

SERVICE AGREEMENT FOR THE PANEL OF PRE-QUALIFIED SERVICE PROVIDERS FOR THE APPOINTMENT OF ADDITIONAL SERVICE PROVIDERS ONTO THE PANEL OF SUPPLIERS TO SOURCE / MANUFACTURE, SUPPLY, AND DELIVER DIGITAL SET-TOP BOXES (STBS) AND INTEGRATED DIGITAL TELEVISION SETS WITH RELATED ACCESSORIES FOR DIGITAL TERRESTRIAL TELEVISION (DTT) AND DIRECT TO HOME (DTH) NON-SUBSIDISED MARKET AS AND WHEN REQUIRED WITHIN A PERIOD OF 12 MONTHS.

SENT-022-2025-26

Made and entered into between

SENTECH SOC LIMITED

Registration Number: 1990/001791/30

("Sentech")

and

_____ **NAME OF SERVICE PROVIDER** _____

Registration Number: _____

("the Service Provider")

(Jointly referred to as the "Parties")

1 INTERPRETATION

1.1. The headings to the clauses of this Agreement are inserted for reference purposes only and shall in no way govern or affect the interpretation hereof.

1.2. Unless inconsistent with the context, the expressions set forth below shall bear the following meanings:

1.2.1. “Agreement” means the terms and condition contained in this agreement and any/all annexures hereto from time to time;

1.2.2. “Commencement Date” means the last signature date.

1.2.3. “**Data**” means any data, including personal information as defined in the Protection of Personal Information Act 4 of 2013, including personal information which is stored, encrypted, decrypted, collected, collated, accessed, recovered, retained or processed by the Service Provider on behalf of Sentech, irrespective of media or form;

1.2.4. “**Parties**” means Sentech and the Service Provider, and “party” shall mean either one of the parties or a combination of them as the context may indicate;

1.2.5. “**Service Provider**” means _____, a company, duly registered and incorporated in accordance with the laws of the Republic of South Africa with registration number _____;

1.2.6. “**Sentech**” means Sentech SOC Limited, a company with limited liability duly registered and incorporated in accordance with the laws of the Republic of South Africa, having its registered office at Octave Street, Radiokop, Roodepoort, with Registration Number 1990/001791/30;

1.2.7. “**Services**” means the duties and responsibilities more fully described in clause 5 of this Agreement and in Annexure “A” hereto;

1.2.8. “**Service Fees**” means the fees more fully described in clause 7 below;

1.2.9. **“Signature Date”** means the date of signature of this Agreement by the party signing last in time by a person duly authorized to do so;

1.2.10. **“VAT” means** Value Added Tax as levied in accordance with the Value Added Tax Act 89 of 1991, as amended.

2 INTRODUCTION

2.1 Sentech requires the Services from the Service Provider in respect of, inter alia, to _____ of Sentech, as more fully described in clause 5 below and in Annexure “A” hereto.

2.2 The Service Provider is willing to provide the Services to Sentech based on the terms and conditions contained herein.

2.3 The Parties require that the terms and conditions of their agreement be reduced to writing and signed by them before the same shall be or become binding upon them.

3 APPOINTMENT

3.1 Sentech hereby appoints the Service Provider onto a panel of pre-qualified service providers with effect from the Commencement Date to provide the Services and the Service Provider hereby accepts such appointment.

3.2 Sentech does not guarantee any work allocation to the Service Provider appointed onto the panel neither does this appointment commit Sentech to any quantum of work to the Service Provider.

3.3 The Service Provider shall perform those duties and render the Services more fully described in clause 5 below and in Annexure “A” hereto, in a proper, diligent and satisfactory manner and, at all times, having regard to the requirements and directions of Sentech.

3.4 The Service Provider shall devote its time and attention to the affairs of Sentech as necessary to enable it to comply with its contractual obligations hereunder.

4 TERM

4.1 The appointment of the Service Provider shall commence on the Commencement Date and shall endure for a period of _____ thereafter.

4.2 Notwithstanding the afore-going, Sentech shall be entitled to terminate the Agreement upon 30 (thirty) days' written notice to the Service Provider without any liability of any nature whatsoever to the Service Provider.

5 SERVICES

5.1 The duties of the Service Provider shall, inter alia, be to _____ as more fully described in Annexure "A" hereto, as and when required.

5.2 In performing the Services established for this panel, the Service Provider undertakes to:

- 5.2.1 timeously respond to the Request for Quotations / Proposals issued;
- 5.2.2 attend site inspections when required to do so;
- 5.2.3 timeously mobilize resources to perform work within a stipulated period;
- 5.2.4 not collude with other service providers in the panel in responding to Sentech's requirements;
- 5.2.5 where possible, obtain local labour as shall be determined by the location of the site where the Services shall be rendered;
- 5.2.6 at all times carry out its duties and obligations in terms of this Agreement in a competent and professional manner;
- 5.2.7 at all times act with the utmost good faith towards Sentech and to promptly and punctually carry out and perform all its duties and obligations in accordance with the provisions of this Agreement;
- 5.2.8 adhere to all Sentech's rules and regulations whilst on the sites.

- 5.3 The Service rendered by the employees of the Service Provider must be rendered under competent supervision provided by the Service Provider.
- 5.4 The Service Provider shall guarantee that the Service shall be rendered and executed in a professional manner in accordance with the job description as provided by Sentech.
- 5.5 The Service Provider shall guarantee that its personnel shall have the expertise to execute their functions properly.
- 5.6 The Service Provider is not entitled to cede any of its rights or delegate any of its obligations under this Agreement without Sentech's prior written consent.
- 5.7 The Service Provider shall not be entitled to appoint any sub-contractor/s without Sentech's prior written consent. Notwithstanding the appointment by the Service Provider of any sub-contractor/s, the Service Provider shall remain liable for the fulfillment of all its obligations in terms of this Agreement.
- 5.8 The Service Provider shall comply with all the legal requirements of the UIF and Provident Fund for the duration of the Agreement.

6 RIGHTS OF SENTECH

Sentech reserves the right to:

- 6.1 Go outside the panel to source services that cannot be sufficiently fulfilled within the panel;
- 6.2 Approach other service provider's if there are no responses from the service providers on the panel;
- 6.3 Remove a service provider from the panel if the service provider's performance is unsatisfactory or if the service provider does not respond to Sentech's Requests for Quotations for more than three consecutive occasions;
- 6.4 Refrain from using the under-performing service provider for a period not exceeding twenty (24) months;

- 6.5 List a defaulting service provider on the National Treasury Database of prohibited suppliers;
- 6.6 Regularly update the panel through an open tender process;
- 6.7 Negotiate prices received, and
- 6.8 If required, rotate service providers to afford all service providers an opportunity to provide services to Sentech.

7 SENTECH'S DUTIES

- 7.1 Sentech shall make payment to the Service Provider in terms of clause 8 below.

8 SERVICE FEES AND PAYMENT

- 8.1 Prices shall be on a quotation basis. When Sentech wishes to acquire any of the Goods listed in Annexure A hereto, Sentech shall request the Service Provider to provide a quotation for the cost thereof, which quotation will be valid for a period of 30 days from the date of the quotation.
- 8.2 Payment shall be made to the Service Provider into the following Bank account:
 - Account name:
 - Bank :
 - Account number:
 - Branch code :

- 8.3 Nothing precludes Sentech from withholding payment on any invoice if Sentech, in its sole and absolute discretion, is of the reasonable opinion that the Service Provider has not satisfactorily performed in accordance with its obligations in terms of this Agreement.

9 INDEMNITY

- 9.1 The Service Provider indemnifies and holds Sentech harmless against all liability, damage, obligation, responsibility, cost and expenditure of any nature which may arise out of this Agreement and/ or the use of Sentech's facilities; as well as for any physical damage to the Service Provider's property. Sentech shall not be liable for any damage to the property of the Service Provider which may be caused by its employees, agents, contractors, subcontractors, vehicles and/or activities of Sentech, excluding damage as a result of wilful and/or negligent action. However, any such damage shall be reported to Sentech in writing within 48 (forty-eight) hours, of having knowledge of such damage.
- 9.2 The Service Provider shall indemnify Sentech and keep Sentech indemnified whilst it and/ or its employees are present on the Sentech's premises, or for the duration of this agreement with Sentech, whichever period is the longest, against all losses and claims for injuries or damage, of any nature and howsoever caused, to any person or property whatsoever, which may arise out of or in connection with the Services being performed by the Service Provider.

10 CONFIDENTIALITY

- 10.1 The Service Provider shall keep confidential and not use directly or indirectly, at any time during or after termination of this Agreement disclose or divulge to any person (save and except insofar as may be required by law):
- 10.1.1 any written instructions, drawings, notes, memoranda, data, discs or records (the "documents") relating to Sentech's business and affairs which are made by the Service Provider or which come into its possession during the currency of this Agreement. Any such documents shall be deemed to be the property of Sentech and shall be surrendered to Sentech in the event of the termination of this Agreement by Sentech, and the Service Provider will not retain any copies thereof or extracts therefrom.

11 TERMINATION

11.1 Sentech may immediately, and within its sole discretion terminate this Agreement at any time, by providing written notice to the Service Provider if:

11.1.1 it is not satisfied with the quality of any of the Services;

11.1.2 the Service Provider becomes insolvent, or guilty of fraud or dishonesty, willful default, negligence or incompetence;

11.1.3 there is a change in Sentech's strategic direction,

11.1.4 circumstances exist justifying such termination at the sole and absolute discretion of Sentech including due to operational requirements.

12 DOMICILIUM CITANDI ET EXECUTANDI

12.1 The Parties hereto respectively choose *domicilium citandi et executandi* ("*domicilium*") for all purposes of and in connection with this Agreement as follows:

SENTECH

Octave Street,

Radiokop Ext. 3

Honeydew

Private Bag X06

Honeydew, 2040

Fax: 086 743 1794

Attention:

Executive: Legal and Regulatory

AND

The Service Provider

Tel: _____

Fax: _____

Email: _____

12.2 Any notice given by either party to the other shall be deemed to be received by the addressee:

12.2.1 on the date on which the same was delivered to the addressee's *domicilium*, if delivered by hand (unless proven otherwise); or

12.2.2 on the date on which the same was despatched by facsimile transmission at the addressee's *domicilium* (unless proven otherwise).

12.2.3 Any party hereto may change a *domicilium* referred to above to any address within the Republic of South Africa by giving written notice to that effect to the other party hereto.

12.2.4 The Parties hereto shall be entitled to change their *domiciliumi* from time to time provided that any new *domicilium* selected by them shall be situated in the Republic of South Africa and any such change shall only be effective upon receipt of notice in writing by the other party.

13 DATA PRIVACY AND PROTECTION

13.1 The Service Provider acknowledges that in providing the Services to Sentech, the Service Provider may be exposed to Sentech's Data, including Data of any of Sentech's clients and/or other third parties.

13.2 The Parties specifically record that all Data provided by Sentech to the Service Provider, or to which the Service Provider may be exposed, shall constitute Confidential Information and as such, the Service Provider shall comply with all the provisions of clause 10 with regard to such Data.

13.3 The Service Provider hereby warrants in favour of Sentech that it shall at all times strictly comply with all applicable legislation and with all the provisions and requirements of the Sentech's Data protection policies and procedures, as may be updated from time to time, and any further requirements of which Sentech may, from time to time, advise the Service Provider in writing, or which may be required by legislation, regulation or any relevant industry body, whether within the Republic of South Africa or elsewhere in the world.

- 13.4 The Service Provider hereby warrants and undertakes that it shall not, at any time copy, compile, collect, collate, process, mine, store, transfer, alter, delete, interfere with or in any other manner use Data for any purpose other than with the express prior written consent of Sentech, and to the extent necessary to provide the Services to Sentech. All data and software, including Sentech Data, provided by Sentech or accessed (or accessible) by Service Provider Staff members shall be used by such Staff members only in connection with the provision of the Services and shall not be commercially exploited by the Service Provider in any manner whatsoever.
- 13.5 The Service Provider further warrants that it shall ensure that all its systems and operations which it uses to provide the Services, including all systems on which Data is copied, compiled, collected, collated, processed, mined, stored, transmitted, altered or deleted or otherwise used as part of providing the Services, shall at all times be of a minimum standard required by law and further be of a standard no less than the standards which are in compliance with the international best practice for the protection, control and use of Data.
- 13.6 The Service Provider indemnifies and holds harmless Sentech for any loss, whether direct or indirect, arising out of a failure to process any Sentech Data in accordance with the applicable laws.

14 BREACH

- 14.1 Should any Party ("the defaulting Party") commit a breach of any of the provisions of this Agreement, then the other Party ("the aggrieved Party") shall be obliged to give the defaulting Party 14 (fourteen) days' written notice or such longer period as may reasonably be required in the circumstances, to remedy the breach. If the defaulting Party fails to comply with such notice, the aggrieved Party shall be entitled to cancel this Agreement against the defaulting Party or to claim immediate payment and/or specific performance by the defaulting Party of all the defaulting Party's obligations whether or not the due date for payment and/or performance shall have arrived, in either event without prejudice to the aggrieved Party's rights to claim damages. The foregoing is without prejudice to such other rights as the aggrieved Party may have at law; provided always that, notwithstanding anything to the contrary contained in this Agreement, the aggrieved Party shall not be entitled to cancel this Agreement for any breach by the defaulting Party unless such breach is a material breach going to the root of this Agreement and is



incapable of being remedied by payment in money, or if it is capable of being remedied by payment in money, the defaulting Party fails to pay the amount concerned within 14 (fourteen) days after such amount has been finally determined.

15 WHOLE AGREEMENT

15.1 This Agreement constitutes the whole Agreement between the Parties as to the subject matter of this Agreement and no agreements; representations or warranties between the Parties other than those set out herein will be binding on the Parties.

16 VARIATION

16.1 This agreement, including this clause, cannot be varied, added to, or cancelled by agreement otherwise than by means of a further written and signed agreement between the parties.

17 RELAXATION

17.1 No latitude, extension of time or other indulgence which may be given or allowed by either Party to the other in respect of the performance of any obligation hereunder or the enforcement of any right arising from this Agreement and no single or partial exercise of any right by either Party shall under any circumstances be construed to be an implied consent by such Party or operate as a waiver of, or otherwise affect any of that Party's rights arising from this Agreement.

18 EXECUTION:

THUS DONE AND SIGNED AT _____ ON THIS THE ____ DAY OF _____ 202_ IN THE PRESENCE OF THE UNDERSIGNED WITNESSES.

**DULY AUTHORISED FOR AND
ON BEHALF OF SENTECH SOC LIMITED**

NAME: **ZUNAID ADAMS**

DESIGNATION: EXECUTIVE: LEGAL AND REGULATORY

WITNESSES

1. _____
2. _____



THUS DONE AND SIGNED AT _____ ON THIS THE ____ DAY OF
_____ 202_ IN THE PRESENCE OF THE UNDERSIGNED WITNESSES.

DULY AUTHORISED FOR AND

ON BEHALF OF _____

NAME: _____

DESIGNATION: _____

WITNESSES

1. _____

2. _____

ANNEXURE A

DESCRIPTION OF SERVICES

1. PART C3: SCOPE OF WORK SENTECH'S GOODS INFORMATION

THE SERVICES ARE REQUIRED TO SOURCE / MANUFACTURE, SUPPLY, AND DELIVER DIGITAL SET-TOP BOXES (STBS) AND INTEGRATED DIGITAL TELEVISION SETS WITH RELATED ACCESSORIES FOR DIGITAL TERRESTRIAL TELEVISION (DTT) AND DIRECT TO HOME (DTH) NON-SUBSIDISED MARKET

1. TECHNICAL REQUIREMENTS

1.1. Glossary of Terms

Abbreviations	Descriptions

2. INTRODUCTION

Sentech is looking to appoint of Additional Service Providers onto the Panel Of suppliers to source / manufacture, supply, and deliver digital set-top boxes (STBs) and integrated digital television (iDTV) sets with related accessories for digital terrestrial television (DTT) and direct to home (DTH) non-subsidised market, SLA agreement, on an “as and when” required basis within a period of 12 months.

3. SCOPE OF WORK

Sentech is a state-owned commercial enterprise and is the largest broadcasting signal distributor in Africa. Sentech is a licensed Electronic Communications Network Service provider in South Africa. Sentech operates Direct to Home (DTH) network and a large number of DTT terrestrial television transmitter stations nationally. Sentech has a mandate from Government to expand SABC Radio and Television services to underserved areas.

The bid is divided into five (5) sections of which any bidder may offer a bid for any one or a combination of the sections or for all the sections. If the bidder chooses to bid for more than one section, they ought to separate the evidence substantiating their claims under mandatory evaluation criteria clearly marked for each section bid for. Bidders are required to indicate which section they are bidding for

The sections are:

No	Description	Please tick (✓)
1	Part A: DTT STB	
2	Part B: DTH STB	
3	Part C: IDTV	
4	Part D: DTH Dish Kit and Accessories	
5	Part E: DTT Antenna Kit and Accessories	

TECHNICAL SPECIFICATION

3.1. BACKGROUND

Sentech is a state-owned company and is the largest broadcasting signal distributor in South Africa. Sentech is a licensed Electronic Communications Network Service provider in South Africa. It currently operates many telecommunication networks for Satellite, Television, Radio, Internet and more. As such, Sentech is a global enabler of broadcasting and digital content delivery.

SENTECH requires the manufacturing, supply, and delivery of digital Set-Top Boxes (STBs) and integrated Digital Television sets with related accessories

Sentech operates several Intelsat Satellites on IS-20 Transponder networks. Sentech has implemented digital Satellite television networks in the Ku-Band Frequency spectrum using the Digital Video Broadcast – Satellite first-generation (DVB-S) and second-generation (DVB-S2) standards as contained in the European Telecommunications Standards Institute (ETSI) EN 300 421 and ETSI EN 302 307 Part-1, respectively. MPEG2 and MPEG4 video encoding, as well as MPEG1 Layer2 and AAC sound encoding, are used. Sentech's current Satellite network parameter configuration and capacity allocation are in Table 1 and **are not limited** to the below:

Transmission Parameter	TP 1	TP 2	TP 3	TP 4
DVB Standard	DVB-S2	DVB-S2	DVB-S	DVB-S
Modulation Type	8-PSK	8PSK	QPSK	QPSK
FEC	5/6	5/6	2/3	1/2
Symbol Rate (MSys/s)	28.75	28.75	30.00	26.66
Roll-off	35%	25%	20%	35%
Pilots	Yes	Yes	No	No
Polarization	Vertical	Vertical	Vertical	Vertical

Table 1: Sentech's current Satellite network parameters

Sentech owns and operates several national terrestrial television and radio transmitter networks. Sentech has implemented digital terrestrial television (DTT) networks in the Ultra High Frequency (UHF) band using the Digital Video Broadcast – Terrestrial second-generation (DVB-T2) Modulator Interface (MI), Multiple Physical Layer Pipe (MPLP) technology as contained in the European Technical Standards Institute (ETSI) EN 302755 v1.3.1 (2011-11) and TR 101290 v1.3.1 (2014-07). MPEG-4 video encoding and AAC sound encoding are used. Sentech's current DTT network parameter configuration and capacity allocation are in Table 2 and **are not limited** to the below:

Transmission Parameter	Mux 01		Mux 02	
	PLP 0	PLP 1	PLP 0	PLP 1
Physical Layer Pipe	PLP 0	PLP 1	PLP 0	PLP 1
Transmission Mode (FFT)	32K Extended	32K Extended	32K Extended	32K Extended
Constellation	256 QAM rotated	256 QAM rotated	256 QAM rotated	256 QAM rotated
Guard Interval	1/16	1/16	1/16	1/16
Pilot Pattern	PP4	PP4	PP4	PP4
PAPR	None	None	None	None
SISO/ MISO	SISO	SISO	SISO	SISO
FEC Frame length	64800	64800	64800	64800
Input Mode	Mode B (MPLP)	Mode B (MPLP)	Mode B (MPLP)	Mode B (MPLP)
Code Rate	3/5	3/5	3/5	3/4

Table 2: Sentech's current DTT network parameters

Theoretical C/N value per type of channel, Multiplex & PLP are in Table 3 below:

Type Stationary Channel	Mux 01 - Theoretical C/N		Mux 02 - Theoretical C/N	
Physical Layer Pipe	PLP 0	PLP 1	PLP 0	PLP 1
Additional White Gaussian Noise (AWGN)	16.1 dB	16.1 dB	16.1 dB	20.0 dB
Fixed Reception (LOS) - Rice	16.3 dB	16.3 dB	16.3 dB	20.3 dB
Portable Reception (NLOS) - Rayleigh	18.3 dB	18.3 dB	18.3 dB	22.6 dB
0dB @ 90% of Guard Interval (SFN)	18.4 dB	18.4 dB	18.4 dB	22.7 dB

Table 3: Theoretical C/N per type of channel, Multiplex & PLP



The primary requirement is the supply and delivery of integrated Digital Television TV sets and Set-Top-Box for DTT and DTH networks for unsubsidized markets, and it is this tender's primary focal point. There are functionalities that the Decoder units are required to perform:

1. Satellite Signal Reception, decodability, and interactive services on SENTECH's Satellite Network.
2. Terrestrial Signal Reception, decodability, and interactive services on SENTECH's DTT Network.
3. Operate with Free-To-Air, Free-To-View, and Pay TV services on the DTH network.
4. Operate with Free-To-Air services on the DTT network.

The purpose of this tender is to assist non-subsidised DTT and DTH network users across the country to access Sentech's television network by using Set-Top Boxes and integrated Digital Television sets for DVB-T2 and DVB-S2 reception across the country.

3.2. ICASA Type approval

Successful bidders appointed to the panel will be required to provide ICASA approval certificates for each product they supply.

The responsibility of obtaining type approval certificates is that of the OEM and supplier. ICASA offers an online registration process (via Google Chrome browser) for type approval certification, enabling the creation/registration of your entity, as well as the lodging of your application once the entity verification process is successfully concluded.

Registration website: <https://online.icasa.org.za>

Type Approval Regulations: <https://www.icasa.org.za/legislation-and-regulations/type-approval-regulations-2013>

Should you experience any challenges during the registration process, please feel free to contact the following ICASA officials for assistance:

Mark Deavall:	012 568 3843 (MDeavall@icasa.org.za)
Lenneith Bera:	012 568 3337 (LBera@icasa.org.za)
Keneilwe Lonake:	012 568 3373 (KLonake@icasa.org.za)
Bethuel Nkgadime:	012 568 3993 (BNkgadime@icasa.org.za)
Thuli Mkhabela:	012 568 4015 (TMkhabela@icasa.org.za)
Siyanda Nkamisa:	012 568 3802 (SNkamisa@icasa.org.za)

3.3. SABS or SANAS Type Approval

Successful bidders appointed to the panel will be required to provide SABS/SANAS approval certificates for each product they supply. The appointed bidders must ensure that valid certificates are issued for the units provided.

3.4. DTT STB Specification

1. Bidders must meet the local content minimum threshold required for the supply of Set Top Boxes = 30%
2. The bidder shall supply an ICASA Type Approval certificate from ICASA, not older than twelve (12) months at the closing date of the bid.
3. Supplier obtained valid compliance certificates of SABS (compliance with SANS 862 standards).
4. Supplier obtained valid SANAS accreditation certificates.
5. STBs are manufactured in ISO 9001-certified factories.
6. **Front-End**
 - 6.1. DVB-T2 (in accordance with EN 302 755)
 - 6.2. Code Rate: $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{5}{6}$, $\frac{4}{5}$, $\frac{3}{5}$
 - 6.3. Constellation: QPSK, 16 QAM, 64 QAM, 256 QAM; both rotated and non-rotated
 - 6.4. Guard Interval: $\frac{1}{128}$, $\frac{1}{32}$, $\frac{1}{16}$, $\frac{19}{256}$, $\frac{1}{8}$, $\frac{19}{128}$, $\frac{1}{4}$
 - 6.5. Transmission mode: 1k, 2k, 4k, 8k normal and extended, 16k normal and extended, 32k normal and extended.
 - 6.6. Pilot Pattern: PP1, PP2, PP3, PP4, PP5, PP6, PP7, PP8
 - 6.7. Input mode: Mode A (single PLP) and Mode B (multiple PLPs – common PLP, Type 1 and 2)
 - 6.8. Normal and High-Efficiency Modes.
7. **Tuning**
 - 7.1. The decoder shall be capable of performing automatic tuning over the frequency ranges:
 - 7.1.1.VHF: 174MHz – 254 MHz
 - 7.1.2.UHF: 470MHz – 862 MHz
 - 7.2. The decoder shall have a manual tuning mode where the user enters a frequency or channel number
 - 7.3. The decoder shall ignore non-DTT and Pay-TV services when tuning [e.g. DVB-H]
8. **System**

MPEG-2 Transport Stream (in accordance with ISO/IEC 13818-1)
9. **Video Decoding**
 - 9.1. **Standards:** H.264/MPEG-4, H.265/HEVC

- 9.2. HD and SD video profiles
- 9.3. **Resolutions:** 1080, 720p, 576p, 576i
- 9.4. **Aspect Ratios:** 4:3, 16:9
- 9.5. CVBS output
- 9.6. Video scaling (upscaling and downscaling)
- 9.7. Pillar and Letterbox and support for 16:9 with pan and scan
- 9.8. DVB (SDTV) subtitling
- 9.9. DVB (HDTV) subtitling

10. Audio Decoding

- 10.1. **Standards:** HE-AAC V2 (Mono or stereo audio pairs)
- 10.2. Stereo output, stereo left replaceable with a mono feed under user control
- 10.3. EPG support for radio services

11. Memory

RAM and Flash sizes to be determined by STB functionality requirements

12. Middleware

Middleware shall provide full functionality for STB setup, configuration, and TV operation

13. Main Software Features

- 13.1. DVB PSI/SI support: PAT, PMT, BAT, NIT, SDT, TDT, TOT, EIT p/f, EIT Schedule.
- 13.2. LCN: Shall be able to start on Channel 0
- 13.3. DVB SSU support
 - 13.3.1. Minimum Simple Profile
 - 13.3.2. Secure software download mechanism to be established
- 13.4. Running Mode basic functions:
 - 13.4.1. Channel change
 - 13.4.2. Volume +/-
 - 13.4.3. Audio mute
 - 13.4.4. Switch between TV/Radio
 - 13.4.5. Info (banner)
 - Level 1: P/F information
 - Level 2: Present program, Extended information
 - 13.4.6. Menu
 - 13.4.7. **EPG:** 7 Days

14. Connectors

- 14.1. RF female input connector [Compliant to IEC 61169-2 or adapters supplied]
- 14.2. 3x RCA or mini jack with breakout cable supplied for:
 - 14.2.1. Analogue SD video output
 - 14.2.2. Analogue audio left output
 - 14.2.3. Analogue audio right output
- 14.3. **HDMI output:** Minimum v1.4, with HDCP
- 14.4. USB 2.0 Type A
- 14.5. Power input (external PSU)

15. Remote Control Unit (RCU)

- 15.1. RCU shall provide full functionality for STB setup, configuration, and operation
- 15.2. Batteries shall be supplied.

16. Front Panel Unit (FPU)

- 16.1. **LED(s) to indicate the following states as a minimum:** Off/Standby, On/Running Mode, Error, RCU Keypress Ack
- 16.2. **Buttons:** Power, Channel +/-

17. Accessories

The decoder shall be supplied with the following accessories:

- 17.1. PSU (if external): PSU cord to be of a length of at least 1.5m.
- 17.2. Composite (CVBS) video/stereo audio cable, of length at least 1.5 m, terminated with RCA connectors.
- 17.3. HDMI cable at least 1.5m
- 17.4. A remote-control unit (RCU) and batteries.
- 17.5. The user manual clearly describes the decoder menu functions.
- 17.6. Quick guide (in English and at least one other official language) that contains a basic wiring diagram, which shows alternative connections for installations.

18. Warranty: A minimum warranty of 2(Two) years

19. Training: On-site or Off-site training for SENTECH Technical staff

20. SLA Support: Support and Maintenance agreement for a minimum of 5 years

21. Repair Centre:

- 21.1. Indicate the location (s) of the repair centre
- 21.2. State the logistic process from collection to return of the units
- 21.3. Sentech may be required to visit the repair centre

3.5. DTT STB Optional Features/Devices

Service Providers to indicate if they have these Features and/or devices in their current product roadmap

1. USB PVR

- 1.1. PVR functionality using a USB flash storage device.
- 1.2. Use cases can include recording to storage (protected), playing media from storage, and software updates from storage.

2. Digital Audio Output

To support future digital audio output to outboard devices

3. Hybrid DVB-T2 & DVB-S2 STB

A hybrid STB with DVB-T2 & DVB-S2 tuners.

3.6. DTH STB Specification

1. Bidders must meet the local content minimum threshold required for the supply of Set Top Boxes = 30%
2. The bidder shall supply an ICASA Type Approval certificate from ICASA, not older than twelve (12) months at the closing date of the bid.
3. Supplier obtained valid compliance certificates of SABS (compliance with SANS 1719 standards).
4. Supplier obtained valid SANAS accreditation certificates.
5. STBs are manufactured in ISO 9001-certified factories.
6. **Front-End**
 - 6.1. Receive DVB-S2 in accordance with ETSI EN 302 307
 - 6.2. Receive DVB-S in accordance with ETSI EN 300 421
 - 6.3. Receive QPSK and 8PSK waveforms
 - 6.4. RF Input connector is 75 Ω F-Type Female, in accordance with IEC 61169-2 and IEC 61169-29
 - 6.5. Minimum return loss of 8 dB.
 - 6.6. Input frequency range 950 MHz to 2 150 MHz
 - 6.7. Maximum digital signal input level -25 dBm
 - 6.8. Out-of-band local oscillator leakage: Less than 40 dB μ V (QPSK 5 MBaud to 30 MBaud, 8PSK 5 MBaud to 45 MBaud)
 - 6.9. In-Band local oscillator leakage: less than -70 dBm(QPSK 5 MBaud to 30 MBaud, 8PSK 5 MBaud to 45 MBaud)

7. Tuning

- 7.1. LNB Power & Polarisation: Vertical +13V, Horizontal +18V
- 7.2. LNB Current: 500 mA maximum overload protection
- 7.3. LNB Switching: 22 kHz, the presence of a tone will cause the LNB to switch to the upper local oscillator
- 7.4. LNB low local oscillator frequency: 9,75 GHz
- 7.5. LNB high local oscillator frequency: Selectable 10,6 GHz or 10.7 GHz or user enterable local oscillator frequency
- 7.6. Automatic tuning: acquire the home transponder and according to the NIT tune to all transponders in the network, listing only gap-filler services allocated a channel number.
- 7.7. Manual tuning: Prompt the user for frequency in megahertz and other transponder information.

8. System

MPEG-2 Transport Stream (in accordance with ISO/IEC 13818-1

9. Conditional Access

Support for NagraVision Cardless Technology: The DTH STB must have a NOC 3.0 Nagra chipset at a minimum.

10. Video Decoding

- 10.1. **Standards:** H.264/MPEG-4, H.265/HEVC
- 10.2. HD and SD video profiles
- 10.3. **Resolutions:** 1080, 720p, 576p, 576i
- 10.4. **Aspect Ratios:** 4:3, 16:9
- 10.5. CVBS output
- 10.6. Video scaling (upscaling and downscaling)
- 10.7. Pillar and Letterbox and support for 16:9 with pan and scan
- 10.8. DVB (SDTV) subtitling
- 10.9. DVB (HDTV) subtitling

11. Audio Decoding

- 11.1. **Standards:** HE-AAC V2 (Mono or stereo audio pairs)
- 11.2. Stereo output, stereo left replaceable with a mono feed under user control
- 11.3. EPG support for radio services

12. Memory

RAM and Flash sizes to be determined by STB functionality requirements

13. Middleware



Middleware shall provide full functionality for STB setup, configuration, and TV operation

14. Main Software Features

- 14.1. DVB PSI/SI support: PAT, PMT, BAT, NIT, SDT, TDT, TOT, EIT p/f, EIT Schedule.
- 14.2. LCN: Shall be able to start on Channel 0
- 14.3. DVB SSU support
 - 14.3.1. Minimum Simple Profile
 - 14.3.2. Secure software download mechanism to be established
- 14.4. Running Mode basic functions:
 - 14.4.1. Channel change
 - 14.4.2. Volume +/-
 - 14.4.3. Audio mute
 - 14.4.4. Switch between TV/Radio
 - 14.4.5. Info (banner)
 - Level 1: P/F information
 - Level 2: Present program, Extended information
 - 14.4.6. Menu
 - 14.4.7. **EPG: 7 Days**

15. Connectors

- 15.1. RF female input connector
- 15.2. 3x RCA or mini jack with breakout cable supplied for:
 - 15.2.1. Analogue SD video output
 - 15.2.2. Analogue audio left output
 - 15.2.3. Analogue audio right output
- 15.3. **HDMI output:** Minimum v1.4, with HDCP
- 15.4. USB 2.0 Type A
- 15.5. Power input (external PSU)

16. Remote Control Unit (RCU)

- 16.1. RCU shall provide full functionality for STB setup, configuration, and operation
- 16.2. Batteries shall be supplied.

17. Front Panel Unit (FPU)

- 17.1. **LED(s) to indicate the following states as a minimum:** Off/Standby, On/Running Mode, Error, RCU Keypress Ack
- 17.2. **Buttons:** Power, Channel +/-

18. Accessories

The decoder shall be supplied with the following accessories:

- 18.1. PSU (if external): PSU cord to be of a length of at least 1.5m.
 - 18.2. Composite (CVBS) video/stereo audio cable, of length at least 1.5 m, terminated with RCA connectors.
 - 18.3. HDMI cable at least 1.5m
 - 18.4. A remote-control unit (RCU) and batteries.
 - 18.5. The user manual clearly describes the decoder menu functions.
 - 18.6. Quick guide (in English and at least one other official language) that contains a basic wiring diagram, which shows alternative connections for installations.
19. **Warranty:** A minimum warranty of 2(Two) years
20. **Training:** On-site or Off-site training for SENTECH Technical staff
21. **SLA Support:** Support and Maintenance agreement for a minimum of 5 years
22. **Repair Centre**
- 22.1. Indicate the location (s) of the repair centre
 - 22.2. State the logistic process from collection to return of the units
 - 22.3. Sentech may be required to visit the repair centre

3.7. DTH STB Optional Features/Devices

Service Providers to indicate if they have these Features and/or devices in their current product roadmap

1. USB PVR

- 1.1. PVR functionality using a USB flash storage device.
- 1.2. Use cases can include recording to storage (protected), playing media from storage, and software updates from storage.

2. Hard Drive PVR Using DUAL DVB-S2 TUNER

- 2.1. PVR functionality using internal hard drive storage (minimum 500GB capacity)
- 2.2. Use cases can include time-shifting, record to storage (protected), and play media from storage.

3. SI Tables

STB to support Service Region Restriction and service packing using customised DVB-SI and CAS

3.8. iDTV STB Specification

1. Bidders must meet the local content minimum threshold required for the supply of iDTV

2. The bidder shall supply an ICASA Type Approval certificate from ICASA, not older than twelve (12) months at the closing date of the bid.
3. Supplier obtained valid compliance certificates of SABS (compliance with SANS 10352 standards).
4. Supplier obtained valid SANAS accreditation certificates.
5. STBs are manufactured in ISO 9001-certified factories.
6. **Front-End**
 - 6.1. DVB-T2 (in accordance with EN 302 755)
 - 6.2. Code Rate: $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{5}{6}$, $\frac{4}{5}$, $\frac{3}{5}$
 - 6.3. Constellation: QPSK, 16 QAM, 64 QAM, 256 QAM; both rotated and non-rotated
 - 6.4. Guard Interval: $\frac{1}{128}$, $\frac{1}{32}$, $\frac{1}{16}$, $\frac{19}{256}$, $\frac{1}{8}$, $\frac{19}{128}$, $\frac{1}{4}$
 - 6.5. Transmission mode: 1k, 2k, 4k, 8k normal and extended, 16k normal and extended, 32k normal and extended.
 - 6.6. Pilot Pattern: PP1, PP2, PP3, PP4, PP5, PP6, PP7, PP8
 - 6.7. Input mode: Mode A (single PLP) and Mode B (multiple PLPs – common PLP, Type 1 and 2)
 - 6.8. Normal and High-Efficiency Modes.
7. **Tuning**
 - 7.1. The decoder shall be capable of performing automatic tuning over the frequency ranges:
 - 7.1.1.VHF: 174MHz – 254 MHz
 - 7.1.2.UHF: 470MHz – 862 MHz
 - 7.2. The decoder shall have a manual tuning mode where the user enters a frequency or channel number
 - 7.3. The decoder shall ignore non-DTT and Pay-TV services when tuning [e.g. DVB-H]
8. **System**

MPEG-2 Transport Stream (in accordance with ISO/IEC 13818-1)
9. **Video Decoding**
 - 9.1. **Standards:** H.264/MPEG-4, H.265/HEVC
 - 9.2. HD and SD video profiles
 - 9.3. **Resolutions:** 1080, 720p, 576p, 576i
 - 9.4. **Aspect Ratios:** 4:3, 16:9
 - 9.5. CVBS output
 - 9.6. Video scaling (upscaling and downscaling)
 - 9.7. Pillar and Letterbox and support for 16:9 with pan and scan
 - 9.8. DVB (SDTV) subtitling
 - 9.9. DVB (HDTV) subtitling

10. Audio Decoding

- 10.1. **Standards:** HE-AAC V2 (Mono or stereo audio pairs)
- 10.2. Stereo output, stereo left replaceable with a mono feed under user control
- 10.3. EPG support for radio services

11. Memory

RAM and Flash sizes to be determined by STB functionality requirements

12. OS

The OS shall provide full functionality for STB setup, configuration, and TV operation

13. Main Software Features

- 13.1. DVB PSI/SI support: PAT, PMT, BAT, NIT, SDT, TDT, TOT, EIT p/f, EIT Schedule.
- 13.2. LCN: Shall be able to start on Channel 0
- 13.3. DVB SSU support
 - 13.3.1. Minimum Simple Profile
 - 13.3.2. Secure software download mechanism to be established
- 13.4. Running Mode basic functions:
 - 13.4.1. Channel change
 - 13.4.2. Volume +/-
 - 13.4.3. Audio mute
 - 13.4.4. Switch between TV/Radio
 - 13.4.5. Info (banner)
 - Level 1: P/F information
 - Level 2: Present program, Extended information
 - 13.4.6. Menu
 - 13.4.7. **EPG:** 7 Days

14. Connectors

- 14.1. RF female input connector [Compliant to IEC 61169-2 or adapters supplied]
- 14.2. Power input

15. Remote Control Unit (RCU)

- 15.1. RCU shall provide full functionality for STB setup, configuration, and operation
- 15.2. Batteries shall be supplied.

16. Accessories

The TV shall be supplied with the following accessories:

- 16.1. A remote-control unit (RCU) and batteries.
- 16.2. Power cord with a plug that complies with SANS 164-1

- 16.3. The user manual clearly describes the TV menu functions.
17. **Warranty:** A minimum warranty of 2(Two) years
18. **Training:** On-site or Off-site training for SENTECH Technical staff
19. **SLA Support:** Support and Maintenance agreement for a minimum of 5 years
20. **Repair Centre:**
 - 20.1. Indicate the location (s) of the repair centre
 - 20.2. State the logistic process from collection to return of the units
 - 20.3. Sentech may be required to visit the repair centre

3.9. iDTV Optional Features/Devices

Service Providers to indicate if they have these Features and/or devices in their current product roadmap

1. Dual Tuner (DVB-T2/DVB-S2) iDTV

An iDTV with dual DVB-T2 & DVB-S2 tuners. DVB-S2 tuner to comply with specifications outlined in Part B.

2. CI+ Support

- 2.1 Common Interface Plus support in accordance with ETSI TS 103 205 and EN 50221.
- 2.2 CI+ to be considered mandatory on TVs with the DVB-S2 tuner

3. HbbTV support

- 3.1 HbbTV support in accordance with ETSI TS 102 796.
- 3.2 Service providers should indicate how to activate or load HbbTV on a TV that is already in the field.

4 Connector

2 x USB Connectors. At least version 2.0

5 Broadband Connectivity

Ability to support a USB WIFI adapter for internet connectivity

3.10. DTH Dish Kit and Accessories Specification

1. Bidders must meet the local content minimum threshold required for the supply of DTH Dish kit and accessories
2. **80 cm Ku-Band DTH Antenna** with a gain of 38.5 dBi at 12,750 GHz
3. RG6 coaxial cable
4. **Universal Single LNB:** 10.7 to 11.7 (Low Band) and 11.7 to 12.75 (High Band)

5. **Wall-mounting bracket (DBS6A):** Acceptable diameter of 38 mm
6. **Warranty:** 12 Months Warranty for the universal LNB
7. **Training:** On-site or Off-site training for SENTECH Technical staff
8. **SLA Support:** Support and Maintenance agreement for a minimum of 5 years
9. **Repair Centre**
 - 9.1 Indicate the location (s) of the repair centre
 - 9.2 State the logistic process from collection to return of the units
 - 9.3 Sentech may be required to visit the repair centre

3.11. DTT Antenna Kit and Accessories Specification

1. Bidders must meet the local content minimum threshold required for the supply of DTT Antenna Kit and Accessories.
2. **Wide-band Grid UHF Antenna**
3. **Frequency Range:** 470MHz to 862MHz
4. **Antenna Gain:** 10dB at 500MHz to 12dB at 800MHz
5. **Beam Width:** H/V 50 degrees
6. **Front/Back Ratio:** 16-27dB
7. **Impedance:** 75 Ohms
8. **Directivity (dB) >15 As per ITU-R BT.419-3**
9. **Aluminium mounting pole:** Minimum of 2 metres long; minimum 38mm diameter
10. **Mounting Brackets:** To fit the mounting pole to the wall and the antenna to the pole
11. **15m COAX cable:** RG62 type minimum specification
12. **Cable connectors:** Belling Lee or IEC169-2 connector
13. **Warranty:** A minimum warranty of 1 (One) year
10. **Training:** On-site or Off-site training for SENTECH Technical staff
11. **SLA Support:** Support and Maintenance agreement for a minimum of 5 years
12. **Repair Centre**
 - 12.1 Indicate the location (s) of the repair centre
 - 12.2 State the logistic process from collection to return of the units
 - 12.3 Sentech may be required to visit the repair centre

4. Pricing Schedule (not for evaluation purposes)

Table 1: Pricing Schedule

Indicative Pricing

For the purposes of budgeting and planning, Sentech would like to request bidders to provide indicative pricing for the following items: DTT STB, DTH STB, IDTV, DTH Dish Kit, Accessories and DTT Antenna Kit, Accessories. The price must be based on Part A, Part B, Part C, Part D, and/or Part E, Mandatory Criteria Features as shown above: Please provide the indicative rates per product using the following quantity ranges:

Quantity Ranges: DTT STB	Indicative Unit Cost (Inc. VAT)
5000 to 10 000	
10 0001 to 50 000	
50001 to 100 000	
>100 000	

Quantity Ranges: DTH STB	Indicative Unit Cost (Inc. VAT)
5000 to 10 000	
10 0001 to 50 000	
50001 to 100 000	
>100 000	

Quantity Ranges: iDTV	Indicative Unit Cost (Inc. VAT)
5000 to 10 000	
10 0001 to 50 000	
50001 to 100 000	
>100 000	

Quantity Ranges: DTH Dish Kit Accessories	Indicative Unit Cost (Inc. VAT)
5000 to 10 000	
10 0001 to 50 000	
50001 to 100 000	
>100 000	

Quantity Ranges: DTT Dish Kit Accessories	Indicative Unit Cost (Inc. VAT)
5000 to 10 000	
10 0001 to 50 000	
50001 to 100 000	
>100 000	

Please note that this pricing will be used by Sentech for planning and budgeting purposes and will not be used to evaluate or adjudicate a bidder's submission. This is an appointment of a Panel based on qualification on the "Mandatory Criterion". Please provide an indicative price where the quantity range is applicable.