

Prüfbericht - Nr.: 15032925 001		Seite 1 von 19 <i>Page 1 of 19</i>	
<i>Test Report No.:</i>			
Auftraggeber: <i>Client:</i>	Checkpoint Systems Inc 101 Wolf Drive, P.O. Box 188, Thorofare, NJ 08086, United States		
Gegenstand der Prüfung: <i>Test item:</i>	Electronic Article Surveillance Deactivation System		
Bezeichnung: <i>Identification:</i>	Counterpoint IX Family 4/6 mode chassis, 5 only mode chassis with Ethernet Interface Module option	Serien-Nr.: <i>Serial No.:</i>	N/A
Wareneingangs-Nr.: <i>Receipt No.:</i>	153122586	Eingangsdatum: <i>Date of receipt:</i>	10.06.2009
Prüfört: <i>Testing location:</i>	Refer to section 1.1		
Prüfgrundlage: <i>Test specification:</i>	FCC Part 15:2008 RSS-210 (Issue 7):2007 RSS-Gen (Issue 2):2007		
Prüfergebnis: <i>Test Result:</i>	Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n). <i>The test item passed the test specification(s).</i>		
Prüflaboratorium: <i>Testing Laboratory:</i>	TÜV Rheinland (Shanghai) Co., Ltd.		
geprüft/ tested by:		kontrolliert/ reviewed by:	
17.07.2009	Gu Weikang/PE	17.07.2009	Lu Xinhua/TC
<i>Datum</i>	<i>Name/Stellung</i>	<i>Datum</i>	<i>Name/Stellung</i>
<i>Date</i>	<i>Name/Position</i>	<i>Date</i>	<i>Name/Position</i>
	<i>Unterschrift</i>		<i>Unterschrift</i>
	<i>Signature</i>		<i>Signature</i>
Sonstiges/ Other Aspects:			
FCC ID: DO4CP9 IC: 3356B-CP9			
This report is for FCC class II permissive change. The difference compared with original design is that alternative loop antenna with different dimension was added, which will mainly affect the performance of conducted and radiated emission of the product. In this report, new tests of conducted emission and radiated emission were performed on new sample with new antenna and one of the AC adaptors which is the same as original product.			
Abkürzungen:	<i>P(ass) = entspricht Prüfgrundlage</i>	Abbreviations:	<i>P(ass) = passed</i>
	<i>F(ail) = entspricht nicht Prüfgrundlage</i>		<i>F(ail) = failed</i>
	<i>N/A = nicht anwendbar</i>		<i>N/A = not applicable</i>
	<i>N/T = nicht getestet</i>		<i>N/T = not tested</i>
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. <i>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.</i>			

TEST SUMMARY

4.1.1 CONDUCTED EMISSION

Result:

Passed

4.1.2 RADIATED EMISSION UP TO 30MHZ

Result:

Passed

4.2.1 RADIATED EMISSION ABOVE 30MHZ

Result:

Passed

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1 Test Sites

1.1 Test Facilities

Laboratory 1: TÜV Rheinland (Shanghai) Co., Ltd.

Address: 10-15/F, Huatsing Building, No. 88, Lane 777, West Guangzhong Road, Zhabei District, Shanghai 200072, P.R. China

(FCC registration No.: 657274; IC site No.: 2932F-1)

Laboratory 2: Shanghai Institute of Measurement and Testing Technology

Address: No. 716, Yi Shan Road, Shanghai 200233, P. R. China

(FCC registration No.: 142171; IC site No.: 6625A)

The used test equipments are in accordance with CISPR 16-1 series standards for measurement of radio interference. Part of the tests was conducted by “Shanghai Institute of Measurement and Testing Technology” under supervision of TÜV Rheinland’s engineer.

1.2 List of Test and Measurement Instruments

Table 1: List of test and measurement equipment

No.	Equipment	Model	Serial no.	Cal. due date
Lab 1:				
1.	EMI test receiver	ESIB26	100227	10.06.2010
2.	Artificial mains network	NNB 42	04/10048	25.02.2010
3.	3m modified semi-anechoic chamber	SAC	N/A	25.04.2011
4.	EMI test receiver	ESCI	100280	03.12.2009
5.	Broadband antenna	BTA-H	040005H	11.03.2010
Lab 2:				
6.	EMI test receiver	ESI 26	Rong-001-01	24.12.2009
7.	Loop Field Strength Measuring System	FMZB 1516	Rong-001-07	01.12.2009

2 General Product Information

2.1 Product Function and Intended Use

The Counterpoint IX is part of Checkpoint Systems, Inc. EAS (Electronic Article Surveillance) System. The device utilizes RF energy to deactivate security tags attached to merchandise. The Counterpoint IX is used at POS (Point of Sale) locations during purchase. An active tag will be detected by antenna installed at exit and sound an alarm.

The Counterpoint IX sweeps frequencies between 7.4 MHz and 9.8 MHz by emitting a narrow six-microsecond pulse. The L/C tuned circuit in the security tags react to the pulse by resonating when exposed to Counterpoint IX pad antenna. 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 fewer components.

The 4/6 mode operation, the Counterpoint IX will alarm when a non-deactivatable tag is placed in its field, but will not deactivate the tag.

In 5 mode operation, the Counterpoint IX will not alarm when a non-deactivatable tag is placed in its field, and will not deactivate the tag.

2.2 Ratings and System Details

System input	: AC 100-240V, 50/60Hz
Rated input current	: 1A
Protection class	: I
Type of antenna	: Loop antenna
Antenna info	: Model name: Apparel Market Deactivation Antenna Antenna dimension: 17.3" * 17.3"
Adaptor info	: Trade name: JARO Model name: SYS1319-1515-T3 Input: AC 100-240V, 50-60Hz Output: DC 15V, 1A

2.3 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 – 8.294MHz
8.362 – 8.366MHz
8.37625 – 8.38675MHz
8.41425 – 8.41475MHz

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

2.4 Independent Operation Modes

The Counterpoint IX mode 4/6 and mode 5 were operated in two conditions, with and without a security tag in the field of the antenna. It was determined that higher signal levels were exhibited without the security tag in the field. All emissions were recorded in this condition. The antenna pad of the Counterpoint IX was laid flat on the wooden table. This is the normal method of antenna installation.

2.5 Submitted Documents

The submitted documents are listed as follow:

- Circuit diagram
- Block diagram
- User manual
- Label artwork

2.6 Related Submittal(s) Grants

This is an application of class II permissive change based on original certification.

3 Test Set-up and Operation Modes

3.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible emission level. The test conditions were adapted accordingly in reference to the instructions for use.

Refer to the related paragraph of this report.

3.2 Test Operation and Test Software

Test operation should refer to test methodology.
- There was no special software to exercise the device.

3.3 Special Accessories and Auxiliary Equipment

None.

3.4 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the circuit diagram or the Technical Construction File. No additional measures were employed to achieve compliance.

4 Test Result

4.1 Emission in the Frequency Range up to 30 MHz

4.1.1 Conducted Emission

Result:	Passed
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Date of testing	: 09.07.2009
Test specification	: FCC Part 15 Section 15.207; RSS-GEN 7.2.2
Test method	: ANSI 63.4-2003
Measurement location	: Shielded room
Detector	: Quasi-peak, Average
Measurement BW	: 9 kHz
Supply voltage	: AC 120V, 60Hz
Measuring frequency range	: 0.15-30MHz
Ambient condition	: Temperature: 25°C; Relative humidity: 40%
Operational mode	: Continuous sweep

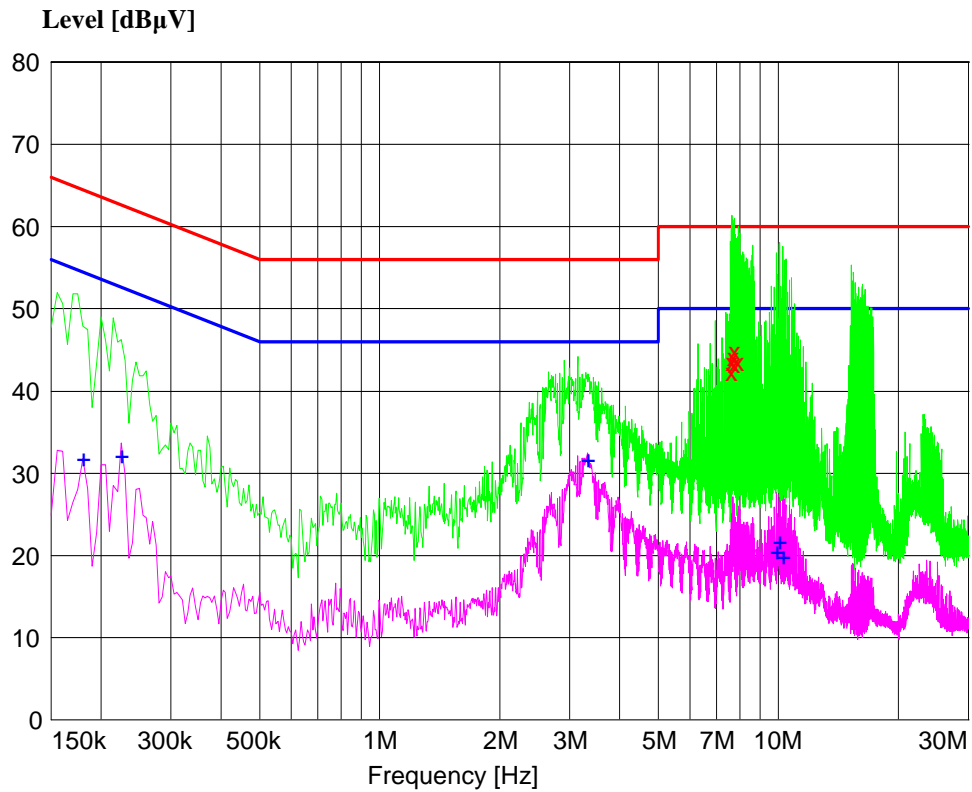
Limit Section 15.207 & RSS-GEN 7.2.2,

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

Pre-scan has been performed for mode 4/6 & mode 5, and the worst case was found for mode 6 and final test results were shown as follows.

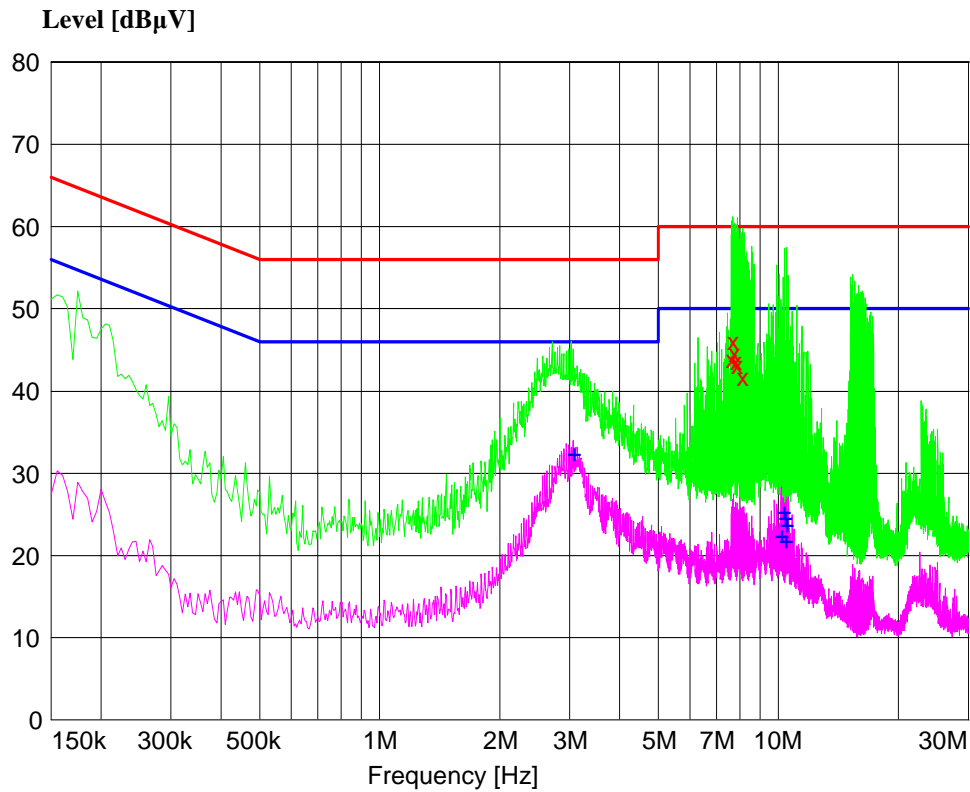
The following figures and tables were those measured by an automatic measuring system. Both quasi-peak and average values were measured. Quasi-peak and average values were measured and listed respectively where they had a maximum in previous scanning survey. In the following figures, “×” means quasi-peak result and “+” means average result which was measured in final measurement.

Figure 1: Spectral diagram, conducted emission, 150kHz - 30MHz, L

Final quasi-peak measurement results:

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line
7.620000	42.30	20.5	60.0	17.7	L1
7.650000	43.50	20.5	60.0	16.5	L1
7.690000	44.10	20.5	60.0	15.9	L1
7.730000	43.30	20.5	60.0	16.7	L1
7.770000	44.90	20.5	60.0	15.1	L1
7.945000	43.60	20.5	60.0	16.4	L1

Final average measurement results:

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line
0.180000	31.90	20.6	54.5	22.5	L1
0.225000	32.20	20.6	52.6	20.4	L1
3.320000	31.80	20.5	46.0	14.2	L1
9.870000	20.60	20.6	50.0	29.4	L1
10.060000	21.80	20.6	50.0	28.2	L1
10.250000	20.00	20.7	50.0	30.0	L1

Figure 2: Spectral diagram, conducted emission, 150kHz - 30MHz, N

Final quasi-peak measurement results:

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line
7.650000	43.90	20.7	60.0	16.1	N
7.685000	46.10	20.7	60.0	13.9	N
7.760000	44.60	20.7	60.0	15.4	N
7.835000	43.70	20.7	60.0	16.3	N
7.900000	43.20	20.7	60.0	16.8	N
8.155000	41.70	20.7	60.0	18.3	N

Final average measurement results:

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line
3.055000	32.50	20.3	46.0	13.5	N
10.175000	22.50	20.8	50.0	27.5	N
10.280000	25.40	20.8	50.0	24.6	N
10.360000	24.70	20.9	50.0	25.3	N
10.435000	21.90	20.9	50.0	28.1	N
10.495000	23.80	20.9	50.0	26.2	N

Pre-scan has been performed for mode 4/6 & mode 5, and the worst case was found for mode 6 and final test results were shown as follows.

Table 2: Radiated emission results, 9kHz - 30MHz, Peak

Frequency (MHz)	Peak level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna height (cm)	Polarization
8.65	75.97	79.08	3.11	100	X
8.60	77.50	79.08	1.58	100	Y
9.61	60.17	79.08	18.91	100	Z

Remark: Polarization of antenna to ground plane: X - along measurement axis, Y - vertical axis, Z - horizontal axis.

4.2 Emission in the Frequency Range above 30 MHz

4.2.1 Radiated Emission above 30MHz

Result:
Passed

Date of testing : 09.07.2009
 Test specification : FCC Part 15 Section 15.223(b) & RSS-210 A2.3
 Test method : ANSI 63.4-2003
 Measurement location : Semi anechoic chamber
 Measurement distance : 3m
 Detector : Quasi-peak
 Measurement BW : 120 kHz
 Supply voltage : AC 120V, 60Hz
 Measuring frequency range : 30 - 1000MHz
 Ambient condition : Temperature: 23°C; Relative humidity: 37%

Limit Section 15.223(b) & RSS-210 A2.3,

(b) The field strength of emissions outside of the band 1.705-10.0 MHz shall not exceed the general radiated emission limits in Section 15.209.

Frequency (MHz)	Field strength (microvolt/meter)	Field strength (dB μ V/m)	Measurement distance (meters)
30-88	100	40.0	3
88-216	150	43.5	3
216-960	200	46.0	3
Above 960	500	54.0	3

The radiated emission measurement was made at 3m. The EUT was placed on a nonconductive turntable 0.8m above the ground plane. The spectrum was examined from 30 - 1000MHz. At each frequency, the EUT was rotated 360°, and the antenna was raised and lowered from 1 to 4 m in order to determine the emission's maximum level. Measurements were taken using both horizontal and vertical antenna polarizations.

Pre-scan has been performed for mode 4/6 & mode 5, and the worst case was found for mode 6 and final test results were shown as follows.

Table 3: Radiated emission results, 30MHz - 1GHz, Quasi-peak

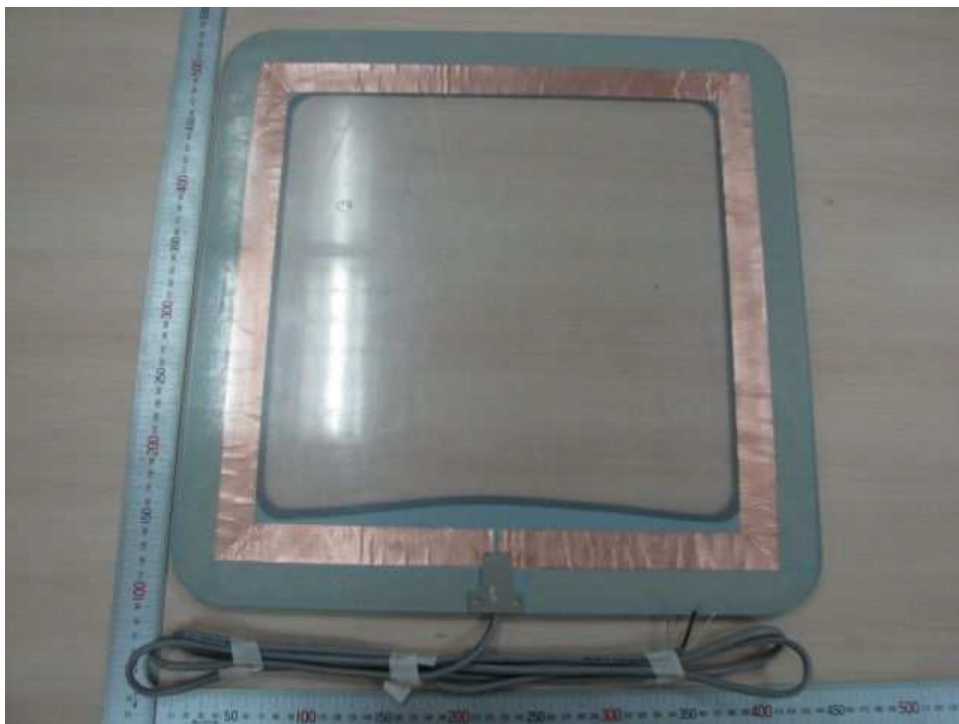
Frequency (MHz)	QP level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Antenna height (cm)	Angle (deg)	Polarization
159.70	39.6	43.5	3.9	180.0	90.0	H
199.62	32.0	43.5	11.5	100.0	100.0	H
319.41	31.1	46.0	14.9	100.0	160.0	H
159.70	34.7	43.5	8.8	240.0	0.0	V
649.93	28.4	46.0	17.6	100.0	90.0	V

5 Photographs of the Sample and Test Set-Up

Photograph 1: Photographs of the 17.3 inches antenna



Top view



Bottom view

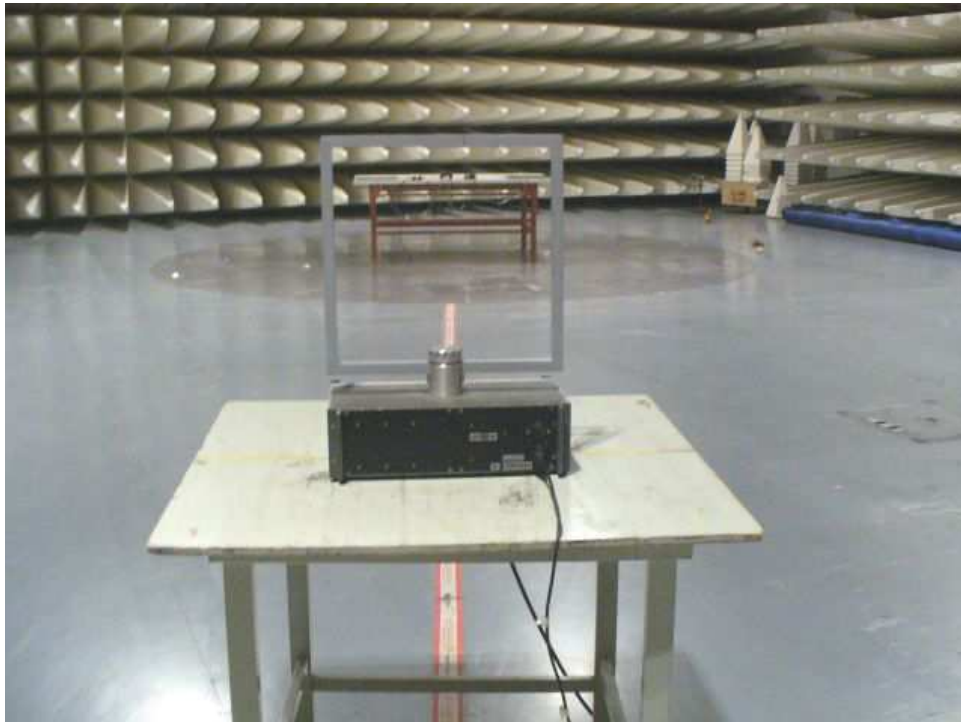
Photograph 2: Photograph of the adaptor



Photograph 3: Set-up for conducted emission

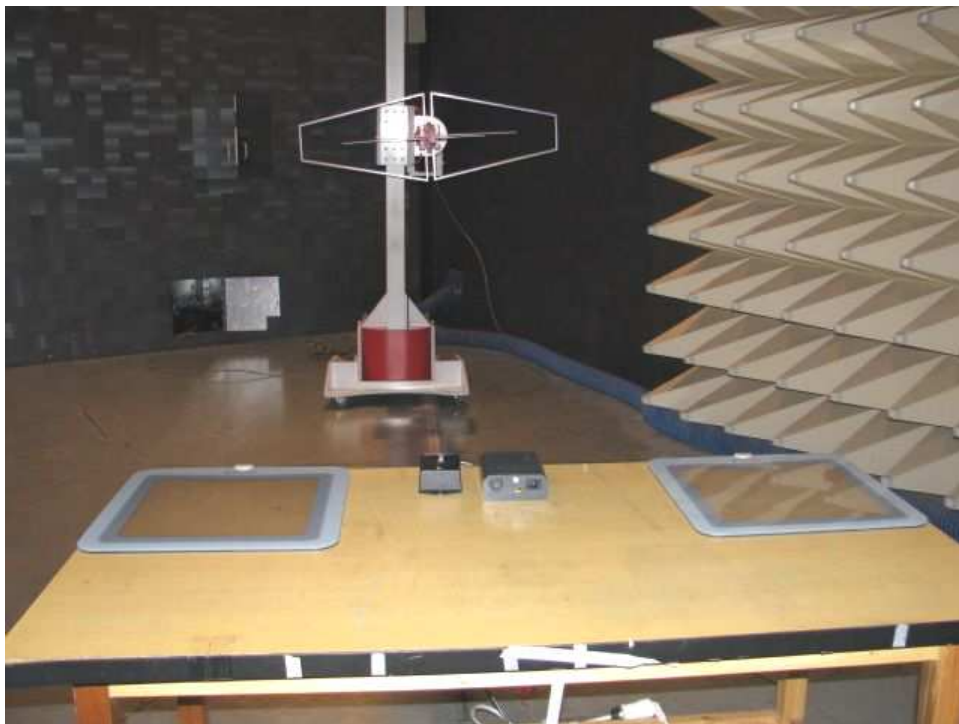
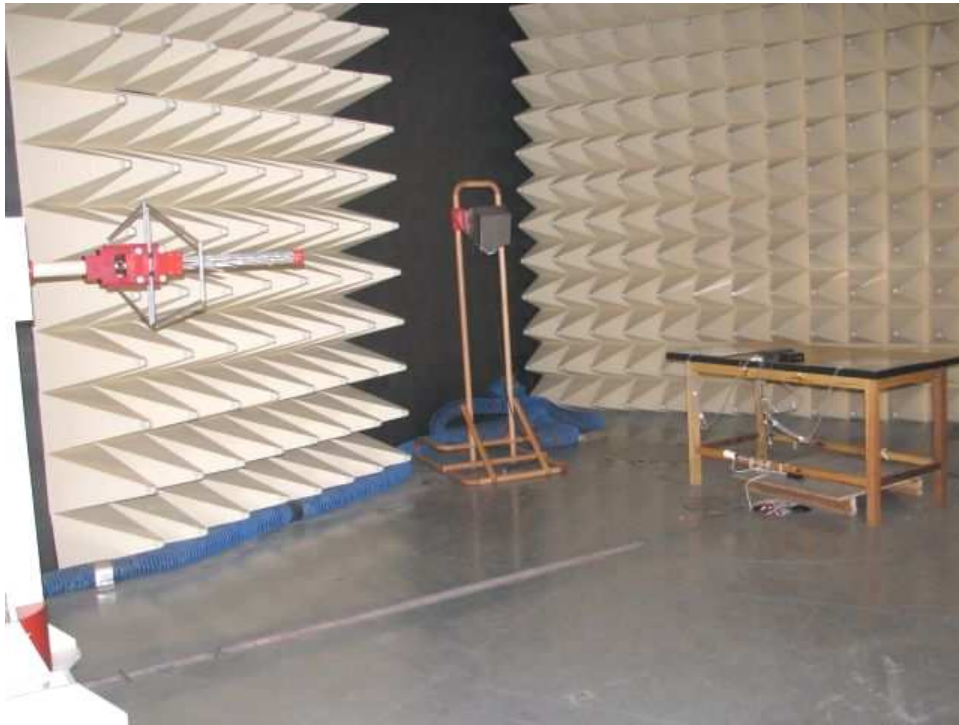


Photograph 4: Set-up for radiated emission (9kHz - 30MHz)



9kHz - 30MHz

Photograph 5: Set-up for radiated emission (30 - 1000MHz)



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