

(REFERENCE COPY - Not for submission)

# FCC Form 399: Reimbursement Request

Facility 10802 Service: DTX Call WTTW Channel: 47 (UHF)

Sign:

File **0000028362** 

Number:

ID:

FRN: **0002860179** Date **07/12** 

Submitted: /2017

# Applicant Information

#### **Applicant Name, Type, and Contact Information**

Applicant	Address	Phone	Email	Applicant Type
WINDOW TO THE WORLD COMMUNICATIONS, INC. Doing Business As: WINDOW TO THE WORLD COMMUNICATIONS, INC.	Eshed Halpern 5400 NORTH ST. LOUIS AVE CHICAGO, IL 60625 United States	+1 (773) 509- 5412	ehalpern@wttw. com	Not-for- Profit

# Reimbursement Contact Name and Information Reimbursement Contact Information

Applicant	Address	Phone	Email
[Confidential]			

#### Preparer Contact Information

#### **Preparer Contact Name and Information**

Applicant	Address	Phone	Email
Mike Tompary Window to the World Communications, Inc.	5400 N. St. Louis Ave Chicago, IL 60625 United States	+1 (773) 509- 2460	mtompary@wttw. com

#### Broadcaster Information and Transition Plan

Question	Response
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.	Yes
Briefly describe transition plan	Replace aux transmitter with new transmitter and place on air. Replace main transmitter and antenna and place on air with new channel assignment at end of phase six. Reconfigure aux transmitter and antenna for new channel assignment and place into standby

Question	Response
Sharee Station Facility ID	73226
Call Sign	WLS-TV
Туре	Commercial
Licensee Name	WLS TELEVISION, INC.
Status	LICENSED
DTS (Distributed Transmission System)	No
Community of License	CHICAGO, IL
Pre-auction RF Channel	44
Post-auction RF Channel	44
Neilsen DMA	Chicago
Network Affiliation	

# Transmitters

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

# Auxiliary Transmitter

#### **Existing Transmitter Information**

Section	Question	Response
Existing Transmitter Description	Type of change	Purchase New
	Use	Auxiliary (Backup)
	Description of Use	To air in case of main failure or main tower work
	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 and Type	Manufacturer	
	Model	Sigma CD Diamond Drive
	Year	2001
	Туре	Inductive Output Tube
	IOT Power Type	Single
	Power Capacity	24 kW

# Auxiliary Transmitter

#### **New Transmitter Costs**

Section	Question	Response
New Transmitter	Use	Auxiliary (Backup)
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	Manufacturer	
	Model	ULXTED-10
	Transmitter Type	Solid State
	Solid State Cooling	Liquid Cooled
	Solid State Power capacity	10.8 kW
	Justification for New Transmitter	Due to channel reassignment need lower power transmitter and new exciters.

# Auxiliary Transmitter

#### **Other Transmitter Costs**

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	No
	Size	N/A
	Length	N/A
	Other Electrical Service	No

	Description	N/A
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

#### Auxiliary Transmitter

#### **Other Transmitter Cost Not Listed**

Name	Description
9950333006	ASSY, EXTERNAL (INDOOR) PUMP MODULE, HE II 50/60HZ, 208-240V/308- 415V INCLUDES: (2) PUMPS (1) PUMP CONTROLLER (2) PUMP INVERTERS 2HP (2) HEAT EXCHANGER INVERTERS 2HP PUMP MODULE FRAME
9929139090	KIT, INSTALL MATERIAL, MAXIVA INCLUDES MATERIAL TO INSTALL SINGLE PA CAB, UNISTRUT 10 FT LENGTH
7740156095	Mask filter cooling plumbing kit
9710023169	COUPLER, UHF 3-1/8, 4 PORT, 48DB, 48DB, 48DB (output of hybrid combiners)

GA999TO - 1	4320448000 50kW HEAT EXCHANGER, BRAZED PLATE (to be used with customer building chilled water system, one per pump module system)
7740156110	KIT, HOSE PLUMBNG DUAL HT EXCHANGER Includes: Rubber Hose 50 Ft, Clamps, Hose Barbs, Ball Valves, Plumbing Tee, and Plumbing elbows (for transmitter cooling & test load cooling systems)
9710023203	COUPLER, UHF 6-1/8, 4 PORT, 48DB, 48DB, 48DB FWD 48DB RFLD (for after switchless combiner, before switchless combiner reject load & before water column load)
9929138117	RF LINE KIT, 3-1/8 INTERCONNECTING THE PA CABINET AND RF SYSTEM.
480TO208-75KVA	75 Kva Transformer three phase 480v Delta primary, 208v Wye secondary, K-13 Rated
7401278000	PARALLEL SURGE SUPPRESSOR, FOR 3PH WYE OR DELTA
9435276550	KIT, ULXT SYSTEM THIS KIT INCLUDES 50FT CU STRAP, 100FT RG223 COAX CABLE, 100FT 2 COND CABLE (INTERLOCK), SMA & N CONNECTORS, WAGO TOOL
7740156080	KIT, PLUMBING ULXT HOSE Includes 2 - 50ft Hoses Hose Barbs Manifold Sight Flow Indicator Misc. plumbing parts Hardware Kit
MYA601-067	Reducer 6-1/8 to 4-1/16 50 Ohm
FLUL-20000-6AT	Reflective Standard ATSC Mask Filter, 18- 22kW Liquid Cooled, UHF, 6 Pole filter, Factory Tunable Band Width 6MHZ, 3-1/8in Un-Flanged Input & Output

# Primary Transmitter

# **Existing Transmitter Information**

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 and Type	Manufacturer	
	Model	Sigma CD Diamond Drive
	Year	2001
	Туре	Inductive Output Tube
	IOT Power Type	Single
	Power Capacity	24 kW

# Primary Transmitter

#### **New Transmitter Costs**

Section	Question	Response
New Transmitter	Use	Primary (Main)
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	Manufacturer	
	Model	ULXTED-10
	Transmitter Type	Solid State
	Solid State Cooling	Liquid Cooled
	Solid State Power capacity	10.8 kW
	Justification for New Transmitter	Due to channel reassignment need lower power transmitter and new exciters.

#### Primary Transmitter

#### **Other Transmitter Costs**

Service Entrance (3 phases 800A 208V)  Switchgear (industrial 800 amp)	No
Switchgoar (industrial 800 amp)	
Switchigear (industrial 600 amp)	No
Transformer (480V)	No
Power	N/A
Rigid Conduit and Wiring	No
Size	N/A
Length	N/A
Other Electrical Service	Yes
	Power  Rigid Conduit and Wiring  Size  Length

	Description	Electricans to remove old equipment and install new equipment. Relocate or remove and reinstall all electric work. To remove existing and hang new transmission line. To remove offsite all old equipment.
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

# Primary Transmitter

#### **Other Transmitter Cost Not Listed**

Name	Description
9929138117	RF Line Kit 3-1/8" INTERCONNECTING THE PA CABINET AND RF SYSTEM

DIE60000-600	DIELECTRIC COAX SWITCH 6-1/8in 4- PORT 115VAC/8-30VDC
9929138119	RF LINE KIT, 6-1/8" includes: 3- XMSN LINE 6-1/8EIA 120" (CU) 2- CONN, AIC 6-1 /8 6- FLANGE, FIXED 6-1/8EIA (BRASS) 6- HDWE KIT FOR 6-1/8EIA (SST) 4- EQ ELBOW/90 6-1/8EIA (CU) 1- FLUX, SILVER BRAZING 1- SOLDER, HARD SILVER, 1/16 DIA 4- PIPE HANGER
9929139090	KIT, INSTALL MATERIAL, MAXIVA INCLUDES MATERIAL TO INSTALL SINGLE PA CAB, UNISTRUT 10 FT LENGTH
480TO208-75KVA	75 Kva Transformer three phase 480v Delta primary, 208v Wye secondary, K-13 Rated
7740156110	KIT, HOSE PLUMBNG DUAL HT EXCHANGER Includes: Rubber Hose 50 Ft, Clamps, Hose Barbs, Ball Valves, Plumbing Tee, and Plumbing elbows (for transmitter cooling & test load cooling systems)
7020014000	UHF 80KW WATER COLUMN STATION TEST LOAD 6-1/8" EIA
0511010030	EXTENDED LIFE ANTIFREEZE /COOLANT_ CONCENTRATE_ETHYLENE GLYCOL, DIETHYLENE GLYCOL_CASE OF SIX (1-GALLON CONTAINERS) _AF2000-6PK_ MSDS REQD EACH SHIPMENT_HAZARDOUS MATL
9950333006	ASSY, EXTERNAL (INDOOR) PUMP MODULE, HE II 50/60HZ, 208-240V/308- 415V INCLUDES: (2) PUMPS (1) PUMP CONTROLLER (2) PUMP INVERTERS 2HP (2) HEAT EXCHANGER INVERTERS 2HP PUMP MODULE FRAME
9435276550	KIT, ULXT SYSTEM THIS KIT INCLUDES 50FT CU STRAP, 100FT RG223 COAX CABLE, 100FT 2 COND CABLE (INTERLOCK), SMA & N CONNECTORS, WAGO TOOL

7740156080	Plumbing Kit, Hose For use with Maxiva ULXT transmitter. Includes: 2 - 50ft Hoses Hose Barbs Manifold Sight Flow Indicator Misc. plumbing parts Hardware Kit	
7740156095	Mask filter cooling plumbing kit	
FLUL-20000-6AT	Reflective Standard ATSC Mask Filter, 18- 22kW Liquid Cooled, UHF, 6 Pole filter, Factory Tunable Band Width 6MHZ, 3-1/8in Un-Flanged Input & Output	
GA999TO -2	WR1500 Magic Tee, WR1500 Magic Tee Switchless Combiner System 3-1/8" inputs /6-1/8" outputs	
MYA601-138-3	MYAT 6-1/8" PATCH PANEL 3-POLE 1 ULINK	
7401278000	PARALLEL SURGE SUPPRESSOR, FOR 3PH WYE OR DELTA	
BRDDA15F15	Bird "Digital Air Series" forced-air cooled reject load. 15kW, 115V operation	
S and H	Shipping and Handling	
9950333007	ASSY, COOLING SYSTEM FOR TEST LOAD ASSY, PUMP MODULE (TEST LOAD OR MASK FILTER) APPLICATION	
GA999TS	WTTW ULXTED-20 INSTALL- Commissioning	
Great Lakes Plumbing	GL Plumbing to connect cooling system to building water	
9710023207	CPLR 4-1/16 4-PORT (3) 48dB	
MYA601-067	Reducer 6-1/8 to 4-1/16 adapter for 25kW reject load & input to aux antenna	
GA999TO - 1	4320448000 50kW HEAT EXCHANGER, BRAZED PLATE (to be used with customer building chilled water system, one per pump module system)	
9710023203	COUPLER, UHF 6-1/8", 4 PORT, 48DB, 48DB, 48DB FWD; 48DB RFLD (for after switchless combiner, before switchless combiner reject load & before water column load)	

9710023169	COUPLER, UHF 3-1/8, 4 PORT, 48DB, 48DB, 48DB (output of hybrid combiners)
9929138139	KIT, RF LINE, 4-1/16" 50 OHM INCLUDES 4-1/16" FLANGED XMISSION LINE (10 FT LENGTHS) INTERCONNECTING THE PA CABINET AND RF SYSTEM.

#### **Antennas**

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

#### Auxiliary Antenna

# **Existing Antenna Information**

Section	Question	Response
Existing Antenna Description	Type of change	Retune Existing
	Antenna Use	Auxiliary (Backup)
	Description of Use	Use if Main transmitter or antenna fail. Also if tower work is being done on the west tower
	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?	Yes
Existing Antenna	Class	Full Power
Manufacturer and Type	Mounting	Side Mount
	Antenna position in stack	Middle
	Polarization	Horizontal
	Туре	Broadband Panel

Number of Stations Supported	7
Number of Panels	8
Design power capacity in use	100.0 %
Lower Limit	470.00 MHz
Upper Limit	700.00 MHz
Other Antenna Type	N/A
ERP: (Effective Radiated Power)	150.0 kW
Manufacturer	RFS
Model	PHP24C
Year	2004

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

Facility ID	Call Sign
10981	WCPX-TV
22211	WFLD
32334	WJYS
47905	WMAQ-TV
71428	WCIU-TV
72115	WGN-TV

#### Auxiliary Antenna

# **Adjustment to Existing Antenna**

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

#### Auxiliary Antenna

#### **Other Antenna Costs**

Section	Question	Response
Section	Question	Response

Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	No
	Туре	
	Number of channels supported	N/A
	Frequencies of channels supported	N/A
	Frequency	

#### Auxiliary Antenna

#### **Other Antenna Cost Not Listed**

Name	Description
East Pole Material Disposal	Disposal of East Pole Material
Equipment Storage	ISI Storage
Outside Project Management	Project Management
RF Safety Coordination E. Pole Decom.	Expected 2 lifts
RF Safety Coordination E. Pole Decom.	RF Safety Coordination of E. Pole Decom.
Transmission Line Installation	Combiner room work
Transmission Line Removal	Transmission Line Removal
NE Decommission Lift	Expected 2 Lifts
East Pole Decommission Prep Work	Prep work for East Pole Decommission
Combiner Module Staging and Delivery	ISI to Willis
Combiner Reconfiguration Labor	Combiner Reconfiguration Labor
Combiner Room Construction	Construction of Combiner Room
Combiner Tuning and Commissioning	RFS - Loney
Cylinder Entry Port Restoration	Cylinder Entry Port Restoration
East Pole Decommission Engineering	Engineering for East Pole Decommission
Combiner Module	New modules
Combiner Module Freight	From Australia

#### **Existing Antenna Information**

Section	Question	Response
Existing Antenna Description	Type of change	Purchase New
	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?	No
	Is the existing antenna directional?	Yes
	Is antenna in operating condition?	Yes
	Is antenna located on or in close proximity to an antenna farm?	Yes
Existing Antenna	Class	Full Power
Manufacturer and Type	Mounting	Side Mount
	Antenna position in stack	Middle
	Polarization	Horizontal
	Туре	Slotted Coaxial
	Number of Stations Supported	N/A
	Number of Panels	N/A
	Design power capacity in use	N/A
	Lower Limit	N/A
	Upper Limit	N/A
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	300.0 kW

Manufacturer	
Model	ATW13H4 - HSC1 - 47S
Year	2001

#### **New Antenna Costs**

Section	Question	Response
New Antenna Description	Use	Primary (Main)
	Description of Use	N/A
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	Ownership	Owned
	Owner	N/A
	Is antenna shared?	Yes
	Is antenna directional?	Yes
	Will antenna be located on or in close proximity to an antenna farm?	Yes
New Antenna	Class	Full Power
Manufacturer and Types	Mounting	Side Mount
	Antenna position in stack	Middle
	Polarization	Elliptical
	Туре	Broadband Panel
	Number of Stations Supported	2
	Number of Panels/Bays	24
	Lower Limit	488.00 MHz
	Upper Limit	608.00 MHz
	Design power capacity in use	100.0 %
	Other Antenna Type	N/A
	ERP: (Effective Radiated Power)	193.0 kW
	Manufacturer	
	Model	PEPL24C

Year	2017
Justification for New Antenna	Channel reassignment from repack

#### **Other Antenna Costs**

Section	Question	Response
Combiner for Shared Antenna	Do you need a Combiner for a Shared Antenna?	Yes
	Туре	New
	Number of channels supported	2
	Frequencies of channels supported	Upper and lower frequency
	Frequency	488.0 MHz - 608.0 MHz
	Do you need a combiner output splitter /switcher for dual feed lines?	No
Elbow Complex	Do you require the separate purchase of the Elbow Complex?	No
	Broadband or Single Channel?	N/A
	Feed Line Size	N/A
Side Mount Brackets	Do you require the separate purchase of side mount brackets for a high power antenna?	Yes
Pattern Scatter Analysis	Do you require separate purchase of pattern scatter analysis for a side mount high or medium power antenna?	Yes
Sweep Test	Do you require the sweep testing of transmission line and antenna?	Yes

#### **Other Antenna Cost Not Listed**

Name	Description
Combiner Spine	XXX
Combiner Commissioning	RFS - Loney
Antenna Commissioning	RFS - Loney
RF Safety Coordination	For antenna and line install
Combiner Module	New Module
Transmission Line Mounts	Design and Fabrication
Combiner Room Construction	Construction of Combiner Room
Permitting	City of Chicago
Internal Transmission Line	To combiner. With parts.
Structural Engineering	ERE
Tower Modifications	Structural
Antenna Delivery to Willis	Delivery from ISI
Antenna Installation	Not a helicopter lift.
Outside Project Management	xxx
Antenna Freight	From Australia to ISI
Transmission Line Installation	Mix of day and night work
Equipment Storage	ISI Storage
Transmission Line	Myat Spectraline 6 1/8" x2
Combiner Freight	From Australia to ISI
Combiner Delivery to Willis	Delivery from ISI
Radome Modification	Design and Fabrication
RFR Measurements	Post installation and construction
Antenna Mounts	Custom Design/Fab

Transmission <sup>Seffien</sup>	Question	Response
Transmission Line Related Expenses	Do you have transmission line related expenses?	Yes

# Auxiliary Existing Transmission

# **Existing Transmission Line**

n Line Section	Question	Response
Existing Transmission Line Description	Type of change	Purchase New
	Use	Auxiliary (Backup)
	Description of Use	To be used as backup if Main fails
	Ownership	Owned
	Owner	N/A
	Site	N/A
	Is the existing transmission line shared with another station or stations?	No
	Is Transmission Line in operating condition?	Yes
Existing Transmission	Manufacturer	
Line Manufacturer and Type	Туре	Rigid
	Diameter	4 1/16 inches
	Other Diameter	N/A
	Segment Length	20 inches
	Other Segment Length	N/A
	Number of parallel runs	1
	Length	100 feet per run

#### New Transmission Line

# Auxiliary Transmission

n Line Section	Question	Response
New Transmission Line Costs	Use	Auxiliary (Backup)
	Description of Use	For use if Main fails or tower work
	Change Type	Purchase New
	Is this a request for upgraded equipment?	Yes
	Туре	Rigid
	Diameter	6 1/8 inches
	Other Diameter	N/A
	Segment Length	20 inches
	Other Segment Length	N/A
	Number of parallel runs	1
	Length	100 feet per run
	Justification for New Transmission Line	Additional power to antenna. See exhibit attached page 6

# Auxiliary

# Other Transmission Line Expenses Not Listed

Transmission Line		Description
	Electrican Hanging	Electrician to hang new transmission lines and remove old lines. Material for hanging

# Primary Transmission Se

#### **Existing Transmission Line**

on Line Section	Question	Response
Existing Transmission Line Description	Type of change	Purchase New
	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?	No
	Is Transmission Line in operating condition?	Yes
Existing Transmission	Manufacturer	
Line Manufacturer and Type	Туре	Rigid
	Diameter	4 1/16 inches
	Other Diameter	N/A
	Segment Length	20 inches
	Other Segment Length	N/A
	Number of parallel runs	1
	Length	100 feet per run

# Primary Transmission

#### **New Transmission Line**

Section	Question	Response
New Transmission Line Costs	Use	Primary (Main)
	Description of Use	N/A
	Change Type	Purchase New
	Is this a request for upgraded equipment?	No
	Туре	Rigid
	Diameter	6 1/8 inches
	Other Diameter	N/A
	Segment Length	20 inches
	Other Segment Length	N/A
	Number of parallel runs	1
	Length	100 feet per run
	Justification for New Transmission Line	Additional power to Antenna. See exhibit attached page 6.

# Primary

# Other Transmission Line Expenses Not Listed

Transmission	Naine	Description
	Electrican Hanging	Electrician to hanging and remove old transmission lines. Material for hanging

# Tower Equipment And Rigging Costs

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

# Auxiliary Tower

# **Existing Tower**

Section	Question	Response
Existing Tower Description	Type of change	Modify Existing
	Tower Use	Auxiliary (Backup)
	Description of Use	Use if main fails
	Ownership	Leased
	Is this tower consider Complex?	Located on Building
	Is this tower currently shared with any other stations?	Yes
	One or more FM, AM or TV radio broadcaster(s)	Yes
	Others Types of Users	No
	Is tower documented for structural analysis?	Yes
	Is tower compliant with Rev G?	Yes
Existing Tower Structure	Do you have a tower registration number?	Yes
Registration	ASR Number	1032960
Coordinates (NAD83 ( North American Datum of 1983))	Latitude (NAD83)	41° 52' 44.0" N-
	Longitude (NAD83)	087° 38' 08.0" W-
	Overall Structure Height	1722.09 feet
	Support Structure Height	1435.35 feet

Ground Elevation Above Mean Sea Level (AMSL)	595.14 feet
Structure Type	BMAST - Building with Mast
Tower Owner	233 Broadcast, LLC
Date Constructed	09/30/2012

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

Call Sign	Service
WEBG	FM
WEDE-CD	DTV
WLIT-FM	FM
WGN-TV	DTV
WPWR-TV	DTV
WLS-TV	DTV
WCFS-FM	FM
WWME-CD	DTV
KNBC	DTV
WSNS-TV	DTV
WLS-FM	FM
WBBM-FM	FM
WTMX	FM
WJYS	DTV
WBBM-TV	DTV
WGCI-FM	FM
	WEBG WEDE-CD WLIT-FM WGN-TV WPWR-TV WLS-TV WCFS-FM WWME-CD KNBC WSNS-TV WLS-FM WBBM-FM WTMX WJYS WBBM-TV

10801	WFMT	FM
74178	WKSC-FM	FM
10802	WTTW	DTV
10981	WCPX-TV	DTV
168662	WMEU-CD	DTV
22211	WFLD	DTV
28621	WJMK	FM
71428	WCIU-TV	DTV

#### Auxiliary Tower

#### **Tower Modification Costs**

Section	Question	Response
Engineering Study	Please what type of engineering study is required, if any:	No study needed
Tower Reinforcements	Please select whether tower reinforcements are needed:	Major Reinforcements needed

#### Auxiliary Tower

# **Tower Rigging Costs**

Section	Question	Response
Tower Rigging Costs	Complex Tower	Located on Building
Helicopter Services Required	Are helicopter services required?	No

#### Auxiliary Tower

#### Other Tower Expenses Not Listed

Information not provided.

# Primary Tower

#### **Existing Tower**

Section	Question	Response
Existing Tower Description	Type of change	Modify Existing
	Tower Use	Primary (Main)
	Description of Use	N/A
	Ownership	Leased
	Is this tower consider Complex?	Located on Building
	Is this tower currently shared with any other stations?	Yes
	One or more FM, AM or TV radio broadcaster(s)	Yes
	Others Types of Users	No
	Is tower documented for structural analysis?	Yes
	Is tower compliant with Rev G?	Yes
Existing Tower Structure	Do you have a tower registration number?	Yes
Registration	ASR Number	1032959
Coordinates (NAD83 ( North American Datum of	Latitude (NAD83)	41° 52' 44.1" N-
1983))	Longitude (NAD83)	087° 38' 10.2" W-
	Overall Structure Height	1729.97 feet
	Support Structure Height	1435.35 feet
	Ground Elevation Above Mean Sea Level (AMSL)	595.14 feet
	Structure Type	BTWR - Building with Tower

Tower Owner	233 Broadcast, LLC
Date Constructed	01/01/2002

#### 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
70119	WSNS-TV	DTV
71428	WCIU-TV	DTV
48772	WPWR-TV	DTV
71425	WWME-CD	DTV
6377	WTMX	FM
9617	WBBM-TV	DTV
72115	WGN-TV	DTV
66978	WEDE-CD	DTV
53971	WEBG	FM
73226	WLS-TV	DTV
9613	WBBM-FM	FM
73228	WLS-FM	FM
51165	WGCI-FM	FM
74178	WKSC-FM	FM
70042	WLIT-FM	FM
168662	WMEU-CD	DTV
10801	WFMT	FM
10802	WTTW	DTV
28621	WJMK	FM

71283	WCFS-FM	FM
22211	WFLD	DTV
10981	WCPX-TV	DTV
32334	WJYS	DTV
47906	KNBC	DTV

#### Primary Tower

#### **Tower Modification Costs**

Section	Question	Response
Engineering Study	Please what type of engineering study is required, if any:	No study needed
Tower Reinforcements	Please select whether tower reinforcements are needed:	Major Reinforcements needed

#### Primary Tower

# **Tower Rigging Costs**

Section	Question	Response
Tower Rigging Costs	Complex Tower	Located on Building
Helicopter Services Required	Are helicopter services required?	Yes

#### Primary Tower

# Other Tower Expenses Not Listed

Name	Description
WTTW Transmission Line Removal to Smoke Shaft	Estimated 5 nights of work to complete.
SW Pole Material Removal and Disposal	Removal and disposal of remaining SW pole material
WTTW Antenna Removal RF Safety Coordination	RF safety coordination for WTTW antenna removal.
Willis Tower Project Management	Tower Project Management

SW Pole Decommission Preparation Work	Estimated 10 nights of work for preparation.
WTTW Antenna Removal Engineering	Antenna Removal Engineering
SW Pole Decommission Engineering	Pole Decommission Engineering
WTTW T L Removal RF Safety Coordination	RF safety coordination during line removal to shaft
WTTW T L Removal to 100 in smoke shaft	Removal of line in shaft from 109 to 100.
WTTW Antenna Removal	Helicopter not required. Estimated 4 nights.
SW Pole Decommission Prep. Work RF Safety Coord.	RF safety coordination for SW pole decom. prep work

#### Outside Professional

Section	Question	Response
I Services Costs Outside Project Management Services	Do you require outside project management services?	Yes
	Number of Hours	500
	Explanation	Outside services, such as legal, engineering, consultant.
Outside RF consulting Engineering Services	Perform engineering study for new channel assignment and antenna development	No
	Prepare engineering section of Form FCC Construction Permit Application	No
	For Auxiliary Facility	N/A
	For Main Facility	N/A
	Prepare engineering section of Form FCC License to Cover Application	No
	For Auxiliary Facility	N/A
	For Main Facility	N/A
	Prepare request for Special Temporary Authority	No
	Quantity	N/A
	Do you have Distributed Transmission System engineering services?	N/A
	Critical Facility	N/A
	Terrain-Shielded Facility	N/A
Attorney and Other Outside Consulting	Prepare and file Form FCC Construction Permit Application	No
Services	For Auxiliary Facility	N/A
	For Main Facility	N/A
	Prepare and file Form FCC License to Cover Application	Yes

	For Auxiliary Facility	Yes
	For Main Facility	Yes
	Prepare request for Special Temporary Authority	No
	Quantity	N/A
	NEPA Section 106 environmental review	No
	Environmental Assessment	No
	ASR Modification	No
	FAA Consultation (including preparation of FAA Form 7460)	No
	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	No
RF Field Engineering Services	Comprehensive coverage verification via field study	No
	RF exposure measurements	Yes
	Additional Field Engineering Service	No
	Number of Days	N/A
	Justification	N/A

Outside
Other Professional Services Expenses Not Listed
Professional Services ©qstsided.

# Other Expenses

Section	Question	Response
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?	No
Permit and Filing Costs	Local Zoning	No
	Non-zoning permits	No
	BLM or NFS Coordination	No
	FCC Construction Permit Minor Change	Yes
	FCC License to Cover Application	No
	FCC Special Temporary Authority Application	No
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?	No

Other Expenses Not Listed

**Expenses** Information not provided.

### **Transmitters**

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 ULXTED-10	\$905,805.49	\$571,205.49		\$0.00	
480TO208- 75KVA	\$2,715.55	\$2,715.55	N/A	N/A	N/A
0511010030	\$930.88	\$930.88	N/A	N/A	N/A
7740156080	\$2,401.60	\$2,401.60	N/A	N/A	N/A
GA999TO -2	\$34,123.20	\$34,123.20	N/A	N/A	N/A
MYA601-067	\$888.53	\$888.53	N/A	N/A	N/A
9710023203	\$1,668.11	\$1,668.11	N/A	N/A	N/A
9710023169	\$571.89	\$571.89	N/A	N/A	N/A
Other Electrical Service: Electricans to remove old equipment and install new equipment. Relocate or remove and reinstall all electric work. To remove existing and hang new transmission line. To remove offsite all old equipment.	\$174,400.00	\$174,400.00	N/A	N/A	N/A
9929139090	\$556.00	\$556.00	N/A	N/A	N/A
S and H	\$11,800.00	\$11,800.00	N/A	N/A	N/A
GA999TS	\$46,964.20	\$46,964.20	N/A	N/A	N/A

Great Lakes Plumbing	\$25,000.00	\$25,000.00	N/A	N/A	N/A
9710023207	\$1,504.10	\$1,504.10	N/A	N/A	N/A
9929138139	\$10,246.26	\$10,246.26	N/A	N/A	N/A
7740156095	\$207.51	\$207.51	N/A	N/A	N/A
FLUL-20000- 6AT	\$13,500.00	\$13,500.00	N/A	N/A	N/A
9950333006	\$7,040.00	\$7,040.00	N/A	N/A	N/A
9435276550	\$556.00	\$556.00	N/A	N/A	N/A
GA999TO - 1	\$1,600.00	\$1,600.00	N/A	N/A	N/A
7020014000	\$5,060.90	\$5,060.90	N/A	N/A	N/A
UHF - Liquid Cooled Solid State Transmitter 8.2 - 13 kW	\$494,500.00	\$159,900.00	N/A	N/A	N/A
MYA601-138-3	\$3,888.00	\$3,888.00	N/A	N/A	N/A
7401278000	\$1,510.82	\$1,510.82	N/A	N/A	N/A
BRDDA15F15	\$13,769.45	\$13,769.45	N/A	N/A	N/A
9950333007	\$9,966.40	\$9,966.40	N/A	N/A	N/A
9929138117	\$5,943.20	\$5,943.20	N/A	N/A	N/A
DIE60000-600	\$19,132.91	\$19,132.91	N/A	N/A	N/A
9929138119	\$13,254.38	\$13,254.38	N/A	N/A	N/A
7740156110	\$2,105.60	\$2,105.60	N/A	N/A	N/A
Auxiliary Transmitter ULXTED-10	\$535,764.81	\$201,164.81		\$0.00	
7401278000	\$1,510.82	\$1,510.82	N/A	N/A	N/A
9435276550	\$556.00	\$556.00	N/A	N/A	N/A
7740156080	\$2,401.60	\$2,401.60	N/A	N/A	N/A
GA999TO - 1	\$1,600.00	\$1,600.00	N/A	N/A	N/A

MYA601-067	\$888.53	\$888.53	N/A	N/A	N/A
9929138117	\$5,943.20	\$5,943.20	N/A	N/A	N/A
9710023203	\$1,668.11	\$1,668.11	N/A	N/A	N/A
9710023169	\$571.89	\$571.89	N/A	N/A	N/A
FLUL-20000- 6AT	\$13,500.00	\$13,500.00	N/A	N/A	N/A
UHF - Liquid Cooled Solid State Transmitter 8.2 - 13 kW	\$494,500.00	\$159,900.00	N/A	N/A	N/A
9950333006	\$7,040.00	\$7,040.00	N/A	N/A	N/A
9929139090	\$556.00	\$556.00	N/A	N/A	N/A
7740156095	\$207.51	\$207.51	N/A	N/A	N/A
7740156110	\$2,105.60	\$2,105.60	N/A	N/A	N/A
480TO208- 75KVA	\$2,715.55	\$2,715.55	N/A	N/A	N/A
Sub-total	\$1,441,570.30	\$772,370.30	N/A	\$0.00	N/A
Total for all systems	\$5,805,741.96	\$3,383,021.96	N/A	\$0.00	N/A

### Components

#### **Antennas**

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 PEPL24C	\$1,499,705.00	\$1,466,765.00		\$0.00	
Permitting	\$20,000.00	\$20,000.00	N/A	N/A	N/A
Structural Engineering	\$150,000.00	\$150,000.00	N/A	N/A	N/A
Outside Project Management	\$92,500.00	\$92,500.00	N/A	N/A	N/A
Combiner Commissioning	\$7,720.00	\$7,720.00	N/A	N/A	N/A
RF Safety Coordination	\$75,000.00	\$75,000.00	N/A	N/A	N/A
Combiner Module	\$60,000.00	\$60,000.00	N/A	N/A	N/A
UHF - High Power, Side Mount, broadband panel, 24 bay,, 193 kW input, directional,, elliptically or circularly polarized	\$120,862.50	\$120,862.50	N/A	N/A	N/A
New combiner, cost per channel (without antenna)	\$84,200.00	\$60,000.00	N/A	N/A	N/A
Combiner Spine	\$20,000.00	\$20,000.00	N/A	N/A	N/A
Combiner Delivery to Willis	\$10,000.00	\$10,000.00	N/A	N/A	N/A

Radome Modification	\$50,000.00	\$50,000.00	N/A	N/A	N/A
Antenna Mounts	\$15,000.00	\$15,000.00	N/A	N/A	N/A
Combiner Freight	\$5,000.00	\$5,000.00	N/A	N/A	N/A
Antenna Freight	\$12,500.00	\$12,500.00	N/A	N/A	N/A
Transmission Line Installation	\$75,000.00	\$75,000.00	N/A	N/A	N/A
Internal Transmission Line	\$75,000.00	\$75,000.00	N/A	N/A	N/A
Tower Modifications	\$200,000.00	\$200,000.00	N/A	N/A	N/A
Antenna Installation	\$200,000.00	\$200,000.00	N/A	N/A	N/A
Antenna Commissioning	\$10,782.50	\$10,782.50	N/A	N/A	N/A
Sweep test of existing antenna	\$6,730.00	\$6,400.00	N/A	N/A	N/A
Side mount brackets for high power antennas (if not included in antenna base cost)	\$23,150.00	\$15,000.00	N/A	N/A	N/A
Pattern scatter analysis for side mount high/med power antennas (if not included in antenna base cost)	\$5,260.00	\$5,000.00	N/A	N/A	N/A
Transmission Line	\$105,000.00	\$105,000.00	N/A	N/A	N/A
RFR Measurements	\$5,000.00	\$5,000.00	N/A	N/A	N/A
Transmission Line Mounts	\$15,000.00	\$15,000.00	N/A	N/A	N/A

Combiner Room Construction	\$45,000.00	\$45,000.00	N/A	N/A	N/A
Antenna Delivery to Willis	\$10,000.00	\$10,000.00	N/A	N/A	N/A
Equipment Storage	\$1,000.00	\$1,000.00	N/A	N/A	N/A
Auxiliary Antenna PHP24C	\$499,306.66	\$475,566.66		\$0.00	
Equipment Storage	\$333.33	\$333.33	N/A	N/A	N/A
Cylinder Entry Port Restoration	\$25,000.00	\$25,000.00	N/A	N/A	N/A
Combiner Module	\$50,000.00	\$50,000.00	N/A	N/A	N/A
NE Decommission Lift	\$200,000.00	\$200,000.00	N/A	N/A	N/A
Combiner Reconfiguration Labor	\$7,142.86	\$7,142.86	N/A	N/A	N/A
Combiner Room Construction	\$12,857.14	\$12,857.14	N/A	N/A	N/A
East Pole Decommission Engineering	\$16,666.67	\$16,666.67	N/A	N/A	N/A
Combiner Module Freight	\$3,000.00	\$3,000.00	N/A	N/A	N/A
East Pole Material Disposal	\$13,333.33	\$13,333.33	N/A	N/A	N/A
Transmission Line Removal	\$41,666.67	\$41,666.67	N/A	N/A	N/A
Combiner Module Staging and Delivery	\$3,333.33	\$3,333.33	N/A	N/A	N/A
Sweep test of existing antenna	\$6,730.00	\$6,400.00	N/A	N/A	N/A

UHF – Broadband Panel, Side Mount Auxiliary /Interim, 150 horizontally polarized	\$0.00	\$0.00	N/A	N/A	N/A
Side mount brackets for high power antennas (if not included in antenna base cost)	\$23,150.00	\$0.00	N/A	N/A	N/A
Pattern scatter analysis for side mount high/med power antennas (if not included in antenna base cost)	\$5,260.00	\$5,000.00	N/A	N/A	N/A
Outside Project Management	\$15,833.33	\$15,833.33	N/A	N/A	N/A
RF Safety Coordination E. Pole Decom.	\$16,666.67	\$16,666.67	N/A	N/A	N/A
Transmission Line Installation	\$20,833.33	\$20,833.33	N/A	N/A	N/A
East Pole Decommission Prep Work	\$33,333.33	\$33,333.33	N/A	N/A	N/A
Combiner Tuning and Commissioning	\$4,166.67	\$4,166.67	N/A	N/A	N/A
Sub-total	\$1,999,011.66	\$1,942,331.66	N/A	\$0.00	N/A
Total for all systems	\$5,805,741.96	\$3,383,021.96	N/A	\$0.00	N/A

### Components

#### **Transmission Line**

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	\$30,200.00	\$29,000.00		\$0.00	
Rigid Transmission Line - copper, 6 1/8"	\$20,200.00	\$19,000.00	N/A	N/A	N/A
Electrican Hanging	\$10,000.00	\$10,000.00	N/A	N/A	N/A
Auxiliary Transmission Line	\$30,200.00	\$29,000.00		\$0.00	
Electrican Hanging	\$10,000.00	\$10,000.00	N/A	N/A	N/A
Rigid Transmission Line - copper, 6 1/8"	\$20,200.00	\$19,000.00	N/A	N/A	N/A
Sub-total	\$60,400.00	\$58,000.00	N/A	\$0.00	N/A
Total for all systems	\$5,805,741.96	\$3,383,021.96	N/A	\$0.00	N/A

### Components

### **Tower Equipment and Rigging Costs**

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 BTWR	\$1,349,500.00	\$507,500.00		\$0.00	
SW Pole Material Removal and Disposal	\$25,000.00	\$25,000.00	N/A	N/A	N/A
Major tower reinforcement /modifications	\$421,000.00	\$0.00	N/A	N/A	N/A
Complex Tower (includes, for example, those with candelabras and /or stacked antennas)	\$421,000.00	\$0.00	N/A	N/A	N/A
Tower Helicopter Lift	\$177,500.00	\$177,500.00	N/A	N/A	N/A
WTTW Transmission Line Removal to Smoke Shaft	\$50,000.00	\$50,000.00	N/A	N/A	N/A
WTTW Antenna Removal RF Safety Coordination	\$10,000.00	\$10,000.00	N/A	N/A	N/A
Willis Tower Project Management	\$27,500.00	\$27,500.00	N/A	N/A	N/A
SW Pole Decommission Preparation Work	\$50,000.00	\$50,000.00	N/A	N/A	N/A

WTTW Antenna Removal Engineering	\$30,000.00	\$30,000.00	N/A	N/A	N/A
SW Pole Decommission Engineering	\$32,500.00	\$32,500.00	N/A	N/A	N/A
WTTW T L Removal RF Safety Coordination	\$12,500.00	\$12,500.00	N/A	N/A	N/A
WTTW T L Removal to 100 in smoke shaft	\$40,000.00	\$40,000.00	N/A	N/A	N/A
WTTW Antenna Removal	\$40,000.00	\$40,000.00	N/A	N/A	N/A
SW Pole Decommission Prep. Work RF Safety Coord.	\$12,500.00	\$12,500.00	N/A	N/A	N/A
Auxiliary Tower BMAST	\$842,000.00	\$0.00		\$0.00	
Complex Tower (includes, for example, those with candelabras and /or stacked antennas)	\$421,000.00	\$0.00	N/A	N/A	N/A
Major tower reinforcement /modifications	\$421,000.00	\$0.00	N/A	N/A	N/A
Sub-total	\$2,191,500.00	\$507,500.00	N/A	\$0.00	N/A

### Components

#### **Outside Professional Services**

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
Outside Professional Services	\$107,150.00	\$96,750.00		\$0.00	
Prepare and or review reimbursement form	\$2,630.00	\$2,500.00	N/A	N/A	N/A
RF Exposure Measurements	\$21,050.00	\$20,000.00	N/A	N/A	N/A
Project management of the transition	\$79,000.00	\$70,000.00	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	\$2,105.00	\$2,000.00	N/A	N/A	N/A
Sub-total	\$107,150.00	\$96,750.00	N/A	\$0.00	N/A
Total for all systems	\$5,805,741.96	\$3,383,021.96	N/A	\$0.00	N/A

### Components

### **Other Expenses**

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	\$6,110.00	\$6,070.00		\$0.00	
FCC Filing Fees - Form 2100 minor change CP application	\$1,110.00	\$1,070.00	N/A	N/A	N/A
Equipment Storage	\$0.00	\$0.00	N/A	N/A	N/A
Develop and air announcement of upcoming channel change	\$5,000.00	\$5,000.00	N/A	N/A	N/A
Equipment Delivery and Handling Charges	\$0.00	\$0.00	N/A	N/A	N/A
Disposal Costs (for equipment and other waste, net of any salvage value)	\$0.00	\$0.00	N/A	N/A	N/A
Sub-total	\$6,110.00	\$6,070.00	N/A	\$0.00	N/A
Total for all systems	\$5,805,741.96	\$3,383,021.96	N/A	\$0.00	N/A

### Components

### **Grand Total**

	Predetermined Cost Estimate	Estimated Cost	Actual Cost
Total for all systems	\$5,805,741.96	\$3,383,021.96	\$0.00

Reimbursem	entestatus	Response
	The facility has ceased operating on its pre- auction channel.	No
	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

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.

- 1. 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 abovenamed applicant for the Authorization(s) specified above. Michael Tompary Director of Engineering

07/12/2017

#### **Attachments**