

AVR-X4700H and AVR-X3600H Bench Test Analysis

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July 2020





Summary

Denon Engineering performed the same measurements on the 2019 Model (AVR-X3600H) and 2020 Model (AVR-X4700H) to ensure equal or better measured performance.

For all tests, the measurement data is almost identical between the AVR-X3600H (2019 model) and the AVR-X4700H (2020 model) or the AVR-X4700 (2020 model) measurements are better.

The measurement conditions are explained for each measurement.



OPTION

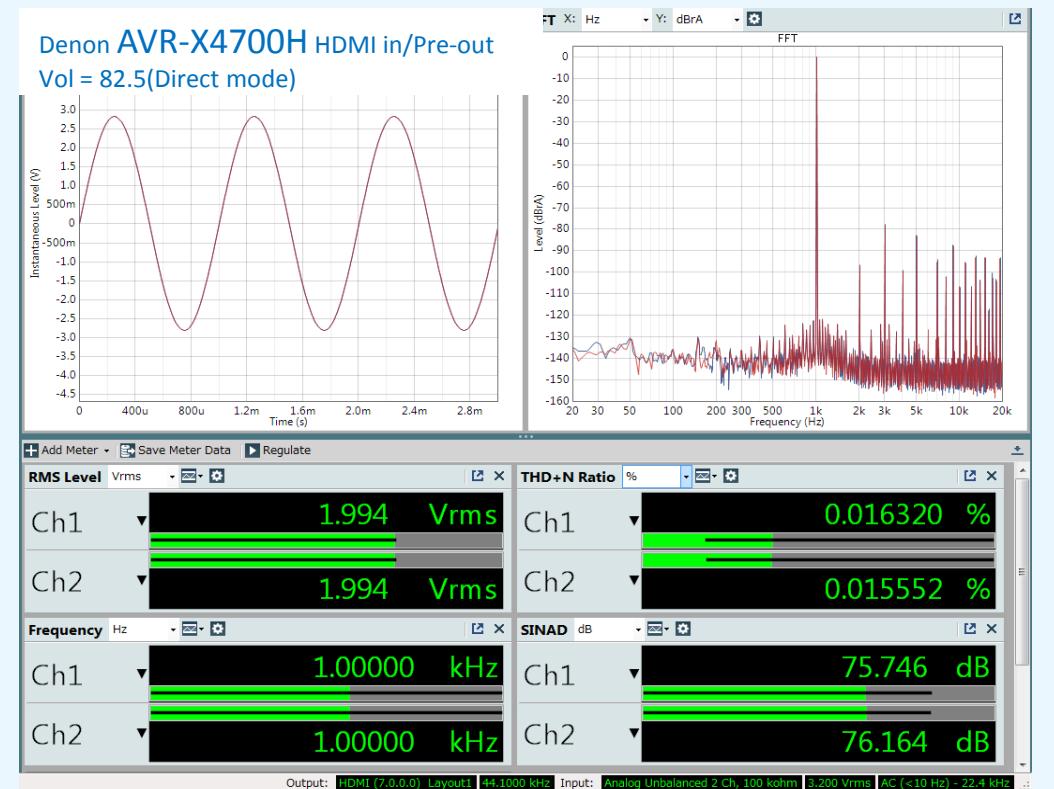
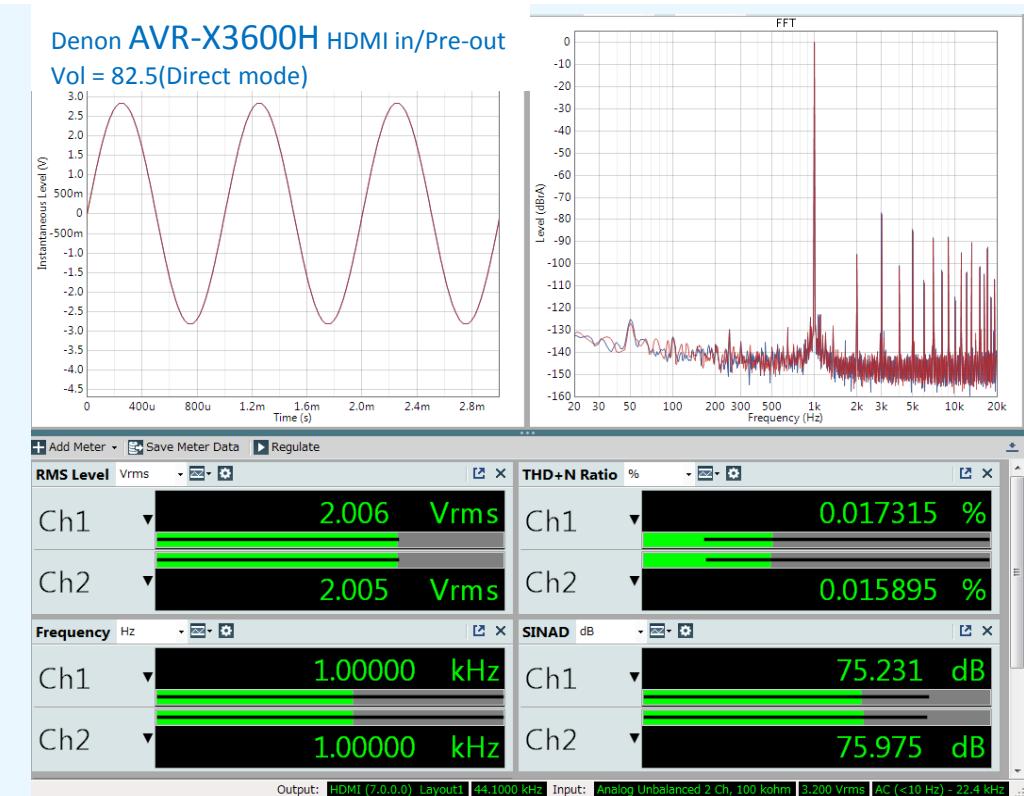
Bench Test Index and Summary

1. FFT & THD+N HDMI In w/ Power Amp
2. FFT & THD+N HDMI In
3. FFT & THD+N Toslink In (AVR-X4700H only)
4. Dynamic Range
5. IMD
6. Jitter
7. Linearity
8. Thirty-two (32) Tone
9. DAC Filter Response
10. THD + N vs Frequency

1. FFT & THD+N HDMI In w/ Power Amp



AVR-X3600H (2019) vs AVR-X4700H (2020) model comparison measurements performed by Denon Engineering



We confirmed the AVR-X4700H performance is as good as the AVR-X3600H.

1. FFT & THD+N HDMI In w/ Power Amp

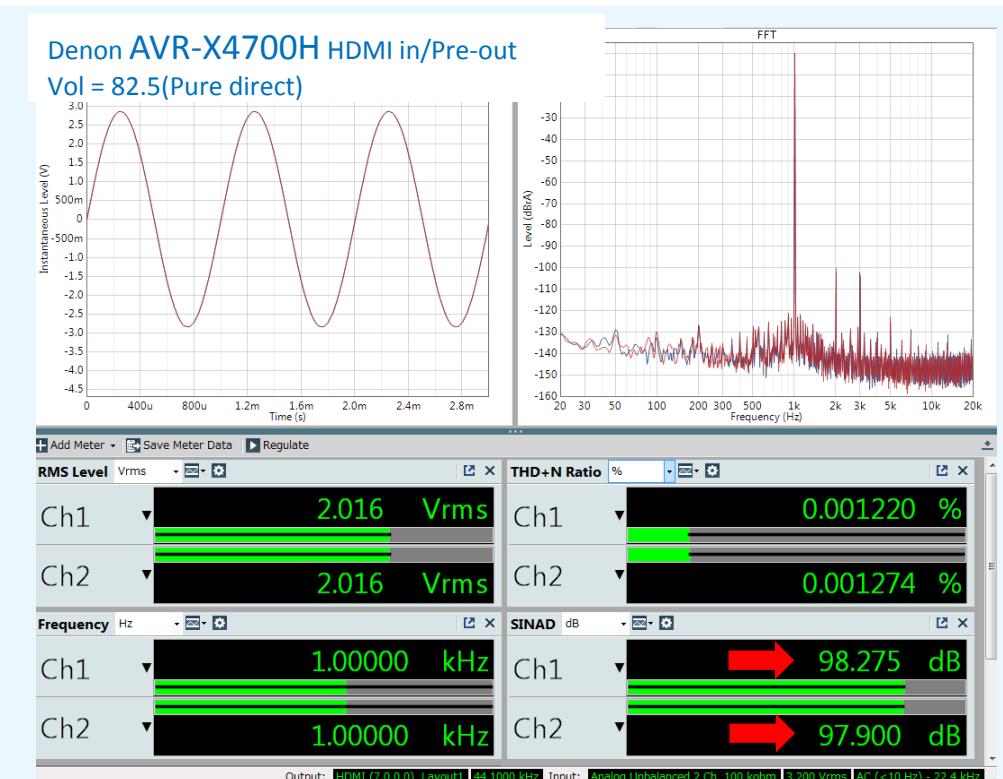
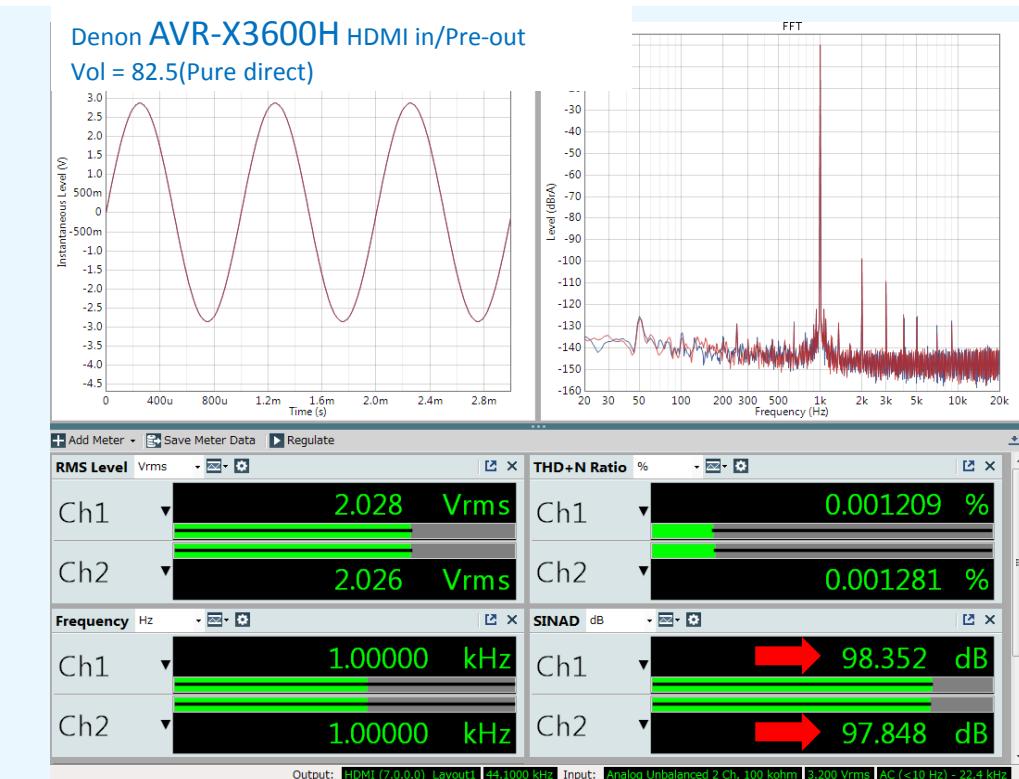


Measurement Conditions

Condition	Setting	
Audio Precision	Type No.	APx582
	AP Test Mode	Bench Mode
AP Output	Terminal	Built-in HDMI terminal on AP (Linear 8ch Layout1)
	Signal	1k Hz Sin Wave
	Output Level	0.0 dBFS
	Sampling Frequency	44.1k Hz
	Bit Width	24 bit
AP Input	Terminal	Analog Unbalanced 2ch
	Input impedance	100k ohm
	Input Level	~ 2 Vrms
Analyzer Setting	High Pass Filter	AC(<10 Hz)
	Low Pass Filter	22.4k Hz
AV Receiver Setting	Mode	Direct mode
	Amp Assign	7.1ch + Zone2
	Input	HDMI
	Output	Pre-Out
	Volume	82.5

2. FFT & THD+N HDMI In

AVR-X3600H (2019) vs AVR-X4700H (2020) model comparison measurements performed by Denon Engineering



We confirmed the AVR-X4700H performance is as good as the AVR-X3600H.

2. FFT & THD+N HDMI In



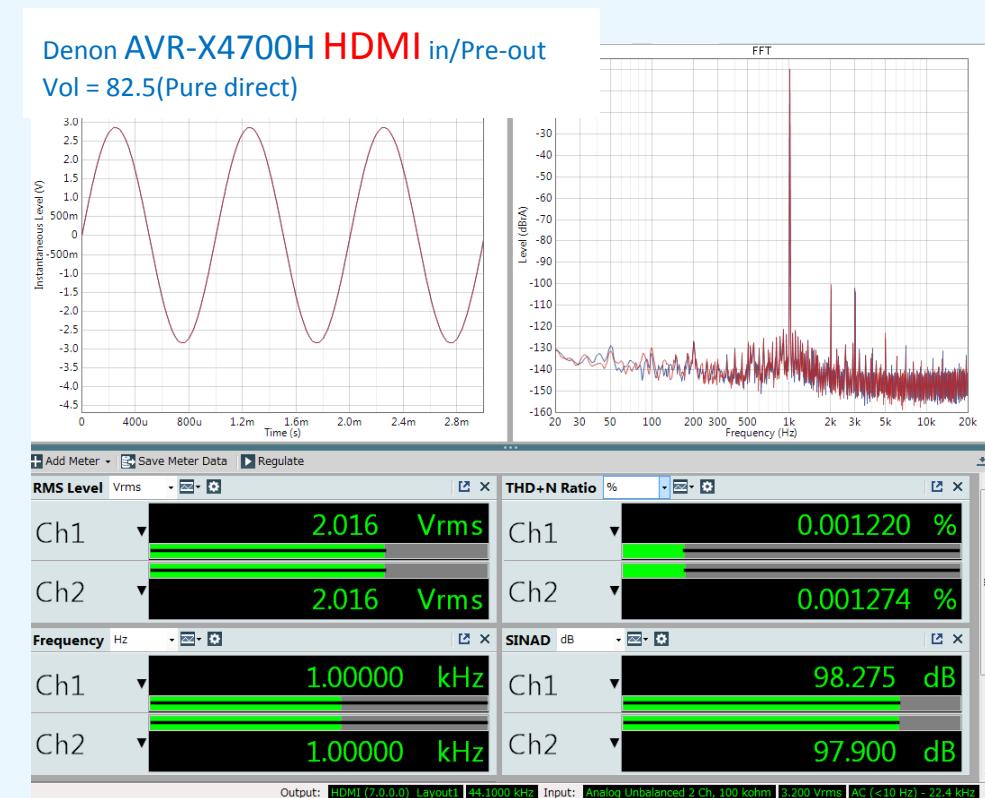
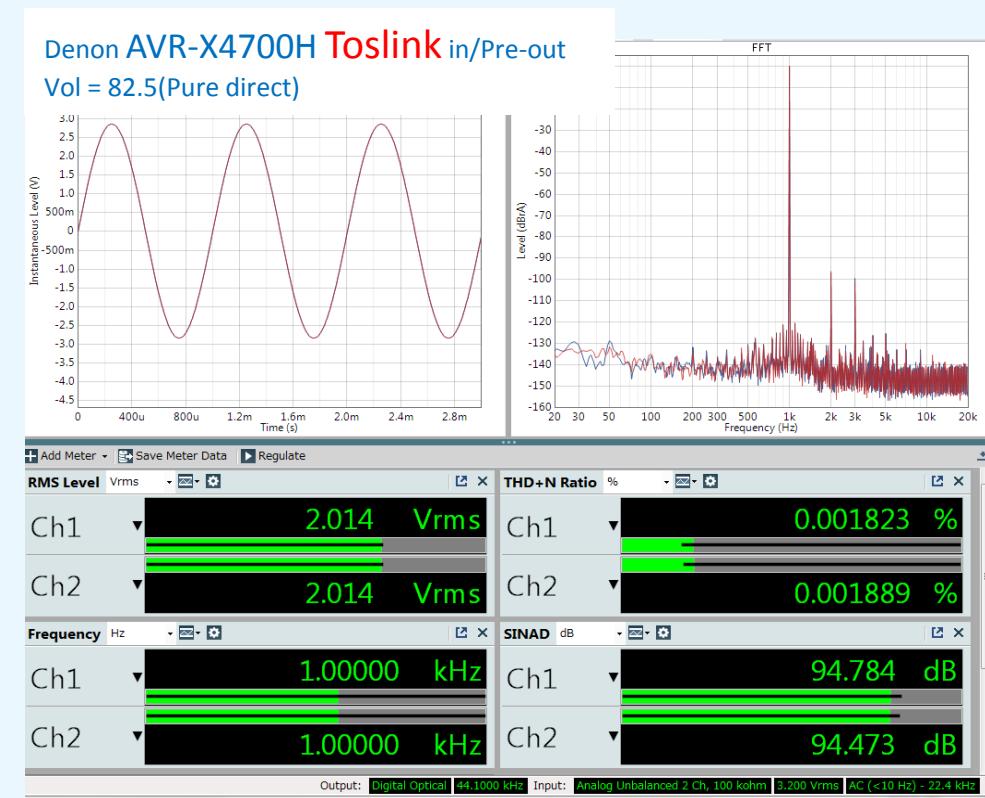
Measurement Conditions

Condition		Setting
Audio Precision	Type No.	APx582
	AP Test Mode	Bench Mode
AP Output	Terminal	Built-in HDMI terminal on AP (Linear 8ch Layout1)
	Signal	1k Hz Sin Wave
	Output Level	0.0 dBFS
	Sampling Frequency	44.1k Hz
	Bit Width	24 bit
AP Input	Terminal	Analog Unbalanced 2ch
	Input impedance	100k ohm
	Input Level	~ 2 Vrms
Analyzer Setting	High Pass Filter	AC(<10 Hz)
	Low Pass Filter	22.4k Hz
AV Receiver Setting	Mode	Pure Direct
	Amp Assign	11.1 ch mode (Pre-out : Front)
	Input	HDMI
	Output	Pre-Out
	Volume	82.5

3. FFT & THD+N Toslink In (AVR-X4700H only)



AVR-X4700H Toslink vs HDMI measurement results comparison performed by Denon Engineering



We compared the results for both Toslink and HDMI. The result of HDMI is **better** than the Toslink result.

3. FFT & THD+N Toslink In (AVR-X4700H only)

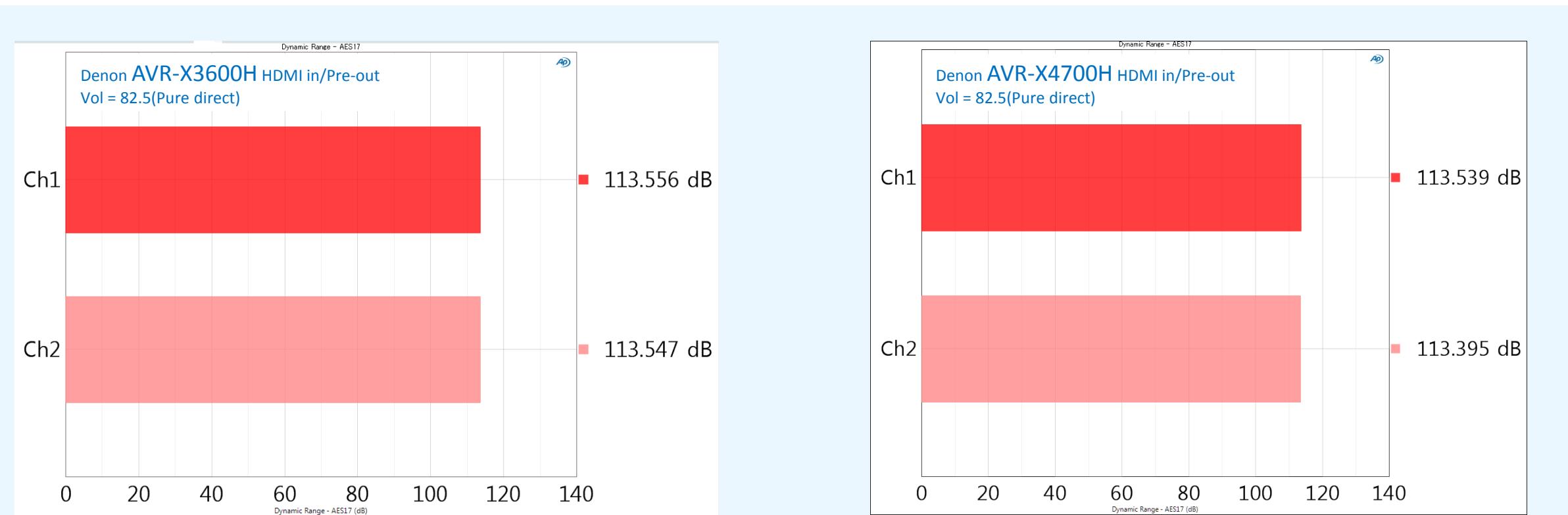


Measurement Conditions

Condition		Setting
Audio Precision	Type No.	APx582
	AP Test Mode	Bench Mode
AP Output	Terminal	Digital Optical (Toslink)
	Signal	1k Hz Sin Wave
	Output Level	0.0 dBFS
	Sampling Frequency	44.1k Hz
	Bit Width	24 bit
AP Input	Terminal	Analog Unbalanced 2ch
	Input impedance	100k ohm
	Input Level	~ 2 Vrms
	Analyzer Setting	High Pass Filter
		AC(<10 Hz)
AV Receiver Setting	Analyzer Setting	Low Pass Filter
		22.4k Hz
	Mode	Pure Direct
	Amp Assign	11.1 ch mode (Pre-out : Front)
	Input	Digital Optical (Toslink)
	Output	Pre-Out
	Volume	82.5

4. Dynamic Range

AVR-X3600H (2019) vs AVR-X4700H (2020) model comparison measurements performed by Denon Engineering



We confirmed the AVR-X4700H performance is as good as the AVR-X3600H.

4. Dynamic Range

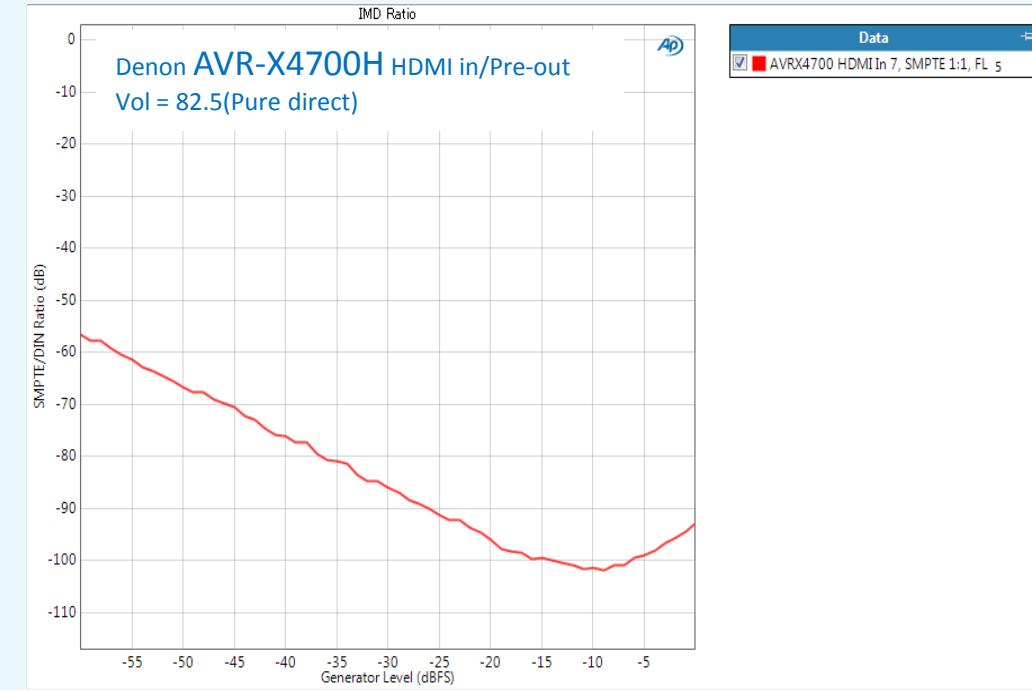
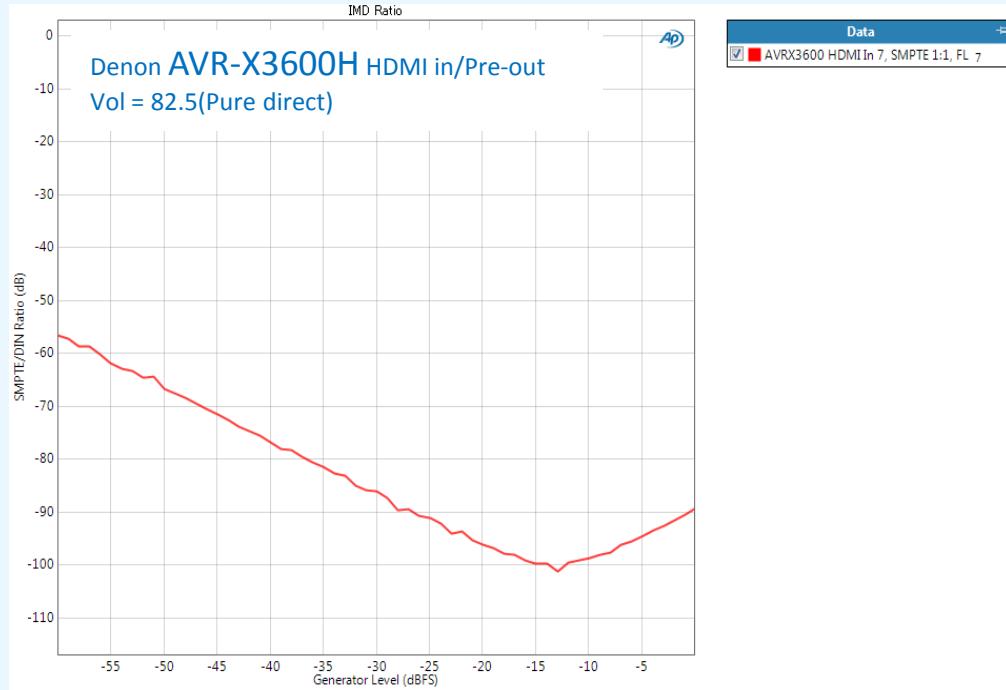


Measurement Conditions

Condition	Setting
Audio Precision	Type No.
	AP Test Mode
AP Output	Terminal
	Signal
AP Input	Output Level
	Sampling Frequency
AV Receiver Setting	Bit Width
	Terminal
Analyzer Setting	Input impedance
	Input Level
High Pass Filter	AC(<10 Hz)
	AES17 (20k Hz LPF + A-wt)
Mode	Pure Direct
	11.1 ch mode (Pre-out : Front)
Amp Assign	Input
	Output
Volume	HDMI
	Pre-Out
Volume	82.5

5. IMD

AVR-X3600H (2019) vs AVR-X4700H (2020) model comparison measurements performed by Denon Engineering



We confirmed that the AVR-X4700H performance is better than the AVR-X3600H.

5. IMD

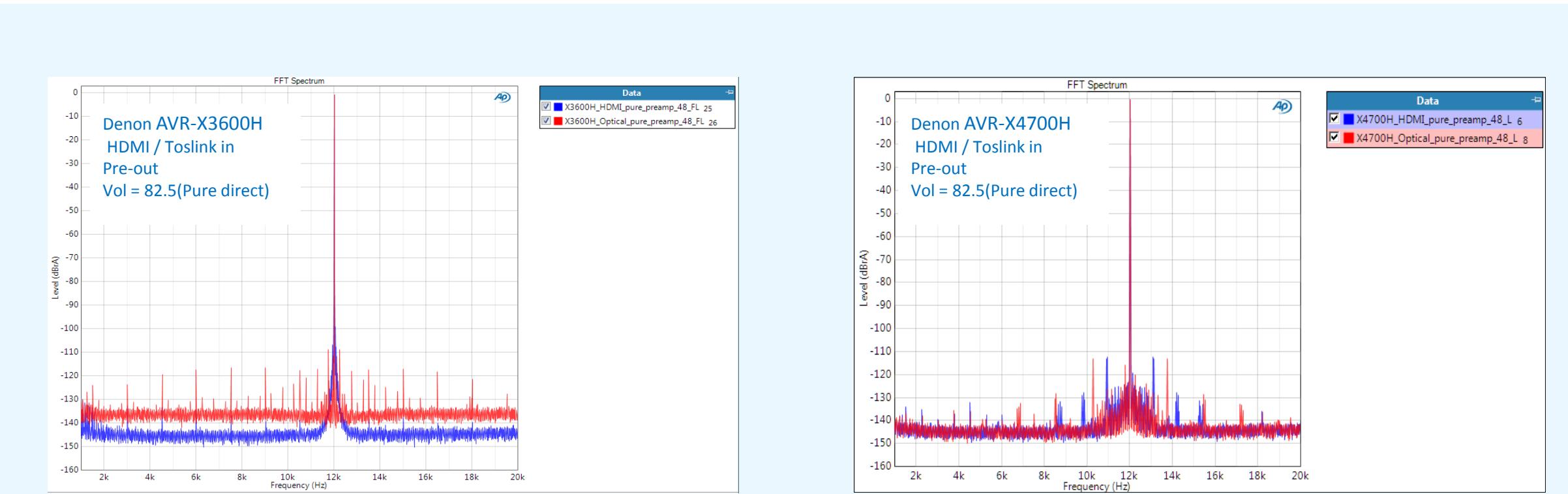


Measurement Conditions

Condition	Setting
Audio Precision	Type No.
	AP Test Mode
AP Output	Terminal
	Signal
	Output Level
	Sampling Frequency
	Bit Width
AP Input	Terminal
	Input impedance
	Input Level
Analyzer Setting	High Pass Filter
	Low Pass Filter
AV Receiver Setting	Mode
	Amp Assign
	Input
	Output
	Volume

6. Jitter

AVR-X3600H (2019) vs AVR-X4700H (2020) model comparison measurements performed by Denon Engineering



We confirmed the AVR-X4700H performance is as good as the AVR-X3600H for HDMI.

The AVR-X4700H performance is better than the AVR-X3600H for Toslink.

6. Jitter

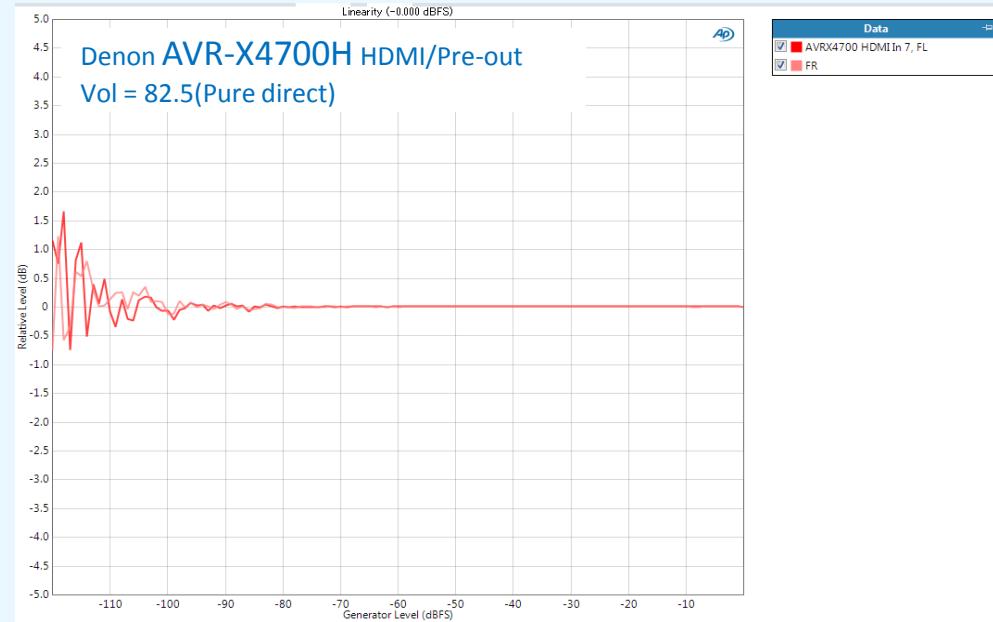
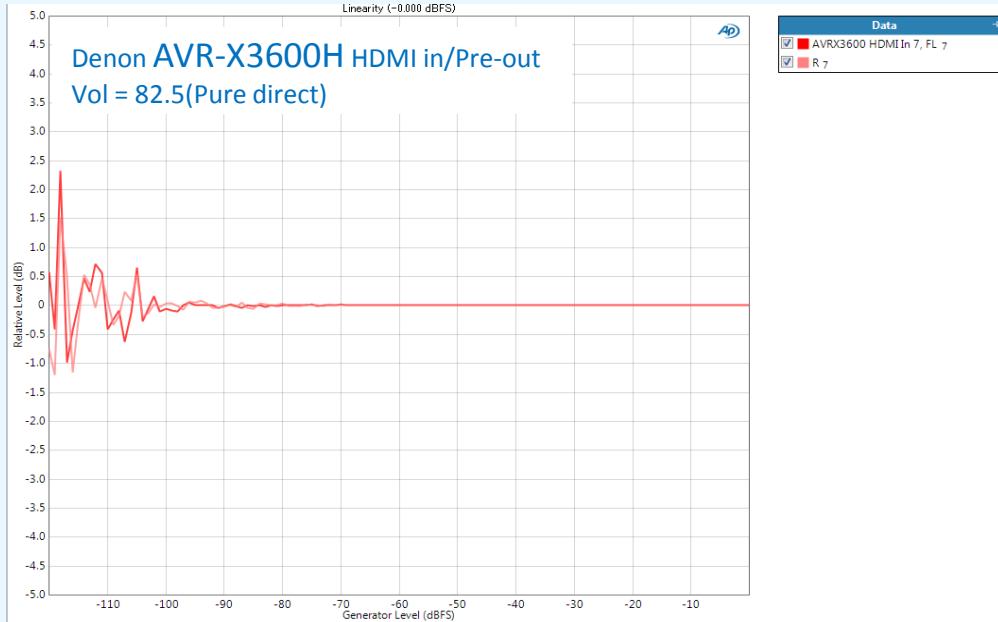


Measurement Conditions

Condition	Setting	
Audio Precision	Type No.	APx582
	AP Test Mode	Bench Mode
AP Output	Terminal	1. Built-in HDMI terminal on AP 2. Digital Optical (Toslink)
	Signal	J-test Signal
	Output Level	0.0 dBFS
	Sampling Frequency	48.0k Hz
	Bit Width	24 bit
AP Input	Terminal	Analog Unbalanced 2ch
	Input impedance	100k ohm
	Input Level	~ 2 Vrms
	High Pass Filter	AC(<10 Hz)
	Low Pass Filter	22.4k Hz
	FFT	256k Point, 16 Averages
	Analyzer Setting	
AV Receiver Setting	Mode	Pure Direct
	Amp Assign	11.1 ch mode (Pre-out : Front)
	Input	1. HDMI 2. Digital Optical (Toslink)
	Output	Pre-Out
	Volume	82.5

7. Linearity

AVR-X3600H (2019) vs AVR-X4700H (2020) model comparison measurements performed by Denon Engineering



We confirmed the AVR-X4700H performance is as good as the AVR-X3600H.

7. Linearity

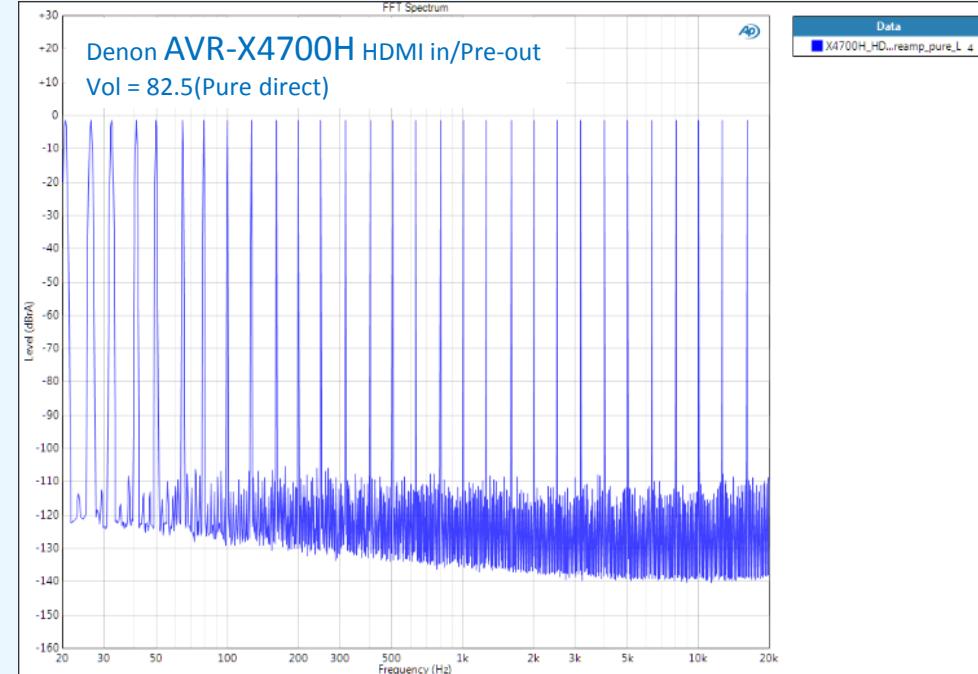
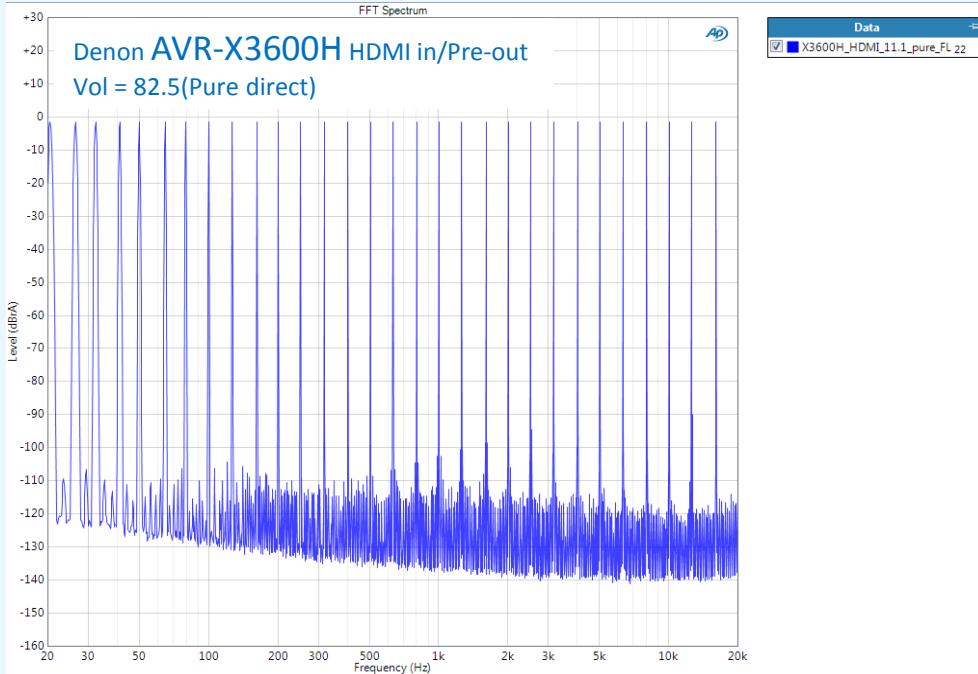


Measurement Conditions

Condition	Setting
Audio Precision	Type No.
	APx582
AP Output	AP Test Mode
	Sequence Mode
	Bandpass Level Sweep
	Linearity (-0.000 dBFS)
	Terminal
AP Input	Built-in HDMI terminal on AP (Linear 8ch Layout1)
	Signal
	1k Hz Sin Wave
	Output Level
	0.0 dBFS to -120.0 dBFS
AV Receiver Setting	Sampling Frequency
	44.1k Hz
	Bit Width
	24 bit
	Terminal
Analyzer Setting	Analog Unbalanced 2ch
	Input impedance
	100k ohm
	Input Level
	0dBFS Ref. = 2 Vrms
AV Receiver Setting	High Pass Filter
	AC(<10 Hz)
	Low Pass Filter
	22.4k Hz
	Bandpass Filter (1k Hz)
AV Receiver Setting	Mode
	Pure Direct
	Amp Assign
	11.1 ch mode (Pre-out : Front)
	Input
AV Receiver Setting	HDMI
	Output
AV Receiver Setting	Pre-Out
	Volume
AV Receiver Setting	82.5

8. Thirty-two (32) Tone

AVR-X3600H (2019) vs AVR-X4700H (2020) model comparison measurements performed by Denon Engineering



We confirmed the AVR-X4700H performance is as good as the AVR-X3600H.

8. Thirty-two (32) Tone

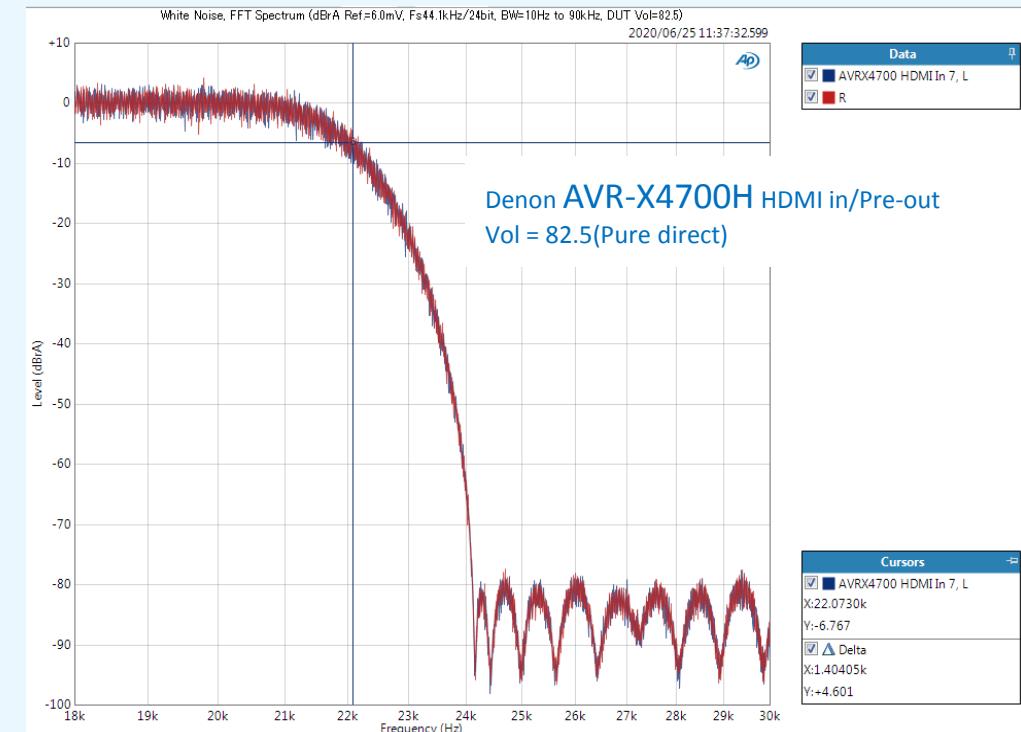
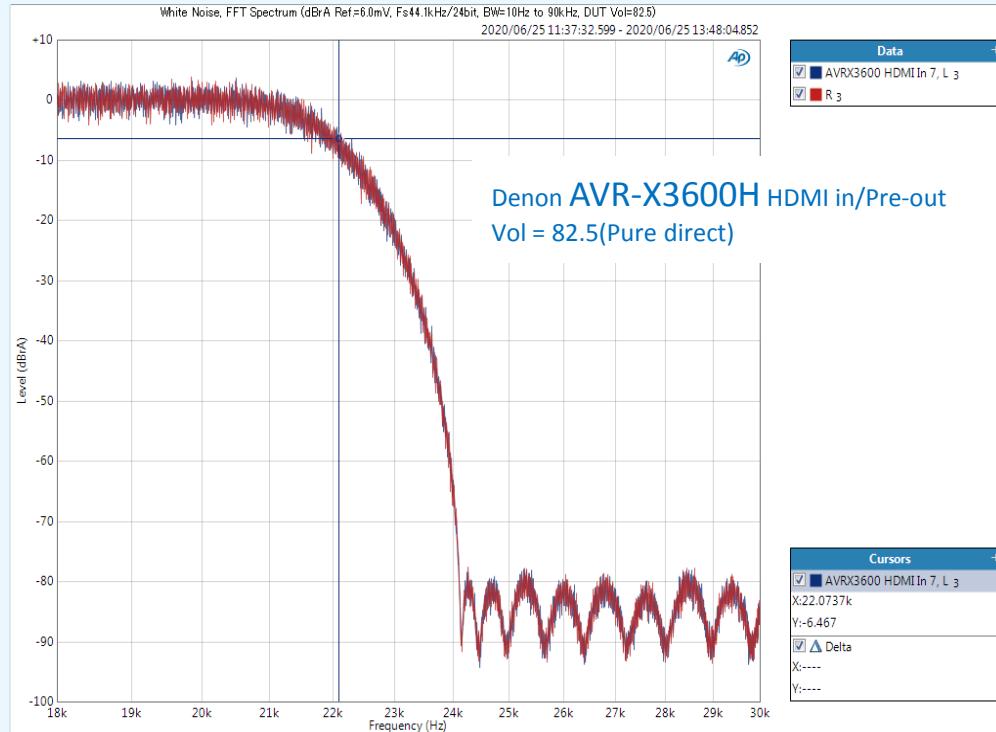


Measurement Conditions

Condition	Setting
Audio Precision	Type No. APx582
	AP Test Mode Bench Mode FFT Spectrum
AP Output	Terminal Built-in HDMI terminal on AP (Linear 8ch Layout1)
	Signal APx 32-tone
	Output Level 0.0 dBFS
	Sampling Frequency 192.0k Hz
	Bit Width 24 bit
AP Input	Terminal Analog Unbalanced 2ch
	Input impedance 100k ohm
	Input Level 0dBFS Ref. = 2 Vrms
	Analyzer Setting High Pass Filter AC(<10 Hz)
	Low Pass Filter 22.4k Hz
AV Receiver Setting	FFT 256k Point, 16 Averages
	Mode Pure Direct
	Amp Assign 11.1 ch mode (Pre-out : Front)
	Input HDMI
	Output Pre-Out
	Volume 82.5

9. DAC Filter Response

AVR-X3600H (2019) vs AVR-X4700H (2020) model comparison measurements performed by Denon Engineering



We confirmed the AVR-X4700H performance is as good as the AVR-X3600H.

9. DAC Filter Response

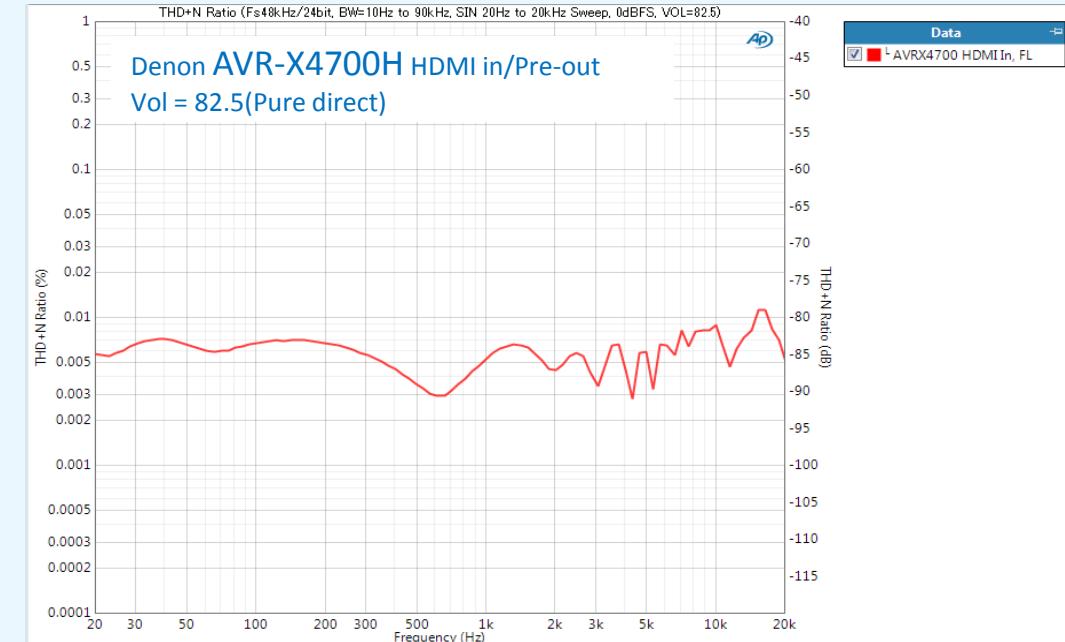
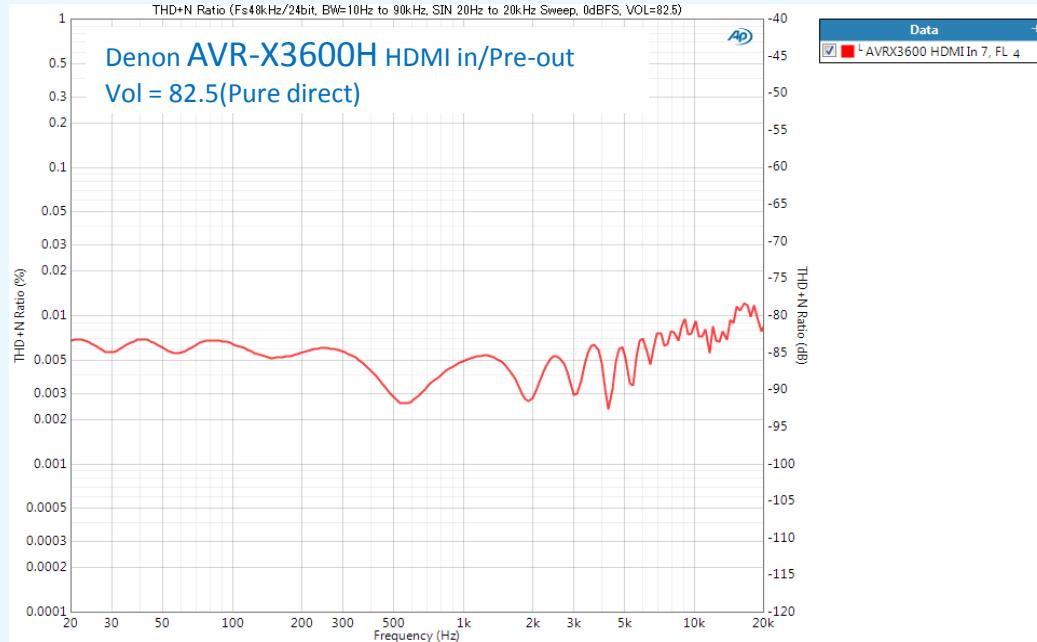


Measurement Conditions

Condition	Setting
Audio Precision	Type No.
	AP Test Mode
AP Output	Terminal
	Signal
	Output Level
	Sampling Frequency
	Bit Width
AP Input	Terminal
	Input impedance
	Input Level
	High Pass Filter
	Low Pass Filter
AV Receiver Setting	FFT
	Mode
	Amp Assign
	Input
	Output
	Volume

10. THD + N vs Frequency

2019 vs 2020 model comparison measurements performed by Denon Engineering



We confirmed the AVR-X4700H performance is as good as the AVR-X3600H.

10. THD + N vs Frequency



Measurement Conditions

Condition	Setting
Audio Precision	Type No.
	APx582
AP Output	AP Test Mode
	Bench Mode
	Frequency Sweep
	Terminal
	Built-in HDMI terminal on AP (Linear 8ch Layout1)
AP Input	Signal
	20 Hz to 20k Hz Sin Wave
	Output Level
	0.0 dBFS
	Sampling Frequency
AV Receiver Setting	48k Hz
	Bit Width
	24 bit
	Terminal
	Analog Unbalanced 2ch
Analyzer Setting	Input impedance
	100k ohm
	Input Level
	0dBFS Ref. = 2 Vrms
	High Pass Filter
	AC(<10 Hz)
	Low Pass Filter
	90k Hz
	Mode
	Pure Direct
	Amp Assign
	11.1 ch mode
	(Pre-out : Front)
	Input
	HDMI
	Output
	Pre-Out
	Volume
	82.5



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