TÜV AUSTRIA

:
Deutschstraße 10
A-1230 Vienna
Tel.:
+43(0)1 610 91-0
pzw@tuv.at

Division:
Medical Technology/ Communication Technology/ EMC

Department:
Testing Body for Communication Technology/ EMC

TÜV ®

TEST REPORT

of the accredited test laboratory

TÜV Nr.:M/FG-08/112

Applicant:	ADCON TELEMETRY GmbH Inkustraße 24 A-3400 Klosterneuburg		
Tested Product:	Telemetry transceiver		
FCC-ID:	SHXA723-S4		
Manufacturer:	ADCON TELEMETRY GmbH Inkustraße 24 A-3400 Klosterneuburg		
Output power / field strength:	10mW max.	**power supply:**	6,2 VDC
Frequency range:	450 - 470 MHz	**Channel separation:**	12,5 kHz
Standard:	FCC: 47 CFR 90 10-1-07 Edition; RSS-119 Issue 9 (June 2007)		

TUV Austria SERVICES GMBH
Test laboratory for EMC

Deputy supervisor of EMC-laboratory:

Ing. Wilhelm Seier

TUV AUSTRIA SERVICES GMBH TÜV AUSTRIA Rundsiegel

26. 5. 2008

checked by:

Ing. Michael Emminger

Copy Nbr.: 01

Testing Laboratory,
Inspection Body,
Certification Body,
Calibration Laboratory

Notified Body 0408
IC 4413

Chairman of the Supervisory Board:
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Management:
Dipl.-Ing. Dr. Hugo EBERHARDT
Mag. Christoph WENNINGER

Registered Office:
Krugerstrasse 16
1015 Vienna/Austria

Branch Office:
Dornbirn, Graz, Innsbruck, Klagenfurt, Linz, Salzburg, St. Pölte Wels, Wien 1, Wien 20, Wien 23, Brixen (I) und Filderstadt (D)

Company Register Court / - Number:
Vienna / FN 288476 f

Banking Connections:
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UID ATU63240488
DVR 3002476

LIST OF MEASUREMENTS

The complete list of measurements called for in 47 CFR 90 and (RSS-119) is given below.

TEST OBJECT DATA

General EUT Description

This telemetry equipment will be used to collect data and write it into memory and transmit it on the 70cm band. This telemetry equipment will be situated in environment where normally no persons are situated and will work without user interaction.

2.1033 (c) Technical description

2.1033 (4) Type of emission: 8K50F1D – channel spacing 12,5 kHz

2.1033 (5) Frequency range: 450 – 470 MHz

2.1033 (6) Power range and Controls: There are NO user power controls, the output power is fixed to 10mW.

2.1033 (7) Maximum output power rating: 10 mW into whip antenna

2.1033 (8) DC Voltage and Current: 6,2 V nominal 10V maximum
maximum current consumption: 0,12A

Power Output **§ 2.1046(a)**
§ 5.4

ERP Measurement

Test conditions		Transmitter power (mW)		
		450 MHz	460 MHz	470 MHz
T_{nom} (25)°C	V_{nom} (6,2)V	9,33	8,51	8,91
Maximum deviation from output power under normal test conditions (dB)		-0,3	-0,7	-0,5
Measurement uncertainty		± 0,75 dB		

LIMIT **SUBCLAUSE 2.1046(a) (5.4)**

Under normal test conditons	± 1 dB

Test Equipment used: NT-207

Emissions Mask **§ 90.217 (b)**
§ 5.10

LIMIT

90.217 (b) and 5.10:
Except as noted herein, transmitters used at stations licensed below 800 MHz on any frequency listed in subparts B and C of this part or licensed on a business category channel above 800 MHz which have an output power not exceeding 120 milliwatts are exempt from the technical requirements set out in this subpart, but must instead comply with the following:

...

(b) For equipment designed to operate with a 12.5 kHz channel bandwidth, the sum of the bandwidth occupied by the emitted signal plus the bandwidth required for frequency stability shall be adjusted so that any emission appearing on a frequency 25 kHz or more removed from the assigned frequency is attenuated at least 30 dB below the unmodulated carrier.

Ambient temperature: 25°C Relative humidity: 41%

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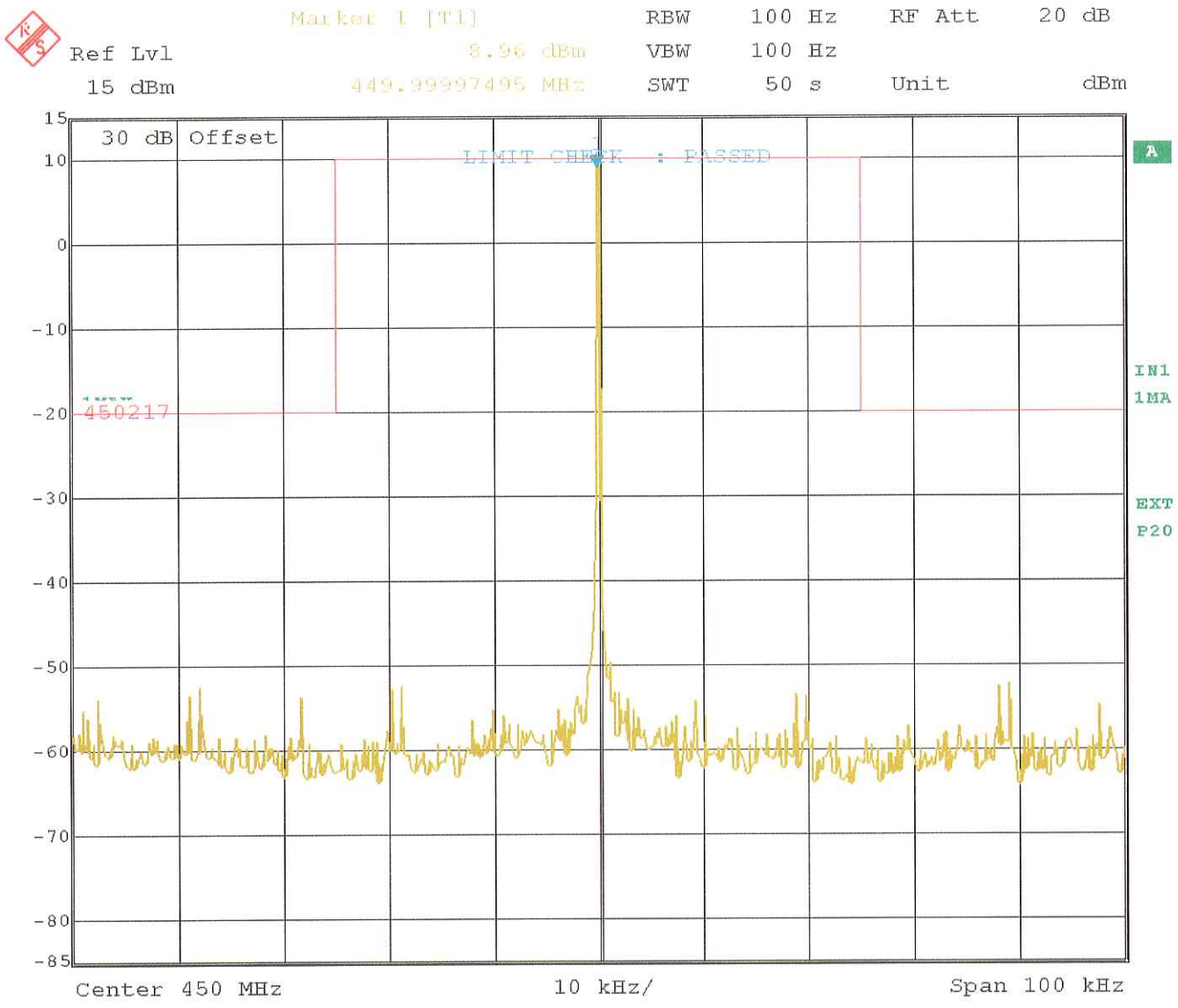
Emissions Mask **§ 90.217 (b)**
§ 5.10

Operating mode:

Frequency: 450 MHz

Modulation: unmodulated carrier



Test Equipment used: NT-207

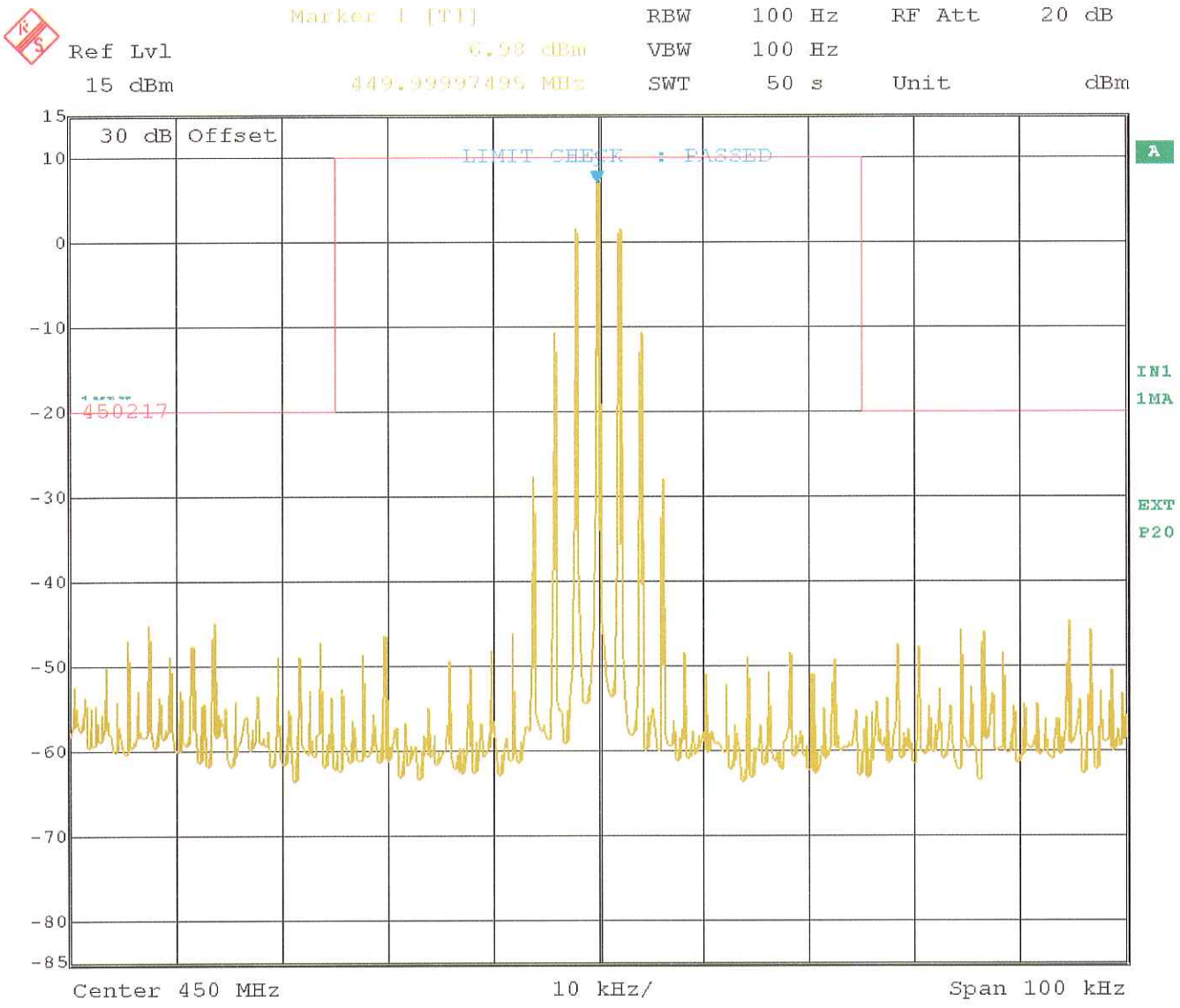
Ambient temperature: 25°C Relative humidity: 41%

Emissions Mask **§ 90.217 (b)**
§ 5.10

Operating mode:

Frequency: 450 MHz

Modulation: modulated carrier symbol 0 (2 kHz)



Test Equipment used: NT-207

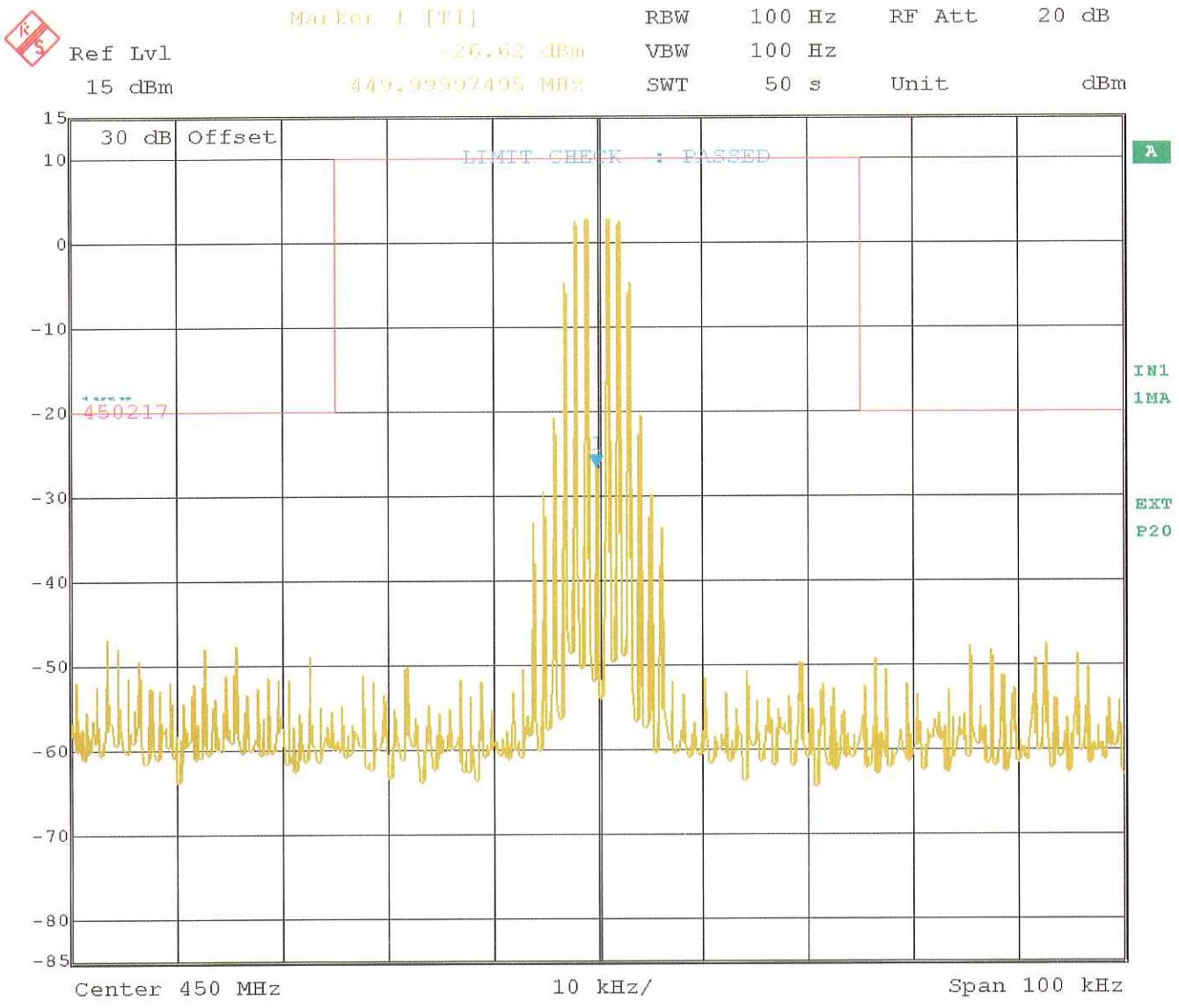
Ambient temperature: 25°C Relative humidity: 41%

Emissions Mask **§ 90.217 (b)**
§ 5.10

Operating mode:

Frequency: 450 MHz

Modulation: modulated carrier symbol 1 (1 kHz)



Test Equipment used: NT-207

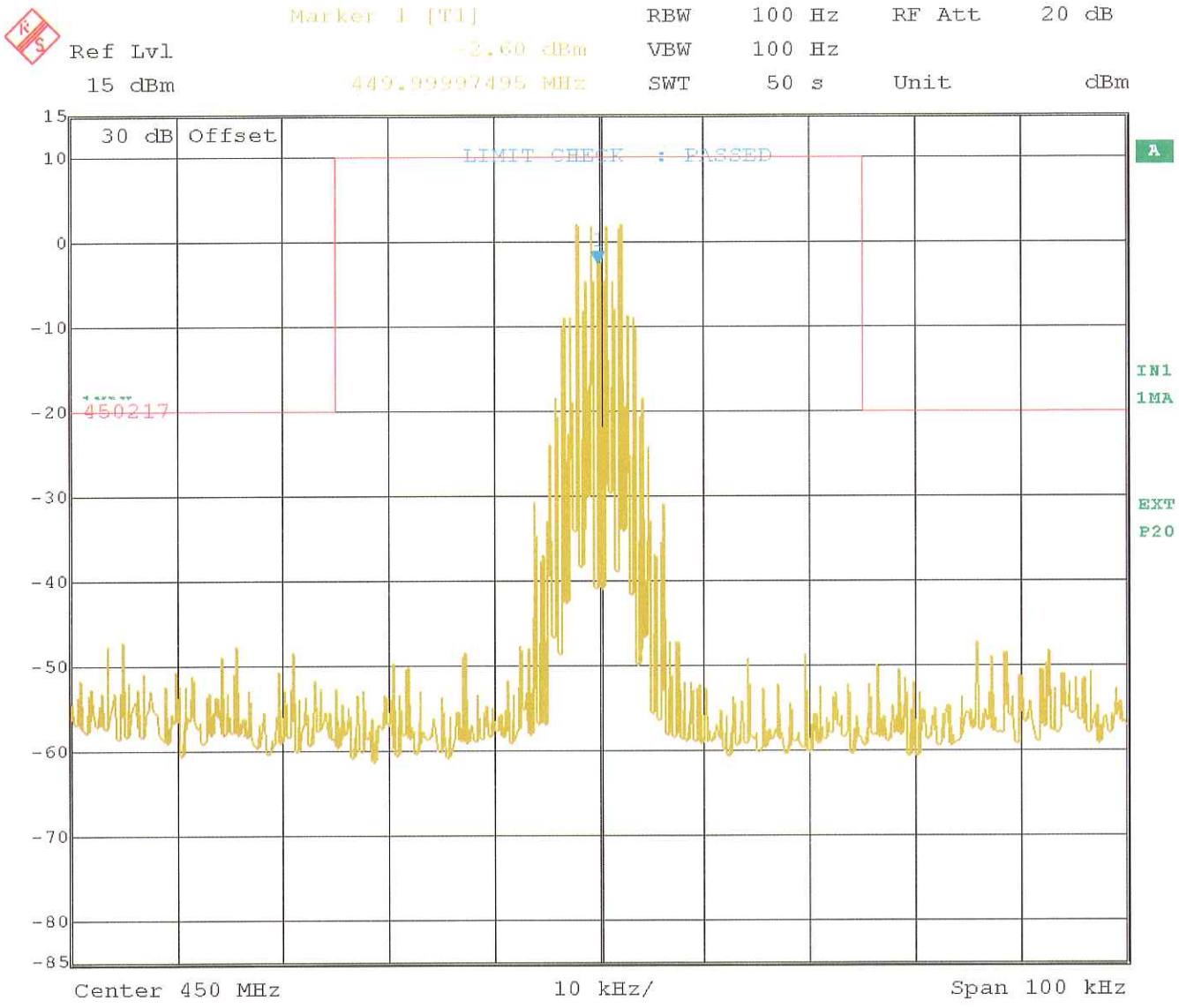
Ambient temperature: 25°C Relative humidity: 41%

Emissions Mask **§ 90.217 (b)**
§ 5.10

Operating mode:

Frequency: 450 MHz

Modulation: modulated carrier symbol 0/1 at 4000 bps



Test Equipment used: NT-207

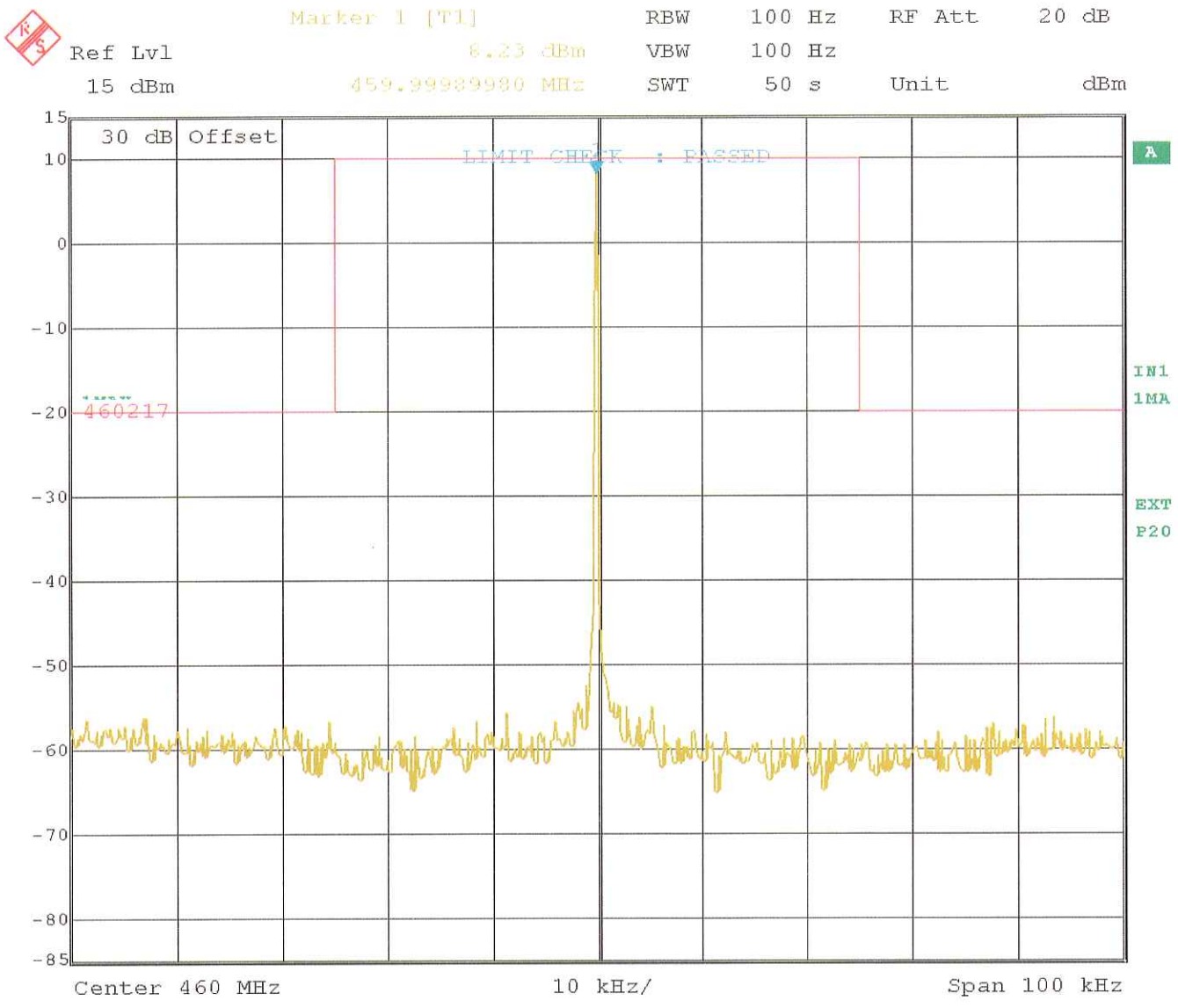
Ambient temperature: 25°C Relative humidity: 41%

Emissions Mask **§ 90.217 (b)**
§ 5.10

Operating mode:

Frequency: 460 MHz

Modulation: unmodulated carrier



Test Equipment used: NT-207

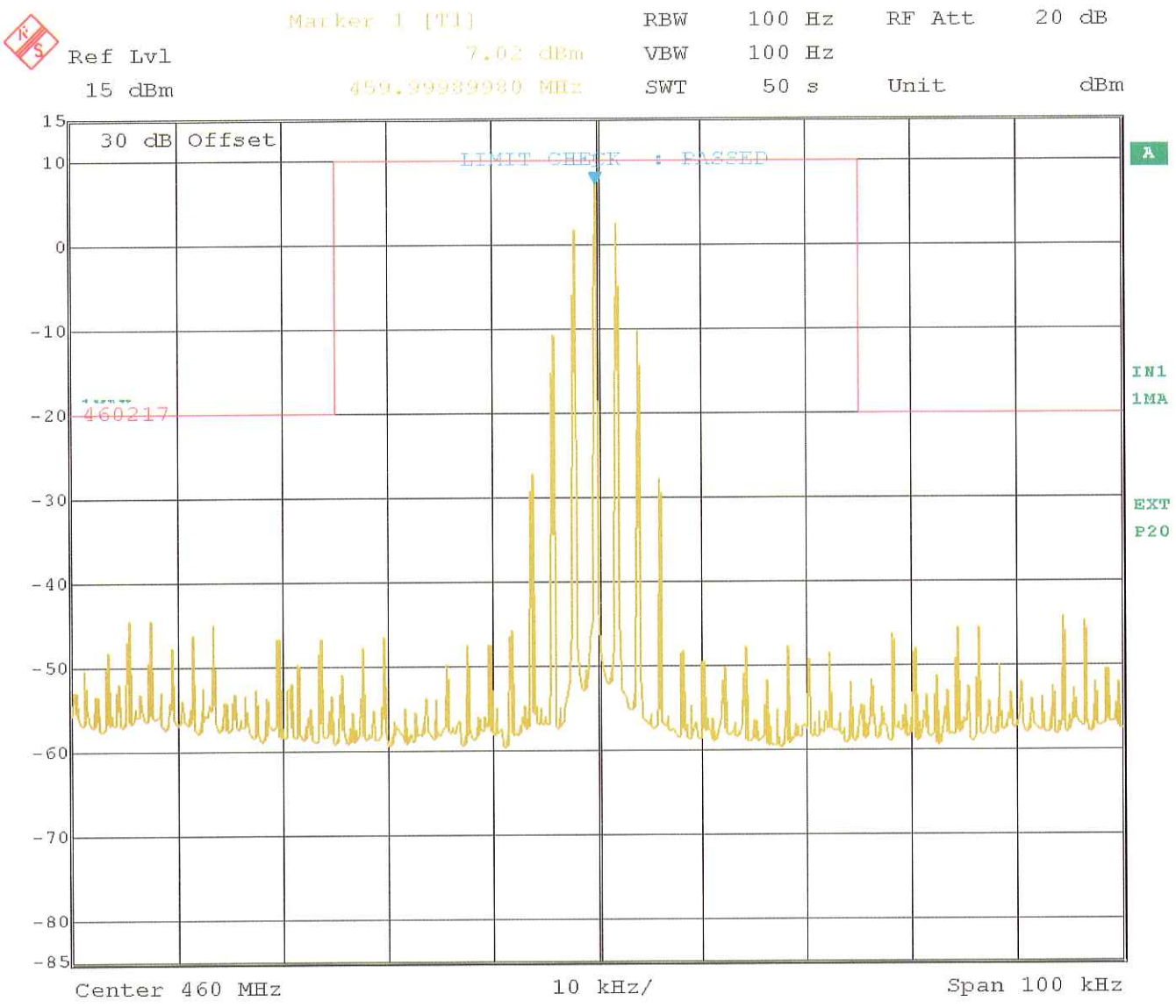
Ambient temperature: 25°C Relative humidity: 41%

Emissions Mask **§ 90.217 (b)**
§ 5.10

Operating mode:

Frequency: 460 MHz

Modulation: modulated carrier symbol 0 (2 kHz)



Test Equipment used: NT-207

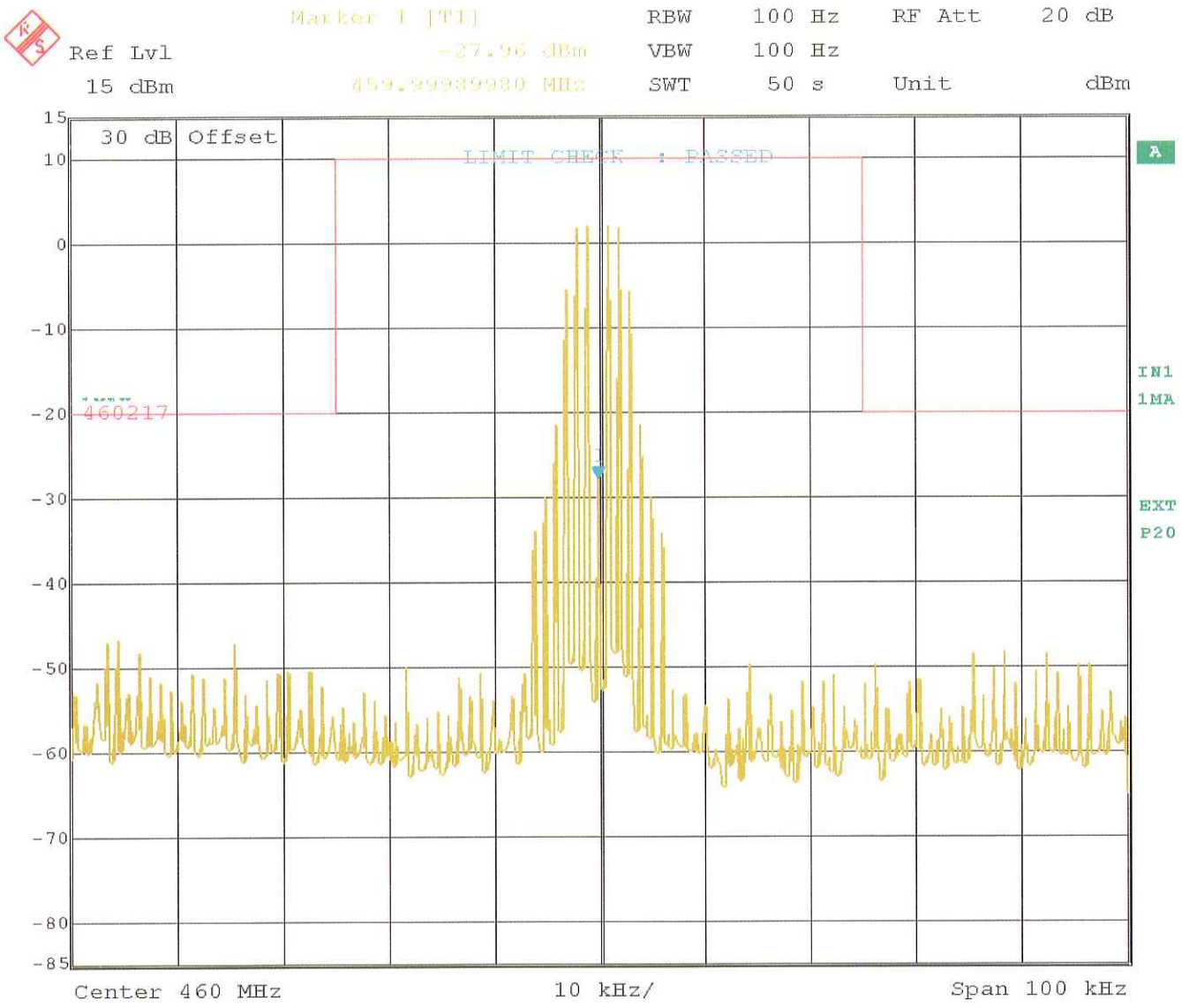
Ambient temperature: 25°C Relative humidity: 41%

Emissions Mask **§ 90.217 (b)**
§ 5.10

Operating mode:

Frequency: 460 MHz

Modulation: modulated carrier symbol 1 (1 kHz)



Test Equipment used: NT-207

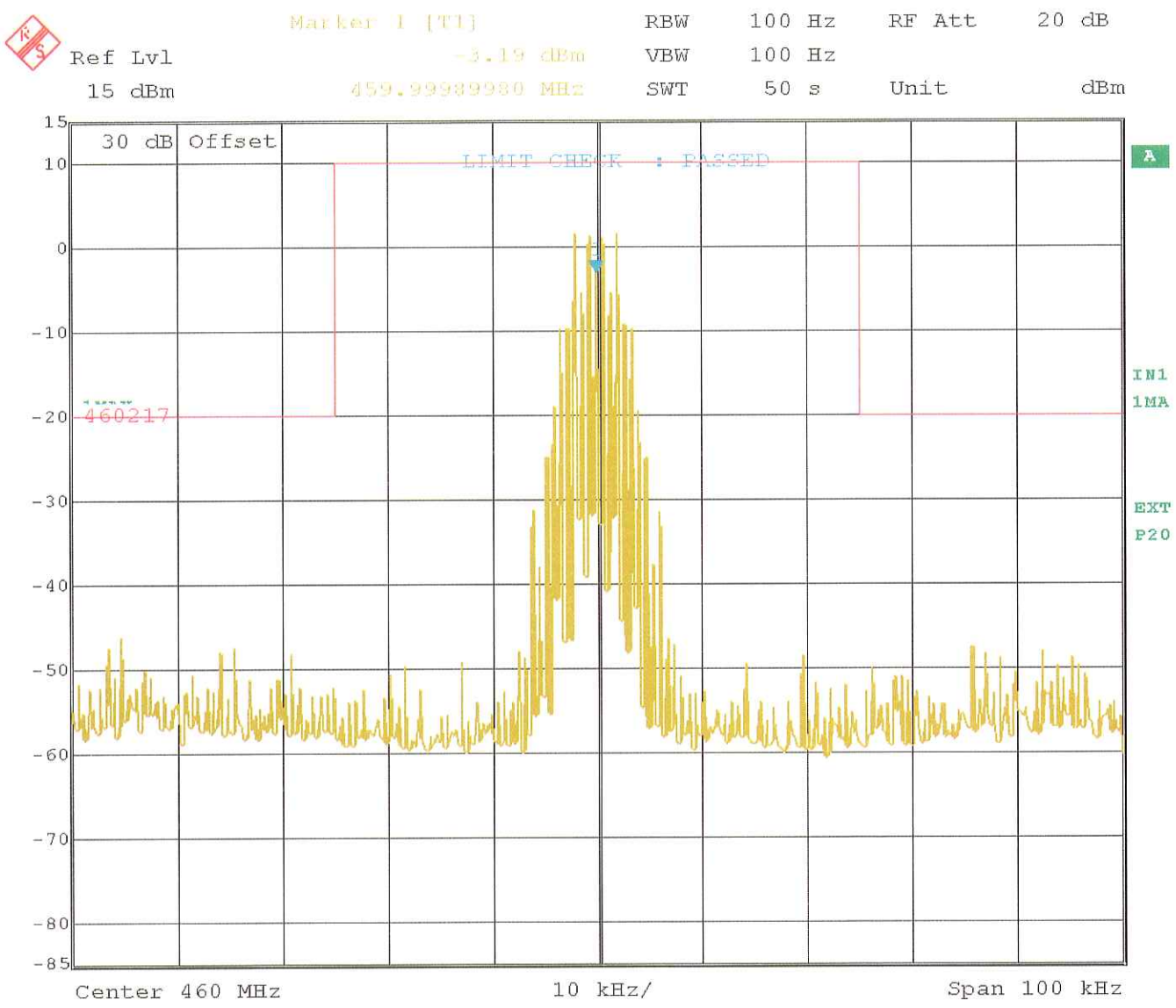
Ambient temperature: 25°C Relative humidity: 41%

Emissions Mask **§ 90.217 (b)**
§ 5.10

Operating mode:

Frequency: 460 MHz

Modulation: modulated carrier symbol 0/1 at 4000 bps



Test Equipment used: NT-207

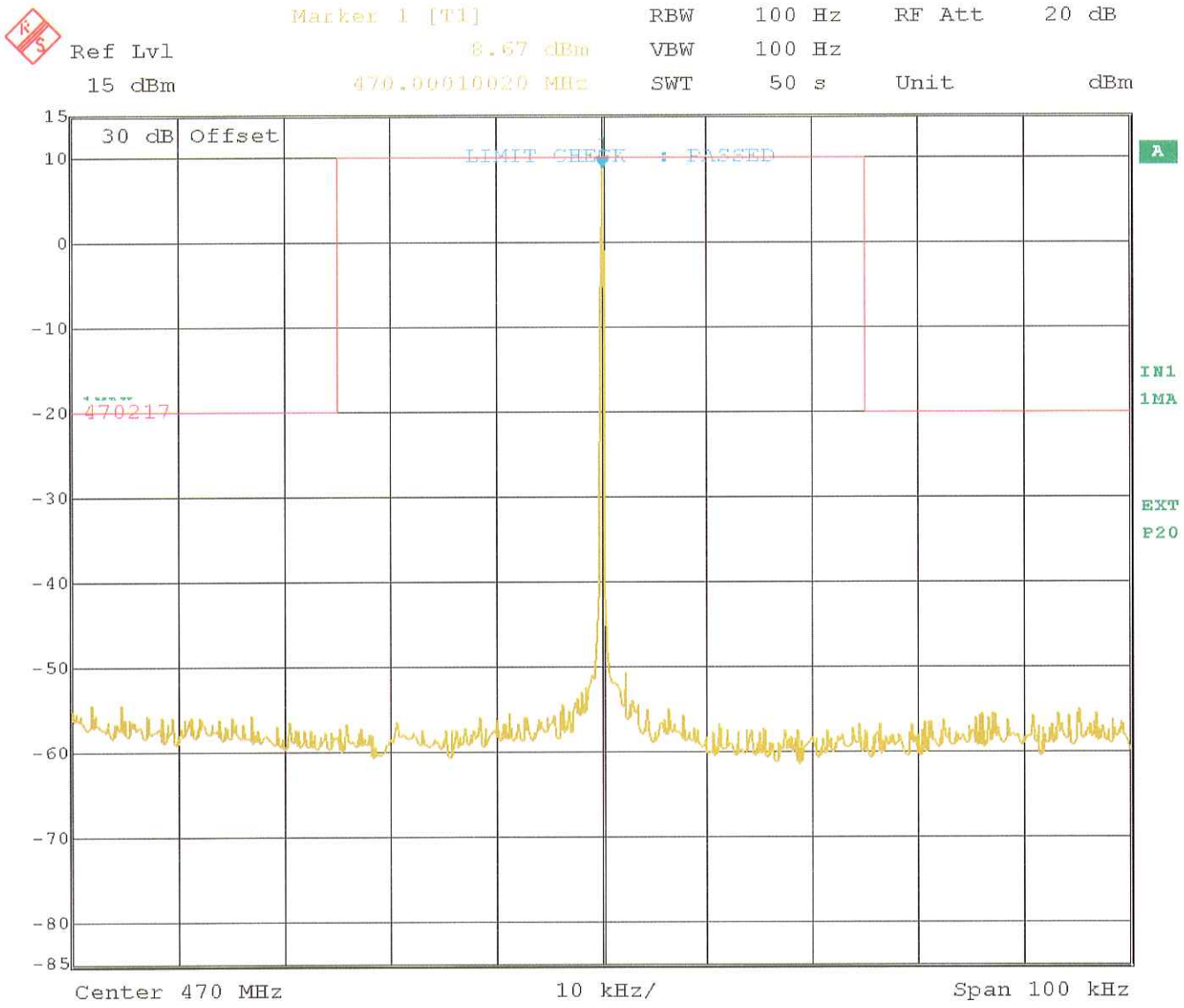
Ambient temperature: 25°C Relative humidity: 41%

Emissions Mask **§ 90.217 (b)**
§ 5.10

Operating mode:

Frequency: 470 MHz

Modulation: unmodulated carrier



Test Equipment used: NT-207

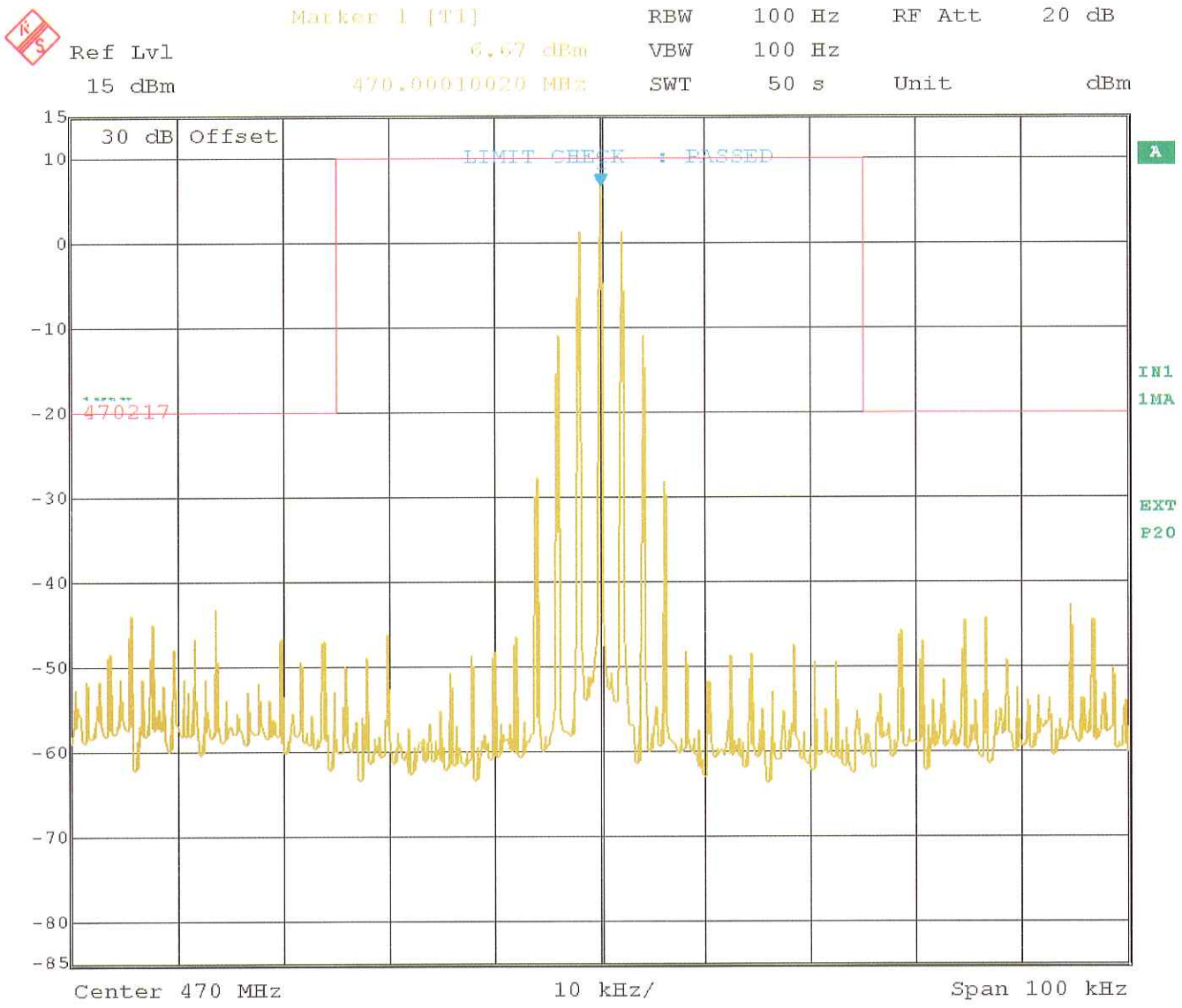
Ambient temperature: 25°C Relative humidity: 41%

Emissions Mask **§ 90.217 (b)**
§ 5.10

Operating mode:

Frequency: 470 MHz

Modulation: modulated carrier symbol 0 (2 kHz)



Test Equipment used: NT-207

Ambient temperature: 25°C Relative humidity: 41%

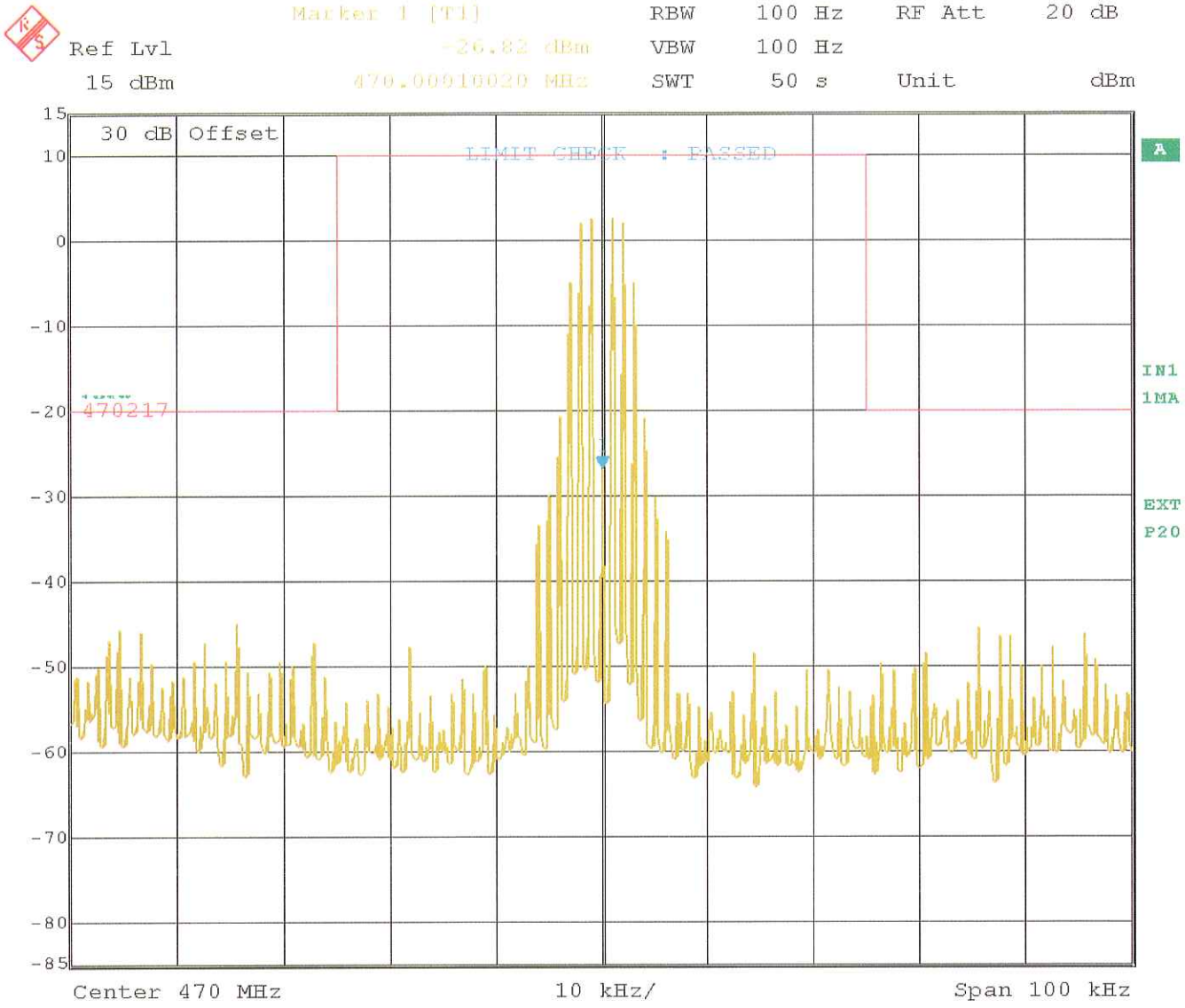
Emissions Mask

§ 90.217 (b)
§ 5.10

Operating mode:

Frequency: 470 MHz

Modulation: modulated carrier symbol 1 (1 kHz)



Date: 16.APR.2008 14:15:18

Test Equipment used: NT-207

Ambient temperature: 25°C Relative humidity: 41%

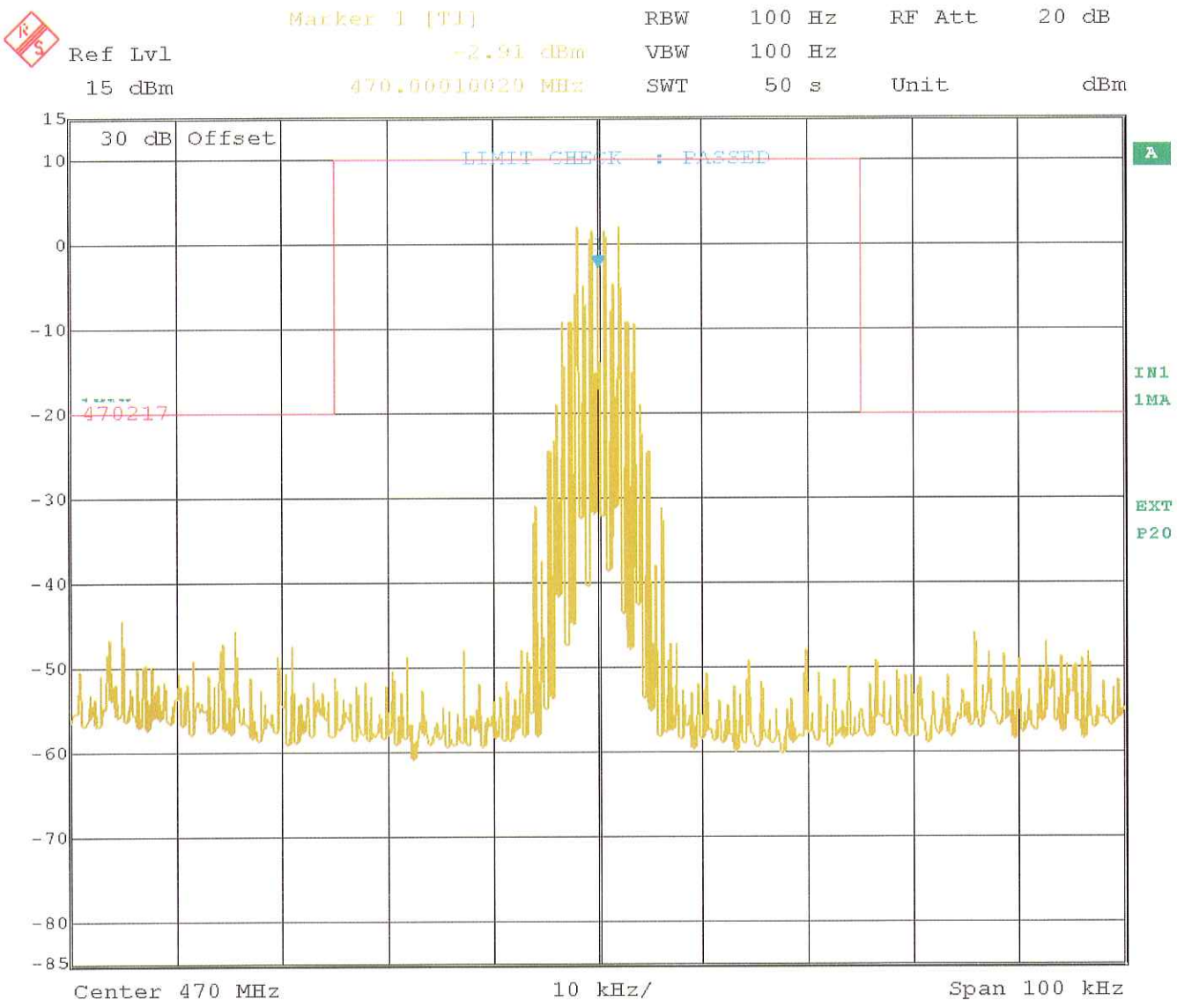
Emissions Mask

§ 90.217 (b)
§ 5.10

Operating mode:

Frequency: 470 MHz

Modulation: modulated carrier symbol 0/1 at 4000 bps



Date: 16.APR.2008 14:18:57

Test Equipment used: NT-207

Field strength of spurious emissions of the transmitter **§ 2.1053**
§ 5.8.3

LIMIT

90.210 (d) and 5.8.3:
For transmitters designed to operate with a 12,5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

(3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12,5 kHz: At least 50 + 10 log (P) dB or 70 dB, whichever is the lesser attenuation.

With the given transmitter output Power of 10 mW this results in an absolute Limit of –20 dBm.

Results:

There were no other relevant emissions found except the harmonics in the spectrum from 30 MHz to the 10th harmonic.

CHANNEL					
450 MHz		460 MHz		470 MHz	
Frequency (MHz)	Level (dBm)	Frequency (MHz)	Level (dBm)	Frequency (MHz)	Level (dBm)
All	< -40	All	< -40	All	< -40

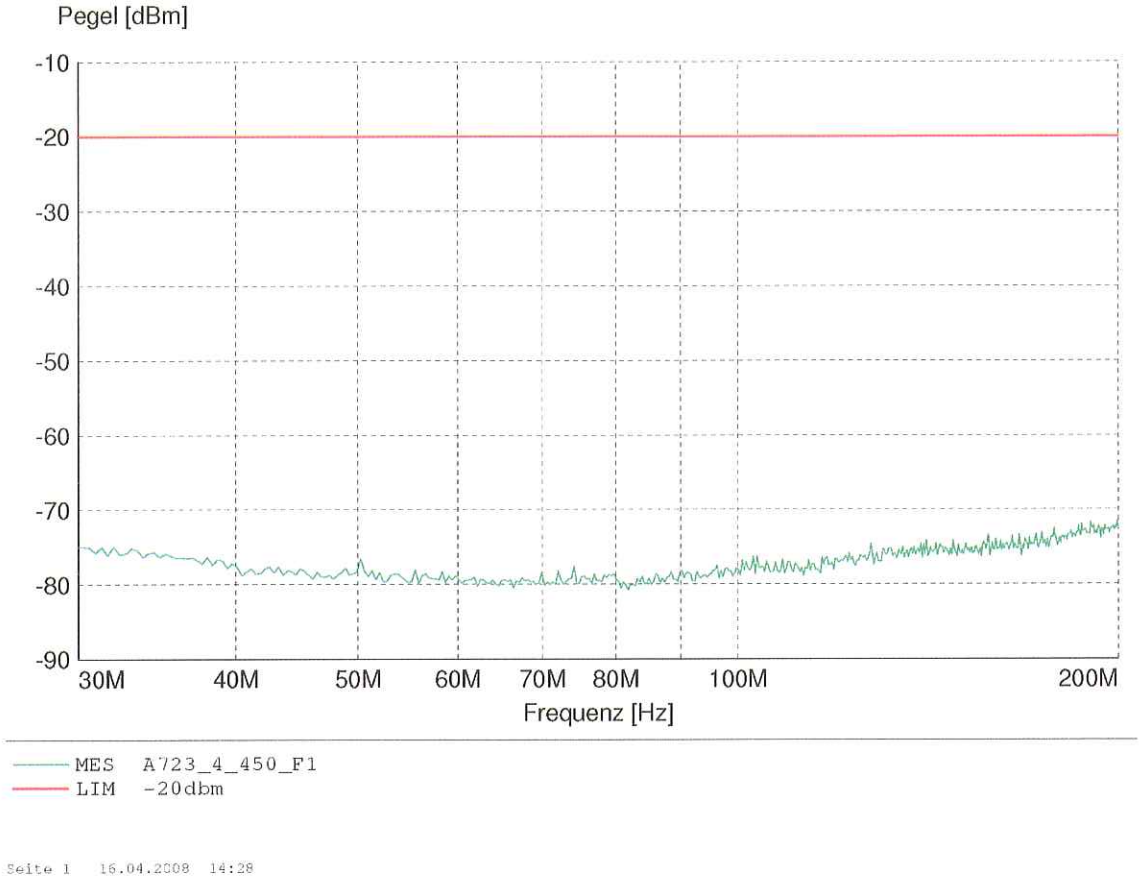
Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Field strength of spurious emissions of the transmitter **§ 2.1053**
§ 5.8.3

Operating mode:

Frequency: 450 MHz

Modulation: unmodulated carrier



Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207

Ambient temperature: 25°C Relative humidity: 41%

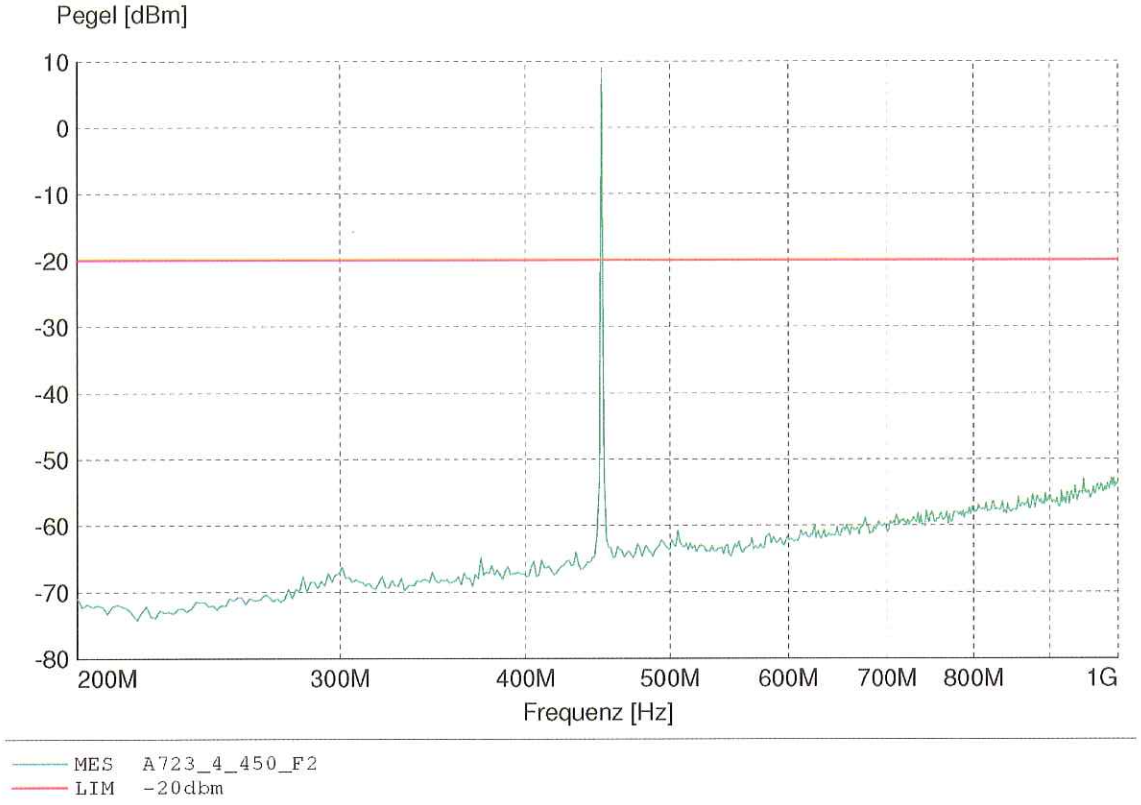
Field strength of spurious emissions of the transmitter **§ 2.1053**

§ 5.8.3

Operating mode:

Frequency: 450 MHz

Modulation: unmodulated carrier



Test Equipment used: NT-100; NT-110; NT-111; NT-112; NT-125; NT-207