

Cellular Mast Emissions Survey: Westmount Mast (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 Westmount Mast site located in Jersey.

The Westmount Mast 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
Westmount Mast	800	0.08065	JT J	482	7.13114E-05	1/ 14023
	900	0.728	JT J	57	0.000544565	1/ 1836
	1800	0.1276	JT J	457	0.000110354	1/ 9062
	2100	0.151	JT J	404	0.000170227	1/ 5875
	2600	0.1551	JT J	393	8.95017E-05	1/ 11173
Total Site EQ					0.000985958	1/ 1014

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/1014 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

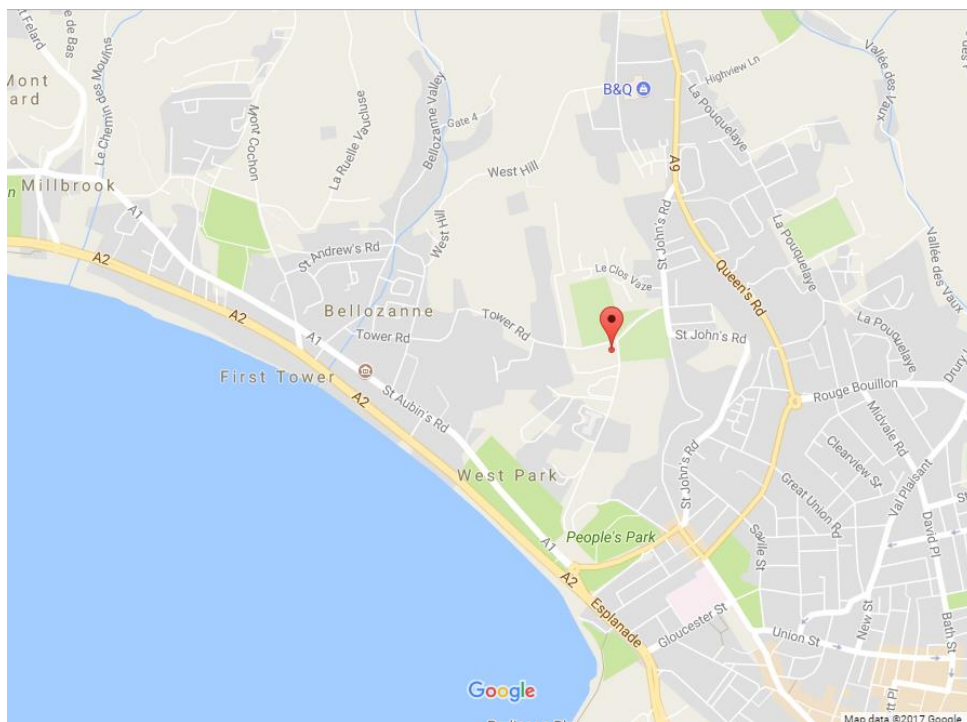


Figure 1 - Map of the Site Area

Site name	Westmount Mast
Site address	Tower Road, St Helier, Jersey
Site Latitude	N 49.19398
Site Longitude	W 02.11584

1.2 Site Description

Operators	JT J
Antenna types	Directional
Approximate height	20m
Site type	Lattice mast
Description	The Lattice mast at Westmount Mast is located to the side of the car park within a fenced enclosure; access to the public is restricted.

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.

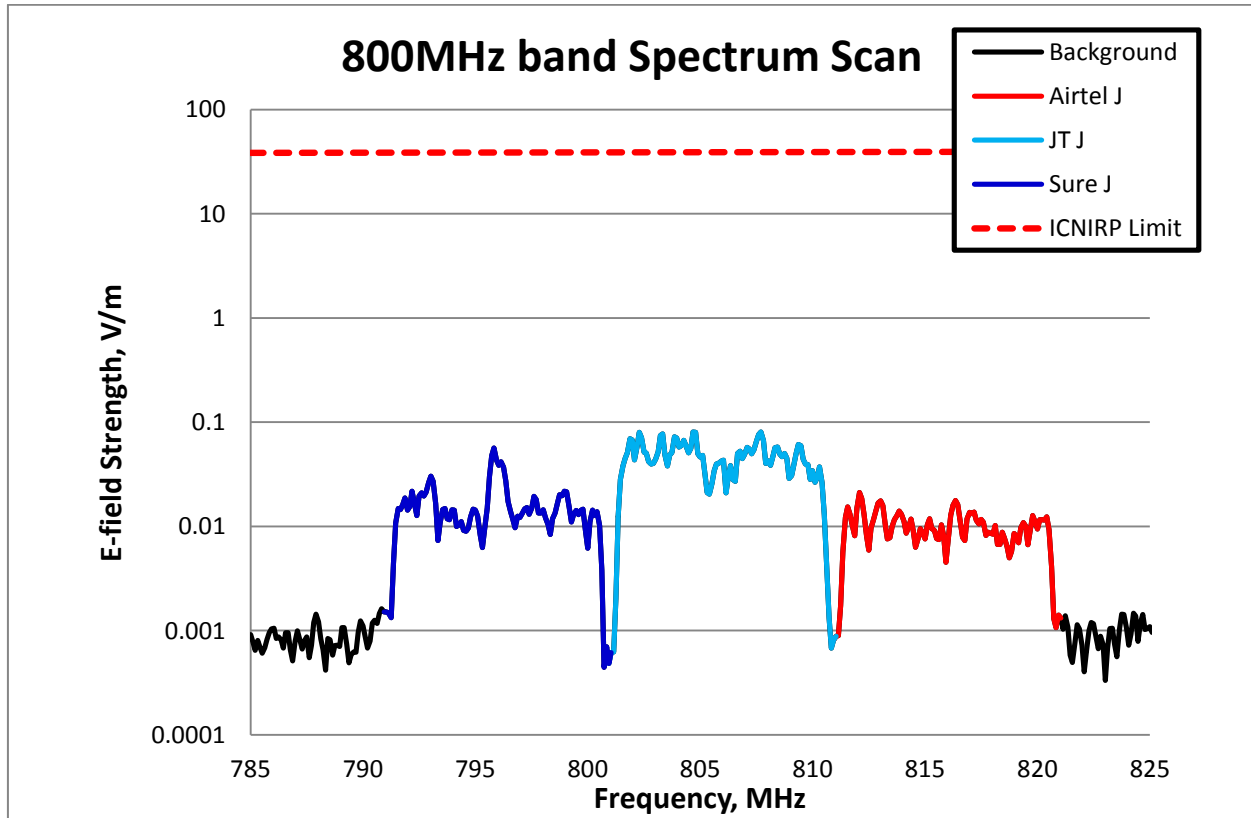


Figure 4 - 800MHz band Spectrum Scan

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 0.08065 V/m (JT J), which is 482 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
Westmount Mast	Airtel J	800	0.02116	1838	2.8942E-06	1/ 345519
	JT J		0.08065	482	5.99007E-05	1/ 16694
	Sure J		0.05645	689	8.5165E-06	1/ 117419
	total band EQ			7.13114E-05	1/ 14023	

Table 2– 800MHz band Exposure Quotient at Westmount Mast

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

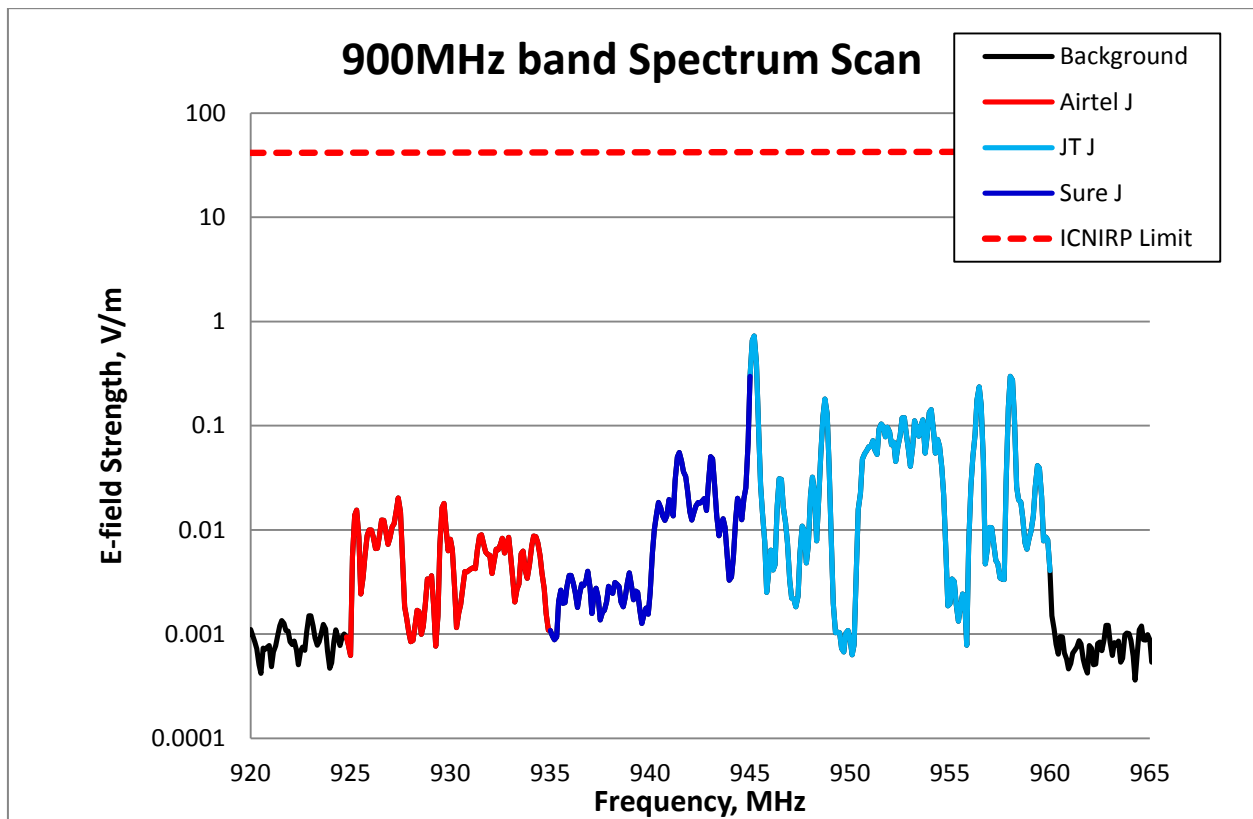


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.728 V/m (JT J), which is 57 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
Westmount Mast	Airtel J	900	0.02026	2036	1.37496E-06	1/ 727293
	JT J		0.728	57	0.000511028	1/ 1957
	Sure J		0.2985	138	3.21621E-05	1/ 31093
total band EQ					0.000544565	1/ 1836

Table 3– 900MHz band Exposure Quotient at Westmount Mast

2.3 1800 MHz Band

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

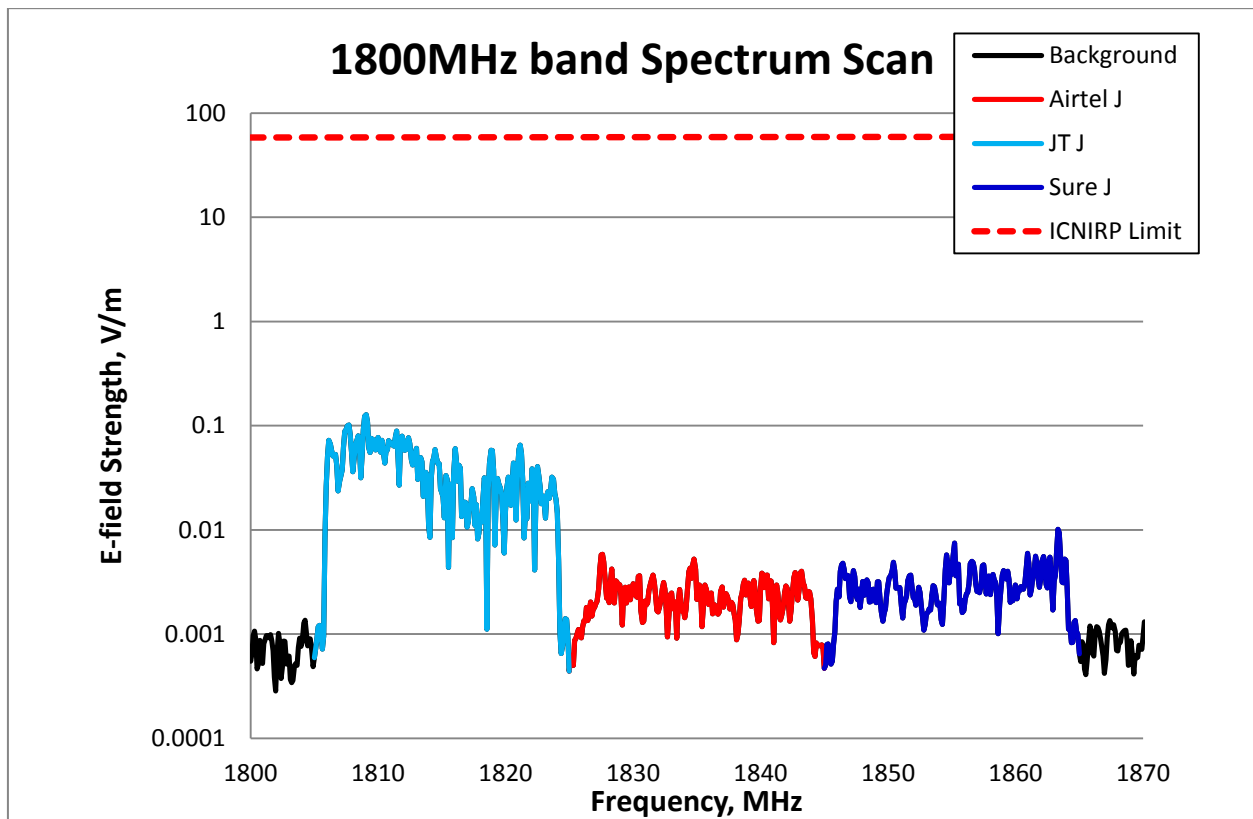


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1276 V/m (JT J), which is 457 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
Westmount Mast	Airtel J	1800	0.005826	10013	3.19918E-07	1/ 3125798
	JT J		0.1276	457	0.000109471	1/ 9135
	Sure J		0.01017	5736	5.62573E-07	1/ 1777546
	total band EQ			0.000110354	1/ 9062	

Table 4 – 1800MHz band Exposure Quotient at Westmount Mast

2.4 2100MHz Band

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

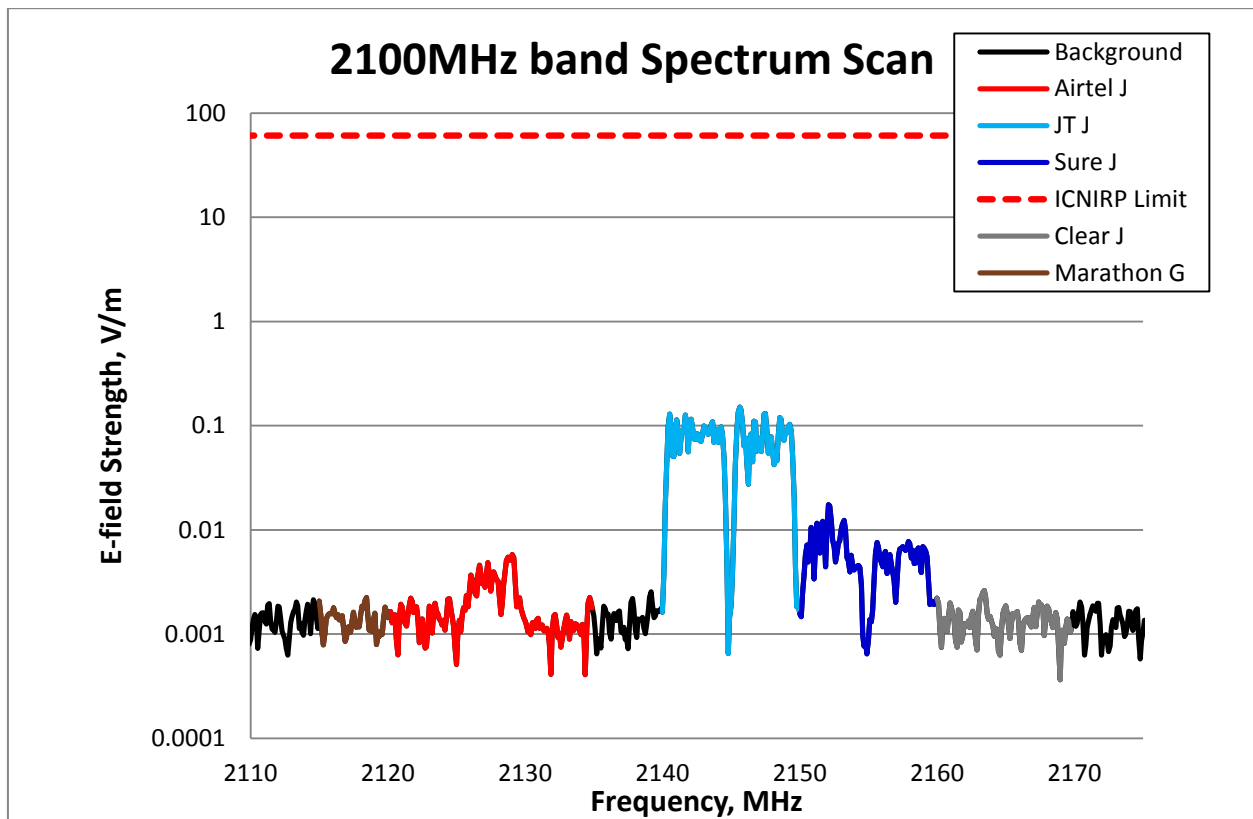


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.151 V/m (JT J), which is 404 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
Westmount Mast	Airtel J	2100	0.005777	10559	1.8644E-07	1/ 5363662
	Clear J		0.002621	23274	5.26918E-08	1/ 18978285
	JT J		0.151	404	0.000168839	1/ 5923
	Marathon J		0.002243	27196	2.63327E-08	1/ 37975656
	Sure J		0.01744	3498	1.12232E-06	1/ 891011
total band EQ					0.000170227	1/ 5875

Table 5 – 2100MHz band Exposure Quotient at Westmount Mast

2.5 2600MHz band

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

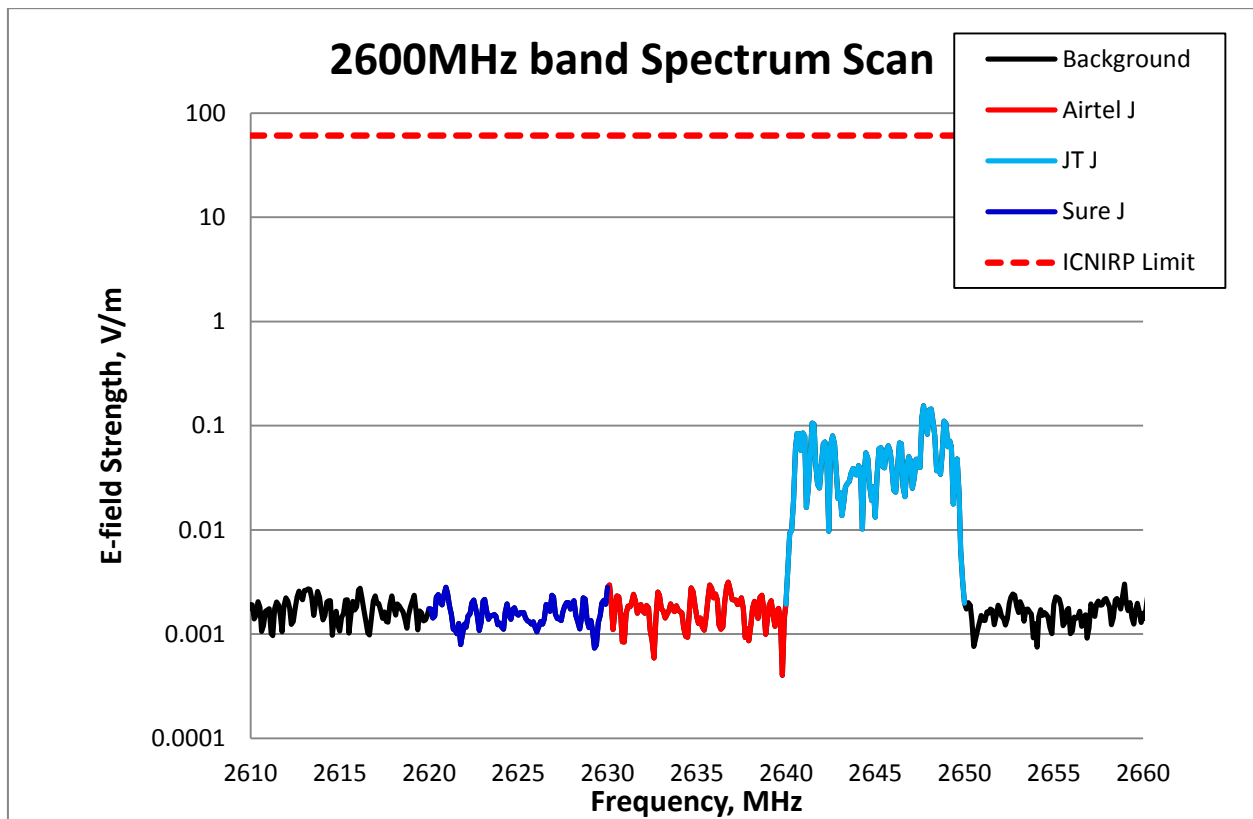


Figure 8 – 2600MHz band Spectrum Scan

No field level recorded across the band was higher than 0.1551 V/m (JT J), which is 393 times smaller than the ICNIRP Reference level.

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
Westmount Mast	Airtel J	2600	0.003146	19390	8.77014E-08	1/ 11402323
	JT J		0.1551	393	8.93429E-05	1/ 11193
	Sure J		0.002819	21639	7.10346E-08	1/ 14077647
	total band EQ			8.95017E-05	1/ 11173	

Table 6 – 2600MHz band Exposure Quotient at Westmount Mast

End