

Cellular Mast Emissions Survey: Le Augerez Farm (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 Le Augerez Farm site located in Jersey.

The Le Augerez Farm site was used by a single operator at the time of the survey: 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
Le Augerez Farm	800	0.3059	Sure J	127	0.000184133	1/ 5431
	900	2.072	Sure J	20	0.003872864	1/ 258
	1800	0.007582	Sure J	7694	5.85618E-07	1/ 1707597
	2100	0.1303	Sure J	468	7.07873E-05	1/ 14127
	2600	0.003575	Airtel J	17063	2.9579E-07	1/ 3380778
Total Site EQ					0.004128666	1/ 242

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/242 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

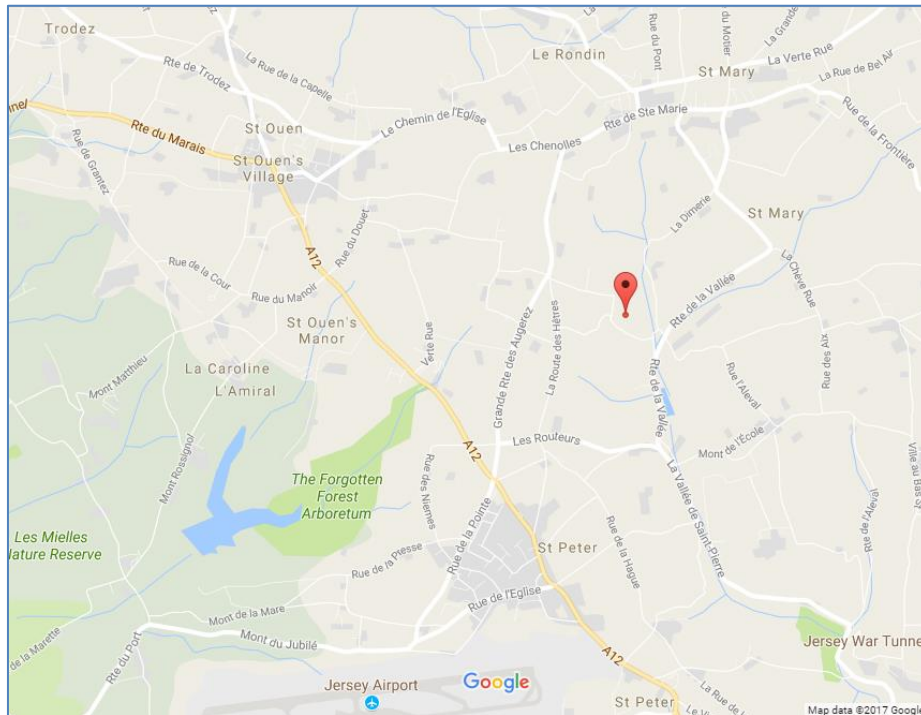


Figure 1 - Map of the Site Area

Site name	Le Augerez Farm
Site address	La Rue des Sillons, St Peter, Jersey
Site Latitude	N 49.22547852
Site Longitude	W 02.17614857

1.2 Site Description

Operators	Sure J
Antenna types	Directional
Approximate height	12m
Site type	Pole mast
Description	The pole mast at Le Augerez Farm is located on the edge of a field and is accessible by 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.

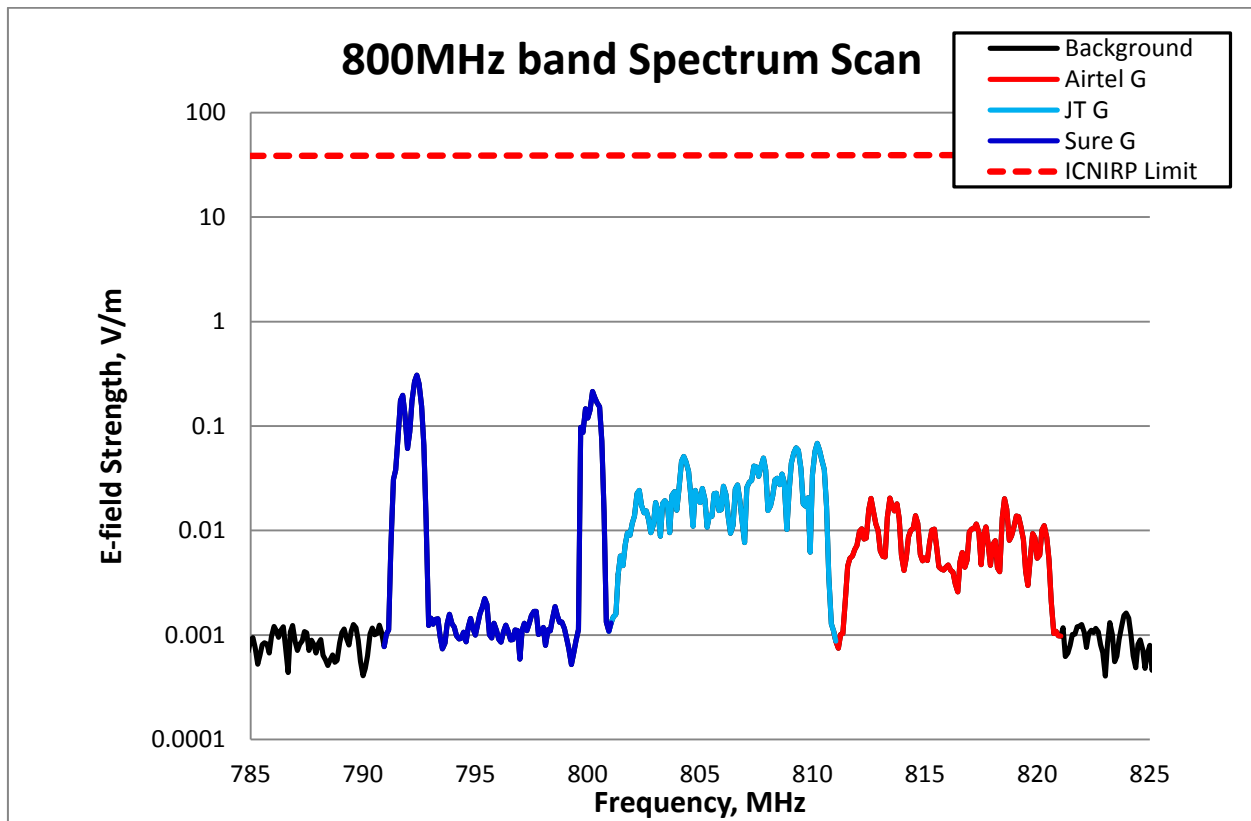


Figure 4 - 800MHz band Spectrum Scan

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 0.3059 V/m (Sure J), which is 127 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
Le Augerez Farm	Airtel G	800	0.02047	1900	2.15867E-06	1/ 463248
	JT G		0.06834	569	1.97379E-05	1/ 50664
	Sure G		0.3059	127	0.000162237	1/ 6164
total band EQ					0.000184133	1/ 5431

Table 2– 800MHz band Exposure Quotient at Le Augerez Farm

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

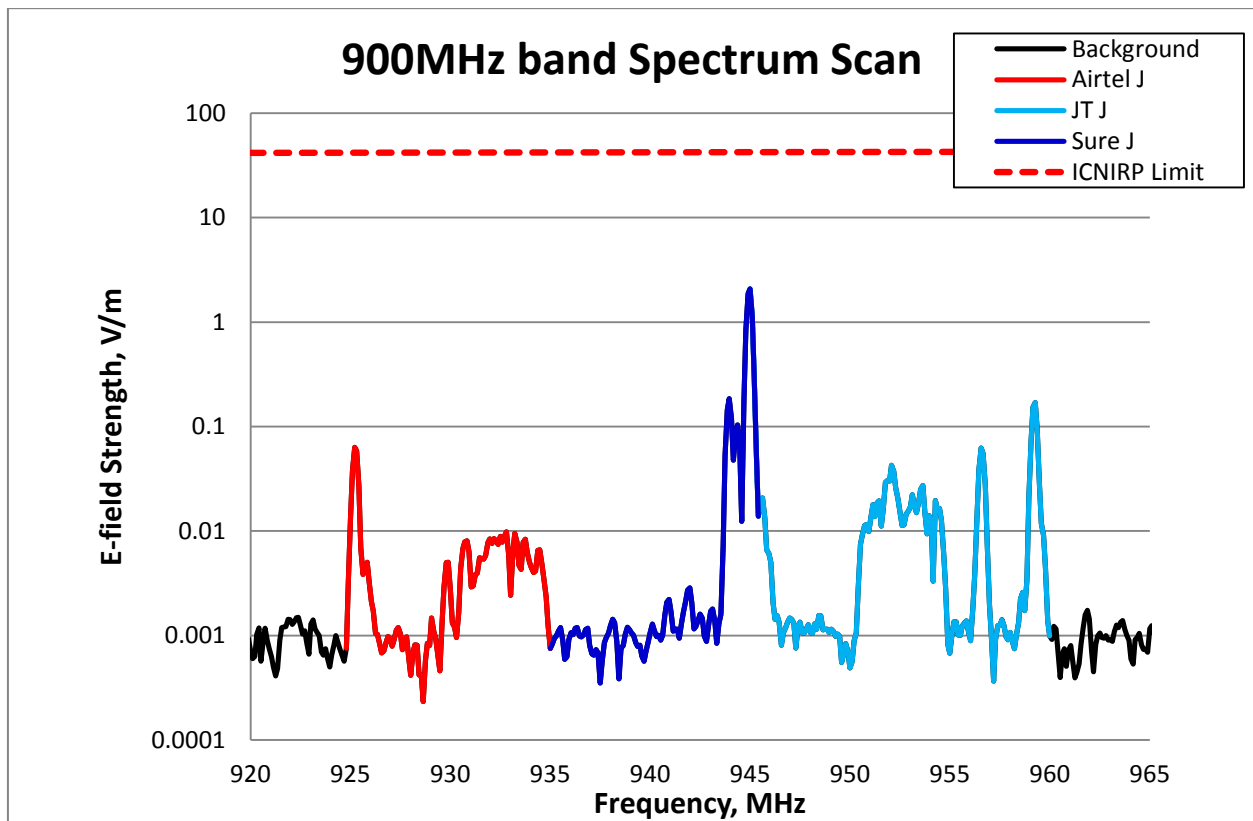


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 2.072 V/m (Sure J), which is 20 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
Le Augerez Farm	Airtel J	900	0.06316	653	3.14641E-06	1/ 317823
	JT J		0.1702	242	0.001547996	1/ 646
	Sure J		2.072	20	0.002321721	1/ 431
total band EQ					0.003872864	1/ 258

Table 3– 900MHz band Exposure Quotient at Le Augerez Farm

2.3 1800 MHz Band

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

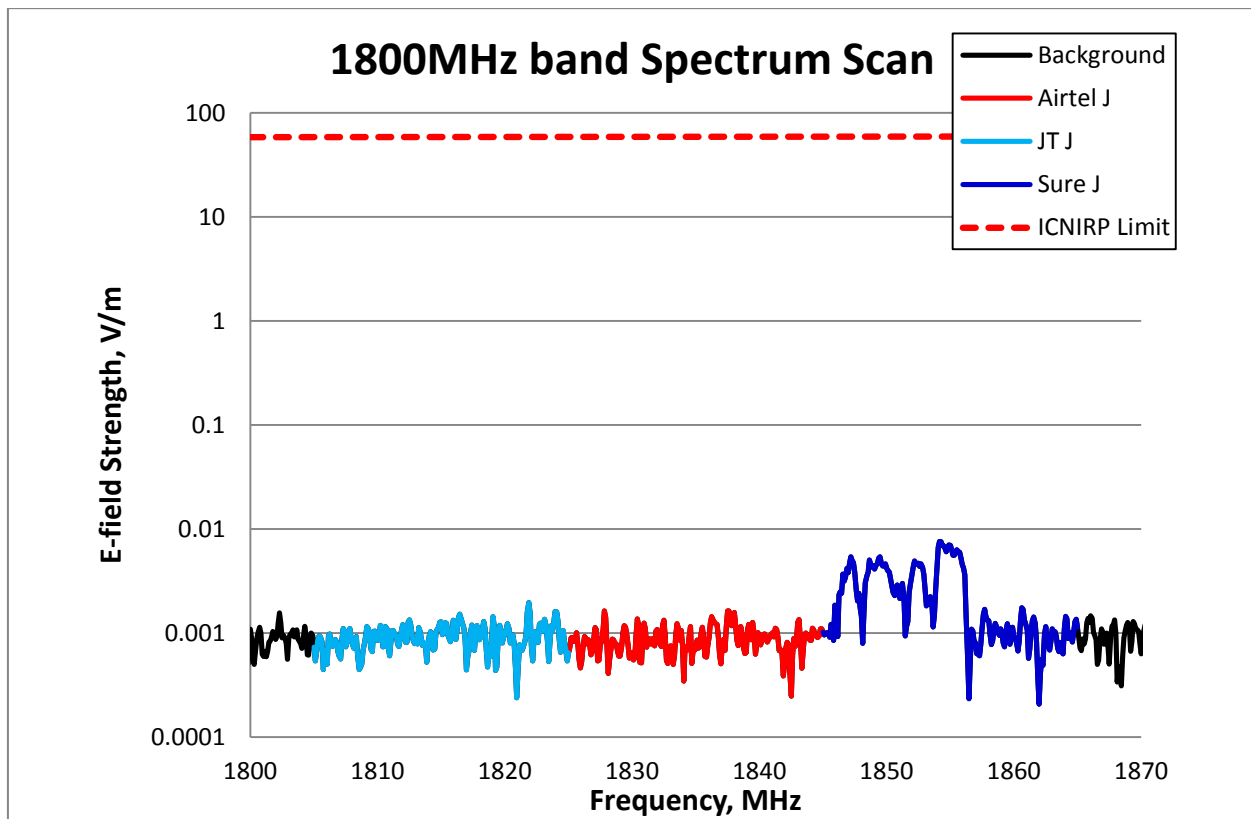


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.007582 V/m (Sure J), which is 7694 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
Le Augerez Farm	Airtel G	1800	0.001631	35767	4.296E-08	1/ 23277462
	JT G		0.001964	29703	4.72105E-08	1/ 21181747
	Sure G		0.007582	7694	4.95448E-07	1/ 2018377
total band EQ					5.85618E-07	1/ 1707597

Table 4 – 1800MHz band Exposure Quotient at Le Augerez Farm

2.4 2100MHz Band

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

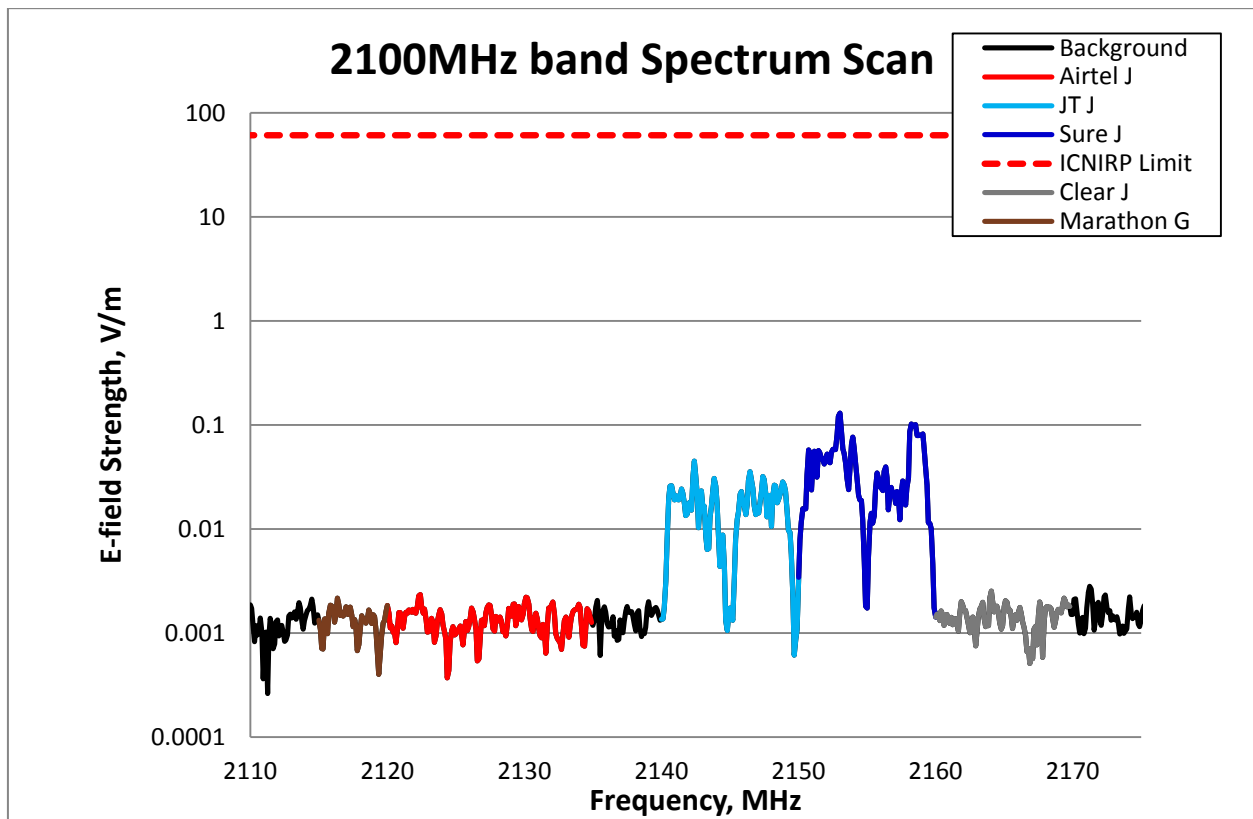


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.1303 V/m (Sure J), which is 468 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
Augerez Fa	Airtel J	2100	0.002336	26113	7.35912E-08	1/ 13588586
	Clear J		0.002523	24178	5.69081E-08	1/ 17572176
	JT J		0.04491	1358	9.11344E-06	1/ 109728
	Marathon J		0.00217	28111	2.53434E-08	1/ 39457955
	Sure J		0.1303	468	6.1518E-05	1/ 16255
total band EQ					7.07873E-05	1/ 14127

Table 5 – 2100MHz band Exposure Quotient at Le Augerez Farm

2.5 2600MHz band

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

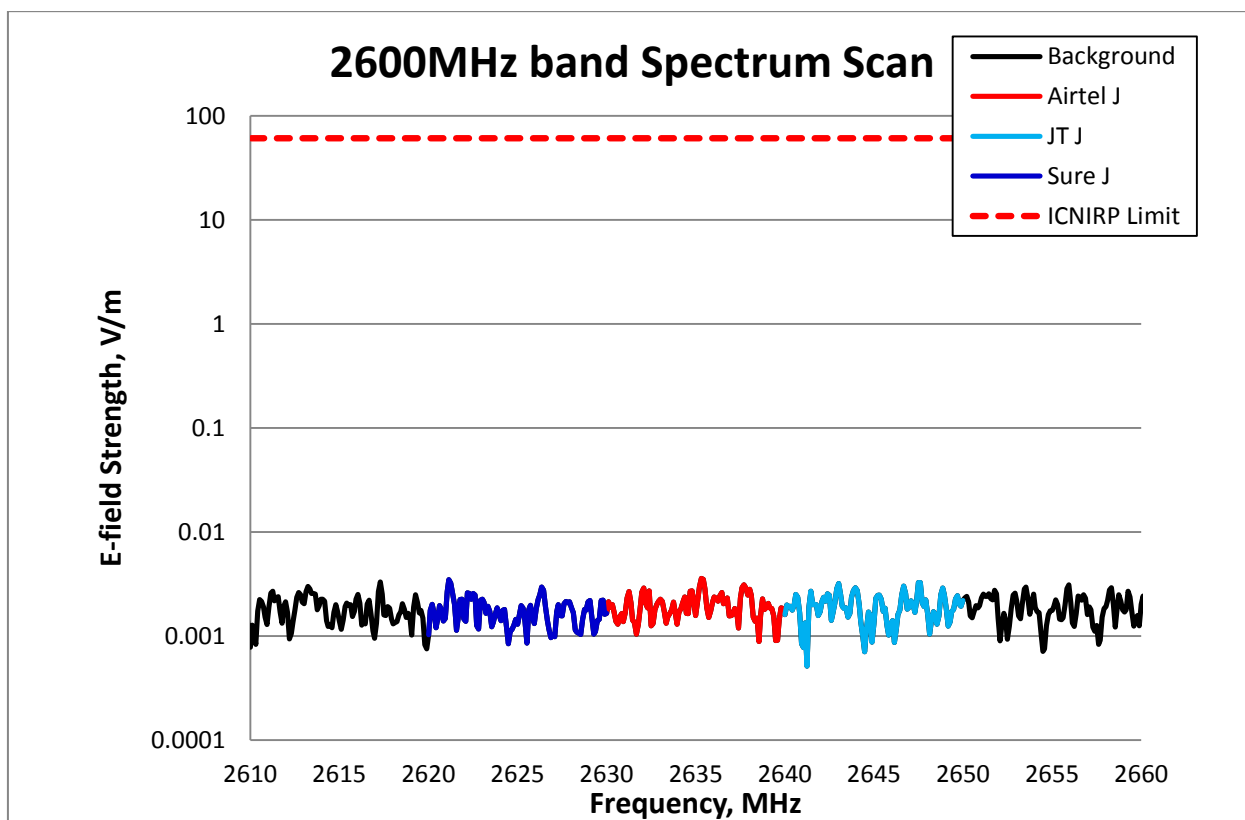


Figure 8 – 2600MHz band Spectrum Scan

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
Le Augerez Farm	Airtel G	2600	0.003575	17063	1.06519E-07	1/ 9388009
	JT G		0.00327	18654	1.03584E-07	1/ 9653959
	Sure G		0.003471	17574	8.56866E-08	1/ 11670434
total band EQ					2.9579E-07	1/ 3380778

Table 6 – 2600MHz band Exposure Quotient at Le Augerez Farm

End