TEST REPORT
FROM
RADIO FREQUENCY
INVESTIGATION LTD.

Test Of: Adaptive Broadband Ltd
AB-ACCESS Subscriber Unit (SU)

To: FCC Part 15 Subpart E: 1998
(Unlicensed National Information
Infrastructure Devices)

Test Report Serial No:
RFI/EMCB1/RP39361A

This Test Report Is Issued Under The Authority Of Brian Watson Technical Director: 	**Checked By:** 
Tested By: 	**Release Version No: PDF01**
Issue Date: 2 August 1999	**Test Date: 27 July 1999 and 30 July 1999**

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1. Client Information

Company Name:	Adaptive Broadband Ltd
Address:	First Floor, Block C1 The Westbrook Centre Milton Road Cambridge CB4 1YQ Tel: +44-1223-713713 Fax: +44-1223-713714
Contact Name:	Mr P. Simpson Tel: +44-1223-713412 E-Mail: ps@adaptivebroadband.com

2. Equipment Under Test (EUT)

The following information (with the exception of the Date of Receipt) has been supplied by the client:

2.1. Identification Of Equipment Under Test (EUT)

Brand Name:	AB-ACCESS U-NII Transceiver
Model Name or Number:	Subscriber Unit (SU)
Unique Type Identification:	Helium Antenna Unit and Ethernet Wall-Box
Serial Number:	S NO HK 0085
Country of Manufacture:	UK
FCC ID Number:	OJBAB-ACCESS-SU01
Date of Receipt:	21 July 1999

2.2. Description Of EUT

AB-ACCESS is targeted at providing high speed wireless internet access in the recently assigned FCC U-NII bands between 5GHz and 6GHz. AB-ACCESS adopts a cellular structure consisting of base stations servicing many users – it is a fixed access, point-multipoint infrastructure. The product is targeted at the US market only.

An Access Point (AP) is routed via a 'wall-box' to the service provider's trunked infrastructure. The AP has an integral antenna with 60 degree 3dB beamwidth to illuminate a desired coverage area, AP units can be installed around the periphery of a tall building or on a tower for optimum coverage. Power and data (bi-directional) are routed via braid and foil screened, quad twisted pair, Cat-5 data cable from an internally mounted wall-box (similar in construction to a standard telephone outlet socket) up to the AP antenna unit, power and data status is also routed via this cable. Power is provided to the wall-box via a standard FCC approved 48V DC supply. The wall-box provides Ethernet or ATM connectivity via the RJ45 socket to the service provider's network.

Users are equipped with wall/roof-top/chimney mounted Subscriber Units (SU) that have a line of sight link back to the AP. The SU is again fitted with a directional integral antenna having a narrower 20 degree 3dB beamwidth. Power and data (bi-directional) are routed via braid and foil screened, quad twisted pair, Cat-5 data cable from an internally mounted wall-box (similar in construction to a standard telephone outlet socket) up to the SU antenna unit, power and data status is also routed via this cable. Power is provided to the wall-box via a standard FCC approved 48V DC supply. The wall-box provides Ethernet connectivity via the RJ45 socket to the users PC.

2.3. Modifications Incorporated In EUT

The EUT has been modified so that it can be driven from a PC test script enabling worst case conditions for FCC Part 15 Subpart E requirements to be evaluated and tested for compliance. This modification is purely a software driver. AB-ACCESS employs a rapid TDD (Time Division Duplex) air interface based on ATM (Asynchronous Transfer Mode) networking protocols – data is transmitted asynchronously on demand and as such there is no discernible duty cycle from which 'averaged' measurements can be taken. The following test mode has been implemented :-

Continuous Transmit – this enables worst case EIRP and PSD to be measured, the unit is set for maximum transmit power.

For testing to FCC Part 15 Subpart B and E the unit is in standard operational mode with ATM traffic exercising the transceiver fully. Transmit and Receive are bursting asynchronously and as such giving worst case conducted load transients and radiated switching emissions below 1GHz.

2.4. Additional Information Related To Testing

Power Supply Requirement:	115 V, 60 Hz AC Mains to PSU 48 VDC from PSU to EUT
Current Rating	830mA
Intended Operating Environment:	SU antenna units are mounted outside, operational range is -20 to +50 degrees Celsius. "Wall-box" units and PSUs are mounted internally to users buildings/office/home.
Weight:	SU antenna unit <5 Kg max
Dimensions:	SU = 260mm (h) x 250mm (w) x 80mm (d)
Interface Ports:	'Wall-box' RJ45 socket – Ethernet / ATM available
Type of Device	Fixed Access Wireless Internet System
Antenna Details	Permanently Attached
Occupied Bandwidth	15 Channels of 15 MHz within each 100 MHz U-NII band
Type of Modulation	QPSK at 25Mbits/sec, raised cosine filter (α = 0.35)
Number of Tx Channels	15 Channels of 15 MHz, 5 channels in each U-NII Band
Method of Frequency Generation	Synthesiser
Category of Receiver	Superheterodyne

2.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description	Power Supply Unit, 100V to 240V AC, 50 to 60Hz, 48V DC supply, 0.83A
Brand Name:	Artesyn
Model Name or Number:	SSL40-3360
Serial Number:	Unit P1
FCC ID Number:	Verified
Cable Length And Type:	DC and GND – 1m max.
Connected to Port:	EUT Wall-box power supply input.

Description	Power Supply Unit, 100V to 240V AC, 50 to 60Hz, 48V DC supply, 0.83A
Brand Name:	Artesyn
Model Name or Number:	SSL40-3360
Serial Number:	Unit P2
FCC ID Number:	Verified
Cable Length And Type:	DC and GND – 1m max.
Connected to Port:	Ethernet Wall-box power supply input.

Description	AB-ACCESS U-NII TRANSCEIVER
Brand Name:	Subscriber Unit (SU) – software configured to Access Point (AP).
Model Name or Number:	Helium Antenna Unit and Ethernet Wall-Box – configured to ATM.
Serial Number:	S NO HK 0042
FCC ID Number:	OJBAB-ACCESS-SU01
Cable Length And Type:	30m CAT-5 UTP
Connected to Port:	Antenna Unit to Wall-Box

Support Equipment: Cont.

Description	LAPTOP PC – to drive EUT
Brand Name:	DELL
Model Name or Number:	Lattitude Cpi
Serial Number:	DP/M 0009321C-12800-917-1285
FCC ID Number:	None stated by client
Cable Length And Type:	2m Ethernet – Straight
Connected to Port:	Ethernet HUB

Description	LAPTOP PSU
Brand Name:	DELL
Model Name or Number:	AA20031 - N15773
Serial Number:	DP/N 0004983D REV-0
FCC ID Number:	None stated by client
Cable Length And Type:	1m
Connected to Port:	LAPTOP PSU Input

Description	Ethernet HUB
Brand Name:	Intel In-business
Model Name or Number:	5-port HUB
Serial Number:	05302326825
FCC ID Number:	None stated by client
Cable Length And Type:	2m Ethernet – Twist
Connected to Port:	EUT Wall-Box RJ-45 connector

Description	Ethernet HUB PSU
Brand Name:	Intel
Model Name or Number:	MKD-75700UK
Serial Number:	PSA2407P5P7-UK
FCC ID Number:	None stated by client
Cable Length And Type:	1m
Connected to Port:	Ethernet HUB PSU input

Support Equipment: Cont.

Description	ATM Switch
Brand Name:	ACCESS NUI
Model Name or Number:	WAN ACCESS Switch
Serial Number:	VSW-2000E S/N 12495394
FCC ID Number:	None stated by client
Cable Length And Type:	2m ATM – twist
Connected to Port:	ATM Wall-Box of AP

Description: (as used in section 10)	CONTROL SERVER PC
Brand Name:	None stated by client
Model Name or Number:	None stated by client
Serial Number:	None stated by client
FCC ID Number:	None stated by client
Cable Length And Type:	2m ATM – straight
Connected to Port:	ATM Switch

3. Test Specification, Methods And Procedures

3.1. Test Specification

Reference:	FCC Part 15 Subpart E: 1998
Title:	Code of Federal Regulations, Part 15 (47CFR15) Radio Frequency Devices: Digital Devices. Subpart E: Unlicensed National Information Infrastructure Devices
Comments:	A description of the test facility used for this test is on file with, and has been accepted by, the Federal Communications Commission as required by Section 2.948 of Federal Rules.
Purpose of Test:	To determine whether the equipment complied with the requirements of the specification for the purposes of certification.

3.2. Methods And Procedures

The methods and procedures used were as detailed in:

ANSI C63.2 (1987)
Title: American National Standard for Instrumentation - Electromagnetic noise and field strength.

ANSI C63.4 (1992)
Title: American National Standard Methods of Measurement of Electromagnetic Emissions from Low Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

ANSI C63.5 (1988)
Title: American National Standard for the Calibration of antennas used for Radiated Emission measurements in Electromagnetic Interference (EMI) control.

ANSI C63.7 (1988)
Title: American National Standard Guide for Construction of Open Area Test Sites for performing Radiated Emission Measurements.

CISPR 16 (1987)
Title: Specification for Radio Interference measuring apparatus and measurement methods.

3.3. Definition Of Measurement Equipment

The measurement equipment used complied with the requirements of the standards referenced in the Methods & Procedures section above. Appendix 1 contains a list of the test equipment used.

4. Deviations From The Test Specification

None

5. Operation Of The EUT During Testing

5.1. Operating Conditions

The EUT was tested in a normal laboratory environment.

During testing, the EUT was powered by a 48 V DC Supply from the PSU. The PSU was powered from a 115 V, 60 Hz AC Mains supply.

5.2. Operating Modes

The EUT was tested in the following operating mode: As intended for correct and normal operation.

Tests were performed with the EUT set to the following channels for each of the 3 operating bands.

Bottom Band: 5.15 to 5.25 GHz:	Bottom Channel	(Channel 0)	5.17 GHz
	Top Channel	(Channel 4)	5.23 GHz
Middle Band: 5.25 to 5.35 GHz:	Bottom Channel	(Channel 5)	5.27 GHz
	Top Channel	(Channel 9)	5.33 GHz
Top Band: 5.725 to 5.825 GHz:	Bottom Channel	(Channel 10)	5.745 GHz
	Top Channel	(Channel 14)	5.805 GHz

The reason for choosing this mode was that it was defined by the client as being likely to be the worst case with regards EMC.

5.3. Configuration And Peripherals

AP and SU antenna units connected via S-FTP-Cat-5 cable to wall-box, power supplied from PSU to wall-box, RJ45 from wall-box controller PC (outside of test chamber) via UTP-Cat-5 Ethernet cable.

The reason for choosing this configuration was that it was defined by the client as being likely to be the worst case with regards EMC and typical of an installation at a users home / office.

NB Section 2 of this report contains a full list of support equipment used and Appendix 3 contains a schematic diagram of the test configuration.

6. Summary Of Test Results

Range Of Measurements	Specification Reference	Compliancy Status
AC Powerline Conducted Emissions, 450 kHz to 30 MHz	Section 15.407 (b5) of C.F.R. 47: 1998. (Section 15.207)	Complied
Electric Field Strength Spurious Emissions, 30 MHz to 1000 MHz	Section 15.407 (b5) of C.F.R. 47: 1998 (Section 15.209)	Complied

6.1. Location Of Tests

All the measurements described in this report were performed at the premises of Radio Frequency Investigation Ltd, Ewhurst Park, Ramsdell, Basingstoke, Hampshire, RG26 5RQ, England.

7. Measurements, Examinations And Derived Results

7.1. General Comments

7.1.1. This section contains test results only. Details of the test methods and procedures can be found in Appendix 2 of this report.

7.1.2. The measurement uncertainties stated were calculated in accordance with the requirements of NAMAS Document NIS 81 with a confidence level of 95%. Please refer to Section 8 for details of measurement uncertainties.

7.2. Test Results For AC Mains Conducted Emissions

7.2.1. Quasi-Peak Detector Measurements On Live And Neutral Lines

7.2.1.1. Measurements were performed to FCC Part 15.207 (Intentional Radiators)

7.2.1.2. Plots of the initial scans can be found in Appendix 4.

7.2.1.3. Preliminary conducted spurious emission scans were performed with the EUT set to all 6 channels stated in section 5.2. These preliminary scans showed similar emission levels for each of the channels. Therefore final conducted emission measurements were performed with the EUT set to Top Band Top Channel (Channel 14).

7.2.1.4. The following table lists frequencies at which emissions were measured using a Quasi-Peak detector:

Top Band Top Channel (Channel 14)

Frequency (MHz)	Line	Q-P Level (dBmV)	Q-P Limit (dBmV)	Margin (dB)	Result
0.604	Live	42.3	48.0	5.7	Complied
0.604	Neutral	41.9	48.0	6.1	Complied
0.696	Live	41.2	48.0	6.8	Complied
0.696	Neutral	41.1	48.0	6.9	Complied
2.712	Neutral	37.1	48.0	10.9	Complied
2.714	Live	33.8	48.0	14.2	Complied
3.164	Neutral	42.2	48.0	5.8	Complied
3.165	Live	43.4	48.0	4.6	Complied
9.487	Live	43.6	48.0	4.4	Complied
9.487	Neutral	42.2	48.0	5.8	Complied
15.000	Live	29.3	48.0	18.7	Complied
15.000	Neutral	29.2	48.0	18.8	Complied

7.3. Test Results For Radiated Emissions

7.3.1. Electric Field Strength Measurements: 30 MHz to 1000 MHz

7.3.1.1. Measurements were performed to FCC Part 15.109 Class B (Unintentional Radiators)

7.3.1.2. At the client's request, measurements were performed up to 1000 MHz only.

7.3.1.3. Preliminary radiated spurious emission scans were performed with the EUT set to all 6 channels stated in section 5.2. These preliminary scans showed similar emission levels for each of the channels. Therefore final radiated emission measurements were performed with the EUT set to Bottom Band Bottom Channel (Channel 0).

7.3.1.4. Plots of the initial scans can be found in Appendix 4.

7.3.1.5. The following table lists frequencies at which emissions were measured using a Quasi-Peak detector at a test distance of 3m (results incorporate antenna factors and cable losses):

Bottom Band Bottom Channel (Channel 0)

Frequency (MHz)	Ant. Pol.	Q-P Level (dBmV/m)	Q-P Limit (dBmV/m)	Margin (dB)	Result
41.977	Vert.	18.2	40.0	21.8	Complied
53.758	Vert.	28.4	40.0	11.6	Complied
61.683	Vert.	24.4	40.0	15.6	Complied
70.562	Vert.	22.4	40.0	17.6	Complied
96.000	Vert.	19.0	43.5	24.5	Complied
112.908	Vert.	13.0	43.5	30.5	Complied

8. Measurement Uncertainty

8.1. Company Policy, as based on the NAMAS Accreditation Standard, M10, paragraph 12.11 (o), states that Test Reports shall include estimated uncertainty of the calibration or test result (this information need only appear in test reports and test certificates where it is relevant to the validity or application of the test result, where a client's instructions so require or where uncertainty affects compliance to a specification or limit).

8.2. The global uncertainties have been calculated in accordance with NAMAS NIS 81 (Edition 1, May 1994) as follows:

Measurement Type	Range	Confidence Level	Calculated Uncertainty
Conducted Emissions	0.15 MHz to 30 MHz	95%	+/- 2.2 dB
Radiated Field Strength Emissions	30 MHz to 1000 MHz	95%	+/- 4.9 dB

8.3. Measurement uncertainties have been applied in accordance with NAMAS document NIS 81 (edition 1, May 1994), and in the absence of any specification criteria, guidance, or code of practice, compliance has been judged on the basis of shared risk.

8.4. In the case of emissions tests, the measured value of the disturbance from the product sample shall be compared directly with the limits. If the measured value is equal to or less than the limit the product is deemed to pass the test.

8.5. In the case of immunity tests, the equipment is deemed to pass the test if it fulfils the stated performance criteria at the required or a higher severity level. The measurement uncertainty has been taken into account in the calibration procedures stated in the relevant basic standard.

8.6. The methods used to calculate the above uncertainties are in line with those used for calibration laboratories contained in NAMAS document NIS 3003 Edition 8 “The Expression of Uncertainty and Confidence in Measurement” May 1995, which align with international recommendations “Guide to the Expression of Uncertainty in Measurement” ISO/IEC/OIML/BIPM (Prepared by ISO/TAG 4: January 1993).

Appendix 1. Test Equipment Used

Instrument	Manufacturer	Model	RFI No.
Conducted Emissions:			
L.I.S.N. (1 ph.)	R & S	ESH3-Z5	A004
Pulse Limitter	R & S	ESH3-Z32	A287
Test Receiver	R & S	ESBI	M088
Plotter	H.P.	7440A	P001
Radiated Electric Field Emissions			
Bilog Antenna	Chase	CBL6111	A259
Bilog Antenna	Chase	CBL6111-2	A1037
3dB Attenuator	Narda	771003	A262
Cable	Rosenberger	UFA210A-1-1182-704704	C460
Cable	Rosenberger	UFA210A-1-1182-704704	C461
Test Receiver	R & S	ESVP	M002
Spectrum Monitor	R & S	EZM	M003
Test Receiver	R & S	ESMI	M069

NB In accordance with NAMAS requirements, all the measurement equipment is on a calibration schedule.

Appendix 2. Measurement Methods

A2.1. AC Mains Conducted Emissions: FCC Part 15

A2.1.1. AC mains conducted emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

A2.1.2. The test was performed in a shielded enclosure with the equipment arranged as detailed in the standard on a wooden bench using the floor of the screened enclosure as the ground reference plane and with the EUT powered via a 115 V 60 Hz AC mains supply.

A2.1.3. Initial measurements in the form of swept scans covering the entire measurement band were performed in order to identify frequencies on which the EUT was generating interference. In order to minimise the time taken for these swept measurements, a Peak detector was used in conjunction with the appropriate detector IF measuring bandwidths (see table below). Repetitive scans were performed to allow for emissions with low repetition rates, and the duty cycle of the EUT. The test configuration was the same for the initial scans as for the final measurements.

A2.1.4. Following the initial scans, a graph was produced giving an overview of the emissions from the EUT plotted against the appropriate specification limit. A tolerance line was set 6 dB below the specification limit and levels above the tolerance line were re-tested (at individual frequencies) using the appropriate detector function.

A2.1.5. The test equipment settings for conducted emissions measurements were as follows:

Receiver Function	**Initial Scan**	**Final Measurements**
Detector Type:	Peak	Quasi-Peak (CISPR)*
Mode:	Max Hold	Not applicable
Bandwidth:	10 kHz	9 kHz
Amplitude Range:	60 dB	20 dB
Measurement Time:	Not applicable	> 1 s
Observation Time:	Not applicable	> 15 s
Step Size:	Continuous sweep	Not applicable
Sweep Time:	Coupled	Not applicable

* In some instances an Average detector function may also have been used.

A2.2. Radiated Field Strength Emissions

A2.2.1. Radiated emissions measurements were performed in accordance with the standard, against appropriate limits for each detector function.

A2.2.2. Initial measurements covering the entire measurement band in the form of swept scans in a shielded enclosure (for frequencies below 4 GHz) or on an open area test site (for frequencies above 4 GHz) were performed in order to identify frequencies on which the EUT was generating interference. This determined the frequencies on which the EUT should be re-measured in full on the open area test site. In order to minimise the time taken for the swept measurements, a Peak detector was used in conjunction with the appropriate detector IF measuring bandwidth (see table below). Repetitive scans were performed to allow for emissions with low repetition rates, and for the duty cycle of the EUT. The test configuration was the same for the initial scans as for the final measurements.

A2.2.3. The initial scans were performed using an antenna height of 1.5 m and a measurement distance of 3 m. Where (at higher frequencies) the noise floor was found to be of a higher level, a test distance of 1m was used. Following the initial scans, graphs were produced giving an overview of the emissions from the EUT plotted against the appropriate specification limit. A tolerance line was set 6 dB below the specification limit and levels above the tolerance line were re-tested on the open area test site, at the appropriate distance, using a measuring receivers with a Quasi-Peak detector (below 1000 MHz), where applicable, for measurements above 1000 MHz average and peak detectors were used.

A2.2.4. For the main (final) measurements the EUT was arranged on a non-conducting table on an open area test site, as detailed in the specification.

A2.2.5. All measurements on the open area test site were performed using broadband antennas.

A2.2.6. On the open area test site, at each frequency where a signal was found, the levels were maximised by initially rotating the turntable through 360°. In addition, for frequencies below 1000 MHz, the antenna height was varied between 1 and 4 m. For frequencies above 1000 MHz, the antenna was fixed at a height of 1.5m. At this point, any signals found to be between the limit and a level 6 dB below it were further maximised by changing the configuration of the EUT, e.g. re-routing cables to peripherals and moving peripherals with respect to the EUT.

A2.2.7. The test equipment settings for radiated emissions measurements were as follows:

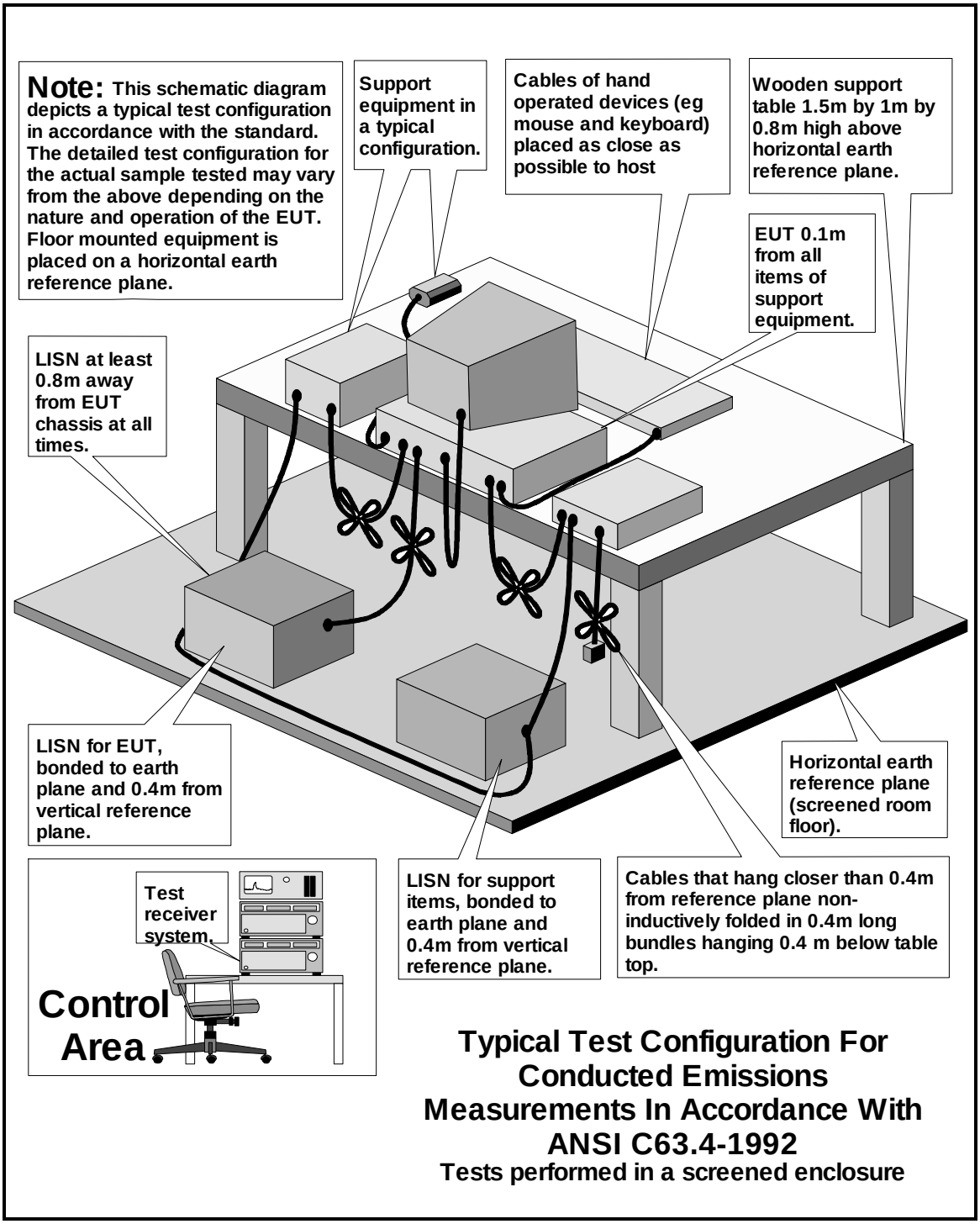
Receiver Function	**Initial Scan Below 1GHz**	**Final Measurements Below 1GHz**
Detector Type:	Peak	Quasi-Peak (CISPR)
Mode:	Max Hold	Not applicable
Bandwidth:	120 kHz	120 kHz
Amplitude Range:	60 dB	20 dB
Measurement Time:	Not applicable	> 1 s
Observation Time:	Not applicable	> 15 s
Step Size:	Continuous sweep	Not applicable
Sweep Time:	Coupled	Not applicable

Appendix 3. Test Configuration Drawings

This appendix contains the following drawings:

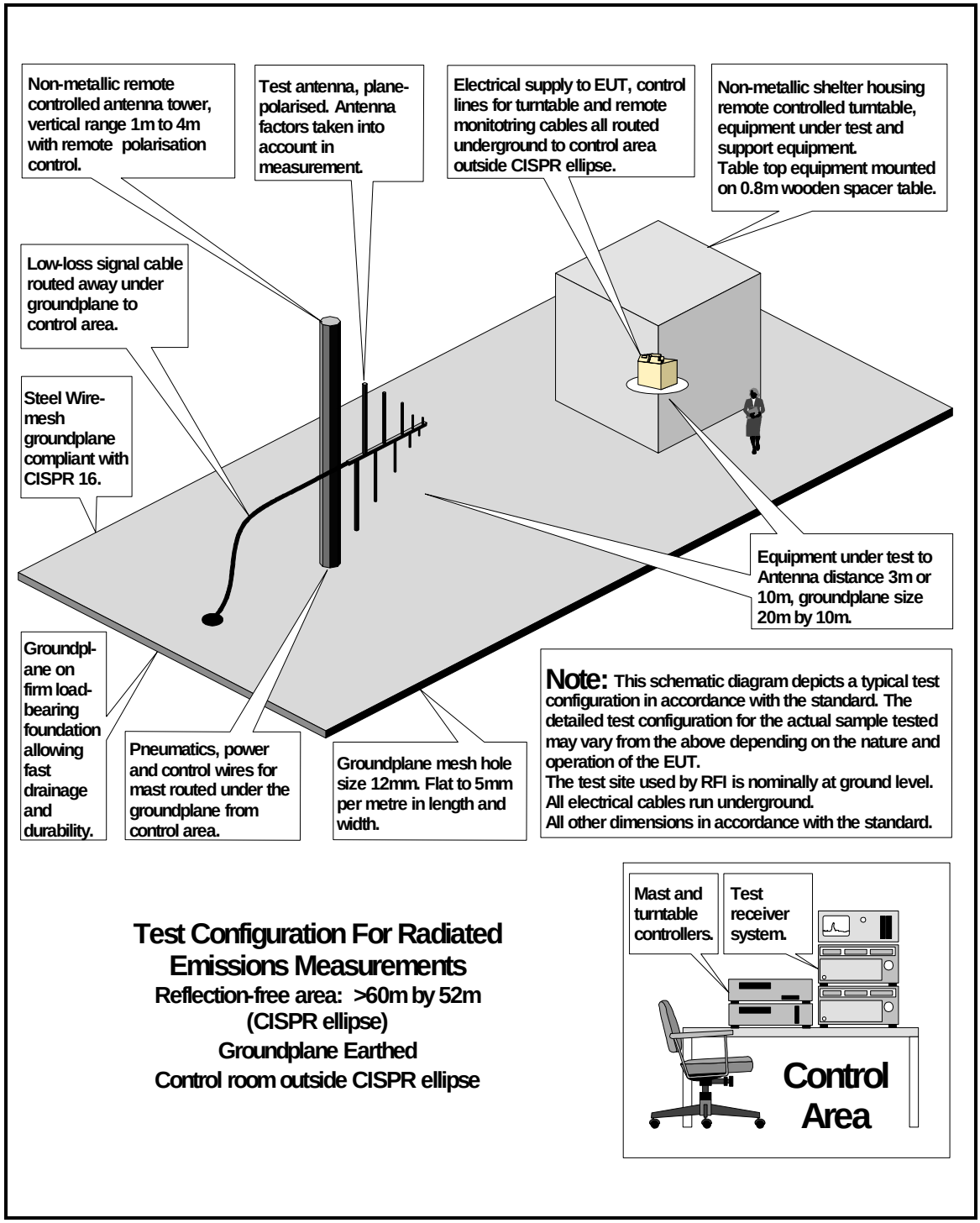
Drawing Reference Number	Title
DRG\39361ETF01\EMICON	Test configuration for measurement of conducted emissions
DRG\39361ETF01\EMIRAD	Test configuration for measurement of radiated emissions
DRG\39361ETF01\001	Schematic diagram of the EUT, support equipment and interconnecting cables used for the test

DRG\39361ETF01\EMICON



Typical Test Configuration For Conducted Emissions Measurements In Accordance With ANSI C63.4-1992
Tests performed in a screened enclosure

DRG\39361ETF01\EMIRAD

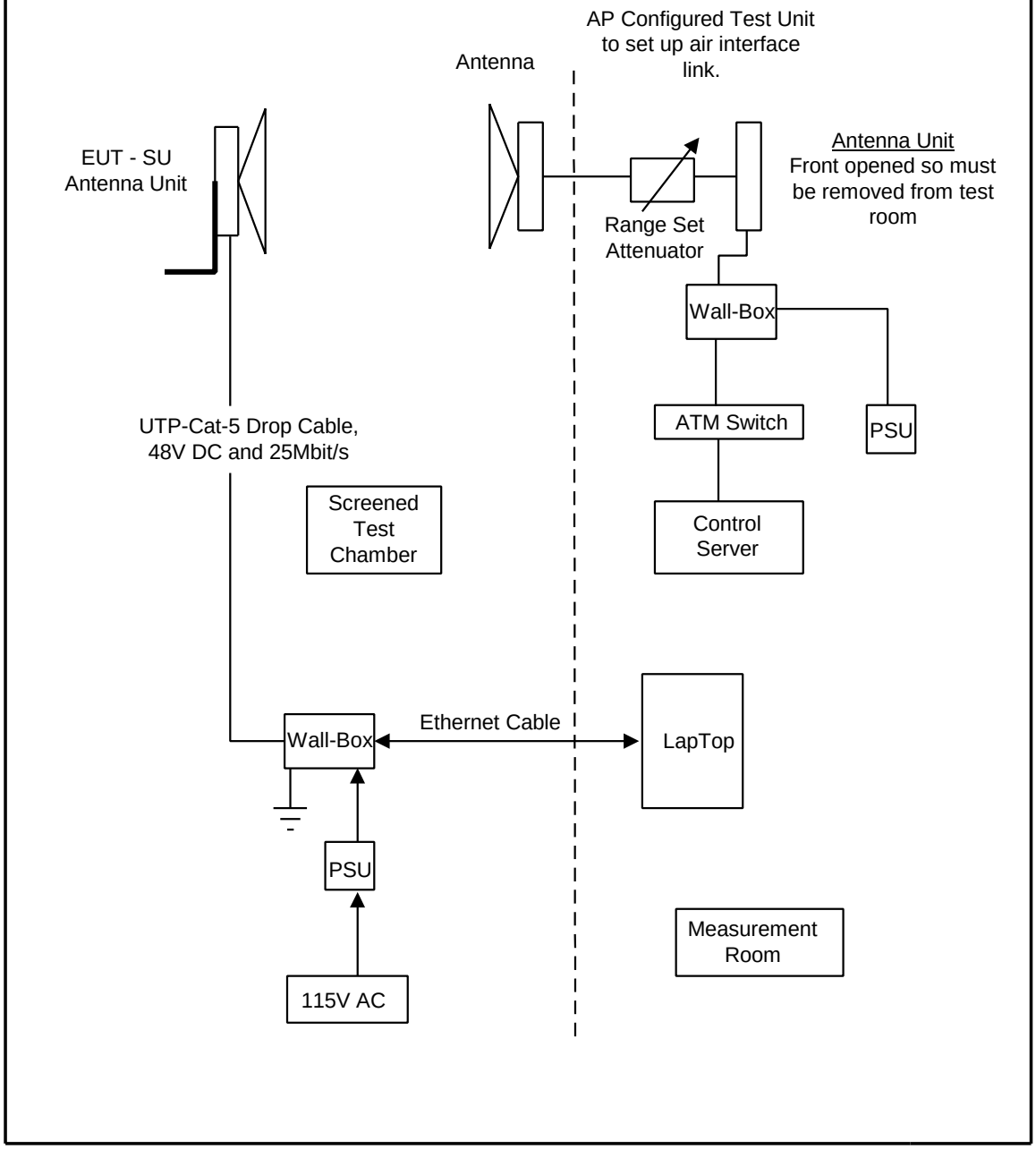


Test Configuration For Radiated Emissions Measurements

Reflection-free area: >60m by 52m
(CISPR ellipse)
Groundplane Earthed
Control room outside CISPR ellipse

DRG\39361ETF01\001

Configuration of EUT and Local Support Equipment



Appendix 4. Graphical Test Results

This appendix contains the following graphs:

Graph Reference Number	Title
GPH\39361ETF01\001	Scan of Conducted Emissions: 0.45 to 30 MHz 5.15 to 5.25 GHz Band. Bottom Channel. (Channel 0). Live and Neutral Lines.
GPH\\39361ETF01002	Scan of Conducted Emissions: 0.45 to 30 MHz 5.15 to 5.25 GHz Band. Top Channel. (Channel 4). Live and Neutral Lines.
GPH\39361ETF01\003	Scan of Conducted Emissions: 0.45 to 30 MHz 5.25 to 5.35 GHz Band. Bottom Channel. (Channel 5). Live and Neutral Lines.
GPH\39361ETF01004	Scan of Conducted Emissions: 0.45 to 30 MHz 5.25 to 5.35 GHz Band. Top Channel. (Channel 9). Live and Neutral Lines.
GPH\39361ETF01\005	Scan of Conducted Emissions: 0.45 to 30 MHz 5.725 to 5.825 GHz Band. Bottom Channel. (Channel 10). Live and Neutral Lines.
GPH\39361ETF01\006	Scan of Conducted Emissions: 0.45 to 30 MHz 5.725 to 5.825 GHz Band. Top Channel. (Channel 14). Live and Neutral Lines.
GPH\39361ETF01\016	Scan of Radiated Electric Field: 30 to 1000 MHz All Channels (0, 4, 5, 9, 10, 14). Both Polarisation's.

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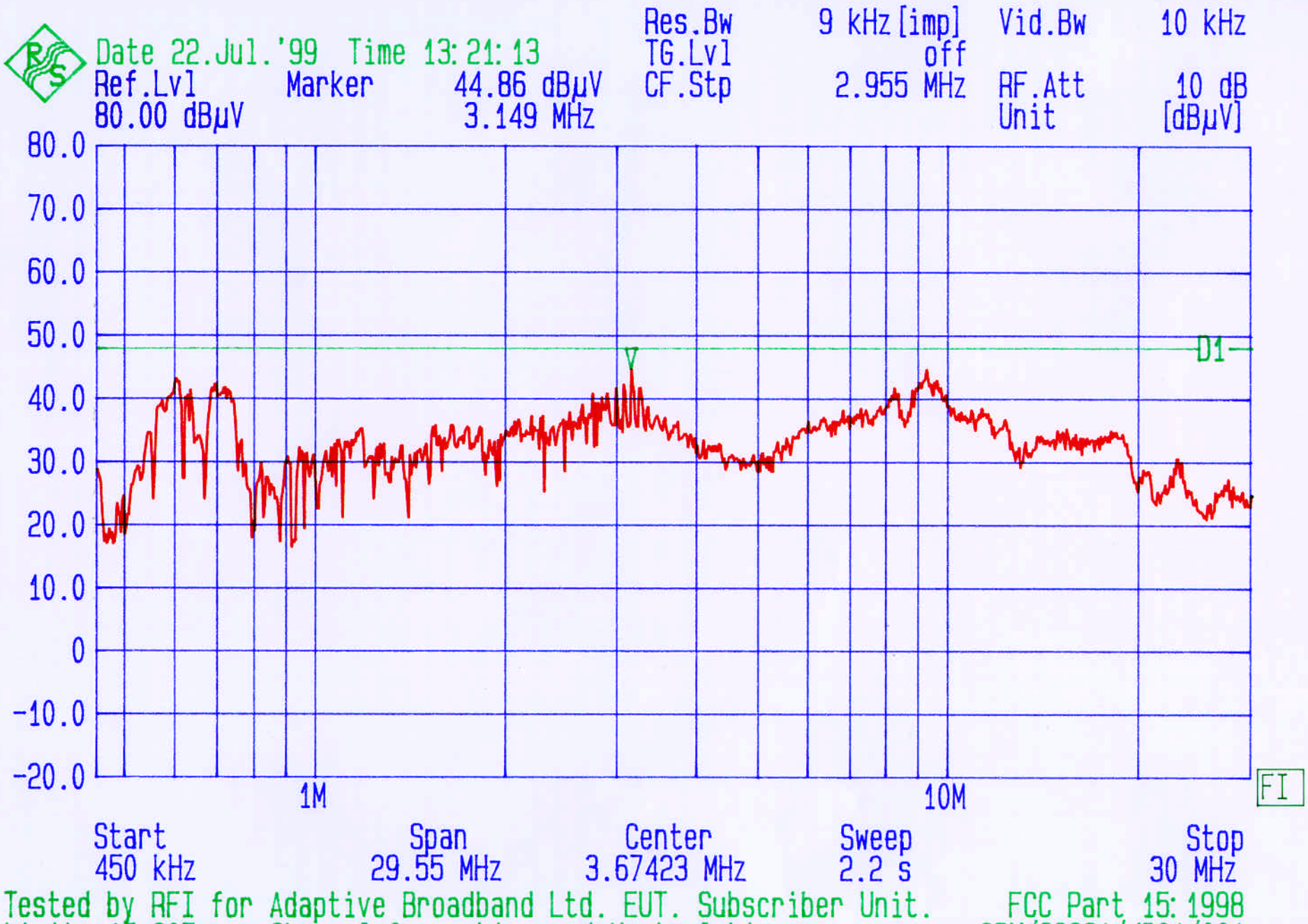
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RF.Att 10 dB
Unit [dBµV]
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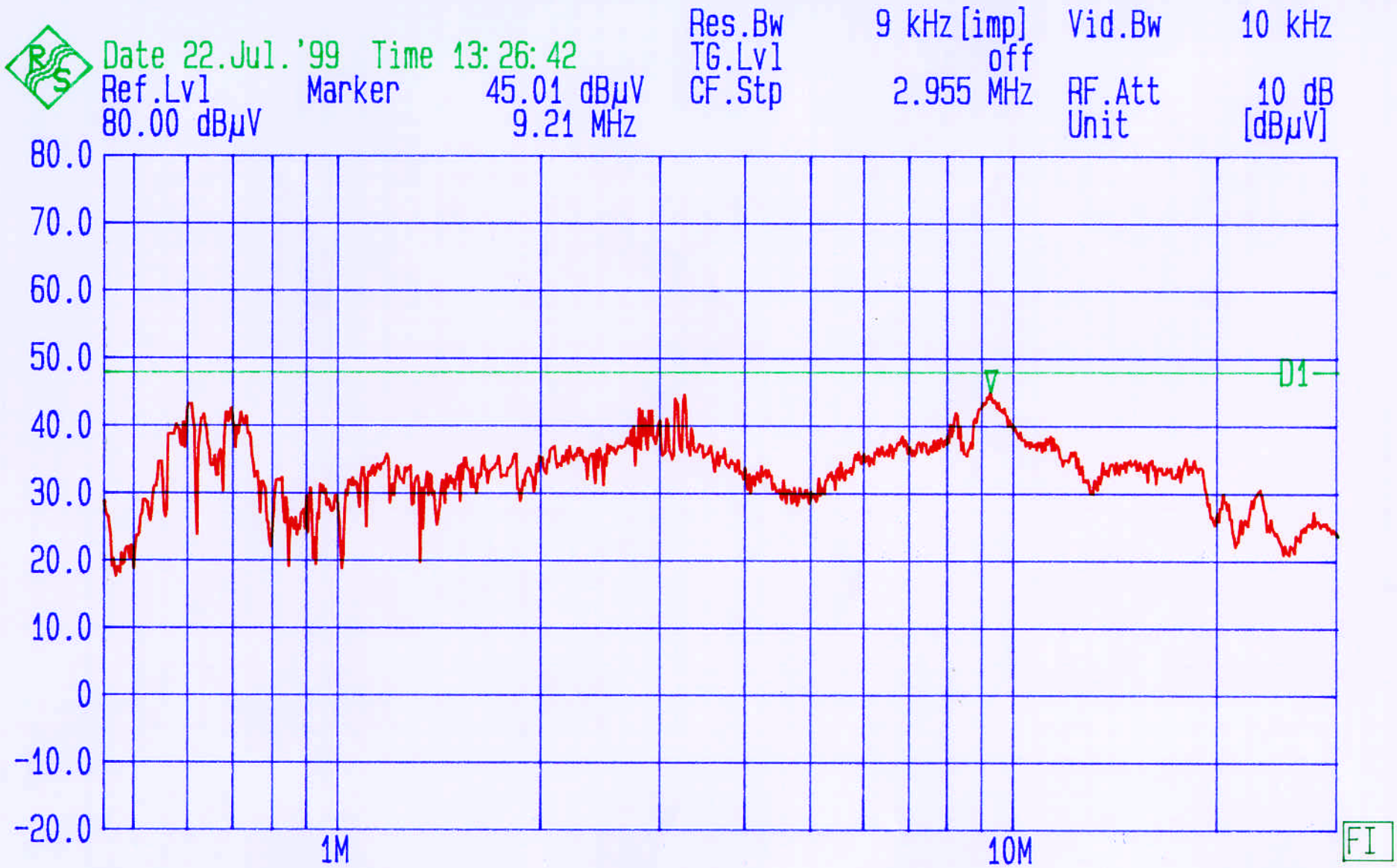
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
D1
1M
10M
FI
Start 450 kHz
Span 29.55 MHz
Center 3.67423 MHz
Sweep 2.2 s
Stop 30 MHz
Tested by RFI for Adaptive Broadband Ltd. EUT. Subscriber Unit.
FCC Part 15:1998
Limit. 15.207. Channel 0. Live and Neutral Lines.
GPH/39361/JD01/001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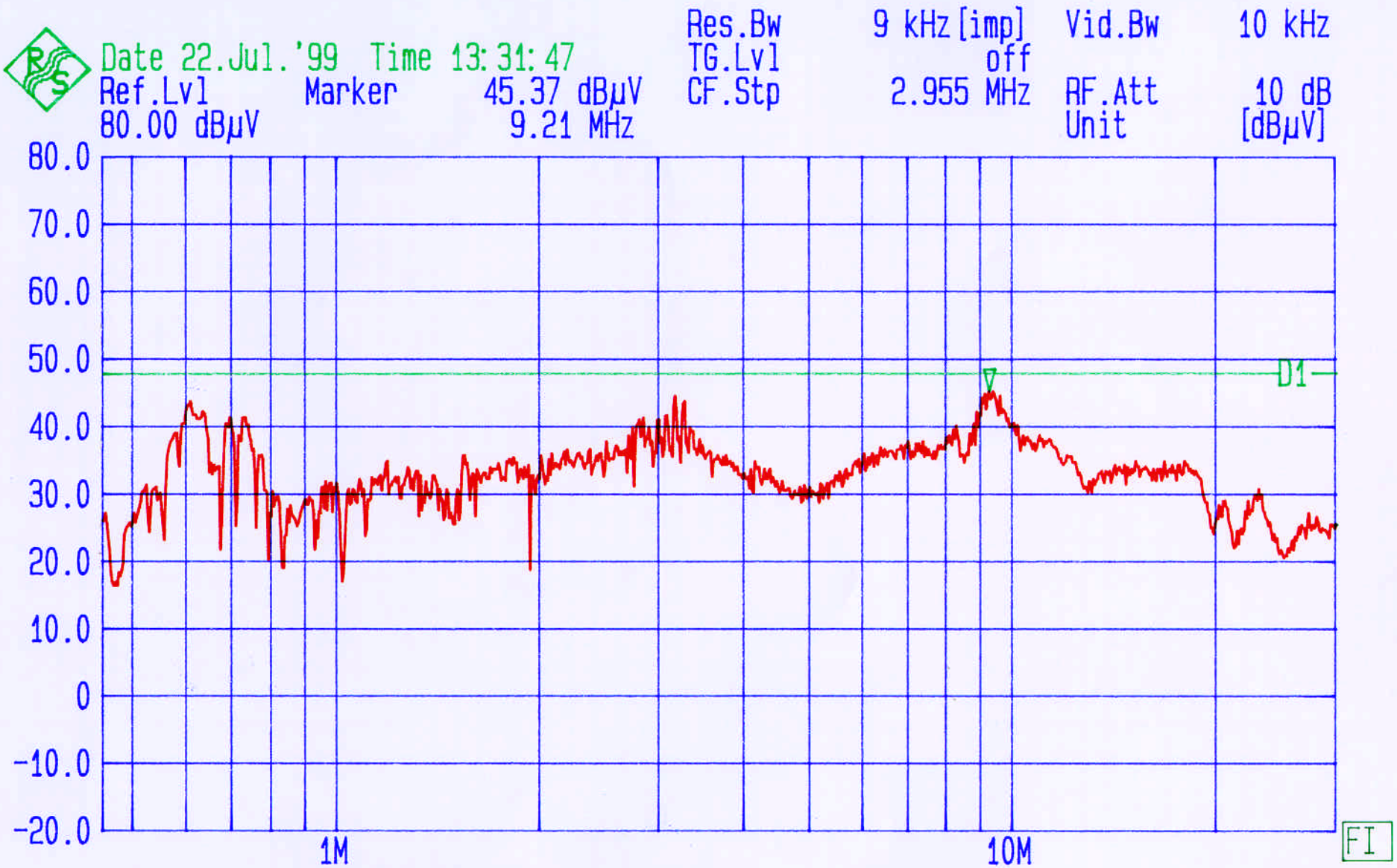
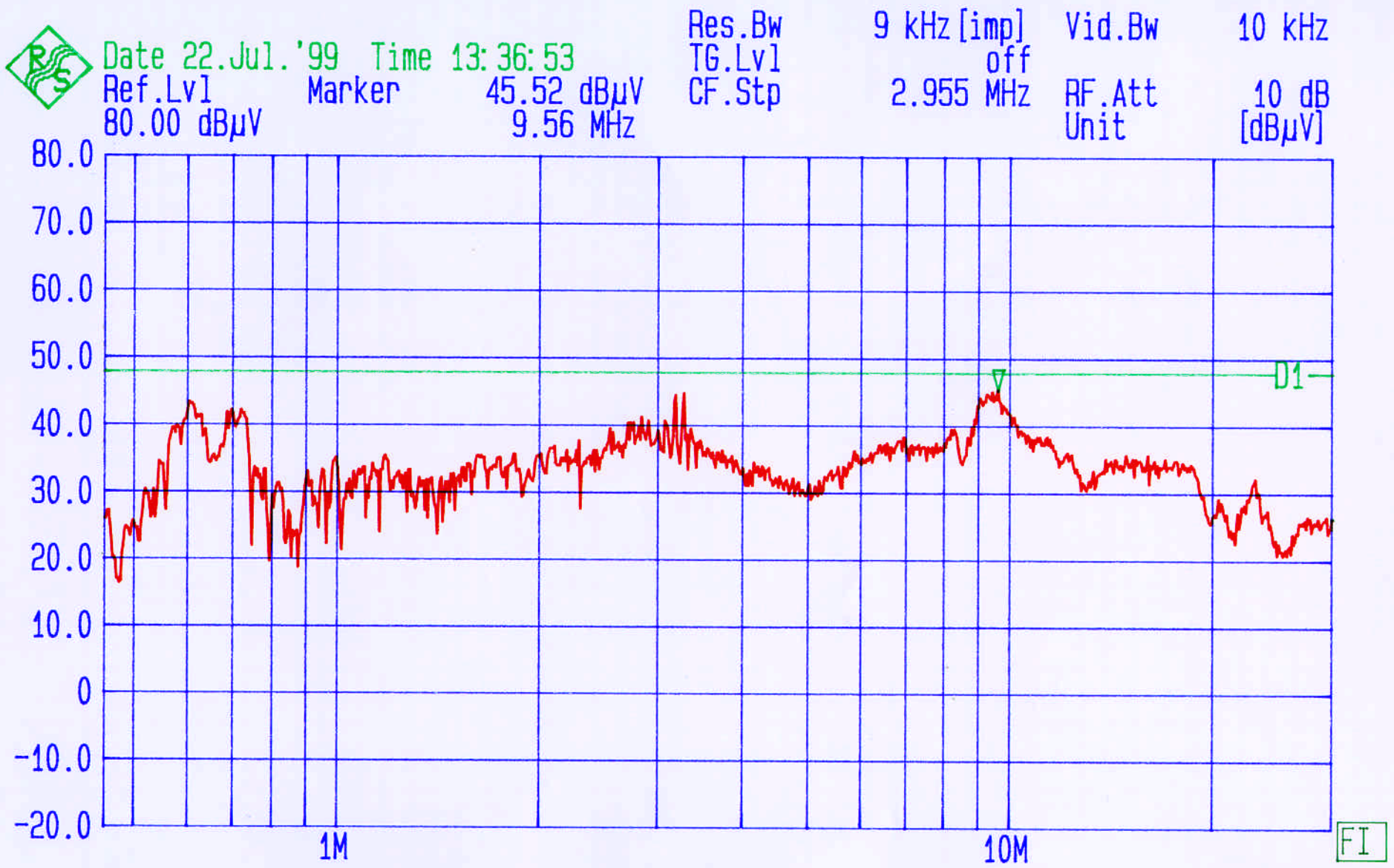
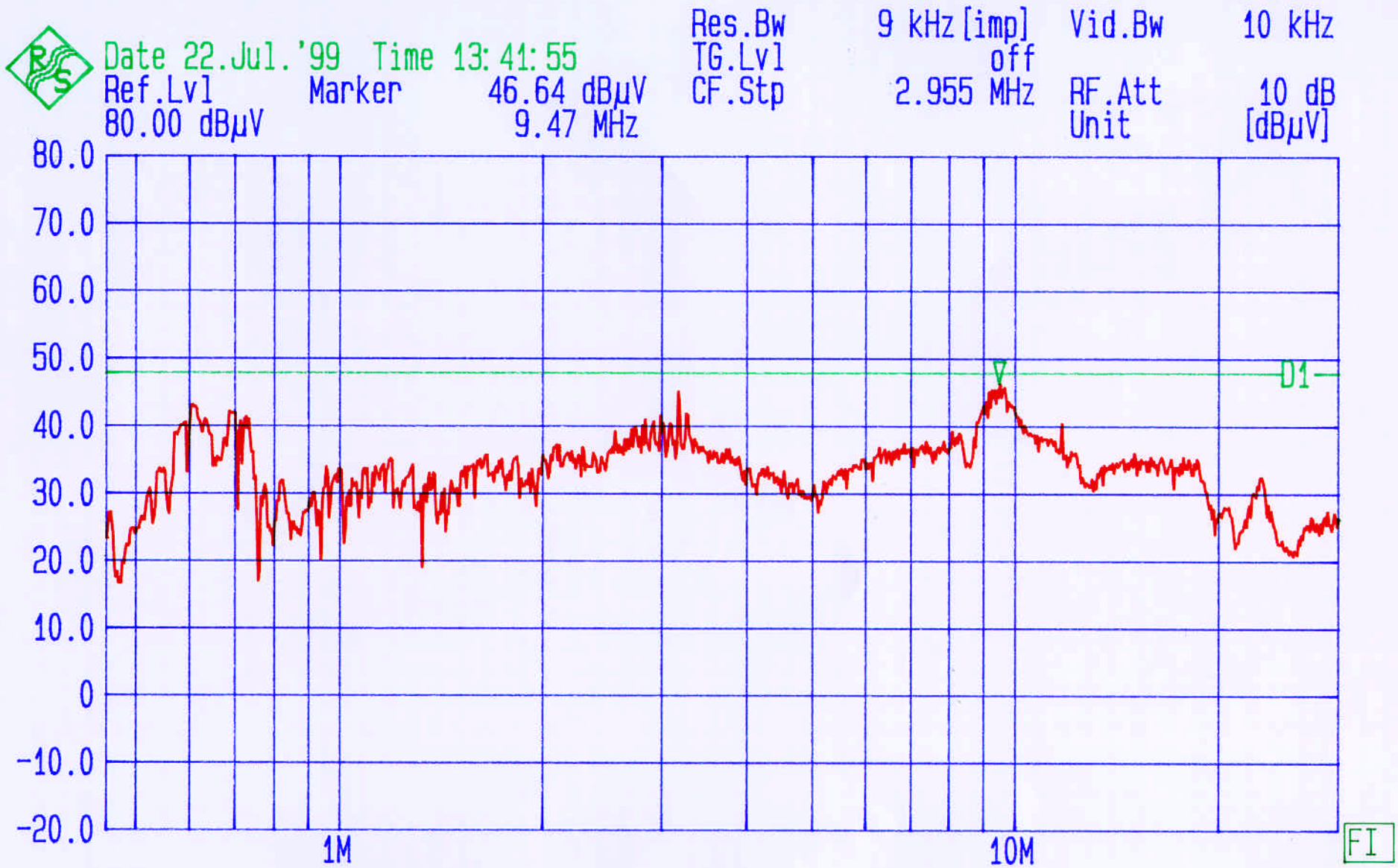
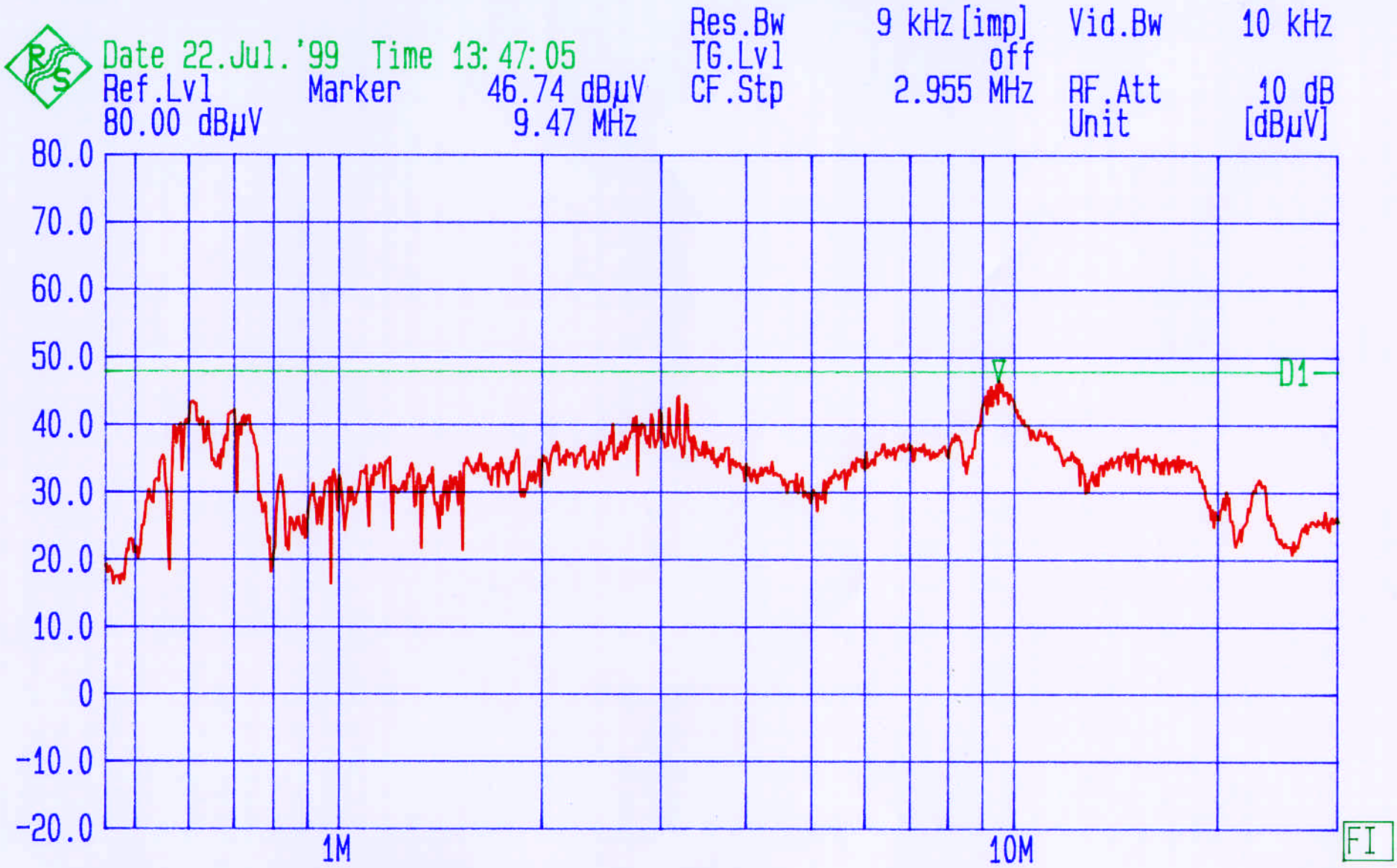
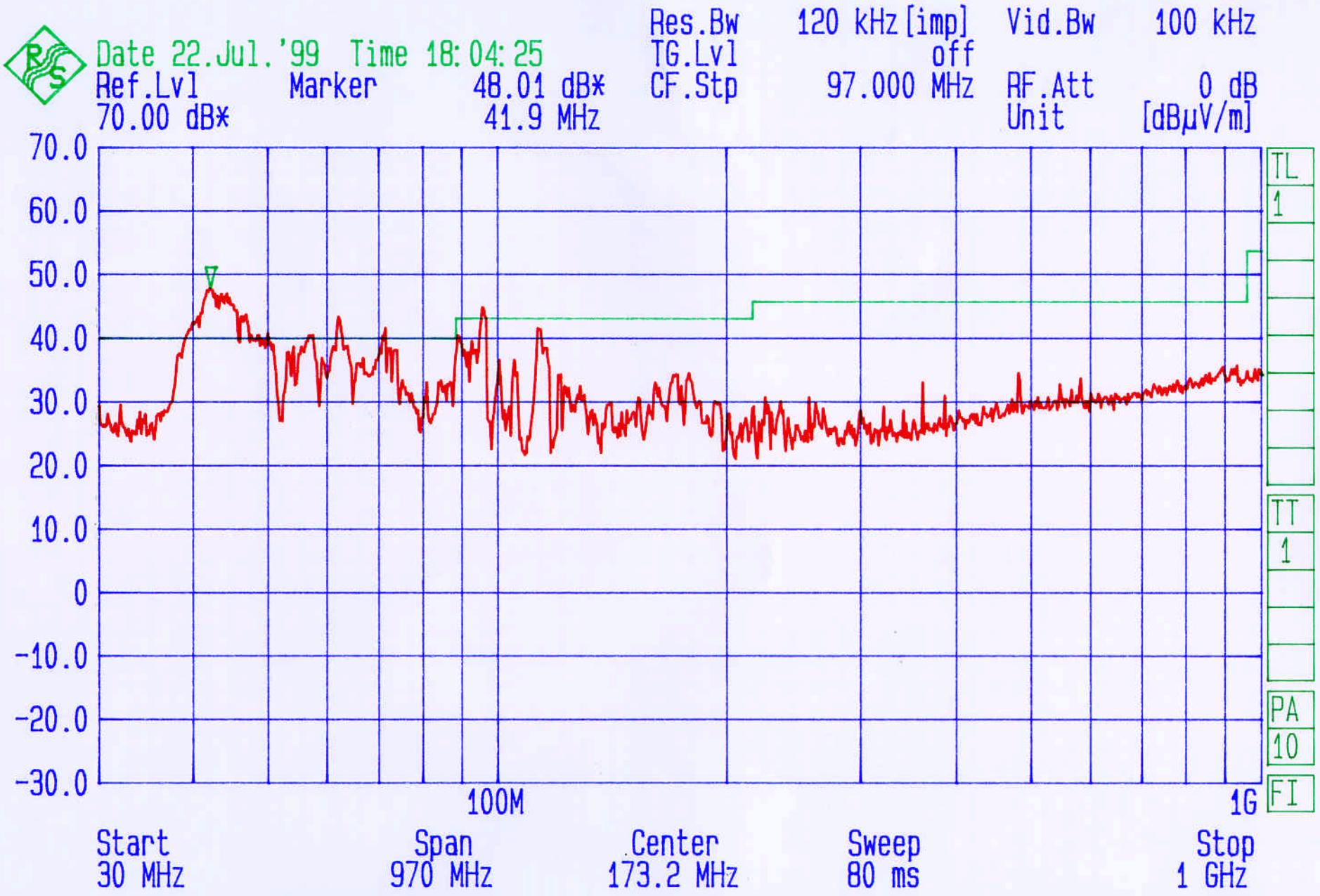
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
D1
1M
10M
FI
Start 450 kHz
Span 29.55 MHz
Center 3.67423 MHz
Sweep 2.2 s
Stop 30 MHz
Tested by RFI for Adaptive Broadband Ltd. EUT. Subscriber Unit.
FCC Part 15:1998
Limit. 15.207. Channel 4. Live and Neutral Lines.
GPH/39361/JD01/002


Date 22.Jul.'99 Time 13:31:47
Res.Bw 9 kHz [imp]
Vid.Bw 10 kHz
TG.Lvl off
Ref.Lvl 80.00 dBµV
Marker 45.37 dBµV
9.21 MHz
CF.Stp 2.955 MHz
RF.Att 10 dB
Unit [dBµV]
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
D1
1M
10M
FI
Start 450 kHz
Span 29.55 MHz
Center 3.67423 MHz
Sweep 260 ms
Stop 30 MHz
Tested by RFI for Adaptive Broadband Ltd. EUT. Subscriber Unit.
FCC Part 15:1998
Limit. 15.207. Channel 5. Live and Neutral Lines.
GPH/39361/JD01/003


Date 22.Jul.'99 Time 13:36:53
Ref.Lvl
80.00 dBµV
Marker
45.52 dBµV
9.56 MHz
Res.Bw
9 kHz [imp]
TG.Lvl
off
CF.Stp
2.955 MHz
Vid.Bw
10 kHz
RF.Att
10 dB
Unit
[dBµV]
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
D1
1M
10M
FI
Start
450 kHz
Span
29.55 MHz
Center
3.67423 MHz
Sweep
2.2 s
Stop
30 MHz
Tested by RFI for Adaptive Broadband Ltd. EUT. Subscriber Unit.
Limit. 15.207. Channel 9. Live and Neutral Lines.
FCC Part 15:1998
GPH/39361/JD01/004


Date 22.Jul.'99 Time 13:41:55
Ref.Lvl
80.00 dBµV
Marker
46.64 dBµV
9.47 MHz
Res.Bw
9 kHz [imp]
TG.Lvl
off
CF.Stp
2.955 MHz
Vid.Bw
10 kHz
RF.Att
10 dB
Unit
[dBµV]
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
D1
1M
10M
FI
Start
450 kHz
Span
29.55 MHz
Center
3.67423 MHz
Sweep
260 ms
Stop
30 MHz
Tested by RFI for Adaptive Broadband Ltd. EUT. Subscriber Unit.
Limit. 15.207. Channel 10. Live and Neutral Lines.
FCC Part 15:1998
GPH/39361/JD01/005


Date 22.Jul.'99 Time 13:47:05
Ref.Lvl
80.00 dBµV
Marker
46.74 dBµV
9.47 MHz
Res.Bw
9 kHz [imp]
TG.Lvl
off
CF.Stp
2.955 MHz
Vid.Bw
10 kHz
RF.Att
10 dB
Unit
[dBµV]
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
D1
1M
10M
FI
Start
450 kHz
Span
29.55 MHz
Center
3.67423 MHz
Sweep
2.2 s
Stop
30 MHz
Tested by RFI for Adaptive Broadband Ltd. EUT. Subscriber Unit.
Limit. 15.207. Channel 14. Live and Neutral Lines.
FCC Part 15:1998
GPH/39361/JD01/006


Date 22.Jul.'99 Time 18:04:25
Res.Bw 120 kHz [imp]
Vid.Bw 100 kHz
TG.Lvl off
CF.Stp 97.000 MHz
RF.Att 0 dB
Unit [dBµV/m]
Ref.Lvl 70.00 dB*
Marker 48.01 dB*
41.9 MHz
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
-10.0
-20.0
-30.0
100M
1G
TL
1
TT
1
PA
10
FI
Start 30 MHz
Span 970 MHz
Center 173.2 MHz
Sweep 80 ms
Stop 1 GHz
Tested by RFI for Adaptive Broadband Ltd. EUT. Subscriber Unit.
FCC Part 15:1998
Limit. 15.209. Channels 0, 4, 5, 9, 10 and 14.
GPH/39361/JD01/016

Appendix 5. Photographs of EUT

This appendix contains the following photographs

Photo Reference Number	Title
PHT\39361\001	Front view of conducted emissions
PHT\39361\002	Side view of conducted emissions
PHT\39361\003	Rear view of radiated emissions
PHT\39361\004	Front view of radiated emissions

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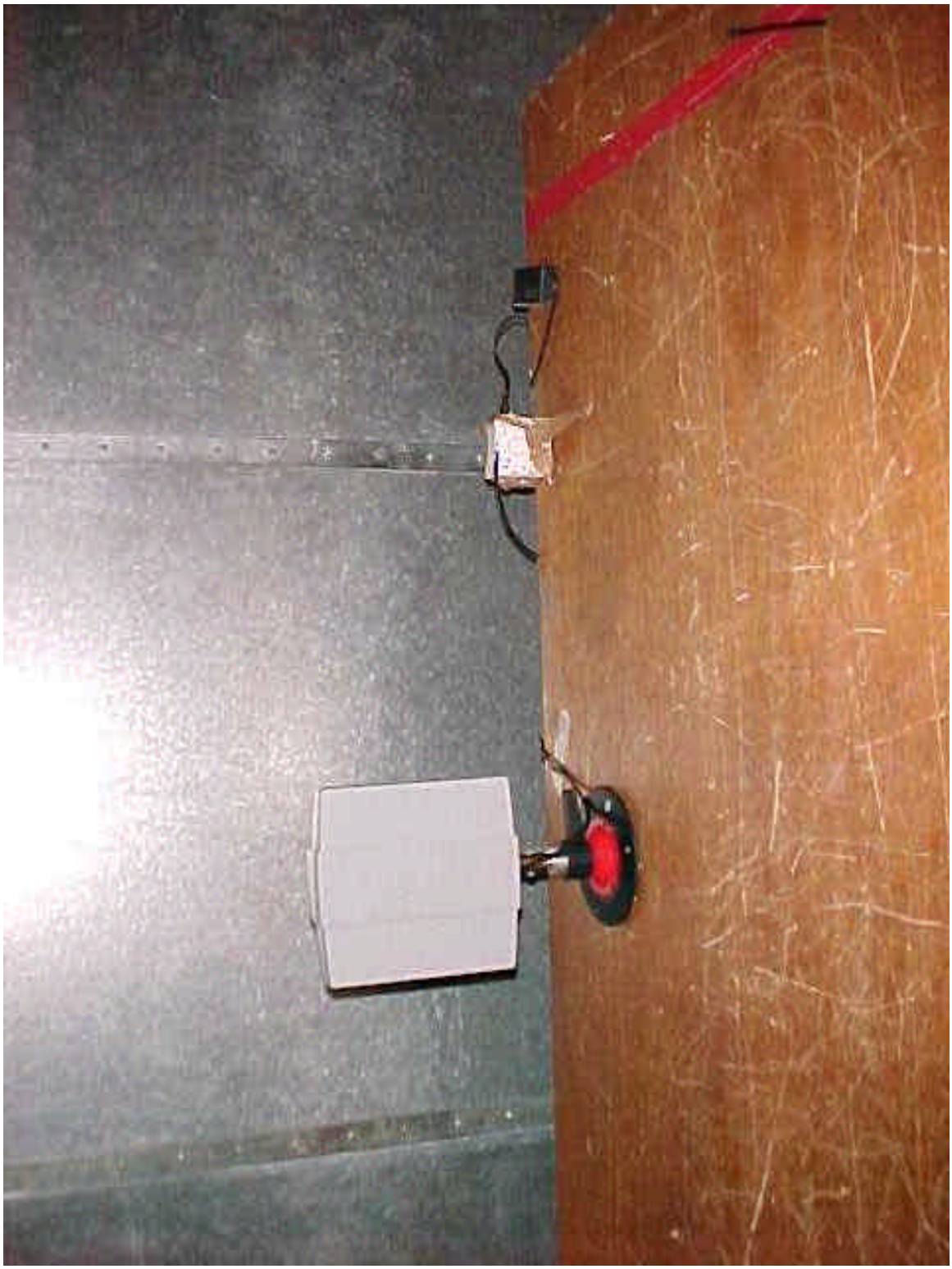
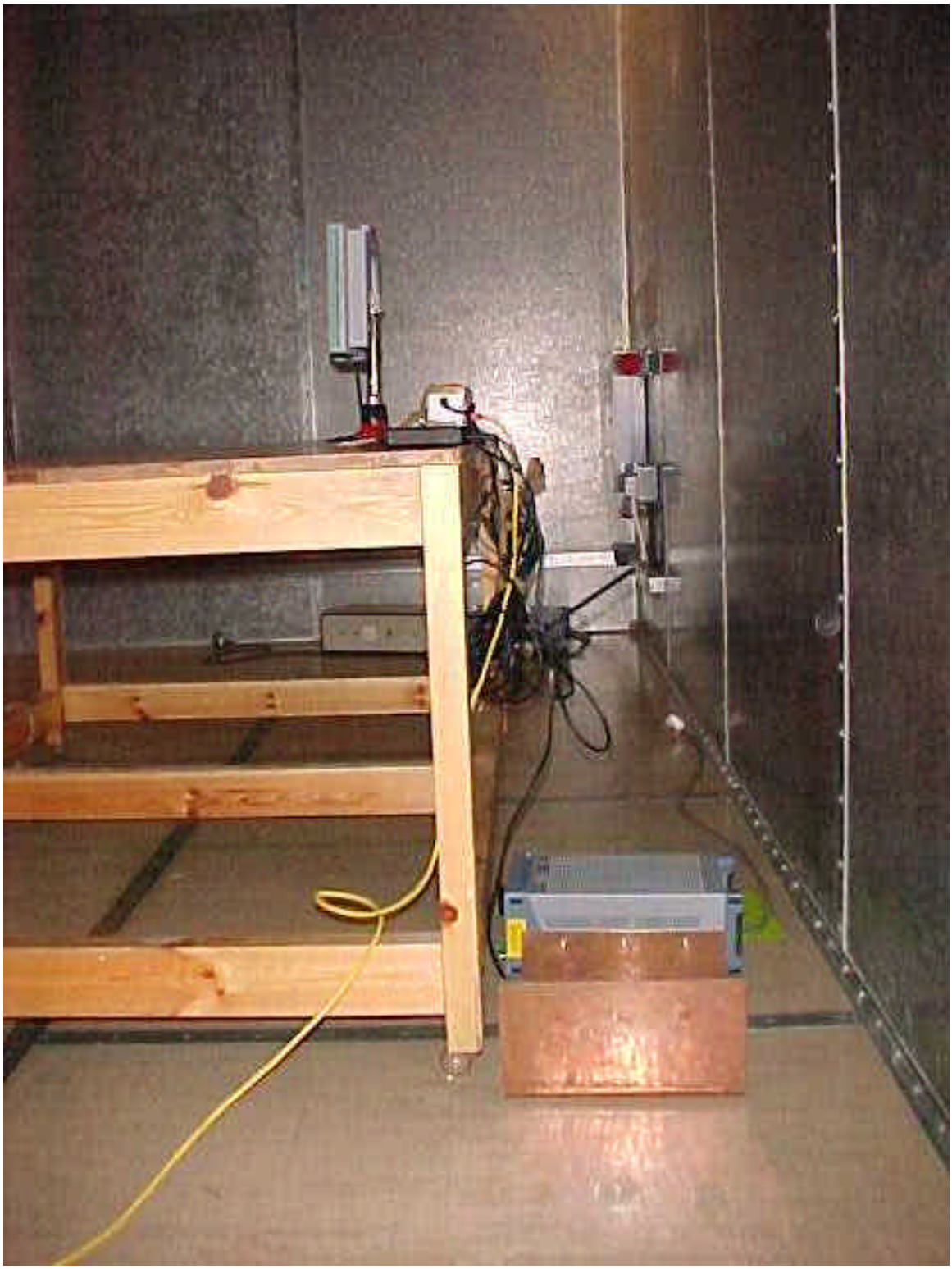
Test Of: **Adaptive Broadband Ltd**
AB-ACCESS Subscriber Unit (SU)
To: **F.C.C. Part 15 Subpart E: 1998**

PHT\39361\001 Front view of conducted emissions



Test Of: **Adaptive Broadband Ltd**
AB-ACCESS Subscriber Unit (SU)
To: **F.C.C. Part 15 Subpart E: 1998**

PHT\39361\002 Side view of conducted emissions



Test Of: **Adaptive Broadband Ltd**
AB-ACCESS Subscriber Unit (SU)
To: **F.C.C. Part 15 Subpart E: 1998**

PHT\39361\003 Rear view of radiated emissions

PHT\39361\004 Front view of radiated emissions