

Cellular Mast Emissions Survey:

HSBC (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 HSBC site located in Jersey.

The HSBC 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
HSBC Dandara	800	0.2225	JT J	175	0.000257045	1/ 3890
	900	0.6459	JT J	64	0.00032913	1/ 3038
	1800	0.004331	Sure J	13469	2.47428E-07	1/ 4041579
	2100	0.00389	Sure J	15681	2.43984E-07	1/ 4098638
	2600	0.002027	JT J	30094	1.141E-07	1/ 8764225
Total Site EQ					0.000586781	1/ 1704

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/1704 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

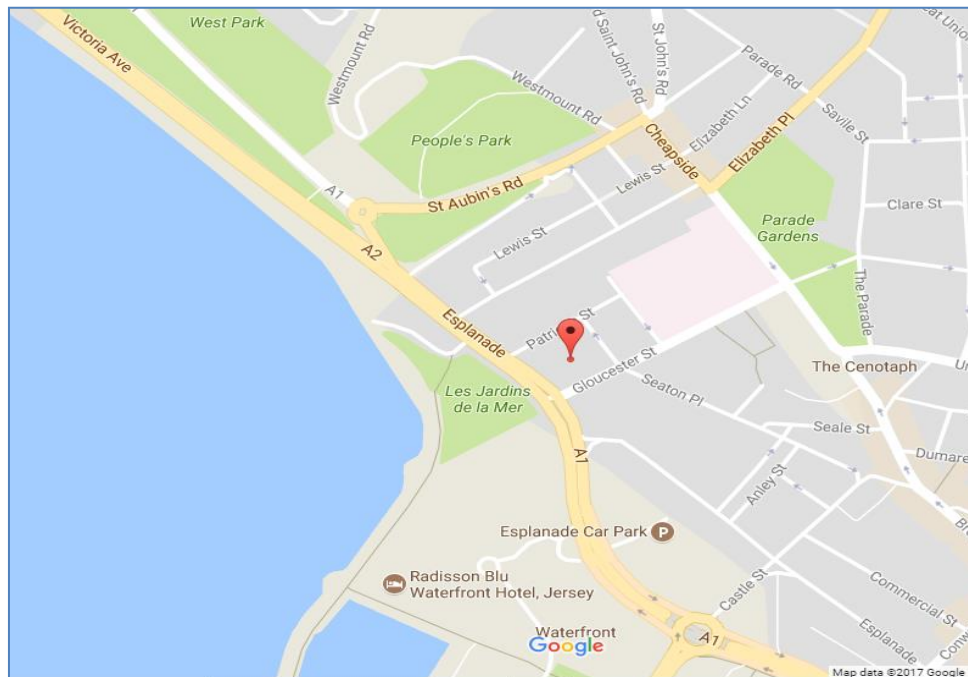


Figure 1 - Map of the Site Area

Site name	HSBC
Site address	Century Buildings, Patriotic Place, St Helier, Jersey
Site Latitude	49.18659
Site Longitude	-2.11426

1.2 Site Description

Operators	JT J
Antenna types	Omni directional
Approximate height	10m
Site type	Monopole
Description	The monopole at the HSBC Dandara is located on at the front of the main building, access is open to the public.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

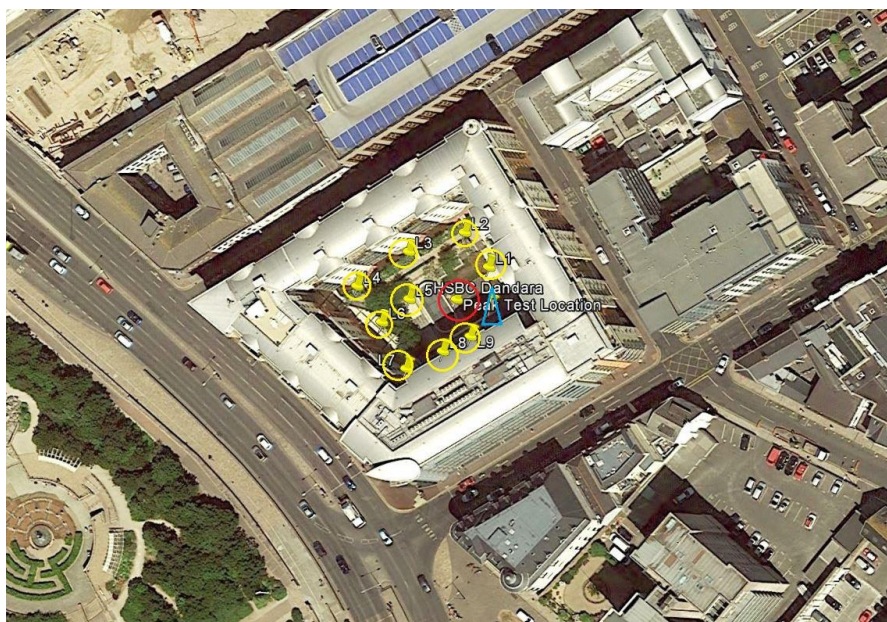


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

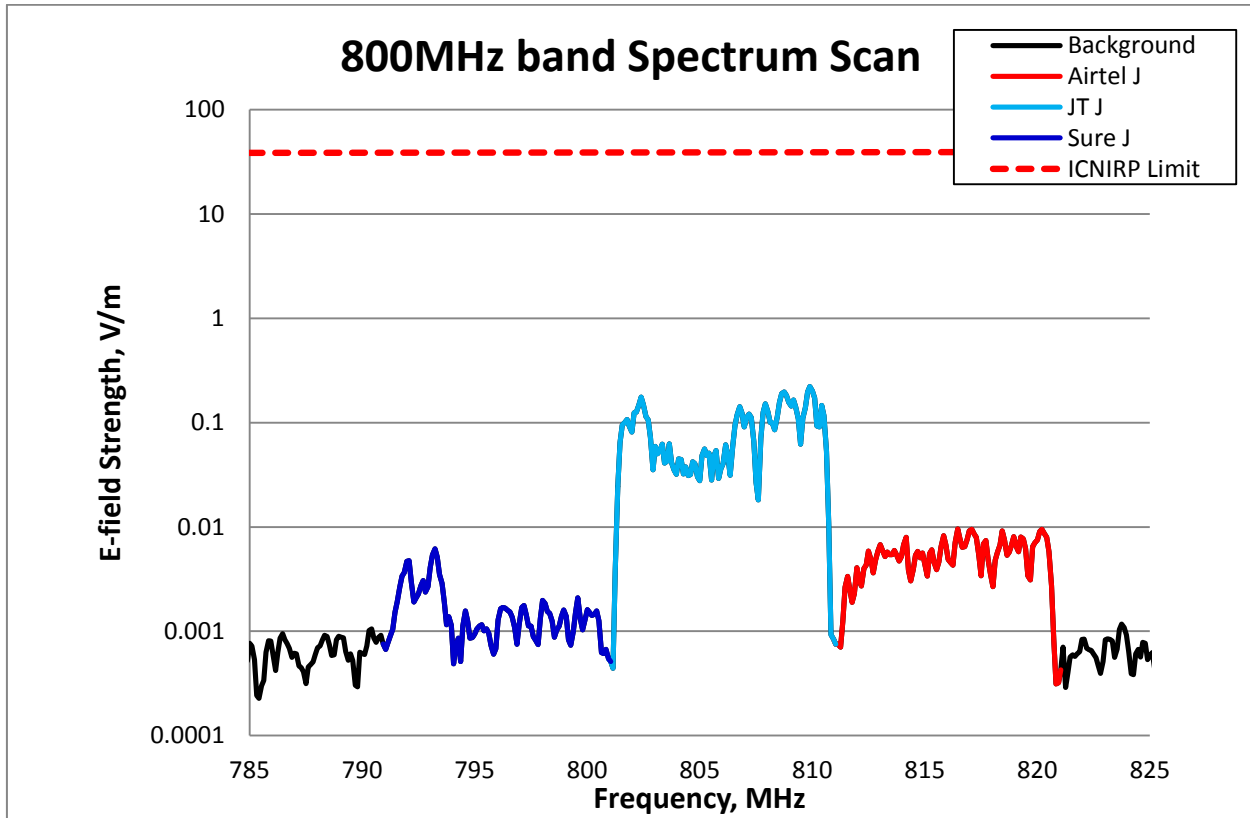


Figure 4 - 800MHz band Spectrum Scan

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 0.2225 V/m (JT J), which is 175 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
HSBC Dandara	Airtel J	800	0.009549	4073	8.5893E-07	1/ 1164239
	JT J		0.2225	175	0.000256085	1/ 3905
	Sure J		0.006157	6317	1.01819E-07	1/ 9821360
total band EQ					0.000257045	1/ 3890

Table 2– 800MHz band Exposure Quotient at HSBC

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

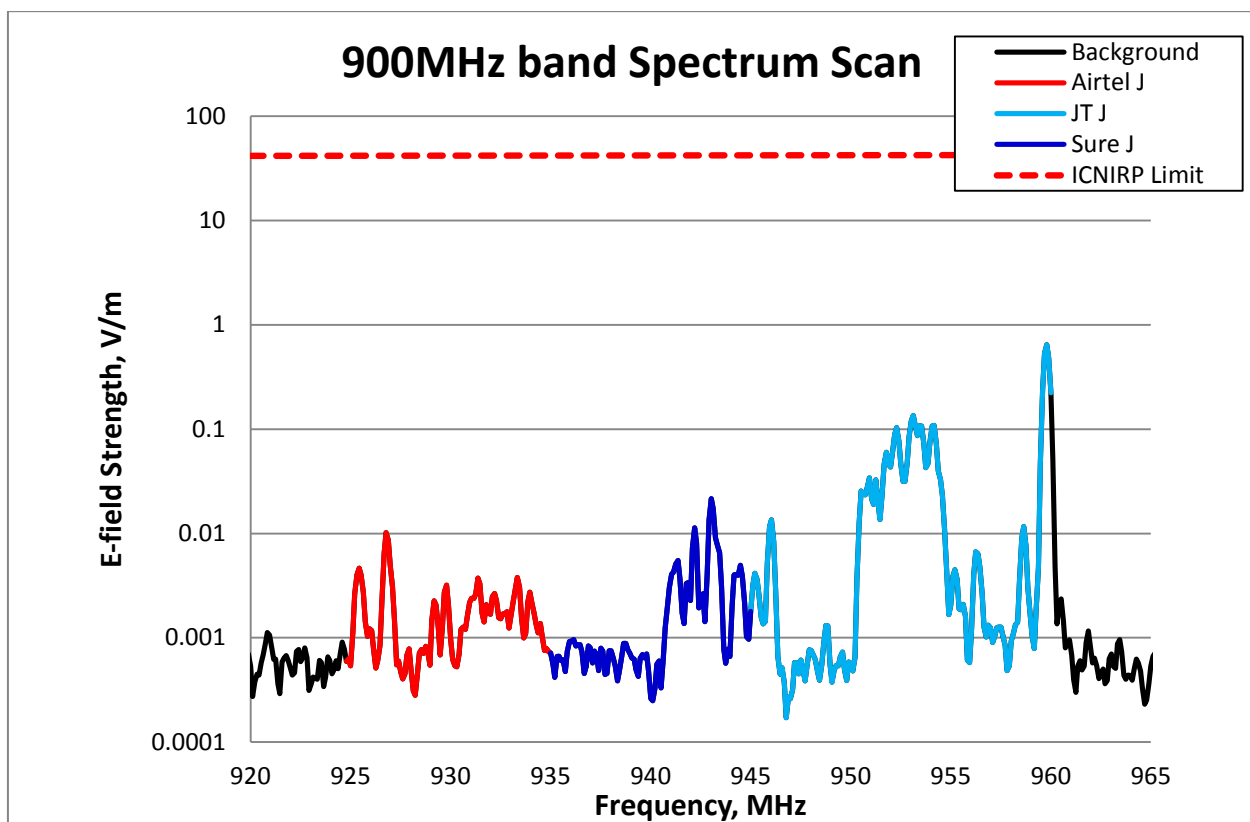


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.6459 V/m (JT J), which is 64 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 900MHz band are shown below:

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
HSBC Dandara	Airtel J	900	0.01021	4040	1.50468E-07	1/ 6645920
	JT J		0.6459	64	0.000328524	1/ 3044
	Sure J		0.02155	1914	4.55883E-07	1/ 2193546
total band EQ					0.00032913	1/ 3038

Table 3– 900MHz band Exposure Quotient at HSBC

2.3 1800 MHz Band

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

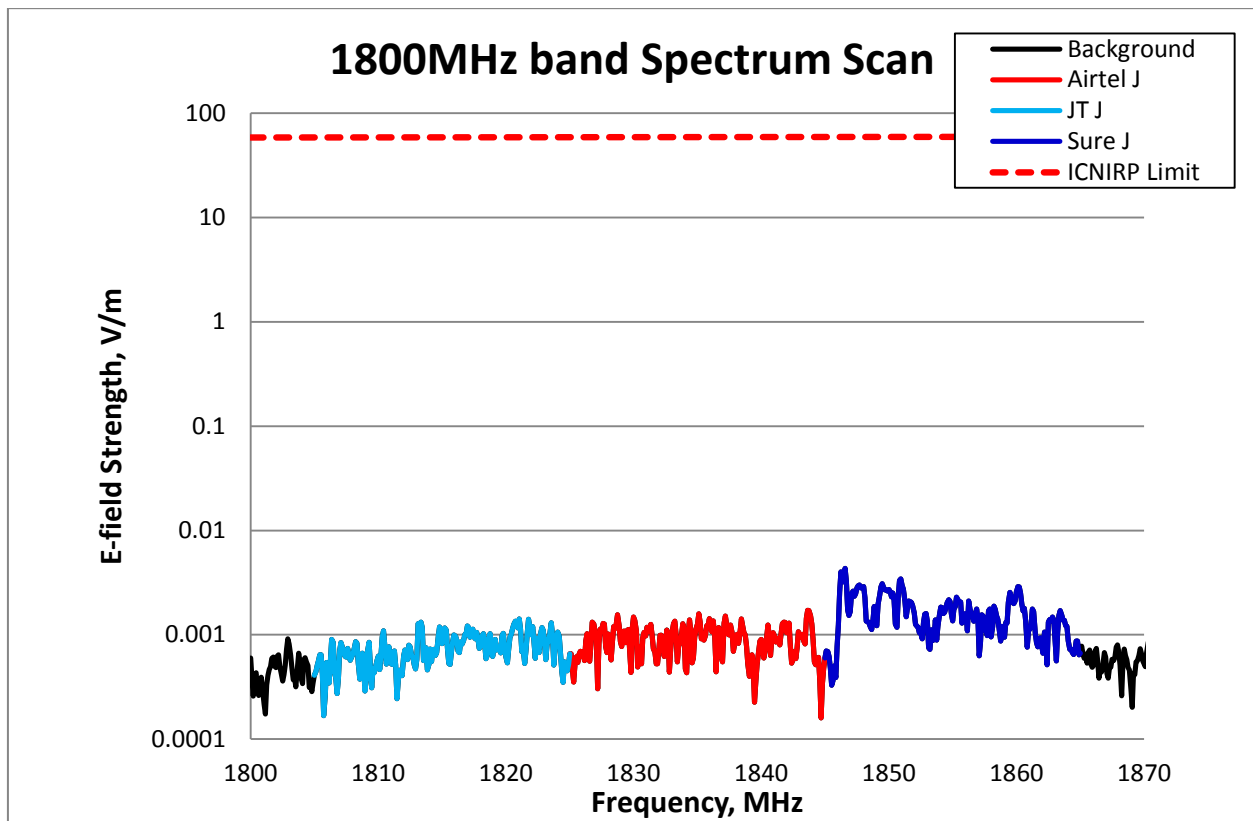


Figure 6 - 1800MHz Spectrum Scan

Only marginal activity was recorded in the 1800MHz as no operator appears to transmit in this band at this site.

The Exposure Quotient results for the 1800MHz band are shown below:

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
HSBC Dandara	Airtel J	1800	0.001715	34015	4.73826E-08	1/ 21104776
	JT J		0.001422	41024	3.26803E-08	1/ 30599510
	Sure J		0.004331	13469	1.67365E-07	1/ 5974959
total band EQ					2.47428E-07	1/ 4041579

Table 4 – 1800MHz band Exposure Quotient at HSBC

2.4 2100MHz Band

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

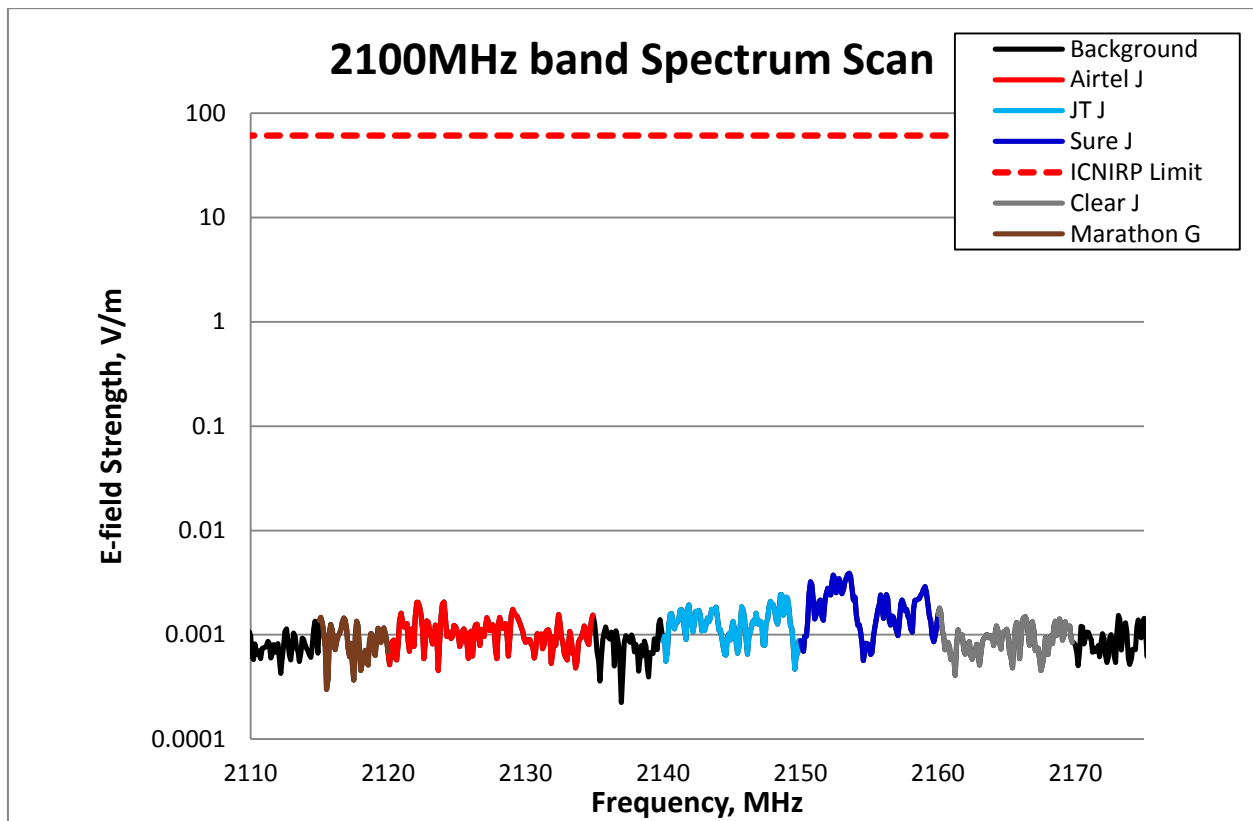


Figure 7 – 2100MHz band Spectrum Scan

No activity was recorded in the 2100MHz as no operator appears to transmit in this band at this site.

The Exposure Quotient results for the 2100MHz band are shown below:

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
HSBC Dandara	Airtel J	2100	0.002064	29554	4.73351E-08	1/ 21125970
	Clear J		0.001807	33758	2.42633E-08	1/ 41214546
	JT J		0.002424	25165	4.97991E-08	1/ 20080697
	Marathon J		0.001473	41412	1.20858E-08	1/ 82741701
	Sure J		0.00389	15681	1.105E-07	1/ 9049752
total band EQ					2.43984E-07	1/ 4098638

Table 5 – 2100MHz band Exposure Quotient at HSBC

2.5 2600MHz band

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

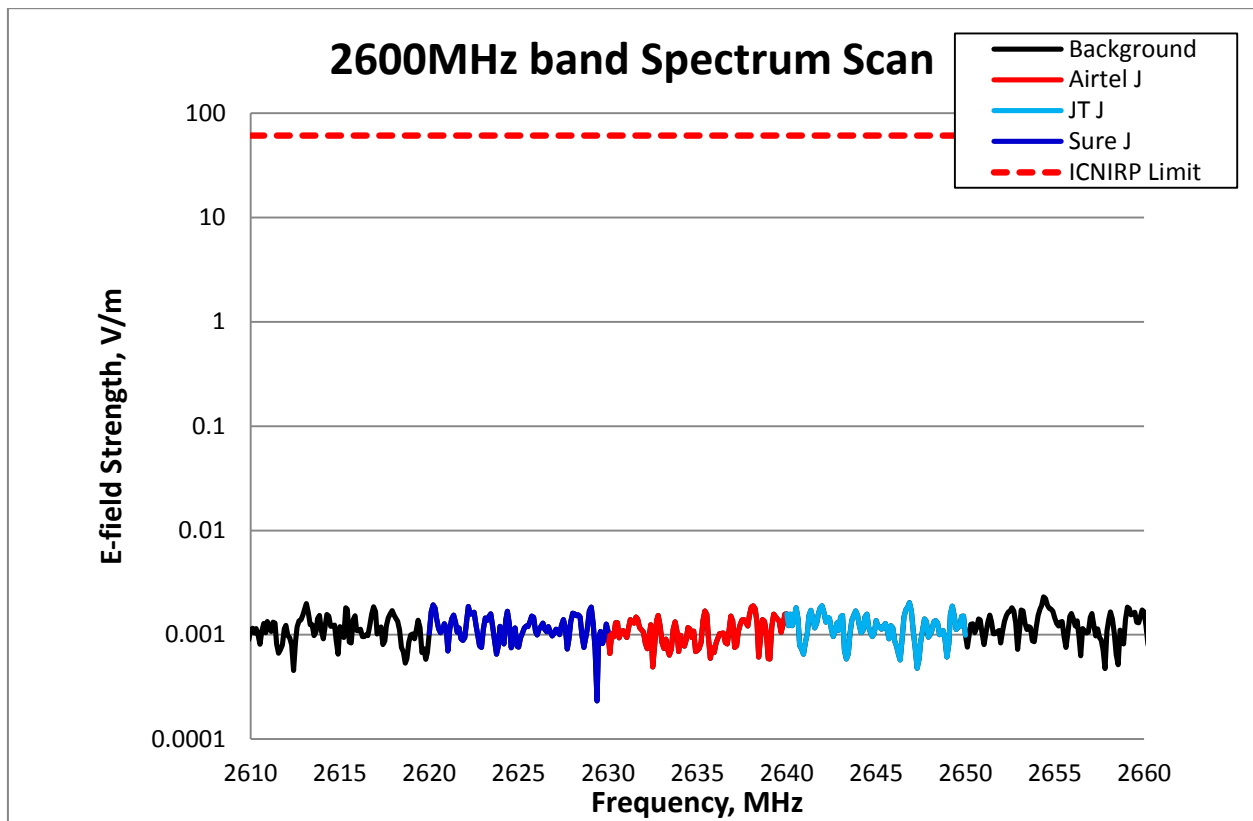


Figure 8 – 2600MHz band Spectrum Scan

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	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
HSBC Dandara	Airtel J	2600	0.0019	32105	3.37359E-08	1/ 29642039
	JT J		0.002027	30094	4.16325E-08	1/ 24019717
	Sure J		0.001933	31557	3.87319E-08	1/ 25818518
	total band EQ				1.141E-07	1/ 8764225

Table 6 – 2600MHz band Exposure Quotient at HSBC

End