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To: [City of Gold-Coast-MAIL](#)
Subject: Application reference MCU/2023/15
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Attachments: [GC Submission.docx](#)

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Gold Coast Council,
Please find attached my submission for the proposed development,
Thanks,
Bruce Williams

The EME levels for the 239-241 Boundary Street Coolangatta proposed development.

Reference MCU/2023/15

I have a few concerns regarding the loss of ocean views which will affect both enjoyment of the view and loss of value to our property prices as the overflow parking (insufficient parking spots within the building) will make traffic movement difficult. Other residents will mention that they will see a 16 story tower with 34 apartments looking back in to their apartments with loss of privacy but it seems that this is the new normal for Rainbow Bay.

However, I might bring to your attention an invisible problem of how the building might be affected by the local cell tower. The radiation from any cell tower is invisible and is measured by EME levels and it depends on the lobes of the antenna transmission. Figure (c) illustrates the lobes.

The Gold Coast Council had no control over the Low Impact decision for Rainbow Commodore 255-261 Boundary Street Rainbow Bay as the determination of Low Impact (LI) was made by Optus. I have written a letter to the Minister regarding this LI determination on the basis of the size of the tower/infrastructure needed to support the antenna. (This letter and response can be supplied if required.) This is the basis of whether an installation is LI.

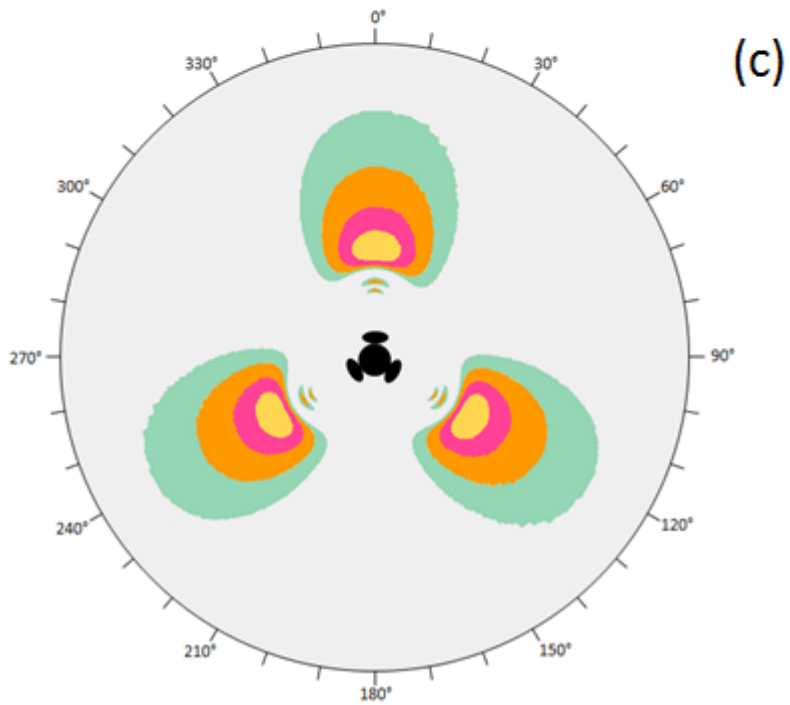
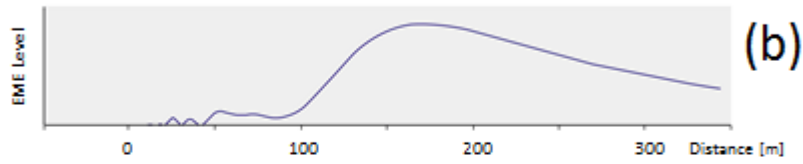
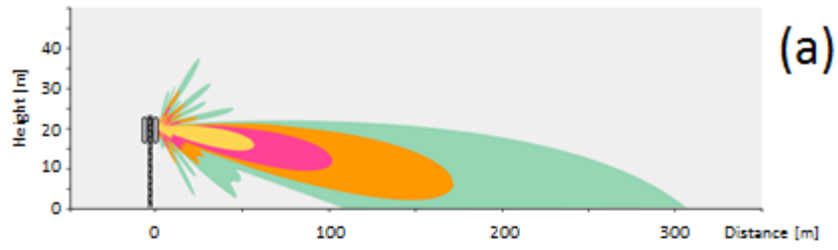
In short, "The problem is that from the drawings I cannot determine if it is a 10 meter cell tower bolted to the top of the building or a 5 meter cell tower attached to the plant building which is above the building top concrete floor. The second would not have the strength for wind shear and weight, in my opinion, without strengthening. There is a mention in the drawings of a steel beam support. This may give the support needed." Their defence is that the height from the top of the lift plant room to the bottom of the antenna is within limits for LI.

This tower has been placed in a residential; location which causes high levels of EME for bedrooms close to the cell tower. Bedrooms are different as a long period of time is spent in them as opposed to a commercial site where people do not linger. There is a legal term called foreseeability which means that if a person on the street can foresee that problems that could have been avoided had not been avoided then damages will arise. Putting a cell tower in a high density residential location is a situation which requires careful monitoring for EME levels. Figure (b) is the key to seeing peak EME.

The latest Environmental EME Report (18/09/2023) on the RFNSA website under location 4225010 shows a high percentage of public exposure at Border Terrace which is across the road from the planned development. The profile in figure (a) is useful for understanding.

Original planning documents and community consultations were for only 3G and 4G with promises of no 5G. The percentage of public exposure limit were much lower. Since then by various upgrade methods not involving community discussions 5G has been added with their associated higher levels.

The diagram below represents the EME position.



239-241 Boundary Street Coolangatta situation

This table contains calculations of the maximum EME levels at selected areas of interest, identified through consultation requirements of the [Communications Alliance Ltd Deployment Code C564:2020](#) or other means. Calculations are performed over the indicated height range and include all existing and any proposed radio systems for this site.

Maximum cumulative EME level for the proposed configuration

Location	Height range	Electric field (V/m)	Power density (mW/m ²)	Percentage of the public exposure limit
Maili Resort	0-30 m	11.69	362.52	3.72%
Rainbow Bay Resort	0-30 m	19.73	1032.56	10.89%
Domestic Building - South	0-7 m	10.50	292.45	3.05%
Boundary Lane Apartment Building 1	0-25 m	19.16	973.34	11.89%
Border Terrace building	0-36 m	19.69	1028.25	12.78%
Carlin Family Park	0-2 m	7.42	146.19	1.58%
Carool Holiday Apartments	0-55 m	13.28	467.49	6.51%
Boundary Lane Apartment Building 2	0-12 m	12.38	406.76	5.35%
Park on Hill Street near Eden Street	0-2 m	10.36	284.67	3.51%
Captain Cook Memorial	0-2 m	9.77	253.32	3.16%
Cnr Hill Street and Eden Street	0-2 m	8.80	205.45	2.70%
The Nielsen on the Park building	0-45 m	7.10	133.82	1.88%
Greenmount Point	0-2 m	4.86	62.75	0.83%

<https://www.rfnsa.com.au/embed-public-report-pdf/Z0FBQUFBQmw5LWc2RHMwcnhvVTNvVkJUNORrcTIWShRYRmZERnJ3VHY2cXItNEZ6MGVLDlJwYjZWtIJWQzZTEut5ZFNarXFRTIR2a2oybHIBWEV2Z1ctMDFBN0tCVzJyVOE9PQ==>

The recent calculations by Telstra (in fact they were the ones who informed us of the Optus 5G upgrade) show the EME levels at additional POIs for buildings that were not included in the original report to the community. A figure of 12.78% is shown for Border Terrace with the 5G installation. This is in the EME report prepared by Telstra with the additional POIs which were requested from Optus (attached). As a rule of thumb any calculation above 10% figure is a worry.

I would refer you to a very concise article EME Reporting Process at <https://maratusgroup.com.au/eme-reporting-process/> which explains the EME process and the different types of POIs.

There are three types of Points of Interest (POI) community, topographic and near field. In general there should be at least one Community POI. This may be a school, childcare or aged care facility hospital etc. In addition the closest residence may be used provided it is not too close say < 30m from the site1-Due to the addition of many new technologies at various frequencies, the proposed EME levels may increase significantly above what they were previously. Due to RFMap2 using a flat earth model and the increased power levels, it is important that a near field analysis is done on all sites particularly where there is a change in ground level near the site or where there are tall buildings

nearby and where the EME levels may be higher than expected. (Comment - This is the topology of this site. I have performed near field calculations in the past)

If the "Proposed" EME levels are greater than 10% of the ARPANSA standard either on the ground or at any POI, the site must be escalated to the state EME prime at the SAED Phase –prior to any community consultation activities being undertaken.

The Border Terrace 12.78% and the Boundary Lane Apartments at 11.89% are both of concern. The point is that there are high EMEs at certain POIs at this site.

This raises a key issue, did Optus carry out EME calculations for 5G and chose only the lower 3G and 4G values?

My point of view has always been to look first those predicted POIs from the spatial plot which exceed 10% EME and once identified then a building overlay be made. This shows which buildings are in the hot spots. This is standard practice. The spatial plot shows minor, major and critical POIs which allows better risk management. At these critical sites NATA (actual) measurements) would then be made. The problem of what is a safe level for bedrooms for children then arises. The engineer looks at the margin of safety and that is why the 10% is a worry. Children (pre schools etc) require careful consideration and apartments with bedrooms close to the EME maxima are the worry for a community. The term used is *multistorey residential buildings facing the antennas*. Remember that this cell tower raised EME by 10% or more at certain buildings. The community wanted to know the levels right from the start, rather than a sanitised version devoid of analysis.

The comment in the original report was that the inclusion of additional points of interest by Optus did not exceed the maximum. Telstra with its calculations for 5G certainly exceeded the previous maximum.

My point for this submission is that the cell tower has been placed in a high rise situation which means that any proposed development must consider the EME levels. At what level does the risk become unactable? I would recommend that a NATA report be made to determine actual levels including this proposed development.

Yours sincerely,

Bruce Williams

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