Public Consultation on the upload of software into radio equipment

> Fields marked with * are mandatory.

Public Consultation
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Introduction

Objectives: The purpose of this public consultation is to gather input for an initiative relating to the upload of software into specific categories of devices governed by the Radio Equipment Directive 2014/53/EU (the "RED").

The questions concern market access for Reconfigurable Radio Systems (RRS) - radio equipment that can be reconfigured by software (including firmware) and problems that arise when such equipment stops conforming with the RED. Examples of such equipment include wireless consumer or industrial devices (especially mobile phones and smartphones), laptops, radio-connected peripherals (such as printers), smart domestic appliances, Wi-Fi routers, baby and house alarms, drones, radio-controlled toys, smart watches, wearable or embedded medical and radio-connected fitness devices.. Uploading new software can change the performance and operational characteristics of these devices. The concerned software (i.e. that which may have an impact on safety, the interference potential, frequency use and – in specific cases – access to emergency services) can be produced by either the manufacturer of the equipment or a third party.

The RED contains "essential requirements" for health and safety, electromagnetic compatibility, effective and efficient use of radio spectrum and, for some classes of equipment, access to emergency services. DG GROW (the Commission directorate for which this survey is conducted) is currently investigating the potential impacts of alternative ways to ensure that Reconfigurable Radio Systems approved for Europe's single market stay compliant with the RED after new or modified software is installed. Your knowledge and experience can help to inform this decision.

It is recommended that respondents clarify some aspects of this initiative reading the explanatory document [here](#).

Why we are consulting: This consultation aims to gather inputs from the public regarding legislative options which aim to ensure that equipment classes remain compliant when new software is uploaded.

Responding to the questionnaire: You can contribute to this consultation by filling in the online questionnaire.
Questions regarding this public consultation can be sent by email to: GROW-RED@ec.europa.eu

How will the survey results be used: The European Commission will use the feedback received to inform an impact assessment considering different policy options in order to strengthen public trust in the reliability of equipment classes when new software is installed. Specifically, the adoption of one or more delegated acts to supplement the Radio Equipment Directive 2014/53/EU could impose new requirements on combinations of radio hardware and software, as set out in the inception impact assessment.

Personal data and privacy statement: The European Union is committed to privacy protection. You can find more information regarding the protection of your personal data here: https://ec.europa.eu/info/law/better-regulation/specific-privacy-statement_en

About you

*Language of my contribution
- ○ Bulgarian
- ○ Croatian
- ○ Czech
- ○ Danish
- ○ Dutch
- ● English
- ○ Estonian
- ○ Finnish
- ○ French
- ○ Gaelic
- ○ German
- ○ Greek
- ○ Hungarian
- ○ Italian
- ○ Latvian
- ○ Lithuanian
- ○ Maltese
- ○ Polish
- ○ Portuguese
- ○ Romanian
- ○ Slovak
- ○ Slovenian

○ Spanish

○ Swedish

*I am giving my contribution as

○ Academic/research institution

● Business association

○ Company/business organisation

○ Consumer organisation

○ EU citizen

○ Environmental organisation

○ Non-EU citizen

○ Non-governmental organisation (NGO)

○ Public authority

○ Trade union

○ Other

Are you a user or developer of free and/or open source software?

● Yes

○ No

*First name

Ioana

*Surname

Smarandache

*Email (this won't be published)

internalmarket@fem-eur.com

*Organisation name

255 character(s) maximum

European Materials Handling Federation

*Organisation size

● Micro (1 to 9 employees)

- ○ Small (10 to 49 employees)
- ○ Medium (50 to 249 employees)
- ○ Large (250 or more)

Transparency register number

255 character(s) maximum

Check if your organisation is on the [transparency register](#). It's a voluntary database for organisations seeking to influence EU decision-making.

24068881115-97

*Country of origin

Please add your country of origin, or that of your organisation.

○ Afghanistan	○ Djibouti	○ Libya	○ Saint Martin
○ Åland Islands	○ Dominica	○ Liechtenstein	○ Saint Pierre and Miquelon
○ Albania	○ Dominican Republic	○ Lithuania	○ Saint Vincent and the Grenadines
○ Algeria	○ Ecuador	○ Luxembourg	○ Samoa
○ American Samoa	○ Egypt	○ Macau	○ San Marino
○ Andorra	○ El Salvador	○ Madagascar	○ São Tomé and Príncipe
○ Angola	○ Equatorial Guinea	○ Malawi	○ Saudi Arabia
○ Anguilla	○ Eritrea	○ Malaysia	○ Senegal
○ Antarctica	○ Estonia	○ Maldives	○ Serbia
○ Antigua and Barbuda	○ Eswatini	○ Mali	○ Seychelles
○ Argentina	○ Ethiopia	○ Malta	○ Sierra Leone
○ Armenia	○ Falkland Islands	○ Marshall Islands	○ Singapore
○ Aruba	○ Faroe Islands	○ Martinique	○ Sint Maarten
○ Australia	○ Fiji	○ Mauritania	○ Slovakia
○ Austria	○ Finland	○ Mauritius	○ Slovenia
○ Azerbaijan	○ France	○ Mayotte	○ Solomon Islands

○ Bahamas	○ French Guiana	○ Mexico	○ Somalia
○ Bahrain	○ French Polynesia	○ Micronesia	○ South Africa
○ Bangladesh	○ French Southern and Antarctic Lands	○ Moldova	○ South Georgia and the South Sandwich Islands
○ Barbados	○ Gabon	○ Monaco	○ South Korea
○ Belarus	○ Georgia	○ Mongolia	○ South Sudan
◉ Belgium	○ Germany	○ Montenegro	○ Spain
○ Belize	○ Ghana	○ Montserrat	○ Sri Lanka
○ Benin	○ Gibraltar	○ Morocco	○ Sudan
○ Bermuda	○ Greece	○ Mozambique	○ Suriname
○ Bhutan	○ Greenland	○ Myanmar /Burma	○ Svalbard and Jan Mayen
○ Bolivia	○ Grenada	○ Namibia	○ Sweden
○ Bonaire Saint Eustatius and Saba	○ Guadeloupe	○ Nauru	○ Switzerland
○ Bosnia and Herzegovina	○ Guam	○ Nepal	○ Syria
○ Botswana	○ Guatemala	○ Netherlands	○ Taiwan
○ Bouvet Island	○ Guernsey	○ New Caledonia	○ Tajikistan
○ Brazil	○ Guinea	○ New Zealand	○ Tanzania
○ British Indian Ocean Territory	○ Guinea-Bissau	○ Nicaragua	○ Thailand
○ British Virgin Islands	○ Guyana	○ Niger	○ The Gambia
○ Brunei	○ Haiti	○ Nigeria	○ Timor-Leste
○ Bulgaria	○ Heard Island and McDonald Islands	○ Niue	○ Togo
○ Burkina Faso	○ Honduras	○ Norfolk Island	○ Tokelau
○ Burundi	○ Hong Kong	○ Northern Mariana Islands	○ Tonga
○	○	○	○

Cambodia	Hungary	North Korea	Trinidad and Tobago
○ Cameroon	○ Iceland	○ North Macedonia	○ Tunisia
○ Canada	○ India	○ Norway	○ Turkey
○ Cape Verde	○ Indonesia	○ Oman	○ Turkmenistan
○ Cayman Islands	○ Iran	○ Pakistan	○ Turks and Caicos Islands
○ Central African Republic	○ Iraq	○ Palau	○ Tuvalu
○ Chad	○ Ireland	○ Palestine	○ Uganda
○ Chile	○ Isle of Man	○ Panama	○ Ukraine
○ China	○ Israel	○ Papua New Guinea	○ United Arab Emirates
○ Christmas Island	○ Italy	○ Paraguay	○ United Kingdom
○ Clipperton	○ Jamaica	○ Peru	○ United States
○ Cocos (Keeling) Islands	○ Japan	○ Philippines	○ United States Minor Outlying Islands
○ Colombia	○ Jersey	○ Pitcairn Islands	○ Uruguay
○ Comoros	○ Jordan	○ Poland	○ US Virgin Islands
○ Congo	○ Kazakhstan	○ Portugal	○ Uzbekistan
○ Cook Islands	○ Kenya	○ Puerto Rico	○ Vanuatu
○ Costa Rica	○ Kiribati	○ Qatar	○ Vatican City
○ Côte d'Ivoire	○ Kosovo	○ Réunion	○ Venezuela
○ Croatia	○ Kuwait	○ Romania	○ Vietnam
○ Cuba	○ Kyrgyzstan	○ Russia	○ Wallis and Futuna
○ Curaçao	○ Laos	○ Rwanda	○ Western Sahara
○ Cyprus	○ Latvia	○ Saint Barthélemy	○ Yemen
○ Czechia	○ Lebanon	○	○ Zambia

○ Democratic Republic of the Congo	○ Lesotho	Saint Helena Ascension and Tristan da Cunha ○ Saint Kitts and Nevis	○ Zimbabwe
○ Denmark	○ Liberia	○ Saint Lucia	

* Publication privacy settings

The Commission will publish the responses to this public consultation. You can choose whether you would like your details to be made public or to remain anonymous.

○ **Anonymous**

Only your type of respondent, country of origin and contribution will be published. All other personal details (name, organisation name and size, transparency register number) will not be published.

◉ **Public**

Your personal details (name, organisation name and size, transparency register number, country of origin) will be published with your contribution.

☑ I agree with the [personal data protection provisions](#)

Questions for all stakeholders

Experience of malfunctions

Definitions:

- "Firmware" is a class of software held in non-volatile memory that provides basic services necessary to operate a device. Firmware may also provide a standard environment for higher level software.

- When a device that had been working properly starts functioning improperly or incorrectly, that is a "malfunction." Malfunctions which take a device out of compliance with the RED are of particular concern in this consultation.

- "Compliance with the RED" means that the combination of software and hardware has been tested by an approved independent testing organisation and verified as conforming to harmonised standards to function as the user expects, safely and without compromising the user's security, data protection or consumer fraud protection.

Are you aware of any instances in which an upload of software featuring radio functionality affected the compliance of the device?

- ◉ Yes
- ○ No

Which types of devices that you use, manage, manufacture, supply or own have been compromised in some way by software or firmware updates that led to a malfunction of the reconfigurable radio system?

Options: types of devices affected

	Yes
a) Home appliances and domestic devices (baby alarms, smart meters, etc)	☑
b) Media devices (e.g. smart-TV with integrated internet and interactive features)	☐
c) Home Wi-Fi networks; voice access to cloud applications and systems	☐
d) Smartphones, tablets, smart watches	☐
e) Laptops, computer systems and their Wi-Fi peripherals (printers, file stores)	☐
f) Other IoT devices	☐
g) Other	☐

Have you experienced a malfunction of any kind after loading new software or firmware into a wireless device?

- ○ Yes
- ◉ No

Can you explain in more detail?

The question is very broad. According to our members' experience, potential problems were not caused by firmware updates; on the contrary, any existing problems can be fixed by firmware updates. For FEM products, there were no malfunctions found for software loaded into radio equipment by wireless means.

Who produced the software which caused the malfunction?
In case of multiple incidents, you can tick more boxes.

	Yes	No	Not Applicable	Don't know
The manufacturer of the wireless device	○	○	◉	○
A professional software developer other than the device's manufacturer	○	○	◉	○
A non-professional software developer other than the device's manufacturer	○	○	◉	○
One or more other end-users	○	○	◉	○
It was a virus or some other kind of malicious software	○	○	◉	○
Other	○	○	◉	○

Impact of the RED

The EU is evaluating the need to strengthen European legislation on the installation of software into various classes of radio equipment. In case specific measures are adopted,

- The manufacturer of a wireless device could be requested – or required – to include protections against the upload of compliance-hindering or malicious software

- Software manufacturers could be requested – or required – to demonstrate that their software is neither malicious nor can lead to non-compliance of the equipment after installation.

Which of these options would be most appropriate?

Policy option:

	Yes, such legislation is needed	Yes, but industry self-regulation (codes of practice) would be sufficient	No, enough protection is already in place	Don't know
Device manufacturers should add protections preventing the installation of malicious or non-compliant software	○	○	◉	○
Manufacturers of **certain specific** software should demonstrate that their software is neither malicious nor can lead to non-compliance of the equipment classes after installation.	○	◉	○	○

Would there be any potential disadvantages in strengthening regulatory protection?

- ◉ Yes
- ○ No
- ○ Don't know

Please explain:

> One possible disadvantage about an additional legislation or delegated acts is increased administrative burdens (costs and time). Consequently, software would become outdated because the involved parties would avoid the additional administrative burden/cost and resources (time).

Should the following equipment classes be in the scope of this initiative?

	Yes	No	Don't know, N/A
All equipment with radio (wireless) functionality	◉	○	○
Dual-use defence radio equipment; Meteorology; Radioastronomy; Radiolocation	○	◉	○
Satellite (except Broadcasting)	○	◉	○
Land mobile (D-GPS, PPDR, Inland waterway communications, Paging, Telemetry, Telecommand)	○	◉	○
GNSS Pseudolites/ Repeaters; HAPS; Meteor scatter communication; Standard frequency and time signal	○	◉	○
Short Range Devices (inductive, RFID, NFC)	○	◉	○
Aeronautical equipment; maritime equipment	○	○	◉
Satellite Broadcasting (SIT/SUT only)	○	○	◉
Terrestrial broadcasting; PMSE	○	○	◉
CB radio; MBR; ISM; UAS; Radionavigation and Radiolocation equipment; Tracking systems equipment.	○	◉	○
Fixed radio equipment	○	○	◉
Short Range Devices (except: RFID, NFC, Inductive; UWB and WDTS)	○	◉	○
Land mobile (except: D-GPS, Paging, PPDR, Telemetry/Telecommand, Inland Water communications.)	○	○	◉
Amateur radio equipment	○	○	◉
UWB, WDTS - Short Range Devices	○	○	◉

Software Defined Platforms	○	○	◉
Radio IoT (connected to or controlled through the internet or wireless data network)	○	○	◉
Other or specific equipment classes	◉	○	○

If other, or specific equipment classes, please specify:

All our answers exclusively refer to our choice of industry self-regulation as the most appropriate policy option to improve the current situation, where needed.
In our experience most of our members see the radio functionality included in the scope.

If the EU were to strengthen regulations on the installation of software in specific types of equipment classes, how would your trust in the equipment be affected?

	Significantly more trust than now	Marginally more trust than now	No impact on my trust	I would have less trust than now	Don't know
All equipment with radio (wireless) functionality	○	○	◉	○	○
The specific equipment classes that you suggested to be in scope of this initiative (see the previous question)	○	○	◉	○	○
Conventional goods (e.g. washing machines, refrigerators, watches, TVs, toys, etc) where wireless connectivity and data processing capabilities are being added	○	○	○	○	◉
Other	○	○	○	○	○

If other, please specify:

Questions for Users and Developers of Free and Open Source Software

Are you a user or developer of free and/or open source software?

☐ Free software user

- ☐ Free software developer
- ☑ Open source software user
- ☑ Open source software developer

Do you redistribute the software that you develop or do you use it exclusively for your purposes on your equipment?

- ◉ I redistribute it
- ○ I use it exclusively for my purposes and on my equipment
- ○ Other

Do you think that there is the need to improve the regulatory framework to ensure that **specific** software cannot compromise the compliance* of **specific** equipment? *e.g. in terms of safety, interference, efficient use of the radio spectrum or access to emergency services

- ○ Yes
- ◉ No
- ○ Don't know

Please elaborate further your answer, also specifying the equipment if relevant:

Could the software that you develop affect the compliance* of the equipment on which it operates? *e.g. in terms of safety, interference, efficient use of the radio spectrum or access to emergency services

- ○ Yes
- ◉ No
- ○ Don't know

Please explain, also specifying the equipment where your software operates:

Could the software that you develop affect the protection of personal data or the protection against frauds of equipment on which it operates?

- ○ Yes
- ◉ No
- ○ Don't know

Please explain, also specifying the equipment where your software operates:

[   ]

Would you be affected by an initiative that regulates the uploads of **specific** software* into **specific** equipment?
*e.g. the software with an impact on safety, interference, efficient use of the radio spectrum, personal data protection, protection from frauds, or access to emergency services

- ○ Yes
- ◉ No
- ○ Don't know

Would you object to new legal requirements if simplified methods for demonstrating the compliance of **specific** software* are put in place?
*e.g. the software with an impact on safety, interference, efficient use of the radio spectrum, personal data protection, protection from frauds, or access to emergency services

- ○ Yes
- ◉ No
- ○ Don't know

Please provide more details:

[   ]

Do you think that the introduction of regulatory requirements for uploading **specific** software into radio devices would affect the competition in the sector?
- ◉ Yes

○ No

○ Don't know

Please explain how and why:

[text input field]

You have reached the end of this questionnaire and can now submit your response.

We would like to thank you for your participation in this consultation.

Contact

GROW-RED@ec.europa.eu