The origin
of
the so-called "Salzburg model"
and of the
immission assessment value of
1 milliwatt per square metre (1 mW/m^2)

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1. Summary

In 1998, a voluntary mediation procedure in connection with the installation of 12 antenna masts in the city of Salzburg was extended for political reasons to all mobile phone transmission facilities, without the approval of the mobile telephony providers.

The so-called "Salzburg milliwatt" was based on a single explorative study carried out in 1996 that served to formulate a work hypothesis. Subsequent studies carried out by the same authors were unable to confirm this hypothesis. More recent findings are systematically ignored by the supporters of the "Salzburg milliwatt".

In case providers are unable to comply with the so-called "Salzburg milliwatt", procedures pursuant to the legislation of the Länder are unlawfully used as a means of political pressure, hindering the expansion of mobile telephony networks. Legal steps have been taken against this method practiced by the authorities in eight specific cases since autumn 2001. Charges were filed in March 2002 (for abuse of authority).

There is no full-coverage mobile telephony network in the city of Salzburg operating at a maximum power flux density of 1 mW/m^2. At present, there is neither a technical nor an economic possibility of implementing such a solution. This was confirmed by a measurement project carried out by the Swiss Federal Office for Communications (BAKOM) in February 2002.[1]
In its role as the responsible legislator, the Austrian Parliament has rejected the introduction of the so-called "Salzburg milliwatt" as a threshold limit for mobile telephony facilities on January 31, 2002.

[1] The Swiss Communication Commission (ComCom) had commissioned the Federal Office for Communication (BAKOM) to carry out these measurements and calculations in Austria in order to find out how and whether it is possible to comply with the so-called "Salzburg milliwatt": "Immissionen in Salzburg", a study by the Swiss Federal Office for Communication, February 2002
http://www.bakom.ch/de/funk/elektromagnetisch/immission/index.html

2. The origin of the "Salzburg milliwatt"

During the expansion of the network of private GSM providers max.mobil (T-Mobile Austria since April 2002) and ONE (Connect Austria), there was increasing resistance against planned sites from neighbouring residents. 1997 marked the culmination point of this resistance. In 1998, massive political and media pressure led to the establishment of a round table: A mediation procedure was introduced to negotiate the 12 **mast** sites planned by ONE (Connect Austria) in the city area of Salzburg with neighbouring residents and in coordination with local decision makers.

The agreement reached on 12 October 1998[2] settled the conflict. The providers did not enter an obligation to comply with the so-called "Salzburg milliwatt". Since, however, the sites subject to negotiation consisted of relatively exposed 30m-masts, the calculated power flux density values for neighbouring residents were below 1mW/m². ONE also agreed to control the calculated power flux density values at the specific sites by means of measurements. In order to build up confidence, ONE promised to allow the provincial health directorate of Salzburg to be present at the control measurements, which in turn agreed to disclose the results of the measurements to the representatives of the neighbouring residents. ONE never entered a legal obligation to follow this procedure.

In the run-up to this mediation procedure, the provincial health directorate of Salzburg had already published a proposal for the so-called "Salzburg precaution value" (=Salzburg milliwatt) in the spring of 1998. The main element of this proposal was to limit the power flux density of mobile telephony facilities to 1mW/m² (measured on the outer side of the nearest building). The strong media coverage of the mediation procedure, however, also led to the dissemination of this proposal. Today, it is no longer possible to determine[3] exactly who launched the initial political initiative for the development of this proposal[4]. Its author, Dr. Gerd Oberfeld is an official of the Land of Salzburg, working for the office of the Land Government of Salzburg, Department 9 (Health and Land Establishments). He is neither a (sworn) expert for EMF (electromagnetic fields), nor is he a public expert pursuant to the Austrian legal system, since, from a legal point of view, the provincial health directorates have no competency in this field.

According to the presentation of the so-called "Salzburg model" (=Salzburg milliwatt) by Mr. Bernhard Carl (now a member of the board of Salzburg's civic action groups for the protection against mobile telephone antennas), "more and more citizens (began to) have concerns about their health ever since the transmission facilities

[2] Agreement at the Connect Round Table Salzburg on 12 October 1998
[3] Das Salzburger Modell: Eine Vorsorgestrategie bei der Errichtung von Basisstationen, Dr. Gerd Oberfeld, Dr. Christoph König, Tagungsband "Internationale Konferenz – Situierung von Mobilfunksendern, 2000
[4] Letter of the provincial health directorate of Salzburg titled "Proposal for a preliminary medical assessment of high-frequency electromagnetic fields – Necessary actions and research" dated 25 Feburary 1998, No. 9/12-62603/43-1998

suddenly became visually perceivable".[5] So it was not an increasing incidence of health problems around such facilities but the visibility of these that caused citizens to turn to Mr. Bernhard Carl (civic group *Bürgerliste*), then still a member of the municipal council of Salzburg, who took this up as a political cause. In the course of this politically motivated support, it was alleged that ONE had promised to install its entire mobile telephony network in the City and the Land of Salzburg in compliance with the safety specifications and parameters of the so-called "Salzburg model (=Salzburg milliwatt)", although this has never constituted part of the agreement of 12 October 1998.

So far it has not been possible to eliminate this widespread allegation (the intention to build a comprehensive mobile telephony network with a maximum power flux density of one milliwatt per square metre) that was also linked to tele.ring, the fourth mobile telephony provider in Austria, despite several written statements sent by the company to the politicians involved.[6]

The direct consequence of this politically motivated development was that providers had to deliver proof o a maximum power flux density of 1 mW/m² by means of calculation for all subsequent applications for the erection of **mast** sites. If they failed to do so, the approval procedures were not completed[7] or the applications were rejected. As to applications for the erection of **roof** sites, the authorities demanded such calculations only in isolated cases. In the spring of 1999, the municipality of Salzburg began demanding a calculation for all applications in connection with **roof** sites. At the same time, the provincial health directorate of Salzburg postulated 1 mW/m² as a cumulative value for all four GSM providers, without previous consultation with these. So the new requirement was to maintain a power flux density limit of 0.25 mW/m² for each mobile telephony facility.
In the beginning, providers saw themselves compelled to comply with the requirement of providing calculations of the power flux density around planned sites. Due to the rising number of mobile telephony facilities and the inclusion of **roof** sites, however, it was becoming increasingly impossible not to exceed the required 0.25 mW/m^2.

3. The scientific basis of the so-called "Salzburg milliwatt"

The only basis for the so-called "Salzburg milliwatt" was a single study described by Dr. Oberfeld in 1998 as "so far the only work of this kind ever published": This was the work by K. Mann and J. Röschke titled "Effects of pulsed high-frequency electromagnetic fields on human sleep", published in "Neuropsychobiology" (1996), page 41 to 47.[8]

[5] The Salzburg model, the presentation by Bernhard Carl, press documents of 12 October 2001, boldface also in the original
[6] Tele.ring letter of 29 June, 2001 and 17 May, 2000
[7] As a result of this practice, charges were brought against the municipal councillor for abuse of authority.
[8] Also see stenographic notes of the parliamentary inquiry of 20 June, 2000, XXI. GP

The supporters of the so-called "Salzburg milliwatt" have so far failed to provide a verification of his conclusions and proposals on the basis of studies published in subsequent years. The opinion by Röschke, the author of the study, that his study is not suitable for deriving any limits or precaution values, was repeatedly brought to the knowledge of Dr. Oberfeld even by Röschke personally.[9] Yet so far there hasn't been a consideration or even a refutation of these arguments that challenge the basis of the "Salzburg milliwatt".

Apart from the fact that scientific literature and judicature opposing this thesis is ignored, it is particularly conspicuous that irrelevant references were established and peculiar measures were applied in an attempt to justify the assessment value of one milliwatt per square meter:

- Although the underlying sleep study showed the non-reproducible effect of a reduction of the period until falling asleep, it was used as a proof of sleeping and resting disturbances.
- Although the underlying sleep study involved an operating mobile telephone positioned at a distance of 40 cm from the subject's head, the transmission characteristics of which are far different from those of a base station, the values derived from the study are only applied to base stations.
- Since no exposition-effect curve is known, the inventor of the so-called "Salzburg milliwatt" applied the method used for assessing chemicals that, according to his words, provides for safety factors between 2 and 3,000 in such cases. He does not justify, however, why the safety factors 100 and 5 must be applied in this case (for the 500 mW/m^2 that were only estimated but not measured for the study). Nor does he explain why the same safety factors applied to chemicals concentrating in the human body must be used for (volatile) electromagnetic fields.
- In his 1998 explanation of the model, the author writes that "at present" the question of a possible adverse effect on health "cannot be answered". In 1999, the author finally assures that: "Immissions exceeding the Salzburg precaution value can by no means be considered a possible health hazard " (...)".[10] Other studies carried out since 1999 support this view. No comments are made on why limiting provisions must be applied to the operation of mobile telephony facilities despite this development, and why the inventor of the so-called "Salzburg milliwatt" has so far failed to present a revision.

4. Definition and content of the so-called "Salzburg milliwatt"

The so-called "Salzburg milliwatt" requires that the cumulated immission value of all electromagnetic fields produced by GSM facilities, taking the actual output of the respective facility as a basis, must not exceed a power flux density of one milliwatt per square metre on the outer side of the nearest building. The declared political objective of this provision is to ensure nationwide compliance with this assessment value at any time. Since four GSM mobile telephony networks are currently operating in Austria, each provider would have to maintain a power flux density limit of 0.25 mW/m^2. Since two providers operate in 900 and 1800 MHz frequencies, they would have to guarantee a limit of 0.125 mW/m^2 for each application on a single facility.

Although Austria's federal system of competency distribution does not allow such assessments based on a procedure defined by the laws of the Länder, Salzburg's municipal department in charge of the protection of architectural appearance

[9] Interview with Joachim Röschke, printed in the Salzburger Fenster in April 2000 and FN 8
[10] Schreiben der Salzburger Landessanitätsdirektion vom 29.06.1999, Zahl 9/12-62603/171-1999

regularly refuses to issue any approvals until the applicants can ensure compliance with these values through expensive measures or reorganisation of the network construction plans by the time a given station is put into operation. Since this is technically unfeasible in most cases, the procedure is practically suspended by the authority. As a result, the facility cannot be installed due to the failure to obtain the respective approval. In the summer of 2001, this lead to a complete standstill in the expansion of mobile networks in the city of Salzburg. The department failed to comply with the instruction by the competent superior authority to forward cases blocked in this manner to a higher instance. This unlawful blockade did not stop until October 2001, when the public prosecutor's office began to investigate allegations of abuse of authority. Ever since, the competent authority rejects all applications for the erection of a mobile telephony facility for reasons of architectural appearance protection. As a result of this practice, charges were brought against the responsible municipal councillor on the grounds of abuse of authority.

At an international conference on 7 and 8 June, 2000 in Salzburg, the so-called "Salzburg milliwatt" was linked to further political demands such as co-decision rights for neighbouring residents in construction procedures, the creation of a fund for research programmes financed by the mobile telephone industry, etc. The conference decided by majority on the introduction of a maximum limit of 100 milliwatts per square metre for high-frequency applications, calling for a maximum share of 1 mW/m^2 for GSM applications. This overall package was adopted in a final document, the so-called "Salzburg resolution".[11] The two participating experts whose research focuses on electromagnetic fields did not sign the final document.

5. Legal aspects of the so-called "Salzburg milliwatt"

On 29 March 2000, the Land Parliament of Salzburg had already decided to support these demands that were subsequently confirmed by the international conference in June 2000. The arguments of the mobile telephony providers or the mobile telephony industry were neither queried nor heard at these two occasions. The decision of the Land Government of 29 March, 2000 to support these demands is a political declaration of intent, and has **no legally binding effect**. Due to the undisputable distribution of competencies, the Federal Government is exclusively responsible for the regulation of any health-related issues in connection with mobile telephony. The governments of the Länder have no subsidiary competency in this issue.[12] On 31 January, 2002, the Federal Parliament finally considered and rejected the introduction of the "Salzburg milliwatt".[13]

From the perspective of mobile telephony providers, the administrative procedures **in connection with the protection of the architectural appearance, the landscape, and the environment** that fall under the competency of the Länder, are increasingly **used as a means of political pressure** to enforce the so-called "Salzburg milliwatt".

[11] Salzburg Resolution, conference report available at www.land-sbg.gv.at/celltower
[12] comp. *Raschauer*, "Mobilkommunikation – Rechtsfragen der Sendeanlagen", 26, Orac 1998
[13] see stenographic notes of the 92nd session of the National Council on 31 January 2002, XXI. GP and "Chronologie der Mobilfunk-Petition", FMK brochure 2002, available at www.fmk.at/medieninfo

Since, however, this is impossible for technical and economic reasons, (unlawfully) no approval is granted for the installation of a facility on the grounds of architectural appearance protection – even if all mandatory requirements are met. This arbitrariness, expressed as a **refusal to apply the law until legally irrelevant, politically motivated criteria are met,** has brought the expansion of mobile telephony networks in Salzburg to a standstill. At the same time, the development of the UMTS networks in Salzburg is touch-and-go, since delays in the installation of sites are certain. On the other hand, the commissioning and undisturbed operation of facilities already installed is no longer a matter of course.

From the point of view of market **competition**, this political situation is becoming increasingly precarious, particularly because **new mobile telephony competitors are confronted with a higher economic risk**. Austrian providers are already considering the option of examining whether, in view of this politically motivated investment and business insecurities, it would be possible to enforce the restitution of granted UMTS licenses or a partial reimbursement of the amounts paid for UMTS frequencies at the auction.

Moreover, a binding assessment value of one milliwatt would render the existence of **several competitors impossible simply for technical reasons**.

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