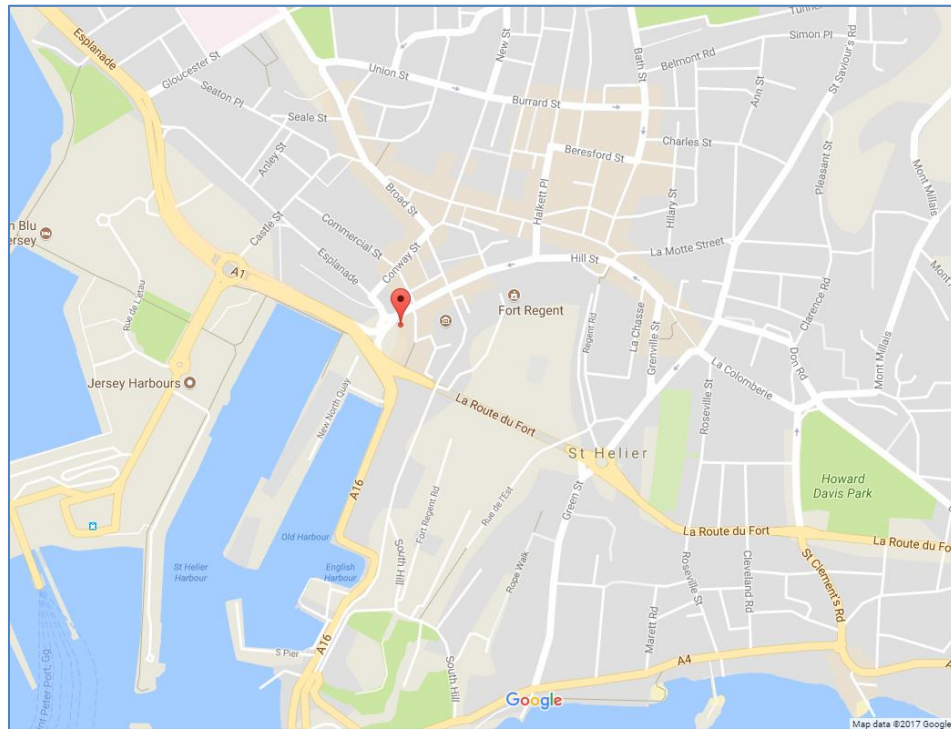


Figure 1 - Map of the Site Area

Site name	Pomme D'Or
Site address	Pomme D'Or Hotel, St Helier, Jersey
Site Latitude	N 49.18254
Site Longitude	W 02.10826

1.2 Site Description

Operators	JT J
Antenna types	Omni directional and directional
Approximate height	3m
Site type	Building - Internal
Description	The antennas at the Pomme D or are in one of the rooms, the public has access.

1.3 Site Photos



Figure 2 – Peak Measurement Location with wall-mounted antenna in background (left) and ceiling-mounted antenna in adjacent room (right)

1.4 Test Location

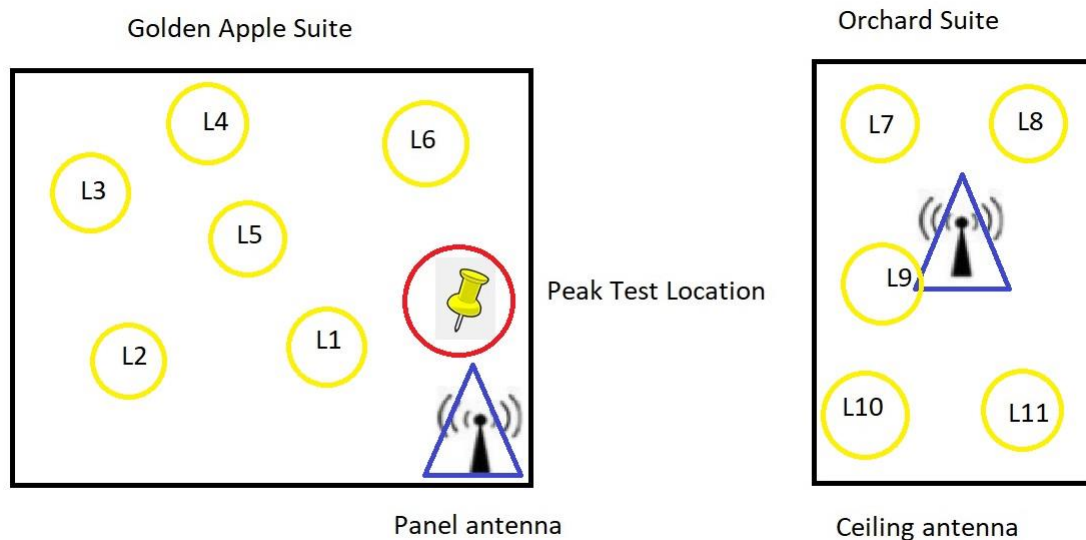


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

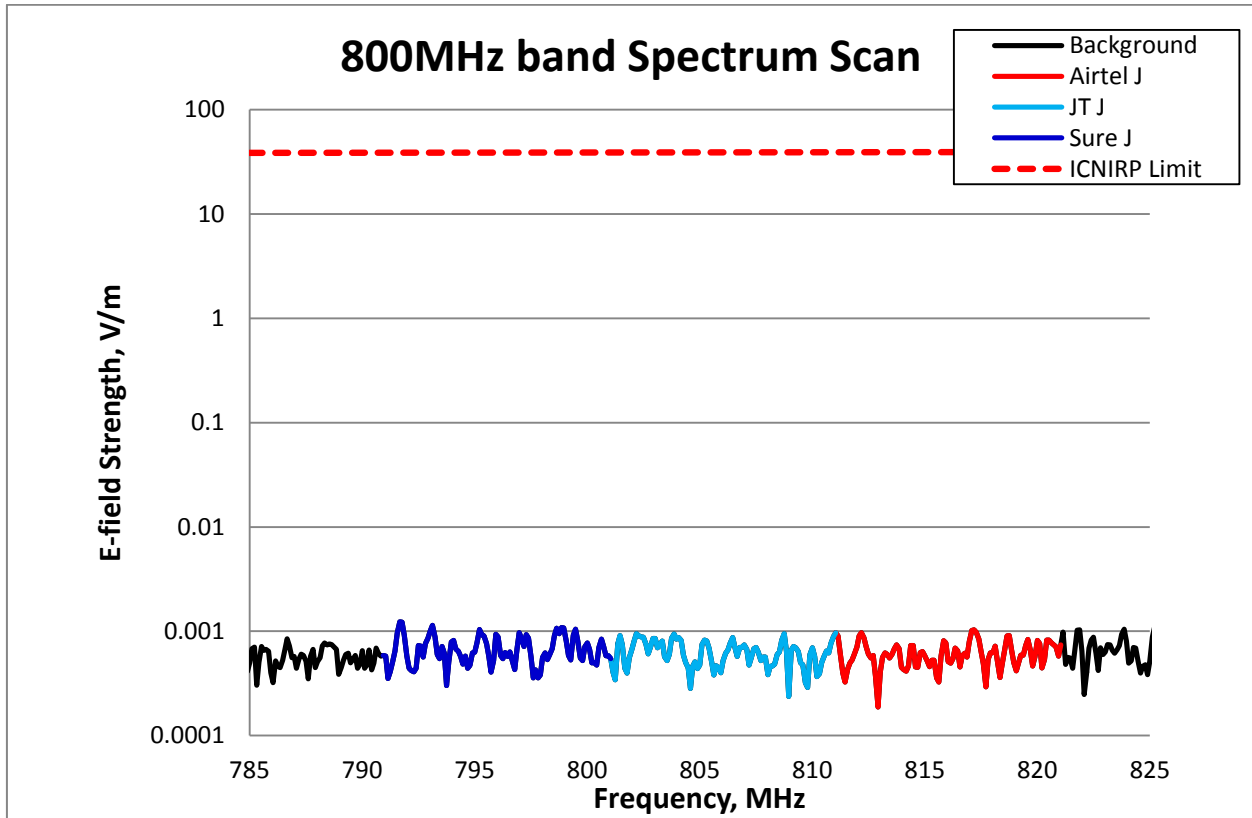


Figure 4 - 800MHz band Spectrum Scan

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
Pomme D'or	Airtel J	800	0.00103	37758	1.08848E-08	1/ 91870900
	JT J		0.0009688	40143	1.11664E-08	1/ 89554391
	Sure J		0.001229	31644	1.32983E-08	1/ 75197717
total band EQ					3.53495E-08	1/ 28288932

Table 2– 800MHz band Exposure Quotient at Pomme D'Or

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

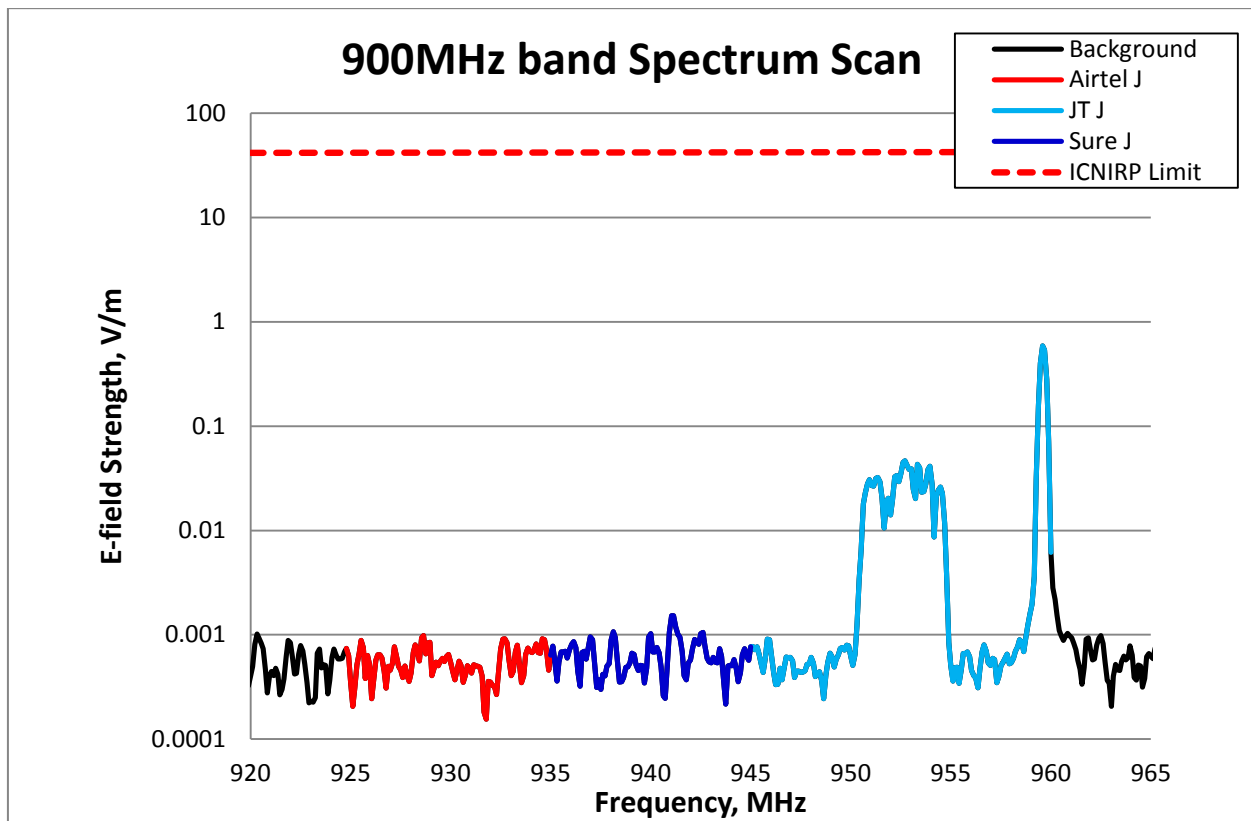


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.5895 V/m (JT J), which is 70 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 900MHz band are shown below:

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
Pomme D'or	Airtel J	900	0.0009828	41972	8.82058E-09	1/ 113371199
	JT J		0.5895	70	0.000252813	1/ 3955
	Sure J		0.001526	27031	1.21773E-08	1/ 82119891
total band EQ					0.000252834	1/ 3955

Table 3– 900MHz band Exposure Quotient at Pomme D'Or

2.3 1800 MHz Band

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

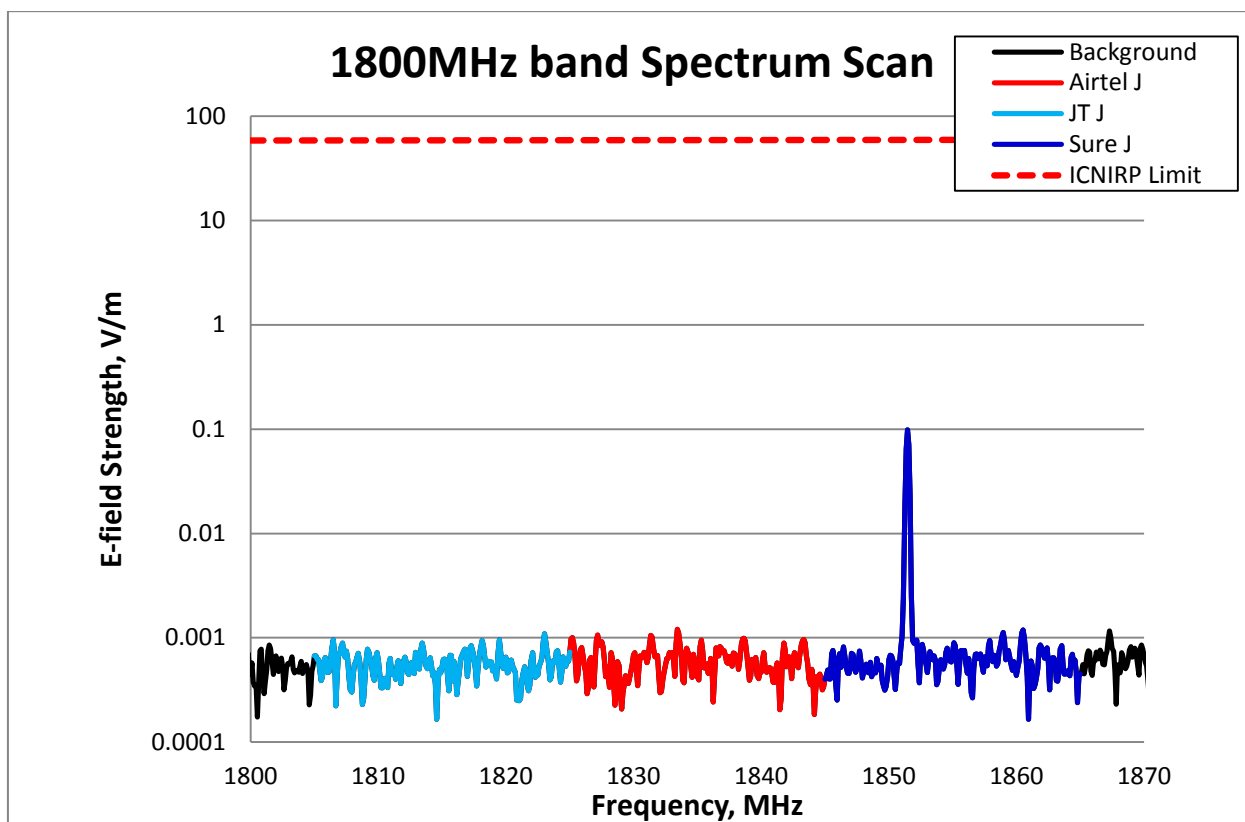


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.09809 V/m (Sure J), which is 595 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 1800MHz band are shown below:

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
Pomme D'or	Airtel J	1800	0.001209	48252	2.02557E-08	1/ 49368821
	JT J		0.001094	53324	1.72411E-08	1/ 58000779
	Sure J		0.09809	595	5.33984E-06	1/ 187272
total band EQ					5.37733E-06	1/ 185966

Table 4 – 1800MHz band Exposure Quotient at Pomme D'Or

2.4 2100MHz Band

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

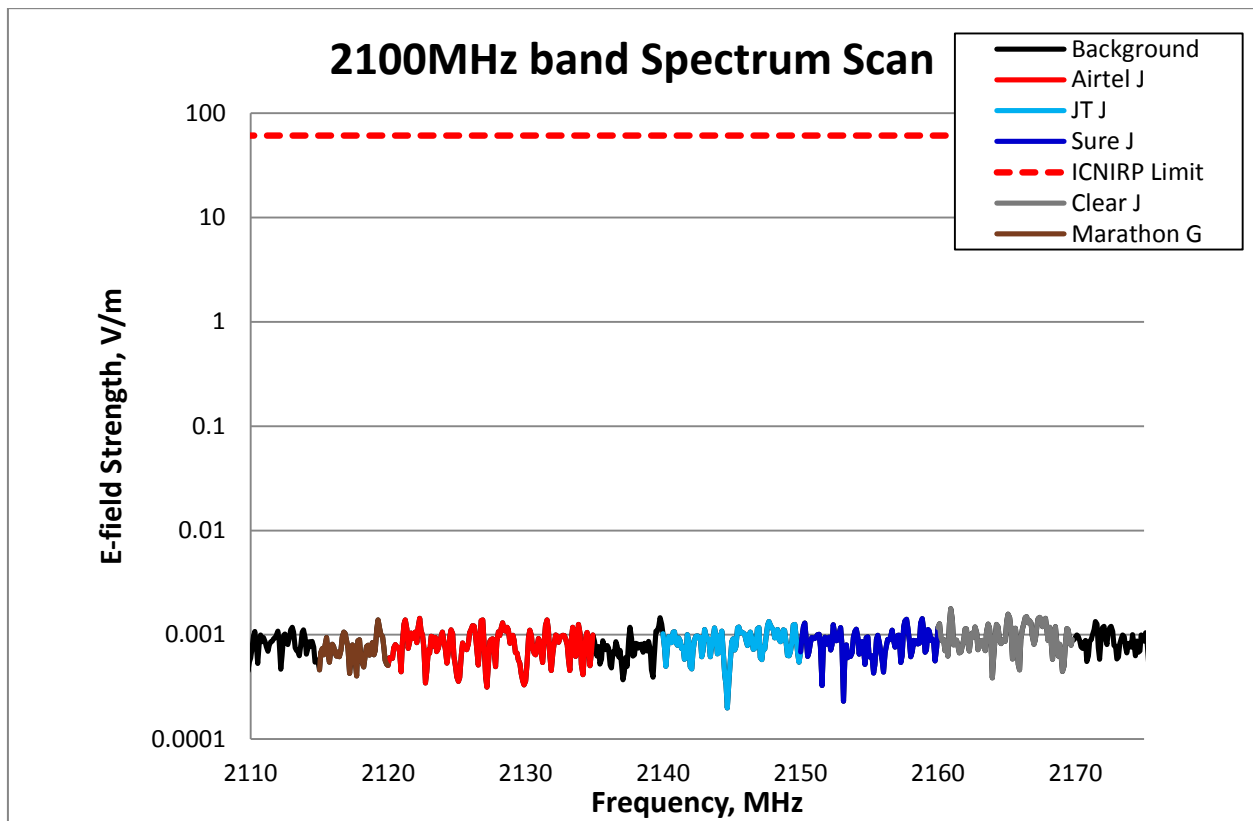


Figure 7 – 2100MHz band Spectrum Scan

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	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
Pomme D'or	Airtel J	2100	0.001442	42302	2.89837E-08	1/ 34502142
	Clear J		0.001782	34231	2.67279E-08	1/ 37414135
	JT J		0.001339	45556	2.06837E-08	1/ 48347252
	Marathon J		0.001385	44043	7.77175E-09	1/ 128671143
	Sure J		0.001433	42568	2.04072E-08	1/ 49002245
total band EQ					1.04574E-07	1/ 9562583

Table 5 – 2100MHz band Exposure Quotient at Pomme D'Or

2.5 2600MHz band

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

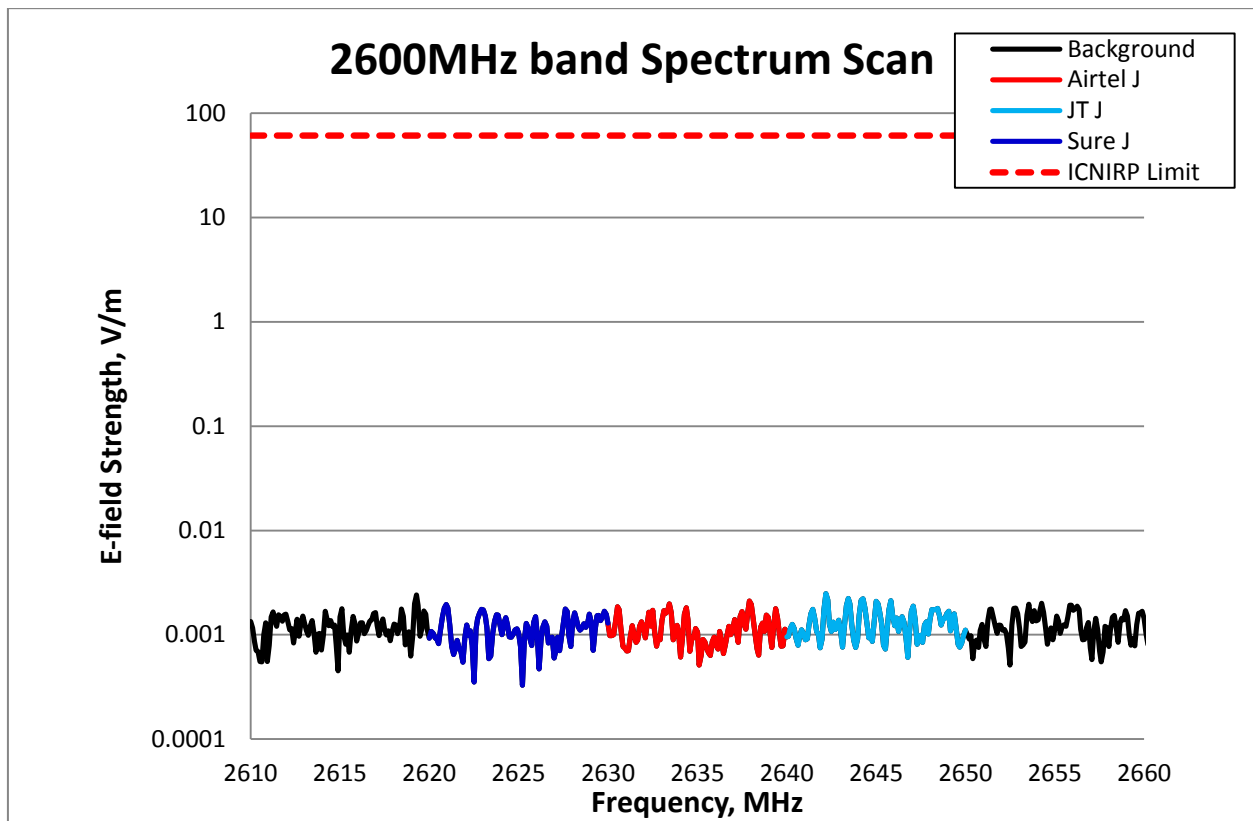


Figure 8 – 2600MHz band Spectrum Scan

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	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
Pomme D'or	Airtel J	2600	0.002108	28937	3.666E-08	1/ 27277683
	JT J		0.002472	24676	4.86366E-08	1/ 20560662
	Sure J		0.001944	31379	3.6596E-08	1/ 27325362
total band EQ					1.21893E-07	1/ 8203943

Table 6 – 2600MHz band Exposure Quotient at Pomme D'Or

End