

## Test Result of RF Exposure Evaluation

According to the KDB-447498 D01 V06, FCC 47CFR § 2.1091 the following RF exposure evaluation shall to demonstrate RF exposure compliance.

Friis transmission formula:  $P_d = (P_{out} * G) / (4 * \pi * r^2)$

Where

$P_d$  = power density in mW/cm<sup>2</sup>,  $P_{out}$  = output power to antenna in mW;

$G$  = gain of antenna in linear scale,  $\pi = 3.1416$ ;

$R$  = distance between observation point and center of the radiator in cm.

WIFI 2.4GHz ANT 1

| Frequency (MHz) | Output Power (dBm) | Target power W/ tolerance (dBm) | Max tune up power tolerance (dBm) | Output power to antenna (mW) | Antenna Gain(dBi) | Power Density at R=20cm (mW/cm <sup>2</sup> ) | Limit (mW/cm <sup>2</sup> ) | Result |
|-----------------|--------------------|---------------------------------|-----------------------------------|------------------------------|-------------------|-----------------------------------------------|-----------------------------|--------|
| 802.11b         |                    |                                 |                                   |                              |                   |                                               |                             |        |
| 2412            | 7.69               | 6.7±1.0                         | 7.7                               | 5.888                        | 5                 | 0.00370                                       | 1                           | Pass   |
| 2437            | 7.57               | 6.7±1.0                         | 7.7                               | 5.888                        | 5                 | 0.00370                                       | 1                           | Pass   |
| 2462            | 7.28               | 6.7±1.0                         | 7.7                               | 5.888                        | 5                 | 0.00370                                       | 1                           | Pass   |
| 802.11g         |                    |                                 |                                   |                              |                   |                                               |                             |        |
| 2412            | 6.85               | 5.9±1.0                         | 6.9                               | 4.898                        | 5                 | 0.00308                                       | 1                           | Pass   |
| 2437            | 6.74               | 5.9±1.0                         | 6.9                               | 4.898                        | 5                 | 0.00308                                       | 1                           | Pass   |
| 2462            | 6.48               | 5.9±1.0                         | 6.9                               | 4.898                        | 5                 | 0.00308                                       | 1                           | Pass   |
| 802.11n(20)     |                    |                                 |                                   |                              |                   |                                               |                             |        |
| 2412            | 3.54               | 2.6±1.0                         | 3.6                               | 2.291                        | 5                 | 0.00144                                       | 1                           | Pass   |
| 2437            | 3.56               | 2.6±1.0                         | 3.6                               | 2.291                        | 5                 | 0.00144                                       | 1                           | Pass   |
| 2462            | 3.46               | 2.6±1.0                         | 3.6                               | 2.291                        | 5                 | 0.00144                                       | 1                           | Pass   |
| 802.11n(40)     |                    |                                 |                                   |                              |                   |                                               |                             |        |
| 2422            | 4.12               | 3.8±1.0                         | 4.8                               | 3.020                        | 5                 | 0.00190                                       | 1                           | Pass   |
| 2437            | 4.48               | 3.8±1.0                         | 4.8                               | 3.020                        | 5                 | 0.00190                                       | 1                           | Pass   |
| 2452            | 4.75               | 3.8±1.0                         | 4.8                               | 3.020                        | 5                 | 0.00190                                       | 1                           | Pass   |

## ANT 2

| Frequency (MHz) | Output Power (dBm) | Target power W/ tolerance (dBm) | Max tune up power tolerance (dBm) | Output power to antenna (mW) | Antenna Gain(dBi) | Power Density at R=20cm (mW/cm2) | Limit (mW/cm2 ) | Result |
|-----------------|--------------------|---------------------------------|-----------------------------------|------------------------------|-------------------|----------------------------------|-----------------|--------|
| 802.11b         |                    |                                 |                                   |                              |                   |                                  |                 |        |
| 2412            | 7.65               | 6.7±1.0                         | 7.7                               | 5.888                        | 5                 | 0.00370                          | 1               | Pass   |
| 2437            | 7.54               | 6.7±1.0                         | 7.7                               | 5.888                        | 5                 | 0.00370                          | 1               | Pass   |
| 2462            | 7.32               | 6.7±1.0                         | 7.7                               | 5.888                        | 5                 | 0.00370                          | 1               | Pass   |
| 802.11g         |                    |                                 |                                   |                              |                   |                                  |                 |        |
| 2412            | 6.83               | 5.9±1.0                         | 6.9                               | 4.898                        | 5                 | 0.00308                          | 1               | Pass   |
| 2437            | 6.66               | 5.9±1.0                         | 6.9                               | 4.898                        | 5                 | 0.00308                          | 1               | Pass   |
| 2462            | 6.32               | 5.9±1.0                         | 6.9                               | 4.898                        | 5                 | 0.00308                          | 1               | Pass   |
| 802.11n(20)     |                    |                                 |                                   |                              |                   |                                  |                 |        |
| 2412            | 3.36               | 2.4±1.0                         | 3.4                               | 2.188                        | 5                 | 0.00138                          | 1               | Pass   |
| 2437            | 3.18               | 2.4±1.0                         | 3.4                               | 2.188                        | 5                 | 0.00138                          | 1               | Pass   |
| 2462            | 3.34               | 2.4±1.0                         | 3.4                               | 2.188                        | 5                 | 0.00138                          | 1               | Pass   |
| 802.11n(40)     |                    |                                 |                                   |                              |                   |                                  |                 |        |
| 2422            | 4.51               | 3.9±1.0                         | 4.9                               | 3.090                        | 5                 | 0.00194                          | 1               | Pass   |
| 2437            | 4.62               | 3.9±1.0                         | 4.9                               | 3.090                        | 5                 | 0.00194                          | 1               | Pass   |
| 2452            | 4.84               | 3.9±1.0                         | 4.9                               | 3.090                        | 5                 | 0.00194                          | 1               | Pass   |

Simultaneous transmission MPE According to KDB447498 for Transmitters used in mobile exposure conditions for simultaneous transmission operations;  $\sum$  of MPE ratios  $\leq 1.0$

ANT 1+ANT 2

|           | Frequency<br>(MHz) | Power<br>Density at<br>R=20cm<br>(mW/cm <sup>2</sup> )<br>ANT A | Power<br>Density at<br>R=20cm<br>(mW/cm <sup>2</sup> )<br>ANT B | Power Density<br>at R=20cm<br>(mW/cm <sup>2</sup> )<br>ANT A+ANT B | Limit<br>(mW/cm <sup>2</sup> ) | Result |
|-----------|--------------------|-----------------------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------|--------------------------------|--------|
| 802.11b   | 2412               | 0.00370                                                         | 0.00370                                                         | 0.00741                                                            | 1                              | Pass   |
|           | 2437               | 0.00370                                                         | 0.00370                                                         | 0.00741                                                            | 1                              | Pass   |
|           | 2462               | 0.00370                                                         | 0.00370                                                         | 0.00741                                                            | 1                              | Pass   |
| 802.11g   | 2412               | 0.00308                                                         | 0.00308                                                         | 0.00616                                                            | 1                              | Pass   |
|           | 2437               | 0.00308                                                         | 0.00308                                                         | 0.00616                                                            | 1                              | Pass   |
|           | 2462               | 0.00308                                                         | 0.00308                                                         | 0.00616                                                            | 1                              | Pass   |
| 802.11n20 | 2412               | 0.00144                                                         | 0.00138                                                         | 0.00282                                                            | 1                              | Pass   |
|           | 2437               | 0.00144                                                         | 0.00138                                                         | 0.00282                                                            | 1                              | Pass   |
|           | 2462               | 0.00144                                                         | 0.00138                                                         | 0.00282                                                            | 1                              | Pass   |
| 802.11n40 | 2422               | 0.00190                                                         | 0.00194                                                         | 0.00384                                                            | 1                              | Pass   |
|           | 2437               | 0.00190                                                         | 0.00194                                                         | 0.00384                                                            | 1                              | Pass   |
|           | 2452               | 0.00190                                                         | 0.00194                                                         | 0.00384                                                            | 1                              | Pass   |

**Conclusion:**

So no SAR is required.