

Federal Communications Commission

(REFERENCE COPY - Not for submission)

FCC Form 399: Reimbursement Request

Facility ID: File Number:	68581 000002	Service: DTV 27983	Call Sign:	KTVD	Channel: 31 (UHF)
	01887363	Date	01/14		
		Submitted:	/2020		

Applicant Name, Type, and Contact Information

Applicant Information

Applicant	Address	Phone	Email	Applicant Type
MULTIMEDIA HOLDINGS CORPORATION	Law Department TEGNA Inc. 8350 Broad Street, Suite 2000 Tysons, VA 22107 United States	+1 (703) 873- 6600	lawdept@tegna. com	Corporation

Reimbursement Contact Name and Information Reimbursement Contact Information

Applicant	Address	Phone	Email
[Confidential]			

Preparer Preparer Contact Name and Information

Contact Information	Applicant	Address	Phone	Email
	Gary Davis Regional Head of Technology and Operations TEGNA	Gary Davis 8350 Broad Street Suite 2000 Tysons, VA 22102 United States	+1 (404) 873- 9199	gadavis@tegna. com

Broadcaster	Question	Response
Information and Transition Plan	Will the station be sharing equipment with another broadcast television station or stations (e.g., a shared antenna, co-location on a tower, use of the same transmitter room, multiple transmitters feeding a combiner, etc.)? If yes, enter the facility ID's of the other stations and click 'prefill' to download those stations' licensing information.	No
	Briefly describe transition plan	KTVD will be moving to channel 31 from channel 19. It plans to repurpose the current broadband antenna and transmission line. It requires a new combiner port and a new transmitter. It would cost more to re-tune the existing TX than to purchase a new.

Transmitters	Section	Question	Response
	Transmitter Related Expenses	Do you have transmitter related expenses?	Yes

Auxiliary	Existing Transmitter Information					
Transmitter	Section	Question	Response			
	Existing Transmitter Description	Type of change	Purchase New			
		Use	Auxiliary (Backup)			
		Description of Use	Low Power Backup transmitter			
		Ownership	Owned			
		Owner	N/A			
		Site	N/A			
		Is this transmitter currently shared with another station?	No			
		Is this transmitter currently in operating condition?	Yes			
	Existing Transmitter	Manufacturer				
	Manufacturer and Type	Model	Ranger			
		Year	2003			
		Туре	Solid State			
		Solid State Cooling	Air Cooled			
		Solid State Power Capacity	1 kW			

Existing Transmitter Information

Auxiliary	New Transmitter Costs					
Transmitter	Section	Question	Response			
	New Transmitter	Use	Auxiliary (Backup)			
		Change Type	Purchase New			
		Is this a request for upgraded equipment?	No			
		Manufacturer				
		Model	UAXTE 2R37			
		Transmitter Type	Solid State			
		Solid State Cooling	Air Cooled			
		Solid State Power capacity	1.2 kW			
		Justification for New Transmitter	The old transmitter cannot be re-tuned.			

Auxiliary Other Transmitter Costs

Transmitter	Section	Question	Response
	Electrical Service	Service Entrance (3 phases 800A 208V)	No
		Switchgear (industrial 800 amp)	No
		Transformer (480V)	No
		Power	N/A
		Rigid Conduit and Wiring	Yes
		Size	2 inches
		Length	100.0 feet
		Other Electrical Service	Yes

	Description	Additional electrical services required for transmitter installation.
HVAC Service	Does the replacement transmitter require HVAC Service?	No
	Туре	N/A
	Size	N/A
	Other Size	N/A
Transmitter Building Addition/Modification or Leasehold Improvement	Does the Transmitter Building require an addition, modification, other leashold improvement?	No
	Size	N/A
Channel 14 Costs	Is an RF Consulting Engineer needed?	N/A
	Is a channel 14 Mask Filer needed?	N/A
	Is additional field engineering time needed?	N/A
	Number of Days	N/A

Other Transmitter Cost Not Listed

AuxiliaryOther Transmitter CoTransmitterInformation not provided.

Primary	Existing Transmitter Information					
Transmitter	Section	Question	Response			
	Existing Transmitter Description	Type of change	Purchase New			
		Use	Primary (Main)			
		Description of Use	N/A			
		Ownership	Owned			
		Owner	N/A			
		Site	N/A			
		Is this transmitter currently shared with another station?	No			
		Is this transmitter currently in operating condition?	Yes			
	Existing Transmitter	Manufacturer				
	Manufacturer and Type	Model	PWR 60 P2			
		Year	2007			
		Туре	Inductive Output Tube			
		IOT Power Type	Two			
		Power Capacity	60 kW			

Existing Transmitter Information

Primary	New Transmitter Costs					
Transmitter	Section	Question	Response			
	New Transmitter	Use	Primary (Main)			
		Change Type	Purchase New			
		Is this a request for upgraded equipment?	Yes			
		Manufacturer				
		Model	ULXT 60			
		Transmitter Type	Solid State			
		Solid State Cooling	Liquid Cooled			
		Solid State Power capacity	51 kW			
		Justification for New Transmitter	It will cost more to re- tune the old transmitter with interim transmitter lease pricing than purchasing a new one.			

Other Transmitter Costs

Primary	Other Transmitter Costs			
Transmitter	Section	Question	Response	
	Electrical Service	Service Entrance (3 phases 800A 208V)	No	
		Switchgear (industrial 800 amp)	No	
		Transformer (480V)	No	
		Power	N/A	
		Rigid Conduit and Wiring	Yes	
		Size	3 inches	

	Length	100.0 feet
	Other Electrical Service	Yes
	Description	Additional electrical services required for transmitter installation, including heat exchangers, transformers, cooling pumps, etc.
HVAC Service	Does the replacement transmitter require HVAC Service?	No
	Туре	N/A
	Size	N/A
	Other Size	N/A
Transmitter Building Addition/Modification or Leasehold Improvement	Does the Transmitter Building require an addition, modification, other leashold improvement?	Yes
	Size	100.0 square feet
Channel 14 Costs	Is an RF Consulting Engineer needed?	N/A
	Is a channel 14 Mask Filer needed?	N/A
	Is additional field engineering time needed?	N/A
	Number of Days	N/A

Primary	Other Transmitter Cost Not Listed		
Transmitter	Name	Description	
	Combiner Install and Testing	Combiner Install and Testing	
	Transmitter installation	Transmitter installation	

Antennas	Section	Question	Response
	Antenna Related Expenses	Do you have antenna related expenses?	Yes

Existing Antenna Information

Primary

Antenna	Section	Question	Response
	Existing Antenna Description	Type of change	Retune Existing
		Antenna Use	Primary (Main)
		Description of Use	N/A
		Ownership	Owned
		Owner	N/A
		Site	N/A
		Is the existing antenna shared with another station or stations?	Yes
		Is the existing antenna directional?	Yes
		Is antenna in operating condition?	Yes
		Is antenna located on or in close proximity to an antenna farm?	No
	Existing Antenna Manufacturer and Type	Class	Full Power
		Mounting	Top Mount
		Antenna position in stack	Тор
		Polarization	Horizontal
		Туре	Broadband Panel
		Number of Stations Supported	2
		Number of Panels	48
		Design power capacity in use	50.0 %
		Lower Limit	470.00 MHz

Upper Limit	860.00 MHz
Other Antenna Type	N/A
ERP: (Effective Radiated Power)	1000.0 kW
Manufacturer	Dielectric
Model	TUC-C4SP- 12/48U-4-T
Year	2008

Facility ID's and Call Signs of all stations with whom the antenna is shared.

Facility ID	Call Sign
47903	KCNC-TV

Primary Adjustment to Existing Antenna

Antenna	Section	Question	Response
	Sweep Test of Existing Antenna	Do you need a sweep test of existing antenna?	Yes

Primary Other Antenna Costs

Antenna	Section	Question	Response
	Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	Yes
		Туре	Additional Module
		Number of channels supported	3
		Frequencies of channels supported	RF channel
		Frequency	N/A

Enter a list of RF channel numbers.

RF Cha	Innel Number
19	
31	
35	

Primary Antenna

Other Antenna Cost Not Listed Name Description Mask Filter New mask filter required for new channel.

Auxiliary Existing Antenna Information

Antenna	Section	Question	Response
	Existing Antenna Description	Type of change	Retune Existing
		Antenna Use	Auxiliary (Backup)
		Description of Use	AUX Antenna
		Ownership	Owned
		Owner	N/A
		Site	N/A
		Is the existing antenna shared with another station or stations?	Yes
		Is the existing antenna directional?	Yes
		Is antenna in operating condition?	Yes
		Is antenna located on or in close proximity to an antenna farm?	No
	Existing Antenna Manufacturer and Type	Class	Full Power
		Mounting	Side Mount
		Antenna position in stack	Not in Stack

Polarization	Horizontal
Туре	Broadband Panel
Number of Stations Supported	2
Number of Panels	36
Design power capacity in use	50.0 %
Lower Limit	470.00 MHz
Upper Limit	860.00 MHz
Other Antenna Type	N/A
ERP: (Effective Radiated Power)	987.0 kW
Manufacturer	Dielectric
Model	TUA-C3-12 /36-1-S
Year	2008

Facility ID's and Call Signs of all stations with whom the antenna is shared.

Facility ID	Call Sign
47903	KCNC-TV

Adjustment to Existing Antenna Auxiliary

Antenna	Section	Question	Response
	Sweep Test of Existing Antenna	Do you need a sweep test of existing antenna?	Yes

Auxiliary	Other Antenna Costs			
Antenna	Section	Question	Response	
	Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	Yes	

Туре	Additional Module
Number of channels supported	3
Frequencies of channels supported	RF channel
Frequency	N/A

Enter a list of RF channel numbers.

RF Channel Number
19
31
35

Auxiliary	Other Antenna Cost Not Listed	her Antenna Cost Not Listed	
Antenna	Name	Description	
	Mask Filter	New mask filter required for new channel.	

Transmissior	n Seffien	Question	Response
	Transmission Line Related Expenses	Do you have transmission line related expenses?	Yes

Primary Existing Transmission Line

Transmission

sion Line	Question	Response
Existing Transmission Line Description	n Type of change	Utilize Existing
	Use	Primary (Main)
	Description of Use	N/A
	Ownership	Owned
	Owner	N/A
	Site	N/A
	Is the existing transmission line shared with another station or stations?	Yes
	Is Transmission Line in operating condition?	Yes
Existing Transmission		Dielectric
Line Manufacturer and Type	Туре	Rigid
	Diameter	8 3/16 inches
	Other Diameter	N/A
	Segment Length	Broadband
	Other Segment Length	N/A
	Number of parallel runs	2
	Length	1000 feet per run

Facility ID's and Call Signs of all stations with whom the transmission line is shared.

Facility ID	Call Sign
47903	KCNC-TV

Other Transmission Line Expenses Not Listed Primary Transmissi

ion	Description
TX Line Sweep	Sweep required to verify post-transition channel measures well on existing line.
Miscellaneous Parts	Miscellaneous Parts

Existing Transmission Line

Auxiliary	Existing Transmission Line			
Transmissio	n Section	Question	Response	
	Existing Transmission Line Description	Type of change	Utilize Existing	
		Use	Auxiliary (Backup)	
		Description of Use	AUX Line	
		Ownership	Owned	
		Owner	N/A	
Existing Transmission Line Manufacturer and Type		Site	N/A	
	Is the existing transmission line shared with another station or stations?	Yes		
		Is Transmission Line in operating condition?	Yes	
	-	Manufacturer	Dielectric	
		Туре	Rigid	
	Diameter	8 3/16 inches		
	Other Diameter	N/A		
		Segment Length	Broadband	
		Other Segment Length	N/A	
			1	

Number of parallel runs	2
Length	1000 feet per run

Facility ID's and Call Signs of all stations with whom the transmission line is shared.

Facility ID	Call Sign
47903	KCNC-TV

Auxiliary Other Transmission Line Expenses Not Listed Transmission

TX Line Sweep	Sweep required to verify post-transition
	channel measures well on existing line.

Tower	Section	Question	Response
Equipment And Rigging Costs	Tower Equipment or Rigging Costs Changes	Do you have tower equipment or rigging costs changes?	Yes

marv	Existing	Tower
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Primary	Existing Tower			
Tower	Section	Question	Response	
Existing Tower Description	Existing Tower Description	Type of change	Modify Existing	
		Tower Use	Primary (Main)	
		Description of Use	N/A	
		Ownership	Owned	
		Is this tower consider Complex?	No	
		Is this tower currently shared with any other stations?	Yes	
Existing Tower Structure Registration	One or more FM, AM or TV radio broadcaster(s)	Yes		
	Others Types of Users	No		
	Is tower documented for structural analysis?	No		
	Is tower compliant with Rev G?	Unknown		
	Do you have a tower registration number?	Yes		
	Registration	ASR Number	1058328	
	Coordinates (NAD83 (North American Datum of	Latitude (NAD83)	39° 43' 50.6" N-	
1983))	1983))	Longitude (NAD83)	105° 13' 55.6" W-	
		Overall Structure Height	734.24 feet	
		Support Structure Height	620.40 feet	
		Ground Elevation Above Mean Sea Level (AMSL)	7115.40 feet	

Structure Type	TOWER - Free Standing or Guyed Structure
Tower Owner	LAKE CEDAR GROUP, L. L.C.
Date Constructed	06/01/2009

FM, AM or TV radio broadcasters. Facility ID's, Call Signs and Services of other broadcast stations with whom the tower is shared

Facility ID	Call Sign	Service
47903	KCNC-TV	DTV

Primary Tower Modification Costs

Section	Question	Response
Engineering Study	Please what type of engineering study is required, if any:	Study needed for undocumented /poorly documented tower
Tower Reinforcements	Please select whether tower reinforcements are needed:	Minor Reinforcement needed

Primary Tower Rigging Costs

Tower

Tower

Section	Question	Response
Tower Rigging Costs	Complex Tower	N/A
Helicopter Services Required	Are helicopter services required?	No

Primary
TowerOther Tower Expenses Not ListedInformation not provided.

Outside	Section	Question	Response
Professional Services Costs Outside Project Management Services	Do you require outside project management services?	Yes	
		Number of Hours	200
		Explanation	Fewer PM tasks are needed & OES & 399 work are needed, so the PM total has been reduced to \$150x200hrs (\$30000), a new OES component has been created & funded with part of the \$ removed from PM, & "Prepare & or review reimbursement form" has been increased
	Outside RF consulting Engineering Services	Perform engineering study for new channel assignment and antenna development	Yes
		Prepare engineering section of Form FCC Construction Permit Application	Yes
		For Auxiliary Facility	Yes
		For Main Facility	Yes
		Prepare engineering section of Form FCC License to Cover Application	Yes
		For Auxiliary Facility	Yes
		For Main Facility	Yes
		Prepare request for Special Temporary Authority	Yes

	Quantity	2
	Do you have Distributed Transmission System engineering services?	N/A
	Critical Facility	N/A
	Terrain-Shielded Facility	N/A
Attorney and Other Outside Consulting Services	Prepare and file Form FCC Construction Permit Application	Yes
Jervices	For Auxiliary Facility	Yes
	For Main Facility	Yes
	Prepare and file Form FCC License to Cover Application	Yes
	For Auxiliary Facility	Yes
	For Main Facility	Yes
	Prepare request for Special Temporary Authority	Yes
	Quantity	2
	NEPA Section 106 environmental review	No
	Environmental Assessment	No
	ASR Modification	Yes
	FAA Consultation (including preparation of FAA Form 7460)	Yes
	Negotiation of Lease and other Matter for Shared Locations	No
	Prepare or Review FCC Form 399 for Reimbursement	Yes
	Address transition timing and coordination issues w/ other stations and wireless providers	Yes
RF Field Engineering Services	Comprehensive coverage verification via field study	Yes
	RF exposure measurements	Yes
	Additional Field Engineering Service	Yes

Number of Days	10
Justification	\$2,500 per site visit including expenses x 10 days. It is necessary to survey the site, plan the equipment, develop specifications for purchasing & oversee multiple vendor RF projects. Station does not have available personnel trained in such services.

Outside Other Professional Services Expenses Not Listed Professional Services Costs

onal Services Costs	Description
Other Legal Services	Other Legal Services related to the DTV Repack
Pre filing site review	outside engineering to review all facilitues
Other Engineering Services	Fewer PM tasks are needed & OES & 399 work are needed, so the PM total has been reduced to \$150x200hrs(\$30000), a new OES component has been created & funded with part of the \$ removed from PM, & "Prepare & or review reimbursement form" has been increased

Other	Section	Question	Response
Expenses	AM Pattern Disturbance	Is an Impact Study needed?	No
		Is Remediation needed?	No
	Facility Expenses	Name	N/A
		Other Distributed Transmission System Expenses Not listed	N/A
		Name	N/A
		Is Notification of a Medical Facility required as a result of DTV broadcasting?	Yes
	Permit and Filing Costs	Local Zoning	Yes
		Non-zoning permits	Yes
		BLM or NFS Coordination	No
		FCC Construction Permit Minor Change	No
		FCC License to Cover Application	Yes
		FCC Special Temporary Authority Application	Yes
	Other Miscellaneous Expenses	Does this relocation require paying Disposal Costs (for equipment and other waste, net of any salvage value)?	Yes
		Does this relocation require Equipment Delivery or Handling Charges not otherwise included in individual item costs?	Yes
		Does this relocation require Equipment Storage?	Yes
		Does this relocation require the Development and Airing of an Announcement regarding an upcoming channel change?	Yes
		Does this relocation require MVPD Notification of a Channel Change?	Yes

Other Expenses Not Listed

Expenses Information not provided.

Transmitters

Cost Information

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Cost Justification
Primary Transmitter ULXT 60	\$1,363,664.02	\$1,363,364.02		\$1,263,565.17	
UHF - Liquid Cooled Solid State Transmitter 51 kW	\$1,176,500.27	\$1,176,500.27	See attached GatesAir quotes and invoices. Also, see Dielectric LLC quotes and invoices. Also, Majestic Rigging and Transportation invoices & quotes.	\$1,106,561.97	The Actual Cost exceeds the Estimated Cost due in part to the inclusion of the Combiner & RF System in this category, as well as sales tax.
3" Rigid Conduit and Wiring (Cost per foot)	\$5,200.00	\$4,900.00	N/A	N/A	N/A
Other Electrical Service: Additional electrical services required for transmitter installation, including heat exchangers, transformers, cooling pumps, etc.	\$122,153.30	\$122,153.30	See Encore Electric Quote. The total is 50 cents higher than originally thought due to the "cents" being lopped off on the vendor's quote.	\$121,891.33	N/A

Other Building Addition Size: 100.0	\$25,000.00	\$25,000.00	New pad required for heat exchangers, transformers, pumps, etc. Equipment must also be shielded.	\$301.42	N/A
Transmitter installation	\$18,345.45	\$18,345.45	Transmitter installation	\$18,345.45	N/A
Combiner Install and Testing	\$16,465.00	\$16,465.00	Combiner Install & Testing	\$16,465.00	N/A
Auxiliary Transmitter UAXTE 2R37	\$153,600.00	\$124,332.10		\$96,832.10	
UHF - Air Cooled Solid State Transmitter 1 - 2.5 kW	\$126,000.00	\$96,832.10	See attached GatesAir invoices GO10004858- 1 and US0322514, with corresponding Quotes and Change Orders.	\$96,832.10	N/A
2" Rigid Conduit and Wiring (Cost per foot)	\$2,600.00	\$2,500.00	N/A	N/A	N/A
Other Electrical Service: Additional electrical services	\$25,000.00	\$25,000.00	Additional electrical services required for transmitter installation.	N/A	N/A
required for transmitter installation.					

Total for all	\$2,637,214.44	\$2,626,350.55	N/A	\$1,643,988.24	N/A
systems					

Components

Actual Information Description	File Name	
UHF - Liquid Cooled Solid State Transmitter 51 kW	Component Description: Amount:	Inv US0307626 KTVD ULXT-60 TX change order UL20180515jgv1 \$23,246.71
	Component Description:	Inv MAN00269 KTVD Combiner and RF System 45 percent down payment
	Amount:	UL20180424jg v1 \$92,291.63
	Component Description: Amount:	Die 325036 v190820pmv2 \$250.00
	Component Description: Amount:	Die 323010 v191025pmv4 \$14,028.00
	Component Description: Amount:	Die 323010 v191025pmv4 \$672.00
	Component Description:	Majestic 1203232 v190923pmv1
	Amount:	\$2,050.00

Component Description: Amount:	Majestic 1203333 v190923pmv1 \$1,642.50
Component Description: Amount:	Die 235024 v191219pmv5 \$13,184.24
Component Description: Amount:	Majestic 630000097 v190530pmv1 \$1,760.00
Component Description: Amount:	Die 242072 v190820pmv2 \$7,325.00
Component Description: Amount:	Die 323010 v191025pmv4 \$276.00
Component Description: Amount:	Die 332003 v190820pmv2 \$1,250.00
Component Description: Amount:	Majestic HN- 630000252 v190923pmv1 N/A
Component Description: Amount:	Die 323010 v191025pmv4 \$36.00
Component Description: Amount:	Die 323010 v190712pmv1 \$127.20

Component Description: Amount:	Die 332003 v190820pmv2 \$2,800.00
Component Description: Amount:	Die 325036 v190712pmv1 \$25.00
Component Description: Amount:	Die 332003 v190712pmv1 \$280.00
Component Description: Amount:	Gates inv #US0320664 Various transmitter parts UL20190416jgv1 \$3,017.61
Component Description:	Inv GO10004699-1 KTVD ULXT-60 transmitter 50 percent down payment UL20180424jg v1
Amount:	\$390,798.01
Component Description: Amount:	Deposit on Transmitter \$144,324.64
Component Description:	Inv MAN00386 KTVD Combiner and RF System 45 percent payment 2
Amount:	UL20180424jg v1 \$92,291.63

Component Description: Amount:	Amazon 31900 v190530pmv1 \$52.56
Component Description: Amount:	Die 323010 v190917pmv3 \$3,500.00
Component Description: Amount:	Transmitter /Components- GatesAir \$422,226.60
Component Description: Amount:	Die 323010 v190712pmv1 \$27.60
Component Description: Amount:	Die 323010 v190712pmv1 \$274.05
Component Description: Amount:	Die 323010 v190712pmv1 \$67.20
Component Description: Amount:	Majestic HN- 630000532 v190923pmv1 N/A
Component Description:	Inv US0307804 KTVD ULXT-60 TX balance due
Amount:	UL20180515jgv2 \$456,327.97

Component Description: Amount:	Die 242072 v190712pmv1 \$7,325.00
Component Description: Amount:	Die 323010 v190712pmv1 \$1,402.80
Component Description: Amount:	Die 235024 v1900820pmv2 N/A
Component Description: Amount:	Majestic HN- 630000622 v190923pmv1 N/A
Component Description: Amount:	Die 323010 v190712pmv1 \$350.00
Component Description: Amount:	Gates inv #US0320805 Various transmitter parts UL20190416jgv1 \$2,042.67
Component Description: Amount:	Die 323010 v190712pmv1 \$3.60
Component Description: Amount:	Die 235024 v191025pmv4 \$6,592.12

	Component Description: Amount:	Die 323010 v191025pmv4 \$1,272.00
	Component Description: Amount:	Die 235024 v191025pmv4 \$6,592.12
	Component Description: Amount:	Die 332003 v190712pmv1 \$125.00
	Component Description: Amount:	Die 332003 v190712pmv1 \$104.64
3" Rigid Conduit and Wiring (Cost per foot)	Information not provided.	
Other Electrical Service: Additional electrical services required for transmitter installation, including heat exchangers, transformers, cooling	Component Description: Amount:	Gates US0328257 v191007pmv1 \$28,916.10
pumps, etc.	Component Description: Amount:	KTVD Encore Elec inv #43123 Electrical work UL20180806jg v2 \$92,949.50
	Component Description: Amount:	Amazon 31165 v190611pmv1 \$25.73
	Component Description: Amount:	Amazon 30622 v190611pmv1 \$262.00

Size: 100.0	Component Description:	Inv 148630459 KTVD Equipment rental
	Amount:	UL20180601jgv1 \$301.42
Transmitter installation		
	Component Description:	Gates inv
		#US0321815 Stag
		1 Filter line install
		UL20190416jgv1
	Amount:	\$18,345.45
Combiner Install and		
Testing	Component Description:	H and D 47443
		v190628jgv1
	Amount:	\$16,465.00

UHF - Air Cooled Solid State Transmitter 1 - 2.5 kW	Component Description: Amount:	Gates US0317124 v190918pmv1 \$27,875.58
	Component Description: Amount:	Gates US0321035 v190918pmv1 \$984.13
	Component Description: Amount:	Gates US0322514 v190918pmv2 \$23,717.32
	Component Description: Amount:	Gates US0321036 v190918pmv1 \$86.12
	Component Description: Amount:	Gates inv #GO10004858-1 Aux TX 50 pct pmt 1 UL20181030jgv1 \$44,168.95
2" Rigid Conduit and Wiring (Cost per foot)	Information not provided.	
Other Electrical Service: Additional electrical services required for transmitter installation.	Information not provided.	

Antennas

Cost Information

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Cost Justification
Primary Antenna TUC-C4SP- 12/48U-4-T	\$183,130.00	\$179,796.26		\$90,762.10	
Elbow complex, broadband, at antenna input, per 8 3/16. feedline (if needed)	\$18,950.00	\$18,000.00	N/A	\$8,615.86	N/A
Sweep test of existing antenna	\$6,730.00	\$6,400.00	N/A	N/A	N/A
Adding a module to existing combiner (without antenna)	\$84,200.00	\$82,146.26	3-channel manifold combiner required in order to repurpose existing broadband antenna and broadband transmission line. See attached Dielelctric quote.	\$82,146.24	N/A

Mask Filter	\$73,250.00	\$73,250.00	New mask filter required for new post- transition channel. See attached Dielectric quote.	N/A	N/A
Auxiliary Antenna TUA-C3-12 /36-1-S	\$134,880.00	\$129,427.75		\$14,106.50	
Sweep test of existing antenna	\$6,730.00	\$6,400.00	N/A	N/A	N/A
Adding a module to existing combiner (without antenna)	\$84,200.00	\$80,027.75	3-channel manifold combiner required in order to repurpose existing broadband antenna and broadband transmission line. See attached Dielelctric quote.	\$14,106.50	N/A
Elbow complex, broadband, at antenna input, per 8 3/16.	\$18,950.00	\$18,000.00	N/A	N/A	N/A
feedline (if needed)					
	\$25,000.00	\$25,000.00	N/A	N/A	N/A

Actual Information Description	File Name	
Elbow complex, broadband, at antenna input, per 8 3/16. feedline (if needed)	Component Description: Amount:	Die 499005 v190610pmv1 \$4,085.00
	Component Description: Amount:	Die ST563025 v190930pmv1 \$78.40
	Component Description: Amount:	Die ST499005 v190617jgv1 \$339.46
	Component Description: Amount:	Die 563025 v190930pmv1 \$1,960.00
	Component Description:	Die inv #US0320792 Swivel Hanger and tax UL20190405jgv1
	Amount:	\$2,153.00
Sweep test of existing antenna	Information not provided.	

Adding a module to existing combiner (without	Component Description:	Die 445002
antenna)		v190503jgv2
	Amount:	\$6,800.00
	Component Description:	Die MAN01015
		v190806pmv1
	Amount:	\$37,673.12
	Component Description:	Die MAN01016
		v190806pmv1
	Amount:	\$37,673.12
	Component Description:	Die 235024
		v190604pmv1
	Amount:	N/A
Mask Filter	Information not provided.	
Sweep test of existing antenna	Information not provided.	
Adding a module to existing combiner (without		
antenna)	Component Description:	Electron D
,		201812007
	Amount:	v190507jgv2 \$14,106.50
	Amount.	φ14,100.30
	Component Description:	Die 235024
		v190604pmv1
	Amount:	\$65,921.25
	Component Description:	Electron D inv
		#201812007
		Manifold Aux
		Combiner Install
		UL20190402jgv1
	Amount:	\$14,106.50

Elbow complex, broadband, at antenna input, per 8 3/16. feedline (if needed)	Information not provided.
Mask Filter	Information not provided.

Transmission Line

Cost Information

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Cost Justification
Primary Transmission Line	\$7,069.76	\$7,069.76		\$669.76	
Miscellaneous Parts	\$669.76	\$669.76	N/A	\$669.76	N/A
TX Line Sweep	\$6,400.00	\$6,400.00	N/A	N/A	N/A
Auxiliary Transmission Line	\$6,400.00	\$6,400.00		\$0.00	
TX Line Sweep	\$6,400.00	\$6,400.00	N/A	N/A	N/A
Sub-total	\$13,469.76	\$13,469.76	N/A	\$669.76	N/A
Total for all systems	\$2,637,214.44	\$2,626,350.55	N/A	\$1,643,988.24	N/A

Actual Information Description	File Name	
Miscellaneous Parts		
	Component Description: Amount:	Die ST573039 v191007pmv1 \$25.76
	Component Description: Amount:	Die 573039 v191007pmv1 \$644.00
TX Line Sweep	Information not provided.	

ТΧ	Line	Sweep
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Tower Equipment and Rigging Costs

Cost Information

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Cost Justification
Primary Tower TOWER	\$394,800.00	\$375,000.00		\$31,372.90	
Minor tower reinforcement /modifications	\$158,000.00	\$150,000.00	N/A	\$31,372.90	N/A
Tower mapping for an undocumented /poorly documented tower and preparation of documentation necessary for tower load study	\$26,300.00	\$25,000.00	N/A	N/A	N/A
Tall Tower (greater than 500')	\$210,500.00	\$200,000.00	N/A	N/A	N/A
Sub-total	\$394,800.00	\$375,000.00	N/A	\$31,372.90	N/A
Total for all systems	\$2,637,214.44	\$2,626,350.55	N/A	\$1,643,988.24	N/A

Actual Information	
Description	File Name

Minor tower reinforcement /modifications	Component Description:	Majestic HN- 630000532 v190923pmv1 \$10,357.30
	Amount.	\$10,337.30
	Component Description:	Majestic HN- 630000622 v190923pmv1
	Amount:	\$18,784.80
	Component Description:	Majestic HN- 630000252 v190923pmv1
	Amount:	\$2,230.80
Tower mapping for an undocumented/poorly documented tower and preparation of documentation necessary for tower load study	Information not provided.	
Tall Tower (greater than 500')	Information not provided.	

Outside Professional Services

Cost Information

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Cc Justificat
Outside Professional Services	\$268,840.66	\$316,695.66		\$115,815.56	
Prepare and or review reimbursement form	\$2,630.00	\$30,000.00	The cost estimate includes the initial 399 amendment, anticipated subsequent 399 amendments, and ongoing Actual Cost invoice prep and submission by KGA.	\$23,326.50	See invoices

Other Engineering Services	\$15,685.00	\$15,685.00	Fewer PM tasks are needed & OES & 399 work are needed, so the PM total has been reduced to \$150x200hrs (\$30000), a new OES component has been created & funded with part of the \$ removed from PM, & "Prepare & or review reimbursement form" has been increased	\$15,685.00	N/A
Pre filing site review	\$23,500.00	\$23,500.00	N/A	N/A	N/A
Other Legal Services	\$19,260.66	\$19,260.66	Other Legal Services related to the DTV Repack	\$12,892.55	N/A

Additional Field Engineering Service, 10 Days	\$25,000.00	\$25,000.00	\$2,500 per site visit including expenses x 10 days. It is necessary to survey the site, plan the equipment, develop specifications for purchasing, & oversee multiple vendor RF projects. Station does not have available personnel trained in such services.	N/A	N/A
RF Exposure Measurements	\$21,050.00	\$20,000.00	N/A	N/A	N/A
Comprehensive coverage verification via field study, if needed	\$84,200.00	\$80,000.00	N/A	N/A	N/A
FAA consultant, including cost of preparing FAA Form 7460 (Notice of Proposed Construction), if needed for height increase	\$2,105.00	\$2,000.00	N/A	N/A	N/A
ASR modification (prepare FCC Form 854)	\$2,105.00	\$2,000.00	N/A	N/A	N/A

Attorney Fees - Prepare and File request for Special Temporary Authorization	\$7,360.00	\$7,000.00	N/A	N/A	N/A
Attorney Fees - Prepare and File FCC Form 2100 (main), License to Cover Application	\$2,365.00	\$2,250.00	N/A	N/A	N/A
Attorney Fees - Aux Antenna, prepare and File Form 2100 Construction Permit or License Application	\$4,210.00	\$4,000.00	N/A	N/A	N/A
Attorney Fees - Prepare and File FCC Form 2100 (main), Construction Permit Application	\$5,260.00	\$5,000.00	N/A	N/A	N/A
Prepare request for Special Temporary Authorization	\$4,100.00	\$3,000.00	N/A	\$3,000.00	N/A
RF Consulting Engineer Fees- Aux Antenna: Prepare engineering section of FCC Form 2100, License to Cover Application	\$1,580.00	\$1,500.00	N/A	N/A	N/A

Prepare engineering section of FCC Form 2100 (main), License to Cover Application	\$1,580.00	\$1,500.00	N/A	\$675.00	N/A
RF Consulting Engineer Fees- Aux Antenna: Prepare engineering section of FCC Form 2100, Construction Permit Application	\$2,105.00	\$2,500.00	See attached / uploaded PDF file titled "Osborn 33860 v191226jgv1. pdf"	\$2,500.00	N/A
Prepare engineering section of FCC Form 2100 (main), Construction Permit Application	\$3,155.00	\$3,000.00	N/A	N/A	N/A
Perform engineering study for new channel assignment and antenna development	\$7,360.00	\$7,000.00	N/A	N/A	N/A
Address transition timing and coordination issues w/ other stations and wireless	\$2,630.00	\$2,500.00	N/A	N/A	N/A

the transition			necessary to schedule and coordinate multiple vendors, complete progress reports, and update Schedule 399s. Station does not have available personnel or personnel trained in project management for such complex projects.		
	•		projects.		
Sub-total Total for all	\$268,840.66 \$2,637,214.44	\$316,695.66 \$2,626,350.55	N/A N/A	\$115,815.56 \$1,643,988.24	N/A N/A

Actual Information Description	File Name	
Prepare and or review reimbursement form	Component Description: Amount:	Osborn 31150 v191223jgv1 \$875.00
	Component Description: Amount:	Osborn 35815 v191226jgv1 \$2,745.00
	Component Description: Amount:	Osborn 35006 v191226jgv1 \$3,495.00

Component Description: Amount:	Osborn 36192 v191226jgv1 \$3,185.00
Component Description: Amount:	Osborn 34586 v190730jgv1 \$1,718.00
Component Description: Amount:	Osborn 35401 v190114jgv1 \$1,800.00
Component Description: Amount:	Osborn inv #29838 Actual Cost Invoices UL20190322jgv1 \$437.50
Component Description:	Osborn inv #28999 Amend 399 Form UL20190301jgv2
Amount:	\$3,200.00
Component Description: Amount:	Osborn 33860 v191226jgv1 \$1,327.50
Component Description: Amount:	Osborn 30011 v191223jgv1 \$797.50
Component Description: Amount:	Osborn 33860 v191226jgv1 \$1,000.00

	Component Description: Amount:	Osborn 33860 v191226jgv1 \$2,746.00
Other Engineering Services	Component Description: Amount:	Osborn 31150 v191223jgv1 \$775.00
	Component Description: Amount:	Osborn 35401 v190114jgv1 \$12,435.00
	Component Description:	Osborn inv #29838 Other Eng Srvcs UL20190322jgv1 \$2,475.00
Pre filing site review	Information not provided.	¢2, 11 0100
Other Legal Services	Component Description: Amount:	Covington inv #60796723 Various Legal UL20181024jgv1 \$4,141.93
	Component Description:	Covington 60801032 v190530jgv2
	Amount:	\$1,958.17
	Component Description:	Covington 60801029 v190712jgv2
	Amount:	\$144.71

Component Description: Amount:	Covington 60801029 v190513pmv1 \$164.44
Component Description: Amount:	Covington 60801029 v190508pmv1 \$164.44
Component Description: Amount:	Covington 60805585 v190513pmv1 \$4,655.68
Component Description: Amount:	Covington 60801032 v190508pmv1 \$1,521.69
Component Description: Amount:	Covington inv #60805588 Various legal thru 180531 UL20190410jgv1 \$1,756.37
Component Description: Amount:	Covington 60805585 v190508pmv1 \$4,655.68
Component Description: Amount:	Covington inv #60808553 Various legal thru 180630 UL20190410jgv1 \$235.69

Additional Field Engineering Service, 10 Days	Information not provided.
RF Exposure Measurements	Information not provided.
Comprehensive coverage verification via field study, if needed	Information not provided.
FAA consultant, including cost of preparing FAA Form 7460 (Notice of Proposed Construction), if needed for height increase	Information not provided.
ASR modification (prepare FCC Form 854)	Information not provided.
Attorney Fees - Prepare and File request for Special Temporary Authorization	Information not provided.
Attorney Fees -Prepare and File FCC Form 2100 (main), License to Cover Application	Information not provided.
Attorney Fees - Aux Antenna, prepare and File Form 2100 Construction Permit or License Application	Information not provided.
Attorney Fees - Prepare and File FCC Form 2100 (main), Construction Permit Application	Information not provided.

Prepare request for Special Temporary Authorization	Component Description: Amount:	Osborn 33860 v191226jgv1 \$1,500.00
	Component Description: Amount:	Osborn 33860 v191226jgv1 \$1,500.00
RF Consulting Engineer Fees- Aux Antenna: Prepare engineering section of FCC Form 2100, License to Cover Application	Information not provided.	
Prepare engineering section of FCC Form 2100 (main), License to Cover Application	Component Description: Amount:	Osborn 33860 v191226jgv1 \$675.00
RF Consulting Engineer Fees- Aux Antenna: Prepare engineering section of FCC Form 2100, Construction Permit Application	Component Description: Amount:	Osborn 33860 v191226jgv1 \$2,500.00
Prepare engineering section of FCC Form 2100 (main), Construction Permit Application	Information not provided.	
Perform engineering study for new channel assignment and antenna development	Information not provided.	
Address transition timing and coordination issues w/ other stations and wireless	Information not provided.	
Project management of the transition		

Component Description: Amount:	Inv 29216 KTVD Proj Mgt 180428- 180525 UL20180706jg v1 \$4,350.00
Component Description: Amount:	Osborn 31150 v191223jgv1 \$2,475.00
Component Description: Amount:	Osborn 31794 v191226jgv1 \$5,400.00
Component Description: Amount:	Osborn 32836 v190613pmv1 \$1,200.00
Component Description: Amount:	Osborn 34126 v191226jgv1 \$2,062.50
Component Description: Amount:	Osborn 30488 v191223jgv1 \$675.00
Component Description: Amount:	Osborn 35815 v191226jgv1 \$150.00
Component Description: Amount:	Osborn 34596 v190730jgv1 \$1,425.00
Component Description: Amount:	Osborn 35006 v191226jgv1 \$450.00

Component Description: Amount:	Osborn 31613 v191226jgv1 \$1,650.00
Component Description: Amount:	Osborn 30691 v191223jgv1 \$1,500.00
Component Description: Amount:	Osborn 36192 v191226jgv1 \$2,765.00
Component Description: Amount:	Osborn 33860 v191226jgv1 \$300.00
Component Description: Amount:	Osborn 32206 v191226jgv1 \$1,639.02
Component Description: Amount:	Osborn 33860 v191226jgv1 \$150.00
Component Description: Amount:	Osborn 33860 v191226jgv1 \$300.00
Component Description:	Osborn inv #29838 Proj mgt 180526- 180629 UL20190322jgv1
Amount:	\$2,362.50
Component Description: Amount:	Osborn 33860 v191226jgv1 \$4,987.50

Component Description: Amount:	Osborn inv #28999 Proj mgt 180331- 180427 UL20190321jgv1 \$1,725.00
Component Description: Amount:	Osborn inv #26018 Proj Mgt 170530- 170728 UL20181107jg v1 \$20,669.99
Component Description: Amount:	Osborn 30011 v191223jgv1 \$1,350.00
Component Description: Amount:	Osborn 33860 v191226jgv1 \$150.00

Other Expenses

Cost Information

Where no predetermined cost estimate is available, any estimate provided will also become the predetermined cost (displayed in italics).

Description	Predetermined Cost Estimate	Estimated Cost	Estimated Cost Justification	Actual Cost	Actual Cost Justification
Other Expenses	\$124,830.00	\$124,265.00		\$30,864.15	
MVPD Notification of Channel Change	\$6,000.00	\$6,000.00	40 hours at \$150 per hour to shoot, edit . write and produce promotional information.	\$1,865.00	N/A
Develop and air announcement of upcoming channel change	\$6,000.00	\$6,000.00	40 hours at \$150 per hour to shoot, edit . write and produce promotional information.	\$3,270.00	N/A
DTV Medical Facility Notification	\$11,550.00	\$11,000.00	N/A	\$3,750.00	N/A
FCC Filing Fees - Form 2100 license to cover application	\$335.00	\$325.00	N/A	N/A	N/A
FCC Filing Fees - Special Temporary Authorization request	\$195.00	\$190.00	N/A	N/A	N/A
Local Zoning	\$750.00	\$750.00	3 cents per \$100 of construction cost.	N/A	N/A

Non-zoning permits	\$25,000.00	\$25,000.00	N/A	N/A	N/A
Disposal Costs (for equipment and other waste, net of any salvage value)	\$25,000.00	\$25,000.00	N/A	N/A	N/A
Equipment Delivery and Handling Charges	\$25,000.00	\$25,000.00	N/A	\$21,979.15	N/A
Equipment Storage	\$25,000.00	\$25,000.00	N/A	N/A	N/A
Sub-total	\$124,830.00	\$124,265.00	N/A	\$30,864.15	N/A
Total for all systems	\$2,637,214.44	\$2,626,350.55	N/A	\$1,643,988.24	N/A

Actual Information Description	File Name	
MVPD Notification of Channel Change	Component Description: Amount:	Osborn 33860 v191226jgv1 \$1,865.00
Develop and air announcement of upcoming channel change	Component Description:	2C Media inv #203806 Creation of channel change announcement UL20181016jgv1
	Amount:	\$3,270.00

DTV Medical Facility Notification	Component Description:	RF Notifications in #1052 Medical Notifications UL20181029jg v1
	Amount:	\$3,750.00
FCC Filing Fees - Form 2100 license to cover application	Information not provided.	
FCC Filing Fees - Special Temporary Authorization request	Information not provided.	
Local Zoning	Information not provided.	
Non-zoning permits	Information not provided.	
Disposal Costs (for equipment and other waste, net of any salvage value)	Information not provided.	
Equipment Delivery and Handling Charges		
	Component Description:	Die 523007 v190807pmv1
	Amount:	\$59.01
	Component Description:	Die 466005
	Amount:	V191219pmv1 \$4,485.00
	Component Description:	Die 459012
	Amount:	V191219pmv1 \$4,104.00
	Component Description:	Die 452006 v190806pmv1

	Component Description: Amount:	Die 235024 v191219pmv5 \$8,032.50
	Component Description: Amount:	Die 564024 v190930pmv1 \$383.43
	Component Description: Amount:	Die 567025 v191007pmv1 \$363.27
	Component Description: Amount:	Die 235024 v191025pmv4 \$8,032.50
	Component Description: Amount:	Die 332003 v190820pmv2 \$1,046.49
	Component Description: Amount:	Die 323010 v191025pmv4 \$2,740.52
	Component Description: Amount:	Die 235024 v190604pmv1 N/A
Equipment Storage	Information not provided.	

Cost Information	Grand Total			
		Predetermined Cost Estimate	Estimated Cost	Actual Cost
	Total for all systems	\$2,637,214.44	\$2,626,350.55	\$1,643,988.24

Reimbursem	entestiatus	Response
	The facility has ceased operating on its pre- auction channel.	Yes
	Construction of final facilities or all necessary modifications are complete.	No
	All receipts for reimbursement have been submitted no further costs are expected to be incurred. Note this will lock the Form 399 from further editing and begin close-out procedures with the Fund Administrator.	No

Certification	Section	Question	Response
	Submission of Estimated Expenses Statements	WILLFUL FALSE STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND /OR IMPRISONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a) (1), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503), AND ANY FALSE STATEMENTS COULD SUBJECT THIS ENTITY TO LIABILITY UNDER THE FALSE CLAIMS ACT.	
		 The Authorized Person signing below certifies that he /she is authorized to submit this TV Broadcaster Relocation Fund Reimbursement Form on behalf of the above-named entity. 	
		2. The above-named entity acknowledges that all certifications and attached documentation are considered material representations.	
		3. The above-named entity acknowledges the submission of the information herein creates no obligation on the part of the government to pay any amount.	

- 4. The above-named entity certifies that the equipment and services paid for with money from the TV Broadcaster Relocation Fund are necessary to change channels (broadcasters) or to continue to carry the signal of a broadcaster that changes channels (MVPD).
- 5. The above-named entity certifies that all payments from the TV Broadcaster Relocation Fund (Fund) received by the entity listed on this form will be used only for expenses that are eligible for reimbursement from the Fund.
- 6. The above-named entity certifies that it will maintain and provide to the Commission detailed records, including receipts, of all costs eligible for reimbursement actually incurred.
- 7. The above-named entity acknowledges that overpayments or payments in error must be promptly refunded to the Commission.

8. The above-named entity certifies that it is in full compliance with all statutes, rules, regulations and governmental requirements for which compliance is a pre-requisite for obtaining the payments herein requested.	
I declare, under penalty of perjury, that I am an authorized representative of the above- named applicant for the Authorization(s) specified above.	Jeffrey C Gehman Engineering Associate
	01/14/2020

Certification	Section	Question	Response
	Submission of Actual Cost Documentation Statements	WILLFUL FALSE, FRAUDULENT, OR FICTITIOUS STATEMENTS ON THIS FORM ARE PUNISHABLE BY FINE AND /OR IMPRISIONMENT (U.S. CODE, TITLE 18, SECTION 1001), AND/OR REVOCATION OF ANY STATION LICENSE OR CONSTRUCTION PERMIT (U.S. CODE, TITLE 47, SECTION 312(a) (1), AND/OR FORFEITURE (U.S. CODE, TITLE 47, SECTION 503), AND ANY FALSE AND/OR FRAUDULENT STATEMENTS COULD SUBJECT THIS ENTITY TO LIABILITY UNDER THE FALSE CLAIMS ACT (U.S. CODE, TITLE 31, SECTIONS 3729-3733).	
		 The Authorized Person signing below certifies and represents that he /she is authorized to submit this TV Broadcaster Relocation Fund Reimbursement Form on behalf of the above-named entity. 	
		2. The above-named entity certifies that the statements in this form and attached documentation are true, complete, and correct.	
		3. The above-named entity acknowledges that all certifications and attached documentation are considered material representations.	

- 4. The above-named entity acknowledges the submission of the information herein creates no obligation on the part of the government to pay any amount.
- 5. The above-named entity certifies that the equipment and services paid for with money from the TV Broadcaster **Relocation Fund are** necessary to change channels (full power and Class A stations) and/or otherwise modify a television station's facility as a result of the spectrum repack (LPTV/TV Translator stations); or to minimize service disruption resulting from a repacked television station (FM stations); or to continue to carry the signal of a broadcaster that changes channels (MVPD).
- The above-named entity certifies that all payments from the TV Broadcaster Relocation Fund (Fund) received by the entity listed on this form will be used only for expenses that are eligible for reimbursement from the Fund.
- 7. The above-named entity certifies that the cost information /documents submitted reflect costs actually incurred.

	The above-named entity acknowledges that overpayments or payments in error must be promptly refunded to the Commission. The above-named entity certifies that it is in full compliance with all statutes, rules, regulations and governmental requirements for which compliance is a prerequisite for obtaining the payments herein requested.	
an au name	are, under penalty of perjury, that I am thorized representative of the above- d applicant for the Authorization(s) fied above.	Jeffrey C Gehman Engineering Associate
		01/14/2020

Attachments