
Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of)
)
AT&T Wireless Corporation) WT Docket No. 04-70
Cingular Wireless Corporation)
Seek FCC Consent to Transfer Control of)
Licenses and Authorizations)

To: The Commission

**CEASa REPLY TO CINGULAR
JOINT OPPOSITION TO PETITIONS
TO DENY AND COMMENTS**

**Section II sub section 'B'
Objecting Parties' Claims That Entry Is Virtually Impossible for New Competitors
Are Wrong and Immaterial**

May 26, 2004

The arguments raised by Cingular Wireless Corporation, that "CEASa's Proposal is Properly

Addressed (if at all) in a Rulemaking, Not in Context of a Merger', is in opposition to the Cellular Emergency Alert Systems association (CEASa) position that any transfer of GSM spectrum license must guarantee the availability of the spectrum's Cell-Broadcast Channel for government-to-citizen communications.

Cingular's stated arguments are;

- 1) There is no provision in FCC rules requiring common carriers to transmit EAS messages, and to require such should be subject to rule making.
- 2) Such action would be inconsistent with the Commission's policy of technology neutrality because;
 - i. is would impact only one GSM carrier,
 - ii. it would reduce Cingular's network capacity by a factor of 12.5% to 25%.,

Counter to the argument offered in item (1); CFR Part 11 rules establishes a voluntary program to provide public benefit of, but not limited to, commercial radio, cable and television spectrum license, by allowing authorized government agencies use the licensed spectrum for relaying urgent emergency instruction to the general public. Further, the Part 11 rules identify the desire to implement localized delivery of emergency warning, defined as "1/9th County".

In recognition of the inherent limitations of commercial broadcast technologies to provide locational warnings, Part 11 encourages the voluntary participation of "other technologies" to achieve this goal.

EAS Rules do not impose a mandate to provide EAS service on the broadcast industry, but

rather requires the Radio, TV, and Cable licensees to maintain availability and the capability to provide such service.

CEASa argues that by requiring Cingular Wireless to guarantee the availability and capability of the network's cell-broadcast spectrum for EAS is consistent with the spirit and intent of the commission's existing rules, and the stated purpose of the commission to manage our spectrum for safety and public benefit.

In the matter raised by item (2), sub item (i); Cell-Broadcast functionality and spectrum allocation is a standard of GSM, CDMA, and UMTS (GSM Edge) technologies. Further, the Telecommunications Industry Association Technical Service bulletin 118 defines a standard by which mobile telecommunications networks could provide public warning in compliance with existing Part 11 EAS Rules.

In the matter raised by item (2), sub item (ii); The impact figures offered by Cingular arguments, do not reflect standard network configurations. According to Industry Engineering Guidelines for the Dimensioning of Logical Channels, the average impact on an efficient network configuration would be at a 2% SDCCH/TCH ratio and in most cases well above recommended limits.

In conclusion, the Cellular Emergency Systems association, and its members, has spent over ten years identifying appropriate technologies and proposing market-based solutions that would provide revenue-neutral and commercially sustainable utilization of mobile telecommunications infrastructure and to significantly reduce public vulnerability to imminent disaster threats.

Use of the cell-broadcast channel and mobile network's cell broadcast functionality represents the only available messaging media capable of delivering a geographically defined emergency instruction to an unlimited number of mobile devices in a timely manner, and without serious impact on normal network operations.

As such, the cell broadcast channel spectrum represents a national asset that must have the full weight and support of the commission to insure its availability for government-to-citizen communications at a time in history when the American public is threatened by the increased frequency and magnitude of both manmade and natural disaster events.

**OFFERED IN SUPPORT OF THE
CEASa REPLY TO CINGULAR
JOINT OPPOSITION TO PETITIONS
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**DECLARATIONS OF MARK WOOD, Chief Technology Advisor
to
The Cellular Emergency Systems association**

I, Mark Wood, Chief Technologies Advisor to the Cellular Emergency Alert Systems association, CEASa Group LLC, make the following declaration in support of arguments before the FCC to Deny the Transfer Spectrum License form AT&T Wireless to Cingular Wireless unless the Commission requires protection and availability of the cell-broadcast channel for public emergency alert and advisory applications.

Network impact of CB channel in GSM.

The GSM MoU Association have provided the Cell Broadcast facility (CB) partly to mitigate against the impact of mass scale SMS, particularly as would be the case during an emergency. In contrast with mass scale SMS, sending mass scale messages by CB does not load the networks mobility management system, (HLR, VLR) has no impact on paging load and has a limited and fixed impact on SDCCH capacity. Indeed CEASA speculate that CB could save the network from fatally serious overload in the moments following a disaster.

Networks that have, to my knowledge, studied CB, have concluded that there is very little actual impact on network performance, compared with the potential gains; accordingly this has not been a factor.

The limited impact of CB provision is greatly mitigated by network features, which were designed to moderate the effects of SMS load, which grow constantly but are very difficult to predict. Particularly in Europe, where SMS is very popular, are such problems evident. Mitigation measures include features such as 'Immediate Assignment on Traffic Channel' (IA), and 'Adaptive configuration of Logical Channels' feature (ACLC) [or equivalent].

The Immediate assignment feature (IA) checks to see if there is a problem with SDCCH capacity (for whatever reason), and if so, carries out set up related messages by immediately assigning the call, on the associated Traffic Channel (TCH) over a fast associated Control channel (FACCH). This prevents traffic being lost due SDCCH capacity problems.

The 'Adaptive configuration of Logical Channels' feature was designed to mitigate the effects of SMS or WAP load. If there are not enough SDCCH channels in the pool, to

meet peak demands, it will (if so configured) convert a TCH channel over to 8*SDCCH channels, or convert them back to TCH when the control channel load falls to safe levels.

Consequently, even in the most rare and extreme cases, CB would not cause loss of traffic due to loss of SDCCH capacity, provided that such modern features are used.

SDCCH channels are used for the following types of traffic; Location Updating, Periodic Registration, IMSI attach/Detach, MS originated call set up, MS terminated call set up, MS originated FAX, MS terminated FAX, False Accesses and SMS/WAP calls. Notably a typical SDCCH usage time would be 2.7 seconds for MS originated call set up, whereas a single SMS takes 6.2 seconds of SDCCH time, in addition to the same paging command and mobility management load as a normal voice call. By comparison, a CB message takes 1.8 seconds, and can reach all of the idle terminals, camped on that cell, at one time. This can be hundreds of terminals. In short, indefinite millions of users can be reached within seconds.

Examples

Location area 'border cells' are a special case in which there is much higher location updating load, in which case greater SDCCH capacity must be provided than would otherwise be justified by TCH load alone. In which case CB impact would accordingly be lower as a proportion of SDCCH capacity than with a more standard case. I have assumed the cells in question not to be bordering cells. I have also assumed that half rate speech coding is not applied, as my current knowledge indicates that only Enhanced Full Rate Coders (EFR) are used in the USA. I have also assumed that the location area load is less than 2600 Erlangs. In most cases this is so because BSC paging load is highly critical. This means that SDCCH/4 as well as SDCCH/8 combinations can be used, or any combination of these. The ideal SDCCH/TCH ratio is usually set by a 'rule of thumb' to be about 25% or so, plus or minus local guidelines. In these examples of recommended dimensioning, taken from the 'Ericsson Engineering guidelines Dimensioning of Logical Channels', The following are assumed; IA is on, GOS TCH, 2%, GOS SDCCH4 1%, GOS SDCCH8 0.5% , less than 0.5 Erlangs signaling on TCH.

*NB 'CB on' figure is in parenthesis (). Other figures are CB off. Capacity figures are in Erlangs.

Recommended For a typical 6TRX configuration

SDCCH Configuration	No of SDCCH Sub CH	Capacity SDCCH+TCH	No of TCH	Capacity TCH	Max SDCCH/TCH Ratio
2*SDCCH8 + SDCCH4	20 (19)	15.8 (15.0)	45	35.6	45% (43%)

Recommended For a more extreme 1TRX configuration

SDCCH Configuration	No of SDCCH Sub CH	Capacity SDCCH+TCH	No of TCH	Capacity TCH	Max SDCCH/TCH Ratio
SDCCH/4	4 (3)	2.8 (2.0)	7	2.9	117% (83%)

Comparing a 2TX combination with IA on versus off.

IA OFF

SDCCH Configuration	No of SDCCH Sub Ch	Capacity SDCCH+TCH	No of TCH	Capacity TCH	Max SDCCH/TCH Ratio
SDCCH8	8 (7)	2.7 (2.2)	14	8.2	33% (27%)

IA ON

SDCCH Configuration	No of SDCCH Sub CH	Capacity SDCCH+TCH	No of TCH	Capacity TCH	Max SDCCH/TCH Ratio
SDCCH/4	4 (3)	2.8 (2.0)	15	9.0	33%(24%)
SDCCH/8	8(7)	5.8(5.0)	14	8.2	75%(65%)

Summary,

In most cases of the critical SDCCH/TCH capacity ratio figure, the 'CB On' figure is within 2% of the non-CB figure. In most cases the SDCCH/TCH ratio is well within limits although there are some borderline cases, such as 2TX, served by SDCCH/4. However since this configuration is impossible without IA, the effect would not be any increase in dropped calls, as immediate assignment would perform the set up on TCH/FACCH.

I therefore respectfully submit that the demonstrative gains of CB installation far outweigh any negative effects.

Mark Wood, Hon CTA, CEASA foundation, London 28/May/2004