

RF Exposure TEST REPORT



Report No.: **SL13080801-ZBR-047-RFID-RF Exposure**

Supersede Report No.: **NONE**

Applicant	:	Zebra Technologies Corporation
Product Name	:	RFID Module
Model No.	:	M6e-Micro
Test Standard	:	FCC 47 CFR §1.1307(b) FCC 47 CFR §1.1310
Test Method	:	FCC 47 CFR §1.1310 FCC OST/OET Bulletin Number 65
FCC ID	:	I28-RFIDM6EM
IC ID	:	3798B-RFIDM6EM
Dates of test	:	August 8th - August 23th , 2013
Issue Date	:	9/19/2013
Test Result	:	☒ Pass ☐ Fail
Equipment complied with the specification [X]		
Equipment did not comply with the specification []		

This Test Report is Issued Under the Authority of:

	
Nima Molaei	David Zhang
Test Engineer	Engineer Reviewer

Issued By:

SIEMIC Laboratories
775 Montague Expressway, Milpitas, 95035 CA



TESTING CERT # 2742-01

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Test result presented in this test report is applicable to the representative sample only.

775 Montague Expressway, Milpitas, CA 95035, USA • Phone: (+1) 408 526 1188 • Facsimile (+1) 408 526 1088

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Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.



In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC , RF/Wireless , Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless , Telecom
Taiwan	BSMI , NCC , NIST	EMC, RF, Telecom , Safety
Hong Kong	OFTA , NIST	RF/Wireless , Telecom
Australia	NATA, NIST	EMC, RF, Telecom , Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF , Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC , RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom , Safety

Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC , RF , Telecom
Canada	IC FCB , NIST	EMC , RF , Telecom
Singapore	iDA, NIST	EMC , RF , Telecom
EU	NB	EMC & R&TTE Directive
Japan	MIC (RCB 208)	RF , Telecom
HongKong	OFTA (US002)	RF , Telecom

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1 Report Revision History

Report No.	Report Version	Description	Issue Date
SL13080801-ZBR-047-RFID-RF Exposure	Original	-	09/19/2013

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2 Executive Summary

The purpose of this test program was to demonstrate compliance of the Zebra Technologies Corporation , RFID Module, and model: M6e-Micro to be installed into a printer host (Printer Model: ZD500R) against the current Stipulated Standards. The M6e-Micro has demonstrated compliance with the Stipulated Standard listed on 1st page.

3 Customer information

Applicant Name	:	Zebra Technologies Corporation
Applicant Address	:	333 Corporate Woods Parkway , Vernon Hills, IL 60061 USA
Manufacturer Name	:	Zebra Technologies Corporation
Manufacturer Address	:	333 Corporate Woods Parkway , Vernon Hills, IL 60061 USA

4 Test site information

Lab performing tests	:	SIEMIC Laboratories
Lab Address	:	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	:	881796
IC Test Site No.	:	4842D-2
VCCI Test Site No.	:	A0133

5 Modification

Index	Item	Description	Note
-	-	-	-

6 EUT Information

6.1 EUT Description

Product Name	:	RFID Module
Model No.	:	M6e-Micro
Trade Name	:	Zebra
Serial No.	:	40J132000083
Input Power	:	24VDC
Power Adapter Manu/Model	:	Zebra/FSP100-RDB
Power Adapter SN	:	H00005819
Host	:	Mobile Printer
Host Model	:	ZD500R
Date of EUT received	:	August 16th, 2013
Equipment Class/ Category	:	FHSS
Clock Frequencies	:	24 MHz
Port/Connectors	:	USB

6.2 Radio Description

Spec for UHF RFID -

Radio Type	UHF RFID
Operating Frequency	902.75-927.25 MHz
Modulation	ASK
Antenna Type	Loop/Coil
Antenna Gain	-28dBi
Channel Separation	500 KHz
Number of Channels	50

7 MPE Calculation

RF Exposure Requirements:	47 CFR §1.1307(b)
RF Radiation Exposure Limits:	47 CFR §1.1310
RF Radiation Exposure Guidelines:	FCC OST/OET Bulletin Number 65
EUT Frequency Band:	902.75-927.25 MHz
Limits for General Population/Uncontrolled Exposure in the band of:	(UHF RFID) 300-1500 MHz
Power Density Limit:	(UHF RFID) 0.62 mW/cm ²

Equation: $S = PG / 4\pi R^2$ or $R = \sqrt{PG / 4\pi S}$

Where, S = Power Density
P = Power Input to Antenna
G = Antenna Gain
R = distance to the center of radiated antenna

Prediction distance 20cm

UHF RFID (902.75-927.25 MHz): Power = 28.01dBm, Antenna gain= -28dBi, Power density=0.000199 mW/cm²

WLAN (5180-5825MHz): Power = 16.28 dBm, antenna gain = 5.0 dBi, Power density = 0.0267 mW/cm² (Worst Case)

Total Ratio= $(P_{RFID}/0.62)+(P_{N Radio}/1)= 0.000321+0.0267= 0.026899$

Total Ratio is 0.026899, which is less than 1;

The Above Result had shown that the Device complied with MPE requirement.

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