

Cellular Mast Emissions Survey: Pier Road Car Park (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 Pier Road Car Park site located in Jersey.

The Pier Road Car Park 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
Pier Road Car Park	800	0.1343	JT J	290	0.000119867	1/ 8343
	900	1.363	JT J	30	0.001595836	1/ 627
	1800	0.2693	JT J	217	0.000135026	1/ 7406
	2100	0.1522	JT J	401	0.000191134	1/ 5232
	2600	0.004445	JT J	13723	3.06334E-07	1/ 3264416
Total Site EQ					0.00204217	1/ 490

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/490 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

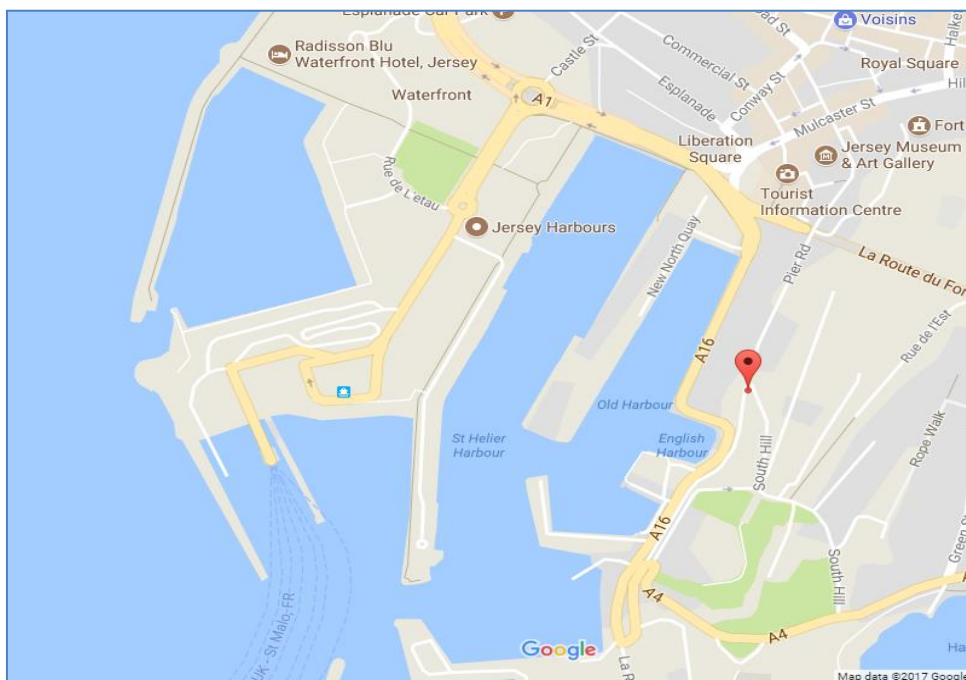


Figure 1 - Map of the Site Area

Site name	Pier Road Car Park
Site address	Pier Road Car Park Car Park, St Helier, Jersey
Site Latitude	49.18010
Site Longitude	-2.10815

1.2 Site Description

Operators	JT J
Antenna types	Directional
Approximate height	20-25m
Site type	Building – Wall Mount
Description	The antennas at the Pier Road Car Park are located on the side of the main building, out of reach of the public

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

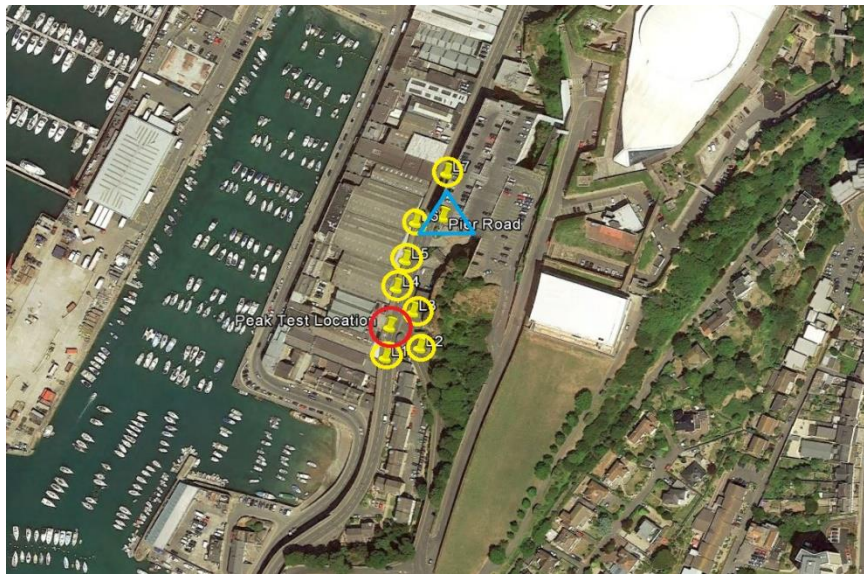


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

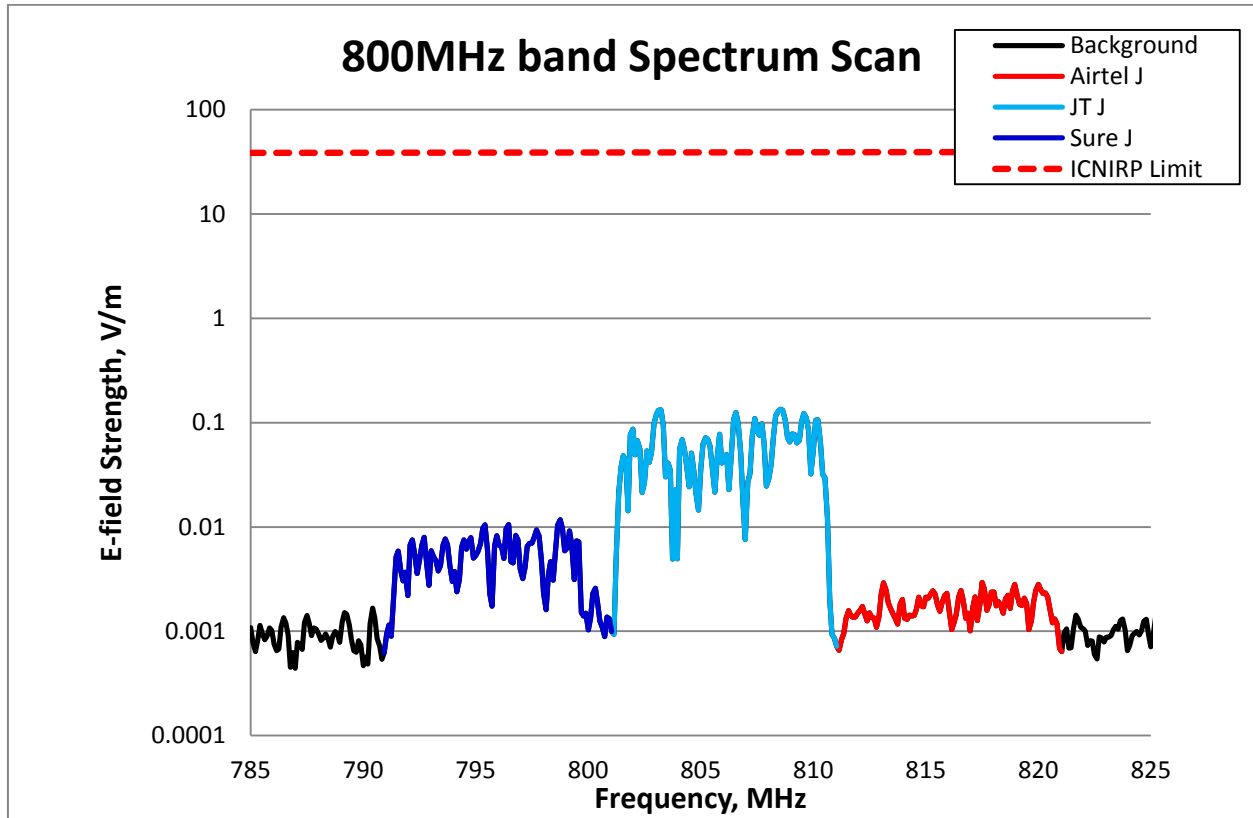


Figure 4 - 800MHz band Spectrum Scan

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 field level recorded across the band was higher than 0.1343 V/m (JT J), which is 290 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
Pier Road Car Park	Airtel J	800	0.002938	13237	8.51985E-08	1/ 11737302
	JT J		0.1343	290	0.000118932	1/ 8408
	Sure J		0.0117	3324	8.49845E-07	1/ 1176685
total band EQ					0.000119867	1/ 8343

Table 2– 800MHz band Exposure Quotient at Pier Road Car Park

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

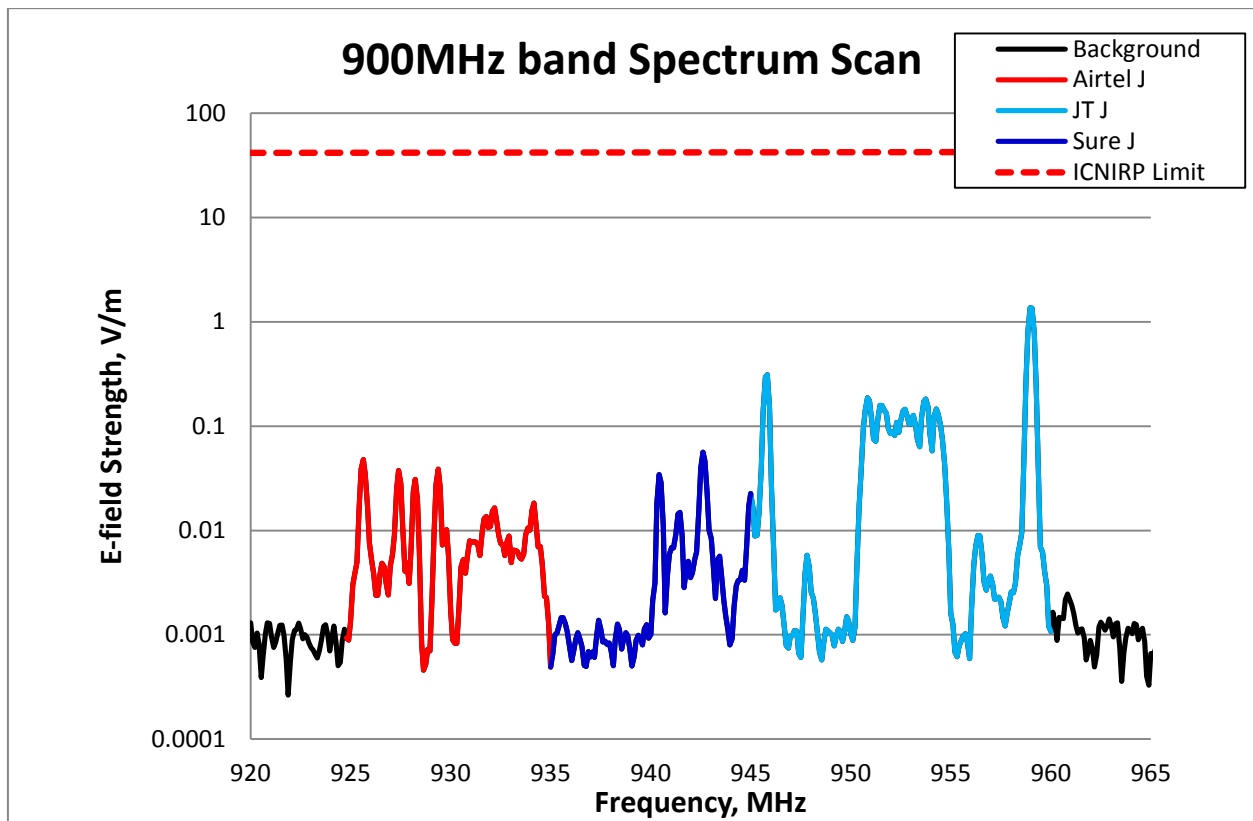


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 1.363 V/m (JT J), which is 30 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
Pier Road Car Park	Airtel J	900	0.04799	860	4.75728E-06	1/ 210204
	JT J		1.363	30	0.001587789	1/ 630
	Sure J		0.05628	733	3.29018E-06	1/ 303935
total band EQ					0.001595836	1/ 627

Table 3– 900MHz band Exposure Quotient at Pier Road Car Park

2.3 1800 MHz Band

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

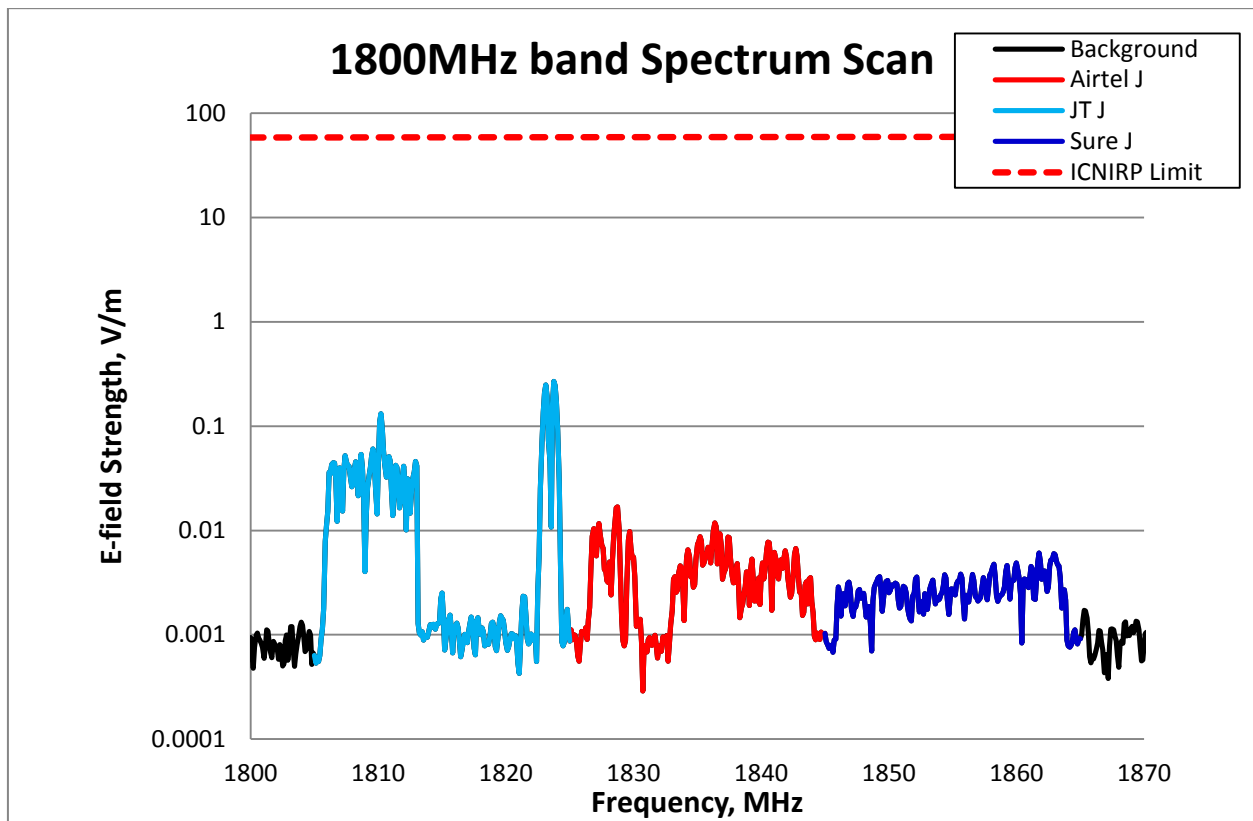


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.2693 V/m (JT J), which is 217 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
Pier Road Car Park	Airtel J	1800	0.0168	3472	1.25536E-06	1/ 796587
	JT J		0.2693	217	0.000133345	1/ 7499
	Sure J		0.00609	9579	4.25191E-07	1/ 2351886
total band EQ					0.000135026	1/ 7406

Table 4 – 1800MHz band Exposure Quotient at Pier Road Car Park

2.4 2100MHz Band

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

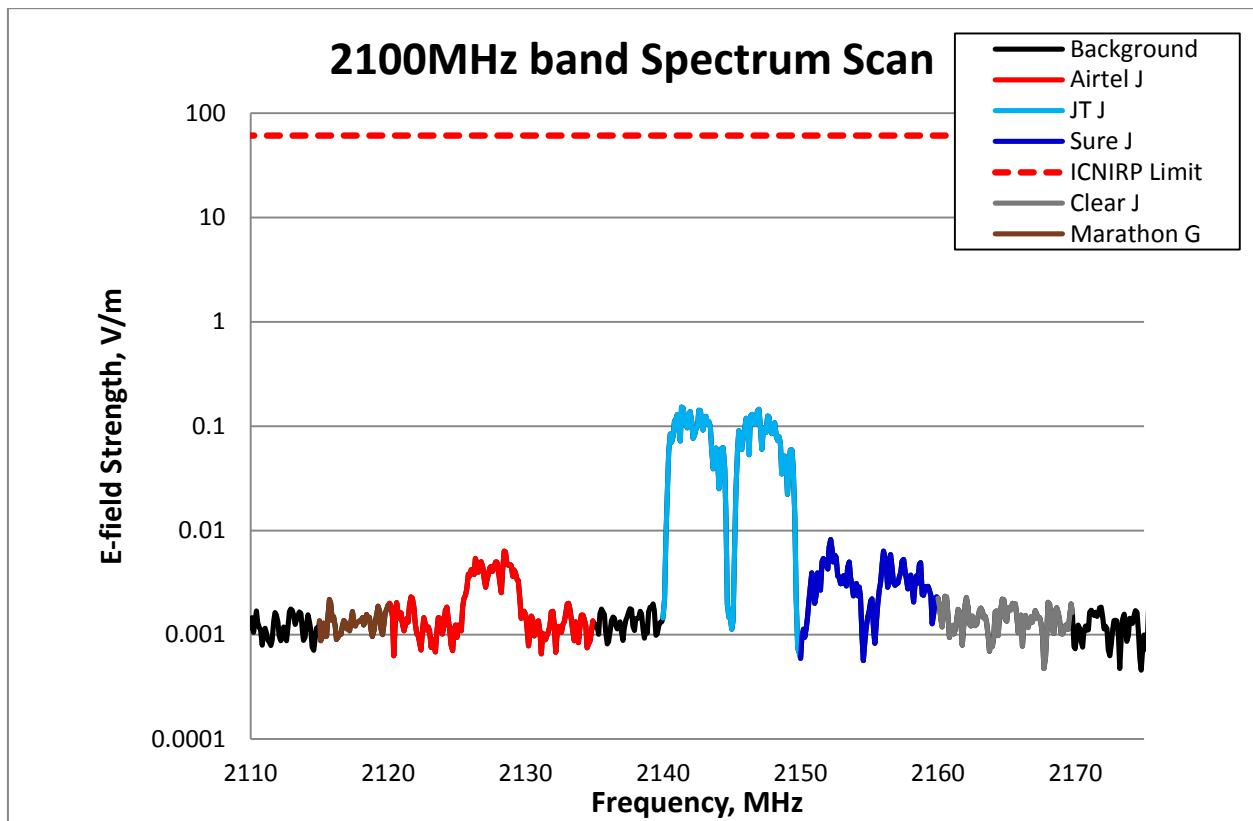


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.1522 V/m (JT J), which is 401 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
Pier Road Car Park	Airtel J	2100	0.006353	9602	2.3549E-07	1/ 4246473
	Clear J		0.002335	26124	5.7185E-08	1/ 17487111
	JT J		0.1522	401	0.000190493	1/ 5250
	Marathon J		0.002184	27930	2.45403E-08	1/ 40749218
	Sure J		0.008196	7443	3.24553E-07	1/ 3081157
total band EQ					0.000191134	1/ 5232

Table 5 – 2100MHz band Exposure Quotient at Pier Road Car Park

2.5 2600MHz band

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

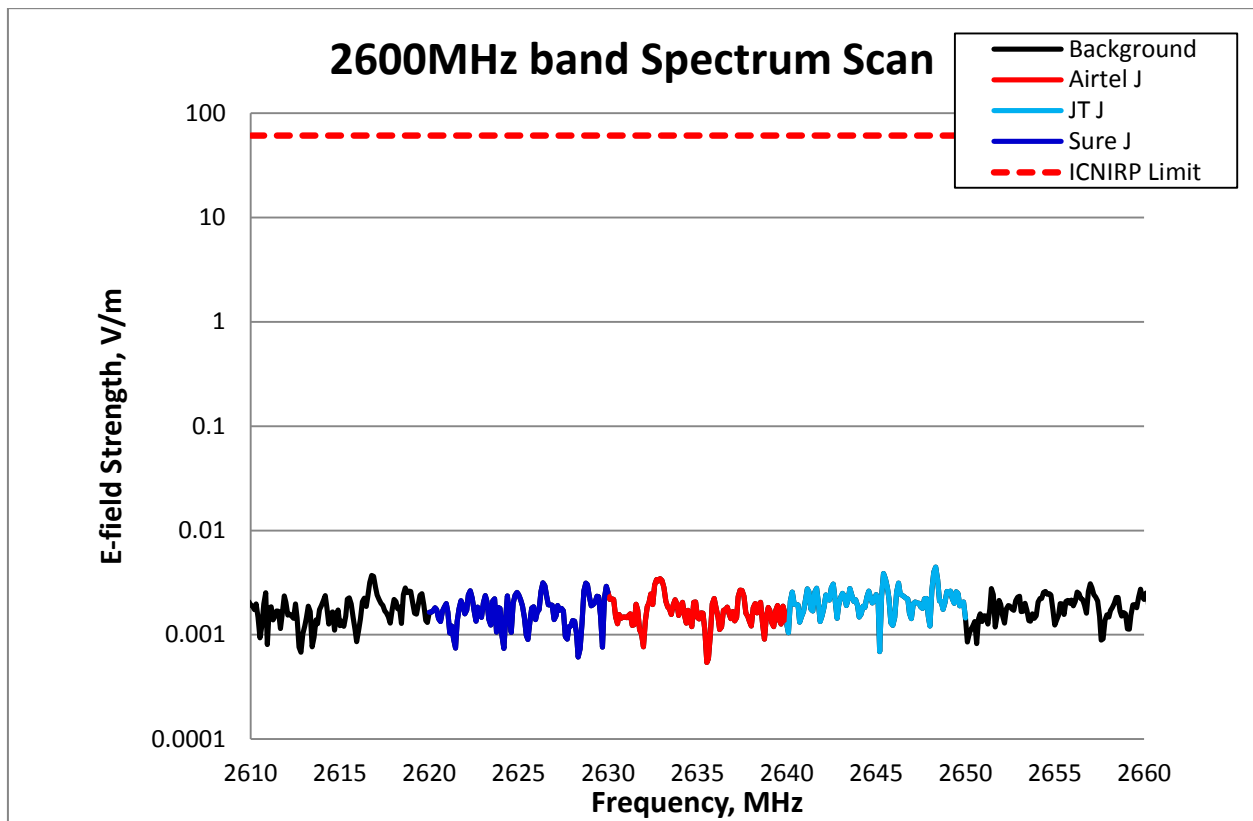


Figure 8 – 2600MHz band Spectrum Scan

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
Pier Road Car Park	Airtel J	2600	0.00345	17681	8.65761E-08	1/ 11550537
	JT J		0.004445	13723	1.31065E-07	1/ 7629804
	Sure J		0.003152	19353	8.86925E-08	1/ 11274912
total band EQ					3.06334E-07	1/ 3264416

Table 6 – 2600MHz band Exposure Quotient at Pier Road Car Park

End