

## EXHIBIT 13

## RF EXPOSURE ASSESSMENT

**Section 1.1307 (b) Environmental Assessment Requirement for Equipment Authorization**

Commission actions granting construction permits, licenses to transmit or renewals thereof, equipment authorizations or modifications in existing facilities, require the preparation of an Environmental Assessment (EA) if the particular facility, operation or transmitter would cause human exposure to levels of radiofrequency radiation in excess of the limits in §§ 1.1310 and 2.1093 of this chapter.

**Section 1.1310 Radio Frequency Radiation Exposure Limits**

The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radiofrequency (RF) radiation as specified in Section 1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of § 2.1093 of this chapter. Further information on evaluating compliance with these limits can be found in the FCC's OST/OET Bulletin Number 65, "Evaluating Compliance with FCC-Specified Guidelines for Human Exposure to Radiofrequency Radiation."

**Response**

The **Nokia Model AWHNB AirScale Micro RRH 4T4R Band-53 1W** is a 5G small cell BTS optimized for an outdoor micro-cell environment. The product design utilizes a small cell-specific radio architecture based on a radio frequency integrated circuit device, and an integrated baseband processing solution that enables feature parity with Flexi macro BTS solutions.

The main application of the **AWHNB AirScale 5G Micro RRH** is to help deliver an improved mobile broadband experience by enhancing coverage and capacity both indoors and outdoors. The BTS can be used in micro cell applications. It can be deployed at street level and on rooftops in order to cover traffic hotspots, fill network coverage holes, and improve coverage inside buildings such as airports and railway stations.

The **AWHNB AirScale 5G Micro RRH** is a single box base station that supports one 5G-NR Band Class radio. The Radio Module supports 3GPP Band n53 (2500 MHz) (UL/DL: 2483.5-2495MHz (TDD)). The Model **AWHNB** consists of 4TX/4RX, 4X@ MIMO Operation. Each TX branch has a 24 dBm (250 mW) maximum rated RF output power. The **AWHNB AirScale 5G Micro RRH** utilizes an external antenna which can be any off-the-shelf antenna which satisfies the <6dbi antenna gain requirements.

The **AWHNB AirScale 5G Micro RRH** has the and RF circuitry and Filter all self contained and supports two (2) SFP based -Fiber Port. Additional external interfaces include DC power input, RET/AISG and FAN/EAC port (to support an external fan option).

The **AWHNB AirScale 5G Micro RRH** can currently support modulations: QPSK, 16QAM and 64QAM & 256QAM. The BTS will in the future be able to support multi-carrier operation, and higher-level modulations.

**Input/ Output Ports**

Interface	Description
AC POWER	OCTIS Connection Style
DC POWER	OCTIS Connection Style
RET	DIN Style Connector
FAN/EAC	DIN Style Connector
BH	Fiber-only backhaul interface
GND	Grounding
TX/RX-	4 Type Nex10 antenna connector

The FCC requires the evaluation and documentation of the environmental impact of human exposure to radiofrequency (RF) radiation as specified in Title 47CFR Section 1.1307(b). The safe distances documented herein are applicable only with the Nokia supplied antenna. If the product is installed with other antenna(s), then per FCC Rules the RF exposure compliance shall be addressed at the time of licensing, as required by the responsible FCC Bureau(s), including antenna co-location requirements of Part 1.1307(b)(3).

The information on Nokia supplied antennas is provided in Table 13.1.

The limits specified in FCC Section 1.1310 Table 1(B) for occupational/controlled exposure and general population/uncontrolled exposure, which are tabulated below in Table 13.2, shall be met.

All of the transmitters installed in the **AWHNB AirScale Micro RRH 4T4R Band-53 1W** operate in the frequency range of 2.4835 GHz – 2.495 GHz. The maximum power density thus needs to be less than 1.0 mW/cm<sup>2</sup> for general population/uncontrolled environment and 5.0 mW/cm<sup>2</sup> for occupational/controlled environment.

Per FCC’s OST/OET Bulletin Number 65, the appropriate EIRP (equivalent or effective isotropically radiated power) limits can be calculated based on the relationship between power density and EIRP, i.e.,

$$S = \text{EIRP} / (4\pi R^2)$$

where S is the power density in mW/cm<sup>2</sup>, R is the distance to the center of radiation of the antenna in cm and EIRP is in mW.

When all transmitters operate simultaneously, the EIRP and thus power density from all transmitters gives the worst-case scenario.

**Table 13.1 AWHHF Antenna**

Transmitter	Antenna	Model	Antenna Gain (dBi)
AWHNB	External	<b>AWHNB AirScale 5G Micro RRH</b> 2.4835 - 2.495 GHz	Peak: <b>6.0</b>

**Table 13.2 Limits for Occupational/Controlled Exposure and General Population/Uncontrolled Exposure (FCC Section 1.1310 Table 1(B))**

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm <sup>2</sup> )	Average Time  E  <sup>2</sup> ,  H  <sup>2</sup> or S (minutes)
(A) Limits for Occupational/Controlled Exposure				
300 - 1500			F/300	6
1500 – 100,000			5.0	6
(B) Limits for General Population/Uncontrolled Exposure				
300 - 1500			F/1500	30
1500 – 100,000			1.0	30

Note: f = frequency in MHz; \*Plane-wave equivalent power density.

**Table 13.3 (a) Minimum RF Safety Distances for Uncontrolled Exposure**

Module	Freq Band (GHz)	Maxi Total P <sub>out</sub> (4x4) (dBm)	Antenna Gain (dBi)	Maximum Total EIRP (dBm)	Maximum Total EIRP (mW)	Limit of Power Density S (mW/cm <sup>2</sup> )	RF Safety Distance (cm)
AWHNB B53	2.483	30.0	6.0	36.0	3981.07171	1	17.80

**Table 13.3 (b) Power Density at the Proposed Minimum RF Safety Distance**

Module	Freq Band (GHz)	Maxi Total P <sub>out</sub> (4x4) (dBm)	Maxi Antenna Gain (dBi)	Maximum Total EIRP (dBm)	Maximum Total EIRP (mW)	RF Safety Distance (cm)	Limit of Power Density S (mW/cm <sup>2</sup> )
AWHNB B53	2.483	30.0	6.0	36.0	3981.07171	17.85	0.995

**Table 13.4 (a) Minimum RF Safety Distances for Controlled Exposure**

Module	Freq Band (GHz)	Maxi Total P <sub>out</sub> (4x4) (dBm)	Antenna Gain (dBi)	Maximum Total EIRP (dBm)	Maximum Total EIRP (mW)	Limit of Power Density S (mW/cm <sup>2</sup> )	RF Safety Distance (cm)
AWHNB B53	2.483	30.0	6.0	36.0	3981.07171	5	7.96

**Table 13.4 (b) Power Density at the Proposed Minimum RF Safety Distance**

Module	Freq Band (GHz)	Maxi Total P <sub>out</sub> (4x4) (dBm)	Antenna Gain (dBi)	Maximum Total EIRP (dBm)	Maximum Total EIRP (mW)	RF Safety Distance (cm)	Limit of Power Density S (mW/cm <sup>2</sup> )
AWHNB B53	2.483	30.0	6.0	36.0	3981.07171	8.0	4.953

Therefore, the RF safety distance for the Nokia **AWHNB AirScale Micro RRH 4T4R Band-53 1W** shall be larger than 8.0 cm for Occupational/Controlled exposure and larger than 17.85 cm for General population/Uncontrolled exposure.

**Results**

The results are summarized below in Tables 13.5.

**Table 13.5 Minimum RF Safety Distances for AWHHF RF Module**

<b>Exposure</b>	<b>RF Safety Distance (cm)</b>	<b>Total Power Density S (mW/cm<sup>2</sup>)</b>	<b>Limit of Power Density S (mW/cm<sup>2</sup>)</b>
Occupational/Controlled	8.0	4.953	5
General Population/Uncontrolled	17.85	0.995	1