

Cellular Mast Emissions Survey:

Field 975 (Jersey)



DOCUMENT DETAILS

Document Name:	Cellular Mast Emissions Survey:	Field 975 (Jersey)
Survey Date:	08/06/2017 at 12:16	
Report issue Date	14/07/2017	
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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 Field 975 site located in Jersey.

Field 975 site was used by one operator at the time of the survey: Airtel J; but the survey recorded strong signals from Sure J who operate a site in a nearby location. Surveys were nonetheless 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
Field 975	800	0.1225	Sure J	317	0.000101101	1/ 9891
	900	1.39	Sure J	30	0.001178329	1/ 849
	1800	0.07386	Sure J	790	3.72537E-05	1/ 26843
	2100	0.03368	Sure J	1811	7.22648E-06	1/ 138380
	2600	0.002233	JT J	27318	1.19354E-07	1/ 8378419
Total Site EQ					0.00132403	1/ 755

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/755 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

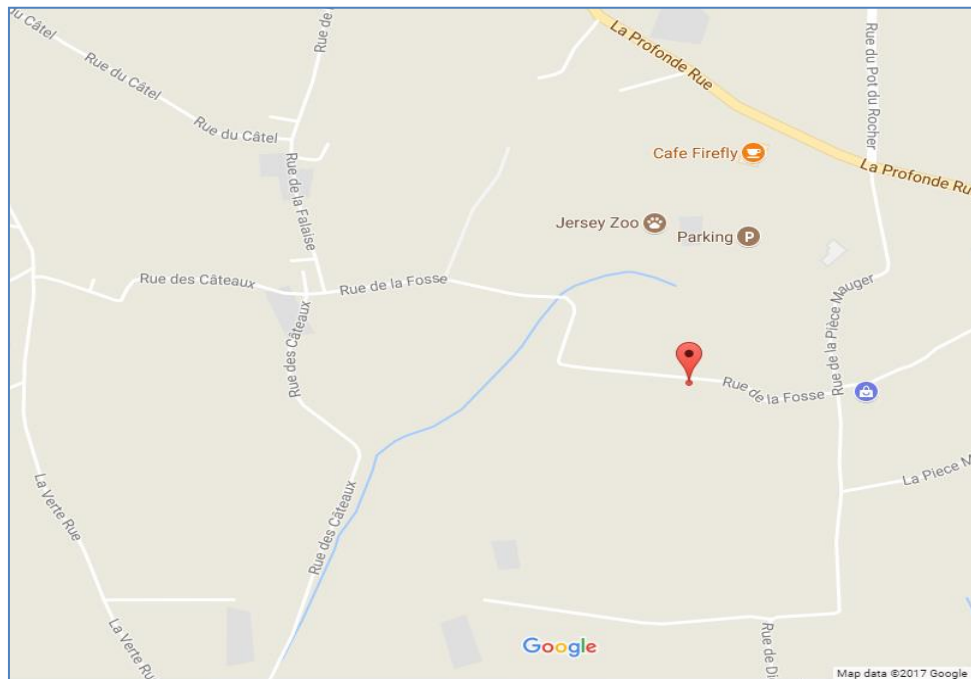


Figure 1 - Map of the Site Area

Site name	Field 975
Site address	La Rue de la Fosse, Trinity, Jersey
Site Latitude	49.22597
Site Longitude	-2.07467

1.2 Site Description

Operators	Airtel J
Antenna types	Directionals
Approximate height	18m
Site type	Pole Mast
Description	The antennas at Field 975 are located in the corner of a field, the public have access.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

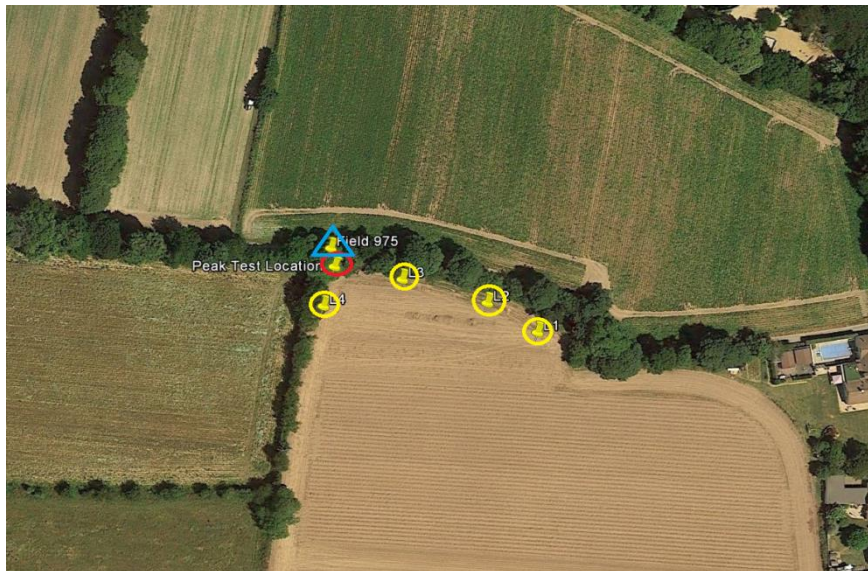


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

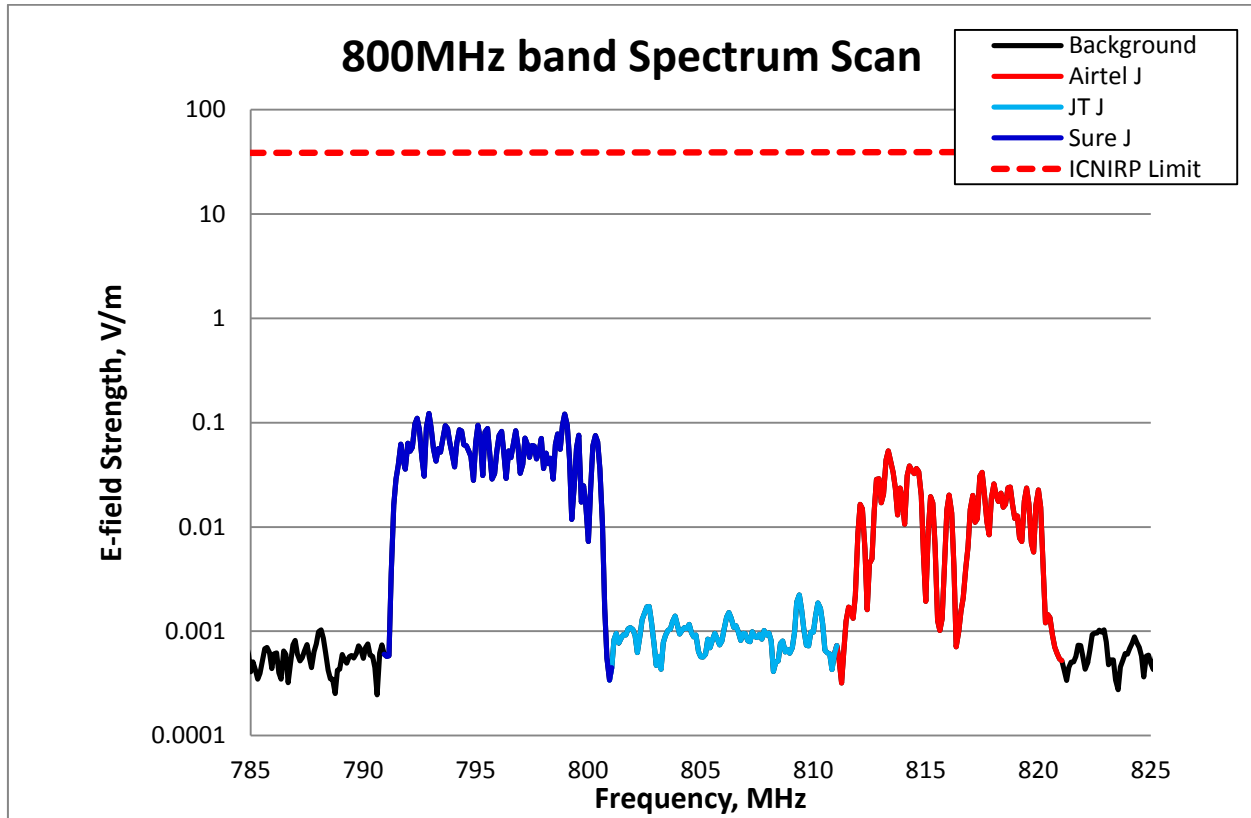


Figure 4 - 800MHz band Spectrum Scan

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 0.1225 V/m (Sure J), which is 317 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
Field 975	Airtel J	800	0.05344	728	8.71496E-06	1/ 114745
	JT J		0.002223	17495	2.6671E-08	1/ 37493899
	Sure J		0.1225	317	9.23595E-05	1/ 10827
total band EQ					0.000101101	1/ 9891

Table 2– 800MHz band Exposure Quotient at Field 975

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

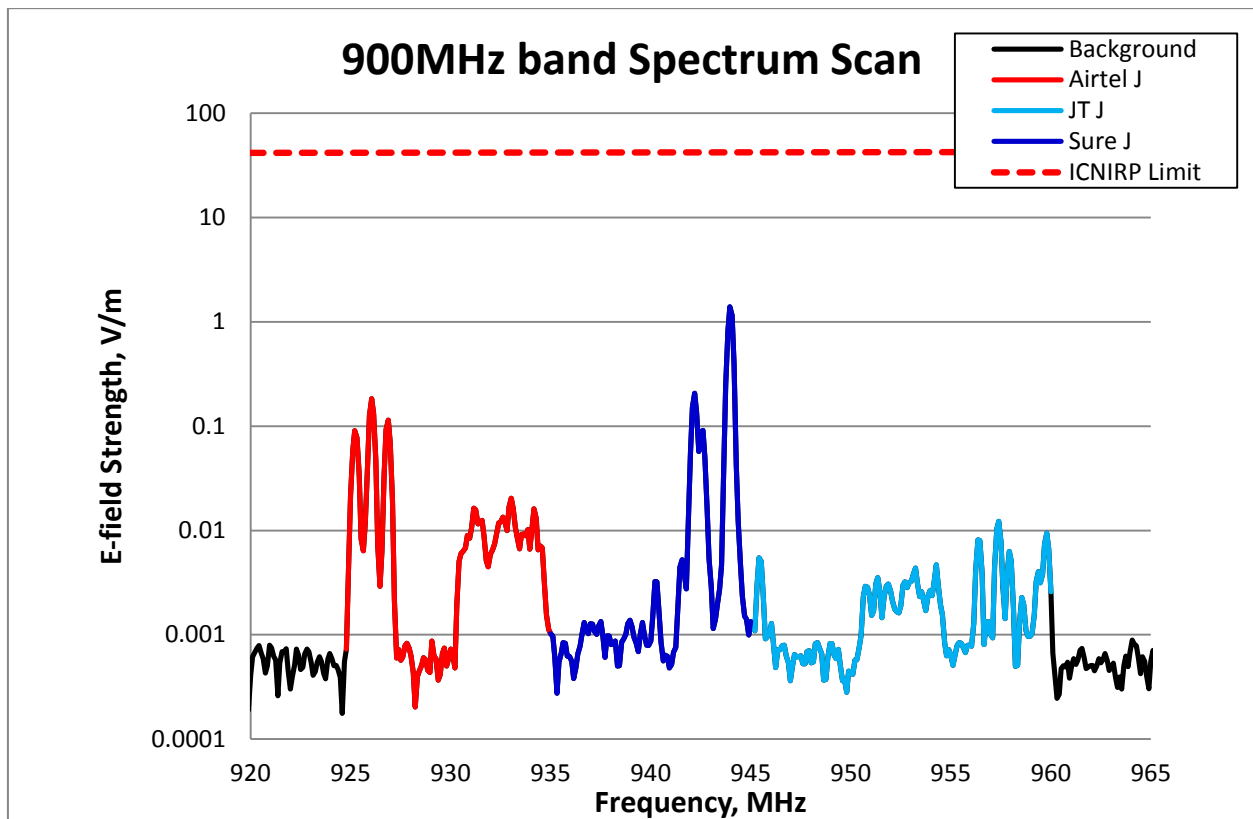


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 1.39 V/m (Sure 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
Field 975	Airtel J	900	0.1833	225	3.31027E-05	1/ 30209
	JT J		0.01226	3365	3.37556E-07	1/ 2962474
	Sure J		1.39	30	0.001144889	1/ 873
total band EQ					0.001178329	1/ 849

Table 3– 900MHz band Exposure Quotient at Field 975

2.3 1800 MHz Band

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

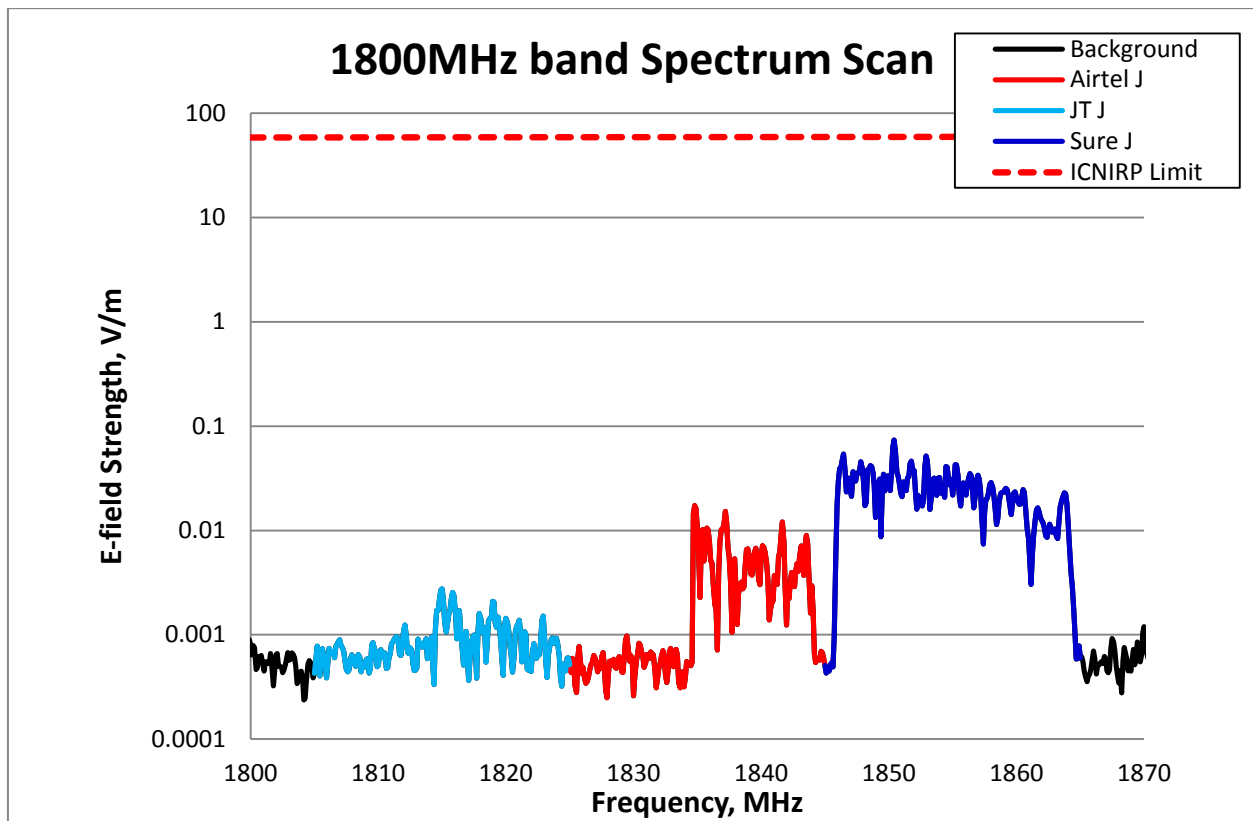


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.07386 V/m (Sure J), which is 790 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
Field 975	Airtel J	1800	0.01734	3364	1.05153E-06	1/ 950993
	JT J		0.00275	21213	5.04753E-08	1/ 19811668
	Sure J		0.07386	790	3.61517E-05	1/ 27661
total band EQ					3.72537E-05	1/ 26843

Table 4 – 1800MHz band Exposure Quotient at Field 975

2.4 2100MHz Band

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

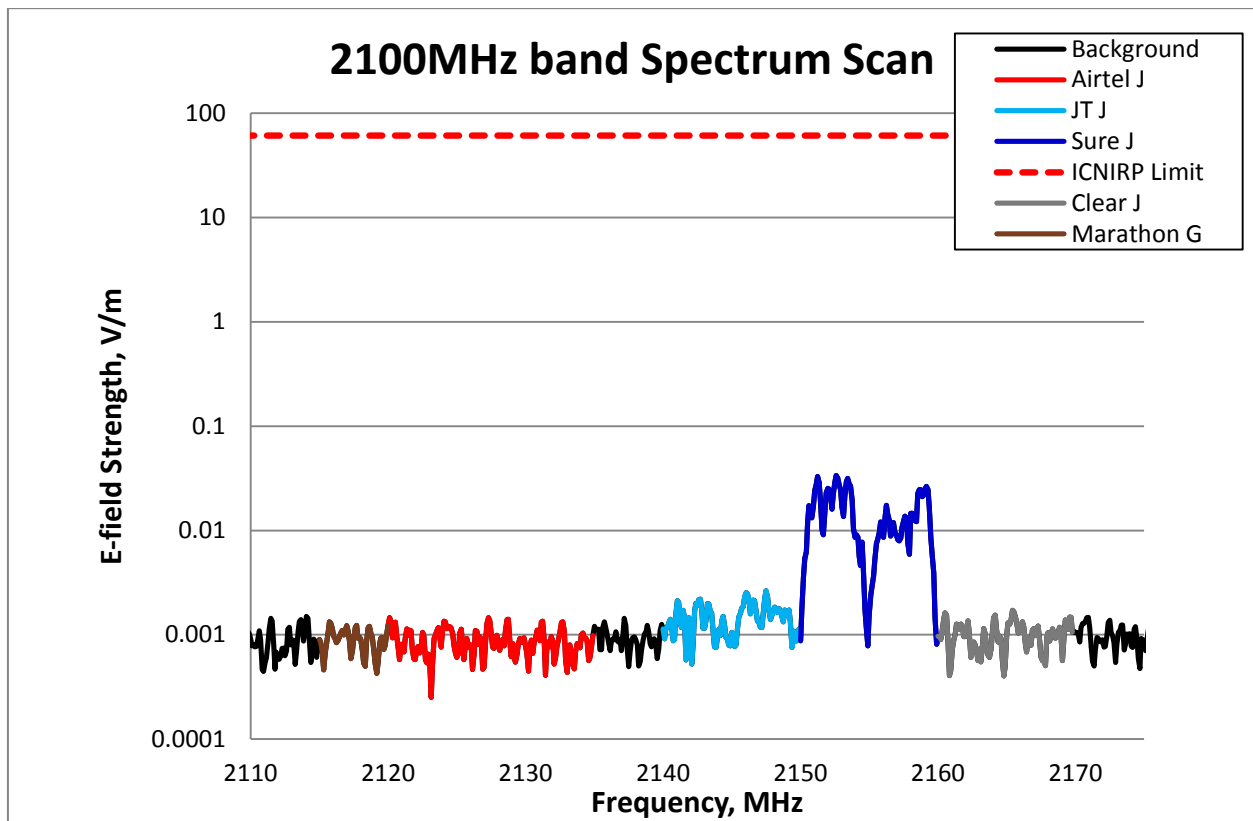


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.03368 V/m (Sure J), which is 1811 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
Field 975	Airtel J	2100	0.001462	41724	3.17781E-08	1/ 31468163
	Clear J		0.001717	35527	2.79334E-08	1/ 35799464
	JT J		0.002636	23141	5.96774E-08	1/ 16756753
	Marathon J		0.001334	45727	1.1369E-08	1/ 87958376
	Sure J		0.03368	1811	7.09572E-06	1/ 140930
total band EQ					7.22648E-06	1/ 138380

Table 5 – 2100MHz band Exposure Quotient at Field 975

2.5 2600MHz band

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

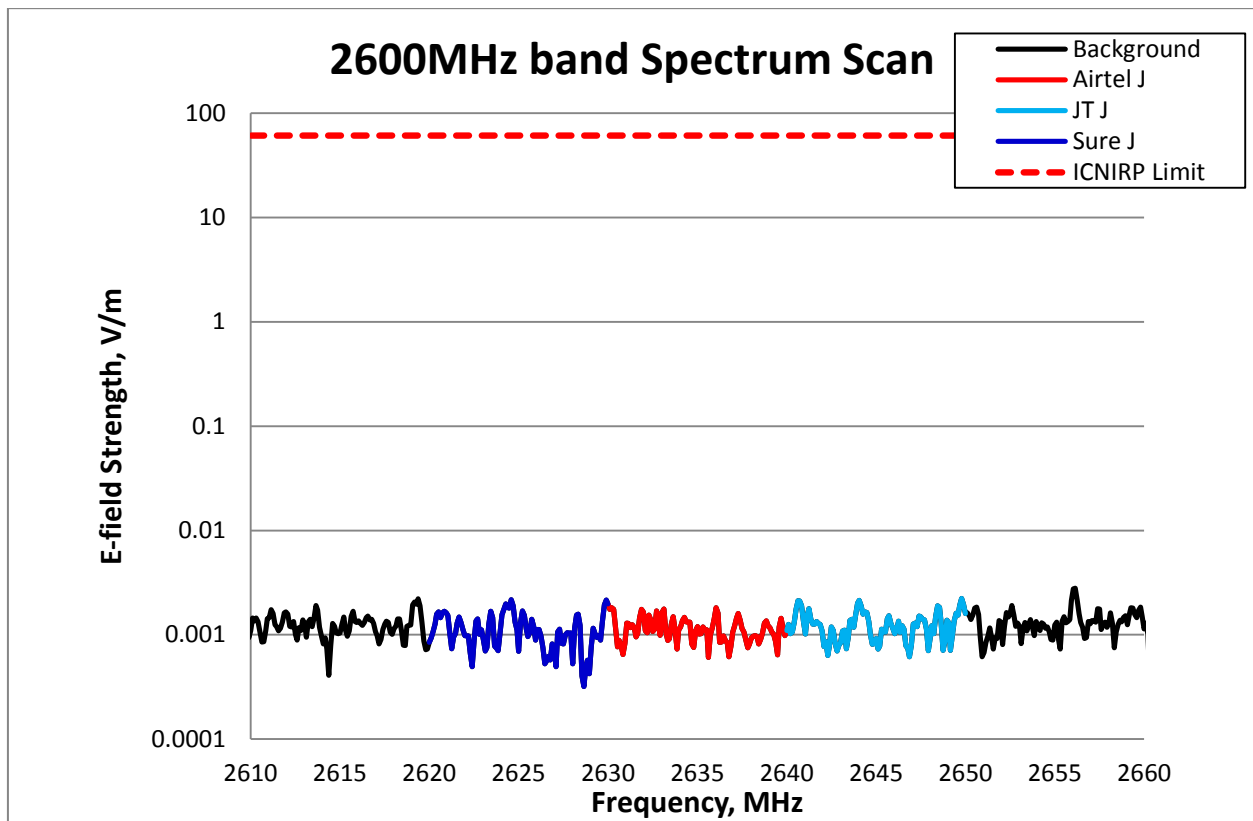


Figure 8 – 2600MHz band Spectrum Scan

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
Field 975	Airtel J	2600	0.001971	30949	3.7115E-08	1/ 26943301
	JT J		0.002233	27318	4.46194E-08	1/ 22411768
	Sure J		0.002167	28150	3.76199E-08	1/ 26581703
total band EQ					1.19354E-07	1/ 8378419

Table 6 – 2600MHz band Exposure Quotient at Field 975

End