Prüfbericht - Nr.: *Test Report no.:*	**16010273 001**	**Seite 1 von 32** *Page 1 of 32*

Auftraggeber: *Client:*	**Seikaku Technical Group Limited** **Offshore Chambers** **P.O. Box 217 Apia** **Samoa**		
Gegenstand der Prüfung: *Test item:*	**Compact Integrated Live Sound Mixer with Digital Effects**		
Bezeichnung: *Identification:*	**LYNX-MIX124 USB** **LYNX-MIX164 USB** **LYNX-MIX204 USB**	**FCC ID:** *FCC ID:*	**H38LYNX-MIXER**
Wareneingangs-Nr.: *Receipt no.:*	**173031050**	**Eingangsdatum:** *Date of receipt:*	**28.Jun.2007**
Prüfort: *Testing location:*	**China Guangzhou Electrical Safety Testing Institute of Quality and Technical Supervisor (CEST)** **No.6 Hai Cheng Dong Street, Xingang Dong Road, Haizhu District,** **Guangzhou, P. R. China 510330**	Listed test laboratory according to FCC rules section 2.948 for measuring devices under Parts 15	
Prüfgrundlage: *Test specification:*	**ANSI C63.4: 2009** **FCC Part 15: 2008-07-10** **Conduct Emissions with limits described at Subpart B section 15.107** **Radiated Emissions with limits described at Subpart B section 15.109**		
Prüfergebnis: *Test result:*	**Der Prüfgegenstand entspricht oben genannter Prüfgrundlage(n).** *The test item passed the test specification(s).*		
Prüflaboratorium: *Testing laboratory:*	**China Guangzhou Electrical Safety Testing Institute of Quality and Technical Supervisor (CEST)**		

geprüft */ tested by:*

Datum / Date	Name/ Stellung / Name/Position	Unterschrift / Signature
22.Nov.2010	Cherry He Project Manager	Cherry He

kontrolliert/ *reviewed by:*

Datum / Date	Name/ Stellung / Name/Position	Unterschrift / Signature
23. Nov. 2010	Yvonne Zheng Project Manager	Yvonne Zheng

Sonstiges/ *Other aspects:*

Abkürzungen:				*Abbreviations:*			
	P(ass)	=	*entspricht Prüfgrundlage*		*P(ass)*	=	*passed*
	F(ail)	=	*entspricht nicht Prüfgrundlage*		*F(ail)*	=	*failed*
	N/A	=	*nicht anwendbar*		*N/A*	=	*not applicable*
	N/T	=	*nicht getestet*		*N/T*	=	*not tested*

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any safety mark on this or similar products.

TEST SUMMARY

5.1 CONDUCTED EMISSION FOR FCC PART 15 PER SECTION 15.107(A)
RESULT: *Pass*

5.2 RADIATED EMISSION FOR FCC PART 15 PER SECTION 15.109(A)
RESULT: *Pass*

Contents

1 General Remarks

1.1 Complementary Materials

None

2 Test Sites

2.1 Test Facilities

China Guangzhou Electrical Safety Testing Institute of Quality and Technical Supervisor (CEST)

No.6 Hai Cheng Dong Street, Xingang Dong Road, Haizhu District,
Guangzhou, P. R. China 510330

The tests at this test site have been conducted under the supervision of a TÜV Rheinland engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
AMN	R/S	ESH2-Z5	08031	01.10.2011
EMI Test Receiver	R/S	ESCS30	08092	01.10.2011
Biconilog Antenna	ETS	3142B	1642	01.10.2011
EMI Test Receiver	R/S	ESIB26	08102	01.10.2011
Audio Generator	GW	GAG-810	07150	01.10.2011
Power quality analyser	FLUKE	FLUKE 43B	07118	01.10.2011
3m Semi-anechoic chamber	ETS-Lindgren	FACT-49X6X5.8(m)	---	01.10.2011
Shielded Room	ETS-Lindgren	8.0x4.5x3.2(m)	---	01.10.2011

2.3 Trace ability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for conducted emissions measurements is ± 2.8 dB.
The estimated combined standard uncertainty for radiated emissions measurements is ± 4.94 dB.

2.6 Location of original data

The original copies of all test data taken during actual testing were attached on Page 13-22, 24-29 of this report and delivered to the applicant. A copy has been retained in the TUV Rheinland (Guangzhou) file for certification follow-up purposes.

2.7 Status of facility used for testing

China Guangzhou Electrical Safety Testing Institute of Quality and Technical Supervisor (CEST) No.6 Hai Cheng Dong Street, Xingang Dong Road, Haizhu District, Guangzhou, 510330 P. R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements, the register no. 820844.

3 General Product Information

Brief description of the test sample:

The submitted samples LYNX-MIX124 USB, LYNX-MIX164 USB and LYNX-MIX204 USB are Mixers with Digital Effects for professional use.

LYNX-MIX124 USB, LYNX-MIX164 USB and LYNX-MIX204 USB have the same circuit diagram and PCB layout. They all have a USB port which can be connected to a computer. The difference among them is only the channel number, LYNX-MIX124 USB has 12 channels, LYNX-MIX164 USB has 16 channels, while LYNX-MIX204 USB has 20 channels.

According to above information, all the tests are performed on LYNX-MIX124 USB, LYNX-MIX164 USB and LYNX-MIX204 USB respectively.

3.1 Product Function and Intended Use

For details, refer to Technical Documentation and the User Manual.

3.2 Ratings and System Details

Type designation	LYNX-MIX124 USB	LYNX-MIX164 USB	LYNX-MIX204 USB
Power Consumption	40W	50W	60W
System input voltage	AC 100-240V, 50/60 Hz		
Protection class	I		

Refer to this report Technical Documentation for further information.

3.3 Independent Operation Modes

The basic operation modes are:
A: On
B: Off

3.4 Submitted Documents

Block Diagram
Circuit Diagram
PCB Layout
External Photo
Internal Photo
Label and Location
User Manual

4 Test Set-up and Operation Mode

4.1 Principle of Configuration Selection

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

4.2 Test Operation and Test Software

Refer to Test set-up in chapter 5.

4.3 Special Accessories and Auxiliary Equipment

Computer: Dell M1210, connected to EUT with shielded USB line.

4.4 Countermeasures to achieve EMC Compliance

No additional countermeasures to the submitted test sample(s) were employed to achieve compliance.

4.5 Test set-up

Diagram 1 of Measurement Equipment Configuration for Testing Conducted Emission

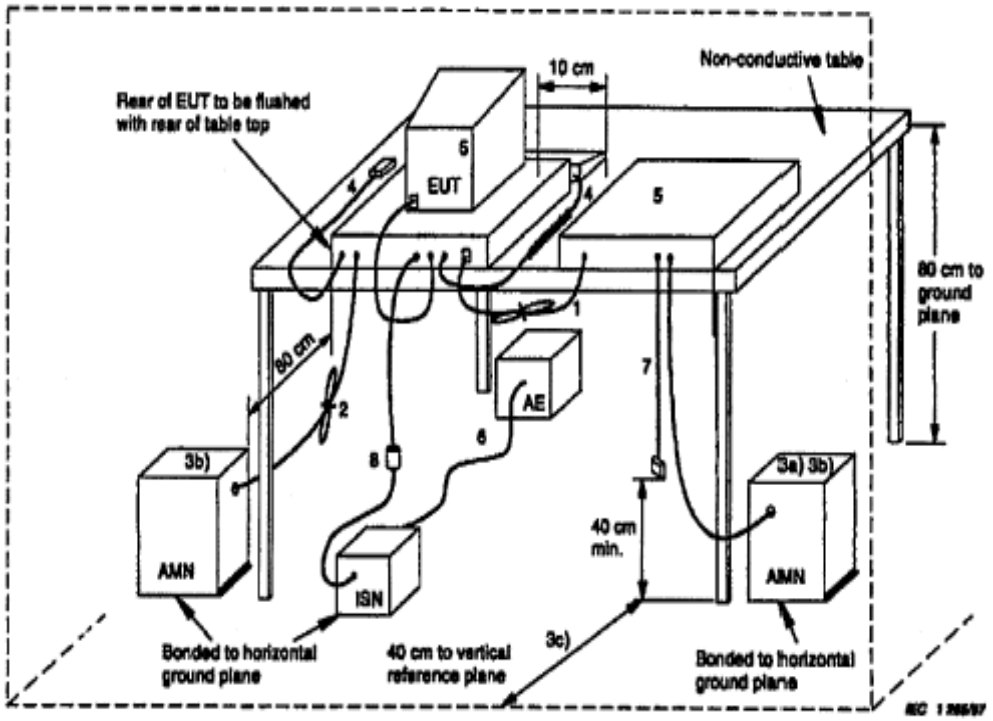


Diagram 2 of Measurement Equipment Configuration for Testing Radiated Emission

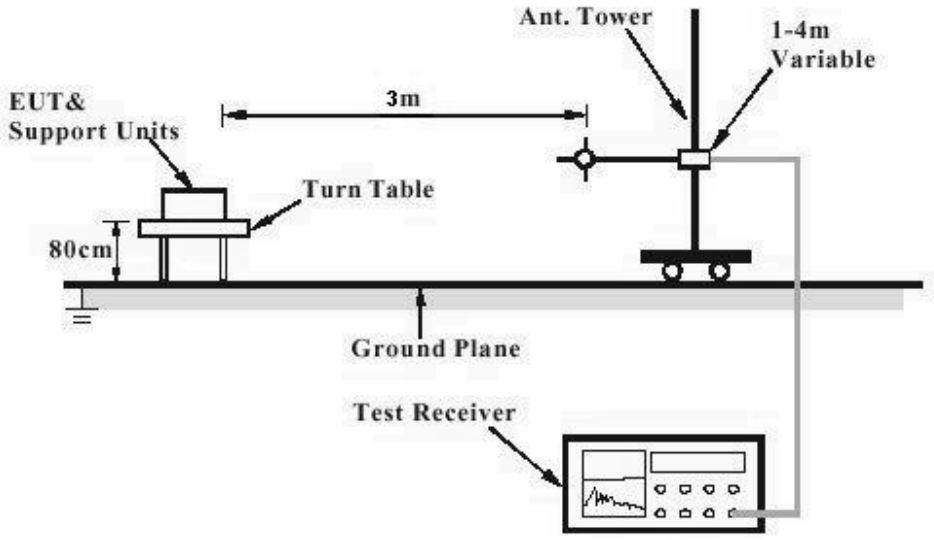


Diagram 3 of Equipment Configuration for Testing Conducted Emission

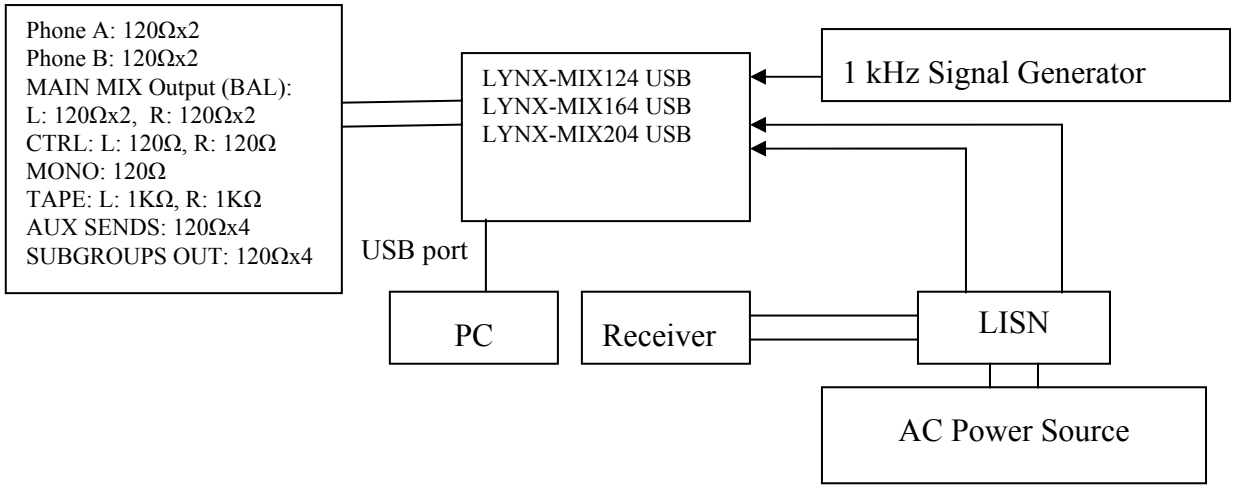
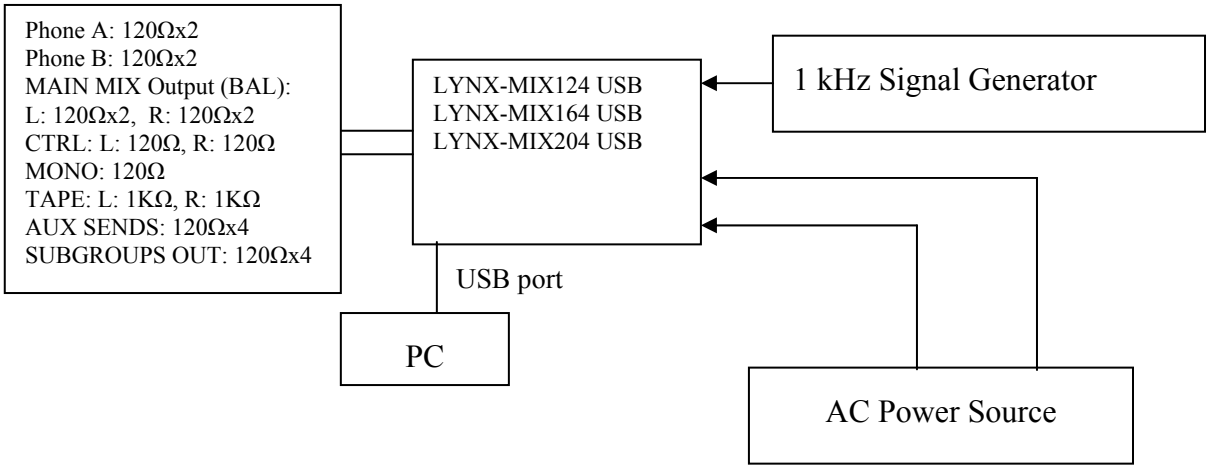


Diagram 4 of Equipment Configuration for Testing Radiated Emission



5 Test Results E M I S S I O N

5.1 Conducted Emission for FCC Part 15 per Section 15.107(a)

RESULT: **Pass**

Date of testing	:	12.May.2009/15.Oct.2008
Test Basis	:	FCC Part 15 Per Section 15.107(a)
Test specification	:	Class B
Deviations from Standard Test procedures	:	None
Test procedure		Procedure specified in ANSI C63.4 were followed
Kind of test site	:	Shielded room
Operation mode	:	On
Temperature	:	23°C
Humidity	:	50%

Test procedure:
1. Place the EUT as specified in ANSI C63.4 Clause 7.2.1

2. Plug the LISN to a correct power source (pay attention to: AC/DC, voltage, frequency).

4. Connect the EUT to LISN and choose N or L1 on the LISN.

5. Connect ESCS30 and LISN via a 50-ohm coaxial cable and a pulse limiter then begin exploratory measurement as specified in ANSI C63.4 Clause 7.2.3

6. Make final measurement as specified in ANSI C63.4 Clause 7.2.4

7. Switch to the other line on the LISN and repeat step 4 to 6.

If the result of the measurement with the Quasi Peak detector is below the Average limit, the measurement with Average Detector may be omitted.

Please refer to the following graphs. Disturbances are far below the limit.

150KHz-30MHz

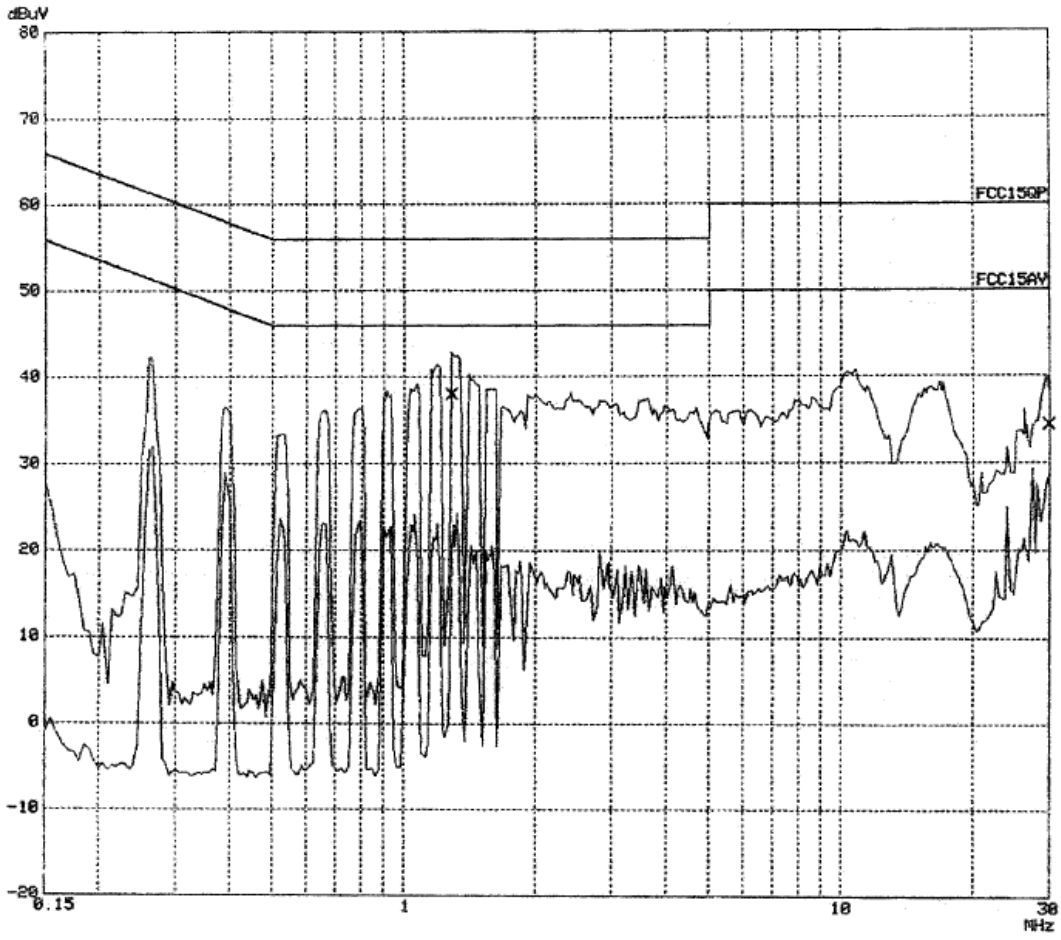
EUT: LYNX-MIX124 USB
Test Spec: 120V 60Hz
L
Date: 12. May 09 20:29

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	5ms	AUTO	LN OFF

Transducer No.	Start	Stop	Name
5	9k	30M	EHS2_Z5

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 16
Acc Margin: 16dB



150KHz-30MHz

EUT: LYNX-MIX124 USB
Test Spec: 120V 60Hz
L
Date: 12. May 09 20:29

Final Measurement Results:

Indicated Phase/PE shows Configuration of max. Emission

Frequency MHz	QP Level dBuV	Delta Limit dB	Phase -	PE -
1.27500	38.1	-17.8	L1	gnd
29.93500	34.5	-15.4	L1	gnd

Frequency MHz	AV Level dBuV	Delta Limit dB	Phase -	PE -

no Results

150KHz-30MHz

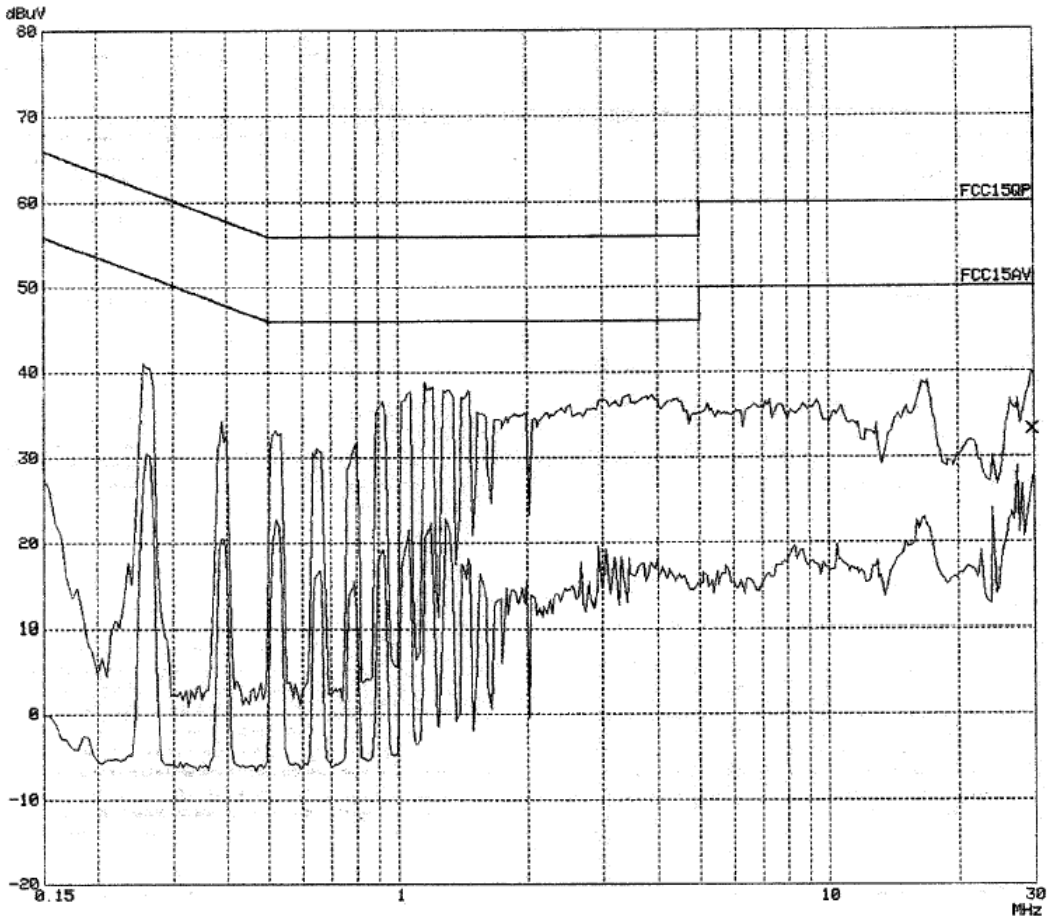
EUT: LYNX-MIX124 USB
Test Spec: 120V 60Hz
N
Date: 12. May 09 20:22

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	5ms	AUTO	LN OFF

Transducer No.	Start	Stop	Name
5	9k	30M	EHS2_Z5

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 16
Acc Margin: 16dB



150KHz-30MHz

EUT: LYNX-MIX124 USB
Test Spec: 120V 60Hz
N
Date: 12. May 09 20:22

Final Measurement Results:

Indicated Phase/PE shows Configuration of max. Emission

Frequency MHz	QP Level dBuV	Delta Limit dB	Phase -	PE -
29.62000	33.2	-16.7	L1	gnd

Frequency MHz	AV Level dBuV	Delta Limit dB	Phase -	PE -

no Results

150KHz-30MHz

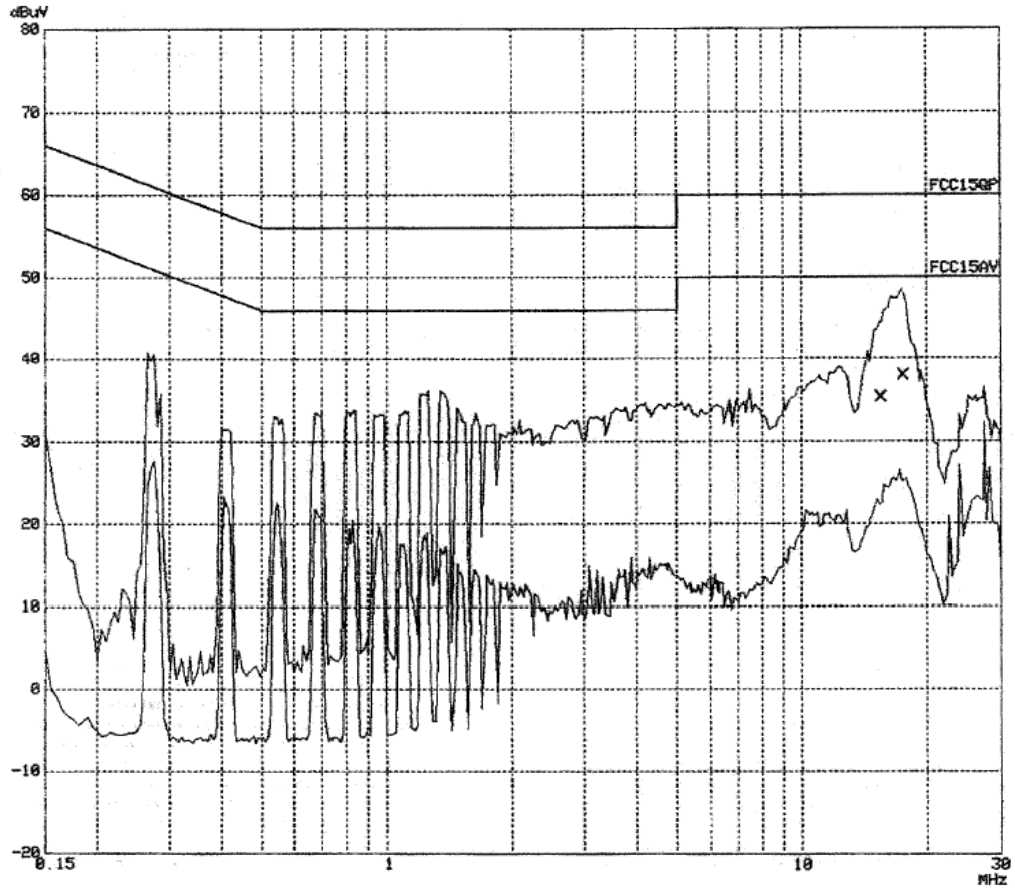
EUT: LYNX-MIX164 USB
Test Spec: 120V 60Hz
L
Date: 12. May 09 19:54

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	5ms	AUTO	LN OFF

Transducer No.	Start	Stop	Name
5	9k	30M	EHS2_Z5

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 16
Acc Margin: 16dB



150KHz-30MHz

EUT: LYNX-MIX164 USB
Test Spec: 120V 60Hz
L
Date: 12. May 09 19:54

Final Measurement Results:

Indicated Phase/PE shows Configuration of max. Emission

Frequency MHz	QP Level dBuV	Delta Limit dB	Phase -	PE -
15.44500	35.5	-24.4	L1	gnd
17.45500	38.1	-21.8	L1	gnd

Frequency MHz	AV Level dBuV	Delta Limit dB	Phase -	PE -

no Results

150KHz-30MHz

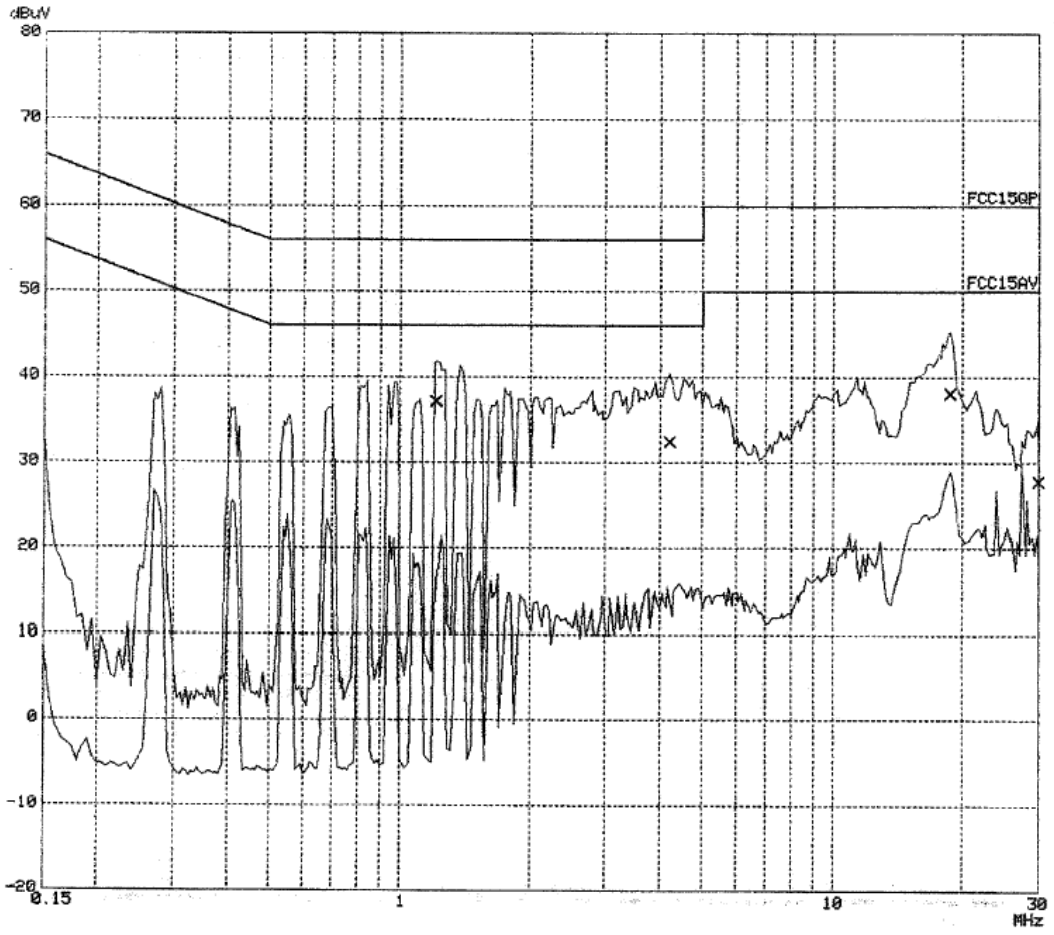
EUT: LYNX-MIX164 USB
Test Spec: 120V 60Hz
N
Date: 12. May 09 20:07

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	5ms	AUTO	LN OFF

Transducer No.	Start	Stop	Name
5	9k	30M	EHS2_Z5

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 16
Acc Margin: 16dB



150KHz-30MHz

EUT: LYNX-MIX164 USB
Test Spec: 120V 60Hz
N
Date: 12. May 09 20:07

Final Measurement Results:

Indicated Phase/PE shows Configuration of max. Emission

Frequency MHz	QP Level dBuV	Delta Limit dB	Phase -	PE -
1.20500	37.2	-18.7	L1	gnd
4.20500	32.4	-23.5	N	gnd
18.70000	38.1	-21.8	L1	gnd
29.99500	27.9	-22.0	L1	gnd

Frequency MHz	AV Level dBuV	Delta Limit dB	Phase -	PE -

no Results

150KHz-30MHz

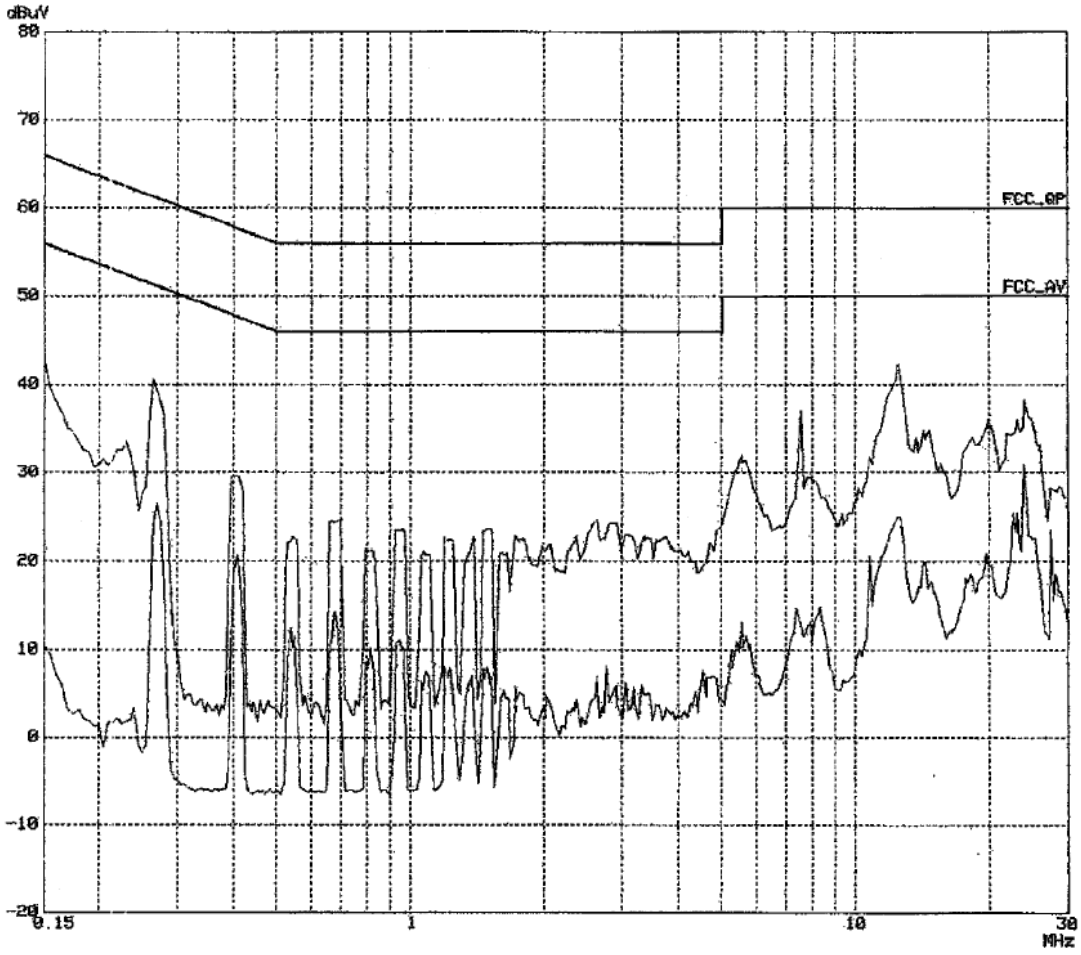
EUT: MAX204 USB
Test Spec: 120V 60Hz
L
Date: 15. Oct 08 14:42

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	20ms	AUTO LN	OFF

Transducer No.	Start	Stop	Name
5	9k	30M	KHS2_Z5

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 16
Acc Margin: 16dB



150KHz-30MHz

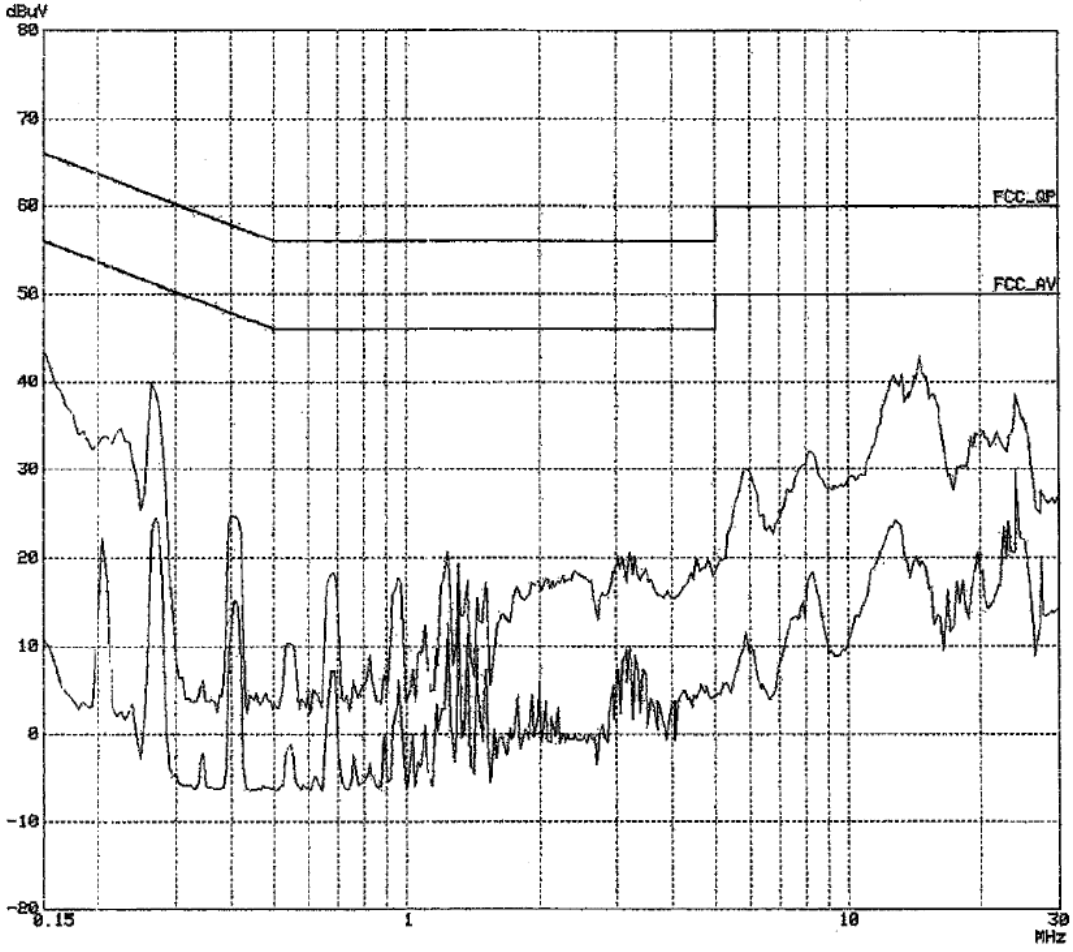
EUT: MAX204 USB
Test Spec: 120V 60Hz
N
Date: 15. Oct 08 14:57

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	20ms	AUTO	LN OFF

Transdueer No.	Start	Stop	Name
5	9k	30M	EHS2_Z5

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 16
Acc Margin: 16dB



5.2 Radiated Emission for FCC Part 15 per Section 15.109(a)

RESULT: **Pass**

Date of testing	:	12.May.2009/12.Oct.2008
Test Basis	:	FCC Part 15 Per Section 15.109(a)
Test specification	:	Class B
Deviations from Standard Test procedures	:	None
Test procedure		Procedure specified in ANSI C63.4 were followed
Kind of test site	:	3m Semi-anechoic chamber
Operation mode	:	On
Temperature	:	23°C
Humidity	:	50%

Test procedure:

1. The EUT was turned on and placed on the top of a rotatable table 0.8 meters above the ground with 3-orthogonal XYZ direction and be kept close enough to the measurement receiving antenna (especially for the measurement frequency range above 1 GHz). The table was then rotated 360 degrees to detect the suspected emission frequency points. The position of the worst radiation case with both horizontal and vertical receiving antenna polarization was then recorded together with the suspected emission frequency points above-mentioned.

2. The EUT was then set 3 meters away from the receiving antenna, which was mounted on a variable-height antenna tower.

3. For each suspected emission frequency point recorded in step 1, the EUT was arranged to its worst case that the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to read the maximum emission.

The final measurement for frequencies below 1000MHz is performed with Quasi Peak detector; the final measurement for frequencies above 1000MHz is performed with Average and Peak detector.

The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz at frequency below 1GHz.
The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz at frequency above 1GHz.

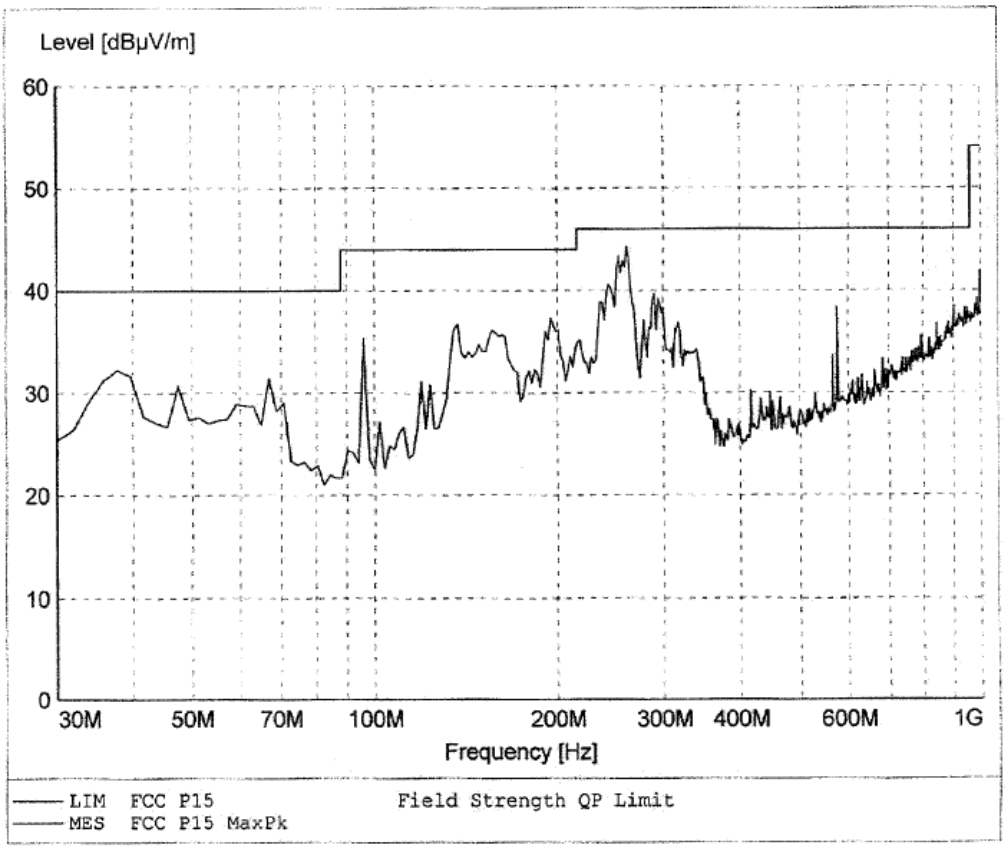
Please refer to the following graphs. Disturbances are far below the limit.

30MHz-1000MHz

EUT: LYNX-MIX124 USB
Manufacturer:
Operating Condition:
Test Site: H
Operator:
Test Specification: 120V 60Hz
Comment:

SWEEP TABLE: "FCC P15"

Short Description:			FCC P15		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	Antenna3



96.012024 MHz 200 cm 259° 35.74 dBuV/m.
260.721443 MHz 100 cm 228° 41.01 dBuV/m.

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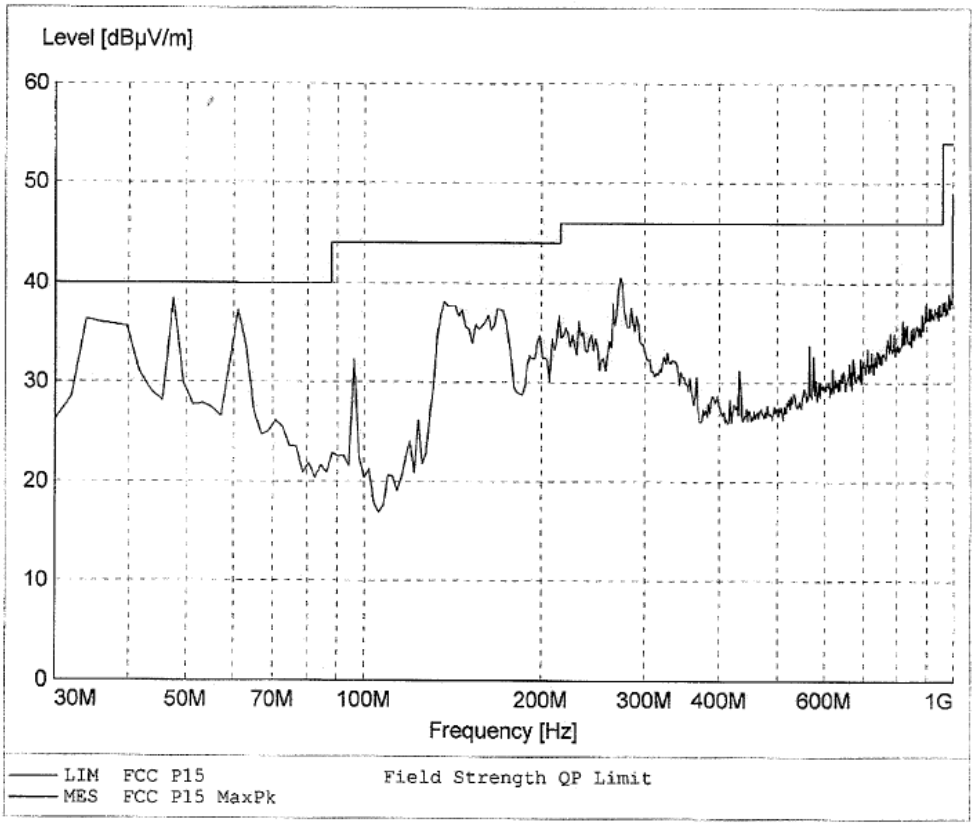
30MHz-1000MHz

EUT: LYNX-MIX124 USB
Manufacturer:
Operating Condition:
Test Site: V
Operator:
Test Specification: 120V 60Hz
Comment:

SWEEP TABLE: "FCC P15"

Short Description:			FCC P15		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	Antenna3



48.016032 MHz 100 cm 270°C 30.5P dBuV/m.
61.553106 MHz 100 cm 0°C 32.9P dBuV/m.

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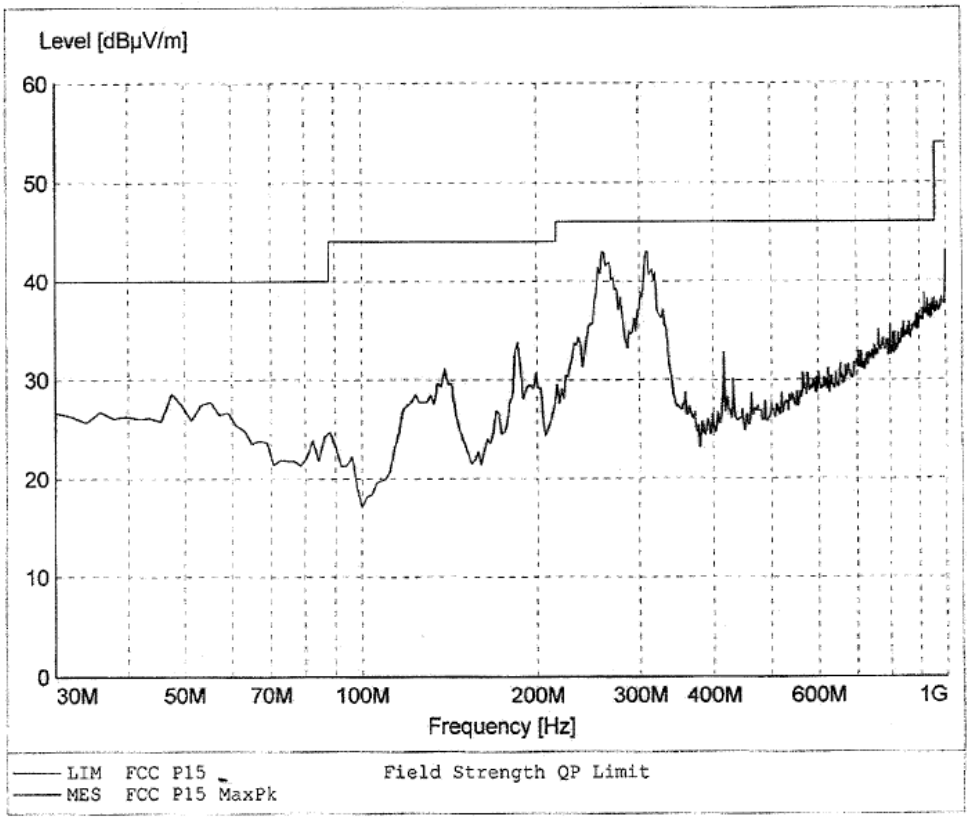
30MHz-1000MHz

EUT: LYNX-MIX164 USB
Manufacturer:
Operating Condition:
Test Site: H
Operator:
Test Specification: 120V 60Hz
Comment:

SWEEP TABLE: "FCC P15"

Short Description:			FCC P15		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	Antenna3



268.737475 MHz 200 cm 24.3°C 39.24 dBuV/m.
315.339661 MHz 200 cm 20.1°C 41.04 dBuV/m.

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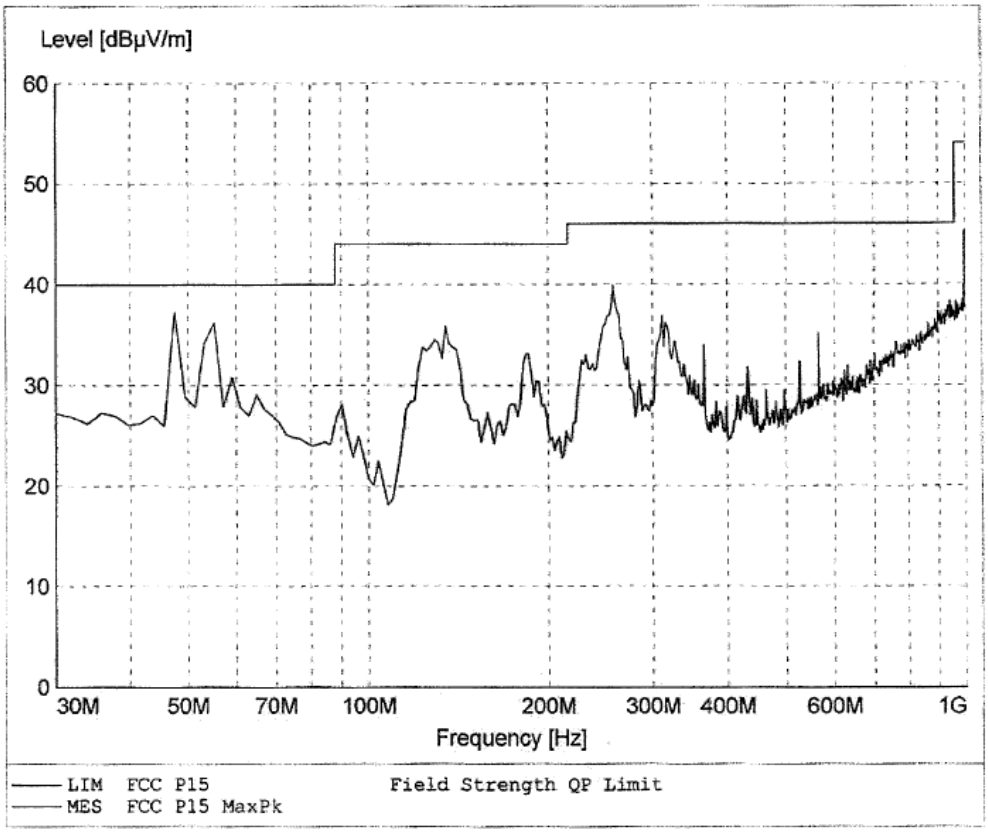
30MHz-1000MHz

EUT: LYNX-MIX164 USB
Manufacturer:
Operating Condition:
Test Site: V
Operator:
Test Specification: 120V 60Hz
Comment:

SWEEP TABLE: "FCC P15"

Short Description: FCC P15

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	Antenna3



47.975952 MHz 100 cm 205°C 36.95 dBuV/m.
55.070140 MHz 100 cm 240°C 36.47 dBuV/m.

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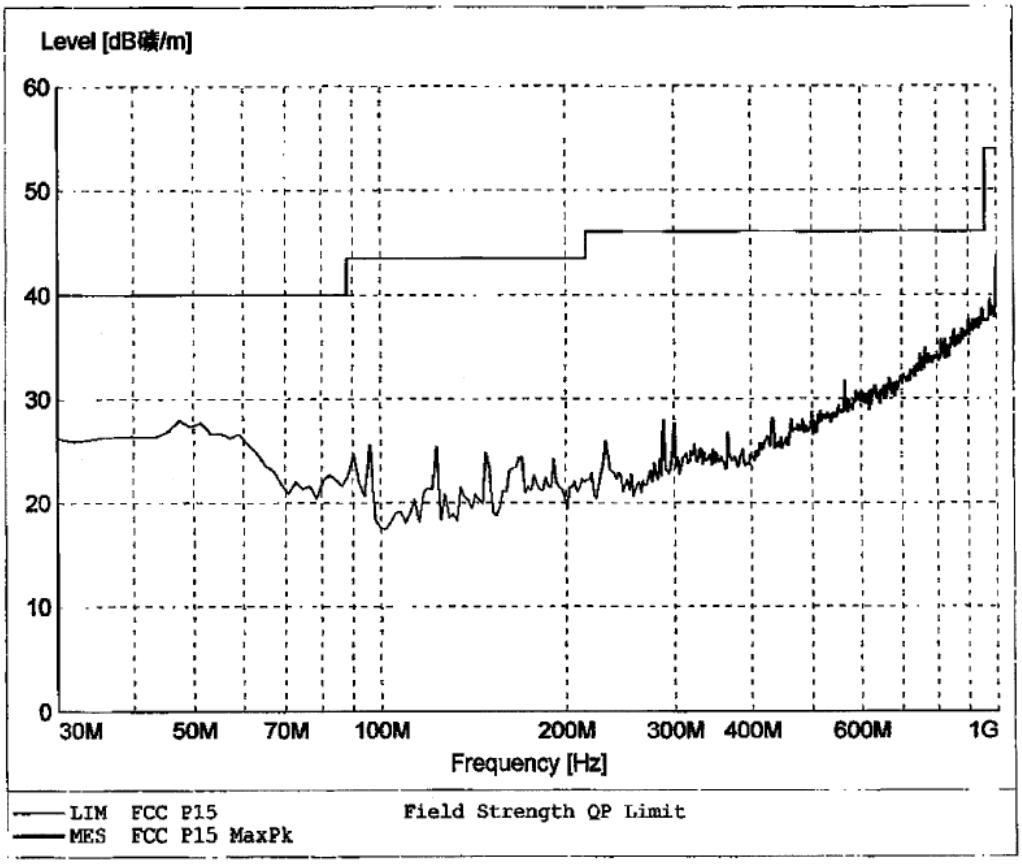
30MHz-1000MHz

EUT: MIX 204USB
Manufacturer:
Operating Condition:
Test Site: H
Operator: 120V 60Hz
Test Specification:
Comment:

SWEEP TABLE: "FCC P15"

Short Description:			FCC P15		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	Antenna3



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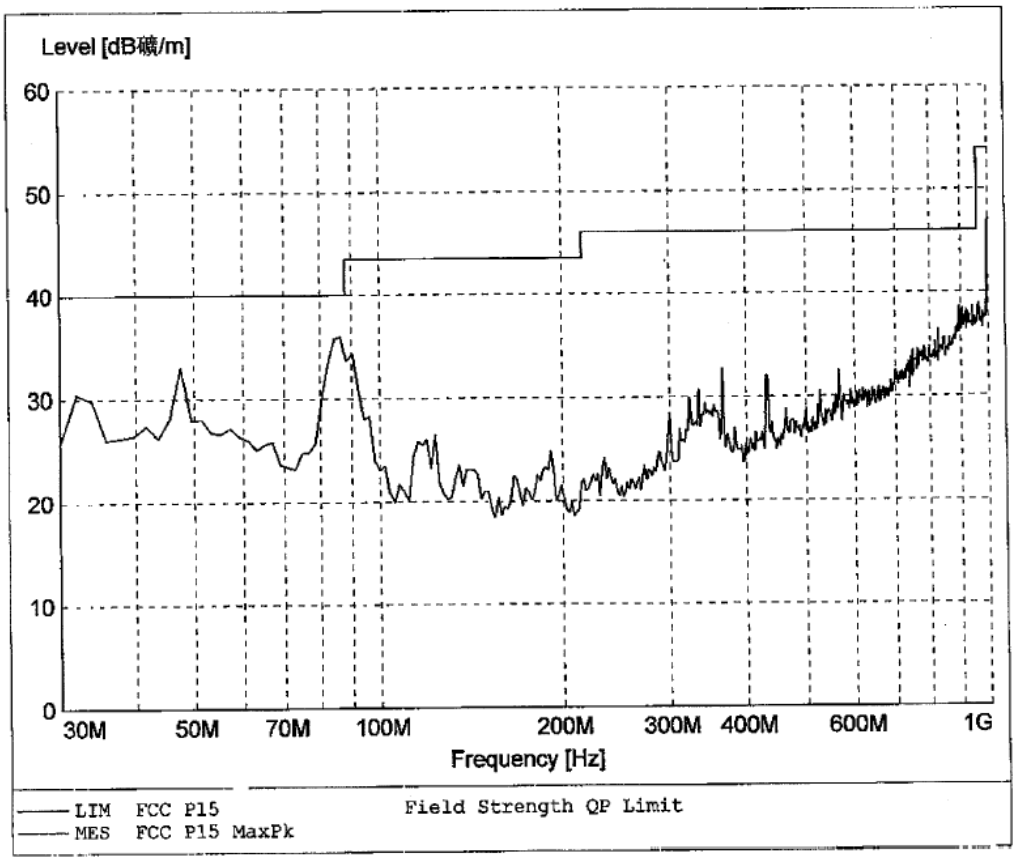
30MHz-1000MHz

EUT: MIX 204USB
Manufacturer:
Operating Condition:
Test Site: V
Operator: 120V 60Hz
Test Specification:
Comment:

SWEEP TABLE: "FCC P15"

Short Description: FCC P15

Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	120 kHz	Antenna3



86.172345 MHz 32.53 dBuV/m.
86.613226 MHz 32.75 dBuV/m.
86.733467 MHz 32.67 dBuV/m.

1000.000 MHz 49.12 dBuV/m.

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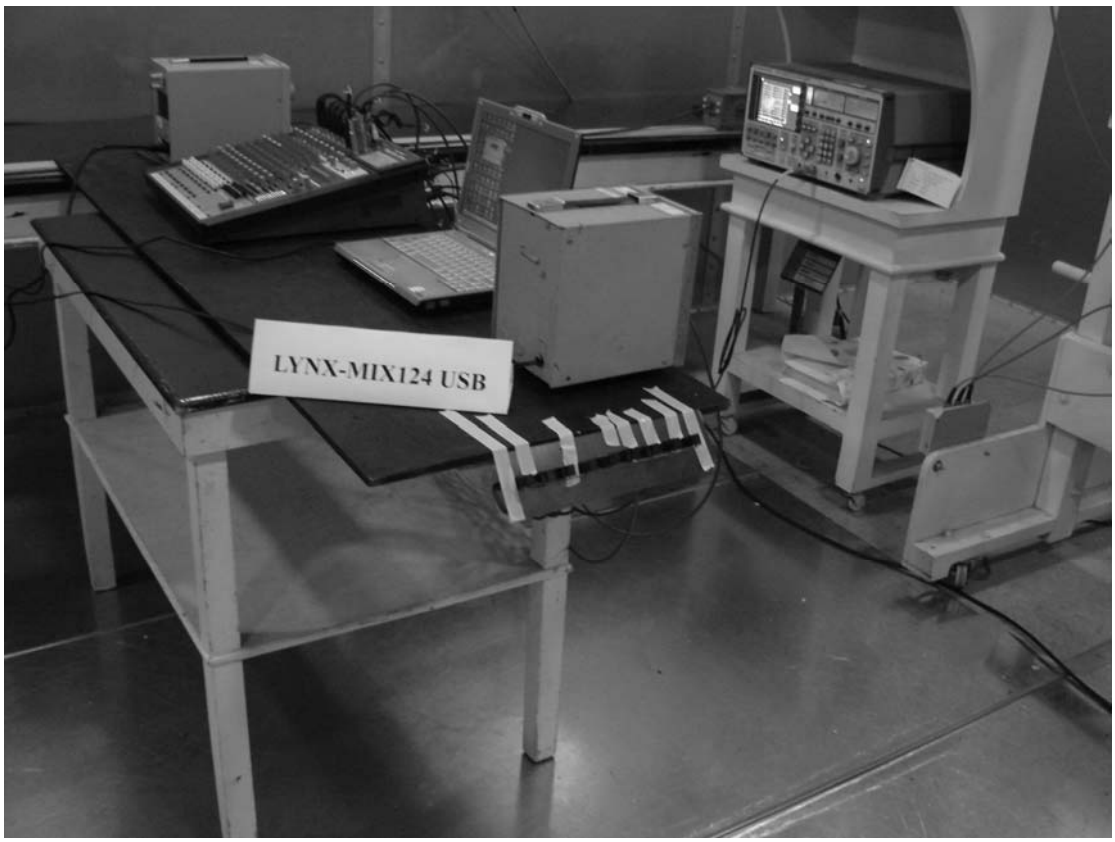
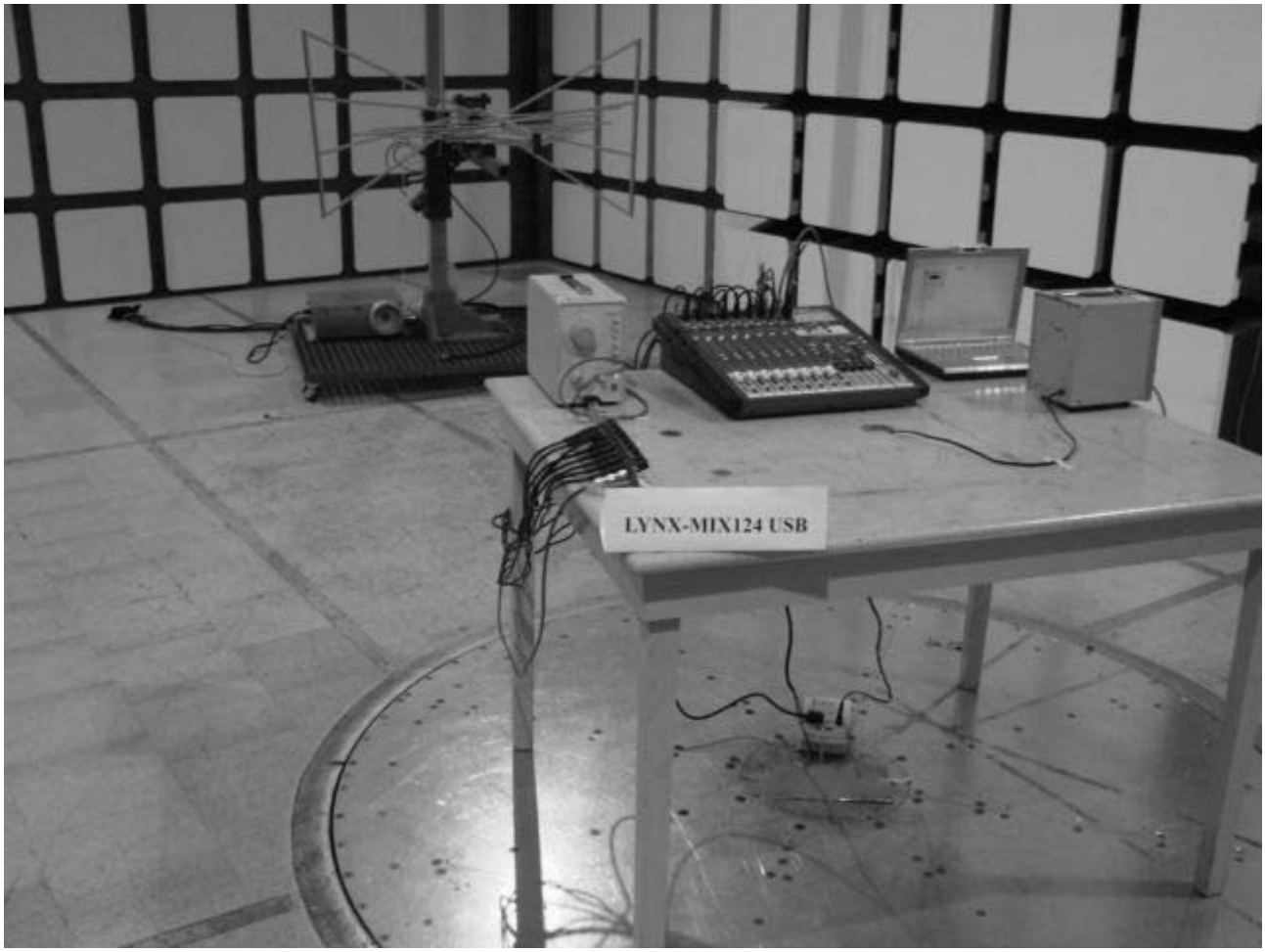
6 Photographs of the Test Set-Up

Photograph 1: Set-up for Conducted Emission



Remark: The set-up photos of LYNX-MIX164 USB, LYNX-MIX204 USB are the same as above.

Photograph 2: Set-up for Radiated Emission



Remark: The set-up photos of LYNX-MIX164 USB, LYNX-MIX204 USB are the same as above.

7 List of Tables

8 List of Photographs