



Harris® LTE PBM-214 Module



MANUAL REVISION HISTORY

REV	DATE	REASON FOR CHANGE
-	Aug/15	Initial release.
A	Sep/15	Deleted Section 2.2.2. Other minor revisions/corrections.

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Harris Corporation
PSPC Business
Technical Publications
221 Jefferson Ridge Parkway
Lynchburg, VA 24501

fax your comments to: 1-434-455-6851
or
e-mail us at: PSPC_TechPubs@harris.com

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1 INTRODUCTION

1.1 DESCRIPTION

The PBM-214 Module functions as LTE User Equipment (UE) capable of operating on 3GPP Band 13, Band 14, and Band 4 LTE networks. It is integrated into Harris mobile and portable data terminals. The PBM-214 is certified by the FCC as a modular transmitter and is not shipped with antennas.



Figure 1-1: PBM-214 Module

1.2 SCOPE

This document outlines the use and installation guidelines for integrating the PBM-214 LTE Module into host devices.

2 REGULATORY AND SAFETY INFORMATION

2.1 REGULATORY APPROVALS

2.1.1 Transmitter

The transmitting devices listed below have been tested and meet the following regulatory requirements:

MODEL	DESCRIPTION	3GPP Bands	FCC ID (PART 90)
PBM-214	LTE Module	4, 13, 14	BV8BBPBM214

2.1.2 Receiver

The receiver associated with this transmitting device has been tested and declared to meet the regulatory requirements.

2.1.3 FCC Compliance

This device complies with Part 15 of the FCC Rules. Operation is subject to the condition that this device does not cause harmful interference.

The user should take caution that changes or modifications not expressly approved by Harris could void the user's authority to operate this equipment. All required software and operating conditions must not be violated by the installer/user and is an express condition of use for this equipment.

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.
- Consult an experienced radio/TV technician for help.

2.1.4 Labeling

The FCC labeling of the module is shown below. When integrating the module into a host, the label must be visible through a window, visible through an access panel that is easily removed, or a second label must be placed on the outside of the host device that contains the following text: Contains FCC ID: BV8BBPBM214. The module has capability for electronic labeling to the host device; please contact technical support to access this capability.



Figure 2-1: FCC Labeling

2.2 RF ENERGY EXPOSURE INFORMATION

2.2.1 Maximum Permissible Exposure Limits

Mobile devices are defined by the FCC as transmitters with a separation distance of at least 20 centimeters between radiating structures and the body of the user. At least 20 centimeters of separation between the antenna and the users body must be maintained at all times.

The FCC defines portable devices as transmitters whose radiating structures are designed to be used within 20 centimeters of the body of the user. These portable devices are to be evaluated with respect to limits for Specific Absorption Rate (SAR) and requires separate approval.

The Maximum Permissible Exposure (MPE) is based on a mobile device installation and is based on “Limits for General Population/Uncontrolled Exposure” as specified in FCC rules 47 CFR 1.1310. The limit for **Uncontrolled Exposure Power Density (P_d)** is 0.521 mW/cm^2 for UMTS Band 13 operation. . The limit for **Uncontrolled Exposure Power Density (P_d)** is 0.529 mW/cm^2 for UMTS Band 14 operation. The limit for **Uncontrolled Exposure Power Density (P_d)** is 1 mW/cm^2 for UMTS Band 4 operation.

2.2.2 Maximum Allowed Antenna Gain

The following table summarizes the maximum gain allowed for use in mobile installations at each band of operation. When designing the antenna system for the device, the gain of the host antenna must not exceed these values.

Table 2-1: MPE Limits

LTE OPERATING BAND	TRANSMITTER FREQUENCY	POWER DENSITY at 20cm	MAXIMUM ANTENNA GAIN
13	782 MHz	0.521 mW/cm^2	9.68 dBi
14	793 MHz	0.529 mW/cm^2	9.74 dBi

LTE OPERATING BAND	TRANSMITTER FREQUENCY	POWER DENSITY at 20cm	MAXIMUM ANTENNA GAIN
4	1732.5 MHz	0.199 mW/cm ²	4.5 dBi

3 INSTALLATION GUIDELINES

3.1 INTRODUCTION

Careful planning and preparation of any installation will always benefit the end result; always read and follow all installation instructions. Follow ESD precautions and prepare an ESD safe workspace for installation. Turn the power to the host off and ground yourself to dissipate static charge.

Mount only in sockets and locations intended for PCI Express M.2 cards and consult Harris on thermal management recommendations for the module mounted within the host.

All instructions relating to the integration of the module described on the FCC Grant notes must be followed.

3.2 MOBILE HOST

The LTE Module can be installed in host devices as a standalone transmitter where the distance between the antenna and the body of the user is greater than 20 centimeters and the antenna gain is less than the value shown in Section 2.2.2. Labeling requirements are given in Section 2.1.4.

3.3 PORTABLE HOST

In host devices where the distance between the antenna and the body of the user is equal to or less than 20 centimeters, the device must be evaluated using specific FCC and Industry Canada test procedures for SAR and requires separate approval. Users are required to consult with Harris for all portable installations.

3.4 COLLOCATED TRANSMITTERS

This module can be incorporated in mobile host devices containing other transmitters if:

- The separation among all simultaneous transmitting antennas is ≥ 20 cm
- OR
- Antennas comply with MPE limits as specified in the application filing and simultaneously transmitting antennas must be ≥ 5 cm from each other.

As with any mobile installation, all antennas must be at least 20 cm from users and nearby persons.

All collocated transmitter installations must be evaluated by Harris.

4 SPECIFICATIONS

4.1 GENERAL SPECIFICATIONS

Model Number:

PBM-214

Physical Characteristics:

Electrical Power:	3.3 VDC
Power Consumption:	3.0 Watts maximum
Size (H x W x D):	42 × 30 × 2.3 mm
Weight:	13 g

Environmental Specifications:

Operating Temperature:	-30°C to +60°C
Storage Temperature:	-40°C to +85°C
Altitude:	15,000 ft. (operational)

System Interfaces:

Host	PCI Express M.2 (USB)
LTE	MHF4 connector

4.2 TRANSCEIVER SPECIFICATIONS

Frequency Bands:	Band 13, Band 14, Band 4
Channel Bandwidth:	10 MHz (B13), 5/10 MHz (B14), 5/10/15/20 MHz (B4)
3GPP LTE UE	Release 9 Protocol
FCC ID:	BV8BBPBM214

5 CUSTOMER SERVICE

5.1 CUSTOMER CARE

If any part of the system equipment is damaged on arrival, contact the shipper to conduct an inspection and prepare a damage report. Save the shipping container and all packing materials until the inspection and the damage report are completed. In addition, contact the Customer Care center to make arrangements for replacement equipment. Do not return any part of the shipment until you receive detailed instructions from a Harris representative.

Contact the Customer Care center at <http://www.pspc.harris.com/CustomerService> or:

North America:

Phone Number: 1-800-368-3277

Fax Number: 1-321-409-4393

E-mail: PSPC_CustomerFocus@harris.com

International:

Phone Number: 1-434-455-6403

Fax Number: 1-321-409-4394

E-mail: PSPC_InternationalCustomerFocus@harris.com

5.2 TECHNICAL ASSISTANCE

The Technical Assistance Center's (TAC) resources are available to help with overall system operation, maintenance, upgrades and product support. TAC is the point of contact when answers are needed to technical questions.

Product specialists, with detailed knowledge of product operation, maintenance and repair provide technical support via a toll-free (in North America) telephone number. Support is also available through mail, fax and e-mail.

For more information about technical assistance services, contact your sales representative, or call the Technical Assistance Center at:

North America: 1-800-528-7711

International: 1-434-385-2400

Fax: 1-434-455-6712

E-mail: PSPC_tac@harris.com

NOTES

