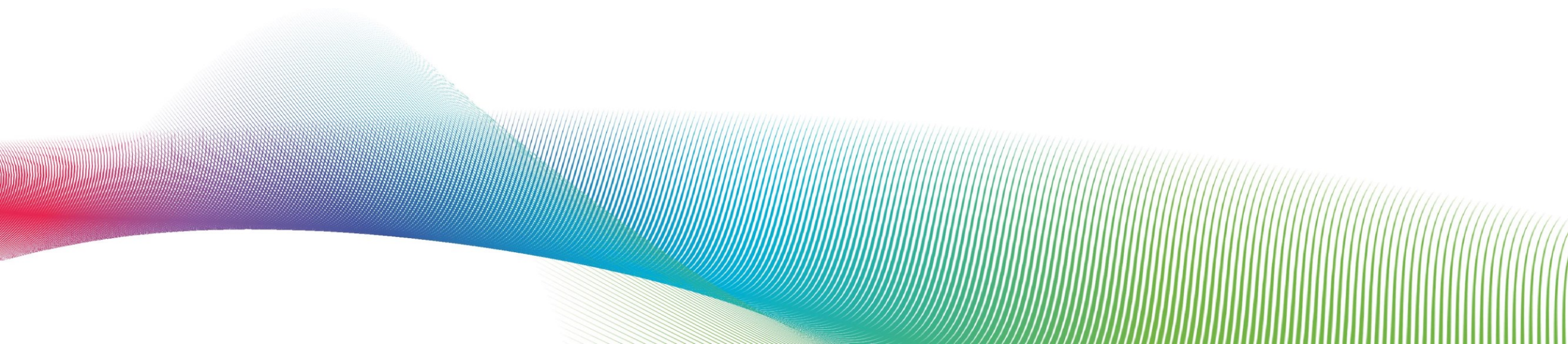




Summary Report for the Jersey Mast Emission Audits 2022

09/11/2022



1. Overview
2. Summary Emission Levels - 2022
3. Key Findings from the 2022 surveys
4. Other Findings
5. Conclusions and Recommendations
6. Photo pack

A total of 16 sites were surveyed in Jersey in 2022.

The choice of sites audited in 2022 was dictated by whether they were:

- New or relocated (6 sites)
- Major changes made by the operator to the site, e.g. addition of new technologies such as 4G at 2600MHz or refarming of technologies (3 sites)
- Sites measured in the previous years with the highest emission levels (4 sites)
- Sites where a local resident expressed concerns (1 site)

The Table overleaf shows the emission levels measured at the sites audited in 2022 (blue columns) and compares them to the levels previously measured at these sites (2017 to 2021) as a ratio to the ICNIRP levels (yellow columns).

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

The 6 new sites audited in 2022 have no emission level history.

Living Legend was measured in 2021, and was audited again in 2021 following local residents concern about emission levels from the site.

Summary of measured emission levels - 2022

2022 survey

Previous most recent survey

Unique Site ID	Operator(s)	Site Name	Site Address	Parish	2022 Total EQ	Total EQ as a ratio	2022 % ICNIRP	2022 Survey Date	Previous Total EQ	Total EQ as a ratio	% ICNIRP	Previous Survey Date	Yearly change
JE-092	JT,Sure	Kensington Car Park	59 Kensington Place	St Helier	0.13014	1/ 8	13.014	22-Sep-22	0.126064	1/ 8	12.606	01-Oct-21	3.24%
JE-099	JT	La-Mare	La Rue de la Mare, Les Mielles	St Ouen	0.00038	1/ 2665	0.038	21-Sep-22	0.000727	1/ 1376	0.073	05-Jun-17	-48.38%
JE-120	JT	Living Legend	La Rue du Petit l'Aleval	St Peter	0.00681	1/ 147	0.681	22-Sep-22	0.015916	1/ 63	1.592	30-Sep-21	-57.18%
JE-150	Airtel	Radisson Hotel	Elizabeth port	St. Helier	0.00173	1/ 579	0.173	22-Sep-22	0.000994	1/ 1006	0.099	21-Jul-17	73.64%
JE-161	JT	Sand Street car park	Sand Street Car Park	St Helier	0.05855	1/ 17	5.855	22-Sep-22	0.079588	1/ 13	7.959	01-Oct-21	-26.44%
JE-168	JT	St Aubin's Harbour	Sub Station, Le Boulevard	St Aubin	0.04501	1/ 22	4.501	21-Sep-22	0.066517	1/ 15	6.652	02-Oct-21	-32.34%
JE170&JE-184	Airtel, Sure	St. Aubin's Pier	St Aubin Bay Pier South, off La Neuve Route	St Aubin	0.0567	1/ 18	5.670	21-Sep-22	0.04322	1/ 23	4.322	01-Oct-20	31.20%
JE-184	Airtel, Sure	JEC Powerhouse	Queen's Road	St Helier	0.00809	1/ 124	0.809	21-Sep-22	0.00047	1/ 2127	0.047	20-Jul-17	1621.75%
JE-201	Airtel, Sure	Grand Marche	la Rue le Masurier	St Helier	0.02084	1/ 48	2.084	22-Sep-22	0.050697	1/ 20	5.070	01-Oct-21	-58.89%
JE-207	Sure, JT,Airtel	Windsor Court	Windsor Rd	St Helier	0.00119	1/ 843	0.119	22-Sep-22	0.002149	1/ 465	0.215	01-Oct-21	-44.79%
JE-212	JT	Barclays	5-6 Esplanade	St Helier	0.00017	1/ 5789	0.017	23-Sep-22	not surveyed previously				
JE-213	Airtel	Newtel Offices	Off La Grande Route de St Pierre	St Peter	0.00062	1/ 1617	0.062	23-Sep-22					
JE-214	JT	JCG	JCG carpark, Bagatelle road	St Saviour	0.00762	1/ 131	0.762	23-Sep-22					
JE-215	JT, Airtel	Beaumont Home Centre	La Rue Du Craslin	St Peter	0.00714	1/ 140	0.714	21-Sep-22					
JE-216	Airtel	Le Marais Flats	Le Petit Marais	St Clement	1.3E-05	1/ 76502	0.001	23-Sep-22					
JE-217	JT	Waterfront	Rue de l'Etou	St Helier	0.00018	1/ 5571	0.018	22-Sep-22					

Key Findings from the 2022 surveys

All the sites measured in 2022 complied with ICNIRP's guidelines on emission levels for General Public.

Variations observed in 2022 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 a few examples of sites surveyed in 2022 – all the other sites surveyed in 2022 had emissions levels lower than 1% of ICNIRP.

Kensington Place car park 13.0% (JE-092)

The total emission level at this private car park was measured at 13.0% of ICNIRP (very close to the 12.6% level measured in 2021). This was the highest measured sites of 2022 (and 2021). 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. In order to satisfy ourselves that there are no technical issues with this mast, we recommend that it be included in next year's mast audit as a precaution.

Sand Street car park 5.8% (site JE-161)

The total emission level at this public car park was measured at 5.8% of ICNIRP (down from 20% in 2019 and 11.7% in 2020 and 7.9% in 2021). This is still well within the ICNIRP guidelines limit and has seen a gradual decrease in its emission levels for unexplained reasons (could have been the level of usage at the site in recent years declining). 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 close 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.

St Aubin Pier 5.6% (sites JE-170&171)

St Aubin Pier site is host to 2 separate antennas from Airtel and Sure, both sharing the same location. The total emission level at the site was measured at 5.6%, remaining almost constant compared to the 2020 levels where the site was measured at 4.3% of ICNIRP. The site still hosts 2 operators currently.

St Aubin Harbour 4.5% (site JE-168)

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

Co-operative Grand Marché 2.1% (site JE-201)

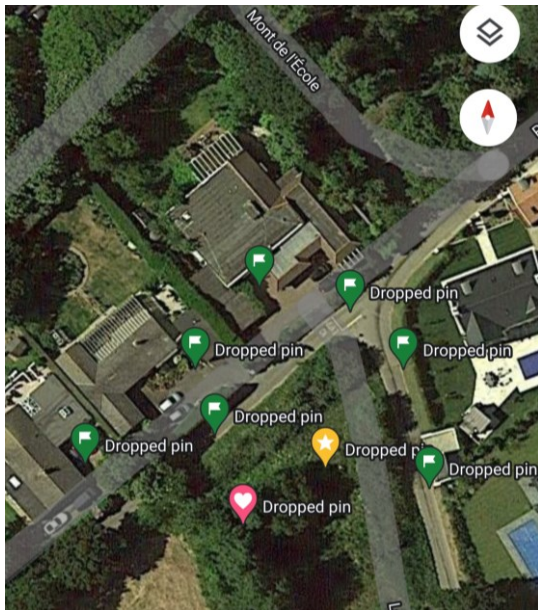
The Total emission level at Co-operative Grand Marché was measured at 2.1% of ICNIRP (down from 5.1% in 2021 and 4.2% in 2020). This site is used by 2 operators since 2019 (Airtel and Sure) and remained relatively constant over the past year. Members of the public can get close to the high power antennas (but close contact isn't possible without climbing aid), so this site should therefore be kept on the watchlist for future audits.

Other Findings from the 2022 surveys

Living Legend 0.68% (site JE-120)

The Total emission level at Living Legend was measured at 1.6% of ICNIRP in 2021 (up from 0.5% in 2017). This site is used by a single operator (JT) but was upgraded from a temporary structure to a permanent monopole site in 2020-21. It is still a very low emission level site and should not be a cause for concern.

In 2022, the site was raised as a concern by the local residents and a thorough survey was therefore conducted this year, focusing on the surrounding properties when searching for the location of the peak reading around the site (see image of test locations below).



During the 2022 survey, the emission levels were measured at 0.68% of ICNIRP, about 147 times smaller than the ICNIRP limits. This site is deemed to be safe and should not be a concern to the local residents or members of the public.

JEC Powerhouse 0.81% (site JE-184)

JEC Powerhouse was surveyed back in 2017 with a level of 0.047%, an insignificant emission level. In 2022, the emission levels rose to 0.81% possibly as a result of changes made by the network operator to this site. But despite this large 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 a secure fenced business compound and access to the antennas is highly regulated.

The red heart pin is the antenna 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

Conclusions and Recommendations

The emission levels measured at all the sites in 2022 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 found to be ranked high again this year.

Observations

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 2-13% of ICNIRP (compared to 5-12.6% of ICNIRP in 2021, indicating the emission levels have remained relatively constant over the last 12 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).
- Changes to these sites over the years (addition of new technologies, channels and new operators) have not caused sufficient increases in the level of emissions to tip their emission levels over the ICNIRP guideline levels
- The sites in rural locations were in the vast majority of cases measured with low emission levels.
- Concerns expressed by some residents about emissions, in particular around the Living Legend site, have been noted and investigated further with no evidence showing any increase or concerning levels in the area.

Recommendations

From the above observations, 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 takes too long to complete 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 reviews and comments 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).

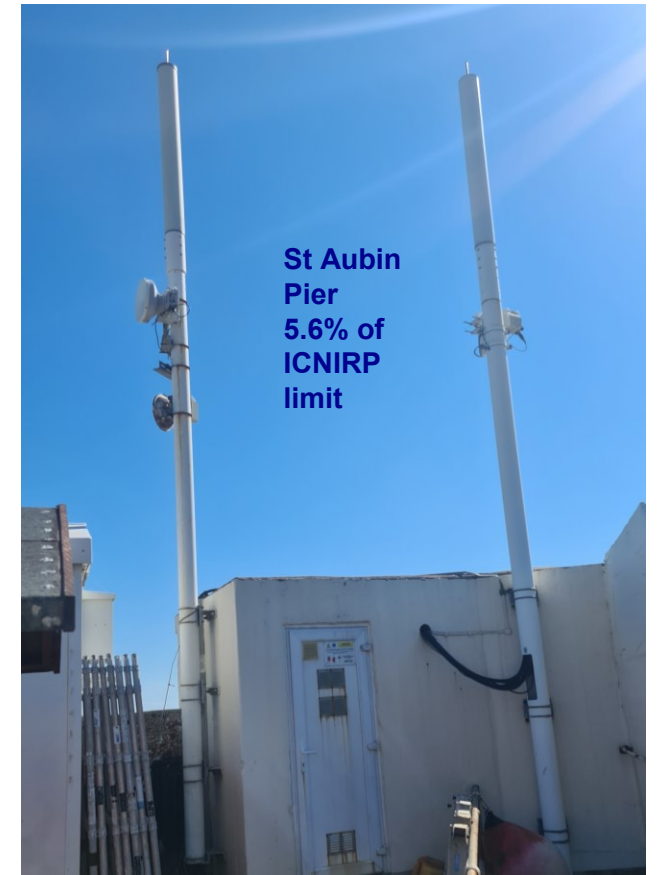
Photo pack – sites with emission levels between 1% and 13%



**Sand Street Car Park –
5.8% of ICNIRP limit**



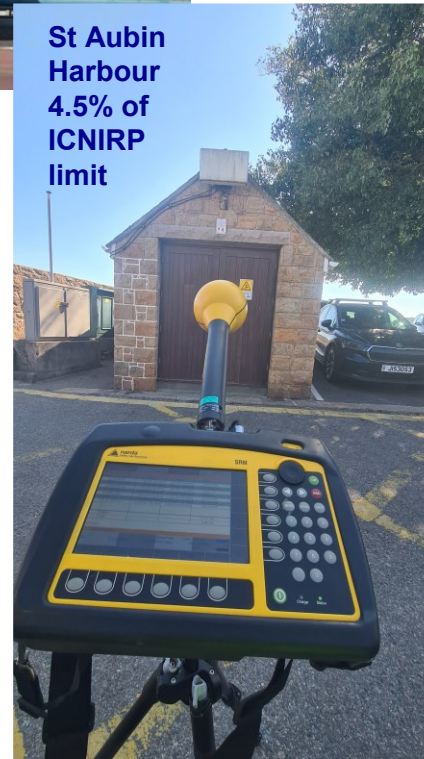
**Grand Marché -
2.1% of ICNIRP limit**



**St Aubin
Pier
5.6% of
ICNIRP
limit**



**Kensington
Place Car Park
13.0% of
ICNIRP limit**



**St Aubin
Harbour
4.5% of
ICNIRP
limit**



FreshWave Group

You've got network

Indoors • Outdoors • Masts

