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Date: July 2, 2014

Federal Communications Commission
Equipment Approval Services
P.O. Box 35815
Pittsburgh, PA 15251-3315

Applicant: MikroTik Ltd.,
Aizkraukles street 23
Pērnavas street 46
Latvia

Equipment: R11e-5HacD FCC ID: TV7R11E5HACD
CFR Rules: 15.247 (Modular Transmitter)

Re: Limited Single Modular transmitter approval

Gentlemen:

As required in CFR 47 15.212 regarding unlicensed modular transmitter approval, the following information has been addressed. The transmitter module is a complete RF transmitter containing its own reference oscillator, antenna port connections, power regulation, etc. The connections available on the module are for power, antennas and data interface only. Below please find information, addressing each requirement from CFR 47 15.212.

Per CFR 47 15.212

- (i) The radio elements of the modular transmitter must have their own shielding. The physical crystal and tuning capacitors may be located external to the shielded radio elements.
Clarification: The R11e-5HacD is produced with permanently attached RF shield during production.
- (ii) The modular transmitter must have buffered modulation/data inputs (if such inputs are provided) to ensure that the module will comply with part 15 requirements under conditions of excessive data rates or over-modulation.
Clarification: The R11e-5HacD buffers the modulation and data inputs ensuring compliance with regulations.
- (iii) The modular transmitter must have its own power supply regulation.
Clarification: The R11e-5HacD incorporates regulators to ensure operation in specified range.
- (iv) The modular transmitter must comply with the antenna and transmission system requirements of §§ 15.203, 15.204(b) and 15.204(c). The antenna must either be permanently attached or employ a “unique” antenna coupler (at all connections between the module and the antenna, including the cable). The “professional installation” provision of § 15.203 is not applicable to modules but can apply to limited modular approvals under paragraph (b) of this section.
Clarification: The R11e-5HacD incorporates MMCX antenna connector and is therefore subject to limited module authorization.
- (v) The modular transmitter must be tested in a stand-alone configuration. *i.e.*, the module must not be inside another device during testing for compliance with part 15 requirements. Unless the transmitter module will be battery powered, it must comply with the AC line conducted requirements found in § 15.207. AC or DC power lines and data input/output lines connected to the module must not contain ferrites, unless they will be marketed with the module (see § 15.27(a)). The length of these lines shall be the length typical of actual use or, if that length is unknown, at least 10 centimeters to insure that there is no coupling between the case of the module and supporting equipment. Any accessories, peripherals, or support equipment connected to the module during testing shall be unmodified and commercially available (see § 15.31(i)).
Clarification: The R11e-5HacD was tested in a stand-alone configuration (placed on development/interface fixture) without enclosure.
- (vi) The modular transmitter must be equipped with either a permanently affixed label or must be capable of electronically displaying its FCC identification number.
Clarification: The R11e-5HacD has required labelling placed on the module and instruction for placement on exterior of end product.
- (vii) The modular transmitter must comply with any specific rules or operating requirements that ordinarily apply to complete transmitter and manufacturer must provide adequate instructions along with module to explain any such requirements.
Clarification: The R11e-5HacD complies fully with the operating requirements of part 15C, paragraph 15.247.
- (viii) The modular transmitter must comply with any applicable RF exposure requirements in its final configuration.
Clarification: The R11e-5HacD complies with applicable RF exposure requirements.

Sincerely

Name: Edmunds Zvegincevs

Title: Engineer

Signature of applicant:

