

RF EXPOSURE

Test Report

Report No. : MTi260318014-0102E5

Date of Issue : 2026-06-18

Applicant : Hamilton Rotax, LLC

Product : Car Multimedia Player

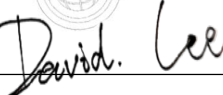
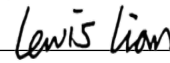
Model(s) : 4RSTD-B-HMC-M4, 4RPRM-B-HMC-M4, 4RPRM-G-HMC-M4, 4RSTD-G-HMC-M4, 16TD-HMC-M4, 15RA4-HMC-M4, 16HLD-HMC-M4, 15CMR-HMC-M4, 03LC-HMC-M4, 18CRL-HMC-M4, 16SN-HMC-M4, 18PRS-HMC-M4, 16TCM-HMC-M4, 16ACD-HMC-M4, 15CVC-HMC-M4, 16ODS-HMC-M4, 15PLT-HMC-M4, 12CRV-HMC-M4, 16MRN-HMC-M4, 18FR-HMC-M4, 18LG-HMC-M4

FCC ID : 2BNAW-SINGLE-C

Shenzhen Microtest Co., Ltd.

Table of contents

1	RF EXPOSURE EVALUATION	4
2	Measurement Result	5

Test Result Certification		
Applicant	Hamilton Rotax, LLC	
Applicant Address	3434 Edwards Mill Rd Suite 112-132 Raleigh, NC 27612, United States	
Manufacturer	Shenzhen Binary Technology Co., Ltd.	
Manufacturer Address	Third Floor No.C, Second Floor B209 and B211, HANG TIAN KE GONG YUAN, NO.8 Min Huan road, Fu Kang community, Longhua district, shenzhen city, Guangdong Province, China	
Factory	Shenzhen Binary Technology Co., Ltd.	
Factory Address	Third Floor No.C, Second Floor B209 and B211, HANG TIAN KE GONG YUAN, NO.8 Min Huan road, Fu Kang community, Longhua district, shenzhen city, Guangdong Province, China	
Product description		
Product name	Car Multimedia Player	
Trademark	Hamilton Motor Company	
Model name	4RSTD-B-HMC-M4	
Series Model(s)	4RPRM-B-HMC-M4, 4RPRM-G-HMC-M4, 4RSTD-G-HMC-M4, 16TD-HMC-M4, 15RA4-HMC-M4, 16HLD-HMC-M4, 15CMR-HMC-M4, 03LC-HMC-M4, 18CRL-HMC-M4, 16SN-HMC-M4, 18PRS-HMC-M4, 16TCM-HMC-M4, 16ACD-HMC-M4, 15CVC-HMC-M4, 16ODS-HMC-M4, 15PLT-HMC-M4, 12CRV-HMC-M4, 16MRN-HMC-M4, 18FR-HMC-M4, 18LG-HMC-M4	
Standards	47 CFR Part 2.1091	
Test method	KDB 447498 D01 v06	
Testing Information		
Date of test	2026-05-25 to 2026-06-11	
Test Result	Pass	
Prepared by:	Maleah Deng	
Reviewed by:	David Lee	
Approved by:	Lewis Lian	

1 RF EXPOSURE EVALUATION

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)	Averaging time (minutes)
(A) Limits for Occupational/Controlled Exposure				
0.3-3.0	614	1.63	*100	6
3.0-30	1842/f	4.89/f	*900/f ²	6
30-300	61.4	0.163	1.0	6
300-1,500			f/300	6
1,500-100,000			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/f ²	30
30-300	27.5	0.073	0.2	30
300-1,500			f/1500	30
1,500-100,000			1.0	30

f = frequency in MHz * = Plane-wave equivalent power density

MPE Calculation Method

Friis transmission formula: $P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot R^2)$

Where

P_d = Power density in mW/cm²

P_{out} = output power to antenna in mW

G = Numeric gain of the antenna relative to isotropic antenna

π = 3.1415926

R = distance between observation point and center of the radiator in cm(20cm)

P_d the limit of MPE, 1mW/cm². If we know the maximum gain of the antenna and total power input to the antenna, through the calculation, we will know the distance where the MPE limit is reached.

2 Measurement Result

BT:

Operation Frequency: 2402-2480MHz,
Power density limited: 1mW/ cm²

2.4GWiFi:

Operation Frequency: WIFI 802.11b/g/n20/ax20: 2412-2462MHz
Power density limited: 1mW/ cm²

5GWiFi:

U-NII-1: 5150 MHz to 5250 MHz
U-NII-3: 5725-5850 MHz
802.11a: 20 MHz
802.11n: 20 MHz, 40 MHz
802.11ac: 20 MHz, 40 MHz, 80MHz
802.11ax: 20 MHz, 40 MHz, 80MHz

LTE:

LTE FDD Band 2: 1850.7 – 1909.3MHz
LTE FDD Band 4: 1710.7 – 1754.3MHz
LTE FDD Band 5: 824.7 – 848.3MHz
LTE FDD Band 7: 2502.5 – 2567.5MHz
LTE FDD Band 12: 699.7 – 715.3MHz
LTE FDD Band 13: 779.5 – 784.5MHz
LTE TDD Band 17: 706.5 – 713.5MHz
LTE TDD Band 25: 1850.7 – 1914.3MHz
LTE TDD Band 41: 2498.5 – 2687.5MHz

Antenna Type: FPC antenna

Antenna gain:

Bluetooth: Ant1: 1.95dBi; Ant2: 1.95dBi

2.4G WIFI: 1.95dBi;

5G U-NII 1: 2.43dBi;

5G U-NII 3: 4.10dBi;

LTE FDD Band 2: 0.82 dBi
LTE FDD Band 4: 0.04 dBi
LTE FDD Band 5: 1.56 dBi
LTE FDD Band 7: -0.2 dBi
LTE FDD Band 12: -0.39 dBi
LTE FDD Band 13: 1.01 dBi
LTE FDD Band 17: -0.48 dBi
LTE FDD Band 25: 0.82 dBi
LTE TDD Band 41: -0.2 dBi

R=20cm

$mW=10^{(dBm/10)}$

antenna gain Numeric= $10^{(dBi/10)}$

BR&EDR:
Ant1:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	-1.26	(-1)±1	0	1.000	1.95	1.57	0.0003	1
2441		2.35	2±1	3	1.995	1.95	1.57	0.0006	1
2480		3.14	3±1	4	2.512	1.95	1.57	0.0008	1
2402	π/4-DQPSK	-2.18	(-2)±1	-1	0.794	1.95	1.57	0.0002	1
2441		1.45	1±1	2	1.585	1.95	1.57	0.0005	1
2480		2.18	2±1	3	1.995	1.95	1.57	0.0006	1
2402	8DPSK	-1.76	(-1)±1	0	1.000	1.95	1.57	0.0003	1
2441		1.89	1±1	2	1.585	1.95	1.57	0.0005	1
2480		2.53	2±1	3	1.995	1.95	1.57	0.0006	1

Ant2:

Channel Freq. (MHz)	modulation	conducted power	Tune-up power (dBm)	Max		Antenna		Evaluation result	Power density Limits
		(dBm)		tune-up power		Gain		(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	(dBi)	Numeric		
2402	GFSK	5.35	5±1	6	3.981	1.95	1.57	0.0012	1
2441		3.79	3±1	4	2.512	1.95	1.57	0.0008	1
2480		3.78	3±1	4	2.512	1.95	1.57	0.0008	1
2402	π/4-DQPSK	7.77	7±1	8	6.310	1.95	1.57	0.0020	1
2441		6.91	7±1	8	6.310	1.95	1.57	0.0020	1
2480		6.35	6±1	7	5.012	1.95	1.57	0.0016	1
2402	8DPSK	8.26	8±1	9	7.943	1.95	1.57	0.0025	1
2441		6.95	7±1	8	6.310	1.95	1.57	0.0020	1
2480		6.93	7±1	8	6.310	1.95	1.57	0.0020	1

2.4GWiFi:

Channel Freq. (MHz)	modulation	conduct ed power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/c m2)	(mW/cm2)
		Ant 1	Ant 1	Ant 1	Ant 1	Numeric		
2412	802.11b	12.73	12±1	13	19.95	1.57	0.0062	1
2437		13.45	13±1	14	25.12	1.57	0.0078	1
2462		11.54	11±1	12	15.85	1.57	0.0049	1
2412	802.11g	14.60	14±1	15	31.62	1.57	0.0099	1
2437		15.08	15±1	16	39.81	1.57	0.0124	1
2462		12.75	12±1	13	19.95	1.57	0.0062	1
2412	802.11n H20	14.28	14±1	15	31.62	1.57	0.0099	1
2437		14.88	14±1	15	31.62	1.57	0.0099	1
2462		12.92	13±1	14	25.12	1.57	0.0078	1
2422	802.11n40	13.62	13±1	14	25.12	1.57	0.0078	1
2437		11.76	11±1	12	15.85	1.57	0.0049	1
2452		13.43	13±1	14	25.12	1.57	0.0078	1

5G WIFI:

UNII-1

Channel Freq. (MHz)	modulation	condu cted power	Tune- up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density (mW/cm2)	(mW/cm 2)
		Ant 1	Ant 1	Ant 1	Ant 1	Numeric		
5180	802.11a	14.41	14±1	15	31.62	1.75	0.0110	1
5200		14.5	14±1	15	31.62	1.75	0.0110	1
5240		14.76	14±1	15	31.62	1.75	0.0110	1
5180	802.11n20	12.91	13±1	14	25.12	1.75	0.0087	1
5200		12.94	13±1	14	25.12	1.75	0.0087	1
5240		13.24	13±1	14	25.12	1.75	0.0087	1
5190	802.11n 40	12.8	12±1	13	19.95	1.75	0.0069	1
5230		13.82	13±1	14	25.12	1.75	0.0087	1
5180	802.11ac 20	14.22	14±1	15	31.62	1.75	0.0110	1
5200		14.36	14±1	15	31.62	1.75	0.0110	1
5240		14.67	14±1	15	31.62	1.75	0.0110	1
5190	802.11ac 40	9.99	10±1	11	12.59	1.75	0.0044	1
5230		11.11	11±1	12	15.85	1.75	0.0055	1
5210		11.62	11±1	12	15.85	1.75	0.0055	1

UNII-3

Channel Freq. (MHz)	modulation	conducted power	Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm ²)	(mW/cm ²)
		Ant 1	Ant 1	Ant 1	Ant 1	Numeric		
5745	802.11a	10.82	10±1	11	12.59	2.57	0.0064	1
5785		11.54	11±1	12	15.85	2.57	0.0081	1
5825		12.87	12±1	13	19.95	2.57	0.0102	1
5745	802.11n20	7.57	7±1	8	6.31	2.57	0.0032	1
5785		8.39	8±1	9	7.94	2.57	0.0041	1
5825		9.89	9±1	10	10.00	2.57	0.0051	1
5755	802.11n 40	9.25	9±1	10	10.00	2.57	0.0051	1
5795		12.08	12±1	13	19.95	2.57	0.0102	1
5745	802.11ac 20	7.52	7±1	8	6.31	2.57	0.0032	1
5785		8.31	8±1	9	7.94	2.57	0.0041	1
5825		9.8	9±1	10	10.00	2.57	0.0051	1
5755	802.11ac 40	9.11	9±1	10	10.00	2.57	0.0051	1
5795		10.29	10±1	11	12.59	2.57	0.0064	1
5775	802.11ac 80	7.36	7±1	8	6.31	2.57	0.0032	1

Channel Freq. (MHz)	modulation	conducted power	Max Tune-up power	Max		Antenna	Evaluation result at 20cm	Power density Limits
		(dBm)	(dBm)	tune-up power		Gain	Power density(mW/cm ²)	(mW/cm ²)
				(dBm)	(mW)	Numeric		
1880	Band2	23.76	23±1	24	251.2	1.21	0.0604	1
1720	Band4	23.39	23±1	24	251.2	1.01	0.0504	1
836.5	Band5	23.34	23±1	24	251.2	1.43	0.0716	0.57
2507.5	Band7	23.35	23±1	24	251.2	0.95	0.0477	1
704	Band12	23.37	23±1	24	251.2	0.91	0.0457	0.48
782	Band13	23.17	23±1	24	251.2	1.26	0.0631	0.52
710	Band17	23.42	23±1	24	251.2	0.90	0.0447	0.48
1882.5	Band25	23.41	23±1	24	251.2	1.21	0.0604	1
2680	Band41	23.7	23±1	24	251.2	0.95	0.0477	1

SIMULTANEOUS TRANSMISSIONS

When a number of sources at different frequencies, and/or broadband sources, contribute to the total exposure, it becomes necessary to weigh each contribution relative to the MPE. To comply with the MPE, the fraction of the MPE in terms of E2, H2 (or power density) incurred within each frequency interval should be determined and the sum of all such fractions should not exceed unity. In order to ensure compliance with the MPE for a controlled environment, the sum of the ratios of the power density to the corresponding MPE should not exceed unity. That is

$$\sum_{i=1}^n \frac{S_i}{MPE_i} \leq 1$$

Simultaneous transmit:

Operating Band	The MPE ratio
Bluetooth	0.0025
2.4G WIFI	0.0124
5G WIFI	0.0110
LTE	0.1256

Bluetooth+2.4G WIFI=0.0025+0.0124=0.0149

Bluetooth+5G WIFI =0.0025+0.0110=0.0135

Bluetooth+ LTE=0.0025+0.1256=0.1281

Conclusion:

Note: 2.4GWIFI & 5GWIFI & LTE cannot work at the same time

For the max result: $0.1281 \leq 1.0$ test exclusion threshold, No SAR is required.

Statement

1. This report is invalid without the seal and signature of the laboratory.
2. The test results of this report are only responsible for the samples submitted. Client shall be responsible for representativeness of the sample and authenticity of the material.
3. The report shall not be partially reproduced without the written consent of the Laboratory.
4. This report is invalid if transferred, altered or tampered with in any form without authorization.
5. The observations or tests with special mark fall outside the scope of accreditation, and are only used for purpose of commission, research, training, internal quality control etc.
6. Any objection to this report shall be submitted to the laboratory within 15 days from the date of receipt of the report.

***** END OF REPORT *****