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American QA Lab
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Federal Communications Commission
Equipment Authorization Division, Application Processing Branch
7435 Oakland Mills Road
Columbia, MD21046

RE: PART 15 UNLICENSED MODULAR TRANSMITTER APPROVAL

TO WHOM IT MAY CONCERN

We, **SAMSUNG ELECTRONICS CO., LTD.**, hereby requests for part 15 unlicensed limited modular transmitter approval of our **CLX-NWA20L** module, described as follows:

Model name: **CLX-NWA20L**
FCC ID: **A3LSWL-2920U**

1. The modular transmitter must have its own shielding.

The radio portion of the module is contained in its own RF shielding. See the internal photos.

2. The modular transmitter must have buffered modulation/data inputs

The module has a memory management unit inside of the main IC. It buffers the data inputs from USB interface.

3. The modular transmitter must have its own power supply regulation

The RF IC contains an own voltage regulation (DC-DC, LDO). In case of changes in the supply voltage VCC (for example caused by temperature changes or other effects), the internal voltage will be stabilized.

4. The modular transmitter must comply with the antenna requirements of Section 15.203 and 15.204c

The transmitter shall only be used with the tested antenna that is integral PCB antenna.

5. The modular transmitter must be tested in a stand-alone configuration

The EUT was tested in a stand-alone configuration. The module was connected with the notebook PC via USB interface, during the test. See also the test report and Test setup photos.

6. The modular transmitter must be labeled with its own FCC ID number

The EUT will be labeled with its own FCC ID number. The label is specified in Label Information document. If the module is installed inside of an end-product, the label will not be visible. In this case the OEM customer will be instructed to how to apply the exterior label.

7. The modular transmitter must comply with any specific rule or operating requirements

The EUT is compliant with all applicable FCC rules. Detail instructions are given in the product Instruction Manual.

8. The modular transmitter must comply with any applicable RF exposure requirements.

The users manual for end users must include the following information in a prominent location

"IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

The maximum measured peak power output is 106 mW (20.26 dBm), the maximum antenna gain is 2.66 dBi = numeric gain 1.85 (acc to FCC/IC test report).

The maximum permissible exposure is defined in 47 CFR 1.1310 with 1 mW/cm².

The maximum permitted level is calculated using the general equation:

$$S = PG/4\pi R^2$$

$$\left(\Rightarrow R = \sqrt{PG/4\pi S}\right)$$

S = power density [mW/cm²]
P = power input to antenna [mW]
G = power gain of the antenna in the direction of interest relative to an isotropic radiator
R = distance to the center of radiation of the antenna [cm]

P = 106 mW,

G = 1.85 (numeric gain; +2.66 dBi = linear power gain relative to the isotropic radiator),

R = 20 cm

Solving for S, the power density at 20 cm is 0.0390 mW/cm².

So the 1 mW/cm² limit is kept.

Sincerely,



Steve Kim
General Manager
American QA Lab
SAMSUNG Electronics America INC.