

Cellular Mast Emissions Survey: Palm Spring (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 Palm Spring site located in Jersey.

The Palm Spring site was used by one operator at the time of the survey: Sure J; but the survey recorded strong signals from the other operators who operate sites in nearby locations. Surveys were nonetheless 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
Palm Springs	800	0.09386	Sure J	414	2.35058E-05	1/ 42543
	900	0.5795	Sure J	71	0.00042224	1/ 2368
	1800	0.1168	Sure J	499	7.64721E-05	1/ 13077
	2100	0.2989	Sure J	204	0.000379248	1/ 2637
	2600	0.002226	Sure J	27403	1.21855E-07	1/ 8206444
Total Site EQ					0.000901587	1/ 1109

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/1109 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

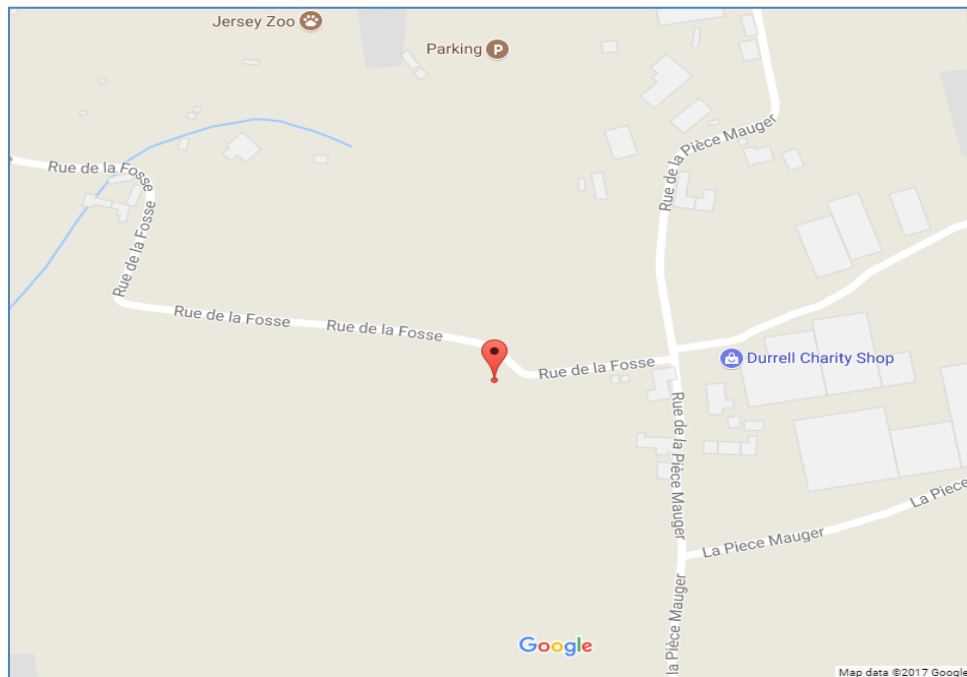


Figure 1 - Map of the Site Area

Site name	Palm Spring
Site address	Peacock Farm, Rue de La Fosse, Trinity, Jersey
Site Latitude	49.2257
Site Longitude	-2.07363

1.2 Site Description

Operators	Sure J
Antenna types	Directionals
Approximate height	15m
Site type	Pole Mast
Description	The antennas at Palm Spring are located in the corner of a field, the public have access.

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.

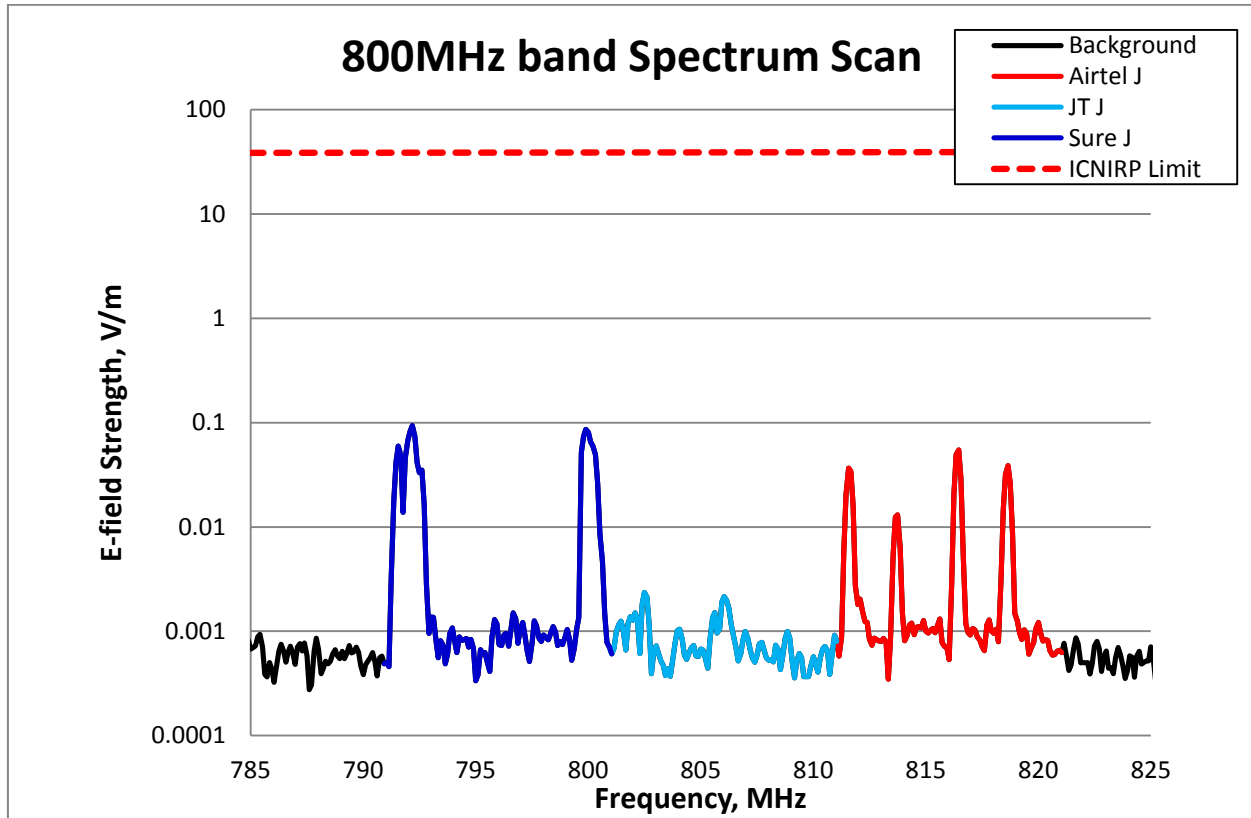


Figure 4 - 800MHz band Spectrum Scan

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 No field level recorded across the band was higher than 0.09386 V/m (Sure J), which is 414 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
Palm Springs	Airtel J	800	0.05485	709	3.75156E-06	1/ 266556
	JT J		0.002366	16437	2.22859E-08	1/ 44871456
	Sure J		0.09386	414	1.9732E-05	1/ 50679
total band EQ					2.35058E-05	1/ 42543

Table 2– 800MHz band Exposure Quotient at Palm Spring

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

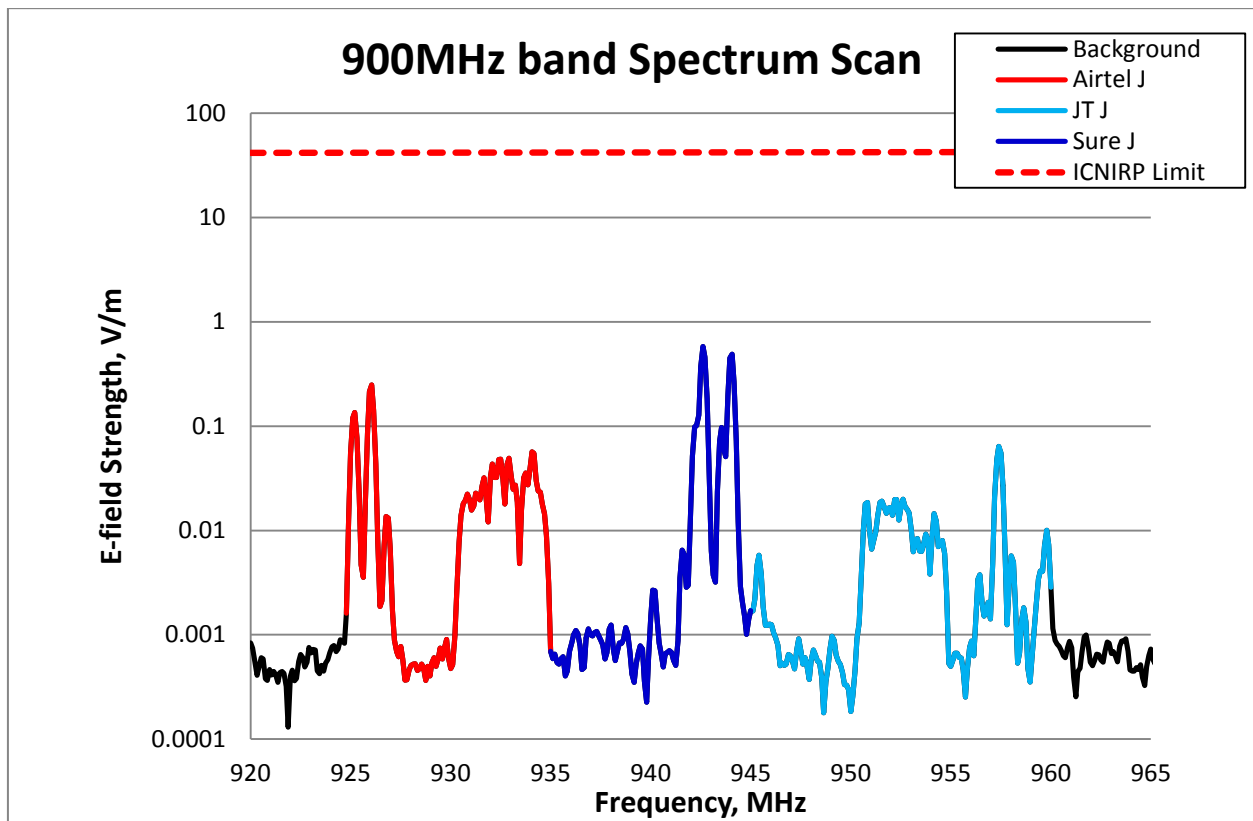


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.5795 V/m (Sure J), which is 71 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
Palm Springs	Airtel J	900	0.2476	167	5.84595E-05	1/ 17106
	JT J		0.06408	644	4.82773E-06	1/ 207137
	Sure J		0.5795	71	0.000358953	1/ 2786
total band EQ					0.00042224	1/ 2368

Table 3– 900MHz band Exposure Quotient at Palm Spring

2.3 1800 MHz Band

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

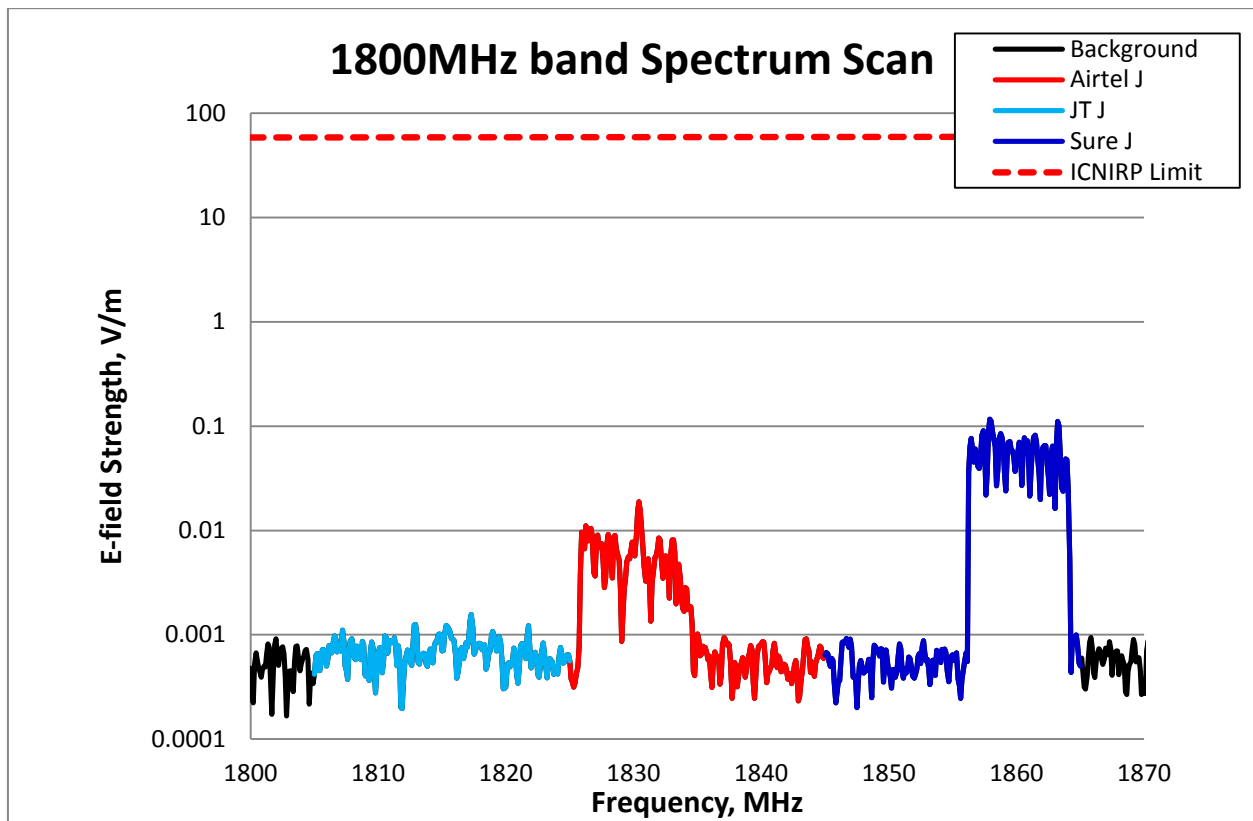


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1168 V/m (Sure J), which is 499 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
Palm Springs	Airtel J	1800	0.01886	3093	1.04068E-06	1/ 960910
	JT J		0.001565	37276	2.72967E-08	1/ 36634421
	Sure J		0.1168	499	7.54041E-05	1/ 13262
total band EQ					7.64721E-05	1/ 13077

Table 4 – 1800MHz band Exposure Quotient at Palm Spring

2.4 2100MHz Band

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

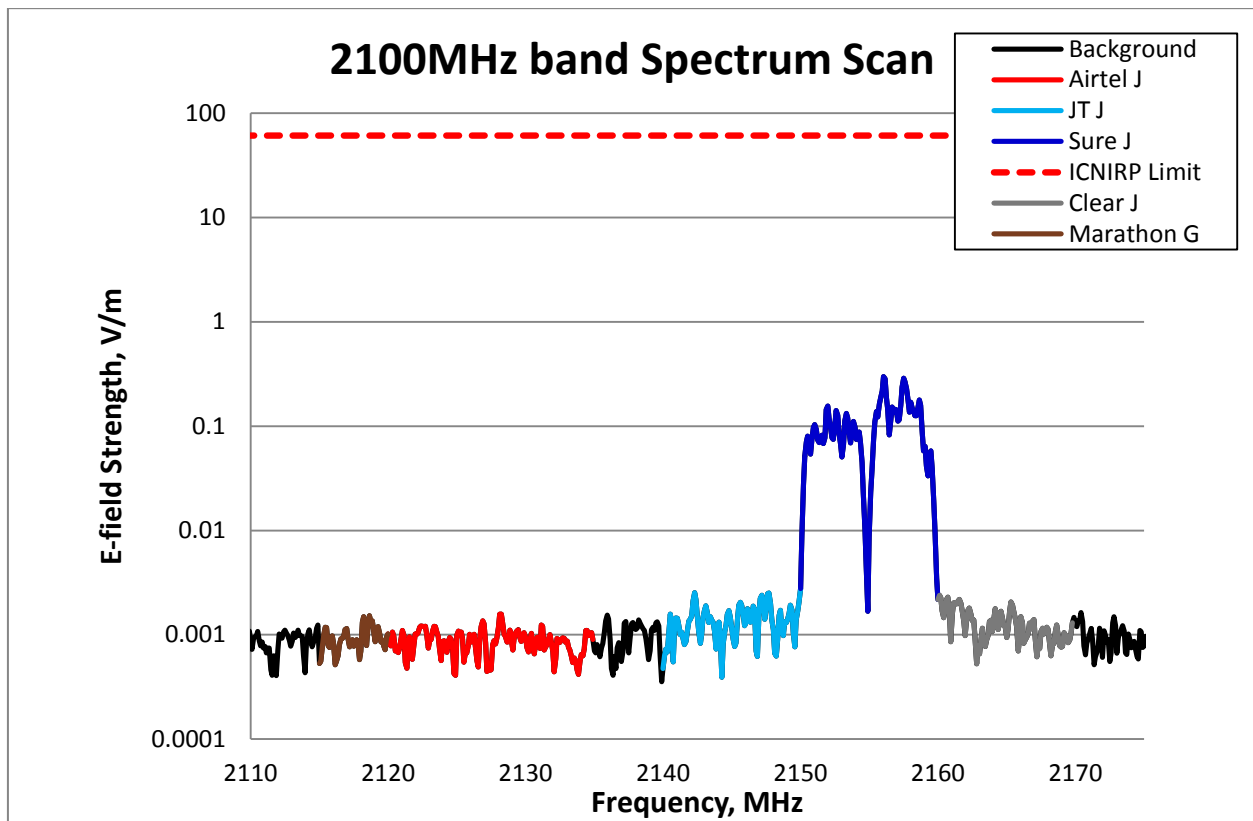


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.2989 V/m (Sure J), which is 204 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
Palm Springs	Airtel J	2100	0.001582	38559	3.13557E-08	1/ 31892091
	Clear J		0.00239	25523	4.68099E-08	1/ 21362995
	JT J		0.002779	21950	5.52636E-08	1/ 18095077
	Marathon J		0.001521	40105	1.22232E-08	1/ 81811748
	Sure J		0.2989	204	0.000379102	1/ 2638
total band EQ					0.000379248	1/ 2637

Table 5 – 2100MHz band Exposure Quotient at Palm Spring

2.5 2600MHz band

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

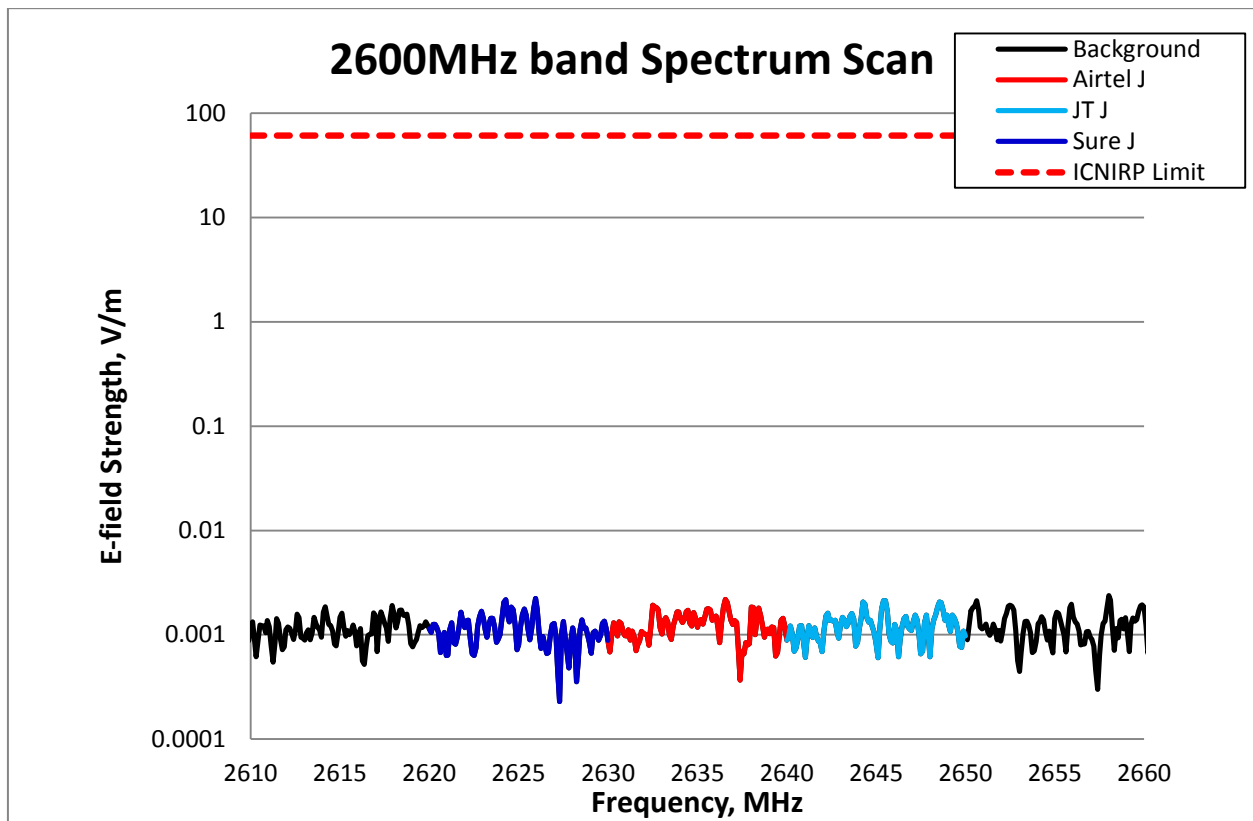


Figure 8 – 2600MHz band Spectrum Scan

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
Palm Springs	Airtel J	2600	0.002185	27918	4.3912E-08	1/ 22772800
	JT J		0.002128	28665	4.18866E-08	1/ 23873994
	Sure J		0.002226	27403	3.60568E-08	1/ 27733984
	total band EQ				1.21855E-07	1/ 8206444

Table 6 – 2600MHz band Exposure Quotient at Palm Spring

End