

Prüfbericht - Nr.: 16003297 001
Test Report No.:

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Auftraggeber: Uni-Art Precise Products Ltd.
Client:
11-12/F., YUE XIU IND'L BLDG.
87 HUNG TO ROAD,
KWUN TONG, KOWLOON
HONG KONG

Gegenstand der Prüfung: Radio Scanning Receiver
Test item:

Bezeichnung: PS100
Identification: TK1000
FCC ID: MVAPS100-001R
FCC ID

Wareneingangs-Nr.: 73012564
Receipt No.:
Eingangsdatum: 01.07.2004
Date of receipt:

Prüfört: Shenzhen Bureau of Quality Technical
Testing location: Supervision Shenzhen Academy of Metrology
and Quality Inspection
Bldg, of Shenzhen Academy of Metrology and
Quality Inspection, Longzhu Road, Nanshan,
Shenzhen,
P.R. China
Listed test laboratory
according to FCC rules
section 2.948 for
measuring devices under
Parts 15

Prüfgrundlage: ANSI C63.4:2001
Test specification: Conduct Emissions with limits described at FCC Part 15 subpart B section
15.107
Radiated Emissions with limits described at FCC Part 15 Subpart B section
15.109
38 dB rejection described at FCC Part 15 Subpart B section 15.121

Prüfergebnis: Der vorstehend beschriebene Prüfgegenstand wurde geprüft und
Test Result: entspricht oben genannter Prüfgrundlage.
The a. m. test item passed.

Prüflaboratorium/ Testing Laboratory:
zusammengestellt/ compiled by:

kontrolliert/ checked by:

16.08.2004 Dave Xie
Datum **Name**
Date *Name*


Unterschrift
Signature

17.08.2004 Yuxin Huang
Datum **Name**
Date *Name*


Unterschrift
Signature

Sonstiges/ Other Aspects:

Abkürzungen: ok / P = entspricht Prüfgrundlage
fail / F = entspricht nicht Prüfgrundlage
n.a. / N = nicht anwendbar

Abbreviations: ok / P = passed
fail / F = failed
n.a. / N = not applicable

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.

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TEST SUMMARY

5.1 CONDUCTED EMISSION FOR FCC PART 15 PER SECTION 15.107(A)

RESULT: *n.a.*

5.2 RADIATED EMISSION FOR FCC PART 15 PER SECTION 15.109(A)

RESULT: *ok*

5.3 38 dB REJECTION SIGNAL FROM CELLULAR FREQUENCY BAND

RESULT: *ok*

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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

Shenzhen SMQ

Shenzhen Bureau of Quality Technical Supervision
Shenzhen Academy of Metrology and Quality Inspection
Bldg, of Shenzhen Academy of Metrology and Quality Inspection
Longzhu Road, Nanshan, Shenzhen,
P.R. China

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2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Antenna	Chase	CBL6112B	2591	29.01.2005
Horn Antenna	Rohde & Schwarz	HF906	100014	29.01.2005
3m Semi-anechoic chamber	Albatross Projects	9X6X6	----	29.01.2005
EMI Test Receiver	Rohde & Schwarz	ES126	838786/013	29.01.2005
Communications Test Set	Rohde & Schwarz	CMU200	1100.0008.02	29.01.2005
Communications Test Set	HP	HP8920A	3438A05187	29.01.2005

2.3 Trace ability

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.

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2.5 Measurement Uncertainty

The estimated combined standard uncertainty for conducted emissions measurements is ± 3 dB.
The estimated combined standard uncertainty for radiated emissions measurements is ± 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 TÜV Rheinland (Guangzhou) file for certification follow-up purposes.

2.7 Status of facility used for testing

Shenzhen Bureau of Quality Technical Supervision, Shenzhen Academy of Metrology and Quality Inspection, Bldg, of Shenzhen Academy of Metrology and Quality Inspection, Longzhu Road, Nanshan, Shenzhen, P.R.China is listed on the US Federal Communications Commission list of facilities approved to perform measurements

3 General Product Information

Brief description of the test sample:

The submitted sample PS100 is a scanning receiver operating in FM broadcasting band and UHF frequency band. The sample receives the FM broadcast or UHF signal via integral antenna, and demodulates to be audio signal. The sample can set the frequency by keyboard equipped on the body.

Model TK1000 is an alternative model name, which is identical to PS100.

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3.1 Product Function and Intended Use

For details, refer to user manual.

3.2 Ratings and System Details

UHF Frequency range	:	450.0000-470.0000MHz
FM frequency range	:	87.9-107.9 MHz
Number of channels	:	auto tunable
Type of antenna	:	Integral antenna
FCC ID:		MVAPS100-001R
Power supply	:	DC 2.4V ("AA" type 1.2V NiCd battery 2x)
Ports	:	None
Protection Class	:	III

Refer to document for further information

3.3 Independent Operation Modes

The basic operation modes are:

- Off
- FM receiving
- Race channel receiving

For further information refer to User Manual

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3.4 Submitted Documents

Block Diagram
Circuit Diagram
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 Constructional Data Form or the Technical document. No additional measures were employed to achieve compliance.

4.5 Test set-up

Diagram 1 of Measurement Equipment Configuration for Testing Conducted Emission

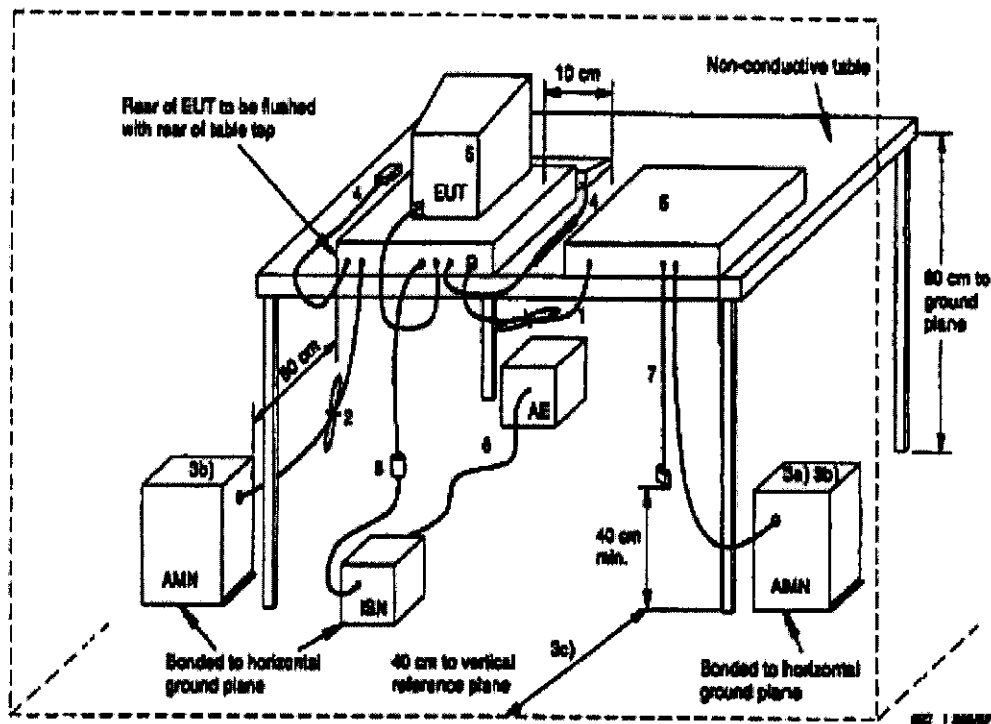
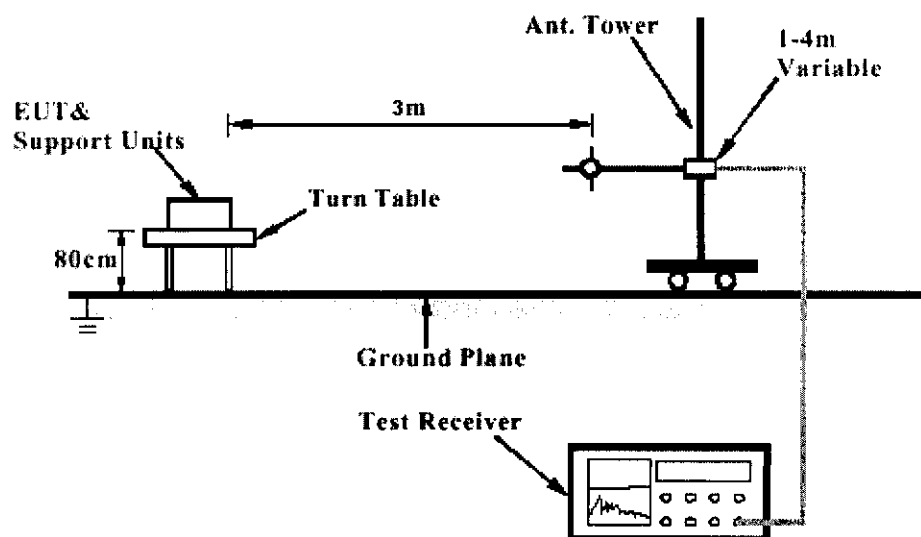


Diagram 2 of Measurement Equipment Configuration for Testing Radiated Emission



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5 Test Results EMISSION

5.1 Conducted Emission for FCC Part 15 Per Section 15.107(a)

RESULT: n.a.

Date of testing	:	---
Test specification	:	FCC Part 15 Per Section 15.107(a)
Deviations from Standard Test procedures	:	None
Test procedure	:	n.a.
Kind of test site	:	Shielded room

There is no connection available for mains.

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5.2 Radiated Emission for FCC Part 15 Per Section 15.109(a)

RESULT:

ok

Date of testing : 13.07.2004 / 02.08.2004
Test specification : FCC Part 15 Per Section 15.109(a)
Limit : FCC Part 15 Per Section 15.109(a)
Operation mode : Receiving FM signal (Low, Mid and High)
Receiving UHF signal (Low, Mid and High)
Deviations from Standard Test procedures : None
Test procedure : Procedure specified in ANSI C63.4 were followed
Kind of test site : 3m Semi-anechoic chamber
Temperature : 21°C
Humidity : 62%

The final measurement for frequencies below 1000MHz is performed with Quasi Peak detector; the final measurement for frequencies above 1000MHz is performed with Average detector.

Disturbances other than those mentioned are small or not detectable.

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

Table 2: Radiated Emission (EUT operated at Bottom Frequency 450 MHz)

Frequency [MHz]	QP [dBμV/m]	AV [dBμV/m]	Polarity	Limit [dBμV/m]
244.914	34.21	---	H	46
428.611	40.27	---	H	46
857.184	38.55	---	H	46
1285.772	---	42.34	H	53.9
428.591	35.26	---	V	46

Table 3: Radiated Emission (EUT operated at Middle UHF Frequency 460 MHz)

Frequency [MHz]	QP [dBμV/m]	AV [dBμV/m]	Polarity	Limit [dBμV/m]
244.613	36.73	---	H	46
438.613	39.22	---	H	46
877.188	38.08	---	H	46
1315.808	---	41.82	H	53.9
438.591	36.75	---	V	46

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Table 4: Radiated Emission (EUT operated at Top UHF Frequency 470 MHz)

Frequency [MHz]	QP [dB μ V/m]	AV [dB μ V/m]	Polarity	Limit [dB μ V/m]
260.675	33.04	---	H	46
448.611	40.98	---	H	46
1285.772	---	42.34	H	53.9
448.611	36.62	---	V	46

Table 5: Radiated Emission (EUT operated at Bottom FM Frequency 88.1 MHz)

Frequency [MHz]	QP [dB μ V/m]	AV [dB μ V/m]	Polarity	Limit [dB μ V/m]
88.11	29.74	---	H	43.5
245.130	30.02	---	H	46
268.238	31.64	---	H	46
326.880	27.90	---	H	46
49.348	19.14	---	V	40

Table 6: Radiated Emission (EUT operated at Middle FM Frequency 98.1 MHz)

Frequency [MHz]	QP [dB μ V/m]	AV [dB μ V/m]	Polarity	Limit [dB μ V/m]
163.293	26.33	---	V	43.5
195.912	24.62	---	V	43.5
108.792	33.10	---	H	43.5
163.313	28.95	---	H	43.5
278.627	31.22	---	H	46
391.812	28.32	---	H	46

Table 7: Radiated Emission (EUT operated at Top FM Frequency 107.9 MHz)

Frequency [MHz]	QP [dB μ V/m]	AV [dB μ V/m]	Polarity	Limit [dB μ V/m]
118.591	33.34	---	H	43.5
163.232	29.02	---	H	43.5
261.214	31.17	---	H	46

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5.3 38 dB rejection signal from Cellular Frequency band

RESULT:

ok

Date of testing : 05.08.2004
Test specification : FCC Part 15 Per Section 15.121(b)
Limit : FCC Part 15 Per Section 15.121(b)
Operation mode: Receiving
Test procedure Procedure specified in ANSI C63.4 were followed
Kind of test site : Shielded room
Test signal : RF signal FM at 1kHz audio, 19kHz pilot with
75kHz deviation
Reference level : - 40dBm

Table 8: 38 dB Rejection

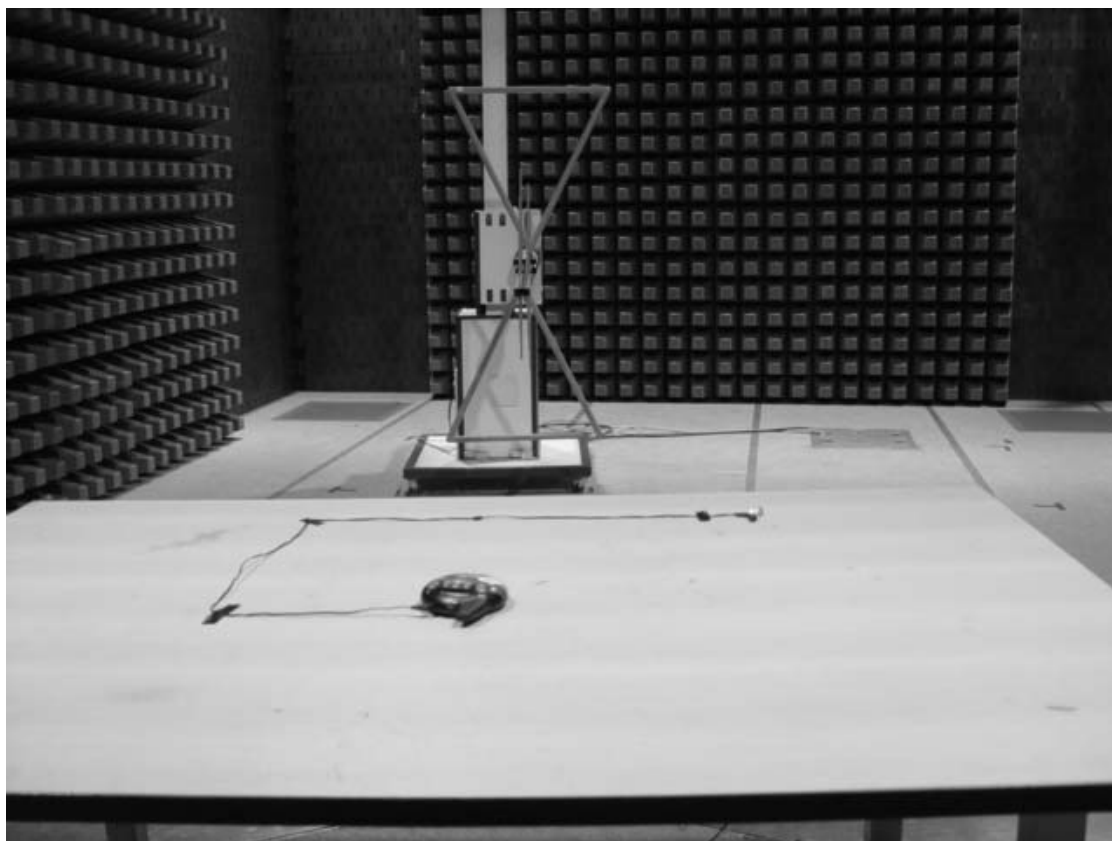
Injection frequency(Cellular) in MHz	Level 12dB SINAD at injected frequency in dBm	Rejection in dB	Limit in dB
478.90	>17	>40	38
482.00	>17	>40	38
486.00	>17	>40	38
488.80	>17	>40	38
492.00	>17	>40	38
496.00	>17	>40	38

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6 Photographs of the Test Set-Up

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



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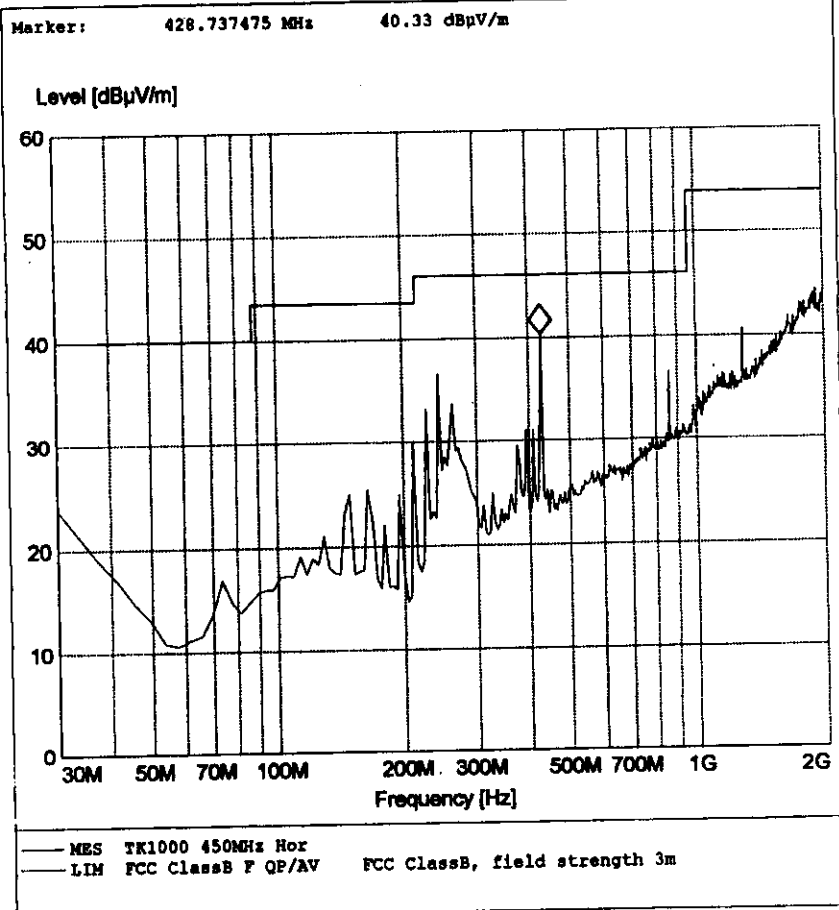
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Radiated Disturbance

FCC Class B

EUT: M/N:TK1000
Manufacturer:
Operating Condition: 450MHz
Test Site: BMQ EMC Lab.SAC
Operator:
Test Specification: Horizontal
Comment: DC 3.0V



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Test Report No.:

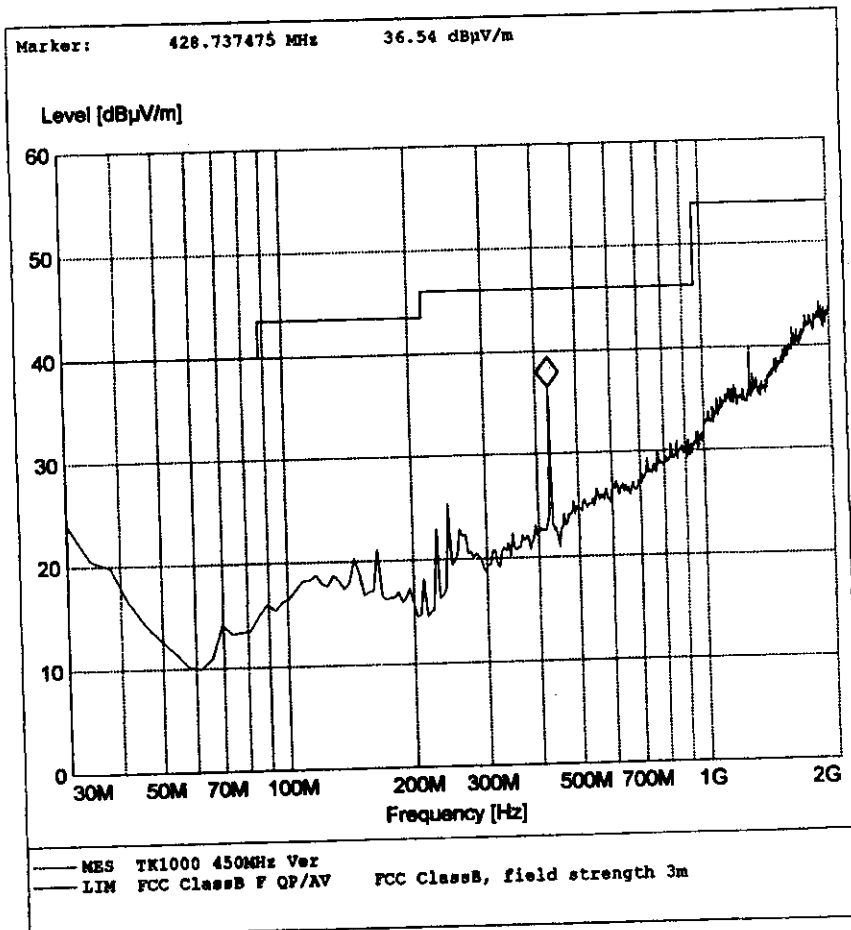
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Radiated Disturbance

FCC Class B

EUT: M/N:TK1000
Manufacturer:
Operating Condition: 450MHz
Test Site: SNQ EMC Lab.SAC
Operator:
Test Specification: Vertical
Comment: DC 3.0V



Prüfbericht - Nr.: 16003297 001

Test Report No.:

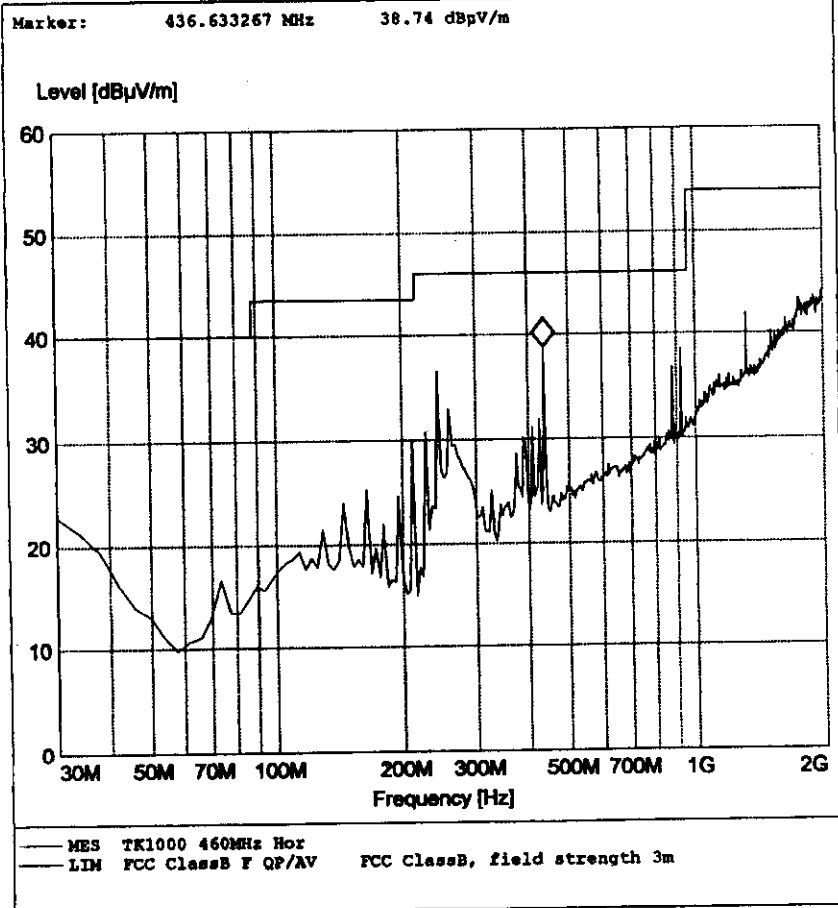
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Radiated Disturbance

FCC Class B

EUT: M/N:TK1000
Manufacturer:
Operating Condition: 460MHz
Test Site: SMQ EMC Lab.SAC
Operator:
Test Specification: Horizontal
Comment: DC 3.0V



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Test Report No.:

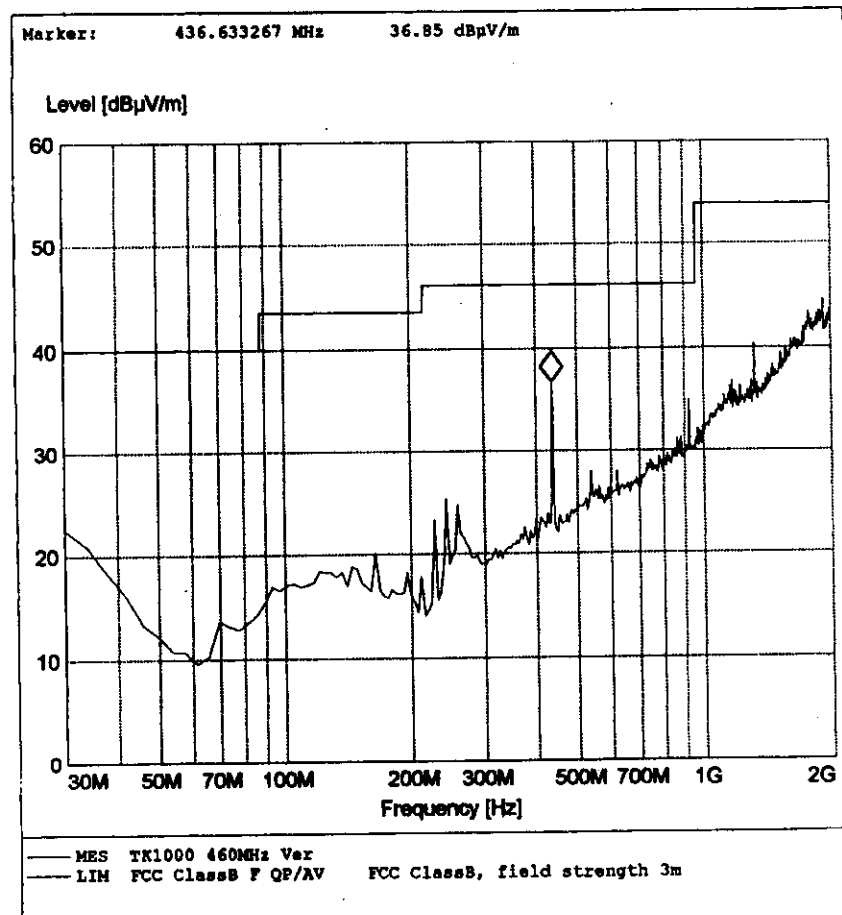
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Radiated Disturbance

FCC Class B

EUT: M/N:TK1000
Manufacturer:
Operating Condition: 460MHz
Test Site: SMQ EMC Lab.SAC
Operator:
Test Specification: Vertical
Comment: DC 3.0V



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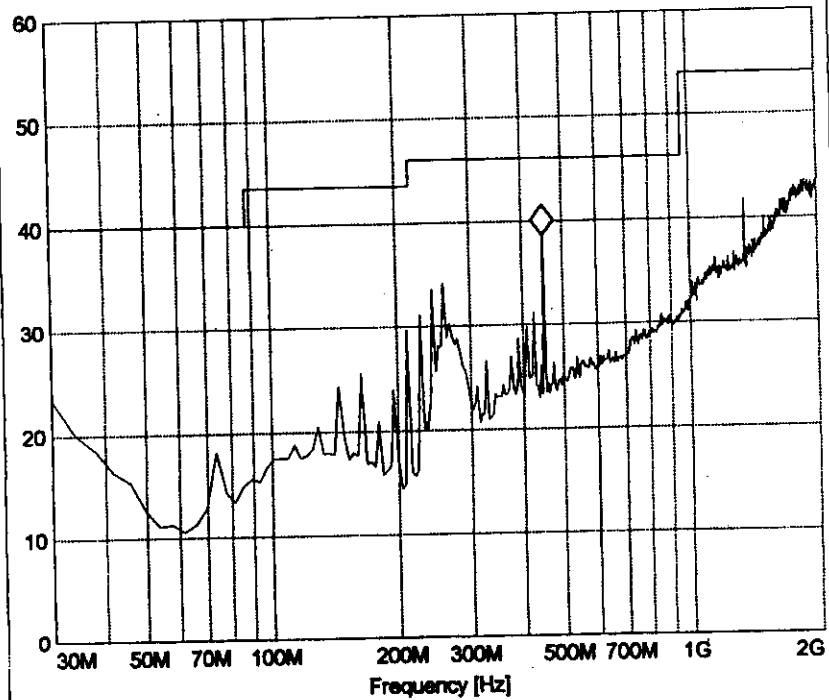
Radiated Disturbance

FCC Class B

EUT: N/W:TK1000
Manufacturer:
Operating Condition: 470MHz
Test Site: SMQ EMC Lab.SAC
Operator:
Test Specification: Horizontal
Comment: DC 3.0V

Marker: 448.476954 MHz 38.64 dBµV/m

Level [dBµV/m]



— MES TK1000 470MHz Hor
— LIM FCC ClassB F QP/AV FCC ClassB, field strength 3m

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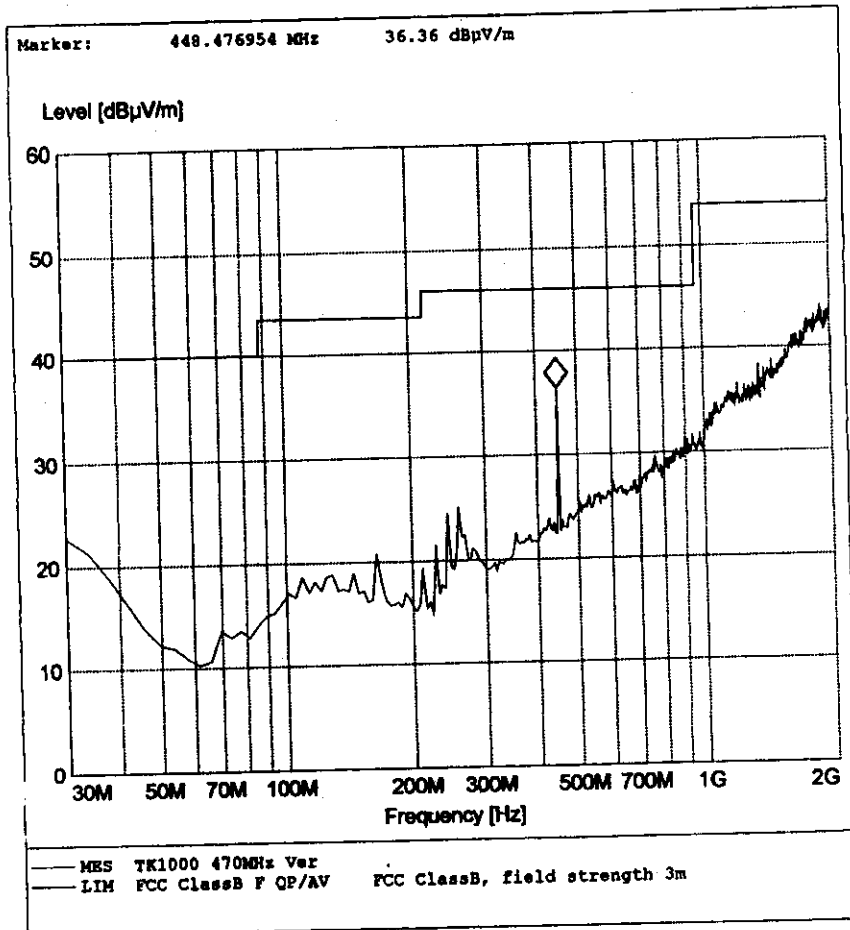
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Radiated Disturbance

FCC Class B

EUT: M/N:TK1000
Manufacturer:
Operating Condition: 470MHz
Test Site: SMQ EMC Lab.SAC
Operator:
Test Specification: Vertical
Comment: DC 3.0V



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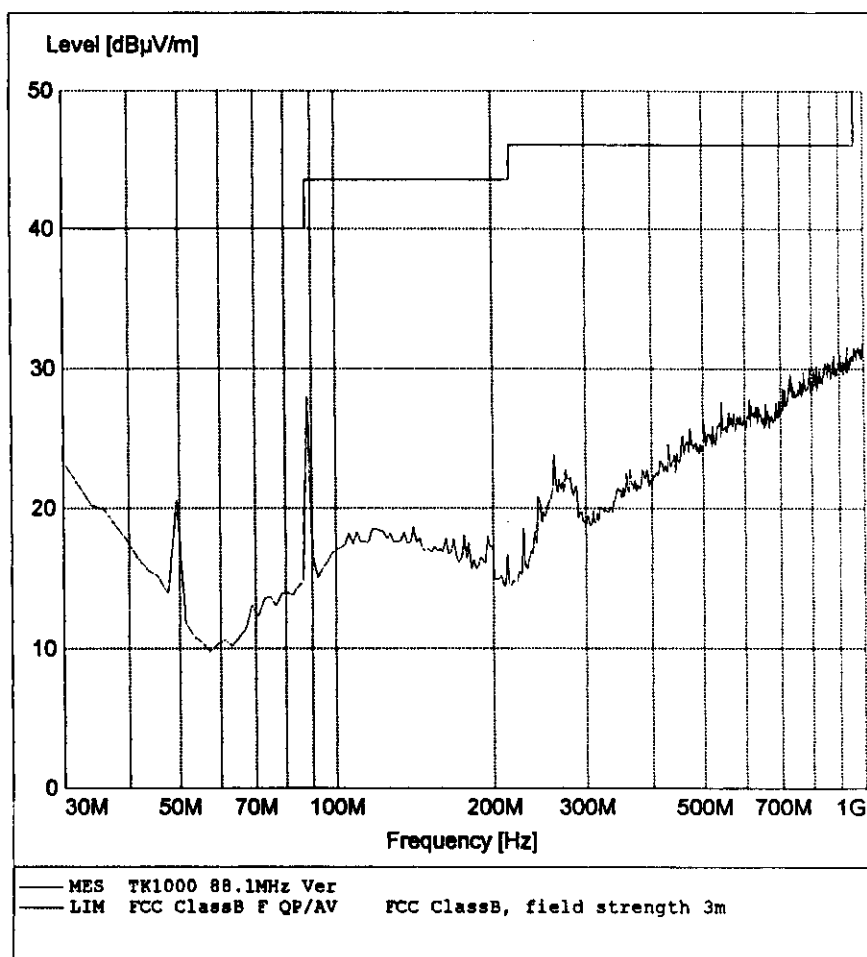
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Radiated Disturbance

FCC Class B

EUT: M/N:TK1000
Manufacturer:
Operating Condition: FM 88.1MHz
Test Site: SMQ EMC Lab.SAC
Operator:
Test Specification: Vertical
Comment: DC 3.0V



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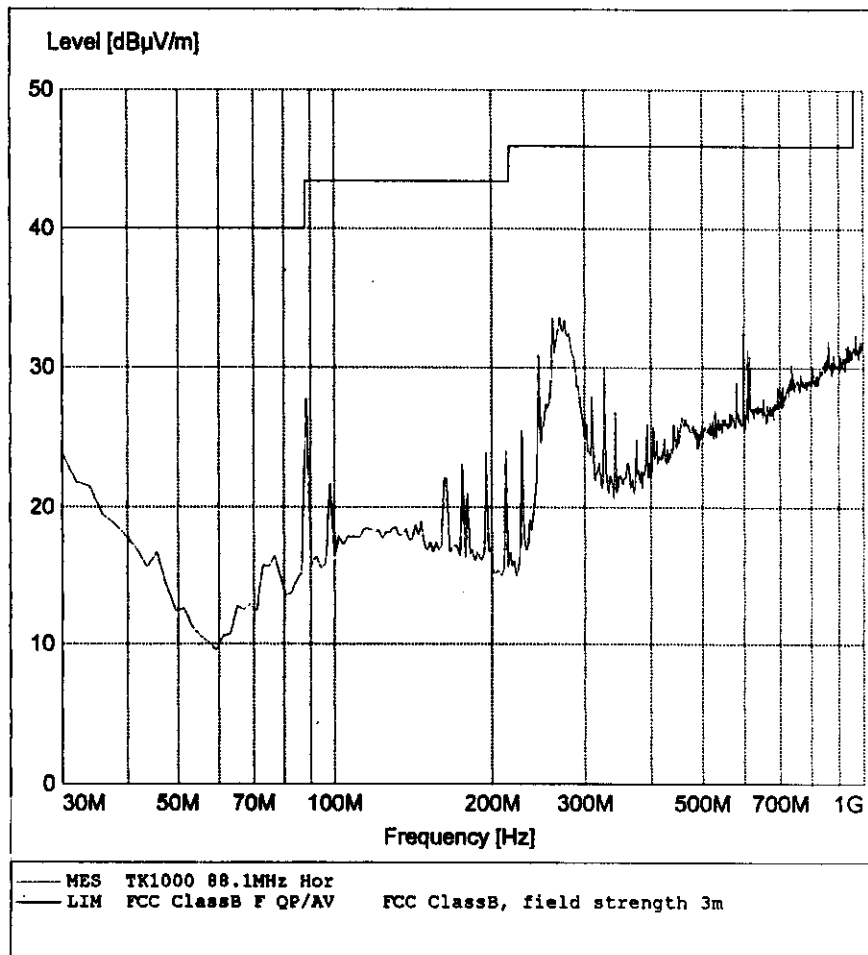
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Radiated Disturbance

FCC Class B

EUT: M/N:TK1000
Manufacturer:
Operating Condition: FM 88.1MHz
Test site: SMQ EMC Lab.SAC
Operator:
Test Specification: Horizontal
Comment: DC 3.0V



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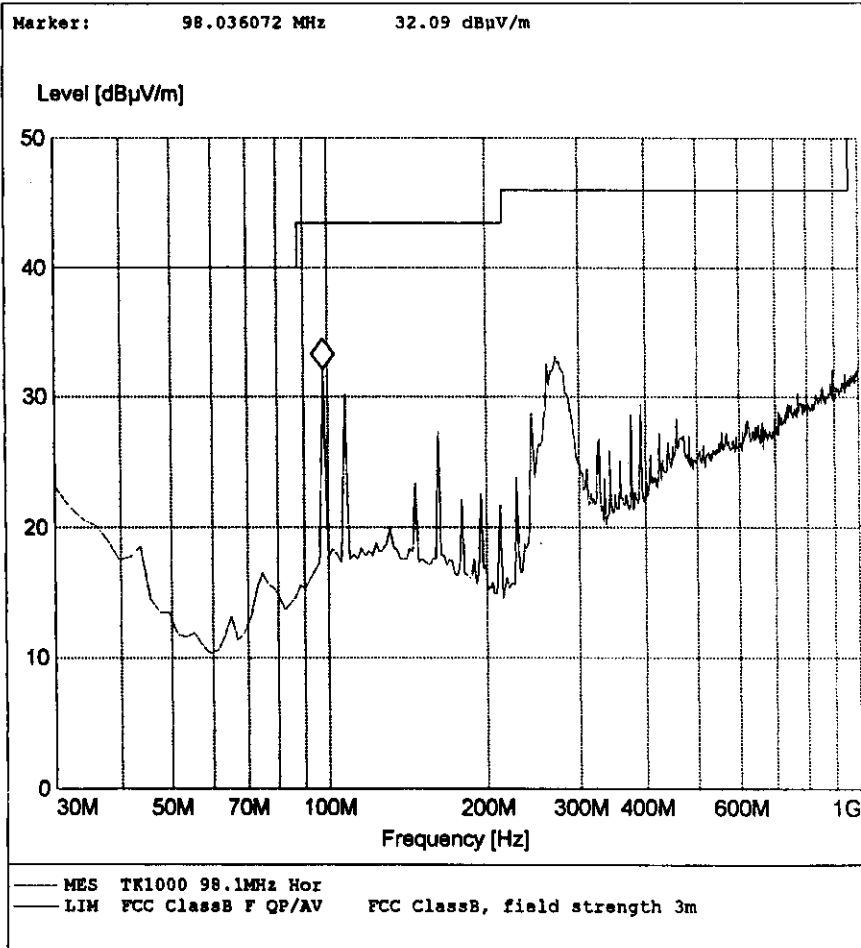
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Radiated Disturbance

FCC Class B

EUT: M/N:TK1000
Manufacturer:
Operating Condition: FM 98.1MHz
Test Site: SMQ EMC Lab.SAC
Operator:
Test Specification: Horizontal
Comment: DC 3.0V



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Test Report No.:

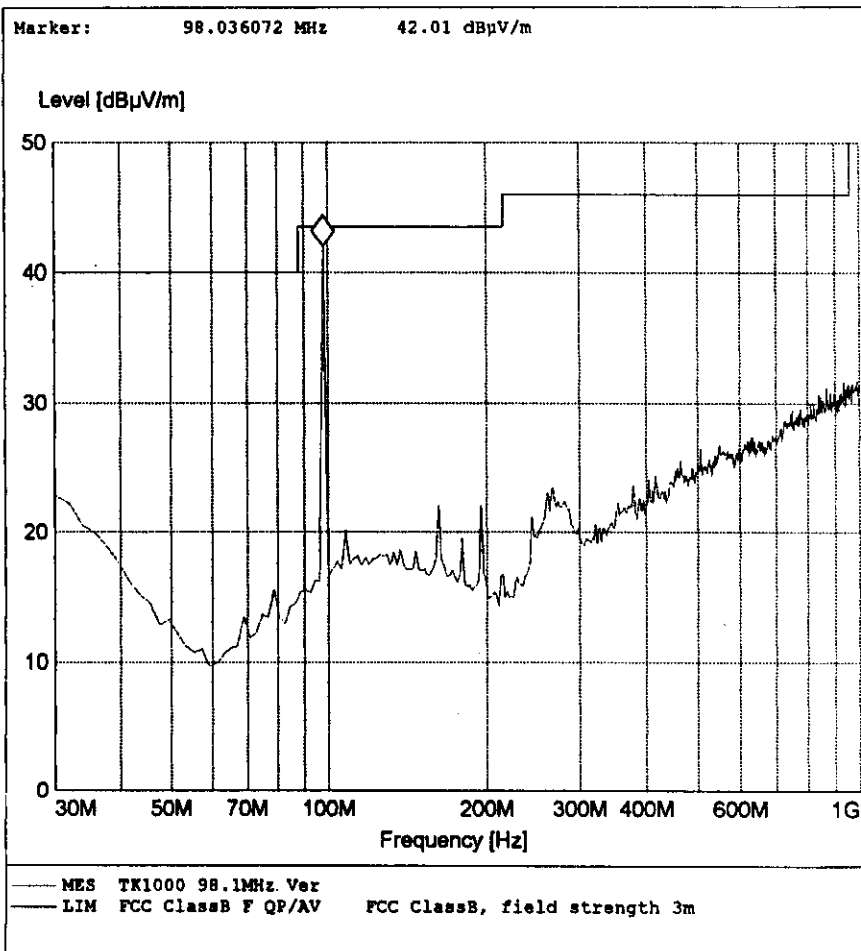
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Radiated Disturbance

FCC Class B

EUT: M/N:TK1000
Manufacturer:
Operating Condition: FM 98.1MHz
Test Site: SMQ EMC Lab.SAC
Operator:
Test Specification: Vertical
Comment: DC 3.0V



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Test Report No.:

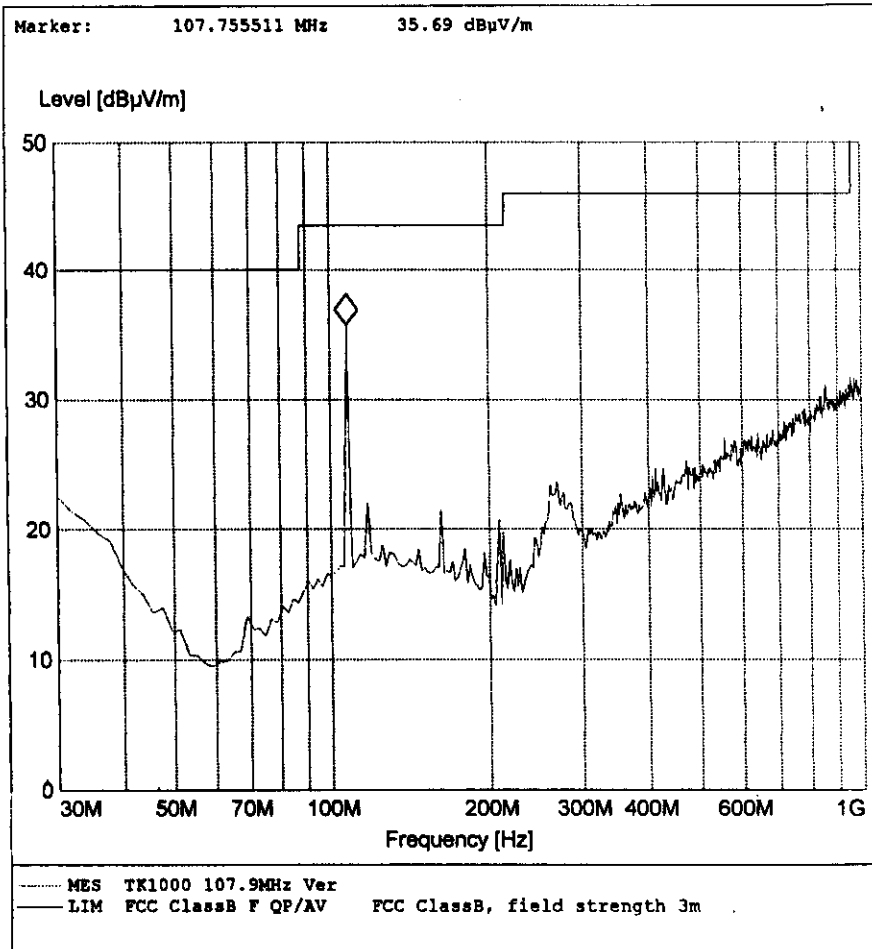
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Radiated Disturbance

FCC Class B

EUT: M/N:TK1000
Manufacturer:
Operating Condition: FM 107.9MHz
Test Site: SMQ EMC Lab.SAC
Operator:
Test Specification: Vertical
Comment: DC 3.0V



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FCC Class B

EUT: M/N:TK1000
Manufacturer:
Operating Condition: FM 107.9MHz
Test Site: SMO EMC Lab.SAC
Operator:
Test Specification: Horizontal
Comment: DC 3.0V

