



**ANALYSIS OF COMMENTS FROM PUBLIC CONSULTATION TECHNICAL MINIMUM
REQUIREMENTS FOR DVB-T2 RECEIVERS FOR THE KENYA MARKET**

S/N	SECTION	Name of entity	COMMENT	JUSTIFICATION	CA Response
1.	Introduction	Akili Partners Ltd	Q1: Yes Q2: No Q3: No further comments to add.	.	Noted
		GOtv Kenya Ltd	Q1: Proposal to review the minimum specifications as well as consider other specifications Q2: None Q3: None	Q1 - Section 1.2 - A minimum specification should not focus on extra / additional features such as UHD, PVR etc. These are very specific additional functionalities not generally aimed for the mass market and will increase the cost of the receivers. Q1 - Section 1.5 - With regards to the normative references, we highly recommend that the Authority also looks into the Nordig IRD specification and test specification. This specification will allow service providers to align with international trends. The test specification also	Q1 – Section 1.2 the scope for the minimum specifications does not focus on extra / additional features such as UHD, PVR etc. However, it prescribes backward compatibility for UHD Receivers. Q1 - Section 1.5 the Authority considered the NorDig Unified Requirements for Integrated Receiver Decoders for use in cable, satellite, terrestrial and managed IPTV based networks version 3.2.1

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				allows for unified conformance testing to be used by labs across the globe.	in development of the these minimum specifications.
		Pendo TV	Q1. Yes. We wholly agree. Q2. In Our opinion, there is none Q3. NA	We as a TV station have understood the wording.	Noted
		Kalokol Radio Broadcasting Ltd/Good News Radio	Q1. Yes. We wholly agree. Q2. In Our opinion, there is none Q3. NA	We as a TV station have understood the wording.	Noted
		Digital Broadcasters association	Q1. Yes. Q2. No. Q3. (No response)		Noted
2.	Technical Requirements Processor and memory	Akili Partners Ltd	Q4: No comments on the parameters in Table 1. Q5: No further comments to add.		Noted
	Power supply & plug/socket connector type	GOtv Kenya Ltd	Q4 – proposed deletion of Table 1 Q5: Section 2.2 – the Authority needs to clarify what	Q4: Table 1 – we propose a deletion of this table (Table 1) and that a minimum user functionality should be specified. For	Q4 – the Authority is not amenable to deletion of Table 1. Table 1 ensures that all STBs meet a

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	<p>Receiver capability</p> <p>Time-exclusive services</p>		<p>is meant by “tropical condition”. It is best to specify temperature and humidity operating range for the external supply and receiver.</p> <p>Section 2.4 – The requirement is too open ended and it is not clear as to what exactly constitutes a clean transition. The section appears to add no real value to functionality and recommend that it is deleted. Unless the authority is seeking to address a very specific artifact. In that event, the artifact should not be part of user functionality.</p>	<p>example Full HD via HDMI. The STB vendor will have to select memory and CPU accordingly to accommodate this functionality. The table is also too specific in the sense that clock rate is specified under CPU speed. This specification normally varies and can be 250 MHz for arguments sake and still meet the processing speed of 1000 DMIPS.</p> <p>Additionally, as a minimum specification this appears to be imposed on devices that are targeted at high income customers or households. Service providers should be allowed to produce decoders that cater for their unique services. For example if an operator only has SD services and never plans to use HD services, imposing high end specifications decoder has a cost implication on the operator. Service providers have vested interest to</p>	<p>consistent baseline for performance ,enabling smooth operation, future-proofing ,and a better user experience. Removing it will lead to ambiguity, inconsistent devices and potential performance issues.</p> <p>Q5: Section 2.2 Tropical condition refers to Kenyan tropical climate with wet and dry seasons, and temperatures. It is expected that the Adaptor shall be subjected to test considering its operating in the kenyan climatic conditions.</p> <p>Q5: Section 2.4 Time-exclusive services is</p>

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				deliver quality services and in any event carry the risk that if they under serve their customers, they run the risk of losing their customers.	<p>meant to address transition on content or programming that is only available to viewers on a specific channel or platform during a designated time period</p> <p>We however propose to revise the wording for clarity to read</p> <p>“Zapping Time for TV Services</p> <p>The receiver shall handle the switching between channels is smooth and fast.</p> <p>The picture on the display during the zapping time shall be either frozen or black and the sound shall be muted until the new session has been stabilised.</p> <p>”</p>
		Pendo TV	Q4. These are sufficient. Q5. NA		Noted
		Kalokol Radio Broadcasting	Q4. These are sufficient. Q5. NA		Noted

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		Ltd/Good News Radio			
		Digital Broadcasters association	Q4. Sufficient Q5. Sufficient		Noted
3.	Video	Akili Partners Ltd	<p>Q6: In addition to H.264, it is positive that the HEVC video codec is now included in the minimum specifications for UHD stb.</p> <p>However, Akili TV recommends that it also be made mandatory for standard receivers to support HEVC in addition to H.264. The price difference for purchasing an STB that supports both HEVC and H.264 is minimal.</p> <p>It is important to note that all television sets since 2018 have already supported HEVC.</p> <p>Q7: No further comments to add.</p>	Q6: This would make it easier for broadcasters to transition to this more efficient codec in the near future, as it would be made a standard feature.	<p>Q6: Requiring standard receivers to support HEVC video codec in addition to H.264 will increase the cost of the receivers, therefore the Authority is not amenable to this proposal.</p> <p>However, manufactures are at liberty to include HEVC video codec (optional) in the standard decoders depending on the target market.</p>
		GOtv Kenya Ltd	Q6: UHD and above (UHD HDR) resolutions and profiles should be marked as optional.	UHD is far from being mainstream from a broadcast perspective. The higher resolution has a	Q6: The Authority had not issued technical minimum specifications for

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				<p>direct service impact in that less channels can be provided using UHD resolution as opposed to HD resolutions.</p> <p>Additionally, the benefit to the consumer is debatable. It is true that HD has improved the user experience greatly from an SD perspective. For the HD to UHD perspective, the objective benefit from HD to UHD is much less significant and is dependant on a whole host of external factors, like size of screen, distance of viewer from screen etc which are not under the control of the service providers.</p>	<p>UHD receiver. Arising from its mandate for consumer protection and evolution of broadcasting services the Authority has now prescribed the technical minimum requirements for UHD receivers.</p> <p>These technical minimum requirements are mandatory for UHD Receivers.</p>
		Pendo TV	<p>Q6. We are satisfied with the minimum requirements</p> <p>Q7. NA</p>		Noted
		Kalokol Radio Broadcasting Ltd/Good News Radio	<p>Q6. We are satisfied with the minimum requirements</p> <p>Q7. NA</p>		Noted

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		Digital Broadcasters association	Q6. Sufficient Q7. Sufficient		Noted
4.	Audio	Akili Partners Ltd	Q8: It is positive that the specifications now clarify that only the "modern" HE-AAC v2 audio codec is to be used. HE-AAC v2 provides better sound quality while using fewer bits compared to the outdated MPEG-1 Layer 2. Q9: In addition to English, it is a positive step that the choice of Swahili/Kiswahili is now mandatory.	Q9: This now allows for the inclusion of multiple audio tracks, such as one in English and another in Swahili/Kiswahili.	Q9: Noted
		GOtv Kenya Ltd	Q8: None Q9: None		Noted
		Pendo TV	Q8. These are sufficient . Q9. NA		Noted
		Kalokol Radio Broadcasting Ltd/Good News Radio	Q8. These are sufficient . Q9. NA		Noted

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		Digital Broadcasters association	Q8. Sufficient . Q9. Sufficient		Noted
5.	DVB-T2 operating modes	Akili Partners Ltd	Q10: No further comments to add. Q11: Although DTT in Kenya is currently transmitted only in the UHF IV/V bands, it would be beneficial to include VHF Band III [170-230 MHz] and a 7 MHz channel width in section 2.11.4 "Frequency Range and Bandwidth." This would not be problematic, as VHF Band III is already part of the minimum specifications in most of ITU Region 1.	Q11: There is increasing pressure from telecom companies to allocate more frequency resources below 1 GHz. At some point, the 600 MHz frequency band may be reallocated to telecom, which could create a need to utilize VHF Band III for DTT.	Q11: VHF Band III [170-230 MHz] in Kenya is planned for Digital Sound Broadcasting services therefore is not expected to support digital Television services
		GOtv Kenya Ltd	Q10: None Q11: None	• Not Provided	Noted
		Pendo TV	Q10. These are sufficient. Q11. No additional comment		Noted
		Kalokol Radio Broadcasting	Q10. These are sufficient. Q11. No additional comment		Noted

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		Ltd/Good News Radio			
		Digital Broadcasters association	Q10. Comprehensive Q11. None		Noted
6.	Service list	Akili Partners Ltd	Q12: No further comments to add. Q13: No further comments to add. Q14: No further comments to add. Q15: No further comments to add. Q16: We are extremely pleased that the requirement for all services to have an associated Logical Channel Number (LCN) is now in place, and that all DVB-T2 receivers must support both LCN descriptor and LCN descriptor V2.	Q16: The use of LCN ensures that viewers become familiar with a specific button number on their remote control for each channel. Access to and accurate use of Service Information (SI) is crucial for viewers to fully enjoy all the content being broadcast. Currently, the channel placement for broadcasters in Kenya on remote controls is entirely arbitrary.	Q16: Noted
		GOtv Kenya Ltd	Q12-16: None		Noted
		Pendo TV	Q12. We are satisfied with the scanning requirements.		Noted

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			<p>Q13. In our view, the minimum requirements are sufficient.</p> <p>Q14. The requirements for channel numbering are sufficient.</p> <p>Q15. This is an excellent plan. The management need to have a representation from within the broadcast houses.</p>		
		<p>Kalokol Radio Broadcasting Ltd/Good News Radio</p>	<p>Q12. We are satisfied with the scanning requirements.</p> <p>Q13. In our view, the minimum requirements are sufficient.</p> <p>Q14. The requirements for channel numbering are sufficient.</p> <p>Q15. This is an excellent plan. The management need to have a representation from within the broadcast houses.</p>		<p>Noted</p>

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		Digital Broadcasters association	Q12. Excellent Q13. Sufficient Q14. Elaborate enough Q15. This is an excellent consideration considering the current broadcast landscape Q16. No		Noted
7.	Electronic Program Guide (EPG)	Akili Partners Ltd	Q17: No further comments to add. Q18: The description of the primary and secondary outputs on the STBs is well-defined.		Noted
		GOtv Kenya Ltd	Q17: None Q18: None		Noted
		Pendo TV	Q17. This is okay. We agree with the plan. Q18. We are satisfied with the proposal on STBs as stated		Noted
		Kalokol Radio Broadcasting Ltd/Good News Radio	Q17. This is okay. We agree with the plan. Q18. We are satisfied with the proposal on STBs as stated		Noted

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		Digital Broadcasters association	Q17. This is sufficient as proposed Q18. Consider multiple HDMI		Noted
	<i>After reviewing the whole document, kindly provide any other proposals and recommendations which in your view have not been addressed and which will add value and improve the proposed minimum technical requirements for DVB-T2 receivers</i>	Akili Partners Ltd	Q19: We are pleased that the Communications Authority of Kenya has developed Minimum Technical Requirements for DVB-T2 Receivers for the Kenyan market. We look forward to CA issuing unique LCN numbers for all broadcasters, allowing viewers to become familiar with a specific button number on their remote control for each channel. Access to, and accurate use of, Service Information (SI) is essential for viewers to fully enjoy all the content being broadcast. We would be happy to assist CA in organizing how LCNs should be assigned to broadcasters in Kenya.		Q19: Noted
		GOtv Kenya Ltd	Q19: General comment	We kindly urge the Authority to consider aligning minimum specification to the Nordig IRD specification and simply state that any decoder entering the region	Q19: The Authority considered the NorDig Unified Requirements for Integrated Receiver Decoders for use in cable, satellite, terrestrial and

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				or country should adhere to this base specification while stating any specifications that are country specific.	managed IPTV based networks version 3.2.1
8.		Digital Broadcasters association	Q19. The proposals in the document are comprehensive and well thought and cover the necessary upgrade that are necessary		This is noted