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Issued test report consists of 61 Pages

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FCC LISTED, REG. NO.: 101450 & RECOGNIZED BY INDUSTRY CANADA IC – 3925

Test report no.: EMC_415FCC15.247_2003 FCC Part 15.247 for DSSS systems / CANADA RSS-210

EUT: WLANModel: BCM94306MPHOST: HP Laptop(Topaz)Model: PP2160

FCC ID:QDS-BRCM1005-H



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1	General information

- 1.1 Notes

The test results of this test report relate exclusively to the test item specified in 1.5. The CETECOM Inc. USA does not assume responsibility for any conclusions and generalisations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM Inc USA.

TEST REPORT PREPARED BY: EMC Engineer: Harpreet Sidhu

1.2 Testing laboratory CETECOM Inc. 411 Dixon Landing Road, Milpitas, CA-95035, USA Phone: +1 408 586 6200 Fax: +1 408 586 6299 E-mail: <u>lothar.schmidt@cetecomusa.com</u> Internet: <u>www.cetecom.com</u>



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1.3 Details of applicant

Name	:		Broadcom corporation
Street	:		190 Mathilda Place
City / Zip Code	:		Sunnyvale, CA 94086
Country	:		USA
Contact	:		Chris McGough
Telephone	:		408-922-5810
Tele-fax	:		408-543-3399
e-mail	:		cmcgough@broadcom.com
1.4 Application detail	S		
Date of receipt of application	tion	:	2002-11-15
Date of receipt test item		:	2002-11-15
Date of test		:	2002-11-21, 2002-12-11/15 and 2003-01-16
1.5 Test item			
Manufacturer	:		Applicant
Model No.(EUT)	:		BCM94306MP
Model No.(Host)	:		HP Laptop PC Model No: PP2160
Description	1		54g wireless LAN mini PCI card in HP Laptop of Topaz series
FCC ID	:		QDS-BRCM1005-H
Additional information			
Frequency	:		2412MHz – 2462MHz
Type of modulation	:		DSSS / OFDM (orthognal frequency division multiplexing)
Number of channels	:		11
Power supply	:		3.3 VDC from Host
Antenna	:		+1.67dBi max. gain antenna by Hitachi
Output power	:		25.55dBm (359mW) conducted peak power (For EIRP and Source-based time-averaged output please see page no.11)
Extreme temp. Tolerance	:		0° C to +85 °C

1.6Test standards:FCC Part 15 §15.247 / CANADA RSS-210Note: All radiated measurementswere made in all three orthogonal planes. The valuesreported are the maximum values.



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2 Technical test

2.1 Summary of test results

No deviations from the technical specification(s) were ascertained in the course of the tests Performed			
Final Verdict: (only "passed" if all single measurements are "passed")	Passed		

Technical responsibility for area of testing:

Date	Section	Name	Signature
2003-01-23	EMC & Radio	Lothar Schmidt (EMC Manager)	lounide

Responsible for test report and project leader:

Howki

2003-01-23	EMC & Radio	Harpreet Sidhu (EMC Engineer)	
Date	Section	Name	Signature



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2.2 Test report

TEST REPORT

Test report no. : EMC_415FCC15.247_2002EUT: WLANModel: BCM94306MPHOST: HP Laptop(Topaz)Model: PP2160



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TEST REPORT REFERENCE		
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SPECTRUM BANDWIDTH OF DSSS SYSTEM 6 dB bandwidth

§15.247(a) (2)

TEST CONDITIONS		6 dI	3 BANDWIDTH (M	IHz)
Frequency (MHz)		2412	2437	2462
T _{nom} (23)°C	V _{nom} (3.3)VDC	16.38	16.53	16.43

LIMIT

SUBCLAUSE §15.247(a) (2)

The minimum 6dB bandwith shall shall be at least 500 KHz



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SPECTRUM BANDWIDTH OF DSSS SYSTEM 6 dB bandwidth

§15.247(a) (2)

Lowest Channel: 2412MHz





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SPECTRUM BANDWIDTH OF DSSSS SYSTEM 6 dB bandwidth

§15.247(a) (2)

Mid Channel: 2437MHz





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SPECTRUM BANDWIDTH OF DSSS SYSTEM 6 dB bandwidth

§15.247(a) (2)

Highest Channel: 2462MHz





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OUTPUT POWER

§ 15.247 (b) (1)

	Low channel	Mid channel	High channel
*Conducted Peak Power	25.55dBm	24.48dBm	24.11dBm
*Raidated Power (EIRP)	26.09dBm	26.26dBm	23.65dBm
*Source-based time averaged output	19.32dBm	19.49dBm	16.88dBm

The source-based time averaged power is calculated using the duty cycle (measurement result see page 20-23)

*For details please refer to pages 12,16 & 20 respectively.



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MAXIMUM PEAK OUTPUT POWER (conducted)

§ 15.247 (b) (1)

TEST CONDITIONS		MAXIMUM PEAK OUTPUT POWER (dBm)			
Frequency (MHz)		2412		2437	2462
T _{nom} (23)°C	V _{nom} (3.3)VDC	Pk	*25.55	*24.48	*24.11
Measurement uncertainity				±0.5dBm	

RBW / VBW : 10MHz

*To comply with following;

RBW / VBW should be equal to or greater than the 6dB BW All mesured values are corrected by 10log 6dB BW / used BW

(Therefore correction factor of 2.14, 2.18 & 2.15 is added to low, mid& high channel measurements respectively)

LIMIT

SUBCLAUSE § 15.247 (b) (1)

Frequency range	RF power output
2400-2483.5 MHz	1.0 Watt / 30dBm



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PEAK OUTPUT POWER (CONDUCTED)

§15.247 (b) (1)

Lowest Channel: 2412MHz





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PEAK OUTPUT POWER (CONDUCTED)

§15.247 (b)

Mid Channel: 2437MHz





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PEAK OUTPUT POWER (CONDUCTED)

§15.247 (b)

Highest Channel: 2462MHz





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MAXIMUM PEAK OUTPUT POWER (RADIATED)

§ 15.247 (b) (1)

EIRP:

TEST CONDITIONS		MAXIMUM PEAK OUTPUT POWER (dBm)		
Frequency (MHz)		2412	2437	2462
T _{nom} (23)°C V _{nom} (3.3)VDC		*26.09	*26.26	*23.65
Measurement uncertainty			±0.5dBm	

RBW/VBW:10MHz

*To comply with following;

RBW / VBW should be equal to or greater than the 6dB BW

All mesured values are corrected by 10log 6dB BW / used BW

(Therefore correction factor of 2.14, 2.18 & 2.15 is added to low, mid& high channel measurements respectively)

LIMIT

SUBCLAUSE § 15.247 (b) (1)

Frequency range	RF power output
2400-2483.5 MHz	30dBm on Conducted



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PEAK OUTPUT POWER (RADIATED)

§15.247 (b) (1)

Lowest Channel: 2412MHz

SWEEP TA	BLE: "EIRP R	RLAN ch-1"			
Short Descri	iption:	EIRP RLAN channel-2412MHz			
Start	Stop	Detector	Meas.	IF	
Frequency	Frequency		Time	BW	
2.387GHz	2.437GHz	MaxPeak	Coupled	10 MHz	





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PEAK OUTPUT POWER (RADIATED)

§15.247 (b) (1)

Mid Channel: 2437MHz

SWEEP TABLE: "EIRP RLAN CH6"									
Short Description: EIRP RLAN channel-2437MHz									
Start	Stop	Detector	Meas.	IF					
Frequency	Frequency		Time	BW					
2.412GHz	2.462GHz	MaxPeak	Coupled	10 MHz					





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PEAK OUTPUT POWER (RADIATED)

§15.247 (b) (1)

Highest Channel: 2462MHz

SWEEP TA	BLE: "EIRP R	RLAN CH11"				
Short Descri	ption:	EIRP RLAI	EIRP RLAN channel-2462MHz			
Start	Stop	Detector	Meas.	IF		
Frequency	Frequency		Time	BW		
2.437GHz	2.487GHz	MaxPeak	Coupled	10 MHz		





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SOURCE-BASED TIME-AVERAGED OUTPUT

Tx $_{on} = 140.2 \ \mu s$

 $Tx_{on}+Tx_{off} = 661.32 \ \mu s$

Duty factor = Tx $_{on}$ / Tx $_{on}$ +Tx $_{off}$ = 140.2 / 661.32 = 0.21

Therefore;

(Example for Middle channel)

Source-based time averaged output = Max. EIRP + 10log(duty factor)

= 26.66 - 6.77 = 19.49dBm

TEST CONDITIONS		SOURCE-BASED TIME AVERAGED OUTPUT (dBm)				
Frequency (MHz)		2412 2437		2462		
T _{nom} (23)°C	V _{nom} (3.3)VDC	19.32dBm	19.49dBm	16.88dBm		

Please refer to the plots on next pages



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Transmitter ON time – Txon





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Transmitter ON+OFF time – Txon + Txoff





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100ms plot - to show repetition of pattern





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POWER SPECTRAL DENSITY

§15.247 (d)

TEST CONDITIONS		POWER SPECTRAL DENSITY (dBm)			
Frequency (MHz)		2412	2412 2437 24		
$T_{nom}(23)^{\circ}C \qquad V_{nom}(3.3)VDC$		-0.99	-5.15	-3.72	

LIMIT

SUBCLAUSE §15.247(d)

The peak power spectral density shall not be greater than 8 dBm in any 3 kHz band

ANALYZER SETTINGS: RBW=3KHz, VBW=3KHz



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POWER SPECTRAL DENSITY

§15.247(d)

Lowest Channel: 2412MHz





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POWER SPECTRAL DENSITY

§15.247(d)

Mid Channel: 2437MHz





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POWER SPECTRAL DENSITY

§15.247(d)

Highest Channel: 2462MHz



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POWER SPECTRAL DENSITY

RSS-210

TEST CONDITIONS		POWER SPECTRAL DENSITY (dBm/MHz)			
Frequency (MHz)		2412	2412 2437		
T _{nom} (23)°C	V _{nom} (3.3)VDC	*11.77	*8.91	*8.57	

*Correction factor of 60dBm is added to convert measured values from dBm/Hz to dBm/MHz

LIMIT

RSS-210

The peak power spectral density shall be ≤ 50mW/MHz (17dBm/MHz)

ANALYZER SETTINGS: RBW=1MHz, VBW=1MHz



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POWER SPECTRAL DENSITY

RSS-210

Lowest Channel: 2412MHz





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POWER SPECTRAL DENSITY

RSS-210

Mid Channel: 2437MHz





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POWER SPECTRAL DENSITY

RSS-210

Highest Channel: 2462MHz





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BAND EI	BAND EDGE COMPLIANCE §15.247 (c)							
Low freq	uency section	on (spuriou	is in the rea	stricted ba	nd 2310 – 2	390 MHz)		
(Average	meaureme	nt)						
Operating co	ondition	•	Tx at 2412	MHz				
SWEEP TA	BLE	:	"FCC15.24	17 LBE AVG	, ''			
Limit Line		:	54dBµV	_				
Start	Stop	Detector	Meas.	RBW	VBW	Transducer		
Frequency	Frequency	Time	Bandw.					
2.31 GHz	2.412 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 horn (dBi)		





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BAND EDGE COMPLIANCE

§15.247 (c)

Low frequency section (spurious in the restricted band 2310 – 2390 MHz) (Peak meaurement) Operating condition : Tx at 2412MHz SWEEP TABLE : "FCC15.247 LBE_Pk" Limit Line : 74dBµV

Start	Stop	Detector	Meas.	RBW	VBW	Transducer
Frequency	Frequency	Time	Bandw.			
2.31 GHz	2.412 GHz	MaxPeak	Coupled	1 MHz	1MHz	#326 horn (dBi)





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BAND EDGE COMPLIANCE

§15.247 (c)

High frequency section (spurious in the restricted band 2483.5 – 2500 MHz)(Average meaurement)Operating condition:Tx at 2462MHzSWEEP TABLE:"FCC15.247 HBE_AVG"Limit Line:54dBµV

Start	Stop	Detector	Meas.	RBW	VBW	Transducer
Frequency	Frequency	Time	Bandw.			
2.462 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 horn (dBi)





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BAND EI	DGE COM	PLIANCE				§15.247 (c)	
High freq (Peak mea	uency secti aurement)	on (spurio	us in the re	estricted ba	nd 2483.5 -	- 2500 MHz)	
SWEEP TA Limit Line	BLE	:	FCC15.24 74dBμV	47 HBE_PK"			
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw	RBW	VBW	Transducer	
2.462 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	1MHz	#326 horn (dBi)	
Marker:	:	2.483398798	GHz		61.93 dBµV	//m	
Level [d	lBμV/m]						
110							
100	mandan	mmy					
90		\					





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EMISSION LIMITATIONS Transmitter (Conducted) LIMITS

§ 15.247 (c) (1)

In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

<u>NOTE</u>: Frequency resolution is not fine enough to show the exact frequency of the carrier, refer to plots under EIRP.



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EMISSION LIMITATIONS - Conducted (Transmitter) § 15.247 (c) (1)

Lowest Channel(2412MHz): 10MHz - 25GHz





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EMISSION LIMITATIONS - Conducted (Transmitter) § 15.247 (c) (1)

Mid Channel(2437MHz): 10MHz - 25GHz





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EMISSION LIMITATIONS - Conducted (Transmitter) § 15.247 (c) (1)

Highest Channel(2462MHz): 10MHz - 25GHz





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EMISSION LIMITATIONS Transmitter (Radiated)

§ 15.247 (c) (1)

LIMITS

In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

NOTE:

1. The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels. In the range between 18 and 25 GHz very short cable connections to the antenna was used to minimize the noise level.

2. Frequency resolution is not fine enough to show the exact frequency of the carrier, refer to plots under EIRP.

3. All measurements were carried out in peak mode.

Results for the radiated measurements below 30MHz according § 15.33

Frequency	Measured values	Remarks
9KHz – 30MHz	No emissions found, caused by the EUT	This is valid for all the tested channels



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EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)

Note: All radiated measurements were made in all three orthogonal planes. The values reported are the maximum values.

Tx 0 241	ch-Low 2 MHz		Tx ch-Mid 2437 MHz		Tx ch-High 2462 MHz	
Freq.(MHz)	Level (d	lBμV/m)	Freq.(MHz)	Level	Freq.(MHz)	Level (dBuV/m)
	Pk	QPk		(00,00,00)		(uDµ (/III)
325.47	51.44	44.94				
399.4	46.99	40.99				
7234	47.71		7302	43.68	7404	47.05



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EMISSION LIMITATIONS - Radiated (Transmitter)§ 15.247 (c) (1)Lowest Channel(2412MHz): 30MHz – 1GHzNote: This plot is valid for all three(low,mid,high) channels.

SWEEP TAI	BLE:	"BT Spuri h	"BT Spuri hi 30-1G"			
Short Descri	ption:	Bluetooth 3	Bluetooth 30MHz-1GHz			
Start	Stop	Detector	Meas.	RBW	Transducer	
Frequency	Frequency		Time	VBW		
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186	
Freq(MHz)		Pk(dBµV/n	Pk(dBµV/m)		<u>m)</u>	
325.47		51.44		44.94		
399.4		46.99		40.99		





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EMISSIO	N LIMITA	TIONS - F	Radiated (T	ransmitte	r)	§ 15.247 (c) (1)
Lowest Ch	nannel(241)	2MHz): 10	GHz – 3GH	Z		
SWEEP TAE	BLE:	"BT Spuri h	ni 1-3G"			
Short Descrip	otion:	Bluetooth S	purious 1-3 C	Hz		
Start	Stop	Detector	Meas.	RBW	VBW	Transducer
Frequency	Frequency	Time	Bandw.			
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	1 MHz	#326 horn (dBi)













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EMISSIO	N LIMITA	TIONS - H	Radiated	(Transmitte	r)	§ 15.247 (c) (1)	
Middle Cl	hannel(243	7MHz): 10	GHz – 3G	Hz			
SWEEP TAI	BLE:	"BT Spuri ł	ni 1-3G"				
Short Descri	ption:	Bluetooth S	Spurious 1-3	8 GHz			
Start	Stop	Detector	Meas.	RBW	VBW	Transducer	
Frequency	Frequency	Time	Bandw.				
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	1 MHz	#326 horn (dBi)	
NOTE: The	peak above t	the limit line	is the carri	ier frequency.			









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EMISSIC Middle C	ON LIMITA hannel(243	ATIONS - F 7MHz): 18	Radiated (' GHz – 250	Transmitter) GHz	§ 15.247 (c) (1)
SWEEP TA	BLE:	"BT Spuri ł	ni 18-25G"		
Short Descr	iption:	Bluetooth S	Spurious 18-2	25GHz	
Start	Stop	Detector	Meas.	RBW	Transducer
Frequency	Frequency	Time	Bandw.	VBW	
18 GHz	25 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)
			1		





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EMISSIC	ON LIMITA	TIONS - I	Radiated (Fransmitte	r)	§ 15.247 (c) (1)
Highest C	Channel(246	52MHz): 10	GHz – 3GH	Ηz		
SWEEP TA	BLE:	"BT Spuri l	ni 1-3G"			
Short Descr	iption:	Bluetooth S	purious 1-3 (GHz		
Start	Stop	Detector	Meas.	RBW	VBW	Transducer
Frequency	Frequency	Time	Bandw.			
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	1 MHz	#326 horn (dBi)









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EMISSIC Highest C	ON LIMITA Channel(246	ATIONS - I 52MHz): 18	Radiated (1 3GHz – 250	Fransmitter GHz	r)	§ 15.247 (c) (1)	
SWEEP TA Short Descr Start Frequency 8.0 GHz	BLE: iption: Stop Frequency 25.0 GHz	"BT Spuri I Bluetooth S Detector Time MaxPeak	ii 18-25G" purious 18-2 Meas. Bandw. Coupled	5GHz RBW VBW 1 MHz	Transduc #326 horn	er 1 (dBi)		
Level [df	3μV/m]							
90								
80								
70								
60								
50					1	-Ma		
40	·······						Marine Marine M	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
30								
20								
10								
10								
	19G	200	3	21G	22G	236	24G	25G

Frequency [Hz]



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CONDUC Measured	CTED EMI l with AC/I	SSIONS DC power a			§ 15.107/207	
SWEEP TA	BLE: "55022	cond"				
Short Descr	iption:	EN 55022 f	for 150KHz-3	0MHz		
Start	Stop	Detector	Meas	IF	Transducer	
Frequency	Frequency		Time	Bandw.		
150.0 kHz	30.0 MHz	MaxPeak	Coupled	10 kHz	None	
Technica Limit	l specificati	on : 15.107	/ 15.207 (F	Revised as o	of August 20	, 2002)

Frequency of Emission (MHz)	Conducted Limit (dBµV)				
	Quasi-Peak	Average			
0.15 - 0.5	66 to 56*	56 to 46*			
0.5 - 5	56	46			
5 - 30	60	50			
* Decreases with logarithm of the frequency					

Decreases with logarithm of the frequency L

ANALYZER SETTINGS: RBW = 10KHz VBW = 10KHz





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MEASUREMENT RESULT: "vol_0001_fin QP"

1/16/03 4:37PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.155000	49.40	0.0	66	16.3	N	FLO
0.195000	48.10	0.0	64	15.7	N	FLO
0.255000	40.80	0.0	62	20.8	L1	FLO



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RECEIVER SPURIOUS RADIATION

§ 15.209

Limits

Frequency (MHz)	Field strength (µV/m)	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
above 960	500	3

NOTE:

The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels. In the range between 18 and 25 GHz very short cable connections to the antenna was used to minimize the noise level.



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RECEIV	ER SPURIO	DUS RADI	ATION			§ 15.209	
30MHz –	1GHz						
SWEEP TABLE: "BT Spuri hi 30-1G"							
Short Descri	ption:	Bluetooth 3	30MHz-1GHz	Z			
Start	Stop	Detector	Meas.	RBW	Transducer		
Frequency	Frequency		Time	VBW			
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186		
NOTE: P	eak at 325.4	47MHz can	ne down to	42.64dBµV	/m when subje	ected to Quasi peak.	





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RECEIV 1GHz – 3 SWEEP TA Short Descr Start Frequency	ER SPURIO GHz BLE: iption: Stop Frequency	OUS RADI "BT Spuri h Bluetooth S Detector Time	ATION ii 1-3G" purious 1-3 (Meas. Bandw	GHz RBW VBW	§ 15.209 Transducer		
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)	
Marker:	,	1.733466934 G	θHz		45.87 dBµV/m		
Level [d	BµV/m]						
110							
100							
80							
60							
		0	\diamond	м			
40 ,	mm	MAAA	Munt	month		my Lumpson	mmmml
20							
20							
0		4.50					
1G		1.5G	Freque	2G encv [Hz]		2.5G	3G



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RECEIV	ER SPURIC	DUS RADI	ATION		§ 15.20	9		
SWEEP TA Short Descr	BLE: iption:	"BT Spuri l Bluetooth S	ni 3-18G" Spurious 3-18	GHz				
Frequency 3.0 GHz	Stop Frequency 18.0 GHz	Detector Time MaxPeak	Meas. Bandw. Coupled	RBW VBW 1 MHz	#326 horn (dBi)		
Marker:	* •	1 GHz	35.6	δ1 dBµV/m				
Level [dB	βµV/m]							
90								
80								
70								
60								
50						Aman	An	m
40	MMMmm	mm	nham		1 million and the second se		- Mana	
20								
0 <u>3</u> G		6G	8G Freque	10G	12G	14G	16G	18G



18GHz - 25GHz SWEEP TABLE: "BT Spuri hi 18-25G" Short Description: Bluetooth Spurious 18-25GHz Start Stop Detector Meas. RBW Transducer Frequency Frequency Time Bandw. VBW 18.0 GHz 25 GHz MaxPeak Coupled 1 MHz #326 horn (dBi) Level [dBµV/m] 90	RECEIVER SPURIOUS RADIATION § 15.209								
Start Stop Detector Meas. RBW Transducer Frequency Frequency Time Bandw. VBW 18.0 GHz 25 GHz MaxPeak Coupled 1 MHz #326 horn (dBi) 90	18GHz – SWEEP TA Short Descr	25GHz BLE: iption:	"BT Spuri l Bluetooth S	ni 18-25G" Spurious 18-25	5GHz	T I			
Level [dBµV/m] 90 80 70 60 50 40 50 40 50 40 50 40 50 40 50 40 50 40 50 40 50 40 50 40 50 50 50 50 50 50 50 50 50 50 50 50 50	Start Frequency 18.0 GHz	Stop Frequency 25 GHz	Detector Time MaxPeak	Meas. Bandw. Coupled	RBW VBW 1 MHz	#326 horn (dB	i)		
Level [dBµV/m] 90 80 70 60 60 50 40 70 40 70 70 70 70 70 70 70 70 70 70 70 70 70									
90 80 70 90 60 90 50 90 40 90 30 90 20 90 10 90	Level [df	BμV/m]							
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	90								
70	80								
60	70								
50 40 30 20 10	60								
40 40 30 20 10	50								
40	10				mm	m	man		
30	40	hm	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Munton					man
20 10 10 10 10 10 10 10 10 10 10 10 10 10	30								
10	20								
	10								
	0								



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TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

No	Instrument/Ancillary	Туре	Manufacturer	Serial No.
01	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107
02	Spectrum Analyzer	FSEM 30	Rohde & Schwarz	826880/010
03	Signal Generator	SMY02	Rohde & Schwarz	836878/011
04	Power-Meter	NRVD	Rohde & Schwarz	0857.8008.02
05	Power Amlifier	250W1000	Amplifier Research	300031
06	Biconilog Antenna	3141	EMCO	0005-1186
07	Horn Antenna	SAS-200/571	AH Systems	325
08	Power Splitter	11667B	Hewlett Packard	645348
09	Climatic Chamber	VT4004	Votch	G1115
10	Pre-Amplifier	JS4-00102600	Miteq	00616
11	2-3GHz band reject filter	BRM50701	Microtronics	NA
12	Power Sensor	URV5-Z2	Rohde & Schwarz	DE30807



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BLOCK DIAGRAMS Conducted Testing





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Radiated Testing



ANECHOIC CHAMBER