

Straubing, March 30, 1999

TEST - REPORT

No. 50217-90168-3

for

PU 99 (Siemens)

FZV Remote Control Transmitter 315 MHz

Applicant: Bayerische Motoren Werke AG

Purpose of testing: To show compliance with

FCC Code of Federal Regulations,
Part 15 Subpart C, Section §15.231

Note:

The test data of this report relate only to the individual item which has been tested.
This report shall not be reproduced except in full extent without the written approval
of the testing laboratory.

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1. Administrative Data

Equipment Under Test (EUT): PU 99
Type of equipment: FZV Remote Control Transmitter 315 MHz
Parts/accessories: ---
Serial number: S 40
Version of EUT: Manufacturer: Siemens AG
FCC-ID: LX8FZVS

Applicant: Bayerische Motoren Werke AG
(full address) Petuelring 130
D-80788 München / Germany

Contract identification: N/A
Contact person: Mr. Richard Hochleitner
Manufacturer: N/A

Receipt of EUT: March 05, 1999
Date of test: March 19, 1999

Responsible for testing: Mr. Johann Roidt
Responsible for test report: Mr. Johann Roidt

2. Summary of Test Results

The tested sample fully complies with the requirements for intentional radiators set forth in the

**Code of Federal Regulations CFR 47
Part 15 Subpart C, Section §15.231
of the
Federal Communication Commission (FCC).**



Johann Roidt
Technical Manager

3. Operation Mode of EUT

Transmitter in non-conductive test fixture which allows continuous operation of the transmitter.

4. Changes made to the EUT during this certification test

No changes have been made to the EUT during this certification test.

5. Configuration of EUT and Peripheral Devices

Configuration of cables of EUT

Not applicable

Configuration of peripheral devices connected to EUT

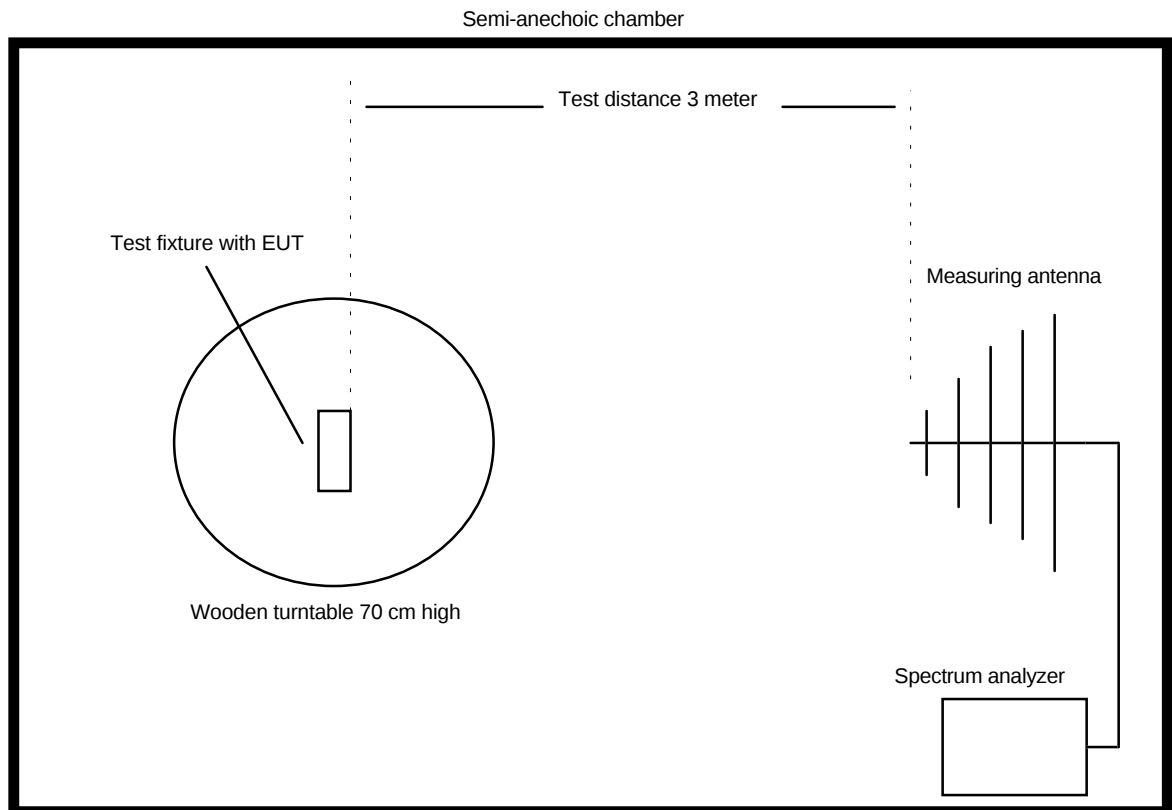
Not applicable

6. Measuring Methods

6.1. Transmitter Parameter Tests (§ 15.249 (a)).

All transmitter parameter tests were performed at a test-distance of 3 meters in a semi-anechoic room (radiated). During the tests the EUT was rotated all around and the receiving-antenna was raised and lowered from 1 meter to 4 meters to find the maximum levels of emissions. Cables and equipment were placed and moved within the range of position likely to find their maximum emissions. Measurements were made in horizontal and vertical polarization. EUT was operating in transmit mode at the appropriate frequency with its internal modulation.

The bandwidth of the emission was measured with a spectrum analyzer. Resolution (RBW) and video bandwidth (VBW) were set to 10 kHz (RBW and VBW)

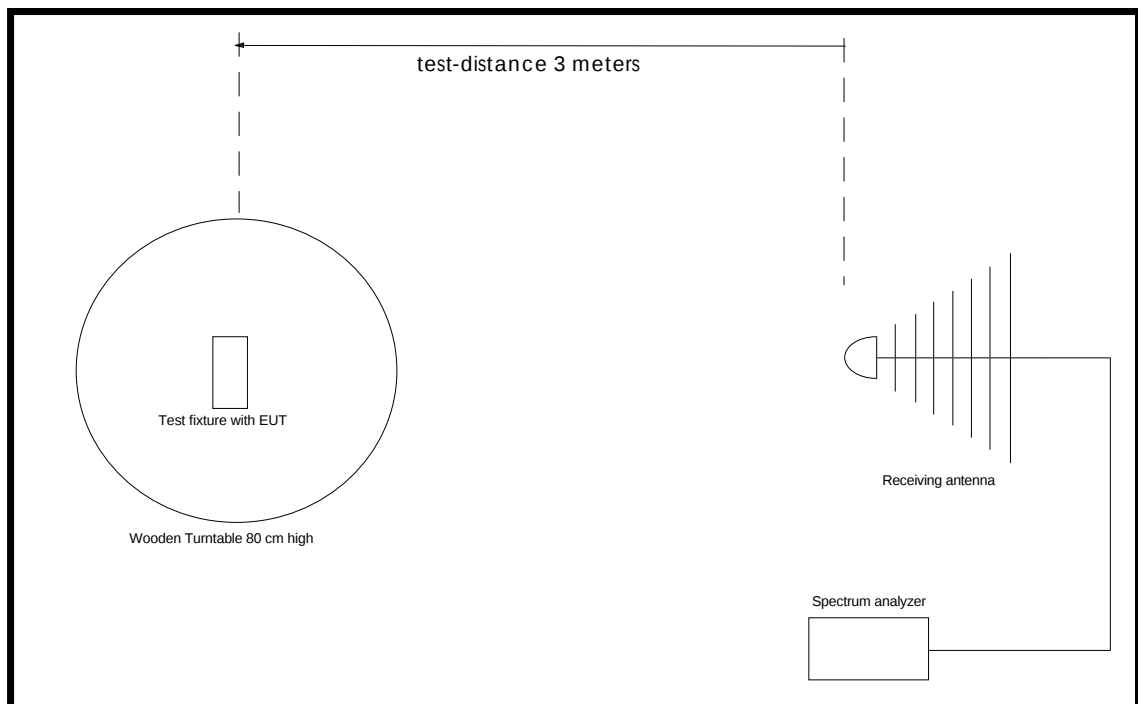


Test equipment used (see equipment list for details:
02, 08, 10, 40, 61, 64

6.2. Radiated Emissions 30 MHz - 1 GHz (§15.209, §15.231)

Radiated emissions were measured over the frequency range from 30 MHz to 1 GHz. The bandwidth of the EMI-receiver was set to 100 kHz and the detector-function was set to CISPR quasi-peak.

The test setup was made in accordance with ANSI C63.4-1992. Measurements were made in horizontal and vertical polarization. Preliminary scans were taken in a semi-anechoic room using a spectrum analyzer with the detector function set to peak. All tests were performed at a test-distance of 3 meters. For final testing an open-area test-site was used. During the tests the EUT was rotated all around and the receiving-antenna was raised and lowered from 1 meter to 4 meters to find the maximum levels of emissions. Cables and equipment were placed and moved within the range of position likely to find their maximum emissions.



Test equipment used (see equipment list for details:
01, 05, 12, 38, 39, 40, 41, 58, 61, 64, 66

6.3. Radiated Emissions above 1 GHz

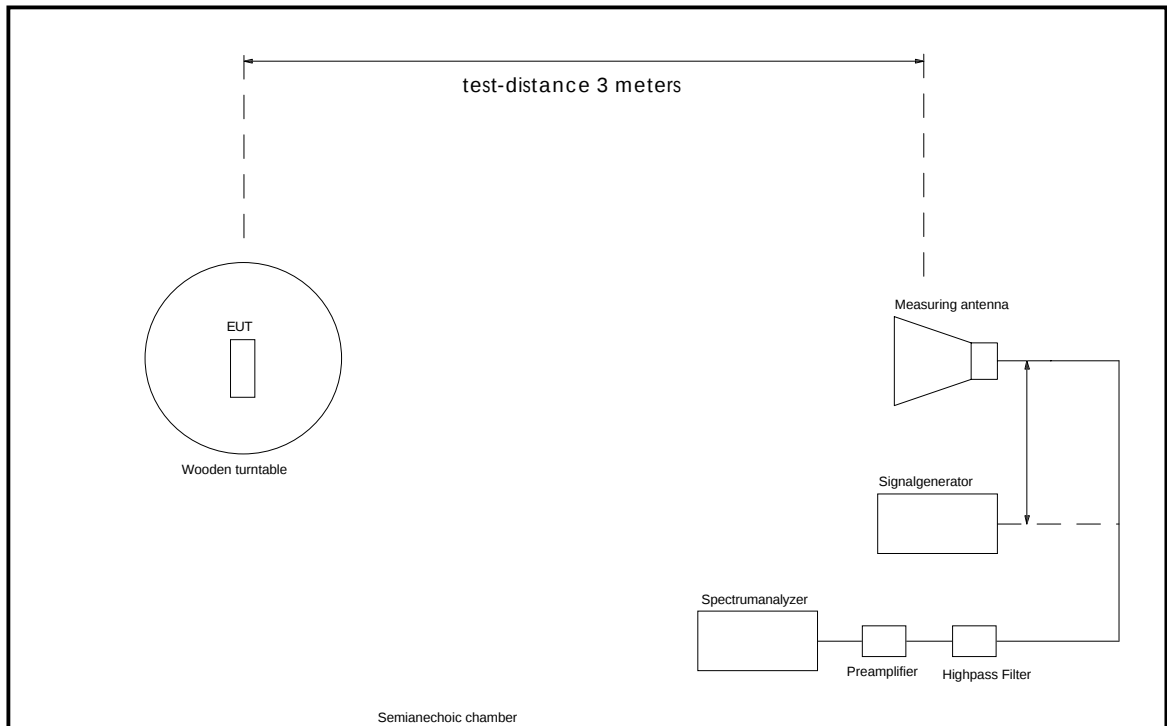
Radiated emissions were measured in the frequency range 1 GHz to 3.15 GHz in transmit mode. The resolution bandwidth and the video bandwidth of the spectrum analyzer was set to 1 MHz. Prescans with video bandwidth 1 MHz (peak mode) were taken to check out the highest levels (with reference to the limits), see 6.4 for details to prescan procedure. Final measurements were performed at the three highest emissions per band. EUT was rotated all around and receiving antenna was raised and lowered to find the maximum levels of emission. Cables and equipment were placed and moved within the range of position likely to find their maximum emissions. Measurements were made in horizontal and vertical polarization.

All tests were performed in a semi-anechoic chamber with a test-distance of 3 meters.

To avoid overload in transmit mode a high pass filter was connected to the input of the preamplifier (in case when a preamplifier was necessary)). In this case a signal generator was used for substitution to eliminate the influence of filter and preamplifier.

Substitution was performed in the following steps:

- antenna cable was disconnected from receiving antenna and connected to signal generator output
- level of signal generator was increased until the reading value of the analyzer was the same as caused by EUT
- level of signal generator was noted
- final value was calculated by converting the signal generator level to dB μ V/m and adding the antenna correction factor.



Test equipment used (see equipment list for details:
02, 13, 14, 16, 42, 46, 47, 57, 64, 67

6.4. Procedure for Preliminary Radiated Emission Tests

The procedure for preliminary radiated emission tests follows section 13.4.1 of ANSI C63.4-1992.

The EUT is a hand-held remote control transmitter with integral antenna, internal modulation only, battery supply and no cables to be connected. Therefore the prescanning procedure is as follows:

Prescans are made in the frequency ranges:

30 - 230 MHz

230 -1000 MHz

1000-3150 MHz

with the receiving antenna set to horizontal and vertical polarization.

The following step-by-step procedure will be used:

- 1) Monitor the frequency range at a fixed antenna height and and EUT azimuth
- 2) Rotate the EUT 360° to maximize the suspected highest azimuth signals. Note the amplitude and frequency of the signals. Orient the EUT azimuth for maximum emission.
- 3) Move the antenna over its full allowed range of travel to maximize the emission. If the signal or another at a different frequency is observed to exceed the previously noted highest amplitude signal by 1 dB or more, return to step 2) with the antenna fixed at this height. Otherwise move the antenna to the height that repeats the highest amplitude observation and proceed.
- 4) Make a hardcopy of the spectrum.
- 5) Repeat steps 1 through 4 for the other orthogonal axes of the EUT.
- 6) Repeat steps 1 through 5 for orthogonal antenna polarisation

6.5. Method for comparing spectrum analyzer output to the limit

The following procedure will be used:

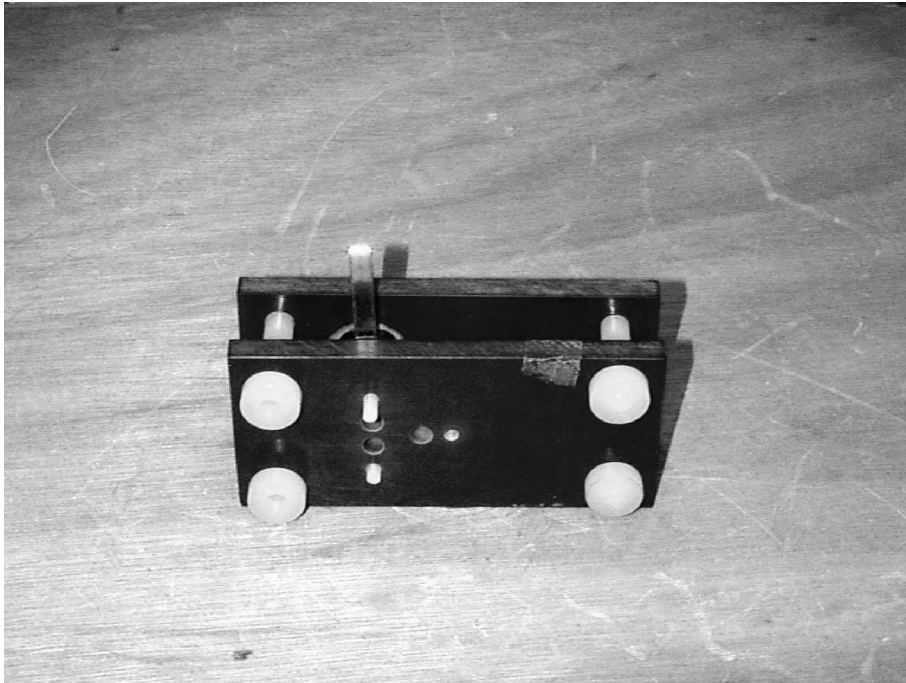
- 1) Maximize the emission according to 6.4.
- 2) Set the spectrum analyzer to **Max Hold**
- 3) Wait until the noise is fully maximized.
- 4) Put the **marker** on top of the investigated signal
- 5) Note frequency and level of the investigated signal

6.6. Spectrum analyzer settings for final test

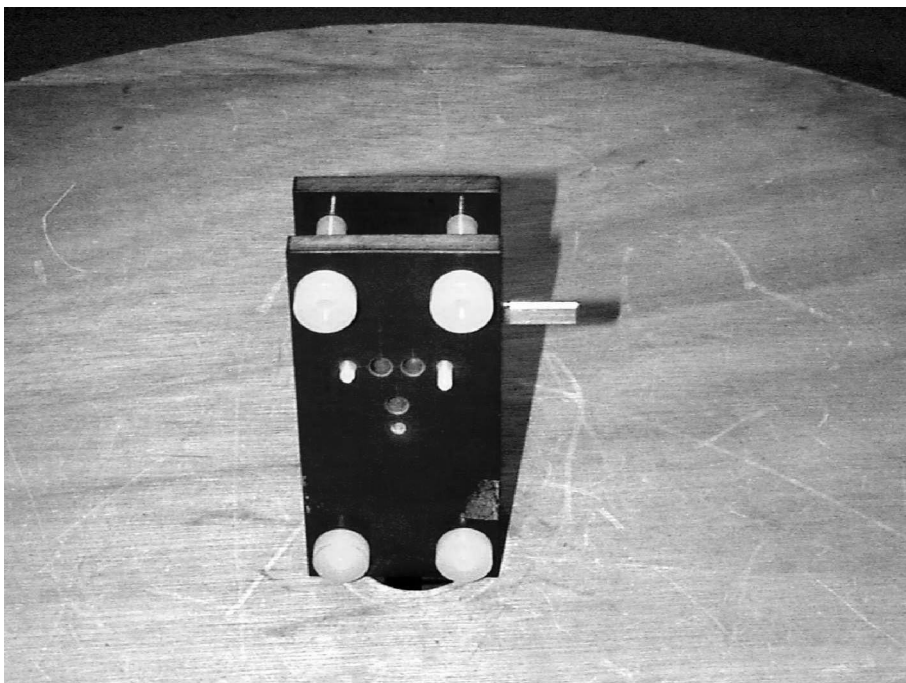
Frequency range	Detector	Resolution Bandwidth	Video Bandwidth	Trace Mode
30 - 1000 MHz	Quasi Peak	100 kHz	1 MHz	Max Hold
> 1000 MHz	Peak	1 MHz	1 MHz	Max Hold

7. Photographs Taken During Testing

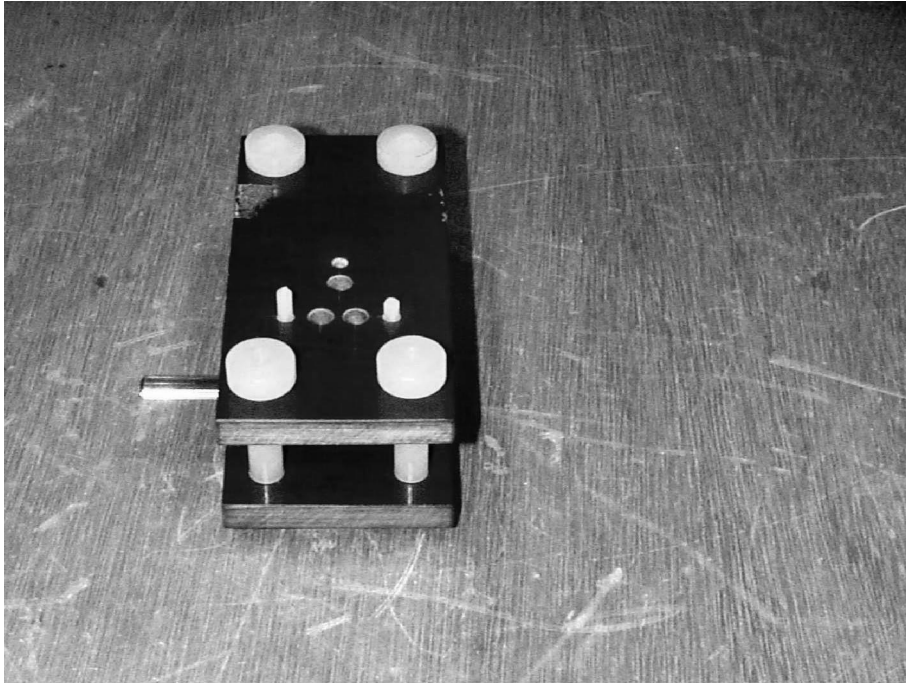
EUT in position 1 (Upright)



EUT in position 2 (Horizontal)



EUT in position 3 (Horizontal / flat)



8. List of Measurements

FCC Part 15 Subpart C			
Section(s):	Test	Page	Result
	Transmit mode (TX):		
§15.249.a	Field strength of emissions (fundamental and harmonics)	19/20	passed
§15.249.c	Field strength of emissions (except fundamental and harmonics)	21	passed

9. Test Results

Field Strength of Emissions according to FCC Rules, Part 15, Subpart C, Section 15.231

Model: PU 99
 Type: FZV Remote Control Transmitter 315 MHz
 Serial No.: S 40
 Applicant: Bayerische Motoren Werke AG

Test Site: Open Field Test Site (< 1GHz)
 Semi-anechoic chamber (>1GHz)

Distance: 3 Meter
 Date of test: March 19, 1999

Frequency (MHz)	Detector	Antenna Polarization	Analyzer Reading (dBμV)	Correction Factor (dB)	Field Strength (dBμV/m)
315.0	Peak	Horizontal	50.1	17.4	67.5
630.0	Peak	Horizontal	26.9	25.8	52.7
945.0	Peak	Horizontal	25.7	31.2	56.9
1260.0	Peak	Vertical	35.1	27.0	62.1
1575.0	Peak	Horizontal	34.4	27.3	61.7
1890.0	Peak	Vertical	33.9	29.0	62.9

Sample calculation of field strength values:

$$\text{Field Strength (dB}\mu\text{V/m)} = \text{Analyzer Reading (dB}\mu\text{V)} + \text{Correction Factor (dB)}$$

Test equipment used (see equipment list for details:
 02, 13, 14, 16, 38, 40 ,42, 57, 64, 67

Field Strength of Emissions according to FCC Rules, Part 15, Subpart C, Section 15.231 (b)

Calculation of final result using the duty cycle correction factor

Model: PU 99
Type: FZV Remote Control Transmitter 315 MHz
Serial No.: S 40
Applicant: Bayerische Motoren Werke AG

Test Site: Open Field Test Site (< 1GHz)
Semi-anechoic chamber (>1GHz)
Distance: 3 Meter
Date of test: March 19,1999

Calculation of duty cycle correction factor:

Period of pulse train: 65 ms
Length of pulse train: 15 ms
Width of pulses: either 0.5 or 1.0 ms

There are 10 pulses with 0.5 ms and 3 pulses with 1.0 ms width =

Sum of pulse widths = 8.0 ms

The duty cycle correction factor is:

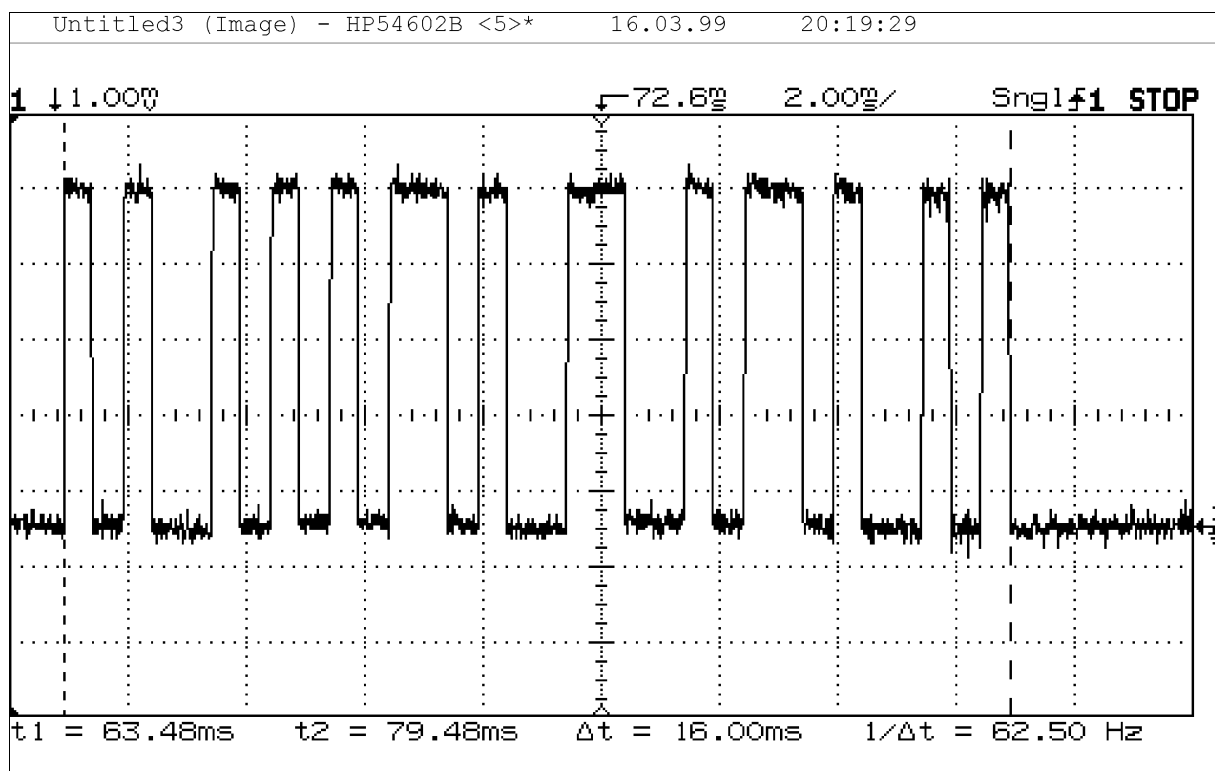
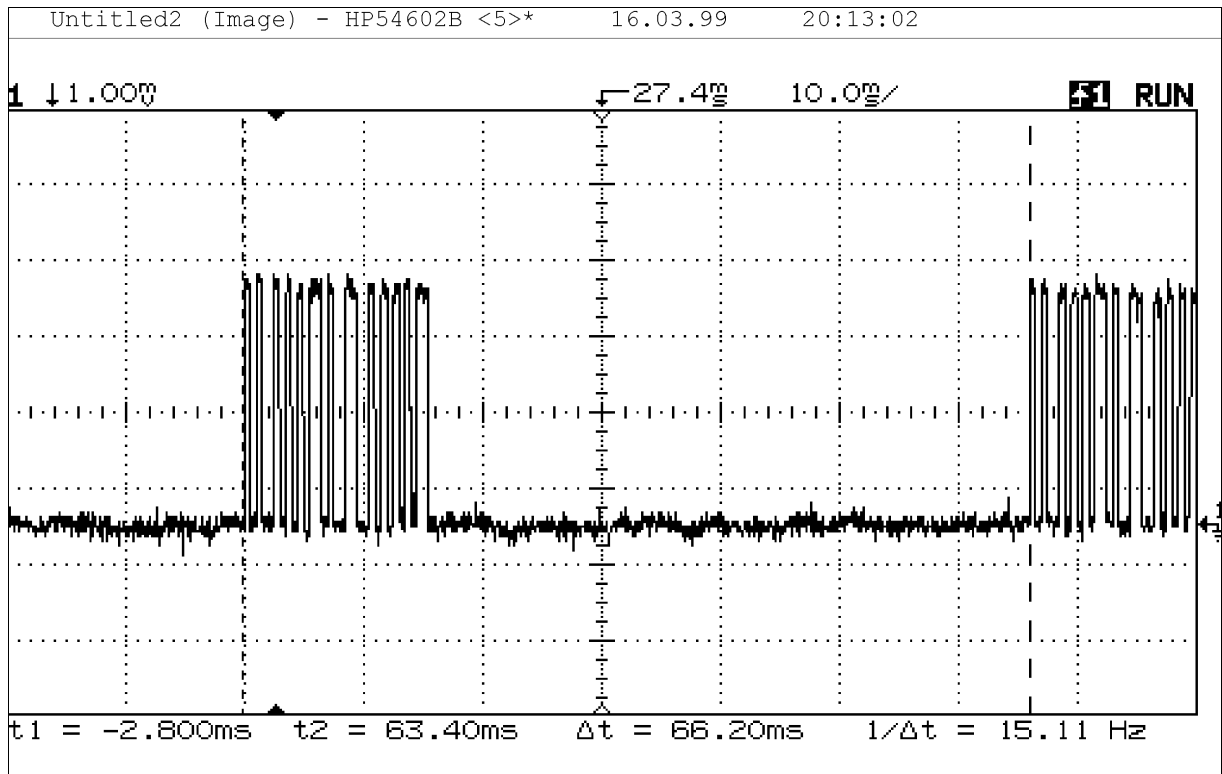
Sum of pulse widths in one period divided by the length of one period

=

8 ms / 65 ms = 0.123 = 18.20 dB

Frequency (MHz)	Field Strength (dBμV/m)	Duty Cycle Correction Factor	Corrected Field Strength (dBμV/m)	Limit (dBμV/m)	Margin dB
315.0	67.5	18.2 dB	49.3	75.6	26.3
630.0	52.7	18.2 dB	34.5	55.6	21.1
945.0	56.9	18.2 dB	38.7	55.6	16.9
1260.0	62.1	18.2 dB	43.9	55.6	11.7
1575.0	61.7	18.2 dB	43.5	55.6	12.1
1890.0	62.9	18.2 dB	44.7	55.6	10.9

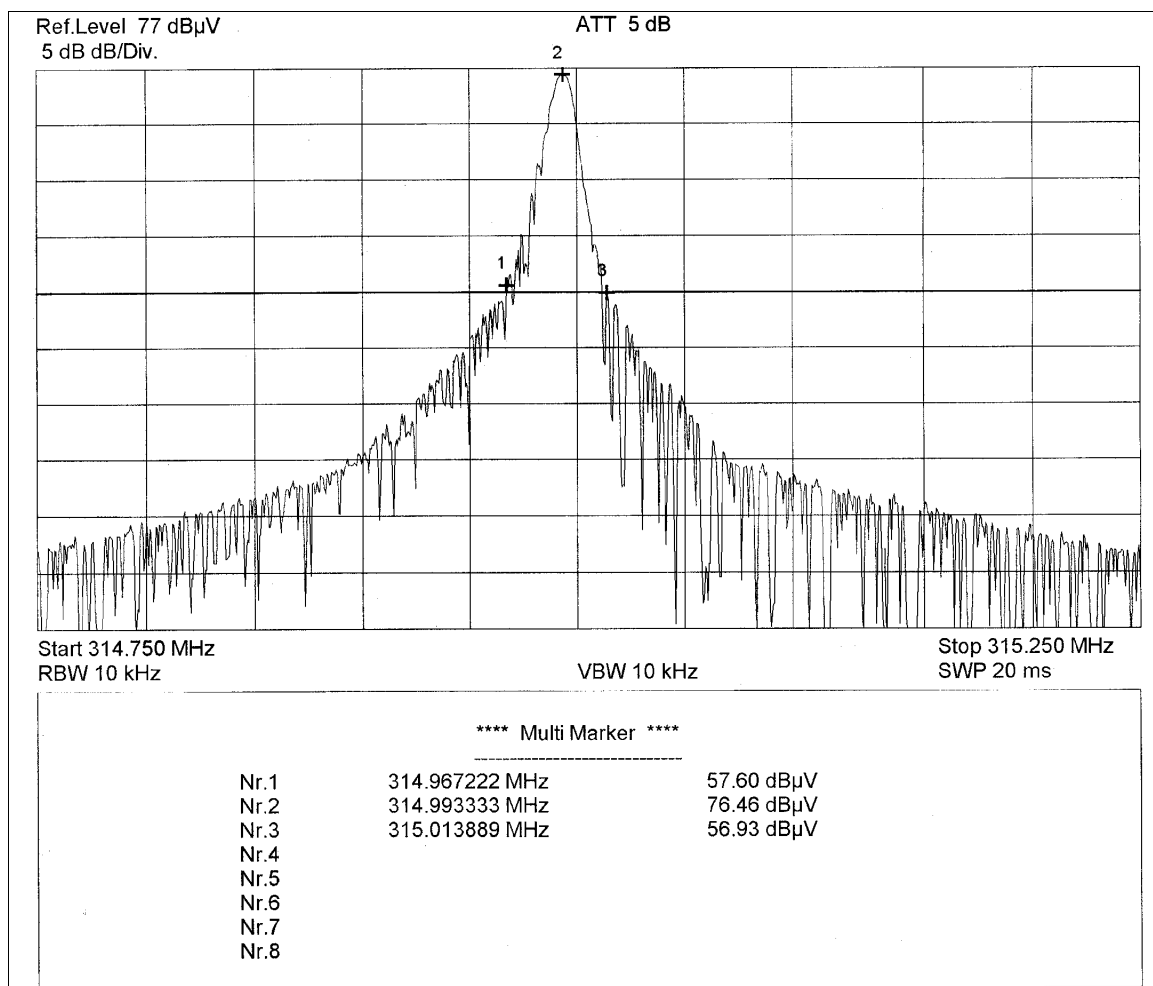
Note:



Bandwidth of the Emission according to FCC Rules, Part 15, Subpart C, Section 15.231 (c)

Model: PU 99
Type: FZV Remote Control Transmitter 315 MHz
Serial No.: S 40
Applicant: Bayerische Motoren Werke AG

Test Site: Open Field Test Site (< 1GHz)
Semi-anechoic chamber (>1GHz)
Distance: 3 Meter
Date of test: March 19,1999



10. Equipment List

To facilitate reference to test equipment used for related tests, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory.

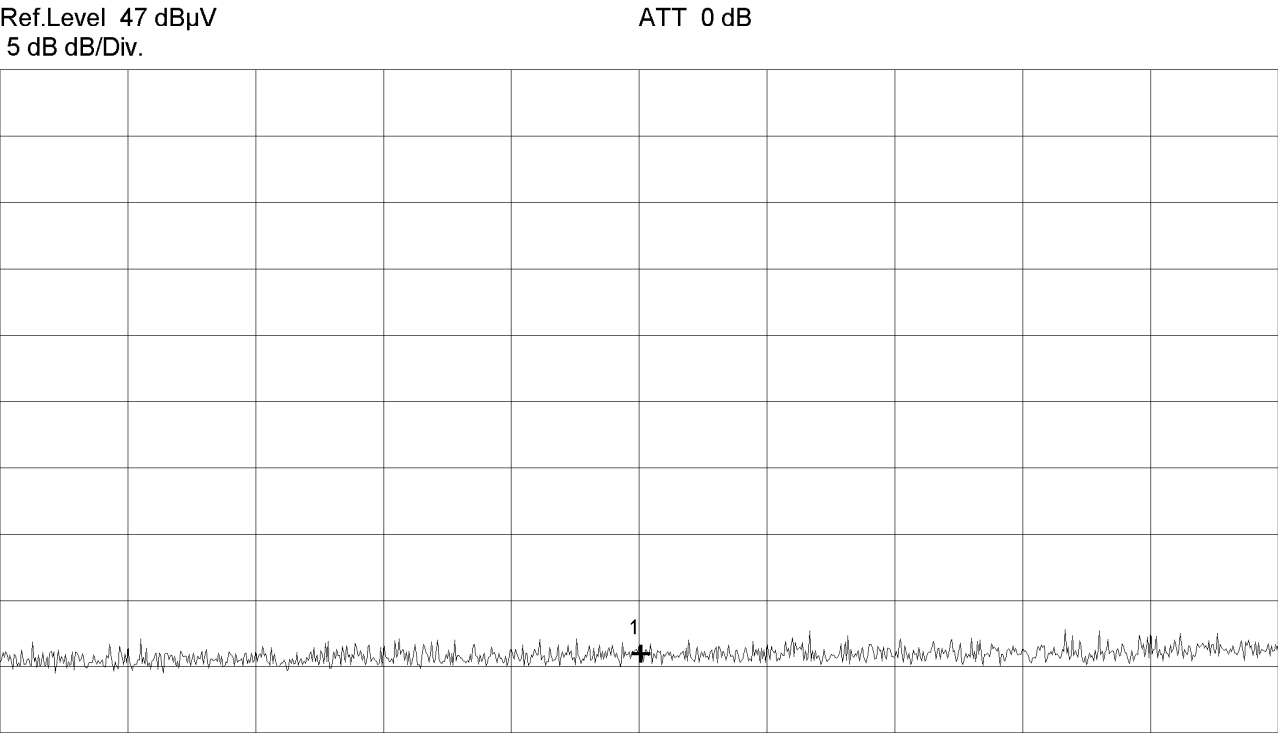
No.	Type	Model	Serial Number	Manufacturer
01	Spectrum Analyzer	R 3261 A	91720155	Advantest
02	Spectrum Analyzer	R 3271	05050023	Advantest
03	Test Receiver	ESH 3	880112/032	Rohde & Schwarz
04	Test Receiver	ESHS 10	860043/016	Rohde & Schwarz
05	Test Receiver	ESV	881414/009	Rohde & Schwarz
06	Test Receiver	ESVP	881120/024	Rohde & Schwarz
07	Audio Analyzer	UPA	862954	Rohde & Schwarz
08	Power Meter	NRVS	836856/015	Rohde & Schwarz
09	Power Sensor	NRV-Z52	837901/030	Rohde & Schwarz
10	Power Sensor	NRV-Z4	863828/015	Rohde & Schwarz
11	Preamplifier	ESV-Z3	860907/004	Rohde & Schwarz
12	Preamplifier	R14601		Advantest
13	Preamplifier	ACX/080-3030	32640	CTT
14	Preamplifier	ACO/180-3530	32641	CTT
15	Signal Generator	SMS	872166/039	Rohde & Schwarz
16	Signal Generator	HP 8673 D	2930A00966	Hewlett Packard
17	Waveform Generator	HP 33120 A	US34005375	Hewlett Packard
18	UHF Attenuator Set	DPU	300771/075	Rohde & Schwarz
19	UHF Attenuator Set	DPU	300788/006	Rohde & Schwarz
20	Pulse Limiter	ESH 3-Z2	1144	Rohde & Schwarz
21	Pulse Limiter	11947 A	3107A00566	Hewlett Packard
22	V-Network	ESH 3-Z5	862770/018	Rohde & Schwarz
23	V-Network	ESH 3-Z5	894785/005	Rohde & Schwarz
24	V-Network	ESH 3-Z5	830952/025	Rohde & Schwarz
25	V-Network	ESH 3-Z6	830722/010	Rohde & Schwarz
26	V-Network	NSLK 8127	8127152	Schwarzbeck
27	V-Network	NNLA 8119	8119148	Schwarzbeck
28	V-Network	SE 01	01	Senton
29	T-Network	ESH 3-Z4	890602/011	Rohde & Schwarz
30	T-Network	ESH 3-Z4	890602/012	Rohde & Schwarz
31	High Impedance Probe	TK 9416	01	Schwarzbeck
32	High Impedance Probe	TK 9416	02	Schwarzbeck
33	Current Probe	ESH 2-Z1	863366/18	Rohde & Schwarz
34	Current Probe	ESV-Z1	862553/3	Rohde & Schwarz

No.	Type	Model	Serial Number	Manufacturer
35	Absorbing Clamp	MDS 21	80911	Lüthi
36	Absorbing Clamp	MDS 21	79690	Lüthi
37	Loop Antenna	HFH2-Z2	882964/1	Rohde & Schwarz
38	Biconical Antenna	HK 116	836239/02	Rohde & Schwarz
39	Biconical Antenna	BBA 9106	A0379 324	Schwarzbeck
40	Log. Periodic Antenna	HL 223	834408/12	Rohde & Schwarz
41	Log. Periodic Antenna	UHALP 9107	9107150	Schwarzbeck
42	Horn Antenna	3115	9508-4553	Emco
43	Horn Antenna	3160-03	9112-1003	Emco
44	Horn Antenna	3160-04	9112-1001	Emco
45	Horn Antenna	3160-05	9112-1001	Emco
46	Horn Antenna	3160-06	9112-1001	Emco
47	Horn Antenna	3160-07	9112-1008	Emco
48	Horn Antenna	3160-08	9112-1002	Emco
49	Horn Antenna	3160-09	9403-1025	Emco
50	Digital multimeter	199	463386	Keithley
51	DC Power Supply	NGSM 32/10	203	Rohde & Schwarz
52	DC Power Supply	NGB	2455	Rohde & Schwarz
53	DC Power Supply	NGA	386	Rohde & Schwarz
54	Temperature Test Chamber	HT4010	07065550	Heraeus
55	Cable	RG214	1309	Senton
56	Cable	150CM_001	1479	Rosenberger
57	Cable	150CM_002	1480	Rosenberger
58	Cable Set EG1	RG214	1189 - 1191	Senton
59	Cable Set Cabine 1	RG214		Senton
60	Cable Set Cabine 2	RG214		Senton
61	Cable Set Cabine 3	RG214		Senton
62	Shielded Room	Nr. 1	1451	Senton
63	Shielded Room	Nr. 2	1452	Senton
64	Semi-anechoic Chamber	Nr. 3	1453	Siemens
65	Shielded Room	Nr. 4	1454	Euroshield
66	Open Area Test Site	EG 1		Senton
67	High pass filter			AT & T

11. Charts Taken During Testing

Radiated Emissions Measurement according to FCC Rules

Model: PU 99	Mode: EUT flat on table Horizontal polarization
Serial No.: S 40	
Applicant: BMW AG	



Start 30.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 300.000 MHz
SWP 100 ms

**** Multi Marker ****		

Nr.1	165.300000 MHz	3.02 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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Radiated Emissions Measurement according to FCC Rules

Model:
PU 99

Serial No.:
S 40

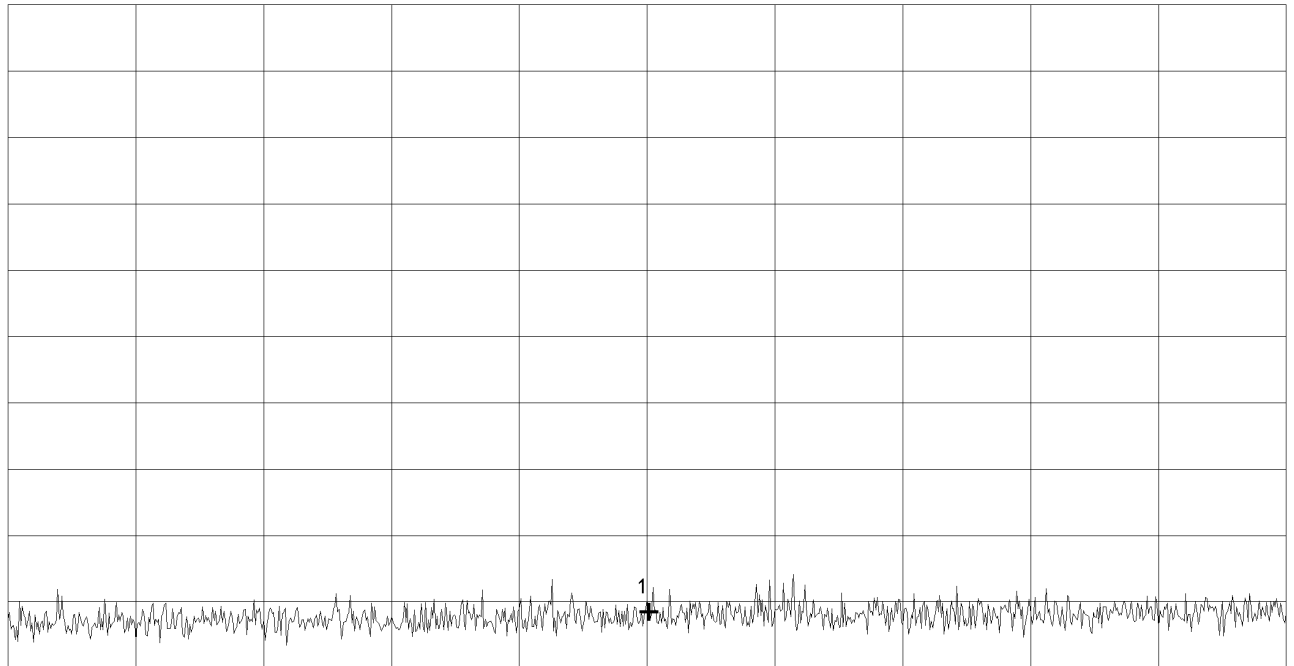
Applicant:
BMW AG

Mode:
EUT flat on table

Vertical polarization

Ref.Level 47 dB μ V
5 dB dB/Div.

ATT 0 dB



Start 30.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 300.000 MHz
SWP 100 ms

Stop 300.000 MHz
SWP 100 ms

**** Multi Marker ****

Nr.1	165.300000 MHz	1.23 dBμV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Nr.1	165.300000 MHz	1.23 dBμV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Nr.1	165.300000 MHz	1.23 dBμV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt

Date:
March 22, 1999

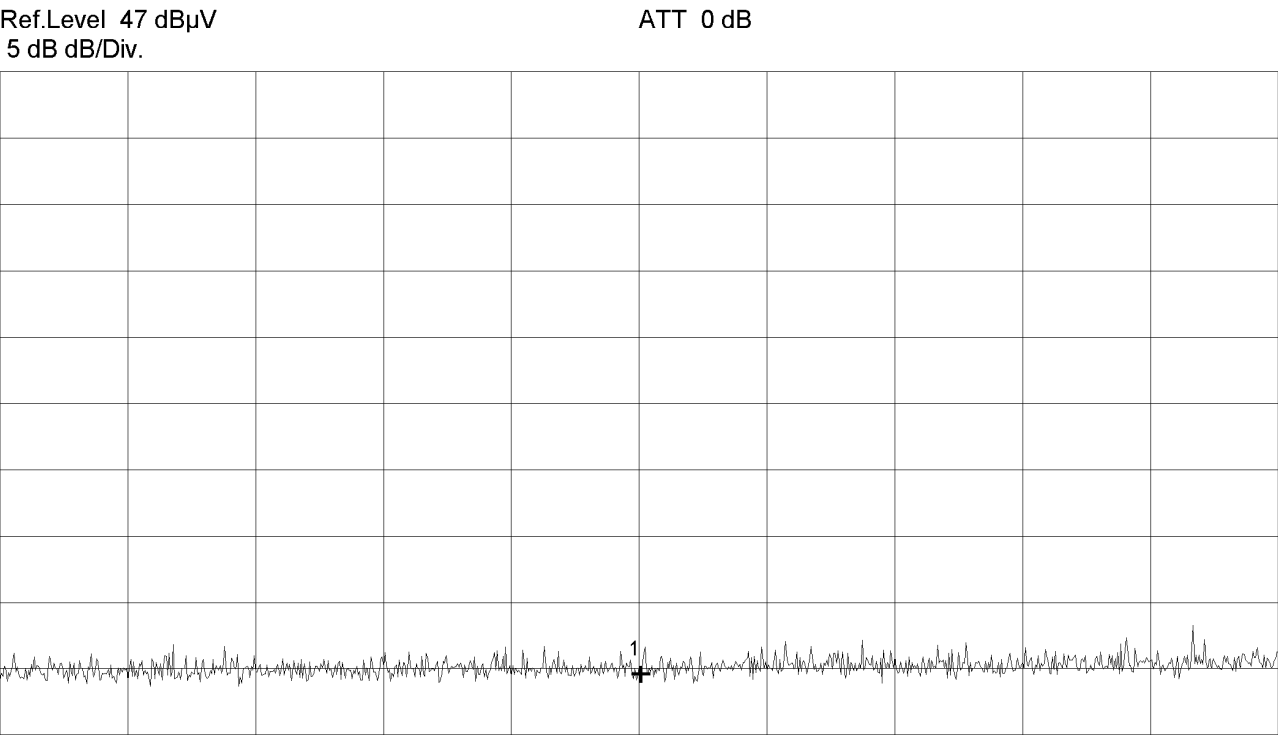
Project-No.: _____

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Radiated Emissions Measurement according to FCC Rules

Model: PU 99
Serial No.: S 40
Applicant: BMW AG

Mode: EUT on long side
Vertical polarization



Start 30.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 300.000 MHz
SWP 100 ms

**** Multi Marker ****		

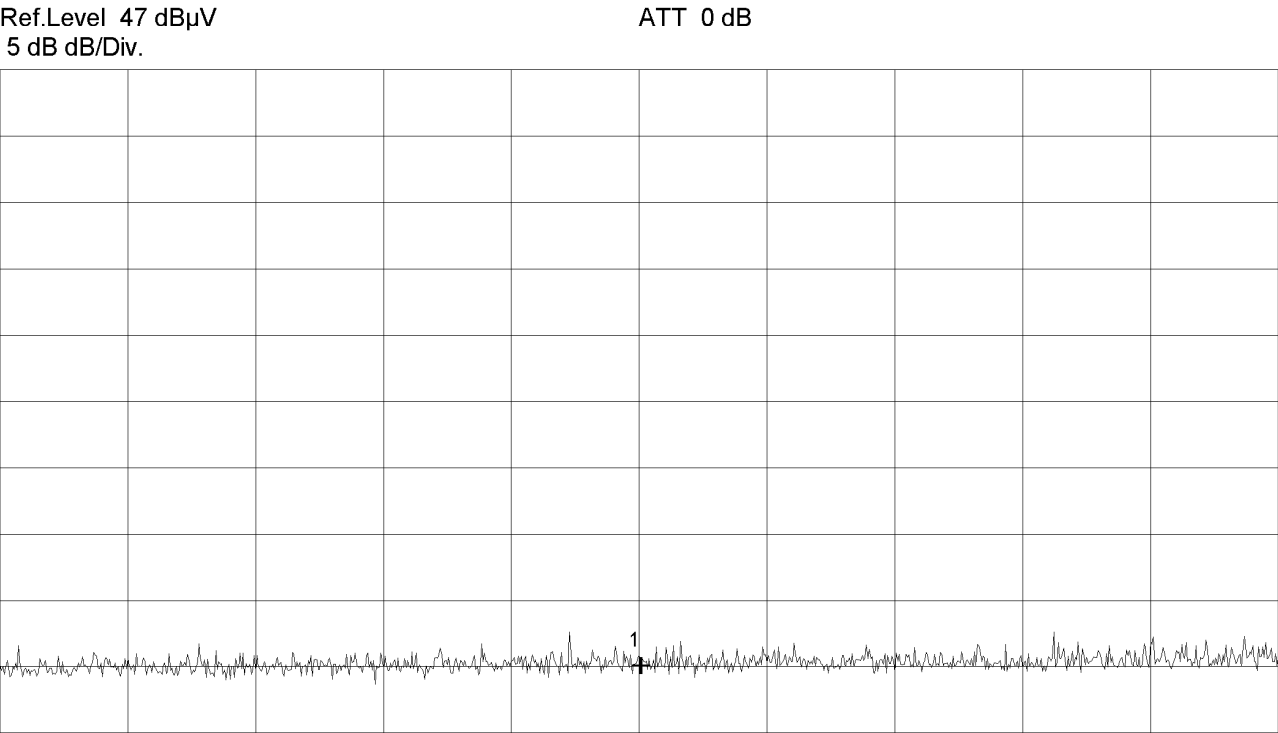
Nr.1	165.300000 MHz	1.56 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt
Date: March 22, 1999

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Radiated Emissions Measurement according to FCC Rules

Model: PU 99	Mode: EUT on long side Horizontal polarization
Serial No.: S 40	
Applicant: BMW AG	



Start 30.000 MHz
RBW 100 kHz

VBW 100 kHz

Stop 300.000 MHz
SWP 100 ms

**** Multi Marker ****		

Nr.1	165.300000 MHz	2.10 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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Radiated Emissions Measurement according to FCC Rules

Model:
PU 99

Serial No.:
S 40

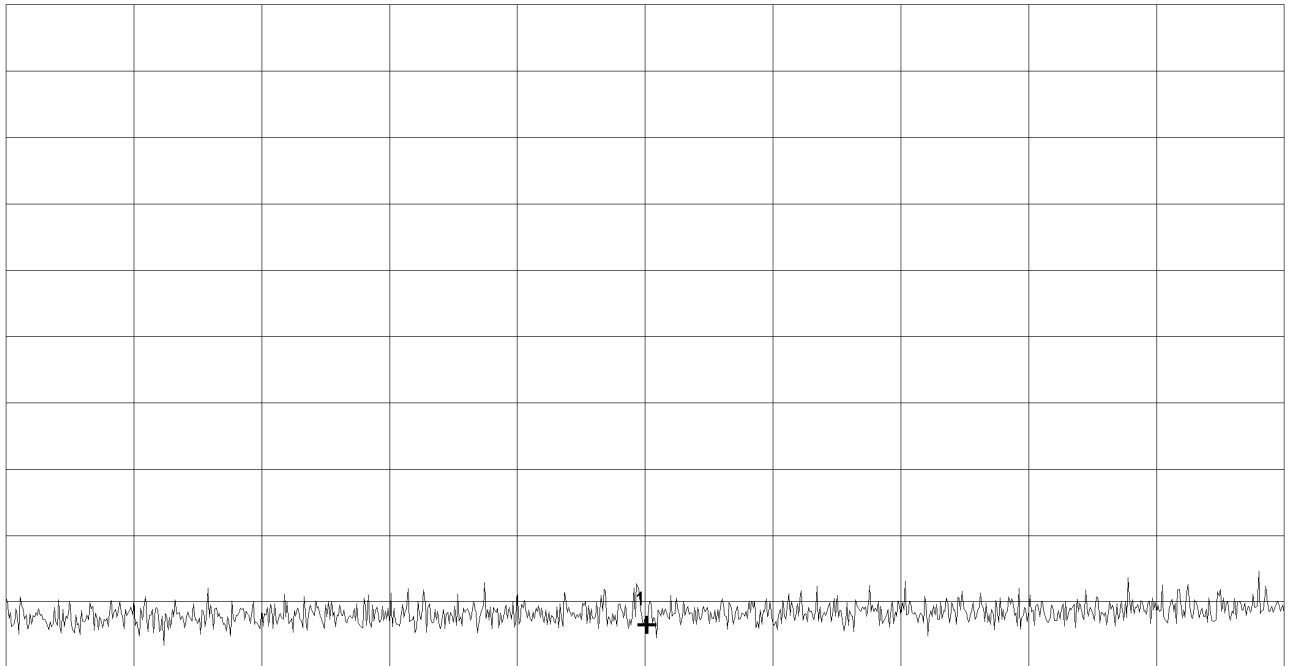
Applicant:
BMW AG

Mode:
EUT upright

Horizontal polarization

Ref.Level 47 dB μ V
5 dB dB/Div.

ATT 0 dB



Start 30.000 MHz
RBW 100 kHz

VBW 100 kHz Stop 300.000 MHz
SWP 100 ms

Stop 300.000 MHz
SWP 100 ms

**** Multi Marker ****

Nr.1	165.300000 MHz	0.24 dBμV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Nr.1	165.300000 MHz	0.24 dBμV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Nr.1	165.300000 MHz	0.24 dBμV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt

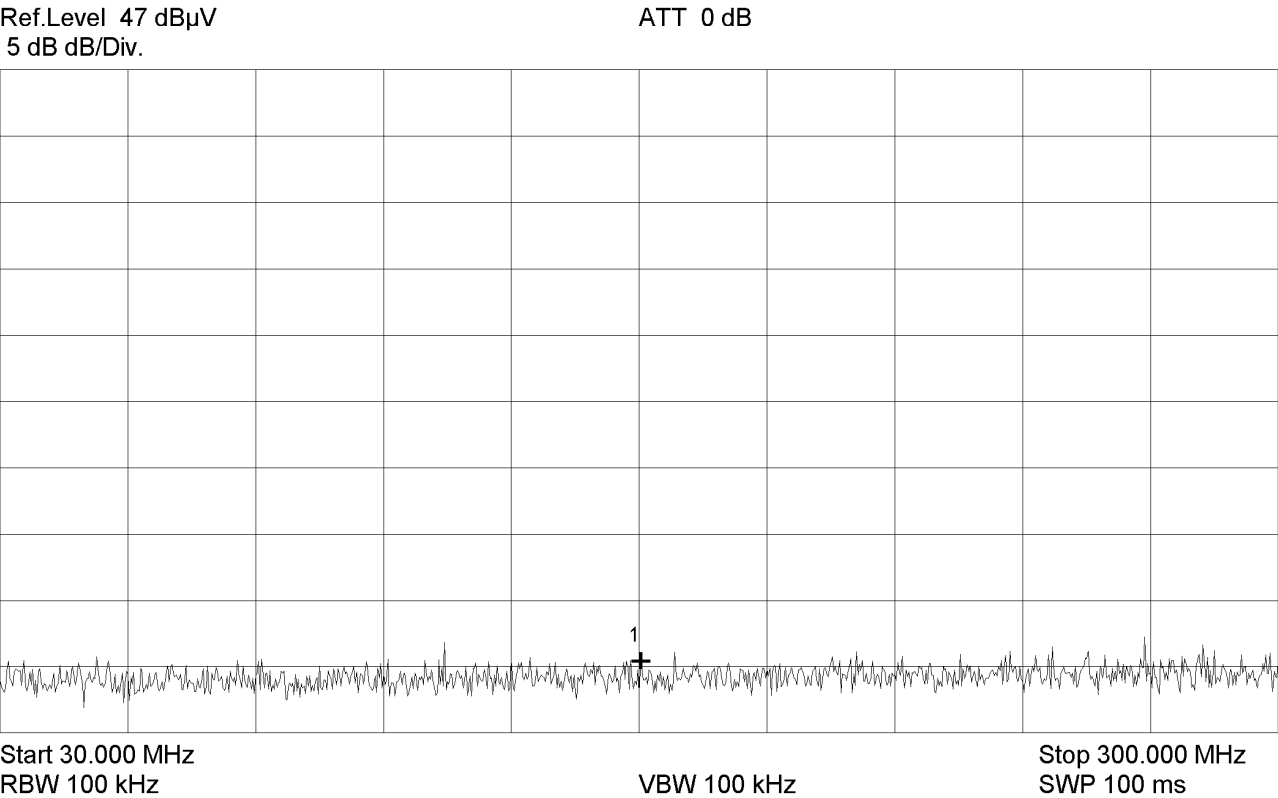
Date:
March 22, 1999

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Radiated Emissions Measurement according to FCC Rules

Model: PU 99	Mode: EUT upright Vertical polarization
Serial No.: S 40	
Applicant: BMW AG	



**** Multi Marker ****		

Nr.1	165.300000 MHz	2.45 dBµV
Nr.2		
Nr.3		
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

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Radiated Emissions Measurement according to FCC Rules

Model:
PU 99

Serial No.:
S 40

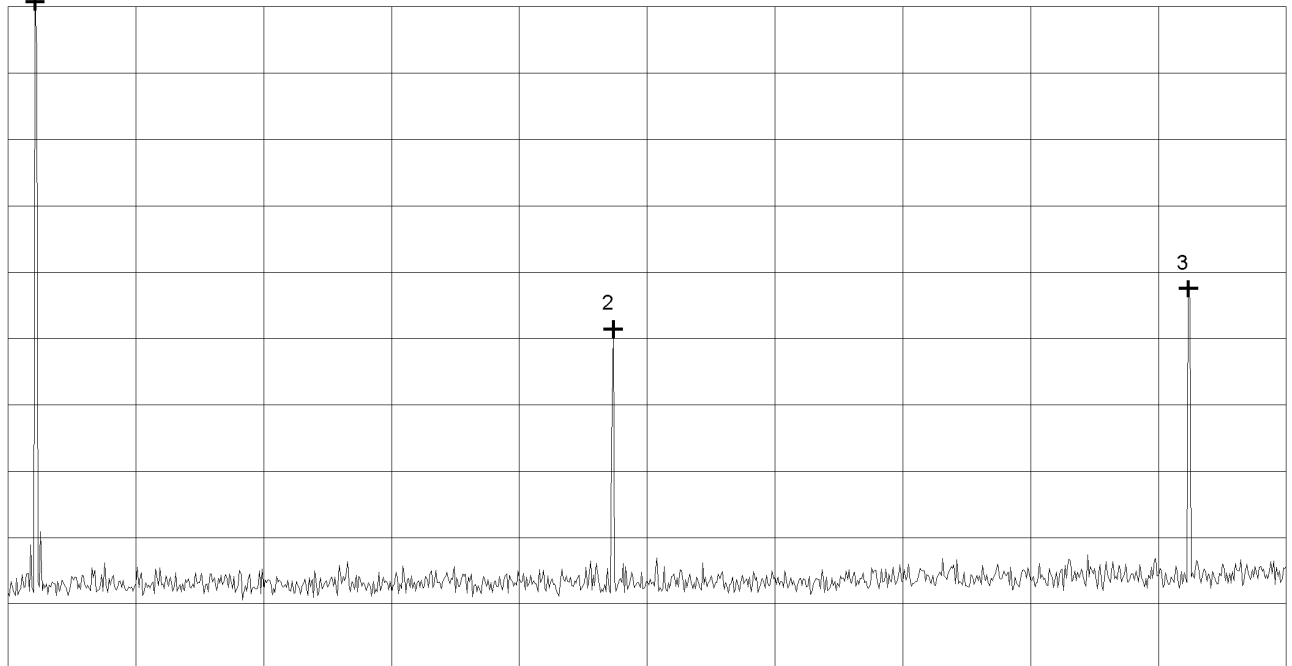
Applicant:
BMW AG

Mode:
EUT flat on table

Horizontal polarization

Ref.Level 47 dB μ V
5 dB dB/Div.

ATT 0 dB



Start 300.000 MHz
RBW 100 kHz

VBW 100 kHz	Stop 1.000 GHz SWP 220 ms
-------------	------------------------------

Stop 1.000 GHz
SWP 220 ms

**** Multi Marker ****

Nr.1	314.777778 MHz	47.40 dBμV
Nr.2	631.333333 MHz	22.72 dBμV
Nr.3	946.333333 MHz	25.73 dBμV
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt

Date:
March 22, 1999

Project-No.: _____

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Radiated Emissions Measurement according to FCC Rules

Model: PU 99
Serial No.: S 40
Applicant: BMW AG

Mode:
EUT on long side

Horizontal polarization

**** Multi Marker ****		

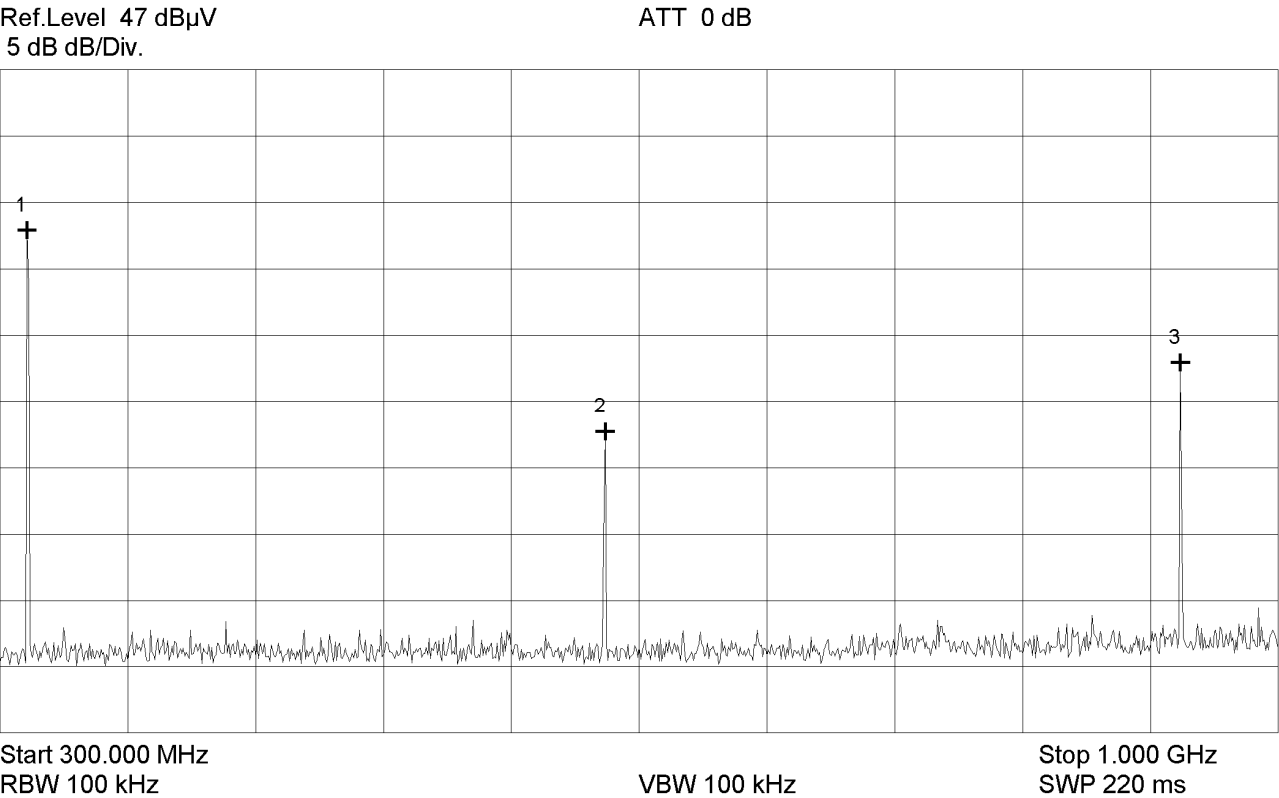
Nr.1	314.777778 MHz	45.21 dBμV
Nr.2	631.333333 MHz	14.59 dBμV
Nr.3	946.333333 MHz	17.80 dBμV
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt
Date: March 22, 1999

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Radiated Emissions Measurement according to FCC Rules

Model: PU 99	Mode: EUTon long side Vertical polarization
Serial No.: S 40	
Applicant: BMW AG	



**** Multi Marker ****		

Nr.1	314.777778 MHz	34.87 dBµV
Nr.2	631.333333 MHz	19.72 dBµV
Nr.3	946.333333 MHz	24.93 dBµV
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt	Project-No.:
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Radiated Emissions Measurement according to FCC Rules

Model: PU 99
Serial No.: S 40
Applicant: BMW AG

Mode:
EUT flat on table

Vertical polarization

**** Multi Marker ****		

Nr.1	314.777778 MHz	39.22 dBμV
Nr.2	631.333333 MHz	7.59 dBμV
Nr.3	946.333333 MHz	12.25 dBμV
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt
Date: March 22, 1999

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Radiated Emissions Measurement according to FCC Rules

Model: PU 99
Serial No.: S 40
Applicant: BMW AG

Mode:
EUTuoright

Horizontal polarization

**** Multi Marker ****		

Nr.1	314.777778 MHz	36.11 dBμV
Nr.2	631.333333 MHz	16.15 dBμV
Nr.3	946.333333 MHz	19.39 dBμV
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt
Date: March 22, 1999

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Radiated Emissions Measurement according to FCC Rules

Model:
PU 99

Serial No.:
S 40

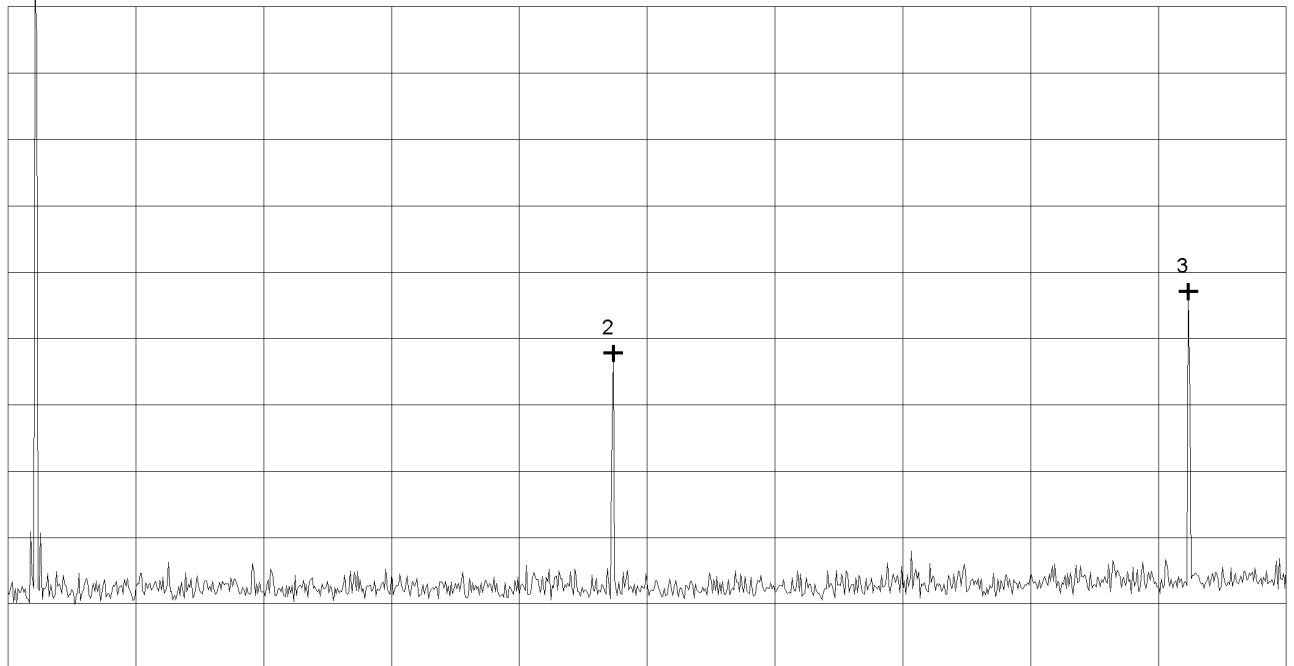
Applicant:
BMW AG

Mode:
EUT upright

Vertical polarization

Ref.Level 47 dBμV
5 dB dB/Div.

ATT 0 dB



Start 300.000 MHz
RBW 100 kHz

VBW 100 kHz
SWP 220 ms

Stop 1.000 GHz
SWP 220 ms

**** Multi Marker ****

Nr.1	314.777778 MHz	48.43 dBμV
Nr.2	631.333333 MHz	20.86 dBμV
Nr.3	946.333333 MHz	25.52 dBμV
Nr.4		
Nr.5		
Nr.6		
Nr.7		
Nr.8		

Tested by: Johann Roidt

Date:
March 22, 1999

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Radiated Emission Measurement according to FCC Rules

Model:
PU 99

Serial No.:
S40

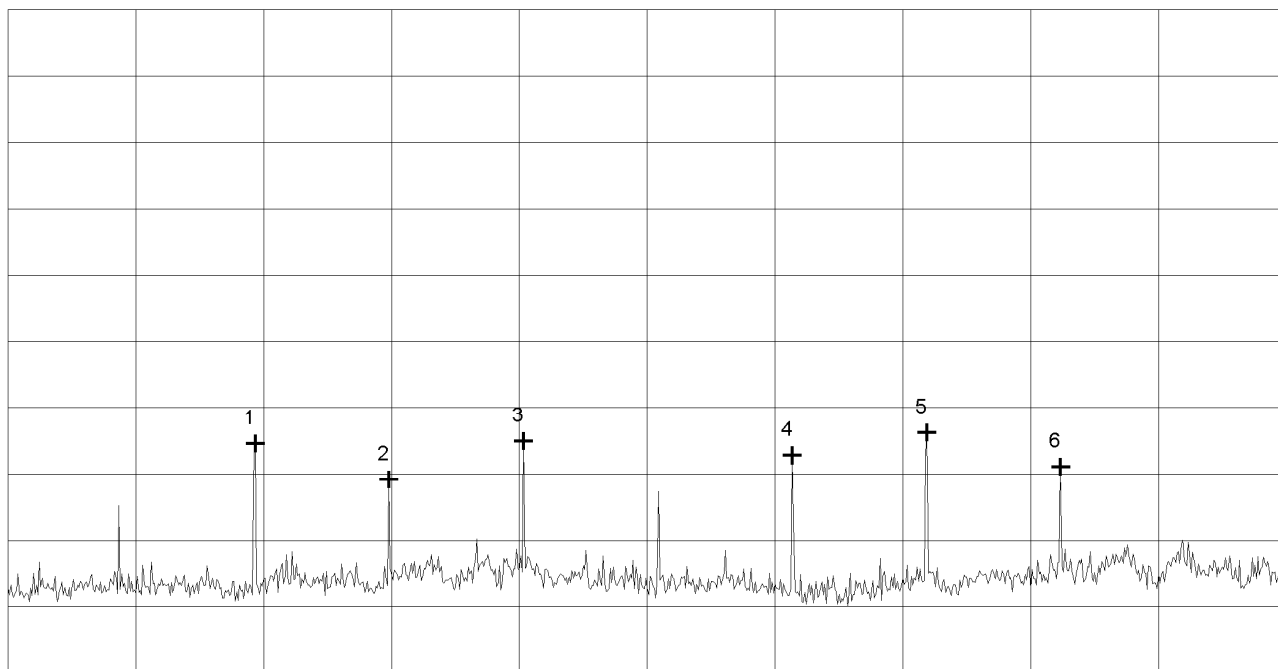
Applicant:
BMW AG

Mode:
EUT flat on table

Vertical polarization

Ref.Level 57 dB μ V
5 dB dB/Div.

ATT 5 dB



Start 1.000 GHz
RBW 300 kHz

VBW 300 kHz

Stop 4.000 GHz
SWP 100 ms

**** Multi Marker ****

Nr.1	1.580000 GHz	24.30 dB μ V
Nr.2	1.893333 GHz	21.61 dB μ V
Nr.3	2.210000 GHz	24.50 dB μ V
Nr.4	2.840000 GHz	23.41 dB μ V
Nr.5	3.156667 GHz	25.12 dB μ V
Nr.6	3.470000 GHz	22.55 dB μ V
Nr.7		
Nr.8		

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Radiated Emission Measurement according to FCC Rules

Model:
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Serial No.:
S40

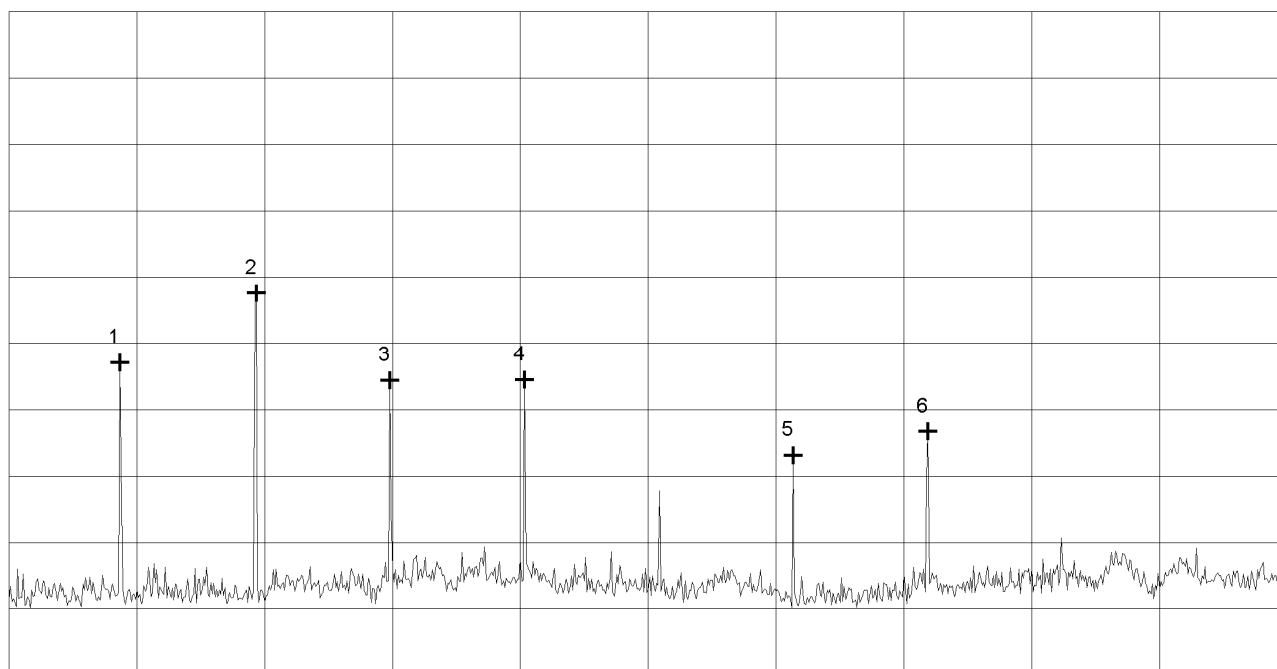
Applicant:
BMW AG

Mode:
EUT flat on table

Horizontal polarization

Ref.Level 57 dB μ V
5 dB dB/Div.

ATT 5 dB



Start 1.000 GHz
RBW 300 kHz

VBW 300 kHz

Stop 4.000 GHz
SWP 100 ms

**** Multi Marker ****

Nr.1	1.260000 GHz	30.54 dB μ V
Nr.2	1.580000 GHz	35.79 dB μ V
Nr.3	1.893333 GHz	29.21 dB μ V
Nr.4	2.210000 GHz	29.28 dB μ V
Nr.5	2.840000 GHz	23.55 dB μ V
Nr.6	3.156667 GHz	25.35 dB μ V
Nr.7		
Nr.8		

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Radiated Emission Measurement according to FCC Rules

Model:
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S40

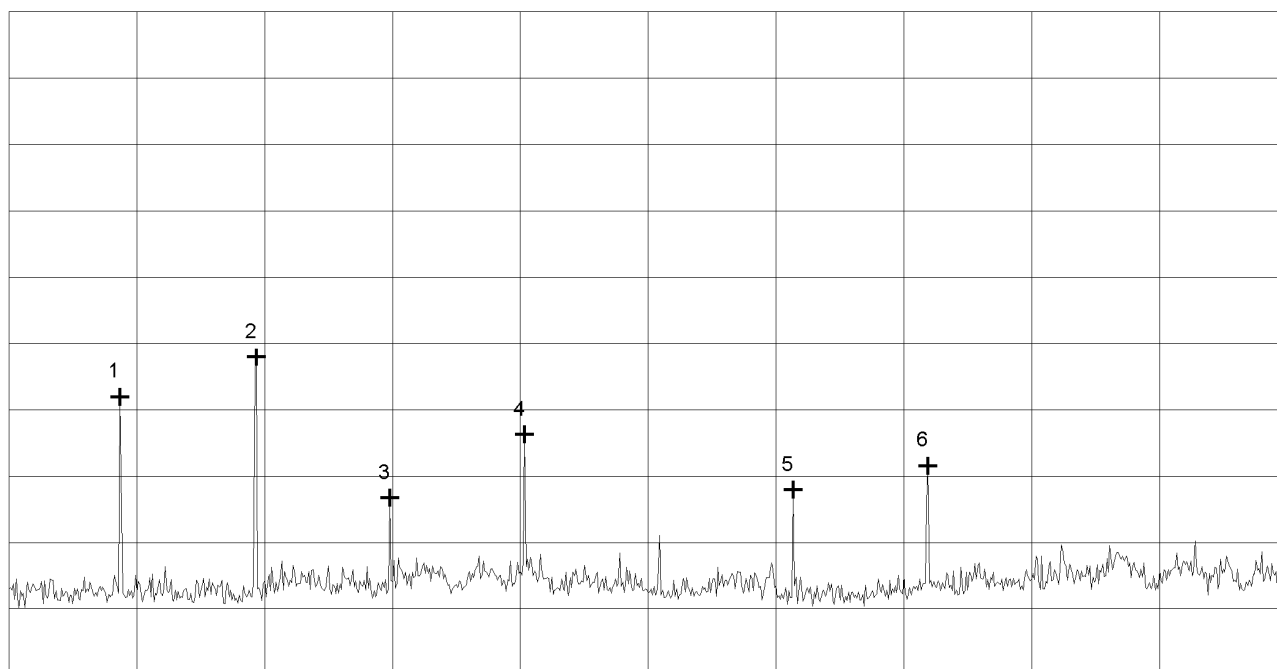
Applicant:
BMW AG

Mode:
EUT on long side

Horizontal polarization

Ref.Level 57 dB μ V
5 dB dB/Div.

ATT 5 dB



Start 1.000 GHz
RBW 300 kHz

VBW 300 kHz

Stop 4.000 GHz
SWP 100 ms

**** Multi Marker ****

Nr.1	1.260000 GHz	27.99 dB μ V
Nr.2	1.580000 GHz	30.98 dB μ V
Nr.3	1.893333 GHz	20.35 dB μ V
Nr.4	2.210000 GHz	25.14 dB μ V
Nr.5	2.840000 GHz	20.96 dB μ V
Nr.6	3.156667 GHz	22.80 dB μ V
Nr.7		
Nr.8		

Tested by:
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Radiated Emission Measurement according to FCC Rules

Model:
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Serial No.:
S40

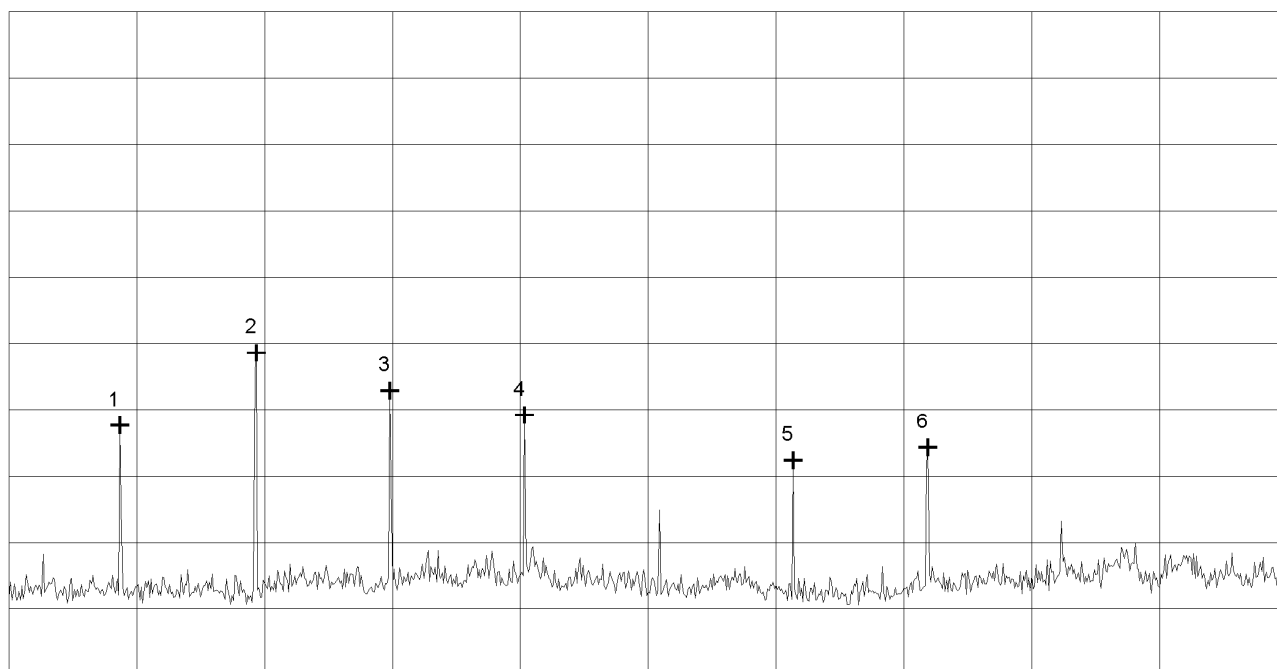
Applicant:
BMW AG

Mode:
EUT on long side

Vertical polarization

Ref.Level 57 dB μ V
5 dB dB/Div.

ATT 5 dB



Start 1.000 GHz
RBW 300 kHz

VBW 300 kHz

Stop 4.000 GHz
SWP 100 ms

**** Multi Marker ****

Nr.1	1.260000 GHz	25.82 dB μ V
Nr.2	1.580000 GHz	31.31 dB μ V
Nr.3	1.893333 GHz	28.45 dB μ V
Nr.4	2.210000 GHz	26.60 dB μ V
Nr.5	2.840000 GHz	23.21 dB μ V
Nr.6	3.156667 GHz	24.17 dB μ V
Nr.7		
Nr.8		

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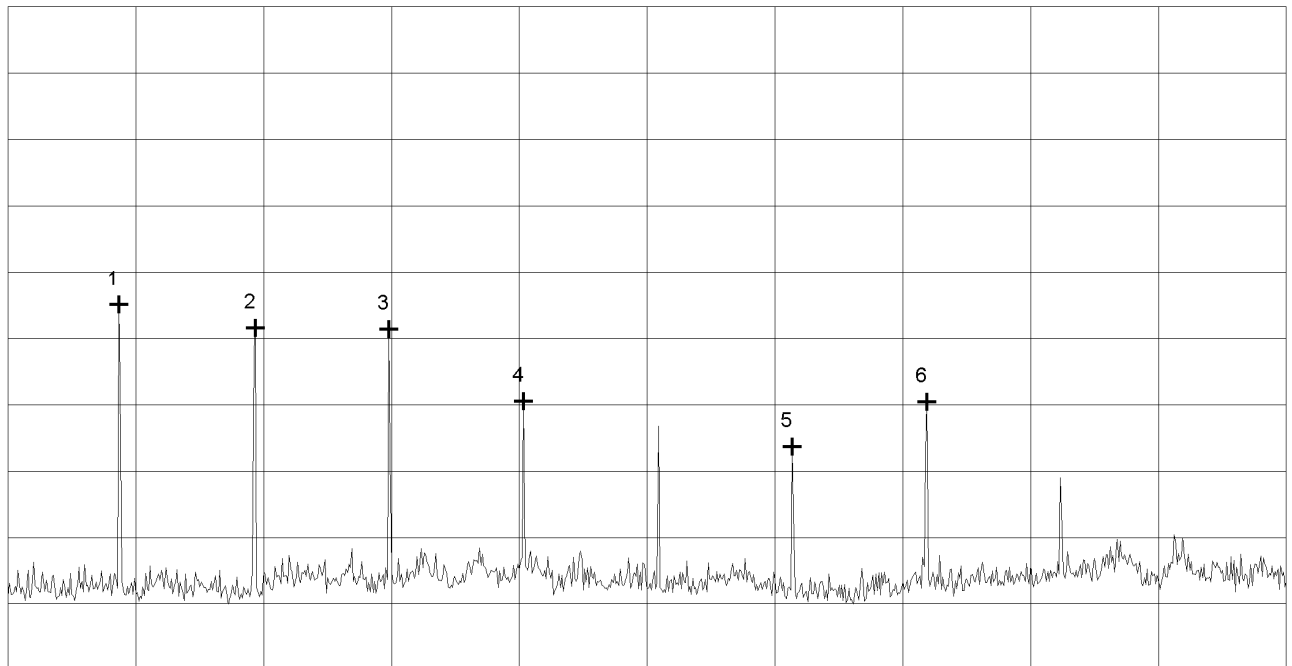
Applicant:
BMW AG

Mode:
EUT upright

Vertical polarization

Ref.Level 57 dB μ V
5 dB dB/Div.

ATT 5 dB



Start 1.000 GHz
RBW 300 kHz

VBW 300 kHz

Stop 4.000 GHz
SWP 100 ms

**** Multi Marker ****

Nr.1	1.260000 GHz	34.56 dB μ V
Nr.2	1.580000 GHz	32.79 dB μ V
Nr.3	1.893333 GHz	32.69 dB μ V
Nr.4	2.210000 GHz	27.29 dB μ V
Nr.5	2.840000 GHz	23.84 dB μ V
Nr.6	3.156667 GHz	27.23 dB μ V
Nr.7		
Nr.8		

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Radiated Emission Measurement according to FCC Rules

Model:
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S40

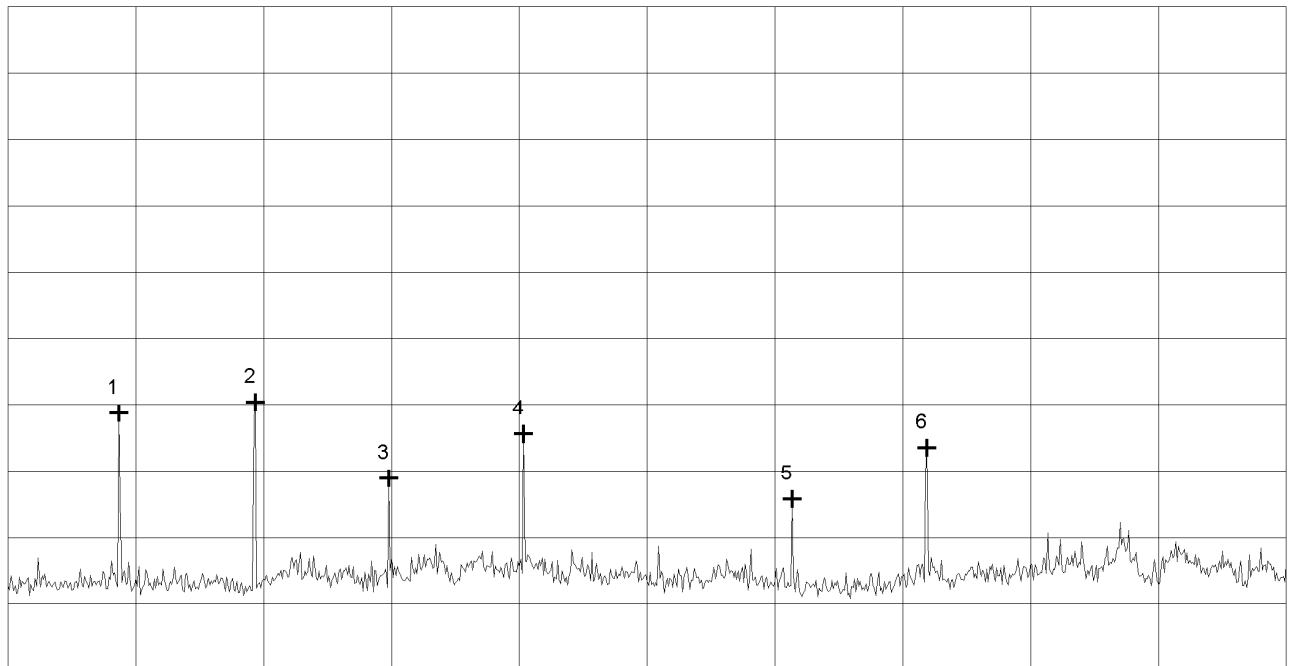
Applicant:
BMW AG

Mode:
EUT upright

Horizontal polarization

Ref.Level 57 dB μ V
5 dB dB/Div.

ATT 5 dB



Start 1.000 GHz
RBW 300 kHz

VBW 300 kHz

Stop 4.000 GHz
SWP 100 ms

**** Multi Marker ****

Nr.1	1.260000 GHz	26.37 dB μ V
Nr.2	1.580000 GHz	27.19 dB μ V
Nr.3	1.893333 GHz	21.44 dB μ V
Nr.4	2.210000 GHz	24.79 dB μ V
Nr.5	2.840000 GHz	19.88 dB μ V
Nr.6	3.156667 GHz	23.76 dB μ V
Nr.7		
Nr.8		

Tested by:
Johann Roidt

Date:
March 22, 1999

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