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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:	***15'670A ** ***
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***

Replaces report 15'670 / Remplace rapport 15'670 / Ersetzt Bericht 15'670

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 :
Berichterstatter

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
p.o. Werner Hirschi

Rossens, October 20, 2011 (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 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.

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Contents / Table des matières / Inhaltsverzeichnis

Page/Page/Seite

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***		
6.1	Designation of emission Désignation d'emission 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 Sevices

3. Client / Client / Kunde

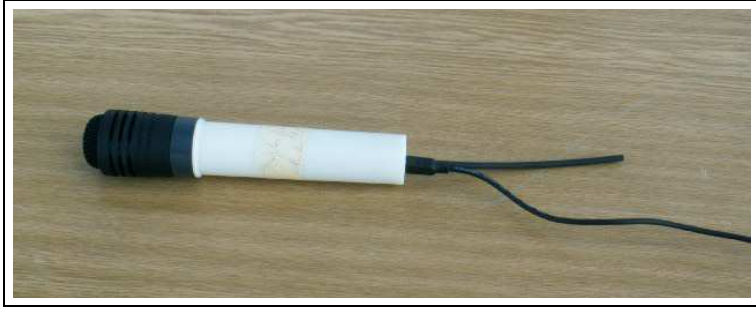
Client name and address Nom et adresse du client Name und Adresse des Kunden	*Phonak Communications SA* *Länggasse 17* *CH-3280 Murten*
Contact Person / Responsable / Kontaktperson	*Mrs Neviana Nikoloski*
Telephone / Téléphone / Telefon	*+41 26 672 96 72*
Fax / Télécopieur / Telefax	*+41 26 672 96 77*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

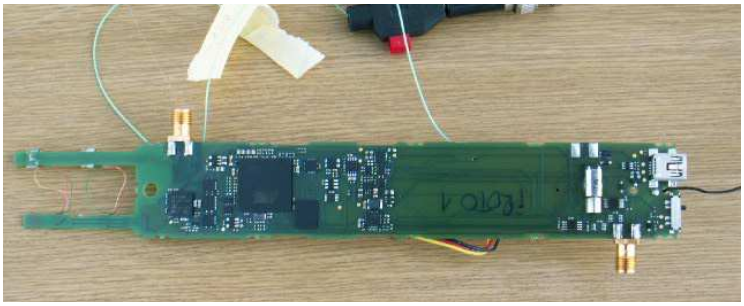
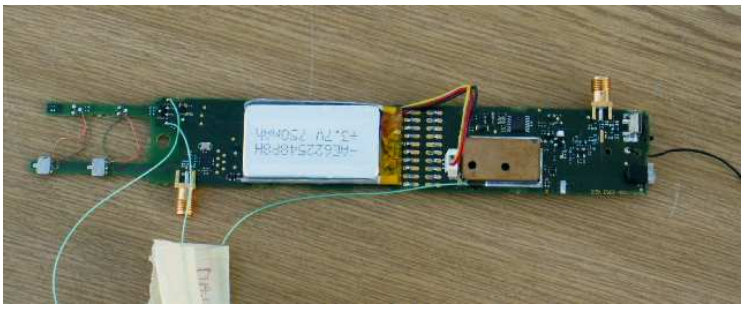
4. Equipment under test / Equipement à l'essai / Prüfling

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)*

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

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

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

5.3 Present persons / Personnes présentes / Anwesende Personen

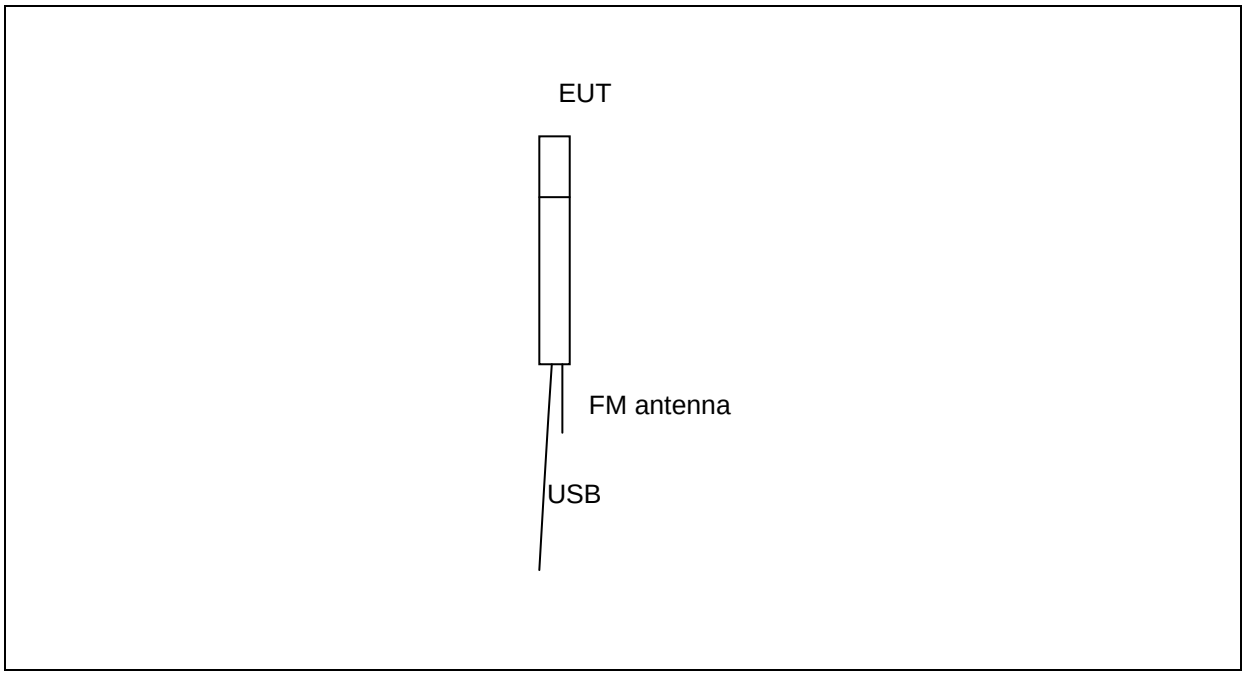
Test Engineer(s) / Ingénieur(s) d'essai / Prüfingenieur(e) :

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 / Prüfkonfiguration



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 = necessary bandwidth M = maximum modulation frequency in hertz = 6 kHz D = Peak frequency deviation = 5.8 kHz
	B_n = *24 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 ☐ .....

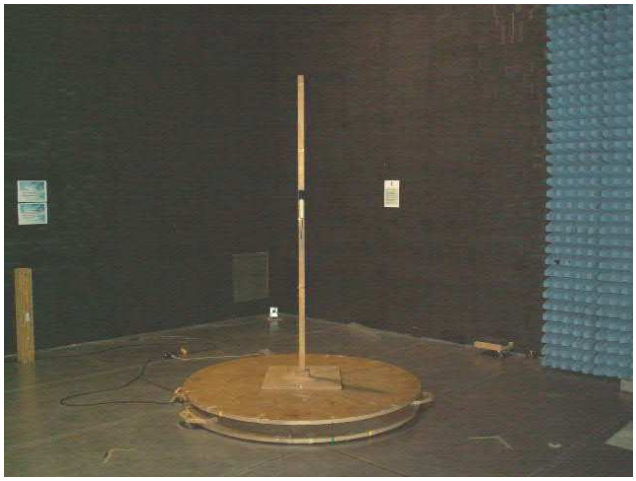
Test site: ☐ anechoic chamber (foam) ☐ shielded room
☒ anechoic chamber (ferrites) ☐ laboratory
☐ open test site ☐ .....

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

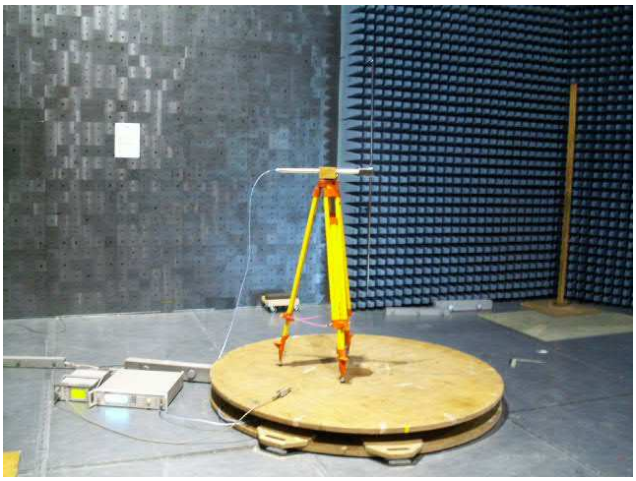
Meas. uncertainty: ± 1.34 dB (f < 300 MHz) / ± 1.61 dB (f > 300 MHz)

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 ca rried 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**

Results of the test

Client: *Phonak Communications SA*

Apparatus: *DynaMic (FM part)*

Operating mode: • *unmodulated*

Cables connected to the EUT: *none*

Remarks: *Centre of Tx antenna at 1.4m*

	Measurement with EUT		Power at substitution ant.		Meas. with subst. ant.	Parameters of substitution ant.		Result			Remarks
f [MHz]	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

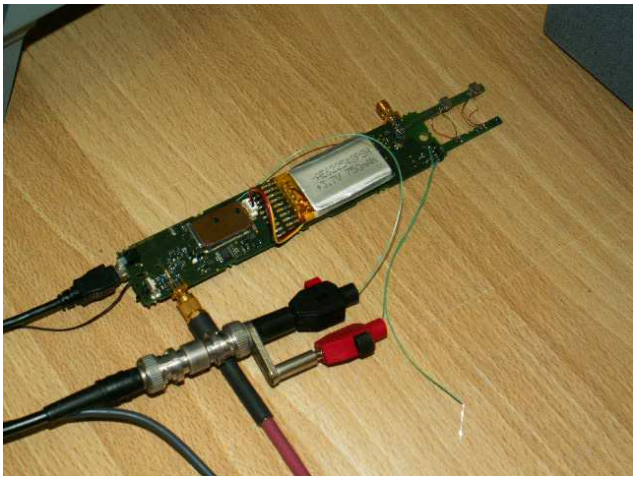
Standard: United States: 47 CFR "Code of Federal Regulations" - Telecommunication
☒ FCC Part 2, Subpart J: Certification: §2.1047

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	Pass 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 s 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	Pass 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

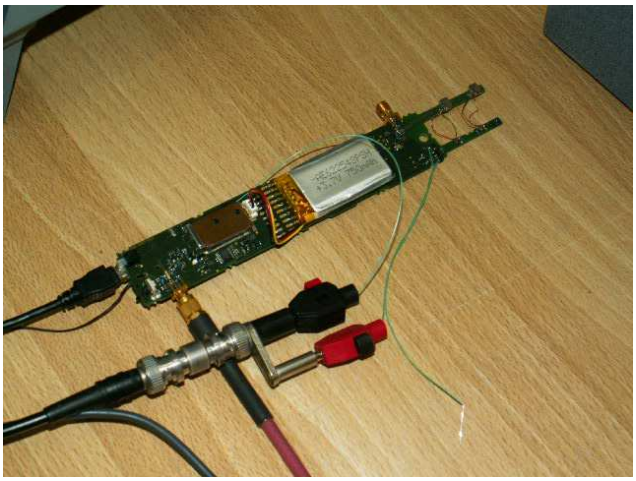
Test requirements: Emissions for transmitters operating on standard band channels (25 kHz) shall be attenuated below the unmodulated carrier in accordance with the following:

- 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 :

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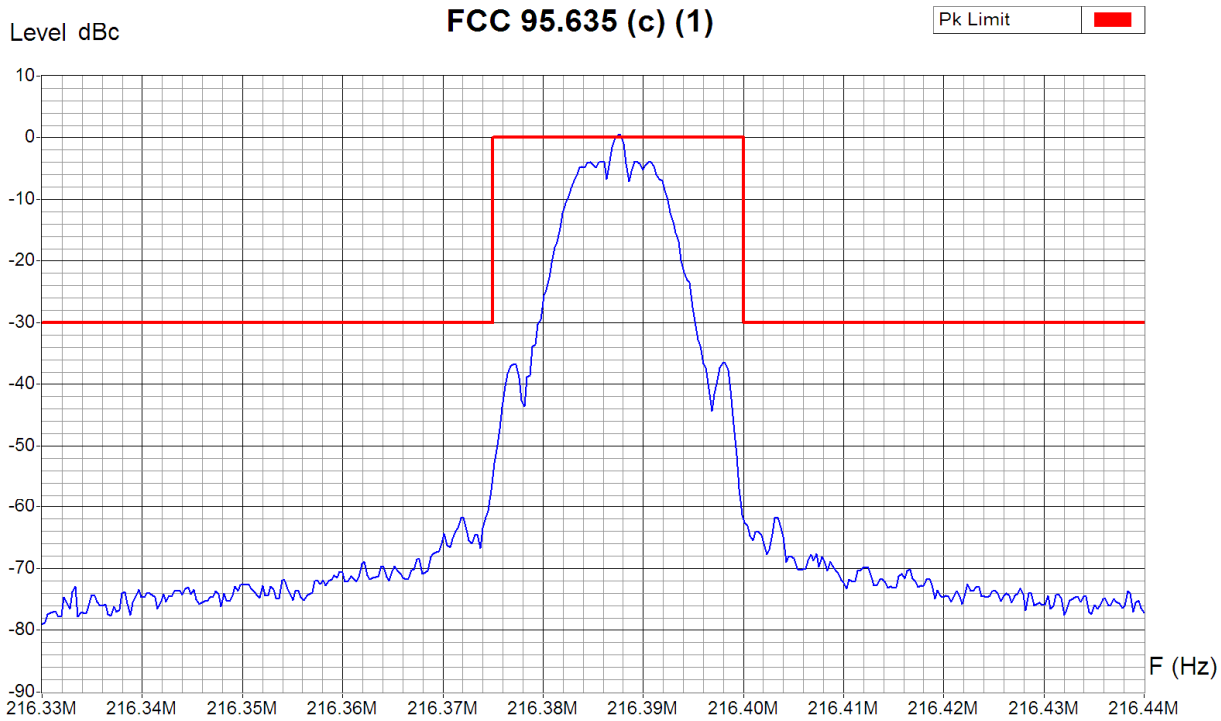
Equipment Under Test : DynaMic
Set-Up : s. photo
Operating Conditions : Audio frequency sweep 1 kHz - 8 kHz, 100 points log. max audio level injected
Remarks :



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 ☐ .....

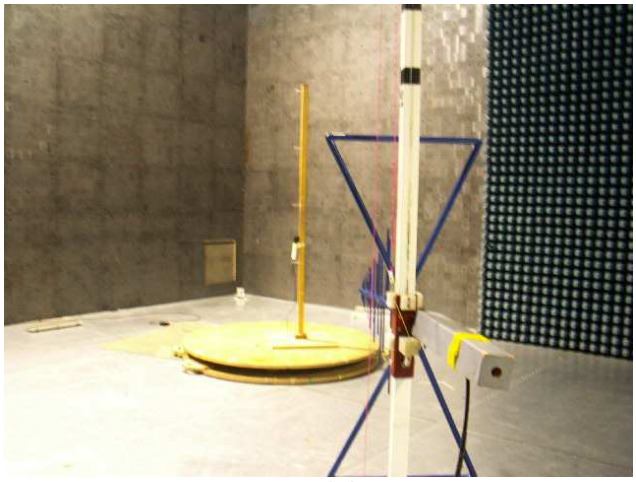
Position of EUT: *0.9 m, (bottom of mic case)* (height of the equipment under test above floor)

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 ca rried 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:



general view

DynaMic with USB cable

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

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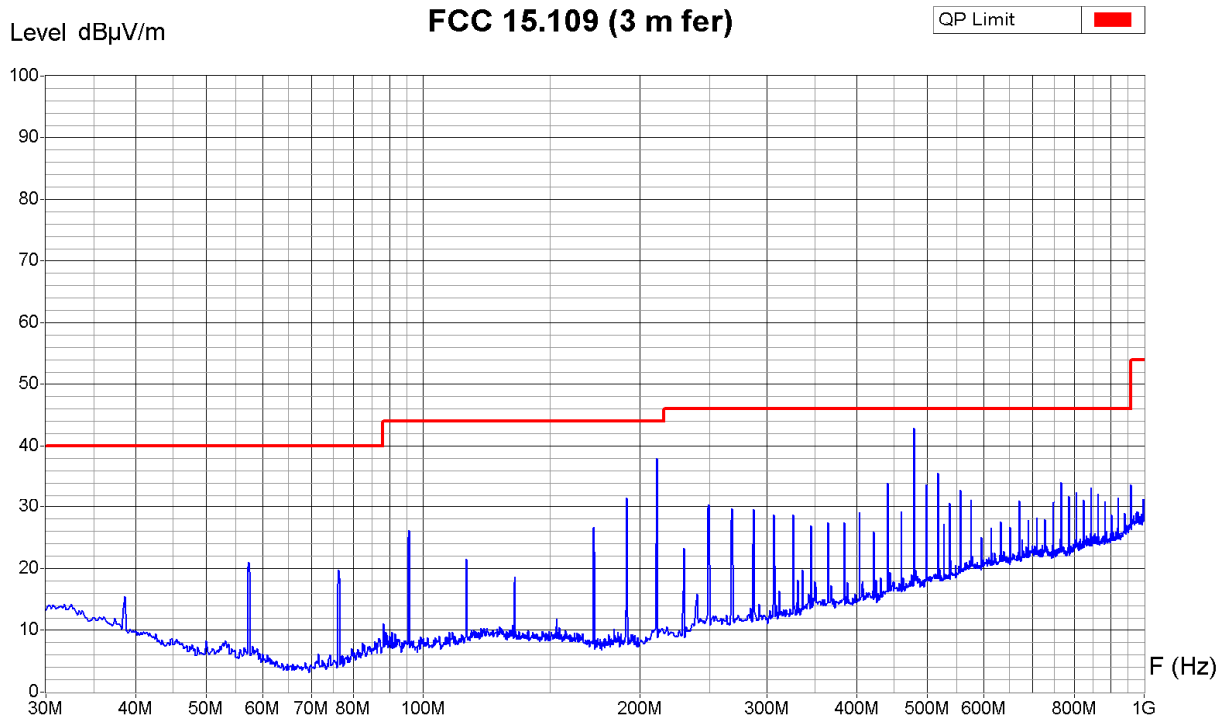
Equipment Under Test :	DynaMic
Set-Up :	height 0.9 m, with USB cable (not terminated)
Operating Conditions :	"stand-by", s. file test_and_firmeware_traceability
Remarks :	micro labeled H
	No notch, nor diplexor



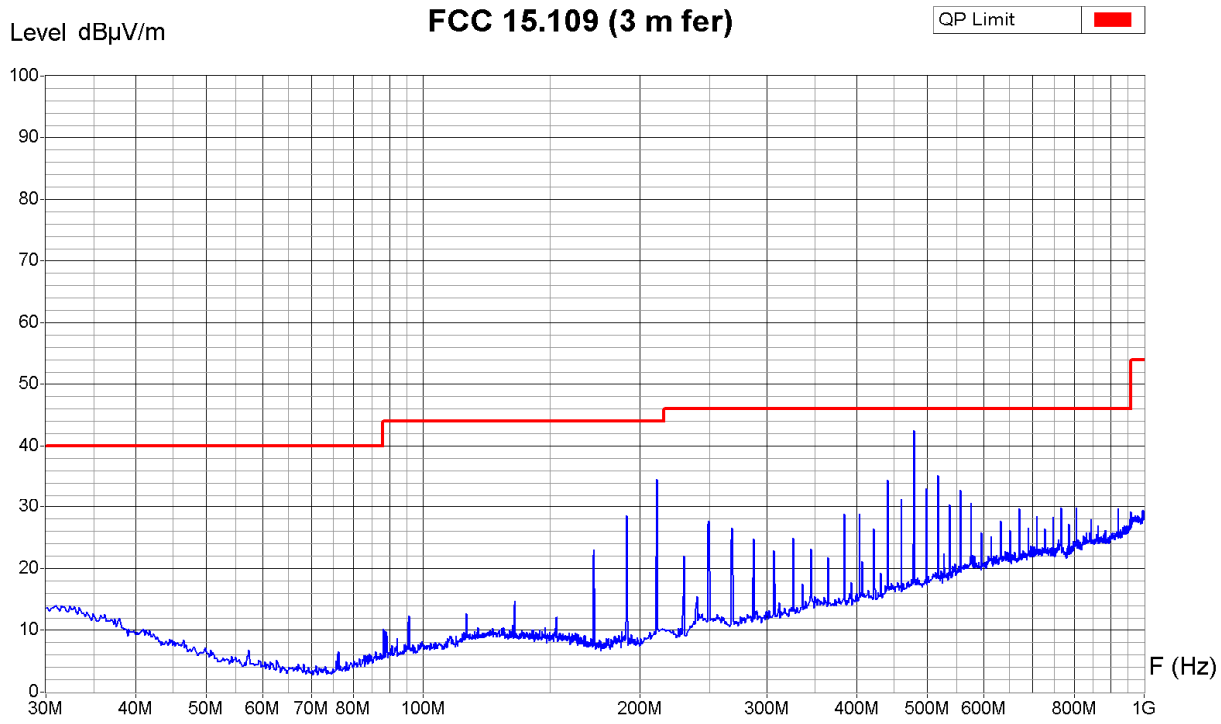
Zone	30 MHz - 199 MHz	199 MHz - 1 GHz
Video Bandwidth	100 KHz	100 KHz
Resol Bandwidth	100 KHz	100 KHz

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

montena
montena emc sa

Equipment Under Test :	DynaMic
Set-Up :	height 0.9 m, with USB cable (not terminated)
Operating Conditions :	"stand-by", s. file test_and_firmeware_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 17:50
Filename:
DynaMic_FCC95_15-109_STB_02
.png/.txt

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

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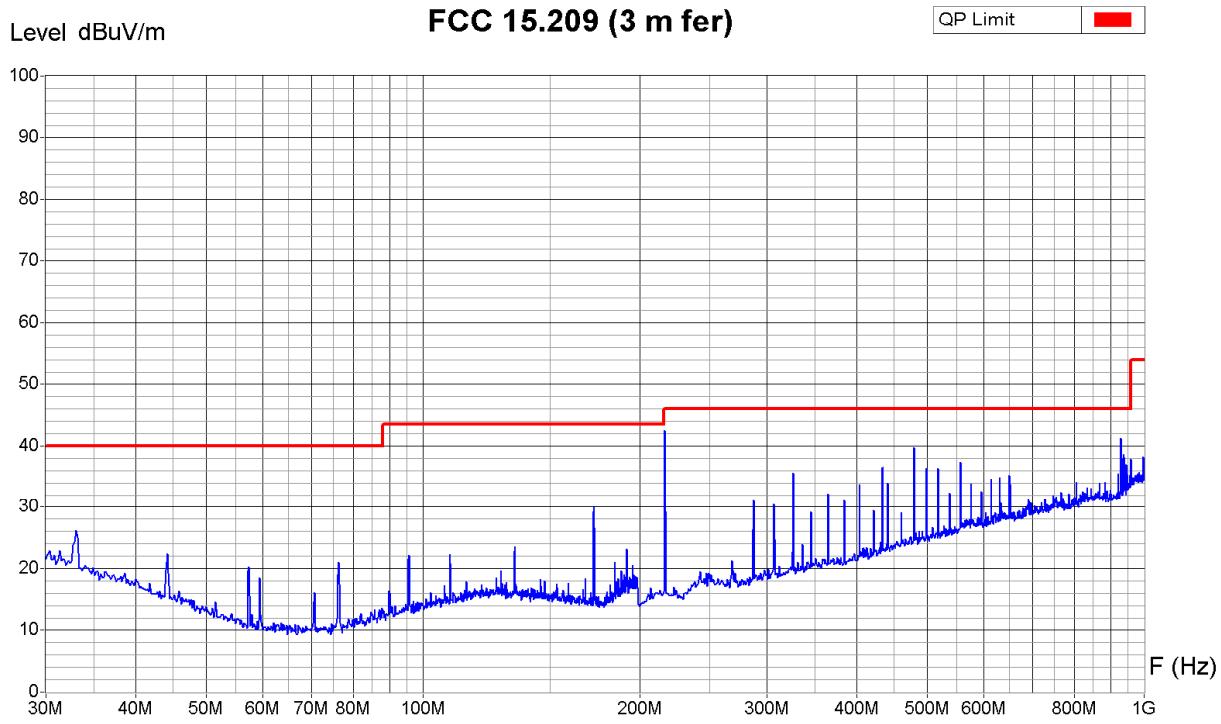
Equipment Under Test :	DynaMic
Set-Up :	height 0.9 m, with USB cable (not terminated)
Operating Conditions :	216.9875 MHz, Pmax, not mod., s.file test_and_firmeware_traceability
Remarks :	micro labeled N
f < 200 MHz:	Analyzer attn 10 dB
f > 200 MHz:	Analyzer attn 10 dB, + diplexor out 2 (carrier notched)



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 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

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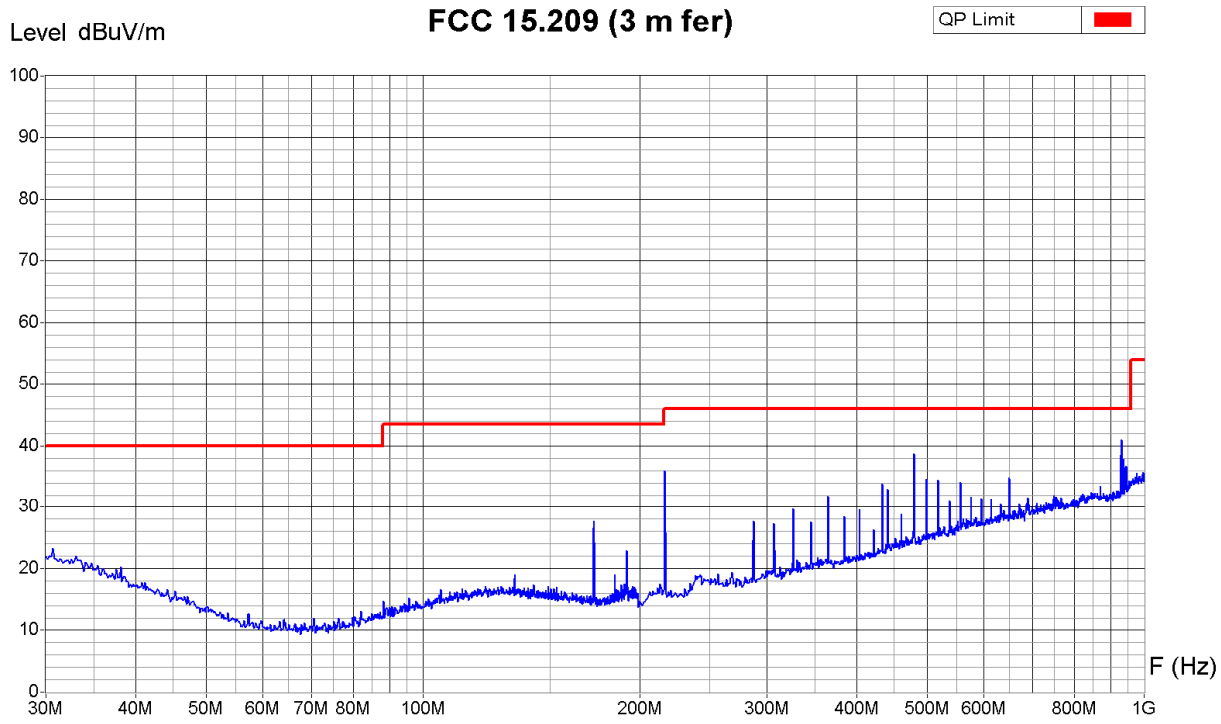
Equipment Under Test :	DynaMic
Set-Up :	height 0.9 m, with USB cable (not terminated)
Operating Conditions :	216.9875 MHz, Pmax, not mod., s.file test_and_firmeware_traceability
Remarks :	micro labeled N
f < 200 MHz:	Analyzer attn 10 dB
f > 200 MHz:	Analyzer attn 10 dB, + diplexor out 2 (carrier notched)



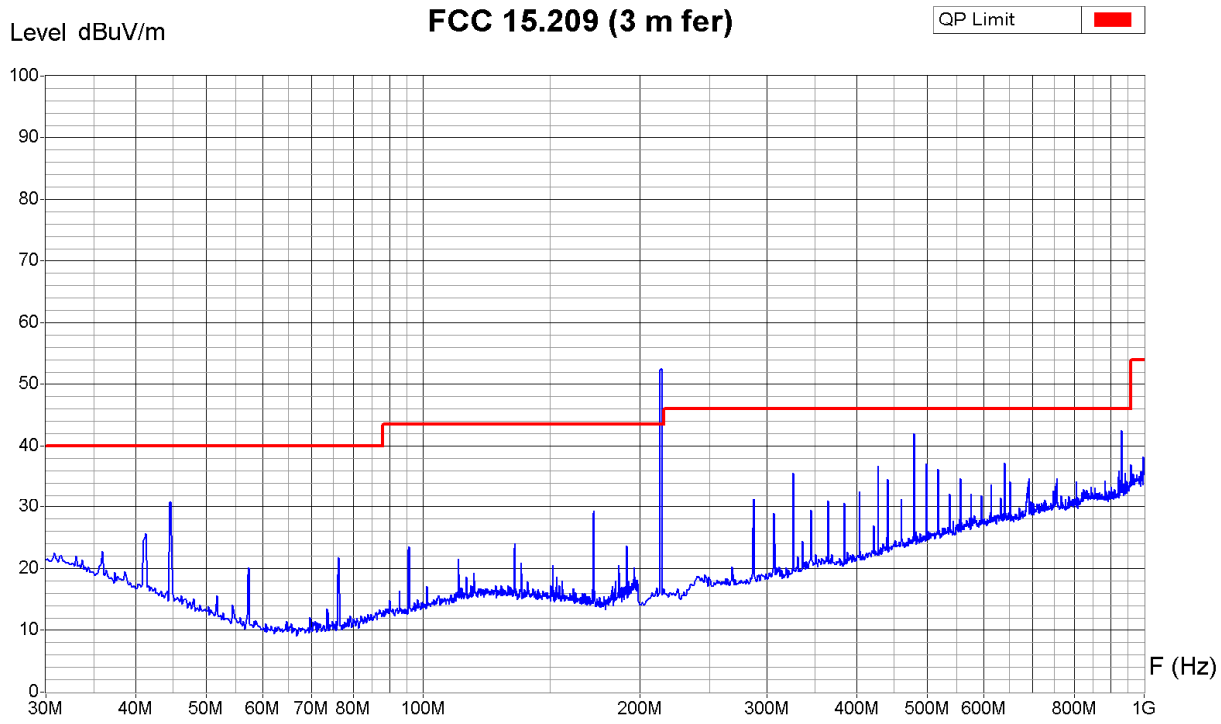
Zone	30 MHz - 199 MHz	199 MHz - 1 GHz
Video Bandwidth	100 KHz	100 KHz
Resol Bandwidth	100 KHz	100 KHz

Operator: Ding
Date/Time: 05.03.09 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

montena
montena emc sa

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_firmeware_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

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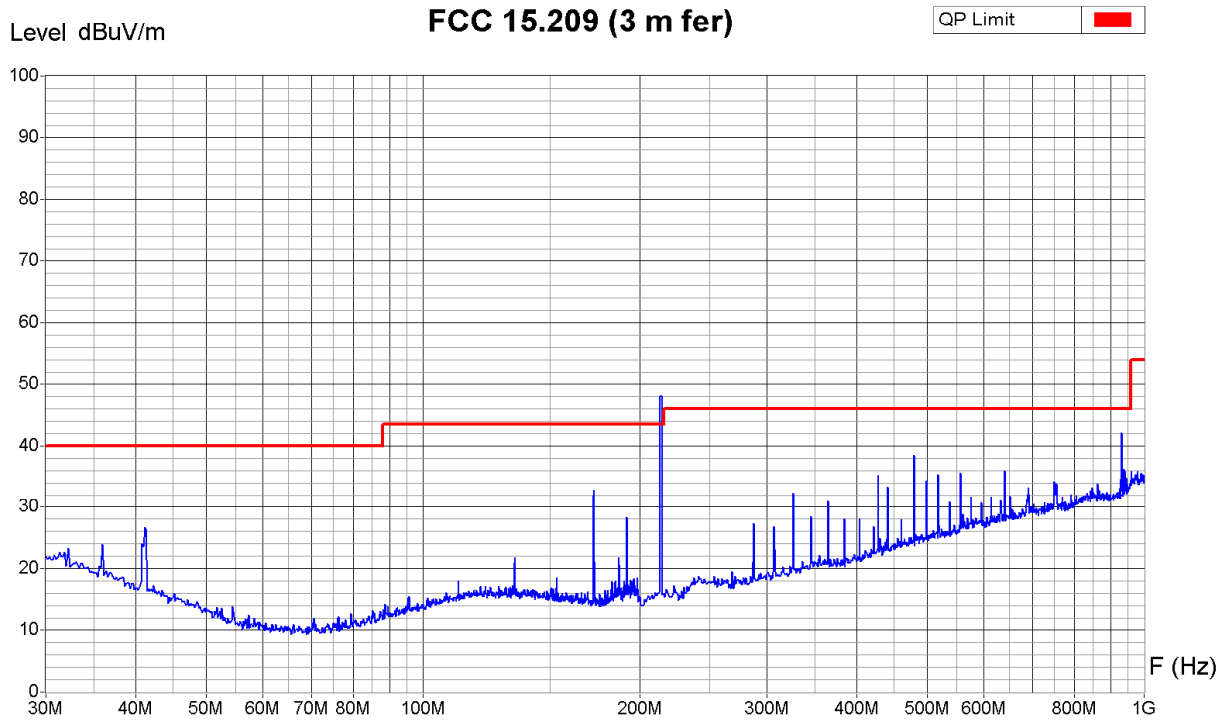
Equipment Under Test :	DynaMic
Set-Up :	height 0.9 m, with USB cable (not terminated)
Operating Conditions :	214 MHz, Pmax, not mod., s.file test_and_firmeware_traceability
Remarks :	micro labeled N
f < 200 MHz:	Analyzer attn 10 dB
f > 200 MHz:	Analyzer attn 10 dB, + diplexor out 2 (carrier notched)



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.

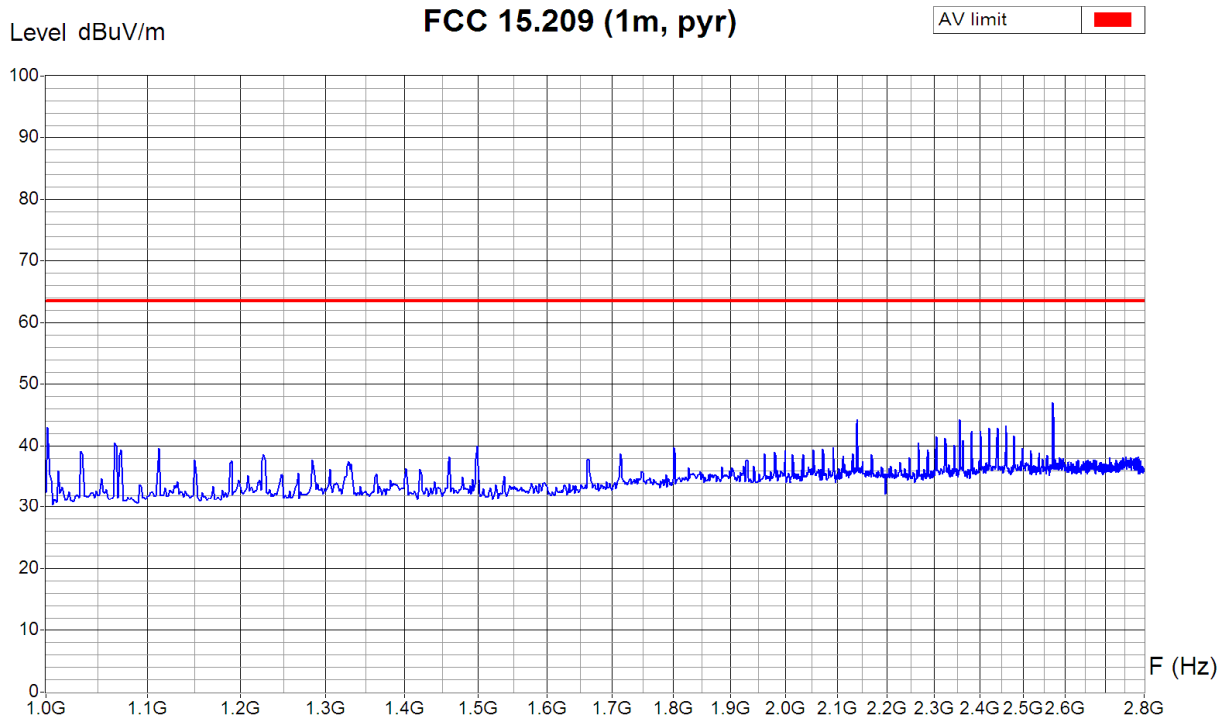
The diagrams show frequencies up to 2.8 GHz.

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

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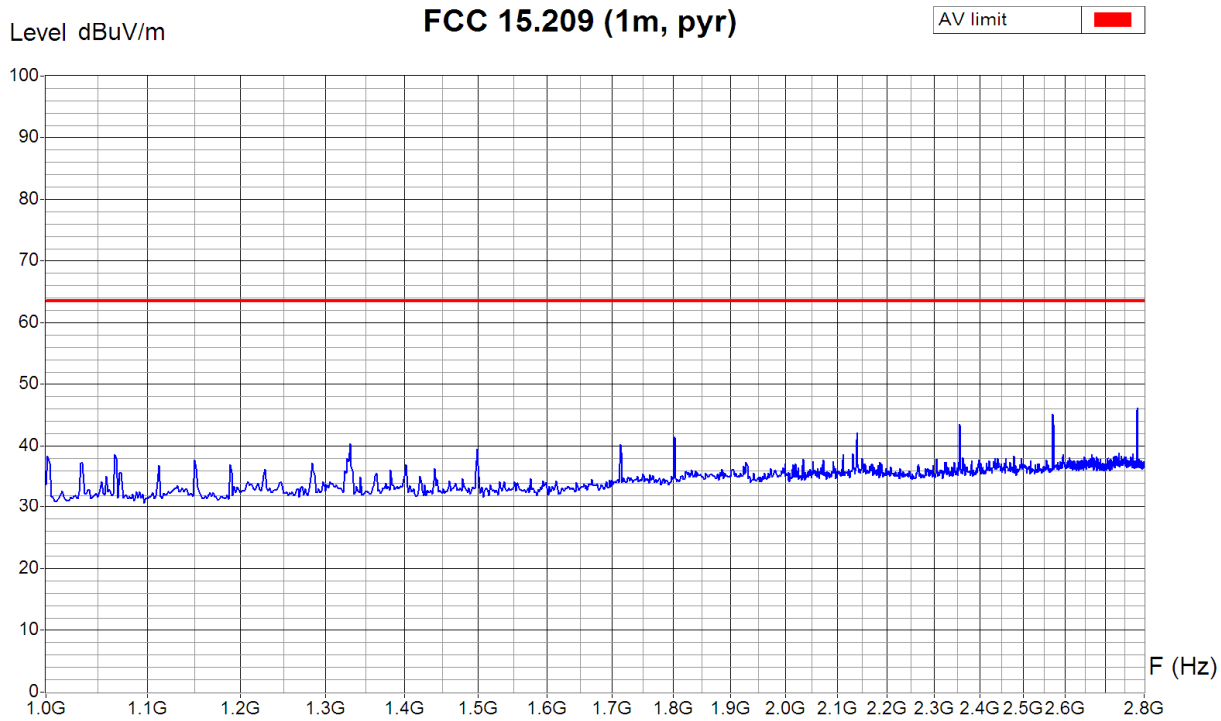
Equipment Under Test :	DynaMic
Set-Up :	s. photo, with USB cable
Operating Conditions :	f = 214 MHz, Pmax, not mod.
Remarks :	Mic labeled N



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

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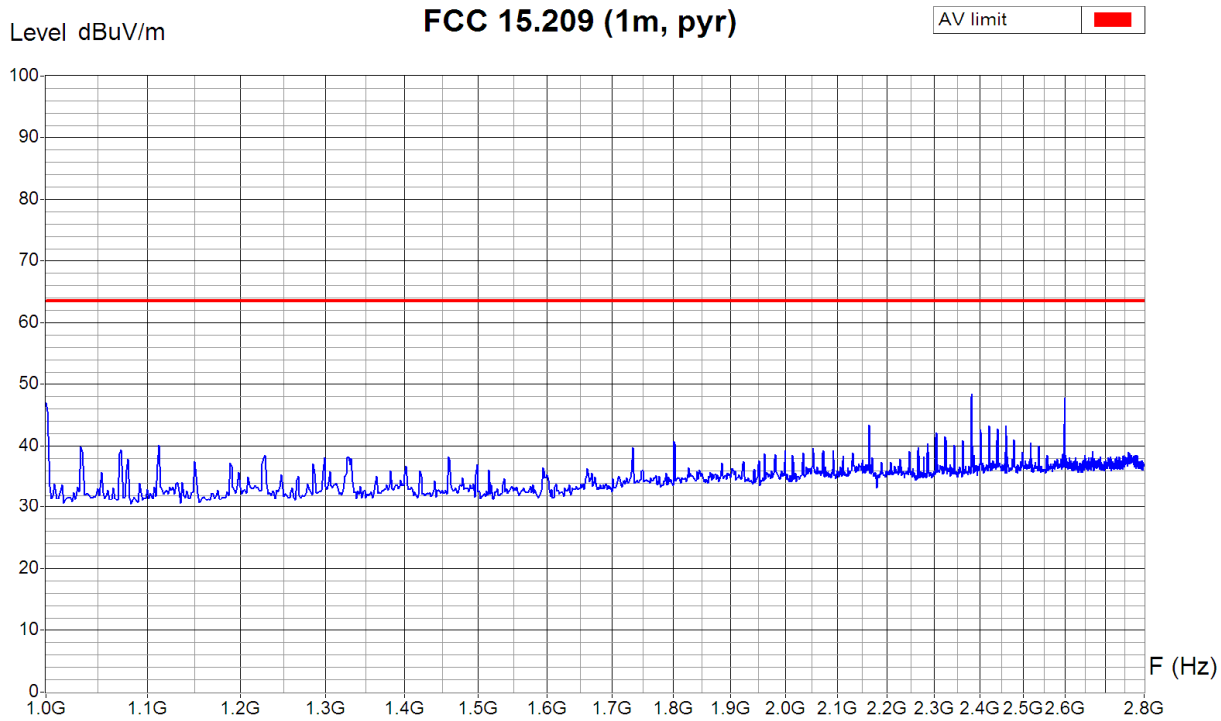

Zone	1 GHz - 2 GHz	2 GHz - 2.60 GHz	2.60 GHz - 2.80
Video Bandwidth	1 MHz	1 MHz	1 MHz
Resol Bandwidth	1 MHz	1 MHz	1 MHz

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

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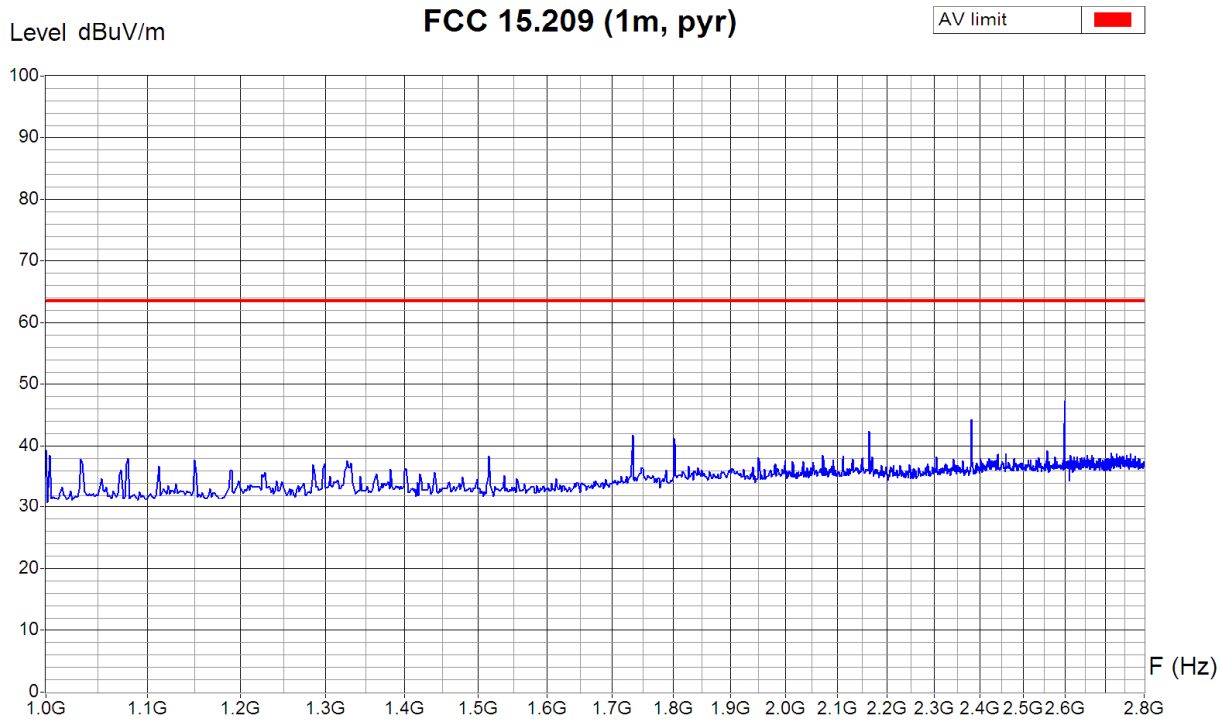
Equipment Under Test :	DynaMic
Set-Up :	s. photo, with USB cable
Operating Conditions :	f = 216.3875 MHz, Pmax, not mod.
Remarks :	Mic labeled N



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

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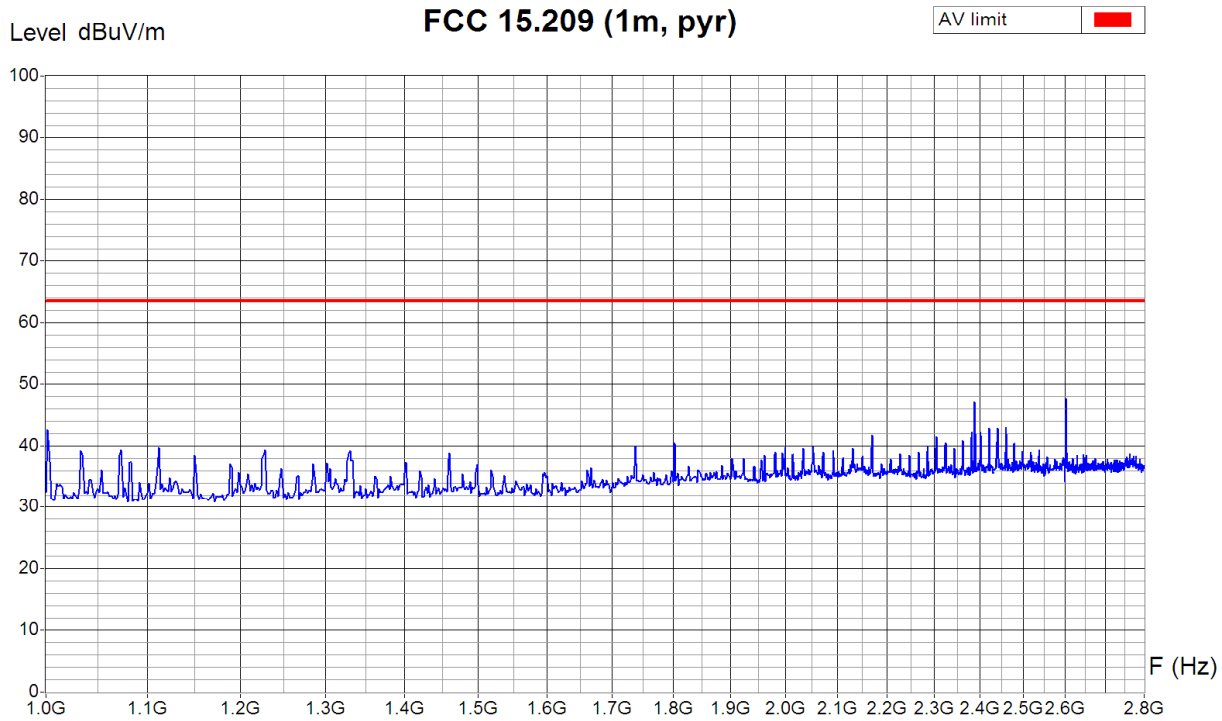
Equipment Under Test :	DynaMic
Set-Up :	s. photo, with USB cable
Operating Conditions :	f = 216.9875 MHz, Pmax, not mod.
Remarks :	Mic labeled N



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

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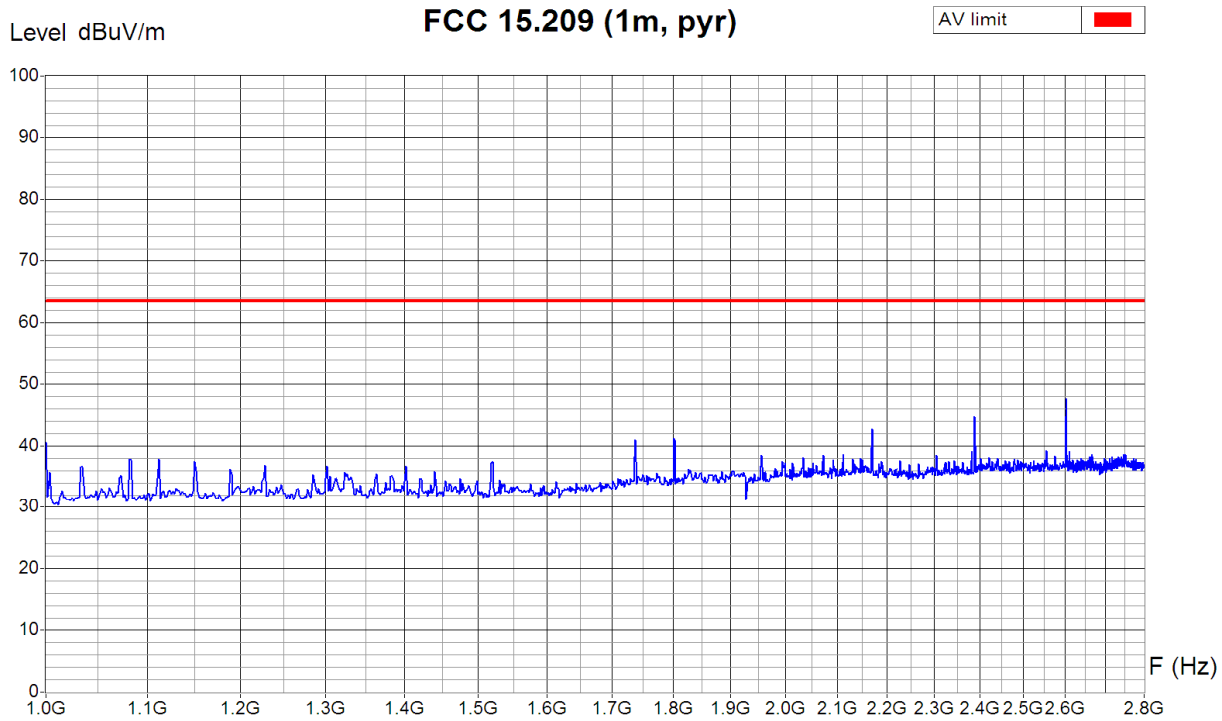
Equipment Under Test :	DynaMic
Set-Up :	s. photo, with USB cable
Operating Conditions :	f = 216.9875 MHz, Pmax, not mod.
Remarks :	Mic labeled N



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

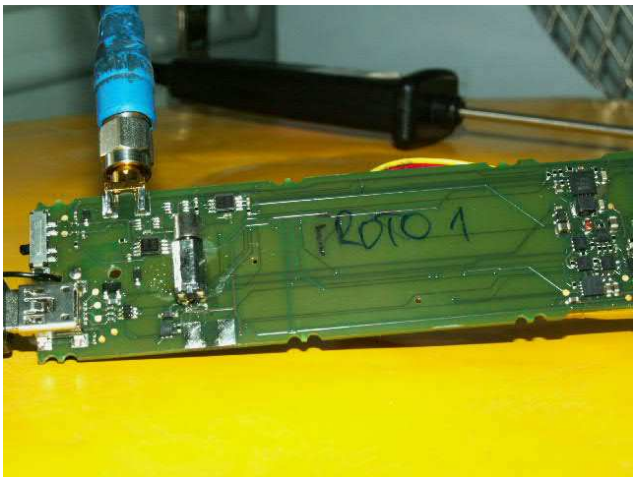
Standard: United States: 47 CFR "Code of Federal Regulations" – Telecommunication
☒ FCC Part 2, Subpart J: Certification: §2.1055
☒ FCC Part 95, Subpart E: Technical regulations: §95.629(b)(2)
☒ FCC Part 95, Subpart E: Technical regulations: §95.639(e)
Limit for LPRS = 100 mW = 20 dBm

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:

Δf < 50 ppm and P < 100 mW (20 dBm) with temperature varied from –30° to + 50° in steps of 10 degrees.

Temp [°C]	f [MHz]	Error [ppm]	Limit [ppm]	P [dBuV]	P ERP [dbm]	Limit [dBm]	Remarks	Pass Yes	Pass 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:

Δf < 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	Pass 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

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