

APPLICANT:

Ericsson Radio System AB

EXHIBIT 12  
Page 12.0

FCC ID NO.  
B5KKRC12110-31

EXHIBIT 12 - COVER SHEET

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DESCRIPTION

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2.1033 (c)(2) FCC Identifier: B5KKRC12110-31

This transmitter is only for use in the Domestic Cellular Radio Telephone Communications Service, Subpart H of Part 22. The frequencies are generated using a phase-locked synthesizer. The synthesizer is locked to the in-coming sync signal from the PCM-link used for the system.

(4) Type of Emission: 40K0F1D  
40K0F8W  
30K0DXW  
20K0FXW

(5) Frequency range: 869 to 894 MHz

(6) Range of Operating Power: This transmitter is designated to supply 30 Watts of power at the antenna connector of the radio channel unit (TRX). 100 power levels are provided in 0.2 dB steps down to 300 milliwatts.

(7) Maximum Power Rating: The maximum power rating under environmental supply voltage variations is equal to 30 watts plus the power level tolerance of + 1 dB. Therefore the maximum output power is 38 watts.

(8) Final Amplifier Voltage and Current in normal operation (Rated power is for 1 device in the output stage).

<u>0.30 Watts</u>	<u>30 Watts</u>
24.5 V DC	24.5 V DC
0.75 A DC	5.0 A DC

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2.1033 (c)(10) Frequency Stabilizing Circuit Description

The transmitter uses a phase-locked UHF VCO Operating between 761.07 MHz to 788.04 MHz. This signal is phase-locked to an internal 3.24 MHz reference oscillator frequency (RAREF) which in turn is divided down 6 times from the 19.44 MHz VCO in the digital block. The VCO is phase-locked to the incoming T-Link sync frequency of 2.048 MHz.

RBS884 Macro and RBS882 Cassette

The T-link is converted from a C-link in the DCON-board in the TCB-cabinet or in the cassette where the TRX:s are mounted. The C-link is phase-locked to the local PCM-link sync frequency of 1.544 MHz (or 2.048 MHz for non-US markets) in the CRI in the RBS884 Macro base station or the CRI in the RBS882 base station for cassettes.

MINIMDBS

The T-link is converted from a C-link in the MDCON-board in the MINIMDBS. The C-link is divided down 8 times from the local oven oscillator of 16.384 MHz in the PDB-board in the MINIMDBS.

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2.1033 (c)(10) Spurious and Harmonic Suppression

Spurious and harmonic suppression is achieved by using a bandpass filter (N403 LX-stage) in the exciter amplifier and a passive bandpass filter connected to the TRX output. The output from the bandpass filter is connected to the applicable combiner system in the base station. The combiner system will connect all the TRX units in the RBS884 base station family to the same antenna output. The combiner system will connect all the cassettes with TRX units, all existing TRM and DTRM units in the RBS882 base station family to the same antenna output.

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2.1033 (c)(10) Limiting Power

The EMRPS function allows the RF power output to be set from 0 dB to - 20 dB attenuation in 0.2 dB steps from the MSC (Mobile Switching Center). The power levels can be in the range from a minimum of 300 milliwatts to a maximum of 30 watts at the output of the TRX.

The EMRPS supervises the feedback loop (RFF) from the Coupler stage to Linearization by checking the baseband signals. If the power output changes, the EMRPS will adjust the gain in the exciter amplifier.

If some fault happens in the output power circuits, the EMRPS will compare the fault with prestored values and report the fault to the Switch via alarm codes in different levels. The highest alarm level is a serious fault and this alarm will get the EMRPS to shut down the output power stages without confirmation from the Switch.

The EMRPS function will also control the RF power output according to the environment temperature. The power amplifier will not be able to get the supply current it need above 50 degrees C and below -5 degrees C. Then will the EMRPS shut down the power output since the unit is not able give a power output above -3 dB below set power level.

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2.1033 (c)(10) Digital Modulation

The TRX is used both as voice channel and control channel in the RBS884 System. The modulation can be digital or analog. It can also be used as a data channel for Digital Packet Data.

The DIGITAL modulation is limited in the waveform generator. The burst data from each time slot is formatted with syncwords and coded with a digital verification color code and user channel data. The formatted burst data are then converted to digital I and Q signals. These digital I and Q signals are then filtered in a square root raised cosine filter to form the correct modulation. The filtered signals are ten times oversampled and converted to analogue signals in a D/A-Converter. The modulation form is  $\pi/4$ -DQPSK for control and voice channel and GMSK for the CDPD channel.

(10) Analog Modulation

The TRX is used both as voice channel and control channel in the RBS884 System. The modulation can be digital or analog. It can also be used as a data channel for Digital Packet Data.

The ANALOG modulation is limited in the waveform generator. The speech or control data from the PCM-line is formatted as per IS-136 with syncwords and SAT. The formatted data are then converted to "digital I and Q signals" to form the correct frequency modulation. The signals are then ten times oversampled and converted to analogue signals in a D/A-Converter. The signals are converted in such a way that the output signal will format a Frequency Modulated signal.