



RF Exposure Evaluation Declaration

FCC ID: H8N-WHD0100
APPLICANT: Askey Computer Corporation
Application Type: Certification
Product: Cloud Client Box
Model No.: CAX21
Brand Name: ASUS
FCC Classification: Digital Transmission System (DTS)
FCC Part 15 Spread Spectrum Transmitter(DSS)
Test Procedure(s): KDB 447498 D01v06
Test Date: November 10 ~ December 02, 2016

Reviewed By : Robin Wu
(Robin Wu)

Approved By : Marlin Chen
(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	Note
1610RSU00308	Rev. 01	Initial report	12-20-2016	Valid

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name:	Cloud Client Box
Model No.:	CAX21
Brand Name:	ASUS
Wi-Fi Specification:	802.11b/g/n
Bluetooth Module:	v4.0, v3.0 + HS
Antenna Type	PCB Antenna
Antenna Gain	1.59dBi
Components	
Adapter #1	Manufacturer: Dee Van Enterprise Co., Ltd. M/N: DSA-24CB-05 050300 Input: 100-240V ~ 50/60Hz, 0.8A Output: 5Vdc, 3A
Adapter #2	Manufacturer: Sunny Computer Technology Co., Ltd. M/N: SYS1531-1505-W2 Input: 100-240V ~ 50-60Hz, 1A Max Output: 5Vdc, 3A

2. RF Exposure Evaluation

2.1. Limits

FCC Rules:

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

Formula as follows:

f= Frequency in MHz

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

Where

P_d = power density in mW/cm^2

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, $1mW/cm^2$. 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	Cloud Client Box
Test Item	RF Exposure Evaluation

Antenna Gain: The maximum Gain measured in fully anechoic chamber is 1.59dBi for Wi-Fi and Bluetooth band.

For 2.4GHz Wi-Fi Band:

Test Mode	Frequency Band (MHz)	Maximum Average Output Power (dBm)	Power Density at r = 20 cm (mW/cm ²)	FCC Limit (mW/cm ²)
802.11b	2412 ~ 2462	21.35	0.0391	1
802.11g	2412 ~ 2462	19.32	0.0245	1
802.11n-HT20	2412 ~ 2462	19.01	0.0228	1
802.11n-HT40	2422 ~ 2452	18.91	0.0223	1

For Bluetooth Band:

Test Mode	Frequency Band (MHz)	Maximum Peak Output Power (dBm)	Power Density at r = 20 cm (mW/cm ²)	FCC Limit (mW/cm ²)
BLE	2402 ~ 2483.5	0.61	0.0003	1
DH5	2402 ~ 2483.5	5.77	0.0011	1
2DH5	2402 ~ 2483.5	7.09	0.0015	1
3DH5	2402 ~ 2483.5	7.53	0.0016	1

CONCLUSION:

Both of the WLAN and Bluetooth can transmit simultaneously. Therefore, the Max Power Density at r (20 cm) = $0.0391\text{mW/cm}^2 + 0.0016\text{mW/cm}^2 = 0.0407\text{mW/cm}^2 < 1\text{mW/cm}^2$

So the EUT complies with the FCC requirement.

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