

Cellular Mast Emissions Survey: Weighbridge Kiosk (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 Weighbridge Kiosk site located in Jersey.

The Weighbridge Kiosk 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
Weighbridge Kiosk	800	0.03716	Airtel J	1047	1.49434E-05	1/ 66919
	900	3.715	JT J	11	0.012827988	1/ 78
	1800	0.1958	JT J	298	0.00018382	1/ 5440
	2100	0.02326	Sure J	2623	5.21214E-06	1/ 191860
	2600	0.007369	JT J	8278	1.1134E-06	1/ 898146
Total Site EQ					0.013033077	1/ 77

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/77 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 (JT) 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

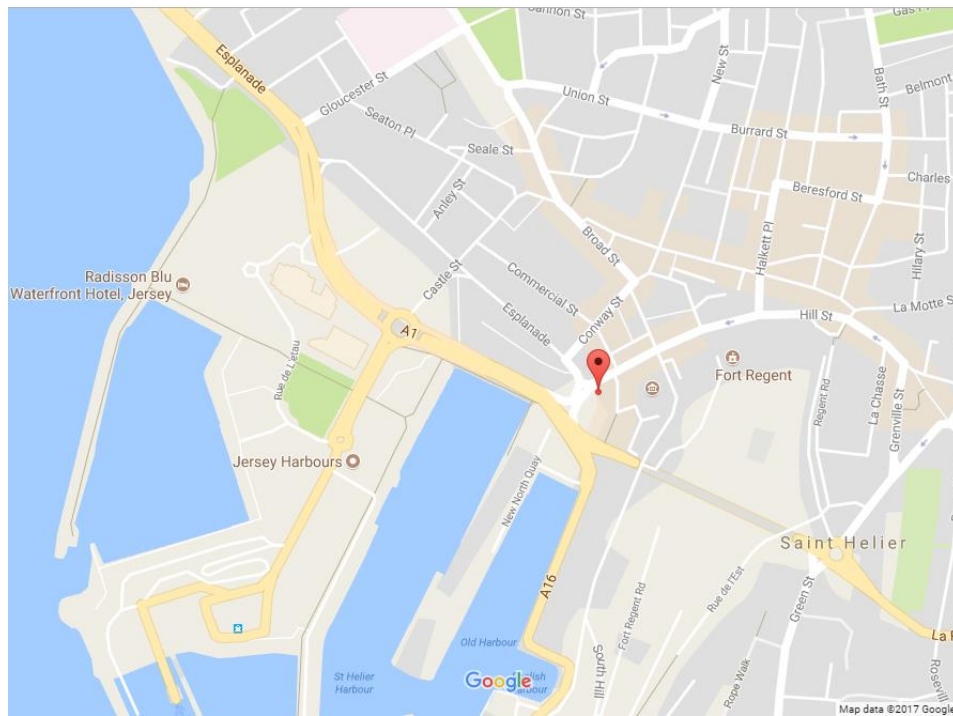


Figure 1 - Map of the Site Area

Site name	Weighbridge Kiosk
Site address	Mulcaster Street, St Helier, Jersey
Site Latitude	N 49.18255
Site Longitude	W 2.10282

1.2 Site Description

Operators	JT J
Antenna types	Omni directional
Approximate height	2m
Site type	Kiosk
Description	The antenna at the Weighbridge Kiosk is hidden inside the roof-space of the kiosk. It is not visible to the public but its outer protective case can be reached by the public

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location



Figure 3- The probe was positioned inside the kiosk where the strongest signal was 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.

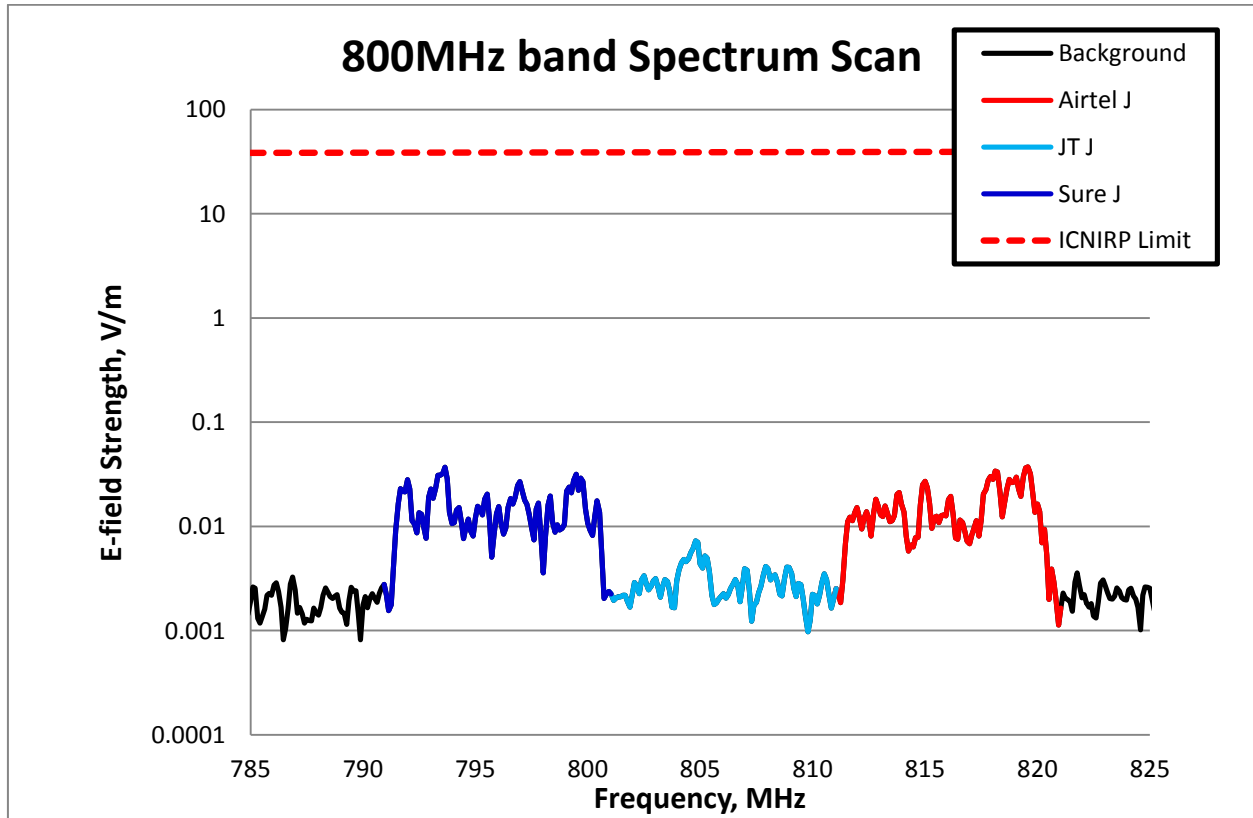


Figure 4 - 800MHz band Spectrum Scan

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 0.03716 V/m (Airtel J), which is 1047 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
Weighbridge Kiosk	Airtel J	800	0.03716	1047	7.41075E-06	1/ 134939
	JT J		0.007257	5359	2.53548E-07	1/ 3944026
	Sure J		0.03698	1052	7.27913E-06	1/ 137379
total band EQ					1.49434E-05	1/ 66919

Table 2– 800MHz band Exposure Quotient at Weybridge Kiosk

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

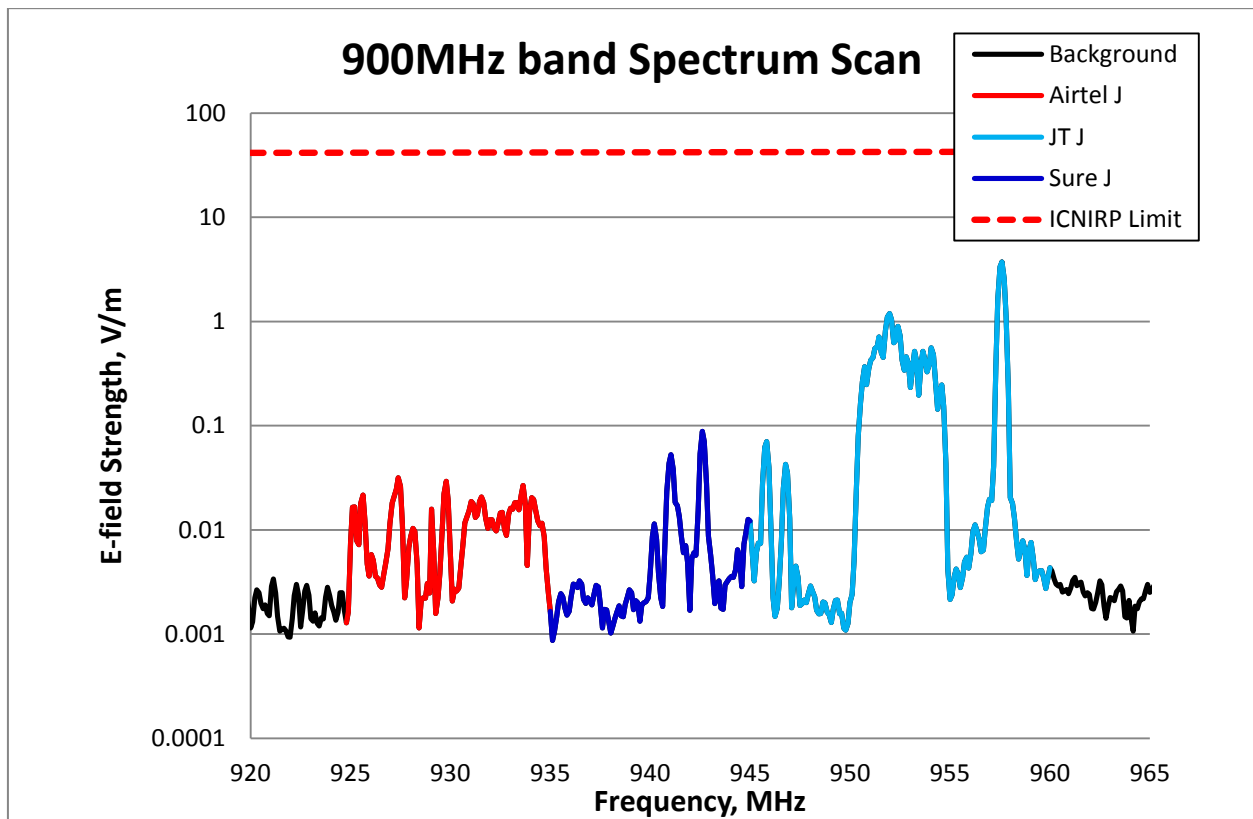


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 3.715 V/m (JT J), which is 11 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
Weighbridge Kiosk	Airtel J	900	0.03159	1306	4.55544E-06	1/ 219518
	JT J		3.715	11	0.012816485	1/ 78
	Sure J		0.08859	466	6.94715E-06	1/ 143944
total band EQ					0.012827988	1/ 78

Table 3– 900MHz band Exposure Quotient at Weybridge Kiosk

2.3 1800 MHz Band

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

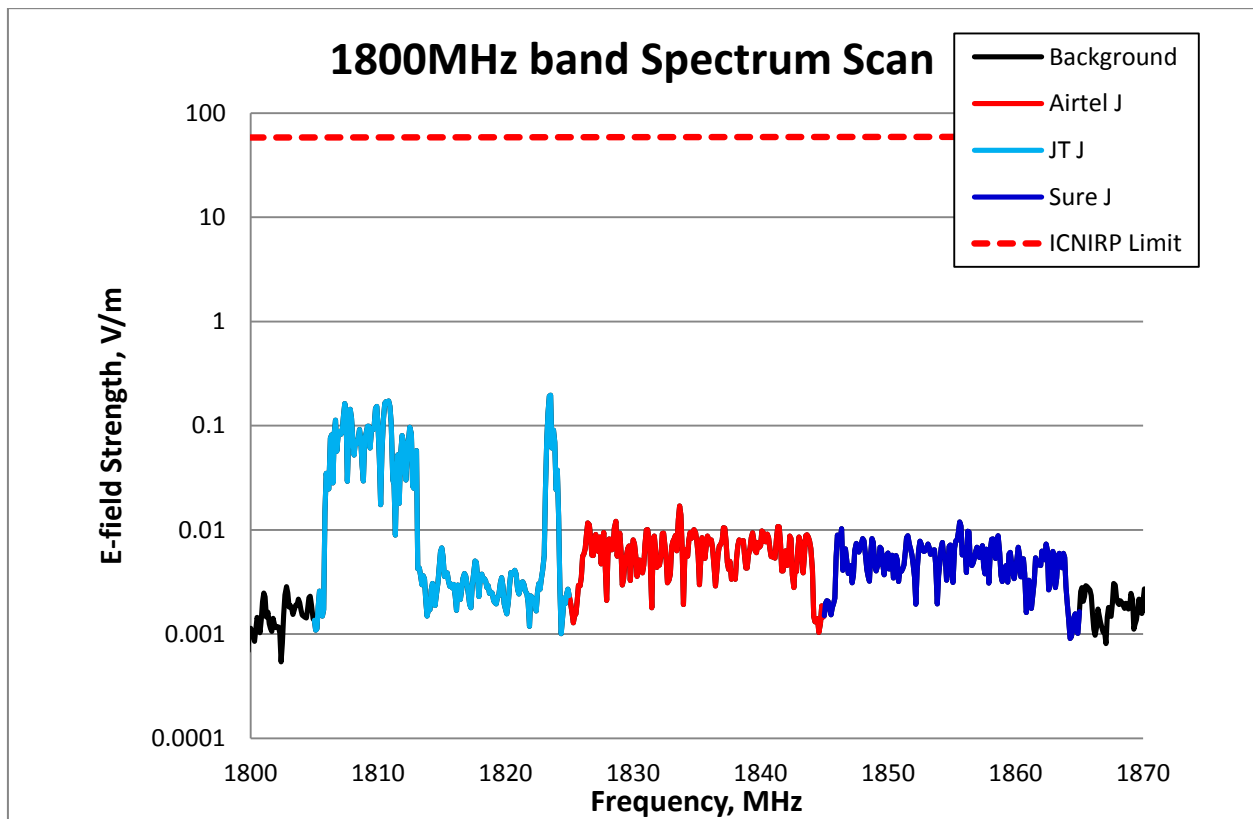


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1958 V/m (JT J), which is 298 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
Weighbridge Kiosk	Airtel J	1800	0.01698	3436	2.41768E-06	1/ 413620
	JT J		0.1958	298	0.000179825	1/ 5561
	Sure J		0.01194	4886	1.57766E-06	1/ 633850
total band EQ					0.00018382	1/ 5440

Table 4 – 1800MHz band Exposure Quotient at Weybridge Kiosk

2.4 2100MHz Band

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

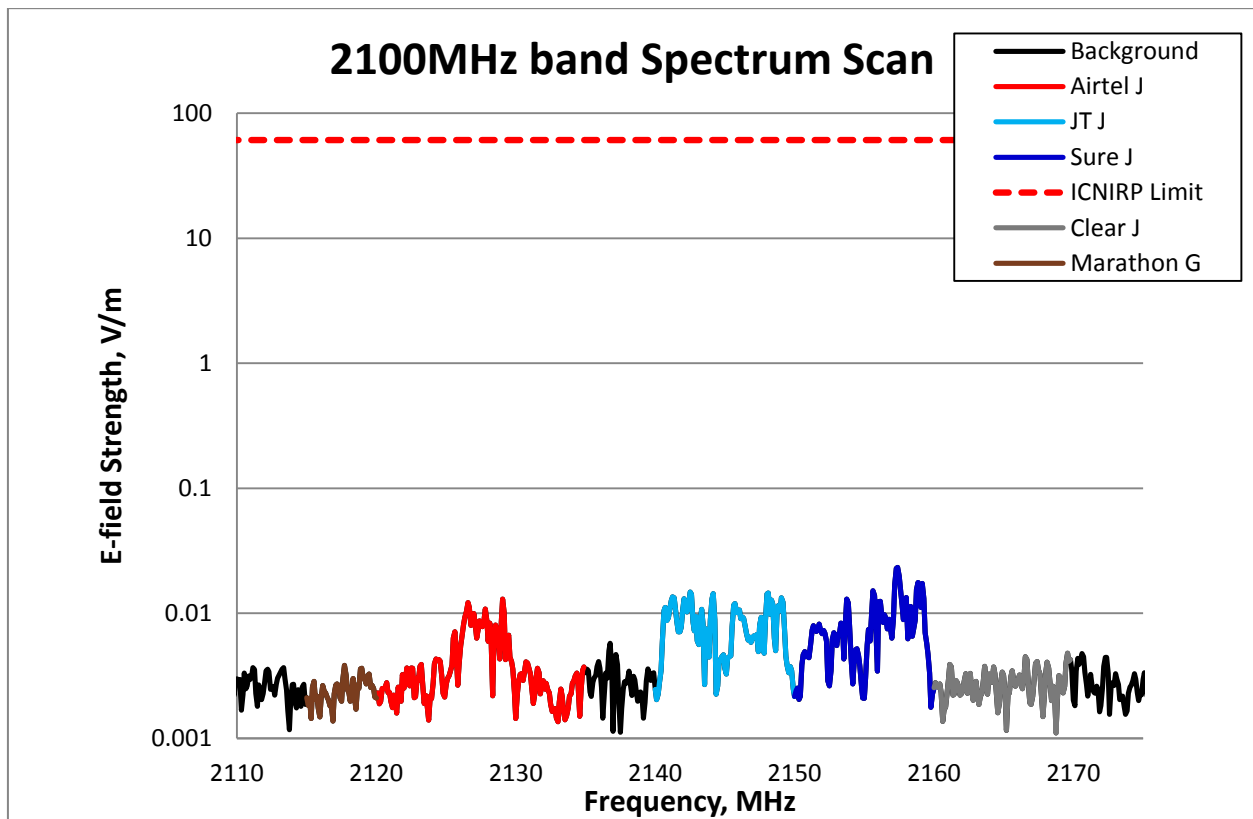


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.02326 V/m (Sure J), which is 2623 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
Weighbridge Kiosk	Airtel J	2100	0.01295	4710	8.66707E-07	1/ 1153792
	Clear J		0.004795	12722	2.09187E-07	1/ 4780410
	JT J		0.01476	4133	1.94522E-06	1/ 514080
	Marathon J		0.003821	15964	8.14322E-08	1/ 12280154
	Sure J		0.02326	2623	2.10959E-06	1/ 474025
total band EQ					5.21214E-06	1/ 191860

Table 5 – 2100MHz band Exposure Quotient at Weybridge Kiosk

2.5 2600MHz band

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

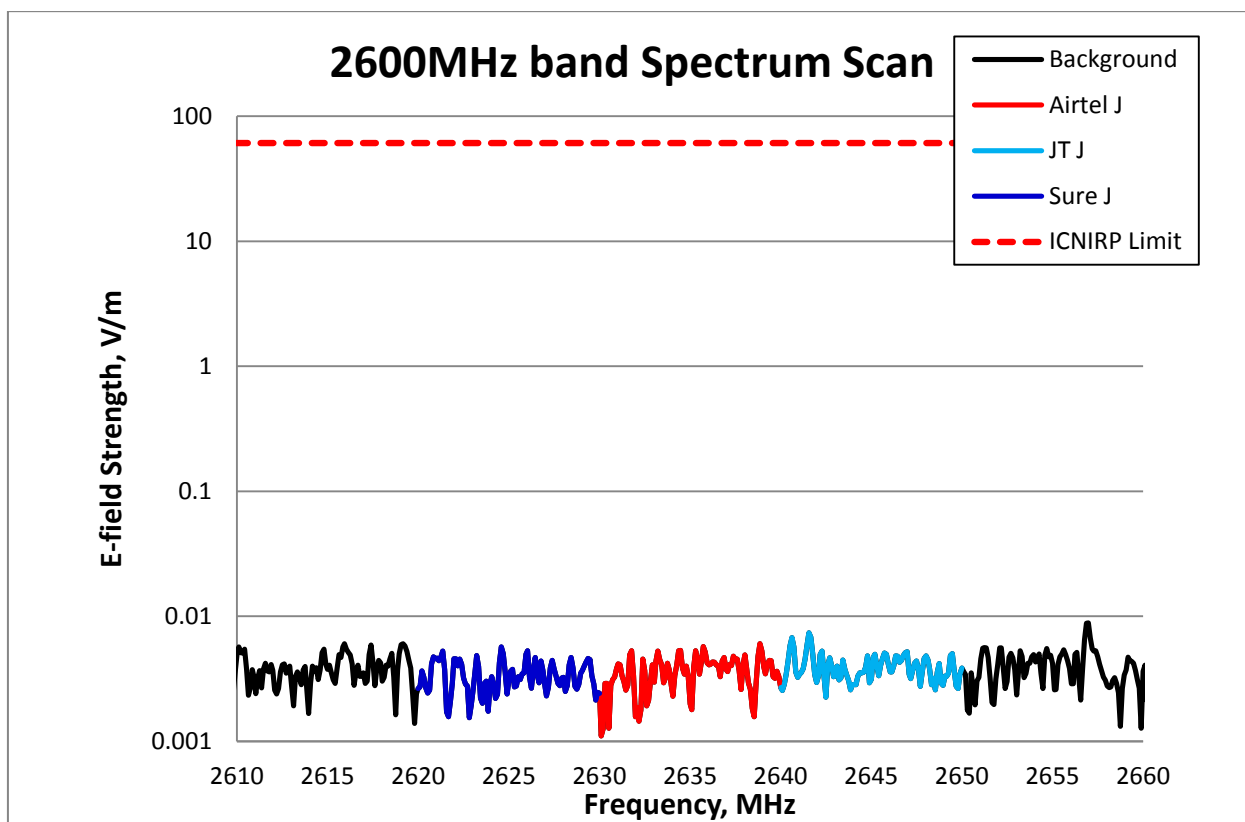


Figure 8 – 2600MHz band Spectrum Scan

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
Weighbridge Kiosk	Airtel J	2600	0.006017	10138	3.66445E-07	1/ 2728924
	JT J		0.007369	8278	4.27227E-07	1/ 2340675
	Sure J		0.005683	10734	3.19732E-07	1/ 3127615
total band EQ					1.1134E-06	1/ 898146

Table 6 – 2600MHz band Exposure Quotient at Weybridge Kiosk

End