

FCC TEST REPORT**On Behalf of****MINIX TECHNOLOGY LIMITED****Media hub for Android****Model No.: NEO X8H Plus**

Prepared for : MINIX TECHNOLOGY LIMITED
Address : Unit 01, 15/F, Chevalier Commercial Center, No.8 Wang Hoi Road, Kowloon Bay, Kowloon, Hong Kong

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
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Date of receipt of test sample : December 25, 2014

Number of tested samples : 1

Serial number : Prototype

Date of Test : December 25, 2014 – January 26, 2015

Date of Report : January 26, 2015

FCC TEST REPORT**FCC CFR 47 PART 15 Subpart B: 2014****Report Reference No. : LCS1501261017E**

Date Of Issue : January 26, 2015

Testing Laboratory Name : Shenzhen LCS Compliance Testing Laboratory Ltd.Address : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,
Bao'an District, Shenzhen, Guangdong, ChinaTesting Location/ Procedure : Full application of Harmonised standards
Partial application of Harmonised standards
Other standard testing method **Applicant's Name..... : MINIX TECHNOLOGY LIMITED**Address : Unit 01, 15/F, Chevalier Commercial Center, No.8 Wang Hoi
Road, Kowloon Bay, Kowloon, Hong Kong**Test Specification**

Standard : FCC CFR 47 PART 15 Subpart B: 2014, ANSI C63.4-2009

Test Report Form No. : LCSEMC-1.0

TRF Originator : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF..... : Dated 2011-03

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Test Item Description. : Media hub for Android

Trade Mark : MINIX NEO

Model/ Type Reference..... : NEO X8H Plus

Ratings : DC 5V, 2A

Result : Positive**Compiled by:**

Jacky Li/ File administrators

Supervised by:

Danny Huang/ Technique principal

Approved by:

Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS1501261017E	<u>January 26, 2015</u> Date of issue
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Type / Model..... : NEO X8H Plus EUT..... : Media hub for Android
Applicant..... : MINIX TECHNOLOGY LIMITED Address..... : Unit 01, 15/F, Chevalier Commercial Center, No.8 Wang Hoi Road, Kowloon Bay, Kowloon, Hong Kong Telephone..... : (852)-31755678 Fax..... : (852)-31534189 Contact..... : /
Manufacturer..... : MINIX TECHNOLOGY LIMITED Address..... : Unit 01, 15/F, Chevalier Commercial Center, No.8 Wang Hoi Road, Kowloon Bay, Kowloon, Hong Kong Telephone..... : (852)-31755678 Fax..... : (852)-31534189 Contact..... : /
Factory..... : MINIX TECHNOLOGY LIMITED Address..... : Unit 01, 15/F, Chevalier Commercial Center, No.8 Wang Hoi Road, Kowloon Bay, Kowloon, Hong Kong Telephone..... : (852)-31755678 Fax..... : (852)-31534189 Contact..... : /

Test Result according to the standards on page 5: Positive
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The test report merely corresponds to the test sample.
 It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

TABLE OF CONTENTS

Test Report Description	Page
1. SUMMARY OF STANDARDS AND RESULTS	5
1.1. Description of Standards and Results	5
2. GENERAL INFORMATION.....	6
2.1. Description of Device (EUT)	6
2.2. Description of Test Facility	7
2.3. Statement of the measurement uncertainty.....	7
2.4. Measurement Uncertainty.....	7
3. POWER LINE CONDUCTED MEASUREMENT.....	8
3.1. Test Equipment.....	8
3.2. Block Diagram of Test Setup	8
3.3. Power Line Conducted Emission Measurement Limits (Class B)	8
3.4. Configuration of EUT on Measurement	8
3.5. Operating Condition of EUT	9
3.6. Test Procedure	9
3.7. Power Line Conducted Emission Measurement Results	9
4. RADIATED EMISSION MEASUREMENT	11
4.1. Test Equipment.....	11
4.2. Block Diagram of Test Setup	11
4.3. Radiated Emission Limit (Class B)	12
4.4. EUT Configuration on Measurement	12
4.5. Operating Condition of EUT	12
4.6. Test Procedure	12
4.7. Radiated Emission Noise Measurement Result.....	13
5. MANUFACTURER/ APPROVAL HOLDER DECLARATION	16

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION			
Description of Test Item	Standard	Limits	Results
Conducted disturbance at mains terminals	FCC CFR 47 PART 15 Subpart B: 2014	Class B	PASS
Radiated disturbance	FCC CFR 47 PART 15 Subpart B: 2014	Class B	PASS

N/A is an abbreviation for Not Applicable.

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

EUT	: Media hub for Android
Model Number	: NEO X8H Plus
Power Supply	: DC 5V, 2A
Frequency Range	: 2412.00~2462.00MHz for WIFI 2402.00~2480.00MHz for BT V3.0+V4.0
Channel Spacing	: 5MHz for WIFI; 1MHz for BT V3.0; 2MHz for BT V4.0
Channel Number	: 11 Channels for WIFI 20MHz Bandwidth 7 Channels for WIFI 40MHz Bandwidth 79 Channels for BT V3.0 40 Channels for BT V4.0
Modulation Technology	: IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (64QAM, 16QAM,QPSK,BPSK) GFSK, $\pi/4$ -DQPSK, 8-DPSK for BT V3.0 GFSK for BT V4.0
Data Rates	: IEEE 802.11b: 1-11Mbps IEEE 802.11g: 6-54Mbps IEEE 802.11n: MCS0-MCS15 BT V3.0: 1 Mbps BT V4.0: 1 Mbps
Antenna Type And Gain	: Dipole antenna, 5.0dBi(Max.)

2.2. Description of Test Facility

Site Description

EMC Lab. : Accredited by CNAS, June 04, 2010
 The Certificate Registration Number. is L4595.
 Accredited by FCC, July 14, 2011
 The Certificate Registration Number. is 899208.
 Accredited by Industry Canada, May. 02, 2011
 The Certificate Registration Number. is 9642A-1
 Accredited by VCCI, Japan January 30, 2012
 The Certificate Registration Number. is C-4260 and R-3804
 Accredited by ESMD, April 24, 2012
 The Certificate Registration Number. is ARCB0108.
 Accredited by UL, June 11, 2012
 The Certificate Registration Number. is 100571-492.
 Accredited by TUV, November 21, 2012
 The Certificate Registration Number. is SCN1081
 Accredited by Intertek, December 21, 2012
 The Certificate Registration Number. is 2011-RTL-L1-50.

2.3. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

2.4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty	Note
Radiation Uncertainty	30MHz~200MHz	± 2.96dB	(1)
	200MHz~1000MHz	± 3.10dB	(1)
Conduction Uncertainty	150kHz~30MHz	± 1.63dB	(1)
Power disturbance	30MHz~300MHz	± 1.60dB	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

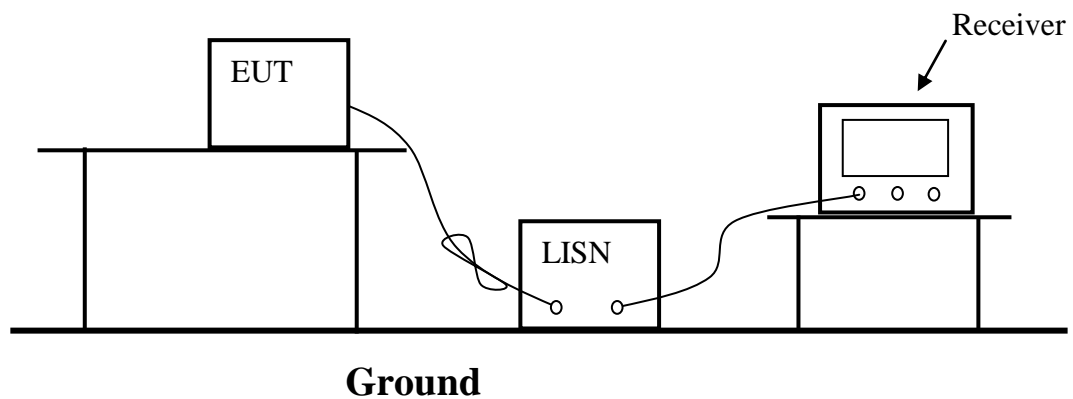
3. POWER LINE CONDUCTED MEASUREMENT

3.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
1	EMI Test Receiver	R & S	ESCI	101142	2014/06/18	2015/06/17
2	EMI Test Receiver	R & S	ESPI	101840	2014/06/18	2015/06/17
3	Artificial Mains	R & S	ENV216	101288	2014/06/19	2015/06/18
4	EMI Test Software	AUDIX	E3	N/A	2014/06/18	2015/06/17

3.2. Block Diagram of Test Setup



3.3. Power Line Conducted Emission Measurement Limits (Class B)

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 ~ 0.50	66-56	56-46
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turn on the power of all equipment.

3.5.3. Let the EUT work in test mode (ON) and measure it.

3.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC/ANSI C63.4-2009 on Conducted Emission Measurement.

The bandwidth of test receiver is set at 9kHz.

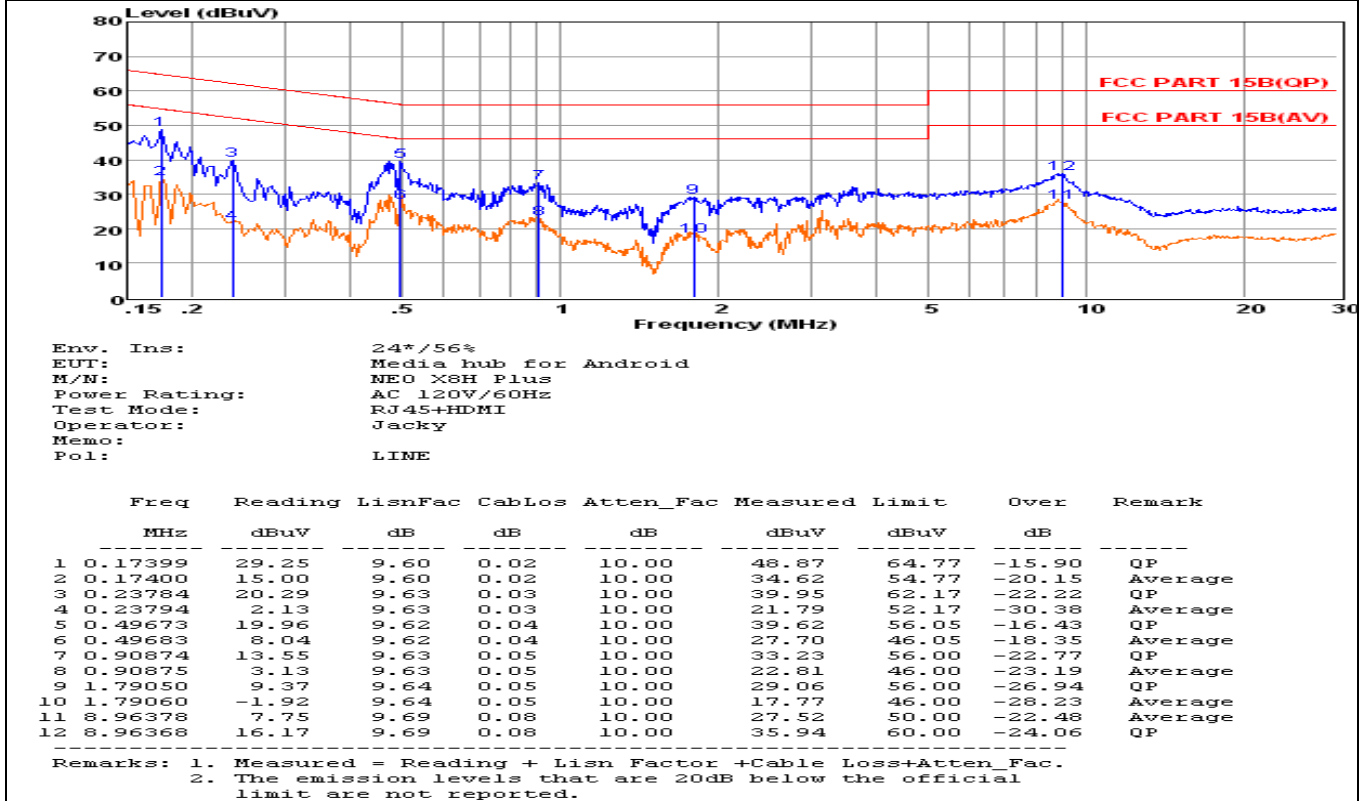
The frequency range from 150kHz to 30MHz is checked.

3.7. Power Line Conducted Emission Measurement Results

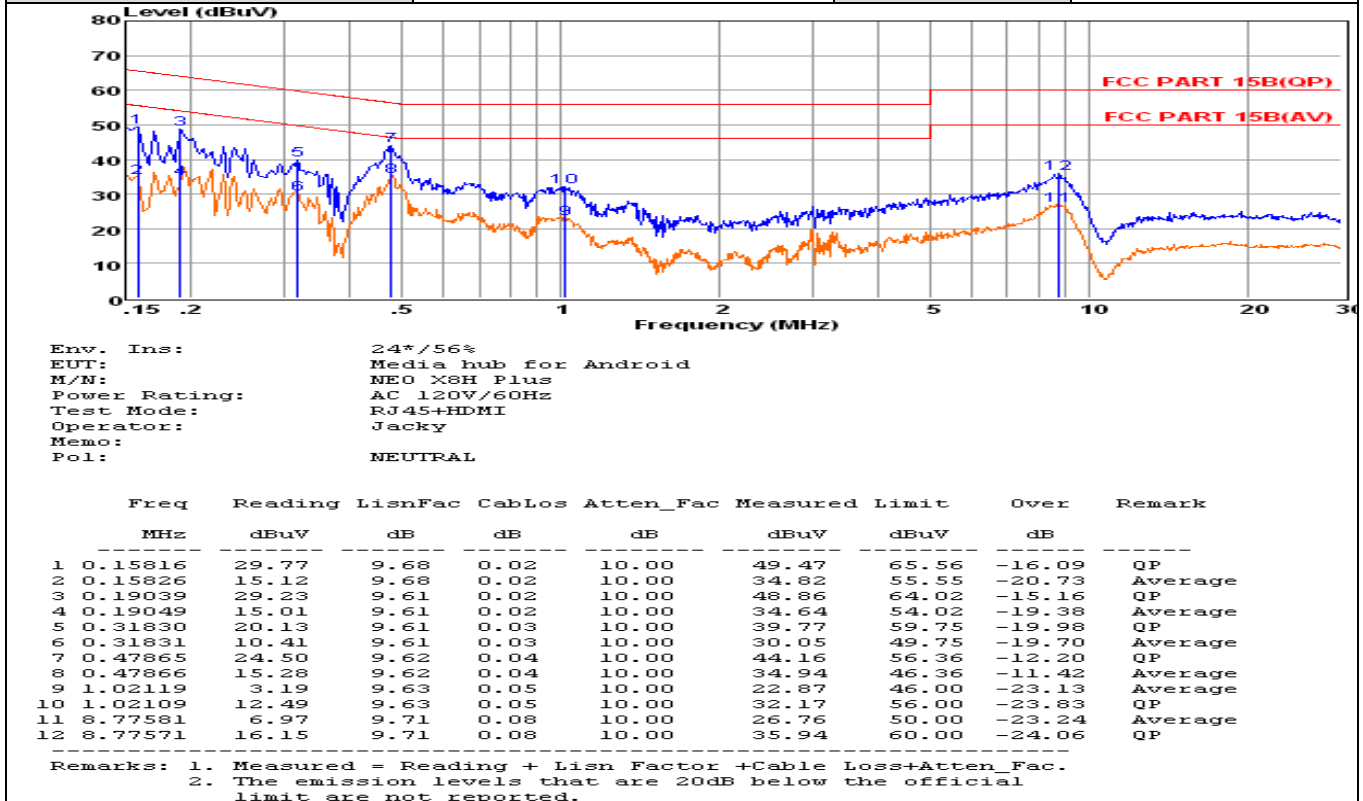
PASS.

All the scanning waveforms for Conducted Emission Measurement are refer to the next page. Only record the worst results.

Model No.	NEO X8H Plus	Test Date	January 15, 2015
Environmental Conditions	24°C, 56% RH	Test Mode	RJ45+HDMI
Pol	Line	Test Engineer	Jacky



Model No.	NEO X8H Plus	Test Date	January 15, 2015
Environmental Conditions	24°C, 56% RH	Test Mode	RJ45+HDMI
Pol	Neutral	Test Engineer	Jacky



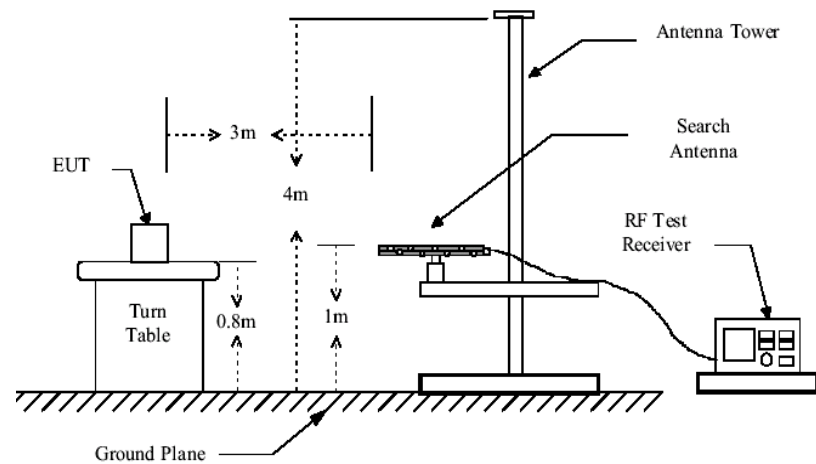
4. RADIATED EMISSION MEASUREMENT

4.1. Test Equipment

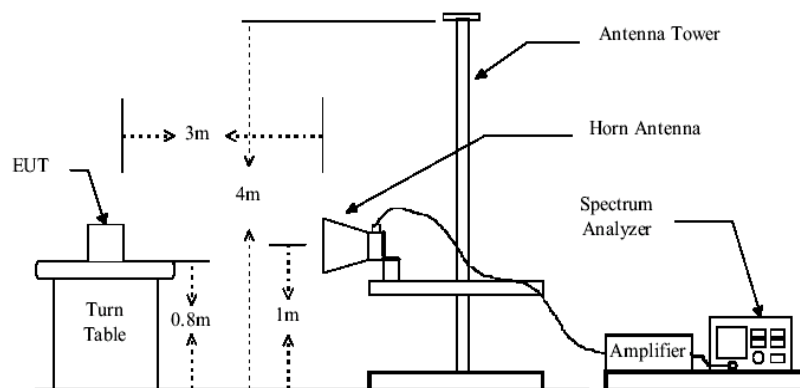
The following test equipments are used during the radiated emission measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Last Cal.
1	EMI Test Receiver	R & S	ESCI	101142	2014/06/18	2015/06/17
2	EMI Test Receiver	R & S	ESPI	101840	2014/06/18	2015/06/17
3	Log per Antenna	R & S	VULB9163	9163-470	2014/06/21	2015/06/20
4	Spectrum Analyzer	Agilent	E4407B	MY41440754	2014/07/16	2015/07/15
5	Horn Antenna	ETS.LINDGREN	3115	00034771	2014/12/11	2015/12/10
6	Horn Antenna	SCHWARZBECK	BBHA9170	BBHA91701 54	2014/06/10	2015/07/09
7	EMI Test Software	AUDIX	E3	N/A	2014/06/18	2015/06/17

4.2. Block Diagram of Test Setup



Below IG



Above IG

4.3. Radiated Emission Limit (Class B)

Limits for radiated disturbance Blow 1GHz

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		dB(μ V)/m	dB(μ V)/m
30 ~ 40	3	40.0	Quasi-peak Value
88 ~ 43.5	3	43.5	Quasi-peak Value
216 ~ 46	3	46.0	Quasi-peak Value
960 ~ 54	3	54.0	Quasi-peak Value
Above 1GHz	3	54	Average Value
	3	74	Peak Value

Remark : (1) Emission level (dB) μ V = 20 log Emission level μ V/m
(2) The smaller limit shall apply at the cross point between two frequency bands.
(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.4. EUT Configuration on Measurement

The following equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.5. Operating Condition of EUT

4.5.1. Setup the EUT as shown in Section 4.2.

4.5.2. Let the EUT work in test mode (on) and measure it.

4.6. Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated by-log antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2009 on radiated emission measurement. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Below 1G:

The bandwidth of the EMI test receiver is set at 120kHz, 1000kHz.

The frequency range from 30MHz to 1000MHz is checked.

Above 1G:

The bandwidth of the EMI test receiver is set at 1MHz, 3MHz for Peak detector.

The bandwidth of the EMI test receiver is set at 1MHz, 10Hz for Average detector

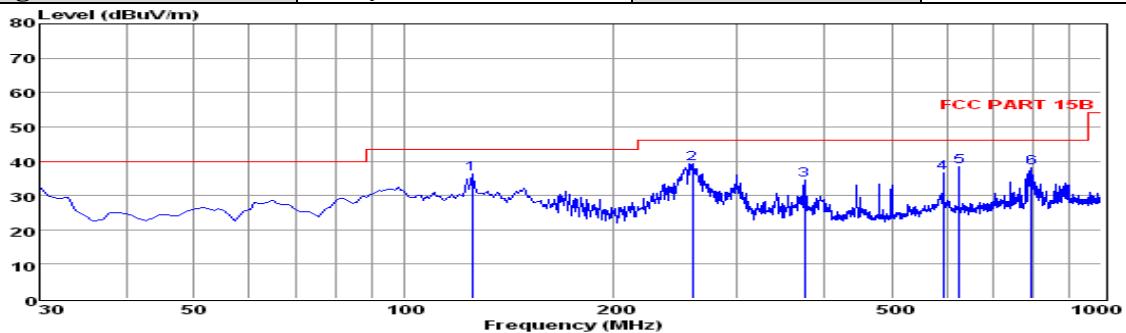
The frequency range from 1GHz to 24GHz is checked.

4.7. Radiated Emission Noise Measurement Result

PASS.

The scanning waveforms please refer to the next page. Only record the worst results.
Below 30MHz the result is too low so we did not show it.

Model No.	NEO X8H Plus	Test Date	January 15, 2015
Environmental Conditions	24°C, 56% RH	Test Mode	RJ45+HDMI+USB
Pol	Vertical	Detector Function	Quasi-peak
Test Engineer	Jacky	Distance	3m

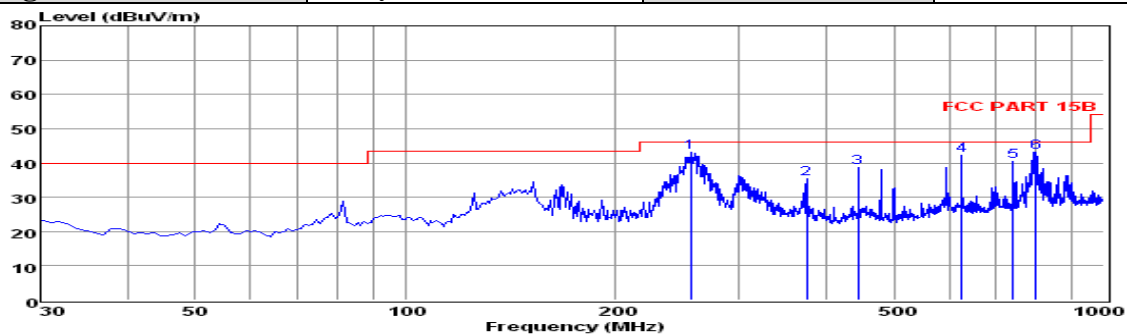


Env./Ins: 24°C/56%
 EUT: Media hub for Android
 M/N: NEO X8H Plus
 Power Rating: AC 120V/60Hz
 Test Mode: RJ45+HDMI+USB
 Operator: Jacky
 Memo:
 pol: VERTICAL

	Freq MHz	Reading dBuV	CabLos dB	Antfac dB/m	Measured dBuV/m	Limit dBuV/m	Over dB	Remark
1	125.06	25.96	0.71	9.70	36.37	43.50	-7.13	QP
2	258.92	26.33	1.01	12.05	39.39	46.00	-6.61	QP
3	375.32	18.83	1.10	14.55	34.48	46.00	-11.52	QP
4	593.57	16.67	1.51	18.33	36.51	46.00	-9.49	QP
5	625.58	18.21	1.63	18.54	38.38	46.00	-7.62	QP
6	794.36	16.21	1.73	19.99	37.93	46.00	-8.07	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that ate 20db blow the official limit are not reported

Model No.	NEO X8H Plus	Test Date	January 15, 2015
Environmental Conditions	24°C, 56% RH	Test Mode	RJ45+HDMI+USB
Pol	Horizontal	Detector Function	Quasi-peak
Test Engineer	Jacky	Distance	3m



Env./Ins: 24°C/56%
 EUT: Media hub for Android
 M/N: NEO X8H Plus
 Power Rating: AC 120V/60Hz
 Test Mode: RJ45+HDMI+USB
 Operator: Jacky
 Memo:
 pol: HORIZONTAL

	Freq MHz	Reading dBuV	CabLos dB	Antfac dB/m	Measured dBuV/m	Limit dBuV/m	Over dB	Remark
1	256.01	30.05	1.02	12.06	43.13	46.00	-2.87	QP
2	375.32	19.83	1.10	14.55	35.48	46.00	-10.52	QP
3	445.16	21.57	1.42	15.57	38.56	46.00	-7.44	QP
4	625.58	22.15	1.63	18.54	42.32	46.00	-3.68	QP
5	741.98	19.47	1.78	19.33	40.58	46.00	-5.42	QP
6	800.18	21.43	1.68	20.06	43.17	46.00	-2.83	QP

Note: 1. All readings are Quasi-peak values.
 2. Measured= Reading + Antenna Factor + Cable Loss
 3. The emission that ate 20db blow the official limit are not reported

Test Mode: Mode 1(above 1GHz)	Tested by: Jacky
Test voltage: DC 5V	Test Distance: 3m
Detector Function: Peak+AV	Test Results: Passed

Polarization	Frequency MHz	Emission Level dB μ V/m		Limits dB μ V/m		Margin dB μ V/m	
Horizontal	1365.85	58.63	41.69	74.00	54.00	-15.37	-12.31
	1983.45	60.74	43.28	74.00	54.00	-13.26	-10.72
	2566.36	61.59	44.56	74.00	54.00	-12.41	-9.44
	3129.64	65.08	47.67	74.00	54.00	-8.92	-6.33
	3851.02	62.20	45.25	74.00	54.00	-11.8	-8.75
	4559.74	64.32	45.08	74.00	54.00	-9.68	-8.92
Vertical	1365.85	58.06	41.41	74.00	54.00	-15.94	-12.59
	1983.45	60.41	43.56	74.00	54.00	-13.59	-10.44
	2566.36	60.78	44.36	74.00	54.00	-13.22	-9.64
	3129.64	61.62	44.02	74.00	54.00	-12.38	-9.98
	3851.02	62.05	45.41	74.00	54.00	-11.95	-8.59
	4559.74	63.54	45.78	74.00	54.00	-10.46	-12.31

Notes:

1. Measuring frequencies from 9k~26.5GHz , No emission found between lowest internal used/generated frequency to 30MHz.
2. Radiated emissions measured in frequency range from 9k~26.5GHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown “ --- ” in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measure

5. MANUFACTURER/ APPROVAL HOLDER DECLARATION

The following identical model(s):

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Belong to the tested device:

Product description : Media hub for Android

Model name : NEO X8H Plus

Remark: No additional models were tested.

-----THE END OF REPORT-----