



Gobi2000™ Module Collocation Guidelines for HP Model HSTNN-I77C Tablet Computer

80-VP948-18 Rev. A

December 4, 2009

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Revision history

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A	December 1, 2009	Initial release

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1 Introduction

This document provides collocation guidelines for HP tablet computer model HSTNN-I77C to be authorized for use with the Gobi2000™ module through a FCC Class I Permissive Change process in accordance with KDB 447498. The host configuration addressed in this document allows collocated transmission with the Gobi2000 module host device approved under FCC ID J9CGOBI2000-H through a Class I permissive change process. The collocated transmitters must meet the technical requirements defined in Section 2.

Other configurations not specifically described in this document may be authorized in Class I permissive changes through coordination with QUALCOMM Incorporated to verify that all technical requirements defined in Supplement Note D03 of FCC KDB 616217 or other relevant FCC specifications are adequately addressed.

These collocation guidelines are applicable only for the tablet host defined in these guidelines.

Any collocated transmitter or antenna that does not meet the technical requirements defined in this document requires a Class II permissive change to authorize simultaneous transmission.

2 Collocated Installation Guidelines

Collocated transmitters can be operated simultaneously with the Gobi2000 module, provided the technical parameters listed in Table 1 are maintained and the information specified in Section 3 is on file as part of a Class I permissive change. A Class II permissive change is required if the host device does not meet the requirements specified in Table 1 and in section 5.

Table 1 Host Device Limitations

Parameter	Requirement	RF Exposure Justification	Collocation Guide Section
Device type	Tablet		
Display size	Any		
Display orientations	Secondary Portrait and Secondary Landscape orientations are disabled		
WWAN Antenna locations	Display		
Exterior Display Material	(Non metal)		
WWAN module location	Anywhere		
Maximum WWAN SAR	0.851 mW/g (1g)	KDB 616217 D03, section 4	See Section 5
Portable collocated Transmitter Condition I	All collocated antennas \geq 5 cm apart, $SAR_{collocated} \leq 0.749$ mW/g ($\sum SAR \leq 1.6$ mW/g)	KDB 447498 D01, section 3	See Section 5.1
Portable collocated Transmitter Condition II	All collocated antennas \geq 5 cm apart, SAR:Peak Location Ratio < 0.3	KDB 447498 D01, Section 3	See Section 5.2
Portable collocated Transmitter Condition III	Collocated antenna transmitter $P \leq 60/f_{(GHz)}$	KDB 447498 D01, Section 3	

Other devices may be approved as collocated transmitters, provided the technical requirements of KDBs 616217 or 447498 are satisfied.

3 Class I Permissive Change Documentation Requirements

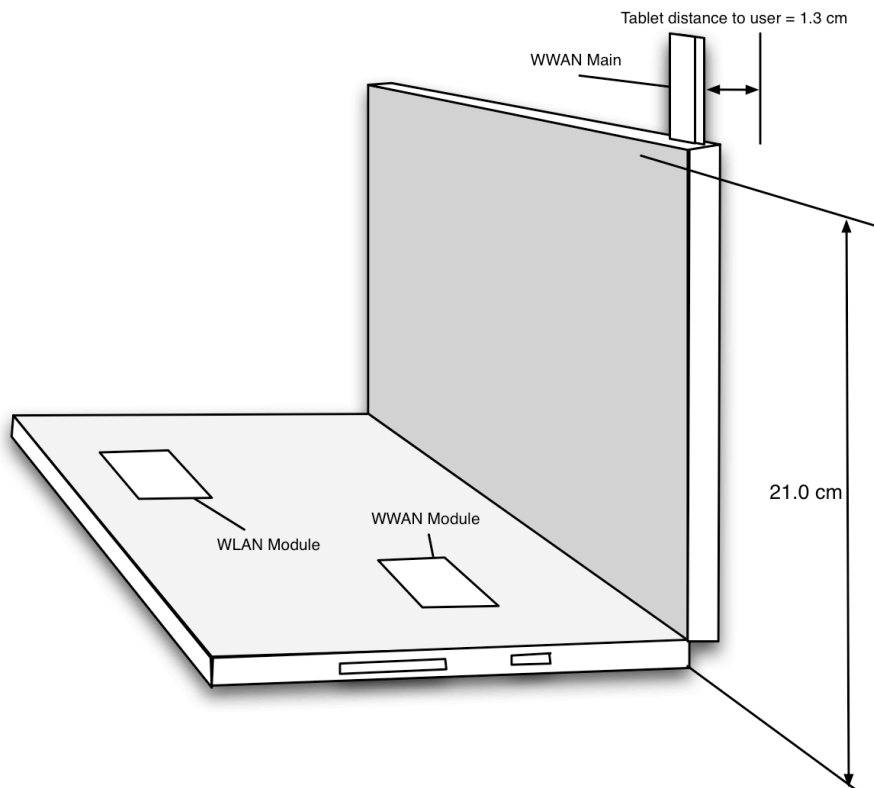
The following documentation must be kept on file to allow simultaneous transmission as part of a Class I permissive change. A Class II permissive change is required if the technical requirements of KDB 447498 or KDB 616217 cannot be met.

- List of all collocated transmitters with FCC and IC IDs
- Exposure analysis based on the requirements of KDB 447498 or KDB 616217 (see section 5 of this guide)

4 Individual WWAN SAR Evaluation

Portable RF exposure evaluation has been completed based on SAR measurements on model HSTNN-I77C tablet computer as documented in the SAR report provided with the Class II submission filed in November of 2009. The maximum measured 1-g SAR for the WWAN configuration was **0.851 mW/g (1g)**.

Figure 1-1 Antenna Locations



5 Simultaneous RF Exposure Evaluation Guidelines For Collocated Transmitters Allowable through a Class I Permissive change

5.1 Portable Hosts: Sum of Total SAR < SAR Limit (Portable Condition I)

A portable collocated transmitter can be operated simultaneously with the WWAN transmitter provided the individual SAR results for the portable collocated transmitter for the applicable tablet orientation are less than the value specified below based on Section 4)a) of the Supp note for KDB 616217 and Section 3 of KDB 447498. The maximum individual SAR value is based on the maximum measured SAR for the tablet submitted in the Class II Permissive Change in November 2009 (HP model HSTNN-I77C).

For $SAR_{WWAN}=0.851mW/g$,

$$\frac{SAR_{WWAN}}{1.6} + \frac{SAR_{collocated}}{1.6} \leq 1$$

$$SAR_{collocated} \leq 1.6 - SAR_{WWAN}$$

$$SAR_{collocated} \leq 0.749mW / g$$

5.2 Portable Hosts: Antenna SAR-to-Peak Location Evaluation (Portable Condition II)

If the summation of SAR exceeds the FCC limit, collocation is permitted through a Class I permissive change provided the separation distance between the WWAN antenna and other radio device antennas is >5cm and the following equation is satisfied, per KDB 447498, Section 3)b):

$$\frac{SAR_{MaxWWAN} + SAR_{MaxCollocated}}{Dist_{Antenna-to-antenna}} < 0.3$$