

# aacPlus Decoder Check Package

v2.0

by Coding Technologies

1. Scope .....	3
2. Usage in a Nutshell.....	3
3. The aacPlus test files.....	4
Bitstream properties .....	4
The Audio signal.....	5
Decoder Behaviour.....	6
4. Result tracking and feedback .....	6

# 1. Scope

There are many mobile phones, embedded devices and PC music players that are able to play aacPlus content. Seeing that there are many outside variables that can limit functionality and affect audio quality, we have therefore created this Decoder Check Package that will enable users to assess their decoders/players by simply listening to a few aacPlus files.

In order to perform the test we kindly ask you to read at least the few lines of the chapter "Usage in a Nutshell".

Some more background information is provided in the subsequent chapters.

## 2. Usage in a Nutshell

1. Copy all files from the folder "bitstreams" to your music player, phone etc.

2. Open the Feedback Form on our website:

<http://www.codingtechnologies.com/cgi-bin/feedback.pl>

Please enter at least the mandatory contact information and the name of the music player that you want to test. Feel free to use the comment field as well. Make sure that your PC is connected to speakers and volume is sufficient!

3. Play back File1.aac (the one you copied in step 1.) with your music player. Mark the referring checkbox square in the Feedback Form and compare the sound of your player with each of the following three reference sounds:

[AAC](#)

[aacPlus.v1](#)

[aacPlus.v2](#)

Mark the radio button that comes closest to what you were hearing from your music player - AAC, aacPlus v1 or aacPlus v2. If your player does not play the file mark the 'Doesn't play' radio button. In addition, check if the player displays the meta-data (more info on page 4) correctly and mark the checkbox if it does so. Proceed accordingly with the other files.

4. When you are done with all files, press the "Submit" button. Now your Form will be evaluated and the results are sent to you and our development team. If desired, Coding Technologies' development team will give feedback to your submission and answer open questions.

Thank you for taking the time to support us!

### 3. The aacPlus test files

#### Bitstream properties

The aacPlus test files which are located in the “bitstreams” folder were especially designed to answer the following questions:

1. Which format is supported: AAC, aacPlus v1, aacPlus v2 or none of those ?
2. Which file formats (container formats) are supported ?
3. Which kind of meta-data can be displayed ?

All the test files are encoded in the aacPlus v2 format and contain meta-data. All the files differ in their file/container format. The following table gives an overview about the properties of all test files.

Filename	File Format	SBR signalling	PS signalling	Meta-data
File1.aac	ADTS	implicit	implicit	ID3v2 tags
File2.m4a	MP4 / M4A File Format	implicit	Implicit	iTunes compatible meta-data
File3.m4a	MP4 / M4A File Format	Explicit backward compatible	Implicit	iTunes compatible meta-data
File4.m4a	MP4 / M4A File Format	Explicit backward compatible	Explicit backward compatible	iTunes compatible meta-data
File5.m4a	MP4 / M4A File Format	Implicit	Explicit non-backw. compatible	iTunes compatible meta-data
File6.3gp	3GPP File Format	Explicit backward compatible	Implicit	3GPP Asset Information
File7.3gp	3GPP File Format	Explicit non-backw. compatible	implicit	3GPP Asset Information

All test files contain meta-data in different flavours (see the table above). The following meta-data tags are present in all test files:

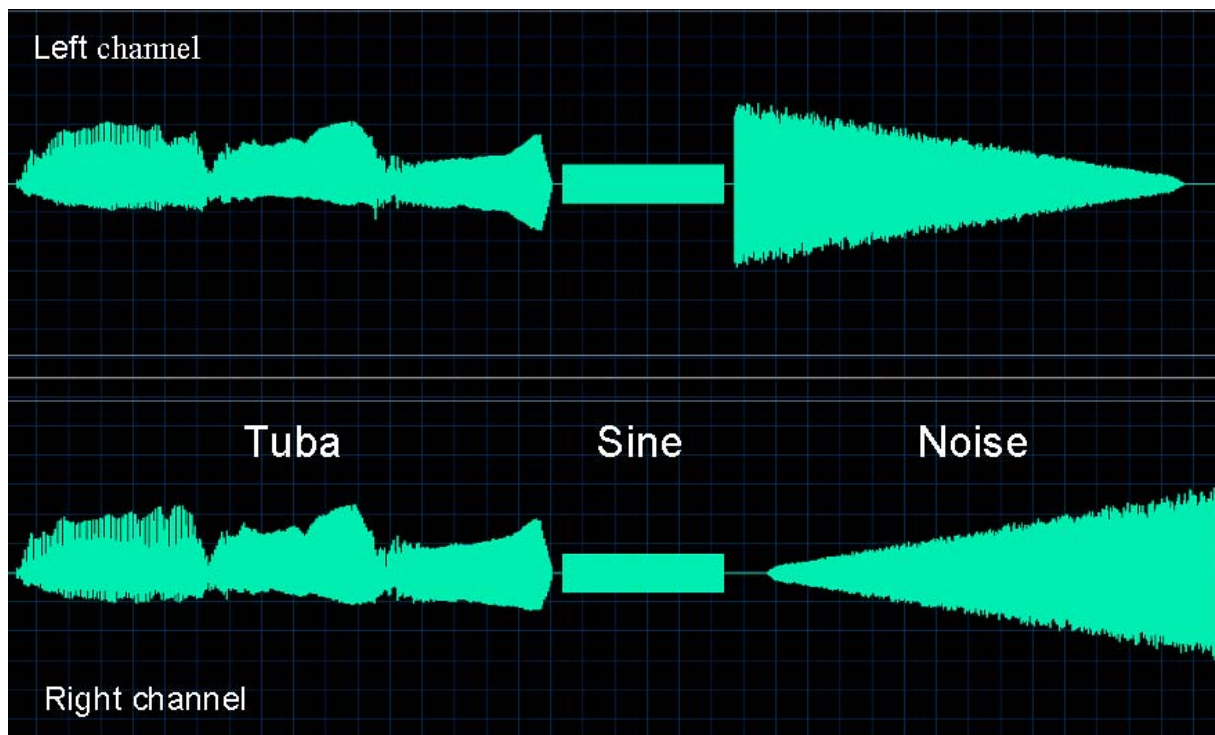
- **Title:** “The \$num file” (where \$num is the number of the corresponding file)
- **Album:** "aacPlus Decoder Check"
- **Artist:** "Coding Technologies"
- **Year:** “2007”

## The Audio signal

The audio signal that was used to generate the aacPlus test files consists of three parts:

- An Instrument (tuba)
- A high frequency tone (sine of 3kHz frequency)
- Noise (white noise)

The following plot shows the original signal that was used for encoding:



The signal has 2 channels. The tuba and the sine are identical for both channels, but the noise pans over from the left to the right channel.

The aacPlus v2 encoder used the AAC, SBR (Spectral Band Replication) and PS (Parametric Stereo) tools to encode the files. Thus all aacPlus v2 test bitstreams contain the following data:

- An AAC portion that covers a mono signal (a downmix of the 2 input channels) up to frequencies of 2.7 kHz.
- An SBR portion which covers the high frequencies of the downmixed mono signal
- PS data which describes the stereo image of the input signal

When one plays such an aacPlus v2 bitstream it depends on the capabilities of the decoder how the output sounds. The following paragraphs describe which sound a specific decoder will output.

## Decoder Behaviour

### aacPlus v2 decoder

An aacPlus v2 decoder is the most powerful one. It supports AAC decoding as well as SBR and PS decoding. So it will play the sound in the best quality. You will clearly hear the tuba, the sine and the noise panning from the left to the right speaker. → [Listen](#)

### aacPlus v1 decoder

In contrast to an aacPlus v2 decoder the aacPlus v1 decoder has no PS tool. That means that it cannot reconstruct the stereo image from an aacPlus v2 bitstream. The consequence is that the output will be mono. The mono sound will most likely play on both channels (left and right channels are equal) but may in rare cases also appear only on the left channel (depending on the music player).

You'll hear the tuba, the sine which are mono. In contrast to the aacPlus v2 decoder the noise will NOT pan from left to right, but will be mono as well. → [Listen](#)

### AAC decoder

The AAC decoder does neither support the PS nor the SBR tool. That means that an AAC decoder is not able to reproduce the high frequencies of an aacPlus v1/v2 bitstream. In our case that means that the AAC decoder does only play the pure AAC portion of the aacPlus v2 bitstream. So one will only hear a mono sound with frequencies up to 2.7 kHz.

You'll hear the tuba as hitherto, but you'll NOT hear the sine anymore. In addition the noise sounds really dull and is mono. → [Listen](#)

### Decoder Overview

	AAC decoder	aacPlus v1 decoder	aacPlus v2 decoder
Tuba	mono	mono	mono
Sine	<b>NOT audible</b>	<b>audible</b>	audible
Noise	mono and dull	<b>mono</b>	<b>panning from left to right channel</b>

## 4. Result tracking and feedback

Coding Technologies provides a feedback form that allows you to easily track your results even during the testing phase.

It can be accessed at: <http://www.codingtechnologies.com/cgi-bin/feedback.pl>

After submission of the test data to our server, an email containing the test results will be sent to you and our development team immediately.

All your contact information will be kept confidential.