

Cellular Mast Emissions Survey: De La Mare Nursery (Jersey)



DOCUMENT DETAILS

Document Name:	Cellular Mast Emissions Survey: De La Mare Nursery (Jersey)
Survey Date:	04/06/2017 at 16:24
Report issue Date	23/06/2017
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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 De La Mare Nursery site located in Jersey.

The De La Mare Nursery site was used by a single operator at the time of the 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
De La Mare Nursery	800	0.1168	Airtel J	333	8.01298E-05	1/ 12480
	900	0.3335	Airtel J	124	8.56878E-05	1/ 11670
	1800	0.001448	JT J	40288	6.3314E-08	1/ 15794303
	2100	0.002133	JT J	28598	1.31539E-07	1/ 7602329
	2600	0.002507	Airtel J	24332	1.30777E-07	1/ 7646600
Total Site EQ					0.000166143	1/ 6019

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/6019 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

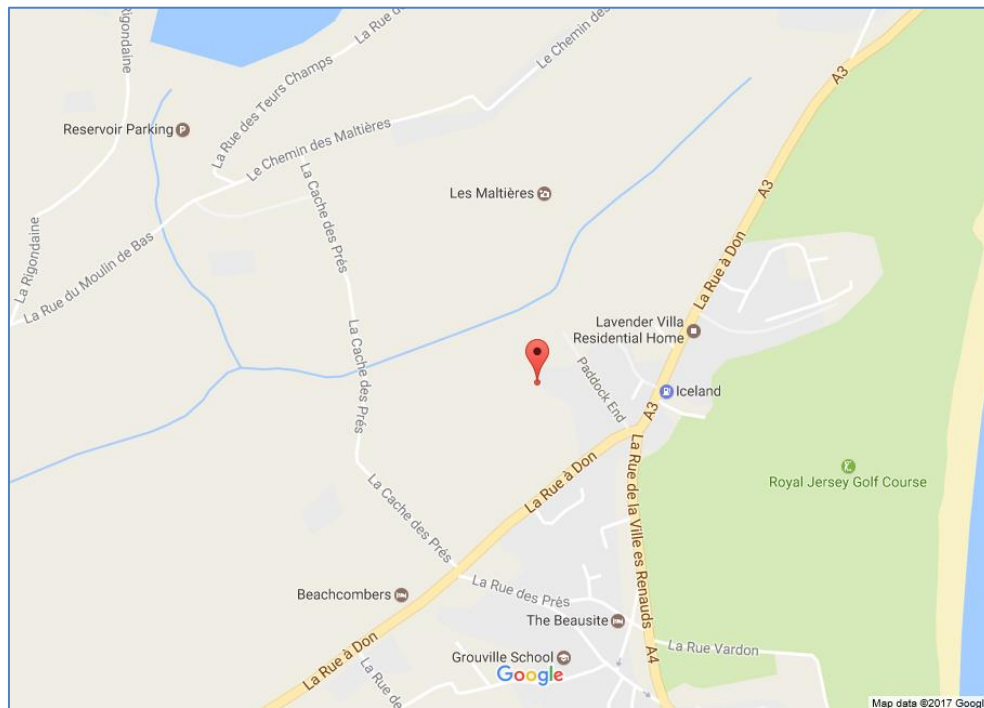


Figure 1 - Map of the Site Area

Site name	De La Mare Nursery
Site address	Off Paddock End/La Rue a Don, Jersey
Site Latitude	N 49.18945
Site Longitude	W 02.04181

1.2 Site Description

Operators	Airtel J
Antenna types	Omni directional
Approximate height	12m
Site type	Pole mast
Description	The pole mast at De La Mare Nursery is located at the back of the main building, out of reach of the public

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

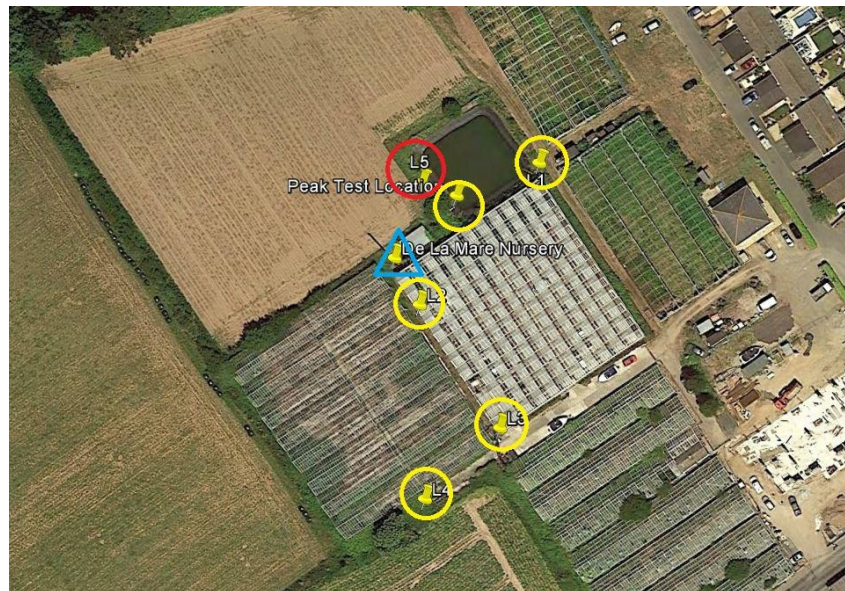


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

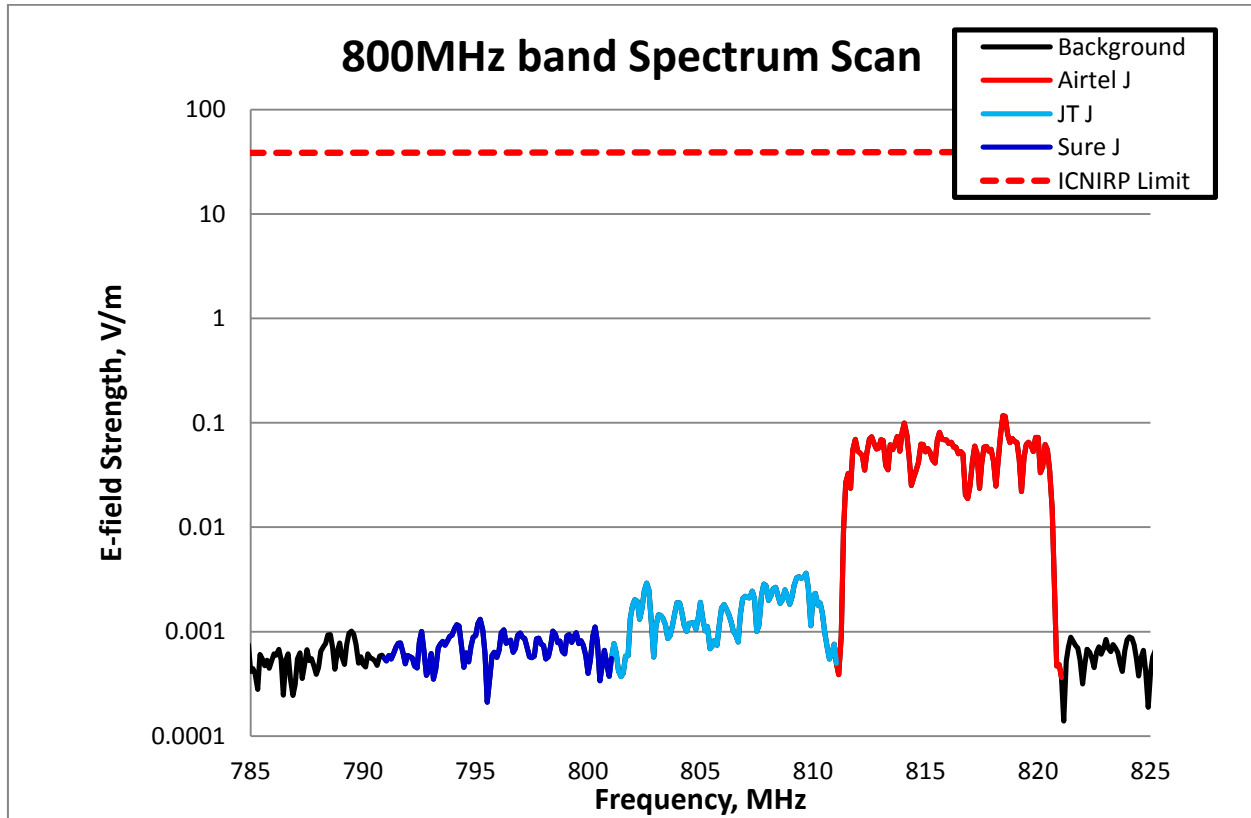


Figure 4 - 800MHz band Spectrum Scan

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 0.1168 V/m (Airtel J), which is 333 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
De La Mare Nursery	Airtel J	800	0.1168	333	8.00332E-05	1/ 12495
	JT J		0.00363	10714	8.181E-08	1/ 12223440
	Sure J		0.00131	29688	1.47028E-08	1/ 68014422
total band EQ					8.01298E-05	1/ 12480

Table 2– 800MHz band Exposure Quotient at De La Mare Nursery

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

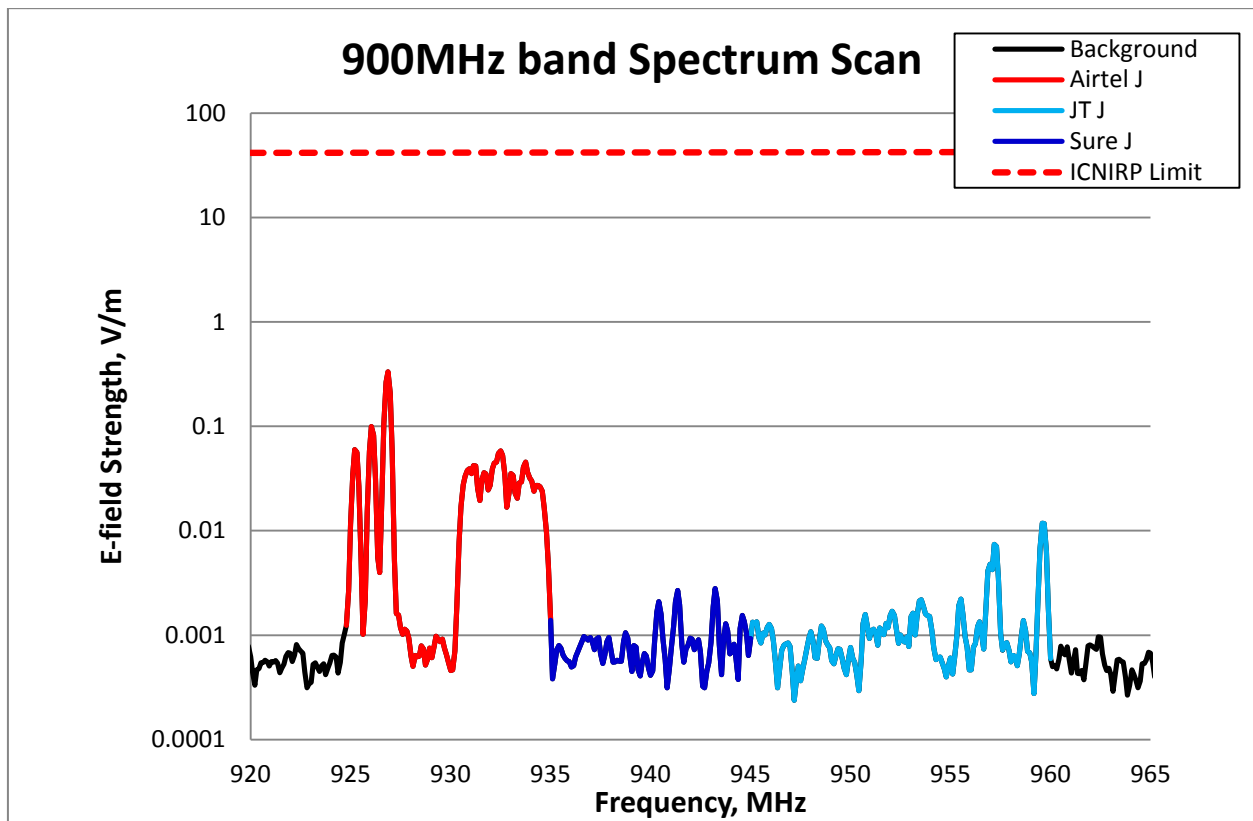


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.3335 V/m (Airtel J), which is 124 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
De La Mare Nursery	Airtel J	900	0.3335	124	8.54806E-05	1/ 11699
	JT J		0.01177	3505	1.8198E-07	1/ 5495100
	Sure J		0.002801	14727	2.51547E-08	1/ 39753986
total band EQ					8.56878E-05	1/ 11670

Table 3– 900MHz band Exposure Quotient at De La Mare Nursery

2.3 1800 MHz Band

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

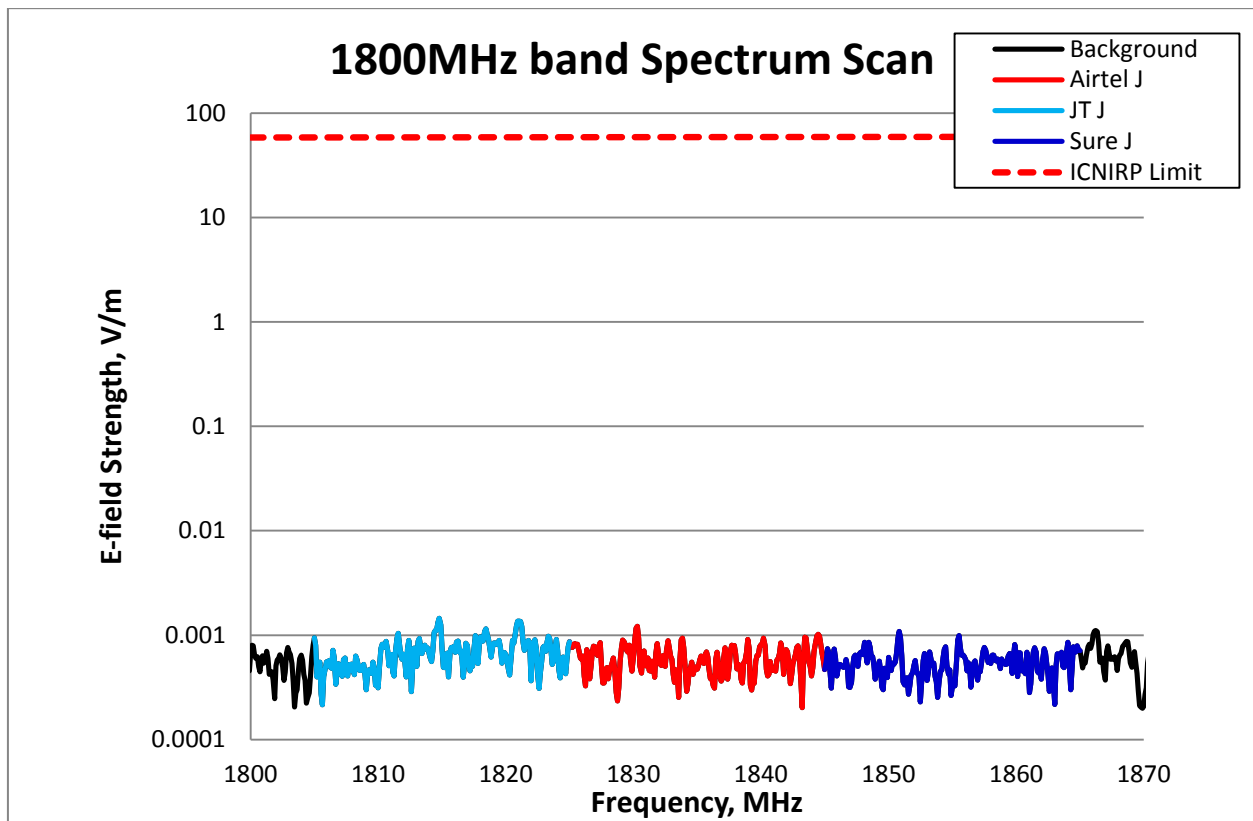


Figure 6 - 1800MHz Spectrum Scan

There was no activity recorded in the 1800MHz 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
De La Mare Nursery	Airtel J	1800	0.001214	48053	2.03319E-08	1/ 49183804
	JT J		0.001448	40288	2.65462E-08	1/ 37670141
	Sure J		0.001084	53816	1.64358E-08	1/ 60842612
total band EQ					6.3314E-08	1/ 15794303

Table 4 – 1800MHz band Exposure Quotient at De La mare Nursery

2.4 2100MHz Band

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

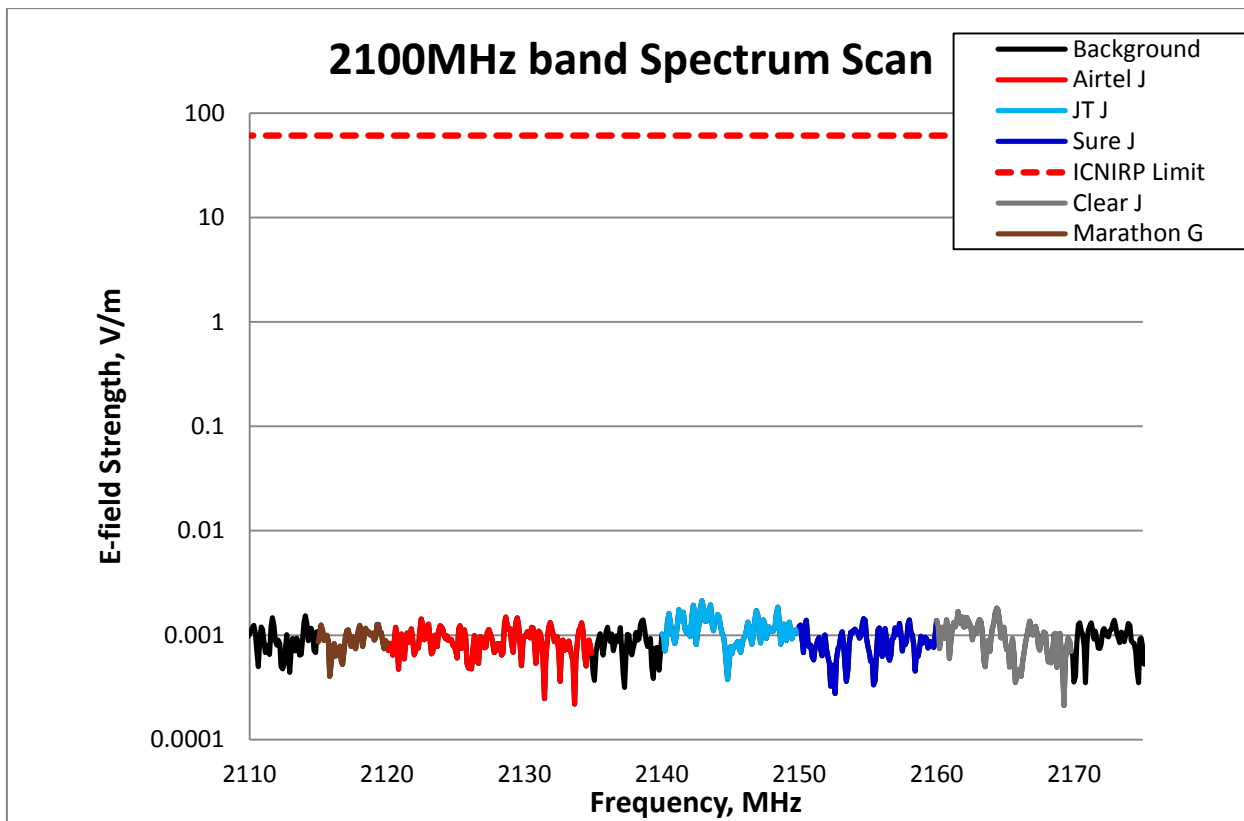


Figure 7 – 2100MHz band Spectrum Scan

There was no activity recorded in the 2100MHz band at this site.

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
De La Mare Nursery	Airtel J	2100	0.001486	41050	3.2624E-08	1/ 30652237
	Clear J		0.001813	33646	2.71529E-08	1/ 36828503
	JT J		0.002133	28598	3.91315E-08	1/ 25554841
	Marathon J		0.001269	48069	1.14712E-08	1/ 87174667
	Sure J		0.001438	42420	2.1159E-08	1/ 47261310
total band EQ					1.31539E-07	1/ 7602329

Table 5 – 2100MHz band Exposure Quotient at De La Mare Nursery

2.5 2600MHz band

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

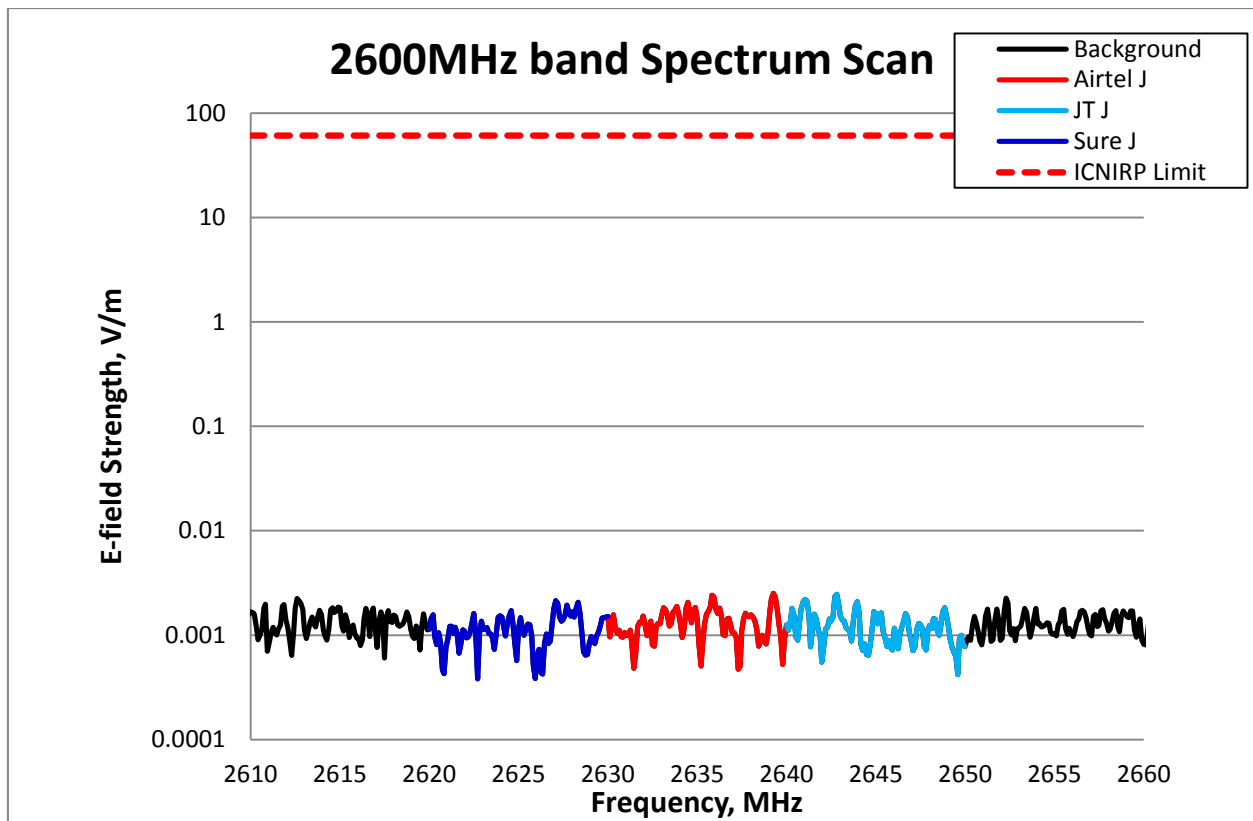


Figure 8 – 2600MHz band Spectrum Scan

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
De La Mare Nursery	Airtel J	2600	0.002507	24332	4.97613E-08	1/ 20095955
	JT J		0.002462	24777	4.32744E-08	1/ 23108368
	Sure J		0.002142	28478	3.77415E-08	1/ 26496061
	total band EQ			1.30777E-07	1/ 7646600	

Table 6 – 2600MHz band Exposure Quotient at De La Mare Nursery

End