EMC TEST REPORT

No.508932-2

Electromagnetic disturbances

EQUIPMENT UNDER TEST

Equipment :	VoIP Gateway for Ericsson PBX
Type / model :	IPTC Albatross ™ DEX28-GE2P
Manufacturer :	IPTC Technology Communications AB
Tested by request of :	IPTC Technology Communications AB

SUMMARY

Referring to the emission limits and the operating mode during the tests specified in this report the equipment complies with the requirements according to the following standard.

FCC 47 CFR Ch. I Part 15 - Radio Frequency Devices - subpart B (2004), Class B digital device.

Date of issue: 28 October 2005

Tested by: Thomas Haglund

Approved by: Hans Kohlén

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1. CLIENT INFORMATION

The EUT has been tested by request of

Company:	IPTC Technology Communications AB Pyramidbacken 6, 3tr. 141 75 Kungens Kurva
Name of contact:	Mikica B Kocic

2. EQUIPMENT UNDER TEST (EUT)

2.1 Identification of the EUT

Equipment:	VoIP Gateway for Ericsson PBX
Type/Model:	DEX28-GE2P
Brand name:	IPTC Albatross ™
Manufacturer:	IPTC Technology Communications ABIPTC Technology Communications AB
Rating:	48 V DC, or via AC/DC power supply: 100 V to 240 V AC, 50 HZ to 60 Hz.
Class:	I

Figure 1. EUT

2.2 Additional information about the EUT

The EUT was tested in a table top configuration
Maximum EUT clock frequency: 180 MHz.

The EUT consists of the following units:

Item	Units	Type	Manufacturer	Rlease	
				HW	SW
1	EUT	DEX28-GE2P	IPTC Tech. Comm. AB	R1B	Alpha.1
2	AC/DC PSU	BACS70-48-C14	M+R Multitronik GmbH	-	-

The EUT was tested with the following cables:

Cable / port	**Type**	**Length** (exposed during radiated emission)
Mains power (AC/DC adaptor)	Class I power cord, 3 wires.	1.5 m
DC power	Cord with 2 wires.	1.5 m
DTS 2, digital extension port	4 wire modular cable, unshielded.	2.0 m
LAN	4-pair, category 5E, STP	1.5 m
USB Type B (client service port).	Not connected.	
Console, RS232, (service port).	Not connected.	

2.3 Peripheral equipment

Peripheral equipment is defined as equipment needed for correct operation of the EUT, but not included as part of the EUT.

Item	**Units**	**Type**	**Manufacturer**	**Rlease**	
				HW	**SW**
3.	Ericsson PBX	MD110	Ericsson		BC12
4.	Ericsson DTS	DBC 223	Ericsson	R3A	P3L
5.	IPTC VoIP Gateway	DEX28-GE6P	IPTC Tech. Comm. AB	R2A	Alpha.1
6.	Ericsson DTS	DBC 223	Ericsson	R3A	P3L
-	Ethernet Switch	10 Mbps	D-Link	-	-
-	Digital extension board	ELU 28	Ericsson	R2A	-

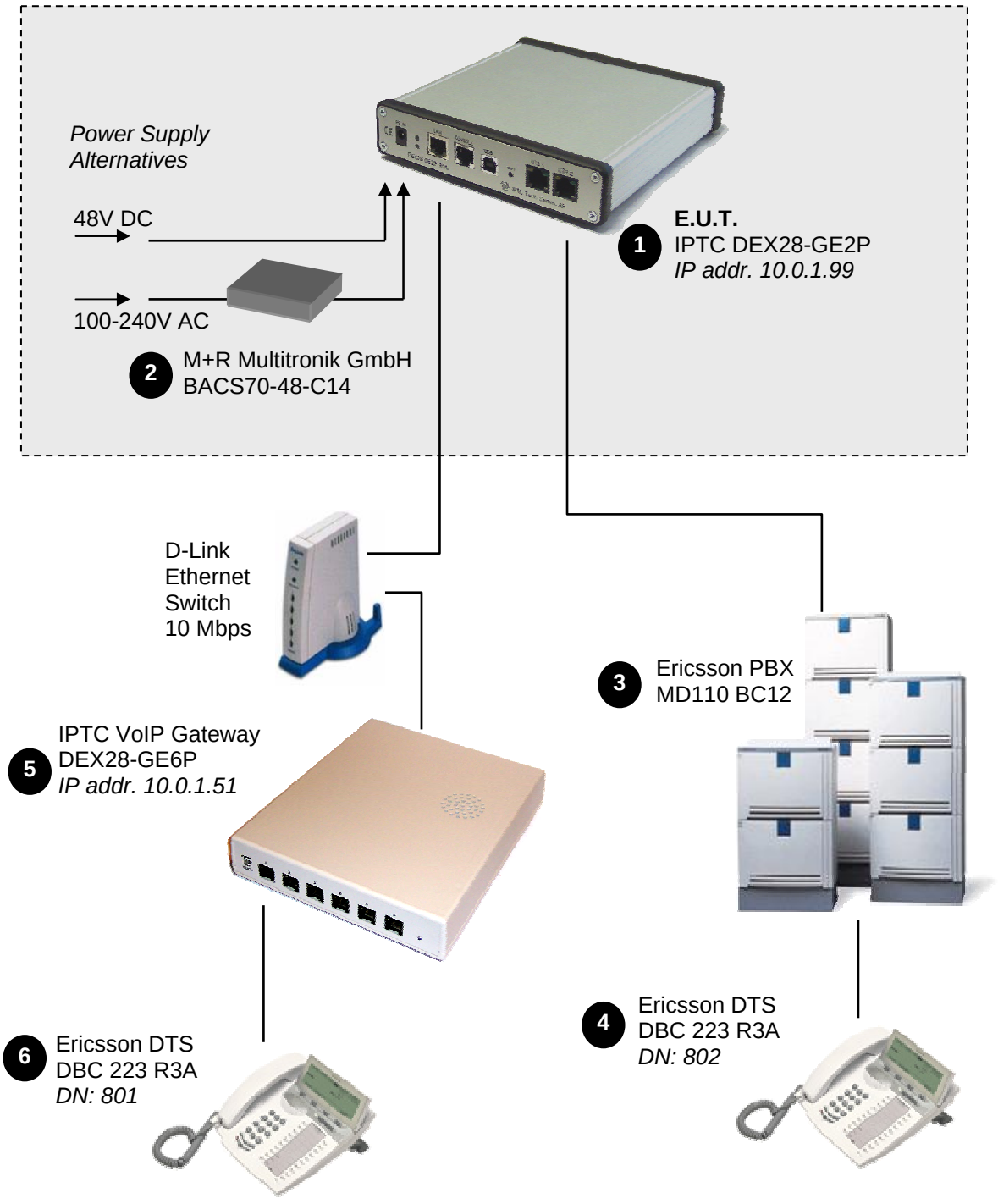

Figure 2. Test configuration.

3. TEST SPECIFICATIONS

Requirements according to FCC 47 CFR Ch. I Part 15 - Radio Frequency Devices - subpart B (2004), Class B digital device.
Test methods according to ANSI C.63.4-2003. American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

Conducted Emission Requirement, AC power port.

Table 1. Limits for conducted disturbances at the AC power port. Class B.

Frequency range (MHz)			Voltage Limit dB(µV)	
			Quasi peak	Average
0.15	-	0.5	66 to 56	56 to 46
0.5	-	5	56	46
5	-	30	60	50

Radiated Emission, enclosure port.

Table 2. Limits for radiated disturbances. Class B.

Frequency range (MHz)			Limit (µV/m)	Limit (dBµV/m)	Detector
30	-	88	100	40.0	Quasi peak
88	-	216	150	43.5	Quasi peak
216	-	960	200	46.0	Quasi peak
960	-	1000	500	54.0	Quasi peak
> 1000			500	54.0	Average

3.2 Additions, deviations and exclusions from standards.

No additions, deviations or exclusions have been made from standards.

3.3 Mode of operation during the test.

During the tests, the EUT was supplied with 120 V AC, 60 Hz.
The tests were carried out with the EUT supplied via the AC/DC power supply.
During the tests a call was set up from one DTS (digital telephone set) to the next DTS.
See Figure 2. Test configuration.

4. TEST SUMMARY

The test has been carried out at the Intertek Semko AB premises in Kista, Sweden.
The results in this report apply only to sample tested:

Standard	Description	Result
Emission		
FCC part 15 subpart B	**AC power port continuous disturbance voltage in the frequency range 0.15 MHz to 30 MHz** The EUT complies with Class B limits. The margin to the limit was at least 12.3 dB at 0.465 MHz. See Figure 3, Table 3 and Table 4.	**PASS**
FCC part 15 subpart B	**Radiated electromagnetic field in the frequency range 30 MHz to 1000 MHz** The EUT complies with the Class B limits. The margin to the limit was at least 8.7 dB at 30.24 MHz. See Figure 4 and Table 5.	**Pass**
FCC part 15 subpart B	**Radiated electromagnetic field in the frequency range 1000 MHz to 3000 MHz** The EUT complies with the Class B limits. The margin to the limit was at least 16 dB at 1864 MHz and 1871 MHz. See Figure 5 and Table 6.	**Pass**

5. TABLES AND DIAGRAMS

5.1. Conducted emission

During these measurements, the cable loss and voltage division factor are taken into account and the corrected result compared to the limits.
Measured level [dBµV] = Analyzer reading [dBµV] + cable loss [dB].

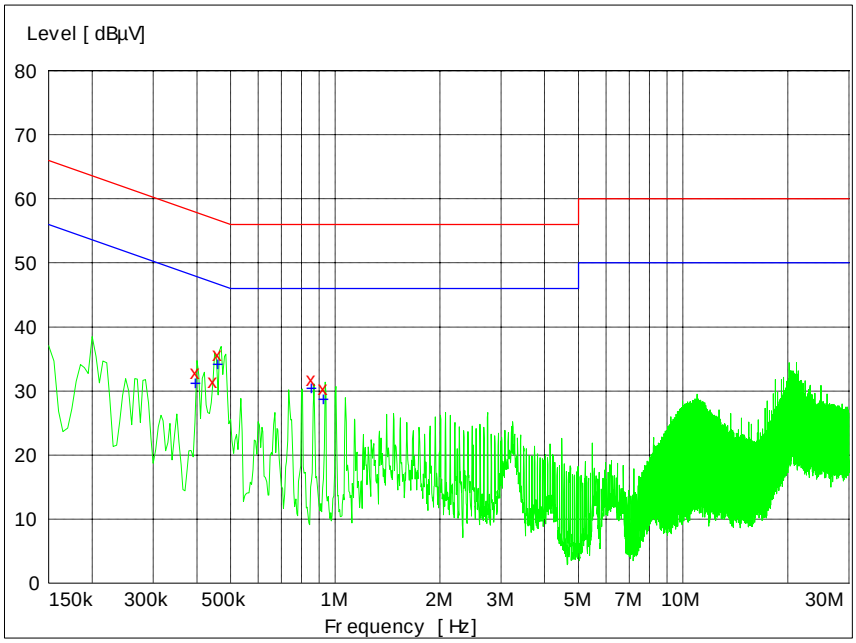

Figure 3 Overview sweep, conducted disturbance voltage at the AC power port.

Table 3. Measurement results. AC power port. Average.

Frequency MHz	Level dB(µV)	Limit dB(µV)	Margin dB
0.400	31.3	47.9	16.6
0.465	34.3	46.6	12.3
0.865	30.5	46.0	15.5
0.935	28.8	46.0	17.2

Table 4. Measurement results. AC power port. Quasi peak.

Frequency MHz	Level dB(µV)	Limit dB(µV)	Margin dB
0.400	33.0	57.9	24.8
0.450	31.5	56.9	25.4
0.465	35.8	56.6	20.8
0.865	31.9	56.0	24.1
0.935	30.5	56.0	25.5

5.2. Radiated emission

Measured level [dBµV/m] = Analyzer reading [dBµV] + cable loss [dB] – preamplifier gain [dB] + antenna factor [1/m].

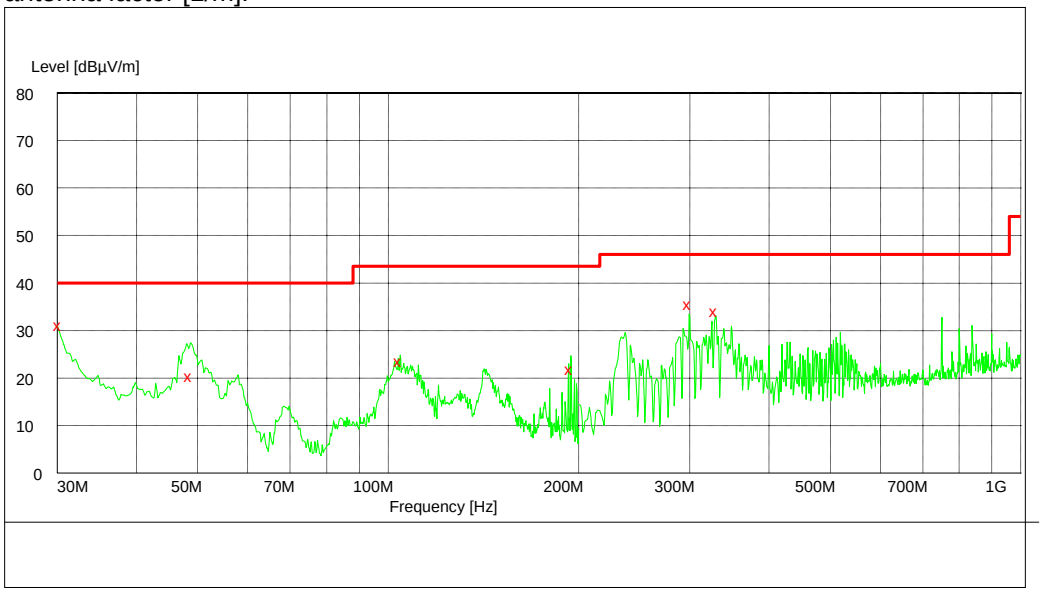

Figure 4. Radiated emission 30 MHz to 1000 MHz. Peak overview sweep. Class B limit.

The radiated emission measurements were performed at 3 m antenna distance.

Table 5. Measurement results. Quasi peak.

Frequency MHz	Level dB(µV/m)	Limit dB(µV/m)	Margin dB
30.24	31.3	40.0	8.7
48.70	20.5	40.0	19.5
104.26	23.8	43.5	19.7
194.56	22.0	43.5	21.5
299.00	35.7	46.0	10.3
329.60	34.3	46.0	11.7

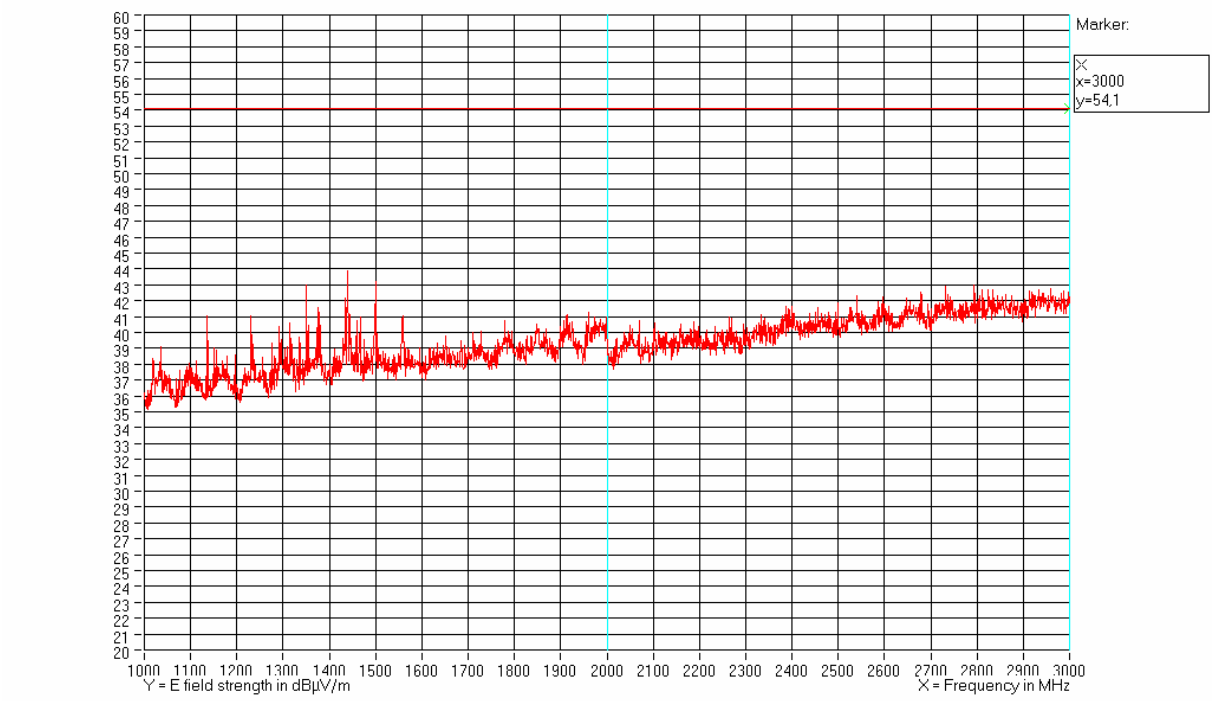

Figure 5. Radiated emission 1 GHz to 3 GHz. Peak overview sweep. Class B limit.

Table 6. Measurement results. Average.

Frequency MHz	Level dB(µV/m)	Limit dB(µV/m)	Margin dB
1109	36	54	18
1290	35	54	19
1347	35	54	19
1380	36	54	18
1438	36	54	18
1464	36	54	18
1698	37	54	17
1864	38	54	16
1871	38	54	16

6. PHOTOS

Figure 6. Test set-up for the radiated emission tests.

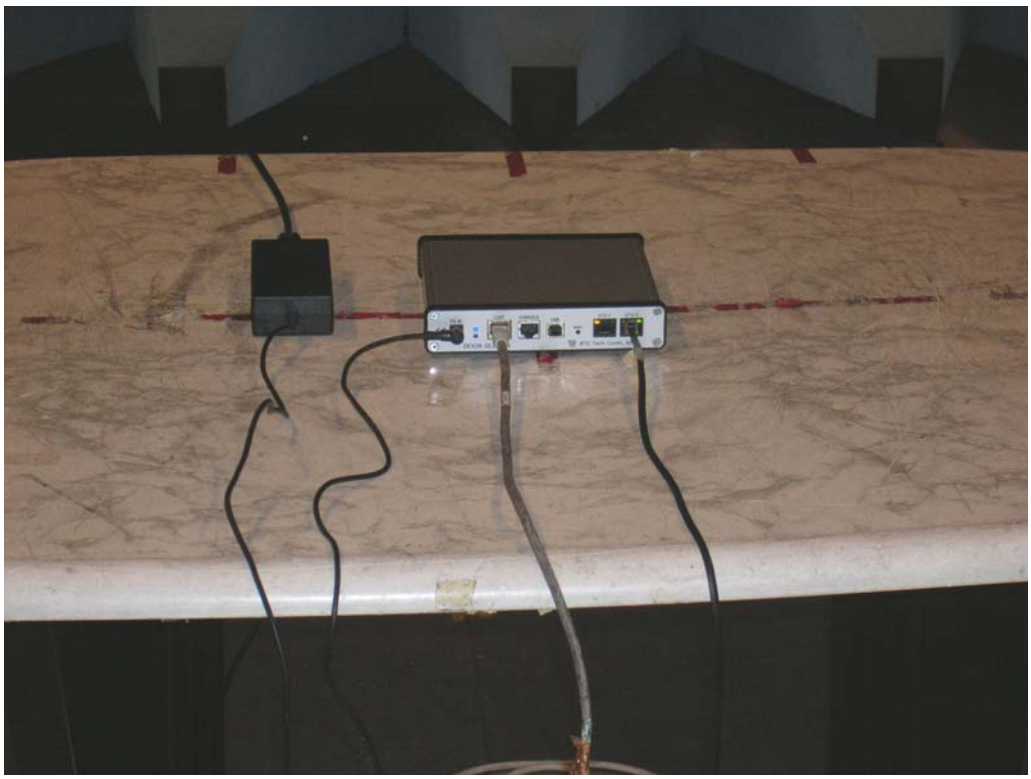

Figure 7. The EUT and the AC/DC power supply.

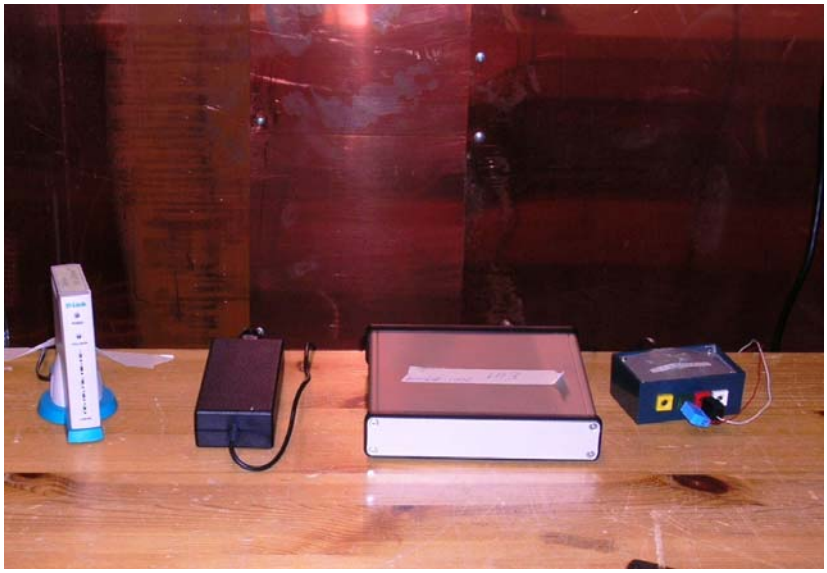

Figure 8. Test setup, conducted emission.

Figure 9. Test setup, conducted emission.

7. INTERTEK SEMKO EMC CENTER MEASUREMENT UNCERTAINTIES

All uncertainties are given with a level of confidence of approximately 95% (k=2) and are the maximum values within the complete range. Measurement uncertainties are calculated in accordance with EA-4/02:1997.

Continuous conducted disturbances with AMN in the frequency range 9 kHz to 30 MHz	± 3.6 dB
Measurement uncertainty with a passive probe in the frequency range 0.15 - 30 MHz	± 3.0 dB
Measurement uncertainty for radiated disturbance	
Uncertainty for the frequency range 30 to 1000 MHz at 3 m	± 4.8 dB
Uncertainty for the frequency range 30 to 1000 MHz at 10 m	± 4.6 dB
Uncertainty for the frequency range 1.0 GHz to 2.75 GHz at 3 m	± 5.6 dB
Uncertainty for the frequency range 2.75 GHz to 6.0 GHz at 3 m	± 5.8 dB