

CETECOM Inc. 411 Dixon Landing Road, Milpitas, CA-95035, USA Phone: +1 408 586 6200 Fax: +1 408 586 6299 www.cetecom.com



Issued test report consists of 59 Pages

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FCC Test Report

Test report no.: EMC_405FCC15.247_2003_PP02X FCC Part 15.247 for DSSS systems / CANADA RSS-210

> EUT: WLAN Model: BCM94306MP HOST: Dell Laptop Model: PP02X

> > FCC ID: QDS-BRCM1005-D

Accredited according to ISO/IEC 17025 by:





FCC listed # 101450

IC recognized # 3925

CETECOM Inc.

411 Dixon Landing Road • Milpitas, CA 95035 • U.S.A. Phone: + 1 (408) 586 6200 • Fax: + 1 (408) 586 6299 • E-mail: info@cetecomusa.com • http://www.cetecom.com *CETECOM* Inc. is a Delaware Corporation with Corporation number: 2113686 Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May

V.2.21M-2002-10-15



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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 generalizations 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	:		<u>cmcgough@broadcom.com</u>
1.4 Application detai	ils		
Date of receipt of applic	ation	:	2003-02-28
Date of receipt test item		:	2003-03-03
Date of test		:	2003-03-03
1.5 Test item			
Manufacturer	:		Applicant
Model No. (EUT)	:		BCM94306MP
Model No. (Host)	:		**Dell Laptop PC Model No: PP02X
Description	:		54g wireless LAN mini PCI card in Dell Laptop
FCC ID	:		QDS-BRCM1005-D
Additional information			
Frequency	:		2412MHz – 2462MHz
Type of modulation	:		DSSS / OFDM (orthogonal frequency division multiplexing)
Number of channels	:		11
Antenna	:		2.39dBi max. gain antenna
Power supply	:		3.3 VDC from Host
Output power	:		25.55dBm (359mW) conducted peak power (For EIRP and Source-based time-averaged output please see page no.11)
Extreme temp. Tolerance	e :		0° C to $+85^{\circ}$ C
1.6 Test standa	rds:		FCC Part 15 §15.247 / CANADA RSS-210

**This Laptop Model has built in Bluetooth module (FCC ID: IXMUB22111S) and WLAN module (FCC ID: QDS-BRCM1005).





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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:

2003-03-05 EMC & Radio Lothar Schmidt (Manager)

Date

Section

har Schmidt (Manage Name

Signature

Responsible for test report and project leader:

2003-03-05 EMC & Radio Harpreet Sidhu (EMC Engineer)

Date

Section

Name

Signature



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2.2 Test report

TEST REPORT

Test report no.: EMC_405FCC15.247_2003_PP02X

EUT: WLAN Model: BCM94306MP HOST: Dell Laptop Model: PP02X

FCC ID: QDS-BRCM1005-D



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TEST REPORT REFERENCE			
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§15.247(a) (2)

SPECTRUM BANDWIDTH OF DSSS SYSTEM 6 dB bandwidth

TEST CONDITIONS		6 dB	BANDWIDTH (N	MHz)
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 bandwidth 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
*Radiated Power (EIRP)	27.94dBm	26.87dBm	26.50dBm
**Source-based time averaged output	21.17dBm	20.10dBm	19.73dBm

*For details please refer to pages 12(Conducted output power results), 16(EIRP calculation) & 17(duty cycle measurements) respectively.

**The source-based time-averaged output power is calculated using the duty cycle (measurement result see page 17-20, These values are used to determine if the TCB route can be used)



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MAXIMUM PEAK OUTPUT POWER (Conducted) § 15.247 (b) (1)

TEST CO	NDITIONS MAXIMUM PEAK O		PEAK OUTPUT P	OWER (dBm)	
Frequency (MHz)			2412	2437	2462
T _{nom} (23)°C	V _{nom} (3.3) VDC	Pk	*25.55	*24.48	*24.11
Measurement uncertainty ±0.5dBm					

RBW / VBW: 10MHz

*To comply with following;

RBW / VBW should be equal to or greater than the 6dB BW All measured 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)		
Frequen	Frequency (MHz)		2437	2462
$T_{nom}(23)^{\circ}C \qquad V_{nom}(3.3) \text{ VDC}$		*27.94	*26.87	*26.5
Measurement uncertainty			±0.5dBm	

*Note: EIRP is calculated based on 2.39dBi antenna and conducted peak power measurements.

LIMIT

SUBCLAUSE § 15.247 (b) (1)

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



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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 Low channel) Source-based time averaged output = Max. EIRP + $10\log(duty factor)$ = 27.94 - 6.77 = 21.17dBm

TEST CONDITIONS		SOURCE-BASED TIME AVERAGED OUTPUT (dBm)			
Frequency (MHz)		2412	2437	2462	
T _{nom} (23)°C	V _{nom} (3.3) VDC	21.17	20.10	19.73	

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 S	PECTRAL DENS	ITY (dBm)
Frequency (MHz)		2412	2437	2462
T _{nom} (23)°C	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 8dBm 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)			
Frequen	cy (MHz)	2412	2437	2462	
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 EDGE COMPLIANCE

§15.247 (c)

Low frequency section (spurious in the restricted band 2310 – 2390 MHz) (Average measurement) Operating condition Tx at 2412MHz : SWEEP TABLE "FCC15.247 LBE AVG" : Limit Line 54dBµV : Stort Ston Detector Meas DDW VRW Transducar

Start	Stop	Detector	Meas.	KBW	VBW	Transducer
Frequency	Frequency	Time	Bandw.			
2.31 GHz	2.412 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 horn (dBi)



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§15.247 (c)

BAND EDGE COMPLIANCE

Low frequency section (spurious in the restricted band 2310 – 2390 MHz)(Peak measurement)Operating condition:Tx at 2412MHzSWEEP 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 measurement) Operating condition Tx at 2472MHz : SWEEP TABLE "FCC15.247 HBE_AVG" :

Limit Line		:	54dBµV	—		
Start	Stop Frequency	Detector Time	Meas. Bandw	RBW	VBW	Transducer
2.462 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 horn (dBi)





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BAND EDGE COMPLIANCE

High frequency section (spurious in the restricted band 2483.5 – 2500 MHz) (Peak measurement)

Operating condition : SWEEP TABLE : Limit Line :		:	Tx at 2472MHz "FCC15.247 HBE_PK" 74dBμV			
Start	Stop	Detector	Meas.	RBW	VBW	Transducer
2.462 GHz	2.5 GHz	MaxPeak	Coupled	1 MHz	1MHz	#326 horn (dBi)





§15.247 (c)



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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.

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§ 15.247 (c) (1)

EMISSION LIMITATIONS - Conducted (Transmitter)

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

NOTE: The peak above the limit line is the carrier frequency.





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EMISSION LIMITATIONS - Conducted (Transmitter)

§ 15.247 (c) (1)

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

NOTE: The peak above the limit line is the carrier frequency.





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§ 15.247 (c) (1)

EMISSION LIMITATIONS - Conducted (Transmitter)

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

NOTE: The peak above the limit line is the carrier frequency.





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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 3 and 25 GHz very short cable connections to the antenna was used to minimize the noise level.

2. All measurements are done in peak mode unless specified with the plots.

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
9KHZ – 30 MHZ	The emissions found, edused by the Left	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.

Transmit at	Lowest channel	Frequency 2402MHz				
Frequency (MHz)	Level (dBµV/m)					
-	Peak	Quasi-Peak	Average			
	See plot	8				
Turnette	. M. 111	E				
I ransmit at	Middle channel	Frequency 2440MHz				
Frequency (MHz)	Level (dBµV/m)					
	Peak	Quasi-Peak	Average			
	See plot	8				
Transmit at	Highest channel	Frequency 2480MHz	I			
Frequency (MHz)		Level (dBµV/m)				
-	Peak	Quasi-Peak	Average			
See plots						



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EMISSION LIMITATIONS - Radiated (Transmitter)§ 15.247 (c) (1)Lowest Channel (2412MHz): 30MHz – 1GHz§ 15.247 (c) (1)

(Bluetooth Module Tx @ High channel)

SWEEP TAI	BLE:	"BT Spuri h	ni 30-1G"			
Short Descri	ption:	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	





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EMISSION LIMITATIONS - Radiated (Transmitter) Lowest Channel (2412MHz): 1GHz – 3GHz Average Measurement with VBW=10Hz

§ 15.247 (c) (1)

(Bluetooth Module Tx @ High channel)

The BT module & WLAN (BCM94306MP) were set to Tx in following manner throughout all radiated measurements. This is valid for all the spurious emissions

WLAN	Low ch	Mid ch	High ch
Bluetooth	High ch	Low ch	Mid ch

Please see comment with each plot for radiated measurements.

SWEEP TAB	LE:	"BT Spuri hi	1-3G"			
Short Descrip	tion:	Bluetooth Spi				
Start	Stop	Detector	Meas.	RBW		Transducer
Frequency	Frequency	Time	Bandw.		VBW	
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 horn (dBi)

NOTE: The marked peak is WLAN @ Low channel and other peak above the limit line is BT @ high channel.





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EMISSIC Lowest C Average 1	DN LIMITA hannel (241 Measureme	ATIONS - 1 2MHz): 30 nt with VE	r)	§ 15.2	247 (c) (1)		
(Bluetoot	h Module T	'x @ High	channel)				
SWEEP TA	BLE:	"BT Spuri l	ni 3-18G"				
Short Descr	iption:	Bluetooth S	Spurious 3-180	GHz			
Start	Stop	Detector	Meas.	RBW		Transd	ucer
Frequency	Frequency	Time	Bandw.		VBW		
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 h	orn (dBi)
Marker [.]	4	4.803607214	GHz		30.43 dBu\	V/m	





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EMISSION LIMITATIONS - Radiated (Transmitter) Lowest Channel (2412MHz): 18GHz – 25GHz

§ 15.247 (c) (1)

(Bluetooth Module Tx @ High channel)

SWEEP TAE	BLE:	"BT Spuri h					
Short Descrip	otion:	Bluetooth Spurious 18-25GHz					
Start	Stop	Detector	Meas.	RBW	Transducer		
Frequency	Frequency	Time	Bandw.	VBW			
18 GHz	25 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)		





§ 15.247 (c) (1)

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EMISSION LIMITATIONS - Radiated (Transmitter) Mid Channel (2437MHz): 30MHz – 1GHz

(Bluetooth Module Tx @ Low channel)

SWEEP TABLE:		"BT Spuri h			
Short Descrip	otion:	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





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

 Mid Channel (2437MHz): 1GHz - 3GHz
 Average Measurement with VBW=10Hz

 (Bluetooth Module Tx @ Low channel)

 SWEEP TABLE:
 "BT Spuri hi 1-3G"

STILLI III	JUL.	Dispanni 50						
Short Description:		Bluetooth Sp	Bluetooth Spurious 1-3GHz					
Start	Stop	Detector	Meas.	RBW		Transducer		
Frequency	Frequency	Time	Bandw.		VBW			
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 horn (dBi)		

Note: The marked peak is BT @ Low ch and other peak above the limit line is WLAN @ mid. Channel.





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EMISSIC Mid Char Average	ON LIMITA nnel (2437N Measureme	ATIONS - 1 1Hz): 3GH nt with VE	Radiated (T z – 18GHz SW=10Hz	Fransmitte	<i>:</i>)	§ 15.2	247 (c) (1)
(Bluetoot	h Module T	x @ Low o	channel)				
SWEEP TA	BLE:	"BT Spuri l	ni 3-18G"				
Short Descr	iption:	Bluetooth S	Spurious 3-180	GHz			
Start	Stop	Detector	Meas.	RBW		Transd	ucer
	Fraguanau	Time	Bandw.		VBW		
Frequency	riequency	TIME					





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EMISSION LIMITATIONS - Radiated (Transmitter) Mid Channel (2437MHz): 18GHz – 25GHz

§ 15.247 (c) (1)

(Bluetooth Module Tx @ Low channel)

SWEEP TAI	'EEP TABLE: "BT Spuri hi 18-25G"							
Short Description:		Bluetooth S	Bluetooth Spurious 18-25GHz					
Start	Stop	Detector	Meas.	RBW	Transducer			
Frequency	Frequency	Time	Bandw.	VBW				
18 GHz	25 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)			





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EMISSION LIMITATIONS - Radiated (Transmitter) Highest Channel (2462MHz): 30MHz – 1GHz

§ 15.247 (c) (1)

(Bluetooth Module Tx @ Mid channel)

SWEEP TABLE:		"BT Spuri ł	ni 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		



3.0 GHz

MaxPeak

1.0 GHz



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EMISSIC Highest C Average 1	ON LIMITA Channel (24 Measureme	TIONS - 1 62MHz): 1 nt with VI	Radiated (* GHz – 3G 3W=10Hz	Γransmitter) Hz	§ 15.	247 (c) (1)	
(Bluetoot	h Module T	'x @ Mid o	channel)				
SWEEP TA Short Descr	BLE: iption:	"BT Spuri Bluetooth S	hi 1-3G" Spurious 1-3C	θHz			
Start Frequency	Stop Frequency	Detector Time	Meas. Bandw.	RBW	Trans VBW	ducer	

1 MHz

10Hz

#326 horn (dBi)

Note: The marked peak is BT @ Mid ch and other peak above the limit line is WLAN @ High Channel.

Coupled





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EMISSION LIMITATIONS - Radiated (Transmitter) Highest Channel (2462MHz): 18GHz – 25GHz

§ 15.247 (c) (1)

(Bluetooth Module Tx @ Mid channel)

SWEEP TAE	BLE:	"BT Spuri hi 18-25G"					
Short Description:		Bluetooth Spurious 18-25GHz					
Start	Stop	Detector	Meas.	RBW	Transducer		
Frequency	Frequency	Time	Bandw.	VBW			
18 GHz	25 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)		



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CONDUCTED EMISSIONS Measured with AC/DC power adapter

SWEEP TABLE: "55022 cond"

Short Description:		EN 55022 for 150KHz-30MHz					
Start	Stop	Detector	Meas	IF	Transducer		
Frequency	Frequency		Time	Bandw.			
150.0 kHz	30.0 MHz	MaxPeak	Coupled	10 kHz	None		

Technical specification: 15.107 / 15.207 (Revised as of August 20, 2002) Limit

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						

ANALYZER SETTINGS: RBW = 10KHz

VBW = 10KHz





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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 3 and 25 GHz very short cable connections to the antenna was used to minimize the noise level.



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RECEIVER SPURIOUS RADIATION 30MHz – 1GHz

§ 15.209

(Both WLAN & BT set to Rx mode)

SWEEP TABLE:		"BT Spuri hi 30-1G"				
Short Descrip	otion:	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	





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RECEIVER SPURIOUS RADIATION 1GHz – 3GHz Average Measurement with VBW=10Hz					§ 15.20	99	
(Both WI	LAN & BT	set to R x m	ode)				
SWEEP TA Short Descr	BLE: iption:	"BT Spuri h Bluetooth S	ni 1-3G" Spurious 1-3G	Hz			
Start	Stop	Detector	Meas.	RBW		Transducer	
Frequency	Frequency	Time	Bandw.		VBW		
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	10Hz	#326 horn (dBi)





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RECEIVER SPURIOUS RADIATION 3GHz – 18GHz

§ 15.209

(Both WLAN & BT set to Rx mode)

SWEEP TABLE:		"BT Spuri hi 3-18G"				
Short Description:		Bluetooth Spurious 3-18GHz				
Start	Stop	Detector	Meas.	RBW	Transducer	
Frequency	Frequency	Time	Bandw.	VBW		
3.0 GHz	18 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)	





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RECEIVER SPURIOUS RADIATION 18GHz – 25GHz

§ 15.209

(Both WLAN & BT set to Rx mode)

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 GHz	25 GHz	MaxPeak	Coupled	1 MHz	#141 horn (dBi)	





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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	EPM-442A	Hewlett Packard	GB37170232
05	Power Amplifier	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