



FCC Test Report

Test report no.: EMC_848FCC15.247_2005_WLAN+BT

FCC Part 15.247 / CANADA RSS-210

EUT Tablet PC Model: iX104C2
WLAN Model: 2200BG
With BT module Model: TM60M665
IC: 4596A-IX104WBG



TTI-P-G 081/94-A0

Accredited according to **ISO/IEC 17025**



**Bluetooth Qualification
Test Facility
(BQTF)**



FCC listed # 101450

IC recognized # 3925

CETECOM Inc.

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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: lothar.schmidt@cetecomusa.com****Internet: www.cetecom.com**

1.3 Details of applicant

Name : **Xplore Technologies**
Street : **14000 Summit Road, Suite 900**
City / Zip Code : **Austin, TX 78728**
Country : **USA**
Contact : **Douglas L. Fowler**
Telephone : **+1 512 336 7797**
Tele-fax : **+1 512 336 7791**
e-mail : **dfowler@xploretech.com**

1.4 Application details

Date of receipt test item : 2004-06-21
Date of test : 2004-06-21/22/23/29

1.5 Test item

Manufacturer : Applicant
Model No. : iX104C2
Description : **Tablet PC with BT module and WLAN module**
FCC-ID : Q2GIX104-133, Q2GIX104-134
IC ID : 4596A-IX104WBG

Additional information

Test Sample ID : PARIS
Frequency : 2402MHz – 2480MHz for BT
2412MHz – 2462MHz for WLAN
Type of modulation : FHSS, DSSS & OFDM
Antenna : Embedded
Power supply : via host Tablet PC
Extreme temp. Tolerance : -30°C to +50°C

1.6 Test standards: **FCC Part 15 §15.247 (DA00-705) / RSS 210**

SUMMARY OF TEST REPORT

This test report is valid for collocation combination of different radios under following FCC ID's and model #'s

FCC ID: Q2GIX104-133 EUT Model: iX104-C2 (BT+WLAN)

FCC ID: Q2GIX104-134 EUT Model: iX104C2 *(BT+WLAN+GSM)

***In this case both WLAN and GSM modules can not transmit simultaneously. During this testing however GSM was allowed to transmit just to see worst case emissions.**

Testing is done against FCC15.247 limits. Test report carries only worst case plots.

<u>Transmitter</u>	<u>Channel Freq.</u>
BT	ch-0 2402MHz
WLAN	ch-11 2462MHz

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:

2005-02-25 EMC & Radio Lothar Schmidt (Manager)

**Date****Section****Name****Signature****Responsible for test report and project leader:**

2005-02-25 EMC & Radio Harpreet Sidhu (EMC Engineer)

**Date****Section****Name****Signature**

2.2 Test report

TEST REPORT

Test report no.: EMC_848FCC15.247_2005_WLAN+BT

TEST REPORT REFERENCE

LIST OF MEASUREMENTS		PAGE
EMISSION LIMITATIONS	§ 15.247 (c) (1)	8
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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 that 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 26.5 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 are done in peak mode unless specified with 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 channels

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			
Frequency (MHz)	Level (dBµV/m)		
	Peak	Quasi-Peak	Average
See plots			
Transmit at Middle channel Frequency			
Frequency (MHz)	Level (dBµV/m)		
	Peak	Quasi-Peak	Average
See plots			
Transmit at Highest channel Frequency			
Frequency (MHz)	Level (dBµV/m)		
	Peak	Quasi-Peak	Average
See plots			

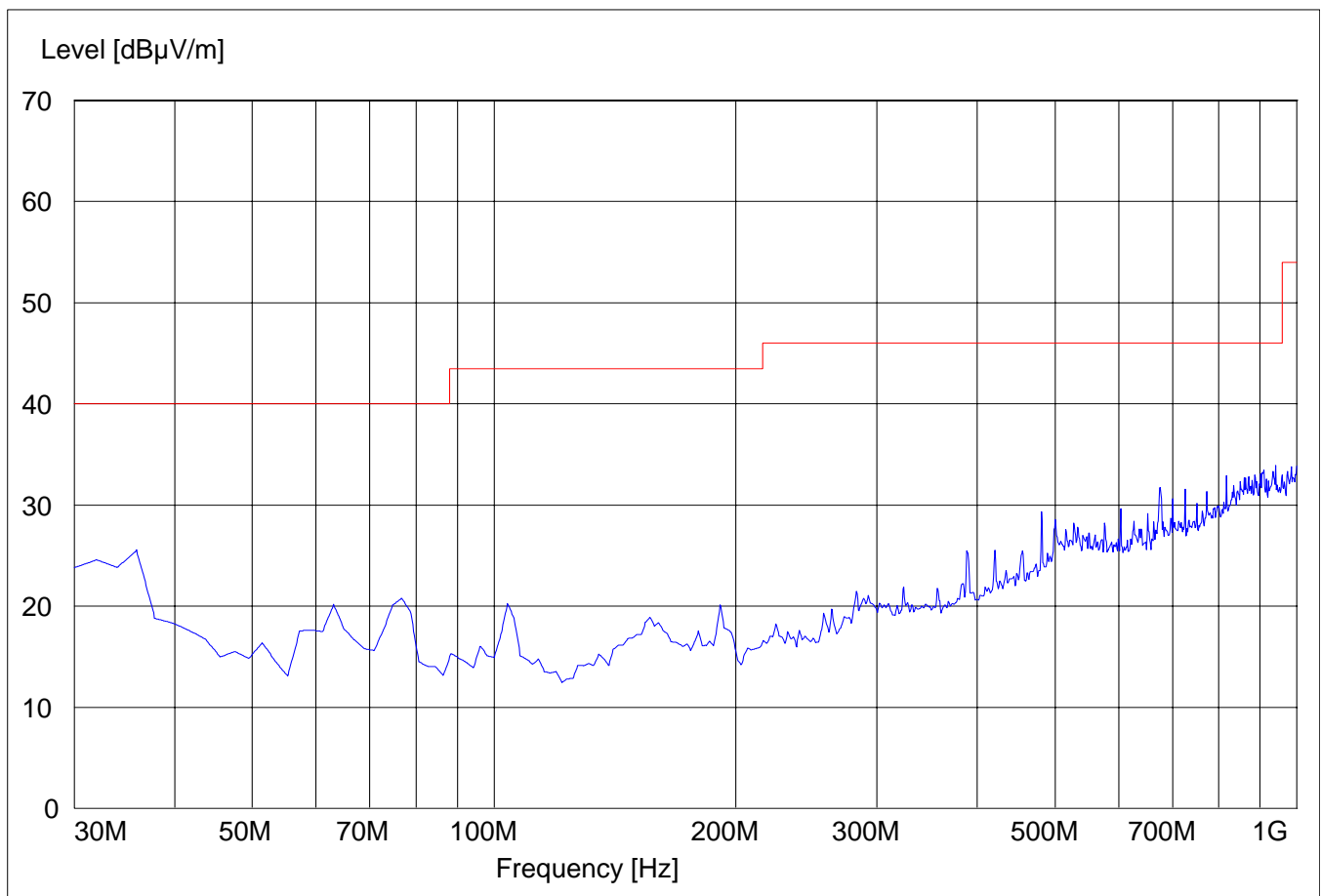
EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)

30MHz – 1GHz

Antenna: vertical

BT+WLAN

SWEEP TABLE:		"Spuri hi 30-1G"			
Short Description:		30MHz-1GHz			
Start	Stop	Detector	Meas. Time	RBW	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186



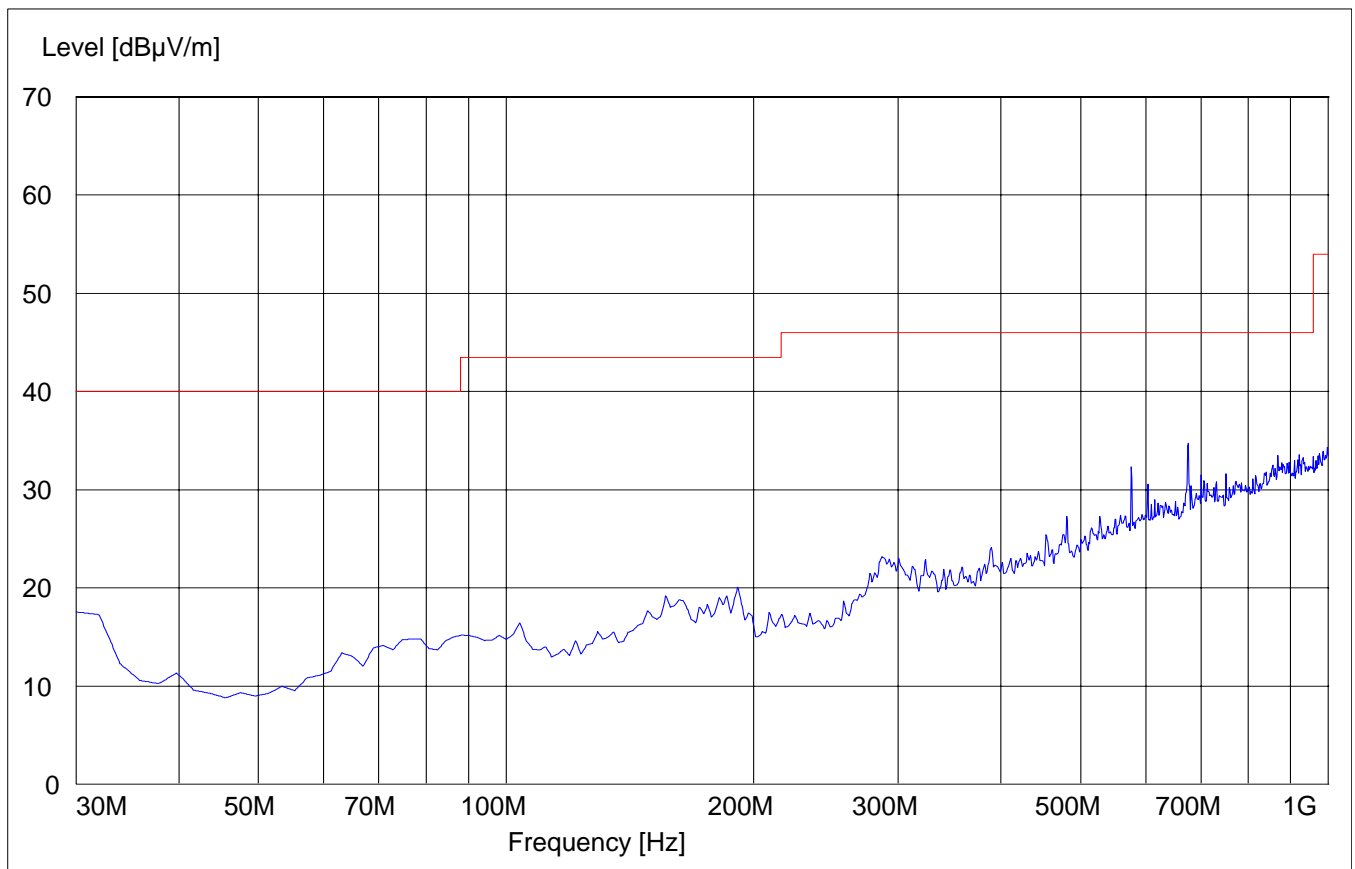
EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)

30MHz – 1GHz

Antenna: horizontal

BT+WLAN

SWEEP TABLE:		"Spuri hi 30-1G"			
Short Description:		30MHz-1GHz			
Start	Stop	Detector	Meas. Time	RBW	Transducer
Frequency	Frequency			VBW	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186



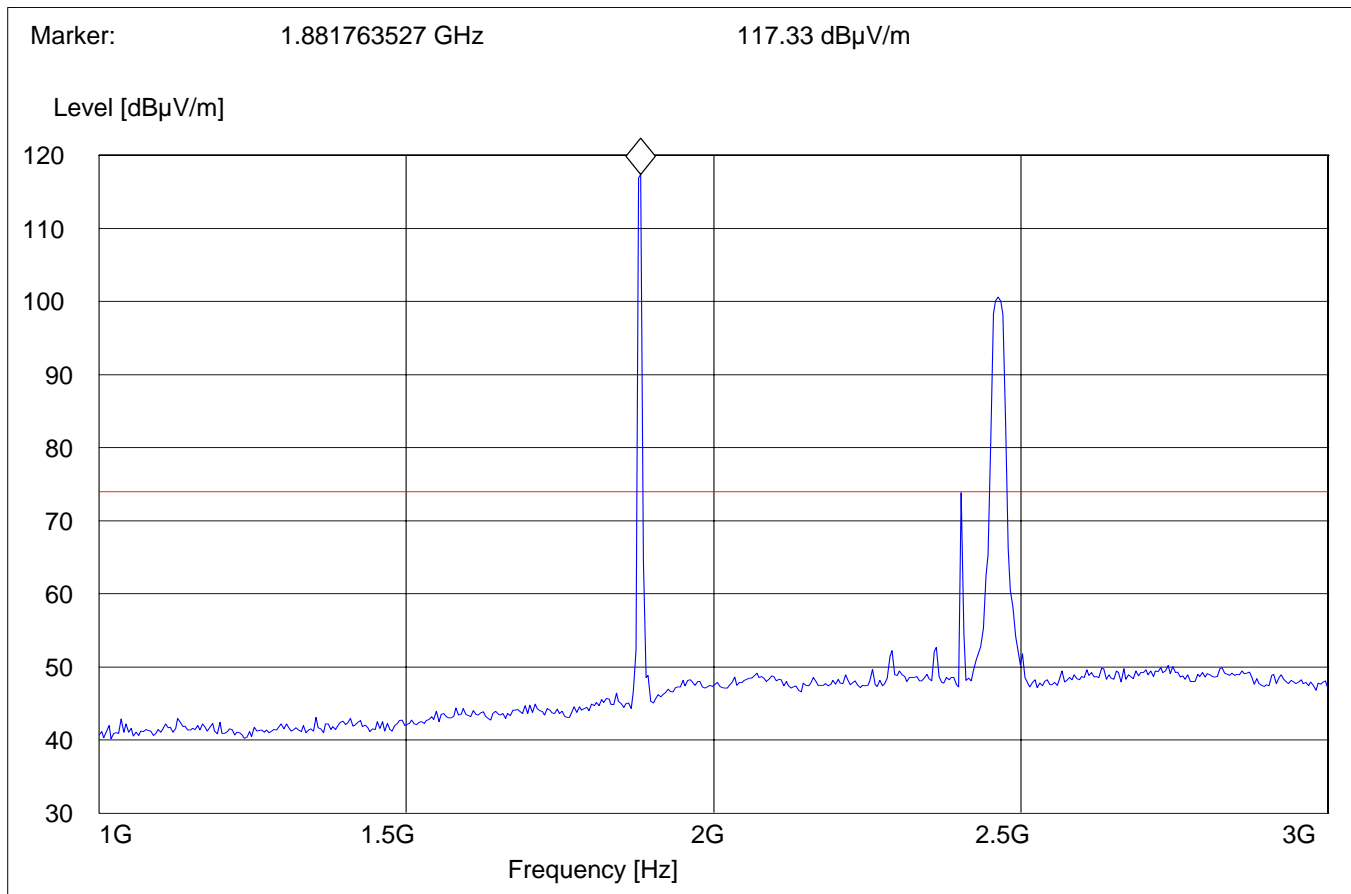
EMISSION LIMITATIONS - Radiated (Transmitter) § 15.247 (c) (1)
1GHz – 3GHz

BT+WLAN

NOTE: The marked peak is GSM 1900 carrier freq. @ 1880MHz and other two lower and higher peaks above the limit line are BT @ 2402MHz & WLAN @ 2462MHz respectively.

SWEEP TABLE: "Spuri hi 1-3G"

Start	Stop	Detector	Meas.	RBW	Transducer
Frequency	Frequency	Time	Bandw.	VBW	
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)

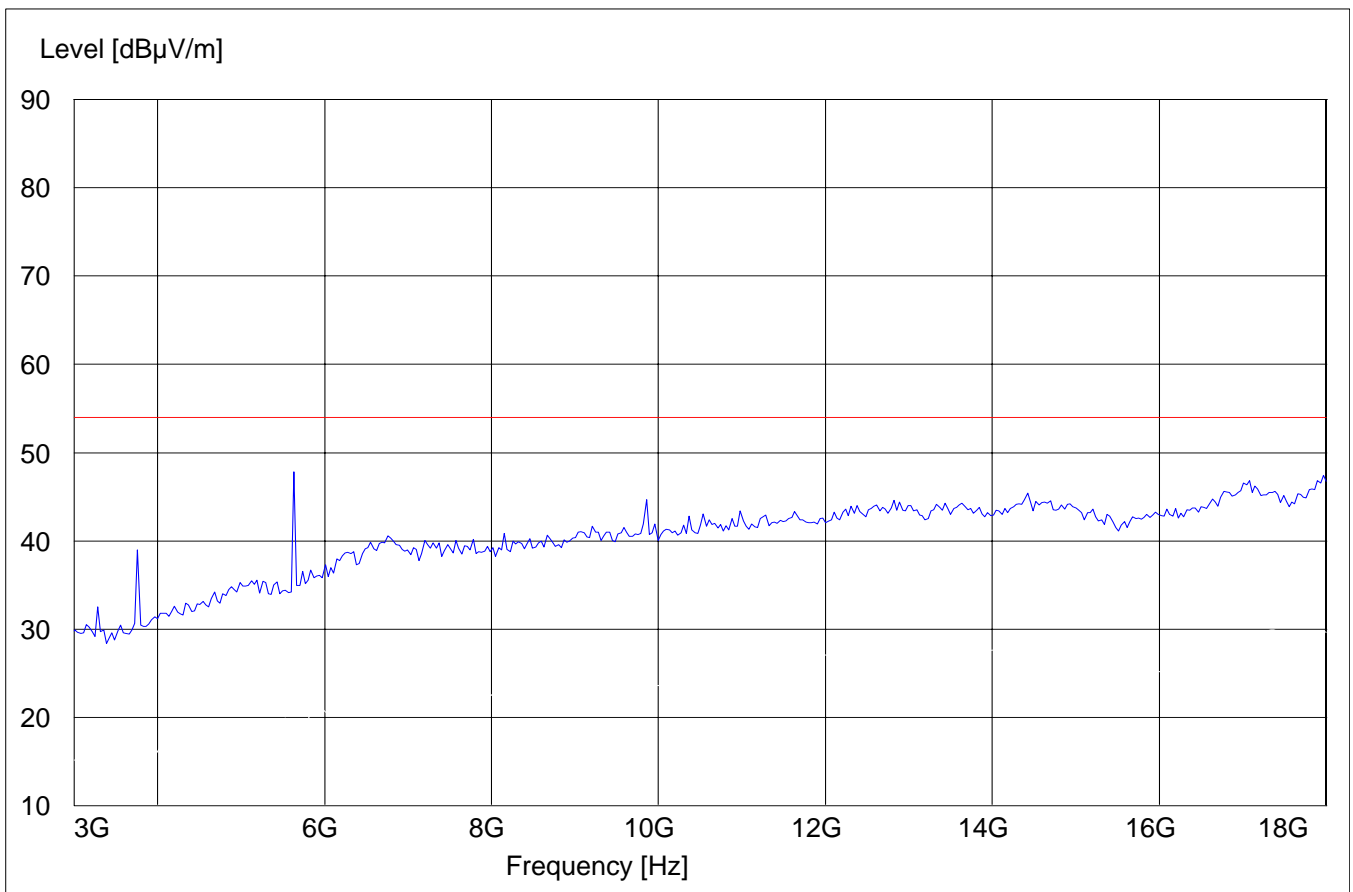


**EMISSION LIMITATIONS - Radiated (Transmitter)
3GHz – 18GHz**

§ 15.247 (c) (1)

BT+WLAN

SWEEP TABLE:		"Spuri hi 3-18G"			
Short Description:		Spurious 3-18 GHz			
Start	Stop	Detector	Meas.	RBW	Transducer
Frequency	Frequency	Time	Bandw.	VBW	
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)

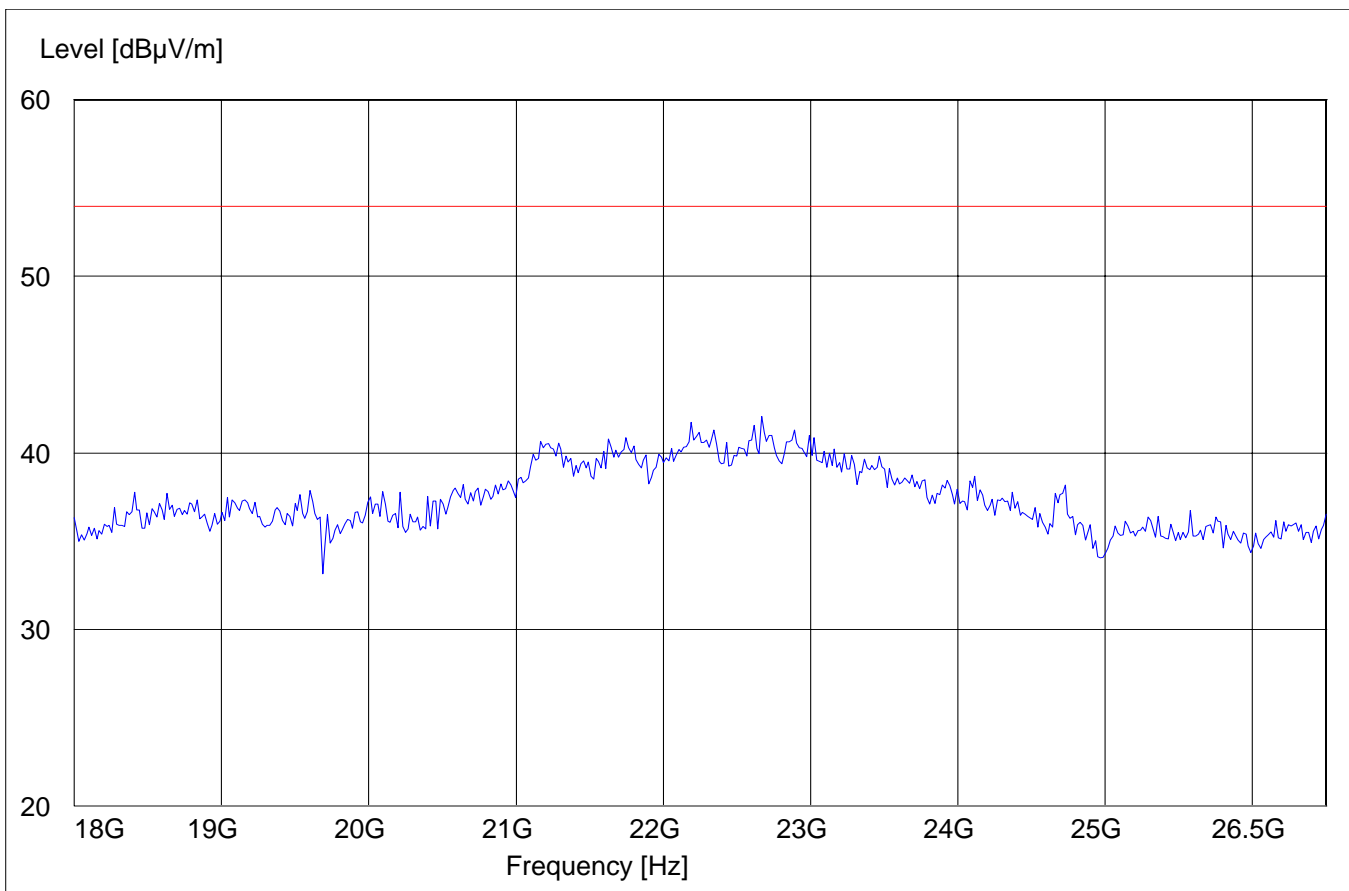


EMISSION LIMITATIONS - Radiated (Transmitter)

§ 15.247 (c) (1)

18GHz – 26.5GHz**BT+WLAN**

SWEEP TABLE:		"Spuri hi 18-26.5G"			
Short Description:		Spurious 18-26.5GHz			
Start	Stop	Detector	Meas.	RBW	Transducer
Frequency	Frequency	Time	Bandw.	VBW	
18 GHz	26.5 GHz	MaxPeak	Coupled	1 MHz	#141 horn (dBi)



CONDUCTED EMISSIONS
BT+WLAN

§ 15.107/207

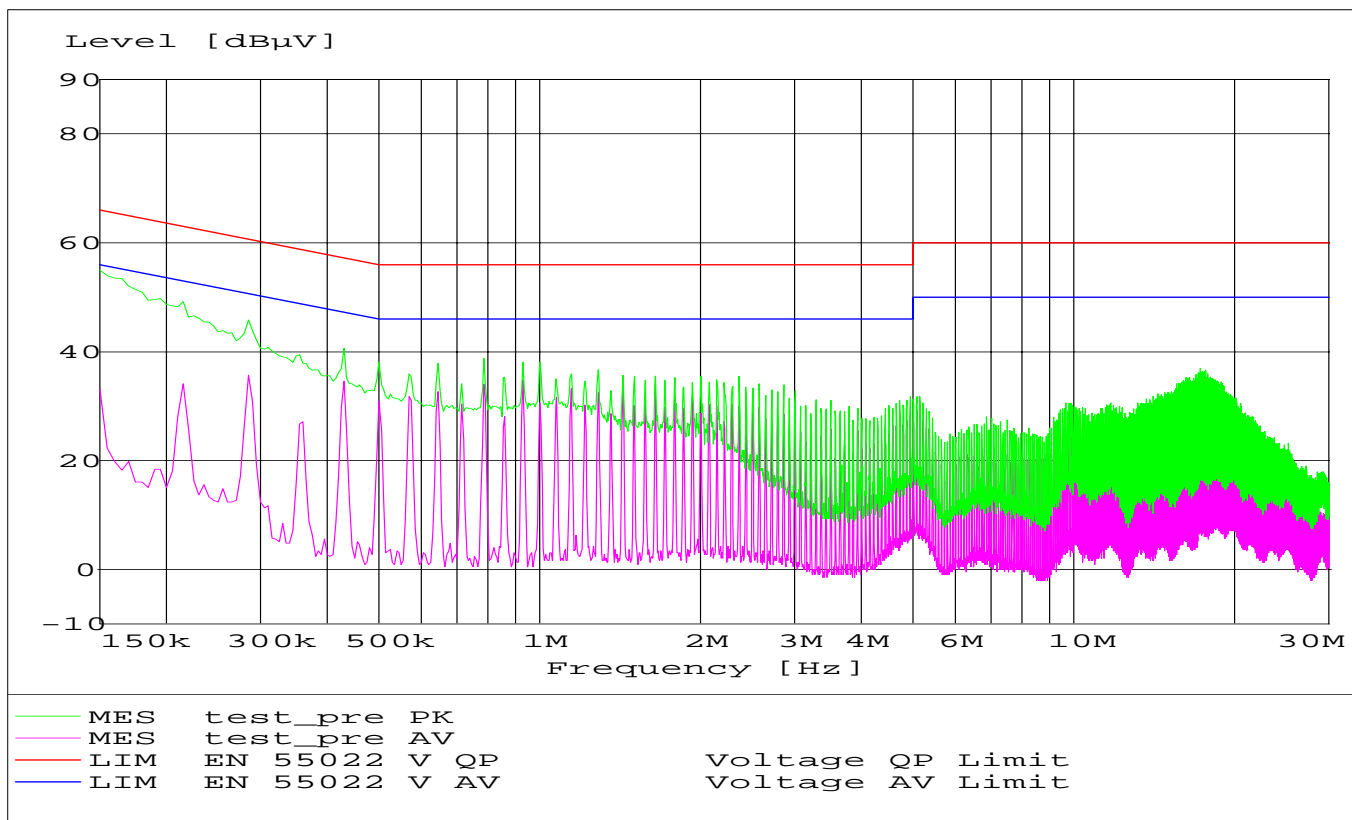
Technical specification: 15.107 / 15.207 (Revised as of August 20, 2002)

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



RECEIVER SPURIOUS RADIATION

§ 15.209

Limits

Frequency (MHz)	Field strength ($\mu\text{V/m}$)	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:

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 26.5 GHz very short cable connections to the antenna was used to minimize the noise level.
2. All radios (BT, WLAN & GSM) are set to idle/receive mode.
3. All measurements are done in peak mode unless specified with the plots.

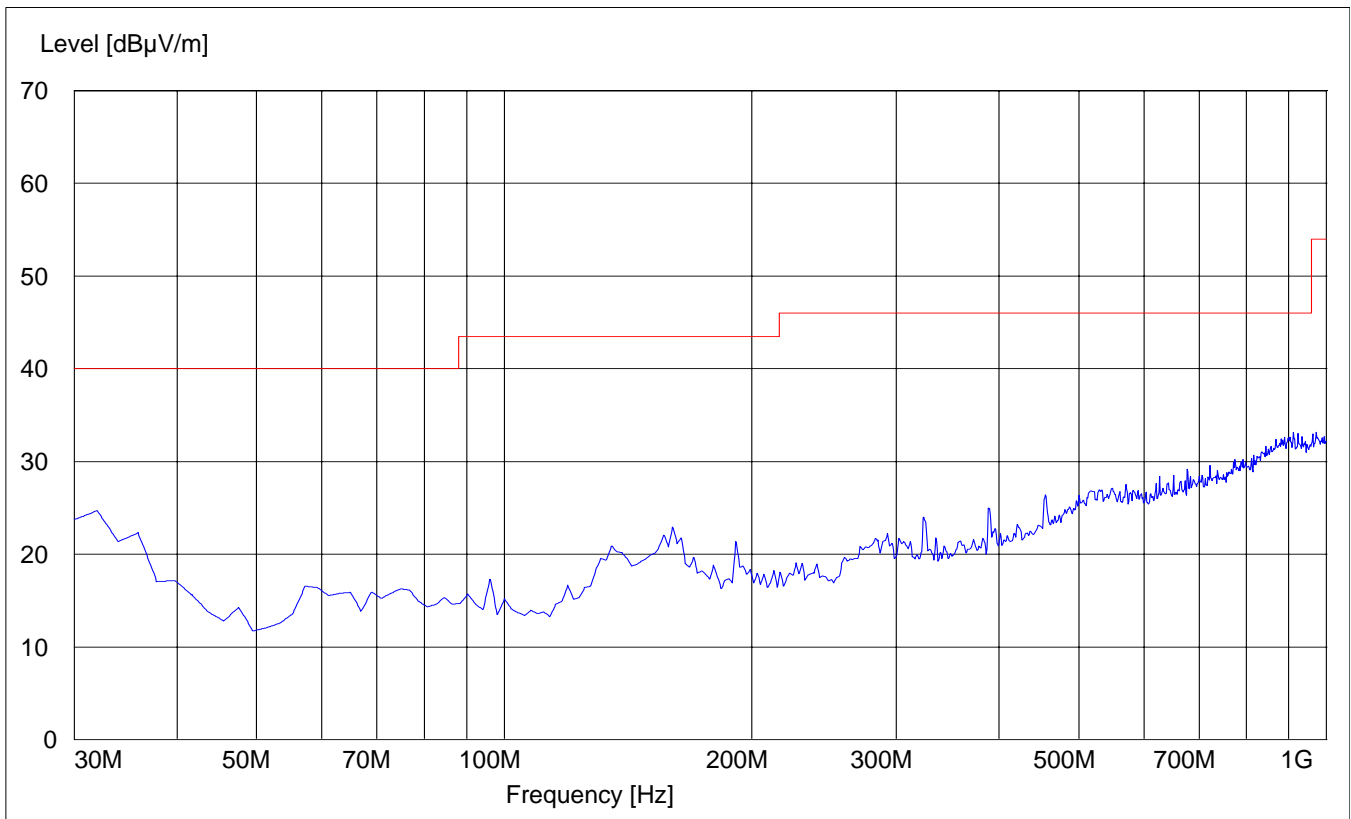
RECEIVER SPURIOUS RADIATION

§ 15.209

30MHz – 1GHz

Antenna: vertical

SWEEP TABLE:		"Spuri hi 30-1G"			
Short Description:		30MHz-1GHz			
Start	Stop	Detector	Meas. Time	RBW	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	3141-#1186



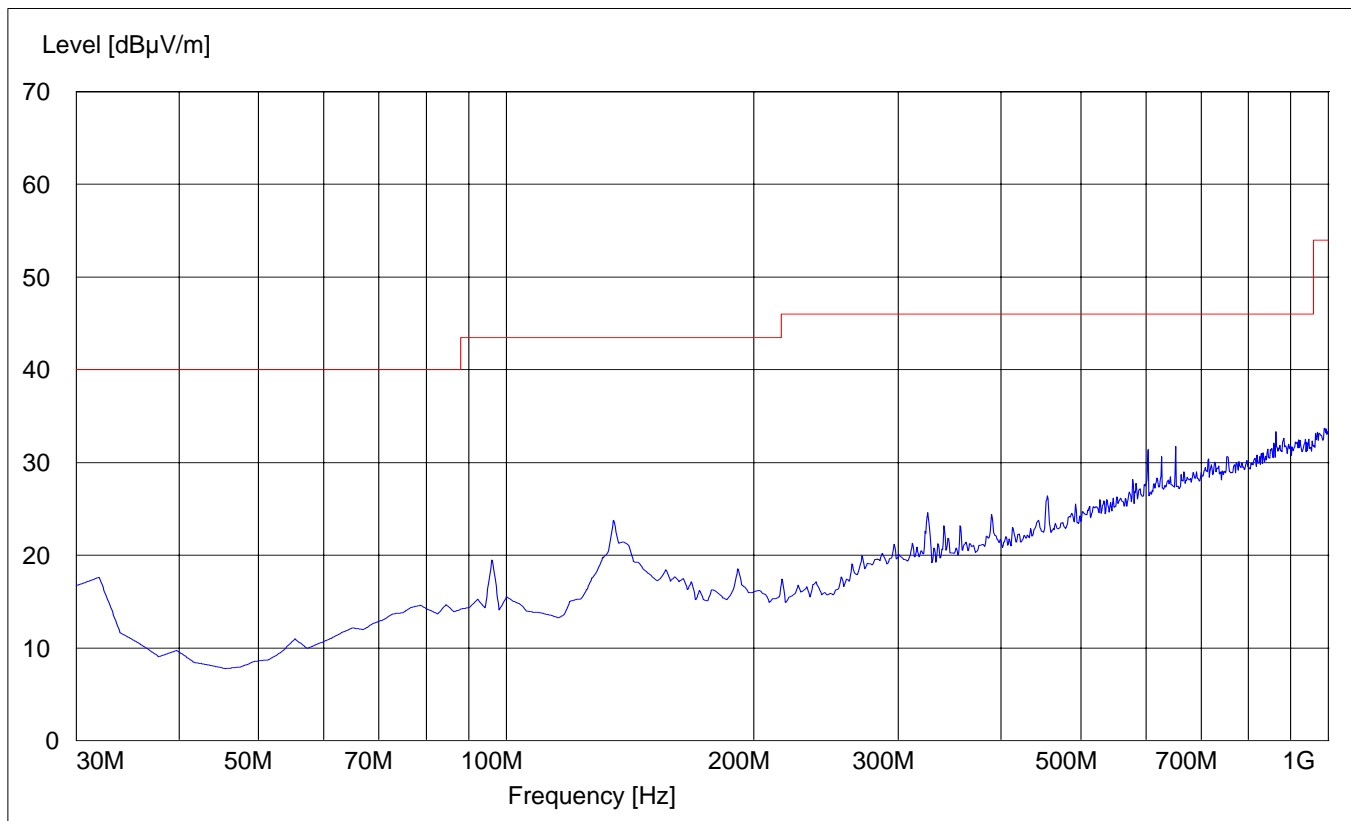
RECEIVER SPURIOUS RADIATION

§ 15.209

30MHz – 1GHz**Antenna: Horizontal**

SWEEP TABLE: " Spuri hi 30-1G"
Short Description: 30MHz-1GHz

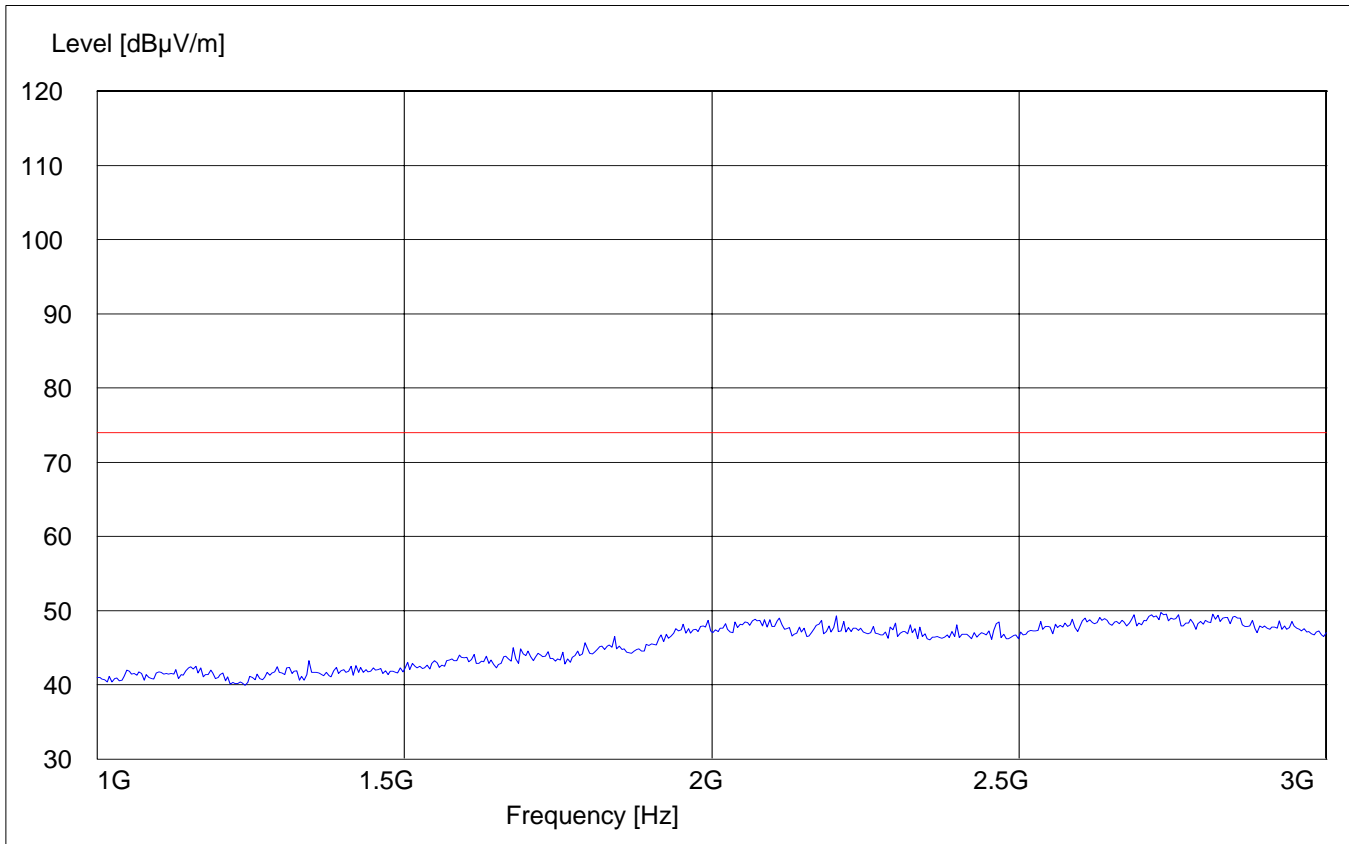
Start	Stop	Detector	Meas. Time	RBW	VBW	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz		3141-#1186



RECEIVER SPURIOUS RADIATION
1GHz – 3GHz

§ 15.209

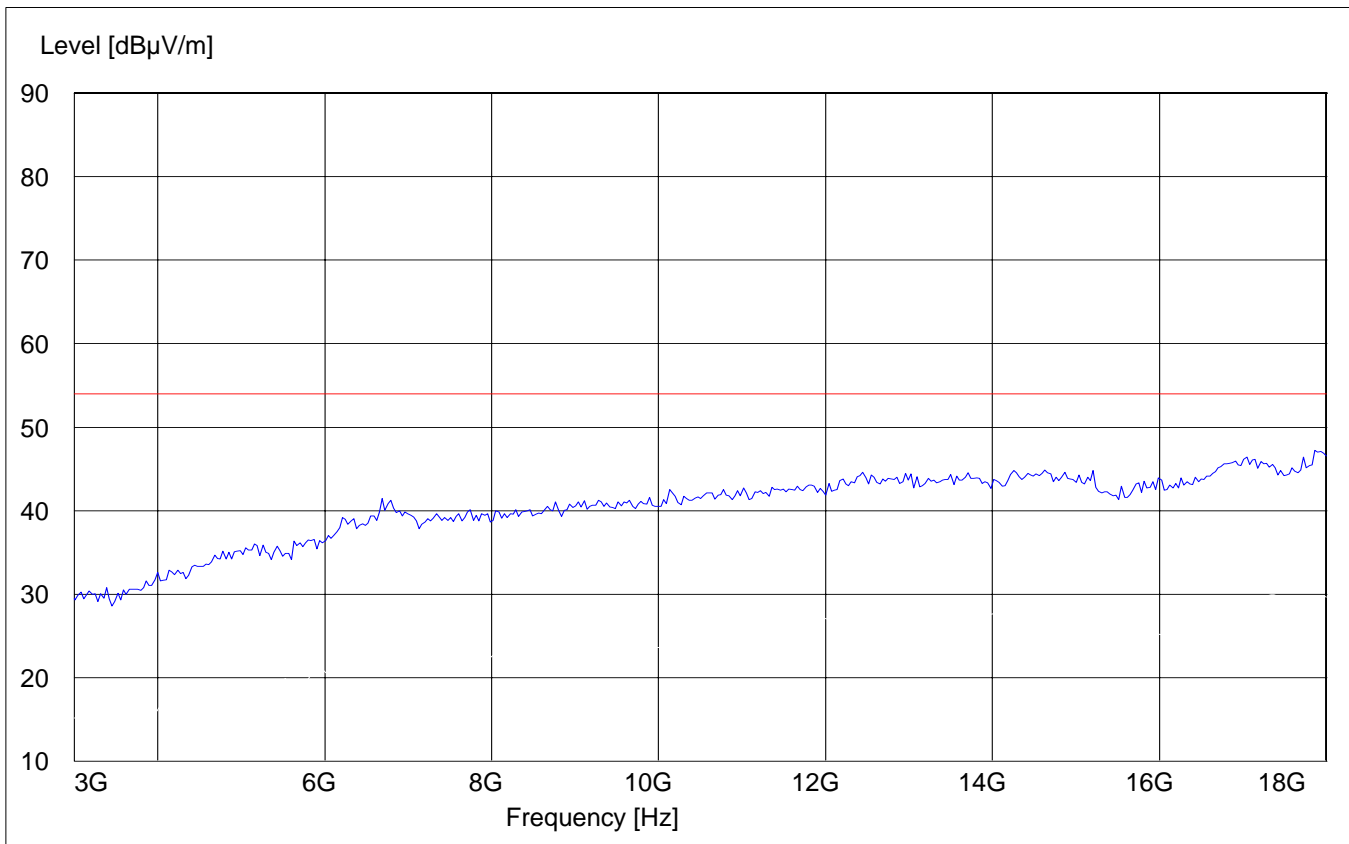
SWEEP TABLE:		" Spuri hi 1-3G"			
Short Description:		Spurious 1-3GHz			
Start	Stop	Detector	Meas.	RBW	Transducer
Frequency	Frequency	Time	Bandw.	VBW	
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)



**RECEIVER SPURIOUS RADIATION
3GHz – 18GHz**

§ 15.209

SWEEP TABLE:		" Spuri hi 3-18G"			
Short Description:		Spurious 3-18 GHz			
Start	Stop	Detector	Meas.	RBW	Transducer
Frequency	Frequency	Time	Bandw.	VBW	
3.0 GHz	18.0 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)

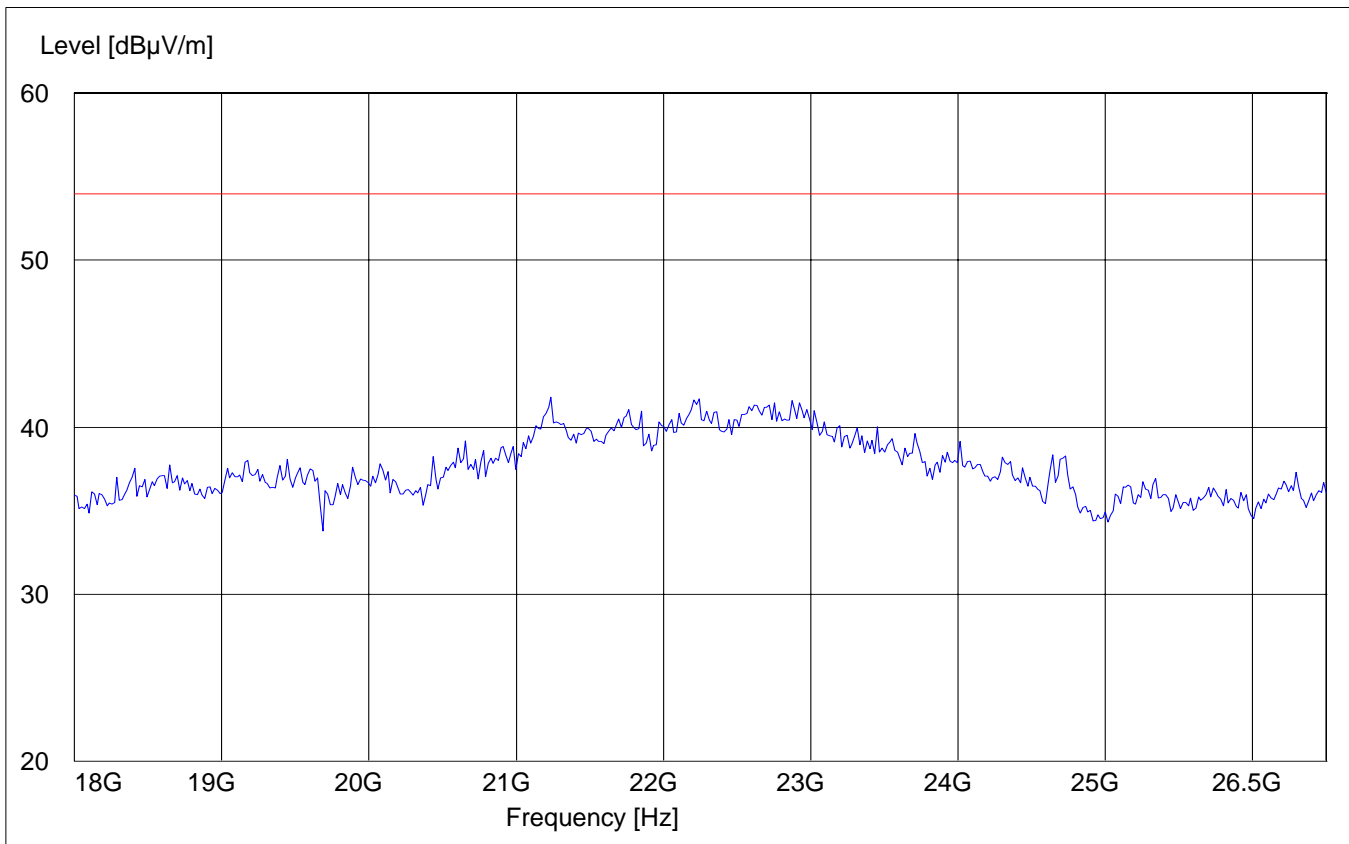


RECEIVER SPURIOUS RADIATION
18GHz – 26.5GHz

§ 15.209

SWEEP TABLE: " Spuri hi 18-26.5G"
Short Description: Spurious 18-26.5GHz

Start	Stop	Detector	Meas.	RBW	Transducer
Frequency	Frequency	Time	Bandw.	VBW	
18.0 GHz	26.5 GHz	MaxPeak	Coupled	1 MHz	#326 horn (dBi)



TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

No	Instrument/Ancillary	Type	Manufacturer	Serial No.
01	Spectrum Analyzer	ESIB 40	Rohde & Schwarz	100107
02	Spectrum Analyzer	FSEM 30	Rohde & Schwarz	826880/010
03	Biconilog Antenna	3141	EMCO	0005-1186
04	Horn Antenna (700M-18GHz)	SAS-200/571	AH Systems	325
05	Horn Antenna (18-26.5GHz)	3160-09	EMCO	1240
06	2-3GHz Band reject filter	BRM50701	Microtronics	6
07	Pre-Amplifier	TS-ANA	Rohde & Schwarz	--
08	Pre-Amplifier	JS4-00102600	Miteq	00616

BLOCK DIAGRAMS
Radiated Testing

ANECHOIC CHAMBER

