ECC Decision (04)03

The frequency band 77-81 GHz to be designated for the use of ground based vehicular radars[[1]](#footnote-2)

**Approved 19 March 2004**

Corrected 6 March 2015

# Explanatory memorandum

## INTRODUCTION

Within Europe, there are proposals to improve road safety by using new information communications technologies, including building a European strategy to accelerate the research and development, deployment and use of intelligent road safety systems such as ground based vehicular radars.

These systems will be a significant element of a future transport infrastructure for Europe and in particular contribute to the long-term European Union Vision Zero initiative.

To support a quick development and deployment of ground based vehicular radars within Europe, it is essential that common frequency bands and associated harmonised equipment standards be available. A stable and permanent solution needs to be made available as soon as possible in order to support the European industry developments in this area.

This ECC Decision has been further amended in 2024 with new regulatory provisions that apply to various radiodetermination equipment for ground based vehicular radars sensors.

## BACKGROUND

To meet the requirement for a permanent, long-term solution for short range radars the frequency band
77-81 GHz has been identified. Compatibility issues within this band have been successfully studied and a system reference document with market information as well as technical information has been agreed within ETSI as the basis for a frequency designation within the ECC.

In order to support industry developments of the general and specific SRR technology within the 79 GHz range the frequency band 77-81 GHz has been made available since 2003.

Following the development of new technologies, the ETSI TR 103 593 [2] was received from ETSI in May 2020 for new ground based vehicular radars.

## REQUIREMENT FOR AN ECC DECISION

The allocation of radio frequencies in CEPT member countries is laid down by law, regulation or administrative action. The ECC recognises that for ground based vehicular radar systems to be introduced successfully throughout Europe, manufacturers and operators must be given the confidence to make the necessary investment in the new pan-European radiocommunications systems and services. A commitment by CEPT member countries to implement an ECC Decision will provide a clear indication that the required frequency bands will be made available on time and on a Europe-wide basis.

# ECC Decision (04)03 of 19 March 2004 on the frequency band 77-81 GHz to be designated for the use of ground based vehicular radars, corrected 6 march 2015, latest amended DD MM YYYY

“The European Conference of Postal and Telecommunications Administrations,

*considering*

1. that within Europe, there are proposals to improve traffic safety by using new information communications technologies, including building a European strategy to accelerate the research and development, deployment and use of intelligent traffic safety systems such as ground based vehicular radars;
2. that the availability of spectrum for ground based vehicular radars in Europe would contribute to the long term European Union Vision Zero initiative;
3. that the term ‘ground based vehicular’ refers to any kind of powered vehicle moving on ground, which is designed to transport good and/or persons from one place/location to another place/location (e.g. automotive vehicles, trains, bikes, ships, taxiing aircraft…) or which is designed to operate on dedicated places to perform tasks (e.g. farming vehicles such as harvesters or tractors, construction vehicles such as excavators or rollers, or logistic vehicles such as forklifts);
4. that the use of the 79 GHz frequency range (77-81 GHz) has been considered in 2003 as the most suitable band for Short Range Radars;
5. that the sharing with Radio Astronomy Service has been studied in 2003 concluding that regulatory measures could be identified enabling the coexistence between SRR in the frequency band 77-81 GHz and the Radio Astronomy Service, which is dependent on the aggregated impact of SRR devices transmitting in the direction of a radio astronomy station;
6. that in 2003 it was concluded the use of SRR within the band 77-81 may be incompatible with the Radio Amateur Service which has been resolved by allowing the Amateur Service to remain in the 75.5-76 GHz band after 2006 (see footnote 5.559A [5]);
7. that NATO has stated that there are currently no radiolocation systems operational in the band and there are no plans to introduce such systems;
8. that updated technical details and spectrum requirements of ground based vehicular radars are detailed in ETSI TR 103 593 [3] and that the amendments of the ECC Decision in 2023 relating to the use of the band 77-81 GHz are supported by technical studies presented in the ECC Report 350 [4]. That Report provides compatibility studies in the band 77-81 GHz for various radiodetermination equipment for ground based vehicular applications with Radio Astronomy Service (RAS), Amateur Service (AS) and Fixed Service (FS);
9. that the frequency band 76-77 GHz is already designated for ground based vehicle radars (vehicular and infrastructure radar systems) (ERC Recommendation 70-03 Annex 5 [1] on Transport and Traffic Telematic Systems (TTT));
10. that ground based vehicular radar equipment is not considered as a safety of life service in accordance with the Radio Regulations, therefore it must operate on a non-interference and non-protected basis in accordance with the Radio Regulations.

*DECIDES*

1. that for the purpose of this Decision, ground based vehicular radars are defined as applications providing radar functions for collision mitigation and traffic safety for ground based vehicles;
2. that, for the operation of one standalone vehicular radar sensor with an operational frequency range of up to 1 GHz, the maximum mean e.i.r.p. density shall not exceed 20 dBm/MHz and the maximum mean e.i.r.p. shall not exceed 40 dBm during Ton;
3. that, for the operation of one standalone vehicular radar sensor with an operational frequency range greater than 1 GHz and up to 2 GHz, the maximum mean e.i.r.p. density shall not exceed 7 dBm/MHz and the maximum mean e.i.r.p. shall not exceed 37 dBm during Ton;
4. that, for the operation of one standalone vehicular radar sensor with an operational frequency range greater than 2 GHz and up to 4 GHz, the maximum mean e.i.r.p. density shall not exceed -3 dBm/MHz and the maximum mean e.i.r.p. shall not exceed 30 dBm during Ton;
5. that this Decision will enter into force on DD Month 2024;
6. National implementation information is to be updated in ERC Recommendation 70-03, annex A;
7. that CEPT administrations shall communicate the national measures implementing this Decision to the ECC Chairman and the Office when the Decision is nationally implemented.”

*Note:*

*Please check the Office documentation database https://docdb.cept.org/ for the up to date position on the implementation of this and other ECC Decisions.*

1. List of references

1. [ERC Recommendation 70-03](https://docdb.cept.org/document/845): “ERC/REC 70-03 of 6 October 1997 on relating to the use of Short Range Devices (SRD)”, latest amended on 16 June 2023
2. ETSI TR 103 593: “System Reference document (SRdoc); Transmission characteristics; Technical characteristics for radiodetermination equipment for ground based vehicular applications within the frequency range 77 GHz to 81 GHz”
3. [Decision 676/2002/EC](https://docdb.cept.org/document/61): “Decision of the European Parliament and of the Council of 7 March 2002 on a regulatory framework for radio spectrum policy in the European Community (Radio Spectrum Decision)”

1. [ECC Report 350](https://docdb.cept.org/document/28590): “Radiodetermination equipment for ground based vehicular applications in 77-81 GHz”, approved February 2023
2. ITU Radio Regulations, edition of 2020
1. Comparable technical specifications to those given in this ECC Decision are given in Commission Decision 2004/545/EC of 8 July 2004 for 79 GHz. EU Member States and, if so approved by the EEA Joint Committee, Iceland, Liechtenstein and Norway are obliged to implement the Commission Decision. [↑](#footnote-ref-2)