



MAXIMUM PEAK OUTPUT POWER

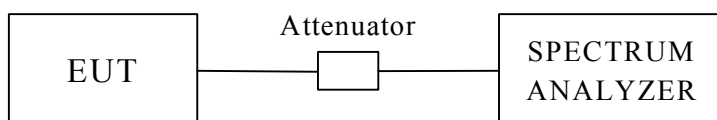
Test Equipments

Description & Manufacturer	Model No.	Serial No.	Date Of Calibration
ROHDE & SCHWARZ SPECTRUM ANALYZER	FSEK30	835253/002	September 24, 2005
HP ATTENUATOR	8496B	3247A18505	Cal. on use
HP PLOTTER	7750A	725A 852141	N/A

Note :

1. The measurement uncertainty is less than $\pm 2.6\text{dB}$, which is calculated as per the NAMAS document NIS81.
2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

Test Setup



Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.



Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate center frequency.

Uncertainty of Conducted Emission

The uncertainty of conducted emission is $\pm 1.82\text{dB}$.

Test Results

Input Power (System)	12VDC(Form Adapter)	Environmental Conditions	33.4°C, 43%RH,
Tested By	Alan Fan		

Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass / Fail
1	2412	19.30	30	PASS
6	2437	19.09	30	PASS
11	2462	18.96	30	PASS

- Note :
1. For 802.11b Mode
 2. At final test to get the worst-case emission at 11Mbps.
 3. The result basic equation calculation as follow :
$$\text{Peak Power Output} = \text{Peak Power Reading} + \text{Cable loss} + \text{Attenuator}$$



RF EXPOSURE EVALUATION

According to FCC 1.1310 : The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time
(A) Limits for Occupational / Control Exposures				
300-1,500	--	--	F/300	6
1,500-100,000	--	--	5	6
(B) Limits for General Population / Uncontrol Exposures				
300-1,500	--	--	F/1500	6
1,500-100,000	--	--	1	30

Friis Formula

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

Where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

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

P_d is the limit of MPE, 1 mW/cm². If we know the maximum gain of the antenna and the total power input to the antenna, through the calculation, we will know the distance r where the MPE limit is reached.

EUT Operating Condition

A software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel individually.



Test Result of RF Exposure Evaluation

Test Item : RF Exposure Evaluation Data

Test Mode : Normal Operation

Antenna Gain

Antenna Gain : The maximum Gain measured in fully anechoic chamber is 1.8dBi linear scale.

Output Power into Antenna & RF Exposure Evaluation Distance

Channel	Channel Frequency (MHz)	Output Power to Antenna (dBm)	Power Density at 20cm (mW/cm ²)	LIMITS (mW/cm ²)
CH1	2412.00	19.30	0.025629	1
CH6	2437.00	19.09	0.024419	1
CH11	2462.00	18.96	0.023699	1

Note : 1. For 802.11b Mode.

- The power density Pd (4th column) at a distance of 20cm calculated from the Friis transmission formula is far below the limit of 1 mW/cm². The EUT is classified as mobile product. So, RF exposure limit warning or SAR test are not required.