

Cellular Mast Emissions Survey: Cote Du Nord (Jersey)



DOCUMENT DETAILS

Document Name:	Cellular Mast Emissions Survey:	Cote Du Nord (Jersey)
Survey Date:	08/06/2017 at 10:57	
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 Cote Du Nord site located in Jersey.

The Cote Du Nord 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
Cote Du Nord	800	0.1649	JT J	236	0.00015098	1/ 6623
	900	2.141	JT J	19	0.003560265	1/ 281
	1800	0.07722	JT J	755	5.35955E-05	1/ 18658
	2100	0.5561	JT J	110	0.002815182	1/ 355
	2600	0.004424	JT J	13788	4.83114E-07	1/ 2069905
Total Site EQ					0.006580505	1/ 152

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/152 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

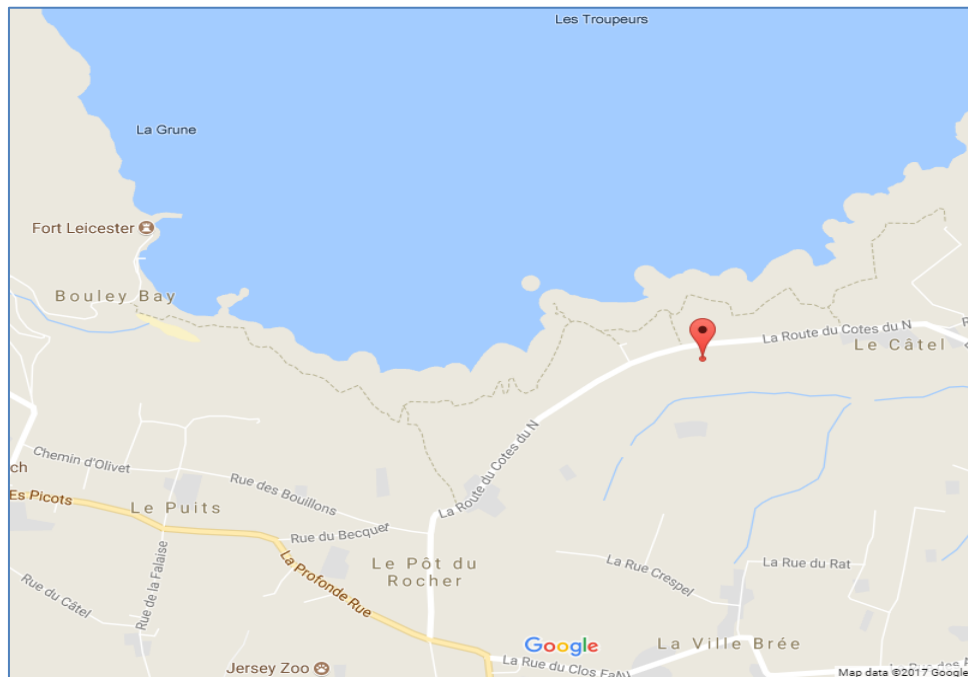


Figure 1 - Map of the Site Area

Site name	Cote Du Nord
Site address	La Route des Cotes du Nord, Trinity, Jersey
Site Latitude	49.23672
Site Longitude	-2.06167

1.2 Site Description

Operators	JT J
Antenna types	Omni directional
Approximate height	15m
Site type	Pole Mast
Description	The antennas at Cote Du Nord 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

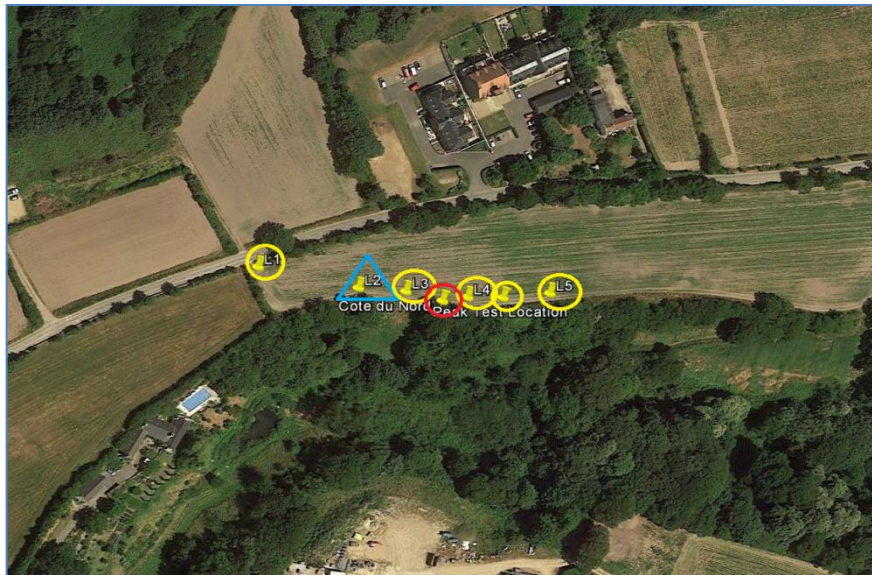


Figure 3- Survey Area with Spot Measurement Markers: The blue triangle is the site location, the yellow circles are intermediate locations measured at during the peak search and the red circle is the spot where the highest spot search reading was obtained and where the detailed survey was carried out

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.

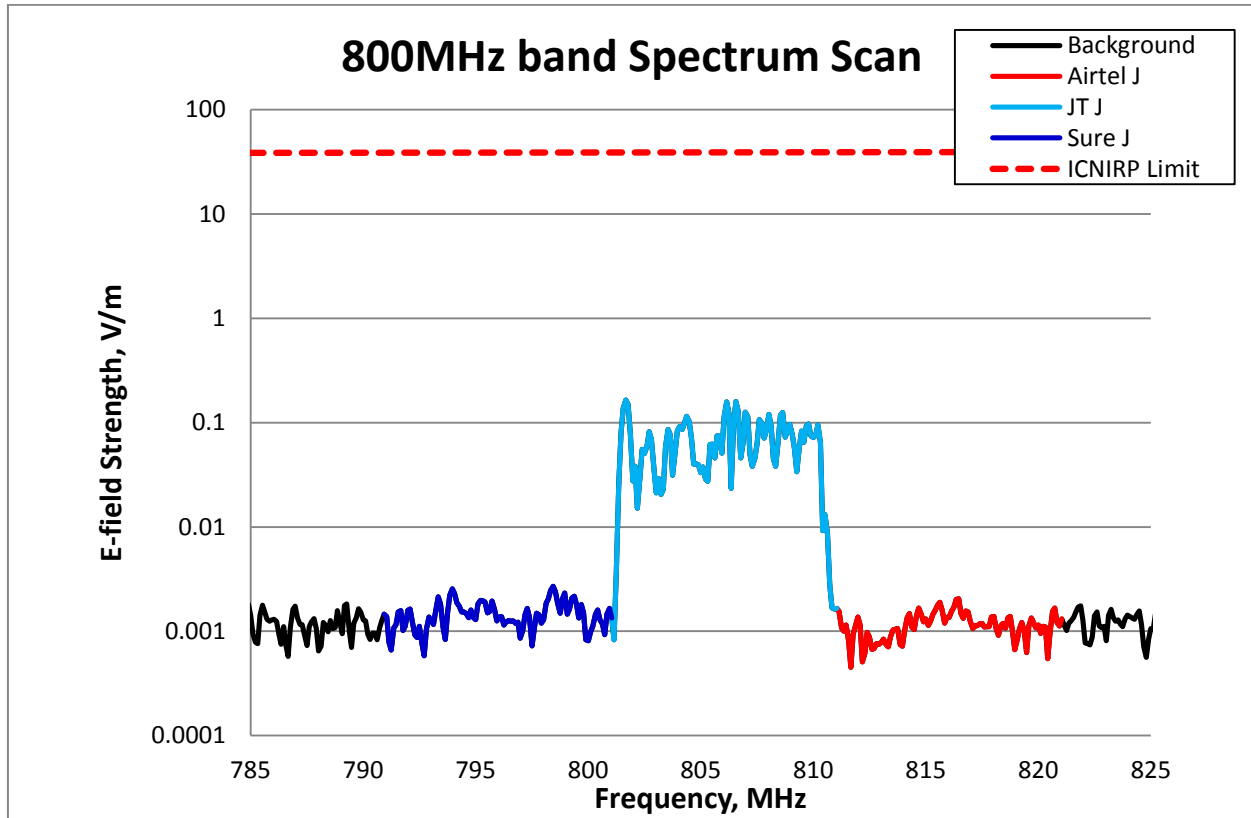


Figure 4 - 800MHz band Spectrum Scan

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 field level recorded across the band was higher than 0.1649 V/m (JT J), which is 236 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
Cote Du Nord	Airtel J	800	0.002054	18934	3.85925E-08	1/ 25911759
	JT J		0.1649	236	0.00015088	1/ 6628
	Sure J		0.002697	14420	6.12078E-08	1/ 16337787
total band EQ					0.00015098	1/ 6623

Table 2– 800MHz band Exposure Quotient at the Cote Du Nord

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

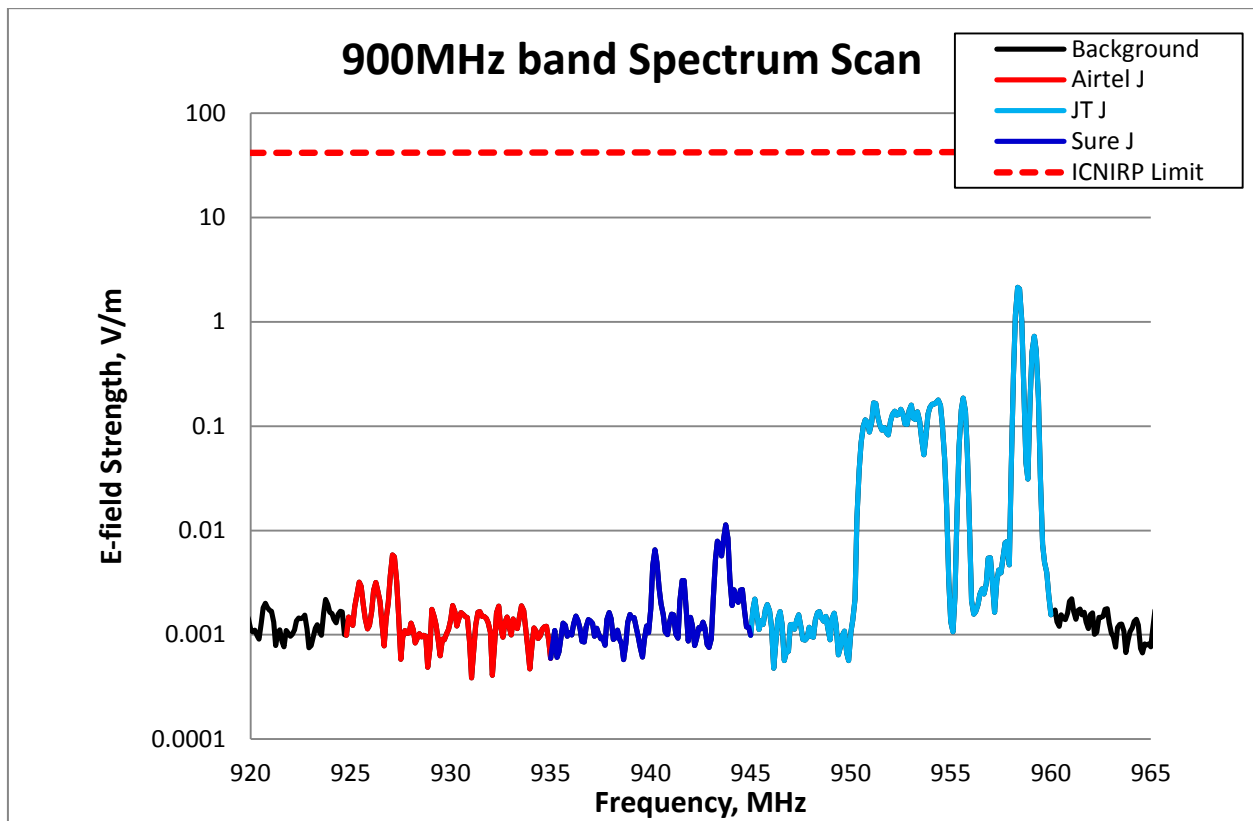


Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 2.141 V/m (JT J), which is 19 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
Cote Du Nord	Airtel J	900	0.005822	7085	7.45913E-08	1/ 13406388
	JT J		2.141	19	0.003559997	1/ 281
	Sure J		0.01131	3647	1.93813E-07	1/ 5159621
total band EQ					0.003560265	1/ 281

Table 3– 900MHz band Exposure Quotient at Cote Du Nord

2.3 1800 MHz Band

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

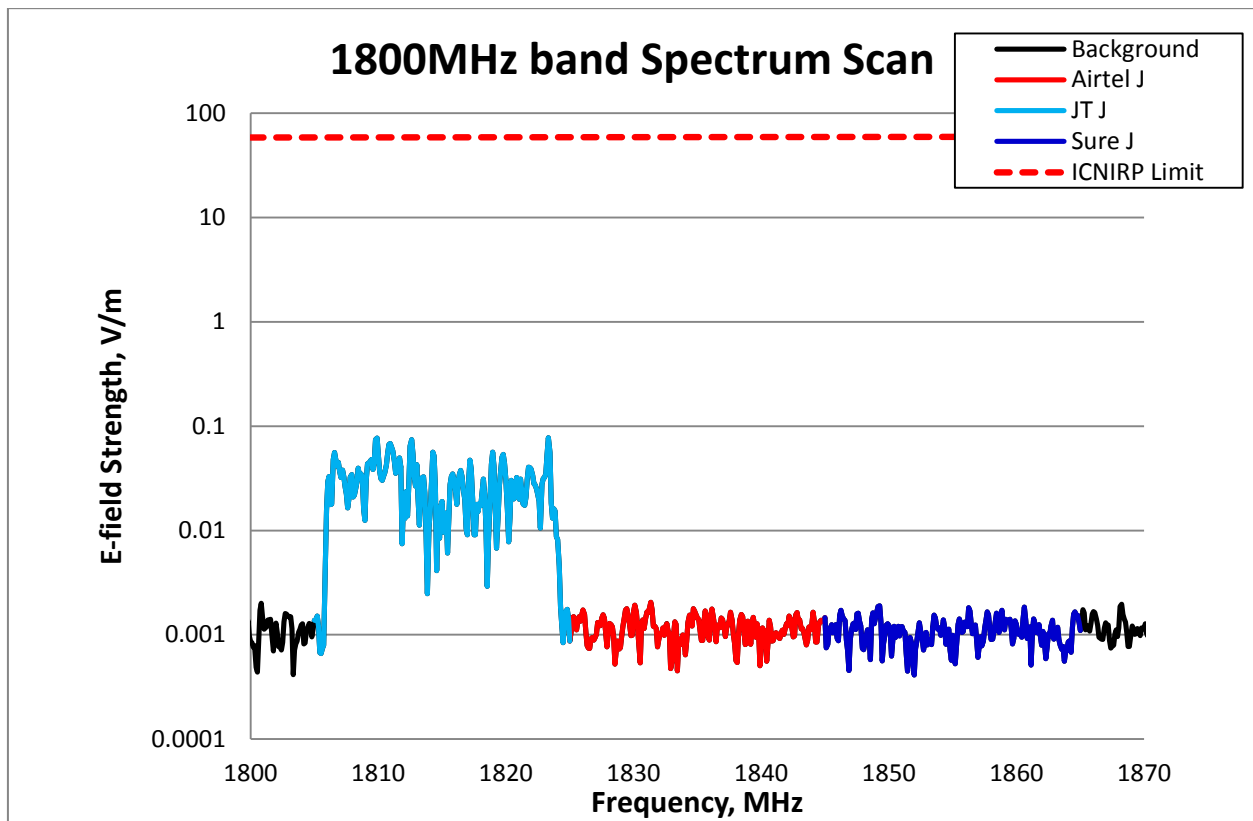


Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.07722 V/m (JT J), which is 755 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
Cote Du Nord	Airtel J	1800	0.002041	28582	7.55577E-08	1/ 13234916
	JT J		0.07722	755	5.34526E-05	1/ 18708
	Sure J		0.0019	30703	6.73459E-08	1/ 14848704
total band EQ					5.35955E-05	1/ 18658

Table 4 – 1800MHz band Exposure Quotient at Cote Du Nord

2.4 2100MHz Band

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

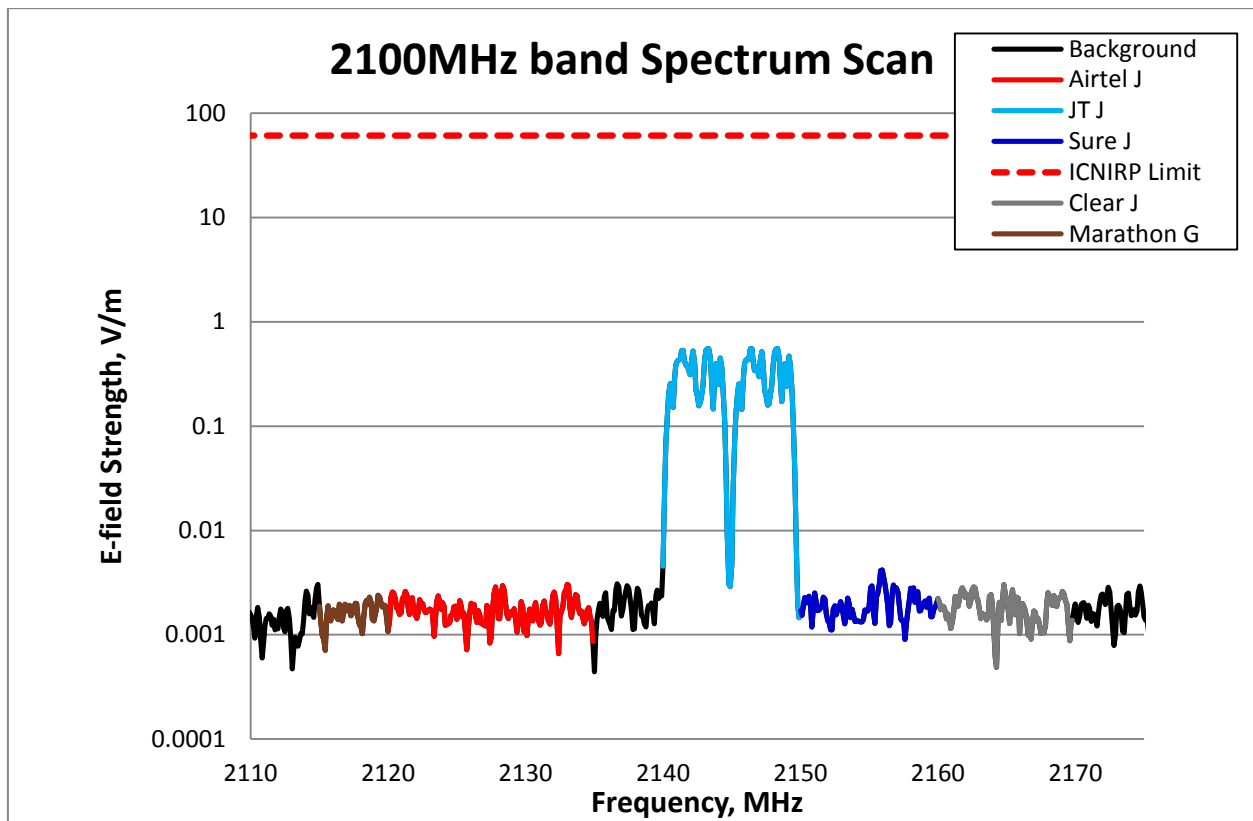


Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.5561 V/m (JT J), which is 110 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
Cote Du Nord	Airtel J	2100	0.003046	20026	1.24334E-07	1/ 8042866
	Clear J		0.003011	20259	9.39513E-08	1/ 10643813
	JT J		0.5561	110	0.002814816	1/ 355
	Marathon J		0.00239	25523	3.79113E-08	1/ 26377385
	Sure J		0.004183	14583	1.0978E-07	1/ 9109146
total band EQ					0.002815182	1/ 355

Table 5 – 2100MHz band Exposure Quotient at Cote Du Nord

2.5 2600MHz band

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

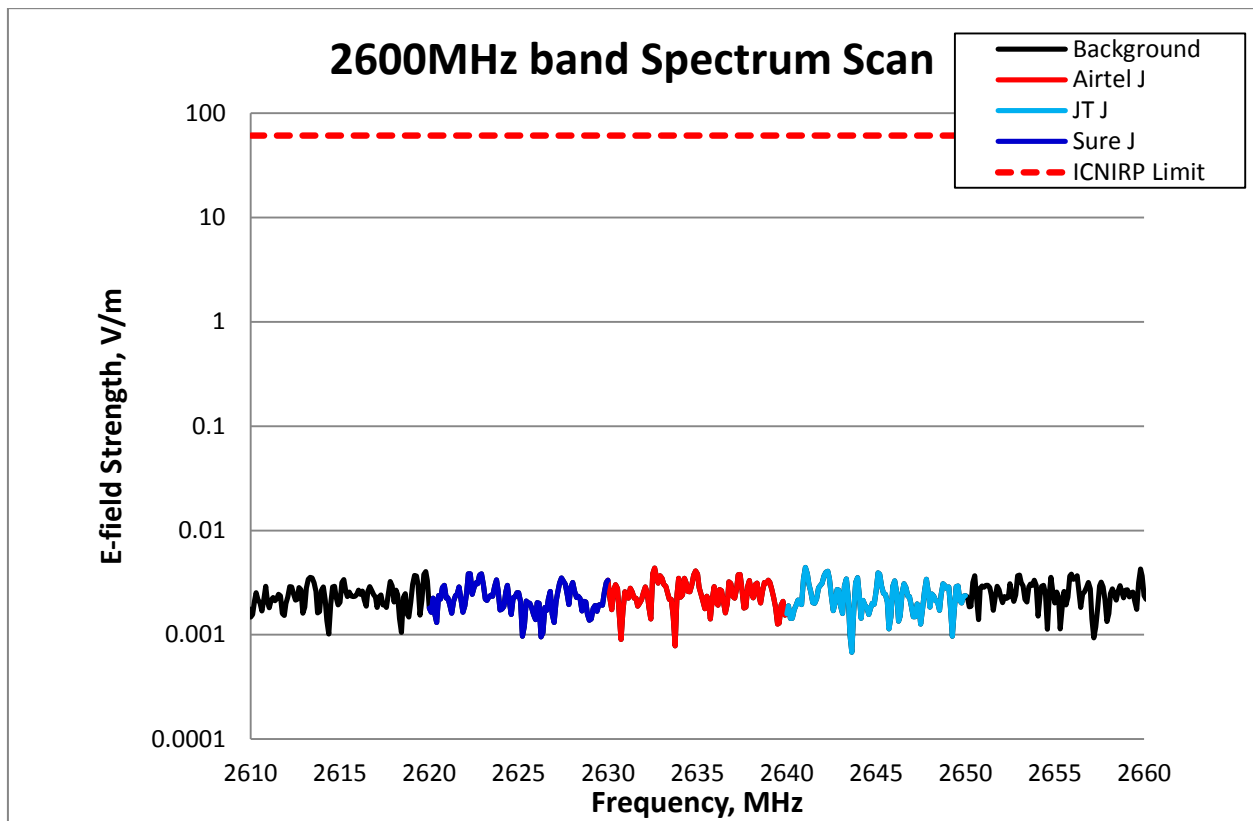


Figure 8 – 2600MHz band Spectrum Scan

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
Cote Du Nord	Airtel J	2600	0.004364	13978	1.79085E-07	1/ 5583940
	JT J		0.004424	13788	1.59302E-07	1/ 6277383
	Sure J		0.003852	15836	1.44727E-07	1/ 6909561
total band EQ					4.83114E-07	1/ 2069905

Table 6 – 2600MHz band Exposure Quotient at Cote Du Nord

End