

Exhibit 3 FCC REQUIRED INFORMATION

The following information is presented in the content and format requested by the FCC:

Section 2.1033 (c)(1):

The full name and mailing address of the manufacturer of the device and the applicant for certification

Manufacturer: **Nokia Solutions and Networks, OY**
2000 Lucent Lane
Naperville, Illinois 60563
Attention: : Lee Klinkenborg

Applicant: **Nokia Solutions and Networks, OY**
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Section 2.1033(c)(2): FCC Identifier: 2AD8UAWKUCD01

**Section 2.1033(c)(4): Type or types of emission: 97M5G7W, 198MG7W – (a two carrier aggregate of 97M5G7W)
498MG7W – (a five carrier aggregate of 97M5G7W)**

This Transceiver System supports the **3GPP 5G New Radio** and other LTE technologies. The subject of this certification request is for operation using the **3GPP 5G New Radio** modulation format in QPSK, 16QAM, and 64QAM (LTE-TDD) for one to seven carriers. The transceiver can be configured for the various transmit configurations by varying the digital information provided from the baseband channel electronics alone without physical, hardware or circuit changes to the transceiver.

Section 2.1033(c)(5): Frequency range, Transmit / Receive: 24.25-24.45 GHz and 24.75-25.25 GHz

Section 2.1033(c)(6): Range of operating power values or specific operating power levels, and description of any means provided for variation of operating power.

Response:

The Nokia **AWKUC/D 5G AirScale mmWave Radio, FCC ID: 2AD8UAWKUCD01** is capable of producing two 69 dBm EIRP transmit beams (horizontally and vertically polarized) for a total transmit power of 72 dBm EIRP. Each of the beams can be configured to provide one to seven carriers of **97M5G7W** emissions designator in the **Upper Microwave Flexible Use Service** spectrum (24.25 – 25.25 GHz) as allowed under **47CFR Part 30**. The operational parameters are one or two 97M5G7W carriers in the 24.25-24.45 GHz portion of the US n258 spectrum and one to five 97M5G7W carriers in the 24.75 – 25.25 GHz portion of the spectrum.

The total RF power will be divided among the one to seven carriers anywhere in the two portions of the spectrum. Thus, any carrier configuration can provide up to the specified power of 69 dBm EIRP per polarization for a total combined power of 72 dBm EIRP

RF Power control of the **AWKUC/D** transceiver is accomplished via software control of the data stream and the RF power gain. The software controls the RF power gain through the RF transmit path to maintain the correct RF power of the **AWKUC/D** over frequency and temperature. The gain control has a resolution of 0.1 dB per step and an overall range of 20 dB. Separate circuitry is provided to inhibit the carrier output if a synthesizer in the transmit path loses lock.

Exhibit 3 FCC REQUIRED INFORMATION *continued*

Section 2.1033(c)(7): Maximum power rating as defined in the applicable part (s) of the rules.

Response:

This product can produce two individual 69 dBm EIRP beams (7943.3 W EIRP each).

The sum of these two 69 dBm EIRP beams results in the Maximum Total Power of 72 dBm EIRP (15,849W EIRP)

The maximum continuous RF output power available is the sum of the horizontal and vertical transmit beams generated by the antenna assembly. There are no antenna connections. The antenna assembly distributes 39 dBm of RF power per polarization to the antenna which has an overall gain of 30 dBi. This results in a radiated power of 69dBm EIRP per polarization for a Total Radiated Power of 72dBm EIRP

Section 2.1033 (c)(10): A description of all circuitry and devices for determining and stabilizing frequency.

Response:

The carrier frequency is determined by the up-conversion of digital baseband signals to radio frequencies (RF). The frequency stabilization and accuracy of the AWKUC/D is a function of its internal agile synthesizer clocking circuitry. The AWKUC/D transceiver incorporates RF synthesizers to deal with 5G signals. All of the synthesizers are phase locked to the master clocking oscillator in the AWKUC/D. The frequency locking signal paths are depicted in the Block diagram.

For 5G carriers, the reference timing (frequency and phase alignment) signal is generated by the 5G timing unit inside the SoC. The 5G clocking unit discipline its internal master oscillator by any available external reference options (such as GPS) to meet 5G application need. When more than one external reference is available, the 5G timing unit can support primary and backup discipline reference concept.

The **AWKUC/D 5G AirScale 24 GHz mmWave Radio** is supplied its frequency discipline synchronization for reference from the baseband information source which is GPS capable.