



EMI -- TEST REPORT

Test Report No. :	T25234-00-11HU	25. November 2004 Date of issue
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Type / Model : Electronic Article Surveillance Deactivation System

Model Description : Counterpoints IX Family 4/6 mode chassis,
5 only mode chassis
with Ethernet Interface Module option

Applicant : Checkpoint Systems, Inc.

Address : 101 Wolf Drive, Thorofare,
New Jersey, USA 08086

Manufacturer : Checkpoint Systems Puerto Rico

Address : Sabanetas Industrial Park,
P.O. Box 7283, Ponce, Puerto Rico 00732

Licence holder : Checkpoint Systems, Inc.

Address : 101 Wolf Drive, Thorofare,
New Jersey, USA 08086

Test Result according to the standards listed in clause 1 test standards:	POSITIVE
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

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1 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules and Regulations Part 15 Subpart C - Intentional Radiators (October 01, 2003)

Part 15, Subpart C, Section 15.223	Operation in the band 1.705-10 MHz §15.223(a) Radiated emissions, Fundamental & Harmonics
Part 15, Subpart C, Section 15.207(a)	AC Line conducted emissions
Part 15, Subpart C, Section 15.209(a)	Radiated emissions, general requirements

2 SUMMARY

GENERAL REMARKS:

None

FINAL ASSESSMENT:

The equipment under test **fulfills** the EMI requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records of MBPS

Testing commenced on : 28. September 2004

Testing concluded on : 24. November 2004

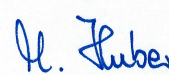
Checked by:



Thomas Weise
Ich bestätige die Richtigkeit
und Integrität dieses
Dokuments
2004.11.25 17:02:55 +01'00'

Günter Mikes
Dipl. Ing.(FH)

Tested by:



Markus Huber
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dieses Dokuments
2004.11.25 17:02:26
+01'00'

Markus Huber

3 EQUIPMENT UNDER TEST

3.1 Photo documentation of the EuT

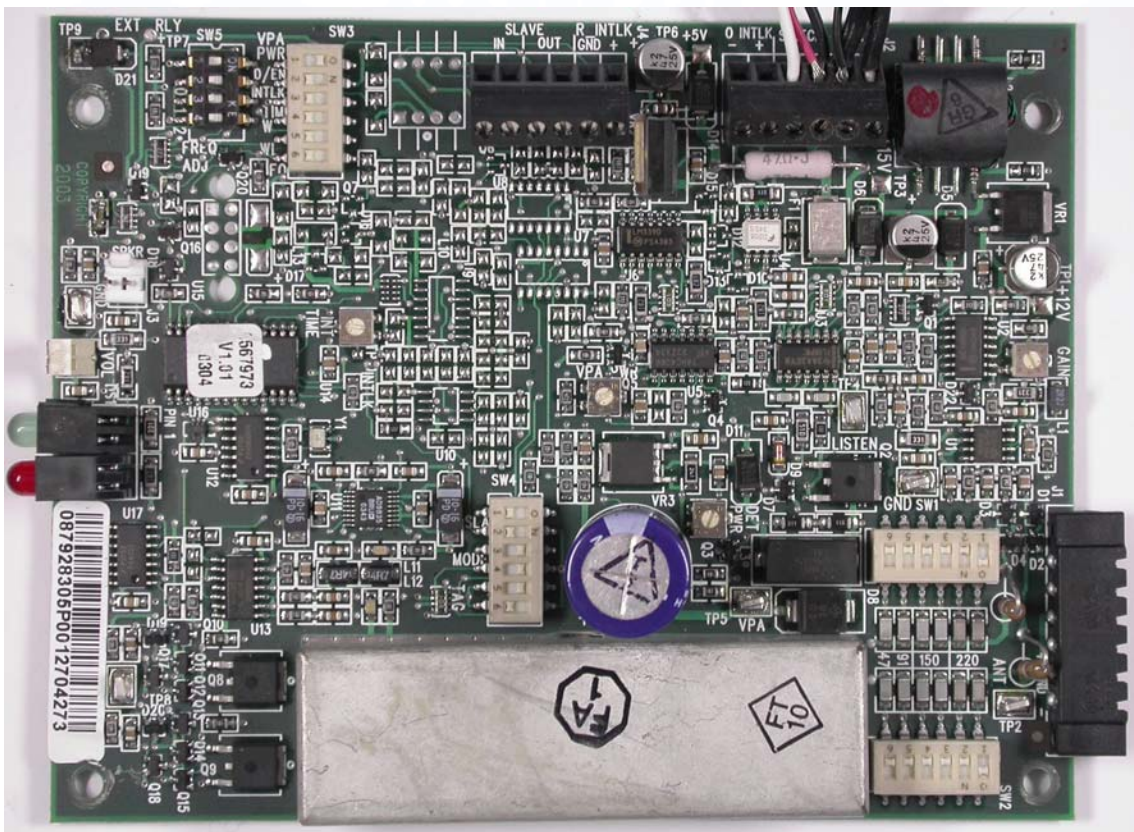
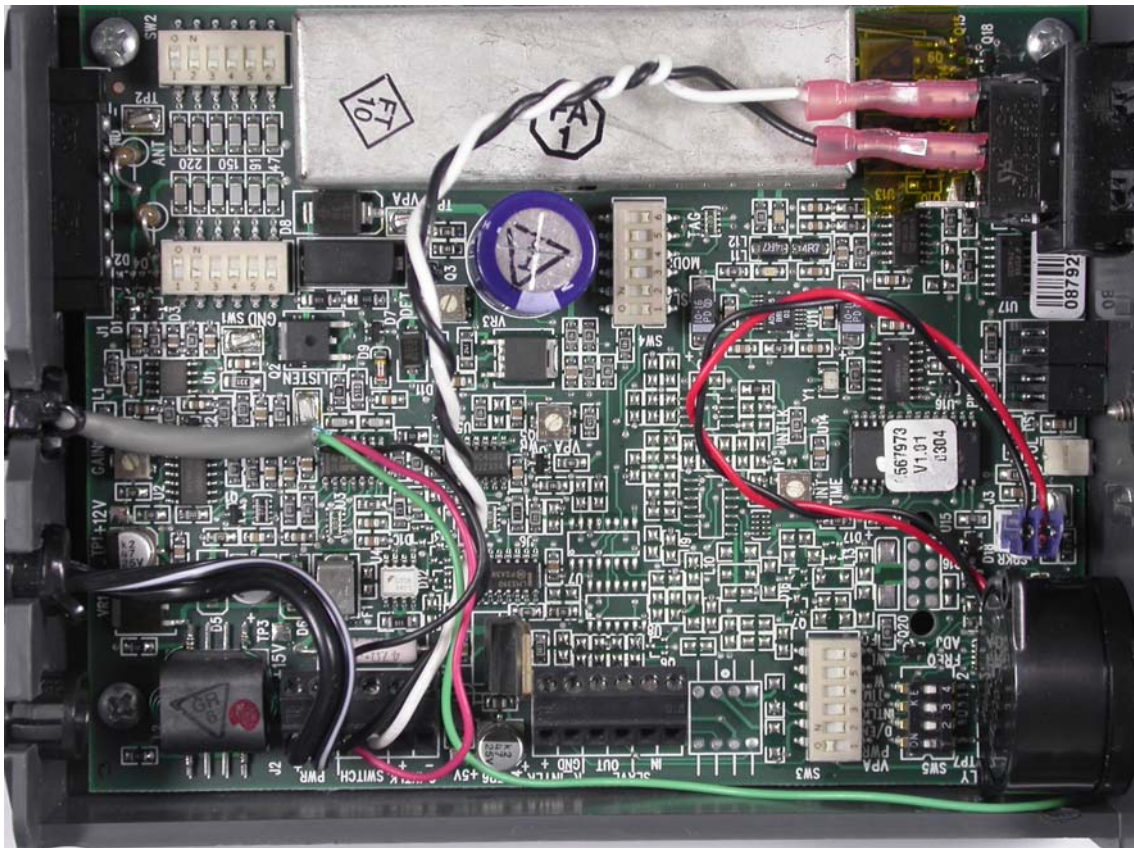


Counterpoint with 4/6 mode chassis:



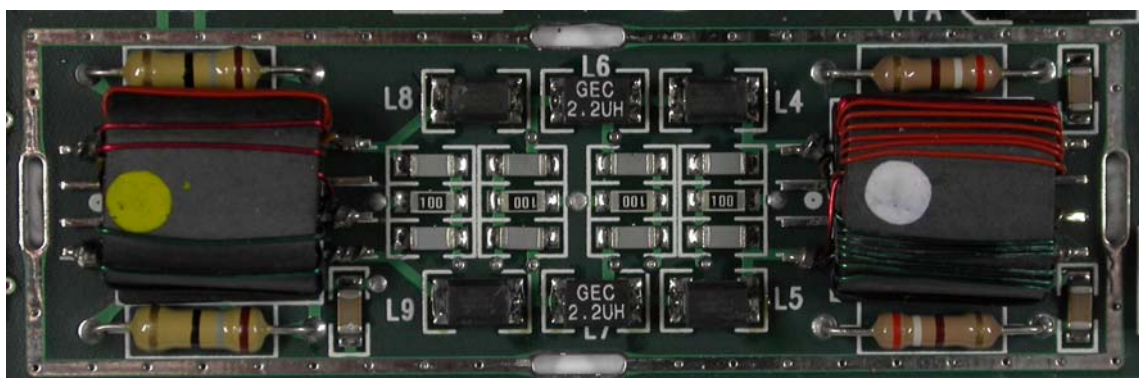
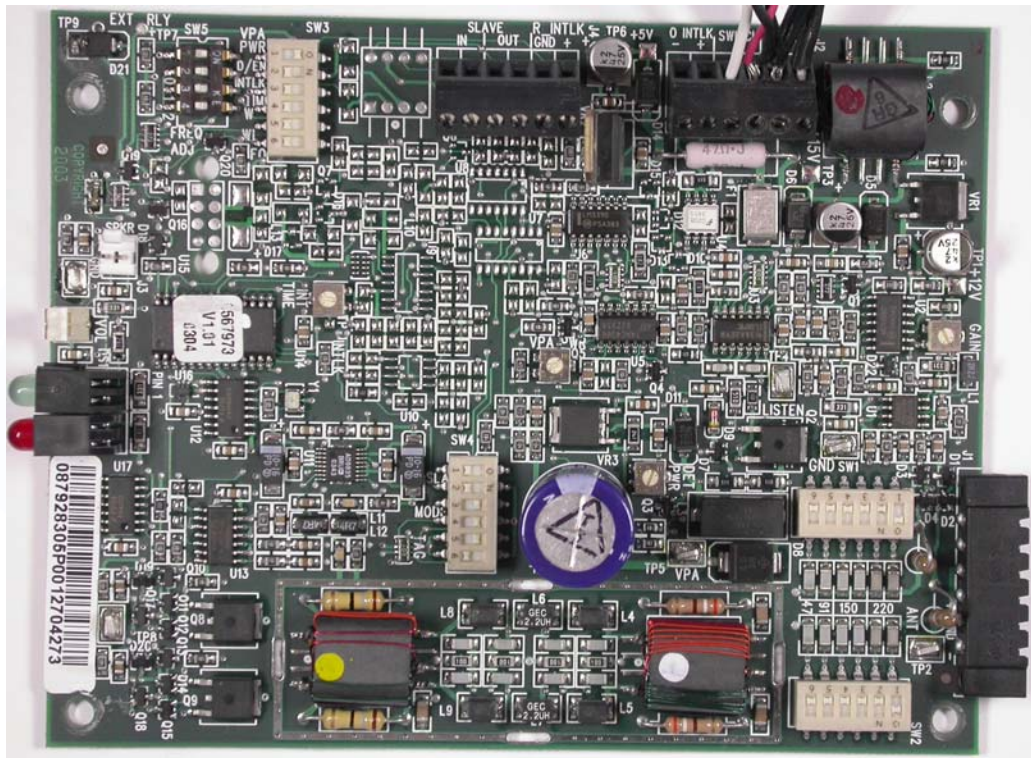
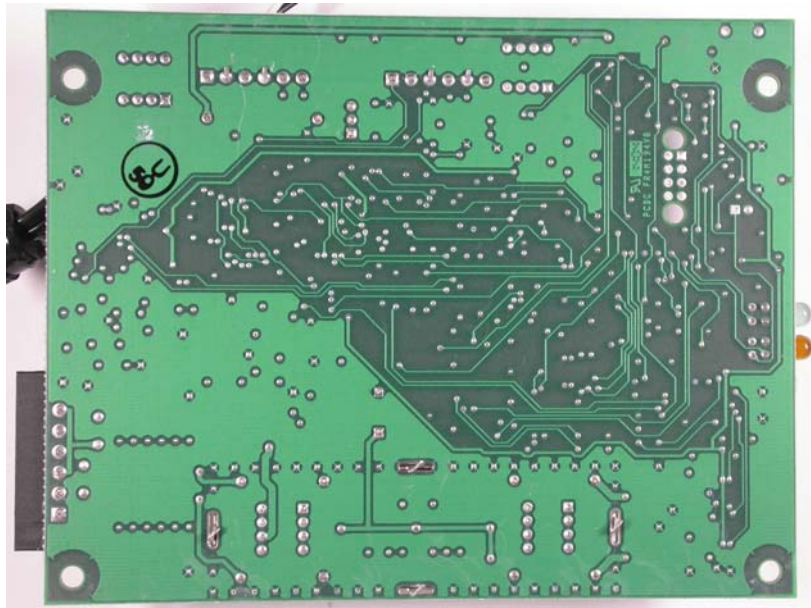


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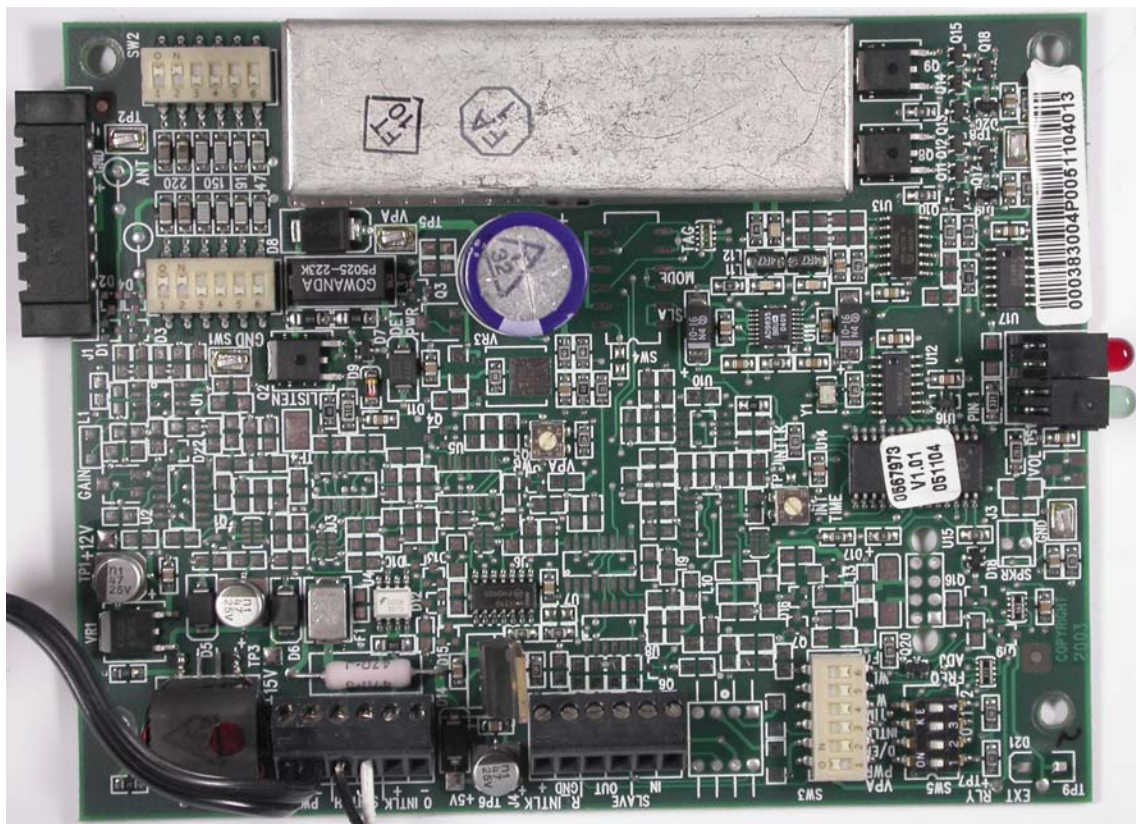
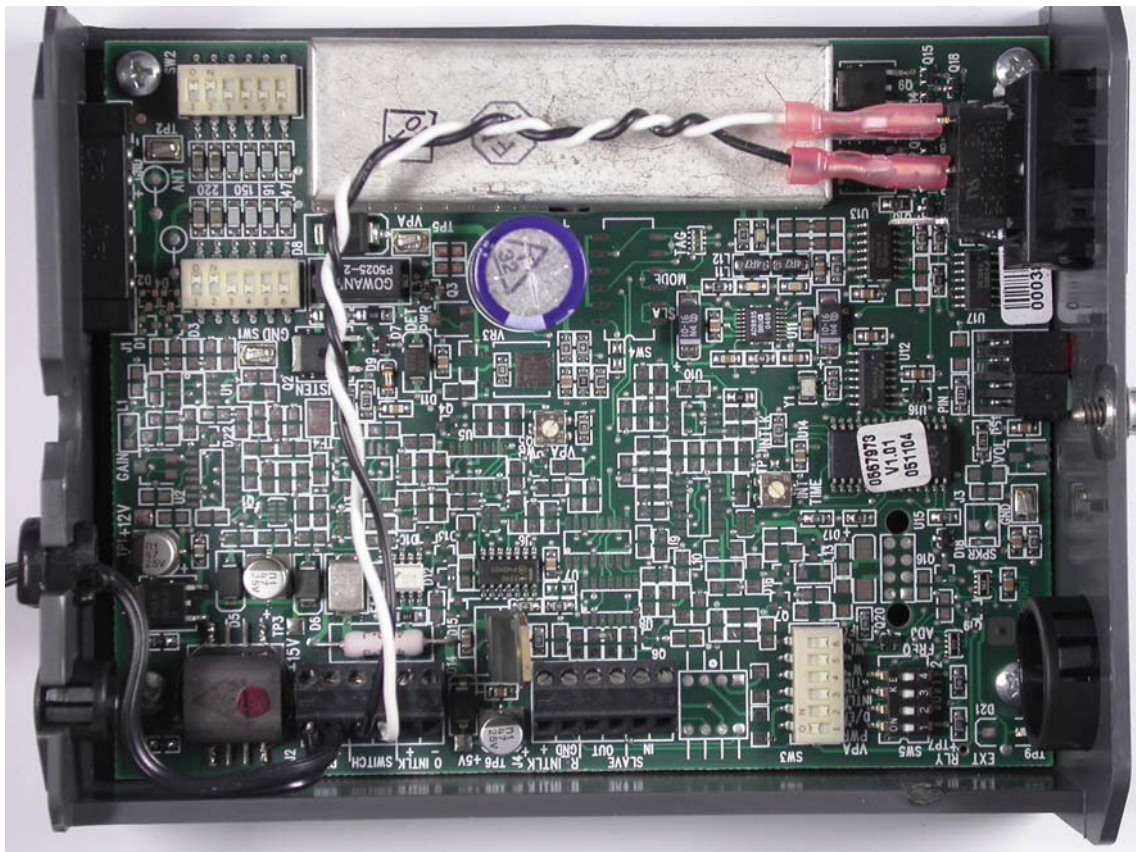
Counterpoint with 5 mode chassis:



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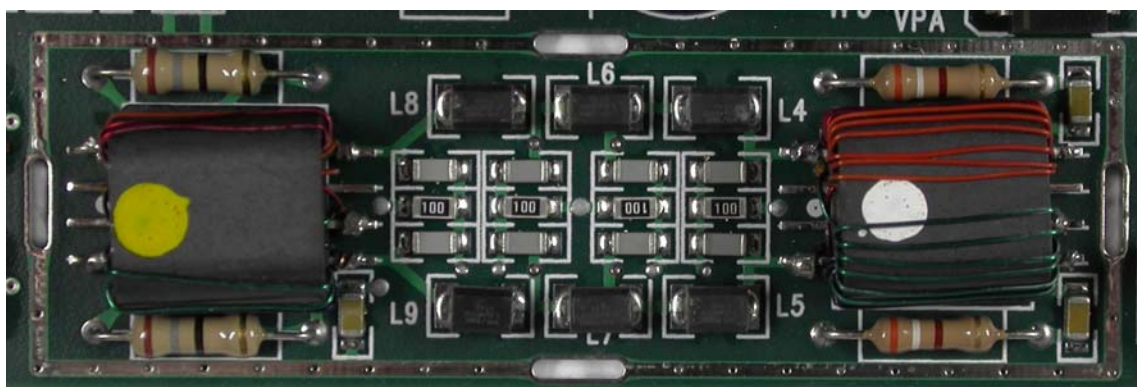
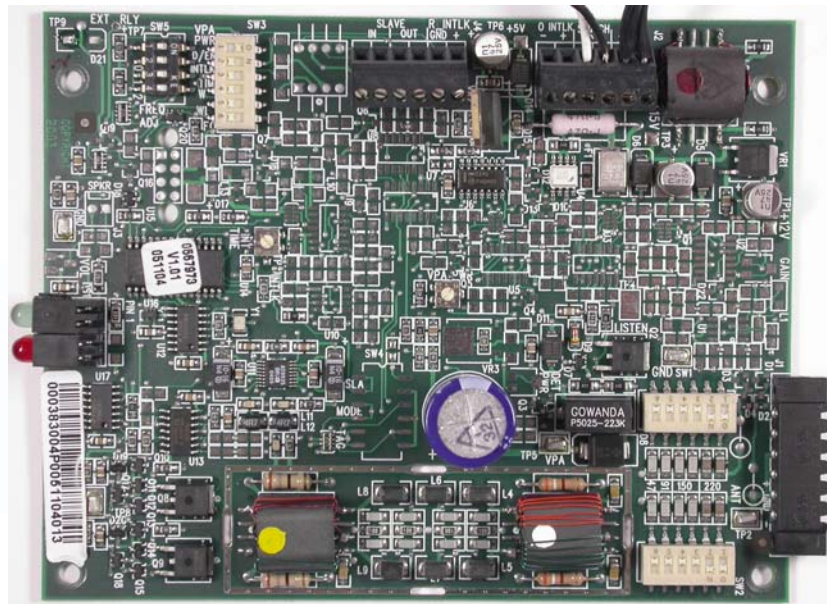
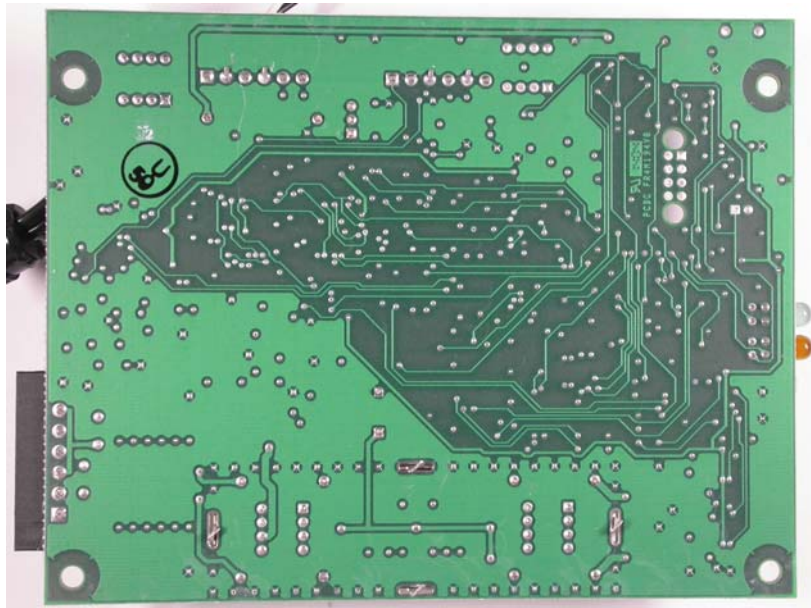


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Antenna Pad with wire loop:



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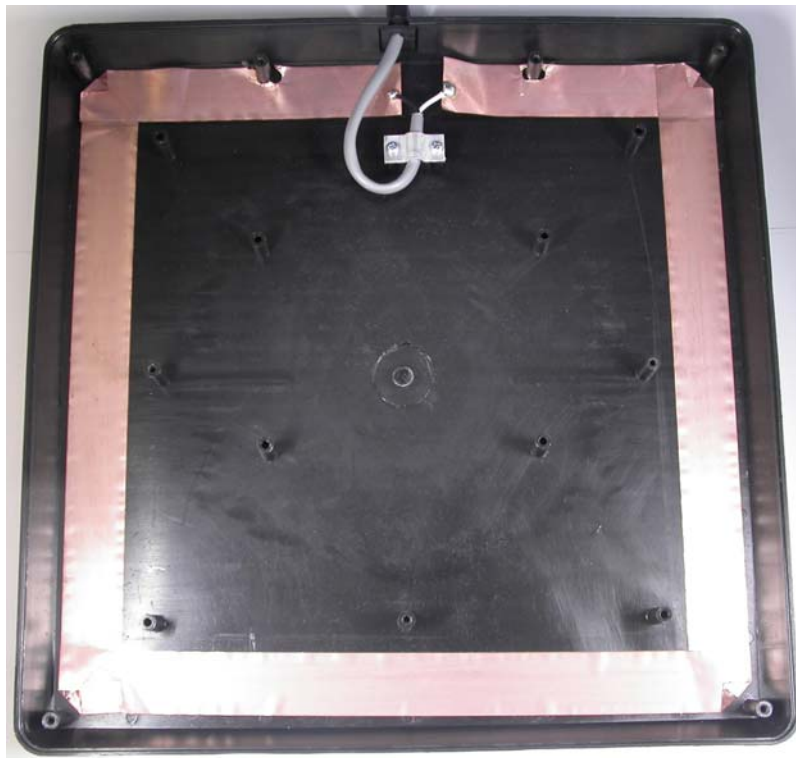


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Antenna Pad with copper tape loop:

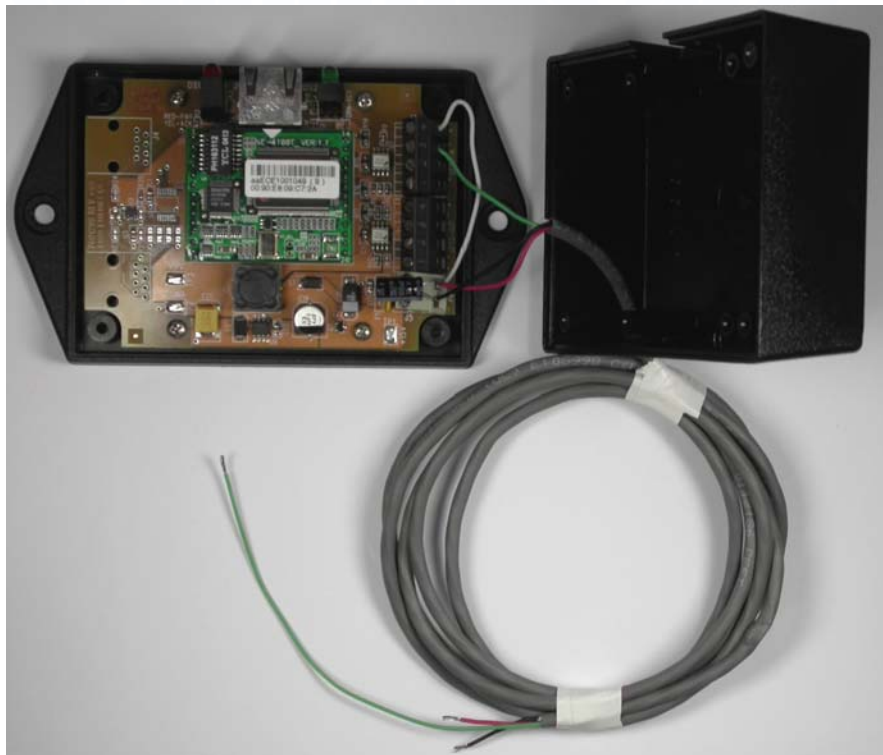


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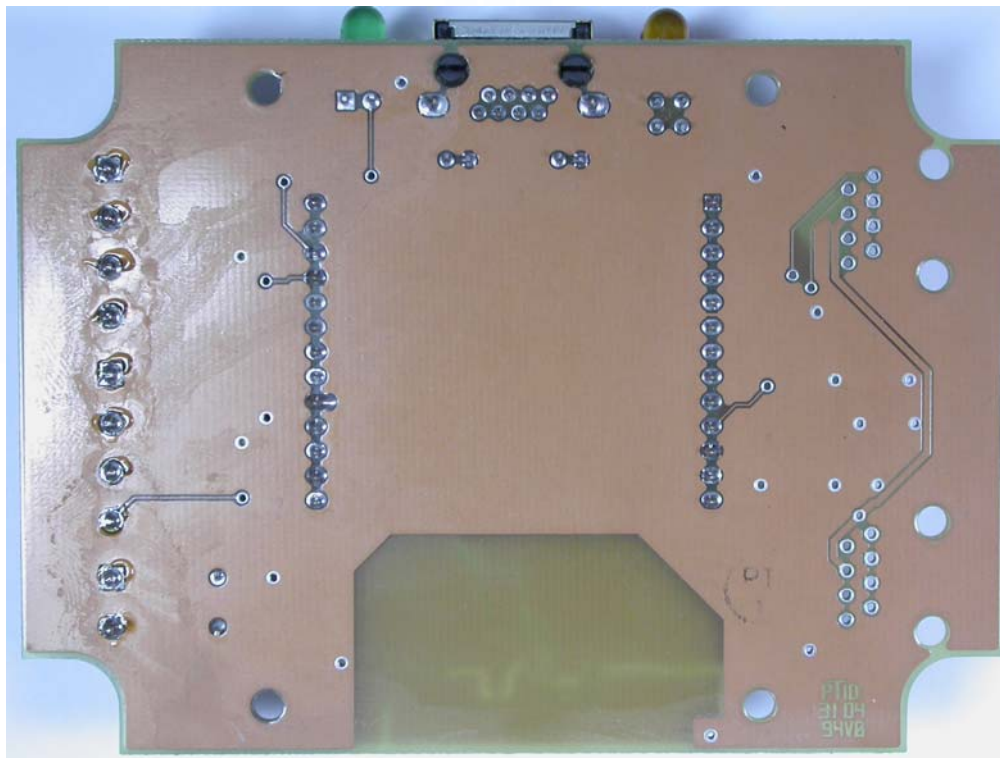
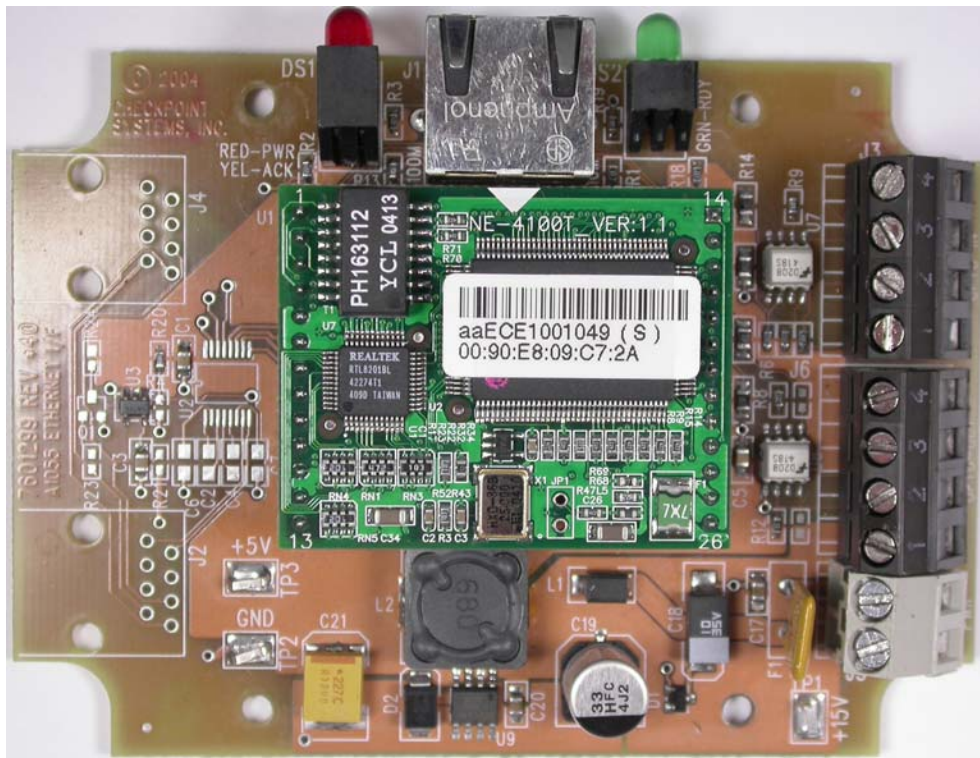
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Ethernet Module:



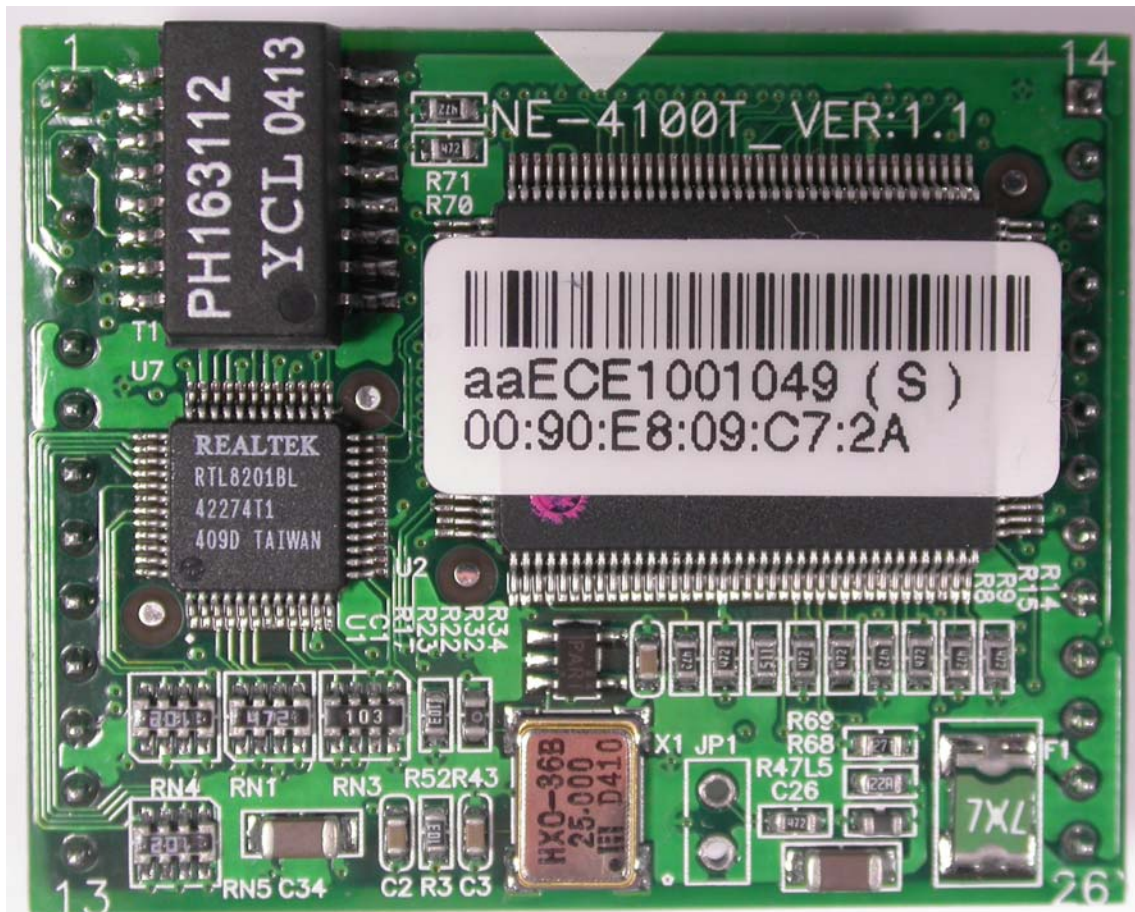
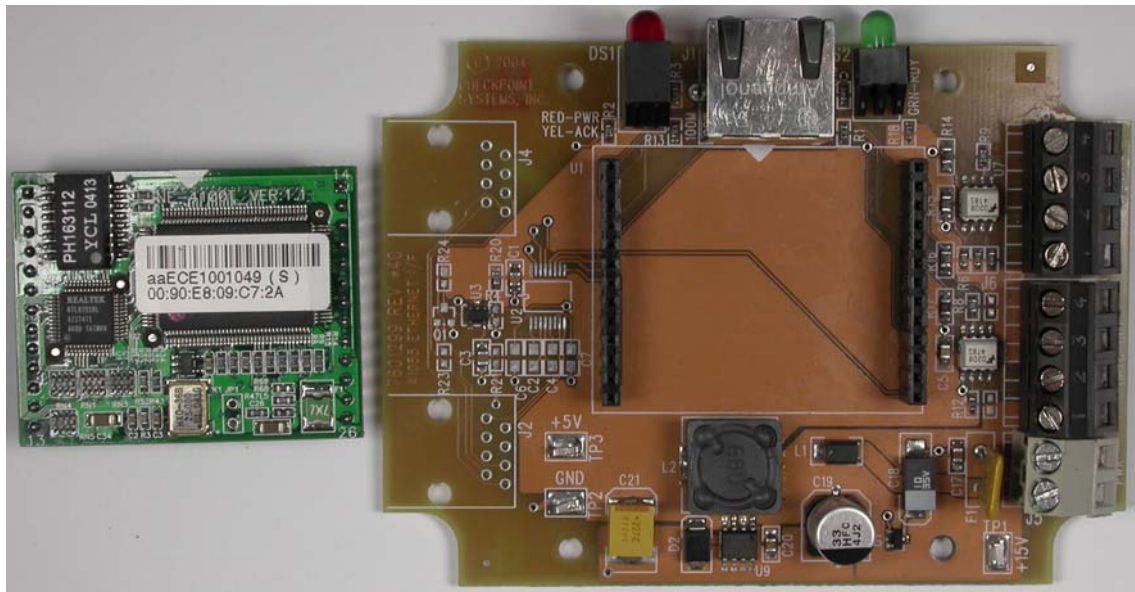
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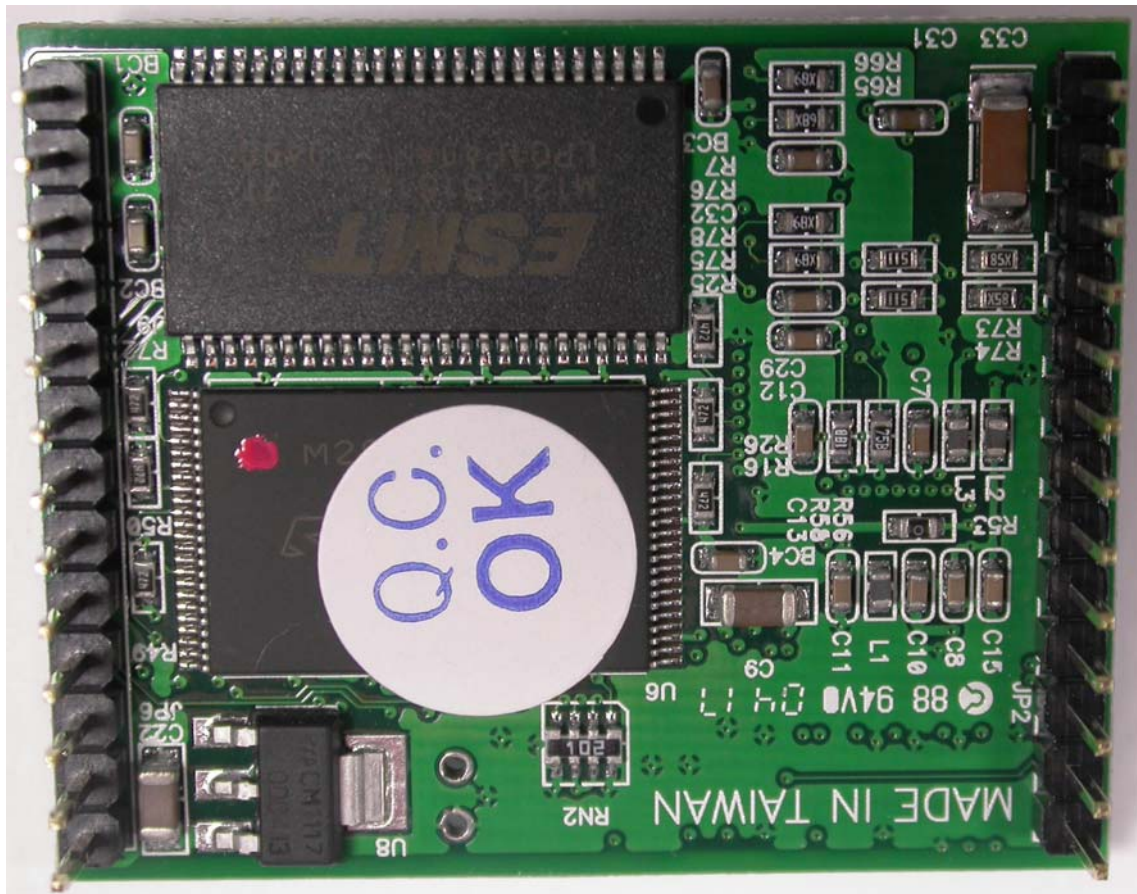


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FCC ID:DO4CP9



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FCC ID:DO4CP9

Jaro Power Supply:



FCC ID:DO4CP9

GlobTek Power Supply:



3.2 Power supply system utilised

Power supply voltage : 15 V DC / 115 V AC

3.3 Short description of the Equipment under Test (EuT)

The Counterpoint IX utilizes RF energy to deactivate security tags attached to merchandise. The Counterpoint IX is used at point of sale locations during purchase. The Counterpoint IX sweeps between 7.4 and 9.8 MHz emitting a narrow six microsecond pulse. The L/C tuned circuit in the security tags react to the pulse by resonating when exposed to the Counterpoint Antenna Pad. The circuitry of the Mode 5 version of the Counterpoint IX is a subset of the Mode 4/6 version. The Mode 5 contains the same printed circuit board as the Mode 4/6 but has less components.

Number of tested samples: 2
 Serial number: 4/6 Mode: 056550504P0020504019
 5 Mode: 022330703P0060304078

EuT operation mode:

The equipment under test was operated during the measurement under the following conditions:

- Continuous sweep mode

- Alarm Mode. A security tag was swept through the field of the Counterpoint.

-

EuT configuration:

(The CDF filled by the applicant can be viewed at the test laboratory.)

The following peripheral devices and interface cables were connected during the measurements:

- PSU (Power Supply Unit)	Model : GlobTek, GT-21089-1515-T3
- PSU (Power Supply Unit)	Model : Jaro, SYS1089-1515-T3
- Ethernet Interface Module	Model : Checkpoint, 712345603P02454001
- Lap Top	Model : Fa. Mikes Intern (04-02/00-03-019)
-	Model :
-	Model :
- customer specific cables	

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

**MIKES BABT Product Service GmbH
Ohmstrasse 2-4
94342 Strasskirchen
Germany**

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 86-106 kPa

4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16-4-2 /11.2003 „Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements“ and is documented in the MIKES BABT Product Service GmbH quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

4.4 Measurement Protocol for FCC, VCCI and AUSTEL

4.4.1 GENERAL INFORMATION

4.4.1.1 Test Methodology

Conducted and radiated disturbance testing is performed according to the procedures in International Special Committee on Radio Interference (CISPR) Publication 22 (1993), European Standard EN 55022 and Australian Standard AS 3548 (which are based on CISPR 22).

The Japanese standard, "Voluntary Control Council for Interference (VCCI) by Data Processing Equipment and Electronic Office Machines, Technical Requirements" is technically equivalent to CISPR 22 (1993). For official compliance, a conformance report must be sent to and accepted by the VCCI.

In compliance with FCC Docket 92-152, "Harmonization of Rules for Digital Devices Incorporate International Standards", testing for FCC compliance may be done following the ANSI C63.4-1992 procedures and using the CISPR 22 Limits.

4.4.1.2 Measurement Error

The data and results referenced in this document are true and accurate. The reader is cautioned that there is some measurement variability due to the tolerances of the test equipment that can contribute to a nominal product measurement uncertainty. The measurement uncertainty was calculated for all measurements listed in this test report according to NIS 81/5.1994 "The treatment of uncertainty in EMC measurements" and is documented in the MIKES BABT Product Service GmbH quality system according to DIN EN ISO/IEC 17025. Furthermore, component differences and manufacturing process variability of production units similar to that tested may result in additional product uncertainty. If necessary, refer to the test lab for the actual measurement uncertainty for specific tests. The manufacturer has the sole responsibility of continued compliance of the device.

4.4.1.3 Justification

The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into its characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum disturbances from the unit.

4.4.2 DETAILS OF TEST PROCEDURES

General Standard Information

The test methods used comply with CISPR Publication 22 (1993), EN 55022 (1987) and AS 3548 (1992) - "Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment" and with ANSI C63.4-1992 - "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz."

4.5 Discovery of worst case measurement conditions

The model Counterpoint IX Family consists of 2 different versions 4/6 mode chassis and 5 mode chassis. All 2 versions are technically identical expect the following items:

- no receiver circuitry in 5 only mode chassis
- 2 different type of power supply units (GlobTek and Jaro)
- different type of antenna pads (with copper tape loop and wire loop)

The following tests have been performed with both versions of Counterpoint IX:

- Measurement of the radiated fieldstrength of operating frequency of the 2 versions. This measurement have been performed in order to find out the typ of antenna pad (wire or copper tape) with the maximum fieldstrength.
- Measurement of radiated spurious emissions of the 2 versions. This measurement have been performed in order to find out the maximum spurious emissions of the chassis.
- Measurement of the conducted emissions with the 4/6 mode chassis. This measurement have been performed with the Jaro PSU.

Summarizing:

=> conducted emission: 4/6 Mode

=> maximum fieldstrength: 4/6 Mode with antenna pad (wire loop) (difference to copper loop: -5dB)

=> maximum spurious emission: 4/6 Mode

=> bandwidth plots: 4/6 Mode

The measurements have been performed completely on the version: 4/6 mode chassis with antenna pad (wire loop) Jaro PSU and Ethernet Module. The conducted measurements are performed with Jaro power supply. This test results are documented in following sections of the test report.

4.6 Deviations or Exclusions from the Requirements and Standards

Measurement of the fundamental – 7.4 to 8.8 MHz – was performed by setting a spectrum analyzer to “max-hold”, peak detector, a 300 kHz bandwitdh and a span from 6.5 MHz to 10 MHz. A resolution bandwidth of 300 kHz was used in performing the “true peak” measurements, because increasing the bandwidth above 300 kHz did not increase the detected peak of the fundamental.

4.7 Operation in Restricted Bands

The Counterpoint IX is a digital swept frequency hopping transmitter. The Counterpoint IX hops on discrete frequencies. The discrete frequencies that can be transmitted by the Counterpoint IX are as follows:

Frequency Table 0 (7.6 - 8.7MHz)							
7.6453E+06	7.7747E+06	7.9041E+06	8.0334E+06	8.1628E+06	8.2813E+06	8.4338E+06	8.5632E+06
7.6776E+06	7.8070E+06	7.9364E+06	8.0658E+06	8.1952E+06	8.3282E+06	8.4662E+06	8.5956E+06
7.7100E+06	7.8394E+06	7.9688E+06	8.0981E+06	8.2275E+06	8.3710E+06	8.4985E+06	8.6279E+06
7.7423E+06	7.8717E+06	8.0011E+06	8.1305E+06	8.2599E+06	8.4015E+06	8.5309E+06	8.6603E+06

Frequency Table 1 (7.4 - 9.0 MHz)							
7.4500E+06	7.6495E+06	7.8497E+06	8.0499E+06	8.2495E+06	8.4497E+06	8.6499E+06	8.8495E+06
7.5000E+06	7.6996E+06	7.8998E+06	8.1000E+06	8.3264E+06	8.4998E+06	8.7000E+06	8.8995E+06
7.5494E+06	7.7496E+06	7.9498E+06	8.1494E+06	8.3496E+06	8.5498E+06	8.7500E+06	8.9496E+06
7.5995E+06	7.7997E+06	7.9999E+06	8.1995E+06	8.3997E+06	8.5999E+06	8.7994E+06	8.9996E+06

Frequency Table 2 (7.4 - 8.8 MHz)							
7.4249E+06	7.5946E+06	7.7649E+06	7.9346E+06	8.1049E+06	8.2745E+06	8.4448E+06	8.6145E+06
7.4670E+06	7.6373E+06	7.8070E+06	7.9773E+06	8.1470E+06	8.3173E+06	8.4869E+06	8.6572E+06
7.5098E+06	7.6794E+06	7.8497E+06	8.0194E+06	8.1897E+06	8.3722E+06	8.5297E+06	8.7000E+06
7.5525E+06	7.7222E+06	7.8925E+06	8.0621E+06	8.2324E+06	8.4021E+06	8.5724E+06	8.7421E+06

Frequency Table 3 (7.8 - 9.4 MHz)							
7.8497E+06	8.0499E+06	8.2495E+06	8.4497E+06	8.6499E+06	8.8495E+06	9.0497E+06	9.2499E+06
7.8998E+06	8.1000E+06	8.3264E+06	8.4998E+06	8.7000E+06	8.8995E+06	9.0997E+06	9.2999E+06
7.9498E+06	8.1494E+06	8.3496E+06	8.5498E+06	8.7500E+06	8.9496E+06	9.1498E+06	9.3500E+06
7.9999E+06	8.1995E+06	8.3997E+06	8.5999E+06	8.7994E+06	8.9996E+06	9.1998E+06	9.3994E+06

Frequency Table 4 (7.8 - 9.8 MHz)							
7.8369E+06	8.0872E+06	8.3374E+06	8.5870E+06	8.8373E+06	9.0869E+06	9.3372E+06	9.5874E+06
7.8998E+06	8.1494E+06	8.3997E+06	8.6499E+06	8.8995E+06	9.1498E+06	9.3994E+06	9.6497E+06
7.9620E+06	8.2123E+06	8.4619E+06	8.7122E+06	8.9624E+06	9.2120E+06	9.4623E+06	9.7119E+06
8.0249E+06	8.2745E+06	8.5248E+06	8.7744E+06	9.0247E+06	9.2749E+06	9.5245E+06	9.7748E+06

Frequency Table 5 (7.5 - 8.6 MHz)							
7.5482E+06	7.6776E+06	7.8070E+06	7.9364E+06	8.0658E+06	8.1952E+06	8.3282E+06	8.4662E+06
7.5806E+06	7.7100E+06	7.8394E+06	7.9688E+06	8.0981E+06	8.2275E+06	8.3710E+06	8.4985E+06
7.6129E+06	7.7423E+06	7.8717E+06	8.0011E+06	8.1305E+06	8.2599E+06	8.4015E+06	8.5309E+06
7.6453E+06	7.7747E+06	7.9041E+06	8.0334E+06	8.1628E+06	8.2813E+06	8.4338E+06	8.5632E+06

Frequency Table 6 (7.7 - 8.8 MHz)							
7.7423E+06	7.8717E+06	8.0011E+06	8.1305E+06	8.2599E+06	8.4015E+06	8.5309E+06	8.6603E+06
7.7747E+06	7.9041E+06	8.0334E+06	8.1628E+06	8.2813E+06	8.4338E+06	8.5632E+06	8.6926E+06
7.8070E+06	7.9364E+06	8.0658E+06	8.1952E+06	8.3282E+06	8.4662E+06	8.5956E+06	8.7250E+06
7.8394E+06	7.9688E+06	8.0981E+06	8.2275E+06	8.3710E+06	8.4985E+06	8.6279E+06	8.7573E+06

Frequency Table 7 (8.5 - 9.8 MHz)							
8.5504E+06	8.7067E+06	8.8629E+06	9.0192E+06	9.1754E+06	9.3317E+06	9.4879E+06	9.6442E+06
8.5895E+06	8.7457E+06	8.9020E+06	9.0582E+06	9.2145E+06	9.3707E+06	9.5270E+06	9.6832E+06
8.6285E+06	8.7848E+06	8.9410E+06	9.0973E+06	9.2535E+06	9.4098E+06	9.5660E+06	9.7223E+06
8.6676E+06	8.8239E+06	8.9801E+06	9.1364E+06	9.2926E+06	9.4489E+06	9.6051E+06	9.7614E+06

The restricted frequency bands (per FCC Part 15 Clause 15.205) in the operating frequency band of the EuT are as follows:

8.291 – 8.294 MHz
8.362 – 8.366 MHz
8.37625 – 8.38675 MHz
8.41425 – 8.41475 MHz

The transmitter is not capable of hopping into, or operating, in the restricted frequency bands and therefore, complies with the restriction.

5 TEST CONDITIONS AND RESULTS

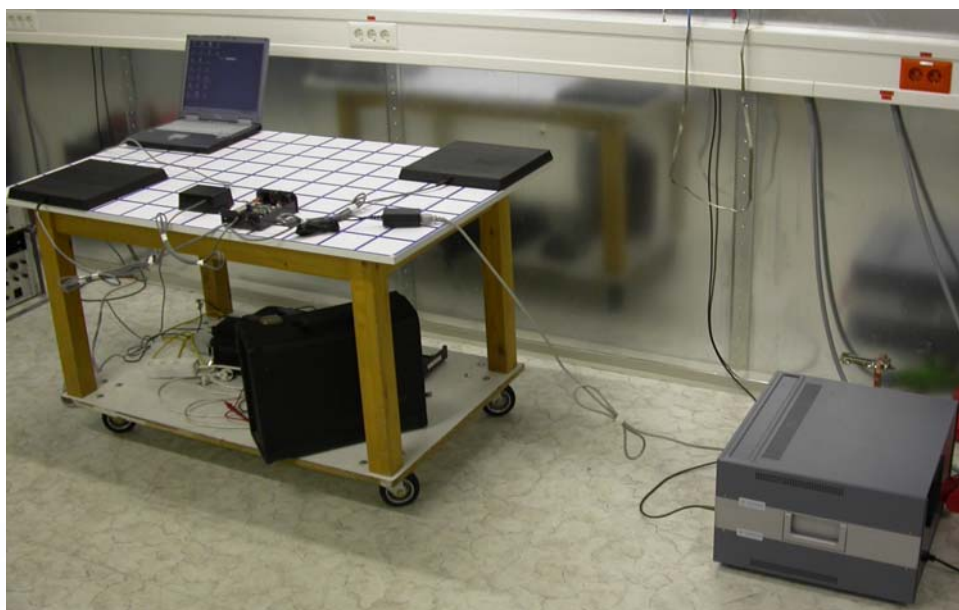
5.1 Conducted emissions

For test instruments and accessories used see section 6 Part A 4.

5.1.1 Description of the test location

Test location: Shielded Room S2

5.1.2 Photo documentation of the test set-up



5.1.3 Description of Measurement

The final level, expressed in dB μ V, is arrived at by taking the reading directly from the EMI receiver. This level is compared directly to the FCC Limit or to the CISPR limit, which is equivalent to the Australian AS 3548 limit.

To convert between dB μ V and μ V, the following conversions apply:

$$\text{dB}\mu\text{V} = 20(\log \mu\text{V})$$

$$\mu\text{V} = \text{Inverse log}(\text{dB}\mu\text{V}/20)$$

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EuT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection, and a Line Impedance Stabilization Network (LISN), with 50 Ω /50 μ H (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimetre's above the floor and is positioned 40 centimetre's from the vertical ground plane (wall) of the screen room. If the minimum passing margin appears to be less than 20 dB with a peak mode measurement, the emissions are remeasured using a tuned receiver with quasi-peak and average detection and recorded on the data sheets.

5.1.4 Test result

Frequency range: 0.15 MHz - 30 MHz

Min. limit margin 14.8dB at 7.69 MHz

The requirements are **FULFILLED**.

Remarks:





5.2 Field strength of the fundamental wave

For test instruments and accessories used see section 6 Part CPR 1.

5.2.1 Description of the test location

Test location: OATS1

Test distance: 30m

5.2.2 Photo documentation of the test set-up



5.2.3 Description of Measurement

The final level, expressed in dB μ V/m, is arrived at by taking the reading from the EMI receiver (Level dB μ V) and adding the antenna correction factor and cable loss factor (Factor dB) to it. This result then has to be compared with the relevant FCC limit.

The resolution bandwidth during the measurement was 300 kHz.

Example:

Frequency (MHz)	Level (dB μ V)	+	Factor (dB)	=	Level (dB μ V/m)	Limit (dB μ V/m)	=	Delta (dB)
1.705	5	+	20	=	25	30	=	5

5.2.4 Test result

Frequency [MHz]	L: PK [dB μ V]	L: AV [dB μ V]	L: QP [dB μ V]	Correct. [dB]	L: PK [dB μ V/m]	L: AV [dB μ V/m]	L: QP [dB μ V/m]	Limit [dB μ V/m]	Delta [dB]
8.2905	39.0	-19,9	--	20	59.0	0.1	--	40.0	39.9

Limit according to FCC Part 15 Subpart 15.223, 15.35(b)

Frequency (MHz)	Fieldstrength of fundamental – Average Detector	
	(μ V/m)	dB (μ V/m)
1.705-10.0	100*	40*

Frequency (MHz)	Fieldstrength of fundamental – Peak Detector	
	(μ V/m)	dB (μ V/m)
1.705-10.0	1000*	60*

* At a test distance of 30 metres

The requirements are **FULFILLED**.

Remarks:

5.3 Spurious emissions (Magnetic field) 9 kHz – 30 MHz

For test instruments and accessories used see section 6 Part SER 1.

5.3.1 Description of the test location

Test location: OATS1

Test distance: 30m

5.3.2 Photo documentation of the test set-up



5.3.3 Description of Measurement

Spurious emissions from the EuT are measured in the frequency range of 9 kHz to 30 MHz using a tuned receiver and a shielded loop antenna. The antenna was positioned 3, 10 or 30 meters horizontally from the EuT. Measurements have been made in all three orthogonal axes and the shielded loop antenna was rotated to locate the maximum of the emissions.

The final level, expressed in dB μ V/m, is arrived at by taking the reading from the EMI receiver (Level dB μ V) and adding the antenna correction factor and cable loss factor (Factor dB) to it. This result then has to be compared with the relevant FCC limit.

The resolution bandwidth during the measurement is as follows:

9 kHz – 150 kHz: ResBW: 200 Hz

150 kHz – 30 MHz: ResBW: 300 kHz

Example:

Frequency (MHz)	Level (dB μ V)	+	Factor (dB)	=	Level (dB μ V/m)	Limit (dB μ V/m)	=	Delta (dB)
1.705	5	+	20	=	25	30	=	5

5.3.4 Test result

Frequency [MHz]	L: PK [dB μ V]	L: AV [dB μ V]	L: QP [dB μ V]	Correct. [dB]	L: PK [dB μ V/m]	L: AV [dB μ V/m]	L: QP [dB μ V/m]	Limit [dB μ V/m]	Delta [dB]
1.9899	18,5	13,1		20	38,5	33.1		40.0	6.9
4.0460	20,3	14,9		20	40,3	34.9		40.0	5.1
5.9879	25,7	16,5		20	45,7	36.5		40.0	3.5

Limit according to FCC Part 15 Subpart 15.209(a), Subpart 15.223(a)

Frequency (MHz)	Field strength of spurious emissions		Measurement distance (meters)
	(μ V/m)	dB (μ V/m)	
0.009-0.490	2400/F(kHz)	--	300
0.490-1.705	24000/F (kHz)	--	30
1.705-30.0	100	40.0	30

The requirements are **FULFILLED**.

Remarks:

5.4 Radiated emissions (electric field) 30 MHz – 1 GHz

For test instruments and accessories used see section 6 Part SER 2.

5.4.1 Description of the test location

Test location: OATS1

Test distance: 3m

5.4.2 Photo documentation of the test set-up



5.4.3 Description of Measurement

Spurious emissions from the EuT are measured in the frequency range of 30 MHz to 10 times the highest used frequency using a tuned receiver and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Interface cables that are closer than 40 centimetres to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimetres from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna was positioned 3, 10 or 30 meters horizontally from the EuT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters,

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measurement scans are made with both horizontal and vertical antenna polarization`s and the EuT are rotated 360 degrees.

The final level, expressed in dBµV/m, is arrived by taking the reading from the EMI receiver (Level dBµV) and adding the correction factors and cable loss factor (Factor dB) to it. This is done automatically in the EMI receiver, where the correction factors are stored. This result then has the FCC or CISPR limit subtracted from it to provide the Delta which gives the tabular data as shown in the data sheets at page.

Example:

Frequency (MHz)	Level (dBµV)	+	Factor (dB)	=	Level (dBµV/m)	Limit (dBµV/m)	=	Delta (dB)
719	75	+	32.6	=	107.6	110	=	-2.4

5.4.4 Test result

Frequency [MHz]	L: PK [dBµV]	L: AV [dBµV]	L: QP [dBµV]	Correct. [dB]	L: PK [dBµV/m]	L: AV [dBµV/m]	L: QP [dBµV/m]	Limit [dBµV/m]	Delta [dB]
30.58	--	--	25.9	10.8	--	--	36.7	40.0	3.3
47.80	--	--	20.3	13.0	--	--	33.3	40.0	6.7
49.05	--	--	26.4	13.0	--	--	39.4	40.0	0.6
139.16	--	--	16.5	15.1	--	--	31.6	43.5	11.9
143.25	--	--	19.5	15.3	--	--	34.8	43.5	8.7
146.05	--	--	19.8	15.4	--	--	35.2	43.5	8.3
160.11	--	--	24.8	15.7	--	--	40.5	43.5	3.0
300.25	--	--	16.8	17.4	--	--	34.2	46.0	11.8
399.99	--	--	17.6	19.4	--	--	37.0	46.0	9.0
820.75	--	--	13.6	28.1	--	--	41.7	46.0	4.3
899.98	--	--	7.1	29.2	--	--	36.3	46.0	9.7

Limit according to FCC Part 15 Subpart 15.209(a)

Frequency (MHz)	Field strength of spurious emissions		Measurement distance (meters)
	(µV/m)	dB (µV/m)	
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
960-1000	500	54	3

The requirements are **FULFILLED**.

Remarks:

5.5 Emission Bandwidth

For test instruments and accessories used see section 6 Part MB.

5.5.1 Description of the test location

Test location: AREA4

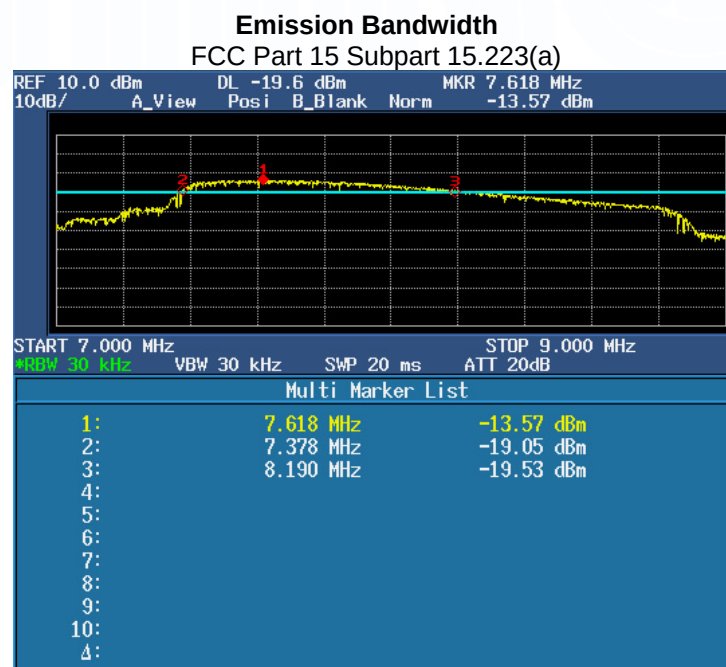
5.5.2 Photo documentation of the test set-up



5.5.3 Test result

Fundamental [MHz]	6dB Bandwidth F1 [MHz]	6dB Bandwidth F2 [MHz]	Measured Bandwidth [MHz]
7.618	7.378	8.190	0.812

5.5.4 Test protocol



5.6 Correction for Pulse Operation (Duty Cycle)

For test instruments and accessories used see section 6 Part DC.

5.6.1 Description of the test location

Test location: AREA4

5.6.2 Test result

The Duty cycle factor, expressed in dB, is arrived by taking the following formula:

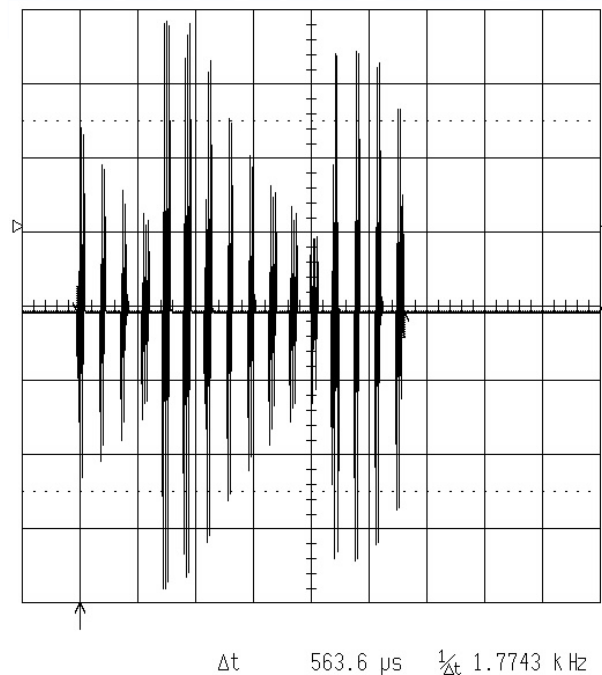
$$KE = 20 \log [(t_{iw}/T_w) * (t_{iB}/T_B)]$$

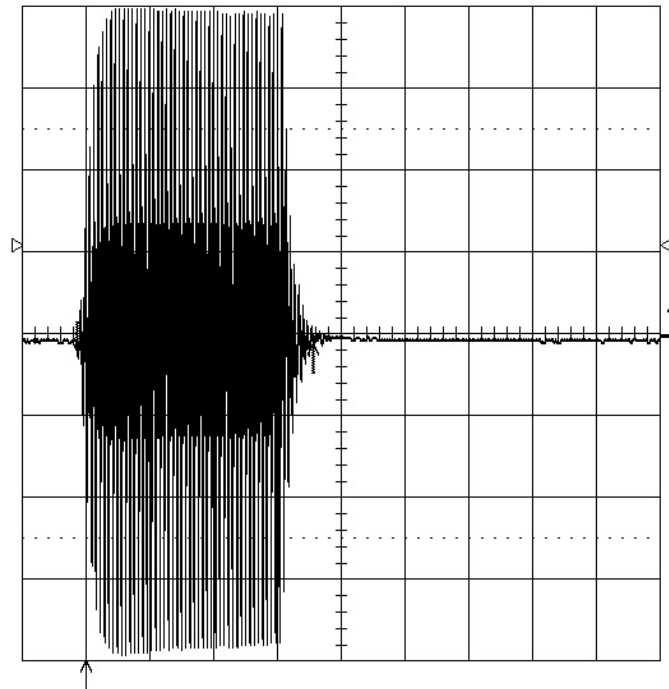
KE: pulse operation correction factor [dB]
 t_{iw} : pulse duration for one complete pulse track [msec]
 t_{iB} : pulse duration for one pulse [μ sec]
 T_w : a period of the pulse track [msec]
 T_B : a period of one pulse [μ sec]

t_{iw} [msec]	T_w [msec]	t_{iB} [μ sec]	T_B [μ sec]	KE [dB / %]
0,56	100	7.4	36.8	-58.91 / 0.11

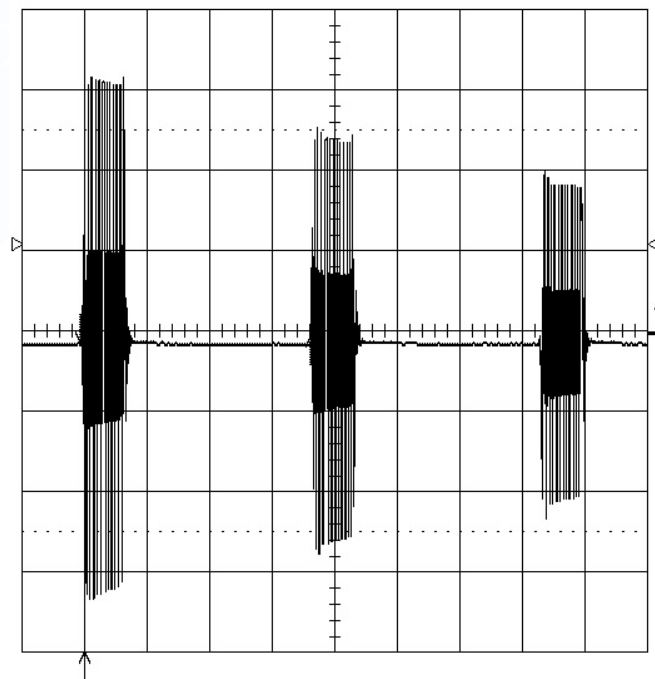
Remarks: For detailed results, please see the test protocol below.

5.6.3 Test protocol





Δt 7.374 μs $\frac{1}{\Delta t}$ 135.61 kHz



Δt 36.81 μs $\frac{1}{\Delta t}$ 27.167 kHz

6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used, in addition to the test accessories, are calibrated and verified regularly.

Beginning of Testing: 28 September 2004
End of Testing: 24 November 2004

Test ID	Model Type	Kind of Equipment	Manufacturer	Equipment No.
A4	F 60	RF Clamp	FCC Fischer Custom Comm.	04-07/58-92-200
	F-203I-DCN-32mm	Absorbing Clamp	FCC Fischer Custom Comm.	04-07/60-02-012
	ESH 2 - Z 5	LISN	Rohde & Schwarz München	04-07/60-03-078
	ESH 3 - Z 2	Pulse Limiter	Rohde & Schwarz München	04-07/60-03-079
	N2000N	RF Cable	Huber+Suhner	04-07/60-04-004
	N4000BNC	RF Cable	Huber+Suhner	04-07/60-04-005
	ESHS 30	Test Receiver	Rohde & Schwarz München	04-07/63-04-002
CPR1	RG 223	Coax- Cable	MBPS GmbH	04-07/60-04-259
	ESIB 40	Test Receiver	Rohde & Schwarz München	04-07/63-03-002
	FMZB 1516	Magnetic Field Antenna	Schwarzbeck Mess-Elektronik	99-07/62-03-004
MB	HZ-10	Magnetic Field Antenna	Rohde & Schwarz München	04-07/62-95-320
	R 3162	Spectrum Analyzer	Advantest	04-07/74-00-001
DC	9350	Storage Oscilloscope	LeCroy Europe GmbH	04-07/38-94-054
SER1	RG 223	Coax- Cable	MBPS GmbH	04-07/60-04-259
	ESIB 40	Test Receiver	Rohde & Schwarz München	04-07/63-03-002
	FMZB 1516	Magnetic Field Antenna	Schwarzbeck Mess-Elektronik	99-07/62-03-004
SER2	Sucofeed 7/8	RF Cable	Huber+Suhner	04-07/60-04-089
	NW-2000-NB	RF Cable	MBPS GmbH	04-07/60-04-205
	NB-15000-NB	RF Cable	MBPS GmbH	04-07/60-04-207
	VULB 9165	Super Broadband Antenna	Schwarzbeck Mess-Elektronik	04-07/62-00-001
	ESVS 30	Test Receiver	Rohde & Schwarz München	04-07/63-04-001

7 Attachment D:

Constructional dataform for testing of radio equipment

Licence holder:	Checkpoint Systems, Inc.		
Address:	101 Wolf Drive, Thorofare, New Jersey, USA 08086		
Manufacturer:	Checkpoint Systems Puerto Rico		
Address:	Sabanetas Industrial Park, P.O. Box 7283, Ponce, Puerto Rico 00732		
Type:	Electronic Article Surveillance Deactivation System		
Model:	Counterpoints IX Family 4/6 mode chassis, 5 Only Mode chassis with Ethernet Interface Module option		
Serial-No.:	4/6 Mode: 056550504P0020504019 5 Only Mode: 022330703P0060304078	Protection class:	

Additional information to the above named model:

Antenna: Transmitter:	Type: Loop Antennas		
	Length/size:	Length/size:	Length/size:
	L: 300mm W: 300 mm		
Receiver: <i>(Applicable to 4/6 Mode only chassis. No Receiver circuitry in 5 Only Mode chassis)</i>	Type: same as transmitter		
	Length/size: same as transmitter		
Power supply of the transmitter: Type:	Nominal voltage:		15 V
	Lowest voltage:		14 V
	Highest voltage:		18 V
	Current consumption		1.0 A
	same as transmitter		
Power supply of the receiver: Type:	Nominal voltage:		V
	Current consumption		A

Ancillary equipment:

Description:	PSU	Type:	Globtek, GT-21089-1515-T3	Serial-no.:	
Description:	PSU	Type:	Jaro, SYS1089-1515-T3	Serial-no.:	
Description:	Ethernet Interface Module	Type:	Checkpoint	Serial-no.:	712345603P02454001

Extreme temperature range in which the approval test should be performed:

v Category I: General (-20°C to +55°C)

O Category II: Portable (-10°C to +55°C)

O Category III: Equipment for normal indoor use (0°C to +55°C)

Connectable cables:

Name of the cable	Digital	Length/m	Shielded
15 V DC Cable	O yes v no	1.83	O yes v no
IEC 320 Cordset	O yes v no	1.83	O yes v no
Ethernet Interface Module I/O Cable	v yes O no	1.98	O yes v no
RJ-45 Ethernet Cable	v yes O no	2.13	v yes O no
Antenna Pad Cable	v yes O no	2.44	O yes v no

Type designation: Counterpoints IX Family 4/6 mode chassis and 5only mode chassis Name and type designation of individual units comprising the radio equipment: PSU, Jaro, SYS1089-1515-T3 PSU, GlobTek, GT-21089-1515-T3 Ethernet Interface Module			
Type of equipment: ☐ Radiotelephone equipment ☐ Remote-control equipment ☐ Radiomaritime equipment ☐ LPD ☐ One-way radiotelephone equipment ☒ Inductive loop system ☐ Inland waterways equipment ☐ RLAN ☐ Personal paging system ☐ Radio-relay system ☐ Radionavigation equipm. ☐ ☐ Satellite earth station ☐ CB radiotelephone equipment ☐ Antenna ☐ ☐ Data transmission equipment ☐ Movement detector ☐ Aeronautical equipment ☐			
Technical characteristics:			
Frequency range Maximum no. of channels Channel spacing Class of emission (type of modulation) Maximum RF output power Maximum effective radiated power (ERP) Output power variable Channel switching frequency range	Transmitter-receiver	Transmitter 7.4 – 9.8 MHz 1 FXN 9 dBµA/m at 10m Yes	Receiver Broadband
Method of frequency generation Frequency generation TX Frequency generation RX	☒ Synthesizer ☐ Crystal ☐ Other		
IF	1st IF	2nd IF	3rd IF
Integral selective calling Audio-frequency interface level at external data socket			
Modes of operation Power source Antenna socket	☐ Duplex mode ☐ Semi-duplex mode ☒ Simplex mode ☒ Mains ☐ Vehicle-regulated ☐ Integral ☐ BNC ☐ TNC ☐ N ☐ M ☐ UHF ☐ Adapter ☐ None ☒ Terminal Block ☐		
Test specifications:			
CE EN 50364 (2001-08) EN 60950 (2000) EN 300 330-2 V1.1.1 (2001-06) EN 301 489-3 V1.4.1 (2002-08)	FCC 47 CFR Part 15 (2003-12)	IC RSS 210 Issue 5 (2001-11)	

System Setup for CE - Tests

Antennatype TX	Frequency	Settings TX-Power	PSU – Cable
Counterpoints IX	8.2 MHz	61 V VPA	PSU, Jaro, SYS1089-1515-T3
4/6 Mode & 5 Only Mode			PSU, Globtek, GT-21089-1515-T3

Cables/Connections:

AC-Cable(to PSU): Standard, unshielded with Globtek GT-21089-1515-T3, or Jaro SYS1089-1515-T3.

DC-Cable: 2-conductor, 15 V DC lead from Globtek/Jaro Power Supply into Counterpoints IX chassis

RJ-45 Crossover Ethernet Cable connected to Ethernet Interface Module

Antenna Pad Cable: #18 AWG cable connected to terminal block connector on Counterpoints IX chassis.

Ethernet Interface Module I/O Cable – Two of 3 -conductor #22 AWG cable connect to +/- 15 V dc power terminals on J2 in Counterpoints IX chassis. 3^d conductor is soldered to TP9 in Counterpoints IX chassis

System Setup for FCC/IC - Tests

Antennatype TX	Frequency	Settings TX-Power	PSU - Cable
Counterpoints IX	8.2 MHz	45 V VPA	PSU, Jaro, SYS1089-1515-T3
4/6 Mode & 5 Only Mode			PSU, Globtek, GT-21089-1515-T3

Cables/Connections:

AC-Cable (to PSU): Standard, unshielded with Globtek GT-21089-1515-T3, or Jaro SYS1089-1515-T3.

DC-Cable: 2-conductor, 15 V DC lead from Globtek/Jaro Power Supply into Counterpoints IX chassis

RJ-45 Crossover Ethernet Cable connected to Ethernet Interface Module

Antenna Pad Cable: #18 AWG connected to terminal block connector on Counterpoints IX chassis.

Ethernet Interface Module I/O Cable – Two of 3 -conductor #22 AWG cable connect to +/- 15 V dc power terminals on J2 in Counterpoints IX chassis. 3^d conductor is soldered to TP9 in Counterpoints IX chassis

Declarations:

- We declare that the above information are correct and the named model was supplied with the maximum configuration to the accredited test laboratory.

Thorofare Nj., date October 1, 2004 Guy E Sleet
place of issue Seal and signature of applicant