

The SM-G7508W supports the following frequency ranges and is only client device in 5GHz bands.
The following table lists the actual channel/frequency plan for the 2.4GHz and 5GHz operation in USA.
This device only supports Active scanning on non-DFS frequencies.

WLAN: 2412-2462 MHz. 5745 – 5825MHz

UNII: 5180 – 5240MHz, 5260 – 5320MHz, 5500 – 5700MHz

- 2.4 GHZ 20MHz BW

Channel	Freq.(MHz)	Scanning	Channel	Freq.(MHz)	Scanning
1	2412	Active	7	2442	Active
2	2417	Active	8	2447	Active
3	2422	Active	9	2452	Active
4	2427	Active	10	2457	Active
5	2432	Active	11	2462	Active
6	2437	Active			

- 5 GHZ 20MHz BW

Channel	Freq. (MHz)	Scanning	Channel	Freq. (MHz)	Scanning	Channel	Freq. (MHz)	Scanning
36	5180	Active	64	5320	Passive	136	5680	Passive
40	5200	Active	100	5500	Passive	140	5700	Passive
44	5220	Active	104	5520	Passive	149	5745	Active
48	5240	Active	108	5540	Passive	153	5765	Active
52	5260	Passive	112	5560	Passive	157	5785	Active
56	5280	Passive	116	5580	Passive	161	5805	Active
60	5300	Passive	132	5660	Passive	165	5825	Active

- 5 GHZ 40MHz BW

Channel	Freq. (MHz)	Scanning	Channel	Freq. (MHz)	Scanning
38	5190	Active	110	5550	Passive
46	5230	Active	134	5670	Passive
54	5270	Passive	151	5755	Active
62	5310	Passive	159	5795	Active
102	5510	Passive			

Ad-hoc or peer-to-peer modes are not supported operating in the UNII DFS bands(Band 2 and 3). This NII transmitter is a client-only device without radar detection capability in the DFS bands.

The client software and associated drivers can not initiate any transmission on DFS frequencies, which includes transmissions for beacon, ad-hoc, and peer-to- peer modes. Operation as an access point on non-DFS legacy frequencies is also not supported. The software is locked by the module manufacturer such that there is no access and the settings can not be changed by the integrator of the module or the end user of the device. When Hotspot Mode is activated by the end-user, all 5GHz WIFI bands are disabled.

This device is under the control of a local master that is acting as an access point and is connected to AC Power in 5.15~5.25GHz 1 for indoor operation.

In 5GHz band, WLAN chipset works only for necessary data transmission. When data transmission is not needed, this device actually shutdown Tx path. So, This device automatically discontinues its transmission in case of either absence of information to transmit or operational failure.

Basic Operation of the WLAN Radio

Software queues data packets to the WLAN radio MAC/PHY. The radio detects a packet is available to transmit and listens to the medium per the IEEE 802.11 media access protocol. When the medium is free as described in the IEEE 802.11 media access protocol, the radio controller turns on the transmitter and data and control signals are sent. After completion of transmission of the data packet(s) the controller turns off the transmitter. The radio circuitry is implemented so that the default state of the radio is off, and only the correct enabling signals and data from the higher layers, will allow the radio to begin data transmission.

Transmit Logic and Safeguards of the WLAN Radio

In normal operation, the transmission of data packets is expected to stop within 4ms. A watchdog circuit is implemented in the hardware which monitors transmission by the radio. This watchdog circuit will detect all other types of failure states and will reset the radio to a non-active state if the radio is erroneously transmitting beyond the longest allowable packet size.

In addition, software logic is implemented to monitor the packet/data queue. If the queue does not progress within a time limit, due to an upper layer failure state, software will initiate recovery by resetting the radio.

WI-FI Direct Description

If Mobile Hotspot sessions were active, it is necessary forced to close due to the need for the dedicated WI-FI connection in WI-FI Direct mode.

WI-FI Direct Channel

- All Channels in the 2.4 GHz band spectrum.
- Limited to Channels 149-161 in the 5 GHz band spectrum.
- Limited to Channels 36~48 in the 5 GHz band spectrum.

(But, these channels are used for Wi-Fi Direct channel only if the AP is already connected to these channels)

The main transmitter of the antenna on the device is not restricted from simultaneously transmitting with WI-FI while WI-FI Direct is enabled.

Wi-Fi Direct is not expected to be used simultaneously with another licensed transmitter held-to-ear, body-worn, or in the user's pocket. We expect Wi-Fi Direct to be used while in the person's hand (typical) or connected to the wall outlet (for more prolonged usage)

Wi-Fi Direct Certified devices can support either an infrastructure connection or a peer to peer connection. The devices connect by forming Groups that function like Infrastructure BSS (Basic Service Set).

Keep in mind that Wi-Fi Direct devices don't have full Wi-Fi functionality like you would find in Access Points. Consider a Peer to Peer Group that is made up of a legacy Wi-Fi device and a couple of Wi-Fi Direct devices.

One of the Wi-Fi Direct devices has to serve as the Group owner.

As part of the specification, there are multiple mandatory mechanisms that must be filled by devices in the group.

1. Group Formation is the mechanism to determine which Wi-Fi Direct device is the leader of the group.
2. Device Discovery is the mechanism to locate Wi-Fi Direct devices and exchange pertinent information about each device in the group.
3. Client Discovery is the mechanism that enables a Wi-Fi Direct device to determine all the devices in the group.