T-Mobile

January 21, 2003

VIA Electronic Comment Filing System

Ms. Marlene Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
12th Street Lobby, TW-A325
Washington, DC 20554

RE: Ex Parte Presentation, IB Docket No. 01-185

Dear Ms. Dortch:

T-Mobile files this letter to provide supporting information of concerns raised in this proceeding regarding the impact that a 3dB increase in the noise floor to accommodate proposed MSS/ATC operation would have on PCS handsets.

T-Mobile shares the concerns raised in this proceeding regarding the potential for MSS/ATC operations in the 1990-2025 MHz band to cause interference to PCS operations in the adjacent 1930-1990 MHz band. The FCC has proposed to assess the permissible interference limits for MSS/ATC operation in the Receiver Sensitivity of the PCS mobiles operating in the 1930-1990 MHz band. This filing demonstrates that a 3dB degradation will result in *significant* losses in coverage for T-Mobile. Specifically, T-Mobile calculates that such an increase in the noise floor would result in a 33% reduction in the coverage potential of a site, which would need to be restored by the construction of 33% more cell sites. Our link budget analysis of the impact of the 3dB increase on reduction in T-Mobile's coverage is attached.

Pursuant to Rule 1.49(f)(1) of the Commission's rules, an electronic version of this letter is being furnished for inclusion in the above-captioned docket. Please contact the undersigned should you need further information.

Sincerely,

/s/ Gary K. Jones
Gary K. Jones
Robert A. Calaff

T-Mobile USA, Inc.
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202/654-5900

Attachment

Assessment of FCC Proposal to introduce MSS/ATC Services into the 1990-2025 MHz Band

The FCC proposes to assess the permissible interference limits in the Receiver Sensitivity of the PCS mobiles operating in the 1930-1990 MHz band. This filing demonstrates that a 3dB degradation in a PCS receiver represents a *significant* loss in the potential coverage of a PCS GSM user.

The receiver sensitivity of the MS receiver is specified at –102dBm, and is derived from the following (reference GSM standard 03.30)

Rxsens = NF + Ec/No –174 + Wb, where

NF = Noise figure of the mobile assumed to be 10dB

Ec/No is set at 8dB from simulation for the required residual BER, without interference.

Wb = 54.3 dBHz for a 271KHz system

= -101.7 dBm

A typical GSM link budget shows that for a system equipped with LNA the Downlink is already the limiting factor for determining coverage potential.

		Downlink
BTS	BTS TX Power	44.5
	BTS to Feeder Jumper Loss	0
	Feeder Loss	-3
	Feeder to LNA Jumper Loss	0
	LNA Insertion Loss	-0.9
	LNA to Ant Jumper Loss	-0.2
	Antenna Gain	19
	Path Loss	**147.40**
Env.	Fading+Penetration Margin	-8
	Interference Margin	-3
	Body Loss	-3
MS	Mobile Antenna Gain	0
	MS Rx Sensitivity	-102
	Downlink Limited	
	Maximum Pathloss (dB) :	**147.40**
	Link Imbalance (dB) :	**5.90**

		Uplink
MS	MS TX Power	30
	Mobile Antenna Gain	0
Env.	Body Loss	-3
	Interference Margin	-3
	Fading+Penetration Margin	-8
	Path Loss	**153.30**
BTS	Ant Diversity Gain	5.5
	Antenna Gain	19
	Loss between Ant and BTS	1.80
	BTS Sensitivity	-111.00

If the receiver sensitivity was decreased by 3dB the usable path loss in the above link budget would decrease to 144.4 dB.

The reference propagation model used in predicting the coverage potential of a GSM site is the COST 231 model. This model is shown below:

Lu (dB) = 46.3 + 33.9*log(f) - 13.82*log(Hb) - a(Hm) + [44.9 - 6.55*log(Hb)]*log(d) + Cm

with :

a(Hm) = [1.1*log(f) - 0.7]*Hm - [1.56*log(f) - 0.8]

Cm = 0 dB for medium sized city and suburban centres with moderate tree density

Cm = 3 dB for metropolitan centres

Frequency f: 1500 - 2000 MHz

Base station height Hb: 30 - 200 m

Mobile height Hm: 1 - 10 m

Distance d: 1 - 20 km

Two examples can be run using the current path loss of 147dB and the reduced path loss of 144 dB.

	Current	Degraded	Reduction
Cell radius (km)	2.2	1.8	18%
Cell AREA (km)2	12.7	8.5	33%
Cell AREA (mi)2	4.9	3.3	33%

Allowing a 3dB degradation in the GSM mobile receiver sensitivity will have a profound effect on the coverage potential of a site. This short fall in coverage will need to be recouped via increased cell counts. To cover the same area an additional 33% more sites would be needed with the degraded receiver sensitivities.