

Cellular Mast Emissions Survey: Northfield Football Ground (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 Northfield Football Ground site located in Jersey.

The Northfield Football Ground 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
Northfield Football Ground	800	0.08422	JT J	462	2.65539E-05	1/ 37659
	900	0.4587	JT J	90	0.00027867	1/ 3588
	1800	0.2032	JT J	287	0.000324585	1/ 3081
	2100	0.6496	JT J	94	0.003036064	1/ 329
	2600	0.003943	JT J	15470	3.53561E-07	1/ 2828370
Total Site EQ					0.003666227	1/ 273

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/273 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

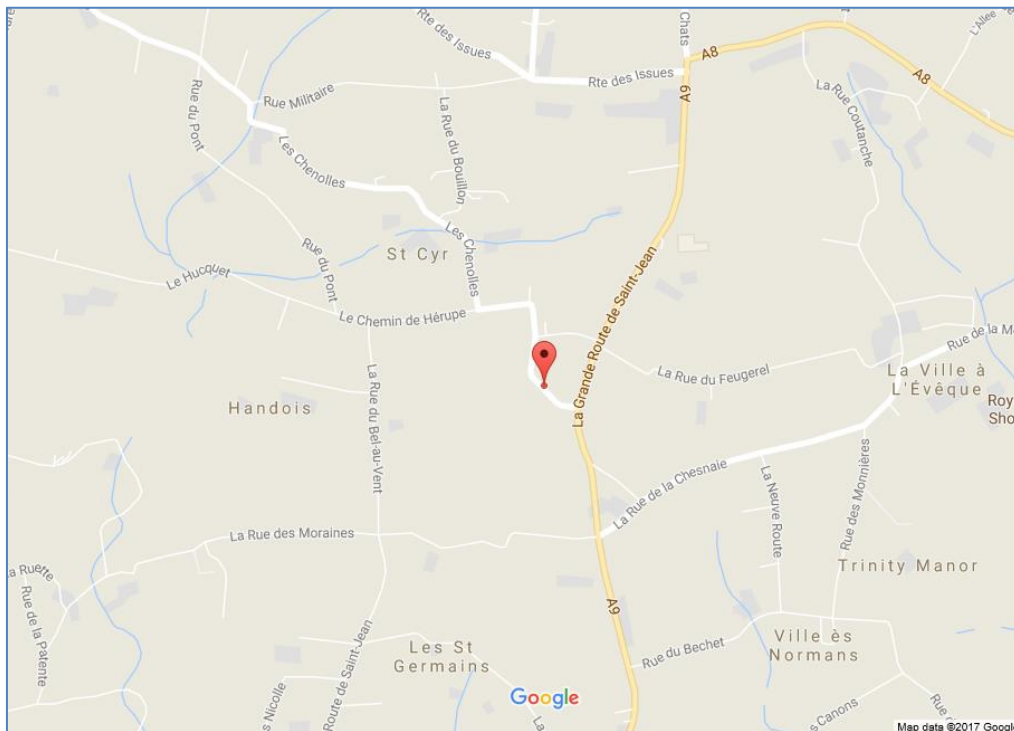


Figure 1 - Map of the Site Area

Site name	Northfield Football Ground
Site address	North Exchange, Le Chemin de Herupé, St John, Jersey
Site Latitude	N 49.2316
Site Longitude	W 02.11685

1.2 Site Description

Operators	JT J
Antenna types	Omni directional
Approximate height	9m
Site type	Building – Rooftop
Description	The antenna at Northfield Football Ground is located to the rear of the building; 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.

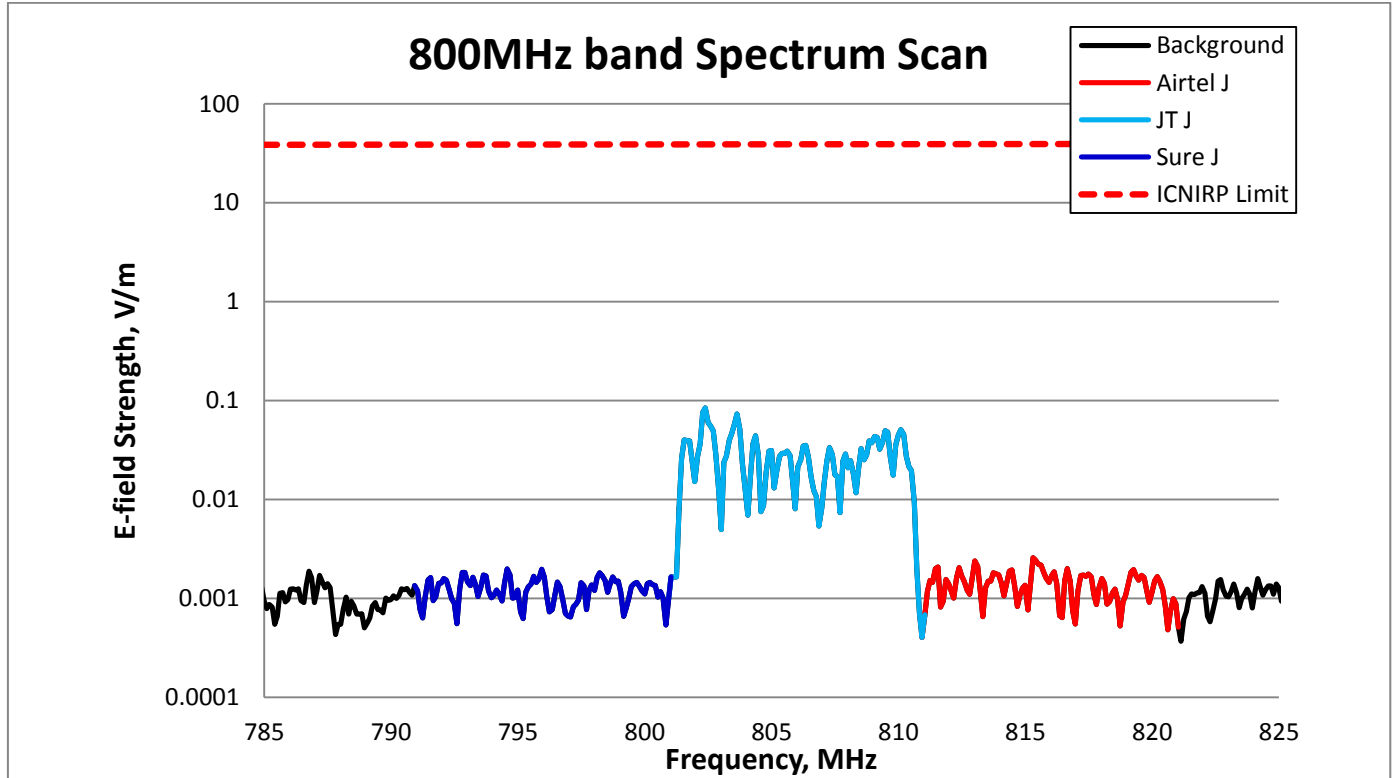


Figure 4 - 800MHz band Spectrum Scan

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 0.08422 V/m (JT J), which is 462 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
Northfield Football Ground	Airtel J	800	0.002573	15115	5.52196E-08	1/ 18109500
	JT J		0.08422	462	2.64555E-05	1/ 37799
	Sure J		0.001988	19563	4.32298E-08	1/ 23132214
total band EQ					2.65539E-05	1/ 37659

Table 2– 800MHz band Exposure Quotient at the Northfield Football Ground

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

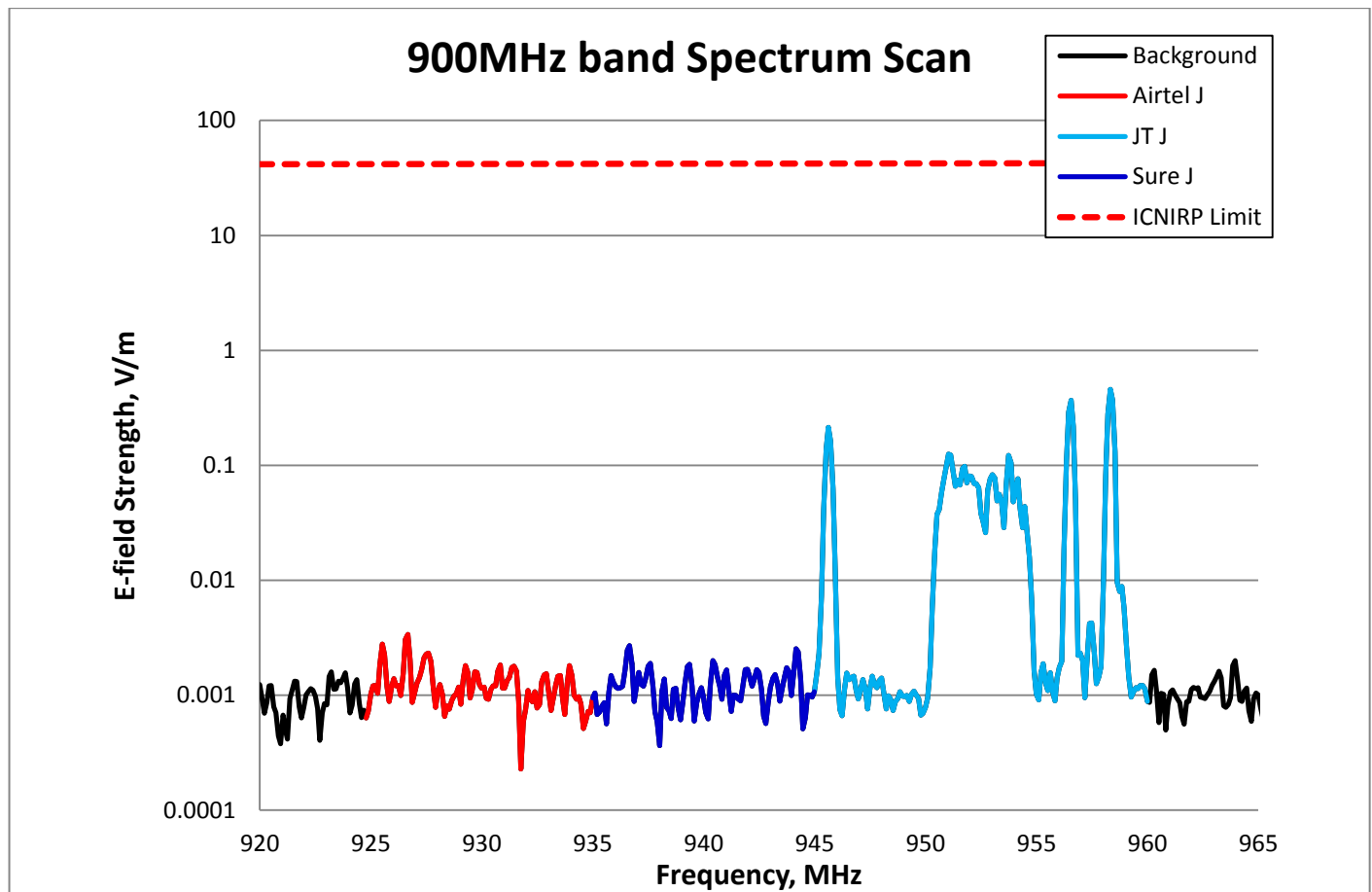


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.4587 V/m (JT J), which is 90 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
Northfield Football Ground	Airtel J	900	0.003372	12233	4.8511E-08	1/ 20613860
	JT J		0.4587	90	0.000278579	1/ 3590
	Sure J		0.002696	15300	4.33793E-08	1/ 23052478
total band EQ					0.00027867	1/ 3588

Table 3– 900MHz band Exposure Quotient at the Northfield Football Ground

2.3 1800 MHz Band

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

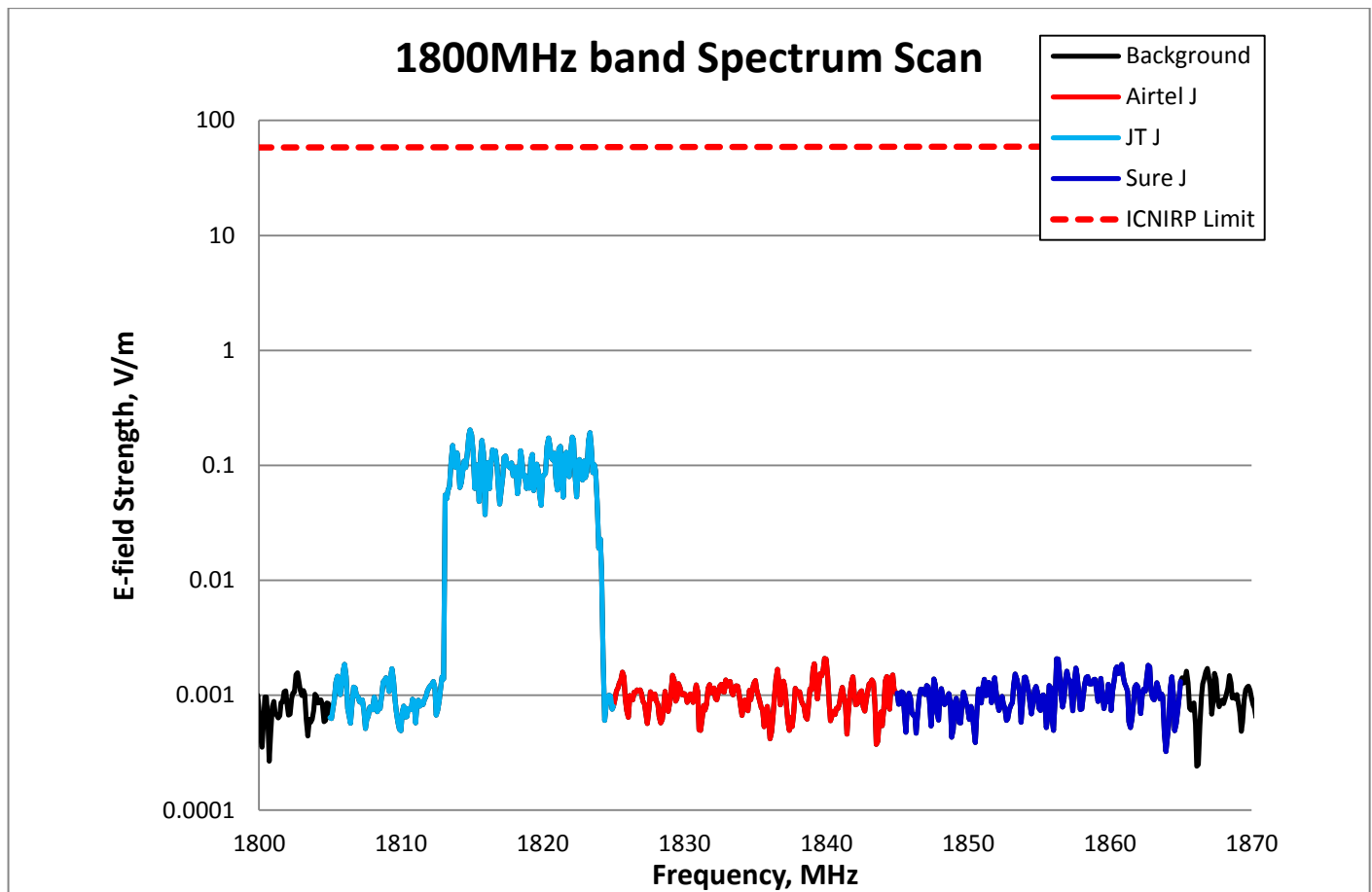


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.2032 V/m (JT J), which is 287 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
Northfield Football Ground	Airtel J	1800	0.002093	27872	5.57527E-08	1/ 17936362
	JT J		0.2032	287	0.00032447	1/ 3082
	Sure J		0.002084	27992	5.8813E-08	1/ 17003033
total band EQ					0.000324585	1/ 3081

Table 4 – 1800MHz band Exposure Quotient at Northfield Football Ground

2.4 2100MHz Band

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

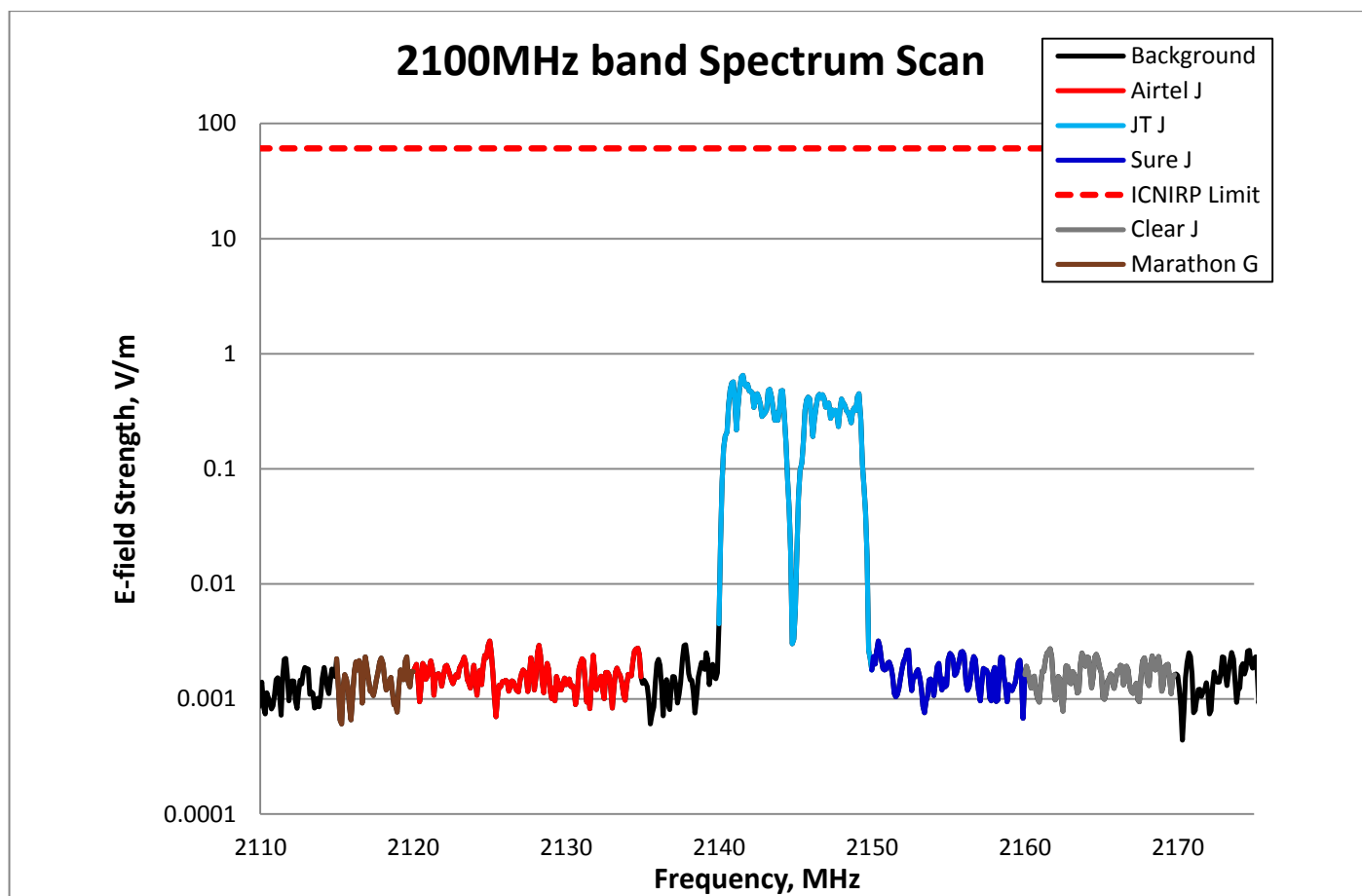


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.6496 V/m (JT J), which is 94 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
Northfield Football Ground	Airtel J	2100	0.003187	19140	1.07761E-07	1/ 9279800
	Clear J		0.002743	22238	7.41285E-08	1/ 13490097
	JT J		0.6496	94	0.00303577	1/ 329
	Marathon J		0.002332	26158	3.18134E-08	1/ 31433288
	Sure J		0.00319	19122	8.06628E-08	1/ 12397285
total band EQ					0.003036064	1/ 329

Table 5 – 2100MHz band Exposure Quotient at the Northfield Football Ground

2.5 2600MHz band

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

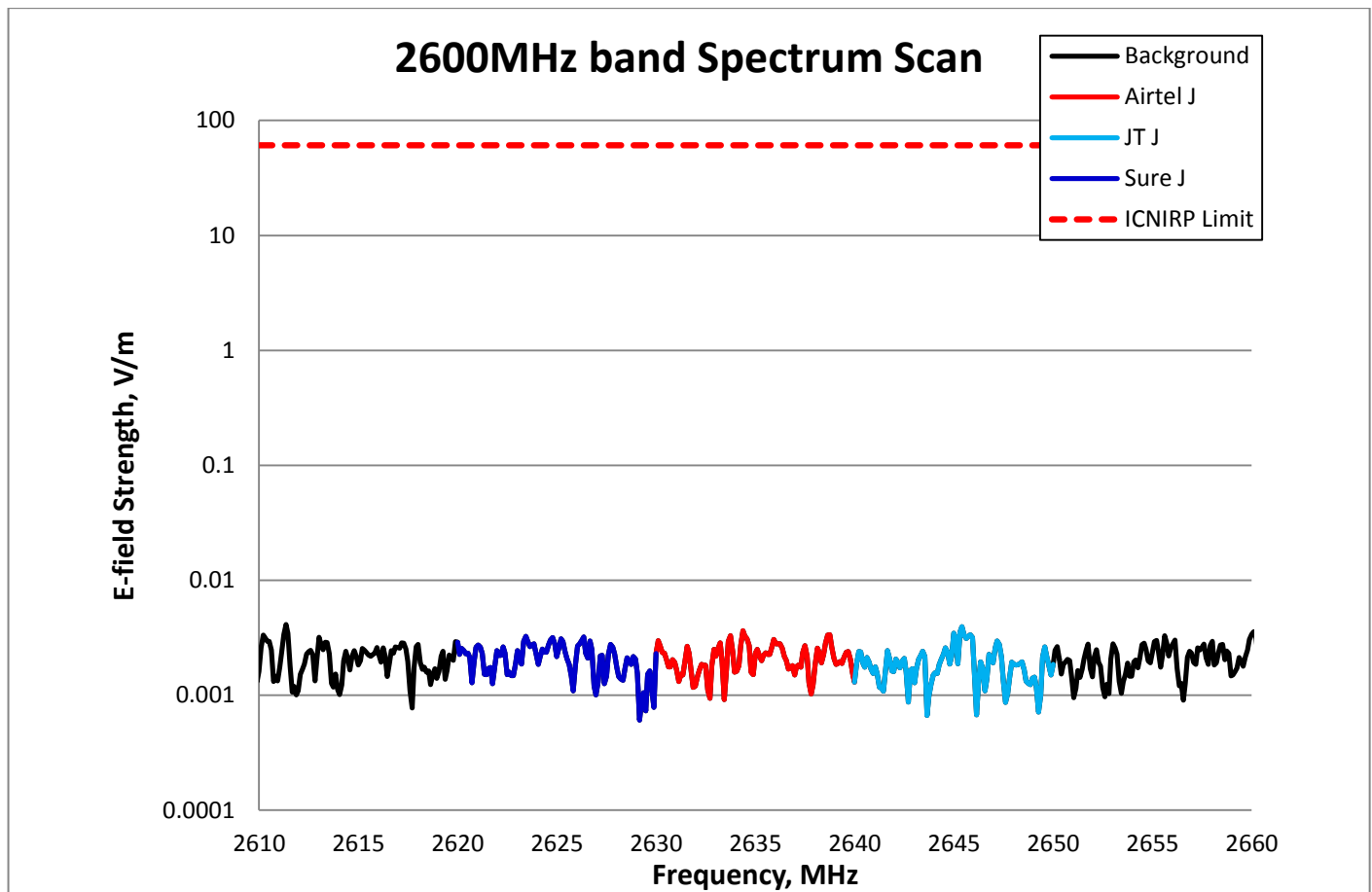


Figure 8 – 2600MHz band Spectrum Scan

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
Northfield Football Ground	Airtel J	2600	0.003648	16721	1.25412E-07	1/ 7973732
	JT J		0.003943	15470	1.04415E-07	1/ 9577208
	Sure J		0.003259	18717	1.23734E-07	1/ 8081842
total band EQ					3.53561E-07	1/ 2828370

Table 6 – 2600MHz band Exposure Quotient at the Northfield Football Ground

End