

Date: July 1, 2016
Subject: Public and Redacted Version of Request for Confidential Treatment and Complementary Exhibits
FCC File No: 0977-EX-ST-2016

To Whom It May Concern:

Google Inc. (Google), pursuant to 5 U.S.C. § 552 and Sections 0.457 and 0.459 of the Commission's Rules, 47 C.F.R. §§ 0.457, 0.459, hereby requests that certain information complementary to its above-referenced application for an extension of Special Temporary Authority (STA Extension) be treated as confidential and not subject to public inspection. The designated information constitutes confidential and proprietary information that, if subject to public disclosure, would cause significant commercial, economic, and competitive harm. As described below, Google's request satisfies the standards for grant of such requests set forth in Sections 0.457 and 0.459 of the Commission's Rules.

In accordance with Section 0.459(b) and in support of this request, Google provides the following information:

1. Identification of the Information for Which Confidential Treatment is Sought:

Google's request for confidential treatment is limited to information that has been redacted from the STA Extension and Exhibits A and B. Google does not seek to withhold from public inspection information in the STA Extension and associated exhibits necessary for interference mitigation, including applicant name, contact information, test location, frequency, output power, effective radiated power, emission characteristics, and modulation.

Exhibit A - Narrative Statement:

Google requests confidential treatment of the following underlined text from Exhibit A that contain confidential and proprietary information regarding the proposed tests/experiments:

Consistent with the standards set forth in Section 5.61 of the Federal Communications Commission's (FCC's or Commission's) Rules, 47 C.F.R. § 5.61, Google Inc. (Google) outlines below its need for the requested extension of Special Temporary Authority (STA Extension) and the compelling reasons why it should be granted expeditiously.

Google requests that the STA Extension be granted for a period of 180 days. The STA Extension is needed for continued development of [REDACTED] in a carefully controlled environment. Among other parameters, Google will continue to

evaluate [REDACTED]. Google will also continue to conduct [REDACTED]. [REDACTED].

Consistent with File No. 1203-EX-ST-2015 (Call Sign WJ9XHI), the equipment used will continue to include [REDACTED] at any given time. As under File No. 1203-EX-ST-2015, [REDACTED] will operate in the frequencies between 72 and 74 GHz (70 GHz radios), and [REDACTED] will operate in the frequencies between 82 and 84 GHz (80 GHz radios). [REDACTED] will continue to be used with one fan beam antenna with a gain not to exceed 38 dBi, and in no case will the maximum equivalent isotropically radiated power (EIRP) exceed 30 dBW. [REDACTED] will continue to be used with one antenna with a gain not to exceed 44 dBi. Maximum EIRP from [REDACTED] will not exceed 36 dBW.

Grant of this STA Extension will not adversely impact any authorized user of RF spectrum for the reasons stated below.

Commercial millimeter wave band users (70 GHz band): In assessing the potential for harmful interference to other U.S. commercial users in the 70 GHz band (71-76 GHz), Comsearch conducted an analysis of digital operations under Google's initial STA request.¹ The analysis assesses potential interference to 70 GHz millimeter wave links within 100 kilometers of Google's test sites by relying on assumptions regarding transmitter characteristics and antenna patterns that are consistent with Google's operations.² Consistent with Section 101.105 of the Commission's Rules and Telecommunications Industry Association's Telecommunications Systems Bulletin 10-F, potential interference that may degrade the performance of a 70 GHz receiver by less than 1 dB was considered not to be harmful.³ For each receiver, the analysis assessed the potential interference level in free space conditions, as compared to the 1 dB threshold degradation objective, to determine whether harmful interference could occur.⁴ The results demonstrate that Google's continued experimental transmissions will be below the 1 dB threshold degradation objective at each of the licensed receivers in the vicinity of Google's operations.⁵ As a result, Google's continued operations in the 70 GHz band do not present a risk of harmful interference to authorized users in the 70 GHz band. Furthermore, Google has registered its links with an authorized third-party database manager for this band.

Commercial millimeter wave band users (80 GHz band): Google's continued operations in the 80 GHz band will comply with the technical specifications set forth in Part 101 for commercial millimeter wave operations and Google believes no experimental authorization is necessary. Nevertheless, Google requests an extension of special temporary authority to continue conducting its test operations in

¹ See Exhibit C (Interference Analysis) to File No. 1203-EX-ST-2015 (Call Sign WJ9XHI).

² See *id.* at 3.

³ See *id.* at 6; 47 C.F.R. §101.105(a)(5)(ii).

⁴ See Exhibit C at 7.

⁵ See *id.*

the band to the extent that the Commission determines such experimental authority is necessary. The analysis set forth in Exhibit C to File No. 1203-EX-ST-2015 (Call Sign WJ9XHI) also confirms that no harmful interference is expected from Google's continued 80 GHz digital transmissions.⁶ Furthermore, Google has registered its links with an authorized third-party database manager for this band.

International users: Because the test sites are more than 700 kilometers away from U.S. borders, no international coordination is required.⁷

Federal users: Google will continue to coordinate with the National Telecommunications and Information Administration to ensure that federal operations in the band do not experience harmful interference.

The continued experimental operations in the 70 and 80 GHz bands accordingly will be conducted without harmful interference to other authorized users. Finally, as noted above, Google has already been conducting similar tests in this area under File No. 1203-EX-ST-2015 (Call Sign WJ9XHI), and no interference has been reported.

Exhibit B - Technical Information:

Google requests confidential treatment of the following underlined text from Exhibit B that contain confidential and proprietary information regarding the proposed tests/experiments:

Applicant Name: Google Inc.
Applicant FRN: 0016069502

Legal Contact Details

Name of Contact	Stephanie Selmer
Contact Details	Associate Corporate Counsel 25 Massachusetts Avenue NW, Ninth Floor Washington DC 20001

⁶ *Id.*

⁷ See 47 C.F.R. § 101.1527.

Technical Contact Details

Name of Contact	Paul Husted
Contact Details	1600 Amphitheatre Parkway Mountain View, CA 94043 Phone: (408) 309-0026 Email: phusted@google.com

70 GHz Band Station Details

Radio Equipment

Equipment	[REDACTED]
Number of Terminals	[REDACTED]
Locations	<ul style="list-style-type: none"> • Location 1: 37°24'53"N, 122°2'36"W • Location 2: 37°25'2"N, 122°2'41"W • Location 3: 37°25'32"N, 122°4'22"W • Location 4: 37°20'41"N, 122°12'56"W • Location 5: Mobile: straight line between two end points <ul style="list-style-type: none"> ○ End point A: 37°25'27"N, 122°3'16"W ○ End point B: 37°25'4"N, 122°3'4"W

Frequency Range	High (MHz)	Low (MHz)
[REDACTED]	74000.0000	72000.0000

Radio	Modulation	Emission Designator	Bandwidth of Modulation	Maximum Power Out	Maximum EIRP/ERP
[REDACTED]	Continuous waveform	100HK0N	100 Hz	0.15 W	29.76 dBW/ 577.1 W
[REDACTED]	Digital	2G00G2D	2 GHz	0.15 W	29.76 dBW/ 577.1 W

Antenna Information

Antenna	[REDACTED]
Type	[REDACTED]
Quantity	[REDACTED]
Gain	24-38 dBi
Beam Width at Half-Power Point	1-4 degrees (AZ) / 7.5-40 degrees (EL)
Orientation in Horizontal Plane	<ul style="list-style-type: none"> • Location 1: 0 degrees (due North) • Location 2: 180 degrees (due South) • Location 3: 234 degrees (SW) • Location 4: 54 degrees (NE) • Location 5: 276 degrees-295 degrees (NW)
Orientation in Vertical Plane	<ul style="list-style-type: none"> • Location 1: -45 degrees from horizontal • Location 2: -45 degrees from horizontal • Location 3: +2 degrees from horizontal • Location 4: -2 degrees from horizontal • Location 5: <ul style="list-style-type: none"> ○ End point A :+2 degrees from horizontal ○ End point B: +2 degrees from horizontal

80 GHz Band Station Details*Radio Equipment*

Equipment	[REDACTED]
Number of Terminals	[REDACTED]
Locations	<ul style="list-style-type: none"> • Location 6: 37°24'51"N, 122°2'36"W • Location 7: 37°25'4"N, 122°2'41"W • Location 8: 37°25'33"N, 122°4'22"W • Location 9: 37°20'41"N, 122°12'56"W • Location 10: 37°25'33"N, 122°4'19"W

Frequency Range	High (MHz)	Low (MHz)
[REDACTED]	84000.0000	82000.0000

Radio	Modulation	Emission Designator	Bandwidth of Modulation	Maximum Power Out	Maximum EIRP/ERP
[REDACTED]	Continuous waveform	100HK0N	100 Hz	0.15 W	35.76 dBW/ 2297.5 W
[REDACTED]	Digital	2G00G2D	2 GHz	0.15 W	35.76 dBW/ 2297.5 W

Antenna Information

Antenna	[REDACTED]
Type	[REDACTED]
Quantity	[REDACTED]
Gain	44 dBi
Beam Width at Half-Power Point	0.9 degrees
Orientation in Horizontal Plane	<ul style="list-style-type: none"> • Location 6: 180 degrees (due South) • Location 7: 0 degrees (due North) • Location 8: 234 degrees (SW) • Location 9: 54 degrees (NE) • Location 10: 96 degrees-115 degrees (SE)
Orientation in Vertical Plane	<ul style="list-style-type: none"> • Location 6: +45 degrees from horizontal • Location 7: +45 degrees from horizontal • Location 8: +2 degrees from horizontal • Location 9: -2 degrees from horizontal • Location 10: -2 degrees from horizontal

2. Identification of the Commission proceeding in which the information was submitted or a description of the circumstances giving rise to the submission.

Exhibits A and B were submitted to the Commission in support of the STA Extension. The Exhibits were filed with the Office of Engineering and Technology on July 1, 2016. For additional information, please see File No. 0977-EX-ST-2016.

3. Explanation of the degree to which the information is commercial or financial or contains a trade secret or is privileged.

The information requested to be kept confidential has significant commercial value. The exhibits supporting the STA Extension discuss tests/experiments that include trade secret information. The Commission has clarified that confidential treatment should be afforded to trade secrets.⁸ Google's tests/experiments and proprietary wireless applications using particular radio frequency equipment represent a "secret commercially valuable plan" within the meaning of a trade secret as recognized by the Commission.

4. Explanation of the degree to which the information concerns a service that is competitive.

The services and technologies that are the subject of this STA Extension have not yet been fully developed but are expected to lead to material developments in markets subject to competition from multiple U.S. and non-U.S. third parties.

5. Explanation of how disclosure of the information could result in substantial competitive harm.

The technology under development is highly sensitive and confidential in nature. The release of such information would provide valuable insight into Google's technology innovations and potential business plans and strategies. Public disclosure would jeopardize the value of the technology under examination by enabling others to utilize Google's information to develop similar products in a similar time frame.

6. Identification of any measures taken by the requesting party to prevent unauthorized disclosure.

Google has taken steps to keep confidential the information set forth in the confidential exhibits by limiting the number of people involved in the tests/experiments to only those on a "need to know" basis, and by requiring any third parties involved in the testing process to execute robust nondisclosure agreements.

⁸ *Examination of Current Policy Concerning the Treatment of Confidential Information Submitted to the Commission*, Report and Order, GC Docket No. 96-55, at para. 3, (released Aug. 4, 1998) (defining "trade secrets" for purpose of Commission rules on confidential treatment).

7. Identification of whether the information is available to the public and the extent of any previous disclosures of the information to any third parties.

The information contained in the confidential exhibits is not available to the public, and will only be disclosed to third parties pursuant to the restrictive safeguards described above.

Google voluntarily provides the information to the Commission at this time with the expectation that it will be treated confidentially in accordance with the Commission's rules. See *Critical Mass Energy Project v. Nuclear Regulatory Comm'n*, 975 F.2d 871, 879 (D.C. Cir. 1992) (commercial information provided on a voluntary basis "is 'confidential' for the purpose of Freedom of Information Act (FOIA) Exemption 4 if it is of a kind that would customarily not be released to the public by the person from whom it was obtained").

8. Justification of the requested period of confidentiality.

Google expects that confidential treatment will be necessary for the length of the proposed experiment and thereafter in order to protect its evolving business and technology strategies.

9. Any other information that would be useful in assessing whether this request should be submitted.

The information subject to this request for confidentiality should not be made available for public disclosure at any time. There is nothing material that public review of this information would add to the Commission's analysis of Google's request for an experimental authorization.

Moreover, public disclosure of the sensitive information in the confidential exhibits to the STA Extension after the Commission has ruled on the Request for Confidentiality is not necessary for the Commission to fulfill its regulatory responsibilities.

Consistent with 47 C.F.R. § 0.459(d)(l), Google requests notification if release of the information subject to this request is requested pursuant to the FOIA or otherwise, so that Google may have an opportunity to oppose grant of any such request.

Sincerely yours,



Stephanie Selmer

EXHIBIT A – NARRATIVE STATEMENT

Consistent with the standards set forth in Section 5.61 of the Federal Communications Commission's (FCC's or Commission's) Rules, 47 C.F.R. § 5.61, Google Inc. (Google) outlines below its need for the requested extension of Special Temporary Authority (STA Extension) and the compelling reasons why it should be granted expeditiously.

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Grant of this STA Extension will not adversely impact any authorized user of RF spectrum for the reasons stated below.

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band. Furthermore, Google has registered its links with an authorized third-party database manager for this band.

Commercial millimeter wave band users (80 GHz band): Google's continued operations in the 80 GHz band will comply with the technical specifications set forth in Part 101 for commercial millimeter wave operations and Google believes no experimental authorization is necessary. Nevertheless, Google requests an extension of special temporary authority to continue conducting its test operations in the band to the extent that the Commission determines such experimental authority is necessary. The analysis set forth in Exhibit C to File No. 1203-EX-ST-2015 (Call Sign WJ9XHI) also confirms that no harmful interference is expected from Google's continued 80 GHz digital transmissions.⁶ Furthermore, Google has registered its links with an authorized third-party database manager for this band.

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EXHIBIT B - TECHNICAL INFORMATION

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Applicant FRN: 0016069502

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Contact Details	Associate Corporate Counsel 25 Massachusetts Avenue NW, Ninth Floor Washington DC 20001

Technical Contact Details

Name of Contact	Paul Husted
Contact Details	1600 Amphitheatre Parkway Mountain View, CA 94043 Phone: (408) 309-0026 Email: phusted@google.com

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