

**Prüfbericht - Nr.: 16005530 001**  
*Test Report no.:*

Seite 1 von 23  
*Page 1 of 23*

**Auftraggeber:** Enping Dingli Acoustics Technological Co., Ltd.  
*Client:*  
The back of Liuhe Village Pingshi  
Enping, Guangdong  
P.R.China

**Gegenstand der Prüfung:** Wireless Microphone  
*Test item:*

**Bezeichnung:** HT-16U      **FCC ID:** RW2HT16U  
*Identification:*                    *FCC ID*

**Wareneingangs-Nr.:** 73013629      **Eingangsdatum:** 24.09.2004  
*Receipt No.:*                            *Date of receipt:*

**Prüfort:** TÜV Rheinland (Guangdong) Ltd. EMC Laboratory  
*Testing location:* Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou 510650  
P. R. China      **Listed test laboratory according to FCC rules section 2.948 for measuring devices under Parts 74**

**Prüfgrundlage:** ANSI C63.4: 2003  
*Test specification:* FCC "Rules and Regulations", Part 74, Experimental Radio, Auxiliary, Special Broadcast and Other Program Distributional Services Subpart H, Low Power Auxiliary Stations Section 74.861

**Prüfergebnis:** Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).  
*Test Result:* The test item passed the test specification(s).

**Prüflaboratorium:** TÜV Rheinland (Guangdong) Ltd.  
*Testing Laboratory:*

**geprüft / tested by:**      **kontrolliert/ reviewed by:**

06. Nov. 2006      Ricky Liu  
/Project Engineer      Ricky Liu  
Datum      Name/Stellung      Unterschrift  
Date      Name/Position      Signature

08. Nov. 2006      Dave Xie  
/Project Manager      Dave Xie  
Datum      Name/Stellung      Unterschrift  
Date      Name/Position      Signature

**Sonstiges/ Other Aspects:**

**Abkürzungen:** P(pass) = entspricht Prüfgrundlage  
F(all) = entspricht nicht Prüfgrundlage  
N/A = nicht anwendbar  
N/T = nicht getestet

**Abbreviations:** P(pass) = passed  
F(all) = failed  
N/A = not applicable  
N/T = not tested

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.  
This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.

**Prüfbericht - Nr.: 16005530 001**  
*Test Report No.:*

**Seite 2 von 23**  
*Page 2 of 23*

## TEST SUMMARY

**5.1 SPURIOUS CONDUCTED EMISSION MEASUREMENTS AT ANTENNA TERMINALS PART 2.1051**

*RESULT:* N/T

**5.2 POWER OUTPUT MEASUREMENT FOR FCC PART 74 PER SECTION 74.861(E)(1)**

*RESULT:* Pass

**5.3 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT FOR FCC PART 74 PER SECTION 74.861(E)(6)(III)**

*RESULT:* Pass

**5.4 MODULATION CHARACTERISTICS MEASUREMENT**

*RESULT:* Pass

**5.5 OCCUPIED BANDWIDTH FOR FCC PART 74 PER SECTION 74.861(E)(3), 74.861(E)(5) AND 74.861(E)(6)**

*RESULT:* Pass

**5.6 FREQUENCY TOLERANCE FOR FCC PART 74 PER SECTION 74.861(E)(4)**

*RESULT:* Pass

Prüfbericht - Nr.: **16005530 001**  
Test Report No.:

Seite 3 von 23  
Page 3 of 23

## Contents

<b>1</b>	<b>GENERAL REMARKS.....</b>	<b>5</b>
<b>1.1</b>	<b>COMPLEMENTARY MATERIALS .....</b>	<b>5</b>
<b>2</b>	<b>TEST SITES.....</b>	<b>5</b>
<b>2.1</b>	<b>TEST FACILITIES .....</b>	<b>5</b>
<b>2.2</b>	<b>LIST OF TEST AND MEASUREMENT INSTRUMENTS .....</b>	<b>6</b>
<b>2.3</b>	<b>TRACEABILITY .....</b>	<b>6</b>
<b>2.4</b>	<b>CALIBRATION .....</b>	<b>6</b>
<b>2.5</b>	<b>MEASUREMENT UNCERTAINTY.....</b>	<b>6</b>
<b>2.6</b>	<b>LOCATION OF ORIGINAL DATA.....</b>	<b>6</b>
<b>2.7</b>	<b>STATUS OF FACILITY USED FOR TESTING.....</b>	<b>6</b>
<b>3</b>	<b>GENERAL PRODUCT INFORMATION.....</b>	<b>6</b>
<b>3.1</b>	<b>PRODUCT FUNCTION AND INTENDED USE .....</b>	<b>6</b>
<b>3.2</b>	<b>RATINGS AND SYSTEM DETAILS .....</b>	<b>6</b>
<b>3.3</b>	<b>INDEPENDENT OPERATION MODES .....</b>	<b>6</b>
<b>3.4</b>	<b>SUBMITTED DOCUMENTS .....</b>	<b>6</b>
<b>4</b>	<b>TEST SET-UP AND OPERATION MODE .....</b>	<b>6</b>
<b>4.1</b>	<b>PRINCIPLE OF CONFIGURATION SELECTION.....</b>	<b>6</b>
<b>4.2</b>	<b>TEST OPERATION AND TEST SOFTWARE.....</b>	<b>6</b>
<b>4.3</b>	<b>SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT.....</b>	<b>6</b>
<b>4.4</b>	<b>COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE .....</b>	<b>6</b>
<b>4.5</b>	<b>TEST SET-UP.....</b>	<b>6</b>
<b>5</b>	<b>TEST RESULTS EMISSION .....</b>	<b>6</b>
<b>5.1</b>	<b>SPURIOUS CONDUCTED EMISSION MEASUREMENTS AT ANTENNA TERMINALS PART 2.1051 6</b>	
<b>5.2</b>	<b>POWER OUTPUT MEASUREMENT FOR FCC PART 74 PER SECTION 74.861(E)(1) .....</b>	<b>6</b>
<b>5.3</b>	<b>FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT FOR FCC PART 74 PER SECTION 74.861(E)(6)(III) .....</b>	<b>6</b>
<b>5.4</b>	<b>MODULATION CHARACTERISTICS MEASUREMENT .....</b>	<b>6</b>
<b>5.5</b>	<b>OCCUPIED BANDWIDTH FOR FCC PART 74 PER SECTION 74.861(E)(3), 74.861(E)(5) AND 74.861(E)(6) .....</b>	<b>6</b>

**Prüfbericht - Nr.: 16005530 001**  
*Test Report No.:*

**Seite 4 von 23**  
*Page 4 of 23*

<b>5.6</b>	<b>FREQUENCY TOLERANCE FOR FCC PART 74 PER SECTION 74.861(E)(4).....</b>	<b>6</b>
<b>6</b>	<b>PHOTOGRAPHS OF THE TEST SET-UP.....</b>	<b>6</b>
<b>7</b>	<b>LIST OF TABLES.....</b>	<b>6</b>
<b>8</b>	<b>LIST OF PHOTOGRAPHS.....</b>	<b>6</b>

**Prüfbericht - Nr.: 16005530 001**  
*Test Report No.:*

**Seite 5 von 23**  
*Page 5 of 23*

## 1 General Remarks

### 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Test result

## 2 Test Sites

### 2.1 Test Facilities

#### **TÜV Rheinland (Guangdong) Ltd. EMC Laboratory**

Guangzhou Auto Market, Yuan Gang Section of Guangshan Road  
Guangzhou 510650

P. R. China

**Prüfbericht - Nr.: 16005530 001**  
*Test Report No.:*

**Seite 6 von 23**  
*Page 6 of 23*

## 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

Kind of Equipment	Type	Manufacturer	S/N	Calibrated until
EMI Test Receiver	ESCI-3	Rohde & Schwarz	100216	13.01.2007
Bi-log Antenna	VULB9168	Schwarzbeck	210	13.01.2007
Notch Filter	BRM50702	Micro-Tronics	023	13.01.2007
Dipole Antenna	VHAP	Schwarzbeck	1180+1109	28.11.2006
Dipole Antenna	UHAP	Schwarzbeck	1091+1092	28.11.2006
3m Semi-anechoic chamber	---	Albatross Projects	---	16.04.2007
EMI Test Receiver	ESCS30	Rohde & Schwarz	100316	07.06.2007
Communications Test Set	HP	HP8920A	3438A05187	29.01.2007
Spectrum Analyzer	FSP30	Rohde & Schwarz	100286	04.09.2007
Climatic Chamber	---	GZ-ESPEC	6107116	04.07.2007

## 2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

**Prüfbericht - Nr.: 16005530 001**  
*Test Report No.:*

**Seite 7 von 23**  
*Page 7 of 23*

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for conducted emissions measurements is  $\pm 3$  dB.  
The estimated combined standard uncertainty for radiated emissions measurements is  $\pm 3$  dB.

## 2.6 Location of original data

The original copies of all test data taken during actual testing were attached at Appendix 1 of this report and delivered to the applicant. A copy has been retained in the TUV Rheinland (Guangzhou) file for certification follow-up purposes.

## 2.7 Status of facility used for testing

TÜV Rheinland (Guangdong) Ltd. EMC Laboratory; Guangzhou Auto Market, Yuan Gang Section of Guangshan Road, Guangzhou 510650, P. R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements, the register no. 833845

## 3 General Product Information

The submitted sample is a wireless microphone, which is a transmitter and operates in the frequency range of 470.05 to 510.05 MHz.

All the test are perform on three operation frequencies, which are low channel 470.05MHz, mid channel 490.05MHz, high channel 509.95MHz.

**Prüfbericht - Nr.: 16005530 001**  
*Test Report No.:*

**Seite 8 von 23**  
*Page 8 of 23*

### 3.1 Product Function and Intended Use

For details, refer to technical document and the user manual.

### 3.2 Ratings and System Details

Frequency range	:	470.05-509.95MHz
RF output power	:	0.029W
Type of antenna	:	Integral antenna
FCC ID:	:	RW2HT16U
Power supply	:	DC 2.4V ("AAA" type 1.2V NiCd battery 2x)
Frequency Response	:	30Hz-15kHz
Frequency Stability	:	0.005%
Emission designator	:	80K2F3E
Ports	:	None
Protection Class	:	III

Refer to the technical document for further information.

### 3.3 Independent Operation Modes

The basic operation modes are:

- Transmitting without modulation
- Transmitting with modulation

For further information refer to User Manual

**Prüfbericht - Nr.: 16005530 001**  
*Test Report No.:*

**Seite 9 von 23**  
*Page 9 of 23*

### 3.4 Submitted Documents

Block Diagram  
Circuit Diagram  
Components List  
PCB layout  
FCC label  
User Manual  
Photo document

## 4 Test Set-up and Operation Mode

### 4.1 Principle of Configuration Selection

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Refer to Test set-up in chapter 5.

### 4.3 Special Accessories and Auxiliary Equipment

None

### 4.4 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the technical document. No additional measures were employed to achieve compliance.

Prüfbericht - Nr.: 16005530 001  
Test Report No.:

Seite 10 von 23  
Page 10 of 23

## 4.5 Test set-up

Diagram 1 of Measurement Equipment Configuration for Testing Radiated Emission

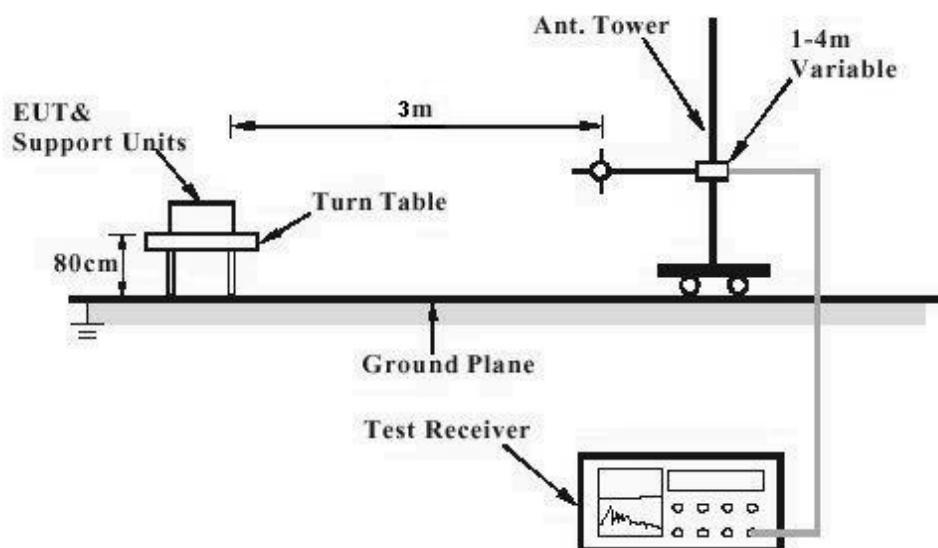
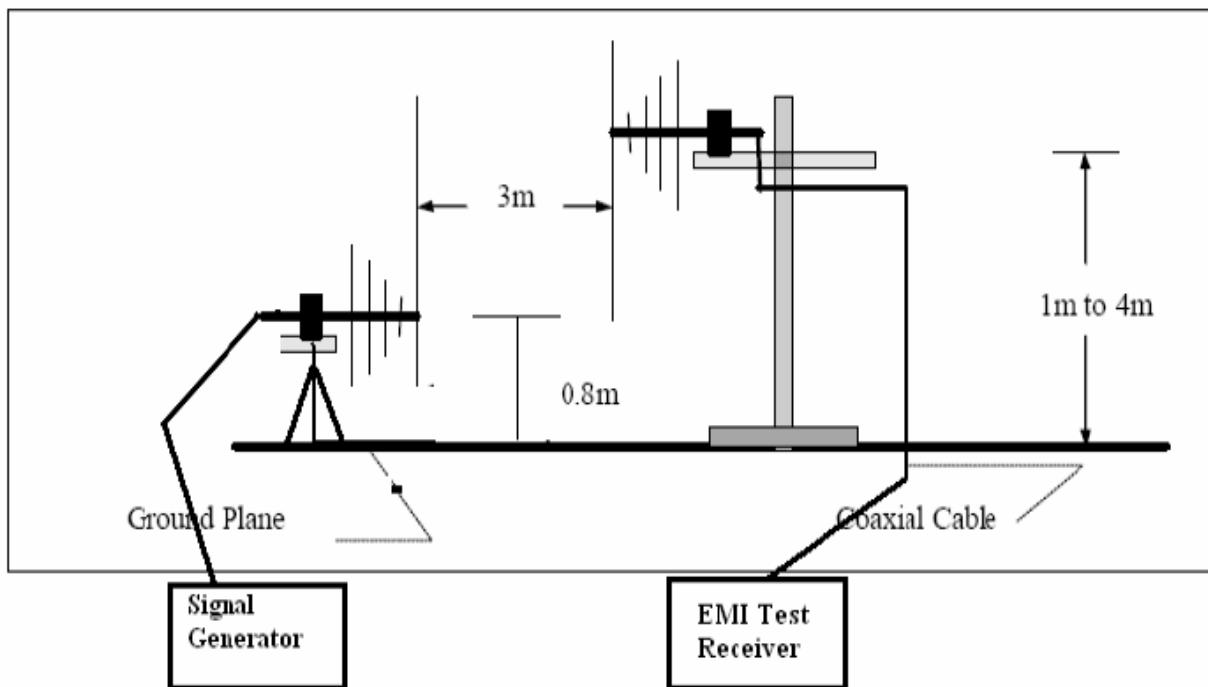


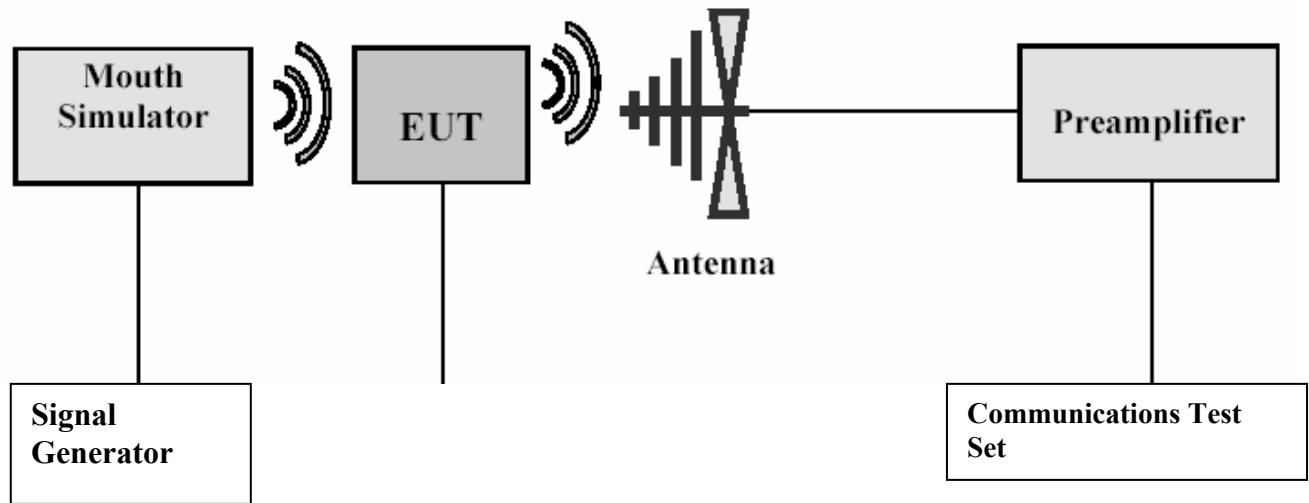
Diagram 2 of Measurement Equipment Configuration for Substitution Method



Prüfbericht - Nr.: **16005530 001**  
Test Report No.:

Seite 11 von 23  
Page 11 of 23

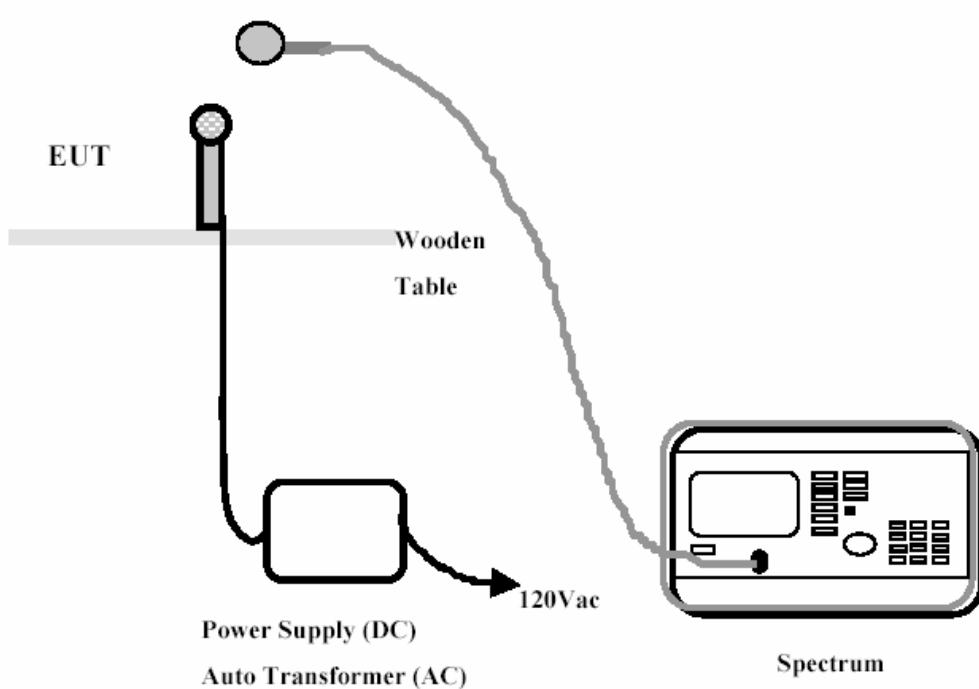
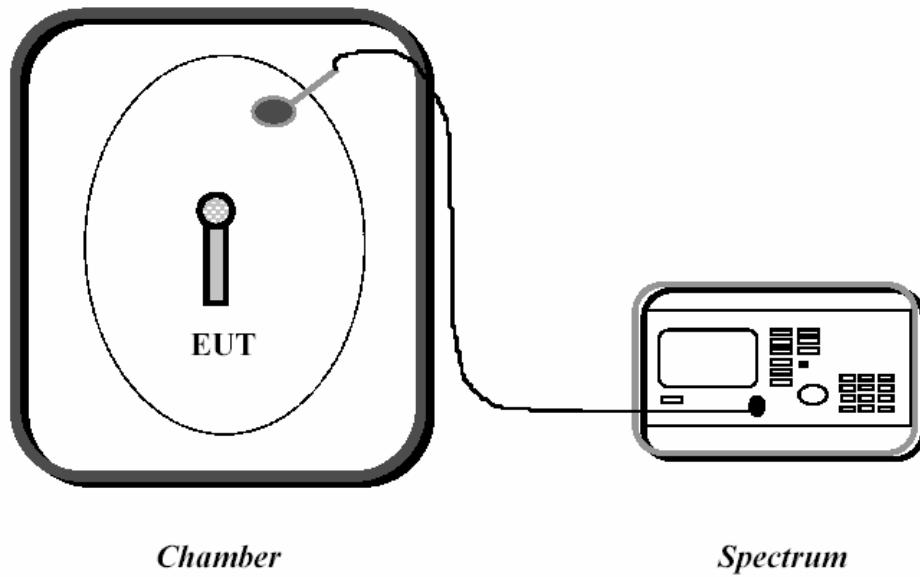
**Diagram 3 of Measurement Equipment Configuration for Testing Modulation Characteristics measurement**



Prüfbericht - Nr.: **16005530 001**  
Test Report No.:

Seite 12 von 23  
Page 12 of 23

**Diagram 4 of Measurement Equipment Configuration for Testing Frequency Tolerance**



Prüfbericht - Nr.: **16005530 001**  
Test Report No.:

Seite 13 von 23  
Page 13 of 23

## 5 Test Results EMISSION

### 5.1 Spurious Conducted Emission Measurements at Antenna Terminals Part 2.1051

#### RESULT:

N/A

Date of testing : ---  
Test specification : FCC Part 2.1051  
Deviations from Standard Test  
procedures : None  
Test procedure : n.a.  
Kind of test site : Shielded room

As the EUT has not detachable antenna, this test item is not applied.

Prüfbericht - Nr.: **16005530 001**  
Test Report No.:Seite 14 von 23  
Page 14 of 23

## 5.2 Power output measurement for FCC part 74 Per Section 74.861(e)(1)

**RESULT:****Pass**

Date of testing	:	28.08.2006
Test specification	:	FCC Part 2 Per Section 2.1046(a)
Limits	:	FCC Part 74 Per Section 74.861(e)(1)
Deviations from Standard Test procedures	:	None
Test procedure	:	Procedure specified in ANSI C63.4 were followed
Kind of test site	:	3m semi-anechoic chamber
Operation mode	:	Transmitting (unmodulated)
Temperature	:	22°C
Humidity	:	65%

While testing, the EUT was placed in 3 orthogonal planes and the maximum reading was recorded in table 2.

**Table 2: Measurement Result of output power on frequencies 470MHz, 490MHz and 510MHz**

Channel	Freq. (MHz)	Polarization (V/H)	Reading (SG) (dBm)	Cable loss (dB)	Antenna Gain(dB)	Transmit power (dBm)	Transmit power (mW)	Limit (mW)
Low	470.05	V	29.6	5.0	-10	14.6	28.8	250
	470.05	H	20.8	5.0	-10	-3.8	0.42	250
Mid	490.05	V	28.7	5.1	-10	13.6	22.9	250
	490.05	H	11.2	5.1	-10	-3.9	0.41	250
High	509.95	V	29.5	5.2	-10	14.3	26.9	250
	509.95	H	8.1	5.2	-10	-7.1	0.19	250

Note:

SG means Signal Generator

Transmit power (dBm) = Reading(SG) (dBm) - Cable loss(dB) + Antenna Gain(dB)

Transmit power (dBm) =  $10\log(\text{transmit power(mW)/1mW})$

**Prüfbericht - Nr.: 16005530 001**  
*Test Report No.:*

**Seite 15 von 23**  
*Page 15 of 23*

### 5.3 Field Strength of Spurious Radiation Measurement for FCC Part 74 Per Section 74.861(e)(6)(iii)

#### RESULT:

**Pass**

Date of testing	:	28.08.2006
Test specification	:	FCC Part 2 Per Section 2.1053(a) and 2.1057
Limits	:	FCC Part 74 Per Section 74.861(e)(6)(iii)
Deviations from Standard Test procedures	:	None
Test procedure	:	Procedure specified in ANSI C63.4 were followed
Kind of test site	:	3m semi-anechoic chamber
Operation mode	:	Transmitting (modulated)
Temperature	:	22°C
Humidity	:	65%

To determine the Limit for Spurious Emissions the following method was used:

#### Maximum output power in watts:

Maximum output power in Watt: **0.0288W** (see **table 2**)

#### The emission must be reduced by:

$$43+10*\log(0.0288)=27.59 \text{ dB}$$

Therefore, the Limit equals:

$$10*\log(0.0288*1000)-27.59\text{dB} = -13\text{dBm}$$

**Table 3: Spurious Emission: EUT operated on Bottom frequency (470.05MHz)**

Freq. (MHz)	Polarization (V/H)	Reading (SG) (dBm)	Cable loss (dB)	Antenna Gain(dB)	Transmit power (dBm)	Limit (dBm)
940.15	V	-41.7	7.1	-10	-58.8	-13
1037.1	V	-53.8	7.4	5.35	-55.85	-13
1409.5	V	-19.0	8.7	6.65	-21.05	-13
1880.0	V	-37.5	10.2	7.25	-40.45	-13
2350.0	V	-28.7	11.2	8.05	-29.45	-13
2820.3	V	-34.8	12.5	8.25	-39.05	-13
3760.8	V	-35.9	14.6	8.25	-42.25	-13
940.15	H	-41.7	7.1	-10	-58.8	-13
1409.5	H	-57.5	8.7	6.65	-59.56	-13
1879.8	H	-37.7	10.2	7.25	-40.64	-13
2350.0	H	-47.4	11.2	8.05	-50.57	-13

**Prüfbericht - Nr.: 16005530 001**  
Test Report No.:

**Seite 16 von 23**  
Page 16 of 23

**Table 4: Spurious Emission: EUT operated on Bottom frequency (490.05MHz)**

Freq. (MHz)	Polarization (V/H)	Reading (SG) (dBm)	Cable loss (dB)	Antenna Gain(dB)	Transmit power (dBm)	Limit (dBm)
467.0	V	-33.4	5.0	-10	-48.4	-13
980.1	V	-27.7	7.3	-10	-45.0	-13
1201.4	V	-54.9	8.1	5.95	-57.05	-13
1469.1	V	-19.0	8.9	6.75	-21.15	-13
1960.8	V	-36.6	10.3	7.25	-39.65	-13
2450.1	V	-30.8	11.5	8.25	-34.05	-13
2940.6	V	-30.7	12.8	8.35	-35.15	-13
980.1	H	-37.0	7.3	-10	-54.3	-13
1470.3	H	-46.2	8.9	6.75	-48.35	-13
1960.8	H	-36.6	10.3	7.25	-39.65	-13
2450.1	H	-51.5	11.5	8.25	-54.75	-13

**Table 5: Spurious Emission: EUT operated on Bottom frequency (509.95MHz)**

Freq. (MHz)	Polarization (V/H)	Reading (SG) (dBm)	Cable loss (dB)	Antenna Gain(dB)	Transmit power (dBm)	Limit (dBm)
1020.3	V	-36.0	7.4	5.25	-38.15	-13
1528.8	V	-18.9	9.0	6.75	-21.15	-13
2039.5	V	-33.8	10.4	8.25	-36.95	-13
2549.1	V	-16.3	11.8	9.65	-19.85	-13
3570.6	V	-27.3	14.1	8.15	-33.25	-13
4080.3	V	-29.8	14.9	8.45	-36.25	-13
1020.3	H	-52.5	7.4	5.25	-54.65	-13
1529.9	H	-41.8	9.0	6.75	-44.05	-13
2039.5	H	-35.7	10.4	8.25	-38.85	-13
2549.1	H	-43.9	11.8	9.65	-47.45	-13

Disturbances other than those mentioned are small or not detectable.

Note: (for above mentioned three tables)

SG means Signal Generator

Transmit power (dBm) = Reading(SG) (dBm) - Cable loss(dB) + Antenna Gain(dB)

Transmit power (dBm) =  $10\log(\text{transmit power(mW)}/1\text{mW})$

The spectral diagrams in appendix 1 display the measurement of un-weighted peak values.

**Prüfbericht - Nr.: 16005530 001**  
*Test Report No.:*

**Seite 17 von 23**  
*Page 17 of 23*

## 5.4 Modulation Characteristics measurement

### RESULT:

Pass

Date of testing	:	15.09.2006
Test specification	:	FCC Part 2 Per Section 2.1047(a) and (b)
Limits	:	FCC Part 2 Per Section 2.1047(a) and (b)
Deviations from Standard Test procedures	:	None
Test procedure	:	Procedure specified in ANSI C63.4 were followed
Operation mode	:	Transmitting
Temperature	:	22°C
Humidity	:	65%

#### Audio frequency response:

- 1) Adjust the audio input to get 20% deviation at 1kHz.
- 2) Vary the audio frequency from 20Hz to 20kHz.

#### Modulation limit:

- 1) Adjust the audio input to 60% deviation at 1kHz, vary the input level, record the frequency deviation.
- 2) Repeat step 1 with input frequency changing to 500Hz, 1kHz, 1.5kHz, 2kHz, 2.5kHz, 5kHz, 7kHz, 10kHz and 15kHz sequence.

Refer to appendix for curves.

Prüfbericht - Nr.: **16005530 001**  
Test Report No.:

Seite 18 von 23  
Page 18 of 23

## 5.5 Occupied Bandwidth for FCC Part 74 Per Section 74.861(e)(3), 74.861(e)(5) and 74.861(e)(6)

### RESULT:

Pass

Date of testing	:	15.09.2006
Test specification	:	FCC Part 2 Per Section 2.1049(c)1
Limits	:	FCC Part 74 Per Section 74.861(e)(3), 74.861(e)(5) and 74.861(e)(6)
Deviations from Standard Test procedures	:	None
Test procedure	:	Procedure specified in ANSI C63.4 were followed
Operation mode	:	Transmitting (modulated)
Temperature	:	22°C
Humidity	:	65%

**Table 6: Maximum Deviation**

Reading:	36kHz
Limit:	± 75kHz

**Table 7: Operation Bandwidth (Bn)**

Parameter:	M	D
Reading	7kHz	33.1kHz
Bn:	80.2kHz	
Limit:	200kHz	
Emission Designator:	80K1F3E	
Bn=2M+2D*K		
Bn: operation bandwidth		
M: Max. Modulation Frequency		
D: Peak Frequency Deviation		
K=1		

Refer for appendix for measurements.

Prüfbericht - Nr.: **16005530 001**  
Test Report No.:

Seite 19 von 23  
Page 19 of 23

## 5.6 Frequency tolerance for FCC Part 74 Per Section 74.861(e)(4)

### RESULT:

Pass

Date of testing	:	29.08.2006
Test specification	:	FCC Part 2 Per Section 2.1055
Limits	:	FCC Part 74 Per Section 74.861(e)(4)
Deviations from Standard Test procedures	:	None
Test procedure	:	Procedure specified in ANSI C63.4 were followed
Operation mode	:	Transmitting (unmodulated)
Temperature	:	-30°C to 50°C
Humidity	:	65%

**Table 8: the measurement of Frequency tolerance (temperature)**

Test condition	Power supply	Low Frequency (MHz) (470.05)	Mid Frequency (MHz) (490.05)	High Frequency (MHz) (509.95)
-30°C	New batteries	470.05362	490.05072	509.95074
-25°C	New batteries	470.05025	490.05443	509.95033
-20°C	New batteries	470.05017	490.05252	509.95114
-15°C	New batteries	470.05083	490.04665	509.95154
-10°C	New batteries	470.05231	490.05617	509.95194
-5°C	New batteries	470.04986	490.05025	509.95234
0°C	New batteries	470.05621	490.05624	509.95345
5°C	New batteries	470.05488	490.05483	509.95354
10°C	New batteries	470.05612	490.05652	509.95354
15°C	New batteries	470.05401	490.05437	509.95314
20°C	New batteries	470.04892	490.04484	509.95314
25°C	New batteries	470.05831	490.05828	509.95234
30°C	New batteries	470.05872	490.04873	509.95154
35°C	New batteries	470.05041	490.05052	509.95114
40°C	New batteries	470.0499	490.04897	509.95033
45°C	New batteries	470.0477	490.04678	509.94994
50°C	New batteries	470.0496	490.05231	509.94913
Frequency Error:		0.00892	0.00828	0.00354
Frequency Error rate:		0.0019%	0.0017%	0.0007%
Frequency Tolerance Limit:			0.005%	

Prüfbericht - Nr.: **16005530 001**  
Test Report No.:Seite 20 von 23  
Page 20 of 23**Table 9: the measurement of Frequency tolerance (supply voltage)**

Temperature: 25°C

Test condition (Power supply)	Low Frequency (MHz) (470.05)	Mid Frequency (MHz) (490.05)	High Frequency (MHz) (509.95)
3V	470.0500	490.0521	509.94914
2.9V	470.0512	490.0543	509.94914
2.8V	470.0508	490.0545	509.94914
2.7V	470.0516	490.0547	509.94994
2.6V	470.0516	490.0581	509.94953
2.5V	470.0508	490.0562	509.94993
2.4V	470.0508	490.0561	509.94994
2.3V	470.0508	490.0502	509.94994
2.2V	470.0512	490.0562	509.95033
2.1V	470.0504	490.0544	509.95033
2.0V	470.0512	490.0563	509.95033
1.9V	470.0512	490.0467	509.95033
1.8V	470.0508	490.0504	509.95033
1.7V	470.0508	490.0463	509.95033
1.6V	470.0508	490.0546	509.95033
1.5V	470.0512	490.0547	509.95021
1.4V	470.0508	490.0581	509.94973
1.3V	470.0504	490.0509	509.95037
1.2V	470.0508	490.0543	509.95084
Frequency Error:	0.0016	0.0081	0.00086
Frequency Error rate:	0.0003%	0.0016%	0.0002%
Frequency Tolerance Limit:		0.005%	

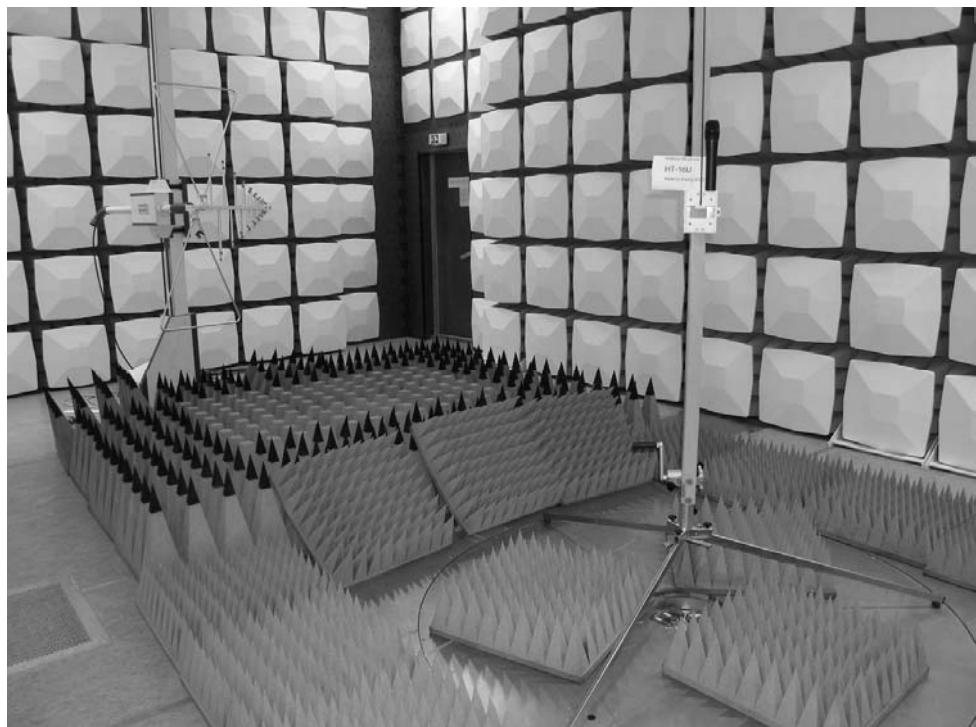
The equipment remains on channel when the power source was reduced below the lower extreme test voltage limit until zero. The EUT ceases to function below the voltage at DC 1.2V.

Prüfbericht - Nr.: **16005530 001**  
*Test Report No.:*

Seite 21 von 23  
*Page 21 of 23*

## 6 Photographs of the Test Set-Up

Photograph 1: Set-up for Radiation Measurement Below 1GHz



Prüfbericht - Nr.: **16005530 001**  
*Test Report No.:*

Seite 22 von 23  
*Page 22 of 23*

**Photograph 2: Set-up for Radiation Measurement above 1GHz**



**Prüfbericht - Nr.: 16005530 001**  
*Test Report No.:*

**Seite 23 von 23**  
*Page 23 of 23*

## 7 List of Tables

Table 1: List of Test and Measurement Equipment.....	6
Table 2: Measurement Result of output power on frequencies 470MHz, 490MHz and 510MHz.....	6
Table 3: Spurious Emission: EUT operated on Bottom frequency (470.05MHz).....	6
Table 4: Spurious Emission: EUT operated on Bottom frequency (490.05MHz).....	6
Table 5: Spurious Emission: EUT operated on Bottom frequency (509.95MHz).....	6
Table 6: Maximum Deviation.....	6
Table 7: Operation Bandwidth (Bn) .....	6
Table 8: the measurement of Frequency tolerance (temperature) .....	6
Table 9: the measurement of Frequency tolerance (supply voltage) .....	6

## 8 List of Photographs

Photograph 1: Set-up for Radiation Measurement Below 1GHz .....	6
Photograph 2: Set-up for Radiation Measurement above 1GHz .....	6

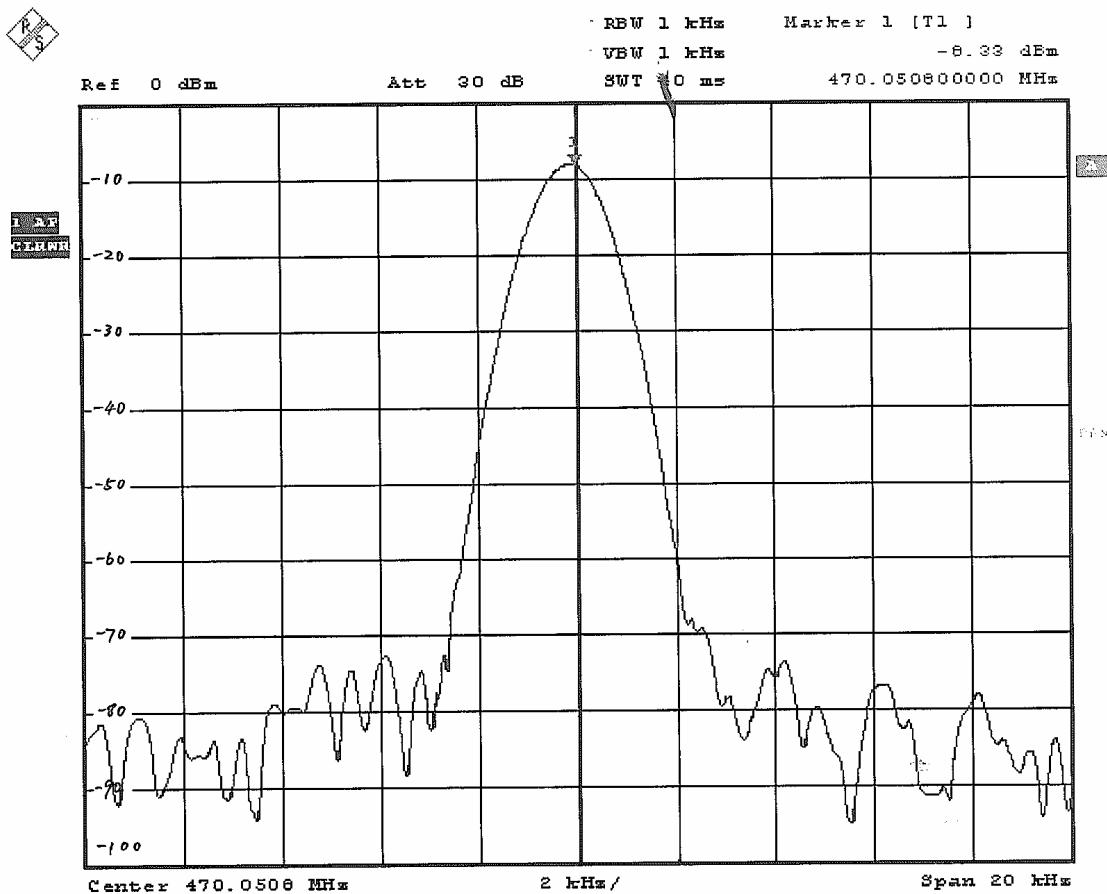
**Prüfbericht - Nr.:** **16005530 001**

*Test Report No.*

**Seite 1 von 36**  
*Page 1 of 36*

**Occupied Bandwidth:**

*unmodulated carrier*



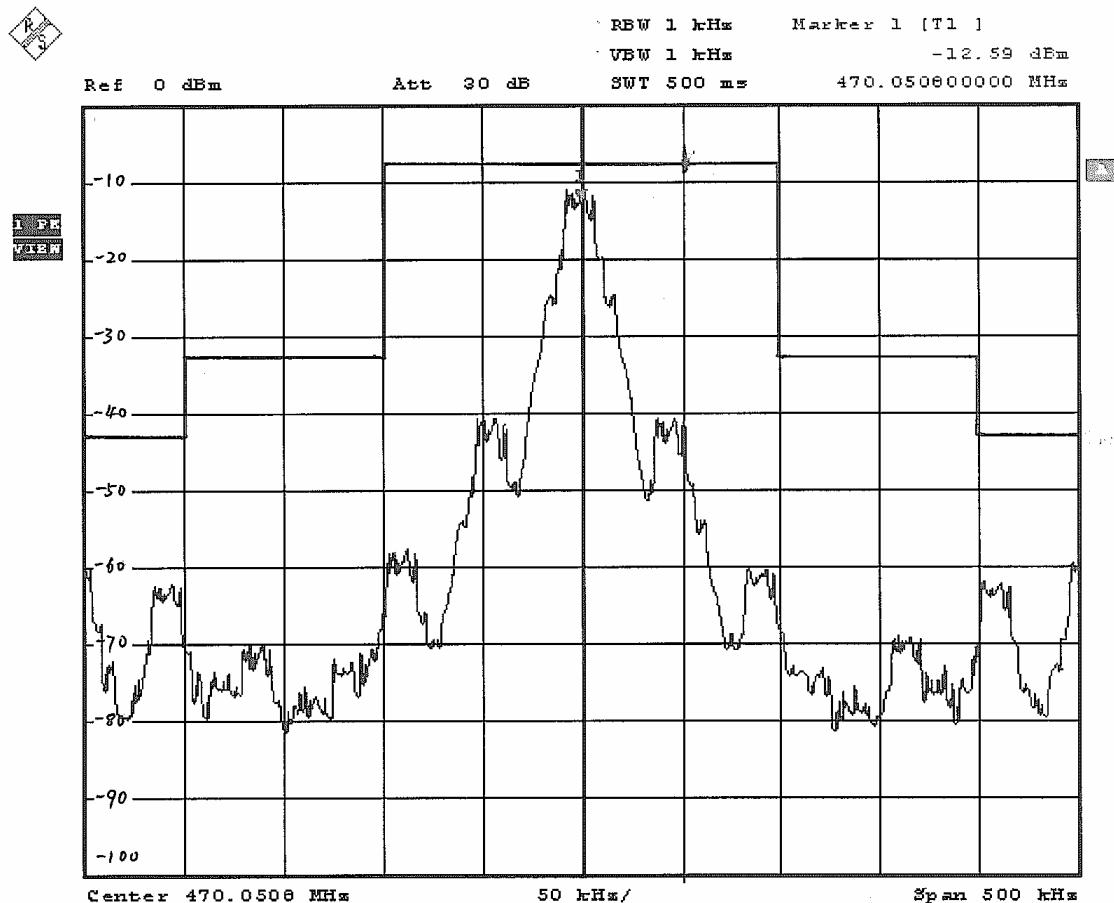
Comment: Conducted Disturbance  
 Date: 15. SEP. 2006 10:52:16

**Prüfbericht - Nr.:** **16005530 001**

**Seite 2 von 36**  
**Page 2 of 36**

HT-16U Input Level -10dBV = 16dB >50% Modulation

Signal: 200 Hz



Comment: Conducted Disturbance  
Date: 15. SEP. 2006 16:57:05

Prüfbericht - Nr.: **16005530 001**  
Test Report No.Seite 3 von 36  
Page 3 of 36\* RBW 1 kHz      Marker 1 [T1]      -18.20 dBm  
\* VBW 1 kHz

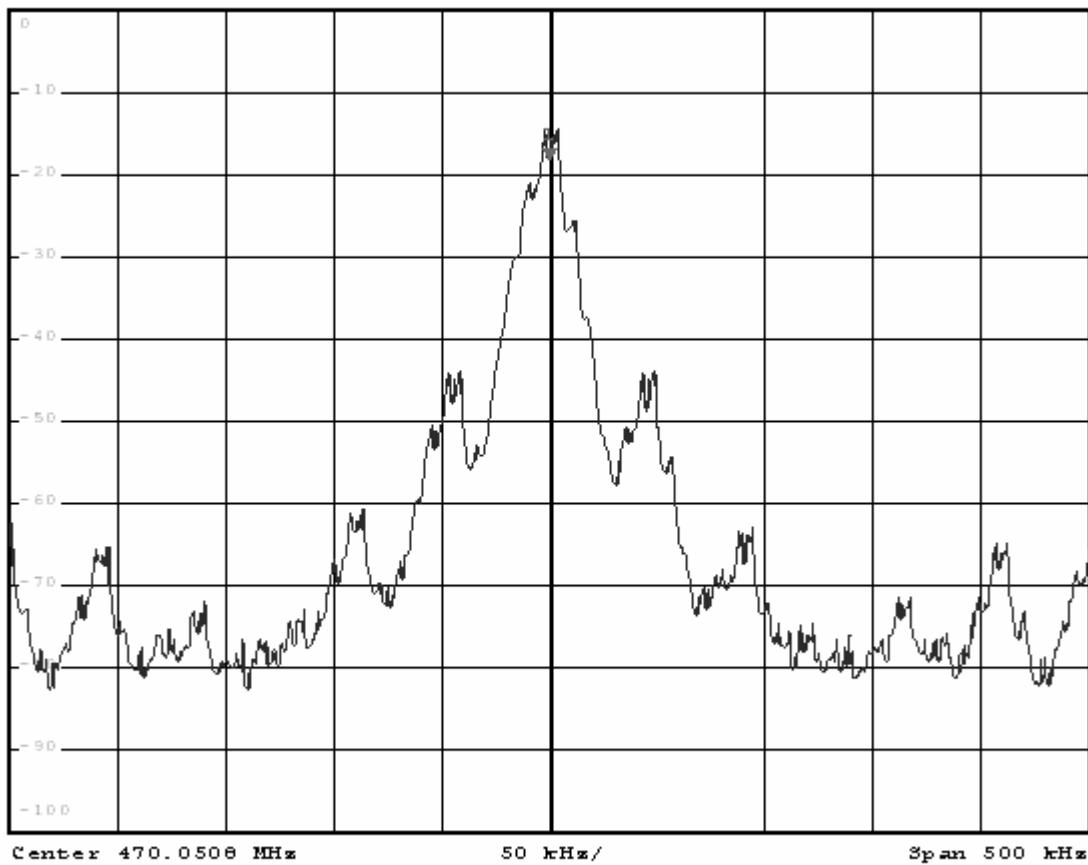
SWT 500 ms

470.050800000 MHz

Ref 0 dBm

Att 30 dB

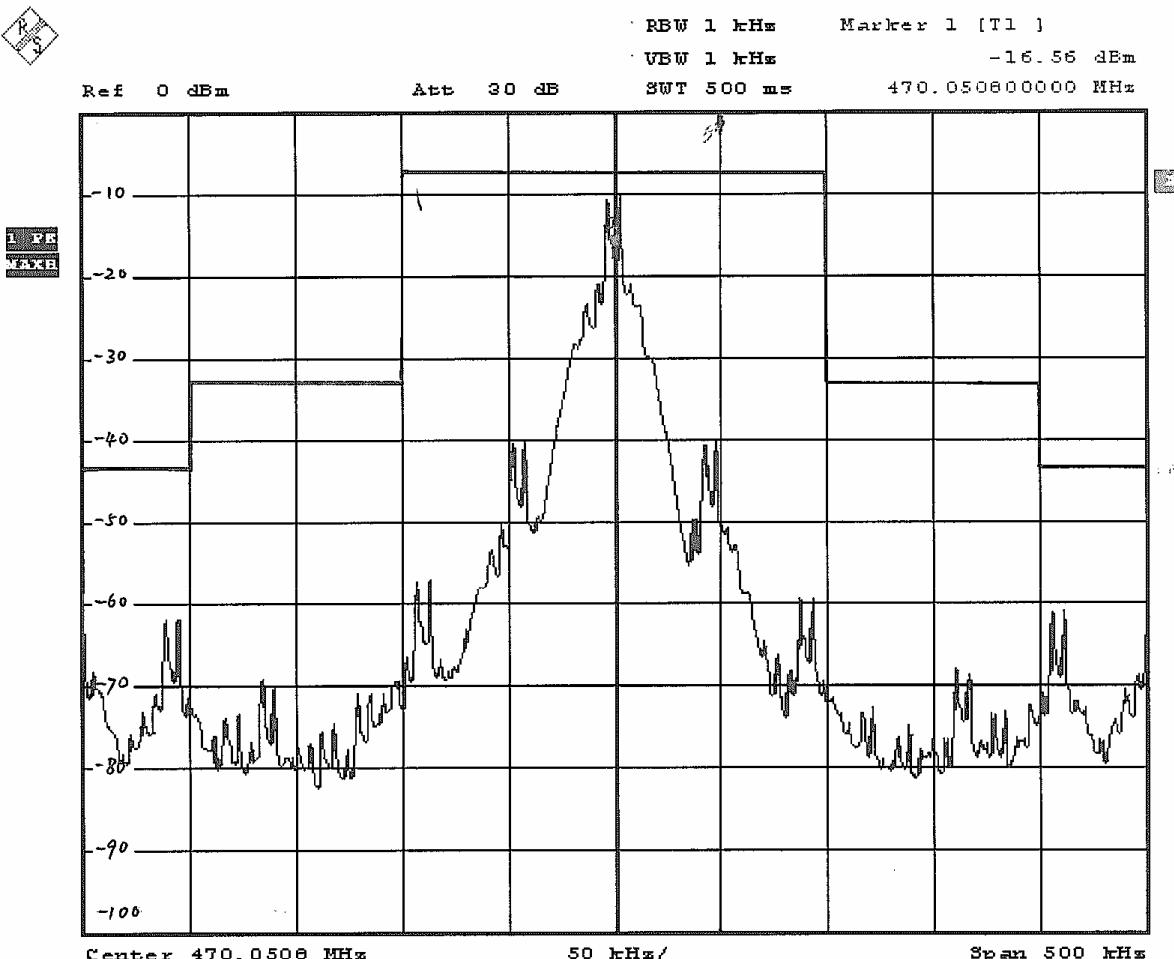
A



Comment: Conducted Disturbance  
Date: 15. SEP. 2006 18:59:07

Prüfbericht - Nr.: 16005530 001  
Test Report No.Seite 4 von 36  
Page 4 of 36

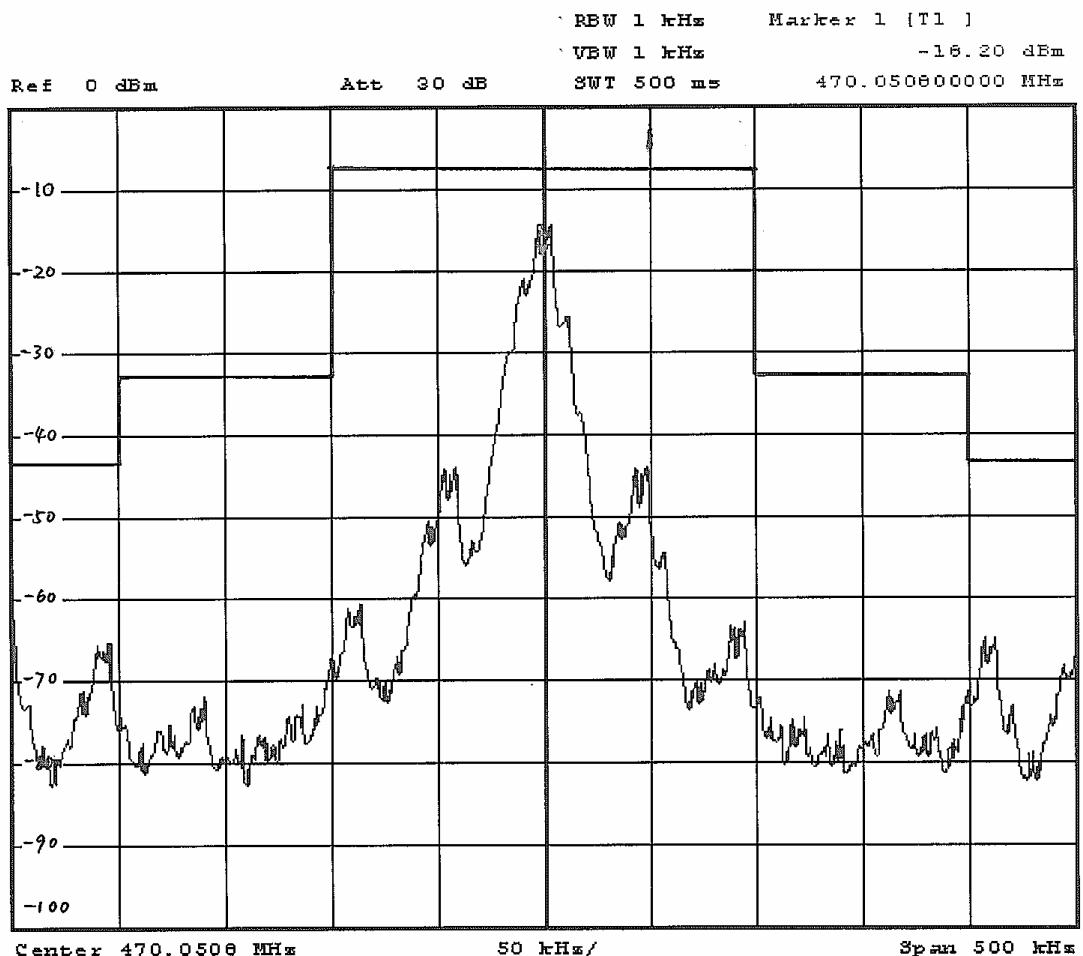
signal : 500 Hz



Comment: Conducted Disturbance  
Date: 15. SEP. 2006 16:58:17

Prüfbericht - Nr.: **16005530 001**  
Test Report No.Seite 5 von 36  
Page 5 of 36

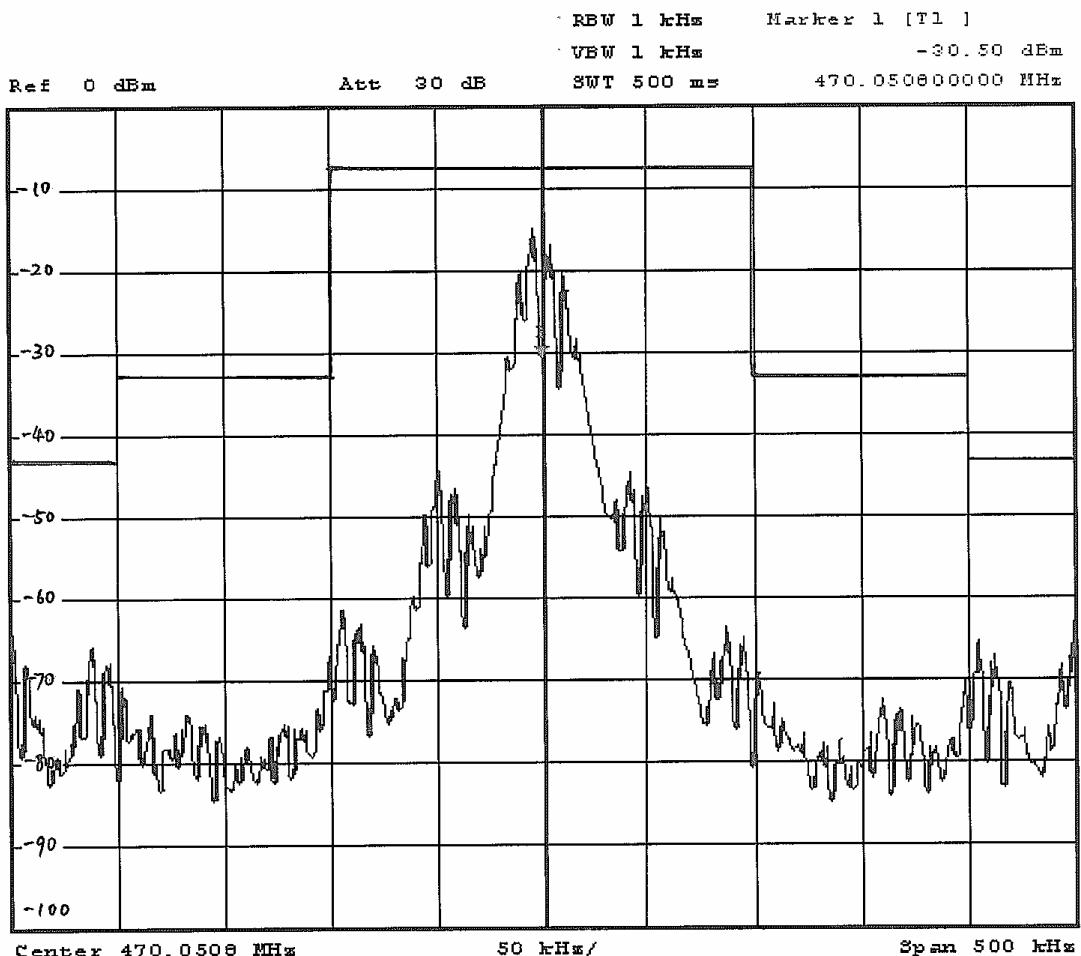
Signal: 1 kHz

TYPE  
TESTER

Comment: Conducted Disturbance  
Date: 15.SEP.2006 16:59:07

Prüfbericht - Nr.: **16005530 001**  
Test Report No.Seite 6 von 36  
Page 6 of 36

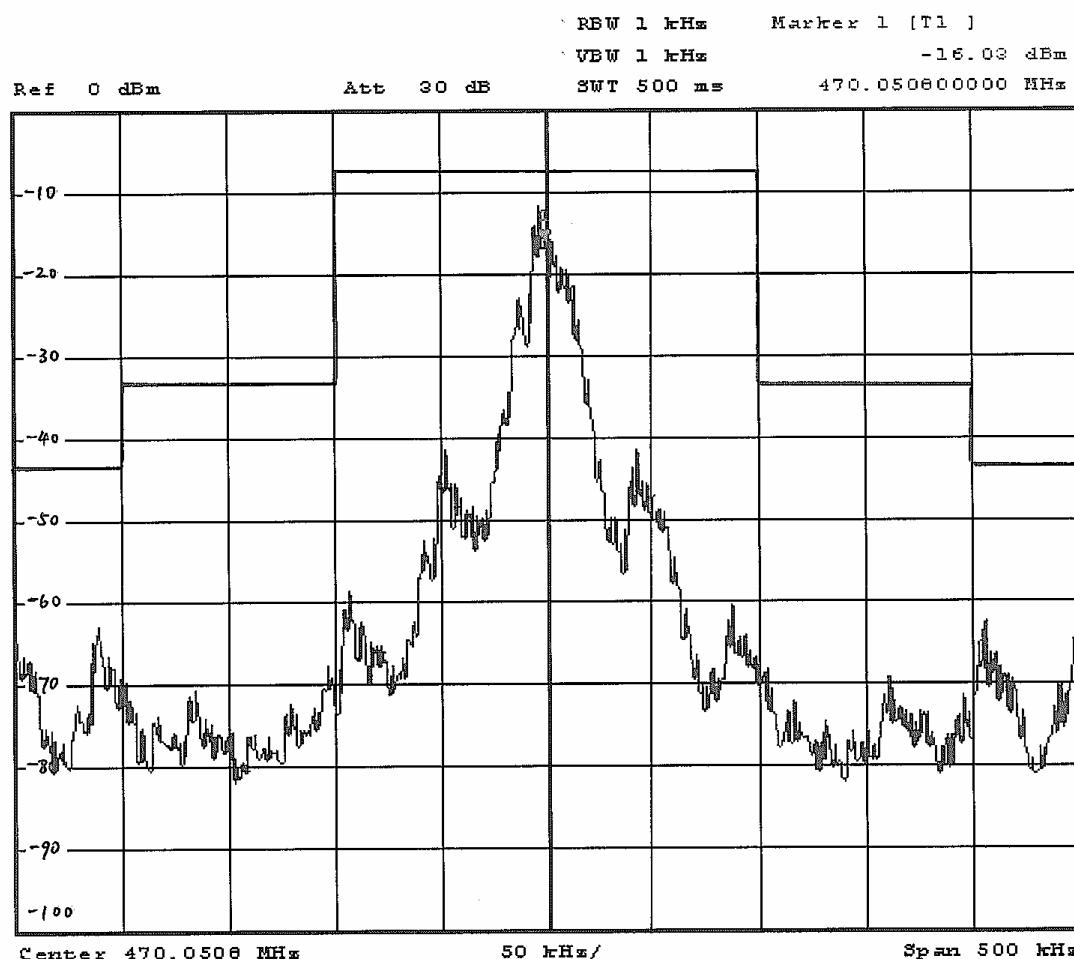
Signal: 2.0 kHz

TYPE  
VIEW

Comment: Conducted Disturbance  
Date: 15. SEP. 2006 19:00:13

Prüfbericht - Nr.: 16005530 001  
Test Report No.Seite 7 von 36  
Page 7 of 36

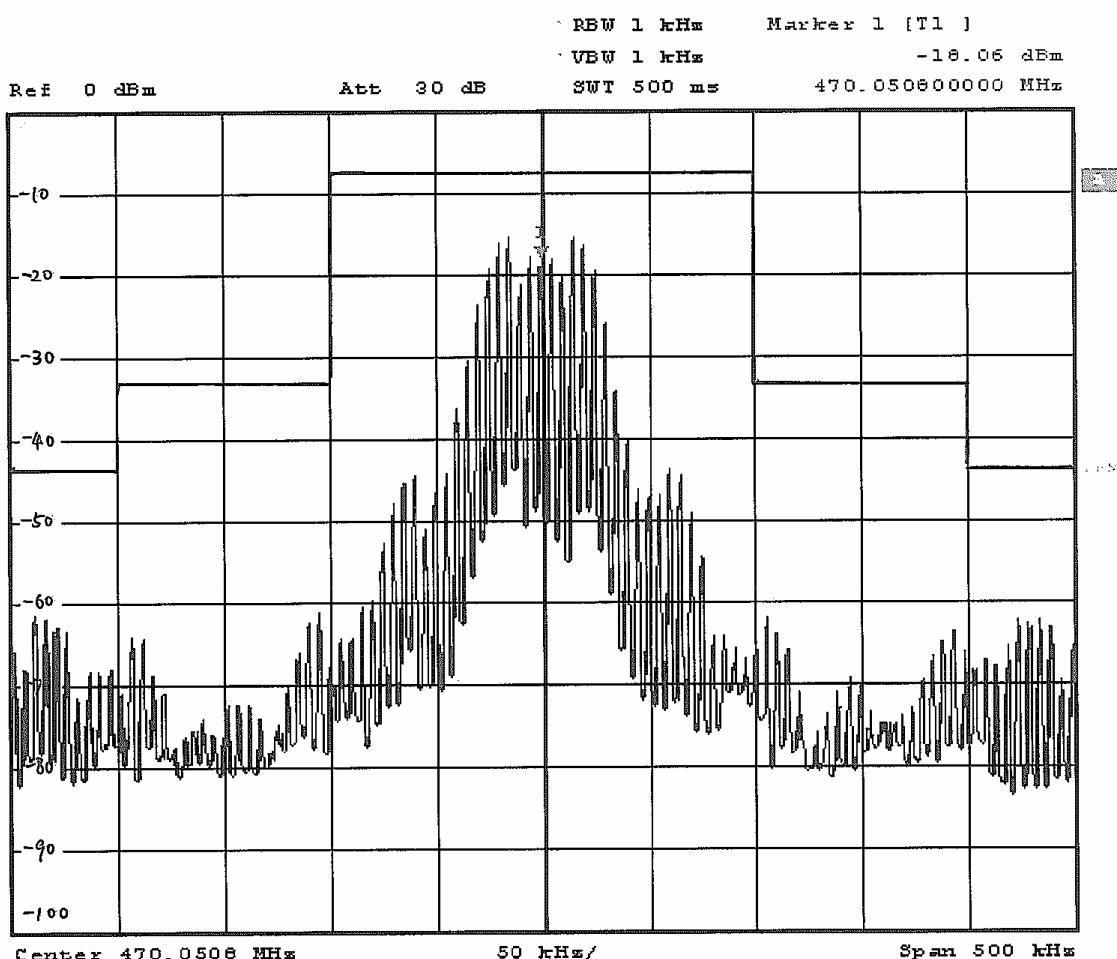
signal : 2.5 kHz



Comment: Conducted Disturbance  
Date: 15.SEP.2006 19:01:36

Prüfbericht - Nr.: 16005530 001  
Test Report No.Seite 8 von 36  
Page 8 of 36

signal : 5 kHz



Comment: Conducted Disturbance  
Date: 15. SEP. 2006 19:02:56

## Appendix 1

Produkte  
Products



TÜV Rheinland Group

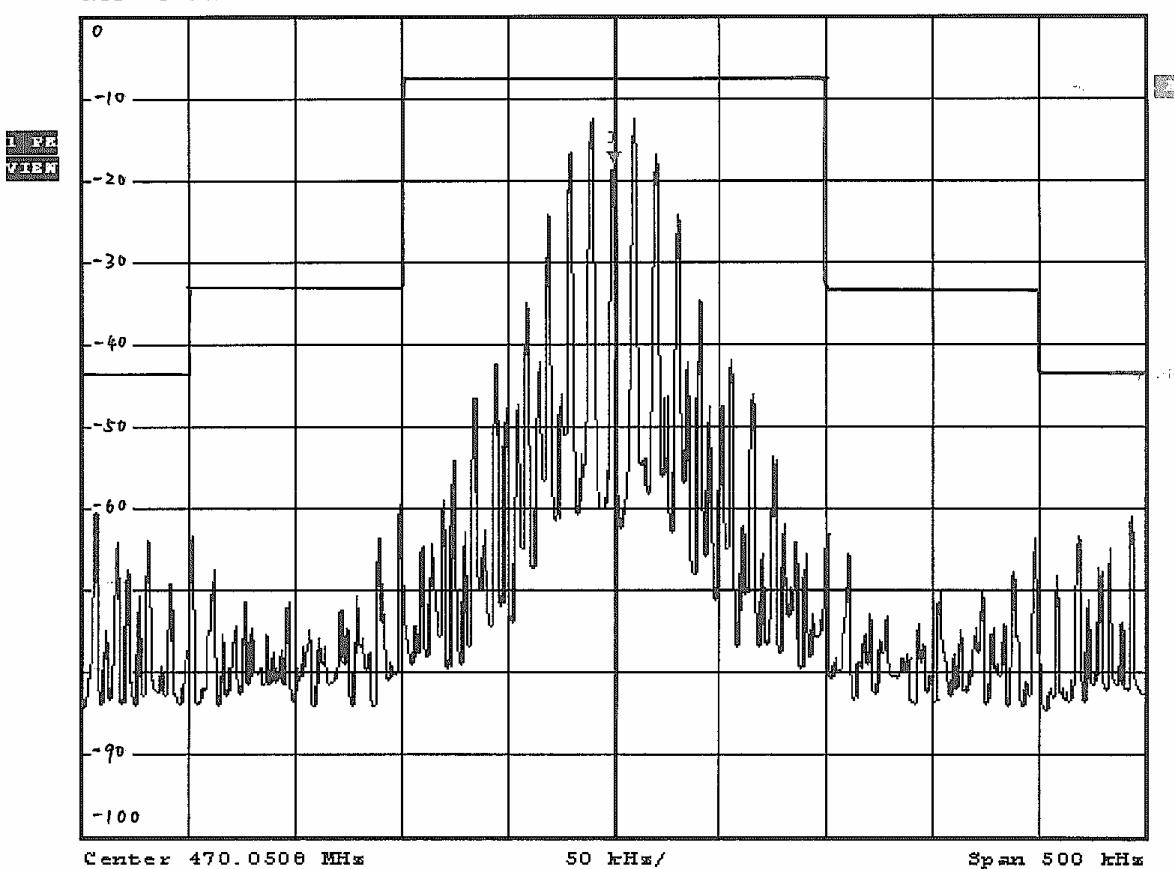
Prüfbericht - Nr.: **16005530 001**  
Test Report No.

Seite 9 von 36  
Page 9 of 36

Signal: 10 kHz



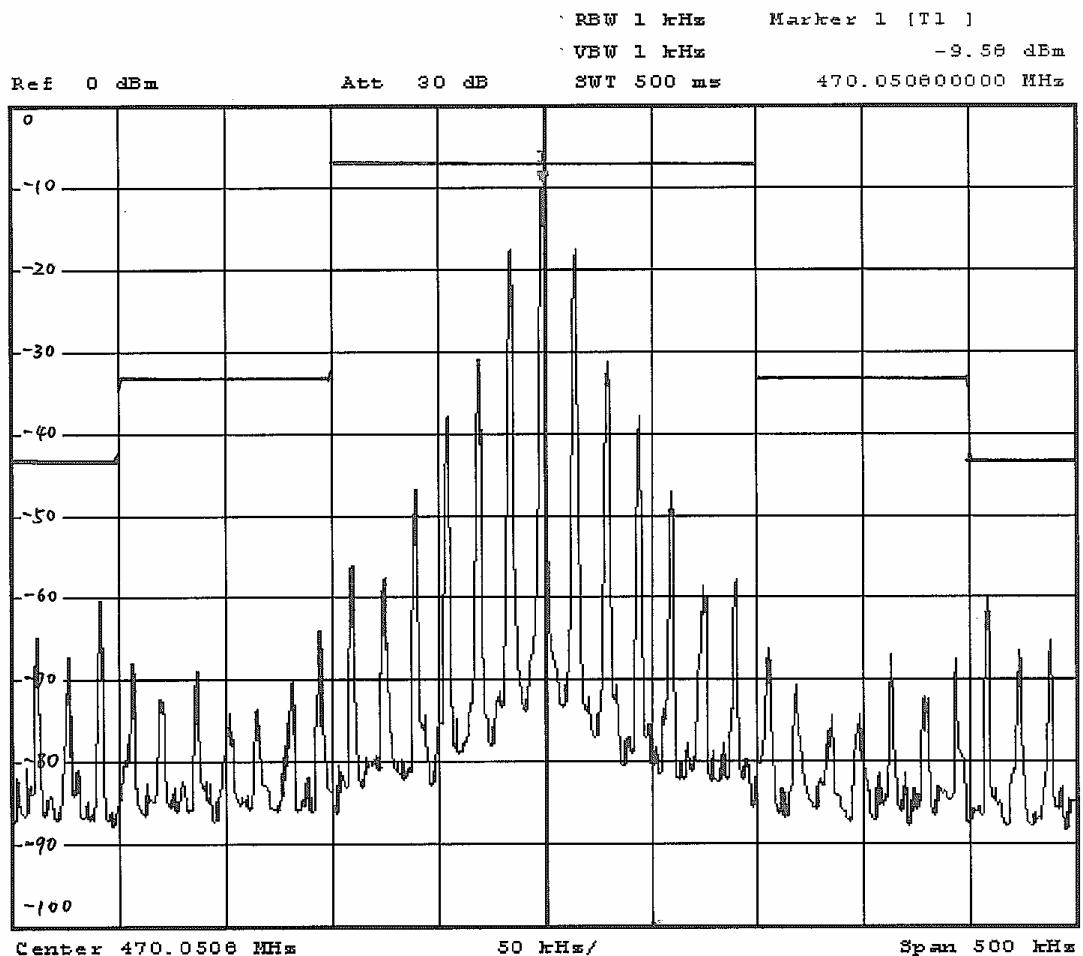
Ref 0 dBm Att 30 dB SWT 500 ms 470.0506000000 MHz  
RBW 1 kHz Marker 1 [T1] -17.93 dBm  
VBW 1 kHz



Comment: Conducted Disturbance  
Date: 15. SEP. 2006 19:03:43

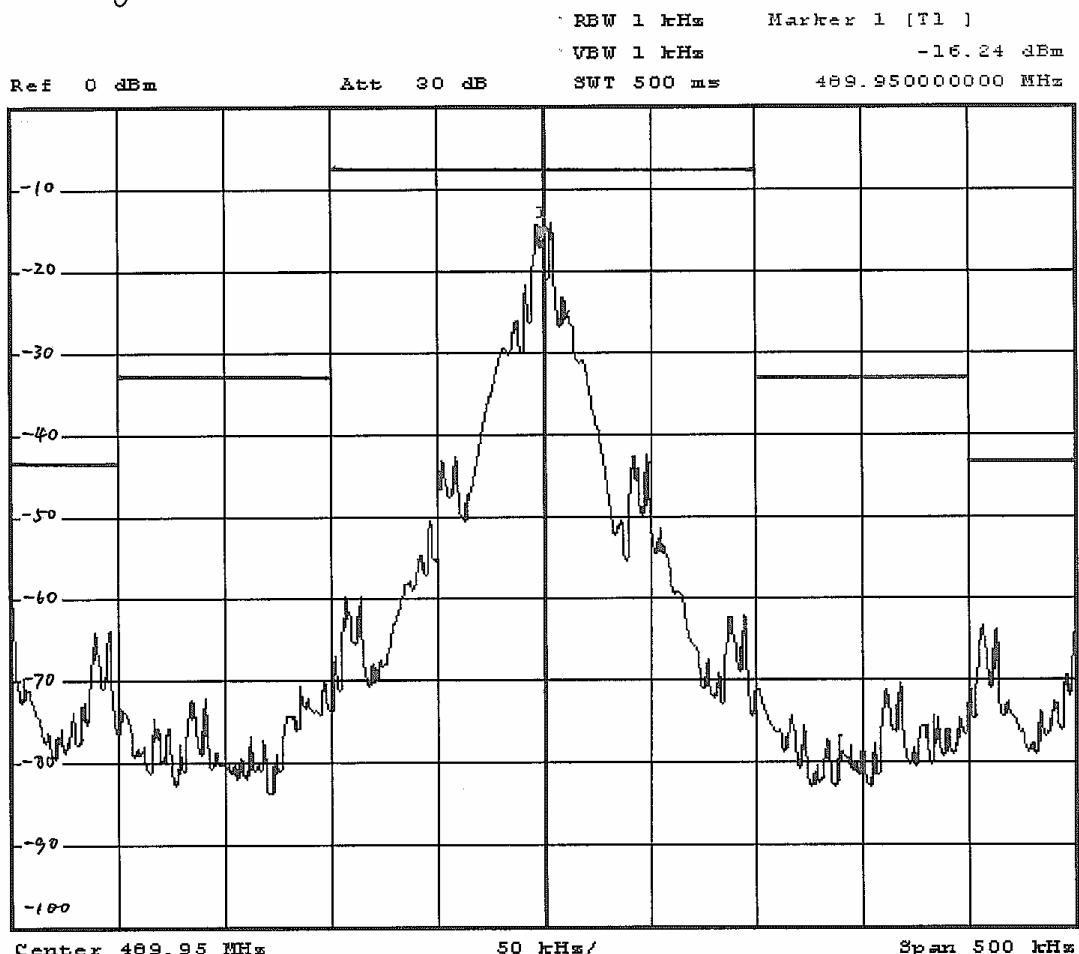
Prüfbericht - Nr.: **16005530 001**  
Test Report No.Seite 10 von 36  
Page 10 of 36

signal: 15 kHz

R&S  
R2E90

Comment: Conducted Disturbance  
Date: 15. SEP. 2006 19:04:15

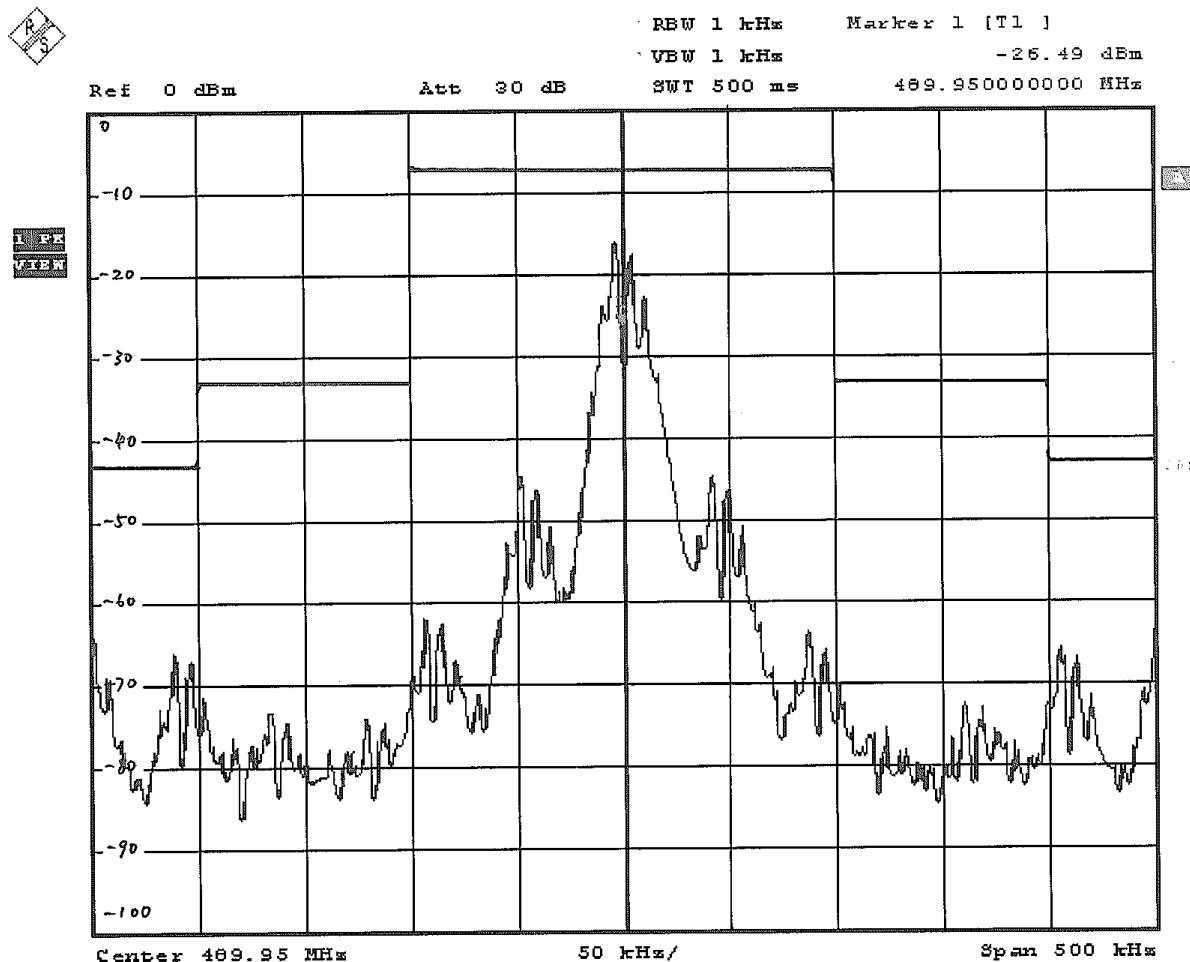
**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*
**Seite 11 von 36**  
*Page 11 of 36*
*signal: 500 Hz*

**REF  
VSWR**


Comment: Conducted Disturbance  
 Date: 15.SEP.2006 19:09:24

Prüfbericht - Nr.: **16005530 001**  
Test Report No.Seite 12 von 36  
Page 12 of 36

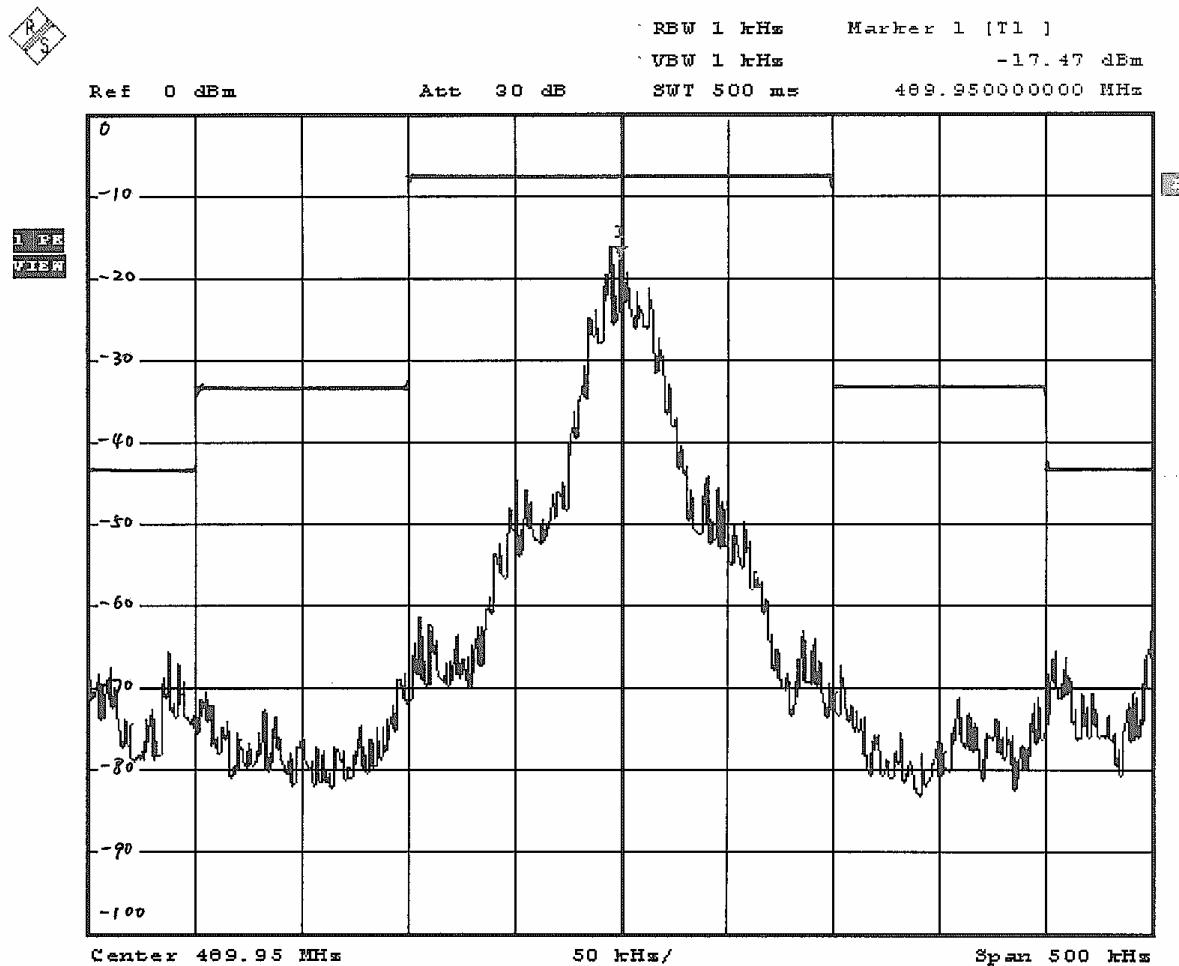
Signal: 2 kHz



Comment: Conducted Disturbance  
Date: 15. SEP. 2006 19:07:57

Prüfbericht - Nr.: 16005530 001  
Test Report No.Seite 13 von 36  
Page 13 of 36

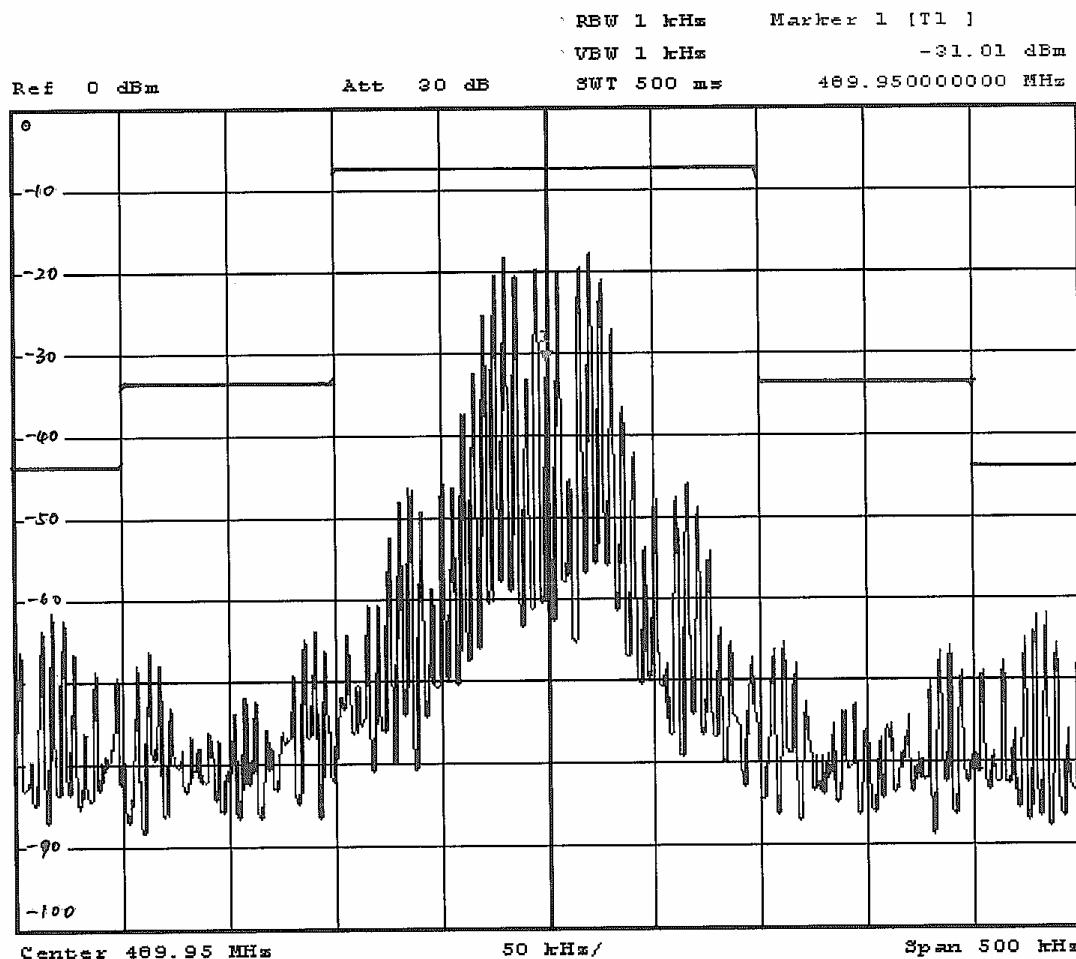
signal : 2.5 kHz



Comment: Conducted Disturbance  
Date: 15. SEP. 2006 19:07:30

Prüfbericht - Nr.: **16005530 001**  
Test Report No.Seite 14 von 36  
Page 14 of 36

signal: 5 kHz



Comment: Conducted Disturbance  
Date: 15. SEP. 2006 19:06:52

**Prüfbericht - Nr.:** **16005530 001**

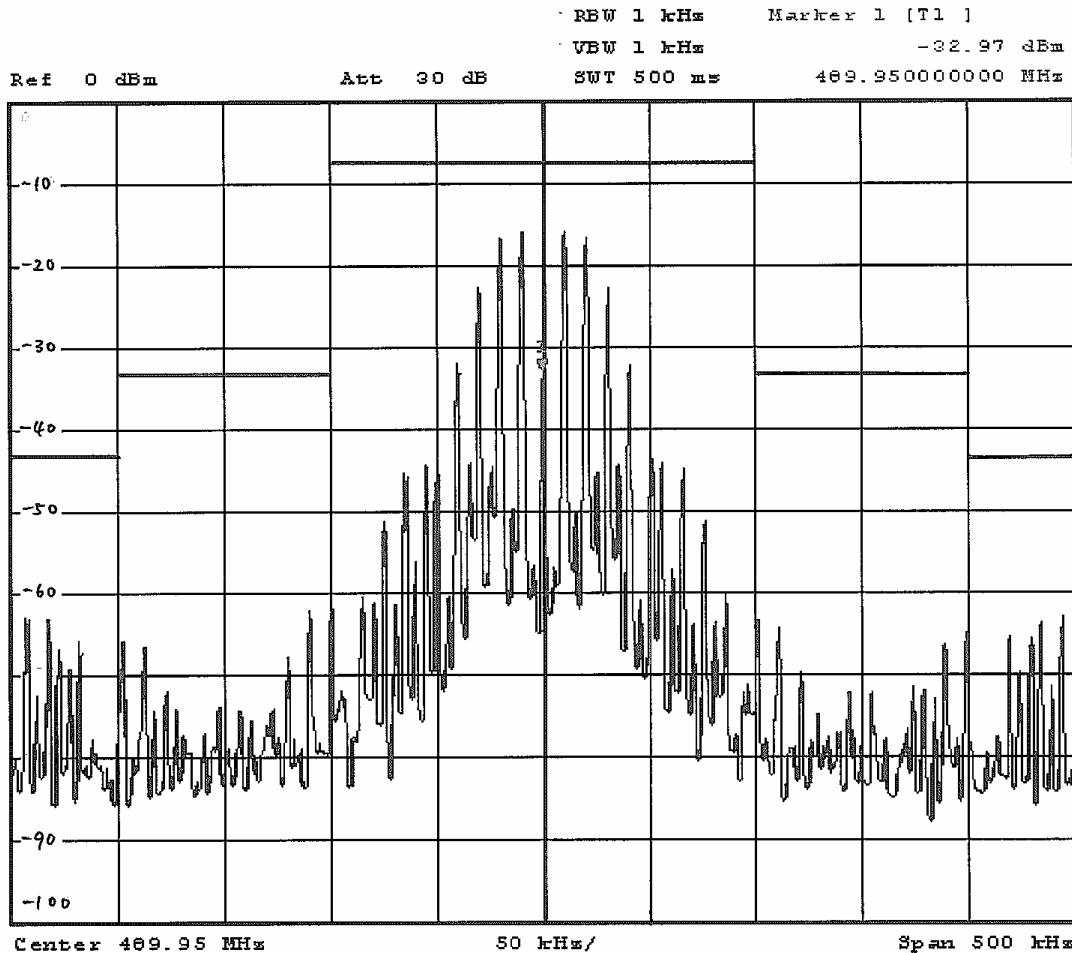
*Test Report No.*

**Seite 15 von 36**  
*Page 15 of 36*

*Signal: 10 kHz*



1 Pk  
VBW

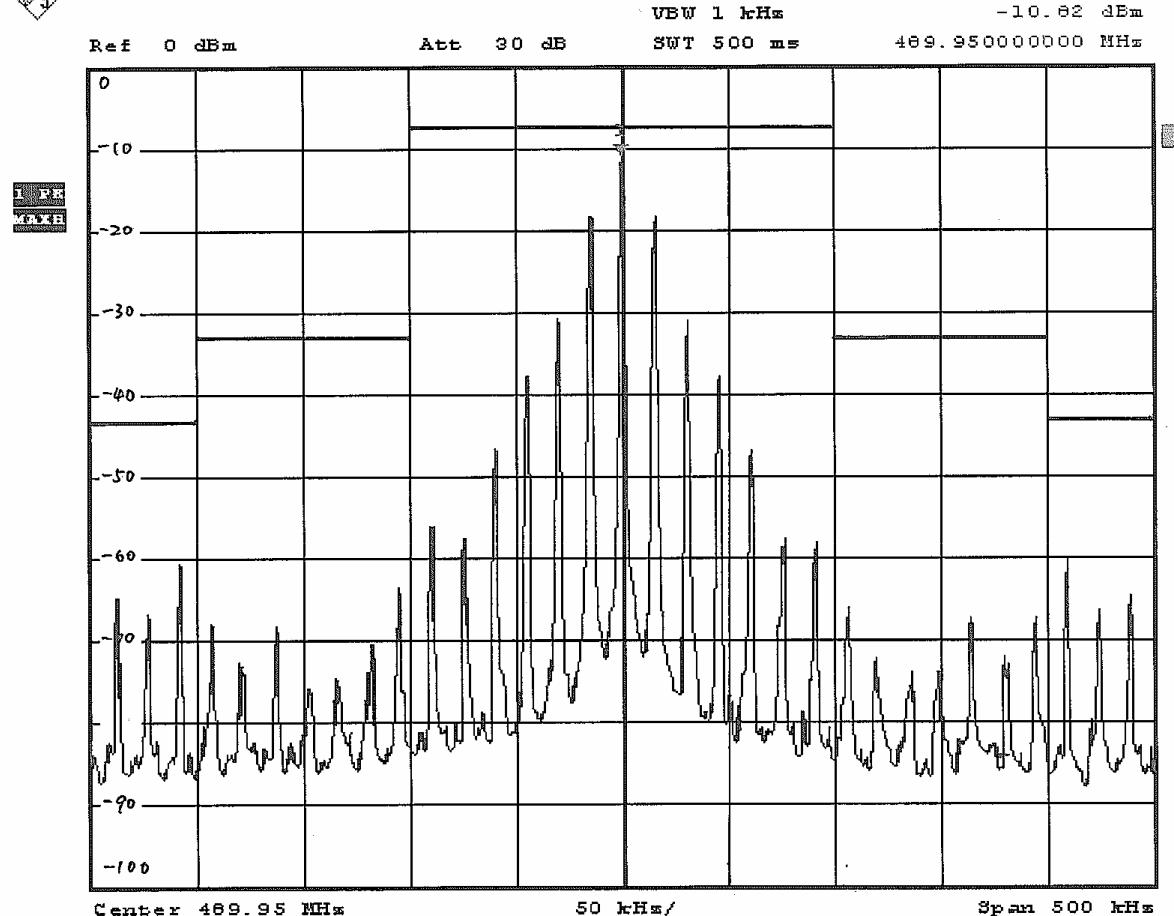


Comment: Conducted Disturbance  
 Date: 15. SEP. 2006 19:06:13

**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*

**Seite 16 von 36**  
*Page 16 of 36*

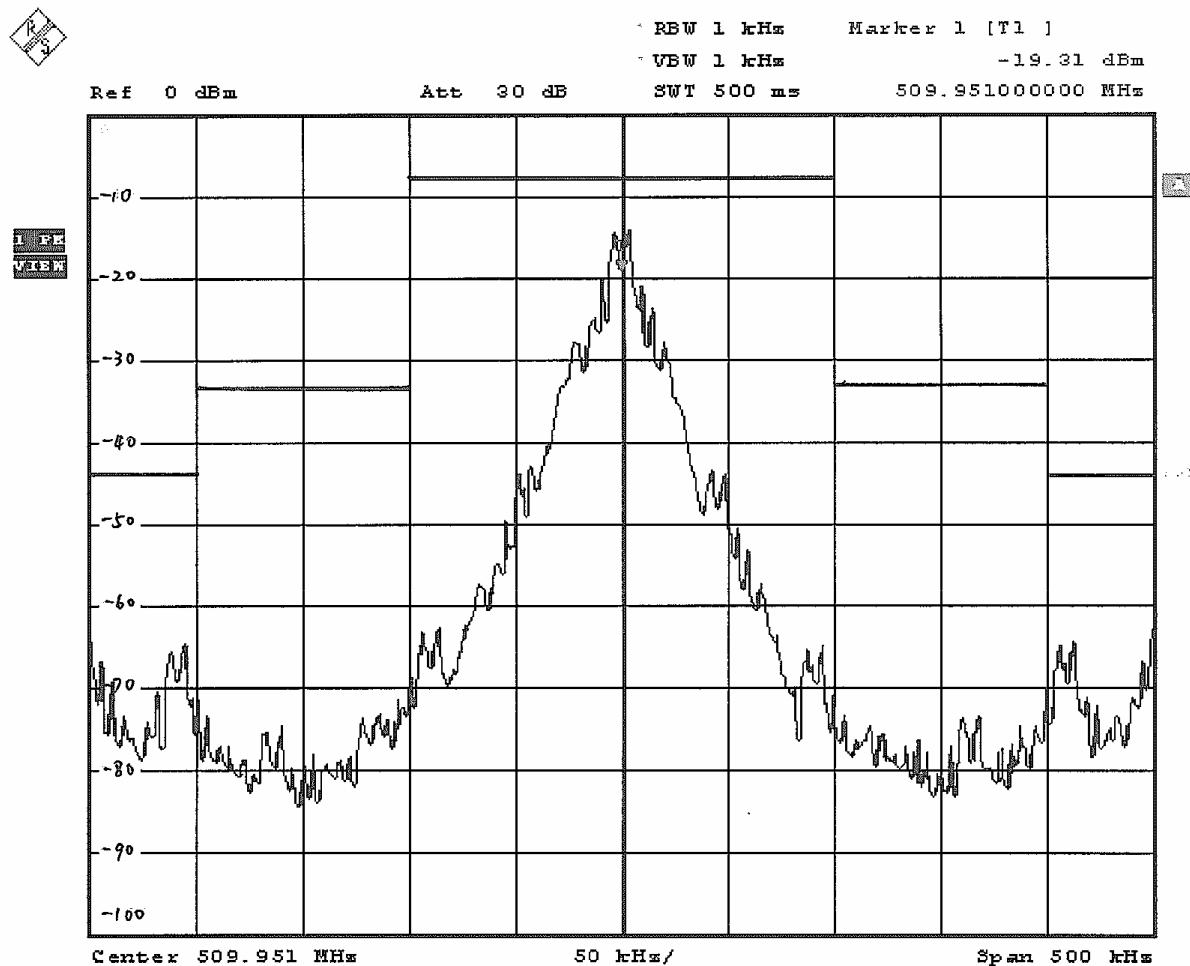
Signal: 15 kHz



Comment: Conducted Disturbance  
 Date: 15. SEP. 2006 19:05:43

Prüfbericht - Nr.: **16005530 001**  
Test Report No.Seite 17 von 36  
Page 17 of 36

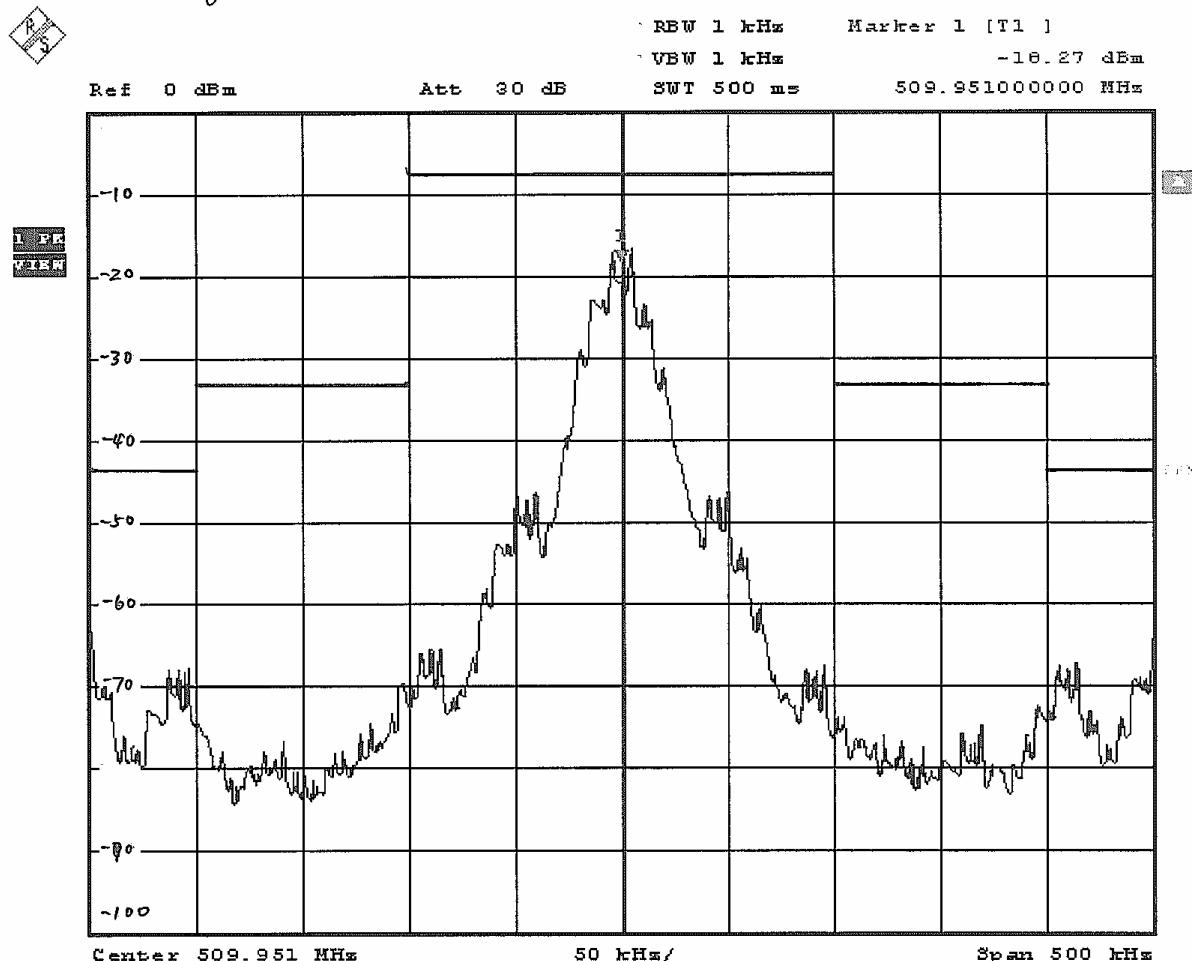
signal: 500 Hz



Comment: Conducted Disturbance  
Date: 15. SEP. 2006 19:10:49

Prüfbericht - Nr.: **16005530 001**  
Test Report No.Seite 18 von 36  
Page 18 of 36

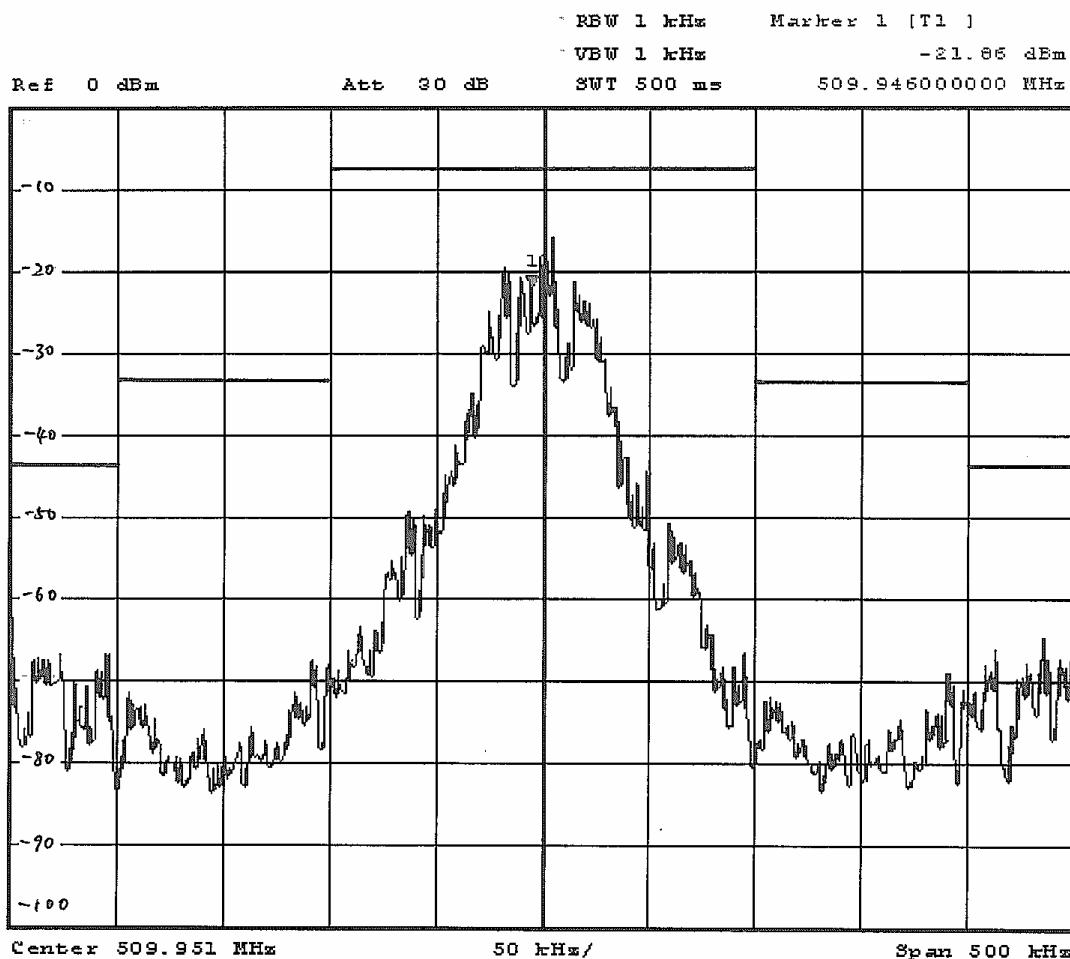
Signal: 1 kHz



Comment: Conducted Disturbance  
Date: 15. SEP. 2006 19:11:19

Prüfbericht - Nr.: **16005530 001**  
Test Report No.Seite 19 von 36  
Page 19 of 36

signal: 2.5 kHz

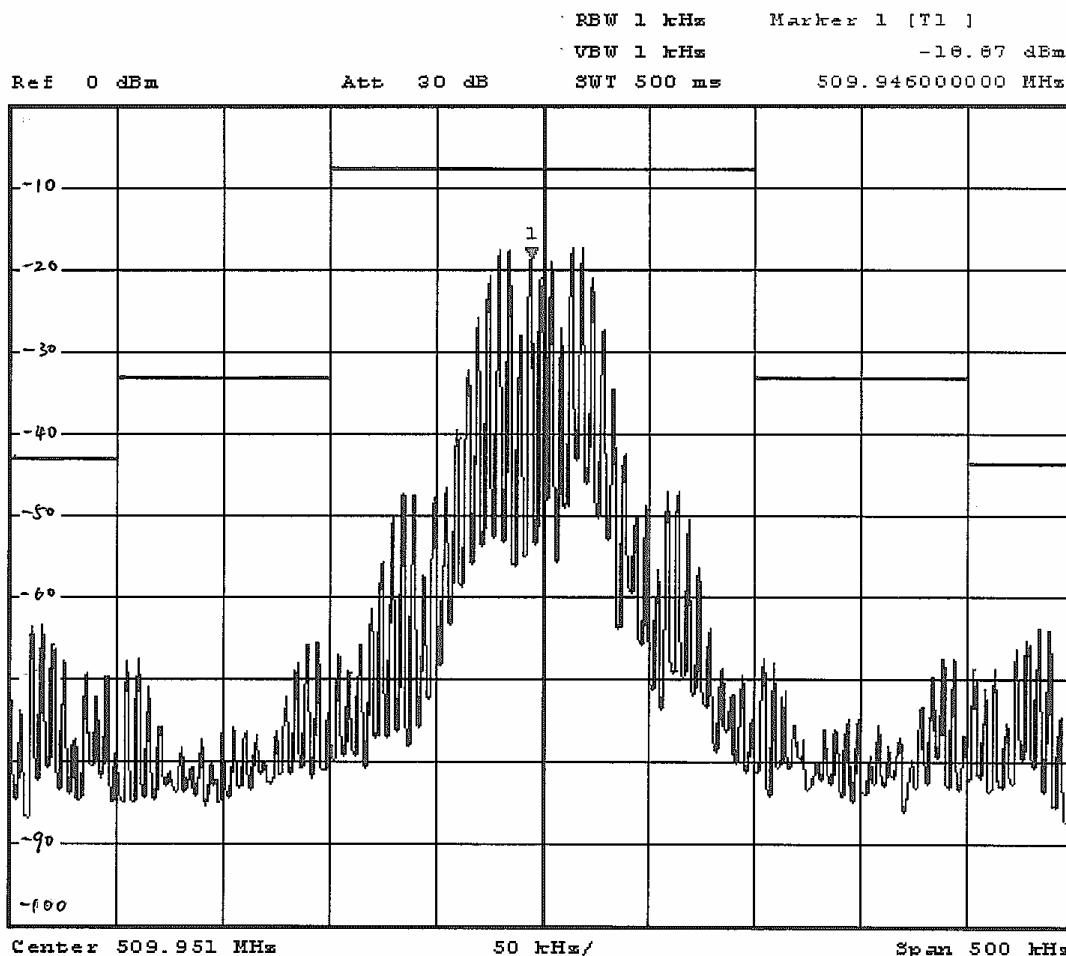


Comment: Conducted Disturbance  
Date: 15. SEP. 2006 19:13:44

**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*

Seite 20 von 36  
*Page 20 of 36*

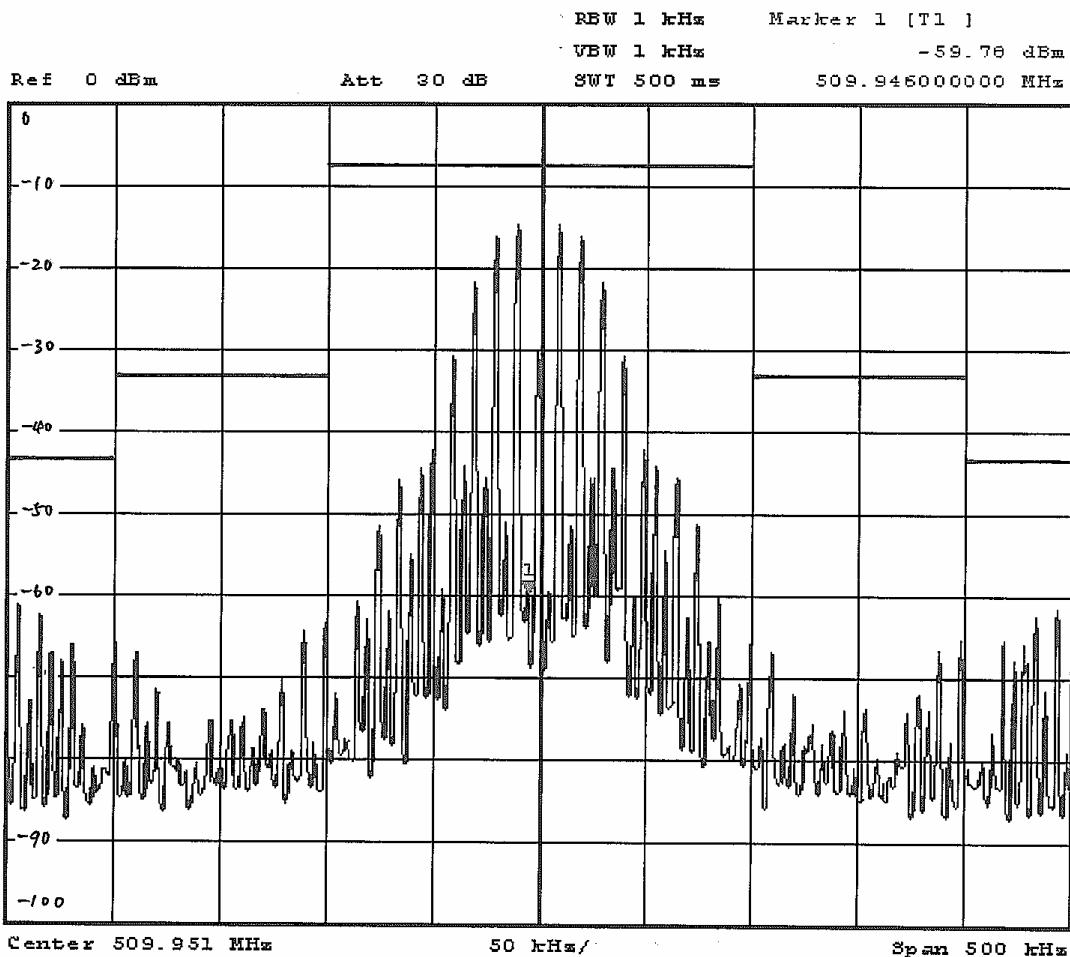
*signal : 5 kHz*



Comment: Conducted Disturbance  
 Date: 15. SEP. 2006 19:14:46

Prüfbericht - Nr.: **16005530 001**  
Test Report No.Seite 21 von 36  
Page 21 of 36

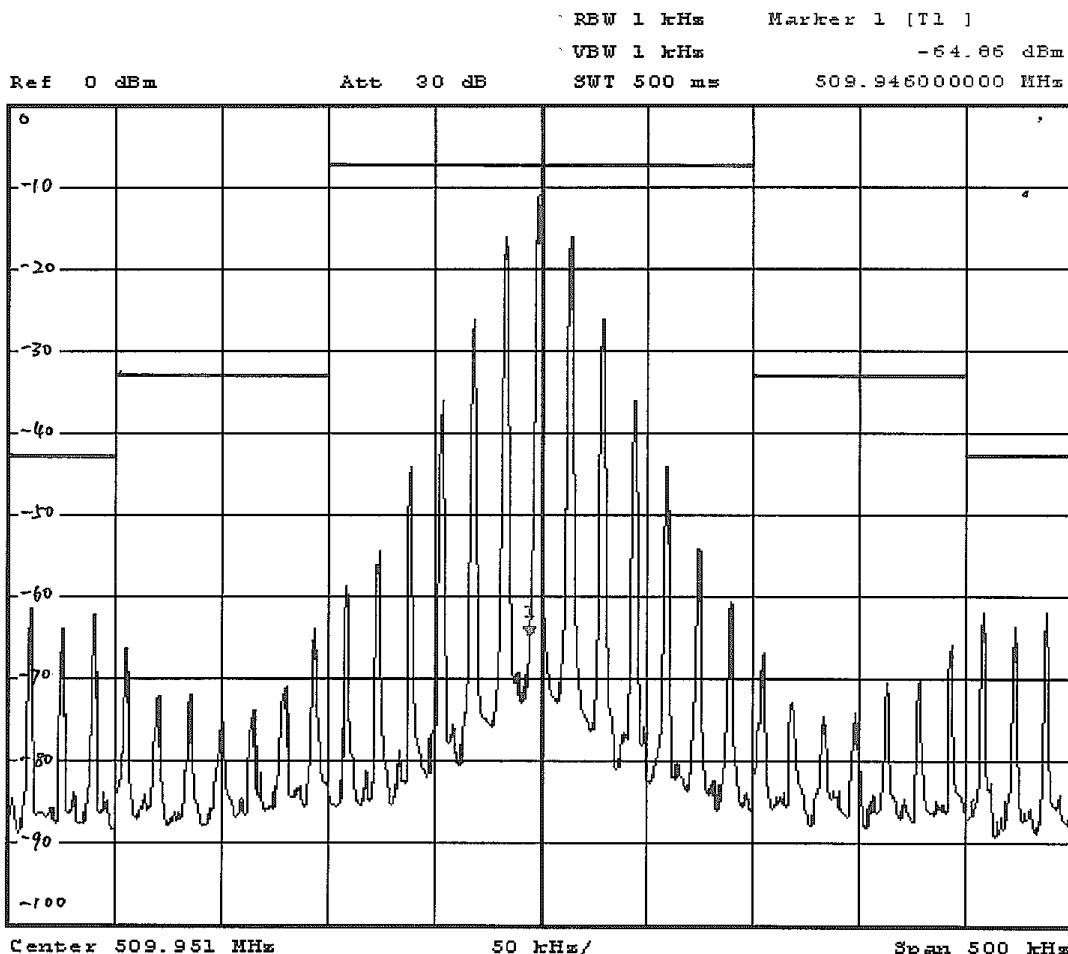
signal: 10 kHz



Comment: Conducted Disturbance  
Date: 15.SEP.2006 19:15:25

**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*
**Seite 22 von 36**  
*Page 22 of 36*

signal, 15 kHz



Comment: Conducted Disturbance  
 Date: 15. SEP. 2006 19:16:02

**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*

**Seite 23 von 36**  
*Page 23 of 36*

## EMC32 Report

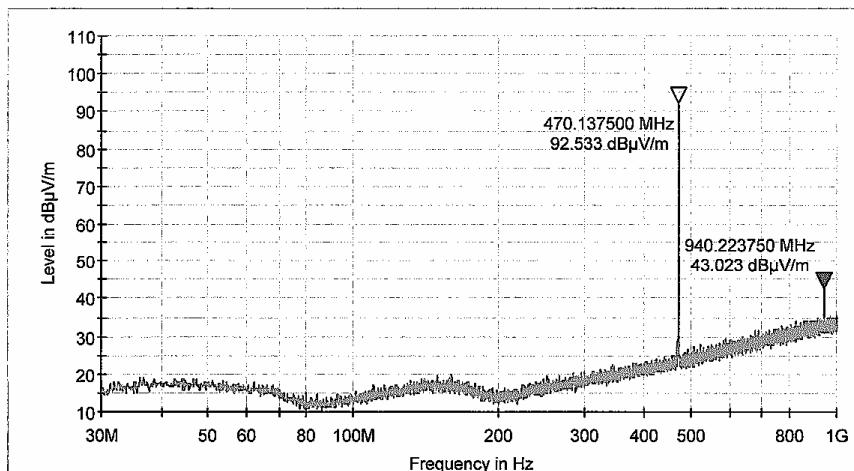
### Test Information

EUT Name: Wireless Micphone  
 Serial Number: HT-16U  
 Test Description:  
 Operating Conditions: No modulation, 470MHz channel on  
 Operator Name: wlc  
 Comment: EUT is made by Enping dingli, horizontal No.1 sample standup

### Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1  
 Frequency Range: 30MHz - 1GHz  
 Receiver: TUV ESCI 3  
 Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

### FCC Part74 TUV 30M to 1G UVLB9168



**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*
**Seite 24 von 36**  
*Page 24 of 36*

## EMC32 Report

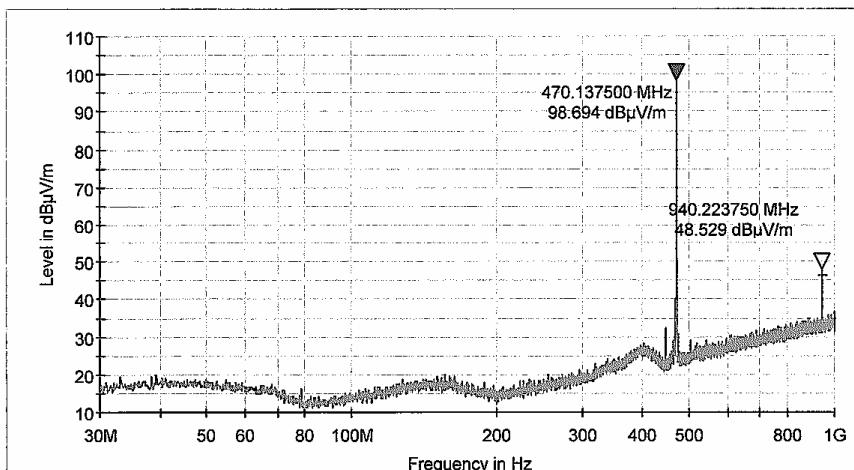
4 °f 52

**Test Information**

EUT Name: Wireless Microphone  
 Serial Number: HT-16U  
 Test Description:  
 Operating Conditions: No modulation, 470MHz channel on  
 Operator Name: wlc  
 Comment: EUT is made by Enping dingli, vertical, No.1 sample standup

**Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]**

Subrange 1  
 Frequency Range: 30MHz - 1GHz  
 Receiver: TUV ESCI 3  
 Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

**FCC Part74 TUV 30M to 1G UVLB9168**

**Result Table\_Single**

Frequency (MHz)	QuasiPeak (dBuV/m)	Average (dBuV/m)	RMS (dBuV/m)	MaxPeak (dBuV/m)	MinPeak (dBuV/m)
470.050000	113.5	---	---	---	---
940.150000	46.2	---	---	---	---

(continuation of the "Result Table\_Single" table from column 6 ...)

Frequency (MHz)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)
470.050000	1000.000	120.000	234.0	V	275.6
940.150000	1000.000	120.000	234.0	V	275.6

2006-8-18 17:07:43



**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*

**Seite 25 von 36**  
*Page 25 of 36*

## EMC32 Report

12 of 52

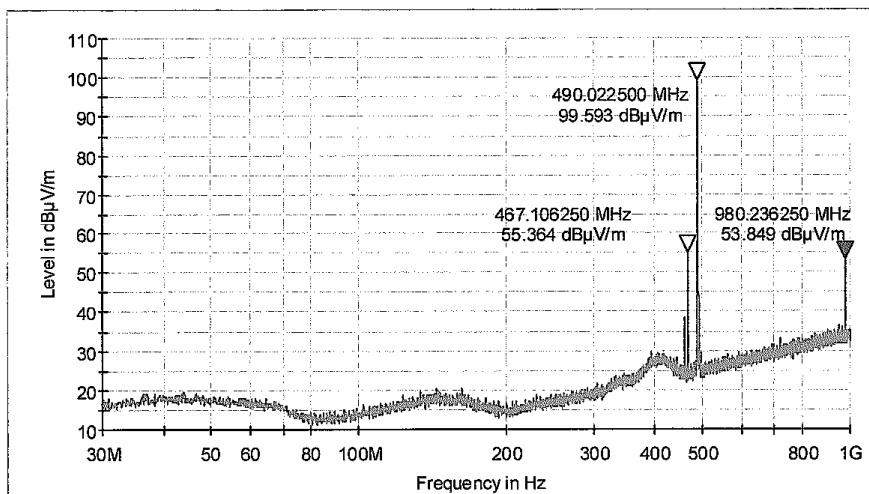
### Test Information

EUT Name: Wireless Micphone  
 Model Number: HT-16U  
 Serial Number: No.2  
 Operating Conditions: No modulation, 490MHz channel on  
 Operator Name: wlc  
 Comment: EUT is made by Enping dingli, EUT stand up, Vertical

### Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1  
 Frequency Range: 30MHz - 1GHz  
 Receiver: TUV ESCI 3  
 Transducer: TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

### FCC Part74 TUV 30M to 1G UVLB9168



2006-8-21 12:06:11



**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*

**Seite 26 von 36**  
*Page 26 of 36*

## EMC32 Report

19 of 52

### Test Information

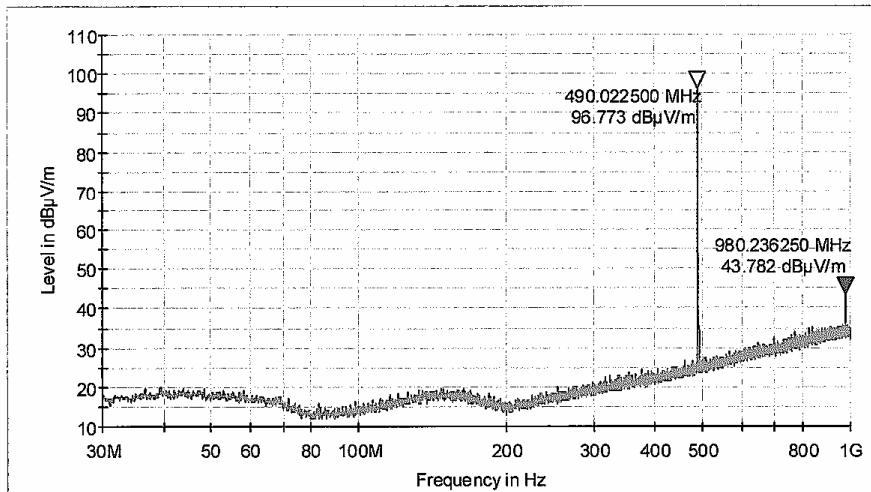
EUT Name:	Wireless Micphone
Model Number:	HT-16U
Serial Number:	No.2
Operating Conditions:	No modulation, 490MHz channel on
Operator Name:	wlc
Comment:	EUT is made by Enping dingli, EUT stand up
Description	horizontal

### Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]

Subrange 1

Frequency Range:	30MHz - 1GHz
Receiver:	TUV ESCI 3
Transducer:	TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

### FCC Part74 TUV 30M to 1G UVLB9168



2006-8-21 19:57:26



**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*
**Seite 27 von 36**  
*Page 27 of 36*

## EMC32 Report

29 of 52

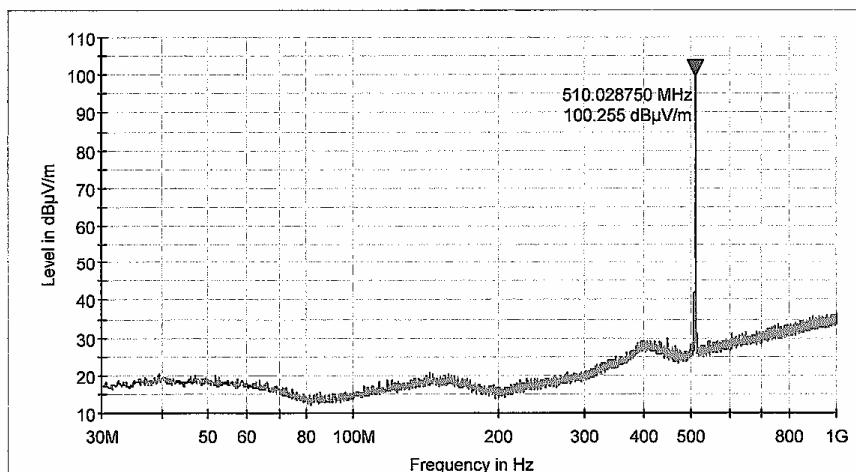
**Test Information**

EUT Name: Wireless Micphone  
 Serial Number: HT-16U  
 Test Description:  
 Operating Conditions: High channel on  
 Operator Name: wlc  
 Comment: EUT is made by Enping dingli, No.2 EUT Standup, vertical

**Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]**

Subrange 1

Frequency Range:	30MHz - 1GHz
Receiver:	TUV ESCI 3
Transducer:	TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

**FCC Part74 TUV 30M to 1G UVLB9168**

**Result Table\_Single**

Frequency (MHz)	QuasiPeak (dBµV/m)	Average (dBµV/m)	RMS (dBµV/m)	MaxPeak (dBµV/m)	MinPeak (dBµV/m)
509.960000	113.3	---	---	---	---

Frequency (MHz)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)
509.960000	1000.000	120.000	100.0	V	360.0

Frequency (MHz)	Corr. (dB)	Comment
509.960000	21.8	

2006-8-17 16:52:28



**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*
**Seite 28 von 36**  
*Page 28 of 36*
**EMC32 Report**

18 of 52

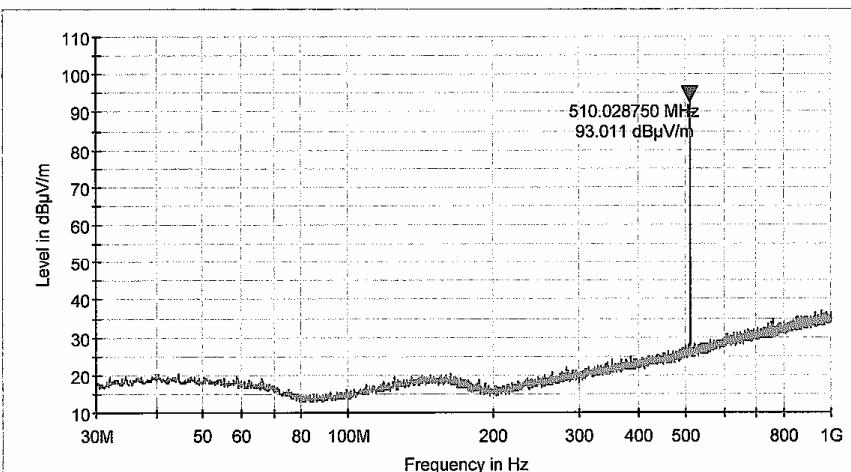
**Test Information**

EUT Name: Wireless Micphone  
 Serial Number: HT-16U  
 Test Description:  
 Operating Conditions: High channel on  
 Operator Name: wlc  
 Comment: EUT is made by Enping dingli, No.2 EUT Standup, Horizontal

**Hardware Setup: TUV SAC 30M to 1GHz ULVB9168 - [EMI radiated]**

Subrange 1

Frequency Range:	30MHz - 1GHz
Receiver:	TUV ESCI 3
Transducer:	TUV SAC UVLB 9168 / TUV ESCI3 -TUV SAC UVLB 9168

**FCC Part74 TUV 30M to 1G UVLB9168****Result Table Single**

Frequency (MHz)	QuasiPeak (dBuV/m)	Average (dBuV/m)	RMS (dBuV/m)	MaxPeak (dBuV/m))	MinPeak (dBuV/m)
509.950000	92.24	---	---	---	---

Frequency (MHz)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)
509.950000	1000.000	120.000	115.0	H	290.0

Frequency (MHz)	Corr. (dB)	Comment
509.950000	21.8	

2006-8-17 17:07:13



**Prüfbericht - Nr.:** 16005530 001  
*Test Report No.*

Seite 29 von 36  
*Page 29 of 36*

## EMC32 Report

32 of 52

### Test Information

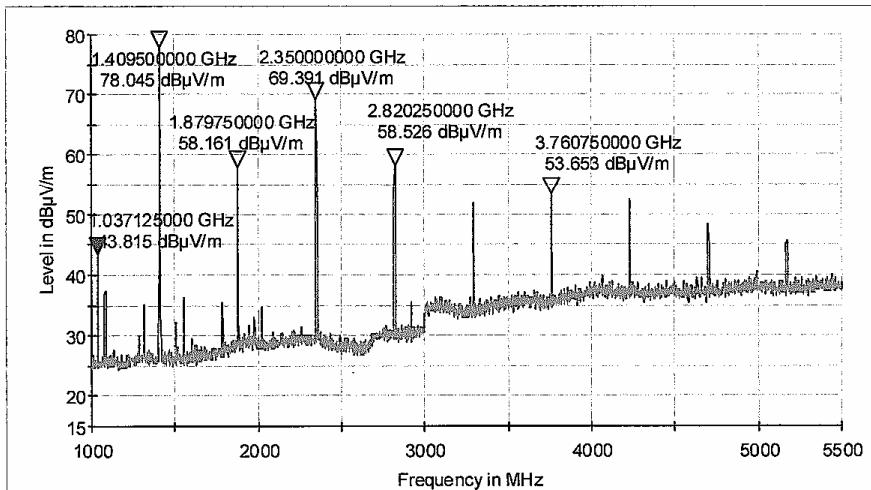
EUT Name:	Wireless Microphone
Model Number:	HT-16U
Serial Number:	No.1
Operating Conditions:	With modulation, 470MHz channel on
Operator Name:	wlc
Comment:	EUT made by Enping dingli, EUT standup, Vertical

### Hardware Setup: FCC Part74 TUV SAC 1G to 18GHz HF906 - [EMI radiated]

Subrange 1

Frequency Range:	1GHz - 18GHz
Receiver:	TUV FSP 30
Transducer:	TUV SAC HF906 / TUV FSP 30-TUV SAC HF906

### FCC Part74 TUV 1-18G HF906



2006-8-22 15:24:05



**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*

**Seite 30 von 36**  
*Page 30 of 36*

## EMC32 Report

### Test Information

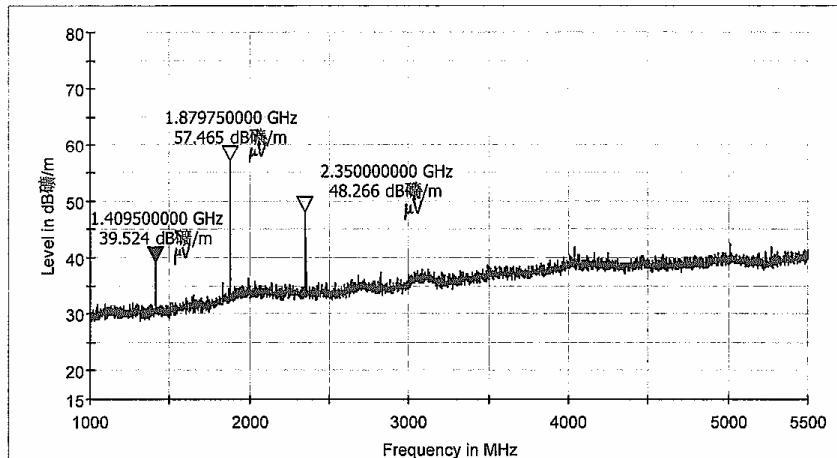
EUT Name:	Wireless Micphone
Model Number:	HT-16U
Serial Number:	No.1
Operating Conditions:	With modulation, 470MHz channel on
Operator Name:	wlc
Comment:	EUT made by Enping dingli, EUT standup, horizontal

### Hardware Setup: FCC Part74 TUV SAC 1G to 18GHz HF906 - [EMI radiated]

#### Subrange 1

Frequency Range:	1GHz - 18GHz
Receiver:	TUV FSP 30
Transducer:	TUV SAC HF906 / TUV FSP 30-TUV SAC HF906

### FCC Part74 TUV 1-18G HF906



**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*

**Seite 31 von 36**  
*Page 31 of 36*

40 4 52

## EMC32 Report

### Test Information

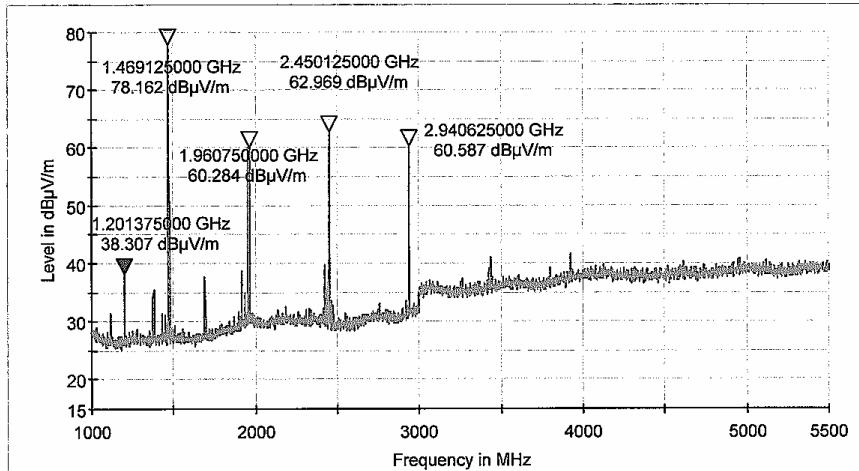
EUT Name: Wireless Micphone  
 Model Number: HT-16U  
 Serial Number: No.2  
 Operating Conditions: No modulation, 490MHz channel on  
 Operator Name: wlc  
 Comment: EUT made by Enping dingli, EUT standup, Vertical

### Hardware Setup: FCC Part74 TUV SAC 1G to 18GHz HF906 - [EMI radiated]

Subrange 1

Frequency Range:	1GHz - 18GHz
Receiver:	TUV FSP 30
Transducer:	TUV SAC HF906 / TUV FSP 30-TUV SAC HF906

### FCC Part74 TUV 1-18G HF906



**Prüfbericht - Nr.:** 16005530 001  
*Test Report No.*

Seite 32 von 36  
*Page 32 of 36*

## EMC32 Report

38 of 52

### Test Information

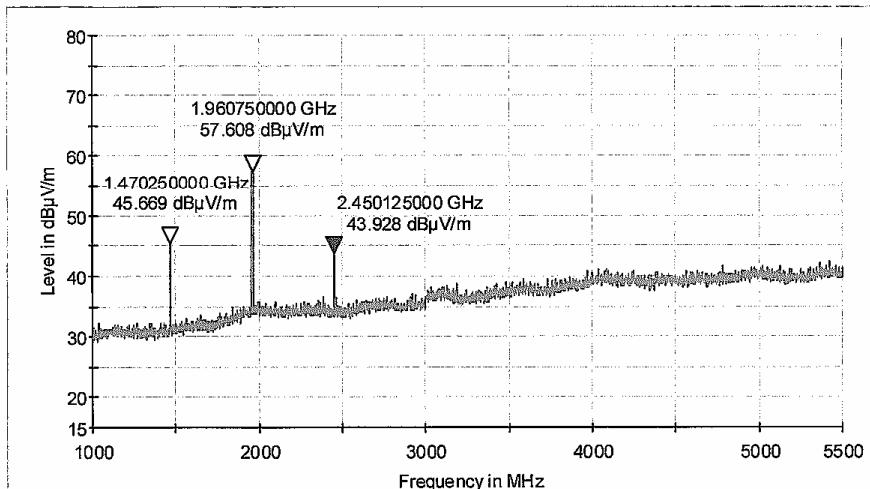
EUT Name: Wireless Micphone  
 Model Number: HT-16U  
 Serial Number: No.2  
 Operating Conditions: No modulation, 490MHz channel on  
 Operator Name: wlc  
 Comment: EUT made by Enping dingli, EUT standup, horizontal

### Hardware Setup: FCC Part74 TUV SAC 1G to 18GHz HF906 - [EMI radiated]

Subrange 1

Frequency Range: 1GHz - 18GHz  
 Receiver: TUV FSP 30  
 Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906

### FCC Part74 TUV 1-18G HF906



2006-8-22 14:14:37



**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*

**Seite 33 von 36**  
*Page 33 of 36*

## EMC32 Report

48 of 52

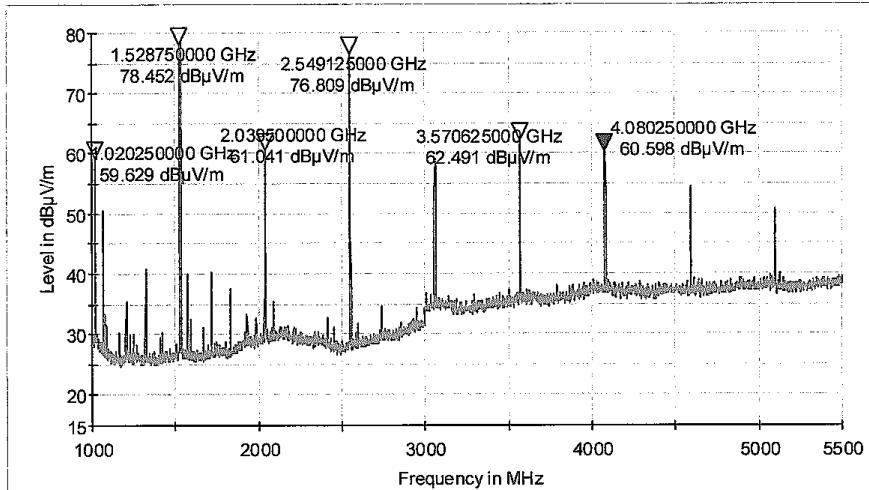
### Test Information

EUT Name: Wireless Microphone  
 Model Number: HT-16U  
 Serial Number: No.2  
 Operating Conditions: No modulation, 510MHz channel on  
 Operator Name: wlc  
 Comment: EUT made by Enping dingli, EUT standup, Vertical

### Hardware Setup: FCC Part74 TUV SAC 1G to 18GHz HF906 - [EMI radiated]

Subrange 1  
 Frequency Range: 1GHz - 18GHz  
 Receiver: TUV FSP 30  
 Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906

### FCC Part74 TUV 1-18G HF906



**Prüfbericht - Nr.:** 16005530 001  
*Test Report No.*

Seite 34 von 36  
*Page 34 of 36*

## EMC32 Report

66 of 52

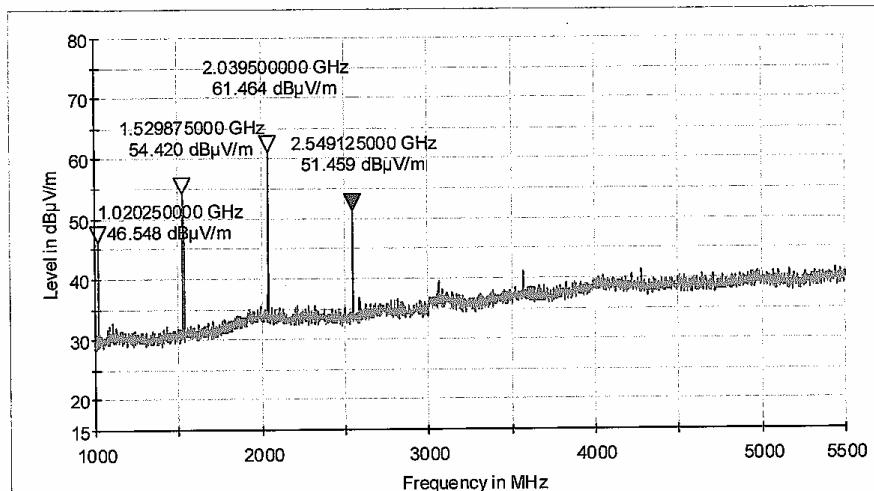
### Test Information

EUT Name: Wireless Micphone  
 Model Number: HT-16U  
 Serial Number: No.2  
 Operating Conditions: No modulation, 510MHz channel on  
 Operator Name: wlc  
 Comment: EUT made by Enping dingli, EUT standup, horizontal

### Hardware Setup: FCC Part74 TUV SAC 1G to 18GHz HF906 - [EMI radiated]

Subrange 1  
 Frequency Range: 1GHz - 18GHz  
 Receiver: TUV FSP 30  
 Transducer: TUV SAC HF906 / TUV FSP 30-TUV SAC HF906

### FCC Part74 TUV 1-18G HF906



2006-8-22 14:24:15

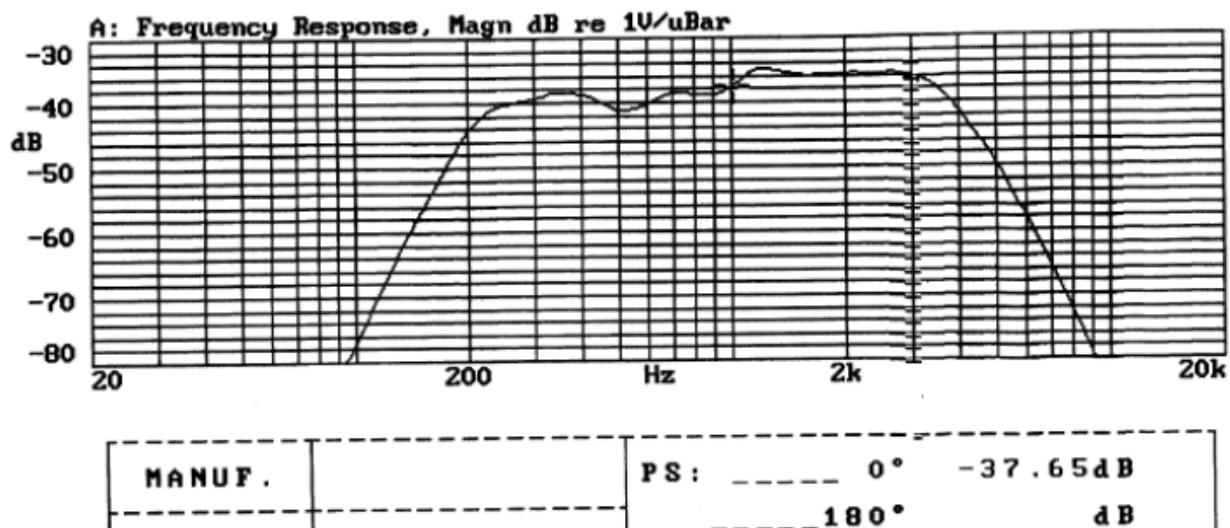


Prüfbericht - Nr.: **16005530 001**  
Test Report No.

Seite 35 von 36  
Page 35 of 36

### Modulation characteristics:

X:1.0000kHz \*Y:-37.65dB ZA:2.0000 SSR Fund.



**Prüfbericht - Nr.:** **16005530 001**  
*Test Report No.*

**Seite 36 von 36**  
*Page 36 of 36*

### Modulation characteristics:

