



## Attachment B – Specifications

RFx # 3000023162

Title: Broadcast Encoding & Trans. Equipment

**TECHNICAL SPECIFICATIONS FOR THE FURNISHING OF ATSC 1.0 & ATSC 3.0 TRANSMISSION PROCESSING AND ENCODING EQUIPMENT ALONG WITH REDUNDANT MICROWAVE TRANSMISSION RADIOS FOR STATION TO TRANSMITTER & TRANSMITTER TO STATION TRANSMISSION FOR LOUISIANA EDUCATIONAL TELEVISION AUTHORITY (LETA)  
Greater New Orleans Educational TV  
WYES – FACILITY**

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### **Section 1**

#### **SCOPE OF WORK/SPECIFICATIONS**

The scope of work shall require the successful bidder to provide all the necessary broadcast encoding and microwave transmitter link equipment specified within this bid document. The objective of these specifications is to obtain a complete and operable digitally encoded ATSC 1.0 and ATSC 3.0 broadcast transmission stream that is fully redundant.

The equipment listed for bid is for the purpose of creating and distributing a Federal Communications Commission (FCC) approved ATSC 1.0 and ATSC 3.0 television broadcast signal over UHF broadcast channels 23 & 28 in the New Orleans designated television broadcast market. As required by the FCC, ATSC 1.0 will be broadcast over UHF Channel 28 and ATSC 3.0 (NextGen TV) will be broadcast over UHF Channel 23. The listed equipment provides for the redundant broadcast encoding and microwave station to transmitter and transmitter to station transmissions to simulcast the current broadcast programming provided by each station in both digital formats as required by the FCC.

Since the FCC has only recently approved the specifications and implementation of a digital ATSC 3.0 television transmission standard. The successful bidder will be required to provide the number of television stations which they have provided, configured, and tested the listed encoding equipment to transition to the ATSC 3.0 digital format. The successful vendor must demonstrate that they have provided these services to at least 25 television stations located in the top 50 Nielsen National Television Markets.



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The successful bidder shall **configure and test all listed major equipment items at their facility prior to shipment to WYES-TV**. A system interconnect drawing will be provided to WYES to aid in the installation process. **The installation of all equipment will be done by WYES engineering staff**. Vendor support via phone or Web shall be available during the installation process.

Award is to be made to the overall lowest responsive, responsible bidder meeting all specifications as outlined in the Invitation to Bid. Vendors may submit additional options/services with their bid response for possible future consideration by the agency as a separate purchase, but these are **not** required and **will not** be considered in this bid evaluation. Pricing for any additional “add-on” options/services not specified below shall **not** be included in the vendor’s base bid price.

### 1.1 CONTACTS

1.1.1 Purchaser: Louisiana Educational Television Authority (LETA) for the Greater New Orleans Educational TV Foundation (WYES-TV).

WYES Contact:

Robin Cooper, President and CEO, WYES-TV  
916 Navarre Ave,  
New Orleans, LA 70124  
(504) 486-5511  
[cooper@wyes.org](mailto:cooper@wyes.org)

1.1.2 Engineering Contact:

Fred Barrett  
WYES-TV  
916 Navarre Ave,  
New Orleans, LA 70124  
(504) 483-8498  
[fbarrett@wyes.org](mailto:fbarrett@wyes.org)

### 1.2 DELIVERY

All items described herein shall be delivered F.O.B. to:

WYES-TV  
916 Navarre Ave,  
New Orleans, LA 70124

### 1.3 SUBSTITUTION OF MATERIALS OR EQUIPMENT

Where materials or equipment are specified herein by a manufacturer’s name and/or type number, such designation is intended to establish desired level of quality and/or performance. Bidder may propose substitute materials or equipment, which they believe equivalent to items specified, provided that documentation necessary to establish equivalency is



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supplied with bid. The burden of establishing equivalency shall rest with the bidder, and WYES shall be the final judge of the acceptability of equipment or materials submitted as equivalents.

### 1.4 **WARRANTIES**

All vendor supplied items shall include the warranties provided by the manufacturer. Warranties shall commence upon delivery of equipment to WYES.

### 1.5 **DECISION OF PURCHASER**

WYES shall be the sole judge of acceptability of technical equipment materials, design, and workmanship.

### 1.6 **CONSIDERATION OF BIDS**

All bids submitted should contain the following information, or it must be submitted within two (2) business days of request by OSP. Failure to supply any of the following items may result in the bid being rejected as non-responsive.

1.6.1 A complete bill of materials which shall include quantity, manufacturer, model number and description of every item of equipment to be supplied within the bid. All equipment bid shall be new and not previously sold or delivered.

1.6.2 A manufacturer's specification sheet, drawing, or other information for each major item of equipment proposed, to permit a determination as to whether the equipment proposed meets the requirement of these specifications.

1.6.3 Please list on a separate page a list of at least 25 television stations located within the top 50 Nielsen Station Markets that bidder has successfully transitioned to ATSC 3.0 digital transmission standards.

1.6.4 A complete listing of any and all exceptions to these specifications and/or requirements of this bid document

## **SECTION 2**

### **2.0 PRIMARY CHANNEL 28 & CHANNEL 23 ATSC 1.0 & ATSC 3.0 ENCODING**

2.1 Quantity 1 - Harmonic ATSC3-XOS-ALLIN1-UHD-BUNDLE



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Encoding equipment bundle consisting of XOS ATSC 3 SW-ALLIN1-1UHD-BUNDLE, and hardware. Includes: XOS UHD x1HD X4 Appliance bundle. Includes the hardware and licenses to allow encoding and packaging of 1 UHD or 5 HD channels from SDI or TS sources on one appliance. UHD encoding up to 2160p60. HD encoding up to 1080p50/60 or 1080i25/i30. For OTT channels up to 11 sub profiles are included.

This bundle includes the following items:

- 2.1.1 XOS-SOFTONLY-BDL-ATO
- 2.1.2 SWR-XOS-BASE-SOFTONLY
- 2.1.3 LIC-NMX-DEVICE-CONF
- 2.1.4 LIC-XOS-ENC-UHD-PLUS
- 2.1.5 LIC-XOS-ENC-HD-PLUS x4
- 2.1.6 LIC-XOS-HDR-BCOM
- 2.1.7 LIC-XOS-HDR-BCOM-HD x4
- 2.1.8 LIC-XOS-AUD-DOLBY x5
- 2.1.9 LIC-XOS-AUD-NIELSEN x5
- 2.1.10 LIC-XOS-ALS x5
- 2.1.11 LIC-XOS-EAS x5
- 2.1.12 LIC-XOS-OTT-EGRESS-S x10
- 2.1.13 SWR-XOS-BASE-APPLIANCE
- 2.1.14 LIC-NMX-DEVICE-CONF
- 2.1.15 HWR-XOS-CHS-MODEL-L
- 2.1.16 HWR-XOS-OPT-SDI-8X3G
- 2.1.17 PSIP Spooling

#### 2.2 Quantity 1 - Harmonic SLAST 12R5

Standard Support, 12 Month Term, 5-day advance exchange for non-HPE and max. 20-day hardware part shipment for HPE products, 8am – 5pm Monday – Friday local time Remote Telephone support (Severity 1 Cases receive 24/7/365 remote technical support)

### **3.0 REDUNDANT CHANNEL 28 & CHANNEL 23 ATSC 1.0 & ATSC 3.0 ENCODING AND SOFTWARE LICENSES, INPUT/OUTPUT CARDS AND SERVICE AGREEMENTS FOR ALL HARMONIC XOS UNITS**

#### 3.1 Quantity 1 - Harmonic XOS-SPARE-CHASSIS-ATSC3

Harmonic XOS Large Hardware with 8 Input SD/ASI Card Which Includes 1080p on All Inputs. HDBNC Adapter Cables included for Input Card. Licenses Copied as Per Main Chassis. Hardware includes:

- 3.1.1 XOS-APPLIANCE
- 3.1.2 HWR-XOS-CHS-MODEL-L
- 3.1.3 HWR-XOS-OPT-SDI-ASI-8
- 3.1.4 SPR-BNC2MICRO-BNC-MED-CBL
- 3.1.5 SW Includes: SWR-XOS-BASE-APPLIANCE



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3.2 Quantity 1 - Harmonic SLAST12R5

Standard Support, 12 Month term, 5-day advance exchange for non-HPE and max. 20-day hardware part shipment for HPE products, 8am – 5pm Monday – Friday local time Remote Telephone Support (Severity 1 Cases receive 24/7/365 remote technical support)

3.3 Quantity 2 - Harmonic LIC-XOS-ENC-HD-PLUS

Software license for XOS Platform enabling encoding for one HD+TV service. The license allows 1 video encoding up to 1080p50/60 or 1080i25/i30, up to 11 AVC/HEVC progressive video encoding of any sub resolution/frame rate from the same source, 12 audio encoding. The supported codecs are HEVC/AVC/MPEG-2 for video and MPEG-1/AAC for audio. The supported source is SDI or compressed (MPEG-2/AVC/HEVC FOR VIDEO, AAC/Mpeg-1 for audio).

3.4 Quantity 2 - Harmonic LIC-XOS-ENC-SD-PLUS S

Software license for XOS Platform enabling encoding for one SD+ or 576i25 or 480i30, up to 11 AVC/HEVC progressive video encoding of any sub resolution/frame rate from the same source, 12 audio encoding. The supported codecs are HEVC/AVC/MPEG-2 for video and MPEG-1/AAC for audio. The supported source is SDI or compressed (MPEG-2/AVC/HEVC for video, AAC/MPEG-1 for audio).

3.5 Quantity 4 Harmonic LIC-XOS-AUD-DOLBY

Software license for XOS Platform enabling support of Dolby audio codecs (Dolby E, Dolby Digital, Dolby Digital Plus, Dolby AC-4, Dolby ATMOS).

3.6 Quantity 7 Harmonic LIC-XOS-MUX

Software license for XOS enabling TS multiplexing including SI/PSI advanced management and Statistical Multiplexing.

3.7 Quantity 2 Harmonic SPR-HWR-XOS-OPT-SDI-8IN-SHORT

8 HDSDI Input Card

3.8 Quantity 2 Harmonic SPR-XOS-OPT-SDI-ASI-4-SHORT

4 Output ASI Card



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3.9 Quantity 1 Harmonic SLAST 12R5

Standard Support. 12 Month Term, 5 Day RMA shipping for non-HPE products and 20 Day Part Shipping for HPE products 8am - 5pm Monday – Friday Local time Remote Telephone Support (Severity 1 cases Receive 24/7/365 remote technical support).

### **4.0 TRIVENI ADOT FOR CHANNEL 28 GUIDEUILDER**

4.1 Quantity 1 Triveni GDVR-LCR-HWUPG

1U Fault Tolerant Server (RAID Level 1 and Dual Power Supplies). Services up to two Major Channel Number licenses.

4.2 Quantity 1 Triveni GDBR-IP-HARM

Primary Transport Carouseling IP Output – Harmonic Electra

4.3 Quantity 1 Triveni GDBR-RIP-HARM

Replicated Transport Stream Output – Carouseling Replicated IP Output – Harmonic Electra

4.4 Quantity 1 Triveni GDBR-INTF-PMCP

Input Interface – PMCP Interface Module.

4.5 Quantity 1 Triveni GDBR-ADOT

Each additional Major ChannelNumber license for Primary (First year ESSP not included with after-sale purchase of additional outputs, purchase of ESSP will be prorated to coincide with renewal of original outputs. For GDBR-RE And GDBR-LCR (maximum 1).

4.6 Quantity 1 Triveni GDBR-INTF-PMCP

Input Interface – PMCP Interface Module.

4.7 Quantity 1 Triveni ESSP-GDBR

GuideBuilder Primary Enhanced System Service Plan – for up to two Major Channel Number licenses (ADOT).



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**5.0 ASI FAILOVER SWITCH FOR CHANNEL 28 & CHANNEL 23 ATSC 1.0 STREAMS FOR CABLE, DISH & DIRECT TV**

5.1 Quantity 1 DTV Innovations TSACO-1200

Transport Stream Automatic Changeover Unit – (ASI, 310M) Single Outputs using Relay Switching. Bypass Relay, User Config, w/Web Interface (1 year warranty)

**6.0 STAND-ALONE 1X4 ASI DA**

6.1 Quantity 1 Cobalt Digital BBG-DA-12G- 1x6

12G/3G/HD/SD 1x6 DA 12G/3G/HD/SD-SDI / ASI / MADI, Re-clocking Distribution Amplifier with Input Status LED (Includes PS4 Power Supply)

**7.0 PRIMARY TRIVENI GUIDE BUILDER XM FOR ATSC 3.0 ON DUAL PS SERVER, AND GATEWAY**

7.1 Quantity 1 Triveni Digital GDBRXM

GUIDEBUILDER XM – 1U Fault Tolerant Server (Raid Level 1 and Dual Power Supplies). Includes GuideBuilder XM Signaling software integrated on 1U Fault Tolerant Server (Raid Level 1 and Dual Power Supplies). Licensed for one broadcast tower and unlimited Major Channel Numbers (Call Letters). Includes Streaming IP Output, ROUTE Encoder, AEA Support, including basic NRT and APP, and A3SA security signaling.

7.2 Quantity 1 Triveni Digital ESSP-GDBRXM

GuideBuilder XM Enhanced System Service Plan for unlimited Major Channel Number licenses (ADOT)

7.3 Quantity 1 Triveni Digital Gate- HW

Hardware Option

7.4 Quantity 1 Triveni Digital Gate- SW

ATSC 3.0 gateway/scheduler software

7.5 Quantity 1 Triveni Digital ESSP-Gate

Broadcast Gateway Annual Enhanced System Service Plan



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### 8.0 BACKUP TRIVENI GUIDEUILDER XM FOR ATSC 3.0 ON DUAL PS SERVER, AND GATEWAY

8.1 Quantity 1 Triveni Digital GDBRXM-BU

GuideBuilder XM Backup – 1U Fault Tolerant Server (Raid Level 1 and Dual Power Supplies). Includes GuideBuilder XM Signaling software integrated on 1U Fault Tolerant Server (Raid Level 1 and Dual Power supplies). Licensed for one broadcast tower and unlimited Major Channel Numbers (Call Letters). Includes Streaming IP Output, ROUTE Encoder, AEA Support, including basic NRT and APP, and A3SA security signaling.

8.2 Quantity 1 Triveni Digital ESSP-GDBRXM-BU

GuideBuilder SM Backup Enhanced System Service Plan for unlimited Major Channel Number licenses (ADOT)

8.3 Quantity 1 Triveni Digital Gate-HW-BU

Hardware Option

8.4 Quantity 1 Triveni Digital Gate-SW-BU

ATSC 3.0 gateway/scheduler software

8.5 Quantity 1 Triveni Digital ESSP-Gate-BU

Broadcast Gateway Annual Enhanced System Service Plan

### 9.0 VIDEOFLOW REDUNDANT STUDIO ATSC 3.0 TRANSPORT STUDIO TO TX SITE

9.1 Quantity 2 VideoFlow Redundant Chassis to include:

9.1.1 Quantity 4 VFH40202 DVL202, 64 Streams / 256x SGs, 64x Tunnels, 200 Mb/s, Dual PS, 19", 1RU

9.1.2 Quantity 4 VFS10201-DVL DVG Software

9.1.3 Quantity 16 VFS88010 (8) DVG Stream Gates, Min 1 SG, Max 10 SG's

9.1.4 Quantity 2 VFS91002 DVP/DVG hot backup license

9.1.5 Quantity 2 VFP120012 Gold Support plan for 12 months





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### 10.0 STREAMSCOPE ATSC 3.0 ANALYZER

10.1 Quantity 1 Triveni Digital STSCXM-BASE

Base STSC XM Platform (supports up to 4 inputs + 1 transcode)

10.2 Quantity 1 Triveni Digital STSCXM-ANLZR

Analyzer

10.3 Quantity 1 Triveni Digital ESSP-STSCXMR

StreamScope XM Enhanced System Service Plan (Renewable annually)

10.4 Quantity 1 Triveni Digital STSCXM-OPT-A3SA

10.5 Quantity 1 Triveni Digital STSCXM-OPT-RF

ATSC 3.0 Advanced RF Input Module

10.6 Quantity 1 Triveni Digital STSCXM-OPT-GIGE

Licensed option for on-board Gigabit Ethernet

### 11.0 ATSC 1 STREAM ANALYSIS SOFTWARE: FREE WITH TRADE IN OF OLD ANALYZER MTM400 S/N B020728

11.1 Quantity 1 Triveni Digital STSCXM-MT60-SW

STSCXM Software for existing MT-60

11.2 Quantity 1 Triveni Digital STSC-OPT-RF

Basic RF (8VSB/QAM) input Module – 1 Tuner

11.3 Quantity 1 Triveni Digital STSC-OPT-ASI

ASI Single Input Module



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### 12.0 CHANNEL 23 & CHANNEL 28 STREAM MONITORING

12.1 Quantity 2 Sony KD43X80K

Sony KD-43 Inch Diagonal Class (42.5 inch viewable) – X80K Series LED backlit LCD TV – Smart TV – Google TV – 4K UHD (2160p) 3840 x 2160 – HDR – Direct LED -black ATSC 3.0 Decoder – 1xRF In, 1xUHD or 4xHD/SD Decode, 4xSDI Out, 1x Genlock

12.2 Quantity 2 Sencore ARD 3400

ATSC 3.0 Decoder – 1xRF In, 1xUHD or 4xHD/SD Decode, 4xSDI Out, 1x Genlock

12.3 Quantity 2 Sencore ARD 34001

ARD ATSC 3.0 Descrambling License Key

12.4 Quantity 2 Sencore ARD 300-SSA-1 YR

One Year Software Support Agreement for ARD 3x00

12.5 Quantity 1 DS Broadcast BGD4100-3G

4K UHD IRD w. built-in ATSC 3.0 Tuner to include:

- 12.5.1 ATSC 3.0 (DASH/ROUTE, MPU/MMTP)
- 12.5.2 4K 60P HEVC (Main/Main10), H.264 Video decoding
- 12.5.3 AC3, AAC, HE-AAC, AC-4, MPEG-H audio decoding
- 12.5.4 MMTP, ROUTE demultiplexing
- 12.5.5 SDI- 3G
- 12.5.6 Outputs UHD in SDI-3G
- 12.5.7 HDMI output
- 12.5.8 Input signal error monitoring, auto-alarming
- 12.5.9 Remote Configuration and control
- 12.5.10 Redundant Power Supply

12.6 Quantity 1 DS Broadcast Security Dongle – USB Dongle Required for DRM

12.7 Quantity 1 DS Broadcast DRM SLA

DRM SLA quotation with hardware extended warranty for BGD4100-3G



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### 13.0 EQUIPMENT SET-UP AND COMMISSIONING SUPPORT

All equipment will be configured and tested by the vendor **at their facility prior to shipment to WYES-TV**. System interconnect drawing will be generated and provided to WYES Chief Engineer. Equipment will be shipped to WYES-TV for **installation and interconnection by WYES Engineering Staff**. Phone support and internet control session will be provided to assist with final commissioning.

### 14.0 STUDIO TO CHANNEL 23 TRANSMITTER TOWER SITE STL TBD ON 6962.5 H, TSL TBD ON 7112.5 H

14.1 Quantity 4 SAF Tehnika S06GHM26LB+

Phoenix G2 VHP IRFU 6U GHz, 1024QAM, BW 3.5-30 MHz, 2xSMA connect  
TxRx, RJ45, 26LB, 19', 2U, W + NDR5y #Tx: 6425 – 7125 MHz #Rx: : 6700 – 7125 MHz

14.2 Quantity 4 SAF Tehnika EAG31D12+

Phoenix G2+ IDU, 4xASI, 30MHz, 500Mbps, 1+1, AES, FR, SRX W+NDR 5yrs.

14.3 Quantity 2 SAF Tehnika IOASMK02+

2xSFP+ 10Gbps and optical cable 0.5m kit, SM

14.4 Quantity 2 4 Port Passive ASI Splitter/Combiner for SAF Radio Systems

14.5 Quantity 2 SAF Tehnika C06U430SR3M+

IBU 6U GHz 1+1 HSB w. Power div., 4xSMA, w/o Ch. Filters, CMR137 (UER70),  
Bend+Flex-Right, 19' 2RU \*2 channel filters are required.

14.6 Quantity 2 SAF Tehnika C0S06RF304.03U+

Waveguide filter 6U GHz F 6962.5 MHz WB 34 MHz UER70-SMA

14.7 Quantity 2 SAF Tehnika C0S06RF310.03U+

Waveguide filter 6U GHz F 7112.5 MHz BW 34 MHz UER70-SMA

14.8 Quantity 4 SAF Tehnika CLAC2NS006+

IF LMR 240 cable, N-male 90 degrees to SMA-male 90 degrees, 2ft (0.6m)



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- 14.9 Quantity 2 SAF Tehnika IOABR142i2+  
48V Power system w. 2x1000 W rectifiers, 1U Flatpack S
- 14.10 Quantity 4 SAF Tehnika IOACGE08+  
Power cable 1m, 2x0, 75mm, CU, with crimped nozzles
- 14.11 Quantity 4 SAF Tehnika IOACGE09+  
AC Power Cable USA, 1.8 m, NEMA 5-15P plug to bare wires
- 14.12 Quantity 2 Cisco CBS350-24T-4G-NA  
Cisco Business 350 Series 350-24T-4G – Switch – L3 – managed –  
24 X 10/100/1000 + 4 x SFP – rack-mountable
- 14.13 Quantity 2 Cisco Con-SNT-CBS350S2  
Cisco Smart Net Total Care for NTC-8X5XNBD CBS350 MANAGED 24-PORT  
GE 4X1G SFP
- 14.14 Quantity 1 RF and waveguide parts required to circulate new radios into  
existing waveguide system.
- 15.0 CHANNEL 23 MICROWAVE STAGING AND CONFIGURATION**
- 15.1 Quantity 1 SAF Tehnika SOGIRPCONF07  
Staging and Configuration of SAF 1+1 broadcast link at manufacturer’s site prior  
to shipping.
- 16.0 CHANNE 23 MICROWAVE INSTALLATION AND COMMISSIONING SUPPORT**
- 16.1 **On-Site installation and commissioning of all microwave radio equipment will  
be done by WYES engineering staff.** Vendor will be available for support by  
either phone or web/internet connection to assist WYES engineering staff in the  
installation and verification process.