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Test laboratory accredited according to ISO 17025 by the Swiss Accreditation Service SAS
Laboratoire d'essai accrédité selon ISO 17025 par le Service d'accréditation suisse SAS
Prüflabor akkreditiert nach ISO 17025 durch die Schweizerische Akkreditierungsstelle SAS

Registration number
Numéro d'accréditation
Akkreditierungsnummer **STS 024**

Schweizerischer Prüfstellendienst
Service suisse d'essai
Swiss testing service

Report: Rapport: Bericht:	***Electromagnetic compatibility***	Report no: Rapport no: Bericht Nr:	***15'956***
Product name: Nom du produit: Produktname	***CBox micro***	Mandate no: Mandat no: Auftrag Nr:	***20099197***
Serial no: No de série: Seriennummer:	***600147***	Model number: Numéro de modèle: Modellnummer:	**- - -**
Customer: Client: Kunde:	***Convadis AG*** ***Chaltenbodenstrasse 4*** ***8843 Schindellegi*** ***Switzerland***	Date of test: Date de l'essai: Prüfdatum:	***June 9, July 6 and 13, 2010***

Standards / Normes / Normen		Result Résultat Ergebnis
47 CFR, Part 15	(Subpart C, Intentional radiator: §§ 15.209 and 15.225)	***Pass***

Test performed by
Essai effectué par :
Prüfer

Mr E. de Raemy and Mr A. Trabold

Test report prepared by
Rapport d'essai préparé par :
Berichterstatter

Mr E. de Raemy and Mr A. Trabold

Test report controlled and approved by
Rapport d'essai contrôlé et approuvé par :
Prüfbericht kontrolliert und genehmigt durch

Mr E. Staub

Rossens, August 06, 2010 (Issue Date / Date d'édition / Ausstelldatum) V2009Dec18

Main language / Langue principale / Hauptsprache : *english* / *français* / *deutsch*

The present document results from tests on a specimen and does not prejudge to the conformity of all the manufactured products. - Le présent document résulte d'essais sur un spécimen. Il ne préjuge pas de la conformité de l'ensemble des produits fabriqués à l'objet essayé. - Dieser Bericht beinhaltet die Prüfergebnisse eines Mustergerätes. Es kann daraus nicht auf die Übereinstimmung der Seriegeräte mit dem Mustergerät geschlossen werden.

q:\mandats\2009\20099197_sensering_kartenleser\rap_convadis_15956_cbox_micro.doc

montena emc sa
route de Montena 75
CH-1728 Rossens
Switzerland
phone +41 26 411 93 33
fax +41 26 411 93 30
www.montena-emc.com
office.emc@montena.com

montena emc ag
Technopark Blumenegg
Blumeneggstrasse 50
CH-9403 Goldach
Switzerland
phone +41 71 278 41 92
fax +41 71 278 41 93

montena emc ag
EMV-Labor Turgi
Postfach 48
CH-5300 Turgi
Switzerland
phone +41 56 299 36 36
fax +41 56 299 25 08

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1. Summary of test results / Résumé des résultats d'essais / Zusammenfassung der Prüfergebnisse

✓ Pass / Réussi / Bestanden
✖ Fail / Echoué / Nicht bestanden
∅ Not applicable to this product / Pas applicable à ce produit / Nicht anwendbar für dieses Produkt
— Not tested / Pas testé / Nicht geprüft
No requirements / Pas d'exigence / Keine Anforderung

§	Test Type / Type d'essai / Art der Prüfung		Result / Résultat / Ergebnis
6	***Emission / Emission / Störaussendung***		***47 CFR, Part 15 Subpart C***
6.1	Radiated emission – H-field Émission par rayonnement – Champ H Gestrahlte Emission – H-Feld	CFR 47 § 15.209	✓
6.2	Radiated emission – Carrier Émission par rayonnement – Porteuse Gestrahlte Emission – Träger	CFR 47 § 15.225	✓
6.3	Radiated emission – EM-field Émission par rayonnement – Champ EM Gestrahlte Emission – EM-Feld	CFR 47 § 15.209	✓
7.1	Carrier stability Stabilité de la porteuse Trägerstabilität	CFR 47 § 15.225	✓

2. Applied standards / Normes appliquées / Verwendete Normen

47 CFR Part 15 Subpart C	Code of Federal Regulations - Title 47 - Telecommunication, Part 15, Subpart C: "Intentional Radiators"

3. Client / Client / Kunde

Client name and address Nom et adresse du client Name und Adresse des Kunden	*Convadis AG* *Chaltenbodenstrasse 4* *8843 Schindellegi* *Switzerland*
Contact Person / Responsable / Kontaktperson	*Mr Stefan Spuhler*
Telephone / Téléphone / Telefon	*+ 41 56 290 35 45*
Fax / Télécopieur / Telefax	*+ 4156 290 35 46*
E-mail / Courrier électronique / E-mail	*s.spuhler@convadis.ch*
Mandate no / No. de mandat / Auftragsnr.	*20099197*

4. Equipment under test / Equipement à l'essai / Prüfling

4.1 Identification / Identification / Identifikation

Manufacturer name and address Nom et adresse du fabricant Name und Adresse des Herstellers	*Convadis AG* *Chaltenbodenstrasse 4* *8843 Schindellegi* *Switzerland*
Production country / Pays de fabrication / Ursprungsland	*Switzerland*
Brand name / nom de marque / Verkaufsmarke	*Convadis*
Product name / Nom du produit / Produktname	*CBox micro*
Product description / Description du produit / Produktbeschreibung	*On board electronic system with RF card reader, GSM and GPS for the management of reservation of car sharing vehicles*
Model number / Numéro de modèle / Modellnummer	*- - -*
Serial no / No. de série / Seriennummer	*600147*
Software version / Version du logiciel / Softwareversion	*V56*
Highest frequency / Fréquence la plus élevée / Höchste Frequenz	*16 MHz, carriers at 125 kHz and 13.56 MHz (ISM)*
Supply / Alimentation / Speisung	*U = 12 V DC, P= 4.2 W*
Technical documentation Documentation technique Technische Dokumentation	*None. The equipment is completely identified by its serial no. according to ISO 9001.*

4.2 Pictures of the EUT / Photos de l'EST / Fotos des Prüflings

Cbox micro

	*Card reader (external 125 kHz and 13.56 MHz antenna)*

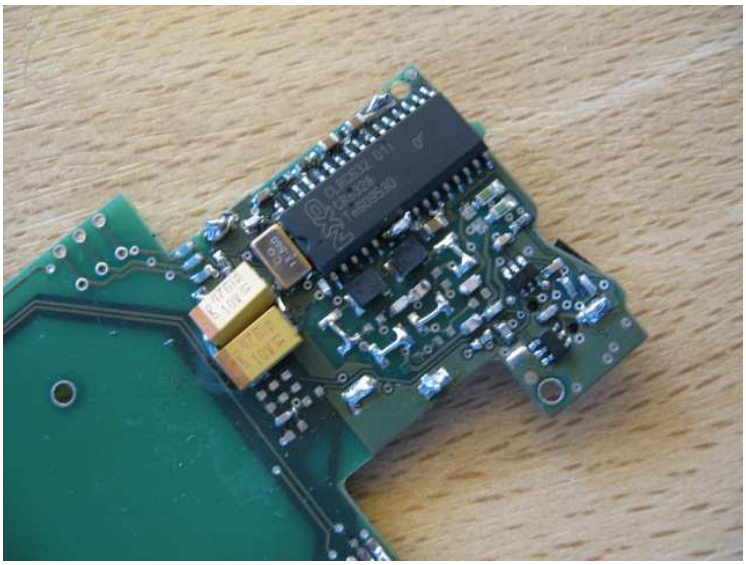
4.3 Classification / Classification / Klassierung

CFR 47 Part 15	☐ Unintentional radiator (Subpart B) ☐ Class A digital device ☐ Class B digital device ☐ The highest frequency of the internal sources of the EUT is less than 108 MHz (measurement shall be made up to 1 GHz). ☐ The highest frequency of the internal sources of the EUT is between 108 MHz and 500 MHz (measurement shall be made up to 2 GHz). ☐ The highest frequency of the internal sources of the EUT is between 500 MHz and 1 GHz (measurement shall be made up to 5 GHz). ☐ The highest frequency of the internal sources of the EUT is above 1 GHz (measurement shall be made up to 5 times the highest frequency or 40 GHz, whichever is lower). ☒ Intentional radiator (Subpart C) ☒ The highest fundamental frequency of the EUT is less than 10 GHz (measurement shall be made up to the tenth harmonic or 40 GHz, whichever is lower). ☐ The highest fundamental frequency of the of the EUT is between 10 GHz and 30 GHz (measurement shall be made up to the fifth harmonic or 100 GHz, whichever is lower). ☐ The highest fundamental frequency of the EUT is above 30 GHz (measurement shall be made up to the fifth harmonic or 200 GHz, whichever is lower).

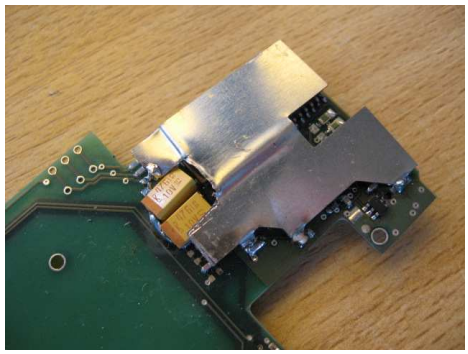
4.4 Ports / Accès / Anschlüsse

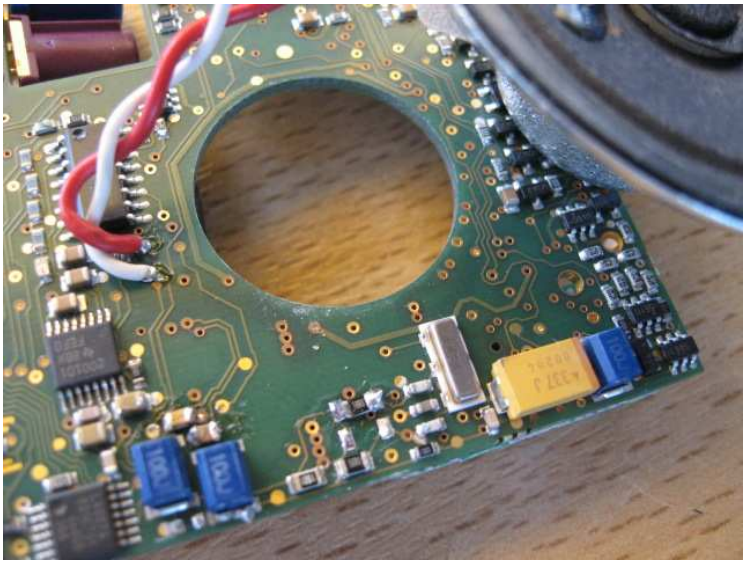
Port / Accès / Anschluss	**Cable / Câble / Kabel**			**Remark / Remarque / Bemerkung**
	Max. length / Longueur max. / Max. Länge	**Type / Type / Typ**	**Screen / Blindage / Schirm**	
Supply 12 V DC & auxiliary wiring	*- - -*	*2 x 2 wires + 22 wires*	*none*	*Used in vehicule*
Antenna 125 kHz and 13.5 MHz	*1.6 m*	*4 wires + 1 coaxial*	*none yes*	*- - -*
GSM antenna	*0.5 m*	*coaxial*	*yes*	*Terminated with 50 Ohm*

4.5 Modifications / Modifications / Angebrachte Änderungen

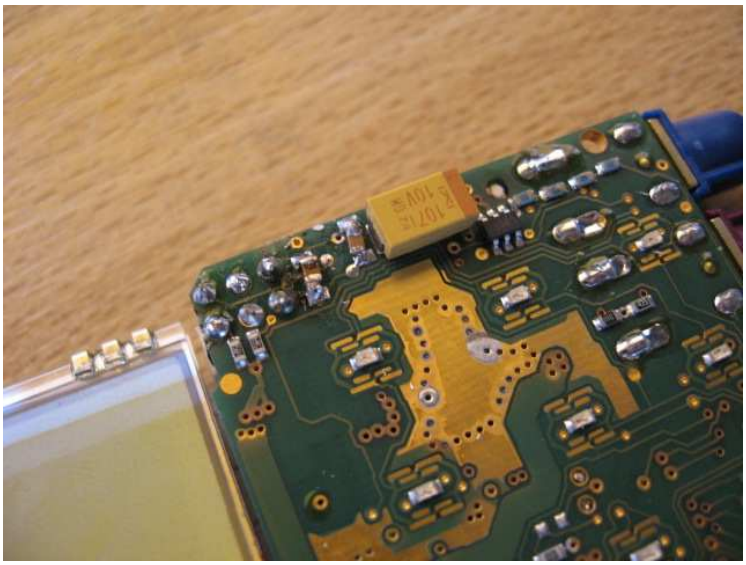


- *1 stage filter 1 µH + 47 pF + 82 pF between output of 13.56 MHz field generator IC U23 and antenna output*
- *2 x 47 µF + 1 nF + 100 pF decoupling pin 6 and 8 of 13.56 MHz field generator IC U23*

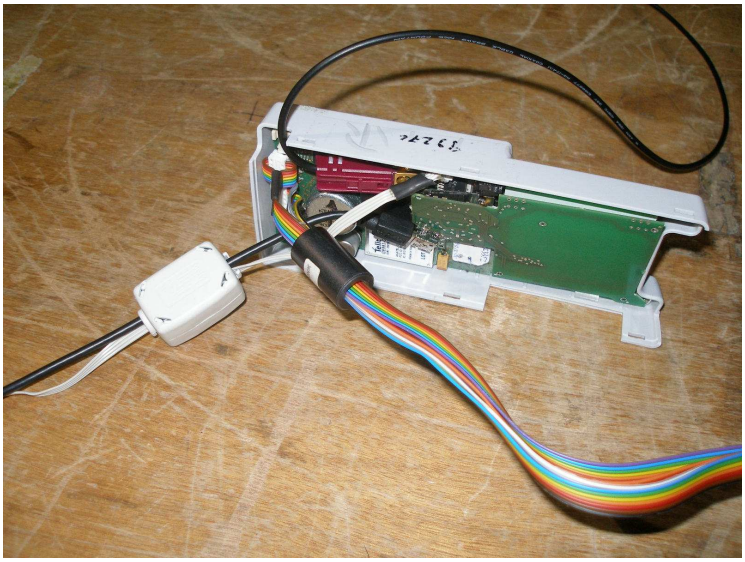




- *C124 and C127 changed to 68 nF each*



- *C120/C126 exchanged with R154/R155*

	• *Ferrite WE 74271131 on both antenna cables (125 kHz and 13.56 MHz)* • *Ferrite WE 7427005 on main cable*

5. Test conditions / Conditions d'essai / Testbedingungen

5.1 Climatic conditions, location and date / conditions climatiques, lieu et date / klimatische Bedingungen, Ort und Datum

Location / Lieu / Ort:	Date / Date / Datum:	Temp. / Temp. / Temp.:	Pressure / Pression / Druck [QFF]:	Rel. humidity / Humidité rel. / Rel. Luftfeuchtigkeit:
montena emc sa CH-1728 Rossens	*June 9, July 6 and 13, 2010*	*24 - 27 °C*	*1005 – 1040 hPa*	*40 - 56 %*

5.2 Test facility and methodology / Lieu d'essai et méthodologie / Prüfort und Methodik

The alternate test site (ferrite chamber) is accepted by FCC (Reg. No. 90808).
Conducted and radiated measurements are performed according to the ANSI C63.4 (2003) procedure.

The open area test site is accepted by Industry Canada (Site number 3625A-1).

5.3 Attendant persons / Personnes présentes / Anwesende Personen

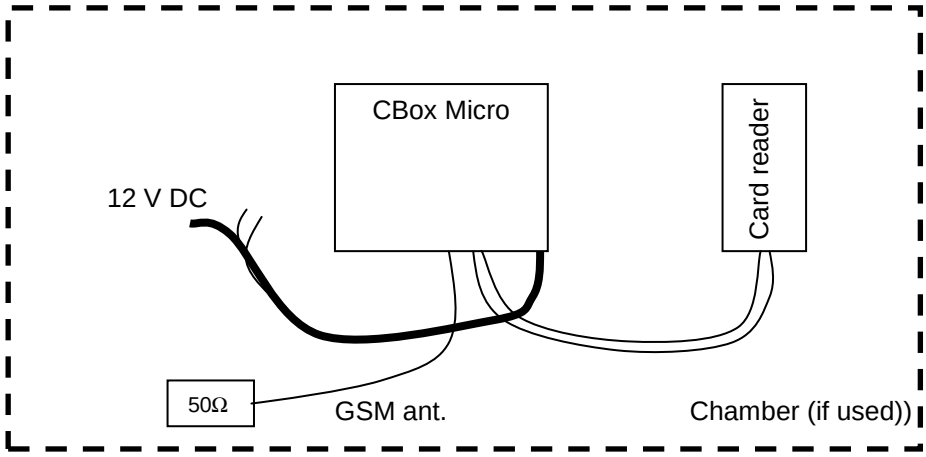
Test Engineer(s) / Ingénieur(s) d'essai / Prüfingenieur(e) :

Mr E. de Raemy and Mr A. Trabold

Other(s) / Autre(s) / Andere :

Name / Nom / Name	Company / Société / Firma
Mr S. Spuhler (partially present)	*Convadis AG*

5.4 Test configuration / Configuration d'essai / Prüfkonfiguration



5.5 Operating conditions / Conditions de fonctionnement / Betriebszustand

- *Reading continously without card (125 kHz and 13.56 MHz) for peak evaluation*
- *Reading continously with card (125 kHz or 13.56 MHz) for QP or AV evaluation*

5.6 Auxiliary equipment / Matériel auxiliaire / Zusatzgeräte

The following pieces of equipment are used for the monitoring of the EUT or are necessary for the EUT but they are not part of the EUT / Les équipements suivants servent à la surveillance de l'EST ou sont indispensables au fonctionnement de celui-ci mais ne font pas partie de l'EST / Folgende Geräte werden für die Überwachung des Prüflings gebraucht oder sind notwendig für die korrekte Funktion. Sie gehören jedoch nicht zum Prüfling.

Product / Produit / Produkt	**Brand / Marque / Marke**	**Model No.**	**ID**	**Remark / Remarque / Bemerkung**
Card 13.56 MHz	*Mobility*	*Testkunde 1*	*38325 / 24000*	*s. photo*
Card 125 kHz	*Carsharing*	*34173*	*45 CO 1E88*	*s. photo*
Battery 12 V	*montena*	*- - -*	*92-16*	*Delivering 12.7 V*

Card 13.56 MHz

	*Card 125 kHz (45C O1EE8)*

6. Emission tests

6.1 Radiated emission - Magnetic field

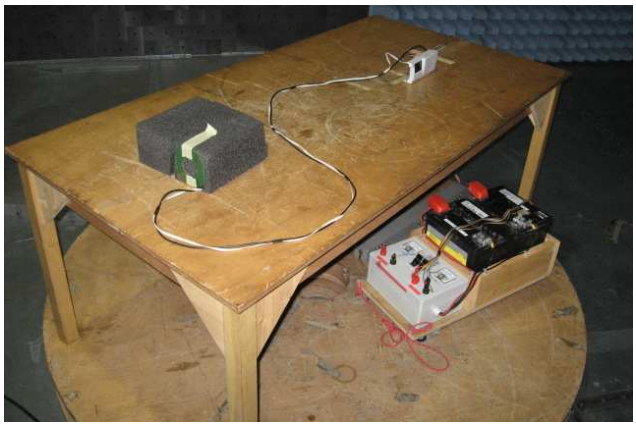
Test site:	☒ anechoic chamber (ferrites)		☐ open test site	
	☐ anechoic chamber (foam)		☐	
Meas. distance:	☒ 3 m	☐ 10 m	☐ 30 m	☐ ..... m

Meas. uncertainty: ± 2.8 dB (10 m)

Position of EUT: *0.8 m* (height above floor of equipment under test)

Measuring method: The magnetic disturbance radiated by the equipment under test is measured using a spectrum analyser and a wide band magnetic antenna. The center of the antenna is placed at 1 m of height, first in the direction of the apparatus under test, then at 90° to the apparatus and if required also horizontally. If possible the turning table is operated through 360° during the measurement. The recording is carried out taking into account the maximum value of the disturbance appearing during the functioning of the apparatus under test. The peak values are recorded continuously on a graph. The values exceeding the limits are remeasured using a measuring receiver.

Test set-up:



Remarks:

- *Limit values expressed in dBµ A/m (factor used = 377 Ω = -51.5 dB = free-space wave impedance) and transformed to a measuring distance of 3m (factor used = 40 dB/decade) if necessary e.g.: for f = 9kHz the limit is 2400/f(kHz)µ V/m at 300 m;*

$$20\log\left(\frac{\frac{2400}{9}\frac{\mu V}{m}}{1\frac{\mu V}{m}}\right)-20\log(377\,\Omega)+40\log\left(\frac{300\,m}{3\,m}\right)=77\,\frac{dB\mu A}{m}\;at\;3m$$

for f = 30MHz the limit is 30µ V/m at 30 m;

$$20\log\left(\frac{30\frac{\mu V}{m}}{1\frac{\mu V}{m}}\right)-20\log(377\,\Omega)+40\log\left(\frac{30\,m}{3\,m}\right)=18\,\frac{dB\mu A}{m}\;at\;3m$$

Test equipment:

Spectrum analyser	☐ 88-14	☐ 94-24	☐ 02-06	☒ 03-45	☐ 05-39	☐ 07-53
Receiver	☐ 85-12	☐ 90-11	☒ 94-34	☐ 04-28	☐ 06-29	☐ .....
Preamplifier	☐ 90-01	☐ 95-86	☐ 05-56	☐ 05-59	☐ 05-62	☐ 05-87
Antenna (typ: magnetic)	☒ 90-25	☐ 90-28	☐ 99-32	☐		
Cables	☐ 06-00	☒ 06-01	☒ 117	☒ 144		

Result:	**☒ pass**	**☐ fail**	**☐ not applicable**	**☐ not tested**

Measurement Type :	Radiated Field
Polarisation :	Perpendicular
Table Angle :	0° - 360°
Antenna Height :	1 m

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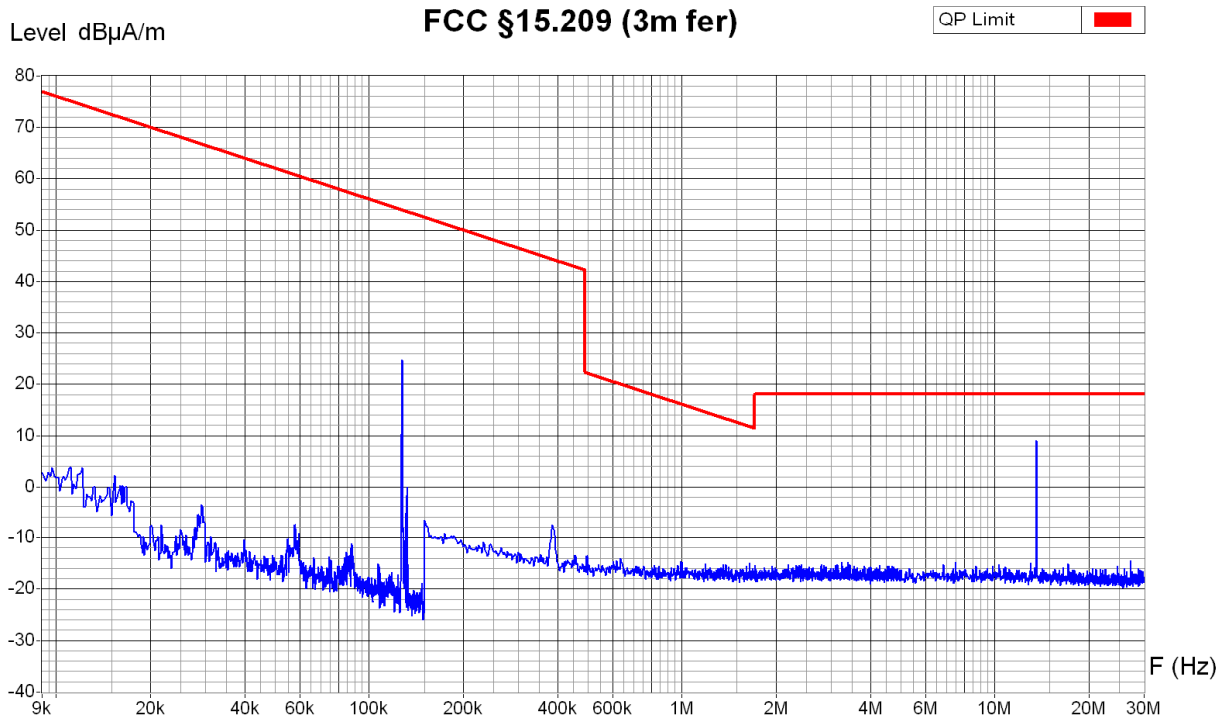
Equipment Under Test :	CBox micro
Set-Up :	cables: Main cable tree, antenna 125 kHz and antenna 13.56 MHz
Operating Conditions :	Reading without card 125 kHz and 13.56 MHz (continuous emission)
Remarks :	1 stage filter 1uH+47pF+82pF (serie); 2x47uF+1nF+100pF decoupling pin 6 and 8 C124 and C127 68nF each, C120/C126 exchanged with R154/R155



Zone	9 KHz - 150 KHz	150 KHz - 2 MHz	2 MHz - 5 MHz	5 MHz - 30 MHz
Video Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz
Resol Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz

Operator: A. Trabold
Date/Time: 06.07.2010 10:37
Filename:
RE_90k-30M_per10.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Parallel
Table Angle :	0° - 360°
Antenna Height :	1 m

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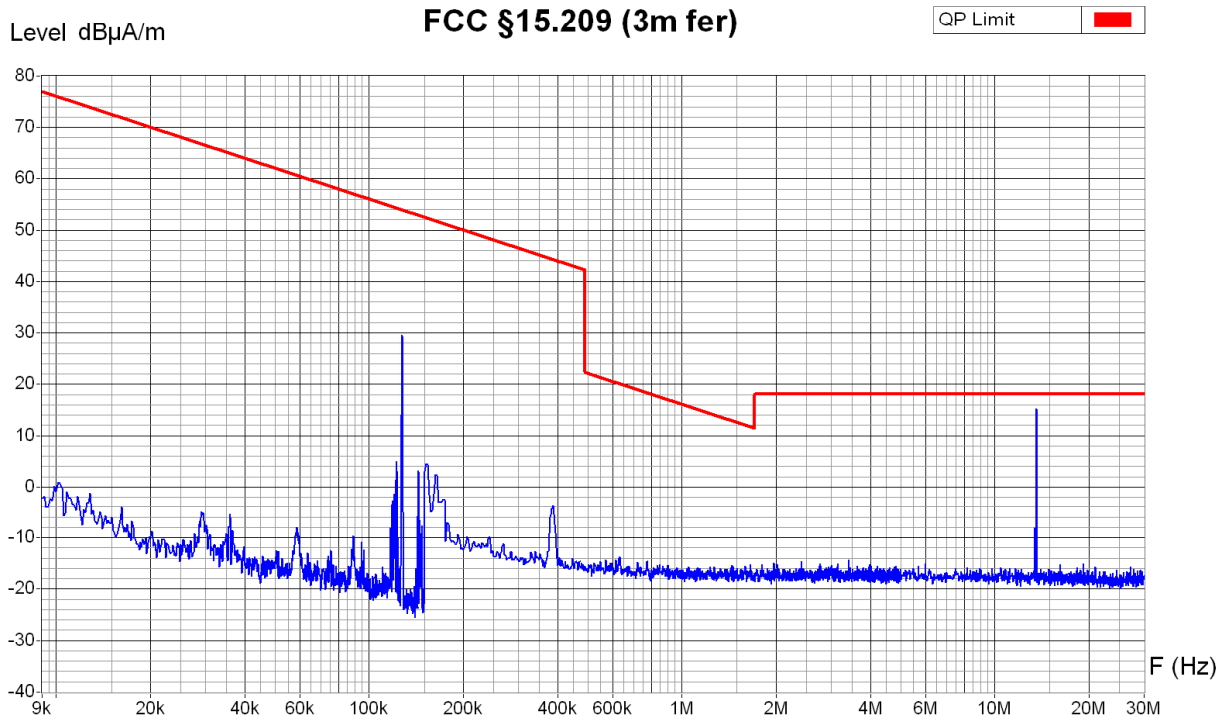
Equipment Under Test :	CBox micro
Set-Up :	cables: Main cable tree, antenna 125 kHz and antenna 13.56 MHz
Operating Conditions :	Reading without card 125 kHz and 13.56 MHz (continuous emission)
Remarks :	1 stage filter 1uH+47pF+82pF (serie); 2x47uF+1nF+100pF decoupling pin 6 and 8 C124 and C127 68nF each, C120/C126 exchanged with R154/R155



Zone	9 KHz - 150 KHz	150 KHz - 2 MHz	2 MHz - 5 MHz	5 MHz - 30 MHz
Video Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz
Resol Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz

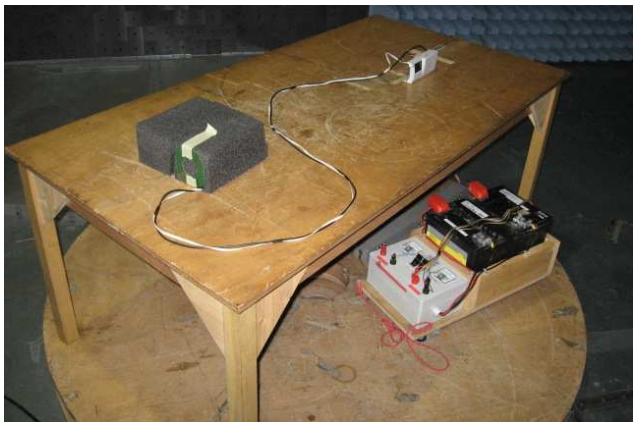
Operator: A. Trabold
Date/Time: 06.07.2010 09:51
Filename:
RE_90k-30M_par10.png/.txt

6.2 Carrier at 13.56 MHz- Radiated magnetic field

Test site:	☒ anechoic chamber (ferrites)		☐ open test site	
	☐ anechoic chamber (foam)		☐	
Meas. distance:	☒ 3 m	☐ 10 m	☐ 30 m	☐ ..... m
Meas. uncertainty:	± 2.8 dB (10 m)			
Position of EUT:	*0.8 m* (height above floor of equipment under test)			

Measuring method: The magnetic disturbance radiated by the equipment under test is measured using a spectrum analyser and a wide band magnetic antenna. The center of the antenna is placed at 1 m of height, first in the direction of the apparatus under test, then at 90° to the apparatus and if required also horizontally. If possible the turning table is operated through 360° during the measurement. The recording is carried out taking into account the maximum value of the disturbance appearing during the functioning of the apparatus under test. The peak values are recorded continuously on a graph. The values exceeding the limits are remeasured using a measuring receiver.

Test set-up:



Remarks: *Limit values expressed in dBµ A/m (factor used = 377 Ω = -51.5 dB = free-space wave impedance) and transformed to a measuring distance of 3m (factor used = 40 dB/decade) if necessary*
e.g.: for f = 13.56 MHz the limit is 15'848 µ V/m at 30 m;

$$20\log\left(\frac{15'848\frac{\mu V}{m}}{1\frac{\mu V}{m}}\right)-20\log(377\,\Omega)+40\log\left(\frac{30\,m}{3\,m}\right)=72.5\,\frac{dB\mu A}{m}\;at\;3m$$

Test equipment:

Spectrum analyser	☐ 88-14	☐ 94-24	☐ 02-06	☒ 03-45	☐ 05-39	☐ 07-53
Receiver	☐ 85-12	☐ 90-11	☒ 94-34	☐ 04-28	☐ 06-29	☐ .....
Preamplifier	☐ 90-01	☐ 95-86	☐ 05-56	☐ 05-59	☐ 05-62	☐ 05-87
Antenna (typ: magnetic)	☒ 90-25	☐ 90-28	☐ 99-32	☐		
Cables	☐ 06-00	☒ 06-01	☒ 117	☒ 144		

Result:	**☒ pass**	**☐ fail**	**☐ not applicable**	**☐ not tested**

Measurement Type :	Radiated Field
Polarisation :	Perpendicular
Table Angle :	0° - 360°
Antenna Height :	1 m

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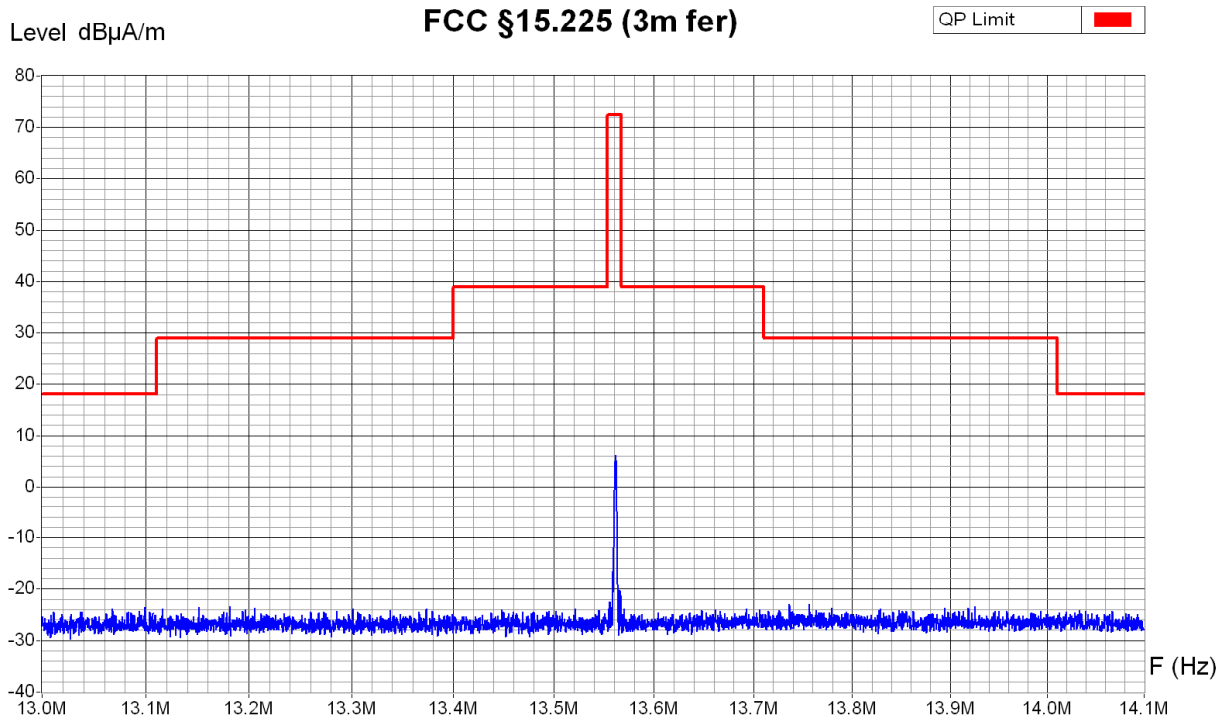
Equipment Under Test :	CBox micro
Set-Up :	cables: Main cable tree, antenna 125 kHz and antenna 13.56 MHz
Operating Conditions :	Reading without card 125 kHz and 13.56 MHz (continuous emission)
Remarks :	1 stage filter 1uH+47pF+82pF (serie); 2x47uF+1nF+100pF decoupling pin 6 and 8 C124 and C127 68nF each, C120/C126 exchanged with R154/R155



Zone	13 MHz - 13.22 MHz	13.22 MHz - 13.44	13.44 MHz - 13.64	13.64 MHz - 13.84	13.84 MHz - 14.10
Video Bandwidth	1 KHz	1 KHz	1 KHz	1 KHz	1 KHz
Resol Bandwidth	1 KHz	1 KHz	1 KHz	1 KHz	1 KHz

Operator: A. Trabold
Date/Time: 06.07.2010 11:24
Filename:
RE_90k-30M_per11.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Parallel
Table Angle :	0° - 360°
Antenna Height :	1 m

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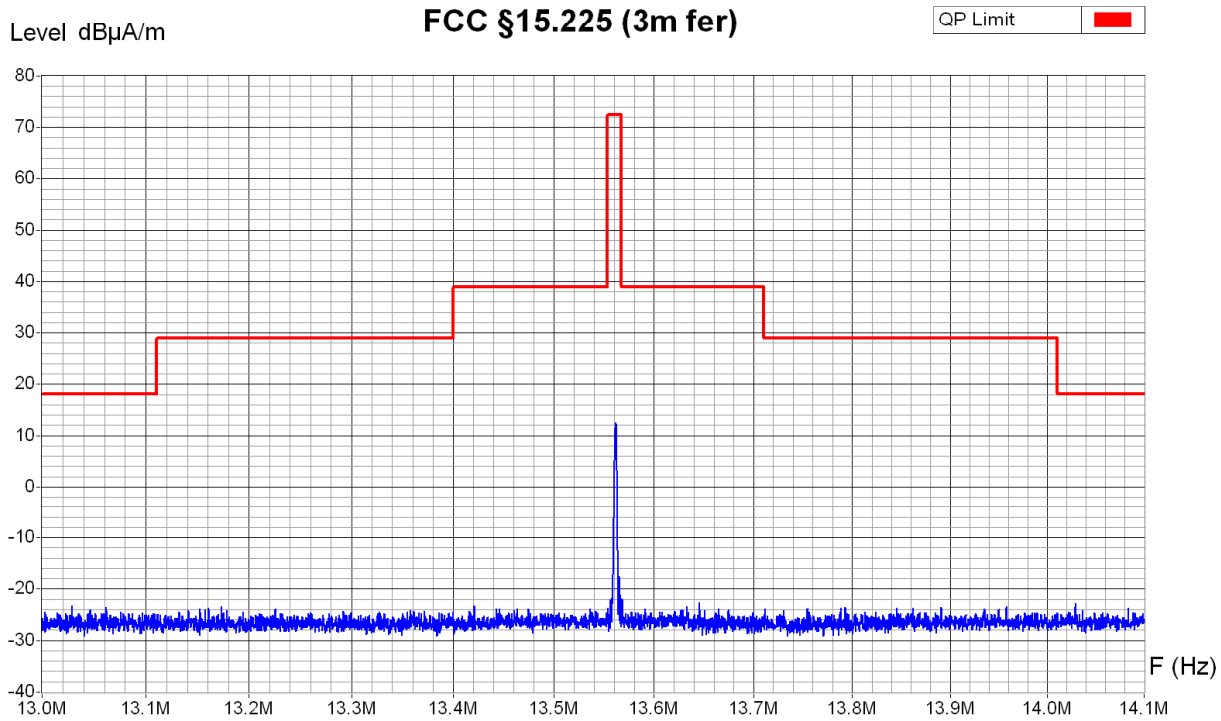
Equipment Under Test :	CBox micro
Set-Up :	cables: Main cable tree, antenna 125 kHz and antenna 13.56 MHz
Operating Conditions :	Reading without card 125 kHz and 13.56 MHz (continuous emission)
Remarks :	1 stage filter 1uH+47pF+82pF (serie); 2x47uF+1nF+100pF decoupling pin 6 and 8 C124 and C127 68nF each, C120/C126 exchanged with R154/R155



Zone	13 MHz - 13.22 MHz	13.22 MHz - 13.44	13.44 MHz - 13.64	13.64 MHz - 13.84	13.84 MHz - 14.10
Video Bandwidth	1 KHz	1 KHz	1 KHz	1 KHz	1 KHz
Resol Bandwidth	1 KHz	1 KHz	1 KHz	1 KHz	1 KHz

Operator: A. Trabold
Date/Time: 06.07.2010 11:34
Filename:
RE_90k-30M_par11.png/.txt

6.3 Radiated emission - Electromagnetic field (radiated – 30 MHz to 1 GHz)

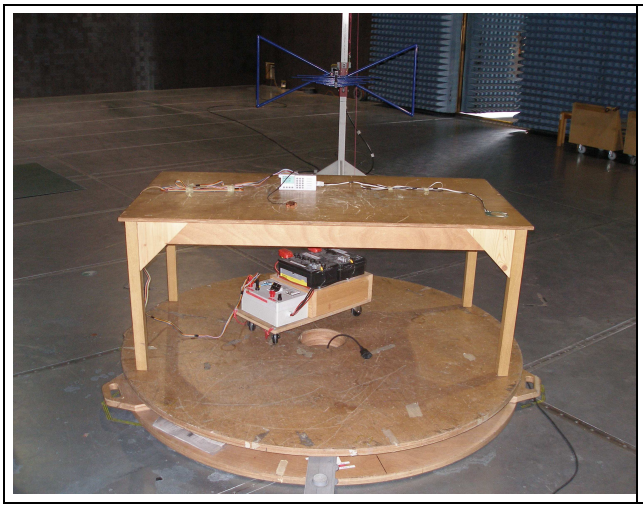
Test site:	☐ anechoic chamber (foam)		☐ open test site	
	☒ anechoic chamber (ferrites)		☐	
Distance:	☐ 30 m	☐ 10 m	☒ 3 m	☐ .....

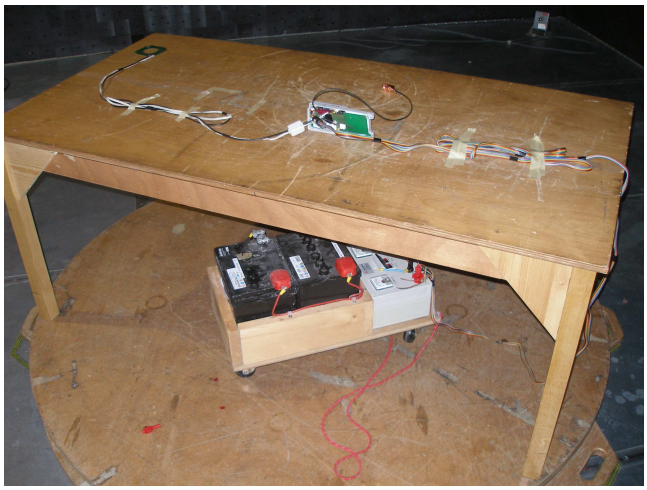
Position of EUT: *0.8 m* (height of the equipment under test above floor)

Meas. uncertainty: ± 4.6 dB (30 - 300 MHz) / ± 3.7 dB (300 - 1000 MHz)

Test method: The electromagnetic disturbance radiated by the equipment is measured using a spectrum analyser and a wide band antenna. The antenna is moved from 1 to 4 m in height successively with horizontal and vertical polarisations. The turning table is operated through 360° during the measurements. The recordings are carried out taking into account the maximum value of all the disturbances appearing while the apparatus is under test. The peak values are recorded continuously on the graph. The values exceeding a limit are remeasured manually using a receiver.

Test set-up:





Remarks: *Limit values expressed in dBµ V/m and transformed to a measuring distance of 3m (factor used = 20 dB/decade) if necessary, e.g.: for f = 40MHz the limit is 100µ V/m at 3m;*

$$20\log\left(\frac{100\,\frac{\mu V}{m}}{1\,\frac{\mu V}{m}}\right) = 40\,\frac{dB\mu V}{m}\ at\ 3m$$

Test equipment:

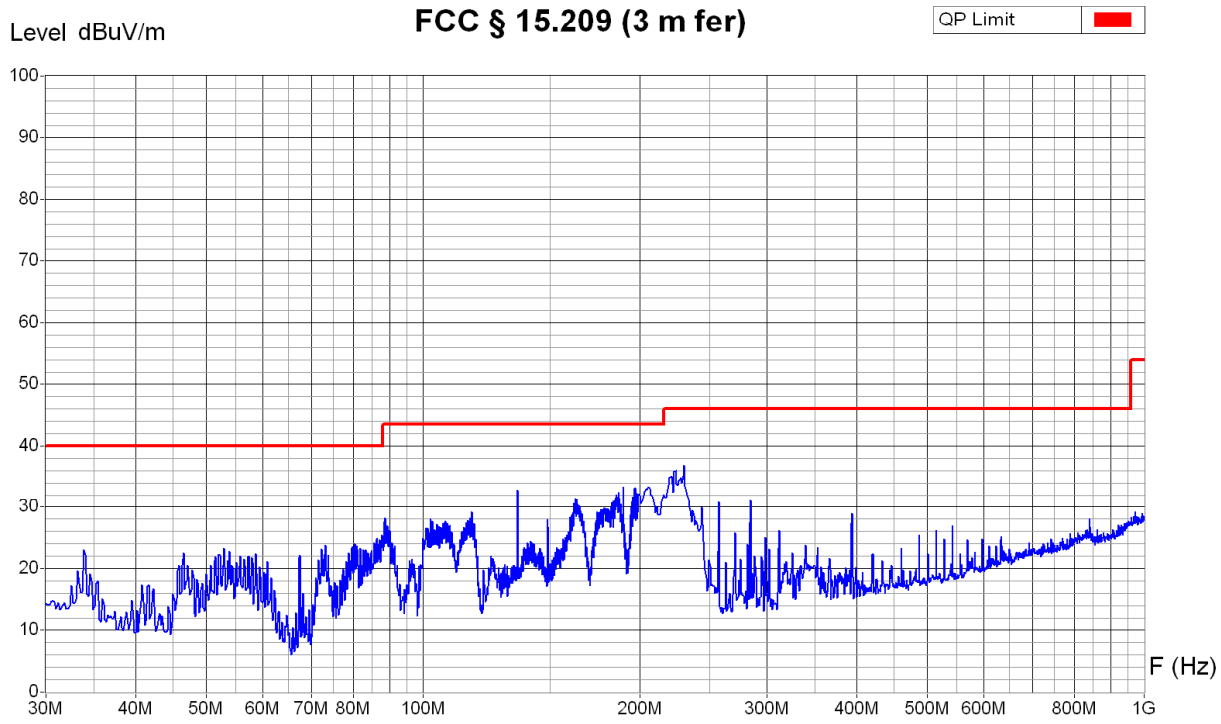
Spectrum analyser		☐ 88-14	☐ 94-24	☐ 02-06	☒ 03-45	☐ 05-39	☐ 07-53
Receiver		☐ 85-04	☐ 90-43	☒ 94-35	☐ 04-29		
Preamplifier		☐ 90-01	☐ 95-86	☐ 05-56	☒ 05-59	☐ 05-62	☐ .....
Antenna	(biconical)	☐ 82-02	☐ 87-05	☐ 87-16	☐ 91-05	☐ 94-37	
Antenna	(log-per)	☐ 88-20	☐ 90-30	☐ 91-35	☐ 94-64		
Antenna	(bilog)	☒ 94-03	☐ 05-38	☐			
Antenna	(horn)	☐ 90-24	☐ 98-12	☐ 98-13	☐		
Cables		☐ 06-00	☒ 06-01	☒ 117	☒ 144		

Result:	**☒ pass**	**☐ fail**	**☐ not applicable**	**☐ not tested**

Measurement Type :	Radiated Field
Polarisation :	Vertical
Table Angle :	0 - 360°
Antenna Height :	1, 2, 3, 4 m

montena
montena emc sa

Equipment Under Test :	CBox micro
Set-Up :	s. photo
Operating Conditions :	Reading without card 125 kHz and 13.56 MHz
Remarks :	1 stage filter 1uH-47pF+82pF (serie); 2x 47uF+1nF+100pF decoupling pin 6 and 8 of U23; 1 x WE 7427005 ferrite on main cable tree and 1 x WE 74271131 ferrite on both antenna cables



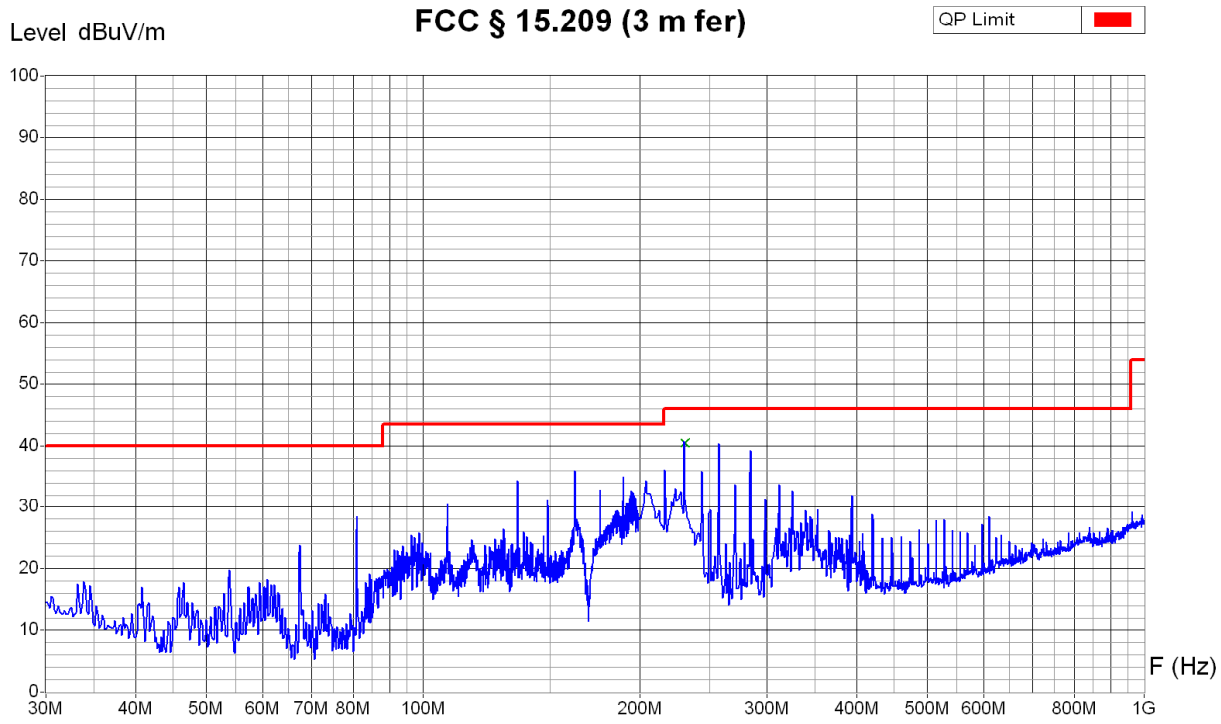
Zone	30 MHz - 199 MHz	199 MHz - 1 GHz
Video Bandwidth	100 KHz	100 KHz
Resol Bandwidth	100 KHz	100 KHz

Operator: E. de Raemy
Date/Time: 09.06.2010 15:08
Filename:
RE_30M-1G_v08.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Horizontal
Table Angle :	0 - 360°
Antenna Height :	1, 2, 3, 4 m

montena
montena emc sa

Equipment Under Test :	CBox micro
Set-Up :	s. photo
Operating Conditions :	Reading without card 125 kHz and 13.56 MHz
Remarks :	1 stage filter 1uH-47pF+82pF (serie); 2x 47uF+1nF+100pF decoupling pin 6 and 8 of U23; 1 x WE 7427005 ferrite on main cable tree and 1 x WE 74271131 ferrite on both antenna cables



Zone	30 MHz - 199 MHz	199 MHz - 1 GHz
Video Bandwidth	100 KHz	100 KHz
Resol Bandwidth	100 KHz	100 KHz

Receiver Measures

Frequency	Peak	QuasiPeak (x)	Average (+)	QP Margin
230.55 MHz	43.5 dBuV/m	40.5 dBuV/m	25.2 dBuV/m	5.5 dB

Operator: E. de Raemy
Date/Time: 09.06.2010 14:43
Filename:
RE_30M-1G_h08.png/.txt

7. Transmitter parameters

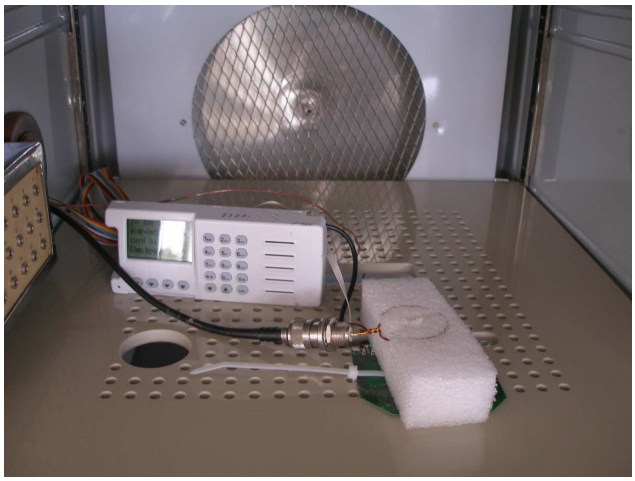
7.1 Frequency error or frequency drift of 13.56 MHz carrier

Introduction: The frequency error, known as frequency drift, is the difference between the frequency of the device under test measured under normal test conditions and the frequency measured under extreme conditions.

Test site: ☐ anechoic chamber (foam) ☐ open test site
☐ anechoic chamber (ferrites) ☒ laboratory

Meas. uncertainty: ± 2.6 µHz/Hz

Test set-up:



Remarks: - - -

Test equipment:

Spectrum analyser	☐ 88-14	☐ 94-24	☐ 02-06	☐ 03-45	☐ 05-39	☒ 07-53
Frequency counter	☐ 03-21	☐ …….				
Attenuator	☐ 05-81	☐ …….				
Temperature chamber	☒ 06-66					
Temperature probe	☐ 91-11	☐ 03-05	☐ 05-34	☒ 08-03		
Variable transformer	☐ 75-04	☐ …….				
Power supply	☐ 99-04	☒ 88-16				
Multimeter	☐ 06-51	☒ 03-22				
Cables	.....					

Result: ☒ **pass** ☐ **fail** ☐ **not applicable** ☐ **not tested**

Results of the test

Client: *Convadis AG*

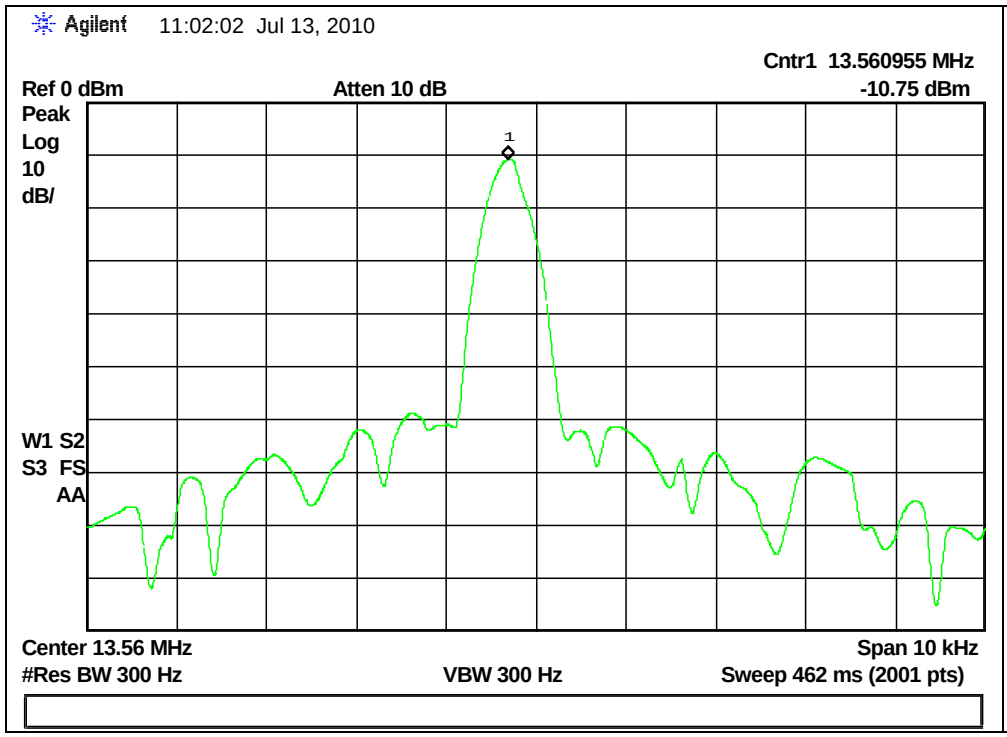
Apparatus: *CBox micro*

Operating mode: *Without card*

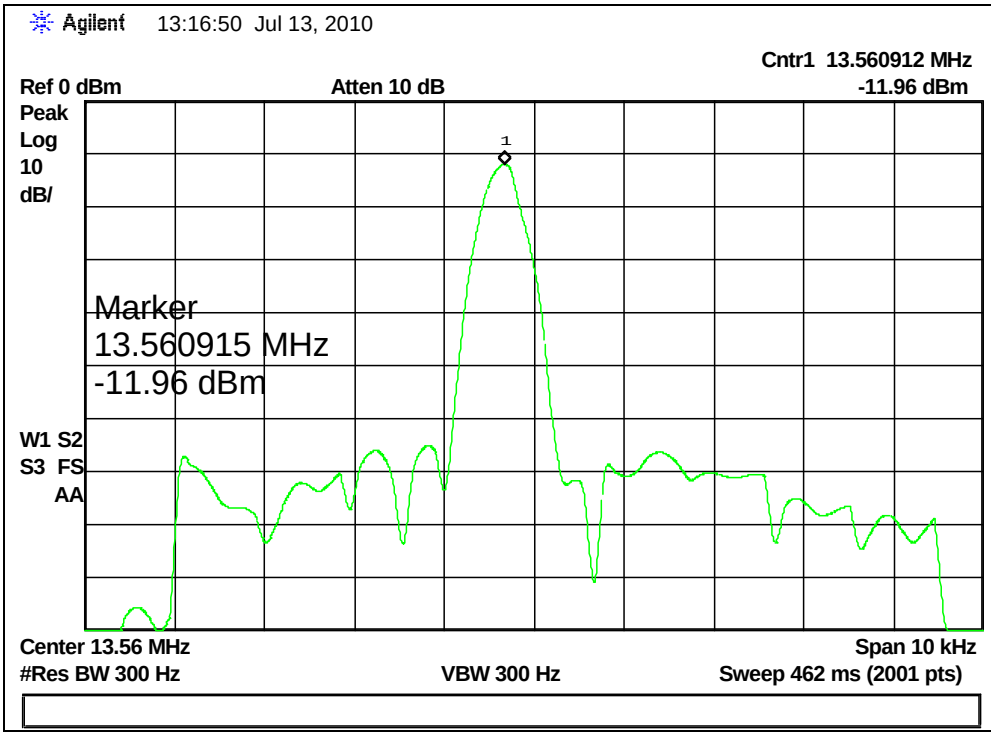
Cables connected to the EUT:
- *External DC power supply*
- *RFID antenna*

Remarks: - - -

Temp [°C]	U [V]	f normal [MHz]	f extreme [MHz]	Error [ppm]	Limit [ppm]	Remarks	Pass Yes	Pass No
25.2	*12*	*13.56107*				- - -		
25.2	*10*	*13.56107*	*13.56106*	*-0.7*	*100*	- - -	☒	☐
25.2	*14*	*13.56107*	*13.56106*	*-0.7*	*100*	- - -	☒	☐
-21	*12*	*13.56107*	*13.56095*	*-8.8*	*100*	- - -	☒	☐
52.5	*12*	*13.56107*	*13.56091*	*-11.8*	*100*	- - -	☒	☐



U = 12 VDC
T = -21°C



U = 12 VDC
T = 52°C

Date of test: *July 13, 2010*
Operator: *E. de Raemy*