



CSM User Guide

Issue 1

October 2009



Notices

See important regulatory, legal, and safety notices in section 6 on page 16.

Trademarks, Product Names, and Service Names

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<http://motorola.wirelessbroadbandsupport.>

1 Using This User Guide

The audience for this document includes network planners, system operators, network administrators, and equipment installers.

1.1 FINDING THE INFORMATION YOU NEED

1.1.1 Becoming Familiar with This User Guide

The Table of Contents provides not only a sequential index of topics but also a visual glance at the organization of topics in this guide. A few minutes spent with the Table of Contents in either the paper or the electronic version of this guide can save much more time in finding information now and in the future. The List of Procedures may be especially useful in the paper version of this guide, particularly where you mark those procedures that you wish to frequently see.

In contrast, the List of Figures and List of Tables are most useful for automated searches on key words in the electronic version of this guide. If a match is present, the match is the first instance that the search finds.

Quick Reference

This user guide comprises six sections, as described in [Table 1](#).

Table 1: User guide organization scheme

Section	Purpose
Guide to This User Guide (this section)	Identifies <ul style="list-style-type: none"> ◦ products covered by this user guide. ◦ products covered by their own separate user guides. ◦ how this user guide is organized. ◦ where to find module web pages and parameter descriptions. ◦ what the various typefaces and admonitions indicate. ◦ how to contact Motorola.
Product Description	Provides <ul style="list-style-type: none"> ◦ references to RF and networking theory. ◦ overviews and comparisons of products and how they communicate. ◦ descriptions of data handling and synchronization. ◦ a review of optional features. ◦ resources for developing familiarity and proficiencies with networks.
Planning	Provides essential information for <ul style="list-style-type: none"> ◦ evaluating an area for a network. ◦ specifying the IP addresses and frequencies to use.
Configuration	Provides guidance for <ul style="list-style-type: none"> ◦ expanding network coverage. ◦ improving the security of wireless links. ◦ distributing bandwidth resources ◦ monitoring and changing variables through SNMP.

Section	Purpose
Installation	Provides systematic approaches for <ul style="list-style-type: none"> ◦ avoiding hazards from RF and natural causes. ◦ testing, storing, and deploying equipment.
Reference Information	Provides supplemental information such as <ul style="list-style-type: none"> ◦ authorizations, approvals, and notices. ◦ a bibliography of adjunctive information sources. ◦ a history of changes in documentation.
Glossary	Defines terms and concepts that are used in this user guide.

1.1.2 Searching This User Guide

To search this document and the software release notes of supported releases, look in the Table of Contents for the topic and in the Adobe Reader® search capability for keywords that apply.¹ These searches are most effective when you begin the search from the cover page because the first matches may be in titles of sections, figures, tables, or procedures.

1.1.3 Finding Parameter and Field Definitions for Module Web Pages

Because this user guide is sequentially arranged to support tasks, and various tasks require different settings and readings, parameter and field definitions are scattered according to the tasks that they support.

1.2 NEW PRODUCTS AND FEATURES DESCRIBED IN THIS ISSUE

This section is a placeholder where other new descriptions, as wells as clarifications and corrections, will be listed in future issues.

1.3 NEW DESCRIPTIONS AND REVISIONS IN THIS ISSUE

This section is a placeholder where other new descriptions, as wells as clarifications and corrections, will be listed in future issues.

1.4 PORTFOLIO OF WIRELESS BROADBAND SOLUTIONS

The Motorola portfolio of wireless broadband solutions provides a range of flexible, interworkable products

- Fixed
 - licensed 802.16e point-to-multipoint solutions (PMP 320)
 - unlicensed point-to-multipoint solutions (PMP 100, PMP 400)
 - Expedience licensed point-to-multipoint solutions
 - point-to-point solutions, including
 - PTP 100 and PTP 200 Series bridges
 - PTP 500, and PTP 600 Series bridges

¹ Reader is a registered trademark of Adobe Systems, Incorporated.

- Indoor
 - Enterprise Wireless LAN (WLAN) solutions
- Mesh, including the MOTOMESH series of products
- Wireless Manager, a network manager capable of managing many of these elements
- WiMAX, including infrastructure, CPE and devices, services, and IP core

1.5 PRODUCTS COVERED BY THIS USER GUIDE

This user guide describes planning, configuration, installation, and operation of the CSM 320. The CSM 320 is 802.16e-based, WiMAX-compatible Customer Premise Equipment (CPE). One use of the CSM 320 is in a PMP 320 Access Network.

1.6 PRODUCTS NOT COVERED BY THIS USER GUIDE

Related PMP 320 Access Network devices have their own user guides: CAP 320, the Cluster Management Module 4 (CMM4), Network Updater Tool (CNUT), and Wireless Manager (WM).

1.7 GUIDE TO INTERPRETING TYPEFACE AND OTHER CONVENTIONS

This document employs distinctive fonts to indicate the type of information, as described in [Table 2](#).

Table 2: Font types






Font	Type of Information
variable width bold	Selectable option in a graphical user interface or settable parameter in the web-based interface to a component.
<code>constant width regular</code>	Literal system response in a command-line interface.
<i>constant width italic</i>	Variable system response in a command-line interface.
constant width bold	Literal user input in a command-line interface.
<i>constant width bold italic</i>	Variable user input in a command-line interface.

This document employs specific imperative terminology as follows:

- *Type* means press the following characters.
- *Enter* means type the following characters and then press Enter.

This document also employs a set of consistently used admonitions. Each of these types of admonitions has a general purpose that underlies the specific information in the box. These purposes are indicated in [Table 3](#).

Table 3: Admonition types

Admonition Label	General Message
	<p>NOTE:</p> <p>informative content that may</p> <ul style="list-style-type: none"> ◦ defy common or cursory logic. ◦ describe a peculiarity of the implementation. ◦ add a conditional caveat. ◦ provide a reference. ◦ explain the reason for a preceding statement or provide prerequisite background for what immediately follows.
	<p>RECOMMENDATION:</p> <p>suggestion for an easier, quicker, or safer action or practice.</p>
	<p>IMPORTANT!</p> <p>informative content that may</p> <ul style="list-style-type: none"> ◦ identify an indication that you should watch for. ◦ advise that your action can disturb something that you may not want disturbed. ◦ reiterate something that you presumably know but should always remember.
	<p>CAUTION!</p> <p>a notice that the risk of harm to equipment or service exists.</p>
	<p>WARNING!</p> <p>a notice that the risk of harm to person exists.</p>

1.8 TECHNICAL SUPPORT

Here is the escalation path for resolution of a problem:

1. Check this user guide
2. Consider checking the Community Forum and Knowledge Base at <http://motorola.wirelessbroadbandsupport.com/support/community>.
3. Escalate the problem to your supplier or reseller.
4. Escalate the problem to Canopy Technical Support or other designated Tier 3 technical support:

U.S. and Canada

Email: technical-support@canopywireless.com

1-866-961-9288

Latin and Central America**Email:** technical-support@canopywireless.com

Argentina	0800-666-2789
Brazil	0800-891-4360
Columbia	01-800-912-0557
Mexico	001-800-942-7721
Peru	0800-70-086
All other countries	+420 533 336 946

**Europe, Middle East,
and Africa****Email:** essc@motorola.com

Denmark	043682114
France	0157323434
Germany	06950070204
Italy	0291483230
Lithuania	880 030 828
Netherlands	0202061404
Norway	24159815
Portugal	0217616160
Spain	0912754787
Russia	810 800 228 41044
Saudi Arabia	800 844 5345
South Africa	0800981900
United Kingdom	0203 0277499

Asia Pacific**Email:** WiBBsupport.apac@motorola.com

+6048503854 (9am - 5pm Malaysia Time)

+420 533 336 946 (outside hours)

When you send e-mail or call, please include, as appropriate, software release on each module, IP addresses, MAC addresses, and features enabled.

1.9 FEEDBACK ON DOCUMENTATION

Is this document accurate, complete, and clear? How can it be improved? Send your feedback on documentation to technical-documentation@canopywireless.com.

2 Product Description

A PMP 320 Access Network provides a low cost point-to-multipoint broadband infrastructure optimized for fixed outdoor applications and offers simple installation for rapid deployment. A PMP 320 network consists of

- CAP 320 – the Access Point, usually tower-mounted in a four-sector configuration.
- CMM4 Cluster Management Module – a zero-footprint enclosure housing a GPS module connected to a GPS antenna, sync- and power-injection circuitry, surge protection, and a managed switch. The CMM is used to provide custom “sync over power over Ethernet” to the APs as well as offering a networked, managed switch.
- CSM 320 – a Subscriber Module, Customer Premise Equipment (CPE), usually mounted on a residence or other structure, and powered by a Power Adapter providing standard 802.3af power over Ethernet.
- 600SS Surge Suppressor – used to provide protection from over-voltages and over-currents such as induced by near lightning events. A properly-grounded 600SS should be installed on each Ethernet cable on the outside of any building or structure at the point of entry. A properly-grounded 600SS should also be installed within a meter of each AP.

In addition, a PMP 320 network usually also requires a

- AAA Server – Authentication, Authorization, and Accounting server
- DHCP Server – Dynamic Host Configuration Protocol server
- DNS Server – Domain Name System server
- NMS – a Network or Element Management System, such the Motorola Wireless Manager

Motorola offers PMP 320 equipment that operates in the spectrum ranges as shown in [Table 4](#).

Table 4: Mapping Frequencies, System Names, Product Names, and Product Model Numbers

Licensed Spectrum Ranges	System Name	AP Name	SM Name	AP Model Number	SM Model Number	Frequencies Supported
3.3 to 3.4 GHz	PMP 33320	CAP 33320	CSM 33320	3530APC	3530SM	3.3 to 3.6 GHz
3.4 to 3.6 GHz	PMP 35320	CAP 35320	CSM 35320			
3.6 to 3.8 GHz	PMP 36320	CAP 36320	CSM 36320	3630APC	3630SM	3.6 to 3.8 GHz

Detailed specifications for the various products are available on-line at xxx.

3 Planning

To be developed

4 Configuration

Key parameters to configure in the SM include

- Center channel frequency and channel size
- WAN and LAN side IP addresses

Transmitter power is not configurable at the SM, as the AP performs auto transmit power control on the SM.



IMPORTANT!

It is the responsibility of the operator and professional installer to ensure the system is operating within the frequencies covered by their license and that the Transmitter Output Power is set within regulatory limits for their country. These must be set or confirmed on initial configuration and after a module is reset to factory defaults.

Key default values for accessing an SM are shown in Table 5.

10.1.1.254	admin	admin
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Procedure 1

Table 5: Default IP address, username, and password

LAN-side Management IP address	Username	Password
10.1.1.254	admin	admin

Procedure 1: Configuring key parameters on the SM

1. On the Wireless Network > Scanner tab of the SM's GUI, configure desired channels to be scanned. See [Figure 1](#) for an example of the Wireless Network > Scanner tab activated for editing.
2. On the Networking > Bridge/NAT Mode tab, configure the SM to either obtain its WAN-side IP address by DHCP, or configure a Static IP address. See [Figure 2](#) for an example of the Networking > Bridge/NAT Mode tab.
3. On the Networking > Bridge/NAT Mode tab, configure the LAN IP address, or leave at the default of 10.1.1.254.

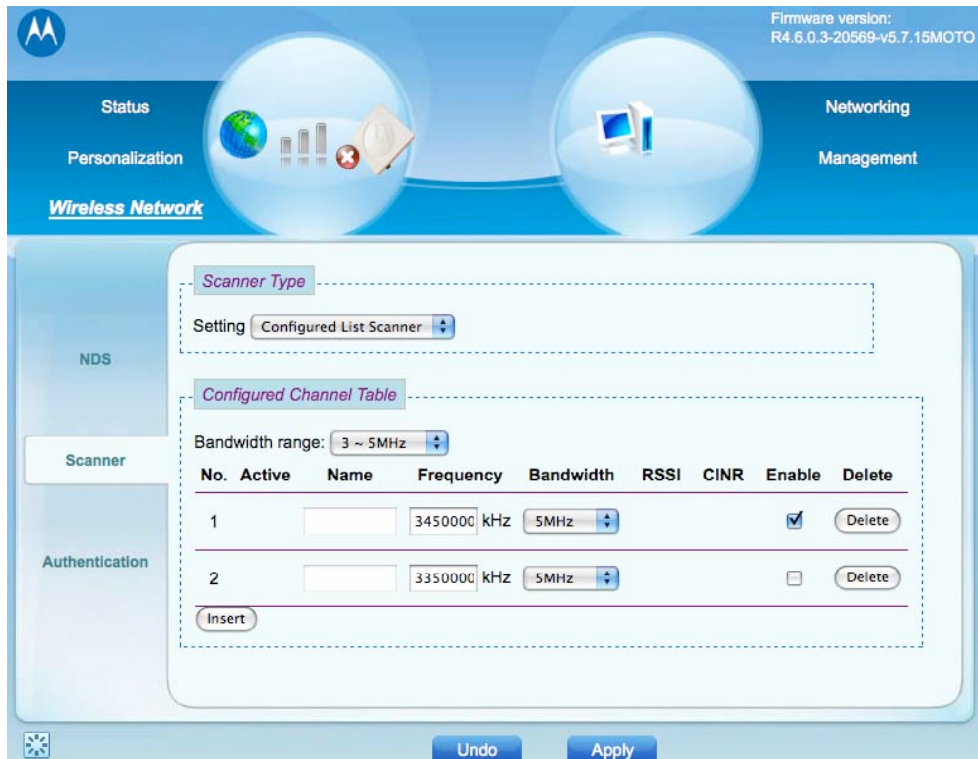


Figure 1: Example of Wireless Network > Scanner tab

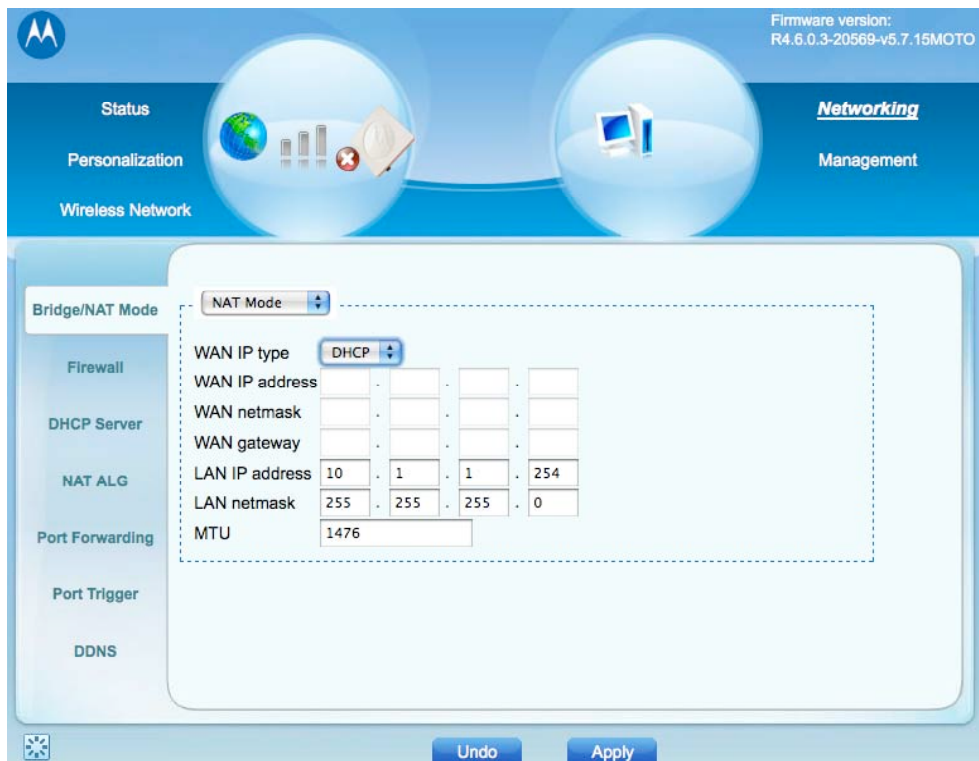


Figure 2: Example of Networking > Bridge/NAT Mode

5 Installation



WARNING!

Installing a unit usually involves height, electricity, and exposure to RF (Radio Frequency) energy. To avoid personal injury, follow applicable national and local safety regulations along with industry best practices. Also follow the specific guidelines in this document, including maintaining a sustained exposure separation distance of 50 cm (~20 in) as described in section 6.3 on page 19.

5.1 INSTALLING THE SM

Procedure 2: Installing the SM

1. While on the ground, before climbing, identify the location for the 600SS surge suppressor. Select a location on the *outside* of the subscriber premises at the point where the Ethernet cable will penetrate the residence or building, and as close to an existing or planned grounding system (Protective Earth) as possible.
2. Using all safety precautions, climb to the roof or use a lift and select the best location for SM mounting, dependent on
 - knowledge of the geographical area
 - location of towers and APs
 - the roof type and mounting options
 - experimentation with a powered SM

The SM must be mounted so as to avoid accidental touch. Typically this means mounting it at least 4 m (~13 ft) above ground level.

3. Select the type of mounting hardware appropriate for the chosen location.
4. Attach the mounting bracket and radio to the structure.
5. Size a length of Cat-5 Ethernet cable for the run from the SM to the location identified for the SS surge suppressor.
6. Slip the gland and ring on the Ethernet cable.



NOTE:

The gland and ring must be put on the cable *before* the cable is terminated with an RJ-45 connector. An RJ-45 connector will not fit through the gland and ring.

7. Terminate the Ethernet cable with an RJ-45 connector
8. Connect the Ethernet cable to the SM. Include a splicing loop (extra cable to allow future repositioning or reconnectorization) and position and secure the Ethernet cable with UV-resistant wire ties or other locally-approved fasteners so it forms a drip loop (so water drips off the cable instead of following the cable to the radio).

9. Size a length of green-with-yellow-stripe copper ground wire to run from the SM to the existing or planned grounding system. The ground wire must be a minimum of 18 AWG, with 14 AWG recommended for runs up to 45 m (~150 ft) and 10 AWG recommended for runs over 45 m (~150 ft).
10. Loosen the SM grounding screw, wrap the ground wire around the ground post, and tighten the grounding screw.

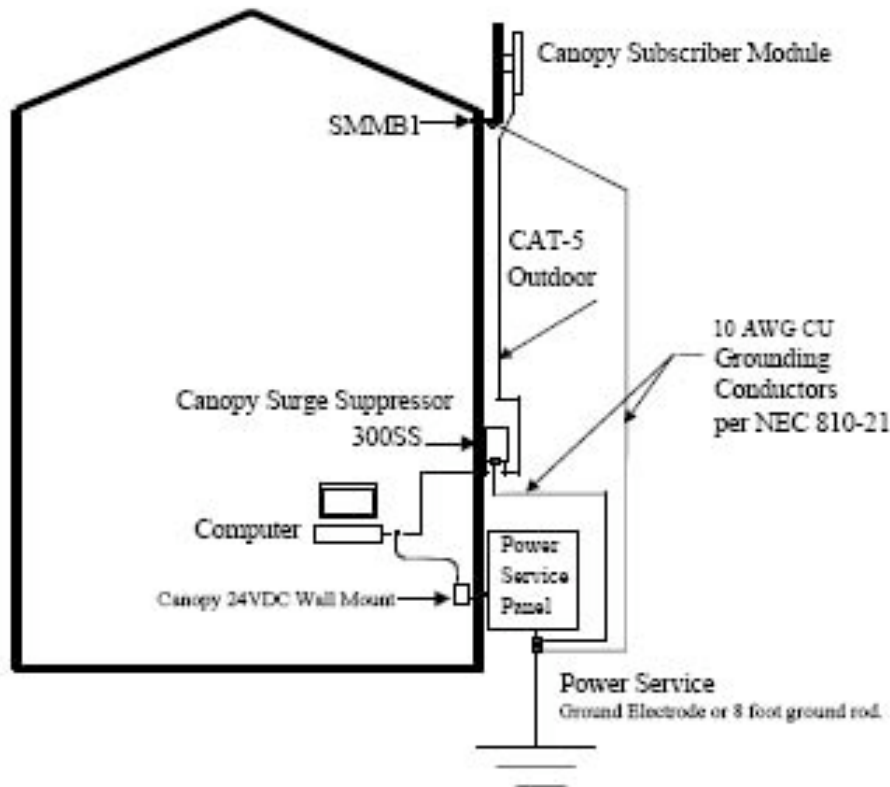


Figure 3: SM grounding per NEC specifications

11. Remove the cover of the 600SS surge suppressor. Use, at minimum, a D-suffixed surge suppressor (600SSD or greater). With the cable openings facing downward, mount the 600SS to the *outside* of the subscriber premises at the point where the Ethernet cable penetrates the residence or building, and as close to the grounding system (Protective Earth) as possible.
12. Wrap an AWG 10 (6mm²) green-with-yellow-stripe copper ground wire around the ground post of the 600SS.
13. Tighten the ground post locking nut.
14. Ensure the pin 4 selector in the 600SS is set to the factory default of "isolated", not "grounded".
15. If not using an existing approved grounding system, install a grounding system (Protective Earth) according to applicable regulations or codes.

16. Securely connect the two green-with-yellow-stripe ground wires (one from the 600SS surge suppressor and one from the SM) to the existing or newly installed grounding system (Protective Earth).
17. Using diagonal cutters or long nose pliers, remove the knockouts that cover the cable openings to the 600SS surge suppressor.
18. Pack both of the 600SS surge suppressor Ethernet jacks with dielectric grease.
19. Include a splicing loop in the Ethernet cable from the radio (extra cable to allow future repositioning or reconnectorization) and position and secure the Ethernet cable with UV-resistant wire ties or other locally-approved fasteners so it forms a drip loop (so water drips off the cable instead of following the cable into the 600SS surge suppressor).
20. Terminate the Ethernet cable with an RJ-45 connector.
21. Connect this Ethernet cable to either one of the Ethernet jacks (they are non-directional).
22. Terminate another Ethernet cable with an RJ-45 connector.
23. Connect this other Ethernet cable to the other Ethernet jack of the 600SS surge suppressor.
24. Feed the Ethernet cable through a portal, hole, or other accepted entry point to the inside of the building and to the 802.3af power adapter.
25. Terminate the inside end of the Ethernet cable with an RJ-45 connector and connect to the 802.3af power adapter.
26. Replace the cover of the 600SS surge suppressor.
27. Connect the power supply to a power source.
28. Aim the SM using values from the Physical Status field of the Status > Wireless Status tab. See Figure 4 for an example of the Status > Wireless Status tab.
29. Tighten all fasteners on the SM mount.
30. Secure the Ethernet cable with appropriate UV-resistant fasteners using accepted industry or local practices for method of attachment and distance between fasteners.
31. Seal the cable entry point into the building using accepted industry or local practices.



Figure 4: Example of Status > Wireless Status tab

6 Regulatory, Legal, and Safety Notices

6.1 IMPORTANT NOTE ON MODIFICATIONS

Intentional or unintentional changes or modifications to the equipment must not be made unless under the express consent of the party responsible for compliance. Any such modifications could void the user’s authority to operate the equipment and will void the manufacturer’s warranty.

6.2 NATIONAL AND REGIONAL REGULATORY NOTICES

6.2.1 U.S. Federal Communication Commission (FCC) Notification

This device complies with Part 15 of the US FCC Rules and Regulations. 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.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the US 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 these instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to correct the interference by one or more of the following measures:

- Increase the separation between the affected equipment and the unit;
- Connect the affected equipment to a power outlet on a different circuit from that which the receiver is connected to;
- Consult the dealer and/or experienced radio/TV technician for help.

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

Table 6: US FCC IDs and covered configurations

FCC ID	Operating Freq	Model Number	Antenna Gain	Channel Size	Maximum allowed EIRP	Maximum Transmitter Output Power
ABZ89FT7633	3.650 to 3.675 GHz	3630SM	14.5 dBi	10 MHz	10 W (40 dBm)	25.5 dBm
				7 MHz	7 W (38.5 dBm)	24 dBm
				5 MHz	5 W (37 dBm)	22.5 dBm
				3.5 MHz	3.5 W (35.4 dBm)	20.9 dBm

6.2.2 Industry Canada Notification

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.

This equipment has been tested and found to comply with the limits for a Class B digital device. 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 these instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to correct the interference by one or more of the following measures:

- Increase the separation between the affected equipment and the unit;
- Connect the affected equipment to a power outlet on a different circuit from that which the receiver is connected to;
- Consult the dealer and/or experienced radio/TV technician for help.

To reduce potential radio interference to other users, the antenna type and its gain should be chosen so its Equivalent Isotropic Radiated Power (EIRP) is not more than that permitted for successful communication.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. Industry Canada Certification Numbers and the specific configuration covered are listed in Table 7.

Table 7: Industry Canada Certification Numbers and covered configurations

Industry Canada Cert Number	Operating Freq	Model Number	Antenna Gain	Maximum Transmitter Output Power
109W-3530SM	3.450 to 3.600 GHz	3530SM	14.5 dBi	27 dBm (500 mW)
109W-3630SM	3.600 to 3.650 GHz	3630SM		

6.2.3 European Union Notification

The relevant Declaration of Conformity can be found at <http://motorola.wirelessbroadbandsupport.com/doc.php>.

6.2.4 Equipment Disposal



Waste (Disposal) of Electronic and Electric Equipment

Please do not dispose of Electronic and Electric Equipment or Electronic and Electric Accessories with your household waste. In some countries or regions, collection systems have been set up to handle waste of electrical and electronic equipment. In European Union countries, please contact your local equipment supplier representative or service center for information about the waste collection system in your country.

6.2.5 EU Declaration of Conformity for RoHS Compliance

Motorola hereby, declares that these Motorola products are in compliance with the essential requirements and other relevant provisions of Directive 2002/95/EC, Restriction of the use of certain Hazardous Substances (RoHS) in electrical and electronic equipment.

The relevant Declaration of Conformity can be found at <http://motorola.wirelessbroadbandsupport.com/doc.php>.

6.2.6 Labeling and Disclosure Table for China

The People’s Republic of China requires that Motorola’s products comply with China Management Methods (CMM) environmental regulations. (China Management Methods refers to the regulation *Management Methods for Controlling Pollution by Electronic Information Products*.) Two items are used to demonstrate compliance - the label, and the disclosure table as shown in Table 8. [Need updated table for this product.]

The label is placed in a customer visible position on the product.

- Logo 1 means that the product contains no substances in excess of the maximum concentration value for materials identified in the China Management Methods regulation.
- Logo 2 means that the product may contain substances in excess of the maximum concentration value for materials identified in the China Management Methods regulation, and has an Environmental Friendly Use Period (EFUP) in years, fifty years in the example shown.



The Environmental Friendly Use Period (EFUP) is the period (in years) during which the Toxic and Hazardous Substances (T&HS) contained in the Electronic Information Product (EIP) will not leak or mutate causing environmental pollution or bodily injury from the use of the EIP. The EFUP indicated by the Logo 2 label applies to a product and all its parts. Certain field-replaceable parts, such as battery modules, can have a different EFUP and are marked separately.

The Disclosure table is intended to communicate compliance with only China requirements; it is not intended to communicate compliance with EU RoHS or any other environmental requirements.

Table 8: Disclosure table

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr ⁶⁺)	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
金属部件	×	○	×	×	○	○
电路模块	×	○	×	×	○	○
电缆及电缆组件	×	○	×	×	○	○
塑料和聚合物部件	○	○	○	○	○	×

○:	表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。
×:	表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。

6.3 RF EXPOSURE SEPARATION DISTANCES

To protect from overexposure to RF energy, an SM must be installed to provide a separation distance of at least **50 cm (~20 in)** from all persons and **must not be collocated or operating with any other antenna or transmitter.**

The following section and [Table 9](#) provide details and discussion on the separation distance calculations.

6.3.1 Details of Exposure Separation Distances Calculations and Power Compliance Margins

Limits and guidelines for RF exposure come from:

- US FCC limits for the general population. See the FCC web site at <http://www.fcc.gov>, and the policies, guidelines, and requirements in Part 1 of Title 47 of the Code of Federal Regulations, as well as the guidelines and suggestions for evaluating compliance in FCC OET Bulletin 65.
- Health Canada limits for the general population. See the Health Canada web site at <http://www.hc-sc.gc.ca/rpb> and Safety Code 6.
- ICNIRP (International Commission on Non-Ionizing Radiation Protection) guidelines for the general public. See the ICNIRP web site at <http://www.icnirp.de/> and *Guidelines for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields.*

The applicable power density exposure limits from the documents referenced above is 10 W/m².

Peak power density in the far field of a radio frequency point source is calculated as follows:

$$S = \frac{P \cdot G}{4 \pi d^2}$$

where
 S = power density in W/m²
 P = RMS transmit power capability of the radio, in W
 G = total Tx gain as a factor, converted from dB
 d = distance from point source, in m

Rearranging terms to solve for distance yields

$$d = \sqrt{\frac{P \cdot G}{4 \pi S}}$$

[Table 9](#) shows calculated minimum separation distances *d*, recommended distances and the resulting power compliance margin.

Table 9: Calculated exposure distances and power compliance margins

Band	Unit	Variable			<i>d</i> (calculated)	Recommended Separation Distance	Power Compliance Margin
		<i>P</i>	<i>G</i>	<i>S</i>			
3.3 GHz to 3.8 GHz	SM	0.5 W (27 dBm)	28.2 (14.5 dB)	10 W/m ²	33 cm	50 cm (~20 in)	2.23

The Recommended Separation Distance is chosen to give significant compliance margin in all cases. This is a conservative distance:

- It is along the beam direction (the direction of greatest energy). Exposure to the sides and back of the module is significantly less.
- It meets sustained exposure limits for the general population (not just short-term occupational exposure limits), with some margin.
- The calculated compliance distance *d* is overestimated because the far-field equation models the antenna as a point source and neglects the physical dimension of the antenna.

6.4 LEGAL NOTICES

6.4.1 Software License Terms and Conditions

ONLY OPEN THE PACKAGE, OR USE THE SOFTWARE AND RELATED PRODUCT IF YOU ACCEPT THE TERMS OF THIS LICENSE. BY BREAKING THE SEAL ON THIS DISK KIT / CDROM, OR IF YOU USE THE SOFTWARE OR RELATED PRODUCT, YOU ACCEPT THE TERMS OF THIS LICENSE AGREEMENT. IF YOU DO NOT AGREE TO THESE TERMS, DO NOT USE THE SOFTWARE OR RELATED PRODUCT; INSTEAD, RETURN THE SOFTWARE TO PLACE OF PURCHASE FOR A FULL REFUND. THE FOLLOWING AGREEMENT IS A LEGAL AGREEMENT BETWEEN YOU (EITHER AN INDIVIDUAL OR ENTITY), AND MOTOROLA, INC. (FOR ITSELF AND ITS LICENSORS). THE RIGHT TO USE THIS PRODUCT IS LICENSED ONLY ON THE CONDITION THAT YOU AGREE TO THE FOLLOWING TERMS.

Now, therefore, in consideration of the promises and mutual obligations contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby mutually acknowledged, you and Motorola agree as follows:

Grant of License. Subject to the following terms and conditions, Motorola, Inc., grants to you a personal, revocable, non-assignable, non-transferable, non-exclusive and limited license to use on a single piece of equipment only one copy of the software contained on this disk (which may have been pre-loaded on the equipment)(Software). You may make two copies of the Software, but only for backup, archival, or disaster recovery purposes. On any copy you make of the Software, you must reproduce and include the copyright and other proprietary rights notice contained on the copy we have furnished you of the Software.

Ownership. Motorola (or its supplier) retains all title, ownership and intellectual property rights to the Software and any copies,

including translations, compilations, derivative works (including images) partial copies and portions of updated works. The Software is Motorola's (or its supplier's) confidential proprietary information. This Software License Agreement does not convey to you any interest in or to the Software, but only a limited right of use. You agree not to disclose it or make it available to anyone without Motorola's written authorization. You will exercise no less than reasonable care to protect the Software from unauthorized disclosure. You agree not to disassemble, decompile or reverse engineer, or create derivative works of the Software, except and only to the extent that such activity is expressly permitted by applicable law.

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