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Also admitted in Massachusetts

June 20, 2014

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **TS-VER-054-140117- Request of Cellco Partnership d/b/a Verizon Wireless for an Order to Approve the Shared Use of an Existing Tower at 2577 Main Street, Glastonbury, Connecticut**

Dear Ms. Bachman:

In accordance with the Siting Council's February 6, 2014 approval of the above-referenced tower share application, enclosed please find copies of the following:

1. A letter from a professional engineer certifying that the coax cable installation and special modifications to the tower were completed in accordance with the FDH Engineering, Inc. structural analysis; and

2. A copy of a Radio Frequency Exposure Report prepared by C-Squared Systems, LLC for the proposed facility, completed following the activation of the cell site.

Further, this letter will act as notification that construction activity associated with this facility has been completed and the site has been activated. If you have any questions or need any additional information, please do not hesitate to contact me.

Sincerely,

Kenneth C. Baldwin

Enclosures

12965181-v1

CENTEK engineering

Centered on Solutions℠

June 16, 2014

Mr. Mark Gauger
Verizon Wireless
99 East River Drive
East Hartford, Connecticut 06108

Re: Tower Modification Certification

Project:	**Verizon Glastonbury West** 2577 Main Street, Glastonbury, CT
Tower Owner:	**SBA Communications** 5900 Broken South Pkwy., Boca Raton, FL
Engineer:	**FHD Engineering** 6521 Meridien Drive, Raleigh, NC

Centek Project No.: 14006.033

Dear Mr. Gauger,

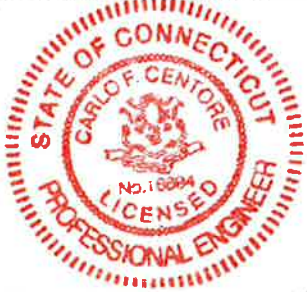
We are providing this "Tower Modification Certification" with regard to the structural components at the above referenced project.

The following are the basis for substantiating compliance with the tower modification documents prepared by FDH Engineering (FDH Project Number: 13SB5C1400):

- Review of the FDH Engineering Structural Analysis dated 09/24/2013.
- Review of the FDH Engineering Modification Inspection Report dated11/01/2013.
- Review of the FDH Engineering Modification Inspection Report dated 02/25/2014.
- Field observations by Centek personnel of the coax and RRH installation on 06/13/2014 which determined all coax lines and RRH's were installed in general compliance with the recommendations of the structural analysis report prepared by FDH Engineering on 09/24/2013
- Field observations by Centek Engineering personnel on 06/13/2014 of the completed modifications .

The modification design prepared by FDH Engineering demonstrates the tower will not exceed 100 percent of the post construction structural rating. The work under this Contract has been reviewed and found, to the Engineer's best knowledge, information and belief, to be completed in general compliance with the documents referenced above. This certification is not a review of the adequacy or effectiveness of the modification/reinforcement solution.

Sincerely,



Carlo F. Centore, PE
Senior Project Manager

Cc: Steve Schadler, Tim Parks, Rachel Mayo

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
(603) 644-2800
support@csquaredsystems.com

RADIO FREQUENCY EXPOSURE REPORT

GLASTONBURY WEST CT

2577 MAIN STREET
GLASTONBURY, CT 06033

June 6, 2014

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1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the recent addition of Verizon Wireless antennas to the existing lattice tower, located at 2577 Main Street in Glastonbury, CT. In addition to Verizon, Clearwire, Sprint, MetroPCS, T-Mobile and AT&T have antennas mounted on the tower. Figure 1 below is a view of the facility.

Verizon recently completed the following installation:

1) Installed 12 antennas (4 per sector) for their LTE, Cellular, PCS and AWS networks
2) Installed 6 RRH's (2 per sector) for their LTE and AWS networks (Cellular & PCS antennas are currently inactive)

Figure 1: View of Glastonbury West Tower

Site Address	2577 Main St, Glastonbury, CT
Latitude	41° 42' 51.81" N
Longitude	72° 36' 46.99" W
Site Elevation AMSL	29'
Verizon Antenna Centerline AGL	80'
LTE License Information	WQJQ689
Cellular License Information	KNKA404
PCS License Information	KNLH251/WPOJ730
AWS License Information	WQGA906/WQGB276
Name of Individual Conducting Survey	Evan Thibodeau
Date and Time of Survey	6/4/2014; 5:00PM-7:00PM

Table 1: Site Specific Data

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment provided they are fully aware of the potential for exposure, and are able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels considered acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population / uncontrolled exposure and for occupational / controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

3. Tower Compound, Equipment & Posted Signage

Equipment shelters for all carriers are located within a common fenced compound. The compound and the Verizon equipment shelter are shown below. There was no site-specific signage posted on the Verizon shelter at the time of the survey.

Figure 2: Fenced Equipment Compound

Figure 3: Verizon Equipment Shelter

The gate to the equipment compound is shown below. This gate was padlocked at the time of the survey. The signage posted on the compound fence, located to the left of the gate, is also pictured below. There is no Verizon-specific signage posted.

Figure 4: Equipment Compound Gate

Figure 5: Signage Posted on Equipment Compound Fence

A close-up of the antennas mounted on the lattice tower is shown below, with each carrier array labeled.

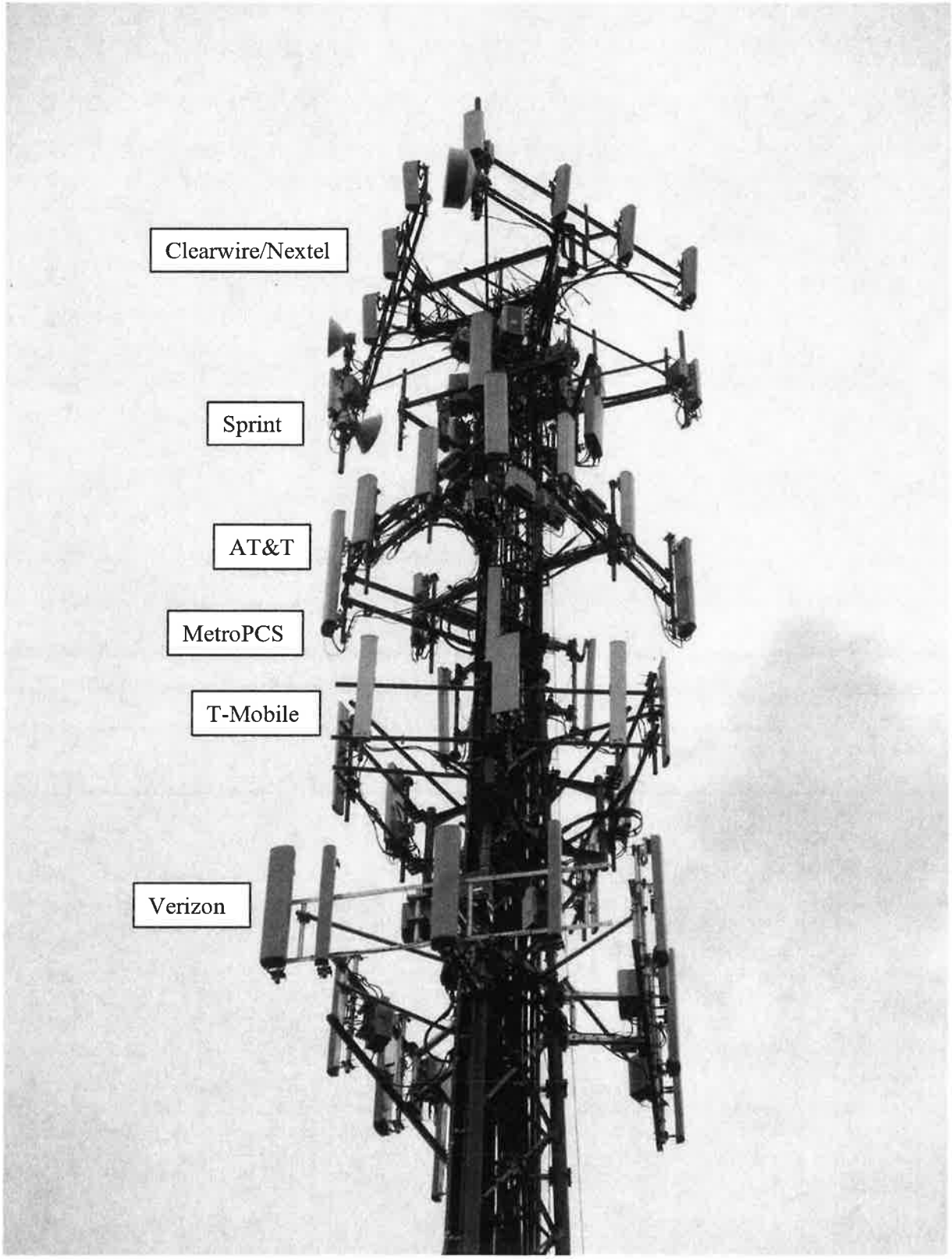

Figure 6: Antennas on Lattice Tower

4. Antenna Inventory

Table 2 below details the Verizon Wireless antenna configuration recently installed on the tower. This inventory is based on information supplied by Verizon Wireless.

Operator	Sector	TX Freq. (MHz)	Power at Antenna (Watts)	Ant Gain (dBi)	Power EIRP (Watts)	Antenna Model	Beam Width	Mech. Downtilt	Length (ft)	Antenna Centerline Height (ft)
Verizon	Alpha	750	80	16.1	3259	BXA-70063/6CF	65	0	6	80.0
		2100	80	19.0	6355	BXA-171063/12CF	60	0	6	80.0
		850	Inactive			BXA-70063/6CF	63	0	6	80.0
		1900	Inactive			BXA-171063/12CF	65	0	6	80.0
	Beta	750	80	16.1	3259	BXA-70063/6CF	65	0	6	80.0
		2100	80	19.0	6355	BXA-171063/12CF	60	0	6	80.0
		850	Inactive			BXA-70063/6CF	63	0	6	80.0
		1900	Inactive			BXA-171063/12CF	65	0	6	80.0
	Gamma	750	80	16.1	3259	BXA-70063/6CF	65	0	6	80.0
		2100	80	19.0	6355	BXA-171063/12CF	60	0	6	80.0
		850	Inactive			BXA-70063/6CF	63	0	6	80.0
		1900	Inactive			BXA-171063/12CF	65	0	6	80.0

Table 2: Verizon Wireless Antenna Inventory[1]

[1] Transmit power assumes 0 dB of loss.

5. Nearby RF Sources

While only Verizon Wireless' Glastonbury West site was the subject of this survey, the measured results in the surveyed area may be affected by other nearby RF sources, and therefore, higher readings cannot be pinpointed to one particular RF source. In this particular instance, no other RF sources were identified during the survey.

6. Measurement Procedure

Frequencies from 300 KHz to 50 GHz were measured using the Narda Probe EA 5091, E-Field, shaped, FCC probe in conjunction with the NBM550 survey meter. The EA 5091 probe is "shaped" such that in a mixed signal environment (i.e.: more than one frequency band is used in a particular location), it accurately measures the percent of MPE.

From FCC OET Bulletin No. 65 - Edition 97-01 – "A useful characteristic of broadband probes used in multiple-frequency RF environments is a frequency-dependent response that corresponds to the variation in MPE limits with frequency. Broadband probes having such a "shaped" response permit direct assessment of compliance at sites where RF fields result from antennas transmitting over a wide range of frequencies. Such probes can express the composite RF field as a percentage of the applicable MPEs".

Probe Description - As suggested in FCC OET Bulletin No. 65 - Edition 97-01, the response of the measurement instrument should be essentially isotropic, (i.e., independent of orientation or rotation angle of the probe). For this reason, the Narda EA 5091 probe was used for these measurements.

Sampling Description - At each measurement location, a spatially averaged measurement is collected over the height of an average human body. The NBM550 survey meter performs a time average measurement while the user slowly moves the probe over a distance range of 20 cm to 200 cm (about 6 feet) above ground level. The results recorded at each measurement location include average values over the spatial distance.

Instrumentation Information - A summary of specifications for the equipment used is provided in the table below.

Manufacturer	Narda Microwave			
Probe	EA 5091, Serial# 01059			
Calibration Date	February 2013			
Calibration Interval	24 Months			
Meter	NBM550, Serial# B-0495			
Calibration Date	January 2013			
Calibration Interval	24 Months			
Probe Specifications	**Frequency Range**	**Field Measured**	**Standard**	**Measurement Range**
	300 KHz-50 GHz	Electric Field	U.S. FCC 1997 Occupational/Controlled	0.2 – 600 % of Standard

Table 3: Instrumentation Information

Instrument Measurement Uncertainty - The total measurement uncertainty of the NARDA measurement probe and meter is no greater than ±3 dB (0.5% to 6%), ±1 dB (6% to 100%), ±2 dB (100% to 600%) with respect to the FCC's 1997 Occupational/Controlled Standard. The factors which contribute to this include the probe's frequency response deviation, calibration uncertainty, ellipse ratio, and isotropic response[2]. Every effort is taken to reduce the overall uncertainty during measurement collection including pointing the probe directly at the likely highest source of emissions.

[2] For further details, please refer to Narda Safety Test Solutions NBM550 Probe Specifications, pg. 64
http://www.narda-sts.us/pdf_files/DataSheets/NBM-Probes_DataSheet.pdf

7. Measurement Locations & Results

Results and a description of each survey location are detailed below in Table 4. Measurements were performed on June 4, 2014, between the hours of 5:00PM and 7:00PM. All %MPE values listed are in reference to the FCC General Population/Uncontrolled exposure limit. The highest spatially averaged measurement was **2.02% MPE (Average Uncontrolled/General Population)** and was recorded at Location 6, in the St. Paul Church parking lot, located southeast of the site.

Measurement Location	Location Description	Latitude	Longitude	Distance from Tower (ft)	Ave % Uncontrolled / General Population
1	Tower Compound Access Gate	41.71450	-72.61297	47	< 1.00
2	Along Eastern Side of Compound Fence	41.71440	-72.61292	37	< 1.00
3	Along Tower Access Road	41.71459	-72.61285	92	< 1.00
4	Along Tower Access Road	41.71469	-72.61239	211	< 1.00
5	Start of Tower Access Road	41.71478	-72.61190	345	1.28
6	**St. Paul Church Parking Lot**	**41.71371**	**-72.61138**	**520**	**2.02**
7	Entrance to Riverfront Park	41.71304	-72.61235	530	1.37
8	Riverfront Park Parking Lot	41.71090	-72.61324	1278	1.55
9	Naubuc Green Apartments - Front Door	41.71400	-72.61391	274	1.53
10	Corner of Welles Street	41.71275	-72.61606	1017	1.31
11	Naubuc Avenue & Welles Street	41.71536	-72.61749	1261	1.59
12	Parker Terrace Ext. & Parker Terrace	41.71681	-72.61620	1233	1.84
13	Parker Terrace & Naubuc Avenue	41.71602	-72.61400	647	1.43
14	Naubuc Avenue & Main Street	41.71631	-72.61201	755	1.01
15	M&R Liquors Parking Lot	41.71867	-72.61374	1576	1.91
16	28-30 Crossroads Lane	41.71775	-72.61034	1433	< 1.00
17	Whitney Lane & Grove Street	41.71619	-72.60906	1272	< 1.00
18	Grove Street & Welles Street	41.71400	-72.60840	1277	1.10
19	30-60 Hebron Avenue	41.71247	-72.60771	1618	1.88
20	St. Paul Church Front Entrance	41.71447	-72.61069	644	< 1.00

Table 4: Measurement Values

Figure 7 below is an aerial view of the surrounding area, showing the locations of the tower and of the measurements recorded on June 4, 2014. Figure 8 is an aerial view of the tower location and the measurements recorded in close vicinity to the tower and compound.

Figure 7: Aerial View of Tower & All Measurement Locations

Figure 8: Aerial View of Tower & Nearby Measurement Locations

8. Summary of Findings

A number of publicly accessible areas around the lattice tower located at 2577 Main Street in Glastonbury, CT were surveyed and found to be well within the mandated Uncontrolled/General Population limit for Maximum Permissible Exposure, as delineated in the Federal Communications Commission's Radio Frequency exposure rules published in 47 CFR 1.1307(b)(1)-(b)(3).

The highest spatially averaged measurement in publicly accessible areas was **2.02% (Average Uncontrolled/General Population MPE)** and was recorded in the rear parking lot of St. Paul Church. This measurement location is approximately 520' southeast of the tower.

The above analysis concludes that power density levels, at ground level around the site, do not exceed the Maximum Permissible Exposure limit, as outlined by the FCC in the OET Bulletin 65 Ed. 97-01.

9. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate.

Daniel L. Goulet
C Squared Systems, LLC

June 6, 2014
Date

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

ANSI C95.1-1982, American National Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 300 kHz to 100 GHz. IEEE-SA Standards Board

IEEE Std C95.3-1991 (Reaff 1997), IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave. IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[3]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (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[4]

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (E) (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

Table 5: FCC Limits for Maximum Permissible Exposure

[3] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[4] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

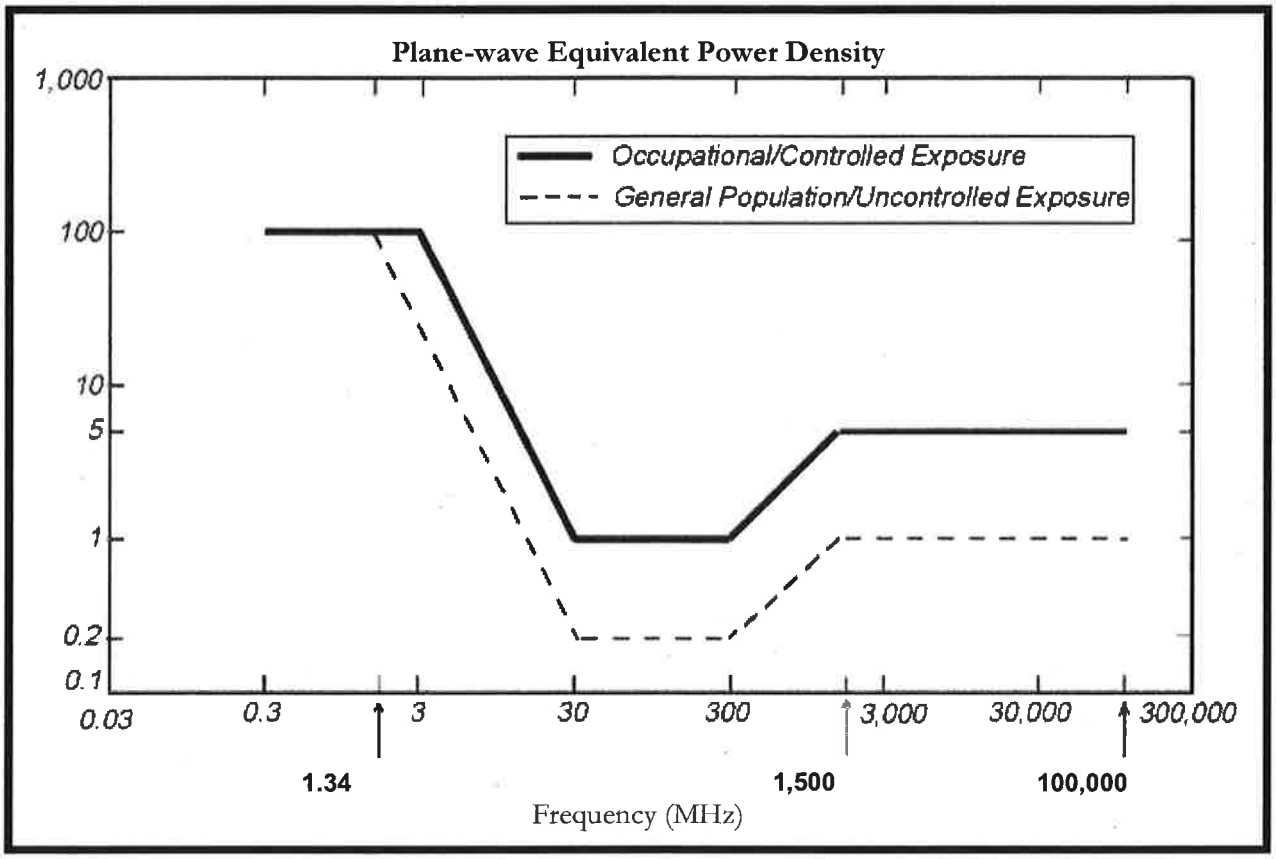

Figure 9: Graph of FCC Limits for Maximum Permissible Exposure (MPE)