CITY OF NEWTON

IN BOARD OF ALDERMEN

PUBLIC FACILITIES COMMITTEE REPORT

WEDNESDAY, SEPTEMBER 21, 2011

Present: Ald. Schnipper (Chairman), Lennon, Albright, Salvucci, Gentile, Crossley, and Danberg
Absent: Ald. Lappin
Also present: Lou Taverna (City Engineer), Ouida Young (Associate City Solicitor), Julie Ross (Assistant City Solicitor), Arthur Cabral (Budget and Projects Specialist; Public Buildings Department), and Maciej Konieczny (Project Manager, Public Buildings Department)

Public Hearing
#257-11 NSTAR ELECTRIC petitioning for a grant of location to install 37' ± of conduit in PINE STREET at Pole 354/3 opposite Evergreen Circle in a southeasterly direction. (Ward 4) [08/22/11 @ 11:22 AM]
ACTION: APPROVED 6-0 (Gentile not voting)

NOTE: Maureen Carroll, NStar Permit Representative, presented the petition for a grant of location for 37' of conduit in Pine Street to provide electrical service to new residences located on Evergreen Circle, which is a private way. The Department of Public Works has reviewed the petition and recommended approval. The public hearing was opened and no one spoke for or against the petition. Ald. Crossley moved approval of the petition, which carried unanimously.

Public Hearing
#258-11 NATIONAL GRID petitioning for a grant of location to install and maintain 95' ± of 6" gas main in WITHINGTON ROAD from the existing 6" gas main at #122 Withington Road southerly to #137 Withington Road for new gas service. (Ward 2) 07/31/11 @ 12:50 PM]
ACTION: APPROVED 7-0

NOTE: Dennis Regan, National Grid Permit Representative, presented the petition for installation and maintenance of gas main in a portion of Withington Road for a new gas service. Residents on Withington Road that are not serviced by gas were notified that National Grid is extending the gas main, which provided an opportunity to get gas service. None of the residents notified wished to convert to gas service. The Department of Public Works reviewed the petition and recommended approval with standard conditions. Ald. Salvucci asked if there was ever any consideration given to extending the gas main to the end of the street. Mr. Regan explained that he is not involved in the decision on how far to extend a main. However, the person at 137 Withington Road is paying for the main extension and probably would not be willing to pay for an extension to the end of the street. With that, Ald. Salvucci moved approval which carried by a vote of seven in favor and none opposed.

Public Hearing

#259-11 NextG NETWORKS OF NY, INC. petitioning for a grant of location to install 295' + of underground conduit in SUMNER STREET on the easterly side approximately 58' from Alden Street in a southerly direction to the intersection of Rice Street and attach aerial fiber and related equipment to existing utility poles at the following locations:

Aerial Locations

Centre Street - 2,140' of aerial fiber attachment to exiting poles
Alden Street - 485' of aerial fiber attachment to existing poles
Sumner Street - 2,460' of aerial fiber attachment to existing poles
Ward Street - 1,050' of aerial fiber attachment to existing poles
Westbourne Road – 790' of aerial fiber attachment to existing poles
Everett Street 935' of aerial fiber attachment to existing poles
Dalton Road – 435' of aerial fiber attachment to existing poles
Grant Avenue – 530' of aerial fiber attachment to existing poles
Beacon Street – 1,925' of aerial fiber attachment to existing poles
Langley Road – 530' of aerial fiber attachment to existing poles
Braeland Avenue - 1.095' of aerial fiber attachment to existing poles
Cypress Street – 410' of aerial fiber attachment to existing poles
[07/28/11 @ 3:36 PM]

ACTION: PUBLIC HEARING CONTINUED

NOTE: Peter Heimdahl, Pioir Szczepanik, and Tony Adams of NextG Networks of New York, Inc., presented the petition for a grant of location to the Committee. The attached Local Official's Guide; Responding to a Telecommunications Application from NextG Networks; Massachusetts provided by NextG Networks, Inc. offers further information on the petition and federal and state law related to telecommunication company rights. The petition seeks approval for 295' of underground conduit and overhead fiber attachment to 136 utility poles. The overhead component of the petition includes five antennae and five equipment box locations on five existing utility poles. The pole attachments are located throughout the Newton Centre area and continue down Ward Street turning onto Beacon Street as well as from Alden Street to Centre Street to the Mill Street intersection. The attached list provides the address of each starting and ending pole on each street that is part of the petition.

The 295' of underground conduit is required because there are no utility poles in the area of Sumner Street and Commonwealth Avenue. Therefore, NextG Networks, Inc. must go underground to continue their service to the next utility pole. NextG Networks, Inc. will install a quad pipe, which provides four conduits. One of the conduits will be used by the company, one will be dedicated for City use, and there will be two extra conduits for future use. The Department of Public Works has reviewed the plan for the installation of underground conduit and has signed off on it with the standard restoration conditions. There was a question regarding whether it would be appropriate to place all of the fiber optic cable underground. Mr. Heimdahl stated that NextG Networks, Inc. prefers to use existing above ground infrastructure and only undergrounds the cable if municipal ordinances require it. The Committee requested that Mr. Heimdahl provide examples of undergrounding ordinances from other municipalities.

Mr. Heimdahl provided the Committee with an overview of NextG Networks, Inc. and NextG Networks of New York, Inc. NextG Networks was established in California in 2001 and expanded to the east coast in 2007, as NextG Networks of New York, Inc. The company operates in 35 states. The company is regulated as a telecommunications carrier and is considered a competitor of Verizon, Inc. NextG Networks of New York, Inc. has filed with the Massachusetts Department of Telecommunications and Cable as required by the State of Massachusetts. Part of the filing includes an analysis of NextG Networks of New York, Inc. financial strength and ability to operate.

NextG Networks, Inc. provides enhanced wireless infrastructure to wireless service providers by operating a Distributed Antenna System (DAS) network. The company designs, builds and operates the DAS and sells the rights to use the system to end wireless providers. Essentially, NextG enters into an agreement with a wireless carrier to infill any coverage gaps and dead spots in their macro networks. NextG customers are looking to enhance their wireless network, bolster their coverage, and/or boost their capacity as a result of strain on their infrastructure related to increased demand in an area. NextG's equipment does not supplant the need for other carriers' equipment but supplements that equipment. NextG is also willing to discuss monetary restitution for the use of the public right of way.

The company could not provide a five-year plan for Newton, as they only approach a community when they have a customer(s) looking to enhance service in a specific area. It is not possible for the company to predict what their customers will need.

NextG has 412 equipment locations in the Greater Boston area including Boston, Brookline, Everett, Lynn, and Malden and looks to operate in the public right of way and to locate its equipment on existing infrastructure. It has different types of agreements with each of the municipalities. NextG does not begin petitioning a municipality until it has an agreement with a wireless provider to supplement their service. The equipment locations are determined by the needs of NextG Network, Inc. customer.

Equipment for a Distributed Antenna System (DAS) network is designed to be non-intrusive to residents. The antennae, which are usually located at the top of pole, weigh approximately 12 pounds and are about 4' tall. The equipment boxes are located halfway up the pole and are 48" long by 14" wide by 9" deep. The five utility poles chosen to hold the equipment and antenna are structurally sound, as stated in the attached structural analysis data. The Committee requested that the structural analysis data be provided in layperson's language.

NextG Networks, Inc. originally believed that all five poles were jointly owned by NStar and Verizon and entered into agreements with Verizon and/or NStar to allow attachment to their poles. However, there is a question regarding ownership of the poles. It appears that at least the pole located at 920 Centre Street is owned by the City. NextG Networks, Inc. has begun discussion with the City's Law Department regarding a license agreement for use of the pole.

NextG Networks, Inc. prefers to attach their equipment to municipal owned poles, as there is generally less equipment on those poles. The Committee asked if there had been any consideration to replacing the five utility poles with hollow metal poles. Mr. Heimdahl responded that the company would look at the possibility if there operations in the City were to expand to include more utility poles.

There is a small amount of ambient noise associated with the equipment boxes. The noise is a result of the cooling fans located in the cabinet to keep equipment cool. If there is a noise complaint, NextG works to resolve the issue. The equipment including the antennae complies with all safety requirements. The equipment cannot interfere with any existing equipment, such as the water meter transponders. Some committee members pointed out that the Board of Aldermen receives independent analysis of frequency levels related to antenna when dealing with petitions for special permits for wireless antenna. Mr. Heimdahl provided the Committee with a study commissioned by NextG regarding the safety of the radio frequency emissions from NextG's equipment and antennae. As NextG Networks, Inc. is not an end-user wireless provider, it is not generating a frequency but is carrying the frequency of the wireless provider.

There remains a question of whether the antennae fall under the City's ordinance regulating wireless equipment, which would trigger the special permit process. Associate City Solicitor Ouida Young has been in discussions with Mr. Heimdahl regarding the ordinance requirements. Mr. Heimdahl stated that although NextG Networks is not considered a wireless communications provider, NextG Network, Inc. would consider participating in an expedited permit process. There needs to be further discussion between the City and NextG Networks, Inc. regarding the ordinance.

The public hearing was opened and the attached list of residents spoke on the petition. The attached information was submitted by Limor and Steve Grabow at the public hearing. Those opposed raised concerns regarding the effects of radio antenna emissions on the public's health. Many people felt that it was inappropriate to locate any kind of wireless equipment antenna in a residential area. There were also concerns that additional radio frequency emissions could create interference with pacemakers. The Chair stated that the Committee would raise the question with the Health Commissioner.

Mr. Heimdahl explained that federal and state law prohibits the City from denying NextG Networks, Inc. the same rights to provide service as other telecommunication companies. The City is permitted to condition the grant of location in terms of construction and occupation of the streets and should it be determined that the antennae require a special permit further conditions can be imposed. The City's Law Department is investigating what rights the City has in terms of this petition. The Committee will do all it can to meet the concerns of the residents.

A few residents inquired if NextG Networks was willing to provide some mitigation to the community, such as installing trees. The attached email is a request from a resident for this type of mitigation. Mr. Heimdahl will investigate the possibility of this type of mitigation.

Several residents pointed out that man of the utility poles within the City are overburdened with equipment creating a hazard. In addition, it appears that NextG Networks, Inc. intends to locate equipment on a double pole. Mr. Heimdahl explained that NextG Networks, Inc. could not locate its equipment on a double pole and would require the removal of the double pole before attaching equipment. NextG Networks, Inc. works with the utility to get the double pole removed. Residents also stated that there are already a number of antennae and equipment attached to poles throughout Newton neighborhoods. Residents provided locations for two such poles; one located between 4 and 6 Sumner Street and one at the corner of Alderwood Road and Centre Street. The equipment and antenna on the City-owned pole located at Alderwood Road is associated with the City's new water meter reader system. The equipment located on the Sumner Street pole will require further information to determine who owns the equipment and whether it is legally located.

The discussion was brought back into Committee. The Chair stated that the public hearing would remain open for further comment. Ald. Gentile encouraged Mr. Heimdahl to supply the Committee and residents with specific information on emissions. The questions that are related to public health should be answered. Ald. Gentile requested a comparison between the emissions from the NextG Networks, Inc. antenna and standard cellular antenna and cell towers. With that, the Committee held the item and the public hearing remained open. It is expected that the Committee will continue the public hearing on October 19, 2011.

REFERRED TO PUB. SAF. & TRANS. AND PUBLIC FACILITIES COMMITTEES

#255-11 ALD. BAKER, GENTILE, SCHNIPPER, CICCONE, FULLER, SHAPIRO requesting discussion of preparation for, response during, and follow up after, Tropical Storm Irene by the City of Newton, including co-ordination by the Mayor's office and the various City Departments involved. [08/29/11 @ 2:09 PM]

ACTION: HELD 7-0

NOTE: Due to the length of the public hearing for Docket Item #259-11, the Committee held the item for a joint meeting with the Public Safety and Transportation Committee tentatively scheduled for October 5, 2011.

REFERRED TO PUB. SAF. & TRANS. AND PUBLIC FACILITIES COMMITTEES

#256-11 ALD. SHAPIRO, CICCONE, BAKER requesting a discussion how the City uses information systems as well as people to collect and process information from residents impacted by a storm or other emergency event, and ways to establish or improve the manner in which triage is performed and prioritized to increase public safety with the appropriate response. [08/29/11 @ 9:25 PM]

ACTION: HELD 7-0

NOTE: Due to the length of the public hearing for Docket Item #259-11, the Committee held the item for a joint meeting with the Public Safety and Transportation Committee tentatively scheduled for October 5, 2011.

REFERRED TO PUBLIC FACILITIES & FINANCE COMMITTEES

#38-10(3) HIS HONOR THE MAYOR requesting authorization to transfer the sum of one hundred four thousand eight hundred twenty six dollars ($104,826) from the Energy Improvement Capital Stabilization Fund to provide additional funding for costs associated with building envelope improvements at the Newton Lower Falls Community Center. [08/01/11 @ 2:23 PM]

ACTION: APPROVED 6-0 (Gentile not voting)

NOTE: Budget and Projects Specialist Arthur Cabral and Project Manager Maciej Konieczny explained that this is a request for additional funds to complete the Lower Falls Community Center renovation. The renovation was designed to take place in three phases. The City is currently at Phase III and needs additional funds. The requested funds will be used to complete building envelope improvements related to insulation.

The City originally received $500,000 in funding from the State and a grant of $179,500 from the Green Community Program to perform a renovation of the Newton Lower Falls Community Center. The renovations include several improvements to energy efficiency within the building such as a new roof, the installation of energy efficient windows, a new HVAC system, and insulation of the building envelope. With the addition of this money, the project will be completed and the entire building will be energy efficient. It was important to the community that the renovations include “green” elements. A number of citizens have become deeply involved in the project, particularly Jonathan Kantar and Ben Tucker, contributing to the projected by donating their time and expertise to ensure that the project is as energy efficient as possible. The Design Review Committee especially members Ellen Light and Peter Barrer provided their insight. The project has been to the Design Review Committee three times to ensure that the details are coordinated with the drawings.

Ald. Crossley met with the Comptroller to identify funds that could possibly be identified for Phase III of the project. Money was located in a capital stabilization sub-fund for energy conservation projects. The monies contained in the sub fund are from energy conservation rebates received by the City related to completed capital projects. The money in the sub fund is to be used to fund future energy conservation appropriations. Therefore, as the needed funds are directly related to energy conservation, Ald. Crossley requested that the Mayor submit the above docket request.

Ald. Albright moved approval of the item, which carried unanimously.

#385-07 ALD. SCHNIPPER AND GENTILE updating the Public Facilities Committee on the progress of the Newton North High School Project. [11/21/07 @ 10:23 AM]

ACTION: HELD 6-0 (Gentile not voting)

NOTE: Ald. Schnipper informed the Committee that there is a plan in place to repair the drainage issue with the soccer field. It appears that the problem is related to the compaction of the sub-field. It is compacted to tightly, which impeded the sods’ root growth. Equipment will be used to break up the sub-field and sand will be added to create a looser compaction to allow root growth. The solution is not expected to be permanent but may last a number of years. It is not an uncommon problem at golf courses that sod areas of the course.

Due to the issue with the sod field, a decision has been reached to seed the back fields. The result of seeding instead of sodding is an extra season of bussing student athletes. The use of seed is better over the long-term life of the fields. The use of seed will generate approximately $300,000 in savings.

The School Department has hired a Facilities Manager to handle the mechanical systems at the schools. The person has received rave review from Josh Morse, the City's Facilities and Operations Supervisor. The Aldermen will have an opportunity to meet the Facilities Manager in the near future.

Respectfully submitted,

Sydra Schnipper, Chairman

A Local Official's Guide:

RESPONDING TO A TELECOMMUNICATIONS APPLICATION FROM NEXTG NETWORKS

Massachusetts

NextG Networks has submitted to you an application under the federal Communications Act for access to the public rights of way to construct facilities necessary to provide telecommunications services. In order to assist you in analyzing and responding to NextG's application, NextG sets forth below answers to common questions raised by local officials upon receipt of such an application.

Q. Who is NextG Networks?

A. NextG Networks is a wireline telecommunications company that provides managed RF transport and backhaul services to wireless communications service providers, including mobile network operators and public wLAN service providers. NextG's innovative and cost-effective RF-over-Fiber ("RFoF") transport solution enables wireless service providers to expand their coverage and/or capacity throughout metropolitan regions and in dense urban and isolated suburban areas. Founded in 2001, NextG Networks is headquartered in San José, California, and operates regional subsidiaries throughout the United States.

Q. What kind of service does NextG provide?

A. NextG provides Telecommunications Services. Specifically, it carries voice and data traffic handed off to it by wireless providers (such as cellular and PCS) via its fiber optic lines from antennae located on utility and/or streetlight poles to a central switching-like location, and from there, either back to another antenna or out to the public switched telephone network or Internet.

Q. What is NextG asking of the Municipality?

A. NextG is applying for the right to construct, operate, manage, and maintain a telecommunications network in the public ways of the Municipality in compliance with the Municipality's ordinances and permitting requirements in order to serve its wireless customers, which will in turn improve wireless coverage and capacity in the Municipality. To that end NextG asks specifically for the following:

- the right to enter into the public way to provide telecommunications services under grant of location as provided in Mass. G.L. c. 166 § 25A;
- the right to utilize Municipality-owned streetlight poles and traffic signal poles for an agreed annual fee for the collocation of NextG's facilities;
- the right to utilize third-party-owned property (utility poles) in the public way for deployment of NextG's network;
- the right to utilize any available Municipality-owned fiber for an agreed annual fee for the collocation of NextG's facilities; and

- the right to utilize any available Municipality-owned conduit for an agreed annual fee for the collocation of NextG's facilities.

Q. How long do I have to respond to NextG's application?

A. Under federal law, local authorities must act on NextG's application, in writing, expeditiously. Unreasonable delay or a failure to act expeditiously has been held to constitute an unlawful barrier to entry under the Communications Act.

Q. What information can I require from NextG?

A. Local authorities may only request information directly related to NextG's physical construction in and occupation of the public rights of way. Local authorities are prohibited from inquiring into the "legal, technical, or financial" qualifications of NextG or other matters unnecessary for the local authority's ability to oversee NextG's construction and manage the public rights of way.

Q. Am I permitted to impose restrictions on NextG's use of the public rights of way?

A. Local authorities are permitted only to "manage" NextG's construction and physical occupation of the public rights of way. This has been held to include matters such as requiring insurance or bonds and imposing standard construction permitting and safety regulations. This authority has also been described as extending to the "time and manner" of construction.

Q. Can the Municipality regulate NextG's activities as a telecommunications provider in the public rights-of-way?

A. No. Section 253 of the Communications Act prohibits local authorities from regulating the provision of telecommunications services.

Q. Am I required to treat NextG in the same way as the Municipality treats the incumbent local telephone company?

A. Yes. Local authorities must treat competitive providers, like NextG, in a competitively-neutral and non-discriminatory manner. As a result, local authorities cannot impose on NextG requirements or fees that are not imposed on the incumbent local exchange carrier (ILEC).

Q. Since NextG operates as a neutral-host provider, who will own the equipment utilized in NextG's network and what impact does it have on NextG's rights?

A. NextG will own the fiber by means of which it provides RF Transport Services in all cases. The optical repeaters and antennae may be owned by either NextG or its carrier customers; however, in all cases the optical repeaters and antennae will be incorporated into the NextG network, even if title remains with the customer. Because NextG will construct, maintain or operate all equipment incorporated into its network, including the optical repeaters and antennae, those facilities are part of NextG's network and accorded the same rights as the rest of NextG's network facilities. Such equipment will constitute a part of NextG's network and may also remain part of the customer's larger wireless network in an "overlapping circles" architecture. In all cases, permit applications will be submitted either solely by NextG or jointly with its customer, and NextG will be responsible to the Municipality under the applicable permit in all cases.

Q. What are the consequences for the Municipality if it fails to respond to NextG's application or restricts its right to provide its services?

A. Local authorities may be liable to NextG for damages under federal law if they exceed their limited authority under law, unreasonably delay their response, or interfere with NextG's right to provide telecommunications services.

Q. Has NextG been certified by the State to provide telecommunications services?

A. Yes, NextG is a registered telecommunications service provider in the Commonwealth of Massachusetts.

Q. Is NextG a wireless provider?

A. No. NextG is not licensed to provide wireless services and does not control any wireless spectrum. NextG is a "carrier's carrier" whose customers are wireless providers.

Q. What facilities does NextG need to install to provide service in our community?

A. NextG provides its service with a combination of fiber optic lines connected to small wireless antennae, optical repeaters, and associated equipment. Thus, it must generally install a certain amount of fiber optic cable, either underground or on existing utility poles. In addition, it must install small wireless antennae and associated equipment on utility poles and/or streetlight poles, typically located in the public rights of way. When possible and appropriate, NextG may lease capacity on existing fiber optic facilities owned by the Municipality or other providers, thus diminishing the physical impact of NextG's installation.

Q. Will NextG use existing utility poles?

A. NextG will generally seek to collocate its facilities on existing utility or streetlight poles, typically located in the public rights of way. To the extent that it will be using privately-owned utility poles, NextG has entered into (or is in the process of entering into) any necessary pole attachment agreement. The federal Pole Attachment Act and Massachusetts Statute govern the rates, terms, and conditions that private utility pole owners may impose on NextG's access to such poles, and require those utility companies to provide NextG access to their poles.

Q. Will NextG need to install any new poles of its own?

A. Generally, no; however, if there is no available infrastructure, or if the Municipality does not wish to allow NextG to attach to its streetlight or traffic poles, NextG may need to install its own utility poles. In such cases, NextG will comply with all lawful local regulations governing such installations.

Q. <u>What are the benefits from NextG's entry into our community?</u>

A. First, NextG's facilities and services are not burdensome or intrusive. NextG's service uses fiber optics and small, unobtrusive antennae located on existing utility and/or streetlight poles.

Second, NextG's service allows the wireless carriers to expand the coverage of wireless services, with less intrusive facilities. Traditional wireless technologies have suffered from "dead spots" and bandwidth capacity limitations. NextG's combination of fiber optics and lower antennae helps wireless providers eliminate dead spots and increase bandwidth needed for emerging and future services.

Third, NextG introduces competition that will help provide more service choices and more competitive prices for consumers.

Fourth, NextG network operations will provide revenue to the Municipality if NextG is permitted to utilize municipal poles, fiber, and/or conduit.

Q. <u>What are NextG's rights under Federal law?</u>

A. Section 253 of the Communications Act grants NextG the right to provide telecommunications services and prohibits municipalities from imposing requirements that prevent NextG from providing telecommunications services or that "have the effect of prohibiting" NextG from providing telecommunications services. Recent court decisions applying § 253 have held that any municipal requirement that "materially inhibits" NextG's ability to compete is preëmpted. This includes imposing on NextG requirements such as fees or franchises that are not imposed on the incumbent telephone company. Ultimately, municipalities may not exercise discretion over whether NextG can access the public rights of way and provide service.

Section 253 reserves for municipalities only the authority to "manage" NextG's physical occupation of the public rights of way (*i.e.*, construction permitting and safety issues). NextG complies with all applicable and lawful local permitting requirements concerning construction in the public rights of way.

Q. Do Massachusetts' laws address NextG's facilities and services?

A. Yes, under Massachusetts law, NextG is entitled to install its telecommunications facilities in the public rights-of-way subject only to a municipality requiring NextG to obtain a "grant of location." Mass. Gen. Laws ch. 166, § 22.

Q. <u>Are harmful radio-frequency emissions an issue with the equipment related to NextG's service?</u>

A. No. The wireless antennae associated with NextG's service produce RF radiation at levels well below the FCC's permitted maximums for general-population, uncontrolled exposures, which are themselves conservatively low. Indeed, the facilities associated with NextG's services are "categorically excluded" from the FCC's requirement for routine environmental compliance testing for RF exposure.

Street	***Starting Pole***	***Starting Address***	***Ending Pole***	***Ending Address***	***Footage***
Centre St	P.73/39	920 Centre St.	P.73/54	1035 Centre St.	1,740'
Alden St	P.10/4	18 Alden St.	P.10/1	2 Alden St.	485'
Sumner St.	P.413/1	7 Sumner St.	P.413/28	211 Sumner St.	2,755'*
Langley Rd.	P.229	765 Beacon St.	P.229/12	85 Langley Rd.	530'
Braeland Ave.	P.141/9	24 Braeland Ave.	P.141/1	74 Braeland Ave.	1,095'
Cypress St.	P.1330/5	37 Cypress St.	P.1330/1	1294 Centre St.	410'
Centre St.	P.73/80	1294 Centre St.	P.73/84-1	1330 Centre St.	400'
Everett St.	P.181/1	57 Everett St.	P.181/8	1 Everett St.	935'
Dalton Rd.	P.177/5	83 Dalton Rd.	P.177/2	62 Dalton Rd.	435'
Grant Ave.	P.179/27	1 Everett St.	P.179/32	351 Grant Ave.	530'
Beacon St.	P.31/57	686 Beacon St.	P.125/30	550 Beacon St.	1,925'
Ward St.	P.186/14	436 Ward St.	P.186/24	362 Ward St.	1,050'
Westbourne Rd.	P.459/1	7 Westbourne Rd.	P.180/1	155 Eastbourne Rd.	790'

*** Includes 295' of underground construction**

#259-11

Joint Use Attachment Report

Pole Number:	180-1
Address:	155 Eastbourne Rd
City, State	Newton, MA
Pole Height:	35
Pole Class	3
Pole Condition	Good

UC SYNERGETIC

Transverse Storm Loading

Existing Attachments

Attachment Type	Diameter	Quantity	Coefficient	HOA	2' From Top	Span or Area	Transverse or Wind Lbs.
Electrical Primaries	N/A		0.55		27		0.00
Crossarms	N/A		37		27		0.00
Misc. Electrical Equipment	N/A		37		27		0.00
Transformers	N/A		37		27		0.00
Street Lamps	N/A	1	37	24.67	27	3	101.42
Electrical Secondaries	N/A	2	1.19	25.75	27	92	208.82
Electrical Drops	N/A		1.19		27		0.00
Fire Alarm	N/A		0.65		27		0.00
CATV	1	2	0.65	21.17	27	92	93.78
CATV	1	2	0.65	21.42	27	92	94.88
CATV	1	2	0.65	19.58	27	92	86.73
Telephone Cable	1	2	0.65	18.83	27	92	83.41
Telephone Cable			0		27		0.00
Telephone Cable			0		27		0.00
Telephone Cable			0		27		0.00
Telephone Cable			0		27		0.00
SPL - Terms - Boxes	N/A	1	37	16.92	27	1	23.19
CATV Drops	N/A	3	0.52	20.5	27	43	50.93
Telephone Drops	N/A	1	0.44	18.42	27	43	12.91
Strands	N/A		0.46		27		0.00
Verizon Hub	N/A		37		27		0.00
Conduits / Risers	N/A	1	37	6	27	1	8.22
Pole	N/A	N/A	N/A	N/A	N/A	N/A	48.00

Proposed Attachments

Attachment Type	Diameter	Quantity	Coefficient	HOA	2' From Top	Span or Area	Transverse or Wind Lbs.
Cabinet and Conduit		1	37	15	27	19	390.56
Antenna		1	37	32	27	3	131.56
Fiber Cable		1	0.7	29	27	100	75.19
					27		0.00
					27		0.00
					27		0.00

Total Tranverse Lbs.	1409.59
Breaking Load Lbs	3000.00
Percent Capacity	46.99

COMMONWEALTH OF MASSACHUSETTS PAUL G. JONES REGISTERED PROFESSIONAL ENGINEER

Paul G. Jones 9/20/11

Narrative:

Joint Use Attachment Report

UC SYNERGETIC

Pole Number:	73/54 (Node 4D-04)
Address:	1035 Centre St
City, State	Newton, Ma
Pole Height:	45
Pole Class	2
Pole Condition	Good

Transverse Storm Loading

Existing Attachments

Attachment Type	Diameter	Quantity	Coefficient	HOA	2' From Top	Span or Area	Transverse or Wind Lbs.
Electrical Primaries	N/A		0.55		36		0.00
Crossarms	N/A		37		36		0.00
Misc. Electrical Equipment	N/A		37		36		0.00
Transformers	N/A		37		36		0.00
Street Lamps	N/A		37		36		0.00
Electrical Secondaries	N/A	3	1.19	24	36	111	264.18
Electrical Drops	N/A	2	1.19	24	36	53	84.09
Private Wire	N/A	2	1	22.92	36	90.5	115.24
CATV		2	0.65	21.67	36	90.5	70.82
CATV		3	1.5	20.33	36	100.83	256.23
CATV		2	1.5	19.42	36	61.33	99.25
Telephone Cable		2	0.65	18.5	36	90.5	60.46
Telephone Cable			0		36		0.00
Telephone Cable			0		36		0.00
Telephone Cable			0		36		0.00
Telephone Cable			0		36		0.00
SPL - Terms - Boxes	N/A		37		36		0.00
CATV Drops	N/A	7	0.52	20.5	36	142.5	295.37
Telephone Drops	N/A	2	0.44	19.83	36	55	26.66
Strands	N/A	1	0.46	19.42	36	39.5	9.80
Sign	N/A		37		36		0.00
Conduits / Risers	N/A		37		36		0.00
Pole	N/A	N/A	N/A	N/A	N/A	N/A	71.00

Proposed Attachments

Attachment Type	Diameter	Quantity	Coefficient	HOA	2' From Top	Span or Area	Transverse or Wind Lbs.
Cabinet and Conduit		1	37	15	36	19	292.92
Antenna		1	37	41	36	3	126.42
Fiber Cable		1	0.7	29	36	100	56.39
					36		0.00
					36		0.00
					36		0.00
						Total Tranverse Lbs.	1828.83
						Breaking Load Lbs	3700.00
						Percent Capacity	49.43

COMMONWEALTH OF MASSACHUSETTS PAUL G. JONES REGISTERED PROFESSIONAL ENGINEER

Paul G. Jones
9/20/11

Narrative:

#259-11

Joint Use Attachment Report

UC SYNERGETIC

Pole Number:	**P.177/2 (Node 4D-04)**
Address:	**62 Dalton Road**
City, State	**Newton, MA**
Pole Height:	**40**
Pole Class	**2**
Pole Condition	**Good**

Transverse Storm Loading

Existing Attachments

Attachment Type	Diameter	Quantity	Coefficient	HOA	2' From Top	Span or Area	Transverse or Wind Lbs.
Electrical Primaries	N/A		0.55		32		0.00
Crossarms	N/A		37		32		0.00
Misc. Electrical Equipment	N/A		37		32		0.00
Transformers	N/A		37		32		0.00
Street Lamps	N/A		37		32		0.00
Electrical Secondaries	N/A	2	1.19	28.75	32	101	215.97
Electrical Drops	N/A		1.19		32		0.00
Fire Alarm	N/A		0.65		32		0.00
CATV	1	2	0.65	21.58	32	101	88.55
CATV	2	2	1	20.25	32	101	127.83
CATV			0		32		0.00
Telephone Cable	2	2	1	19.33	32	101	122.02
Telephone Cable			0		32		0.00
Telephone Cable			0		32		0.00
Telephone Cable			0		32		0.00
Telephone Cable			0		32		0.00
SPL - Terms - Boxes	N/A		37		32		0.00
CATV Drops	N/A	2	0.52	20.25	32	64	42.12
Telephone Drops	N/A	3	0.44	21.08	32	78	67.82
Strands	N/A		0.46		32		0.00
Sign	N/A		37		32		0.00
Conduits / Risers	N/A		37		32		0.00
Pole	N/A	N/A	N/A	N/A	N/A	N/A	61.00

Proposed Attachments

Attachment Type	Diameter	Quantity	Coefficient	HOA	2' From Top	Span or Area	Transverse or Wind Lbs.
Cabinet and Conduit		1	37	15	32	19	329.53
Antenna		1	37	37	32	3	128.34
Fiber Cable		1	0.7	29	32	100	63.44
					32		0.00
					32		0.00
					32		0.00
						Total Tranverse Lbs.	1246.62
						Breaking Load Lbs	3700.00
						Percent Capacity	33.69

COMMONWEALTH OF MASSACHUSETTS PAUL G. JONES No. [illegible] REGISTERED PROFESSIONAL ENGINEER

9/20/11

Narrative:

Joint Use Attachment Report

UC SYNERGETIC

Transverse Storm Loading

Pole Number:	P.125/30 (Node 4D-05)
Address:	Hobart Rd.
City, State	Newton, MA
Pole Height:	40
Pole Class	2
Pole Condition	Good

Existing Attachments

Attachment Type	Diameter	Quantity	Coefficient	HOA	2' From Top	Span or Area	Transverse or Wind Lbs.
Electrical Primaries	N/A	8	0.55	32.00	37	77.50	294.92
Crossarms	N/A		37		37		0.00
Misc. Electrical Equipment	N/A		37		37		0.00
Transformers	N/A		37		37	4.00	0.00
Street Lamps	N/A	1	37	25.50	37		0.00
Electrical Secondaries	N/A	2	1.19	28.00	37	77.50	139.58
Electrical Drops	N/A	2	1.19	28.00	37		0.00
Fire Alarm	N/A	0			37	77.50	0.00
CATV	1	2	1.5	22.00	37	77.50	138.24
CATV			0	21.00	37	77.50	0.00
CATV			0		37		0.00
Telephone Cable		2	2		37		0.00
Telephone Cable			0		37		0.00
Telephone Cable			0		37		0.00
Telephone Cable			0		37		0.00
Telephone Cable			0		37		0.00
SPL - Terms - Boxes	N/A	1	37	19.00	37		0.00
CATV Drops	N/A	1	0.52	22.00	37		0.00
Telephone Drops	N/A	1	0.44	21.00	37		0.00
Strands	N/A				37	100.00	0.00
Old Pole	N/A		37		37	0.00	0.00
Conduits / Risers	N/A	1	37	6.00	37	1.00	6.00
Pole	N/A	N/A	N/A	N/A	N/A	N/A	61.00

Proposed Attachments

Attachment Type	Diameter	Quantity	Coefficient	HOA	2' From Top	Span or Area	Transverse or Wind Lbs.
Cabinet and Conduit		1	37	15	37	15	225.00
Antenna		1	37	25	37	25	625.00
Fiber Cable		1	0.7	29	37	29	15.91
					37		0.00
					37		0.00
					37		0.00
						Total Tranverse Lbs.	1505.66
						Breaking Load Lbs	3700.00
						Percent Capacity	40.69

COMMONWEALTH OF MASSACHUSETTS PAUL G. JONES REGISTERED PROFESSIONAL ENGINEER

9/20/11

Narrative:

#259-11

Joint Use Attachment Report

UC SYNERGETIC

Pole Number:	P.30 (Node 4D-01)
Address:	920 Centre Street
City, State	Newton, MA
Pole Height:	35
Pole Class	4
Pole Condition	Good

Transverse Storm Loading

Existing Attachments

Attachment Type	Diameter	Quantity	Coefficient	HOA	2' From Top	Span or Area	Transverse or Wind Lbs.
Electrical Primaries	N/A		0.55		27		0.00
Crossarms	N/A		37		27		0.00
Misc. Electrical Equipment	N/A		37		27		0.00
Transformers	N/A		37		27		0.00
Street Lamps	N/A	1	37	26.08	27	3.00	107.22
Electrical Secondaries	N/A	1	1.19	26.75	27	65.00	76.63
Electrical Drops	N/A		1.19		27		0.00
Private Wire	N/A		1		27		0.00
CATV			0		27		0.00
CATV			0		27		0.00
CATV			0		27		0.00
Telephone Cable			0		27		0.00
Telephone Cable			0		27		0.00
Telephone Cable			0		27		0.00
Telephone Cable			0		27		0.00
Telephone Cable			0		27		0.00
SPL - Terms - Boxes	N/A		37		27		0.00
CATV Drops	N/A		0.52		27		0.00
Telephone Drops	N/A		0.44		27		0.00
Strands	N/A		0.46		27		0.00
Sign	N/A		37		27		0.00
Conduits / Risers	N/A		37		27		0.00
Pole	N/A	N/A	N/A	N/A	N/A	N/A	44.00

Proposed Attachments

Attachment Type	Diameter	Quantity	Coefficient	HOA	2' From Top	Span or Area	Transverse or Wind Lbs.
Cabinet and Conduit		1	37	15	27	19	390.56
Antenna & Bracket		1	37	32	27	3	131.56
Fiber Cable		1	0.7	29	27	100	75.19
					27		0.00
					27		0.00
					27		0.00

Total Tranverse Lbs.	825.15
Breaking Load Lbs	2400.00
Percent Capacity	34.38

COMMONWEALTH OF MASSACHUSETTS PAUL G. JONES REGISTERED PROFESSIONAL ENGINEER

Paul G. Jones
9/20/11

Narrative:

#259-11

CMX

Maximum Permissible Exposure (MPE) Calculations for NextG Networks

August 11, 2008

TABLE OF CONTENTS

Executive Summary

On behalf of NextG Networks, we have performed Maximum Permissible Exposure (MPE) Calculations for planned AWS installations. Two different antennas are to be used at three different heights, so three different representative NextG antenna scenarios were analyzed: 1) a wooden utility pole with the antenna mounted at least 20 feet above ground on a 3' standoff arm in the Comm Zone; 2) a wooden utility pole with a top-mounted antenna at least 30 feet above ground; and 3) a concrete street light with a top-mounted antenna at least 20 feet above ground. Frequencies could range from 1800 MHz to 2155 MHz.

Our calculations used formulas designated by the FCC and accepted by multiple international standards bodies. "Worst Case Scenarios" were calculated using variables (circumstances) chosen to produce the highest feasible exposure levels. In reality, actual exposure levels would be well below these calculated values. **Based on our analysis, RF Exposure for the General Population will always be below the Maximum Permissible Exposure levels from these installations.**

The FCC RF (Radiofrequency) Exposure Guidelines

FCC **Report and Order 96-326** regarding "Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation" and FCC **OET Bulletin-65** "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields" establish guidelines and methods for evaluating the environmental effects of radiofrequency (RF) radiation from FCC-regulated transmitters, and sets the Maximum Permissible Exposure (MPE) limits for electric and magnetic field strength and power density for transmitters operating at frequencies from 300 kHz to 100 GHz.[1]

"The FCC's MPE limits are based on exposure limits recommended by the National Council on Radiation Protection and Measurements (NCRP)[2] and, over a wide range of frequencies, the exposure limits developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI) to replace the 1982 ANSI guidelines. Limits for localized absorption are based on recommendations of both ANSI/IEEE and NCRP."[3]

These FCC guidelines delineate methodologies for measuring RF levels, equations for calculating RF levels, limits for maximum permissible human exposure (MPE) and possible solutions for controlling (limiting) RF exposure. All wireless carriers operating in the United States are required to operate in compliance with these standards.

Exposure limits are based on two scenarios: 1) General Population/Uncontrolled Exposure, which is for the general population and which is the more stringent case (lower limits), and 2) Occupational/Controlled Exposure, which is for people working in fields where RF exposure is probable (like cellular technicians or radar engineers) and who are therefore expected to be more knowledgeable about the potential hazards and how to avoid them.

These limits are shown in tables and a chart in Appendix I: the MPE limit for the General Population at the relevant frequencies is a power density of 1 mW/cm^2 (1 milliWatt or 1 thousandths of a Watt per square centimeter). It is important to note that these limits are expressed in terms of ***exposure***, and not ***emissions***, meaning that the concern is with how much RF energy is "hitting" the surface of a human body, not how much is coming from the antennas or "in the air".

Limits for exposure vary depending on the frequency, because the levels of human absorption vary with frequency. The highest levels of absorption happen around 80 MHz (for adults)[4], so the MPE levels are lowest (strictest) around this frequency, specifically the 30-300 MHz range. Limits also factor in a safety

[1] FCC Report and Order 96-326, p.2. See http://www.fcc.gov/Bureaus/Engineering_Technology/Orders/1996/fcc96326.pdf
[2] The NCRP is a non-profit corporation chartered by the U.S. Congress to develop information and recommendations concerning radiation protection.
[3] FCC OET-65 pp. 7-8. See http://www.fcc.gov/oet/info/documents/bulletins/#65.
[4] World Health Organization: See http://www.inchem.org/documents/ehc/ehc/ehc137.htm.

margin of more that a factor of fifty; in other words, the limits are set at a level less than 1/50th the values determined by these organizations from the research to be at all potentially harmful.

Furthermore, these limits are not for instantaneous or transient exposure, but ***exposure over time*** – specifically, exposure averaged over a moving time window of 30 minutes for the General Population. An individual would only exceed the MPE limits if their *average* exposure over any 30-minute time period exceeded the allowable limit. In other words, an individual (General Population) would need to be exposed to 100% of the allowable limit for a full 30 minutes in order to exceed the MPE. Exposure at 150% of the maximum for 15 minutes and then at 50% of the maximum for an additional 15 minutes would also put that individual over the limit because their *average* exposure over that 30 minutes would be 100% of the maximum. A "spike" or transient – even at 1000% of the maximum for a couple seconds every minute – would *not* constitute exceeding the MPE limit because, the *average over the full time period* would not be greater than 100% of the maximum.

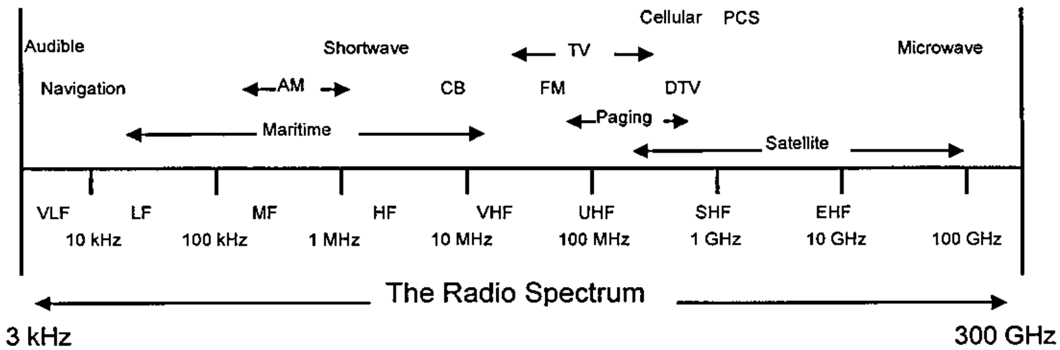


Figure A. The RF Spectrum (simplified)

RF energy in any given area comes from a variety of sources: TV, radio and "cell" towers, hand-held 2-way radios ("walkie-talkies") and cell phones, police cars driving by, even household appliances (e.g. baby monitors, microwave ovens and cordless phones) and cosmic energy. At any given time we are exposed to a certain level of RF exposure from these multiple sources.

But RF energy also dissipates rapidly over distance: Power $\propto$ 1/Distance^2, so if distance increases 10-fold, the power decreases 100-fold. The energy 10 feet away from a given antenna is 1/100th of what it is 1 foot from the antenna; 100 feet from the antenna, it is 1/10,000th of what it is at 1 foot from the antenna. (Think of the surface of a balloon getting thinner and weaker as the balloon is blown up bigger and bigger or light from a flashlight getting weaker and weaker the farther from the source (bulb).)

Furthermore, RF energy is also lessened (attenuated) every time it travels through any kind of substance, such as trees, walls or even our clothing. Thus, especially for members of the general public, our actual levels of exposure are generally very low, and well below the Maximum Permissible Exposure levels.

Radio and TV antennas typically radiate at tens of thousand of Watts. But because these antennas are located on tall towers and well above the populace, the chance of a member of the General Population exceeding the MPE limits from these antennas is low. Microwave relay antennas (typically dishes or drums) operate at higher power levels (thousands of Watts) and are highly directional (concentrate their energy in a narrower "beam"). The chance of exceeding the MPE limits is higher for these antennas, but a person would have to be in the direct path of the energy beam, which is unlikely under normal daily circumstances. For a typical cellular or PCS antenna array, an individual would need to be directly in front of and close to (within a few feet of) for an extended period of time for their exposure to exceed the MPE limits, because these antennas operate at relatively low power levels (a few hundred Watts ERP[5] or

[5] ERP = Effective Radiated Power

less) and have wider beamwidths[6] (radiate their energy over a wide angle). And because these antennas radiate their energy in a particular pattern and direction, anyone to the left, right, behind, above or below an antenna receives a fraction of this energy. In addition, MPE exposure is only relevant if the antenna is *transmitting* and not for receive-only antennas like home satellite dishes (e.g. DirecTV) and most GPS antennas.

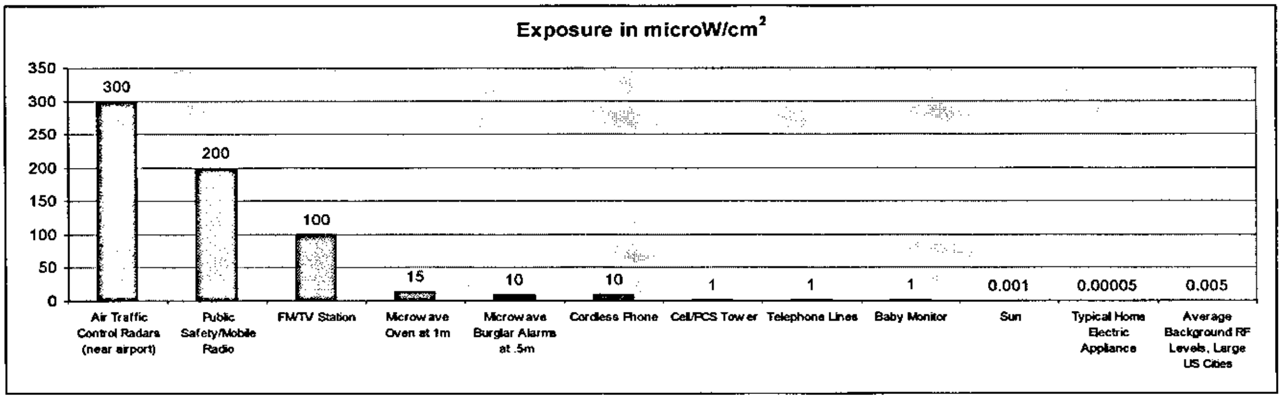


Figure B. Typical RF Exposure Levels

According to the World Health Organization (WHO): "RF exposure from telecommunications facilities is generally less than from radio or TV broadcasting. A study conducted in the United States found that, in large cities, the average background RF levels were about 50 μW/m² (.00005mW/cm²). About 1% of people living in large cities are exposed to RF fields exceeding 10 mW/m² (.001 mW/cm²)."[7] Recent surveys have shown that the RF exposures from base stations range from 0.002% to 2% of the levels of international exposure guidelines, depending on a variety of factors such as the proximity to the antenna and the surrounding environment. This is lower or comparable to RF exposures from radio or television broadcast transmitters.[8]

Overview/Methodology

NextG Networks requested that RF Maximum Permissible Exposure (MPE) studies be prepared for a variety of typical installations for their planned AWS band networks. MPE RF studies for the planned antenna configurations for these networks have been prepared in accordance with the FCC's guidelines.

Formulas used for our calculations are taken directly from the FCC Guidelines (see Appendix I). RF Exposure for this purpose is calculated as a Power Density, in mW/cm². The MPE limit for the General Population at the frequencies for the systems being analyzed is 1 mW/cm². An approach of using a "worst case scenario" is used in order to err on the side of caution, so that **actual levels would be much less than those calculated herein.** For example, for the ground-based scenario, to account for a worst-case situation of 100% reflection of incoming radiation from the ground or other nearby surface, a factor (multiplier) of 4 is used in the formulas for these MPE calculations. In reality, any reflection would be less than 100%, so actual values for % MPE would be less than the calculated values. For the antenna height scenarios, it was assumed that a person would be standing directly in front of and facing the antenna for maximum full-body exposure, with nothing (not even clothes) between them and the antennas. So again, actual values would be less than the calculated values.

Ground-based calculations were performed to represent an individual walking near or below an installation. This analysis used far-field calculations, from the antenna out to 400 ft. **Antenna-level** calculations were performed in the horizontal plane at the height of the antenna radiation center. This

[6] Beamwidth is the angle that an antenna radiates into or "covers". Beamwidths can be for the horizontal or vertical planes. Beamwidth is expressed as degrees of a 360° circle with the angle represented by the 50% power points. Typical horizontal beamwidths for cellular and PCS antennas are between 50° and 90°. Vertical beamwidths are much narrower, typically between 5° and 20°.
[7] WHO Fact Sheet #183, Reviewed May 1998. See http://www.who.int/docstore/peh-emf/publications/facts_press/efact/efs183.html.
[8] WHO Fact Sheet #394, May 2005. See http://www.who.int/mediacentre/factsheets/fs304/en/index.html.

analysis used near-field calculations to represent worst-case radiation for utility personnel on or near the antenna structure or people above ground level in nearby buildings. The whole-body 100% MPE distance has been calculated, so that *at any distance from the antenna greater than this, exposure will always be less than 100% of the MPE, i.e. within allowable limits.*

For the ground-based calculations, the calculations incorporated the vertical antenna pattern shown in the Antenna Specifications for the Phazar Antenna Corp AWS360-1710-7-T0-N and AWS360-1710-10-T0-N (Attachments 1 and 2).

Typical foliage and building signal attenuations were also not factored in, so again, calculated values would be higher than actual values.

Configurations/Study Parameters

The proposed network will use Comm Zone and Pole-top installations on wooden utility poles and Light-top installations on concrete street lights. The Comm Zone is a zone on a utility pole reserved for mounting communications equipment. The Comm Zone configuration consists of the AWS360-1710-7-T0-N antenna on a 3 ft. stand-off and at an antenna radiation height of 21 ft. The Pole-top configuration consists of a top-mounted AWS360-1710-10-T0-N antenna at an antenna radiation height of 32 ft. The Light-top configuration consists of a top-mounted AWS360-1710-10-T0-N antenna at an antenna radiation height of 22 ft. These calculations would also be valid for configurations with antennas at any height greater than that stated for each scenario.

Operating Parameters used for MPE calculations with AWS360-1710-7-T0-N antenna (Scenario 1)

Frequency:	1800 MHz and above (The FCC Limits for MPE are the same from 1,500 – 100,000 MHz)
Antenna:	Phazar Antenna Corp AWS360-1710-7-T0-N Omni Antenna, with 7 dBi gain (Antenna in Comm Zone configuration will be mounted using a 3' standoff on a wooden pole)
Transmitter:	40 watts (46 dBm), 2 channels in simultaneous use
Cable Loss:	-1.2 dB
Power into Antenna:	44.8 dBm (30.2 watts)
Antenna C/L:	21' (min. radiation center height) Scenario 1
EIRP:	46dBm – 1.2dB + 7dB = 51.8dBm (ERP = EIRP - 2.15dB = 49.65dBm, or 92.3 Watts)

Operating Parameters used for MPE calculations with AWS360-1710-10-T0-N antenna (Scenarios 2 & 3)

Frequency:	1800 MHz and above (The FCC Limits for MPE are the same from 1,500 – 100,000 MHz)
Antenna:	Phazar Antenna Corp AWS360-1710-10-T0-N Omni Antenna, with 10 dBi gain
Transmitter:	40 watts (43 dBm), 2 channels in simultaneous use
Cable Loss:	-1.2 dB
Power into Antenna:	44.8 dBm (30.2 watts)
Antenna C/L:	Scenario 2: 32' (minimum radiation center at the top of wooden utility poles) Scenario 3: 22' (minimum radiation center at the top of concrete street light)
EIRP:	46dBm – 1.2dB + 10dB = 54.8dBm (ERP = EIRP - 2.15dB = 52.65dBm, or 184.6 Watts)

Analysis and Conclusions

Scenario 1 (Comm Zone):
Ground-based calculations show that the worst-case exposure level on the ground is .0172 mW/cm^2 which is 1.72% of the FCC's MPE limit for General Population/Uncontrolled Exposure, and occurs 55 feet away from the base of the antenna. **Therefore, a person on the ground would always be below the MPE limit.**

Antenna height calculations show that at a distance of 9.84 inches from the antenna and with one's full body directly in front of the antenna, the worst-case whole body power density is 100% of the FCC's MPE limit for General Population/Uncontrolled Exposure. This means that *at distances greater than 10 inches, exposure will always be less than 100% of the limit.* Power density and corresponding percentage of the FCC MPE limit fall off rapidly with distance, so at 12 inches from the antenna, the worst-case maximum power density is 84% of the FCC's MPE limit. At 2 feet from the antenna, the maximum power density is 43% of the FCC's MPE limit. **Therefore, a climber on the pole, a maintenance person in a bucket, or anyone in a nearby structure would be below the MPE limit under any normal circumstances.**

Scenario 2 (Pole Top at 32'):
Ground-based calculations show that the worst case exposure on the ground is .0048 mW/cm² which is 0.48% (1/2 of 1%) of the FCC's MPE limit for General Population/Uncontrolled Exposure, and occurs 45 feet away from the base of the antenna. **Therefore, a person on the ground would always be below the MPE limit.**

Antenna height calculations show that at a distance of 9.84 inches from the antenna and with one's full body directly in front of the antenna, the worst-case whole body power density is 100% of the FCC's MPE limit for General Population/Uncontrolled Exposure. This means that *at distances greater than 10 inches, exposure will always be less than 100% of the limit.* Power density and corresponding percentage of the FCC MPE limit fall off rapidly if one is below – or even partly below – the antenna. Given that the antenna is mounted on the top of the pole and with a 6 inch mounting bracket, a climber on the pole would never be able to have his or her full body directly in front of the antenna, but would always be at least partially below the antenna. **Therefore, a climber on the pole, a maintenance person in a bucket, or anyone in a nearby structure would be below the MPE limit under any normal circumstances.**

Scenario 3 (Pole Top at 22'):
Ground-based calculations show that the worst case exposure (power density) on the ground is .0108 mW/cm² which is 1.08% of the FCC's MPE limit for General Population/Uncontrolled Exposure, and occurs 30 feet away from the base of the antenna. **Therefore, a person on the ground would always be below the MPE limit.**

The antenna height calculations for Scenario 3 are the same as for Scenario 2 because they are using the same antenna in this configuration. **Therefore, a climber on the pole, a maintenance person in a bucket, or anyone in a nearby structure would be below the MPE limit under any normal circumstances.**

Based on our analysis, RF Exposure for the General Population would always be below the Maximum Permissible Exposure levels from these installations. An information sign indicating the status of and contact information for each installation should be placed near the antenna. A typical sign for such purpose is shown in Attachment 3.

Caveats
These calculations are based on the assumption that the specified equipment is operating properly and in accordance with its relevant specifications. Values could be different – and higher – for faulty, broken or misconnected equipment.

It must also be noted that these calculations are only for exposure from the equipment as specified in this report, i.e. the NextG proposed configurations, and do not factor in exposure from other sources. However, because these calculations are based on "worst case" scenarios, because the limits on the ground are such a small fraction of the MPE, and because ambient exposure is also typically very low level, actual exposure should remain well below the 100% MPE levels.

This report has been developed by me and/or under my supervision. All facts and statements contained herein are true and accurate to the best of my knowledge, except where stated to be in information or belief.

8/11/08

Signature **Date**

Julia Ann V. Schmitt, PE (NJ)
License #24GE04352800 (New Jersey)

APPENDIX I - Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

On August 25, 1997, the FCC adopted OET-65, regarding Compliance to Safety Limits for Human Exposure to RF Emissions. These guidelines are designed to help protect both the general population and those who spend extended periods of time working in these environments.

The full document can be downloaded at http://www.fcc.gov/oet/info/documents/bulletins/#65.

The formulae used for this report (and their derivation) can be found in OET Bulletin 65 Edition 97-01, p. 18*ff*.

The main formula used for Ground-Based (Far Field) Calculations is #5 on p. 20:

$$S = \frac{EIRP}{4\Pi R^2} = \frac{1.64\ ERP}{4\Pi R^2} = \frac{0.41\ ERP}{\Pi R^2}$$

Where

S = power density (in appropriate units, e.g. mW/cm2)
EIRP = equivalent (or effective) isotropically radiated power (in appropriate units, e.g., mW)
ERP = power referenced to a half-wave dipole radiator instead of to an isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm)

For a truly worst-case prediction of power density at or near a surface, such as at ground level or on a rooftop, 100% reflection of incoming radiation can be assumed, resulting in a potential doubling of predicted field strength and a four-fold increase in (far-field equivalent) power density. In that case the above Equation is modified to:

$$S = \frac{EIRP}{\Pi R^2} = \frac{1.64\ ERP}{\Pi R^2} = \frac{1.64\ ERP}{\Pi R^2}$$

The main formula used for Antenna Height (Near Field) Calculations is #20 on p. 32:

$$S = \frac{180\ P_{net}}{\Theta_{BW} \Pi R h}$$

Where

S = power density (in appropriate units, e.g. mW/cm2)
P_{net} = net power input to the antenna (in appropriate units, e.g., mW)
Θ_{BW} = beam width of the antenna in degrees
R = distance from the antenna (appropriate units, e.g., cm)
h = aperture height of the antenna

This provides the aperture power density. Whole body power density is then calculated based on the worst-case geometry of the scenario and the percent of whole-body exposure.

As per FCC guidelines, a 6' human is used as the standard for calculations.

The following tables and graphs, taken directly from OET Bulletin 65 Edition 97-01, p. 67*ff*, show the Summary of RF Exposure Guidelines.

FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational Population/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-3.0	614	1.63	(100)*	6
3.0-30	1842/f	4.89/f	$(900/f^2)$*	6
30-300	61.4	0.163	1.0	6
300-1500	--	--	f/300	6
1500-100,000	--	--	5	6

(B) Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm^2)	Averaging Time $\|E\|^2$, $\|H\|^2$ or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	$(180/f^2)$*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/1500	30
1500-100,000	--	--	1.0	30

f = frequency in MHz   *Plane-wave equivalent power density

NOTE 1: See Appendix 2 for definition of exposure categories (Occupational/Controlled, General/Uncontrolled).
NOTE 2: The averaging time for General Population/Uncontrolled exposure to fixed transmitters is not applicable for mobile and portable transmitters. See 47 CFR §§2.1091 and 2.1093 on source-based time-averaging requirements for mobile and portable transmitters.

FCC Limits for Specific Absorption Rate (SAR)

(A) Limits for Occupational/Controlled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.4	8.0	20.0

(B) Limits for General Population/Uncontrolled Exposure (W/kg)

Whole-Body	Partial-Body	Hands, Wrists, Feet and Ankles
0.08	1.6	4.0

NOTE 1: See Appendix 2 for definition of exposure categories (Occupational/Controlled, General/Uncontrolled).

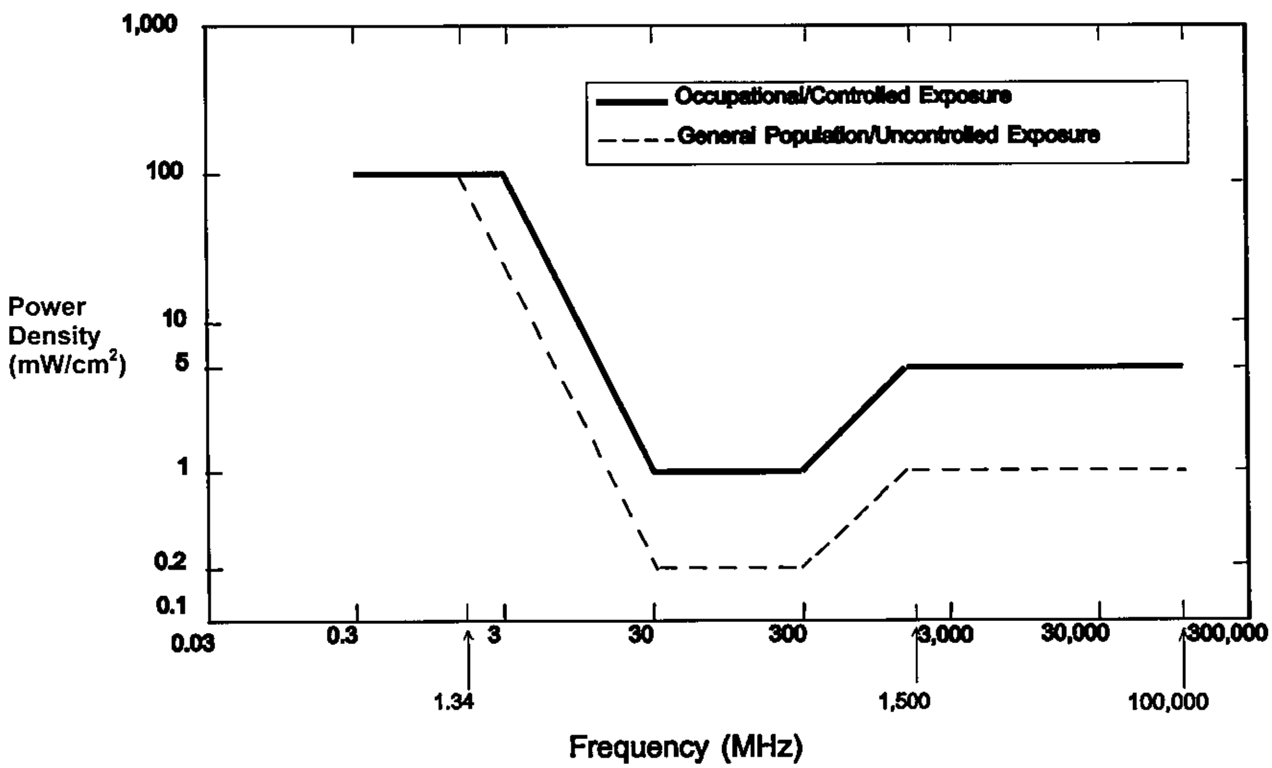
NOTE 2: *Whole-Body SAR* is averaged over the entire body, *partial-body SAR* is averaged over any 1 gram of tissue defined as a tissue volume in the shape of a cube. *SAR for hands, wrists, feet and ankles* is averaged over any 10 grams of tissue defined as a tissue volume in the shape of a cube.

NOTE 3: At frequencies above 6.0 GHz, SAR limits are not applicable and MPE limits for power density should be applied at 5 cm or more from the transmitting device.

NOTE 4: The time averaging criteria for field strength and power density do not apply to general population SAR limit of 47 CFR §2.1093.

Figure 1. FCC Limits for Maximum Permissible Exposure (MPE)

Plane-wave Equivalent Power Density



Another excellent resource for a "plain English" explanation of RF Exposure is the FCC document "A Local Government Official's Guide to Transmitting Antenna RF Emission Safety: Rules, Procedures, and Practical Guidance" developed by the Federal Communications Commission (FCC) and its Local and State Government Advisory Committee (LSGAC).

This document is available on the Internet at http://wireless.fcc.gov/siting/FCC_LSGAC_RF_Guide.pdf.

APPENDIX II - DEFINITIONS AND GLOSSARY OF TERMS

The following has been taken directly from OET Bulletin 65 Edition 97-01, p. 2*ff.*

The following specific words and terms are used in this bulletin. These definitions are adapted from those included in the American National Standards Institute (ANSI) 1992 RF exposure standard [Reference 1], from NCRP Report No. 67 [Reference 19] and from the FCC's Rules (47 CFR § 2.1 and § 1.1310).

Average (temporal) power. The time-averaged rate of energy transfer.

Averaging time. The appropriate time period over which exposure is averaged for purposes of determining compliance with RF exposure limits (discussed in more detail in Section 1).

Continuous exposure. Exposure for durations exceeding the corresponding averaging time.

Decibel (dB). Ten times the logarithm to the base ten of the ratio of two power levels.

Duty factor. The ratio of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmissions. A duty factor of 1.0 corresponds to continuous operation.

Effective radiated power (ERP) (in a given direction). The product of the power supplied to the antenna and its gain relative to a half-wave dipole in a given direction.

Equivalent Isotropically Radiated Power (EIRP). The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Electric field strength (E). A field vector quantity that represents the force (**F**) on an infinitesimal unit positive test charge (**q**) at a point divided by that charge. Electric field strength is expressed in units of volts per meter (V/m).

Energy density (electromagnetic field). The electromagnetic energy contained in an infinitesimal volume divided by that volume.

Exposure. Exposure occurs whenever and wherever a person is subjected to electric, magnetic or electromagnetic fields other than those originating from physiological processes in the body and other natural phenomena.

Exposure, partial-body. Partial-body exposure results when RF fields are substantially nonuniform over the body. Fields that are nonuniform over volumes comparable to the human body may occur due to highly directional sources, standing-waves, re-radiating sources or in the near field. See **RF "hot spot"**.

Far-field region. That region of the field of an antenna where the angular field distribution is essentially independent of the distance from the antenna. In this region (also called the free space region), the field has a predominantly plane-wave character, i.e., locally uniform distribution of electric field strength and magnetic field strength in planes transverse to the direction of propagation.

Gain (of an antenna). The ratio, usually expressed in decibels, of the power required at the input of a loss-free reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field strength or the same power density at the same distance. When not specified otherwise, the gain refers to the direction of maximum radiation. Gain may be considered for a specified polarization. Gain may be referenced to an isotropic antenna (dBi) or a half-wave dipole (dBd).

General population/uncontrolled exposure. For FCC purposes, applies to human exposure to RF fields when the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public always fall under this category when exposure is not employment-related.

Hertz (Hz). The unit for expressing frequency, (*f*). One hertz equals one cycle per second.

Magnetic field strength (H). A field vector that is equal to the magnetic flux density divided by the permeability of the medium. Magnetic field strength is expressed in units of amperes per meter (A/m).

Maximum permissible exposure (MPE). The rms and peak electric and magnetic field strength, their squares, or the plane-wave equivalent power densities associated with these fields to which a person may be exposed without harmful effect and with an acceptable safety factor.

Near-field region. A region generally in proximity to an antenna or other radiating structure, in which the electric and magnetic fields do not have a substantially plane-wave character, but vary considerably from point to point. The near-field region is further subdivided into the reactive near-field region, which is closest to the radiating structure and that contains most or nearly all of the stored energy, and the radiating near-field region where the radiation field predominates over the reactive field, but lacks substantial plane-wave character and is complicated in structure. For most antennas, the outer boundary of the reactive near field region is commonly taken to exist at a distance of one-half wavelength from the antenna surface.

Occupational/controlled exposure. For FCC purposes, applies to human exposure to RF fields when persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see definition above), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means. The occupational/controlled exposure limits also apply to amateur radio operators and members of their immediate household.

Peak Envelope Power (PEP). The average power supplied to the antenna transmission line by a radio transmitter during one radiofrequency cycle at the crest of the modulation envelope taken under normal operating conditions.

Power density, average (temporal). The instantaneous power density integrated over a source repetition period.

Power density (S). Power per unit area normal to the direction of propagation, usually expressed in units of watts per square meter (W/m^2) or, for convenience, units such as milliwatts per square centimeter (mW/cm^2) or microwatts per square centimeter ($\mu W/cm^2$). For plane waves, power density, electric field strength (E) and magnetic field strength (H) are related by the impedance of free space, i.e., 377 ohms, as discussed in Section 1 of this bulletin. Although many survey instruments indicate power density units ("far-field equivalent" power density), the actual quantities measured are E or E^2 or H or H^2.

Power density, peak. The maximum instantaneous power density occurring when power is transmitted.

Power density, plane-wave equivalent or far-field equivalent. A commonly-used terms associated with any electromagnetic wave, equal in magnitude to the power density of a plane wave having the same electric (E) or magnetic (H) field strength.

Radiofrequency (RF) spectrum. Although the RF spectrum is formally defined in terms of frequency as extending from 0 to 3000 GHz, for purposes of the FCC's exposure guidelines, the frequency range of interest in 300 kHz to 100 GHz.

Re-radiated field. An electromagnetic field resulting from currents induced in a secondary, predominantly conducting, object by electromagnetic waves incident on that object from one or more primary radiating structures or antennas. Re-radiated fields are sometimes called "reflected" or more correctly "scattered fields." The scattering object is sometimes called a "re-radiator" or "secondary radiator".

RF "hot spot." A highly localized area of relatively more intense radio-frequency radiation that manifests itself in two principal ways:

(1) The presence of intense electric or magnetic fields immediately adjacent to conductive objects that are immersed in lower intensity ambient fields (often referred to as re-radiation), and

(2) Localized areas, not necessarily immediately close to conductive objects, in which there exists a concentration of RF fields caused by reflections and/or narrow beams produced by high-gain radiating antennas or other highly directional sources. In both cases, the fields are characterized by very rapid changes in field strength with distance. RF hot spots are normally associated with very nonuniform

exposure of the body (partial body exposure). This is not to be confused with an actual thermal hot spot within the absorbing body.

Root-mean-square (rms). The effective value, or the value associated with joule heating, of a periodic electromagnetic wave. The rms value is obtained by taking the square root of the mean of the squared value of a function.

Scattered radiation. An electromagnetic field resulting from currents induced in a secondary, conducting or dielectric object by electromagnetic waves incident on that object from one or more primary sources.

Short-term exposure. Exposure for durations less than the corresponding averaging time.

Specific absorption rate (SAR). A measure of the rate of energy absorbed by (dissipated in) an incremental mass contained in a volume element of dielectric materials such as biological tissues. SAR is usually expressed in terms of watts per kilogram (W/kg) or milliwatts per gram (mW/g). Guidelines for human exposure to RF fields are based on SAR thresholds where adverse biological effects may occur. When the human body is exposed to an RF field, the SAR experienced is proportional to the squared value of the electric field strength induced in the body.

Wavelength (λ). The wavelength (λ) of an electromagnetic wave is related to the frequency (f) and velocity (v) by the expression $v = f\lambda$. In free space the velocity of an electromagnetic wave is equal to the speed of light, i.e., approximately 3×10^8 m/s.

APPENDIX III – CMX AND COMP COMM STATEMENT OF EXPERIENCE

COMP COMM, Inc. is an independent wireless communications engineering consulting firm. Since 1975, COMP COMM has made a business of solving complex technical and operational problems in wireless communications. While serving a broad base of both public and private clients, the company has maintained its focus on the expansion of wireless services throughout the United States. COMP COMM has provided its services through CMX Engineering or its subsidiaries since 1998

Company History
In our early years, COMP COMM provided comprehensive engineering services and technical support to FCC frequency spectrum applicants. The company soon gained recognition as a reliable industry resource and was employed to design wireless systems during the early years of cellular. COMP COMM designed 18 of the 30 largest markets and successfully defended all its designs during the FCC comparative hearing process. Our engineers designed and evaluated hundreds of systems ranging from the original New York City cellular system to single-site rural radio applications.

After years of in-house design work, COMP COMM's extensive experience and capabilities were tapped to design, build and operate multiple cellular systems. The Company managed these systems from successful application and license award; through system design, build-out and operation; to marketing and subsequent sale. COMP COMM has provided significant field work for its clients, including evaluation of sites throughout the country to ensure compliance with FCC and FAA regulations. Through these services, we assure systems operate within authorized parameters and at peak efficiency.

In 1996, the company began leveraging its years of expertise to help local governments develop unbiased, fact-based and cost-effective solutions to their wireless issues – solutions which consider the interests of all their constituents.

Outside Recognition
COMP COMM and its principals are recognized experts on issues of wireless communications facilities by the industry and from a local government perspective. Dr. George Schrenk, COMP COMM's founder and Chairman Emeritus, is a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE), and has authored works for the IEEE Vehicular Technology Society Committee on Radio Propagation. Christine Malone, COMP COMM's President, has been qualified as an Expert Witness in testimony before multiple Boards, Councils, Committees, etc. She has been an invited speaker at national conferences and seminars, including the 2007 Law Seminars International Local Broadband Deployment and Regulation conference in Tampa, the 1999 NATOA Annual Conference in Atlanta, and 2001 Forum on Cable/Telco Franchising. Ms. Malone is also the author of the "plain English" primer "How Wireless Works" published by the Massachusetts Wireless Collaborative of the *Massachusetts Municipal Association* as part of their publication, Working with Wireless, (recently re-printed by popular demand) and articles such as "What's on Your Roof?" published in the March 2003 issue of Buildings magazine.

COMP COMM has also been featured or quoted in many articles and radio and television programs on wireless facilities issues for local governments, including a feature article in the September 1999 issue of American City and County magazine.

Julia Ann Schmitt, has been an engineer with Comp Comm since 1994. She has a B.S. in Electrical Engineering from Georgia Institute of Technology and a B.S. in Mathematics from Oglethorpe University. She is also a Professional Engineer (P.E.) licensed in the State of New Jersey (NJ License #24GE04352800).

Related Experience
COMP COMM has provided RF exposure analyses for multiple clients - industry, commercial and government - including the City of Rye, NY, The Town of Port Chester, NY, Horton Commercial Realty (MI), Florida Power & Light, and Independent Wireless One Corp. (part of Sprint/Nextel), and has conducted seminars on the subject for such clients as the Town of Carlsbad, CA and Southampton, NY.

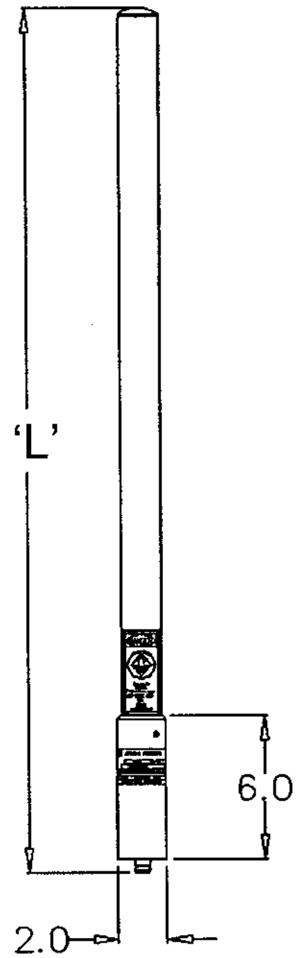
ATTACHMENT 1: Antenna Specifications - Phazar Antenna Corp. AWS360-1710-7-T0-N

Phazar Antenna Corp.

1710 – 2155 MHz Omni-Directional Antenna

- Rugged, fiberglass radome
- Frequency coverage for entire AWS band

Model AWS360-1710-7-T0-N



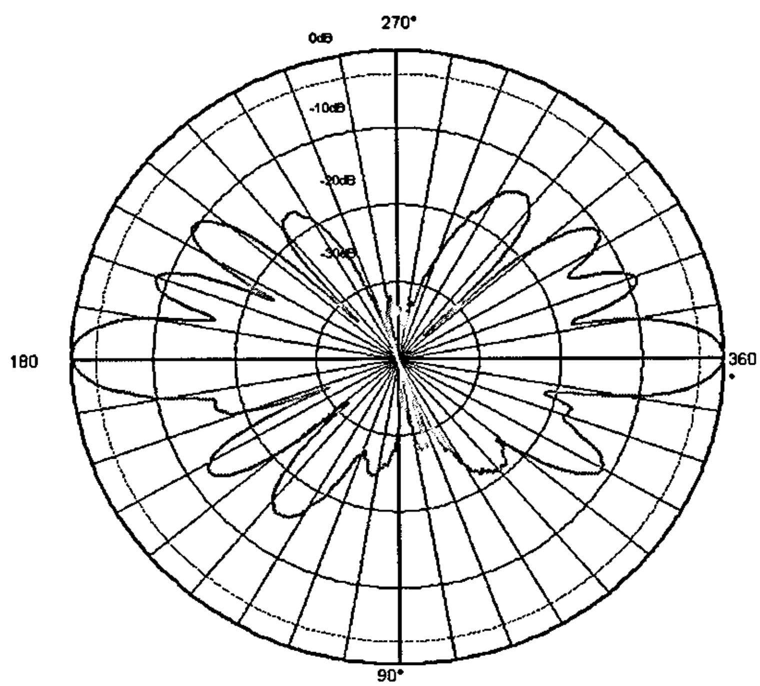
Preliminary Data

ELECTRICAL SPECIFICATIONS

Frequency Range	1710-2155 MHz
VSWR	1.7:1 VSWR Max
Forward Gain	7 dBi
Polarization	Vertical
Maximum Power Input	200 Watts
Input Impedance	50 ohms
Vertical -3dB Beamwidth	16° +/- 1° (nominal)
Horizontal -3dB Beamwidth	360° +/- 5°
Azimuth Ripple	+/- .5 dB
Electrical Downtilt	2 and 4° (T2 and T4 for Part Number)

MECHANICAL & ENVIRONMENTAL SPECIFICATIONS

Connector	Type 'N' Male or 716 DIN
Mounting	Side mount; clamps provided
Dimension and Weight	26 inches x 2.0 inch O.D. / < 10 lbs.
Color	White Standard (Color Options Available)
Wind Survival	120 mph.
Lightning Protection	Direct Ground



Pattern is for 9 dBi model.

Phazar Antenna Corp. 101 SE 25TH Ave. Mineral Wells, TX 76067 940-325-3301 fax 940-325-0716 www.phazar.com

ATTACHMENT 2: Antenna Specifications - Phazar Antenna Corp. AWS360-1710-10-T0-N

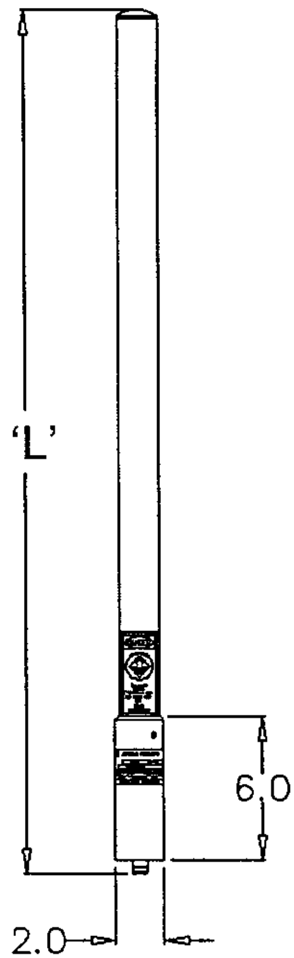
Phazar Antenna Corp.

1710 – 2155 MHz Omni-Directional Antenna

- Rugged, fiberglass radome
- Frequency coverage for entire AWS band

Model AWS360-1710-10-T0-N

Preliminary Data

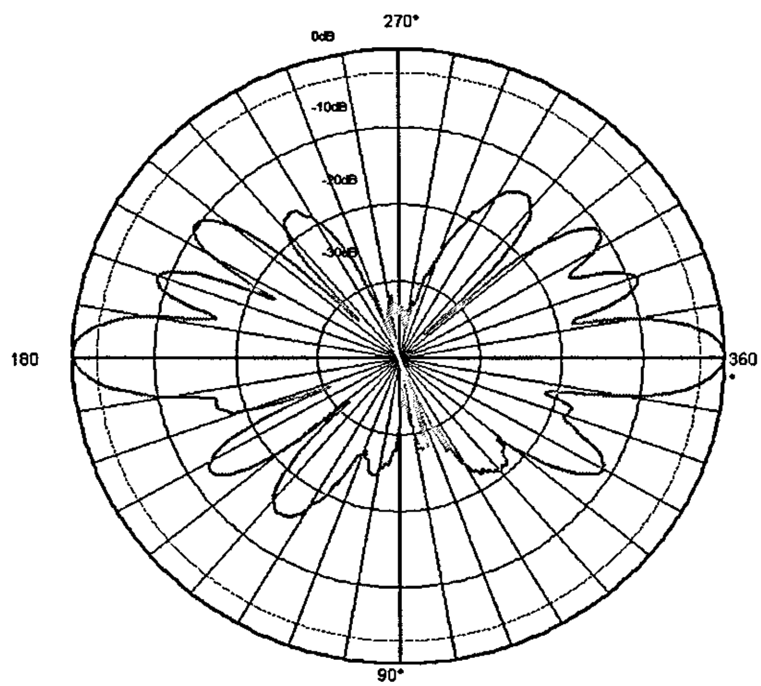


ELECTRICAL SPECIFICATIONS

Frequency Range	1710-2155 MHz
VSWR	1.7:1 VSWR Max
Forward Gain	10 dBi
Polarization	Vertical
Maximum Power Input	200 Watts
Input Impedance	50 ohms
Vertical -3dB Beamwidth	7° +/- 1° (nominal)
Horizontal -3dB Beamwidth	360° +/- 5°
Azimuth Ripple	+/- .5 dB
Electrical Downtilt	2 and 4° (T2 and T4 for Part Number)

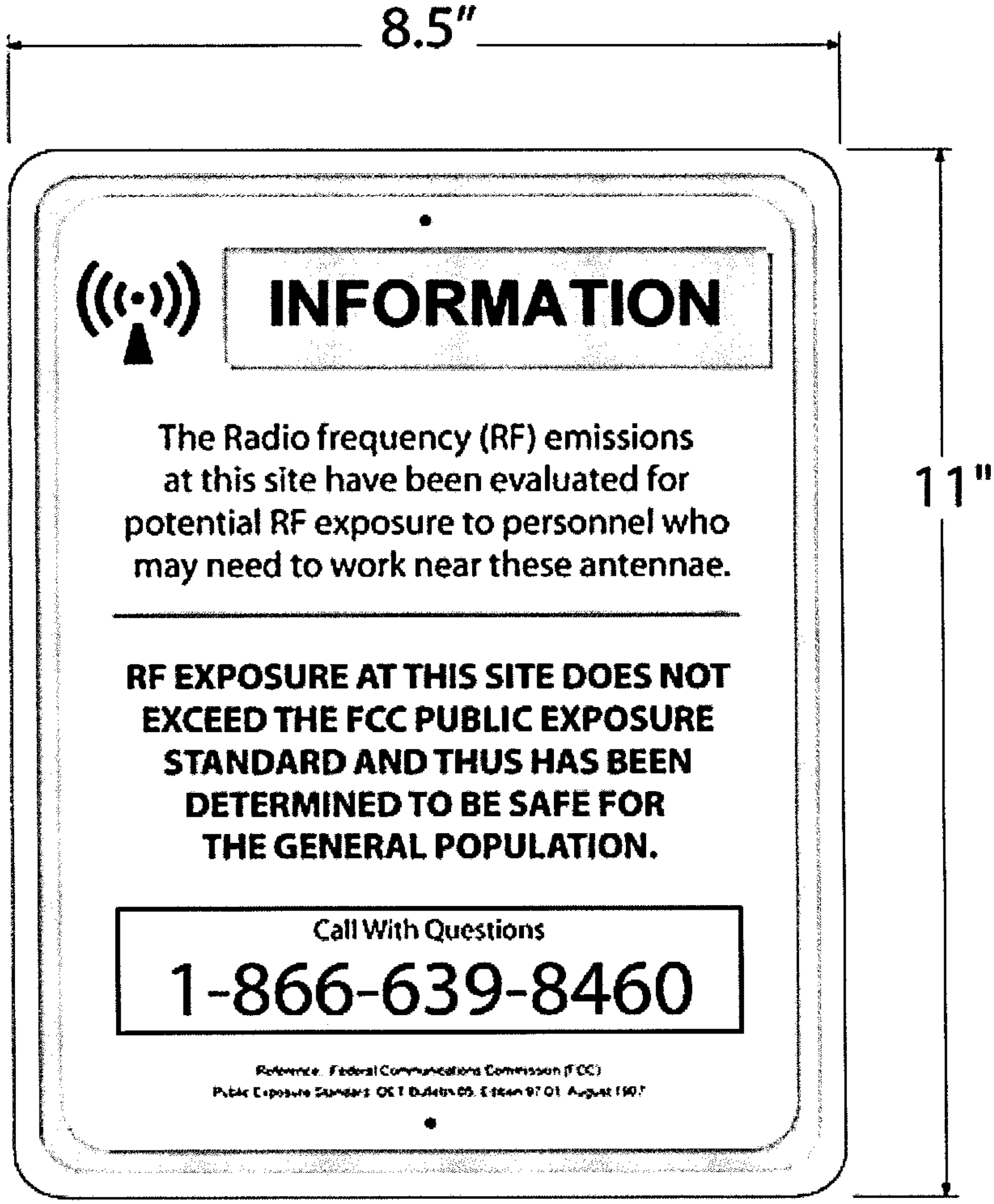
MECHANICAL & ENVIRONMENTAL SPECIFICATIONS

Connector	Type 'N' Male or 716 DIN
Mounting	Side mount; clamps provided
Dimensions and Weight	48 inches x 2.0 inches O.D. / < 10
Color	White Standard (Color Options Available)
Wind Survival	120 mph.
Lightning Protection	Direct Ground



Pattern is for 9 dBi model.

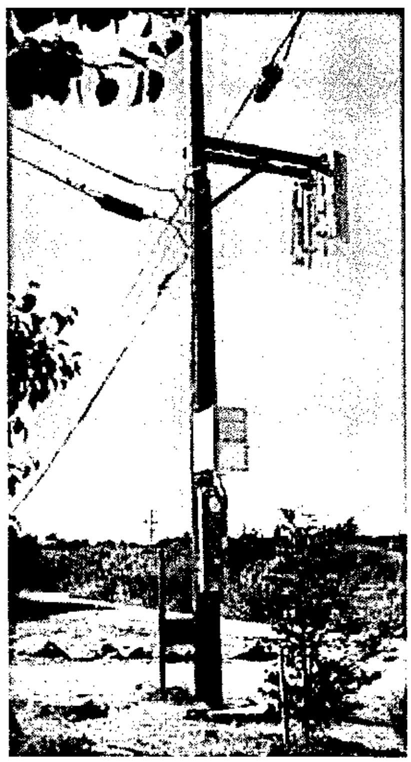
ATTACHMENT 3: Typical RF Information Signage



ATTACHMENT 4: Typical NextG Networks Installation

These photos are taken from (and other examples are available a) the NextG Networks web site at http://www.nextgnetworks.net/solutions/photosdiagrams.html.

Omnidirectional antenna on a street-light pole-top



Directional (panel) antennas on a utility pole stand-off

PUBLIC FACILITIES COMMITTEE
NextG PUBLIC HEARING
SIGN-IN SHEET

Name (Please Print)	Address
Stephen Grabow	436 Ward Street
Steve Dubin	86 Dalton Road
Alan Pincus	148 Sumner Street
Christopher Packard	28 Sumner Street
Sally O'Brien	45 Westbourne Road
Stephen Hamilton	155 Sumner Street
Brian Washburn	151 Ridge Avenue
David Larking	489 Commonwealth Avenue
Amy Bierbaum	12 Sumner Street
Satsh Tyagi	516 Commonwealth Avenu
Robert Rosenthal	428 Ward Stree
Irving Medoff	396 Ward Street
Jodi Daynard	40 Sumner Street
Ruth Neiberg	72 Dalton Road
Ken Kornman	920 Centre Street

Dear Neighbor,

This is regarding the notice that you have received from the City Clerk about a petition by NextG NETWORK to install a wireless network in our neighborhood. The company plans to install an underground conduit in Sumner Street and aerial fiber equipment (which includes wireless antennas) on utility poles (electricity/street lights) near our homes.
A copy of the notice from the city is attached.

Two issues to consider. It is not known yet what are the health consequences from a prolonged wireless exposure (such as the 24/7 exposure that we'll receive if the installation will go through). We are attaching some scientific literature.
Also, as a home next to a wireless antenna might be less desirable, our property values could depreciate. In one NextG installation site it was estimated that a drop of 15% in value might occur.

Please help object to the NextG plan at the City Hall hearing on Wednesday, September 21.

We will try our best to reach as many homes as possible on the part of Ward ST closest to Sumner, parts of Sumner St. closest to Commonwealth Ave. and Alden St. But we will not be able on our own to deliver this information to all the homes in the planned installation area. Please contact us if you would like to help.
Another thing to consider, this is likely to be only the first installation in Newton. If you know other Newton residents who might not live necessarily in streets that currently planned to receive the antennas but object to them installed in residence areas please forward this info to them.
We'd love to email this info to whoever is interested.

Best regards,

Limor and Steve Grabow
436 Ward St. Newton
grabow.limor@gmail.com

Please read about debates in other sites of NextG installations (we can email you the links. Contact us at grabow.limor@gmail.com):

http://www.independent.com/news/2010/mar/17/will-montecitos-new-wireless-network-be-unplugged/

http://www.massapequapost.com/news/2010-11-17/Front_Page/Massapequa_Park_Village_to_NextG_Networks_Can_you_.html

http://www.independent.com/news/2009/oct/08/attack-antennas/?print

https://sites.google.com/site/nocelltowerinourneighborhood/home/public-right-of-way-concerns

Rev Environ Health. 2010 Jan-Mar;25(1):75-80.

Electromagnetic fields and cancer: the cost of doing nothing.

Carpenter DO.

Institute for Health and the Environment, University at Albany, New York, NY 12144-3429, USA.

Abstract

Everyone is exposed to electromagnetic fields (EMFs) from electricity (extremely low frequency, ELF), communication frequencies, and wireless devices (radiofrequency, RF). Concern of health hazards from EMFs has increased as the use of cell phones and other wireless devices has grown in all segments of society, especially among children. While there has been strong evidence for an association between leukemia and residential or occupational exposure to ELF EMFs for many years, the standards in existence are not sufficiently stringent to protect from an increased risk of cancer. For RF EMFs, standards are set at levels designed to avoid tissue heating, in spite of convincing evidence of adverse biological effects at intensities too low to cause significant heating. Recent studies demonstrate elevations in rates of brain cancer and acoustic neuroma only on the side of the head where individuals used their cell phone. Individuals who begin exposure at younger ages are more vulnerable. These data indicate that the existing standards for radiofrequency exposure are not adequate. While there are many unanswered questions, the cost of doing nothing will result in an increasing number of people, many of them young, developing cancer.

Int J Occup Environ Health. 2010 Jul-Sep;16(3):263-7.

Epidemiological evidence for a health risk from mobile phone base stations.

Khurana VG, Hardell L, Everaert J, Bortkiewicz A, Carlberg M, Ahonen M.

Department of Neurosurgery, The Canberra Hospital, The Australian National University Medical School, Garran, Australia vgkhurana@gmail.com

Abstract

Human populations are increasingly exposed to microwave/radiofrequency (RF) emissions from wireless communication technology, including mobile phones and their base stations. By searching PubMed, we identified a total of 10 epidemiological studies that assessed for putative health effects of mobile phone base stations. Seven of these studies explored the association between base station proximity and neurobehavioral effects and three investigated cancer. We found that eight of the 10 studies reported increased prevalence of adverse neurobehavioral symptoms or cancer in populations living at distances < 500 meters from base stations. None of the studies reported exposure above accepted international guidelines,

suggesting that current guidelines may be inadequate in protecting the health of human populations. We believe that comprehensive epidemiological studies of long-term mobile phone base station exposure are urgently required to more definitively understand its health impact.

PMID: 20662418

JAMA. 2011 Feb 23;305(8):808-13.

Effects of cell phone radiofrequency signal exposure on brain glucose metabolism.

Volkow ND, Tomasi D, Wang GJ, Vaska P, Fowler JS, Telang F, Alexoff D, Logan J, Wong C.

National Institute on Drug Abuse, 6001 Executive Blvd, Room 5274, Bethesda, MD 20892, USA. nvolkow@nida.nih.gov

Abstract

CONTEXT:
The dramatic increase in use of cellular telephones has generated concern about possible negative effects of radiofrequency signals delivered to the brain. However, whether acute cell phone exposure affects the humanbrain is unclear.

OBJECTIVE:
To evaluate if acute cell phone exposure affects brain glucose metabolism, a marker of brain activity.

DESIGN, SETTING, AND PARTICIPANTS:
Randomized crossover study conducted between January 1 and December 31, 2009, at a single US laboratory among 47 healthy participants recruited from the community. Cell phones were placed on the left and right ears and positron emission tomography with ((18)F)fluorodeoxyglucose injection was used to measure brain glucose metabolism twice, once with the right cell phone activated (sound muted) for 50 minutes ("on" condition) and once with both cell phones deactivated ("off" condition). Statistical parametric mapping was used to compare metabolism between on and off conditions using paired t tests, and Pearson linear correlations were used to verify the association of metabolism and estimated amplitude of radiofrequency-modulated electromagnetic waves emitted by the cell phone. Clusters with at least 1000 voxels (volume >8 cm(3)) and $P < .05$ (corrected for multiple comparisons) were considered significant.

MAIN OUTCOME MEASURE:
Brain glucose metabolism computed as absolute metabolism (μmol/100 g per minute) and as normalized metabolism (region/whole brain).

RESULTS:
Whole-brain metabolism did not differ between on and off conditions. In contrast, metabolism in the region closest to the antenna (orbitofrontal cortex and temporal pole) was significantly higher for on than off conditions (35.7 vs 33.3 μmol/100 g per minute; mean difference, 2.4 [95% confidence interval, 0.67-4.2]; $P = .004$). The increases were significantly correlated with the estimated electromagnetic field amplitudes both for absolute metabolism($R = 0.95$, $P < .001$) and normalized metabolism ($R = 0.89$; $P < .001$).

CONCLUSIONS:
In healthy participants and compared with no exposure, 50-minute cell phone exposure was associated with increased brain glucose metabolism in the region closest to the antenna. This finding is of unknown clinical significance.

#259-11

From: Bruce Beck <springsbest@yahoo.com>
To: "ssullivan@newtonma.gov" <ssullivan@newtonma.gov>, "sschnipper@newtonma.gov" <sschnipper@newtonma.gov>, "asalvucci@newtonma.gov" <asalvucci@newtonma.gov>
Subject: Tonight's Meeting (Please print out)
Date sent: Wed, 21 Sep 2011 07:04:07 -0700 (PDT)
Send reply to: Bruce Beck <springsbest@yahoo.com>
Copies to: "slennon@newtonma.gov" <slennon@newtonma.gov>, "salbright@newtonma.gov" <salbright@newtonma.gov>, "lgentile@newtonma.gov" <lgentile@newtonma.gov>, "clappin@newtonma.gov" <clappin@newtonma.gov>, "dcrossley@newtonma.gov" <dcrossley@newtonma.gov>, "vdanberg@newtonma.gov" <vdanberg@newtonma.gov>

Dear Shawna and Committee Members -

As I am unable to attend tonight's Public Facilities hearing, I am hoping to pass along a request by email so that it might be part of tonight's discussion regarding NextG Networks' request to install cable and antennas on phone poles:

I cannot speak for all the streets listed, but Westbourne Road at the upper (Ward st.) end, has been hit hard by the loss of ALL of our large street trees. Some due to age, some lost to storms. Four or five great trees, that provided the shade and beauty that Newton is famous for. What was once a welcoming look to the beginning of the street now features sadly scorched grass and dying plants in our yards.

I am hoping that in exchange for permission to ***expand their business*** by way of cable and antennas placed on our street, the company might be willing to provide several replacement trees to this area, of reasonable size, to replace those lost. It would be a fine gesture, it would make a huge difference to the appearance of the street, and would help to eventually hide those (not terribly attractive) pole top antennas. I would be happy to meet with neighbors and a company representative to review locations.

We greatly appreciate your consideration, and that of NextG Networks.

B.Beck / 10-12 Westbourne Road
617-244-4383

(Note: I have been advised by Newton's forestry supervisor that there are no City funds available for street tree replacement in Newton's coffers, and none likely in the forseeable future.)