

Cellular Mast Emissions Survey: Police 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 Police Station site located in Jersey.

Police Station site was used by a single operator at the time of the survey: 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
Police Station	800	0.001012	JT J	38430	2.84842E-08	1/ 35107225
	900	0.02024	JT J	2038	2.9776E-07	1/ 3358408
	1800	0.001397	JT J	41758	6.95718E-08	1/ 14373632
	2100	0.001525	JT J	40000	1.04455E-07	1/ 9573505
	2600	0.00234	JT J	26068	1.24548E-07	1/ 8029047
Total Site EQ					6.24819E-07	1/ 1600464

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/1600464 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

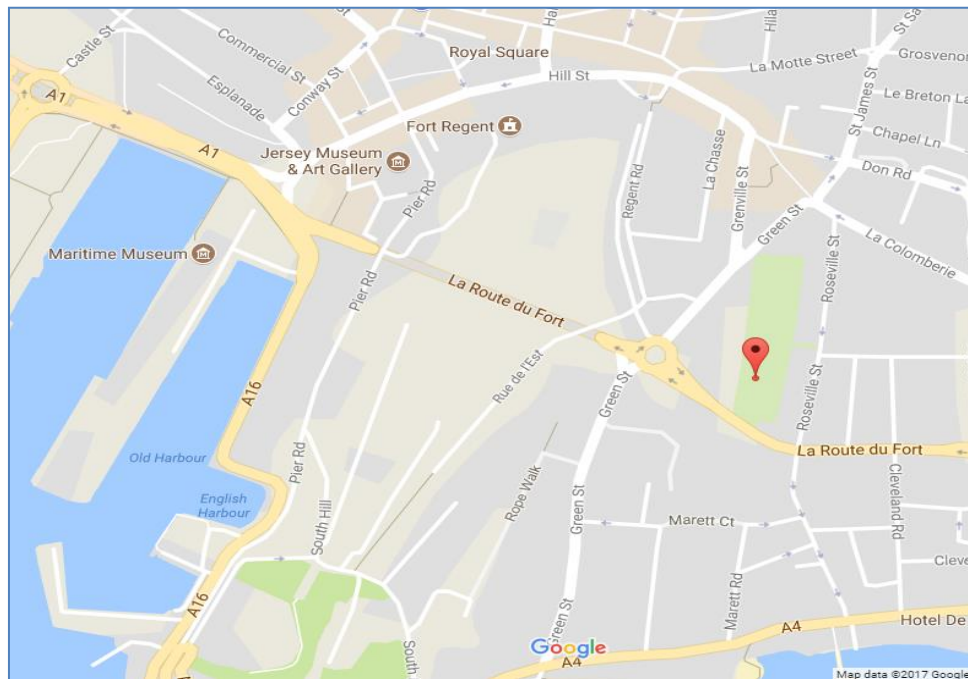


Figure 1 - Map of the Site Area

Site name	Police Station
Site address	La Route Du Fort, Jersey
Site Latitude	49.18009
Site Longitude	-2.10191

1.2 Site Description

Operators	JT J
Antenna types	Omni directional
Approximate height	3m
Site type	Indoor Ceiling Mount
Description	The antennas at the Police Station are inside the main building, out of reach of the public

1.3 Site Photo



Figure 2 – Peak Measurement Location

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.

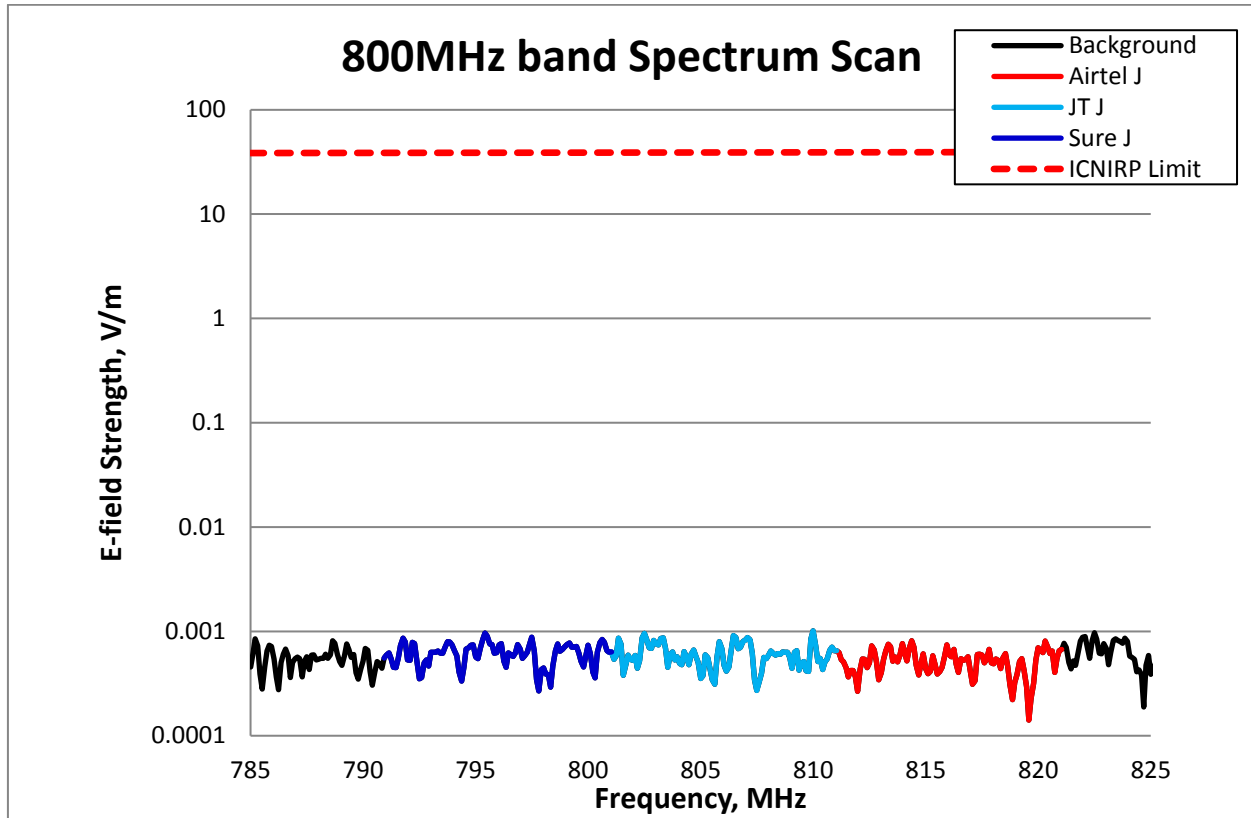


Figure 3 - 800MHz band Spectrum Scan

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 transmit in this band at this site.

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
Police Station	Airtel J	800	0.0008123	47877	7.63452E-09	1/ 130983999
	JT J		0.001012	38430	1.02475E-08	1/ 97584801
	Sure J		0.0009638	40352	1.06021E-08	1/ 94320511
total band EQ					2.84842E-08	1/ 35107225

Table 2– 800MHz band Exposure Quotient at Police Station

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

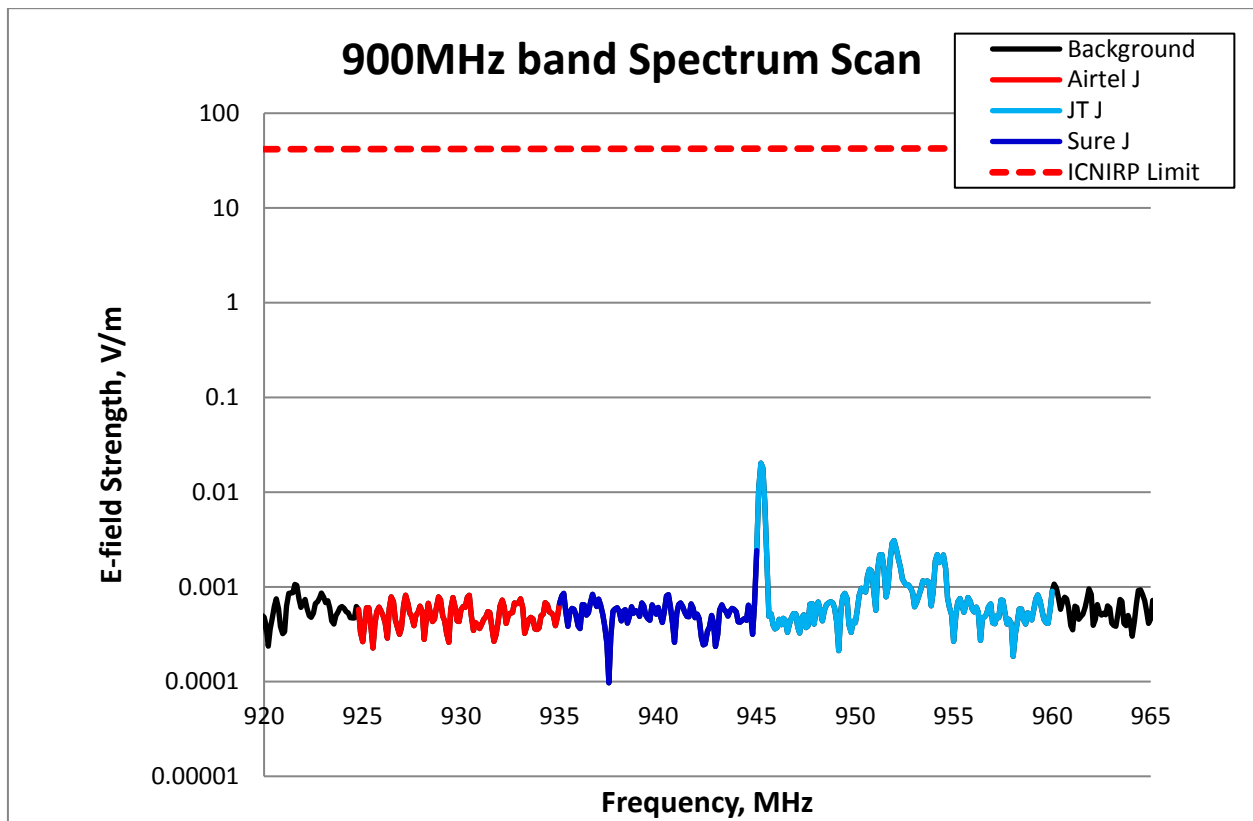


Figure 4 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 0.02024 V/m (JT J), which is 2038 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
Police Station	Airtel J	900	0.0008179	50434	7.31372E-09	1/ 136729333
	JT J		0.02024	2038	2.81252E-07	1/ 3555533
	Sure J		0.002419	17053	9.19465E-09	1/ 108758909
total band EQ					2.9776E-07	1/ 3358408

Table 3– 900MHz band Exposure Quotient at Police Station

2.3 1800 MHz Band

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

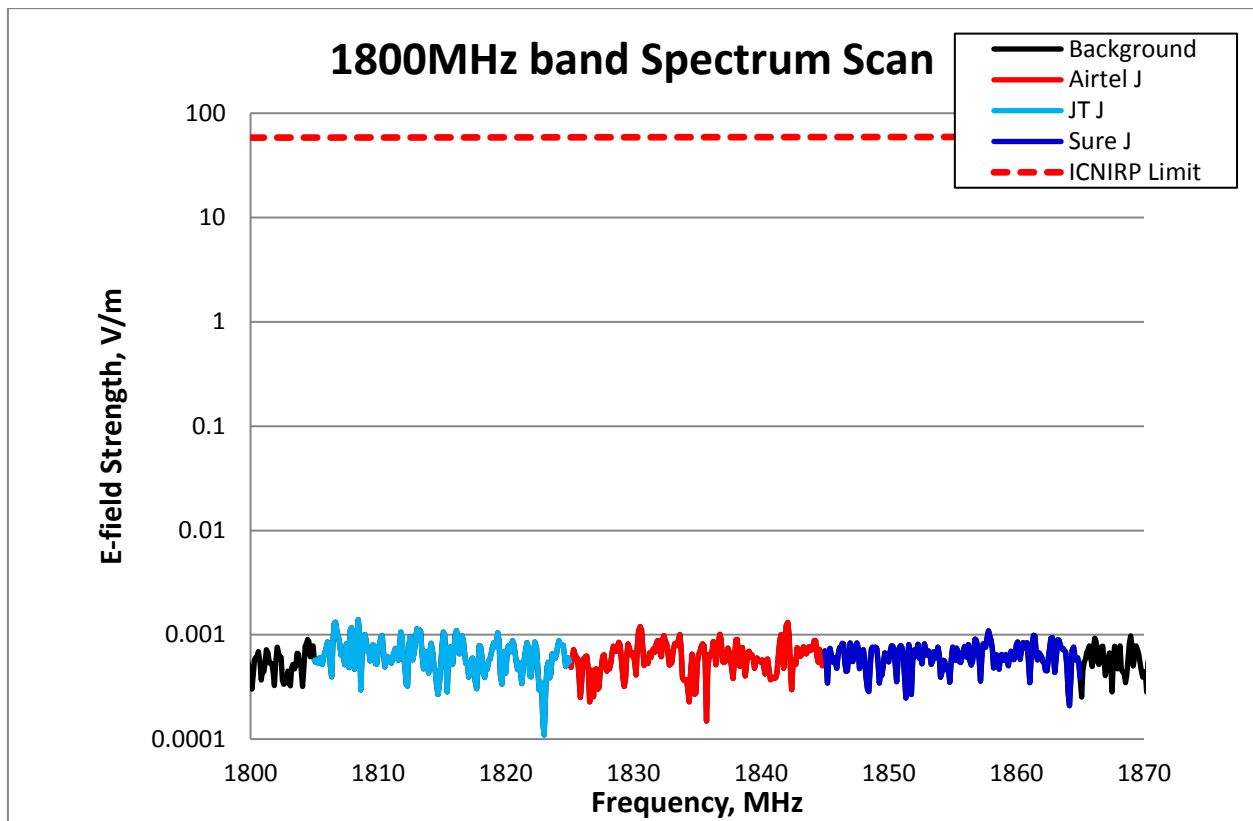


Figure 5 - 1800MHz Spectrum Scan

No activity was recorded in the 1800MHz as no operator appears to transmit in this band at this site.

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
Police Station	Airtel J	1800	0.001315	44362	2.20989E-08	1/ 45251161
	JT J		0.001397	41758	2.54047E-08	1/ 39362814
	Sure J		0.001089	53569	2.20683E-08	1/ 45313930
total band EQ					6.95718E-08	1/ 14373632

Table 4 – 1800MHz band Exposure Quotient at Police Station

2.4 2100MHz Band

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

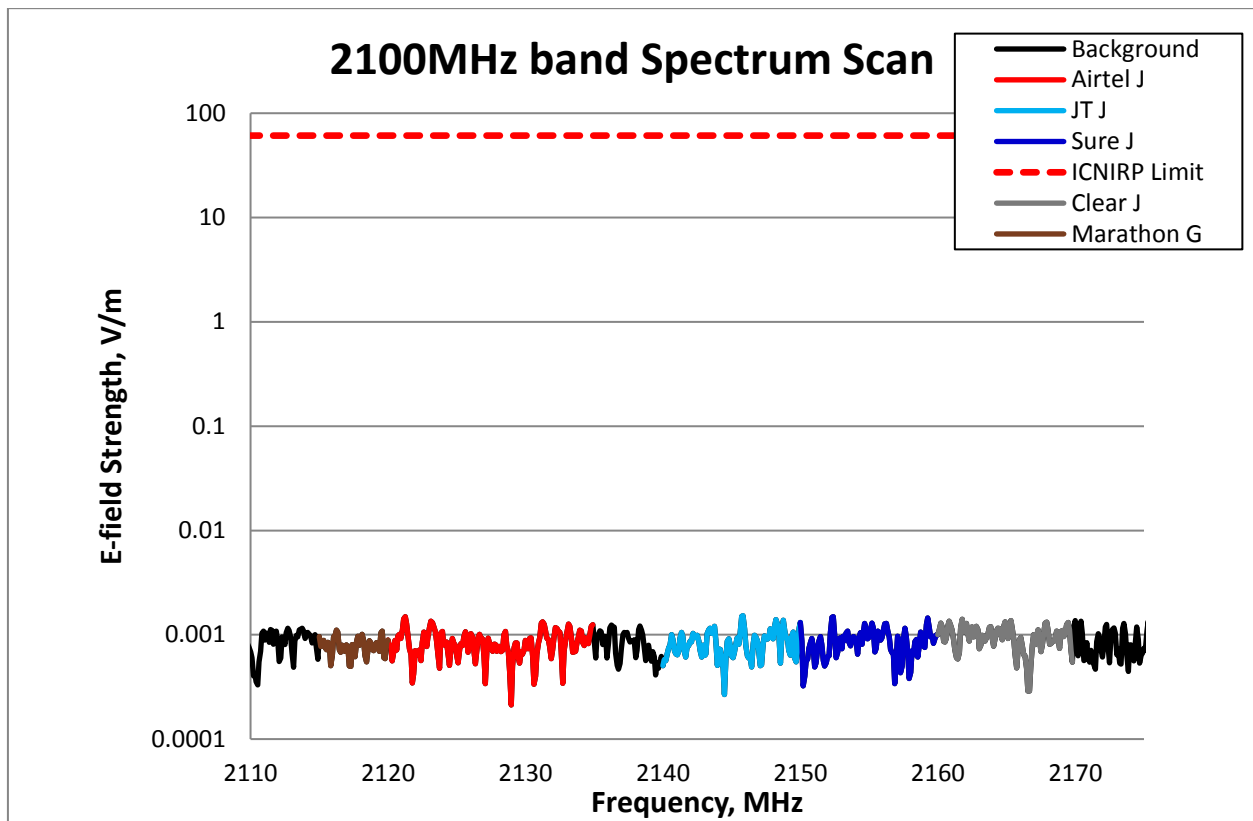


Figure 6 – 2100MHz band Spectrum Scan

No activity was recorded in the 2100MHz as no operator appears to transmit in this band at this site.

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
Police Station	Airtel J	2100	0.001489	40967	2.94294E-08	1/ 33979571
	Clear J		0.001408	43324	2.50278E-08	1/ 39955595
	JT J		0.001525	40000	2.03149E-08	1/ 49225016
	Marathon J		0.001109	55005	8.51477E-09	1/ 117442994
	Sure J		0.001492	40885	2.11681E-08	1/ 47240947
total band EQ					1.04455E-07	1/ 9573505

Table 5 – 2100MHz band Exposure Quotient at Police Station

2.5 2600MHz band

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

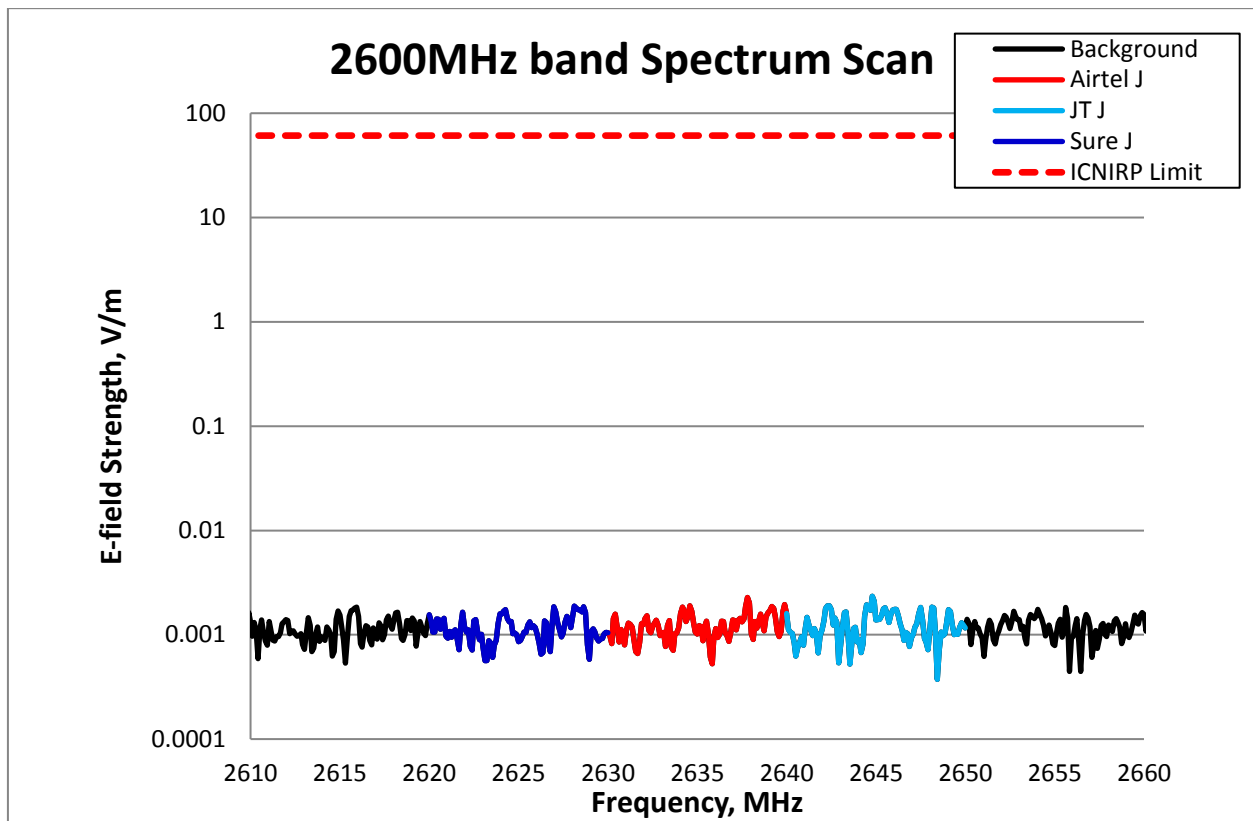


Figure 7 – 2600MHz band Spectrum Scan

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
Police Station	Airtel J	2600	0.002279	26766	4.26443E-08	1/ 23449810
	JT J		0.00234	26068	4.43795E-08	1/ 22532933
	Sure J		0.001885	32361	3.7524E-08	1/ 26649591
total band EQ					1.24548E-07	1/ 8029047

Table 6 – 2600MHz band Exposure Quotient at Police Station

End