

# EMI - TEST REPORT

- Human Exposure -

**Type / Model Name** : NXP2RX / NXP2RX-C

**Product Description** : Digital Wireless Audio Network

**Applicant** : Neutrik AG

**Address** : Im Alten Riet 143

9494 Schaan

LIECHTENSTEIN

**Manufacturer** : Neutrik AG

**Address** : Im Alten Riet 143

9494 Schaan

LIECHTENSTEIN

<p><b>Test Result</b> according to the standards listed in clause 1 test standards:</p>	<p><b>POSITIVE</b></p>
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<p><b>Test Report No. :</b>            <b>T40632-00-05JP</b></p>	<p style="text-align: center;">15. March 2016 Date of issue</p>
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Deutsche  
Akkreditierungsstelle  
D-PL-12030-01-01  
D-PL-12030-01-02

The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test results without the written permission of the test laboratory.

# **1 TEST RESULT SUMMERY**

This report replaces the report T40632-00-02JP.

FCC Rule Part	RSS Rule Part	Description	Result
OET Bulletin 65	RSS 102	MPE	passed

The mentioned RSS Rule Parts in the above table are related to:  
RSS 102, Issue 5, March 2015


## **1.1 Final assessment**

The equipment under test fulfills the EMI requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Calculation done : 15 March 2016

Checked by:

  
Klaus  
Gegenfurtner  
2016.03.17  
13:48:28 +01'00'

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Klaus Gegenfurtner  
Teamleader Radio

Calculated by:

  
Jürgen Pessinger  
2016.03.17  
11:10:24 +01'00'

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Jürgen Pessinger

## 2 CALCULATION

### 2.1 EuT RF parameters

technology	Frequency band	RF power (average)	Maximum antenna gain
WiFi	2400 – 2483,5 MHz	23.7dBm @ 2437MHz*	2,15 dBi
Proprietary standard	5150 – 5850 MHz	29dBm @ 5745MHz**	9 dBi

\* Value taken from Grant (module FCC-ID: R68XPICOW, IC-ID: 3867A-XPICOW)

\*\* Value taken from document “Operational Description XIRIUM PRO”

Note: For calculation  $\pm 1.5$ dB tolerance was applied.

The minimum distance of radiating elements to persons has to be more than 20cm.

### 2.2 Calculation of MPE – FCC

#### 2.2.1 Description of Calculation

Following formula was used for calculation:

Friis transmission formula:

$$P_d = \frac{P_{out} * G}{4 * \pi * r^2}$$

Where:

$P_d$  = power density (mW/cm<sup>2</sup>)

$P_{out}$  = output power to antenna (mW)

$G$  = gain of antenna (linear scale)

$r$  = distance between antenna and observation point (cm)

#### 2.2.2 Limits for maximum permissible exposure (MPE):

Table 1B of 47 CFR 1.1310

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm <sup>2</sup> )	Averaging time (minutes)
<b>(B) Limits for General Population / Uncontrolled Exposure</b>				
0.3 – 3.0	614	1.63	100	30
3.0 – 30	824/ $f$	2.19/ $f$	180/ $f^2$	30
30 - 300	27.5	0.073	0.2	30
300-1500	---	---	$f/1500$	30
1500-100000	---	---	1.0	30

$f$  = Frequency in MHz

**2.2.3 Calculation of worst case**

	technology:	WiFi	proprietary	
applicable frequency	2437	MHz	5745	MHz
$P_{out}$ output power to antenna	331,2	mW	446,7	mW
G gain of antenna (factor)	1,65	--	7,95	--
r distance to observation point	20	cm	20	cm
$P_d$ power density	0,11	mW/cm <sup>2</sup>	0,71	mW/cm <sup>2</sup>
Limit	1	mW/cm <sup>2</sup>	1	mW/cm <sup>2</sup>

**2.2.4 Conclusion**

The Limit according to Table 1B of 47 CFR 1.1310 is kept

**2.1 Calculation of MPE – IC**
**2.1.1 Exemption Limits for Routine Evaluation – RF Exposure Evaluation:**

RSS-102, Issue 5, 2.5.2

RF exposure evaluation is required if the separation distance between the user and/or bystander and the device's radiating element is greater than 20 cm, except when the device operates as follows:

- below 20 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 1 W (adjusted for tune-up tolerance);
- at or above 20 MHz and below 48 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $4.49/f_{0.5}W$  (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 48 MHz and below 300 MHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 0.6 W (adjusted for tune-up tolerance);
- at or above 300 MHz and below 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than  $1.31 \times 10^{-2} f_{0.6834} W$  (adjusted for tune-up tolerance), where  $f$  is in MHz;
- at or above 6 GHz and the source-based, time-averaged maximum e.i.r.p. of the device is equal to or less than 5 W (adjusted for tune-up tolerance).

**2.1.2 Calculation of worst case**

technology:	WiFi		proprietary	
applicable frequency	2437	MHz	5745	MHz
P <sub>out</sub> output power to antenna	331,2	mW	446,7	mW
G gain of antenna (factor)	1,65	--	7,95	--
maximum e.i.r.p.	0,546	W	3,551	W
Exemption limit 300 MHz - 6 GHz	2,703	W	4,857	W

**2.1.3 Conclusion**

The Exemption limits for routine Evaluation are kept.