Power Consumption Guideline for CDMA in RBS 6000

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Quick reference

The power consumption of a radio base station is very approximately

base station type	power consumption in Watts, per frequency band	accuracy
general (Macro or Main-Remote or AIR)	800	+ 100% /-50%
Micro	180	+/- 25%
Pico	80	+/- 25%

General base stations are used for wide area coverage, most of a radio network is built from such base stations. Micro and Pico base stations provide spot coverage.

A base station is located at what is called a site. The site provides power and environmental protection to the base station.

The power consumption of site equipment adds approximately 35% to the above values. This number varies typically between 20% and 60%, depending upon how much power is required for cooling purposes.

For more accuracy and/or more details, please continue reading.

Contents

1 Basic Information

This document is to be seen as an addition to the Power Consumption Guideline for RBS 6000, 1/22101-FGB 101 558 Rev F.

For recalculation to other configurations and base station types than are specified in this document see instructions in the Power Consumption Guideline for RBS 6000 document.

This document is valid until replaced by Rev E or incorporated into the Power Consumption Guideline for RBS 6000.

1.1 Revision History

A	2012-08-06 First approved version
B	2012-08-10 Document format changed
C	2013-03-25 Editorial changes
D	2013-12-13 Update Table 6000.C3 for Power consumption of CDMA baseband; Add new Table 6000 C2 for RUS 11 with DUS configuration; Add new Table 6000 C4 for RRUS 11 with DUS configuration; Add new Table 6000 C5 for RRUS 12 85 with DUS configuration.

1.2 Reference to other Guideline

In this document, reference is made to the Power Consumption Guideline for RBS 6000 Rev E 1/22101-FGB 101 558, which may be found in the product catalogue. This is from now on denoted as reference [1].

2 CDMA

2.1 RBS 6000 radio and baseband for CDMA

In CDMA, Code Division Multiple Access (CDMA) is used and each carrier is 1.25 MHz, The RBS 6000 can support up to six 1.25 MHz CDMA carriers simultaneously.

CDMA is supported in RBS 6000 through the use of the digital baseband units DBA and CEEM. The HSSL output from these units are converted in the XMU to the CPRI format used in radio units in RBS6000. The XMU is connected to a DUL20 or DUS 41 which makes it possible to have multi standard or mixed mode CDMA/LTE.

With a radio that supports both LTE and CDMA, LTE carriers and CDMA carriers can share the same radio up to the signal processing capacity of the radio.

RBS 6000 radios supporting CDMA are RRUS 11 825, RRUS 11 B26A, RRUS 11 84, RRUS11 85, RUS 01 84, RUS 01 82 and RRUS 12 85.

2.2 Configurations with various numbers of sectors

The tables provide values for 3-sector configurations.

2.3 Multiple carriers on one radio

For high capacity sites requiring multiple carriers and multiple sectors, then energy can be saved by using fewer radios in each sector. For example, using one radio in each sector for two carriers offer 20% energy savings compared to one radio per carrier.

2.4 Output power and traffic in CDMA

2.4.1 Power Consumption in terms of output power

In reference [1] GSM, power consumption for each HW configuration was given for different amounts of capacity, measured in voice TS; and for different amounts of coverage, measured in BCCH output power.

In CDMA, interference is much more pronounced meaning that the output power of a given traffic channel relative to the pilot channel CPICH varies widely, so assuming a fixed ratio would lead to misleading results when applied to real networks.

Instead, for CDMA, power consumption for each HW configuration is given for different amounts of the total downlink output power of each 1.25 MHz carrier. This parameter is used since it is readily measureable and since output power (along with codes) is the key resource providing both downlink coverage and capacity.

2.4.2 Radio Network Dimensioning

Radio Network Dimensioning can save considerable energy by allowing an optimum selection of RBS configuration.

Radio Network Dimensioning also provides a framework to understand how total downlink output power (and hence power consumption) depends upon traffic, coverage, interference and specific operating conditions.

The traffic in networks is now dominated by the data traffic, so capacity must be expressed as data throughput, considering user bit rate, plus voice capacity.

Power control is used in CDMA, just enough output power is allocated to a traffic channel to achieve a desired signal to noise ratio sufficient to send the information at the desired bit rate with an acceptable error rate. Here noise refers to the total noise, i.e. interference plus thermal noise.

In addition the same frequencies are reused in every sector.

The result of this is that all channels experience interference besides that due to thermal noise.

The equation governing the signal to noise ratio is clearly defined and can be used to derive an equation for the total output power as a function of traffic. However, this resulting equation is non-linear due to the inter-dependence between interference and the allocated power to both common and traffic channels. The equation also depends upon a number of parameters, which are heavily dependent upon the actual network conditions. Both the non-linearity and the observed widespread variation of parameters make it inappropriate to set a fixed ratio of the output power of a given traffic channel to the CPICH.

Radio Network Dimensioning may be combined with power consumption expressed in terms of output power to calculate power consumption in terms of traffic, for a carefully specified set of network conditions. Field measurements, correlating traffic with output power provide valuable input to calibrate the parameters in the calculation.

2.5 Units for Output Power

For example, 3x2 20W means each of the cell carriers has a nominal output power of 20W, the total nominal output power is 3x2x20 = 120W. Each power consumption value (green and yellow values) is then given assuming that all cell carriers each have the stated output power.

Definitions of load in terms of traffic require careful specification of network conditions in order to obtain the resulting output power and hence power consumption. The issues involved are the same as discussed in the Radio Network Dimensioning sub-chapter.

2.6 How to read the CDMA tables

The CDMA tables give RBS power consumption for different CDMA HW configurations.

The tables for RUS apply to -48 V DC fed RBS 6201 and the tables for RRUS apply to RBS 6601. With other voltages, conversion to the internal -48 V DC power supply is required. In reference [1] tables for other input voltages and other base station types are provided.

The CDMA configurations assume 1 DUL 20 or DUS 41, 1 XMU 01 02 and 1 DBA. Additional baseband can be added using the typical power consumption values in the conversion table *6000.C6.*

Power consumption values are provided for RUS 01 84, RRUS 12 85, RRUS 11 825 and B26A. RUS 01 82 (1900 MHz) can be approximated adding 7% to the 84 (17/2100 MHz) values. RRUS 11 84 and 85 can be approximated from the RRUS 11 825 (1900 MHz) and 826 A (850 MHz) values. For 84 (17/2100 MHz) add 8% and for 85 (850 MHz) subtract 4 %.

The yellow values are used to calculate energy consumption, these are the recommended typical values, based upon an average daily utilization of output power averaged over all the sites in a typical network.

For simplicity the yellow values correspond to 30% of nominal output power. It has been observed that the common channels together are dimensioned to typically 20% of nominal output power. Since there is some traffic, then the average value will be higher than 20%.

The same utilization is assumed for configurations having different nominal output power per cell-carrier, this implies that an operator selects the nominal output power based upon the specific site needs. Consistent with this, no reduction is assumed for RBS 6601, it is assumed the operator instead saves energy by choosing a lower nominal output power when the RRU is placed close to the antenna.

Since the actual average output power utilization will vary greatly from site to site, measuring this together with the power consumption on a number of representative sites will provide a snapshot of specific network energy consumption. This measurement can be repeated at regular intervals.

2 . 7 RBS 6201 with RUS 01

2.7.1 RBS 6601 with RUS 01 and DUL

The following power consumption values are valid for RBS 6201, -48V DC with DUL 20.

Configu111tion	Radio	Buaband									
3x1 *2fJN*	3RUS.01 B4	1DUL20 1XMU 1DBA	RBS output pawar per cell-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	651	672	681	890	708	741	781	819
3lt140W	3RUS.01 B4	1DUL2D 1XMU 1DBA	RBS output pawar per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS Power Conaumptlon (W)	691	732	749	788	801	870	950	1027
3lt1 *6fWi*	3RUS.01 B4	1DUL2D 1XMU 1DBA	RBS output pawar per cell-carrier (W)	6	12	15	18	24	36	48	60
			RBS Power Conaumptlon (W)	757	821	846	871	921	1021	1132	1241
3lt1 BOW	3RUS.01 B4	1DUL20 1XMU 1DBA	RBS output pawar per cell-carrier (W)	8	16	20	24	32	48	64	80
			RBS Power Consumption (W)	793	869	903	936	1004	1110	1261	1402
3lt2 *2fN{*	3RUS.01	1DUL2D 1XMU 1DBA	RBS output pawar per cell-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	736	793	812	831	869	938	1004	1057
3lt2 40W	3RUS.01	1DUL2D 1XMU 1DBA	RBS output pawar per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	793	869	903	936	1004	1110	1261	1402
3lt2 40W	6RUS.01	2 DUL2D 2XMU 2DBA	RBS output pawar per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	1369	1452	1486	1520	1589	1728	1866	2040
3lt2 *6fWi*	6RUS.01	2 DUL2D 2XMU 2DBA	RBS output pawar per cell-carrier (W)	6	12	15	18	24	36	48	60
			RBS Power Consumption (W)	1502	1630	1680	1730	1830	2030	2252	2469
3lt2 BOW	6RUS.01	2 DUL2D 2XMU 2DBA	RBS output pawar per cell-carrier (W)	8	16	20	24	32	48	64	80
			RBS Power Consumption (W)	1573	1725	1793	1880	1995	2208	2510	2792
3><3 *2fN{*	3RUS.01 B4	1DUL2D 1XMU 1DBA	RBS output power per cell-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	764	831	859	888	936	1031	1110	1224
3><3 *2fN{*	6RUS.01	2 DUL2D 2XMU 2DBA	RBS output power per cell-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	1374	1453	1480	1508	1564	1668	1772	1884
3x340W	6RUS.01 B4	2 DUL2D 2XMU 2DBA	RBS output pawar per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	1471	1588	1839	1690	1792	1968	2198	2416
3x340W	9RUS.01 B4	3 DUL2D 3XMU 3DBA	RBS output power per cell-carrier (W)	4	8	10	12	18	24	32	40
			RBS Power Consumption (W)	2083	2187	2238	2290	2393	2801	2839	3070
3x3 *6fWi*	9RUS.01 B4	3 DUL2D 3XMU 3DBA	RBS output power per cell-carTier (W)	8	12	15	18	24	36	48	60
			RBS Power Consumption (W)	2262	2454	2530	2605	2755	3054	3388	3713
3lt3 BOW	9RUS.01 B4	3 DUL2D 3XMU 3DBA	RBS output power per cell-carrier (W)	8	16	20	24	32	48	64	80
			RBS Power Consumption (W)	2368	2597	2699	2800	3003	3322	3774	4197
3lt4 *2fN{*	3RUS.01 B4	1DUL2D 1XMU 1DBA	RBS output power per cell-carrier (W)	2	4	5	8	8	12	18	20
			RBS Power Consumption (W)	793	869	903	936	1004	1110	1281	1402
3lt4 *2fN{*	6RUS.01 B4	2 DUL2D 2XMU 2DBA	RBS output power per cell-carTier (W)	2	4	5	8	8	12	18	20
			RBS Power Consumption (W)	1459	1573	1811	1849	1725	1863	1995	2102

3x4 4fPN	6 RUS-01 B4	2 DUL2D 2XMU 2DBA	RBS output power per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	1573	1725	1793	1880	1995	2208	2510	2792
3x4 4fPN	12RUS.01 B4	4 DUL2D 4XMU 4DBA	RBS output power per cell-carrier (W)	4	8	10	12	18	24	32	40
			RBS Power Consumption (W)	2760	2925	2994	3063	3200	3477	3795	4103
3><4 6fN{	12RUS.01 B4	4 DUL2D 4XMU 4DBA	RBS output power per cell-carrier (W)	6	12	15	18	24	36	48	60
			RBS Power Consumption (W)	3025	3282	3382	3482	3883	4082	4527	4960
3x480W	12RUS.01 B4	4 DUL2D 4XMU 4DBA	RBS output power per cell-carrier (W)	8	16	20	24	32	48	64	60
			RBS Power Consumption (W)	3167	3473	3808	3743	4013	4439	5042	5606
3x.5 2fN{	6 RUS-01 B4	2 DUL2D 2XMU 2DBA	RBS output power per cell-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	1488	1611	1658	1704	1794	1956	2102	2268
3x.5 2fN{	9 RUS-01 B4	2 DUL2D 2XMU 2DBA	RBS output power per cell-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	2113	2248	2295	2342	2438	2607	2780	2925
3><5 4fPN	9 RUS-01 B4	3 DUL2D 3XMU 3DBA	RBS output power per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	2267	2460	2545	2630	2799	3082	3462	3822
3x.5 4fPN	12RUS.01 B4	4 DUL2D 4XMU 4DBA	RBS output power per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	2862	3062	3147	3233	3403	3718	4107	4479
3><6 2fN{	6 RUS-01 B4	2 DUL2D 2XMU 2DBA	RBS output power per cell-carriar (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	1516	1649	1706	1759	1863	2049	2208	2434
3><6 2fN{	9 RUS-01 B4	3 DUL2D 3XMU 3DBA	RBS output power per cell-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	2199	2368	2426	2483	2597	2804	3003	3162
3><6 4fPN	9 RUS-01 B4	3 DUL2D 3XMU 3DBA	RBS output power per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	2368	2597	2699	2800	3003	3322	3774	4197
3><6 4fPN	12RUS.01 B4	3 DUL2D 3XMU 3DBA	RBS output power per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	2964	3199	3301	3403	3607	3958	4418	4854
3><7 2fN{	6 RUS-01 B4	2 DUL2D 2XMU 2DBA	RBS output power per cell-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	1644	1687	1749	1810	1929	2128	2359	2613
3><7 2fN{	9 RUS-01 B4	3 DUL2D 3XMU 3DBA	RBS output power per cell-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	2227	2407	2473	2538	2686	2896	3109	3329
3><7 4fPN	12RUS.01 B4	4 DUL2D 4XMU 4DBA	RBS output power per cell-carriar (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	3066	3336	3454	3573	3810	4198	4730	6230
3x8 2fN{	6 RUS-01 B4	2 DUL2D 2XMU 2DBA	RBS output power per cell-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	1573	1725	1793	1880	1995	2208	2510	2792
3x820W	9 RUS-01 B4	3 DUL2D 3XMU 3DBA	RBS output power per cell-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	2255	2445	2521	2593	2735	2989	3215	3495
3x8 4fPN	12RUS.01 B4	4 DUL2D 4XMU 4DBA	RBS output power per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	3167	3473	3608	3743	4013	4439	5042	5606

Table 6000.C1. R8S 6201-48V DC power consumption with RUS 01. Applies to 84 (1712100 MHz) Rev R3A or later. For 82 (1900 MHz) add 7 %.

2.7.2 RBS 6601 with RUS 01 and DUS

The following power consumption values are valid for RBS 6201, -48V DC with DUS 41.

Conflgumlon	Radla	Baa blind									
3x12r1W	3RUS-01 B4	1 DUS41 1XMU DBA	RBS output power per Cll-canier (W)	2	4	5	6	8	12	16	20
			RBS -Conoumptlon (W)	713	734	743	752	770	803	843	881
3x14r1W	3RUS-01 B4	1 DUS41 1XMU 1DBA	RBS output pow11r per Cll-canier (W)	4	8	10	12	16	24	32	40
			RBS -Conoumptlon (W)	753	794	811	828	863	932	1011	1088
3x16r1W	3RUS-01 B4	1 DUS41 1XMU DBA	RBS output power per c:el-c8nler (W)	6	12	15	18	24	36	48	60
			RBS Power Conoumptian (W)	819	883	908	933	983	1083	1194	1303
3x18r1W	3RUS-01 B4	1 DUS41 1XMU 1DBA	RBS output power per — (W)	8	16	20	24	32	48	64	80
			RBS Power Conoumptlon (W)	855	931	965	998	1066	1172	1323	1484
3x22r1W	3RUS-01 B4	1.....41 1XMU 1DBA	RBS output power per Cll-canier (W)	2	4	5	6	8	12	16	20
			RBS -Conoumptlon (W)	798	855	874	893	931	1000	1066	1119
3x24r1W	3RUS-01 B4	1 DUS41 1XMU 1DBA	RBS output power per — (W)	4	8	10	12	16	24	32	40
			RBS l'<lwei'Conoumptlon (W)	855	931	965	998	1066	1172	1323	1484
3x24r1W	6RUS-01 B4	2 41 2XMU 2DBA	RBS output power per cal-alnlar(W)	4	8	10	12	16	24	32	40
			RBS P<JwerConaumptian (W)	1493	1575	1610	1644	1713	1852	2010	2184
3x26aw	6RUS-01 B4	2 41 2XMU 2DBA	RBS output pow11r per cal-alnlar(W)	6	12	15	18	24	36	48	60
			RBS P<JwerConaumptian (W)	1626	1754	1804	1854	1954	2154	2376	2593
3x28r1W	6RUS-01 B4	2 41 ZXMU ZDBA	RBS output power per cal-alnlar(W)	8	16	20	24	32	48	64	80
			RBS Power Consumption (W)	1697	1849	1917	1984	2119	2332	2634	2916
3x32r1W	3RUS-01 B4	1 DUS41 1XMU 1DBA	RBS output power per eel-carrier (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	826	893	921	948	1000	1093	1172	1285
3x32r1W	6RUS-01 B4	2DUS41 ZXMU 2DBA	RBS output power per cel-carrler(W)	2	4	5	6	8	12	18	20
			RBS P<JwerConaumptian (W)	1498	1576	1604	1632	1688	1790	1896	1988
3x34r1W	6RUS-01 B4	I.JI.RI41 ZXMU ZDBA	RBS output pow11r per cel-canler (W)	4	8	10	12	16	24	32	40
			RBS P<JwerConoumptian (W)	1595	1712	1763	1814	1916	2092	2322	2540
3x34r1W	9RUS-01 B4	LJtRj 41 3XMU 3DBA	RBS output pow11r per cel-canler(W)	4	8	10	12	16	24	32	40
			RBS P<JwerConaumptian (W)	2249	2373	2424	2476	2579	2787	3025	3256
3x36aw	9RUS-01 B4	uut;41 3XMU 3DBA	RBS output pow11r per cel-canler(W)	6	12	15	18	24	36	48	60
			RBS -Consumption (W)	2448	2640	2715	2791	2941	3240	3574	3899
3x38r1W	9RUS-01 B4	3DUS41 3XMU 3DBA	RBS output power per cel-carrler(W)	8	18	20	24	32	48	64	80
			RBS P<JwerConaumptian (W)	2554	2783	2884	2986	3188	3508	3960	4383
3x42r1W	3RUS-01 B4	1 41 1XMU 1DBA	RBS output power per Cll-canier (W)	2	4	5	6	8	12	18	20
			RBS Conoumptlon (W)	855	931	965	998	1066	1172	1323	1484
3x42r1W	6RUS-01 B4	2DUS41 ZXMU ZDBA	RBS output power per Cll-canier (W)	2	4	5	6	8	12	16	20
			RBS -Conoumptlon (W)	1583	1697	1735	1n3	1849	1987	2119	2226

3x44aw	6RUS-i>1 B4	2DUS41 2XMU 2DBA	RBS output JIDIA'8I' per 011!1-canler(W)	4	8	10	12	18	24	32	40
			RBS Powoor Cor.umptian (W)	1697	1849	1917	1984	2119	2332	2634	2916
3x44aw	12R!JS-()1 B4	4DUS41 4XMU 4DBA	RBS output power per cell-amler (W)	4	8	10	12	16	24	32	40
			RBS Powar Conoumpllon (W)	3008	3173	3242	3310	3448	3725	4043	4351
3x4eaw	12RUS-()1 B4	4DUS41 4XMU 4DBA	RBS output JIDIA'8I' per eell-aurier (W)	6	12	15	18	24	38	48	60
			RBS PowarCor.umpllon (W)	3273	3530	3830	3730	3930	4329	4775	5208
3x48aw	12RUS-()1 B4	4 LJUii 41 4XMU 4DBA	RBS output JIDIA'8I' per 011!1-aurier(W)	8	16	20	24	32	48	64	80
			RBS PowarConoumptian (W)	3415	3720	3855	3991	4281	4886	5289	5854
3x52aw	6RUS-01 B4	2DUS41 2XMU 2DBA	RBS output JIDIA'8I' per 011!1-canler(W)	2	4	5	6	8	12	16	20
			RBS PowarConoumptian (W)	1612	1735	1782	1828	1918	2080	2226	2392
3x52aw	9RUS-01 B4	21JU5 41 2XMU 2DBA	RBS output pgwer per 011!1-canier(W)	2	4	5	6	8	12	16	20
			RBS PowoerConoumpllon (W)	2299	2434	2481	2528	2622	2793	2965	3110
3x54aw	9RUS-i>1 B4	31JU5 41 3XMU 3DBA	RBS output power per 011!1-canier(W)	4	8	10	12	16	24	32	40
			RBS PowarCor.umpllon (W)	2452	2848	2731	2818	2985	3287	3848	4007
3x54aw	12 RUS-01 B4	41JU5 41 4XMU 4DBA	RBS output power per 011!1-aurier(W)	4	8	10	12	16	24	32	40
			RBS PowarConoumpllon (W)	3109	3310	3395	3481	3851	3985	4354	4727
3x62aw	6RUS-01 B4	21JU5 41 2XMU 2DBA	RBS output power per 011!1-aurier(W)	2	4	5	6	8	12	16	20
			RBS PowarCor.umpllon (W)	1640	1773	1830	1883	1987	2173	2332	2558
3x62aw	9RUS-01 B4	3DUS41 3XMU 3DBA	RBS output pgwer per 011!1-canier(W)	2	4	5	6	8	12	16	20
			RBS PowarCor.umpllon (W)	2384	2554	2812	2889	2783	2989	3188	3348
3x&4aw	9RUS-IJ1 B4	..... 41 3XMU 3DBA	RBS output -per 011!1-canier(W)	4	8	10	12	16	24	32	40
			RBS PowarCor.umptian (W)	2554	2783	2884	2986	3188	3508	3960	4383
3x640W	12RUS-()1 B4	..... 41 3XMU 3DBA	RBS output -per 011!1-canier (W)	4	8	10	12	16	24	32	40
			RBS PowarConl!umptian (W)	3211	3447	3549	3651	3854	4206	4666	5102
3x72aw	6RUS-01 B4	Z LJUii 41 2XMU 2DBA	RBS output -per 011!1-canlar(W)	2	4	5	6	8	12	16	20
			RBS Powoor Consumption (W)	1668	1811	1873	1934	2053	2252	2483	2737
3x72aw	9RUS-01 B4	3DUS41 3XMU 3DBA	RBS output JIDIA'8I' per eell-anier (W)	2	4	5	6	8	12	16	20
			RBS PowoorCor.umpllon (W)	2413	2592	2859	2724	2852	3082	3295	3514
3x74aw	12 RUS-01 84	4 LJUii 41 4XMU 4DBA	RBS output JIDIA'8I' per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS PowoorCor.umptian (W)	3313	3583	3702	3821	4058	4446	4978	5478
3x82aw	6RUS-01 B4	2DUS41 2XMU 2DBA	RBS output JIDIA'8I' per 011!1-canler(W)	2	4	5	6	8	12	16	20
			RBS Powoor Cor.umptian (W)	1697	1849	1917	1984	2119	2332	2634	2916
3x82aw	9RUS-01 B4	3IXJS 41 3XMU 3DBA	RBS output JIDIA'8I' per 011!1-canler(W)	2	4	5	6	8	12	18	20
			RBS Powoor Conoumpllon (W)	2441	2831	2707	2779	2921	3175	3401	3681
3x84aw	12R!JS-()1 B4	4DUS41 4XMU 4DBA	RBS output pgwer per 011!1-aurier(W)	4	8	10	12	16	24	32	40
			RBS PowarConoumpllon (W)	3415	3720	3855	3991	4281	4886	5289	5854

Table 6000.C2. R8S 6201-48V DC power consumption with RUS 01. Applies to 84 (1712100 MHz) Rev R3A or later. For 82 (1900 MHz) add 7%.

2.8 RBS 6601 with RRUS 11

2.8.1 RBS 6601 with RRUS 11 and DUL

The following power consumption values are valid for RBS 6601, -48V DC with DUL 20.

Conftgur11tlon	Radio	BaHbllnd									
3x12!JW (1PAoil)	3RRUS-11 825	1DUL 20 1XMU 1DBA	RBS output powar per cell-aurio.- (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	706	724	732	740	755	788	818	852
3x1 *!li:Nl* (1PAoil)	3RRUS-11 825	1DUL 20 1XMU 1DBA	RBS output powar per cell-<>&nt• (W)	3	6	7,5	9	12	18	24	30
			RBS Power Consumption (W)	746	777	790	802	828	878	923	976
3x140W (1PAoil)	3RRUS-11 825	1DUL 20 1XMU 1DBA	RBS output powar per cell-<>&nt• (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	756	792	806	821	849	908	963	1022
3x1 8f1W MIMO	3RRUS-11 825	1DUL 20 1XMU 1DBA	RBS output powar per cell-aurio.- (W)	8	16	20	24	32	48	64	80
			RBS Power Consumption (W)	928	999	1028	1057	1114	1230	1340	1459
3x22!JW (1PAoil)	3RRUS-11 825	1DUL 20 1XMU 1DBA	RBS output powar per cell-aurio.- (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	756	792	806	821	849	908	963	1022
3x22r1N (bo1h PAon)	3 RRU8-11 825	1DUL 20 1XMU 1DBA	RBS output powar par cell-<:ant• (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	840	876	892	907	938	1004	1063	1131
3x230W	3 RRU8-11 825	1DUL 20 1XMU 1DBA	RBS output powar per cell-<>&nt• (W)	3	6	7,5	9	12	18	24	30
			RBS Power Consumption (W)	911	972	998	1023	1074	1174	1264	1371
3x240W	3 RRU8-11 825	1DUL 20 1XMU 1DBA	RBS output powar per cell-<>&nt• (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	928	999	1028	1057	1114	1230	1340	1459
3x2 8f1W MIMO	6RRUS-11 825	2DUL 20 2XMU 2DBA	RBS output powar per cell-<:antar (W)	8	16	20	24	32	48	64	80
			R8S Power Consumption (W)	1843	1986	2043	2101	2215	2448	2688	2905
3x326WMIMO	3 RRU8-11 825	1DUL 20 1XMU 1DBA	RBS output powar per cell-aurio.- (W)	2,6	5,2	6,5	7,8	10,4	15,6	20,8	26
			RBS Power Consumption (W)	884	895	910	926	949	996	1034	1071
3>13 53W MIMO	6RRUS-11 825	2DUL 20 2XMU 2DBA	RBS output powar per cell-<>&nt.- (W)	5,3	10,6	13,25	15,9	21,2	31,8	42,4	53
			RBS Power Consumption (W)	1779	1690	1937	1984	2061	2213	2367	2517
3l0420W	3RRUS-11 825	1DUL 20 1XMU 1DBA	RBS output powar per cell-<>&nt.- (W)	3	6	7,5	9	12	18	24	30
			RBS Power Consumption (W)	928	999	1028	1057	1114	1230	1340	1459
3l0420W	6RRUS-11 825	2DUL 20 2XMU 2DBA	RBS output powar per cell-<>&ntar (W)	2	4	5	6	8	12	16	20
			RBS Power Consumption (W)	1667	1740	1771	1802	1864	1996	2113	2250
3l04 *!li:Nl*	6RRUS-11 825	2DUL 20 2XMU 2DBA	RBS output powar per cell-<>&ntar (W)	3	6	7,5	9	12	18	24	30
			RBS Power Consumption (W)	1810	1932	1983	2034	2135	2335	2515	2730
3l0440W	6RRUS-11 825	2DUL 20 2XMU 2DBA	RBS output powar per cell-auri• (W)	4	8	10	12	16	24	32	40
			RBS Pawer Conaumption (W)	1843	1986	2043	2101	2215	2448	2688	2905

Table 6000.C3. RBS 6601-48V DC power consumption with RRUS 11. Applies to 825 (1900 MHz) and B26A metallic and ceramic filter (850 MHz). For 84 (1712100 MHz) add 8 %. For 85 (850 MHz) subtract 4 %

2.8.2 RBS 6601 with RRUS 11 and DUS

The following power consumption values are valid for RBS 6601, -48V DC with DUS 41.

Conngundlon	Radio	Ba•band									
3><1 'l!JW (1 PA oft)	3RRUS-11825	1DUS41 1JCMU 1DBA	RIS output ,. _ r poor cell-cllllier (W)	2	4	5	6	8	12	16	20
			RBS p.,_. Consumption (W)	768	786	794	802	817	850	880	914
3><1 *3t:JN* (1 PA oft)	3RRUS-11825	1DUS41 1JCMU 1DBA	RIS output power par cell-corrtar (W)	3	6	7.5	9	12	18	24	30
			RBS p.,_. Consumption (W)	808	839	852	864	890	940	985	1038
3><1 o40W (1 PA()ft)	3RRUS-11825	1DUS41 1JCMU 1DBA	RIS output "'"'"'"'per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBS P<»W' Consumption (W)	818	854	868	883	911	970	1025	1084
3><1 8IJW MIMO	3RRUS-11825	1 [iiJ5 41 1JCMU 1DBA	RIS output . . . -r per cell-ciiiTtar (W)	8	16	20	24	32	48	64	80
			RBS p.,...,.. Consumption (W)	990	1061	1090	1119	1176	1292	1402	1521
3x2 'l!JW (1 PA oil)	3RRUS-11825	1DUS41 1JCMU 1DBA	RIS output . . . r poor cell-cllllier (W)	2	4	5	6	8	12	16	20
			RBS P<»W' Consumption (W)	818	854	868	883	911	970	1025	1084
3x2 *2fiW* (both PA on)	3RRUS-11825	1DUS41 1JCMU 1DBA	RIS output . . . r poor cell-corrter (W)	2	4	5	6	8	12	16	20
			RBS Powar Consumption (W)	902	938	954	969	1000	1066	1125	1193
3x2 *X1N*	3RRUS-11825	1DUS41 1JCMU 1DBA	RIS output . . . -r per cell-carrier (W)	3	6	7.5	9	12	18	24	30
			RBS p.,_. Consumption (W)	973	1034	1060	1085	1136	1236	1326	1433
3x2 *4fiN*	3RRUS-11825	1 [iiJ5 41 1JCMU 1DBA	RIS output ,,. r per cell-cllllier (W)	4	8	10	12	16	24	32	40
			RBS Powar Consumption (W)	990	1061	1090	1119	1176	1292	1402	1521
3x2 8IJW MIMO	6RRUS-11825	2 DUS 41 2JCMU 2DBA	RIS output power poor cell-corrtar (W)	8	16	20	24	32	48	64	80
			RBS Powar Consumption (W)	1967	2110	2167	2225	2339	2572	2792	3029
3x326WMIMO	3RRUS-11825	1DUS41 1JCMU 1DBA	RIS output ,,. r poor cell-carrler (W)	2.6	5.2	6.5	7.8	10.4	15.6	20.8	26
			RBS Powar Consumption (W)	926	957	972	987	1011	1058	1096	1133
3x353WMIMO	6RRUS-11825	2 DUS 41 2JCMU 2DBA	RIS output . . . -r per cell-ciiiTtar (W)	5.3	10.6	13.25	15.9	21.2	31.8	42.4	53
			RBS p.,...,.. Consumption (W)	1903	2014	2061	2108	2184	2336	2491	2641
3><4 'l!JW	3RRUS-11825	1DUS41 1JCMU 1DBA	RIS output ,. _ r poor cell-cllllier (W)	3	6	7.5	9	12	18	24	30
			RBS P<»W' Consumption (W)	990	1061	1090	1119	1176	1292	1402	1521
3x4 'l!JW	6RRUS-11825	2 [iiJ5 41 2JCMU 2DBA	RIS output . . . r poor call-cllllier (W)	2	4	5	6	8	12	16	20
			RBS Powar Consumption (W)	1791	1864	1895	1926	1988	2120	2237	2374
3x4 *X1N*	6RRUS-11825	2 DUS 41 2JCMU 2DBA	RIS output . . . r poor cell-cllllier (W)	3	6	7.5	9	12	16	24	30
			RBS p.,_. Consumption (W)	1934	2056	2107	2158	2259	2459	2839	2854
3x4 *4fiN*	6RRUS-11825	2 [iiJ5 41 2JCMU 2DBA	RIS output power per cell-corrtar (W)	4	8	10	12	16	24	32	40
			RBS Power Consumption (W)	1967	2110	2187	2225	2339	2572	2792	3029

Table 6000.C4. R8S 6601-48V DC power consumption with RRUS 11. Applies to 825 (1900 MHz) and 826A metallic and ceramic filter (850 MHz). For 84 (1712100 MHz) add 8 %. For 85 (850 MHz) subtract 4 %

2.9 RBS 6601 with RRUS 12

The following power consumption values are valid for RBS 6601, -48V DC with DUS 41 and RRUS 12 85.

Configuration	dlo	Ba•band									
3x1120W MIMO	3RRUS-1285	1DUS41 1JCMU 1DBA	RBS output power per cell-carrlor (W)	12	24	30	38	48	72	96	120
			RBSP"""'rConsumption (W)	1318	1422	1466	1513	1601	1771	1941	2124
3x22fNV	3RRUS-1285	11JU541 1JCMU 1DBA	RBS output power per cell-carrior (W)	2	4	5	6	8	12	16	20
			RBSP.-rConoumptlon (W)	1199	1267	1284	1318	1349	1422	1485	1449
3x240N	3RRUS-1285	1DIJ;:141 1JCMU 1DBA	RBS output power per cell-carrier (W)	4	8	10	12	16	24	32	40
			RBSP.-rConoumptlon (W)	1267	1349	1391	1422	1485	1601	1712	1831
3x2fi1N	3RRUS-1285	1DUS41 1JCMU 1DBA	RBS output power per cell-carrier (W)	6	12	15	18	24	36	48	60
			RBSP.-rConoumptlon (W)	1318	1422	1466	1513	1601	1771	1941	2124
3x2120W MIMO	6RRUS-1285	2DUS41 2JCMU 2DBA	RBS output power par call-carrior (W)	12	24	30	38	48	72	96	120
			RBSP.-rConoumptlon (W)	2623	2831	2919	3014	3190	3530	3870	4236
3x430W	3RRUS-1285	1DUS41 1JCMU 1DBA	RBS output power per cell-carrier (W)	3	6	7.5	9	12	16	24	30
			RBSP.-rConsumption (W)	1316	1422	1466	1513	1601	1771	1941	2124
3x4fi1N	8RRUS-1285	2 : 2DBA	RBS output power par cell-caiTior (W)	6	12	15	16	24	36	48	60
			RBSP.-rConoumptlon (W)	2623	2631	2919	3014	3190	3530	3870	4236

2.10 Power Consumption of CDMA Baseband

RBS 6000 CDMA configurations may contain other combinations of baseband modules than ones stated in the tables. Power consumption for these configurations can be obtained from the above tables using the typical power consumption values in the conversion table below.

Unit	Typical power consumption +25 degrees [W]	Max power consumption +55 degrees [W]
DUL 20 01	77	85
DUS 41 01	159	220
XMU 01 02	50	100
DBA	110	150
DBA6/6	110	150
CEEM	7	44
XCEM-A	28	30
AEM 1402	67	84

Table 6000.C6. Power consumption of CDMA baseband

THANK YOU