Cellular Mast Emissions Survey: Rozel Bay Harbour Toilets (Jersey)

DOCUMENT DETAILS

Document Name:	Cellular Mast Emissions Survey: Rozel Bay Harbour Toilets (Jersey)
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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 Rozel Bay Harbour Toilets site located in Jersey.

The Rozel Bay Harbour Toilets was used by multiple operators at the time of the survey: Airtel J, Sure J and JT J. 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.

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
Rozel Bay Harbour Toilets	800	0.06065	JT J	641	1.67359E-05	1/ 59752
	900	2.955	Sure J	14	0.007139269	1/ 140
	1800	0.1838	Sure J	317	0.000326916	1/ 3059
	2100	0.2509	Sure J	243	0.000572426	1/ 1747
	2600	0.004258	Airtel J	14326	3.96256E-07	1/ 2523619
				Total Site EQ	0.008055743	1/ 124

Table 1 - Cumulative Exposure Quotient

The results show that the cumulative EQ was measured at 1/124 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	Rozel Bay Harbour Toilets
Site address	La Brecque du Nord, Rozel Bay, St Martin, Jersey
Site Latitude	N 49.23776
Site Longitude	W 02.04458

1.2 Site Description

Operators	Airtel J, Sure J, JT J
Antenna types	Omni directional / Directional
Approximate height	6m
Site type	Rooftop
Description	The antenna at Rozel Bay Harbour Toilets is located on the rooftop, 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.

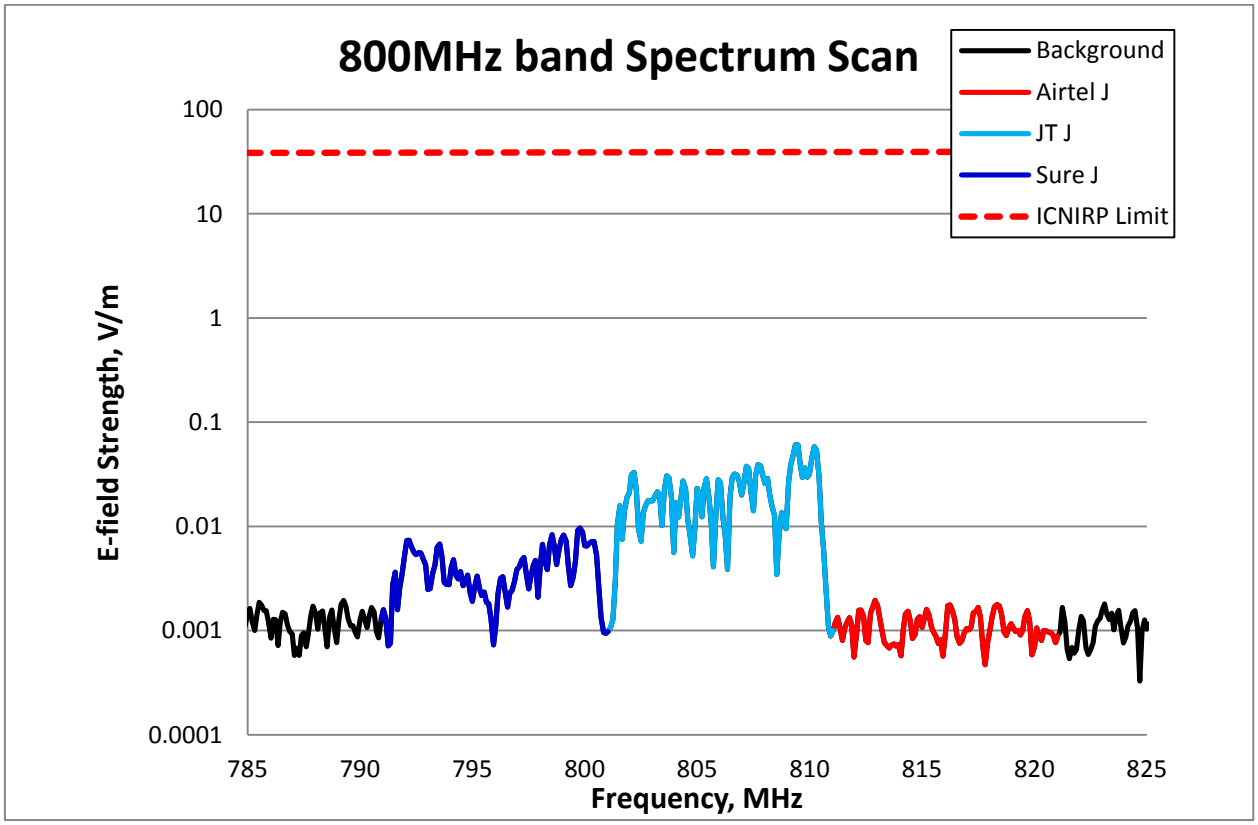

Figure 4 - 800MHz band Spectrum Scan

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 0.06065 V/m (JT J), which is 641 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
Rozel Bay Harbour Toilets	Airtel J	800	0.001953	19913	3.49473E-08	1/ 28614475
	JT J		0.06065	641	1.61623E-05	1/ 61872
	Sure J		0.009679	4018	5.38655E-07	1/ 1856475
				total band EQ	1.67359E-05	1/ 59752

Table 2– 800MHz band Exposure Quotient at Rozel Bay Harbour Toilets

2.2 900 MHz Band

The graph for the 900 MHz activity is shown below:

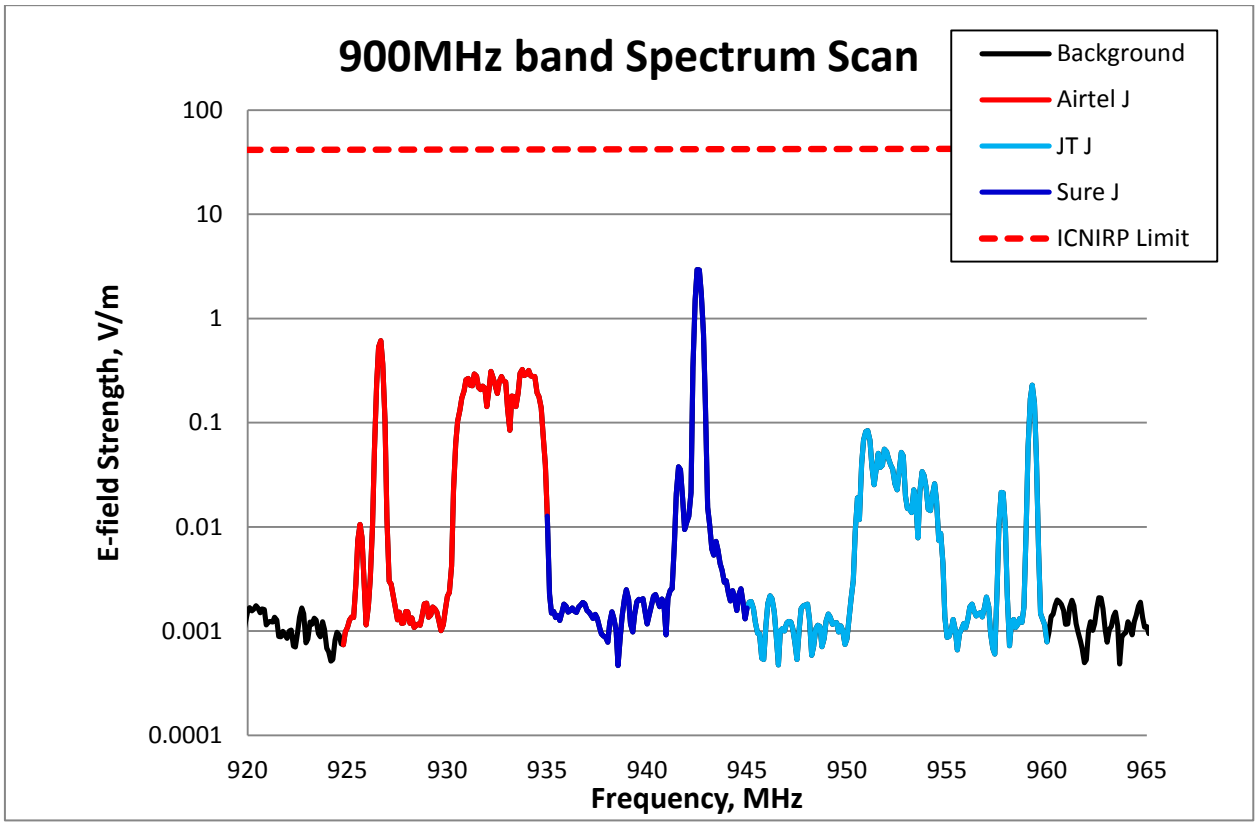

Figure 5 - 900MHz band Spectrum Scan

No field level recorded across the band was higher than 2.955 V/m (Sure J), which is 14 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
Rozel Bay Harbour Toilets	Airtel J	900	0.6116	67	0.000828511	1/ 1207
	JT J		0.2301	179	4.59031E-05	1/ 21785
	Sure J		2.955	14	0.006264854	1/ 160
				total band EQ	0.007139269	1/ 140

Table 3– 900MHz band Exposure Quotient at Rozel Bay Harbour Toilets

2.3 1800 MHz Band

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

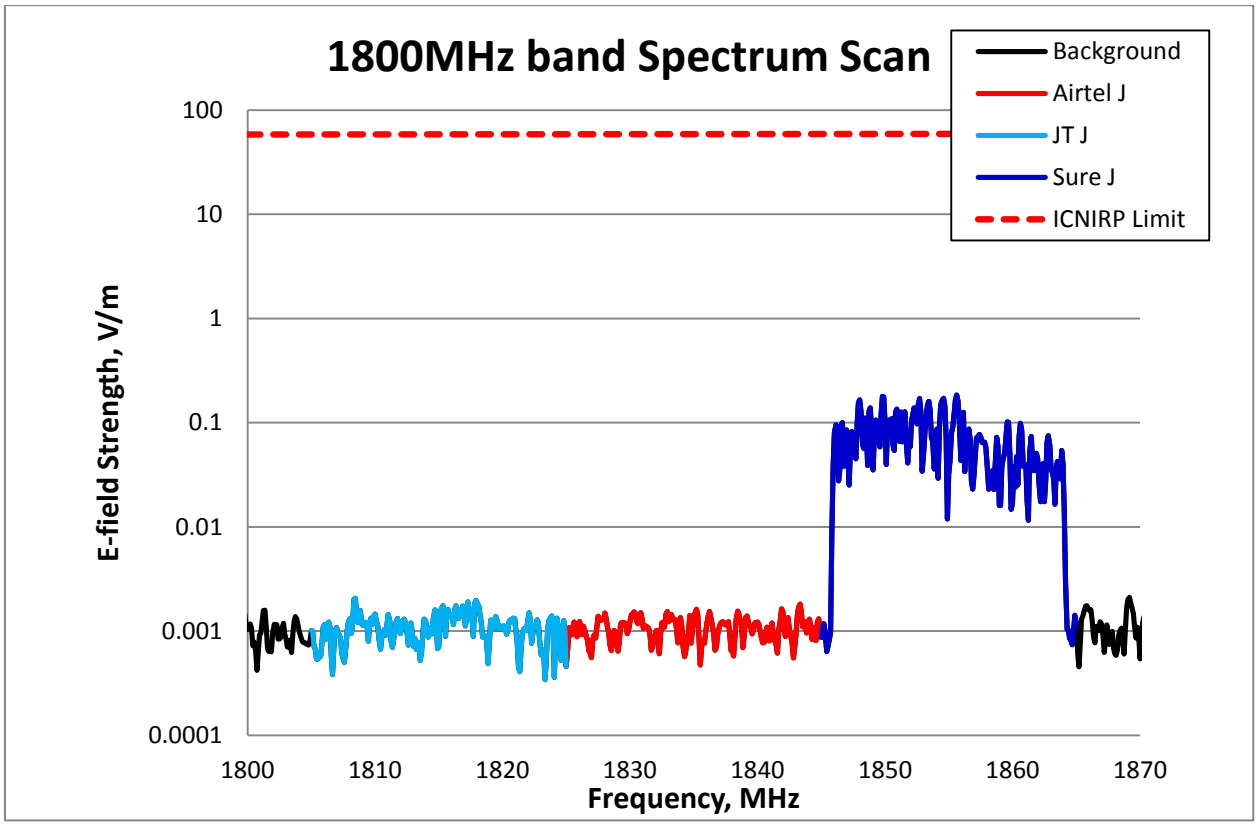

Figure 6 - 1800MHz Spectrum Scan

No field level recorded across the band was higher than 0.1838 V/m (Sure J), which is 317 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
Rozel Bay Harbour Toilets	Airtel J	1800	0.001817	32106	6.25647E-08	1/ 15983466
	JT J		0.00206	28319	6.6969E-08	1/ 14932274
	Sure J		0.1838	317	0.000326786	1/ 3060
				total band EQ	0.000326916	1/ 3059

Table 4 – 1800MHz band Exposure Quotient at Rozel Bay Harbour Toilets

2.4 2100MHz Band

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

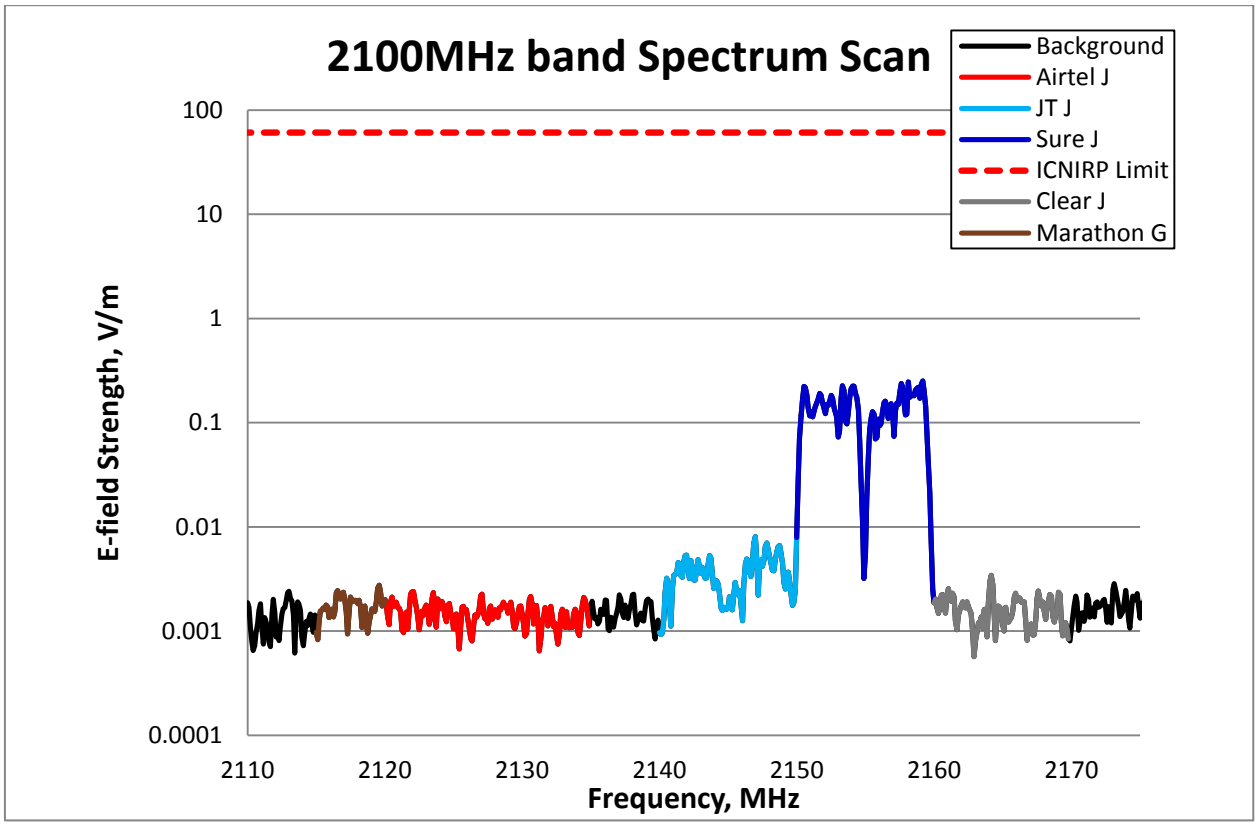

Figure 7 – 2100MHz band Spectrum Scan

No field level recorded across the band was higher than 0.2509 V/m (Sure J), which is 243 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
Rozel Bay Harbour Toilets	Airtel J	2100	0.002393	25491	9.0474E-08	1/ 11052903
	Clear J		0.00344	17733	7.37258E-08	1/ 13563774
	JT J		0.008065	7564	3.97692E-07	1/ 2514510
	Marathon J		0.002764	22069	4.15409E-08	1/ 24072673
	Sure J		0.2509	243	0.000571823	1/ 1749
				total band EQ	0.000572426	1/ 1747

Table 5 – 2100MHz band Exposure Quotient at Rozel Bay Harbour Toilets

2.5 2600MHz band

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

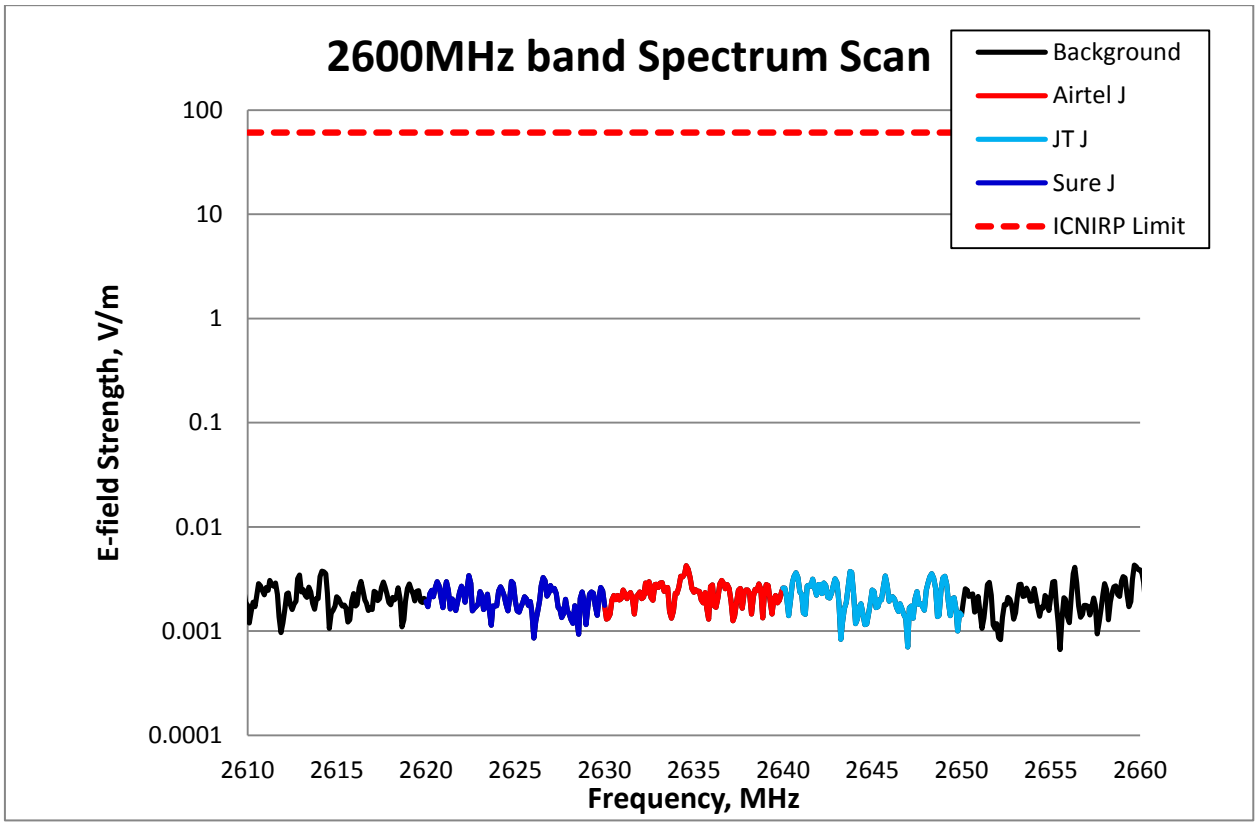

Figure 8 – 2600MHz band Spectrum Scan

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 2600MH 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
Rozel Bay Harbour Toilets	Airtel J	2600	0.004258	14326	1.45653E-07	1/ 6865621
	JT J		0.003728	16363	1.35981E-07	1/ 7353953
	Sure J		0.003416	17857	1.14622E-07	1/ 8724348
				total band EQ	3.96256E-07	1/ 2523619

Table 6 – 2600MHz band Exposure Quotient at Rozel Bay Harbour Toilets

End