

Cellular Mast Emissions Survey: Pallots Mast (Jersey)



DOCUMENT DETAILS

Document Name:	Cellular Mast Emissions Survey:	Pallots Mast (Jersey)
Survey Date:	07/06/2017 at 13:05	
Report issue Date	14/07/2017	
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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 Pallots Mast site located in Jersey.

The Pallots Mast site was used by three operators at the time of the survey: Airtel J, Sure J and 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
Pallots Mast	800	0.2164	Sure J	180	0.000221853	1/ 4507
	900	0.3798	Sure J	109	0.000385458	1/ 2594
	1800	0.1718	JT J	340	0.000102188	1/ 9786
	2100	0.1456	Sure J	419	0.000140954	1/ 7095
	2600	0.004414	Airtel J	13820	3.86063E-07	1/ 2590251
Total Site EQ					0.000850838	1/ 1175

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/1175 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.

1.3 Site Photo



Figure 2 – Peak Measurement Location

1.4 Test Location

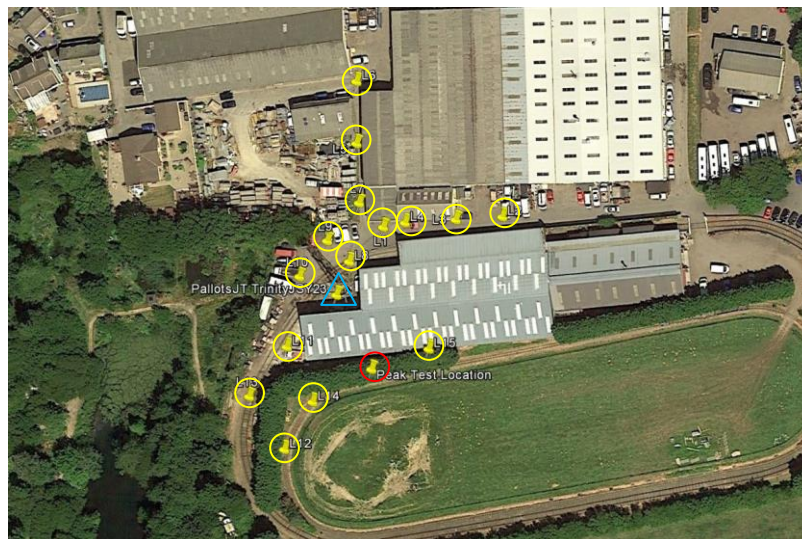


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

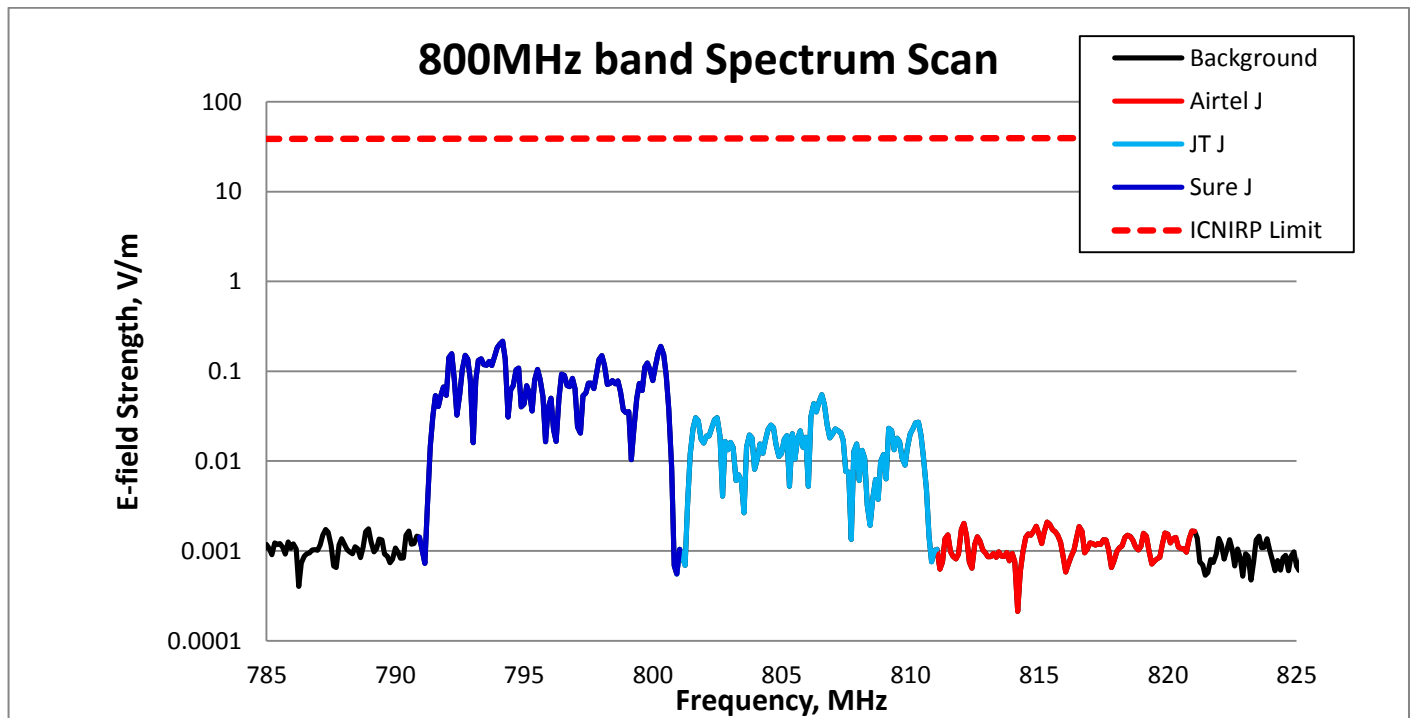


Figure 4 - 800MHz band Spectrum Scan

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 0.2164 V/m (Sure J), which is 180 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
Pallots Mast	Airtel J	800	0.002084	18662	3.95986E-08	1/ 25253401
	JT J		0.05499	707	9.24816E-06	1/ 108130
	Sure J		0.2164	180	0.000212565	1/ 4704
total band EQ					0.000221853	1/ 4507

Table 2– 800MHz band Exposure Quotient at the Pallots Mast

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

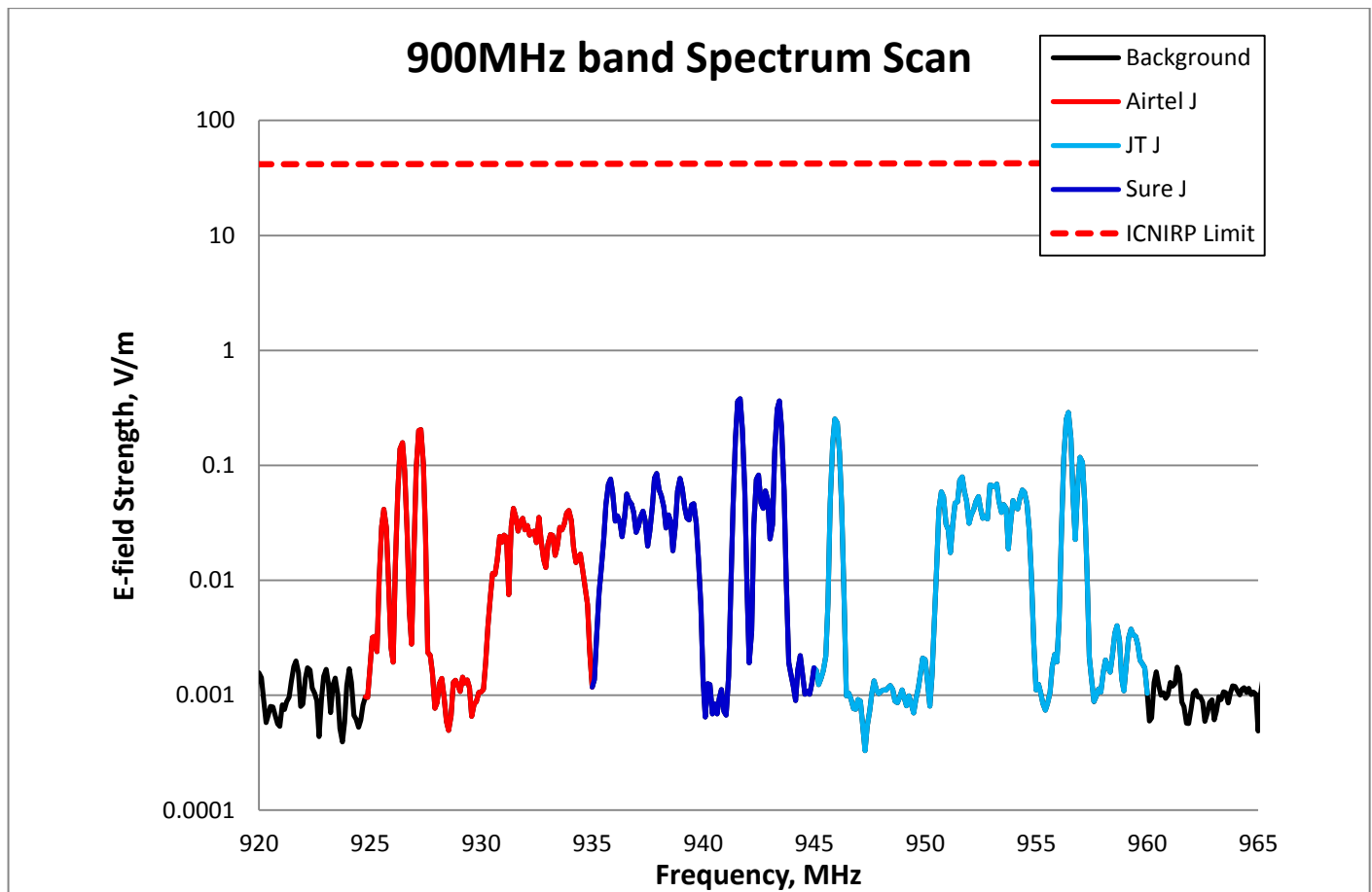


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.3798 V/m (Sure J), which is 109 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
Pallots Mast	Airtel J	900	0.2043	202	5.08428E-05	1/ 19668
	JT J		0.2882	143	0.000129963	1/ 7694
	Sure J		0.3798	109	0.000204652	1/ 4886
	total band EQ				0.000385458	1/ 2594

Table 3– 900MHz band Exposure Quotient at the Pallots Mast

2.3 1800 MHz Band

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

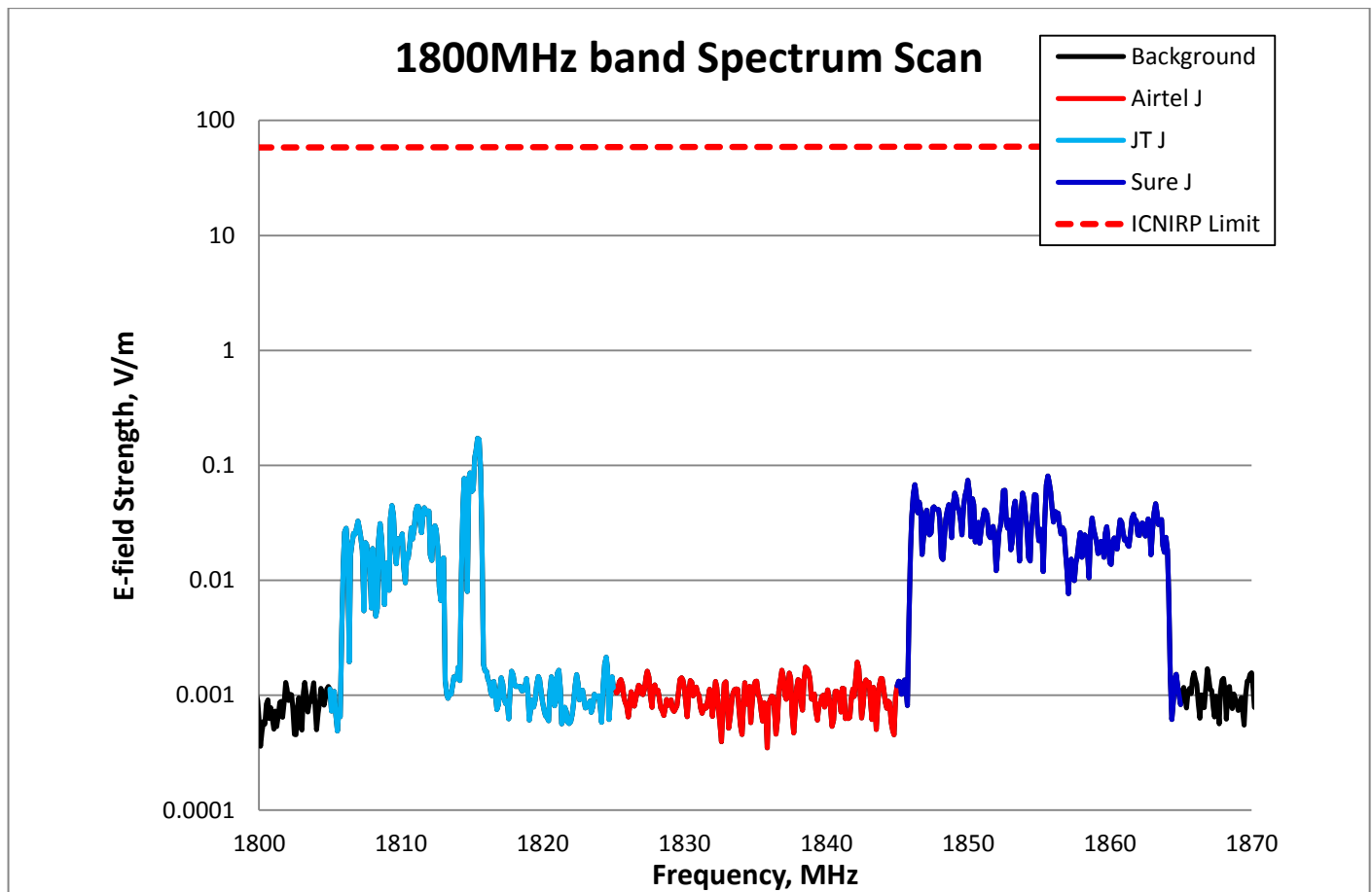


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1718 V/m (JT J), which is 340 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
Pallots Mast	Airtel J	1800	0.001942	30039	5.4835E-08	1/ 18236540
	JT J		0.1718	340	4.62951E-05	1/ 21601
	Sure J		0.08076	722	5.58384E-05	1/ 17909
total band EQ					0.000102188	1/ 9786

Table 4 – 1800MHz band Exposure Quotient at the Pallots Mast

2.4 2100MHz Band

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

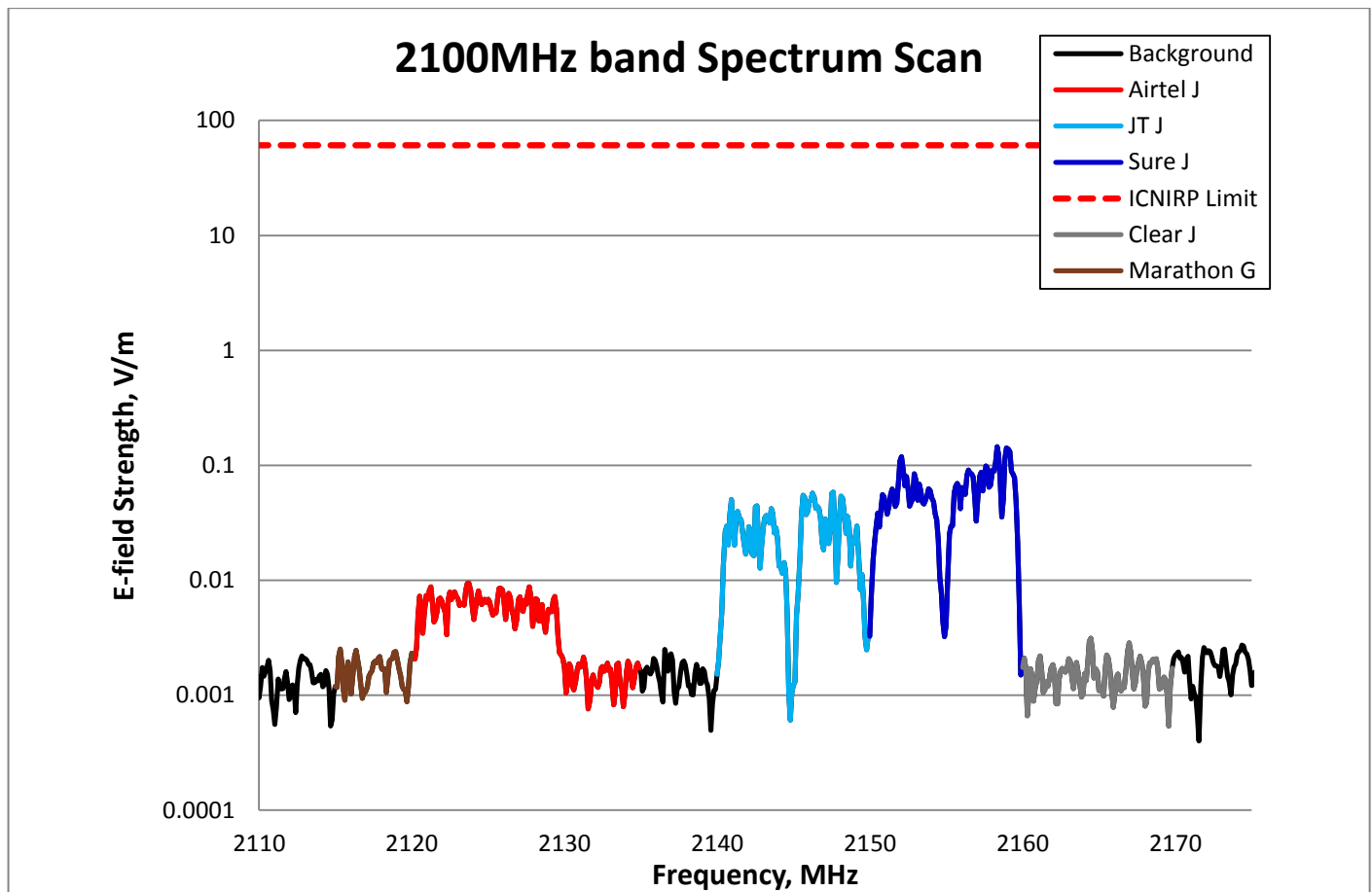


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.1456 V/m (Sure J), which is 419 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
Pallots Mast	Airtel J	2100	0.009485	6431	1.02169E-06	1/ 978766
	Clear J		0.003137	19445	6.64132E-08	1/ 15057238
	JT J		0.0586	1041	2.34791E-05	1/ 42591
	Marathon J		0.002526	24149	3.83983E-08	1/ 26042843
	Sure J		0.1456	419	0.000116348	1/ 8595
total band EQ					0.000140954	1/ 7095

Table 5 – 2100MHz band Exposure Quotient at the Pallots Mast

2.5 2600MHz band

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

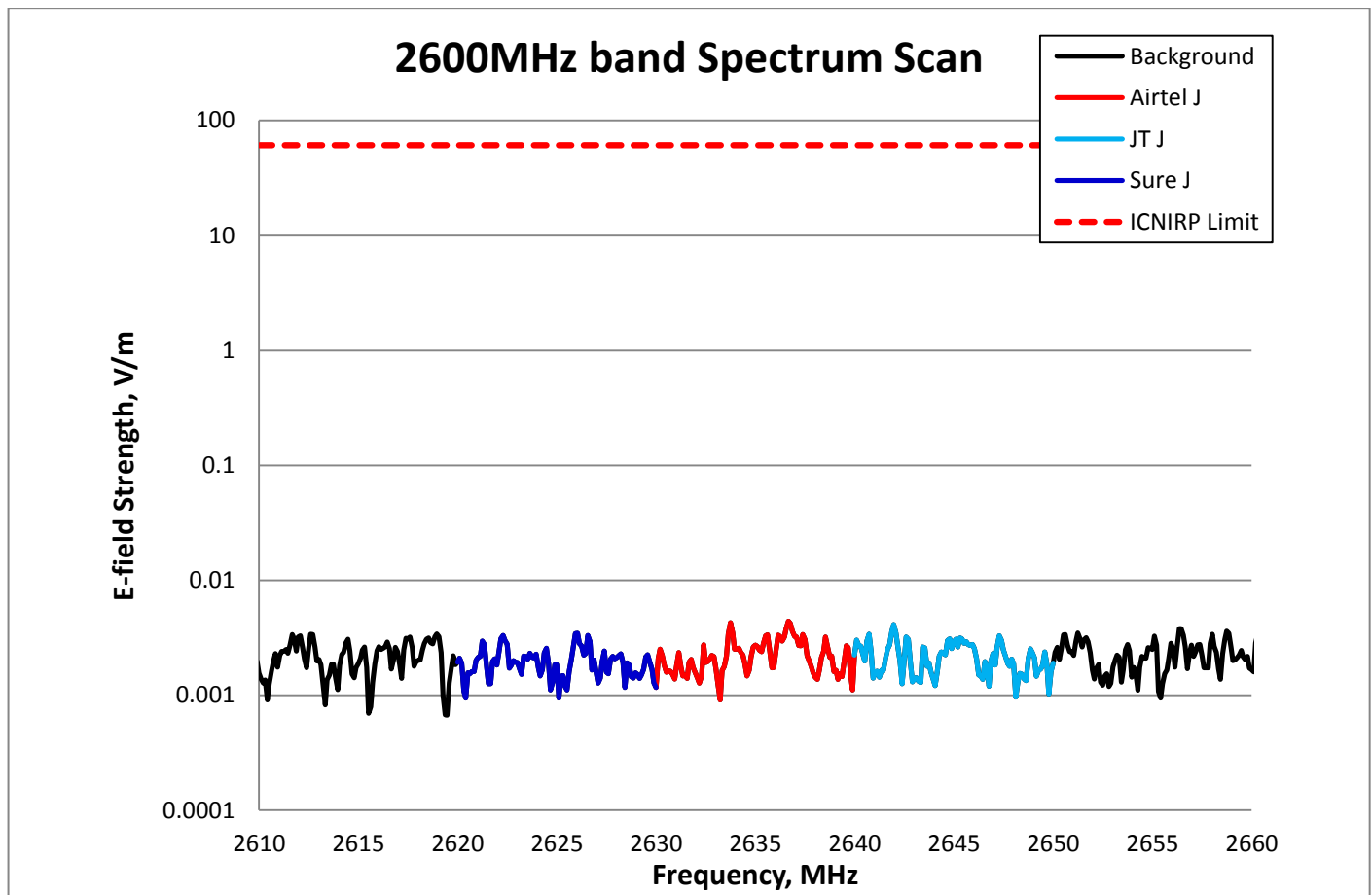


Figure 8 – 2600MHz band Spectrum Scan

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
Pallots Mast	Airtel J	2600	0.004414	13820	1.45402E-07	1/ 6877484
	JT J		0.00413	14770	1.33627E-07	1/ 7483526
	Sure J		0.003473	17564	1.07034E-07	1/ 9342810
	total band EQ			3.86063E-07	1/ 2590251	

Table 6 – 2600MHz band Exposure Quotient at Pallots Mast

End