AW-XM553 User Manual

FCC ID=AK8XM553 / IC ID=409B-XM553

1. INTRODUCTION

This module is not sold to general end users directly, and this user manual is for integrating the module in a host product.

2. INTEGRATION INSTRUCTION

[2.1 General]

This user manual describes the integration procedure per Sec. 2.2 to 2.12 of KDB 996369 D03.

This Limited modular approval as this module is limited to installation by the grantee into our host systems.

[2.2 List of applicable FCC rules]

This device complies with below part 15 of the FCC Rules.

Part 15 Subpart C

Part 15 Subpart E

[2.3 Summarize the specific operational use conditions]
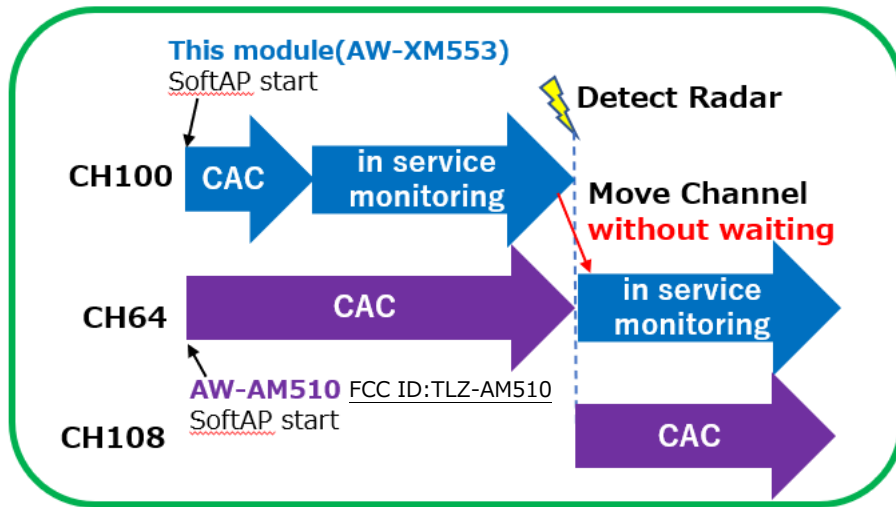
This module designed for mounting inside of the end product by us professionally.

Therefore, it complies with the antenna and transmission system requirements of §15.203.

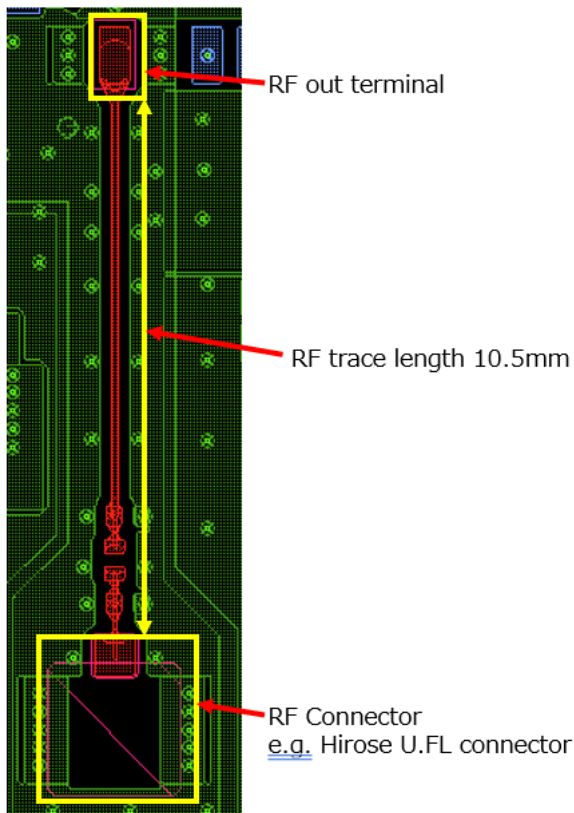### [2.4 Limited module procedures]

This module is certified as limited modular approval as it does not have its own power supply regulator, therefore regulated 3.3V and 1.8V must be supplied by a host device using voltage regulator, e.g. RP115L331D for 3.3V, BD71847AMWV for 1.8V or equivalent.

This module can achieve the following zero wait DFS behavior with AW-AM510 module.

This module(AW-XM553)
SoftAP start

Detect Radar

CH100 | CAC | in service monitoring | Move Channel **without waiting**

CH64 | CAC | in service monitoring

AW-AM510 FCC ID:TLZ-AM510
SoftAP start

CH108 | CAC

[2.5 Trace antenna designs]

・RF trace design

RF out terminal

RF trace length 10.5mm

RF Connector
e.g. Hirose U.FL connector

RF trace between RF out terminal and RF connector is designed with a 50-ohm line.

・Antenna

Please refer to the antenna datasheet.

1) It is a same type as the antenna type of antenna specifications.

2) An antenna gain is lower than a gain given in antenna specifications.

　When using DFS master function, it is within the range of max and min gain.

3) The emission level is not getting worse.

・Connector

Hirose U.FL series or equivalent.

Fine tuning of return loss etc. can be performed using a matching network.

However, it is required to check "Class1 change" and "Class2 change" which the authorities define then.

[2.6 RF exposure considerations]

The following statements must be described on the user manual of the host device of this module;

[for FCC]

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment and meets the FCC radio frequency (RF) Exposure Guidelines. This equipment should be installed and operated keeping the radiator at least 20cm or more away from person's body.

[for ISED]

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment and meets RSS-102 of the ISED radio frequency (RF) Exposure rules. This unit should be installed and operated keeping the radiator at least 20 cm or more away from person's body.

Cet équipement est conforme aux limites d'exposition aux rayonnements énoncées pour un environnement non contrôlé et respecte les règles d'exposition aux fréquences radioélectriques (RF) CNR-102 de l'ISDE. Cet équipement doit être installé et utilisé en gardant une distance de 20 cm ou plus entre le radiateur et le corps humain.

[2.7 Antennas]

The device is designed to use the antennas listed below. Do not modify the antenna or any other part of the module. Any modifications will invalidate the modular certifications and require new approvals for the host system

Model No.	Antenna Type	Antenna Gain
IW611-IW620-D	Dipole	Bluetooth: Max 0.38dBi
		WLAN 5GHz: Max 1.68dBi Min -3.45dBi (For DFS bands)
IW611-IW620-G	Dipole	Bluetooth: Max 0.29dBi
		WLAN 5GHz: Max 1.36dBi Min -3.44dBi (For DFS bands)

[2.8 Label and compliance information]

FCC ID/IC No. is located on tape and reel packaging of the module as below diagram.

FCC ID:AK8XM553
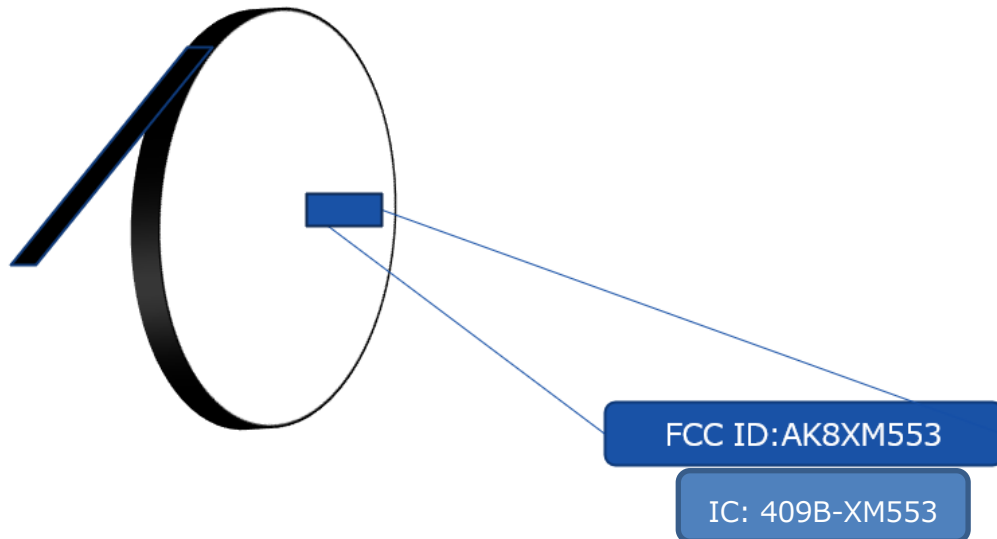
IC: 409B-XM553

Tape and reel packaging of the module

The following information must be indicated on the host device of this module.

Contains FCC ID: AK8XM553

Contains IC: 409B-XM553

The following information must be indicated in a manual of the host device.

[for FCC]

For 2.4GHz band

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.

For 5GHz band

Compliance with FCC requirement 15.407(c)

Data transmission is always initiated by software, which is the passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinue transmission in case of either absence of information to transmit or operational failure.

Frequency Tolerance : +/- 20 ppm

[for ISED]

W52/W53 for indoor use only

W52/W53 Pour usage intérieur seulement

Data transmission is always initiated by software, which is the passed down through the MAC, through the digital and analog baseband, and finally to the RF chip. Several special packets are initiated by the MAC. These are the only ways the digital baseband portion will turn on the RF transmitter, which it then turns off at the end of the packet. Therefore, the transmitter will be on only while one of the aforementioned packets is being transmitted. In other words, this device automatically discontinue transmission in case of either absence of information to transmit or operational failure.

La transmission des données est toujours initiée par le logiciel, puis les données sont transmises par l'intermédiaire du MAC, par la bande de base numérique et analogique et, enfin, à la puce RF. Plusieurs paquets spéciaux sont initiés par le MAC. Ce sont les seuls moyens pour qu'une partie de la bande de base numérique active l'émetteur RF, puis désactive celui-ci à la fin du paquet. En conséquence, l'émetteur reste uniquement activé lors de la transmission d'un des paquets susmentionnés. En d'autres termes, ce dispositif interrompt automatiquement toute transmission en cas d'absence d'information à transmettre ou de défaillance.

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.

[2.9 Information on test modes and additional testing requirements]
Test mode should take into consideration different operational conditions for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product.
This module designed for mounting inside of the end product by us professionally and is tested for the same operation of the end product.

[2.10 Additional testing, Part 15 Subpart B disclaimer]
The modular transmitter is only FCC authorized for the specific rule parts (i.e., FCC transmitter rules) listed on the grant (FCC Part 15.247 and 15.407), and the 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.

The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

[2.11 Note EMI Considerations]

We recommend to use "best practice" RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant limits due to module placement to host components or properties.

The host manufacturer is responsible for ensuring compliance with the applicable FCC rules for the transmitters operating individually and simultaneously. This includes compliance for the summation of all emissions from all outputs occupying the same or overlapping frequency ranges, as defined by the applicable rules.

[2.12 How to make changes]

Only the grantee is permitted to make permissive changes. Please contact us at Sony Group Corporation.