

THE STATE OF TEXAS  
  
COUNTY OF FORT BEND



**RADIO COMMUNICATIONS SYSTEM  
LICENSE**

**KNOW ALL BY THESE PRESENTS:**

This non-exclusive License (hereinafter referred to as "LICENSE") is made by and between the **City of Missouri City** and the **City of Sugar Land** (collectively hereinafter referred to as "LICENSOR") and the **County of Fort Bend** (hereinafter referred to as "LICENSEE"), for the use of the radio communications system located at 3849 Cartwright Road, Missouri City, Texas (hereinafter referred to as "FACILITY").

W I T N E S S E T H:

**WHEREAS**, the City of Missouri City and the City of Sugar Land have entered into an interlocal agreement for the joint ownership of FACILITY; and

**WHEREAS**, LICENSEE desires to use a portion of LICENSOR's FACILITY for emergency management communications; and

**WHEREAS**, LICENSOR desires to provide LICENSEE with a non-exclusive LICENSE to use FACILITY for emergency management communications;

**NOW, THEREFORE**, for the consideration and on the terms, provisions and conditions hereinafter set forth, the parties agree as follows:

**Location**

1. The FACILITY to be provided by LICENSOR addressed at 3849 Cartwright Road, Missouri City, Texas, is more fully depicted in the Site Plan, a copy of which is attached hereto and incorporated herein as Exhibit "A".

**Permitted Uses**

2.01 LICENSOR grants to LICENSEE a non-exclusive LICENSE to use the FACILITY for the transmission and reception of emergency management radio communications. This use includes the installation, use, operation, maintenance, repair, replacement or upgrade of antennas or other LICENSOR-approved equipment and fixtures on the FACILITY. LICENSEE may install and use the following equipment (the "COMMUNICATION EQUIPMENT") on the FACILITY:

2 each Diamond X50NA Dual-band Base/Repeater Antennas and associated cabling.

2.02 LICENSEE shall secure written approval from LICENSOR to increase the number antennas placed on the FACILITY or to install or use any other equipment or fixtures on the FACILITY. LICENSOR agrees that such approval will not be unreasonably withheld, conditioned or delayed. A current and accurate Site plan must be submitted to LICENSOR by LICENSEE and maintained on file with LICENSOR for

the entire term of this LICENSE. All antennas, equipment, and fixtures shall comply with the technical specifications as set forth in Exhibit "B", which is attached hereto and incorporated herein.

2.03 During the term of this LICENSE, LICENSOR agrees that LICENSEE shall have access to the FACILITY; provided, however, that such access shall be limited to authorized officers, agents, employees, representatives, contractors, invitees, or anyone acting on LICENSEE's behalf (hereinafter referred to as "authorized representatives"). LICENSEE shall notify LICENSOR of entry and exit times from the FACILITY. LICENSOR may require that authorized representatives of LICENSEE be accompanied to and from the FACILITY by LICENSOR. LICENSOR may provide LICENSEE with a key to access any gates surrounding the FACILITY.

### **Interlocal Cooperation**

3.01 This LICENSE is entered into pursuant to and in furtherance of the Interjurisdictional Emergency Management Plan to which LICENSEE AND LICENSOR are parties and for the mutual benefits that will accrue from the location of the COMMUNICATION EQUIPMENT on the FACILITY. LICENSEE shall bear the expense of acquiring, locating, placing and maintaining the COMMUNICATION EQUIPMENT and the City of Missouri City shall bear the expense for electricity to power the COMMUNICATION EQUIPMENT.

3.02 Each party paying for the performance of governmental functions or services must make those payments from current revenues available to the paying party.

### **Term**

4.01 This LICENSE shall be for an initial term of one (1) year, commencing on the date of execution by all parties to this LICENSE.

4.02 This LICENSE shall automatically renew for five additional one (1) year terms after the initial term expires, unless LICENSOR or LICENSEE notifies the other of its intention not to renew at least ninety (90) days prior to the expiration of the initial term. Each additional one (1) year term shall automatically renew for an additional one (1) year after the preceding additional one (1) year term expires, unless LICENSOR or LICENSEE notifies the other of its intention not to renew at least ninety (90) days prior to the expiration of the additional one (1) year term. All the terms, provisions and conditions of this LICENSE shall apply to all extension periods, subject to amendment by the mutual agreement of the parties, in writing and signed by both parties. At the expiration of all of the extension periods provided herein, unless renewed or superseded, this LICENSEE shall continue from month-to-month under the then current terms, provisions and conditions, and such month-to-month may be terminated by either party upon at least thirty (30) days written notice to the other party.

### **Termination**

5.01 Upon the occurrence of any one or more of the events listed below (hereinafter "Events of Default") and LICENSEE's failure to cure as provided in §5.03, LICENSOR may, without penalty, at its option and without prejudice to any other remedy to which it may be entitled at law or equity, or otherwise under this LICENSE, terminate this LICENSE, either in whole or in part.

5.02 Such termination may be as provided elsewhere in this LICENSE or upon the occurrence of any one or more of the following "Events of Default":

- a. In the event LICENSEE violates any provision of this LICENSE;
- b. In the event that termination is in the best interest of the public health, safety and welfare. This determination shall be within the sole discretion of the LICENSOR; or
- c. In the event that LICENSEE fails to maintain the FACILITY in a neat, orderly, and aesthetically acceptable condition.

5.03 Notwithstanding any provision in this LICENSE to the contrary, upon occurrence of an Event of Default, LICENSOR shall deliver to LICENSEE a Notice of Intent to Terminate that identifies the Event of Default. If the Event of Default remains uncured for thirty (30) days after Notice is given, LICENSOR may terminate this LICENSE by then providing to LICENSEE a Notice of Termination that identifies the effective date of termination.

5.04 If, after execution of this LICENSE, LICENSEE is prohibited by governmental authority from using the FACILITY for its permitted use under this LICENSE or such permitted use is materially adversely impaired due to action of the Federal Communications Commission, this LICENSE may be terminated upon sixty (60) days written notice to LICENSOR. In such event, within ninety (90) days of such termination, all antennas, equipment and fixtures of LICENSEE's must be removed from the FACILITY.

#### **Assignment or Sublease**

6. LICENSEE may not assign or delegate any rights or obligations under this LICENSE, nor may LICENSEE sublease its use of the FACILITY. Any such attempts by LICENSEE shall be without effect.

#### **Damages to Property**

7. LICENSEE shall immediately notify LICENSOR of any and all damages resulting from, arising out of, or caused to the FACILITY or any property or equipment, including, but not limited to, structural damages, electrical damages, damages to fencing, irrigation systems or landscaping which is caused by LICENSEE or its authorized representatives. LICENSEE shall be solely responsible for the costs and the repair of all such damages and such repairs shall be completed in a timely manner acceptable to LICENSOR.

#### **Interference**

8. LICENSEE shall not cause electrical interference, or any other interference, to LICENSOR, to property owners or lessees located within 200 feet of the FACILITY or to any other third-party user that commences use of the FACILITY before LICENSEE commences its use of the FACILITY. Should interference occur, LICENSEE will promptly take all steps necessary to correct such interference within ten (10) days of notice of the problem; and, if such interference cannot be eliminated within ten (10) days of such notice, LICENSOR shall suspend LICENSEE's use of the FACILITY while the interference problems are studied and a means to eliminate the problem is found. Any such method for correction of an interference problem must be acceptable to LICENSOR. If the interference complained of cannot be eliminated, LICENSEE will cease its use of FACILITY, remove all antennas, equipment and fixtures within ninety (90) days of the date the LICENSOR determines that the interference cannot be eliminated, and this LICENSE shall be terminated.

### **Utilities**

9. LICENSEE will be responsible for any and all costs associated with all utilities, including, but not limited to, electrical or natural gas hookups, maintenance and service, which is due to LICENSEE's use of the FACILITY. LICENSEE's responsibility under this section shall not extend to or include the expense for electricity to power the COMMUNICATION EQUIPMENT.

### **Liability and Hold Harmless**

10.01 LICENSEE shall at all times comply with all laws and ordinances and all rules and regulations of local, state and federal government authorities relating to the use of the FACILITY.

10.02 LICENSOR shall not be liable to LICENSEE by reason of inconvenience, annoyance or injury to FACILITY, or activities conducted by LICENSOR therefrom, arising from the repairing of any portion of the FACILITY, or from the making of any necessary alteration or improvements in or to any portion of the FACILITY or in or to its fixtures, appurtenances or equipment; provided, however, that LICENSOR shall use reasonable efforts to minimize material interference to LICENSEE's use of the FACILITY.

10.03 If the FACILITY or the means of access thereto is damaged by casualty, fire, flood, hurricane or other action of the elements, the damage (except to any equipment that may have been placed in or on the FACILITY by or at the expense of LICENSEE or another lessee) shall be repaired by LICENSOR unless this LICENSE is terminated as hereinafter provided. In the event that the damage by casualty, fire, flood, hurricane or by other action of the elements substantially amounts to the destruction of the FACILITY, LICENSOR will notify LICENSEE within sixty (60) days as to whether LICENSOR intends to rebuild or reconstruct the FACILITY, as applicable. If LICENSOR elects to so rebuild or reconstruct, LICENSOR shall, in the above-mentioned notice to LICENSEE, elect, at its option, either to terminate this LICENSE, or to keep the LICENSE in full force and effect. If LICENSOR elects to rebuild or reconstruct and does not elect to terminate this LICENSE, LICENSEE shall have the right to notify LICENSOR, within thirty (30) days after receipt of LICENSOR's notice to LICENSEE, that LICENSEE elects to terminate this LICENSE. If LICENSOR shall either elect not to so rebuild or reconstruct, or shall elect to so rebuild or reconstruct, and terminate this LICENSE, or if LICENSEE shall elect to terminate this LICENSE, this LICENSE shall expire as fully and completely as if that were the date herein definitely fixed for the expiration of the original Term of the LICENSE.

10.04 In case of damage to the FACILITY or to the means of access thereto by casualty, by fire, flood, hurricane or any other action of the elements, the party first becoming aware of such damage shall give immediate notice thereof to the other party.

### **Insurance**

11. LICENSEE has informed LICENSOR that LICENSEE maintains a reasonable and prudent program of insurance and self insurance. LICENSEE shall insure and self-insure for the duration of this LICENSE, at LICENSEE's sole expense, to

at least the extent of One Million (\$1,000,000) dollars in Commercial General Liability and Workers' Compensation insurance. LICENSEE shall notify LICENSOR in writing immediately regarding any change in its insurance or self insurance program.

#### **Condition of Premises**

12.01 LICENSOR shall maintain the FACILITY in compliance with all applicable local, state, and federal laws and rules and in a manner which will not interfere with LICENSEE's reasonable use of the FACILITY. Upon expiration, cancellation, or termination of this LICENSE, LICENSEE will have the right to remove its antennas, equipment and fixtures from the FACILITY at LICENSEE's sole cost and expense. If LICENSEE fails to remove its antennas, equipment or fixtures within ninety (90) days after expiration, cancellation, or termination of this LICENSE, then LICENSOR may remove LICENSEE's antennas, equipment or fixtures from the FACILITY and assess the reasonable cost of removal to LICENSEE. LICENSEE agrees that title will transfer to LICENSOR, if LICENSOR so elects, to all such antennas, equipment and fixtures remaining on FACILITY or abutting property if not removed by LICENSEE within ninety (90) after expiration, cancellation or termination of this LICENSE. Upon vacation of the FACILITY, LICENSEE shall surrender the FACILITY in substantially the same condition as received, except for ordinary wear and tear.

12.02 LICENSEE shall have sole responsibility for its antennas, equipment and fixtures and shall keep same in good repair and condition during the term this LICENSE.

12.03 LICENSEE shall keep the FACILITY free of debris and anything reasonably determined to be of a dangerous, noxious, or offensive nature or which would create a hazard or undue vibration, heat, noise, or interference.

12.04 In the event LICENSOR or any other third-party user undertakes painting, construction, repair or maintenance or other alterations to the FACILITY, LICENSEE shall take reasonable measures at LICENSEE's cost to cover or protect all of LICENSEE's antennas or equipment and fixtures during the painting, construction, repair or maintenance to the FACILITY. LICENSOR shall not be responsible for any damages or costs incurred by LICENSEE due to the actions or omissions of any third-party user upon the FACILITY. LICENSOR shall provide ten (10) days written notice to LICENSEE prior to undertaking such painting, construction, repair or maintenance or alterations to the FACILITY.

12.05 LICENSOR makes no representation or warranty with respect to the condition of the FACILITY, and LICENSOR shall not be liable for any latent or patent defect in the FACILITY. LICENSOR agrees to notify LICENSEE of the existence of any latent defects of which the LICENSOR has knowledge.

12.06 LICENSEE shall secure all required permits before construction commences and pay all required permit fees, if applicable.

#### **Notice**

13.01 All notices to the parties shall be in writing and shall be sent by (1) certified mail; (2) hand delivered to the respective representatives for the parties as designated below; (3) depositing with FedEx or another nationally recognized courier service guaranteeing "next day delivery;" or (4) by sending by telefax with confirming copy sent by mail:

LICENSOR:  
City of Missouri City  
Attention: Wes Vela  
Director, Finance Department  
1522 Texas Parkway  
Missouri City, Texas 77489  
Telephone: 281/403-8500  
Fax: 281/208-5600  
Email: wvela@missouricitytx.gov

LICENSEE:  
Fort Bend County  
Attention: \_\_\_\_\_  
(Title)  
(address)  
\_\_\_\_\_  
Richmond, Texas 77469  
Telephone: \_\_\_\_\_  
Fax: \_\_\_\_\_  
Email: \_\_\_\_\_

13.02 Either party may change its address by giving five (5) days written notice as herein provided to the other party.

#### **Site Plan**

14. The Site plan (attached hereto as Exhibit "A") must be approved by LICENSOR prior to the execution of this LICENSE, with approval or disapproval not to be unreasonably delayed or withheld. The Site plan shall describe and illustrate the location of the antennas, equipment and fixtures to be used on the FACILITY. The Site plan shall include a scale drawing and inventory analysis of the proposed installations, as well as an elevation of the FACILITY with the proposed installations. If LICENSEE fails materially to comply with the approved Site plan, at any time, as reasonably determined by LICENSOR, then LICENSOR shall have the right to terminate this LICENSE upon notice to LICENSEE if LICENSEE fails to cure such noncompliance within ninety (90) days after written notice. Any and all proposed modifications to LICENSEE's Site plan must be approved in writing by LICENSOR before LICENSEE may implement such change. Approval of such modifications is within the sole discretion of LICENSOR, not to be unreasonably withheld.

#### **Entire Agreement**

15. THIS LICENSE, TOGETHER WITH ALL EXHIBITS ATTACHED HERETO AND INCORPORATED HEREIN, CONSTITUTES THE ENTIRE AGREEMENT BETWEEN THE PARTIES WITH RESPECT TO THE SUBJECT MATTER COVERED IN THIS AGREEMENT. THERE IS NO OTHER COLLATERAL ORAL OR WRITTEN AGREEMENT BETWEEN THE PARTIES THAT IN ANY MANNER RELATES TO THE SUBJECT MATTER OF THIS AGREEMENT.

#### **Capacity**

16. Both LICENSEE and LICENSOR represent that they have full capacity and are authorized to grant all rights and assume all obligations they have granted and assumed under this LICENSE.

#### **Governing Law**

17. The validity of this LICENSE and any of its terms, provisions and conditions, as well as the rights and duties of the parties, shall be governed by the laws of the State of Texas; and exclusive venue for any action concerning this LICENSE shall be in Fort Bend County, Texas.

#### **Modification**

18. This LICENSE may only be modified by the mutual written agreement signed by the parties hereto.

### **Legal Construction; Severability**

19. In the event that any one or more of the terms, provisions or conditions contained in this LICENSE shall for any reason be held to be invalid, illegal, or unenforceable in any respect, such invalidity, illegality, or unenforceability shall not affect the other terms, provisions or conditions; and the LICENSE shall be construed as if such invalid, illegal, or unenforceable term, provision or condition had never been contained in it.

### **Interpretation**

20.01 Whenever herein the singular number is used, the same shall include the plural, and the neuter gender shall include the feminine and masculine genders.

20.02 The captions used in this LICENSE are for convenience only and do not in any way limit or amplify the terms, provisions or conditions thereof.

### **Nonwaiver**

21. No right or remedy granted herein or reserved to the LICENSOR is exclusive of any right or remedy granted by law or equity provided or permitted; but each shall be cumulative of every right or remedy given hereunder. No term, provision or condition of this LICENSE may be waived without consent of the parties. It is further agreed that one (1) or more instances or forbearance by LICENSOR in the exercise of its rights herein shall in no way constitute a waiver thereof.

### **Independence**

22. LICENSEE covenants and agrees that its authorized representatives are not officers, agents, employees, representatives, or contractors of LICENSOR; that LICENSEE shall have exclusive control of and exclusive right to control the details of the work performed hereunder and all persons performing same and shall be responsible for the acts and omissions of its authorized representatives; that the doctrine of respondeat superior shall not apply as between LICENSOR and LICENSEE, its officers, agents, employees, contractors, subcontractors and consultants, and nothing herein shall be construed as creating a partnership or joint enterprise between LICENSOR and LICENSEE.

### **Subordination to Mortgage**

23. Any mortgage now or subsequently placed upon any property of which the FACILITY is a part shall be deemed to be prior in time and senior to the rights of the LICENSEE under this LICENSE. LICENSEE subordinates all of its interest in the FACILITY created by this LICENSE to the lien of any such mortgage. LICENSEE shall, at LICENSOR's request, execute any additional documents necessary to indicate this subordination, provided that such mortgage shall not disturb possession of LICENSEE hereunder.

(Signature page follows)

**EFFECTIVE DATE** for this LICENSE shall be as of the date same is finally executed by all parties.

“LICENSOR”

**The City of Missouri City**

\_\_\_\_\_  
Allen Owen, Mayor

ATTEST:

APPROVED AS TO FORM:

\_\_\_\_\_  
Maria Gonzalez, Deputy City Secretary

\_\_\_\_\_  
Caroline Kelley, City Attorney

\_\_\_\_\_  
Date

**The City of Sugar Land**

\_\_\_\_\_  
Allen Bogard, City Manager

ATTEST:

APPROVED AS TO FORM:

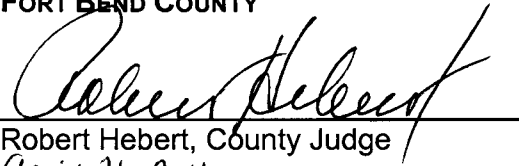
\_\_\_\_\_  
Glenda Gundermann, City Secretary

\_\_\_\_\_  
Joe Morris, City Attorney

\_\_\_\_\_  
Date

"LICENSEE"

FORT BEND COUNTY



Robert Hebert, County Judge

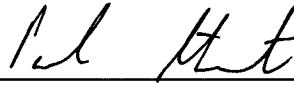
April 26, 2011

APPROVED AS TO FORM:

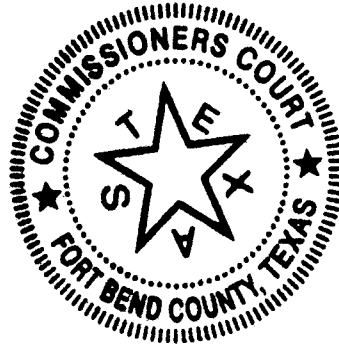
ATTEST:



Dianne Wilson, County Clerk



Paul Stewart, Assistant County Attorney



**CONSENT TO ENTER INTO A RADIO COMMUNICATIONS SYSTEM LICENSE  
WITH FORT BEND COUNTY RELATING TO THE PLACEMENT OF  
EQUIPMENT FOR EMERGENCY OPERATIONS PURPOSES  
ON A CERTAIN RADIO COMMUNICATIONS SYSTEM**

Whereas, pursuant to the Interlocal Agreement Between the Cities of Sugar Land and Missouri City for the Joint Ownership of a Radio Communications System, dated January 27, 1997, and continued in the Interlocal Agreement Between the City of Missouri City ("Missouri City") and the City of Sugar Land ("Sugar Land"), signed by Missouri City on March 20, 2007 and by Sugar Land on April 19, 2007 (hereinafter "the 2007 Interlocal Agreement"), by which they jointly own, in equal shares, a certain radio antennae tower and radio system infrastructure located at 3849 Cartwright Road in Missouri City, Texas ("radio system"); and

Whereas, Missouri City and Sugar Land each desire to cooperate with Fort Bend County to allow the installation and use of two Diamond X50NA dual-band base/repeater antennas and associated cabling to improve communications for emergency operations by entering into a license agreement with Fort Bend County for the installation and use of such equipment; and

Whereas, the 2007 Interlocal Agreement requires that a majority of the radio system Ownership Committee, which consists of two representatives of each city, consent to any agreement with a third party relating to the use of the radio system or any component thereof; and

Whereas, the Ownership Committee desires to consent to the Radio Communications System License with Fort Bend County for the installation and use of such equipment at the radio system site for emergency operations purposes;

Now, therefore, for the mutual benefits set forth herein, the radio system Ownership Committee consents to the Radio Communications System License with Fort Bend County for the installation and use of two Diamond X50NA dual-band base/repeater antennas and associated cabling on the radio system.

Signed this the \_\_\_\_ day of \_\_\_\_\_, 2011.

**OWNERSHIP COMMITTEE**

---

Frank Simpson, City Manager  
City of Missouri City

---

Joel Fitzgerald, Chief of Police  
City of Missouri City

---

Allen Bogard, City Manager  
City of Sugar Land

---

Doug Brinkley, Chief of Police  
City of Sugar Land



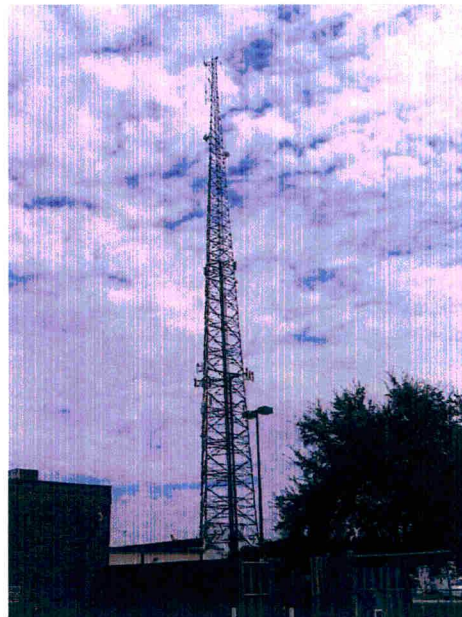
**CTS CONSOLIDATED TELECOM SERVICES, LLC**

4544 S Lamar Blvd., Bldg. G-300  
Austin, Texas 78745  
P.O. Box 2110  
Round Rock, Texas 78680

Phone: 512-477-4287  
Fax: 512-495-9473

**Fort Bend County - OEM  
Missouri City Tower**  
8036.001-001  
Existing 400-ft Self Support Tower

**Structural Analysis**  
March 7, 2011



Adrian Sepulveda, P.E.

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## 1) INTRODUCTION

Client Information: Bob Baker  
 Fort Bend County Office of Emergency Management  
 307 Fort Street  
 Richmond, TX 77469-7728

Tower Information: Existing 400-ft Self Support Tower

Tower Location: 3849 Cartwright Road  
 Missouri City, TX 77459  
 Harris County  
 N29 34' 53.0", W95 34' 0"

We are pleased to report to you the results of CTS's structural analysis of the existing 400-ft self support tower at the above-referenced site. The intent of this analysis is to assess the existing tower including the proposed Fort Bend County appurtenances. For a summary of the tower structure as modeled and a list of the appurtenances analyzed, refer to the appurtenance listing tables and the attached elevation drawing E-1.

## 2) ANALYSIS SUMMARY

TABLE 1 - RESOURCES

Tower Elevation Drawing:	Prepared by Semaan Engineering Solutions, dated December 14, 2005.
Tower Mapping Report:	Prepared by Advantage1 Wireless Services, dated September 21, 2010.
RF Site Design:	Prepared by Bob Baker, received November 30, 2010.
Site Visit:	CTS Telecom performed a limited site visit on August 17, 2010.
Tower Analysis Software:	RISA Tower v. 5.4.2.0

TABLE 2 – ANALYSIS CRITERIA

Code:	ANSI/TIA-222-G <ul style="list-style-type: none"> <li>• Structure Classification = III</li> <li>• Exposure Category = B</li> <li>• Topographic Category = 1</li> </ul>
Design Load Cases:	Strength: Wind Speed = 110 mph Strength with Ice: Wind Speed = 30 mph + ½" radial ice Serviceability: Wind Speed = 60 mph

TABLE 3 – RESULTS SUMMARY

Tower Rating:	101.2% - The tower passes.
Tower Remediation:	The tower does not require remediation.
Tower Foundation:	The existing foundation passes.

**3) APPURTENANCE LISTING**

TABLE 4 – EXISTING APPURTENANCE INFORMATION

Elevation	App. Qty	Loading Type	AZ. / Location	Line Qty	Line	Tenant
400'	1	20ft Lightning Rod <sup>2</sup>	N Leg	N/A	N/A	N/A
400'	1	Beacon	S Leg	1	S/O	N/A
396'6"	1 1 1	DB812K-XT 48" Standoff Mount TMA	E Leg	1	7/8" Coax	Unknown
395'9"	1 1 1	DB812KE-Y 48" Standoff Mount TMA	S Leg	1	1-1/4" Coax	Unknown
392'8"	1 1	Bird 101-83B-09-0-03 7' Standoff Mount	N Leg	1 1	1-1/4" Coax	Unknown
385'4"	1 1 1	15' Whip Antenna <sup>2</sup> 7' Standoff Mount TMA	N Leg	1	7/8" Coax	Unknown
371'	2 2 2	Bird 101-83B-09-0-03 6' Standoff Mount TMA	N & E Legs	2 2	7/8" Coax 1/2" Coax	Unknown
364'7"	1 1	15' Whip Antenna <sup>2</sup> 7' Standoff Mount	E Leg	1	1-1/4 Coax	Unknown
340'	2 2 1	SC412-HF2LDF 6ft Standoff Mount TTA	S & E Leg S & E Leg SW Face	2 1	AVA5-50 LDF4-50	COH
327'	1 1	Gabriel 6ft MW (Not In Service) 4.5" OD Dish Pipe Mount	E Leg	1	5/8" Coax	Unknown
317'	1 1	SE419-SF3PALDF 3ft Standoff Mount	200° S Leg	1	LDF6-50	COH
312'	1 1	MaxRad 2ft MW 4.5" OD Dish Pipe Mount	S Leg	N/A	N/A	Unknown
307'	1 1	Gabriel 6ft MW (Not In Service) 4.5" OD Dish Pipe Mount	S Leg	1	5/8" Coax	Unknown
301'	3	Obstruction Light	All Legs	1	S/O	N/A

TABLE 4 – EXISTING APPURTENANCE INFORMATION (CONTINUED)

Elevation	App. Qty	Loading Type	AZ. / Location	Line Qty	Line	Tenant
216'	9 9	6ft Panel Antennas <sup>2</sup> TMAs (1 Per Antenna)	2 Per Leg 1 Per Face	20	1-5/8" Coax	Unknown
202'6"	2	Beacon	N & S Legs	1	S/O	N/A
150'	1 1	PAD6-59B 4.5" OD Dish Pipe Mount	166.7° E Leg	1	E60	GHC
146'	1 1	PAD6-65B 4.5" OD Dish Pipe Mount	266.4° S Leg	1	E65	GHC
137'	9 3 18 6	EMS MB72RR80VDPALQ 10' Sector Mount Duplexer (2 Per Antenna) TMA (2 Per Sector)	All Legs (3 Antennas Per Sector)	18	1-5/8" Coax	Unknown
125'	1 1	UHX8-65E LF 4.5" OD Dish Pipe Mount	59.3° E Leg	1	E65	COH
120'	1 1	PAD6-59B 4.5" OD Dish Pipe Mount	166.7° E Leg	1	E60	GHC
119'	1 1	VHLP2-11-DW1 2' MW Dish 4.5" OD Dish Pipe Mount	S Leg	1	1/2" Coax	Unknown
119'	1 1	VHLP2-23-DW1 2' MW Dish 4.5" OD Dish Pipe Mount	N Leg	2	5/16" Coax	Unknown
119'	1 1	VHLP2.5-23-DW1 2' MW Dish 4.5" OD Dish Pipe Mount	E Leg	1	1/2" Coax	Unknown
116'	1 1	PAD6-65B 4.5" OD Dish Pipe Mount	266.4° S Leg	1	E65	GHC
114'8"	3 3	Argus LLPX310R-V1 TMA	All Legs	3 3	3/16" 5/16" Coax	Unknown
112'6"	6	Scala AP17-1900/063D	2 Per Face	6	1-5/8" Coax	Unknown
105'6"	1 1	SU3-107 (Ceragon FibeAir) 3' Dish 4.5" OD Dish Pipe Mount	E Leg	2	3/8" Coax	Unknown

TABLE 4 – EXISTING APPURTENANCE INFORMATION (CONTINUED)

Elevation	App. Qty	Loading Type	AZ. / Location	Line Qty	Line	Tenant
102'	3	Obstruction Light	All Legs	1	S/O	N/A
99'	1 1	VHLP2-18-CR1 2' MW Dish 4.5" OD Dish Pipe Mount	E Leg	2	3/8" Coax	Unknown
10'-340'	1	12 Hole Feedline Ladder in 20ft Long Sections	NE Face	N/A	N/A	N/A

TABLE 5 – PROPOSED APPURTENANCE INFORMATION

Elevation	App. Qty	Loading Type	AZ. / Location	Line Qty	Line	Tenant
330'	2 2	Diamond X50NA Dualband 6ft Standoff Mount	N & S Leg N & S Leg	2	LDF5-50A	Fort Bend County - OEM

Notes:

1. If there are any discrepancies from or modifications made to the appurtenance loading listed above, CTS should be notified immediately.
2. The exact makes and models of these appurtenances were not made known nor were visible during the tower mapping. As such, conservative estimates were made regarding the sizes and weights of these appurtenances.
3. Shielding of the lines was modeled to best represent the conditions affecting the tower.

**4) STRUCTURAL ANALYSIS**

**4.1) Assumptions**

1. All tower legs, horizontals, and diagonals meet ASTM A572 grade 50, A53 grade 42, or A36 standards. Refer to the elevation drawing for more information.
2. All bolts meet ASTM A325 standards.
3. All members and components are in good condition, properly assembled, and free of defects that could adversely affect their capacities.
4. Any bolted or welded connection is adequate to develop the full capacity of the members joined and can transfer all the loads analyzed herein.
5. All bolted connections are adequately tightened.
6. All antenna mounts and other supporting mechanisms are capable of supporting the applied loads.
7. The tower base foundation is adequate to support the applied loads purely for purposes of modeling the tower in RISA Tower.
8. All coaxial cables are properly secured and supported along the face of the tower. Refer to E-7 & E-7.1 for information on coaxial cable locations.

**4.2) Findings & Conclusions**

TABLE 7 – STRESS RESULTS

Component Type	Maximum Stress Ratio	Controlling Elevation (ft)	Pass/Fail	Comment:
Legs	101.1%	220-230	Pass	Bottom Legs at 84.8%
Diagonals	91.1%	40-60	Pass	
Horizontals	86.8%	100-120	Pass	
2 <sup>nd</sup> Horizontals	89.2%	220-230	Pass	
Red. Horizontal 1	74.6%	100-120	Pass	
Red. Horizontal 2	101.2%	0-20	Pass	See Note 2
Red. Sub. Horiz.	48.2%	180-200	Pass	
Red. Diagonal 1	51.6%	160-180	Pass	
Red. Diagonal 2	53.6%	20-40	Pass	
Girt	0.7%	400	Pass	
Hip	1.7%	20-40	Pass	
All Bolts	83.4%	60	Pass	Diagonal Member Bearing

Notes:

1. The Maximum Stress Ratio is the ratio of the maximum actual force in the member is relative to the ultimate force as determined by the code requirements expressed as a percentage.
2. A maximum stress ratio between 100% and 105% may be considered as acceptable according to the industry standard practice.

The results of the structural analysis on the existing tower indicate the maximum stressed tower member is at 101.2% of its design capacity. Based on conservative simplifications and assumptions made in the analysis, stress ratios up to 105% are considered acceptable. Therefore, the existing tower has the design capacity to support the existing and proposed loading. This finding is only valid based on the coaxial cable layout shown on Sheets E-7 & E-7.1 and the assumptions previously listed.

Additionally the criteria for twist, sway, and horizontal displacement should be met to ensure that the antennas function correctly during the 60 mph service wind loading events. This tower under these conditions does meet the twist, sway, and horizontal displacement requirements.

The foundation reactions from CTS's structural analysis were found to be less than or equal the reactions from the previous design. Therefore, it was concluded that the foundation has the design capacity to support the existing and proposed loading. This finding is valid based on the assumptions previously listed.

#### 4.3) Limitations

This engineering analysis is based upon the theoretical capacity of the structure. It is not an assessment of the condition of the tower or its foundation. If there are any discrepancies between the information used by CTS and the existing tower, please contact CTS immediately.

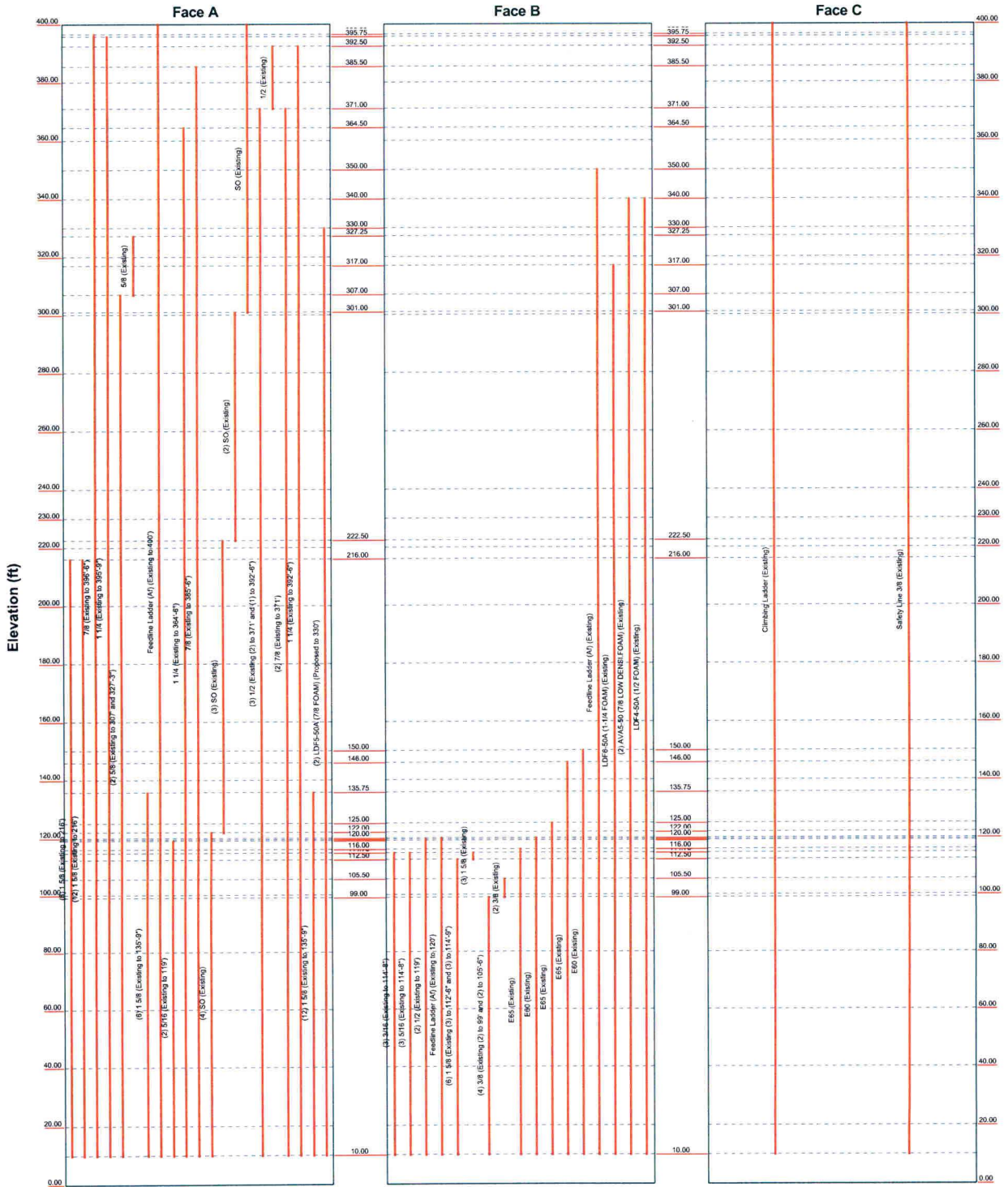
All opinions and conclusions are subject to revision based upon receipt of new, additional or updated information.

APPENDIX



Feedline Distribution Chart  
0' - 400'

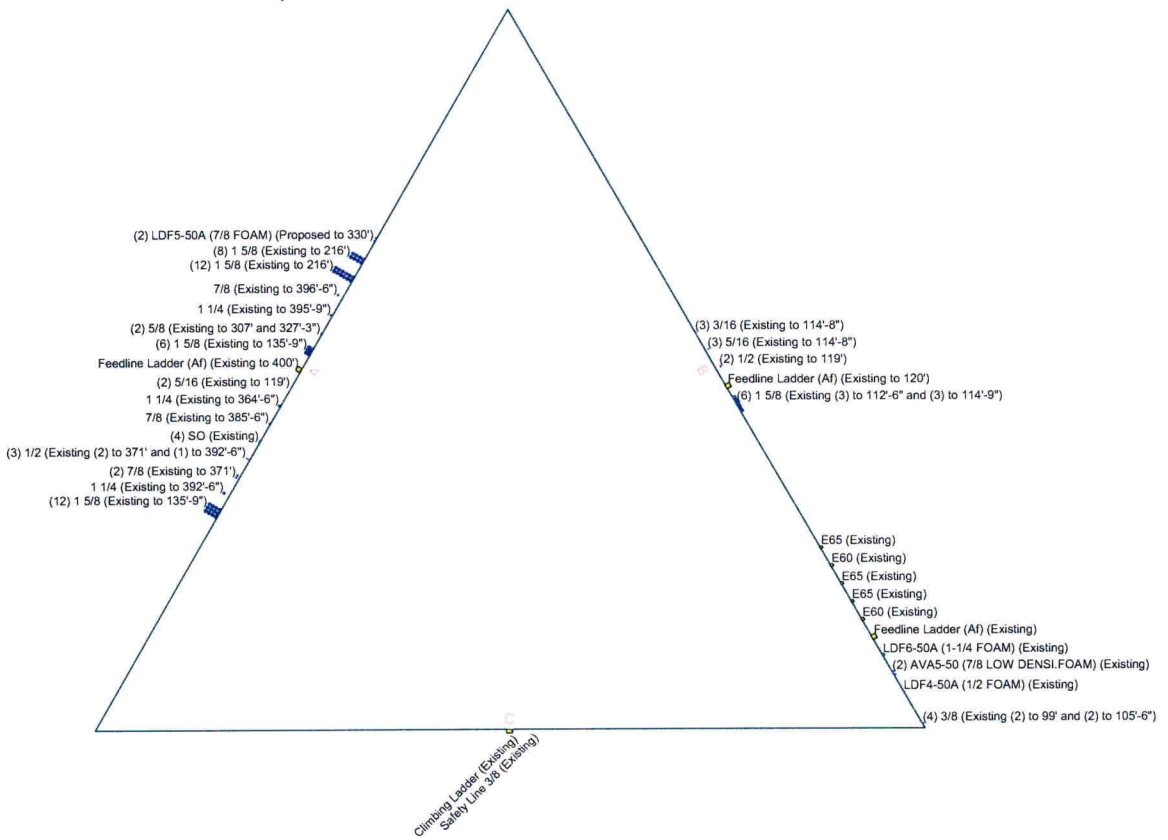
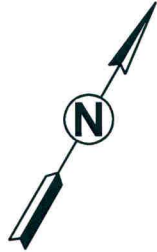
Exhibit A



# Feedline Plan

Exhibit A

Round Flat App In Face App Out Face

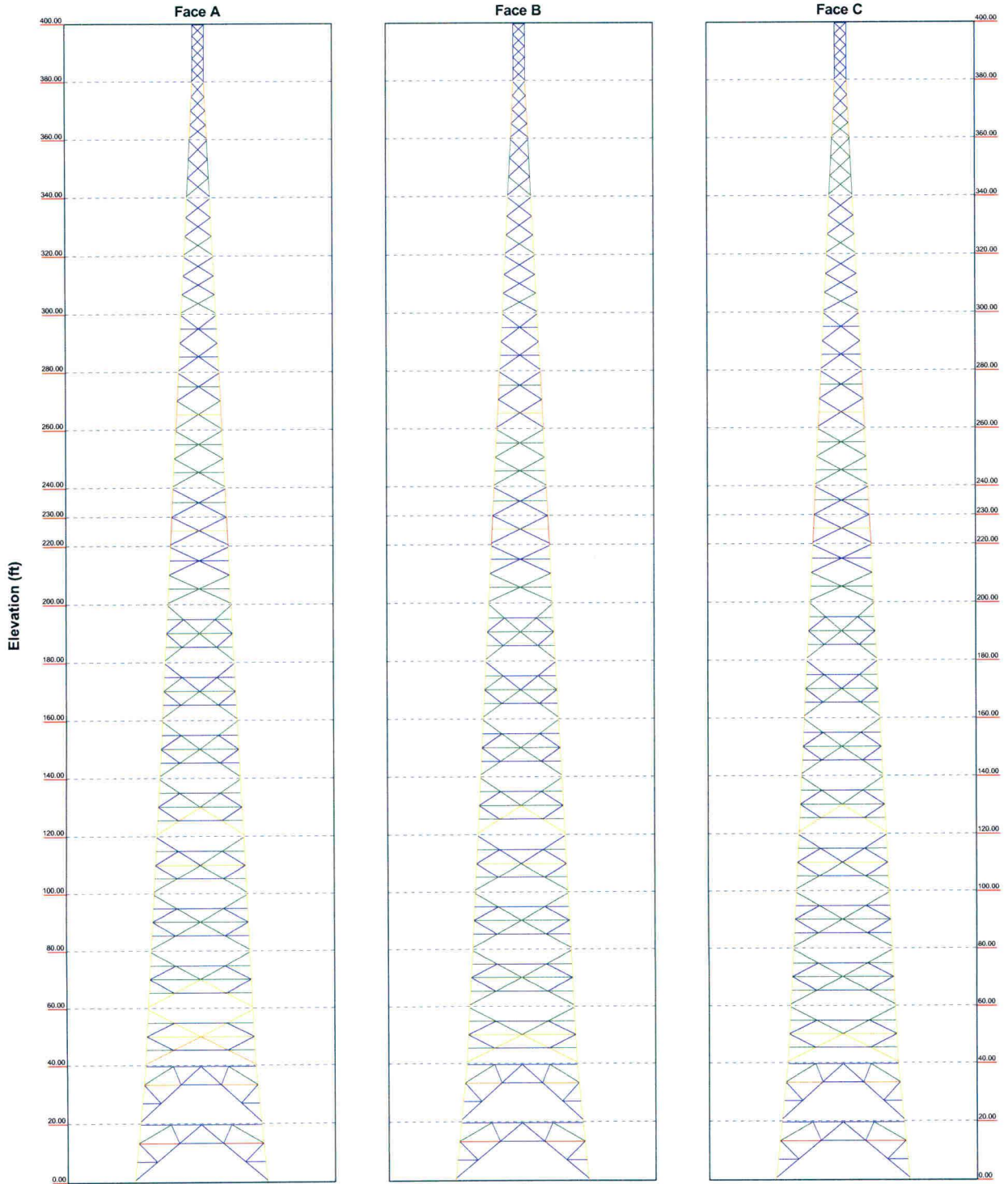


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	Project: <b>Missouri City</b>		Drawn by: <b>asepulveda</b>	
	Client: <b>Fort Bend County - OEM</b>		App'd:	
	Code: <b>TIA-222-G</b>	Date: <b>03/07/11</b>	Scale: <b>NTS</b>	Dwg No: <b>E-7</b>

Stress Distribution Chart  
0' - 400'

Exhibit A

> 100% 90%-100% 75%-90% 50%-75% < 50% Overstress



## Exhibit B



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## X50NA Dualband Base/Repeater Antenna

The X50NA and X50A are excellent choices where ruggedness is required in a medium-gain, dual-band application.

**Special Features:**

- Fiberglass radomes
- Overlapping outer shells for added strength
- Strong waterproof joint couplings
- Stainless steel hardware
- Wide band performance
- Factory adjusted – no tuning required
- High wind rating
- DC grounded

**Specifications:**

Band:	2m/70cm
Gain (dB):	4.5/7.2
Max Power Rating:	200
Wind Rating:	135 MPH (no ice)
Height (feet):	5.6
Connector:	Type-N
Element Phasing:	3-1/4i, 3-5/8i

Remarks: Also available with UHF connection.

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