

Cellular mast emissions survey

Radisson Hotel



Document details

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Contents page

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

Lists of figures

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

List of tables

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

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 the 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 Radisson Hotel site in 2022.

The Radisson Hotel site was used by a single mobile operator at the time of the survey: Airtel. Surveys were 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. Even though the reported levels are expected to be predominantly emitted from this site, the test equipment does not discriminate between nearby sites which means that the levels are cumulated over all site emissions detected by the test instrument.

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 recorded around the site following a peak search. The levels were found to be lower at all the other locations round this site. The recorded values are true at the time of testing and can go up or down depending on the level of user activity on the site.

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 safety 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
Radisson Hotel	800	0.4916	Airtel	79	0.001627403	1/ 614
	900	0.1332	Airtel	310	6.77013E-05	1/ 14771
	1800	0.083	Airtel	703	1.98755E-05	1/ 50313
	2100	0.06399	Airtel	953	1.1057E-05	1/ 90440
	2600	0.005981	Sure	10199	5.91928E-07	1/ 1689395
Total Site EQ					0.001726629	1/ 579

The results show that the total EQ was measured at 1/579 and therefore remains below the ICNIRP guidelines.

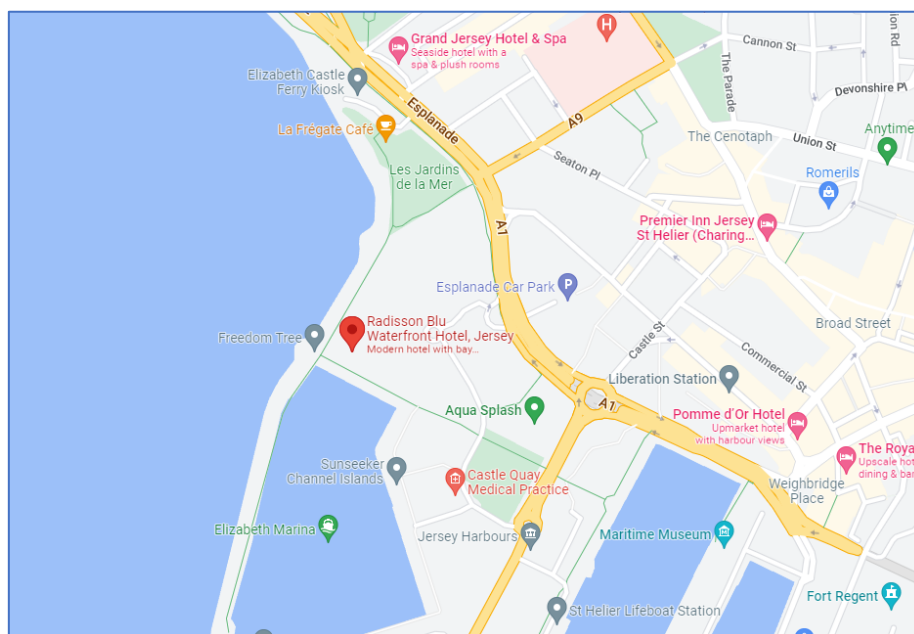
The graphs which follow show the activity on all the frequency bands surveyed. The plots are colour-coded for easy identification of the three main operators: Airtel in red, Sure in dark blue, and Jersey Telecom in light blue. The graphs are also supported by the equivalent statistical figures derived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

¹ Prior to 1 July 2020, the JCRA and the Guernsey Competition & Regulatory Authority coordinated their activities in the Channel Islands as the Channel Islands Competition 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:	Radisson Hotel
Site address:	Radisson Blu Hotel, Elizabeth Port, St Helier, Jersey
Site latitude:	49.18448
Site longitude:	-2.11622

2.2 Site description

Operators:	Airtel
Antenna types:	Directional
Approximate height:	25m
Site type:	Building – Wall Mount
Description:	The antennas at the Radisson Hotel are located on two sides of the main building, out of reach of the public.

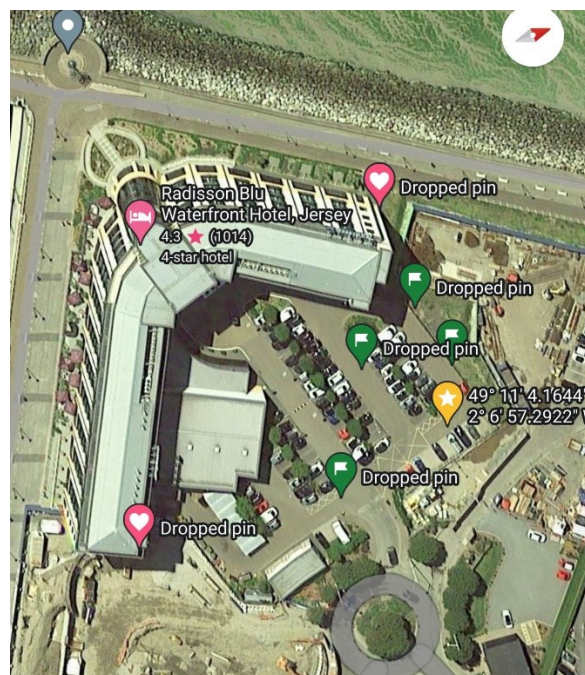
2.3 Site photo

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 red heart pin is the site location, the green flag pins are intermediate locations measured at during the peak search and the yellow star pin is the spot where the highest spot search reading was obtained and where the detailed survey was carried out.

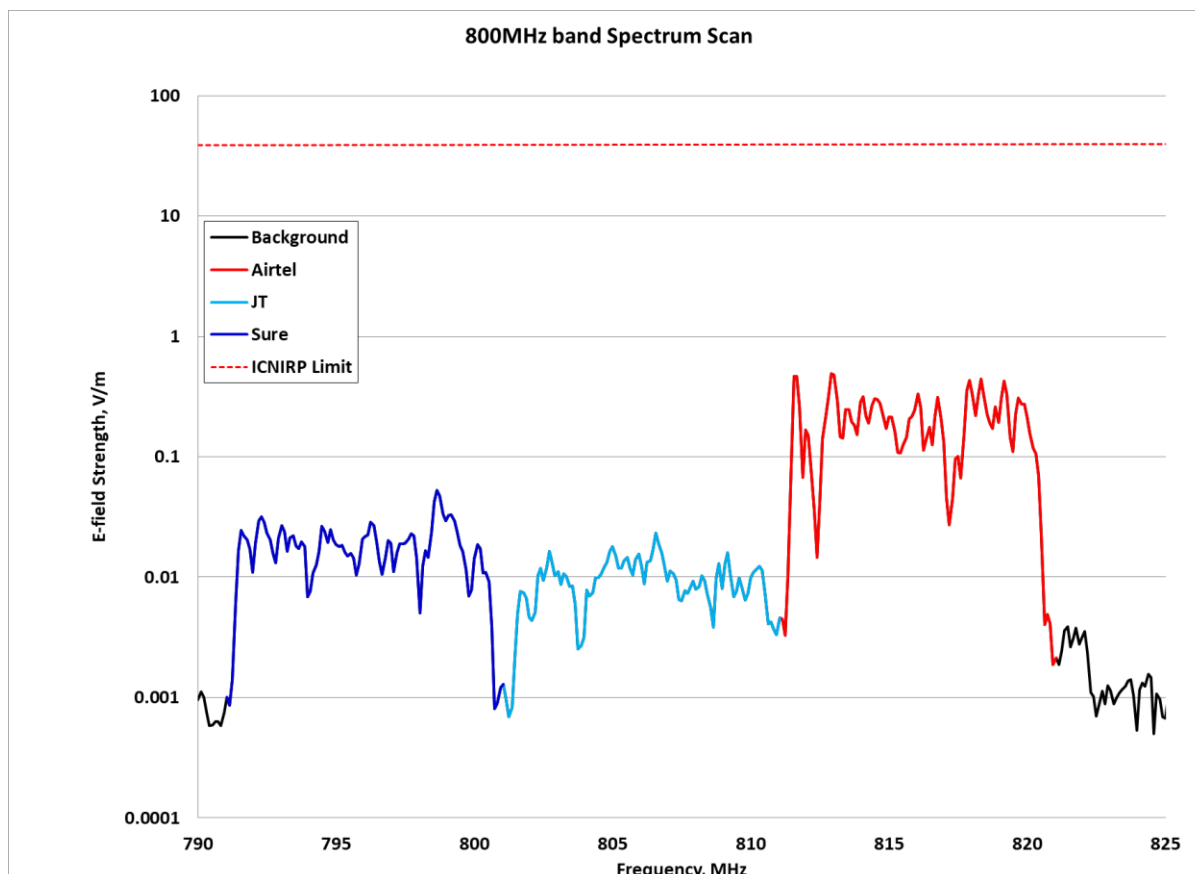
As part of the peak search procedure, spot measurements were taken at locations around the antennas as shown on the above sketch. The reported spectrum scans were taken at the peak location (shown in red above) where the highest readings were recorded. The spectrum readings reported further down this 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 0.4916 V/m (Airtel), which is 79 times smaller than the ICNIRP Guideline Reference Level.

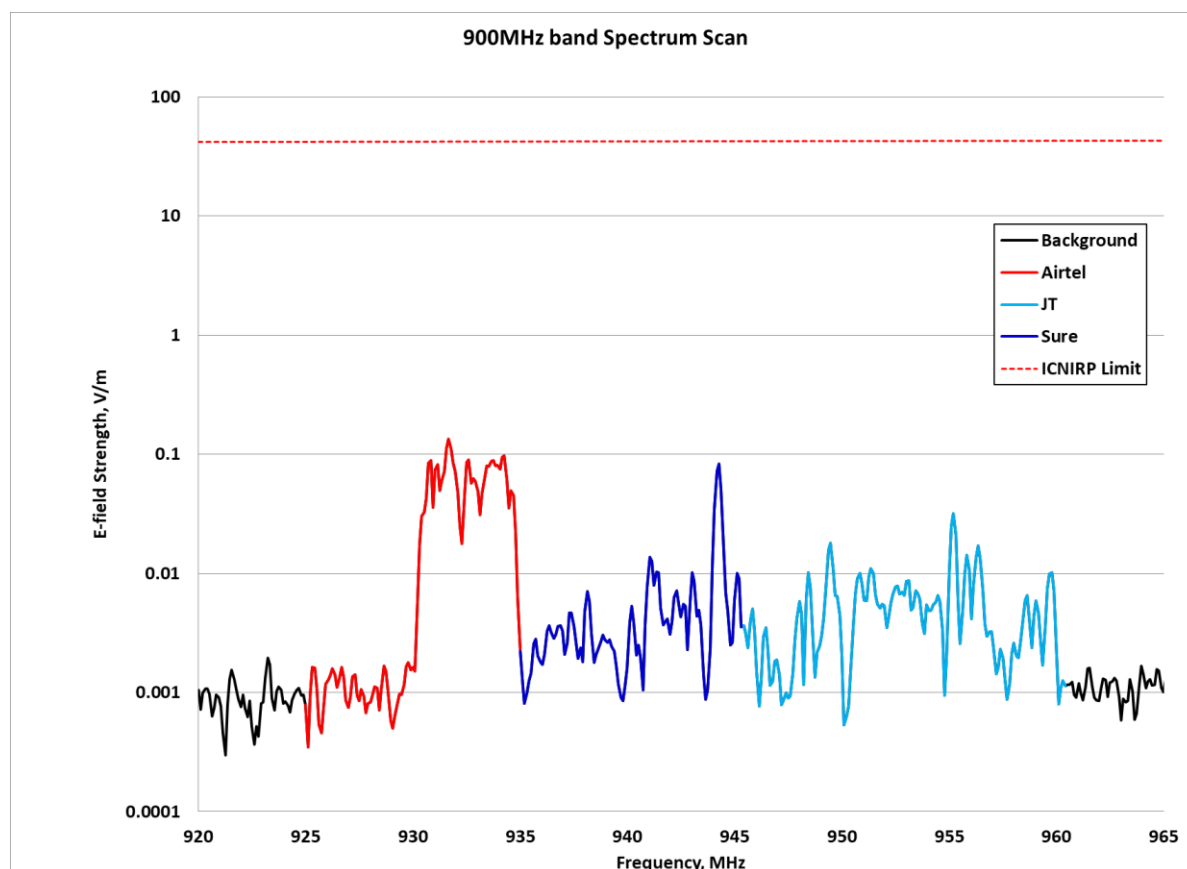
Table 2 – 800MHz band exposure quotient at Radisson Hotel

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
Radisson Hotel	Airtel	800	0.4916	79	0.001610794	1/ 621
	JT		0.02321	1676	3.35955E-06	1/ 297659
	Sure		0.05292	735	1.32498E-05	1/ 75473
total band EQ					0.001627403	1/ 614

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 0.1332 V/m (Airtel), which is 310 times smaller than the ICNIRP Guideline Reference Level.

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

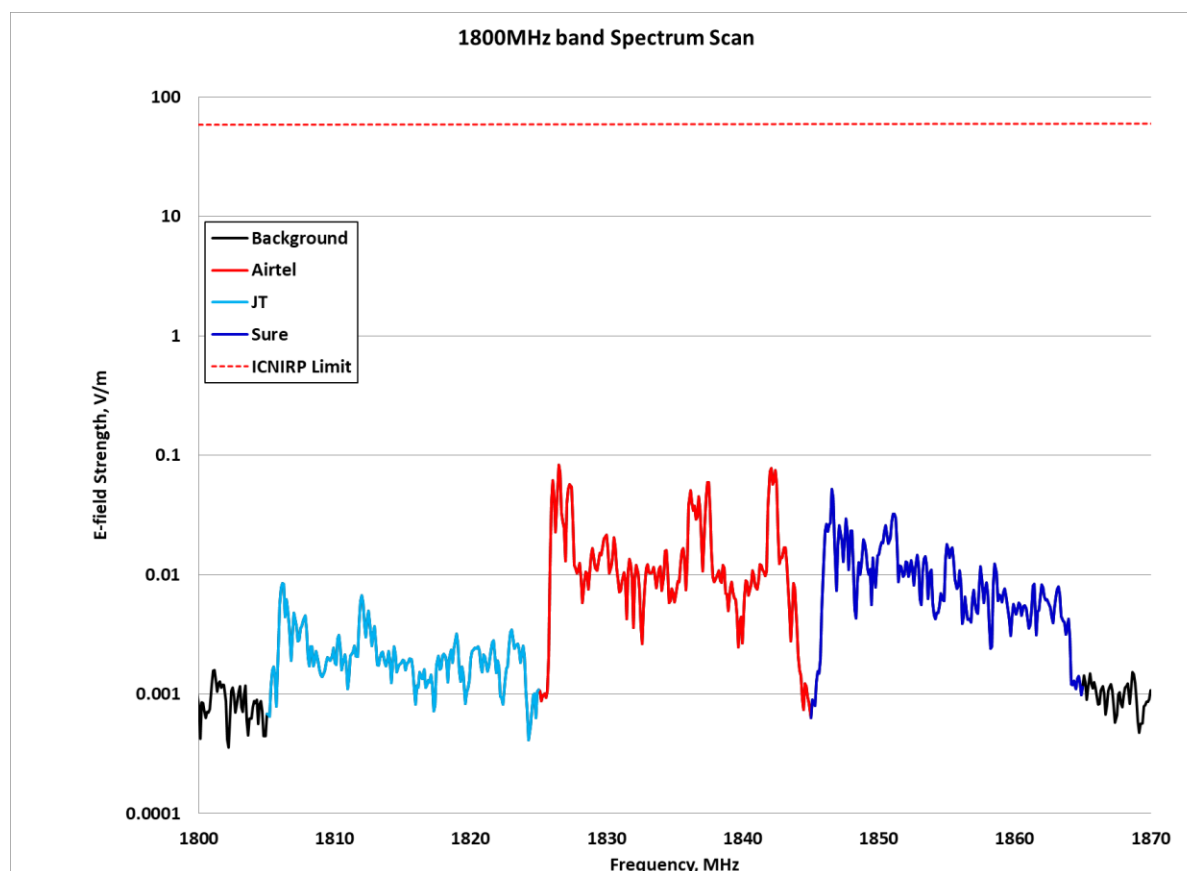
Table 3 – 900MHz band exposure quotient at Radisson Hotel

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
Radisson Hotel	Airtel	900	0.1332	310	6.06086E-05	1/ 16499
	JT		0.0319	1293	1.99237E-06	1/ 501914
	Sure		0.08335	495	5.10029E-06	1/ 196067
total band EQ					6.77013E-05	1/ 14771

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 0.083 V/m (Airtel), which is 703 times smaller than the ICNIRP Guideline Reference Level.

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

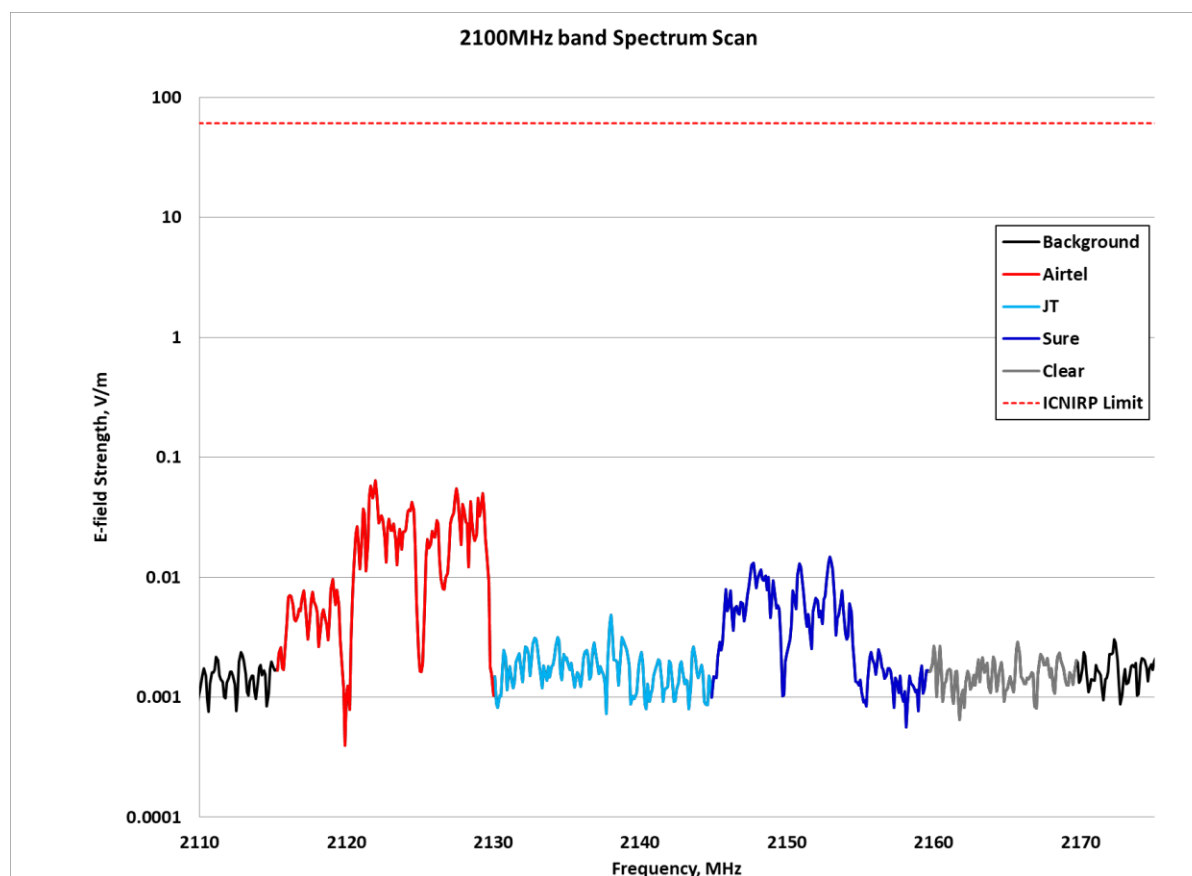
Table 4 – 1800MHz band exposure quotient at Radisson Hotel

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
Radisson Hotel	Airtel	1800	0.083	703	1.51627E-05	1/ 65951
	JT		0.008481	6878	1.89214E-07	1/ 5285011
	Sure		0.05178	1127	4.5235E-06	1/ 221068
total band EQ					1.98755E-05	1/ 50313

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 0.06399 V/m (Airtel), which is 953 times smaller than the ICNIRP Guideline Reference Level.

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

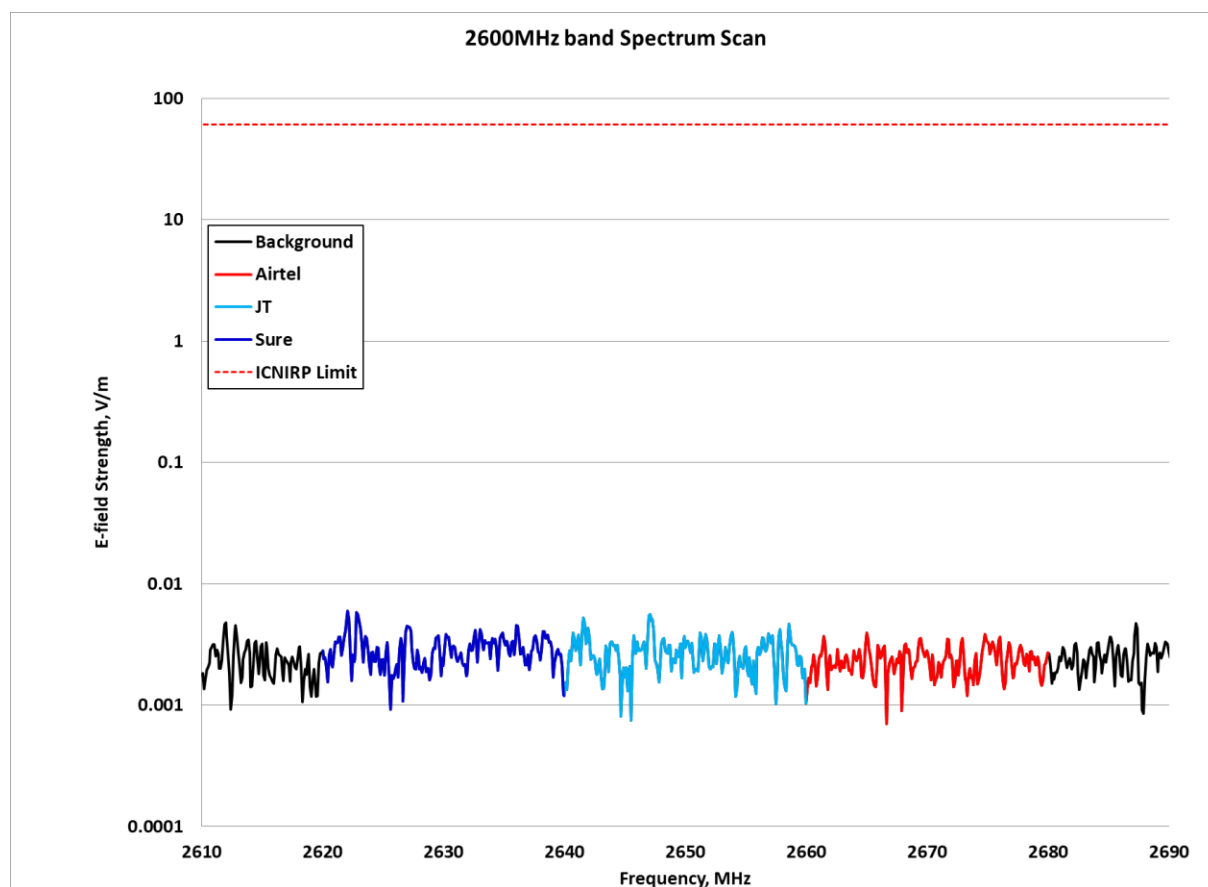
Table 5 – 2100MHz band exposure quotient at Radisson Hotel

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
Radisson Hotel	Airtel	2100	0.06399	953	1.0321E-05	1/ 96889
	JT		0.004813	12674	6.88412E-08	1/ 14526174
	Sure		0.01468	4155	6.32606E-07	1/ 1580763
	Clear		0.002892	21093	3.45365E-08	1/ 28954910
total band EQ					1.1057E-05	1/ 90440

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 at this site.

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

Table 6 – 2600MHz band exposure quotient at Radisson Hotel

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
Radisson Hotel	Airtel	2600	0.003928	15530	1.50618E-07	1/ 6639325
	JT		0.005609	10875	2.07958E-07	1/ 4808656
	Sure		0.005981	10199	2.33352E-07	1/ 4285374
total band EQ					5.91928E-07	1/ 1689395

END