MM721 BRI media module

Electromagnetic Compatibility (EMC) Standards

This product complies with and conforms to the following international EMC standards, as applicable:

- CISPR 22, including all national standards based on CISPR 22.
- CISPR 24, including all national standards based on CISPR 24.
- IEC 61000-3-2 and IEC 61000-3-3.

Avaya Inc. is not responsible for any radio or television interference caused by unauthorized modifications of this equipment or the substitution or attachment of connecting cables and equipment other than those specified by Avaya Inc. The correction of interference caused by such unauthorized modifications, substitution or attachment will be the responsibility of the user. Pursuant to Part 15 of the Federal Communications Commission (FCC) Rules, the user is cautioned that changes or modifications not expressly approved by Avaya Inc. could void the user's authority to operate this equipment.

Federal Communications Commission Part 15 Statement:

For a Class A digital device or peripheral:

⊛ **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.

For a Class B digital device or peripheral:

⊛ **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 instruction manual, 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.

Equipment With Direct Inward Dialing ("DID"):

Allowing this equipment to be operated in such a manner as to not provide proper answer supervision is a violation of Part 68 of the FCC's rules.

Proper Answer Supervision is when:

1. This equipment returns answer supervision to the public switched telephone network (PSTN) when DID calls are:

- answered by the called station,

- answered by the attendant,

- routed to a recorded announcement that can be administered by the customer premises equipment (CPE) user

- routed to a dial prompt

2. This equipment returns answer supervision signals on all (DID) calls forwarded back to the PSTN.

Permissible exceptions are:

- A call is unanswered

- A busy tone is received

- A reorder tone is received

Avaya attests that this registered equipment is capable of providing users access to interstate providers of operator services through the use of access codes. Modification of this equipment by call aggregators to block access dialing codes is a violation of the Telephone Operator Consumers Act of 1990.

Automatic Dialers:

When programming emergency numbers and (or) making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.

- Perform such activities in the off-peak hours, such as early morning or late evenings.

Toll Restriction and least Cost Routing Equipment:

The software contained in this equipment to allow user access to the network must be upgraded to recognize newly established network area codes and exchange codes as they are placed into service.

Failure to upgrade the premises systems or peripheral equipment to recognize the new codes as they are established will restrict the customer and the customer's employees from gaining access to the network and to these codes.

For equipment approved prior to July 23, 2001:

This equipment complies with Part 68 of the FCC rules. On either the rear or inside the front cover of this equipment is a label that contains, among other information, the FCC registration number, and ringer equivalence number (REN) for this equipment. If requested, this information must be provided to the telephone company.

For equipment approved after July 23, 2001:

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the Administrative Council on Terminal Attachments (ACTA). On the rear of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXX. If requested, this number must be provided to the telephone company.

The REN is used to determine the quantity of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in devices not ringing in response to an incoming call. In most, but not all areas, the sum of RENs should not exceed 5.0.

L'indice d'équivalence de la sonnerie (IES) sert à indiquer le nombre maximal de terminaux qui peuvent être raccordés à une interface téléphonique. La terminaison d'une interface peut consister en une combinaison quelconque de dispositifs, à la seule condition que la somme d'indices d'équivalence de la sonnerie de tous les dispositifs n'excède pas cinq.

To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAAEQ##TXXX. The digits represented by ## are the REN without a decimal point (for example, 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. For products approved after July 23, 2001, the REN for this product is part of the product identifier that has the format US:AAAEQ##TXXX. The digits represented by ## are the REN without a decimal point (for example, 03 is a REN of 0.3). For earlier products, the REN is separately shown on the label.

Means of Connection:

Connection of this equipment to the telephone network is shown in the following table:

Manufacturer's Port Identifier	FIC Code	SOC/REN/A.S. Code	Network Jacks
Off premises station	OL13C	9.0F	RJ2GX, RJ21X, RJ11C
DID trunk	02RV2.T	AS.2	RJ2GX, RJ21X, RJ11C
CO trunk	02GS2	0.3A	RJ21X, RJ11C
	02LS2	0.3A	RJ21X, RJ11C
Tie trunk	TL31M	9.0F	RJ2GX
Basic Rate Interface	02IS5	6.0F, 6.0Y	RJ49C
1.544 digital interface	04DU9.BN	6.0F	RJ48C, RJ48M
	04DU9.1KN	6.0F	RJ48C, RJ48M
	04DU9.1SN	6.0F	RJ48C, RJ48M

Manufacturer's Port Identifier	FIC Code	SOC/REN/A.S. Code	Network Jacks
120A4 channel service unit	04DU9.DN	6.0Y	RJ48C

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with this equipment, for repair or warranty information, please contact the Technical Service Center at 1-800-242-2121 or contact your local Avaya representative. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information.

Installation and Repairs

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be coordinated by a representative designated by the supplier. It is recommended that repairs be performed by Avaya certified technicians.

FCC Part 68 Supplier's Declarations of Conformity

Avaya Inc. in the United States of America hereby certifies that the equipment described in this document and bearing a TIATSB-168 label identification number complies with the FCC's Rules and Regulations 47 CFR Part 68, and the Administrative Council on Terminal Attachments (ACTA) adopted technical criteria.

Avaya further asserts that Avaya handset-equipped terminal equipment described in this document complies with Paragraph 68.316 of the FCC Rules and Regulations defining Hearing Aid Compatibility and is deemed compatible with hearing aids.

Copies of SDoCs signed by the Responsible Party in the U. S. can be obtained by contacting your local sales representative and are available on the following Web site: http://support.avaya.com/DoC.

Canadian Conformity Information

This Class A (or B) digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A (ou B) est conforme à la norme NMB-003 du Canada.

This product meets the applicable Industry Canada technical specifications/Le présent materiel est conforme aux specifications techniques applicables d'Industrie Canada.

European Union Declarations of Conformity

Avaya Inc. declares that the equipment specified in this document bearing the "CE" (Conformité Europeénne) mark conforms to the European Union Radio and Telecommunications Terminal Equipment Directive (1999/5/EC), including the Electromagnetic Compatibility Directive (2004/108/EC) and Low Voltage Directive (2006/95/EC).

Copies of these Declarations of Conformity (DoCs) can be obtained by contacting your local sales representative and are available on the following Web site: http://support.avaya.com/DoC.

European Union Battery Directive

Avaya Inc. supports European Union Battery Directive 2006/66/EC. Certain Avaya Inc. products contain lithium batteries. These batteries are not customer or field replaceable parts. Do not disassemble. Batteries may pose a hazard if mishandled.

Japan

The power cord set included in the shipment or associated with the product is meant to be used with the said product only. Do not use the cord set for any other purpose. Any non-recommended usage could lead to hazardous incidents like fire disaster, electric shock, and faulty operation.

本製品に同梱または付属している電源コードセットは、本製品専用です。本製品以外の製品ならびに他の用途で使用しないでください。火災、感電、故障の原因となります。

If this is a Class A device:

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

この装置は，情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラス A 情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

If this is a Class B device:

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

この装置は，情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラス B 情報技術装置です。この装置は，家庭環境で使用することを目的としていますが，この装置がラジオやテレビジョン受信機に近接して使用されると，受信障害を引き起こすことがあります。取扱説明書に従って正しい取り扱いをして下さい。

Downloading Documentation

For the most current versions of Documentation, see the Avaya Support Web site: http://support.avaya.com.

Contents

Chapter 1: MM721 BRI media module overview

The MM721 Basic Rate Interface (BRI) media module contains eight ports. You can administer these ports either as BRI trunk or BRI endpoint connections, such as a telephone and data module.

Note:
You cannot administer the MM721 BRI media module to support both BRI trunks and BRI endpoints at the same time. You can utilize all eight ports on the MM721 for just stations or just trunks. You cannot use a mixture of ports for both applications.

For BRI trunking, the MM721 BRI media module supports up to eight BRI interfaces to the central office at the ISDN S/T reference point.

For BRI endpoints, each of the eight ports on the MM721 BRI media module supports integrated voice and data endpoints for up to 2 BRI stations or data modules or both. The MM721 BRI media module provides -48 volt phantom power to the BRI endpoints.

The MM721 BRI media module supports 4-wire S/T ISDN BRI on each interface.

The MM721 BRI media module communicates information in two ways:

  • Over two 64-kbps channels called B1 and B2. You can circuit-switch these channels simultaneously

  • Over a 16-kbps channel called the D-channel that is used for signaling

The circuit-switched connections have an A-law or Mu-law option for voice operation. In the data mode, circuit-switched connections operate as 64-kbps clear channels.

The MM721 supports the G450 and G430 Branch Gateways with Communication Manager Release 6.0.1 build 31_18_1.

You can also use the MM721 to support the G700 and G350 Branch Gateways with Communication Manager Release 5.2.1 build 30_17_2.

  • In non-native admin mode, the system displays the MM721 media module as MM720X for the Communication Manager Release 6.0.1 build 31_18_1 and Release 5.2.1 build 30_17_2.

  • In admin mode, the system displays the MM721 media module as MM721 with Communication Manager Release 6.2 and later. The changes on the system display on upgrading the system.

Note:
If you replace the MM720 media module, first uninstall the MM720 media module before installing the MM721 media module.

The following table provides the MM721 media module display information on different Communication Manager releases.

Release	5.2.1/6.0.1 and earlier	5.2.1 SP7/6.0.1 SP1	6.2 and later
Administer	MM720 (non-native admin)	MM720 (non-native admin)	MM721 (Native)
Insert	MM721	MM721	MM721
Result	No Board	MM720X	MM721

Front panel of the MM721 media module

MM721 media module ports

The MM721 has eight ports that are labeled from one to eight. The MM721 ports support the use of a 4-wire BRI station device (TE) when you administer the ports as BRI stations.

MM721 media module LEDs

LED	Name	Color	Indication
ALM	Alarm	Red	The module type is not configured in the MSG for the slot.
TST	Test	Green	The system performs a test on the module through the server, or the module performs a test on initial insertion.
ACT	Activity	Yellow	A trunk connected to the module is in use.

MM721 adjuncts

Adjunct-Switch Application Interface (ASAI) adjuncts connect to Communication Manager through a BRI connection.

Clock Synchronization interaction with MM721 media module

Using the Clock Synchronization feature, you can set the ports of an MM721 media module either as a primary clock source or as a secondary clock source. You can administer these ports using the CLI commands.

Examples

To set the Port 1 and Port 2 in slot 4 of an MM721 as the primary clock source:

```
set sync interface primary v4 1,2
```

To set the Port 3 in slot 4 of an MM721 as the secondary clock source:

```
set sync interface secondary v4 3
```

Chapter 2: System requirements

This section describes the software requirements, gateway firmware requirements, and maximum number of supported MM721 BRI media modules.

Software requirements

The MM721 media module supports the following Communication Manager releases:

- Communication Manager Release 6.0.1 SP1
- Communication Manager Release 5.2.1 SP7

Gateway firmware requirements

Software release	Branch gateway	Build
Communication Manager Release 6.0.1 SP1	G430 and G450	31_18_1
Communication Manager Release 5.2.1 SP7	G350 and G700	30_17_2
Communication Manager Release 5.2.1 SP7	G430 and G450	30_17_2

Supported MM721 media modules for Gateways

The maximum number of supported MM721 media modules depends on the available slots and High-level Data Link Control (HDLC) controllers.

Branch gateway	G450	G430	G700	G350
Maximum slots	8	7	4	5

Branch gateway	G450	G430	G700	G350
Available NPE	63	38	32	32
Available High-level Data Link Control (HDLC)	63	47	32	32
Maximum MM721 media modules	7	4	4	3

Note:

- G430 has maximum seven slots when using two Expansion Modules.
- G430 moves six channels from voice announcements over LAN (VAL) to PKTINT to increase available Network Processing Element (NPE) channels from 32 to 38. G430 has maximum four slots.
- G350 has maximum three slots for MM721 to avoid changing the Channel Block Management (large blocks/small blocks) .

If you exceed the maximum number of media module slot configurations, the system displays the following error message:

```
have exceeded maximum for this board type
```

Chapter 3: MM721 BRI media module administration and maintenance

This section describes the administrative CLI commands and Standard Local Survivability (SLS) commands.

Administrative CLI commands

show mm

Syntax

```
show mm [mmID]
```

mmID   The Media Module ID number.

Description

Use the `show mm` command to view the branch gateway media module information. The system displays the types and serial numbers of media modules installed on the gateway. If you do not specify the media module ID, the system displays the information for all media modules.

User Level

read-only

Context

general

Example

To display information about media module 5:

```
G450H-001(test)# show mm v5
MEDIA MODULE DESCRIPTION: v5
------------------------------------------------
Type              : MM720X
Description       : BRI Media Module
Serial Number     : 04J235703283
HW Vintage        : 5
HW Suffix         : A
FW Version        : 1
```

```
No. of ports   : 8
Faults         : No Fault Messages
```

show mg list_config

Syntax

```
show mg list_config
```

Description

Use the **show mg list_config** command to view the installed gateway equipment. The system displays the current hardware and firmware configurations of the gateway. The **show mg list_config** command is an alias for **show module** command.

User Level

read-only

Context

general

Example

To display the list of installed equipment:

```
G450H-001(test)# show mg list_config
SLOT   TYPE          CODE       SUFFIX  HW VINTAGE  FW VINTAGE
----   --------      ----------  ------  ----------  -----------
v1     S8300         ICC         A       0           1
v2     -- Not Installed --
v3     -- Not Installed --
v4     -- Not Installed --
v5     E1T1          MM340       A       0           N/A
v6     BRI           MM720X      A       5           1
v7     DCP           MM712       A       3           9
v8     -- Not Installed --
v10    Mainboard     G450        A       17          25
G450H-001(test)#
```

show module

Syntax

```
Show module [mmID]
```

mmID   The Media Module ID.

Description

Use the **show module** command to view information about a media module. If you do not specify the media module ID, the system displays the information for all media modules.

User Level

read-only

Context

general

Examples

To display the information about all media modules:

```
G450H-001(test)# show module
SLOT    TYPE        CODE        SUFFIX  HW VINTAGE  FW VINTAGE
----    --------    ----------  ------  ----------  -----------
v1      S8300       ICC         D       0           1
v2      -- Not Installed --
v3      -- Not Installed --
v4      -- Not Installed --
v5      -- Not Installed --
v6      BRI         MM720X      A       5           1
v7      DCP         MM712       A       3           9
v8      -- Not Installed --
v10     Mainboard   G450        A       1           31.17.1(A)
G450H-001(test)#
```

To display the information about media module 1:

```
G450H-001(test)# show module 1
SLOT    TYPE        CODE        SUFFIX  HW VINTAGE  FW VINTAGE
----    --------    ----------  ------  ----------  -----------
v1      S8300       ICC         D       0           1
```

dir

Syntax

```
dir {module_number | file-system [directory]}
```

module_number Displays downloaded files for the specified module only.

file-system Displays files on the USB mass storage device.

directory Displays files for the specified directory on the USB mass storage device.

Description

Use the **dir** command to view either of the following:

- The files downloaded to the gateway using the download interface and the SNMP MIB.
- The files in the USB mass storage device.

User Level

read-only

Context

general

Example

To display the list of installed equipment:

```
G450H-001(test)# dir
M#    file            ver num    file type    file location      file description
--    ----            --------   ----------   -------------      ----------------
1     MM717            11         SW RT        Image Flash MM717  - image
2     MM710            21         SW RT        Image Flash MM710  - image
3     MM711            93         SW RT        Image Flash MM711  - image
5     MM710            21         SW RT        Image Flash MM710  - image
6     MM720X           1          SW RT        Image Flash MM720X - image
9     MusicOnHold2.wav  N/A       Annc files   Nv-Ram                announcement
10    startup-config   N/A        Startup Conf Nv-Ram                Startup Config
10    running-config   N/A        Running Conf Ram                   Running Config
10    G430-A 30.17.1 SW Component Flash Bank A Software Image Bank A
10    G430-B 30.16.0 SW RT Image Flash Bank B Software Image Bank B
10    G430 5.2.9 SW Web Image Flash EmWeb application
10    G430-Booter 30.11.0 SW BootImage Flash Booter Image
10    log N/A SYSLOG File Nv-Ram log
10    log_cdr N/A CDR File Nv-Ram log_cdr
10    capture-file N/A Other Ram Sniffer Capture
```

Standard Local Survivability commands

set slot-config

Syntax

```
set slot-config slot-number board-type
```

slot number   Identifies the slot number.

board-type   Defines the board type.

Description

Use the `set slot-config` command to define the board type in the specified slot of the gateway for SLS.

User Level

read-write

Context

sls

Example

To define the board type as MM721 in slot v1 of the gateway:

```
G450H-001(test-sls)# set slot-config v1 MM720X
```

clear slot-config

Syntax

```
clear slot-config slot-number
```

slot number   Identifies the slot number.

⭐ **Note:**

If you previously administered either the trunk or station ports for the media module in the configured slot, you must remove the port administration before removing the slot-configuration administration.

Description

Use the `clear slot-config` command to delete the slot configuration administration in the gateway for SLS.

User Level

read-write

Context

sls

Example

To delete the slot configuration administration for slot v1 in the gateway:

```
G450H-001(test-sls)# clear slot-config v1
```

show slot-config

Syntax

```
show slot-config
```

Description

Use the `show slot-config` command to list the slot and board administration in the gateway for SLS.

User Level

read-write

Context

sls

Example

To list the slot and board administration in the G450 Branch Gateway:

```
G450-001 (super-sls)# show slot-config
Slot      SLS-Configured      Inserted
          Board-type          Board-type
----      --------------      -------------
v1:            -                   -
v2:            -                 mm340
v3:          mm711               mm711
v4:          mm711               mm711
v5:          mm717               mm717
v6:          mm720X              mm720X
v7:          mm710               mm710
v8:          mm710               mm710
```

⊛ **Note:**

If you do not administer a module for a slot, the system displays a hyphen (-). If you insert an unknown media module, the system displays "unknown".

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