

**1 Cover Page**

# ***RF Exposure Evaluation Report***

**Application No.:** SHCR2301000113AT  
**FCC ID:** FI5-RV801  
**Applicant:** MICHELIN NORTH AMERICA(US) INC.  
**Address of Applicant:** One Parkway South Greenville South Carolina 29615 United States  
**Manufacturer:** MFP MICHELIN  
**Address of Manufacturer:** 23 Place des Carmes-Deschaux - 63040 Clermont-Fd Cedex9 – France  
**Factory:** Raster Vision Limited (RVL)  
**Address of Factory:** Unit 1, Crunalls, Geddes Hill, Matfield, Tombridge - KENT, TN12 7EA, United Kingdom

**Equipment Under Test (EUT):**  
**EUT Name:** MEMS 4 LTE/GPS MODULE TRANSCEIVER  
**Model No.:** RV8-01  
**Trade mark:** MICHELIN  
**Standard(s) :** FCC Rules 47 CFR §2.1091  
 KDB447498 D01 General RF Exposure Guidance v06  
**Date of Receipt:** 2023-01-11  
**Date of Test:** 2023-01-12 to 2023-03-02  
**Date of Issue:** 2023-03-07

<b>Test Result:</b>	<b>Pass*</b>
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\* In the configuration tested, the EUT complied with the standards specified above.

*Parlan Zhan*

Parlan Zhan  
Laboratory Manager



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Revision Record			
Version	Description	Date	Remark
00	Original	2023-03-07	/

<b>Authorized for issue by:</b>			
		<i>Wade Zhang</i>	
		<b>Wade Zhang / Project Engineer</b>	
		<i>Parlam Zhan</i>	
		<b>Parlam Zhan / Reviewer</b>	



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### 3 General Information

#### 3.1 General Description of E.U.T.

Power supply:	DC 24V
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#### 3.2 Technical Specifications

##### WCDMA

Operation Frequency Band:	UMTS B2,B4,B5	
Operation Frequency	Band 2	TX: 1852.4~1907.6MHz; RX 1932.4~1987.6MHz
	Band 4	TX:1710-1755MHz;RX 2110~2155MHz
	Band 5	TX:826.4-846.6MHz;RX 871.4~891.6MHz
Modulation Type:	QPSK,BPSK	
Antenna Type:	Surface Mount Multi-Band Antenna	
Antenna Gain:	UMTS B2: 4dBi (Provided by the manufacturer) UMTS B4: 4dBi (Provided by the manufacturer) UMTS B5: 3dBi (Provided by the manufacturer)	

##### LTE

LTE Operation Frequency Band:	LTE Band 2,4,5,7,12,13,26,41,66
Modulation Type:	QPSK,16QAM,64QAM,256QAM
Antenna Type:	Surface Mount Multi-Band Antenna
Antenna Gain:	Band 2: 4dBi (Provided by the manufacturer) Band 4: 4dBi (Provided by the manufacturer) Band 5: 3dBi (Provided by the manufacturer) Band 7: 4dBi (Provided by the manufacturer) Band 12: 3dBi (Provided by the manufacturer) Band 13: 3dBi (Provided by the manufacturer) Band 26: 3dBi (Provided by the manufacturer) Band 41: 4dBi (Provided by the manufacturer) Band 66: 4dBi (Provided by the manufacturer)

##### Note:

The antenna gain value is provided by the customer. The test lab will not be responsible for wrong test result due to incorrect information about antenna gain values.



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### 3.3 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. E&E Lab

588 West Jindu Road, Xinqiao, Songjiang, 201612 Shanghai, China

Tel: +86 21 6191 5666

Fax: +86 21 6191 5678

No tests were sub-contracted.

Note:

1. SGS is not responsible for wrong test results due to incorrect information (e.g., max. internal working frequency, antenna gain, cable loss, etc) is provided by the applicant. (If applicable).
2. SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (If applicable).

### 3.4 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• **A2LA (Certificate No. 6332.01)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. is accredited by the American Association for Laboratory Accreditation(A2LA).

• **FCC (Designation Number: CN1301)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been recognized as an accredited testing laboratory.

• **ISED (CAB Identifier: CN0020)**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. EMC Laboratory has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory  
Company Number: 8617A

• **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-13868, C-14336, T-12221, G-10830 respectively.



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## 4 Test Standards and Limits

### 4.1 FCC Radiofrequency radiation exposure limits:

According to §1.1310, the limit for general population/uncontrolled exposures

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f <sup>2</sup> )	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30



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## 5 Measurement and Calculation

### 5.1 Maximum transmit power

The Power Data is based on the RF Test Report FG791919A, FG791919B, FG791919C, FG791919D, RF171205C30 R1.

### 5.2 MPE Calculation

According to the formula  $S=P/4\pi R^2$ , we can calculate S which is MPE.

Note:

- 1) P (mW)
- 2) R = distance to the center of radiation of antenna (in meter) = 20cm
- 3) MPE limit = 1mW/cm<sup>2</sup>

Band Information	Antenna Gain (dBi)	Gain in Linear Scale G	Operation Distance R(cm)	Max Tune-up power (dBm)	Max Tune-up power (mW)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Result
WCDMA Band 2	4	2.51	20	24	251.19	0.125	1	Pass
WCDMA Band 4	4	2.51	20	24	251.19	0.125	1	Pass
WCDMA Band 5	3	2.00	20	24	251.19	0.100	0.55	Pass
LTE Band 2	4	2.51	20	24	251.19	0.125	1	Pass
LTE Band 4	4	2.51	20	24	251.19	0.125	1	Pass
LTE Band 5	3	2.00	20	24	251.19	0.100	0.55	Pass
LTE Band 7	4	2.51	20	23.8	239.88	0.120	1	Pass
LTE Band 12	3	2.00	20	24	251.19	0.100	0.47	Pass
LTE Band 13	3	2.00	20	24	251.19	0.100	0.52	Pass
LTE Band 26	3	2.00	20	24	251.19	0.100	0.54	Pass
LTE Band 41	4	2.51	20	23.8	239.88	0.120	1	Pass
LTE Band 66	4	2.51	20	24	251.19	0.125	1	Pass

So, the device is exclusion from SAR test.

**--End of the Report--**

