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ATCB
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Subject
Cover letter

Date
November 07, 2008.

Our reference
17_CGDTRANSED_comments
-and-answers

Your reference
ATCB006892

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Our General Terms and Conditions, as filed at the Chamber of Commerce in Groningen, are applicable to all orders given to TÜV Rheinland EPS B.V.

TÜV Rheinland EPS B.V. is registered at the Chamber of Commerce in Groningen with no. 27247331.

Dear Mr. Johnson,

Related to your comments based on our request for certification for the following product,

FCC ID : CGDTRANSED
Brand : Nedap
Model : TRANSIT EDGE WIRELESS
Description : A field disturbance sensor operating on 2,4 GHz extended with a point to multipoint long range wireless Ethernet radio-data link module with FCC ID: R4N-AW900M designed to work in the frequency band 902-928 MHz.

we would like to provide you with the following information:

Question 1:

The 2nd co-located TX appears to use standard connectors (TNC, SMA, BNC) in the information provided. However the original approval for FCC ID R4N-AW900M only utilized the reverse polarity SMA antenna and the modular letter cites that only non-standard connectors would be used. Please review/justify/comment as necessary. Please note that to legally use the modular approval, all aspects of its certification must be met.

Answer 1:

The 2nd co-located TX is mounted fully in line with the instructions provided by the supplier of the RF module. The Module, as approved with the antenna used, has been build into the device. The module is also as stand alone transmitter available on the market with the same antenna connector (see 20_CGDTRANSED_IMG_5758.JPG)

In the user manual the 15.21 has been incorporated. Also this type of equipment needs to be installed and serviced by experts and will not be intended for the average consumer market.

The model name S467AH-915S is identical to the model AW2, the model name used in the documents. See attached brochure where the AW2 in combination with the modem has been indicated as FCC Approved.

The Brochure has been added as 18_CGDTRANSED_Brochure.pdf

The Test report related to the modem in combination with the AW2 (S467AH-915S) has also been added as 19_CGDTRANSED_AW2-report.pdf

Question 2:

The block diagram appears to be a system block diagram. However the FCC expects the block diagram should show the frequencies of all oscillators in the TX portion of the device being Certified (CFR 2.1033(a)(5)). Ideally this block diagram would be the detailed level for the part 7815123 shown on the current block diagram. Please update the list of confidential exhibits if necessary.

Answer 2:

The block diagram has been modified and the frequencies of all oscillators have been incorporated. The documents has been attached as 07_CGDTRANSED_Block-Diagram-amd.pdf

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Question 3:

Complete photographs of the top/bottom of all boards does not appear to be provided. For instance, a) the 900 MHz TX appears to be several boards, b) photographs of the TX board portion being Certified do not appear to be provided and c) There does appear to maybe be a missing board from the photographs. For the 900 MHz TX, currently there are not sufficient photographs to compare to the original application to show this is the same device. Please provide complete top/bottom photographs.

Answer3:

The 900MHz Tx contains of two boards connected by metal pins. We have never issued photo's of FCC approved parts. We consider this as the responsibility of the responsible party selling this device with the identified FCC ID. It is a commercially on market available modem which has been used. The manufacturer has chosen to build the modem into it's system however they could have issued instructions how to build a modem into the TRANSIT EDGE and leave the responsibility up to the user. We have updated the photo report of the interior photographs with a side view of the modem and the coupling unit for the antenna of the 2.4 GHz part. All other photo's of all other boards are displayed including the photo's of the Tx to be certified (see 09_CGDTRANSED_Internal-Photograps_mod.pdf)

Question 4:

Ideally the Model number Certified should match the format on the label. It appears on the label in all capital letters, while the form/test reports provided shows another format. Please review and correct for consistency.

Answer 4:

The model number has been corrected (all capitals) in all documents. The documents have been attached (CGD# 01, 02, 05, 07, 09, 13, 15 and 16 and 1444A# 03, 04).

Question 5:

Regarding MPE – it is uncertain if this device is designed to preclude TX at the same time. If nothing precludes TX at the same time, then MPE should include simultaneous considerations as well. In this case, the limits for each TX are different. There for consideration of simultaneous TX, the MPE should be updated to show, (MPE of TX 1 / TX 1 limit) + (MPE of TX 2 / TX 2 limit) is < 1. Please update or explain what precludes the Transmitters from simultaneous TX. Additionally, it appears that the MPE for the 900 MHz TX used is utilizing a different antenna than given (15 dBi vs. 2 dBi). Please clarify what antennas are being covered for the 900 MHz TX and update MPE and antenna information as necessary.

Answer 5:

A modified document 16_CGDTRANSED_rf_exposure_mod.pdf has been added. In this document the correct MPE calculation for the AW2 has been added. The previous calculation was based on the worst case situation with the maximum allowed antenna gain.

Both systems can transmit simultaneously this means that the maximum MPE would be:

$$\frac{MPE(Tx1)}{Tx1Limit} + \frac{MPE(Tx2)}{Tx2Limit} < 1 \rightarrow \frac{0.06}{1} + \frac{0.038}{0.6} = 0.06 + 0.063 = 0.123 < 1$$

where Tx1 is the 2,4 GHz transmitter and the limits should be 10 W/m²

(= 1 mW/cm²) and the calculation includes maximum reflection. Tx2 is the 915 MHz modem. Here the calculation does not include maximum reflection. According EU the limits should be 0.45 mW/cm² for 915 MHz but the limit as specified by the manufacturer of 0.6 has been used. Even if the limit would be 0.45 then the outcome of the calculation would be less than 1. The used antenna is the AW2. This antenna has substantial less antenna gain as the previous indicated antenna. The Antenna information has been updated as 05_CGDTRANSED_Antenna_information-B03-amd.pdf

Question 6:

For IC, an RSS-102 Annex should be provided and signed regarding RF exposure information. See current cover levels for forms if necessary.

Answer 6:

The attestation has been added, see 20_CGDTRANSED_IC_Attestation.pdf

Question 7:

For IC it appears that the certification number covers 3 models of TX at different power levels. Please confirm the particular model being used for this application. Depending on the model, note that this may affect MPE calculations.

Answer 7:

This remark is not clear to us. The application is revering to the one and only device identified as TRANSIT EDGE WIRELESS which will be identified as IC: 1444A-TRANSED. The device identification has been updated in all documents. We cannot find the 3 models nor 3 power levels other than for the filed model.

Question 8:

Please note that REL listings themselves may be delayed by IC. IC is requesting that a Canadian Representative letter be provided to help ensure timely REL listing for the future – although this letter is currently voluntary and not required. This letter is simply an acknowledgement by the Canadian Rep that they understand their responsibility. (See RSP-100 section 3.4 for responsibilities).

Answer 8:

We have taken good notice of this requirement and will forward appropriate documents in the future.

Question 9:

The users manual mentions 15 dBi gain antenna as well, while this is not show or given in the antenna attestation. Please review.

Answer 9:

The antenna used in the antenna AW2. The specifications are available in the updated document 05_CGDTRANSED_Antenna_information-B03.pdf

Question 10:

Users manual appears to be missing basic 15.105 information.

Answer 10:

According to us, this information should be printed for a Class B digital device. Since the basic TRANSIT EDGE is also an intentional radiator and in this intentional radiator, another intentional radiator is placed (both class C equipment) it seems to us not correct. However we have incorporated the text in the user manual as requested (see 15_CGDTRANSED_User_Manual_mod.pdf).

Question 11:

This device is asking for Certification under 15.245. 15.245 is for field disturbance sensors, but this device appears to be an RF ID device. According to the FCC, the primary function cannot be data transmission but may be allowed as an ancillary function. Additionally, Data transfer is possible only with FDS systems using passive tags and only if the data transfer function is ancillary to the primary purpose of a FDS system which is the detection of the presence of people or objects. Please explain.

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Answer 11:

This device is a field disturbance sensor. This has been discussed when the first basic model with FCC ID: CGD-TRANSIT was filed. The tag is influencing the field (as intended by field disturbance sensing) but the tag has the capability of influencing the field with a particular on-off pattern. The field disturbances are detected and the on-off disturbances represents a particular address. No data is transmitted by the 2.4 GHz Tx of the TRANSIT EDGE WIRELESS.

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Question 12:

AC powerline emissions appear to show a strip outlet attached. Has this strip been verified to not contain any filtering componets? Generally the FCC desires the device be directly plugged into the LISN.

Answer 12:

No filtering is included in the strip outlet. The LISN is not capable of handling standard main plugs. The connection to the LISN is made by using this strip outlet. The calibration has also been performed using this connection. The Connector of the LISN may be considered as being the strip outlet.

Question 13:

Limits for 1.8 GHz should be based on 20 dB down from the level of the 900 MHz fundamental. Limits given are not applicable as this is a harmonic of a different TX.

Answer 13:

The test reports have been modified. The measured value for the harmonics of the 900 MHz Tx have been incorporated for information only. The tables containing these values have been modified (see 13_CGDTRANSED_Test_report_Part15C_mod.pdf) and 04_1444A-TRANSED_Test_report_RSS_amd.pdf.)

Question 14:

Limits at 4.8768 GHz, 7.3152 GHz, 12.192 GHz, 4.896 GHz, 7.344 GHz, 12.240 GHz, 4.914 GHz, 7.371 GHz, 12,284 GHz should be 54 dBuV/m AVG/ 74 dBuV/m PK (15.209 limits for Restricted Bands).

Answer 14:

The test reports have been modified. The limits on mentioned frequencies have been updated The tables containing these values have been modified (see 13_CGDTRANSED_Test_report_Part15C_mod.pdf) and 04_1444A-TRANSED_Test_report_RSS_amd.pdf.)

Question 15:

Much of the test equipment appears out of calibration for the testing performed in July 2008.

Answer 15:

The report shows the date of the latest calibration and when the following calibration should be performed. We could not find any inconsistency in these calibration dates in respect with the date the measurements have been performed.

Best regards,
TÜV Rheinland EPS B.V.



P. de Beer
Approvals & Quality Manager