

Cellular mast emissions survey: Coronation Park



Document details

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Contents page

1	Executive summary	4
2	Site details.....	5
2.1	Site location	5
2.2	Site description	5
2.3	Site photo.....	6
2.4	Test location.....	6
3	Survey results.....	7
3.1	800 MHz band	7
3.2	900MHz band	8
3.3	1800 MHz band	9
3.4	2100MHz band	10
3.5	2600MHz band	11

Lists of figures

Figure 1 – Map of the site area	5
Figure 2 – Location of the peak and where emission levels were measured	6
Figure 3 – Survey area with spot measurement markers.....	6
Figure 4 – 800MHz band spectrum scan.....	7
Figure 5 – 900MHz band spectrum scan.....	8
Figure 6 – 1800MHz spectrum scan.....	9
Figure 7 – 2100MHz band spectrum scan.....	10
Figure 8 – 2600MHz band spectrum scan.....	11

List of tables

Table 1 – Cumulative exposure quotient.....	4
Table 2 – 800MHz band exposure quotient at Coronation Park	7
Table 3 – 900MHz band exposure quotient at Coronation Park	8
Table 4 – 1800MHz band exposure quotient at Coronation Park	9
Table 5 – 2100MHz band exposure quotient at Coronation Park	10
Table 6 – 2600MHz band exposure quotient at Coronation Park	11

1 Executive summary

The Jersey Competition and Regulatory Authority or JCRA regularly monitors emission levels from the cellular masts in Jersey¹ 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 levels from the sites meet the internationally recognised standards and guidelines regarding health and safety limits for the public.

In 2017, JCRA commissioned EM emission level surveys at all sites within the island. The surveys were repeated in each subsequent year for all new sites and sites where major changes were made by the operators in the previous year. This report presents the results of the survey conducted at the Coronation Park site in 2020.

The Coronation Park site was used by one operator at the time of the survey: JT. 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 emission levels around the 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. The levels were found to be lower in all the other locations surveyed around this site. 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 (EQ) for the site recorded across all detected cellular frequency bands is given at the bottom of the summary table below. A total EQ close to 1 (one) for the site would mean that emission levels approach the limit advised by ICNIRP in their guidelines.

Table 1 – Cumulative exposure quotient

Site Name	Band [MHz]	Max E-field in band [V/m]	Operator at Max E-field	ICNIRP Limit Relative to Max E-field	Band Exposure Quotient	Band EQ Relative to ICNIRP
Coronation Park	800	0.01478	Airtel J	2631	4.22696E-06	1/ 236577
	900	1.28	JT J	32	0.002758658	1/ 362
	1800	0.2064	JT J	283	0.000256912	1/ 3892
	2100	0.00537	Airtel J	11359	3.89847E-07	1/ 2565109
	2600	0.002789	Sure J	21872	3.17419E-07	1/ 3150406
Total Site EQ					0.003020505	1/ 331

The results show that the total EQ was measured at 1/331 and therefore remains well below the ICNIRP guidelines.

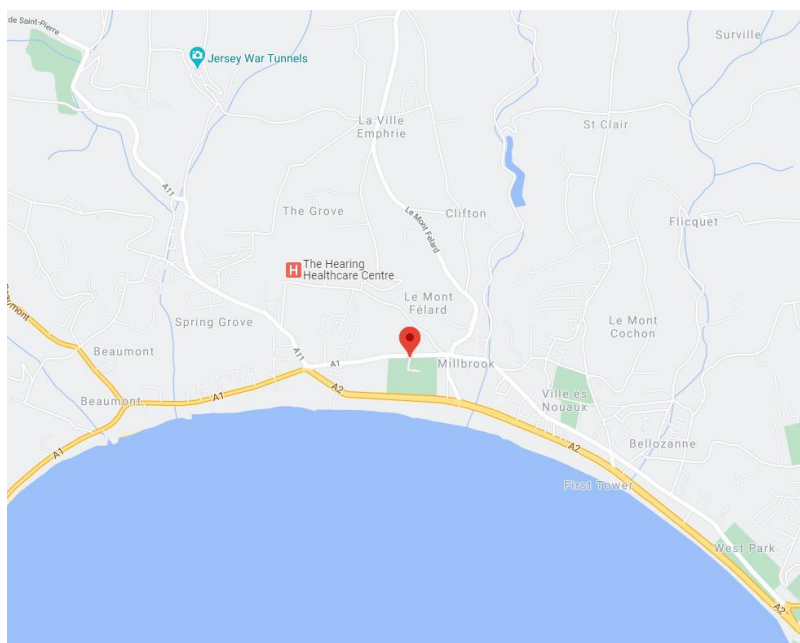
The graphs which follow show the activity on all the frequency bands surveyed. The plots are colour-coded for easy identification of the three main operators: Airtel in red, Sure in dark blue, and Jersey Telecom in light blue. The graphs are also supported by the equivalent statistical figures derived from the measured levels at the site for added clarity.

¹ Prior to 1 July 2020, the JCRA and Guernsey Competition and Regulatory Authority coordinated their activities in the Channel Islands as the Channel Islands Competition and Regulatory Authorities (CICRA). Earlier reports may refer to CICRA rather than JCRA.

2 Site details

2.1 Site location

Figure 1 – Map of the site area



Site name:	Coronation Park
Site address:	Pole next to the kiosk outside the front gate, La Route de St Aubin, St Lawrence, Jersey
Site latitude:	N 49.1985
Site longitude:	W -2.14094

2.2 Site description

Operators:	JT
Antenna types:	Omni directional
Approximate height:	8m
Site type:	Wooden pole next to the telephone kiosk
Description:	The antenna at Coronation Park is located at the top of the wooden pole. Public access to the antenna is not possible without a climbing aid.

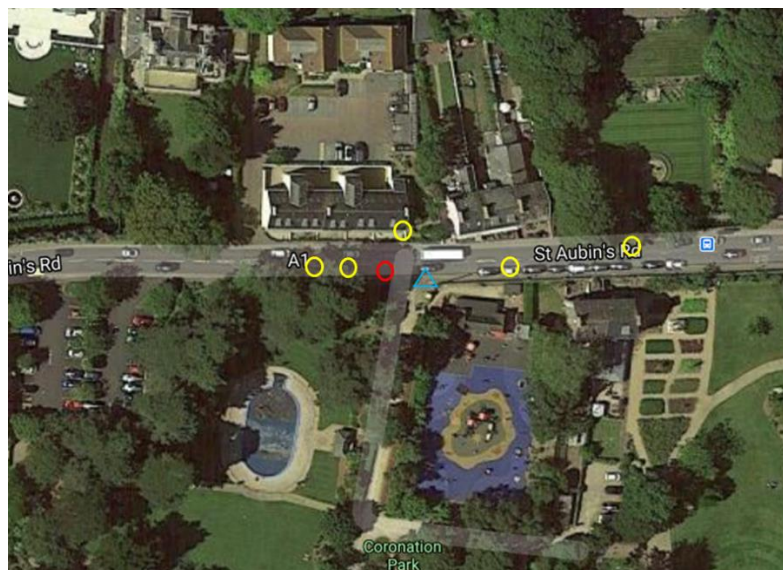
2.3 Site photo

Figure 2 – Location of the peak and where emission levels were measured



2.4 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.

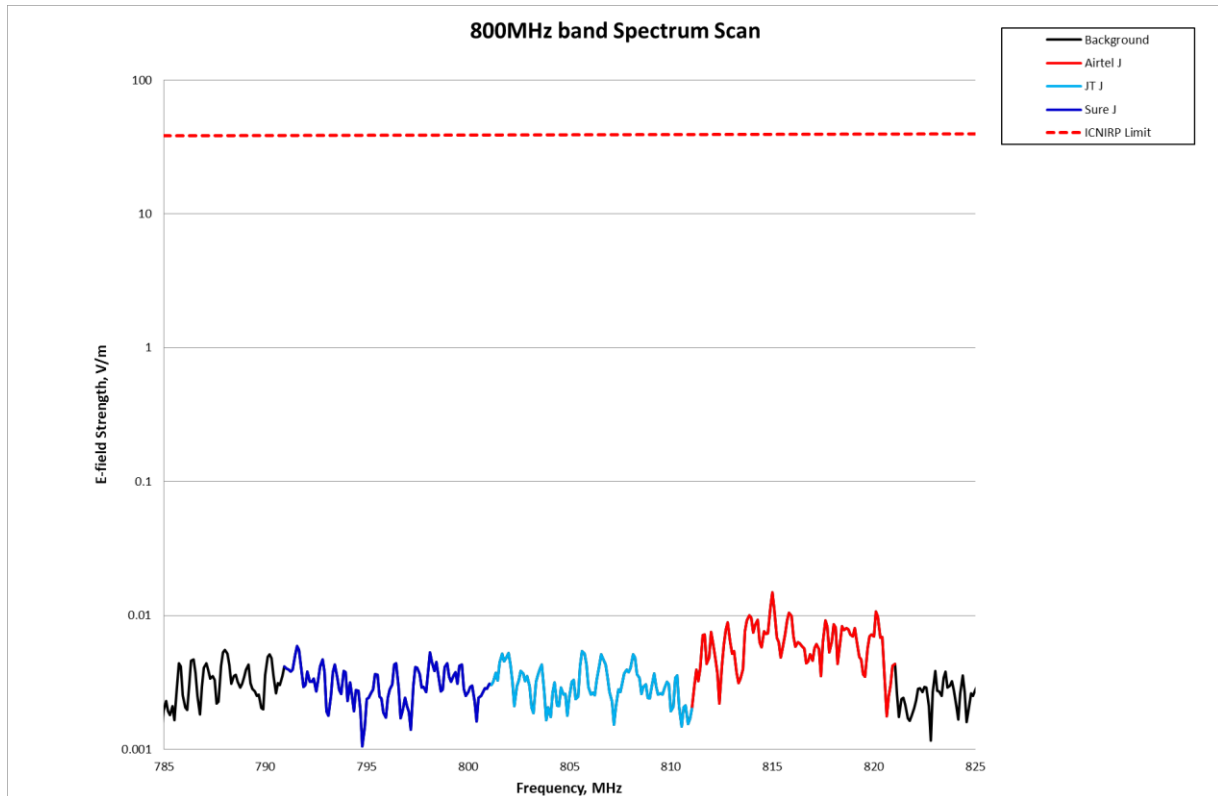
As part of the peak search procedure, spot measurements were taken at locations around the antennas as shown on the above sketch. The reported spectrum scans were taken at the peak location (shown in red above) where the highest readings were recorded. The spectrum readings reported further down this report were recorded over a period of six minutes as advised by ICNIRP.

3 Survey results

3.1 800MHz band

The graph for the 800MHz 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 0.01478 V/m (Airtel), which is 2631 times smaller than the ICNIRP guideline level at this frequency band. The EQ results for the 800MHz band are shown below.

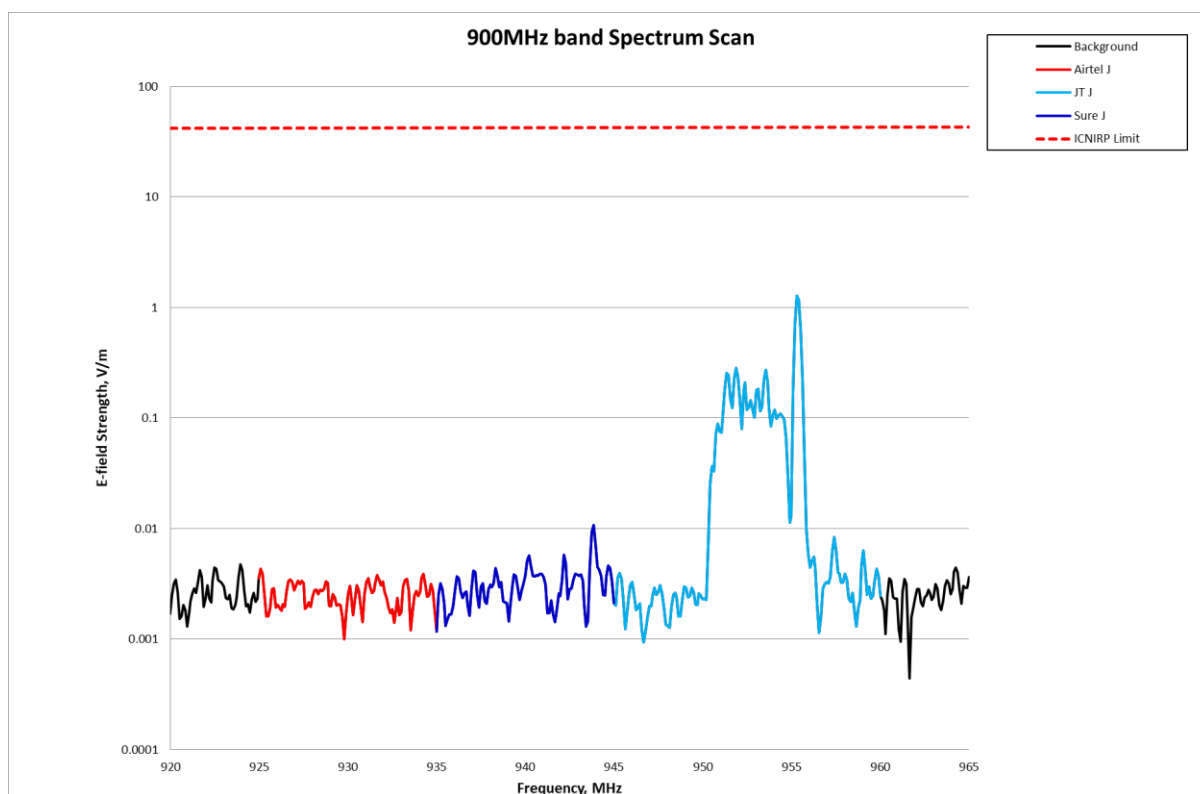
Table 2 – 800MHz band exposure quotient at Coronation Park

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
Coronation Park	Airtel J	800	0.01478	2631	2.8447E-06	1/ 351531
	JT J		0.0054	7202	6.77031E-07	1/ 1477037
	Sure J		0.005892	6601	7.05234E-07	1/ 1417969
	total band EQ				4.22696E-06	1/ 236577

3.2 900MHz band

The graph for the 900MHz activity is shown below.

Figure 5 – 900MHz band spectrum scan



No field level recorded across the band was higher than 1.28 V/m (JT), which is 32 times smaller than the ICNIRP guideline level.

The EQ results for the 900MHz band are shown below.

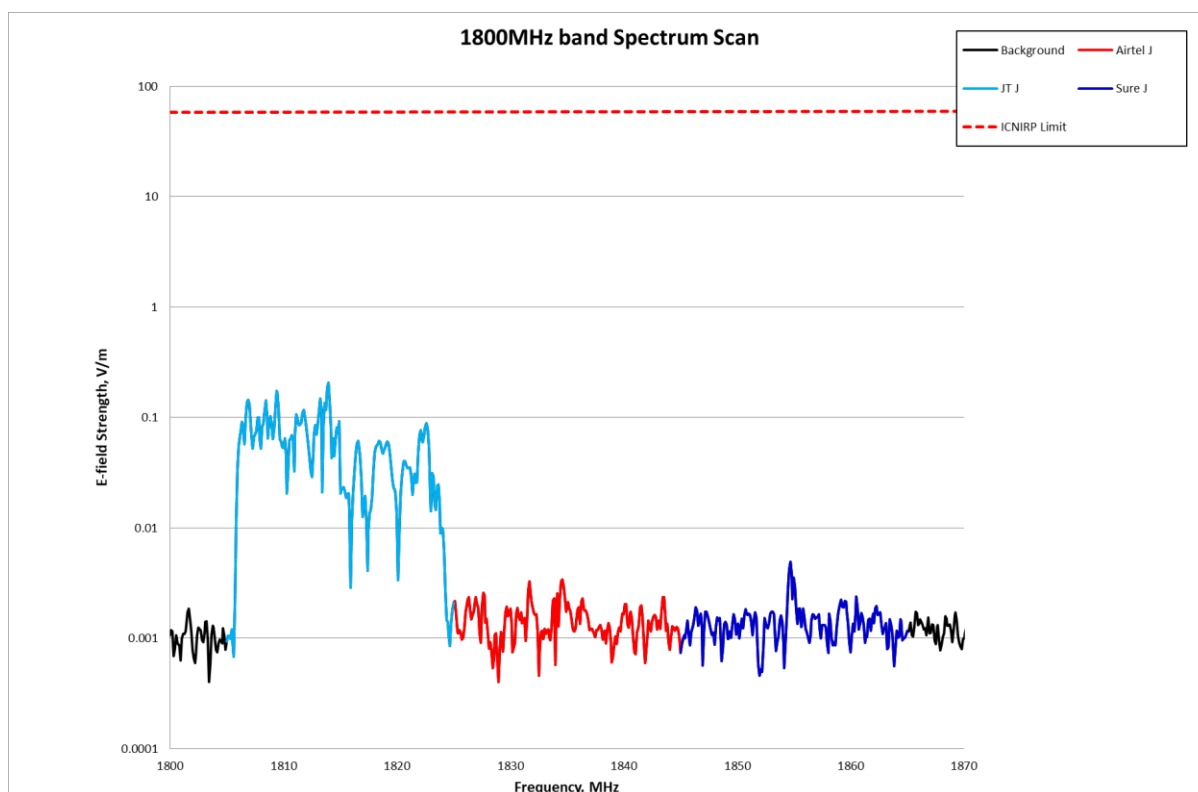
Table 3 – 900MHz band exposure quotient at Coronation Park

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
Coronation Park	Airtel J	900	0.004329	9529	3.83287E-07	1/ 2609009
	JT J		1.28	32	0.002757603	1/ 363
	Sure J		0.01072	3848	6.71905E-07	1/ 1488305
total band EQ					0.002758658	1/ 362

3.3 1800MHz band

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

Figure 6 – 1800MHz spectrum scan



No field level recorded across the band was higher than 0.2064 V/m (JT), which is 283 times smaller than the ICNIRP guideline level.

The EQ results for the 1800MHz band are shown below.

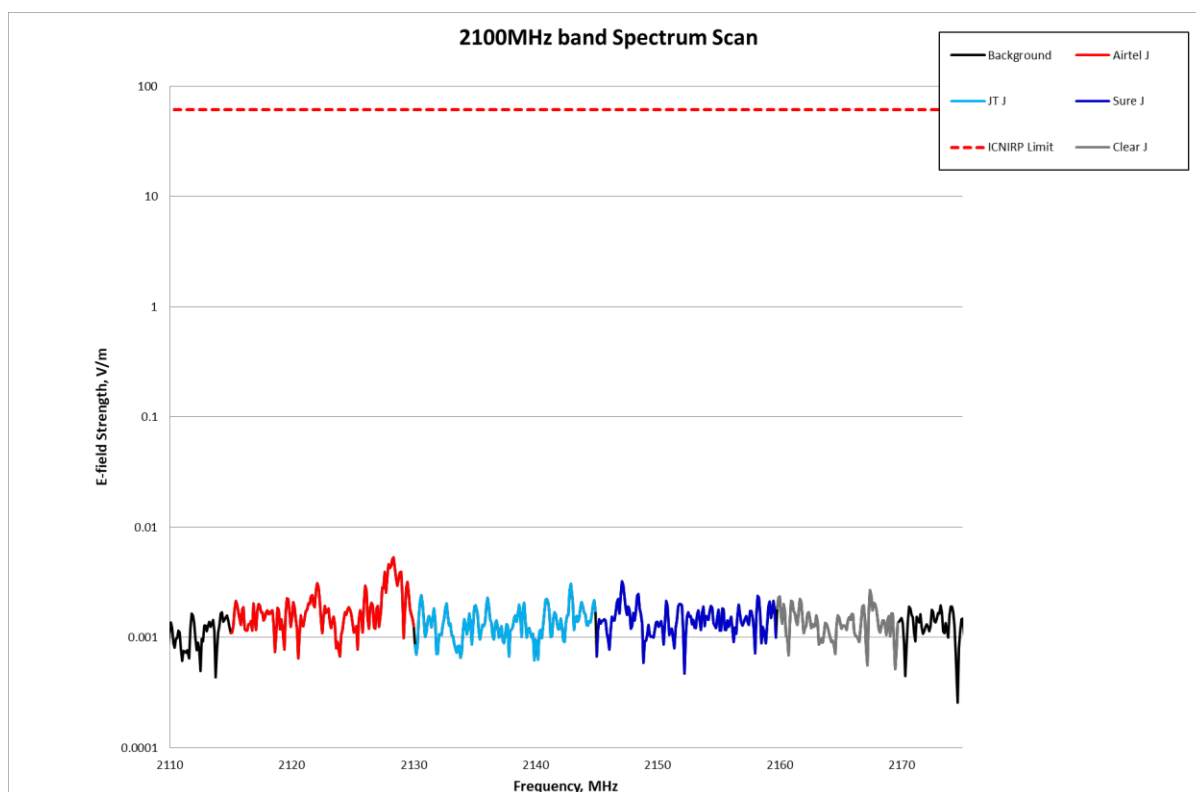
Table 4 – 1800MHz band exposure quotient at Coronation Park

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
Coronation Park	Airtel J	1800	0.003407	17122	1.32755E-07	1/ 7532667
	JT J		0.2064	283	0.000256656	1/ 3896
	Sure J		0.004915	11869	1.23946E-07	1/ 8068032
	total band EQ				0.000256912	1/ 3892

3.4 2100MHz band

The graph for the 2100MHz band activity around the site is shown below.

Figure 7 – 2100MHz band spectrum scan



No field level recorded across the band was higher than 0.00537 V/m (Airtel), which is 11359 times smaller than the ICNIRP guideline level.

The EQ results for the 2100MHz band are shown below.

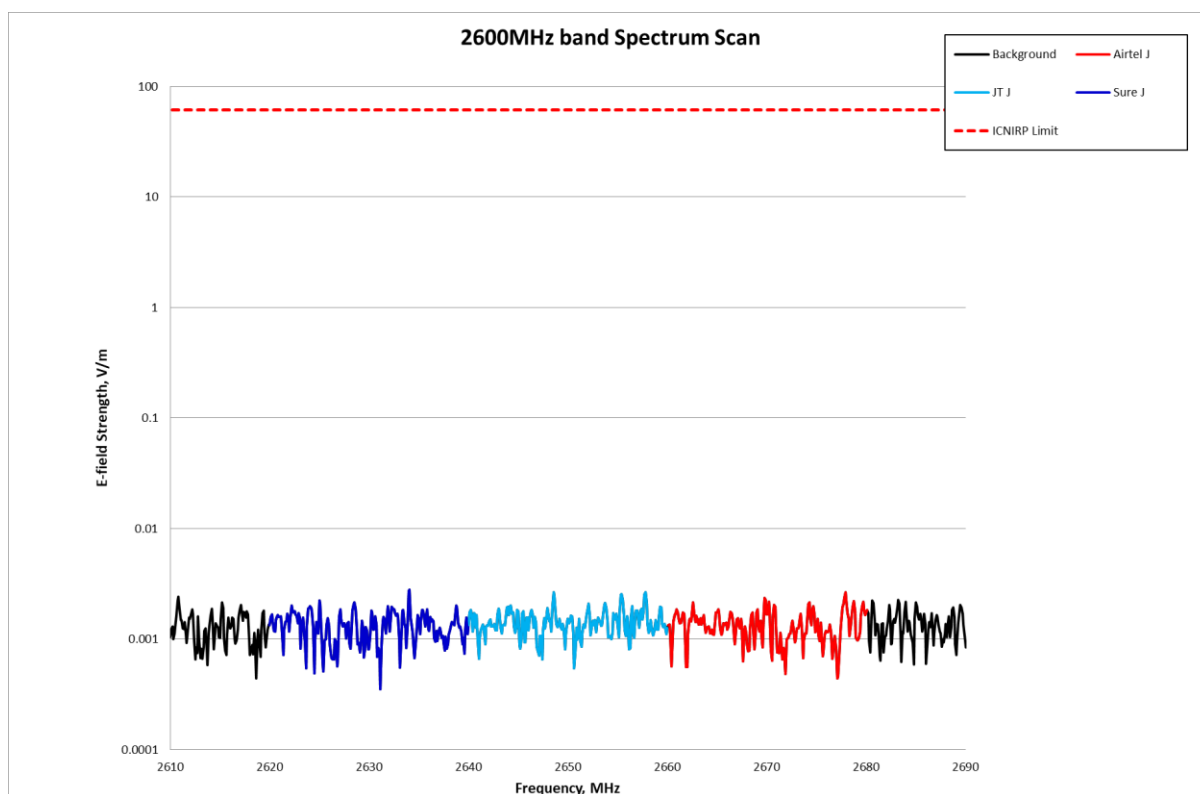
Table 5 – 2100MHz band exposure quotient at Coronation Park

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
Coronation Park	Airtel J	2100	0.00537	11359	1.64833E-07	1/ 6066754
	Clear J		0.00269	22677	5.50003E-08	1/ 18181718
	JT J		0.003058	19948	7.96437E-08	1/ 12555926
	Sure J		0.003226	18909	9.03703E-08	1/ 11065587
total band EQ					3.89847E-07	1/ 2565109

3.5 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 band as no operator appears to transmit in this band from the site or nearby.

The EQ results for the 2600MH band are shown below.

Table 6 – 2600MHz band exposure quotient at Coronation Park

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
Coronation Park	Airtel J	2600	0.002652	23002	1.03466E-07	1/ 9664999
	JT J		0.002648	23036	1.14271E-07	1/ 8751108
	Sure J		0.002789	21872	9.9682E-08	1/ 10031897
	total band EQ				3.17419E-07	1/ 3150406

END