

### MPE Estimates

FCC ID: S57 - 51306343  
Industry Canada ID: 5731-51306343

Multinode 2.4GHz DSSS-FH Radio

| Application    | Antenna Type    | Antenna Part No.       | Transmit Frequency<br>(MHz) | Max Peak Conducted Output Power<br>(mW) | Antenna Gain<br>(dBi) | Minimum Antenna Cable Loss<br>(dB) | Power Density @ 20 cm<br>(mW/cm <sup>2</sup> ) | General Population Exposure Limit from 1.1310<br>(mW/cm <sup>2</sup> ) | Ratio of Power Density to the Exposure Limit |
|----------------|-----------------|------------------------|-----------------------------|---|-----------------------|------------------------------------|--|--|--|
| Integral       | Omni            | Hyperlink HG244P-6     |                             |   |                       |                                    |  |  |  |
| Co-located     | Omni            | Honeywell 51506534-101 | 2,402 - 2,482               | 99.08                                   | 5                     | 0                                  | 0.062  | 1.00   | 0.062333                                     |
| Integral       | Omni            | SMARTANT SA0404-0100   |                             |   |                       |                                    |  |  |  |
| Co-located     | Omni            | Honeywell 51506534-101 | 2,402 - 2,482               | 99.08                                   | 5                     | 0                                  | 0.062  | 1.00   | 0.062333                                     |
| Integral       | Omni            | SmartAnt SAAD5-220920  |                             |   |                       |                                    |  |  |  |
| Co-located     | Omni            | Honeywell 51506534-100 | 2,402 - 2,482               | 99.08                                   | 5                     | 0                                  | 0.062  | 1.00   | 0.062333                                     |
| Remote         | Not Co-located  |                        |                             |   |                       |                                    |  |  |  |
| Not Co-located | Omni            | Hyperlink HG2409U      |                             |   |                       |                                    |  |  |  |
| Not Co-located | Omni            | Honeywell 5018144-001  | 2,402 - 2,483               | 90.36                                   | 8                     | 0.9                                | 0.062  | 1.00   | 0.092195                                     |
| Not Co-located | Sector 120 deg. | Hyperlink HG2414P-120  | 2,402 - 2,484               | 90.36                                   | 14                    | 0.9                                | 0.067  | 1.00   | 0.070334                                     |

Papp =  $(\text{Pemit} * \text{Gnear}) / 4\pi * d^2$   
Gnear = analog(Gdbi/10)

Overall Worst Case Ratio of Power Density to the Exposure Limit: 0.387034  
Worst Case Co-located Antenna Ratio of Power Density to the Exposure Limit: 0.062333

FCC ID: S57-DCMA-82  
Industry Canada ID: 5731-DCMA-82

802.11 (a,b,g) Bridge/Mesh Radio

| Application    | Antenna Type    | Antenna Part No.       | Transmit Frequency<br>(MHz) | Max Peak Conducted Output Power<br>(mW) | Antenna Gain<br>(dBi) | Minimum Antenna Cable Loss<br>(dB) | Power Density @ 20 cm<br>(mW/cm <sup>2</sup> ) | General Population Exposure Limit from 1.1310<br>(mW/cm <sup>2</sup> ) | Ratio of Power Density to the Exposure Limit |
|----------------|-----------------|------------------------|-----------------------------|---|-----------------------|------------------------------------|--|--|--|
| Integral       | Omni            | Air802 ANOM245XM       | 2,412 - 2,482               | 178                                     | 3.5                   | 0                                  | 0.079  | 1.00   | 0.079278                                     |
| Co-located     | Omni            | Air802 ANOM245XM       | 5,745 - 5,825               | 589                                     | 5.3                   | 0                                  | 0.397  | 1.00   | 0.397050                                     |
| Integral       | Omni            | SmartAnt SAAD5-220920  | 2,412 - 2,482               | 147                                     | 5.5                   | 0                                  | 0.104  | 1.00   | 0.103764                                     |
| Co-located     | Omni            | SmartAnt SAAD5-220920  | 5,745 - 5,825               | 330                                     | 8.5                   | 0                                  | 0.465  | 1.00   | 0.464776                                     |
| Not Co-located | Omni            | Hyperlink HG2409U      | 2,412 - 2,482               | 120                                     | 8                     | 0.9                                | 0.122  | 1.00   | 0.122437                                     |
| Not Co-located | Omni            | Hyperlink HG5812U-PRO  | 5,745 - 5,825               | 234.42                                  | 12                    | 1.8                                | 0.488  | 1.00   | 0.488343                                     |
| Not Co-located | Sector 120 deg. | Hyperlink HG2414SP-120 | 2,412 - 2,482               | 88.2                                    | 14                    | 2.4                                | 0.254  | 1.00   | 0.253629                                     |
| Not Co-located | Sector 90 deg.  | Hyperlink HG5817P-090  | 5,745 - 5,825               | 75.86                                   | 17                    | 1.8                                | 0.500  | 1.00   | 0.499739                                     |
| Not Co-located | Yagi 19 deg.    | Telex 5816AB           | 5,745 - 5,825               | 75.86                                   | 16.5                  | 1.8                                | 0.445  | 1.00   | 0.445993                                     |

NOTE: The max peak conducted output power has been reduced from what was tested, in order to comply with MPE limits. This has been accounted for in the professional installation guide EIRP limits.

Also, the SmartAnt SAAD5-220920 was originally tested assuming a worst case gain of 5.5dBi @ 2.4GHz and 8.5 dBi @ 5GHz. The actual gain values are 4dBi @ 2.4GHz and 7dBi @ 5GHz. Refer to Honeywell document 51506534.

This has also been accounted for in the professional installation guide. However, for the MPE calculations the worst case gain values have been used.

| Application    | Antenna Type | Antenna Part No.  | Transmit Frequency | Max Peak Conducted Output Power | Antenna Gain | Minimum Antenna Cable Loss | Power Density @ 100 cm | General Population Exposure Limit from 1.1310 | Ratio of Power Density to the Exposure Limit |
|----------------|--------------|-------------------|--------------------|---------------------------------|--------------|----------------------------|------------------------|---|--|
| Not Co-located | Dish 9 deg.  | Hyperlink HG5824D | 5,745 - 5,825      | 446.69                          | 24           | 1.8                        | 0.590                  | 1.00  | 0.589911                                     |

Overall Worst Case Ratio of Power Density to the Exposure Limit: 0.589911  
Worst Case Co-located Antenna Ratio of Power Density to the Exposure Limit: 0.464776

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802.11 (a,b,g) Access Point / Client Radio

| Application    | Antenna Type    | Antenna Part No.       | Transmit Frequency | Max Peak Conducted Output Power | Antenna Gain | Minimum Antenna Cable Loss | Power Density @ 20 cm | General Population Exposure Limit from 1.1310 | Ratio of Power Density to the Exposure Limit |
|----------------|-----------------|------------------------|--------------------|---------------------------------|--------------|----------------------------|-----------------------|---|--|
| Integral       | Omni            | Air802 ANOM245XM       | 2,412 - 2,482      | 178                             | 3.5          | 0                          | 0.079                 | 1.00  | 0.079278                                     |
| Co-located     | Omni            | Air802 ANOM245XM       | 5,745 - 5,825      | 589                             | 5.3          | 0                          | 0.397                 | 1.00  | 0.397050                                     |
| Integral       | Omni            | SmartAnt SAAD5-220920  | 2,412 - 2,482      | 147                             | 5.5          | 0                          | 0.104                 | 1.00  | 0.103764                                     |
| Co-located     | Omni            | SmartAnt SAAD5-220920  | 5,745 - 5,825      | 330                             | 8.5          | 0                          | 0.465                 | 1.00  | 0.464776                                     |
| Not Co-located | Omni            | Hyperlink HG2409U      | 2,412 - 2,482      | 120                             | 8            | 0.9                        | 0.122                 | 1.00  | 0.122437                                     |
| Not Co-located | Omni            | Hyperlink HG5812U-PRO  | 5,745 - 5,825      | 234.42                          | 12           | 1.8                        | 0.488                 | 1.00  | 0.488343                                     |
| Not Co-located | Sector 120 deg. | Hyperlink HG2414SP-120 | 2,412 - 2,482      | 88.2                            | 14           | 2.4                        | 0.254                 | 1.00  | 0.253629                                     |
| Not Co-located | Sector 90 deg.  | Hyperlink HG5817P-090  | 5,745 - 5,825      | 75.86                           | 17           | 1.8                        | 0.500                 | 1.00  | 0.499739                                     |
| Not Co-located | Yagi 19 deg.    | Telex 5816AB           | 5,745 - 5,825      | 75.86                           | 16.5         | 1.8                        | 0.445                 | 1.00  | 0.445993                                     |

NOTE: The max peak conducted output power has been reduced from what was tested, in order to comply with MPE limits. This has been accounted for in the professional installation guide EIRP limits.

Also, the SmartAnt SAAD5-220920 was originally tested assuming a worst case gain of 5.5dBi @ 2.4GHz and 8.5 dBi @ 5GHz. The actual gain values are 4dBi @ 2.4GHz and 7dBi @ 5GHz. Refer to Honeywell document 51506534.

This has also been accounted for in the professional installation guide. However, for the MPE calculations the worst case gain values have been used.

| Application    | Antenna Type | Antenna Part No.  | Transmit Frequency | Max Peak Conducted Output Power | Antenna Gain | Minimum Antenna Cable Loss | Power Density @ 100 cm | General Population Exposure Limit from 1.1310 | Ratio of Power Density to the Exposure Limit |
|----------------|--------------|-------------------|--------------------|---------------------------------|--------------|----------------------------|------------------------|---|--|
| Not Co-located | Dish 9 deg.  | Hyperlink HG5824D | 5,745 - 5,825      | 446.69                          | 24           | 1.8                        | 0.590                  | 1.00  | 0.589911                                     |

Overall Worst Case Ratio of Power Density to the Exposure Limit: 0.589911  
Worst Case Co-located Antenna Ratio of Power Density to the Exposure Limit: 0.464776

### MPE Estimates for Self Co-located Device

| FHSS Radio Worst Case Ratio of Power Density to the Exposure Limit | 802.11 (a,b,g) Access Point/Client Radio Worst Case Ratio of Power Density to the Exposure Limit | Sum of Worst Case Ratios (Power Density to the Exposure Limit) | FCC Limit for Sum of Worst Case Ratios (mW/cm <sup>2</sup> ) | Sum of Worst Case Ratios (mW/cm <sup>2</sup> ) | PASS |
|--|--|--|--|--|------|
| 0.06233  | 0.46478  | 0.46478  | 1.0  | 1.0  | PASS |

The results shown in the above table are equivalent to the Sum of the EIRP of the Two Co-located Transmitters (EIRP TX1 + EIRP TX2) compared to the exposure limit. The benefit of this method, is that accounts for transmitters operating at different frequencies against different exposure limits.

### RF Safety Statement:

To comply with FCC's and Industry Canada's RF exposure requirements, the following antenna installation and device operating configurations must be satisfied.

➢ Remote Point-to-Multi-Point antenna(s) for this unit must be fixed and mounted on outdoor permanent structures with a separation distance between the

➢ Remote Fixed Point-to-Point antenna(s) for this unit must be fixed and mounted on outdoor permanent structures with a separation distance between the antenna(s) of greater than 20cm and a separation distance of at least 100cm from all persons.

➢ Furthermore, when using integral antenna(s) the Multinode unit must not be co-located with any other antenna or transmitter device and have a separation distance of at least 20cm from all persons.