

Analysis Report

Report No.: 13051823HKG-001

The Equipment Under Test (EUT) is a Streaming Media Box, equipped with HDMI, USB, LAN, SD Interface, audio and video output. The EUT contains a 2.4GHz WiFi module (RL-UM02L) operates in the frequency range from 2412MHz to 2462MHz at 802.11b,g,n HT20 (11 channels with 5MHz spacing), while 2422MHz to 2452MHz at 802.11n HT40 (7 channels with 5MHz spacing). The EUT is powered by an external AC/DC adaptor with 5VDC output. The adaptor accepts 100 – 120VAC only.

WiFi Antenna Type: Internal, Integral (single antenna)

802.11b, 802.11g, 802.11n (HT20):
2412MHz – 2462MHz, 11 channels, 5MHz spacing

802.11n (HT40):
2422MHz – 2452MHz, 7 channels, 5MHz spacing

The WiFi modules was tested in according with the following power output and in actual application the below limit shall not be exceeded.

| Operating Mode | Nominal Radiated Field Strength | Production Tolerance | Antenna Gain |
|----------------|---------------------------------|----------------------|--------------|
| 802.11b | 100.8dB μ V/m at 3m | \pm 3dB | 0dBi |
| 802.11g | 98.6dB μ V/m at 3m | \pm 3dB | 0dBi |
| 802.11n (HT20) | 95.2dB μ V/m at 3m | \pm 3dB | 0dBi |
| 802.11n (HT40) | 93.6dB μ V/m at 3m | \pm 3dB | 0dBi |

According to the KDB 447498:

Based on the Maximum allowed field strength of production tolerance was 103.8dB μ V/m at 3m in frequency 2.412GHz at 802.11b mode, thus;

The EIRP = $[(FS \cdot D)^2 \cdot 1000 / 30] = 7.2mW$

Conducted power = Radiated Power (EIRP) – Antenna Gain
So;

Conducted Power = 7.2mW.

The SAR Exclusion Threshold Level:
= $3.0 \cdot (\text{min. test separation distance, mm}) / \text{sqrt}(\text{freq. in GHz})$
= $3.0 \cdot 5 / \text{sqrt}(2.462)$ mW
= 9.56 mW

Since the above conducted output power is well below the SAR Exclusion threshold level, so the EUT is considered to comply with SAR requirement without testing.