

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC

In the matter of:)
) WT Docket No. _____
Amendment of Part 97 of the Commission's)
Rules to Introduce A New 8 Meter Band to The) RM-_____
Amateur Radio Service.)
)

PETITION FOR RULEMAKING

1. REC Networks ("REC"), through its founder, Michelle Bradley, KU3N ("Bradley"), is a leading advocate for a citizen's access to spectrum with a heavy focus on the Low Power FM (LPFM) broadcast stations as well as full-service noncommercial educational (NCE) broadcast stations and non-broadcast services such the Amateur Radio Service. Bradley has been a licensed amateur radio operator since 1987. This *Petition for Rulemaking* is in response to various activities taking place in ITU Region 1 which could open some new opportunities for Amateur Radio in North America.

2. In many parts of the developed world, the use of low VHF spectrum between 30 and 50 MHz ("Low Band") has been on the decline with many of the land mobile services within this spectrum being transitioned to narrowband digital technology in the UHF spectrum between 450 and 950 MHz. In ITU Region 1, many administrations are starting to permit limited Amateur use in portions of Low Band.

3. In Ireland, the Commission for Communications Regulation ("ComReg") has recently made an allocation of the Low Band spectrum from 30-49 MHz, as well as 54-69.9 MHz to the Amateur Service.¹ In addition, other administrations, including Slovenia, South Africa, United Kingdom and Denmark have authorized either beacon or full amateur use within portions of the spectrum around 40-41 MHz.

4. In this *Petition for Rulemaking*, REC is requesting that the Commission consider a new allocation to the Amateur Radio Service within a portion of the 40-41 MHz spectrum on a secondary non-interference basis to Federal use of this band in an effort to foster experimentation into the propagation characteristics of this band located mid-way between the 10 and 6 meter bands.

¹ - See <https://www.comreg.ie/publication-download/amateur-station-licence-guidelines> (retrieved May 24, 2019).

5. Currently, the spectrum from 40-41 MHz is allocated exclusively to the Federal Government.² The spectrum between 40.66-40.70 is also allocated on a worldwide basis to industrial, scientific and medical (ISM) applications and can also be used on a secondary basis by federal and non-federal stations on a secondary basis for the tracking of, and telemetering of scientific data from, ocean buoys and wildlife in accordance with 8.2.42 of the NTIA Manual for Federal Use and §90.248 of the Commission's Rules for non-Federal use.³ The NTIA channeling plan designates channels between 40.01 and 40.51 in 20 kHz steps.⁴ No channels are designated between 40.52 and 41 MHz under that plan.

6. In the June, 2010 NTIA Publication *Federal Spectrum Use Summary 30 MHz~3000 GHz*, the NTIA describes the use of the spectrum between 40~42 MHz as follows:⁵

The Federal agencies operate land mobile communication systems used in the operation, protection and maintenance of national parks, forests, wildlife refuge areas, and to support public safety operations, environmental data collection, fish management and wildlife telemetry program. The federal agencies operate meteor-burst communications systems in this band to provide beyond line-of-sight communications and telemetry. A typical application is the Department of Agriculture transmitting snow fall data from numerous sensors to a central location.

The military agencies operate radio communications systems in this band for networks providing command and control for combat, combat support and combat service support as well as tactical and training operations. They also operate tactical air-to-ground and air-to-air communication systems for close air support missions.

7. In Ireland, the Irish Radio Transmitters Society, their national association and International Amateur Radio Union (IARU) member has developed a band-plan for the 40-41 MHz band as follows:⁶

Frequency Range	Maximum Bandwidth	Usage
40.000~40.100	1000 Hz	Beacons
40.100~40.200	500 Hz	CW, 40.150 center of activity, 40.190~40.200 DX window.

² - See *Manual of Regulations and Procedures for Federal Radio Frequency Management*, National Telecommunications and Information Administration, September, 2017 edition ("Redbook") at 4-21.

³ - See Table of Allocations (47 CFR §2.106), footnotes 5.150 and US210. Additional details of Federal use of 40.66-40.7 can be found in *Redbook* at 8.2.42. See also *Don't Touch That Dial: FCC Frequencies for the Use of Telemetry in Ornithology*, The Ornithological Council, <https://birdnet.org/info-for-ornithologists/fact-sheets/radiotelemetry/> (retrieved May 24, 2019) (suggesting that the 40 MHz band is unsuitable for avian telemetry.)

⁴ - *Redbook* at 4.3.6.

⁵ - See https://www.ntia.doc.gov/files/ntia/publications/spectrum_use_summary_master-07142014.pdf (retrieved May 24, 2019).

⁶ - See https://www.irts.ie/downloads/Irish_8m_5m_band_plans.pdf (retrieved May 24, 2019).

40.200~40.300	2700 Hz	CW/SSB, 40.200~40.230 DX window, 40.250 calling, 40.285 cross-band center of activity.
40.300~40.400	2700 Hz	Narrowband telegraphy, earth-moon-earth and meteor scatter.
40.400~40.660	20 kHz	SSTV, FM, digital modes (avoid 40.49~40.51 due to third harmonic to protected distress frequency 121.5). 40.52~40.65 for digital modes.
40.660~40.680	1000 Hz	Beacons (for countries where Amateur allocations fall into the ISM band).
40.680~40.700	2700 Hz	SSB (for countries where Amateur allocations fall into the ISM Band).
40.700~41.000	20 kHz	FM

8. Based on the current Federal and non-Federal utilization of this band which includes the Federal use of the lower portion of 40 MHz for channelized land-mobile operations and due to other international allocations, it could be suggested that an amateur allocation in the 8 meter band can be centered around the ISM band between 40.66~40.70 MHz. The ISM spectrum can be a core, but of course, if more spectrum around that core can be made available, that would be desirable. REC supports an allocation of 40.55~40.70 MHz. This would provide a 30 kHz guard band between the Federal channelized land-mobile system as well as provide sufficient protection to the third harmonic of international distress frequency, 121.5 MHz.

9. REC perceives this spectrum can be used for weak signal experimentation and eventually general amateur use, especially along transatlantic paths using CW, digital modes such as FT8, SSB and digital voice. As no radios are mass-produced for this band at this time, this opens up new opportunities for “makers” to construct transmitters, receivers and antenna systems that can be used in this spectrum. REC perceives usage of this spectrum by the Amateur Radio Service to be very low with peak usage around sporadic E episodes, operating events such as ARRL Field Day and VHF contests as well as during the peak of sunspot cycles. This spectrum allocation would also align with the already established IETS 8 metre band plan that can be seen as model for the rest of Europe and possibly one that is more international in scope.

10. Because of this low usage predicted by amateurs and the service’s long-time track record on sharing with Federal services, we feel that the sharing of 40 MHz can be accomplished in a manner that serves the needs of the Amateur Radio Service while meeting the organizational missions of Federal government agencies that utilize this spectrum for communications and telemetry. In addition, the track record of amateur sharing of ISM spectrum such as that in the 902~928 and 2400~2450 MHz bands have been well proven over time.

11. This *Petition for Rulemaking* is consistent with the basis and purpose for the Amateur Radio Service as it contributes to the amateur's proven ability to contribute to the advancement of the radio art in both the communications and technical phases of the art. With the ongoing worldwide reduction of low band VHF usage in the Federal and non-Federal sectors, resulting to the point of where one nation has already reallocated the entire band to the Amateur Service, we need to look at Commission allocations in the 25~50 MHz VHF low-band to identify opportunities as more services migrate off. Based on our evaluation of the current spectrum use in the United States, much of the Federal and non-Federal usage takes place in the western portion of the country for communications related to conservation efforts as well as wildlife telemetry; where in comparison, amateur use of this spectrum is more likely to take place in the eastern part of the country especially where it comes to the challenge of transatlantic communications. Like with 6 meters, other than for narrow bandwidth beacon stations and FT8 digital operation, the activity on this band would likely be light with peaks taking place during certain operating events and band "openings". REC feels that the time is right for the Commission to open a *Notice of Inquiry* and eventually a *Notice of Proposed Rulemaking* and in cooperation with the NTIA, this new band opportunity can be realized to spark the next generation of "makers" in the fields of science, technology, education and math (STEM), especially women and girls. The more opportunities we give to make things, the more opportunities we have to build a pool of experts in STEM, right here at home. With that, REC formally requests that the Commission moves forward with this proceeding to provides a secondary allocation at 40.55~40.70 MHz to the Amateur Radio Service.

Respectfully submitted,

/S/

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APPENDIX A
PROPOSED RULE CHANGES

1. Section 97.203 is proposed amended by revising paragraph (d) as follows:

§97.203 Beacon station.

* * * * *

(d) A beacon may be automatically controlled while it is transmitting on the 28.20-28.30 MHz, 40.66-40.67 MHz, 50.06-50.08 MHz, 144.275-144.300 MHz, 222.05-222.06 MHz or 432.300-432.400 MHz segments, or on the 33 cm and shorter wavelength bands.

* * * * *

2. Section 97.205 is proposed amended by revising paragraph (b) as follows:

§97.205 Repeater station.

* * * * *

(b) A repeater may receive and retransmit on the 10 m and shorter wavelength bands except the 28.0-29.5 MHz, 40.55-40.70 MHz, 50.0-51.0 MHz, 144.0-144.5 MHz, 145.5-146.0 MHz, 222.0-222.15 MHz, 431.0-433.0 MHz, and 435.0-438.0 MHz segments.

* * * * *

3. Section 97.221 is proposed amended by revising paragraph (b) as follows:

§97.221 Automatically controlled digital station.

* * * * *

(b) A station may be automatically controlled while transmitting a RTTY or data emission on the 6 m or shorter wavelength bands, and on the 40.55-40.66 MHz, 28.120-28.189 MHz, 24.925-24.930 MHz, 21.090-21.100 MHz, 18.105-18.110 MHz, 14.0950-14.0995 MHz, 14.1005-14.112 MHz, 10.140-10.150 MHz, 7.100-7.105 MHz, or 3.585-3.600 MHz segments.

* * * * *

4. Section 97.301 is proposed amended by revising paragraph (a) through amending the table as follows:

§97.301 Authorized frequency bands.

* * * * *

- (a) For a station having a control operator who has been granted a Technician, General, Advanced or Amateur Extra class operating license or who holds a CEPT radio-amateur license or IARP of any class:

Wavelength band	ITU region 1	ITU region 2	ITU region 3	Sharing requirements <i>see</i> §97.303 (paragraph)
VHF	MHz	MHz	MHz	
* * * * *	* * * * *	* * * * *	* * * * *	* * * * *
4 m	40.55-40.7	40.55-40.7	40.55-40.7	(a), (d), (u)
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5. Section 97.303 is proposed amended by revising paragraph (d) and adding paragraph (u) as follows:

§97.303 Frequency sharing requirements.

* * * * *

- (d) Amateur stations receiving in the 8 m band, the 33 cm band, the 2400-2450 MHz segment, the 5.725-5.875 GHz segment, the 1.2 cm band, the 2.5 mm band and the 244-246 GHz segment must accept interference from industrial, scientific and medical (ISM) equipment.

* * * * *

- (u) Amateur stations transmitting in the 4 m band must not cause harmful interference to and must accept interference from, stations authorized by the United States Government, the FCC, or other nations in the fixed, mobile and radiolocation services.

6. Section 97.305 is proposed amending by updating the table in paragraph (c) as follows:

§97.305 Authorized emission types.

* * * * *

(c) * * * * *

Wavelength band	Frequencies	Emission types authorized	Standards see §93.307(f), paragraph:
VHF:			
* * * * *	* * * * *	* * * * *	* * * * *
4m	Entire band	phone, image, RTTY, data	(2), (5)
* * * * *	* * * * *	* * * * *	* * * * *

7. Section 97.313 is proposed by amending paragraph (c) to add subparagraph (4) as follows:

§97.313 Transmitter power standards.

* * * * *

(c) * * * * *

(4) On the 40.55-40.7 MHz segment.

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APPENDIX B

8 METER BAND PROPOSED BAND PLAN

Derived from the Irish Radio Transmitters Society 8 Metre Band Plan, updated 13 October 2018 and modified for the REC/KU3N FCC *Petition for Rulemaking* for use in the United States.

Frequency	Usage	
40.550	Lower band edge	
40.550~40.660	Digital modes, RTTY, FT8, FT4, digital voice (DV) etc.	
40.600	Digital voice calling	
40.650	Slow Scan TV	
40.660~40.670	Beacons	Inside the ISM band.
40.670~40.680	CW	
40.675	CW calling and center of activity	
40.680~40.700	SSB (40.681, 40.684, 40.687, 40.690, 40.693, 40.696)	
40.681	SSB calling frequency	
40.700	Upper band edge	

Proposed rules allow for beacons in the 40.66~40.67 segment and automatic control of digital stations in the 40.55~40.66 segment.