



2.4G Proprietary/BLE Module

MP RF MODULE3 Manual

Revision history

Version	Date	Description
1.0	2026/5/27	First release
1.1	2026/9/08	Gains have been changed from 3.28 to 3.24.
1.2	2026/9/28	Make some adjustments to the details.

Index

- 1 PRODUCT INTRODUCTION3
 - 1.1 INTRODUCTION 4
 - 1.2 FEATHER 4
 - 1.3 CERTIFICATION..... 4
- 2 PRODUCT DESCRIPTIONS4
 - 2.1 DIMENSION..... 5
 - 2.2 PIN DEFINITION 5
 - 2.3 FOOTPRINT 8
- 3 ELECTRICAL SPECIFICATION9
 - 3.1 ABSOLUTE MAXIMUM RATINGS 9
 - 3.2 RECOMMENDED OPERATING CONDITIONS..... 9
 - 3.3 GENERAL RADIO CHARACTERISTICS 10
 - 3.4 RADIO CURRENT CONSUMPTION (TRANSMITTER) 10
 - 3.5 TRANSMITTER SPECIFICATION 10
 - 3.6 RECEIVER OPERATION 12
 - 3.7 RX SELECTIVITY 13
 - 3.8 RX INTERMODULATION 15
 - 3.9 RECEIVED SIGNAL STRENGTH INDICATOR (RSSI) SPECIFICATIONS 15
- 4 ANTENNA.....16
 - 4.1 ANTENNA TYPE AND GAINS 16
 - 4.2 ANTENNA PLACEMENT WITHIN THE HOST PLATFORM 16
 - 4.3 RECOMMENDED METHOD FOR RETENTION OF CABLE 16
- 5 RF WARNING MESSAGE16
 - 5.1 RF EXPOSURE INFORMATION (SAR) 16
 - 5.2 CLASS B DEVICE INTERFERENCE STATEMENT 16
 - 5.3 INFORMATION FOR OEMS AND HOST INTEGRATORS 17
 - 5.4 SIMULTANEOUS TRANSMISSION OF ASUS WIRELESS MODULE WITH OTHER INTEGRATED OR PLUG-IN TRANSMITTERS 17

Introduction

MPRFMODULE3 is a BLE 5.4/ 2.4G proprietary module based on Airoha AB1625M SoC with a 156 MHz ARM[®] Cortex[®] M33 with Floating Point Unit (FPU) and Memory Protection Unit (MPU). The module comes with a coaxial connector for an external PIFA antenna.

Feather

- ARM[®] Cortex[®] M33 up to 156 MHz
- 384KB system RAM (SYSRAM) with a maximum speed of 156MHz. It can be Tightly Couple Memory (TCM) with zero wait state and data RAMs
- Bluetooth[®]6.0
- & 2.4 GHz transceiver
- BLE 5.4 data rate: 2 Mbps
- 2.4G proprietary data rate: 4 Mbps
- Flexible power mangement:
 - 1.8V to 3.3V supply voltage range
 - On-chip DC/DC and LDO regulators with automated low current modes
 - 1.8V to 3.3V regulated supply for external components

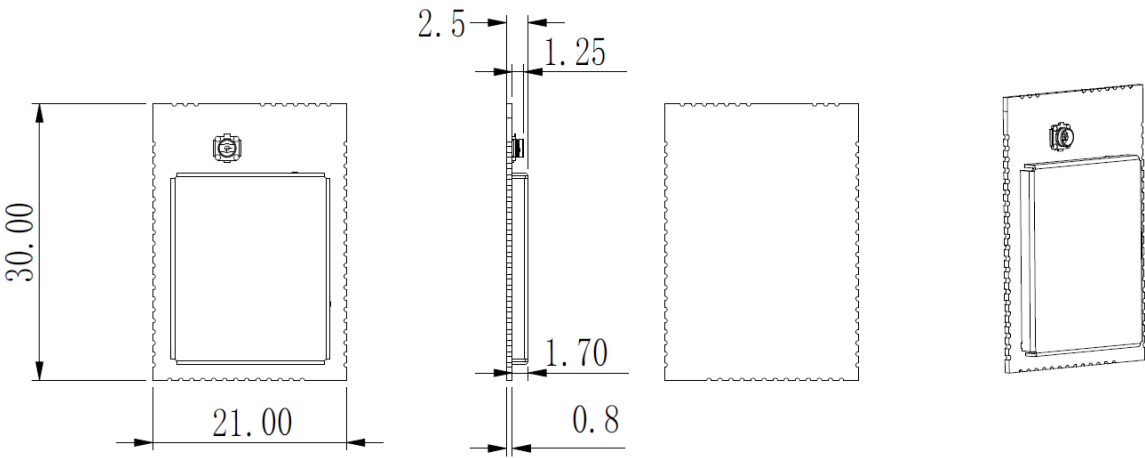
Certification

- FCC ID:MSQMPRFMODULE3
- ISED ID: 3568A-MPRFMODULE3

Product Descriptions

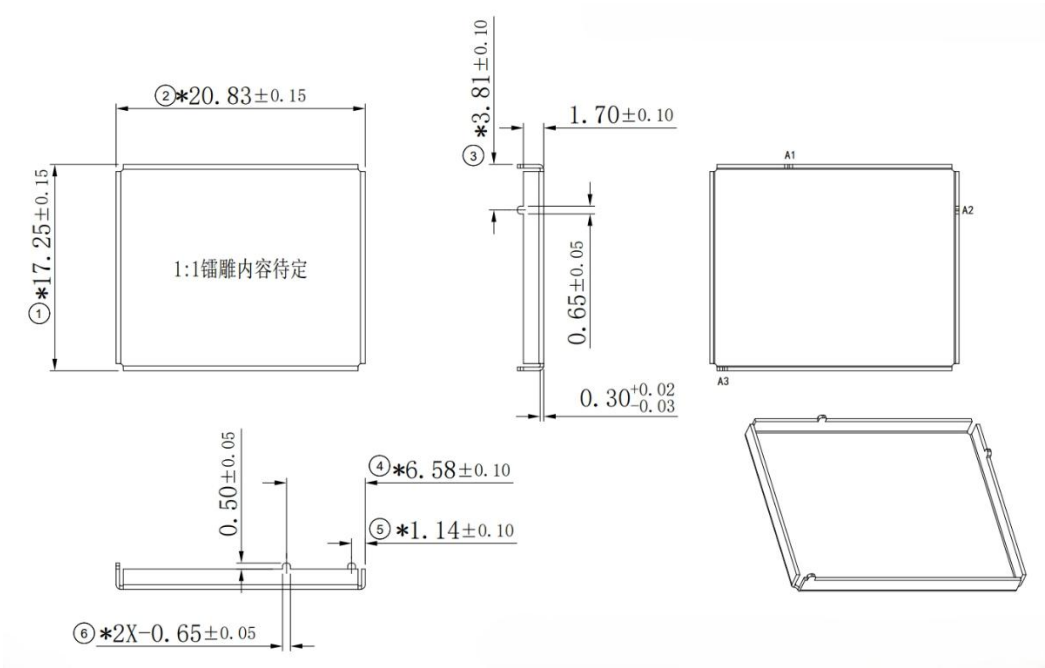
Dimension

- **PCB Size: 21 x 30 x 0.8mm**



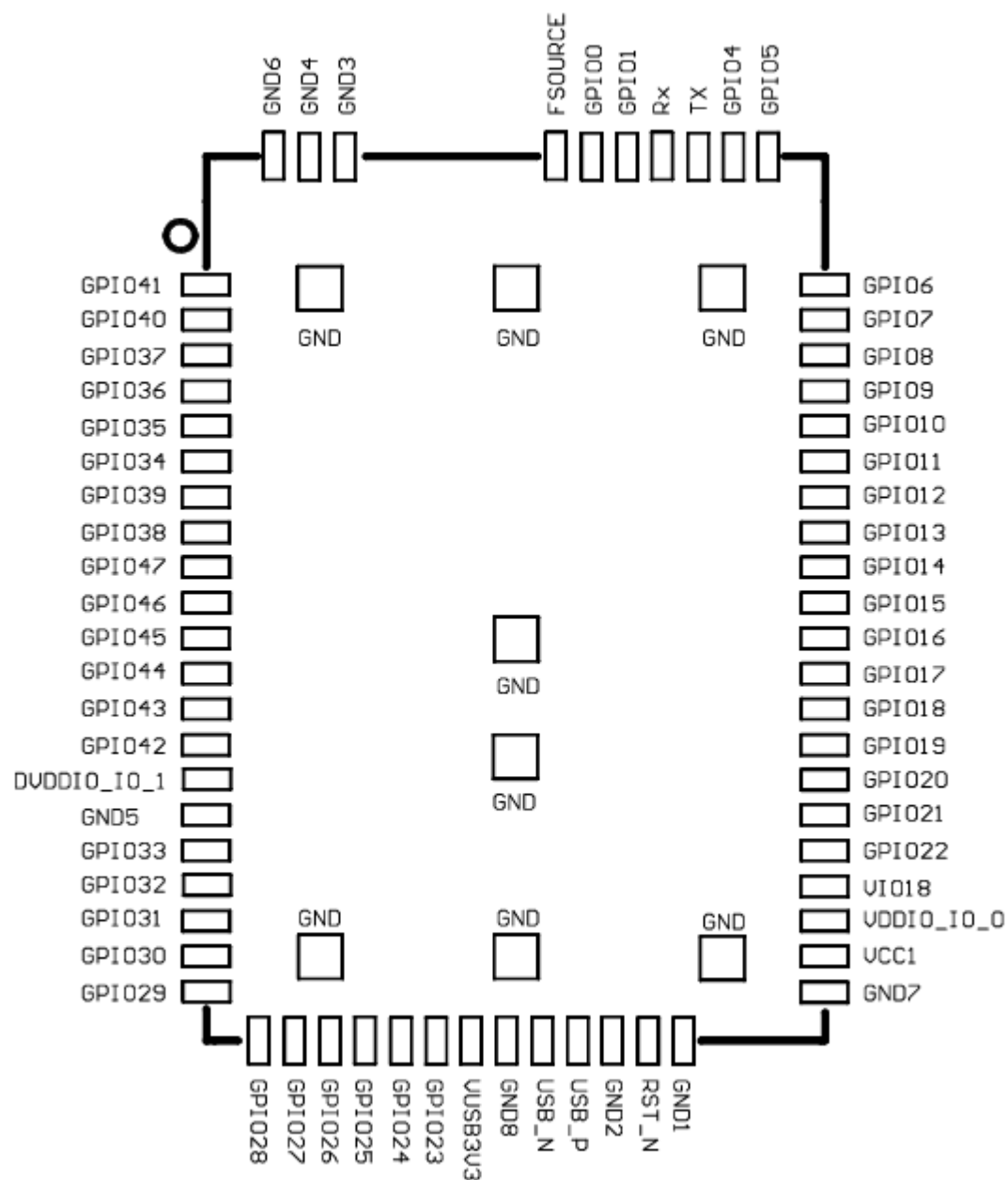
Unit (mm)

- **Shielding Case**



Unit (mm)

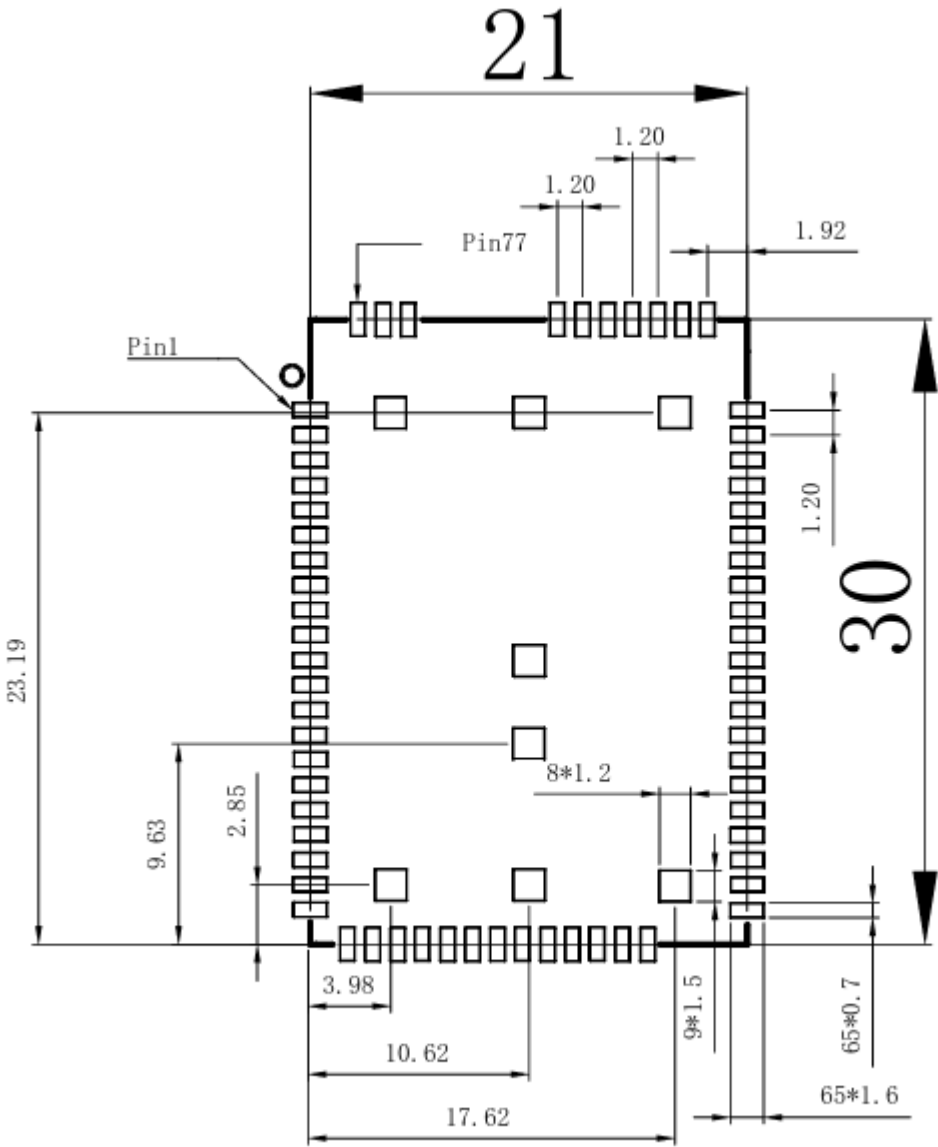
Pin definition



Pin No.	Name	Function	Description	Recommended usage
1	GPIO41	Digital I/O	General purpose I/O	
2	GPIO40	Digital I/O	General purpose I/O	
3	GPIO37	Digital I/O	General purpose I/O	
4	GPIO36	Digital I/O	General purpose I/O	
5	GPIO35	Digital I/O	General purpose I/O	
6	GPIO34	Digital I/O	General purpose I/O	
7	GPIO39	Digital I/O	General purpose I/O	
8	GPIO38	Digital I/O	General purpose I/O	
9	GPIO47	Digital I/O	General purpose I/O	
10	GPIO46	Digital I/O	General purpose I/O	
11	GPIO45	Digital I/O	General purpose I/O	
12	GPIO44	Digital I/O	General purpose I/O	

13	GPIO43	Digital I/O	General purpose I/O	
14	GPIO42	Digital I/O	General purpose I/O	
15	DVDD_IO_1	Power	Power input of GPIO group 1	
16	GND	Ground	Ground	
17	GPIO33	Digital I/O	General purpose I/O	
18	GPIO32	Digital I/O	General purpose I/O	
19	GPIO31	Digital I/O	General purpose I/O	
20	GPIO30	Digital I/O	General purpose I/O	
21	GPIO29	Digital I/O	General purpose I/O	
22	GPIO28	Digital I/O	General purpose I/O	
23	GPIO27	Digital I/O	General purpose I/O	
24	GPIO26	Digital I/O	General purpose I/O	
25	GPIO25	Digital I/O	General purpose I/O	
26	GPIO24	Digital I/O	General purpose I/O	
27	GPIO23	Digital I/O	General purpose I/O	
28	VUSB3V3	Power	USB Power PIN	
29	GND	Ground	Ground	
30	USB_N	USB D-	USB signal DM	
31	USB_P	USB D+	USB signal DP	
32	GND	Ground	Ground	
33	RST_N	Reset	RST_N button	
34	GND	Ground	Ground	
35	GND	Ground	Ground	
36	VCC1	Power	Power supply of LD0_VI018	
37	VDDIO_IO_0	Power	Power input of GPIO group 0	
38	VIO18	Power	VIO18 output voltage	
39	GPIO22	Digital I/O	General purpose I/O	
40	GPIO21	Digital I/O	General purpose I/O	
41	GPIO20	Digital I/O	General purpose I/O	
42	GPIO19	Digital I/O	General purpose I/O	
43	GPIO18	Digital I/O	General purpose I/O	
44	GPIO17	Digital I/O	General purpose I/O	
45	GPIO16	Digital I/O	General purpose I/O	
46	GPIO15	Digital I/O	General purpose I/O	
47	GPIO14	Digital I/O	General purpose I/O	
48	GPIO13	Digital I/O	General purpose I/O	
49	GPIO12	Digital I/O	General purpose I/O	
50	GPIO11	Digital I/O	General purpose I/O	
51	GPIO10	Digital I/O	General purpose I/O	
52	GPIO09	Digital I/O	General purpose I/O	
53	GPIO08	Digital I/O	General purpose I/O	
54	GPIO07	Digital I/O	General purpose I/O	
55	GPIO06	Digital I/O	General purpose I/O	
56	GPIO05	Digital I/O	General purpose I/O	
57	GPIO04	Digital I/O	General purpose I/O	
58	TX	Digital I/O	UART	
59	RX	Digital I/O	UART	
60	GPIO01	Digital I/O	General purpose I/O	
61	GPIO00	Digital I/O	General purpose I/O	
62	FSOURCE	Power	eFuse power source	
63	GND	Ground	Ground	
64	GND	Ground	Ground	
65	GND	Ground	Ground	

Footprint



Electrical specification

Absolute maximum ratings

Symbol or Pin Name	Description	Min	Max	Unit
AVDD_VRF18	BT RF high voltage supply		1.95	V
AVDDPA	BT RF low voltage supply		1.5	V
VBAT	Power supply of LDO_VIO18.	0	3.6	V
VBAT_BUCK	Power supply of BUCK. Ensure that the VBAT and VBAT_BUCK pins have the same voltage.	0	3.6	V

Symbol or Pin Name	Description	Min	Typ.1	Typ.2	Max	Unit
DVDD_IO_0	Power supply for GPIO group 0	1.62	1.8	3.3	3.63	V
DVDD_IO_1	Power supply for GPIO group 11	1.62	1.8	3.3	3.63	V

Recommended operating conditions

Symbol or Pin Name	Description	Min	Typical	Max	Unit
AVDD_VRF18	BT RF1 supply			1.95	V
AVDDPA	BT RF2 supply			1.5	V
VBAT	Power supply of LDO_VIO18.	1.8		3.3	V
VBAT_BUCK	Power supply of BUCK. Ensure that the VBAT and VBAT_BUCK pins have the same voltage.	1.8		3.3	V

General radio characteristics

Description	Condition	Min	Typical	Max	Unit
Frequency range		2,402	-	2,480	MHz
Output power		-20	10	-	dBm
Modulation characteristic	Δf_{1avg} (00001111)	235	250	265	kHz
	Δf_{2max} (10101010)	185	215	-	kHz
	$\Delta f_{2avg}/\Delta f_{1avg}$	0.8	0.9	-	
Carrier frequency offset and drift	Frequency offset	-150	± 5	150	kHz
	Frequency drift	-50	± 5	50	kHz
	Maximum drift rate	-20	± 3	20	kHz/ μs
In-band spurious emission	± 2 MHz offset	-	-45	-20	dBm
	± 3 MHz offset	-	-50	-30	dBm

Radio current consumption (transmitter)

Scenario	Description	Min	Typ.	Max	Unit
I _{DeepSlp}	No RAM retention, no 32K, and only wake-up by GPIO		0.77		μA
I _{ExtSlp_64KB}	64KB RAM retention and wake-up by GPIO/timer		7.6		μA
I _{ExtSlp_128KB}	128KB RAM retention and wake-up by GPIO/timer		9.5		μA
I _{ExtSlp_256KB}	256KB RAM retention and wake-up by GPIO/timer		13.0		μA
I _{ExtSlp_384KB}	384KB RAM retention and wake-up by GPIO/timer		15.5		μA
I _{Slp_256KB}	CPU off, 256KB RAM retention, and EOSC32K		74.3		μA
I _{Slp_384KB}	CPU off, 384KB RAM retention, and EOSC32K		76.8		μA
I _{cpu_coremark}	CM33 coremark (78MHz), RISC-V WFI, full RAM		2.46		mA
I _{cpu_wfi}	CM33 WFI, RISC-V WFI, full RAM		0.83		mA

Transmitter specification

Description	Condition	Min	Typical	Max	Unit
Frequency range		2,402	-	2,480	MHz
Output power		-20	10	-	dBm
Modulation characteristic	Δf_{1avg} (00001111)	235	250	265	kHz
	Δf_{2max} (10101010)	185	215	-	kHz

	$\Delta f_{2avg}/\Delta f_{1avg}$	0.8	0.9	-	
Carrier frequency offset and drift	Frequency offset	-150	± 5	150	kHz
	Frequency drift	-50	± 5	50	kHz
	Maximum drift rate	-20	± 3	20	kHz/ μ s
In-band spurious emission	± 2 MHz offset	-	-45	-20	dBm
	± 3 MHz offset	-	-50	-30	dBm
	$> \pm 3$ MHz offset	-	-50	-30	dBm
Description	Condition	Min	Typical	Max	Unit
HD2	+10dBm TX Pout		-45	-42	dBm
HD3	+10dBm TX Pout		-45	-42	dBm

Description	Condition	Min	Typical	Max	Unit
Frequency range		2,402	-	2,480	MHz
Output power		-20	10	-	dBm
Modulation characteristic	Δf_{1avg} (00001111)	450	500	550	kHz
	Δf_{2max} (10101010)	370	454	-	kHz
	$\Delta f_{2avg}/\Delta f_{1avg}$	0.8	0.9	-	
Carrier frequency offset and drift	Frequency offset	-150	± 5	150	kHz
	Frequency drift	-50	± 5	50	kHz
	Maximum drift rate	-20	± 3	20	kHz/ μ s
In-band spurious emission	± 4 MHz offset	-	-50	-20	dBm
	± 5 MHz offset	-	-50	-20	dBm
	$\geq \pm 6$ MHz offset	-	-50	-30	dBm
HD2	+10dBm TX Pout		-45	-42	dBm
HD3	+10dBm TX Pout		-45	-42	dBm

Receiver operation

Description	Condition	Min	Typical	Max	Unit
Frequency range		2,402	-	2,480	MHz

RX selectivity

Description	Condition	Min	Typical	Max	Unit
Frequency range		2,402	-	2,480	MHz
Receiver sensitivity	Wanted power= -67dBm PER < 30.8%	-	-98	-70	dBm
Maximum detectable input power	Wanted power= -67dBm PER < 30.8%	-10	-5	-	dBm
C/I co-channel selectivity	Wanted power= -67dBm PER < 30.8%	-	6	21	dB
C/I at 1MHz adjacent channel selectivity	Wanted power= -67dBm PER < 30.8%	-	-7	15	dB
C/I at 2MHz adjacent channel selectivity	Wanted power= -67dBm PER < 30.8%	-	-42	-17	dB

Description	Condition	Min	Typical	Max	Unit
C/I ≥ 3 MHz adj. channel selectivity ¹	Wanted power= - 67dBm PER < 30.8%	-	-47	-27	dB
Color image channel selectivity	Wanted power= - 67dBm PER < 30.8%	-	-24	-9	dB
C/I image at 1MHz adjacent channel selectivity	Wanted power= - 67dBm PER < 30.8%	-	-47	-15	dB
Out-of-band blocking	30MHz to 2,000MHz	-	-	-30	dBm
	2,001MHz to 2,339MHz	-	-	-35	dBm
	2,501MHz to 3,000MHz	-	-	-35	dBm
	3,001MHz to 12.75GHz	-	-	-30	dBm
Description	Condition	Min	Typical	Max	Unit
Frequency range		2,402	-	2,480	MHz
Receiver sensitivity	PER < 30.8%	-	-95	-70	dBm
Maximum detectable input power	PER < 30.8%	-10	-5	-	dBm
C/I co- channel selectivity	Wanted power= - 67dBm PER < 30.8%	-	6	21	dB

C/I at 2MHz adjacent channel selectivity	Wanted power= -67dBm PER < 30.8%	-	-7	15	dB
C/I for 4MHz adjacent channel selectivity	Wanted power= -67dBm PER < 30.8%	-	-42	-17	dB
C/I ≥ 6MHz adj. channel selectivity ³	Wanted power= -67dBm PER < 30.8%	-	-47	-27	dB
Color image channel selectivity	Wanted power= -67dBm PER < 30.8%	-	-24	-9	dB
C/I image at 2MHz adjacent channel selectivity	Wanted power= -67dBm PER < 30.8%	-	-47	-15	dB
Out-of-band blocking	30MHz to 2,000MHz	-	-	-30	dBm
	2,001MHz to 2,339MHz	-	-	-35	dBm
	2,501MHz to 3,000MHz	-	-	-35	dBm
	3,001MHz to 12.75GHz	-	-	-30	dBm

RX intermodulation

RX intermodulation. Desired signal level at $P_{IN} = -64$ dBm. Two interferers with equal input power are used. The interferer closest in frequency is not modulated, the other interferer is modulated equal with the desired signal. The input power of the interferers where the sensitivity equals $BER = 1E-3$ is presented.

Received signal strength indicator (RSSI) specifications

Antenna

Antenna Type and Gains

Only antennas of the same type and with equal or less gains as 3.24 dBi for the 2.4GHz band shall be used with the MPRFMODULE3. Other types of antennas and/or higher gain antennas may require additional authorization for operation. For testing purposes the following dual band antenna that approximates closely the above limits was used:

No.	Manufacturer	Part No.	Antenna Type	Peak Gain (dBi)	Freq. Range (GHz)	Connector Type
1	ASUS	20LT0-000UZ000	PIFA	3.24	2.4~2.4835	i-pex (MHF)

Antenna Placement Within the Host Platform

To ensure RF exposure compliance the antenna used with the ASUS wireless module must be installed in host platforms to provide a minimum separation distance from all persons, in all operating modes and orientations of the host platform, with strict adherence to the table below. The antenna separation distance applies to both horizontal and vertical orientation of the antenna when installed in the host system.

ASUS Wireless Module	Minimum required antenna-to-user separation distance
MPRFMODULE3	0 mm

Recommended Method For Retention Of Cable

It is recommended to restrain the antenna cables of products of cable length leaving the RF connectors on the module.

It is recommended to use a robust tape or adhesive to secure the cables so they do not move or pull on the connector during shock and vibration of the system.

RF warning message

RF Exposure Information (SAR)

This device meets the government's requirements for exposure to radio waves. This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

The exposure standard employs a unit of measurement known as the Specific Absorption Rate, or SAR. The SAR limit set by the FCC is 1.6 W/kg. Tests for SAR are conducted using standard operating positions accepted by the FCC with the EUT transmitting at the specified power level in different channels.

The FCC has granted an Equipment Authorization for this device with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. SAR information on this device is on file with the FCC and can be found under the Display Grant section of www.fcc.gov/eot/ea/fccid after searching on FCC ID: MSQMPRFMODULE3

Class B Device Interference Statement

This wireless module has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This wireless module generates, uses, and can radiate radio frequency energy. If the wireless module is not installed and used in accordance with the instructions, the

wireless module may cause harmful interference to radio communications. There is no guarantee, however, that such interference will not occur in a particular installation. If this wireless module does cause harmful interference to radio or television reception (which can be determined by turning the equipment off and on), the user is encouraged to try to correct the interference by taking one or more of the following measures:

- Reorient or relocate the receiving antenna of the equipment experiencing the interference.
- Increase the distance between the wireless module and the equipment experiencing the interference.
- Connect the computer with the wireless adapter to an outlet on a circuit different from that to which the equipment experiencing the interference is connected.
- Consult the dealer or an experienced radio/TV technician for help.

NOTE: The adapter must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. Any other installation or use will violate FCC Part 15 regulations.

Information for OEMs and Host Integrators

The guidelines described within this document are provided to OEM integrators installing ASUS wireless module in keyboard and mouse devices. Adherence to these requirements is necessary to meet the conditions of compliance with FCC rules, including RF exposure. When all antenna type and placement guidelines described herein are fulfilled the ASUS wireless module may be incorporated into keyboard and mouse devices with no further restrictions. If any of the guidelines described herein are not satisfied it may be necessary for the OEM or integrator to perform additional testing and/or obtain additional approval. The OEM or integrator is responsible to determine the required host regulatory testing and/or obtaining the required host approvals for compliance.

- ASUS wireless module are intended for OEMs and host integrators only.
- The ASUS wireless module FCC Grant of Authorization describes any limited conditions of modular approval.
- The ASUS wireless module must be operated with an access point that has been approved for the country of operation.
- Changes or modification to ASUS wireless module by OEMs, integrators or other third parties is not permitted. Any changes or modification to ASUS wireless module by OEMs, integrators or other third parties will void authorization to operate the adapter.

Simultaneous Transmission of ASUS Wireless Module with Other Integrated or Plug-In Transmitters

Based upon FCC Knowledge Database publication number 616217, when there are multiple transmitting devices installed in a host device, an RF exposure transmitting assessment shall be performed to determine the necessary application and test requirements. OEM integrators must identify all possible combinations of simultaneous transmission configurations for all transmitters and antennas installed in the host system. This includes transmitters installed in the host as mobile devices (>20 cm separation from user) and portable devices (<20 cm separation from user). OEM integrators should consult the actual FCC KDB 616217 document for all details in making this assessment to determine if any additional requirements for testing or FCC approval is necessary.

Canada, Innovation, Science and Economic Development Canada (ISED) Notices

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Avis du Canada, Innovation, Sciences et Développement économique Canada (ISED)

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage;

(2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Innovation, Science and Economic Development Canada (ISED) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has been evaluated for and shown compliant with the ISED Specific Absorption Rate ("SAR") limits when operated in portable exposure conditions.

Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie rayonnée du dispositif sans fil est inférieure aux limites d'exposition aux radiofréquences d'Innovation, Sciences et Développement économique Canada (ISED). Le dispositif sans fil doit être utilisé de manière à minimiser le potentiel de contact humain pendant le fonctionnement normal.

Cet appareil a été évalué et montré conforme aux limites de DAS (Débit d'Absorption Spécifique) de l'ISED lorsqu'il est utilisé dans des conditions d'exposition portables.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain (dBi)	Freq. Range (GHz)	Connector Type
1	ASUS	20LT0-000UZ000	PIFA	3.24	2.4~2.4835	i-pex (MHF)

If the ISED certification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains IC: 3568A-MPRFMODULE3".
Si le numéro de certification ISDE n'est pas visible lorsque le module est installé à l'intérieur d'un autre appareil, alors l'extérieur de l'appareil dans lequel le module est installé doit également afficher une étiquette faisant référence au module inclus. Cette étiquette extérieure peut utiliser un libellé comme celui-ci: " Contient IC: 3568A-MPRFMODULE3".
Plaque signalétique du produit final:
Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: 3568A-MPRFMODULE3 ".

NCC: Taiwan Wireless Statement

取得審驗證明之低功率射頻器材，非經核准，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。低功率射頻器材之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前述合法通信，指依電信管理法規定作業之無線電通信。低功率射頻器材須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

本模組於取得認證後將依規定於模組本體標示審驗合格標籤，並要求最終產品平台廠商(OEM Integrator)於最終產品平台(End Product)上標示: 
” 本產品內含射頻模組，其 NCC 型式認證號碼為: CCXXxxYYyyyZzW ”

CE RED RF Output table (Directive 2014/53/EU)

Function	FREQUENCY	Maximum Output Power(EIRP)
2.4GHZ wireless	2402-2480MHz	10 dBm
BLE	2402-2480 MHz	10 dBm

UKCA RF Output table (The Radio Equipment Regulations 2017)

Function	FREQUENCY	Maximum Output Power(EIRP)
2.4GHZ wireless	2402-2480 MHz	10 dBm
BLE	2402-2480 MHz	10 dBm

KC RF Output Table

Function	Frequency	Power
2.4GHz wireless	2402-2480 MHz-Module 특정소출력 무선기기(무선데이터통신시스템용 무선기기)	10mW
BLE	2402-2480 MHz-Module 특정소출력 무선기기(무선데이터통신시스템용 무선기기)	10mW

Manufacturer	ASUSTek COMPUTER INC.
Address, City	1F., No. 15, Lide Rd., Beitou Dist., Taipei City 112, Taiwan
Authorized Representative in Europe	ASUS COMPUTER GmbH
Address	Harkortstrasse 21-23, 40880 Ratingen
Country	Germany
Authorized Representative in United Kingdom	ASUSTEK (UK) LIMITED
Address	1st Floor, Sackville House, 143-149 Fenchurch Street, London, EC3M 6BL, England
Country	United Kingdom

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

2.2 List of applicable FCC rules

This module has been tested for compliance to FCC Part 15 Subpart C (15.247).

2.3 Summarize the specific operational use conditions

The module is tested for standalone portable RF exposure use condition. Any other usage conditions such as co-location with other transmitter(s) will need a separate reassessment through a class II permissive change application or new certification.

2.4 Limited module procedures

Not applicable, this device is a single modular approval and meets FCC 47 CFR 15.212 requirement.

2.5 Trace antenna designs

Not applicable. This module has its own antenna, and does not need a host's printed board micro strip trace antenna, etc.

2.6 RF exposure considerations

This device was tested for typical body operations. To comply with RF exposure requirements, a minimum separation distance of 0 mm must be maintained between the user's body including the antenna. Accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided.

2.7 Antennas

This module has been approved to operate with the antenna types listed below, with the maximum permissible gain indicated.

No.	Manufacturer	Part No.	Antenna Type	Peak Gain (dBi)	Freq. Range (GHz)	Connector Type
1	ASUS	20LT0-000UZ000	PIFA	3.24	2.4~2.4835	i-pex (MHF)

IMPORTANT: The final host product must have an integral antenna which is not removable by the end-user.

2.8 Label and compliance information

Label of the end product:

The final end product must be labeled in a visible area with the following: "Contains FCC ID: MSQMPRFMODULE3". The grantee's FCC ID can be used only when all FCC compliance requirements are met

2.9 Information on test modes and additional testing requirements

This transmitter is tested in a standalone portable RF exposure condition and any co-located or simultaneous transmission with other transmitter(s) class II permissive change re-evaluation or new certification.

2.10 Additional testing, Part 15 Subpart B disclaimer

This transmitter module is tested as a subsystem and its certification does not cover the FCC Part 15 Subpart B (unintentional radiator) rule requirement applicable to the final host. The final host will still need to be reassessed for compliance to this portion of rule requirements if applicable. As long as all conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

IMPORTANT NOTE: In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module. The end user manual shall include all required regulatory information/warning as show in this manual.

OEM/Host manufacturer responsibilities

OEM/Host manufacturers are ultimately responsible for the compliance of the Host and Module. The final product must be reassessed against all the essential requirements of the FCC rule such as FCC Part 15 Subpart B before it can be placed on the US market. This includes reassessing the transmitter module for compliance with the Radio and EMF essential requirements of the FCC rules. This module must not be incorporated into any other device or system without retesting for compliance as multi-radio and combined equipment.