Citizens' Band (CB) radio – Authorising Amplitude Modulation (AM) modes of operation

Permitting AM double and single side band CB radio in the UK

Statement

Publication date: 10 December 2013

Contents

Section 1

Executive Summary

1.1 This Statement sets out Ofcom's decision to proceed with proposals made in our Consultation "*Citizens' Band (CB) radio – Authorising Amplitude Modulation (AM) modes of operation"*[1] (the 'Consultation') which was published on 7 October 2013 and closed on 8 November 2013.

1.2 The Consultation proposed to amend current arrangements for Citizens' Band (CB) Radio in the UK to allow the use of Amplitude Modulation (AM) Double-sideband (DSB) and Single-sideband (SSB) transmission on CB radio.

1.3 Ofcom specifically proposed to:

- Authorise the use of AM emissions on European Conference of Postal and Telecommunications Administrations (CEPT) harmonised channels in line with European Communication Committee (ECC) Decision (11)03[2]; and
- Authorise such use on a licence exempt basis (in line with our authorisation approach for other modes of operation for CB).

1.4 These proposals followed on from work carried out in Europe. In June 2011 the ECC, part of CEPT, published a Decision, ECC/DEC/ (11)03 (the 'Decision') on the harmonised use of frequencies for CB radio equipment. The Decision sought to harmonise the technical standards and usage conditions relating to the use of frequencies for CB radio equipment in CEPT administrations. Our proposals were consistent with the Decision.

1.5 The response to the Consultation was overwhelmingly in favour of our proposals. There were 275 responses to the Consultation, 64 of which were confidential, 210 were non-confidential and 1 was confidential in part. Out of the responses 260 agreed with the authorisation of AM/DSB and AM/SSB use on CB.

1.6 The main concerns expressed by respondents related to the need for effective enforcement, the knowledge and behaviour of CB users and questions surrounding the proposed technical parameters. These issues are explored in more detail in Section 3.

1.7 Given the positive response to the consultation we will proceed to implement the proposals as set out in the Consultation. We will include these changes in the next update of the licence exemption regulations which we expect to come into force by July 2014.

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1 http://stakeholders.ofcom.org.uk/binaries/consultations/citizens-band-radio/summary/citizen-band-radio.pdf

2 http://www.erodocdb.dk/Docs/doc98/official/pdf/ECCDEC1103.PDF

Section 2

Introduction and background

Introduction

2.1 On the 7th October 2013 we published a consultation setting out proposals to authorise AM modes of operation on CB radio. In that document we proposed to allow AM/DSB and AM/SSB transmission on CB radio. Currently only frequency and phase modulated emissions are permitted. AM transmission had previously not been permitted in the UK due to concerns over the risk of interference to other radio users.

2.2 The Consultation invited stakeholders to respond to our proposals to authorise AM/DSB and AM/SSB working on CB in accordance with the ECC Decision.

2.3 Over the course of the last few years the European Telecommunication Standards Institute (ETSI) has completed detailed compatibility studies (ETSI TR 102 626) on the impact of AM CB transmission on other domestic and vehicle based spectrum users. The testing did not identify any undue risk of interference and found no outstanding compatibility or sharing issues. ETSI has developed new standards (EN 300-433-1 and 300-433-2) to harmonise the technical parameters applicable to AM on CB and these are reflected in the Decision.

2.4 The Decision looks towards harmonised use across CEPT member countries and provides a set of harmonised technical parameters. ECC decisions are not binding and do not cover the national decisions on authorisation arrangements for individual equipments. However, we believe there are a number of advantages in adopting a harmonised approach to the authorisation of CB.

2.5 The ETSI Report estimated that 95% of equipment sales relate to mobile apparatus and only 5% is fixed. A high percentage of mobile usage is by long distance lorry drivers, many of whom cross international borders throughout Europe. A variety of different national regulations can be very confusing, as the settings on the CB equipment must be checked or changed at each border. Inevitably some equipment will not be changed resulting in illegal use and an increased risk of harmful interference.

Consultation proposals

2.6 We proposed to authorise use of CB in a way that is consistent with the Decision, including permitting AM use of the CEPT frequency bands.

2.7 We proposed that authorisation of AM transmission be achieved through an extension of current licence exemption arrangements for CB.

Frequency Bands

2.8 We proposed to extend the current licensing exemption arrangements to permit AM use in both the single and double sideband mode albeit only in the CEPT harmonised channels identified in Table 1. FM use would of course continue to be authorised on these channels.

Table 1[3]: Proposed frequencies for AM/SSB and AM/DSB

Channel №	CEPT "Harmonised" channels (MHz)	Channel №	CEPT "Harmonised" channels (MHz)
1	26.965	21	27.215
2	26.975	22	27.225
3	26.985	23	27.255
4	27.005	24	27.235
5	27.015	25	27.245
6	27.025	26	27.265
7	27.035	27	27.275
8	27.055	28	27.285
9	27.065	29	27.295
10	27.075	30	27.305
11	27.085	31	27.315
12	27.105	32	27.325
13	27.115	33	27.335
14	27.125	34	27.345
15	27.135	35	27.355
16	27.155	36	27.365
17	27.165	37	27.375
18	27.175	38	27.385
19	27.185	39	27.395
20	27.205	40	27.405

2.9 We shall continue to authorise FM only operation on the UK channels. However we have made minor amendments to the Interface Requirement IR 2027[4] to bring its wording into line with the ECC Decision (11)03.

Transmit power

2.10 In line with the Decision, we proposed to limit the maximum effective radiated power for AM transmission on CB radio to 4 Watts (measured as a root mean square) for DSB modulation and 12 Watts (measured as a peak envelope power) for SSB modulation.

2.11 Compliance with IR2027 is a condition of the exemption regulations. We proposed to revise IR 2027 to reflect the proposed changes. A copy of the draft IR 2027 can be found on our website.[5]

2.12 Our proposed power limit was specified in terms of a maximum effective radiated power. This means that any gain or loss provided by transmission lines or antenna needs to be taken into account when configuring a station, particularly where a non-integral antenna is used. We leave it to individual users to decide how to configure

[3] The frequencies indicated in this table are the centre frequencies of each channel number. The maximum operating frequency band shall be from 26.960 MHz to 27.410 MHz for the CEPT

[4] http://stakeholders.ofcom.org.uk/binaries/spectrum/spectrum-policy-area/spectrum-management/research-guidelines-tech-info/interface-requirements/uk2027.pdf

[5] http://stakeholders.ofcom.org.uk/spectrum/technical/interface-requirements/draft_ir/

their stations in a manner that complies with the specified maximum power requirement.

Document Structure

2.13 The document is structured as follows:

- Section 3 sets out a summary of the Consultation responses we have received and our consideration of the points that have been raised;
- Section 4 sets out our conclusions in light of those considerations, and our next steps; and
- Annex 1 contains a list of respondents.

Section 3

Consultation Responses

3.1 This section will set out:

- An overview of the responses we have received;
- The main concerns raised by respondents; and
- Our consideration of the main points raised by respondents.

Overview of responses

3.2 We received 275 responses to our Consultation, of which 64 were confidential and 1 was confidential in part. There were a total of 210 non-confidential respondents, 119 of which were named. There were 3 responses on behalf of organisations (CB Radio Activated Facebook Group, M0OGY Reviews and one confidential response) with the rest of responses being from individuals.

3.3 Of the 275 responses:

- 260 agreed with Ofcom's proposals;
- 12 disagreed with Ofcom's proposals; and
- 3 did not express a clear opinion either way.

3.4 Thirty-six respondents raised concerns about the proposals or how they would be implemented. These concerns fell broadly into three areas:

- enforcement concerns;
- the knowledge and training of CB operators; and
- concerns about the proposed technical parameters and other issues.

3.5 These concerns are explored in more detail below, along with our response to each issue.

3.6 All non-confidential responses to the Consultation are listed in Annex 1 and can be found on our website.[6]

Concerns raised by respondents

Enforcement concerns

3.7 Thirteen respondents raised concerns regarding enforcement issues.

[6] The Consultation responses can be found at this link: http://stakeholders.ofcom.org.uk/consultations/citizens-band-radio/?showResponses=true.

3.8 Most of these respondents expressed the need for more policing of CB radio and greater enforcement of the Wireless Telegraphy Act 2006 to prevent interference from CB operators. The need for effective enforcement of power limits was also raised. Some examples of responses relating to enforcement issues are below:

> "Although I support the proposal to allow AM/DSB and AM/SSB, I am concerned that interference to other services will increase unless OFCOM monitoring and enforcing resources are increased to detect and deter the use of illegally high power"

> "Without high profile enforcement and visible consequences for breaching these regulations, although I support authorisation of AM/DSB and AM/SSB in principle I am opposed to it under the current conditions of policing and enforcement. I would like to see the authorisation made in conjunction with increased enforcement action. Only in this case, I would fully support it."

> "Rigid compliance with power limitations would be required as part of the permission to operate AM and / or SSB."

3.9 Several respondents also expressed worries that CB would still be operated on illegally despite the legalisation of AM/DSB and AM/SSB. As a result they felt there was little point in making this change.

Ofcom response

3.10 CB radio was first authorised in the UK in the early 1980s, and in 2006 Ofcom made exemption regulations which removed the need for an individual licence to install or use certain CB apparatus. In common with other licence-exempt uses of radio, CB equipment must not cause interference to other radio services. Moreover our experience has shown that CB users are generally able to avoid interference from each other by choosing an alternative channel from the many available.

3.11 It remains a legal requirement to operate within the technical conditions of the relevant exemption regulations. Should interference occur to CB or other services then Ofcom will investigate.

3.12 We will continue to discharge our statutory duties and functions to protect and manage the radio spectrum and we will act in a way that is proportionate, accountable, transparent and consistent and treat each case on its merits.

Operator training and conduct

3.13 Thirteen respondents expressed concerns about the level of training and behaviour of other CB operators.

3.14 Among these some argued that CB operators might not have sufficient technical knowledge to configure CB radios or understand the power limits:

> "There is one serious flaw in the proposal - Whilst a technically qualified user such as a fully licensed ratio amateur (of which I am one) may be competent to judge the gain of an antenna and hence the station's ERP, this will not be the case for a typical CB user who has had no technical training."

3.15 As a result of these worries several respondents asked for technical training for CB operators, as well as more regulation of their conduct:

> "Following the ECC Decision (11)03 should also provide a kind of training ground for CB radio operators possibly wanting to be HAM operators. Mainly we would at least be all in the same place."

> "If they want AM/SSB they should work for it and earn it by sitting the foundation exam."

> "If the CB bands are opened up to include AM/DSB/SSB it may be beneficial to include some form of education or self regulation to maintain good radio ethic (conduct, language, Interference etc)."

3.16 Concerns were also raised about the behaviour of CB operators and the lack of regulation in this matter:

> "I observe that there are a number of CB and PMR 446 radio operators who extensively use profanities and foul language."

> "If this is granted every bad operator and his dog will be on there with massive power causing chaos to the bands. The CB band is already full of foul mouthed music playing idiots and this will only broaden their horizons."

Ofcom response

3.17 We note the concerns raised by respondents concerning the technical knowledge of CB users and the behaviour of CB users. CB radio is primarily intended as a short range radio service generally for hobby use. It is the responsibility of the equipment user to ensure they are operating within the conditions of the exemption. Should users wish to gain more technical knowledge then technical training and advice can be found from a number of sources including radio dealers. We also note that the removal of the need to hold a WT Act Licence in order to operate CB radio equipment in December 2006 has not led to significant interference issues in the band. The technical work carried out in support of the Decision has indicated that the introduction of AM transmission would not significantly increase the risk of harmful interference.

3.18 Where possible we support the principle of a reduced regulatory burden on stakeholders. We also recognise that introducing greater requirements to operate CB radio could have an adverse impact on the uptake of this hobby.

3.19 Therefore we propose to proceed with the authorisation of AM transmission by way of the current licence exemption arrangements for CB and do not propose to introduce a requirement on CB users to undergo training or demonstrate a defined level of technical competence. We do not believe such provisions are necessary, and would also potentially contradict its hobbyist status.

3.20 In relation to the behaviour of CB operators the Wireless Telegraphy (Content of Transmission) Regulations 1988[7] make it an offence to use any station for wireless

[7] http://www.legislation.gov.uk/uksi/1988/47/contents/made

telegraphy or any wireless telegraphy apparatus to send a message, communication or other matter in whatever form that is grossly offensive or of an indecent, obscene or menacing character. On conviction, any person who sends such a message, communication or other matter is liable to a fine.

Technical parameters and other issues

3.21 Concerns about the proposed power limits were expressed by 8 respondents. The main point raised in relation to this was that proposed ERP was too powerful and badly understood by operators. Several respondents suggested that RF be used instead:

> "I believe that specifying a power limit as 'ERP (effective radiated power)' is a flawed approach because it is not readily measurable. Most CB users are essentially non-technical and will not understand antenna gain and feeder losses. A simpler more provable requirement would be to specify the maximum RF output from the transmitter at the levels proposed."

3.22 Requests for more information about the technical specifications for the equipment that would be allowed were made by 3 respondents

3.23 There were 3 respondents who wanted the authorisation of CW on CB channels:

> "I do not know if ED *[sic]* decision (11)03 makes reference to authorising CW as well, but perhaps this should be considered. Many CB transceivers have CW mode available, it is an EMC-friendly mode, and may encourage some CB users to progress to the amateur radio licence."

3.24 There were also several other issues raised:

- UK40 should remain FM only and hobbyists should have access to 27.415 and 27.595 bands;
- AM/DSB and AM/SSB should be permitted on UK channels alongside CEPT channels;
- some respondents wanted to be able to use additional channels;
- concerns were raised over a potential increase in radio jamming;
- CADs should be relocated to CB27/81 band; and
- power microphones should be banned.

Ofcom Response

3.25 The Consultation was conducted with the aim of to implementing the ECC Decision (11)03. The Decision was the result of an ETSI Technical Report TR 102 626 on the compatibility of CB with other radio services and applications. The technical parameters we proposed reflect this Decision and the work carried out in the TR 102 626 report.

3.26 The Report only considered the compatibility of radio frequencies listed in the CEPT CB band, not the UK CB band, therefore only the CEPT band was considered in the ECC Decision. We have limited the authorisation of AM/DSB and AM/SSB to CEPT frequencies, rather than extend it to the UK CB Band, as this brings us in line with European wide regulations.

3.27 We have specified a radiated power limit in line with the ECC Decision "that the maximum radiated power for Citizens' Band radio stations shall be limited to 4 Watts for angle-modulation, 4 Watts (measured as a root mean square) for DSB modulation, and 12 Watts (measured as a peak envelope power) for SSB modulation"[8].

3.28 The proposed power limit is specified in terms of effective radiated power .This means that any gain or loss provided by transmission lines or antenna needs to be taken into account when configuring a station (particularly where a non-integral antenna is used). It is the responsibility of individual users to decide how to configure their stations in a manner that complies with the specified maximum power requirement. As we have stated there is advice available from radio professionals such as equipment dealers on how to comply should this be required.

3.29 ETSI has developed Harmonised European Standards, EN 300 433 and EN 300 135, for CB equipment affected by the ECC Decision. The ETSI Standards define the technical parameters and CB radio equipment complying with these standards will fulfil the recommended limits identified in the ERC Recommendation 74-01 on unwanted emissions in the spurious domain, which is considered important for the compatible spectrum usage of CB radio equipment and avoidance of interference to other radio services.

3.30 Therefore our proposed changes to the use of CB in the UK are limited only to those parameters covered by the ECC Decision (11)03. To change other parameters unilaterally would run counter to the objectives of European harmonisation and the benefits of aligning UK arrangements with other European countries.

3.31 As a result we intend to proceed with the original parameters proposed in the Consultation.

[8] http://www.erodocdb.dk/Docs/doc98/official/pdf/ECCDEC1103.PDF

Section 4

Conclusions and next steps

4.1 As discussed in the previous section, responses to the Consultation showed overwhelming support for the authorisation of AM/DSB and AM/SSB on CB. We have therefore decided to proceed with these proposals.

4.2 Ofcom will now take the following actions to implement these changes:

- amend the Interface Requirement (IR) IR 2027[9] to provide for AM/DSB and AM/SSB. An IR sets out the operational conformity requirements for the use of radio and IR 2027 sets out the requirements for CB radio;
- inform the European Commission (EC) of our proposed technical regulations in IR 2027. Other Member States have three months to submit comments on our draft amended IR; and
- update the applicable licence exemption regulations so they refer to an updated version of IR 2027. We are required to give at least one month's notice of our intention to make proposed regulations. After this we will publish a final regulatory statement and make the regulations.

4.3 Allowing time for these implementation measures to take place we expect the arrangements to come into force in July 2014. In the Consultation we advised that we would bring the regulation in by April 2014 however, due to a delay in the approval of the next revision of the European Union decision on Short Range Devices (which are to be covered by the same exemption regulations) we have to amend our implementation timescales.

4.4 We would like to stress that until the new regulations are in place it remains illegal to operate SSB equipment on CB radio frequencies.

[9] http://stakeholders.ofcom.org.uk/binaries/spectrum/spectrum-policy-area/spectrum-management/research-guidelines-tech-info/interface-requirements/uk2027.pdf

Annex 1

List of non-confidential respondents

Ellis Adam

L. J. Allen

Andrew Ashmore

Dennis Atkins

Andrew Axford

Douglas Bailey

Kevin Baker

Chris Barnard

David Belchamber

Dave Biggs

Gary Birch

John Borham

Dorothy Bowles

John Bowles

Tyrone Bowles

Philip Boxx

Andy Brown

Mr Bryant

CB Radio Activated Group (Facebook)

Mr Churston

Andrew Claxton

Michael Clewes

John Cook

Phillip Cooke

Mike Costello

Bob Court

Norman Craven

Kevin Cullum

Christopher Davies

Paul Davies

Simon Davis

Chris Dermott

Michael De-wynter

Charles Drake

David Dunstan

Martin Edwards

Peter Ewing

Matthew Faribarin

David Fenwick

Mark Foreman

Owen Gallagher

J. P. Gilliver

Sean Goodchild

Ciaran Gorman

Anthony Green

Clive Griffin

Charlene Griggs

Peter Hagan

Simon Hall

Daniel Harris

Stewart Harvey

Dave Healey

Andrew Hearty

Martin Hubbard

Chris Hughes

Dave Hunt

Robert Hutton

James Izzard

Bryan Jackson

Mark Anthony Jones

Tim Kirby

Harry Knight

Simon Leigh

Jamie Lewis

Geoffrey Ma

Charles Maggs

Elizabeth Maggs

Wayne McCoo

Ian McNair

Stuart Mcquillian

Jan Meijer

Nigel Mellor

John Middleton

Andrew Millner

Ewen Moore

Steven Mowbray

Christopher Murphy

Peter Muttley

Gary Myers

M0OGY Reviews

Name withheld 1 –

Name withheld 91

Andrew Nisbet

Douglas Oliphant

Paul Osborne

John Page

Nicholas Palin

Darren Parker

Philip Parsons

S. Pattison

T. Pearce

Gareth Phillips

Martin Plain

Chris Redding

Ian Reynolds

Adrian Riddick

Dawn Roberts

John Roberts

Clifford Roper

Stephen Salmon

Adam Sampson

Daryn Saxon

Gary Shaw

Michael Singfield

Leighton Smart

David Smith

Kevin Smith

Edmund Spicer

Richard Stanley

Richard Steele

John Stephenson

John Stowell Beng

Tadg Sweeney

Alan Tait

John Torring

Dominic Trill

Martin Ward

Mr Wells

Stephen Welton

Jason West Gaul

Neville Wing

John Wrobel