

Cellular Mast Emissions Survey: Hampshire Hotel (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 EM emission surveys at all sites within the two Bailiwicks. The surveys were repeated in 2018 and 2019 for a small selection of sites where changes were made by the operators. This report is for the Hampshire Hotel site located in Jersey.

The Hampshire Hotel site was used by a single operator at the time of the 2019 survey: Airtel 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
Hampshire Hotel	800	0.1462	Airtel J	266	0.0007168619	1/ 1395
	900	0.2415	Airtel J	171	0.0000875903	1/ 11417
	1800	0.1804	Airtel J	323	0.0001935871	1/ 5166
	2100	0.02007	JT J	3039	0.0000015012	1/ 666122
	2600	0.009035	JT J	6752	0.0000003887	1/ 2572806
Total Site EQ					0.0009999292	1/ 1000

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/1000 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

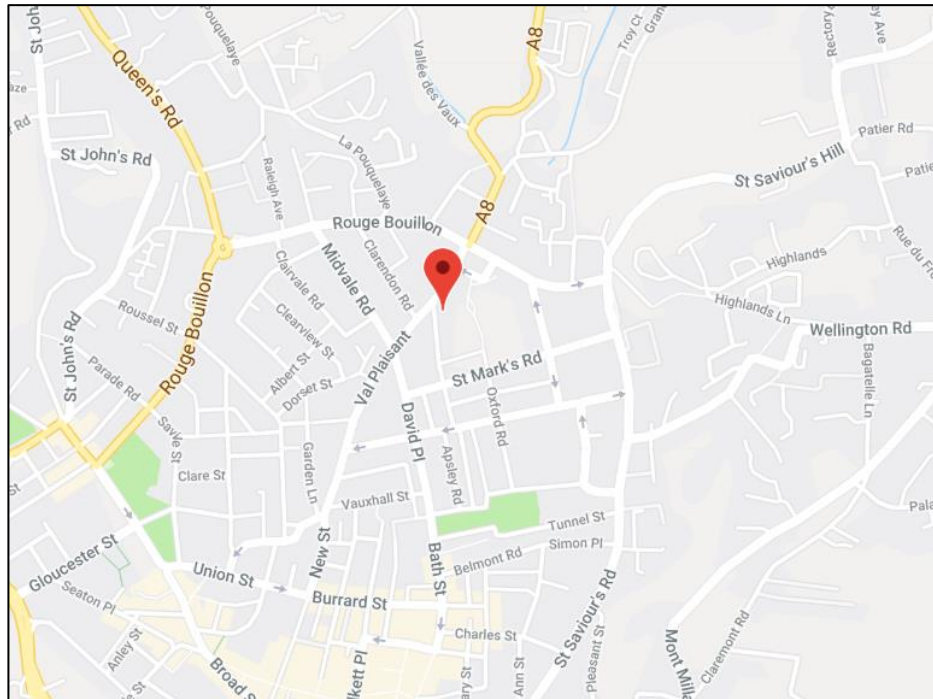


Figure 1 - Map of the Site Area

1.2 Site Description

Site name	Hampshire Hotel
Site address	Val Plaisant, St Helier, Jersey
Site Latitude	N 49.191432
Site Longitude	W 02.102456

Operators	Airtel J
Antenna types	Directional
Approximate height	15m
Site type	Rooftop Mast
Description	The Rooftop Mast at Hampshire Hotel is located within the centre of the hotel roof. There is no public access to the site.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

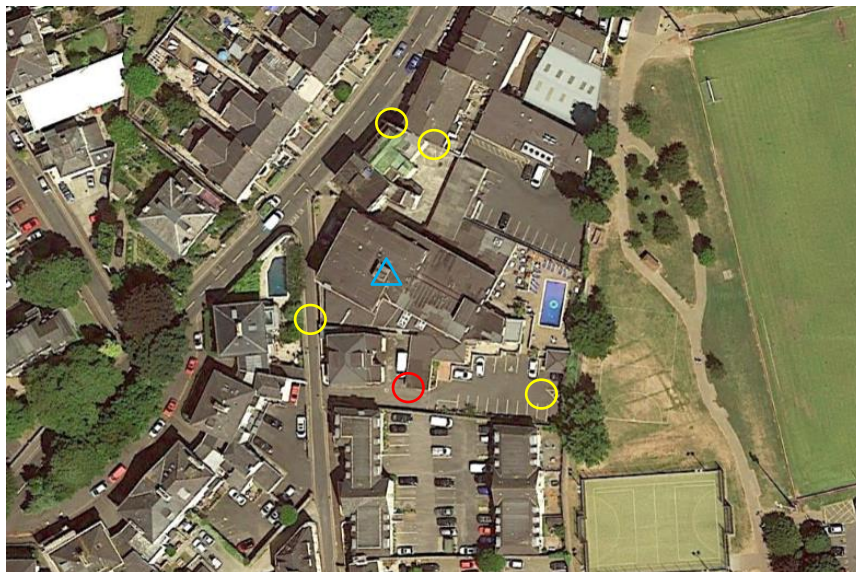


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

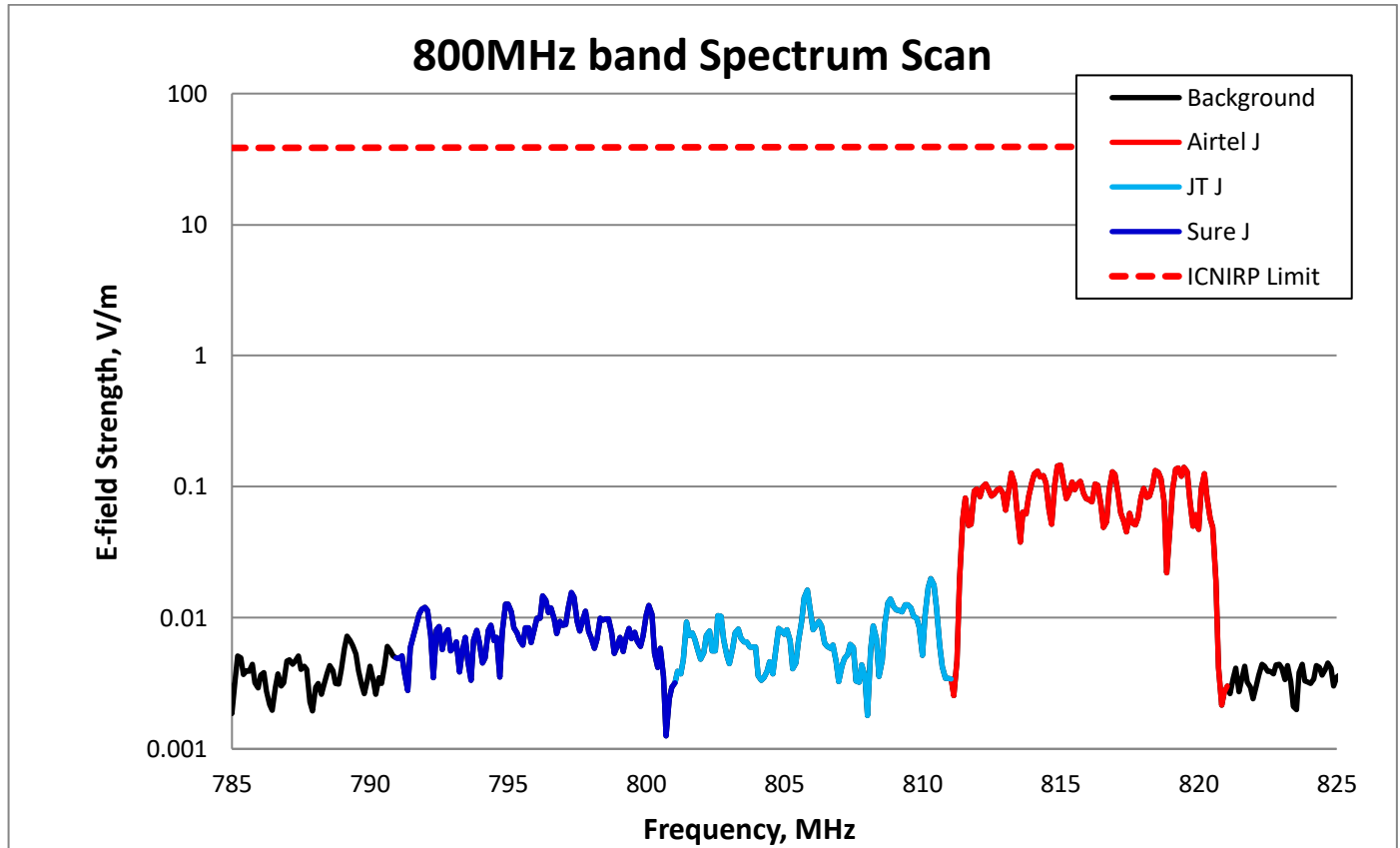


Figure 4 - 800MHz band Spectrum Scan

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 0.1462 V/m (Airtel J), which is 266 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	Total Band Exposure Quotient	Band EQ Relative to ICNIRP
Hampshire Hotel	Airtel J	800	0.1462	266	0.0007168619	1/ 1395
	JT J		0.01984	1960		
	Sure J		0.01562	2490		

Table 2– 800MHz band Exposure Quotient at Hampshire Hotel

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

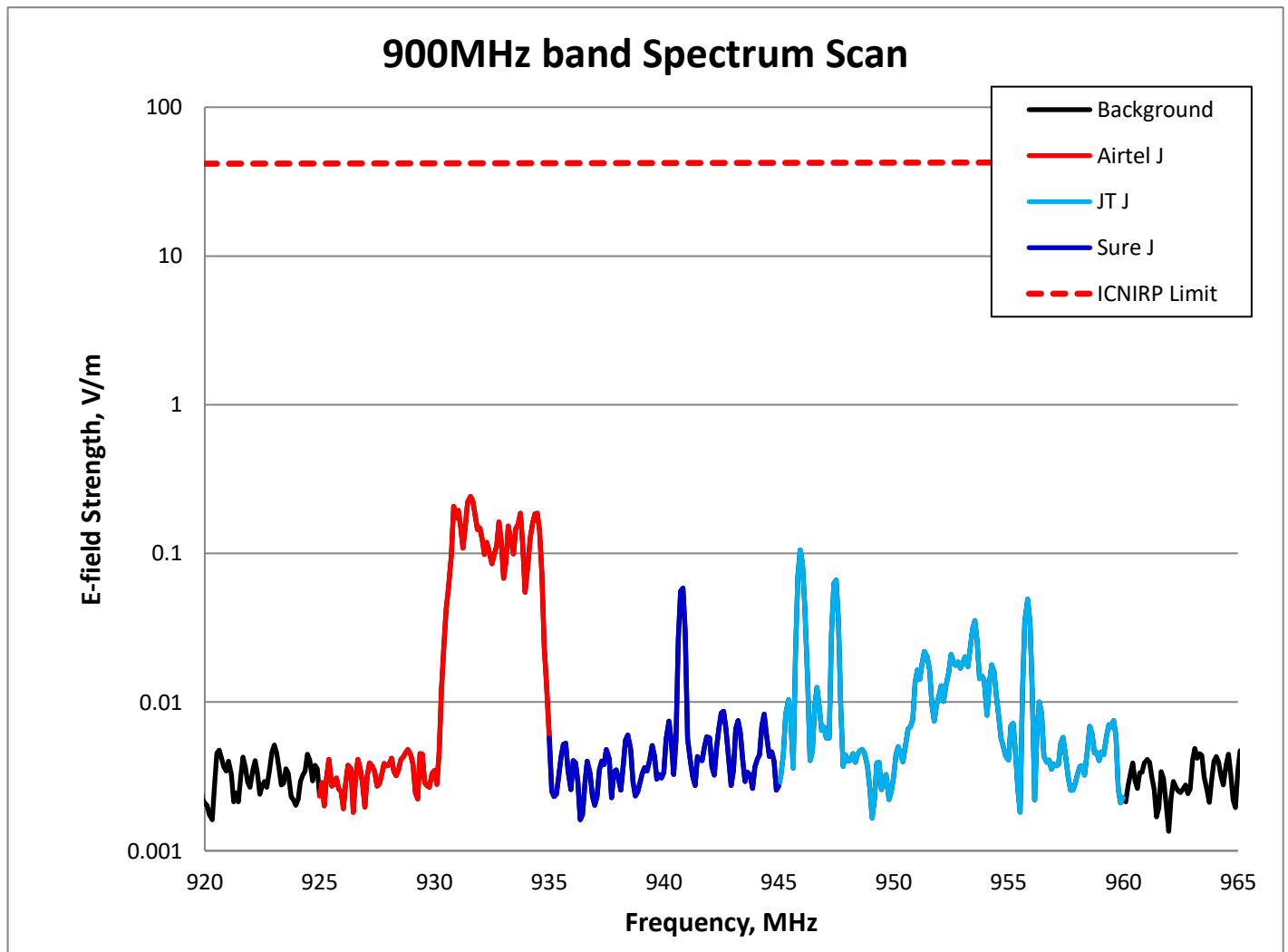


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.2415 V/m (Airtel J), which is 171 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
Hampshire Hotel	Airtel J	900	0.2415	171	0.0000875903	1/ 11417
	JT J		0.1055	391		
	Sure J		0.05828	708		

Table 3– 900MHz band Exposure Quotient at Hampshire Hotel

2.3 1800 MHz Band

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

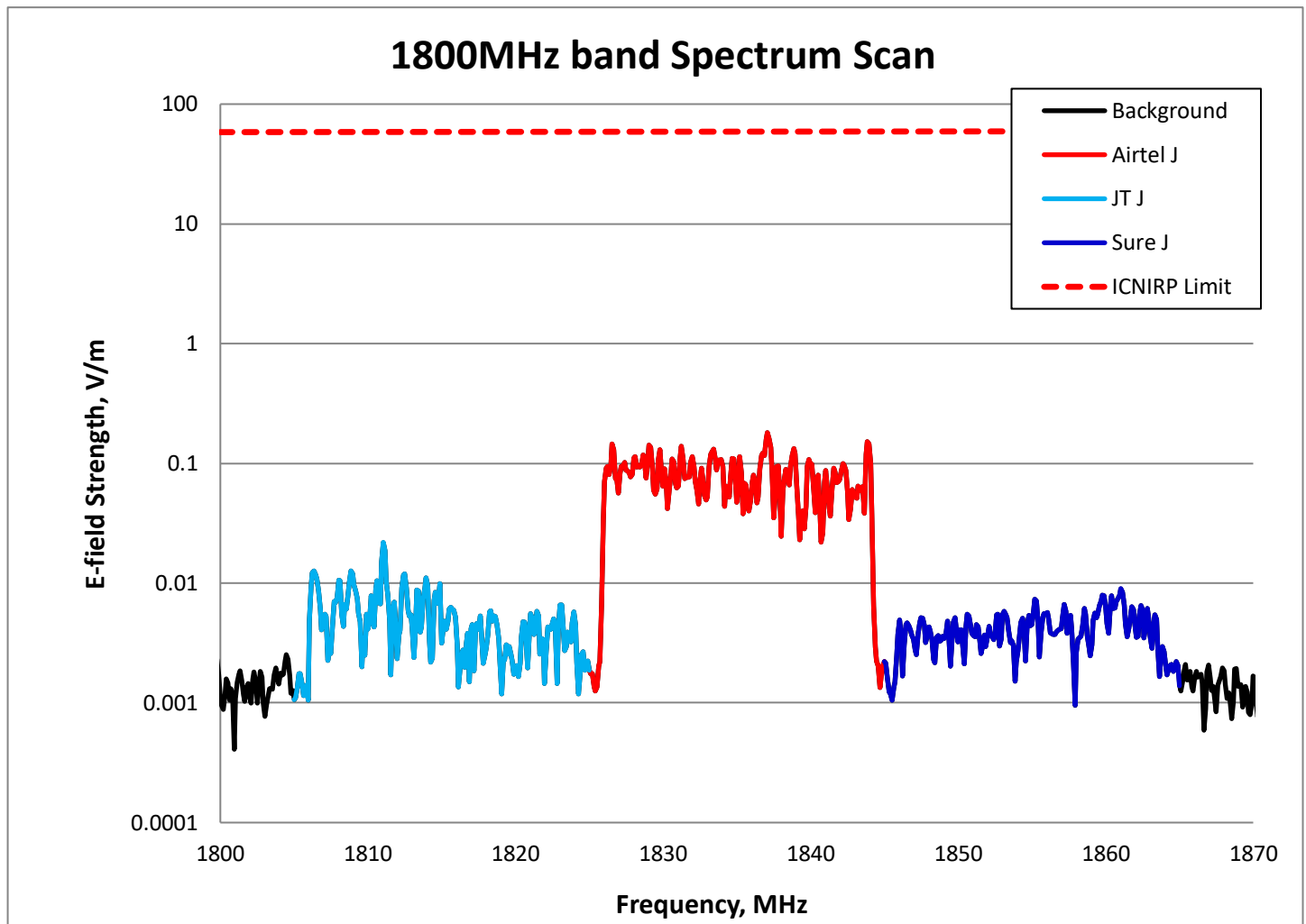


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1804 V/m (Airtel J), which is 323 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
Hampshire Hotel	Airtel J	1800	0.1804	323	0.0001935871	1/ 5166
	JT J		0.02187	2667		
	Sure J		0.008993	6487		

Table 4 – 1800MHz band Exposure Quotient at Hampshire Hotel

2.4 2100MHz Band

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

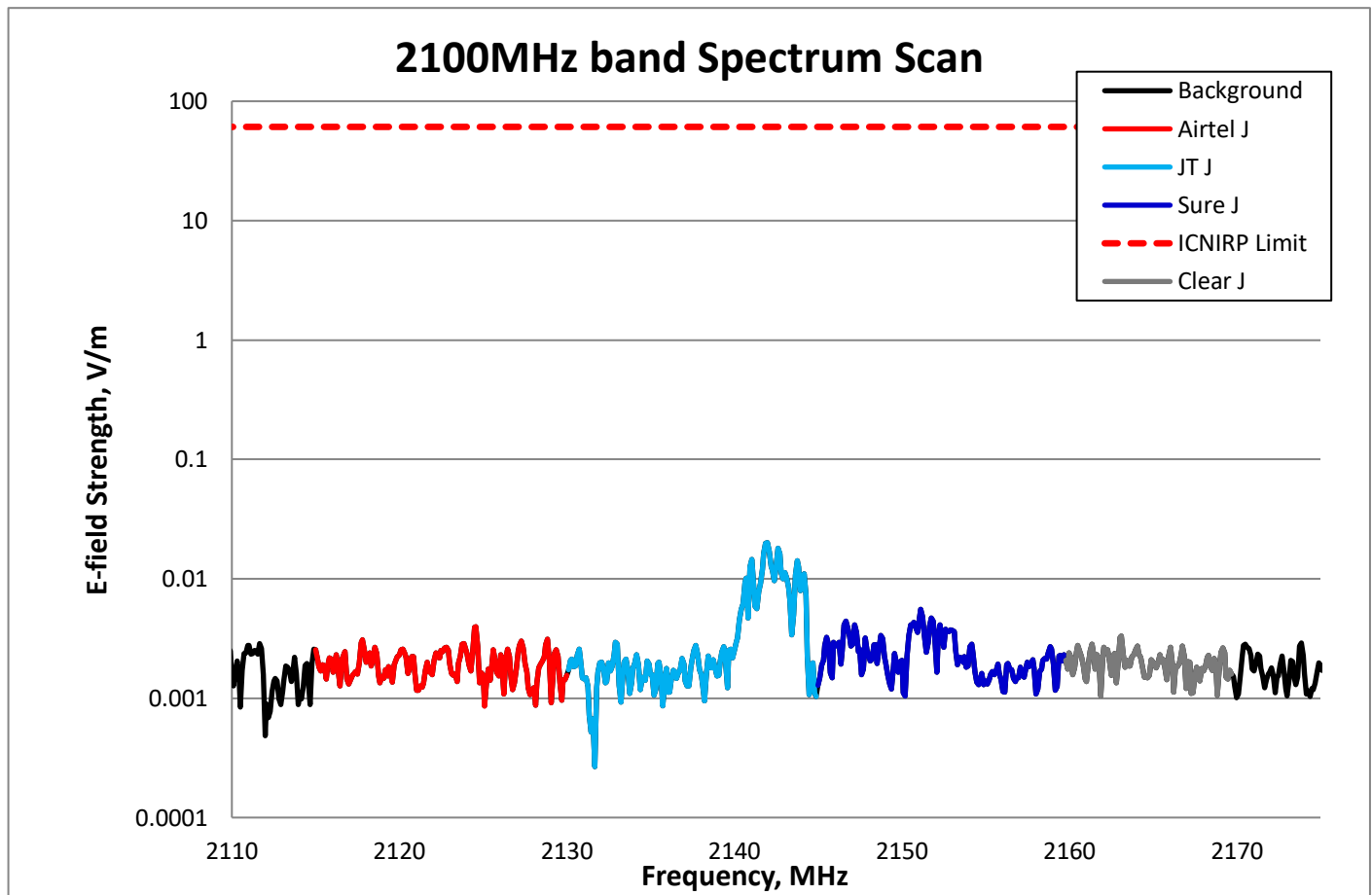


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.02007 V/m (JT J), which is 3039 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
Hampshire Hotel	Airtel J	2100	0.003972	15358	0.0000015012	1/ 666122
	Clear J		0.00332	18373		
	JT J		0.02007	3039		
	Sure J		0.005544	11003		

Table 5 – 2100MHz band Exposure Quotient at Hampshire Hotel

2.5 2600MHz band

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

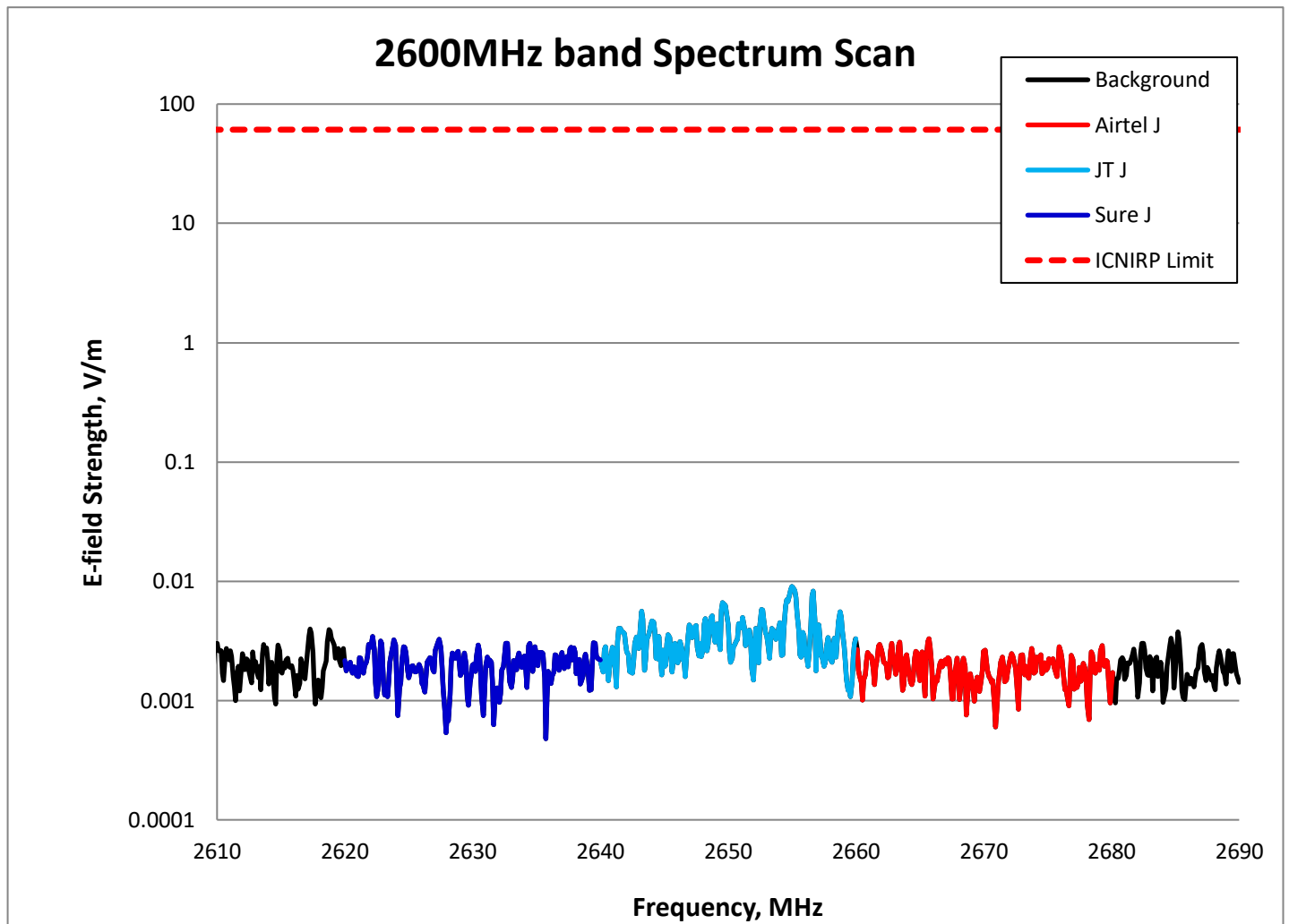


Figure 8 – 2600MHz band Spectrum Scan

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 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
Hampshire Hotel	Airtel J	2600	0.003299	18490	0.0000003887	1/ 2572806
	JT J		0.009035	6752		
	Sure J		0.003441	17727		

Table 6 – 2600MHz band Exposure Quotient at Hampshire Hotel

End