



RF Exposure Evaluation Declaration

FCC ID: 2AKWYPFB201
APPLICANT: DynaScan Technology Corp.
Application Type: Certification
Product: Control Board
Model No.: PFB201
Host Product Number: Liquid crystal display devices
Host Model No.: DS551DR4
Brand Name: **DynaScan**
FCC Rule Part(s): Part 2.1091 (Mobile)
Test Procedure(s): KDB 447498 D01v06
Test Date: June 12~14, 2017

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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
1706TW0701-U2	1.0	Original Report	2017.08.10	

1. PRODUCT INFORMATION

1.1. Equipment Description

Product Name	Liquid crystal display devices
Model No.	PFB201
Brand Name	DynaScan
Supports Radios Spec.	WLAN : 2.4G : 802.11b/g/n-20/n-40
Wi-Fi Specification	802.11b/g/n
Frequency Range	2.4GHz: For 802.11b/g/n-20M: 2412 ~ 2462 MHz For 802.11n-40M: 2422 ~ 2452 MHz
Type of Modulation	802.11b: DSSS, DBPSK, DQPSK, CCK 802.11g/n-20M/n-40M: OFDM(BPSK, QPSK, 16QAM, 64QAM)

Note:

1. Base on limit module PFB201 (Grant Date : 02/17/2017,FCC ID : 2AKWYPFB201),Since add new host, so the C2PC (Radiated Spurious Emission & AC Line Conducted Emission) is executed.

Host Product Number: Liquid crystal display devices;

Host Model Number : DS551DR4.

2. This product contains two identical modules (FCC ID : 2AKWYPFB201) with individual and independent transmission function. Considering use cases based on a conservative approach, the simultaneously transmission operation is also evaluated in the report.

1.2. Antenna Description

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Walsin	WE9G650002	Metal	0.87 dBi

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	30
1500-100,000	--	--	1.0	30

f= Frequency in MHz

Calculation Formula: $Pd = (Pout \cdot G) / (4 \cdot \pi \cdot r^2)$

Where

Pd = power density in mW/cm²

Pout = output power to antenna in mW

G = gain of antenna in linear scale

Pi = 3.1416

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

Pd 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

For 2.4GHz ISM Band (802.11b/g/n-HT20/n-HT40):

Module #1

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412 ~ 2462	22.66	184.5	0.87	20	0.0448	1

Module #2

Frequency Band (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
2412 ~ 2462	22.75	188.4	0.87	20	0.0458	1

Simultaneous Calculation:

$$CPD1 / LPD1 + CPD2 / LPD2 + \dots \text{etc.} < 1$$

Where

CPD = Calculation power density

LPD = Limit of power density

$$\text{WIFI (module \#1)} + \text{WIFI (module \#2)} = 0.0448 + 0.0458 = 0.0906 \text{ mW/cm}^2$$

Therefore, the maximum calculations are less than the “1” limit. Complies with FCC radiation exposure requirement specified in the FCC Rule 2.1091.

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