

Date: March 9, 2015
Subject: Public and Redacted Version of Request for Confidential Treatment and Complementary Exhibits
FCC File Number: 0265-EX-ST-2015
Call Sign: WH9XXD

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 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 the following information that has been redacted from the STA Extension and complementary exhibits. Google does not seek to withhold from public inspection information in the STA Extension 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 contains 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 0265-EX-ST-2015 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 demonstration and testing of [REDACTED] in a carefully controlled environment.

Consistent with 0814-EX-ST-2014 (Call Sign WH9XXD), testing will continue to be limited to [REDACTED]. [REDACTED] will continue to transmit at frequencies between 910 MHz and 927 MHz. [REDACTED] will continue to transmit at frequencies between 2400 MHz and 2414 MHz. Google will continue to test these radios in conjunction with equipment including [REDACTED]. Google does not anticipate [REDACTED].

The [REDACTED] radio covered by this STA Extension will continue to [REDACTED]. The [REDACTED] will continue to include [REDACTED]. [REDACTED]. The directional antenna on the [REDACTED] radio will have a maximum gain of 14.2 dBi. Beam width for this antenna is at most 32 degrees horizontal and 30 degrees vertical. [REDACTED].

The frequencies in the 900 MHz band will continue to be used for [REDACTED]. [REDACTED]. The 2.4 GHz radio will continue to be used for [REDACTED]. Because the 2.4 GHz radio will only be used [REDACTED].

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

Operations in the 2400 MHz Band: Google's 2.4 GHz equipment will continue to follow the FCC's Part 15 rules for unlicensed operation in the 2400-2483 MHz band in all aspects but one: the radio does not frequency hop as required by Section 15.247. Rather, the 2.4 GHz radio will continue to operate only on the spectrum between 2400-2414 MHz. There are no licensed operations in the State of New Mexico in these frequencies. Furthermore, any potential interference to unlicensed devices will continue to be mitigated by the following factors: (1) Google will operate only between 2400 MHz and 2414 MHz, and unlicensed devices that rely on the 2400 MHz band will have unaffected access to the spectrum between 2414 MHz and 2483.5 MHz; (2) As noted above, Google will continue to operate its 2.4 GHz radio equipment [REDACTED]; and (3) [REDACTED]. [REDACTED].

Operations in the 900 MHz Band: Similarly, operation of Google's 900 MHz equipment will not cause harmful interference to users in the frequencies between 910 MHz and 927 MHz. Google has conducted a search of licensees in this frequency range throughout New Mexico and concluded that neither licensed nor unlicensed operations will experience harmful interference as a result of Google's operation.

- **Multilateration and Location Monitoring Service (M-LMS)**
Licensees: There are twelve M-LMS licensees in this band in New

Mexico, but none is providing operational M-LMS service today.

Six of the licenses—Call Signs WPQQ238, WPQQ239, WPQQ240, WPQQ241, WPQQ242, and WPQQ243—are held by Progeny LMS, LLC (Progeny). On July, 17, 2014, Progeny filed a request for a waiver and extension of time with respect to the build-out requirements for these licenses. In this pending filing, Progeny requested that the FCC extend the buildout requirements for two of these licenses—WPQQ242 and WPQQ243—until 2017. For the remaining four licenses—Call Signs WPQQ238, WPQQ239, WPQQ240, and WPQQ241—Progeny asked that the build-out requirements be extended until 2019.

All of the remaining six M-LMS licenses—Call Signs WPTI217, WPTI220, WPTI221, WPTI222, WPTI223, and WPTI235—are controlled by Helen Wong-Armijo. On June 30, 2014, Ms. Wong-Armijo filed a request for a waiver of build-out deadlines, asserting that as of that date “no equipment was commercially available [for the M-LMS service] and no commercial service was being provided.”¹ On August 29, 2014, the FCC extended the mid-term construction deadline to September 4, 2016, and the end-of-term construction deadline to September 4, 2018, for the six M-LMS licenses controlled by Helen Wong-Armijo.²

Moreover, even if these M-LMS operations were active, only two of the twelve current licenses in the state—those that serve the Albuquerque Bureau of Economic Analysis Economic Area—are even remotely close to the test site. Therefore, because M-LMS operations are not active, and even if they were, they are not located in close proximity to Google’s operation, grant of the STA will not cause any interference to M-LMS licensees.

- **Other licensees in these frequencies:** There are also three fixed location narrowband, non-multilateration licenses within 100 miles of the center of the test site.³ Each of these operations is outside the test site and the closest, Call Sign WQTM386, is more than 22 miles from the northwest corner of the testing area. Given that Google will continue to operate its [REDACTED], there is no risk of harmful interference to operations located more than 20 miles away. At a distance of 20 miles from the [REDACTED] transmitter, the power level is only -107 dBW.

¹ See FCC Call Signs WPTI217, WPTI220, WPTI221, WPTI222, WPTI223, and WPTI235.

² See *In the Matter of Requests by FCR, Inc., Progeny LMS, LLC, PCS Partners, L.P. and Helen Wong-Armijo for Waiver and Limited Extension of Time Requests by Skybridge Spectrum Foundation and Telesaurus Holdings GB, LLC for Waiver and Limited Extension of Time*, Order, 29 FCC Rcd. 10361 (2014).

³ See FCC Call Signs KNNI518, WPMJ800, and WQTM386.

This power level is well below the maximum power authorized for unlicensed transmitters in this band.

- **Unlicensed operations in these frequencies:** Google's continued operation will not harmfully interfere with unlicensed devices in the 910-927 MHz band. First, unlicensed operations will be able to use the frequencies between 902-910 MHz and between 927-928 MHz without being affected by Google's operation. Second, although Google's use of a [REDACTED] results in an operation that exceeds the Commission's maximum allowed equivalent isotropically radiated power (EIRP) for unlicensed operations in the 902-928 MHz band,⁴ Google will continue to comply with the maximum transmit power limit contained in the Part 15 rules, and [REDACTED]. Third, as noted above, [REDACTED]. As a result, [REDACTED]. Finally, because unlicensed devices are designed to operate in the absence of protection from harmful interference, such devices are likely to be resilient in the event of any unexpected interference.
- **Federal operations:** Google understands that there may be some federal operations in the 900 MHz band in the vicinity of the test site.⁵ Google is prepared to coordinate with the National Telecommunications and Information Administration to avoid harmful interference to any federal operations, but has received no requests for coordination while operating under its existing grant of special temporary authority.

Finally, Google has already been conducting similar tests in this area under a grant of special temporary authority, and no disruptions have been noted.

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

⁴ See 47 C.F.R. § 15.247(b)(4).

⁵ See National Telecommunications and Information Administration, 902-928 MHz (Mar. 1, 2014), *available at* http://www.ntia.doc.gov/files/ntia/publications/compendium/0902.00-0928.00_01MAR14.pdf.

Legal Contact Details

Name of Contact	Aparna Sridhar
Contact Details	Counsel 25 Massachusetts Avenue NW Ninth Floor Washington DC 20001

Technical Contact Details

Name of Contact	Kin Seto
Contact Details	1600 Amphitheatre Parkway Mountain View, CA 94043 Phone: 505-750-3490 Email: kinseto@google.com

[REDACTED] Transmitter Equipment and Station Details

Equipment Manuf / PN	[REDACTED]
Number	[REDACTED]
Area of Operation	Operation will be confined to the area delimited by: <ul style="list-style-type: none"> ● 35:14:21 N 106:09:53 W ● 35:14:21 N 105:45:53 W ● 34:54:21 N 105:45:53 W ● 34:54:21 N 106:09:53 W

Frequency Range	High	Low
[REDACTED]	2414 MHz	2400 MHz

Radio	Modulation	Emission Designator	Bandwidth	Power Out	EIRP
[REDACTED]	Analog	14M0F3F	14 MHz	1 W	3 dBW

Antenna Details	
Type	[REDACTED]
Quantity	[REDACTED]
Gain	3 dBi
Beam Width at Half-Power Point	Approximately 30 degrees vertical, omnidirectional horizontal
Orientation in Horizontal Plane	0-360 degrees
Orientation in Vertical Plane	Peak gain is 20 degrees below the horizon

[REDACTED] Transmitter Equipment and Station Details

Equipment Manuf / PN	[REDACTED]
Number	[REDACTED]
Area of Operation	Operation will be confined to the area delimited by: <ul style="list-style-type: none"> ● 35:14:21 N 106:09:53 W ● 35:14:21 N 105:45:53 W ● 34:54:21 N 105:45:53 W ● 34:54:21 N 106:09:53 W

Frequency Range	High	Low
[REDACTED]	927 MHz	910 MHz

Radio	Modulation	Emission Designator	Bandwidth	Power Out	EIRP
[REDACTED]	Digital	280KF1D	280 kHz	1 W	14 dBW

Antenna Details	
Type	[REDACTED]
Quantity	[REDACTED]
Gain	14.2 dBi
Beam Width at Half-Power Point	30 degrees vertical 32 degrees horizontal
Orientation in Horizontal Plane	0-360 degrees
Orientation in Vertical Plane	5-90 degrees above the ground plane

Antenna Details	
Type	[REDACTED]
Quantity	[REDACTED]
Gain	2 dBi
Beam Width at Half-Power Point	75 degrees vertical 360 degrees horizontal
Orientation in Horizontal Plane	0-360 degrees
Orientation in Vertical Plane	Peak gain is parallel to the horizon

[REDACTED]

[REDACTED]

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

The above-referenced Exhibits were submitted to the Commission in support of the STA Extension. These Exhibits were filed with the Office of Engineering and Technology on March 9, 2015. For additional information, please see 0265-EX-ST-2015.

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 details of the STA Extension tests/experiments may include trade secret information. The Commission has clarified that confidential treatment should be afforded to trade secrets.⁶ 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.

In addition, agreements entered into between Google and the parties that provided equipment for testing or will provide analysis of test results require that confidential information of the parties be held in strict confidence, and that such information not be disclosed to any third party (with limited exceptions not applicable to this request). The manufacturer name and model number constitutes confidential trade secrets, technical information, and business information under the agreements.

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 *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).

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 will require any third parties involved in the analysis execute robust nondisclosure agreements.

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 has only been 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)(1), 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,



Aparna Sridhar

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 0265-EX-ST-2015 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 demonstration and testing of [REDACTED] in a carefully controlled environment.

Consistent with 0814-EX-ST-2014 (Call Sign WH9XXD), testing will continue to be limited to [REDACTED]. [REDACTED] will continue to transmit at frequencies between 910 MHz and 927 MHz. [REDACTED] will continue to transmit at frequencies between 2400 MHz and 2414 MHz. Google will continue to test these radios in conjunction with equipment including [REDACTED]. Google does not anticipate [REDACTED].

The [REDACTED] radio covered by this STA Extension will continue to [REDACTED]. The [REDACTED] will continue to include [REDACTED]. [REDACTED]. The directional antenna on the [REDACTED] radio will have a maximum gain of 14.2 dBi. Beam width for this antenna is at most 32 degrees horizontal and 30 degrees vertical. [REDACTED].

The frequencies in the 900 MHz band will continue to be used for [REDACTED]. [REDACTED]. The 2.4 GHz radio will continue to be used for [REDACTED]. Because the 2.4 GHz radio will only be used [REDACTED].

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

Operations in the 2400 MHz Band: Google's 2.4 GHz equipment will continue to follow the FCC's Part 15 rules for unlicensed operation in the 2400-2483 MHz band in all aspects but one: the radio does not frequency hop as required by Section 15.247. Rather, the 2.4 GHz radio will continue to operate only on the spectrum between 2400-2414 MHz. There are no licensed operations in the State of New Mexico in these frequencies. Furthermore, any potential interference to unlicensed devices will continue to be mitigated by the following factors: (1) Google will operate only between 2400 MHz and 2414 MHz, and unlicensed devices that rely on the 2400 MHz band will have unaffected access to the spectrum between 2414 MHz and 2483.5 MHz; (2) As noted above, Google will continue to operate its 2.4 GHz radio equipment [REDACTED]; and (3) [REDACTED]. [REDACTED].

Operations in the 900 MHz Band: Similarly, operation of Google's 900 MHz equipment will not cause harmful interference to users in the frequencies between 910 MHz and 927 MHz. Google has conducted a search of licensees in this frequency range

throughout New Mexico and concluded that neither licensed nor unlicensed operations will experience harmful interference as a result of Google's operation.

- **Multilateration and Location Monitoring Service (M-LMS) Licensees:** There are twelve M-LMS licensees in this band in New Mexico, but none is providing operational M-LMS service today.

Six of the licenses—Call Signs WPQQ238, WPQQ239, WPQQ240, WPQQ241, WPQQ242, and WPQQ243—are held by Progeny LMS, LLC (Progeny). On July, 17, 2014, Progeny filed a request for a waiver and extension of time with respect to the build-out requirements for these licenses. In this pending filing, Progeny requested that the FCC extend the buildout requirements for two of these licenses—WPQQ242 and WPQQ243—until 2017. For the remaining four licenses—Call Signs WPQQ238, WPQQ239, WPQQ240, and WPQQ241—Progeny asked that the build-out requirements be extended until 2019.

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Moreover, even if these M-LMS operations were active, only two of the twelve current licenses in the state—those that serve the Albuquerque Bureau of Economic Analysis Economic Area—are even remotely close to the test site. Therefore, because M-LMS operations are not active, and even if they were, they are not located in close proximity to Google's operation, grant of the STA will not cause any interference to M-LMS licensees.

- **Other licensees in these frequencies:** There are also three fixed location narrowband, non-multilateration licenses within 100 miles of the center of the test site.³ Each of these operations is outside the test site and the closest, Call Sign WQTM386, is more than 22 miles from the northwest corner of the testing area. Given that Google will continue to operate its [REDACTED], there is no risk of harmful interference to operations located more than 20 miles away. At a distance of 20 miles from the

¹ See FCC Call Signs WPTI217, WPTI220, WPTI221, WPTI222, WPTI223, and WPTI235.

² See *In the Matter of Requests by FCR, Inc., Progeny LMS, LLC, PCS Partners, L.P. and Helen Wong-Armijo for Waiver and Limited Extension of Time Requests by Skybridge Spectrum Foundation and Telesaurus Holdings GB, LLC for Waiver and Limited Extension of Time*, Order, 29 FCC Rcd. 10361 (2014).

³ See FCC Call Signs KNNI518, WPMJ800, and WQTM386.

[REDACTED] transmitter, the power level is only -107 dBW. This power level is well below the maximum power authorized for unlicensed transmitters in this band.

- **Unlicensed operations in these frequencies:** Google's continued operation will not harmfully interfere with unlicensed devices in the 910-927 MHz band. First, unlicensed operations will be able to use the frequencies between 902-910 MHz and between 927-928 MHz without being affected by Google's operation. Second, although Google's use of a [REDACTED] results in an operation that exceeds the Commission's maximum allowed equivalent isotropically radiated power (EIRP) for unlicensed operations in the 902-928 MHz band,⁴ Google will continue to comply with the maximum transmit power limit contained in the Part 15 rules, and [REDACTED]. Third, as noted above, [REDACTED]. As a result, [REDACTED]. Finally, because unlicensed devices are designed to operate in the absence of protection from harmful interference, such devices are likely to be resilient in the event of any unexpected interference.
- **Federal operations:** Google understands that there may be some federal operations in the 900 MHz band in the vicinity of the test site.⁵ Google is prepared to coordinate with the National Telecommunications and Information Administration to avoid harmful interference to any federal operations, but has received no requests for coordination while operating under its existing grant of special temporary authority.

Finally, Google has already been conducting similar tests in this area under a grant of special temporary authority, and no disruptions have been noted.

⁴ See 47 C.F.R. § 15.247(b)(4).

⁵ See National Telecommunications and Information Administration, 902-928 MHz (Mar. 1, 2014), *available at* http://www.ntia.doc.gov/files/ntia/publications/compendium/0902.00-0928.00_01MAR14.pdf.

EXHIBIT B - TECHNICAL INFORMATION

Applicant Name: Google Inc.
Applicant FRN: 0016069502

Legal Contact Details

Name of Contact	Aparna Sridhar
Contact Details	Counsel 25 Massachusetts Avenue NW Ninth Floor Washington DC 20001

Technical Contact Details

Name of Contact	Kin Seto
Contact Details	1600 Amphitheatre Parkway Mountain View, CA 94043 Phone: 505-750-3490 Email: kinseto@google.com

[REDACTED] Transmitter Equipment and Station Details

Equipment Manuf / PN	[REDACTED]
Number	[REDACTED]
Area of Operation	Operation will be confined to the area delimited by: <ul style="list-style-type: none"> • 35:14:21 N 106:09:53 W • 35:14:21 N 105:45:53 W • 34:54:21 N 105:45:53 W • 34:54:21 N 106:09:53 W

Frequency Range	High	Low
[REDACTED]	2414 MHz	2400 MHz

Radio	Modulation	Emission Designator	Bandwidth	Power Out	EIRP
[REDACTED]	Analog	14M0F3F	14 MHz	1 W	3 dBW

Antenna Details	
Type	[REDACTED]
Quantity	[REDACTED]
Gain	3 dBi
Beam Width at Half-Power Point	Approximately 30 degrees vertical, omnidirectional horizontal
Orientation in Horizontal Plane	0-360 degrees
Orientation in Vertical Plane	Peak gain is 20 degrees below the horizon

[REDACTED] Transmitter Equipment and Station Details

Equipment Manuf / PN	[REDACTED]
Number	[REDACTED]
Area of Operation	Operation will be confined to the area delimited by: <ul style="list-style-type: none"> ● 35:14:21 N 106:09:53 W ● 35:14:21 N 105:45:53 W ● 34:54:21 N 105:45:53 W ● 34:54:21 N 106:09:53 W

Frequency Range	High	Low
[REDACTED]	927 MHz	910 MHz

Radio	Modulation	Emission Designator	Bandwidth	Power Out	EIRP
[REDACTED]	Digital	280KF1D	280 kHz	1 W	14 dBW

Antenna Details	
Type	[REDACTED]
Quantity	[REDACTED]
Gain	14.2 dBi
Beam Width at Half-Power Point	30 degrees vertical 32 degrees horizontal
Orientation in Horizontal Plane	0-360 degrees
Orientation in Vertical Plane	5-90 degrees above the ground plane

Antenna Details	
Type	[REDACTED]
Quantity	[REDACTED]
Gain	2 dBi
Beam Width at Half-Power Point	75 degrees vertical 360 degrees horizontal
Orientation in Horizontal Plane	0-360 degrees
Orientation in Vertical Plane	Peak gain is parallel to the horizon

[REDACTED]

[REDACTED]