CEPT ECC
Electronic Communications Committee

ECC Recommendation (08)01

Use of the band 5855-5875 MHz for non-safety related Road Intelligent Transport Systems (ITS)

approved 21 February 2008

latest amended 6 June 2025

Edition 6 June 2025

INTRODUCTION

This Recommendation addresses frequency usage for non-safety related road Intelligent Transport Systems (ITS) in the band 5855-5875 MHz.

Non-safety related Road ITS encompass Infrastructure to Vehicle (I2V) and Vehicle to Vehicle (V2V) communications between ITS stations. Throughout this ECC Recommendation, portable ITS stations are also covered by the terminology “vehicle”, when V2V or I2V is addressed.

The V2V non-safety related Road ITS within the band 5855-5875 MHz are typically short-range communications between vehicles on the roads and thus the interference potential is limited by the operational conditions with short range devices (SRD) and Broadband Fixed Wireless Access (BFWA). SRD within this band would typically be used indoor for devices such as home automation systems and BFWA used with highly directional antennas which would provide further mitigation of potential interference problems. The non-safety related Road ITS would not suffer from extensive interference from SRD or BFWA within the band as there is no need for low latency communication for the non-safety related Road ITS.

In 2006, ETSI System Reference Document TR 102 492-2 [2] requested 20 MHz of spectrum for non-safety related ITS based on V2V and I2V communications.

In 2023, ETSI provided a System Reference Document TR 103 853 [15] requesting a revision of radio spectrum regulation for Road ITS operating in 5.9 GHz enabling channels with 20 MHz bandwidth.

The use of the band 5855-5875 MHz for non-safety related Road ITS has been considered within the general compatibility studies for ITS applications in the band 5855-5925 MHz documented in ECC Report 101 [3], in ECC Report 228 [4], ECC Report 290 [5] and ECC Report 291 [6].

ECC Report 228 addressed compatibility studies between ITS in the frequency band 5855-5925 MHz and other systems in adjacent bands. The Report concluded that protection of road tolling in the 5795-5815 MHz band is achieved if Road ITS unwanted emissions remain below -65 dBm/MHz e.i.r.p. inside a defined zone. Alternatively, higher unwanted emissions could be allowed together with mitigation techniques equivalent to those described in ETSI TS 102 792 v1.1.1 [12].

ECC Report 290 addressed compatibility studies to examine the applicability of ECC Report 101 and ECC Report 228 for various ITS technologies. However, coordination may be required between Urban Rail and road tolling when the separation distance is below 40 m. The outcomes of ECC Report 101 related to the compatibility of ITS with FSS were considered valid.

ECC Report 291 addressed the compatibility between smart tachograph, weight and dimension applications and systems operating in the band 5795-5815 MHz and in the adjacent bands, and concluded that it is only close to the remote early detection communication reader (REDCR) where Road ITS unwanted emissions may cause interference. Compatibility with ITS was feasible with an unwanted emissions limit of -30 dBm/MHz e.i.r.p., also assuming ITS message generation equivalent to those described in ETSI EN 302 637-2 [13].

ECC Report 228, ECC Report 290 and ECC Report 291 assumed a typical Road ITS duty cycle when transmitting Cooperative Awareness Message (CAM) of 1% over 1 hour, with a duty cycle of 2% over 1 hour in some studies where message retransmissions (one retransmission of a CAM) are implementation specific.

ECC Report 109 [7] considered the potential aggregate impact of ITS, Broadband Disaster Relief (BBDR) and BFWA applications into the other systems/services operating in the band 5725-5925 MHz, and concluded that the existing results of the different compatibility studies (ECC Report 68 [14], ECC Report 101 [3] and ECC Report 110 [8]) between each of the systems will not be significantly changed by the aggregate impact of BFWA, BBDR and ITS.

ECC Report 110 addressed compatibility and sharing issues between BBDR and the other systems/services identified within the possible frequency bands under consideration for BBDR. The Report concluded that, if the band 5855-5875 MHz is used for BBDR radio applications, protection distances between ITS and BBDR could exceed several kilometres in both directions in rural areas but limited to hundreds of metres in urban and suburban cases. Mitigation techniques integrated in BBDR devices may improve the compatibility further in that case.

ECC RECOMMENDATION 08(01) OF 21 FEBRUARY 2008 ON USE OF THE BAND 5855-5875 MHz FOR NON-SAFETY RELATED ROAD INTELLIGENT TRANSPORT SYSTEMS (ITS) AMENDED 3 JULY 2015, AMENDED 6 MARCH 2020, UPDATED 18 NOVEMBER 2022 AND AMENDED 6 JUNE 2025

"The European Conference of Postal and Telecommunications Administrations,

considering

a) that non-safety related Road ITS in the frequency band 5855-5875 MHz can provide services that would enhance the ITS safety concept for in particular vehicle to vehicle communication (V2V) and infrastructure to vehicle (I2V) communication;

b) that ECC Decision (08)01 [1] harmonises the use of safety-related ITS within the frequency band 5875-5935 MHz;

c) that a harmonised approach of the use of the band 5855-5875 MHz for non-safety related Road ITS within the CEPT administrations is beneficial;

d) that the frequency band 5855-5875 MHz is also part of the ISM band 5725-5875 MHz in accordance with ITU RR 5.150;

e) that the frequency band 5725-5875 MHz is designated for non-specific SRD by ERC Recommendation 70-03 [10];

f) that the frequency band 5795-5815 MHz is designated for Transport and Traffic Telematics (TTT) applications by ERC Recommendation 70-03;

g) that the frequency band 5725-5875 MHz, or parts of it, is also available for BFWA in accordance with ECC Recommendation (06)04 [11];

h) that the radiolocation service in 5250-5850 MHz operates immediately adjacent to Wireless Access Systems including Radio Local Area Networks (WAS/RLANs), which means that the much lower unwanted emissions from ITS are negligible in comparison;

i) that studies in ECC Report 101 [3] and ECC Report 290 [5] concluded that in-band compatibility between ITS and Fixed-Satellite Service (FSS) is feasible, taking into account the limited number of ITS devices that transmit at the same time;

j) that the message generation rules of Road ITS can contribute to mitigate interference from ITS;

k) that technical coexistence studies in ECC Report 228 [4] and ECC Report 290 [5] concluded that compatibility with road tolling operating in 5795-5815 MHz within a defined "protection zone" was achieved with an ITS unwanted emissions below -65 dBm/MHz e.i.r.p. without mitigation techniques, or alternatively -45 dBm/MHz e.i.r.p. together with mitigation techniques equivalent to those in described in ETSI TS 102 792 v1.1.1 [13];

l) that studies in ECC Report 291 [6] concluded compatibility between Road ITS and smart tachograph, weight & dimension applications, but in certain conditions unwanted emissions from Road ITS may affect these applications;

m) that for Road ITS the unwanted emissions, the total power and the power spectral density (PSD) limits applicable for a 10 MHz channel bandwidth are also applicable to a 20 MHz channel bandwidth, and that the conclusions on compatibility of Road ITS with other services and applications in the band as well as in adjacent bands also remain valid for a 20 MHz channel bandwidth;

n) that ETSI EN 302 571 [9] including Road ITS equipment sets requirements regarding the protection of existing services in 5855-5925 MHz and in adjacent bands;

recommends

1. that administrations should make the frequency band 5855-5875 MHz available for non-safety related Road ITS in order to support and enhance ITS within CEPT;

2. that the frequency arrangement defined in Annex 1 should apply to non-safety related Road ITS;

3. that the technical conditions in Annex 2 should apply to non-safety related Road ITS devices;

4. that CEPT administrations should permit free circulation and use of non-safety related Road ITS equipment subject to the provisions of this Recommendation;

5. that CEPT administrations should exempt non-safety related Road ITS equipment falling under this Recommendation from individual licensing;

6. that non-safety related Road ITS should be deployed on a non-protected and non-interference basis;

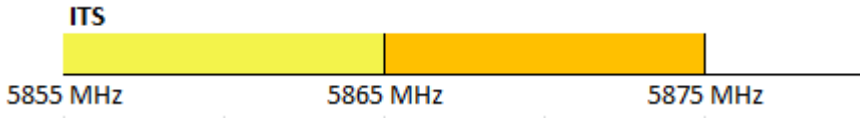
7. that CEPT administrations shall communicate the national measures implementing this Recommendation to the Office when the Recommendation is nationally implemented."

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 Recommendations.

ANNEX 1: FREQUENCY ARRANGEMENT

The frequency arrangement is based on a block size of 10 MHz starting at the lower edge of the band at 5855 MHz.



In 5855-5875 MHz, non-safety related Road ITS shall use channels within the boundaries of each 10 MHz block. Channel bandwidth may be lower than 10 MHz.

Two blocks can be combined to one contiguous 20 MHz channel.

ANNEX 2: TECHNICAL CONDITIONS

Table 1: Technical conditions for non-safety related Road ITS devices in the 5855-5875 MHz band

	Technical conditions
Power spectral density	≤ 23 dBm/MHz *e.i.r.p.*
Transmit power	≤ 33 dBm *e.i.r.p.* with Transmit Power Control (TPC) TPC shall be able to reduce the total power from its maximum to 3 dBm *e.i.r.p.*

ANNEX 3: LIST OF REFERENCES

[1] ECC Decision (08)01: “The harmonised use of Safety-Related Intelligent Transport Systems (ITS) in the 5875-5925 MHz frequency band”, approved March 2020, latest amended on March 2025

[2] ETSI TR 102 492-2: ETSI System Reference Document on “Intelligent Transport System;

“Part 2: Technical characteristics for pan European harmonized communications equipment operating in the 5 GHz frequency range intended for road safety and traffic management, and for non-safety related ITS applications”

[3] ECC Report 101: “Compatibility studies in the band 5855-5925 MHz between Intelligent Transport Systems (ITS) and other systems”, approved February 2007

[4] ECC Report 228: “Compatibility studies between Intelligent Transport Systems (ITS) in the band 5855 - 5925 MHz and other systems in adjacent bands”, approved January 2015

[5] ECC Report 290: “Studies to examine the applicability of ECC Reports 101 and 228 for various Intelligent Transport Systems (ITS) technologies under EC Mandate (RSCOM 17-26Rev.3)”, approved January 2019

[6] ECC Report 291: “Compatibility studies between smart tachograph, weight&dimension applications and systems operating in the band 5795-5815 MHz and in the adjacent bands”, approved January 2019

[7] ECC Report 109: “The aggregate impact from the proposed new systems (ITS, BBDR and BFWA) in the 5725-5925 MHz band on the other services/systems currently operating in this band”, approved September 2009

[8] ECC Report 110: “Compatibility studies between Broad-Band Disaster Relief (BBDR) and other systems”, approved September 2009

[9] ETSI EN 302 571: “Harmonised European Standard on “Intelligent Transport Systems (ITS);Radiocommunications equipment operating in the 5 855 MHz to 5 925 MHz frequency band; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU”

[10] ERC Recommendation 70-03: “Relating to the use of Short Range Devices (SRD)”, approved 1997, , latest amended February 2025

[11] ECC Recommendation (06)04: “Use of the band 5725-5875 MHz for Broadband Fixed Wireless Access (BFWA)”, approved December 2006

[12] ETSI TS 102 792:”Technical Specification on “Intelligent Transport Systems (ITS);Mitigation techniques to avoid interference between European CEN Dedicated Short Range Communication (CEN DSRC) equipment and Intelligent Transport Systems (ITS) operating in the 5 GHz frequency range”

[13] ETSI EN 302 637-2 “Intelligent Transport Systems (ITS); Vehicular Communications; Basic Set of Applications; Part 2: Specification of Cooperative Awareness Basic Service”

[14] ECC Report 68: “Compatibility studies in the band 5725-5875 MHz between Fixed Wireless Access (FWA) systems and other systems”, approved June 2005

[15] ETSI TR 103 853: “System Reference document (SRdoc); Road ITS equipment operating in the 5,9 GHz band with channel bandwidths larger than 10 MHz”