

Cellular Mast Emissions Survey: Jersey Hospice (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 Jersey Hospice site located in Jersey.

The Jersey Hospice 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
Jersey Hospice	800	0.001126	JT J	34539	3.01284E-08	1/ 33191275
	900	0.02965	JT J	1391	6.42823E-07	1/ 1555638
	1800	0.001078	Sure J	54115	4.89143E-08	1/ 20443930
	2100	0.02018	JT J	3023	1.63323E-06	1/ 612285
	2600	0.002053	JT J	29713	1.06052E-07	1/ 9429375
Total Site EQ					2.46114E-06	1/ 406315

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/406315 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

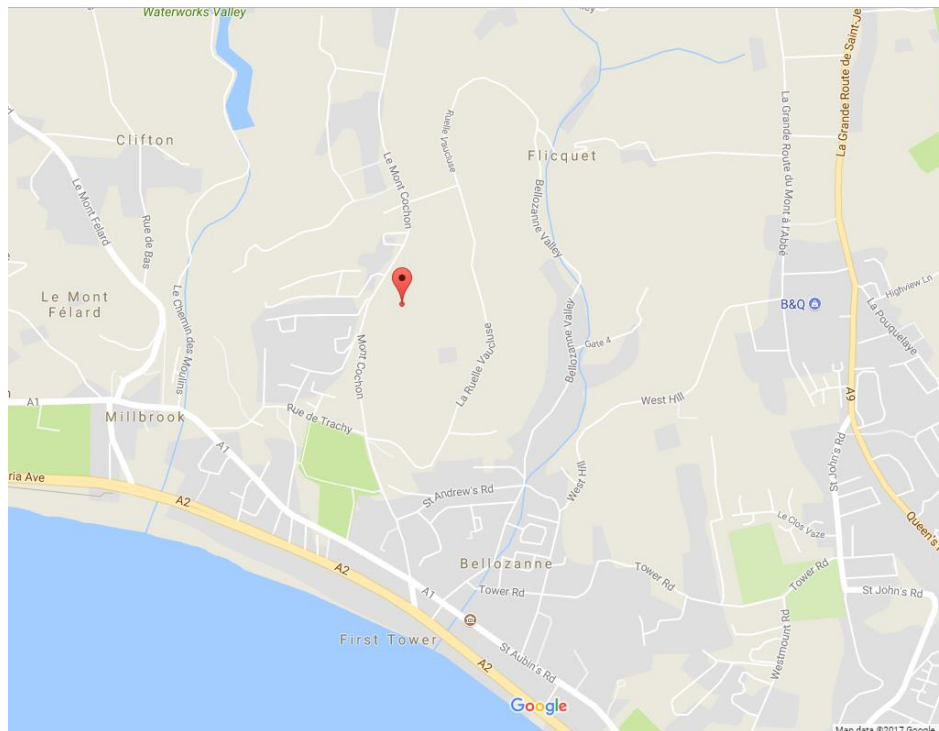


Figure 1 - Map of the Site Area

Site name	Jersey Hospice
Site address	Clarkson House, Le Mont Cochon, Jersey
Site Latitude	N 49.200749
Site Longitude	W 02.1286587

1.2 Site Description

Operators	JT J
Antenna types	Omni directional
Approximate height	3m
Site type	Indoors
Description	The antennas at the Jersey Hospice are fixed to the ceiling inside the main building, access to the public is restricted.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

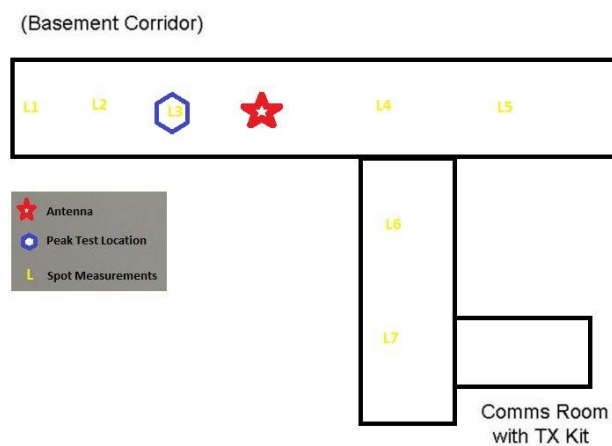


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

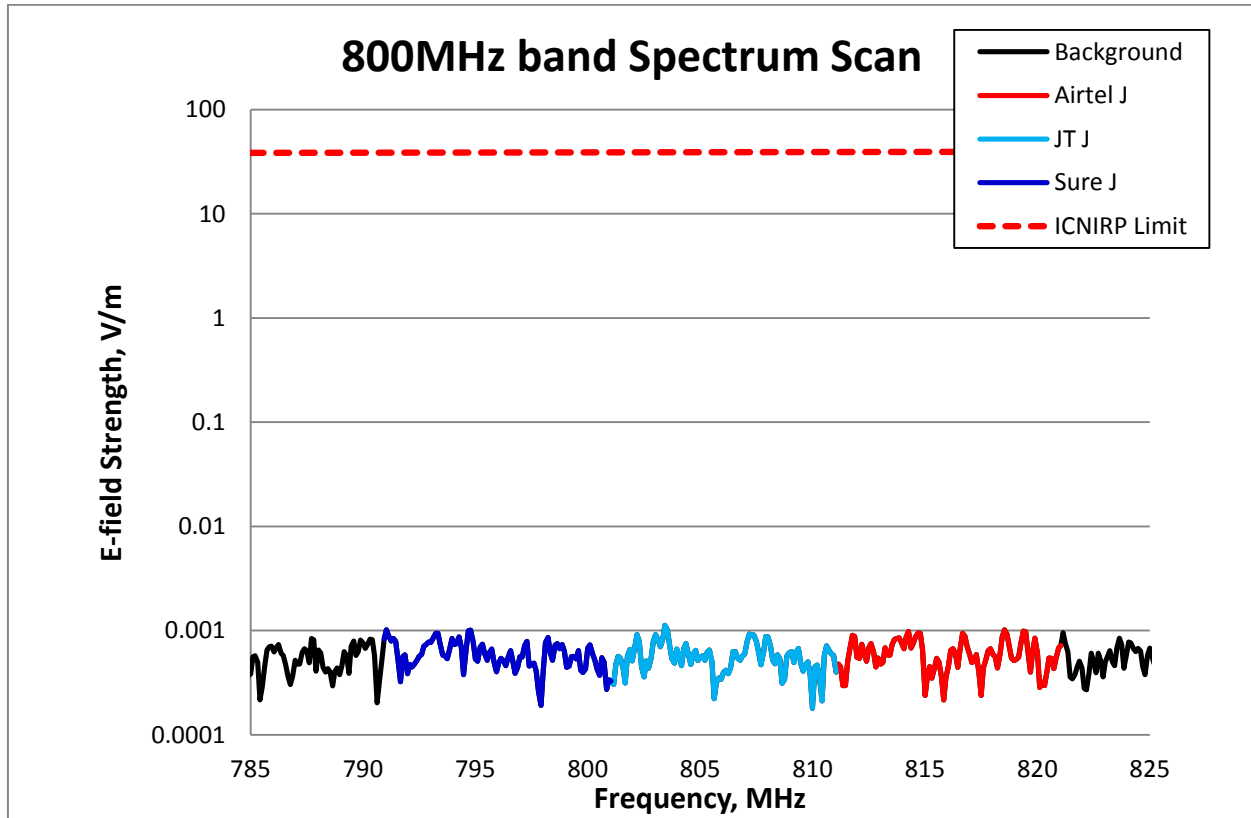


Figure 4 - 800MHz band Spectrum Scan

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 activity was recorded in the 800MHz as no operator appears to transmit in this band at this site.

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
Jersey Hospice	Airtel J	800	0.001016	38278	1.05246E-08	1/ 95015435
	JT J		0.001126	34539	9.32347E-09	1/ 107256230
	Sure J		0.001015	38316	1.02803E-08	1/ 97273179
total band EQ					3.01284E-08	1/ 33191275

Table 2– 800MHz band Exposure Quotient at the Jersey Hospice

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

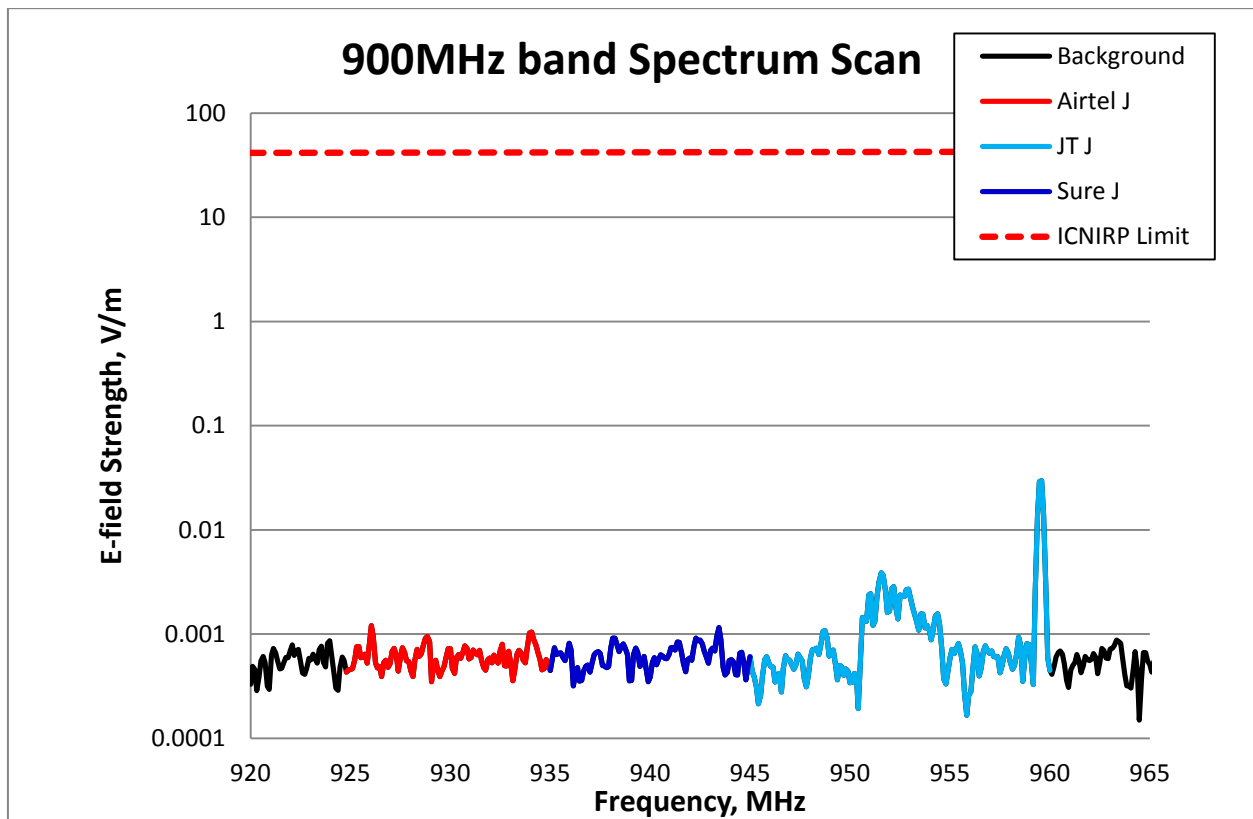


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.02965 V/m (JT J), which is 1391 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
Jersey Hospice	Airtel J	900	0.001207	34176	1.04242E-08	1/ 95930326
	JT J		0.02965	1391	6.2202E-07	1/ 1607666
	Sure J		0.001154	35745	1.03794E-08	1/ 96344296
total band EQ					6.42823E-07	1/ 1555638

Table 3– 900MHz band Exposure Quotient at the Jersey Hospice

2.3 1800 MHz Band

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

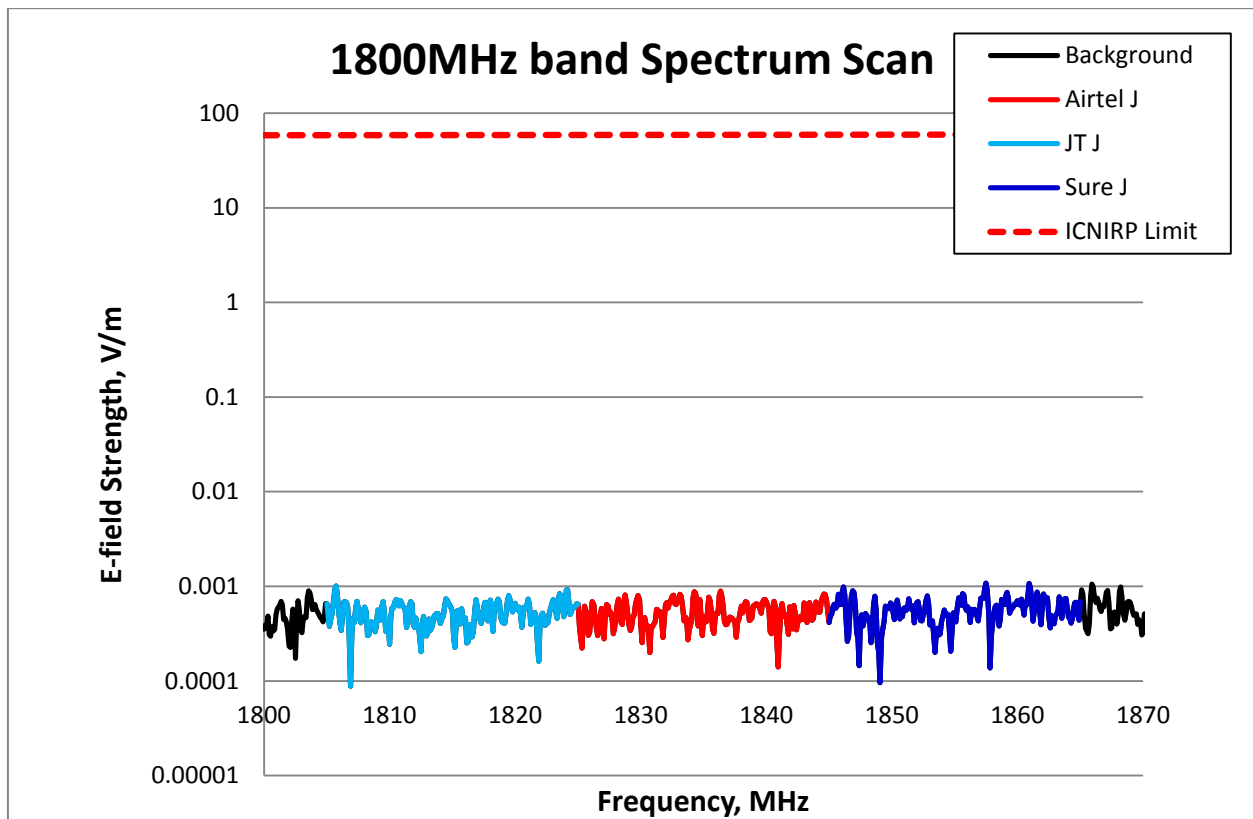


Figure 6 - 1800MHz Spectrum Scan

No 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	Operator	Band [MHz]	Max E-field Strength [V/m]	ICNIRP Limit Relative to Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Jersey Hospice	Airtel J	1800	0.0008926	65355	1.56013E-08	1/ 64097164
	JT J		0.001005	58046	1.52227E-08	1/ 65691377
	Sure J		0.001078	54115	1.80903E-08	1/ 55278361
total band EQ					4.89143E-08	1/ 20443930

Table 4 – 1800MHz band Exposure Quotient at the Jersey Hospice

2.4 2100MHz Band

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

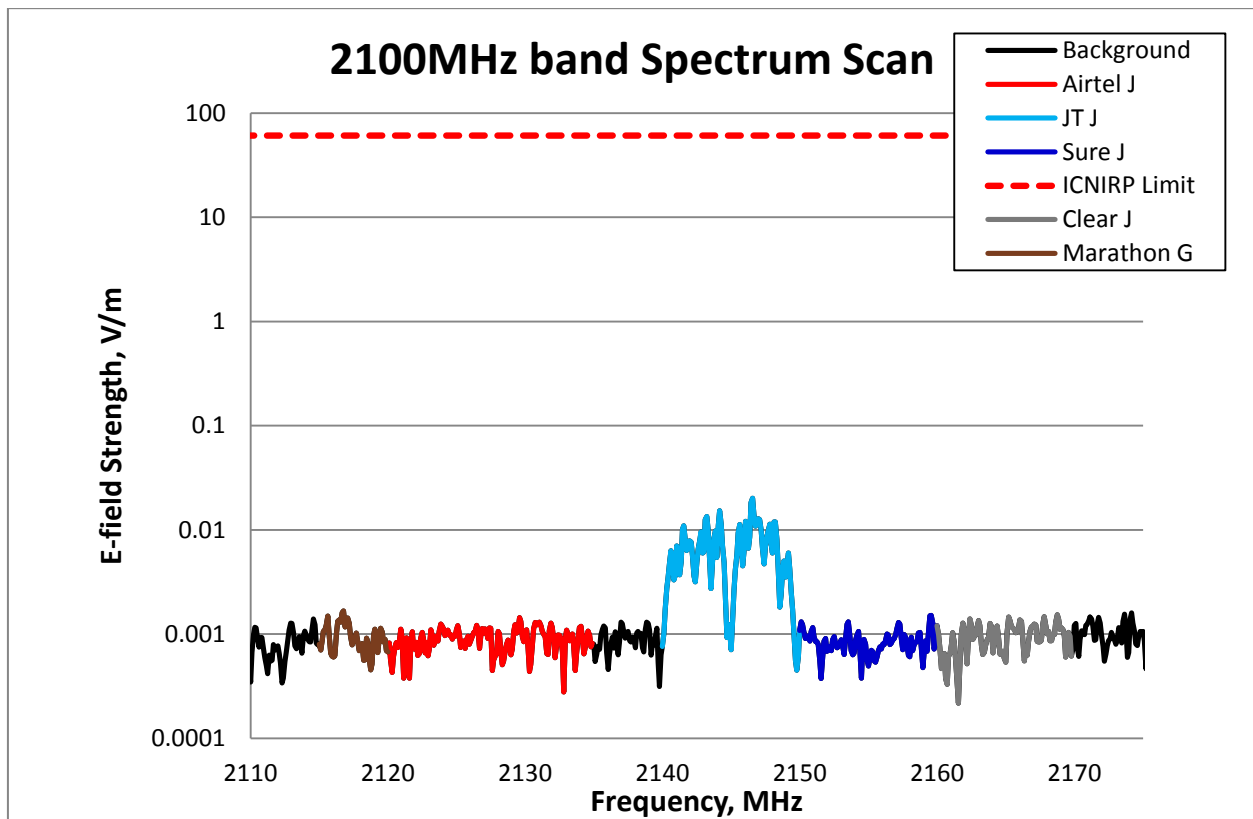


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.02018 V/m (JT J), which is 3023 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
Jersey Hospice	Airtel J	2100	0.00144	42361	3.25691E-08	1/ 30703941
	Clear J		0.001538	39662	2.45815E-08	1/ 40681024
	JT J		0.02018	3023	1.54306E-06	1/ 648062
	Marathon J		0.001668	36571	1.27129E-08	1/ 78660338
	Sure J		0.00151	40397	2.03004E-08	1/ 49260171
total band EQ					1.63323E-06	1/ 612285

Table 5 – 2100MHz band Exposure Quotient at the Jersey Hospice

2.5 2600MHz band

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

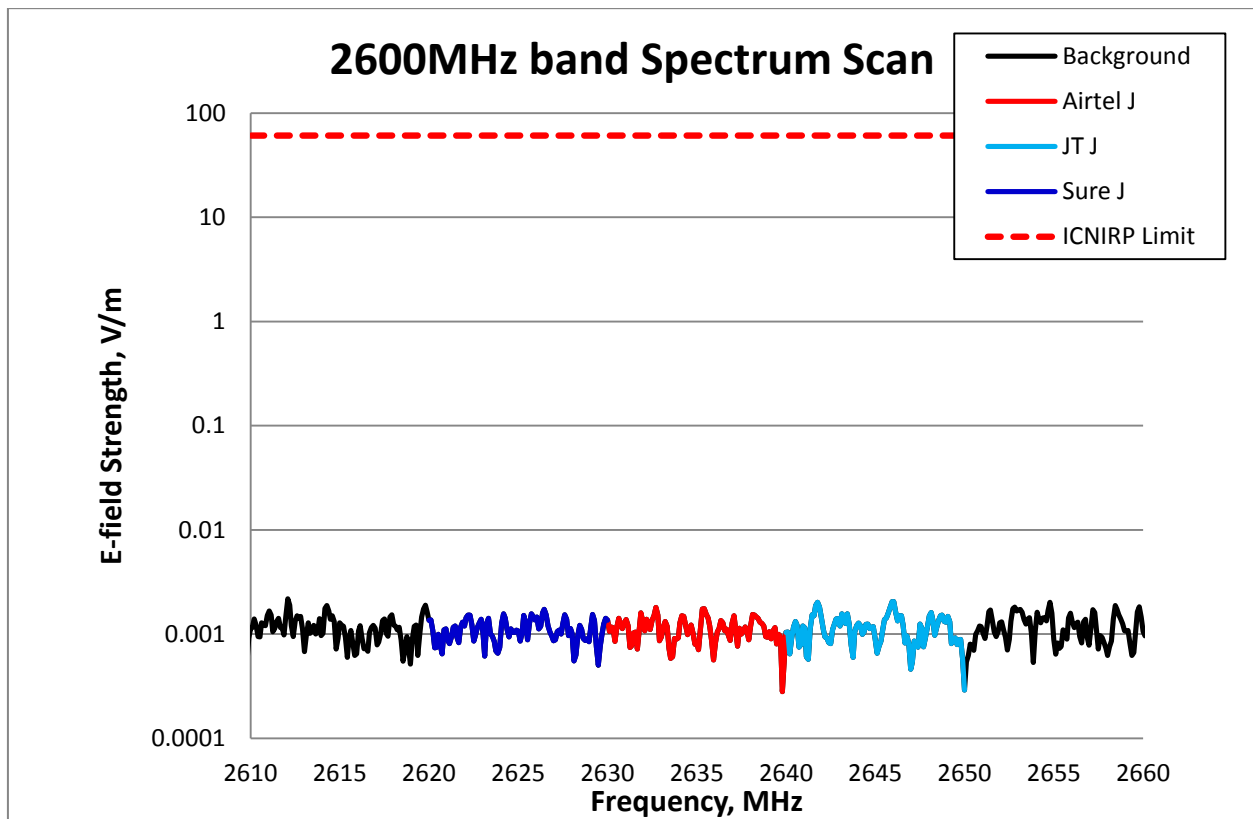


Figure 8 – 2600MHz band Spectrum Scan

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
Jersey Hospice	Airtel J	2600	0.001804	33814	3.46424E-08	1/ 28866351
	JT J		0.002053	29713	3.77728E-08	1/ 26474087
	Sure J		0.001726	35342	3.36364E-08	1/ 29729722
total band EQ					1.06052E-07	1/ 9429375

Table 6 – 2600MHz band Exposure Quotient at the Jersey Hospice

End