Ackred. Nr 1761
Provning
ISO/IEC 17025

Rapport utfärdad av ackrediterat provningslaboratorium
Test report issued by an Accredited Testing Laboratory

EMF Test Report: Ericsson Radio 4480 B2/B25 B66A (FCC)

Document number:	GFTL-20:000142 Uen Rev A	**Date of report:**	2020-02-06
Testing laboratory:	Ericsson EMF Research Laboratory Ericsson AB SE-164 80 Stockholm Sweden	**Company/Client:**	Lars Holmlund Ericsson AB SE-164 80 Stockholm Sweden
Tests performed by:	Paramananda Joshi	**Dates of tests:**	2020-02-05 (Rev A)
Manufacturer and market name(s) of device:	Ericsson Radio 4480 B2/B25 B66A		
Testing has been performed in accordance with:	FCC OET Bulletin 65 IEC 62232:2017		
Test results:	RF exposure compliance boundaries (exclusion zones) related to the limits in FCC 47 CFR 1.1310 to be included in the Customer Product Information (CPI) for Ericsson Radio 4480 B2/B25 B66A.		
Additional information:			

Signatures:	Test Engineer Paramananda Joshi Senior Researcher paramananda.joshi@ericsson.com Tel: +46 10 711 00 06	Quality Manager Christer Törnevik Senior Expert – EMF and Health christer.tornevik@ericsson.com Tel: +46 10 714 12 35

Summary of EMF Test Report[1]

Equipment under test (EUT)

Product name	Radio 4480 B2/B25 B66A		
Product number	KRC 161 844/1, KRC 161 844/3		
Supported bands, Tx frequency range (MHz) and standards	Band 2 Band 25	1930 – 1990 1930 – 1995	GSM, WCDMA, LTE, NR, NB-IoT WCDMA, LTE, NR, NB-IoT
	Band 66A	2110 – 2180	WCDMA, LTE, NR, NB-IoT
Duplexing technology	FDD		
EIRP[2] (dBm) and EN 62232:2017 installation class [4]	76.1, 76.2, 76.2		E+, E+, E+

Antennas

Product number	KRE 101 2294/1
Tested mode(s)	Band 2 (G/W/L/N/I)[3] + Band 66A (W/L/N/I) Band 25 (W/L/N/I) + Band 66A (W/L/N/I)

Results

RF exposure compliance boundaries, outside of which the exposure is below the general public (GP) and workers (W) exposure limits, are listed below.

Dimensions of the box-shaped compliance boundary for general public (GP) and workers (W) exposure for Radio 4480 applicable in the markets employing the FCC RF exposure limits for maximum output power with 0.5 dB transmission loss and 0.6 dB output power tolerance included.

Mode and output power for Radio 4480			**Dimensions of the box-shaped compliance boundary (m)**							
			Distance in front of antenna		**Width**		**Height**		**Distance behind the antenna**	
Band	**Standard[3]**	**Maximum nominal output power from the radio**	**GP**	**W**	**GP**	**W**	**GP**	**W**	**GP**	**W**
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A) W/L/N/I (B25) + W/L/N/I (B66A)	4 × 60 W (B2/B25) + 4 × 40 W (B66A)	19.3	8.4	15.3	6.9	5.0	2.3	0.5	0.2
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A) W/L/N/I (B25) + W/L/N/I (B66A)	4 × 50 W (B2/B25) + 4 × 50 W (B66A)	19.4	8.4	15.4	6.9	5.1	2.3	0.5	0.2
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A) W/L/N/I (B25) + W/L/N/I (B66A)	4 × 40 W (B2/B25) + 4 × 60 W (B66A)	19.5	8.5	15.4	6.9	5.2	2.3	0.4	0.2

For the power levels specified in the table which include tolerances, and the upward rounding of compliance boundary dimensions to the nearest decimeter, the specified results are conservative.

[1] This page contains a summary of the test results. The full report provides a complete description of all test details and results.
[2] The stated EIRP values are the maximum total EIRP without power tolerance and are obtained using the antenna patterns provided by the antenna manufacturer. The three different EIRP values correspond to three different output power configurations specified in Table 3.
[3] The standards are abbreviated in this report according to: G for GSM, W for WCDMA, L for LTE, N for NR, and I for NB-IoT.

1 General information

The test results presented in this report define compliance boundaries for Radio 4480 B2/B25 B66A. Outside these compliance boundaries, the radio frequency (RF) exposure levels are below the limits specified by the Federal Communications Commission (FCC) [1]. The tests were performed by calculations in accordance with the Ericsson RF exposure calculation procedure for base stations [2], which is in conformity with the FCC OET Bulletin 65 [3] and IEC 62232:2017 [4].

It should be noted that the test results presented in this test report are valid for the frequency range specified in Table 1, for the antenna properties specified in Table 2, and for the power levels, power tolerance and transmission loss specified in Table 3. These data as well as the applied antenna pattern files were supplied by the client and may affect the validity of the results.

Proposed EMF health and safety information for inclusion in the Customer Product Information (CPI) is provided in Appendices A, B and C.

2 Equipment under test

Tables 1 and 2 below summarize the technical data for the equipment under test (EUT) and the properties of antenna. Table 3 lists the maximum nominal output power from the radio unit (total peak power from all antenna branches) and the total time-averaged power delivered to the antenna for the specified configurations. The total time-averaged power delivered to the antenna includes transmission loss and output power tolerance.

The EUT related data in Tables 1-3 were supplied by the client.

Table 1 Technical data for the EUT.

Product name and product number	Radio 4480 B2/B25 B66A		KRC 161 844/1, KRC 161 844/3
Supported bands, Tx frequency range (MHz) and standards.	Band 2 (1900) Band 25 (1900)	1930 – 1990 1930 – 1995	GSM, WCDMA, LTE, NR, NB-IoT WCDMA, LTE, NR, NB-IoT
	Band 66A (2100)	2110 – 2180	WCDMA, LTE, NR, NB-IoT
Duplexing technology	FDD		
Exposure environment	General public, Workers		
EIRP[2] (dBm) and EN 62232:2017 installation class Error! Reference source not found.	76.1, 76.2, 76.2		E+, E+, E+

Table 2 Properties of the antenna.

Product number	KRE 101 2294/1	
Type	Macro cell, directional, 4 Tx (2 columns, X polarized)	
Frequency range (MHz)	1695 – 2690	
Tested band and frequency range (MHz)	B2: 1930 – 1990, B25: 1930 – 1995	
	B66A: 2110 – 2180	
Maximum gain[4] (dBi) per antenna port	17.5 / 17.5 / 17.3 / 17.4 (B2/B25)	
	17.9 / 17.8 / 18.0 / 17.8 (B66A)	
Electrical tilt (degrees)	2	
Number of dual-polarized elements per column, element separation distance (mm)	14	100
Dimensions, $H \times W \times D$ (mm)	1496 × 275 × 104	

[4] Maximum gain per antenna port obtained using the antenna patterns provided by the antenna manufacturer.

Table 3 EUT configurations with maximum nominal output power levels and total time-averaged power levels including transmission loss and output power tolerance.

Band	Standard	Maximum nominal output power from the radio	Transmission loss (dB)	Power tolerance (dB)	Total time-averaged power delivered to the antenna (dBm/W)
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A)	4 × 60 W (B2/B25) + 4 × 40 W (B66A)	0.5	0.6	56.1 / 409.3
	W/L/N/I (B25) + W/L/N/I (B66A)				
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A)	4 × 50 W (B2/B25) + 4 × 50 W (B66A)	0.5	0.6	56.1 / 409.3
	W/L/N/I (B25) + W/L/N/I (B66A)				
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A)	4 × 40 W (B2/B25) + 4 × 60 W (B66A)	0.5	0.6	56.1 / 409.3
	W/L/N/I (B25) + W/L/N/I (B66A)				

3 Exposure conditions

The EUT is intended to be installed on roof-tops, masts, towers, buildings, and similar structures making it possible to ensure that the general public has no access to the EMF compliance boundary. Other installation related exposure conditions are not reasonably foreseeable for the EUT.

The assessments were conducted for maximum power configurations, i.e. by assuming 100% utilization without taking time-averaging into account. A reduced RBS utilization compared with the theoretical maximum is reasonably foreseeable and will significantly reduce the time-averaged power and the RF exposure. This was, however, not considered in the assessment, which adds to the conservativeness of the obtained compliance boundaries.

4 Calculations

The RF exposure was evaluated using calculations performed according to the Ericsson RF Exposure Calculation Procedure for Base Stations [2], which conforms to FCC OET Bulletin 65 [3] and IEC 62232:2017 [4]. The calculations were made using the far-field spherical formula and the cylindrical wave model. The first step in calculating the compliance boundary was to use the spherical far-field formula to estimate power density:

$$S_{\mathrm{sph}}(\theta,\phi)=\frac{P_{\mathrm{a}}G(\theta,\phi)}{4\pi r^2},$$

where S,P_{a}, G, r, θ, and ϕ denote the power density, the power accepted by each antenna port, the antenna gain per port, the distance from the antenna, and the angular variables in a spherical coordinate system, respectively. Antenna far-field measurement data were provided by the client for four frequencies, specifically 1930 MHz, 1950 MHz, 1980 MHz and 1990 MHz within Band 2 / Band 25, and for five frequencies, specifically 2110 MHz, 2130 MHz, 2155 MHz, 2170 MHz and 2180 MHz within Band 66A. The procedure described in this section was applied to each of these, and the compliance boundaries were determined as the maximum values for the tested frequencies. Power density was evaluated for the lowest applicable electrical down tilt of the antenna (2°). The maximum gain values for 4 ports were found to be 17.5 dBi (column 1, pol. -45), 17.5 dBi (column 2, pol. -45), 17.3 dBi (column 1, pol. +45) and 17.4 dBi (column 2, pol. +45), respectively, considering all the tested frequencies in B2/B25. The corresponding values considering all the tested frequencies in B66A were found to be 17.9 dBi (column 1, pol. -45), 17.8 dBi (column 2, pol. -45), 18.0 dBi (column 1, pol. +45) and 17.8 dBi (column 2, pol. +45).

The tested configurations are characterized by a total of 4 transmitters (4 TX per band), and the RF exposure was determined for both bands operating simultaneously (each antenna port serving both B2/B25 and B66A).

The accepted power per port was taken as the total power delivered to the antenna, including tolerances, divided by the number of ports. In the frontal hemisphere ($\phi \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$), the exposure from antenna ports with the same nominal polarizations (denoted ±45) were summed in a correlated way to consider beamforming while the exposure from antenna ports with different nominal polarizations were summed in an uncorrelated manner. Also, in the rear hemisphere ($\phi \notin [-\frac{\pi}{2}, \frac{\pi}{2}]$), uncorrelated exposure was assumed [2]. With the two antenna columns denoted 1 and 2, the total power density as estimated by the spherical far-field formula is thus given by

$$S_{\mathrm{total,sph,B2/B25}} = \begin{cases} \left(\sqrt{S_{\mathrm{sph,1,+45,B2/B25}}} + \sqrt{S_{\mathrm{sph,2,+45,B2/B25}}}\right)^2 + \left(\sqrt{S_{\mathrm{sph,1,-45,B2/B25}}} + \sqrt{S_{\mathrm{sph,2,-45,B2/B25}}}\right)^2 & , \phi \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \\ S_{\mathrm{sph,1,+45,B2/B25}} + S_{\mathrm{sph,2,+45,B2/B25}} + S_{\mathrm{sph,1,-45,B2/B25}} + S_{\mathrm{sph,2,-45,B2/B25}} & , \phi \notin [-\frac{\pi}{2}, \frac{\pi}{2}] \end{cases}$$

$$S_{\mathrm{total,sph,B66A}} = \begin{cases} \left(\sqrt{S_{\mathrm{sph,1,+45,B66A}}} + \sqrt{S_{\mathrm{sph,2,+45,B66A}}}\right)^2 + \left(\sqrt{S_{\mathrm{sph,1,-45,B66A}}} + \sqrt{S_{\mathrm{sph,2,-45,B66A}}}\right)^2 & , \phi \in \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \\ S_{\mathrm{sph,1,+45,B66A}} + S_{\mathrm{sph,2,+45,B66A}} + S_{\mathrm{sph,1,-45,B66A}} + S_{\mathrm{sph,2,-45,B66A}} & , \phi \notin [-\frac{\pi}{2}, \frac{\pi}{2}] \end{cases}$$

The compliance distance for the spherical model, $\mathrm{CD_{sph}}(\theta, \phi)$ was obtained by solving the following equation for r:

$$\frac{S_{\mathrm{total,sph,B2/B25}}(r,\theta,\phi)}{S^{\mathrm{lim}}_{\mathrm{gp,w,B2/B25}}} + \frac{S_{\mathrm{total,sph,B66A}}(r,\theta,\phi)}{S^{\mathrm{lim}}_{\mathrm{gp,w,B66A}}} = 1,$$

where $S^{\mathrm{lim}}_{\mathrm{gp,w}}$ denotes the FCC power density reference levels for general public and workers exposure. For the frequency bands of interest, RF EMF exposure limits are given in Table 4 [1].

Table 4 RF EMF exposure limits on power density for the frequency bands used by the EUT.

Band	$S^{\mathrm{lim}}_{\mathrm{gp}}$ (W/m^2)	$S^{\mathrm{lim}}_{\mathrm{w}}$ (W/m^2)
B2/B25 (1900)	10	50
B66A (2100)	10	50

If the spherical far-field formula is applied in the near-field, very conservative results may be obtained. Within the main beam direction, a better approximation of the spatial peak power density per antenna in this case is obtained by using the cylindrical wave model[5] [5] given by

$$S_{\mathrm{cyl}}(r,\phi) = \frac{6. P_{\mathrm{t}}. 2^{-\left(\frac{2\phi}{\Phi_{\mathrm{3dB}}}\right)^2}}{\pi \Phi_{\mathrm{3dB}} \cdot r \cdot L \cdot \cos^2(\gamma) \cdot \sqrt{1 + \left(\frac{2r}{r_0}\right)^2}}, \quad r_0 = \frac{\Phi_{\mathrm{3dB}}}{12} D_{\mathrm{A}} \cdot L \cdot \cos^2(\gamma),$$

where $P_{\mathrm{t}}, L, D_{\mathrm{A}}, \Phi_{\mathrm{3dB,}}$ and γ denote the transmitted power per antenna port[6] (W), the length over which the antenna elements are distributed (m), the peak directivity (unit-less), the horizontal half-power beam width (radians) and the electrical down tilt (radians), respectively. Here, D_{A} and Φ_{3dB} were obtained from the far-field measurement for each antenna port for the lowest applicable electrical tilt.

Similarly, as for the spherical formula, the total power density estimated using the cylindrical wave model is given by

$$S_{\mathrm{total,cyl,B2/B25}}(r,\phi) = \left(\sqrt{S_{\mathrm{cyl,1,+45,B2/B25}}(r,\phi)} + \sqrt{S_{\mathrm{cyl,2,+45,B2/B25}}(r,\phi)}\right)^2 + \left(\sqrt{S_{\mathrm{cyl,1,-45,B2/B25}}(r,\phi)} + \sqrt{S_{\mathrm{cyl,2,-45,B2/B25}}(r,\phi)}\right)^2$$

$$S_{\mathrm{total,cyl,B66A}}(r,\phi) = \left(\sqrt{S_{\mathrm{cyl,1,+45,B66A}}(r,\phi)} + \sqrt{S_{\mathrm{cyl,2,+45,B66A}}(r,\phi)}\right)^2 + \left(\sqrt{S_{\mathrm{cyl,1,-45,B66A}}(r,\phi)} + \sqrt{S_{\mathrm{cyl,2,-45,B66A}}(r,\phi)}\right)^2$$

[5] In IEC 62232 [4], a slightly simplified cylindrical wave model is specified based on the approximation $\pi \approx 3$. Here, the expression in the original journal paper has been used which in the main beam direction $\phi = 0^\circ$ correctly converges to the spherical far field formula as $r \to \infty$.
[6] The transmitted power per antenna port were conservatively taken as the accepted power per antenna port.

The compliance distance for the cylindrical model, $\mathrm{CD}_{\mathrm{cyl}}(\phi)$ was obtained by solving the following equation for r:

$$\frac{S_{\mathrm{total,cyl,B2/B25}}(r,\phi)}{S^{\mathrm{lim}}_{\mathrm{gp,w,B2/B25}}}+\frac{S_{\mathrm{total,cyl,B66A}}(r,\phi)}{S^{\mathrm{lim}}_{\mathrm{gp,w,B66A}}}=1$$

The cylindrical wave model is applicable within the main beam for $-\pi/6 \le \phi \le -\pi/6$ and $|z| \le L/2$ (where z is the axis defined along the height of the antenna) and it is more accurate in the near-field regions where the spherical model is conservative. Therefore, within this angular range in the horizontal plane, the compliance distance is taken as the lesser of the values obtained by the two models [2].

$$\mathrm{CD}(\theta,\phi)=\min\big(\mathrm{CD}_{\mathrm{sph}}(\theta,\phi),\mathrm{CD}_{\mathrm{cyl}}(\phi)\ \big),$$

Based on the calculated compliance distances, a box-shaped compliance boundary was determined. To comply with the FCC requirement of a minimum test separation distance for a non-portable device of 20 cm, the minimum distance from the antenna to the compliance boundary was set to 20 cm.

5 Results

A box-shaped compliance boundary is used, characterized by its width, height, and the compliance distances behind and in front of the antenna, see Figure 1. Outside of this box, the RF exposure is below the exposure limits.

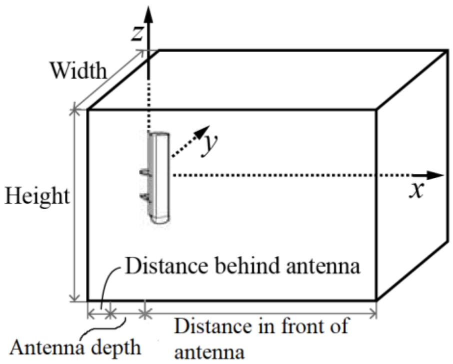

Figure 1 Box-shaped structure specifying the compliance boundary for the antenna.

In Figure 2, Figure 3 and Figure 4, compliance distance results for general public (blue line) and workers (red line) exposure are given for three different output power configurations for the radio. The solid colored lines represent the result obtained with the spherical model while the dash-dotted line represents the result obtained with the cylindrical wave model. Also shown are the resulting compliance boundaries (black lines, solid for general public, dashed for workers exposure). The resulting compliance boundary dimensions are given in Table 5 rounded upwards to the nearest decimeter.

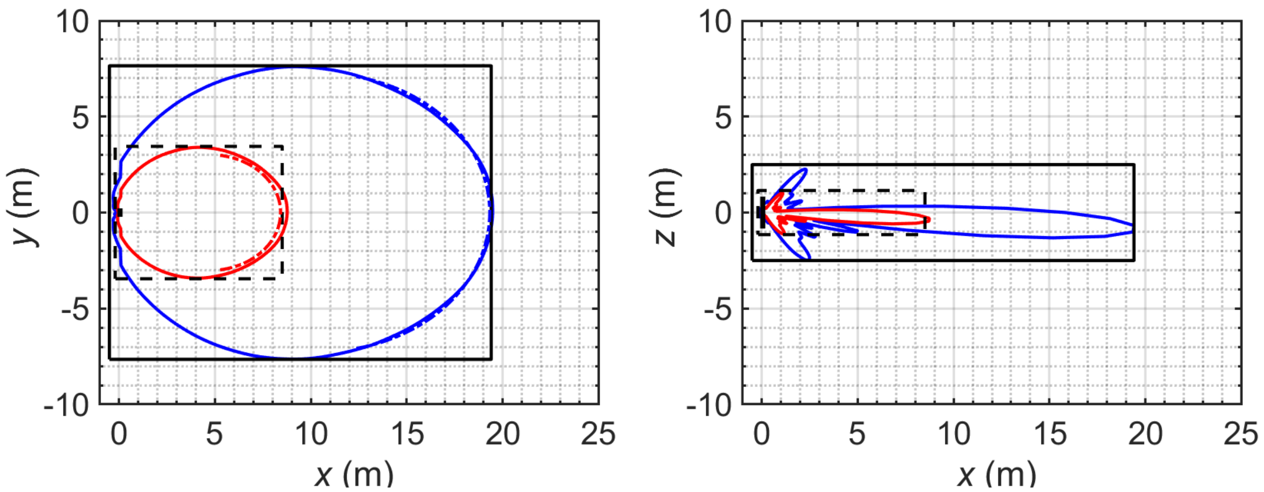

Figure 2 Compliance boundary for general public (black solid line) and workers (black dashed line) exposure. The blue solid and dash-dotted lines correspond to compliance distance results for general public exposure obtained using the spherical and cylindrical models, respectively. The red solid and dash-dotted lines correspond to compliance distance results for workers exposure obtained using the spherical and cylindrical models, respectively. The antenna is shown from above (left figure) and from the side (right figure) with its back plane located at $x = 0$ m. Mode: B2/B25 (1900) and B66A (2100). Total power delivered to the antenna: 409.3 W divided as 60 % for B2/B25 and 40 % for B66A.

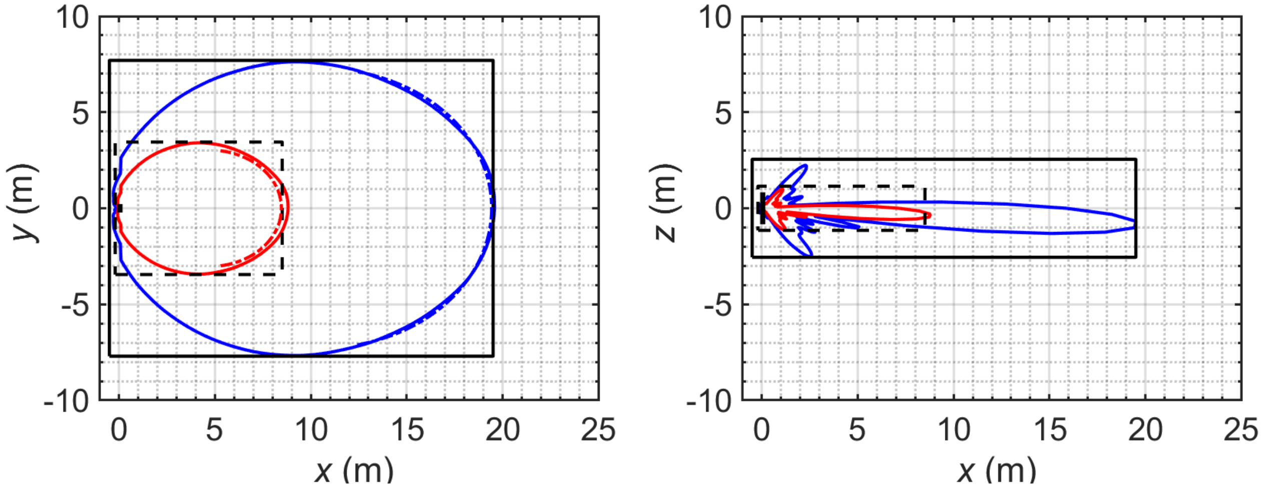

Figure 3 Compliance boundary for general public (black solid line) and workers (black dashed line) exposure. The blue solid and dash-dotted lines correspond to compliance distance results for general public exposure obtained using the spherical and cylindrical models, respectively. The red solid and dash-dotted lines correspond to compliance distance results for workers exposure obtained using the spherical and cylindrical models, respectively. The antenna is shown from above (left figure) and from the side (right figure) with its back plane located at $x = 0$ m. Mode: B2/B25 (1900) and B66A (2100).Total power delivered to the antenna: 409.3 W divided as 50 % for B2/B25 and 50 % for B66A.

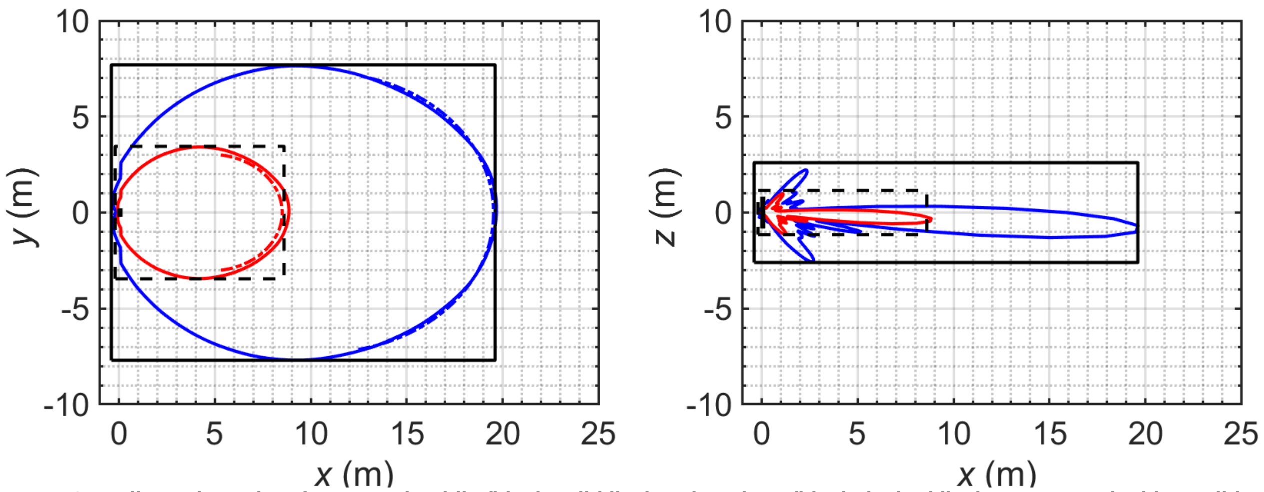

Figure 4 Compliance boundary for general public (black solid line) and workers (black dashed line) exposure. The blue solid and dash-dotted lines correspond to compliance distance results for general public exposure obtained using the spherical and cylindrical models, respectively. The red solid and dash-dotted lines correspond to compliance distance results for workers exposure obtained using the spherical and cylindrical models, respectively. The antenna is shown from above (left figure) and from the side (right figure) with its back plane located at $x = 0$ m. Mode: B2/B25 (1900) and B66A (2100).Total power delivered to the antenna: 409.3 W divided as 40 % for B2/B25 and 60 % for B66A.

Table 5 Dimensions of the box-shaped compliance boundary for general public (GP) and workers (W) exposure for Radio 4480 applicable in the markets employing the FCC RF exposure limits for maximum output power with 0.5 dB transmission loss and 0.6 dB output power tolerance included.

Mode and output power for Radio 4480			Dimensions of the box-shaped compliance boundary (m)							
			Distance in front of antenna		Width		Height		Distance behind the antenna	
Band	**Standard[3]**	**Maximum nominal output power from the radio**	**GP**	**W**	**GP**	**W**	**GP**	**W**	**GP**	**W**
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A) W/L/N/I (B25) + W/L/N/I (B66A)	4 × 60 W (B2/B25) + 4 × 40 W (B66A)	19.3	8.4	15.3	6.9	5.0	2.3	0.5	0.2
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A) W/L/N/I (B25) + W/L/N/I (B66A)	4 × 50 W (B2/B25) + 4 × 50 W (B66A)	19.4	8.4	15.4	6.9	5.1	2.3	0.5	0.2
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A) W/L/N/I (B25) + W/L/N/I (B66A)	4 × 40 W (B2/B25) + 4 × 60 W (B66A)	19.5	8.5	15.4	6.9	5.2	2.3	0.4	0.2

For the power levels specified in the table which include tolerances, and the upward rounding of compliance boundary dimensions to the nearest decimeter, the specified results are conservative.

6 Uncertainty

For the input parameters defined in the test report, the calculated compliance boundary dimensions determined according the approach described in Section 4 results in an exposure assessment which is conservative. The compliance boundary dimensions were determined by comparing the evaluated RF exposure directly with the limits.

7 Conclusions

The Ericsson Radio 4480 B2/B25 B66A has been tested using methods and procedures specified in FCC OET Bulletin 65 [3] and IEC 62232:2017 [4]. The results in Section 5 show the compliance boundary dimensions of the product. Outside of these compliance boundaries, the RF exposure is below the limits specified in [1].

8 References

[1] FCC, Code of Federal Regulations CFR title 47, part 1.1310 “Radiofrequency radiation exposure limits”, Federal Communications Commission (FCC), August 1997.

[2] Ericsson, GFTE-16:001718 Uen, “Ericsson RF exposure calculation procedure for base stations”.

[3] FCC, “Evaluating compliance with FCC guidelines for human exposure to radiofrequency electromagnetic fields. OET Bulletin 65. Edition 97-01.” Federal Communications Commission (FCC), Office of Engineering and Technology, August 1997.

[4] IEC 62232:2017, Determination of RF field strength, power density and SAR in the vicinity of radiocommunication base stations for the purpose of evaluating human exposure, June 2017.

[5] R. Cicchetti and A. Faraone, “Estimation of the peak power density in the vicinity of cellular and radio base station antennas”, IEEE Trans. Electromagn. Compat., vol. 46, no. 2, pp. 275–290, 2004.

[6] Ericsson, LME-12:001904 Uen, “Exposure to radio frequency electromagnetic fields”.

9 Revision History

Rev.	Date	Description
A	2020-02-06	First revision.

Appendix A. Information to be included in the CPI

Table A.1 below lists the compliance boundaries (exclusion zones), outside of which the RF EMF exposure from Radio 4480 is below the limits applicable in:

- USA (47 CFR 1.1310).

Table A.1 Dimensions of the box-shaped compliance boundary for general public (GP) and occupational (O) exposure for Radio 4480 applicable in the markets employing the FCC RF exposure limits for maximum output power with 0.5 dB transmission loss and 0.6 dB output power tolerance included.

Mode and output power for Radio 4480				Dimensions of the box-shaped compliance boundary[1] (m)							
				Distance in front of antenna		Width		Height		Distance behind the antenna	
Band	Standard[2]	Maximum nominal output power from the radio	IEC 62232 Installation class	GP	W	GP	W	GP	W	GP	W
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A) W/L/N/I (B25) + W/L/N/I (B66A)	4 × 60 W (B2/B25) + 4 × 40 W (B66A)	E+	19.3	8.4	15.3	6.9	5.0	2.3	0.5	0.2
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A) W/L/N/I (B25) + W/L/N/I (B66A)	4 × 50 W (B2/B25) + 4 × 50 W (B66A)	E+	19.4	8.4	15.4	6.9	5.1	2.3	0.5	0.2
B2/B25 + B66A	G/W/L/N/I (B2) + W/L/N/I (B66A) W/L/N/I (B25) + W/L/N/I (B66A)	4 × 40 W (B2/B25) + 4 × 60 W (B66A)	E+	19.5	8.5	15.4	6.9	5.2	2.3	0.4	0.2

(1) The compliance boundaries are determined for maximum output power with transmission loss and power tolerance included using the antenna KRE 101 2294/1 and 2 degrees of electrical down tilt.
(2) The standards are abbreviated according to: G for GSM, W for WCDMA, L for LTE, N for NR, and I for NB-IoT.

Appendix B. Guidelines on how to install the product

The antenna connected to Radio 4480 B2/B25 B66A (KRC 161 844/1, KRC 161 844/3) shall be installed to make sure that the general public does not have access to the applicable RF EMF compliance boundary. The compliance boundary dimensions were determined for the product transmitting in free space.

Appendix C. Guidelines for workers during installation, maintenance, and repair of the product

For antenna connected to the Radio 4480 (KRC 161 844/1, KRC 161 844/3), if work needs to be performed within the compliance boundary applicable for workers, the radio equipment shall be powered off, or the power be reduced to a level ensuring that the RF EMF exposure is below the relevant exposure limit for workers.

If work is conducted on behalf of Ericsson, minimum EMF related requirements are provided in [6].