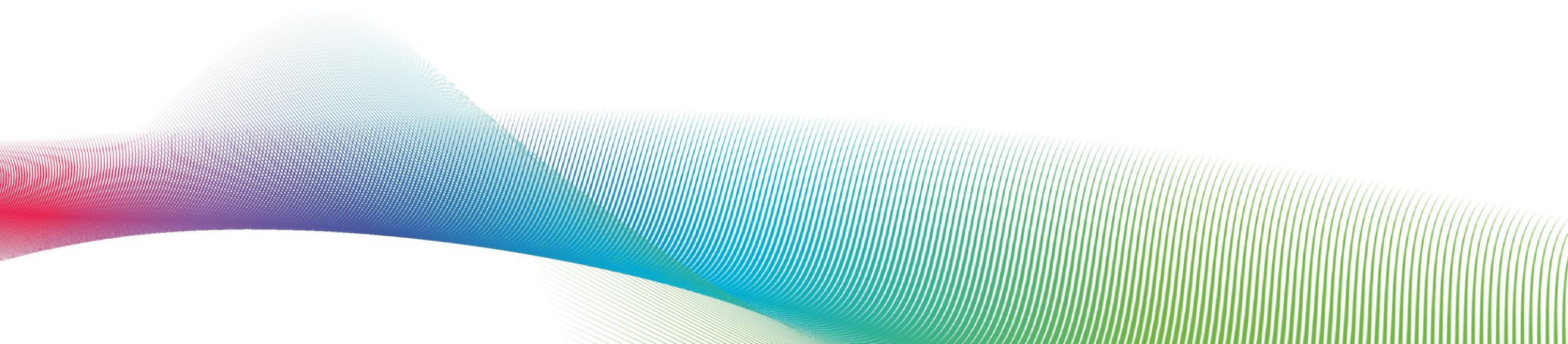




# Summary Report for the Jersey Mast Emission Audit 2023

08/11/2023

Final version



1. Overview
2. Summary Emission Levels - 2023
3. Key Findings from the 2023 audit
4. Photo pack
5. Other Findings
6. Conclusions and Recommendations

A total of 15 sites were surveyed in Jersey in 2023. The surveys aimed to measure the levels of EM emissions from the sites and verify their compliance with the internationally recognised guideline levels set by the International Commission on Non-ionising Radiation Protection (ICNIRP).

The choice of sites audited in 2023 was dictated by whether they were:

- New, additional operator(s) joining the site or the site been relocated in the past 12 months (4 sites)
- Major changes made by the operator to the site in the past 12 months, e.g. addition of new technologies such as 4G at 2600MHz, refarming of technologies or changes to the site hardware (antennas) (5 sites)
- Sites measured in the previous year with the highest emission levels (5 sites)
- Sites where a local resident expressed concerns in the past year (1 site)

The Table overleaf shows the emission levels measured at the sites audited in 2023 (blue columns) and compares them to the levels previously measured at these sites (2017 to 2022) as a ratio to the ICNIRP levels (yellow columns).

The "Change" column contains colour-coded cells to show whether the site's emission level went up (red), down (green) or remained stable (yellow) since last audited. We used an arbitrary  $\pm 20\%$  tolerance in yearly level when considering that a site remained constant from the previously measured levels.

New sites audited in 2023 will have no emission level history.

Rozel Rovers was measured in 2017, and was audited again in 2023 following local residents concern about emission levels from the site.

The full set of reports for the sites audited in 2023 as well as those audited in previous years can be found in <https://mastaudits.icra.ie/>

# Summary of measured emission levels - 2023

Emission levels in this table are expressed as Total Exposure Quotient (EQ) aggregated across all the cellular bands and expressed relative to the corresponding ICNIRP limits. A Total EQ value of 1 or more means the levels are not compliant with ICNIRP guidelines.

**2023 audit**

**Previous most recent audit**

Unique Site ID	Operator(s)	Site Name	Site type	2023 Total EQ	Total EQ as a ratio	2023 % ICNIRP	Date Surveyed	Previous Total EQ	Previous Total EQ as a ratio	% ICNIRP	Date previous Survey	Change
JE-161	Airtel, JT, Sure	Sand Street car park	Rooftop	0.134402	1/ 7	13.44%	19-Sep-23	0.05854796	1/ 17	5.85%	22-Sep-22	130%
JE-092	Airtel, JT, Sure	Kensington Car Park	Rooftop	0.093669	1/ 11	9.37%	19-Sep-23	0.13014303	1/ 8	13.01%	22-Sep-22	-28%
JE-168	JT	St Aubin's Harbour	Outdoor wall	0.035579	1/ 28	3.56%	21-Sep-23	0.04500524	1/ 22	4.50%	21-Sep-22	-21%
JE170&JE-171	Airtel, Sure	St. Aubin's Pier	Rooftop	0.029366	1/ 34	2.94%	21-Sep-23	0.05670427	1/ 18	5.67%	21-Sep-22	-48%
JE-088	JT	Jersey Steel	Outdoor Wall	0.008534	1/ 117	0.85%	20-Sep-23	0.0043682	1/ 229	0.44%	12-Jun-17	95%
JE-040 & 062	JT, Sure	ESM	Outdoor Wall	0.005882	1/ 170	0.59%	20-Sep-23	0.0057326	1/ 174	0.57%	12-Jun-17	3%
JE-087	JT	Jersey Squash Club	Outdoor Wall	0.005692	1/ 176	0.57%	19-Sep-23	0.00435066	1/ 230	0.44%	12-Jun-17	31%
JE-018	Airtel, Sure	Bouley Bay WC Block	Monopole	0.005087	1/ 197	0.51%	20-Sep-23	0.01058697	1/ 94	1.06%	08-Jun-17	-52%
JE-201	Airtel, Sure	Grand Marche	Rooftop	0.003939	1/ 254	0.39%	21-Sep-23	0.02083935	1/ 48	2.08%	22-Sep-22	-81%
JE-218	JT	Hockey Club	Monopole	0.003698	1/ 270	0.37%	20-Sep-23	No DATA	No DATA	-	-	N/A
JE-083 & 130	Airtel, JT	Mont Ube	Monopole	0.003559	1/ 281	0.36%	19-Sep-23	0.00785246	1/ 127	0.79%	09-Jun-17	-55%
JE-022	Airtel, JT	Castle Quay A	Indoors	0.003063	1/ 326	0.31%	21-Sep-23	0.00066082	1/ 1513	0.07%	15-Aug-17	364%
JE-190	JT	Victoria Tower	Lattice Mast	0.001501	1/ 666	0.15%	20-Sep-23	0.00487504	1/ 205	0.49%	08-Jun-17	-69%
JE-159	JT	Rozel Rovers	Monopole	0.000805	1/ 1243	0.08%	20-Sep-23	0.00227814	1/ 439	0.23%	09-Jun-17	-65%
JE-216	Airtel, Sure	Le Marais Flats	Rooftop	0.000165	1/ 6050	0.02%	19-Sep-23	0.000013072	1/ 76502	0.0013%	23-Sep-22	1164%

# Key Findings from the 2023 audit

All the sites measured in 2023 were below the recommended ICNIRP Reference Levels and complied with ICNIRP's guidelines on emission levels for *General Public*.

Variations observed in 2023 are normal and would be the result of changes made to the sites by the operators (changes of technology, addition of channels, decommissioning of some technologies), variations to the ambient emission levels (from nearby sites), expected variability of radiowave propagation, and changes in the actual location of the measurement probe. They were however relatively modest and nothing suggest that these sites will exceed the ICNIRP limit during operation.

Below are the only 4 sites surveyed in 2023 with levels above 1% of ICNIRP but below 13.4% – all the other 11 sites surveyed in 2023 had emissions levels lower than 1% of ICNIRP.

## Sand Street car park 13.4% (site JE-161)

The total emission level at this public car park was measured at 13.4% of ICNIRP (previously measured at 20% in 2019, 11.7% in 2020, 7.9% in 2021 and 5.8% in 2022). This is still well within the ICNIRP guidelines limit and has seen changes in its emission levels through the years, but always remaining within the ICNIRP guidelines. This site is not a concern, but because it is higher than most sites it should be closely monitored for any changes and kept on the test list for the next audit.

The proximity of the high-power antenna to the public using the rooftop car park, and the presence of other sites in the surrounding area collectively contribute to the overall levels observed.

## Kensington Place car park 9.4% (JE-092)

The total emission level at this private car park was measured at 9.37% of ICNIRP (very close to the 12.6% level measured in 2021 and 13% measured in 2022). This was the second highest measured sites of 2023 (and highest in 2022). All 3 operators are now fully active on this site and use most if not all of their spectrum allocation. We consider the low height of this site's antennas as the main contributor to its higher levels, notwithstanding those levels still remain significantly lower than the ICNIRP guideline levels.

We recommend that the site be included in next year's mast audit as a precaution.

## St Aubin's Harbour 3.6% (site JE-168)

The Total emissions level at St Aubin's Harbour was measured at 3.56% of ICNIRP (down from 5.1% measured back in 2017, 6.6% in 2021 and 4.5% in 2022). This site is used by a single operator (JT) and was previously deemed to be too high emissions and too close to the public. As a result, it was raised in 2021 by approximately 50cm by the operator.

It is however most likely not to be touch-safe and should therefore be monitored regularly and kept on the site list of future audits.

## St Aubin's Pier 2.9% (sites JE-170&171)

St Aubin's Pier site is host to 2 separate antennas from Airtel and Sure, both sharing very close locations. The total emission level at the site was measured at 4.3% of ICNIRP in 2020, 5.6% in 2022 and 2.94% in the latest 2023 audit, remaining a comparable levels over the past few years. The site still hosts the 2 operators currently.

# Photo pack – sites with emission levels >1% of ICNIRP



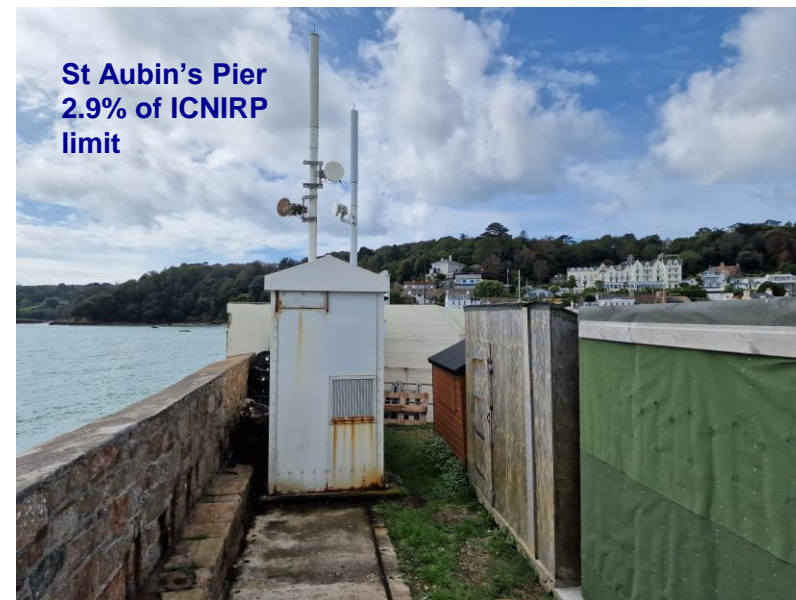
**Sand Street  
Car Park –  
13.4% of  
ICNIRP limit**



**St Aubin's  
Harbour  
3.6% of  
ICNIRP  
limit**



**Kensington  
Place Car Park  
9.4% of ICNIRP  
limit**



**St Aubin's Pier  
2.9% of ICNIRP  
limit**

# Other Findings from the 2023 audit

## Le Marais Flats 0.02% (site JE-216)

The Total emission level at The Marais Flats site was measured at 0.02% of ICNIRP in 2023 (up from 0.0013% in 2022 - a new site back then).

This site was initially used by a single operator (Airtel) in 2022 but was then upgraded to include a 2nd operator (Sure). Due to its high position (located on the rooftop of a 14-storey high block of flats) it is a very low emission level site and should not be a cause for concern.

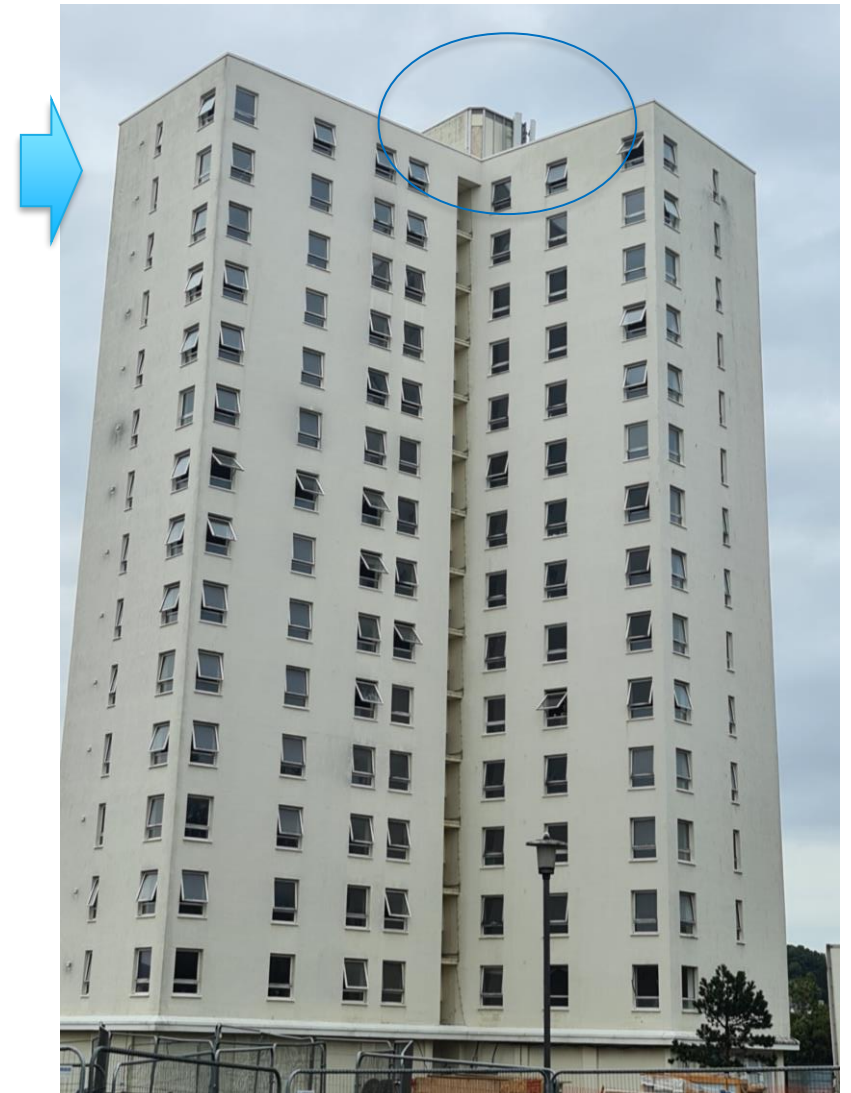
The high increase compared to 2022 is most likely due to the fact that in 2022 the building was still being renovated and the site could have been turned down.

But regardless of this fact, the total EQ measured at Le Marais Flats is insignificant at 0.02% of ICNIRP and should not be a cause for concern.

## Castle Quay Apartments 0.31% (site JE-022)

The Castle Quay Apartments site was surveyed back in 2017 with a level of 0.07%, so well below the ICNIRP level. In 2023, the emission levels rose to 0.31% possibly as a result of changes made by the network operator to this site but also by the addition of Airtel to the site.

Despite this increase, the level at the site remains insignificant and this site should therefore not be of any concern, particularly given that the antennas are located within an internal secure courtyard and access to the antennas is not possible without climbing aid.



# Conclusions and Recommendations

The emission levels measured at all the sites in 2023 were below the ICNIRP guideline levels for the *General Public*. The findings are consistent with previous years where sites measured the highest in comparison with other sites were generally found to be ranked the highest again this year.

## Conclusions

Looking at the last 3 years of audits, we can draw the following observations:

- All the sites are safe and well within the ICNIRP recommended guideline levels, but a few sites in Jersey can be seen as being higher than the majority of the sites. These sites have aggregated emission levels of between 2.9-13.4% of ICNIRP (comparable to those measured in 2021 or 2022) indicating the emission levels have remained relatively constant over the last 12 to 24 months.
- In general, these sites are rooftop macrocells (i.e. serving a wide area) but located in proximity to where the public has access (rooftop car parks for example).
- Even with changes to these sites over the years (addition of new technologies, channels and new operators joining the site) these sites are still well below the ICNIRP Guideline levels.
- The sites in rural locations were in the vast majority of cases measured with low emission levels in previous audits and as such remain of no concern to the local community.
- Concerns expressed by some residents about emissions, in particular around the Rozel Rovers site, have been noted and investigated further with no evidence showing any increase or concerning levels in the area.

## Recommendations

From the above conclusions, and as stated in the previous year's reviews, we recommend that an audit of RF emissions is carried out next year on a carefully selected number of sites rather than carry out a blanket audit of all the sites on Jersey. The latter is a significant undertaking and will include a large proportion of sites that have low emission levels and do not generally cause concern to the local residents (e.g. indoor sites, rural sites, sites at the top of high mast structures or in private compounds,...). The addition of 5G transmissions in the future may change this position as 5G transmits over a much wider bandwidth and a baseline audit of the whole site estate on the island is advisable.

As mobile technology evolves, it is also important to continue to respond to any concern expressed by the public, demonstrate that audits are transparent, regular and conducted by independent firms. The audits generally attract a lot of media attention during their execution, and should be used by the JCRA as a platform to reiterate that emission levels on the islands are at a safe level and shouldn't be the cause of any concern.

ICNIRP regularly review and comment new research material and any significant findings are incorporated into the guidelines, so it is important that JCRA keeps up to date with any changes to these guidelines which might affect the current findings which are benchmarked against these guidelines. So far, the guideline levels have not been updated since their initial publication in 1998 despite reviews of their initial findings approximately every 10 years (2 reviews have been published so far and none have indicated the need to revise ICNIRP's original guidelines).



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## 2024 Audit

In addition to the sites that will be assessed and included as part of the normal process (new sites, upgraded sites, 2023 high reading sites), the site list for next years' audit should include:

- Carrefour (La Rue de La Font St Martin, St Lawrence)
- La Mare car park (kiosk la Mare, La Grande Route de la Cote, St Clement)
- Portelet Hotel (Le Chemin du Portelet, St Brelade)
- St John's Ambulance (La Grande Route de Saint-Martin)

Coordinates of these sites need to be confirmed and checked with the operators to ensure they have not been accounted for under a different name.



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