

RF EXPOSURE TEST

FCC ID: 2ACPN-TM101A510L

SAR Test Exclusion Thresholds for 100 MHz – 6 GHz and ≤ 50 mm

Approximate SAR Test Exclusion Power Thresholds at Selected Frequencies and Test Separation Distances are illustrated in the following Table.

| MHz | 5 | 10 | 15 | 20 | 25 | mm |
|------|-----|-----|-----|-----|-----|---|
| 150 | 39 | 77 | 116 | 155 | 194 | SAR Test Exclusion Threshold (mW) |
| 300 | 27 | 55 | 82 | 110 | 137 | |
| 450 | 22 | 45 | 67 | 89 | 112 | |
| 835 | 16 | 33 | 49 | 66 | 82 | |
| 900 | 16 | 32 | 47 | 63 | 79 | |
| 1500 | 12 | 24 | 37 | 49 | 61 | |
| 1900 | 11 | 22 | 33 | 44 | 54 | |
| 2450 | 10 | 19 | 29 | 38 | 48 | |
| 3600 | 8 | 16 | 24 | 32 | 40 | |
| 5200 | 7 | 13 | 20 | 26 | 33 | |
| 5400 | 6 | 13 | 19 | 26 | 32 | |
| 5800 | 6 | 12 | 19 | 25 | 31 | |
| MHz | 30 | 35 | 40 | 45 | 50 | mm |
| 150 | 232 | 271 | 310 | 349 | 387 | SAR Test Exclusion Threshold (mW) |
| 300 | 164 | 192 | 219 | 246 | 274 | |
| 450 | 134 | 157 | 179 | 201 | 224 | |
| 835 | 98 | 115 | 131 | 148 | 164 | |
| 900 | 95 | 111 | 126 | 142 | 158 | |
| 1500 | 73 | 86 | 98 | 110 | 122 | |
| 1900 | 65 | 76 | 87 | 98 | 109 | |
| 2450 | 57 | 67 | 77 | 86 | 96 | |
| 3600 | 47 | 55 | 63 | 71 | 79 | |
| 5200 | 39 | 46 | 53 | 59 | 66 | |
| 5400 | 39 | 45 | 52 | 58 | 65 | |
| 5800 | 37 | 44 | 50 | 56 | 62 | |

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at *test separation distances* ≤ 50 mm are determined by:

$[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot$

$[\sqrt{f_{\text{GHz}}}] \leq 3.0$ for 1-g SAR and ≤ 7.5 for 10-g extremity SAR,¹⁶ where

☐ f_{GHz} is the RF channel transmit frequency in GHz

☐ Power and distance are rounded to the nearest mW and mm before calculation¹⁷

☐ The result is rounded to one decimal place for comparison

The test exclusions are applicable only when the minimum *test separation distance* is ≤ 50 mm and for transmission frequencies between 100 MHz and 6 GHz. When the minimum *test separation distance* is < 5 mm, a distance of 5 mm is applied to determine SAR test exclusion.

Maximum Rated Peak RF power for tune up:

IEEE802.11 b, 8.5dBm±1

IEEE802.11 g, 8.5 dBm±1

IEEE802.11 n/HT20 , 8.5 dBm±1

IEEE802.11 n/HT40, 7.5 dBm±1

| modulation | Maximum Rated Peak RF power (dBm) | Maximum Conducted Output Power (mW) | Exclusion Thresholds Results | Limit |
|----------------------|--|--|------------------------------------|-------|
| IEEE802.11 b | 9.5 | 8.91 | 2.767 | 3.0 |
| IEEE802.11 g | 9.5 | 8.91 | 2.782 | 3.0 |
| IEEE802.11 n/HT20 | 9.5 | 8.91 | 2.796 | 3.0 |
| IEEE802.11 n/HT40 | 8.5 | 7.08 | 2.222 | 3.0 |

Conclusion: No SAR is required.

Note: Exclusion Thresholds Results= $[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

☐ Distance=5mm

Maximum measured transmitter power.

802.11B

| frequency range (MHz) | Maximum Peak Conducted Output Power (dBm) | Maximum Conducted Output Power (mW) | Exclusion Thresholds Results | Limit |
|-----------------------------|--|--|------------------------------------|-------|
| 2412 | 9.43 | 8.77 | 2.724 | 3.0 |
| 2437 | 9.37 | 8.65 | 2.701 | 3.0 |
| 2462 | 9.33 | 8.57 | 2.689 | 3.0 |

Conclusion: No SAR is required.

Note: Exclusion Thresholds Results= $[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f(\text{GHz})}]$

$f(\text{GHz})$ is the RF channel transmit frequency in GHz

☐ Distance=5mm

802.11G

| frequency range (MHz) | Maximum Peak Conducted Output Power (dBm) | Maximum Conducted Output Power (mW) | Exclusion Thresholds Results | Limit |
|-----------------------|---|-------------------------------------|------------------------------|-------|
| 2412 | 9.25 | 8.41 | 2.612 | 3.0 |
| 2437 | 9.21 | 8.34 | 2.604 | 3.0 |
| 2462 | 9.15 | 8.22 | 2.579 | 3.0 |

Conclusion: No SAR is required.

Note: Exclusion Thresholds Results= $[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{(GHz)}}}]$
 $f_{\text{(GHz)}}$ is the RF channel transmit frequency in GHz

☐ Distance=5mm
802.11N20

| frequency range (MHz) | Maximum Peak Conducted Output Power (dBm) | Maximum Conducted Output Power (mW) | Exclusion Thresholds Results | Limit |
|-----------------------|---|-------------------------------------|------------------------------|-------|
| 2412 | 8.53 | 7.13 | 2.215 | 3.0 |
| 2437 | 8.39 | 6.90 | 2.154 | 3.0 |
| 2462 | 8.45 | 7.00 | 2.197 | 3.0 |

Conclusion: No SAR is required.

Note: Exclusion Thresholds Results= $[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{(GHz)}}}]$
 $f_{\text{(GHz)}}$ is the RF channel transmit frequency in GHz

☐ Distance=5mm
802.11N 40M

| frequency range (MHz) | Maximum Peak Conducted Output Power (dBm) | Maximum Conducted Output Power (mW) | Exclusion Thresholds Results | Limit |
|-----------------------|---|-------------------------------------|------------------------------|-------|
| 2422 | 7.68 | 5.86 | 1.824 | 3.0 |
| 2437 | 7.52 | 5.65 | 1.764 | 3.0 |
| 2452 | 7.57 | 5.71 | 1.788 | 3.0 |

Conclusion: No SAR is required.

Note: Exclusion Thresholds Results= $[(\text{max. power of channel, including tune-up tolerance, mW})/(\text{min. test separation distance, mm})] \cdot [\sqrt{f_{\text{(GHz)}}}]$
 $f_{\text{(GHz)}}$ is the RF channel transmit frequency in GHz

☐ Distance=5mm