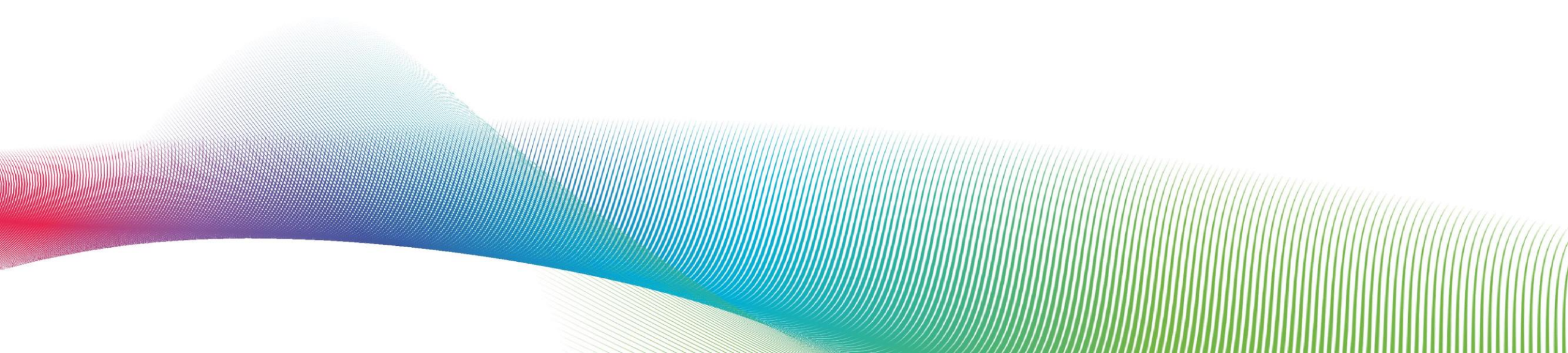




Summary Report for the Jersey Mast Emissions Audit 2024

November 2024

Final version



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A total of 19 sites were surveyed in Jersey in 2024. The surveys measured the levels of Electromagnetic field emissions from the sites and verified 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 2024 was dictated by whether they were:

- New, additional operator(s) joining the site or the site been relocated in the past 12 months
- 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)
- Sites measured in the previous year with the highest emission levels

The Table overleaf shows the emission levels measured at the sites audited in 2024 (blue columns) and compares them against the levels previously measured at these sites (between 2017 to 2023) as a ratio to the ICNIRP levels (yellow columns).

The arrows on the last column on the right indicate whether the site's emission level went up, down or remained stable since the site was last audited. We used an arbitrary $\pm 20\%$ tolerance in year on year level changes when considering that a site remained stable from the previous survey.

New sites audited in 2024 will have no emission level history.

The full set of reports for the sites audited in 2024 as well as those audited in previous years can be found in <https://mastaudits.jcra.je/>

ICNIRP are a non-profit organisation that provides scientific advice and guidance on the health and environmental effects of non-ionizing radiation (NIR) to protect people and the environment from detrimental NIR exposure. Its activities include determining exposure limits for electromagnetic fields used by devices such as cellular phones and masts. It is these guideline limits which are tested against for the purpose of this mast audit.

ICNIRP does not receive money from industry, its funding stems from subsidies granted by national and international public institutions

Summary of measured emission levels - 2024

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 guidelines.

The Total Exposure Quotient (TEQ) for each site is calculated across all detected cellular frequency bands. A Total EQ close to 1 would mean that emission levels approach the safety limit advised by ICNIRP.

| Unique Site ID | Operator(s) | Site Name - Address | Site type | 2024 audit | | | Previous most recent audit | | | TEQ Change |
|-----------------|------------------|----------------------------------------------------------------------|--------------|---------------|---------------------------------|------------------|----------------------------|-------------------------------------|-------------------------|------------|
| | | | | 2024 Total EQ | 2024 TEQ as a % of ICNIRP Limit | 2024 Survey date | Previous Audit Total EQ | Previous TEQ as a % of ICNIRP Limit | Date of previous Survey | |
| JE-161 | Airtel, JT, Sure | Sand Street car park - Sand Street | Rooftop | 0.59023 | 59.02% | 12-Sep-24 | 0.13440 | 13.44% | 19-Sep-23 | △ |
| JE-092 | Airtel, JT, Sure | Kensington Place car park - Kensington Place | Rooftop | 0.19983 | 19.98% | 12-Sep-24 | 0.09367 | 9.37% | 19-Sep-23 | △ |
| JE-168 | JT | St Aubins Harbour - Sub Station, Le Boulevard | Outdoor Wall | 0.05032 | 5.03% | 14-Sep-24 | 0.03558 | 3.56% | 21-Sep-23 | △ |
| JE-215 | Airtel, JT, Sure | Beaumont Home Centre - La Rue du Craslin | Monopole | 0.02652 | 2.65% | 13-Sep-24 | 0.00714 | 0.71% | 21-Sep-22 | △ |
| JE-169 | JT | St Aubins Kiosk - Kiosk outside parish church | Kiosk | 0.02307 | 2.31% | 14-Sep-24 | 0.01002 | 1.00% | 12-Jun-17 | △ |
| JE-222 | JT | Hotel de France - St Saviours Road | Rooftop | 0.01685 | 1.68% | 14-Sep-24 | N/A | N/A | N/A | |
| JE-112 | JT | Le Maistre Bros - La Rue de la Piece Mauger | Monopole | 0.01294 | 1.29% | 13-Sep-24 | 0.00074 | 0.07% | 13-Aug-17 | △ |
| JE-018 | Airtel, Sure | Bouley Bay Public Toilet - Bouley Bay, Les Charrieres du Boulay | Monopole | 0.01148 | 1.15% | 14-Sep-24 | 0.00509 | 0.51% | 20-Sep-23 | △ |
| JE-066 & JE-067 | Airtel, JT | Forum House - No1 The Forum, Grenville Street | Rooftop | 0.00954 | 0.95% | 14-Sep-24 | 0.00020 | 0.02% | 01-Oct-20 | △ |
| JE-224 | JT | Midvale Road Car Park Kiosk - Midvale Road car park | Kiosk | 0.00778 | 0.78% | 14-Sep-24 | N/A | N/A | N/A | |
| JE-227 | JT | St John's Ambulance - St Martin's Hall, La Grande Route de St Martin | Monopole | 0.00506 | 0.51% | 13-Sep-24 | N/A | N/A | N/A | |
| JE-226 | Sure | Portelet Hotel - Field B673, Le Chemin de Noirmont | Monopole | 0.00485 | 0.49% | 13-Sep-24 | N/A | N/A | N/A | |
| JE-017 & JE-185 | JT | Water's Edge Hotel - Bouley Bay (pump room) | Monopole | 0.00409 | 0.41% | 14-Sep-24 | 0.00044 | 0.04% | 08-Jun-17 | △ |
| JE-221 | Sure | Carrefour - La Grande Route de St Laurent | Monopole | 0.00399 | 0.40% | 14-Sep-24 | N/A | N/A | N/A | |
| JE-022 | Airtel, JT | Castle Quay A - Castle Quay Apartments, Block A, Waterfront | Indoors | 0.00398 | 0.40% | 13-Sep-24 | 0.00306 | 0.31% | 21-Sep-23 | △ |
| JE-223 | Airtel, JT, Sure | Hue Court - 5-49 Hue Court, Hue Street | Rooftop | 0.00349 | 0.35% | 12-Sep-24 | N/A | N/A | N/A | |
| JE-225 | JT | La Mare Car Park Kiosk - La Mare car park | Kiosk | 0.00285 | 0.28% | 13-Sep-24 | N/A | N/A | N/A | |
| JE-132 | JT | Le Mont Isaac - Coin Tourgis Nord | Monopole | 0.00181 | 0.18% | 14-Sep-24 | 0.00358 | 0.36% | 13-Aug-17 | ▽ |
| JE-228 | JT | Tamarind - Les Monts des Vignes | Outdoor Wall | 0.00003 | 0.00% | 13-Sep-24 | N/A | N/A | N/A | |

Key Findings from the 2024 audit (page 1 of 2)

All the sites measured in 2024 were below the recommended ICNIRP Reference Levels and complied with ICNIRP's guidelines on emission levels for *General Public*.

Variations observed in 2024 are normal and would be the result of changes made to the sites by the operators (changes of technology such as migrating sites from 3G to 4G, addition of channels, decommissioning of some technologies), hardware changes, variations to the ambient emission levels (from nearby sites), expected variability of radiowave propagation, and changes in the actual location of the measurement probe.

It is evident from the previous table that the changes noted year-on-year generally follow a trend towards increasing overall levels, but there is no indication to suggest that these sites will exceed ICNIRP guidelines' limit during operation.

A total of 8 sites surveyed in 2024 showed levels above 1% of ICNIRP guidelines – all the other sites surveyed this year had emissions levels lower than 1%.

Sand Street car park 59.02% (site JE-161)

The total emission level at this public car park was measured at 59.02% of ICNIRP guidelines, so just over half the recommended levels (previously measured at 20% in 2019, 11.7% in 2020, 7.9% in 2021, 5.8% in 2022 and 13.4% in 2023). The proximity of the high-power antennas 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.

This is still within the ICNIRP's reference limit and has seen changes in its emission levels through the years, but always remaining compliant with ICNIRP. This site should be closely monitored for any changes and kept on the test list for the next audit.

Kensington Place car park 19.98% (JE-092)

The total emission level at this private car park was measured at 19.98% of ICNIRP guidelines, remaining in the same order of magnitude as the 12.6% measured in 2021, 13% in 2022 and 9.37% in 2023. This was the second highest measured sites of 2024 (and second highest in 2023 as well). All 3 operators are fully active on this site and use a full 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 5.03% (site JE-168)

The total emissions level at St Aubin's Harbour was measured at 5.03% of ICNIRP guidelines, similar to the 5.1% measured back in 2017, 6.6% in 2021, 4.5% in 2022 and 3.56% in 2023. This site is used by a single operator (JT) and due to previous years' results and ease of access to the general public, this site will continue to be considered as a high priority for future audits.

Key Findings from the 2023 audit (page 2 of 2)

Beaumont Home Centre 2.65% (sites JE-215)

Beaumont Home Centre is host to 2 separate monopoles hosting antennas from Airtel and Sure on one monopole and JT on the other. The total emission level at the site was measured at 0.71% of ICNIRP guidelines in 2022, remaining a comparable levels over the past couple of years. The recorded levels are however very low and of no concern to the public.

St Aubin's Kiosk 2.31% (site JE-169)

The total emissions level at the kiosk outside St Aubin's parish church was measured at 2.31% of ICNIRP guidelines, it was at 1% back in 2017. This site is used by a single operator (JT) with limited technologies and spectrum bands. As a result, it is most likely that levels will remain relatively constant unless major changes are brought about by the operator.

Hotel de France 1.68% (site JE-081)

The total emission level at Hotel de France was measured at 1.68% of ICNIRP guidelines. The levels are however very low and of no concern to the public.

Le Maistre Bros 1.29% (site JE-112)

The total emission level at Le Maistre Bros was measured at 1.29% of ICNIRP guidelines (0.07% in 2017). The levels are very low and of no concern to the public.

Bouley Bay Public Toilet 1.15% (site JE-018)

The total emissions level at Bouley Bay Public Toilet was measured at 1.15% of ICNIRP guidelines (0.51% in 2023). This site is used by a two operators (Airtel and Sure), but only one operator was live at the time of the survey in 2023, which explains the year-on-year increase. The site is located in a remote part of the island and sees very little activity out of season as measured on September 14th.

The recorded levels are very low and of no concern to the public.

Photo pack – sites with emission levels >1% of ICNIRP (1 of 2)

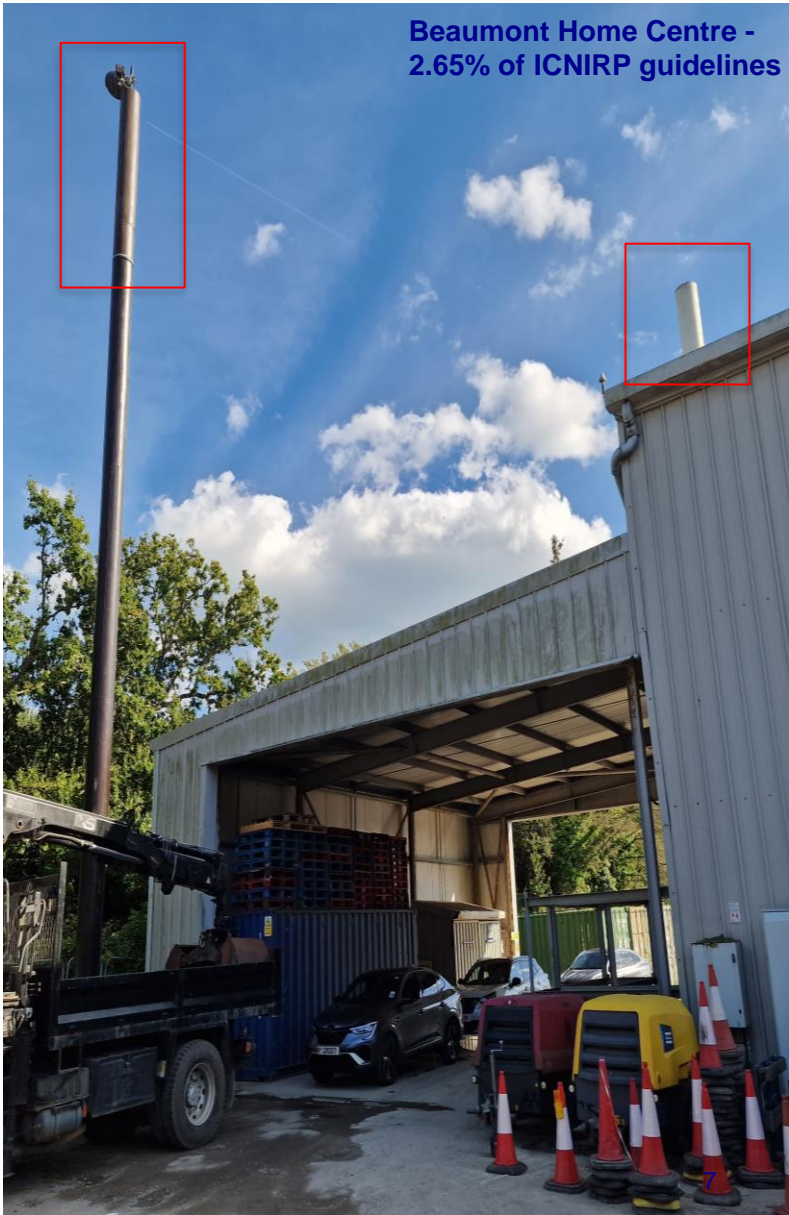


◀ Sand Street Car Park –
59.02% of ICNIRP
guidelines

St Aubin's Harbour
5.03% of ICNIRP guidelines ▶

Kensington Place Car Park –
19.98 % of ICNIRP guidelines

◀ ▶



Beaumont Home Centre -
2.65% of ICNIRP guidelines



Photo pack – sites with emission levels >1% of ICNIRP (2 of 2)

**St Aubin's Kiosk (outside parish church) -
2.31% of ICNIRP guidelines**



Conclusions and Recommendations

The emission levels measured at all the sites in 2024 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.

This year's findings confirm that:

- All the sites are safe and within the ICNIRP recommended guideline levels.
- 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 1.1% and 59% of ICNIRP guidelines.
- 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.
- In 2024, Kensington Place car park and Sand Street car park stand out from the rest of the audit sample. These two sites are safe and within the ICNIRP guidelines levels. Their operators use most of the spectrum and carriers licensed to them, resulting in the levels observed. Given the historical data and the fact these sites operate on full spectrum allocation, there is no evidence to suggest that they will increase beyond the safety levels recommended by ICNIRP.
- It is also worth noting that Sand Street and Kensington Place car parks were tested on the same day as the Jersey International Air Display. It is expected that these two sites would be running at near capacity during the show's busy hours.

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 Jersey sites.

The following advice should also be taken into account when planning and executing the next set of audits:

- Review the advice regularly published by ICNIRP regarding exposure to electromagnetic emissions to ensure the limits these audits are compared against are current and relevant.
- Continue to respond to concerns expressed by the public, by offering them advice and by continuing to publish the emission level reports to provide them with factual data about emissions in their neighbourhood
- Demonstrate that the on-going audits are transparent, regular and conducted by independent firms.
- The anticipated addition of 5G transmissions may mean extending next year's audit to a wider sample of sites across the island since not all sites will be upgraded to 5G initially.
- For Kensington Place and Sand Street car parks, we recommend that JCRA communicate the findings with the operators to ensure levels remain within the ICNIRP guidelines. We recommend that operators inform JCRA of any planned changes to their systems at these two sites, and that the changes are reviewed by JCRA and their independent consultants before they are implemented by the operators, particularly if they are likely to lead to increased emission levels. We recommend that these two sites are kept on the list of sites to audit in 2025.
- In addition to the sites that will be assessed and included as part of the normal site selection process, the site list for next years' audit should also include:
 - Green Street car park (existing site but not tested yet)



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