

Cellular Mast Emissions Survey: Dicq Pumping Station (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 Dicq Pumping Station site located in Jersey.

The Dicq Pumping Station site was used by one 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
DICQ	800	0.04262	Sure J	913	1.02061E-05	1/ 97980
	900	0.6783	JT J	61	0.000369319	1/ 2708
	1800	0.09899	JT J	589	9.30301E-05	1/ 10749
	2100	0.02479	Airtel J	2461	3.84251E-06	1/ 260246
	2600	0.003378	Airtel J	18058	2.54836E-07	1/ 3924085
Total Site EQ					0.000476653	1/ 2098

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/2098 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

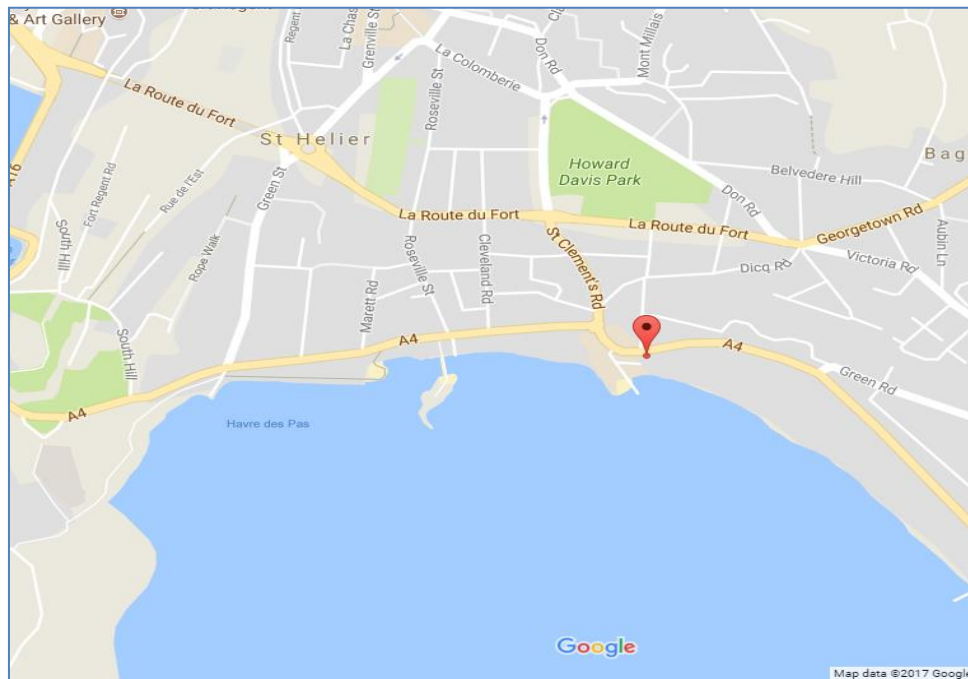


Figure 1 - Map of the Site Area

Site name	Dicq Pumping Station
Site address	Greve D'Azette, St Saviour, Jersey
Site Latitude	49.17695
Site Longitude	-2.0966

1.2 Site Description

Operators	JT J
Antenna types	Omni directional
Approximate height	8m
Site type	Building - Chimney
Description	The antennas at the Dicq Pumping Station are located on the chimney, 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.

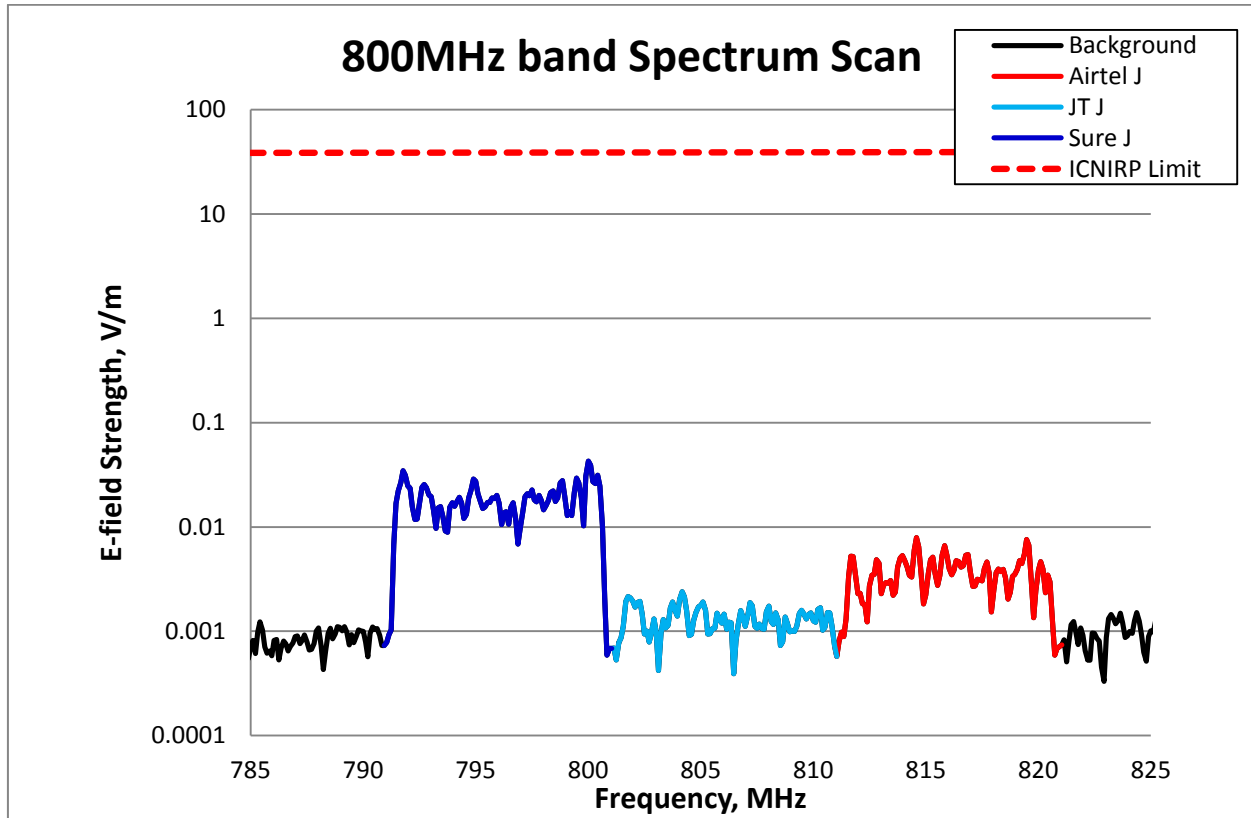


Figure 4 - 800MHz band Spectrum Scan

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 0.04262 V/m (Sure J), which is 913 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
DICQ	Airtel J	800	0.007881	4935	3.76815E-07	1/ 2653823
	JT J		0.002393	16252	4.81372E-08	1/ 20773967
	Sure J		0.04262	913	9.78118E-06	1/ 102237
total band EQ					1.02061E-05	1/ 97980

Table 2– 800MHz band Exposure Quotient at Dicq Pumping Station

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

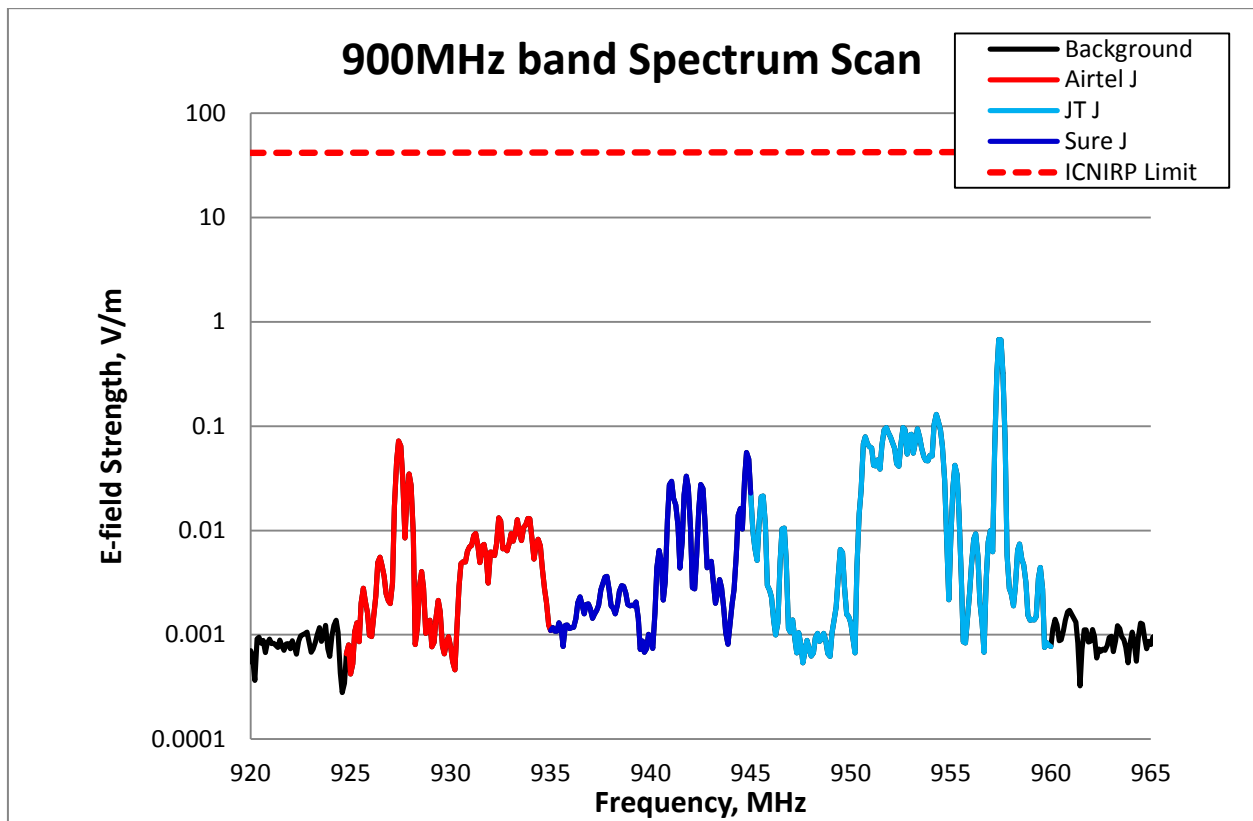


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.6783 V/m (JT J), which is 61 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 900MHz band are shown below:

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
DICQ	Airtel J	900	0.0721	572	4.91357E-06	1/ 203518
	JT J		0.6783	61	0.00036041	1/ 2775
	Sure J		0.05573	740	3.99595E-06	1/ 250253
total band EQ					0.000369319	1/ 2708

Table 3– 900MHz band Exposure Quotient at Dicq Pumping Station

2.3 1800 MHz Band

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

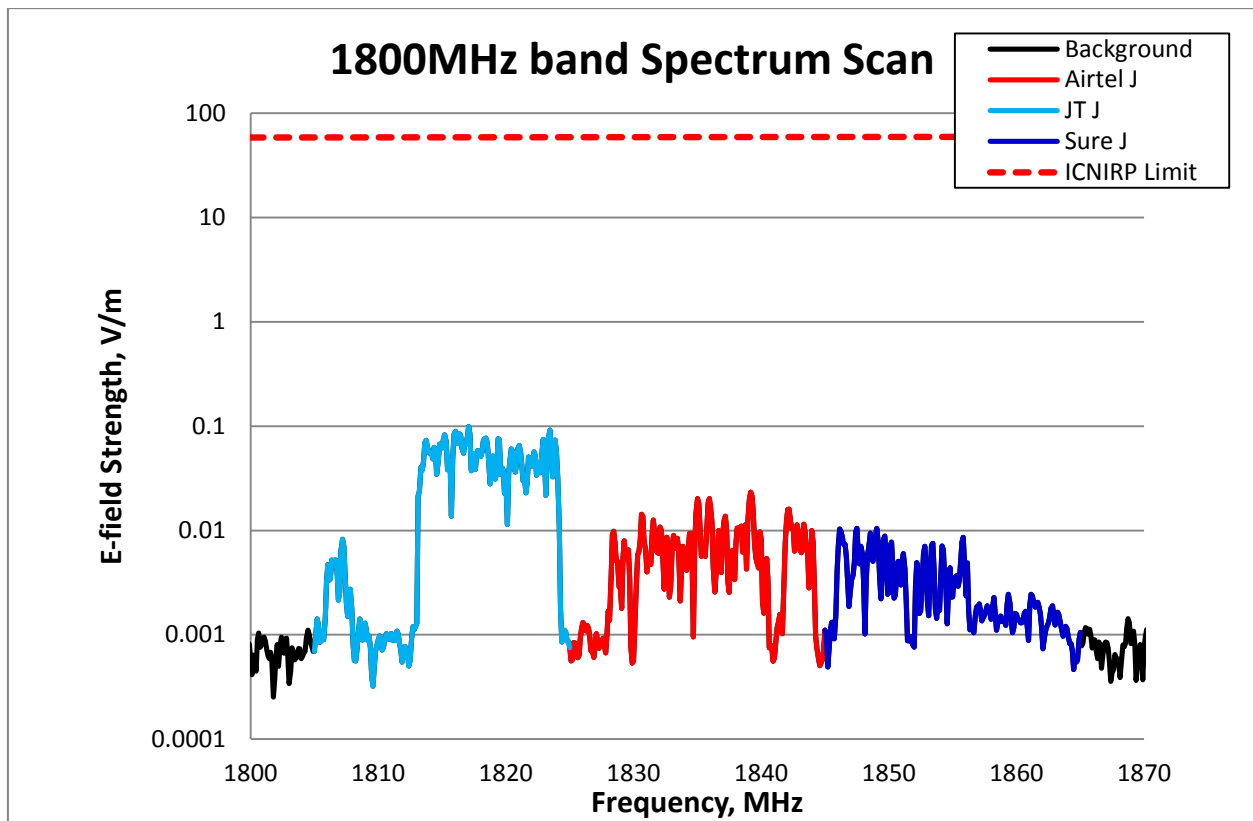


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.09899 V/m (JT J), which is 589 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 1800MHz band are shown below:

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
DICQ	Airtel J	1800	0.02322	2512	3.01969E-06	1/ 331160
	JT J		0.09899	589	8.92124E-05	1/ 11209
	Sure J		0.01045	5582	7.97954E-07	1/ 1253205
total band EQ					9.30301E-05	1/ 10749

Table 4 – 1800MHz band Exposure Quotient at Dicq Pumping Station

2.4 2100MHz Band

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

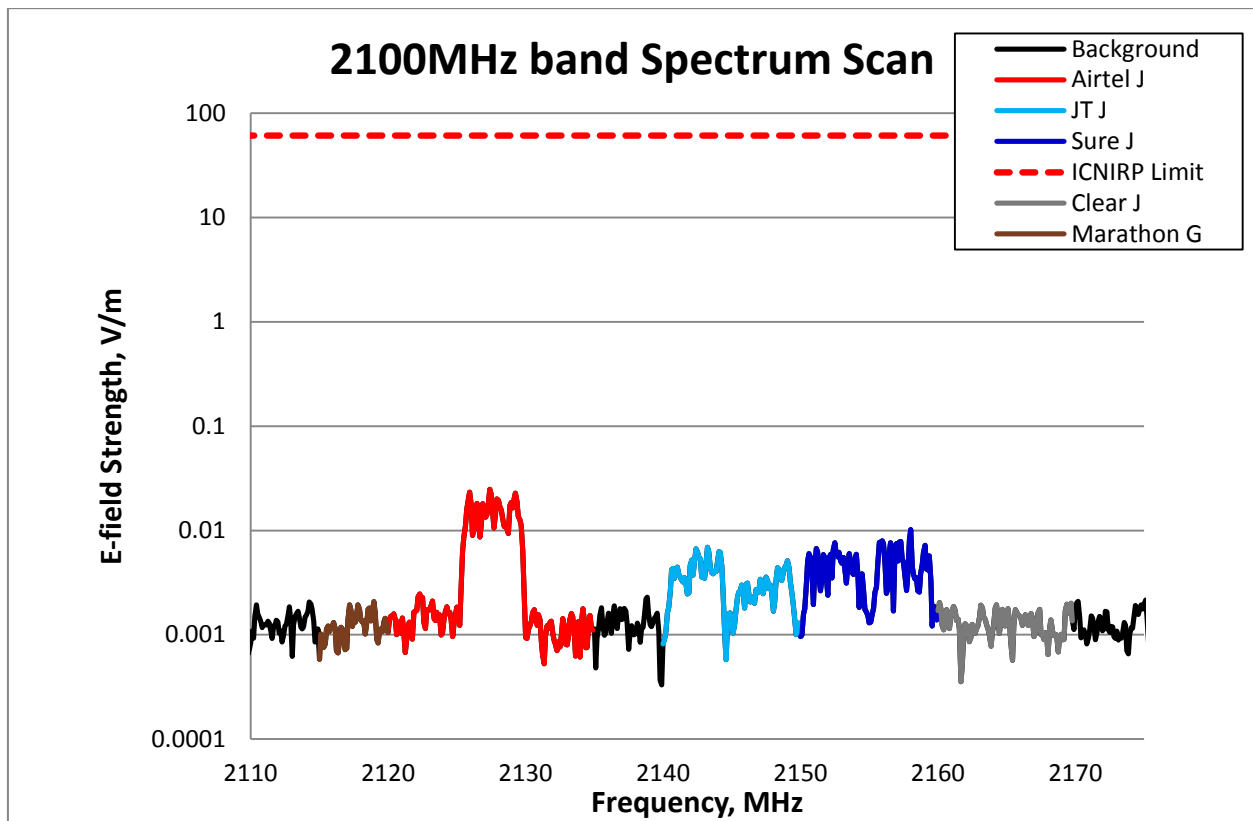


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.02479 V/m (Airtel J), which is 2461 times smaller than the ICNIRP Reference level.

The Exposure Quotient results for the 2100MHz band are shown below:

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
DICQ	Airtel J	2100	0.02479	2461	2.86E-06	1/ 349651
	Clear J		0.002027	30094	4.67598E-08	1/ 21385877
	JT J		0.006898	8843	3.16174E-07	1/ 3162814
	Marathon J		0.00208	29327	2.15639E-08	1/ 46373894
	Sure J		0.0102	5980	5.98016E-07	1/ 1672196
total band EQ					3.84251E-06	1/ 260246

Table 5 – 2100MHz band Exposure Quotient at Dicq Pumping Station

2.5 2600MHz band

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

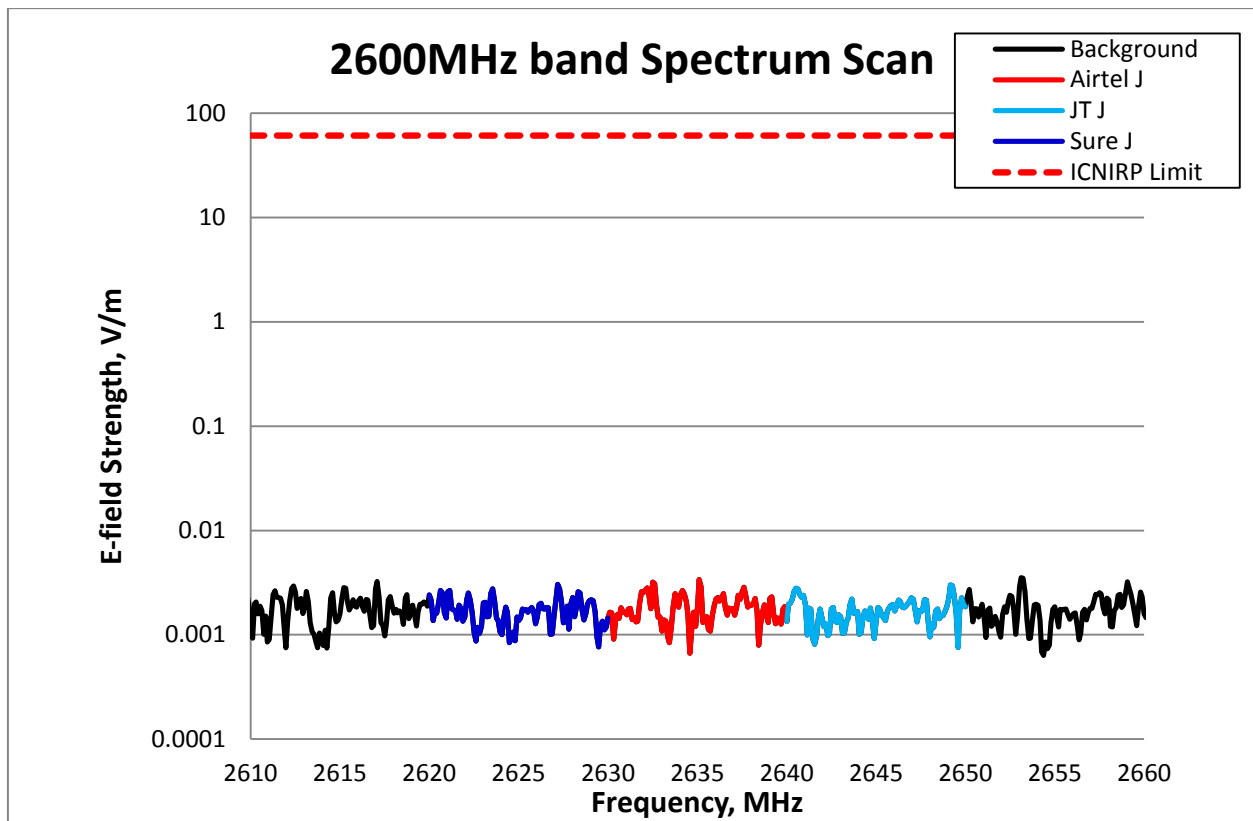


Figure 8 – 2600MHz band Spectrum Scan

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	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
DICQ	Airtel J	2600	0.003378	18058	9.24291E-08	1/ 10819102
	JT J		0.002998	20347	8.07362E-08	1/ 12386019
	Sure J		0.003048	20013	8.16712E-08	1/ 12244224
total band EQ					2.54836E-07	1/ 3924085

Table 6 – 2600MHz band Exposure Quotient at Dicq Pumping Station

End