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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems	)	ET Docket No. 98-153
	)	
	)	
	)	

To: The Commission

REPLY COMMENTS OF
MERCEDES-BENZ USA, LLC

Mercedes-Benz USA, LLC, ("MBUSA") on behalf of its parent company, DaimlerChrysler AG, hereby submits reply comments in response to Public Notice DA 01-753, *Comments Requested on Reports Addressing Potential Interference from Ultra-Wideband Transmission Systems (ET Docket No. 98-153)* (released March 26, 2001) (the "Public Notice"). In the Public Notice, the Federal Communications Commission (the "FCC" or the "Commission") requested comment on five reports 1/

1/ On March 5, 2001, Qualcomm submitted a report addressing the potential for interference to the operation of Personal Communications Services ("PCS") devices, on March 9, 2001, TimeDomain Inc. submitted a report addressing the potential for interference to Global Positioning Systems ("GPS") technology (the TimeDomain Report"), on March 9, 2001, the National Telecommunications and Information Administration ("NTIA") submitted a report on the potential for interference to GPS systems (the "NTIA Report"), and on March 21, 2001 and October 30, 2000, the Department of Transportation submitted reports on the potential for interference to GPS systems (collectively, the "Five Reports").

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regarding the potential for Ultra-Wideband ("UWB") systems2/ to cause harmful interference to other radio operations.

MBUSA welcomes the opportunity to address the impact the Commission's UWB rules will have on the safety of motorists on America's highways. MBUSA is an automobile importer and distributor dedicated to providing maximum safety to its customers, and uses innovative technology to promote safety on the roadways. The Commission's final ruling in this proceeding has the potential to assist or hinder the efforts of automobile manufacturers such as MBUSA to develop and implement innovative safety technologies.

The benefits of GPS in terms of the preservation of lives on America's highways and on the economy has been well documented in this proceeding. 3/ It is critical that the FCC act to ensure that GPS remains free from harmful interference.

At the same time, new technologies in the 24 GHz band also have the potential to save lives. The FCC should not allow concerns over interference to GPS, which operates between 1164 and 1610 MHz, to stand in the way of permitting unlicensed operation of UWB technologies in frequencies well removed from those used by GPS. UWB radar sensors operating at 24 GHz will be capable of

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2/ The Commission proposed the unlicensed operation of UWB systems in *Revision Of Part 15 Of The Commission's Rules Regarding Ultra-Wideband Transmission Systems, Notice of Proposed Rulemaking,* FCC 00-163 (May 11, 2000) (the "NPRM").

3/ *See, e.g., Comments of the U.S. GPS Industry Council,* ET Docket 98-153, filed

detecting other vehicles and objects on the highway even when the driver does not. With these devices, active and passive safety systems such as automatic braking and seatbelts in the vehicle can be enabled prior to collisions, some collisions can be avoided altogether, and lives can be saved (and injuries reduced) as a result. These devices can operate during the day or night, inclement, as well as mild, weather. Automobiles equipped with them will be safer and smarter. Permitting unlicensed operation of these technologies in the higher frequency bands such as 24 GHz would, therefore, be in the public interest.

The Commission could permit UWB to proceed at higher frequencies, while reserving judgement on the appropriateness of allowing UWB operations in bands currently used for GPS. Several parties have suggested that the Commission establish a frequency "threshold" for UWB operations beginning anywhere from 2 GHz to 6 GHz. 4/ In essence, these parties request that UWB be permitted to proceed in the higher frequency ranges, while further study is performed on the interference potential at the lower frequency ranges.

September 12, 2000, at pp. 6-11.

4/ *See, e.g., Reply Comments of Fantasma Networks, Inc. On NTIA Non-GPS Compatibility Study,* ET Docket 98-153, filed March 12, 2001, at p. 7 (recommending a threshold of 2.0 GHz); *Supplemental Comments Of Sirius Satellite Radio Inc.,* ET Docket 98-153, filed February 23, 2001, at p. 3 (recommending a threshold of 3.1 GHz); *Comments of Rockwell Collins, Inc.,* ET Docket 98-153, filed September 12, 2000, at p. 5 (recommending a threshold of 5.15 GHz).

I. GPS SAVES LIVES ON AMERICA'S HIGHWAYS

GPS systems have been in use since 1973, and have become an essential part of America's technological infrastructure. GPS technology has been incorporated into countless electronic devices, and its full potential has yet to be realized. Among the many potential benefits of GPS is the preservation of human life on America's highways through the use of intelligent vehicle systems, automatic crash notification systems, and enhanced 911 wireless technology ("E-911"). Automatic crash notification systems triggered by air bag deployment will enable rapid emergency response even when victims themselves cannot call for assistance.

GPS is also a critical component in many E-911 systems, which are essential to motorists' ability to obtain assistance in emergencies. GPS improves emergency response time by providing public safety officials with precise location details, reducing the time that emergency vehicles must spend searching for victims of accidents, breakdowns and criminal activity. Most importantly, this improved response time is expected to lead to improved survivability rates for those involved in accidents or otherwise requiring emergency care.

There is also a tremendous safety benefit in removing stranded or damaged automobiles from roadways more quickly. Disabled automobiles cause traffic congestion and often lead to subsequent chain reaction accidents, which can cause serious injury or death to stranded motorists. GPS improves the response time in

removing disabled automobiles from streets and highways, thus improving the safety and efficiency of America's roadways.

In addition, GPS can bring emergency assistance to motorists in crisis situations even when the victim is unaware of the vehicle's location. For example, automotive devices containing GPS technology can speed emergency response to young children locked in cars, disoriented elderly motorists, heart attack victims, drivers who become lost in snowstorms, and motorists who have been carjacked.

As others have noted, the Five Reports have raised legitimate concerns about the detrimental impact that UWB operations below 3 GHz could have on GPS. 5/ Given the importance of GPS to highway safety, MBUSA urges the Commission to cautiously implement its UWB rules with respect to operations below 3 GHz so as to preserve the reliability of GPS technology.

II. NEW UWB TECHNOLOGY USING SHORT RADAR PULSES ALSO HOLDS THE POTENTIAL TO SAVE LIVES ON AMERICA'S HIGHWAYS

The use of UWB technology offers the potential for many new safety applications. The Commission noted in its NPRM that "[p]otential automotive uses include forward-looking and lane change collision avoidance systems, backup warning systems, air bag proximity measurement for safe deployment, sensors that

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5/ *See, e.g. Comments of the U.S. GPS Industry Council on Test Data Regarding Potential Interference From Ultra-Wideband Transmission Systems*, ET Docket 98-153, filed

detect bumps in the road and automatically adjust suspension systems, and fluid level detectors for radiator, oil and gas levels." 6/ Other potential applications include pedestrian detection and the detection of obstacles on the highway. Collision detection systems could predict the imminent collisions and trigger safety mechanisms inside the car prior to impact, minimizing injuries to passengers.

Mercedes-Benz has been at the forefront of research and development efforts in the field of automotive UWB radar sensors, with focus on semi-autonomous braking, rear-end collision warning, and pedestrian protection. In such systems, precise measurements are critical for the success of the technology. Precise measurements require short pulses, which in turn lead to ultra-wide bandwidth. The use of ultra-wideband radar offers considerable advantages over other potential technologies in sensing obstacles in the path of the automobile.

In the NPRM, the Commission correctly indicated that most UWB devices can be operated above 2 GHz without causing harmful interference to other radio services. 7/ At these frequencies UWB signals, which are typically weak, suffer high propagation losses. Moreover, radio services that currently use these higher frequencies typically use directional antennas, which reduces the potential for interference from UWB. At the moment, there does not appear to be a cause for concern with respect to operations as high as 24 GHz.

April 25, 2001.
6/ *NPRM* at 5.

As the Commission noted in the NPRM, "most of the near-term applications for UWB technology involve relatively low powers and short operating ranges." 8/ In addition, the potential for these operations to cause harmful interference in the 24 GHz range is minimal. Accordingly, we urge the Commission to avoid erecting a roadblock to technological developments using the higher frequencies because of concerns over interference in other frequency ranges. Moreover, since "licensing of these devices would be impractical," 9/ MBUSA supports the Commission's tentative conclusion that these devices should be permitted to operate at the higher frequencies on an unlicensed basis.

III. PUBLIC SAFETY IS A CORE RESPONSIBILITY OF THE COMMISSION

Both Congress and the Commission have stressed the importance of communication devices in improving highway safety.10/ Congress and the Commission have also recognized the importance of wireless communications systems in promoting safety on the roadways. This proceeding offers the

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7/ *Id.* at 13.
8/ *Id.* at 8.
9/ *Id.*
10/ H.R. Rep. No. 106-25, at 5 (1999); *See also Implementation of 911 Act, Notice of Proposed Rulemaking,* FCC 00-327, at ¶ 5 (2000); *The Use of N11 Codes and Other Abbreviated Dialing Arrangements, Third Notice of Proposed Rulemaking,* CC Docket No. 92-105, and *Implementation of 911 Act, Notice of Proposed Rulemaking,* 15 FCC Rcd 17079 (2000); *Amendment of Parts 2 and 90 of the Commission's Rules to Allocate the 5.850-5.925 GHz Band to the Mobile Service for Dedicated Short Range Communications of Intelligent*

Commission a unique opportunity to expand upon the work that has already been done and reduce the likelihood that accidents will occur.

Clearly, the preservation of life on the roadways is at the core of the Commission's mandate to further the public interest. Where an issue as important as the public safety on America's roadways is at stake, the Commission should act to ensure that GPS systems are not compromised by harmful interference, and that potentially life saving technology that does not cause interference can be developed and deployed as rapidly as possible.

IV. CONCLUSION

For the foregoing reasons, MBUSA believes that the Commission should authorize unlicensed operation of UWB devices in the upper frequency ranges, such as those above 6 GHz. At the same time, MBUSA urges the Commission to take all steps necessary to protect GPS systems from harmful interference. MBUSA thus requests that the Commission permit UWB technologies in the higher frequency bands to proceed as soon as possible, while acting with caution in the lower frequency bands.

Transportation Services, 14 FCC Rcd 18221(1999).

If you need any additional explanation, do not hesitate to contact Daniel J. Selke of my staff at 201-573-2616.

Respectfully submitted,

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Dated: May 10, 2001

CERTIFICATE OF SERVICE

I, Patricia A. Green, do hereby certify that on the 10th day of May, 2001, I forwarded to the parties listed below a copy of the foregoing Reply Comments of Mercedes-Benz USA, LLC , by hand delivery:

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