RF EXPOSURE EVALUATION REPORT

FCC ID	:	UZ7FX7500
Equipment	:	RFID Reader
Brand Name	:	ZEBRA
Model Name	:	FX7500
Applicant	:	Zebra Technologies Corporation 1 Zebra Plaza, Holtsville, NY 11742
Manufacturer	:	Zebra Technologies Corporation 1 Zebra Plaza, Holtsville, NY 11742
Standard	:	47 CFR Part 2.1091

We, SPORTON INTERNATIONAL INC has been evaluated this product in accordance with 47 CFR Part2.1091 and it complies with applicable limit.

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code: 1190) and the FCC designation No. TW1190 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC evaluation.

The results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC. Laboratory, the test report shall not be reproduced except in full.

Approved by: Cona Huang / Deputy Manager

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Table of Contents

1. DESCRIPTION OF EQUIPMENT UNDER TEST (EUT) 4
2. MAXIMUM RF AVERAGE OUTPUT POWER AMONG PRODUCTION UNITS 4
3. RF EXPOSURE LIMIT INTRODUCTION 5
4. RADIO FREQUENCY RADIATION EXPOSURE EVALUATION 6
4.1. Standalone Power Density Calculation 6
4.2. Collocated Power Density Calculation 6

History of this test report

Report No.	Version	Description	Issued Date
FA361310	Rev. 01	Initial issue of report	Dec. 11, 2023

1. Description of Equipment Under Test (EUT)

Product Feature & Specification	
EUT Type	RFID Reader
Brand Name	ZEBRA
Model Name	FX7500
FCC ID	UZ7FX7500
Wireless Technology and Frequency Range	UHF RFID: 902.75 MHz ~ 927.25 MHz
Mode	DSB-ASK, PR-ASK
HW Version	DV
SW Version	3.24.52.0
MFD	09SEP23
EUT Stage	Identical Prototype
Remark : **1.** This device is equipped with four WWAN antennas, all of which have the same antenna gain, and these four antennas can transmit simultaneously.	

Reviewed by: Jason Wang

Report Producer: Paula Chen

Specification of Accessories				
Adaptor	Brand Name	Zebra	Part Number	PWR-BGA24V78W0WW
Antenna	Brand Name	Zebra	Part Number	AN480-CL66100WR
Antenna RF Cable	Brand Name	Zebra	Part Number	CBLRD-1B40006801

2. Maximum RF average output power among production units

Mode	Maximum Average Power (dBm)
UHF RFID_Ant 1	28.59
UHF RFID_Ant 2	28.13
UHF RFID_Ant 3	27.47
UHF RFID_Ant 4	27.57

3. RF Exposure Limit Introduction

According to ANSI/IEEE C95.1-1992, the criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in §1.1310.

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm^2)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposures				
0.3-3.0	614	1.63	*(100)	6
3.0-30	1842/f	4.89/f	*(900/f2)	6
30-300	61.4	0.163	1.0	6
300-1500			f/300	6
1500-100,000			5	6
(B) Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f2)	30
30-300	27.5	0.073	0.2	30
300-1500			f/1500	30
1500-100,000			1.0	30

The MPE was calculated at 37 cm to show compliance with the power density limit.

The following formula was used to calculate the Power Density:

$$S = \frac{PG}{4\pi R^2}$$

Where:
S = Power Density
P = Output Power at Antenna Terminals
G = Gain of Transmit Antenna (linear gain)
R = Distance from Transmitting Antenna

4. Radio Frequency Radiation Exposure Evaluation

4.1. Standalone Power Density Calculation

Band	Antenna Gain (dBi)	Maximum Power (dBm)	Maximum EIRP (dBm)	Maximum EIRP (W)	Average EIRP (mW)	Power Density at 37cm (mW/cm^2)	Limit (mW/cm^2)	Power Density / Limit
UHF RFID_Ant 1	6.0	28.59	34.6	2.88	2877.40	0.167	0.602	0.278
UHF RFID_Ant 2	6.0	28.13	34.1	2.59	2588.21	0.151	0.602	0.250
UHF RFID_Ant 3	6.0	27.47	33.5	2.22	2223.31	0.129	0.602	0.215
UHF RFID_Ant 4	6.0	27.57	33.6	2.28	2275.10	0.132	0.602	0.220

4.2. Collocated Power Density Calculation

UHF RFID _Ant 1 Power Density / Limit	UHF RFID _Ant 2 Power Density / Limit	UHF RFID _Ant 3 Power Density / Limit	UHF RFID _Ant 4 Power Density / Limit	∑(Power Density / Limit) of RFID Ant 1+Ant 2+ Ant 3+Ant 4
0.278	0.250	0.215	0.220	0.963

Note:

1. ∑(Power Density / Limit): This is a summation of [(power density for each transmitter/antenna included in the simultaneous transmission)/ (corresponding MPE limit)], for RFID Ant 1+Ant 2+ Ant 3+Ant 4.
2. Considering the RDID collocation transmitter of the EIRP performance listed in the table above, the aggregated (power density /limit) is smaller than 1, and MPE of 4 collocated transmitters is compliant.

Conclusion:

According to 47 CFR §2.1091, the RF exposure analysis concludes that the RF Exposure is FCC compliant.