

RF Exposure Evaluation declaration

Product Name	Barcode Printer
Model No.	WS408TT-STD/WS408TT-LAN/WS412TT-STD/WS412TT-LAN
FCC ID	MMFWS4TT-BT

Applicant	Sato Corporation
Address	1-7-1 Shimomeguro, Meguro-ku, Tokyo 153-0064, Japan

Date of Receipt	Dec. 05, 2014
Date of Declaration	Jul. 28, 2016
Report No.	1660291R-RFUSP01V00

The test results relate only to the samples tested.

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

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1. RF Exposure Evaluation

1.1. 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

Friis Formula

Friis transmission formula: $Pd = (Pout * G) / (4 * \pi * r^2)$

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, 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.

1.2. Test Procedure

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

The temperature and related humidity: 18°C and 78% RH.

1.3. Test Result of RF Exposure Evaluation

Product : Barcode Printer
 Test Item : RF Exposure Evaluation
 Test Site : No.3 OATS

Operation Frequency	2402-2480MHz
Maximum Conducted output power	3.61dBm
Antenna gain	4.1dBi

Output Power Into Antenna & RF Exposure Evaluation Distance:

Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm ²)
2.2961	0.001174

Power density in column 4 is much lower than the limit (1 mW/cm²).