

Cellular Mast Emissions Survey: Savoy Hotel (Jersey)



DOCUMENT DETAILS

Document Name:	Cellular Mast Emissions Survey:	Savoy Hotel (Jersey)
Survey Date:	13/06/2017 at 10:15	
Report issue Date	28/07/2017	
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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 the Savoy Hotel site located in Jersey.

The Savoy Hotel site was used by two operators at the time of the survey: Airtel J and Sure 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
Savoy Hotel	800	0.1526	Sure J	255	0.00023779	1/ 4205
	900	0.3685	Sure J	112	0.000155519	1/ 6430
	1800	0.04396	Sure J	1327	1.63384E-05	1/ 61206
	2100	0.07157	Sure J	852	2.82079E-05	1/ 35451
	2600	0.002236	JT J	27281	1.11555E-07	1/ 8964165
Total Site EQ					0.000437967	1/ 2283

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/2283 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

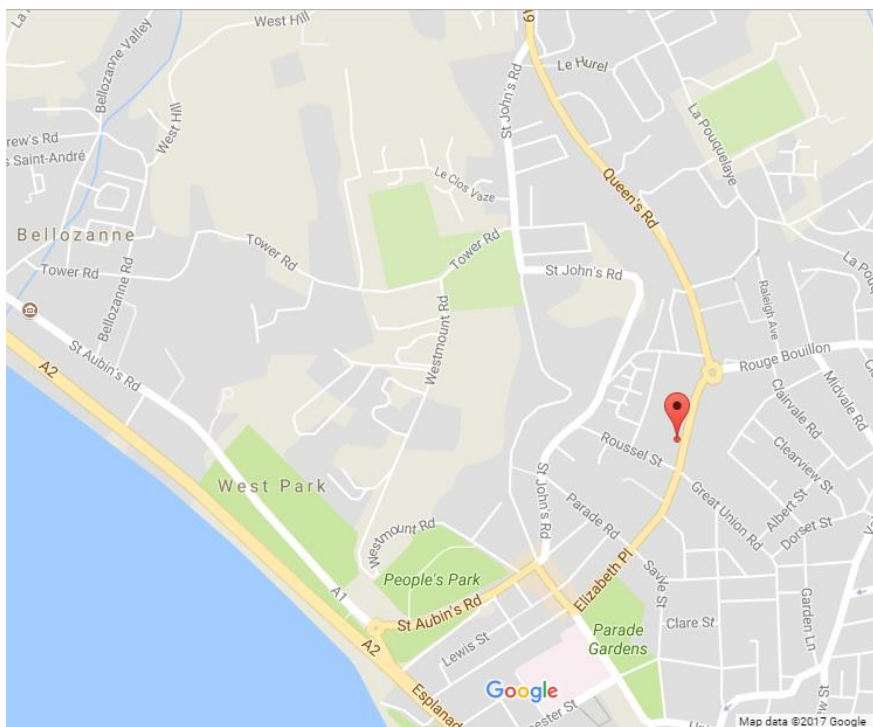


Figure 1 - Map of the Site Area

Site name	Savoy Hotel
Site address	Rouge Bouillon, St Helier, Jersey
Site Latitude	N 49.1916
Site Longitude	W 02.1099

1.2 Site Description

Operators	Airtel J, Sure J
Antenna types	Directional
Approximate height	17m
Site type	Building Rooftop Mount
Description	The antennas at the Savoy Hotel are located on the roof of the main building, out of reach of the public

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

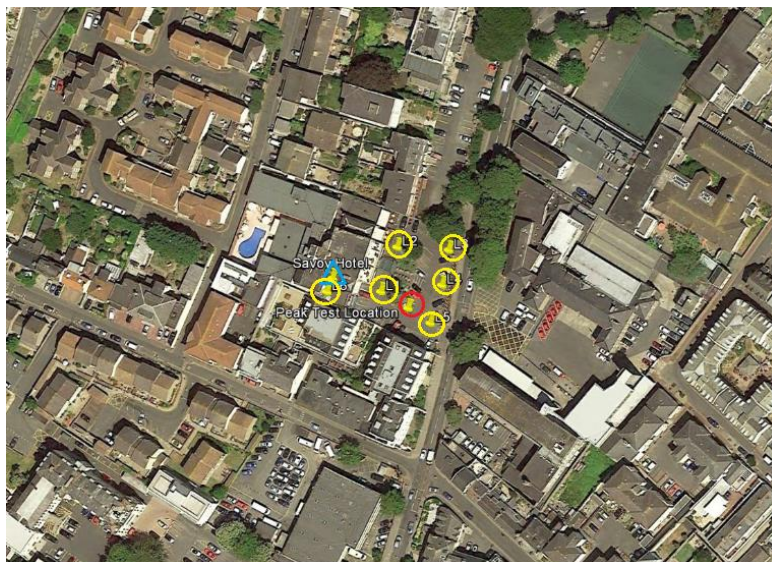


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

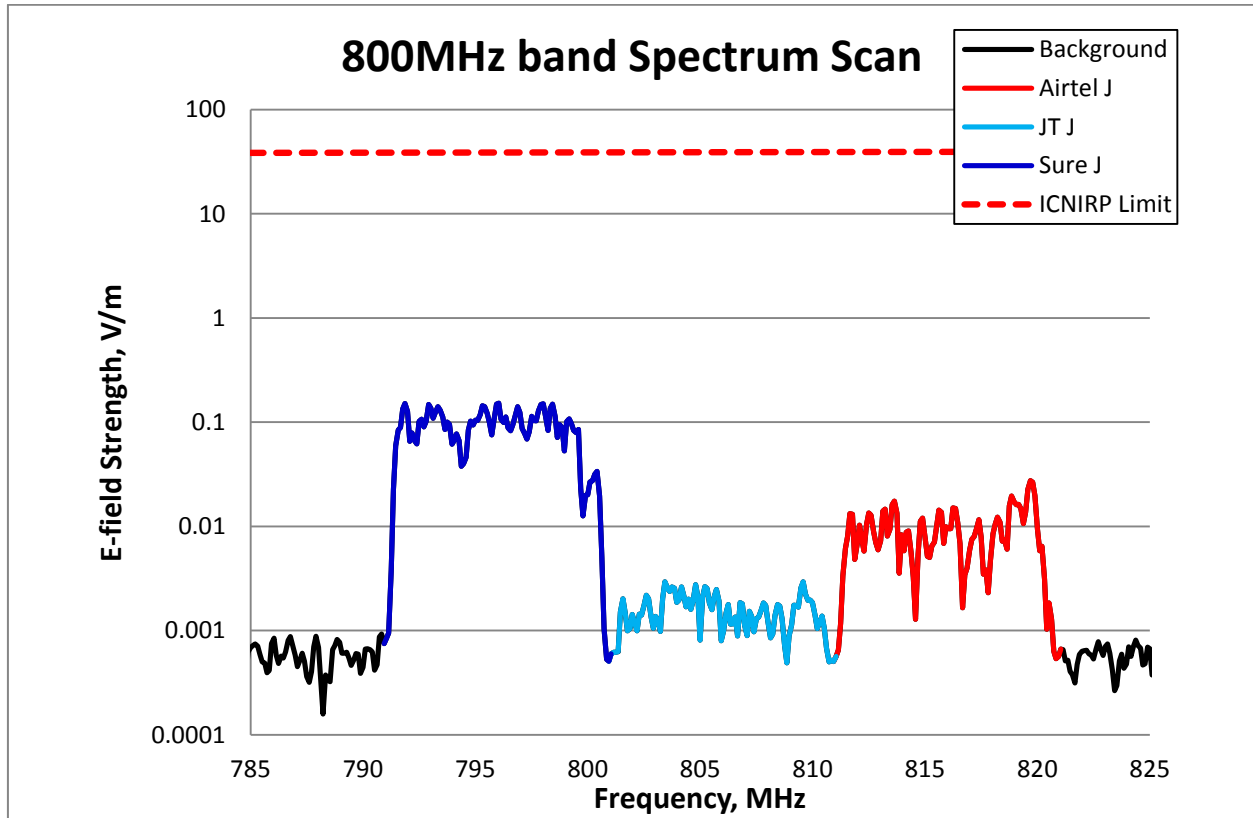


Figure 4 - 800MHz band Spectrum Scan

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 0.1526 V/m (Sure J), which is 255 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
Savoy Hotel	Airtel J	800	0.02751	1414	2.84567E-06	1/ 351412
	JT J		0.002937	13242	7.12152E-08	1/ 14041948
	Sure J		0.1526	255	0.000234873	1/ 4258
total band EQ					0.00023779	1/ 4205

Table 2– 800MHz band Exposure Quotient at the Savoy Hotel

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

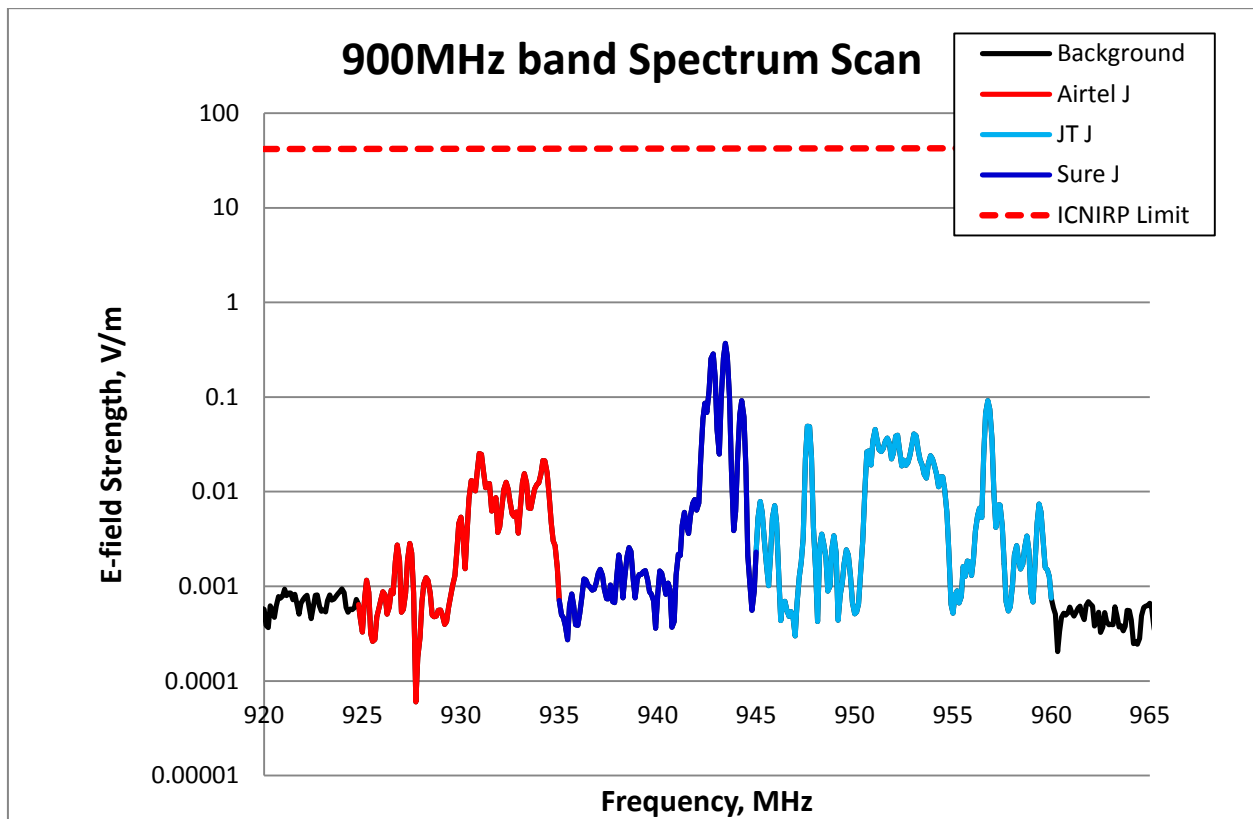


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.3685 V/m (Sure J), which is 112 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
Savoy Hotel	Airtel J	900	0.02534	1628	1.70541E-06	1/ 586369
	JT J		0.09188	449	1.48908E-05	1/ 67156
	Sure J		0.3685	112	0.000138923	1/ 7198
total band EQ					0.000155519	1/ 6430

Table 3– 900MHz band Exposure Quotient at the Savoy Hotel

2.3 1800 MHz Band

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

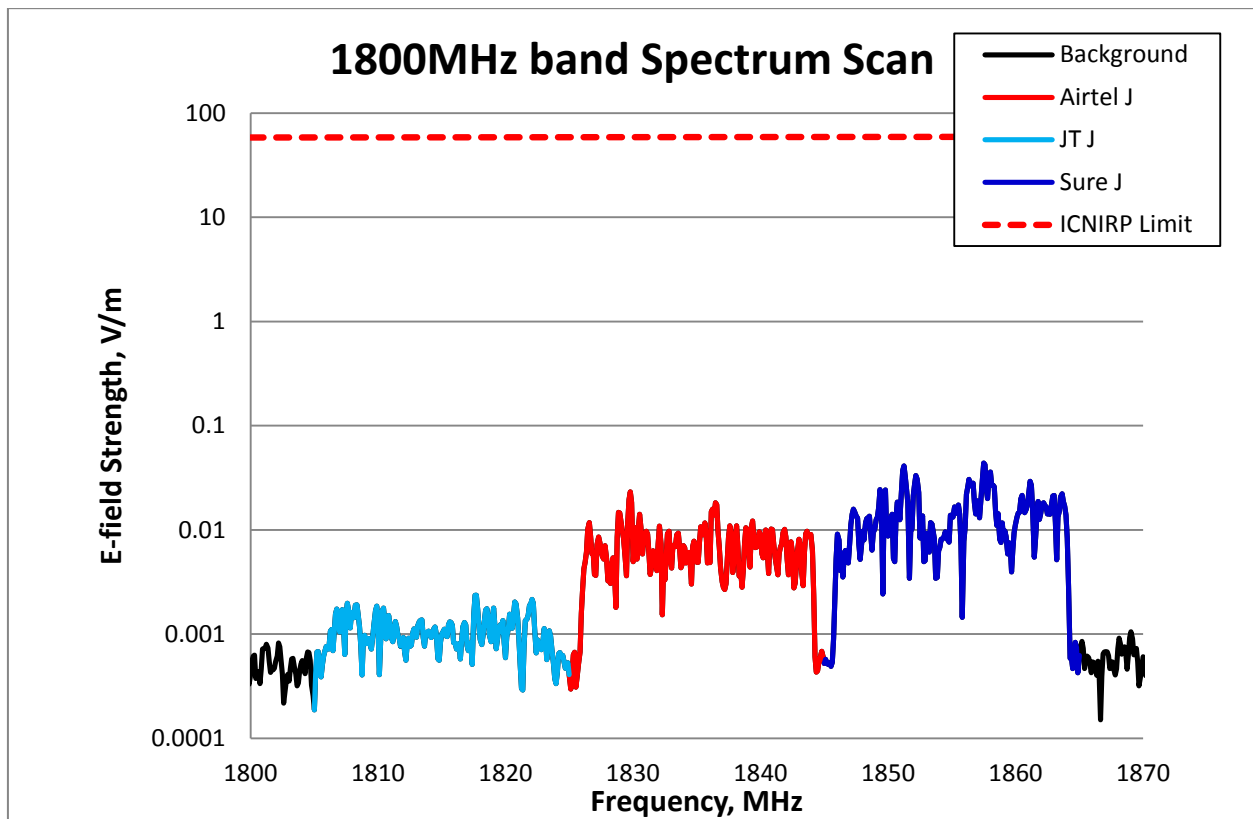


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.04396 V/m (Sure J), which is 1327 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
Savoy Hotel	Airtel J	1800	0.02315	2520	3.07533E-06	1/ 325169
	JT J		0.002356	24761	6.64085E-08	1/ 15058305
	Sure J		0.04396	1327	1.31966E-05	1/ 75777
total band EQ					1.63384E-05	1/ 61206

Table 4 – 1800MHz band Exposure Quotient at the Savoy Hotel

2.4 2100MHz Band

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

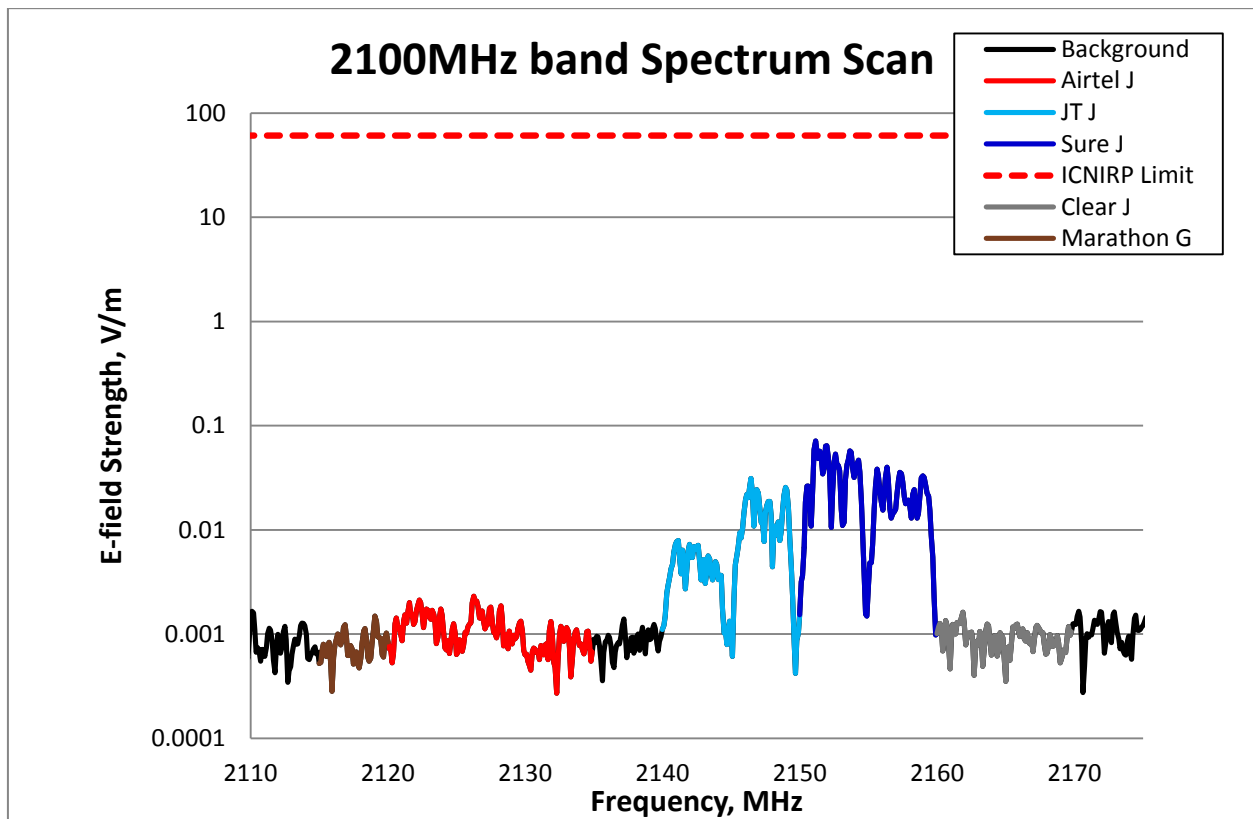


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.07157 V/m (Sure J), which is 852 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
Savoy Hotel	Airtel J	2100	0.002313	26373	5.2577E-08	1/ 19019706
	Clear J		0.001621	37631	2.36249E-08	1/ 42328302
	JT J		0.03127	1951	3.11896E-06	1/ 320620
	Marathon J		0.001493	40857	9.03662E-09	1/ 110660849
	Sure J		0.07157	852	2.50037E-05	1/ 39994
total band EQ					2.82079E-05	1/ 35451

Table 5 – 2100MHz band Exposure Quotient at the Savoy Hotel

2.5 2600MHz band

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

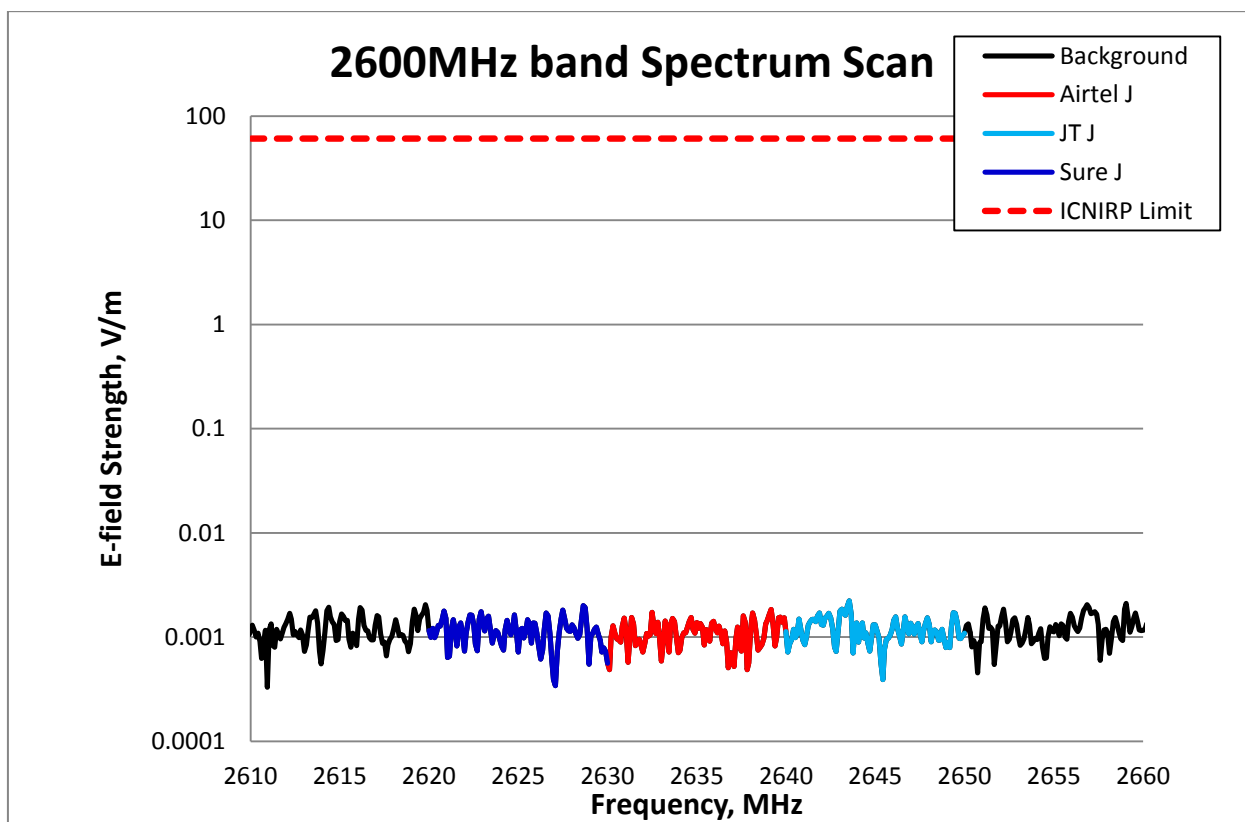


Figure 8 – 2600MHz band Spectrum Scan

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 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
Savoy Hotel	Airtel J	2600	0.001842	33116	3.40816E-08	1/ 29341333
	JT J		0.002236	27281	4.00759E-08	1/ 24952648
	Sure J		0.002006	30409	3.73978E-08	1/ 26739568
total band EQ					1.11555E-07	1/ 8964165

Table 6 – 2600MHz band Exposure Quotient at the Savoy Hotel

End