

**montena**

montena emc sa

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 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:	15'670
Product name: Nom du produit: Produktname	DynaMic (FM part)		Mandate no: Mandat no: Auftrag Nr:	20098693
Serial no: No de série: Seriennummer:	Proto 5 and proto 13 and Proto 1	Model number: Numéro de modèle: Modellnummer:	---	
Customer: Client: Kunde:	Phonak Communications SA Länggasse 17 CH-3280 Murten	Date of test: Date de l'essai: Prüfdatum:	March 4 to April 22, 2009	

Standards / Normes / Normen	Result Résultat Ergebnis
CFR 47, Part 95 LPRS transmitters	Pass

Test performed by
 Essai effectué par :
 Prüfer

Mr Jacques Ding
 Mr Raymond Schneuwly

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

Mr Jacques Ding
 Mr Raymond Schneuwly

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

Mr Erich Staub

Rossens, April 24, 2009

(Issue Date / Date d'édition / Ausstelldatum)

V2007Jun26

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

The present document results from tests on a specimen and does not prejudice 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\20098693_phonak_dynamic\rap_phonak communications sa_15670_dynamic_fcc fm.doc

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

✓ Pass / Réussi / Bestanden

✗ Fail / Echoué / Nicht bestanden

Ø 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	
6.1	Designation of emission Désignation d'émission Bezeichnung der Emission FCC 47 §2.201 FCC 47 §2.202	✓
6.2	RF power output Puissance RF HF Leistung FCC 47 §2.1046 FCC 47 §95.639 (e)	✓
6.3	Modulation characteristics Caractéristiques de la modulation Modulationscharakteristiken FCC 47 §2.1047	✓
6.4	Occupied bandwidth Bande passante Bandbreite FCC 47 §2.1049 FCC 47 §95.635 (c)(1)	✓
6.5	Field strength of spurious radiation Champ émis Feldstärke der Nebenaussendung FCC 47 §2.1053 FCC 47 §95.635 (c)(1)	✓
6.6	Frequency stability Stabilité de fréquence Frequenzstabilität FCC 47 §2.1055 FCC 47 §95.629 (b)(2)	✓

2. Applied standards / Normes appliquées / Verwendete Normen

47 CFR Part 95	Code of Federal Regulations - Telecommunication, FCC Part 95 - Personal Radio Services
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3. Client / Client / Kunde

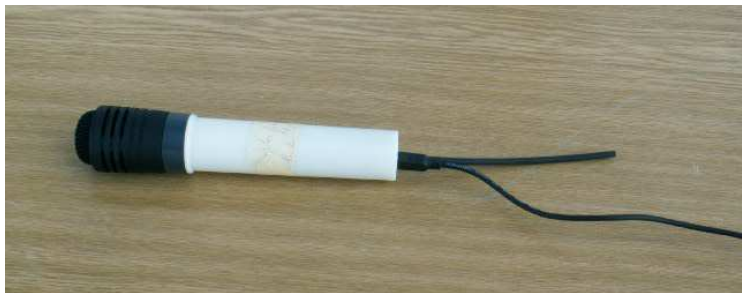
Client name and address Nom et adresse du client Name und Adresse des Kunden	Phonak Communications SA Länggasse 17 CH-3280 Murten
Contact Person / Responsable / Kontaktperson	Mrs Neviana Nikoloski
Telephone / Téléphone / Telefon	+41 26 672 96 72
Fax / Télécopieur / Telefax	+41 26 672 96 77
E-mail / Courrier électronique / E-mail	Neviana.nikolowski@phonak.com
Mandate no / No. de mandat / Auftragsnr.	20098693

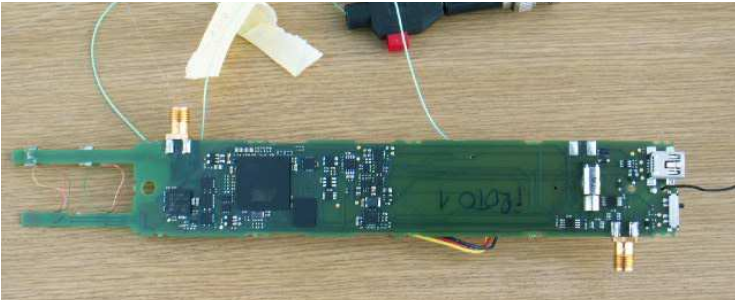
4. Equipment under test / Equipement à l'essai / Prüfling

4.1 Identification / Identification / Identifikation

Manufacturer name and address Nom et adresse du fabricant Name und Adresse des Herstellers	Phonak Communications SA Länggasse 17 CH-3280 Murten
Production country / Pays de fabrication / Ursprungsland	Switzerland
Brand name / nom de marque / Verkaufsmarke	Phonak
Product name / Nom du produit / Produktname	DynaMic (FM part)
Product description / Description du produit / Produktbeschreibung	DynaMic is a wireless microphone with FM transmitter for applications in schools. The priority management (teacher/ students) with Inspiro is controlled by means of a link at 2.4 GHz.
Model number / Numéro de modèle / Modellnummer	- - -
Serial no / No. de série / Seriennummer	Proto 5 and proto 13 and Proto 1
Software version / Version du logiciel / Softwareversion	Verification.bin: 16-3-2009 15:26
Highest frequency / Fréquence la plus élevée / Höchste Frequenz	Carrier at 214.000 – 216.9875 MHz (N)
Supply / Alimentation / Speisung	U = 3.7 VDC internal Lithium-Ion battery
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

	DynaMic in case (labelled N) proto 13
	DynaMic for radiated measurements with USB cable (4 wires, 5 V DC and data)

	<i>DynaMic for conducted measurements with SMA connectors on FM antenna and on 2.4 GHz, as wiring to mic input (test points)</i> <i>Labelled Proto 1 (N)</i> <i>Print 006-3053 V2.0</i>
	<i>DynaMic for conducted measurements with SMA connectors on FM antenna and on 2.4 GHz, as wiring to mic input (test points)</i> <i>Labelled Proto 1 (N)</i>

4.3 Ports / Accès / Anschlüsse

Port / Accès / Anschluss	Cable / Câble / Kabel			Remark / Remarque / Bemerkung
	Max. length / Longueur max. / Max. Länge	Type / Type / Typ	Screen / Blindage / Schirm	
USB	1 m	---	Yes	---

4.4 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:	Rel. humidity / Humidité rel. / Rel. Luftfeuchtigkeit:
montena emc sa CH-1728 Rossens	March 6 - April 22, 2009	20 – 24 °C	996 – 1036 hPa	26 – 36 %

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

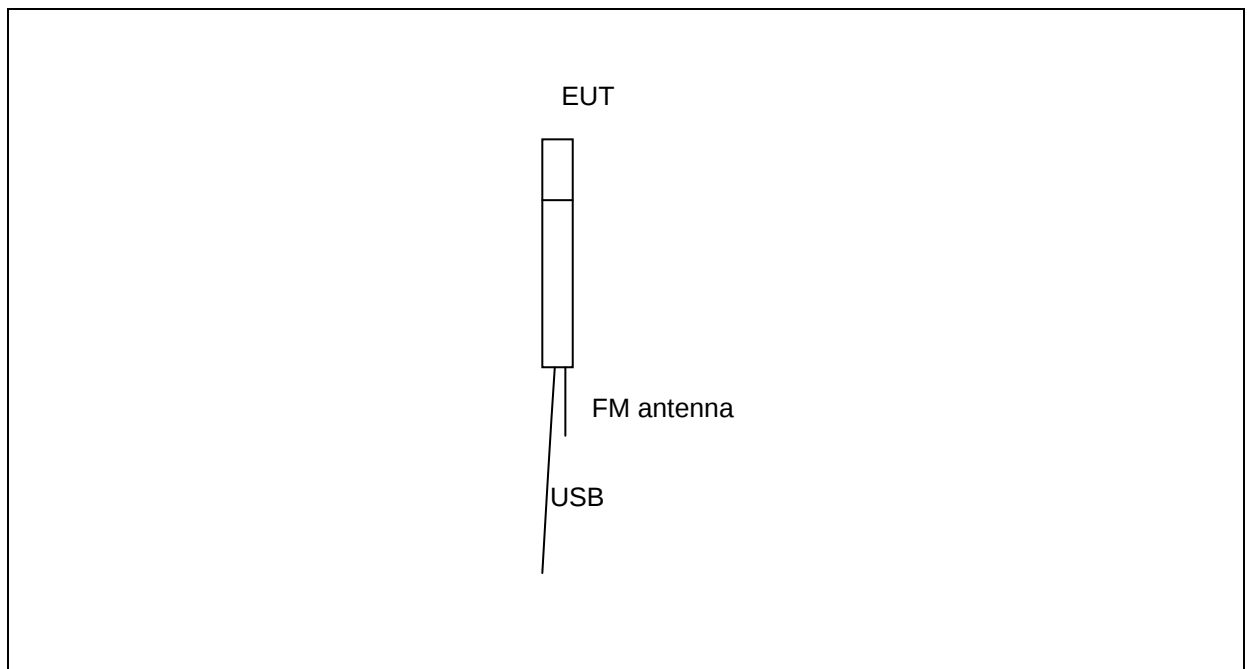
<i>The alternate test site (ferrite chamber) is accepted by FCC (Reg. No. 0009508433).</i> <i>Conducted and radiated measurements are performed according to the ANSI C63.4 (2003) procedure.</i>

5.3 Present persons / Personnes présentes / Anwesende Personen**Test Engineer(s) / Ingénieur(s) d'essai / Prüfsingenieur(e) :**

Mr Jacques Ding
Mr Raymond Schneuwly

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

Name / Nom / Name	Company / Société / Firma
Mr Martin Brügger	Nanotronic GmbH (for Phonak Communications SA)

5.4 Test configuration / Configuration d'essai / Prüfkfiguration**5.5 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 tested with 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'essai / 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
PC	HP	Omnibook xe 4500	02-25	To programme the microphones TX-helper: exe 16-3-2009 10:27 Application: 17-3-2009 17:38 ClientHomologation.exe: 16-3-2009 15:31

6. Tests

6.1 Designiation of emission

Standard:	United States: 47 CFR "Code of Federal Regulations" – Telecommunication ☒ FCC Part 2, Subpart C: Emission: §2.201 and §2.202		
Introduction:	A system of designating emission, modulation and transmission characteristics shall be employed. (a) Emissions are designated according to their classification and their necessary bandwidth. (b) A minimum of three symbols are used to describe the basic characteristics of radio waves. (c) Four symbols are used to describe the necessary bandwidth.		
Necessary bandwidth:	For a given class of emission, the minimum value of the occupied bandwidth sufficient to ensure the transmission of information at the rate and with the quality required for the system employed, under specified conditions. $B_n = 2M + 2D$ $B_n = 24 \text{ kHz}$ $B_n = \text{necessary bandwidth}$ $M = \text{maximum modulation frequency in hertz} = 6 \text{ kHz}$ $D = \text{Peak frequency deviation} = 5.8 \text{ kHz}$		
Basic characteristics:	$F3E$	F : frequency modulation 3 : a single channel containing analogue information E : telephony (including sound broadcasting)	
Designation of emission:	$24K0F3E$		

6.2 RF power output

Standard: United States: 47 CFR "Code of Federal Regulations" – Telecommunication

☒ FCC Part 2, Subpart J: Certification: §2.1046☒ FCC Part 95, Subpart E: Technical regulations: §95.639(e)

Limit for LPRS = 100 mW = 20 dBm

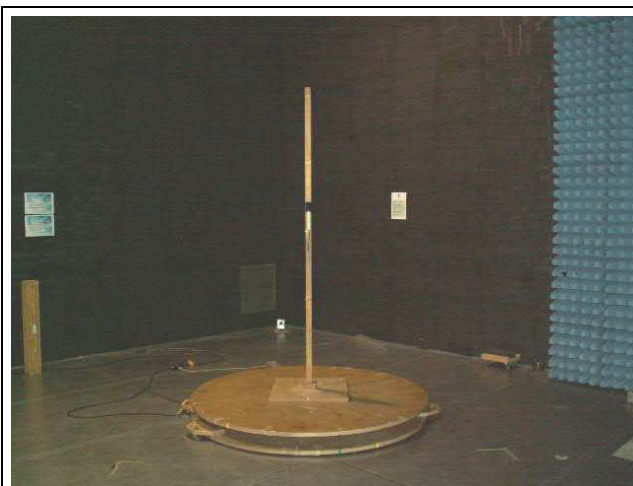
Distance: ☐ 30 m ☒ 10 m ☐ 3 m ☐Test site: ☐ anechoic chamber (foam) ☐ shielded room☒ anechoic chamber (ferrites) ☐ laboratory☐ open test site ☐

Position of EUT: 1.4 m, antenna stretched vertically (height of the equipment under test above floor)

Meas. uncertainty: ± 1.34 dB ($f < 300$ MHz) / ± 1.61 dB ($f > 300$ MHz)

Test method: The antenna is moved from 1 to 4 m in height. 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 device under test has specific type of antenna and, therefore, the effective radiated power (ERP) was measured instead of the output power. The ERP is defined as the equivalent radiated power of a dipole.

Test set-up:



EUT



Substitution antenna

Test equipment:

Spectrum analyser	☐ 88-14	☐ 90-26	☐ 94-24	☐ 02-06	☒ 03-45	☐ 03-57
Receiver	☐ 85-04	☐ 90-43	☒ 94-35			
Preamplifier	☐ 90-01	☐ 95-86	☐ 05-56	☐ 05-59	☐ 05-62	☐ 05-87
Antenna (bilog)	☒ 94-03	☐ 05-38	☐			
Antenna (horn)	☐ 90-24	☐ 90-29	☐ 98-12	☐ 98-13	☐	
HF-wattmeter	☐ 95-97	☐ 01-15	☐ 01-17	☐ 03-12	☒ 04-96	☐ 05-20
Thermocouple detector	☐ 92-03	☐ 04-01	☒ 05-74	☐ 05-88	☐ 07-03	☐
Frequency generator	☐ 88-23	☐ 00-42	☐ 03-39	☐ 04-03	☒ 05-78	☐ 07-02

Result:	☒ pass	☐ fail	☐ not applicable	☐ not tested
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Results of the testClient: *Phonak Communications SA*Apparatus: *DynaMic (FM part)*Operating mode:

- unmodulated*

Cables connected to the EUT: *none*Remarks: *Centre of Tx antenna at 1.4m*

f [MHz]	Measurement with EUT		Power at substitution ant.		Meas. with subst. ant.	Parameters of substitution ant.		Result			Remarks
	E [dBuV/m]	preamp [dB]	P [dBm]	factor [dB]	P [dBuV/m]	gain [dB]	att. Cable [dB]	corr. [dB]	P ERP [dBm]	P ERP [W]	
214.0000	100.62	0.0	-20.6	0	56.52	-10	0	-87.12	13.5	22.39 mW	
216.3875	101.90	0.0	-20.7	0	56.40	-10	0	-87.102	14.8	30.20 mW	
216.9875	101.99	0.0	-20.6	0	56.59	-10	0	-87.186	14.8	30.20 mW	

Date of test: *April 20-22, 2009*
Operator: *R. Schneuwly*

6.3 Modulation characteristics

Standard: United States: 47 CFR "Code of Federal Regulations" - Telecommunication
☒ FCC Part 2, Subpart J: Certification: §2.1047

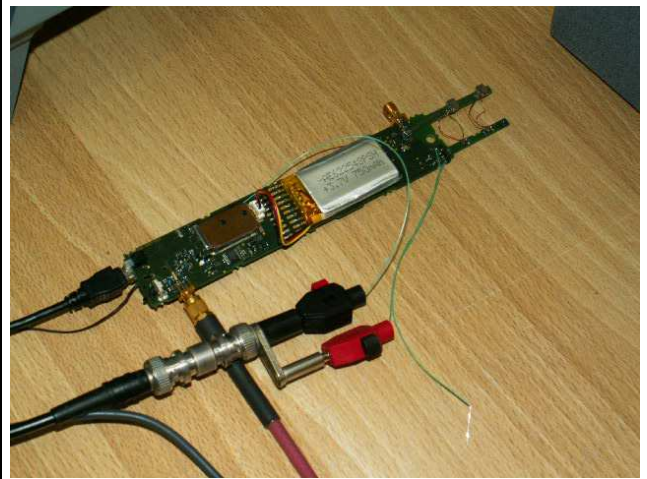
Test site: ☐ anechoic chamber (foam) ☐ open test site
☐ anechoic chamber (ferrite) ☒ laboratory

Test method: Measurement of the frequency at the antenna connector or a test fixture.

Test set-up:



general view



audio injection (green wires)

Remarks: ---

Test equipment:

RF communication test set	☐ 88-23	☐ 94-06	☐ 00-42	☐ 03-39	☒ HP8920B (Phonak)
Générateur LF	☒ 07-25 (UPL)				
Oscilloscope numérique	☐ 90-14	☐ 93-85	☐ 93-86	☐ 01-20	☐ 04-06 ☐ 04-50
	☐ 05-22	☐ 05-28			
FM discriminator	☐				
Audio attenuator	☒ 99-16				

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

Results of the test

Client: Phonak Communications SA

Apparatus: DynaMic (FM part) Proto 1

Remarks: - - -

Frequency response of audio circuit: filter LP 15 kHz

An audio signal at 1 kHz is adjusted for a 100 % rated FM deviation is injected at mic input (test point). While maintaining the same amplitude, the frequency is varied. The FM deviation is measured and recorded at several frequencies in order to determine the frequency response.

Audio [kHz]	Dev. [kHz]	Audio [kHz]	Dev. [kHz]	Audio [kHz]	Dev. [kHz]	Audio [kHz]	Dev. [kHz]
0.2	4.9	1.0	4.7	4.5	3.8	9.0	1.2
0.3	5.0	1.2	4.8	5.0	3.8	-	-
0.4	4.8	1.5	4.8	5.5	3.8	-	-
0.5	4.8	2.0	4.9	6.0	1.3	-	-
0.6	4.8	2.5	4.8	6.5	1.2	-	-
0.7	4.9	3.0	4.4	7.0	1.2	-	-
0.8	4.8	3.5	4.1	7.5	1.2	-	-
0.9	4.8	4.0	3.9	8.0	1.2	-	-

Limit [kHz]	Remarks:	Pass Yes	No
±75	- - -	☒	☐

Modulation limiting of audio input: LPF 15 kHz

An audio signal at different frequencies is adjusted for a 100 % rated FM deviation (4.7 kHz) at the test point of mic. While maintaining the same frequency, the audio level is varied. The FM deviation is measured and recorded at different audio levels in order to determine the modulation limiting.

Audio signal level [mV rms]	FM Deviation [kHz]			
	200 Hz	1000 Hz	3500 Hz	8000 Hz
1	3.4	3.8	2	1.2
3	4.7	4.8	4.1	1.1
5	4.8	4.7	4.6	1
10	4.8	4.7	4.5	0.5

Limit [kHz]	Remarks:	Pass Yes	No
±75	- - -	☒	☐

Date of test: April 3, 2009
Operator: J. Ding

6.4 Occupied bandwidth

Standard: United States: 47 CFR "Code of Federal Regulations" – Telecommunication
☒ FCC Part 2, Subpart J: Certification: §2.1049
☒ FCC Part 95, Subpart E: Technical regulations: §95.635(c)(1)

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

Test precision: ± 1.5 dB

Test requirements: Emissions for transmitters operating on standard band channels (25 kHz) shall be attenuated below the unmodulated carrier in accordance with the following:

- Emissions 12.5 kHz to 22.5 kHz away from the channel centre frequency: at least 30 dB
- Emissions more than 22.5 kHz away from the channel centre frequency: at least $43 + 10 \log$ (carrier power in watts) dB

Test method: The audio signal was generated by the UPL and injected at the test points for mic. The maximal frequency deviation was checked with the 8920B (about 4.4 kHz). For different input frequencies the fundamental frequency was plotted (max hold mode).

Test set-up:



general view



audio injection (green wires)

Remarks: Tested on mic proto1

Test equipment:

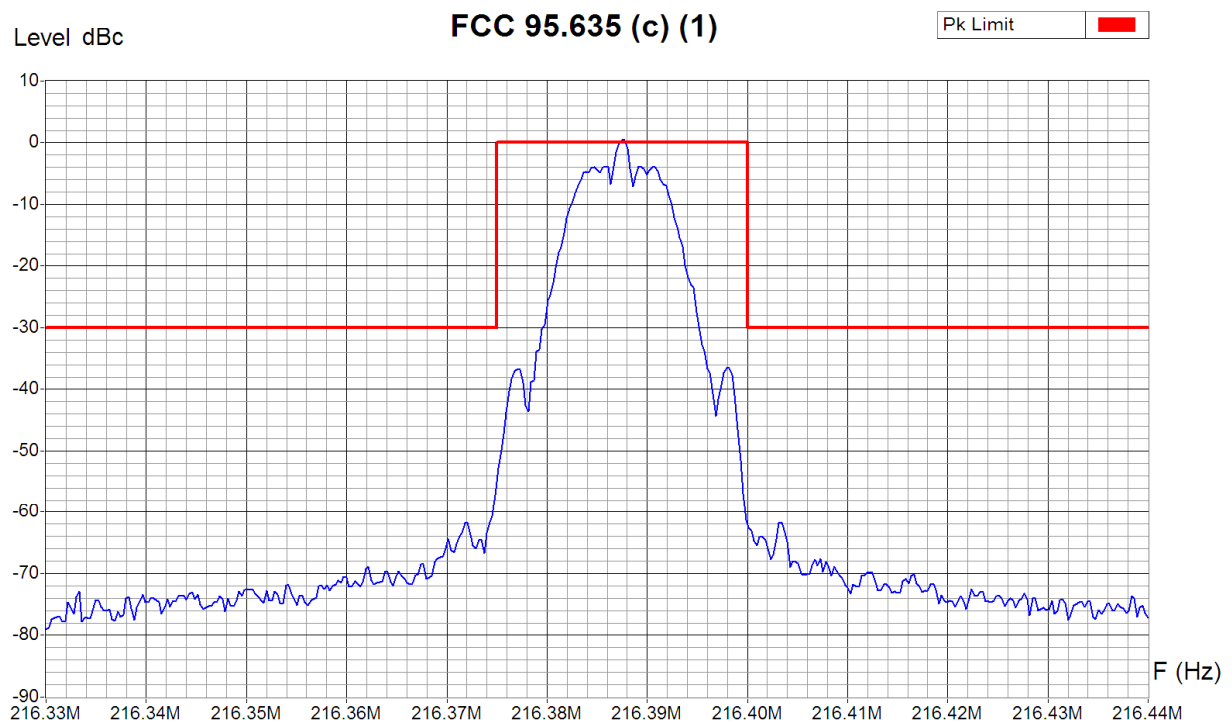
Spectrum analyser	☐ 88-14	☐ 90-26	☐ 94-24	☒ 02-06	☐ 03-45	☐ 03-57
Audio Attenuator	☒ 99-16 (-3 dB)					
HF Attenuator	☒ 05-76					
Oscilloscope numérique	☐ 90-14	☐ 93-85	☐ 93-86	☐ 01-20	☐ 04-06	☐ 04-50
	☐ 05-22	☐ 05-28				
Signal generator	☒ 07-25 (UPL)					
RF communications test Set	HP 8920B (Phonak) labelled „F+E“					
Amplifier & loudspeaker	☒ SP-628 (check of audio signal)					

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

Measurement Type : Power Interference
Port : Temporary antenna connector
Clamp position :



Equipment Under Test : DynaMic
Set-Up : s. photo
Operating Conditions : Audio frequency sweep 1 kHz - 8 kHz, 100 points log. max audio level injected
Remarks :



Zone	216.33 MHz -
Video Bandwidth	1 KHz
Resol Bandwidth	1 KHz

Operator: Ding
Date/Time: 03.04.2009 09:18
Filename:
re_carrier216M_injection_99.png/
.txt

6.5 Field strength of spurious radiation**6.5.1 Spurious emissions (radiated – 30 MHz to 1000 MHz)**

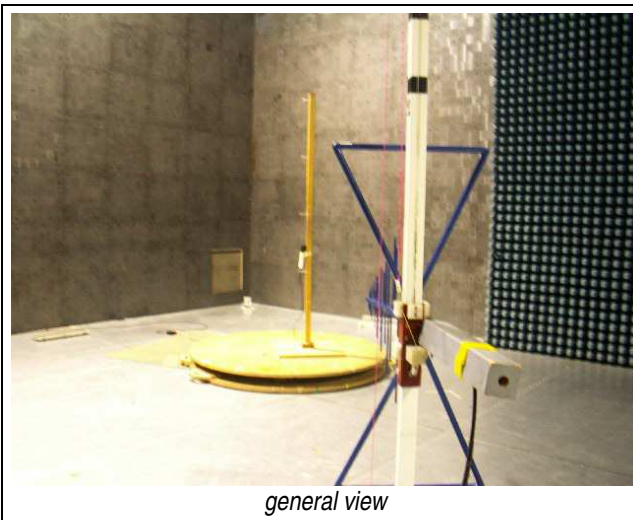
Standard: United States: 47 CFR "Code of Federal Regulations" – Telecommunication

☒ FCC Part 2, Subpart J: Certification: §2.1053☒ FCC Part 2: §2.1047 (Frequency range: up to tenth harmonic or 40 GHz)☒ FCC Part 95, Subpart E: Technical regulations: §95.635(c)(1)Distance: ☐ 30 m ☐ 10 m ☒ 3 m ☐Test site: ☐ anechoic chamber (foam) ☐ shielded room☒ anechoic chamber (ferrites) ☐ laboratory☐ open test site ☐

Position of EUT: 0.9 m, (bottom of mic case) (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 antenna is moved from 1 to 4 m in height. 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.

Remarks: *A stand-by mode was measured (only with dspboot); however, this mode does not occur in normal use (informative). Some measurements also performed on microphone labelled "H".***Test set-up:****Test equipment:**

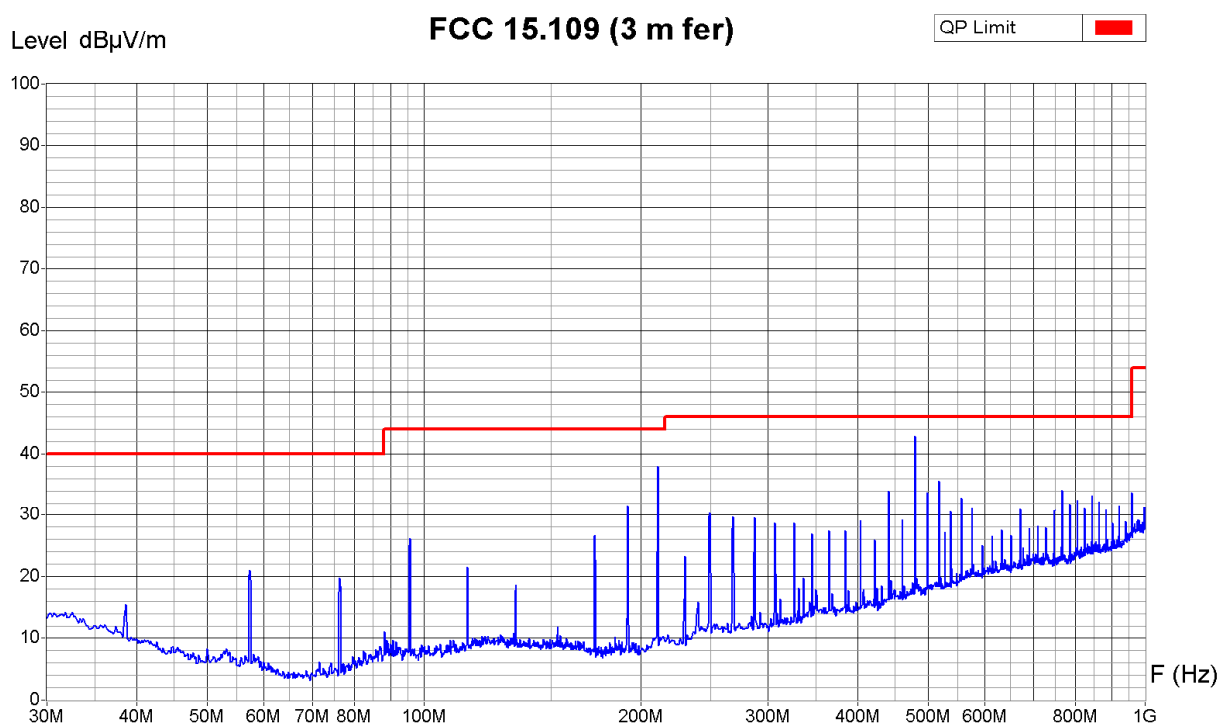
Spectrum analyser	☐ 88-14	☐ 90-26	☐ 94-24	☐ 02-06	☒ 03-45	☐ 03-57
Receiver	☐ 85-04	☐ 90-43	☐ 94-35			
Preamplifier	☐ 90-01	☐ 95-86	☐ 05-56	☒ 05-59	☐ 05-62	☐ 05-87
Antenna (bilog)	☒ 94-03	☐ 05-38	☐			
Cables	☒ 06-01					
Filter/ notch/ diplexer	☒ indicated on the measurement if any					

Except the carrier frequencies, the emissions are < -30 dBc.Result: ☒ pass ☐ fail ☐ not applicable ☐ not tested

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



Equipment Under Test : DynaMic
Set-Up : height 0.9 m, with USB cable (not terminated)
Operating Conditions : "stand-by", s. file test_and_firmware_traceability
Remarks : micro labeled H
No notch, nor diplexor



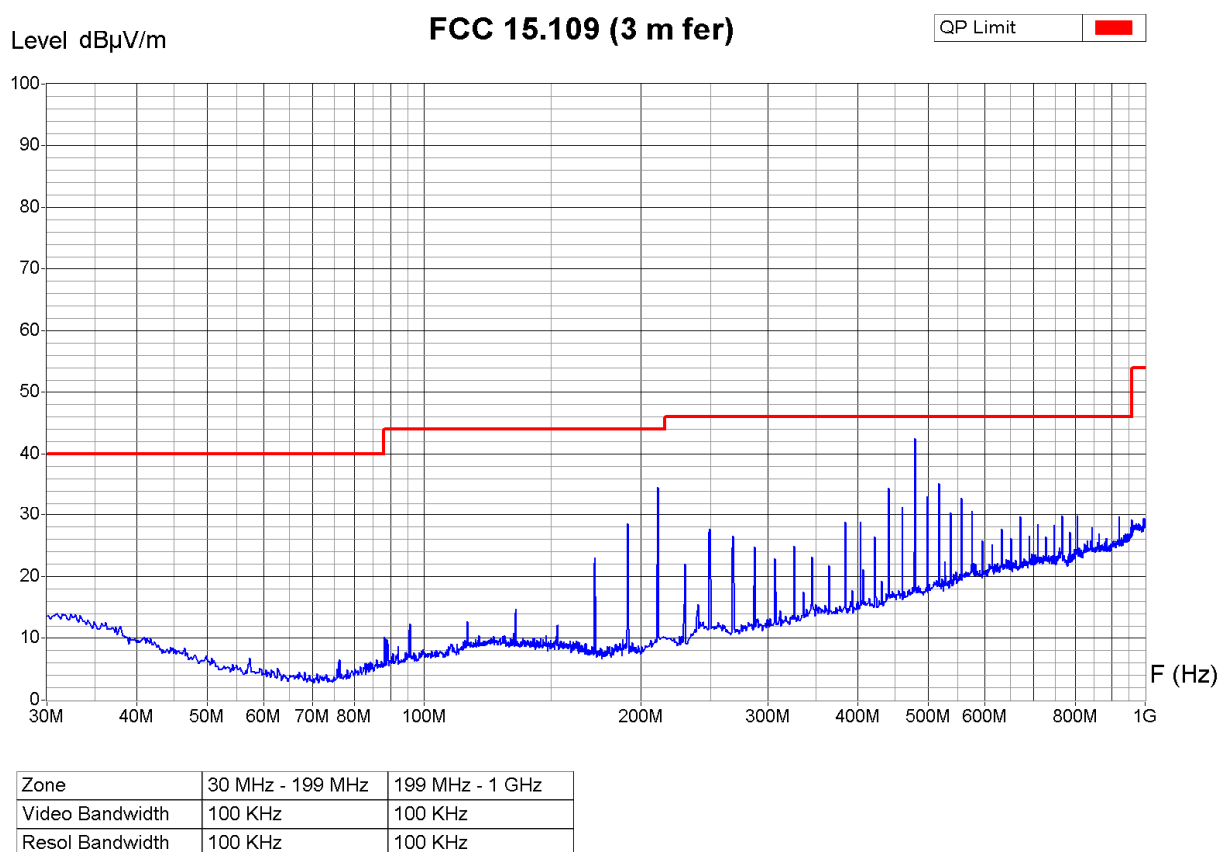
Zone	30 MHz - 199 MHz	199 MHz - 1 GHz
Video Bandwidth	100 KHz	100 KHz
Resol Bandwidth	100 KHz	100 KHz

Operator: Ding
Date/Time: 04.03.09 17:35
Filename:
DynaMic_FCC95_15-109_STB_01
.png/.txt

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



Equipment Under Test : DynaMic
Set-Up : height 0.9 m, with USB cable (not terminated)
Operating Conditions : "stand-by", s. file test_and_firmware_traceability
Remarks : micro labeled H
No notch, nor diplexor

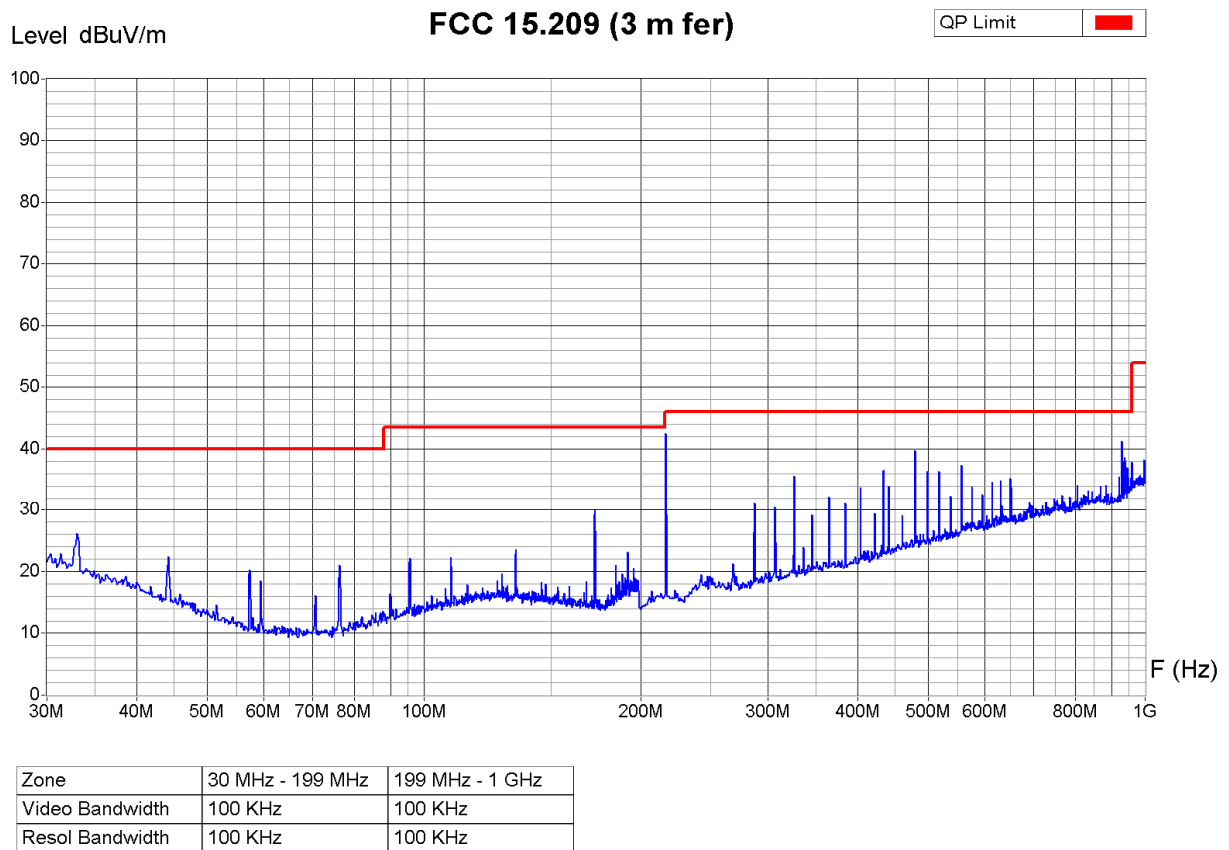


Operator: Ding
Date/Time: 04.03.09 17:50
Filename:
DynaMic_FCC95_15-109_STB_02
.png/.txt

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



Equipment Under Test : DynaMic
Set-Up : height 0.9 m, with USB cable (not terminated)
Operating Conditions : 216.9875 MHz, Pmax, not mod., s.file test_and_firmware_traceability
Remarks : micro labeled N
f < 200 MHz: Analyzer attn 10 dB
f > 200 MHz: Analyzer attn 10 dB, + diplexor out 2 (carrier notched)

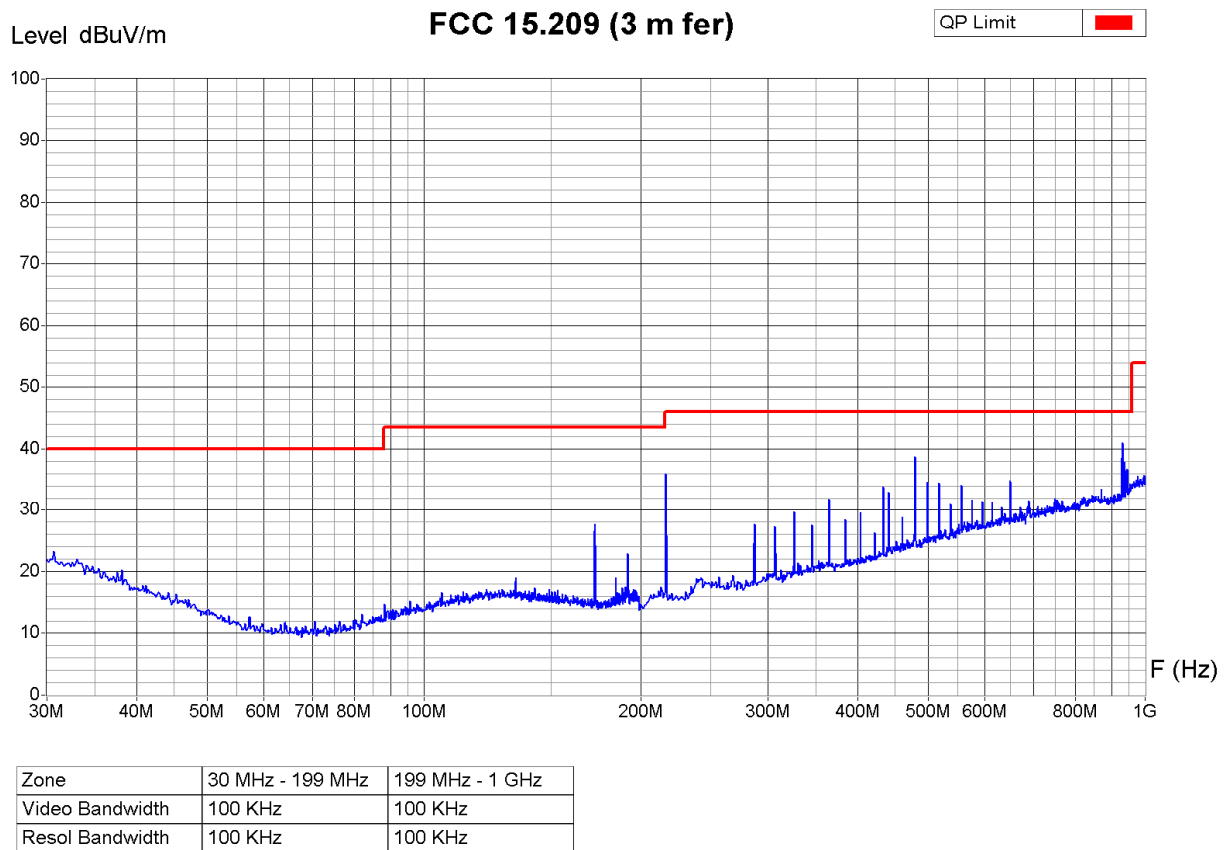


Operator: Ding
Date/Time: 05.03.09 11:36
Filename:
DynaMic_FCC95_15-209_216_05.
png/.txt

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



Equipment Under Test : DynaMic
Set-Up : height 0.9 m, with USB cable (not terminated)
Operating Conditions : 216.9875 MHz, Pmax, not mod., s.file test_and_firmware_traceability
Remarks : micro labeled N
f < 200 MHz: Analyzer attn 10 dB
f > 200 MHz: Analyzer attn 10 dB, + diplexor out 2 (carrier notched)

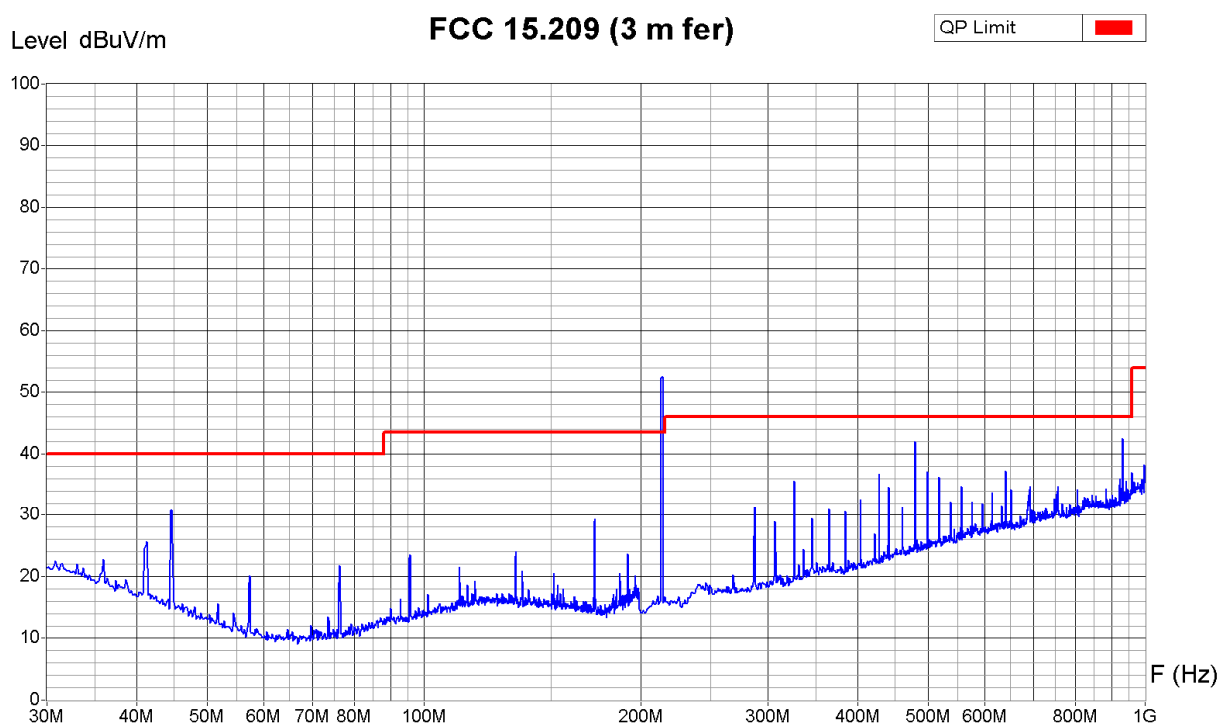


Operator: Ding
Date/Time: 05.03.09 13:57
Filename:
DynaMic_FCC95_15-209_216_06.
png/.txt

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



Equipment Under Test : DynaMic
Set-Up : height 0.9 m, with USB cable (not terminated)
Operating Conditions : 214 MHz, Pmax, not mod., s.file test_and_firmware_traceability
Remarks : micro labeled N
f < 200 MHz: Analyzer attn 10 dB
f > 200 MHz: Analyzer attn 10 dB, + diplexor out 2 (carrier notched)



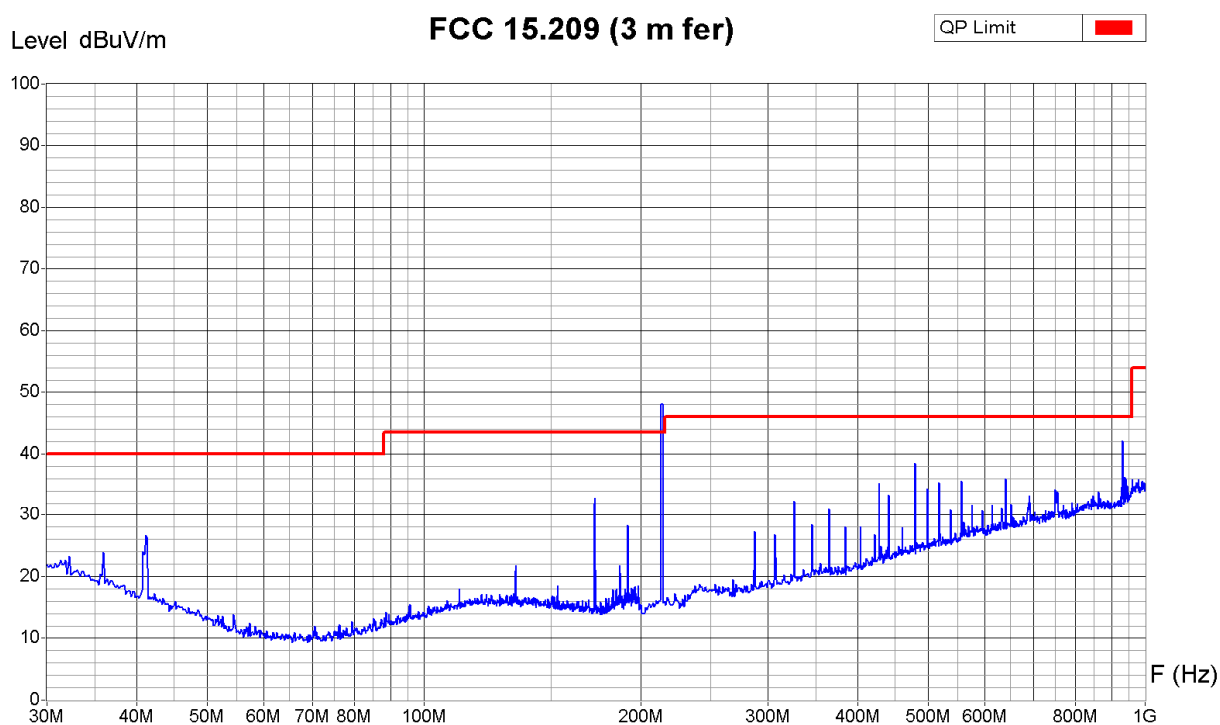
Zone	30 MHz - 199 MHz	199 MHz - 1 GHz
Video Bandwidth	100 KHz	100 KHz
Resol Bandwidth	100 KHz	100 KHz

Operator: Ding
Date/Time: 05.03.09 14:26
Filename:
DynaMic_FCC95_15-209_214_07.
png/.txt

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



Equipment Under Test : DynaMic
Set-Up : height 0.9 m, with USB cable (not terminated)
Operating Conditions : 214 MHz, Pmax, not mod., s.file test_and_firmware_traceability
Remarks : micro labeled N
f < 200 MHz: Analyzer attn 10 dB
f > 200 MHz: Analyzer attn 10 dB, + diplexor out 2 (carrier notched)



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

Operator: Ding
Date/Time: 05.03.09 14:58
Filename:
DynaMic_FCC95_15-209_214_08.
png/.txt

6.5.2 Spurious emissions (radiated – 1 GHz to 2.6 GHz)

Standard: United States: 47 CFR "Code of Federal Regulations" – Telecommunication
☒ FCC Part 2, Subpart J: Certification: §2.1053
☒ FCC Part 2: §2.1047 (Frequency range: up to tenth harmonic or 40 GHz)
☒ FCC Part 95, Subpart E: Technical regulations: §95.635(c)(1)

Distance: ☐ 30 m ☐ 10 m ☐ 3 m ☒ 1 m

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

Position of EUT: 1.5 m, antenna stretched vertically (height of the equipment under test above floor)

Meas. uncertainty: ± 4.7 dB

Test method: 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 measurements. 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:

No stand-by.
The diagrams show frequencies up to 2.8 GHz.

Test equipment:

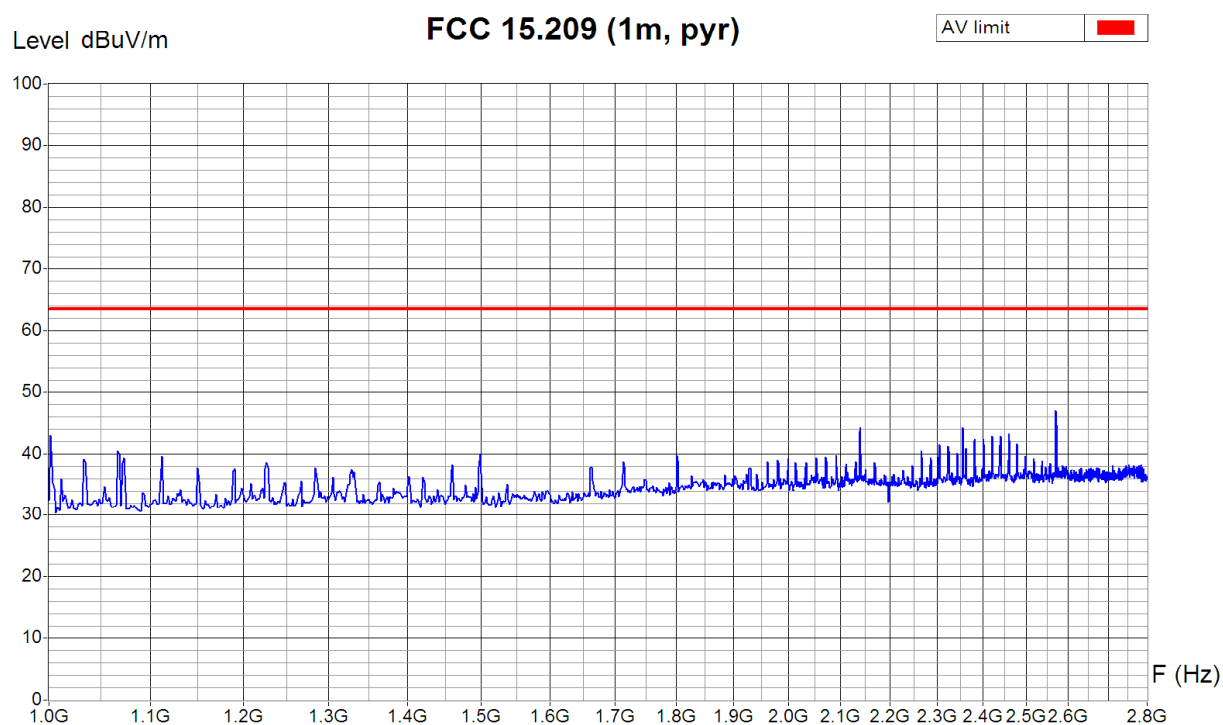
Spectrum analyser	☒ 88-14	☐ 90-26	☐ 94-24	☐ 02-06	☐ 03-45	☐ 03-57
Receiver	☐ 85-04	☐ 90-43	☐ 94-35			
Preamplifier	☐ 92-39	☐ 95-86	☐ 97-08	☐ 05-56	☒ 05-87	
Antenna (horn)	☒ 90-24	☐ 90-29	☐ 98-12	☐ 98-13	☐ 98-12	☐ 3160-09
Cables	☒ Succoflex 2 x 1m (8107/4 and 67688/4)					
Separating transformers	☒ 95-45					

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

Measurement Type : Radiated Field
Polarisation : Vertical
Table Angle : 0 - 360°
Antenna Height : 1.5 m



Equipment Under Test : DynaMic
Set-Up : s. photo, with USB cable
Operating Conditions : f = 214 MHz, Pmax, not mod.
Remarks : Mic labeled N



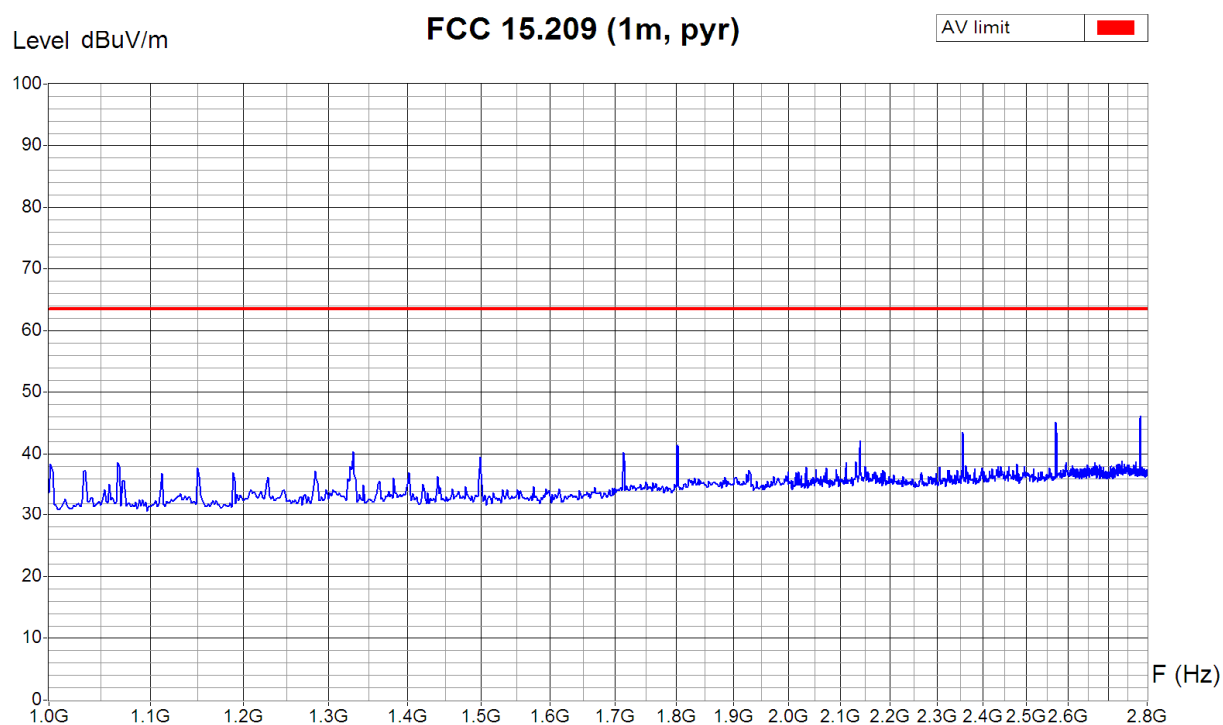
Zone	1 GHz - 2 GHz	2 GHz - 2.60 GHz	2.60 GHz - 2.80
Video Bandwidth	1 MHz	1 MHz	1 MHz
Resol Bandwidth	1 MHz	1 MHz	1 MHz

Operator: Ding
Date/Time: 10.03.2009 13:28
Filename:
a_fcc95_15_209_214MHz_01.png
/.txt

Measurement Type : Radiated Field
Polarisation : Horizontal
Table Angle : 0 - 360°
Antenna Height : 1.5 m



Equipment Under Test : DynaMic
Set-Up : s. photo, with USB cable
Operating Conditions : f = 214 MHz, Pmax, not mod.
Remarks : Mic labeled N



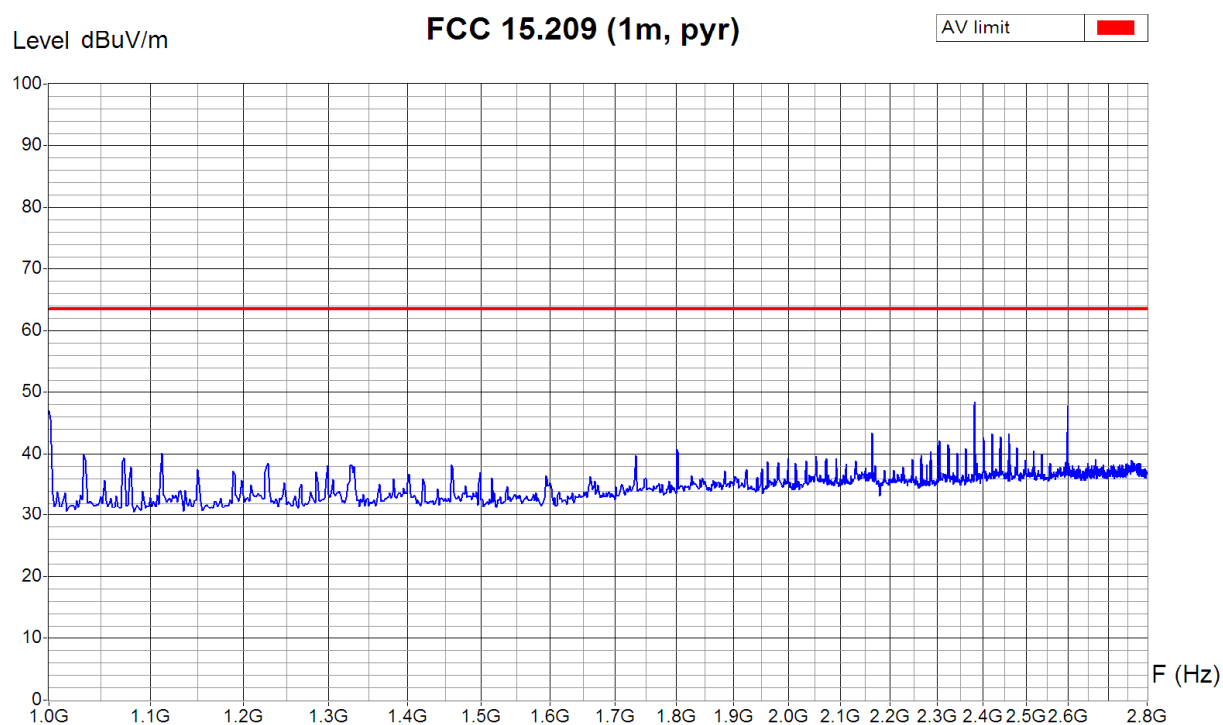
Zone	1 GHz - 2 GHz	2 GHz - 2.60 GHz	2.60 GHz - 2.80
Video Bandwidth	1 MHz	1 MHz	1 MHz
Resol Bandwidth	1 MHz	1 MHz	1 MHz

Operator: Ding
Date/Time: 10.03.2009 13:32
Filename:
a_fcc95_15_209_214MHz_02.png
/.txt

Measurement Type : Radiated Field
Polarisation : Vertical
Table Angle : 0 - 360°
Antenna Height : 1.5 m



Equipment Under Test : DynaMic
Set-Up : s. photo, with USB cable
Operating Conditions : f = 216.3875 MHz, Pmax, not mod.
Remarks : Mic labeled N



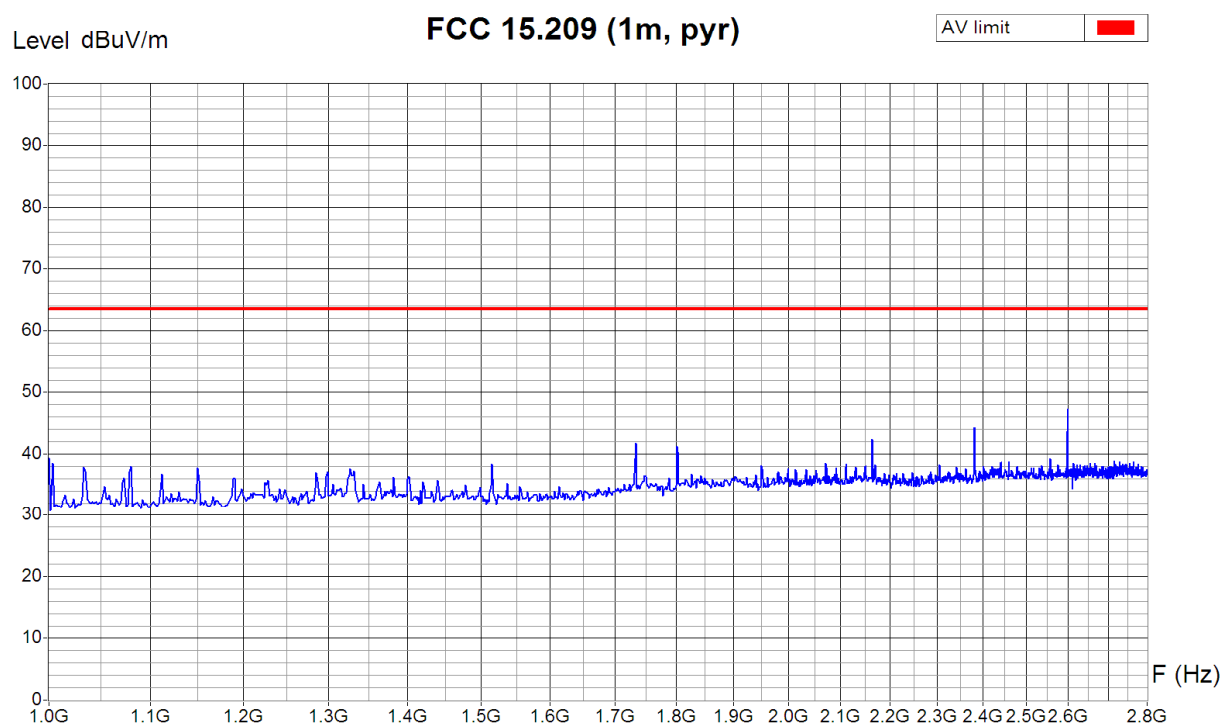
Zone	1 GHz - 2 GHz	2 GHz - 2.60 GHz	2.60 GHz - 2.80
Video Bandwidth	1 MHz	1 MHz	1 MHz
Resol Bandwidth	1 MHz	1 MHz	1 MHz

Operator: Ding
Date/Time: 10.03.2009 13:45
Filename:
a_fcc95_15_209_216MHz_03.png
/.txt

Measurement Type : Radiated Field
Polarisation : Horizontal
Table Angle : 0 - 360°
Antenna Height : 1.5 m



Equipment Under Test : DynaMic
Set-Up : s. photo, with USB cable
Operating Conditions : f = 216.3875 MHz, Pmax, not mod.
Remarks : Mic labeled N



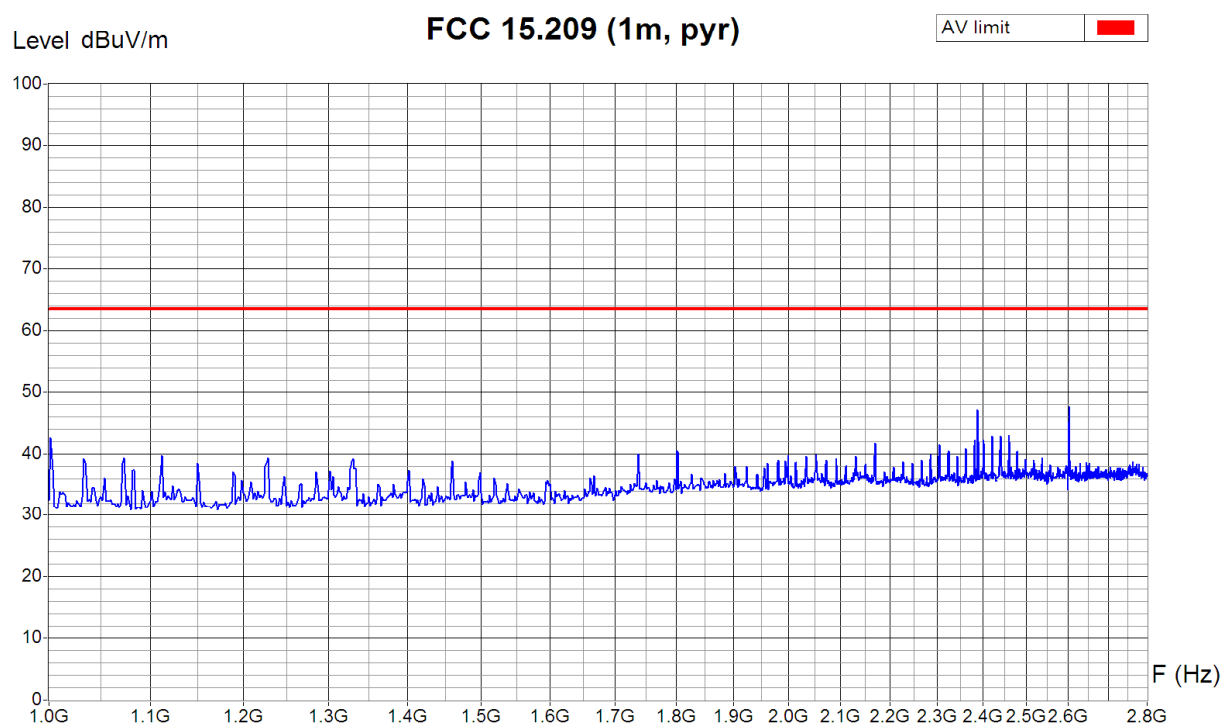
Zone	1 GHz - 2 GHz	2 GHz - 2.60 GHz	2.60 GHz - 2.80
Video Bandwidth	1 MHz	1 MHz	1 MHz
Resol Bandwidth	1 MHz	1 MHz	1 MHz

Operator: Ding
Date/Time: 10.03.2009 13:48
Filename:
a_fcc95_15_209_216MHz_04.png
/.txt

Measurement Type : Radiated Field
Polarisation : Vertical
Table Angle : 0 - 360°
Antenna Height : 1.5 m



Equipment Under Test : DynaMic
Set-Up : s. photo, with USB cable
Operating Conditions : f = 216.9875 MHz, Pmax, not mod.
Remarks : Mic labeled N



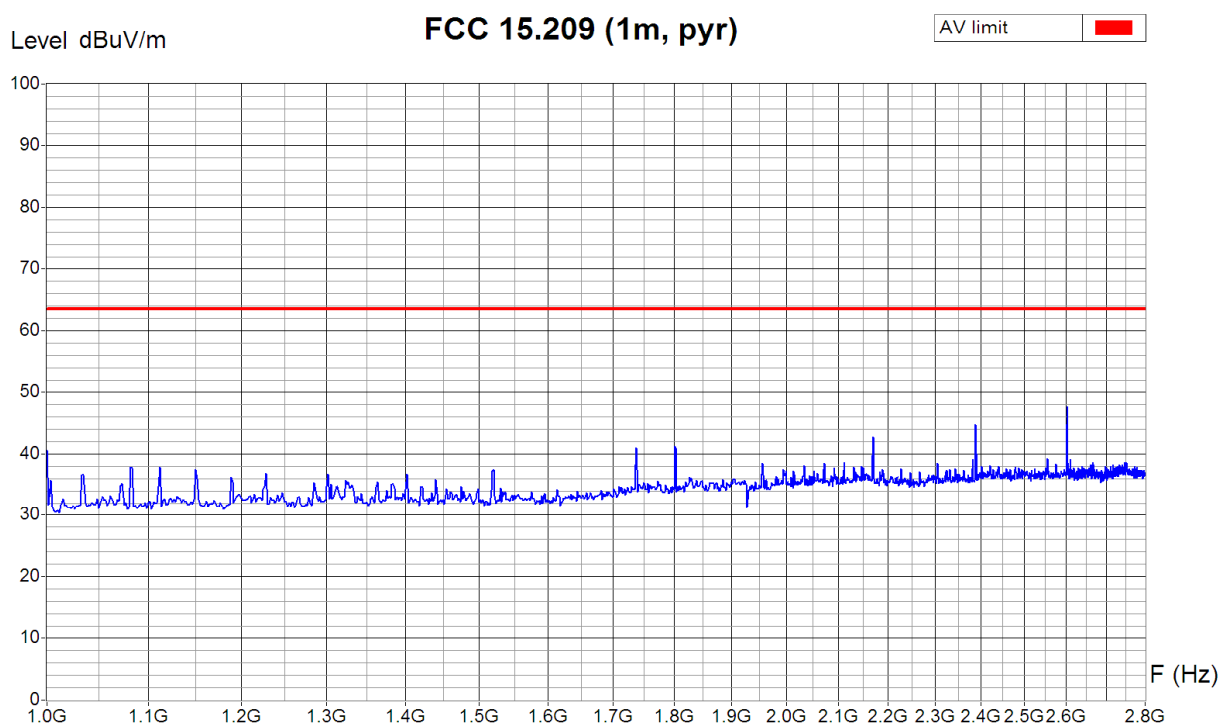
Zone	1 GHz - 2 GHz	2 GHz - 2.60 GHz	2.60 GHz - 2.80
Video Bandwidth	1 MHz	1 MHz	1 MHz
Resol Bandwidth	1 MHz	1 MHz	1 MHz

Operator: Ding
Date/Time: 10.03.2009 14:00
Filename:
a_fcc95_15_209_216_9MHz_05.png/.txt

Measurement Type : Radiated Field
Polarisation : Horizontal
Table Angle : 0 - 360°
Antenna Height : 1.5 m



Equipment Under Test : DynaMic
Set-Up : s. photo, with USB cable
Operating Conditions : f = 216.9875 MHz, Pmax, not mod.
Remarks : Mic labeled N



Zone	1 GHz - 2 GHz	2 GHz - 2.60 GHz	2.60 GHz - 2.80
Video Bandwidth	1 MHz	1 MHz	1 MHz
Resol Bandwidth	1 MHz	1 MHz	1 MHz

Operator: Ding
Date/Time: 10.03.2009 14:05
Filename:
a_fcc95_15_209_216_9MHz_06.png/.txt

6.6 Frequency and power level stability

Standard: United States: 47 CFR "Code of Federal Regulations" – Telecommunication

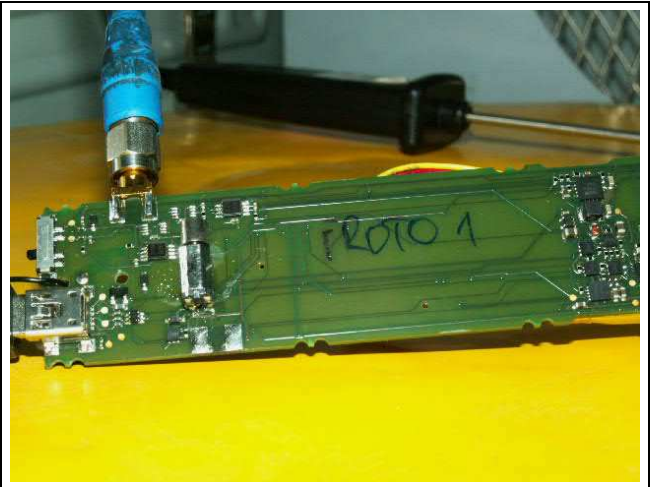
☒ FCC Part 2, Subpart J: Certification: §2.1055☒ FCC Part 95, Subpart E: Technical regulations: §95.629(b)(2)☒ FCC Part 95, Subpart E: Technical regulations: §95.639(e)

Limit for LPRS = 100 mW = 20 dBm

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

Test method: Measurement of the frequency and the power level at the antenna connector or at the test fixture.

Test set-up:



Remarks: ---

Test equipment:

Spectrum analyser	☐ 88-14	☐ 90-26	☐ 94-24	☒ 02-06	☐ 03-45	☐ 03-57
Receiver	☐ 85-12	☐ 90-11	☐ 94-34	☐ 04-28	☐	
Temperature chamber	☒ 06-66					
Temperature probe	☒ 91-11	☐ 03-05	☐ 05-34			
Variable transformer	☐ 75-04	☐				
Power supply	☐ 99-04	☒ 04-31				
Multimeter	☒ 05-47	☐ 06-51	☐			
Cables	☒ Succoflex 1m (8416/4)					

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

Results of the test

Client: *Phonak Communications SA*

Apparatus: *DynaMic (FM part) PROTO1*

Operating mode: *Normal operation without audio input signal*

Remarks: *---*

Variation of the temperature

Requirement:

 $\Delta f < 50$ ppm and $P < 100$ mW (20 dBm) with temperature varied from -30° to $+50^{\circ}$ in steps of 10 degrees.

Temp [°C]	f [MHz]	Error [ppm]	Limit [ppm]	P [dBuV]	P ERP [dbm]	Limit [dBm]	Remarks	Pass	
								Yes	No
-30	216.387299	0.8	50	73.71	14.55	20	---	☒	☐
-20	216.387334	0.6	50	74.12	14.96	20		☒	☐
-10	216.38738	0.4	50	74.22	15.06	20	---	☒	☐
0	216.387377	0.4	50	73.95	14.79	20	---	☒	☐
10	216.387422	0.2	50	74.05	14.89	20	---	☒	☐
25.1	216.387473	ref	ref	73.96	14.8	20	---	☒	☐
30	216.387498	-0.1	50	74.59	15.43	20	---	☒	☐
40	216.387471	0.0	50	74.43	15.27	20	---	☒	☐
50	216.38746	0.1	50	73.98	14.82	20	---	☒	☐

Variation of the supply voltage @ 25.1°C

Requirement:

 $\Delta f < 50$ ppm and $P < 100$ mW (20 dBm) with supply voltage varied from 85% to 115%

Volt [%]	Volt [V]	f [MHz]	Error [ppm]	Limit [ppm]	P [dBuV]	P ERP [dbm]	Limit [dBm]	Remarks	Pass	
									Yes	No
85	3.15	216.387463	0.0	50	72.28	12.32	20	---	☒	☐
100	3.7	216.387473	ref	ref	74.76	14.8	20	---	☒	☐
115	4.26	216.387473	0.0	50	74.76	14.8	20	---	☒	☐

Date of test: *March 23, 24 and 25, 2009*

Operator: *R. Schneuwly*

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

Specifications :
Only 1st page of 42

PHONAK life is on	Nr.: Version: V 2.0	Product Specification Uranus
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Product Specification: Uranus

Owner:	Approving Authority:	Releasing Authority:
Christoph Schmid	Rainer Platz, Markus Buehl	Evert Dijkstra



Version History

Version	Description of Change	Author	Approved by:	Date:
0.1	Draft	ChS		
0.2	Update upon discussion with technical team	ChS		06.11.2008
0.3	Update after discussion with product managers	ChS		21.11.2008
1.0	Introduction of article numbers for final product	ChS		28.11.2008
2.0	Version for signature	ChS		02.12.2008