



RF Exposure Evaluation Declaration

FCC ID: TK4WPJ344

APPLICANT: Compex Systems Pte Ltd

Application Type: Certification

Product: WIRELESS ACCESS POINT

Model No.: WPJ344HV, WPJ344LV, MMZ344LV, MMZ344HV,
MMJ344LV, MMJ344HV, MMS344LV, MMS344HV

Brand Name: COMPEX

FCC Classification: Digital Transmission System (DTS)

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(Marlin Chen)



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standards through the calibration of the equipment and evaluated measurement uncertainty herein.

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Revision History

Report No.	Version	Description	Issue Date
1407RSU04102	Rev. 01	Initial report	08-21-2014
1407RSU04102	Rev. 01	Modify the model number	08-22-2014

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	WIRELESS ACCESS POINT
Model No.	WPJ344HV, WPJ344LV, MMZ344LV, MMZ344HV, MMJ344LV, MMJ344HV, MMS344LV, MMS344HV
Power Type	POE input
Frequency Range	802.11b/g/n-HT20: 2412 ~ 2462 MHz 802.11n-HT40: 2422 ~ 2452 MHz
Type of Modulation	802.11b: DSSS 802.11g/n: OFDM
Adapter	Power Over Ethernet (Gigabit) Model: HS36-2401250US Input: 100-240V ~ 50/60Hz 1.0A Output: +24V ~ 1.25A

1.2. Antenna Description

Antenna Type	Frequency Band (GHz)	Manufacturer	Tx Paths	Max Directional Gain (dBi)
Internal Antenna				
Panel Antenna 1#	2.45	Compex Systems Pte Ltd	2	11
Panel Antenna 2#	2.45	Kenbotong Communication LTD	2	10
Panel Antenna 3#	2.45	Compex Systems Pte Ltd	2	7
Panel Antenna 4#	2.45	Smart Ant Inc	2	7
Panel Antenna 5#	2.45	Compex Systems Pte Ltd	2	5
Panel Antenna 6#	2.45	Compex Systems Pte Ltd	2	5
Dipole Antenna 1#	2.45	Kunshan Wavelink Electronic Co., Ltd.	2	2

2. RF Exposure Evaluation

2.1. Limits

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 (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	f/1500	6
1500-100,000	--	--	1	30

f= Frequency in MHz

Calculation Formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$

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, 1mW/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.

2.2. Test Result of RF Exposure Evaluation

Product	WIRELESS ACCESS POINT
Test Item	RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 11dBi for 2.4GHz in logarithm scale.

For 2.4G ISM Band:

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Power Density at R = 20 cm (mW/cm ²)	Limit (mW/cm ²)
802.11b	2412 ~ 2462	22.36	0.4313	1
802.11g	2412 ~ 2462	14.62	0.0726	1
802.11n-HT20	2412 ~ 2462	14.75	0.0748	1
802.11n-HT40	2422 ~ 2452	14.68	0.0736	1

CONCLUSION:

The Max Power Density at R (20 cm) = 0.4313mW/cm² < 1mW/cm².

So the EUT complies with the requirement.

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