

118TH CONGRESS
1ST SESSION

H. R. 4504

To direct the Assistant Secretary of Commerce for Communications and Information to take certain actions to improve the management of electromagnetic spectrum, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

JULY 10, 2023

Mr. GUTHRIE introduced the following bill; which was referred to the
Committee on Energy and Commerce

A BILL

To direct the Assistant Secretary of Commerce for Communications and Information to take certain actions to improve the management of electromagnetic spectrum, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Novel, Advanced Spec-

5 trum and Communications Technology Networks Pro-

6 motion Act”.

7 **SEC. 2. FINDINGS.**

8 Congress finds the following:

1 (1) The National Telecommunications and In-
2 formation Administration (NTIA) is the principal
3 advisor to the President on all telecommunications
4 and information issues.

5 (2) The NTIA represents executive branch
6 agencies on electromagnetic spectrum issues before
7 the Federal Communications Commission.

8 (3) Understanding radio frequency propagation
9 characteristics is a critical component of making
10 spectrum management and spectrum policy deci-
11 sions.

12 (4) The NTIA relies on expert engineering
13 studies and analyses to make determinations about
14 system relocations to make spectrum available, as
15 well as to identify spectrum sharing opportunities.

16 (5) Spectrum clearing, when feasible, is the pri-
17 ority action to make federally assigned spectrum
18 available for commercial uses.

19 (6) Spectrum sharing provides commercial ac-
20 cess to federally assigned spectrum in circumstances
21 in which clearing is not feasible.

22 (7) The Institute for Telecommunication
23 Sciences of the NTIA is the Federal Government's
24 premier expert laboratory for spectrum study activi-
25 ties, including spectrum interference studies, and all

1 activities related to advancing next generation tech-
2 nologies.

3 (8) The Institute for Telecommunication
4 Sciences is critical for undertaking engineering stud-
5 ies and analyses, identifying clearing or sharing op-
6 portunities, and performing tests that inform spec-
7 trum policy decisions to maximize the efficient use
8 of spectrum resources.

9 **SEC. 3. SPECTRUM MANAGEMENT IMPROVEMENTS.**

10 (a) PROTOTYPING.—Consistent with subparagraphs
11 (F), (L), (P), and (U) of section 103(b)(2) of the National
12 Telecommunications and Information Administration Or-
13 ganization Act (47 U.S.C. 902(b)(2)), the Assistant Sec-
14 retary shall support the establishment, prototyping, and
15 implementation of common models, common methodolo-
16 gies, and common inputs to inform electromagnetic spec-
17 trum management decisions, such as—

18 (1) technologies and techniques to control radio
19 frequency emissions and interference;

20 (2) advanced antenna arrays, and artificial in-
21 telligence systems and technologies capable of oper-
22 ating advanced antenna arrays, including multiple-
23 input, multiple-output antennas, beam forming and
24 steering technology, antenna nulling technology, and
25 conformal arrays;

1 (3) network sensing and monitoring tech-
2 nologies;

3 (4) advanced receivers that incorporate new
4 technologies supporting new waveforms and multiple
5 bands;

6 (5) dynamic spectrum access technologies
7 across wireless systems and frequencies, including
8 local-to-the-radio and cognitive multidomain access;

9 (6) novel spectrum access technologies;

10 (7) artificial intelligence systems to enable dy-
11 namic spectrum access, Internet of Things networks,
12 and other advanced communications technologies;
13 and

14 (8) optical and quantum communications tech-
15 nologies.

16 (b) SPECTRUM MANAGEMENT AND ADVANCED COM-
17 MUNICATIONS TECHNOLOGIES.—Section 104 of the Na-
18 tional Telecommunications and Information Administra-
19 tion Organization Act (47 U.S.C. 903) is amended by add-
20 ing at the end the following:

21 “(f) IDENTIFICATION AND IMPLEMENTATION OF
22 SPECTRUM MANAGEMENT TECHNOLOGIES.—The Assist-
23 ant Secretary shall identify and implement technologies
24 that promote—

25 “(1) dynamic spectrum access;

1 “(2) network sensing and monitoring; and

2 “(3) optical and quantum communications.

3 “(g) PROTOTYPING OF ADVANCED COMMUNICATIONS

4 TECHNOLOGIES.—The Assistant Secretary shall—

5 “(1) encourage the development of, and broad

6 participation in, a skilled workforce to conduct

7 prototyping of advanced communications tech-

8 nologies; and

9 “(2) support partnerships among institutions to

10 develop a skilled workforce to conduct prototyping of

11 advanced communications technologies.”.

12 (c) ASSISTANT SECRETARY DEFINED.—In this sec-

13 tion, the term “Assistant Secretary” means the Assistant

14 Secretary of Commerce for Communications and Informa-

15 tion.

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