



**GUIDELINE ON THE PROVISION OF WIRELESS LAN SERVICE
(MCMC/G/01/05 – WLAN)**

Introduction

1. The Malaysian Communications and Multimedia Commission (MCMC) is the authority responsible for regulating the communications and multimedia industry in Malaysia. Amongst others, the MCMC is responsible for licensing communications activities as well as the use of spectrum, numbers and electronic addresses.

Communications activities in wireless “hotspots”

2. The MCMC is pleased to note the interest among the public and the industry on the use of Wireless LAN technologies using the 2400 MHz to 2500 MHz, 5250 MHz to 5350 MHz and 5725 MHz to 5875 MHz frequency to provide Internet access. The low cost of the equipment and the ease in setting up such networks, among others, make it an interesting and hassle-free arrangement in providing short-range wireless Internet access to the public.
3. However, these “private” networks need to be connected to the public communications network, such as an Internet Access Service Provider to provide both bandwidth and access to the Internet.
4. This guideline serves as a guide to any individual or business interested in providing Internet access to the public by utilizing the frequency identified in this guideline.

Relevant Regulatory Framework under the Communications and Multimedia Act 1998

5. The relevant legislation applicable to Wireless LAN activities are as follows :
 - (a) Communications and Multimedia Act 1998 (CMA 1998);
 - (b) Communications and Multimedia (Licensing) Regulations 2000;
 - (c) Communications and Multimedia (Spectrum) Regulations 2000; and
 - (d) Notification of Issuance of Class Assignments (Second Schedule).

Licensing Requirements

6. In general, the provision of wireless LAN activities (such as “hotspot” areas) is localized and would not require registration with or application to, the MCMC, so long as the business (or the service provided) is not involved in any of the following categories¹:
 - (a) Network Facilities Provider (NFP) activities;
 - (b) Network Services Provider (NSP) activities;
 - (c) Applications Services Provider (ASP) activities; or
 - (d) Content Applications Service Provider activities.

7. Prospective providers of wireless hotspot Internet services who arrange with a licensed Internet Access Service Provider ²(IASP) for access to the Internet would not require licensing under the CMA 1998. However, as this is not an IASP service, users would not be protected by any Quality of Service Determinations. It will be up to said providers to compete to provide the best service they can.

Spectrum and conditions

8. The MCMC, pursuant to Section 169, CMA 1998, had on November 1, 2004, issued a Class Assignment ³[P.U.(B) 416/2004], which covers “Short Range Communications Device”. Short range communications device are defined as “a low power communications device that provides communications over short distances for mobile and fixed applications in the designated frequency bands”.

9. The short range communications device is not restricted by technology as long as it is being used for the purpose as defined above.

¹ Please refer to the Communications and Multimedia (Licensing) Regulations 2000 for the definition of each activity.

² IASPs are required to register under the ASP Class Licence.

³ The Notification of Issuance of Class Assignments [P.U.(B) 109/2000] has been superseded by the Notification of Issuance of Class Assignment [P.U.(B) 416/2004].

10. Interested users should ensure that the equipment used complies with the conditions specified in the Class Assignment.
11. The frequencies and the maximum Effective Isotropic Radiated Power (EIRP) for the short range communications device⁴ which are related to Wireless LAN are:

Item	Frequency Bands	Maximum EIRP
1.	2400.0000 MHz to 2500.0000 MHz	500 milliWatts
2.	5250.0000 MHz to 5350.0000 MHz	1 Watt
3.	5725.0000 MHz to 5875.0000 MHz	1 Watt

12. To assist users in complying with the EIRP limit, a formula to determine EIRP is shown below and sample calculations are provided in Appendix A;

$$EIRP = P_{out} - C_t + G_t$$

P_{out} = transmitter power output (dBm)
 C_t = signal loss in cable (dB)
 G_t = gain of the antenna (dBi)

Users are advised to ensure that they do not exceed the Class Assignment limits as shown above as they may breach the Spectrum Regulation 2000.

13. Equipment which has an EIRP outside the allowable maximum would not qualify for use under the Class Assignment. The use of the device beyond the allowed maximum EIRP are considered under Apparatus Assignment. Any person who needs further clarification on this matter should contact the MCMC Assignment Department.

⁴ Refer to Table A (Frequencies and Maximum EIRP), Second Schedule, Notification of Issuance of Class Assignments, 1 November 2004.

Equipment Used for Short Range Communications Device

14. The Class Assignment indicates that only a certified short range communications device shall be used or operated in the frequencies specified above.

15. As such, prospective providers of wireless hotspot Internet services should ensure that the equipment used in respect of the wireless hotspot service is certified by MCMC's designated certification agencies, which is currently, SIRIM QAS International Sdn. Bhd.

Fees Payable

16. Regulation 27 of the Communications and Multimedia (Spectrum) Regulations 2000 states that "no fee shall be payable for a class assignment" in respect of the use of the frequency bands identified.

Please note: The information in this document is intended as a guide only. For this reason it should not be relied on as legal advice or regarded as a substitute for legal advice in individual cases. Parties should still refer to the legislative provisions contained in the law.

<p>For further information, please contact :</p> <p>Regulatory Division Malaysian Communications and Multimedia Commission 68000 Cyberjaya, Selangor</p> <p>Tel : +603 8688 8000 Fax : +603 8688 1000 http:// www.mcmc.gov.my</p>	<p>Information on SIRIM QAS International Sdn. Bhd. :</p> <p>SIRIM QAS International Sd. Bhd. Building 4, SIRIM Complex 1, Persiaran Dato' Menteri P. O Box 7035, 40911 Shah Alam</p> <p>Tel : +6 03 5544 6400 Fax : +6 03 5544 6407 http:// <u>www.sirim-qas.com.my</u></p>
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Appendix A

Effective Isotropic Radiated Power (EIRP)

$$\text{EIRP} = \text{Pout} - \text{Ct} + \text{Gt}$$

- EIRP = Effective Isotropic Radiated Power (dBm)
 Pout = transmitter power output (dBm)
 Ct = signal loss in cable (dB)
 Gt = gain of the antenna (dBi)

The maximum EIRP for Class Assignment Wireless LAN type devices;

Item	Frequency Bands	Max EIRP (Watts)	Max EIRP (dBm)
1.	2400 MHz to 2500 MHz	500 milliWatts	27 dBm
2.	5250 MHz to 5350 MHz	1 Watt	30 dBm
3.	5725 MHz to 5875 MHz	1 Watt	30 dBm

dBm to Watt Conversion Table ;

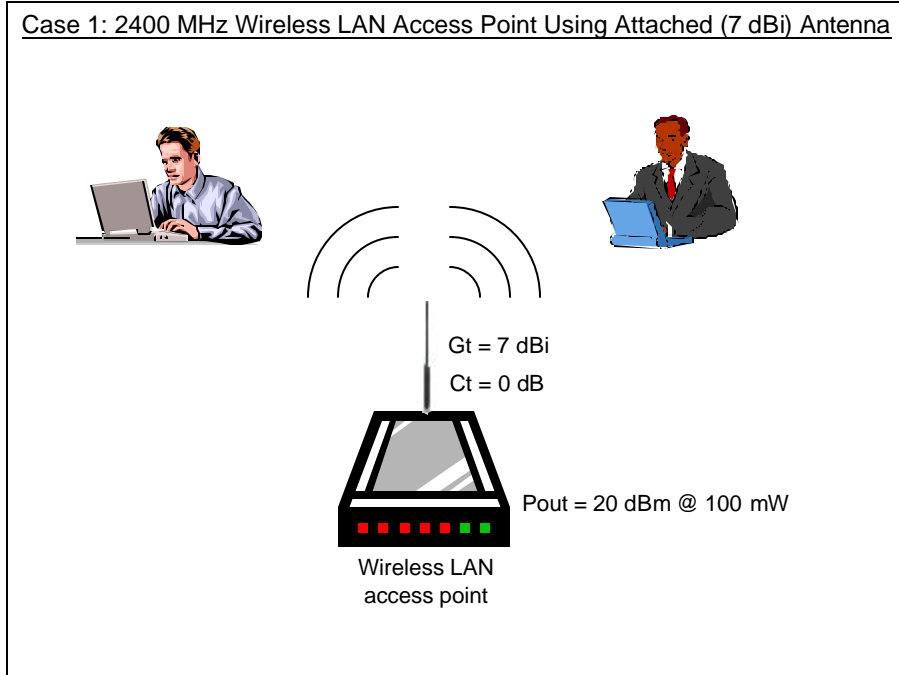
dBm	Watts
0	1.0 mW
1	1.3 mW
2	1.6 mW
3	2.0 mW
4	2.5 mW
5	3.2 mW
6	4 mW
7	5 mW
8	6 mW
9	8 mW
10	10 mW
11	13 mW
12	16 mW
13	20 mW
14	25 mW
15	32 mW

dBm	Watts
16	40 mW
17	50 mW
18	63 mW
19	79 mW
20	100 mW
21	126 mW
22	158 mW
23	200 mW
24	250 mW
25	316 mW
26	398 mW
27	500 mW
28	630 mW
29	800 mW
30	1.0 W
31	1.3 W

dBm	Watts
32	1.6 W
33	2.0 W
34	2.5 W
35	3.2 W
36	4.0 W
37	5.0 W
38	6.3 W
39	8.0 W
40	10 W
41	13 W
42	16 W
43	20 W
44	25 W
45	32 W
46	40 W
47	50 W

- mW = milliWatts
 W = Watts

Sample EIRP Calculation : Case 1

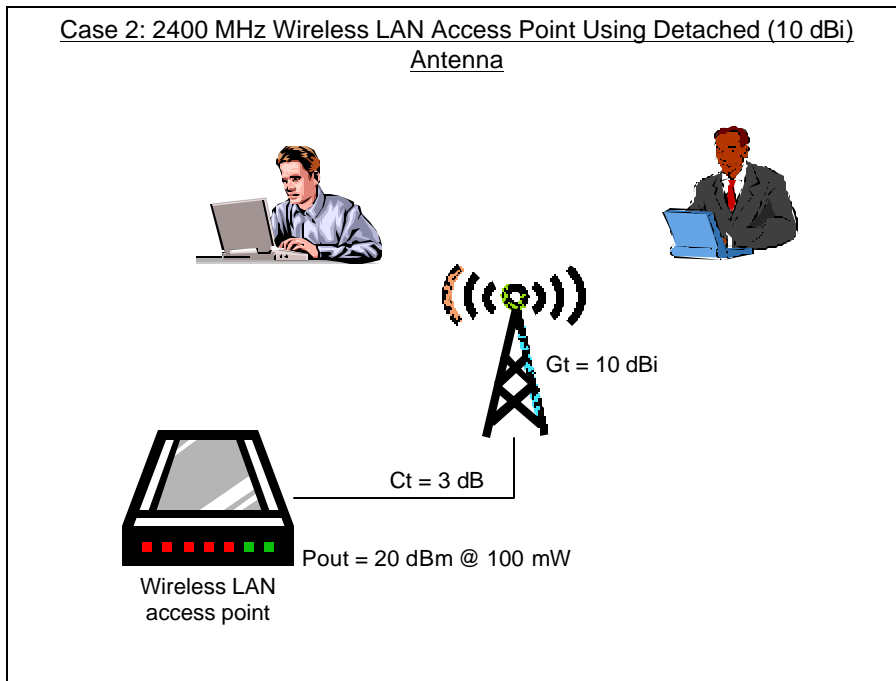


The EIRP calculation;

$$\begin{aligned} \mathbf{EIRP} &= 20 \text{ dBm} - 0 \text{ dB} + 7 \text{ dBi} \\ &= 27 \text{ dbm @ } 500 \text{ milliWatts} \end{aligned}$$

The usage of the 2400 MHz Wireless LAN device with a 7dbi antenna is within the allowed maximum EIRP which is at 500 milliWatts.

Sample EIRP Calculation : Case 2

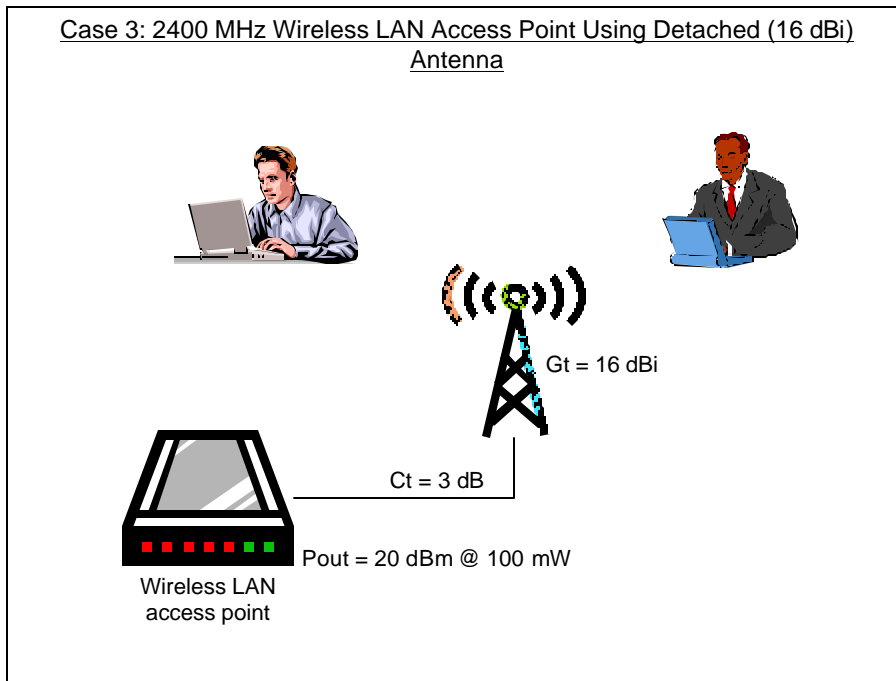


The EIRP calculation;

$$\begin{aligned} \mathbf{EIRP} &= 20 \text{ dBm} - 3 \text{ dB} + 10 \text{ dBi} \\ &= 27 \text{ dbm @ 500 milliWatts} \end{aligned}$$

The usage of the 2400 MHz Wireless LAN device is within the allowed maximum EIRP which is at 500 milliWatts .

Sample EIRP Calculation : Case 3



The EIRP calculation;

$$\begin{aligned} \text{EIRP} &= 20 \text{ dBm} - 3 \text{ dB} + 16 \text{ dBi} \\ &= 33 \text{ dbm @ 2 Watts} \end{aligned}$$

The usage of the 2400 MHz Wireless LAN device **exceeds and breaches** the allowed maximum EIRP which is at 500 milliWatts. Users have to either reduce the Pout or use lower gain antenna to meet the maximum allowed EIRP.