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(Original Signature of Member)

118TH CONGRESS
1ST SESSION

H. R. _____

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

Mr. GUTHRIE introduced the following bill; which was referred to the Committee on _____

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”.

1 **SEC. 2. FINDINGS.**

2 Congress finds the following:

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

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

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

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

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

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

24 (7) The Institute for Telecommunication
25 Sciences of the NTIA is the Federal Government's
26 premier expert laboratory for spectrum study activi-

1 ties, including spectrum interference studies, and all
2 activities related to advancing next generation tech-
3 nologies.

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

10 **SEC. 3. SPECTRUM MANAGEMENT IMPROVEMENTS.**

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

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

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

1 steering technology, antenna nulling technology, and
2 conformal arrays;

3 (3) network sensing and monitoring tech-
4 nologies;

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

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

11 (6) novel spectrum access technologies;

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

16 (8) optical and quantum communications tech-
17 nologies.

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

23 “(f) IDENTIFICATION AND IMPLEMENTATION OF
24 SPECTRUM MANAGEMENT TECHNOLOGIES.—The Assist-

1 ant Secretary shall identify and implement technologies
2 that promote—

3 “(1) dynamic spectrum access;

4 “(2) network sensing and monitoring; and

5 “(3) optical and quantum communications.

6 “(g) **PROTOTYPING OF ADVANCED COMMUNICATIONS**
7 **TECHNOLOGIES.**—The Assistant Secretary shall—

8 “(1) encourage the development of, and broad
9 participation in, a skilled workforce to conduct
10 prototyping of advanced communications tech-
11 nologies; and

12 “(2) support partnerships among institutions to
13 develop a skilled workforce to conduct prototyping of
14 advanced communications technologies.”.

15 (c) **ASSISTANT SECRETARY DEFINED.**—In this sec-
16 tion, the term “Assistant Secretary” means the Assistant
17 Secretary of Commerce for Communications and Informa-
18 tion.