

Product Name	Model Name	Brand Name
2.4GHz Wireless Module	469R	BOSE

● Features

- 2.4GHz ISM Band
- GFSK modulation
- Low BOM cost
- Support Standard Digital I2S audio interface
- TX module with fixed Antenna, RX module with diversity Antenna
- Audio format 24bit , 48KHz sampling rate
- Robust Packet error correction
- Support I2C control interface
- Low power consumption < 100mA
- No RF induced audio noise
- Low Audio latency time, 6ms

● Application

- Wireless Microphone

● Interface

Pin	Name	I/O	Pin Function Define
1	Flash_CS	I	Flash Chip Select
2	Flash_SCK	I	Flash Clock
3	Flash_SO	O	Flash Data Output
4	GPIO 17	I/O	GPIO
5	Flash_SI	I	Flash Data Input
6	DGND	P	Digital GND
7	PORN	I/O	Internal power on reset (1)
8	GPIO 26	I/O	GPIO
9	GPIO 27	I/O	GPIO
10	I2C_DATA	I/O	I2C Master/Slave data signal
11	I2C_CLK	I/O	I2C Master/Slave clock signal
12	GPIO 16	I/O	GPIO
13	GPIO 35	I/O	GPIO
14	GPIO 2	I/O	GPIO
15	GPIO 21	I/O	GPIO
16	GPIO 0	I/O	GPIO
17	SPB_I2S_BCK	I/O	SPB I2S audio BCK
18	SPB_I2S_LRCK	I/O	SPB I2S audio LRCK
19	NC	I/O	NC

20	DGND	P	Digital GND
21	VCC	P	DC 3.3V IN
22	DGND	P	Digital GND
23	SPA_I2S_DATA	I/O	SPA I2S audio Data
24	GPIO 1	I/O	GPIO
25	GPIO 15	I/O	GPIO
26	SPB_I2S_MCLK	I/O	SPB I2S audio MCLK
27	NC	I/O	NC

- Frequency range: Lowest Frequency.: 2.403 GHz Highest Frequency: 2.481 GHz
- Maximum output power: 10dBm

Hereby, [Name of manufacturer – BOSE] declares that the radio equipment type [Model No. 469R] is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: https://www.bose.com/en_us/index.html

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。此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，並要求平台廠商於平台上標示。

FCC regulatory compliance statement

§15.19 Statement

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.

§15.21 Information to user

Warning: changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

- List of applicable FCC rules:

47 CFR Part 15, Subpart C 15.203
47 CFR Part 15, Subpart C 15.205
47 CFR Part 15, Subpart C 15.207
47 CFR Part 15, Subpart C 15.209
47 CFR Part 15, Subpart C 15.247
47 CFR Part 2.1093

- Summarize the specific operational use conditions

This module can be used in IOT devices, the input voltage to the module is nominally 3.3V.

- Limited module procedures

This module is not a limited module.

- Trace antenna designs

The antenna is not a trace antenna.

- RF exposure considerations

This Module complies with FCC radiation exposure limits set forth for an uncontrolled environment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

- Antennas

If you desire to increase antenna gain and either change antenna type or use same antenna type certified, a Class II permissive change application is required to be filed by us, or you (host manufacturer) can take responsibility through the change in FCC ID (new application) procedure followed by a Class II permissive change application.

- Label and compliance information

Please notice that if the FCC identification 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 FCC ID: **A94-469R**" any similar wording that expresses the same meaning may be used.

§ 15.19 Labelling requirements shall be complied on end user device.

Labelling rules for special device, please refer to §2.925, § 15.19 (a)(5) and relevant KDB publications. For E-label, please refer to §2.935.

- Information on test modes and additional testing requirements

The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module.

The module is limited to installation in mobile application, a separate approval is required for all other operating configurations, including portable configurations with respect to §2.1093 and difference antenna configurations.

Test software access to different test modes: EVB Tool (V1)

Testing item, Frequencies, Transmit Power, Modulation Type can be selected on the test script instructions.

- FCC other Parts, Part 15B Compliance Requirements for Host product manufacturer

This modular transmitter is only FCC authorized for the specific rule parts listed on our grant, host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification.

Host manufacturer in any case shall ensure host product which is installed and operating with the module is in compliant with Part 15B requirements.

Please note that For a Class B or Class A digital device or peripheral, the instructions furnished the user manual of the end-user product shall include statement set out in *§15.105 Information to the user* or such similar statement and place it in a prominent location in the text of host product manual. Original texts as following:

For Class B

Note: This equipment 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 equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment 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 one or more of the following measures:

- Reorient or relocate the receiving antenna.*
- Increase the separation between the equipment and receiver.*
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.*
- Consult the dealer or an experienced radio/TV technician for help.*

For Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

ISED compliance statement

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.

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.

ISED Radiation Exposure statement

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment.

Cet équipement est conforme aux limites d'exposition aux radiations IC CNR-102 établies pour un environnement non contrôlé. Cet émetteur ne doit pas être colocalisé ou fonctionner en conjonction avec une autre antenne ou un autre émetteur.

Please notice that if the IC identification 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: [3232A-469R](#)” any similar wording that expresses the same meaning may be used.

L'étiquette d'homologation d'un module d'Innovation, Sciences et Développement économique Canada devra être posée sur le produit hôte à un endroit bien en vue, en tout temps. En l'absence d'étiquette, le produit hôte doit porter une étiquette sur laquelle figure le numéro d'homologation du module d'Innovation, Sciences et Développement économique Canada, précédé du mot « contient », ou d'une formulation similaire allant dans le même sens et qui va comme suit :

Contient IC : [3232A-469R](#) est le numéro d'homologation du module

This radio transmitter [IC: [3232A-469R](#)] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

Cet émetteur radio [IC : [3232A-469R](#)] a été approuvé par Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antennes énumérés ci-dessous, avec le gain maximal admissible indiqué. Les types d'antennes non inclus dans cette liste qui ont un gain supérieur au gain maximal indiqué pour n'importe quel type répertorié sont strictement interdits pour l'utilisation avec ce périphérique.

RF Exposure Compliance

The portable device is designed to meet the requirements for exposure to radio waves established by the FCC/ISED. These requirements set a SAR limit of 1.6 W/kg averaged over one gram of tissue. The highest SAR value reported under this standard during product certification for use when properly worn on the body.

Le dispositif portatif est conçu pour répondre aux exigences d'exposition aux ondes radio établie par le développement énergétique DURABLE. Ces exigences un SAR limite de 1,6 W/kg en moyenne pour un gramme de tissu. La valeur SAR la plus élevée signalée en vertu de cette norme lors de la certification de produit à utiliser lorsqu'il est correctement porté sur le corps.

a list of all antenna types:

Chip Antenna	CH2G4-6022-000D1-01	2.3 dBi, 50 Ω
IFA Antenna	WA-P-LA-03-301	4.2 dBi, 50 Ω
IFA Antenna	WA-P-LA-03-307	4.1 dBi, 50 Ω
IFA Antenna	WA-P-LA-03-308	3.9 dBi, 50 Ω
IFA Antenna	WA-P-LA-05-007	3.26 dBi, 50 Ω
IFA Antenna	WA-P-LA-05-008	2.74 dBi, 50 Ω
IFA Antenna	WA-P-LA-05-009	2.59 dBi, 50 Ω
Dipole Antenna	RFPCA401535IMAB301	3.75 dBi, 50 Ω
Dipole Antenna	RFPCA401540IMAB302	3.57 dBi, 50 Ω

Dipole Antenna	RFPCA401545IMAB301	3.39 dBi, 50 Ω
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