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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:	***Radiocom***	Report no: Rapport no: Bericht Nr:	***16'051***
Product name: Nom du produit: Produktname	***Smart Alert***	Mandate no: Mandat no: Auftrag Nr:	***20099143***
Serial no: No de série: Seriennummer:	***Rx 433 MHz: Proto-105*** ***Tx 40.96 kHz: Proto-109***	Model number: Numéro de modèle: Modellnummer:	***054-3074***
Customer: Client: Kunde:	***Phonak Communications SA*** ***Länggasse 17*** ***3280 Murten*** ***Switzerland***	Date of test: Date de l'essai: Prüfdatum:	***January 8 to 25 and February 19, 2010***

Standards / Normes / Normen		Result Résultat Ergebnis
47 CFR, Part 15	(Subpart C, Intentional radiator: §§ 15.207/209)	***Pass***
47 CFR, Part 15	(Subpart B, Class B digital device)	***Pass***

Test performed by
Essai effectué par :
Prüfer

Mr Erich Staub, Mr Andreas Bieri

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

Mr Erich Staub, Mr Andreas Bieri

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

Mr François Trotti

Rossens, March 30, 2010 (Issue Date / Date d'édition / Ausstelldatum) V2009Dec22

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\20099143_phonak_smart alert (nobel)\cem-radio\rap_phonak_6051_smart alert_fcc.doc

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Contents / Table des matières / Inhaltsverzeichnis

Page/Page/Seite

Foreword / Avant-propos / Vorwort

According to the manufacturer the "Smart Alert" is not considered as a device for social alarms and therefore has no safety function. It does transmit alarms (e.g. fire alarm) as a supplement to already existing notifications provided by other means. The alerting of people can in no case be based only on the "Smart Alert". This must clearly be stated in the accompanying documents.

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 15***
6.1	Conducted emission Émission par conduction Geleitete Emission	47 CFR § 15.107 (Class B)	✓
6.2	Radiated emission – H-field Émission par rayonnement – Champ H Gestrahlte Emission – H-Feld	47 CFR § 15.209	✓
6.3 6.4	Radiated emission – receiver Émission par rayonnement – récepteur Gestrahlte Emission – Empfänger	47 CFR § 15.109 (Class B)	✓
6.3	Radiated emission – transmitter Émission par rayonnement – émetteur Gestrahlte Emission – Sender	47 CFR § 15.209	✓

2. Applied standards / Normes appliquées / Verwendete Normen

CFR 47 Part 15 Subpart B: 2009	Code of Federal Regulations - Title 47 - Telecommunication, Part 15, Subpart B: "Unintentional Radiators"
47 CFR Part 15 Subpart C: 2009	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	*Phonak Communications SA* *Länggasse 17* *3280 Murten* *Switzerland*
Contact Person / Responsable / Kontaktperson	*Mrs Neviana Nikoloski*
Telephone / Téléphone / Telefon	*+41 26 672 96 72*
Fax / Télécopieur / Telefax	*+41 26 672 96 77*
E-mail / Courrier électronique / E-mail	*info@phonak-communications.com*
Mandate no / No. de mandat / Auftragsnr.	*20099143*

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	*Phonak Communications SA* *Länggasse 17* *3280 Murten* *Switzerland*
Production country / Pays de fabrication / Ursprungsland	*Switzerland*
Brand name / nom de marque / Verkaufsmarke	*Unitron*
Product name / Nom du produit / Produktname	*Smart Alert*
Product description / Description du produit / Produktbeschreibung	*Smart Alert remote is a device that acts as an interface between Unitron hearing instruments and Bellman & Symfon detectors. The Smart Alert remote combines hearing instrument functionality and alerting capability into one device. The remote acts as both a wireless receiver of up to 16 different signals from the Bellman and Symfon detectors and a wireless transmitter of signals to the hearing instruments.*
Model number / Numéro de modèle / Modellnummer	*054-3074*
Serial no / No. de série / Seriennummer	*Rx 433 MHz: Proto-105* *Tx 40.96 kHz: Proto-109*
Software version / Version du logiciel / Softwareversion	*Master v0.7.1 / Slave 0.2.3*
Highest frequency / Fréquence la plus élevée / Höchste Frequenz	*43 kHz (in TX mode)* *433 MHz (in RX mode)*
Supply / Alimentation / Speisung	*Internal, rechargeable battery: 1.5 V AAA*
Technical documentation Documentation technique Technische Dokumentation	*None. The equipment is completely identified by its serial no. according to ISO 9001.*

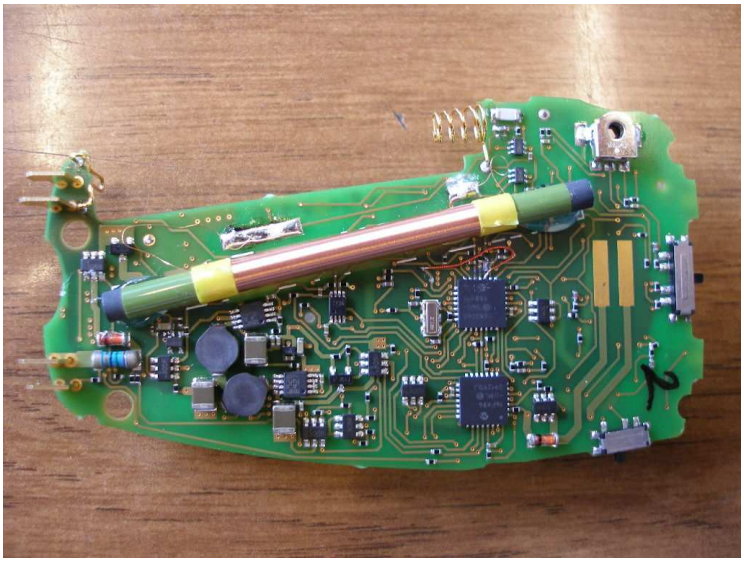
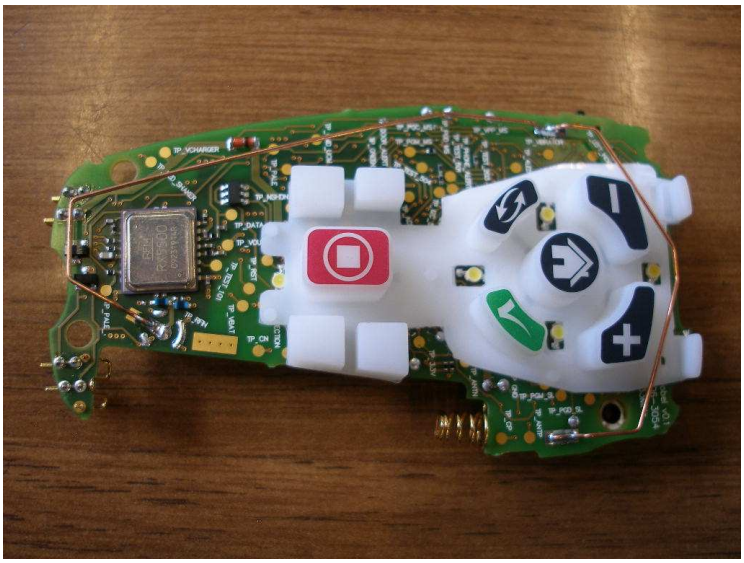
4.2 Pictures of the EUT / Photos de l'EST / Fotos des Prüflings

4.2.1 General

	*Smart Alert mounted on charging station with external power supply*

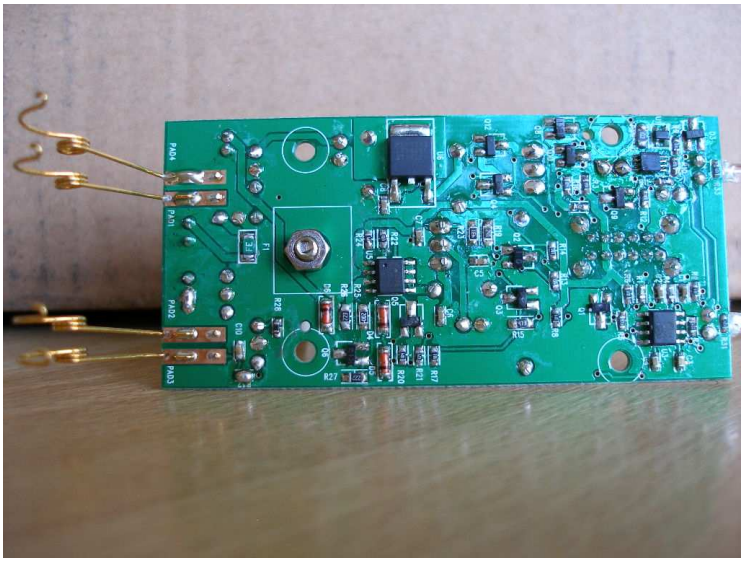
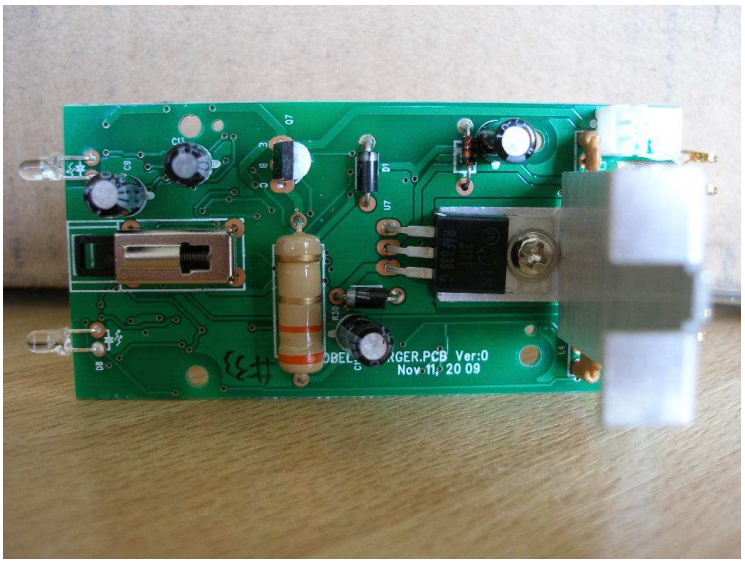
4.2.2 Smart Alert

	*Front and rear view*
	*Inside view*

	*Rear side with 40.96 kHz antenna*
	*Top side with 433 MHz antenna*

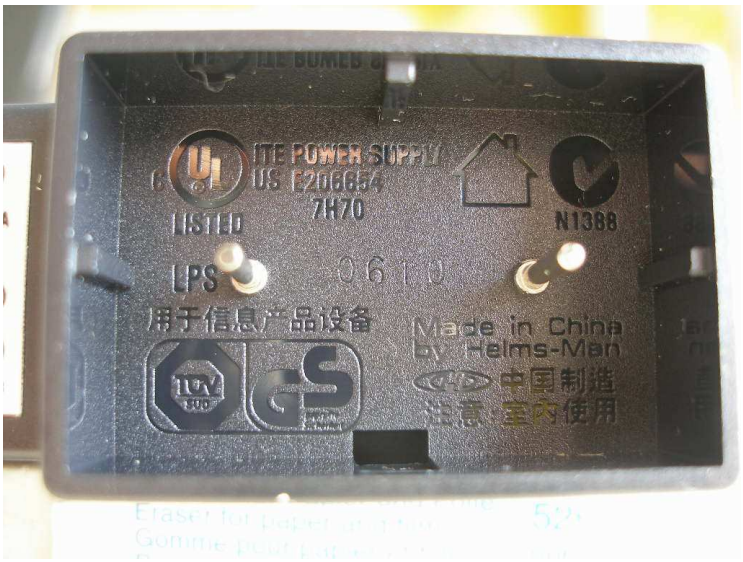
4.2.3 Charging station

	*Front view*
	*Rear view*
	*Markings on bottom side*

	*Charging circuit: Bottom view*
	*Charging circuit: Top view*

4.2.4 External power supply

	*Power supply*

	*Exterior markings*
	*Markings behind the mains plug*

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). **Valid for 433 MHz receiver.** ☐ 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). **Valid for 41 kHz transmitter.** ☐ 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**	
DC In	*1.9 m*	*L, N, PE*	*none*	*Connected to external AC/DC supply*
Output for bed shaker	*2.1 m*	*2 wires*	*None*	*Not connected during the tests*

4.5 Modifications / Modifications / Angebrachte Änderungen

None

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	*January 8, 2010*	*23.0 °C*	*1005 hPa*	*23.8 %*
	January 22, 2010	*22.3 °C*	*1026 hPa*	*26.1 %*
	January 25, 2010	*22.3 °C*	*1030 hPa*	*26.6 %*
	February 19, 2010	*23.6 °C*	*994 hPa*	*25.4 %*

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.

5.3 Attendant persons / Personnes présentes / Anwesende Personen

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

Mr Erich Staub, Mr Andreas Bieri

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

Name / Nom / Name	Company / Société / Firma
Mr Alexandre Da Costa	*Phonak Communications SA*

5.4 Test configuration / Configuration d'essai / Prüfkonfiguration

Fixed use (mounted on charging station)

Portable use

5.5 Operating conditions / Conditions de fonctionnement / Betriebszustand

- *Power supply during tests if not stated otherwise in § 6: 115 VAC / 60 Hz*
- *1 sample continuously transmitting on 41 kHz, 1 sample continuously receiving on 433 MHz*
- *While measuring the charing station (with mounted Smart Alert), the battery compartment in the charging station contains no batteries. For some measurements, especially the conducted emission, a 33 Ω resistive load is mounted in the battery compartment.*

6. Test results

6.1 Conducted emission - Interference voltage

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

Meas. uncertainty: ± 3.6 dB

Measuring method: The conducted disturbance is measured using a spectrum analyser and a line impedance substitution network (LISN). The measurement of the voltage against the earth is carried out successively. The peak values are recorded continuously on the graph. The values that exceed the limit are remeasured with a measuring receiver.

Test set-up:

Remarks: - - -

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	
LISN	☐ 85-13	☐ 90-08	☐ 94-36	☒ 94-40	☐ 95-12	☐ 00-43
	☐ 04-04	☐ 04-05	☐			
Protection 10 dB	☒ 91-45	☐ 91-44	☐ 95-30	☐ 95-33	☐ 95-35	☐ 95-36
	☐ 96-38	☐ included in LISN				
Protection 20 dB	☐ 91-46	☐ 95-33	☐ 95-38	☐ included in LISN		
Cables	☐ 06-00	☒ 06-01	☐			

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

Measurement Type : Voltage Interference
Supply : Line 1
Other :

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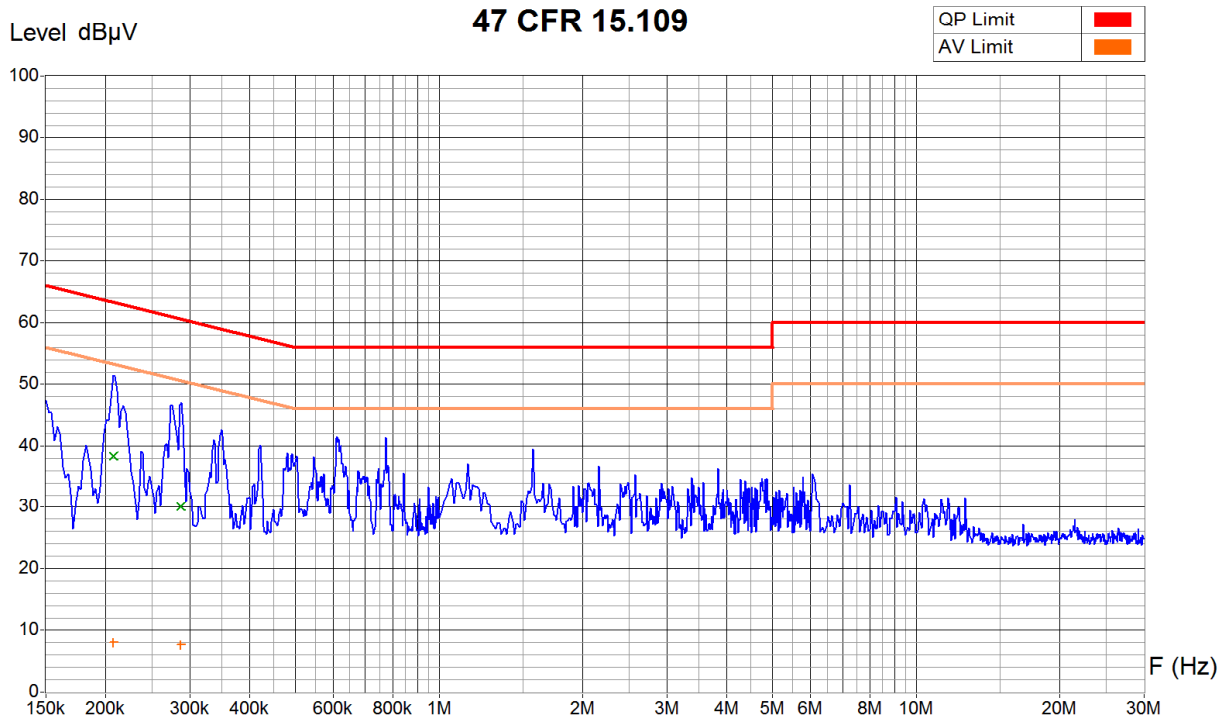
Equipment Under Test : Smart Alert
Set-Up : In charging station (33 Ohm resistive load); powered by 115 VAC / 60 Hz
Operating Conditions : Rx = 433 MHz
Remarks :
Result: AV values below limit on whole frequency range



Zone	150 KHz - 1 MHz	1 MHz - 6 MHz	6 MHz - 30 MHz
Video Bandwidth	30 KHz	30 KHz	30 KHz
Resol Bandwidth	9 KHz	9 KHz	9 KHz

Receiver Measures

Frequency	Peak	QuasiPeak (x)	Average (+)	QP Margin
207.60 KHz	51.5 dBµV	38.4 dBµV	8.1 dBµV	24.9 dB
287.30 KHz	46.1 dBµV	30.1 dBµV	7.7 dBµV	30.5 dB

Operator: A. Bieri
Date/Time: 19.02.2010 18:54
Filename: 20099143_FCC_RX433_ec_L1_002.png/.txt

Measurement Type : Voltage Interference
Supply : Neutral
Other :

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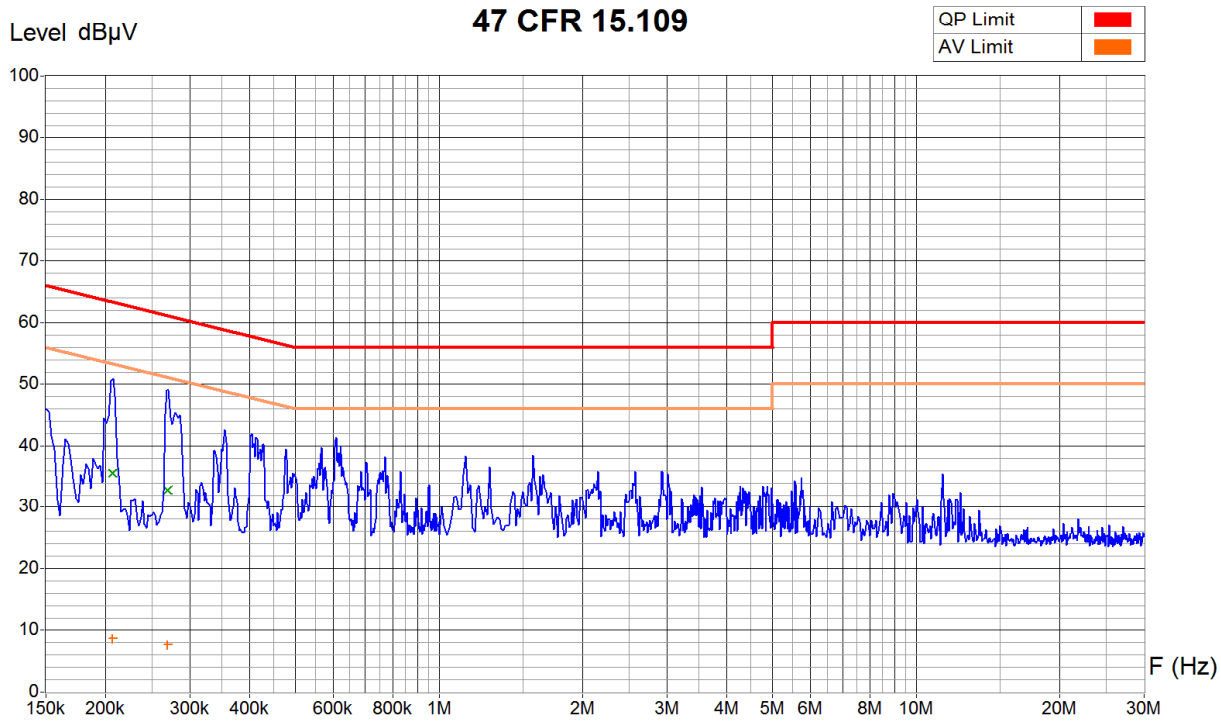
Equipment Under Test : Smart Alert
Set-Up : In charging station (33 Ohm resistive load); powered by 115 VAC / 60 Hz
Operating Conditions : Rx = 433 MHz
Remarks :
Result: AV values below limit on whole frequency range



Zone	150 KHz - 1 MHz	1 MHz - 6 MHz	6 MHz - 30 MHz
Video Bandwidth	30 KHz	30 KHz	30 KHz
Resol Bandwidth	9 KHz	9 KHz	9 KHz

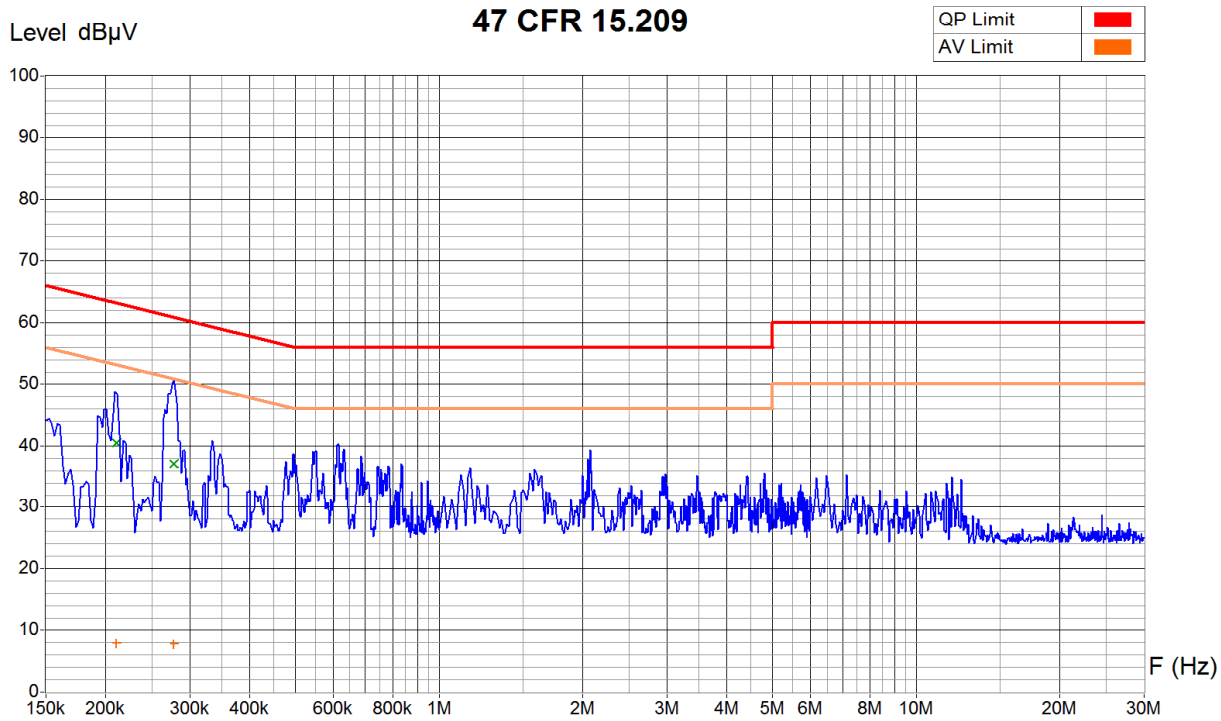
Receiver Measures

Frequency	Peak	QuasiPeak (x)	Average (+)	QP Margin
207.10 KHz	55.3 dBµV	35.6 dBµV	8.7 dBµV	27.8 dB
269.90 KHz	51.7 dBµV	32.9 dBµV	7.7 dBµV	28.3 dB

Operator: A. Bieri
Date/Time: 19.02.2010 19:01
Filename: 20099143_FCC_RX433_ec_N_002.png/.txt

Measurement Type : Voltage Interference
Supply : Line 1
Other :

Equipment Under Test : Smart Alert
Set-Up : In charging station (33 Ohm resistive load); powered by 115 VAC / 60 Hz
Operating Conditions : Tx = 41 KHz
Remarks :
Result: AV values below limit on whole frequency range



Zone	150 KHz - 1 MHz	1 MHz - 6 MHz	6 MHz - 30 MHz
Video Bandwidth	30 KHz	30 KHz	30 KHz
Resol Bandwidth	9 KHz	9 KHz	9 KHz

Receiver Measures

Frequency	Peak	QuasiPeak (x)	Average (+)	QP Margin
210.60 KHz	54.6 dBµV	40.6 dBµV	8.0 dBµV	22.6 dB
277.70 KHz	50.5 dBµV	37.2 dBµV	7.8 dBµV	23.7 dB

Operator: A. Bieri
Date/Time: 19.02.2010 19:43
Filename: 20099143_FCC_TX41_ec_L1_003.png/.txt

Measurement Type : Voltage Interference
Supply : Neutral
Other :

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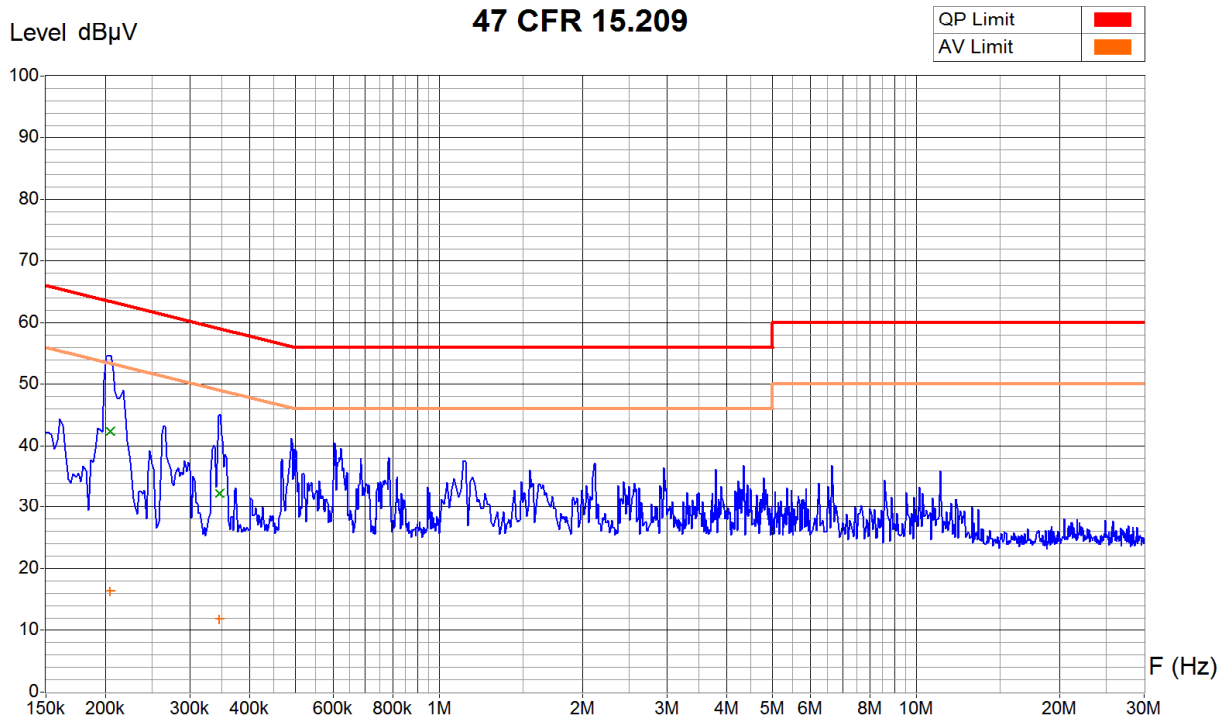
Equipment Under Test : Smart Alert
Set-Up : In charging station (33 Ohm resistive load); powered by 115 VAC / 60 Hz
Operating Conditions : Tx = 41 KHz
Remarks :
Result: AV values below limit on whole frequency range



Zone	150 KHz - 1 MHz	1 MHz - 6 MHz	6 MHz - 30 MHz
Video Bandwidth	30 KHz	30 KHz	30 KHz
Resol Bandwidth	9 KHz	9 KHz	9 KHz

Receiver Measures

Frequency	Peak	QuasiPeak (x)	Average (+)	QP Margin
204.40 KHz	55.3 dBµV	42.4 dBµV	16.4 dBµV	21.1 dB
346.80 KHz	45.6 dBµV	32.4 dBµV	11.8 dBµV	26.7 dB

Operator: A. Bieri
Date/Time: 19.02.2010 19:37
Filename: 20099143_FCC_TX41_ec_N_003.png/.txt

6.2 Radiated emission - Magnetic field

Test site: ☐ anechoic chamber (ferrites) ☒ 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 centre of the antenna is moved from 1 to 4 m of height, first in the direction of the apparatus under test, then at 90°to the apparatus. 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;

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

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

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

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	☐			

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

Measurement Type :	Radiated Field
Polarisation :	Parallel
Table Angle :	0 - 360°
Antenna Height :	1 - 4m

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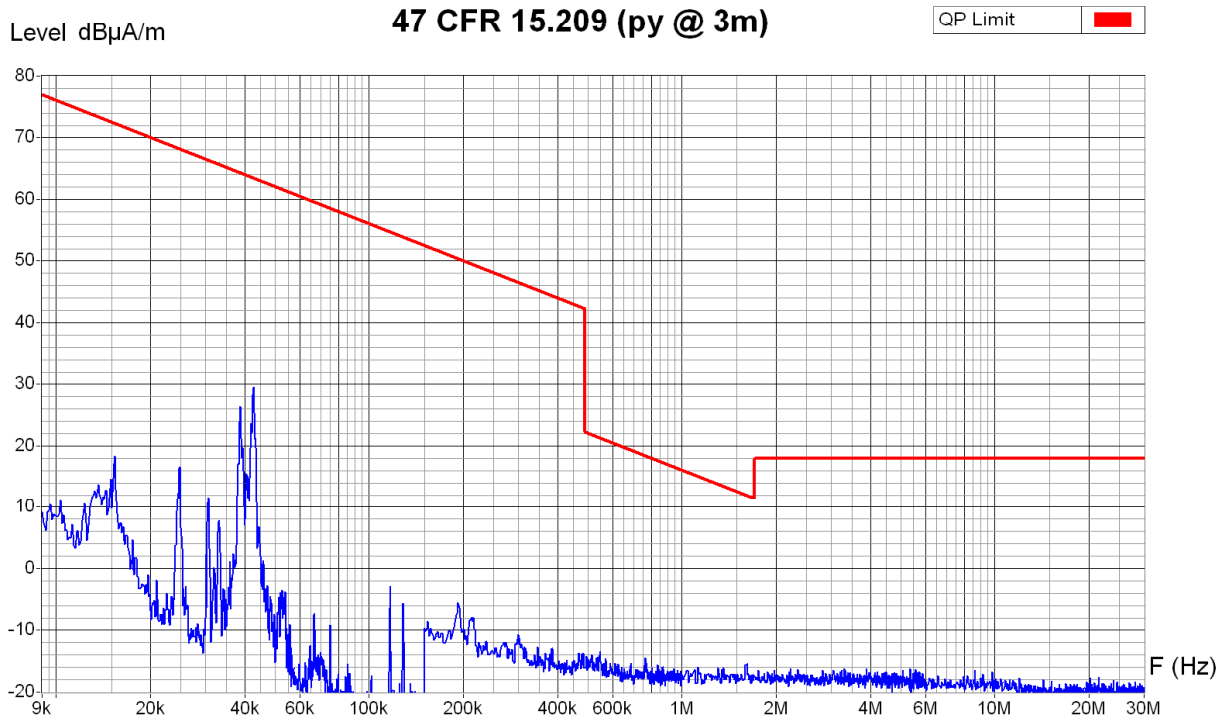
Equipment Under Test :	Smart Alert
Set-Up :	In charging station (without additional batteries); powered by 115VAC / 60 Hz
Operating Conditions :	Tx = 41 kHz
Remarks :	



Zone	9 KHz - 80 KHz	150 KHz - 1 MHz	1 MHz - 6 MHz	6 MHz - 30 MHz	80 KHz - 150 KHz
Video Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz	300 Hz
Resol Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz	300 Hz

Operator: E. Staub
Date/Time: 25.01.2010 11:53
Filename:
20099143_FCC
Tx41_9k-30M_000pa.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Perpendicular
Table Angle :	0 - 360°
Antenna Height :	1 - 4m

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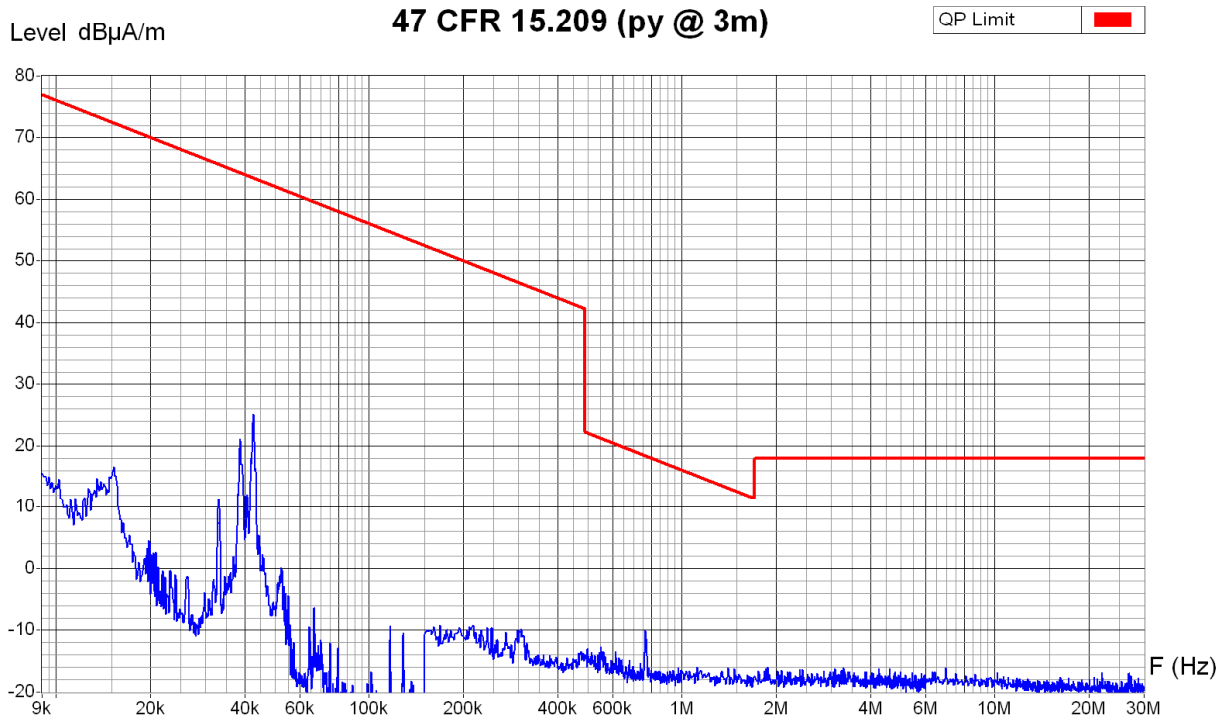
Equipment Under Test :	Smart Alert
Set-Up :	In charging station (without additional batteries); powered by 115VAC / 60 Hz
Operating Conditions :	Tx = 41 kHz
Remarks :	



Zone	9 KHz - 80 KHz	150 KHz - 1 MHz	1 MHz - 6 MHz	6 MHz - 30 MHz	80 KHz - 150 KHz
Video Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz	300 Hz
Resol Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz	300 Hz

Operator: E. Staub
Date/Time: 25.01.2010 11:35
Filename:
20099143_FCC
Tx41_9k-30M_000pe.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Parallel
Table Angle :	0 - 360°
Antenna Height :	1 - 4m
Equipment Under Test :	Smart Alert
Set-Up :	Without charging station; Lying
Operating Conditions :	Tx = 41 kHz
Remarks :	

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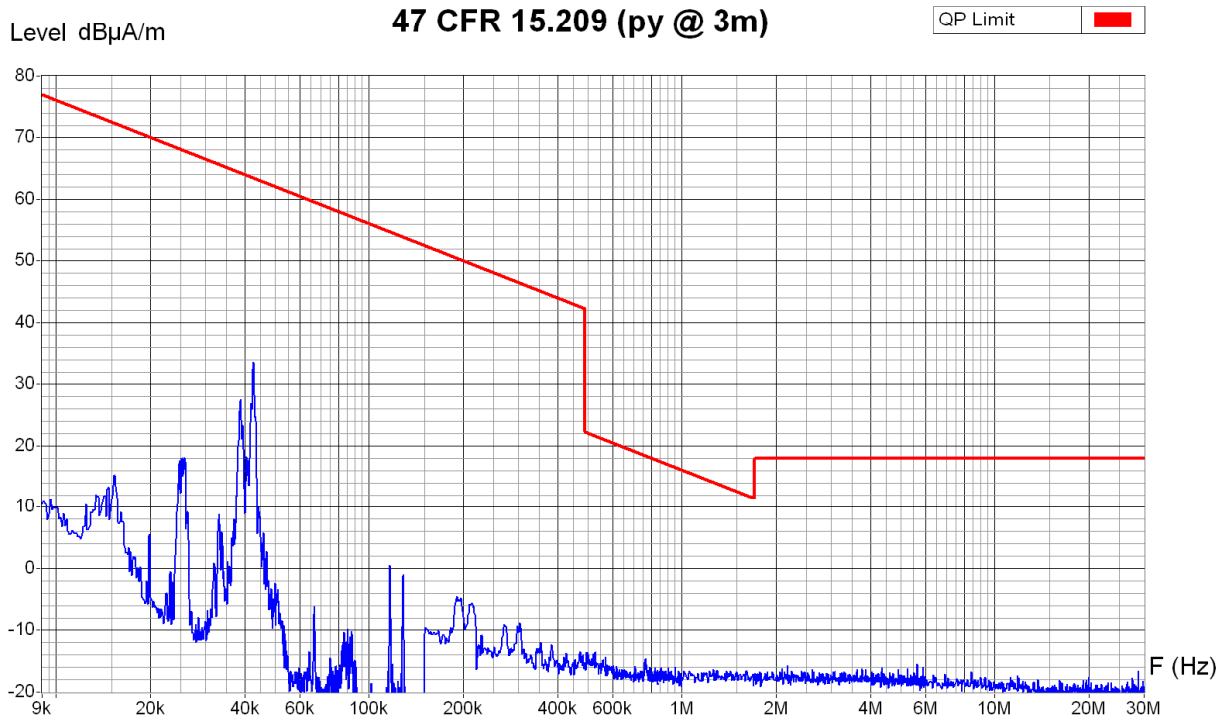

Zone	9 KHz - 80 KHz	150 KHz - 1 MHz	1 MHz - 6 MHz	6 MHz - 30 MHz	80 KHz - 150 KHz
Video Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz	300 Hz
Resol Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz	300 Hz

Operator: E. Staub
Date/Time: 25.01.2010 12:09
Filename:
20099143_FCC
Tx41_9k-30M_001pa.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Perpendicular
Table Angle :	0 - 360°
Antenna Height :	1 - 4m
Equipment Under Test :	Smart Alert
Set-Up :	Without charging station; Lying
Operating Conditions :	Tx = 41 kHz
Remarks :	

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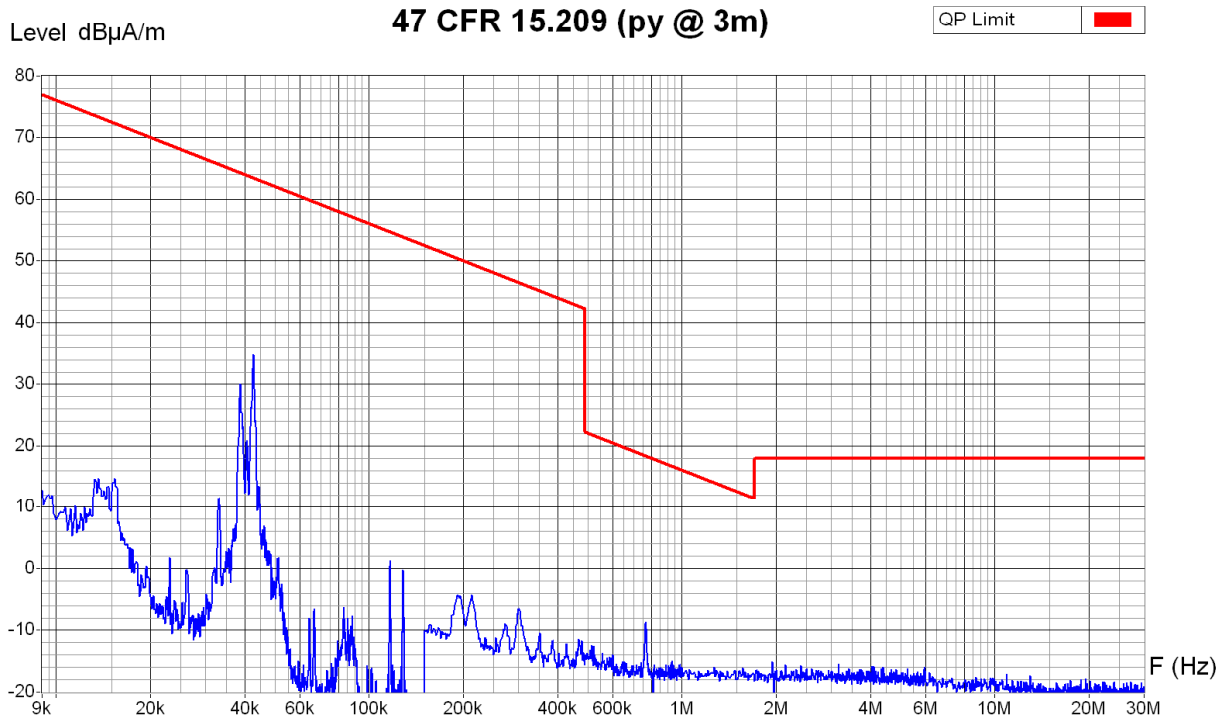

Zone	9 KHz - 80 KHz	150 KHz - 1 MHz	1 MHz - 6 MHz	6 MHz - 30 MHz	80 KHz - 150 KHz
Video Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz	300 Hz
Resol Bandwidth	300 Hz	10 KHz	10 KHz	10 KHz	300 Hz

Operator: E. Staub
Date/Time: 25.01.2010 12:30
Filename:
20099143_FCC
Tx41_9k-30M_001pe.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	☐ 05-87
Antenna (bilog)	☒ 94-03	☐ 05-38	☐			
Cables	☐ 06-00	☒ 06-01	☐			

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

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

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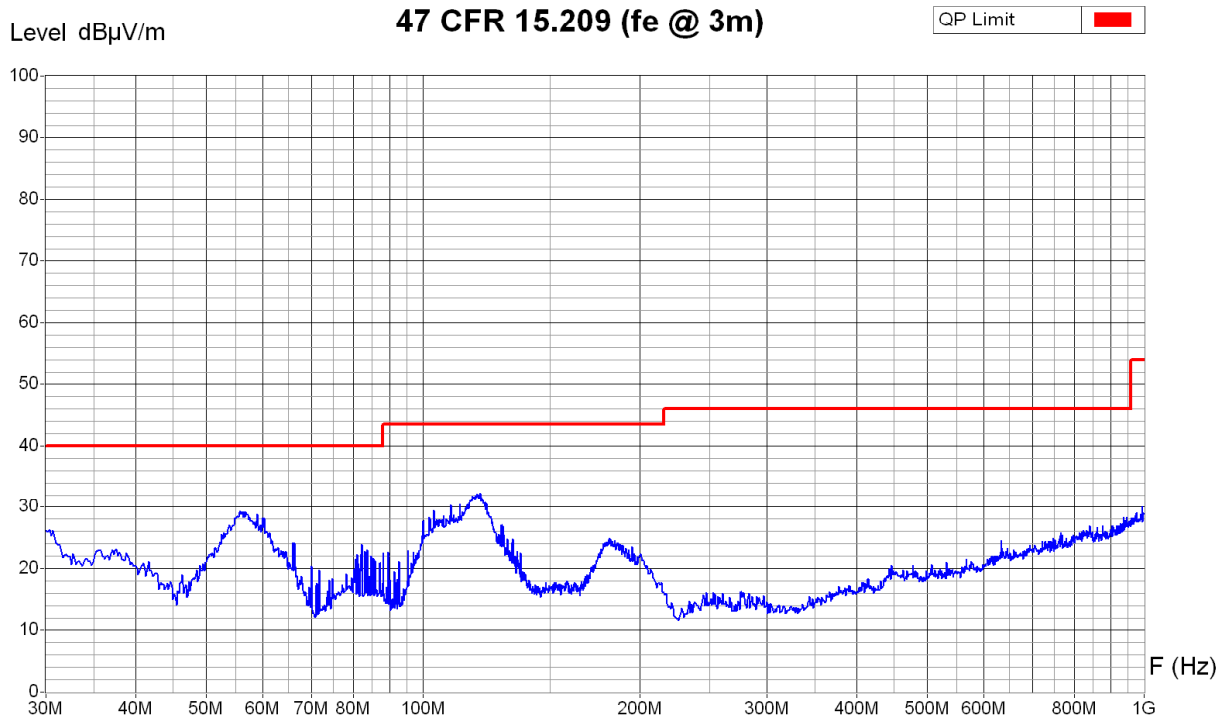
Equipment Under Test :	Smart Alert
Set-Up :	In charging station (without additional batteries); powered by 115VAC / 60 Hz
Operating Conditions :	Tx = 41 kHz
Remarks :	



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

Operator: E. Staub
Date/Time: 22.01.2010 15:29
Filename:
20099143_FCC
Tx41_30M-1G_000h.png/.txt

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

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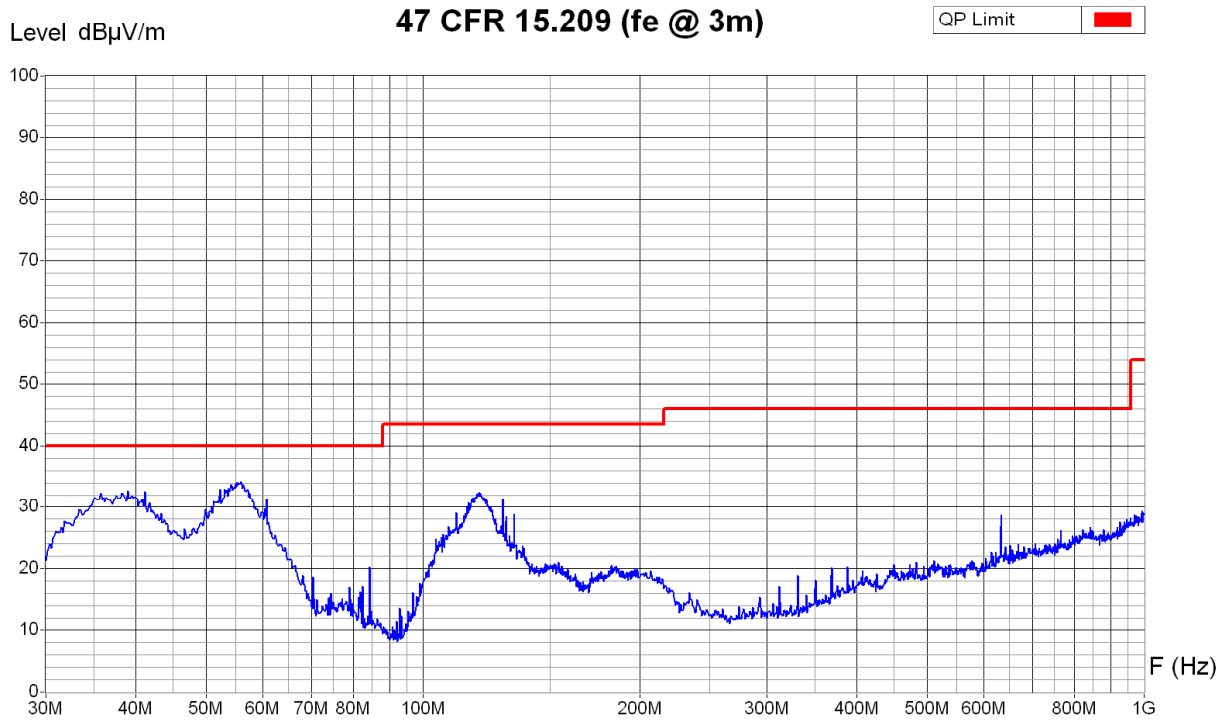
Equipment Under Test :	Smart Alert
Set-Up :	In charging station (without additional batteries); powered by 115VAC / 60 Hz
Operating Conditions :	Tx = 41 kHz
Remarks :	



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

Operator: E. Staub
Date/Time: 22.01.2010 15:37
Filename:
20099143_FCC
Tx41_30M-1G_000v.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Horizontal
Table Angle :	0 - 360°
Antenna Height :	1 - 4m
Equipment Under Test :	Smart Alert
Set-Up :	Without charging station; lying
Operating Conditions :	Tx = 41 kHz
Remarks :	

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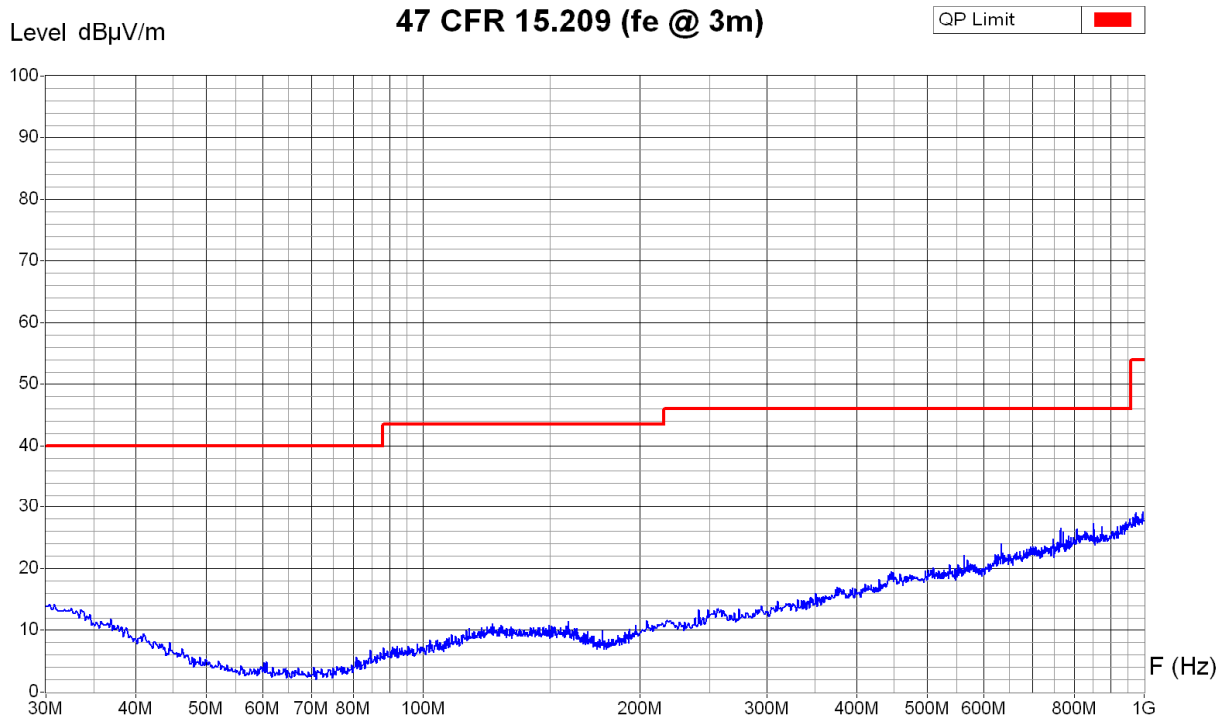

Zone	30 MHz - 199 MHz	199 MHz - 1 GHz
Video Bandwidth	100 KHz	100 KHz
Resol Bandwidth	100 KHz	100 KHz

Operator: E. Staub
Date/Time: 22.01.2010 15:48
Filename:
20099143_FCC
Tx41_30M-1G_001h.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Vertical
Table Angle :	0 - 360°
Antenna Height :	1 - 4m
Equipment Under Test :	Smart Alert
Set-Up :	Without charging station; lying
Operating Conditions :	Tx = 41 kHz
Remarks :	

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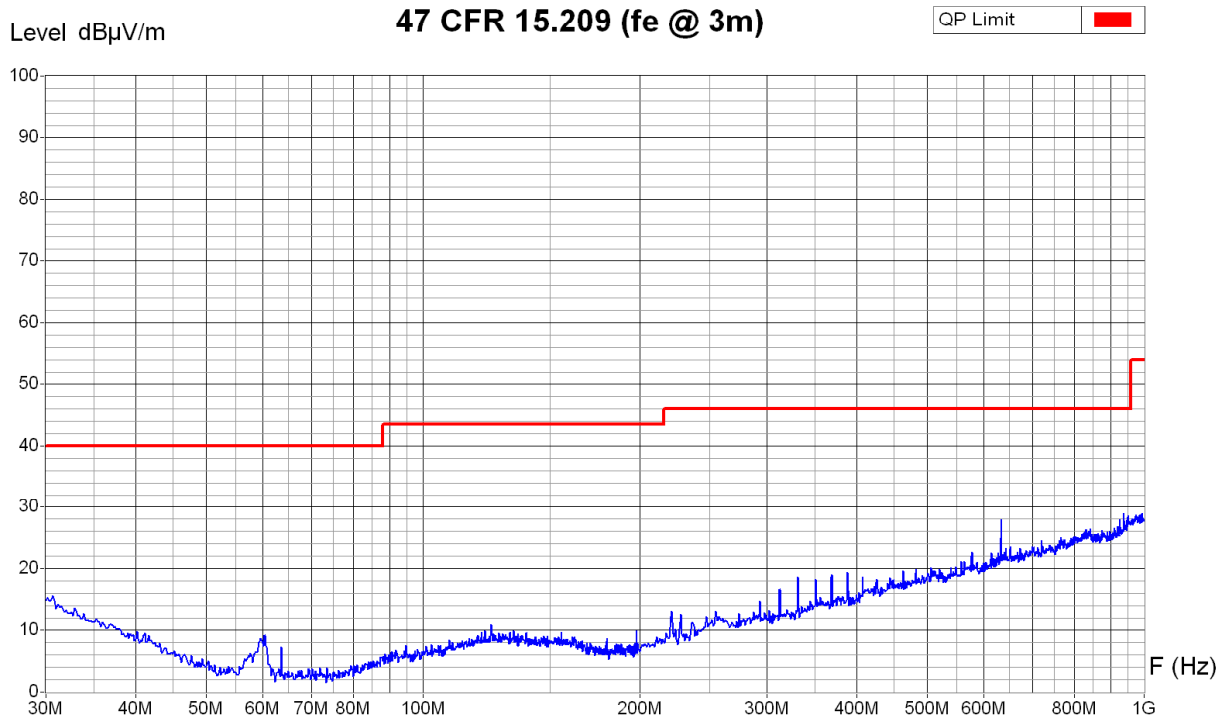

Zone	30 MHz - 199 MHz	199 MHz - 1 GHz
Video Bandwidth	100 KHz	100 KHz
Resol Bandwidth	100 KHz	100 KHz

Operator: E. Staub
Date/Time: 22.01.2010 15:43
Filename:
20099143_FCC
Tx41_30M-1G_001v.png/.txt

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

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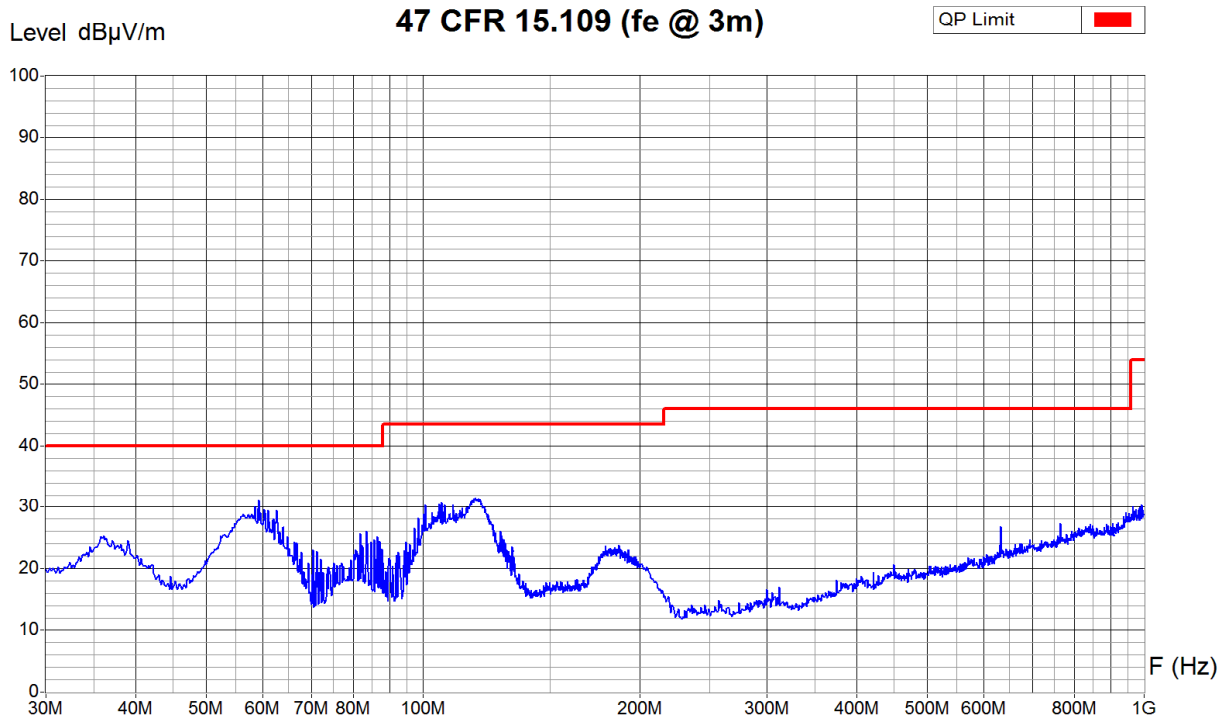
Equipment Under Test :	Smart Alert
Set-Up :	In charging station (33 Ohm resistive load); powered by 115VAC / 60 Hz
Operating Conditions :	Rx = 433 MHz
Remarks :	



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

Operator: E. Staub
Date/Time: 08.01.2010 17:15
Filename:
20099143_FCC
Rx433_30M-1G_001h.png/.txt

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

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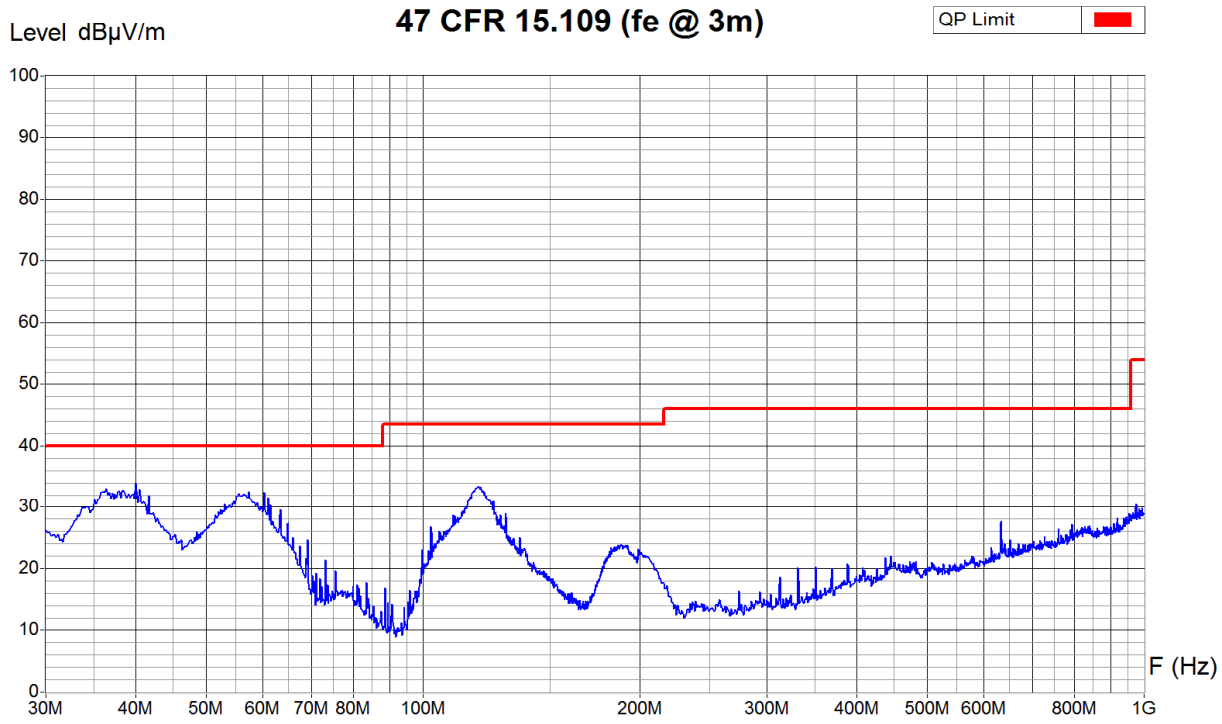
Equipment Under Test :	Smart Alert
Set-Up :	In charging station (33 Ohm resistive load); powered by 115VAC / 60 Hz
Operating Conditions :	Rx = 433 MHz
Remarks :	



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

Operator: E. Staub
Date/Time: 08.01.2010 16:59
Filename:
20099143_FCC
Rx433_30M-1G_001v.png/.txt

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

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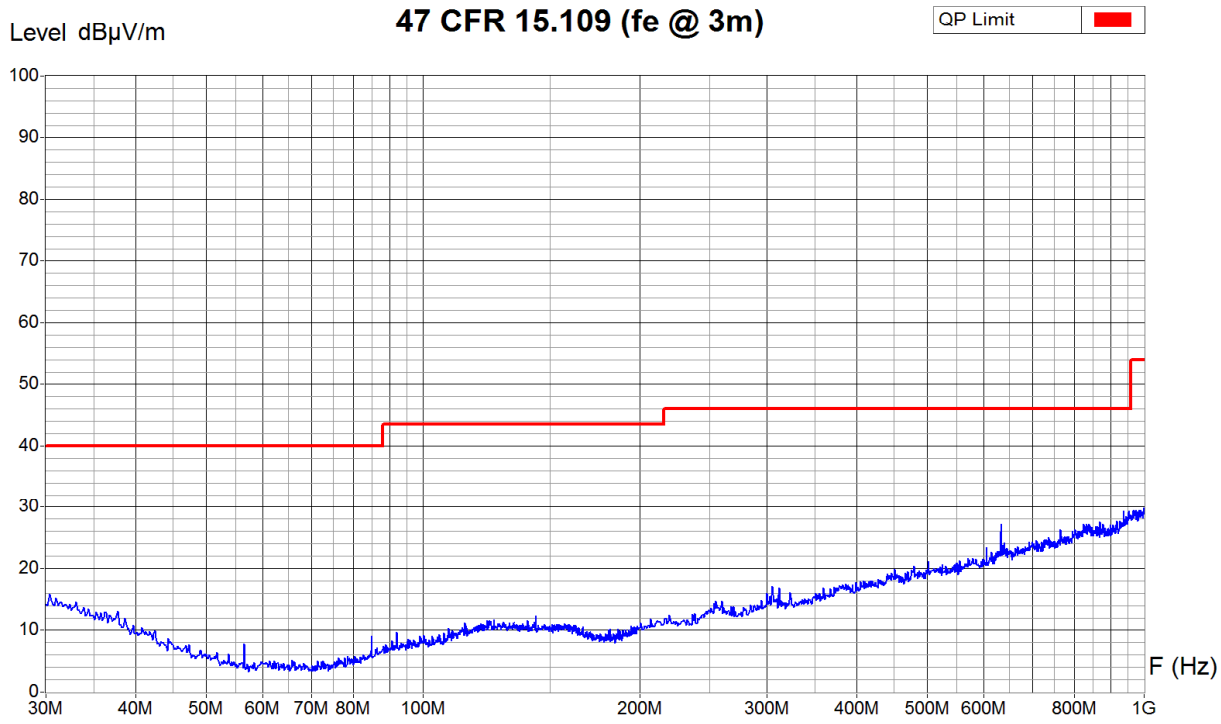
Equipment Under Test :	Smart Alert
Set-Up :	Without charging station; lying
Operating Conditions :	Rx = 433 MHz
Remarks :	



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

Operator: E. Staub
Date/Time: 08.01.2010 17:24
Filename:
20099143_FCC
Rx433_30M-1G_002h.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Vertical
Table Angle :	0 - 360°
Antenna Height :	1 - 4m
Equipment Under Test :	Smart Alert
Set-Up :	Without charging station; lying
Operating Conditions :	Rx = 433 MHz
Remarks :	

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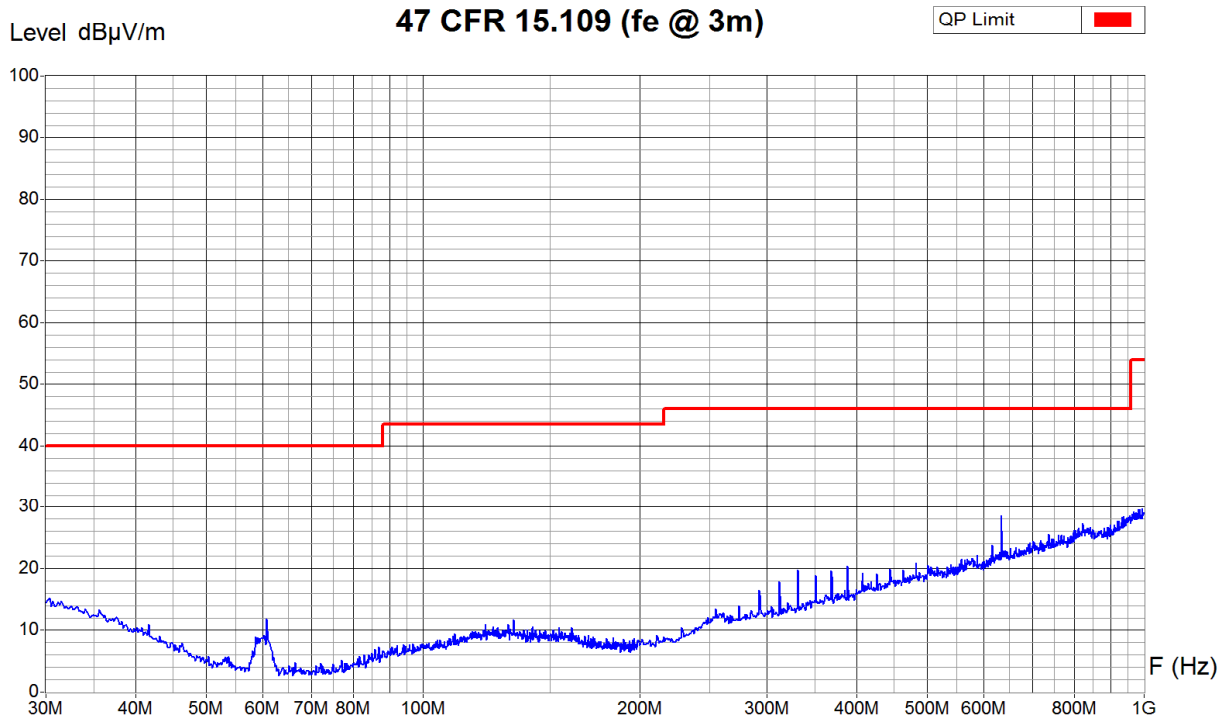

Zone	30 MHz - 199 MHz	199 MHz - 1 GHz
Video Bandwidth	100 KHz	100 KHz
Resol Bandwidth	100 KHz	100 KHz

Operator: E. Staub
Date/Time: 08.01.2010 17:34
Filename:
20099143_FCC
Rx433_30M-1G_002v.png/.txt

6.4 Radiated emission - Electromagnetic field (radiated – 1 GHz to 2 GHz)

Test site:	☒ anechoic chamber (foam)		☐ open test site	
	☐ anechoic chamber (ferrites)		☐	
Distance:	☐ 30 m	☐ 10 m	☐ 3 m	☒ 1 m

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

Meas. uncertainty: ± 4.7 dB

Test method: The electromagnetic disturbance radiated by the equipment is measured using a spectrum analyser and a wide band antenna. The antenna is placed at the same height as the EUT successively with horizontal and vertical polarisations. The turning table is operated through 360° during the measureme nts. The recordings are carried out taking into account the maximum value of all the disturbances appearing while the apparatus is under test.

Test set-up:

Remarks: *Limit values expressed in dBµ V/m and transformed to a measuring distance of 1m (factor used = 20 dB/decade) if necessary*
e.g.: for f = 1GHz the limit is 500µ V/m at 3m;

$$20\log\left(\frac{500\frac{\mu V}{m}}{1\frac{\mu V}{m}}\right)+20\log\left(\frac{3m}{1m}\right)=63.5\frac{dB\mu V}{m}\ at\ 1m$$

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	☒ 05-56 (f > 4 GHz)		☒ 05-87 (f < 4 GHz)		☐	
Antenna (horn)	☐ 90-24	☒ 07-31	☐			
Cables	Succoflex 104 67688/4 + 7814/4					

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

Measurement Type :	Radiated Field
Polarisation :	Horizontal
Table Angle :	0 - 360°
Antenna Height :	0.8 m

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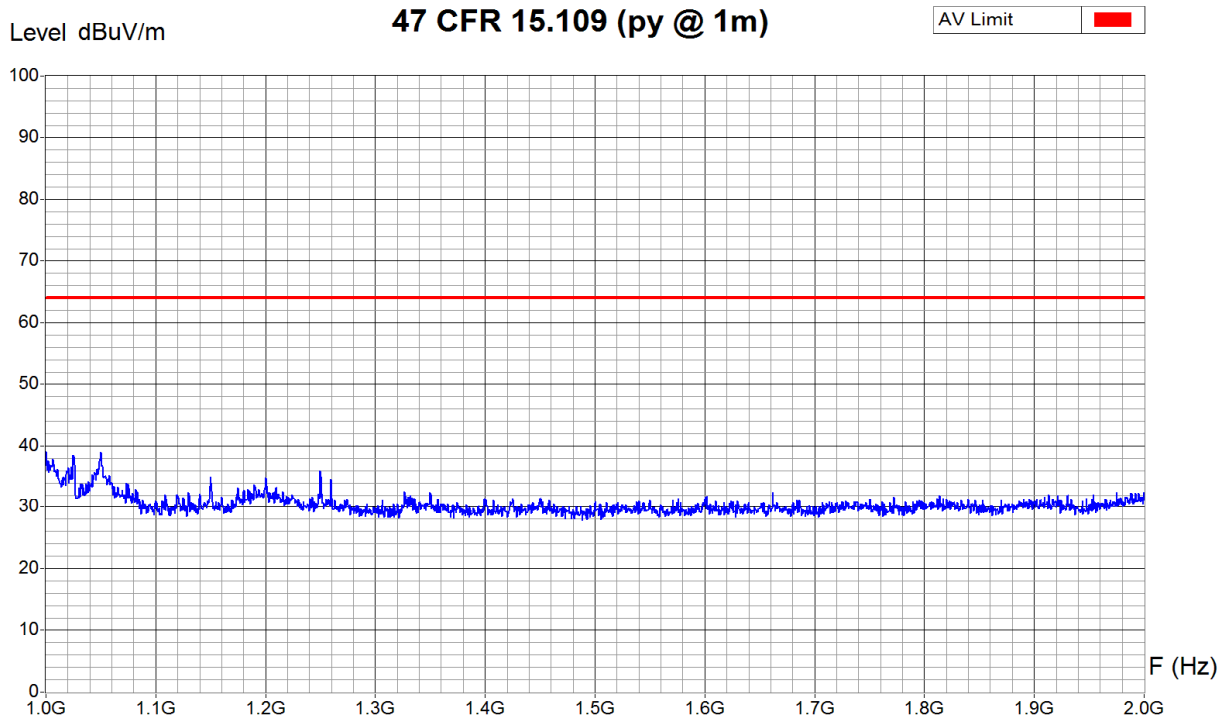
Equipment Under Test :	Smart Alert
Set-Up :	In charging station (without additional batteries); powered by 115 VAC / 60 Hz
Operating Conditions :	Rx = 433 MHz
Remarks :	



Zone	1 GHz - 2 GHz
Video Bandwidth	1 MHz
Resol Bandwidth	1 MHz

Operator: E. Staub
Date/Time: 25.01.2010 14:33
Filename:
20099143_FCC
Rx433_1G-5G_000h.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Vertical
Table Angle :	0 - 360°
Antenna Height :	0.8 m

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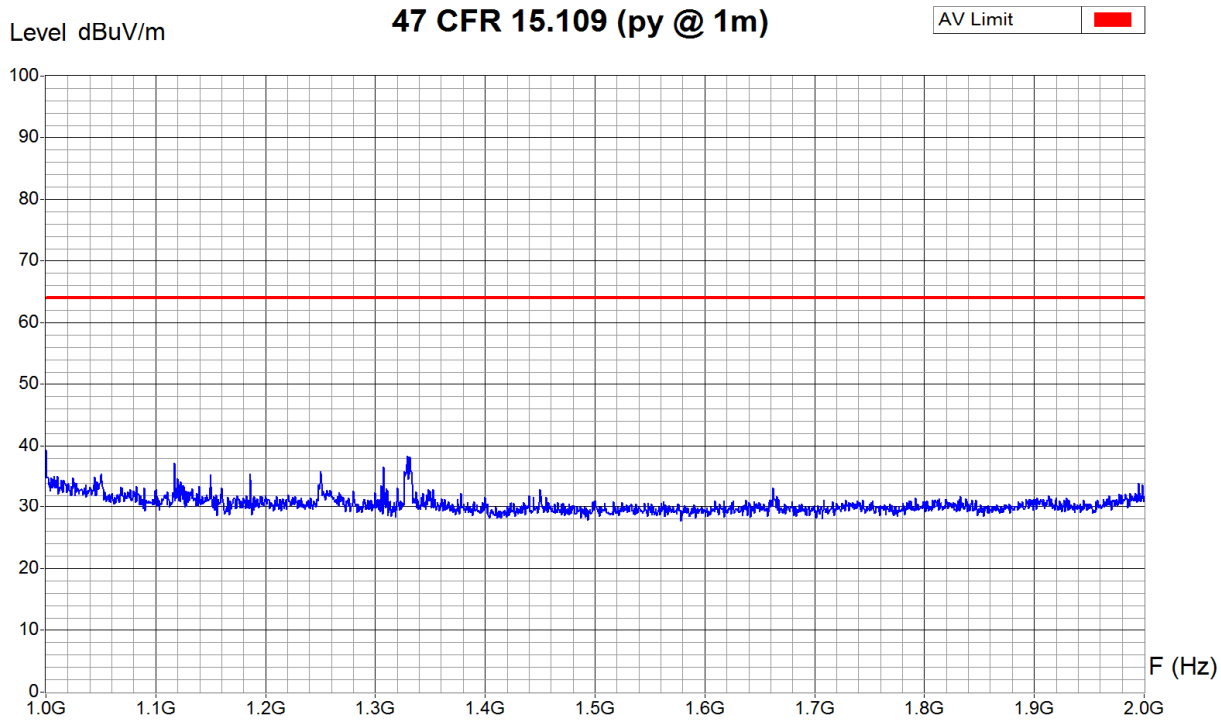
Equipment Under Test :	Smart Alert
Set-Up :	In charging station (without additional batteries); powered by 115 VAC / 60 Hz
Operating Conditions :	Rx = 433 MHz
Remarks :	



Zone	1 GHz - 2 GHz
Video Bandwidth	1 MHz
Resol Bandwidth	1 MHz

Operator: E. Staub
Date/Time: 25.01.2010 14:35
Filename:
20099143_FCC
Rx433_1G-5G_000v.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Horizontal
Table Angle :	0 - 360°
Antenna Height :	0.8 m

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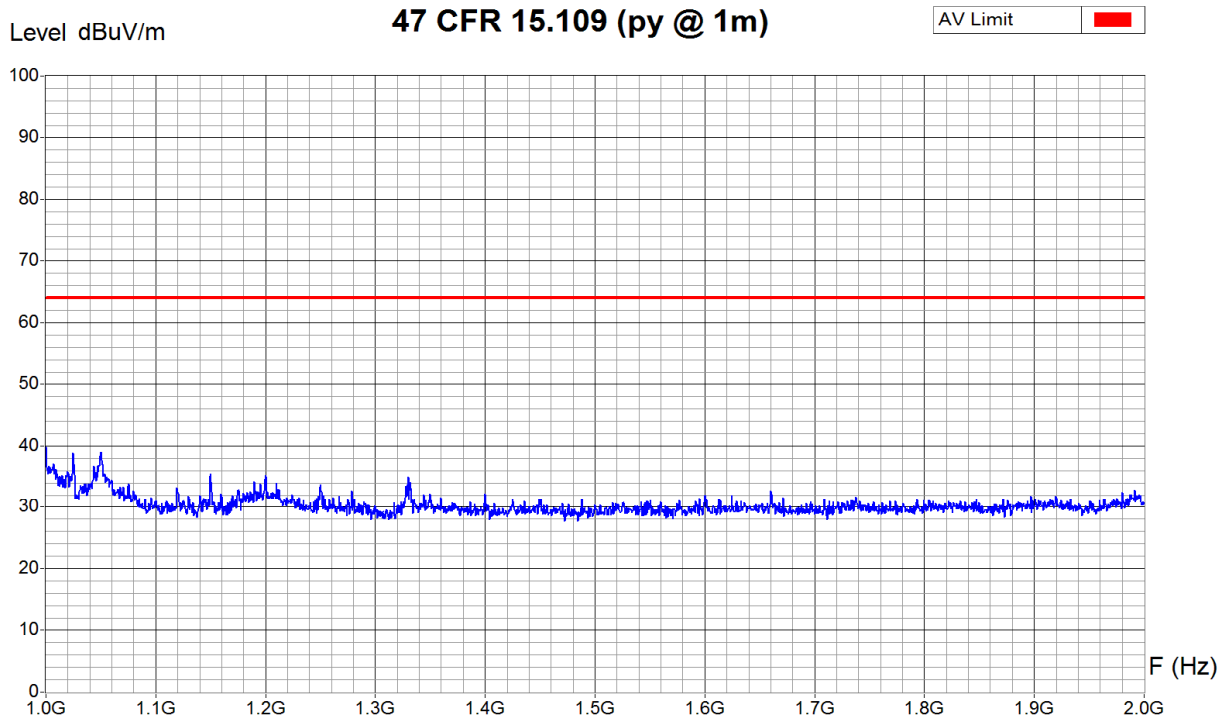
Equipment Under Test :	Smart Alert
Set-Up :	Without charging station; Lying
Operating Conditions :	Rx = 433 MHz
Remarks :	



Zone	1 GHz - 2 GHz
Video Bandwidth	1 MHz
Resol Bandwidth	1 MHz

Operator: E. Staub
Date/Time: 25.01.2010 14:32
Filename:
20099143_FCC
Rx433_1G-5G_001h.png/.txt

Measurement Type :	Radiated Field
Polarisation :	Vertical
Table Angle :	0 - 360°
Antenna Height :	0.8 m

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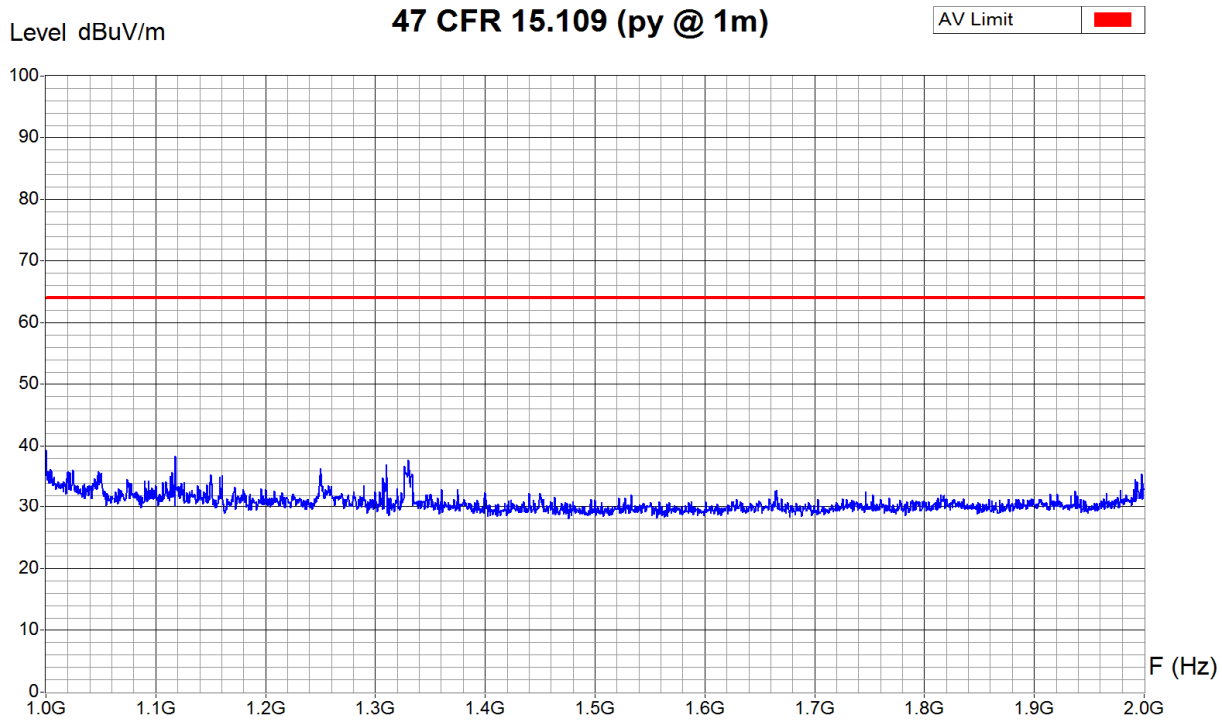
Equipment Under Test :	Smart Alert
Set-Up :	Without charging station; Lying
Operating Conditions :	Rx = 433 MHz
Remarks :	



Zone	1 GHz - 2 GHz
Video Bandwidth	1 MHz
Resol Bandwidth	1 MHz

Operator: E. Staub
Date/Time: 25.01.2010 14:30
Filename:
20099143_FCC
Rx433_1G-5G_001v.png/.txt

7. Prospectus of the product / Prospectus du produit / Produktprospekt

Smart Alert™ Remote
(433 MHz)

Smart Alert™ remote is a device that acts as a reliable interface between Unitron hearing instruments and Bellman & Symfon detectors. The Smart Alert remote combines hearing instrument functionality and alerting capability into one advanced device. The remote acts as both a wireless receiver of up to 16 different signals from the Bellman and Symfon detectors and a wireless transmitter of signals to the hearing instruments.

Smart Alert™ remote description

Legend

1 On-Off switch (travel lock)
2 Left-Both-Right switch
3 Left (blue) indicator light
4 Right (red) indicator light
5 Clarity/Comfort scroll wheel
6 Volume control
7 Home button
8 Program change button
9 LearnNow™
10 Doorbell detector LED
11 Smoke detector LED
12 Phone detector LED
13 Optional detector LED
14 Acknowledge button

General Information

Dimensions: length: 91 mm
width: 55 mm
thickness: 23 mm

Weight: 61.69 g

Alert system operating frequency: 433 MHz

Remote control link:
FSK modulation; Frequency 40.96 kHz / Data rate 1280 Bit/s (is also indicated in the table)

Operating temperature: -10 to +60 C

Remote control range (SA to HI): 120 cm

Battery type/size: 1 AAA 800mAh NiMH rechargeable

Typical charging time: 8 hours

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Parameter	Min.	Typ.	Max.	Unit	Remark
Battery voltage range (VBAT)	0.95	1.2	1.5	V	
Detector Threshold (min battery voltage when RC is active)		0.95		V	Disable the DC/DC converter below this value
Min start-up battery voltage		1.2		V	Hardware set-up
Detector Threshold Hysteresis		0.25		V	
Current consumption in stand-by		350		uA	
Current consumption @ VBAT = 0.9V		20		uA	Shunt down mode
Peak current consumption during "1 RC command"		200		mA	From battery (1.2V)
Peak current consumption during "1 Alert Signal"		330		mA	From battery (1.2V)
FSK link Carrier frequency f2 "fc"	-0.7%	40.96	+0.7%	kHz	
FSK link Baud rate	-0.7%	1280	+0.7%	Bit/sec	
Operating temperature	-10		+60	°C	
Battery life time without recharging (NiMH battery, 800mAh capacity)		7		Days	40 commands/day 40 alerts/day

Region	Standard	Description
EU / EFTA	EN 300 220	Short range devices 25MHz – 1000MHz
	EN 300 330	Short range devices 9kHz – 25MHz (30MHz)
	EN 60601-1-2	Medical electrical equipment: EMC
	EN 60601-1	Medical electrical equipment: General Requirements for Safety
USA/CAN	FCC part 15 RSS 210	Low-power License-exempt Radiocommunication Devices

09-061 027-5498-02

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